Planning Commission

Larry Fox, Chairperson
Michael Mitchell, Vice-Chairperson
Tom Murphy, Secretary
Summer L. McMullen, Trustee
Sue Grissim, Commissioner
Jim Mayer, Commissioner
Matthew Eckman, Commissioner

Planning Commission Meeting Agenda
Hartland Township Hall
Thursday, July 24, 2025
7:00 PM

1. Call to Order
2. Pledge of Allegiance
3. Roll Call
4. Approval of the Agenda
5. Approval of Meeting Minutes
   a. Planning Commission Minutes of July 10, 2025
6. Call to Public
7. Old and New Business
   a. Site Plan/PD Application #25-008 – Highland Reserve Planned Development (PD) Second Amendment to the approved Preliminary PD Site Plan (SP/PD #23-008) and Second Amendment to the Highland Reserve Planned Development Agreement (SP/PD #24-006 Final PD)
   b. Site Plan Application #25-009 - Proposed LOC Credit Union with drive-through service at Shops at Waldenwoods PD
8. Public Hearing
   a. Site Plan/PD Application #25-012 Urban Air Adventure Park PD Preliminary Planned Development Site Plan
9. Call to Public
10. Planner's Report
11. Committee Reports
12. Adjournment

HARTLAND TOWNSHIP PLANNING COMMISSION DRAFT MEETING MINUTES

JULY 10, 2025– 7:00 PM

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1. **Call to Order: Chair Fox called the meeting to order at 7:00 p.m.**

2. **Pledge of Allegiance:**

3. **Roll Call and Recognition of Visitors:**
   Present – Commissioners Eckman, Fox, Grissim, Mayer, McMullen (7:15 p.m.) Mitchell, and Murphy
   Absent – None

4. **Approval of the Meeting Agenda:**
   A Motion to approve the July 10, 2025, Planning Commission Meeting Agenda was made by Commissioner Grissom and seconded by Commissioner Murphy. Motion carried unanimously.

5. **Approval of Meeting Minutes:**
   a. Planning Commission Regular Meeting Minutes of June 12, 2025.
   A Motion to approve the Planning Commission Regular Meeting Minutes of June 12, 2025, was made by Commissioner Mitchell and seconded by Commissioner Grissim. Motion carried unanimously.

6. **Call to the Public:**
   None

7. **Public Hearing**
   a. Site Plan with Special Land Use Application #25-007 (Automobile Repair – Minor) at 9990 Highland Road

   Chair Fox explained the process and opened the Public Hearing at 7:03 PM stating all public notice requirements have been met.

   Director Langer stated the following:
   - Gave an overview of the location of the project.
   - West on M-59, west of Old US 23, just past the shared entrance to Charyl Stockwell Academy.
   - Zoned General Commercial (GC).
   - Owned by LaFontaine for a number of years.
   - The Applicant is proposing to purchase the property and use it for minor automotive repairs.
   - Major repairs would include a body shop, automotive painting; minor repairs would include oil changes, mufflers, tire replacement, items related to the mechanical maintenance of a car.
   - Automotive Repair – Minor, is permitted in GC by Special Land Use Permit (SUP).
   - An SUP requires a Public Hearing with a recommendation from the Planning Commission with final approval from the Township Board. The Planning Commission will approve the Site Plan portion of the request.

The Applicant, Joesph Mazure, stated the they operate this type of business in other areas and feel this is an area with a need.

Call to the Public
None

Chair Fox closed the Public Hearing at 7:07 PM.

Chair Fox referred to the staff memorandum dated July 3, 2025.

SPECIAL LAND USE REVIEW – General Standards
Chair Fox stated the Applicant provided a written response and the Planning Staff also believes they meet that criteria.

SPECIAL LAND USE REVIEW – Applicable Site Standards

Layout
Director Langer referred to the site plan and described the layout. The Applicant is not proposing any changes to the building at this time. The Applicant has designated certain portions of the parking lot for various uses.

Outdoor Display
Chair Fox stated none is permitted and the Applicant has been made aware.

Outdoor Storage
Chair Fox stated the Applicant is aware of the requirements.

Screening
Chair Fox stated this would be discussed under Landscaping.

Ground Water Protection
Chair Fox stated a Pollution Incidence Protection Plan (PIPP) is required and the Applicant is aware.

SITE PLAN REVIEW – Applicable Site Standards

Off-Street Parking (Sec. 5.8.4.H – Automobile Repair – Minor)
Director Langer stated the following**:**

- Large parking area but previous uses did not designate parking spaces, there is no striping.
- In speaking with the Applicant, using information from other locations, staff feels there is enough parking.
- The Applicant will need to submit a Parking Plan with the Land Use Permit.

Commissioner Grissim asked if the Applicant is aware of the end cap requirements for parking. The Applicant confirmed they are and will submit a Parking Plan detailing those items.

Barrier-Free Parking
Chair Fox stated this will be part of the Parking Plan. Five barrier-free spaces seems like a lot. Director Langer stated it is a ratio based on the total number of parking spaces. Staff is using 105

parking spaces for that calculation. They will work with the Applicant. They are generally supposed to be close to the entrance of the building.

Landscaping and Screening (Sec. 5.11)
Director Langer stated the following:

- The Applicant noted he intended to keep the existing landscaping intact.
- Consensus of the Site Plan Review Committee was that the three (3) existing parking pads along the north side of the parking lot should be removed,
- An evergreen hedge row should be installed along the north side of the parking area, using three-foot tall yews and the applicable Ordinance standards for parking lot screening.
- Revised Landscape Plan to be submitted along with the Land Use Permit.

Commissioner Grissim stated the area along the Charyl Stockwell access will need something too, she will work with the Applicant.

Water Supply and Wastewater Disposal (Sec. 5.16)
Chair Fox stated the site is served by municipal water and sanitary sewer.

Commissioner Mayer confirmed the Applicant will move the dumpster behind the building. The Applicant concurred. Commissioner Mayer asked about the dumpster enclosure. The Applicant stated he intends to comply with the Ordinance but would like to get the business up and running first. He anticipates coming back to the Planning Commission for a building addition in the near future and would like to do the dumpster enclosure at that time. Commissioner Mayer asked if part of this business will be Used Car Sales. The Applicant stated it will not.

Commissioner Eckman offered the following Motion:

Move to recommend approval of Special Land Use Permit and approve Site Plan Application #25-007, a request to establish an Automobile Repair (Minor) facility in an existing building at 9990 Highland Road in Section 29 of the Township (Tax Parcel ID #4708-29-200-017) as outlined in the staff report dated July 3, 2025.

The recommendation for approval is based on the following findings:

1. **The proposed special land use, Automobile Repair (Minor) meets the intent and purposes of the Ordinance as well as the specific standards outlined in Section 6.6 (Special Uses).**

2. **The proposed special land use is permitted in the GC (General Commercial) zoning district, as outlined in Section 3.1.14.D.xix, and the proposed use is compatible with the existing uses in the vicinity.**

3. **The proposed use will be served by public water and sanitary sewer, by existing essential facilities and public services, and the Hartland Deerfield Fire Authority has no objection.**

4. **The proposed use will be served by private shared driveway with direct access to Highland Road.**

5. **The proposed use will not create additional requirements at public cost for public facilities as the proposed site will be served by public water and sanitary sewer.**

Approval is subject to the following conditions:

1. **The proposed special land use, Automobile Repair (Minor), is subject to approval by the Township Board.**

2. **The applicant shall adequately address the outstanding items noted in the Planning Department's memorandum, dated July 3, 2025, on the plans submitted with a land use permit application, subject to an administrative review by the Planning staff prior to the issuance of a land use permit.**

3. **A land use permit is required after approval of the Site Plan and Special Use Permit.**

4. **Applicant complies with any requirements of the Department of Public Works Director, Township Engineering Consultant (SDA), Hartland Deerfield Fire Authority, and all other government agencies, as applicable.**

Seconded by Commissioner Grissim. Motion carried unanimously.

8. **Old and New Business**

a. Site Plan Application SP/PD #25-010 Highland Road Self Storage Planned Development Final Plan

Director Langer stated the following:

- Gave an overview of the location of the project.
- Vacant lot located West of US 23, North of M-59 between Arby's and Best Western.
- Applicant has requested and Planned Development (PD) for a climate controlled self-storage facility.
- Approval of a Planned Development is a three-step process. A Concept Plan, Preliminary Plan, and Final Plan are all reviewed by the Planning Commission and the Township Board, with the Planning Commission making a recommendation and the Board having final approval at each step.
- This is the Final PD Approval step which is ultimately a rezoning of the property from GC to PD and involves the review of the legal documents.
- Tonight, the Planning Commission will offer a recommendation, and the request will go to the Township Board for final approval.

Easements
Chair Fox stated the Applicant is working on them and agrees they are needed. The Applicant, Joe Qonja, stated they are trying to come to an agreement with Arby's, the only parcel not under his family's control. If one cannot be reached, they will continue to maintain the easement as they have done in the past.

Planned Unit Development Agreement
The Planning Commission made no comments.

Rezoning of the Subject Property
The Planning Commission had no comments or questions.

Commissioner Mitchell offered the following Motion:

Move to recommend approval of Site Plan Application #25-010, the Final Planned Development Site Plan for Highland Road Self Storage Planned Development as outlined in the staff memorandum dated July 3, 2025.

Approval is subject to the following conditions:

1. **The Final Planned Development Site Plan for the Highland Road Self Storage Planned Development, SP/PD Application #25-010, is subject to the approval of the Township Board.**

2. **Final approval of the Highland Road Self Storage Planned Development (SP/PD Application #25-010) shall require an amendment to the Zoning Ordinance to revise the zoning map and designate the subject property as PD (Planned Development). The subject property, which constitutes the planned development project area (approximately 1.21 acres), and which is to be rezoned to PD, is as follows:**

    a. **Tax Parcel ID #4708-21-300-039 (approximately 1.21 acres in area); currently zoned GC (General Commercial)**

3. **Waiver request for the planned development project area to be less than 20 acres is approved.**

4. **Waiver request for the building height to exceed 35 feet is approved.**

5. **Waiver request for one (1) wall sign on a side of the building that is not the building wall's primary entrance (south elevation) is approved.**

6. **The applicant shall adequately address the outstanding items noted in the Planning Department's memorandum, dated July 3, 2025, on the Construction Plan Set, subject to an administrative review by Planning staff prior to the issuance of a land use permit.**

7. **As part of the Final Plan Review, the applicant shall provide a Planned Development (PD) Agreement that includes any access and maintenance agreements. The documents shall be in a recordable format and shall comply with the requirements of the Township Attorney.**

8. **Applicant complies with any requirements of the Township Engineering Consultant, Department of Public Works Director, Hartland Deerfield Fire Authority, and all other government agencies, as applicable.**

Seconded by Commissioner Mayer. Motion carried unanimously.

b. Site Plan Application SP/PD #25-011 Urban Air Adventure Park Planned Development Concept Plan

Director Langer stated the following:

- Gave an overview of the location of the project.
- South of M-59, west of US-23, and east of Old US-23, accessed from Old US 23.

- Tonight is the Planned Development Conceptual Review; the Planning Commission will offer comments only, no recommendation.
- Proposing a 38,400 square foot indoor adventure park for children.
- There are other facilities in southeast Michigan.
- Eastern portion of the site contains a wetland which they are avoiding.
- Have an easement for access and to connect their parking area to the property to the west.
- Colors displayed on the elevations are to show percentages of building materials, not indicative of the proposed colors of materials.

The Applicant, Nathanael Sumner, and Kevin Johnson, President and CEO of Rhodes & Johnson; introduced themselves and stated the following:

- Chose Hartland because of its location, they have family here, they know and like the area.
- Area can use an indoor place for children to be active and get off of their tablets.
- Location is excellent for visibility from US 23.
- Local builder in Fenton, prepared the elevations, glad to be part of this project.

Proposed Concept Plan

General

Chair Fox stated the following:

- Proposing a 38,400 square-foot building.
- 700 to 900 occupants.
- General Commercial (GC) zoned parcel.
- Minimum acreage for a Planned Development (PD) is 20 acres, there are many in the community that are smaller.
- Showing 164 parking spaces.
- Slightly over the 35-foot height limit, 36.5 feet. There are others that have exceeded that limit.

Chair Fox asked about building materials. The Applicant stated the following:

- Masonry with wood veneer panels to break up the façade so it does not look like a warehouse.
- Seamed metal panel system and smooth metal panel system to create interest and color.
- Entry is glass (windows on east elevation and at main entrance) to add some light.

Chair Fox asked if the Planning Commission approves the four large silhouettes of children on the building. Commissioner Eckman asked if they would be considered signage.

Director Langer stated the following:

- This is a gray area, discussed at length during the Site Plan Review (SPR) process.
- Architect was present for the Site Plan Review Committee meeting and stated these are not necessarily an Urban Air design feature, but were proposed to add a youthful, kids activity look and feel. They are intended to be illuminated from behind.
- Standard zoning might not permit them but if they utilized the Planned Development approval process, those items are left to the discretion of the Planning Commission and the Township Board as part of the give and take in the PD process.

Commissioner Mitchell stated he was in the SPR meeting and does not view the silhouettes as signage. He supports that design element.

The Planning Commission briefly discussed the silhouettes.

- Concerned about setting a precedent.
- Had to use the PD process, that element would not be permitted otherwise.
- Silhouettes are an artistic way to differentiate the building from a warehouse.
- PDs are "give and get." It is a big "get" to have a facility like this in Hartland, and a small "give" on the part of the Township.
- Planning Director was concerned as he views them as signs but will support whatever the Planning Commission decides.
- Looking at the project as a whole package.
- Silhouettes will be backlit.
- Urban Air typically utilizes existing buildings.
- This store will be a flagship store for this brand, a dedicated spot designed for this purpose which is one of the attractions of Hartland and this site, to be able to create a store with great visibility from the highway.
- Will be one of the nicer Urban Air Parks.
- Façade of the structure is designed to add interest and generate excitement.

Generally, the Planning Commission approves of the silhouette design feature.

Signage

Director Langer stated the following:

- On the east façade facing the highway is a wall sign.
- On the opposite side is a sign with the Urban Air logo.
- Sign Ordinance limits panel signs to ten (10) square feet.
- No dimensions were included for any of the signs.
- South elevation has a sign near the entrance.
- The Sign Ordinance permits one sign on the east and one on the west where there is a road frontage.
- Once calculated they may meet the size for the signs they are proposing but they are asking for three, possibly not all in locations that would normally be permitted.
- Requesting a sign on the east side, a sign on the south side, and a logo sign on the west side.

The Planning Commission agreed to the proposed signs shown.

The Applicant mentioned the Fire Department requires a sign with an address so there may be a monument sign near the access drive entrance. The Planning Director stated the Planning Commission should be prepared to see a possible off-site monument sign at the Preliminary approval level.

Chair Fox mentioned if there are any rooftop units, they will have to be screened.

Proposed Density

Chair Fox stated density is not applicable.

Public Road Access

Chair Fox restated there are two (2) access drives to Old US 23.

Traffic Generation
Chair Fox stated the Applicant will need to submit a traffic analysis prior to the Preliminary Site Plan review.

Commissioner Murphy asked where the traffic would mostly be entering the site. The Applicant stated the south side. There is also a service drive connection to Hartland Town Center that further connects to Fountain Square.

Internal Vehicular/Pedestrian Circulation
Chair Fox stated there is a sidewalk on three sides of the building and a parking area, they should have good access.

Utilities
Chair Fox stated the applicant will need to work with the Hartland Township Public Works Department to acquire the necessary Residential Equivalent Units (REUs) for this development.

Design Details
Chair Fox stated a Pattern Book will not be required as this is a single structure.

Open Space
Chair Fox stated Open Space will need to be shown on the Preliminary Plan.

Landscaping
Chair Fox stated a Landscaping Plan will be required.

Dumpster and Enclosure
Chair Fox stated it will need to match the building.

Exterior Lighting
Chair Fox stated a Lighting Plan will be required as part of the Preliminary Site Plan application.

Recognizable Benefits
Chair Fox stated there is information on page 5 of the staff report.

Other
Director Langer stated the Applicant has a crosshatch in the parking area of which there have been discussions. The Applicant is concerned about the turning radius for the fire truck; our response has been to make it a landscape island or bring it in to reduce its dimensions. The portion where the dumpster is planned could be a partial landscape island. There may also be some landscaping that is technically offsite around the borders of the property.

Commissioner Murphy asked about providing bike racks. The Applicant stated they have been thinking about that as well. Commissioner Murphy also suggested a sidewalk from Old US 23 as a recognizable benefit.

Planning Commission Comments
Commissioner Mitchell thinks this idea is an exciting asset to Hartland Township. He applauds the Applicant for bringing it forward and believes the Township Board will encourage them as much as possible to succeed in this endeavor.

Commissioner Mayer thinks it is a good fit for that piece of property. It would be tough to get other things there. He thinks the Applicant did a great job with the elevations taking what is basically an industrial building and making it appealing.

Commissioner Grissim stated she feels the same and is jealous she is not able to participate. It looks like it is really fun. The Applicant is hitting all of the marks and Hartland is lucky.

Commissioner Murphy said he agrees with the other Commissioners. It was exciting when Emagine came to Hartland, a big deal. This is a new and interesting project. He likes the idea of providing another option for kids to get outside away from screen time and it is unique. Hopefully, it all works out.

Commissioner Eckman said he cannot add much to what has been said. The uniqueness is pretty impressive. He does not think there is anything like this in Livingston County. It is a nice addition, to be able to see it from US 23 with such a positive elevation as opposed to seeing an RV place. It will be a great asset.

Commissioner McMullen stated she agrees with all of the comments. She likes the design of the building, and she would call the silhouettes of the children artwork.

Chair Fox said he thinks it is a great project. It is going to be a wonderful addition to the community. The Applicant has done a beautiful job with it, and he looks forward to seeing them back soon.

Commissioner Mayer asked how many are open nationwide. The Applicant replied about 200. Commissioner Mayer asked about the success rate. The Applicant stated none of them are closed.

Commissioner Murphy asked if they typically repurposed big box stores that have closed. The Applicant agreed stating he believes they will be only the third to have a new build.

9. Call to the Public:
None

10. Planner Report:
Director Langer reported the following:

- The Ordinance Review Committee is busy looking at an ordinance to modify the use of backyard chickens; they have dug into that topic deep. They have had a couple of meetings but there still is a little way to go.
- Urban Air is scheduled to go to the Township Board next Tuesday and will be back before the Planning Commission for the Preliminary Review at the second meeting in July. Staff has been reviewing the Preliminary Plans almost at the same time as the Conceptual. The noticing has already been done so it is set for that meeting.

11. Committee Reports:
None

12. Adjournment:
A Motion to adjourn was made by Commissioner Eckman and seconded by Commissioner McMullen. Motion carried unanimously. The meeting was adjourned at approximately 7:58 PM.

Hartland Township Planning Commission Meeting Agenda Memorandum

Submitted By: Troy Langer, Planning Director

Subject: Site Plan/PD Application #25-008 – Highland Reserve Planned Development (PD) Second Amendment to the approved Preliminary PD Site Plan (SP/PD #23-008) and Second Amendment to the Highland Reserve Planned Development Agreement (SP/PD #24-006 Final PD)

Date: July 17, 2025

Recommended Action

Move to approve Site Plan/PD Application #25-008, a request for a Second Amendment to the approved Preliminary PD Site Plan for Highland Reserve Planned Development, as outlined in the staff memorandum dated July 17, 2025.

Approval is subject to the following conditions:

1. The applicant shall adequately address the outstanding items noted in the Planning Department's memorandum, dated July 17, 2025, on the Construction Plan Set, subject to an administrative review by Planning staff prior to the issuance of a land use permit.

2. Prior to the issuance of a land use permit for the project, the applicant shall secure all applicable permits and approvals from the Michigan Department of Transportation.

3. All prior conditions and requirements specified under SP/PD #23-008, SD/PD #24-006, and SD/PD #25-003 shall remain valid.

4. The Second Amendment to the Highland Reserve Planned Development Agreement shall be in a recordable format and shall comply with the requirements of the Township Attorney.

5. Applicant complies with any requirements of the Township Engineering Consultant, Department of Public Works Director, applicable Fire Code requirements, Michigan Department of Transportation (MDOT), Livingston County Road Commission (LCRC), Livingston County Drain Commission (LCDC), and all other government agencies, as applicable.

6. Applicant shall obtain any necessary approvals and permits from the Michigan Department of Environment, Great Lakes, and Energy (EGLE).

7. (Any other conditions the Planning Commission deems necessary).

Move to recommend approval of the proposed Second Amendment to the Highland Reserve Planned Development Agreement, a request for a Second Amendment to the Highland Reserve Planned Development Agreement, to address the revisions to the approved Preliminary PD Site Plan, based on the following findings:

1. The Planning Commission has determined the proposed Second Amendment summarizes the proposed revisions to the approved site plan, which includes minor revisions to the development layout, changes to the total number of residential units, and changes to the number of rental units.

2. The Planning Commission has determined that the proposed amendment is consistent with the intent of the plans and documents approved under SP/PD #23-008 (Preliminary PD), SP/PD #24-006 (Final PD), and SP/PD #25-003 (Amendment to approved Preliminary PD Site Plan)

3. The proposed Second Amendment document shall be revised to address comments provided by the Township Attorney, as applicable.

Discussion

Applicant: Green Development Ventures, LLC

Site Description

The subject property is south of Highland Road and east of Hartland Glen Lane/Hartland Glen Golf Course, in Section 26 of the Township. Redwood Living Planned Development (Phase 1) has frontage along the west side of Hartland Glen Lane and is currently under construction. The subject parcel (Parcel ID #4708-26-200-002) is approximately 39.05 acres in size and zoned CA (Conservation Agricultural). The subject property is designated as Special Planning Area (SPA) on the 2020-2021 Comprehensive Plan and Future Land Use Map (FLUM) Amendment. The property is part of the M-59/Cundy/Hartland Glen Golf Course Special Planning Area.

Currently the property primarily consists of open fields which have historically been used for agricultural activities. Per the Wetland Delineation report submitted by the applicant (compiled by Fishbeck, dated May 19, 2023), three (3) wetland areas have been identified on the subject site. One wetland area is in the southeast corner. The other wetland area is on the west side of the parcel, and the third wetland area is in the northwest corner of the site. The applicant has not provided documentation that the wetland areas have been reviewed by the State of Michigan Department of Environment, Great Lakes, and Energy (EGLE) regarding their regulatory status or permit requirements.

Wooded areas occur along the M-59 boundary (west and northeast), and along the east and west sides of the property. A stand of trees exists in the southwest corner of the site.

The property to the south is part of Hartland Glen Golf Course, addressed as 12400 Highland Road and is zoned CA (Conservation Agricultural).

To the east, is property that has been historically associated with the Newberry Place Planned Development project, which is zoned CA (Conservation Agricultural). The property is undeveloped currently.

Site Access

Access to the development remains the same as was previously approved under SP/PD #23-008 (Preliminary PD Site Plan) and SP/PD #25-003 (first amendment to the plans). Access to the site is via Highland Road, a public road, which is under the jurisdiction of the Michigan Department of Transportation (MDOT).

An additional road connection is shown from Hartland Glen Lane, west of the subject site. An easement for ingress and egress was required as part of the Final PD documents for SP/PD #24-006), allowing Highland Reserve PD to take access from Hartland Glen Lane. The access easement is part of the Highland Reserve Planned Development Agreement, which was executed and recorded in December 2024.

Municipal water and sanitary sewer will be required for this project.

Site History

Per Township records, the property was occupied by a residential home and addressed as 12690 Highland Road. The records do not indicate when the house was constructed. The house and detached building were demolished in 2000, under Land Use Permit #5344. The Township Assessing records indicate the property has been leased for agricultural purposes since 2007.

Historically, plans for Newberry Place Planned Development have included the subject property as part of that development, under several applications from 2007 to 2016 (Newberry West). Conversely, other development plans for Newberry Place PD did not include this property. The Preliminary PD for Newberry Place PD was approved by the Township Board on July 6, 2021, under SP/PD #20-012, and did not include the subject property.

Site Plan/PD Application #23-003 Highland Reserve Planned Development – Concept Plan

The Concept PD Plan was discussed under SP/PD Application #23-003. The Planning Commission reviewed the project on March 23, 2023, which was followed up by the Township Board's review on April 4, 2023.

Site Plan/PD Application #23-008 Highland Reserve Planned Development – Preliminary Plan

The Preliminary PD Plan for Highland Reserve PD was reviewed by the Planning Commission on September 28, 2023, under SP/PD #23-008. A public hearing for the proposed project was held on that date and the Planning Commission recommended approval. The Township Board approved SP/PD #23-008 at their regular meeting on October 10, 2023.

Site Plan/PD Application #24-006 Highland Reserve Planned Development – Final Plan

On June 27, 2024, the Planning Commission reviewed SP/PD #24-006 (Final Plan) and recommended approval. The Township Board approved SP/PD #24-006 at their regular meeting on July 23, 2024.

Highland Reserve Planned Development Agreement

This document was executed in October 2024 and recorded on December 17, 2024

Site Plan/PD Application #25-003 Amendment to Approved Preliminary PD Site Plan (SP/PD #23-008) and PD Agreement (SP/PD #24-006 Final PD)

On February 27, 2025, the Planning Commission approved SP/PD #25-003, an amendment to the Preliminary PD Site Plan (SP/PD #23-008) for minor revisions to the approved site plan. The Planning Commission also recommended approval of the amendment to the PD Agreement (SP/PD #24-006 Final Plan). The Township Board approved SP/PD #25-003, to amend the Planned Development Agreement, at their regular meeting on March 11, 2025.

Overview of the Current Request – Second Amendment to Approved Preliminary PD Site Plan and PD Agreement

The current application includes two (2) different requests: a request to amend the previously approved Preliminary PD Site Plan and an amendment to the Highland Reserve Planned Development Agreement that addresses the revisions to the site plan. A review of the first amendment is provided (SP/PD #25-003) followed by a review of the two (2) current requests.

Prior Amendment: First Amendment to the Preliminary PD Site Plan (SP/PD #25-003)
The first amendment to the approved Preliminary PD Site Plan was approved under SP/PD #25-003 earlier this year. The amended site plan under that application generally included the following revisions:

- Minor changes to the development layout.
- Modification to the number of single-family rental homes, a reduction from 35 units to 31 units.
- Modification to the number of single-family site condominium units, an increase from 66 units to 71 units.
- An increase in the total number of residential units from 101 to 102 units.
- Revisions to the rental portion of the development along Abernethy Street to include a mix of standard 40-foot-wide home products and narrower 20-foot-wide home products.
- Redesign of the detention basin - additional land was required to meet the stormwater management needs.
- Abernethy Street connection to Hartland Glen Lane shown as a proposed as a temporary emergency vehicle access with an emergency gate, Knox Box, and temporary cul-de-sac turnaround.
- Total open space increased by approximately 0.6 acres (15.72 acres previously approved, equating to 40.3% of the development). The amended plan proposes 16.32 acres of open space, which equates to 41.8% of the development being dedicated to open space.

Current Request: Second Amendment to the Preliminary PD Site Plan (SP/PD #25-008) – Proposed Site Plan Revisions
The Second Amendment to the approved plans includes the incorporation of the northwest corner of the Planned Development (2.1 acres), into the rental portion of the PD. The subject area is to be retained by Lexington Homes. LLC. This area was labeled as Future Commercial Development on previously approved plans, with the intent of developing this area with commercial uses, at a future time. The proposed site plan now shows six (6) additional single-family rental homes in the 2.1-acre portion of the development, along the north side of Abernethy Street. The rental homes are labeled as R32 through R37 on the plan.

The Second Amendment is proposing the following revisions:

- The 2.1-acre portion of the PD (NW corner of the development) has been incorporated into the planned development as single-family residential and is no longer under consideration for commercial development.
- Six (6) additional single-family rental homes are proposed along the north side of Abernethy Street, in the northwest area of the development. The additional rental homes will be the same as previously approved along Abernethy Street, with a mix of standard 40-foot-wide home products and narrower 20-foot-wide home product.
- The total number of single-family rental homes within the PD has increased by six (6) units (31 units previously; 37 units proposed).
- The total number of single-family site condominium units remains the same as approved (71 units).
- The total number of units in the Planned Development has increased by six (6) units (102 units previously approved; 108 units proposed).

- The six (6) additional rental homes will be constructed in Phase 1 of the Planned Development.
- The temporary cul-de-sac at the west end on Abernethy Street is shown with notes stating the internal sidewalk and street trees along Abernethy Street (north side) will be installed following the removal of the cul-de-sac (Sheet 4 and Sheet 5).
- Rental homes R36 and R37 (abutting the temporary cul-de-sac with turnaround) will not be constructed until the temporary cul-de-sac at the west end of Abernethy Street is removed.
- Total acreage of the Highland Reserve PD (single-family residential community) has increased from 37 acres to 39.05 acres.
- Residential density is 2.72 dwelling units per acre (108 units ÷ 39.05 acres).
- Total open space provided is approximately 19.97 acres, equating to fifty-one percent (51%) of the development. The plans approved under the 1st Amendment offered 16.32 acres of total open space, equating to 41.8% of development.

Comments on the landscape plan

- A revised landscape plan (Sheet 5) shows street trees in front of the six (6) new rental units (north side of Abernethy Street). The same design standards that were used for street trees on the landscape plans approved under SP/PD #24-006 and SP/PD #25-003 are used for the street trees along the north side of Abernethy Street.

- A revised Greenbelt plan (Sheet L-2) is provided which shows an extension of the Greenbelt landscape area along the frontage of Highland Road, in the newly added PD area along Highland Road (NW corner/2.1-acre portion of the site). Several existing trees are preserved in this area and new trees and large shrubs are incorporated into the design. Due to the preservation of the existing trees in this area, a berm is not proposed. Per the note on Sheet 5 (Landscape Plan), the entire Greenbelt will be irrigated.

- Landscaping has been added along the west property line, adjacent to Hartland Glen Lane, which adds screening for the rental units in that area. The landscape plan shows several existing trees to be preserved and incorporated into landscape design. A mix of deciduous trees and shrubs plus evergreen trees are proposed. Per the applicant, this area will have irrigation. Sheet 5 (Landscape Plan) should be revised to state irrigation will be provided in this landscape area on the Constriction Plan set (using same hatching graphic as is used for the Greenbelt along Highland Road).

Second Amendment to the Highland Reserve Development Agreement (Draft version)
The applicant has provided a draft version of the Second Amendment to the Highland Reserve Planned Development Agreement. This document proposes revised language for applicable sections of the original PD Agreement to address the proposed changes to the Preliminary PD Site Plan. Specifically, sections have been revised to eliminate references to commercial uses being permitted in the planned development. The final document shall be subject to the approval of the Township Attorney.

Approval Procedure
The proposed request to amend the approved Preliminary Site Plan is reviewed by the Planning Commission who will make a final decision on the site plan. The Planning Commission will review the proposed amendment to the Planned Development Agreement and make a recommendation to the Township Board, who will make the final decision.

Other Requirements-Zoning Ordinance Standards
Nothing at this time.

Hartland Township DPW Review
A review letter is provided from the Hartland Township DPW Director, dated May 27, 2025.

Township Engineer's Review
The Township Engineer (SDA) has reviewed the plans and recommends approval, subject to items being addressed in the letter dated May 21, 2025.

Hartland Deerfield Fire Authority Review
A review letter is provided by the Fire Department, dated May 13, 2025.

Attachments
1. Hartland Township DPW review letter dated 05.27.2025 – PDF version
2. Township Engineer (SDA) review letter dated 05.21.2025.2025 – PDF version
3. Hartland Deerfield Fire Authority review letter dated 05.13.2025
4. Applicant's cover letter dated 05.06.2025 – PDF version
5. Draft Second Amendment to PD Agreement 05.06.2025 – PDF version
6. Highland Reserve (rental portion) Sample Portfolio of Homes – PDF version
7. Site Plans dated 07.10.2025 – PDF version

CC: SDA, Twp Engineer (via email)
Scott Hable, Twp DPW Director (via email)
A. Carroll, Hartland FD Fire Chief (via email)

T:\PLANNING DEPARTMENT\PLANNING COMMISSION\2025 Planning Commission Activity\Site Plan Applications\SP PD #25-008 Amend II Highland Reserve\Staff Reports\PC\SP PD #25-008 Second Amendment to PD staff report PC 07.17.2025.docx

DEPARTMENT OF PUBLIC WORKS

Scott Hable, Public Works Director
2655 Clark Road
Hartland MI 48353
Phone: (810) 632-7498

TO:	Planning Department
DATE:	5/27/2025
DEVELOPMENT NAME:	Highland Reserve
PIN#:	4708-26-200-002
APPLICATION #:	25-008 Final Rev PD
REVIEW TYPE:	Site Plan

Site Plans for the proposed Highland Reserve Development Site Plan proposes 108 single family homes and rental units in with 1 REU is required in Water and Sewer for each lot. Thus totaling 108 REU's for the proposed project. Currently the parcel has 67 Sewer REU's and 0 Water REU's, and sufficient REU's will need to be purchased prior to development. A previous review letter was sent with water REU district 1 pricing. New watermain has been installed in the time since which provides water to this area, and district 2 pricing has been adopted for areas east of Progressive Drive reflecting this project. This new water REU cost reflects those changes.

	Sewer REUs	Water REUs(Dist.2)
Owned	67	0
Required	108	108
REU Difference	41	108
Cost Each	$9,439.20	$6,829.67
Total Due Each	$387,007.20	$734,604.36
TOTAL REU COST	**$1,124,611.56**	

Hartland Township Public Works approves the Highland Reserve Development site plan subject to inclusion of the following details on the construction plans:

1. Sanitary sewer material and sizes and connection detail sheet
2. Monitoring manhole for sewer connection and location if required
3. Utility easements noted as public or private.
4. All watermain and leads installed to meet Township specifications
5. Approval of the Livingston County Drain Commission.

An appropriate sized water meter, horn, and MXU sending unit will need to be purchased from the township at time of each units construction.

Please feel free to contact me with any further questions or comments regarding this matter.

Scott Hable
Public Works Director

Site Plan Amendment Review

May 21, 2025

Troy Langer
Planning Director
Hartland Township, MI

Re: Highland Reserve – Site Plan Amendment Review #2
SDA Review No. HL22-127

Dear Troy:

We have received the site plan amendment submittal for the above referenced project prepared by The Umlor Group dated May 2, 2025 and received by our office on May 8, 2025. The plans were reviewed in accordance with Hartland Township Engineering Standards and the following comments are our observations.

Recommendation
Approval of the Site Plan Amendment is recommended, with items to be addressed before Final Engineering review approval.

Project Summary

- Construction of a Planned Development (PD) clustered residential site with 37 rental units and 71 condo units at 12685 Highland Road (M-59) east of US-23 on the south side of Highland Road. Site access would be provided via private streets with access drives from Highland Road (M-59) and Hartland Glen Lane. It is noted that the site is 39.05 acres.
  The proposed project is divided into 3 phases.
  - Phase 1 : 1-20 condo units and R1-R37 rental units, and a proposed detention basin.
  - Phase 2: 21-45 condo units, usable open space, and playground.
  - Phase 3: 42-71 condo units.
- Water service would be provided by an 8-inch extension from the existing 12-inch water main on the west side of Hartland Glen Lane. The proposed water main connects near the proposed entrance of Abernethy Street at GV-5, loops around the proposed units and connects near the southwest corner of the parcel at GV-20. A domestic lead would be provided to serve the proposed units along with hydrants on-site.
- Sanitary sewer service would be provided by two connection points. A proposed 8-inch extension from the existing manhole (EX-40202) located on the south side of Highland Road to serve the northerly portion of the site. And an 8-inch extension from the existing 8-inch sanitary sewer on the west side of Hartland Glen Lane, near the southwest corner of the parcel to serve the southerly portion of the site. A lead would be provided to serve the proposed units.
- Storm water would be collected by a single storm sewer collection system and discharged to an on-site detention basin and existing wetlands.

General

1. The proposed project is currently under engineering review. The main changes to the latest construction plans reviewed include the number of rental homes, and layout change to the stormwater management system. There are minor changes to the proposed grading, paving and utilities that additional review fees may be required with the next submittals, and this will be determined at a later date.

Water Main

1. The EGLE Act 399 permit application is currently pending revisions from EGLE's latest comments. Revise the basis of design to include the additional rental units.

Storm Drainage & Site Grading

1. The land area devoted to stormwater management has increased in acreage by approximately 0.46 acres. The single detention basin was expanded in size. LCDC's current standards shall govern all storm sewer and detention improvements within the Township.
2. Drainage shall be accommodated for the former commercial development parcel on the revised engineering plans. The north and west portions of the parcel do not have a drainage plan accommodation, and these shall be clarified and addressed to the satisfaction of the Township and County.

Please be aware that additional comments may arise with the submittal of the requested revisions and/or additional information.

The comments are not to be construed as approvals and are not necessarily conclusive. The final engineering plans for this development are to be prepared in accordance with the Current Design and Engineering Standards, Standard Details, and Code of Ordinances. If you have any questions regarding this letter, please contact Mark Collins or Luisa Amici at (248) 844-5400 with any questions.

Sincerely,

SPALDING DEDECKER

Luisa Amici
Engineer

Mark Collins, PE
Project Manager

cc: Scott Hable, Hartland Township Public Works Director (via email)
Martha Wyatt, Hartland Township Planner – Landscape Architect (via email)

HARTLAND DEERFIELD FIRE AUTHORITY

HARTLAND AREA FIRE DEPT.

3205 Hartland Road
Hartland, MI. 48353-1825

Voice: (810) 632-7676
E-Mail: firemarshal@hartlandareafire.com

May 13, 2025

To: Hartland Township Planning Commission
c/o: Planning Department

Re: 12685 Highland Road

This review and the following comments are for the residential development in the area of Hartland Glen Lane and Highland Road, dated 5-2-25. The development consists of roughly one hundred residential homes of various sizes and a two-acre parcel on the northwest portion of the complex for a future commercial development.

The residential portion of the development is proposed to include six-foot side setbacks (twelve feet between homes), however, Hartland Township Ordinance 76 states minimum side setback requirements for High Density Residential is ten feet. One of the critical reasons for ten-foot setbacks is to aid in preventing the spread of fire from one structure to an adjacent structure, especially with radiant heat compromising the adjacent structure with potential flame spread to the combustible materials on the walls, eaves, and facia. This is a problem the fire service routinely encounters in the manufactured home environment with twice the distance (twenty feet) between homes with the same exterior finishes as proposed.

Most importantly, limiting fire spread reduces the potential for loss of life in adjacent homes. It is our position that if this precedent-setting request to remove a life safety and property conservation ordinance requirement that creates a non-compliant development is considered, it would necessitate reinstating a life safety protective measure that provides an equal or better level of protection, such as: residential sprinklers in accordance with NFPA 13R; 2-hour rated non-combustible exterior walls, eaves, and facia; or 2-hour rated non-combustible fence extending to the top of the facia. Should the better level of protection with residential sprinklers be selected, we would support longer hydrant spacing and reduced road widths within the development.

Jon Dehanke
Fire Marshal

Green Development Ventures, LLC
2186 East Centre Avenue
Portage, MI 49002

May 6, 2025

Troy Langer, Planning Director
Hartland Township
2655 Clark Road
Hartland, Michigan 48353

Re: Highland Reserve – Revised Final PD Plan (Minor Change), Highland Road (39 acres, Parcel #08-26-200-002)

Dear Troy,

As previously discussed, attached please find the revised Final PD Plan submittal for the Highland Reserve project. Attached please find the following:

- Signed Final Site Plan Amendment Application & Review Fee Check ($1,200)
- Letter of Authorization from Isam Yaldo, Lexington Homes, LLC
- Revised Final PD Plan set for Highland Reserve dated May 2, 2025
- Second Amendment to Highland Reserve PD Agreement (DRAFT)
- Sample Portfolio of Homes – Highland Reserve (rental portion)

The proposed changes to the previously approved Final PD Plan revolve around the incorporation of the approximate 2.1 acre "Future Commercial Development" portion of the PD located in the northwest corner of site, into the residential (Phase 1) rental portion of the PD. A summary of the proposed changes is provided below:

- Previously approved 2.1 acre "Future Commercial Development" parcel located in the northwest corner of the PD project to be retained by Lexington Homes, LLC has been eliminated and this land area will be assimilated into the single family residential (Phase 1) rental portion of the PD project. Six additional single family rental homes (R32 – R37) have been added to this area, along the north side of Abernethy Street.
- Rental homes R36 and R37 will not be constructed until the temporary cul-de-sac at the west end of Abernethy Street is removed.
- These six additional single family rental homes will be same rental homes previously approved along Abernethy Street (see approved Sample Portfolio of Homes attached) and will maintain the same minimum building setbacks and separations.

- Total acreage of Highland Reserve PD (single family residential community) has increased from approximately 37 acres to 39 acres.
- Total number of rental homes within the PD has increased by six units (31 units – previously approved; 37 units – proposed).
- Total number of units throughout the entire development has increased by six (102 units – previously approved; 108 units – proposed).

If you have any questions or require additional information, please contact me at your earliest convenience.

Sincerely,

Michael West, AICP
Land Planning Manager
Green Development Ventures, LLC
2186 East Centre Avenue
Portage, Michigan 49002
(269) 365-8548
mwest@allenedwin.com

OFFICE OF THE PLANNING DIRECTOR
Troy Langer

2655 Clark Road
Hartland, Michigan 48353
(810) 632-7498 Office
tlanger@hartlandtwp.com

SUPERVISOR
William Fountain

CLERK
Larry Ciofu

TREASURER
Kathleen Horning

TRUSTEES
Matthew Germane
Summer L. McMullen
Denise M. O'Connell
Joe Petrucci

APPLICATION FOR PLANNED DEVELOPMENTS AND ZONING AMENDMENTS

Property Address: Highland Road (south side)			**Development Name:** Highland Reserve		
Parcel Identification Number: 08-26-200-002			**Zoning of Parcel:**	Current: PD	Proposed:
Application Request Date: _____ **Related Case No: (Previously assigned)** _____	☐ Conceptual Review	$500.00	☐ Text Amendment of Zoning Ordinance		$1,000.00
	☐ Preliminary Plan Review (Review; Public Hearing; Notices; Rezoning; Draft Development Agreement)	$3,050.00	☐ Map Amendment /Rezoning		$1,500.00
	☐ Final Plan Review (Site Plan Review; Development Agreement; Zoning Map Amendment)	$2,000.00	☐ Developer Acct (minimum) (Attorney Fees and Associated Costs)		$500.00 (minimum)
	☒ Amendment to an Approved Final Site Plan	$1,200.00			
	☐ Additional Reviews	$500.00	Total Fee: Total Developer Acct:		
General Description of Request:	Amendment (Minor Change) to previously approved Highland Reserve Final PD Plan				

APPLICANT INFORMATION (MUST HAVE LEGAL INTEREST IN PROPERTY) Green Development Ventures, LLC

Last Name	West	First	Michael	M.I.			
Street Address	2186 East Centre Avenue (Green Development Ventures, LLC)						
City	Portage	State	Michigan	Zip	49002		
Phone	(269) 365-8548	E-mail Address	mwest@allenedwin.com				
Own the Property?	YES ☐	NO ☒	Have offer to purchase property? (attach purchase agreement)	YES ☒	NO ☐		
Lease the Property?	YES ☐	NO ☒	Lease Term: ____ years	With Option?	YES ☐	NO ☐	
Other property interest (e.g. architect, attorney, et.)							

PROPERTY OWNER INFORMATION (IF OTHER THAN APPLICANT) Lexington Homes, LLC

Last Name	Yaldo	First	Isam	M.I.	
Street Address	31000 NW Highway 10 #110				
City	Farmington Hills	State	Michigan	Zip	48334
Phone	(248) 521-0978	E-mail Address	isamyaldo@aol.com		
Signature of Owner:	* see Letter of Authorization (attached)				

ARCHITECT CONTACT INFORMATION					
Last Name		First		M.I.	
Street Address					
City		State		Zip	
Phone		E-Mail Address			
Relationship to Applicant:					

ENGINEER CONTACT INFORMATION The Umlor Group					
Last Name	Fleis	First	Jason	M.I.	
Street Address	49287 West Road (Umlor Group)				
City	Wixom	State	MI	Zip	48393
Phone	(248)773-7656	E-Mail Address	jfleis@umlorgroup.com		
Relationship to Applicant:	contract engineer/surveyor				

PLACEMENT ON THE AGENDA

In order to be considered at an upcoming meeting, this application and all required documents must be submitted to the Planning Department by the established "cut-off" date for the next regular meeting of the Planning Commission. Only complete applications will be processed. For a list of the requirements, please refer to the Site Plan Review Checklist available on the Township's website at www.hartlandtwp.com and at the Township Planning Department.

Some applications require public hearings. Notification will be distributed by the Township pursuant to state law and local ordinance.

The applicant or representative must be present at the meeting(s).

APPLICANT SIGNATURE

The applicant acknowledges that he/she has the sole responsibility of complying with the requirements of any applicable Hartland Township Ordinance notwithstanding the signature or approval of any employee(s) or official(s) of Hartland Township and that Hartland Township is not bound to recognize the approval of other action of any such employee(s) or official(s) which is not in compliance with any applicable Hartland Township Ordinance.

Signature of Applicant: _____ **Date:** 5/5/25

Treasurer's Office (Official Use Only)	**Taxes & Water Bills**
This application is valid when signed by the cashier at the Treasurer's Office confirming payment of fees as noted. Account Number: 101-000-622.000 (Application) _____ Account Number: 101-000-628.100-_____ (Dev Acct) _____ Receipt Number: _____	☐ Paid In Full ☐ Not Paid In Full Amount Owed $_____ _____ Treasurer's Authorized Signature _____ Date

February 20, 2023

Troy Langer, Planning Director
Hartland Township
2655 Clark Road
Hartland, Michigan 48353

Re: 12685 Highland Road (Parcel #08-26-200-002, 40 Acres)

Dear Mr. Langer,

I own 12685 Highland Road (Parcel #08-26-200-002, 40 Acres) in Hartland Township, Livingston County, Michigan. I confirm that Green Development Ventures, LLC/Allen Edwin Homes has authorized consent to submit for municipal approvals and permits (planned development, rezoning application, site plan, condominium plan review, etc.) that may be required for the development of the subject parcel.
Feel free to contact me with questions or concerns.

Sincerely,

Isam S. Yaldo, Manager
Lexington Homes, LLC
31000 NW Highway 10 #110
Farmington Hills, MI 48334
isamyaldo@aol.com

SECOND AMENDMENT TO HIGHLAND RESERVE
PLANNED DEVELOPMENT AGREEMENT

This Amendment (the "Amendment") made this _____day of _____, 2025, by and between the **TOWNSHIP OF HARTLAND,** a Michigan municipal corporation (the "Township"), whose address is 2655 Clark Rd., Hartland Michigan 48353, and **GREEN DEVELOPMENT VENTURES LLC,** a Michigan limited liability company (the "Applicant"), whose address is 2186 East Centre Avenue, Portage, MI 49002.

RECITALS

A. On October 20, 2024, the Township and Applicant entered into a Planned Development Agreement (the "Agreement") for the development an approximately 39 acres of real property located along the south side of Highland Road (Parcel ID #4708-26-200-002), Hartland Township, Livingston County, MI 48353 (the "Property") for development of the Highland Reserve single family residential community (the "Development"). The Property is more fully and legally described in **Exhibit "A".**

B. The Agreement was recorded as Instrument No. 2024R-023121, Livingston County Records, on December 17, 2024.

C. Township and Applicant are the current parties to the Agreement.

D. On March 24, 2025, the Township and Applicant entered into an Amendment ("First Amendment") to the originally approved Agreement to amend Paragraph 2. **Permitted Uses**, and Paragraph 4a. **Site and Architectural Standards** – Residential Density.

E. The First Amendment was recorded as Instrument 2025R-007856, Livingston County Records, on April 25, 2025.

F. Township and Applicant are the current parties of the Amendment.

G. The purpose of the Second Amendment is to amend the Final Plans detailed in **Exhibit "B"** and to provide for the additional amendments set forth herein.

NOW, THEREFORE, it is hereby agreed as follows:

1. Paragraph 2. **Permitted Uses** of the First Amendment provides as follows:

Permitted Uses. Uses set forth herein or identified on the Final Plans dated February 10, 2025 (see **Exhibit "A"**) are permitted and are lawful ("Permitted Uses"). The Final Plans depict the proposed residential portion of the PD consisting of 102 single family detached homes on approximately 37 acres in the following development pattern: 71 site condominium subdivision units and 31 rental homes. Single family dwellings will consist of a mixture of two-story, ranch and bi-level style homes ranging between 1,250-3,000 square feet in size with 3-5 bedrooms, 2-3 bathrooms and an attached 2-3 car garage. Driveways for each unit will be a minimum 25

feet long, as measured from the leading edge of the home to the edge of sidewalk, to accommodate residents parking two (2) vehicles and so as not to impede with the accessible sidewalk along the road. Vehicular access to the development will occur from Highland Road (M-59) via Lockerbee Lane and from Hartland Glen Lane via Abernathy Street. All residential units will be served by an internal network of private roads. All uses and structures accessory to the above uses are also considered Permitted Uses, such as temporary construction trailers, recreation uses, and maintenance.

An approximate 2.1 acre portion of the overall PD project located in the northwest corner of the property will be retained by the current landowner (Lexington Homes, LLC) and has been designated for "Future Commercial Development". The following GC, General Commercial land uses have been identified for possible future development of this commercial site: Gasoline station/convenience store, Fast-food restaurant with drive-through service, Retail center, Professional/medical offices, Financial institution, Personal service establishment, Child care center, Personal fitness center, Restaurant. These uses will be considered permitted principal uses for this parcel subject to review and approval of a Site Plan by the Planning Commission. This commercial site will be developed using the GC, General Commercial zoning standards and applicable design standards relating to landscaping, lighting, architecture, building materials, parking and signage.

2. Upon execution and recording of this Second Amendment of the Agreement, the original Paragraph 2. **Permitted Uses** will be superseded and amended as follows:

Permitted Uses. Uses set forth herein or identified on the Final Plans dated May 2, 2025 (see **Exhibit "B"**) are permitted and are lawful ("Permitted Uses"). The Final Plans depict the proposed residential portion of the PD consisting of 108 single family detached homes on approximately 39 acres in the following development pattern: 71 site condominium subdivision units and 37 rental homes. Single family dwellings will consist of a mixture of two-story, ranch and bi-level style homes ranging between 1,250-3,000 square feet in size with 3-5 bedrooms, 2-3 bathrooms and an attached 2-3 car garage. Driveways for each unit will be a minimum 25 feet long, as measured from the leading edge of the home to the edge of sidewalk, to accommodate residents parking two (2) vehicles and so as not to impede with the accessible sidewalk along the road. Vehicular access to the development will occur from Highland Road (M-59) via Lockerbee Lane and from Hartland Glen Lane via Abernathy Street. All residential units will be served by an internal network of private roads. All uses and structures accessory to the above uses are also considered Permitted Uses, such as temporary construction trailers, recreation uses, and maintenance.

3. Paragraph 4a. **Site and Architectural Standards** – Residential Density of the First Amendment provides as follows:

> Residential Density. One hundred and two (102) single family dwelling units are proposed and allowed on the Property. Any requested increase in residential density must be approved by the Planning Commission and Hartland Township Board, in their sole discretion.

4. Upon execution and recording of this Second Amendment of the Agreement, the original Paragraph 4a. **Site and Architectural Standards** – Residential Density will be superseded and amended as follows:

Residential Density. One hundred and eight (108) single family dwelling units are proposed and allowed on the Property. Any requested increase in residential density must be approved by the Planning Commission and Hartland Township Board, in their sole discretion.

IN WITNESS WHEREOF, the parties have caused this Amendment to be executed on the day and year recited above.

[SIGNATURES ON THE FOLLOWING PAGES]

SIGNATURE PAGE OF THE TOWNSHIP

TOWNSHIP OF **HARTLAND,**
a Michigan municipal corporation

_____
By: _____
Its: _____

_____
By: _____
Its: _____

ACKNOWLEDGEMENT

STATE OF MICHIGAN)
) ss
COUNTY OF LIVINGSTON)

The foregoing Planned Development Agreement Outline was acknowledged before me by _____, _____, and _____, _____, on behalf of the Township of Hartland on the _____ day of _____, 2025.

_____
Notary Public
State of Michigan, County of_____
My Commission Expires: _____
Acting in the County of _____

SIGNATURE PAGE OF THE APPLICANT

GREEN DEVELOPMENT VENTURES LLC, a Michigan limited liability company

_____

By: _____

Its: _____

STATE OF MICHIGAN)
) ss
COUNTY OF KALAMAZOO)

ACKNOWLEDGEMENT

The foregoing instrument was acknowledged before me this _____ day of _____, 2025 by _____, _____of Green Development Ventures LLC, a Michigan limited liability company.

_____

Notary Public
State of Michigan, County of _____
My Commission Expires: _____
Acting in the County of _____

Prepared by:

Kimi Warner
Green Development Ventures, LLC
2186 East Centre Avenue
Portage, Michigan 49002

when recorded, return to:

Michael West
Green Development Ventures, LLC
2186 East Centre Avenue
Portage, Michigan 49002

EXHIBIT "A"

PROPERTY DESCRIPTION

PROPERTY DESCRIPTION: Land situated in the Township of Hartland, County of Livingston in the State of Michigan and described as follows: A part of the West 1/2 of the Northeast 1/4 of Section 26, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan, more particularly described as commencing at the North 1/4 corner of said Section 26 for a point of beginning; thence North 86 degrees 38 minutes 50 seconds East, 99.75 feet along the North line of said Section 26, to a point on the Southerly right-of-way of M-59 Highway; thence 622.15 feet along a curve to the left, said curve having a radius 3879. 71 feet, a central angle of 09 degrees 11 minutes 16 seconds and a chord bearing and distance of South 88 degrees 47 minutes 24 seconds East, 621 .48 feet, along the Southerly right-of-way of said M-59 Highway; thence North 86 degrees 36 minutes 57 seconds East, 95.52 feet, along Southerly right-of-way of said M-59 Highway; thence North 02 degrees 39 minutes 24 seconds West 10.00 feet, along Southerly right-of-way line of said M-59 Highway; thence North 86 degrees 36 minutes 57 seconds East, 286.00 feet, along Southerly right-of-way of said M-59 Highway; thence South 02 degrees 39 minutes 24 seconds East, 10.00 feet along Southerly right-of-way of said M-59 Highway; thence North 86 degrees 36 minutes 57 seconds East, 210.00 feet, along Southerly right-of-way of said M-59 Highway; thence South 02 degrees 39 minutes 24 seconds East, 1282.07 feet; thence South 86 degrees 41 minutes 45 seconds West, 1315.86 feet to a point on the North and South 1/4 line of said Section 26; thence North 02 degrees 27 minutes 46 seconds West, 1330.13 feet along said North and South 1/4 line of said Section 26, to the point of beginning.

TAX ID# 4708-26-200-002

EXHIBIT "B"

FINAL PLAN SET

(dated May 2, 2025)

Highland Reserve
Single Family Rental Community
Sample Portfolio of Homes

integrity 1610

1,607 SF

3-5 bedrooms
2-3 bathrooms
2-3 car attached garage

Allen Edwin Homes reserves the right to change or amend plans and specifications without prior notice. Specifications may vary per plan. All dimensions are approximate and are rounded down to the nearest 3". Information is deemed to be correct but not guaranteed. Copyright © 2015 Allen Edwin Homes. All rights reserved. The duplication, reproduction, copying, sale, licensing, or any other distribution or use of these drawings, any portion thereof, or the plans depicted here is strictly prohibited. Color rendering is the artist's interpretation of home. Details, products and colors may change or not be available. Please see CAD drawings of elevations for actual specifi cations available.

Elevation A1

Elevation A2

Elevation A3

Elevation A

RESNET EnergySmart Builder
Every Home is a HERS Rated Home
EQUAL HOUSING OPPORTUNITY

Allen Edwin Homes reserves the right to change or amend plans and specifications without prior notice. Specifications may vary per plan. All dimensions are approximate and are rounded down to the nearest 3". Information is deemed to be correct but not guaranteed.
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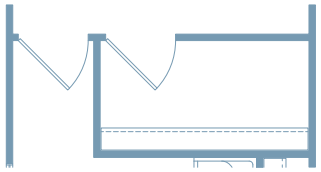
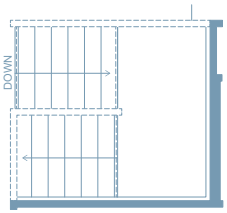
ALLEN EDWIN HOMES

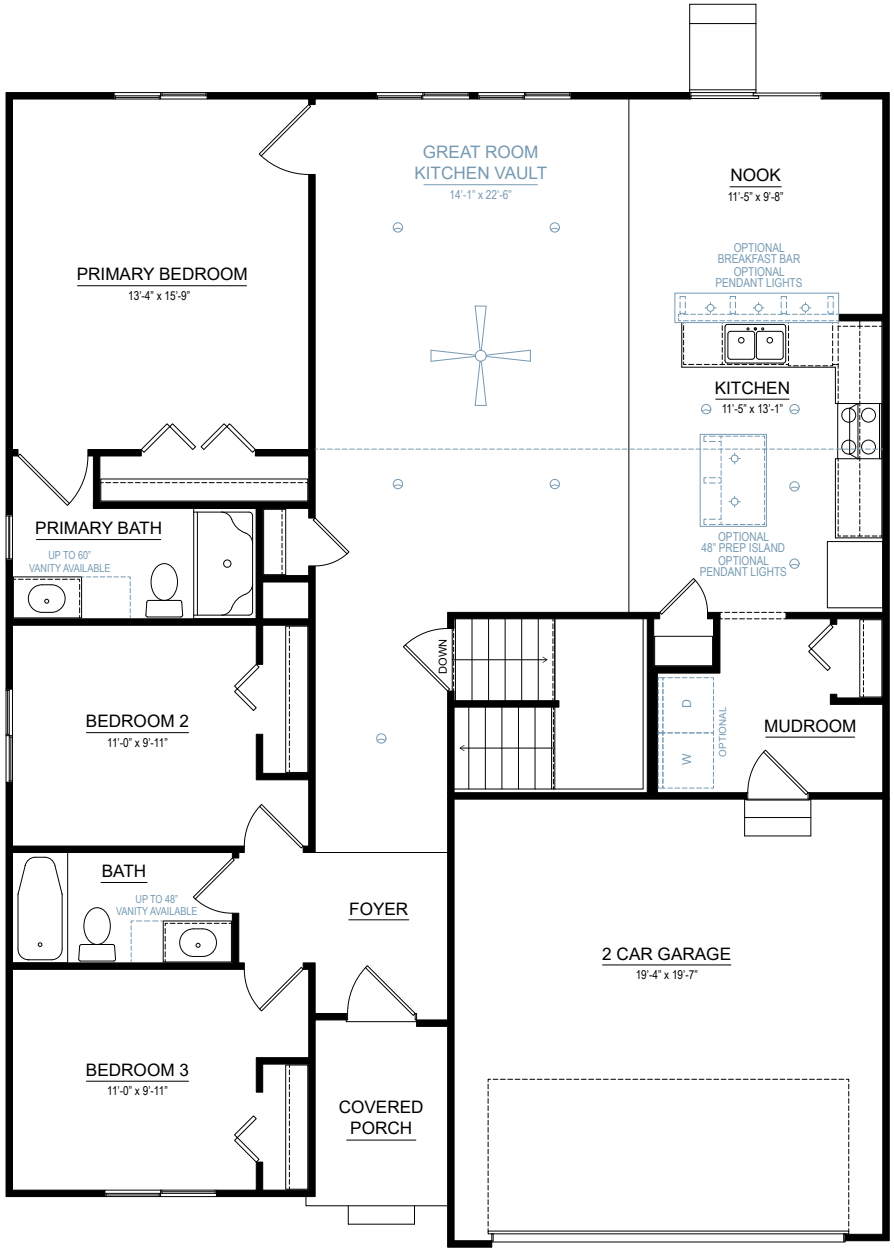
collection: integrity 1610



PRIMARY WALK-IN CLOSET



OPEN BASEMENT STAIRS



FIRST FLOOR

RESNET EnergySmart Builder
Every Home Is a HERS Rated Home
EQUAL HOUSING OPPORTUNITY

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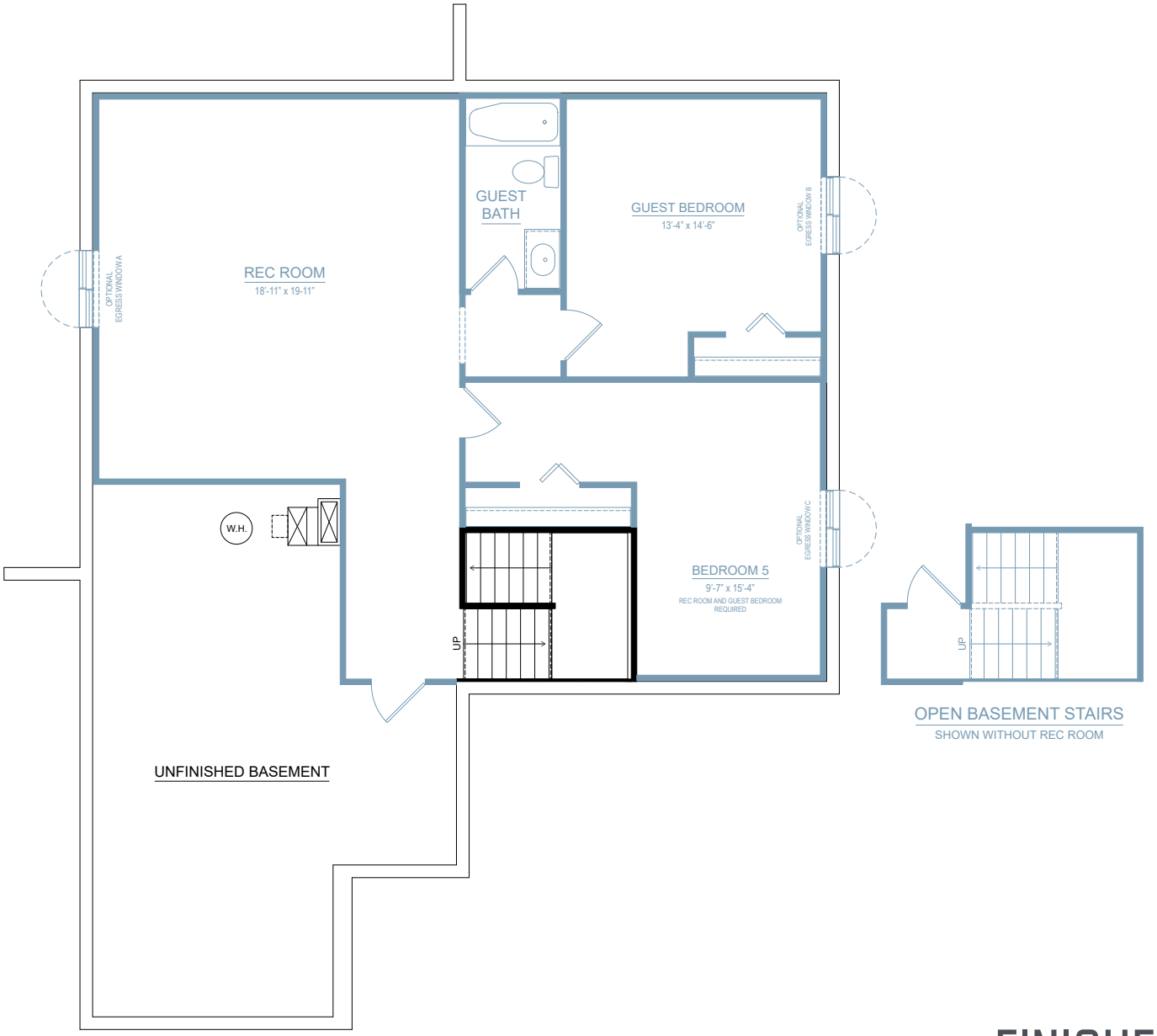

FINISHED BASEMENT

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integrity 1750

1,662 SF

3-4 bedrooms
2-2.5 bathrooms
2-3 car attached garage

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Elevation A1

Elevation A2

Elevation A3

Elevation A

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EQUAL HOUSING OPPORTUNITY

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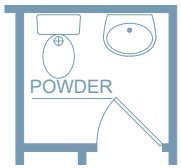
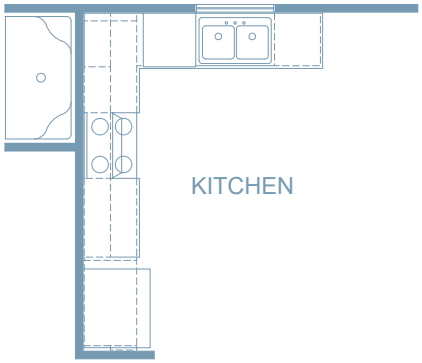
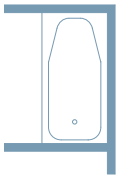
SMART SPACE
POWDER ROOM

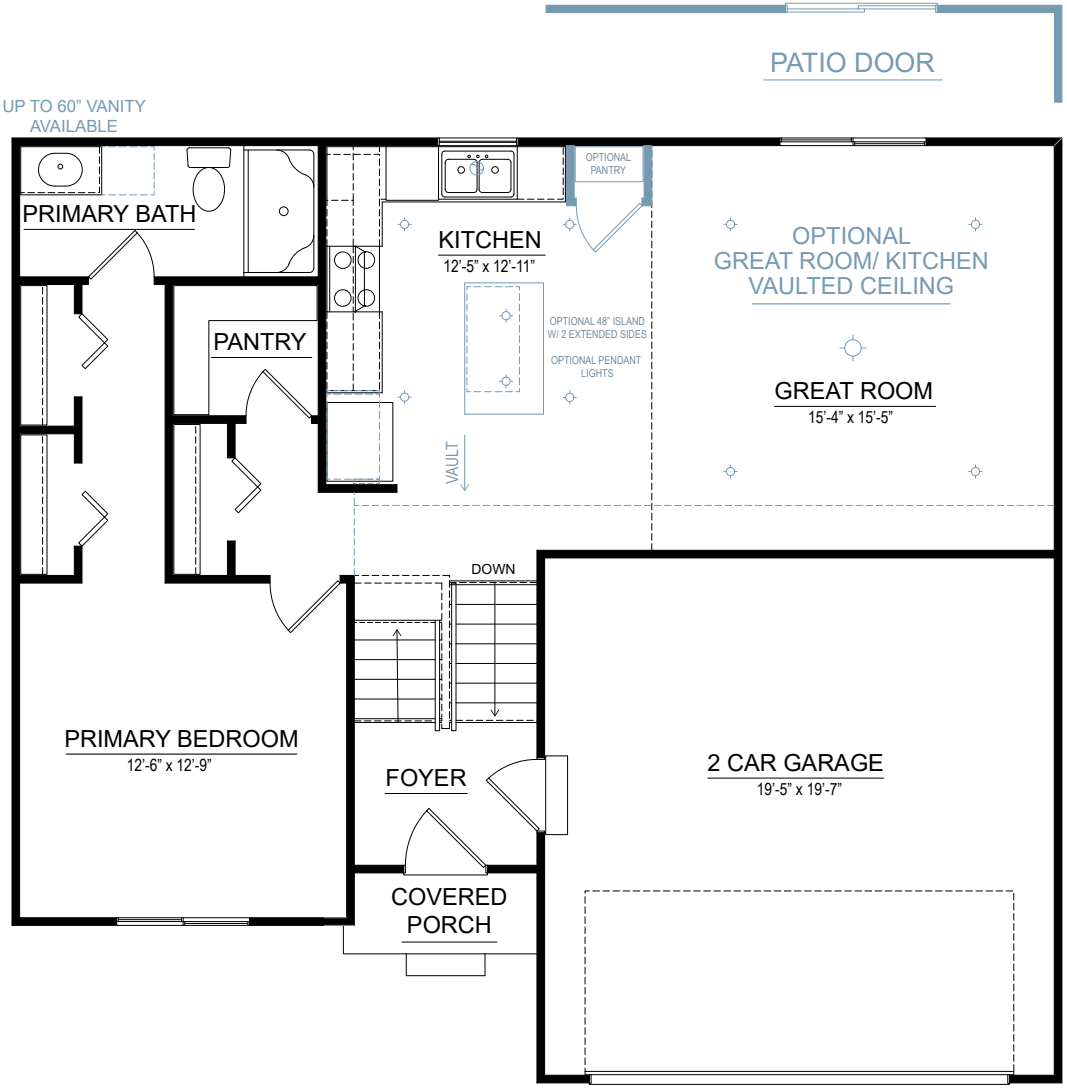


DESIGNER
KITCHEN





PRIMARY TUB/SHOWER



FIRST FLOOR

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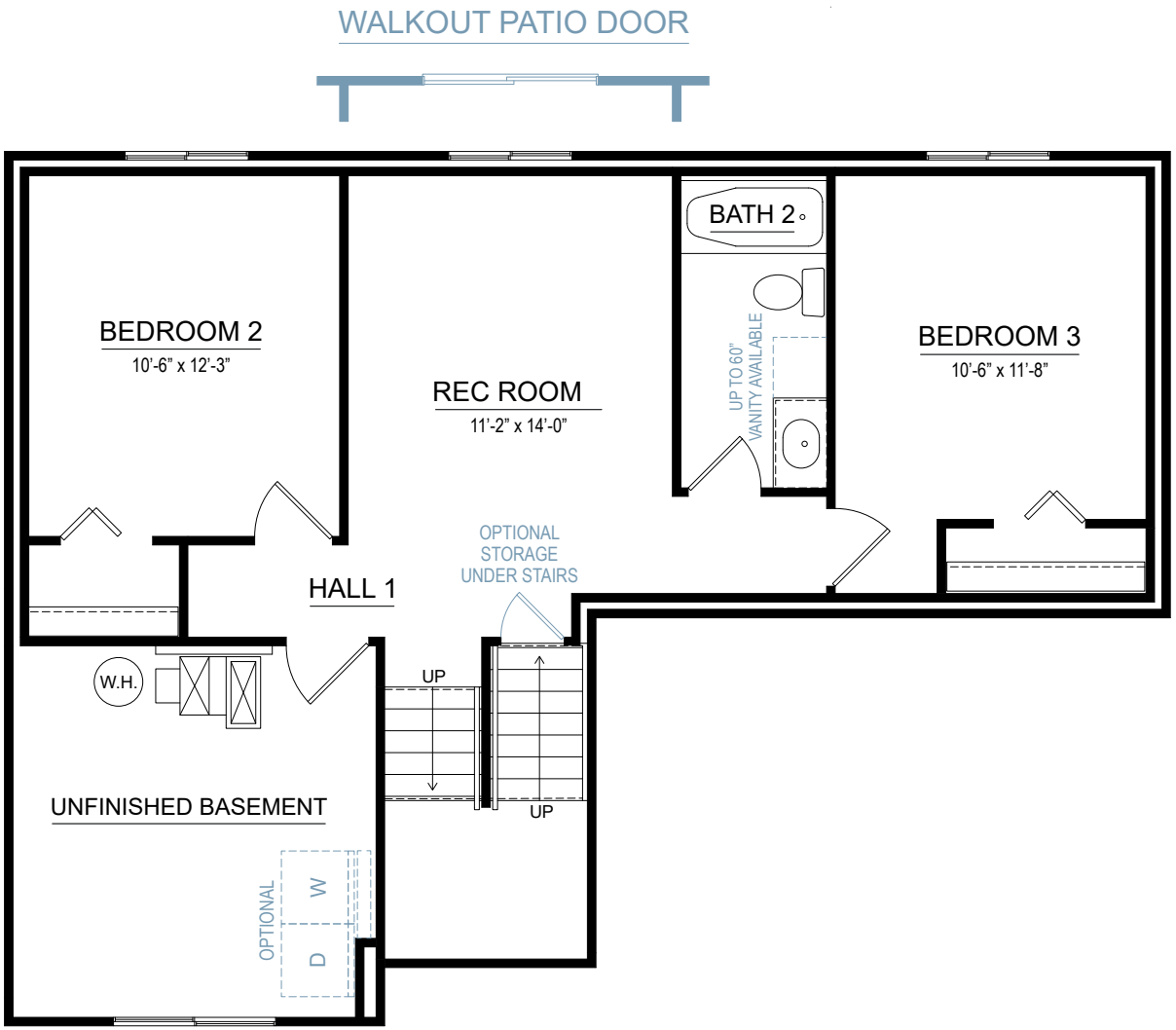

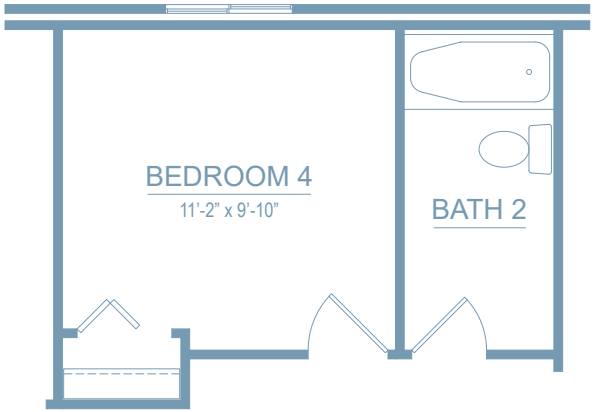

SMART SPACE BEDROOM 4

LOWER LEVEL

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integrity1800

1,798 SF

3 bedrooms
2.5 bathrooms
2-car attached garage

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Elevation A1

Elevation A2

Elevation A3

Elevation A

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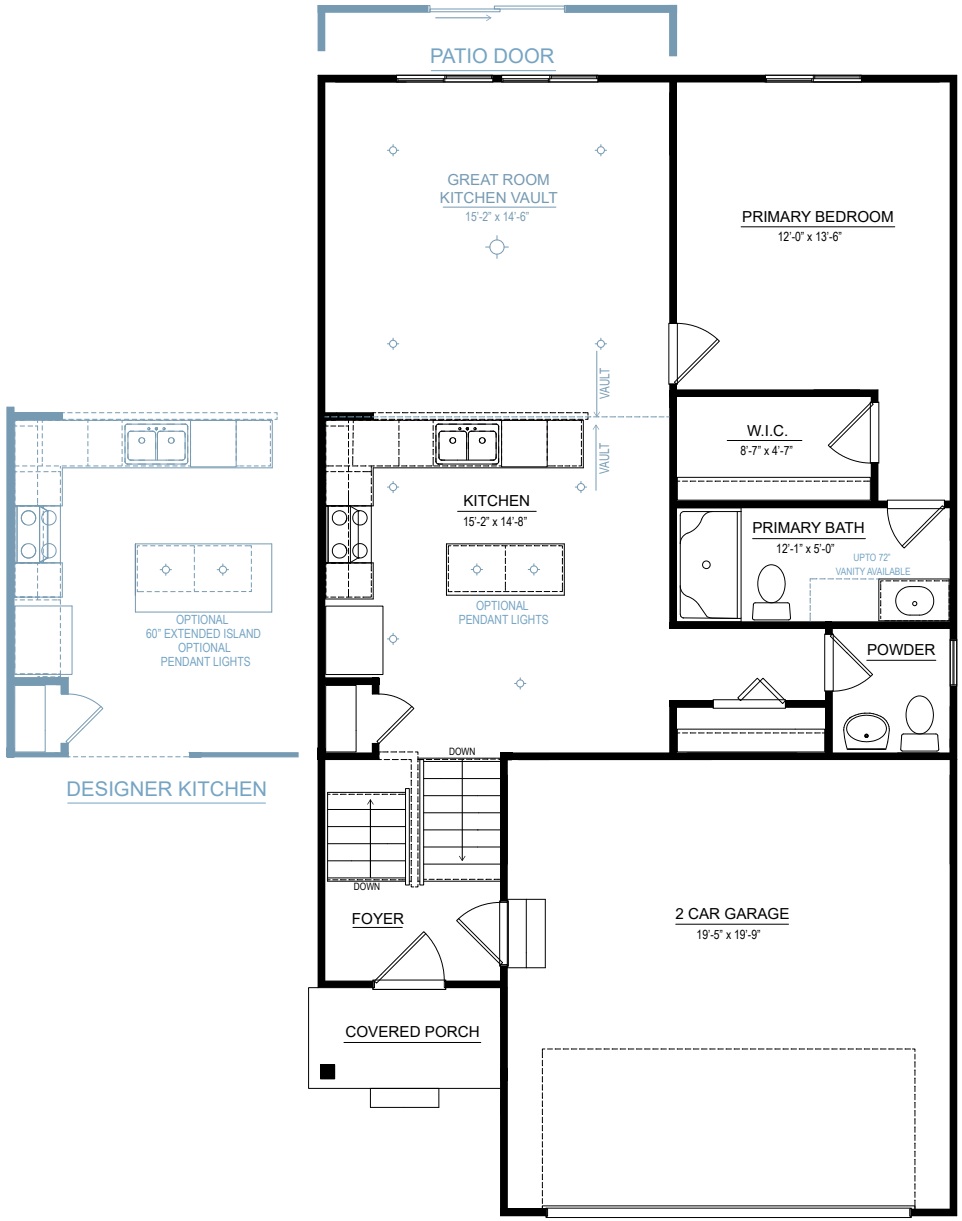

FIRST FLOOR

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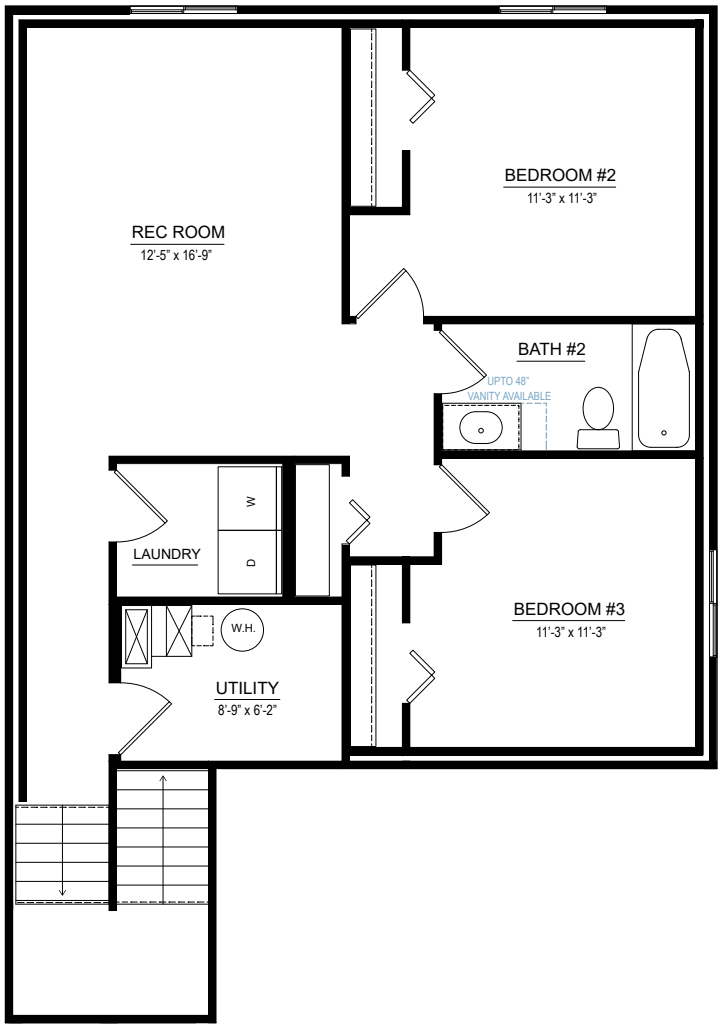

FINISHED BASEMENT

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integrity 1810

1,822 SF

4 bedrooms
2.5-3.5 bathrooms
2-3 car attached garage

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Elevation A1

Elevation A2

Elevation A3

Elevation A

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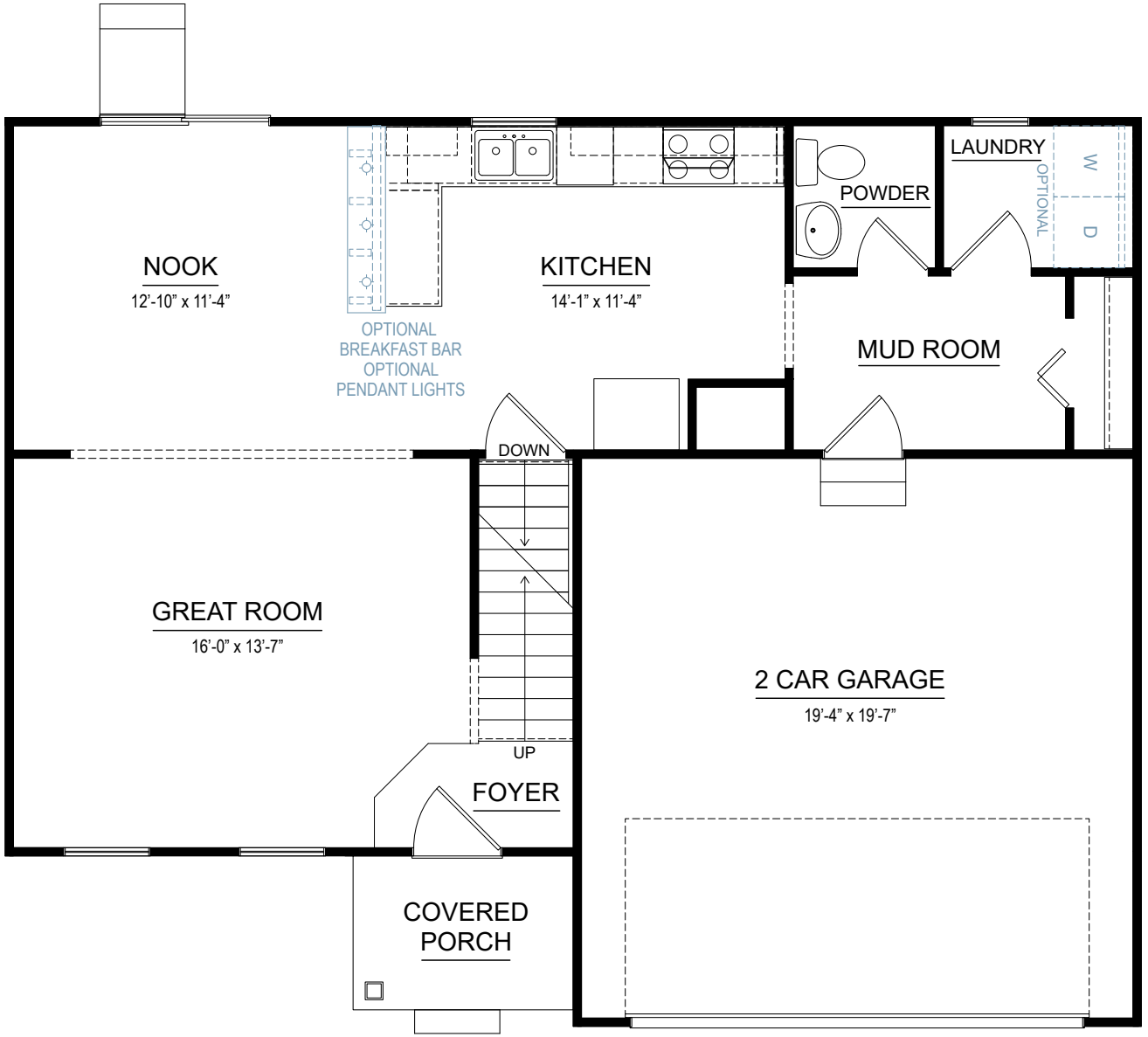

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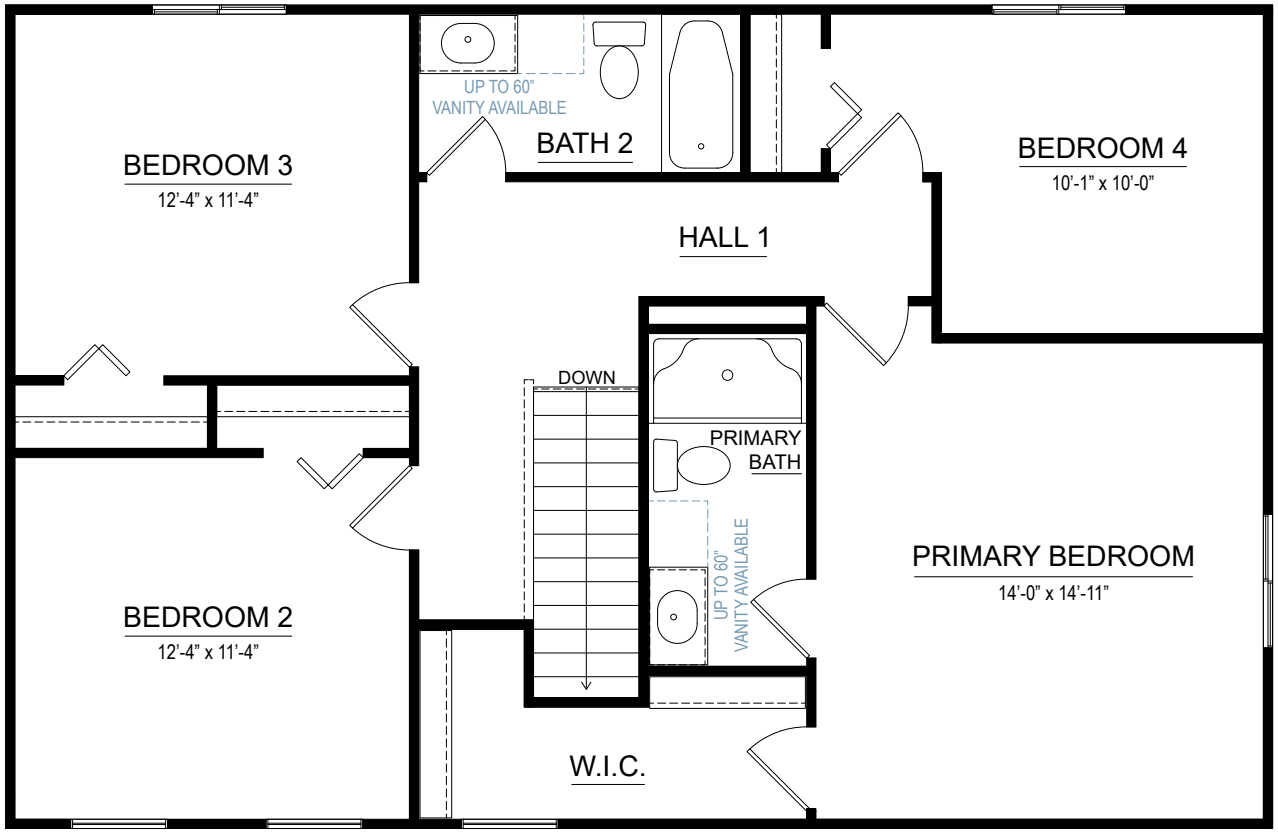

SECOND FLOOR

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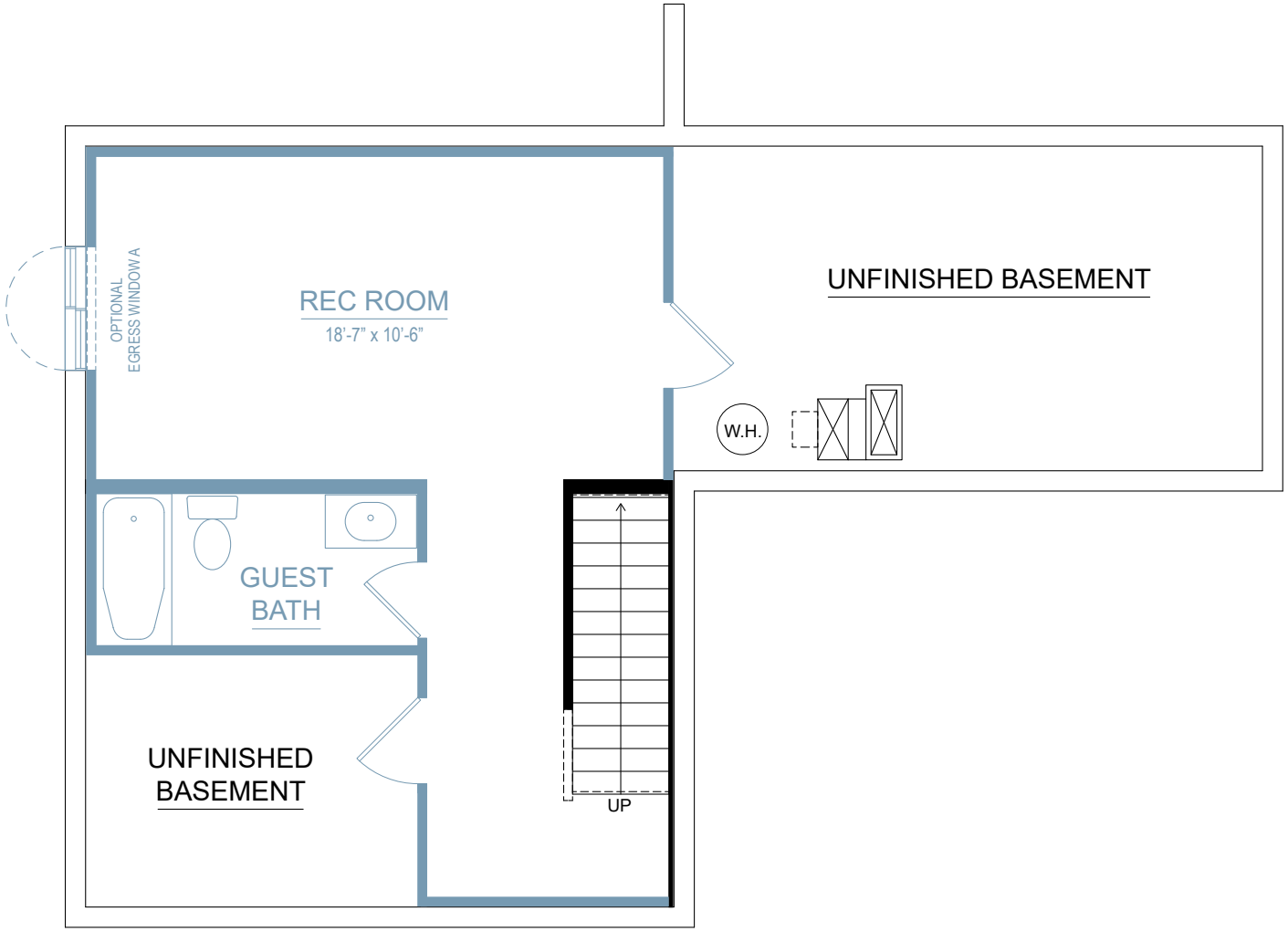

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integrity 1910

1911 SF

4-5 bedrooms
2.5 bathrooms
2-car attached garage

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Elevation A1

Elevation A2

Elevation A3

Elevation A

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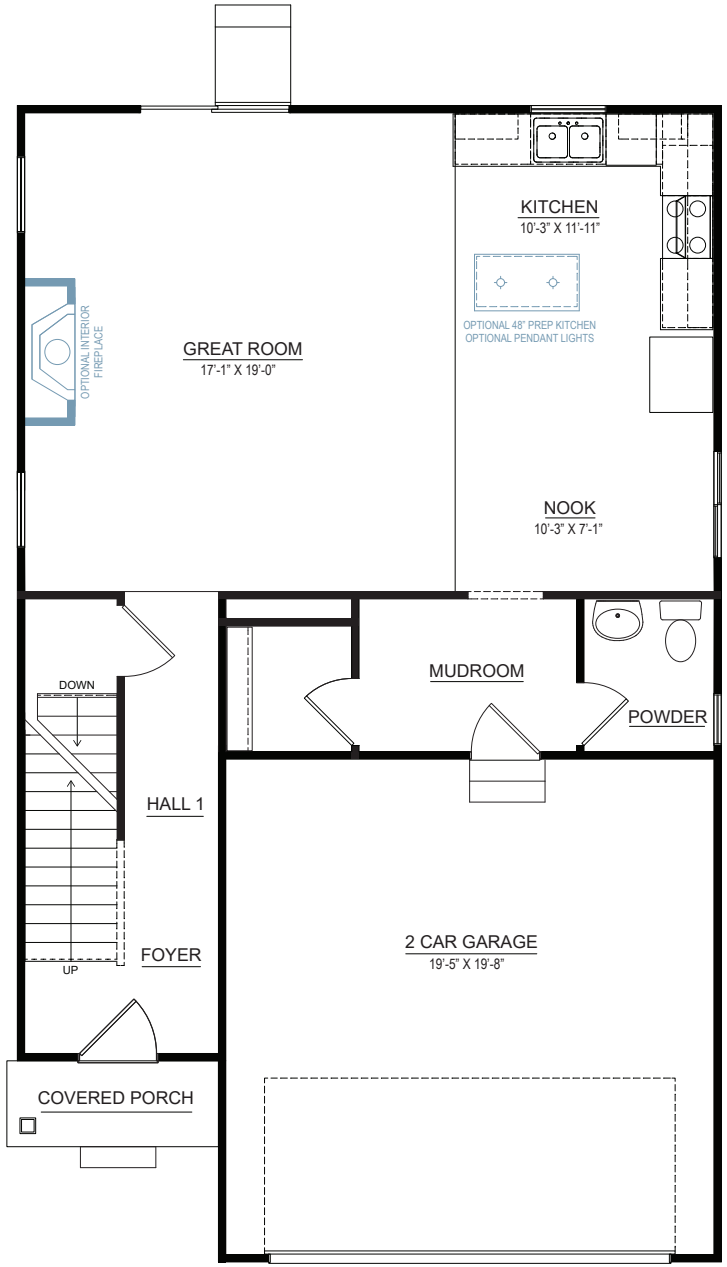

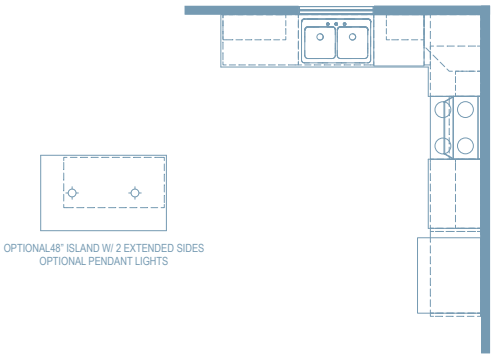

DESIGNER KITCHEN

FIRST FLOOR

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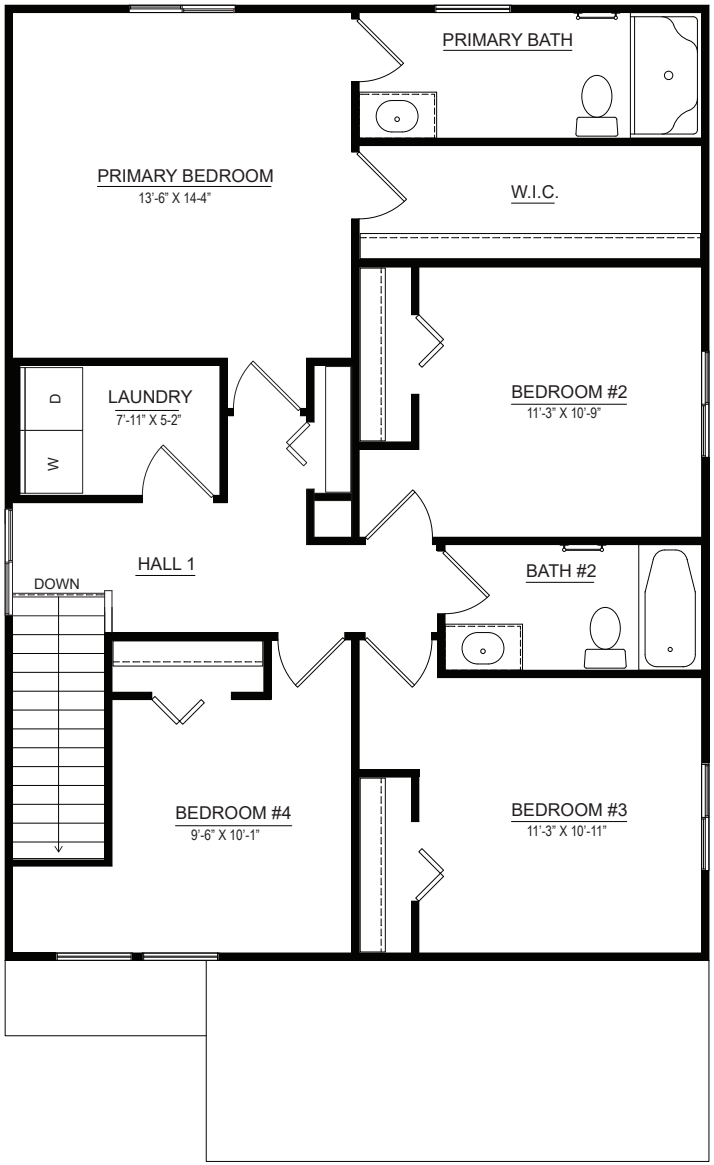

SECOND FLOOR

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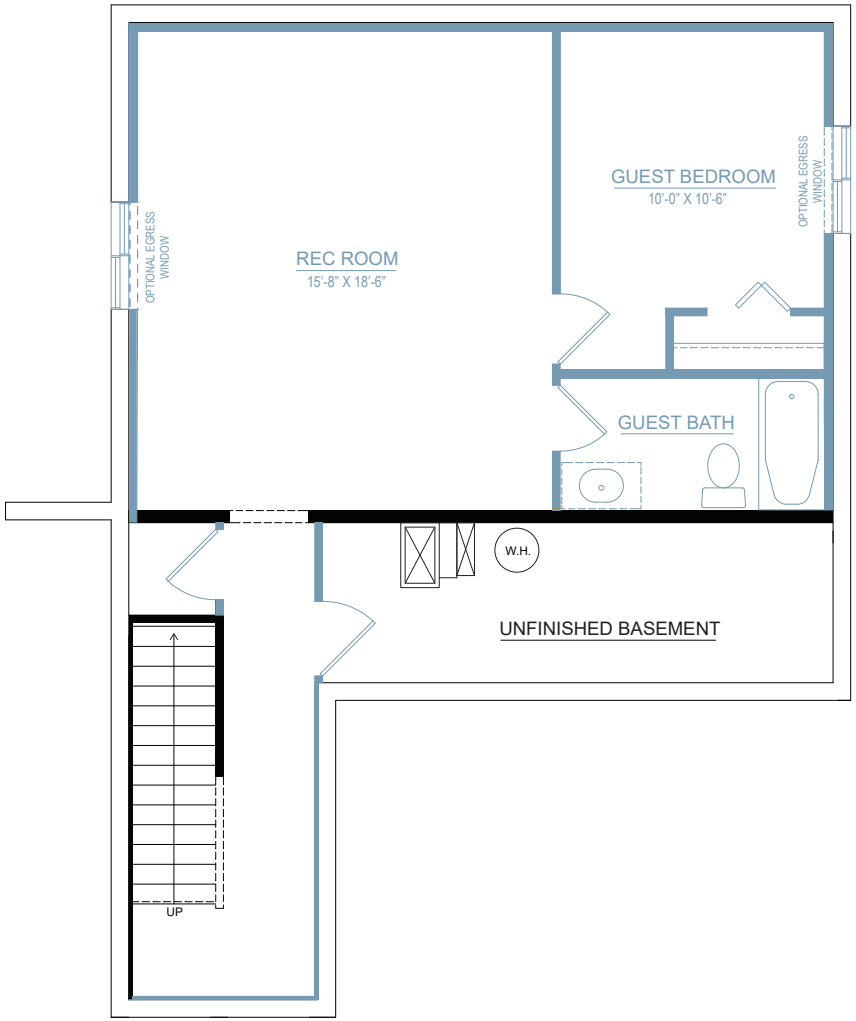

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integrity 2000

2,022 SF

4-5 bedrooms
2.5-3.5 bathrooms
2-3 car attached garage

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Elevation A1

Elevation A2

Elevation A3

Elevation A

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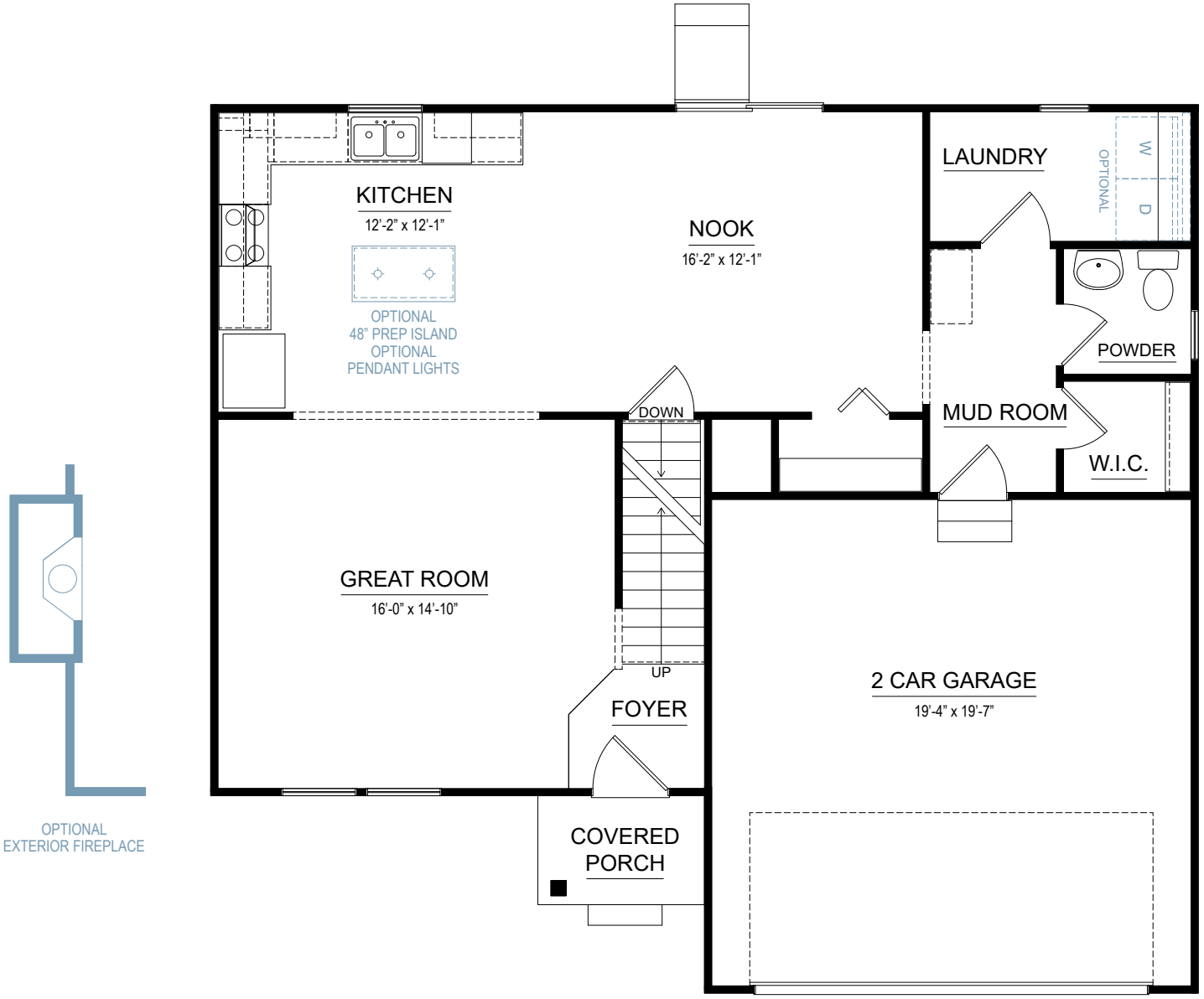

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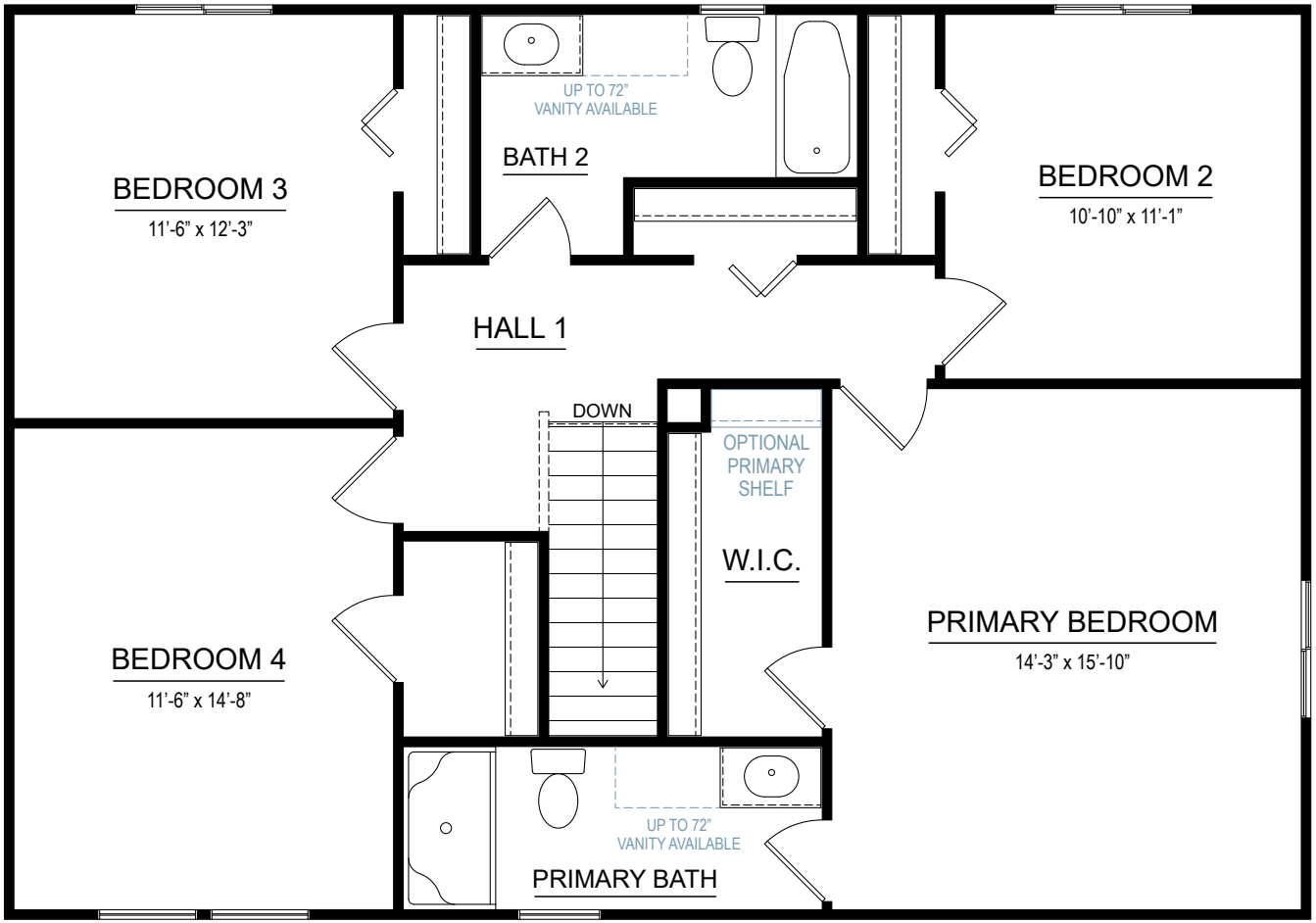

SECOND FLOOR

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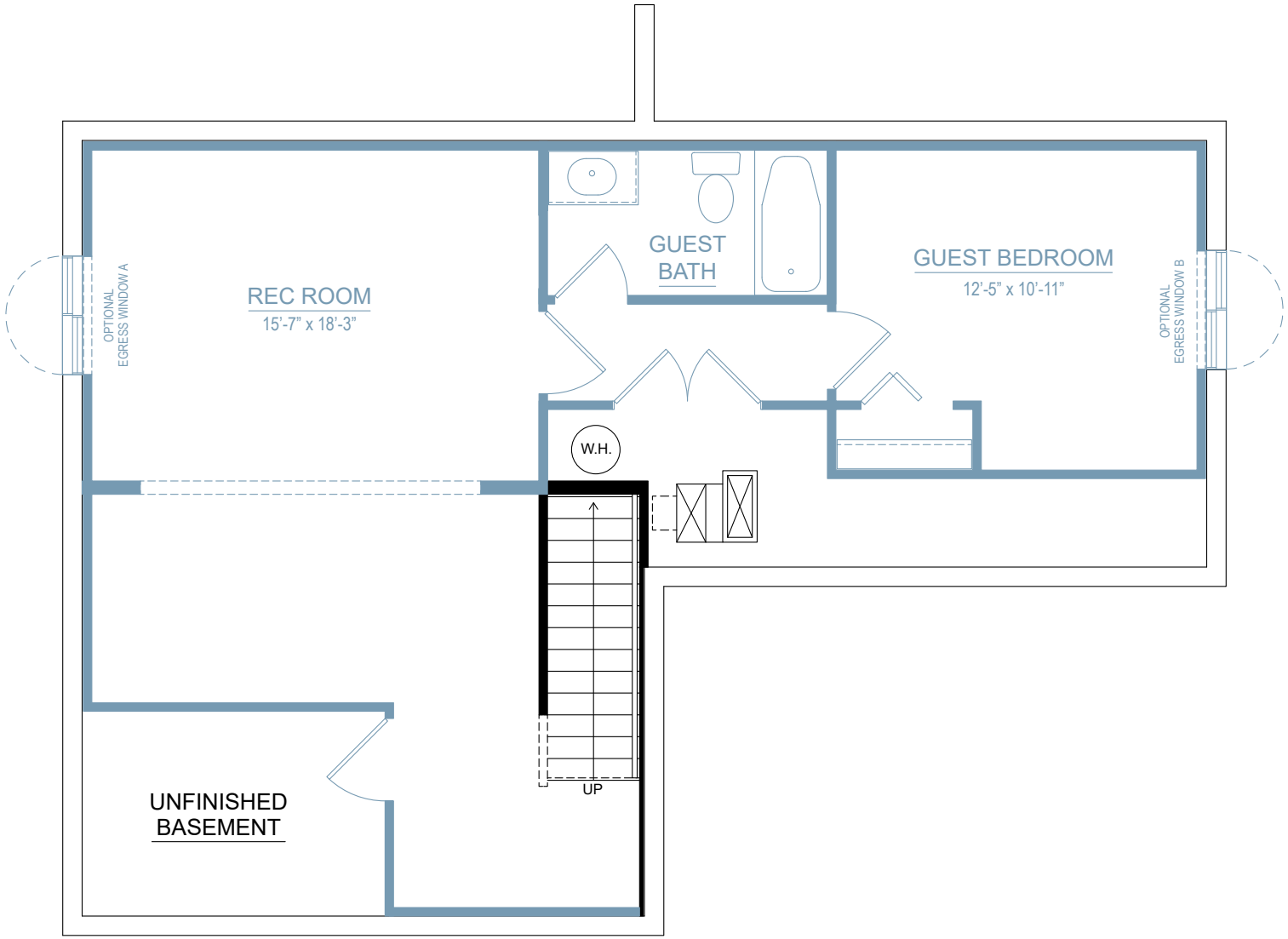

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integrity 2080

2062 SF

4 bedrooms
2.5-3.5 bathrooms
2-3 car attached garage

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Elevation A1

Elevation A2

Elevation A3

Elevation A

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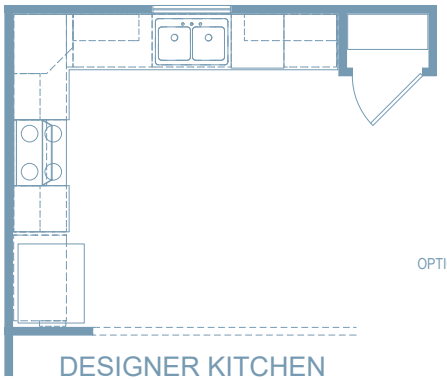
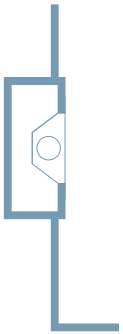
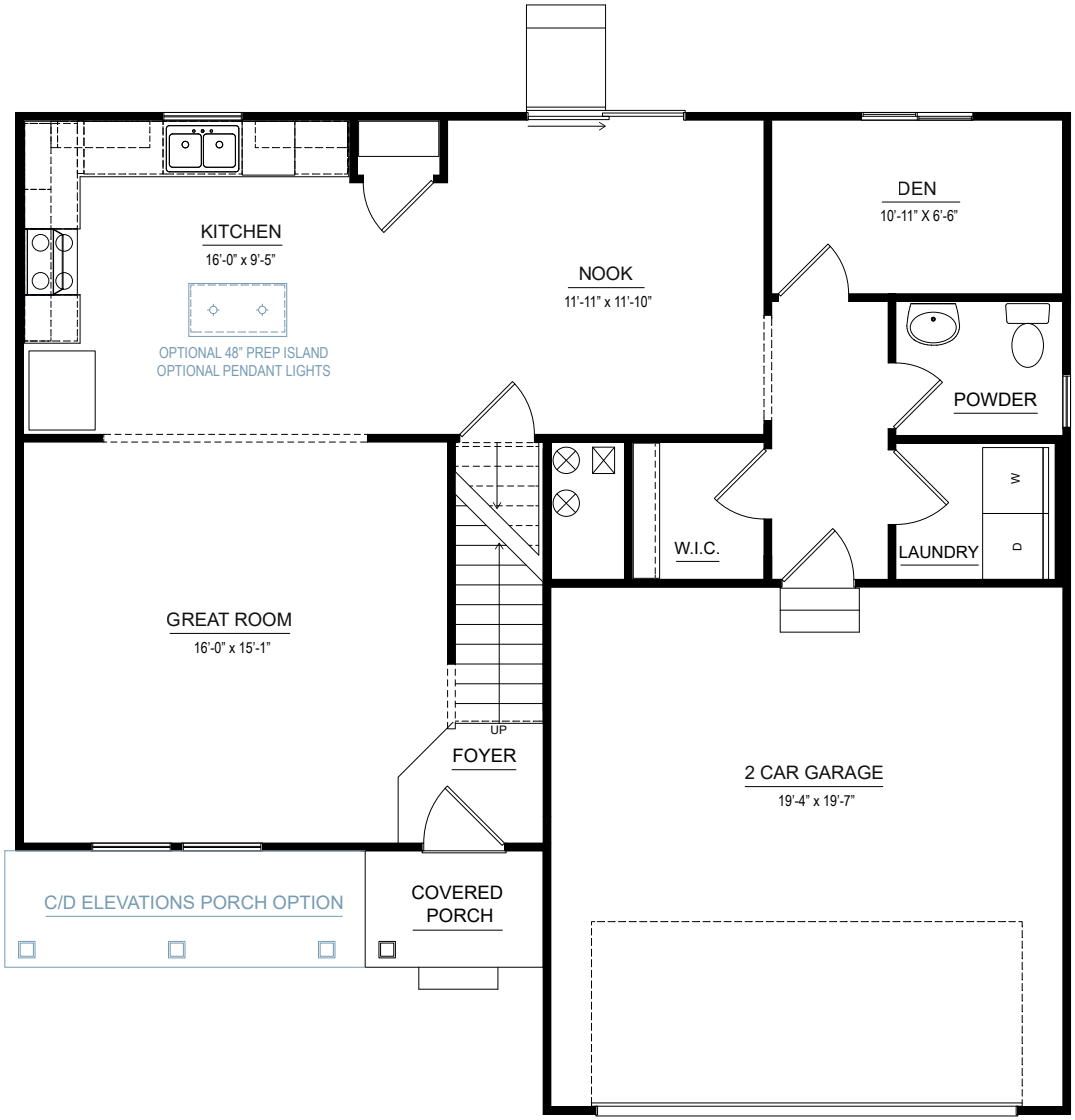


DESIGNER KITCHEN

OPTIONAL 48" ISLAND W/ 2 EXTENDED SIDES
OPTIONAL PENDANT LIGHTS



OPTIONAL
EXTERIOR FIREPLACE



FIRST FLOOR

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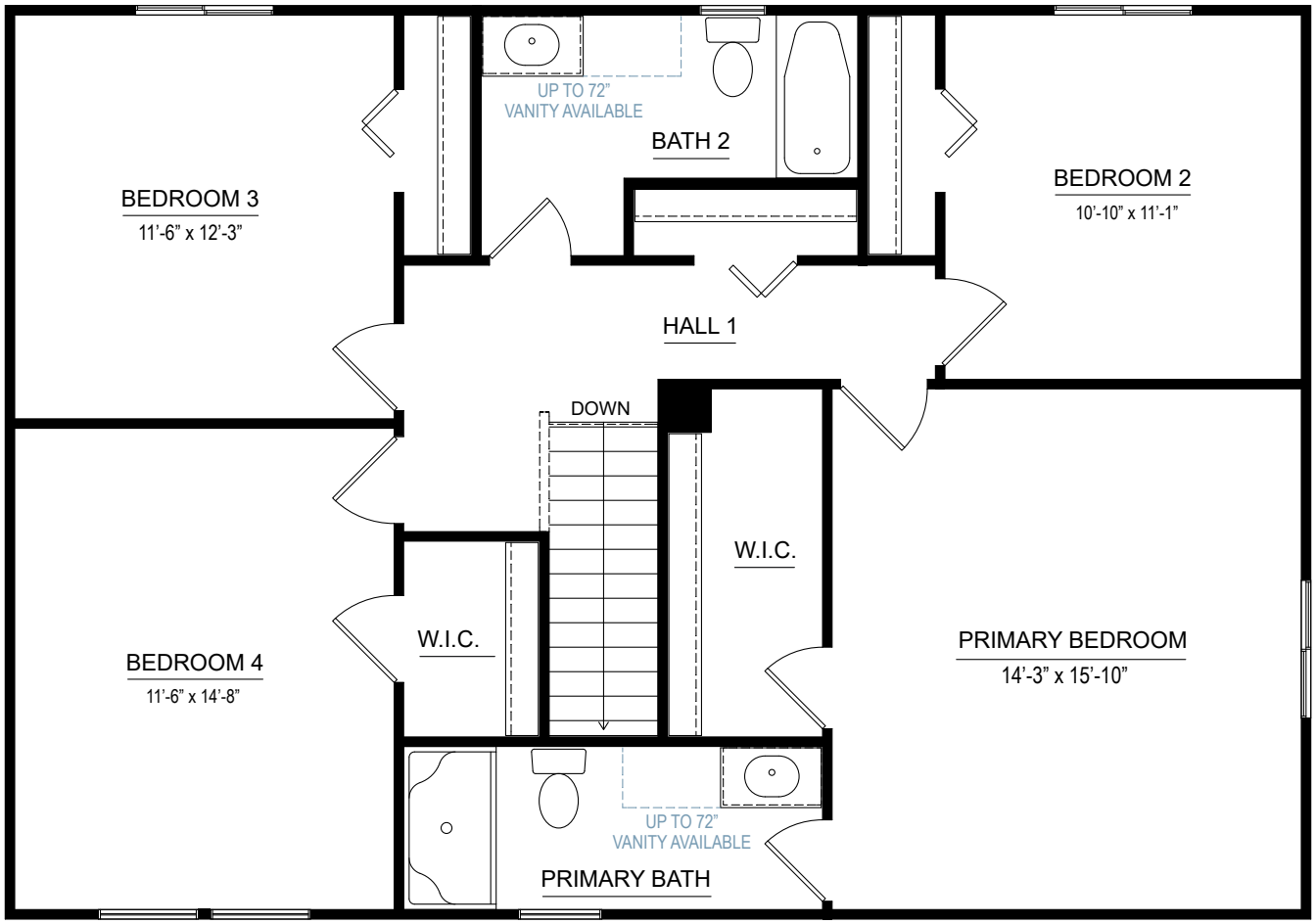

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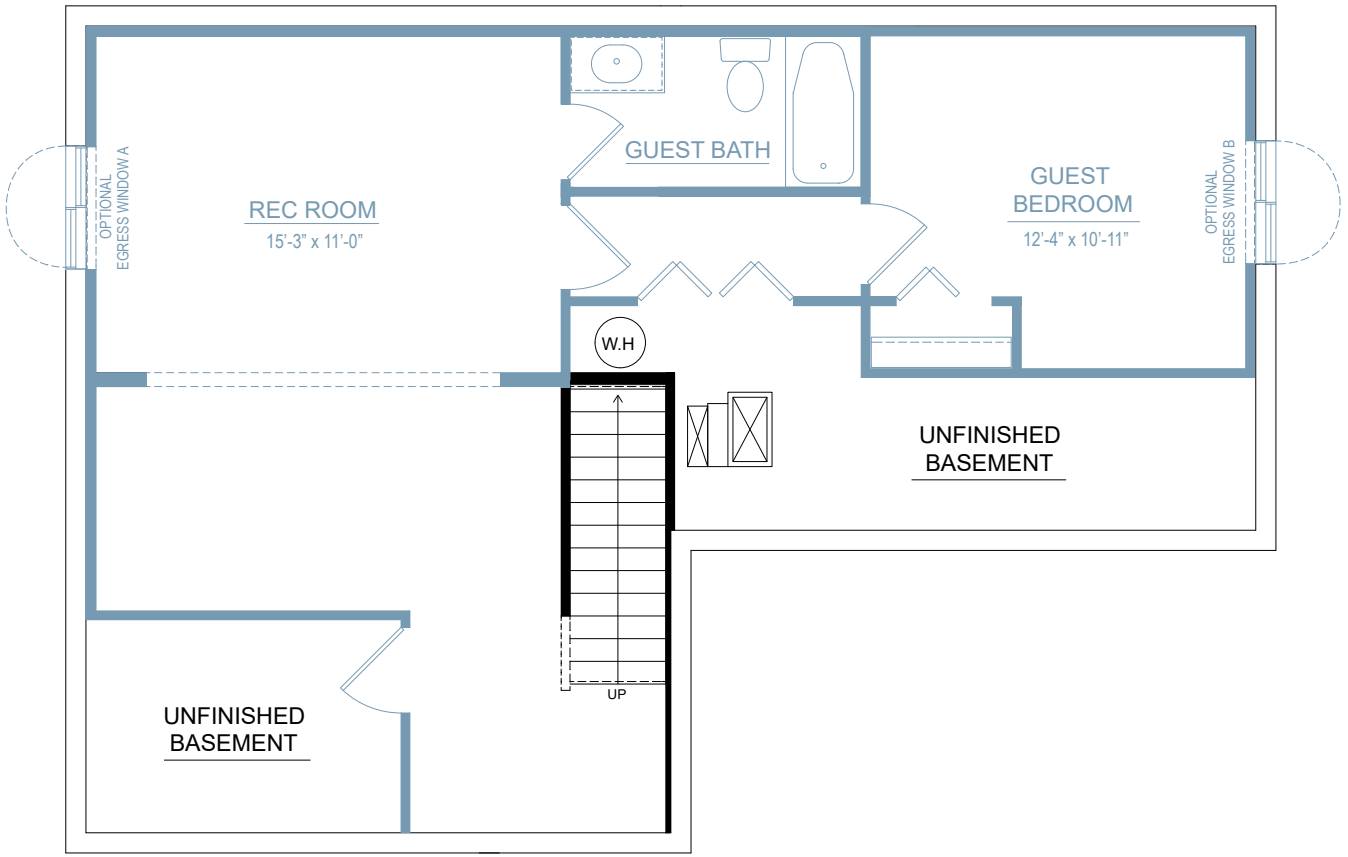

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integrity 2085

2083 SF

5 bedrooms
2.5 bathrooms
2 car attached garage

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Elevation A1

Elevation A2

Elevation A3

Elevation A

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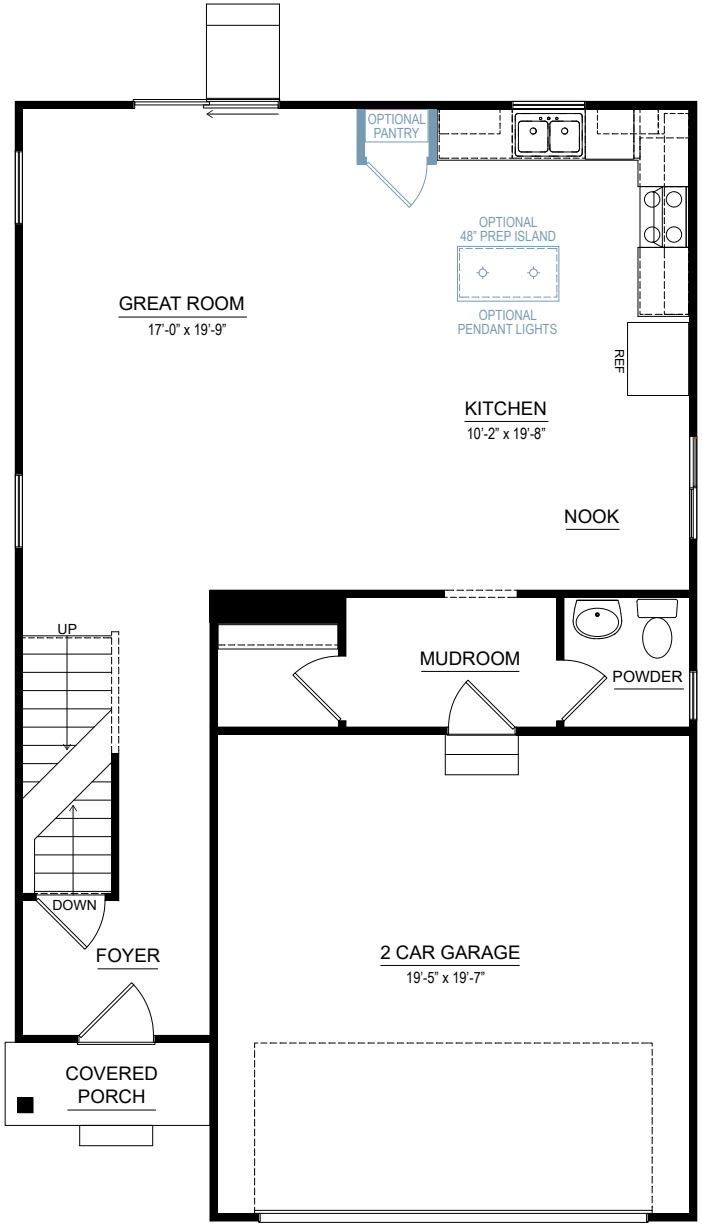

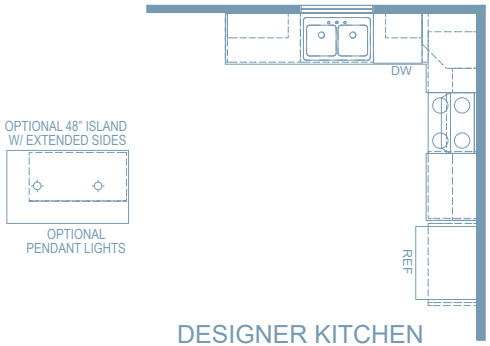

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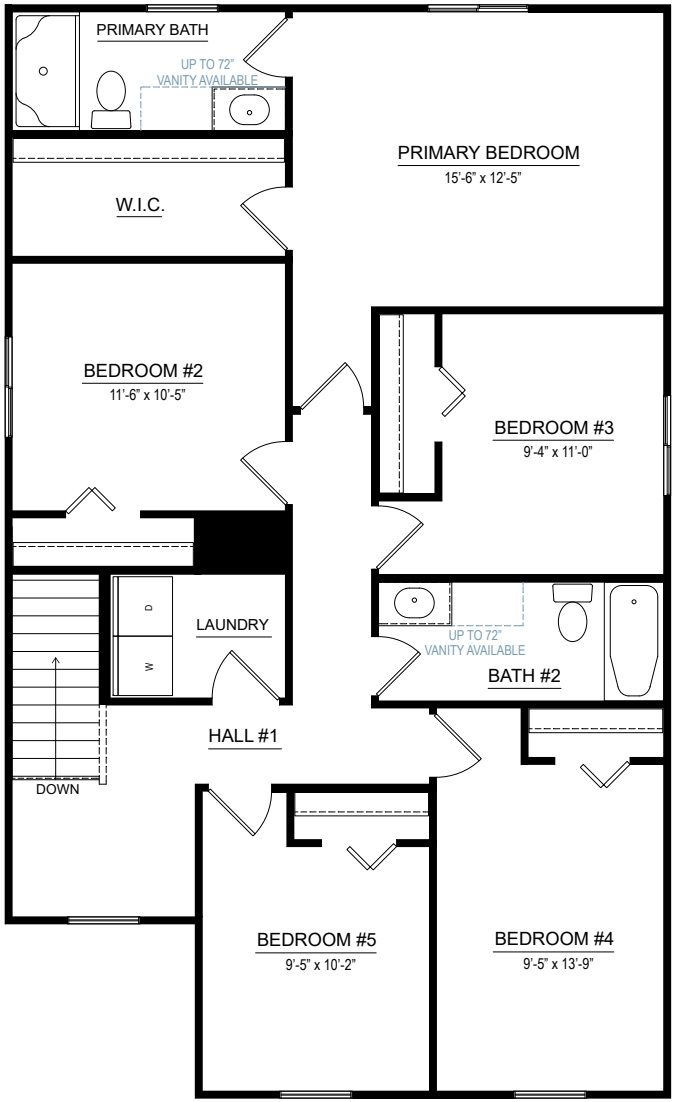

SECOND FLOOR

RESNET EnergySmart Builder
Every Home Is a HERS Rated Home
EQUAL HOUSING OPPORTUNITY

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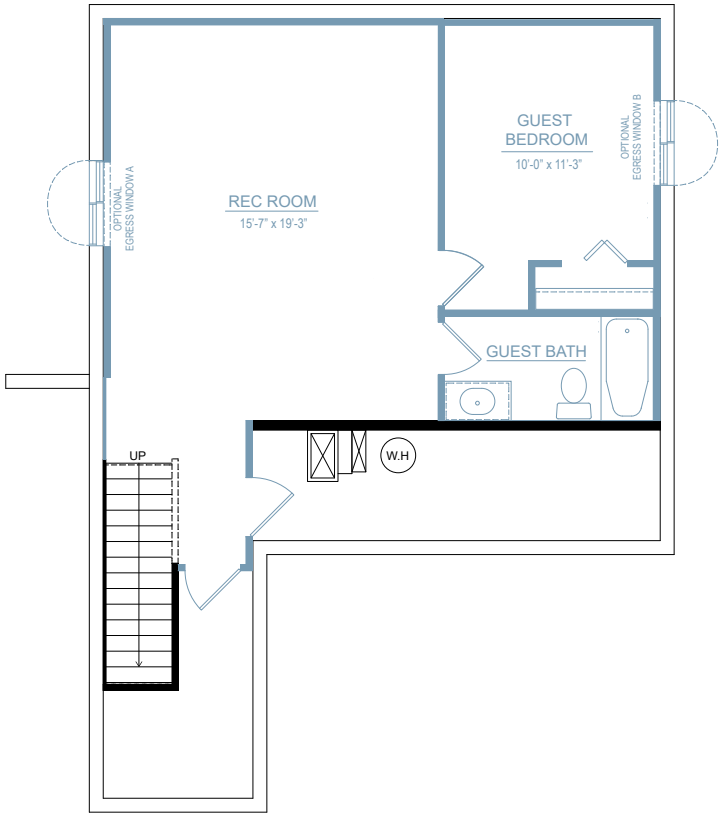

FINISHED BASEMENT

RESNET EnergySmart Builder
Every Home is a HERS Rated Home
EQUAL HOUSING OPPORTUNITY

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SITE PLAN AMENDMENT

HIGHLAND RESERVE

RESIDENTIAL HOUSING DEVELOPMENT

SECTION 26, TOWN 3 NORTH, RANGE 6 EAST
HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

ENGINEER/SURVEYOR

UMLOR GROUP
LAND DEVELOPMENT SERVICES

THE UMLOR GROUP
49287 WEST ROAD
WIXOM, MI 48393
FAX: (866) 690-4307
WEB: www.umlorgroup.com

WES LEE UMLOR, P.E.
PHONE: (248) 773-7656
EMAIL: wumlor@umlorgroup.com

JASON FLEIS, P.E.
PHONE: (248) 773-7656 EXT 125
EMAIL: jfleis@umlorgroup.com

DEVELOPER/APPLICANT

CONTACT: CHRIS KOHANE
GREEN DEVELOPMENT VENTURES, LLC
ALLEN EDWIN HOMES
2186 CENTRE STREET
PORTAGE, MI 49002
CONTACT: CHRIS KOHANE
PHONE: (616) 325-0648
EMAIL: ckohane@allenedwin.com

CONTACT	SUBMITTED
HARTLAND TOWNSHIP MIKE LUCE, TOWNSHIP MANAGER TROY LANGER, DIRECTOR PLANNING & ZONING PHONE: (810) 632-7498 2655 CLARK ROAD HARTLAND, MI 48353	5-1-24 6-21-24 8-14-24 1-15-25 2-10-25 5-2-25
HARTLAND TOWNSHIP SCOTT HABLE, DIRECTOR PUBLIC WORKS PHONE: (810) 632-7498 2655 CLARK ROAD HARTLAND, MI 48353	3-4-24 5-1-24 6-21-24 8-14-24 4-28-25
HARTLAND DEERFIELD FIRE AUTHORITY JON DEHANKE, CAPTAIN\FIRE INSPECTOR PHONE: (810) 632-7676 3205 HARTLAND ROAD HARTLAND, MI 48353	3-4-24
LIVINGSTON COUNTY DRAIN COMMISSIONER FRANK ERVIN, DEPUTY DRAIN COMMISSIONER PHONE: (517) 546-0040 2300 E. GRAND RIVER, SUITE 105 HOWELL, MI 48843-7581	3-4-24 5-1-24 7-15-24 8-14-24
GENESEE COUNTY DRAIN COMMISSIONER- WWS LYNNETTE MEINZ, P.E. PHONE: (810) 732-7870 4610 BEECHER RD. FLINT, MI 48532	3-4-24 5-1-24 7-15-24
STATE OF MICHIGAN - EGLE MATTHEW RODGERS PHONE: (517) 388-6869	2-2-24
STATE OF MICHIGAN - MDOT REVIEW AGENT NOT YET ASSIGNED PHONE:	2-2-24 6-7-24 8-1-24 2-28-25

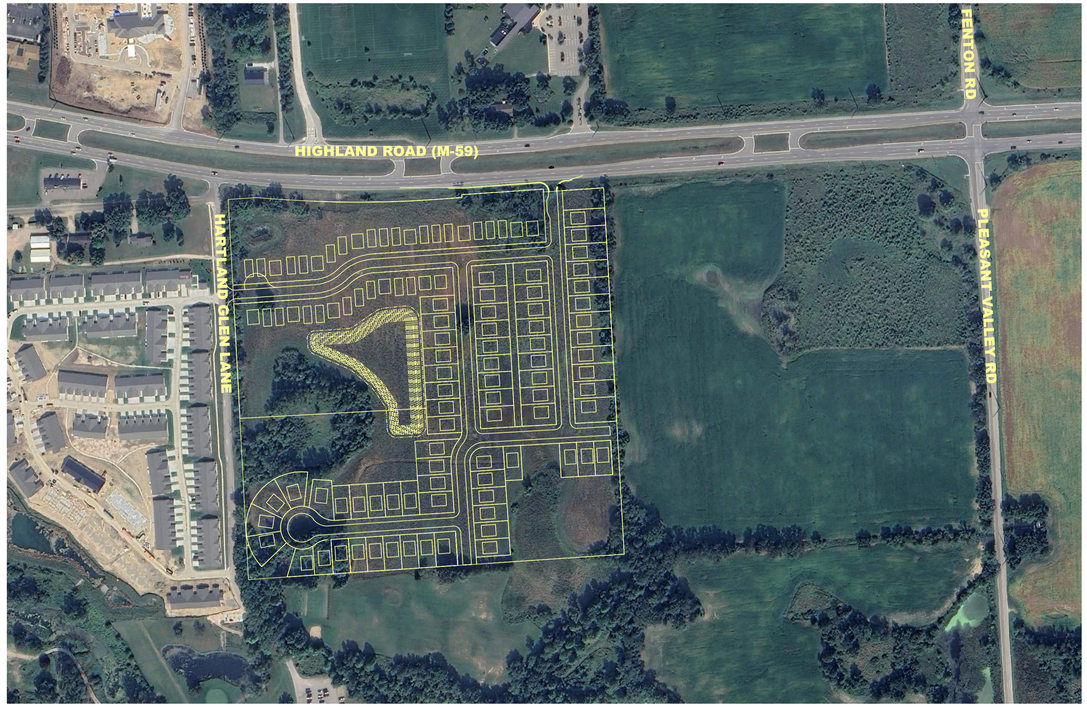
NOT APPROVED-PERMIT LIST

TOWNSHIP FINAL ENGINEERING PLAN APPROVAL
M.D.O.T. RIGHT-OF-WAY PERMIT
COUNTY SOIL EROSION PERMIT
EGLE NPDES NOTICE OF COVERAGE
EGLE PART 41 WASTEWATER PERMIT
EGLE ACT 399 WATER SYSTEM PERMIT
TOWNSHIP WOODLAND PERMIT

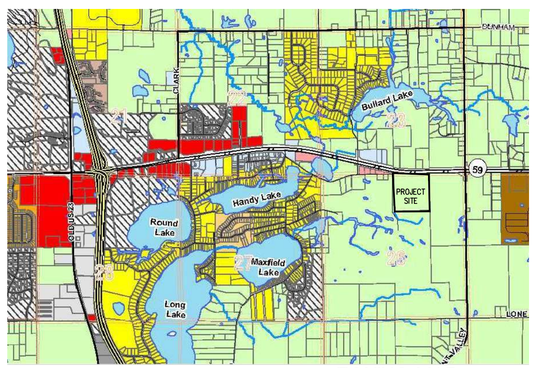
APPROVED-PERMIT LIST

TWP. PRELIMINARY SITE PLAN \ CLUSTER DEVELOPMENT APPROVAL
TOWNSHIP ZBA (NOT REQUIRED)
EGLE WETLAND PERMIT

DISTURBED AREA = ±34.2-ACRES
NPDES STORM WATER PERMIT IS REQUIRED



AERIAL MAP
SCALE 1" = 250'



ZONING MAP
NOT TO SCALE

- CA - Conservation Agricultural
- RUR - Rural Residential
- RR - Residential Recreational
- STR - Settlement Residential
- RE- Rural Estate District
- SR - Suburban Residential
- MDR - Medium Density Residential
- HDR - High Density Residential
- MR - Multiple Family Residential
- MR-2 - Mobile Home Park
- OS - Office Service
- LC - Limited Commercial
- NSC - Neighborhood Service Commercial
- GC - General Commercial
- RDP - Research and Development Park
- LI - Light Industrial
- I - Industrial
- PD - Planned Development

SANITARY BASIS OF DESIGN:
GENESEE COUNTY STANDARD
G.C.D.C. REU = 315-GPD
315-GPD x 108 UNITS = 34,020-GPD
PEAKING FACTOR 4 = 34,020-GPD x 4 = 136,080 GPD
136,080-GPD/24-HR/60-MIN = 94.50-GPM OR 0.2105-CFS

WATER MAIN BASIS OF DESIGN:
LIVINGSTON COUNTY STANDARD
L.C.D.C REU = 260-GPD
260-GPD x 108 UNITS = 28,080-GPD
PEAKING FACTOR 4 = 28,080-GPD x 4 = 112,320 GPD
112,320-GPD/24-HR/60-MIN = 78.0-GPM OR 0.1738-CFS

GENERAL NOTES:
1. PER THE TEN STATES STANDARDS ARTICLE 8.8.3, ONE FULL 20-FOOT PIPE LENGTH OF WATER MAIN SHALL BE USED WHENEVER STORM SEWER OR SANITARY SEWER IS CROSSED, AND THE PIPE SHALL BE CENTERED ON THE CROSSING, IN ORDER TO ENSURE 10-FOOT SEPARATION BETWEEN WATER MAIN AND SEWERS.
2. ALL WATER MAIN SHALL HAVE 6.0 FEET OF COVER FROM FINISHED GRADE.

REVISIONS BY DIFFIN
04-29-2022 PER MCDR
06-08-2022 PER CITY
07-11-2022 PER CITY
07-20-2022 PER CITY
08-19-2022 PER MCPW
08-31-2022 PER MCPW
10-12-2022 PER MCPW

BENCHMARK NO. 1
ARROW ON DOME OF HYDRANT
S.E. CORNER HARTLAND GLEN LANE
ELEVATION = 979.27
N.A.V.D.88 DATUM

BENCHMARK NO. 2
NAIL IN WEST FACE OF UTILITY POLE
S.E. CORNER PROPERTY ALONG
EAST SIDE OF HARTLAND GLEN LANE
ELEVATION = 971.56
N.A.V.D.88 DATUM

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	TOPOGRAPHIC / BOUNDARY SURVEY - NORTH
3.	TOPOGRAPHIC / BOUNDARY SURVEY - SOUTH
4A.	SITE PLAN & PHASING PLAN
4B.	OPEN SPACE PLAN
5.	LANDSCAPE PLAN
~~6.~~	~~SESC PLAN~~
~~7.~~	~~SESC DETAILS~~
8.	SITE GRADING / UTILITY PLAN NO. 1 - NORTHEAST
9.	SITE GRADING / UTILITY PLAN NO. 2 - SOUTHEAST
10.	SITE GRADING / UTILITY PLAN NO. 3 - WEST
~~11.~~	~~ABERNETHY ST PLAN, ROAD & UTILITY PROFILES~~
~~12.~~	~~PHASE 1 NORTHERN STORM SEWER PLAN & PROFILES~~
~~13.~~	~~LOCKERBIE LANE PLAN, ROAD & UTILITY PROFILES~~
~~14.~~	~~TOTEGAN ST PLAN, ROAD & UTILITY PROFILES~~
~~15.~~	~~MELSETTER ST PLAN, ROAD & UTILITY PROFILES~~
~~16.~~	~~CARRADALE ST PLAN, ROAD & UTILITY PROFILES~~
~~17.~~	~~STORM SEWER PROFILES~~
~~18.~~	~~STORM SEWER CALCULATIONS~~
~~19.~~	~~M-59 & LOCKERBIE GRADING PLAN~~
~~20.~~	~~M-59 & LOCKERBIE PAVEMENT MARKING PLAN~~
~~21.~~	~~M-59 & LOCKERBIE UTILITY PLAN & PROFILE~~
~~22.~~	~~STORM SEWER TRIBUTARY AREA PLAN~~
~~23.~~	~~DETENTION BASIN PLAN & DETAILS~~
~~24.~~	~~STORM DRAINAGE EASEMENT EXHIBIT~~
~~25.~~	~~LOT GRADING DETAILS / A.D.A. RAMP DETAILS~~
~~26.~~	~~MDOT STANDARD DETAILS / M-59 A.D.A. RAMP DETAILS~~
~~27.~~	~~SOIL BORINGS SHEET 1~~
~~28.~~	~~SOIL BORINGS SHEET 2~~

REFERENCE SHEETS

1. M-59 LANDSCAPING PLAN EAST
2. M-59 LANDSCAPING PLAN WEST
3. LIGHTING PLAN

TOWNSHIP / COUNTY STANDARD DETAILS

~~1. GCDC WWS SANITARY SEWER STANDARD DETAILS NO. 1~~
~~2. GCDC WWS STANDARD CONSTRUCTION NOTES~~
~~3. LCDC SANITARY SEWER STANDARD DETAILS NO. 1~~
~~4. LCDC SANITARY SEWER STANDARD DETAILS NO. 2~~
~~5. TOWNSHIP PAVING STANDARD DETAILS NO. 1~~
~~6. TOWNSHIP PAVING STANDARD DETAILS NO. 2~~
~~7. TOWNSHIP STORM SEWER STANDARD DETAILS NO. 1~~
~~8. TOWNSHIP STORM SEWER STANDARD DETAILS NO. 2~~
~~9. TOWNSHIP WATER MAIN STANDARD DETAILS NO. 1~~
~~10. TOWNSHIP WATER MAIN STANDARD DETAILS NO. 2~~
~~11. TOWNSHIP WATER MAIN STANDARD DETAILS NO. 3~~
~~12. TOWNSHIP WATER MAIN STANDARD DETAILS NO. 4~~
~~13. TOWNSHIP WATER MAIN STANDARD DETAILS NO. 5~~

Note:
This project has been designed implementing the latest LCDC & GCDC-WWS Design Specifications. Carefully review the notes, details, and design prior to submitting a bid. Full compliance with the new standards will be required. Wherever conflicts exist between LCDC and GCDC-WWS standard details the stricter of the two shall prevail.

Existing utilities were "NOT" exposed for verification of location and elevations.

DRAINAGE SYSTEM OWNERSHIP: The portion of the proposed drainage system located within the rental area of the site is to be owned and properly maintained by the property owner and the portion of the proposed drainage system located within the site condominium area of the site is to be owned and properly maintained by the Condominium Owner's Association. Separate storm water maintenance agreements shall be executed with Hartland Twp. for each property.

STATE OF MICHIGAN
JASON MICHAEL FLEIS
ENGINEER
6201058709
LICENSED PROFESSIONAL ENGINEER

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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

CONSTRUCTION SITE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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UMLOR GROUP
49287 WEST ROAD WIXOM, MI 48393
TEL 248.773.7656 - FAX 866.690.4307

SECTION 26 | TOWN 3 NORTH, RANGE 6 EAST | HARTLAND TOWNSHIP | LIVINGSTON COUNTY, MICHIGAN

DATE: 7-10-25

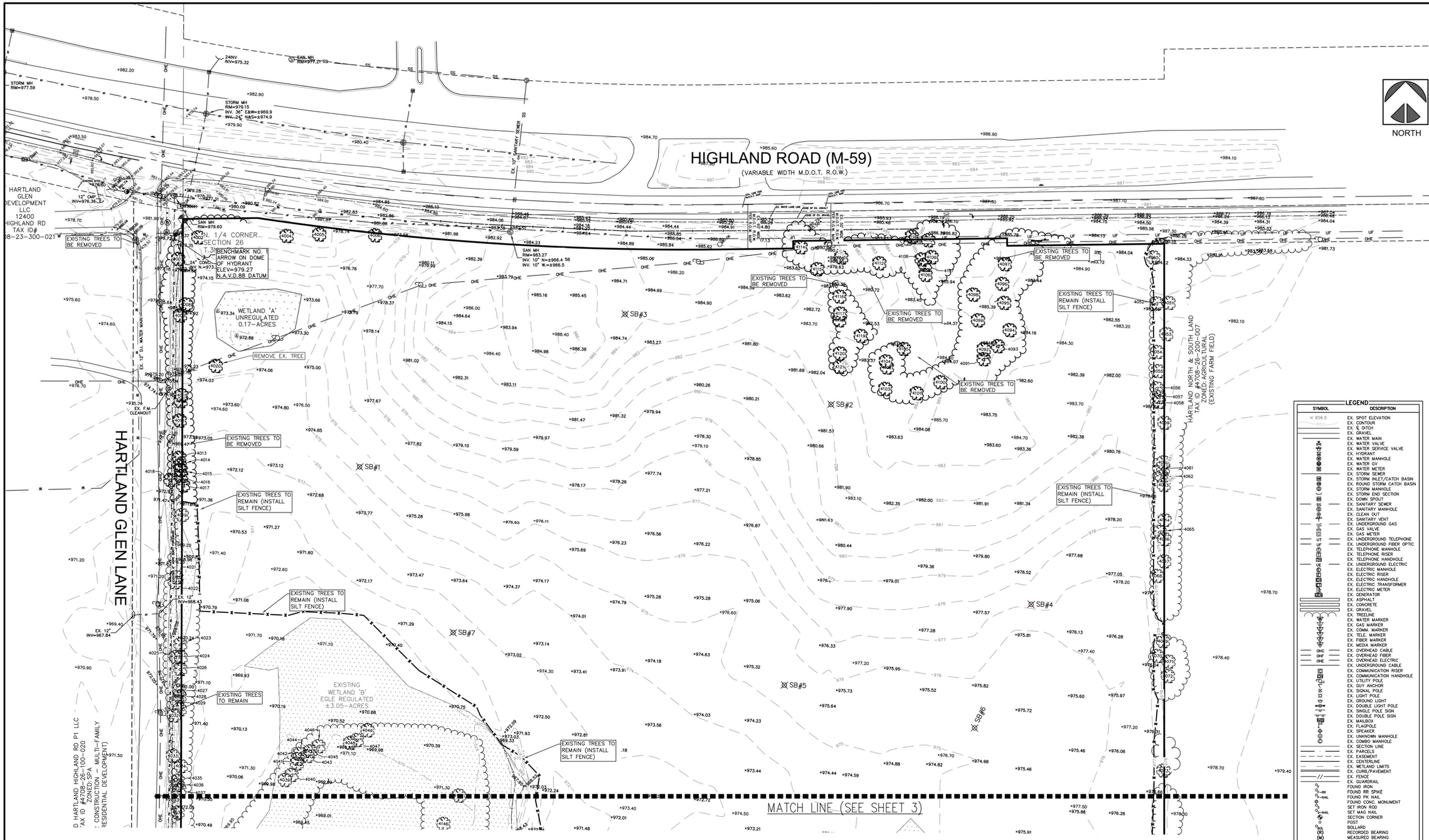
REVISIONS
2-10-25 SITE PLAN
5-2-25 SITE PLAN
6-23-25 SITE PLAN
7-10-25 SITE PLAN

HIGHLAND RESERVE
CLIENT: ALLEN EDWIN HOMES
2186 E. CENTER STREET
PORTAGE, MI 49002

COVER SHEET

DR BY: MS
CK BY: JF
P.M. JF
SCALE 0 -- --
AS NOTED
JOB NO. 240916
SHEET NO. 1
SHEET 1 OF 28

M:\UMLOR GROUP PROJECTS\ALLEN EDWIN HOMES\240916 - HIGHLAND RESERVE\DESIGN FILES & PLAN SETS\BASE AUTOCAD FILES\240916 - UG LAYOUT BASE.DWG



LEGEND

SYMBOL	DESCRIPTION
× 656.5	EX. SPOT ELEVATION
	EX. CONTOUR
	EX. ℄ DITCH
	EX. GRAVEL
	EX. WATER MAIN
	EX. WATER VALVE
	EX. WATER SERVICE VALVE
	EX. HYDRANT
	EX. WATER MANHOLE
	EX. WATER GV
	EX. WATER METER
	EX. STORM SEWER
	EX. STORM INLET/CATCH BASIN
	EX. ROUND STORM CATCH BASIN
	EX. STORM MANHOLE
	EX. STORM END SECTION
	EX. DOWN SPOUT
	EX. SANITARY SEWER
	EX. SANITARY MANHOLE
	EX. CLEAN OUT
	EX. SANITARY VENT
	EX. UNDERGROUND GAS
	EX. GAS VALVE
	EX. GAS METER
	EX. UNDERGROUND TELEPHONE
	EX. UNDERGROUND FIBER OPTIC
	EX. TELEPHONE MANHOLE
	EX. TELEPHONE RISER
	EX. TELEPHONE HANDHOLE
	EX. UNDERGROUND ELECTRIC
	EX. ELECTRIC MANHOLE
	EX. ELECTRIC RISER
	EX. ELECTRIC HANDHOLE
	EX. ELECTRIC TRANSFORMER
	EX. ELECTRIC METER
	EX. GENERATOR
	EX. ASPHALT
	EX. CONCRETE
	EX. GRAVEL
	EX. TREELINE
	EX. WATER MARKER
	EX. GAS MARKER
	EX. COMM. MARKER
	EX. TELE. MARKER
	EX. FIBER MARKER
	EX. MEDIA MARKER
OHC	EX. OVERHEAD CABLE
OHF	EX. OVERHEAD FIBER
OHE	EX. OVERHEAD ELECTRIC
	EX. UNDERGROUND CABLE
	EX. COMMUNICATION RISER
	EX. COMMUNICATION HANDHOLE
	EX. UTILITY POLE
	EX. GUY ANCHOR
	EX. SIGNAL POLE
	EX. LIGHT POLE
	EX. GROUND LIGHT
	EX. DOUBLE LIGHT POLE
	EX. SINGLE POLE SIGN
	EX. DOUBLE POLE SIGN
	EX. MAILBOX
	EX. FLAGPOLE
	EX. SPEAKER
	EX. UNKNOWN MANHOLE
	EX. COMBO MANHOLE
	EX. SECTION LINE
	EX. PARCELS
	EX. EASEMENT
	EX. CENTERLINE
	EX. WETLAND LIMITS
	EX. CURB/PAVEMENT
	EX. FENCE
	EX. GUARDRAIL
	FOUND IRON
RR	FOUND RR SPIKE
PK NAIL	FOUND PK NAIL
	FOUND CONC. MONUMENT
	SET IRON ROD
MAG NAIL	SET MAG NAIL
	SECTION CORNER
	POST
	BOLLARD
(R)	RECORDED BEARING
(M)	MEASURED BEARING
	EX. TREE
	DEMO TREE

PROPERTY DESCRIPTION:

Land situated in the Township of Hartland, County of Livingston in the State of Michigan and described as follows:

A part of the West 1/2 of the Northeast 1/4 of Section 26, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan, more particularly described as commencing at the North 1/4 corner of said Section 26 for a point of beginning; thence North 86 degrees 38 minutes 50 seconds East, 99.75 feet along the North line of said Section 26, to a point on the Southerly right-of-way of M-59 Highway; thence 622.15 feet along a curve to the left, said curve having a radius 3879. 71 feet, a central angle of 09 degrees 11 minutes 16 seconds and a chord bearing and distance of South 88 degrees 47 minutes 24 seconds East, 621 .48 feet, along the Southerly right-of-way of said M-59 Highway; thence North 86 degrees 36 minutes 57 seconds East, 95.52 feet, along Southerly right-of-way of said M-59 Highway; thence North 02 degrees 39 minutes 24 seconds West 10.00 feet, along Southerly right-of-way line of said M-59 Highway; thence North 86 degrees 36 minutes 57 seconds East, 286.00 feet, along Southerly right-of-way of said M-59 Highway; thence South 02 degrees 39 minutes 24 seconds East, 10.00 feet along Southerly right-of-way of said M-59 Highway; thence North 86 degrees 36 minutes 57 seconds East, 210.00 feet, along Southerly right-of-way of said M-59 Highway; thence South 02 degrees 39 minutes 24 seconds East, 1282.07 feet; thence South 86 degrees 41 minutes 45 seconds West, 1315.86 feet to a point on the North and South 1/4 line of said Section 26; thence North 02 degrees 27 minutes 46 seconds West, 1330.13 feet along said North and South 1/4 line of said Section 26, to the point of beginning.

TAX ID# 4708-26-200-002

PARCEL AREA = ±39.05-ACRES

STATE OF MICHIGAN
MATTHEW A DIFFIN
ENGINEER
No. 49087
LICENSED PROFESSIONAL ENGINEER

Civil Engineering
Landscape Architecture
Land Surveying
Construction Services
DIFFIN
Engineering & Surveying
24353 Tara Drive
South Lyon, MI 48178
P: 248.943.8244
F: 248.378.2564
www.Diffin-Eng.com

REVISIONS

- REV. PER LCDC 3-20-24 REVIEW
- REV. PER GCDC 3-22-24 REVIEW
- TWP ENGINEER'S 3-23-24 REVIEW
- REV. PER LCDC 3-26-24 REVIEW
- TWP ENGINEER'S 5-28-24 REVIEW
- REV. PER LCDC 6-11-24 REVIEW

CLIENT:
ALLEN EDWIN HOMES
2186 E. CENTRE STREET
PORTAGE, MICHIGAN 49002

TOPOGRAPHIC SURVEY - NORTH
HIGHLAND RESERVE

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SECTION 26
TOWN 3 NORTH, RANGE 6 EAST
HARTLAND TOWNSHIP
LIVINGSTON COUNTY, MICHIGAN

DATE: 8-14-24
Drawn By: XX
P.E.: MD

1" = 60'

Job No.: 221215
Sheet No.
2

Z:\ALLEN EDWIN HOMES\HIGHLAND RD - HIGHLAND\BASE-SP 1-28-24.DWG

LEGEND

SYMBOL	DESCRIPTION
× 656.5	EX. SPOT ELEVATION
	EX. CONTOUR
	EX. ℄ DITCH
	EX. GRAVEL
	EX. WATER MAIN
	EX. WATER VALVE
	EX. WATER SERVICE VALVE
	EX. HYDRANT
	EX. WATER MANHOLE
	EX. WATER GV
	EX. WATER METER
	EX. STORM SEWER
	EX. STORM INLET/CATCH BASIN
	EX. ROUND STORM CATCH BASIN
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	EX. UNDERGROUND ELECTRIC
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	EX. ASPHALT
	EX. CONCRETE
	EX. GRAVEL
	EX. TREELINE
	EX. WATER MARKER
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	EX. TELE. MARKER
	EX. FIBER MARKER
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	EX. COMMUNICATION HANDHOLE
	EX. UTILITY POLE
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	EX. LIGHT POLE
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	EX. DOUBLE LIGHT POLE
	EX. SINGLE POLE SIGN
	EX. DOUBLE POLE SIGN
	EX. MAILBOX
	EX. FLAGPOLE
	EX. SPEAKER
	EX. UNKNOWN MANHOLE
	EX. COMBO MANHOLE
	EX. SECTION LINE
	EX. PARCELS
	EX. EASEMENT
	EX. CENTERLINE
	EX. WETLAND LIMITS
	EX. CURB/PAVEMENT
	EX. FENCE
	EX. GUARDRAIL
	FOUND IRON
RR	FOUND RR SPIKE
PK NAIL	FOUND PK NAIL
	FOUND CONC. MONUMENT
	SET IRON ROD
MAG NAIL	SET MAG NAIL
	SECTION CORNER
	POST
	BOLLARD
(R)	RECORDED BEARING
(M)	MEASURED BEARING
	EX. TREE
	DEMO TREE

REDWOOD HARTLAND HIGHLAND
TAX ID #4708-26-200-002
(UNDER CONSTRUCTION)
RESIDENTIAL DEVELOPMENT

HARTLAND GLEN LANE

MATCH LINE (SEE SHEET 2)

NORTH

EXISTING TREES TO REMAIN (INSTALL SILT FENCE)

EXISTING TREES TO BE REMOVED

REMOVE EX. TREE

SB#8 SB#9 SB#10 SB11 SB#12

EXISTING WETLAND 'B' EGLE REGULATED ±0.125-ACRES

EXISTING WETLAND 'C' EGLE REGULATED ±1.518-ACRES

BENCHMARK NO. 2
NAIL IN U.T. POLE
ELEV=971.56
N.A.V.D.88 DATUM

EX. F.M. CLEANOUT

EX. 10" INV=968.04

EX. 12" INV=967.42

EX. 8" DIA. OVERFLOW RISER RIM=960.26

EX. 18" INV=962.85

EX. 18" INV=959.54

EXISTING POND

HARTLAND GLEN DEVELOPMENT LLC
TAX ID #4708-26-100-023
ZONED: AGRICULTURAL
(EXISTING GOLF DRIVING RANGE)

SOILS MAP
NOT TO SCALE

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BtB	Boyer-Oshtemo loamy sands, 2 to 6 percent slopes	2.4	4.9%
BuA	Brady loamy sand, 0 to 2 percent slopes	21.0	42.3%
BwA	Bronson loamy sand, 0 to 2 percent slopes	7.7	15.5%
CarabA	Carlisle muck, 0 to 2 percent slopes	1.9	3.9%
FoA	Fox sandy loam, 0 to 2 percent slopes	7.9	16.0%
FoB	Fox sandy loam, 2 to 6 percent slopes	6.8	13.6%
Gd	Gilford sandy loam, 0 to 2 percent slopes, gravelly subsoil	1.9	3.8%
Totals for Area of Interest		**49.7**	**100.0%**

SOILS LEGEND

PROPERTY DESCRIPTION:

Land situated in the Township of Hartland, County of Livingston in the State of Michigan and described as follows:

A part of the West 1/2 of the Northeast 1/4 of Section 26, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan, more particularly described as commencing at the North 1/4 corner of said Section 26 for a point of beginning; thence North 86 degrees 38 minutes 50 seconds East, 99.75 feet along the North line of said Section 26, to a point on the Southerly right-of-way of M-59 Highway; thence 622.15 feet along a curve to the left, said curve having a radius 3879. 71 feet, a central angle of 09 degrees 11 minutes 16 seconds and a chord bearing and distance of South 88 degrees 47 minutes 24 seconds East, 621 .48 feet, along the Southerly right-of-way of said M-59 Highway; thence North 86 degrees 36 minutes 57 seconds East, 95.52 feet, along Southerly right-of-way of said M-59 Highway; thence North 02 degrees 39 minutes 24 seconds West 10.00 feet, along Southerly right-of-way line of said M-59 Highway; thence North 86 degrees 36 minutes 57 seconds East, 286.00 feet, along Southerly right-of-way of said M-59 Highway; thence South 02 degrees 39 minutes 24 seconds East, 10.00 feet along Southerly right-of-way of said M-59 Highway; thence North 86 degrees 36 minutes 57 seconds East, 210.00 feet, along Southerly right-of-way of said M-59 Highway; thence South 02 degrees 39 minutes 24 seconds East, 1282.07 feet; thence South 86 degrees 41 minutes 45 seconds West, 1315.86 feet to a point on the North and South 1/4 line of said Section 26; thence North 02 degrees 27 minutes 46 seconds West, 1330.13 feet along said North and South 1/4 line of said Section 26, to the point of beginning.

TAX ID# 4708-26-200-002

PARCEL AREA = ±39.05-ACRES

STATE OF MICHIGAN
MATTHEW A. DIFFIN
ENGINEER
No. 49087
LICENSED PROFESSIONAL ENGINEER

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Land Surveying
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DIFFIN
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South Lyon, MI 48178
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F: 248.378.2564
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REVISIONS

- REV. PER LCDC 3-20-24 REVIEW
- REV. PER GCDC 3-22-24 REVIEW
- TWP ENGINEER'S 3-23-24 REVIEW
- REV. PER LCDC 3-26-24 REVIEW
- TWP ENGINEER'S 5-28-24 REVIEW
- REV. PER LCDC 6-11-24 REVIEW

CLIENT: ALLEN EDWIN HOMES
2188 E. CENTRE STREET
PORTAGE, MICHIGAN 49002

TOPOGRAPHIC SURVEY - SOUTH
HIGHLAND RESERVE

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SECTION 26
TOWN 3 NORTH, RANGE 6 EAST
HARTLAND TOWNSHIP
LIVINGSTON COUNTY, MICHIGAN

DATE: 8-14-24
Drawn By: XX
P.E.: MD
1" = 60'
Job No.: 221215
Sheet No.
3

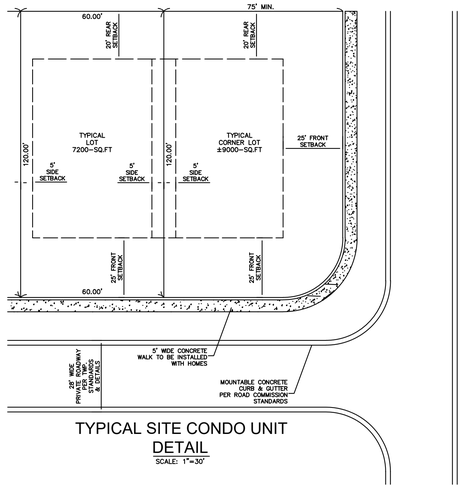
Z:\ALLEN EDWIN HOMES\HIGHLAND RD - HIGHLAND\BASE-SP 1-28-24.DWG

SITE DATA

OVERALL PARCEL AREA = ±39.05–ACRES
EXISTING ZONE = SPECIAL PLANNING AREA (SPA)
PROPOSED ZONING (PD) CLUSTER OPTION
PROPOSED NO. RENTAL UNITS = 37
PROPOSED NO. CONDO UNITS = 71
UNIT DENSITY = 108/39.05 = 2.73 UNITS/ACRE
MINIMUM LOT SIZE 60'(W)x120'(L)
MINIMUM LOT AREA = 7,200–SQ.FT
FRONT BUILDING SETBACK = 25–FT
REAR BUILDING SETBACK = 20–FT
SIDE BUILDING SETBACK = 5–FT EACH SIDE
80–FT BUILDING SETBACK REQUIRED ALONG M–59 R.O.W.

RESIDENTIAL SINGLE DEED RENTALS
AREA=±13.441–ACRES
OPEN SPACE=±12.248–ACRES
EX. WETLANDS=±1.19–ACRES
PR. WETLAND DISTURBANCE=±0.0–ACRES
PR. DETENTION BASIN=±1.817–ACRES

RESIDENTIAL SITE CONDO
AREA=±25.606–ACRES
OPEN SPACE=±7.549–ACRES
EX. WETLANDS=±3.318–ACRES
PR. WETLAND DISTURBANCE=±0.24–ACRES
PR. DETENTION BASIN=±0.224–ACRES



TYPICAL SITE CONDO UNIT DETAIL
SCALE: 1"=30'

PLANNED DEVELOPMENT NOTES

1. SITE ACCESS & ROADWAYS
THE DEVELOPMENT WILL BE SERVED BY PRIVATE ROADS MEETING THE STANDARDS AND SPECIFICATIONS OF HARTLAND TOWNSHIP AND LIVINGSTON COUNTY ROAD COMMISSION. SEE SHEET 25 FOR TYPICAL ROAD CROSS SECTION.
2. UTILITIES
PROPOSED PROJECT WILL BE SERVED BY PUBLIC SEWER AND PUBLIC WATER.
PRIVATE UTILITIES (GAS, ELECTRIC, PHONE) SHALL BE UNDERGROUND.
3. SITE LIGHTING
STREET LIGHTING TO BE IN ACCORDANCE WITH HARTLAND TOWNSHIP ORDINANCES.
4. STORM WATER MANAGEMENT
STORM WATER RUNOFF WILL BE COLLECTED IN THE STORM SEWER SYSTEM AND DETAINED IN ACCORDANCE WITH THE LIVINGSTON COUNTY DRAIN COMMISSION STORM WATER ORDINANCE.
5. SIDEWALKS
SIDEWALKS WILL BE IN ACCORDANCE WITH TOWNSHIP ORDINANCES.
6. FLOODPLAIN
THE SITE IS NOT AFFECTED BY A REGULATED 100–YEAR FLOODPLAIN.
7. WETLANDS
WETLAND SHOWN AS PROVIDED BY ENVIROLOGIC ENVIRONMENTAL CONSULTING AND SERVICES.
8. SANITARY SEWER
SANITARY SEWER TO BE IN ACCORDANCE WITH LCDC CURRENT STANDARDS EXCEPT WHERE MODIFIED BY THE TOWNSHIP.
9. WATER MAIN
WATER MAIN TO BE IN ACCORDANCE WITH TOWNSHIP STANDARDS.

LEGEND

- PR. CONDOMINIUM UNITS
- PR. RENTAL UNITS
- OPEN SPACE
- USABLE OPEN SPACE
- EX. WETLANDS PR. PRESERVATION AREAS
- STORM WATER PONDS
- EXISTING WOODLANDS TO REMAIN
- EXISTING REGULATED TREE TO REMAIN
- CONDOMINIUM GENERAL COMMON ELEMENT
- CONDOMINIUM LIMITED COMMON ELEMENT
- PROJECT PHASING LIMITS
- TEMPORARY EASEMENT

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY, AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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

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49287 WEST ROAD WIXOM, MI 48393
TEL 248.773.7650 - FAX 866.630.4307

HIGHLAND RESERVE
ALLEN EDWIN HOMES
2186 E. CENTER STREET
PORTAGE, MI 49002
CLIENT:

SITE PLAN & PHASING PLAN

DR BY: MS
CK BY: JF
P.M. JF
SCALE 0 30 60
1" = 60 FEET
JOB NO. 240916
SHEET NO. 4A
SHEET 4A OF 28

DATE: 7–10–25

REVISIONS
2–10–25 SITE PLAN
5–2–25 SITE PLAN
6–23–25 SITE PLAN
7–10–25 SITE PLAN

STATE OF MICHIGAN
JASON MICHAEL FLEIS
ENGINEER
6201058169
LICENSED PROFESSIONAL ENGINEER

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REDWOOD HARTLAND HIGHLAND RD P1 LLC
TAX ID #4708-26-100-020
ZONED: SPA
(UNDER CONSTRUCTION: MULTI-FAMILY RESIDENTIAL DEVELOPMENT)

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LEGEND

OPEN SPACE

USABLE OPEN SPACE

OPEN SPACE DATA

PLANNED DEVELOPMENT	OPEN SPACE				
	TOTAL AREA (AC)	OPEN SPACE (%)	OPEN SPACE (AC)	USABLE OPEN SPACE (%)	USABLE OPEN SPACE (AC)
REQUIRED	39.05	25%	9.763	10%	3.905
PROVIDED	39.05	51%	19.797	17%	6.717

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SECTION 26
TOWN 3 NORTH, RANGE 6 EAST
HARTLAND TOWNSHIP
LIVINGSTON COUNTY, MICHIGAN

DATE: 7-10-25

REVISIONS
2-10-25 SITE PLAN
5-2-25 SITE PLAN
6-23-25 SITE PLAN
7-10-25 SITE PLAN

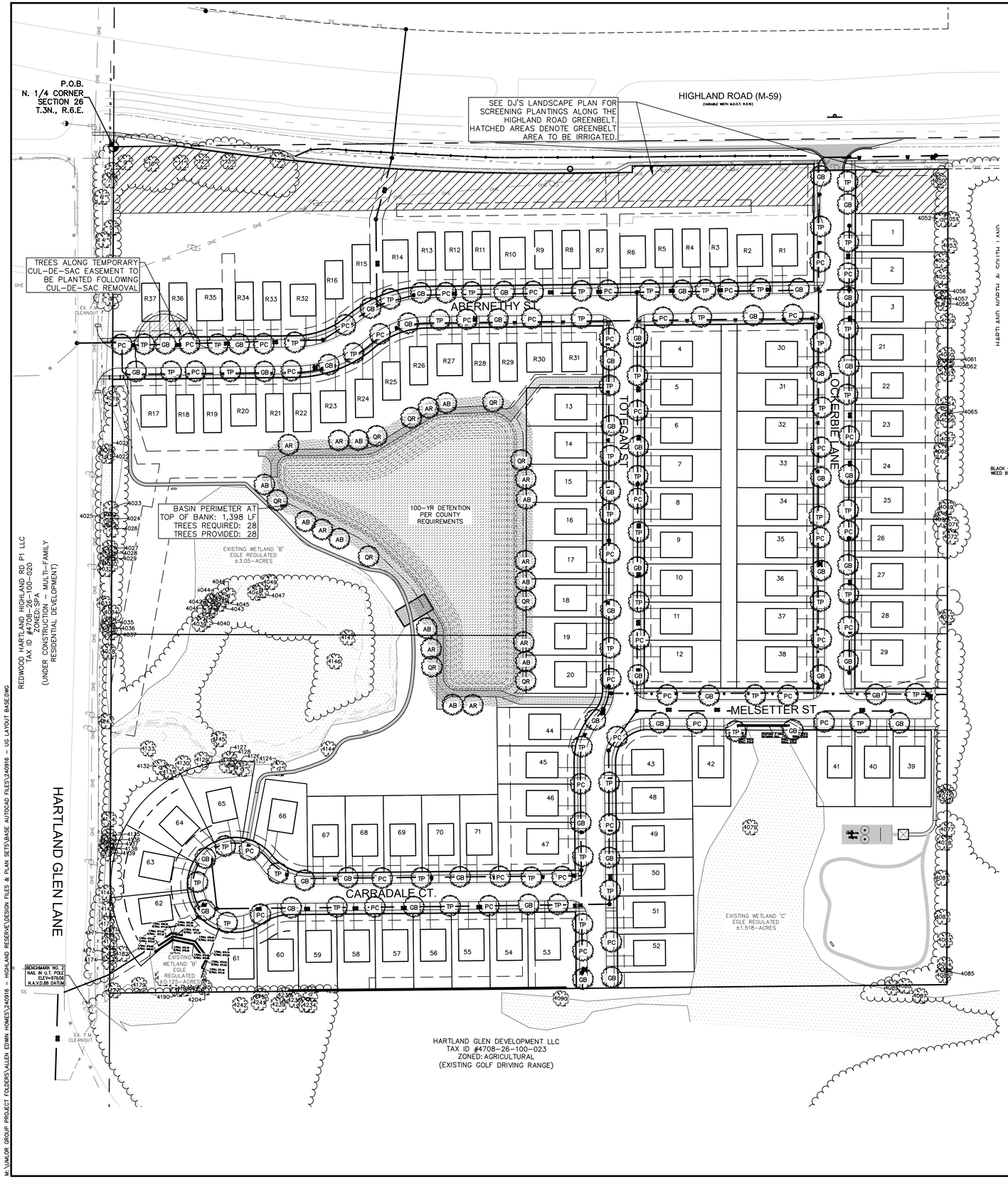
HIGHLAND RESERVE

CLIENT:
ALLEN EDWIN HOMES
2166 E. CENTER STREET
PORTAGE, MI 49002

OPEN SPACE PLAN

DR BY: MS
CK BY: JF
P.M. JF
SCALE 0 30 60
1" = 60 FEET
JOB NO. 240916
SHEET NO. 4B
SHEET 4B OF 28

STATE OF MICHIGAN
JASON MICHAEL FLEIS
ENGINEER
6201058108
LICENSED PROFESSIONAL ENGINEER



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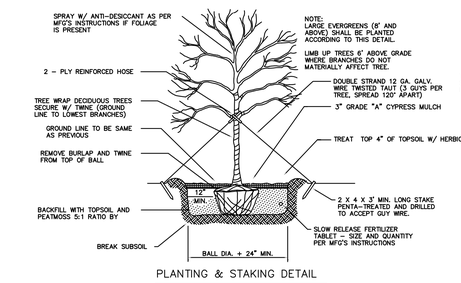
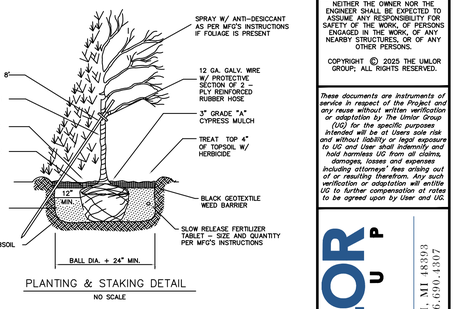
PLANTING SCHEDULE FOR SITE LANDSCAPING				
KEY	QUAN.	SIZE	BOTANICAL NAME	COMMON NAME
TP	52	3.0" Cal.	Tilia cordata "Greenspire"	Linden Greenspire
AB	14	3.0" Cal.	Acer x freemanii 'Jeffersred'	Autumn Blaze Maple
AR	15	3.0" Cal.	Acer rubrum	Red Maple
PC	49	3.0" Cal.	Ulmus americana 'Princeton'	Princeton Elm
GB	54	3.0" Cal.	Liriodendron tulipifera	Tulip Tree
QR	16	3.0" Cal.	Quercus alba	White Oak



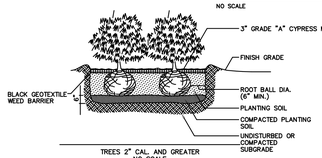
PLANTING & STAKING DETAIL

NO SCALE



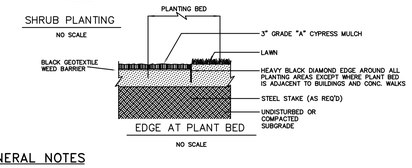
PLANTING & STAKING DETAIL

NO SCALE



NO SCALE

SHRUB PLANTING



EDGE AT PLANT BED

NO SCALE

GENERAL NOTES

1. ALL PLANTS MUST BE HEALTHY, VIGOROUS MATERIAL, FREE OF PESTS AND DISEASE.
2. ALL PLANTS MUST BE CONTAINER GROWN OR BALLED AND BUR LAPPED AS INDICATED IN THE PLANT LIST.
3. ALL TREES MUST BE STRAIGHT TRUNKED AND FULL HEADED AND MEET ALL REQUIREMENTS SPECIFIED.
4. ALL PLANTS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT BEFORE, DURING, AND AFTER INSTALLATION.
5. ALL TREES MUST BE GUYED OR STAKED AS SHOWN IN THE DETAILS.
6. ALL PLANTING AREAS MUST BE COMPLETELY MULCHED AS SPECIFIED.
7. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND SHALL AVOID DAMAGE TO ALL UTILITIES AND SHALL AVOID DAMAGE TO ALL UTILITIES DURING THE COURSE OF THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY AND ALL DAMAGE TO UTILITIES, STRUCTURES, SITE APPURTENANCES, ETC. WHICH OCCURS AS A RESULT OF THE LANDSCAPE CONSTRUCTION.
8. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON THESE PLANS BEFORE PRICING THE WORK.
9. THE CONTRACTOR IS RESPONSIBLE FOR FULLY MAINTAINING ALL PLANTING (INCLUDING BUT NOT LIMITED TO: WATERING, SPRAYING, MULCHING, FERTILIZING, ETC.) OF THE PLATING AREAS AND LAWN UNTIL THE WORK IS ACCEPTED IN TOTAL BY THE OWNER.
10. THE CONTRACTOR SHALL COMPLETELY GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE (1) YEAR BEGINNING ON THE DATE OF TOTAL ACCEPTANCE. THE CONTRACTOR SHALL PROMPTLY MAKE ALL REPLACEMENTS BEFORE OR AT THE END OF THE GUARANTEE PERIOD.
11. THE DEVELOPER SHALL APPROVE THE STAKING LOCATION OF ALL PLANT MATERIAL PRIOR TO INSTALLATION.
12. AFTER BEING DUG AT THE NURSERY SOURCE, ALL TREES IN LEAF SHALL BE ACCLIMATED FOR TWO (2) WEEKS UNDER A MIST SYSTEM PRIOR TO INSTALLATION.
13. ANY PLANT MATERIAL WHICH DIES, TURNS BROWN, OR DEFOLIATES (PRIOR TO TOTAL ACCEPTANCE OF THE WORK) SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, AND SIZE AND MEETING ALL PLANT LIST SPECIFICATIONS.
14. STANDARDS SET FORTH IN "AMERICAN STANDARD FOR NURSERY STOCK" REPRESENT GUIDELINE SPECIFICATIONS ONLY AND SHALL CONSTITUTE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIAL.
15. ALL SHRUB, GROUND COVER AND SEASONAL COLOR ANNUAL PLANTING BEDS ARE TO BE COMPLETELY COVERED WITH PINE BARK MULCH TO A MINIMUM DEPTH OF FOUR INCHES. ED
16. LOCATIONS OF EXISTING BURIED UTILITY LINES SHOWN ON THE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AND ARE TO BE CONSIDERED APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTO TO VERIFY THE LOCATIONS OF UTILITY LINES AND ADJACENT TO THE WORK AREA. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL UTILITY LINES DURING THE CONSTRUCTION PERIOD.
17. SAFE, CLEARLY MARKED PEDESTRIAN AND VEHICULAR ACCESS TO ALL ADJACENT PROPERTIES MUST BE MAINTAIN THROUGHOUT THE CONSTRUCTION PROCESS.
18. DURING THE GROWING SEASON ALL ANNUALS SHALL REMAIN IN A HEALTHY, VITAL CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
19. ALL PLANT MATERIALS QUANTITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETE COVERAGE OF ALL PLANTING BEDS AT SPACING SHOWN.
20. ALL DISTURBED AREAS ARE TO RECEIVE 4" OF TOP SOIL, MULCH, AND WATER UNTIL A HEALTHY STAND OF GRASS IS OBTAINED. THIS IS EXCLUDING ALL LANDSCAPED ISLANDS AND ENTRANCE AREAS.

PLANTING NOTES

1. LOAM USED IN PLANTING BEDS SHALL BE UNIFORM IN COMPOSITION, FREE OF STONES LARGER THAN 1", AND SHALL NOT CONTAIN TOXIC SUBSTANCES HARMFUL TO PLANT GROWTH.
2. CREATE A PLANTING MIX COMPRISED OF 2/3 SCREENED LOAM AND 1/3 PEAT MOSS OR LEAF COMPOST. AMEND WITH "PLANTONE" ORGANIC FERTILIZER, OR EQUAL, AT THE RATE RECOMMENDED BY MANUFACTURER.
3. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING SHOWN ON THIS DRAWING.
4. ALL PLANT MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
5. PLANT PITS SHALL BE DUG TWICE THE WIDTH OF THE ROOTBALL. PLANT PITS AND PLANTING BEDS SHALL BE BACKFILLED WITH THE AMENDED PLANTING MIX IN LIFTS TO AVOID AIR POCKETS IN BACKFILL.
6. ALL PLANT MATERIAL TO BE SET PLUMB, AND TO BEAR NATURAL RELATIONSHIP WITH FINISHED GRADE.
7. ALL BIODEGRADABLE BURLAP SHALL BE UNTIED AND PULLED DOWN ON THE BALL. WIRE BASKETS AND OTHER NON BIODEGRADABLE MATERIALS ATTACHED TO PLANTS SHALL BE REMOVED PRIOR TO PLANTING. CARE SHALL BE TAKEN NOT TO BREAK OR DISTURB ROOTBALL OF PLANTS.
8. ALL PLANTS SHALL BE WATERED IMMEDIATELY AFTER PLANTING.
9. 3" OF COMPOSTED PINE BARK MULCH SHALL BE SPREAD OVER ALL PLANT BEDS.
10. THE CONTRACTOR SHALL MAINTAIN ALL PLANTS FOR 90 DAYS AFTER THE COMPLETION OF PLANT INSTALLATION. MAINTENANCE SHALL CONSIST OF KEEPING ALL PLANTS IN A HEALTHY GROWING CONDITION.
11. PLANTS SHALL BE GUARANTEED FOR A PERIOD OF 1 YEAR AFTER ACCEPTANCE OF THE PROJECT AND SHALL BE ALIVE AND IN SATISFACTORY GROWTH AT THE END OF THE GUARANTEE PERIOD. THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE ALL FAILING PLANT MATERIALS, AND REPLACE THEM WITH THE SAME KIND AND SIZE OF MATERIAL AS SPECIFIED IN THE PLANT LIST, WITH THE SAME GUARANTEE AS INITIAL PLANTING.
12. ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES SHALL BE MADE WITH PLANTS OF EQUIVALENT OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE, AND ONLY AFTER WRITTEN APPROVAL OF THE OWNER, AND THE CITY OF ROMULUS PLANNING DEPARTMENT
13. CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING UTILITY LINES PRIOR TO PLANTING AND SHALL REPORT ANY CONFLICTS TO THE OWNER.
14. ALL PLANTING BEDS AND GREENBELT AREAS SHALL RECEIVE SIX INCHES (6") OF SCREENED TOPSOIL, MEASURED AFTER COMPACTION, PRIOR TO INSTALLATION OF PLANTS, SEEDING, OR SODDING.
15. ALL LANDSCAPE ISLANDS SHALL BE FILLED SUCH THAT THEY ARE CROWNED IN THE MIDDLE TO PROVIDE POSITIVE DRAINAGE AND TO PREVENT POOLING WITHIN THE LANDSCAPED AREA (TYP.)

DETENTION BASIN & FORE BAYS SEEDING NOTES:

Undeveloped portion of the site surrounding the detention basins and fore bays, shall be seeded with a "Mesic-To-Dry Prairie Seed Mix" by Cardno Native Plant Nursery, (128 Sunset Dr., Walkerton, IN 46574, 574-586-2412, nurseryales@cardno.com) at 38.84 PLS pounds/acre.

The upland zone of the fore bays and detention basins shall be seeded with "Sedge Meadow Seed Mix" by Cardno Native Plant Nursery (see info in note #12) at 39.84 PLS pounds per acre. This seed mix consists of 13 of 17 native permanent grass, sedge and rush species and 27 of 30 native forb and shrub species.

The edge zone of the fore bays and detention basins shall be seeded with "Wetland Edge Seed Mix" by Cardno Native Plant Nursery (see info in note #12) at approximately 35 PLS pounds per acre. This seed mix consists of 10 of 12 native permanent grass, sedge and rush species and 7 of 20 native forb species.

Native seed shall be planted above the permanent water elevation.

Native seed mixes shall contain a cover crop consisting of 10 pounds per acre of annual rye and 30 pounds per acre of seed oats.

All sloped native seed areas adjacent to wetlands and drains shall be stabilized with a mulch blanket pegged-in-place.

DETENTION BASINS

- PRAIRIE SEED
- POND ZONE PLANTINGS
- EDGE ZONE SEED
- UPLAND ZONE SEED

STATE OF MICHIGAN
ANITA C SILVERMAN
LANDSCAPE ARCHITECT
No. 1206
REGISTERED LANDSCAPE ARCHITECT
5/6/25

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49287 WEST ROAD WIXOM, MI 48393
TEL 248.773.7650 - FAX 866.630.4307

SECTION 26
TOWN 3 NORTH, RANGE 6 EAST
HARTLAND TOWNSHIP
LIVINGSTON COUNTY, MICHIGAN

DATE: 7-10-25

REVISIONS
2-10-25 SITE PLAN
5-2-25 SITE PLAN
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7-10-25 SITE PLAN

HIGHLAND RESERVE

CLIENT: ALLEN EDWIN HOMES
2166 E. CENTER STREET
PORTAGE, MI 49002

LANDSCAPING PLAN

DR BY: MS
CK BY: JF
P.M.: JF
SCALE 0 40 80
1" = 80 FEET
JOB NO. 240916
SHEET NO. 5
SHEET 5 OF 28

HIGHLAND ROAD (M-59)

(VARIABLE WIDTH M.D.O.T. R.O.W.)

GRADING NOTES

ALL SIDE SWALES BETWEEN UNITS AND REAR YARD SWALES (EXCLUDING INFILTRATION SWALES) SHALL HAVE A MINIMUM OF 1.0% MINIMUM GRADE.

MAXIMUM ALLOWABLE GRADE SHALL BE 1 VERTICAL TO 4 HORIZONTAL.

MAXIMUM ALLOWABLE DRIVEWAY SLOPE SHALL BE 8.0%

UTILITY NOTES

ALL WATER MAINS, SANITARY, AND STORM SEWER, INCLUDING SERVICE LEADDS, SHALL BE CONSTRUCTED IN CONFORMANCE WITH TOWNSHIP STANDARD DETAILS AND SPECIFICATIONS INCLUDING TESTING AND INSPECTION REQUIREMENTS. PUBLIC UTILITIES LOCATED WITHIN THE EXISTING AND\OR PROPOSED ROAD RIGHT-OF-WAY SHALL ALSO CONFORM TO THE LIVINGSTON CO. ROAD COMMISSION AND\OR M.D.O.T. STANDARD DETAILS AND SPECIFICATIONS.

WATER SERVICES SHALL BE 1" 'K' COPPER WITH STOP BOXES PLACED 15' BEHIND BACK OF CURB TYPICAL AT THE OUTSIDE EDGE OF THE WATER AND\OR SANITARY SEWER EASEMENT. ALL SERVICES SHALL BE EXTENDED PAST THE PROPOSED FRANCHISE UTILITY EASEMENT.

HORIZONTAL SEPARATION OF 10-FEET AND VERTICAL SEPARATION OF 1.5-FEET SHALL BE MAINTAINED BETWEEN ALL WATER MAINS AND STORM\SANITARY SEWERS, MEASURED FROM OUTSIDE OF THE PIPES.

WATER MAINS AND SERVICES SHALL BE INSTALLED AT 5'-0" MIN. COVER.

WATER MAINS SHALL BE LEAKAGE AND PRESSURE TESTED IN ACCORDANCE WITH THE MOST CURRENT VERSION OF THE AWWA STANDARD C600 FOR DUCTILE IRON PIPE PRIOR TO BEING PUT INTO SERVICE. THE HYDROSTATIC PRESSURE TEST SHALL BE CONDUCTED FOR A MINIMUM OF TWO HOURS WITH A MAXIMUM LOSS THAT MEETS THE LATEST VERSION OF THE C600 STANDARD.

WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651, MOST CURRENT VERSION, PRIOR TO BEING PUT INTO SERVICE. BACTERIOLOGICAL SAMPLING SHALL BE IN ACCORDANCE WITH R325.11110 OF THE ADMINISTRATIVE RULES PROMULGATED UNDER THE MICHIGAN SAFE DRINKING WATER ACT, 1976 PA 390, AS AMENDED, TWO CONSECUTIVE SAMPLES COLLECTED 24 HOURS APART AT EACH SAMPLING SITE.

ALL PUBLIC WATER MAINS SHALL BE LOCATED WITHIN THE ROAD RIGHT-OF-WAY OR A 20' WIDE DEDICATED EASEMENT.

ALL PUBLIC SANITARY SEWERS SHALL BE LOCATED WITHIN THE ROAD RIGHT-OF-WAY OR A 20' WIDE DEDICATED EASEMENT.

CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN EXCAVATING AROUND EXISTING BUCKEYE PIPELINE LOCATED ALONG RICHARDSON COURT AND NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN THAT SHOWN ON PLANS AND ACTUAL FIELD CONDITIONS.

STATE OF MICHIGAN
JASON MICHAEL FLEIS
ENGINEER
6201058198
LICENSED PROFESSIONAL ENGINEER

M:\UMLOR GROUP PROJECT FOLDERS\ALLEN EDWIN HOMES\240916 - HIGHLAND RESERVE\DESIGN FILES & PLAN SETS\BASE AUTOCAD FILES\240916 - UG LAYOUT BASE.DWG

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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

CONSTRUCTION SITE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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UMLOR GROUP
49287 WEST ROAD WIXOM, MI 48393
TEL 248.773.7650 - FAX 866.630.4307

HIGHLAND RESERVE

CLIENT: ALLEN EDWIN HOMES
2166 E. CENTER STREET
PORTAGE, MI 49002

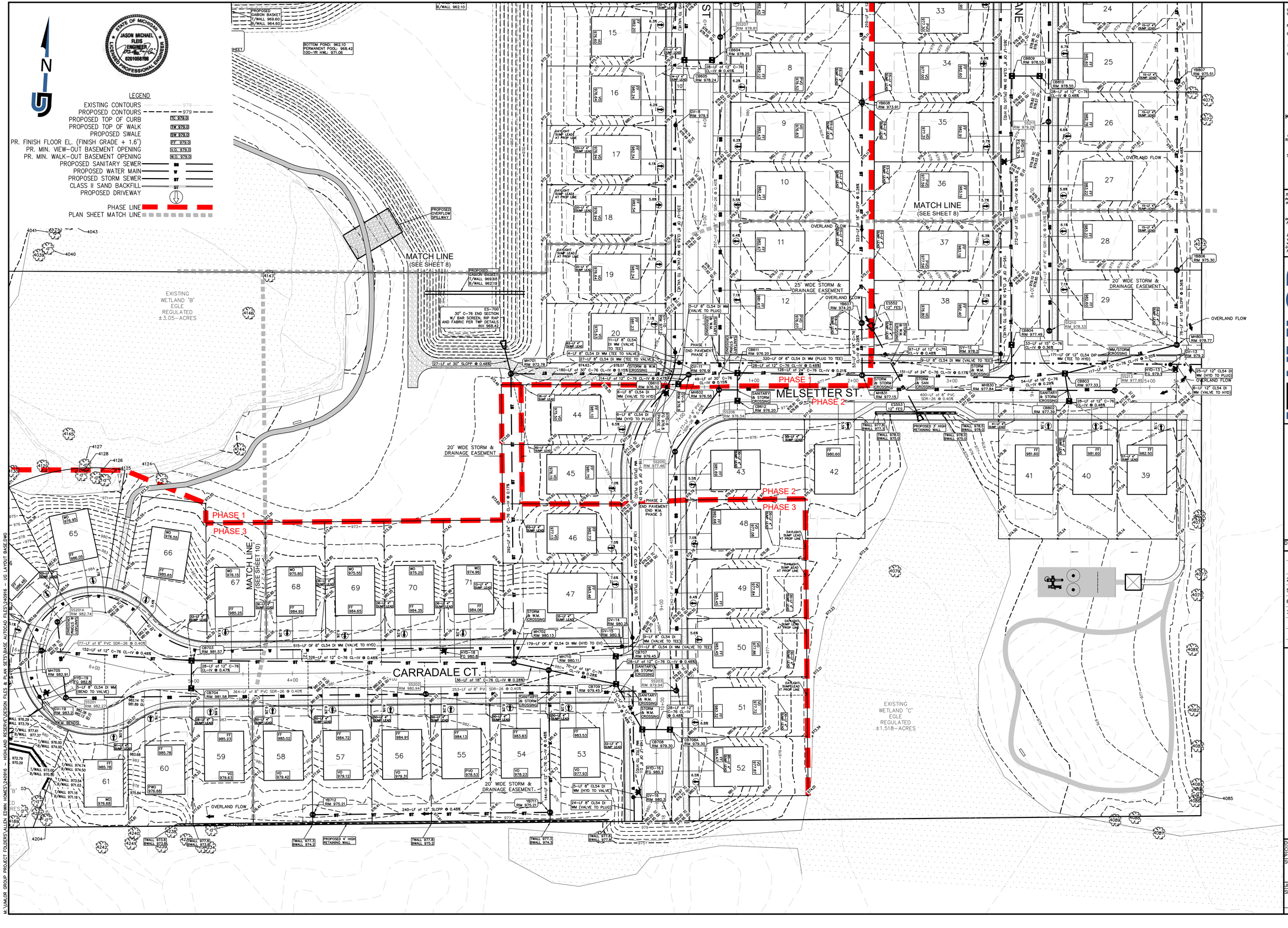
SITE GRADING / UTILITY PLAN NO. 1 - NORTHEAST

SECTION 26
TOWN 3 NORTH, RANGE 6 EAST
HARTLAND TOWNSHIP
LIVINGSTON COUNTY, MICHIGAN

DATE: 7-10-25

REVISIONS
2-10-25 SITE PLAN
5-2-25 SITE PLAN
6-23-25 SITE PLAN
7-10-25 SITE PLAN

DR BY: MS
CK BY: JF
P.M.: JF
SCALE 0 20 40
1" = 40 FEET
JOB NO. 240916
SHEET NO. 8
SHEET 8 OF 28



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UMLOR GROUP
49287 WEST ROAD WIXOM, MI 48393
TEL 248.773.7650 - FAX 866.690.4307

HIGHLAND RESERVE

CLIENT: ALLEN EDWIN HOMES
2186 E. CENTER STREET
PORTAGE, MI 49002

SITE GRADING / UTILITY PLAN NO. 2 - SOUTHEAST

SECTION 26
TOWN 3 NORTH, RANGE 6 EAST
HARTLAND TOWNSHIP
LIVINGSTON COUNTY, MICHIGAN

DATE: 7-10-25

REVISIONS
2-10-25 SITE PLAN
5-2-25 SITE PLAN
6-23-25 SITE PLAN
7-10-25 SITE PLAN

DR BY: MS
CK BY: JF
P.M. JF

SCALE 0 20 40
1" = 40 FEET

JOB NO. 240916
SHEET NO. 9
SHEET 9 OF 28

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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

CONSTRUCTION SITE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, ENGINEER SHALL BE EXPECTED TO VISIT THE SITE AT INTERVALS APPROPRIATE TO THE PROGRESS OF THE WORK OF PERSONS SAFETY OF THE WORK OF PERSONS NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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UMLOR GROUP
19287 WEST ROAD WIXOM, MI 48393
TEL. 248.773.7656 - FAX 866.690.1307

SECTION 26
TOWN 3 NORTH, RANGE 6 EAST
HARTLAND TOWNSHIP
LIVINGSTON COUNTY, MICHIGAN

DATE: 7-10-25

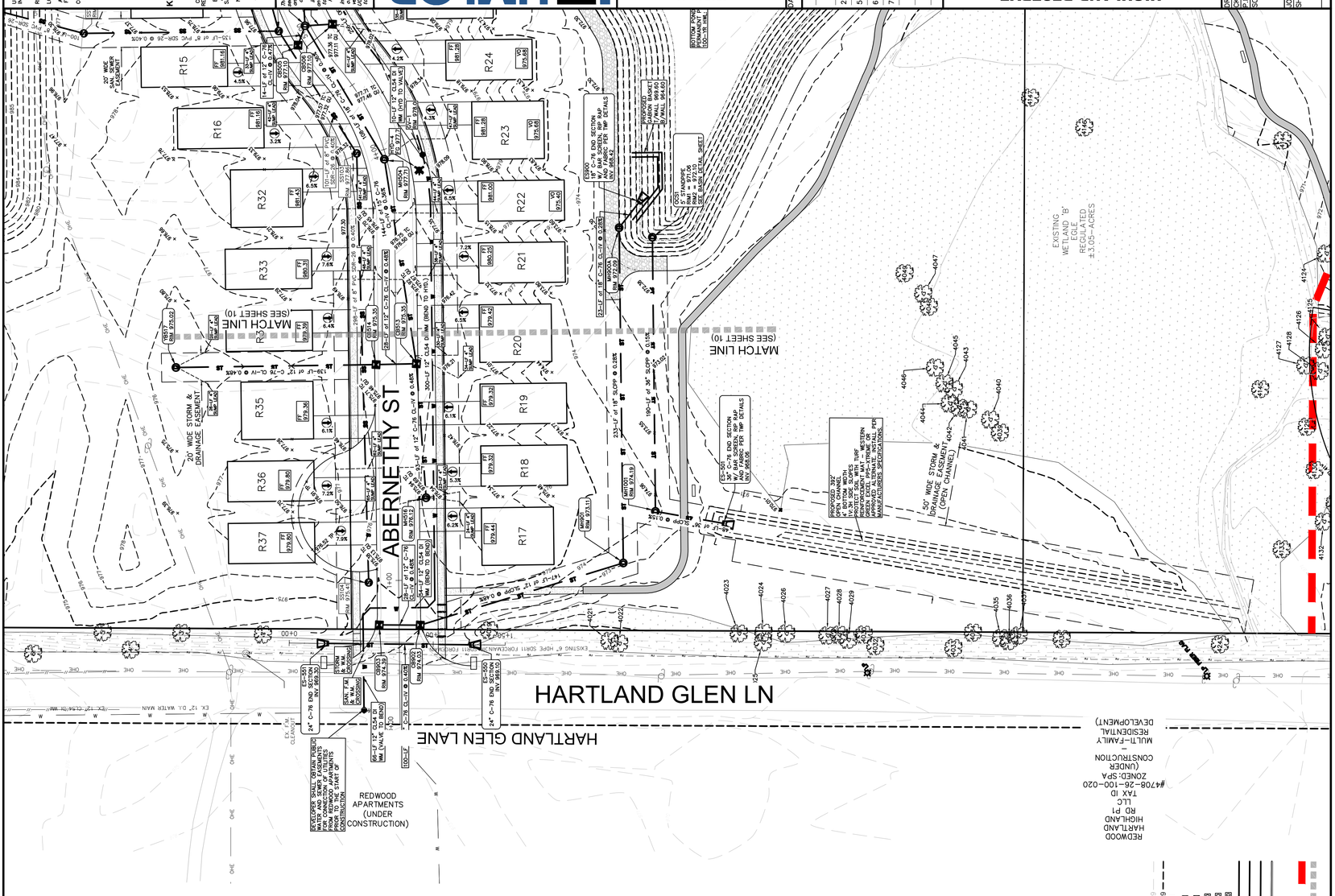
REVISIONS
2-10-25 SITE PLAN
5-2-25 SITE PLAN
6-23-25 SITE PLAN
7-10-25 SITE PLAN

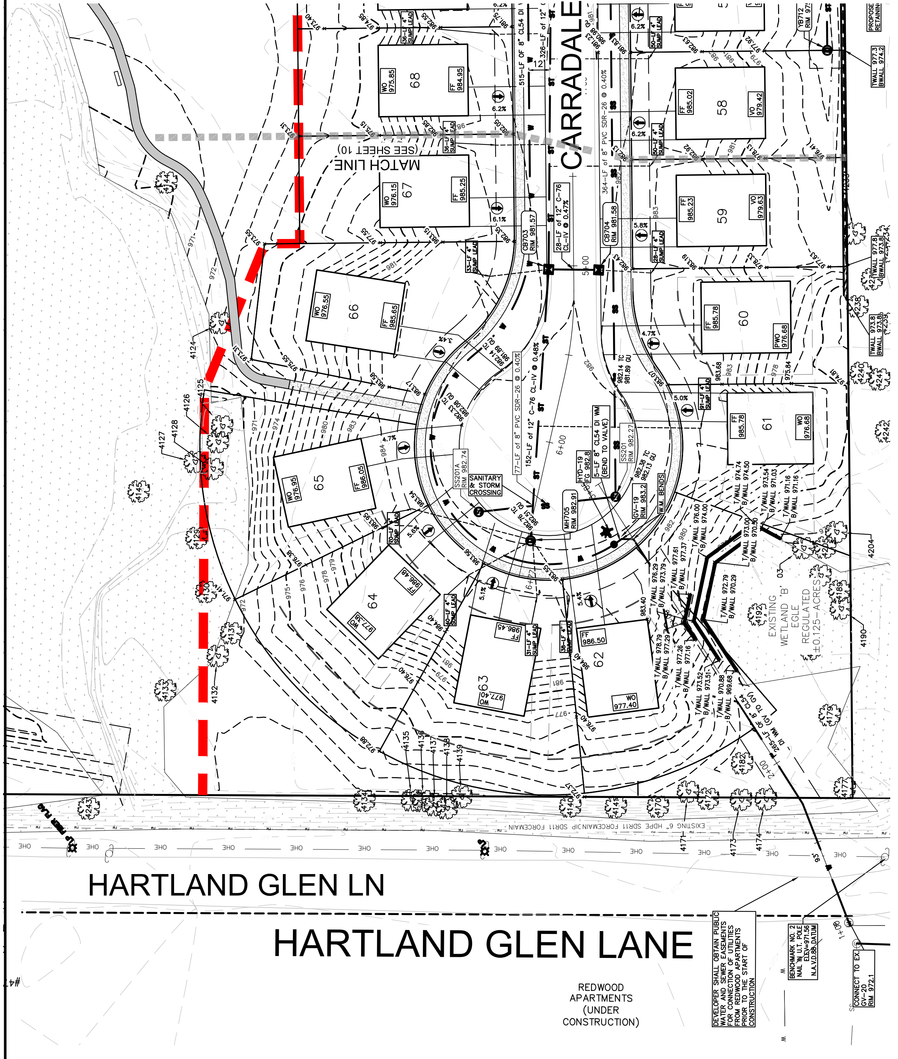
HIGHLAND RESERVE

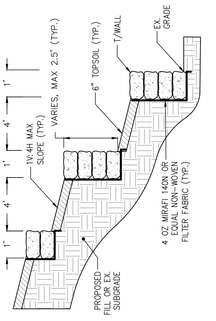
SITE GRADING / UTILITY PLAN NO. 3 - WEST

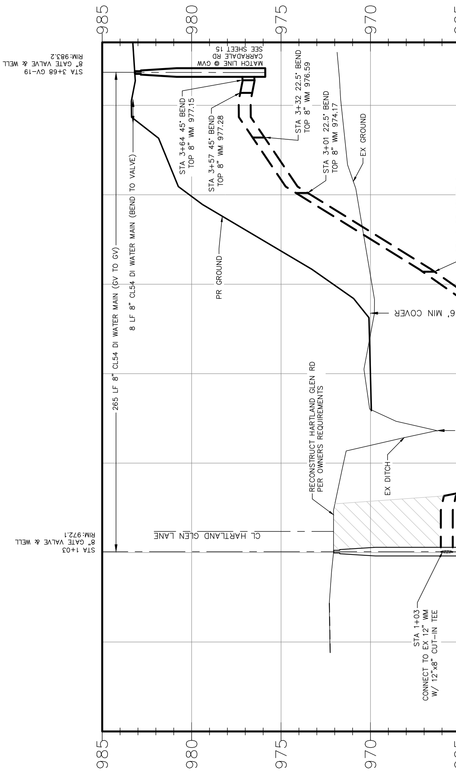
CLIENT: ALLEN EDWIN HOMES
2186 E. CENTER STREET
PORTAGE, MI 49002

DR BY: MJS
CK BY: JF
SCALE 0 20 40
1" = 40 FEET
JOB NO. 240916
SHEET NO. 10
SHEET 10 OF 28





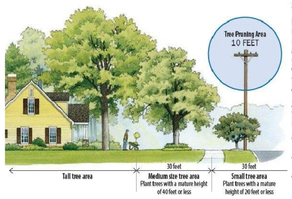




LEGEND

EXISTING CONTOURS
PROPOSED CONTOURS
PROPOSED TOP OF CURB
PROPOSED TOP OF WALK
PROPOSED SWALE
PR. FINISH FLOOR EL. (FINISH GRADE + 1.6')
PR. MIN. VIEW-OUT BASEMENT OPENING
PR. MIN. WALK-OUT BASEMENT OPENING
PROPOSED SANITARY SEWER
PROPOSED WATER MAIN
PROPOSED STORM SEWER
CLASS II SAND BACKFILL
PROPOSED DRIVEWAY
PHASE LINE
PLAN SHEET MATCH LINE

STATE OF MICHIGAN JASON MICHAEL FLISS 62016156 LICENSED PROFESSIONAL ENGINEER

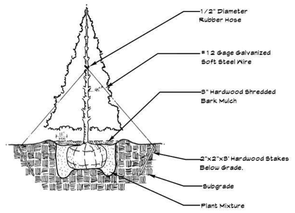


Smart planting

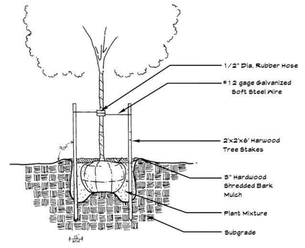
No trees should be planted near power lines. However, many trees are attractive additions to your yard and, under normal conditions, will not grow tall enough to interfere with our distribution lines.

Avoid planting tall-growing trees such as the following near or under power lines:

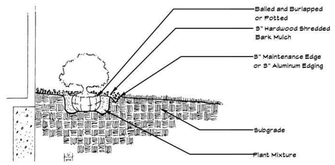
- Silver Maple
- Norway Maple
- Oak
- White Spruce
- Colorado Blue Spruce
- Most pines
- Willows



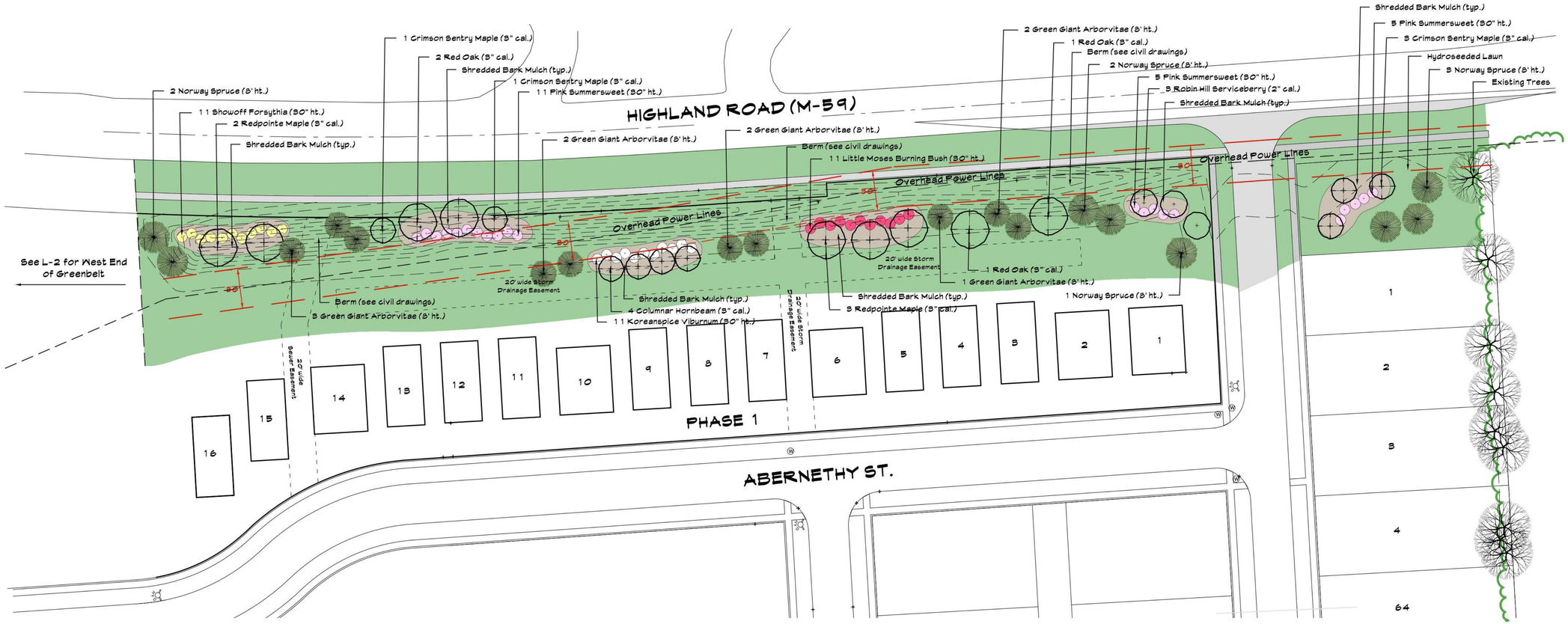
Evergreen Planting Detail-5' and Taller (as needed)



Deciduous Trees 3" Caliper and Smaller (as needed or required)



Shrub Planting Detail



Plant List

Quantity	Common Name	Latin Name	Planted Size
5	Redpointe Maple	Acer rubrum 'Frank Jr.'	3" cal.
5	Crimson Sentry Maple	Acer platanoides 'Crimson Sentry'	3" cal.
4	Red Oak	Quercus rubra	3" cal.
4	Columnar Hornbeam	Carpinus betulus 'Frans Fontaine'	3" cal.
8	Norway Spruce	Picea abies	8' ht.
10	Green Giant Arborvitae	Thuja standishii x plicata 'Green Giant'	8' ht.
3	Robin Hill Serviceberry	Amelanchier x grandiflora 'Robin Hill'	2" cal./TF
11	Little Moses Burning Bush	Euonymus alatus compactum "Little Moses'	30" ht.
11	Korean Spice Viburnum	Viburnum carlesii	30" ht.
11	Show Off Forsythia	Forsythia x intermedia 'Show Off'	30" ht.
21	Pink Summersweet	Clethra alnifolia 'Ruby Spice'	30" ht.

(note: Plant list for ordinance purposes only, the landscape contractor is responsible for plant quantities shown on the landscape plan)

Notes:

1. All landscaping shall be installed by a qualified Landscape Contractor. Plant sizes specified on the landscape plan shall be the size planted. Plants smaller then specified will be rejected. Substitutions of any kind must be approved by the Landscape Architect.
2. All plantings shall be mulched with 3" shredded premium hardwood bark mulch. Trees in lawn areas shall receive a 6' diameter bark ring 3" deep.
3. The landscape contractor shall remove any twine that is wrapped around the trunk of a tree or shrub as well as the top third of any burlap. Remove excess soil on the top of the root ball to expose the root flare or first layer of roots prior to planting. Use a wire cutter to make 3-5 cuts in the wire basket to allow roots to grow through.
4. When planting trees in the lawn area or on the berm the existing soil within a 10 foot diameter shall be loosened by tilling or similar and amended with composted manure or peat at a depth of 6-12".
5. Planting areas shall be edged with a mechanical bed edger to define a border for the shedded bark mulch.
6. Lawn areas shall recieve at least 4" of topsoil and hydroseeded. Check with specifications for topsoil availability or contact project manager. Topsoil for lawns shall be appropriate for growing and sustaining a healthy lawn. All lawns shall be hydroseeded with a seed blend consisting of 30% Kentucky Bluegrass, 20% Perennial Ryegrass, 10% Hard Fescue, 20% Creeping Red Fescue and 20% Chewings Fescue.
7. Maintenance of the landscape shall be provided for by the owner and include fertilizing of lawn and plant material, yearly pruning, top dressing of mulch areas every other year and provide 1" of water per week during the growing season.
8. Plant materials shall be chosen and installed in accordance with standards recommended by the County Cooperative Extension Service or American Nursery Association.

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D.J's LANDSCAPE MANAGEMENT
D.J. Vander Slik
Holland Grand Rapids Kalamazoo
Phone (616)698-2700 Fax (616)698-2900

Association of Grand Rapids Landscape Professionals

The Professional MCN Michigan Certified Nurseryman

PLANET Professional Landcare Network

STATE OF MICHIGAN
JOYCE E. WEISE
LANDSCAPE ARCHITECT
No. 1202
LICENSED LANDSCAPE ARCHITECT

Landscape Plan Drawn By:
Joyce E. Weise PLA, ASLA

PROPOSED LANDSCAPE PLAN FOR:

Highland Reserve

(East End of Greenbelt)
12685 Highland Rd. (M-59) Hartland Twp., Michigan

PROJECT NUMBER: 072723

DRAWN BY: Joyce E. Weise PLA, ASLA

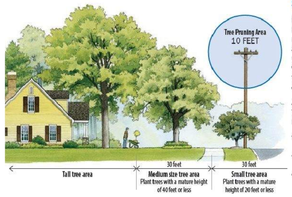
DRAWING DATE: 080723

ISSUED FOR:

08/04/25	Site Plan Approval
08/31/25	Revision per Review
06/14/25	Revision

SCALE 1"=40'

SHEET NUMBER L-1



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- Norway Maple
- Oak
- White Spruce
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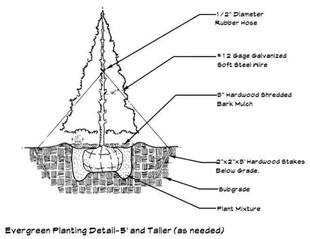
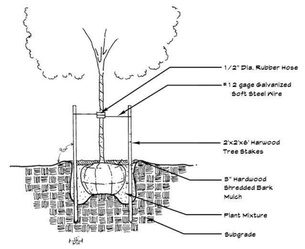
- Most pines
- Willows



Evergreen Planting Detail-5' and Taller (as needed)



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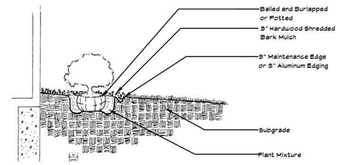
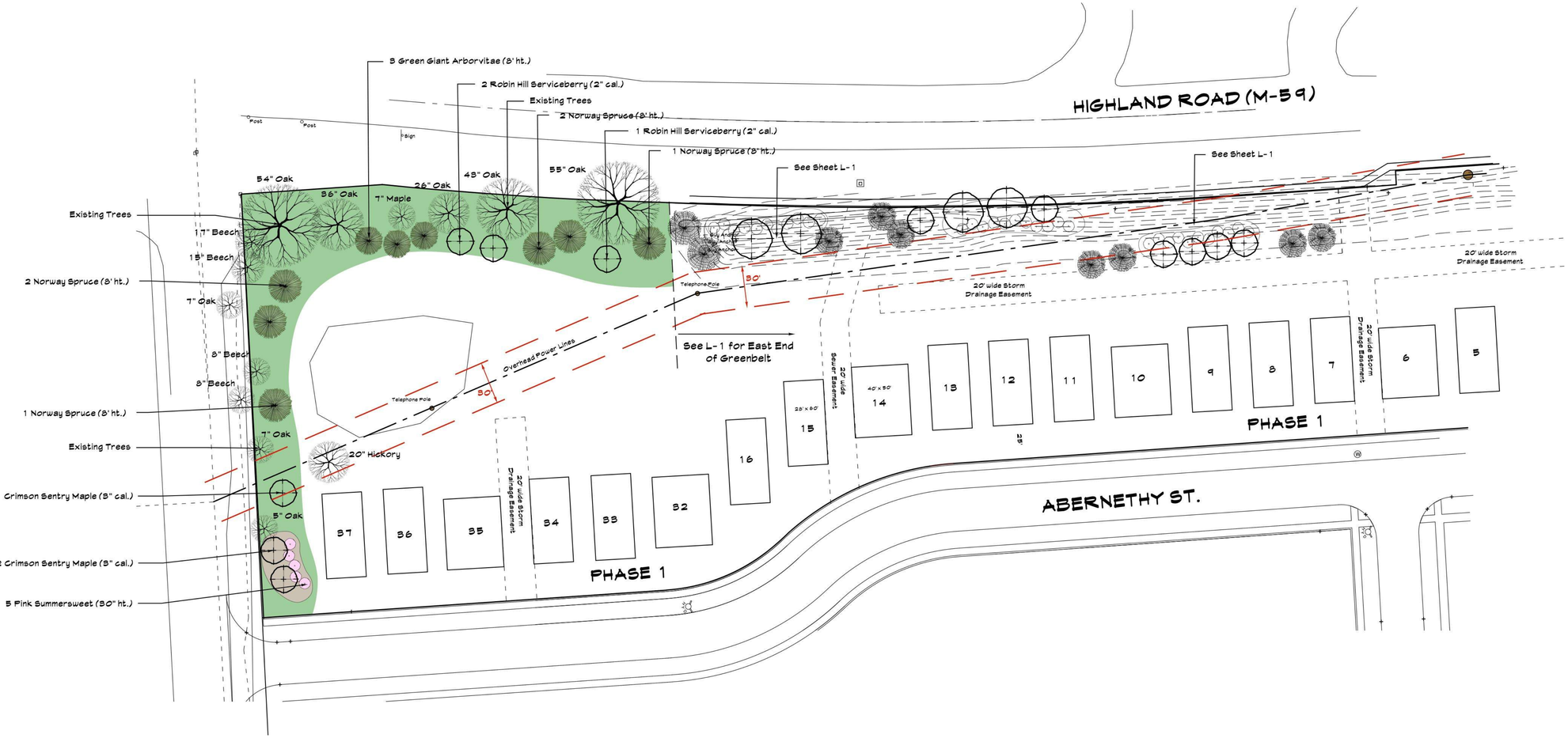


Shrub Planting Detail



Plant List

Quantity	Common Name	Latin Name	Planted Size
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3	Crimson Sentry Maple	Acer platanoides 'Crimson Sentry'	3" cal.
3	Green Giant Arborvitae	Thuja standishii x plicata 'Green Giant'	8' ht.
3	Robin Hill Serviceberry	Amelanchier x grandiflora 'Robin Hill'	2" cal./TF
5	Pink Summersweet	Clethra alnifolia 'Ruby Spice'	30" ht.

(note: Plant list for ordinance purposes only, the landscape contractor is responsible for plant quantities shown on the landscape plan)

North

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DJ's LANDSCAPE MANAGEMENT
D.J. Vander Slik
Holland Kalamazoo
Grand Rapids
Phone (616)698-2700 Fax (616)698-2900

Association of Grand Rapids Landscape Professionals

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STATE OF MICHIGAN
JOYCE E. WEISE
LANDSCAPE ARCHITECT
No. 1202
LICENSED LANDSCAPE ARCHITECT

Landscape Plan Drawn By:
Joyce E. Weise PLA, ASLA

PROPOSED LANDSCAPE PLAN FOR:

Highland Reserve

(West End of Greenbelt)
12685 Highland Rd. (M-59) Hartland Twp., Michigan

PROJECT NUMBER: 072723

DRAWN BY: Joyce E. Weise PLA, ASLA

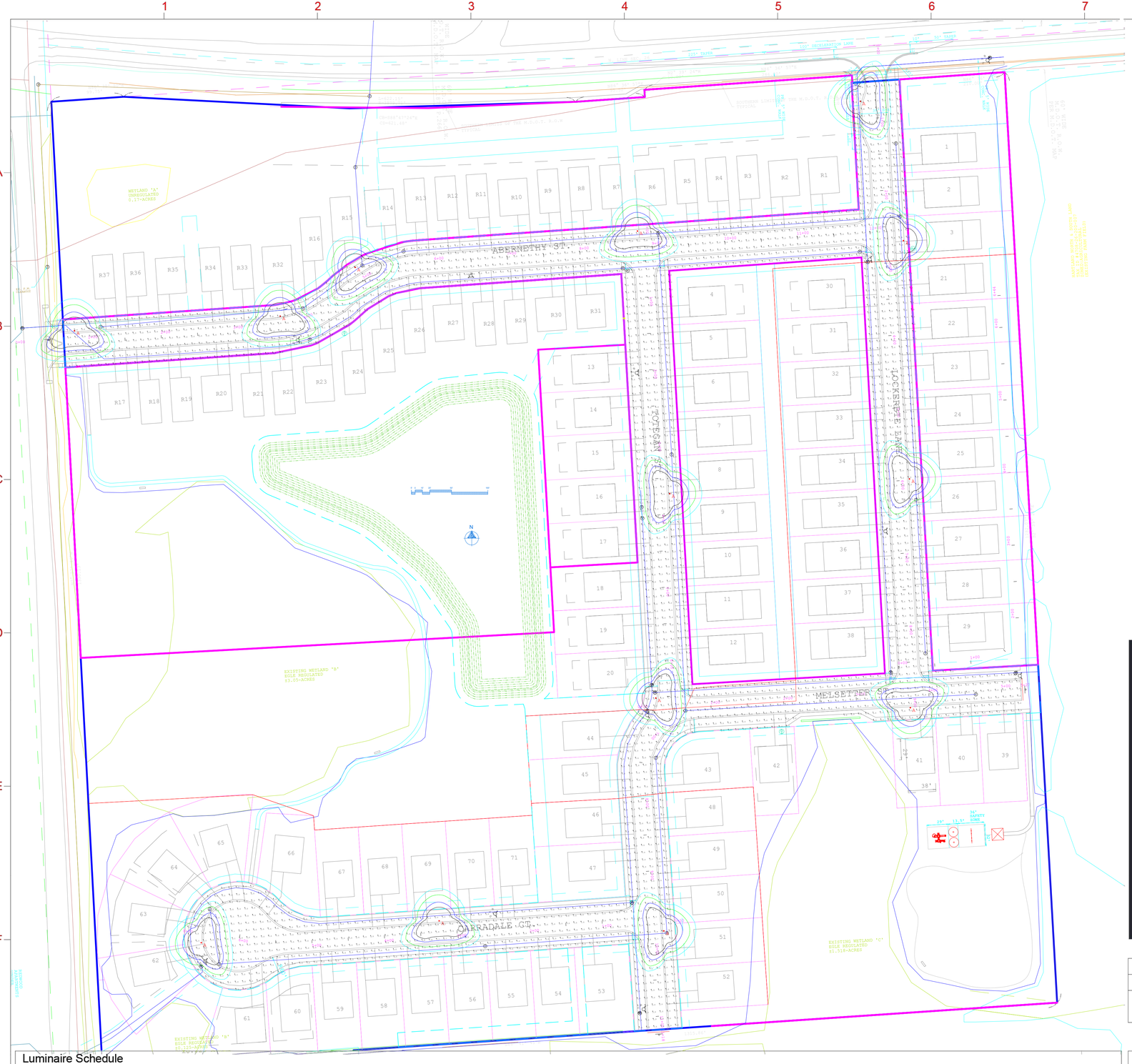
DRAWING DATE: 080723

ISSUED FOR:

08/04/25	Site Plan Approval
08/31/25	Revision per Review
09/20/25	Greenbelt

SCALE 1"=40'

SHEET NUMBER L-2



Calculation Summary							
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Calc Points @ 0' AFF	Illuminance	Fc	0.26	5.5	0.0	N.A.	N.A.

Luminaire Schedule								
Symbol	Qty	Label	Arrangement	LLF	Description	Arr. Lum. Lumens	BUG Rating	Lum. Watts	Total Watts
	13	A	Single	0.950	VISIONAIRE LSO-M_T3_5L_3K_PTD @ 14' MTG. HT.	6695	B2-U0-G2	52.1	677.3

DRAWING NUMBER :	**LS010825CL-HARTLAND TWP RESIDENTIAL-05**
LAYOUT DESIGNER :	LS
DESIGNER EMAIL :	Lsalgado@visionairelighting.com
PROJECT DATE :	01/09/25
REVISION DATE :	01/15/25
REP :	CLARUS LIGHTING
NOTE/S:	-

www.visionairelighting.com
Phone: (310) 512-6480 Fax: (310) 512-6486
19645 Rancho Way-Rancho Domiguez, CA. 90220

POINT-BY-POINT CALCULATION
Illuminance at Grade (Footcandles), unless otherwise specified.

VISIONAIRE LIGHTING

PHOTOMETRIC STUDY

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Hartland Township Planning Commission Meeting Agenda Memorandum

Submitted By: Troy Langer, Planning Director

Subject: Site Plan Application #25-009
Proposed LOC Credit Union with drive-through service at Shops at Waldenwoods PD

Date: July 17, 2025

Recommended Action

Move to approve Site Plan Application #25-009, a request to construct an approximate 2,100 square foot commercial building for LOC Credit Union, with drive-through service, on a vacant parcel, located in the Shops at Waldenwoods Planned Development, (Parcel ID #4708-20-400-017), as outlined in the staff memorandum dated July 17, 2025.

Approval is subject to the following conditions:

1. The applicant shall adequately address the outstanding items noted in the Planning Department's memorandum, dated July 17, 2025. Revised plans, if necessary, shall be subject to an administrative review by the Planning staff prior to the issuance of a land use permit.

2. A land use permit is required prior to construction.

3. Applicant complies with any requirements of the Township Engineering Consultant, Department of Public Works Director, Hartland Deerfield Fire Authority, and all other government agencies, as applicable.

4. (Any other conditions the Planning Commission deems necessary)

Discussion

Applicant: Stephen Gretch

Site Description
The Shops at Waldenwoods Planned Development (PD) is located at the northwest corner of Highland Road (M-59) and Old US-23 in Section 20 and 21 of Hartland Township. The entire commercial development is approximately 61 acres in size and is comprised of multiple parcels. The PD was approved in 1999 and is to be completed in several phases. Phase 1 is completed with one multitenant commercial building which includes eleven (11) tenants plus Kroger; and two stand-alone buildings, CVS Pharmacy and Huntington Bank. Target is the only building that has been constructed as part of Phase 2.

The subject parcel, approximately 1.05 acres in size, is zoned PD (Planned Development), and is associated with the Shops at Waldenwoods PD. The vacant parcel is situated north of Highland Road and east of the Target entry drive from Highland Road. Access to the subject site is via the existing internal drive lane within the development, as the subject parcel does not have frontage along Highland Road. Stormwater detention basins associated with the Shops at Waldenwoods border the subject site on the west and south property lines. To the east is a vacant parcel that is with the subject PD that could be developed in the future.

Background Information on the Shops at Waldenwoods Planned Development (PD)

Site Plan Application #270 (2000)
The Shops at Waldenwoods Planned Development was approved by the Township in April 2000 under Site Plan application #270. The approved plans for the PD include the Planned Development Agreement (the "Agreement") dated September 15, 2000, and the Conceptual Master Plan dated September 3, 2000 (Exhibit B).

A Supplemental Agreement occurred in 2001 and several amendments to the PD occurred between 2000 and 2017 as outlined below.

Supplemental Agreement (2001)
In a letter dated October 30, 2001, the developer and the Township entered into a mutual agreement regarding the joint interpretation of certain provisions outlined in the original PD Agreement regarding rear yard setbacks within the development. The letter is referred to in the proposed 3rd Amendment as the "Supplemental Agreement" which was not recorded.

1st Amendment to PD Agreement (2002)
The first amendment to the PD, approved on April 25, 2002, provided additional standards for wall signs under Paragraph 3 of the PD Agreement.

Site Plan Application #354 – 2nd Amendment to PD Agreement (2004)
The Second Amendment to the PD was approved by the Township Board on March 2, 2004, which amended the legal description of the PD property and modified the development phasing schedule in Paragraph 4 of the PD Agreement. Additionally, modifications were made to the original Conceptual Master Plan (approved under SP Application #270). The revised Conceptual Master Plan, Exhibit B-1, dated September 17, 2003, included several modifications to the original Conceptual Master Plan including changes to the detention areas, greenspace layout improvements, and Phase 2 anchor store footprint was enlarged.

3rd Amendment (2006)
A Third Amendment was proposed in 2006, which was related to the proposal by the Michigan Department of Transportation (MDOT) to widen a section of M-59. The proposal required additional right-of-way along the north side of M-59 within the PD property (Shops at Waldenwoods), thus an amendment to the PD Master Plan was necessary. The Planning Commission discussed the proposal between 2006 and 2007; however, a revised development plan was not approved nor was the Third Amendment approved. Details on the Third Amendment, as approved under SP #17-001, are outlined in this section.

Site Plan Application #479C – Conceptual Site Plan (2009)
A site plan application was submitted to the Township by Kroger in 2009 (Site Plan Application #479C), as a proposed amendment to the Shops at Waldenwoods Planned Development. The request was to amend the PD Agreement to allow for the installation of a fuel station/kiosk and other outdoor sales and display areas for Kroger. A conceptual site plan was presented to the Planning Commission on March 26, 2009, for their feedback. The applicant was seeking input to determine if the Township was receptive to amending the PD to include the fueling station and/or outdoor display and sales areas, prior to the submittal of a formal application.

As background information to SP #479C, permitted land uses are identified in the original Planned Development Agreement (September 15, 2000), which includes the principal permitted uses listed in the General Commercial (GC) zoning district, from the previous zoning ordinance (Section 24.02 Zoning Ordinance No.37). Additionally, the PD Agreement listed specific land uses to be permitted by right that

are listed as special land uses in the GC zoning district. If not specifically listed in the PD Agreement, other uses requiring special approval are not permitted. All automotive related uses and commercial outdoor display sales or storage of items outside require special approval. Those uses are not included in the Planned Development Agreement and thus are not permitted. This is consistent with the GC regulations outlined in Section 3.1.14. of the current Zoning Ordinance.

The Planning Commission reviewed the proposed conceptual plan under SP #479C in 2009 but the project did not proceed to the next step.

Site Plan Application #17-001 (3rd Amendment to the Shops at Waldenwoods PD Agreement – modify Project Identification Sign)
On February 23, 2017, the Planning Commission recommended approval of SP #17-001, a request to modify the existing monument sign for the development (Project Identification Sign) and Exhibit E of the PD Agreement. The Township Board approved SP #17-001 on March 27, 2017.

Site Plan Application #21-008 (Amend previously approved Conceptual Master Plan (Sheet B-1) for the Shops at Waldenwoods PD)
On May 27, 2021, the Planning Commission approved SP #21-008, a request to amend the previously approved Conceptual Master Plan (Sheet B-1) for the Shops at Waldenwoods PD. The amended plan included the creation of four (4) individual parcels for future development along Highland Road, in the southwest corner of the development; site modifications to address future Highland Road expansion plans; and modifications to the storm water management system and detention basins.

Land Use Permit #23-243 (issued on October 2, 2023)
The plans approved under PLU #23-243 included improvements to the storm water management system and detention basins, with site work occurring in the southwest corner of the development (generally south of the Target parking area) and on vacant land west of the Target entry drive, for future development.

Land Use Permit #24-082 (issued May 29, 2024)
This was an amendment to the plans approved PLU #23-243, as related to storm water management plans and included grading for an internal drive lane on the land west of the Target entry drive.

Land Use Permit #25-109 (issued June 10, 2025)
The plans approved under PLU #25-109 included plans for the installation of water and sanitary sewer infrastructure for future development along the southwest corner of the development and vacant land west of the Target entry drive. Paving of the internal drive lane (on land west of the Target entry drive) was approved as well.

Proposed Use
The applicant is requesting to construct a new building, approximately 2,100 square feet in size, with drive-through service, for LOC Credit Union. The Planned Development Agreement for the Shops at Waldenwoods PD, dated September 15, 2000, establishes the uses permitted in the Planned Development. Per this document, a bank or other financial institution with drive-through service is considered a Permitted Principal use and does not require any special approval. The development standards for the General Commercial District are to be applied for uses permitted in the PD. Additional standards will be applied for Financial Institutions with Drive-through Service are outlined in Section 4.57.

Request
The request is to construct a building with drive-through service for LOC Credit Union. Currently LOC Credit Union has offices within Fountain Square, which will be relocated to the proposed building.

The proposed building is centered within the site, with eleven (11) parking spaces on the north side of the building and two (2) drive-through lanes on the west side of the building. Four (4) stacking spaces are required for each drive-through window, which are not shown on the proposed plans.

The drive lane within the site wraps around the building and includes a bypass lane next to the drive-through lanes on the west. Traffic is one-way on the west and south and 2-way traffic is provided on the north and east.

The proposed access to the site is via the existing internal drive lane within the Shops at Waldenwoods PD, which runs east-west along the parking areas associated with Target, Kroger/multi-tenant building, Huntington Bank, and CVS Pharmacy.

The hours of operation are Monday through Thursday, from 9:00 a.m. to 5:00 p.m.; Friday 9:00 a.m. to 6:00 p.m.; and Saturday from 9:00 a.m. to 1:00 p.m.

Approval Procedure
The project requires the site plan to be reviewed by the Planning Commission who will make a final decision on the site plan. The plans will be reviewed using the development standards of the GC (General Commercial) zoning district (Section 3.1.14), standards associated with Financial Institutions with Drive-through Service in Section 4.57, and all applicable zoning standards in the Zoning Ordinance.

SITE PLAN REVIEW – Applicable Site Standards
The applicable site standards include those standards related to the proposed use, financial institution with drive-through service, as outlined in Section 3.1.14 (GC-General Commercial); Section 4.57 (Financial Institutions with Drive-through Service); and all applicable zoning standards in the Zoning Ordinance.

In this case the applicant is requesting site plan approval to construct a financial institution (LOC Credit Union), approximately 2,100 square feet in size, with two (2) drive-through service lanes.

Impact Assessment
No impact assessment was submitted, nor required, for the proposed use.

Traffic Generation
A traffic impact assessment was not required for the proposed use.

Dimensional Requirements (GC-General Commercial; Section 3.1.14)

Lot Size (Sec. 3.1.14)
- Required – 40,000 sq. ft. w/o sewer; or 20,000 sq. ft. with sewer
- Proposed – 1.05 acres (45,738 sq. ft.) with sewer
- Meets Requirement? Yes
- Comment – (none)

Frontage (Sec. 3.1.14)
- Required – minimum lot width of 120 feet
- Proposed – lot width is approximately 220 feet (width as stated plans for the north property line)
- Meets Requirement? – Yes
- Comment – The subject parcel does not have direct frontage along a public or private street. Access is provided via a private, internal drive lane (unnamed).

Building Setbacks (Sec. 3.1.14 – parcel with sewer)

Setback	Required	Proposed	Meets Requirements? (Y / N)
Front (north)	50’	100.8’	Yes
Rear (south)	40’	58.5’	Yes
Side (east)	15’	63.6’	Yes
Side (west)	15’	36.7’*	Yes

*As measured to the leading edge of the drive-through canopy

Building Height (Sec. 3.1.14)

- Required – 35 feet or 2½ stories, whichever is less
- Proposed – 19 feet at tallest point (at top of metal fascia)
- Meets Requirement? – Yes
- Comment – (none)

Lot Coverage (Sec. 3.1.14)

- Required – principal structure: 75% max.
- Proposed – 4.6%
- Meets Requirement? – Yes
- Comment – (none)

Financial Institutions with Drive-through Service (Sec. 4.57)

- Permitted – A maximum of four (4) drive-through service lanes, including any automatic teller drive-through lanes may be permitted. All drive-through facilities must be attached to the principal building by a canopy.
- Proposed – 2 drive-through service lanes, with teller/ATM option in one lane. Drive-through facilities are attached to the building by a canopy.
- Meets Requirement? – Yes
- Comment – (none)

Site Requirements

Dumpster Enclosure (Sec. 5.7)

- Required – Dumpster designed, enclosed, and screened per requirements; decorative masonry screen wall on 3 sides to match exterior façade materials of the building; and steel reinforced, opaque, lockable wooden gates. Enclosure height sufficient to screen dumpsters; minimum enclosure height is 6 feet. The bottom surface within the enclosure shall be constructed of eight (8) inch thick, reinforced concrete and shall extend a minimum of ten (10) feet in front of the enclosure.
- Proposed – Dumpster enclosure located on west side of site with 11’ by 11’ concrete pad in front of dumpster; 6-foot-high brick enclosure with materials that match the building; and solid metal gates (painted-color information not provided). Landscaping is provided around the enclosure with shrubs.
- Meets Requirement? – Yes
- Comment – Paint color information for the gates should be provided on the Construction Plan set. Earthtone colors are required for the paint color.

Off-Street Parking (Sec. 5.8, for Banks, Savings and Loan Offices)

- Required – 1 space per each 200 sq. ft. of gross floor area (GFA); plus 2 spaces for each 24-hour teller; plus 4 stacking spaces for each drive-through window.
  EQUATES TO: 13 parking spaces REQUIRED (2,100 sq. ft. GFA ÷ 200 = 11 spaces PLUS 2 spaces per 24-hour teller; PLUS 4 stacking spaces per drive-through window (8 stacking spaces total).
- Proposed – 11 parking spaces, 10' X 20' for standard spaces; stacking spaces are not shown.
- Meets Requirement? – **TBD**
- Comment – Number of required parking spaces is deficient by 2 spaces. Per Section 5.8.H., the Planning Commission may modify the numerical requirements for off-street parking based on evidence that another standard would be more reasonable, because of the level of current or future employment and/or level of current or future customer traffic. The applicant has provided a parking analysis that outlines the typical parking needs for the LOC Credit Union, stating that a 24-hour teller/ATM is provided in one of the drive-through lanes, and is not inside the building. As a result, this should reduce the parking needs by 2 spaces per the applicant. The applicant is asking the Planning Commission to review the parking needs for this business and determine if the proposed plan is acceptable. Stacking spaces for each drive-through window shall be shown on the Construction Plan set.

Barrier-Free Parking

- Required – barrier-free spaces in a location most accessible to the building entrance, with at least 1 space van-accessible (1 barrier-free space required per 25 parking spaces)
- Proposed – 1 barrier-free van accessible parking space and access aisle are shown near the main building entrance (north side of the building)
- Meets Requirement? – Yes
- Comment – (none)

Parking Lot / Driveway / Internal Roads Setbacks (Sec. 5.8.3.)

- Required – off-street parking in commercial districts may only be located in a side or rear yard or non-required front yard; may not be permitted within 20' of a single-family district, nor within 10' of a road ROW, or 25' from a front lot line, nor 10' from a side or rear lot line.

Setback	Required	Proposed	Meets Requirements? (Y / N)
Front (north)	25'	20'	No
Side (east)	10'	60'	Yes
Side (west)	10'	89'	Yes
Rear (south)	10'	199'	Yes

- Meets Requirement? – No, 7 parking spaces are located in the front yard, approx. 20 feet from the front lot line.
- Comment – The site does not have frontage along a public or private street, thus the front setback may not be applicable. Planning Commission to determine if the proposed plan is acceptable.

Loading (Sec. 5.9)

- Required – 1 loading space (10' X 50') required per 5,000 sq. ft. gross floor area (Commercial uses)
- Proposed – Loading space is not shown.

- Meets Requirement? – TBD
- Comment – Typically this has not been required to be shown on a plan. Planning Commission to determine if a loading space is necessary.

Access Management and Non-Residential Driveway Standards (Sec. 5.10) – Not Applicable
Curb cut/access from Highland Road is not proposed.

Landscaping (Sec. 5.11 – Updated Landscape Ordinance version)
Applicable sections of Section 5.11 (Landscaping and Screening), updated version, will be applied to the landscape plan, as outlined below.

A. Landscape plan requirements (Sec. 5.11.1.D.)
   - Required – Landscape plans are to be prepared by a Registered Landscape Architect (plans with seal and signature).
   - Proposed – Landscape plans are prepared by a Registered Landscape Architect.
   - Meets Requirement? – Yes
   - Comment – (none)

B. Irrigation (Sec. 5.11.2.A.viii.)
   - Required – All landscaped areas (including lawns) shall be provided with an automatic, underground or drip irrigation system.
   - Proposed – Note saying all landscaped areas will be provided with an automated irrigation system (see Sheet L-1).
   - Meets Requirement? – Yes
   - Comment – An irrigation plan is required as part of the Construction Plan set.

C. Greenbelt Landscaping (Sec. 5.11.2. C.)
   NOTE: The subject parcel does not have direct frontage along a private or public street. In this case the applicant has applied the Greenbelt landscaping requirements for the north property line (221 lineal feet.
   - Required – Within the first 30 feet of the property, minimum 20-foot-wide area, 1 canopy tree for every 30 ft of lineal of frontage; Planning Commission may approve up to 50% substitution of canopy trees with evergreen trees; PLUS 3 small deciduous ornamental trees or large deciduous or evergreen shrubs for the initial 40 ft., and 1 per 20 ft. thereafter. Frontage = 221 ft. (north property line)
     EQUATES TO: 7 canopy trees PLUS 3 ornamental trees, or large deciduous or evergreen shrubs in first 40 ft., PLUS 9 additional ornamental trees or large deciduous or evergreen shrubs, or combination thereof, REQUIRED *(TOTAL plant count: 7 canopy trees PLUS 12 ornamental trees, or large deciduous or evergreen shrubs or combination).*
   - Proposed – 20-ft. wide Greenbelt area; 6 narrow habit deciduous trees and 2 canopy trees (8 total); 3 ornamental trees; and 35 evergreen shrubs.
   - Meets Requirement? – Yes
   - Comment – Section 5.11.2.C.ii. could be applied instead, as follows: 15-ft. wide landscape area along the length of internal roadway providing public access to site plus one (1) canopy or evergreen per every 30 feet, and screen the parking lot. The plans complies with this standard.

D. Foundation Landscaping (Sec. 5.11.2.D.)
   - Required – Length of planting area must equal at least 60% of the front and sides of the building length where facing a road or adjacent parking lot or other areas which provide access to building; must be 8 ft. in width and located adjacent to building, and consist of 1 ornamental or columnar tree, and 6 large or 8 small shrubs for every 30 lineal feet of building length or portion thereof.
     Total building perimeter used for calculations (North: 35 ft. and East: 67 ft. = 97 ft. total)
     Foundation perimeter calcs.: 60% of perimeter = 58 ft. (.60 x 97 ft.)

EQUATES TO: 2 ornamental/columnar trees (58 ÷ 30 = 2); PLUS 12 large shrubs or 16 small shrubs REQUIRED

- Proposed – 2 ornamental trees in lawn east of building; 25 large shrubs on north; 0 shrubs along east side of building
- Meets Requirement? – Yes, for the number of plants. Plant bed width and plant location comments are noted below.
- Comment – 2 ornamental trees are shown in the lawn area east of the building and are not in a foundation planting bed by the building. Planting bed width on the north side of the building is 7 feet wide (8-foot-wide bed required) and may be too narrow to accommodate the large shrubs that are proposed (Dense Yew and Hydrangea). A circle symbol shrub representing the shrub diameter should be shown for each Dense Yew shrub to ensure the spatial area provided is adequate. Zero shrubs are shown on the east side of the building; a stone maintenance strip is shown along the foundation of the building on the east. Planning Commission to determine if the proposed landscape plan meets the intent of the Foundation Landscaping requirements.

E. Parking Lot Landscaping (Sec. 5.11.2.E.i.)
- Required – Landscaped end caps for parking areas of 10 or more spaces; landscape island required at intervals not to exceed 15 parking spaces; landscape areas in parking lots shall not be less than 10 ft. in any direction, nor less than 180 sq. ft.; 1 canopy tree per 180 sq. ft. of interior area, with parking lot island crowned and covered with lawn or live plant material to meet minimum ground coverage requirements (80% coverage). Parking islands/area adjacent to parking sq. ft.: 613 sq. ft. (stated on Sheet L-1).
  EQUATES TO: 4 canopy trees (613 ÷ 180 = 4)
- Proposed – 4 canopy trees plus lawn for ground coverage of the parking islands.
- Meets Requirement? – Yes
- Comment – (none)

F. Perimeter Landscaping (Sec. 5.11.2.E.ii.b.) – For areas not visible from a public road that do not have other screening requirements such as screening between properties – along south, east, and west sides of site per plan submitted.
- Required – 15-foot-wide perimeter area to include 1 canopy tree with 4 large shrubs or 1 evergreen tree per 30 lineal ft. Sum total of Lineal feet = 490 ft. (measured along south, east, and west)
  EQUATES TO: 16 canopy trees PLUS 41 large shrubs; or 16 evergreen trees REQUIRED.
- Proposed – 13 canopy trees; 3 evergreen trees; and zero shrubs. Landscape planting areas vary in width: 9 ft. (east); 25 ft. (south); and 59 ft. (west).
- Meets Requirement? – Yes, for the number of required trees (mix of canopy and evergreen trees), however shrubs are not provided. The perimeter area on east is 9 feet wide.
- Comment – Planning Commission to determine if the proposed plan meets the intent of the Perimeter Landscaping requirements.

G. Screening of Ground Mounted Equipment (Sec. 5.11.2.G.iii.)

Transformer on east side of building
- Required – Screening on three sides for utility cabinets (if 30 inches or more in height).
- Proposed – 5 large columnar evergreen shrubs are shown on three sides of the transformer.
- Meets Requirement? – See comments below.
- Comment – The height of the transformer should be stated on the Construction Plan set to confirm if the proposed shrubs will be of sufficient height to screen the transformer. Screening shall exceed the vertical height of the transformer by at least 6 inches within 2 years of planting. Staff would suggest screening be added on the south side of the transformer and make the west side of the unit be the access point to the transformer (between transformer and building).

Ground mounted AC unit on south side of building
- Required – Screening on three sides for utility cabinets (if 30 inches or more in height)

- Proposed – 9 large evergreen shrubs on 2 sides of the AC unit (north and east); building shields one side.
- Meets Requirement? – Yes, if shrubs are of sufficient height to screen AC unit.
- Comment – The height of the AC unit should be stated on the Construction Plan set to confirm if the proposed shrubs will be of sufficient height to screen the AC unit. Screening shall exceed the vertical height of the AC unit by at least 6 inches within 2 years of planting.

Other Landscaping Comments

Noted below are comments related to the landscape plan which should be addressed on the Construction Plan set:

- Planting bed width on the southwest side of the building is 2 ft. wide and is not wide enough for the proposed Hicks Yew shrubs (shrub width can be 3 ft. to 4 ft.). A circle symbol should be shown, representing the shrub diameter of each Dense Yew shrub, on the Construction Plan set.
- A note should be added that shredded hardwood bark mulch is being used in planting beds and around trees, on the Construction Plan set.

Lighting (Sec. 5.13)

A. Intensity
   - Required – Light intensity to be measured at 5 ft. above ground level; max. 0.5 fc along property line adjacent to residential; or max.1.0 fc along property line adjacent to non-residential; average fc between 2.4 and 3.6 in main parking area and an average of 5.0 fc at main building entrance; may not exceed 10 fc on site. Average fc under vehicular canopy not to exceed 5 fc.
   - Proposed – Lighting intensity measured at 5 ft. above the ground level; photometric plan indicates an average of 0.1 fc along all property lines; average of 2.5 fc in the parking area; and average of 6.3 fc at building entrance. Footcandle value less than 10 fc throughout the site except for several readings taken under the drive-through canopy. Average footcandle value under the vehicular canopy is 10 fc (exceeds max. ave. of 5 fc).
   - Meets Requirement? – No, for average light intensity exceeding 5.0 fc at main building entrance; average footcandle value exceeds 5 fc under the vehicular canopy; several spot fc values exceed 10 fc under the vehicular canopy.
   - Comment – The photometric plan should be revised to comply with the lighting standards on the Construction Set of plans.

B. Fixture Height
   - Required – 25’ or the height of the principal building, whichever is less, measured from the ground level to the centerline of the light source
   - Proposed – 18’ total height stated
   - Meets Requirement? – **TBD**
   - Comment – The elevation drawing of the light pole and base should be revised to state the total height of pole and base, on the Construction Plan set.

C. Fixture Type
   - Required – details of all lighting fixtures needed including specifications for shielding, wattage and illumination.
   - Proposed – specifications for proposed LED light fixtures are shown on the photometric plan for light pole fixture and wall mounted light fixtures.
   - Meets Requirement? – Yes
   - Comment – (none)

Water Supply and Wastewater Disposal (Sec. 5.16)
The proposed development will be served by municipal water and sanitary sewer.

Architecture / Building Materials (Sec. 5.24)

Architecture Comments:

- Façade Materials Calculation – Façade materials must comply with the specifications for Façade Materials Group #1; percentages are proposed as follows:

Materials Group #1: Proposed Façade Materials by Percentage by Elevation

Group #1	Clay Brick (30% min.) M-3 + M-4 brick Combined total	Glass (50% max.) M-6	Flat Metal Panel (20% max.) M-5 Denim Blue	Metal/Aluminum Fascia panel M-1 (combined total for Bldg. and canopy) Product not listed in Ordinance	Siding - Metal Pre-finished wood grain M-2 (10%)
South	42.5%	11.4%	6.7%	32.2%	7.2%
North	47.7%	11.2%	0.0%	33.4%	7.7%
West	76.2%	3.3%	0.0%	12.4%	8.1%
East	53.8%	11.9%	3.3%	18.3%	0.0%

- Colors: The renderings illustrate earthtone colors as required with blue accent color at entrance facing Highland Road; all specifications are provided.
- Materials: Percentages are listed for each elevation side as indicated by the table; specifications on all materials are provided.
- Meets Requirement? – Yes, for façade materials listed in Section 5.24.14.
- Comment – Planning Commission to determine if the metal fascia product and proposed percentages are acceptable.

Other Requirements-Zoning Ordinance Standards
Nothing additional at this time.

Hartland Township DPW Review
A review letter is provided from the Hartland Township DPW Director, dated May 25, 2025.

Hartland Township Engineer's Review (SDA)
The Township Engineer (SDA) has reviewed plans and recommends approval subject to items being addressed in the letter dated June 12, 2025.

Hartland Deerfield Fire Authority Review
The Hartland Deerfield Fire Authority has reviewed the plans and provided comments in the letter dated June 10, 2025. Approval is subject to the contingencies being addressed as outlined in the letter.

Attachments
1. Applicant letter with parking analysis dated 07.01.2025 – PDF version
2. Township DPW review letter dated 05.25.2025 – PDF version
3. Township Engineer (SDA) review letter dated 06.12.2025 – PDF version

4. Hartland Deerfield Fire Authority review letter dated 06.10.2025 – PDF version
5. Site Plans dated 07.01.2025

CC:
SDA, Twp Engineer (via email)
Scott Hable, Twp DPW Director (via email)
A. Carroll, Hartland FD Fire Chief (via email)

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July 1, 2025

RECEIVED
JUL 02 2025
HARTLAND TOWNSHIP

Mr. Troy Langer, Planning Director
Hartland Township
2655 Clark Road
Hartland, Michigan 48353

Re: LOC Credit Union – Site plan re-submittal

Dear Mr. Langer:

We have revised the site plan for the LOC Credit Union to address review comments received from Walden & Associates, LLC and Hartland Township. Plan revisions and responses to questions are provided as follows:

- Easterly drive width revised to 26 feet to allow for two-way traffic
- Light pole locations and photometric plan have been revised to reflect site plan revisions
- Landscape plan has been revised to reflect site plan revisions
- The updated sheets P-1 and P-2 have been included
- LOC Credit Union's hours of operation: Monday - Thursday 9 am to 5 pm, Friday 9 am to 6 pm, Saturday 9 am to 1 pm
- The number of 24 hours tellers is 1
- The parking provided is based on 1 space per 200 gross square feet of building area (2100/200=11 spaces). The ordinance also calls for 2 spaces per 24-hour teller/ATM. The assumption was that this requirement is based on a teller/ATM that is located on or in the building and as a result requires a customer to park and exit the car to use the teller/ATM. We have 1 teller/ATM and it is located in the drive-thru and does not require a custom to park because it is drive-up. As a result, we did not include the 2 parking spaces for the teller/ATM

Enclosed are revised plans for review and approval. Should you have questions pertaining to the project, please contact me at your convenience.

Respectfully,
DESINE INC.

Wayne M. Perry, P.E.

Encl: Site plan dated 07-01-2025

cc: Stephen Grech, LOC Credit Union
Michael O'Leary, Lindhout Associates Architects

254840\Hartland Twp. – Site Plan resubmittal LTR 07-01-2025

DEPARTMENT OF PUBLIC WORKS
Scott Hable, Public Works Director
2655 Clark Road
Hartland MI 48353
Phone: (810) 632-7498

TO:	Planning Department
DATE:	5/25/2025
DEVELOPMENT NAME:	LOC Credit Union Hartland
PIN#:	Highland Rd – 4708-20-400-017
APPLICATION #:	#25-009
REVIEW TYPE:	Preliminary Site Plan

Preliminary Site Plans for the proposed LOC Credit Union proposes a 2,095 square foot building. Banks are assigned at a rate of 0.4 REUs per 1,000 square feet; therefore, 1 sewer and 1 water REU is required.

	Sewer REUs	Water REUs
Owned	3.0	3.0
Required	1	1
# REUs Needed	0	0
Cost Each	$9.439.20	$5,816.01
Total Due Each	$0	$0
TOTAL REU COST	**$0**	

Public Works approves the above plans subject to the inclusion of the following details on subsequent site plans and construction plans:

1. Water main material, sizes and connection detail sheet.
2. Water service lead location, size and materials including fittings.
3. Sanitary sewer material and sizes and connection detail sheet.
4. Monitoring manhole for sewer connection and location if required.
5. Utility easements noted as public.

Prior to interior construction, applicant will be required to purchase a water meter, appropriate mounting hardware, and MXU sending unit from the Township.

Please feel free to contact me with any further questions or comments regarding this matter and thank you for your time.

Scott Hable
Public Works Director

Site Plan Review

June 12, 2025

Troy Langer
Planning Director
Hartland Township, MI

Re: Credit Union – Site Plan Review #2
SDA Review No. HL25-103

Dear Troy:

We have received the preliminary site plan submittal for the above referenced project prepared by Desine dated June 5, 2025, and received by our office on June 9, 2025. A concept review email was provided on April 24, 2025. The plans were reviewed in accordance with Hartland Township Engineering Standards and the following comments are our observations.

Recommendation
Approval of the Site Plan is recommended with the conditions listed below.

Project Summary

- Construction of a Credit Union located north of Highland Road (M-59) at Shops of Waldenwoods. Site access would be provided with access drives from private drives. It is noted that the site is 1.05 acres.
- Water service would be provided from the currently under review 8-inch water main within the Shops at Waldenwoods. A water service and fire lead will be provided to serve the building.
- Sanitary sewer service would be provided from the currently under review 8-inch sanitary sewer within the Shops at Waldenwoods. A sanitary service would be provided to serve the building.
- Storm water would be collected by a storm sewer collection system with outlet to a recently constructed Forebay A within the Shops at Waldenwoods.

General

1. The Shops at Waldenwoods project is not completed. Construction of the utilities has been permitted and accepted, and it is anticipated to be completed this summer. The credit union parcel (08-20-400-017) is within the Shops at Waldenwoods development and would need to coordinate with this project, as the proposed utilities will be required to serve the proposed building.

Storm Drainage & Site Grading

1. Any development project with a land disturbance area of 1.0 acre or larger or creates or replaces 0.5 acres of impervious surface will require a permit from Livingston County. LCDC's current standards shall govern all storm and detention improvements within the Township. We do not anticipate additional stormwater improvements given that the Shops at Waldenwoods development was redeveloped to account for all developments within the site.

2. The proposed outlet pipes for the credit union are discharging to the recently constructed Forebay A for the Shops at Waldenwoods. As-builts will need to be provided to ensure the ponds will work as designed.

Sanitary Sewer

1. All sanitary sewer design requirements are to follow current Livingston County Drain Commissioner's (LCDC) standards and details. LCDC sanitary sewer detail sheets shall be attached to the proposed plans when applicable.

Permits and Agreements Required

Based on those improvements depicted on the plans, the following permits and agreements may be needed to be provided for review and approval:

- A draft copy of the Storm Drain Agreement.
- A Land Use Permit will be granted after the pre-construction meeting.
- Livingston County Drain Commissioner approval and permit.
- Soil Erosion and Sedimentation permit from Livingston County Drain Commissioner.

Please be aware that additional comments may arise with the submittal of the requested revisions and/or additional information.

The comments are not to be construed as approvals and are not necessarily conclusive. The final engineering plans for this development are to be prepared in accordance with the Hartland Township Engineering Design Standards and 2021 Hartland Township Standard Details. Sanitary sewer and water benefit fees may be applicable for this project.

If you have any questions regarding this letter, please contact Luisa Amici at (248) 844-5400 with any questions.

Sincerely,

SPALDING DEDECKER

Luisa Amici
Engineer

Mark Collins, PE
Project Manager

cc: Martha Wyatt, Hartland Township Planning Planner - Landscape Architect (via email)
Scott Hable, Hartland Township Public Works Director (via email)

HARTLAND DEERFIELD FIRE AUTHORITY

HARTLAND AREA FIRE DEPT.

3205 Hartland Road
Hartland, MI. 48353-1825

Voice: (810) 632-7676
E-Mail: firemarshal@hartlandareafire.com

June 10, 2025

To: Hartland Township Planning Commission

Re: LOC Credit Union at Shops of Waldenwoods

The Hartland Deerfield Fire Authority has reviewed the Site Plan for LOC Credit Union at Shops of Waldenwoods dated June 5, 2025.

These are the following are recommendations:

1. A minimum of one isle is a minimum of twenty-six feet.
2. All turning radius is a minimum of fifty feet.
3. Required to purchase a Supra Box, Fire Department has ordering information.
4. Contact the Fire Department for Final Inspection.

This approval is subject to field inspection. This approval shall be valid for one year. If construction has not begun within 12 months of the date on this letter the plans must be resubmitted for approval. This approval does not exempt the project from complying with all applicable codes. Additional submittals and approvals may be required.

Jon Dehanke
Fire Marshal

SITE PLAN

loc CREDIT UNION
OF HARTLAND

A PART OF THE SOUTHEAST 1/4 OF SECTION 20, T 3 N, R 6 E, HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

LEGAL DESCRIPTION

Situated in the Township of Hartland, County of Livingston and State of Michigan, and described as follows:

Parcel 1:

Outlot II-C: A parcel of land in the Southeast 1/4 of Section 20, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan, described as follows:

Commencing at the Southeast corner of said Section; thence North 02 degrees 38 minutes 53 seconds West, on the East line of said Section, 384.23 feet;

thence Westerly, on the arc of a 425.40 foot radius curve to the left, 59.11 feet to the point of tangency of said curve, said arc being subtended by a chord bearing and distance of South 89 degrees 58 minutes 22 seconds West, 59.06 feet;

thence South 86 degrees 00 minutes 30 seconds West, 55.58 feet to the ***POINT OF BEGINNING*** *of this description;*

thence South 03 degrees 56 minutes 46 seconds East, 222.74 feet;

thence South 86 degrees 00 minutes 30 seconds West, 178.87 feet;

thence North 03 degrees 56 minutes 46 seconds West, 82.74 feet;

thence South 86 degrees 00 minutes 30 seconds West, 42.10 feet;

thence North 03 degrees 56 minutes 46 seconds West, 140.00 feet;

thence North 86 degrees 00 minutes 30 seconds East, 220.97 feet to the Point of Beginning.

LOCATION MAP
NOT TO SCALE

SHEET INDEX

EX	EXISTING CONDITIONS
SP	SITE PLAN
VC	VEHICLE CIRCULATION PLAN
GR	GRADING AND PAVING PLAN
UT1	UTILITY PLAN
SW	STORMWATER DRAINAGE PLAN
L-1	LANDSCAPE PLAN
1 OF 2	PHOTOMETRIC SITE PLAN
2 OF 2	LIGHTING CUT SHEETS
SE	SOIL EROSION AND WATERSHED PLAN, NOTES & DETAILS
DT1	SITE IMPROVEMENT NOTES & DETAILS
DT2	SITE IMPROVEMENT NOTES & DETAILS
P-1	FLOOR PLAN / EXTERIOR VIEWS
P-2	EXTERIOR COLOR BOARDS
1 OF 2	HARTLAND TOWNSHIP PAVEMENT STANDARDS
1 OF 1	HARTLAND TOWNSHIP PAVEMENT STANDARDS
1 OF 2	HARTLAND TOWNSHIP STORM SEWER STANDARDS
2 OF 2	HARTLAND TOWNSHIP STORM SEWER STANDARDS
1 OF 1	LIVINGSTON COUNTY SANITARY SEWER STANDARD DETAILS & NOTES
	GENESEE COUNTY WWS SANITARY SEWER CONSTRUCTION STANDARD DETAILS
	GENESEE COUNTY WWS STANDARD CONSTRUCTION NOTES

AERIAL PHOTOGRAPHY BY:
Google maps

Aerial photographic underlay is an unrectified image and is orientated to the engineering line work within reasonable accuracy and precision, and may not accurately depict current site conditions.

STATE OF MICHIGAN
WAYNE M. PERRY
License No. 6201034036
LICENSED PROFESSIONAL ENGINEER

OWNER/DEVELOPER
LOC CREDIT UNION
22981 FARMINGTON ROAD
FARMINGTON, MI. 48336
(248) 919-5801

ARCHITECT
LINDHOUT & ASSOCIATES
10465 CITATION DRIVE
BRIGHTON, MI. 48116-9510
(810) 227-5855

CIVIL ENGINEER/LAND SURVEYOR
DESINE INC.
2183 PLESS DRIVE
BRIGHTON, MI. 48114
(810) 227-9533

LANDSCAPE ARCHITECT
VERT VERDE LANDSCAPE ARCHITECTURE LLC
44960 ALBERT DRIVE
PLYMOUTH, MI. 48170
(734) 249-3568

DESINE INC
(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

REVISED	SCALE: N/A
06-05-25	PROJECT No.: 9254840
07-01-25	DWG NAME: 4840-COV
	PRINT: JULY 01, 2025

DEMOLITION NOTES:

1. The demolition specifications of the Local Municipality are a part of this work. Refer to the General Notes on the project plans for additional requirements.

2. Contractor shall contact the 811 Underground Public Utility Locating System or other appropriate local underground utility locating Agency, a minimum of three (3) working days prior to performing demolition work. Existing utility information on the project plans may be from information disclosed to this firm by the Utility Companies, Local, County or State Agencies, and/or various other sources. No guarantee is given as to the completeness or accuracy thereof. Prior to construction, locations and depths of all existing utilities (in possible conflict with the proposed improvements) shall be verified in the field.

3. Contractor shall contact the appropriate Agencies to coordinate disconnect of the electric, gas, phone, cable and other public utilities as necessary prior to performing demolition work.

4. Contractor shall contact the appropriate Agencies to coordinate removal and/or relocation of any underground and/or overhead public utility lines as necessary prior to performing demolition work.

5. Contractor shall recycle and/or dispose of all demolition material and debris in accordance with the appropriate Local, County, State and Federal regulations.

6. All bituminous and concrete pavement that is to be removed shall be saw cut at the limits of removal to provide for a clean straight edge for future abutment.

7. All existing irrigation lines that are to be removed shall be terminated at the limits of demolition or as necessary to allow for construction of the proposed site improvements. Ends of pipe shall be capped and the location of marked for future connection.

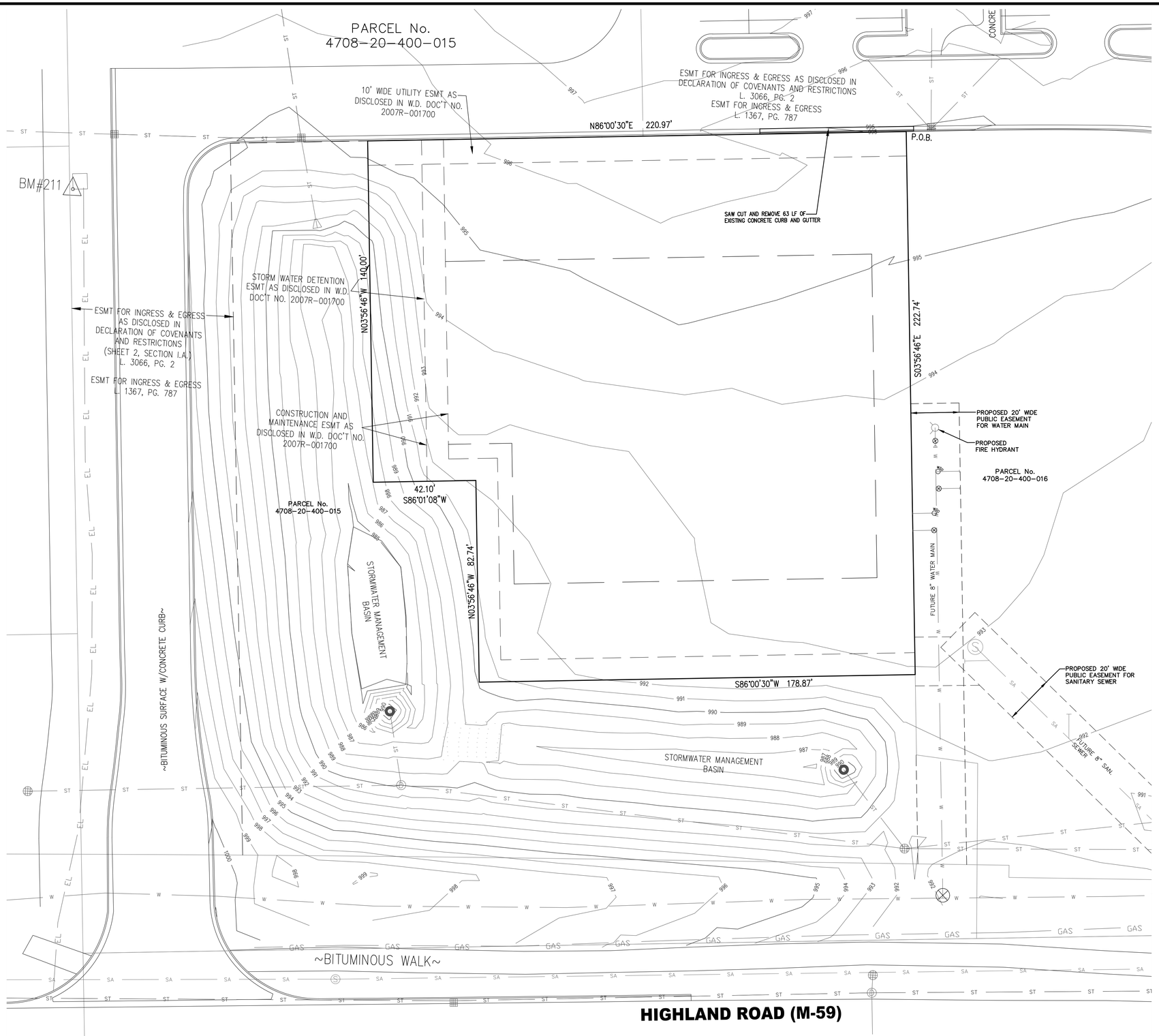
8. All existing water main and sanitary sewer that is to be removed shall be terminated at the limits of demolition or as indicated on the project plans. Temporary plugs shall be installed in the ends of pipe in accordance with the appropriate Agency and the locations of marked for future connection. Permanent plugs shall be installed in the ends of pipe in accordance with the appropriate Agency. The Contractor shall record the location of all permanent plugs and provide the location information to the appropriate Agency.

9. All existing storm sewer that is to be removed shall be terminated at the limits of demolition or as indicated on the project plans. Temporary plugs shall be installed in the ends of pipe in accordance with the appropriate Agency and the locations of marked for future connection. Permanent bulkheads shall be installed in the ends of pipe and/or openings in terminating structures in accordance with the appropriate Agency. The Contractor shall record the location of all permanent bulkheads and provide the location information to the appropriate Agency.

10. All existing light sources to be removed shall have their power cables removed up to the power source or properly terminated for future connection at the limits of demolition or as necessary to allow for construction of the proposed site improvements. Removal and termination of power cables shall be performed in accordance with local electric codes.

11. All existing utility meters that are to be removed shall be properly removed to allow for reuse. Any existing utility meters that are not to be reused as a part of this project shall be returned to the appropriate Agency.

12. All trenches and/or excavations resulting from the demolition of underground utilities, building foundations, etc., that are located within the 1 on 1 influence zone of proposed structures, paved areas and/or other areas subject to vehicular traffic shall be backfilled with MDOT Class III granular material (or better) to the proposed subgrade elevation. Backfill shall be shall be placed using the controlled density method (12" maximum lifts, compacted to 95% maximum unit weight, Modified Proctor).



GRAPHIC SCALE

20 0 10 20 40

(IN FEET)

1 INCH = 20 FEET

LEGEND

- = MISC. STRUCTURE (AS LABELED)
- = BOLLARD
- = SIGN
- = LIGHT BASE
- = STREET LIGHT
- = OVERHEAD TRAFFIC SIGNAL
- = UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, WATER METER, PHONE BOX, CATV BOX, MAIL BOX)
- = AIR CONDITIONER UNIT
- = UTILITY MANHOLE (AS LABELED)
- = UTILITY POLE W/GUY WIRE
- = OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
- = U/G UTILITY LINES (ELECTRIC/PHONE/CABLE)
- = DECIDUOUS TREE W/IDENTIFIER
- = CONIFEROUS TREE W/IDENTIFIER
- = DECIDUOUS SHRUB
- = EXISTING TREE DRIP LINE
- = FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
- = GUARD RAIL
- = EDGE OF GRAVEL
- = CONCRETE CURB (UNLESS OTHERWISE STATED)
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- = CLEAN OUT
- = STORM WATER MANHOLE W/IDENTIFIER
- = CATCH BASIN W/IDENTIFIER
- = FLARED END SECTION
- = STORM WATER DRAINAGE PIPE
- = HYDRANT
- = WATER SHUT OFF
- = WATER VALVE
- = WATER VALVE BOX
- = WATER MAIN
- = GAS SHUT OFF
- = U/G GAS
- = SPOT ELEVATION
- = EXISTING 1' CONTOUR
- = EXISTING 5' CONTOUR

BENCHMARK

DATUM BASED ON MDOT WITNESSES AND BENCHMARKS, PREPARED BY WILCOX PROFESSIONAL SERVICES, JOB No. 55918A, DATE AUGUST 14, 2009, SHEET No. 53

ON-SITE BENCHMARKS
REFERENCE: FIELD BOOK 17B1, PAGE 6, LEVEL LOOP DATED: FEBRUARY 10, 2017.

BENCHMARK #210
NORTHEAST CORNER OF TRANSFORMER PAD, LOCATED LEAR THE NORTHEAST CORNER OF "DETENTION AREA" (SHOPS AT WALDENWOODS).
ELEVATION = 990.38 (NAVD 88)
REF: POINT #210

BENCHMARK #211
SOUTHWEST CORNER OF TRANSFORMER PAD, LOCATED NEAR THE NORTHEAST CORNER OF OUTLOT "D" (SHOPS AT WALDENWOODS) (55± FEET WEST OF THE NORTHWEST CORNER OF OUTLOT "C".
ELEVATION = 996.67 (NAVD 88)

BENCHMARK #212
SOUTH RIM OF SANITARY MANHOLE, LOCATED 90± FEET SOUTHWEST OF THE SOUTHWEST CORNER OF OUTLOT "C".
ELEVATION = 1000.08 (NAVD 88)

BENCHMARK #213
NORTH RIM OF STORM MANHOLE, LOCATED NEAR THE SOUTHWEST CORNER OF "DETENTION AREA" (SHOPS AT WALDENWOODS).
ELEVATION = 991.20 (NAVD 88)

BENCHMARK #214
"X" ON TOP OF LIGHT POLE BASE, LOCATED 78± FEET NE'LY OF THE MAIN ENTRANCE OFF M-59.
ELEVATION = 999.65

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OR VISIT CALL811.COM

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(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

REVISION #	DATE	REVISION-DESCRIPTION

REVISION #	DATE	REVISION-DESCRIPTION

DESIGN: WMP
DRAFT: LF
CHECK: WMP

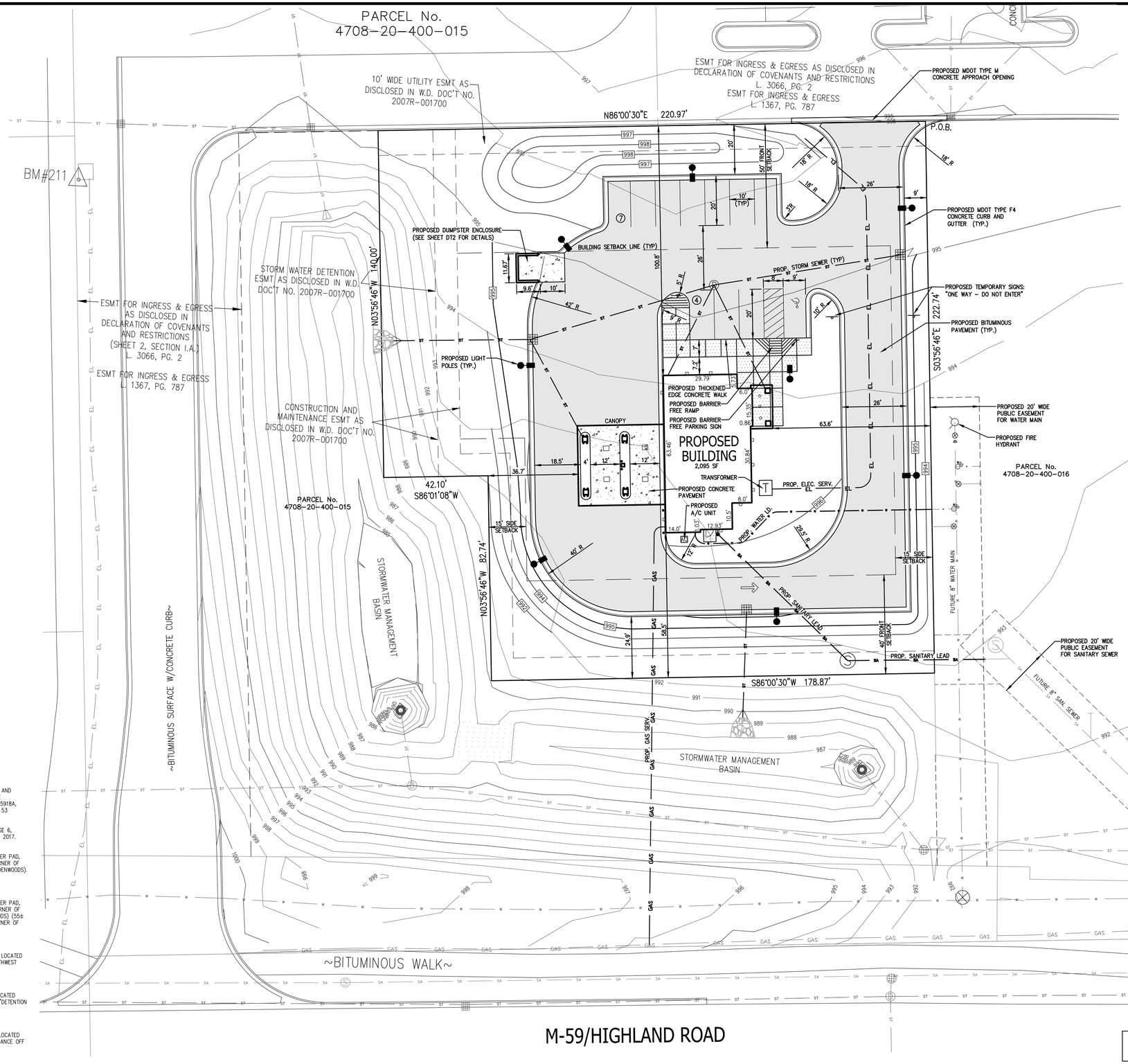
loc CREDIT UNION OF HARTLAND

EXISTING CONDITIONS PLAN

CLIENT:
LOC CREDIT UNION
22981 FARMINGTON ROAD
FARMINGTON, MICHIGAN 48336
248-919-5801

SCALE: 1"=20'
PROJECT No.: 9254840
DWG NAME: 4840 EX
ISSUED: JULY 01, 2025

EX



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GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

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- = GAS SHUT OFF
- = U/G GAS
- = SPOT ELEVATION
- = EXISTING 1' CONTOUR
- = EXISTING 5' CONTOUR
- = PROPOSED 1' CONTOUR
- = PROPOSED 5' CONTOUR
- = PROPOSED LIGHT POLE
- = PROPOSED SANITARY SEWER
- = PROPOSED WATER MAIN
- = PROPOSED STORM SEWER
- = PROPOSED STORM STRUCTURES
- = PROPOSED CURB AND GUTTER
- = PROPOSED CONCRETE WALK
- = PROPOSED HEAVY DUTY CONCRETE PAVEMENT
- = PROPOSED STANDARD DUTY BITUMINOUS PAVEMENT

SITE DATA:

PROJECT AREA: 1.05 ac.
CURRENT ZONING: PD
PROPOSED USE: CREDIT UNION
GROUND FLOOR AREA: 2,100 sq.ft.

SETBACKS: FRONT 100.8'
SIDE 36.7'
REAR 58.8'

PERCENT OF LOT COVERAGE OF BUILDINGS: 4.6%

IMPERVIOUS AREA: 23,094 SQ. FT. = 50.5%

PARKING REQUIREMENTS:

BANK
1 SPACE/200 SQ.FT. GFA = 11 SPACES
+ 2 SPACES/24-HR TELLER = 2 SPACES
TOTAL PARKING REQ'D. = 13 SPACES

PROVIDED PARKING: = 11 SPACES

NOTE:
NO WETLANDS OR FLOODPLAINS ARE IMPACTED.

Know what's below. Call before you dig.
3 WORKING DAYS BEFORE YOU DIG
CALL 811 OR 1-800-482-7171 (TOLL FREE)
OR VISIT CALL811.COM

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(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

REVISION #	DATE	REVISION-DESCRIPTION
	06-05-25	REVISED PER REVIEW COMMENTS
	07-01-25	REVISED EAST ACCESS DRIVE

REVISION #	DATE	REVISION-DESCRIPTION

DESIGN: WMP
DRAFT: L.F.
CHECK: WMP

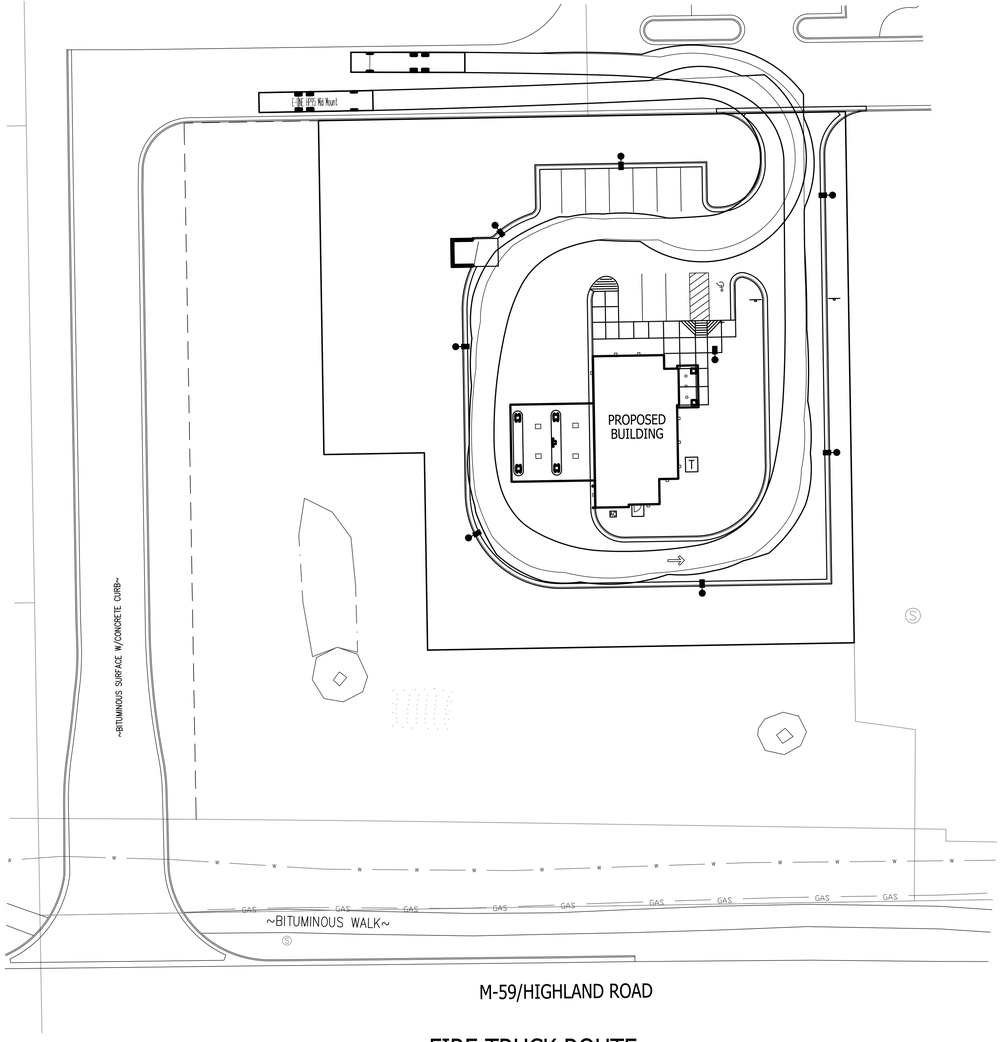
loc CREDIT UNION OF HARTLAND

SITE PLAN

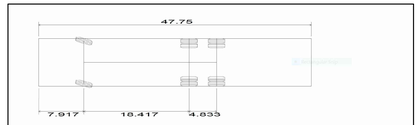
CLIENT:
LOC CREDIT UNION
22981 FARMINGTON ROAD
FARMINGTON, MI 48336

SCALE: 1"=20'
PROJECT No.: 9254840
DWG NAME: 4840 SP
ISSUED: JULY 01, 2025

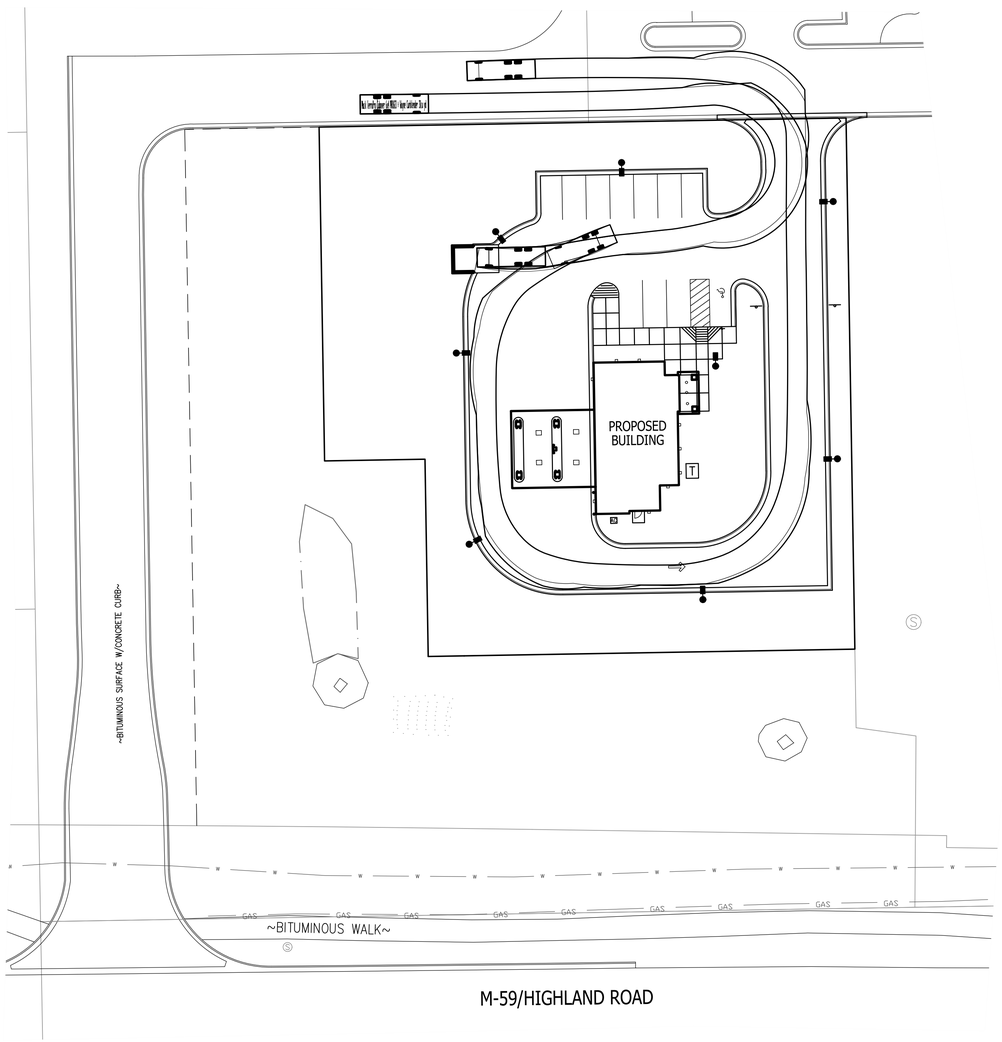
SP



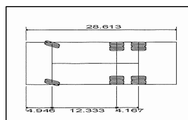
FIRE TRUCK ROUTE



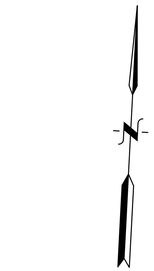
E-ONE HP95 Mid Mount	
Overall Length	47.750ft
Overall Width	8.333ft
Overall Body Height	11.000ft
Min Body Ground Clearance	1.393ft
Track Width	8.333ft
Lock-to-lock time	6.00s
Max Wheel Angle	45.00°



GARBAGE TRUCK ROUTE



Mack TerraPro Cabover 6x4 MRU613 + Wayne Curbtender 31cu yd	
Overall Length	28.613ft
Overall Width	8.000ft
Overall Body Height	10.481ft
Min Body Ground Clearance	1.311ft
Track Width	8.000ft
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	33.500ft



GRAPHIC SCALE

30 0 15 30 60

(IN FEET)

1 inch = 30 ft.

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(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN:WMP	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.		07-01-25	REVISED EAST ACCESS DRIVE			
CHECK: WMP						

loc CREDIT UNION OF HARTLAND

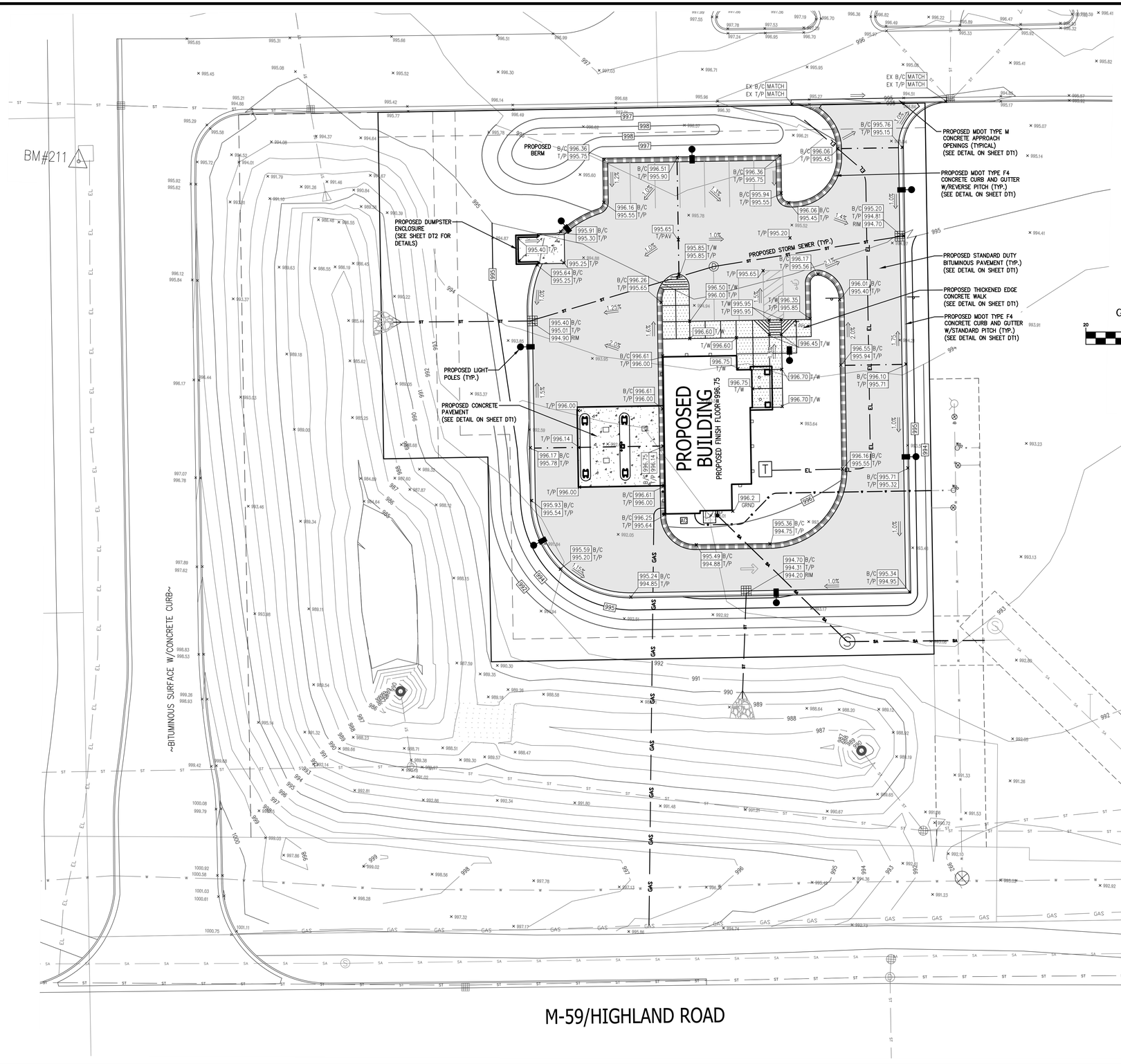
VEHICLE CIRCULATION PLAN

CLIENT:
LOC CREDIT UNION

22981 FARMINGTON ROAD
FARMINGTON, MI 48336

SCALE: 1"=30'
PROJECT No.: 9254840
DWG NAME: 4840 VC
ISSUED: JULY 01, 2025

VC



GRAPHIC SCALE

20 0 10 20 40

(IN FEET)

1 inch = 20 ft.

LEGEND

- = MISC. STRUCTURE (AS LABELED)
- = BOLLARD
- = SIGN
- = LIGHT BASE
- = STREET LIGHT
- = OVERHEAD TRAFFIC SIGNAL
- = UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, WATER METER, PHONE BOX, CATV BOX, MAIL BOX)
- = AIR CONDITIONER UNIT
- = UTILITY MANHOLE (AS LABELED)
- = UTILITY POLE W/GUY WIRE
- = OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
- = U/G UTILITY LINES (ELECTRIC/PHONE/CABLE)
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- = GUARD RAIL
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- = SANITARY MANHOLE W/IDENTIFIER
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- = CLEAN OUT
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- = FLARED END SECTION
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- = HYDRANT
- = WATER SHUT OFF
- = WATER VALVE
- = WATER VALVE BOX
- = WATER MAIN
- = GAS SHUT OFF
- = U/G GAS
- = SPOT ELEVATION
- = EXISTING 1' CONTOUR
- = EXISTING 5' CONTOUR
- = PROPOSED 1' CONTOUR
- = PROPOSED 5' CONTOUR
- = PROPOSED LIGHT POLE
- = PROPOSED SANITARY SEWER
- = PROPOSED WATER MAIN
- = PROPOSED STORM SEWER
- = PROPOSED STORM STRUCTURES
- = PROPOSED CURB AND GUTTER
- = PROPOSED CONCRETE WALK
- = PROPOSED HEAVY DUTY CONCRETE PAVEMENT
- = PROPOSED STANDARD DUTY BITUMINOUS PAVEMENT
- = PROPOSED CONCRETE CURB & GUTTER W/STD. PITCH
- = PROPOSED CONCRETE CURB & GUTTER W/REV. PITCH

TOP BACK OF CURB 000.00 B/C
TOP OF PAVE 000.00 T/P
TOP OF WALK 000.00 T/W
TOP OF CONCRETE 000.00 T/C

= PROPOSED SPOT ELEVATIONS

= PROPOSED FLOW ARROW

BENCHMARK

DATUM BASED ON MDOT WITNESSES AND BENCHMARKS, PREPARED BY WILCOX PROFESSIONAL SERVICES, JOB No. 55918A, DATE AUGUST 14, 2009, SHEET No. 53

ON-SITE BENCHMARKS
REFERENCE: FIELD BOOK 17B1, PAGE 6, LEVEL LOOP DATED: FEBRUARY 10, 2017.

BENCHMARK #210
NORTHEAST CORNER OF TRANSFORMER PAD, LOCATED LEAR THE NORTHEAST CORNER OF "DETENTION AREA" (SHOPS AT WALDENWOODS).
ELEVATION = 990.38 (NAVD 88)
REF: POINT #210

BENCHMARK #211
SOUTHWEST CORNER OF TRANSFORMER PAD, LOCATED NEAR THE NORTHEAST CORNER OF OUTLOT "D" (SHOPS AT WALDENWOODS) (55± FEET WEST OF THE NORTHWEST CORNER OF OUTLOT "C".
ELEVATION = 996.67 (NAVD 88)

BENCHMARK #212
SOUTH RIM OF SANITARY MANHOLE, LOCATED 90± FEET SOUTHWEST OF THE SOUTHWEST CORNER OF OUTLOT "C".
ELEVATION = 1000.08 (NAVD 88)

BENCHMARK #213
NORTH RIM OF STORM MANHOLE, LOCATED NEAR THE SOUTHWEST CORNER OF "DETENTION AREA" (SHOPS AT WALDENWOODS).
ELEVATION = 991.20 (NAVD 88)

BENCHMARK #214
"X" ON TOP OF LIGHT POLE BASE, LOCATED 78± FEET NELY OF THE MAIN ENTRANCE OFF M-59.
ELEVATION = 999.65

NOTES:
ALL SIDEWALK AND SIDEWALK RAMPS SHALL MEET THE CURRENT MDOT ADA STANDARDS.

Know what's below. Call before you dig.
3 WORKING DAYS BEFORE YOU DIG CALL 811 OR 1-800-482-7171 (TOLL FREE) OR VISIT CALL811.COM

DESINE INC
(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

REVISION #	DATE	REVISION-DESCRIPTION
	06-05-25	REVISED PER REVIEW COMMENTS
	07-01-25	REVISED EAST ACCESS DRIVE

REVISION #	DATE	REVISION-DESCRIPTION

DESIGN: WMP
DRAFT: L.F.
CHECK: WMP

loc CREDIT UNION OF HARTLAND

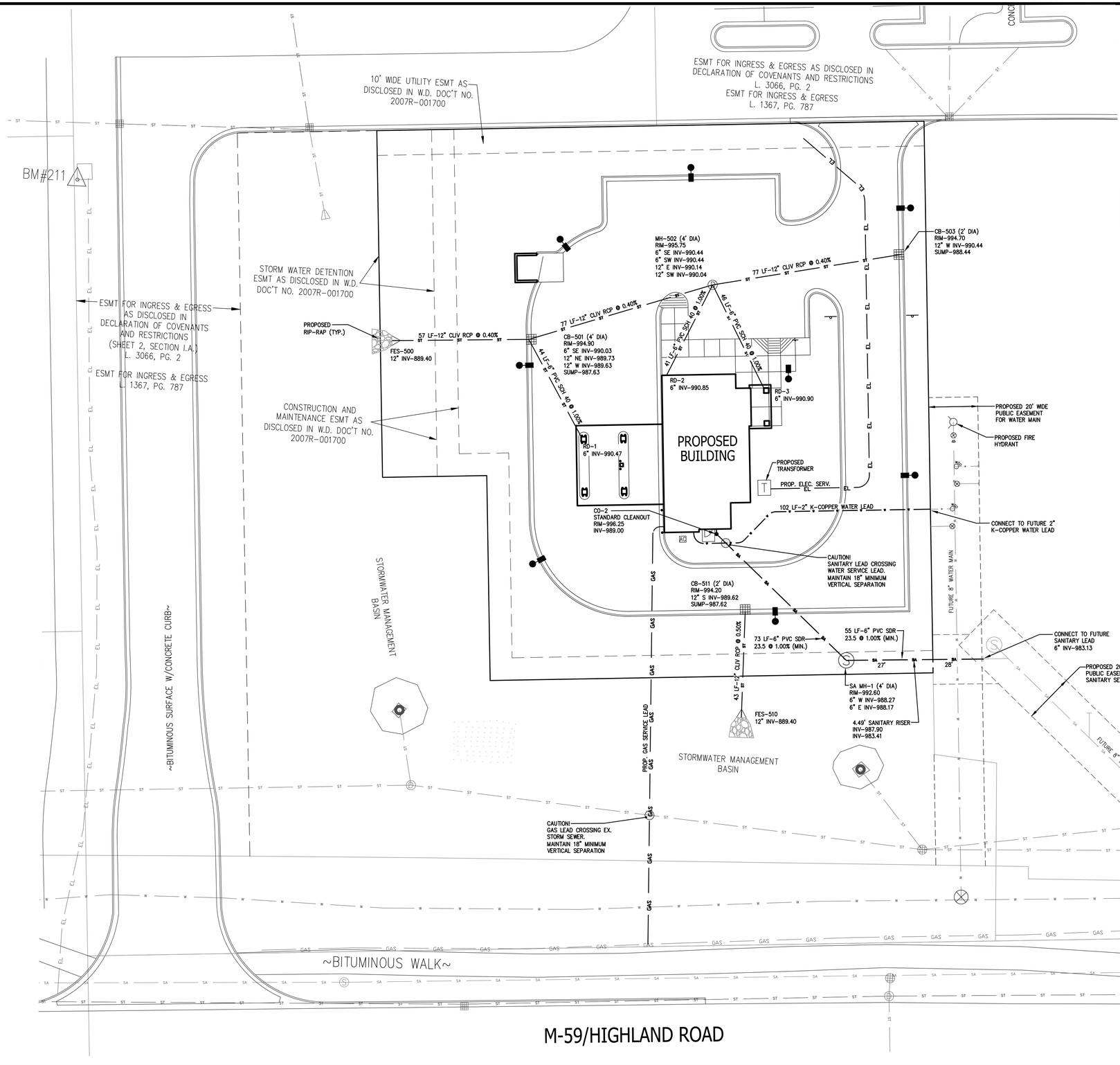
GRADING & PAVING PLAN

CLIENT:
LOC CREDIT UNION

22981 FARMINGTON ROAD
FARMINGTON, MI 48336

SCALE: 1"=20'
PROJECT No.: 9254840
DWG NAME: 4840 GR
ISSUED: JULY 01, 2025

GR



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- = GAS SHUT OFF
- = U/G GAS
- = PROPOSED LIGHT POLE
- = PROPOSED SANITARY SEWER
- = PROPOSED WATER MAIN
- = PROPOSED STORM SEWER
- = PROPOSED STORM STRUCTURES

BENCHMARK

DATUM BASED ON MDOT WITNESSES AND BENCHMARKS, PREPARED BY WILCOX PROFESSIONAL SERVICES, JOB No. 55918A, DATE AUGUST 14, 2009, SHEET No. 53

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"X" ON TOP OF LIGHT POLE BASE, LOCATED 78± FEET NE'LY OF THE MAIN ENTRANCE OFF M-59.
ELEVATION = 999.65

NOTE:
THE LCDC STANDARD SANITARY DETAIL SHEET WILL SUPERCEDE THE GCDC-WWS STANDARDS WHERE THERE IS A DIFFERENCE IN THE STANDARDS.

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DESIGN: WMP
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loc CREDIT UNION OF HARTLAND

UTILITY PLAN

CLIENT:
LOC CREDIT UNION
22981 FARMINGTON ROAD
FARMINGTON, MI 48336

SCALE: 1"=20'
PROJECT No.: 9254840
DWG NAME: 4840 SP
ISSUED: JULY 01, 2025

UT1

Design Criteria: 10 year event (I = 175/t + 25) RCP n= 0.013 HDPE n= 0.010

From MH# CB# FES#	To MH# CB# FES#	Inc. Acres "A"	"C"	Eqv. Area 100% CA	Total Area 100% CA	T Time Min.	I Inch Per Hour	Q (CIA) c.f.s.	Dia. of pipe inch	Slope pipe %	Slope H.G. %	Length of line ft.	Vel. Flow full ft./sec.	Time of flow min.	Cap of pipe c.f.s.	H.G. Elev. upper end	Ground Elev. Upper end	Ground Elev. Lower end	Invert Elev. Upper end	Invert Elev. Lower end
503	502	0.17	0.86	0.15	0.15	15.0	4.38	0.64	12	0.40	0.03	77	2.87	0.4	2.25	991.16	994.70	995.75	990.44	990.14
RD 3	502	0.03	0.90	0.03	0.03	15.0	4.38	0.12	6	1.00	0.03	46	3.72	0.2	0.73	991.15	996.70	995.75	990.90	990.44
RD 2	502	0.02	0.90	0.02	0.02	15.0	4.38	0.08	6	1.00	0.01	41	3.72	0.2	0.73	991.14	996.60	995.75	990.85	990.44
502	501	0.00	0.00	0.00	0.19	15.4	4.33	0.83	12	0.40	0.05	77	2.87	0.4	2.25	991.13	995.75	994.90	990.04	989.73
RD 1	501	0.02	0.90	0.02	0.02	15.0	4.38	0.08	6	1.00	0.01	44	3.72	0.2	0.73	991.10	996.00	994.90	990.47	990.03
501	500	0.15	0.85	0.13	0.34	15.9	4.28	1.44	12	0.40	0.16	57	2.87	0.3	2.25	991.09	994.90	989.40	989.63	989.40
511	510	0.22	0.71	0.16	0.16	15.0	4.38	0.68	12	0.50	0.04	43	3.21	0.2	2.52	991.02	994.20	989.40	989.62	989.40
																991.00	**Downstream HWL**			

PROPOSED STORM WATER RUN-OFF

"Area"	0.90 Pavement	0.90 Building	0.20 Lawn	0.80 Gravel	1.00 Water	(ACRES) Area	"C" Factor
511	0.16	0.00	0.06	0.00	0.00	0.22	0.71
503	0.16	0.00	0.01	0.00	0.00	0.17	0.86
501	0.14	0.00	0.01	0.00	0.00	0.15	0.85
RD 1	0.00	0.02	0.00	0.00	0.00	0.02	0.90
RD 2	0.00	0.02	0.00	0.00	0.00	0.02	0.90
RD 3	0.00	0.03	0.00	0.00	0.00	0.03	0.90
						0.61	ACRES
					"C" =	**0.81**	

LOC CREDIT UNION

PROPOSED DRAINAGE AREA RUN-OFF CALCULATIONS

"Area"	0.90 Pavement	0.80 Gravel	0.80 Building	0.30 Lawn	1.00 Water	(ACRES) Area	"C" Factor
FES-500	0.30	0.00	0.07	0.01	0.00	0.38	0.87
FES-510	0.16	0.00	0.00	0.03	0.00	0.19	0.81
FOREBAY A	0.00	0.00	0.00	1.78	0.00	1.78	0.30
					TOTAL AREA =	**2.35**	
					RUN-OFF COEFFICIENT =	**0.43**	

BENCHMARK

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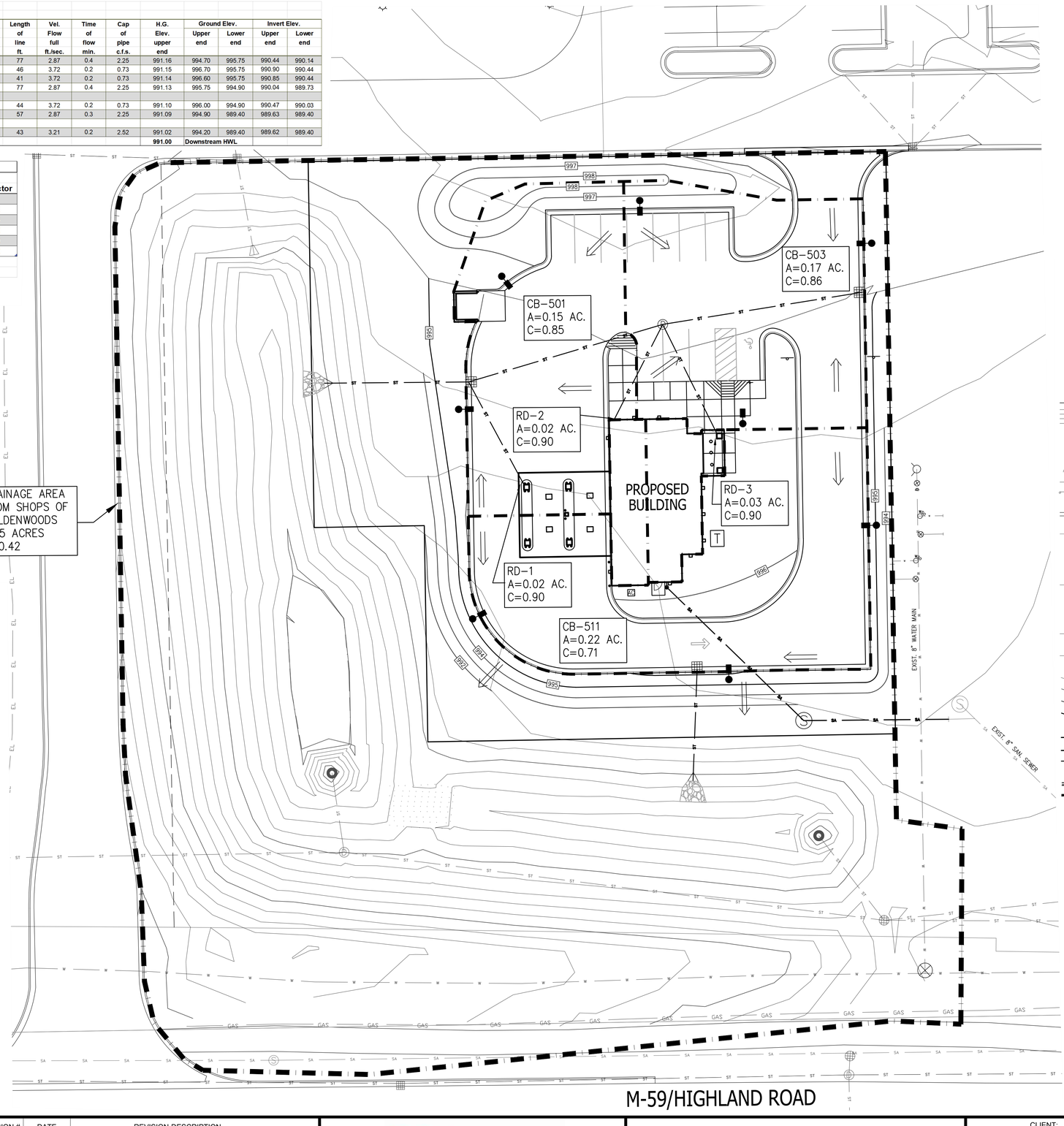

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- = DRAINAGE AREA BOUNDARY

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loc CREDIT UNION OF HARTLAND

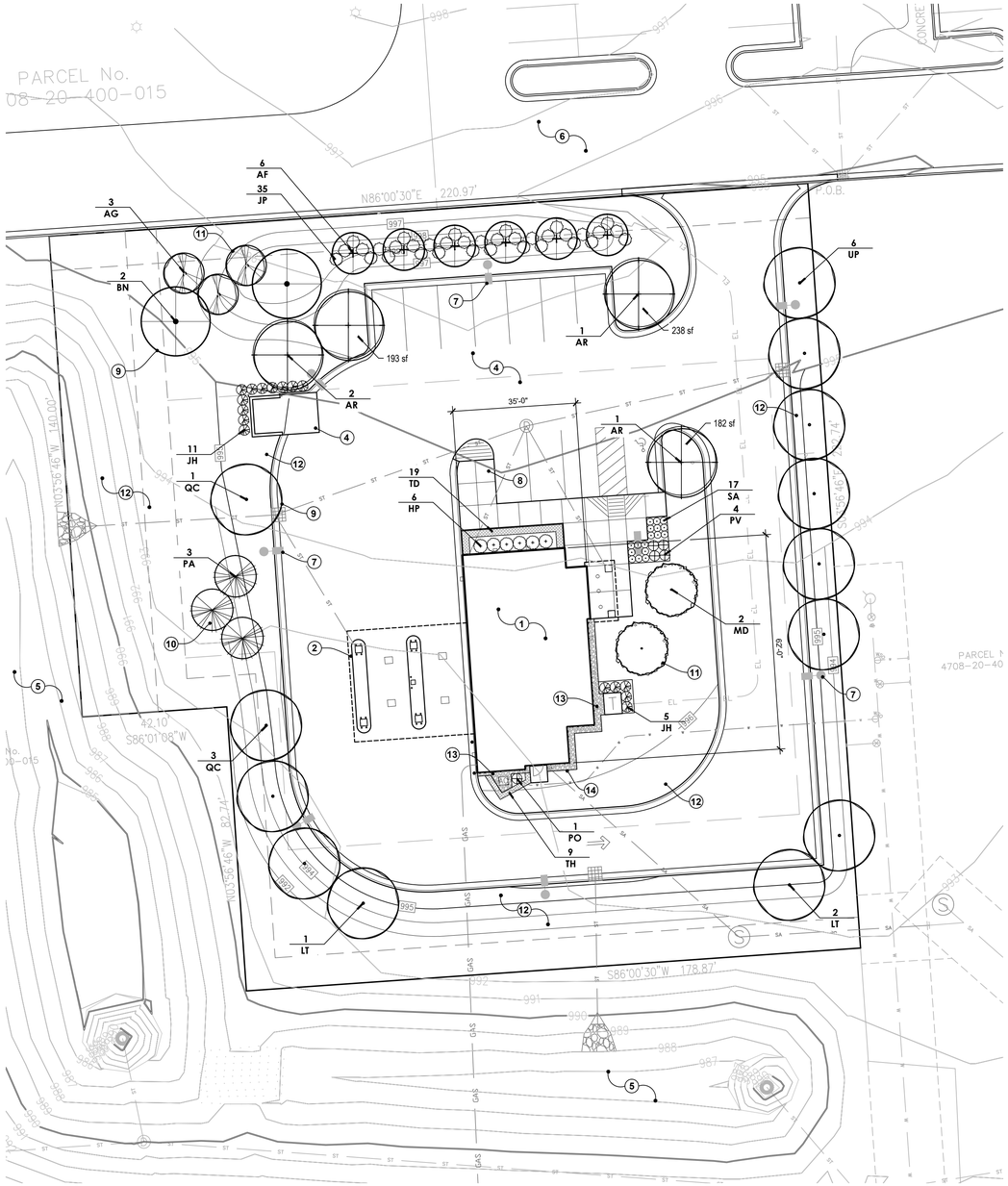
STORMWATER MANAGEMENT PLAN

CLIENT:
LOC CREDIT UNION

22981 FARMINGTON ROAD
FARMINGTON, MI 48336

SCALE: 1"=20'
PROJECT No.: 9254840
DWG NAME: 4840 SW
ISSUED: JULY 01, 2025

SW



NOTE KEY:

1. PROPOSED BUILDING, SEE ARCHITECTURE DRAWINGS
2. DRIVE-THRU BANKING AND ATM
3. ASPHALT PARKING LOT, SEE CIVIL ENGINEERING DRAWINGS
4. DUMPSTER ENCLOSURE
5. EXISTING STORM WATER BASIN FOR THE SHOPS AT WALDENWOODS
6. INTERIOR ROAD FOR THE SHOPS AT WALDENWOODS
7. SITE LIGHTING, SEE PHOTOMETRIC PLAN
8. CONCRETE SIDEWALK
9. DECIDUOUS CANOPY TREE, TYPICAL
10. EVERGREEN TREE, TYPICAL
11. ORNAMENTAL TREE PLANTING
12. SODDED LAWN OVER MINIMUM 4" DEPTH TOPSOIL TO LIMITS OF DISTURBANCE
13. 3" DEPTH STONE MAINTENANCE STRIP
14. METAL EDGING BETWEEN LAWN AND LANDSCAPE BED / STONE MAINTENANCE STRIP, TYPICAL ALL LANDSCAPE BEDS

MAITENANCE NOTES

ALL LANDSCAPE MATERIALS, INSTALLATION, AND MAINTENANCE SHALL COMPLY W/ ZONING ORDINANCE .

ALL PLANT MATERIAL SHALL BE LOCALLY GROWN OR OF THIS NORTH MIDWEST AMERICAN REGION AND CONFORM TO THE CURRENT AAN STANDARDS. USE ONLY NO.1 GRADE PLANT MATERIAL.

ALL PLANT MATERIAL SHALL BE MAINTAINED IN A HEALTHY GROWING CONDITION FREE OF WEEDS AND DEBRIS WITH ONE CULTIVATION FOR WEED CONTROL PER MONTH DURING JUNE, JULY AND AUGUST. THIS ESTABLISHMENT PERIOD SHALL BE ONE (1) YEAR FROM THE DATE OF APPROVAL OF PLANTINGS BY THE TOWNSHIP. FAILING PLANT MATERIAL SHALL BE REPLACED WITHIN ONE YEAR.

ALL TREE WRAP, STAKES AND GUY WIRES SHALL BE REMOVED AFTER ONE WINTER SEASON.

ALL LANDSCAPE AREAS SHALL BE PROVIDED WITH AN AUTOMATIC IRRIGATION SYSTEM.

PLANT SCHEDULE

QTY	SYM	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	ROOT	COMMENTS
TREES							
3	AG	*Amalanchier x g. 'Autumn Brilliance'*	Autumn Brilliance Serviceberry	6' ht.	as shown	B&B	Minimum 5 stems
6	AF	*Acer x f. 'Golden Armstrong'*	Golden Armstrong Maple	3.0" cal.	as shown	B&B	Single straight trunk
4	AR	*Acer r. 'October Glory'*	October Glory Red Maple	3.0" cal.	as shown	B&B	Single straight trunk
2	BN	*Betula nigra 'Heritage'*	Heritage River Birch	12" ht.	as shown	B&B	Minimum 3 stems
3	LT	*Liriodendron tulipfera*	Tulip Tree	3.0" cal.	as shown	B&B	Single straight trunk
2	MD	*Malus 'Donald Wyman'*	Donald Wyman Crabapple	2.0" cal.	as shown	B&B	Single straight trunk
3	PA	*Picea abies*	Norway Spruce	8' ht.	as shown	B&B	Unsheared, branched to ground
4	QC	*Quercus coccinea*	Scarlet Oak	3.0" cal.	as shown	B&B	Single straight trunk
6	UP	*Ulmus americana 'Princeton'*	Princeton American Elm	3.0" cal.	as shown	B&B	Single straight trunk
SHRUBS							
6	HP	*Hydrangea p. 'Little Quick Fire'*	Little Quick Fire Hydrangea	30" ht.	as shown	cont.	Well rooted
16	JH	*Juniperus c. 'Hetz Columnar'*	Hetz Columnar Juniper	48" ht.	as shown	B&B	
35	JP	*Juniperus c. 'Pfitzeriana Compacta'*	Compact Pfitzer Juniper	30" ht.	as shown	cont.	Well rooted
19	TD	*Taxus x m. 'Densiformis'*	Dense Yew	24" ht.	24" o.c.	B&B	
9	TH	*Taxus x m. 'Hicksii'*	Hicks Yew	30" ht.	24" o.c.	B&B	Trim to Hedge
1	PO	*Physocarpus o. 'Summer Wine'*	Summer Wine Ninebark	36" ht.	as shown	cont.	Well rooted
PERENNIALS							
4	PV	*Panicum v. 'Heavy Metal'*	Heavy Metal Switchgrass	#3	as shown	cont.	Well rooted
17	SA	*Sedum 'Autumn Fire'*	Autumn Fire Sedum	#1	as shown	cont.	Well rooted

SITE LANDSCAPE CALCULATIONS

GREENBELT LANDSCAPE:
1 Canopy Tree / 30 lf.
3 Ornamental Trees or large shrubs / initial 40 lf.
1 Ornamental Tree or large shrub / 20 lf. thereafter
Road Frontage: 221 lf.

Trees Required: 8 (221 / 30)
Trees Provided: **8**

Ornamental Trees or Large Shrubs Required: 3 (40 / 40)*3
Ornamental Trees or Large Shrubs Provided: **3** (Ornamental Trees)

Ornamental Trees or Large Shrubs Required: 9 (181 / 20)
Ornamental Trees or Large Shrubs Provided: **35** (Large Shrubs)

INTERIOR PARKING LOT LANDSCAPE:
(1)Tree per 180 SF of landscape island area

Trees Required: 4 (613 / 180)
Trees Provided: **4**

PARKING LOT PERIMETER LANDSCAPE:
1 tree / 30 lf. of parking lot perimeter and drive aisle

Parking Lot Perimeter: 457 lf.

Trees Required: 16 (457 / 30)
Trees Provided: **16**

FOUNDATION LANDSCAPE:
1 Ornamental or Columnar tree and 6 large or 8 small shrubs / 30 lf. of 60% of the length of the buildings front and sides

60% of Buildings front and sides: 97 lf

Ornamental / Columnar Trees Required: 2 (97 / 30)*.6
Ornamental / Columnar Trees Provided: **2**

Shrubs Required: 12 ((97/ 30)*.6)*6
Shrubs Provided: **40** (Combination of large and small shrubs)

NOT FOR CONSTRUCTION

0 10 20 40
SCALE: 1" = 20'-0"
NORTH

VVLA vert verde landscape architecture
734.249.3568 Plymouth, MI
james@vertverde.com

Issued For:

05.16.2025	Site Plan Review
06.03.2025	Revision
06.30.2025	Revision

Project:

LOC Credit Union

Hartland Township, Michigan

Project Sponsor:

LOC Credit Union
22981 Farmington Road
Farmington, MI 48336

Sheet Name:

Landscape Plan

Seal:

STATE OF MICHIGAN
JAMES GRAY
LANDSCAPE ARCHITECT
No. 1528
REGISTERED LANDSCAPE ARCHITECT

Drawn:	JG
Checked:	JG
Date:	05.2025
Scale:	1" = 20'-0"

Project Number: 25.017

Sheet Number: L-1

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Ordering Note

FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

Drawing Note

THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

General Note

1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.
3. ALL CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 5' - 0"

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIRMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT CONTROLS@GASSERBUSH.COM OR 734-266-6705.

Schedule

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Lumens per Lamp	LLF	Wattage	Mounting Height
	OA	4	Lithonia Lighting	RCNY LED SYMF ALO2 Setting 1 80CRI 40K MVOLT	Recessed Canopy Symmetric Lens Diffused Adjustable Lumen Output 10,000-20,000 Lumens 80CRI 4000K 120-277V	LED	1	3392	0.9	24.1044	14'-6"
	OB	9	Lithonia Lighting	WDGE2 LED P1 40K 80CRI TFTM	WDGE2 LED WITH P1 - PERFORMANCE PACKAGE, 4000K, 80CRI, TYPE FORWARD THROW MEDIUM OPTIC	LED	1	1245	0.9	11.1658	9'-10" & 10'-4"
	OC	3	Gotham Architectural Lighting	EVO6 35/02 AR MWD LD	EVO 6IN ROUND, 80 CRI, 3500K, 250LM, MED WIDE DIST, CLEAR, MATTE DIFFUSE	LED	1	252	0.9	3.39	9'-0"
	OD1	5	Lumenpulse	LIAM-120_277-CSL-L170--40K-CRI 80-4 BLS	Lumenicon Medium	LED	1	7305	0.9	146	18'-0"
	OD2	1	Lumenpulse	LIAM-120_277-CSL-L170--40K-CRI 80-3 BLS	Lumenicon Medium	LED	1	8909	0.9	146	18'-0"
	OD3	1	Lumenpulse	LIAM-120_277-CSL-L170--40K-CRI 80-5S	Lumenicon Medium	LED	1	15199	0.9	146	18'-0"
	OD4	1	Lumenpulse	LIAM-120_277-CSL-L170--40K-CRI 80-4	Lumenicon Medium	LED	1	14078	0.9	146	18'-0"

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
MAIN ENTRANCE	+	6.1 fc	11.1 fc	3.6 fc	3.1:1	1.7:1	0.5:1
OVERALL	+	1.1 fc	13.7 fc	0.0 fc	N/A	N/A	0.1:1
PARKING LOT	+	2.5 fc	9.6 fc	0.4 fc	24.0:1	6.3:1	0.3:1
PROPERTY LINE	+	0.1 fc	1.0 fc	0.0 fc	N/A	N/A	0.1:1
DRIVE-THRU CANOPY	+	9.9 fc	13.7 fc	5.7 fc	2.4:1	1.7:1	0.7:1

GB EV CHARGERS

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Contact our EV Charging Team to source and specify industry leading hardware and software solutions.

Chris Aina
caina@gasserbush.com
734-460-4036
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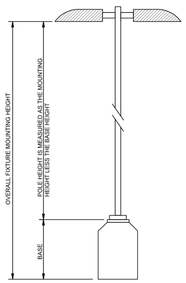

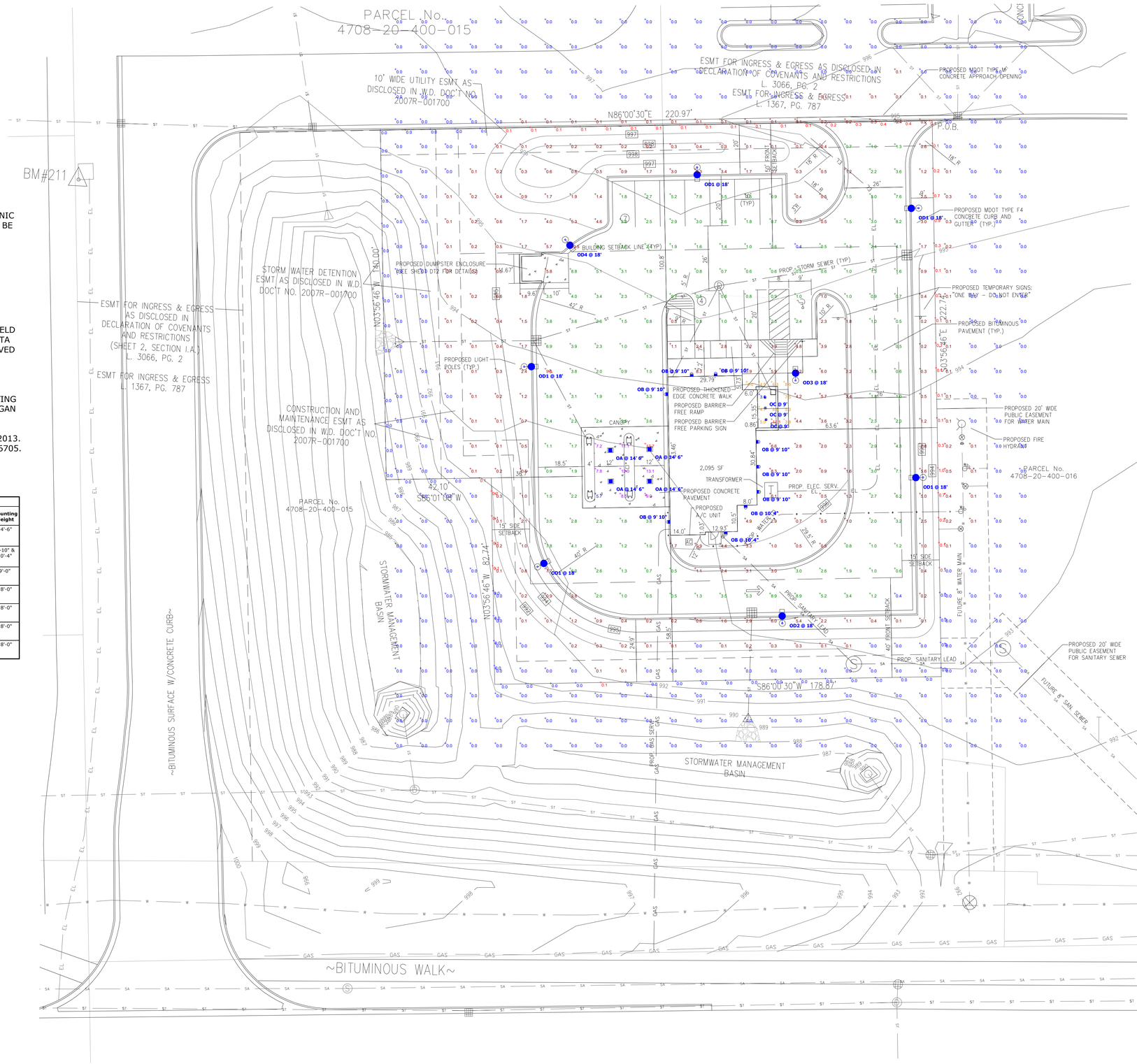

Plan View
Scale - 1" = 20ft

LOC CREDIT UNION
PHOTOMETRIC SITE PLAN
GASSER BUSH ASSOCIATES
PREPARED FOR: DESINE INC.
WWW.GASSERBUSH.COM

Designer
DB/KB

Date
5/22/2025
rev. 5/30/2025
rev. 6/26/2025

Scale
Not to Scale

Drawing No.
#25-43840-V3

Ordering Note

FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

Drawing Note

THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

General Note

1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.
3. ALL CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 5' - 0"

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	OB	9	Clarus Lighting	XTOR1B-W LED 40K 80CRI TFTM	XTOR1B-W LED, 4000K, 80CRI, TYPE FORWARD THROW MEDIUM OPTIC	LED	1	1245	0.9	11.1658	9'-10" & 10'-4"
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	OD2	1	Lumenpulse	LIAM-120_277-CSL-L170-40K-CRI 80-3 BLS	Lumenicon Medium	LED	1	8909	0.9	146	18'-0"
	OD3	1	Lumenpulse	LIAM-120_277-CSL-L170-40K-CRI 80-5S	Lumenicon Medium	LED	1	15199	0.9	146	18'-0"
	OD4	1	Lumenpulse	LIAM-120_277-CSL-L170-40K-CRI 80-4	Lumenicon Medium	LED	1	14078	0.9	146	18'-0"

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PARKING LOT	+	2.5 fc	9.4 fc	0.4 fc	23.5:1	6.3:1	0.3:1
PROPERTY LINE	+	0.1 fc	0.4 fc	0.0 fc	N/A	N/A	0.3:1
DRIVE-THRU CANOPY	+	10.0 fc	13.9 fc	6.0 fc	2.3:1	1.7:1	0.7:1

RCNY LED
Recessed LED Canopy/Ceiling Luminaire

Catalog Number

Notes

Type: OA

Hit the Tab key or mouse over the page to see all interactive elements

Introduction

The RCNY LED recessed luminaire is designed to provide exceptional energy savings and versatility in one fixture. With a compact design the RCNY provides superior illumination while blending into the canopy space seamlessly. The RCNY is unique in that as a recessed canopy it can be installed in both 12" and 16" canopy decks. Features such as Adjustable Lumen Output Dial with 8 Settings and forward throw distribution (ASYC) option make the RCNY one of the most versatile gas station canopies in the market. Lumen dial and driver are both accessible from below. With up to 179 LPW the RCNY LED delivers up to 90% in energy savings when replacing metal halide luminaires. With over 100,000 hour life expectancy (12+ years of 24/7 continuous operation), the RCNY LED luminaire provides significant maintenance savings over traditional luminaires. Class 1 Division 2 also available. Wet location junction box available upon request.

Specifications

	RCNY LED
Width:	11.5"
Height:	5.9"
Length:	11.5"
Weight:	14lbs

Ordering Information — **EXAMPLE:** RCNY LED ALO2 50K 70CRI SYMC MVOLT BZS DWHXD

RCNY LED

Series	Package	Color Temperature	CRI	Lens
RCNY LED	ALO1 2,000-12,000 Lumens ALO2 4,000-24,000 Lumens	30K 3000K 40K 4000K 50K 5000K 57K 5700K	70CRI 80CRI 90CRI[1]	SYMC Symmetric Clear Lens ASYC Asymmetric Clear Lens SYMF Symmetric Frost Lens SYMG Symmetric Glass Lens

Voltage	Trim	Trim Finish	Option
MVOLT 120-277V HVOLT 347-480V	BZS 11.5" Square Bezel	DWHXD White DBLXD Black DBRXD Bronze DNAXD Natural Aluminum	CCE Coastal Protection SPD10KV 10K Surge Protection DMG[2] 0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately)

Accessories

Ordered and shipped separately.

Catalog	Description	Use	Dimensions
FP12RM*	RCNY Backplate for 12" Decks	Covers Existing Hole if Larger than Fixture	11.5" x 24" x 16GA Galv Steel
FP16RM*	RCNY Backplate for 16" Decks	Covers Existing Hole if Larger than Fixture	15.5" x 24" x 16GA Galv Steel
BP18RM*	RCNY 18" Beautyplate	Covers Existing Footprint of Existing Fixture	18" x 18" x 16GA Aluminum
BP26RM*	RCNY 26" Beautyplate	Covers Existing Footprint of Existing Fixture	26" x 26" x 16GA Aluminum
WLJBX2	Waterproof J-Box 1/2 Inch with Cover	For Power Supply Wiring	2.8" x 4.6" x 2.0" Aluminum

* Add "U" to the end of the catalog number for individual unit pack or "36" for packs of 6 units

NOTES
1. 90CRI not available with 57K.
2. FAO not included with fixture, ALO2 will be set at 24,000 lumens and ALO1 at 12,000 lumens.

LITHONIA LIGHTING
COMMERCIAL OUTDOOR

1 Acuity Way, Decatur, GA 30035 • Phone: 1-800-705-SERV (7378) • www.lithonia.com
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RCNY LED
Rev. 05/08/25

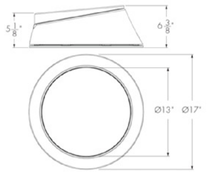
Specification Sheet

TYPE: OD

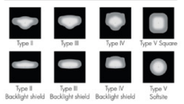
lumenicon
Area Medium
LIAM

Project Name _____ Qty _____

Type _____ Catalog / Part Number _____



Distributions



Colors and Color Temperatures

Control

ON/OFF 0-10V

Rating

IP66 (optical chamber)

Certifications

3G VIBRATION RATING

Description

The Lumenicon Area Medium creates a consistent aesthetic while illuminating city streets, local roads, residential streets, parking lots and laneways. An innovative, tooless opening system makes the plug-and-play components easy to access. IP66 rated with phenomenal heat dissipation; the Lumenicon Area Medium is ready to take it to the streets (or parking lots, or building sides, or onramps, or...).

Features

Color and Color Temperature	2200K, 2700K, 3000K, 3500K, 4000K, 5700K
Distributions	Type II, Type III or Type IV (with or without backlight shield). Type 5 square and Type V Softsite
3G Vibration Rated	Meets 3G ANSI C136.31-2010 vibration standard for bridge applications
Options	Corrosion-resistant coating for hostile environments, Surge protector, 5-Pin Receptacles with and without shorting cap, 7-Pin Receptacles with and without shorting cap
Mounting Options	Side Overlap (2 3/8 in Tenon)
Warranty	5-year limited warranty

Performance

Output (nominal lumens)	Minimum 3000lm / Maximum 20000lm
Color Rendering	3 SDCM for CRI 70+ and 2 SDCM for CRI 80+
Lumen Maintenance	TM-21 L70 527,000 hrs (projected, Ta 77 °F), 36,000 hrs (reported, Ta 77 °F)
Dark Sky	Dark sky compliant (2200K, 2700K and 3000K color temperatures, BUG rating of U0)

Physical

Housing Material	Die cast low copper 360 aluminum alloy

lumenpulse

1220 Marie-Victorin Blvd., Longueuil, QC J4G 2H9 CA
info@lumenpulse.com www.lumenpulse.com
T United States 617.307.5700 | Canada 1.877.937.3003 | 514.937.3003 F 514.937.6289
www.lumenpulse.com/products/2174

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MS - R6

1 / 10

gotham® | E V O®
Multiple Layers of Light

Luminaire Type: OC
Catalog Number:

General Illumination Round Downlight — 6"

250 - 8,000 lumens

10,000 - 17,500 lumens

OVERVIEW

Feature Set

- Bounding Ray™ optical design
- Unitized optics mechanically attach the light engine to the lower reflector for complete optical alignment.
- 45° cutoff to source and source image
- Fully serviceable and upgradeable lensed LED light engine
- 70% lumen maintenance at 60,000 hours
- 2.5 MacAdam Ellipse; 85 CRI typical, 90+ CRI optional
- Fixtures are wet location, covered ceiling
- Available with 10% dimming; 1% dimming, or dim to dark
- Batwing distribution with feathered edges provides even illumination on horizontal and vertical surfaces
- ENERGY STAR® certified product
- UGR of zero for fixtures aimed at nadir with a cut-off equal to or less than 60deg per CIE 117-1995 Discomfort Glare in Interior Lighting. LGR FAQ

Distribution

Superior Performance

Nominal Lumens	250	500	750	1000	1500	2000	2500	3000	3500	4000	4500	5000	6000	8000	10,000	12,000	15,000	17,500
Delivered Lumens	297	519	776	994	1471	2006	2537	3077	3542	4027	4533	5256	6371	8247	10637	12332	15776	17801
Wattage	3.4	6.2	8.2	9.6	14.7	19.7	24.7	29.5	33.8	39.0	47.3	48.7	57.6	74.9	97.1	115.0	150.9	175.3
Lumens per Watt	87.4	83.7	94.6	103.5	100.1	101.8	102.7	104.3	104.8	103.3	95.8	107.9	110.6	110.1	109.5	107.2	104.5	101.5

*Based on 3500K AR LSS MWD BOCRI

Coordinated Apertures I Multiple Layers of Light

General Illumination Layer I EVO

High Center Beam Layer I Incito

EVO + Incito — Multiple Layers of Light

COMPLIMENTARY PRODUCTS

Core	Downlight	Adjustable	Open Wallwash	Lensed Wallwash	Cylinder	Pinhole	Bevel	Hyperbolic	
Healthcare	MRI	Surgical Suite	Patient Room						
Special Applications	Dynamic	Food Service	Vandal/Tamper	Clean Room	Shower	Steam Room			

EVOG-OPEN
page 1 of 9

GOTHAM ARCHITECTURAL DOWNLIGHTING | 1400 Lester Road Conyers, GA 30012 | P 800-705-SERV (7378) | gothamlighting.com
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Submitted by Clarus Lighting & Controls

CLARUS

Job Name: LOC Federal Credit Union - Brighton
Architect: Linshout AIA (Brighton)
Engineer: MEEC (Plymouth)

Catalog Number: XTOR1B-W
Notes:

Type: OB
CLC23-109847

Lumark

Catalog #	Type
Project	
Comments	Date
Prepared by	

DESCRIPTION

The patented Lumark Crosstour™ LED Wall Pack Series of luminaries provides an architectural style with super bright, energy efficient LEDs. The low-profile, rugged die-cast aluminum construction, universal back box, stainless steel hardware along with a sealed and gasketed optical compartment make the Crosstour impervious to contaminants. The Crosstour wall luminaire is ideal for wall/surface, inverted mount for façade/canopy illumination, post/bollard, site lighting, floodlight and low level pathway illumination including stairs. Typical applications include building entrances, multi-use facilities, apartment buildings, institutions, schools, stairways and loading docks test.

SPECIFICATION FEATURES

Construction
Slim, low-profile LED design with rugged one-piece, die-cast aluminum hinged removable door and back box. Matching housing styles incorporate both a small and medium design. The small housing is available in 12W, 18W and 26W. The medium housing is available in the 38W model. Patented secure lock hinge feature allows for safe and easy tool-less electrical connections with the supplied push-in connectors. Back box includes three half-inch, NPT threaded conduit entry points. The universal back box supports both the small and medium forms and mounts to standard 3-1/2" to 4" round and octagonal, 4" square, single gang and masonry junction boxes. Key hole gasket allows for adaptation to junction box or wall. External fin design extracts heat from the fixture surface. One-piece silicone gasket seals door and back box. Minimum 5" wide pole for site lighting application. Not recommended for car wash applications.

Optical
Silicone sealed optical LED chamber incorporates a custom engineered mirrored anodized reflector providing high-efficiency illumination. Optical assembly includes impact-resistant tempered glass and meets IESNA requirements for full cutoff compliance. Available in seven lumen packages; 5000K, 4000K and 3000K CCT.

Electrical
LED driver is mounted to the die-cast housing for optimal heat sinking. LED thermal management system incorporates both conduction and natural convection to transfer heat rapidly away from the LED source. 12W, 18W, 26W and 38W series operate in -40°C to 40°C [-40°F to 104°F]. High ambient 50°C models available. Crosstour luminaires maintain greater than 89% of initial light output after 72,000 hours of operation. Three half-inch NPT threaded conduit entry points allow for thru-branch wiring. Back box is an authorized electrical wiring compartment. Integral LED electronic driver is standard 0-10V dimming. 120-277V 50/60Hz or 347V 60Hz models.

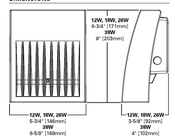
Finish
Crosstour is protected with a Super durable TGIC carbon bronze or summit white polyester powder coat paint. Super durable TGIC powder coat paint finishes withstand extreme climate conditions while providing optimal color and gloss retention of the installed life. Options to meet Buy American and other domestic preference requirements.

Warranty
Five-year warranty.

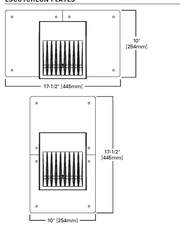
XTOR
CROSSTOUR LED

APPLICATIONS:
WALL / SURFACE
POST / BOLLARD
LOW LEVEL
FLOODLIGHT
INVERTED
SITE LIGHTING

DIMENSIONS



ESCUTCHEON PLATES



CERTIFICATION DATA
Dark Sky Approved (Fixed mount, Full cutoff, and 3000K CCT only)
UL/cUL Wet Location Listed
LM79 / LM80 Compliant
ROHS Compliant
ADA Compliant
NOM Compliant Models
IP66 Ingressed Protection Rated
Title 24 Compliant
DesignLights Consortium® Qualified*

TECHNICAL DATA
40°C Maximum Ambient Temperature
External Supply Wiring 90°C Minimum

EPA
Effective Projected Area (Sq. Ft.):
XTOR1B, XTORJB, XTORBB=0.34
XTORMB=0.46

SHIPPING DATA:
Approximate Net Weight:
3.7 - 5.25 lbs. (1.7 - 2.4 kgs.)

COOPER Lighting Solutions

*www.designlights.org

TD514013EN
December 14, 2021 5:21 PM

Submitted On: Sep 11, 2023 1/3 Index Page

LOC CREDIT UNION
PHOTOMETRIC SITE PLAN
GASSER BUSH ASSOCIATES
PREPARED FOR: DESINE INC.
WWW.GASSERBUSH.COM

Designer
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Date
5/22/2025
rev. 5/30/2025
Scale
Not to Scale
Drawing No.
#25-43840-V2
2 of 2

SOIL TYPES

Livingston County, Michigan (MI093)

Livingston County, Michigan (MI093)

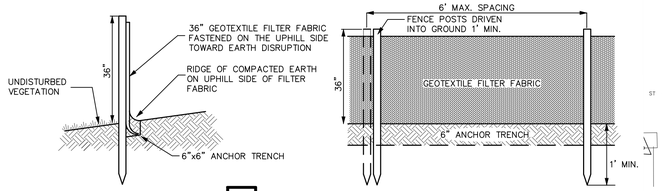
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MoB	Wawasee loam, 2 to 6 percent slopes	0.1	1.2%
MoC	Wawasee loam, 6 to 12 percent slopes	8.8	98.8%
Totals for Area of Interest		**8.9**	**100.0%**

SOILS MAP
NOT TO SCALE

TIME LINE OF SOIL EROSION CONTROL AND CONSTRUCTION SEQUENCE

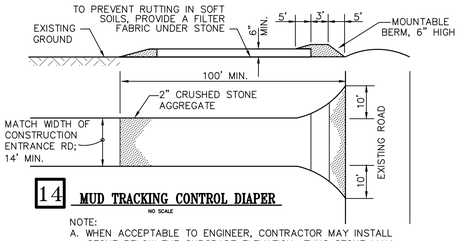
CONSTRUCTION & WORK CATEGORIES*	CONSTRUCTION PERIOD																															
Month	1				2				3				4				5				6				7				8			
Week	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. OBTAIN PERMITS																																
2. INSTALL INITIAL SESC MEASURES																																
3. INSPECT & MAINTAIN SESC MEASURES																																
4. DEMOLITION WORK																																
5. EARTH WORK																																
6. BUILDING CONSTRUCTION																																
7. UNDERGROUND UTILITY WORK																																
8. SITE LIGHTING WORK																																
9. CURB, SIDEWALK & PAVEMENT WORK																																
10. BACKFILL & FINISH GRADE WORK																																
11. TOPSOIL, SEED & MULCH																																
12. LANDSCAPE WORK																																
13. REMOVE TEMPORARY SESC MEASURES																																

*REFER TO THE MAJOR WORK ITEMS OUTLINED IN THE SOIL EROSION CONTROL AND CONSTRUCTION SEQUENCE NOTES.



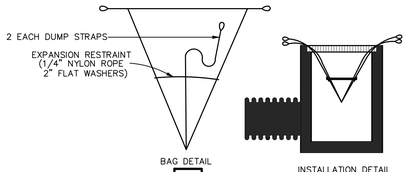
55 SILT FENCE
NOT TO SCALE

NOTES:
1. REPAIR AND REPLACE SILT FENCE AS NEEDED, INCIDENTAL.
2. FIELD LOCATE SILT FENCE TO FOLLOW CONSTANT CONTOUR ELEVATIONS.
3. INSTALL SED. TRAP AND FILTER AT DRAINAGE LOW POINTS, INCIDENTAL.
4. OVERLAP FENCES AT JOINTS.

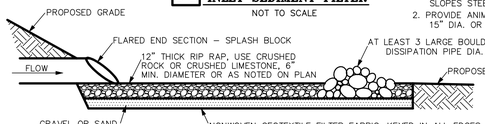


14 MUD TRACKING CONTROL DIAPER
NO SCALE

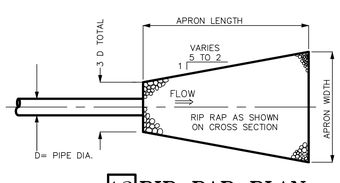
NOTE:
A. WHEN ACCEPTABLE TO ENGINEER, CONTRACTOR MAY INSTALL STONE BELOW THE SUBGRADE ELEVATION; THUS STONE MAY BE LEFT IN PLACE BELOW PAVEMENT.



58 INLET SEDIMENT FILTER
NOT TO SCALE



13 RIP RAP CROSS SECTION
NOT TO SCALE



13 RIP RAP PLAN
NOT TO SCALE

BENCHMARK

DATUM BASED ON MDOT WITNESSES AND BENCHMARKS, PREPARED BY WILCOX PROFESSIONAL SERVICES, JOB No. 55918A, DATE AUGUST 14, 2009, SHEET No. 53

ON-SITE BENCHMARKS
REFERENCE: FIELD BOOK 17B1, PAGE 6, LEVEL LOOP DATED: FEBRUARY 10, 2017.

BENCHMARK #210
NORTHEAST CORNER OF TRANSFORMER PAD, LOCATED LEAR THE NORTHEAST CORNER OF "DETENTION AREA" (SHOPS AT WALDENWOODS).
ELEVATION = 990.38 (NAVD 88)
REF: POINT #210

BENCHMARK #211
SOUTHWEST CORNER OF TRANSFORMER PAD, LOCATED NEAR THE NORTHEAST CORNER OF OUTLOT "D" (SHOPS AT WALDENWOODS) (55± FEET WEST OF THE NORTHWEST CORNER OF OUTLOT "C".
ELEVATION = 996.67 (NAVD 88)

BENCHMARK #212
SOUTH RIM OF SANITARY MANHOLE, LOCATED 90± FEET SOUTHWEST OF THE SOUTHWEST CORNER OF OUTLOT "C".
ELEVATION = 1000.08 (NAVD 88)

BENCHMARK #213
NORTH RIM OF STORM MANHOLE, LOCATED NEAR THE SOUTHWEST CORNER OF "DETENTION AREA" (SHOPS AT WALDENWOODS).
ELEVATION = 991.20 (NAVD 88)

BENCHMARK #214
"X" ON TOP OF LIGHT POLE BASE, LOCATED 78± FEET NE'LY OF THE MAIN ENTRANCE OFF M-59.
ELEVATION = 999.65

NOTES:
1. GROUT RIP RAP WITH A 6" THICK CEMENT SLURRY FOR SLOPES STEEPER THAN 20%; 5 ON 1.
2. PROVIDE ANIMAL GUARDS ON ALL STORM SEWER 15" DIA. OR GREATER, INCIDENTAL TO FES PIPE.

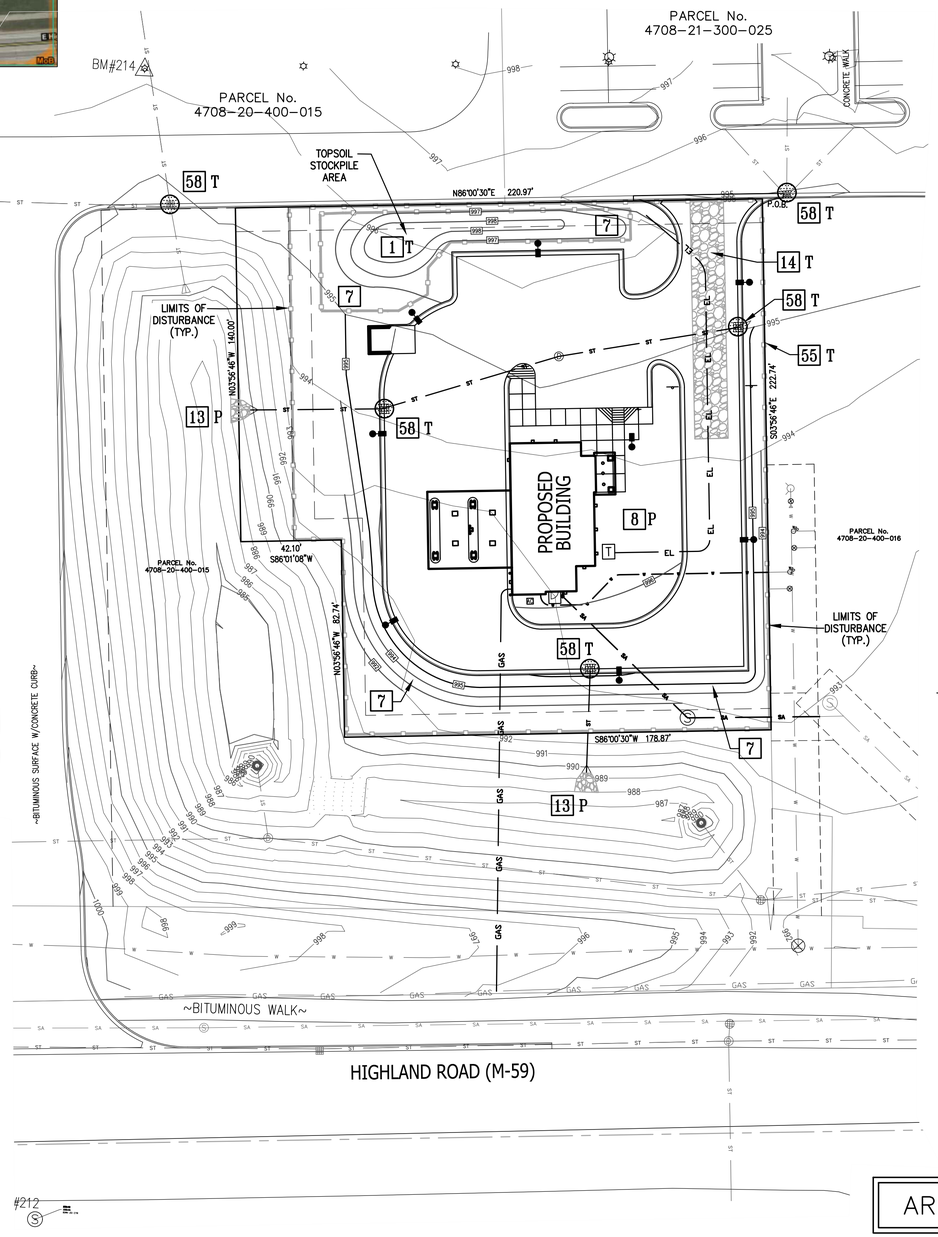
MIN. RIP RAP DIMENSIONS

PIPE DIAMETER (inch)	APRON LENGTH (feet)	(1) APRON WIDTH (feet)	(2) ALTERNATE APRON WIDTH (feet)
12	12	8	16
15	15	10	20
18	18	12	24
21	21	14	28
24	24	16	32
30	30	20	40
36	36	24	48
42	42	28	56

UNLESS SHOWN OTHERWISE ON PLANS. May be varied to match natural features; ie when meeting ex. ditch, apron width to match channel bottom extending up sides to a depth of 1/2 pipe dia.

(1) APRON WIDTH FOR USE IN DITCHES AND SWALES

(2) APRON WIDTH FOR USE IN FLAT AREAS WHERE SHEET FLOW DESIRED



MAINTENANCE NOTES FOR SOIL EROSION CONTROL MEASURES:

The Construction Site and all Soil Erosion Control Measures shall be inspected periodically in accordance with the appropriate local municipality/authority and the DEQ NPDES rules and regulations. At a MINIMUM, inspections shall be performed once a week and within 24 hours following a storm event resulting in 1" of rainfall or greater. Inspections shall be performed throughout the duration of the construction process and until the site is completely stabilized. Following construction, the owner (or it's assignee) shall periodically inspect all permanent soil erosion control measures to ensure proper operation.

CATCH BASINS: Catch basins shall be inspected for accumulation of solids and sediment. Solids and sediment shall be removed from the catch basins by vacuum or adductor cleaning. Cleaning should be performed before the catch basin sumps are half full.

MUD TRACKING CONTROL DEVICE / CONSTRUCTION ACCESS: Mud tracking control devices shall be inspected for significant mud accumulation and to ensure the access is not eroding into public rights of way or drainage features. Add additional layers of stone or remove and replace stone each time the stone becomes covered with mud. All sediment dropped or eroded onto public rights of way shall be removed immediately. Sweeping of the public rights or way and/or paved access route shall be performed as necessary to maintain the access route free of sediment and debris.

SEEDING: Newly seeded areas shall be inspected until substantial vegetative growth is obtained. Seeded areas shall be inspected to ensure erosion is not occurring in the seeded area and vegetative growth is promoted. Eroded areas shall be finish graded as necessary to removal erosion channels or gulleys and new seed placed as soon as weather permits.

SILT FENCE: Silt fencing shall be inspected for soil accumulation/clogging, undercutting, overtopping and sagging. Soil accumulation shall be removed from the face of the silt fence each time it reaches half the height of the fence. Removed sediment shall be disposed of in a stable upland site or added to a spoils stockpile. When undercutting occurs, grade out areas of concentrated flow upstream of the silt fence to remove channels and/or gulleys and repair or replace silt fence ensuring proper trenching techniques are utilized. Silt fencing, which sags, falls over or is not staked in shall be repaired or replaced immediately. Silt fencing fabric, which decomposes or becomes ineffective, shall be removed and replaced with new fabric immediately. Silt fencing shall be removed once vegetation is well established and the up-slope area is fully stabilized.

SOD: Newly sodded areas shall be inspected to ensure sod is maturing. Sod shall be inspected for failure, erosion or damage. Slipping or eroding sod on steep slopes shall be immediately repaired or replaced and staked in place. Damaged or failed sod shall be immediately replaced.

STOCKPILES: Temporary and permanent topsoil and spoils stockpiles shall be seeded to promote vegetative growth. Stockpiles shall be inspected to ensure excessive erosion has not occurred. When runoff or wind erosion is evident, reduce the side slopes of the stockpile or stabilize the stockpile with pieces of staked sod laid perpendicular to the slope. When filter fencing is used around a stockpile, the fencing shall be inspected to ensure piping has not occurred under the fencing and to ensure the fencing has not collapsed due to soil slippage or access by construction equipment. Repair or replace damaged fencing immediately. Berms at the base of stockpiles, which become damaged, shall be replaced.

STORM STRUCTURE INLET FILTER: Inlet filters shall be inspected for sediment accumulation, clogging and damage. When stone is used in conjunction with inlet filter fabric, replace the stone each time it becomes clogged with sediment. Clean or replace the inlet filter fabric each time it becomes clogged with sediment. Reinstall or replace fallen filter fabrics immediately. Replace damaged filter fabrics immediately.

LEGAL DESCRIPTION

PARCEL TAX I.D. #4708-20-400-017

Situated in the Township of Hartland, County of Livingston and State of Michigan, and described as follows:

Parcel 1:

Outlot II-C: A parcel of land in the Southeast 1/4 of Section 20, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan, described as follows: Commencing at the Southeast corner of said Section; thence North 02 degrees 38 minutes 53 seconds West, on the East line of said Section, 384.23 feet; thence Westerly, on the arc of a 425.40 foot radius curve to the left, 59.11 feet to the point of tangency of said curve, said arc being subtended by a chord bearing and distance of South 89 degrees 58 minutes 22 seconds West, 59.06 feet; thence South 86 degrees 00 minutes 30 seconds West, 55.58 feet to the ***POINT OF BEGINNING*** *of this description; thence South 03 degrees 56 minutes 46 seconds East, 222.74 feet; thence South 86 degrees 00 minutes 30 seconds West, 178.87 feet; thence North 03 degrees 56 minutes 46 seconds West, 82.74 feet; thence South 86 degrees 00 minutes 30 seconds West, 42.10 feet; thence North 03 degrees 56 minutes 46 seconds West, 140.00 feet; thence North 86 degrees 00 minutes 30 seconds East, 220.97 feet to the Point of Beginning.*

SOIL EROSION MEASURES

1	STRIPPING & STOCKPILING TOPSOIL	TOPSOIL MAY BE STOCKPILED ABOVE BORROW AREAS TO ACT AS A DIVERSION STOCKPILE SHOULD BE TEMPORARILY SEEDED
8	SODDING	PROVIDES IMMEDIATE PROTECTION CAN BE USED ON STEEP SLOPES WHERE SEED MAY BE DIFFICULT TO ESTABLISH EASY TO PLACE, MAY BE REPAIRED IF DAMAGED SHOULD INCLUDE PREPARED TOPSOIL BED
7	HYDRO-SEEDING	EFFECTIVE ON LARGE AREAS MULCH TACKING AGENT USED TO PROVIDE IMMEDIATE PROTECTION UNTIL GRASS IS ROOTED SHOULD INCLUDE PREPARED TOPSOIL BED
13	RIPRAP, RUBBLE, GABIONS	USED WHERE VEGETATION IS NOT EASILY ESTABLISHED EFFECTIVE FOR HIGH VELOCITIES OR HIGH CONCENTRATION PREVENTS RUNOFF TO MID-SLOPE SOIL DISPERSES ENERGY FLOW AT SYSTEM OUTLETS
14	AGGREGATE COVER	STABILIZES SOIL SURFACE, TASC MINIMIZING EROSION PREVENTS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER MAY BE USED AS PART OF PERMANENT BASE CONSTRUCTION OF PAVED AREAS
55	GEOTEXTILE SILT FENCE	USES GEOTEXTILE AND POSTS OR POLES MAY BE CONSTRUCTED OR PREFABRICATED EASY TO CONSTRUCT AND LOCATE AS NECESSARY
58	INLET SEDIMENT FILTER	USES PREFABRICATED GEOTEXTILE SACKS FILTERS SEDIMENT FROM RUNOFF AT CATCH BASIN INLET EASY TO INSTALL AND MAINTAIN

T=TEMPORARY P=PERMANENT

36" SILT FENCE

AREA OF DISTURBANCE=1.0 AC.

SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

1. The Soil Erosion and Sedimentation Control Specifications of the appropriate Local, County and/or State Agencies are a part of this work. Refer to the General Notes on the Project Plans for additional requirements.

2. The Soil Erosion and Sedimentation Control (SESC) Permit Holder shall be responsible for compliance with the SESC Permit requirements for the duration of the project and until receipt of final approval from the Permitting Agency. For any site with an earth disturbance area of 1 acre or greater, the SESC Permit Holder shall retain a Certified Storm Water Operator in accordance with the SESC Permit requirements. The Certified Storm Water Operator shall perform routine inspections of the site and the SESC measures and file inspection reports in accordance with the SESC permit requirements. For any site with an earth disturbance area of 5 acres or greater, the SESC Permit Holder shall file a National Pollutant Discharge Elimination System (NPDES) Notice of Coverage Form with the State DEQ prior to any earth disruption.

3. The Contractor shall install the appropriate Soil Erosion Control Measures in accordance with the Project Plans prior to massive earth disruption, including but not limited to; silt fence, mud tracking control mats and sediment filters on existing storm sewer structures. Demolition work may be necessary prior to installation of some soil erosion control measures. In such cases, postpone installation of affected soil erosion control measures until immediately following demolition work. Refer to the Project Plans and the Soil Erosion Control and Construction Sequence for additional requirements.

4. The Contractor shall schedule work so as to minimize the period of time that an area is exposed and disturbed. The Contractor shall observe the grading limits and limits of disturbance in accordance with the Project Plans. The Contractor shall maintain an undisturbed vegetative buffer around the work when shown on the Project Plans.

5. The Contractor shall install and maintain Soil Erosion Control Measures in accordance with the Project Plans during the appropriate phases of construction. The Project Plans show the minimum requirements for Soil Erosion Control Measures. The Contractor shall install additional Soil Erosion Control Measures as necessary due to site conditions and as directed by the Permitting Agency and/or Engineer. The Contractor shall perform routine inspection and maintenance of all Soil Erosion Control Measures to ensure compliance with the permit requirements and proper operation of the Soil Erosion Control Measures.

6. The Contractor shall strip and stockpile topsoil from all areas of proposed disturbance. Topsoil stockpiles shall be located in accordance with the Project Plans. Topsoil stockpiles shall be stabilized with vegetative growth (or matted with straw during the non-growing season) to prevent wind and water erosion. A temporary diversion berm and/or silt fence shall encompass all earthen material stockpiles, including but not limited to topsoil, sand and gravel.

7. The Contractor shall install Soil Erosion Control Measures associated with the proposed storm sewer system during storm sewer construction. Inlet structure filters shall be installed immediately following completion of each storm inlet structure. Riprap shall be installed immediately following the installation of each flared end section with the following exception: Storm drain outlets that do NOT empty into a Retention, Detention or Sedimentation Basin shall have a temporary 5' wide x 10' long x 3' deep sump installed at the termination of the storm sewer. Upon completion of the stabilization work, the sump area shall be filled and riprap shall be installed in accordance with the Project Plans.

8. The Contractor shall install filter stone around the storm basin control structure(s) in accordance with the Project Plans immediately following installation of the control structure(s). The filter stone shall be monitored for sediment build up. The filter stone may need to be cleaned and/or replaced as site conditions require and as directed by the Permitting Agency and/or the Engineer.

9. All disturbed areas outside of paved areas shall be restored within 15 days of finish grading. Proposed vegetative areas shall be restored with a minimum of 3-inches of topsoil, then seeded and mulched; unless noted otherwise on the Project Plans. During the non-growing season, temporary stabilization shall be provided using straw matting or as directed by the Permitting Agency and/or the Engineer.

Seeding, Fertilizer and Mulch Bare Ground Ratio:
This information is provided as minimum guidance for acceptable application rates. Actual amounts depending on soil conditions and site topography shall be detailed on the construction plans.
Top-Soil 3 inches in depth.
Grass Seed 210 lbs. per acre.
Fertilizer 150 lbs. per acre.
Straw Mulch 3" in depth 1.5 to 2 tons per acre
(All mulch must have a tie down, such as tackifier, net binding, etc.)
Hydro-Seeding: Hydro-seeding is not acceptable for slopes exceeding 1%, in such cases; stabilization shall be done with seed and straw mulch with a tackifier.

10. Following complete site restoration and stabilization; sediment shall be removed from all storm sewer structures, paved areas and storm basins. The SESC Permit Holder shall contact the Permitting Agency to request closure of the SESC Permit. For any site with an earth disturbance area of 5 acres or greater, the SESC Permit Holder shall file a NPDES Notice of Termination Form with the State DEQ.

SOIL EROSION CONTROL AND CONSTRUCTION SEQUENCE:

1. Obtain all necessary Soil Erosion and Sedimentation Control related permits from the appropriate Local, County and/or State Agencies. Refer to the General Notes on the project plans for additional requirements.

2. Prior to commencement of any earth disruption install Silt Fence and Mud Tracking Control Device(s) in accordance with the Soil Erosion and Sedimentation Control Plan.

3. Construct Retention/Detention and Sedimentation Basins, including associated spillways, in accordance with the project plans. Finish grade and establish vegetative growth in Retention/Detention and Sedimentation Basins prior to massive earth disruption. Install temporary Soil Erosion Control Measures as necessary to stabilize Retention/Detention and Sedimentation Basins.

4. Strip and stockpile topsoil. Perform mass grading and land balancing. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.

5. Install proposed underground utilities. (i.e.; storm and sanitary sewer, water main, etc.) Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.

6. Construct building(s) if required on the project plans. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.

7. Construct roadways and/or parking areas. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.

8. Finish grade all disturbed areas outside of pavement. Perform final restoration, including placement of topsoil and establishment of vegetative growth outside of pavement.

9. Following establishment of sufficient vegetative ground cover and receipt of approval from the Permitting Agency, remove all *temporary* Soil Erosion Control Measures, clean all storm sewer structures and repair all permanent Soil Erosion Control Measures.

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2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN: WMP
DRAFT: L.F.
CHECK: WMP

REVISION #	DATE	REVISION-DESCRIPTION
	06-05-25	REVISED PER REVIEW COMMENTS
	07-01-25	REVISED EAST ACCESS DRIVE

REVISION #	DATE	REVISION-DESCRIPTION

loc CREDIT UNION OF HARTLAND

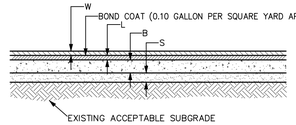
SOIL EROSION AND SEDIMENTATION PLAN, NOTES AND DETAILS

CLIENT:
LOC CREDIT UNION

22981 FARMINGTON ROAD
FARMINGTON, MI 48336

SCALE: 1"=30'
PROJECT No.: 9254840
DWG NAME: 4840 SE
ISSUED: JULY 01, 2025

SE



BITUMINOUS PAVEMENT CROSS SECTION

NOT TO SCALE

KEY	DESCRIPTION	MATERIAL SPECIFICATION	MINIMUM COMPACTED THICKNESS
W	WEARING COURSE	MDOT 5E3	2"
L	LEVELING COURSE	MDOT 3E3	2"
B	AGGREGATE BASE	MDOT 21AA	8"
S	GRANULAR SUBBASE	MDOT CLII SAND	7"

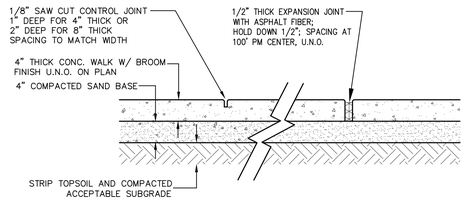
BITUMINOUS PAVEMENT NOTES:

1. The construction specifications of the appropriate Local Municipality are a part of this work. Refer to the General Notes, Road and/or Parking Lot Construction Notes and Typical Road and/or Pavement Cross Section details on the project plans for additional requirements.

2. Unsuitable soils found within the 1 on 1 influence zone of the pavement, such as muck, peat, topsoil, marl, silt or other unstable materials shall be excavated and replaced up to the proposed subgrade elevation with MDOT Class III granular material compacted to 95% maximum unit weight, modified proctor.

3. Contractor shall proof roll prepared subgrade as directed by Engineer. Unacceptable areas of subgrade shall be undercut and replaced as directed by Engineer.

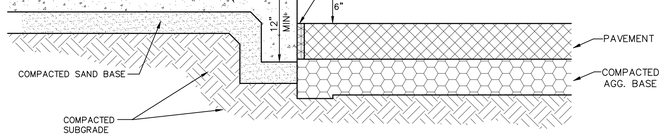
4. Owner/Developer may delay placement of the bituminous wearing course outside of the public road right of way. Repair of the bituminous leveling course may be necessary due to any delay in placement of the bituminous wearing course. Substantial repair to the bituminous leveling course may be necessary if placement of the bituminous wearing course is delayed for more than 12 months after placement of the bituminous leveling course. The bituminous leveling course shall be repaired as directed by Engineer prior to placement of the bituminous wearing course.



SIDEWALK CROSS SECTION

NOT TO SCALE

NOTES:
1. SEE PLAN FOR WIDTH OF SIDEWALK.
2. PROVIDE CONCRETE TYPE PER LOCAL CODE. (3500 PSI AIR ENTRAINED)



THICKENED EDGE WALK & ISOLATION JOINT DETAIL

NOT TO SCALE

SIDEWALK CROSS SECTION NOTES:

1. The construction specifications of the Local Municipality are a part of this work. Refer to the General Notes and the Sidewalk Cross Section Details on the Project Plans for additional requirements.

2. Sidewalk widths may vary. See the Project Plans for the proposed sidewalk width at each location. Increase sidewalks to 6" minimum thickness at driveways and other areas exposed to vehicular traffic.

3. The existing subgrade soils shall be prepared prior to placement of the granular subbase. Unsuitable soils found within the 1 on 1 influence zone of the proposed sidewalk areas, such as muck, peat, topsoil, marl, silt or other unstable materials shall be excavated and replaced with structural fill. Structural fill shall be MDOT Class II granular material placed in accordance with the General Notes on the Project Plans.

4. The sidewalk compacted subbase material shall be MDOT CL II sand. No subbase material substitutions shall be permitted without prior written approval of the Project Engineer and receipt of the Owner's Authorization. The subbase shall be compacted to a minimum of 95% of the maximum unit weight, modified proctor.

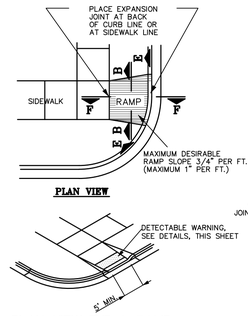
5. Concrete material shall be MDOT P1 (I-A) 6.0 sack concrete pavement mixture with a minimum 28 day design compressive strength of 4,000 PSI and 6.5% (+/-1.5%) entrained air. The Contractor shall submit the concrete mix design and aggregate mechanical analysis report to the Material Testing Engineer and/or Project Engineer for review and approval prior to use.

6. Install transverse contraction control joints in accordance with the Sidewalk Cross Section Detail. Space contraction control joints to match sidewalk width, but no greater than 10' on center. Tool joints in fresh concrete or saw cut within 8 hours.

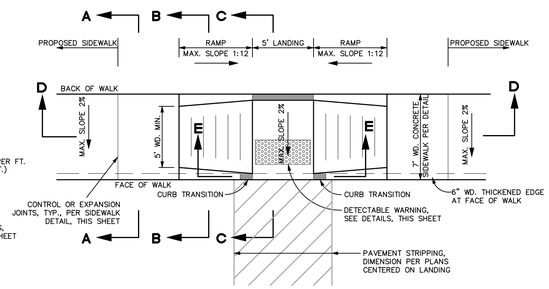
7. Install transverse expansion control joints in accordance with the Sidewalk Cross Section Detail. Space expansion control joints at 50 feet on center maximum. Transverse expansion control joints shall be 1/2" thick asphalt fiber joint filler matching entire sidewalk cross section.

8. Provide 1" asphalt fiber control joint between concrete sidewalks and all other concrete structures, such as concrete building foundations, concrete curb and concrete driveways.

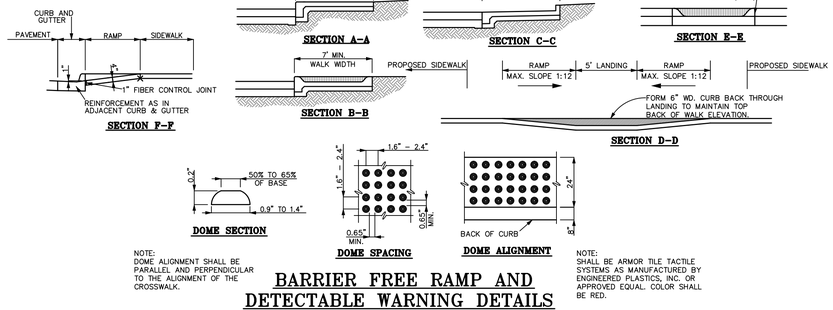
9. Construct all Barrier Free Sidewalk Ramps in accordance with the American Disabilities Act and the Barrier Free Design Requirements of the appropriate Local, County or State Agency with jurisdiction over the project. Refer to MDOT Standard Plan R-28, latest revision.



PLAN VIEW, TYP. A RAMP



PLAN VIEW, TYP. B RAMP

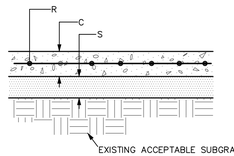


NOTE:
DOME ALIGNMENT SHALL BE PARALLEL AND PERPENDICULAR TO THE ALIGNMENT OF THE CROSSWALK.

NOTE:
SHALL BE ARMOR TILE TACTILE SYSTEMS AS MANUFACTURED BY ENGINEERED PLASTICS, INC. OR APPROVED EQUAL. COLOR SHALL BE RED.

BARRIER FREE RAMP AND DETECTABLE WARNING DETAILS

NOT TO SCALE



CONCRETE PAVEMENT CROSS-SECTION

NOT TO SCALE

KEY	DESCRIPTION	MATERIAL SPECIFICATION	MINIMUM THICKNESS
R	REINFORCEMENT	N/A	N/A
C	CONCRETE	MDOT 601, P1	8"
S	AGG. BASE	21AA	6"

CONCRETE PAVEMENT NOTES:

1. The construction specifications of the appropriate Local Municipality are a part of this work. Refer to the General Notes, Road and/or Parking Lot Construction Notes and Typical Road and/or Pavement Cross Section details on the project plans for additional requirements.

2. Unsuitable soils found within the 1 on 1 influence zone of the pavement, such as muck, peat, topsoil, marl, silt or other unstable materials shall be excavated and replaced up to the proposed subgrade elevation with MDOT Class II granular material compacted to 95% maximum unit weight, modified proctor.

3. Contractor shall proof roll prepared subgrade as directed by Engineer. Unacceptable areas of subgrade shall be undercut and replaced as directed by Engineer.

4. Concrete material shall meet or exceed the specification requirements of the appropriate Local Municipality. If not specified by the Local Municipality, then the concrete material shall be MDOT P1 (I-A) 6.0 sack concrete pavement mixture with a minimum 28 day design compressive strength of 4,000 PSI and 6.5% (+/-1.5%) entrained air. Contractor shall submit concrete mix design and aggregate mechanical analysis report to the Local Municipality and Engineer for review and approval prior to use.

5. Install transverse contraction control joints in accordance with the Local Municipality requirements. If not specified by the Local Municipality, then install transverse contraction control joints in curb with 1" minimum depth at 10' on center. Tool joints in fresh concrete or saw cut within 8 hours.

6. Install transverse expansion control joints in accordance with the Local Municipality requirements. If not specified by the Local Municipality, then install transverse expansion control joints in curb as follows: 300' maximum on center. Transverse expansion control joints shall be 1" thick asphalt fiber joint filler matching entire concrete cross section.

7. Provide lane ties when specified on the Project Plans, otherwise provide 0.5" asphalt fiber control joint between concrete pavement and all other concrete structures, such as concrete curb, sidewalks and concrete driveways.

DRIVEWAY AND PARKING LOT CONSTRUCTION NOTES:

1. The grading, driveway and parking lot specifications of the Local Municipality are a part of this work. Refer to the General Notes on the project plans for additional requirements.

2. Driveway and Parking Lot work shall include site clearing of vegetation and tree stumps; stripping and stockpiling of topsoil for reuse; mass grading cuts and fills; removal of unsuitable soils from the paved surface influence area; culvert placement; subgrade preparation including fine grading and proof roll; subgrade undercuts and/or placement of geotextile fabric if needed; placement and preparation of granular subbase and aggregate base courses including fine grading and compaction; placement of concrete curb and gutter; watering of aggregate base within 24 hours of paving to obtain optimum moisture content; bituminous and/or concrete pavement including placement, compaction and bond coats; cleaning of bituminous pavements between courses if needed; preparation, finish work and restoration as needed to connect to existing pavements, ditches, driveways, etc.; adjustment of storm and utility structure castings to match finish grade; placement of shoulders and finish grading of ditches; pavement markings; topsoil placement; seed & mulch; site cleanup; restoration; and other work as shown on the project plans and specifications.

3. Existing and proposed grades shown in the driveway profile view(s) are along the centerline of each driveway. Refer to the plan view and curve tables on the project plans for horizontal alignment and curve data. Proposed contours for ditches, curbs, driveway crown and pavement slope may not be shown in the plan view and/or grading plan.

4. Contractor shall coordinate scheduling a Pre-Construction Meeting with Engineer prior to commencement of driveway and/or parking lot work.

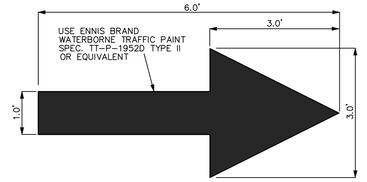
5. Contractor shall coordinate construction staking, testing, documentation submittal and observation with the appropriate Agency, Surveyor and/or Engineer as required for construction, certification and/or acceptance of the driveway(s) and/or parking lot(s). All materials used and work done shall meet or exceed the requirements and specifications noted on the project plans. Any materials used or work done that does not meet said requirements and/or specifications shall be replaced and/or redone at Contractor's expense. The Owner/Developer may wait for test results, certifications and/or Agency reviews prior to accepting work.

6. Contractor shall take all appropriate job site safety precautions. Refer to the Traffic Control specifications of the appropriate Regulatory Agency for work within a public road right of way.

7. Contractor shall take precautions to prevent contamination of driveway and/or parking lot materials during handling, installation and construction procedures. Contaminated materials shall be removed and replaced at Contractor's expense.

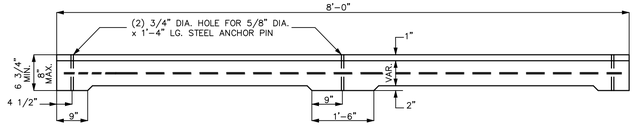
8. Clear vision areas shall be created where required; refer to the Clear Vision Area detail on the project plans. Relocate existing signs/utilities as acceptable to the appropriate Agency. Owner/Developer shall coordinate installation of permanent street signage after completion of roadwork.

9. When side slopes within utility easements exceed 1 on 10 (10%), Contractor shall rough grade a flat shelf within the easement area as acceptable to Engineer and restore following underground utility installation.



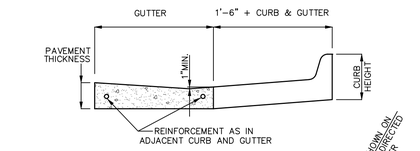
TRAFFIC FLOW ARROW DETAIL

NOT TO SCALE



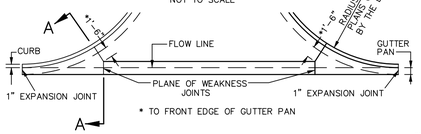
CONCRETE BUMPER BLOCK DETAIL

NOT TO SCALE



SECTION A-A

NOT TO SCALE



CONCRETE DRIVEWAY OPENING - MDOT DETAIL "M"

NOT TO SCALE

MDOT DETAIL "M" DRIVEWAY OPENING NOTES:

1. The construction specifications of the Local Municipality are a part of this work. Refer to MDOT Standard Plan R-29, latest revision, the Concrete Curb Notes, General Notes and "M" Opening Details on the Project Plans for additional requirements.

2. The Bituminous Pavement Contractor shall hand tamp the bituminous pavement adjacent to the concrete gutter to ensure proper compaction of the bituminous material in areas that are not accessible by a roller.

3. The Concrete Opening shall not be exposed to vehicular traffic until the concrete has reached at least 75% of the design flexural strength.

GENERAL NOTES:

1. Contractor shall perform the work in accordance with the requirements of the appropriate Local, County and State Agencies and all other Government and Regulatory Agencies with jurisdiction over the project. Contractor shall notify the appropriate Agencies in advance of each stage of work in accordance with each Agency's requirements.

2. Contractor shall comply with all permit, insurance, licensing and inspection requirements associated with the work. Prior to construction, Contractor and Owner/Developer shall determine who is responsible for obtaining each required permit. Contractor shall verify that the each required permit has been obtained prior to commencement of the stage of work associated with the required permit(s).

3. Contractor shall furnish liability insurance and property damage insurance to save harmless the Owner, Developer, Architect, Engineer, Surveyor and Government Agencies for any accident occurring during the construction period. Refer to the appropriate Local, County and State Agencies for additional requirements. Copies of insurance certifications shall be made available to the Owner/Developer.

4. Contractor shall conduct and perform work in a safe and competent manner. Contractor shall perform all necessary measures to provide for traffic and pedestrian safety from the start of work and through substantial completion. Contractor shall determine procedures and provide safety equipment such as traffic controls, warning devices, temporary pavement markings and signs as needed. Contractor shall comply with the safety standards of the State Department of Labor, the occupational health standards of the State Department of Health and safety regulations of the appropriate Local, County, State and Federal Agencies. Refer to the safety specifications of the appropriate Regulatory Agencies. The Contractor shall designate a qualified employee with complete job site authority over the work and safety precautions; said designated employee shall be on site at all times during the work.

5. Contractor shall coordinate scheduling of all work in the proper sequence, including work by Subcontractors. Additional costs due to improper planning by Contractor or work done out of sequence as determined by standard acceptable construction practices, shall be Contractor's responsibility.

6. Contractor shall contact the MISS DIG locating system, or other appropriate local underground utility locating Agency, a minimum of three (3) working days prior to construction. Existing utility information on the project plans may be from information disclosed to this firm by the Utility Companies, Local, County or State Agencies, and/or various other sources. No guarantee is given as to the completeness or accuracy thereof. Prior to construction, locations and depths of all existing utilities (in possible conflict with the proposed improvements) shall be verified in the field.

7. Contractor shall coordinate scheduling a Pre-Construction Meeting with Engineer prior to commencement of work.

8. The Local Municipality, County and/or State in which the project is located may require an Engineer's Certification of construction of the proposed site improvements. Contractor shall verify the certification requirements with Engineer prior to commencement of work. Contractor shall coordinate construction staking, testing, documentation submittal and observation with the appropriate Agency, Surveyor and/or Engineer as required for Engineer's Certification and Government Agency Acceptance. All materials used and work done shall meet or exceed the requirements of certification and acceptance, the contract documents and the material specifications noted on the project plans. Any materials used or work done that does not meet said requirements, contract documents and/or specifications shall be replaced and/or redone at Contractor's expense. The Owner/Developer may wait for test results, certifications and/or Agency reviews prior to accepting work.

9. Engineer may provide subsurface soil evaluation results, if available, to Contractor upon request. Subsurface soil evaluation results, soils maps and/or any other documentation does NOT guarantee existing soil conditions or that sufficient, acceptable on-site granular material is available for use as structural fill, pipe bedding, pipe backfill, road subbase or use as any other granular material specified on the project plans. On-site granular material that meets or exceeds the material specifications noted on the project plans may be used as structural fill, pipe bedding, pipe backfill and/or road subbase material. On-site granular material shall be stockpiled and tested as acceptable to the appropriate Agency and/or Engineer prior to use.

10. During the performance of their work, Contractor shall be solely responsible for determining soil conditions and appropriate construction methods based on the actual field conditions. Contractor shall furnish, install and maintain sheeting, shoring, bracing and/or other tools and equipment and/or construction techniques as needed for the safety and protection of the workers, pedestrians and vehicular traffic and for protection of adjacent structures and site improvements.

11. Contractor shall install temporary and permanent soil erosion and sedimentation control devices at the appropriate stages of construction in accordance with the appropriate regulatory Agencies. Refer to Soil Erosion and Sedimentation Control Plans and Notes on the project plans.

12. Structural fill shall be placed as specified on the project plans and within the 1 on 1 influence zone of all structures, paved areas and other areas subject to vehicular traffic. Structural fill shall be placed using the controlled density method (12" maximum lifts, compacted to 95% maximum unit weight, modified proctor). Fill material shall meet or exceed the specifications noted on the project plans or as directed by Engineer when not specified on the project plans.

13. All existing monuments, property corners, ground control and benchmarks shall be protected and preserved; and if disturbed by Contractor, shall be restored at Contractor's expense. Contractor shall notify Surveyor of any conflicts between existing monuments, property corners, ground control and/or benchmarks and the proposed site improvements.

14. Contractor shall notify Owner/Developer and Engineer immediately upon encountering any field conditions, which are inconsistent with the project plans and/or specifications.

15. When noted on the project plans for demolition and/or removal, Contractor shall remove existing structures, building and debris and recycle and/or dispose of in accordance with Local, County, State and Federal regulations.

16. Contractor shall remove excess construction materials and debris from site and perform restoration in accordance with the project plans and specifications. Disposing of excess materials and debris shall be performed in accordance with Local, County, State and Federal regulations.

17. Construction access to the site shall be located as acceptable to the Owner/Developer and to the appropriate Local, County and/or State Agency with jurisdiction over the road(s) providing access to the site. Construction access shall be maintained and cleaned in accordance with the appropriate Local, County and/or State Agencies and as directed by Owner/Developer and/or Engineer.

18. Contractor shall take necessary precautions to protect all site improvements from heavy equipment and construction procedures. Damage resulting from Contractor actions shall be repaired at Contractor's expense.

19. Per the Ten State Standards, Article 8.8.3, one full 20-foot pipe length of water main shall be used whenever storm sewer or sanitary sewer is crossed, and the pipe shall be centered on the crossing, in order to ensure 10-foot separation between water main and sewers.

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DESINE INC
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LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

REVISION #	DATE	REVISION-DESCRIPTION
	06-05-25	REVISED PER REVIEW COMMENTS

REVISION #	DATE	REVISION-DESCRIPTION

DESIGN: WMP
DRAFT: L.F.
CHECK: WMP

loc CREDIT UNION OF HARTLAND

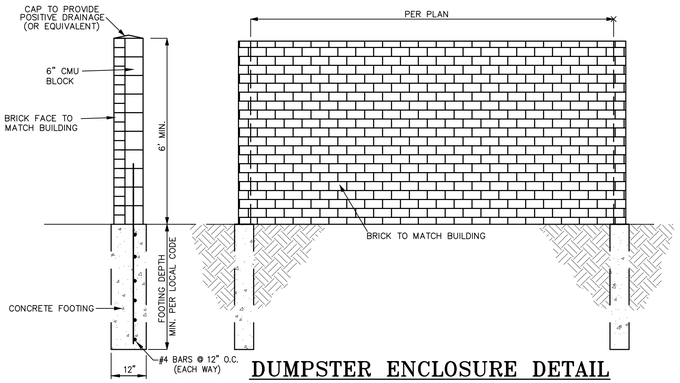
SITE DEVELOMENT NOTES AND DETAILS

CLIENT:
LOC CREDIT UNION

22981 FARMINGTON ROAD
FARMINGTON, MI 48336

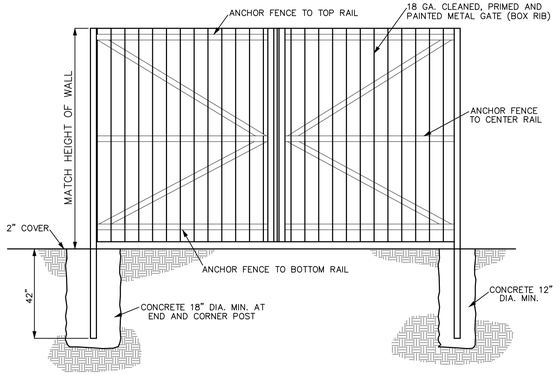
SCALE: N/A
PROJECT No.: 9254840
DWG NAME: 4840 DTS
ISSUED: JULY 01, 2025

DT1



DUMPSTER ENCLOSURE DETAIL

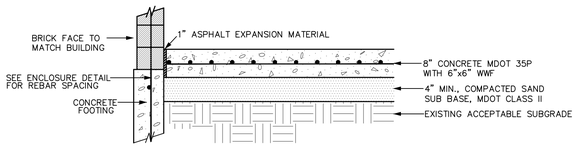
NOT TO SCALE



DUMPSTER GATE DETAIL

NOT TO SCALE

NOTE:
ALL POLES, RAILS AND HARDWARE SHALL BE GALVANIZED STEEL.

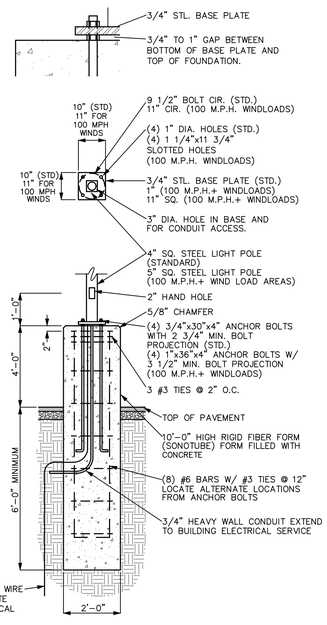


DUMPSTER PAD SLAB CROSS-SECTION

NOT TO SCALE

PAVEMENT NOTES:

1. UNSUITABLE SOILS, SUCH AS MUCK, PEAT, TOPSOIL, MARL, SILT OR OTHER UNSTABLE MATERIALS, SHALL BE UNDERCUT AND REPLACED WITH COMPACTED SAND SUBGRADE FILL. WHERE INCIDENTAL TO ROUGH GRADING.
2. AREAS OF SUBGRADE FILL SHALL BE CONSTRUCTED USING 12" THICK LIFTS OF COMPACTED SAND, MDOT CLASS III OR EQUIVALENT ON-SITE MATERIAL; WHEN INSIDE ROAD INFLUENCE ZONE.



NOTES

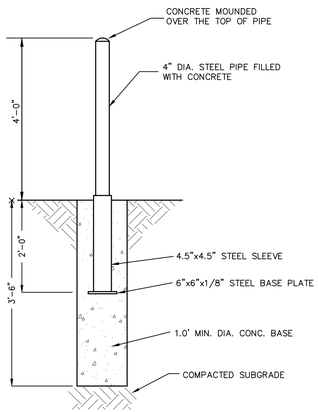
1. FOUNDATION SHOWN IS A TYPICAL DESIGN. WIND LOADS MORE THAN 100 MPH AND UNSTABLE SOIL CONDITIONS MAY REQUIRE AN ALTERNATE DESIGN. VERIFY CONDITION OF SOILS WITH SOILS REPORT.
2. FOUNDATIONS SHALL EXTEND BELOW FROST DEPTH PER LOCAL CODES.
3. CONCRETE SHALL HAVE MIN 3000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
4. SEE SITE LIGHTING ELECTRICAL PLAN WITHIN ARCHITECTURAL PLANS FOR ADDITIONAL REQUIREMENTS.

LIGHT POLE BASE STANDARD DETAIL

NOT TO SCALE

DUMPSTER PAD CROSS SECTION

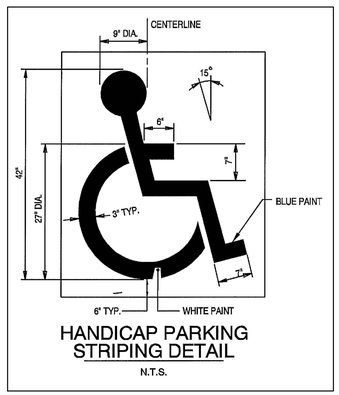
NOT TO SCALE



GUARD POST DETAIL

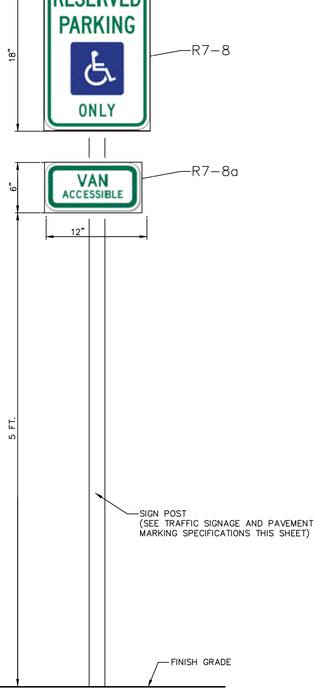
NOT TO SCALE

NOTE:
PAINT ALL EXTERIOR SURFACES WITH ONE COAT METAL PRIMER AND ONE COAT EXT. PAINT



HANDICAP PARKING STRIPING DETAIL

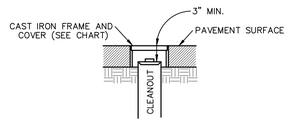
N.T.S.



BARRIER FREE PARKING SIGN DETAIL

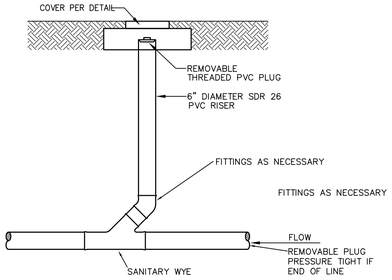
NOT TO SCALE

CLEANOUT DIA.	FRAME AND COVER
4"-8"	EJIW 1578Z-A
10"-18"	EJIW 1040Z-A-STORM



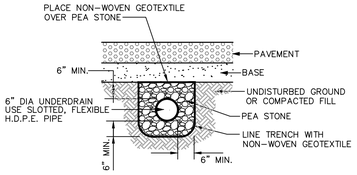
CLEANOUT IN PAVED AREA

NOT TO SCALE



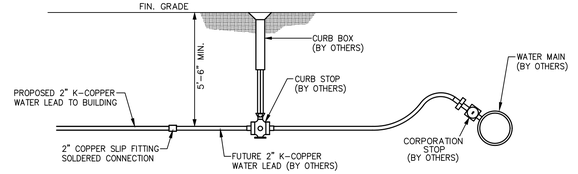
STANDARD CLEANOUT FOR SANITARY LEAD

NOT TO SCALE



UNDERDRAIN DETAIL

NOT TO SCALE



WATER SERVICE CONNECTION DETAIL

NOT TO SCALE

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CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

REVISION #	DATE	REVISION-DESCRIPTION
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DESIGN: WMP
DRAFT: L.F.
CHECK: WMP

loc CREDIT UNION OF HARTLAND

SITE DEVELOMENT NOTES AND DETAILS

CLIENT:
LOC CREDIT UNION

22981 FARMINGTON ROAD
FARMINGTON, MI 48336

SCALE: N/A
PROJECT No.: 9254840
DWG NAME: 4840 DTS
ISSUED: JULY 01, 2025

DT2

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LINDHOUT ASSOCIATES architects aia pc

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FILE LOCATION: H:\25017 - LOC Branch Office Hartland\dwg\A0\25017_P1
DATE PLOTTED: 6/18/2025 PLOTTED BY: mkc

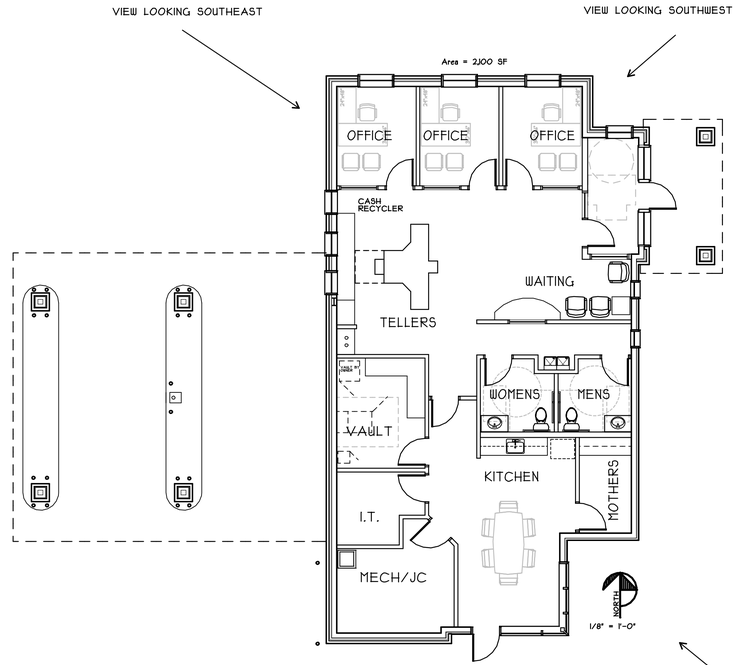
- ALUM. FASCIA (M-1)
- ALUM. CANOPY FASCIA (M-1)
- ALUM. FASCIA (M-1)
- PREFINISHED WOOD GRAIN METAL SIDING (M-2)
- BRICK VENEER (M-3)
- TINTED WINDOWS IN ANOD. ALUM. FRAME-TYP (M-6)
- INTERNALLY ILLUMINATED SIGN
- ALUM. CANOPY FASCIA (M-1)
- BRICK VENEER (M-4)

VIEW LOOKING SOUTHWEST

VIEW LOOKING SOUTHEAST

- PREFINISHED WOOD GRAIN METAL SIDING (M-2)
- ALUM. FASCIA-TYP (M-1)
- ALUM. CANOPY FASCIA-TYP (M-1)
- BRICK VENEER (M-3)
- BRICK VENEER (M-4)
- PRE-FINISHED METAL PANEL (M-5)
- TINTED WINDOWS IN ANOD. ALUM. FRAME-TYP (M-6)
- INTERNALLY ILLUMINATED SIGN

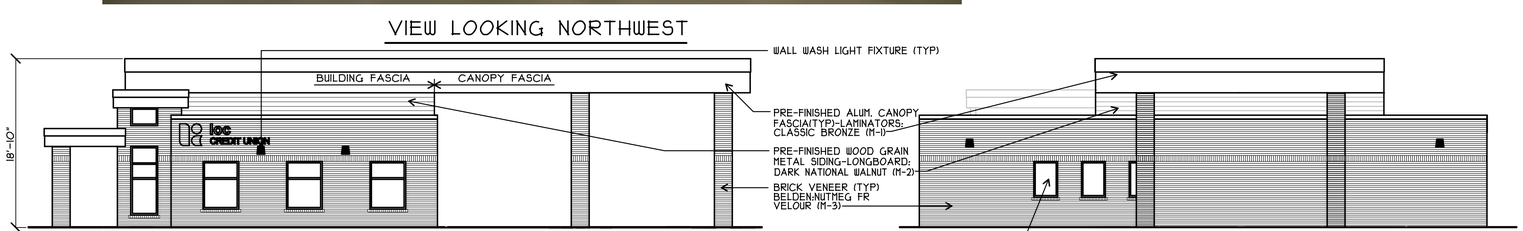
VIEW LOOKING NORTHWEST



FLOOR PLAN

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

VIEW LOOKING NORTHWEST

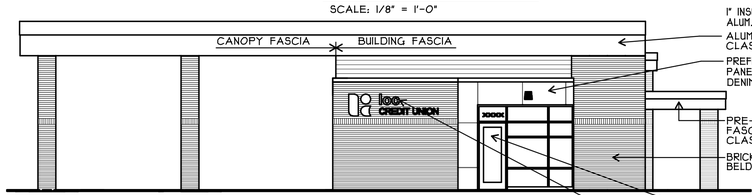


NORTH ELEVATION

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

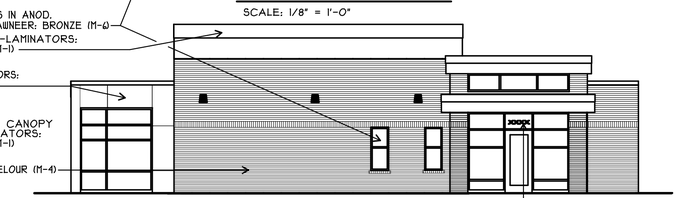
WEST ELEVATION

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



SOUTH ELEVATION

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



EAST ELEVATION

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

FACADE MATERIALS TABLE

FACADE MATERIALS	SOUTH ELEVATION AREA	%	NORTH ELEVATION AREA	%	WEST ELEVATION AREA	%	EAST ELEVATION AREA	%	TOTALS AREA	%
BRICK (M-3 & M-4)	382sf	42.5%	428sf	47.7%	140sf	14.2%	559sf	53.8%	2129sf	55.6%
WINDOWS/GLASS (M-6)	102sf	11.4%	101sf	11.2%	33sf	3.3%	222sf	21.4%	458sf	11.9%
ALUMINUM PANEL (M-5)	60sf	6.7%	0sf	0.0%	0sf	0.0%	68sf	6.5%	128sf	3.3%
ALUMINUM FASCIA (M-1)	129sf	14.4%	140sf	15.6%	0sf	0.0%	155sf	14.9%	424sf	11.0%
PRE-FINISHED WOOD GRAIN METAL SIDING (M-2)	65sf	7.2%	69sf	7.7%	81sf	8.1%	0sf	0.0%	215sf	5.6%
ALUMINUM CANOPY FASCIA (M-1)	160sf	17.8%	160sf	17.8%	124sf	12.4%	35sf	3.4%	479sf	12.5%
TOTAL AREA	898sf		898sf		998sf		1,039sf		3,833sf	

STATE OF MICHIGAN
MICHAEL J O'LEARY
ARCHITECT
No. 1301 047656
LICENSED ARCHITECT

Lindhout Associates architects aia pc
10465 citation drive, brighton, michigan 48116-9510
www.Lindhout.com (810)227-5668 fax:(810)227-5855

consultant

dr:	mjo
ck'd:	XXX
app'd:	XXX

date
6-18-25
5-12-25
5-02-25
4-21-25

REVISED SITE PLAN APPROVAL
REVISED SITE PLAN APPROVAL
SITE PLAN APPROVAL
TOWNSHIP REVIEW
issued for

NEW BRANCH OFFICE for:
LOC CREDIT UNION
HARTLAND TOWNSHIP, MICHIGAN
FLOOR PLAN/EXTERIOR VIEWS

P-1

25017

BELDEN

THE BELDEN BRICK COMPANY

P.O. BOX 20910
CANTON, OHIO 44701-0910
(330) 456-0031

Modular
Nutmeg FR Velour
21-11

MATERIAL (M-3)

BELDEN

THE BELDEN BRICK COMPANY

www.beldenbrick.com | 330-456-0031 | Canton, OH 44702

Modular
Sienna Bld Velour
24-21mdf, other

MATERIAL (M-4)

Longboard: Dark National Walnut

MATERIAL (M-2)-METAL SIDING

MATERIAL (M-1)-ALUMINUM PANEL

Laminators:
Classic Bronze

Kawneer: Bronze

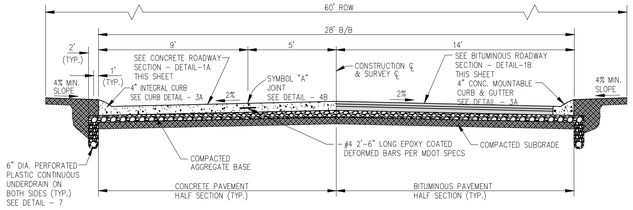
MATERIAL (M-6)-ALUNIMUM
WINDOW FRAME/DOORS

Laminators:
Denim Blue

MATERIAL (M-5)-ALUMINUM PANEL

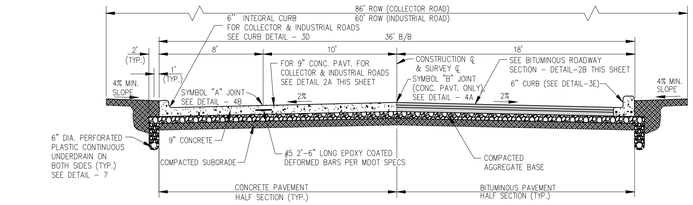
LOC Credit Union
Date: 6-03-25
Comm. #25017

P-2
EXTERIOR COLOR BOARD



NOTE: CONCRETE PAVEMENT DETAIL SHOWN IS FOR A SINGLE POUR CONSTRUCTION. FOR A DOUBLE POUR CONSTRUCTION, A SYMBOL "B" JOINT WILL BE REQUIRED ALONG THE CENTER OF THE ROAD AND THE SYMBOL "D" JOINT WILL BE LOCATED 6' FROM BACK OF CURB.

TYPICAL CROSS SECTION DETAIL - 1
RESIDENTIAL ROAD PAVEMENT (28' B/B)
NOT TO SCALE



TYPICAL CROSS SECTION DETAIL - 2
COLLECTOR AND INDUSTRIAL ROAD PAVEMENT (36' B/B)
NOT TO SCALE

GENERAL NOTES

1. EXISTING TOPSOIL, VEGETATION AND ORGANIC MATERIALS SHALL BE STRIPPED AND REMOVED FROM PROPOSED PAVEMENT AREA PRIOR TO PLACEMENT OF BASE MATERIALS. TREE ROOTS SHALL BE COMPLETELY REMOVED.
2. EXCAVATE TO THE DEPTH OF THE FINAL SUBGRADE ELEVATION TO ALLOW FOR GRADE CHANGES AND THE PLACEMENT OF THE RECOMMENDED PAVEMENT SYSTEM.
3. THE PAVEMENT SUBGRADE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT. THE FINAL SUBGRADE SHALL BE THOROUGHLY PROOF-ROLLED IN THE PRESENCE OF A GEOTECHNICAL/PAVEMENT ENGINEER TO DETERMINE STABILITY. LOOSE OR YIELDING AREAS WHICH CANNOT BE ADEQUATELY STABILIZED SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. ALL FILL MATERIAL AND BASE MATERIAL SHALL BE TESTED AND ITS COMPACTION AND SUITABILITY FOR ACCEPTANCE OF THE BASE MATERIAL AND PAVEMENT SHALL BE CERTIFIED BY SAID TESTING FIRM. THE OWNER SHALL SUPPLY THREE COPIES OF GEOTECHNICAL AND TECHNICAL REPORTS TO THE TOWNSHIP'S CONSULTANT.
4. IF IN THE OPINION OF THE INSPECTOR/ENGINEER, FIELD CONDITIONS WARRANT ADDITIONAL TESTING, THE DEVELOPER SHALL ARRANGE FOR AND PAY FOR ALL REQUIRED ADDITIONAL TESTING.
5. 21AA AGGREGATE BASE SHALL BE COMPACTED TO ACHIEVE A 95% COMPACTION LEVEL (MODIFIED PROCTOR - ASTM D 1557-91). THE BASE SHALL EXTEND A MINIMUM OF 2 FEET BEYOND THE BACK OF CURB OR THE PAVED EDGE.
6. CONCRETE PAVEMENT TESTING SHALL BE REQUIRED FOR ALL PROJECTS.
7. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE HARTLAND TOWNSHIP, LCRC AND MDOT.
8. FOR ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS AND LIKEWISE ARRANGE FOR ALL INSPECTION.
9. 1.0 INCH AND 2.0 INCH EXPANSION JOINTS SHALL BE INSTALLED PER TOWNSHIP STANDARDS PER THIS SHEET.
10. FILL AREAS SHALL BE MACHINE COMPACTED IN UNIFORM LIFTS TO 95% OF THE MAXIMUM DRY DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT.
11. 6" UNDER DRAIN SHALL BE INSTALLED ON BOTH SIDES OF ALL ROADWAYS IN GEOTEXTILE WRAPPED TRENCH. ALSO, PLACE UNDER DRAINS AT ALL DRAINAGE STRUCTURES WITHIN PARKING AREAS, (SEE DETAILS 6 AND 8).
12. PRIOR TO BITUMINOUS STREET ACCEPTANCE, THE FULL CROSS SECTION MUST BE INSTALLED PER THE APPROVED PLAN; AND ANY AND ALL REPAIRS TO THE PAVEMENT AND CURB MUST BE COMPLETED AT THE DIRECTION OF THE TOWNSHIP ENGINEER.

    12a. AT THE TIME OF INITIAL ROAD CONSTRUCTION, THE FULL CROSS SECTION MAY BE INSTALLED TO MINIMIZE THE AMOUNT OF PAVEMENT AND CURB REPAIRS. PRIOR TO STREET ACCEPTANCE THE TOWNSHIP ENGINEER WILL INSPECT THE PAVEMENT AND CURB, AND WILL IDENTIFY ANY AREAS TO BE REPAIRED.

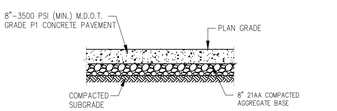
    12b. ALTERNATIVELY, THE TOP COURSE MAY BE OMITTED UNTIL THE MAJORITY OF THE CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED. PRIOR TO STREET ACCEPTANCE, THE TOWNSHIP ENGINEER WILL INSPECT THE BASE PAVEMENT AND CURB, AND WILL IDENTIFY AREAS TO BE REPAIRED PRIOR TO THE INSTALLATION OF THE TOP COURSE.
13. PROVIDE MINIMUM 20' DISTANCE TO TRANSITION FROM DETAIL 3E TO DETAIL 3A CURBS.

CONCRETE PAVEMENT

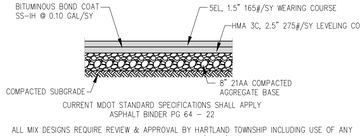
1. CONCRETE SHALL CONSIST OF: PORTLAND CEMENT TYPE IA (AIR-ENTRAINED) WITH A MINIMUM CEMENT CONTENT OF SIX SACKS PER CUBIC YARD, MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI AND A SLUMP OF ½" TO 3 INCHES. PAVEMENT SHALL CONFORM TO M.D.O.T. GRADE P1.
2. ALL CONCRETE PAVEMENT, DRIVEWAYS, CURB & GUTTER, ETC., SHALL BE SPRAY CURED WITH WHITE MEMBRANE CURING COMPOUND IMMEDIATELY FOLLOWING FINISHING OPERATION.
3. THE CONCRETE BATCH PLANT SHALL BE M.D.O.T. CERTIFIED WITH LOCATION APPROVED BY THE TOWNSHIP.
4. NO CONCRETE PAVING SHALL BE ALLOWED PRIOR TO MAY 1, OR AFTER NOVEMBER 1 (UNLESS APPROVED BY THE TOWNSHIP).
5. DO NOT PLACE CONCRETE WHEN PRECIPITATION IS IMMINENT OR WHEN MOISTURE ON THE EXISTING SURFACE WILL PREVENT SATISFACTORY CURING. UNLESS OTHERWISE APPROVED BY THE ENGINEER IN WRITING, TEMPERATURE AND SEASONAL REQUIREMENTS FOR PLACING CONCRETE WILL BE ACCORDING TO THE CURRENT MDOT SPECIFICATIONS. PAVING WILL NOT BE ALLOWED BELOW THESE MINIMUM TEMPERATURES, NOR WHEN FROST IS ON OR IN THE GRADE OR ON THE EXISTING SURFACE.

BITUMINOUS PAVEMENT

1. BITUMINOUS MIXTURE SHALL CONSIST OF: LEVELING COURSE – MDOT BITUMINOUS MIXTURE NO. 3C; LEVELING COURSE – MDOT BITUMINOUS MIXTURE NO. 4C; WEARING COURSE MDOT BIT MIX NO. 5E1. ASPHALT CEMENT PENETRATION GRADE 85-100 (OR 64-22) RECLAIMED ASPHALT PAVEMENT (RAP) SHALL BE REVIEWED FOR APPROVAL BY HARTLAND TOWNSHIP.
2. ALL BITUMINOUS MATERIAL SHALL BE COMPACTED TO A DENSITY OF 92% OF THE FIELD CONTROL DENSITY AS DETERMINED BY THE THEORETICAL MAXIMUM DENSITY.
3. A BOND COAT OF SS-1H EMULSION IS REQUIRED BETWEEN ALL COURSES OF ASPHALT IMMEDIATELY PRIOR TO PLACEMENT OF EACH COURSE OF PAVEMENT. THE BOND COAT SHALL BE APPLIED IN A UNIFORM MANNER OVER THE SURFACE AT A RATE OF 0.10 GALLON/S.Y. BETWEEN LEVELING COURSES & 0.05 GALLON/SY BETWEEN WEARING COURSE AND LEVELING COURSE.
4. DO NOT PLACE HMA OR APPLY BOND COAT WHEN PRECIPITATION IS IMMINENT OR WHEN MOISTURE ON THE EXISTING SURFACE WILL PREVENT SATISFACTORY CURING. UNLESS OTHERWISE APPROVED BY THE ENGINEER IN WRITING, TEMPERATURE AND SEASONAL REQUIREMENTS FOR PLACING HMA WILL BE ACCORDING TO THE CURRENT MDOT SPECIFICATIONS. PAVING WILL NOT BE ALLOWED BELOW THESE MINIMUM TEMPERATURES, NOR WHEN FROST IS ON OR IN THE GRADE OR ON THE EXISTING SURFACE.



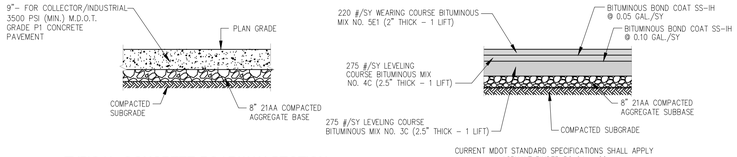
TYPICAL CONCRETE ROADWAY SECTION FOR RESIDENTIAL ROAD
DETAIL - 1A
NOT TO SCALE



CURRENT MDOT STANDARD SPECIFICATIONS SHALL APPLY
ASPHALT BINDER PG 64 - 22

ALL MIX DESIGNS REQUIRE REVIEW & APPROVAL BY HARTLAND TOWNSHIP INCLUDING USE OF ANY RECLAIMED ASPHALT PRODUCT (R.A.P.) MATERIALS.

TYPICAL BITUMINOUS ROADWAY SECTION FOR RESIDENTIAL ROAD
DETAIL - 1B
NOT TO SCALE

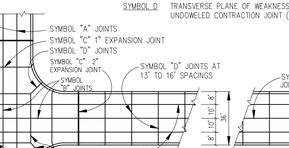


TYPICAL CONCRETE ROADWAY SECTION FOR COLLECTOR & INDUSTRIAL ROADS
DETAIL - 2A
NOT TO SCALE

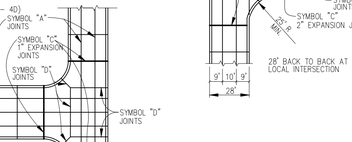
CURRENT MDOT STANDARD SPECIFICATIONS SHALL APPLY
ASPHALT BINDER PG 64 - 22

ALL MIX DESIGNS REQUIRE REVIEW & APPROVAL BY HARTLAND TOWNSHIP INCLUDING USE OF ANY RECLAIMED ASPHALT PRODUCT (R.A.P.) MATERIALS.

TYPICAL BITUMINOUS ROADWAY SECTION FOR COLLECTOR & INDUSTRIAL ROADS
DETAIL - 2B
NOT TO SCALE



4" MOUNTABLE CURB & GUTTER CONCRETE & BITUMINOUS ROADS
DETAIL - 3A
NOT TO SCALE



4" INTEGRAL & MOUNTABLE CURB & GUTTER WITH EJ 7065 OR EQUIVALENT CONCRETE & BITUMINOUS ROADS
DETAIL - 3B
NOT TO SCALE

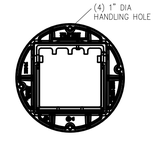
(FOR CONCRETE ROAD)

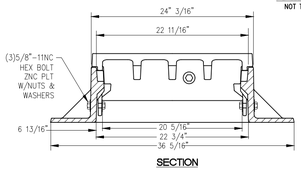
6" INTEGRAL CURB & GUTTER M.D.O.T. TYPE 'C'
DETAIL - 3D
NOT TO SCALE

DIMENSIONS		LANE	CONCRETE
M	N	TIES	CU. YD. / LIN. FT.
2'-0"	1¾"	OMITTED	0.0632

(FOR BITUMINOUS ROAD)

6" CURB & GUTTER
DETAIL - 3E
NOT TO SCALE

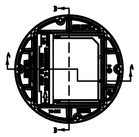


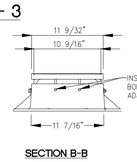


SECTION

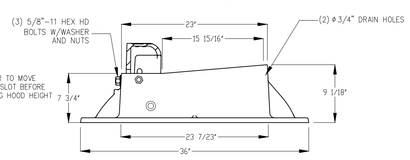
EJ 7065 FRAME SECTION OR EQUIVALENT
DETAIL - 3C
NOT TO SCALE

CONCRETE CURB & GUTTER DETAIL - 3
NOT TO SCALE



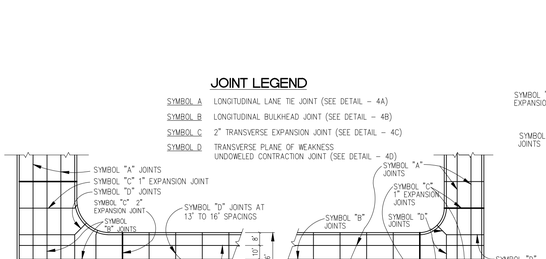


SECTION B-B



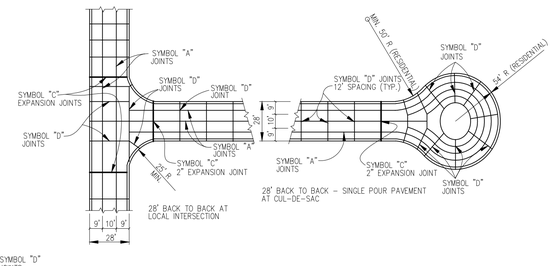
SECTION A-A

EJ 7045 FRAME SECTION OR EQUIVALENT
DETAIL - 3F
NOT TO SCALE



JOINT LEGEND

SYMBOL A	LONGITUDINAL LANE TIE JOINT (SEE DETAIL - 4A)
SYMBOL B	LONGITUDINAL BULKHEAD JOINT (SEE DETAIL - 4B)
SYMBOL C	2" TRANSVERSE EXPANSION JOINT (SEE DETAIL - 4C)
SYMBOL D	TRANSVERSE PLANE OF WEAKNESS UNDOWELED CONTRACTION JOINT (SEE DETAIL - 4D)

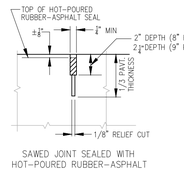


TYPICAL PLAN OF CONCRETE PAVEMENT JOINT LAYOUT DETAILS - 4
NOT TO SCALE

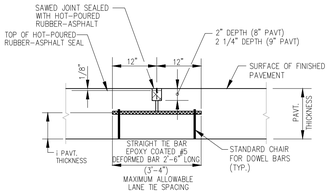
EJ 7065 FRAME SECTION OR EQUIVALENT
DETAIL - 3C
NOT TO SCALE

NOTES:

1. THE INTERSECTION SHALL BE POURED INDEPENDENT OF THE STRAIGHTAWAY FROM RADII TO RADII.
2. JOINT DESIGN SHALL BE IN ACCORDANCE WITH ROAD COMMISSION FOR LIVINGSTON COUNTY STANDARDS AND SPECIFICATIONS UNLESS SUPERCEDED BY HARTLAND TOWNSHIP STANDARD DETAILS.
3. DOWEL BASKETS WILL BE REQUIRED AT ALL EXPANSION JOINTS AS DIRECTED BY THE TOWNSHIP ENGINEER.
4. IF STRUCTURES ARE LOCATED AT POINT OF CURVE THEN EXPANSION JOINT SHOULD BE RELOCATED 10' OFF. (OR AS DIRECTED BY THE TOWNSHIP ENGINEER.)

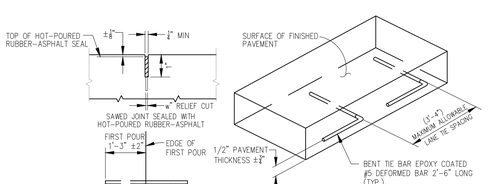


SAWED JOINT SEALED WITH HOT-POURED RUBBER-ASPHALT



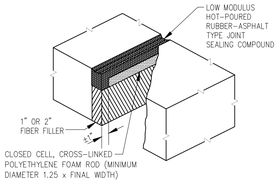
SYMBOL "A" TIE BARS SHALL BE PLACED AT THE PROPER SPACING LONGITUDINALLY AND TRANSVERSELY AT 90° WITH THE JOINT.

LONGITUDINAL LANE TIE JOINT
DETAIL - 4A
NOT TO SCALE

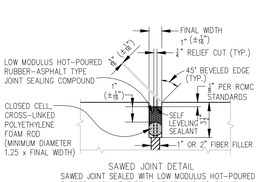


ALL SYMBOL "B" JOINTS SHALL BE SAWED AND SEALED, EXCEPT JOINTS WITHOUT LANE TIES AND JOINTS ADJACENT TO VERTICAL FACES WHICH WOULD PROHIBIT SAWING.

LONGITUDINAL BULKHEAD JOINT
DETAIL - 4B
NOT TO SCALE

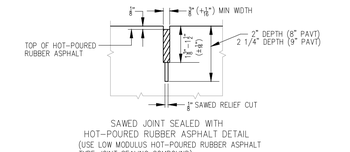


OUTSIDE EDGE TREATMENT



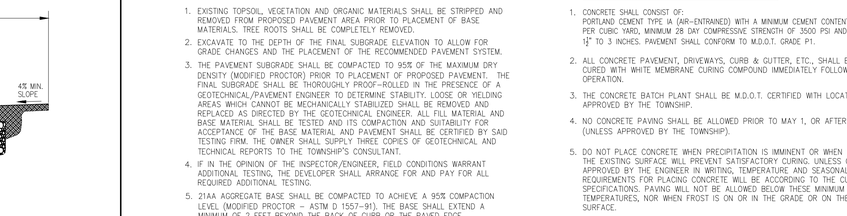
SAWED JOINT DETAIL
SAWED JOINT SEALED WITH LOW MODULUS HOT-POURED RUBBER-ASPHALT TYPE JOINT SEALING COMPOUND.

TRANSVERSE EXPANSION JOINT
DETAIL-4C
NOT TO SCALE



SAWED JOINT SEALED WITH HOT-POURED RUBBER ASPHALT DETAIL
(USE LOW MODULUS HOT-POURED RUBBER ASPHALT TYPE JOINT SEALING COMPOUND)

TRANSVERSE PLANE OF WEAKNESS UNDOWELED CONTRACTION JOINT
DETAIL - 4D
NOT TO SCALE



* NOTE:
PER MDOT ROAD DESIGN MANUAL, SECTION 6.03.11, IT IS RECOMMENDED TO MILL THE BUTT JOINT 25 FT FOR EVERY 0.75" OF OVERLAY THICKNESS. FOR EXAMPLE, A 3" OVERLAY WOULD REQUIRE A 100 FT LONG BUTT JOINT.
(3"/0.75") X 25' = 100'
SIDE STREETS AND OTHER LOW-SPEED ROADWAYS COULD USE A SHORTER LENGTH FOR BUTT JOINTS, SUCH AS HALF OF THE ABOVE-LISTED FORMULA, OR AS DIRECTED BY THE ENGINEER.

** NOTE:
WHEN OVERLAYING EXISTING CONCRETE PAVEMENT, IT IS NOT RECOMMENDED TO MILL BUTT JOINT MORE THAN 1.5-2" DEEP SO REINFORCEMENT (IF PRESENT) WILL NOT BE EXPOSED.

TERMINAL BUTT JOINT
DETAIL - 5
NOT TO SCALE

SPALDING DeDECKER
Engineers | Planners | Surveyors

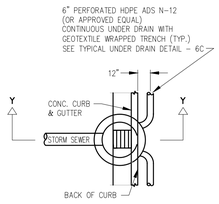
HARTLAND TOWNSHIP
PAVING
STANDARD DETAILS

SHEET 1 OF 2

HARTLAND TOWNSHIP | 2655 CLARK ROAD | HARTLAND, MI 48353 | P (810) 632 - 7498 | WWW.HARTLANDTWP.COM

SCALE: H: N.T.S. V: N.T.S.
DATE:
REVISIONS:
COUNTY: LIVINGSTON COUNTY
DATE:
TOWN: 03N
RANGE: 06E
DATE: MAY 2025
REVISIONS:

DRAWING PATH: J:\HL\HLGEN\Standards\Standard Detail Sheets\2023 Updated Details\CAD\Paving Details Hartland Twp.dwg May 13, 2025 - 9:05am

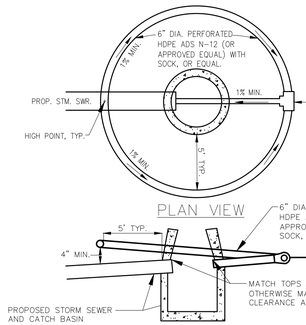


PLAN VIEW

TYPICAL 6' UNDER DRAIN WITH CATCH BASIN ALONG ROADWAY CURB & GUTTER

DETAIL - 6A

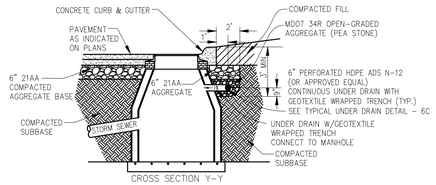
NOT TO SCALE



TYPICAL 6' RING UNDER DRAIN WITH CATCH BASIN

DETAIL - 6B

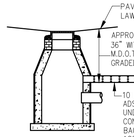
NOT TO SCALE



TYPICAL UNDER DRAIN WITH CATCH BASIN ALONG ROADWAY CURB & GUTTER

DETAIL - 6C

NOT TO SCALE



TYPICAL 6' FINGER TYPE UNDERDRAIN WITH CATCH BASIN

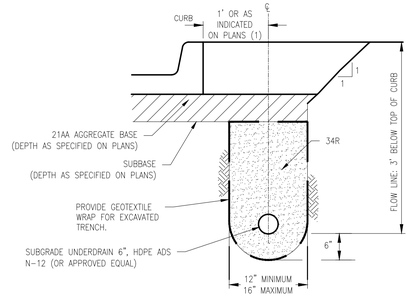
(WITHIN PARKING LOTS OUTSIDE CURB LINES)

DETAIL 6D

NOT TO SCALE

UNDER DRAIN NOTES

1. UNDER DRAIN SHALL BE PLACED PER TOWNSHIP STANDARDS ALONG THE ENTIRE LENGTH OF CURB (BOTH SIDES).
2. UNDER DRAIN TO BE 6" UNWRAPPED PERFORATED HDPE ADS N-12 (OR APPROVED EQUAL) AASHTO M 278, WITH PERFORATIONS MEETING AASHTO M 278.
3. ALL UNDER DRAIN SHALL BE INSTALLED AT A SUITABLE SLOPE FOLLOWING THE GRADE OF THE ROAD. INSTALLATION BEGINS FROM THE OUTLET, THEN PROCEEDING UPSTREAM.
4. UNDERDRAIN TRENCH SHALL BE WRAPPED IN GEOTEXTILE FABRIC.
5. PROPOSED UNDER DRAIN PIPE LAYOUT, FLOW LINE ELEVATION AND DETAILS SHALL BE APPROVED PRIOR TO CONSTRUCTION.
6. LOCATION MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
7. ALL UNDERDRAIN SHALL BE APPROVED PLASTIC PIPE PER MDOT SECTION 909.07. METAL PIPE SHALL NOT BE USED.
8. ALL UNDERDRAIN SHALL OUTLET TO A DRAINAGE STRUCTURE.



TYPICAL UNDER DRAIN ALONG ROADWAY CURB & GUTTER SECTION

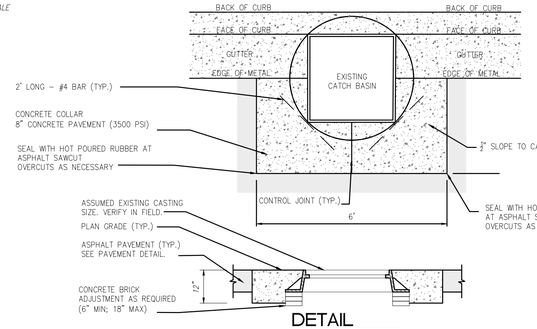
DETAIL - 6E

NOT TO SCALE

TYPICAL UNDER DRAIN DETAILS - 6

CONCRETE COLLAR DETAIL

NO SCALE

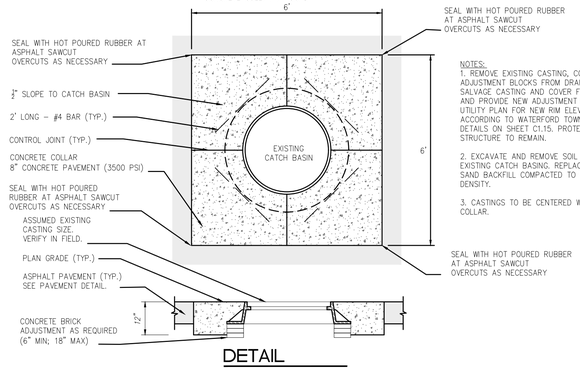


DETAIL

CONCRETE COLLAR AT CURB

NOTE:

1. REMOVE EXISTING CASTING, COVER AND ADJUSTMENT BLOCKS/BRICKS AND/OR CONCRETE GRADE RINGS FROM DRAINAGE STRUCTURE. PROVIDE NEW ADJUSTMENT BLOCKS/BRICKS AND/OR CONCRETE GRADE RINGS. RE-SET EXISTING CASTING AND COVER PER PLANS TO MATCH EXISTING RIM ELEVATION. PROTECT EXISTING UTILITY STRUCTURE TO REMAIN.
2. CASTINGS TO BE CENTERED WITHIN THE CONCRETE COLLAR.



NOTES:

1. REMOVE EXISTING CASTING, COVER AND ADJUSTMENT BLOCKS FROM DRAINAGE STRUCTURE. SALVAGE CASTING AND COVER FOR REINSTALLATION AND PROVIDE NEW ADJUSTMENT BLOCKS. SEE UTILITY PLAN FOR NEW RIM ELEVATION. REINSTALL ACCORDING TO WATERFORD TOWNSHIP STANDARD DETAILS ON SHEET C1.15. PROTECT EXISTING UTILITY STRUCTURE TO REMAIN.
2. EXCAVATE AND REMOVE SOIL SURROUNDING EXISTING CATCH BASING. REPLACE WITH CLASS 2 SAND BACKFILL COMPACTED TO 95% MAXIMUM DENSITY.
3. CASTINGS TO BE CENTERED WITHIN CONCRETE COLLAR.

DETAIL

CONCRETE COLLAR IN PAVEMENT

SIDEWALK JOINTS NOTES

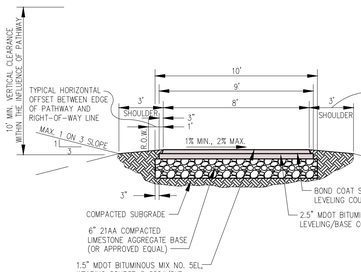
1. CONSTRUCT TRANSVERSE AND LONGITUDINAL EXPANSION AND PLANE OF WEAKNESS JOINTS AT INTERVALS AND LOCATIONS SHOWN ON THE PLANS. ALIGN TRANSVERSE JOINTS WITH LIKE JOINTS IN ANY ADJACENT SLAB.
2. CONSTRUCT JOINTS WITH FACES PERPENDICULAR TO THE SIDEWALK SURFACE.
3. PLACE CONTRACTION JOINTS AT 5' MINIMUM AND 7' MAXIMUM INTERVALS. JOINTS ARE TO BE FULL WIDTH OF THE WALK AND MINIMUM 1/4 SLAB THICKNESS DEEP AND 1/8 INCH TO 1/4 INCH WIDE. PATHWAY (MATERIAL AS SPECIFIED)
4. PLACE 1/2" FIBER EXPANSION JOINT FILLERS AT MAX. 50' INTERVALS. EXTEND EXPANSION JOINT FILLER THE FULL DEPTH OF THE JOINT WITH THE TOP SLIGHTLY BELOW THE FINISHED SURFACE OF THE SIDEWALK.
5. PLACE 1/2" FIBER EXPANSION JOINT FILLERS AT EACH SIDE OF DRIVE.
6. PROVIDE 1" FIBER EXPANSION JOINT FILLERS AT CURB AND BUILDING OR R.O.W. LINE.

SIDEWALK STANDARD NOTES

1. SIDEWALK RAMPS, CONFORMING TO PUBLIC ACT NO. 8, 1993, SHALL BE INSTALLED AS SHOWN ON THE PLAN AT ALL STREET INTERSECTIONS AND AT ALL BARRIER FREE PARKING AREAS AS INDICATED ON THE PLANS.
2. SIDEWALK AND PATHWAY RAMPS ARE TO BE LOCATED AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. HANDICAP RAMPS SHALL MEET CURRENT MDOTSTANDARDS AND A.D.A. BARRIER FREE REQUIREMENTS.
3. RAMPS SHALL BE PROVIDED AT CORNERS OF AN INTERSECTION WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB.
4. SURFACE TEXTURE OF THE RAMP SHALL BE THAT OBTAINED BY A COARSE BROOMING, TRANSVERSE TO THE SLOPE OF RAMP.
5. SIDEWALK SHALL BE RAMPED WHERE THE DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.
6. CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE RAMP, FREE OF SAGS AND SHORT GRADE CHANGES. WHERE CONDITIONS PERMIT, IT IS DESIRABLE THAT THE SLOPE OF THE RAMP BE IN ONLY ONE DIRECTION, PARALLEL TO THE DIRECTION OF TRAVEL.
7. IF POSSIBLE, DRAINAGE STRUCTURES SHOULD NOT BE PLACED IN LINE WITH RAMPS, EXCEPT WHERE EXISTING DRAINAGE STRUCTURES ARE BEING UTILIZED IN THE NEW CONSTRUCTION. LOCATION OF THE RAMP SHOULD TAKE PRECEDENCE OVER LOCATION OF DRAINAGE STRUCTURE.
8. THE NORMAL GUTTER LINE PROFILE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
9. THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE FLUSH WITH THE ADJACENT CONCRETE.
10. CROSSWALK AND STOP LINE MARKINGS, IF USED, SHALL BE SO LOCATED AS TO STOP TRAFFIC SHORT OF RAMP CROSSINGS. SPECIFIC DETAILS FOR MARKING APPLICATIONS ARE GIVEN IN THE "MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".
11. DETECTABLE WARNING SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP.

PATHWAY STANDARD NOTES

1. THE MAXIMUM GRADE ALONG PATHWAY SHALL NOT EXCEED 1 ON 12.
2. PROVIDE 2% MAXIMUM CROSS SLOPE (I.E. SUPER ELEVATION) FOR DRAINAGE OFF AND AWAY FROM PATHWAY AND GRADED SHOULDERS.
3. PROVIDE MINIMUM 95' CENTER LINE RADII FOR PATHWAY HORIZONTAL ALIGNMENT.
4. PROVIDE A MINIMUM OF 3' HORIZONTAL CLEARANCE AND 10' VERTICAL CLEARANCE FROM ALL FIXED OBJECTS AND THE EDGE OF PATHWAY SURFACE. RELOCATE EXISTING OBJECTS (I.E. MAIL BOXES, SIGNS, ETC.), IF REQUIRED.
5. PROVIDE HANDICAP ACCESSIBLE RAMPS AT EXISTING PAVED DRIVEWAYS IN GOOD CONDITION AND AT STREET INTERSECTIONS.
6. PATHWAY RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MDOT STANDARD PLAN R-28 SERIES.
7. A CLEAN SAW CUT JOINT SHALL BE PROVIDED WHEREVER NEW PAVEMENT MATCHES EXISTING PAVEMENT.
8. UTILITY STRUCTURES SHALL BE ADJUSTED IN ACCORDANCE WITH HARTLAND TOWNSHIP STANDARDS AND SHALL MATCH THE PROPOSED GRADE OF THE PATHWAY.
9. PROVIDE 10' BETWEEN EDGE OF PATHWAY TO TOP OF BANK FOR DETENTION BASINS, OPEN DRAINS, ETC.
10. ADJACENT FINISHED GRADE SHALL BE SET 2" BELOW TO ACCOMODATE SOD.



TYPICAL NON-MOTORIZED PATHWAY BITUMINOUS SECTION

DETAIL - 11A

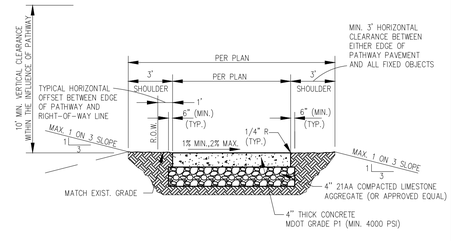
NOT TO SCALE

BITUMINOUS PATHWAY NOTES

1. IF PATHWAY CROSSES A RESIDENTIAL DRIVEWAY, INCREASE THE THICKNESS OF BITUMINOUS LEVELING/BASE COURSE MIX 36A TO 4" (@ 440#/SYD).
2. PATHWAY SHALL BE UNIFORM FREE OF BIRD BATHS – STANDING WATER

CONCRETE PATHWAY NOTES

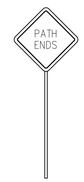
1. FOR CONCRETE PATHWAY PROVIDE TRANSVERSE PLANE OF WEAKNESS SAW CUT JOINTS AT APPROXIMATELY 8' INTERVALS. SAW ¼" WIDE x 1" DEEP JOINTS AND DO NOT SEAL THE JOINTS. TOOLED JOINTS ARE NOT ACCEPTABLE.
2. PROVIDE FULL DEPTH TRANSVERSE EXPANSION JOINTS, BY INSTALLING ½ INCH THICK PREMOLDED JOINT FILLER SET ½INCH BELOW THE SURFACE OF THE CONCRETE IN THE JOINTS AT 50' INTERVALS (MAX.).
3. PLACE ½" FIBER EXPANSION JOINT FILLERS AT MAX. 50' INTERVALS. EXTEND EXPANSION JOINT FILLER THE FULL DEPTH OF THE JOINT WITH THE TOP SLIGHTLY BELOW THE FINISHED SURFACE OF THE PATHWAY.
4. PLACE ½" FIBER EXPANSION JOINT FILLERS AT EACH SIDE OF DRIVE.
5. PROVIDE 1" FIBER EXPANSION JOINT FILLERS AT CURB AND BUILDING OR R.O.W. LINE.
6. AT DRIVEWAYS WITH CURB & GUTTER, PROVIDE CURB DROP PER MDOT STANDARD PLANS R-29-D, DETAIL "L", EXCEPT, REPLACE 1" RISE AT BACK OF GUTTER BY A ROUNDED VALLEY AS SHOWN ON THE SIDEWALK RAMP DETAIL.
7. AT UNPAVED DRIVE OR PAVED DRIVE WITH POOR CONDITION, INCREASE THE SLAB THICKNESS TO 6" OR EXISTING SLAB THICKNESS WHICHEVER IS LARGER.
8. PROVIDE 10' BETWEEN EDGE OF PATHWAY TO TOP OF BANK FOR DETENTION BASINS, OPEN DRAINS, ETC.
9. ADJACENT FINISHED GRADE SHALL BE SET 2" BELOW TO ACCOMODATE SOD.



TYPICAL NON-MOTORIZED PATHWAY/SIDEWALK CONCRETE SECTION

DETAIL - 11B

NOT TO SCALE



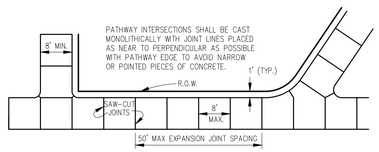
NOTE:

1. SIGNS SHALL BE 18"x18" AND CONSTRUCTED OF 0.63 ENGINEERING GRADE REFLECTIVE ALUMINUM WITH 1½" RADIUS AT CORNERS.
2. SIGNS SHALL HAVE A YELLOW BACKGROUND WITH BLACK COPY AND BLACK OUTLINE.
3. SIGN POST AND FASTENERS SHALL BE PER M.M.U.T.C.D. (MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.

TYPICAL NON-MOTORIZED PATHWAY SIGNAGE

DETAIL - 11C

NOT TO SCALE

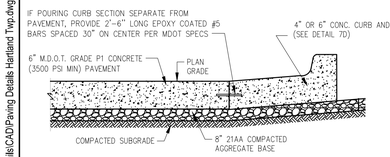


TYPICAL CONCRETE PATHWAY JOINT LAYOUTS

DETAIL - 11D

NOT TO SCALE

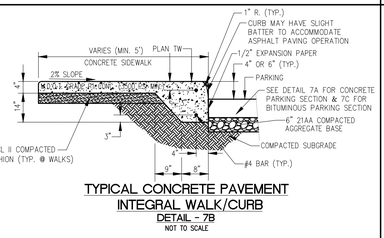
TYPICAL NON-MOTORIZED PATHWAY DETAILS - 11



MINIMUM CONCRETE PARKING SECTION

DETAIL - 7A

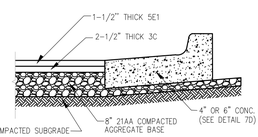
NOT TO SCALE



TYPICAL CONCRETE PAVEMENT INTEGRAL WALK/CURB

DETAIL - 7B

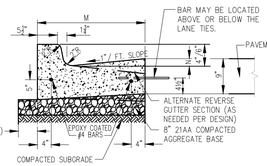
NOT TO SCALE



MINIMUM BITUMINOUS PARKING SECTION

DETAIL - 7C

NOT TO SCALE



DIMENSIONS		LANE TIES	CONCRETE CU. YD. / LIN. FT.
M	N		
1'-6"	7"	AS SHOWN	0.0484
1'-6"	7"	OMITTED	0.0484
2'-0"	1'-2"	AS SHOWN	0.0610
2'-0"	1'-2"	OMITTED	0.0610

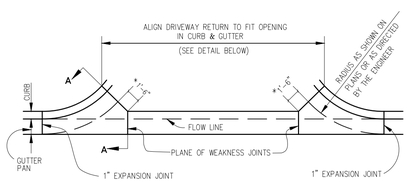
(FOR RESIDENTIAL, COMMERCIAL & INDUSTRIAL PARKING AREAS)

6"/4" CONCRETE CURB & GUTTER

DETAIL - 7D

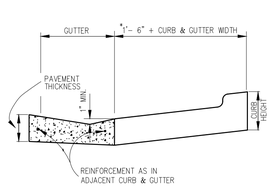
NOT TO SCALE

TYPICAL PARKING AREA PAVEMENT & CURB DETAILS - 7



PLAN VIEW

* TO FRONT EDGE OF GUTTER PAN OR FACE OF INTEGRAL CURB



SECTION A – A

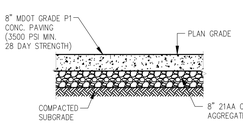
CONCRETE DRIVEWAY OPENING

M.D.O.T. DETAIL "M"

STANDARD PLAN R-29-D

DETAIL - 9A

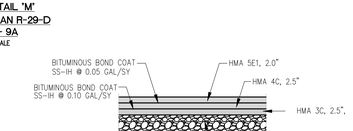
NOT TO SCALE



TYPICAL 8" CONCRETE DRIVEWAY APPROACH PAVEMENT SECTION

DETAIL - 9B

NOT TO SCALE



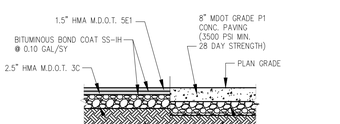
CURRENT MDOT STANDARD SPECIFICATIONS SHALL APPLY ASPHALT BINDER PG 64 – 22

TYPICAL BITUMINOUS DRIVEWAY APPROACH PAVEMENT SECTION

DETAIL - 9C

NOT TO SCALE

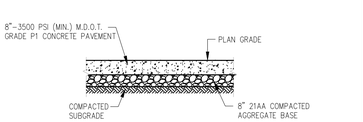
TYPICAL COMMERCIAL/INDUSTRIAL DRIVEWAY APPROACH DETAILS - 9



16' WIDE MAINTENANCE ACCESS DRIVEWAY

DETAIL - 12

NOT TO SCALE



8' CONCRETE DUMPSTER PAD

DETAIL - 8

NOT TO SCALE

NOTE:DUMPSTER PAD SHALL EXTEND MIN. 10' BEYOND DUMPSTER ENCLOSURE OPENING.

SPALDING DEDECKER

Engineers | Planners | Surveyors

HARTLAND TOWNSHIP

PAVING

STANDARD DETAILS

SCALE: H: N.T.S. V: N.T.S.

COUNTY: LIVINGSTON COUNTY

TOWN 03N RANGE 06E

DATE: FEB 2023

REVISIONS:

DATE:

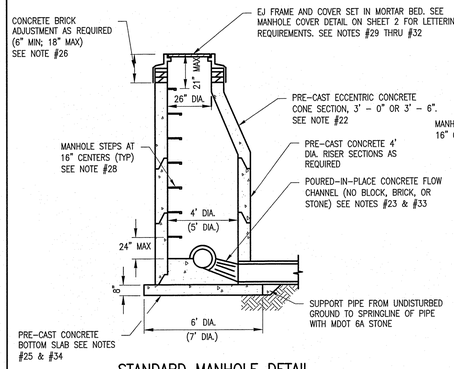
REVISIONS:

DATE:

HARTLAND TOWNSHIP | 2655 CLARK ROAD | HARTLAND, MI 48353 | P: (810) 632 - 7498 | WWW.HARTLANDTWP.COM

SHEET 2 OF 2

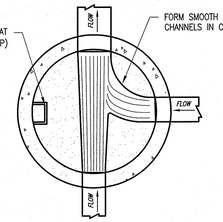
DRAWING PATH: J:\HL\HLGEN\Standards\Standard Detail Sheets\2023 Updated Details\CAD\Paving Details Hartland Twp.dwg Mar 30, 2023 - 9:51am



STANDARD MANHOLE DETAIL

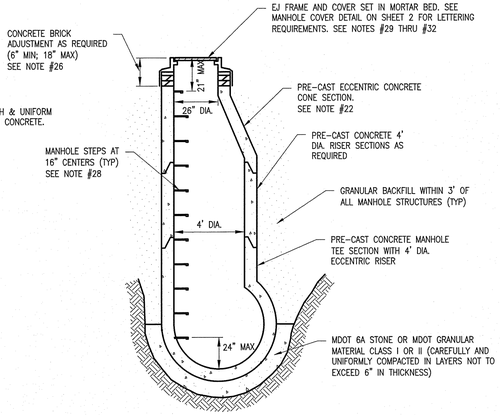
SEE NOTE #21

NOTE:
STRUCTURE DIAMETER SHALL BE AS SHOWN ON APPROVED PLANS AND SHALL BE DETERMINED BY THE DIAMETER AND ANGLES OF THE SEWER. SEE MANHOLE SIZING CHART ON THIS SHEET.



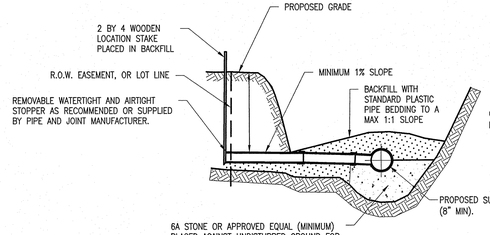
CHANNEL DETAIL

SEE NOTE #33

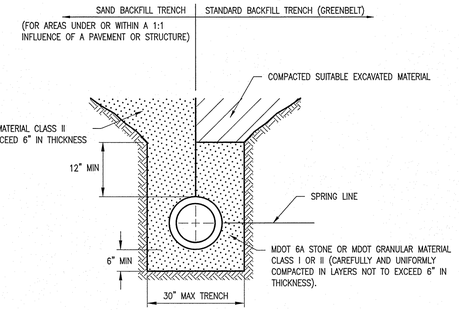


TEE MANHOLE DETAIL

SEE NOTE #21

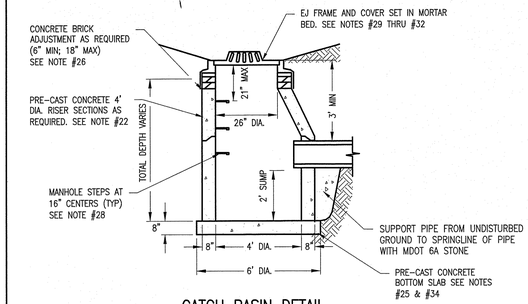


DETAIL FOR 4" DIA. PLASTIC SUMP PUMP LEADS



BEDDING AND TRENCH BACKFILL DETAIL FOR 12" DIAMETER AND SMALLER PVC PIPE

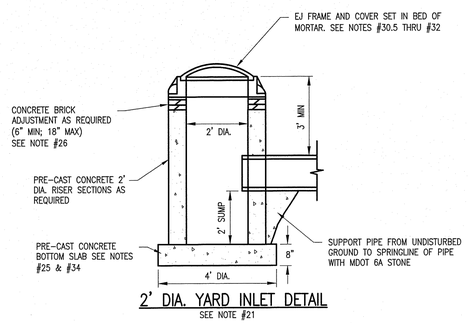
SEE NOTES #17 THRU #20



CATCH BASIN DETAIL

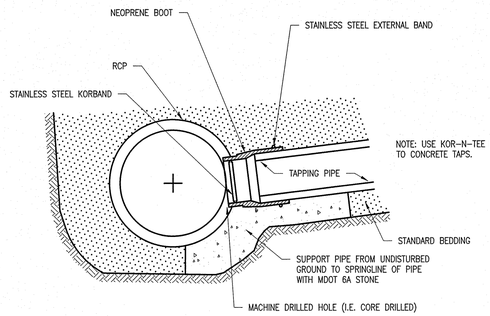
SEE NOTE #21

NOTE:
STRUCTURE DIAMETER SHALL BE AS SHOWN ON APPROVED PLANS AND SHALL BE DETERMINED BY THE DIAMETER AND ANGLES OF THE SEWER. SEE MANHOLE SIZING CHART ON THIS SHEET.

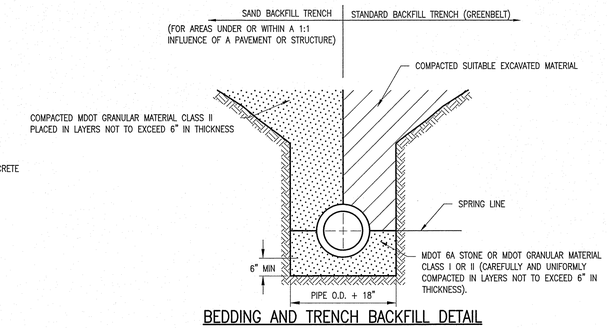


2' DIA. YARD INLET DETAIL

SEE NOTE #21



KOR-N-TEE TAP FOR CONCRETE PIPE



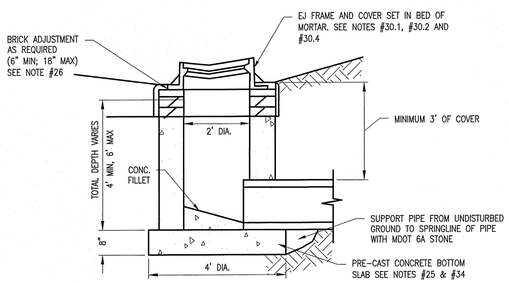
BEDDING AND TRENCH BACKFILL DETAIL FOR 24" DIAMETER AND SMALLER PIPE (CONCRETE AND METAL PIPE)

SEE NOTES #17 THRU #20

INSIDE DIAMETER	MAXIMUM PIPE SIZE FOR STRAIGHT THRU INSTALLATION	MAXIMUM PIPE SIZE FOR RIGHT ANGLE INSTALLATION
4' - 0"	24" 24"	18" 18"
5' - 0"	36" 36"	24" 24"
6' - 0"	42" 42"	36" 36"
8' - 0"	60" 60"	42" 42"

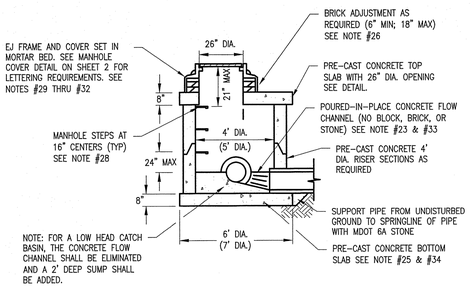
MANHOLE SIZING CHART

SEE NOTES #27



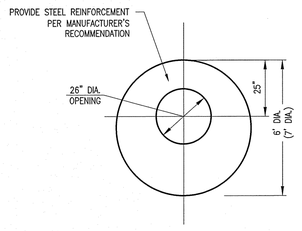
2' DIA. PAVEMENT INLET/STORM SUMP COLLECTION STRUCTURE DETAIL

SEE NOTE #21

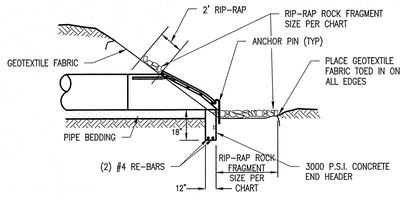


LOW HEAD MANHOLE AND CATCH BASIN DETAIL

SEE NOTE #21



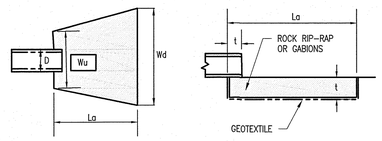
PRECAST CONCRETE TOP SLAB DETAIL, 8" THICK



PROFILE VIEW

END SECTION AND BAR SCREEN DETAIL

NOTES:
A. BAR GRATE SCREEN SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION IS COMPLETE.
B. RIP-RAP MAY NOT CONTAIN ANY BROKEN CONCRETE.

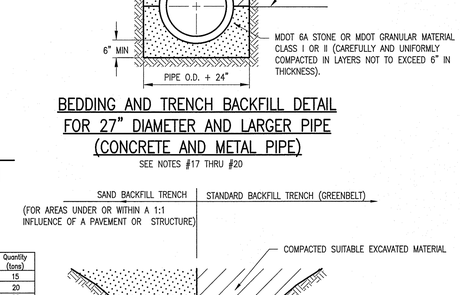


TYPICAL DETAIL FOR ROCK OUTLET PROTECTION BELOW A CULVERT

Culvert Size D, (inches)	Rock Size d_{50} (inches)	Apron Length La, (feet)	Upstream Width Wu, (feet)	Downstream Width Wd, (feet)	Thickness t, (inches)	Quantity (tons)
12	6	12	3	13	18	15
18	9	16	4.5	18	24	20
21	9	18	5	20	24	35
24	9	20	6	22	24	60
30	9	22	7.5	24	24	75
36	12	24	9	27	30	120
42	18	26	10.5	30	36	180
48	18	28	12	32	36	215

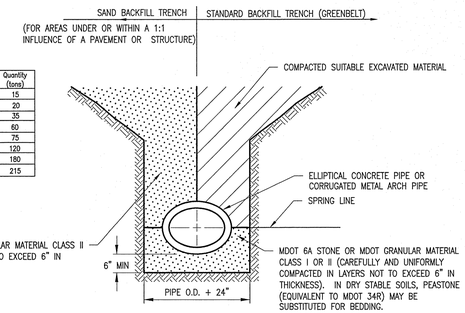
ROCK OUTLET PROTECTION APRON DIMENSIONS

RIP RAP ROCK FRAGMENT SIZE CHART



BEDDING AND TRENCH BACKFILL DETAIL FOR 27" DIAMETER AND LARGER PIPE (CONCRETE AND METAL PIPE)

SEE NOTES #17 THRU #20



BEDDING AND TRENCH BACKFILL DETAIL FOR ELLIPTICAL CONCRETE PIPE OR CORRUGATED METAL ARCH PIPE

SEE NOTES #17 THRU #20

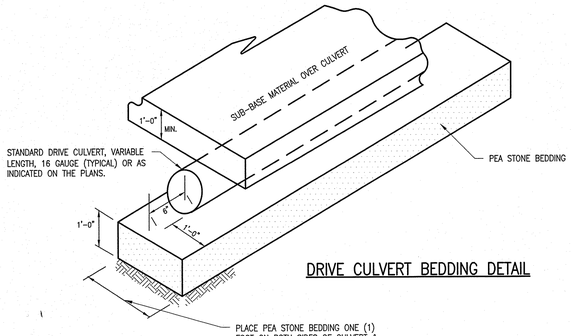
SPALDING DeDECKER
Engineers | Planners | Surveyors

HARTLAND TOWNSHIP
STORM SEWER
STANDARD DETAILS

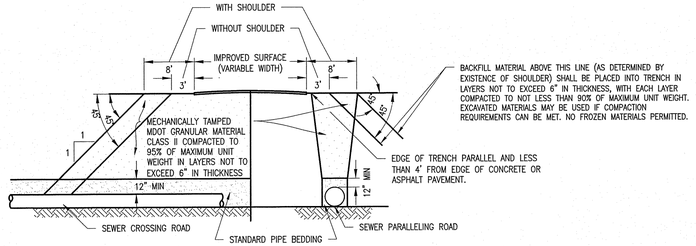
SHEET 1 OF 2

HARTLAND TOWNSHIP | 2655 CLARK ROAD | HARTLAND, MI 48353 | P (810) 632 - 7498 | WWW.HARTLANDTWP.COM
DATE:
REVISIONS:
SCALE V: N.T.S. H: N.T.S.
REVISIONS:
COUNTY LIVINGSTON COUNTY
DATE:
RANGE 06E
TOWN 02N
DATE FEB 2023
REVISIONS:

DRAWING PATH: J:\HL\HL\GEN\Standards\Standard Detail Sheets\2023 Updated Details\CAD\Storm Details Hartland Twp.dwg Feb 14, 2023 - 12:41pm

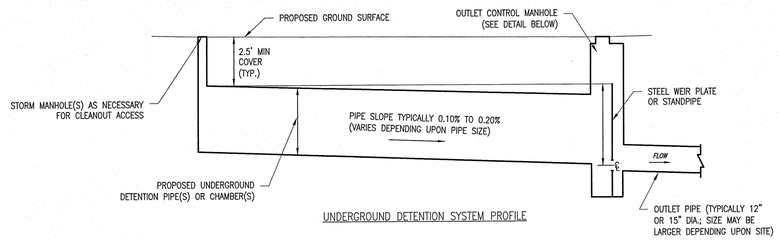


DRIVE CULVERT BEDDING DETAIL

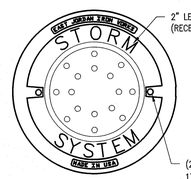


SAND OR GRAVEL BACKFILL DETAILS FOR SEWERS UNDER GRAVEL, CONCRETE OR ASPHALT PAVEMENTS, SIDEWALKS, DRIVEWAYS AND PARKING AREAS

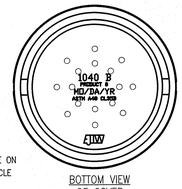
SEE NOTE #17 & #18



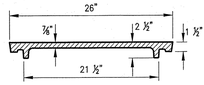
UNDERGROUND DETENTION SYSTEM PROFILE



TOP VIEW OF COVER



BOTTOM VIEW OF COVER



COVER SECTION

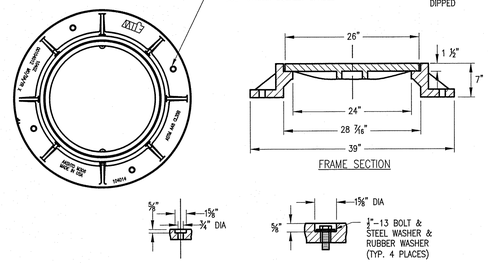
CATALOG NO. 1040B

EST. WT. COVER: 150 LBS

MAT'L SPEC. COVER – GRAY IRON ASTM A48 CL35B

LOAD RATING HEAVY DUTY

COATING DIPPED



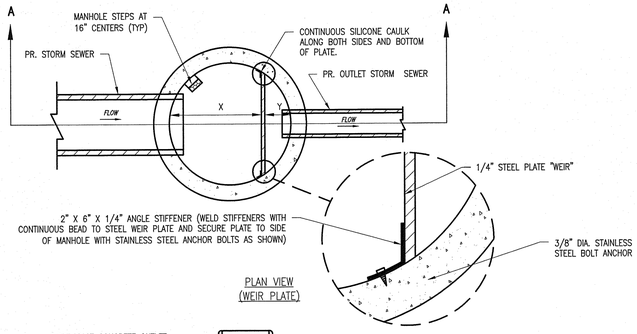
FRAME SECTION

BOLTHOLE DETAIL

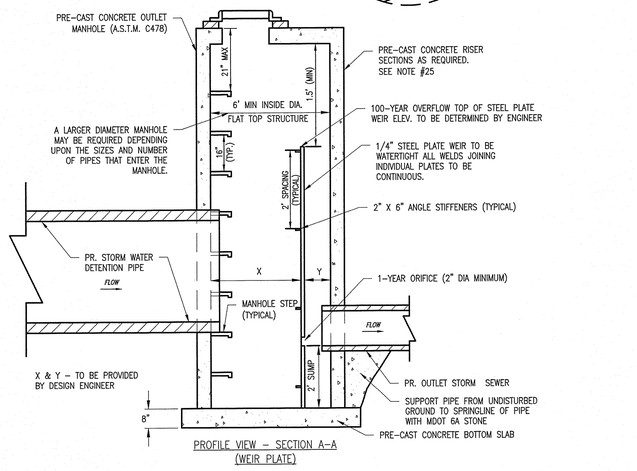
BOLT DETAIL

CAST IRON MANHOLE COVER

SEE NOTE #29



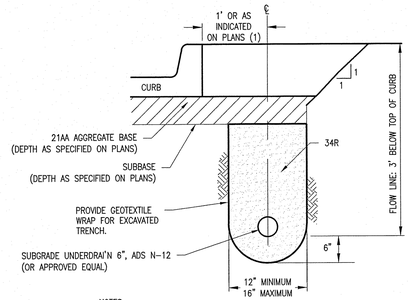
PLAN VIEW (WEIR PLATE)



PROFILE VIEW – SECTION A–A (WEIR PLATE)

TYPICAL UNDERGROUND DETENTION AND OUTLET MANHOLE DETAILS

SEE NOTE #21



NOTES:
A. LOCATION MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
B. ALL UNDERDRAIN SHALL BE APPROVED PLASTIC PIPE PER MDOT SECTION 909.07. METAL PIPE SHALL NOT BE USED.
C. ALL UNDERDRAIN SHALL OUTLET TO DRAINAGE STRUCTURE.
D. UNDERDRAIN CONNECTIONS (AT LOW POINTS) SHALL BE MADE AS CLOSE TO THE STRUCTURE INVERT AS PRACTICAL.

SUBGRADE UNDERDRAIN, 6"

STORM SEWER CONSTRUCTION NOTES

GENERAL NOTES:

1. All materials and workmanship shall be in accordance with the standards and specifications of the Hartland Township.
2. No storm sewer is to be installed without the Township's inspector present.
3. Three (3) working days prior to construction, the Contractor shall telephone MISS DIG (811 or 1-800-482-7171) for underground facilities locations and shall also notify representative of other utilities located in the vicinity of the work.
4. Trenches that are to be left open overnight shall be enclosed with suitable fencing and lighted barricades.
5. The materials specified below may be subsituted with an approved equal as determined by the Township. It is ot the sole discretion of the Township to determine if a material is acceptable and can be utilized. Written authorization must be obtained prior to ordering or installing the approved equal.

STORM SEWER NOTES:

6. Type and class of pipe shall be as specified on plans.

Concrete Pipe Requirements

7. All round reinforced concrete pipe (RCP) shall meet the requirements of ASTM C76 with modified tongue and groove joints with rubber gaskets manufactured to meet the requirements of ASTM C443. Catch basin sewers shall be Class IV RCP.
8. The inside joint of pipe over 36" diameter shall be pointed with mortar upon completion of backfilling operations.
9. All elliptical reinforced concrete pipe shall meet the requirements of ASTM C507 with tongue and groove joints with bituminous (DeWitt #10) joint material meeting the requirements of C443. Elliptical concrete pipe joints shall also be wrapped per ASTM C877. In addition, elliptical concrete pipe of 42" equivalent size and larger shall require inside concrete pointing.

Plastic Pipe Requirements

10. Per Township standards, the maximum allowable pipe size for plastic storm sewer is 12" diameter. Larger diameter plastic storm sewer may be approved by the Township, depending on site conditions.
11. All plastic storm sewer pipe shall have a smooth interior.
12. PVC pipe shall meet the requirements of ASTM D3034 and F949 with push-on type joints meeting the requirements of ASTM D3212 and F477.
13. HDPE pipe shall meet the requirements of AASHTO M294 and ASTM D3350 with push-on type joints meeting the requirements of ASTM D3212 and F477. ADS pipe shall meet the requirements of AASHTO M294 and ASTM F2306 with joints meeting the requirements of AASHTO M252, M294, or F2306.
14. Plastic pipe will not be permitted in the right-of-way.

Bedding Requirements

15. Bedding shall be used as called for on the details.
16. Where unstable ground conditions are encountered, stone bedding shall be used as directed by the Engineer in order to provide a stable foundation for pipe and manholes.

Backfill Requirements

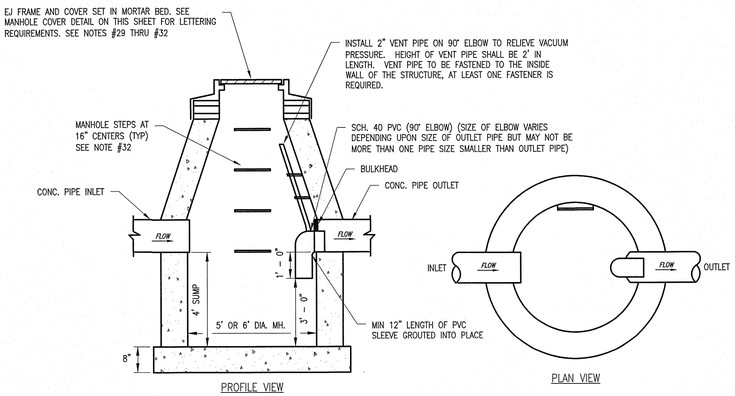
17. Backfill shall be compacted above pipe or as indicated on construction drawings. Trench backfill shall be of a suitable material and shall be free of any organic materials and rocks larger than 3" in size. Backfill shall be ramped into trench and compacted with a small dozer or other approved method.
18. Where trench is within a 1:1 influence of streets, alleys, sidewalks, driveways, parking areas and structures, sand backfill shall be used which shall consist of MDOT granular material Class II compacted in layers not to exceed 6" in thickness to a density of 95% as determined by AASHTO T99.
19. When backfilling trench of PVC or HDPE pipe, manufacturer's specifications must be strictly adhered to.
20. No frozen material shall be buried more than 4' below the final elevation of the ground.

DRAINAGE STRUCTURE REQUIREMENTS:

21. Shop drawings shall be submitted to and approved by the Township's Consultant for each proposed structure prior to installation.
22. Precast reinforced concrete sections with modified tongue and groove joint and rubber gaskets shall conform to ASTM C-478. Cone section shall be eccentric and have stud inserts cast in place with a flush top surface.
23. Pipe shall be flush with the inside wall of structure and shall not protrude more than 4" into the structure. Pipe shall be pointed up inside and outside with a smooth finish at its intersection with the structure wall.
24. No openings shall be made in precast units which would leave less than 6" of undisturbed precast structure wall between pipes (as measured between outside pipe walls) or would remove more than 40% of the circumference along any horizontal plane.
25. Precast riser placed on the concrete base shall be set in a full bed of mortar. All joints & liftholes shall be pointed up with mortar on the outside and inside.
26. Plaster all outside masonry surfaces with 1:2½ masonry cement (type II) 1/2" thick.
27. All manholes and catch basins shall be 4' or 5' in diameter unless otherwise indicated on construction drawings. Larger diameter drainage structures (6', 7', 8', 10', and 12' diameter) may be needed for large storm sewer pipe or for situations where the angles between entering pipes require a larger diameter structure in order to maintain at least 6" of structure wall between the pipes. 2' diameter catch basins and inlets may be used where approved by the Township Engineer.
28. Structure steps are to be installed at the plant by the manufacturer of the structure. The steps are to be 16 inches on center located 90° from the centerline of the main sewer line. The steps shall be made of No. 4 deformed steel rod encased with copolymer polypropylene plastic and meet the requirements of ASTM D4101, Type II, Grade 49108 or approved equal.
29. Manhole frame and cover shall be EJ 1040, type "B" 16 Hole Cover or as per construction drawings. Lettering shall be per detail this sheet.
30. Catch Basin and Inlet frame and cover shall be:
    - 30.1. EJ 7045, type "M1" cover and type "T1" back set (with "Dump No Waste" logo) with straight face curb and gutter.
    - 30.2. EJ 7065, type "M1" cover and 7060 "T1" back set (with "Dump No Waste" Logo) with mountable curb and gutter and integral curb and gutter.
    - 30.3. EJ 1040, type "02" cover (beehive grate) to be used on structures located in ditches, swales and rear yard catch basins. If within 8' of road, type "N" cover (oval grate) shall be used. If 1040 casting is used in pavement, Type M1 grate must be provided.
    - 30.4. EJ 1030, type "A" solid cover to be used on all 2' cleanouts and structures not located ot storm water collection points. EJ 1060, type "A" solid cover may also be used on sump pump cleanout structures.
    - 30.5. EJ 1030, type "01" cover (beehive grate) to be used on all 2' structures located in ditches, swales and rear yard catch basins.
31. The Township reserves the right to require a change in structure covers upon final grade and walk-through inspection if deemed necessary due to site conditions.
32. Frames shall be set in full bed of mortar and the side shall be overlapped to prevent leakage.
33. A proper channel shall be constructed within the existing manhole or other structure ot which the connection is to be made to direct the flow to the existing outlet in a manner that will tend to create the least amount of turbulence. The channel shall be constructed to the same size as the inside diameter of the existing pipes, and shall be built to height of 1/3 the existing pipe diameter with a minimum of 2% slope on the benches.
34. Concrete base for manhole, catch basin, and inlet shall be MDOT grade 30P, 8" thick, 3000 psi.
35. When tapping into an existing structure a brick collar shall be placed 12" thick around the pipe and extended 12" beyond the opening. If pre-cast section is topped, bend mesh and use as reinforcement with brick collar. Tape through structure joints or cone sections are prohibited unless approved by the Township.
36. The final accessible structure prior to discharge into a forebay or detention basin shall contain a permanent 4' deep sump.
37. A 4' diameter Oil/Gas Separator Structure shall be installed prior to discharge into a forebay, detention basin or open drainage course as directed by the Township.

SUMP PUMP LEAD REQUIREMENTS:

38. All sump pump leads connected to a drain shall be pre-manufactured.
39. Sump pump leads shall be (1) PVC Sch. 40 (2) PVC Truss Pipe, or (3) approved equal, with premium joints.
40. Sump collection system pipes shall be connected at drainage structures and shall be cored or precast. Taps to 12" storm sewer may be made with a Fernco EZ Tap or approved equal. Taps to other size storm sewer may be made with a Romac saddle, KOR-N-TEE lateral connector for concrete pipe, or approved equal.
41. Ends of all 4" sump pump leads shall be temporarily capped and their location staked, witnessed and recorded.
42. All sump pump leads are to be taken to the property line, easement line or as indicated on the plan.
43. Sump pump cleanouts shall be a minimum inside diameter of 2' and be constructed at changes of alignment ends of sump pump mains or as indicated on approved plans.



PROFILE VIEW

PLAN VIEW

OIL/GAS SEPARATOR DETAIL FOR 18" DIAMETER AND SMALLER OUTLET PIPE

(FOR OUTLET PIPES LARGER THAN 18" IN DIAMETER AN ALTERNATE DESIGN MUST BE APPROVED BY THE TOWNSHIP ENGINEER)
SEE NOTE #37

SPALDING DeDECKER
Engineers | Planners | Surveyors

HARTLAND TOWNSHIP | 2655 CLARK ROAD | HARTLAND, MI 48353 | P (810) 632 - 7498 | WWW.HARTLANDTWP.COM

SCALE H: N.T.S. V: N.T.S. | DATE: | REVISIONS:

COUNTY LIVINGSTON COUNTY | DATE: | REVISIONS:

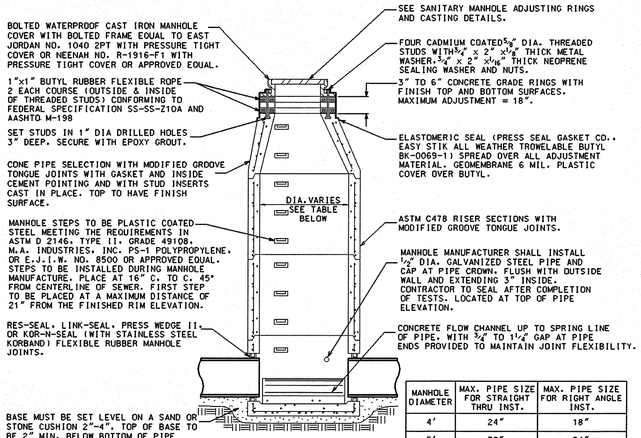
TOWN 03N | RANGE 06E

DATE FEB 2023 | REVISIONS:

HARTLAND TOWNSHIP STORM SEWER STANDARD DETAILS

SHEET 2 OF 2

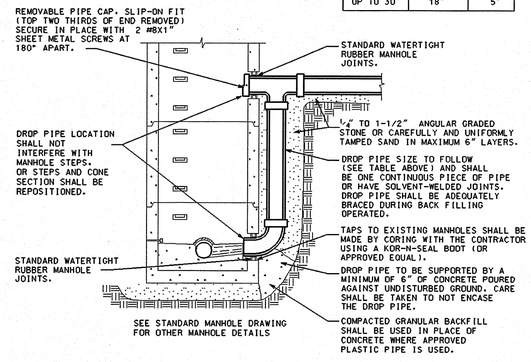
DRAWING PATH: J:\HL\HLGEN\Standards\Standard Detail Sheets\2023 Updated Details\CAD\Storm Details Hartland Twp.dwg Feb 14, 2023 - 12:41pm



MANHOLE DIAMETER	MAX. PIPE SIZE FOR STRAIGHT THRU INST.	MAX. PIPE SIZE FOR RIGHT ANGLE INST.
4'	24"	18"
5'	36"	24"
6'	42"	36"
7'	60"	42"

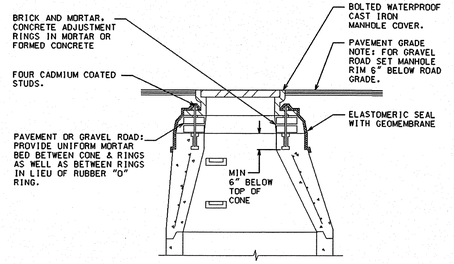
STANDARD MANHOLE

SEWER SIZE	DROP SIZE	MH DIA.
UP TO 10"	8"	4'
UP TO 18"	10"	4'
UP TO 30"	18"	5'

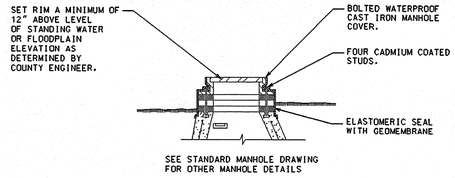


EXTERIOR DROP CONNECTION

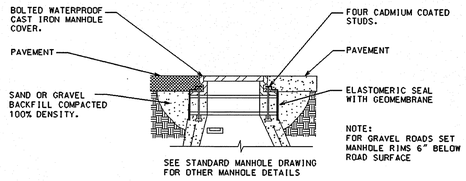
EX. 4' DIA. MH WITH SEWER LESS THAN 20' DEEP



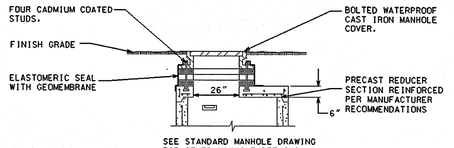
SANITARY MANHOLE ADJUSTING RINGS & CASTING DETAIL



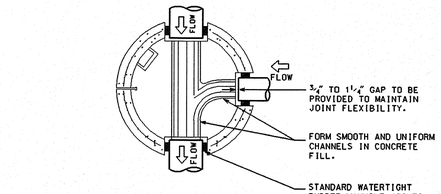
MANHOLE TOPS WITHIN FLOOD PRONE AREAS

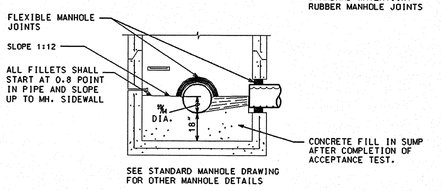


MANHOLE TOPS WITHIN PAVEMENT AREAS



FLAT TOP MANHOLE



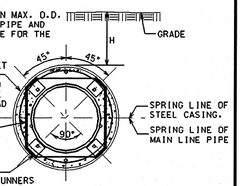


SUMP MANHOLE FOR TESTING, CLEANING AND DEWATERING

SANITARY SEWER CONSTRUCTION NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE LIVINGSTON COUNTY DRAIN COMMISSIONER (LCDC). ALL SANITARY SEWER CONSTRUCTION SHALL HAVE FULL-TIME INSPECTION SUPERVISED BY A PROFESSIONAL ENGINEER PROVIDED BY, OR CAUSED TO BE PROVIDED BY LCDC.
2. AT ALL CONNECTIONS AND BEFORE THE START OF CONSTRUCTION, THE CONTRACTOR MUST OBTAIN THE REQUIRED LCDC SEWER INSPECTION PERMITS. THE CONTRACTOR SHALL NOTIFY THE COUNTY 48 HOURS PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. FINAL ACCEPTANCE TESTS MUST BE WITNESSED BY COUNTY PERSONNEL AND MUST BE SCHEDULED IN ADVANCE.
3. NO SEWER INSTALLATION SHALL HAVE AN INFILTRATION EXCEEDING 250 GALLONS PER INCH DIAMETER PER MILE OF PIPE IN A 24-HOUR PERIOD, AND NO SINGLE RUN OF SEWER BETWEEN MANHOLES SHALL EXCEED 250 GALLONS PER INCH DIAMETER PER MILE. AIR TESTS IN LIEU OF INFILTRATION TESTS SHALL BE AS SPECIFIED IN THE LCDC STANDARDS. ONLY PIPE AND PIPE JOINTS APPROVED BY THE COUNTY MAY BE USED FOR SANITARY SEWER CONSTRUCTION.
4. AT ALL CONNECTIONS TO AN EXISTING SEWER, OR EXTENSION THERETO, A WATERTIGHT BULKHEAD WITH A CAPPED ONE INCH DIAMETER PIPE TO PERMIT MEASURING INFILTRATION SHALL BE PROVIDED. A TEMPORARY 18 INCH DEEP SUMP SHALL ALSO BE PROVIDED IN THE FIRST MANHOLE ABOVE THE CONNECTION ON WHICH WILL BE FILLED IN AFTER SUCCESSFUL COMPLETION OF ANY ACCEPTANCE TEST UP TO THE STANDARD FILLET PROVIDED FOR THE FLOW CHANNEL.
5. APPROVED BUILDING LEAD PIPE FOR GRAVITY SEWER LEADS:
   a. ABS PLASTIC. ASTM D2751. SDR 23.5.
   b. PVC PLASTIC. ASTM D3034. SDR 23.5 OR ASTM D2665. SCHEDULE 40.
   c. DUCTILE IRON PIPE. AMERICAN WATER WORKS ASSOCIATION (AWWA) C-104/A21.4. CLASS 54. JOINTS SHALL BE SUPER BEL TITE, TYTON, TY-SEAL, MULTI-TITE, DUAL TITE, OR VERI-TITE.
   d. ANY DEVIATIONS FROM SPECIFIED ABOVE REQUIRE APPROVAL BY LDCD.
6. ALL RIGID SEWER PIPE SHALL BE INSTALLED IN CLASS "B" BEDDING OR BETTER.
7. ALL NEW MANHOLES SHALL BE LCDC APPROVED. FLEXIBLE, WATERTIGHT SEALS WHERE PIPES PASS THROUGH WALLS. MANHOLES SHALL BE OF PRECAST SECTIONS WITH MODIFIED GROOVE TONGUE AND RUBBER GASKET TYPE JOINTS. PRECAST MANHOLE CONE SECTIONS SHALL BE LCDC APPROVED MODIFIED ECCENTRIC CONE TYPE. ALL MANHOLES SHALL BE PROVIDED WITH BOLTED, WATERTIGHT COVERS, AS INDICATED.
8. AT ALL CONNECTIONS TO MANHOLES, EXTERNAL DROP CONNECTIONS WILL BE REQUIRED WHEN THE DIFFERENCE IN INVERT ELEVATIONS EXCEEDS 18 INCHES. INTERNAL DROPS REQUIRE SPECIAL APPROVAL FROM THE LCDC.
9. TAPS TO EXISTING MANHOLES SHALL BE MADE BY CORING. THE CONTRACTOR SHALL PLACE A KOR-N-SEAL BOOT OR APPROVED EQUAL AFTER CORING IS COMPLETE.
10. NEW MANHOLES CONSTRUCTED DIRECTLY ON LCDC SEWERS SHALL BE PROVIDED WITH COVERS READING LIVINGSTON COUNTY SANITARY IN RAISED LETTERS. NEW MANHOLES BUILT OVER AN EXISTING SANITARY SEWER SHALL HAVE MONOLITHIC POURED BOTTOMS.
11. NO GROUND WATER, STORM WATER, CONSTRUCTION WATER, DOWNSPOUT DRAINAGE, OR WEEP TILE DRAINAGE SHALL BE ALLOWED TO ENTER ANY SANITARY SEWER.
12. PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL TELEPHONE MISS DIG (800-482-7171) FOR THE LOCATION OF UNDERGROUND PIPELINE AND CABLE FACILITIES AND SHALL ALSO NOTIFY REPRESENTATIVES OF OTHER UTILITIES LOCATED IN THE VICINITY OF THE WORK.
13. AN 18 INCH MINIMUM VERTICAL SEPARATION AND 10 FOOT MINIMUM HORIZONTAL SEPARATION MUST BE MAINTAINED BETWEEN SANITARY SEWER AND WATER MAIN.

NOTE:
3" MINIMUM CLEARANCE BETWEEN MAX. O.D. AT A JOINT OF THE PROPOSED PIPE AND THE I. D. OF THE CASING PIPE FOR THE TOP 90° OF THE BORE.



STEEL PIPE CASING SHALL MEET THE REQUIREMENTS OF THE A.S.T.M. DESIGNATION A-139 GRADE "B" MATERIAL. PROVIDE 8" BRICK (OR EQUAL) BULKHEAD AT BOTH ENDS.
1 1/8"-12 GAGE DOUBLE GALVANIZED STRAP. 4-EACH PIPE.
4- (MIN.) PREMANUFACTURED SPACERS WITH POLYETHYLENE RUNNERS (NUMBER AND LOCATION OF SPACERS AS RECOMMENDED BY MANUFACTURER)

NOTE:
ALL VOIDS BETWEEN THE SEWER PIPE AND THE CASING PIPE SHALL BE CONCRETE GROUTED MATERIAL OR ALTERNATE MATERIAL AS APPROVED BY THE COUNTY ENGINEER.

ALLOWABLE HEIGHT OF COVER (H.) IN FT. , FOR STEEL CASING										
WALL THICKNESS (IN.)		STEEL CASING OUTSIDE DIAMETER (IN.)								
FRACT.	DEC.	12	14	16	18	20	24	28	30	36	42
3/16	.1875	39	30	24	21	19	17	16			
1/4	.250	50	50	39	31	27	21	19	18	16	
5/16	.3125			50	48	39	28	23	21	18	17
3/8	.375				50	50	39	29	27	22	19
7/16	.4375						50	39	34	26	21
1/2	.500							50	44	31	25
9/16	.5625								50	39	30
5/8	.625									48	35

TYPICAL TUNNEL CASING DETAIL

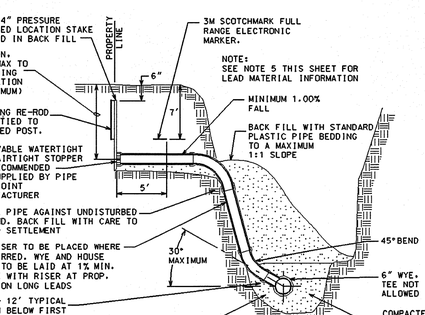
NOTE:
1. FOR 36" SEWER PROVIDE A MIN. OF 60" DIA. CASING WITH 1" WALL THICKNESS.
2. CASING PIPE JOINTS TO BE FULLY WELDED AROUND THE CIRCUMFERENCE BY A CERTIFIED WELDER.

TYPICAL SEWER TUNNEL CASING DETAIL

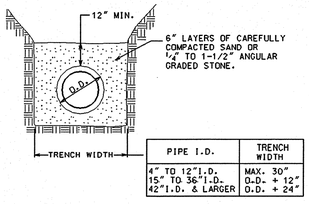
SEWER SIZE	DROP SIZE	MH DIA.
UP TO 10"	8"	5'
UP TO 18"	10"	5'
UP TO 30"	18"	5'

INTERIOR DROP CONNECTION

(LCDC APPROVAL REQUIRED)

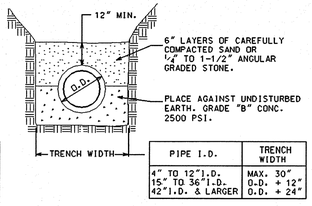


HOUSE LEAD DETAIL



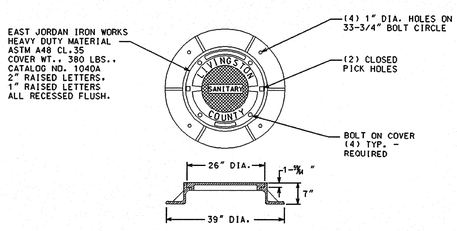
PIPE I.D.	TRENCH WIDTH
4" TO 12"I.D. 15" TO 36"I.D. 42"I.D. & LARGER	MAX. 30" O.D. + 12" O.D. + 24"

STANDARD BEDDING

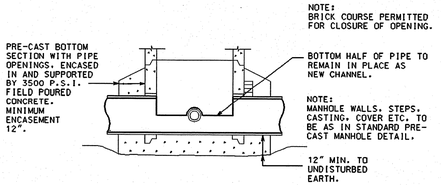


PIPE I.D.	TRENCH WIDTH
4" TO 12"I.D. 15" TO 36"I.D. 42"I.D. & LARGER	MAX. 30" O.D. + 12" O.D. + 24"

CONCRETE CRADLE



L.C.D.C. LETTERED MANHOLE COVER



STANDARD MANHOLE BOTTOM OVER EXIST. SEWER

BRIAN JONCKHEERE
DRAIN COMMISSIONER

HRC
Hubbell, Roth & Clark, Inc.
CONSULTING ENGINEERS
3299 E.GRAND RIVER AVE. SUITE 102
HOWELL, MICHIGAN 48843-7555
PHONE: (517) 546-8300
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DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	M. DARGA
DRAWN	T. WILFONG
CHECKED	J. BOOTH
APPROVED	G. HUBBELL

fn:\20030\20030647\C\sanplot.dgn

LIVINGSTON COUNTY DRAIN COMMISSIONER OFFICE

LIVINGSTON COUNTY MICHIGAN

SANITARY SEWER DETAILS AND NOTES

HRC JOB NO.	SCALE
20030647	N.T.S.
DATE	SHEET NO.
NOVEMBER 2003	1 OF 1

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NOTES

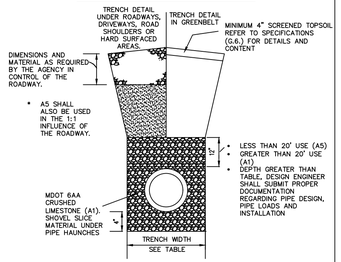
1. PLACE AGGREGATE MATERIAL ON THE COMPACTED SAND BACKFILL (A5) FOR ALL DRIVES, ROAD SHOULDERS, PARKING LOTS OR OTHER HARD SURFACED AREAS PER THE APPROVED PLANS.

2. THE CONTRACTOR SHALL COMPACT THE SAND BACKFILL (A5) TO 95% OF THE MATERIAL UNIT WEIGHT BY MODIFIED PROCTOR ACROSS ALL ROADWAYS AND DRIVES PER THE SCHEDULE OF BACKFILLING IN THE SANITARY SEWER SPECIFICATIONS. THIS INCLUDES SERVICE LEADS, UNLESS BORED. THE CONTRACTOR SHALL DO THE TESTING WITH THE RESULTS SUBMITTED TO GCDC-WWS PRIOR TO FINAL TESTING.

3. STONE BEDDING (A1) IS REQUIRED IN ALL AREAS OF DEWATERING.

SEE GCDC-WWS SPECIFICATIONS FOR TRENCHES

DIAMETER	MAX. TRENCH WIDTH
8"–15"	30"
15"–18"	36"
> 21"	DESIGN ENGINEER MUST SUBMIT TRENCH WIDTH FOR REVIEW AND APPROVAL



SD–1
BEDDING & TRENCH DETAILS

2020 SANITARY

NOTES

1. PLACE AGGREGATE MATERIAL ON THE COMPACTED SAND BACKFILL (A5) FOR ALL DRIVES, ROAD SHOULDERS, PARKING LOTS OR OTHER HARD SURFACED AREAS PER THE APPROVED PLANS.

2. THE CONTRACTOR SHALL COMPACT THE SAND BACKFILL (A5) TO 95% OF THE MATERIAL UNIT WEIGHT BY MODIFIED PROCTOR ACROSS ALL ROADWAYS AND DRIVES PER THE SCHEDULE OF BACKFILLING IN THE SANITARY SEWER SPECIFICATIONS. THIS INCLUDES SERVICE LEADS, UNLESS BORED. THE CONTRACTOR SHALL DO THE TESTING WITH THE RESULTS SUBMITTED TO GCDC-WWS PRIOR TO FINAL TESTING.

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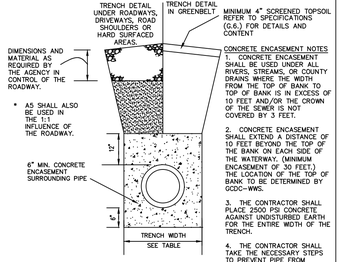


CONCRETE ENCASEMENT NOTES

1. CONCRETE ENCASEMENT SHALL BE USED UNDER ALL RIVERS, STREAMS, OR COUNTY DRAINS WHERE THE WIDTH FROM THE TOP OF BANK TO TOP OF BANK IS IN EXCESS OF 10 FEET AND/OR THE CROWN OF THE SEWER IS NOT COVERED BY 3 FEET.

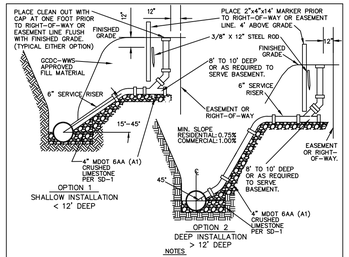
2. CONCRETE ENCASEMENT SHALL EXTEND A DISTANCE OF 10 FEET BEYOND THE TOP OF THE BANK ON EACH SIDE OF THE WATERWAY. (MINIMUM ENCASEMENT OF 30 FEET.) THE LOCATION OF THE TOP OF BANK TO BE DETERMINED BY GCDC-WWS.

3. THE CONTRACTOR SHALL PLACE 2500 PSI CONCRETE AGAINST UNDISTURBED EARTH FOR THE ENTIRE WIDTH OF THE TRENCH.

4. THE CONTRACTOR SHALL TAKE THE NECESSARY STEPS TO PREVENT PIPE FROM FLOATING.

SD–2
PROTECTION OF SANITARY SEWERS BY CONCRETE ENCASEMENT OF CRADLE

2020 SANITARY



NOTES

1. THE ENGINEER & CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING CURRENT LOT SPLITS AND ENSURING THAT ALL LOTS ON BOTH SIDES OF THE ROAD ARE SERVICED WITH SANITARY SEWER TO THEIR RESPECTIVE RIGHT-OF-WAY LINE OR EASEMENT LINE.

2. SERVICE RISERS SHALL BE 6" PVC WITH A MINIMUM SDR OF 26, OR OTHER AS REQUIRED FOR DEPTH. ONLY WYE CONNECTIONS TO THE MAINLINE SEWER ARE ACCEPTABLE.

3. THE LOCATION OF ALL SERVICE RISERS SHALL BE MARKED WITH A 2"x4"x14" MARKER, WITH A ⅜" X 12" STEEL ROD PLACED 1' BELOW THE SURFACE, ALONG WITH WITNESS POINTS SUPPLIED TO GCDC-WWS. THE 2"x4"x14" MARKER SHALL EXTEND FROM THE INVERT OF THE LEAD TO A MINIMUM OF 4' ABOVE FINISH GRADE. THE SERVICE RISER SHALL TERMINATE WITHIN 1' OF THE EASEMENT OR RIGHT-OF-WAY LINE WITH AN APPROPRIATE PLUG. SERVICE RISERS WITHIN EASEMENTS SHALL BE EXTENDED A MINIMUM OF ONE PIPE LENGTH FROM THE MAIN LINE SEWER OR TO THE EDGE OF THE RIGHT-OF-WAY OR EASEMENT, WHICHEVER IS LONGER.

4. SERVICE RISERS MEASUREMENT IS HORIZONTAL ALONG THE CENTERLINE OF THE LEAD AS CONSTRUCTED FROM THE MAIN TO THE PLUG. PAYMENT SHALL BE MEASURED HORIZONTAL, NOT VERTICAL.

5. THERE SHALL BE NO 90° BENDS ALLOWED IN THE SERVICE RISERS.

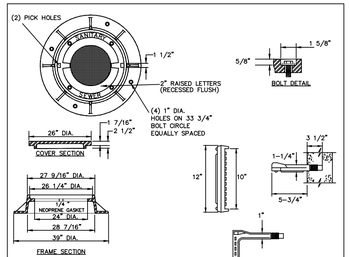
6. CLEAN OUTS ARE REQUIRED EVERY 90 FEET OR AT BENDS.

7. FOR NEW DEVELOPMENTS, PLACE A 2"x4"x14" MARKER AT THE END OF THE LEAD. THE CLEAN OUTS SHALL BE INSTALLED AT THE TIME THE SERVICE LEAD IS EXTENDED TO THE HOUSE.

8. EXISTING HOUSES SHALL BE PROVIDED WITH CLEAN-OUTS.

SD–3
RISER AND SERVICE LEAD

2020 SANITARY



MANHOLE FRAME NOTES

1. THE FRAME SHALL HAVE FOUR 7/8" ANCHOR BASE FLANGE HOLES WITH BOLT CIRCLE TO MATCH MANHOLE CONE.

2. ALL BEARING SURFACES SHALL BE MACHINED.

3. FRAMES AND COVERS SHALL BE BOLT DOWN WATER TIGHT: EAST JORDAN IRON WORKS, INC. #1040 ZFT TYPE A SOLID, NEENAH FOUNDRY CO. #R–1916–F, OR A GCDC–WWS APPROVED ALTERNATE.

4. THE WORD "SANITARY SEWER" SHALL BE CAST IN THE CENTER OF THE COVER.

5. THE COVER SHALL BE BOLTED TO THE FRAME WITH FOUR 1/2"–13 NC HEX HEAD STAINLESS STEEL BOLTS AND WASHERS WITH RUBBER GASKETS

MANHOLE STEP NOTES

1. MANHOLE STEPS SHALL BE CAST INTEGRALLY WITH PRECAST MANHOLE.

2. STEPS SHALL BE COPOLYMER POLYPROPYLENE PLASTIC WITH 1/2" STEEL REINFORCEMENT.

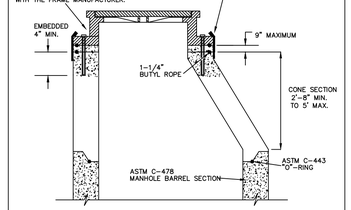
3. STEPS SHALL BE M.A. INDUSTRIES PS–1–PF, AMERICAN STEP CO. MI.–10, OR A GCDC–WWS APPROVED ALTERNATE.

SD–4
MANHOLE FRAME, COVER & STEP

2020 SANITARY

4 STAINLESS STEEL ANCHORS SHALL BE EMBEDDED INTO THE CONE SECTION. 4 CHROMITE COATED, THREADED 5/8" RODS WITH WASHERS SHALL BE PLACED INTO THE ANCHORS. FIELD CUT THE RODS TO THE PROPER LENGTH (1/2" MAX). THE BOLT CIRCLE AND LOCATION OF THE EMBEDDED RODS AND ANCHORS SHALL BE COORDINATED WITH THE FRAME MANUFACTURER.

ELASTOMETRIC SEAL COMPLETELY SEAL AROUND THE JOINTS OF THE MANHOLE CASTING, THE ADJUSTING RINGS, AND THE MANHOLE BY INSTALLING WRAPID SEAL ON THE EXTERIOR OR A GCDC–WWS APPROVED ALTERNATE.



NOTES

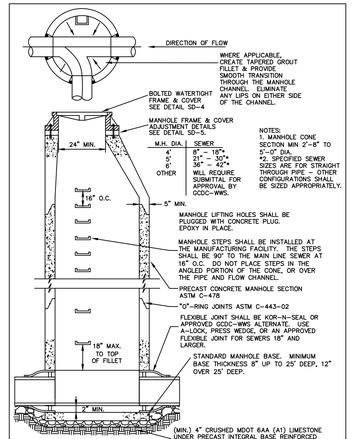
1. DURING THE FINAL INSPECTION, FINAL ADJUSTMENT SHALL BE AS DIRECTED BY GCDC–WWS. MAXIMUM ADJUSTMENT ALLOWED SHALL BE 9". THE USE OF BLOCK OR BRICK FOR ADJUSTMENT SHALL NOT BE PERMITTED.

2. PERMISSIBLE GRADE RING SIZES FOR MANHOLE ADJUSTMENT SHALL BE 3", 4", OR 6", AS REQUIRED, TO FINISH GRADE. NOTE: A MAXIMUM OF TWO GRADE RINGS WILL BE ALLOWED.

3. THE CONTRACTOR SHALL USE AN APPROVED 1–1/4" PRE–FORMED BUTYL RUBBER JOINT SEALANT BETWEEN GRADE RING, MANHOLE FRAME, & MANHOLE SECTION. USE MORTAR FOR MANHOLES IN ROADWAYS.

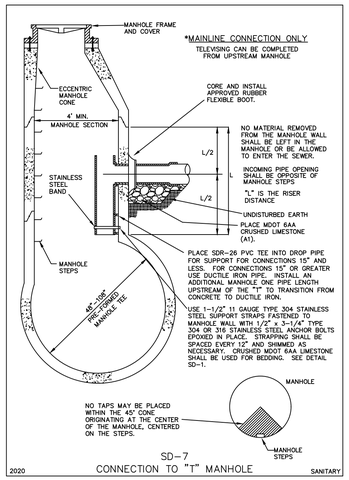
SD–5
MANHOLE FRAME & ADJUSTMENT

2020 SANITARY



SD–6
PRECAST FLEXIBLE JOINT MANHOLE

2020 SANITARY



SD–7
CONNECTION TO "T" MANHOLE

2020 SANITARY

NOTES

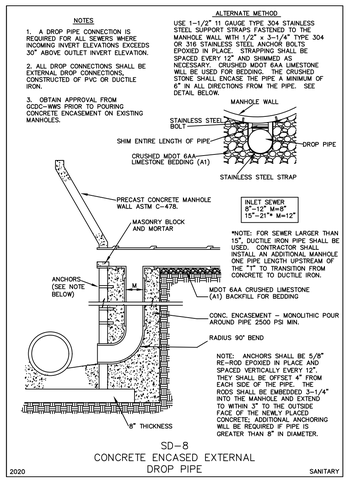
1. A DROP PIPE CONNECTION IS REQUIRED FOR ALL SEWERS WHERE INCOMING INVERT ELEVATIONS EXCEEDS 30" ABOVE OUTLET INVERT ELEVATION.

2. ALL DROP CONNECTIONS SHALL BE EXTERNAL DROP CONNECTIONS, CONSTRUCTED OF PVC OR DUCTILE IRON.

3. OBTAIN APPROVAL FROM GCDC–WWS PRIOR TO POURING CONCRETE ENCASEMENT ON EXISTING MANHOLES.

ALTERNATE METHOD

USE 1–1/2" 11 GAUGE TYPE 304 STAINLESS STEEL SUPPORT STRAPS FASTENED TO THE MANHOLE WALL WITH 1/2" x 3–1/4" TYPE 304 OR 316 STAINLESS STEEL ANCHOR BOLTS EPOXIED IN PLACE. STRAPPING SHALL BE SPACED EVERY 12" AND SHIMMED AS NECESSARY. CRUSHED MDOT 6AA LIMESTONE WILL BE USED FOR BEDDING. THE CRUSHED STONE SHALL ENCASE THE PIPE A MINIMUM OF 6" IN ALL DIRECTIONS FROM THE PIPE. SEE DETAIL BELOW.



*NOTE: FOR SEWER LARGER THAN 15", DUCTILE IRON PIPE SHALL BE USED. CONTRACTOR SHALL INSTALL AN ADDITIONAL MANHOLE ONE PIPE LENGTH UPSTREAM OF THE "T" TO TRANSITION FROM CONCRETE TO DUCTILE IRON.

NOTE: ANCHORS SHALL BE 5/8" RE–ROD EPOXIED IN PLACE AND SPACED VERTICALLY EVERY 12". THEY SHALL BE OFFSET 4" FROM EACH SIDE OF THE PIPE. THE RODS SHALL BE EMBEDDED 3–1/4" INTO THE MANHOLE AND EXTEND TO WITHIN 2" TO THE OUTSIDE FACE OF THE NEWLY PLACED CONCRETE. ADDITIONAL ANCHORING WILL BE REQUIRED IF PIPE IS GREATER THAN 8" IN DIAMETER.

SD–8
CONCRETE ENCASED EXTERNAL DROP PIPE

2020 SANITARY

NOTES

1. ALL SANITARY SEWERS SHALL BE TESTED FOR INFILTRATION.

2. A NEW INFILTRATION TEST MANHOLE MUST BE CONSTRUCTED FOR EACH SEPARATE DIVISION OR SECTION OF A PROJECT. (SEE DETAIL)

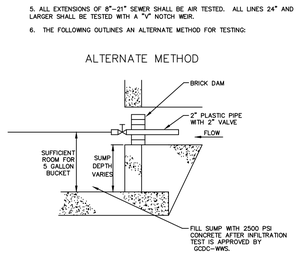
3. NO CONNECTION SHALL BE MADE TO THE EXISTING SANITARY SEWER SYSTEM UNTIL ALL TESTING OF THE SANITARY SEWER HAS BEEN PERFORMED AND APPROVED BY GCDC–WWS.

4. TESTING WEIRS ARE AVAILABLE FROM GCDC–WWS WITH PRIOR NOTICE.

5. ALL EXTENSIONS OF 8"–21" SEWER SHALL BE AIR TESTED. ALL LINES 24" AND LARGER SHALL BE TESTED WITH A "V" NOTCH WEIR.

6. THE FOLLOWING OUTLINES AN ALTERNATE METHOD FOR TESTING:

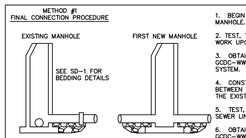
ALTERNATE METHOD



SD–9
INFILTRATION TESTING

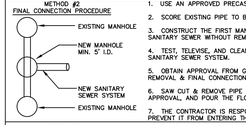
2020 SANITARY

METHOD #1
FINAL CONNECTION PROCEDURE



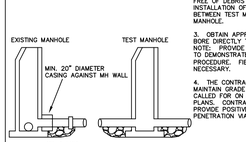
1. BEGIN WORK AT THE FIRST MANHOLE.
2. TEST, TELEVISE AND CLEAN ALL WORK UPGRADE.
3. OBTAIN APPROVAL FROM GCDC–WWS TO TIE INTO THE EXISTING SYSTEM.
4. CONSTRUCT THE SEWER LINE BETWEEN THE FIRST MANHOLE AND THE EXISTING MANHOLE.
5. TEST, TELEVISE AND CLEAN THE SEWER LINE.
6. OBTAIN FINAL APPROVAL FROM GCDC–WWS.

METHOD #2
FINAL CONNECTION PROCEDURE



1. USE AN APPROVED PRECAST SLAB.
2. SCORE EXISTING PIPE TO BE REMOVED.
3. CONSTRUCT THE FIRST MANHOLE OVER THE EXISTING SANITARY SEWER WITHOUT REMOVING THE EXISTING MAIN.
4. TEST, TELEVISE, AND CLEAN ALL WORK IN THE SANITARY SEWER SYSTEM.
5. OBTAIN APPROVAL FROM GCDC–WWS FOR EXISTING PIPE REMOVAL & FINAL CONNECTION.
6. SAW CUT & REMOVE PIPE SECTION AFTER RECEIPT OF APPROVAL, AND POUR THE FLOW CHANNEL.
7. THE CONTRACTOR IS RESPONSIBLE TO CATCH DEBRIS & PREVENT IT FROM ENTERING THE SANITARY SEWER.

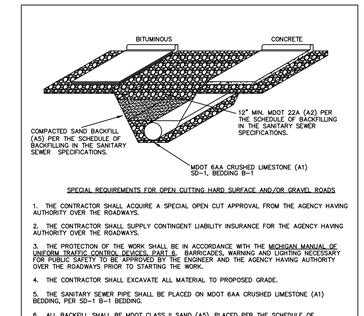
METHOD #3
FINAL CONNECTION PROCEDURE



1. BEGIN WORK AT THE TEST MANHOLE.
2. ALL WORK UPGRADE MUST BE CLEAN & FREE OF DEBRIS BEFORE COMPLETING ANY INSTALLATION OF SANITARY SEWER LINE BETWEEN TEST MANHOLE & EXISTING MANHOLE.
3. OBTAIN APPROVAL FROM GCDC–WWS TO BORE DIRECTLY THROUGH MANHOLE WALL. NOTE: PROVIDE NECESSARY DOCUMENTATION TO DEMONSTRATE NECESSITY TO UTILIZE THIS PROCEDURE. FIELD/SITE VISIT MAY BE NECESSARY.
4. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN GRADE & MATCH INVERTS AS CALLED FOR ON APPROVED CONSTRUCTION PLANS. CONTRACTOR ALSO REQUIRED TO PROVIDE POSITIVE SEAL AROUND MANHOLE PENETRATION VIA FLEXIBLE RUBBER BOOT.

SD–10
SANITARY SEWER FINAL CONNECTION

2020 SANITARY



SPECIAL REQUIREMENTS FOR OPEN CUTTING HARD SURFACE AND/OR GRAVEL ROADS

1. THE CONTRACTOR SHALL ACQUIRE A SPECIAL OPEN CUT APPROVAL FROM THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS.

2. THE CONTRACTOR SHALL SUPPLY CONTINGENT LIABILITY INSURANCE FOR THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS.

3. THE PROTECTION OF THE WORK SHALL BE IN ACCORDANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 6. BARRICADES, WARNING AND LIGHTING NECESSARY FOR PUBLIC SAFETY TO BE APPROVED BY THE ENGINEER AND THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS PRIOR TO STARTING THE WORK.

4. THE CONTRACTOR SHALL EXCAVATE ALL MATERIAL TO PROPOSED GRADE.

5. THE SANITARY SEWER PIPE SHALL BE PLACED ON MDOT 6AA CRUSHED LIMESTONE (A1) BEDDING, PER SD–1 B–1 BEDDING.

6. ALL BACKFILL SHALL BE MDOT CLASS II SAND (A5), PLACED PER THE SCHEDULE OF BACKFILLING.

7. THE SAND BACKFILL SHALL EXTEND FROM THE OUTSIDE EDGE OF SHOULDER TO OUTSIDE EDGE OF SHOULDER, INCLUDING THE ONE ON ONE INFLUENCE OF THE ROADWAY OR THE SAND BACKFILL SHALL EXTEND FROM THE BACK OF CURB TO BACK OF CURB, INCLUDING THE ONE ON ONE INFLUENCE OF THE ROADWAY.

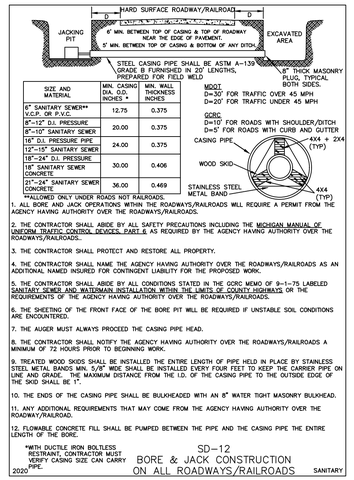
8. THE FINAL 12" OF ALL BACKFILL SHALL BE MDOT 22A LIMESTONE (A2) SUBBASE MODIFIED PER GCRC SPECIFICATIONS. ALL SHOULDERS SHALL BE REPAIRED PER THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS.

9. THE CONTRACTOR SHALL REPLACE THE ROAD SURFACE WITH THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS APPROVED MATERIAL.

10. THE CONTRACTOR SHALL MAINTAIN TEMPORARY ACCESS TO ALL AREAS DURING THE WORK. A PUBLIC ROAD MAY BE CLOSED FOR 1/2 WIDTH CONSTRUCTION WITH GENESEE COUNTY ROAD COMMISSION OR AGENCY HAVING AUTHORITY OVER THE ROADWAYS APPROVAL, BUT THE CLOSING TIME CANNOT EXCEED 8 HOURS. THE CONTRACTOR MAY USE SHOULDERS AND TEMPORARY PATCHES TO KEEP A ROAD OPEN.

SD–11
OPEN CUTTING ROAD

2020 SANITARY



SIZE AND MATERIAL	MIN. CASING DIA. O.D. *	MIN. WALL THICKNESS INCHES
6" SANITARY SEWER** V.C.P. OR P.V.C.	12.75	0.375
8"–12" D.I. PRESSURE	20.00	0.375
8"–10" SANITARY SEWER		
16" D.I. PRESSURE PIPE	24.00	0.375
12"–15" SANITARY SEWER		
18"–24" D.I. PRESSURE	30.00	0.406
18" SANITARY SEWER CONCRETE		
21"–24" SANITARY SEWER CONCRETE	36.00	0.469

**ALLOWED ONLY UNDER ROADS NOT RAILROADS.

MDOT
D=30" FOR TRAFFIC OVER 45 MPH
D=20' FOR TRAFFIC UNDER 45 MPH

GCRC
D=10' FOR ROADS WITH SHOULDER/DITCH
D=5' FOR ROADS WITH CURB AND GUTTER

1. ALL BORE AND JACK OPERATIONS WITHIN THE ROADWAYS/RAILROADS WILL REQUIRE A PERMIT FROM THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS.

2. THE CONTRACTOR SHALL ABIDE BY ALL SAFETY PRECAUTIONS INCLUDING THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 6 AS REQUIRED BY THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS..

3. THE CONTRACTOR SHALL PROTECT AND RESTORE ALL PROPERTY.

4. THE CONTRACTOR SHALL NAME THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS AS AN ADDITIONAL NAMED INSURED FOR CONTINGENT LIABILITY FOR THE ENCROSED WORK.

5. THE CONTRACTOR SHALL ABIDE BY ALL CONDITIONS STATED IN THE GCRC MEMO OF 9–1–75 LABELED SANITARY SEWER AND WATERMAIN INSTALLATION WITHIN THE LIMITS OF COUNTY HIGHWAYS OR THE REQUIREMENTS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS.

6. THE SHEETING OF THE FRONT FACE OF THE BORE PIT WILL BE REQUIRED IF UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED.

7. THE AUGER MUST ALWAYS PROCEED THE CASING PIPE HEAD.

8. THE CONTRACTOR SHALL NOTIFY THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS/RAILROADS A MINIMUM OF 72 HOURS PRIOR TO BECOMING WORK.

9. TREATED WOOD SKIDS SHALL BE INSTALLED THE ENTIRE LENGTH OF PIPE HELD IN PLACE BY STAINLESS STEEL METAL BANDS MIN. 5/8" WIDE SHALL BE INSTALLED EVERY FOUR FEET TO KEEP THE CARRIER PIPE ON LINE AND GRADE. THE MAXIMUM DISTANCE FROM THE I.D. OF THE CASING PIPE TO THE OUTSIDE EDGE OF THE SKID SHALL BE 1".

10. THE ENDS OF THE CASING PIPE SHALL BE BULKHEADED WITH AN 8" WATER TIGHT MASONRY BULKHEAD.

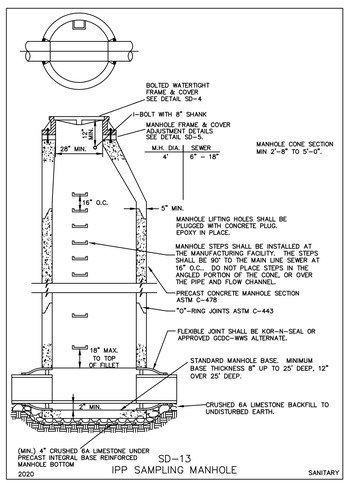
11. ANY ADDITIONAL REQUIREMENTS THAT MAY COME FROM THE AGENCY HAVING AUTHORITY OVER THE ROADWAY/RAILROAD.

12. FLOWABLE CONCRETE FILL SHALL BE PUMPED BETWEEN THE PIPE AND THE CASING PIPE THE ENTIRE LENGTH OF THE BORE.

*WITH DUCTILE IRON BOLTLESS RESTRAINT, CONTRACTOR MUST VERIFY CASING SIZE CAN CARRY PIPE.

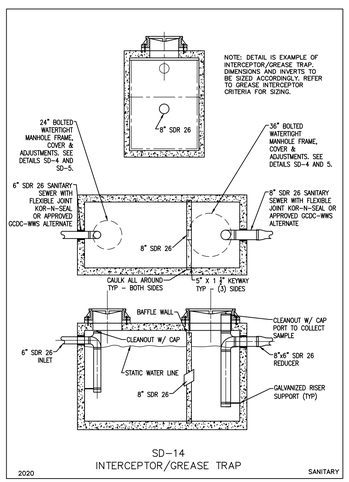
SD–12
BORE & JACK CONSTRUCTION ON ALL ROADWAYS/RAILROADS

2020 SANITARY



SD–13
IPP SAMPLING MANHOLE

2020 SANITARY


NOTE: DETAIL IS EXAMPLE OF INTERCEPTOR/GREASE TRAP. DIMENSIONS AND INVERTS TO BE SIZED ACCORDINGLY, REFER TO GREASE INTERCEPTOR CRITERIA FOR SIZING.
4'–8" SDR 26
24" BOLTED WATERTIGHT MANHOLE FRAME, COVER & ADJUSTMENTS. SEE DETAILS SD–4 AND SD–5.
36" BOLTED WATERTIGHT MANHOLE FRAME, COVER & ADJUSTMENTS. SEE DETAILS SD–4 AND 5.
6" SDR 26 SANITARY SEWER WITH FLEXIBLE JOINT KOR–N–SEAL OR APPROVED GCDC–WWS ALTERNATE
8" SDR 26 SANITARY SEWER WITH FLEXIBLE JOINT KOR–N–SEAL OR APPROVED GCDC–WWS ALTERNATE
8" SDR 26
CAULK ALL AROUND TYP – BOTH SIDES
5" X 1 ½" KEYWAY TYP – (5) SIDES
BAFFLE WALL
CLEANOUT W/ CAP PORT TO COLLECT SAMPLE
CLEANOUT W/ CAP
6" SDR 26 INLET
8"x6" SDR 26 REDUCER
STATIC WATER LINE
8" SDR 26
GALVANIZED RISER SUPPORT (TYP)

GENERAL CONSTRUCTION NOTES

1. STANDARD SPECIFICATIONS & DETAILS
ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE LATEST GENESEE COUNTY STANDARD SPECIFICATIONS AND STANDARD DETAILS FOR SANITARY SEWER, PRESSURE PIPE, AND PUMP STATION CONSTRUCTION. ANY DEVIATIONS FROM THE GCDC-WWS APPROVED PLANS WILL NOT BE PERMITTED. IF IT BECOMES NECESSARY TO REVISE THE PLAN, THEY SHALL BE RESUBMITTED TO GCDC-WWS FOR APPROVAL.

2. PRE-CONSTRUCTION MEETING
A PRE-CONSTRUCTION MEETING SHALL BE HELD AT THE GCDC-WWS OFFICE PRIOR TO BEGINNING THE WORK. NO PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO OBTAINING THE STATE CONSTRUCTION PERMITS. THE MEETING'S TIME, PLACE, AND ATTENDEES SHALL BE ARRANGED BY THE ENGINEER FOR THE PROJECT. GCDC-WWS, GCDC-SWM, THE MUNICIPALITY, THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS, PROJECT OWNER, CONTRACTOR, AND ANY AFFECTED UTILITIES SHALL BE INVITED, AS A MINIMUM, TO THE PRE-CONSTRUCTION MEETING.

3. MISS DIG 811 UTILITY ALERT
THREE (3) WORKING DAYS PRIOR TO BEGINNING THE WORK, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT MISS DIG 811 UTILITY PROTECTION SERVICE (1-800-482-7171 OR 811) TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL EXISTING UTILITIES DURING CONSTRUCTION. ALL UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE PROPERLY REPAIRED IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS.

4. FIELD LOCATION OF UTILITIES
PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A VERTICAL CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUDED IN THE LINEAL FEET OF PRESSURE PIPE OR SANITARY SEWER PIPE INSTALLED. THE CONTRACTOR SHALL VERIFY THE DEPTH AND HORIZONTAL LOCATIONS OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED IN THAT PORTION OF THE PROJECT. THE CONTRACTOR SHALL ARRANGE FOR THE VARIOUS UTILITY OWNERS TO LOCATE, REMOVE AND REPLACE, OR RELOCATE THEIR FACILITIES. ALL COSTS FOR THIS SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PROJECT.

5. SUBSURFACE SOIL CONDITIONS
PRIOR TO BIDDING, THE CONTRACTOR AND SUBCONTRACTORS SHALL MAKE A PERSONAL INVESTIGATION OF THE SITE AND EXISTING SURFACE AND SUBSURFACE CONDITIONS. THE CONTRACTOR SHALL ACQUAINT ITSELF WITH CONDITIONS OF THE WORK AREA. THE CONTRACTOR IS ADVISED TO DETERMINE THE SUBSURFACE SOIL AND GROUND WATER CONDITIONS. DEWATERING, IF DETERMINED NECESSARY BY THE CONTRACTOR AND IF NOT SPECIFICALLY REQUIRED BY THE CONTRACT DOCUMENTS, WILL BE INCIDENTAL TO THE COST OF INSTALLATION.

6. PERMITS AND FEES
THE CONTRACTOR/DEVELOPER SHALL OBTAIN ALL PERMITS, INCLUDING THE PAYMENT OF ANY FEES OR BONDS, REQUIRED BY ANY FEDERAL, STATE, COUNTY, LOCAL, OR PRIVATE ORGANIZATIONS PRIOR TO COMMENCING WORK.

7. GCDC-WWS INSPECTION FEES
THE DEVELOPER SHALL PAY FOR ALL SANITARY SEWER AND PRESSURE PIPE INSPECTION FEES AND WATER USAGE FEES PRIOR TO THE PRE-CONSTRUCTION MEETING.

8. SOIL EROSION CONTROL, PART 91 OF P.A. 451 OF 1994
THE CONTRACTOR/DEVELOPER SHALL COMPLY WITH ALL PROVISIONS OF PART 91, ACT 451 OF P.A. 1994 FOR SOIL EROSION AND SEDIMENTATION CONTROL AND WILL BE RESPONSIBLE FOR ALL MAINTENANCE AND FINAL ACCEPTANCE OF THE PERMANENT CONTROL MEASURES BY GCDC-WWS. THE CONTRACTOR/DEVELOPER IS REQUIRED BY GCDC-WWS TO PREPARE AND SUBMIT A SOIL EROSION AND SEDIMENTATION CONTROL PLAN IN ORDER TO OBTAIN THE SOIL EROSION AND SEDIMENTATION CONTROL PERMIT AND TO PAY ANY APPLICATION FEES AND BOND FEES NECESSARY TO OBTAIN THE PERMIT.

9. STATE CONSTRUCTIONS PERMITS
THE CONSTRUCTION OF PUBLIC SANITARY SEWERS OR PRESSURE PIPES SHALL NOT BEGIN UNTIL THE REQUIRED STATE CONSTRUCTION PERMITS HAVE BEEN OBTAINED. NOTE: SOIL EROSION AND CONSTRUCTION PLAN APPROVAL ARE SEPARATE APPROVALS AT GCDC-WWS.

10. ROADWAY PERMITS
A PERMIT FROM THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS IS REQUIRED FOR ALL CONSTRUCTION WITHIN ANY ROAD RIGHT-OF-WAY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SECURE ALL NECESSARY PERMITS, POST ALL NECESSARY BONDS, PAY ALL FEES, AND OBTAIN ANY REQUIRED INSURANCES IN CONNECTION THERE WITH.

11. WORK OBSERVATION
ALL WORK SHALL BE PERFORMED UNDER THE OBSERVATION OF A CONSTRUCTION OBSERVER FROM GCDC-WWS OR LOCAL MUNICIPALITY HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OBSERVING AGENCIES THREE (3) WORKING DAYS OR 72 HOURS PRIOR TO STARTING CONSTRUCTION TO ARRANGE FOR ON-SITE OBSERVATION AND TESTING. CUT SHEETS FOR ALL PIPE INSTALLATION AND REDITCHING SHALL BE PROVIDED TO THE GCDC-WWS CONSTRUCTION OPERATION'S SUPERVISOR A MINIMUM OF 24 HOURS PRIOR TO STARTING THE WORK WITH RESPECT TO THAT UTILITY. GCDC-WWS OR THE LOCAL MUNICIPALITY HAVING JURISDICTION SHALL BE NOTIFIED FOR A FINAL INSPECTION.

12. CONTRACTOR'S MINIMUM WAGE & USE OF IN-COUNTY LABOR
THE CONTRACTOR SHALL EMPLOY COMPETENT AND SKILLED WORKERS THROUGHOUT THE COURSE OF THE PROJECT. THE CONTRACTOR SHALL STRIVE TO USE GENESEE COUNTY RESIDENTS WHEN FEASIBLE. THE CONTRACTOR SHALL BE REQUIRED TO PAY THE PREVAILING WAGE RATES AS ESTABLISHED BY THE BUILDING AND CONSTRUCTION TRADES DEPARTMENT OF THE AMERICAN FEDERATION OF LABOR WHICH APPLIES TO THE COUNTY OF GENESEE. THESE RATES CAN BE OBTAINED BY CONTACTING THE MICHIGAN DEPARTMENT OF CONSUMER AND INDUSTRIAL SERVICES.

13. MIOSHA SAFETY REQUIREMENTS
ALL WORK, WORK PRACTICE, AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE STATE AND FEDERAL SAFETY GUIDELINES, OCCUPATION, HEALTH AND ENVIRONMENTAL REGULATIONS, AND ALSO NFPA AND ANSI CODES AS APPLICABLE. ALL WORK INSIDE A CONFINED SPACE, SUCH AS MANHOLES OR OTHER UNDERGROUND STRUCTURES, SHALL BE COORDINATED WITH THE UTILITY OWNER, AND ALL WORKER SAFETY REQUIREMENTS STRICTLY ENFORCED. THE CONTRACTOR SHALL HAVE ITS SAFETY PLAN ON FILE WITH GCDC-WWS AND ONE COPY ON SITE AT ALL TIMES.

14. ROADWAY REQUIREMENTS FOR UTILITY CONSTRUCTION
THE CONTRACTOR SHALL COMPLY WITH ALL OF THE REQUIREMENTS OF THE GCRC OR LOCAL MUNICIPALITY REGARDING THE CONSTRUCTION OF PRESSURE PIPE AND SEWER MAINS, MAINTAINING TRAFFIC, BARRICADING, BORING, BACKFILLING AND RESTORATION WITHIN THE ROAD RIGHT-OF-WAY.

15. OPEN CUTTING OF COUNTY/LOCAL ROADS
WHEN OPEN CUTTING OF GRAVEL OR HARD SURFACED ROADS ARE INCORPORATED INTO THE PROJECT, THE CONTRACTOR SHALL OBTAIN THE APPROVAL AND COMPLY WITH ALL OF THE REQUIREMENTS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS, AND BY THE SPECIFICATIONS OF GCDC-WWS.

16. GRAVEL ROAD CONTAMINATION BY THE WORK
IF IT IS DETERMINED BY THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS THAT GRAVEL ROADS HAVE BECOME CONTAMINATED DURING THE WORK, THE ROAD MUST BE REPAIRED PER THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS. WHERE THE EXISTING ROAD GRAVEL IS REMOVED BECAUSE OF THE WORK, ALL WORK AND MATERIALS SHALL MEET THE REQUIREMENTS AND SPECIFICATIONS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS.

17. RESTORATION OF GRAVEL SHOULDERS
IF IT IS DETERMINED BY THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS THAT GRAVEL SHOULDERS HAVE BEEN CONTAMINATED BY THE WORK, THE CONTRACTOR SHALL RE-GRAVEL PER THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS. ALL WORK AND MATERIALS SHALL MEET THE REQUIREMENTS AND SPECIFICATIONS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS.

18. COMPACTED GRANULAR BACKFILL FOR ROADWAYS, DRIVES, ETC.
ALL TRENCH EXCAVATION WITHIN A ONE-ON-ONE INFLUENCE OF A ROADWAY, DRIVEWAY CROSSINGS, PARKING LOTS, OR AS OTHERWISE NOTED ON THE PLANS, SHALL BE BACKFILLED WITH COMPACTED SAND MDOT CLASS II (A5) PER THE SCHEDULE OF BACKFILLING, FOUND IN THE SPECIFICATIONS. IN ADDITION, SEE THE SPECIFICATIONS FOR THE REQUIREMENTS FOR THE COMPACTION PLAN. THIS STANDARD ALSO INCLUDES SERVICE LEADS UNLESS BORED.

19. SURFACE RESTORATION
ALL DISTURBED AREAS SHALL BE COMPLETELY RESTORED IN STRICT COMPLIANCE WITH THE SOIL EROSION AND SEDIMENTATION SPECIFICATIONS AND TO THE SATISFACTION OF GCDC-WWS, GCDC-SWM, GCRC, MDOT, THE LOCAL MUNICIPALITY, AND THE PROPERTY OWNER. ALL COSTS FOR THE CLEANUP, RESTORATION WORK, AND OTHER INTERMEDIATE OPERATIONS INCLUDING BUT NOT LIMITED TO, CONSTRUCTION SIGNAGE, STREET SWEEPING, AND MAINTAINING EXISTING UTILITIES, SHALL BE CONSIDERED INCLUSIVE AND AT NO ADDITIONAL COST TO GCDC-WWS. AREAS DISTURBED DURING THE WORK SHALL RECEIVE A 4" APPLICATION OF SCREENED TOPSOIL, FERTILIZED AND SEEDED. ALL EXCESS MATERIALS, DEBRIS, AND SIMILAR ITEMS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF IN ACCORDANCE WITH THE LAW. ALL GROUND SURFACES SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER PRIOR TO FINAL APPROVAL.

20. TRAFFIC CONTROL
THE CONTRACTOR SHALL EXECUTE THE WORK IN A MANNER SUCH THAT TRAFFIC IS MAINTAINED AND ACCESS IS PROVIDED TO ALL RESIDENCES, BUSINESSES, AND COMMERCIAL ESTABLISHMENTS. TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS AND THE LATEST EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 6, AND THE REQUIREMENTS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS, OR AS DIRECTED BY THE ENGINEER.

21. SIGNING AND BARRICADING
SIGNING AND BARRICADING SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH THE DETAILS ON THE PLANS, THE LATEST EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 6, AND THE REQUIREMENTS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS. SIGNS AND BARRICADES LEFT IN PLACE AFTER DARK SHALL BE LIGHTED.

22. PROTECTION OF HAZARDOUS AREAS
EXCAVATION AND HAZARDOUS AREAS SHALL BE PROTECTED BY BARRICADES, SNOW FENCE, OR OTHER APPROPRIATE MEANS. BARRICADES LEFT IN PLACE AFTER DARK SHALL BE LIGHTED.

23. STORM WATER DRAINAGE DURING THE WORK
THE CONTRACTOR/DEVELOPER SHALL OBTAIN THE SERVICES OF A CERTIFIED STORM WATER OPERATOR AND COMPLY WITH THE PROVISIONS OF THE NPDES AND SESC PERMITS. THE CONTRACTOR SHALL MAINTAIN DITCH DRAINAGE DURING CONSTRUCTION AND SHALL NOT OBSTRUCT SUMP PUMP LEADS DISCHARGING INTO THE DITCH. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PROTECT ALL STORM SEWER FACILITIES, SUCH AS CATCH BASINS AND CULVERTS, DURING THE WORK. CULVERTS AND CATCH BASINS CONTAMINATED DURING THE WORK SHALL BE CLEANED.

24. UTILITY INFORMATION
UTILITY INFORMATION IS DELINEATED IN ACCORDANCE WITH THE LOCATIONS PROVIDED BY UTILITY OWNERS. THE ENGINEER IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION OR THE LOCATION AT WHICH THESE SERVICES EXIST. DIFFERING FIELD CONDITIONS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND GCDC-WWS.

25. EXISTING UTILITIES
THE CONTRACTOR SHALL MAINTAIN ALL EXISTING SANITARY SEWER, PRESSURE PIPE, OR STORM SEWER CONNECTIONS IN SERVICE THROUGHOUT THE WORK. THE CONTRACTOR SHALL PROVIDE OR ARRANGE FOR THE TEMPORARY SUPPORT OF GAS MAIN, TELEPHONE, FIBER OPTIC, CABLE, PRESSURE PIPE, SANITARY SEWER, STORM SEWER, AND UTILITY POLES WHERE NEEDED. ALL STORM SEWERS DAMAGED OR REMOVED, OR RELOCATED BY THE CONTRACTOR, SHALL BE REPLACED WITH THE SAME SIZE AND QUALITY PIPE BY THE CONTRACTOR AT CONTRACTOR'S SOLE EXPENSE. ALL UTILITIES UNDERMINED BY THE EXCAVATION SHALL HAVE COMPACTED SAND BACKFILL PLACED UNDER THEM, UNLESS MDOT 6AA CRUSHED LIMESTONE (A1) OR MDOT 22A GRAVEL (A2) IS SHOWN ON THE CONSTRUCTION PLANS. ALL WORK, INCLUDING THE REBORING OF SANITARY SEWER SERVICE LEADS AND WATERMAIN LEADS TO ACCOMMODATE CONSTRUCTION TO CLEAR EXISTING SERVICES, SHALL BE INCLUSIVE TO THE PROJECT.

26. SHOP DRAWINGS
PRIOR TO THE START OF THE WORK, THE CONTRACTOR SHALL FURNISH TO GCDC-WWS SHOP DRAWINGS AND/OR CATALOG CUTS FOR ALL MATERIALS AND EQUIPMENT ITEMS PER THE STANDARD SPECIFICATIONS.

27. MATERIAL CERTIFICATIONS
PRIOR TO THE START OF THE WORK, THE CONTRACTOR SHALL FURNISH TO GCDC-WWS MATERIALS CERTIFICATES FOR ALL MATERIALS USED DURING THE WORK.

28. NON-STOPPAGE CLAUSE
THE CONTRACTOR SHALL BE REQUIRED TO COMPLETE ALL WORK IN AN EXPEDITIOUS MANNER AND SHALL NOT STOP THE WORK FOR EXTENDED PERIODS ONCE THE WORK HAS BEGUN WITHOUT WRITTEN APPROVAL OF GCDC-WWS.

29. DISPOSAL OF EXCESS EXCAVATED MATERIAL
ALL EXCESS EXCAVATED MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR, WITH ALL PERMITS, PERMISSIONS, AND LOCATIONS PROVIDED BY THE CONTRACTOR. ADJACENT PROPERTY OWNERS SHALL BE GIVEN PREFERENCE FOR DISPOSAL SITES. WRITTEN PERMISSION FOR DISPOSAL ON ADJACENT PROPERTY OWNERS SHALL BE PROVIDED TO GCDC-WWS.

30. CONSTRUCTION STAKING
THE CONTRACTOR SHALL, AT ITS OWN EXPENSE, PROVIDE A PROFESSIONAL LAND SURVEYOR, LICENSED IN THE STATE OF MICHIGAN, TO PROVIDE ALIGNMENT AND GRADE STAKES, AND CUT SHEETS. THE SURVEYOR SHALL PROVIDE GRADE STAKES AND CUT SHEETS AT ALL STRUCTURES AND AT A MAXIMUM OF 50' INTERVALS BETWEEN STRUCTURES.

31. FINAL ELEVATIONS OF SURFACE UTILITIES
ALL FINAL ELEVATIONS OF MANHOLE CASTINGS, HYDRANTS, VALVES, AND VALVE BOXES SHALL BE APPROVED BY THE GCDC-WWS REPRESENTATIVE IN THE FIELD. ANY ADJUSTMENTS THAT ARE MADE SHALL BE AT THE CONTRACTOR'S SOLE EXPENSE.

32. PROJECT RECORD DOCUMENTS
UPON COMPLETION OF THE WORK AND PRIOR TO FINAL APPROVAL FROM GCDC-WWS, THE OWNER/DEVELOPER SHALL FURNISH GCDC-WWS WITH ONE COMPLETE SET OF PROJECT RECORD DOCUMENTS. THESE PROJECT RECORD DOCUMENTS ARE COMPRISED OF DRAWINGS ON MYLAR AND AN ELECTRONIC DATA SET.

THE MYLAR PROJECT RECORD DOCUMENTS SHALL BE SUBMITTED TO GCDC-WWS ON 4 MIL MYLAR FOR THE REVIEW AND APPROVAL OF GCDC-WWS. THE MYLAR PROJECT RECORD DOCUMENTS SHALL INCLUDE BUT NOT BE LIMITED TO: INVERT OF PIPES, LOCATION OF MANHOLES, PIPE LENGTHS, SLOPES OF PIPE, LOCATION OF SERVICE LEADS, LOCATION OF MAINLINE VALVES, LOCATION OF BENDS, TEES CROSSES, AND LOCATION OF CURB BOXES. THIS INFORMATION SHALL BE GATHERED BY THE OWNER/DEVELOPER AT ITS SOLE EXPENSE. THESE PROJECT RECORD DOCUMENTS SHALL ALSO INCLUDE ANY ADDITIONAL INFORMATION COLLECTED BY THE GCDC-WWS OR MUNICIPAL CONSTRUCTION OBSERVER.

IN ADDITION TO THE AS-BUILT MYLARS, THE OWNER/DEVELOPER SHALL PROVIDE TO GCDC-WWS AN ELECTRONIC DATA SET IN A MICROSOFT EXCEL SPREADSHEET DETAILING THE FOLLOWING ITEMS IN THEIR AS-BUILT LOCATIONS DEPICTED IN MICHIGAN STATE PLANE SOUTH COORDINATES (NAD83) AND ELEVATIONS (USGS/NGVD): ALL MANHOLES (WATER AND SANITARY), ALL HYDRANTS, ALL VALVES, AND ALL SERVICE RISERS (WATER AND SANITARY) AT THEIR TERMINUS, ALL METER PITS, AND ALL PUMP STATIONS.

33. 2-YEAR MAINTENANCE AND GUARANTEE BOND
UPON COMPLETION OF THE WORK AND PRIOR TO FINAL APPROVAL, THE CONTRACTOR SHALL FURNISH THE GCDC-WWS WITH A 2-YEAR MAINTENANCE AND GUARANTEE BOND.

34. SOIL EROSION AND SEDIMENTATION CONTROL RELEASE
PRIOR TO FINAL ACCEPTANCE BY GCDC-WWS, THE CONTRACTOR SHALL REQUEST A FINAL INSPECTION OF ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND RECEIVE WRITTEN APPROVAL FROM GCDC-WWS. THE SOIL EROSION AND SEDIMENTATION CONTROL BOND WILL BE RELEASED UPON GCDC-WWS FINAL APPROVAL.

35. ORDER OF PRECEDENCE
IN RESOLVING INCONSISTENCIES BETWEEN TWO OR MORE SECTIONS OF THE CONTRACT DOCUMENTS, PRECEDENCE SHALL BE GIVEN IN THE FOLLOWING ORDER FROM (A) THROUGH (G):

A. AGREEMENT AND ANY CONTRACT MODIFICATIONS (WITH GCDC-WWS)
B. BID
C. SUPPLEMENTARY CONDITIONS
D. INSTRUCTION TO BIDDERS
E. GENERAL CONDITIONS OF THE CONTRACT
F. SPECIFICATIONS
G. DRAWINGS

SANITARY CONSTRUCTION NOTES

1. ALL MATERIAL AND WORK SHALL COMPLY WITH THE LATEST GCDC-WWS SPECIFICATIONS AND STANDARD DETAILS.

2. NO CONNECTION TO AN EXISTING SANITARY SEWER SHALL BE MADE WITHOUT THE PRIOR APPROVAL OF GCDC-WWS. GCDC-WWS SHALL HAVE FINAL INSPECTION AUTHORITY AND APPROVAL FOR UNDERGROUND SANITARY SEWER FACILITIES.

3. THE MATERIAL FOR THE SANITARY SEWER SHALL BE SPECIFIED ON THE CONSTRUCTION DRAWINGS. THE FOLLOWING MATERIALS ARE ACCEPTABLE TO GCDC-WWS:
   A. 8" TO 15". PVC WITH A MINIMUM SDR OF 26 CONFORMING TO ASTM D-3034-00 GASKETED SEWER PIPE.
   B. LARGER THAN 15". REINFORCED CONCRETE PIPE CONFORMING TO ASTM C-76-03. JOINTS SHALL BE MODIFIED TONGUE & GROOVE TYPE WITH SOLID RUBBER GASKETS CONFORMING TO ASTM C-443-02. MINIMUM SIZE SHALL BE CLASS III, WALL B AS RECOMMENDED BY THE ENGINEER.

4. ALL SANITARY SEWER SERVICE RISERS SHALL BE 6" INTERNAL DIAMETER SDR-26 PVC OR LOWER CONFORMING TO ASTM D-3034-00. JOINTS SHALL BE RUBBER GASKET JOINTS OR SOLVENT WELD BELL JOINTS. RISERS SHALL BE LEFT AT 8-10' DEEP AT THE RIGHT-OF-WAY OR EASEMENT LINE, OR AS DEEP TO SERVICE BASEMENTS. SERVICE RISERS WITHIN EASEMENTS SHALL BE EXTENDED A MINIMUM OF ONE PIPE LENGTH FROM THE MAINLINE SEWER OR TO THE EDGE OF THE EASEMENT, WHICH EVER IS LONGER. WEEP TILE, PERIMETER DRAINS, DOWN SPOUTS, OR ANY OTHER SOURCE OF WATER, SHALL NOT BE CONNECTED TO THE SANITARY SEWER.

5. PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C-478-03 WITH RUBBER JOINTS CONFORMING TO ASTM C-443-02. ALL FINAL ELEVATIONS OF MANHOLE CASTINGS SHALL BE DETERMINED BY GCDC-WWS. MANHOLE FRAMES AND COVERS SHALL BE BOLT-DOWN, WATERTIGHT EAST JORDAN 1040 ZPT, NEENAH FOUNDRY COMPANY R-1916F, OR GCDC-WWS APPROVED ALTERNATE. STEPS SHALL BE M.A. INDUSTRIES PS-1-PF, AMERICAN STEP CO. ML-10, OR A GCDC-WWS APPROVED ALTERNATE.

6. ALL SANITARY SEWERS SHALL BE INSTALLED PURSUANT TO THE SANITARY SEWER STANDARD DETAILS. DEEPER SEWERS, EXCESSIVE TRENCH WIDTH, AND WHERE NOTED, THE CONTRACTOR SHALL ADHERE TO THE REQUIREMENTS SPECIFIED.

7. WHERE MANHOLE ADJUSTMENT IS REQUIRED, THE MAXIMUM AMOUNT OF ADJUSTMENT BETWEEN THE CASTING AND THE CONE SHALL BE 9". A MAXIMUM OF TWO ADJUSTMENT RINGS ARE ALLOWED. ONLY 3", 4", OR 6" CONCRETE ADJUSTMENT RINGS SHALL BE USED. THE MANHOLE SHALL BE WRAPPED PER SD-5 OF THE SANITARY SEWER DETAILS.

8. ALL SANITARY SEWERS 8" THROUGH 21" DIAMETER, INCLUDING SERVICE LEADS CONSTRUCTED AS PART OF WORK, SHALL UNDERGO A LOW PRESSURE AIR TEST AND AN INFILTRATION TEST, IN CONFORMANCE WITH ASTM C-924-02 OR C-969-02, PRIOR TO FINAL ACCEPTANCE. SANITARY SEWER SYSTEMS LARGER THAN 21" SHALL UNDERGO AN INFILTRATION TEST. THE MAXIMUM ALLOWABLE INFILTRATION FOR PVC SYSTEMS SHALL BE 0 GALLONS PER INCH DIAMETER, PER MILE, PER 24 HOURS, AND CONCRETE SYSTEMS SHALL BE 100 GALLONS PER INCH DIAMETER, PER MILE.

9. ALL PUBLIC SANITARY SEWERS 8" OR LARGER SHALL BE INTERNALLY TELEVISED (PAN/TILT) BY THE CONTRACTOR. THE TELEVISED REPORT, INCLUDING THE DVD, SHALL BE GIVEN TO GCDC-WWS PRIOR TO A REQUEST FOR FINAL INSPECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING (JET/VAC) THE LINE ASSURING ALL DIRT AND DEBRIS HAS BEEN REMOVED PRIOR TO TELEVISING. PRIOR TO TELEVISING THE LINE, WATER SHALL BE PLACED IN THE MAIN FROM THE UPSTREAM MANHOLE UNTIL IT COMES OUT OF THE DOWNSTREAM MANHOLE. THE TELEVISED REPORT SHALL LIST THE DISTANCE A HOUSE LEAD IS LOCATED FROM A MANHOLE, ALL SHEAR BREAKS IN THE MAIN OR SERVICE LEADS, ALL LONGITUDINAL CRACKS, BROKEN PIPE, DIPS, OR HIGH POINTS IN THE LINE, ETC. THE CONTRACTOR SHALL REPAIR DAMAGED PIPE BY EXCAVATING THE PIPE AND REPLACING THE LENGTH OF PIPE IN AN APPROVED METHOD. LEAKING JOINTS SHALL BE REPAIRED BY THE CONTRACTOR BY GROUTING. A LEAKING JOINT IS DEFINED AS HAVING SUFFICIENT INFILTRATION TO WET THE INTERIOR OF THE JOINT. GCDC-WWS SHALL BE NOTIFIED WHEN THE LINE IS TO BE TELEVISED AND SHALL BE PRESENT TO INSPECT REPAIRS.

10. SANITARY MANHOLES SHALL BE PLACED CLOSEST TO PROPERTY CORNERS WHEN FEASIBLE.

11. PRIOR TO PERFORMING ANY TESTING, THE CONTRACTOR SHALL BE REQUIRED TO DO THE FOLLOWING:
   A. CONDUCT PRELIMINARY TESTS ON THE SYSTEM.
   B. PROVIDE THE RESULTS FROM THE PRELIMINARY TESTS ON THE SYSTEM.
   C. PROVIDE RESULTS OF DENSITY CHECKS ON COMPACTED SAND BACKFILL FROM A CERTIFIED TESTING AGENCY.
   D. FURNISH A COMPLETED TWO-YEAR MAINTENANCE & GUARANTEE BOND.
   E. COMPLETE FINAL ADJUSTMENTS ON ANY SANITARY SEWER STRUCTURES.

12. PRIOR TO FINAL APPROVAL, THE FOLLOWING ITEMS MUST BE COMPLETED BY THE CONTRACTOR:
   A. THE FINAL TESTING SHALL CONSIST OF VISUAL INSPECTION OF MANHOLES, TELEVISING OF SANITARY MAIN, LOW PRESSURE AIR TEST, AND/OR INFILTRATION TEST DEPENDENT ON THE SIZE OF THE SANITARY MAIN (SEE #8 ABOVE), AND PASSING AN APPROPRIATE SIZED MANDREL 30 DAYS AFTER THE MAIN HAS BEEN INSTALLED.
   B. PROVIDE MATERIAL CERTIFICATES.
   C. PROVIDE RECORDED COPIES OF ALL EASEMENTS FOR THE MASTER DEED REFLECTING FINAL PROJECT RECORD DOCUMENT LOCATIONS.

PRESSURE PIPE CONSTRUCTION NOTES

1. ALL MATERIAL AND WORK SHALL COMPLY WITH THE LATEST GCDC-WWS SPECIFICATIONS AND STANDARD DETAILS.

2. ALL PUBLIC PRESSURE PIPE SHALL BE DUCTILE IRON. THE PIPE SHALL BE BELL AND SPIGOT OR RESTRAINED JOINT FITTINGS FITTED WITH A RUBBER GASKET. FITTINGS MAY BE GRAY IRON OR DUCTILE IRON MEETING CLASS 350 PSI RATING. FOR 3" OR SMALLER SANITARY SEWER FORCEMAIN, SDR-21 PVC MAY BE UTILIZED.

3. ALL PIPES, VALVES, AND FITTINGS SHALL BE POLYWRAPPED, EXCEPT IN MANHOLES. CIRCUMFERENTIAL WRAPS OF MANUFACTURER RECOMMENDED TAPE SHALL BE PLACED AT NO GREATER THAN 4' INTERVALS ALONG THE BARREL OF THE PIPE, WITH THE EXCESS FOLDED OVER THE TOP TO TAKE OUT EXCESS SLACK, HELPING TO MINIMIZE THE SPACE BETWEEN THE POLYETHYLENE AND THE PIPE. COMPLETE THE INSTALLATION BY OVERLAPPING THE POLYETHYLENE TUBE WRAP AT EACH END AND SEAL ENDS PER THE MOST CURRENT VERSION OF AWWA C105/A21.5 STANDARD. WRAPPING PVC PIPE IS NOT REQUIRED.

4. WHERE SANITARY SERVICE LEADS OR OTHER UTILITIES ARE ENCOUNTERED, THE CONTRACTOR SHALL MAKE ADJUSTMENTS TO PROVIDE CONTINUOUS SERVICE TO PROPERTIES ALONG THE ROUTE OF CONSTRUCTION. ALL WORK, INCLUDING THE REBORING OF SANITARY SEWER SERVICE RISERS TO ACCOMMODATE CONSTRUCTION, OR ADJUSTING PRESSURE PIPE INSTALLATION TO CLEAR EXISTING SERVICES, SHALL BE INCLUSIVE TO CONSTRUCTION.

5. ALL PRESSURE PIPES SHALL HAVE A MINIMUM COVER OVER THE TOP OF THE PIPE OF 5' FROM FINISHED GRADE, 5' CLEARANCE UNDER DRAINS, 5' CLEARANCE BELOW EXISTING DITCHES, AND/OR A MINIMUM 5' BELOW THE EXISTING ROAD. THE STANDARD LAYING CONDITIONS FOR PRESSURE PIPE SHALL BE A 30" TRENCH WIDTH, OR PIPE DIAMETER PLUS 12". THE PIPE SHALL BE LAID ON MDOT CLASS II SAND (A5) A MINIMUM OF 4" WITH RECESSES TO ACCOMMODATE PIPE BELLS OR AS SHOWN ON THE PLANS.

6. ALL TRENCH EXCAVATION, UNDER OR WITHIN THE ONE-ON-ONE INFLUENCE OF THE EXISTING OR PROPOSED PAVING, SHALL BE BACK FILLED WITH COMPACTED MDOT CLASS II SAND (A5).

7. THE CONTRACTOR SHALL RESTRAIN ALL THRUST IN THE SYSTEM BY THE USE OF GCDC-WWS APPROVED RESTRAINED JOINTS AND THRUST BLOCKS. DURING THE INSTALLATION OF WATERMAIN, ALL HYDRANTS, TEES, VERTICAL OR HORIZONTAL BENDS AND FUTURE VALVE CONNECTIONS SHALL BE RESTRAINED. THE RESTRAINT SYSTEM AND LOCATION IN THE FIELD SHALL BE DESIGNATED ON THE PLANS.

8. THE CONTRACTOR SHALL ENCASE THE PRESSURE PIPE IN CONCRETE WHERE THE VERTICAL SEPARATION BETWEEN THE SANITARY SEWER OR STORM SEWER AND THE WATERMAIN IS LESS THAN 18" INCHES.

9. GATE VALVES SHALL BE RESILIENT SEATED CONFORMING TO THE MOST CURRENT VERSION OF AWWA C509 OR C515 STANDARDS. VALVES SHALL HAVE A VERTICAL NON-RISING STEM, AND OPEN CLOCKWISE, OR AS SPECIFIED BY LOCAL MUNICIPALITY HAVING JURISDICTION.

10. FIRE HYDRANTS SHALL CONFORM TO THE MOST CURRENT VERSION OF AWWA C502 STANDARD. ALL HYDRANTS SHALL BE TRAFFIC MODELS WITH BREAKAWAY FLANGES, AND SHALL HAVE THE DRAIN HOLES FACTORY PLUGGED. ALL THE FIRE HYDRANT ASSEMBLIES FROM THE TEE THROUGH THE HYDRANT, SHALL BE RESTRAINED BY A GCDC-WWS APPROVED METHOD. FIRE HYDRANTS SHALL BE PLACED AT PROPERTY CORNERS AND WITHIN THE RIGHT-OF-WAY WHEN POSSIBLE AND SHALL BE PAINTED YELLOW WITH THE CAP COLOR CODED IN ACCORDANCE WITH THE STANDARD DETAILS. FINAL ELEVATIONS AND ADJUSTMENTS TO GRADE, USING EXTENSION PIECES IF REQUIRED, SHALL BE ACCOMPLISHED BY THE CONTRACTOR AT THE CONTRACTOR'S SOLE EXPENSE. FIRE HYDRANTS SHALL HAVE 5 1/4" VALVE OPENING. FIRE HYDRANTS SHALL BE EAST JORDAN 5BR 250, AMERICAN FLOW CONTROL WATEROUS PACER WB67-250, OR A GCDC-WWS APPROVED ALTERNATE.

11. PRESSURE TAPS TO EXISTING WATERMAIN, AND CONNECTIONS TO EXISTING VALVES, SHALL BE MADE ONLY UNDER GCDC-WWS OR THE LOCAL MUNICIPALITY HAVING JURISDICTION. ALL VALVE OPENING AND CLOSING SHALL BE BY THE OPERAT

Hartland Township Planning Commission Meeting Agenda Memorandum

Submitted By: Troy Langer, Planning Director

Subject: Site Plan/PD Application #25-012 Urban Air Adventure Park PD – Preliminary Planned Development Site Plan

Date: July 17, 2025

Recommended Action

Move to recommend approval of Site Plan/PD #25-012, the Preliminary Planned Development Site Plan for Urban Air Adventure Park Planned Development, as outlined in the staff memorandum dated July 17, 2025

Approval is subject to the following conditions:

1. The Preliminary Planned Development Site Plan for Urban Air Adventure Park Planned Development, SP/PD #25-012, is subject to the approval of the Township Board.

2. Waiver request for the planned development project area to be less than 20 acres is approved.

3. Waiver request for the building height to exceed 35 feet is approved.

4. The applicant shall adequately address the outstanding items noted in the Planning Department's memorandum, dated July 17, 2025, on the Construction Plan Set, subject to an administrative review by Planning staff prior to the issuance of a land use permit.

5. As part of the Final Plan Review, the applicant shall provide all applicable easement documents. The documents shall be in a recordable format and shall comply with the requirements of the Township Attorney.

6. The two (2) parcels that comprise the project area shall be combined prior to the issuance of a land use permit.

7. Applicant complies with any requirements of the Township Engineering Consultant, Department of Public Works Director, Hartland Deerfield Fire Authority, and all other government agencies, as applicable.

8. Applicant complies with any requirements of the Michigan Department of Environment, Great Lakes, and Energy (EGLE), regarding applicable permits and approvals, if necessary.

9. Roof-mounted mechanical units (RTU) should be properly screened or not visible to the Planning Commission's satisfaction, as shown on the Final PD plans.

10. Monument signs shall be shown on the Final PD plans.

11. (Any other conditions the Planning Commission deems necessary).

Discussion

Applicant: Nathan Sumner

Site Description

The proposed planned development (PD) is shown south of Highland Road, west of US-23, and east of Old US-23, in Section 28 of the Township. The project area is comprised of two (2) undeveloped parcels, which are located south of Fountain Square and east of Hartland Town Center. Each parcel is zoned GC (General Commercial). The northern parcel (labeled as Parcel C on the plan) is approximately 3.52 acres (Parcel ID #4708-28-100-037) and the southern parcel (labeled as Parcel D on the plan) is approximately 2.53 acres (Parcel ID #4708-28-100-030). The combined total is approximately 6.05 acres.

The site consists of tall grass areas, two (2) unregulated wetland areas, a large, regulated wetland area on the east and south, an existing drainage swale, stormwater infrastructure (catch basin and storm pipe), wooded area on the south, and a gravel access drive. Small groupings of trees exist on the site.

The 2020-2021 Amendment to the Future Land Use Map (FLUM) designates the subject parcels as Commercial.

The Fountain Square commercial development is located to the north and is zoned GC (General Commercial). Hartland Town Center is west of the subject site and is also zoned GC. To the south, there are two (2) undeveloped parcels, both zoned LI (Light Industrial).

Public access to the proposed development is via existing driveways into Hartland Town Center and Fountain Square from Old US-23. Existing internal drive aisles provide access to the subject site. A proposed easement plan is provided by the applicant.

Municipal water and sanitary sewer will be required for this project.

Site History

Site Plan Application #261

The commercial development (Hartland Town Center) was approved in 1999 under Site Plan Application #261. At this time, the development consisted of one (1) parcel (12.6 acres) and was zoned PDLI-Planned Development Light Industrial. The site plan showed three (3) commercial buildings, labeled as Building A, B, and C. There is very little documentation regarding the permitted uses or dimensional standards for the planned development.

Metes and Bounds Application #600

On February 6, 2001, the Township Board approved REZ #600, a request to split the original 12.6-acre parcel into four (4) parcels, labeled as Parcel A, B, C, and D. This is the current parcel configuration.

Rezoning Application #341

In 2009 Rezoning #341 was approved to rezone each of the four (4) parcels as noted above (12.6 acres total) from PDLI (Planned Development Light Industrial) to GC (General Commercial). The site plan used for REZ #341 is dated May 12, 2005. At that time two (2) multi-tenant buildings had been constructed (one on Parcel A and one on Parcel B). Currently the buildings are occupied with businesses such as Hartland Brewing Company, Wings Etc. and Mackles Table and Taps.

Site Plan/PD Application #25-011 (Urban Air Adventure Park PD – Concept Plan)
The Concept PD plan was discussed under SP/PD Application #25-011. The Planning Commission reviewed the project on July 10, 2025, followed by the Township Board's review of the project on July 15, 2025.

Planned Development Procedure
Section 3.1.18 of the Township's Zoning Ordinance provides standards and approval procedures for a PD (Planned Development). Approval of a Planned Development is a three-step process. A Concept Plan, Preliminary Plan, and Final Plan are all reviewed by the Planning Commission and the Township Board, with the Planning Commission making a recommendation and the Board having final approval at each step.

The process usually requires a rezoning from the existing zoning district to the Planned Development (PD) zoning district. As part of the rezoning, a public hearing is held before the Planning Commission consistent with the Michigan Zoning Enabling Act; this public hearing is held at the same meeting during which the Planning Commission reviews and makes a recommendation on the Preliminary PD. Approval of the Final Plan by the Township Board usually constitutes a rezoning of the subject property to PD (Planned Development).

Given the requirements for publishing a notice for the planned development, the public hearing has been scheduled for the July 24, 2025, Planning Commission meeting. Approval of the Final Plan by the Township Board usually constitutes a rezoning of the subject property to PD (Planned Development).

For all intents and purposes, the Preliminary Plan step is essentially the same as a preliminary site plan review for a conventional project in the Township. All the information and details required for a preliminary site plan approval must be provided for the Preliminary PD review and approval. Final PD review will involve detailed plans for those phases for which construction is intended to begin immediately, review of the Planned Development Agreement, and other written documents as applicable.

Overview of the Preliminary Plan and Proposed Use
The applicant is proposing to construct an Urban Air facility which is an indoor adventure park. This use could potentially be considered a Special Land Use in the GC (General Commercial) zoning district, subject to a determination by the Planning Commission. The applicant has instead decided to pursue the project as a Planned Development. The Concept PD plan was recently reviewed by the Township under SP/PD #25-011. The applicant has progressed to the next step and has submitted Preliminary PD plans for an indoor adventure park.

The subject project area is currently zoned GC (General Commercial) and consists of two (2) parcels with a combined total of approximately 6.05 acres. The two (2) parcels will be required to be combined as art of the Final PD application. Per Section 3.1.18.B.ii, the minimum size for a Planned Development is twenty (20) acres of contiguous land. The Township Board, upon recommendation from the Planning Commission, may permit a smaller Planned Development subject to meeting the requirements in Section 3.1.18.B.ii, such as the project offers unique characteristics and benefits or the parcel in question has unique characteristics that significantly impact development. The applicant submitted a letter to the Township, dated July 7, 2025, requesting a waiver of the minimum Planned Development size requirements and explained the basis for the request.

The approximate 38,400 square foot building offers a diverse range of activities such as trampolines, climbing walls, laser tag, and zip line for all ages. A full-service café is provided as well as several room options that are available for parties and group events.

Per the applicant, the maximum occupancy for an Urban Air facility of a similar size tends to be in the range of 700-900 occupants, depending on the range of activities offered, party rooms, tables and similar options. The typical hours of operation are Monday through Friday, 4:00 p.m. to 8:00 p.m. during the school year; Saturday, 10:00 a.m. to 9:00 p.m.; and Sunday, 11:00 a.m.to 9:00 p.m. During school break periods, summer, or as scheduled for special events, the hours are Monday through Friday, 10:00 a.m. to 9:00 p.m. Regarding the site layout for the proposed facility, the building is positioned towards the west lot line. The public entrance to the building is at the southwest corner of the building.

Vehicular access to the site can be achieved using existing driveway access points from Old US-23 that are associated with Hartland Town Center development. Access can also be found by entering Fountain Square via Highland Road and traveling south to Hartland Town Center. Once within Hartland Town Center, the proposed recreation facility can be accessed by an existing drive aisle located on the rear side of the buildings in Hartland Town Center. The plan shows 161 parking spaces for Urban Air.

A proposed easement plan was submitted by the applicant. The proposed easement shows a 60-foot-wide easement area on the adjacent property (Hartland Town Center), over a portion of an existing drive aisle behind the multi-tenant building in Hartland Town Center and abutting the subject site. The easement is for sanitary sewer, parking, access, electrical, and lighting. Two (2) access points into the Urban Air site are shown within the easement as well as parking spaces and landscaped parking islands associated with Urban Air, and two (2) existing dumpster enclosures that are associated with the Hartland Town Center development. The proposed easement plan is discussed in this memorandum.

Parking is provided on the west, south, and north sides of the building. Twenty-seven (27) shared parking spaces are shown on the west, outside of the subject parcel and within the proposed 60-foot-wide easement.

The proposed 38,400 square foot building is approximately 36’-6” in height. This height exceeds the maximum allowed height of thirty-five (35) feet in a Planned Development. A waiver request to exceed the maximum building height was submitted by the applicant, in the letter dated July 7, 2025, with an explanation of the reasons for the height deviation, for the Planning Commission’s consideration.

Building elevations note that the façade materials include brick a decorative concrete block product (Castle Rock), glass (windows on east elevation and at main entrance), seamed metal panel system, smooth metal panel system, and wood-look metal siding. Multi-colored metal panels are proposed at the building entrance.

The east elevation drawings show three (3) silhouette images of people, which may include halo lighting around the edges. Several wall signs are proposed on the east, west, and south elevations. Signs are discussed in a separate section of this memorandum.

Stormwater management plans show a proposed sediment basin in the southeast portion of the site, with drainage and grading occurring in wetland areas on the east and south, as labeled on the plans. Information on the regulatory status of the wetland area(s) was not provided.

The plans list building setbacks as required for GC (General Commercial) zoning, and parking setbacks per the Zoning Ordinance. Section 3.1.18.C.vi.a. (PD section) provides the minimum yard setbacks for a planned development. Further discussion on this topic occurs in the Design Standards section of the memorandum.

Municipal water and sanitary sewer will be required for this development. The applicant will need to work with the Township and Livingston County regarding municipal water and sanitary sewer. The applicant

will also need to work with the Hartland Township Department of Public Works (DPW) to acquire the necessary Residential Equivalency Units (REUs) for this development.

Eligibility Criteria (Section 3.1.18.B.)
To be eligible for PD approval, the applicant must demonstrate that the criteria in Section 3.1.18.B. will be met.

1. **Recognizable Benefits.** *The planned development shall result in a recognizable and substantial benefit to the ultimate uses of the project and to the community and shall result in a higher quality of development than could be achieved under conventional zoning.*

   The applicant has provided an explanation of the recognizable benefits in the letter dated July 7, 2025. Per the applicant, Urban Air provides a year-round family entertainment development that can accommodate team building events for corporations, birthday parties for adults and children, and activities for all ages. The applicant noted the proposed indoor adventure park will be a benefit to the community as this type of facility is not offered in the Township but is in high demand.

2. **Minimum Size.** *Planned Developments must be a minimum of 20 acres of contiguous land.*

   The combined total of the two (2) parcels of land for the project is approximately 6.05 acres and does not comply with the minimum size of 20 acres of contiguous land for a planned development. Per the applicant's waiver request, dated July 7, 2025.

3. **Use of Public Services.** *The proposed type and density of use shall not result in an unreasonable increase in the use of public services, facilities, and utilities, and shall not place an unreasonable burden upon the subject site, surrounding land, property owners and occupants, or the natural environment.*

   The proposed Urban Air facility can be accessed from Old US-23 and Highland Road, via existing access points in the adjacent developments known as Hartland Town Center and Fountain Square.

   Municipal water and sanitary sewer services will be required for the project. The Township Director of Public Works has provided comments in the review letter dated July 15, 2025.

   The Hartland Deerfield Fire Authority provided comments on the project in the letter dated June 30, 2025.

4. **Compatibility with Comprehensive Plan.** *The proposed development shall not have an adverse impact upon the Comprehensive Plan for the Township. Notwithstanding this requirement, the Township may approve a Planned Development proposal that includes uses which are not called for on the Future Land Use Map, provided that the Planning Commission and Township Board determine that such a deviation from the Future Land Use Map is justified in light of the current planning and development objectives of the Township.*

   The subject property is designated as Commercial on the 2020-2021 Comprehensive Plan and Future Land Use Map (FLUM) Amendment. Per the Comprehensive Plan, the majority of commercial land uses within the Township are intended to be concentrated around the M-59 and US-23 interchange. The intended uses in the Commercial category include the sale of convenience goods, personal /business services for the day-to-day needs of the immediate neighborhood as well as provide for auto-oriented

services, customer and entertainment services, and retail products. The proposed project appears to be consistent with the intent of the Commercial designation in the FLUM and Comprehensive Plan.

Planned Development Design Standards (Section 3.1.18.C.)
This section outlines the design standards for a planned development. Additional site standards will be discussed from applicable sections of the Zoning Ordinance.

1. **Permitted Uses.** *The predominant use on the site shall be consistent with the uses specified for the parcel on the Township's Comprehensive Plan for Future Land Uses.*

   The predominant use on the subject site is an indoor adventure park. The use is consistent with the Comprehensive Plan, as an entertainment service.

2. **Residential Density.** *Residential density in a planned development shall be consistent with the density designation within the Township's Comprehensive Plan.*

   This standard does not apply to the proposed project.

3. **Design Details.** *The applicant shall prepare a detailed description of design details to be implemented in the proposed planned development, to be presented in a Pattern Book.*

   The design details are provided on the submitted site plans and architectural drawings for the project.

4. **Minimum Yard Requirements.** The minimum yard requirements are noted in the chart below per Section 3.1.18.C.vi.a.(Non-Residential) for the building.

Yard Location	Minimum PD Standard	Proposed distance or setback*	Complies Yes/No
Along perimeter adjacent to public road (US-23, east side of site)	75 ft.	220 ft.	yes
Along perimeter, but not adjacent to a road	40 ft.	165 ft. (north) 173 ft. (south)	Yes
Between parking lot & property line but not adjacent to road (west property line)	20 ft.	81 ft.	Yes

*Measured to closest point of building

5. **Building Height.** *No building in a planned development shall be greater than thirty-five (35) feet in height.*

   Per the architectural plans, the building height is stated as 36'-6", to the highest point. The applicant has submitted a waiver request to exceed the maximum allowed height of thirty-five (35) feet. The Planning Commission shall review the waiver request, dated July 7, 2025, and make a determination.

6. **Parking and Loading.** *Planned Developments shall comply with the parking and loading requirements specified in Section 5.8, Off-Street Parking requirements, and Section 5.9, Loading Space Requirements of the Zoning Ordinance.*

Parking requirements are listed in Section 5.8.4.H (Table of Minimum Parking Space Requirements). The proposed use, indoor adventure park, is not specifically listed in the table, however the applicant has applied the parking standard outlined in Section 5.8.4.H for "Health Spa, Gymnasiums, and Health Clubs." This standard requires ten (10) spaces for each club or spa plus one (1) space for each 200 square feet of gross floor area in excess of 1,000 gross square feet. Based on this formula, the applicant states 192 parking spaces are required (38,400 sq. ft. ÷ 200 = 192), and 161 parking spaces are provided.

The applicant has submitted information on parking needs for this site which is based on the parking needs of other Urban Air facilities, for the Planning Commission to consider. The formula presented by the applicant is as follows:

3 to 4 parking spaces per 1,000 square feet of gross floor area (gross floor area = 38,400 sq. ft.)
Equates to: 115 to 154 parking spaces (38.4 x 3 = 115; 38.4 x 4 = 154)
One hundred and sixty-one (161) parking spaces are proposed, six (6) of which are barrier-free parking spaces. The parking spaces are ten (10) feet by twenty (20) feet in size.

One (1) loading space is required, ten (10) feet in width by fifty (50) feet in length. A loading space is not shown on the plan. Additional discussion on parking and loading is found in the Site Requirements portion of this memorandum.

7. **Landscaping.** Landscaping requirements are found in Section 3.1.18.C.vi.e. These are considered minimum design standards, typically for a commercial or office development. A more detailed review of the landscaping is provided in this memorandum using applicable landscape standards as outlined in Section 5.11 (Landscaping and Screening - Updated Landscape Ordinance version).

8. **Open Space.** *Open space shall be provided to complement and accentuate the high-quality design of the proposed planned development. At minimum the planned development shall provide open space consistent with the previous zoning designation for the site.*

   Per this section of the Zoning ordinance (Section 3.1.18.C.vi.f,), the planned development shall provide open space consistent with the previous zoning designation for the site, at a minimum. Currently the site is zoned GC (General Commercial). In GC, lot coverage is limited to seventy-five percent (75%) for the principal structure. The plans state the lot coverage as 14.6% for the building footprint.

   A separate open space plan was submitted and shows approximately 54.7% of the site is open space.

9. **Natural Features**. *Consistent with the stated intentions for the creation of these regulations, the preservation of the natural features of the Township is an important planning consideration. A PD proposal must consider the natural topography and geologic features, scenic vistas, trees and other vegetation and natural drainage patterns that exist on the site and propose a development pattern which preserves and avoids disruption of those natural features as much as possible.*

   A Topographic Survey is provided. Per the plan, the site consists of tall grass areas generally on the west; two (2) unregulated wetlands; a large, regulated wetland area on the east and south; and small groupings of trees. Throughout the site. An existing drainage swale, storm pipe, catch basin, and gravel drive are shown in the southern portion of the site.

10. **Sidewalks and Pedestrian Access.** *The applicant must demonstrate the PD site, and all uses within the site, will be connected to any existing pedestrian and nonmotorized vehicle paths and trails within a public right-of-way or easement open to the public.*

The proposed development can be accessed from Hartland Town Center and Fountain Square via existing access drives and internal drive aisles in the parking areas. Sidewalks are shown along three (3) sides of the proposed building. Sidewalk connections to Hartland Town Center or Fountain Square are not proposed.

Requirements for Preliminary Review (Section 3.1.18.E.ii)

The following section is a summary of items that have not been addressed in the previous review as part of the Design Standards section.

1. **Sewer and Water.**
   The Department of Public Works has provided a review letter dated July 15, 2025. The DPW Director is working with the applicant to determine the number of REUs required for the proposed facility.

2. **Stormwater and Drainage Systems.**
   The stormwater management plans show a sediment basin in the south portion of the site where stormwater drainage from the subject will be directed. The plans also show an outlet control structure in the sediment basin, with drainage to an adjacent wetland area. The regulatory status of the wetland area has not been provided to staff. The applicant should contact the Michigan Department of Environment, Great Lakes, and Energy (EGLE) regarding the wetland areas and secure all applicable permits and approvals for proposed work in a State regulated wetland.

3. **Traffic Impacts.**
   The applicant provided a brief Traffic Impact Analysis in the letter dated July 7, 2025. The analysis relied on traffic generation data from the Institute of Transportation Engineers (ITE) Manual) for Land Use Code 435 (Multi-purpose Recreational Facility) and Land Use Code 436 (Trampoline Park). The following chart summarizes the traffic information for Land Use Code 435 and 436 as presented by the applicant.

   Trip Generation per 1,000 Square Feet Gross Floor Area – During PM Peak Hour

Land Use Code	Gross Floor Area	Trip Generation Calcs.	Trip Generation PM Peak Hour
435	38,400 SF	38.4 x 3.58 trips = 147	147 Trips
436	38,400 SF	38.4 x 1.5 trips = 58	58 Trips

   The applicant also provides considerations regarding traffic impacts and the use patterns of a typical Urban Air facility.

4. **Vehicular Circulation.**
   The proposed Urban Air facility is accessed from existing access drives from Old US-23 into Hartland Town Center and drive aisles within Hartland Town Center. The proposed facility sits behind the commercial buildings in Hartland Town Center and Fountain Square. Although the site has frontage along US-23, there is no direct vehicular access to the site from US-23.

5. **Fiscal Impacts.**
   The applicant has provided a response to this topic in the letter dated July 7, 2025. A short summary was also submitted by the applicant entitled, Property Tax Comparisons.

Site Requirements

Dumpster Enclosure (Sec. 5.7)

- Required – Dumpster designed, enclosed, and screened per requirements; decorative masonry screen wall on 3 sides to match exterior façade materials of the building and steel reinforced, opaque, lockable wooden gates. Enclosure height sufficient to screen dumpsters; minimum enclosure height is 6 feet. The bottom surface within the enclosure shall be constructed of eight (8) inch thick, reinforced concrete and shall extend a minimum of ten (10) feet in front of the enclosure.
- Proposed – Single trash enclosure, 10' by 12', located on the north side of the building, abutting the building wall, with a 7-foot-wide concrete area in front of the gates. Enclosure walls are 6 feet in height, consisting of concrete block, with the outside walls to match the building façade materials. Metal reinforced wooden gates are shown, but the color is not stated.
- Meets Requirement? – Yes
- Comment – The color of the gates shall be stated on the Construction Plan set.

Parking Lot / Driveway / Internal Roads Setbacks (Sec. 5.8.3.)

- Required – Off-street parking in commercial districts may only be located in a side or rear yard or non-required front yard; may not be permitted within 20' of a single-family district, nor within 10' of a road ROW, or 25' from a front lot line, nor 10' from a side or rear lot line.

Setback	Required	Proposed	Meets Requirements? (Y / N)
Front (east) – US-23	25'	275'	Yes
Rear (west)	10'	0' (shared parking area)	NA
Side (north)	10'	20'	Yes
Side (south	10'	NA	Parking not proposed

- Meets Requirement? – Yes
- Comment – Parking on the west is a shared parking area within the proposed 60-foot-wide easement area; thus, parking setbacks here are not required.

Off-Street Parking (Sec. 5.8.4.H – Parking requirements for this use not listed)

- Required – Parking requirements for an indoor adventure park facility is not listed in Section 5.8.4.H. The applicant has applied the parking standard outlined in Section 5.8.4.H for "Health Spa, Gymnasiums, and Health Clubs," on Sheet C200. Additionally, the applicant has provided a parking ratio analysis based on parking needs at other Urban Air facilities. Required parking space dimensions (standard parking space): 10' X 20'.

  Parking based on Sec. 5.8.H for Health Spa, Gymnasiums, and Health Clubs)
  Required: 10 spaces for each club plus one (1) space for each 200 square feet of gross floor area in excess of 1,000 gross square feet. Equates to 192 parking spaces (38,400 ÷200 = 192)

  Parking based on Applicant's analysis:
  3 parking spaces per 1,000 sq. ft. gross floor area = 115 parking spaces (38.4 x 3)
  4 parking spaces per 1,000 sq. ft. gross floor area = 154 parking spaces (38.4 x 4)

- Proposed – 161 parking spaces; parking spaces are 10' X 20' in dimension, and include 6 barrier-free parking spaces and aisle (2 spaces are van accessible)

- Meets Requirement? – **TBD**
- Comment – Applicant has provided parking needs analysis based on similar Urban Air facilities as outlined above. Using that formula, the proposed plan provides a sufficient number of parking spaces. The Planning Commission to consider the applicant's appraisal of parking needs for the proposed Urban Air facility.

Barrier-Free Parking

- Required – 1 barrier-free space in a location most accessible to the building entrance, with at least 1 space van-accessible (1 barrier-free space required per 25 parking spaces). For 151 to 200 parking spaces, 6 barrier-free parking spaces are required.
- Proposed – 6 barrier-free parking spaces, 2 of which are van accessible spaces, located by the building entrance (south).
- Meets Requirement? – Yes
- Comment – (none)

Loading (Sec. 5.9)

- Required – 1 loading space (10' X 50') required for up to 10,000 sq. ft. of gross floor area (for industrial use)
- Proposed – Loading space for the facility is not shown
- Meets Requirement? – **No**
- Comment – Typically this has not been required to be shown on a plan. In this case, patrons can park and unload/load, or drive inside the building and unload/load. A dedicated loading area for each drive-up unit is not provided. Planning Commission to determine if a loading space is necessary.

Landscaping (Section 5.11 – Updated Landscape Ordinance version)

Applicable sections of Section 5.11 (Landscaping and Screening) will be applied to the PD, as outlined below. This site has frontage on the private service drive (west) and US-23 (east). The applicant designated the Greenbelt area on the east side of the site, parallel to the right-of-way of US-23.

A. Landscape plan requirements (Sec. 5.11.1.D.)
   - Required – Landscape plans are to be prepared by a Registered Landscape Architect (plans with seal and signature).
   - Proposed – Landscape plans are prepared by a Registered Landscape Architect.
   - Meets Requirement? – Yes
   - Comment – (none)

B. Irrigation (Sec. 5.11.2.A.viii.)
   - Required – All landscaped areas (including lawns) shall be provided with an automatic, underground or drip irrigation system.
   - Proposed – Irrigation system is to be designed to by irrigation contractor, per note on Sheet C500.
   - Meets Requirement? – Yes
   - Comment – Irrigation plan required to be provided in the Construction Plan set.

C. Greenbelt Landscaping (Sec. 5.11.2. C.)
   - Required – Within the first 30 feet of the property, minimum 20-foot-wide area, 1 canopy tree for every 30 ft of lineal of frontage; Planning Commission may approve up to 50% substitution of canopy trees with evergreen trees; PLUS 3 small deciduous ornamental trees or large deciduous or evergreen shrubs for the initial 40 ft., and 1 per 20 ft. thereafter. Frontage = 580 ft. along east property line (abutting US-23 ROW).

EQUATES TO: 19 canopy trees; 3 ornamental trees, or large deciduous or evergreen shrubs in first 40 ft., plus 27 additional ornamental trees or large deciduous or evergreen shrub, or combination thereof (30 total ornamental trees/large shrubs) REQUIRED

- Proposed – No new landscaping proposed as wetland areas dominate this area.
- Meets Requirement? – No
- Comment – Planning Commission determination required if proposed plan is acceptable.

D. Foundation Landscaping (Sec. 5.11.2.D.)

- Required – Length must equal 60% of the front and sides of the building length along front and sides of building where facing road or adjacent parking lot or other areas which provide access to building; must be 8 ft. in width and located adjacent to building, and consist of 1 ornamental or columnar tree, and 6 large or 8 small shrubs for every 30 lineal feet of building length or portion thereof.
  Building perimeter north, south, & west facing parking = 560 ft total. Foundation perimeter calcs.: 560 ft. X 60% = 336 ft. (plan states 340 ft.). 336 ÷ 30 = 11.2 to use for plant numbers.
  EQUATES TO: 11 ornamental/columnar trees; PLUS 88 small shrubs or 66 large shrubs REQUIRED
- Proposed – 8 ornamental trees; 2 columnar trees; 80 large shrubs; and 6-foot-wide lawn border, in 10-foot-wide planting bed. Stone mulch strip, 4 feet wide, shown in foundation planting bed next to building.
- Meets Requirement? – Deficient 1 ornamental tree but plan exceeds the number of required shrubs.
- Proposed – **TBD**
- Comment – A 2-foot-wide stone maintenance strip is permitted along the foundation wall. Proposed width of stone strip is 4 feet. Planning Commission determination required if proposed plan is acceptable.

E. Parking Lot Landscaping (Sec. 5.11.2.E.)

- Required – Landscaped end caps for parking areas of 10 or more spaces; landscape island required at intervals not to exceed 15 parking spaces; landscape areas in parking lots shall not be less than 10 ft. in any direction, nor less than 180 sq. ft.; 1 canopy tree per 180 sq. ft. of interior area, with parking lot island crowned and covered with lawn or live plant material to meet minimum ground coverage requirements (80% coverage).
  Parking islands sq. ft.: 8,099 sq. ft. (stated on Sheet C500)
  EQUATES TO: 45 canopy trees (8,099 ÷ 180 = 45) **Chart states** 41 trees and 43 shrubs provided.
- Proposed – 19 canopy trees; 2 ornamental trees; 5 evergreen trees, and 42 shrubs; lawn provided in parking islands (where square footage of island is listed: 8,099 SF total). TOTAL = 26 trees.
- Meets Requirement? – No, for required number of trees in parking islands (specifically canopy trees), and not all trees are canopy trees (ornamental and evergreen trees proposed as well).
- Comment – Some of the parking islands and landscaping are within the proposed 60-foot-wide easement and thus are outside of the boundary of the subject site. The landscaping in these parking islands is counted towards the required landscaping for Urban Air. Parking islands are to be crowned 6" for islands up to 10 feet wide and crowned 12" for wider islands. A note should be added to the Construction Pla set. Planning Commission determination required if proposed plan is acceptable.

F. Perimeter Landscaping (Sec. 5.11.2.E.ii.4.b.)– For areas not visible from a public road that do not have other screening requirements such as screening between properties – along south property line adjacent to parking area.

- Required – 15-foot-wide perimeter area to include 1 canopy tree with 4 large shrubs or 1 evergreen tree per 30 lineal ft. Lineal feet = 245 ft.
  EQUATES TO: 8 canopy trees PLUS 32 large shrubs; or 8 evergreen trees REQUIRED.

- Proposed – 8 evergreen trees. Landscape planting area varies in width from 30 ft. to 50 ft. Lawn provided.
- Meets Requirement? – Yes, for the number of required trees. Shrubs are not provided.
- Comment – Abutting vacant parcel to the south is zoned LI (Light Industrial). Planning Commission determination required if proposed plan is acceptable, or if shrubs are required.

G. Screening of Ground Mounted Equipment (Sec. 5.11.2.G.iii.)
- Required – Screening on three sides for utility cabinets (if 30 inches or more in height)
- Proposed – Utility cabinets are not proposed or shown.
- Meets Requirement? – NA
- Comment – Should utility cabinets be proposed, screening is required, and landscape plan will be required on the Construction Plan set.

H. Detention/Retention Area Landscaping (Sec. 5.11.2.H.)
- Required – Detention/retention ponds must be integrated into the overall design of the property and landscaped to provide a natural setting; 1 canopy or evergreen tree must be planted for every 50 lineal feet of basin perimeter measured along top of bank elevation. Trees to be planted in random pattern or groupings. Side slopes of detention pond not to exceed 1 foot vertical for every 4 feet horizontal.
  Sediment Basin Perimeter - Approx. 300 lineal ft. (per statement on plan). EQUATES TO: 6 canopy or evergreen trees REQUIRED
- Proposed – 5 canopy trees; 3 deciduous ornamental trees; and 24 large shrubs. Side slopes are 1:6. Trees are not planted in a random pattern or groupings.
- Meets Requirement? – Yes, 8 trees are proposed, with a mix of canopy and ornamental trees, and large shrubs. Plants are arranged in a formal pattern.
- Comment – The Planning Commission to determine if the proposed plan is acceptable.

Other Landscaping and Site Comments

- The Planting Requirements chart on Sheet C500 has several mistakes regarding plant counts and incorrect landscape standards are listed. Staff will work with the applicant regarding the corrections to the data, for the Construction Plan set.

Lighting (Sec. 5.13)

A. Intensity
- Required – Max. 0.5 fc along property line adjacent to residential; or max.1.0 fc along property line adjacent to non-residential; average fc between 2.4 and 3.6 in main parking area and an average of 5.0 fc at main building entrance and at exit/entry drive; may not exceed 10 fc on site.
- Proposed – Footcandle symbol (+) is shown on the photometric plan, however the footcandle value is not stated at each spot. Plan does not list the average footcandles at main parking area, main building entrance, or at exit/entry. Per the plan the footcandle values are measured at 5 ft. above ground level.
- Meets Requirement? – **No**. Plan to be revised to show footcandle values and average intensity as noted above.
- Comment – A revised photometric plan shall be submitted as part of the Construction Plan set.

B. Fixture Height
- Required – Lighting fixtures shall not exceed a height of 25', or the height of the principal building, whichever is less, measured from the ground level to the centerline of the light source.
- Proposed – The overall stated height of the light pole and base 25 feet

- Meets Requirement? – Yes
- Comment – (none)

C. Fixture Type
- Required – Details of all lighting fixtures needed including specifications for shielding, wattage, and illumination.
- Proposed – Technical information on light fixtures was submitted.
- Meets Requirement? – Yes, for specification sheets for building lights and parking lot pole fixture. Specification sheet for ground-mounted flag light fixture is not provided.
- Comment – Specification sheet for ground-mounted flag light fixture to be provided with Construction Plan set.

Water Supply and Wastewater Disposal (Sec. 5.16)
The site will be served by municipal water and sanitary sewer.

Architecture / Building Materials (Sec. 5.24)
Architecture Comments:
Façade Materials Calculation – Façade materials must comply with the specifications for Façade Materials Group #1; percentages for each elevation are provided.

Materials Group #1: Proposed Façade Materials by Percentage by Elevation

Elevation	Metal fascia + smooth metal panels (20% max. flat metal panel)	Seamed metal panels Not listed in Ord.	Split-faced Block (25% max.) Cement block Jumbo Brick (4"x4"x16" w/score grout lines	Glass (50% max.)	Siding (10% max.) Wood-look metal siding	Metal doors Not listed in Ord.
North	3.0% (metal fascia)	0.0%	93.9%	0.0%	0.0%	2.9%
South	15.4%	0.0%	57.8%	19.9%	6.7%	0.0%
East	18.0%	8.6%	54.6%	9.4%	9.2%	0.0%
West	23.3%	17.4%	53.5%	5.5%	0.0%	0.0%

- Colors: Color renderings of the building are provided (Sheet A201-A205) in the plan set. Specific product information for each façade material is stated in the submittal entitled Exterior Color Pallet. Grey and cream tones used for masonry products; light and grey tones for metal panels (smooth and seamed metal); wood tone siding; vertical metal panels at building entrance are multi-color; blue metal panels as a surround for entrance; and neon green horizontal band as edging for canopy at entrance.
- Materials: Percentages are listed for each elevation side as indicated by the table; specifications on all materials are provided. The façade material percentages are consistent with those presented on the Concept PD Plan, reviewed under SP/PD #25-011.
- The outlines of the roof-mounted mechanical units are shown on the elevations (RTUs). The elevations show the RTUs extending above the highest horizontal line of the building. The physical roofline is not shown on the elevations. An aerial view of the building shows on Sheet A206 shows six (6) RTUs positioned in the center portion of the roof. Perspective drawings

are also provided on Sheet A206, illustrating that the RTUs are partially screened per the views presented.

- Meets Requirement? – **TBD**
- Comment – Planning Commission to determine if the façade materials and screening of the RTUs are acceptable.

Other Comments

Flag and Flagpole

Per Section 5.26 (Signs) of the Zoning Ordinance, up to two (2) flags of any combination limited to any nation, state, community organization, educational institution, or non-commercial organization and one (1) commercial or corporate flag. The height of flagpoles is limited to thirty-five (35) feet. Flags may be a maximum of forty (40) square feet in size. Flags that are part of a Township approved streetscape plan shall be exempt from these standards.

The proposed plan shows one (1) United States flag mounted on a flagpole, located southeast of the building, with in a circular landscape bed. The flag size is stated as ninety-six (96) square feet (8' x 12') and exceeds the maximum flag size of forty (40) square feet. The flagpole height is stated as forty (40) feet and exceeds the maximum allowed height of thirty-five (35) feet. The Planning Commission is to make a determination if the proposed flagpole height and flag size are acceptable.

Easement Plan

A preliminary Easement Plan was submitted by the applicant showing a 60-foot-wide easement area within the existing drive lane, in Hartland Town Center and adjacent to the west property line of the subject site. Per the document the easement area is to accommodate sanitary sewer, access, parking, electrical, and lighting. It should be noted that landscaped parking islands are shown within the proposed easement area on the proposed landscape plans for Urban Air. Presumably, irrigation is proposed in the islands as well. Consideration should be given to providing language in the Easement Plan document to allow for these improvements within the easement. Additionally, minor changes have occurred to the Urban Air site plan layout which should be reflected on the final version of the Easement Plan. The Easement Plan will be reviewed as part of the Final PD documents and will be subject to the requirements of the Township Attorney.

Signage Packet

A sign program is presented in a separate submittal entitled Signage Packet. The program includes illustrations of three (3) wall signs, one (1) panel sign, and four (4) stylized, silhouette images of people. The silhouettes are illuminated at night, using lighting behind the image that outlines the image. Dimensions and square footage are provided for each sign and silhouette. A night view of each sign and silhouette is provided. Technical information is found in the Sign Packet submittal. A silhouette image as proposed is not specifically listed in the Zoning Ordinance in the Sign ordinance (Section 5.26).

A monument sign is not shown, however, during the Concept PD review at the Planning Commission (SP/PD #25-011), the applicant indicated an off-site monument sign might be located along Old US-23. Drawings of the off-site sign were not submitted with the current application (SP/PD #25-012 – Preliminary PD Plan). The monument sign shall be shown as part of the Final PD submittal.

A comparison of the proposed signs and the sign requirements in the Zoning Ordinance was not pursued as part of the review of the proposed sign program. Some signs may not comply with the zoning standards regarding sign size, location, and number of signs. The intent here is to present the proposed sign program

for the Planning Commission's review and determination. The following chart summarizes the proposed sign program. The square footage of a sign/silhouette is based on the dimensions as measured to the outer edge of any letter, symbol, logo, or other feature (sign height and sign length).

Sign Summary Chart

Sign & Location	**Sign Dimensions (Height x Length) & Size (Square feet /SF)**
East Elevation (facing US-23) *Urban Air* – Wall sign Individual channel letters internally illuminated	 4'-0" x 22'-3" 89 SF
East Elevation Silhouette #1 – Backlit/outline lighting	10'-4" x 8'-3" 85 SF
East elevation Silhouette #2 – Backlit/outline lighting	13'-1" x 9'-3" 120 SF
East elevation Silhouette #3 – Backlit/outline lighting	14'-7" x 4'-11" 72 SF
East Elevation Silhouette #4 – Backlit/outline lighting	14'1" x 11'-7" 163 SF
West Elevation at Building Entrance *"Urbie" logo head* – Panel Sign Internally illuminated panel sign Mounted on canopy/not mounted on wall	 5'-0" x 7'-0' 35 SF
South Elevation at Building Entrance *Urban Air* – Wall sign Individual letters internally illuminated Mounted on the canopy/not mounted on wall	 4'-0" x 22'-3" 89 SF

Other Requirements-Zoning Ordinance Standards
Nothing additional at this time.

Hartland Township DPW Review
The DPW Director has provided a review letter dated July 15, 2025.

Hartland Township Engineer's Review (Spaulding DeDecker)
The Township Engineer (SDA) has reviewed the Preliminary Site Plan and provided comments in the letter dated June 30, 2025.

Hartland Deerfield Fire Authority Review
The Hartland Deerfield Fire Authority has provided comments in the review letter dated June 30, 2025.

Attachments:
1. Township DPW review letter 07.15.2025 – PDF version
2. Township Engineer (SDA) review letter 06.30.2025 – PDF version
3. Hartland Deerfield Fire Authority review letter 06.30.2025 – PDF version
4. Urban Air PD Waiver Memo and Letters dated 07.10.2025 – PDF version
5. Applicant Letter on Parking Recommendations – PDF version
6. Urban Air Occupant Capacity email 06.22.2025 – PDF version
7. Property Tax Comparisons – PDF version
8. Signage Packet – PDF version

9. Urban Air Easement Plan 06.12.2025 – PDF version
10. Wall Pack Cut Sheet – PDF version
11. Light Pole Fixture Cut Sheet – PDF version
12. Exterior Color Pallet – PDF version
13. Site and Architectural Plans dated 07.14.2025

CC:
SDA, Twp Engineer (via email)
Scott Hable, Twp DPW Director (via email)
Carroll, Hartland FD Fire Chief (via email)

T:\PLANNING DEPARTMENT\PLANNING COMMISSION\2025 Planning Commission Activity\Site Plan Applications\SP PD #25-012 Urban Air Prelim PD\Staff reports\PC\SP PD #25-012 Prelim PD staff report PC 07.17.2025.docx

DEPARTMENT OF PUBLIC WORKS
Scott Hable, Public Works Director
2655 Clark Road
Hartland MI 48353
Phone: (810) 632-7498

TO:	Planning Department
DATE:	7/15/2025
DEVELOPMENT NAME:	Urban Air
PIN#:	4708-28-100-030 & 4708-28-100-037
APPLICATION #:	SP/PD #25-012
REVIEW TYPE:	Preliminary Site Plan

The Department of Public Works (DPW) has reviewed the preliminary site plans for the proposed Urban Air entertainment facility. Preliminary plans show this 38,400 square foot facility will include two large bathrooms, 2 small bathrooms, and a kitchen. The township is currently working with the applicant gathering data to properly calculate the number of REU's required for this facility. Neither Parcel considered for this project have any REUs assigned to them.

	Sewer REUs	Water REUs
Owned	0	0
Required		
# REUs Needed		
Cost Each	$9,439.20	$5,816.01
Total Due Each	$	$
TOTAL REU COST	**$**	

Public Works will determine approval of this plan once REU needs have been determined. Also needed will be the inclusion of the following details on the site plans and construction plans:

1. Sanitary sewer material and sizes and connection detail sheet
2. Monitoring manhole for sewer connection and location if required
3. Utility easements noted as public or private.
4. All watermain and leads installed to meet Township specifications
5. Approval of the Livingston County Drain Commission.

An appropriately sized water meter, horn or flanges, and MXU sending unit will need to be purchased from the township at time of construction.

Please feel free to contact me with any further questions or comments regarding this matter and thank you for your time.

Scott Hable
Public Works Director

June 30, 2025

Troy Langer
Planning Director
Hartland Township, MI

Re: Concept Review for Urban Air
SDA Review No. HL25-105

Dear Troy:

We have reviewed the Planned Development Application for the above reference project prepared by Griggs Quaderer, Inc., dated June 24, 2025, and received by our office on June 24, 2025. A concept review email was provided on May 2, 2025. We have the following comments:

General

The subject site is located south of Highland Road (M-59) and east of Old US-23. The site is currently 2 vacant parcels that will need to be combined. The proposed site plan includes a proposed Urban Air Adventure Park. Site access would be provided from Old US 23 through proposed and existing easements with the neighboring properties; 1756 N Old US 23 and 1818 N Old US 23. It is noted that the site is 6.05 acres.

There are wetlands indicated on the site. A permit from EGLE will be required for all proposed work within the wetlands. Show and label the wetlands disturbed and filled by the proposed parking lot south of the site. It was previously indicated as 0.085 acres in the concept plans.

The Fire Department shall review and approve the emergency vehicle circulation around the perimeter of the building

Utilities

Water service would be provided by an existing 8-inch water main. A water service and fire suppression line are provided to serve the building. An additional hydrant may be required to meet the minimum hydrant coverage requirements. Buildings shall be covered by a 250-foot radius of a hydrant.

Sanitary sewer service would be provided from the existing 12-inch sanitary sewer along Old US 23. A sanitary service would be provided to serve the building. All sanitary sewer design requirements are to follow current Livingston County Drain Commissioner's (LCDC) standards and details. LCDC sanitary sewer detail sheets shall be attached to the proposed plans when applicable.

Storm water would be collected by two storm sewer collection systems; one discharged to an on-site sediment basin and one to the wetlands. Confirm with Livingston County Drain Commissioner that the proposed sediment basin is acceptable as designed. Pre-treatment should be provided for the north portion drainage prior to draining to the wetlands. All storm water design calculations are to follow Hartland Township and Livingston County Drain Commissioner standards and details.

Offsite surface runoff shall not be trapped along the development perimeter. Stormwater management calculations will be required during engineering review. If LCDC requires full detention, the pond footprint will need to be increased, or underground detention will need to be provided.

The proposed temporary topsoil stockpile area shall be relocated further from the existing wetland.

Permits and Agreements Required

Based on those improvements depicted on the plans, the following permits and agreements may be needed to be provided for review and approval:

- A draft copy of the Storm Drain Agreement.
- A Land Use Permit will be granted after the pre-construction meeting.
- Livingston County Drain Commissioner approval and permit.
- Soil Erosion and Sedimentation permit from Livingston County Drain Commissioner.
- Livingston County Roads permit for any work within the County ROW.
- Genesee County Drain Commissioner's Office IPP Discharge Permit approval.
- EGLE Permit for work within the regulated wetlands.
- Easements for access from adjacent properties.

Planned Development Recommendation

Overall, there are no evident issues with the construction plan from an engineering perspective. Future reviews will provide detailed analysis of the proposed improvements.

The comments are not necessarily conclusive. The site plan and final engineering plans for this development are to be prepared in accordance with the Hartland Township Engineering Design Standards and Hartland Township Standard Details.

If you have any questions regarding this matter, please contact our office at your convenience.

Sincerely,

SPALDING DEDECKER

Mark Collins, PE
Project Manager

Luisa Amici
Municipal Engineer

cc: Martha K. Wyatt, Hartland Township Planner (via email)

HARTLAND DEERFIELD FIRE AUTHORITY

HARTLAND AREA FIRE DEPT.

3205 Hartland Road
Hartland, MI. 48353-1825

Voice: (810) 632-7676
E-Mail: firemarshal@hartlandareafire.com

June 30, 2025

To: Hartland Township Planning Commission

Re: Urban Air

The Hartland Deerfield Fire Authority has reviewed the Site Plan for Urban Air dated June 24, 2025.

These are the following are recommendations:

1. A minimum of one isle is a minimum of twenty-six feet.
2. All turning radius is a minimum of fifty feet.
3. Required to purchase a Supra Box, Fire Department has ordering information.
4. Follow IFC 2012.
5. Contact the Fire Department for Final Inspection.

This approval is subject to field inspection. This approval shall be valid for one year. If construction has not begun within 12 months of the date on this letter the plans must be resubmitted for approval. This approval does not exempt the project from complying with all applicable codes. Additional submittals and approvals may be required.

Jon Dehanke
Fire Marshal

July 7, 2025

MEMO: Urban Air Hartland Waiver Request for Height Variance and Area Variance and Statement of community benefit for the Planned Development

DATE: 7/7/25

TO: Hartland Township Planning Commission

FROM: Nathan Sumner, parcel and business owner and the Development Team

To Whom It May Concern;

This memo is for a Planned Development request for the proposed development of an Urban Air Facility, a ground up new construction development sandwiched between old US-23 and the current US-23 Highway. This site, with over 50,000 cars per day driving past the site is uniquely situated to bring traffic, revenue and excitement, and family entertainment, not to mention a taxable property to Hartland Township. ***The site is a little over 6 acres and 41% of the site is designated wetlands and impervious surfaces (this far exceeds the required 25% open space requirement).*** This makes the site complex to develop as the building must be situated to meet the EGLE wetland setback requirements and the township zoning ordinance requirements. While we realize the site is short of the suggested 20 acre requirement for a Planned Development, we feel the building development has been carefully designed to minimize burden upon the subject site, surrounding land and the natural environment. We have designed the stormwater retention pond to be a beautiful focal point complete with the opportunity for a fountain and flagpole and development over time of perimeter wildflowers and wildlife that will be viewable from passerbys on US-23. This design adds to the open area square footage rather than paving or building over that area of the site.

Other ***recognizable benefits*** of this Planned Development include the provision of a year-round family entertainment development that can accommodate team building events for corporations, birthday parties for adults and children alike, and can provide a great rainy day activity especially in the shoulder seasons and cold weather winter in Michigan for families to stay active and be together. With attractions that cater to any level of adventurer, there's something fun for everyone! At Urban Air, local community warriors can conquer obstacles, have fun with friends, show gravity who's boss, and have a blast seven days a week.

There are a variety of interior amenities that are part of the Urban Air brand concept including features like a rock climbing wall, ropes course and zipline. These amenities are what drives our building shell structure height as these platforms and "launch pads" to the interior attractions have minimum height requirements of roughly 30 ft above the finish floor. ***It is THESE requirements set forth by Urban Air Corporate that requires the building to slightly exceed the 35ft height restriction as set forth in the Zoning Ordinance.*** That, combined with the required façade "stepping" as to avoid long stretches of continuous roofline, and the feedback after our

preliminary meetings with the Planning Team at Hartland Township that requested the main focal feature to be the entry and its "surround" as we have it designed to be the prominent (and taller) building feature, that have led us to this place and a request to exceed the height requirement by 18 inches (36'-6"). We believe this is a reasonable request that allows us to provide maximum inside entertainment, while still adhering to the theory of the exterior design as outlined in the ordinance.

The project shall be under unified control, whereby the proposed development shall be under single ownership and that owner will be responsible for completing the project in conformity with the Hartland Township Zoning Ordinance. A purchase agreement is provided as an attachment to this memorandum and parcel purchase shall be finalized upon final site plan approval from Hartland Township with all documents legally binding the owner to commitments made in the forthcoming drawings and documents and per the Planned Development Design Standards.

Brief Traffic Impact Analysis for Urban Air Adventure Park (38,400 sq ft)

1. Project Description:

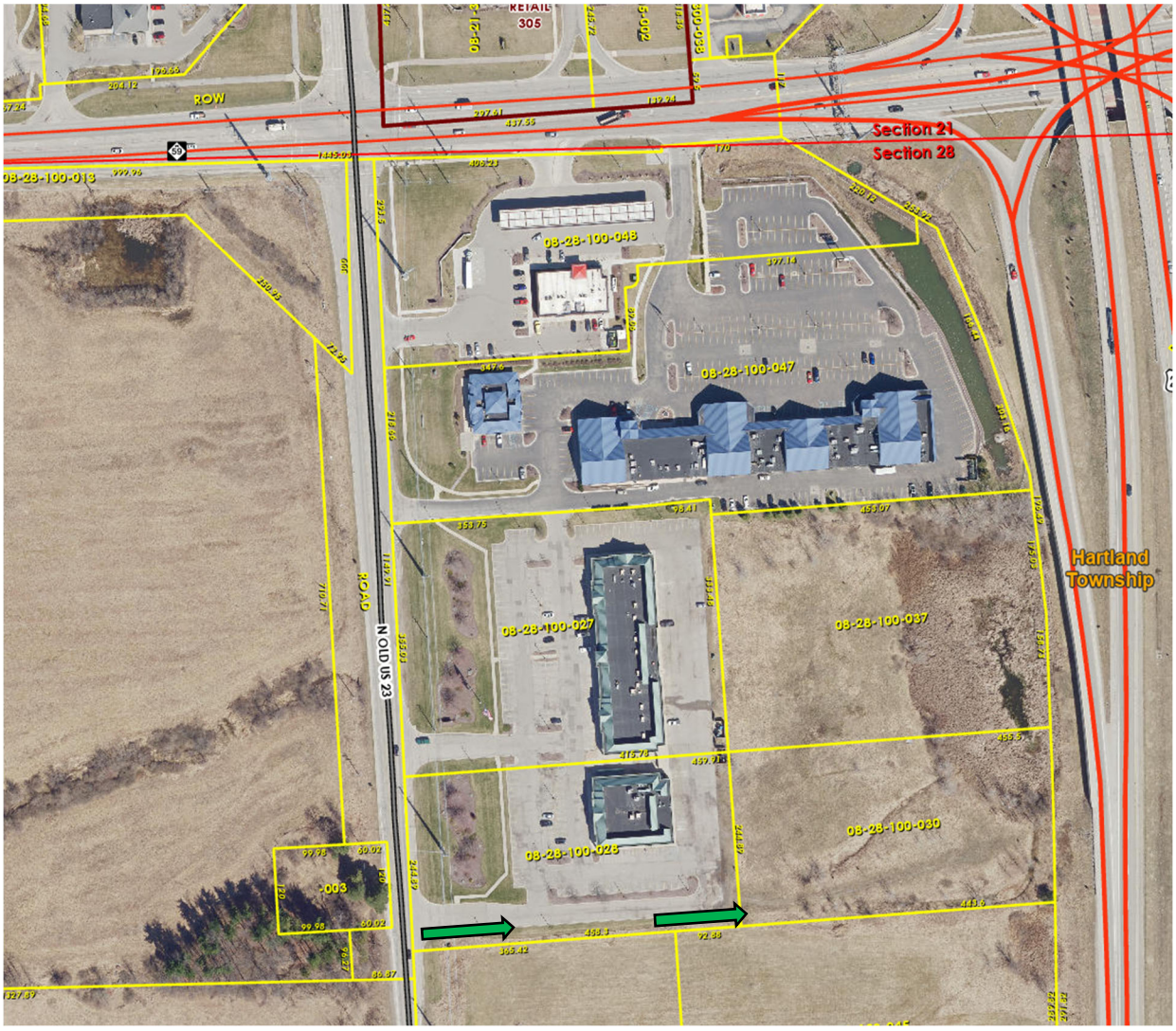
- **Project Name:** Urban Air Adventure Park
- **Size:** 38,400 square feet (Gross Floor Area - GFA)
- **Estimated Attendance:** 6,500 guests per month (approximately 217 guests per day, assuming 30 days/month average). Note: This is an average, and peak attendance will be significantly higher, especially on weekends and holidays.
- **Business Type:** Indoor family entertainment center, offering trampolines, climbing walls, obstacle courses, and other attractions. This type of venue generally has peak demand during evenings, weekends, and school holidays.

2. Potential Traffic Generation:

- **ITE Trip Generation Data:** For a similar land use, such as "Multi-Purpose Recreational Facility" (ITE Land Use Code 435) or "Trampoline Park" (ITE Land Use Code 436), the ITE Trip Generation Manual provides trip rates per 1,000 sq ft of GFA.
    - *Example:*
        - ITE Code 435 (Multi-Purpose Recreational Facility): ~3.58 trips per 1,000 sq ft GFA during the PM Peak Hour.
        - ITE Code 436 (Trampoline Park): ~1.50 trips per 1,000 sq ft GFA during the PM Peak Hour.
    - **Calculation:**
        - 38.4 (thousand sq ft) * 1.5 (trips/1000 sq ft) = Approximately **58 PM Peak Hour Trips** (two-way). Or 147 PM Peak Hour Trips if ITE 435.
        - These trips would be split between entering and exiting traffic.

- **Considerations for "Adventure Park" Specifics:**
    - **Peak Hour vs. Monthly Attendance:** The 6,500 guests/month is an average. Urban Air parks experience significant peaks on weekends, school holidays, and evenings. The true traffic impact will be during these peak periods, which may see a higher daily or hourly trip generation than a simple average calculation suggests.
    - **Arrival/Departure Patterns:** Guests tend to arrive in groups (families, friends) and stay for a few hours. This means concentrated arrival and departure waves rather than a constant flow.
    - **Non-vehicular Trips:** While the majority of trips will be by personal vehicle, consideration should be given to potential for ride-sharing and walking/biking considering the expanding pathway infrastructure in Hartland Twp.

3. Potential Impacts on Surrounding Roadways:



- **Access Point:** The existing access point as designated for this area of development is planned to be used and shown above with green arrows. This provides direct access to Old US 23 and ample room for any parking lot stacking such as to prevent any back ups on Old US 23. This boulevard was established when Hartland Town Center was initially developed with planned expansion to the proposed lots. We believe this plan still provides sufficient access for the intended use.

A fiscal impact analysis (FIA) assesses the public costs and revenues that result from new development. For the Urban Air Adventure Park, here's a summary of potential fiscal impacts to the community:

Summary of Fiscal Impacts: Urban Air Adventure Park

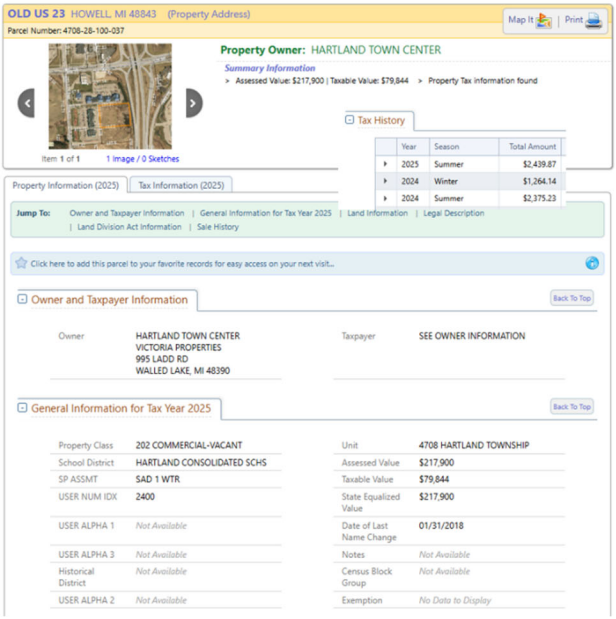
I. Potential Revenue Generation for Local Government:

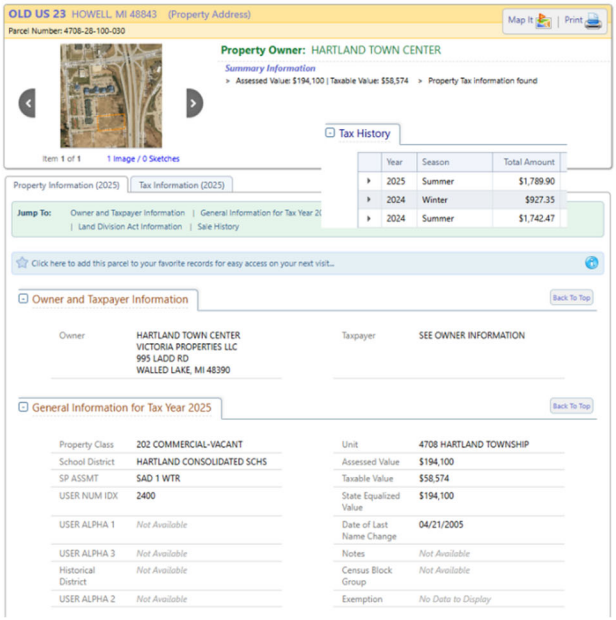
- **Property Taxes:**
    - **New Taxable Value:** The construction of a 38,400 sq ft commercial building will add significant new taxable value to the local property tax base. It is estimated to increase by about $156k/yr vs current taxes.

- Total millage: 46.4181
- Current taxable: $138,418
- Current tax: $6,425

- Total millage: 46.4181
- Estimated taxable: $3.5M
- Estimated tax: $162,463

Net Increase: $156,038





- **Sales Taxes:**
    - **Direct Sales Tax:** The park will generate sales tax revenue from admission fees, food and beverage sales, merchandise sales, and party packages. This revenue is typically split between state and local governments.
    - **Indirect Sales Tax (Multiplier Effect):** Guests visiting the Urban Air park are likely to spend money at other local businesses (restaurants, retail, gas stations) before or after their visit, generating additional sales tax revenue for the community.

- **Permit and Licensing Fees:**
    - **Construction Permits:** The development will require various building permits, electrical permits, plumbing permits, and potentially zoning review fees, all of which generate one-time revenue for the local government.
    - **Business Licenses:** The park will need to obtain and renew local business licenses, generating recurring fees.
- **Utility Fees:**
    - Increased water, sewer, and potentially solid waste fees from the operation of the facility.

II. Potential Costs and Service Demands for Local Government:

- **Public Safety (Police, Fire, EMS):**
    - **Increased Calls for Service:** While not necessarily a constant burden, an entertainment venue of this size, with high visitor numbers, will likely generate occasional calls for service related to minor injuries, lost children, or other incidents.
    - **Emergency Response:** The facility will need to be served by local fire and EMS services, which may require response to medical emergencies or fire alarms.
- **Infrastructure Maintenance:**
    - **Roads:** Increased traffic will contribute to wear and tear on local roads, potentially accelerating the need for maintenance or improvements.
    - **Utilities:** Increased demand on water, sewer, and potentially storm drainage infrastructure.
- **Public Works/Sanitation:**
    - Increased demand for waste collection and disposal services.

III. Economic Benefits (Beyond Direct Fiscal Impact):

- **Job Creation:**
    - **Construction Jobs:** Temporary jobs during the construction phase.
    - **Permanent Jobs:** The park will create a significant number of permanent jobs, including management, front-desk staff, activity supervisors, maintenance, and food service personnel. These jobs contribute to the local labor market and provide income to residents, which is then re-spent in the local economy (the "multiplier effect").
- **Increased Local Spending (Multiplier Effect):**
    - Beyond sales taxes, the salaries paid to employees and the operational spending by the business (e.g., purchasing supplies, local marketing, maintenance services) will circulate within the local economy, supporting other businesses and creating additional economic activity.

- **Diversification of Local Economy and Amenities:**
    - Adds a new recreational amenity, potentially attracting visitors from outside the immediate area and enhancing the quality of life for local residents, which can, in turn, attract and retain families.
- **Support for Other Local Businesses:**
    - As noted in the sales tax section, visitors to the park may also frequent nearby restaurants, shops, and other services.

Overall Fiscal Outlook:

Generally, commercial developments like the Urban Air Adventure Park are considered to have a **positive net fiscal impact** on a community. They typically generate more in property and sales tax revenues than the direct costs incurred by local government to provide services to the facility itself. The indirect economic benefits, such as job creation and increased local spending, further enhance the positive impact.

Respectfully submitted,

Shannon Easter White, AIA, NCARB

FUNchitecture, LLC – Development Team Architect

with Nathan Sumner, property developer/owner

Griggs Quaderer, Inc.
8308 Office Park Dr.
Grand Blanc, MI 48439
PH: (810) 695-0154
FX: (810) 695-0158

July 10th, 2025

Hartland Township Hall
2655 Clark Road
Hartland, Michigan 48353

Project:	Urban Air – Old US-23 Hartland Twp., MI
Re:	Traffic Impact Statement

Dear Hartland Township Planning Commission:

This letter is regarding the traffic impact statement for the proposed Urban Air project located in the vacant lots (IDs 08-28-100-037 & 08-28-100-030). The Urban Air parcel is located in the rear (east) of an existing strip mall. There is a dedicated access drive which extends along the entire southerly property line of the mall and connects the proposed Urban Air complex to the main arterial road Old US-23. This access drive was designed, constructed and intended for a future project like Urban Air. It is our belief that the current connection to and design of Old US-23 is satisfactory for this additional traffic flow.

Sincerely,

Chris Brzezinski, PE
Vice President

Subject: Parking Ratio Recommendation for Urban Air Adventure Parks

Dear Members of the Planning Commission,

On behalf of the Urban Air Development Team, we are submitting this letter to outline our recommended parking standard for Urban Air Adventure Park locations. Based on the successful development and operation of numerous parks across the country, we have established a best practice of 3 to 4 parking spaces per 1,000 square feet of gross floor area.

This recommendation is informed by our operational model, which centers on youth-focused party programming and family-oriented recreational experiences. Urban Air parks primarily host scheduled events such as birthday parties, group outings, and structured activities, alongside individual and family visits that are naturally staggered throughout the day. These patterns contribute to lower parking demand than traditional entertainment venues of similar size.

Given these factors, we respectfully request that the Planning Commission consider this parking ratio as a reasonable and appropriate standard when evaluating parking requirements for Urban Air developments.

We appreciate your consideration and welcome any questions.

Sincerely,

Renard Mun
Head of Design & Engineering
(206) 422-8961
renard.mun@unleashedbrands.com
2350 Airport Freeway, Suite 505
Bedford, TX 76022
UnleashedBrands.com

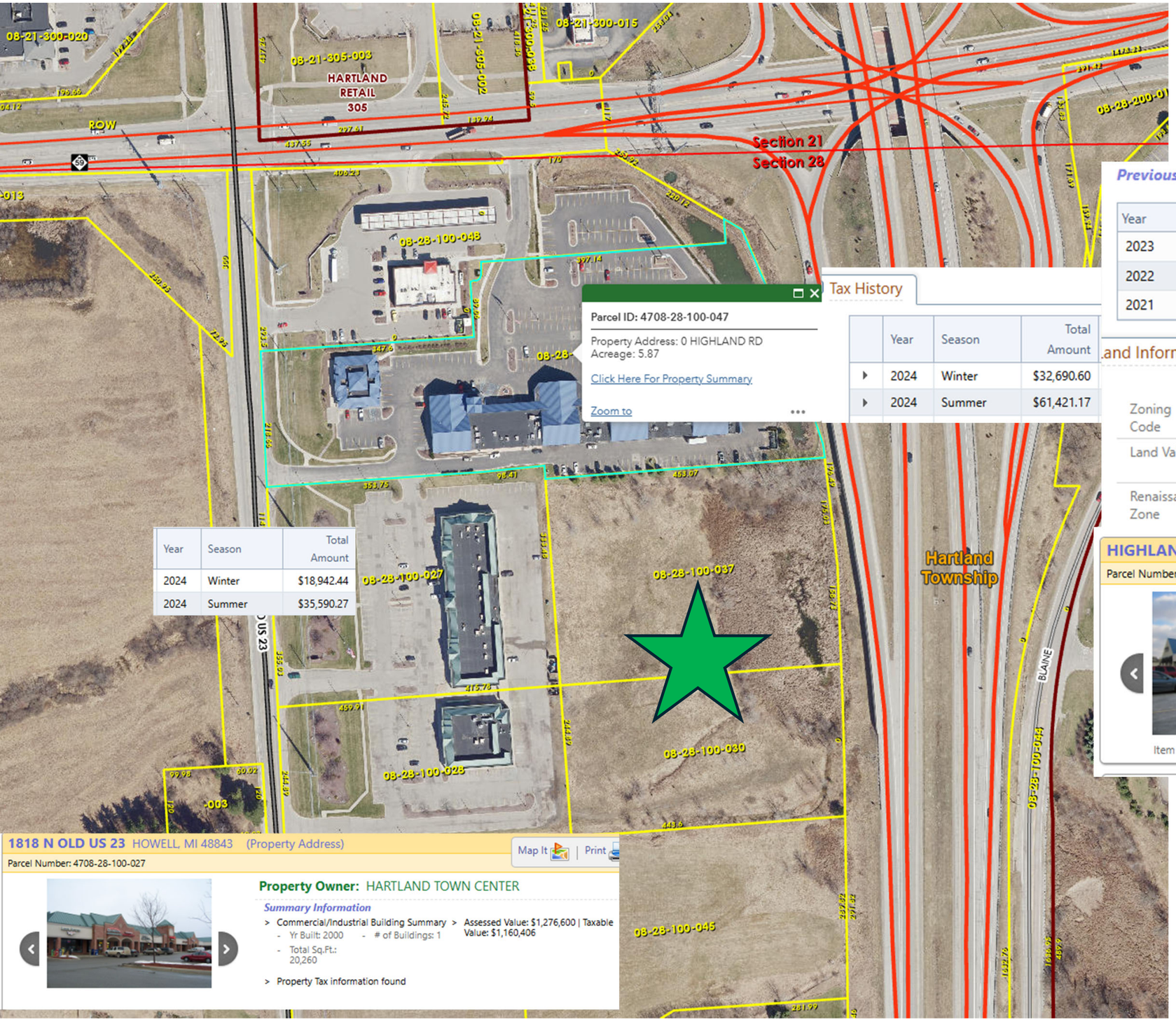
Martha Wyatt

To: Martha Wyatt
Subject: FW: building capacity at Urban Air

From: Nathan Sumner
Sent: Friday, June 27, 2025 9:37 AM
To: Martha Wyatt <MWyatt@hartlandtwp.com>
Cc:
Subject: Re: building capacity at Urban Air

Good morning Martha,
I know Urban Air's corporate architect that is doing the interior layout also does occupancy calculations. That process isn't finalized yet but I know from other similar Urban Air Parks of similar size the max occupancy tends to be around 700-900 and varies depending on final attractions, party rooms, tables, etc. Is this rough estimate sufficient for now or would you like me to see if I can speed up a response from corporate?

Thank you,
Nate Sumner
248-836-7899



Parcel ID: 4708-28-100-047

Property Address: 0 HIGHLAND RD
Acreage: 5.87

Click Here For Property Summary

Zoom to

Tax History

	Year	Season	Total Amount
▸	2024	Winter	$32,690.60
▸	2024	Summer	$61,421.17

Year	Season	Total Amount
2024	Winter	$18,942.44
2024	Summer	$35,590.27

1818 N OLD US 23 HOWELL, MI 48843 (Property Address)

Map It | Print

Parcel Number: 4708-28-100-027

Property Owner: HARTLAND TOWN CENTER

Summary Information

> Commercial/Industrial Building Summary
- Yr Built: 2000
- # of Buildings: 1
- Total Sq.Ft.: 20,260

> Assessed Value: $1,276,600 | Taxable Value: $1,160,406

> Property Tax information found

Previous Year Information

Year	MBOR Assessed	Final SEV	Final Taxable
2023	$1,991,900	$1,991,900	$1,907,248
2022	$1,860,700	$1,860,700	$1,816,427
2021	$1,758,400	$1,758,400	$1,758,400

.and Information

Back To Top

Zoning Code	GC	Total Acres	5.856
Land Value	$862,194	Land Improvements	$268,566
Renaissance Zone	No	Renaissance Zone	*No Data to Display*

HIGHLAND RD HARTLAND, MI 48353 (Property Address)

Parcel Number: 4708-28-100-047

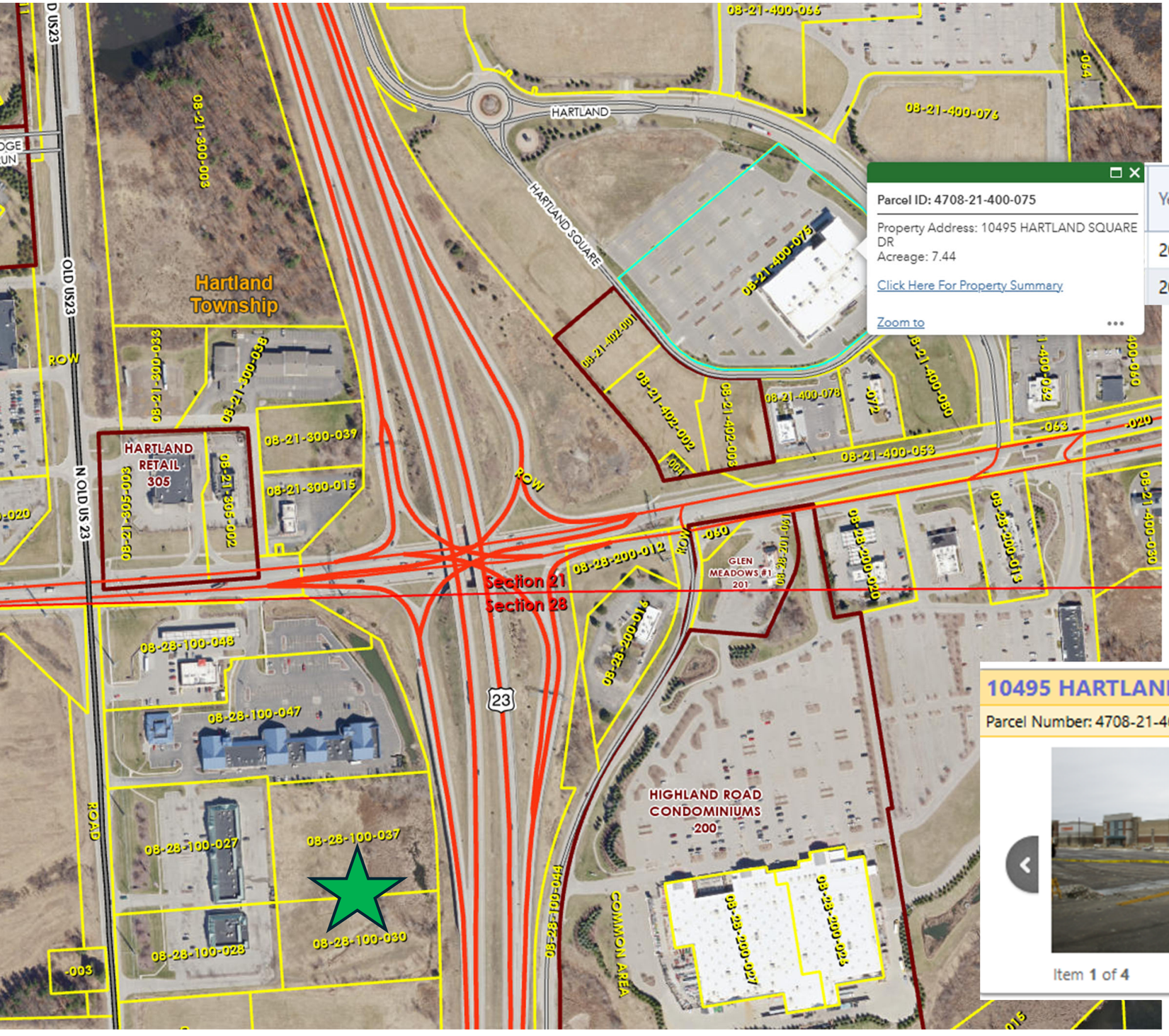
Item **1** of **11** 8 Images / 3 Sketches

Property Owner: BRANDENBROOKE INVESTMENTS CORP

Summary Information

> Commercial/Industrial Building Summary
- Yr Built: 1997
- # of Buildings: 3
- Total Sq.Ft.: 40,875

> Property Tax information found



Parcel ID: 4708-21-400-075

Property Address: 10495 HARTLAND SQUARE DR
Acreage: 7.44

Click Here For Property Summary

Zoom to

Year	Season	Total Amount
2024	Winter	$64,354.45
2024	Summer	$120,913.14

Previous Year Information

Year	MBOR Assessed	Final SEV	Final Taxable
2023	$3,974,000	$3,974,000	$3,754,590
2022	$3,575,800	$3,575,800	$3,575,800
2021	$3,595,300	$3,595,300	$3,549,000

Land Information

Back To Top

Zoning Code	PD	Total Acres	7.500
Land Value	$1,104,246	Land Improvements	$1,077,316
Renaissance Zone	No	Renaissance Zone Expiration	*No Data to Display*

10495 HARTLAND SQUARE DR HARTLAND, MI 48353 (Property Address)

Parcel Number: 4708-21-400-075

Item **1** of **4** 3 Images / 1 Sketch

Property Owner: CH HARTLAND LLC

Summary Information

> Commercial/Industrial Building Summary
- Yr Built: 2018
- # of Buildings: 1
- Total Sq.Ft.: 55,117

> Property Tax information found

- Total millage: 46.4181
- Current taxable: $138,418
- Current tax: $6,425

- Total millage: 46.4181
- Estimated taxable: $2.6M
- Estimated tax: $120,700

Net Increase: $114,275

OLD US 23 HOWELL, MI 48843 (Property Address)

Map It | Print

Parcel Number: 4708-28-100-037

Item 1 of 1 1 Image / 0 Sketches

Property Owner: HARTLAND TOWN CENTER

Summary Information

> Assessed Value: $217,900 | Taxable Value: $79,844 > Property Tax information found

Tax History

	Year	Season	Total Amount
▸	2025	Summer	$2,439.87
▸	2024	Winter	$1,264.14
▸	2024	Summer	$2,375.23

Property Information (2025) | Tax Information (2025)

Jump To: Owner and Taxpayer Information | General Information for Tax Year 2025 | Land Information | Legal Description | Land Division Act Information | Sale History

Click here to add this parcel to your favorite records for easy access on your next visit...

Owner and Taxpayer Information

Back To Top

Owner	HARTLAND TOWN CENTER VICTORIA PROPERTIES 995 LADD RD WALLED LAKE, MI 48390
Taxpayer	SEE OWNER INFORMATION

General Information for Tax Year 2025

Back To Top

Property Class	202 COMMERCIAL-VACANT	Unit	4708 HARTLAND TOWNSHIP
School District	HARTLAND CONSOLIDATED SCHS	Assessed Value	$217,900
SP ASSMT	SAD 1 WTR	Taxable Value	$79,844
USER NUM IDX	2400	State Equalized Value	$217,900
USER ALPHA 1	*Not Available*	Date of Last Name Change	01/31/2018
USER ALPHA 3	*Not Available*	Notes	*Not Available*
Historical District	*Not Available*	Census Block Group	*Not Available*
USER ALPHA 2	*Not Available*	Exemption	*No Data to Display*

OLD US 23 HOWELL, MI 48843 (Property Address)

Map It | Print

Parcel Number: 4708-28-100-030

Item 1 of 1 1 Image / 0 Sketches

Property Owner: HARTLAND TOWN CENTER

Summary Information

> Assessed Value: $194,100 | Taxable Value: $58,574 > Property Tax information found

Tax History

	Year	Season	Total Amount
▸	2025	Summer	$1,789.90
▸	2024	Winter	$927.35
▸	2024	Summer	$1,742.47

Property Information (2025) | Tax Information (2025)

Jump To: Owner and Taxpayer Information | General Information for Tax Year 2(| Land Division Act Information | Sale History

Click here to add this parcel to your favorite records for easy access on your next visit...

Owner and Taxpayer Information

Back To Top

Owner	HARTLAND TOWN CENTER VICTORIA PROPERTIES LLC 995 LADD RD WALLED LAKE, MI 48390
Taxpayer	SEE OWNER INFORMATION

General Information for Tax Year 2025

Back To Top

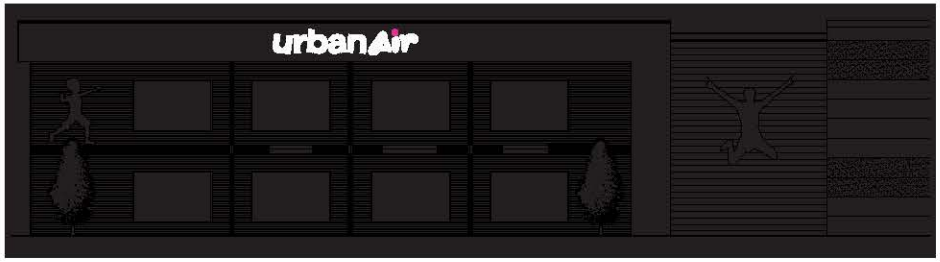
Property Class	202 COMMERCIAL-VACANT	Unit	4708 HARTLAND TOWNSHIP
School District	HARTLAND CONSOLIDATED SCHS	Assessed Value	$194,100
SP ASSMT	SAD 1 WTR	Taxable Value	$58,574
USER NUM IDX	2400	State Equalized Value	$194,100
USER ALPHA 1	*Not Available*	Date of Last Name Change	04/21/2005
USER ALPHA 3	*Not Available*	Notes	*Not Available*
Historical District	*Not Available*	Census Block Group	*Not Available*
USER ALPHA 2	*Not Available*	Exemption	*No Data to Display*

EAST ELEVATION

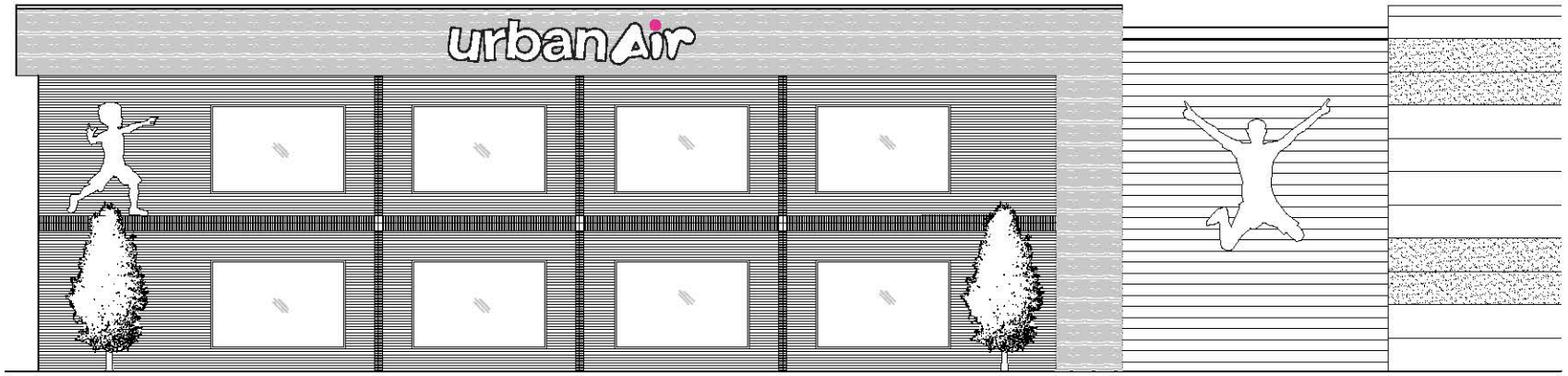
SIGN 1

SCOPE OF WORK:
Manufacture and install (1) set 4' "urban Air" flush mount channel letters.

NIGHT VIEW

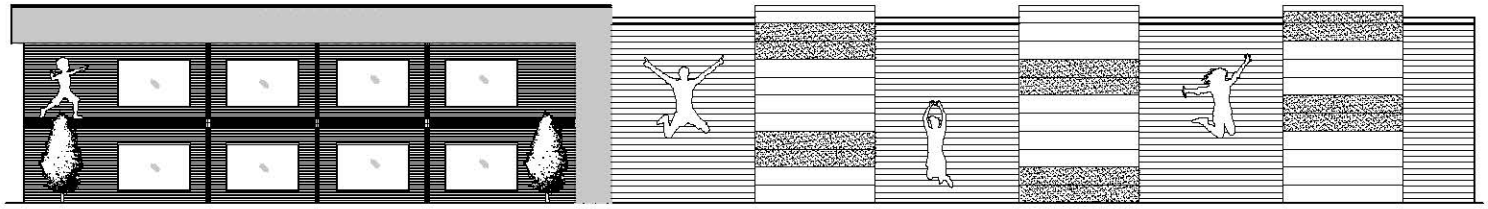


100' Sign Band



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

240'



SCALE: 1/32"=1'-0"

Address

US23 and Highland Rd.
City Hartland
State MI 48843

Account Representative:
Stacie Hicks

This design and engineering is submitted as our proposal, and the right to use or exhibit in any form, is not authorized without written permission by Vixxo.

Notes
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Designer JW
Design # Vx1107865 R2
Original Date 06/06/25
Revision Date 07/08/25

All electrical scope to be completed in a U.L. approved method and shall meet current N.E.C. standards

* All electrical components shall be U.L. Listed.
* Sign shall be grounded per N.E.C. Article 250.
* Insulated conductors as per N.E.C. Code 310.8. type to be used metallic insulated sealtite.
*Disconnect switch as per N.E.C. Code 600.6.

VIXXO
sign & lighting

The purchaser agrees to hold ... against any cause for action for dam... cur as a result of drilling for piers and f... but not limited to sewer, gas lines or ... which the purchaser or others may deem valuable.

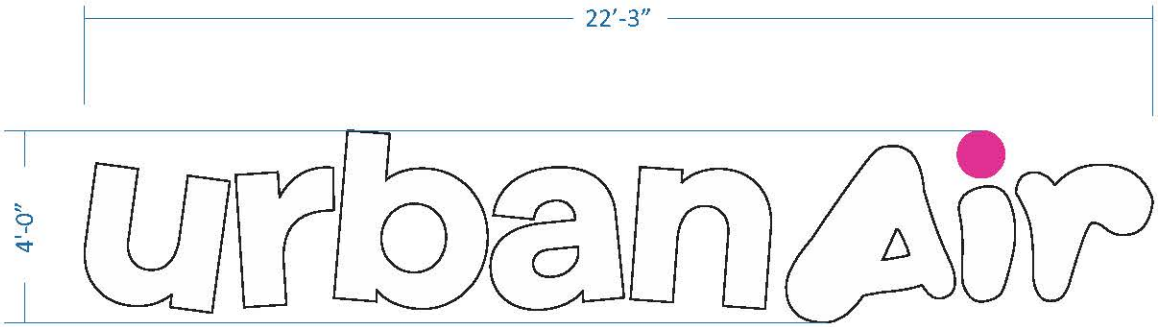
FACE LIT CHANNEL LETTERS

SIGN 1

Scale 1/4”=1’

SQ / FT

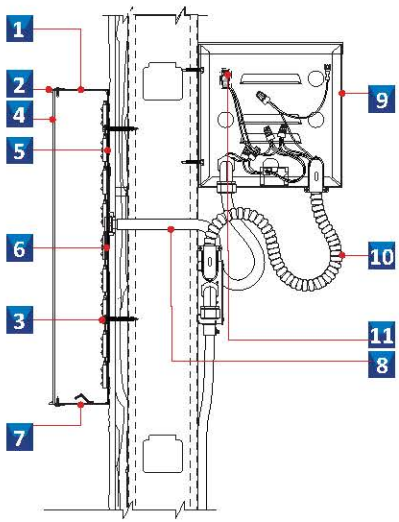
89 s/f



SPECIFICATIONS

1. 3” FABRICATED ALUMINUM LETTER RETURNS PRE-PAINTED BLACK
2. 1” BLACK TRIM CAP RETAINER
3. NON-CORROSIVE INSTALLATION HARDWARE: GALVANIZED
4. 3/16” ACRYLIC FACE WHITE WITH 1ST SURFACE VINYL
5. WHITE LED
6. FLAT ALUMINUM BACK
7. ¼” WEEP HOLES WITH LIGHT BAFFLE
8. GROUNDED WALL PASS-THRU, SEALED WATER TIGHT
9. LOW VOLTAGE ELECTRONIC POWER SUPPLY LOCATED IN INTERIOR WALL AREA INSIDE A PROTECTIVE ELECTRICAL BOX
10. WATERPROOF FLEXIBLE CONDUIT FOR WIRING
11. DISCONNECT SWITCH

SECTION DETAIL



COLOR SCHEDULE

3M #22 MATTE BLACK VINYL
PRE-PAINTED RETURNS
STANDARD 1” TRIMCAP

3M 3630-38
FUCHSIA VINYL

7328 WHITE
3/16” ACRYLIC FACES

Address

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City Hartland

State MI 48843

Account Representative:
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VIXXO

sign & lighting

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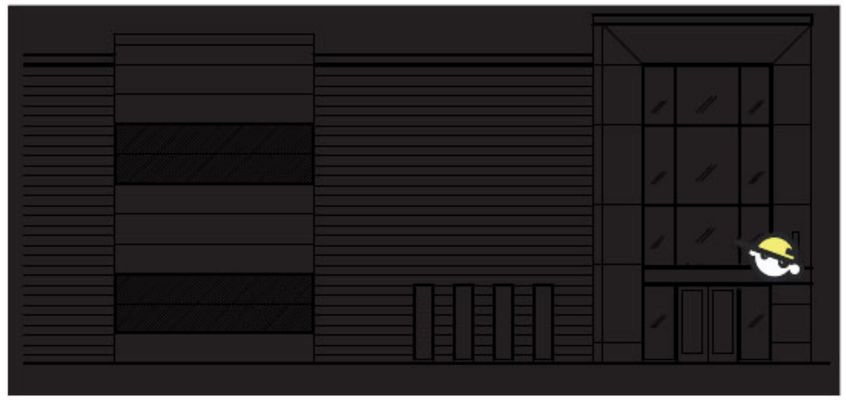
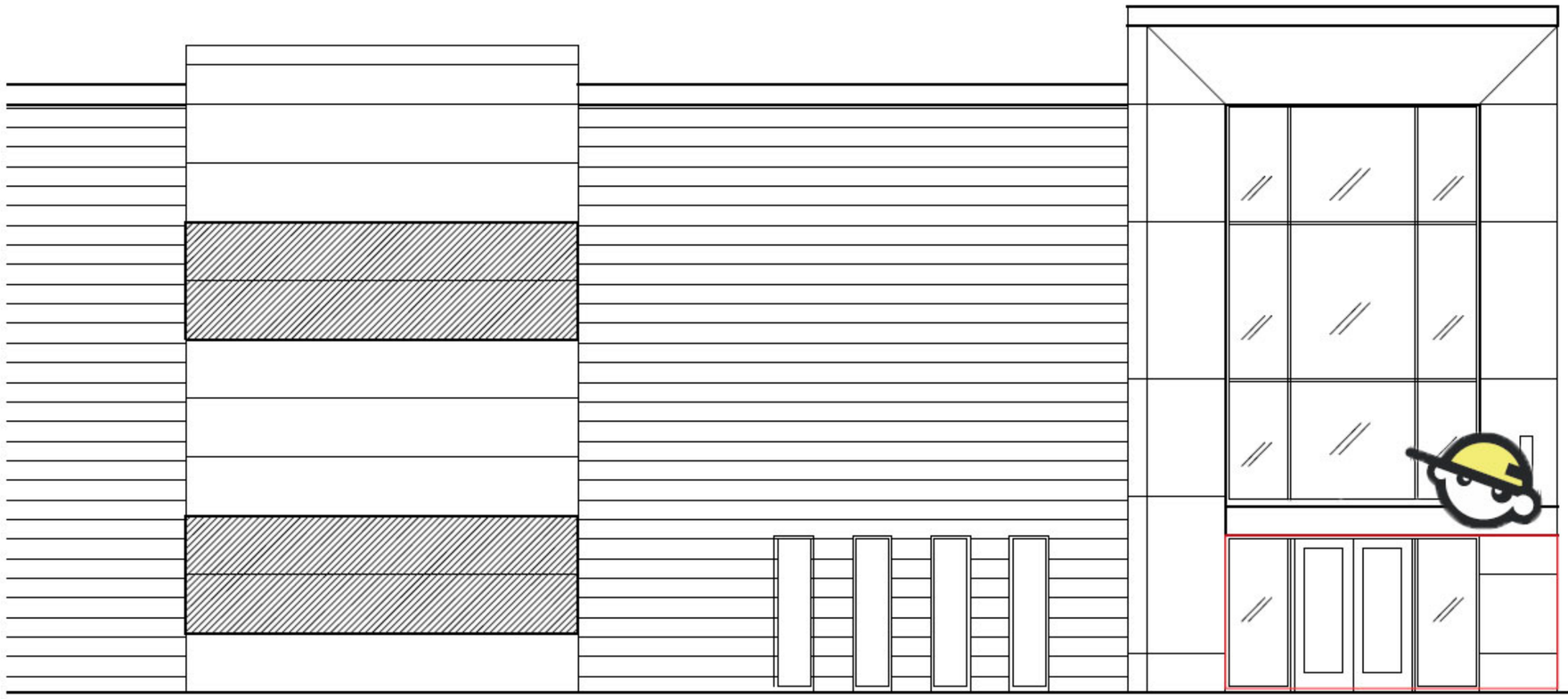
WEST ELEVATION

SIGN 2 OPTION B

SCOPE OF WORK:
Manufacture and install (1) 5’ “Urbie” canopy mounted channeled logo.

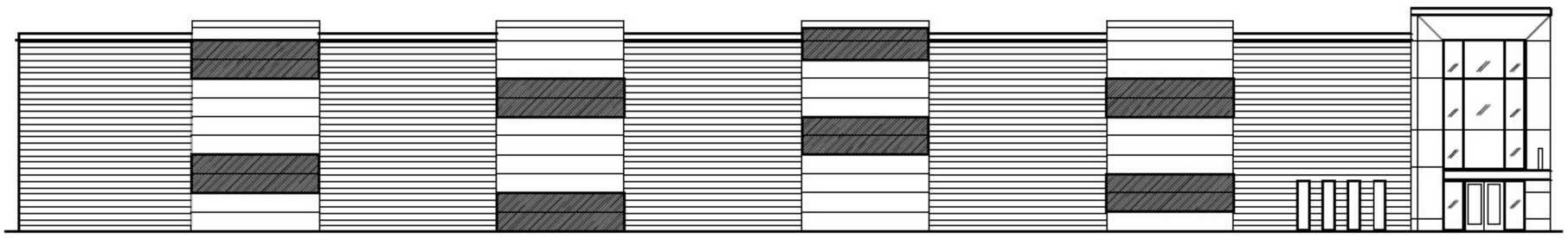
NIGHT VIEW





SCALE: 3/32”=1’-0”

240’



SCALE: 1/32”=1’-0”

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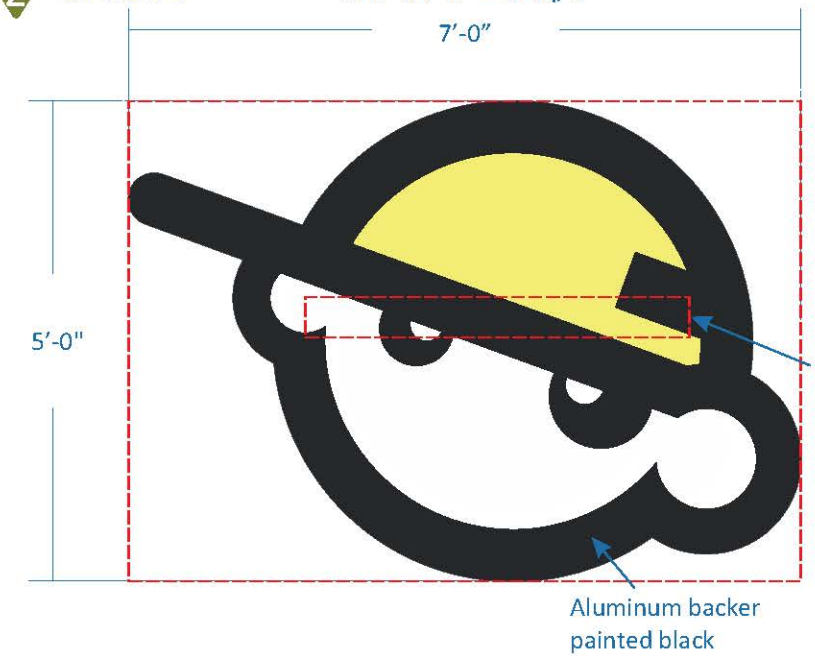
VIXXO
sign & lighting

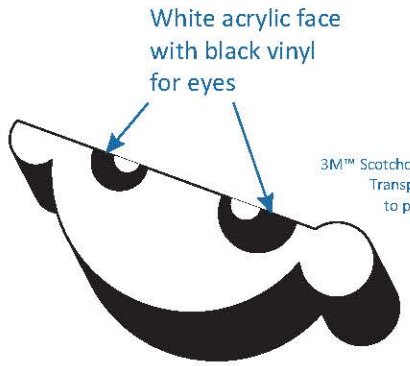
The purchaser agrees to hold the seller harmless against any cause for action for damages which may occur as a result of drilling for piers and foundations, including but not limited to sewer, gas lines or any underground [illegible] which the purchaser or others may deem valuable

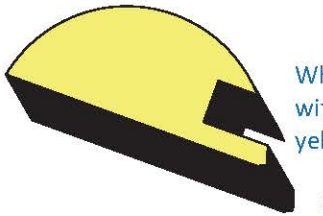
FACE LIT CHANNELED LOGO - CANOPY MOUNT

SIGN 2 OPTION B

5'-0" x 7'-0" = 35 sq/ft







Scale 1/2"=1'

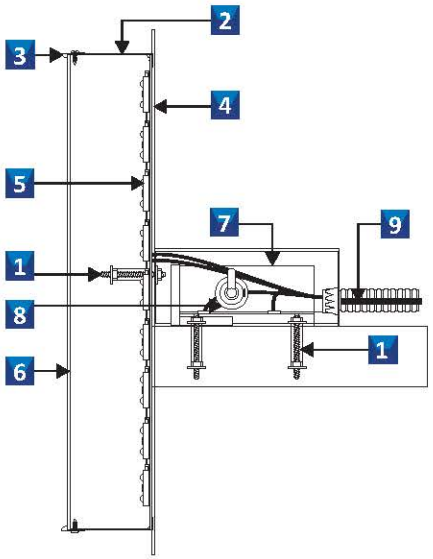
SQ / FT

35 s/f

SPECIFICATIONS

1. NON-CORROSIVE #10 ¼" PITCH SCREW GALVANIZED
2. 3" FABRICATED ALUMINUM LETTER RETURNS PRE-PAINTED BLACK
3. 1" BLACK TRIM CAP RETAINER
4. .125" ALUMINUM BACKPLATE PAINTED BLACK
5. WHITE LED
6. 3/16" ACRYLIC FACE WHITE WITH 1ST SURFACE VINYL
7. LOW VOLTAGE ELECTRONIC POWER SUPPLY MOUNTED IN A 0.063" ALUM. RACEWAY SUPPORT / WIRING BOX (5" X 7" X 30") PAINTED BLACK
8. WATERPROOF DISCONNECT SWITCH PER NEC 600-6
9. DEDICATED ELECTRICAL IN FLEX CONDUIT SEALED WATER TIGHT AT WALL PENITRATIONS.

SECTION



COLOR SCHEDULE

3M #22 MATTE BLACK VINYL
PRE-PAINTED RETURNS
STANDARD 1" TRIMCAP

3M 3630-115
LEMON YELLOW VINYL

3M™ SCOTCHCAL™ 3660M
MATTE OVERLAMINATE
TRANSPARENT UV
PROTECTANT FILM

7328 WHITE
3/16" ACRYLIC FACE

Address

US23 and Highland Rd.

City Hartland

State MI 48843

Account Representative:
Stacie Hicks

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Notes
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Designer JW
Design # Vx1107865 R2
Original Date 06/06/25
Revision Date 07/08/25

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VIXXO
sign & lighting

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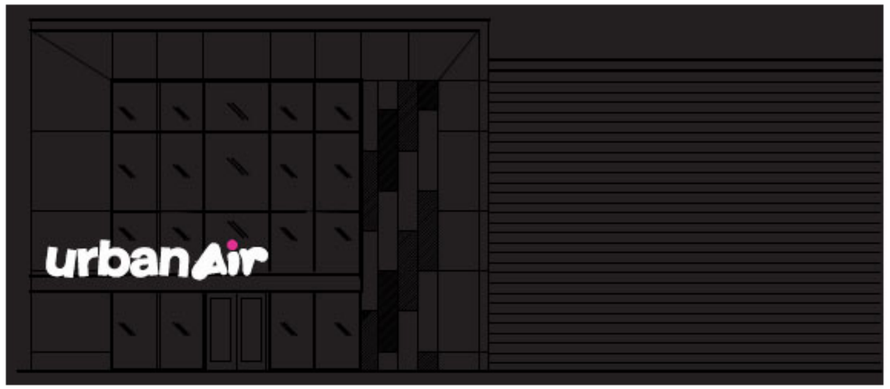
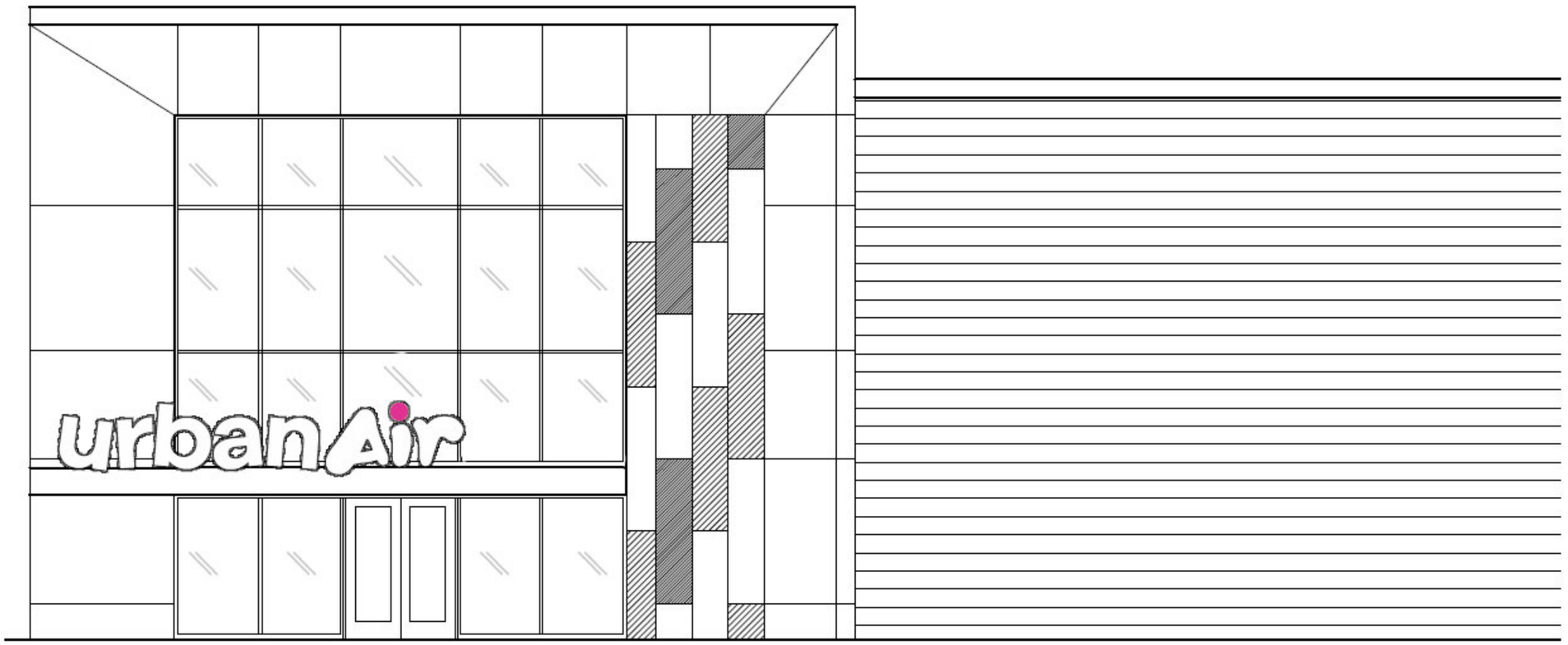
SOUTH ELEVATION

SIGN 3 OPTION B

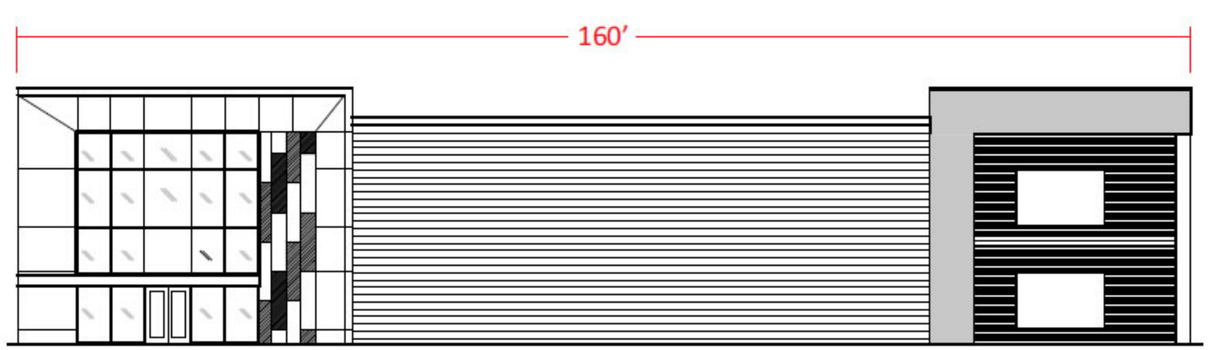
SCOPE OF WORK:
Manufacture and install (1) set 4’ "urban Air" canopy mounted channel letters.

NIGHT VIEW





SCALE: 3/32”=1’-0”



SCALE: 1/32”=1’-0”

Address
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sign & lighting

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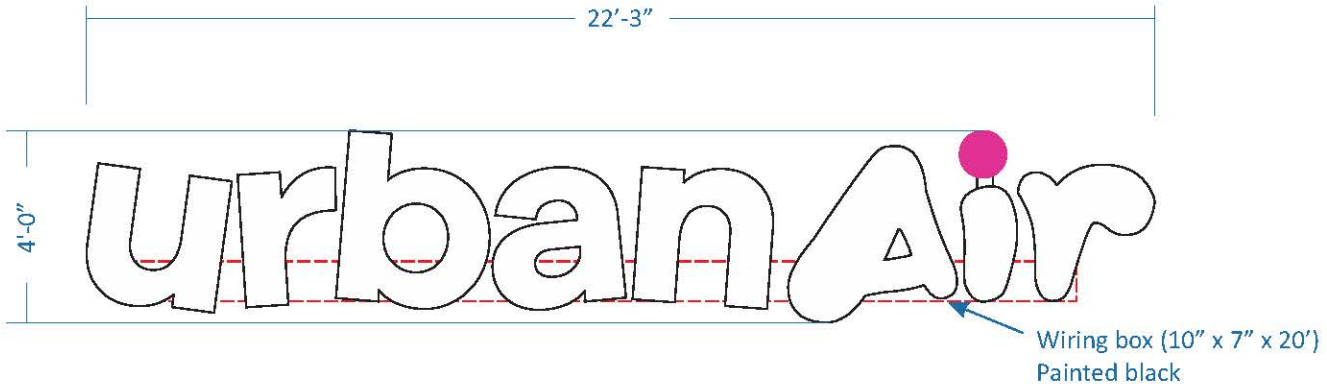
FACE LIT CHANNEL LETTERS - CANOPY MOUNT

SIGN 3 OPTION B

Scale 1/4”=1’

SQ / FT

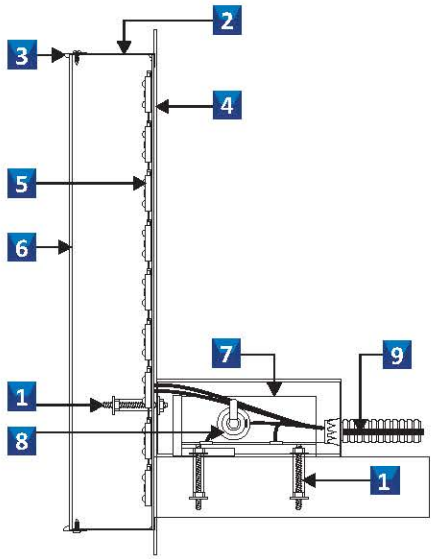
89 s/f



SPECIFICATIONS

1. NON-CORROSIVE #10 ¼” PITCH SCREW GALVANIZED
2. 3” FABRICATED ALUMINUM LETTER RETURNS PRE-PAINTED BLACK
3. 1” BLACK TRIM CAP RETAINER
4. .125” ALUMINUM BACKPLATE PAINTED BLACK
5. WHITE LED
6. 3/16” ACRYLIC FACE WHITE WITH 1ST SURFACE VINYL
7. LOW VOLTAGE ELECTRONIC POWER SUPPLY MOUNTED IN A 0.063” ALUM. RACEWAY SUPPORT / WIRING BOX (10” X 7” X 20’) PAINTED BLACK
8. WATERPROOF DISCONNECT SWITCH PER NEC 600-6
9. DEDICATED ELECTRICAL IN FLEX CONDUIT SEALED WATER TIGHT AT WALL PENITRATIONS.

SECTION



COLOR SCHEDULE

3M #22 MATTE BLACK VINYL
PRE-PAINTED RETURNS
STANDARD 1” TRIMCAP

3M 3630-38
FUCHSIA VINYL

7328 WHITE
3/16” ACRYLIC FACES

Address

US23 and Highland Rd.

City Hartland

State MI 48843

Account Representative:
Stacie Hicks

This design and engineering is submitted as our proposal, and the right to use or exhibit in any form, is not authorized without written permission by Vixxo.

Notes
*
*
*
*
*

Designer JW
Design # Vx1107865 R2
Original Date 06/06/25
Revision Date 07/08/25

All electrical scope to be completed in a U.L. approved method and shall meet current N.E.C. standards

* All electrical components shall be U.L. Listed.
* Sign shall be grounded per N.E.C. Article 250.
* Insulated conductors as per N.E.C. Code 310.8. type to be used metallic insulated sealtite.
*Disconnect switch as per N.E.C. Code 600.6.

VIXXO

sign & lighting

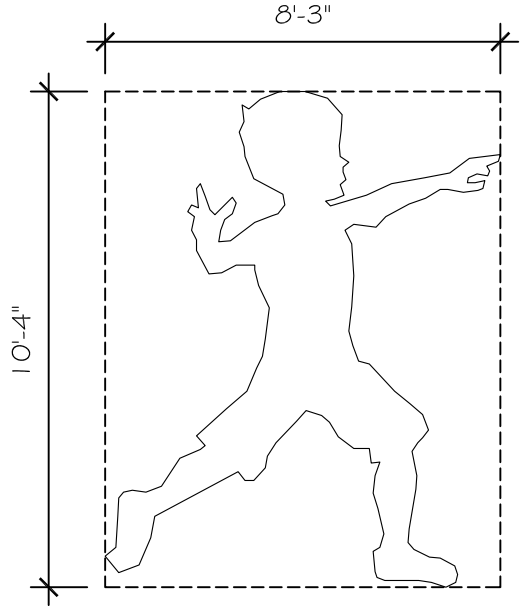
The purchaser agrees to hold ... against any cause for action for dam... cur as a result of drilling for piers and fo... but not limited to sewer, gas lines o... obstacles which the purchaser or others may deem valuable.

SILHOUETTE DRAWINGS	DRAWN BY EHD	CHECKED	DATE 7-10-2025

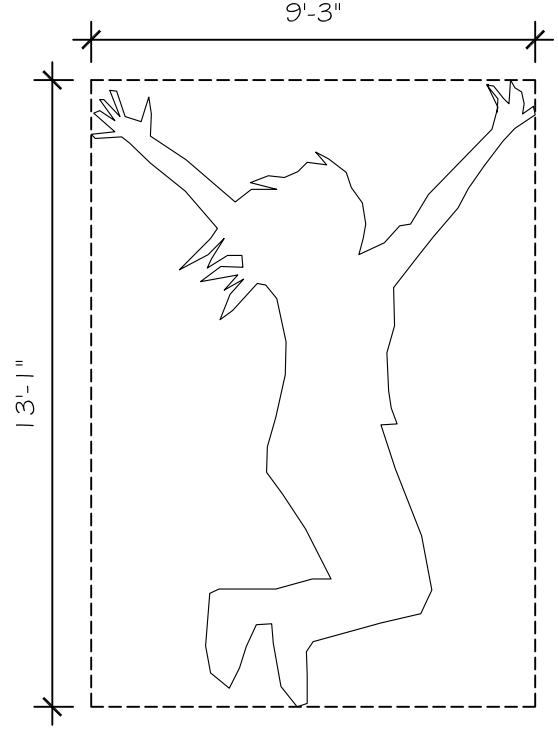
URBAN AIR ADVENTURE PARK

OLD US-23 (VACANT LOT)

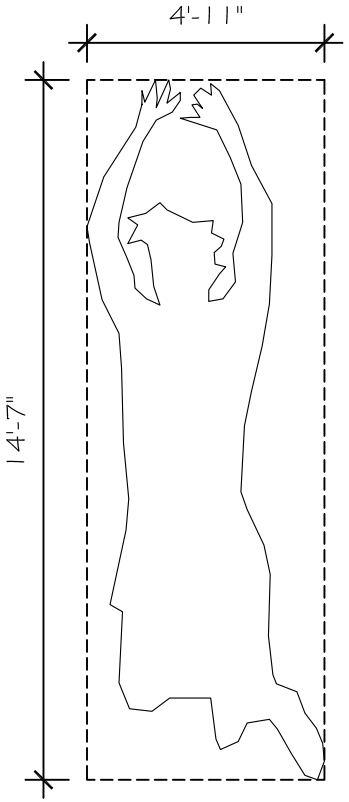
FUNCHITECTURE
Finding FUNctional & creative design solutions for every need



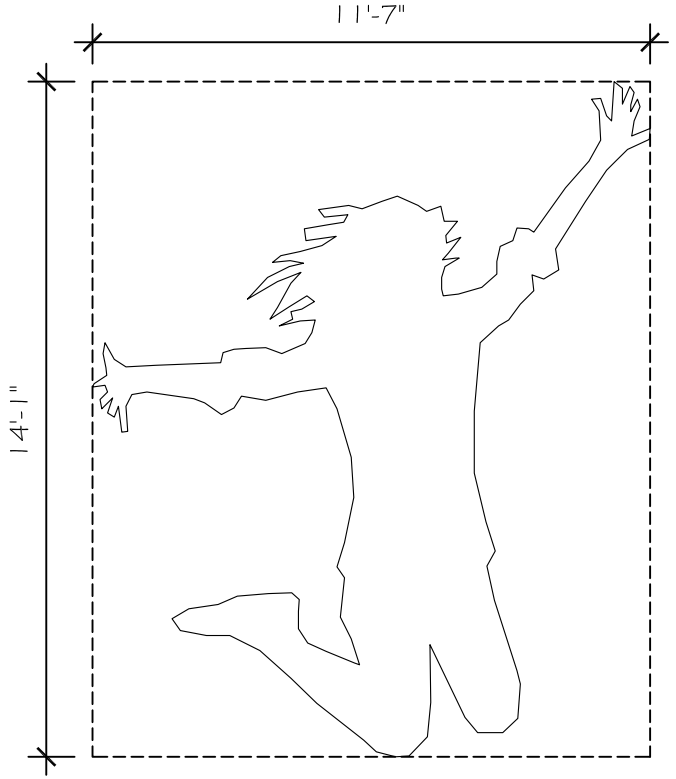
SILHOUETTE #1
ROUGH AREA - 85SF | ACTUAL AREA - 24SF



SILHOUETTE #2
ROUGH AREA - 120SF | ACTUAL AREA - 32SF



SILHOUETTE #3
ROUGH AREA - 72SF | ACTUAL AREA - 34SF



SILHOUETTE #4
ROUGH AREA - 163SF | ACTUAL AREA - 45SF

SILHOUETTE DRAWINGS	DRAWN BY EHD	CHECKED	DATE 7-10-2025

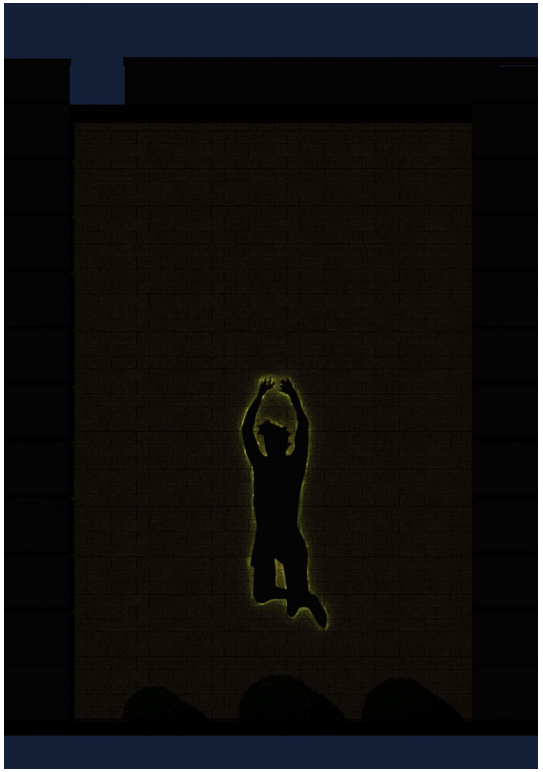
URBAN AIR ADVENTURE PARK

OLD US-23 (VACANT LOT)

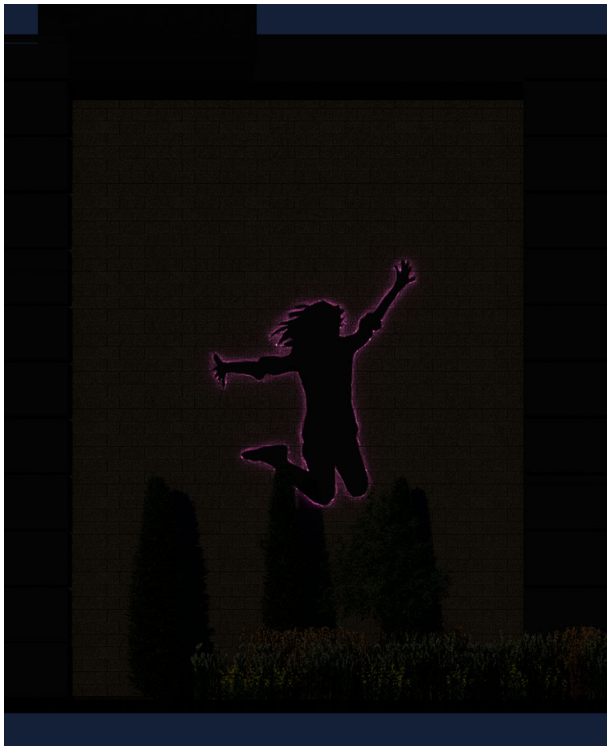
FUNCHITECTURE
Finding FUNctional & creative design solutions for every need

SILHOUETTE #1

SILHOUETTE #2



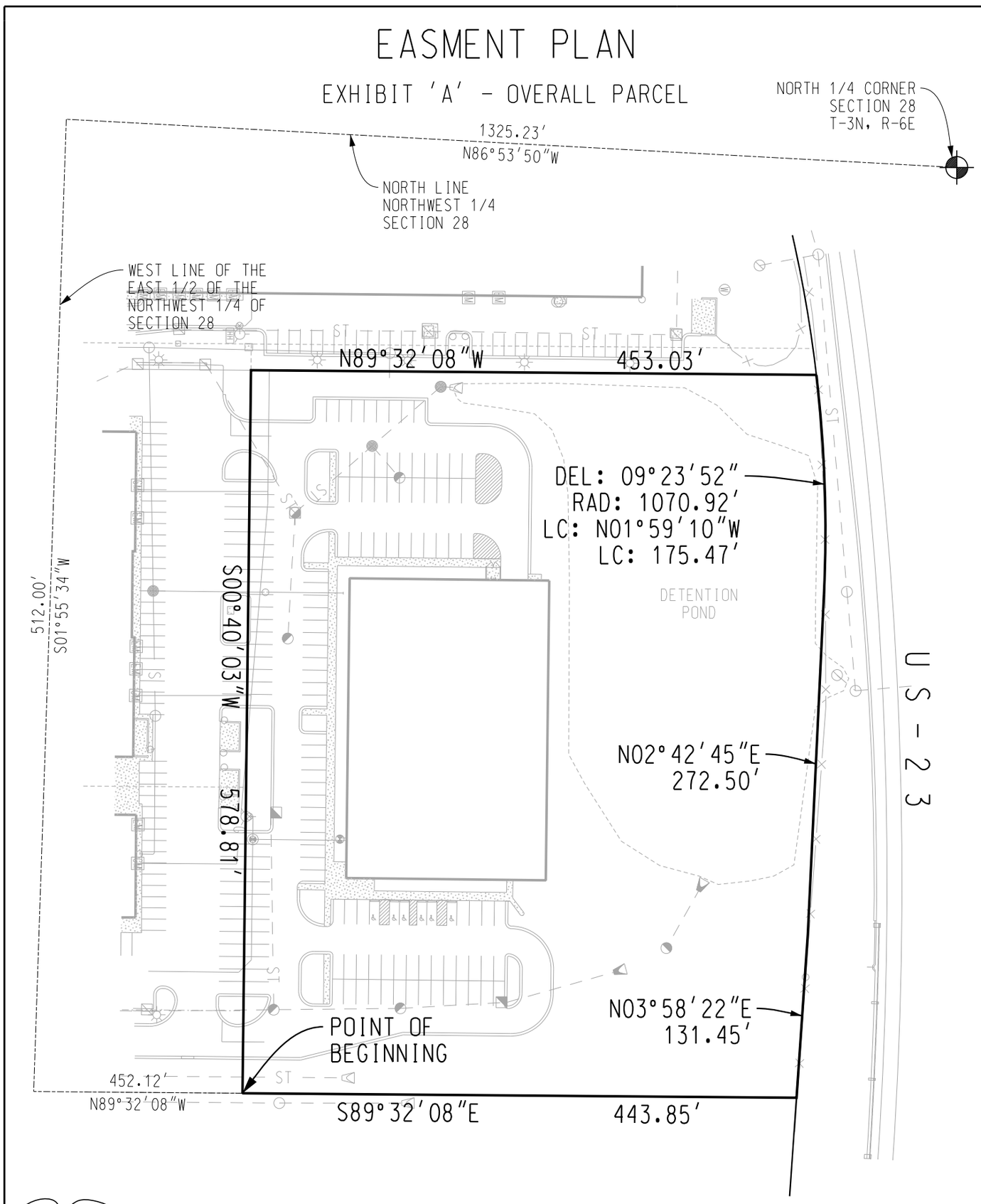
SILHOUETTE #3



SILHOUETTE #4

EASMENT PLAN

EXHIBIT 'A' - OVERALL PARCEL



SEAL:
STATE OF MICHIGAN
CHRISTOPHER BRZEZINSKI
SURVEYOR
No. 56925
LICENSED PROFESSIONAL SURVEYOR

PROJECT: URBAN AIR
OLD US-23
HARTLAND, MI

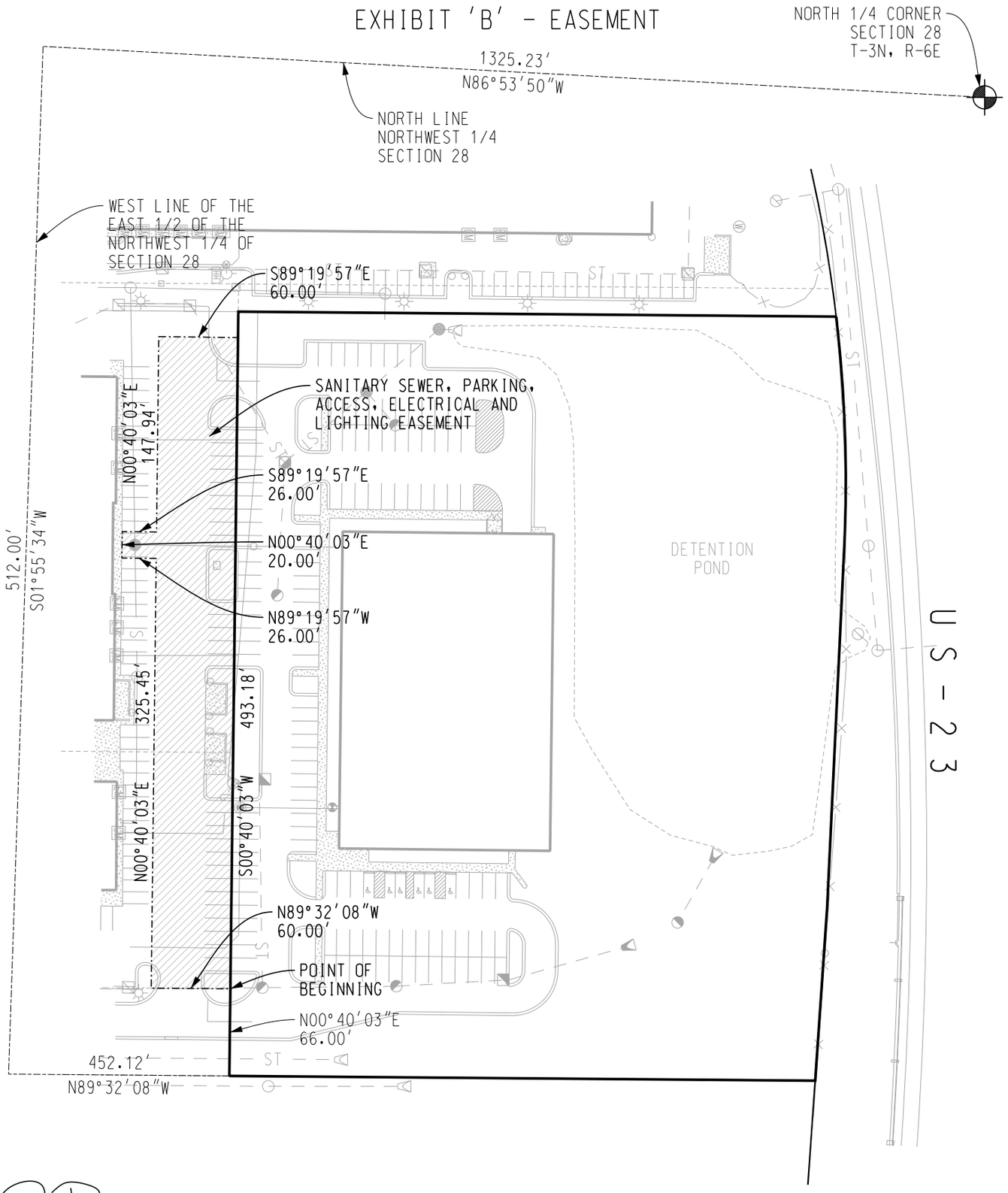
NW 1/4, SECTION 28
TOWN 3N - RANGE 6E
HARTLAND TOWNSHIP
STATE OF MICHIGAN

Griggs Quaderer Inc.
Civil Engineering ▪ Land Surveying ▪ Site Planning
PH: (810) 695.0154
FX: (810) 695.0158
WWW.GQINCORP.COM
8308 Office Park Dr.
Grand Blanc, MI 48439

JOB NO.:	241201
SCALE:	
DATE:	06-12-2025
REVISION:	
CREW:	
DRAWN BY:	
CHK'D BY:	BRZEZINSKI
MISC:	
PAGE:	01 OF 03

EASMENT PLAN

EXHIBIT 'B' - EASEMENT



SEAL:

STATE OF MICHIGAN
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DATE:	06-12-2025
REVISION:	
CREW:	
DRAWN BY:	
CHK'D BY:	BRZEZINSKI
MISC:	
PAGE:	02 OF 03

EASMENT PLAN

EXHIBIT 'C' - EASEMENT DESCRIPTION

PROPERTY DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE COUNTY OF LIVINGSTON, STATE OF MICHIGAN AND IS DESCRIBED AS FOLLOWS:

SITUATED IN THE TOWNSHIP OF HARTLAND, COUNTY OF LIVINGSTON, STATE OF MICHIGAN:

PARCEL C: BEING A PART OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SECTION 28, TOWN 3 NORTH, RANGE 6 EAST, TOWNSHIP OF HARTLAND, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS COMMENCING AT THE NORTH 1/4 CORNER OF SECTION 28; THENCE NORTH 86 DEGREES 53' 50" WEST 1325.23 FEET (RECORDED AS NORTH 86 DEGREES 42' 08" W 1326.61 FEET) ALONG THE NORTH LINE OF SAID SECTION 28; THENCE SOUTH 01 DEGREES 55' 34" WEST (RECORDED AS S 02 DEGREES 01' 21" W) 512.00 FEET ALONG THE WEST LINE OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SAID SECTION 28; THENCE SOUTH 89 DEGREES 32' 08" EAST (RECORDED AS S 89 DEGREES 17' 50" E) 452.12 FEET TO THE PLACE OF BEGINNING; THENCE CONTINUING SOUTH 89 DEGREES 32' 08" EAST (RECORDED AS S 89 DEGREES 17' 50" E) 450.11 FEET; THENCE ALONG THE WEST RIGHT OF WAY LINE OF SOUTH BOUND ENTRANCE RAMP TO U.S. 23 EXPRESSWAY THE FOLLOWING TWO COURSES: SOUTHEASTERLY, NON-TANGENTIALLY 196.86 FEET (RECORDED AS 196.67 FEET) ALONG THE ARC OF A 1070.92 FOOT RADIUS CURVE TO THE RIGHT, THROUGH A CENTRAL ANGLE OF 10 DEGREES 31' 57" (RECORDED AS 10 DEGREES 31' 19") AND HAVING A CHORD BEARING SOUTH 02 DEGREES 33' 13" EAST (RECORDED AS S 02 DEGREES 20' 58" E) 196.59 FEET AND SOUTH 02 DEGREES 42' 45" WEST (RECORDED AS S 02 DEGREES 54' 42" W) 158.73 FEET; THENCE NORTH 89 DEGREES 32' 08" WEST 455.50 FEET; THENCE NORTH 00 DEGREES 40' 03" EAST 354.92 FEET TO THE PLACE OF BEGINNING.

PARCEL D: BEING A PART OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SECTION 28, TOWN 3 NORTH, RANGE 6 EAST, TOWNSHIP OF HARTLAND, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS: COMMENCING AT THE NORTH 1/4 CORNER OF SECTION 28; THENCE NORTH 86 DEGREES 53' 50" WEST 1325.23 FEET (RECORDED AS N 86 DEGREES 42' 08" W 1326.61 FEET) ALONG THE NORTH LINE OF SAID SECTION 28; THENCE SOUTH 01 DEGREES 55' 34" WEST (RECORDED AS S 02 DEGREES 01' 21" W) 1112.00 FEET ALONG THE WEST LINE OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SAID SECTION 28; THENCE SOUTH 89 DEGREES 32' 08" EAST (RECORDED AS S 89 DEGREES 17' 50" E) 465.30 FEET TO THE PLACE OF BEGINNING; THENCE NORTH 00 DEGREES 40' 03" EAST 244.89 FEET; THENCE SOUTH 89 DEGREES 32' 08" EAST 455.50 FEET; THENCE ALONG THE WEST RIGHT OF WAY LINE OF SOUTH BOUND ENTRANCE RAMP TO U.S. 23 EXPRESSWAY THE FOLLOWING TWO COURSES: SOUTH 02 DEGREES 42' 45" WEST (RECORDED AS S 02 DEGREES 54' 42" W) 113.77 FEET AND SOUTH 03 DEGREES 58' 22" WEST 131.45 FEET (RECORDED AS S 04 DEGREES 10' 19" W 131.67 FEET); THENCE NORTH 89 DEGREES 32' 08" WEST (RECORDED AS N 89 DEGREES 17' 50" W) 443.85 FEET TO THE PLACE OF BEGINNING.

EASEMENT DESCRIPTION:

A SANITARY SEWER, ACCESS, PARKING, ELECTRICAL AND LIGHTING EASEMENT THE DESCRIPTION OF WHICH IS AS FOLLOWS;

LAND SITUATED IN A PART OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SECTION 28, TOWN 3 NORTH, RANGE 6 EAST, TOWNSHIP OF HARTLAND, LIVINGSTON COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS:

COMMENCING AT THE NORTH 1/4 CORNER OF SECTION 28; THENCE N86°53'50"W, 1325.23 FEET ALONG THE NORTH LINE OF SAID SECTION 28; THENCE S01°55'34"W, 512.00 FEET ALONG THE WEST LINE OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SAID SECTION 28; THENCE S89°32'08"E: THENCE N00°40'03"E, 66.00 FEET TO THE PLACE OF BEGINNING;

THENCE FROM SAID PLACE OF BEGINNING N89°32'08"W, 60.00 FEET; THENCE N00°40'03"E, 325.45 FEET; THENCE N89°19'57"W, 26.00 FEET; THENCE N00°40'03"E, 20.00 FEET; THENCE S89°19'57"E, 26.00 FEET; THENCE N00°40'03"E, 147.94 FEET; THENCE S89°19'57"E, 60.00 FEET; THENCE S00°40'03"W, 493.18 FEET TO SAID PLACE OF BEGINNING.

SEAL:

STATE OF MICHIGAN
CHRISTOPHER BRZEZINSKI
SURVEYOR
No. 56925
LICENSED PROFESSIONAL SURVEYOR

PROJECT: URBAN AIR
OLD US-23
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CHK'D BY:	BRZEZINSKI
MISC:	
PAGE:	03 OF 03

d-series

D-Series Size 1
LED Wall Luminaire

NIGHTTIME FRIENDLY™ BAA BABA

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

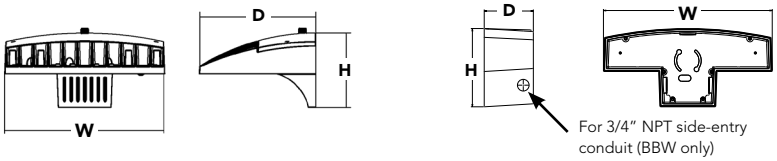
Specifications

Luminaire

Width:	13-3/4" (34.9 cm)	**Weight:**	12 lbs (5.4 kg)
Depth:	10" (25.4 cm)		
Height:	6-3/8" (16.2 cm)		

Back Box (BBW, E20WC)

Width:	13-3/4" (34.9 cm)	**BBW Weight:**	5 lbs (2.3 kg)
Depth:	4" (10.2 cm)	**E20WC Weight:**	10 lbs (4.5 kg)
Height:	6-3/8" (16.2 cm)		



Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and significant energy savings, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: DSXW1 LED P2 40K 70CRI T3M MVOLT SRM DDBTXD

DSXW1 LED

Series	Lumen Package	CCT	CRI	Distribution	Voltage	Mounting	Control Options
DSXW1 LED	P1 2000 Lumens P2 2200 Lumens P3 3200 Lumens P4 4300 Lumens P5 5200 Lumens P6 7200 Lumens P7 10000 Lumens	27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K 5000K 57K 5700K AMBPC Amber PC [3] AMBLW Amber LW [1,3]	70CRI 70CRI 80CRI 80CRI [2] AMCRI Amber CRI	T2S Type 2 Short T2M Type 2 Medium T3LG Type 3 Low Glare [4] T3M Type 3 Medium T4M Type 4 Medium TFTM Forward Throw Medium BLC3 Back Light Control Type 3 [4] BLC4 Back Light Control Type 4 [4]	MVOLT 120 [5] 208 [5] 240 [5] 277 [5] 347 [5,6] 480 [5,6] HVOLT [6]	**Shipped included** SRM Surface mounting bracket BBW Surface-mounted back box (for conduit entry) [7]	**Shipped installed** PE Photoelectric cell, button type [8] DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately) PIR 180° motion/ambient light sensor, <15' mtg ht [9] PIRH 180° motion/ambient light sensor, 15-30' mtg ht [9] PIR1FC3V Motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc [9] PIRH1FC3V Motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc [9] E20WC 20 Watt Emergency battery backup (includes external component enclosure), CA Title 20 Compliant [10] E10WH 10 Watt Emergency battery backup (includes external component enclosure), CA Title 20 compliant [10]

Other Options

Shipped installed

SF	Single fuse (120, 277 or 347V) [5,11]
DF	Double fuse (208, 240 or 480V) [5,11]
HS	House-side shield [12]
SPD	Separate surge protection

Shipped separately [12]

BSW	Bird-deterrent spikes
VG	Vandal guard
DDL	Diffused drop lens

Finish *(required)*

DDBXD	Dark bronze	DSSXD	Sandstone	DWHGXD	Textured white
DBLXD	Black	DDBTXD	Textured dark bronze	DSSTXD	Textured sandstone
DNAXD	Natural aluminum	DBLBXD	Textured black		
DWHXD	White	DNATXD	Textured natural aluminum		

Accessories

Ordered and shipped separately.

DSXWHS U	House-side shield (one per light engine)
DSXWBSW U	Bird-deterrent spikes
DSXW1VG U	Vandal guard accessory

NOTES

1 Only available with P1 and P6 Packages.
2 Not available with 57K.
3 Only Available with AMCRI.
4 Not available with HS Option.
5 Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
6 Not available with P1 package. Not available with motion/ambient light sensors (PIR or PIRH). Not Available with DMG.
7 Back box ships installed on fixture. Cannot be field installed. Cannot be ordered as an accessory. Not Available with E20WC or E10WH.
8 Photocontrol (PE) requires 120, 208, 240, 277 or 347 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
9 Reference Motion Sensor table on page 3. Not available with DMG.
10 Not compatible with conduit entry applications. Not available with BBW mounting option. Not available with SF and DF fusing. Not available with 347, 480, HVOLT voltage options. Emergency components located in back box housing. Not available with SPD.
11 Not available with E20WC and E10WH.
12 Also available as a separate accessory; see Accessories information.

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Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Contact factory for performance data on any configurations not shown here.

Package	Dist. Type	System Watts	30K, 70CRI		40K, 70CRI		50K, 70CRI	
			Lumens	LPW	Lumens	LPW	Lumens	LPW
P1	T2M	12	1,840	149	1,965	159	1,993	161
	T3M	12	1,786	144	1,908	154	1,934	156
	T4M	12	1,821	147	1,946	157	1,973	159
	TFTM	12	1,816	147	1,940	157	1,967	159
	BLC4	12	1,382	112	1,476	119	1,497	121
P2	T2M	15	2,189	150	2,339	160	2,371	163
	T3M	15	2,126	146	2,271	156	2,302	158
	T4M	15	2,168	149	2,316	159	2,348	161
	TFTM	15	2,161	148	2,309	158	2,341	161
	BLC4	15	1,645	113	1,757	121	1,781	122
P3	T2M	21	3,064	146	3,273	155	3,318	158
	T3M	21	2,974	141	3,177	151	3,222	153
	T4M	21	3,033	144	3,240	154	3,285	156
	TFTM	21	3,024	144	3,231	153	3,275	156
	BLC4	21	2,302	109	2,459	117	2,493	118
P4	T2M	29	3,997	139	4,269	149	4,329	151
	T3M	29	3,880	135	4,145	145	4,203	147
	T4M	29	3,957	138	4,227	147	4,286	149
	TFTM	29	3,945	138	4,214	147	4,273	149
	BLC4	29	3,002	105	3,207	112	3,252	113
P5	T2M	37	4,977	134	5,317	143	5,391	145
	T3M	37	4,832	130	5,162	139	5,233	141
	T4M	37	4,928	132	5,264	142	5,337	144
	TFTM	37	4,913	132	5,248	141	5,321	143
	BLC4	37	3,739	101	3,994	107	4,050	109
P6	T2M	48	6,867	142	7,335	152	7,437	154
	T3M	48	6,667	138	7,122	148	7,220	150
	T4M	48	6,798	141	7,262	151	7,363	153
	TFTM	48	6,778	140	7,241	150	7,341	152
	BLC4	48	5,158	107	5,511	114	5,587	116
P7	T2M	73	9,819	135	10,490	145	10,635	147
	T3M	73	9,533	131	10,184	140	10,325	142
	T4M	73	9,722	134	10,385	143	10,529	145
	TFTM	73	9,693	134	10,354	143	10,498	145
	BLC4	73	7,377	102	7,880	109	7,989	110

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Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
10°C	50°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **DSXW1 LED P7** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.95	0.91	0.82

Electrical Load

Performance Package	LEDs	Drive Current (mA)	System Watts	Current (A)					
				120V	208V	240V	277V	347V	480V
DSXW1 P1	10	375	12	0.10	0.06	0.05	0.04	-	-
DSXW1 P2	10	450	15	0.12	0.07	0.06	0.05	0.04	0.03
DSXW1 P3	10	650	21	0.18	0.10	0.09	0.08	0.06	0.05
DSXW1 P4	10	875	29	0.24	0.14	0.12	0.10	0.08	0.06
DSXW1 P5	10	1125	37	0.30	0.18	0.16	0.14	0.11	0.08
DSXW1 P6	20	750	48	0.39	0.24	0.20	0.18	0.14	0.10
DSXW1 P7	20	1150	73	0.60	0.36	0.31	0.27	0.21	0.15

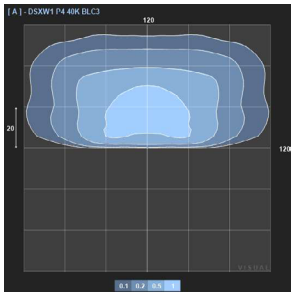
Motion Sensor Default Settings						
Option	Dimmed State	High Level (when triggered)	Photocell Operation	Dwell Time	Ramp-up Time	Ramp-down Time
PIR or PIRH	3V (37%) Output	10V (100%) Output	Enabled @ 5FC	5 min	3 sec	5 min
*PIR1FC3V or PIRH1FC3V	3V (37%) Output	10V (100%) Output	Enabled @ 1FC	5 min	3 sec	5 min

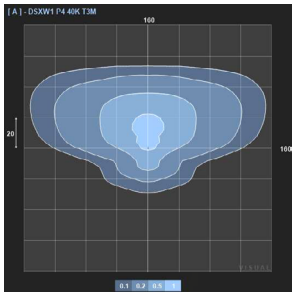
*For use when motion sensor is used as dusk to dawn control

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Wall Size 1 homepage.

Isofootcandle plots for the DSXW1 LED P4 40K. Distances are in units of mounting height (20').





Options and Accessories

T3M (left)

HS - House-side shields

BSW - Bird-deterrent spikes

VG - Vandal guard

DDL - Diffused drop lens

FEATURES & SPECIFICATIONS

INTENDED USE

The energy savings, long life and easy-to-install design of the D-Series Wall Size 1 make it the smart choice for building-mounted doorway and pathway illumination for nearly any facility.

CONSTRUCTION

Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance. The LED driver is mounted to the door to thermally isolate it from the light engines for low operating temperature and long life. IP66 rated light engine.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses provide multiple photometric distributions tailored specifically to building mounted applications. Light engines are available in multiple CCTs and CRIs including Amber for specialized applications.

ELECTRICAL

Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (L88/100,000 hrs at 25°C). Class 1 electronic drivers have a power factor >90%, THD <20%, and a minimum 6KV surge rating. When ordering the SPD option, a separate surge protection device is installed within the luminaire which meets a minimum Category C Low (per ANSI/IEEE C62.41.2).

INSTALLATION

Included universal mounting bracket attaches securely to any 4" round or square outlet box for quick and easy installation. Luminaire has a slotted gasket wireway and attaches to the mounting bracket via corrosion-resistant screws.

LISTINGS

CSA certified to U.S. and Canadian standards. Rated for -40°C minimum ambient.

GOVERNMENT PROCUREMENT

BAA – Buy America(n) Act: Product qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product also qualifies as manufactured in the United States under DOT Buy America regulations.
BABA – Build America Buy America: Product qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY

Five-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

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D-Series Size 1
LED Area Luminaire

Catalog Number

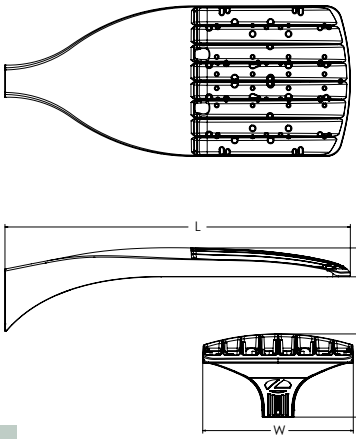
Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

EPA:	0.69 ft² (0.06 m²)
Length:	32.71" (83.1 cm)
Width:	14.26" (36.2 cm)
Height H1:	7.88" (20.0 cm)
Height H2:	2.73" (6.9 cm)
Weight:	34 lbs (15.4 kg)



Design Select options indicated by this color background.

Introduction

The modern styling of the D-Series features a highly refined aesthetic that blends seamlessly with its environment. The D-Series offers the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. D-Series outstanding photometry aids in reducing the number of poles required in area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

design select

Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details

Ordering Information

EXAMPLE: DSX1 LED P7 40K 70CRI T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED

Series	LEDs	Color temperature [2]	Color Rendering Index [2]	Distribution		Voltage	Mounting
DSX1 LED	**Forward optics** P1 P6 P2 P7 P3 P8 P4 P9 P5 **Rotated optics** P10 [1] P12 [1] P11 [1] P13 [1]	(this section 70CRI only) 30K 3000K 40K 4000K 50K 5000K 27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K 5000K	70CRI 70CRI 70CRI 80CRI 80CRI 80CRI 80CRI 80CRI	AFR Automotive front row T1S Type I short T2M Type II medium T3M Type III medium T3LG Type III low glare [3] T4M Type IV medium T4LG Type IV low glare [3] TFTM Forward throw medium	T5M Type V medium T5LG Type V low glare T5W Type V wide BLC3 Type III backlight control [3] BLC4 Type IV backlight control [3] LCCO Left corner cutoff [3] RCCO Right corner cutoff [3]	MVOLT (120V-277V) [4] HVOLT (347V-480V) [5,6] XVOLT (277V - 480V) [7,8] 120 [16, 26] 208 [16, 26] 240 [16, 26] 277 [16, 26] 347 [16, 26] 480 [16, 26]	**Shipped included** SPA Square pole mounting (#8 drilling) RPA Round pole mounting (#8 drilling) SPA5 Square pole mounting #5 drilling [9] RPA5 Round pole mounting #5 drilling [9] SPA8N Square narrow pole mounting #8 drilling WBA Wall bracket [10] MA Mast arm adapter (mounts on 2 3/8" OD horizontal tenon)

Control options

Shipped installed

NLTAIR2 PIRHN	nLight AIR gen 2 enabled with bi-level motion / ambient sensor, 8-40' mounting height, ambient sensor enabled at 2fc. [11, 12, 20, 21]
PIR	High/low, motion/ambient sensor, 8-40' mounting height, ambient sensor enabled at 2fc [13, 20, 21]
PER	NEMA twist-lock receptacle only (controls ordered separate) [14]
PER5	Five-pin receptacle only (controls ordered separate) [14, 21]
PER7	Seven-pin receptacle only (controls ordered separate) [14, 21]
FAO	Field adjustable output [15, 21]
BL30	Bi-level switched dimming, 30% [16, 21]
BL50	Bi-level switched dimming, 50% [16, 21]
DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately) [17]
DS	Dual switching [18, 19, 21]

Other options

Shipped installed

SPD20KV	20KV surge protection
HS	Houseside shield (black finish standard) [22]
L90	Left rotated optics [1]
R90	Right rotated optics [1]
CCE	Coastal Construction [23]
HA	50°C ambient operation [24]
BAA	Buy America(n) Act and/or Build America Buy America Qualified
SF	Single fuse (120, 277, 347V) [26]
DF	Double fuse (208, 240, 480V) [26]

Shipped separately

EGSR	External Glare Shield (reversible, field install required, matches housing finish)
BSDB	Bird Spikes (field install required)

Finish *(required)*

DDBXD	Dark Bronze
DBLXD	Black
DNAXD	Natural Aluminum
DWHXD	White
DDBTXD	Textured dark bronze
DBLBXD	Textured black
DNATXD	Textured natural aluminum
DWHGXD	Textured white

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Ordering Information

Accessories

Ordered and shipped separately.

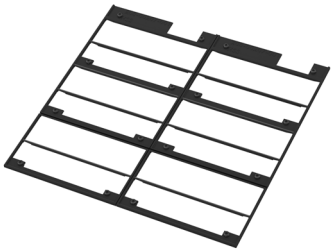
DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [25]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [25]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [25]
DSHORT SBK	Shorting cap [25]
DSX1HS P#	House-side shield (enter package number 1-13 in place of #)
DSXRPA (FINISH)	Round pole adapter (#8 drilling, specify finish)
DSXSPA5 (FINISH)	Square pole adapter #5 drilling (specify finish)
DSXRPA5 (FINISH)	Round pole adapter #5 drilling (specify finish)
DSX1EGSR (FINISH)	External glare shield (specify finish)
DSX1BSDB (FINISH)	Bird spike deterrent bracket (specify finish)

NOTES

1 Rotated optics available with packages P10, P11, P12 and P13. Must be combined with option L90 or R90.
2 30K, 40K, and 50K available in 70CRI and 80CRI. 27K and 35K only available with 80CRI. Contact Technical Support for other possible combinations.
3 T3LG, T4LG, BLC3, BLC4, LCCO, RCCO not available with option HS.
4 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
5 HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
6 HVOLT not available with package P1 and P10 when combined with option NLTAIR2 PIRHN or option PIR.
7 XVOLT operates with any voltage between 277V and 480V (50/60 Hz).
8 XVOLT not available in packages P1 or P10. XVOLT not available with fusing (SF or DF).
9 SPA5 and RPA5 for use with #5 drilling only (Not for use with #8 drilling).
10 WBA cannot be combined with Type 5 distributions plus photocell (PER).
11 NLTAIR2 and PIRHN must be ordered together. For more information on nLight AIR2 visit this link
12 NLTAIR2 PIRHN not available with other controls including PIR, PER, PER5, PER7, FAO, BL30, BL50, DMG and DS. NLTAIR2 PIRHN not available with P1 and P10 using HVOLT. NLTAIR2 PIRHN not available with P1 and P10 using XVOLT.
13 PIR not available with NLTAIR2 PIRHN, PER, PER5, PER7, FAO BL30, BL50, DMG and DS. PIR not available with P1 and P10 using HVOLT. PIR not available with P1 and P10 using XVOLT.
14 PER/PER5/PER7 not available with NLTAIR2 PIRHN, PIR, BL30, BL50, FAO, DMG and DS. Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included.
15 FAO not available with other dimming control options NLTAIR2 PIRHN, PIR, PER5, PER7, BL30, BL50, DMG and DS.
16 BL30 and BL50 are not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, FAO, DMG and DS. BL30 or BL50 must specify 120 or 277V.
17 DMG not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, BL30, BL50, FAO and DS.
18 DS not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, BL30, BL50, FAO and DMG.
19 DS requires (2) separately switched circuits. DS provides 50/50 fixture operation via (2) different sets of leads using (2) drivers. DS only available with packages P8, P9, P10, P11, P12 and P13.
20 Reference Motion Sensor Default Settings table on page 4 to see functionality.
21 Reference Controls Options table on page 4.
22 HS not available with T3LG, T4LG, BLC3, BLC4, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
23 CCE option not available with option BS and EGSR. Contact Technical Support for availability.
24 Option HA not available with performance packages P4, P5, P7, P8, P9 and P13.
25 Requires luminaire to be specified with PER, PER5 or PER7 option. See Controls Table on page 4.
26 Single fuse (SF) requires 120V, 277V, or 347V. Double fuse (DF) requires 208V, 240V or 480V. XVOLT not available with fusing (SF or DF).

Shield Accessories

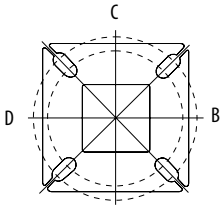
External Glare Shield (EGSR)

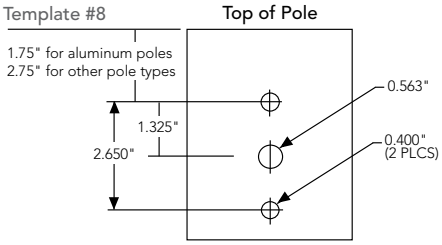


House Side Shield (HS)

Drilling

HANDHOLE ORIENTATION





Tenon Mounting Slipfitter

Tenon O.D.	Mounting	Single Unit	2 @ 180	2 @ 90	3 @ 90	3 @120	4 @ 90
2-3/8"	RPA	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 390	AS3-5 320	AS3-5 490
2-7/8"	RPA	AST25-190	AST25-280	AST25-290	AST25-390	AST25-320	AST25-490
4"	RPA	AST35-190	AST35-280	AST35-290	AST35-390	AST35-320	AST35-490

Mounting Option	Drilling Template	Single	2 @ 180	2 @ 90	3 @ 90	3 @ 120	4 @ 90
Head Location		Side B	Side B & D	Side B & C	Side B, C & D	Round Pole Only	Side A, B, C & D
Drill Nomenclature	#8	DM19AS	DM28AS	DM29AS	DM39AS	DM32AS	DM49AS
		Minimum Acceptable Outside Pole Dimension					
SPA	#8	3.5"	3.5"	3.5"	3.5"		3.5"
RPA	#8	3"	3"	3"	3"	3"	3"
SPA5	#5	3"	3"	3"	3"		3"
RPA5	#5	3"	3"	3"	3"	3"	3"
SPA8N	#8	3"	3"	3"	3"		3"

DSX1 Area Luminaire - EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

Fixture Quantity & Mounting Configuration	Single DM19	2 @ 180 DM28	2 @ 90 DM29	3 @ 90 DM39	3 @ 120 DM32	4 @ 90 DM49
Mounting Type						
DSX1 with SPA	0.69	1.38	1.23	1.54	---	1.58
DSX1 with SPA5, SPA8N	0.70	1.40	1.30	1.66	---	1.68
DSX1 with RPA, RPA5	0.70	1.40	1.30	1.66	1.60	1.68
DSX1 with MA	0.83	1.66	1.50	2.09	2.09	2.09

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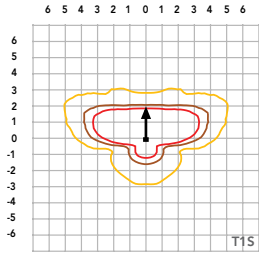
Photometric Diagrams

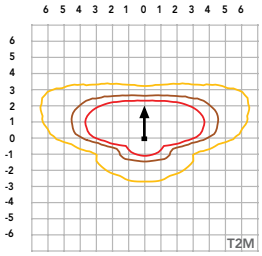
To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's homepage.

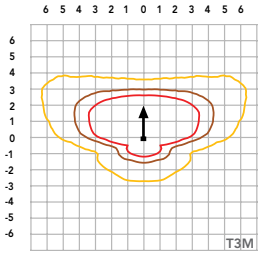
Isofootcandle plots for the DSX1 LED P9 40K 70CRI. Distances are in units of mounting height (25').

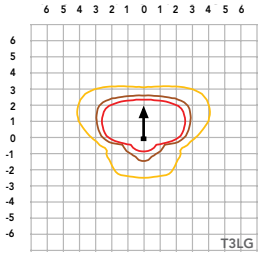
LEGEND

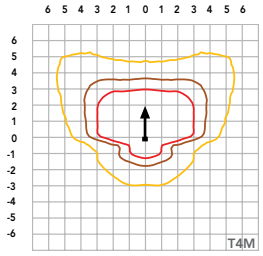
- 0.1 fc
- 0.5 fc
- 1.0 fc

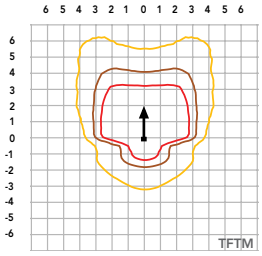


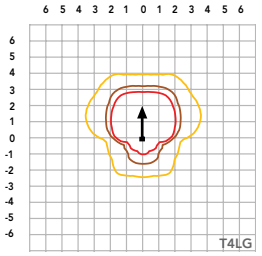


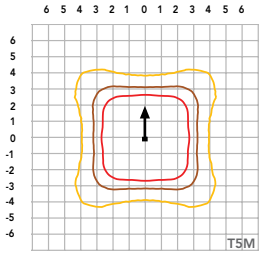


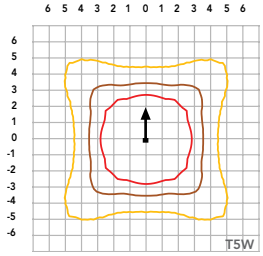


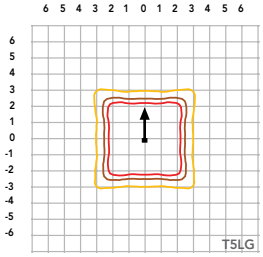


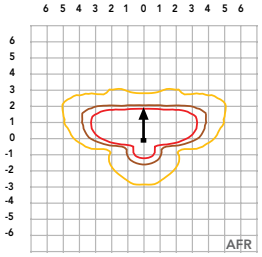


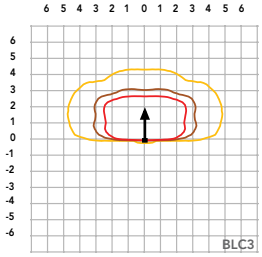


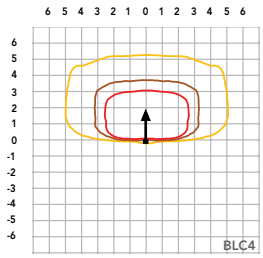


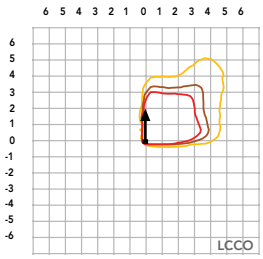


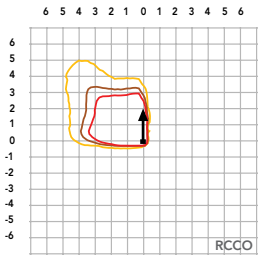












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Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
5°C	41°F	1.04
10°C	50°F	1.03
15°C	50°F	1.02
20°C	68°F	1.01
25°C	**77°C**	**1.00**
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	Lumen Maintenance Factor
0	1.00
25,000	0.95
50,000	0.90
100,000	0.81

FAO Dimming Settings

FAO Position	% Wattage	% Lumen Output
8	100%	100%
7	93%	95%
6	80%	85%
5	66%	73%
4	54%	61%
3	41%	49%
2	29%	36%
1	15%	20%

*Note: Calculated values are based on original performance package data. When calculating new values for given FAO position, use maximum published values by package listed on specification sheet (input watts and lumens by optic type).

Electrical Load

					Current (A)					
	Performance Package	LED Count	Drive Current (mA)	Wattage	120V	208V	240V	277V	347V	480V
Forward Optics (Non-Rotated)	P1	30	530	51	0.42	0.24	0.21	0.18	0.15	0.11
	P2	30	700	68	0.56	0.33	0.28	0.24	0.20	0.14
	P3	30	1050	104	0.85	0.49	0.43	0.37	0.29	0.21
	P4	30	1250	125	1.03	0.60	0.52	0.45	0.36	0.26
	P5	30	1400	142	1.15	0.66	0.58	0.50	0.40	0.29
	P6	40	1250	167	1.38	0.79	0.69	0.60	0.48	0.34
	P7	40	1400	188	1.54	0.89	0.77	0.67	0.53	0.38
	P8	60	1100	216	1.80	1.04	0.90	0.78	0.62	0.45
	P9	60	1400	279	2.31	1.33	1.15	1.00	0.80	0.58
Rotated Optics (Requires L90 or R90)	P10	60	530	101	0.84	0.49	0.42	0.37	0.29	0.21
	P11	60	700	135	1.12	0.65	0.56	0.49	0.39	0.28
	P12	60	1050	206	1.72	0.99	0.86	0.74	0.59	0.43
	P13	60	1400	279	2.30	1.33	1.15	1.00	0.79	0.57

LED Color Temperature / Color Rendering Multipliers

	70 CRI		80CRI		90CRI	
	Lumen Multiplier	Availability	Lumen Multiplier	Availability	Lumen Multiplier	Availability
5000K	102%	Standard	92%	Extended lead-time	71%	(see note)
4000K	100%	Standard	92%	Extended lead-time	67%	(see note)
3500K	100%	(see note)	90%	Extended lead-time	63%	(see note)
3000K	96%	Standard	87%	Extended lead-time	61%	(see note)
2700K	94%	(see note)	85%	Extended lead-time	57%	(see note)

Note: Some LED types are available as per special request. Contact Technical Support for more information.

Motion Sensor Default Settings

Option	Unoccupied Dimmed Level	High Level (when occupied)	Photocell Operation	Dwell Time	Ramp-up Time	Dimming Fade Rate
PIR	30%	100%	Enabled @ 2FC	7.5 min	3 sec	5 min
NLTAIR2 PIRHN	30%	100%	Enabled @ 2FC	7.5 min	3 sec	5 min

Controls Options

Nomenclature	Description	Functionality	Primary control device	Notes
FAO	Field adjustable output device installed inside the luminaire; wired to the driver dimming leads.	Allows the luminaire to be manually dimmed, effectively trimming the light output.	FAO device	Cannot be used with other controls options that need the 0-10V leads
DS (not available on DSX0)	Drivers wired independently for 50/50 luminaire operation	The luminaire is wired to two separate circuits, allowing for 50/50 operation.	Independently wired drivers	Requires two separately switched circuits. Consider nLight AIR as a more cost effective alternative.
PER5 or PER7	Twist-lock photocell receptacle	Compatible with standard twist-lock photocells for dusk to dawn operation, or advanced control nodes that provide 0-10V dimming signals.	Twist-lock photocells such as DLL Elite or advanced control nodes such as ROAM.	Pins 4 & 5 to dimming leads on driver, Pins 6 & 7 are capped inside luminaire. Cannot be used with other controls options that need the 0-10V leads.
PIR	Motion sensor with integral photocell. Sensor suitable for 8' to 40' mounting height.	Luminaires dim when no occupancy is detected.	Acuity Controls rSBG	Cannot be used with other controls options that need the 0-10V leads.
NLTAIR2 PIRHN	nLight AIR enabled luminaire for motion sensing, photocell and wireless communication.	Motion and ambient light sensing with group response. Scheduled dimming with motion sensor over-ride when wirelessly connected to the nLight Eclypse.	nLight Air rSBG	nLight AIR sensors can be programmed and commissioned from the ground using the CIAIRity Pro app. Cannot be used with other controls options that need the 0-10V leads.
BL30 or BL50	Integrated bi-level device that allows a second control circuit to switch all light engines to either 30% or 50% light output	BLC device provides input to 0-10V dimming leads on all drivers providing either 100% or dimmed (30% or 50%) control by a secondary circuit	BLC UVOLT1	BLC device is powered off the 0-10V dimming leads, thus can be used with any input voltage from 120 to 480V

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Performance Data

Lumen Output

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Contact factory for performance data on any configurations not shown here.

Forward Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	51W	30	530	T1S	7,776	1	0	2	153	8,104	1	0	2	159	8,262	1	0	2	162
				T2M	7,203	1	0	3	142	7,507	2	0	3	147	7,653	2	0	3	150
				T3M	7,287	1	0	3	143	7,594	1	0	3	149	7,742	1	0	3	152
				T3LG	6,509	1	0	1	128	6,783	1	0	1	133	6,916	1	0	1	136
				T4M	7,395	1	0	3	145	7,707	1	0	3	151	7,857	1	0	3	154
				T4LG	6,726	1	0	1	132	7,010	1	0	1	138	7,146	1	0	1	140
				TFTM	7,446	1	0	3	146	7,760	1	0	3	152	7,912	1	0	3	155
				T5M	7,609	3	0	2	149	7,930	3	0	2	156	8,084	3	0	2	159
				T5W	7,732	3	0	2	152	8,058	4	0	2	158	8,215	4	0	2	161
				T5LG	7,631	3	0	1	150	7,953	3	0	1	156	8,108	3	0	1	159
				BLC3	5,300	0	0	2	104	5,524	0	0	2	109	5,631	0	0	2	111
				BLC4	5,474	0	0	3	108	5,705	0	0	3	112	5,816	0	0	3	114
				RCCO	5,348	0	0	2	105	5,573	0	0	2	109	5,682	0	0	2	112
				LCCO	5,348	0	0	2	105	5,573	0	0	2	109	5,682	0	0	2	112
				AFR	7,776	1	0	2	153	8,104	1	0	2	159	8,262	1	0	2	162
P2	68W	30	700	T1S	9,997	1	0	2	147	10,418	1	0	2	154	10,621	1	0	2	157
				T2M	9,260	2	0	3	137	9,651	2	0	3	142	9,839	2	0	3	145
				T3M	9,368	2	0	3	138	9,763	2	0	3	144	9,953	2	0	3	147
				T3LG	8,368	1	0	2	123	8,721	1	0	2	129	8,891	1	0	2	131
				T4M	9,507	2	0	3	140	9,909	2	0	3	146	10,102	2	0	3	149
				T4LG	8,647	1	0	2	128	9,012	1	0	2	133	9,187	1	0	2	136
				TFTM	9,573	2	0	3	141	9,977	2	0	3	147	10,172	2	0	3	150
				T5M	9,782	4	0	2	144	10,195	4	0	2	150	10,393	4	0	2	153
				T5W	9,940	4	0	2	147	10,360	4	0	2	153	10,562	4	0	2	156
				T5LG	9,810	3	0	1	145	10,224	3	0	1	151	10,423	3	0	1	154
				BLC3	6,814	0	0	2	101	7,101	0	0	2	105	7,240	0	0	2	107
				BLC4	7,038	0	0	3	104	7,334	0	0	3	108	7,477	0	0	3	110
				RCCO	6,875	1	0	2	101	7,165	1	0	2	106	7,305	1	0	2	108
				LCCO	6,875	1	0	2	101	7,165	1	0	2	106	7,305	1	0	2	108
				AFR	9,997	1	0	2	147	10,418	1	0	2	154	10,621	1	0	2	157
P3	102W	30	1050	T1S	14,093	2	0	2	138	14,687	2	0	2	144	14,973	2	0	2	147
				T2M	13,055	2	0	3	128	13,605	2	0	3	133	13,871	2	0	3	136
				T3M	13,206	2	0	4	129	13,763	2	0	4	135	14,031	2	0	4	137
				T3LG	11,797	2	0	2	115	12,294	2	0	2	120	12,534	2	0	2	123
				T4M	13,403	2	0	4	131	13,968	2	0	4	137	14,241	2	0	4	139
				T4LG	12,190	2	0	2	119	12,704	2	0	2	124	12,952	2	0	2	127
				TFTM	13,496	2	0	4	132	14,065	2	0	4	138	14,339	2	0	4	140
				T5M	13,790	4	0	2	135	14,371	4	0	2	141	14,652	4	0	2	143
				T5W	14,013	4	0	3	137	14,605	4	0	3	143	14,889	4	0	3	146
				T5LG	13,830	3	0	2	135	14,413	3	0	2	141	14,694	3	0	2	144
				BLC3	9,606	0	0	2	94	10,011	0	0	2	98	10,206	0	0	2	100
				BLC4	9,921	0	0	3	97	10,340	0	0	3	101	10,541	0	0	3	103
				RCCO	9,692	1	0	2	95	10,101	1	0	2	99	10,298	1	0	2	101
				LCCO	9,692	1	0	2	95	10,101	1	0	2	99	10,298	1	0	2	101
				AFR	14,093	2	0	2	138	14,687	2	0	2	144	14,973	2	0	2	147

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Performance Data

Lumen Output

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Contact factory for performance data on any configurations not shown here.

Forward Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P4	124W	30	1250	T1S	16,416	2	0	3	132	17,109	2	0	3	138	17,442	2	0	3	141
				T2M	15,207	3	0	4	123	15,849	3	0	4	128	16,158	3	0	4	130
				T3M	15,383	2	0	4	124	16,032	2	0	4	129	16,345	2	0	4	132
				T3LG	13,742	2	0	2	111	14,321	2	0	2	116	14,600	2	0	2	118
				T4M	15,613	2	0	4	126	16,272	2	0	4	131	16,589	2	0	4	134
				T4LG	14,200	2	0	2	115	14,799	2	0	2	119	15,087	2	0	2	122
				TFTM	15,721	2	0	4	127	16,384	2	0	4	132	16,703	2	0	4	135
				T5M	16,063	4	0	2	130	16,741	4	0	2	135	17,067	4	0	2	138
				T5W	16,324	5	0	3	132	17,013	5	0	3	137	17,344	5	0	3	140
				T5LG	16,110	3	0	2	130	16,790	4	0	2	135	17,117	4	0	2	138
				BLC3	11,190	0	0	3	90	11,662	0	0	3	94	11,889	0	0	3	96
				BLC4	11,557	0	0	3	93	12,044	0	0	3	97	12,279	0	0	4	99
				RCCO	11,291	1	0	3	91	11,767	1	0	3	95	11,996	1	0	3	97
				LCCO	11,291	1	0	3	91	11,767	1	0	3	95	11,996	1	0	3	97
				AFR	16,416	2	0	3	132	17,109	2	0	3	138	17,442	2	0	3	141
P5	138W	30	1400	T1S	18,052	2	0	3	131	18,814	2	0	3	136	19,180	2	0	3	139
				T2M	16,723	3	0	4	121	17,428	3	0	4	126	17,768	3	0	4	129
				T3M	16,917	3	0	4	122	17,630	3	0	4	128	17,974	3	0	4	130
				T3LG	15,111	2	0	2	109	15,749	2	0	2	114	16,055	2	0	2	116
				T4M	17,169	3	0	5	124	17,893	3	0	5	130	18,242	3	0	5	132
				T4LG	15,615	2	0	2	113	16,274	2	0	2	118	16,591	2	0	2	120
				TFTM	17,288	2	0	4	125	18,017	2	0	5	130	18,368	3	0	5	133
				T5M	17,664	5	0	3	128	18,410	5	0	3	133	18,768	5	0	3	136
				T5W	17,951	5	0	3	130	18,708	5	0	3	135	19,073	5	0	3	138
				T5LG	17,716	4	0	2	128	18,463	4	0	2	134	18,823	4	0	2	136
				BLC3	12,305	0	0	3	89	12,824	0	0	3	93	13,074	0	0	3	95
				BLC4	12,709	0	0	4	92	13,245	0	0	4	96	13,503	0	0	4	98
				RCCO	12,416	1	0	3	90	12,940	1	0	3	94	13,192	1	0	3	95
				LCCO	12,416	1	0	3	90	12,940	1	0	3	94	13,192	1	0	3	95
				AFR	18,052	2	0	3	131	18,814	2	0	3	136	19,180	2	0	3	139
P6	165W	40	1250	T1S	21,031	2	0	3	127	21,918	2	0	3	133	22,345	2	0	3	135
				T2M	19,482	3	0	4	118	20,303	3	0	4	123	20,699	3	0	4	125
				T3M	19,708	3	0	5	119	20,539	3	0	5	124	20,939	3	0	5	127
				T3LG	17,604	2	0	2	107	18,347	2	0	2	111	18,704	2	0	2	113
				T4M	20,001	3	0	5	121	20,845	3	0	5	126	21,251	3	0	5	129
				T4LG	18,191	2	0	2	110	18,959	2	0	2	115	19,328	2	0	2	117
				TFTM	20,140	3	0	5	122	20,989	3	0	5	127	21,398	3	0	5	129
				T5M	20,579	5	0	3	125	21,447	5	0	3	130	21,865	5	0	3	132
				T5W	20,912	5	0	3	127	21,795	5	0	3	132	22,219	5	0	3	134
				T5LG	20,638	4	0	2	125	21,509	4	0	2	130	21,928	4	0	2	133
				BLC3	14,335	0	0	3	87	14,940	0	0	3	90	15,231	0	0	3	92
				BLC4	14,805	0	0	4	90	15,430	0	0	4	93	15,731	0	0	4	95
				RCCO	14,464	1	0	3	88	15,074	1	0	3	91	15,368	1	0	3	93
				LCCO	14,464	1	0	3	88	15,074	1	0	3	91	15,368	1	0	3	93
				AFR	21,031	2	0	3	127	21,918	2	0	3	133	22,345	2	0	3	135

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Performance Data

Lumen Output

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Forward Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P7	184W	40	1400	T1S	22,741	2	0	3	123	23,700	2	0	3	129	24,162	3	0	3	131
				T2M	21,066	3	0	4	114	21,955	3	0	4	119	22,383	3	0	4	121
				T3M	21,311	3	0	5	116	22,210	3	0	5	120	22,642	3	0	5	123
				T3LG	19,036	2	0	2	103	19,839	2	0	3	108	20,226	2	0	3	110
				T4M	21,628	3	0	5	117	22,541	3	0	5	122	22,980	3	0	5	125
				T4LG	19,671	2	0	2	107	20,501	2	0	3	111	20,900	2	0	3	113
				TFTM	21,778	3	0	5	118	22,697	3	0	5	123	23,139	3	0	5	125
				T5M	22,252	5	0	3	121	23,191	5	0	3	126	23,643	5	0	3	128
				T5W	22,613	5	0	3	123	23,567	5	0	4	128	24,027	5	0	4	130
				T5LG	22,317	4	0	2	121	23,258	4	0	2	126	23,712	4	0	2	129
				BLC3	15,501	0	0	3	84	16,155	0	0	4	88	16,470	0	0	4	89
				BLC4	16,010	0	0	4	87	16,685	0	0	4	90	17,010	0	0	4	92
				RCCO	15,641	1	0	3	85	16,301	1	0	3	89	16,619	1	0	3	90
				LCCO	15,641	1	0	3	85	16,301	1	0	3	89	16,619	1	0	3	90
				AFR	22,741	2	0	3	123	23,700	2	0	3	129	24,162	3	0	3	131
P8	216W	60	1100	T1S	28,701	3	0	3	133	29,912	3	0	4	139	30,495	3	0	4	141
				T2M	26,587	3	0	5	123	27,709	3	0	5	128	28,249	3	0	5	131
				T3M	26,895	3	0	5	125	28,030	3	0	5	130	28,576	3	0	5	132
				T3LG	24,025	3	0	3	111	25,038	3	0	3	116	25,526	3	0	3	118
				T4M	27,296	3	0	5	127	28,448	3	0	5	132	29,002	3	0	5	134
				T4LG	24,826	3	0	3	115	25,873	3	0	3	120	26,378	3	0	3	122
				TFTM	27,485	3	0	5	127	28,645	3	0	5	133	29,203	3	0	5	135
				T5M	28,084	5	0	4	130	29,269	5	0	4	136	29,839	5	0	4	138
				T5W	28,539	5	0	4	132	29,743	5	0	4	138	30,323	5	0	4	141
				T5LG	28,165	4	0	2	131	29,354	4	0	2	136	29,926	4	0	2	139
				BLC3	19,563	0	0	4	91	20,388	0	0	4	94	20,786	0	0	4	96
				BLC4	20,205	0	0	5	94	21,057	0	0	5	98	21,468	0	0	5	99
				RCCO	19,740	1	0	4	91	20,572	1	0	4	95	20,973	1	0	4	97
				LCCO	19,740	1	0	4	91	20,572	1	0	4	95	20,973	1	0	4	97
				AFR	28,701	3	0	3	133	29,912	3	0	4	139	30,495	3	0	4	141
P9	277W	60	1400	T1S	34,819	3	0	4	126	36,288	3	0	4	131	36,996	3	0	4	134
				T2M	32,255	3	0	5	116	33,616	3	0	5	121	34,271	3	0	5	124
				T3M	32,629	3	0	5	118	34,006	3	0	5	123	34,668	3	0	5	125
				T3LG	29,146	3	0	3	105	30,376	3	0	4	110	30,968	3	0	4	112
				T4M	33,116	3	0	5	120	34,513	3	0	5	125	35,185	3	0	5	127
				T4LG	30,119	3	0	3	109	31,389	3	0	4	113	32,001	3	0	4	116
				TFTM	33,345	3	0	5	120	34,751	3	0	5	125	35,429	3	0	5	128
				T5M	34,071	5	0	4	123	35,509	5	0	4	128	36,201	5	0	4	131
				T5W	34,624	5	0	4	125	36,084	5	0	4	130	36,788	5	0	4	133
				T5LG	34,170	5	0	3	123	35,612	5	0	3	129	36,306	5	0	3	131
				BLC3	23,734	0	0	4	86	24,735	0	0	4	89	25,217	0	0	4	91
				BLC4	24,513	0	0	5	88	25,547	0	0	5	92	26,045	0	0	5	94
				RCCO	23,948	1	0	4	86	24,958	1	0	4	90	25,445	1	0	4	92
				LCCO	23,948	1	0	4	86	24,958	1	0	4	90	25,445	1	0	4	92
				AFR	34,819	3	0	4	126	36,288	3	0	4	131	36,996	3	0	4	134

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Performance Data

Lumen Output

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Rotated Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P10	101W	60	530	T1S	15,164	3	0	3	150	15,803	3	0	3	156	16,112	3	0	3	159
				T2M	14,047	4	0	4	139	14,640	4	0	4	145	14,925	4	0	4	147
				T3M	14,208	4	0	4	140	14,807	4	0	4	146	15,096	4	0	4	149
				T3LG	12,693	3	0	3	125	13,229	3	0	3	131	13,487	3	0	3	133
				T4M	14,420	4	0	4	142	15,028	4	0	4	148	15,321	4	0	4	151
				T4LG	13,115	3	0	3	129	13,668	3	0	3	135	13,934	3	0	3	138
				TFTM	14,522	4	0	4	143	15,134	4	0	4	149	15,429	4	0	4	152
				T5M	14,836	4	0	2	146	15,462	4	0	2	153	15,763	4	0	2	156
				T5W	15,076	4	0	3	149	15,712	5	0	3	155	16,019	5	0	3	158
				T5LG	14,879	3	0	2	147	15,507	3	0	2	153	15,809	3	0	2	156
				BLC3	10,335	3	0	3	102	10,771	4	0	4	106	10,981	4	0	4	108
				BLC4	10,674	4	0	4	105	11,124	4	0	4	110	11,341	4	0	4	112
				RCCO	10,429	1	0	2	103	10,869	1	0	2	107	11,080	1	0	2	109
				LCCO	10,429	1	0	2	103	10,869	1	0	2	107	11,080	1	0	2	109
				AFR	15,164	3	0	3	150	15,803	3	0	3	156	16,112	3	0	3	159
P11	135W	60	700	T1S	19,437	4	0	4	144	20,257	4	0	4	150	20,651	4	0	4	153
				T2M	18,005	4	0	4	133	18,765	4	0	4	139	19,131	4	0	4	142
				T3M	18,211	4	0	4	135	18,980	4	0	4	141	19,350	4	0	4	143
				T3LG	16,270	3	0	3	121	16,957	3	0	3	126	17,287	4	0	4	128
				T4M	18,483	4	0	4	137	19,263	5	0	5	143	19,638	5	0	5	146
				T4LG	16,810	3	0	3	125	17,519	3	0	3	130	17,861	3	0	3	132
				TFTM	18,614	4	0	4	138	19,399	4	0	4	144	19,777	5	0	5	147
				T5M	19,017	5	0	3	141	19,819	5	0	3	147	20,205	5	0	3	150
				T5W	19,325	5	0	3	143	20,140	5	0	3	149	20,533	5	0	3	152
				T5LG	19,072	4	0	2	141	19,876	4	0	2	147	20,264	4	0	2	150
				BLC3	13,247	4	0	4	98	13,806	4	0	4	102	14,075	4	0	4	104
				BLC4	13,682	4	0	4	101	14,259	4	0	4	106	14,537	4	0	4	108
				RCCO	13,367	1	0	3	99	13,931	1	0	3	103	14,203	1	0	3	105
				LCCO	13,367	1	0	3	99	13,931	1	0	3	103	14,203	1	0	3	105
				AFR	19,437	4	0	4	144	20,257	4	0	4	150	20,651	4	0	4	153
P12	206W	60	1050	T1S	27,457	4	0	4	133	28,616	4	0	4	139	29,174	4	0	4	142
				T2M	25,436	5	0	5	124	26,509	5	0	5	129	27,025	5	0	5	131
				T3M	25,727	5	0	5	125	26,812	5	0	5	130	27,335	5	0	5	133
				T3LG	22,984	4	0	4	112	23,954	4	0	4	116	24,421	4	0	4	119
				T4M	26,110	5	0	5	127	27,212	5	0	5	132	27,742	5	0	5	135
				T4LG	23,747	4	0	4	115	24,749	4	0	4	120	25,231	4	0	4	123
				TFTM	26,295	5	0	5	128	27,404	5	0	5	133	27,938	5	0	5	136
				T5M	26,864	5	0	4	130	27,997	5	0	4	136	28,543	5	0	4	139
				T5W	27,299	5	0	4	133	28,451	5	0	4	138	29,006	5	0	4	141
				T5LG	26,942	4	0	2	131	28,078	4	0	2	136	28,626	4	0	2	139
				BLC3	18,714	4	0	4	91	19,504	4	0	4	95	19,884	4	0	4	97
				BLC4	19,327	5	0	5	94	20,143	5	0	5	98	20,535	5	0	5	100
				RCCO	18,883	1	0	4	92	19,680	1	0	4	96	20,064	1	0	4	97
				LCCO	18,883	1	0	4	92	19,680	1	0	4	96	20,064	1	0	4	97
				AFR	27,457	4	0	4	133	28,616	4	0	4	139	29,174	4	0	4	142
P13	276W	60	1400	T1S	34,436	5	0	5	125	35,889	5	0	5	130	36,588	5	0	5	133
				T2M	31,900	5	0	5	116	33,246	5	0	5	121	33,894	5	0	5	123
				T3M	32,265	5	0	5	117	33,626	5	0	5	122	34,282	5	0	5	124
				T3LG	28,826	4	0	4	105	30,042	4	0	4	109	30,628	4	0	4	111
				T4M	32,746	5	0	5	119	34,128	5	0	5	124	34,793	5	0	5	126
				T4LG	29,782	4	0	4	108	31,039	4	0	4	113	31,644	5	0	4	115
				TFTM	32,978	5	0	5	120	34,369	5	0	5	125	35,039	5	0	5	127
				T5M	33,692	5	0	4	122	35,113	5	0	4	127	35,797	5	0	4	130
				T5W	34,238	5	0	4	124	35,682	5	0	4	129	36,378	5	0	4	132
				T5LG	33,789	5	0	3	122	35,215	5	0	3	128	35,901	5	0	3	130
				BLC3	23,471	5	0	5	85	24,461	5	0	5	89	24,937	5	0	5	90
				BLC4	24,240	5	0	5	88	25,262	5	0	5	92	25,755	5	0	5	93
				RCCO	23,683	1	0	4	86	24,682	1	0	4	89	25,163	1	0	4	91
				LCCO	23,683	1	0	4	86	24,682	1	0	4	89	25,163	1	0	4	91
				AFR	34,436	5	0	5	125	35,889	5	0	5	130	36,588	5	0	5	133

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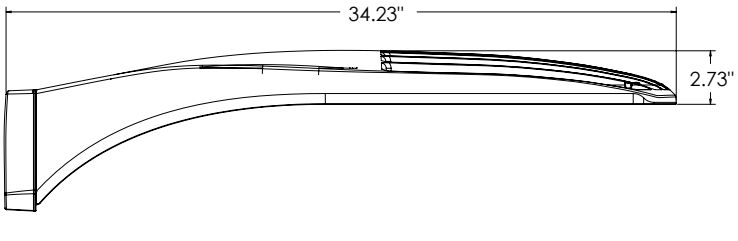
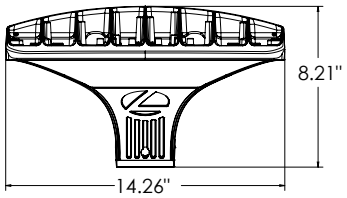
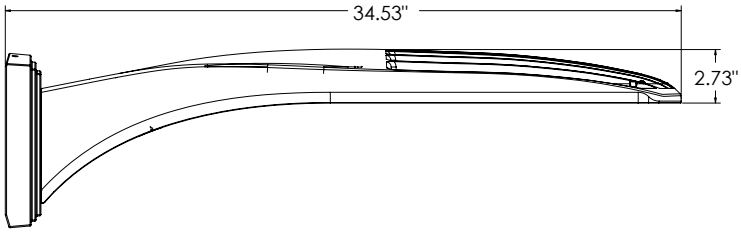
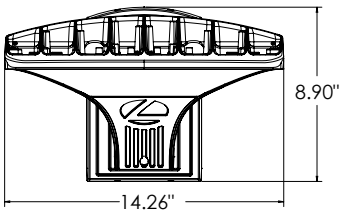
Dimensions



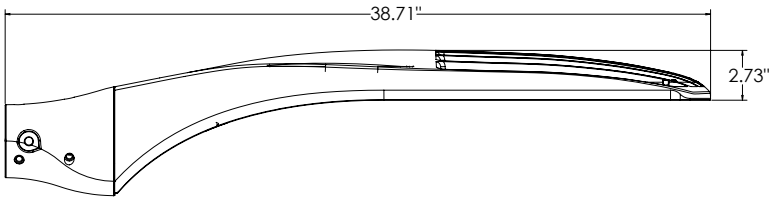


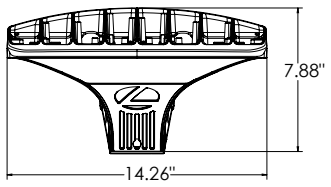
DSX1 with RPA, RPA5, SPA5, SPA8N mount
Weight: 36 lbs





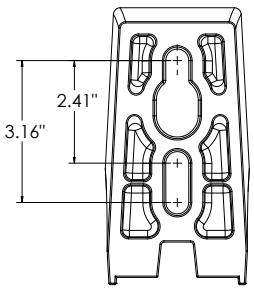
DSX1 with WBA mount
Weight: 38 lbs



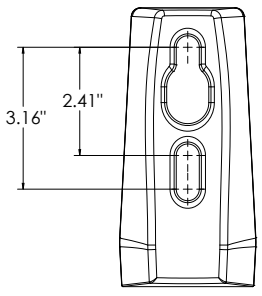


DSX1 with MA mount
Weight: 39 lbs

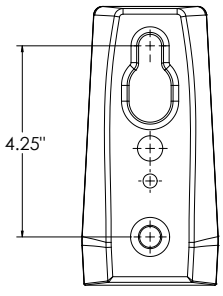
SPA (STANDARD ARM)



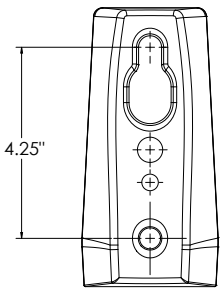
RPA



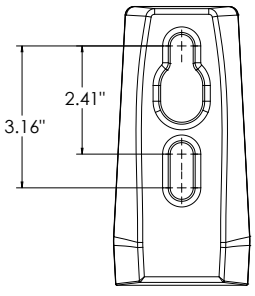
SPA5



RPA5



SPA8N



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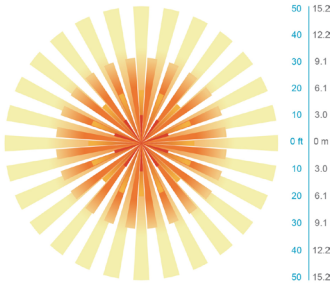
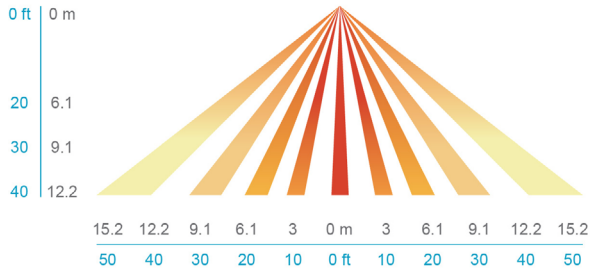
nLight Control - Sensor Coverage and Settings

nLight Sensor Coverage Pattern

NLTAIR2 PIRHN



Top



Side

FEATURES & SPECIFICATIONS

INTENDED USE

The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION

Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED drivers are mounted in direct contact with the casting to promote low operating temperature and long life. Housing driver compartment is completely sealed against moisture and environmental contaminants (IP66). Vibration rated per ANSI C136.31 for 3G for SPA and MA. 1.5G for mountings RPA, RPA5, SPA5 and SPA8N. Low EPA (0.69 ft^2) for optimized pole wind loading.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

Coastal Construction (CCE)

Optional corrosion resistant construction is engineered with added corrosion protection in materials and/or pre-treatment of base material under super durable paint. Provides additional corrosion protection for applications near coastal areas. Finish is salt spray tested to over 5,000 hours per ASTM B117 with scribe rating of 10. Additional lead-times may apply.

OPTICS

Precision-molded proprietary silicone lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 3000 K, 4000 K and 5000 K (70 CRI) configurations. 80CRI configurations are also available. The D-Series Size 1 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine configurations consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L81/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS

The DSX1 LED area luminaire has a number of control options. DSX Size 1, comes standard with 0-10V dimming drivers. Dusk to dawn controls can be utilized via optional NEMA twist-lock photocell receptacles. Integrated motion sensor with on-board photocells feature field-adjustable programing and are suitable for mounting heights up to 40 feet. Control option BL features a bi-level device that allows a second control circuit to switch all light engines to either 30% or 50% light output.

nLIGHT AIR CONTROLS

The DSX1 LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing and photocontrol functionality and is suitable for mounting heights up to 40 feet. Once commissioned using a smartphone and the easy-to-use CLAIRITY app, nLight AIR equipped luminaries can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclypse. Additional information about nLight Air can be found here.

INSTALLATION

Integral mounting arm allows for fast mounting using Lithonia standard #8 drilling and accommodates pole drilling's from 2.41 to 3.12" on center. The standard "SPA" option for square poles and the "RPA" option for round poles use the #8 drilling. For #5 pole drillings, use SPA5 or RPA5. Additional mountings are available including a wall bracket (WBA) and mast arm (MA) option that allows luminaire attachment to a 2 3/8" horizontal mast arm.

LISTINGS

UL listed to meet U.S. and Canadian standards. UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP66 rated. Rated for -40ºC minimum ambient.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only.

GOVERNMENT PROCUREMENT

BAA – Buy America(n) Act: Product with the BAA option qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product with the BAA option also qualifies as manufactured in the United States under DOT Buy America regulations.
BABA – Build America Buy America: Product with the BAA option also qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

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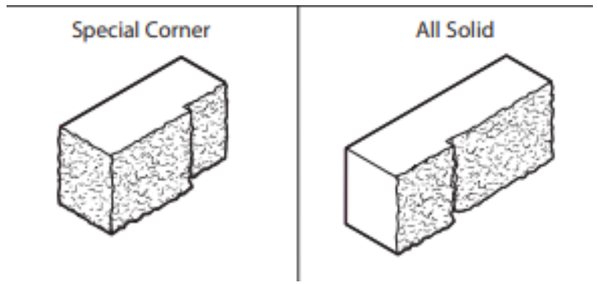
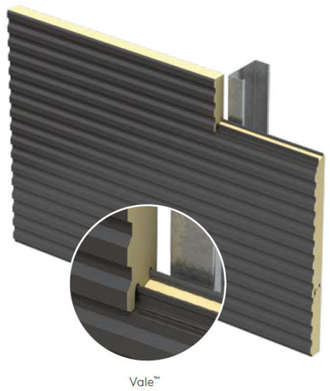
Urban Air Hartland

Hartland Michigan, Township

urbanAir



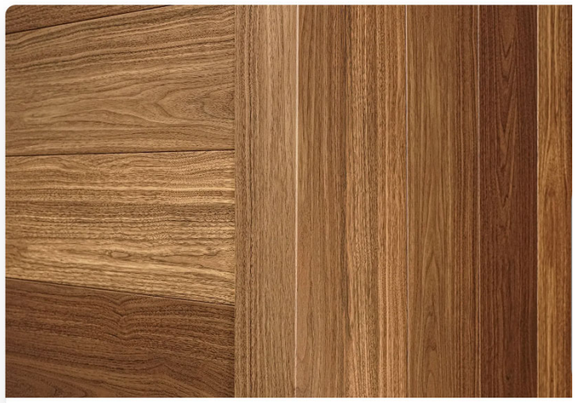


Kingspan Panels:
Silversmith Mica Coating- wall panels

Dark Gray Metallic- fascia cap

Entrance- Blue
"Cosmic Dust"- custom UA brand color

Jumbo brick: Grand Blanc Cement "Castle Rock" 4x4x16" with scored grout line custom from Grand Blanc Cement Products in "cream" and "dove gray"



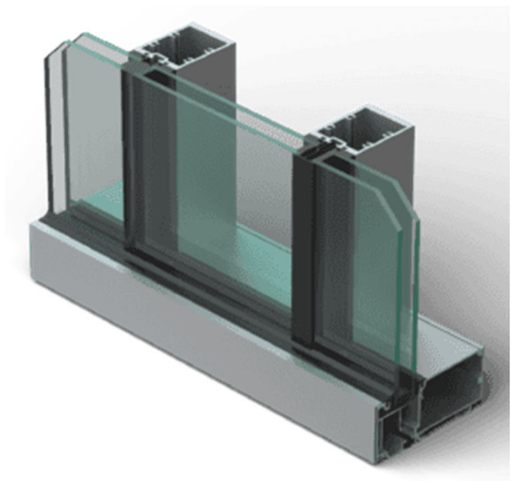
T-8 PlankWall®

T-8 PlankWall® is a painted metal soffit and wall panel system that offers architects and designers an alternative to real wood.

EXTERIOR WOOD LOOK
Western States Metal Roofing- Wood Look panels in Rosewood

NICHIHA Vertical Panels (see individual color info per Urban Air Corporate Palette)

urbanAir ADVENTURE PARK



Aluminum Storefront: Kawneer Trifab VG 451 Center-Aluminum Storefront System- Clear Anod

Glass: Guardian Sunguard SN68 Gray Frit 100% Full Coverage

NICHIHA Vertical Panels

URBAN AIR

ADVENTURE PARK

SITE PLAN APPROVAL

PROJECT ADDRESS:
OLD US-23
(VACANT)

PART OF THE NORTHWEST 1/4 OF SECTION 28
HARTLAND TOWNSHIP, 03 NORTH, RANGE 06 EAST
COUNTY OF LIVINGSTON, STATE OF MICHIGAN

PROPERTY DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE COUNTY OF LIVINGSTON, STATE OF MICHIGAN AND IS DESCRIBED AS FOLLOWS:

SITUATED IN THE TOWNSHIP OF HARTLAND, COUNTY OF LIVINGSTON, STATE OF MICHIGAN:

PARCEL C: BEING A PART OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SECTION 28, TOWN 3 NORTH, RANGE 6 EAST, TOWNSHIP OF HARTLAND, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS COMMENCING AT THE NORTH 1/4 CORNER OF SECTION 28; THENCE NORTH 86 DEGREES 53' 50" WEST 1325.23 FEET (RECORDED AS NORTH 86 DEGREES 42' 08" W 1326.61 FEET) ALONG THE NORTH LINE OF SAID SECTION 28; THENCE SOUTH 01 DEGREES 55' 34" WEST (RECORDED AS S 02 DEGREES 01' 21" W) 512.00 FEET ALONG THE WEST LINE OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SAID SECTION 28; THENCE SOUTH 89 DEGREES 32' 08" EAST (RECORDED AS S 89 DEGREES 17' 50" E) 452.12 FEET TO THE PLACE OF BEGINNING; THENCE CONTINUING SOUTH 89 DEGREES 32' 08" EAST (RECORDED AS S 89 DEGREES 17' 50" E) 450.11 FEET; THENCE ALONG THE WEST RIGHT OF WAY LINE OF SOUTH BOUND ENTRANCE RAMP TO U.S. 23 EXPRESSWAY THE FOLLOWING TWO COURSES: SOUTHEASTERLY, NON-TANGENTIALLY 196.86 FEET (RECORDED AS 196.67 FEET) ALONG THE ARC OF A 1070.92 FOOT RADIUS CURVE TO THE RIGHT, THROUGH A CENTRAL ANGLE OF 10 DEGREES 31' 57" (RECORDED AS 10 DEGREES 31' 19") AND HAVING A CHORD BEARING SOUTH 02 DEGREES 33' 13" EAST (RECORDED AS S 02 DEGREES 20' 58" E) 196.59 FEET AND SOUTH 02 DEGREES 42' 45" WEST (RECORDED AS S 02 DEGREES 54' 42" W) 158.73 FEET; THENCE NORTH 89 DEGREES 32' 08" WEST 455.50 FEET; THENCE NORTH 00 DEGREES 40' 03" EAST 354.92 FEET TO THE PLACE OF BEGINNING.

PARCEL D: BEING A PART OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SECTION 28, TOWN 3 NORTH, RANGE 6 EAST, TOWNSHIP OF HARTLAND, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS: COMMENCING AT THE NORTH 1/4 CORNER OF SECTION 28; THENCE NORTH 86 DEGREES 53' 50" WEST 1325.23 FEET (RECORDED AS N 86 DEGREES 42' 08" W 1326.61 FEET) ALONG THE NORTH LINE OF SAID SECTION 28; THENCE SOUTH 01 DEGREES 55' 34" WEST (RECORDED AS S 02 DEGREES 01' 21" W) 1112.00 FEET ALONG THE WEST LINE OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SAID SECTION 28; THENCE SOUTH 89 DEGREES 32' 08" EAST (RECORDED AS S 89 DEGREES 17' 50" E) 465.30 FEET TO THE PLACE OF BEGINNING; THENCE NORTH 00 DEGREES 40' 03" EAST 244.89 FEET; THENCE SOUTH 89 DEGREES 32' 08" EAST 455.50 FEET; THENCE ALONG THE WEST RIGHT OF WAY LINE OF SOUTH BOUND ENTRANCE RAMP TO U.S. 23 EXPRESSWAY THE FOLLOWING TWO COURSES: SOUTH 02 DEGREES 42' 45" WEST (RECORDED AS S 02 DEGREES 54' 42" W) 113.77 FEET AND SOUTH 03 DEGREES 58' 22" WEST 131.45 FEET (RECORDED AS S 04 DEGREES 10' 19" W 131.67 FEET); THENCE NORTH 89 DEGREES 32' 08" WEST (RECORDED AS N 89 DEGREES 17' 50" W) 443.85 FEET TO THE PLACE OF BEGINNING.

DRAWING INDEX:

●	07-14-2025	C000 — COVER SHEET
●	07-14-2025	C100 — TOPOGRAPHIC & BOUNDARY SURVEY
○	-	C101 — SITE REMOVAL PLAN (FINAL ENGINEERING)
●	07-14-2025	C200 — SITE LAYOUT PLAN
●	07-14-2025	C201 — OPEN SPACE PLAN
●	07-14-2025	C300 — SITE GRADING PLAN
○	-	C301 — SITE STORM SEWER PLAN (FINAL ENGINEERING)
○	-	C302 — SOIL EROSION CONTROL PLAN (FINAL ENGINEERING)
○	-	C303 — DRAINAGE AREA MAP (FINAL ENGINEERING)
○	-	C304 — STORM WATER CALCULATIONS (FINAL ENGINEERING)
○	-	C400 — SITE UTILITY PLAN (FINAL ENGINEERING)
●	07-14-2025	C401 — SITE PHOTOMETRIC PLAN
●	07-14-2025	C500 — SITE LANDSCAPE PLAN
●	07-14-2025	C501 — LANDSCAPE DETAILS
●	07-14-2025	C600 — SITE DETAILS
○	-	— HARTLAND TOWNSHIP DETAILS
○	-	— LIVINGSTON COUNTY DETAILS

● DATE — MOST RECENT ISSUE / REVISION DATE
FILLED CIRCLE INDICATES SUBMITTED DRAWING

BENCHMARKS (DATUM: NAVD88)

BM#1: TOP OF ARROW ON FIRE HYDRANT LOCATED 33 FEET SOUTH OF BACK OF BUILDING #10100 HIGHLAND RD.. 485 FEET EAST OF CENTER OLD US23 AND 50 FEET EAST OF ELECTRIC TRANSFORMER.

ELEV = 975.75 FEET

NPDES STATEMENT:

THE OWNER WILL NOT NEED TO OBTAIN AN NPDES STORM WATER DISCHARGE PERMIT FROM THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE).
TOTAL DISTURBED AREA: 3.96 ACRES

TOPOGRAPHIC SURVEY STATEMENT:

THE EXISTING FEATURES SHOWN ON THIS PLAN ARE FROM AN ACTUAL TOPOGRAPHIC SURVEY PERFORMED BY GRIGGS QUADERER, INC. IN APRIL OF 2025. THE UNDERGROUND UTILITIES SHOWN WERE EITHER VERIFIED BY THIS SURVEY OR WERE PLOTTED IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE. NO EXISTING UTILITIES WERE EXPOSED FOR VERIFICATION OF LOCATION AND ELEVATION. NO GUARANTEES ARE GIVEN THAT THE LOCATIONS ARE ABSOLUTELY ACCURATE OR THAT UTILITIES OTHER THAN THOSE SHOWN ARE NOT PRESENT.

STANDARD LEGEND

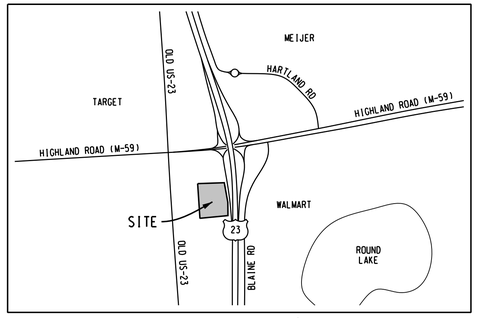
DESCRIPTION	PROPOSED	EXISTING
BUILDING		
STORM SEWER		
SANITARY SEWER	S	S
WATER	W	W
GAS LINE	G	G
ELECTRIC LINE	E	E
TELEPHONE LINE	T	T
MANHOLE	●	○
CATCH BASIN	◑ ◪	⊘ ◪
FIRE HYDRANT		
GATE VALVE & WELL	•	•
POWER POLE		▫
LIGHT POLE		☼
CURB & GUTTER		
FENCE	×—×—×	—×—×—
DECIDUOUS TREE		
EVERGREEN TREE		
EASEMENT		
WETLAND BOUNDARY		
SIGN		△
ASPHALT SURFACE		ASPH.
CONCRETE SURFACE		CONC.
SOIL BORING		⊕
SPOT ELEVATION	+736.45	+736.45
CONTOUR LINE	736	736

OWNER: NATHAN SUMNER
SUMNER PROPERTY HOLDINGS
10140 HALSEY RD
GRAND BLANC, MI 48439
NATHANSUMNER2@GMAIL.COM

CONTRACTOR: KEVIN JOHNSON
RHOADS & JOHNSON
285 N. ALLOY DRIVE
FENTON, MI 48430
PH: (810) 750-7630
EMAIL: KEVIN@RHOADSJOHNSON.COM

ARCHITECT: SHANNON EASTER WHITE, AIA, NCARB
FUNCHITECTURE, LLS
140 E. 2ND STR., STE. 300
FLINT, MI 48502
PHONE: (810) 287-6668
EMAIL: SHANNON@FUNARCHITECTURE.COM

ENGINEER: CHRIS BRZEZINSKI, PE
GRIGGS QUADERER, INC.
8308 OFFICE PARK DRIVE
GRAND BLANC, MI 48439
PHONE: (810) 695-0154
EMAIL: CHRIS@GQINCORP.COM

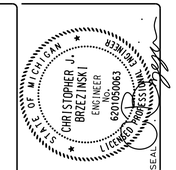


LOCATION MAP
NOT TO SCALE
NORTH

AGENCY CONTACT INFORMATION

AGENCY	SUBMITTAL DATE	STATUS	AGENCY	SUBMITTAL DATE	STATUS
TROY LANGER DIRECTOR, PLANNING HARTLAND TOWNSHIP 2655 CLARK ROAD HARTLAND, MI 48353 PH: 810-632-7498	06-24-2025	UNDER REVIEW	SOIL EROSION CONTROL LCDC 2300 E. GRAND RIVER SUITE 105 HOWELL, MI 48843 PH: 517-546-0040	-	-
SANITARY & WATER SCOTT HABLE, DIRECTOR PUBLIC WORKS 2655 CLARK ROAD HARTLAND, MI 48353 PH: 810-632-7498	-	-			
STORM LCDC 2300 E. GRAND RIVER SUITE 105 HOWELL, MI 48843 PH: 517-546-0040	-	-			

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



NO.	DATE	REVISION OR ISSUE
	07-14-25	TWP. BOARD
	07-10-25	SITE PLAN APPROVAL
	06-24-25	SITE PLAN APPROVAL
	05-08-25	PRELIM. TWP. MEETING

DRAWN
DESIGNED OUADERER
CHECKED BRZEZINSKI
FIELD CREW

URBAN AIR
OLD US-23, HARTLAND TWP.
LIVINGSTON COUNTY, MICHIGAN
NW 1/4, SEC 28, T-3N, R-6E
02-28-100-030 & 08-28-100-037

COVER SHEET

Griggs Quaderer, Inc.
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GRAND BLANC, MI 48439
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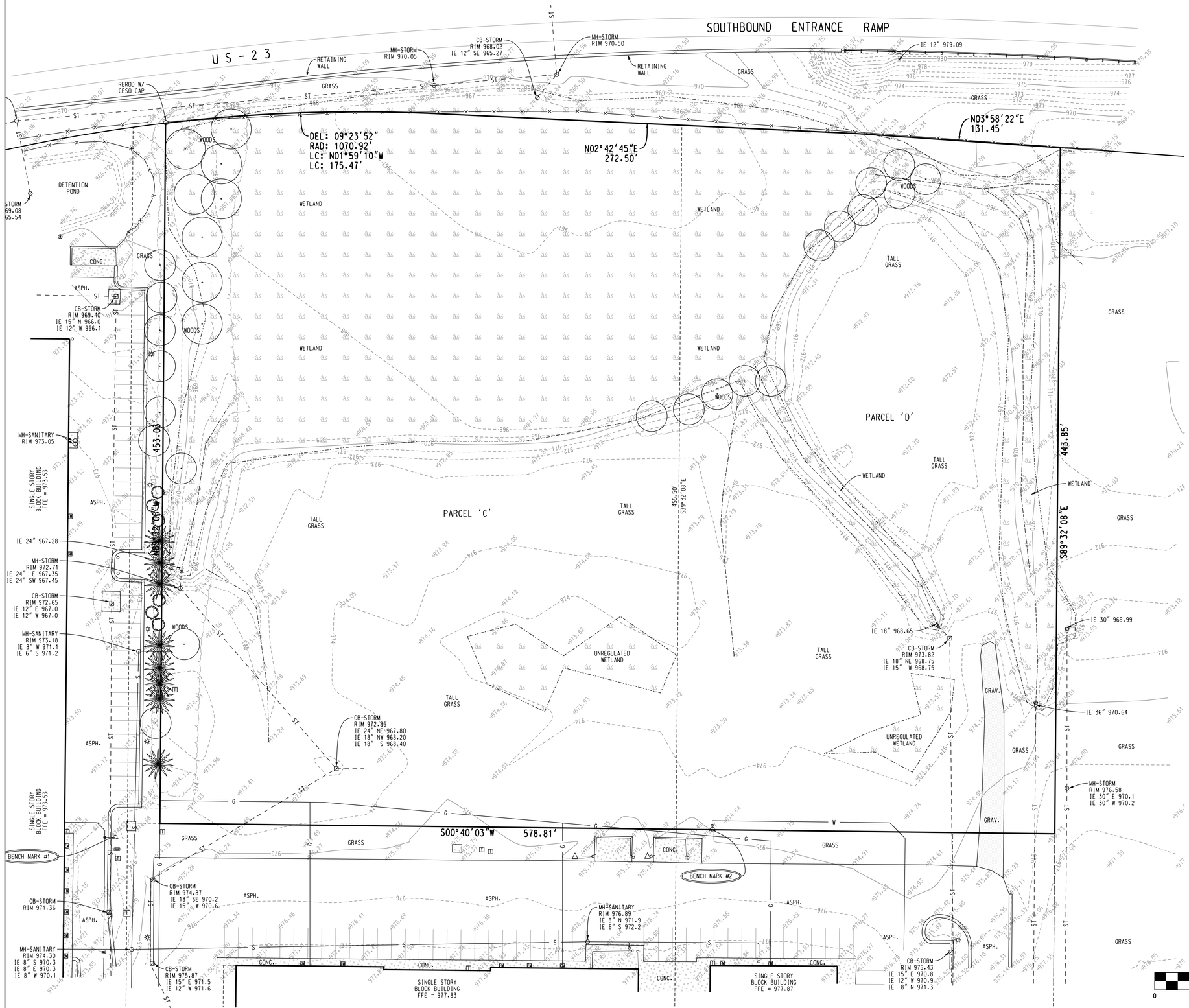
WWW.GQINCORP.COM
RUDY@GQINCORP.COM
CHRIS@GQINCORP.COM
CIVIL ENGINEERING · LAND SURVEYING
SITE PLANNING
20th ANNIVERSARY 2004 - 2024

JOB NO.: 241201
PHASE: SPA
C000



STANDARD LEGEND	
DESCRIPTION	EXISTING
BUILDING	
STORM SEWER	ST
SANITARY SEWER	S
WATER	W
GAS LINE	G
ELECTRIC LINE	E
TELEPHONE LINE	T
MANHOLE	
CATCH BASIN	
FIRE HYDRANT	
VALVE	
UTILITY POLE W/GUY WIRE	
UTILITY RISER	
LIGHT POLE	
SIGN	
CURB & GUTTER	
FENCE	
GUARD RAIL	
INVERT ELEVATION	IE 6" 750.00
CONTOUR	750
SPOT ELEVATION	+750.00
ASPHALT SURFACE	ASPH.
CONCRETE SURFACE	CONC.
GRAVEL SURFACE	GRAV.
TREE LINE	
TREE	
WETLAND	

GENERAL UTILITY NOTE:

THE UTILITIES AS SHOWN ON THIS DOCUMENT WERE EITHER VERIFIED BY AN ACTUAL FIELD SURVEY OR WERE PLOTTED IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE. GRIGGS QUADERER MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN INCLUDE ALL POSSIBLE UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHERMORE, GRIGGS QUADERER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH GRIGGS QUADERER DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THE UNDERGROUND UTILITY PIPE SIZES AS SHOWN ON THIS DOCUMENT WERE OBTAINED EITHER BY RECORD PLAN INFORMATION OR BY FIELD MEASUREMENTS. GRIGGS QUADERER CAN NOT GUARANTEE THE ACCURACY OF THE PIPE SIZES OR THEIR LOCATIONS EITHER BY FIELD MEASUREMENT OR BY RECORD DATA AND SHALL NOT BE HELD RESPONSIBLE FOR ANY DISCREPANCIES REGARDING THESE UTILITIES.

PROPERTY DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE COUNTY OF LIVINGSTON, STATE OF MICHIGAN AND IS DESCRIBED AS FOLLOWS:
SITUATED IN THE TOWNSHIP OF HARTLAND, COUNTY OF LIVINGSTON, STATE OF MICHIGAN:

PARCEL C: BEING A PART OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SECTION 28, TOWN 3 NORTH, RANGE 6 EAST, TOWNSHIP OF HARTLAND, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS COMMENCING AT THE NORTH 1/4 CORNER OF SECTION 28; THENCE NORTH 86 DEGREES 53' 50" WEST 1325.23 FEET (RECORDED AS NORTH 86 DEGREES 42' 08" W 1326.61 FEET) ALONG THE NORTH LINE OF SAID SECTION 28; THENCE SOUTH 01 DEGREES 55' 34" WEST (RECORDED AS S 02 DEGREES 01' 21" W) 512.00 FEET ALONG THE WEST LINE OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SAID SECTION 28; THENCE SOUTH 89 DEGREES 32' 08" EAST (RECORDED AS S 89 DEGREES 17' 50" E) 452.12 FEET TO THE PLACE OF BEGINNING; THENCE CONTINUING SOUTH 89 DEGREES 32' 08" EAST (RECORDED AS S 89 DEGREES 17' 50" E) 450.11 FEET; THENCE ALONG THE WEST RIGHT OF WAY LINE OF SOUTH BOUND ENTRANCE RAMP TO U.S. 23 EXPRESSWAY THE FOLLOWING TWO COURSES: SOUTHEASTERLY, NON-TANGENTIALLY 196.86 FEET (RECORDED AS 196.67 FEET) ALONG THE ARC OF A 1070.92 FOOT RADIUS CURVE TO THE RIGHT, THROUGH A CENTRAL ANGLE OF 10 DEGREES 31' 57" (RECORDED AS 10 DEGREES 31' 19") AND HAVING A CHORD BEARING SOUTH 02 DEGREES 33' 13" EAST (RECORDED AS S 02 DEGREES 20' 58" E) 196.59 FEET AND SOUTH 02 DEGREES 42' 45" WEST (RECORDED AS S 02 DEGREES 54' 42" W) 158.73 FEET; THENCE NORTH 89 DEGREES 32' 08" WEST 455.50 FEET; THENCE NORTH 00 DEGREES 40' 03" EAST 354.92 FEET TO THE PLACE OF BEGINNING.

PARCEL D: BEING A PART OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SECTION 28, TOWN 3 NORTH, RANGE 6 EAST, TOWNSHIP OF HARTLAND, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS: COMMENCING AT THE NORTH 1/4 CORNER OF SECTION 28; THENCE NORTH 86 DEGREES 53' 50" WEST 1325.23 FEET (RECORDED AS N 86 DEGREES 42' 08" W 1326.61 FEET) ALONG THE NORTH LINE OF SAID SECTION 28; THENCE SOUTH 01 DEGREES 55' 34" WEST (RECORDED AS S 02 DEGREES 01' 21" W) 1112.00 FEET ALONG THE WEST LINE OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SAID SECTION 28; THENCE SOUTH 89 DEGREES 32' 08" EAST (RECORDED AS S 89 DEGREES 17' 50" E) 465.30 FEET TO THE PLACE OF BEGINNING; THENCE NORTH 00 DEGREES 40' 03" EAST 244.89 FEET; THENCE SOUTH 89 DEGREES 32' 08" EAST 455.50 FEET; THENCE ALONG THE WEST RIGHT OF WAY LINE OF SOUTH BOUND ENTRANCE RAMP TO U.S. 23 EXPRESSWAY THE FOLLOWING TWO COURSES: SOUTH 02 DEGREES 42' 45" WEST (RECORDED AS S 02 DEGREES 54' 42" W) 113.77 FEET AND SOUTH 03 DEGREES 58' 22" WEST 131.45 FEET (RECORDED AS S 04 DEGREES 10' 19" W 131.67 FEET); THENCE NORTH 89 DEGREES 32' 08" WEST (RECORDED AS N 89 DEGREES 17' 50" W) 443.85 FEET TO THE PLACE OF BEGINNING.

BENCHMARKS (NAVD88):

BM #1 TOP OF ARROW ON FIRE HYDRANT LOCATED 33 FEET SOUTH OF BACK OF BUILDING #10100 HIGHLAND RD., 485 FEET EAST OF CENTER OLD US23 AND 50 FEET EAST OF ELECTRIC TRANSFORMER.
ELEV = 975.75 FEET

BM #2 TOP OF ARROW ON FIRE HYDRANT LOCATED 88 FEET EAST OF BACK OF BUILDING #1774 OLD US23., 17 FEET SOUTHEAST OF THE SOUTHERLY TRASH ENCLOSURE AND 180 FEET NORTH OF CENTERLINE GRAVEL DRIVE.
ELEV = 978.12 FEET

Know what's below. Call before you dig.

STATE OF MICHIGAN
CHRISTOPHER BRZEZINSKI
SURVEYOR
56925
LICENSED PROFESSIONAL SURVEYOR
SEAL

NO.	DATE	REVISION OR ISSUE
	07-14-25	TWP. BOARD
	07-10-25	SITE PLAN APPROVAL
	06-24-25	SITE PLAN APPROVAL
	05-08-25	PRELIM. TWP. MEETING

DRAWN
DESIGNED QUADERER
CHECKED BRZEZINSKI
FIELD CREW

URBAN AIR

OLD US-23, HARTLAND TWP.
LIVINGSTON COUNTY, MICHIGAN

NW 1/4, SEC 28, T-3N, R-6E
02-28-100-030 & 08-28-100-037

BOUNDARY & TOPOGRAPHIC SURVEY

Griggs Quaderer, Inc.
8308 OFFICE PARK DRIVE
GRAND BLANC, MI 48439
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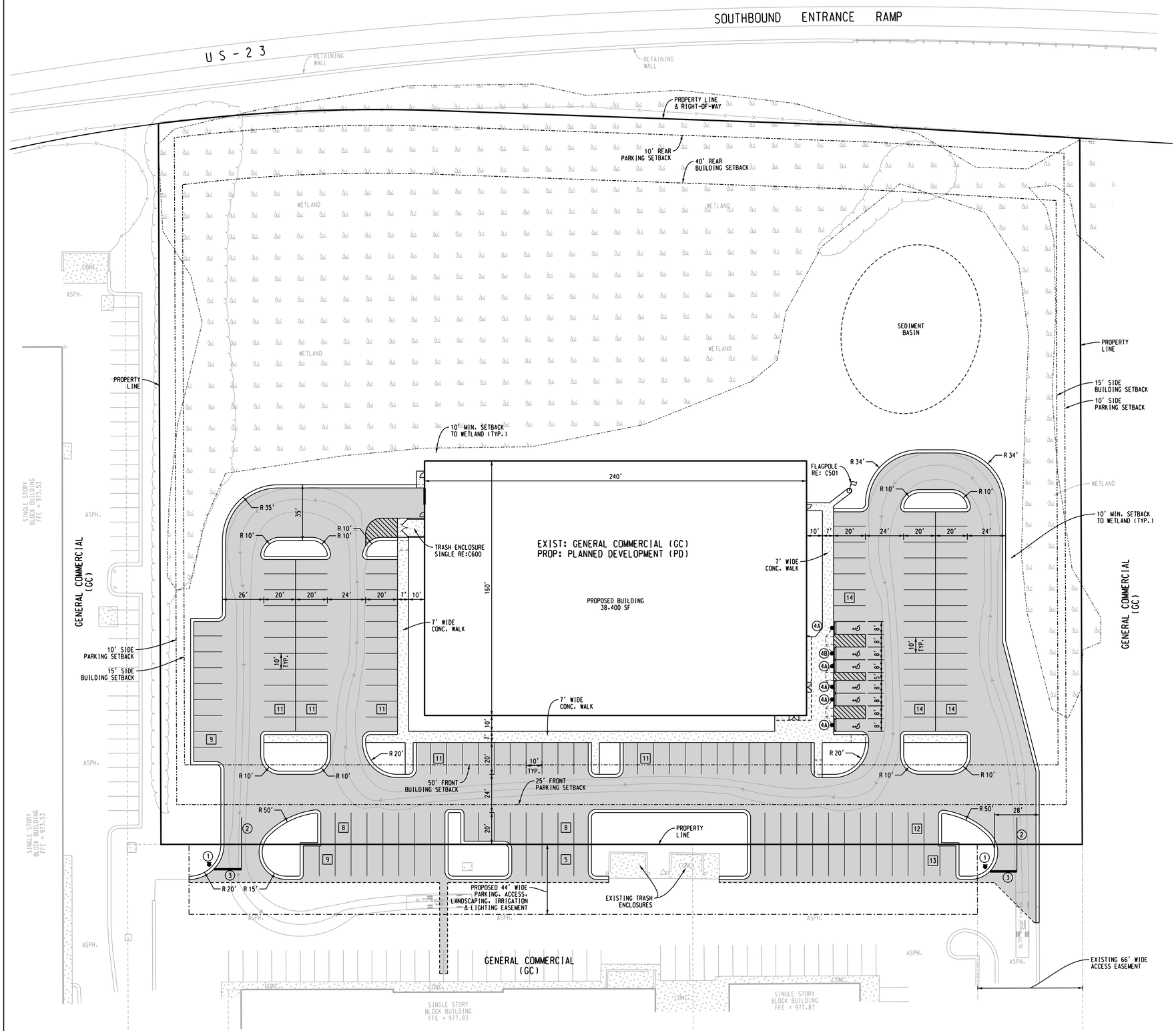
RUDY@GQINCORP.COM
CHRIS@GQINCORP.COM
CIVIL ENGINEERING · LAND SURVEYING
SITE PLANNING

20th ANNIVERSARY 2004 - 2024

JOB NO.: 241201
PHASE: SPA

C100



LAND USE INFORMATION:

CURRENT ZONING:	GENERAL COMMERCIAL (GC)
PROPOSED ZONING:	PLANNED DEVELOPMENT (PD)
CURRENT USE:	VACANT
PROPOSED USE:	INDOOR RECREATION FACILITY
TOTAL SITE AREA:	263,530 SF
TOTAL BUILDING AREA:	38,400 SF
LOT COVERAGE BY BLDG:	14.6%
TOTAL IMPERVIOUS AREA:	108,299 SF
LOT COVERAGE BY IMPERVIOUS:	41.1%

YARD SETBACKS:

BUILDING		PARKING	
FRONT YARD	50LF	FRONT YARD	25LF
SIDE YARD	15LF	SIDE YARD	10LF
REAR YARD	40LF	REAR YARD	10LF

MARKING / SIGNAGE LEGEND:

1. STOP SIGN (R1-1)
2. 4" SINGLE SOLID LINE, YELLOW
3. 24" WIDE STOP LINE, WHITE
4A. ACCESSIBLE SIGN (R7-8)
4B. ACCESSIBLE SIGN W/ VAN ACCESSIBLE (R7-8 & R7-8A)

NO PARKING / NO DRIVING AREAS 4" WIDE WHITE PAINT STRIPING 2' ON CENTER @ 45°. REFER TO PAVEMENT MARKING NOTE #2 FOR BARRIER FREE PARKING

PAVEMENT MARKING & SIGNAGE NOTES:

1. PARKING STALL WIDTH DIMENSIONS ARE TO CENTERLINE OF STRIPING.
2. ALL PAVEMENT MARKINGS SHALL BE 4" WIDE WHITE PAINT STRIPING UNLESS OTHERWISE INDICATED. ALL BARRIER FREE STRIPING SHALL BE COLORED BLUE AND IN ACCORDANCE WITH THE LATEST ADA STANDARDS FOR ACCESSIBLE DESIGN.
3. CONTRACTOR SHALL NOT APPLY TRAFFIC MARKING PAINT ON NEW ASPHALT UNTIL PAVEMENT HAS CURED A MINIMUM OF SEVEN (7) DAYS.
4. PAINT SHALL BE APPLIED WITH MECHANICAL EQUIPMENT TO PRODUCE UNIFORM STRAIGHT EDGES. APPLY IN TWO COATS AT MANUFACTURER'S RECOMMENDED RATES TO PROVIDE MINIMUM 10.0 TO 15.0 MILS WET THICKNESS.
5. ALL TRAFFIC CONTROL SIGNS SHALL CONFORM WITH ALL REQUIREMENTS AS STIPULATED IN THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
6. ☐ NUMBER OF PARKING SPACES (FOR INFORMATION ONLY)

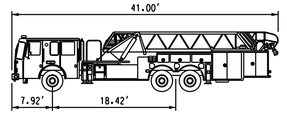
PARKING DATA:

USE	REQUIREMENTS	PARKING REQUIRED	PARKING PROVIDED
GYMNASIUM	1 SPACES PER 200 SF GFA 38,400 SF / 200 =	192 SPACES	161 SPACES
	PARKING NEEDS (PER LETTER) =	154 SPACES	
TOTAL		154 SPACES	161 SPACES
BARRIER FREE (VAN)	1 SPACE PER 8 BARRIER FREE (1 MIN.)	1 SPACES	1 SPACES
BARRIER FREE (TOTAL)	151 - 200 SPACES	6 SPACES	6 SPACES

PAVEMENT LEGEND:

ASPHALT PAVEMENT SECTION (ON-SITE) RE:C600

CONCRETE PAVEMENT SECTION RE:C600



WIDTH:	8.17'
TRACK:	8.17'
LOCK TO LOCK TIME:	6.0'
STEERING ANGLE:	34.4°

SL75 AERIAL LADDER TRUCK

NORTH

0 30 60 90

SCALE: 1"=30'

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

STATE OF MICHIGAN — CHRISTOPHER J. BRZEZINSKI — ENGINEER — NO. 6201059063 — LICENSED PROFESSIONAL ENGINEER — SEAL

NO.	DATE	REVISION OR ISSUE
1	07-14-25	TWP. BOARD
	07-10-25	SITE PLAN APPROVAL
	06-24-25	SITE PLAN APPROVAL
	05-08-25	PRELIM. TWP. MEETING

SUBJECT

DRAWN
DESIGNED OUADERER
CHECKED BRZEZINSKI
FIELD CREW

URBAN AIR

OLD US-23, HARTLAND TWP.
LIVINGSTON COUNTY, MICHIGAN

NW 1/4, SEC 28, T-3N, R-6E
02-28-100-030 & 08-28-100-037

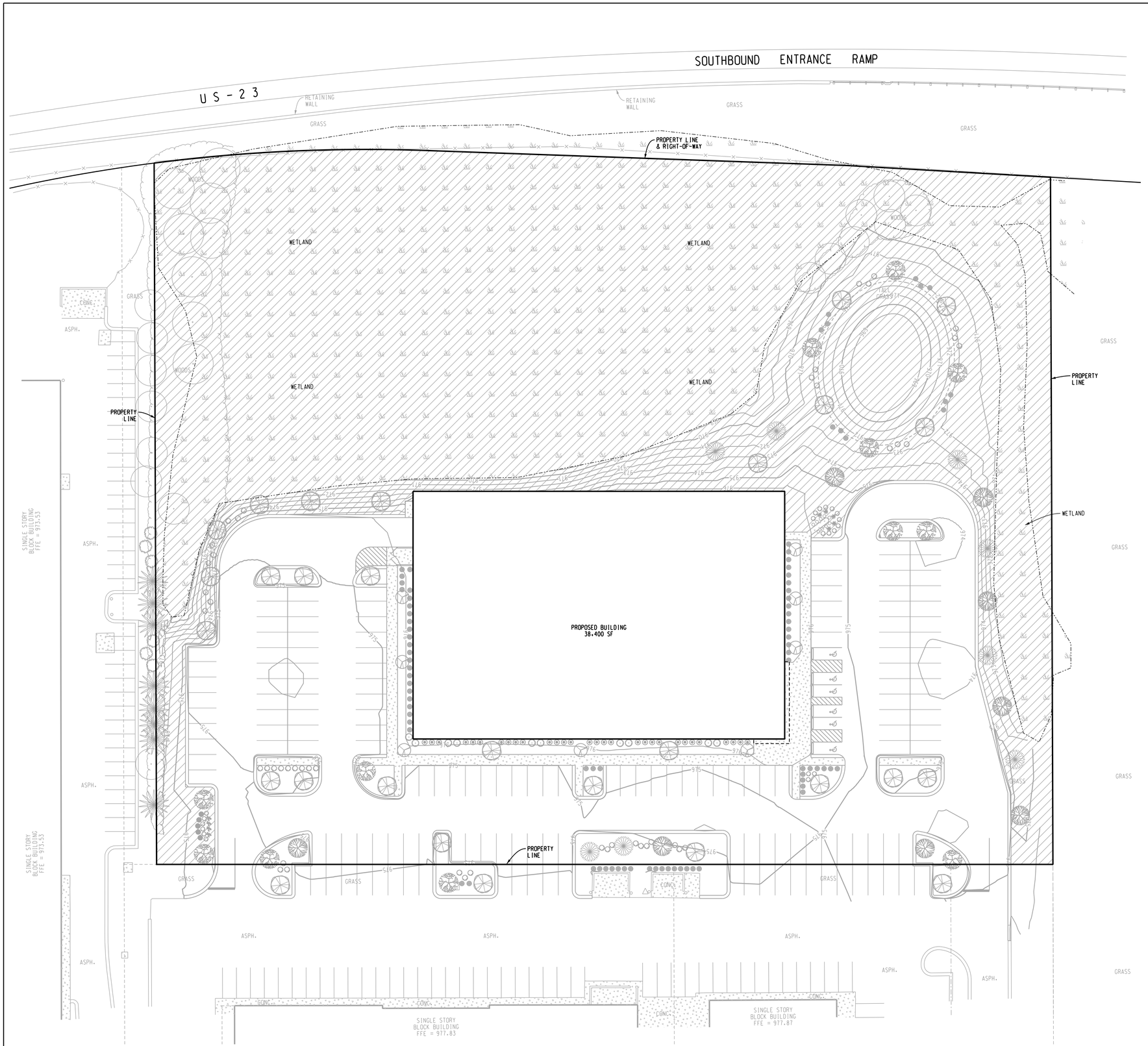
SITE LAYOUT PLAN

Griggs Quaderer, Inc.
8308 OFFICE PARK DRIVE
GRAND BLANC, MI 48439
PH: (810) 695-0154
WWW.GQINCORP.COM
RUDY@GQINCORP.COM
CHRIS@GQINCORP.COM
CIVIL ENGINEERING · LAND SURVEYING
SITE PLANNING

20th ANNIVERSARY 2004 - 2024

JOB NO.: 241201
PHASE: SPA

C200



LAND USE INFORMATION:

CURRENT ZONING:	GENERAL COMMERCIAL (GC)
PROPOSED ZONING:	GENERAL COMMERCIAL (GC)
CURRENT USE:	VACANT
PROPOSED USE:	INDOOR RECREATION FACILITY
TOTAL SITE AREA:	263,530 SF
OPEN SPACE AREA: (NOT INCL. PARKING LANDSCAPE AREAS)	144,096 SF
LOT COVERAGE BY OPEN SPACE:	54.7%
TOTAL BUILDING AREA:	38,400 SF
LOT COVERAGE BY BLDG:	14.6%
TOTAL IMPERVIOUS AREA:	109,088 SF
LOT COVERAGE BY IMPERVIOUS:	41.4%

YARD SETBACKS:

BUILDING		PARKING	
FRONT YARD	50LF	FRONT YARD	25LF
SIDE YARD	15LF	SIDE YARD	10LF
REAR YARD	40LF	REAR YARD	10LF

LEGEND:

OPEN SPACE AREA

NORTH

0 30 60 90

SCALE: 1"=30'

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

STATE OF MICHIGAN
CHRISTOPHER J. BRZEZINSKI
ENGINEER
NO. 6201059063
LICENSED PROFESSIONAL ENGINEER
SEAL

NO.	DATE	REVISION OR ISSUE
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02-28-100-030 & 08-28-100-037

OPEN SPACE PLAN

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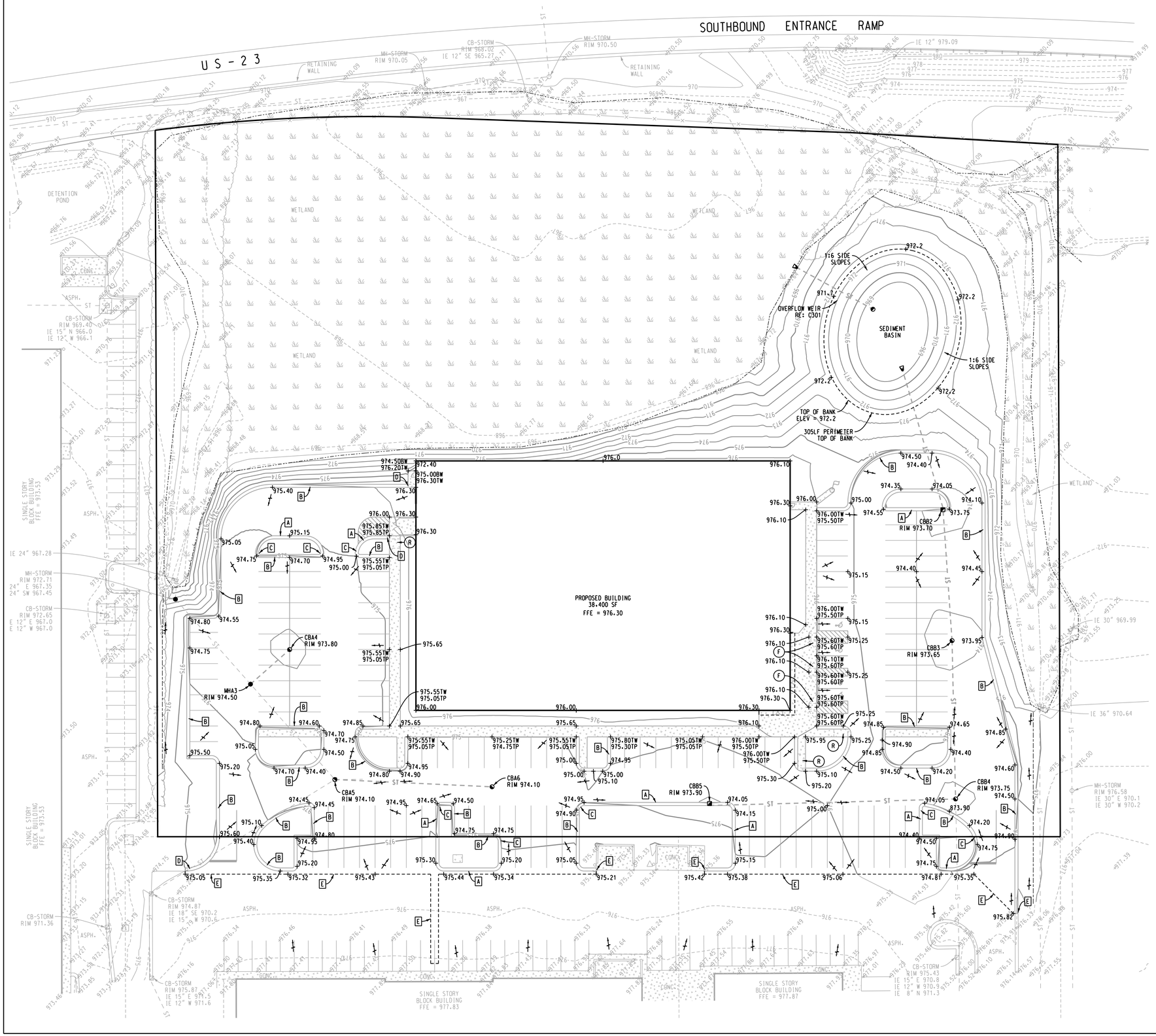
PHASE: SPA

C201



GRADING NOTES:

1. ALL PROPOSED SPOT ELEVATIONS IN PAVED AREAS ARE TO TOP OF PAVEMENT UNLESS NOTED OTHERWISE.
   TW - TOP OF SIDEWALK
   TP - TOP OF PAVEMENT
2. CONTOURS SHOWN ARE FOR REFERENCE ONLY. BASE CONSTRUCTION EFFORTS ON PROPOSED SPOT ELEVATIONS ONLY.
3. "BARRIER FREE" PARKING AND SIDEWALK RAMPS SHALL CONFORM IN ALL RESPECTS TO THE MICHIGAN ADA (AMERICANS WITH DISABILITIES ACT) REQUIREMENTS.
4. CONTRACTOR SHALL ADJUST ANY UTILITY ELEMENT/STRUCTURE MEANT TO BE FLUSH WITH GRADE (CLEAN OUT, VALVE BOXES, MANHOLES, CATCH BASINS, INLETS, ETC.) WHICH ARE AFFECTED BY SITE WORK OR GRADE CHANGES, WHETHER SPECIFICALLY NOTED ON PLANS OR NOT. NO ADDITIONAL COSTS FOR THIS WORK WILL BE ACCEPTED. THE CONTRACTOR SHALL OBTAIN ANY NECESSARY PERMITS FOR ADJUSTMENT AT THE CONTRACTOR'S EXPENSE.
5. CONTRACTOR IS RESPONSIBLE FOR CUT AND FILL QUANTITIES. ADDITIONAL COMPENSATION WILL NOT BE ACCEPTED FOR HAULING OF EXCESS AND BORROW MATERIAL TO AND FROM SITE AS WELL AS LABOR COSTS FOR PLACEMENT AND/OR REMOVAL. OFF-SITE BORROW MATERIAL MUST BE CLEAN COMPACTIBLE STRUCTURAL FILL MATERIAL (NO ORGANIC MATERIAL) WHICH WILL BE INSPECTED PRIOR TO USE FOR ON-SITE FILL MATERIAL.
6. SITE CONTRACTOR IS RESPONSIBLE TO PROVIDE A STABLE SUBGRADE AT DESIGN ELEVATIONS. ALL PAVED AREAS INCLUDING BUILDING PAD SHALL BE PROOFROLLED & COMPACTED TO MEET 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH ANSI/ASTM D1557.
7. CONTRACTOR SHALL STORE SUFFICIENT TOPSOIL MATERIAL ON-SITE FOR RE-USE IN ALL DISTURBED GREEN AREAS AND NEW LANDSCAPE AREAS.
8. PROVIDE POSITIVE DRAINAGE AT ALL TIMES TO ENSURE NO STANDING WATER. MAINTAIN A MINIMUM SLOPE OF 1.00% IN ALL NEW BITUMINOUS AREAS.

CURB, GRADING & SIDEWALK RAMP NOTATIONS:

- [A] STANDARD CURB AND GUTTER
- [B] STANDARD CURB AND GUTTER WITH REVERSE SLOPE
- [C] 10 FOOT TRANSITION BETWEEN TYPE [A] AND TYPE [B]
- [D] 5 FOOT CURB END TRANSITION.
- [E] MATCH EXISTING PAVEMENT OR CURB ELEVATION.
- (R) TYPE R RAMP, PER MDOT DETAIL R-28-K
- (F) TYPE F RAMP, PER MDOT DETAIL R-28-K

NORTH

0 30 60 90
SCALE: 1"=30'

Know what's below. Call before you dig.

STATE OF MICHIGAN
CHRISTOPHER J. BRZEZINSKI
ENGINEER
No. 6201059063
LICENSED PROFESSIONAL ENGINEER
SEAL

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LIVINGSTON COUNTY, MICHIGAN

NW 1/4, SEC 28, T-3N, R-6E
02-28-100-030 & 08-28-100-037

SITE GRADING PLAN

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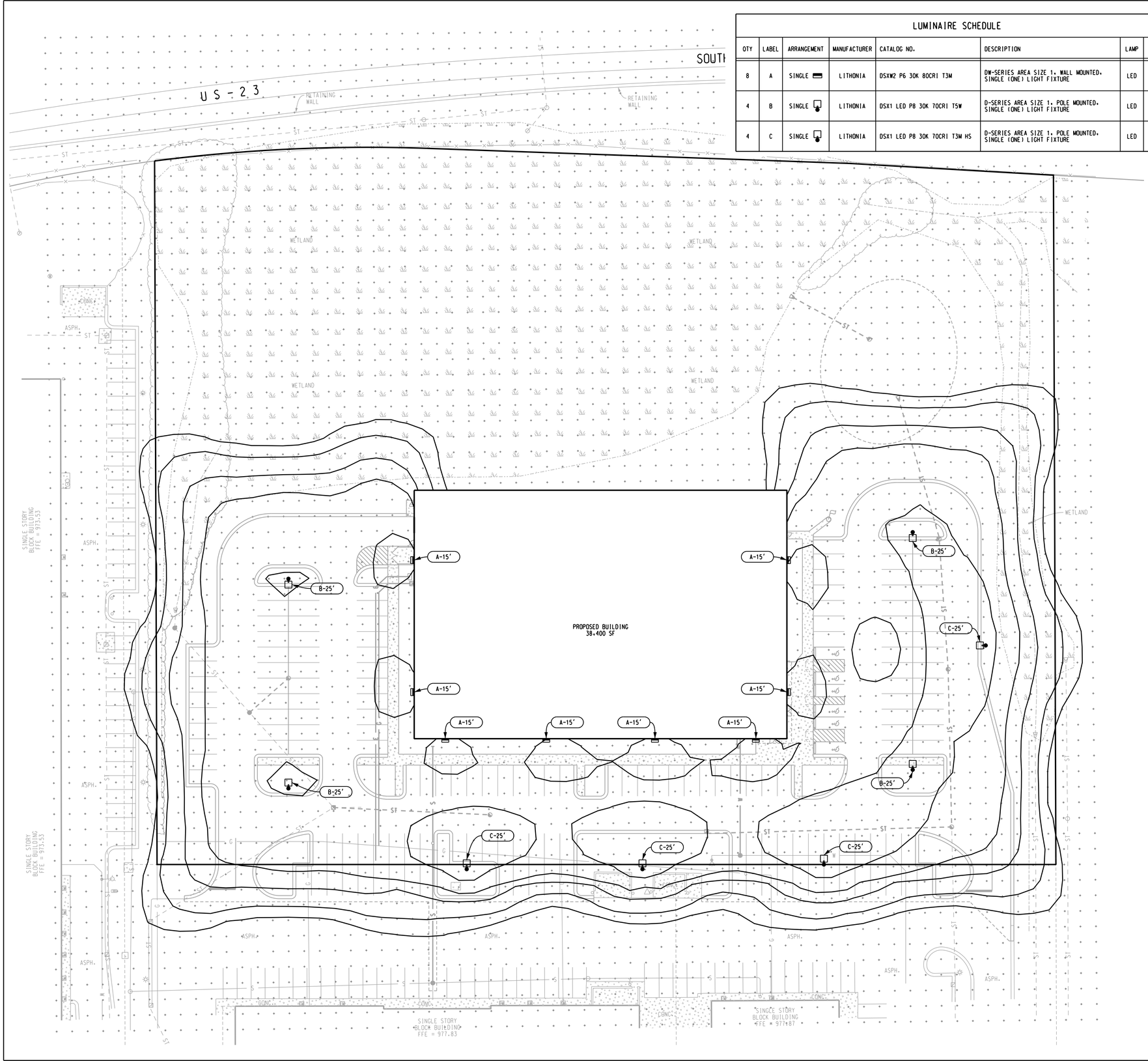
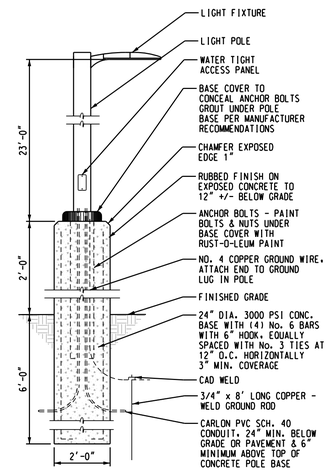
SITE PLANNING
20th ANNIVERSARY 2004 - 2024

JOB NO.: 241201
PHASE: SPA
C300



LUMINAIRE SCHEDULE

QTY	LABEL	ARRANGEMENT	MANUFACTURER	CATALOG NO.	DESCRIPTION	LAMP	WATTAGE
8	A	SINGLE	LITHONIA	DSXW2 P6 30K 80CRI T3M	DW-SERIES AREA SIZE 1, WALL MOUNTED, SINGLE (ONE) LIGHT FIXTURE	LED	70.9
4	B	SINGLE	LITHONIA	DSX1 LED P8 30K 70CRI T5W	D-SERIES AREA SIZE 1, POLE MOUNTED, SINGLE (ONE) LIGHT FIXTURE	LED	215.8
4	C	SINGLE	LITHONIA	DSX1 LED P8 30K 70CRI T3M HS	D-SERIES AREA SIZE 1, POLE MOUNTED, SINGLE (ONE) LIGHT FIXTURE	LED	215.8

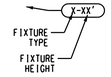


LIGHT POLE DETAIL
NO SCALE

STATISTICAL AREA SUMMARY

AVG	MAX	MIN	AREA
2.6	7.4	0.6	PARKING AREA

GENERAL LEGEND:



GENERAL NOTE:

THE LIGHT INTENSITY SHOWN ON THIS PLAN IS MEASURED AT 5 FEET ABOVE GROUND LEVEL.

NORTH

0 30 60 90
SCALE: 1"=30'

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

STATE OF MICHIGAN
CHRISTOPHER J. BRZEZINSKI
ENGINEER
No. 6201059063
LICENSED PROFESSIONAL ENGINEER
SEAL

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SITE PHOTOMETRIC PLAN

Griggs Quaderer, Inc.
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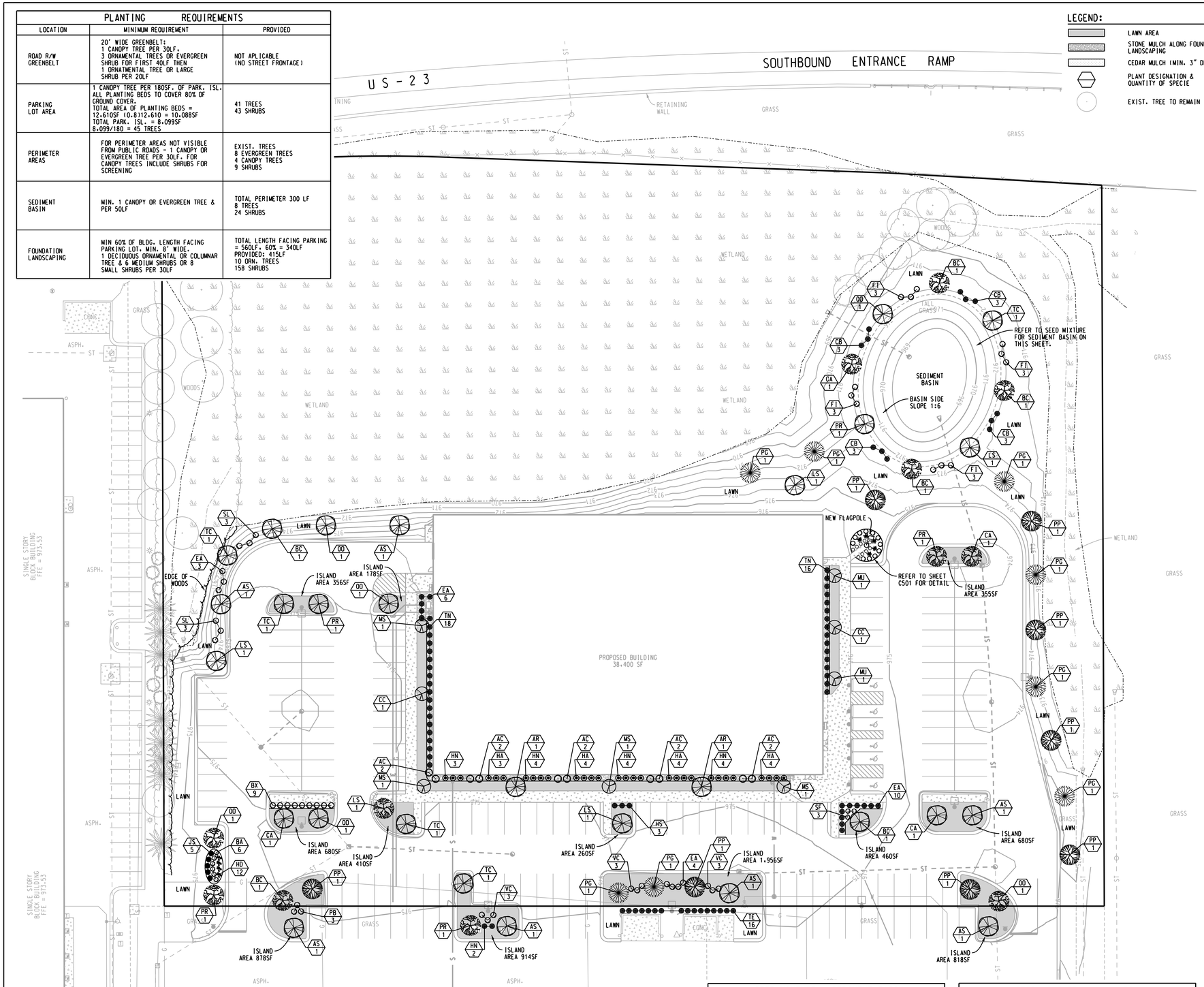
CIVIL ENGINEERING · LAND SURVEYING
SITE PLANNING
20th ANNIVERSARY 2004 - 2024

JOB NO.: 241201
PHASE: SPA

C401

PLANTING REQUIREMENTS

LOCATION	MINIMUM REQUIREMENT	PROVIDED
ROAD R/W GREENBELT	20' WIDE GREENBELT: 1 CANOPY TREE PER 30LF. 3 ORNAMENTAL TREES OR EVERGREEN SHRUB FOR FIRST 40LF THEN 1 ORNATMENTAL TREE OR LARGE SHRUB PER 20LF	NOT APLICABLE (NO STREET FRONTAGE)
PARKING LOT AREA	1 CANOPY TREE PER 180SF. OF PARK. ISL. ALL PLANTING BEDS TO COVER 80% OF GROUND COVER. TOTAL AREA OF PLANTING BEDS = 12-610SF (0.8)12.610 = 10.088SF TOTAL PARK. ISL. = 8.099SF 8,099/180 = 45 TREES	41 TREES 43 SHRUBS
PERIMETER AREAS	FOR PERIMETER AREAS NOT VISIBLE FROM PUBLIC ROADS - 1 CANOPY OR EVERGREEN TREE PER 30LF. FOR CANOPY TREES INCLUDE SHRUBS FOR SCREENING	EXIST. TREES 8 EVERGREEN TREES 4 CANOPY TREES 9 SHRUBS
SEDIMENT BASIN	MIN. 1 CANOPY OR EVERGREEN TREE & PER 50LF	TOTAL PERIMETER 300 LF 8 TREES 24 SHRUBS
FOUNDATION LANDSCAPING	MIN 60% OF BLDG. LENGTH FACING PARKING LOT. MIN. 8' WIDE. 1 DECIDUOUS ORNAMENTAL OR COLUMNAR TREE & 6 MEDIUM SHRUBS OR 8 SMALL SHRUBS PER 30LF	TOTAL LENGTH FACING PARKING = 560LF. 60% = 340LF PROVIDED: 415LF 10 ORN. TREES 158 SHRUBS



LEGEND:

- LAWN AREA
- STONE MULCH ALONG FOUNDATION LANDSCAPING
- CEDAR MULCH (MIN. 3" DEEP)
- PLANT DESIGNATION & QUANTITY OF SPECIE
- EXIST. TREE TO REMAIN

LANDSCAPING NOTES:

1. INSTALLATION OF PLANT MATERIAL SHALL BE IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF NURSERYMEN LANDSCAPE STANDARDS LATEST EDITION.
2. PRIOR TO BEGIN OF LANDSCAPE WORK, CONTRACTOR SHALL VERFIY LOCATIONS OF ALL ON-SITE UTILITIES. CONTRACTOR SHALL CONTACT MISS DIG (811) FOR LOCATIONS OF ALL PRIVATE UTILITIES. ANY DAMAGE OR INTERRUPTIONS OF SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COORDINATE ALL RELATED WORK ACTIVITIES WITH OTHER TRADES AND REPORT ANY UNACCEPTABLE WORK CONDITIONS TO OWNER PRIOR TO COMMENCING WORK.
3. NUMERICAL VALUE OF PLANT MATERIAL SHOWN SHALL TAKE PRECEDENCE OVER GRAPHIC REPRESENTATION. VERIFY AND REPORT ANY DESCRANCIES WITH LANDSCAPE ARCHITECT.
4. SUBSTITUTIONS OR DEVIATIONS FROM THE LANDSCAPE PLAN MUST BE APPROVED BY THE MUNICIPALITY AND/OR GOVERNING AGENCY PRIOR TO COMMENCING.
5. NEW LANDSCAPE BEDS WITHIN PREVIOUS BUILDING AND PAVEMENT AREAS SHALL BE EXCAVATED OF ALL BUILDING MATERIALS AND POOR SOILS TO A MINIMUM DEPTH OF 24" AND BACKFILLED WITH GOOD MEDIUM TEXTURED ORGANIC PLANTING SOIL FREE OF ROCKS LARGER THAN 1".
6. PROTECT EXISTING TREES TO REMAIN WITH TEMPORARY FENCING PLACED AT THE DRIP LINE. NO GROUND DISTURBANCE OR STORAGE OF MATERIAL SHALL OCCUR WITHIN THE DRIP LINE LIMITS.
7. COORDINATE PLACEMENT OF PLANTS WITH UNDERGROUND UTILITY LOCATIONS. MAKE ADJUSTMENTS AS REQUIRED TO AVOID PLANTING OVER THE UTILITIES. DO NOT PLANT SHADE OR EVERGREEN TREES BELOW OVERHEAD WIRES. IF CONFLICT OCCURS, CONTACT LANDSCAPE ARCHITECT TO ADJUST LOCATION OF TREES.
8. BACKFILL ISLANDS FROM SUBGRADE TO THE TOP OF CURB WITH ON-SITE TOPSOIL UNLESS OTHERWISE NOTED ON PLAN. FINISHED GRADE IN CENTER OF ISLAND SHALL BE 6" HIGHER FOR 10' WIDE ISLANDS AND 12" HIGHER FOR WIDER ISLANDS FROM TOP OF CURB TO PROVIDE POSITIVE DRAINAGE TO PERIMETER OF CURB ISLAND.
9. PLACE 4" THICK BY 4' DIAMETER SHREDDED CEDAR OR CYPRESS BARK MULCH RING AT THE BASE OF ALL NEW TREES IN LAWN AREA. CUT LAWN AREA IN A SMOOTH UNIFORM CIRCULAR LINE.
10. ALL GREEN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WITH SIDE SLOPES LESS THAN 3:1. SHALL BE GRADED AND TOPPED WITH MINIMUM 4" DEEP TOPSOIL AND SEEDED & MULCHED. REFER TO PLAN FOR SEED MIXTURE AND APPLICATION RATE.
11. ALL EXISTING TREES AND SHRUBS NOTED TO REMAIN SHALL BE PROPERLY PRUNED, TRIMMED, THINNED AND SHAPED BY A QUALIFIED NURSERYMAN OF ARBORIST. ALL DEAD LIMBS AND BRANCHES SHALL BE REMOVED FROM SITE.
12. UNLESS NOTED OTHERWISE, LANDSCAPE BEDS ADJACENT TO LAWN AREAS SHALL RECEIVE LANDSCAPE EDGING AS DETAILED ON PLAN.
13. ALL LANDSCAPING SHALL BE COMPLETED WITHIN 6 MONTHS OF COMPLETION OF BUILDING.
14. ALL STAKING MATERIALS AND WRAPPING SHALL BE REMOVED OFF SITE WITHIN ONE YEAR AFTER INSTALLATION.
15. LANDSCAPING ITEMS SHALL NOT INTERFERE WITH THE CLEAR VISION AREAS. TREES WITHIN PARKING LOT ISLANDS SHALL HAVE A CLEAR VIEW OF 4'-6" MINIMUM TO THE FIRST BRANCH AT MATURITY.
16. ALL PLANT MATERIALS INCLUDING LAWN AREAS SHALL BE WATERED, FERTILIZED, TRIMMED, MOWED AND GENERALLY MAINTAINED BY THE CONTRACTOR IN A HEALTHY GROWING CONDITION FOR A PERIOD OF 30 DAYS AFTER FINAL COMPLETION AND AFTER LAWN IS CUT FOR FIRST TIME. CONTRACTOR SHALL SUBMIT A ONE (1) YEAR WARRANTY FROM COMPLETION DATE AND BE RESPONSIBLE TO REPLACE ANY DISEASED OR DEAD PLANT MATERIAL WITHIN THAT PERIOD OF TIME WITHOUT ANY COST TO THE OWNER.
17. ALL LANDSCAPING SHALL BE IRRIGATED AND SHALL INCLUDE A RAIN CENSOR. IRRIGATION PLAN TO BE PROVIDED PRIOR TO FINAL SPA APPROVAL.
18. REFER TO SHEET C501 FOR LANDSCAPE DETAILS.

TREE SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
AS	ACER SACCHARUM 'COMMEMORATION'	COMMEMORATION SUGAR MAPLE	3" CAL	7
AR	ACER RUBRUM 'RED ROCKET'	RED ROCKET MAPLE (COLUMNAR)	3" CAL	2
BC	BETULA NIGRA 'CULLY'	HERITAGE RIVER BIRCH	8' HT	6
CA	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	3" CAL	4
CC	CERCIS CANADENSIS	EASTERN REDBUD	2" CAL	2
LS	LIQUIDAMBAR STYRACIFLUA 'GODUZAM'	GOLD DUST AMERICAN SWEETGUM	3" CAL	5
MS	MALUS 'SNOWDRIFT'	SNOWDRIFT CRABAPPLE	2" CAL	4
MU	MALUS 'SPRING SNOW'	SPRING SNOW CRABAPPLE	2" CAL	2
PG	PICEA GLAUCA	WHITE SPRUCE	8' HT	8
PP	PICEA PUNGENS	COLORADO SPRUCE	8' HT	8
PR	PYRUS CALLARYANA 'REDSPIRE'	REDSPIRE PEAR	3" CAL	5
OO	QUERCUS RUBRA	NORTHERN RED OAK	3" CAL	6
TC	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LINDEN	3" CAL	5

SHRUB SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
AC	AMELANCHIER LAEVIS 'CUMULUS'	CUMULUS SERVICEBERRY	4' HT	10
BA	BERBERIS ATROPURPUREA 'CRIRUZAM'	CRIMSON RUBY BARBERRY	18" HT	6
BX	BUXUS X 'GREEN GEM'	GREEN GEM BOXWOOD	18" HT	20
CB	CORNUS ALBA 'BAILHALO'	IVORY HALO RED TWIG DOGWOOD	30" HT	12
EA	EUONYMUS ALATAS 'COMPACTUS'	COMPACT BURNING BUSH	24" HT	23
FI	FORSYTHIA INTERMEDIA	NORTHERN GOLD FORSYTHIA	24" HT	12
HA	HAMAMELIS VERNALIS	VERNAL WITCHHAZEL	24" HT	15
HN	HIBISCUS SYRIACUS 'NOTWOODONE'	LAV. CHIFFON ROSE OF SHARON	30" HT	15
HS	HYDRANGEA MAC. H. SERRATA 'PREZIOSA'	PINK BEAUTY HYDRANGEA	24" HT	3
JS	JUNIPERUS SCOPULORUM 'SKYROCKET'	SKYROCKET JUNIPER	6' HT	5
PB	POTENTILLA FRUTICOSA 'GOLDFINGER'	GOLDFINGER POTENTILLA	18" HT	12
SF	SPIREA JAPONICA 'GOLDMOUND'	GOLD MOUND SPIREA	18" HT	3
SL	SYRINGA PATULA 'MISS KIM'	MISS KIM LILAC	18" HT	6
TN	TAXUS CUSPIDATA 'NOVA'	NOVA YEW	30" HT	33
VC	VIBURNUM X BURKWOODII	BURKWOOD VIBURNUM	24" HT	9

PERENNIALS & GRASSES SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
HD	HEMEROCALLIS 'STELLA D'ORO'	STELLA D'ORO DAYLILLY	NO. 2 CONT	12
MG	MISCANTHUS SINENSIS 'GRACILLIMUS'	MAIDEN GRASS	NO. 2 CONT	5

SEED MIXTURE - SEDIMENT BASIN

COMMON NAME	PROPT BY WGT.	PERCENT OF PURITY	PERCENT GERMINATION
BONANZA TURF FESCUE	50%	97%	80%
VANTAGE PERENNIAL RYE GRASS	30%	97%	80%
CREEPING RED FESCUE	20%	97%	80%
TOTAL SEEDING RATE:	100% 8 LBS./1000 SQ. FT.		

SEED MIXTURE - LAWN AREA

COMMON NAME	PROPT BY WGT.	PERCENT OF PURITY	PERCENT GERMINATION
KENTUCKY BLUE GRASS	20%	97%	80%
RED FESCUE	60%	97%	80%
PERENNIAL RYE GRASS	20%	97%	80%
TOTAL SEEDING RATE:	100% 8 LBS./1000 SQ. FT.		

NORTH

0 30 60 90

SCALE: 1"=30'

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

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02-28-100-030 & 08-28-100-037

SITE LANDSCAPE PLAN

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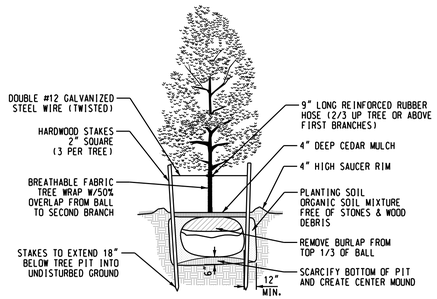
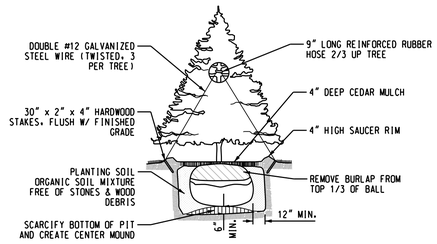
JOB NO.: 241201
PHASE: SPA
C500



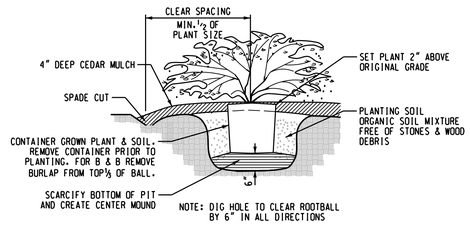
NOTE: TREE SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE. RAISE ROOT BALL 1/3 HIGHER IN CLAY SOILS - BACKFILL & COVER ENTIRE BALL W/ TOPSOIL & MULCH.

TREE PLANTING DETAIL
NO SCALE

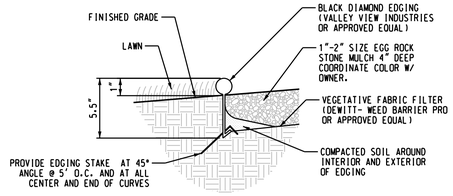


NOTE: TREE SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE. RAISE ROOT BALL 1/3 HIGHER IN CLAY SOILS - BACKFILL & COVER ENTIRE BALL W/ TOPSOIL & MULCH.

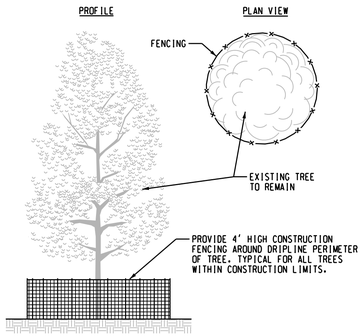
EVERGREEN TREE DETAIL
NO SCALE



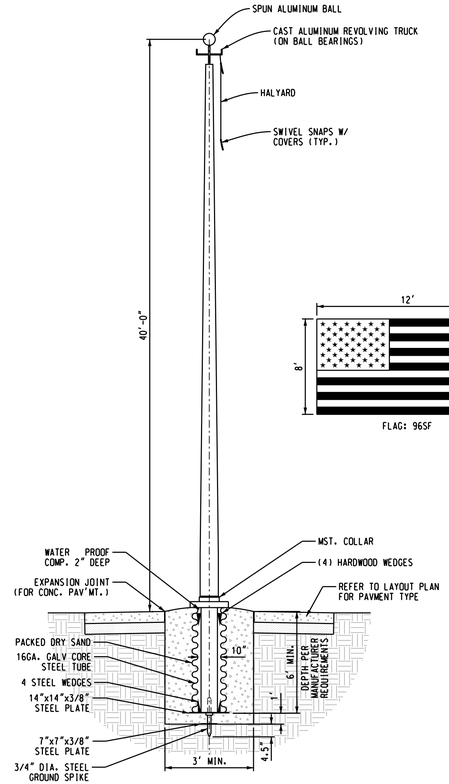
SHRUB PLANTING DETAIL
NO SCALE



STONE MULCH AND EDGING DETAIL
NO SCALE

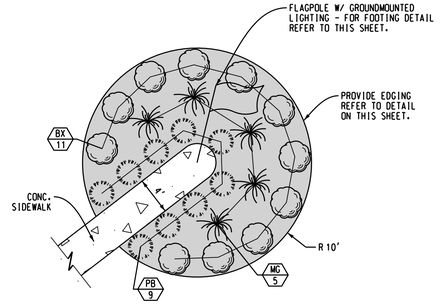


TREE PRESERVATION DETAIL
NO SCALE



NOTE: FLAGPOLE SHALL BE GROUND SET, ALUMINUM, CONE TAPERED FLAGPOLE, 5" BUTT DIAMETER 6063-T6 ALLOY, SATIN GROUND 50 GRIT, WITH TRUCK (DOUBLE SHEAVE SS BEARINGS) HALYARD, AND CLEATS, 5" GOLD LEAFED ALL, CAST ALUMINUM COLLAR, CORRUGATED EMBEDDED FOUNDATION WITH STEEL GROUND ROD. 40'-0 ABOVE GRADE, 2-1/2" IN SLEEVE. FLAGPOLE SHALL BE PLUMB.

FLAGPOLE DETAIL
NO SCALE



ENLARGED FLAGPOLE LANDSCAPE DETAIL
NO SCALE

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DRAWN
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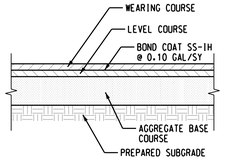
FIELD CREW

URBAN AIR
OLD US-23, HARTLAND TWP.
LIVINGSTON COUNTY, MICHIGAN
NW 1/4, SEC 28, T-3N, R-6E
02-28-100-030 & 08-28-100-037

SUBJECT: LANDSCAPE DETAILS

JOB NO.: 241201
PHASE: SPA
C501



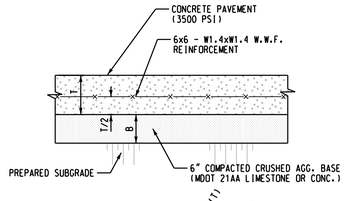
TYPICAL PAVEMENT SECTION

WEARING COURSE - 1.5" MDOT 13A

LEVEL COURSE - 3" MDOT 3C

AGGREGATE BASE - 8" MDOT 21AA CRUSHED LIMESTONE

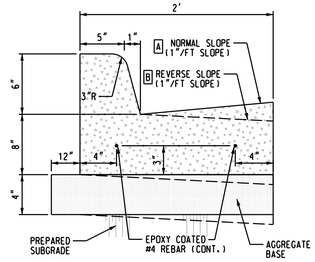
NOTE: AS AN ALTERNATE, CONTRACTOR IS ALLOWED TO SUBSTITUTE MDOT 21AA CRUSHED CONCRETE FOR THE AGGREGATE BASE.



DESIGN:	PAVEMENT (T)	BASE (B)	WIRE MESH
DUMPSTER ENCLOSURE	8"	8"	YES
SIDEWALK	4"	4"	YES

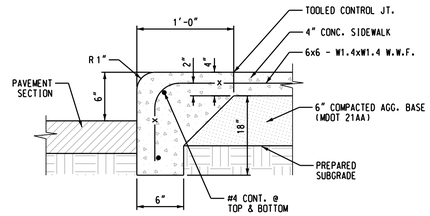
CONCRETE PAVEMENT SECTION

NO SCALE



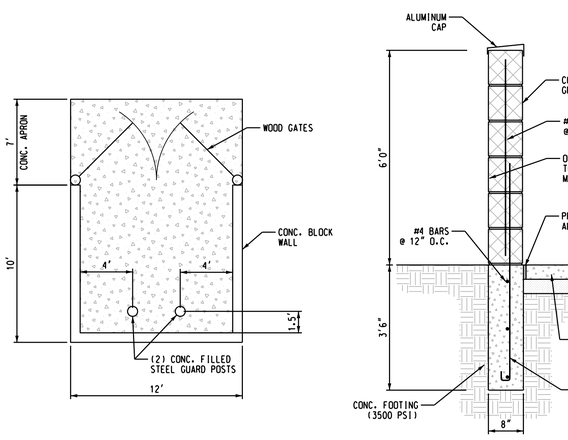
PROVIDE CONTROL JOINTS AT 10 FEET MAXIMUM SPACING AND DOWELED EXPANSION JOINTS AT 100 FEET MAXIMUM INTERVALS AND AT RADIUS POINTS

CURB & GUTTER DETAIL

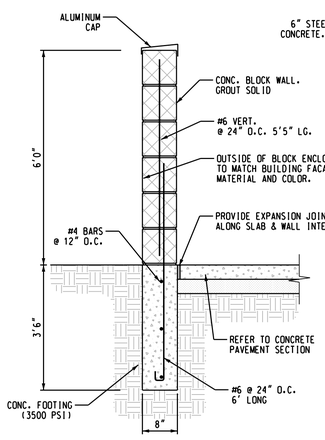


INTEGRAL CURB & SIDEWALK DETAIL

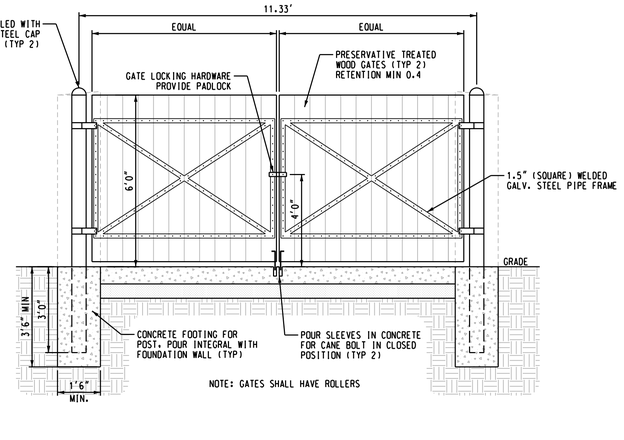
NO SCALE



PLAN VIEW



WALL CROSS SECTION

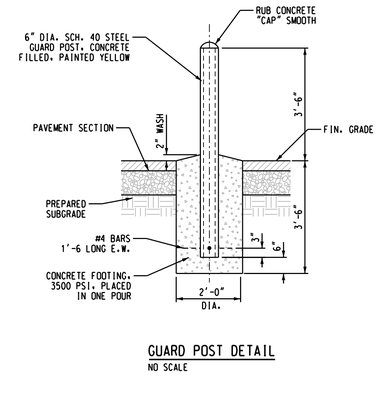


NOTE: GATES SHALL HAVE ROLLERS

FRONT ELEVATION

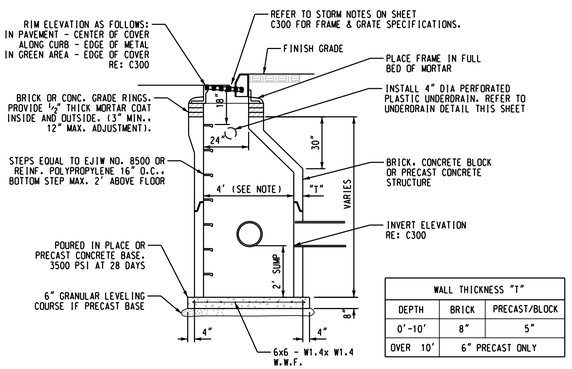
DUMPSTER ENCLOSURE DETAIL

NO SCALE



GUARD POST DETAIL

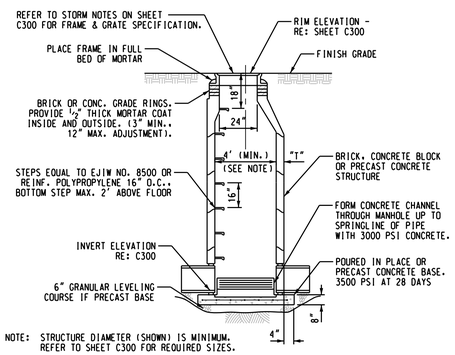
NO SCALE



WALL THICKNESS "T"		
DEPTH	BRICK	PRECAST/BLOCK
0'-10'	8"	5"
OVER 10'	6" PRECAST ONLY	

CATCH BASIN DETAIL

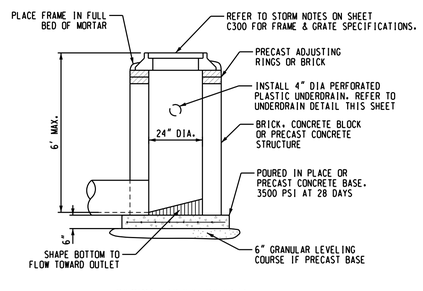
NO SCALE



NOTE: STRUCTURE DIAMETER (SHOWN) IS MINIMUM. REFER TO SHEET C300 FOR REQUIRED SIZES.

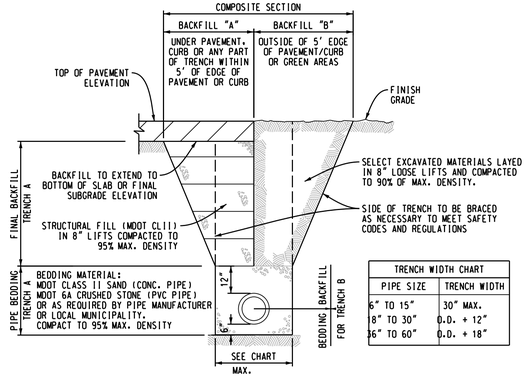
STORM MANHOLE DETAIL

NO SCALE



STORM INLET DETAIL

NO SCALE



TRENCH WIDTH CHART	
PIPE SIZE	TRENCH WIDTH
6" TO 15"	30" MAX.
18" TO 30"	O.D. + 12"
36" TO 60"	O.D. + 18"

PIPE BEDDING AND BACKFILL

NO SCALE

SEAL: STATE OF MICHIGAN, CHRISTOPHER J. BRZEZINSKI, ENGINEER, NO. 6201059063, LICENSED PROFESSIONAL ENGINEER

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DESIGNED OUADERER
CHECKED BRZEZINSKI
FIELD CREW

URBAN AIR

OLD US-23, HARTLAND TWP.
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PHASE: SPA

C600

NEW BUILDING FOR:

URBAN AIR ADVENTURE PARK

OLD US-23 (VACANT LOT)

INDEX OF DRAWINGS

C000	COVER SHEET
C100	BOUNDARY AND TOPOGRAPHIC SURVEY
C200	SITE LAYOUT PLAN
C201	OPEN SPACE PLAN
C300	SITE GRADING PLAN
C401	SITE PHOTOMETRIC PLAN
C500	SITE LANDSCAPE PLAN
C501	LANDSCAPE DETAILS
C600	SITE DETAILS
A101	TITLE SHEET, FLOOR PLAN ROOF PLAN INTERIOR CONCEPT PLAN
A201	EXTERIOR ELEVATIONS
A202	EXTERIOR ELEVATIONS
A203	EXTERIOR ELEVATIONS
A204	EXTERIOR ELEVATIONS
A205	EXTERIOR RENDERINGS
A206	HVAC VISIBILITY ILLUSTRATIONS

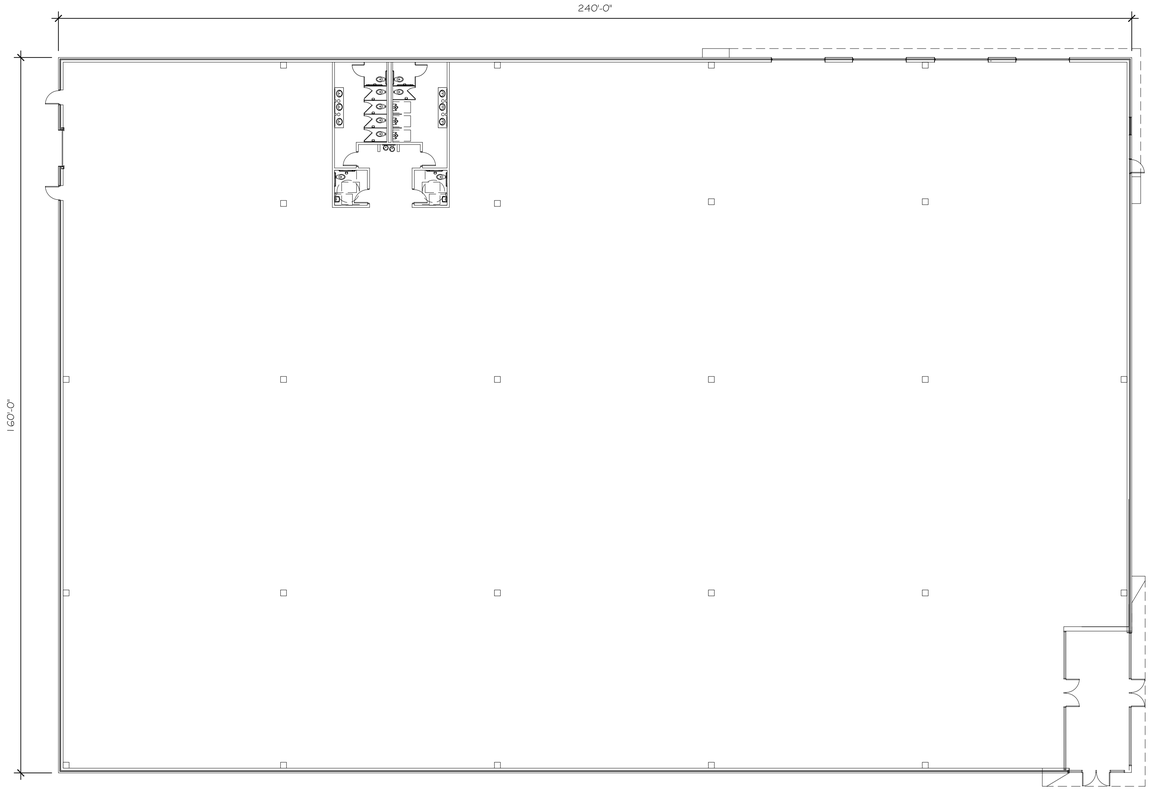
DEVELOPMENT DATA

GROSS AREA = 38,400 SQUARE FEET

BUILDING USE =
USE = A-3 (ASSEMBLY)

BUILDING CONSTRUCTION TYPE = II-B (UNLIMITED AREA, SPRINKLED)

OCCUPANCY =
TOTAL = TO BE DETERMINED WITH INTERIOR LAYOUT

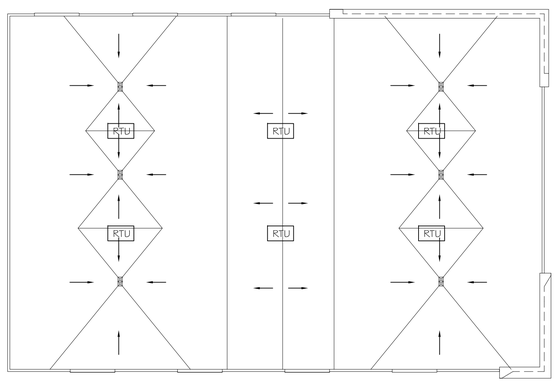


N

PRELIMINARY
BUILDING SHELL

1/16" = 1'-0"

38,400 SF



N

PRELIMINARY
ROOF PLAN

1/32" = 1'-0"

SITE PLAN REVIEW 7-10-2025

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6		
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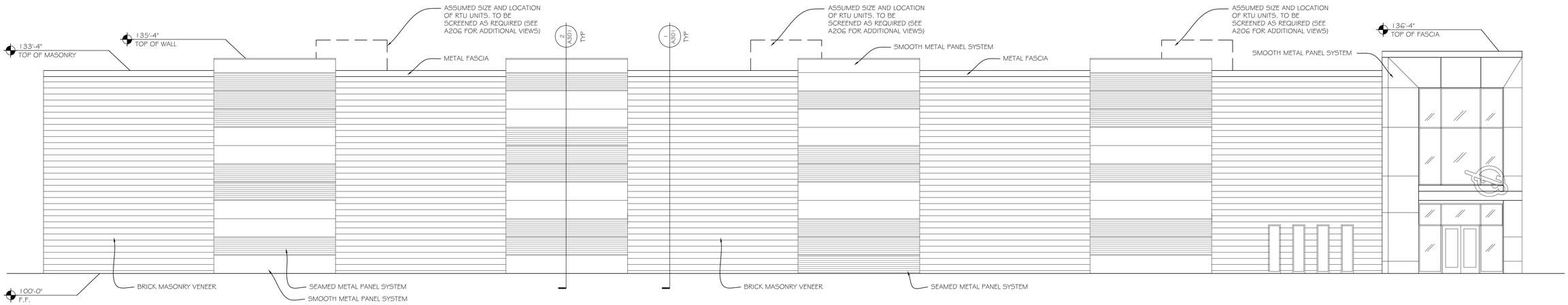
111 east court street suite 3D flint, michigan 48502

NEW BUILDING FOR:
URBAN AIR
HARTLAND

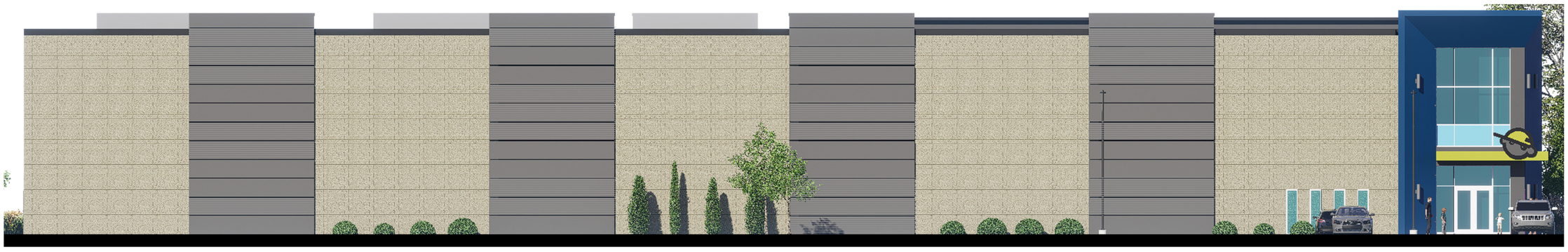
DRAWING TITLE
FLOOR PLAN
AND ROOF PLAN

SEAL: STATE OF MICHIGAN · SHANNON EASTER WHITE · ARCHITECT · No. 1301096305 · REGISTERED ARCHITECT

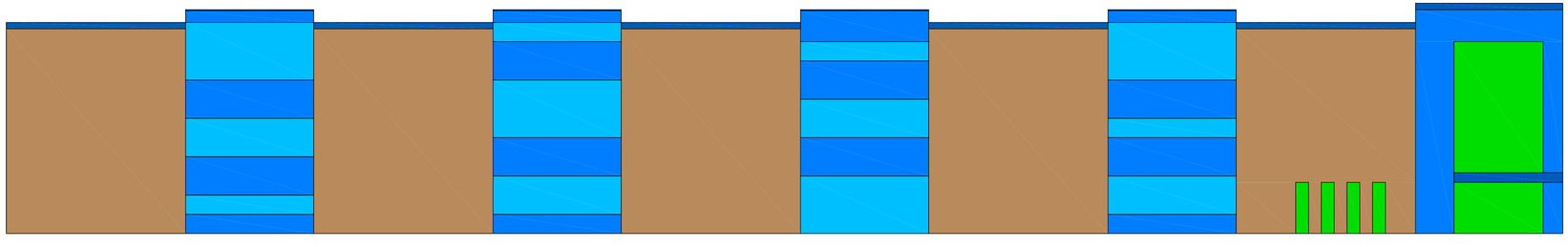
DRAWN	EHD
REVIEWED	SEW
DATE	
SCALE	1/16" = 1'-0"
PROJECT NO.	
CAD FILE NO.	A101
DRAWING NO.	A101
SHEET NO.	OF



WEST
EXTERIOR ELEVATION
1/8" = 1'-0"



WEST
EXTERIOR RENDERING
1/8" = 1'-0"



MATERIAL CALCULATIONS
3/32" = 1'-0"

west facade metal fascia	201sf		
west facade flat metal	1729 sf		
SMOOTH METAL TOTAL	1930 sf	=	23.3%
west facade seamed metal	1440 sf	=	17.4%
west facade masonry	4,416 sf	=	53.5%
west facade glass	460 sf	=	5.5%
TOTAL FACADE	8248 SF		

SITE PLAN REVIEW 7-10-2025

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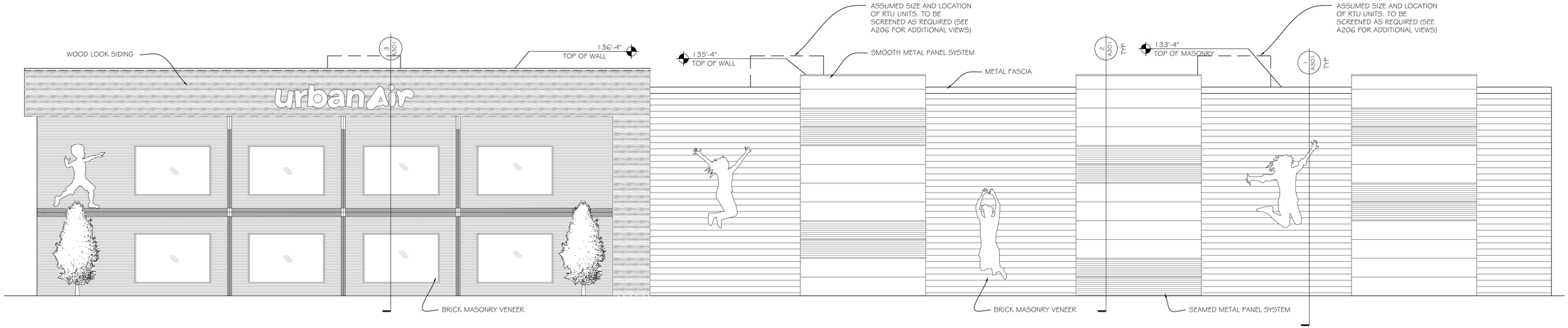
NEW BUILDING FOR:
URBAN AIR
HARTLAND

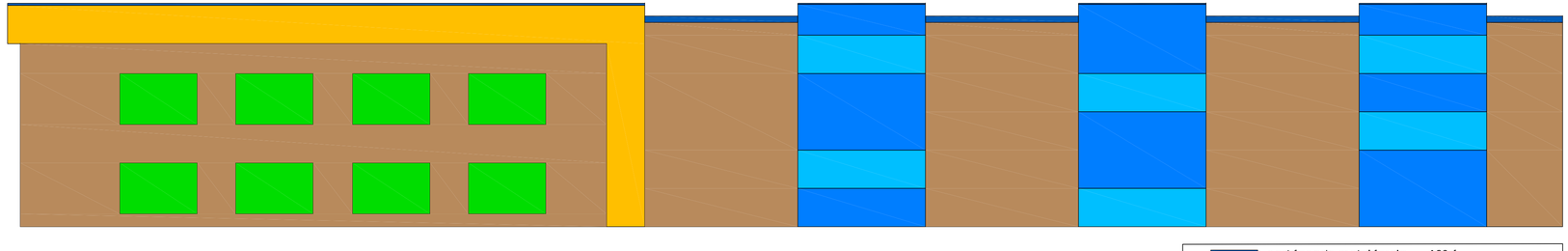
DRAWING TITLE
EXTERIOR ELEVATIONS

SEAL	DRAWN EHD	PROJECT NO.
		CAD FILE NO. A201
	REVIEWED SEW	DRAWING NO. A201
	DATE	SHEET NO. OF
	SCALE 1/8" = 1'-0"	



EAST
EXTERIOR ELEVATION
3/32" = 1'-0"

EAST
EXTERIOR RENDERING
1/8" = 1'-0"



MATERIAL CALCULATIONS
3/32" = 1'-0"

east facade metal fascia	123sf		
east facade flat metal	1331 sf		
SMOOTH METAL TOTAL	1454 sf	=	18.0%
east facade seamed metal	700 sf	=	8.6%
east facade masonry	4,414 sf	=	54.6%
east facade glass	757 sf	=	9.4%
east facade wood look	750 sf	=	9.2%
TOTAL FACADE	8076 SF		

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SITE PLAN REVIEW 7-10-2025

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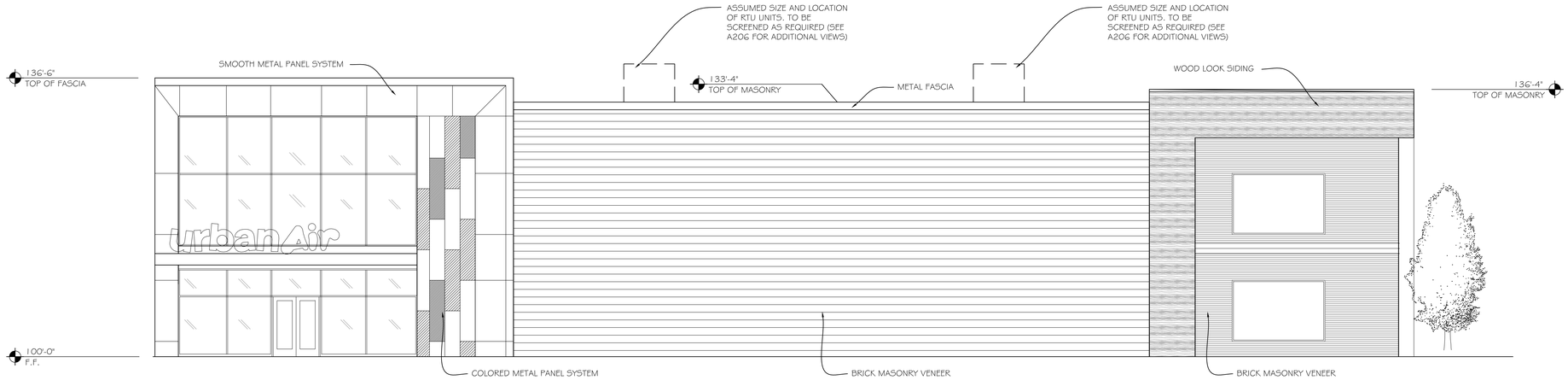
NEW BUILDING FOR:
URBAN AIR
HARTLAND

DRAWING TITLE
EXTERIOR ELEVATIONS

SEAL	DRAWN EHD	PROJECT NO.
		CAD FILE NO. A201
	REVIEWED SEW	DRAWING NO. A202
	DATE	SHEET NO. OF
	SCALE 1/8" = 1'-0"	



SOUTH
EXTERIOR ELEVATION
1/8" = 1'-0"

SOUTH
EXTERIOR RENDERING
1/8" = 1'-0"

MATERIAL CALCULATIONS
3/32" = 1'-0"

south facade metal fascia	193sf		
south facade flat metal	670 sf		
SMOOTH METAL TOTAL	863 sf	=	15.4%
south facade masonry	3236 sf	=	57.8%
south facade glass	1117 sf	=	19.9%
south facade wood look	380 sf	=	6.7%
TOTAL FACADE	5598 SF		

SITE PLAN REVIEW 7-10-2025

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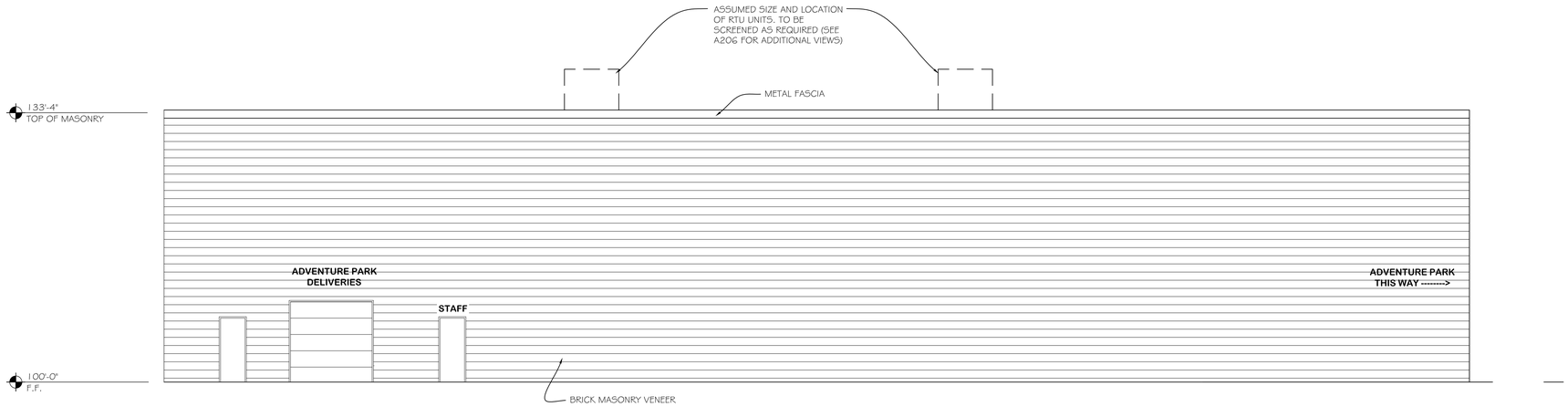
NEW BUILDING FOR:
URBAN AIR
HARTLAND

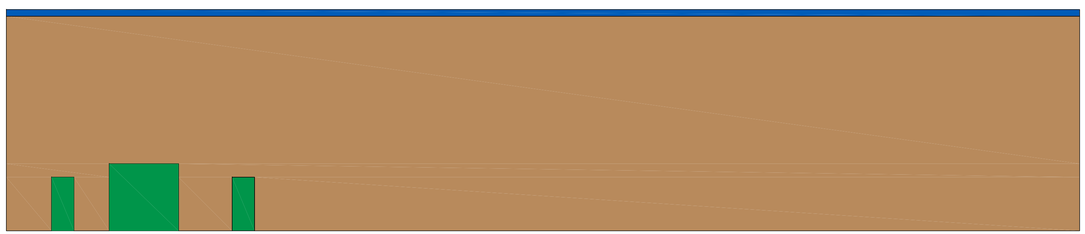
DRAWING TITLE
EXTERIOR ELEVATIONS

SEAL	DRAWN EHD	PROJECT NO.	
		CAD FILE NO. A201	
	REVIEWED SEW	DRAWING NO. A203	
	DATE	SHEET NO.	OF
	SCALE 1/8" = 1'-0"		



NORTH
EXTERIOR ELEVATION
3/32" = 1'-0"

NORTH
EXTERIOR RENDERING
1/8" = 1'-0"



MATERIAL CALCULATIONS
3/32" = 1'-0"

north facade metal fascia	160 sf	=	3.0%
north facade masonry	4963 sf	=	93.9%
north facade metal doors	156 sf	=	2.9%
TOTAL FACADE	5280 SF		

SITE PLAN REVIEW 7-10-2025

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NEW BUILDING FOR:
URBAN AIR
HARTLAND

DRAWING TITLE
EXTERIOR ELEVATIONS

SEAL	DRAWN: EHD	PROJECT NO.
		CAD FILE NO.: A201
	REVIEWED: SEW	DRAWING NO.: A204
	DATE:	SHEET NO.: OF
	SCALE: 1/8" = 1'-0"	

PROPOSED BUILDING RENDERING (ENTRY FROM SOUTHWEST)

PROPOSED BUILDING RENDERING (SOUTHEAST VIEW US-23 SIDE)

PROPOSED BUILDING RENDERING (NORTHEAST CORNER)

SITE PLAN REVIEW 7-10-2025

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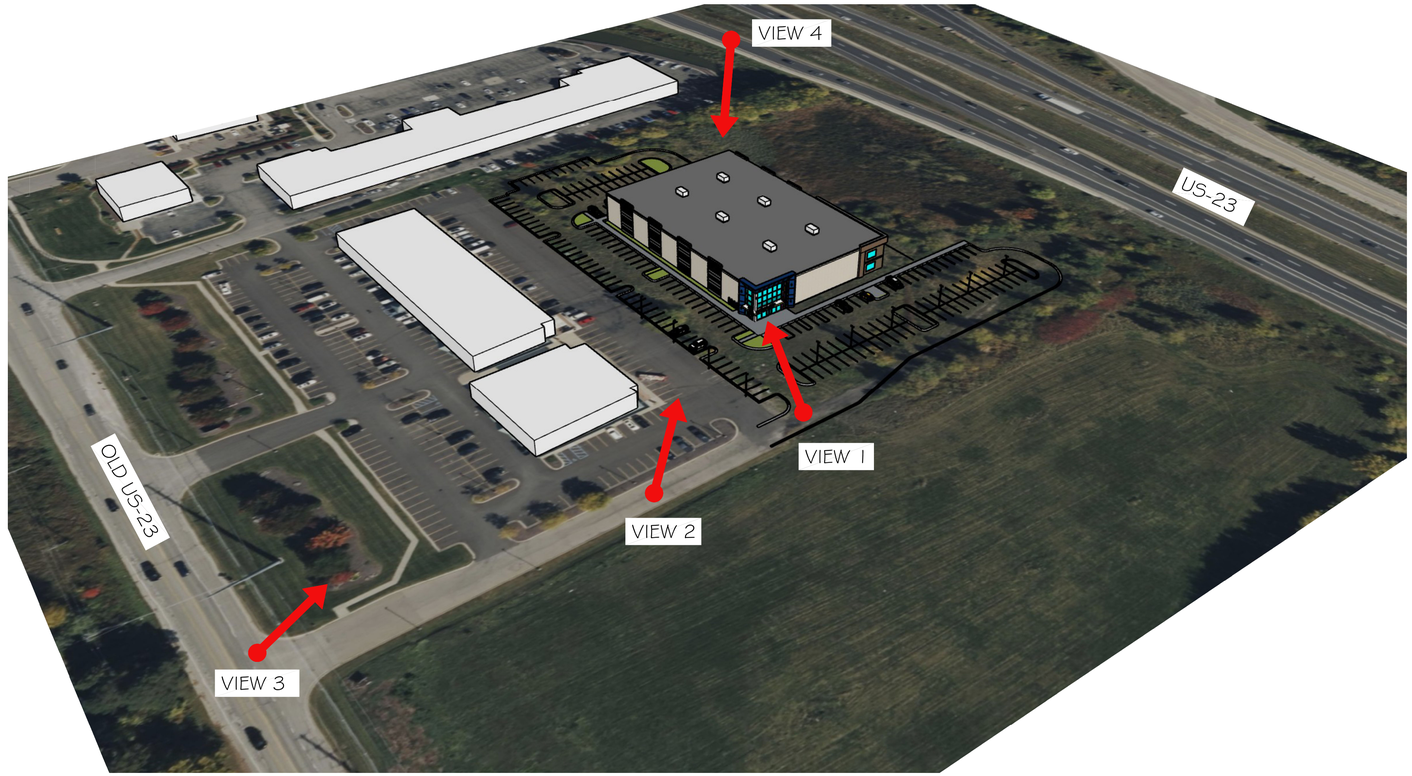
NEW BUILDING FOR:
URBAN AIR
HARTLAND

DRAWING TITLE
EXTERIOR
RENDERINGS

SEAL	DRAWN	PROJECT NO.
	EHD	A100
	REVIEWED SEW	CAD FILE NO.
	DATE	DRAWING NO. A205
	SCALE	SHEET NO. OF

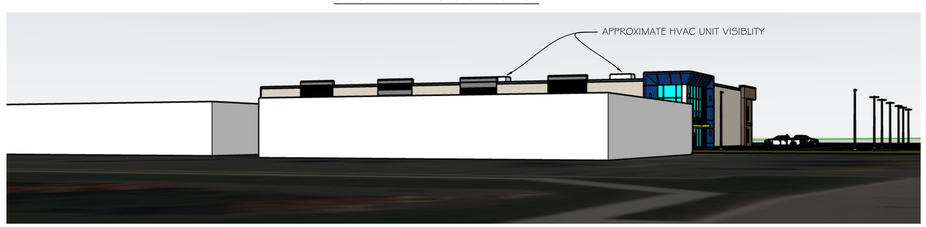
VIEW #1

VIEW #2



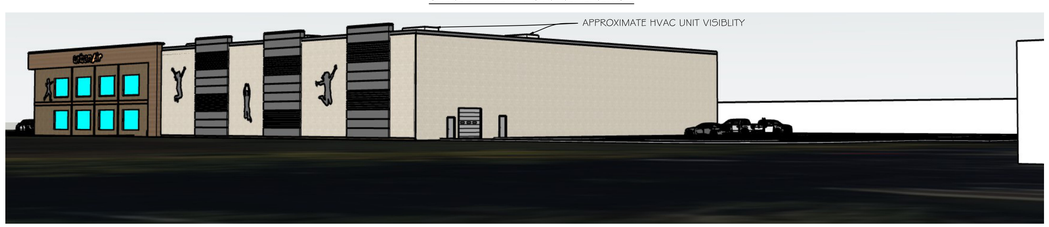
AERIAL VIEW

STREET VIEW FOR REFERENCE



VIEW #3

STREET VIEW FOR REFERENCE



VIEW #4

VIEW FROM ONRAMP TO
US-23 SOUTH

NO.	REVISIONS / SUBMISSIONS	DATE
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SITE PLAN REVIEW 7-10-2025

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NEW BUILDING FOR:
URBAN AIR
HARTLAND

DRAWING TITLE
HVAC VISIBILITY
ILLUSTRATIONS

SEAL

DRAWN: EHD
REVIEWED: SEW
DATE:
SCALE: 1/8" = 1'-0"

PROJECT NO.
CAD FILE NO. A201
DRAWING NO. A206
SHEET NO. OF