Township Supervisor
Brenda L. Stumbo
Township Clerk
Debbie Swanson
Township Treasurer
Stan Eldridge

YPSILANTI TOWNSHIP
— PLANNING & ZONING DEPARTMENT —

Trustees
John Newman II
Gloria Peterson
Karen Lovejoy Roe
LaResha Thornton

REGULAR MEETING AGENDA

Tuesday, November 25, 2025
6:30 P.M.

If you need any assistance due to a disability, please contact the Planning Department at least 48 hours in advance of the meeting at planning@ypsitownship.org or 734-544-4000 ext. 1.

1. CALL TO ORDER
2. ROLL CALL
3. APPROVAL OF AGENDA
4. APPROVAL OF THE NOVEMBER 10, 2025, REGULAR MEETING MINUTES
5. PUBLIC HEARINGS
6. OLD BUSINESS
   A. **PRELIMINARY SITE PLAN FOR SPECIAL LAND USE – CREEKSIDE VILLAGE NORTH – 6601 TUTTLE HILL – PARCEL K-11-26-300-009** – TO CONSIDER RECOMMENDATION TO THE TOWNSHP BOARD OF TRUSTEES FOR THE PRELIMINARY SITE PLAN FOR SPECIAL LAND USE APPLICATION OF DIVERSE REAL ESTATE LLC TO PERMIT A 100-UNIT, SINGLE-FAMILY RESIDENTIAL SITE CONDOMINIUM ON A SITE ZONED R-3, ONE-FAMILY RESIDENTIAL.
7. NEW BUSINESS
8. OPEN DISCUSSION FOR ISSUES NOT ON THE AGENDA
   A. CORRESPONDENCE RECEIVED
   B. PLANNING COMMISSION MEMBERS
   C. MEMBERS OF THE AUDIENCE
9. TOWNSHIP BOARD REPRESENTATIVE REPORT
10. ZONING BOARD OF APPEALS REPRESENTATIVE REPORT
11. TOWNSHIP ATTORNEY REPORT
12. PLANNING DEPARTMENT REPORT
13. OTHER BUSINESS
14. ADJOURNMENT

CHARTER TOWNSHIP OF YPSILANTI
PLANNING COMMISSION MEETING
Monday, November 10, 2025
6:30 pm

COMMISSIONERS PRESENT

Elizabeth El-Assadi
Larry Doe
Amy Kehrer
Daryl Kirby
Gloria Peterson
Bill Sinkule

STAFF AND CONSULTANTS

Sally Elmiger - Carlisle Wortman
Mark Yandrick - AICP, Planning Director
Dennis McLain – Township Attorney

- **CALL TO ORDER/ESTABLISH QUORUM**

  MOTION: Ms. El-Assadi called the meeting to order at 6:30 pm.

- **APPROVAL OF AGENDA**

  MOTION: Mr. Kirby **MOVED** to approve the agenda as presented. The **MOTION** was **SECONDED** by Mr. Sinkule and **PASSED** by unanimous consent.

- **APPROVAL OF SEPTEMBER 9, 2025, REGULAR MEETING MINUTES**

  MOTION: Mr. Sinkule **MOVED** to approve September 9, 2025, regular meeting minutes. The **MOTION** was **SECONDED** by Mr. Doe and **PASSED** by unanimous consent.

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- **PUBLIC HEARINGS**

ZONING ORDINANCE TEXT AMENDMENT – TO CONSIDER THE PROPOSED CHANGES TO THE FOLLOWING ZONING ORDINANCES REGARDING DATA CENTERS:

1. Article 2, Section 201. – Definitions.
2. Article 4, Section 420. – Residential use tables.
3. Article 5, Section 504. – Neighborhood Corridors
4. Article 5, Section 505. – Regional Corridors
5. Article 5, Section 506. – Town Center

Mark Yandrick, AICP, Planning Director, informed the Commission that the Ypsilanti Township Board unanimously passed a motion directing the Planning Commission to review zoning changes to data centers in August. The Planning Department has been evaluating the existing ordinance and regulations. The Township Board is then required to hold at least two (2) readings (December 2 and December 16, 2025) of the Text Amendment before they can adopt the Ordinance. Mark Yandrick, shared with the Commission that the following discussion would be based on how data centers for storage and warehouse of computer servers were allowed in the logistics/ manufacturing and the ICR (industrial and commercial revitalization area). Removing Data Centers as permitted for use in the Township's three (3) form-based code districts (Town Center, Regional Corridor, Neighborhood Corridor). Data Centers have been removed from the L-M, Logistics and Manufacturing zoning district, and the Service and Maintenance of Electronic Data Processing Equipment" removed from the I-T, Innovation and Technology zoning districts as well as the L-M district.

Mark Yandrick talked about Data and Computing Centers being much smaller in size 5-10 years ago as data wasn't processed at the size and scale it is today.

Mark Yandrick presented the zoning map that identifies the different zoning districts across the township and the proposal for the Commissions to consider are the following:

- Data centers, with the current size and demand, are to be restricted in the two industrial districts (logistics/ manufacturing and innovation and technology.

DRAFT

- Remove allowance for data centers from the three form-based code districts.
- Change the ICR from permitted use to a special land use to be approved by the township board.
- This ordinance would clean up some of the headings that were missing from the previous ordinance.
- This Ordinance does not impact any proposals from the University of Michigan's and Los Alamos Computation Center, due to MCL Article VIII § 5, which exempts the University of Michigan from local building and zoning laws. This proposed ordinance would apply to all other proposals that are not exempt under this law, or any other state or federal exemptions.
- Locating data (computing) centers in the ICR zone is most appropriate in the township as it would locate an industrial use in an existing brownfield site(s) and eliminate impact to surrounding residential and environmentally sensitive areas found in the other zoning districts.
- The parcels in the ICR zoning district also have greater access to existing utilities and infrastructure. The location is also near to the Ypsilanti Community Utility Authority (YCUA) water treatment plant, which could potentially use reclaimed refuse water, which is recycled water and less of an impact on the existing water utility systems.

The Planning staff recommends the Planning Commission to review and consider a recommendation for approval of the zoning ordinance text amendments to the township board.

Commissioner Kirby inquired about the reasons for data centers to be moving in: Mark Yandrick talked about the increased demand nationwide for data and computing centers as both data and artificial intelligence (AI) research, development, and storage increase. These larger facilities require significantly more electricity and water, which also can impact the surrounding environments, as well as the capacity for utilities.

PUBLIC HEARING OPENED AT 6:43 PM

Nicole Porter (5764 Princeton Place) shared as a longtime Ypsilanti Township resident concerns that AI Data Centers could bring to the community's beauty and safety.

PUBLIC HEARING CLOSED AT 6:45 PM

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- **OLD BUSINESS**
  None to Report.

- **NEW BUSINESS**

  a. ZONING ORDINANCE TEXT AMENDMENT – TO CONSIDER THE PROPOSED CHANGESTO THE FOLLOWING ZONING ORDINANCES DATA CENTERS:

  1. Article 2, Section 201. – Definitions.
  2. Article 4, Section 420. – Residential use tables.
  3. Article 5, Section 504. – Neighborhood Corridors
  4. Article 5, Section 505. – Regional Corridors
  5. Article 5, Section 506. – Town Center

  MOTION: Mr. Sinkule **MOVED** to recommend **APPROVAL** to the Township Board for the Township Initiated Ordinance Zoning Text Amendment relating to the location and regulations applicable to data centers within Article 2, Section 201. – Definitions, Article 4, Section 420. Residential use table, Article 5, Section 504. – Neighborhood Corridors, Article 5, Section 505. Regional Corridors, Article 5, Section 506. – Town Center to improve the health, safety, and welfare of the Township without conditions.

  The **MOTION** was **SECONDED** by Ms. Kehrer.

  Roll Call Vote: Mr. Sinkule (Yes); Ms. Kehrer (Yes); Mr. Kirby (Yes); Ms. Peterson (Yes); Mr. Doe (Yes); Ms. El-Assadi (Yes).

  MOTION PASSED.

  b. RESOLUTION 2025-001, ADOPTION OF REGULAR PLANNING COMMISSIONMEETING DATES FOR THE 2026 CALENDER YEAR.

DRAFT

MOTION: Mr. Kirby **MOVED** to adopt the regular Planning Commission meeting dates for the 2026 calendar year.

WHEREAS section 2A of the adopted Planning Commission by-laws states the Commission shall hold regular meetings on the fourth Tuesday of each month and other meetings as necessary, and **WHEREAS** the Michigan Zoning Enabling Act requires the Planning Commission adopt by resolution it's meeting schedule, and **WHEREAS** the adopted bylaws require the Commission to adopt by resolution the time and place of such meetings and minimum required application deadlines.

NOW THEREFORE, BE IT RESOLVED that the attached schedule of dates and times be adopted for the Charter Township of Ypsilanti Planning Commission for the 2026 Calendar Year.

The **MOTION** was **SECONDED** by Mr. Sinkule.

Roll Call Vote: Mr. Sinkule (Yes); Ms. Kehrer (Yes); Mr. Kirby (Yes); Ms. Peterson (Yes); Mr. Doe (Yes); Ms. El-Assadi (Yes).

MOTION PASSED.

- **OPEN DISCUSSIONS FOR ISSUES NOT ON AGENDA**

  - **CORRESPONDENCE RECEIVED**
    None to Report.

  - **PLANNING COMMISSION MEMBERS**
    None to Report.

  - **MEMBERS OF THE AUDIENCE**
    None to Report.

- **TOWNSHIP BOARD REPRESENTATIVE REPORT**

DRAFT

Commissioner Peterson informed the Commission of the upcoming dedication of the courts scheduled for November 14, 2025.

- **ZONING BOARD OF APPEALS REPRESENTATIVE REPORT**

  None to Report.

- **TOWNSHIP ATTORNEY REPORT**

  None to Report.

- **PLANNING DEPARTMENT REPORT**

  Mark Yandrick informed the Commission about the plans to have the township conduct a joint planning commission and ZBA training which would move later into tailored training for both groups. The date for the training is yet to be scheduled.

- **OTHER BUSINESS**

  None to Report.

- **ADJOURNMENT**

  MOTION: Mr. Sinkule **MOVED** to adjourn at 6:54 pm. The **MOTION** was **SECONDED** by Mr. Kirby and **PASSED** by unanimous consent.

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Respectively Submitted by Minutes Services

DRAFT

Planning Department Report

Project Name:	Creekside Village North Preliminary Site Plan
Location:	6601 Tuttle Hill Road, Ypsilanti, MI 48198
Date:	11-18-2025

- [x] Full Preliminary Site Plan Review # 2
- [ ] Sketch Preliminary Site Plan Review #
- [ ] Administrative Preliminary Site Plan Review #
- [ ] Detailed Engineering/Final Site Plan Review #
- [ ] Special Use Permit
- [ ] Public Hearing
- [ ] Rezoning
- [ ] Tentative Preliminary Plat
- [ ] Final Preliminary Plat
- [ ] Final Plat Process
- [ ] Planned Development Stage I
- [ ] Planned Development Stage II

Contact / Reviewer	Consultants, Departments, & Agencies	Approved	Approved with Conditions	Denied	N/A	See email/letter attached or comments below
Planning Department	Township Planning Department	☐	☐	☐	☐	See comments below
Carlisle/Wortman Associates	Planning Consultant	☐	☑	☐	☐	See letter dated 11-14-2025
OHM / Stantec	Engineering Consultant	☐	☑	☐	☐	See letter dated 3-28-2025
Steven Wallgren, Fire Marshal	Township Fire Department	☑	☐	☐	☐	See letter dated 12-10-2024
Dave Bellers, Building Official	Township Building Department	☐	☐	☐	☐	
Brian McCleery, Deputy Assessor	Township Assessing Department	☐	☐	☐	☐	
Scott Westover, Engineering Manager	Ypsilanti Community Utilities Authority	☐	☑	☐	☐	See letter dated 03-28-2025
Gary Streight, Project Manager	Washtenaw County Road Commission	☑	☐	☐	☐	See email dated 6-19-2025
Theresa Marsik, Stormwater Engineer	Washtenaw County Water Resources Commission	☐	☑	☐	☐	See letter dated 04-02-2025
James Drury, Permit Agent	Michigan Department of Transportation	☐	☐	☐	☐	

Planning Department Recommended Action:

The Planning Commission held a Public Hearing at their August 28, 2025, meeting for this project, and recommended approved of the Special Land Use request to the Township Board. However, the Commissioner's postponed the decision on the request for Preliminary Site Plan due to lack of usable open space. The applicant is now returning to the Planning Commission for consideration of the revised Preliminary Site Plan. This project has been scheduled for the Commission's regularly scheduled meeting on November 25, 2025. For Site Condominiums, the Planning Commission makes a recommendation to the Township Board for both the Special Land Use and Preliminary Site plan,

Please contact the Charter Township of Ypsilanti Planning Department if you have any questions or concerns.

Carlisle | Wortman
ASSOCIATES, INC.
117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

Date: January 3, 2025
August 22, 2025
November 14, 2025

Preliminary Site Plan and Special Land Use Review
For
Ypsilanti Township, Michigan

Applicant:	Diverse Real Estate, LLC.
Project Name:	Creekside Village North.
Plan Date:	October 17, 2025
Location:	NE corner of Tuttle Hill & Merritt Roads.
Parcel ID:	K-11-26-300-009
Zoning:	R-3, One-Family Residential
Action Requested:	Planning Commission Recommendation

PROJECT AND SITE DESCRIPTION

An application has been submitted for a residential development consisting of 100 single-family lots (1.85 lots per acre). Each lot will have a minimum lot area of 14,000 square feet. The proposed 54.70-acre site is located in the northeast corner of Tuttle Hill Road and Merritt Road. The site is currently vacant and contains woodlands and two (2) ponds. The site is currently zoned R-3, One-Family Residential. The site will be accessed with one access point off Merritt and one off Tuttle Hill. The internal roads will be private, and there will be a connection to the subdivision to the north, Creekside East.

This site was previously approved in 2001. There is a comparison of the two plans in a section below. The 2001 plan has expired.

Figure 1 shows the aerial view of the property and the surrounding areas.

Figure 1.
Aerial View of Subject Property.

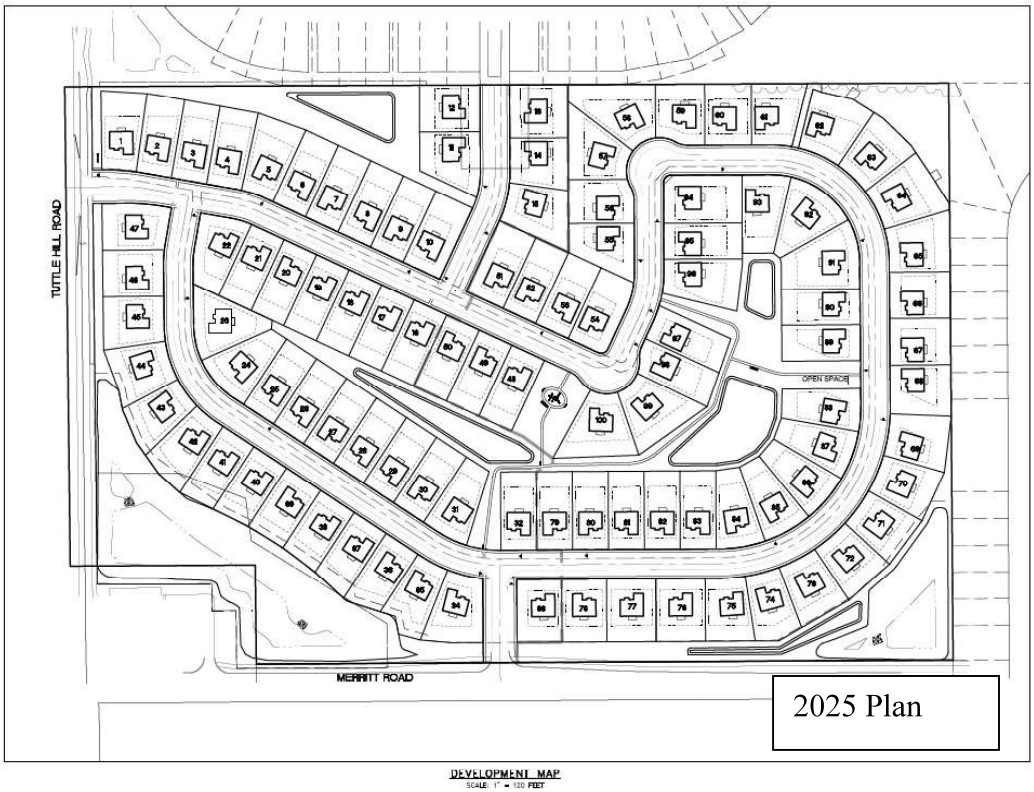
The proposed residential development is surrounded by other residential properties.

The Planning Commission held a Public Hearing at their August 28, 2025, meeting for this project, and approved the Special Land Use request. However, the Commissioner's postponed the decision on the request for Preliminary Site Plan due to lack of usable open space. The applicant is now returning to the Planning Commission for consideration of the Preliminary Site Plan.

2001 PLAN

This site was originally approved in 2001 for development. Looking at the aerial photographs, you can still see the basic layout of the 2001 plan (see aerial on right, top).

For Planning Commission consideration, the table below compares the revised Creekside Village North Plan, dated October 17, 2024 (bottom, right), to the approved 2001 plan.



	2001 Plan	2024 Plan
Lots	157 lots	100 lots
Min Lot Size	8,400 sq/ft	14,000 sq/ft
Min Lot Width	60 feet	80 feet
Open Space	5.19 acres	7.73 acres (see open space section below)

2025 PLAN

Since our last review in March 2025, the applicant has made the following changes:

1. **March 2025 CWA Comment:** Provide wetland delineation to confirm if wetlands are MDEQ regulated.

   Applicant Response: Wetland delineation was performed by Wilson Road Group, inc. on July 22, 2025. No wetlands were found to exist on site.

2. **March 2025 CWA Comment:** Provide additional/functional open space. We encourage the applicant to reconfigure the site to remove a few lots to provide functional open space.

   Applicant Response: The layout has been revised to remove a lot and now include additional pathway around the site and a playground area as requested.

3. **March 2025 CWA Comment:** Work with the Road Commission in establishing the necessary escrow to complete the study and install the light if warranted.

   Applicant Response: Comment noted. An escrow amount will be established prior to Final Site Plan Approval.

4. **March 2025 CWA Comment:** Indicate siding material.

   Applicant Response: Siding material will be brick veneer first floor and vinyl siding second floor, this is indicated on the elevations included on sheets 22 and 23.

ZONING AND LAND USE

The zoning and existing land uses for the subject site and surrounding parcels below:

Direction	Zoning	Existing Use
Subject Site:	R-3, One-Family Residential	Vacant
North	PD, Planned Development	Residential
South	R-3, One-Family Residential	Residential
East	R-3, One-Family Residential	Residential
West	R-3, One-Family Residential	Residential

Figure 2 depicts the current zoning districts mentioned above. **Figure 3** depicts the future land use according to the Ypsilanti Charter Township Master Plan.

Figure 2.
Zoning Map

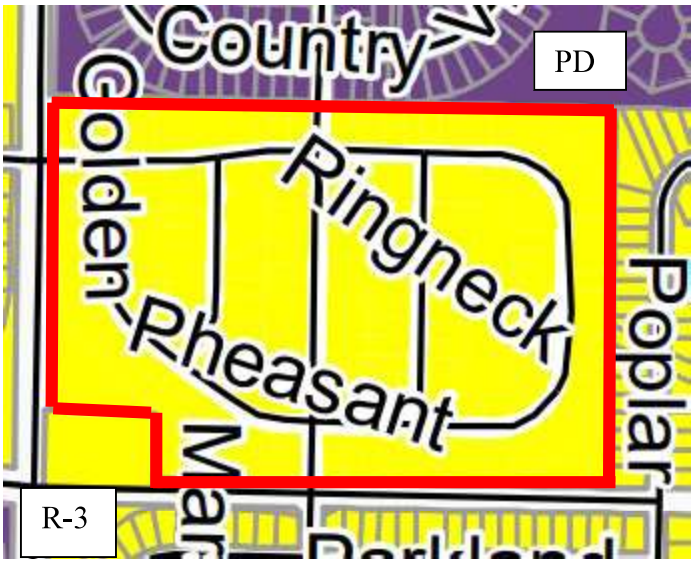


Figure 3.
Master Plan Future Land Use Map

NATURAL RESOURCES

Topography: The site has some slopes along the outer boundaries of the site as well as along the proposed public/private streets.

Woodlands: No significant woodlands on site.

Wetlands: A wetland delineation was performed by Wilson Road Group, inc. on July 22, 2025. No wetlands were found to exist on site.

Soils: Soils include BnB, Boyer loamy sand, 1 to 6 percent slopes; Gf, Gilford sandy loam, till plain, 0 to 2 slopes; and Wasepi sandy loam, 0 to 4 percent slopes.

Items to be Addressed: None

LAYOUT AND OPEN SPACE

The site will consist of 100 single-family homes. The proposed project is compatible with adjacent uses (residential). Detention Ponds are situated in the southwest and southeast corner of the properties. There are four (4) rain gardens to the interior to the site.

The applicant is proposing to preserve 7.73 acres (14%) of open space. However, we note that the proposed open space includes:

- Regulated and protected wetlands
- Raingardens, which are required to comply with stormwater requirements of the WCWRC
- Gas pipeline easement

There is little functional or usable open space. In our previous review we had encouraged the applicant to reconfigure the site or remove a few lots to provide functional open space. Since our last review the applicant has removed one (1) lot to provide a small pocket park/playground. We recommend that the Planning Commission discuss whether additional functional open space should be provided.

Items to be Addressed: *Planning Commission should discuss whether additional functional open space should be provided.*

PEDESTRIAN CIRCULATION AND SAFETY PATHS

A sidewalk is provided along both sides of all roads. The applicant meets the 5-foot sidewalk width and is providing a ten (10)-foot wide bike path along both Merritt and Tuttle Hill.

Items to be Addressed: *None*

SITE ACCESS AND CIRCULATION

The development will be accessed via a drive from Tuttle Hill Road on the west side of the property; a drive from Merritt Road on the south side; and from an existing road from another development (Lakewood Estates Condominium) on the north. For final approvals the applicant must provide all easements documents.

Items to be Addressed: *None*

PARKING, LOADING

Section 2104 requires single-family developments to provide two (2) parking spaces for each dwelling unit. One hundred units require 200 parking spaces. Parking will be provided in garages and driveways. Applicant indicates that parking will be allowed on one side of the road. On-street parking will provide guest parking.

Items to be Addressed: *None*

TRAFFIC IMPACT

The Traffic impact study has been reviewed by the Washtenaw County Road Commission. In their review the WCRC notes that the TIS does not warrant any additional turn lanes nor a traffic light at Merritt and Tuttle Hill. However, the TIS does require a future traffic study after the site is developed and built out. In a letter dated July 24, 2025, the applicant has agreed to contribute $185,000 to assist with the cost of pedestrian improvements at the intersection of Merritt Road and Tuttle Hill Road. The funding will be memorialized in a future development agreement.

Items to be Addressed: *None*

LANDSCAPING

Applicant has provided a Street Tree plan and a Greenbelt and Entry plan. The landscaping should be compliant with landscaping requirements set forth in Section 1301:

Street Trees. According to Street Tree requirements, both sides of all internal roads shall be landscaped with street trees. For road frontages of individual lots or condominium sites, a minimum of two (2) canopy trees shall be provided per dwelling. For sections of road that do not abut lots or condominium sites, one canopy tree shall be provided on each side for every 40 feet of road. Existing trees to be preserved within five feet of the road right-of-way or easement may be credited towards meeting this requirement. ***2 trees x 101 dwellings = 202 trees. The applicant has provided 216 trees on Sheet L-1 which meets the requirement.***

Frontage Greenbelt. A minimum of one large deciduous tree shall be planted for each 40 lineal feet or portion thereof, plus a minimum of one ornamental tree shall be planted for each 100 lineal feet or portion thereof, plus a minimum of eight shrubs shall be planted for each 40 lineal feet, or portion thereof, plus Evergreen trees that are at least six feet high, shall be planted at 15 feet staggered intervals, to create a visual barrier for at least 50 percent of the berm length. ***Along Tuttle Hill Road (654 lineal feet), 17 deciduous trees, 22 coniferous trees, 7 ornamental trees, and 131 shrubs are required and provided. Along Merritt Road (890 lineal feet), 22 deciduous trees, 30 coniferous trees, 9 ornamental trees, and 178 shrubs are required and provided.***

Pond/Detention Pond Landscaping: One deciduous shade tree or evergreen tree and ten shrubs shall be planted for every 50 lineal feet of pond perimeter as measured along the top of the bank elevation. ***There are two (2) ponds on-site. Pond A (1,782 lineal feet) requires 36 deciduous trees and 356 shrubs. Pond B (1,101 lineal feet) requires 22 deciduous trees and 220 shrubs.***

Buffering. Where nonresidential uses adjoin residentially-zoned property, noise reduction and visual screening mechanisms such as landscape berms and/or decorative walls, shall be employed.
Proposed development does not abut a non-residential property.

For the Final Site Plan submittal, the applicant shall submit a detailed landscape plan.

Items to be Addressed: *Provide detailed landscape plan at Final Site Plan review.*

LIGHTING

The applicant proposes seven (7) pole lights spread throughout the development. Photometric calculations comply with ordinance requirements. The light fixture complies with section 1303 of the Ypsilanti Township Zoning Ordinance.

Items to be Addressed: *None*

SIGNS

An entry monument sign is proposed at the Merritt Road entrance to the south and Tuttle Hill Road entrance to the west. The brick sign includes a decorative precast concrete cap, a decorative light, pin-mounted letters for the name, and cultured stone veneer. The Township will review the sign under a separate sign permit application.

Items to be Addressed: *None*

FLOOR PLAN AND ELEVATIONS

Floor plans and elevations have been submitted. The proposed materials appear to be brick veneer first story and vinyl siding on the second story. Planning Commission should consider if the use of vinyl siding is an appropriate material use for this development.

Items to be Addressed: *Planning Commission to discuss materials.*

SPECIAL USE REVIEW

Standards for Special Use review are set forth in Section 1003. The Planning Commission, and the Board of Trustees when required, shall review the particular circumstances and facts of each proposed use in terms of the following standards and required findings, and with respect to any additional standards set forth in this Ordinance. The Planning Commission, either as part of its final decision or in its recommendation, shall find and report adequate data, information, and evidence showing that the proposed use meets all required standards and:

1. Will be harmonious, and in accordance with the objectives, intent, and purpose of this Ordinance.
2. Will be compatible with the natural environment and existing and future land uses in the vicinity.
3. Will be compatible with the Township master plans.
4. Will be served adequately by essential public facilities and services, such as highways, streets, police and fire protection, drainage ways and structures, refuse disposal, or that the persons or agencies responsible for the establishment of the proposed use shall be able to provide adequately for such services
5. Will not be detrimental, hazardous, or disturbing to existing or future neighboring uses, persons, property, or the public welfare.
6. Will not create additional requirements at public costs for public facilities and services that will be detrimental to the economic welfare of the community.

For the most part we find that the special use standards have been met; however, we still find that the applicant should provide functional and usable open space and shall confirm to the satisfaction of the Planning Commission and Township Board that additional traffic can be mitigated.

As mentioned above, the Planning Commission has recommended approval of the Special Land Use to the Township Board at its August 28, 2025, meeting.

TOWNSHIP BOARD APPROVAL

As set forth in Section 420, all Single-Family Residential Plat or Site Condominium projects require Special Use approval by the Township Board, upon recommendation by the Planning Commission.

RECOMMENDATIONS

We recommend that the Planning Commission have a discussion on the following items:
1. Is the proposed functional open space sufficient?
2. Is vinyl siding material an appropriate building material?

Based on the discussion, if the Planning Commission recommends approval of the Preliminary Site Plan, we recommend the following conditions:
1. Provide additional/functional open space if directed by the Planning Commission.

2. Upgrade to vinyl material use if directed by the Planning Commission.
3. Provision of agreed upon $185,000 be memorialized in a future Development Agreement.

CARLISLE/WORTMAN ASSOC., INC.
Benjamin R. Carlisle, AICP, LEED AP
Principal

Township Supervisor
Brenda L. Stumbo
Township Clerk
Debbie Swanson
Township Treasurer
Stan Eldridge

Trustees
John Newman II
Gloria Peterson
Karen Lovejoy Roe
LaResha Thornton

SUGGESTED MOTIONS:

Preliminary Site Plan:

Motion to Postpone:
"I move to postpone the request for Preliminary Site Plan approval, submitted by Diverse Real Estate, LLC to permit construction of a 100-unit, single-family residential site condominium on a 54.70-acre site zoned R-3, One-Family Residential, located at 6601 Tuttle Hill Road, Ypsilanti, MI 48197, Parcel K-11-26-300-009, to give the applicant time to address the comments made at this evening's meeting and resubmit, and/or provide additional information, as discussed tonight."

Motion to Approve:
"I move to recommend approval to the Township Board of the Preliminary Site Plan submitted by Diverse Real Estate, LLC to permit construction of a 100-unit, single-family residential site condominium on a 54.70-acre site zoned R-3, One-Family Residential, located at 6601 Tuttle Hill Road, Ypsilanti, MI 48197, Parcel K-11-26-300-009, with the following conditions:

1. The proposed functional open space is/is not sufficient to serve the proposed residential development. (*If NOT sufficient, add condition based on Planning Commission discussion*.)
2. The proposed vinyl siding material is/is not an appropriate building material. (*If NOT appropriate, add condition based on Planning Commission discussion*.)
3. The agreed upon $185,000 traffic mitigation contribution shall be memorialized in a Development Agreement.
4. The applicant shall address all outstanding comments from reviewing agencies prior to Final Site Plan Review by the Planning Commission and Township Board. The applicant shall revise all plan sheets to reflect the results of this evening's discussion.
5. The applicant shall obtain all applicable internal and outside agency permits prior to construction.
6. *(Any other conditions based upon Planning Commission discussion.)*

Motion to Deny:
"I move to recommend denial to the Township board of the Preliminary Site Plan submitted by Diverse Real Estate, LLC for construction of a 100-unit, single-family residential site condominium on a 54.70-acre site zoned R-3, One-Family Residential, located at 6601 Tuttle Hill Road, Ypsilanti, MI 48197, Parcel K-11-26-300-009, due to the following reasons:"

1._____

2._____

3._____

ARCHITECTS. ENGINEERS. PLANNERS.

OHM Advancing Communities®

March 28, 2025

Ms. Lauren Doppke
Township Staff Planner
Charter Township of Ypsilanti
7200 S. Huron River Drive
Ypsilanti, MI 48197

RE: Creekside Village North
Preliminary Site Plan Review #2

Dear Ms. Doppke:

We have completed the second preliminary site plan review of the plans dated November 11, 2024, with a latest revision date of March 6, 2025, and received by OHM Advisors on March 18, 2025.

At this time, the plans are recommended for consideration by the Township Planning Commission, contingent on the following comment being addressed. Preliminary detailed engineering comments have been provided to the applicant as a courtesy and shall be addressed prior to submitting detailed engineering plans for review.

A brief description of the project has been provided below, followed by our comments and a list of anticipated required permits and approvals. Comments in Section C are detailed in nature, do not influence the overall site layout, and can be addressed during the detailed engineering drawing submittal.

A. PROJECT AND SITE DESCRIPTION

The applicant is proposing a 101-unit single-family residential community located at the northeast corner of Tuttle Hill Road and Merritt Road. The development is proposed to be developed in two (2) phases.

The site will be serviced by connection to the existing water main and sanitary sewer stubs near both Merritt Road and Tuttle Hill Road with a water main loop through the proposed development. Stormwater runoff will be managed by two (2) existing detention basins that are proposed to be modified, as well as five (5) rain gardens and an underground conveyance system.

B. PRELIMINARY SITE PLAN COMMENTS

Stormwater Management

1. It is noted that the first flush volume is proposed to be infiltrated within the rain gardens; however, per the Washtenaw County Water Resources Commissioner's Standards, the outlet control structures shall be designed based on the volumes of runoff excluding the infiltration volume. The applicant shall review and revise the basin storage volumes and all subsequent calculations accordingly.

2. The applicant noted on the plans that a minimum horizontal separation of ten (10) feet between all water main and storm sewer structures shall be provided, per EGLE permitting requirements; however, the applicant shall review and revise the horizontal separation distance accordingly, as there appears to be areas that may not meet this requirement, or note that deviations will be required to be reviewed and approved by EGLE and/or YCUA during the permitting process.

OHM Advisors
34000 PLYMOUTH ROAD
LIVONIA, MICHIGAN 48150
T 734.522.6711
F 734.522.6427
OHM-Advisors.com

C. PRELIMINARY DETAILED ENGINEERING COMMENTS

The following comments shall be addressed by the applicant during the detailed engineering drawing submittal, and do not affect the recommendation for approval to the Township of Ypsilanti Planning Commission. It should be noted that this is not an all-inclusive list and additional comments may be generated as new information is presented.

1. The applicant shall provide utility pipe profiles, including pipe diameter, material, length, slope, and hydraulic grade line (where applicable) for all proposed utilities (water, sanitary, storm).

2. It is recommended that all public utilities (water, sanitary) be constructed in Phase 1. This office defers to YCUA on the review and approval of the proposed phasing of public utilities.

3. The applicant shall provide spot elevations at all four (4) corners of all ramps and level landings, as well as along both sides of all proposed and existing sidewalk/pathway at 50-foot intervals. The applicant shall note that the cross-slope shall not exceed 2%, per ADA Standards. The applicant shall also verify the existing sidewalk/pathway along both Merritt Road and Tuttle Hill Road is ADA compliant and note that anything out of compliance will need to be removed and replaced.

4. The applicant shall provide a detailed drainage area map that provides drainage areas corresponding to each catch basin, including their acreages, C-factors, and C-factor calculations.

5. The applicant shall review and revise the proposed storm sewer layout in the as there appears to be a discrepancy between the Utility Plan and the Landscape Plan.

6. The applicant shall provide the location of the water and sanitary sewer services, as well as the curb stop boxes and the sanitary cleanouts. The applicant shall also clarify the material of the proposed water and sanitary services.

7. The applicant shall provide a quantity list for all proposed utilities (water, sanitary, storm) on the Cover Sheet, delineated by existing or proposed road right-of-way or easement, per Township Standards.

8. The applicant shall provide the Ypsilanti Township Standard Detail Sheets within the plan set, including the Ypsilanti Township SESC Standard Detail Sheet. These can be obtained by emailing stacie.monte@ohm-advisors.com.

D. REQUIRED PERMITS & APPROVALS

The following outside agency reviews and permits will be required for the project. Copies of any correspondence between the applicant and the review agencies, as well as the permit or waiver, shall be sent to both the Township and OHM Advisors (email: stacie.monte@ohm-advisors.com).

- **Ypsilanti Community Utilities Authority (YCUA):** Review and approval of all water main and sanitary sewer improvements is required.
- **Ypsilanti Township Fire Department:** Review and approval of hydrant coverage, site accessibility, and the temporary gravel turnaround is required.
- **Washtenaw County Water Resources Commissioner's Office (WCWRC):** Review and approval is required. A drain-use permit may be required.
- **Washtenaw County Road Commission (WCRC):** Review and approval is required.
- **Michigan Department of Environment, Great Lakes & Energy (EGLE):** An EGLE Act 399 and Part 41 permit will be required for construction of all public water main and sanitary sewer systems improvements.
- **Michigan Department of Environment, Great Lakes & Energy (EGLE):** An EGLE permit will be required for any work and/or stormwater discharge into the wetlands.

- **Wolverine Pipeline:** Review and approval of the proposed construction within the gas easement will be required.
- **Ypsilanti Township Office of Community Standards:** A Soil Erosion and Sedimentation Control permit shall be secured from the Ypsilanti Township Office of Community Standards.

Should you have any questions regarding this matter, please contact this office at (734) 466-4580.

Sincerely,
OHM Advisors

Stacie L. Monte

Matthew D. Parks, P.E.

SLM/MDP

cc: Doug Winters, Township Attorney
Sally Elmiger, CWA, Township Planning Consultant
Steven Wallgren, Township Fire Marshall
Scott Westover, P.E., YCUA
File

P:\0000_0100\SITE_YpsilantiTwp\2024\0098241060_6601 Tuttle Hill_Creekside Village North\MUNI\01_SITE\PSP#2\Creekside Village North_PSP#2_2025-03-28.docx

CHARTER TOWNSHIP OF YPSILANTI FIRE DEPARTMENT
BUREAU OF FIRE PREVENTION
222 South Ford Boulevard, Ypsilanti, MI 48198

December 10, 2024

Fletcher Reyher, Planning and Development Coordinator
Charter Township of Ypsilanti
7200 S. Huron River Drive
Ypsilanti, MI 48197

RE: Preliminary (residential) Site Plan Review #1

Project Name:	Creekside Village North
Project Location:	Merritt & Tuttle Hill Rds. Ypsilanti, MI 48198
Plan Date:	11/11/2024
Applicable Codes:	IFC 2018
Engineer:	Atwell
Engineer Address:	311 North Main Ann Arbor, MI 48104

Status of Review

Status of review: Approved as Submitted

All pages were reviewed.

Site Access

Comments: Site Access is acceptable.

Hydrants

Comments: The proposed Hydrant coverage is acceptable.

Sincerely,

Steve Wallgren, Fire Marshal
Charter Township of Ypsilanti Fire Department
CFPS, CFI I

Dedicated to Providing Top Quality, Cost Effective, and
Environmentally Safe Water and Wastewater Services to Our Customers

YPSILANTI COMMUNITY UTILITIES AUTHORITY

2777 STATE ROAD
YPSILANTI, MICHIGAN 48198-9112
TELEPHONE: 734-484-4600
WEBSITE: www.ycua.org

March 28, 2025

VIA ELECTRONIC MAIL

Ms. Sally Elmiger, Planning Consultant
Office of Community Standards
CHARTER TOWNSHIP OF YPSILANTI
7200 S. Huron River Drive
Ypsilanti, MI 48197

Re: Preliminary (residential) Site Plan Review #2
Creekside Village North
Charter Township of Ypsilanti (Plan Date: 03-06-2025)

Dear Ms. Elmiger:

In response to the electronic mail message from your office dated March 18, 2025, we have reviewed the referenced plans with regards to water supply and wastewater system design. The plans are acceptable to YCUA for this stage of review. The following comments are offered for consideration by the Applicant and/or the Applicant's design engineer prior to the Detailed Engineering phase of the project.

1. The proposed phasing of the water main construction is unacceptable to YCUA. The phasing must be revised such that no residences will be connected to dead-end water mains that may never get extended to the required loop, such as proposed valves V1 (if moved the center of proposed unit 92) and V8. Further clarification is needed as to what exactly a "watertight boot" is at the proposed temporary dead-end locations on each water main.
2. The revised notes on plan sheet 7 indicate the proposed water main will be 12" diameter pipe. While this is acceptable to YCUA, all existing water mains that will be connected to by the proposed system are 8" diameter pipe, which would be also be acceptable for all proposed water main for the development.
3. The minimum width for sanitary sewer easements is 25'.
4. Proposed sanitary manhole S25 may syill need to be be moved southwest to increase the length of the sanitary sewer between it and proposed sanitary manhole S26. This will be reviewed when Detailed Engineeing plans are received by YCUA.

Enclosed is an Estimate of Costs – Application for Services, dated November 25, 2024, indicating connection fees for the proposed project. Please note that the connection fees can be paid on a unit-by-unit basis, with $1,066.00 due to YCUA prior to the building permit being applied for from the Township by the Applicant. **The construction phase escrow deposit, YCUA**

administration fee, and record plan guarantee, must be paid to YCUA by the Applicant, with a receipt delivered to the Township, before either any building permits or the soil and grading permit is issued. The construction phase escrow deposit and associated fees and deposits will be determined during the Detailed Engineering phase of the project in conjunction with your office and the Township Engineer. Should there be any questions please contact this office.

Sincerely,

SDW Digital Signature

SCOTT D. WESTOVER, P.E., Director of Engineering
Ypsilanti Community Utilities Authority

cc: Mr. Luke Blackburn, Mr. Sean Knapp, File, YCUA
Mr. Steve Wallgren, Township Fire Department
Mr. Matt Parks, P.E., Ms. Stacie Monte, Township Engineer
Ms. Aubrey Merhib, Applicant
Mr. Kyler Sheerin, P.E., Applicant's design engineer

G:\CDproj\YpsiTwp\2021 - Creekside Village North\PRSP Rev#2.docx

Outlook

WCRC App. 18057 - Creekside Village North

From Streight, Gary <streightg@wcroads.org>
Date Thu 6/19/2025 2:17 PM
To Sally Elmiger <selmiger@ypsitownship.org>; Kyler Sheerin <ksheerin@atwell.com>
Cc Brenda Stumbo <bstumbo@ypsitownship.org>; McLain <mcwinlaw@gmail.com>; Lauren Doppke <ldoppke@ypsitownship.org>; Yadykina, Elena <yadykinae@wcroads.org>; Smith, Erin <smithe@wcroads.org>; Taylor, Elizabeth <taylore@wcroads.org>

The review of the submitted revised Traffic Impact Study(TIS) has been completed and I offer the following comments for your consideration:

- Previous comments on the TIS have been addressed and the TIS is approved.
- The TIS concludes no mitigation measures are required with the proposed development.
- The paving of Merritt Road from Tuttle Hill Road to Shula Vista shall be performed as part of the project.

The review of the engineering plans shall be forthcoming. If there are any questions feel free to contact me.

Gary Streight, P.E.
Senior Project Manager

Washtenaw County Road Commission
555 N. Zeeb Road, Ann Arbor, Michigan

Direct: (734) 327-6692 | Main: (734) 761-1500
wcroads.org | Follow us on Facebook

GRETCHEN DRISKELL

Water Resources Commissioner
705 N Zeeb Road
Ann Arbor, MI 48103
734-222-6860

Drains@washtenaw.org

Harry Sheehan
Chief Deputy Water Resources Commissioner

Scott Miller, P.E.
Deputy Water Resources Commissioner

Theo Eggermont
Public Works Director

April 2, 2025

Steve Sills, PE
Atwell, LLC
331 N. Main Street
Ann Arbor, MI 48104

RE: Creekside Village North
661 Turtle Hill Road
WCWRC Project No. 4433

Dear Mr. Sills:

This office has reviewed the preliminary plans for the above referenced project in the Ypsilanti Township. These plans have project number of 15001707, are dated November 11, 2024, have a most recent revision date of March 6, 2025, and were received by this office on March 20, 2025. As a result of our review, we would like to offer the following comments:

1. The current preliminary plans are approved, contingent upon the inclusion of the piezometer results in the future construction plans. The piezometer results will impact the overall basin design and may significantly alter the stormwater design methodology.
2. The following comments are noted during the current preliminary plan review phase. These items should be addressed for the future construction plan review phase but are not required for preliminary plan approval. (Please note that a full construction plan review has not been completed and there may be additional comments at the time of review.
    a. The certificate of outlet must include hydraulic calculations to ensure that the receiving drains have capacity for the proposed flow.
    b. When available, please provide the executed agreement between the developer and Wolverine/Enbridge Pipeline.
    c. Provide calculations for worksheet W8 for both Basin A and Basin B. Include both surface flow and pipe flow travel time in accordance with the rules. The standard 20-minute initial time of concentration used in the conveyance calculations cannot be carried through to worksheet W8. For example, the pipe flow travel time from R44-R30 is 8.1 minutes. List this time in worksheet W8, in addition to the surface flow travel time upstream of R44. Use a similar approach for Basin B.
    d. Include an end section with a metal bar grate in the rain garden typical detail.
    e. Provide profiles for enclosed drains and piping.

f. Show the 10-year HGL (contained within the pipe) for all proposed pipes.

g. Ensure all invert elevations are above bankfull elevations. Multiple basin inlets are below the bankfull elevation.

h. Match the 8/10^{ths} line of pipes with differing sizes.

i. Include a minimum 0.1' drop at all structures.

j. Provide C values for each catchment.

k. Provide off-site topography for at least 150 feet.

l. Provide an emergency overflow/spillway for each basin and include design calculations on the plans.

m. A permanent forebay depth marker should be indicated on the detention basin profiles and in plan view.

n. Field verification of infiltration rates must be completed prior to planting. If the field measured infiltration rates do not meet or exceed design infiltration rates, then design modifications will be required.

o. Provide the geotechnical report including the infiltration testing results summary.

p. Revise the grading plan to meet the maximum impervious loading ratios for rain gardens #2, #4, and #5.

q. Revise the grading plan to meet the maximum total loading ratio for rain gardens #2 and #4.

r. Ensure velocities entering the rain gardens are non-erosive.

s. Ensure rain garden overflows are routed to avoid property damage.

3. Please see the attached invoice for the current fees and remit these fees upon receipt.

At your convenience, please send us a complete set of revised plans so that we may continue our review. If you have any questions, please do not hesitate to contact me via email at byrnem@washtenaw.org.

Sincerely,

Matt Byrne

Matt Byrne, P.E.
Stormwater Engineer

(drain district / Creekside Village North_rev4)

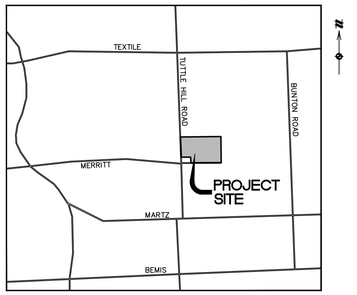
Cc: Lauren Doppke, Ypsilanti Township Planner
Belinda Kingsley, Ypsilanti Township Planning & Zoning Coordinator
Sally Elmiger, Ypsilanti Township Planning Consultant (Carlisle Wortman)
Doug Winters, Ypsilanti Township Attorney (McLain and Winters)
Matt Parks, PE, Ypsilanti Township Engineer (OHM)
Stacie Monte, Ypsilanti Township Engineer (OHM)

PRELIMINARY SITE PLAN / SPECIAL LAND USE

CREEKSIDE VILLAGE NORTH

A SINGLE FAMILY RESIDENTIAL DEVELOPMENT

YPSILANTI, WASHTENAW COUNTY, MICHIGAN



VICINITY MAP
1" = 1900 FEET

DEVELOPMENT TEAM

DEVELOPER/APPLICANT

DIVERSE REAL ESTATE, LLC
13001 23 MILE ROAD, SUITE 200
SHELBY TOWNSHIP, MI 48315
PHONE: (248) 561-0001
EMAIL: AMERHIB@LOMBARDOCOMPANIES.COM

LANDSCAPE ARCHITECT

ALLEN DESIGN
557 CARPENTER
NORTHVILLE, MICHIGAN 48167
CONTACT: JIM ALLEN
PHONE: 248.467.4668

ENGINEER

ATWELL, LLC
311 NORTH MAIN STREET
ANN ARBOR, MICHIGAN 48104
CONTACT: KYLER SHEERIN, PE
PHONE: (517) 719-9669

PROJECT DESCRIPTION

CREEKSIDE VILLAGE NORTH IS A SINGLE FAMILY RESIDENTIAL COMMUNITY LOCATED ON THE NORTHEAST CORNER OF THE TUTTLE HILL ROAD AND MERRITT ROAD INTERSECTION. THE APPLICANT IS PROPOSING TO DEVELOP THE PROJECT AS A 101 – UNIT SITE CONDOMINIUM. THE PROPOSED LOT DIMENSIONS ARE 80' X 175' WITH A MINIMUM LOT SIZE OF 14,000 SF. THE HOMES WILL RANGE IN SIZE FROM 2,099 TO 3,775 SF WITH SALES PRICES STARTING IN THE $400,000S. THE DEVELOPMENT WILL BE CONSTRUCTED IN 2 PHASES. CREEKSIDE VILLAGE NORTH IS PROPOSED TO CONTAIN PRIVATE ROADS WITH SIDEWALKS ON BOTH SIDES. THE DEVELOPMENT WILL BE SERVICED BY PUBLIC SANITARY SEWER WHICH WILL BE DESIGNED AS EXTENSION OFF OF THE EXISTING STUBS FROM TUTTLE HILL ROAD AND MERRIT ROAD. PUBLIC WATER WILL BE LOOPED THROUGH THE DEVELOPMENT AND CONNECTED TO EXSTING STUBS FROM TUTTLE HILL ROAD AND MERRITT ROAD AND EXTENDED FROM THE EXISTING LAKEWOOD ESTATES CONDOMINIUM TO THE NORTH. STORMWATER MANAGEMENT WILL BE FACILITATED BY TWO ON-SITE DETENTION BASINS AND 5 INFILTRATION BASINS.

FIRE DEPARTMENT NOTES

1. ALL FIRE HYDRANTS AND WATER MAINS MUST BE INSTALLED AND IN SERVICE PRIOR TO ANY COMBUSTIBLE MATERIAL BEING BROUGHT TO THE SITE.
2. ALL ROADS SHALL BE PAVED AND CAPABLE OF SUPPORTING 35 TONS PRIOR TO CONSTRUCTION ABOVE FOUNDATION.
3. BUILDING ADDRESSES SHALL BE POSTED FACING THE STREET DURING ALL PHASES OF CONSTRUCTION. ADDRESSES SHALL BE A MINIMUM OF THREE INCHES IN HEIGHT ON A CONTRASTING BACKGROUND.
4. FIRE LANES SHALL BE POSTED WITH "FIRE LANE – NO PARKING" SIGNS IN ACCORDANCE WITH ORDINANCE #85.99.02.

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE YPSILANTI TOWNSHIP'S CURRENT STANDARDS AND SPECIFICATIONS, UNLESS OTHERWISE APPROVED IN THE PRO AGREEMENT.
2. THE CONTRACTOR MUST OBTAIN A PERMIT FROM THE WASHTENAW COUNTY ROAD COMMISSION FOR ANY WORK WITHIN THE RIGHT-OF-WAY OF MERRITT ROAD AND TUTTLE HILL ROAD.
3. ALL PAVEMENT MARKINGS, TRAFFIC CONTROL SIGNS, AND PARKING SIGNS SHALL COMPLY WITH THE DESIGN AND PLACEMENT REQUIREMENTS OF THE 2011 MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
4. YPSILANTI TOWNSHIP HAS NO RESPONSIBILITY TO IMPROVE OR MAINTAIN THE PRIVATE STREETS CONTAINED WITHIN OR PRIVATE STREETS PROVIDING ACCESS TO THE PROPERTY DESCRIBED IN THIS PLAN.

LEGAL DESCRIPTION

DESCRIPTION OF A 56.17 ACRE PARCEL OF LAND IN THE SOUTHWEST 1/4 OF SECTION 26, YPSILANTI TOWNSHIP, WASHTENAW COUNTY, MICHIGAN

COMMENCING AT THE SOUTHWEST CORNER OF SECTION 26, T3S, R7E, YPSILANTI TOWNSHIP, WASHTENAW COUNTY, MICHIGAN; THENCE N00°39'24"W 264.00 FEET ALONG WEST LINE OF SAID SECTION 26, THE EAST LINE OF CREEKSIDE VILLAGE WEST SUBDIVISION, AS RECORDED IN LIBER 35 OF PLATS, PAGE 66, WASHTENAW COUNTY RECORDS AND THE CENTERLINE OF TUTTLE HILL ROAD (VARIABLE WIDTH) FOR A **PLACE OF BEGINNING**; THENCE CONTINUING N00°39'24"W 1069.78 FEET ALONG SAID WEST LINE AND SAID CENTERLINE; THENCE N89°45'51"E (RECORDED AS N89°45'43"E) 1971.06 FEET ALONG THE NORTH LINE OF THE SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 26 AND THE SOUTH LINE OF LAKEWOOD ESTATES CONDOMINIUM, WASHTENAW COUNTY CONDOMINIUM SUBDIVISION PLAN NO. 554, MASTER DEED RECORDED IN LIBER 4627, PAGE 76, WASHTENAW COUNTY RECORDS; THENCE S00°26'09"E 1287.61 FEET ALONG THE WEST LINE OF GREENFIELDS SUBDIVISION NO. 3, AS RECORDED IN LIBER 34 OF PLATS, PAGE 34, WASHTENAW COUNTY RECORDS; THENCE S89°40'22"W 1553.58 FEET ALONG THE NORTH LINE OF MERRITT ROAD (VARIABLE WIDTH); THENCE N00°39'24"W 221.00 FEET; THENCE S89°40'22"W 412.50 FEET TO THE PLACE OF BEGINNING, BEING A PART OF THE SOUTHWEST 1/4 OF SAID SECTION 26, CONTAINING 56.17 ACRES OF LAND, MORE OR LESS, BEING SUBJECT TO THE RIGHTS OF THE PUBLIC OVER THE WESTERLY PORTION THEREOF AS OCCUPIED BY SAID TUTTLE HILL ROAD, ALSO BEING SUBJECT TO EASEMENTS, CONDITIONS, RESTRICTIONS AND EXCEPTIONS OF RECORD, IF ANY.

DEVELOPMENT MAP
SCALE: 1" = 120 FEET

SHEET INDEX

01	COVER SHEET
02	EXISTING CONDITIONS & DEMOLITION PLAN
03	NATURAL FEATURES IMPACT PLAN
04	OVERALL LAYOUT PLAN
05	LAYOUT PLAN – EAST
06	LAYOUT PLAN – WEST
6A	SIGHT DISTANCE PLAN
07	OVERALL UTILITY PLAN
08	OVERALL GRADING & SOIL EROSION CONTROL PLAN
09	GRADING PLAN – EAST
10	GRADING PLAN – WEST
11	GRADING & SOIL EROSION CONTROL DETAILS
12	OVERALL STORMWATER MANAGEMENT PLAN
13	STORMWATER BASIN A
14	STORMWATER BASIN A CALCULATIONS
15	STORMWATER BASIN B
16	STORMWATER CONVEYANCE CALCULATIONS
17	RAIN GARDEN INFILTRATION CALCULATIONS
18	ENBRIDGE & WOLVERINE PIPELINE PLAN & PROFILE 1
19	ENBRIDGE & WOLVERINE PIPELINE PLAN & PROFILE 2
20	FIRE PROTECTION PLAN
21	STANDARD DETAILS
22	ARCHITECTURAL FLOOR PLAN AND ELEVATIONS – 1
23	ARCHITECTURAL FLOOR PLAN AND ELEVATIONS – 2
24	ARCHITECTURAL FLOOR PLAN AND ELEVATIONS – 3
25	INFILTRATION TEST PITS
26	INFILTRATION TEST PITS
27	INFILTRATION TEST PITS
28	INFILTRATION TEST PITS
29	INFILTRATION TEST PITS
L-1	STREET TREE PLAN
L-2	GREENBELT AND ENTRY
L-3	STORM WATER PLAN
L-4	STORM WATER PLAN
L-5	LANDSCAPE DETAILS
P-1	PHOTOMETRIC LAYOUT
P-2	PHOTOMETRIC LAYOUT
P-3	PHOTOMETRIC LAYOUT

SITE DATA:

PARCEL ID#	11-26-300-009
PARCEL SIZE (GROSS):	56.17 AC
TUTTLE HILL RD. FUTURE ROW:	1.47 AC.
PARCEL SIZE (NET):	54.70 AC.
EXISTING ZONING:	R3
PROPOSED ZONING:	R3
FUTURE LAND USE:	EXISTING NEIGHBORHOODS
LOTS SHOWN:	100 LOTS
DENSITY SHOWN:	1.78 LOTS/AC (100 / 56.17)
OPEN SPACE:	14% (7.73 ACRES / 56.17 ACRES)

ZONING COMPLIANCE (R3):

	REQUIRED	PROVIDED	COMPLIES
LOT AREA (MIN):	14,000 SF	14,000 SF	YES
LOT WIDTH (MIN):	80'	80'	YES
SETBACKS:			
FRONT (MIN):	25'	25'	YES
SIDE (MIN):	5' / 16' TOTAL	5' / 16' TOTAL	YES
REAR (MIN):	35' MIN.	35'	YES
LOT COVERAGE (MAX):	30%	WILL COMPLY*	YES*
GROUND FLOOR AREA:	720 SF MIN.	WILL COMPLY*	YES*
BUILDING HEIGHT:	25' / 2 STY	WILL COMPLY*	YES*

* REVIEWED INDIVIDUALLY FOR EACH LOT AT TIME OF HOME CONSTRUCTION

STATE OF MICHIGAN
AMMAR KALASHO
ENGINEER
No. 58902
LICENSED PROFESSIONAL ENGINEER

Know what's below. Call before you dig.

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.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE 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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ATWELL
866.850.4200 www.atwell-group.com
311 NORTH MAIN STREET
ANN ARBOR, MI 48104
734.994.4000

SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

COVER SHEET

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

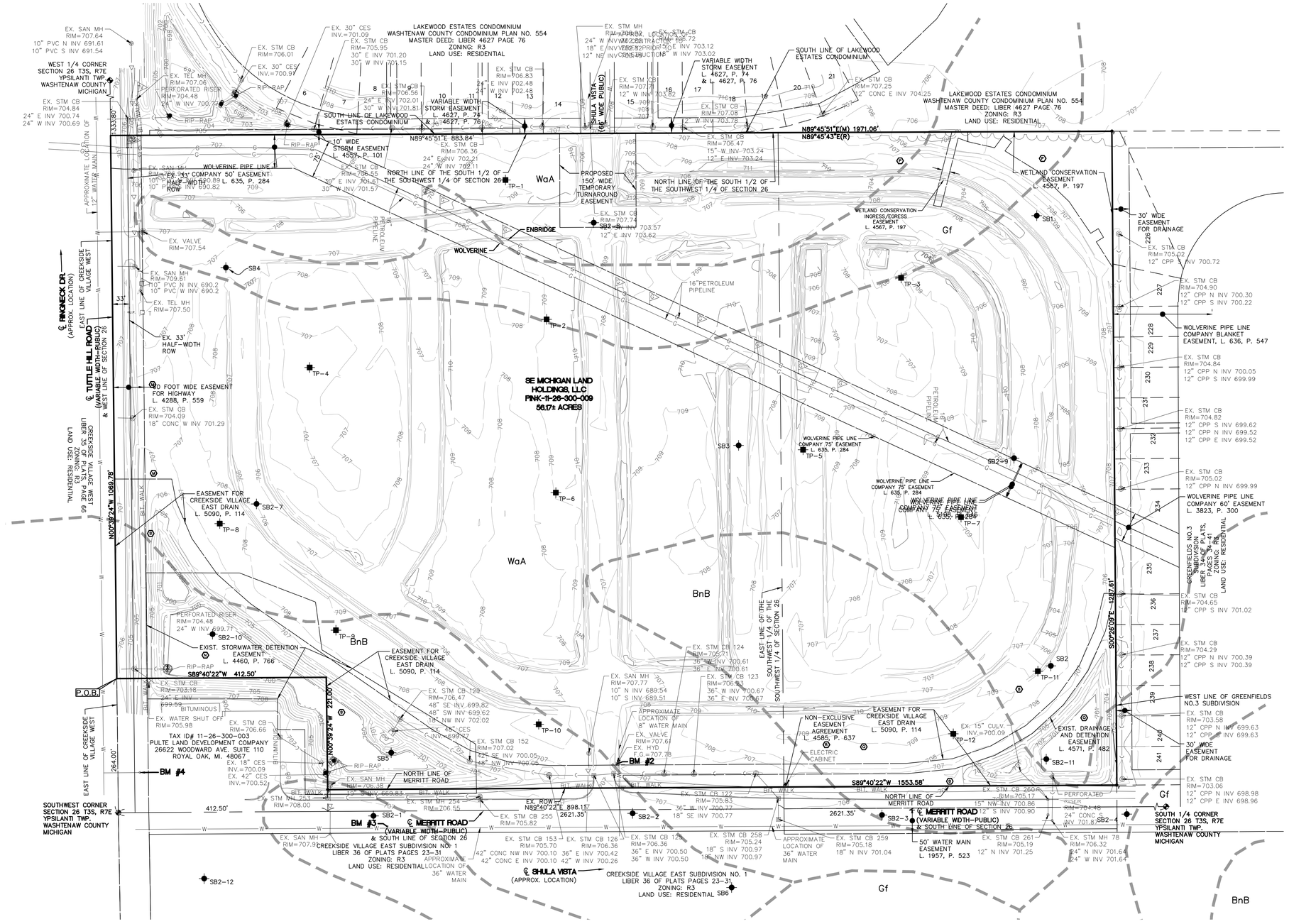
REVISIONS

SCALE 0 60 120
1" = 120 FEET
DR. SK | CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 01

CAD FILE: 15001707SP-01-CV-2.DWG

PRELIMINARY - NOT FOR CONSTRUCTION

J:\JOBS\...\SITE PLANS\15001707SP-01-CV-2.DWG 10/17/2025 4:45 PM AMMAR KALASHO



SURVEYOR'S NOTES

1. BEARINGS ARE BASED ON CREEKSIDE VILLAGE EAST SUBDIVISION NO. 1, RECORDED IN LIBER 36 OF PLATS, PAGES 23–31, WASHTENAW COUNTY RECORDS.

   ELEVATIONS ARE BASED UPON NAVD88.

2. FRANCHISE UNDERGROUND UTILITY LINE MAPS AND TOWNSHIP/CITY UTILITY MAPS HAVE BEEN REQUESTED, BUT NOT ALL MAPS HAVE BEEN RECEIVED AT THE DATE OF SURVEY AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, EXACTNESS OR CORRECTNESS OF THESE LOCATIONS.

3. UNDERGROUND UTILITY LINES ARE SHOWN PER FIELD OBSERVATIONS AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, EXACTNESS OR CORRECTNESS OF THESE LOCATIONS.

4. ALL MANHOLE INVERTS TAKEN FROM ATWELL–HICKS RECORD DRAWINGS FOR NOTED CREEKSIDE VILLAGE EAST SUBDIVISION NO. 1, GREENFIELDS NO. 3 SUBDIVISION, AND LAKEWOOD ESTATES CONDOMINIUM.

5. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A CURRENT TITLE COMMITMENT. EASEMENTS ARE SHOWN PER PREVIOUS ATWELL INFORMATION.

SOIL LEGEND

SYMBOL	NAME
BnB	Boyer Loomy Sand, 1 to 6 percent slopes
Gf	Gilford Sand Loam, till plain, 0 to 2 percent slopes
WaA	Wasepi Sandy Loam, 0 to 4 percent Slopes

LEGAL DESCRIPTION

DESCRIPTION OF A 56.17 ACRE PARCEL OF LAND IN THE SOUTHWEST 1/4 OF SECTION 26, YPSILANTI TOWNSHIP, WASHTENAW COUNTY, MICHIGAN

COMMENCING AT THE SOUTHWEST CORNER OF SECTION 26, T3S, R7E, YPSILANTI TOWNSHIP, WASHTENAW COUNTY, MICHIGAN; THENCE N00°39'24"W 264.00 FEET ALONG WEST LINE OF SAID SECTION 26, THE EAST LINE OF CREEKSIDE VILLAGE WEST SUBDIVISION, AS RECORDED IN LIBER 35 OF PLATS, PAGE 66, WASHTENAW COUNTY RECORDS AND THE CENTERLINE OF TUTTLE HILL ROAD (VARIABLE WIDTH) FOR A **PLACE OF BEGINNING**; THENCE CONTINUING N00°39'24"W 1069.78 FEET ALONG SAID WEST LINE AND SAID CENTERLINE; THENCE N89°45'51"E (RECORDED AS N89°45'43"E) 1971.06 FEET ALONG THE NORTH LINE OF THE SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 26 AND THE SOUTH LINE OF LAKEWOOD ESTATES CONDOMINIUM, WASHTENAW COUNTY CONDOMINIUM SUBDIVISION PLAN NO. 554, MASTER DEED RECORDED IN LIBER 4627, PAGE 76, WASHTENAW COUNTY RECORDS; THENCE S00°26'09"E 1287.61 FEET ALONG THE WEST LINE OF GREENFIELDS SUBDIVISION NO. 3, AS RECORDED IN LIBER 34 OF PLATS, PAGE 34, WASHTENAW COUNTY RECORDS; THENCE S89°40'22"W 1553.58 FEET ALONG THE NORTH LINE OF MERRITT ROAD (VARIABLE WIDTH); THENCE N00°39'24"W 221.00 FEET; THENCE S89°40'22"W 412.50 FEET TO THE PLACE OF BEGINNING, BEING A PART OF THE SOUTHWEST 1/4 OF SAID SECTION 26, CONTAINING 56.17 ACRES OF LAND, MORE OR LESS, BEING SUBJECT TO THE RIGHTS OF THE PUBLIC OVER THE WESTERLY PORTION THEREOF AS OCCUPIED BY SAID TUTTLE HILL ROAD, ALSO BEING SUBJECT TO EASEMENTS, CONDITIONS, RESTRICTIONS AND EXCEPTIONS OF RECORD, IF ANY.

EXCEPTIONS

SCHEDULE B – EXCEPTIONS (PER CHICAGO TITLE INSURANCE COMPANY, COMMITMENT NUMBER: CREEKSIDE EAST NO 2, EFFECTIVE DATE: MAY 14, 2015)

M. EASEMENT FOR HIGHWAY PURPOSES GRANTED TO BOARD OF COUNTY ROAD COMMISSIONERS OF THE COUNTY OF WASHTENAW AS SET FORTH IN INSTRUMENT RECORDED IN LIBER 4288, PAGE 559. **AS SHOWN**

N. EASEMENTS AND THE TERMS, CONDITIONS, AND PROVISIONS THEROF WHICH ARE RECITED IN DECLARATION OF STORMWATER DETENTION EASEMENT AS RECORDED IN LIBER 4460, PAGE 766. **AS SHOWN**

O. EASEMENTS AND THE TERMS, CONDITIONS, AND PROVISIONS THEREOF WHICH ARE RECITED IN AGREEMENT TO ESTABLISH THE CREEKSIDE VILLAGE EAST SUBDIVISION DRAIN DRAINAGE DISTRICT AS RECORDED IN LIBER 4553, PAGE 657.
COVERS ENTIRE SUBJECT PROPERTY – NOT PLOTTABLE

P. EASEMENTS AND THE TERMS, CONDITIONS, AND PROVISIONS THEROF WHICH ARE RECITED IN AGREEMENT FOR CONSERVATION EASEMENT AS RECORDED IN LIBER 4567, PAGE 197. **AS SHOWN**

Q. EASEMENTS AND THE TERMS, CONDITIONS, AND PROVISIONS THEREOF WHICH ARE RECITED IN DECLARATION OF STORMWATER DRAINAGE AND DETENTION EASEMENT AS RECORDED IN LIBER 4571, PAGE 482. **AS SHOWN**

R. EASEMENTS AND THE TERMS, CONDITIONS, AND PROVISIONS THEROF WHICH ARE RECITED IN NON–EXCLUSIVE EASEMENT AGREEMENT AS RECORDED IN LIBER 4585, PAGE 637. **AS SHOWN**

S. EASEMENTS AND THE TERMS, CONDITIONS, AND PROVISIONS THEROF WHICH ARE RECITED IN EASEMENT AGREEMENT AS RECORDED IN LIBER 5090, PAGE 114. **AS SHOWN**

BENCHMARKS

BENCHMARK #2:
ARROW ON HYDANT
ELEVATION: 709.63 (NAVD88)

BENCHMARK #3:
ARROW ON HYDANT
ELEVATION: 709.52 (NAVD88)

BENCHMARK #4:
ARROW ON HYDANT
ELEVATION: 709.35 (NAVD88)

LEGEND

- BOUNDARY LINE
- EXIST. EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXIST. SETBACK
- EXIST. EASE
- 890 EXIST. CONTOUR
- EXIST. TREE LINE
- EXIST. CURB AND GUTTER
- X X EXIST. FENCE
- EXIST. GRAVEL
- EXIST. BUILDING
- EXIST. WATER EDGE
- EXIST. SOILS LIMIT
- XxX EXIST. SOILS TYPE
- EXIST. TEST PITS/SOIL BORING
- OHE OHE EXIST. OVERHEAD ELEC. LINE
- OHT OHT EXIST. OVERHEAD TELE. LINE
- TV TV EXIST. CABLE LINE
- U U EXIST. UNSPECIFIED UTILITIES
- G G EXIST. GAS
- C C C EXIST. STORM
- W EXIST. WATER MAIN
- EXIST. SANITARY
- EXIST. UNSPECIFIED UTILITY
- EXIST. CULVERT
- EXIST. CATCH BASIN/INLET
- EXIST. HYDRANT
- EXIST. VALVE

Know what's below. Call before you dig.

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SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

EXISTING CONDITIONS & DEMOLITION PLAN

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

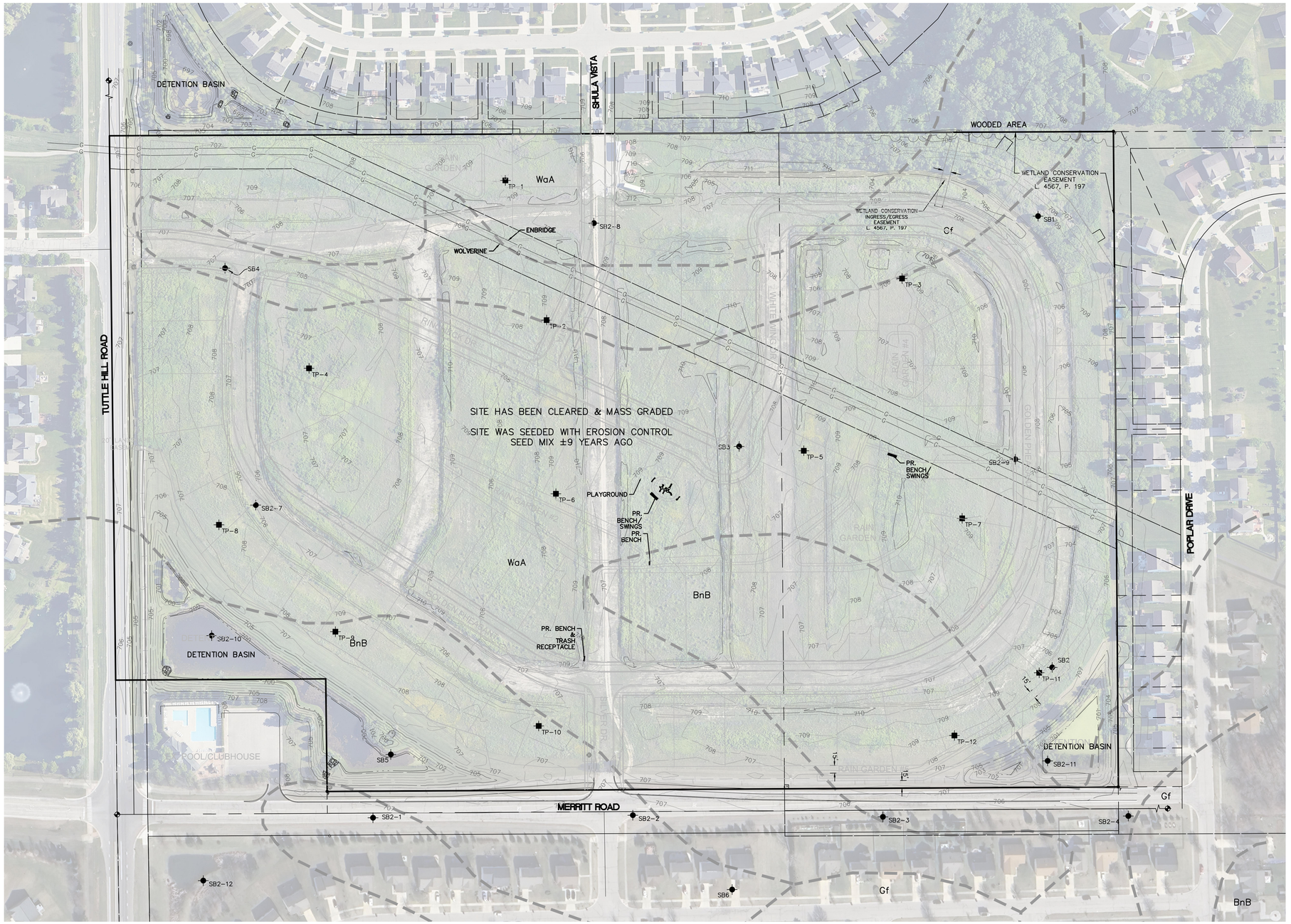
REVISIONS

SCALE 0 50 100
1" = 100 FEET

DR.	SK
CH.	--
P.M.	KS
BOOK	
JOB	15001707
SHEET NO.	02

CAD FILE: 15001707SP-02-ECDWG

PRELIMINARY - NOT FOR CONSTRUCTION



WCWRC NATURAL FEATURES INVENTORY (W12)

W12 Natural Features Inventory

Ex. Nat'l Resource	Mapped	Area (ac)	Protected/Undisturbed Area (ac)
Waterbodies	-	0.00	0.00
Floodplains	-	0.00	0.00
Riparian Areas	-	0.00	0.00
Wetlands (Cons. Esmt)	Y	0.66	0.66
Woodlands	-	0.00	0.00
Natural Drainage Area	-	0.00	0.00
Steep Slopes 15-25%	-	0.00	0.00
Steep Slopes over 25%	-	0.00	0.00
Special Habitat Area	-	0.00	0.00
Other	-	0.00	0.00
Total Existing (ac)		0.66	0.66

NOTES: EXISTING DETENTION BASINS ARE NOT COUNTED AS NATURAL STEEP SLOPES

SITE HISTORY NARRATIVE

2001 – PREVIOUS PLATTED SUBDIVISION WAS SUBMITTED AND APPROVED, EXTENDED IN 2006
2006 – APPLICANT WAS GIVEN PERMITS AND BEGAN CONSTRUCTION
2008 – DEVELOPMENT PERMITS EXPIRED
2016 – SITE REMAINS VACANT FOR NEXT PHASE OF CONSTRUCTION

SOIL LEGEND

SYMBOL	NAME
BnB	Boyer Loomy Sand, 1 to 6 percent slopes
Gf	Gilford Sand Loam, till plain, 0 to 2 percent slopes
WaA	Wasepi Sandy Loam, 0 to 4 percent Slopes

LEGEND

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- EXIST. GRAVEL
- EXIST. BUILDING
- EXIST. WATER EDGE
- EXIST. SOILS LIMIT
- XxX EXIST. SOILS TYPE
- EXIST. TEST PITS/SOIL BORING

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WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

NATURAL FEATURES IMPACT PLAN

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

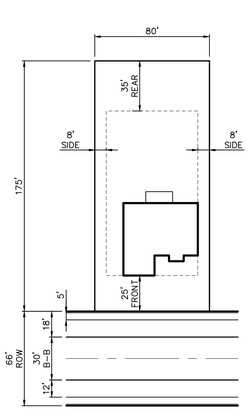
SCALE 0 50 100
1" = 100 FEET

DR. SK | CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 03

CAD FILE: 15001707SP-03-NF.DWG

PRELIMINARY - NOT FOR CONSTRUCTION

\\ATWELL.COM\DFS\ANNARBOR\PROJECTS\15001707\3 - CREEKSIDE_NORTH\CIVIL\PLAN SET\PRELIMINARY SITE PLAN\15001707SP-03-NF.DWG 10/17/2025 3:27 PM AMANDA KALIVAS

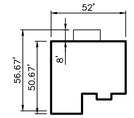


TYPICAL LOT DETAIL

1" = 50 FEET

ASSUMED PRODUCT OPTIONS

AUSTIN (39'-4" X 42')
BLOOMINGTON (39'-2" X 31'-6')
COLUMBIA (36' X 39'-4")
DAVENPORT (45' X 52')
FOREST (49'-4" X 41'-4')
HAMPTON (52' X 48'-8') – SHOWN



HAMPTON BASE

1" = 50 FEET

PHASING SUMMARY

PHASE 1	53
PHASE 2	47
TOTAL	100

NOTES

1. PROPOSED SIDEWALK AND RAMPS SHALL CONFORM TO ADA REQUIREMENTS.
2. PROPOSED SIDEWALKS WITHIN THE DEVELOPMENT SHALL BE 5' WIDE CONCRETE.
3. EACH UNIT WILL HAVE SPACE ALLOCATED FOR A MINIMUM FOUR (4) PARKING SPACES – PROVIDED BY A MINIMUM TWO-CAR GARAGE, PLUS TWO SPACES IN EACH DRIVEWAY (MINIMUM 20-FEET LONG).
4. ALL ON-SITE SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN COMPLIANCE WITH THE MMUTCD.
5. THE DEVELOPMENT WILL CONTAIN PRIVATE ROADS. THE PROPOSED CONNECTION WILL BE COORDINATED WITH THE WASHTENAW COUNTY ROAD COMMISSION.

LEGEND

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- PROP. R.O.W. LINE
- PROP. LOT LINE
- PROP. ROAD CENTERLINE
- PROP. SIGN
- PROP. WALK
- PROP. ASPH.
- PROP. DRIVEWAY
- PROP. LIGHTPOLE

LOT AREA TABLE

LOT NO.	SQUARE FEET	LOT NO.	SQUARE FEET	LOT NO.	SQUARE FEET	LOT NO.	SQUARE FEET	LOT NO.	SQUARE FEET	LOT NO.	SQUARE FEET	LOT NO.	SQUARE FEET	LOT NO.	SQUARE FEET	LOT NO.	SQUARE FEET	LOT NO.	SQUARE FEET	LOT NO.	SQUARE FEET
1	15607	9	14000	17	14000	25	14000	33	14000	41	14095	49	14000	57	16337	65	16342	74	14036	82	14000	90	14000	98	14161
2	14382	10	15750	18	14000	26	14000	34	16748	42	15795	50	14000	58	19884	66	14092	75	14131	83	14000	91	20136	99	17917
3	14000	11	15686	19	14000	27	14000	35	14852	43	14121	51	15750	59	14209	68	15233	76	15400	84	14541	92	15995	100	18202
4	14473	12	14041	20	14000	28	14000	36	14074	44	15035	52	14000	60	14092	69	14955	77	15400	85	14291	93	15706		
5	16158	13	15378	21	14000	29	14000	37	14155	45	14935	53	14000	61	14722	70	14043	78	14000	86	14291	94	18748		
6	14000	14	14042	22	15424	30	14000	38	14079	46	14120	54	15489	62	16833	71	14029	79	14000	87	14291	95	14000		
7	14000	15	16136	23	16743	31	14768	39	14076	47	14924	55	14552	63	15180	72	14047	80	14000	88	14175	96	16692		
8	14000	16	14000	24	15534	32	14000	40	14031	48	14000	56	14087	64	17754	73	14560	81	14000	89	14000	97	14154		

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WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

OVERALL LAYOUT PLAN

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP

10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

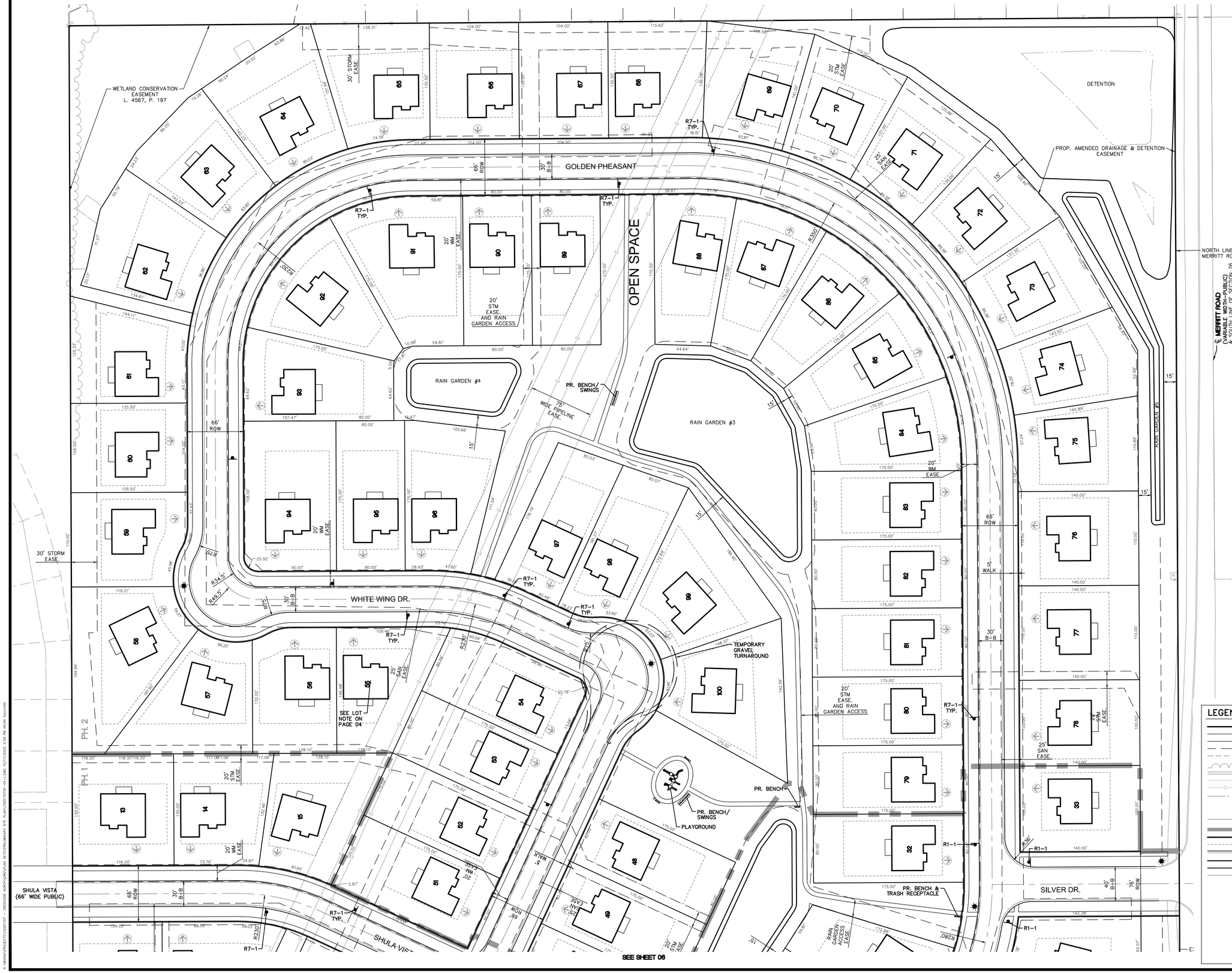
SCALE 0 40 80
1" = 80 FEET

DR. SK | CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 04

CAD FILE: 15001707SP-04-LDWG

PRELIMINARY - NOT FOR CONSTRUCTION

\\ATWELL-PTY.NET\DET\15\15001707\DESIGN\PLANS\ESTS\PRELIMINARY SITE PLAN\15001707SP-04-LDWG, 10/17/2025 3:27 PM, AMAIR KALISH



LEGEND

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- PROP. LIGHTPOLE

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WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC
CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

LAYOUT PLAN - EAST

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

SCALE 0 25 50
1" = 50 FEET

DR. SK	CH. --
P.M. KS	
BOOK	
JOB 15001707	
SHEET NO. 05	

CAD FILE: 15001707SP-04-LDWG

K:\ANN\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-04-LDWG, 10/17/2025, 3:58 PM, KEVIN SULLIVAN

PRELIMINARY - NOT FOR CONSTRUCTION

SEE SHEET 05

SHULA VISTA
(66' WIDE PUBLIC)

SHULA VISTA

RINGNECK DR.

GOLDEN PHEASANT

RAIN GARDEN #2

RAIN GARDEN #1

SILVER DR.

PR. BENCH & TRASH RECEPTACLE

PLAYGROUND

EX. ROW

NORTH LINE OF MERRITT ROAD

℄ MERRITT ROAD
(VARIABLE WIDTH-PUBLIC)
& SOUTH LINE OF SECTION 26

℄ TUTTLE HILL ROAD
(VARIABLE WIDTH-PUBLIC)
& WEST LINE OF SECTION 26

DETENTION

PROP. AMENDED DRAINAGE & DETENTION EASEMENT

PROP. 60' HALF-WIDTH ROW

PR. ENTRANCE SIGN

EX. 33' HALF-WIDTH ROW

PR. WALK

EX. WALK

EX. ROW

6" PETROLEUM PIPELINE

NO PARKING FIRE LANE
R7-1

STOP
R1-1

LEGEND

- BOUNDARY LINE
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811
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WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

LAYOUT PLAN – WEST

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

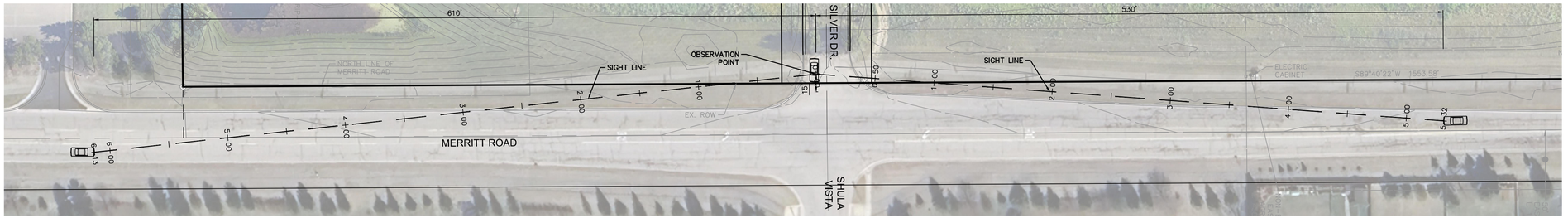
SCALE 0 25 50
1" = 50 FEET

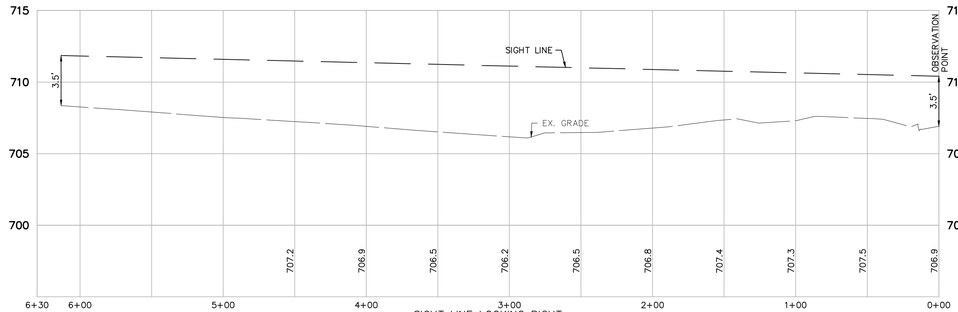
DR.	SK
CH.	--
P.M.	KS
BOOK	
JOB	15001707
SHEET NO.	06

CAD FILE: 15001707SP-04-LDWG

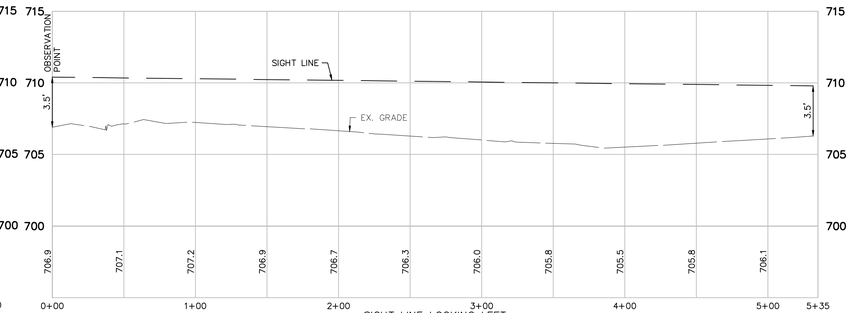
\\ANNA-DFS\WORKST DATA\ANN\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-04-LDWG, 10/17/2025 3:28 PM ANNAR KALASHO

PRELIMINARY - NOT FOR CONSTRUCTION

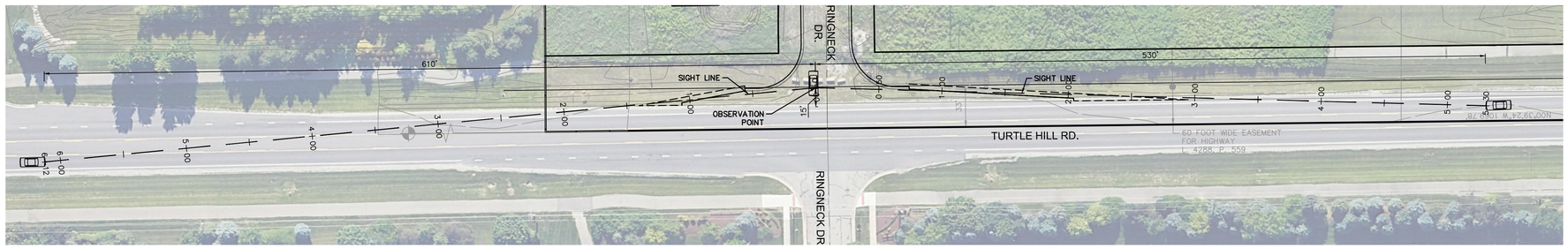


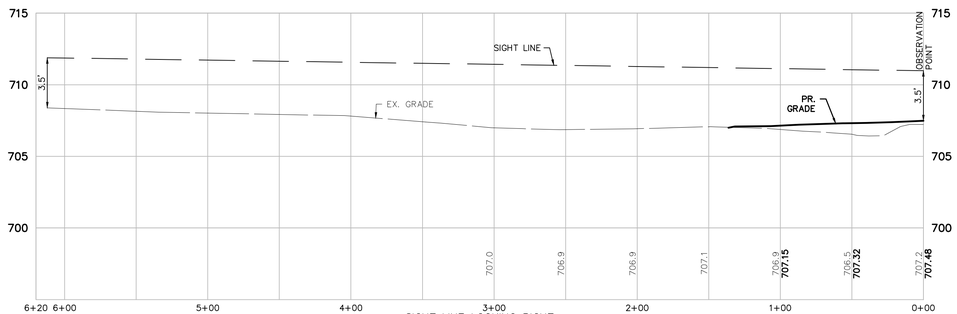


SIGHT LINE LOOKING RIGHT
VERT: 1"=5'
HORZ: 1"=50'

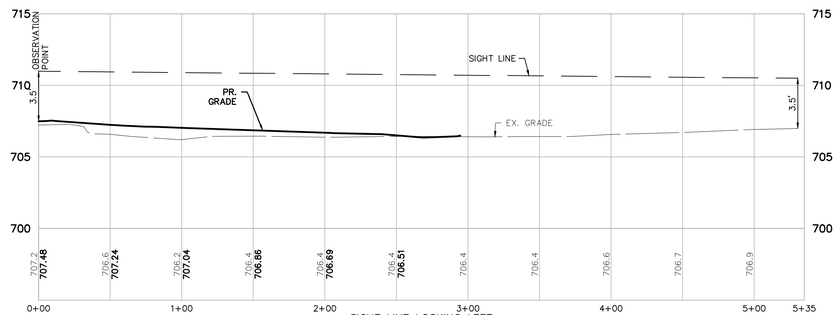


SIGHT LINE LOOKING LEFT
VERT: 1"=5'
HORZ: 1"=50'





SIGHT LINE LOOKING RIGHT
VERT: 1"=5'
HORZ: 1"=50'



SIGHT LINE LOOKING LEFT
VERT: 1"=5'
HORZ: 1"=50'

WCRC TABLE: SECTION 3.8

TABLE 5: INTERSECTION SIGHT DISTANCE FOR PASSENGER CARS FROM STOP

Design Speed (mph)	Left Turn (ft)	Right Turn or Crossing (ft)
25	280	240
30	335	290
35	390	335
40	445	385
45	500	430
50	555	480
55	610	530

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SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

SIGHT DISTANCE PLAN

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

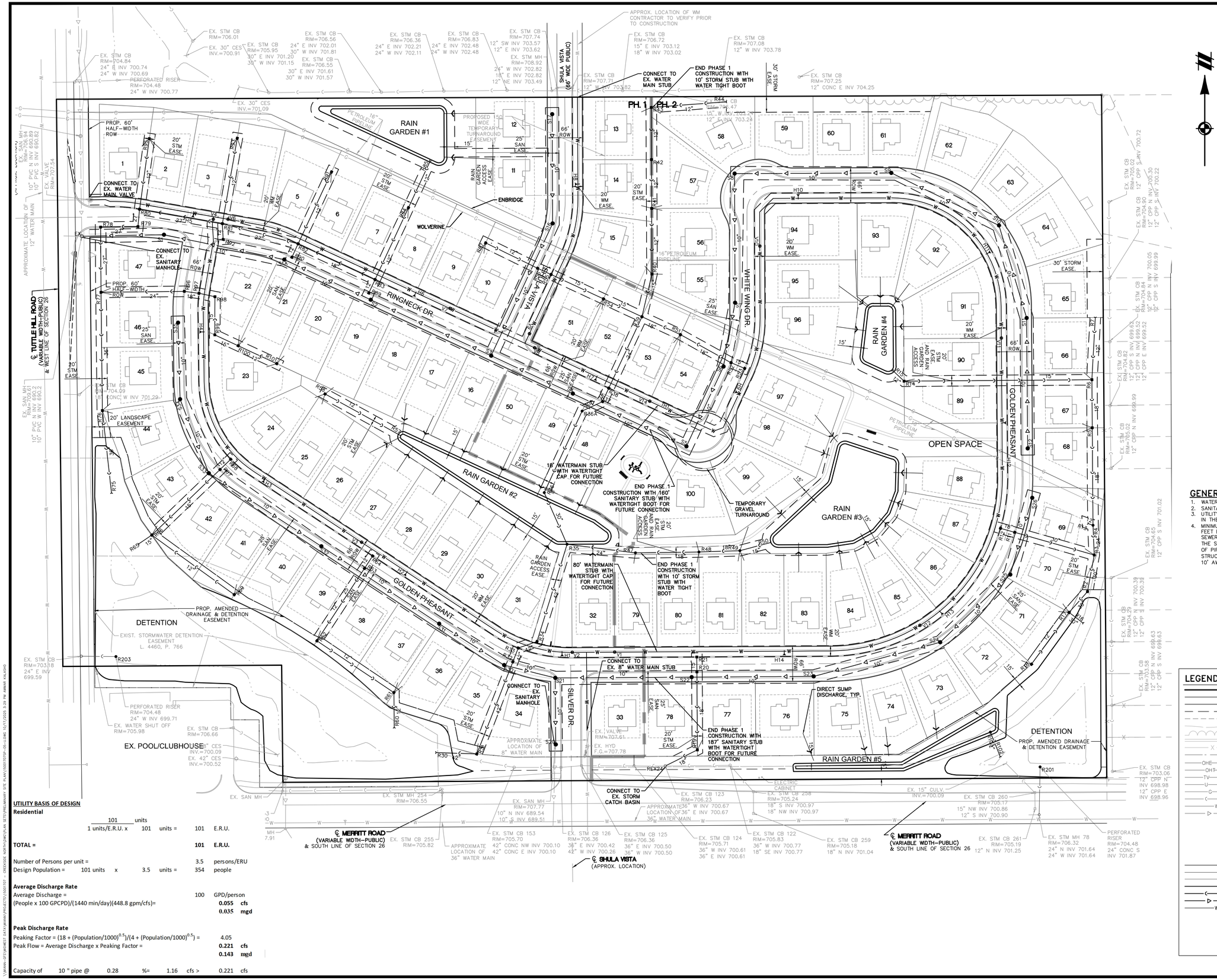
REVISIONS

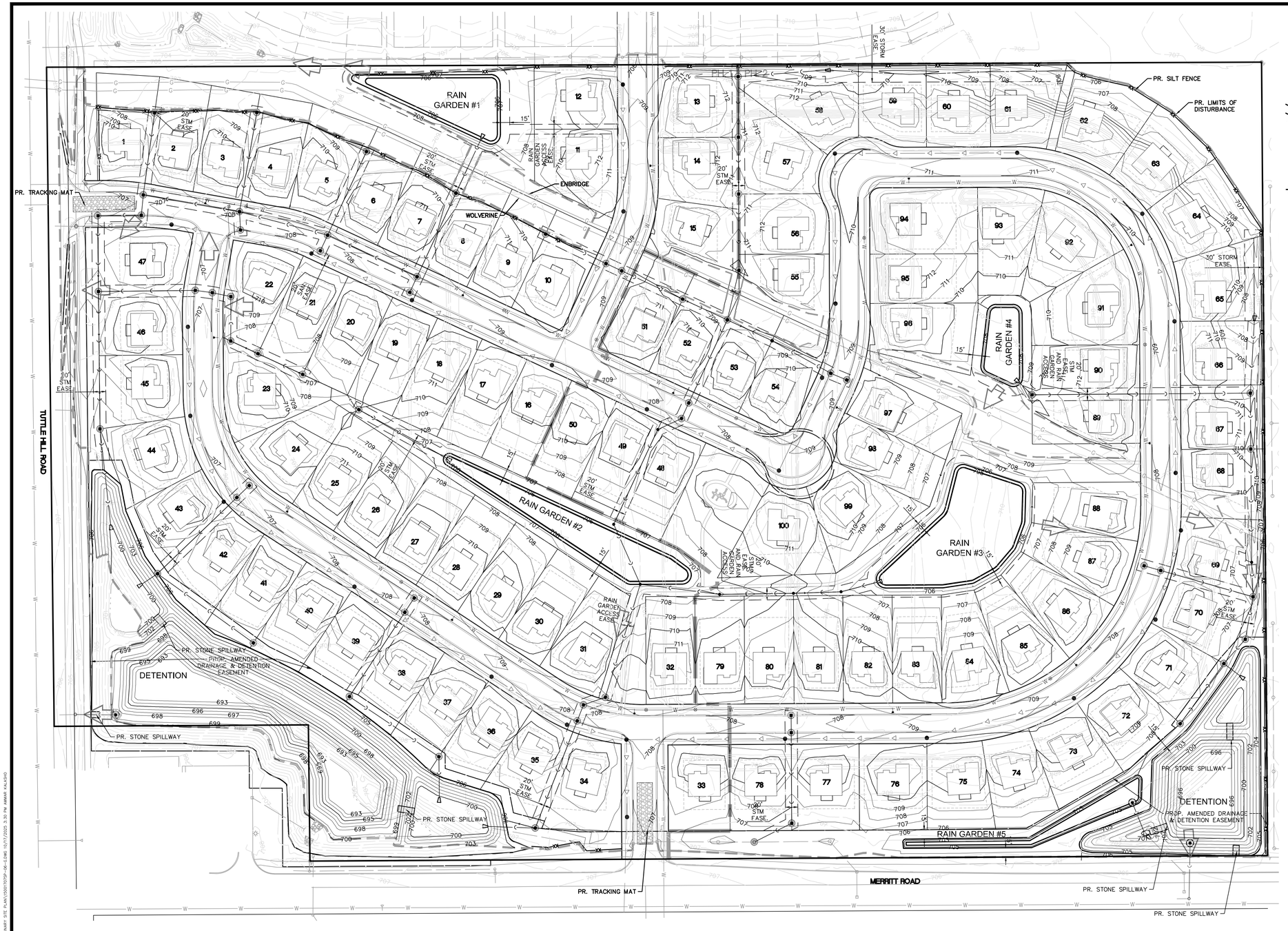
SCALE 0 25 50
1" = 50 FEET
DR. SK | CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 6A

CAD FILE: 15001707SP-12-SIGHT DISTANCE.DWG

PRELIMINARY - NOT FOR CONSTRUCTION

J:\Atwell-City\Projects\Data\Active\Projects\15001707 - Creekside North\Civil\Preliminary Site Plan\15001707SP-12-SIGHT DISTANCE.dwg, 10/17/2025 3:28 PM, AMAR KALAHO


PH. 1
PH. 2
RAIN GARDEN #1
RAIN GARDEN #2
RAIN GARDEN #3
RAIN GARDEN #4
RAIN GARDEN #5
WHITE WING DR.
RINGNECK DR.
GOLDEN PHEASANT
SILVER DR.
SHULA VISTA
WOLVERINE
ENBRIDGE
OPEN SPACE
DETENTION
EX. POOL/CLUBHOUSE
PROP. AMENDED DRAINAGE & DETENTION EASEMENT
EXIST. STORMWATER DETENTION EASEMENT L. 4460, P. 766
CONNECT TO EX. WATER MAIN VALVE
CONNECT TO EX. SANITARY MANHOLE
CONNECT TO EX. 8" WATER MAIN STUB
CONNECT TO EX. SANITARY MANHOLE
CONNECT TO EX. STORM CATCH BASIN
END PHASE 1 CONSTRUCTION WITH 10' STORM STUB WITH WATER TIGHT BOOT
END PHASE 1 CONSTRUCTION WITH 160' SANITARY STUB WITH WATERTIGHT BOOT FOR FUTURE CONNECTION
END PHASE 1 CONSTRUCTION WITH 187' SANITARY STUB WITH WATERTIGHT BOOT FOR FUTURE CONNECTION
18" WATERMAIN STUB WITH WATERTIGHT CAP FOR FUTURE CONNECTION
80' WATERMAIN STUB WITH WATERTIGHT CAP FOR FUTURE CONNECTION
TEMPORARY GRAVEL TURNAROUND
PROPOSED 150' WIDE TEMPORARY TURNAROUND EASEMENT
APPROX. LOCATION OF WM CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION
PROP. 60' HALF-WIDTH ROW
℄ TUTTLE HILL ROAD (VARIABLE WIDTH-PUBLIC) & WEST LINE OF SECTION 26
℄ MERRITT ROAD (VARIABLE WIDTH-PUBLIC) & SOUTH LINE OF SECTION 26
℄ SHULA VISTA (APPROX. LOCATION)
APPROXIMATE LOCATION OF 12" WATER MAIN
16" PETROLEUM PIPELINE
PETROLEUM PIPELINE
PERFORATED RISER RIM=704.48 24" W INV 699.71
EX. WATER SHUT OFF RIM=705.98
PERFORATED RISER RIM=704.48 24" CONC S INV 701.87
EX. STM CB RIM=703.18 24" E INV 699.59
EX. STM CB RIM=706.66 30" CES INV.=700.09 EX. 42" CES INV.=700.52
EX. STM CB RIM=704.09 CONC W INV 701.29
EX. SAN MH RIM=706.55
EX. STM MH 254 RIM=706.55
EX. SAN MH RIM=707.77 10" N INV 689.54 10" W INV 689.51
EX. STM CB 255 RIM=705.82
EX. STM CB 153 RIM=705.70 42" CONC NW INV 700.10 42" CONC E INV 700.10
EX. STM CB 126 RIM=706.36 36" E INV 700.42 42" W INV 700.26
EX. STM CB 125 RIM=706.36 36" E INV 700.50 36" W INV 700.50
EX. STM CB 124 RIM=705.71 36" W INV 700.61 36" E INV 700.61
EX. STM CB 122 RIM=705.83 36" W INV 700.77 18" SE INV 700.77
EX. STM CB 259 RIM=705.18 18" N INV 701.04
EX. STM CB 123 RIM=706.23 18" S INV 700.97 18" NW INV 700.97
EX. STM CB 258 RIM=705.24 18" S INV 700.97 18" NW INV 700.97
EX. 15" CULV. INV.=700.09
EX. STM CB 260 RIM=705.17 15" NW INV 700.86 12" S INV 700.90
EX. STM CB 261 RIM=705.19 12" N INV 701.25
EX. STM MH 78 RIM=706.32 24" N INV 701.64 24" W INV 701.64
EX. STM CB RIM=704.84 24" E INV 700.74 24" W INV 700.69
PERFORATED RISER RIM=704.48 24" W INV 700.77
EX. 30" CES INV.=700.91
EX. STM CB RIM=705.95 30" E INV 701.20 30" W INV 701.15
EX. STM CB RIM=706.56 24" E INV 702.01 30" W INV 701.81
EX. STM CB RIM=706.55 30" E INV 701.61 30" W INV 701.57
EX. STM CB RIM=706.36 24" E INV 702.21 24" W INV 702.11
EX. STM CB RIM=706.83 24" E INV 702.48 24" W INV 702.48
EX. STM CB RIM=707.74 12" SW INV 703.57 12" E INV 703.62
EX. STM MH RIM=708.92 24" W INV 702.82 18" E INV 702.82 12" NE INV 703.49
EX. STM CB RIM=707.71 12" W INV 703.82
EX. STM CB RIM=706.72 15" E INV 703.12 18" W INV 703.02
EX. STM CB RIM=707.08 12" W INV 703.78
EX. STM CB RIM=707.25 12" CONC E INV 704.25
EX. STM CB RIM=707.47 12" W INV 703.24
EX. STM CB RIM=704.90 12" CPP S INV 700.72
EX. STM CB RIM=704.84 12" CPP N INV 700.05 12" CPP S INV 699.99
EX. STM CB RIM=704.90 12" CPP N INV 700.20 12" CPP S INV 700.22
EX. STM CB RIM=705.02 12" CPP N INV 699.99
EX. STM CB RIM=704.29 12" CPP N INV 700.39 12" CPP S INV 700.39
EX. STM CB RIM=703.58 12" CPP N INV 699.63 12" CPP S INV 699.63
EX. STM CB RIM=703.06 12" CPP N INV 698.98 12" CPP E INV 698.96
EX. STM CB RIM=702.02 12" CPP S INV 701.02
EX. STM CB RIM=704.83 12" CPP S INV 699.62 12" CPP N INV 699.52 12" CPP E INV 699.52
EX. 10" PVC N INV 690.89 10" PVC S INV 690.82
EX. 10" PVC N INV 690.2 10" PVC W INV 690.2
EX. 8" PVC E INV 700.54
EX. 30" CES INV.=701.09
EX. 30" STORM
EX. 24" STORM
EX. 12" WATER MAIN
EX. 8" WATER MAIN
EX. 8" SANITARY SEWER
EX. 12" SANITARY SEWER
EX. 8" STORM SEWER
EX. 12" STORM SEWER
EX. 24" STORM SEWER
EX. 30" STORM SEWER
EX. 36" STORM SEWER
EX. 42" STORM SEWER
EX. 48" STORM SEWER
EX. 54" STORM SEWER
EX. 60" STORM SEWER
EX. 66" STORM SEWER
EX. 72" STORM SEWER
EX. 84" STORM SEWER
EX. 96" STORM SEWER
EX. 108" STORM SEWER
EX. 120" STORM SEWER
EX. 132" STORM SEWER
EX. 144" STORM SEWER
EX. 156" STORM SEWER
EX. 168" STORM SEWER
EX. 180" STORM SEWER
EX.



SOIL EROSION / SEDIMENT CONTROL NOTES:

1. CONTRACTOR SHALL BOND EROSION CONTROL PERFORMANCE BOND, AS REQUIRED PRIOR TO ANY EARTH CHANGE.
2. CONSTRUCTION OPERATION SHALL BE SCHEDULED AND PERFORMED SO THAT PREVENTATIVE SOIL EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO EXCAVATION IN CRITICAL AREAS AND TEMPORARY STABILIZATION MEASURES ARE IN PLACE IMMEDIATELY FOLLOWING BACKFILLING OPERATIONS.
3. BORROW AND FILL DISPOSAL AREAS WILL BE SELECTED BY THE CONTRACTOR WITH FULL CONSIDERATION FOR SOIL EROSION AND SEDIMENT CONTROL.
4. SPECIAL PRECAUTIONS WILL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.
5. CLEANUP WILL BE DONE IN A MANNER TO ENSURE THAT EROSION CONTROL MEASURES ARE NOT DISTURBED.
6. THE PROJECT WILL CONTINUALLY BE INSPECTED FOR SOIL EROSION AND SEDIMENT CONTROL COMPLIANCE. DEFICIENCIES WILL BE CORRECTED BY THE CONTRACTOR WITHIN 24 HOURS.
7. NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR STORM WATER DISCHARGE FROM THE CONSTRUCTION ACTIVITIES IS REQUIRED PRIOR TO ANY EARTH CHANGE.
8. DISTURBED DETENTION AND OPEN SPACE AREAS SHALL BE STABILIZED WITHIN 5 DAYS OF DISTURBANCE WITH SEED AND EROSION CONTROL MULCH BLANKETS OR SOD.
9. ALL OPEN SPACE, RIGHT OF WAY AREAS SHALL BE SEEDED PER M.DOT CLASS 'A' AND SPECIFICATIONS. ALL SEEDED AREAS SHALL BE COVERED WITH A LAYER OF STRAW MULCH PER MDOT AND W.C. DEPT OF ENV. STANDARDS.
10. CEREAL RYE SEEDING MAY BE USED FOR TEMPORARY EROSION CONTROL MEASURES AS DIRECTED BY THE W.C. DEPT OF ENV.

SOIL EROSION CONTROL SEQUENCE

1. INSTALL ALL PERIMETER EROSION AND SEDIMENTATION CONTROL MEASURES.
2. MASS GRADE SITE. STOCKPILE TOPSOIL IN LOCATION APPROVED BY OWNER AND ENGINEER. STABILIZE ALL OPEN SPACE AREAS AND SIDE SLOPES WITHIN FIVE DAYS OF COMPLETION OF MASS GRADING. IMMEDIATELY REPAIR OR REPLACE ALL PERIMETER SOIL EROSION CONTROL MEASURES DISTURBED DURING MASS GRADING.
3. CONSTRUCT SANITARY SEWER, WATER MAIN, AND STORM SEWER INCLUDING RIP–RAP AND INLET FILTERS. RE–STABILIZE ALL DISTURBED OPEN SPACE AREAS WITHIN FIVE DAYS OF COMPLETION OF UNDERGROUND WATER AND SEWER INSTALLATION. IMMEDIATELY REPAIR OR REPLACE ALL PERIMETER SOIL EROSION CONTROL MEASURES DISTURBED DURING MASS GRADING.
4. FINE GRADE ROADWAY AREAS, INSTALL CONCRETE CURB AND GUTTER.
5. INSTALL PAVEMENT COMPLETE.REPLACE INLET FILTERS AS REQUIRED.
6. INSTALL FRANCHISE UTILITIES (PHONE, GAS, AND ELECTRIC).
7. FINISH GRADE, REDISTRIBUTE TOPSOIL, SEED AND MULCH ALL AREAS WITHIN 30' OF BACK OF CURB AND ALL DISTURBED OPEN SPACE AREAS.
8. BEGIN HOME CONSTRUCTION.
9. INSTALL SILT FENCE AT FRONT AND REAR OF LOTS AS DIRECTED.
10. COMPLETE HOME CONSTRUCTION
11. VISUALLY INSPECT STORM SEWER SYSTEM INCLUDING DETENTION PONDS AND REMOVE ALL ACCUMULATED SEDIMENT FOLLOWING COMPLETION OF HOME CONSTRUCTION.
12. REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES UPON STABILIZATION OF THE SITE.
13. APPLICANT WILL COMPLY WITH 1994 P.A. 451, AS AMENDED, PART 91 FOR SOIL EROSION AND SEDIMENTATION CONTROL.

SITE INFORMATION

1. APPROXIMATE AREA OF DISTURBANCE: 51.4± AC
2. ULTIMATE RECIEVING WATER: SWAN CREEK & PLINEY HARRIS

LEGEND

- BOUNDARY LINE
- EXIST. EASEMENT
- BOUNDARY/PROPERTY LINE
- EXIST. SETBACK
- EXIST. CONTOUR
- EXIST. TREE LINE
- EXIST. CURB AND GUTTER
- EXIST. FENCE
- EXIST. WATER EDGE
- EXIST. GAS
- EXIST. STORM
- EXIST. WATER MAIN
- EXIST. SANITARY
- EXIST. CULVERT
- EXIST. CATCH BASIN/INLET
- EXIST. HYDRANT
- EXIST. VALVE
- EXIST. SANITARY SEWER
- PROP. SETBACK
- PROP. BACK/EDGE CURB
- PROP. ROAD CENTERLINE
- PROP. R.O.W. LINE
- PROP. LOT LINE
- PROP. CONTOUR
- PROP. INLET FILTER
- PROP. SILT FENCE
- PROP. STORM SEWER
- PROP. SANITARY
- PROP. WATER MAIN
- PROP. END SECTION
- PROP. CATCH BASIN/INLET
- PROP. WATER VALVE
- PROP. FIRE HYDRANT
- PROP. MANHOLE
- 100–YR OVERLAND FLOW ROUTE

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TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

OVERALL GRADING & SOIL EROSION CONTROL PLAN

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

SCALE 0 40 80
1" = 80 FEET

DR. SK	CH. --
P.M. KS	
BOOK	
JOB 15001707	
SHEET NO. 08	

CAD FILE: 15001707SP-06-G.DWG

PRELIMINARY - NOT FOR CONSTRUCTION

\\ANN-DFS\NEWEST DATA\MAIN\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-06-G.DWG, 10/17/2025 3:30 PM, AMAIR.KALASH

NOTE

LOT GRADES DENOTED WITH "•" HAVE 7'4" BASEMENT WALLS. SEE DETAIL ON SH. 11.

LEGEND

- BOUNDARY LINE
- EXIST. EASEMENT
- BOUNDARY/PROPERTY LINE
- EXIST. SETBACK
- EXIST. CONTOUR
- EXIST. TREE LINE
- EXIST. CURB AND GUTTER
- EXIST. FENCE
- EXIST. WATER EDGE
- EXIST. GAS
- EXIST. STORM
- EXIST. WATER MAIN
- EXIST. SANITARY
- EXIST. CULVERT
- EXIST. CATCH BASIN/INLET
- EXIST. HYDRANT
- EXIST. VALVE
- EXIST. SANITARY SEWER
- PROP. SETBACK
- PROP. BACK/EDGE CURB
- PHASE LINE
- PROP. ROAD CENTERLINE
- PROP. BUILDING
- PROP. R.O.W. LINE
- PROP. LOT LINE
- PROP. CONTOUR
- PROP. INLET FILTER
- PROP. SILT FENCE
- PROP. STORM SEWER
- PROP. SANITARY
- PROP. WATER MAIN
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SE MICHIGAN LAND HOLDINGS, LLC
CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

GRADING PLAN – EAST

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

SCALE 0 25 50
1" = 50 FEET
DR. SK | CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 09

CAD FILE: 15001707SP-06-GDWG

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CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

GRADING PLAN - WEST

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

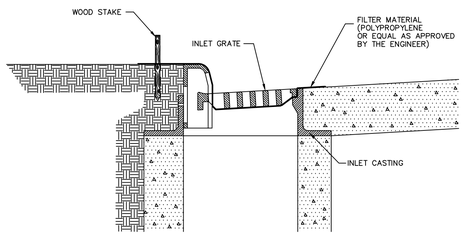
REVISIONS

SCALE 0 25 50
1" = 50 FEET
DR. SK CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 10

CAD FILE: 15001707SP-06-GDWG

\\ANNA-DFS\PROJECTS DATA\ANNA\PROJECTS\15001707 - CREEKSIDE NORTH\GRD\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-06-GDWG 10/17/2025 3:31 PM ANNAR KALKHO

PRELIMINARY - NOT FOR CONSTRUCTION



INLET FILTER
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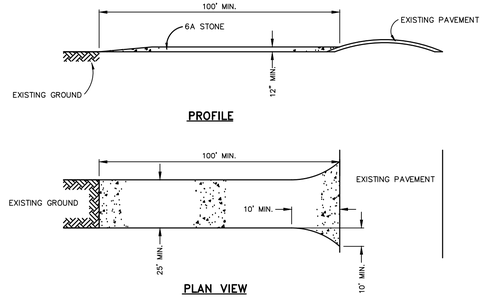

STONE MUD TRACKING FILTER
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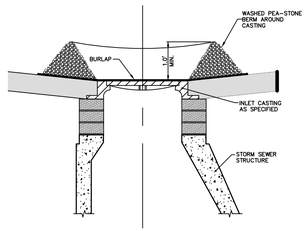
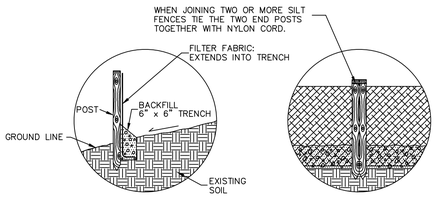
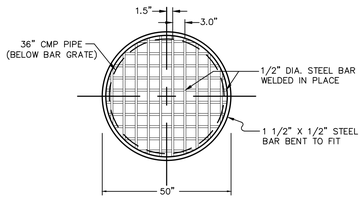


CATCH BASIN STONE AND BURLAP FILTER
NO SCALE



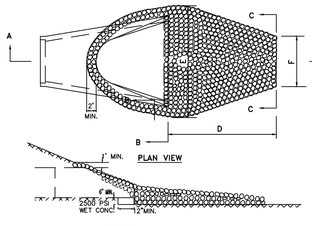
GEOTEXTILE SILT FENCE
NO SCALE



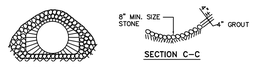
NOTE:

1. BAR GRATE IS TO BE REMOVABLE
2. APPROXIMATE WEIGHT OF GRATE IS 124 LBS.
3. A LOCKING MECHANISM SHALL BE USED FOR THE BAR GRATES.

BAR GRATE DETAIL
NO SCALE



SECTION A–A



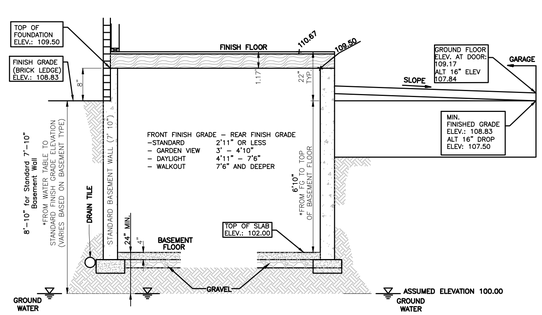
SECTION B–B

SECTION C–C

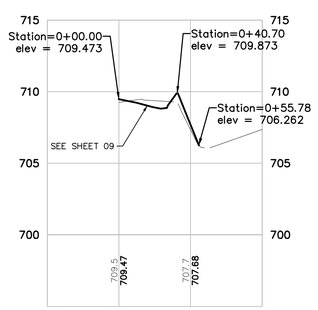
PIPE DIAM.	D	E	F	S.Y.
12"	5'–0"	6'–6"	3'–0"	4
15"	5'–0"	7'–0"	3'–0"	4
18"	5'–0"	7'–6"	3'–6"	4
21"	5'–6"	8'–0"	4'–0"	5
24"	6'–0"	8'–6"	4'–6"	6
27"	6'–6"	9'–0"	5'–0"	7
30"	7'–0"	9'–9"	5'–6"	8
36"	8'–0"	10'–9"	6'–0"	10
42"	9'–0"	11'–9"	6'–6"	12
48"	10'–0"	13'–0"	7'–0"	14

RIP–RAP BANK PROTECTION, WHERE CALLED FOR, SHALL BE GROUTED AND INSTALLED AS PROVIDED BY MDOT SPEC. 6.01.08. RIP–RAP MATERIAL SHALL MEET THE REQUIREMENTS OF MDOT SPEC. 8.19.02

GROUTED STONE RIP–RAP
NO SCALE



TYPICAL BUILDING GRADE DETAIL
NO SCALE



DIVERSION BERM
VERT: 1"=5'
HORZ: 1"=50'

SOIL EROSION CONTROL MAINTENANCE TASKS AND SCHEDULE

DURING CONSTRUCTION
TO BE PERFORMED BY CONTRACTOR

COMPONENTS	PAVED AREAS	PERVIOUS AREAS	RIP–RAP/SILT FENCE	STORM DRAINAGE SYSTEM	OUTLET STRUCTURE	SEDIMENT FOREBAY	DETENTION AREA	INFILTRATION BMP/RAIN GARDEN	INLET FILTERS / SILT SACKS	SCHEDULE
INSPECT FOR SEDIMENT ACCUMULATION	X		X	X	X	X	X	X	X	WEEKLY
REMOVAL OF SEDIMENT ACCUMULATION	X		X	X	X	X	X	X	X	AS NEEDED* AND PRIOR TO TURNOVER
INSPECT FOR FLOATABLES AND DEBRIS				X	X	X	X	X	X	QUARTERLY
CLEANING FOR FLOATABLES AND DEBRIS				X	X	X	X	X	X	QUARTERLY AND AT TURNOVER
INSPECTION FOR EROSION		X	X							WEEKLY
REESTABLISH PERMANENT VEGETATION ON ERODED SLOPES		X								AS NEEDED* AND PRIOR TO TURNOVER
CLEAN DRIVES AND PARKING LOTS	X									WEEKLY OR AS DETERMINED BY PERMITTING AGENCY
WATER DISTURBED AREAS TO PROVIDE DUST CONTROL	ALL DISTURBED AREAS OF SITE									AS NEEDED
INSPECT STRUCTURAL ELEMENTS DURING WET WEATHER AND COMPARE TO AS–BUILT PLANS (BY A PROFESSIONAL ENGINEER REPORTING TO THE OWNER)			X	X			X	X		ANNUALLY AND AT TURNOVER
MAKE ADJUSTMENTS OR REPLACEMENTS AS DETERMINED			X	X			X	X		AS NEEDED

* "AS NEEDED" MEANS WHEN SEDIMENT HAS ACCUMULATED TO A MAXIMUM OF ONE FOOT DEPTH

LONG TERM STORM WATER & BUDGET

1. THERE WILL BE A PRIVATE ROAD AGREEMENT IN PLACE AND MAINTENANCE OF THE ROAD SIDE DITCHES WILL BE THE RESPONSIBILITY OF THE INDIVIDUAL HOMEOWNERS.

TASKS	COMPONENTS: PAVED AREAS	PERVIOUS AREAS	RIP–RAP	STORM DRAINAGE SYSTEM	SEDIMENT FOREBAYS	INFILTRATION BASINS	OUTLET CONTROL STR	RAIN GARDENS	INFILTRATION TRENCHES	SCHEDULE	ANNUAL COST
INSPECT FOR SEDIMENT ACCUMULATION	X		X	X	X	X	X	X	X	SEMI–ANUALLY/AS NEEDED*	$100.00
REMOVAL OF SEDIMENT ACCUMULATION	X		X	X	X	X	X	X	X	5–10 YRS/AS NEEDED*	$200.00
INSPECT FOR FLOATABLES AND DEBRIS				X	X	X	X	X	X	ANNUALLY	$100.00
CLEANING FOR FLOATABLES AND DEBRIS				X	X	X	X	X	X	ANNUALLY	$300.00
INSPECTION FOR EROSION		X	X			X		X		ANNUALLY/AFTER MAJOR STORMS	$100.00
REESTABLISH PERMANENT VEGETATION ON ERODED SLOPES		X				X		X		AS NEEDED	$300.00
RAIN GARDEN MAINTENANCE								X		TWICE PER YEAR (SPRING AND FALL)	$500.00
CLEAN DRIVES AND PARKING LOTS	X									ANNUALLY	$500.00
MOWING		X								0–2 TIMES PER YEAR	$400.00
INSPECT FOLLOWING STORM 1" OR GREATER						X		X	X	AS NEEDED	$100.00
INSPECT STRUCTURAL ELEMENTS DURING WET WEATHER AND COMPARE TO AS–BUILT PLANS (BY A PROFESSIONAL ENGINEER REPORTING TO THE OWNER)			X	X	X	X	X	X	X	ANNUALLY	$100.00
MAKE ADJUSTMENTS OR REPLACEMENTS AS DETERMINED BY ANNUAL WET WEATHER INSPECTION			X	X	X	X	X	X	X	AS NEEDED	$100.00
KEEP RECORDS OF ALL INSPECTIONS AND MAINTENANCE ACTIVITIES AND REPORT TO PROPERTY OWNER										ANNUALLY	$50.00
KEEP RECORDS OF ALL COSTS FOR INSPECTIONS, MAINTENANCE AND REPAIRS. REPORT TO PROPERTY OWNER										ANNUALLY	$50.00
PROPERTY OWNER REVIEWS COST EFFECTIVENESS OF THE PREVENTATIVE MAINTENANCE PROGRAM AND MAKES NECESSARY ADJUSTMENTS										ANNUALLY	$50.00
OWNER TO HAVE A PROFESSIONAL ENGINEER CARRY OUT EMERGENCY INSPECTIONS UPON IDENTIFICATION OF SEVERE PROBLEMS										AS NEEDED	$150.00

* "AS NEEDED" MEANS WHEN SEDIMENT HAS ACCUMULATED TO A MAXIMUM OF ONE FOOT DEPTH

CONSTRUCTION SEQUENCE (SESC)

1. INSTALL TEMPORARY EROSION AND SEDIMENTATION MEASURES (1 WEEK) – SEP 2024
   - 1.1. INSTALL SEDIMENT FENCE AND TREE PROTECTION FENCING PRIOR TO ANY GRADING OPERATION
   - 1.2. INSTALL MUD TRACKING PAD
2. MINOR GRADING/EARTHMOVING IN PREPARATION FOR PAVING (10 DAYS) – SEP 2024
3. MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED.
4. BEGIN PAVING ACTIVITIES (2 WEEKS) – WEATHER DEPENDENT – SEP/OCT 2024
5. FINISH GRADE, REDISTRIBUTE TOPSOIL, SEED AND MULCH ALL DISTURBED AREAS – NOV/DEC 2024
6. INSPECT AND CLEAN ALL DITCHING OF ACCUMULATED SEDIMENT – NOV 2024
7. COMPLETE CONSTRUCTION ROAD. – OCT 2024
8. ENSURE ALL SOIL IS STABILIZED. – OCT/NOV 2024
9. DEMO OF EXISTING STRUCTURES. (LOTS 15 AND 16) – DEC 2024/ JAN 2025
10. INSTALL FRANCHISE UTILITIES. – MAR/APR 2025
11. INSTALL LANDSCAPING AND A WELL FOR IRRIGATION. – MAY/JUNE 2025
12. REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES. (1 WEEK) – MAY/JUNE 2025

NOTE: ADDITIONAL SESC MEASURES WILL BE REQUIRED IF THE SITE IS NOT PERMANENTLY STABILIZED BY THE END OF THE GROWING SEASON 2024 (10/15/24, OFFICIALLY). THIS WILL INCLUDE TEMPORARY SEED AND MULCH AND/OR EROSION CONTROL BLANKETS ON DISTURBED AREAS.

NOTE: NO STORM SEWER IS BEING CONSTRUCTED AS PART OF THIS PERMIT.

SITE INFORMATION:

SITE LOCATION: SECTION 4, SUPERIOR TOWNSHIP, MICHIGAN.

ULTIMATE RECEIVING WATER: ON–SITE, UN–NAMED WATERCOURSE

1. SITE SOILS INFORMATION: PER THE NRCS WEB SURVEY FOR WASHTENAW COUNTY; BnB, Br, HgtahA, MaA, MdA, Sb, WawabB, WawabC
2. APPROXIMATE AREA OF DISTURBANCE: 15± ACRES

STOCKPILE NOTE:

STOCKPILING IS NOT ANTICIPATED. IF NEEDED, SILT FENCE SHALL BE INSTALLED AND MAINTAINED AROUND THE PERIMETER OF ANY STOCKPILES, IF STOCKPILE WILL BE LARGE AND IS EXPECTED TO BE ON–SITE FOR A PERIOD OF TIME.

811 Know what's below. Call before you dig.
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NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE 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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SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC
CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

GRADING & SOIL EROSION CONTROL DETAILS

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

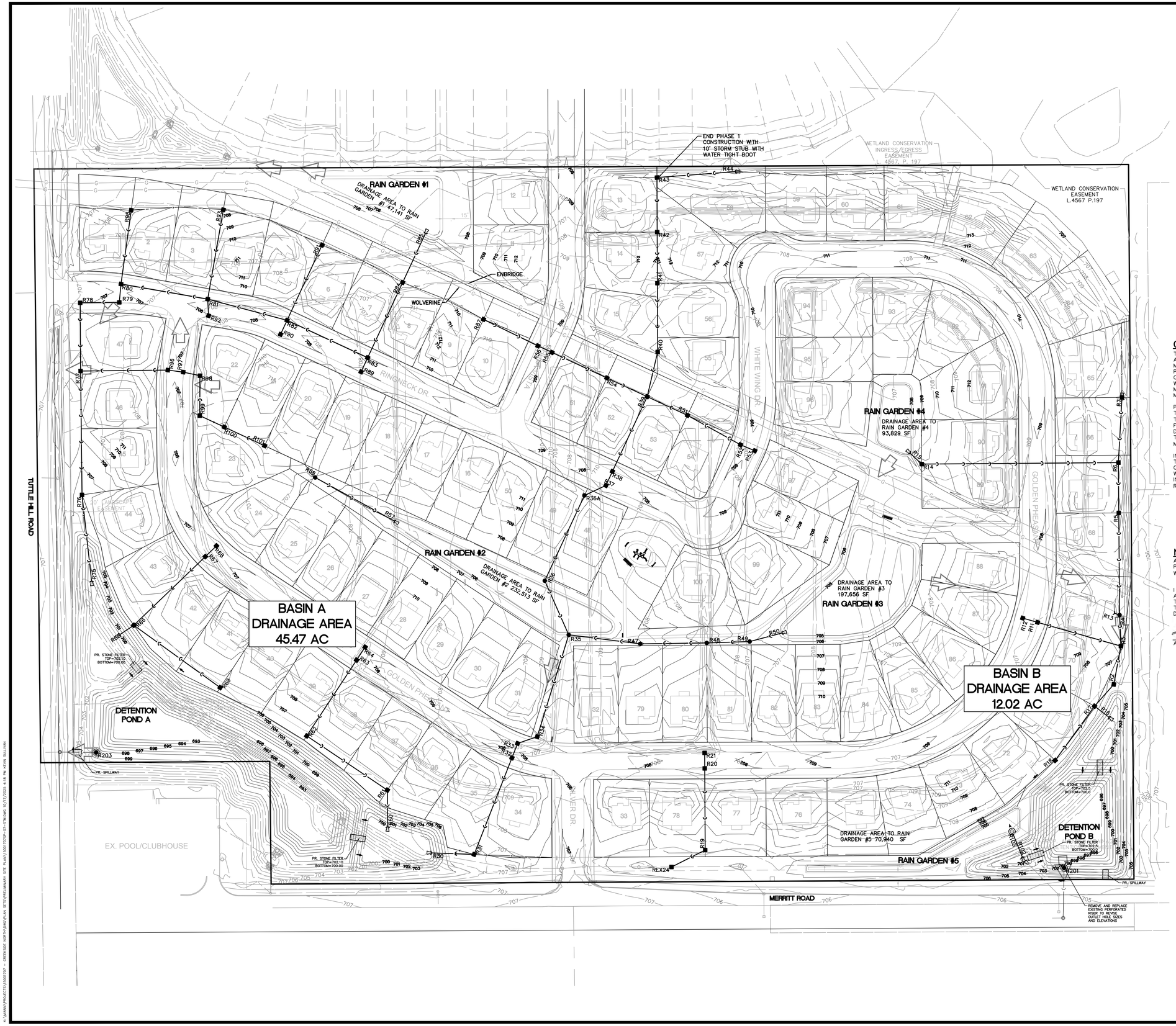
REVISIONS

SCALE 0 – – – –
NO SCALE
DR. SK CH. – –
P.M. KS
BOOK
JOB 15001707
SHEET NO. 11

CAD FILE: 15001707SP–06–GDWG

\\ANNAA–FS\PROJECT DATA\ANNA\PROJECTS\15001707 – CREEKSIDE NORTH\DWG\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP–06–GDWG 10/17/2025 3:35 PM AMAR KALASH

PRELIMINARY - NOT FOR CONSTRUCTION



CREEKSIDE VILLAGE NORTH DRAINAGE NARRATIVE

THE DEVELOPED DRAINAGE AREA FOR CREEKSIDE VILLAGE NORTH CONSISTS OF APPROXIMATELY 57.8 ACRES OF DEVELOPED SINGLE-FAMILY HOUSING. THE STORMWATER MANAGEMENT SYSTEM WILL ALSO ACCOMMODATE 1.8 ACRES OF DEVELOPED CLUBHOUSE AND POOL FACILITY. THE DEVELOPMENT WAS PREVIOUSLY APPROVED AS A PORTION OF CREEKSIDE VILLAGE EAST WHICH WAS DIVIDED INTO FOUR DRAINAGE AREAS. THE PONDS WERE CONSTRUCTED DURING DEVELOPMENT OF THE PORTION OF THE SITE THAT INCLUDES MERRITT ROAD AND THE LAND SOUTH OF THE ROAD. PONDS A AND B ARE PROPOSED TO BE MODIFIED TO COMPLY WITH THE CURRENT WCWRC STANDARDS.

POND A OUTLETS TO THE DERBYSHIRE DRAIN TO THE WEST OF THE SITE, RUNNING ALONG TUTTLE HILL ROAD. THE OUTLET FOR POND B IS THE PLINY-HARRIS DRAIN, RUNNING ALONG THE EAST SIDE OF THE SITE THROUGH A 36" STORM SEWER. THE MAXIMUM OUTLET RATE FROM BASIN A TO THE DERBYSHIRE DRAIN IS RESTRICTED PER THE DERBYSHIRE DEVELOPMENT PLAN AND IS SET TO 2.23 CFS. THE MAXIMUM OUTLET RATE FROM BASIN B TO THE PLINY-HARRIS DRAIN IS RESTRICTED PER THE YPSILANTI TOWNSHIP STORMWATER MANAGEMENT PROGRAM AND IS SET TO 0.095 CFS/AC OR A TOTAL OF 1.15 CFS.

INFILTRATION IS PROPOSED IN FIVE RAIN GARDENS DISTRIBUTED THROUGHOUT THE SITE WITHIN THE DRAINAGE AREAS OF BASINS A AND B. IF EXISTING SOILS ARE NOT REQUIRED BASED ON ELEVATIONS TO BE REMOVED ABOVE THE STRATUM IN WHICH THE INFILTRATION TESTING WAS PERFORMED, THE SOILS MUST BE TESTED AND CONFIRMED TO MEET THE MINIMUM INFILTRATION RATE SHOWN IN THE CALCULATIONS OR BE AMENDED TO PROVIDE THE REQUIRED RATE(S).

NOTE

AT THE TIME OF PLANT AND SEED DELIVERY, A WCWRC LANDSCAPE REVIEWER MUST BE PRESENT. THE QUANTITY AND SPECIES DELIVERED WILL BE REVIEWED ON SITE. CONTACT CATIE WYTYCHAK AT WYTYCHAKC@WASHTENAW. ORG OR (734) 222-6813 TO COORDINATE.

I HEREBY CERTIFY THAT DERBYSHIRE AND PLINY-HARRIS DRAINS ARE THE ONLY REASONABLY ACHIEVABLE STORMWATER OUTLET FOR THE PROPOSED STORMWATER MANAGEMENT SYSTEM, THESE DRAINS ARE THE SAME OUTLET LOCATIONS FOR THE DRAINAGE AREAS EFFECTED BY THE PROPOSED SITE WORK, AND THAT THE SITE WORK WILL NOT CAUSE DETRIMENT TO OR DIMINUTION TO EITHER DRAIN.

AMMAR KALASHO, PE

STATE OF MICHIGAN
AMMAR KALASHO
ENGINEER
No. 56902
LICENSED PROFESSIONAL ENGINEER

LEGEND

- BOUNDARY LINE
- EXIST. CONTOUR
- EXIST. TREE LINE
- EXIST. CURB AND GUTTER
- EXIST. FENCE
- EXIST. GRAVEL
- EXIST. WATER EDGE
- EXIST. GAS
- EXIST. STORM
- EXIST. WATER MAIN
- EXIST. SANITARY
- EXIST. UNSPECIFIED UTILITY
- EXIST. CULVERT
- EXIST. CATCH BASIN/INLET
- EXIST. HYDRANT
- EXIST. VALVE
- EXIST. SANITARY SEWER
- PROP. BACK/EDGE CURB
- PROP. R.O.W. LINE
- PROP. LOT LINE
- PROP. ROAD CENTERLINE
- PROP. CONTOUR
- PROP. STORM SEWER
- PROP. END SECTION
- PROP. CATCH BASIN/INLET
- PROP. RAIN GARDEN AREA
- PROP. OVERALL DRAINAGE AREA
- 100-YR OVERLAND FLOW ROUTE

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SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

OVERALL STORMWATER MANAGEMENT PLAN

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

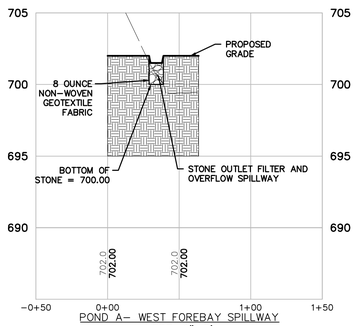
REVISIONS

SCALE 0 40 80
1" = 80 FEET
DR. SK | CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 12

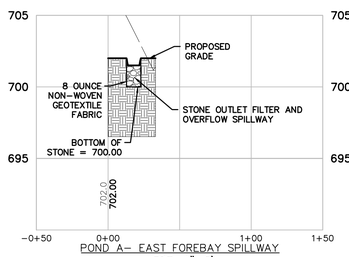
CAD FILE: 15001707SP-07-STM.DWG

K:\ANN\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SET\PRELIMINARY SITE PLAN\15001707SP-07-STM.DWG, 10/17/2025 4:18 PM, KEVIN SULLIVAN

PRELIMINARY - NOT FOR CONSTRUCTION



POND A– WEST FOREBAY SPILLWAY
VERT: 1"=5'
HORZ: 1"=50'



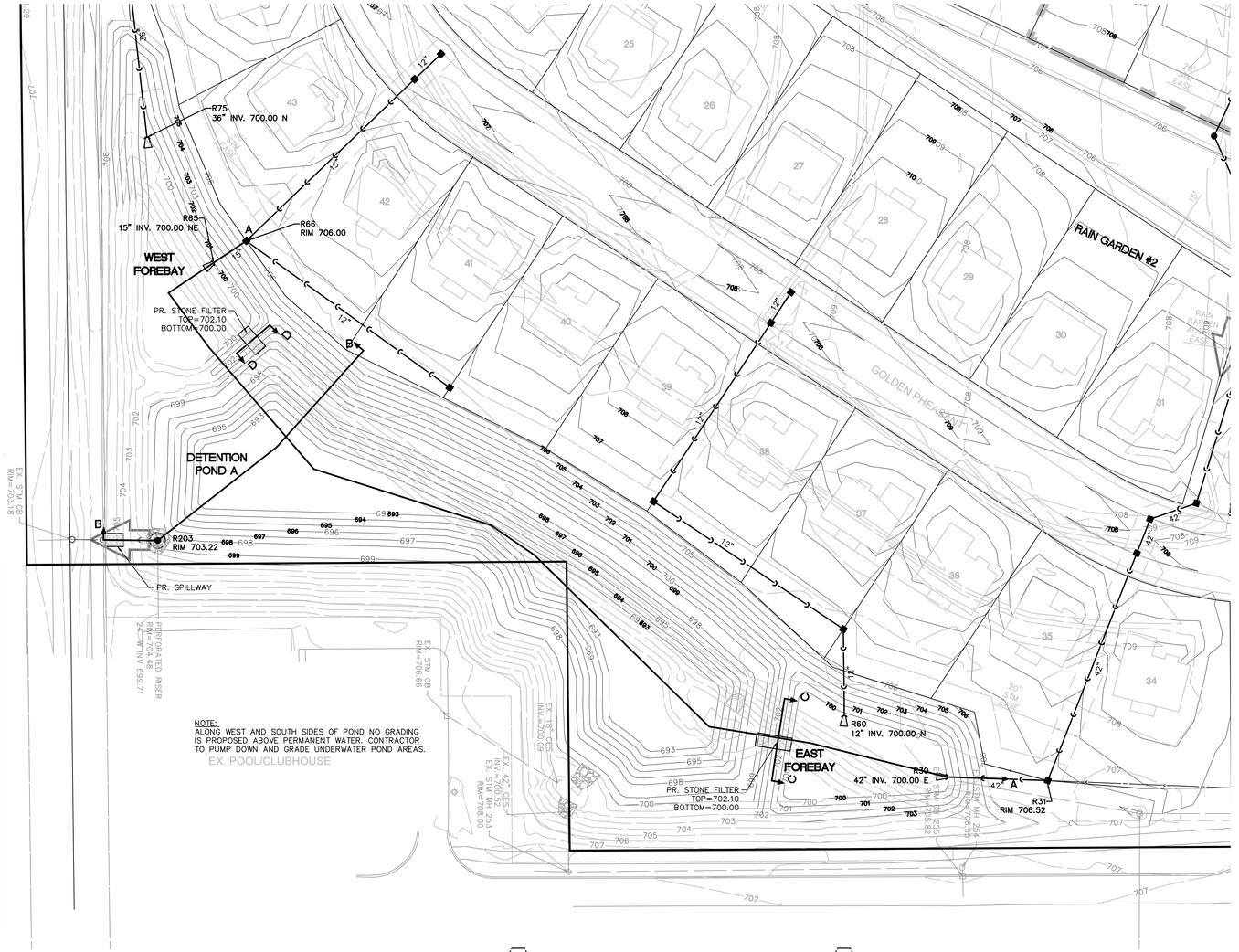
POND A– EAST FOREBAY SPILLWAY
VERT: 1"=5'
HORZ: 1"=50'

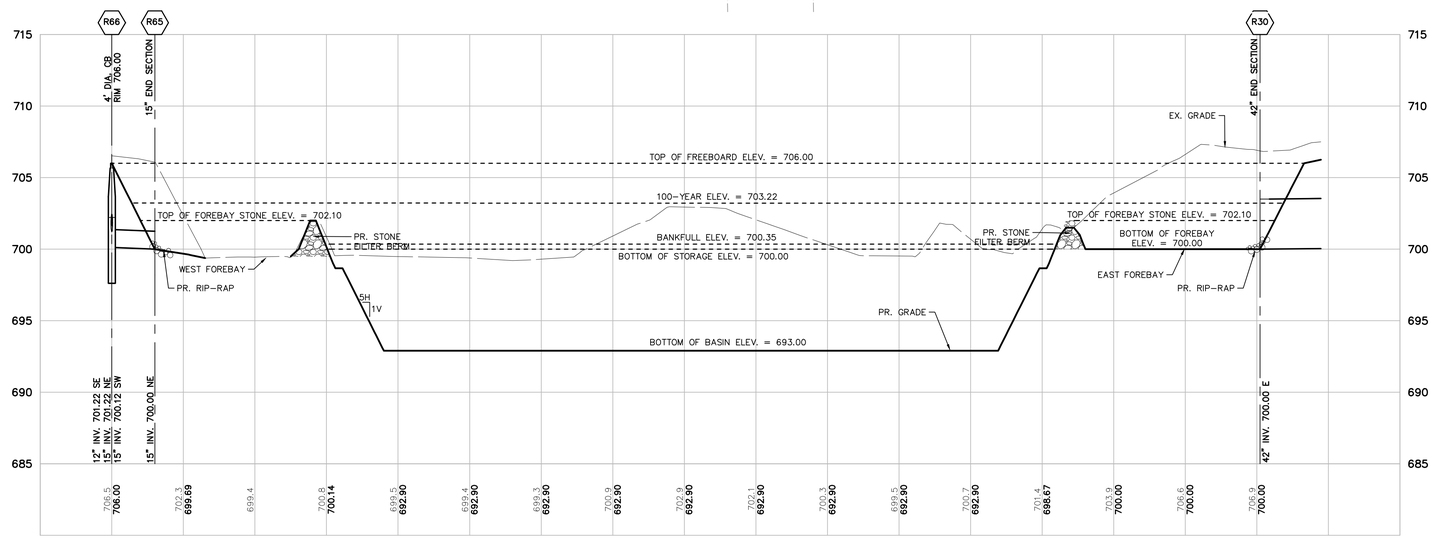
DETENTION BASIN A NARRATIVE:

EXISTING DETENTION BASIN A IS PROPOSED TO BE EXPANDED IN ORDER TO COMPLY WITH THE CURRENT WCWRC RULES FOR PERMANENT POOL VOLUME AND FREEBOARD ELEVATION. THREE INFILTRATION RAIN GARDENS ARE PROPOSED UPSTREAM OF BASIN A, THESE BMPs ACHIEVE THE REQUIRED INFILTRATION VOLUME FOR THE BASIN. THE OUTLET FOR THIS BASIN IS THE DERBYSHIRE DRAIN, WHICH REQUIRED A RESTRICTED OUTFLOW RATE OF 2.23 CFS PER THE DERBYSHIRE DEVELOPMENT PLAN. THE INFILTRATION VOLUMES ACHIEVED IN THE UPSTREAM BPMs ARE GREATER THAN THE FIRST FLUSH VOLUMES, THEREFORE NO FIRST FLUSH OUTLET HOLES ARE PROVIDED IN THE OUTLET CONTROL STRUCTURE.

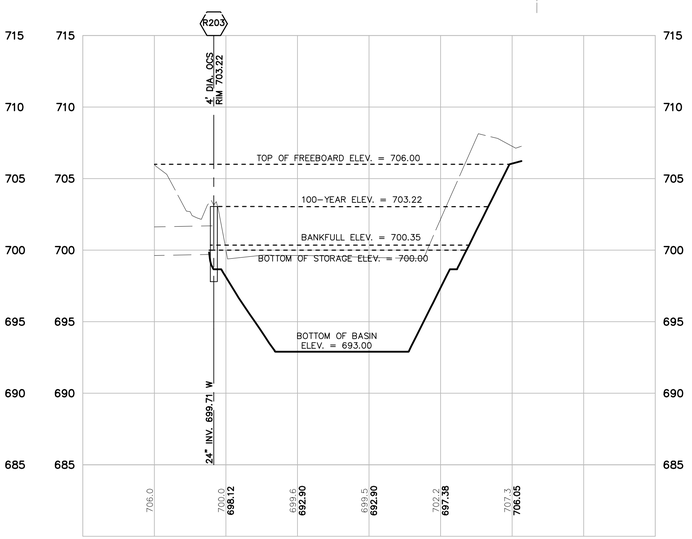
LEGEND

- BOUNDARY LINE
- 890 EXIST. CONTOUR
- EXIST. TREE LINE
- EXIST. CURB AND GUTTER
- X X EXIST. FENCE
- EXIST. GRAVEL
- EXIST. WATER EDGE
- G G EXIST. GAS
- C C C EXIST. STORM
- W EXIST. WATER MAIN
- EXIST. SANITARY
- EXIST. UNSPECIFIED UTILITY
- EXIST. CULVERT
- EXIST. CATCH BASIN/INLET
- EXIST. HYDRANT
- EXIST. VALVE
- EXIST. SANITARY SEWER
- PROP. BACK/EDGE CURB
- PROP. R.O.W. LINE
- PROP. LOT LINE
- PROP. ROAD CENTERLINE
- 890 PROP. CONTOUR
- PROP. STORM SEWER
- PROP. END SECTION
- PROP. CATCH BASIN/INLET
- PROP. RAIN GARDEN AREA
- PROP. OVERALL DRAINAGE AREA





DETENTION POND A A–A
VERT: 1"=5'
HORZ: 1"=50'



DETENTION BASIN A B–B
VERT: 1"=5'
HORZ: 1"=50'

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WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

STORMWATER BASIN A

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

SCALE 0 25 50
1" = 50 FEET

DR. SK | CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 13

CAD FILE: 15001707SP-07-STM.DWG

\\ANN-DFS\PROJECTS DATA\ANN\PROJECTS\15001707 - CREEKSIDE NORTH\CIVIL\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-07-STM.DWG 10/17/2025 3:38 PM AMMAR KALASHO

DETENTION BASIN A DESIGN CALCULATIONS

W1 Determining Post-Development Cover Types, Areas, Curve Numbers and runoff coefficients

Total Contributing Drainage Area = 45.47 Acres

Rational Method Variables

Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coef	(c)(Area)
Impervious (Roofs, pavement)	B	496,480	11.4	0.95	471,656
Water Surfaces (Bankfull in Basin)	B	80,500	1.8	1.00	80,500
Developed Open Space, Good Condition	B	1,222,057	28.1	0.25	305,514
Developed Open Space, Good Condition	D	181,643	4.2	0.45	81,739
				Total - Sum (c)(Area) =	939,410
				Area Total (sf)=	1,980,680
				Weighted C-Sum(c)(Area)/Sum(ac) or Sum(sf)=	**0.47**

NRCS Variables

Pervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Developed Open Space, Good Condition	B	1,222,057	28.1	61	74,545,499
Developed Open Space, Good Condition	D	181,643	4.2	80	14,531,411
			0.0		0
			Total - Sum (CN)(Area) =		89,076,910
			Area Total - Sum(ac) of Sum(sf)=		1,403,700
			Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=		**63**

Impervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Impervious (Roofs, pavement)	-	496,480	11.4	98	48,655,040
Water Surfaces (Bankfull in Basin)	-	80,500	1.8	98	7,889,000
			0.0		0
			Total - Sum (CN)(Area) =		56,544,040
			Area Total - Sum(ac) of Sum(sf)=		576,980
			Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=		**98**

W2 First Flush Runoff Calculations (Vff)

A. Vff = (1") (1/12) (43560/1) (C) AC = **77,576** cf

W3 Predevelopment Bankfull Runoff Calculations (Vbf-pre)

A.	2 year/24 hour storm event	P =	2.35	in
B.	Pervious Cover CN	CN =	58	HSG B, meadow
C.	S = (1000/CN) -10	S =	7.24	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	0.10	in
E.	Site Area (excluding "Self-Crediting BMPs")	Area =	1,980,680	sf
F.	$V_{bf\text{-}pre}$ = Q(1/12)Area	$V_{bf\text{-}pre}$ =	**16,481**	cf

W4 Pervious Cover Post-development Bankfull Runoff Calculations (Vbf-per-post)

A.	2 year/24 hour storm event	P =	2.35	in
B.	Pervious Cover CN (from W1)	CN =	63	weighted average
C.	S = (1000/CN) -10	S =	5.76	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	0.21	in
E.	Pervious Cover Area (from W1)	Area =	1,403,700	sf
F.	$V_{bf\text{-}per\text{-}post}$ = Q(1/12)Area	$V_{bf\text{-}per\text{-}post}$ =	**24,150**	cf

W5 Impervious Cover Post-development Bankfull Runoff Calculations (Vbf-imp-post)

A.	2 year/24 hour storm event	P =	2.35	in
B.	Impervious Cover CN (from W1)	CN =	98	
C.	S = (1000/CN) -10	S =	0.20	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	2.12	in
E.	Impervious Cover Area (from W1)	Area =	576,980	sf
F.	$V_{bf\text{-}imp\text{-}post}$ = Q(1/12)Area	$V_{bf\text{-}imp\text{-}post}$ =	**102,014**	cf

W6 Pervious Cover Post-development 100-year Storm Runoff Calculations (V100-per-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN (from W1)	CN =	63	weighted average
C.	S = (1000/CN) -10	S =	5.76	in
D.	Surface Runoff, Q = (P-0.2S)^2/(P+0.8S)	Q =	1.61	in (SRO)
E.	Pervious Cover Area (from W1)	Area =	1,403,700	sf
F.	$V_{100\text{-}imp\text{-}post}$ = Q(1/12)Area	$V_{100\text{-}imp\text{-}post}$ =	**188,639**	cf

W7 Impervious Cover Post-development 100-year Storm Runoff Calculations (V100-imp-post)

A.	100 year storm event	P =	5.11	in
B.	Impervious Cover CN (from W1)	CN =	98	
C.	S = (1000/CN) -10	S =	0.20	in
D.	Surface Runoff, Q = (P-0.2S)^2/(P+0.8S)	Q =	4.87	in (SRO)
E.	Impervious Cover Area (from W1)	Area =	576,980	sf
F.	$V_{100\text{-}imp\text{-}post}$ = Q(1/12)Area	$V_{100\text{-}imp\text{-}post}$ =	**234,302**	cf

W8 Determine Time of Concentration (Tc-hrs)

Tc as calculated from storm sewer converyence to basin outfall at R30

Time of Concentration = 0.50 hr

W9 Runoff Summary & Onsite Infiltration Requirement

A. Runoff Summary from Previous Worksheets

V_{ff} =	**77,576**	cf
$V_{bf\text{-}pre}$ =	16,481	cf
$V_{bf\text{-}per\text{-}post}$ =	24,150	cf
$V_{bf\text{-}imp\text{-}post}$ =	102,014	cf
Total BF Volume ($V_{bf\text{-}post}$)	126,164	cf
$V_{100\text{-}per\text{-}post}$ =	188,639	cf
$V_{100\text{-}imp\text{-}post}$ =	234,302	cf
Total 100-year Volume (V_{100})	422,940	cf

B. Determine Onsite Infiltration Requirement

$V_{bf\text{-}post}$ =	126,164	cf
$V_{bf\text{-}pre}$ =	16,481	cf
Bankfull Volume Difference =	**109,683**	cf

Onsite Infiltration Requirement (V_{inf}) = **109,683** **cf (bankfull difference)**

W10 Detention / Retention Requirement

A.	Q_a = 238.6 (T_c) ^ -0.82 (valid for Tc >1 hr per MDEQ Eq. 9.1, Sorrell 2010)	421.23	cfs/in-mi^2
B.	Total Site Area	45.47	ac
C.	Q_{100} = $Q_{100\text{-}per}$ + $Q_{100\text{-}imp}$	6.49	in > Precipitation, P
D.	Peak Flow (PF) = (Q_a-Q_{100}-A)/640	194.094	cfs
E.	Delta = PF - 0.15A	187.274	cfs
F.	V_{det} = (Delta/PF) x V_{100}	**406,078**	cf

W11 Determine Applicable BMPs and Associated Volume Credits

Proposed BMP	Area (ft^2)	Storage Depth (ft)	Storage Volume (ft^3)	Ave. Design Infil. Rate (in/hr)	Infil. During Storm (ft^3)	Potential Volume Reduction (ft^3)	100-yr Contributing Runoff (cf)
North Rain Garden 1	13,900	0.67	9,313	2.9	20,155	29,468	12,717
Central Rain Garden 2	18,044	0.67	12,089	5.9	53,230	65,319	43,201
Central Rain Garden 3	26,511	0.67	17,674	6.15	81,521	99,195	40,141

Total Volume Reduction Credit by Proposed Structural BMPs (Vinf) = **96,058** **cf**

** *Minimum of the calculated potential reduction and the 100-year storm volume over the tributary area.*

W12 Natural Features Inventory - See Sheet 3

EXISTING PERVIOUS COVER CURVE NUMBER TABLE

Soil Class	Acres	CN	CNxA	
B	41.3	58	2393.66	
D	4.2	78	327.6	Overall CN
Total	45.5		2721.26	59.8473719

W13 Infiltration / Detention Summary

Total Infiltration Required per WCWRC Rules:	109,683 cf
Total Infiltration Provided:	96,058 cf
Difference:	(13,624) cf
% Deficiency:	12.4%
Pro-Rated 20% Detention Penalty:	**2.5%**
Total Detention Required, Considering Infiltration Provided (V_{det} - V_{inf})	312,020 cf
Total Detention Required w/ Penalty V100,det	**319,771** **cf**

Basin Stage-Storage Summary

	Elev.	Area	Avg. Area	Depth	Total Vol.	Det. Vol	
	706.0	148,600	142,650	1.0		686,906	
	705.0	136,700	131,125	1.0		544,256	
	704.0	125,550	120,275	1.0		413,131	
	703.0	115,000	109,500	1.0		292,856	
	702.0	104,000	97,550	1.0		183,356	
	701.0	91,100	85,806	1.0		85,806	
	700.0	80,512	80,512	0.0		0	Detention
Outlet	700.0	80,512	68,856	0.3	269,249		2.5xVff= 193940
	699.7	57,200	57,200	1.0	248,593		
	698.7	57,200	53,925	0.0	191,393		
	698.7	50,650	48,525	0.7	191,393		
	698.0	46,400	43,300	1.0	157,425		
	697.0	40,200	37,200	1.0	114,125		
	696.0	34,200	31,300	1.0	76,925		
	695.0	28,400	25,575	1.0	45,625		
	694.0	22,750	20,050	1.0	20,050		
	693.0	17,350	0	0.0	0		

Storage Volume Provided: **686,906** **cf**

Vff - Vinf= 0 cf EL Xff = 700.00
Vbf - Vinf= 30,105 cf EL Xbf = 700.35
V100,det = 319,771 cf EL X100 = 703.22
freeboard= 2.78

FOREBAY Forebay Sizing

Required Volume (Vfb)=0.05*V100 **15,989 cf**

North Forebay 8.29 acres
Required Volume (Vfb)=0.05*V100 (to North forebay) **3,034 cf**

Forebay Stage-Storage Summary:

Elev.	Area	Avg. Area	Depth	Volume
702.1	12,600	11,200	1.1	20,976
701.0	9,800	8,656	1.0	8,656
700.0	7,512	3,756		0

Southwest Forebay Drainage Area 3.34 acres
Required Volume (Vfb)=0.05*V100*(Aa/At) **1,224 cf**
* Existing - no changes proposed
Forebay Stage-Storage Summary:

Elev.	Area	Avg. Area	Depth	Volume
702.1	875	700	1.1	1,035
701.0	500	265	1.0	265
700.0	30	15		0

East Forebay Drainage Area 32.05 acres
Required Volume (Vfb)=0.05*V100 (to East forebay) **11,731 cf**

Forebay Stage-Storage Summary:

Elev.	Area	Avg. Area	Depth	Volume
702.1	10,800	9,800	1.1	18,680
701.0	8,800	7,900	1.0	7,900
700.0	7,000	3,500		

Total Forebay Volume Below 702.1 = **40,691** **cf**

OUTLET Outlet Control Structure Sizing

1. Standpipe outlet holes sizing - "first flush" runoff

First Flush discharge should be detained for 24 hours

$Q_{ff/min}$ = V_{ff} / 24 hrs / 3600 sec Q_{ff}= 0.000 cfs

Determine the appropriate size orifice to release the first flush volume.

$h_{ff(ave)}$ = 2/3 x (X_{ff} - X_{bot}) $h_{ff(ave)}$= 0.00 ft
$A_{(required)}$ = Q_{ff} / 0.62 x sqrt(2*32.2*h) $A_{(required)}$= 0.0000 sf
Selected Orifice Diameter = **0** **in**
Area of each orifice = 0.0000 sf
Number of orifice holes provided = **0** **holes at elev.** **700.00**

Check First Flush discharge release time

$A_{ff(actual)}$= 0.0000 ft^2
Q_{ff} = A x 0.62 x sqrt(2*32.2*h) = 0.000 cfs
T_{ff}= V_{ff}/(Q_{ff} x 3600) 0.0 hrs No FF Holes Required

2. Standpipe outlet holes sizing - "Bankfull flood" discharge

Bankfull should discharge within 36 to 48 hours

Check release from first flush holes only

$h_{bf(ave)}$ = 2/3 x (X_{bf} - X_{bot}) $h_{bf(ave)}$ = 0.23 ft
Q_{bf} = A x 0.62 x sqrt(2*32.2*h) = Q_{bf} = 0.000 cfs
T_{bf} = V_{bf} / (Q_{bf} x 3600) = T_{bf} = 0.0 hrs

Add holes to decrease storage time if greater than 48 hours

The first flush volume will discharge in T_{ff} = 0.0 hrs
V_{rem} between X_{bf} and X_{rem} = V_{bf} - V_{ff} = 30,105 cf
Target Bankfull Discharge Time = 46.0 hrs
T_{rem}= Target Discharge Time - T_{ff} = 46.0 hrs
$H_{ff(ave)}$=(2/3)(X_{ff}-X_{ff})+(X_{ff}-X_{bot}) = 0.23 ft
Q_{ff+bf}=A_{bf}(.62)(SQRT(2gh)) = 0.00 cfs
V_{ff+bf}=$T_{rem}$$Q_{ff+bf}$ = 0 cf
V_{bf}=V_{rem}-V_{ff+bf} = 30,105 cf
Q_{bf}=V_{bf}/T_{rem} = 0.18 cfs
$H_{bf(ave)}$=(2/3)(X_{bf}-X_{ff}) = 0.23 ft
A_{bf} = 0.0755 sf
Selected Orifice Diameter = **1** **in**
Area of each orifice = 0.0055 sf
Maximum #$_{orif}$ = **13** **holes at elev.** **700.00**

Check Bankfull discharge release time

$A_{bf(actual)}$ = 0.0709 ft^2
$Q_{bf(act)}$ = A x 0.62 x sqrt(2*32.2*h) = 0.171 cfs
$T_{bf(act)}$ = T_{ff}+(V_{bf} / (((Q_{ff+bf}+$Q_{bf(act)}$)*3600)) 48.9 hrs O.K.

3. Standpipe outlet holes sizing - "100-yr flood" discharge

Q_{100} = Q_{allow} = 2.23 cfs Per Derbyshire Drain Development Plan Q_{100} = 2.23 cfs
Release from above holes
Q_{ff}+Q_{bf}=[0.62*(#$_{ff\,orif}$)*($A_{ff\,orif}$)*SQRT(2g(X_{100}-X_{bot}))]+ [0.62*(#$_{bf\,orif}$)*($A_{bf\,orif}$)*SQRT(2g(X_{100}-X_{ff}))] Q_{ff}+Q_{bf}= 0.63 cfs
Q_{max100} =Q_{allow} - (Q_{ff}+Q_{bf}) Q_{max100}= 1.597 cfs
A_{max100} = Q_{max100} / (.62 x sqrt(2*32.2*X_{100}-X_{ff})) $A_{(required)}$ = 0.1893 sf
Selected Orifice Diameter = **2** **in**
Area of each orifice = 0.0218 sf
Maximum #$_{orif}$ = **8** **holes at elev.** **700.35**

Check that the actual flow rate does not exceed the allowable flow rate

(Q_{ff}+Q_{bf})*0.62*#$_{orif}$*A_{100}*sqrt(2*32.2*(X_{100}-X_{ff}))<Q_{allow} = 2.11 cfs
2.11 < 2.23

Check "100-yr discharge" holes discharge release time

$h_{ff(ave)}$ = 2/3 x (X_{100} - X_{ff}) + (X_{ff} - X_{bot}) = $h_{ff(ave)}$ = 2.27 ft
Q_{ff} = .62 x #$_{orif}$ x $A_{bf\,orif}$ x sqrt(2 x 32.2 x h) = Q_{ff} = 0.00 cfs
$h_{bf(ave)}$ = 2/3 x (X_{100} - X_{ff}) +(X_{ff} - X_{ff}) = $h_{bf(ave)}$ = 2.27 ft
Q_{bf+100} = $A_{bf\,orif}$ x 0.62 x #$_{bf\,holes}$ x sqrt(2 x 32.2 x h) = Q_{bf+100} = 0.53 cfs
$h_{1200(ave)}$ = 2/3 x (X_{100} - X_{ff}) = $h_{1200(ave)}$ = 1.92 ft
Q_{100} = $A_{100\,orif}$ x 0.62 x #$_{100\,orif}$ x sqrt(2 x 32.2 x h) = $Q_{100(ave)}$ = 1.20 cfs
Check to confirm the 100-year storm volume is discharged in less than 72 hours.
V_{rem} = V_{100}-V_{bf} = V_{rem} = 289,666 cf
T_{100} = T_{bf} + ((V_{rem})/($Q_{all+Qbf+100}$+Q_{100ave})) = T_{100} = 46.4 hrs O.K.

Check that the actual flow rate does not exceed the allowable flow rate

Qff=.62 x #ff holes x A x sqrt(2 x 32.2 x (X100-Xo)) = 0 cfs
Qbf=.62 x #bf holes x A x sqrt(2 x 32.2 x (X100-Xff)) = 0.633 cfs
(Qff+Qbf)*0.62*#orif*A100*sqrt(2*32.2*(X100-Xbf))<Qall = 2.105 cfs O.K.
2.105 < 2.266

4. Riser Outlet Pipe Design

Outlet pipe designed to handle the 100-year restricted flow

100-year restricted flow = Q = 2.23 cfs
Choose outflow pipe diameter = d = **24** **in**
Choose outflow pipe slope = S = **0.18** **%**
Assume roughness factor n = 0.013
Flow velocity at 100-yr restricted flow (Mannings) = V = 3.06 fps
Design Pipe Capacity = = 9.60 cfs

Basin Overflow Weir

Size of Overflow Manhole	=	4	ft
% of MH that can be used as a weir	=	50	%
Calculated length of weir	=	6.28	
Drainage Area, A =	=	45.47	ac
C-Factor (C) =	=	0.47	
Longest Tc from Pipe Calcs	=	31.7	min
Sum of all Flow into Basin	=	52.11	cfs
Volume of Basin	=	0	cf
Storage Elevation	=	703.22	ft
Freeboard Elevation	=	706.00	ft
Time to fill basin	=	0.00	min
I	=	3.09	
Qexp=CIA	=	65.96	cfs
Qweir=3.33Lh^1.5 therefore h	=	2.10	ft
Water elevation while overflowing	=	705.33	OK

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

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE 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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CLIENT
SE MICHIGAN LAND HOLDINGS, LLC
CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

STORMWATER BASIN A CALCULATIONS

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

SCALE 0 -- --
NO SCALE

DR. SK CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 14

CAD FILE: 15001707SP-07-STM.DWG

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PRELIMINARY - NOT FOR CONSTRUCTION

DETENTION BASIN B DESIGN CALCULATIONS

W1 Determining Post-Development Cover Types, Areas, Curve Numbers and runoff coefficients

Total Contributing Drainage Area = 12.02 Acres

Rational Method Variables

Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coef	(c)(Area)
Impervious (Roofs, pavement)	B	122,454	2.8	0.95	116,331
Water Surfaces (Bankfull in Basin)	B	24,000	0.6	1.00	24,000
Developed Open Space, Good Condition	B	323,906	7.4	0.25	80,977
Developed Open Space, Good Condition	D	53,240	1.2	0.45	23,958
				Total - Sum (c)(Area) =	245,266
				Area Total (sf)=	523,600
				Weighted C-Sum(c)(Area)/Sum(ac) or Sum(sf)=	**0.47**

NRCS Variables

Pervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Developed Open Space, Good Condition	B	323,906	7.4	61	19,758,271
Developed Open Space, Good Condition	D	53,240	1.2	80	4,259,194
			0.0		0
				Total - Sum (CN)(Area) =	24,017,464
				Area Total - Sum(ac) of Sum(sf)=	377,146
				Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=	**64**

Impervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Impervious (Roofs, pavement)	-	122,454	2.8	98	12,000,492
Impervious (Bankfull in Basin)	-	24,000	0.6	98	2,352,000
			0.0		0
				Total - Sum (CN)(Area) =	14,352,492
				Area Total - Sum(ac) of Sum(sf)=	146,454
				Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=	**98**

W2 First Flush Runoff Calculations (Vff)

A. Vff = (1") (1/12) (43560/1) (C) AC = **20,507** cf

W3 Predevelopment Bankfull Runoff Calculations (Vbf-pre)

A. 2 year/24 hour storm event P = 2.35 in
B. Pervious Cover CN CN = 58 HSG B, meadow
C. S = (1000/CN) -10 S = 7.24 in
D. Q = (P-0.25)^2/(P+0.85) Q = 0.10 in
E. Site Area (excluding "Self-Crediting BMPs") Area = 523,600 sf
F. V_{bf-pre} = Q(1/12)Area V_{bf-pre} = **4,357** cf

W4 Pervious Cover Post-development Bankfull Runoff Calculations (Vbf-per-post)

A. 2 year/24 hour storm event P = 2.35 in
B. Pervious Cover CN (from W1) CN = 64 weighted average
C. S = (1000/CN) -10 S = 5.70 in
D. Q = (P-0.25)^2/(P+0.85) Q = 0.21 in
E. Pervious Cover Area (from W1) Area = 377,146 sf
F. $V_{bf-per-post}$ = Q(1/12)Area $V_{bf-per-post}$ = **6,640** cf

W5 Impervious Cover Post-development Bankfull Runoff Calculations (Vbf-imp-post)

A. 2 year/24 hour storm event P = 2.35 in
B. Impervious Cover CN (from W1) CN = 98
C. S = (1000/CN) -10 S = 0.20 in
D. Q = (P-0.25)^2/(P+0.85) Q = 2.12 in
E. Impervious Cover Area (from W1) Area = 146,454 sf
F. $V_{bf-imp-post}$ = Q(1/12)Area $V_{bf-imp-post}$ = **25,894** cf

W6 Pervious Cover Post-development 100-year Storm Runoff Calculations (V100-per-post)

A. 100 year storm event P = 5.11 in
B. Pervious Cover CN (from W1) CN = 64 weighted average
C. S = (1000/CN) -10 S = 5.70 in
D. Surface Runoff, Q = (P-0.25)^2/(P+0.85) Q = 1.63 in (SRO)
E. Pervious Cover Area (from W1) Area = 377,146 sf
F. $V_{100-per-post}$ = Q(1/12)Area $V_{100-per-post}$ = **51,192** cf

W7 Impervious Cover Post-development 100-year Storm Runoff Calculations (V100-imp-post)

A. 100 year storm event P = 5.11 in
B. Impervious Cover CN (from W1) CN = 98
C. S = (1000/CN) -10 S = 0.20 in
D. Surface Runoff, Q = (P-0.25)^2/(P+0.85) Q = 4.87 in (SRO)
E. Impervious Cover Area (from W1) Area = 146,454 sf
F. $V_{100-imp-post}$ = Q(1/12)Area $V_{100-imp-post}$ = **59,473** cf

W8 Determine Time of Concentration (Tc-hrs)

Tc as calculated from storm sewer converyence to basin outfall at R16

Time of Concentration = 0.43 hr

W9 Runoff Summary & Onsite Infiltration Requirement

A. Runoff Summary from Previous Worksheets

V_{bf} = **20,507** cf
V_{bf-pre} = 4,357 cf
$V_{bf-per-post}$ = 6,649 cf **Total BF Volume ($V_{bf-total}$)**
$V_{bf-imp-post}$ = 25,894 cf 32,543 cf
$V_{100-per-post}$ = 51,192 cf **Total 100-year Volume (V_{100})**
$V_{100-imp-post}$ = 59,473 cf 110,665 cf

B. Determine Onsite Infiltration Requirement

$V_{bf-total}$ = 32,543 cf
V_{bf-pre} = 4,357 cf
Bankfull Volume Difference = **28,186** cf

Onsite Infiltration Requirement (V_{rd}) = **28,186** cf **(bankfull difference)**

W10 Detention / Retention Requirement

A. Q_o = 238.6 (T_c)^ -0.82 473.67 cfs/in-mi^2
B. Total Site Area 12.02 ac
C. Q_{100} = $Q_{100-per}$ + $Q_{100-imp}$ 6.50 in > Precipitation, P
D. Peak Flow (PF) = (Q_o-(Q_{bf}-A)/640 57.841 cfs
E. Delta = PF - 0.15A 56.038 cfs
F. V_{det} = (Delta/PF) x V_{100} * **107,215** cf
* Refer to 'Summary' below for detention requirement minus infiltration provided.

W11 Determine Applicable BMPs and Associated Volume Credits

Proposed BMP	Area (ft²)	Storage Depth (ft)	Storage Volume (ft³)	Ave. Design Infil. Rate (in/hr)	Infil. During Storm (ft³)	Potential Volume Reduction (ft³)	100-yr Contributing Runoff (cf)
North East Rain Garden 4	6,848	0.67	4,588	2.75	9,416	14,004	17,587
South East Rain Garden 5	7,131	0.67	4,778	5.5	19,610	24,388	14,605

Total Volume Reduction Credit by Proposed Structural BMPs (Vinf) = **28,609** cf

** *Minimum of the calculated potential reduction and the 100-year storm volume over the tributary area.*

W12 Natural Features Inventory - See Sheet 3

W13 Site Infiltration / Detention Summary

Total Infiltration Required per WCWRC Rules: 28,186 cf
Total Infiltration Provided: 28,609 cf
Difference: 424 cf

% Deficiency: 0.0%
Pro-Rated 20% Detention Penalty: **0.0%**

Total Detention Required, Considering Infiltration Provided (V_{det} - V_{rd}) 78,606 cf
Total Detention Required w/ Penalty V100,det **78,606** cf

Basin Stage-Storage Summary

	Elev.	Area	Avg. Area	Depth	Total Vol.	Det. Vol.	
	705.5	49,750	48,385	0.5		143,916	
	705.0	47,020	44,343	1.0		119,724	
	704.0	41,665	39,305	1.0		75,381	
	703.0	36,945	31,270	0.5		36,076	
	702.5	25,595	24,823	0.5		20,441	
	702.0	24,050	23,855	0.13		3,837	
Outlet	701.87	23,660	22,385	0.9	93,380		2.5xVff= 51268
	701.00	21,110	19,730	1.00	73,905		
	700.0	18,350	17,068	1.00	54,175		
	699.0	15,785	14,593	1.0	37,108		
	698.0	13,400	12,308	1.0	22,515		
	697.0	11,215	10,208	1.0	10,208		
	696.0	9,200	4,600	0.0	0		

Storage Volume Provided: **143,916** cf

Vff-Vinf= 0 cf El. Vff = 701.87
Vbf-Vinf= 3,933 cf El. Vbf = 702.00
V100,det = 78,606 cf El. V100 = 704.07
freeboard= 1.43

FOREBAY Forebay Sizing

Required Volume (Vfb)=0.05*V100				**3,930 cf**
East Forebay Drainage Area				10.13 acres
Required Volume (Vfb)=0.05*V100 (to East forebay)				**3,311 cf**
Forebay Stage-Storage Summary:				
Elev.	Area	Avg. Area	Depth	Volume
702.5	5,225	4,778	0.5	3,328
702.0	4,330	4,220	0.13	549
701.87	4,110			0
West Forebay Drainage Area				1.89 acres
Required Volume (Vfb)=0.05*V100 (to West forebay)				**619 cf**
Forebay Stage-Storage Summary:				
Elev.	Area	Avg. Area	Depth	Volume
702.5	2,010	1,755	0.5	1,065
702.0	1,500	1,440	0.1	187
701.87	1,380			0

Total forebay volume provided **4,193 cf**

OUTLET Outlet Control Structure Sizing

1. Standpipe outlet holes sizing - "first flush" runoff

First flush discharge should be detained for 24 hours

$Q_{bf/ff}$ = V_{ff} / 24 hrs / 3600 sec Q_{ff}= 0.000 cfs

Determine the appropriate size orifice to release the first flush volume.

$h_{ff(ave)}$ = 2/3 x (X_d - X_{bo}) $h_{ff(ave)}$= 0.00 ft
$A_{ff(required)}$ = Q_{ff} / 0.62 x sqrt(2*32.2*h) $A_{(required)}$= 0.0000 sf
Selected Orifice Diameter = 0 in
Area of each orifice = 0.0000 sf
Number of orifice holes provided = = 0 **holes at elev.** **701.87**

Check First Flush discharge release time

$A_{ff(actual)}$= 0.0000 ft²
Q_{ff} = A x 0.62 x sqrt(2*32.2*h) = 0.000 cfs
T_{ff}= V_{ff}/(Q_{ff} x 3600) 0.0 hrs No FF Holes Required

2. Standpipe outlet holes sizing - "Bankfull flood" discharge

Bankfull should discharge within 36 to 48 hours

Check release from first flush holes only

$h_{bf(ave)}$ = 2/3 x (X_{bf} - X_{bo}) $h_{bf(ave)}$ = 0.00 ft
Q_{bf} = A x 0.62 x sqrt(2*32.2*h) = Q_{bf} = 0.000 cfs
T_{bf} = V_{bf} / (Q_{bf} x 3600) = T_{bf} = 0.0 hrs

Add holes to decrease storage time if greater than 48 hours

The first flush volume will discharge in T_{ff} = 0.0 hrs
Additional volume between X_{bf} and X_d = V_{bf} - V_{ff} = 3,933 cf
Target Bankfull Discharge Time = 40.0 hrs
T_{max} = Target Discharge Time - T_{ff} = 40.0 hrs
$H_{bf(ave)}$=(2/3)(X_d-X_{bf})+(X_{bf}-X_{bo}) = 0.09 ft
Q_{bf-bf}=A_{bf}(.62)(SQRT(2gh) = 0.00 cfs
V_{bf-bf}=T_{max}xQ_{bf-bf} = 0 cf
V_{bf-ff}=V_{max}-V_{bf-bf} = 3,933 cf
Q_{bf-ff}=V_{ff}/T_{max} = 0.03 cfs
$H_{bf(ave)}$=(2/3)(X_d-X_{bf}) = 0.09 ft
A_{bf} = 0.0184 sf
Selected Orifice Diameter = 1.00 in
Area of each orifice = 0.0055 sf
Maximum #$_{bf}$ = = 3 **holes at elev.** **701.87**

Check Bankfull discharge release time

$A_{bf(actual)}$ = 0.0164 ft²
$Q_{bf(act)}$ = A x 0.62 x sqrt(2*32.2*h) = 0.0243 cfs
$T_{bf(act)}$ = T_{ff}+(V_{bf} / ((Q_{bf-ff}+$Q_{bf(act)}$)*3600)) 45 hrs O.K.

3. Standpipe outlet holes sizing - "100-yr flood" discharge

Q100 = Q_{allow} = 0.095 x Drainage Area Q_{100} = 1.142 cfs

Release from above holes
Q_{ff}+Q_{bf}=[0.62*(#$_{ff(act)}$)*($A_{ff(act)}$)*SQRT(2g[X_{100}-X_{bo}])]+ [0.62*(#$_{bf(act)}$)*($A_{bf(act)}$)*SQRT(2g[X_{100}-X_d])] Q_{ff}+Q_{bf}= 0.121 cfs
Q_{max100} =Q_{allow} - (Q_{ff}+Q_{bf}) Q_{max100}= 1.021 cfs
A_{max100} = Q_{max100} / .62 x sqrt(2*32.2*(X_{100}-X_{bf})) $A_{(required)}$ = 0.1427 sf
Selected Orifice Diameter = 1 in
Area of each orifice = 0.0055 sf
Number of orifice holes required = = 7 **holes at elev.** **702.00**

Check that the actual flow rate does not exceed the allowable flow rate

Qff=.62 x #ff holes x A x sqrt(2 x 32.2 x (X100-Xo)) = 0.000 cfs
Qbf=.62 x #bf holes x A x sqrt(2 x 32.2 x (X100-Xff)) = 0.121 cfs
(Qff+Qbf)*0.62*#orif*A100*sqrt(2*32.2*(X100-Xbf)<Qall = 0.394 cfs O.K.
0.394 < 1.142

Check "100-yr discharge" holes discharge release time

$h_{ff(ave)}$ = 2/3 x (X_{100} - X_d) + (X_d - X_{bo}) = $h_{ff(ave)}$ = 1.51 ft
Q_{ff} = .62 x #$_{ff(act)}$ x $A_{bf(act)}$ x sqrt(2 x 32.2 x h) = Q_{ff} = 0.000 cfs
$h_{bf(ave)}$ = 2/3 x (X_{100} - X_d) +(X_d - X_{bf}) = $h_{bf(ave)}$ = 1.51 ft
Q_{bf-100} = $A_{bf(act)}$ x 0.62 x #$_{bf-holes}$ x sqrt(2 x 32.2 x h) = Q_{bf-100} = 0.100 cfs
$h_{100(ave)}$ = 2/3 x (X_{100} - X_{bf}) = $h_{100(ave)}$ = 1.38 ft
Q_{100} = $A_{100\ orif}$ x 0.62 x #$_{100\ orif}$ x sqrt(2 x 32.2 x h) = $Q_{100(ave)}$ = 0.223 cfs

Check to confirm the 100-year storm volume is discharged in less than 72 hours.

V_{rem} = V_{100}-V_{bf} = V_{rem} = 74,672 cf
T_{100} = T_{bf} + ((V_{rem})/(Q_{bf-ff}+Q_{100})) = T_{100} = 64.2 hrs O.K.

4. Riser Outlet Pipe Design

Outlet pipe designed to handle the 100-year restricted flow

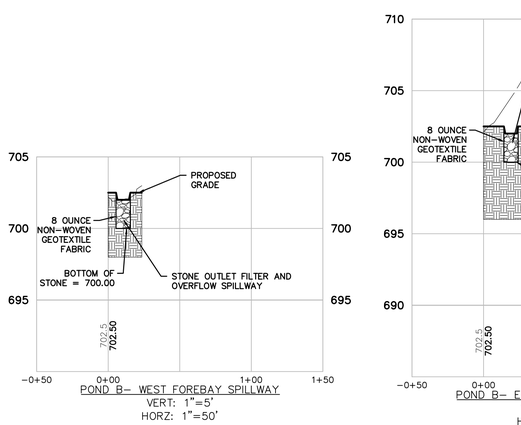
100-year restricted flow = Q = 0.39 cfs
Choose outflow pipe diameter = d = 24 in
Choose outflow pipe slope = S = 0.26 %
Assume roughness factor n = 0.013
Flow velocity at 100-yr restricted flow (Mannings) = V = 3.67 fps
Design Pipe Capacity = = 11.54 cfs

Basin Overflow Weir

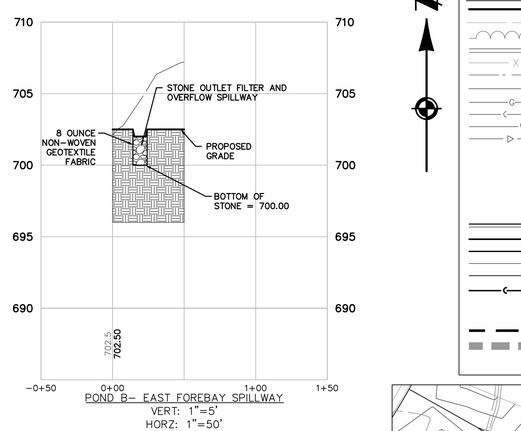
Size of Overflow Manhole = 4 ft
% of MH that can be used as a weir = 50 %
Calculated length of weir = 6.28
Drainage Area, A = = 12.02 ac
C-Factor (C) = = 0.47
Longest Tc from Pipe Calcs = = 17.5 min
Sum of all Flow into Basin = = 7.79 cfs
Volume of Basin = 237,296 cf
Storage Elevation = 704.07 ft
Freeboard Elevation = 705.50 ft
Time to fill basin = 507.69 min
I = 0.32
Qexp=CIA = 1.80 cfs
Qweir=3.33(b*1.5 therefore h = 0.06 ft
Water elevation while overflowing = 704.13 OK

Outlet Pipe Sizing

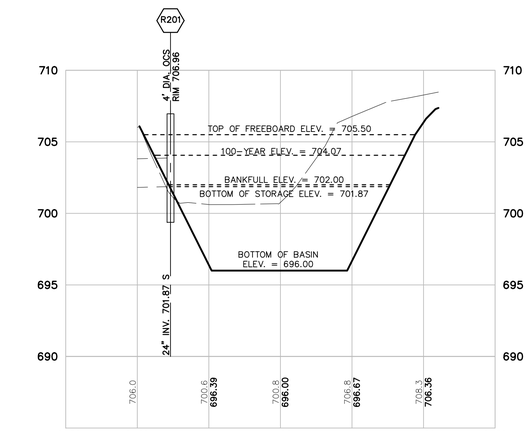
Size of Pipe = 24 inch
Area = 3.142 sf
invert of pipe = 701.87 ft
Springline = 702.87 ft
h = 1.20 ft
capacity = 17.14 cfs (must exceed Qexp)



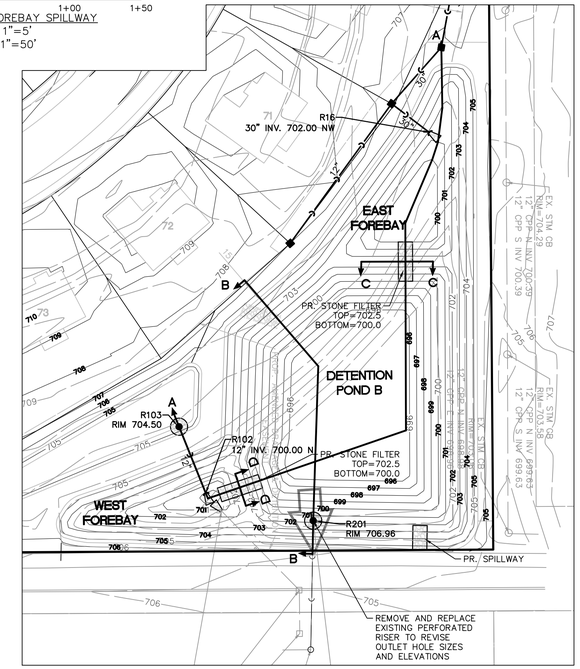
POND B– WEST FOREBAY SPILLWAY
VERT: 1"=5'
HORZ: 1"=50'

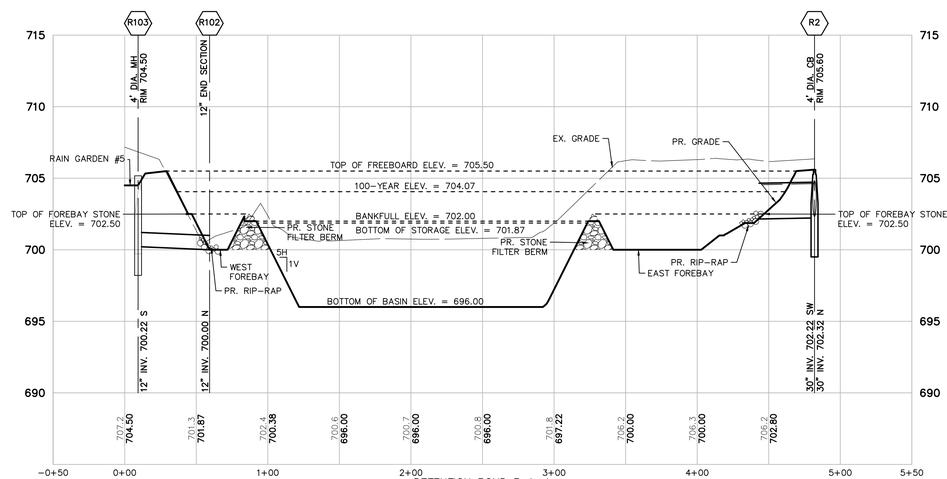


POND B– EAST FOREBAY SPILLWAY
VERT: 1"=5'
HORZ: 1"=50'



DETENTION BASIN B B–B
VERT: 1"=5'
HORZ: 1"=50'





DETENTION POND B A–A
VERT: 1"=5'
HORZ: 1"=50'

DETENTION BASIN B NARRATIVE:

EXISTING DETENTION BASIN A IS PROPOSED TO BE EXPANDED IN ORDER TO COMPLY WITH THE CURRENT WCWRC RULES FOR PERMANENT POOL VOLUME AND FREEBOARD ELEVATION. TWO INFILTRATION RAIN GARDENS ARE PROPOSED UPSTREAM OF BASIN B, THESE BMPs ACHIEVE THE REQUIRED INFILTRATION VOLUME FOR THE BASIN. THE OUTLET FOR THIS BASIN IS THE PLINY–HARRIS DRAIN, WHICH REQUIRED A RESTRICTED OUTFLOW RATE OF 0.095 CFS PER THE YPSILANTI TOWNSHIP STORMWATER MANAGEMENT PROGRAM. THE INFILTRATION VOLUMES ACHIEVED IN THE UPSTREAM BPMs ARE GREATER THAN THE FIRST FLUSH VOLUMES, THEREFORE NO FIRST FLUSH OUTLET HOLES ARE PROVIDED IN THE OUTLET CONTROL STRUCTURE.

LEGEND

- BOUNDARY LINE
- EXIST. CONTOUR
- EXIST. TREE LINE
- EXIST. CURB AND GUTTER
- EXIST. FENCE
- EXIST. GRAVEL
- EXIST. WATER EDGE
- EXIST. GAS
- EXIST. STORM
- EXIST. WATER MAIN
- EXIST. SANITARY
- EXIST. UNSPECIFIED UTILITY
- EXIST. CULVERT
- EXIST. CATCH BASIN/INLET
- EXIST. HYDRANT
- EXIST. VALVE
- EXIST. SANITARY SEWER
- PROP. BACK/EDGE CURB
- PROP. R.O.W. LINE
- PROP. LOT LINE
- PROP. ROAD CENTERLINE
- PROP. CONTOUR
- PROP. STORM SEWER
- PROP. END SECTION
- PROP. CATCH BASIN/INLET
- PROP. RAIN GARDEN AREA
- PROP. OVERALL DRAINAGE AREA

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

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.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE 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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734.994.4000

SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC
CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

STORMWATER BASIN B

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP

10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

SCALE 0 50 100
1" = 100 FEET
DR. SK CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 15

CAD FILE: 15001707SP-07-STM.DWG

\\AAANN-SFS\WORKST DATA\AAANN\PROJECTS\15001707 - CREEKSIDE NORTH\CIVIL\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-07-STM.DWG, 10/17/2025 3:39 PM, AMAAR KALASH

PRELIMINARY - NOT FOR CONSTRUCTION

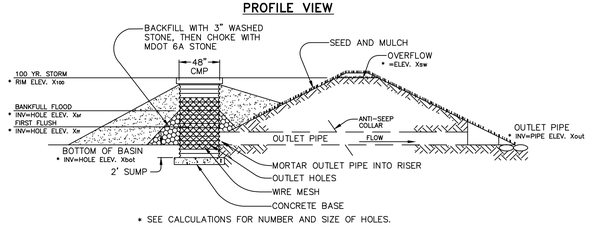
CONVEYANCE CALCULATIONS

I = B/(T+D)^E B = 175.0 D = 25.00 E = 1.00
C = Varies Tmin = 20 n = 0.013 Vmin = 3.0

* = Check Rim-HGL clearance

FROM STRUCT INPUT	TO STRUCT	A AREA (AC)	C RUNOFF COEFF	AxC EQUIV AREA (AC)	CA DESIGN SUM AxC (AC)	T TIME CONC. (MIN)	I INTEN-SITY (IN/HR)	Q FLOW CAxI (CFS)	Qc PIPE CAPAC. (CFS) * see above	D PIPE DIAM. (IN)	L PIPE LENGTH (FT)	S PIPE SLOPE (%)	HGq MIN HG for Q (%)	HGv MIN HG for Vmin (%)	HG HGL SLOPE (%)	Vf VEL. FULL (FPS)	Tf TIME OF FLOW (MIN)	H.G.L. ELEV. UPPER END	H.G.L. ELEV. LOWER END	RIM/GROUND ELEV. UPPER END	RIM/GROUND ELEV. LOWER END	INVERT ELEV. UPPER END	INVERT ELEV. LOWER END
R18	R17	0.11	0.41	0.04	0.04	20.0	3.89	0.16	2.36	12	121	0.44	0.00	0.44	0.44	3.0	0.7	705.08	704.55	707.00	706.65	702.58	702.05
R7	R6	0.48	0.46	0.22	0.22	20.0	3.89	0.86	3.49	12	118	0.96	0.06	0.44	0.44	4.4	0.4	706.99	706.48	710.46	708.70	706.80	705.67
R6	R5	0.11	0.41	0.04	1.12	20.4	3.85	4.32	5.25	18	91	0.25	0.17	0.25	0.25	3.0	0.5	706.48	706.25	708.70	709.40	705.27	705.05
R5	R4	0.14	0.55	0.08	1.20	20.9	3.81	4.58	5.25	18	184	0.25	0.19	0.25	0.25	3.0	1.0	706.16	705.69	709.40	708.20	704.95	704.49
R4	R3	0.00	0.00	0.00	1.28	21.9	3.73	4.78	9.33	24	56	0.17	0.04	0.17	0.17	3.0	0.3	704.82	704.72	708.20	706.70	702.92	702.82
R3	R2	0.17	0.51	0.09	4.12	22.2	3.71	15.28	15.35	30	70	0.14	0.14	0.13	0.14	3.1	0.4	704.72	704.62	706.70	705.60	702.42	702.32
R2	R17	0.13	0.57	0.07	4.19	22.6	3.68	15.40	15.40 *	30	52	0.14	0.14	0.13	0.14	3.1	0.3	704.62	704.55	705.60	706.65	702.22	702.15
R17	R16	0.11	0.41	0.05	4.28	22.9	3.65	15.64	15.89	30	33	0.15	0.15	0.13	0.15	3.2	0.2	704.55	704.50	706.65	703.25	702.05	702.00
R12	R11	2.10	0.58	1.22	1.22	20.0	3.89	4.74	5.25	18	28	0.25	0.20	0.25	0.25	3.0	0.2	704.99	704.92	707.12	707.12	703.59	703.52
R11	R3	2.59	0.59	1.53	2.75	20.2	3.87	10.65	14.79	30	156	0.13	0.07	0.13	0.13	3.0	0.9	704.92	704.72	707.12	706.70	702.72	702.52
R13	R4	0.20	0.38	0.08	0.08	20.0	3.89	0.31	7.56	12	10	4.50	0.01	0.44	0.44	9.6	0.0	706.47	706.43	707.63	708.20	706.08	705.63
R15	R14	2.15	0.40	0.86	0.86	20.0	3.89	3.34	7.21	12	29	4.10	0.88	0.44	0.88	9.2	0.1	708.80	707.63	0.00	711.78	708.00	706.81
R14	R6	0.00	0.00	0.00	0.86	20.1	3.88	3.34	3.65	15	354	0.32	0.27	0.32	0.32	3.0	2.0	707.63	706.48	711.78	708.70	706.61	705.47
R64	R63	0.46	0.55	0.25	0.25	20.0	3.89	0.97	2.36	12	28	0.44	0.07	0.44	0.44	3.0	0.2	703.00	702.88	707.46	707.46	702.20	702.08
R63	R62	0.48	0.54	0.26	0.51	20.2	3.87	1.97	2.36	12	163	0.44	0.31	0.44	0.44	3.0	0.9	702.78	702.06	707.46	706.20	701.98	701.26
R62	R61	0.06	0.35	0.02	0.53	21.1	3.80	2.01	2.36	12	175	0.44	0.32	0.44	0.44	3.0	1.0	702.05	701.29	706.20	706.60	701.16	700.39
R61	R60	0.06	0.35	0.02	0.55	22.1	3.72	2.04	2.36	12	66	0.44	0.33	0.44	0.44	3.0	0.4	701.29	701.00	706.60	697.25	700.29	700.00
BASIN B																							
BASIN A																							
R44	R43	0.33	0.52	0.17	0.17	20.0	3.89	0.66	2.71	12	142	0.58	0.03	0.44	0.44	3.5	0.7	708.64	708.02	707.66	710.50	708.05	707.22
R43	R42	0.29	0.40	0.12	0.29	20.7	3.83	1.11	2.39	12	98	0.45	0.10	0.44	0.44	3.0	0.5	707.91	707.48	710.50	710.40	707.12	706.68
R42	R41	0.23	0.41	0.09	0.38	21.2	3.79	1.44	2.39	12	92	0.45	0.16	0.44	0.44	3.0	0.5	707.37	706.97	710.40	710.10	706.58	706.17
R41	R40	0.32	0.39	0.12	0.50	21.7	3.75	1.87	2.39	12	124	0.45	0.28	0.44	0.44	3.0	0.7	706.85	706.31	710.10	709.65	706.07	705.51
R40	R39	0.73	0.39	0.28	0.78	22.4	3.69	2.88	3.65	15	83	0.32	0.20	0.32	0.32	3.0	0.5	706.31	706.04	709.65	708.22	705.31	705.04
R39	R38	0.14	0.45	0.06	3.23	22.9	3.65	11.80	11.97	24	149	0.28	0.27	0.17	0.27	3.8	0.6	704.95	704.55	708.22	707.16	703.36	702.95
R38	R37	0.80	0.62	0.50	3.73	23.5	3.61	13.46	13.57	24	28	0.36	0.35	0.17	0.35	4.3	0.1	704.51	704.41	707.16	707.16	702.85	702.75
R37	R36A	1.08	0.53	0.57	4.30	23.6	3.60	15.48	15.89	30	42	0.15	0.14	0.13	0.14	3.2	0.2	704.41	704.35	707.16	708.72	702.35	702.28
R36A	R36	0.00	0.00	0.00	4.30	23.8	3.59	15.48	15.89	30	170	0.15	0.14	0.13	0.14	3.2	0.9	704.35	704.11	708.72	706.89	702.18	701.93
R36	R35	0.00	0.00	0.00	4.30	24.7	3.52	15.48	15.89	30	107	0.15	0.14	0.13	0.14	3.2	0.5	704.11	703.96	706.89	706.75	701.83	701.67
R35	R34	5.34	0.42	2.24	8.40	25.2	3.49	29.28	30.18	42	192	0.09	0.08	0.08	0.08	3.1	1.0	703.96	703.79	706.75	708.90	700.87	700.70
R34	R33	0.00	0.00	0.00	8.40	26.2	3.42	29.28	30.18	42	37	0.09	0.08	0.08	0.08	3.1	0.2	703.79	703.76	708.90	707.54	700.60	700.56
R33	R32	0.44	0.54	0.24	8.64	26.4	3.40	29.42	30.18	42	28	0.09	0.09	0.08	0.09	3.1	0.1	703.76	703.74	707.54	707.54	700.46	700.44
R32	R31	0.42	0.57	0.24	8.88	26.5	3.40	30.17	30.18	42	187	0.09	0.09	0.08	0.09	3.1	1.0	703.74	703.57	707.54	706.52	700.34	700.17
R31	R30	0.31	0.44	0.14	9.02	27.5	3.33	30.17	30.18	42	77	0.09	0.09	0.08	0.09	3.1	0.4	703.57	703.50	706.52	704.75	700.07	700.00
R53	R52	1.08	0.58	0.63	0.63	20.0	3.89	2.45	3.65	15	28	0.32	0.14	0.32	0.32	3.0	0.2	705.76	705.67	708.43	708.43	704.76	704.67
R52	R51	1.38	0.55	0.76	1.39	20.2	3.87	5.38	5.94	18	109	0.32	0.26	0.25	0.26	3.4	0.5	705.61	705.32	708.43	707.90	704.47	704.12
R51	R39	0.24	0.50	0.12	1.51	20.7	3.83	5.78	5.94	18	80	0.32	0.30	0.25	0.30	3.4	0.4	705.21	704.96	707.90	708.22	704.02	703.76
R87	R56	0.58	0.42	0.24	0.24	20.0	3.89	0.93	2.36	12	109	0.44	0.07	0.44	0.44	3.0	0.6	706.37	705.89	709.00	708.58	705.57	705.09
R56	R55	0.44	0.56	0.25	0.49	20.6	3.84	1.88	2.36	12	28	0.44	0.28	0.44	0.44	3.0	0.2	705.80	705.67	708.58	708.58	704.99	704.87
R55	R54	0.60	0.56	0.33	0.82	20.8	3.82	3.13	3.65	15	109	0.32	0.24	0.32	0.32	3.0	0.6	705.67	705.32	708.58	709.02	704.67	704.32
R54	R39	0.13	0.46	0.06	0.88	21.4	3.77	3.32	3.65	15	80	0.32	0.26	0.32	0.32	3.0	0.4	705.22	704.96	709.02	708.22	704.22	703.96
R50	R49	4.54	0.41	1.86	1.86	20.0	3.89	7.23	11.32	15	60	3.07	1.25	0.32	1.25	9.2	0.1	705.87	705.12	705.29	707.33	705.84	703.99
R49	R48	0.00	0.00	0.00	1.86	20.1	3.88	7.23	7.43	18	77	0.50	0.47	0.25	0.47	4.2	0.3	705.12	704.75	707.33	710.25	703.79	703.40
R48	R47	0.00	0.00	0.00	1.86	20.4	3.85	7.23	7.43	18	120	0.50	0.47	0.25	0.47	4.2	0.5	704.75	704.18	710.25	707.85	703.30	702.70
R47	R35	0.00	0.00	0.00	1.86	20.9	3.81	7.23	9.60	24	130	0.18	0.10	0.17	0.17	3.1	0.7	704.18	703.96	707.85	706.75	702.30	702.07
R58	R57	0.71	0.36	0.25	0.25	20.0	3.89	0.97	2.52	12	163	0.50	0.07	0.44	0.44	3.2	0.8	707.46	706.75	710.47	706.62	706.57	705.75
R68	R67	0.96	0.58	0.55	0.55	20.0	3.89	2.14	2.36	12	28	0.44	0.36	0.44	0.44	3.0	0.2	703.06	702.93	706.26	706.26	702.26	702.13
R67	R66	0.82	0.54	0.44	0.99	20.2	3.87	3.83	4.09	15	178	0.40	0.35	0.32	0.35	3.3	0.9	702.85	702.22	706.26	706.00	701.93	701.22
R66	R65	0.08	0.35	0.03	1.04	21.1	3.80	3.95	4.09	15	30	0.40	0.37	0.32	0.37	3.3	0.2	701.36	701.25	706.00	699.20	700.12	700.00
R69	R66	0.06	0.35	0.02	0.02	20.0	3.89	0.08	2.36	12	192	0.44	0.00	0.44	0.44	3.0	1.1	702.86	702.02	706.21	706.00	702.06	701.22
R85	R84	0.00	0.00	0.00	0.00	20.0	3.89	0.00	2.47	12	97	0.48	0.00	0.44	0.44	3.1	0.5	707.26	706.84	707.92	708.50	706.50	706.04
R84	R83	0.38	0.40	0.15	0.15	20.5	3.85	0.58	2.36	12	150	0.44	0.03	0.44	0.44	3.0	0.8	705.24	704.58	708.50	708.28	704.14	703.48
R83	R82	0.62	0.60	0.37	0.91	21.3	3.78	3.44	5.25	18	160	0.25	0.11	0.25	0.25	3.0	0.9	704.58	704.17	708.28	707.34	703.08	702.68
R82	R81	0.47	0.60	0.28	1.70	22.2	3.71	6.30	11.99	27	148	0.15	0.04	0.15	0.15	3.0	0.8	704.17	703.95	707.34	707.85	702.08	701.86
R81	R80	0.09	0.46	0.04	1.97	23.0	3.65	7.18	11.99	27	158	0.15	0.05	0.15	0.15	3.0	0.9	703.95	703.72	707.85	706.50	701.76	701.52
R80	R79	0.53	0.56	0.30	2.51	23.9	3.58	8.98	11.99	27	33	0.15	0.08	0.15	0.15	3.0	0.2	703.72	703.67	706.50	706.43	701.42	701.37
R79	R78	0.17	0.58	0.10	2.61	24.1	3.56	9.30	11.99	27	70	0.15	0.09	0.15	0.15	3.0	0.4	703.67	703.57	706.43	707.13	701.27	701.16
R78	R77	0.02	0.58	0.01	2.62	24.5	3.54	9.30	11.99	27	123	0.15	0.09	0.15	0.15	3.0	0.7	703.57	703.38	707.13	707.30	701.06	700.88
R77	R76	0.42	0.42	0.18	3.53	25.2	3.49	12.31	21.09	36	223	0.10	0.03	0.10	0.10	3.0	1.2	703.38	703.16	707.30	706.00	700.48	700.26
R76	R75	0.33	0.43	0.14	3.67	26.4	3.40	12.50	21.09	36	157	0.10	0.04	0.10	0.10	3.0	0.9	703.16	703.00	706.00	701.03	700.16	700.00
R89	R83	0.69	0.56	0.39	0.39	20.0	3.89	1.52	2.36	12	28	0.44	0.18	0.44	0.44	3.0	0.2	704.70	704.58	707.74	708.28	703.60	703.48
R90	R82	0.34	0.58	0.20	0.20	20.0	3.89	0.78	2.36	12	28	0.44	0.05	0.44	0.44	3.0	0.2	704.30	704.17	707.34	707.34	703.20	703.08
R91	R82	0.81	0.38	0.31	0.31	20.0	3.89	1.21	2.36	12	150	0.44	0.11	0.44	0.44	3.0	0.8	704.83	704.17	707.27	707.34	703.74	703.08
R92	R81	0.04	0.60	0.02	0.02	20.0	3.89	0.08	2.36	12	30	0.44	0.00	0.44	0.44	3.0	0.2	704.69	704.56	707.89	707.85	703.89	703.76
R93	R81	0.52	0.40	0.21	0.21	20.0	3.89	0.82	2.36	12	163	0.44	0.05	0.44	0.44	3.0	0.9	704.67	703.95	707.47	707.85	703.48	702.76
R95	R80	0.61	0.40	0.24	0.24	20.0	3.89	0.93	2.36	12	134	0.44	0.07	0.44	0.44	3.0	0.7	704.31	703.72	706.58	706.50	703.01	702.42
R101	R100	0.00	0.00	0.00	0.00	20.0	3.89	0.00	2.36	12	80	0.44	0.00	0.44	0.44	3.0	0.4	704.55	704.20	706.39	706.79	703.43	703.08
R100	R99	0.31	0.49	0.15	0.15	20.4	3.85	0.58	3.65	15	49	0.32	0.01	0.32	0.32	3.0	0.3	704.20	704.04	706.79	707.77	702.88	702.72
R99	R98	0.02	0.35	0.01	0.16	20.7	3.83	0.61	3.65	15	72	0.32	0.01	0.32	0.32	3.0	0.4	704.04	703.81	707.77	707.44	702.62	702.39
R98	R97	0.14	0.45	0.06	0.22	21.1	3.80	0.84	5.25	18	31	0.25	0.01	0.25	0.25	3.0	0.2	703.81	703.73	707.44	706.47	702.19	702.12
R97	R96	0.31	0.62	0.19	0.41	21.3	3.78	1.55	5.25	18	28	0.25	0.02	0.25	0.25	3.0	0.2	703.73	703.66	706.47	706.47	702.02	701.95
R96	R77	0.59	0.54	0.32	0.73	21.5	3.76	2.75	9.33	24	157	0.17	0.01	0.17	0.17	3.0	0.9	703.66	703.38	706.47	707.30	701.55	701.28
R21	R20	1.07	0.58	0.62	0.62	20.0	3.89	2.41	3.65	15	28	0.32	0.14	0.32	0.32	3.0	0.2	704.16	704.07	707.17	707.18	702.96	702.87
R20	R19	0.84	0.55	0.46	1.08	20.2	3.87	4.18	5.25	18	147	0.25	0.16	0.25	0.25	3.0	0.8	704.07	703.70	707.18	707.02	702.67	702.30
R19	REX24	0.90	0.44	0.40	1.48	21.0	3.80	5.63	5.75	18	68	0.30	0.29	0.25	0.29	3.3	0.3	703.70	703.50	707.02	706.23	702.20	702.00
R103	R102	0.00	0.00	0.00	0.00	20.0	3.89	0.00	2.36	12	50	0.44	0.00	0.44	0.44	3.0	0.3	701.22	701.00	704.50	696.26	700.22	700.00
R201	R200	0.00	0.00	0.00	0.00	20.0	3.89	0.00	11.53	24	90	0.26	0.00	0.17	0.17	3.7	0.4	703.80	703.64	706.96	698.96	701.87	701.64

PROFILE VIEW



* SEE CALCULATIONS FOR NUMBER AND SIZE OF HOLES.

TYPICAL POND OUTLET RISER DETAIL

NO SCALE

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

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.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE 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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SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT: SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

STORMWATER CONVEYANCE CALCULATIONS

DATE: NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

SCALE 0 NO SCALE
DR. SK | CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 16

CAD FILE: 15001707SP-07-STM.DWG

\\ANN-DFS\PROJECT DATA\ANN\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SET\SITE PLAN\15001707SP-07-STM.DWG 10/17/2025 3:39 PM AMAR KALASAD

PRELIMINARY - NOT FOR CONSTRUCTION

RAIN GARDEN #1 DESIGN CALCS

Description: Rain Garden #1

C Factor

	Quantity	Unit			S.F. Imperv.
Pond	13,900	sf	-	=	13900
House	2	ea	2500 SF	=	5000
Multi Bldg	0	ea	4975	=	0
Driveway	0	ea	800 SF	=	0
Road & Walk	0	lf	39' wide	=	0

W1 Determining Post-Development Cover Types, Areas, Curve Numbers and runoff coefficients

Total Contributing Drainage Area = 1.08 Acres

Rational Method Variables

Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coef	(c)(Area)
Paved Parking Lots, roofs, driveways	B	5,000	0.11	0.95	4,750
Water Surfaces	B	13,900	0.32	1.00	13,900
Developed Open Space, Good Condition	B	42,141	0.97	0.30	12,642
			1.4		
			Total - Sum (c)(Area) =		31,292
			Area Total (sf)=		61,041
			Weighted C-Sum(c)(Area)/Sum(ac) or Sum(sf)=		**0.51**

NRCS Variables

Pervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Developed open space	B	42,141	0.97	61	2,570,601
			0.00		0
			0.00		0
			0.97		
Total - Sum (CN)(Area) =					2,570,601
Area Total - Sum(ac) of Sum(sf)=					42,141
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=					**61**

NRCS Variables

Impervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Paved Parking Lots, roofs, driveways	B	5,000	0.11	98	490,000
Impervious, Ponds	B	13,900	0.32	98	1,362,200
			0.00		0
			0.43		
Total - Sum (CN)(Area) =					1,852,200
Area Total - Sum(ac) of Sum(sf)=					18,900
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=					**98**

W6 Pervious Cover Post-development 100-year Storm Runoff Calculations (V100-per-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	61	
C.	S = (1000/CN) -10	S =	6.39	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	1.44	in
E.	Pervious Cover Area	Area =	42,141	sf
F.	$V_{100\text{-in-post}}$ = Q(1/12)Area	$V_{100\text{-in-post}}$ =	**5,042**	cf

W7 Impervious Cover Post-development 100-year Storm Runoff Calculations (V100-imp-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	98	
C.	S = (1000/CN) -10	S =	0.20	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	4.87	in
E.	Pervious Cover Area	Area =	18,900	sf
F.	$V_{100\text{-imp-post}}$ = Q(1/12)Area	$V_{100\text{-imp-post}}$ =	**7,675**	cf

W9 Runoff Summary & Onsite Infiltration Requirement

$V_{100\text{-per-post}}$ = 5,042 cf **Total 100-year Volume (V_{100})**

$V_{100\text{-imp-post}}$ = 7,675 cf 12,717 cf

W11 Determine Applicable BMPs and Associated Volume Credits

Proposed BMP	Area (ft^2)	Storage Depth (ft)	Storage Volume (ft^3)	Ave. Design Infil. Rate (in/hr)*	Infil. During Storm (ft^3)	Potential Volume Reduction (ft^3)	Actual Reduction (cf)**
			Surface				
Rain Garden #1	13,900	0.67	9,313	2.9	20,155	29,468	12,717

* *Per Geotechnical Investigation by McDowell & Associates Test Pits 11 and 12. Includes a factor of safety of 2.*
** *Minimum of the calculated potential reduction and the 100-year storm volume over the tributary area. See W11A.*

Total Volume Reduction Credit by Proposed Structural BMPs (Vinf) = **12,717** cf

W11A Infiltration Loading Ratios and Storage Volume Drawdown Times

Proposed BMP	100-yr Contributing Runoff (cf)*	Tributary Area (sf)	Overall Loading Ratio	Imperv. Area (sf)	Impervious Loading Ratio	Drawdown Time (hrs)
Rain Garden #1	12,717	47,141	3.4	42,141	3.0	2.77

Test Pit Information	Test Pit 1	
Existing Grade	708.2	
Elevation of stratum tested	703.45	
Bottom of Rain Garden Elevation	706	
S.H.G.W.	702.9	
Depth to S.H.G.W.	3.1	
Minimum Infiltration Rate	2.9	in/hr

RAIN GARDEN #2 DESIGN CALCS

Description: Rain Graden #2

C Factor

	Quantity	Unit			S.F. Imperv.
Pond	18,044	sf	-	=	18,044
House	11.25	ea	2500 SF	=	28125
Multi Bldg	0	ea	4975	=	0
Driveway	0	ea	16' x 32'	=	0
Road & Walk	0	lf	41' wide	=	0

W1 Determining Post-Development Cover Types, Areas, Curve Numbers and runoff coefficients

Total Contributing Drainage Area = 5.34 Acres

Rational Method Variables

Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coef	(c)(Area)
Paved Parking Lots, roofs, driveways	B	28,125	0.65	0.95	26,719
Water Surfaces	B	18,044	0.41	1.00	18,044
Developed Open Space, Good Condition	B	204,388	4.69	0.30	61,316
			5.8		
			Total - Sum (c)(Area) =		106,079
			Area Total (sf)=		250,557
			Weighted C-Sum(c)(Area)/Sum(ac) or Sum(sf)=		**0.42**

NRCS Variables

Pervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Developed open space	B	204,388	4.69	61	12,467,668
			0.00		0
			0.00		0
			4.69		
Total - Sum (CN)(Area) =					12,467,668
Area Total - Sum(ac) of Sum(sf)=					204,388
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=					**61**

NRCS Variables

Impervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Paved Parking Lots, roofs, driveways	B	28,125	0.65	98	2,756,250
Impervious, Ponds	B	18,044	0.41	98	1,768,312
			0.00		0
			1.06		
Total - Sum (CN)(Area) =					4,524,562
Area Total - Sum(ac) of Sum(sf)=					46,169
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=					**98**

W6 Pervious Cover Post-development 100-year Storm Runoff Calculations (V100-per-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	61	
C.	S = (1000/CN) -10	S =	6.39	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	1.44	in
E.	Pervious Cover Area	Area =	204,388	sf
F.	$V_{100\text{-in-post}}$ = Q(1/12)Area	$V_{100\text{-in-post}}$ =	**24,452**	cf

W7 Impervious Cover Post-development 100-year Storm Runoff Calculations (V100-imp-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	98	
C.	S = (1000/CN) -10	S =	0.20	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	4.87	in
E.	Pervious Cover Area	Area =	46,169	sf
F.	$V_{100\text{-imp-post}}$ = Q(1/12)Area	$V_{100\text{-imp-post}}$ =	**18,748**	cf

W9 Runoff Summary & Onsite Infiltration Requirement

$V_{100\text{-per-post}}$ = 24,452 cf **Total 100-year Volume (V_{100})**

$V_{100\text{-imp-post}}$ = 18,748 cf 43,201 cf

W11 Determine Applicable BMPs and Associated Volume Credits

Proposed BMP	Area (ft^2)	Storage Depth (ft)	Storage Volume (ft^3)	Ave. Design Infil. Rate (in/hr)*	Infil. During Storm (ft^3)	Potential Volume Reduction (ft^3)	Actual Reduction (cf)**
			Surface				
Rain Garden #2	18,044	0.67	12,089	5.9	53,230	65,319	43,201

* *Per Geotechnical Investigation by McDowell & Associates, Test Pit 9. Includes a factor of safety of 2.*
** *Minimum of the calculated potential reduction and the 100-year storm volume over the tributary area. See W11A.*

Total Volume Reduction Credit by Proposed Structural BMPs (Vinf) = **43,201** cf

W11A Infiltration Loading Ratios and Storage Volume Drawdown Times

Proposed BMP	100-yr Contributing Runoff (cf)*	Tributary Area (sf)	Overall Loading Ratio	Imperv. Area (sf)	Impervious Loading Ratio	Drawdown Time (hrs)
Rain Garden #2	43,201	232,513	12.9	204,388	11.3	1.36

Test Pit Information	Test Pit 4	Test Pit 6		
Existing Grade	706.94	708.8		
Elevation of stratum tested	703.44	702.3		
Bottom of Rain Garden Elevation		705.75		
S.H.G.W.		702.9		
Depth to S.H.G.W.		2.85		
Minimum Infiltration Rate	8.7	5.9	in/hr	

RAIN GARDEN #3 DESIGN CALCS

Description: Rain Garden #3

C Factor

	Quantity	Unit			S.F. Imperv.
Pond	26,511	sf	-	=	26,511
House	8	ea	2500 SF	=	20000
Multi Bldg	0	ea	4975	=	0
Driveway	0	ea	16' x 32'	=	0
Road & Walk	0	lf	41' wide	=	0

W1 Determining Post-Development Cover Types, Areas, Curve Numbers and runoff coefficients

Total Contributing Drainage Area = 4.54 Acres

Rational Method Variables

Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coef	(c)(Area)
Paved Parking Lots, roofs, driveways	B	20,000	0.46	0.95	19,000
Water Surfaces	B	26,511	0.61	1.00	26,511
Developed Open Space, Good Condition	B	177,656	4.08	0.30	53,297
			5.1		
			Total - Sum (c)(Area) =		98,808
			Area Total (sf)=		224,167
			Weighted C-Sum(c)(Area)/Sum(ac) or Sum(sf)=		**0.44**

NRCS Variables

Pervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Developed open space	B	177,656	4.08	61	10,837,016
			0.00		0
			0.00		0
			4.08		
Total - Sum (CN)(Area) =					10,837,016
Area Total - Sum(ac) of Sum(sf)=					177,656
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=					**61**

NRCS Variables

Impervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Paved Parking Lots, roofs, driveways	B	20,000	0.46	98	1,960,000
Impervious, Ponds	B	26,511	0.61	98	2,598,078
			0.00		0
			1.07		
Total - Sum (CN)(Area) =					4,558,078
Area Total - Sum(ac) of Sum(sf)=					46,511
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=					**98**

W6 Pervious Cover Post-development 100-year Storm Runoff Calculations (V100-per-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	61	
C.	S = (1000/CN) -10	S =	6.39	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	1.44	in
E.	Pervious Cover Area	Area =	177,656	sf
F.	$V_{100\text{-in-post}}$ = Q(1/12)Area	$V_{100\text{-in-post}}$ =	**21,254**	cf

W7 Impervious Cover Post-development 100-year Storm Runoff Calculations (V100-imp-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	98	
C.	S = (1000/CN) -10	S =	0.20	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	4.87	in
E.	Pervious Cover Area	Area =	46,511	sf
F.	$V_{100\text{-imp-post}}$ = Q(1/12)Area	$V_{100\text{-imp-post}}$ =	**18,887**	cf

W9 Runoff Summary & Onsite Infiltration Requirement

$V_{100\text{-per-post}}$ = 21,254 cf **Total 100-year Volume (V_{100})**

$V_{100\text{-imp-post}}$ = 18,887 cf 40,141 cf

W11 Determine Applicable BMPs and Associated Volume Credits

Proposed BMP	Area (ft^2)	Storage Depth (ft)	Storage Volume (ft^3)	Ave. Design Infil. Rate (in/hr)*	Infil. During Storm (ft^3)	Potential Volume Reduction (ft^3)	Actual Reduction (cf)**
			Surface				
Infiltration Trench #1	26,511	0.67	17,674	6.15	81,521	99,195	40,141

* *Per Geotechnical Investigation by McDowell & Associates Test Pits 11 and 12. Includes a factor of safety of 2.*
** *Minimum of the calculated potential reduction and the 100-year storm volume over the tributary area. See W11A.*

Total Volume Reduction Credit by Proposed Structural BMPs (Vinf) = **40,141** cf

W11A Infiltration Loading Ratios and Storage Volume Drawdown Times

Proposed BMP	100-yr Contributing Runoff (cf)*	Tributary Area (sf)	Overall Loading Ratio	Imperv. Area (sf)	Impervious Loading Ratio	Drawdown Time (hrs)
Infiltration Trench #1	40,141	197,656	7.5	177,656	6.7	1.30

Test Pit Information	Test Pit 5	Test Pit 7		
Existing Grade	708.83	709.2		
Elevation of stratum tested	703.33	702.7		
Bottom of Rain Garden Elevation		704.84		
S.H.G.W.		702.6		
Depth to S.H.G.W.		2.24		
Minimum Infiltration Rate	5.05	6.15	in/hr	

RAIN GARDEN #4 DESIGN CALCS

Description: Rain Garden #4

C Factor

	Quantity	Unit			S.F. Imperv.
Pond	6,848	sf	-	=	6848
House	5	ea	2500 SF	=	12500
Multi Bldg	0	ea	4975	=	0
Driveway	0	ea	800 SF	=	0
Road & Walk	0	lf	39' wide	=	0

W1 Determining Post-Development Cover Types, Areas, Curve Numbers and runoff coefficients

Total Contributing Drainage Area = 2.15 Acres

Rational Method Variables

Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coef	(c)(Area)
Paved Parking Lots, roofs, driveways	B	12,500	0.29	0.95	11,875
Water Surfaces	B	6,848	0.16	1.00	6,848
Developed Open Space, Good Condition	B	81,329	1.87	0.30	24,399
			2.3		
			Total - Sum (c)(Area) =		43,122
			Area Total (sf)=		100,677
			Weighted C-Sum(c)(Area)/Sum(ac) or Sum(sf)=		**0.43**

NRCS Variables

Pervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Developed open space	B	81,329	1.87	61	4,961,069
			0.00		0
			0.00		0
			1.87		
Total - Sum (CN)(Area) =					4,961,069
Area Total - Sum(ac) of Sum(sf)=					81,329
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=					**61**

NRCS Variables

Impervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Paved Parking Lots, roofs, driveways	B	12,500	0.29	98	1,225,000
Impervious, Ponds	B	6,848	0.16	98	671,104
			0.00		0
			0.44		
Total - Sum (CN)(Area) =					1,896,104
Area Total - Sum(ac) of Sum(sf)=					19,348
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=					**98**

W6 Pervious Cover Post-development 100-year Storm Runoff Calculations (V100-per-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	61	
C.	S = (1000/CN) -10	S =	6.39	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	1.44	in
E.	Pervious Cover Area	Area =	81,329	sf
F.	$V_{100\text{-in-post}}$ = Q(1/12)Area	$V_{100\text{-in-post}}$ =	**9,730**	cf

W7 Impervious Cover Post-development 100-year Storm Runoff Calculations (V100-imp-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	98	
C.	S = (1000/CN) -10	S =	0.20	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	4.87	in
E.	Pervious Cover Area	Area =	19,348	sf
F.	$V_{100\text{-imp-post}}$ = Q(1/12)Area	$V_{100\text{-imp-post}}$ =	**7,857**	cf

W9 Runoff Summary & Onsite Infiltration Requirement

$V_{100\text{-per-post}}$ = 9,730 cf **Total 100-year Volume (V_{100})**

$V_{100\text{-imp-post}}$ = 7,857 cf 17,587 cf

W11 Determine Applicable BMPs and Associated Volume Credits

Proposed BMP	Area (ft^2)	Storage Depth (ft)	Storage Volume (ft^3)	Ave. Design Infil. Rate (in/hr)*	Infil. During Storm (ft^3)	Potential Volume Reduction (ft^3)	Actual Reduction (cf)**
			Surface				
Rain Garden #4	6,848	0.67	4,588	2.75	9,416	14,004	14,004

* *Per Geotechnical Investigation by McDowell & Associates Test Pits 11 and 12. Includes a factor of safety of 2.*
** *Minimum of the calculated potential reduction and the 100-year storm volume over the tributary area. See W11A.*

Total Volume Reduction Credit by Proposed Structural BMPs (Vinf) = **14,004** cf

W11A Infiltration Loading Ratios and Storage Volume Drawdown Times

Proposed BMP	100-yr Contributing Runoff (cf)*	Tributary Area (sf)	Overall Loading Ratio	Imperv. Area (sf)	Impervious Loading Ratio	Drawdown Time (hrs)
Rain Garden #4	17,587	93,829	13.7	81,329	11.9	2.92

Test Pit Information	Test Pit 3	
Existing Grade	705.64	
Elevation of stratum tested	701.14	
Bottom of Rain Garden Elevation	707.5	
S.H.G.W.	702.8	
Depth to S.H.G.W.	4.7	
Minimum Infiltration Rate	2.75	in/hr

RAIN GARDEN #5 DESIGN CALCS

Description: Rain Garden #5

C Factor

	Quantity	Unit			S.F. Imperv.
Pond	7,131	sf	-	=	7,131
House	4.5	ea	2500 SF	=	11250
Multi Bldg	0	ea	4975	=	0
Driveway	0	ea	16' x 32'	=	0
Road & Walk	0	lf	41' wide	=	0

W1 Determining Post-Development Cover Types, Areas, Curve Numbers and runoff coefficients

Total Contributing Drainage Area = 1.63 Acres

Rational Method Variables

Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coef	(c)(Area)
Paved Parking Lots, roofs, driveways	B	11,250	0.26	0.95	10,688
Water Surfaces	B	7,131	0.16	1.00	7,131
Developed Open Space, Good Condition	B	59,690	1.37	0.30	17,907
			1.8		
			Total - Sum (c)(Area) =		35,726
			Area Total (sf)=		78,071
			Weighted C-Sum(c)(Area)/Sum(ac) or Sum(sf)=		**0.46**

NRCS Variables

Pervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Developed open space	B	59,690	1.37	61	3,641,090
			0.00		0
			0.00		0
			1.37		
Total - Sum (CN)(Area) =					3,641,090
Area Total - Sum(ac) of Sum(sf)=					59,690
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=					**61**

NRCS Variables

Impervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Paved Parking Lots, roofs, driveways	B	11,250	0.26	98	1,102,500
Impervious, Ponds	B	7,131	0.16	98	698,838
			0.00		0
			0.42		
Total - Sum (CN)(Area) =					1,801,338
Area Total - Sum(ac) of Sum(sf)=					18,381
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=					**98**

W6 Pervious Cover Post-development 100-year Storm Runoff Calculations (V100-per-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	61	
C.	S = (1000/CN) -10	S =	6.39	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	1.44	in
E.	Pervious Cover Area	Area =	59,690	sf
F.	$V_{100\text{-in-post}}$ = Q(1/12)Area	$V_{100\text{-in-post}}$ =	**7,141**	cf

W7 Impervious Cover Post-development 100-year Storm Runoff Calculations (V100-imp-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	98	
C.	S = (1000/CN) -10	S =	0.20	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	4.87	in
E.	Pervious Cover Area	Area =	18,381	sf
F.	$V_{100\text{-imp-post}}$ = Q(1/12)Area	$V_{100\text{-imp-post}}$ =	**7,464**	cf

W9 Runoff Summary & Onsite Infiltration Requirement

$V_{100\text{-per-post}}$ = 7,141 cf **Total 100-year Volume (V_{100})**

$V_{100\text{-imp-post}}$ = 7,464 cf 14,605 cf

W11 Determine Applicable BMPs and Associated Volume Credits

Proposed BMP	Area (ft^2)	Storage Depth (ft)	Storage Volume (ft^3)	Ave. Design Infil. Rate (in/hr)*	Infil. During Storm (ft^3)	Potential Volume Reduction (ft^3)	Actual Reduction (cf)**
			Surface				
Rain Garden #5	7,131	0.67	4,778	5.5	19,610	24,388	14,605

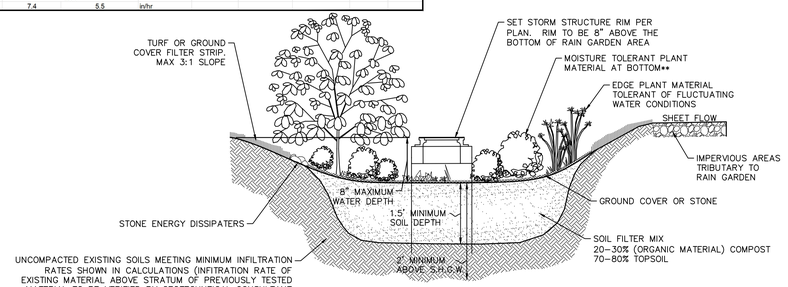
* *Per Geotechnical Investigation by McDowell & Associates Test Pits 11 and 12. Includes a factor of safety of 2.*
** *Minimum of the calculated potential reduction and the 100-year storm volume over the tributary area. See W11A.*

Total Volume Reduction Credit by Proposed Structural BMPs (Vinf) = **14,605** cf

W11A Infiltration Loading Ratios and Storage Volume Drawdown Times

Proposed BMP	100-yr Contributing Runoff (cf)*	Tributary Area (sf)	Overall Loading Ratio	Imperv. Area (sf)	Impervious Loading Ratio	Drawdown Time (hrs)
Rain Garden #5	14,605	70,940	9.9	59,690	8.4	1.46

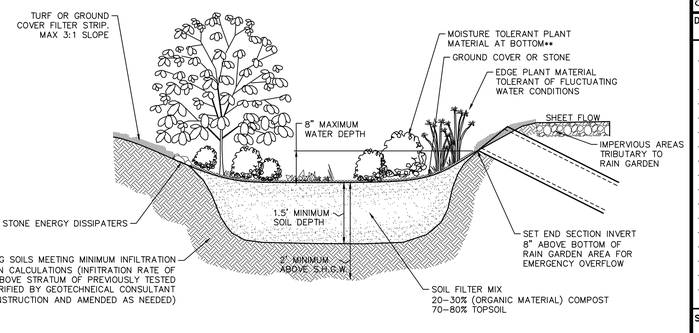
Test Pit Information	Test Pit 11	Test Pit 12		
Existing Grade	708.12	709.04		
Elevation of stratum tested	701.29	701.04		
Bottom of Rain Garden Elevation		706.33		
S.H.G.W.		702		
Depth to S.H.G.W.		4.33		
Minimum Infiltration Rate	7.4	5.5	in/hr	



** SWALE SEED MIX, PER JF NEW NURSERY – WALKERTON, ID (574) 586-3400, OR EQUAL. THE SEED MIX CONTAINS NATIVE PLANTS THAT WILL HELP FILTER POLLUTANTS FROM YARD AND ROAD RUNOFF. THE MIX CAN BE USED IN YARD AREAS THAT RETAIN WATER FOR SOMETIME AFTER A RAIN EVENT. THE SEED MIX CONTAINS NATIVE GRASS, SEDGES AND FORB SPECIES INCLUDING BIG BLUE STERN, BRISTLY SEDGE, PORCUPINE SEDGE, BROWN FOX SEDGE, CANADA WILD RYE, FOWL MANNA GRASS, SWITCH GRASS, DARK GREEN RUSH, WOOL GRASS, WATER PLANTAIN, SWAMP MILKWEED, NEASTER, TALL COREOPSIS, SPOTTED JOE-PYE WEED, BLUE FLAG IRIS, MARSH MORNING STAR, CAROINAL FLOWER, BLUE LOBELIA, ARROWHEAD, ROUGH GOLDENROD, BLUE VERVAIN, GOLDEN ALEXANDERS AND TEMPORARY COVER OF SEED OATS, SEEDING RATE: 26.44 LBS. PER ACRE.

RAIN GARDEN TYPICAL DETAIL (OVERFLOW STRUCTURE)

NO SCALE



** SWALE SEED MIX, PER JF NEW NURSERY – WALKERTON, ID (574) 586-3400, OR EQUAL. THE SEED MIX CONTAINS NATIVE PLANTS THAT WILL HELP FILTER POLLUTANTS FROM YARD AND ROAD RUNOFF. THE MIX CAN BE USED IN YARD AREAS THAT RETAIN WATER FOR SOMETIME AFTER A RAIN EVENT. THE SEED MIX CONTAINS NATIVE GRASS, SEDGES AND FORB SPECIES INCLUDING BIG BLUE STERN, BRISTLY SEDGE, PORCUPINE SEDGE, BROWN FOX SEDGE, CANADA WILD RYE, FOWL MANNA GRASS, SWITCH GRASS, DARK GREEN RUSH, WOOL GRASS, WATER PLANTAIN, SWAMP MILKWEED, NEASTER, TALL COREOPSIS, SPOTTED JOE-PYE WEED, BLUE FLAG IRIS, MARSH MORNING STAR, CAROINAL FLOWER, BLUE LOBELIA, ARROWHEAD, ROUGH GOLDENROD, BLUE VERVAIN, GOLDEN ALEXANDERS AND TEMPORARY COVER OF SEED OATS, SEEDING RATE: 26.44 LBS. PER ACRE.

RAIN GARDEN TYPICAL DETAIL (OVERFLOW END SECTION)

NO SCALE

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

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.

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SECTION 26 TOWN 3 SOUTH, RANGE 7 EAST YPSILANTI TOWNSHIP WASHTENAW COUNTY, MICHIGAN

CLIENT: SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH PRELIMINARY SITE PLAN

RAIN GARDEN INFILTRATION CALCULATIONS

DATE: NOVEMBER 11, 2024

3/6/2025: PER TWP

10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

SCALE 0 25 50 — 1" = 50 FEET

DR.	SK
CH.	--
P.M.	KS
BOOK	
JOB	15001707
SHEET NO.	17

CAD FILE: 15001707SP-07-STM.DWG

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PRELIMINARY - NOT FOR CONSTRUCTION

ENBRIDGE PIPELINE NOTES:

1. A ONE CALL MUST BE PLACED PRIOR TO THE COMMENCEMENT OF ANY GROUND DISTURBANCE. ENBRIDGE'S REPRESENTATIVE MUST BE CONTACTED AT LEAST 72 HOURS PRIOR TO ANY ACTIVITIES NEAR, OVER OR CLOSE TO ANY ENBRIDGE PIPELINE OR RIGHT–OF– WAY. NO WORK MAY COMMENCE WITHOUT THEIR PRESENCE OR PRIOR APPROVAL.
2. CROSSING APPLICANT SHALL ENSURE THAT ALL WORK ASSOCIATED WITH THEIR APPLICATION COMPLIES WITH LOCAL, STATE AND FEDERAL RULES, LAWS AND REGULATIONS.
3. ENBRIDGE PIPELINES SHALL BE POSITIVELY IDENTIFIED (I.E. DAYLIGHTED) PRIOR TO ANY GROUND DISTURBANCE. THE DESIGN SHALL BE AMENDED AS NECESSARY IN ORDER TO MAINTAIN THE REQUIRED MINIMUM CLEARANCES.
4. CONTACT ENBRIDGE FOR REMARKING A PIPELINE IF CROSSING APPLICANT BELIEVES EXISTING MARKERS TO BE INADEQUATE FOR ANY REASON, INCLUDING DISTURBANCE DURING CONSTRUCTION.
5. CROSSING APPLICANT SHALL ENSURE ITS FIELD CREWS PERFORMING THE CROSSING WORK HAVE COPIES OF THE ENBRIDGE APPROVED CROSSING APPLICATION AND LETTER OF AGREEMENT.
6. IF APPLICABLE, ALL ENBRIDGE SIGNAGE AND TEST STATIONS SHALL BE PROTECTED DURING CONSTRUCTION. SHOULD ANY OF THESE NEED RELOCATION DUE TO CONSTRUCTION, THIS WORK SHALL ONLY BE PERFORMED BY OR UNDER THE SUPERVISION OF AN ENBRIDGE REPRESENTATIVE AND AT THE COST OF THE CROSSING APPLICANT.
7. THERE SHALL BE NO STORAGE OF MATERIAL, EQUIPMENT OR PARKING OVER ANY ENBRIDGE PIPELINE. SHOULD SOIL STOCKPILES BE REQUIRED TO BE PLACED CLOSE TO ANY ENBRIDGE PIPELINE, THE ENBRIDGE REPRESENTATIVE SHALL BE CONTACTED FIRST IN ORDER TO APPROVE PLACEMENT (A MINIMUM OF FIVE (5) FEET FROM ANY ENBRIDGE PIPELINE AND LIMITED HEIGHT SHALL BE FIVE (5) FEET ABOVE GRADE).
8. BELOW GRADE STRUCTURES SHALL NOT BE ALLOWED WITHIN THE ENBRIDGE RIGHT–OF–WAY OR WITHIN TEN (10) FEET OF ANY ENBRIDGE PIPELINE AND SHALL REQUIRE FURTHER TECHNICAL EVALUATION.
9. NO EXISTING TREES WITHIN TEN (10) FEET OF ANY ENBRIDGE PIPELINE SHALL BE REMOVED WITHOUT THE PRESENCE OF AN ENBRIDGE REPRESENTATIVE. DUE TO POTENTIAL ROOT ENTANGLEMENT ISSUES AND COATING DAMAGE ON THE PIPELINE, TREE REMOVAL AT LESS THAN TEN (10) FEET FROM THE PIPELINE MAY HAVE TO BE COMPLETED BY AN ENBRIDGE APPROVED CONTRACTOR AT THE COST OF THE CROSSING APPLICANT.
10. CROSSING APPLICANT TO PROVIDE DESIGNS RELATED TO EARTH RETENTION SYSTEM (ERS) OR SHEET PILING OCCURRING WITHIN THE ENBRIDGE RIGHT–OF–WAY OR WITHIN TWENTY–FIVE (25) FEET OF ANY ENBRIDGE PIPELINE FOR FURTHER TECHNICAL EVALUATION.
11. REGARDING ANY HEAVY LIFTING IN CLOSE PROXIMITY TO ANY ENBRIDGE PIPELINE;

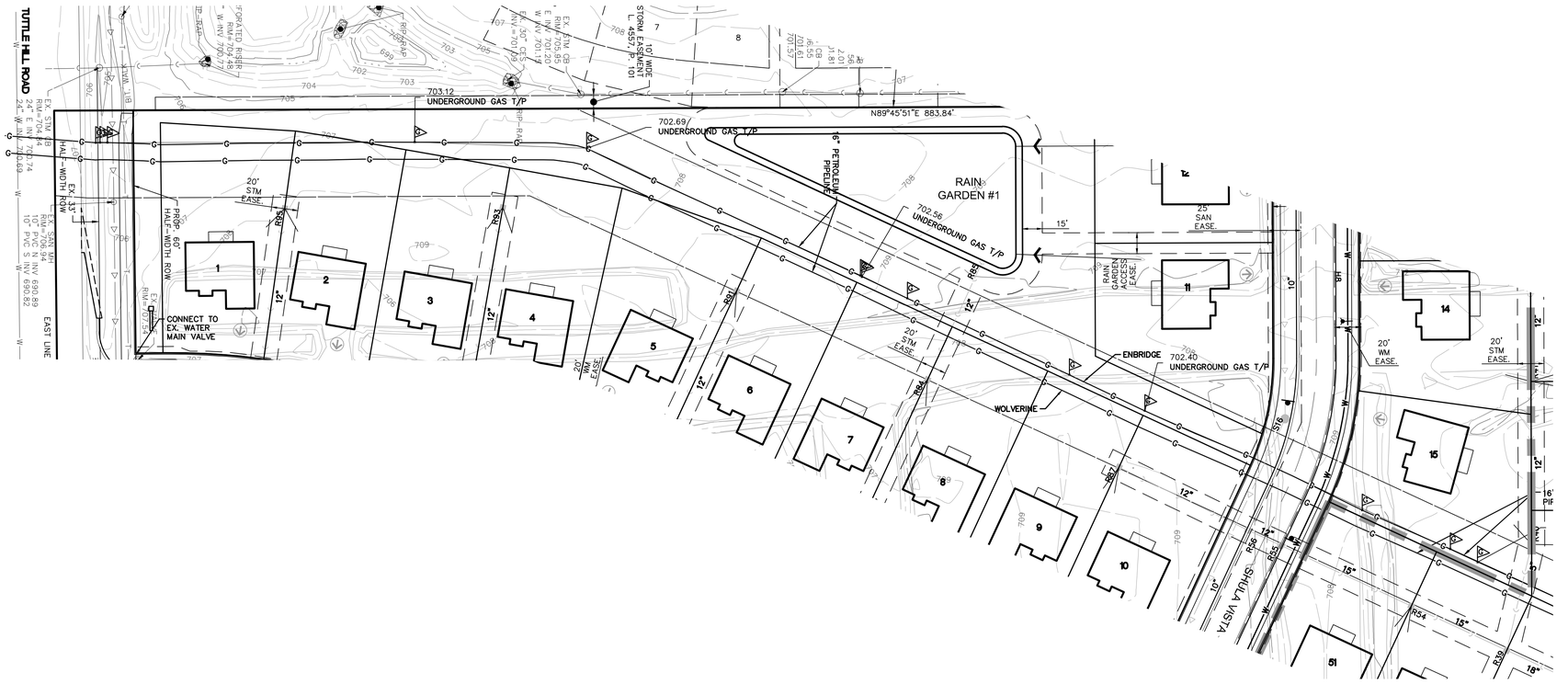
    A. RIGGING SHALL BE PROPERLY MAINTAINED, CHECKED, RATED AND SIZED CORRECTLY FOR INTENDED LOAD.

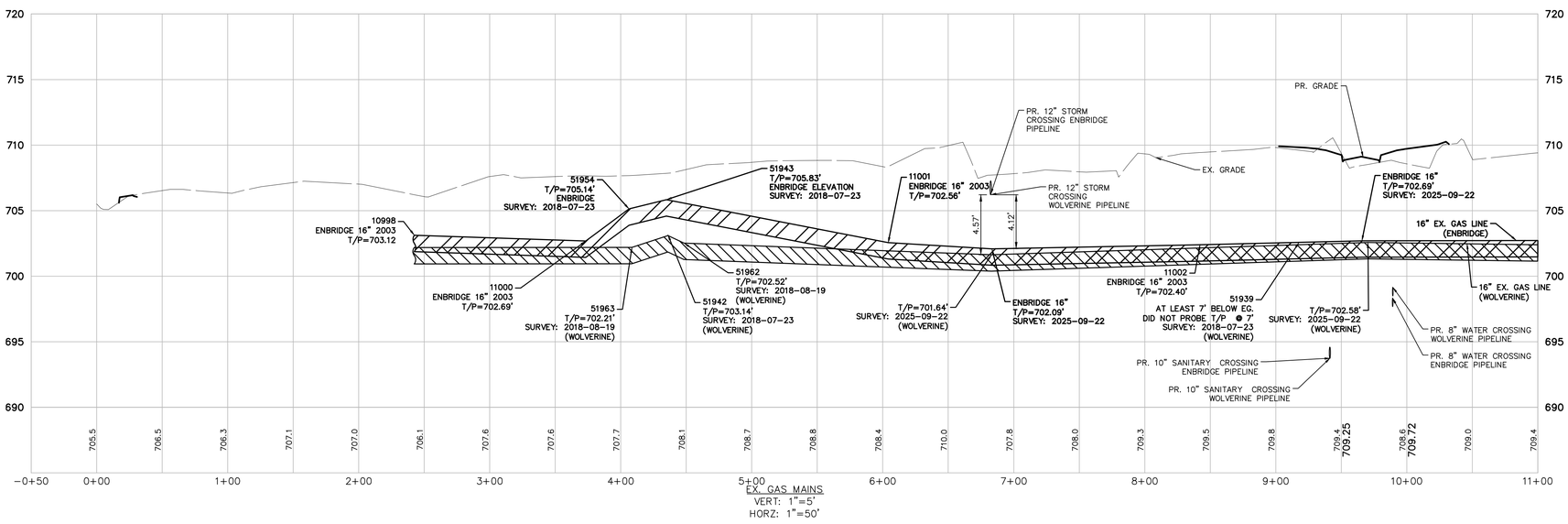
    B. NO HEAVY LIFTS SHALL BE DIRECTLY OVER OR SWING OVER ANY ENBRIDGE PIPELINE IF EXCAVATED AT THE TIME.

    C. IF HEAVY LIFTS SHALL BE OVER ANY BURIED PIPELINE, THE AREA ABOVE THE PIPELINE SHALL BE MATTED IN CASE OF A DROPPED LOAD.
12. BURNING WITHIN FIFTY (50) FEET OF ANY ENBRIDGE PIPELINE SHALL REQUIRE FURTHER TECHNICAL EVALUATION.
13. CROSSING ANGLE FOR INSTALLATIONS MUST BE WITHIN:
    A. FORTY–FIVE AND NINETY (45–90) DEGREES (WITH PREFERENCE FOR AS CLOSE TO NINETY (90) DEGREES AS POSSIBLE);

    OR

    B. IF THE CROSSING ANGLE IS DESIGNED TO BE LESS THAN FORTY–FIVE (45) DEGREES BUT THE PROPOSED INSTALLATION FOLLOWS OR PARALLELS AN EXISTING UTILITY CORRIDOR THEN THE LOWER CROSSING ANGLE MAY BE APPROVED;
14. CROSSING INSTALLATIONS OF CATHODICALLY PROTECTED STEEL PIPES AND/OR ELECTRICAL POWER ABOVE 480V AC WILL REQUIRE FURTHER TECHNICAL EVALUATION
15. APPLICATIONS REQUESTING TO GO ABOVE AN ENBRIDGE PIPELINE WILL BE REJECTED. HOWEVER, AN EXCEPTION MAY BE ALLOWED IF THE CROSSING APPLICANT PROVIDES A VALID REASON AS TO WHY A CROSSING UNDER THE ENBRIDGE PIPELINE IS NOT FEASIBLE.
16. A MINIMUM CLEARANCE OF TWENTY–FOUR (24) INCHES (MEASURED FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE) SHALL BE ACHIEVED.
17. UTILITY WARNING TAPE SHALL BE UTILIZED TWELVE (12) INCHES BELOW GRADE, IN ACCORDANCE WITH A.P.W.A. UNIFORM COLOR CODE, AND IN THE BOTTOM OF THE TRENCH (COLOR CODED TO CORRESPONDING ENBRIDGE PIPELINE).
18. IF AN AGGREGATE BASE IS UTILIZED AT THE BOTTOM OF THE PROPOSED TRENCH, TWO LAYERS OF GEOTEXTILE MATERIAL SHALL BE INITIALLY ADDED.
19. FOR INSTALLATIONS THAT ARE NOT HEAVY GRADE; THEY SHALL BE INSTALLED IN CONDUIT CASING (SCHEDULE 80 MINIMUM OR EQUIVALENT) OR CONCRETE ENCASEMENT (DYED RED IF ELECTRICAL) WITH TRACER WIRE. THIS SHALL BE MAINTAINED AT A MINIMUM OF TEN (10) FEET TO EACH SIDE OF ANY ENBRIDGE PIPELINE (MEASURED FROM OUTSIDE OF PIPE) OR THE ENTIRE WIDTH OF THE ENBRIDGE RIGHT–OF–WAY, WHICHEVER IS THE GREATER DISTANCE.
20. A MINIMUM CLEARANCE OF THIRTY–SIX (36) INCHES (MEASURED FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE) SHALL BE ACHIEVED.
21. APPROPRIATE MEASURES SHALL BE TAKEN TO PREVENT TRENCH/PIPE SETTLEMENT. SPECIAL CARE MUST BE TAKEN TO ENSURE THAT THE COMPACTION BETWEEN THE UTILITY AND THE ENBRIDGE PIPELINE IS SUFFICIENT TO MITIGATE SETTLEMENT AND VOIDS.
22. MAXIMUM ENBRIDGE PIPELINE UNSUPPORTED SPAN IS TWENTY (20) FEET. IF MAXIMUM UNSUPPORTED SPAN IS EXCEEDED THEN THE APPLICATION WILL REQUIRE FURTHER TECHNICAL EVALUATION.





EX. GAS MAINS
VERT: 1"=5'
HORZ: 1"=50'

PRELIMINARY - NOT FOR CONSTRUCTION

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SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

ENBRIDGE & WOLVERINE PIPELINE
PLAN & PROFILE 1

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

SCALE 0 25 50
1" = 50 FEET

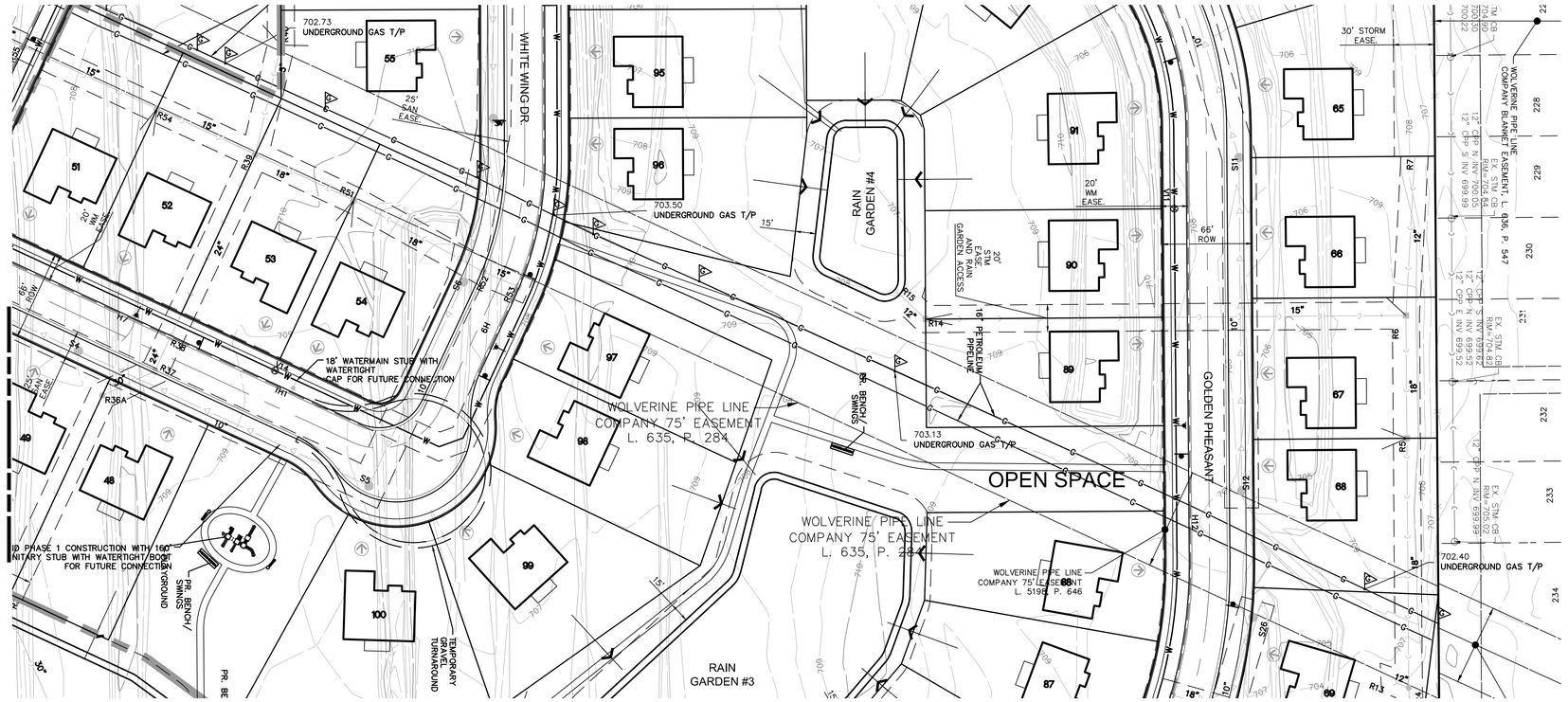
DR. SK | CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 18

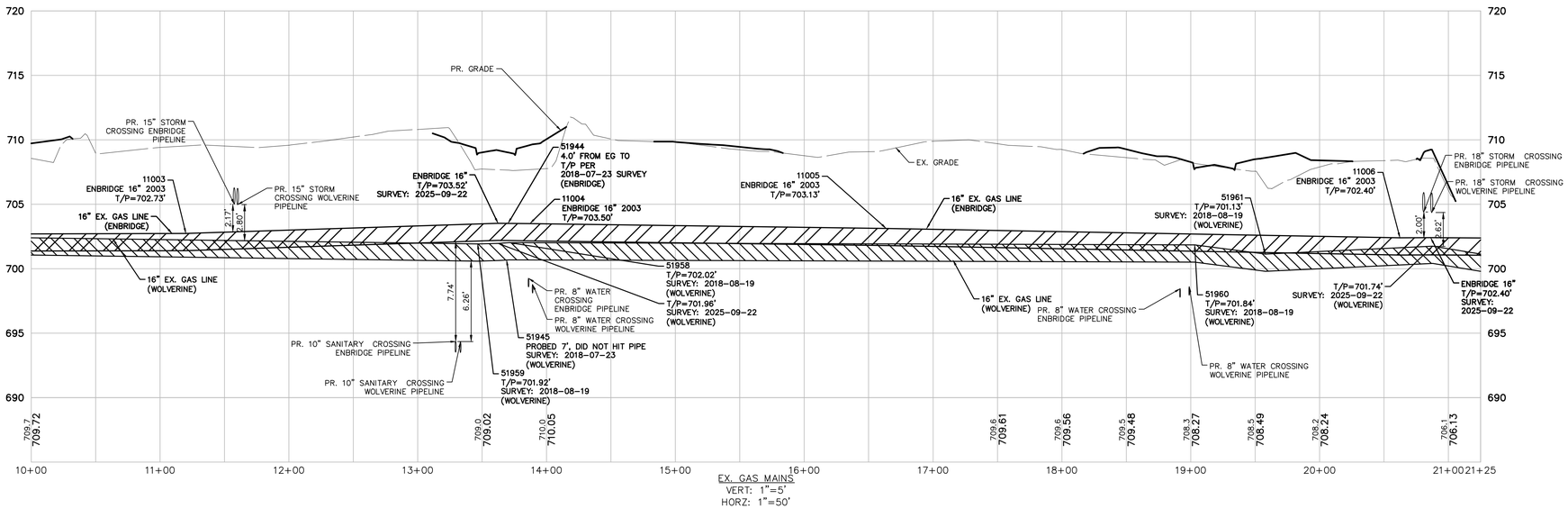
CAD FILE: 15001707SP-10- PIPE.DWG

\\ATWELL-GET.MARKET.DATA\ANNARBOR\PROJECTS\15001707 - CREEKSIDE NORTH\CIVIL\PLAN SET\PRELIMINARY SITE PLAN\15001707SP-10- PIPE.DWG 10/17/2025, 3:40 PM MARK KILLACKEY

WOLVERINE PIPELINE NOTES:

1. CONTACT THE APPROPRIATE ONE-CALL SYSTEM(S) (MICHIGAN 'MISS DIG', INDIANA'S 'INDIANA UNDERGROUND PLANT PROTECTION SERVICE' AND ILLINOIS 'JULIE' OR ALL ARE AVAILABLE BY DIALING '811') AND WPLCO AT LEAST 48 HOURS BEFORE COMMENCING WORK, OR AS REQUIRED BY REGULATIONS.
2. NO EXCAVATION WORK MAY COMMENCE ON WPLCO EASEMENT OR PROPERTY UNTIL A WPLCO REPRESENTATIVE HAS AUTHORIZED IT TO BEGIN. NOTICE OF DESIRED WORK START DATE SHOULD BE GIVEN 48 HOURS IN ADVANCE. A WPLCO REPRESENTATIVE WILL NORMALLY BE ON-SITE DURING EXCAVATION.
3. ON-SITE WPLCO REPRESENTATION IS RECOMMENDED ANY TIME EXCAVATION/CONSTRUCTION ACTIVITIES OCCUR ON WPLCO ROW AND IS REQUIRED IF THESE ACTIVITIES ARE WITHIN 10' OF WPLCO PIPELINE(S).
4. CONSTRUCTION OF ANY ROADS, HIGHWAYS, OR STREETS IN THE EASEMENT AREA OR BLASTING WITHIN 500 FEET OF THE PIPELINES WILL REQUIRE AN APPROVED EXCAVATION/BLASTING PLAN.
5. NO PERPENDICULAR DIGGING WILL OCCUR TO INITIALLY EXPOSE THE PIPELINE(S) UNLESS THERE ARE NO OTHER OPTIONS.
6. MECHANICAL EXCAVATION WILL CEASE ONCE THE EARTH HAS BEEN REMOVED TO WITHIN TWO (2) FEET OF WPLCO'S PIPELINE (EXCAVATORS MUST ADHERE TO THE DESIGNATED STATE REQUIRED TOLERANCE (OR CAUTION) ZONE. SHOVELS WILL BE USED TO MANUALLY CLEAN THE AREA ABOVE AND BELOW THE LINE. AFTER THE LINE HAS BEEN INITIALLY LOCATED, THE LINE SHALL BE KEPT VISIBLE TO THE EQUIPMENT OPERATOR DURING THE EXCAVATION PROCESS. MECHANICAL DIGGING WILL NOT BE ALLOWED CLOSER THAN ONE (1) FOOT FROM THE SIDE AND BOTTOM OF THE PIPELINE AFTER THE LINE HAS BEEN EXPOSED PER THE ABOVE PROCEDURE.
7. NO EXCAVATIONS SHALL BE MADE ON LAND ADJACENT TO THE PIPELINE(S) WHICH WILL IN ANY WAY IMPAIR OR WITHDRAW THE LATERAL SUPPORT AND CAUSE ANY SUBSIDENCE OR DAMAGE TO THE PIPELINE(S). SHEET PILING MAY BE REQUIRED.
8. ALL CONSTRUCTION MUST BE DONE IN ACCORDANCE WITH THE APPLICABLE LAWS AND REGULATIONS INCLUDING OSHA REQUIREMENTS FOR EXCAVATION AND TRENCHING.
9. EXCAVATOR SHOULD MARK THE AREA OF PROPOSED EXCAVATION IN WHITE (PAINT, STAKES, ETC.)
10. NEW PIPELINES OR UTILITIES SHOULD CROSS WPLCO'S PIPELINE(S) WITH AT LEAST 24 INCHES OF CLEARANCE. CROSSINGS SHALL ALLOW WPLCO'S PIPELINE(S) TO BE LOWERED IN THE FUTURE TO OBTAIN RECOMMENDED DEPTH FOR NEW CONSTRUCTION. ANY CHANGE IN THE SURFACE GRADE OR ELEVATION OVER OR ALONG THE PIPELINE(S) AND RIGHT-OF-WAY MUST BE APPROVED IN ADVANCE.
11. AT LEAST 36-INCHES OF COMPACTED COVER IS REQUIRED FOR ALL PARKING OR DRIVING AREAS WITHIN THE EASEMENT. CONCRETE PAVING AND CURBING MUST BE CONSTRUCTED IN BREAK-OUT SECTIONS.
12. PIPELINE/UTILITY CROSSINGS SHOULD BE AS CLOSE TO 90 DEGREES TO WPLCO'S PIPELINE AS POSSIBLE, BUT IN ANY EVENT AT AN ANGLE OF 30° OR MORE, (BUT NOT LENGTHWAYS AND ATOP) OF THE PIPELINE(S).
13. ALL NON-STEEL UNDERGROUND CROSSINGS SHALL BE ENCASED ACROSS THE WIDTH OF WPLCO'S EASEMENT.
14. FIBER-OPTIC CABLE AND LONG-DISTANCE CARRIER UNDERGROUND CROSSINGS SHOULD BE CASED ACROSS THE WIDTH OF WPLCO'S EASEMENT OR A MINIMUM OF 60 FEET.
15. ALL BACKFILL ON WPLCO'S EASEMENT SHALL BE MECHANICALLY COMPACTED TO THE TOP OF THE PIPELINE(S) AFTER REMOVAL OF WATER AND TRASH. ALSO SEE 11 ABOVE FOR PARKING OR DRIVING AREAS WITHIN THE EASEMENT.
16. TEMPORARY CONSTRUCTION ROADS MAY BE REQUIRED TO PROTECT WPLCO'S PIPELINE(S). WPLCO MUST APPROVE ABOVEGROUND CROSSINGS ON THE EASEMENT FOR EXCAVATION OR HEAVY EQUIPMENT. WPLCO WILL ALSO REQUIRE INFORMATION ABOUT ANY HEAVY EQUIPMENT THAT WILL BE CROSSING THE PIPELINE IN ORDER TO PERFORM LOAD CALCULATIONS.
17. PERMANENT ABOVEGROUND MARKERS IDENTIFYING AN UNDERGROUND CROSSING PIPELINE OR UTILITY SHALL BE INSTALLED AND MAINTAINED AT THE LIMITS OF WPLCO'S EASEMENT AND/OR THE CROSSING.
18. IF IT IS IMPRACTICAL TO INSTALL AND MAINTAIN ABOVEGROUND MARKERS DUE TO THE CROSSING LOCATION, PLASTIC MARKER TAPE SHALL BE INSTALLED BELOW CULTIVATION LEVEL AND OVER WPLCO'S PIPELINE(S), EXTENDING THE WIDTH OF THE EASEMENT OR A MINIMUM OF 60 FEET.
19. POSTS, POLES, AND UNDERGROUND SUPPORT SYSTEMS, WHERE PERMITTED BY WPLCO, SHALL NOT BE PLACED WITHIN 4 FEET OF THE PIPELINE(S).
20. DISTRIBUTION UTILITY POLES AND GUYS SHALL NOT BE PLACED WITHIN 8 FEET OF THE PIPELINE(S).
21. NO STRUCTURES, FENCES, TREES, OR LANDSCAPE PLANTS WITH A MATURE HEIGHT GREATER THAN 5-FEET TALL ARE ALLOWEDWITHIN THE EASEMENT.
22. IF WPLCO DEEMS IT NECESSARY, THE EXCAVATOR SHALL INSTALL A BAR ACROSS THE TEETH OF THE BUCKET DURING EXCAVATION.
23. IF WPLCO'S PIPELINE(S) IS EXPOSED DURING THE EXCAVATION, THE HOLE WILL BE MADE SAFE FOR ENTRY AND LEFT OPEN UNTIL WPLCO INSTALLS TEST LEADS AND INSPECTS WPLCO'S EXPOSED PIPE.
24. EXCAVATOR SHALL ABIDE BY ALL STATE AND FEDERAL SAFETY LAWS, RULES, AND REGULATIONS. EXCAVATOR SHALL OPERATE EQUIPMENT THAT IS IN GOOD WORKING CONDITION, CONDUCIVE TO A SAFE WORKING ENVIRONMENT, WHILE WORKING ON OR NEAR WPLCO'S FACILITIES.
25. 25. AN APPROPRIATE WPLCO REPRESENTATIVE WILL REVIEW CONTRACTOR'S BORING PLANS AND SPECIFICATIONS FOR APPROVAL PRIOR TO COMMENCING WORK.





EX. GAS MAINS
VERT: 1"=5'
HORZ: 1"=50'

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

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.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE 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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734.994.4000

SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

ENBRIDGE & WOLVERINE PIPELINE
PLAN & PROFILE 2

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

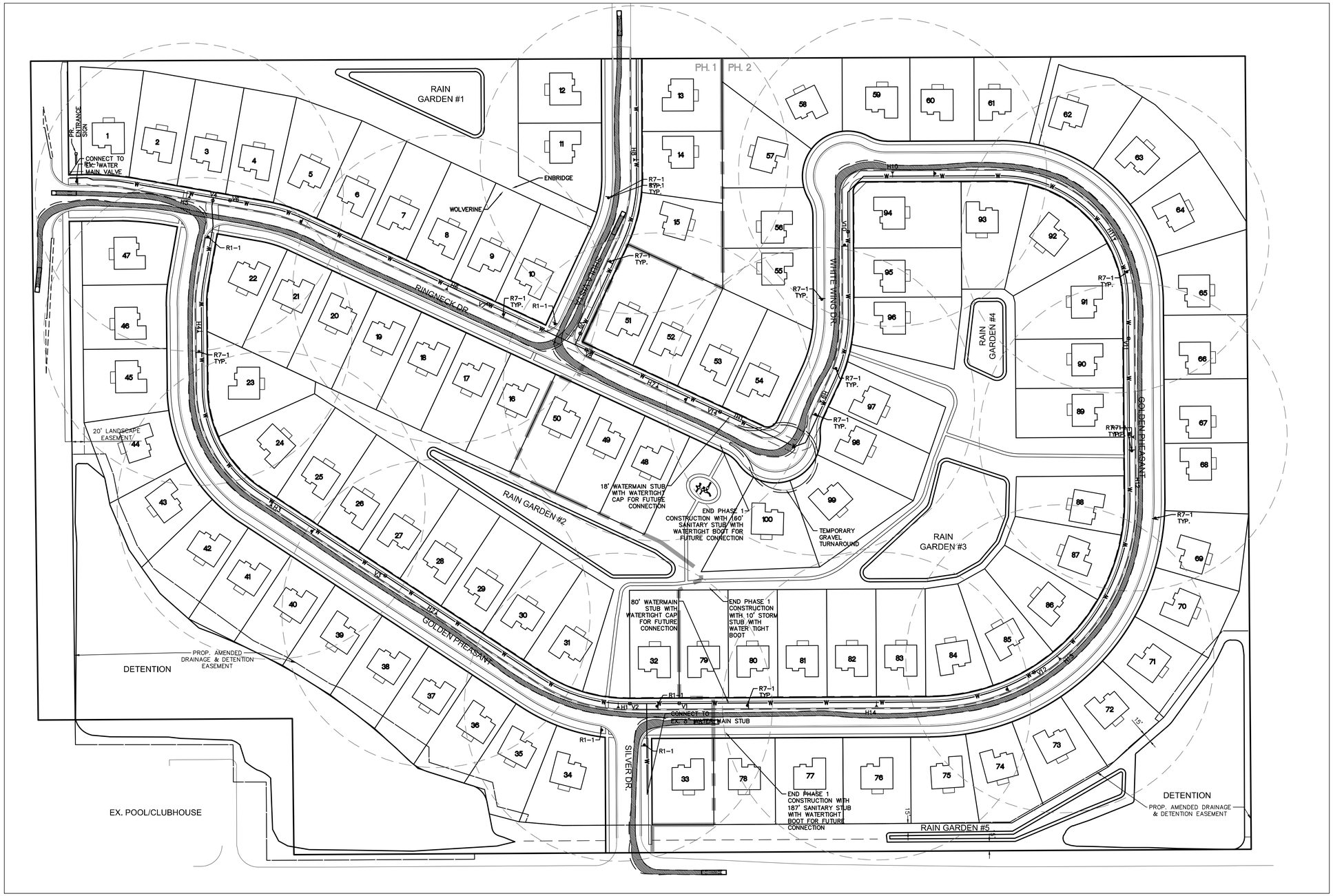
REVISIONS

SCALE 0 25 50
1" = 50 FEET
DR. SK | CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 19

CAD FILE: 15001707SP-10- PIPE.DWG

PRELIMINARY - NOT FOR CONSTRUCTION

J:\PLANS_CITY\PROJECTS\2015\15001707 - CREEKSIDE NORTH\CIVIL\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-10- PIPE.DWG, 10/17/2025 3:43 PM, AMAIR, A1 EXPAN



FIRE TRUCK TURNING TEMPLATE

1" = 200'

Know what's below. Call before you dig.

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YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC
CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

FIRE PROTECTION PLAN

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

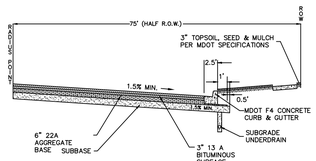
REVISIONS

SCALE 0 40 80
1" = 80 FEET
DR. SK CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO.
20

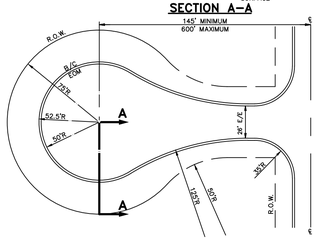
CAD FILE: 15001707SP-08-DT.DWG

PRELIMINARY - NOT FOR CONSTRUCTION

\\AMANN-DFS\PROJECT DATA\AMANN\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SET\PRELIMINARY SITE PLAN\15001707SP-08-DT.DWG 10/17/2025 3:41 PM AMAR KALASH

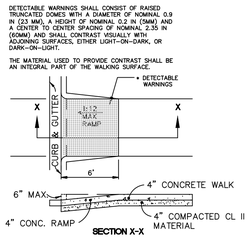


SECTION A-A



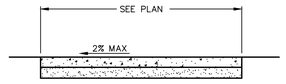
TYPICAL TEMPORARY MEDIUM DENSITY URBAN CUL-DE-SAC

NO SCALE



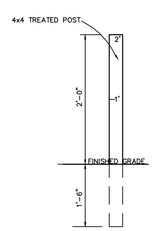
CURB RAMP AND TYPICAL SIDEWALK DETAIL

NO SCALE



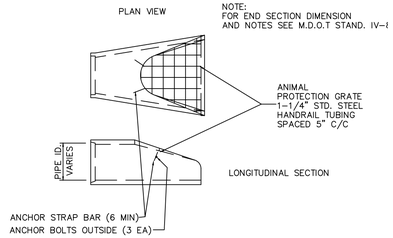
CONCRETE SIDEWALK SECTION

NOT TO SCALE



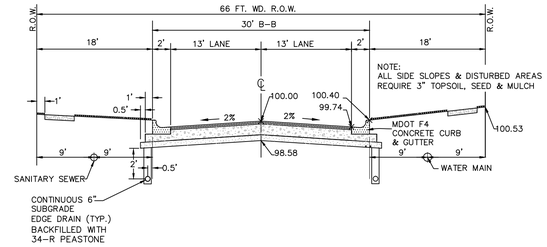
SEDIMENTATION MARKER

NO SCALE



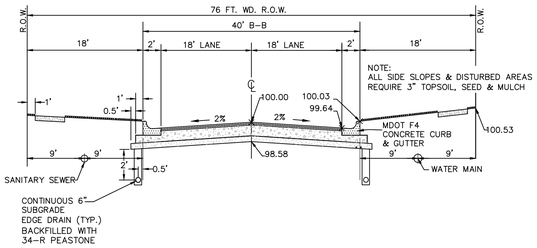
PRECAST CONCRETE END SECTION WITH ANIMAL PROTECTION GRATE

NO SCALE



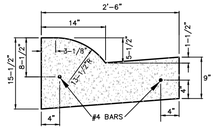
66' WIDE ROW TYPICAL ROAD CROSS SECTION

NO SCALE



76' WIDE ROW TYPICAL ROAD CROSS SECTION

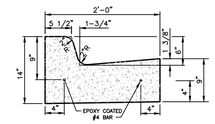
NO SCALE



MDOT B2 MOUNTABLE CURB & GUTTER DETAIL

NO SCALE

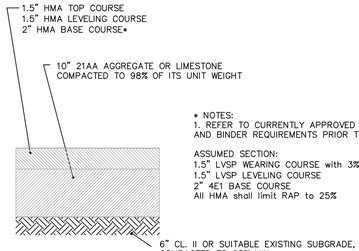
(MDOT "C" TYPE CASTING SHALL BE USED) FOR USE WITHIN COUNTY ROAD R.O.W.



MDOT F4 CURB DETAIL

NO SCALE

(MDOT "K" TYPE CASTING SHALL BE USED) FOR USE ON-SITE

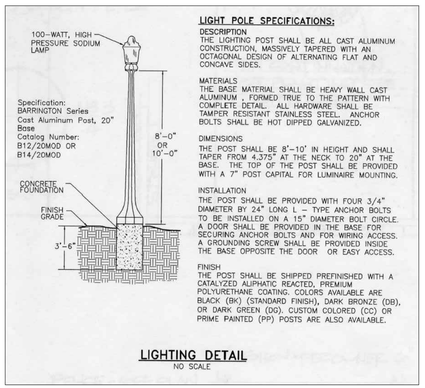


* NOTES:
1. REFER TO CURRENTLY APPROVED WCRC HMA MIX DESIGNS AND BINDER REQUIREMENTS PRIOR TO CONSTRUCTION.

ASSUMED SECTION:
1.5" LVSP WEARING COURSE with 3% max air voids
1.5" LVSP LEVELING COURSE
2" 4E1 BASE COURSE
All HMA shall limit RAP to 25%

DRIVE ENTRANCE & PRIVATE ROAD BITUMINOUS PAVEMENT

NO SCALE



LIGHT POLE SPECIFICATIONS:

DESCRIPTION
THE LIGHTING POST SHALL BE ALL CAST ALUMINUM CONSTRUCTION, MASSIVELY TAPERED WITH AN OCTAGONAL DESIGN OF ALTERNATING FLAT AND CONCAVE SIDES.

MATERIALS
THE BASE MATERIAL SHALL BE HEAVY WALL CAST ALUMINUM , FORMED TRUE TO THE PATTERN WITH COMPLETE DETAIL. ALL HARDWARE SHALL BE TAMPER RESISTANT STAINLESS STEEL. ANCHOR BOLTS SHALL BE HOT DIPPED GALVANIZED.

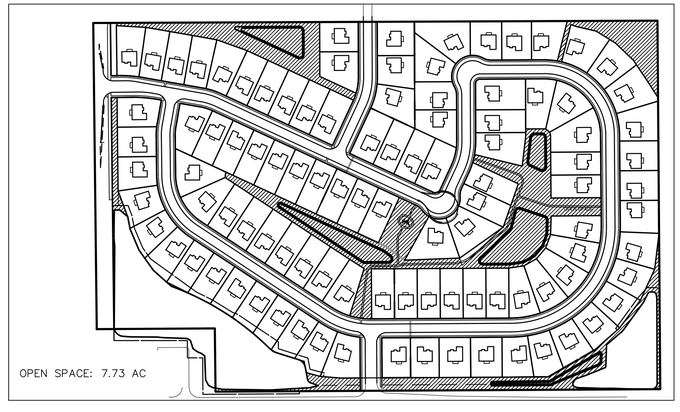
DIMENSIONS
THE POST SHALL BE 8'-10' IN HEIGHT AND SHALL TAPER FROM 4.375" AT THE NECK TO 20" AT THE BASE. THE TOP OF THE POST SHALL BE PROVIDED WITH A 7" POST CAPITAL FOR LUMINAIRE MOUNTING.

INSTALLATION
THE POST SHALL BE PROVIDED WITH FOUR 3/4" DIAMETER BY 24" LONG L – TYPE ANCHOR BOLTS TO BE INSTALLED ON A 15" DIAMETER BOLT CIRCLE. A DOOR SHALL BE PROVIDED IN THE BASE FOR SECURING ANCHOR BOLTS AND FOR WIRING ACCESS. A GROUNDING SCREW SHALL BE PROVIDED INSIDE THE BASE OPPOSITE THE DOOR OR EASY ACCESS.

FINISH
THE POST SHALL BE SHIPPED PREFINISHED WITH A CATALYZED ALIPHATIC REACTED, PREMIUM POLYURETHANE COATING. COLORS AVAILABLE ARE BLACK (BK) (STANDARD FINISH), DARK BRONZE (DB), OR DARK GREEN (DG). CUSTOM COLORED (CC) OR PRIME PAINTED (PP) POSTS ARE ALSO AVAILABLE.

LIGHTING DETAIL

NO SCALE



OPEN SPACE EXHIBIT

1" = 250'

811
Know what's below.
Call before you dig.
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SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC
CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

STANDARD DETAILS

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

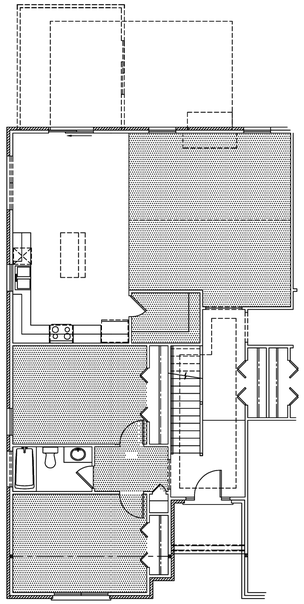
SCALE 0 -- --
NO SCALE

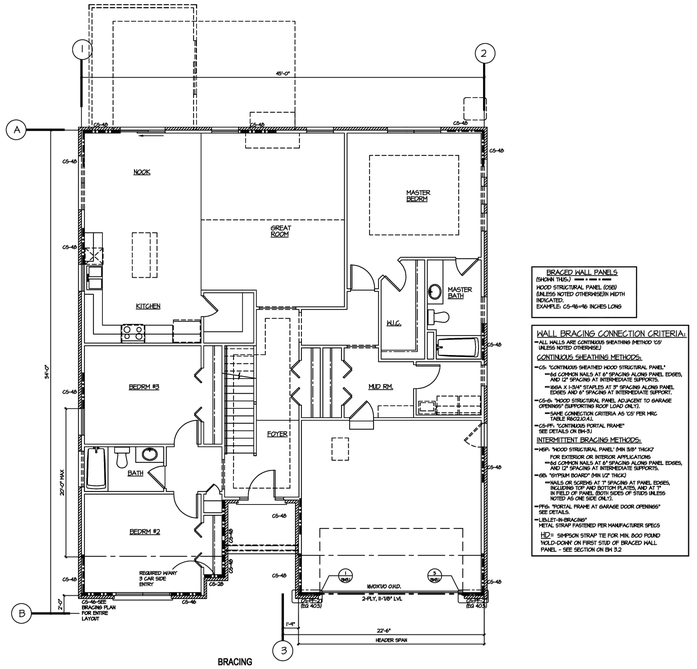
DR. SK | CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 21

CAD FILE: 15001707SP-08-DT.DWG

K:\MAIN\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SETS\PRELIMINARY SITE PLANS\15001707SP-08-DT.DWG, 10/17/2025 3:51 PM, KEVIN SULLIVAN

PRELIMINARY - NOT FOR CONSTRUCTION





BRACING
FLOOR PLAN
SCALE: 1/8" = 1'-0"

BRACED WALL PANELS
(EITHER THIS) ——— + ——— + ———
WOOD STRUCTURAL PANEL (OSB)
UNLESS NOTED OTHERWISE ON BRACED WALL PANEL
DESIGNATED.
EXAMPLE: CS-48-16 INDICATES 16 INCHES LONG

WALL BRACING CONNECTION CRITERIA:
- ALL WALLS ARE CONTINUOUS SHEATHING (METHOD GB UNLESS NOTED OTHERWISE)

CONTINUOUS SHEATHING METHODS:
- CS: "CONTINUOUS SHEATHED WOOD STRUCTURAL PANEL"
  - 8d COMMON NAILS AT 6" SPACING ALONG PANEL EDGES, AND 12" SPACING AT INTERMEDIATE SUPPORTS.
  - 8GGA X 1-3/4" STAPLES AT 3" SPACING ALONG PANEL EDGES AND 6" SPACING AT INTERMEDIATE SUPPORT.
- CS-G: "WOOD STRUCTURAL PANEL ADJACENT TO GARAGE OPENING" (SEE DETAILS ON SHEET S-DN.1).
  - MINIMUM CONNECTION CRITERIA AS CS PER IRC TABLE R602.3(4).
- CS-PF: "CONTINUOUS PORTAL FRAME" (SEE DETAILS ON SH-5)

INTERMITTENT BRACING METHODS:
- WSP: "WOOD STRUCTURAL PANEL" (MIN 3/8" THICK)
  - FOR EXTERIOR OR INTERIOR APPLICATIONS.
  - 8d COMMON NAILS AT 6" SPACING ALONG PANEL EDGES, AND 12" SPACING AT INTERMEDIATE SUPPORTS.
- GB: "GYPSUM BOARD" (MIN 1/2" THICK)
  - NAILS OR SCREWS AT 7" SPACING AT PANEL EDGES, INCLUDING TOP AND BOTTOM PLATES, AND AT 7" IN FIELD OF PANEL. BOTH SIDES OF STUDS UNLESS NOTED AS ONE SIDE ONLY.
- PFH: "PORTAL FRAME AT GARAGE DOOR OPENINGS" (SEE DETAILS)
- LIB/LET-IN-BRACING*
  - METAL STRAP FASTENED PER MANUFACTURER SPECS
- HD*: SIMPSON STRAP TIE FOR MIN. 800 POUND HOLD-DOWN ON FIRST STUD OF BRACED WALL PANEL - SEE SECTION ON SH 5.2

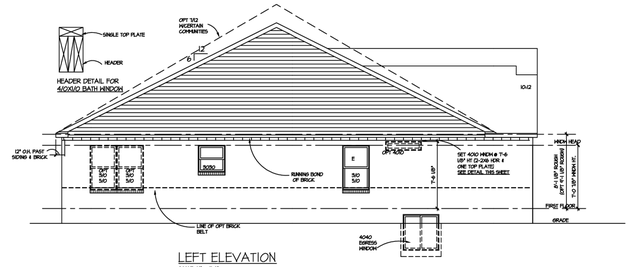
LOC	SHEET S.DN	PANEL TYPE	PANEL WIDTH	SHEET
A&B	1	WSP	4'-0"	S-DN.1
1&2	1	WSP	4'-0"	S-DN.1
1&2	1	WSP	2'-0"	S-DN.1
2&3	1	WSP	4'-0"	S-DN.1
2&3	1	WSP	2'-0"	S-DN.1

Lombardo
HOMES
1300 E MAPLE RD, SUITE 330
Troy, MI 48083

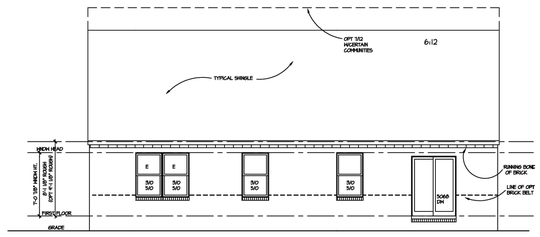
PLAN NAME: THE DAVENPORT

JOB NUMBER: 4453-518
MI
SHEET NO.: 3.4.1-B

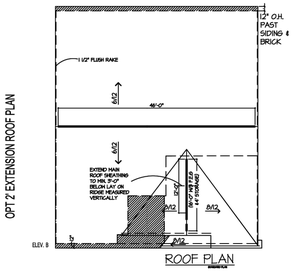
SHEET SCALE: (UNLESS NOTED OTHERWISE) 1/8" = 1'-0" ON 11X17 PAPER, 1/4" = 1'-0" ON 24X36 PAPER WHEN PRINTED AT 200%



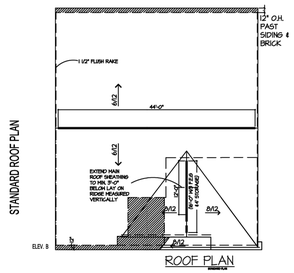
LEFT ELEVATION
SCALE: 1/8" = 1'-0"



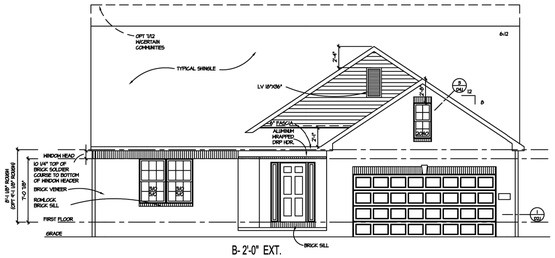
REAR ELEVATION
SCALE: 1/8" = 1'-0"



OPT 2' EXTENSION ROOF PLAN
ROOF PLAN



STANDARD ROOF PLAN
ROOF PLAN



B- 2'-0" EXT.
FRONT ELEVATION
SCALE: 1/8" = 1'-0"

ELEV. B

MAIN ROOF RIDGE VENT CALCULATION: 2' EXTENSION

MAIN ROOF AREA = 2444 SQ FT

MIN VENT AREA = 2444 SF/300 = 8.15 SF X 144 = 1173 SQ. IN

HIGH (EXHAUST) PROVIDED: 56 LIN FT X 11 SUFT = 616 SQ/42% OF TOTAL)

LOW (INTAKE) PROVIDED: 24 LIN FT. X 4.13 SUFT =99 SI
40 LIN FT. X 6.2=250
FORCA-78 SF X 6.2 =483
TOTAL=1059 (56% OF TOTAL)

TOTAL VENTILATING AREA PROVIDED = 1473 SI

*** MEETS CODE ***

DESIGN BASED ON:
1LO SI NFA RIDGE VENT

MAIN ROOF RIDGE VENT CALCULATION: STANDARD

MAIN ROOF AREA = 2540 SQ FT

MIN VENT AREA = 2540 SF/300 = 1.8 SF X 144 = 1225 SQ. IN

HIGH (EXHAUST) PROVIDED: 54 LIN FT X 11 SUFT = 594 SQ/42% OF TOTAL)

LOW (INTAKE) PROVIDED: 22 LIN FT. X 4.13 SUFT =90.9 SI
44 LIN FT. X 6.2=272
FORCA- 78 SF X 6.2 =483
TOTAL =833 SI (73% OF TOTAL)

TOTAL VENTILATING AREA PROVIDED = 1421 SI

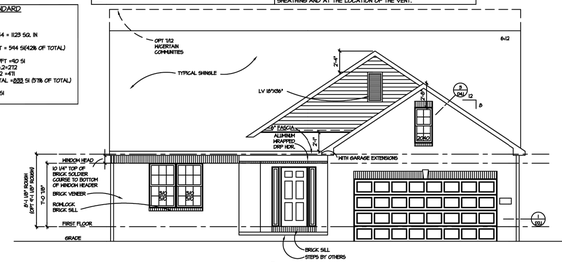
*** MEETS CODE ***

ATTIC VENT LEGEND

VENT TYPE & NET FREE AREA (N.F.A.)

	VENTS, SOFFIT/EAVE	=
	RIDGE VENT (LOWEST VAL. U-RIDGE VENT	=
	LOMANCO 'SAV' +RIDGE AIR VENT	=
	ROOF CAN (LOWEST) TBD	=
	ROOF CAN (LOWEST) 1050	=

CODE REQUIREMENT:
MSC/IRC R806.2 SPECIFIES REQUIRED ROOF VENTILATION AS FOLLOWS:
- THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF VENTED SPACE, PROVIDED THAT NOT LESS THAN 40% AND NOT MORE THAT 60% OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NOT MORE THEN 3 FT. BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY, WITH THE REMAINDER OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS.
- WHERE EAVE OR CORNICE VENTS ARE INSTALLED, INSULATION SHALL NOT BLOCK THE FREE FLOW OF AIR. NOT LESS THAN A 1" SPACE SHALL BE PROVIDED BETWEEN THE INSULATION AND THE ROOF SHEATHING AND AT THE LOCATION OF THE VENT.



B
FRONT ELEVATION
SCALE: 1/8" = 1'-0"

LOC	SHEET S.DN	PANEL TYPE	PANEL WIDTH	SHEET
A&B	1	WSP	4'-0"	S-DN.1
1&2	1	WSP	4'-0"	S-DN.1
1&2	1	WSP	2'-0"	S-DN.1
2&3	1	WSP	4'-0"	S-DN.1
2&3	1	WSP	2'-0"	S-DN.1

Lombardo
HOMES
1300 E MAPLE RD, SUITE 330
Troy, MI 48083

PLAN NAME: THE DAVENPORT

JOB NUMBER: 4453-518
MI
SHEET NO.: 5.1.1

SHEET SCALE: (UNLESS NOTED OTHERWISE) 1/8" = 1'-0" ON 11X17 PAPER, 1/4" = 1'-0" ON 24X36 PAPER WHEN PRINTED AT 200%

811
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ANN ARBOR, MI 48104
734.994.4000

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

ARCHITECTURAL FLOOR PLAN AND ELEVATIONS – 1

SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

SCALE 0 — — —
NO SCALE

DR. SK	CH. — —
P.M. KS	
BOOK	
JOB 15001707	
SHEET NO. 22	

CAD FILE: 15001707SP-08-DTDWG

K:\MAIN\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SETS\PRELIMINARY SITE PLANS\15001707SP-08-DTDWG, 10/17/2025 5:51 PM, KEVIN SULLIVAN

PRELIMINARY - NOT FOR CONSTRUCTION

Legacy Series

THE CHARLEVOIX

2,161-2,191 Sq. Ft. | 3 Bedrooms | 2.5 Baths

Lombardo HOMES

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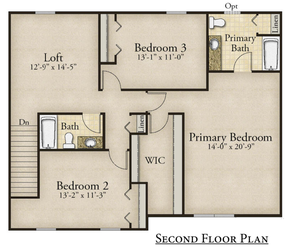
Legacy Series

THE CHARLEVOIX

2,161-2,191 Sq. Ft. | 3 Bedrooms | 2.5 Baths

Lombardo HOMES



SECOND FLOOR PLAN

FIRST FLOOR PLAN

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View our interactive design tool and floor plan options!

Legacy Series

THE HOUGHTON

2,018-2,041 Sq. Ft. | 3 Bedrooms | 2.5 Baths

Lombardo HOMES

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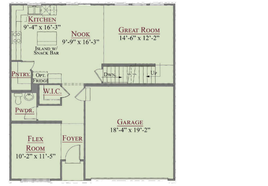
Legacy Series

THE HOUGHTON

2,018-2,041 Sq. Ft. | 3 Bedrooms | 2.5 Baths

Lombardo HOMES

SECOND FLOOR PLAN



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Legacy Series

THE LUDINGTON

2,052-2,094 Sq. Ft. | 3 Bedrooms | 2.5 Baths

Lombardo HOMES

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Legacy Series

THE LUDINGTON

2,052-2,094 Sq. Ft. | 3 Bedrooms | 2.5 Baths

Lombardo HOMES

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Legacy Series

THE MACKINAC

2,745-2,772 Sq. Ft. | 4 Bedrooms | 2.5 Baths

Lombardo HOMES

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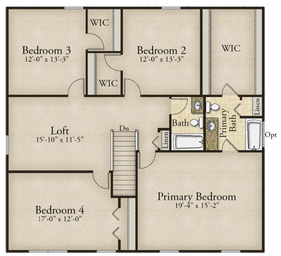
Legacy Series

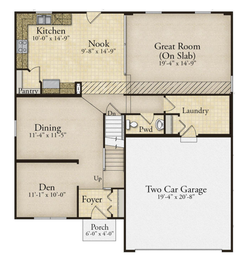
THE MACKINAC

2,745-2,772 Sq. Ft. | 4 Bedrooms | 2.5 Baths

Lombardo HOMES



SECOND FLOOR PLAN



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SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

ARCHITECTURAL FLOOR PLAN AND ELEVATIONS – 2

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP

10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

SCALE 0 NO SCALE

DR.	SK
CH.	--
P.M.	KS
BOOK	
JOB	15001707
SHEET NO.	23

CAD FILE: 15001707SP-08-DT.DWG

K:\AWA\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-08-DT.DWG, 10/17/2025 3:51 PM, KEVIN SULLIVAN

PRELIMINARY - NOT FOR CONSTRUCTION

Legacy Series

THE MANISTIQUE

1,808-1,834 Sq. Ft. | 3 Bedrooms | 2.5 Baths

Lombardo HOMES

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Legacy Series

THE MANISTIQUE

1,808-1,834 Sq. Ft. | 3 Bedrooms | 2.5 Baths

Lombardo HOMES

Second Floor Plan

First Floor Plan

Rev. 5/15/24. This depiction represents an artist's conception of the elevation and floor plan and is not intended to be an exact representation or show specific detailing. Plans remain subject to change without notice. Drawings are not to scale. All measurements shown are approximate and not necessarily to scale. Location, size and construction of doors, windows, wall, fireplaces and any other items depicted may vary depending on elevation preference or choice of options and are subject to change without notice. Some options and elevations shown may not be available in every neighborhood; see Sales Manager for details. Due to normal construction tolerances, the room sizes shown may vary slightly. The Builder may change home design, materials, features and methods of construction without prior notice. Model homes may contain some optional features not available through the Builder.

View our interactive design tool and floor plan options!

Legacy Series

THE PETOSKEY

2,320-2,347 Sq. Ft. | 4 Bedrooms | 2.5 Baths

Lombardo HOMES

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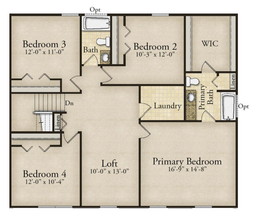
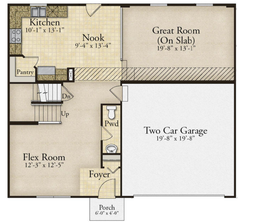
Lombardo HOMES



Second Floor Plan



First Floor Plan

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Legacy Series

THE TAMARACK

1,385-1,397 Sq. Ft. | 3 Bedrooms | 2 Baths

Lombardo HOMES

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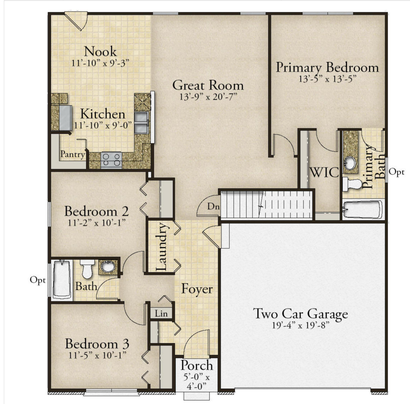
Lombardo HOMES



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View our interactive design tool and floor plan options!

Legacy Series

THE TRAVERSE

2,592-2,628 Sq. Ft. | 4 Bedrooms | 2.5 Baths

Lombardo HOMES

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Legacy Series

THE TRAVERSE

2,592-2,628 Sq. Ft. | 4 Bedrooms | 2.5 Baths

Lombardo HOMES

Second Floor Plan

First Floor Plan

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YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
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CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

ARCHITECTURAL FLOOR PLAN AND ELEVATIONS – 3

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

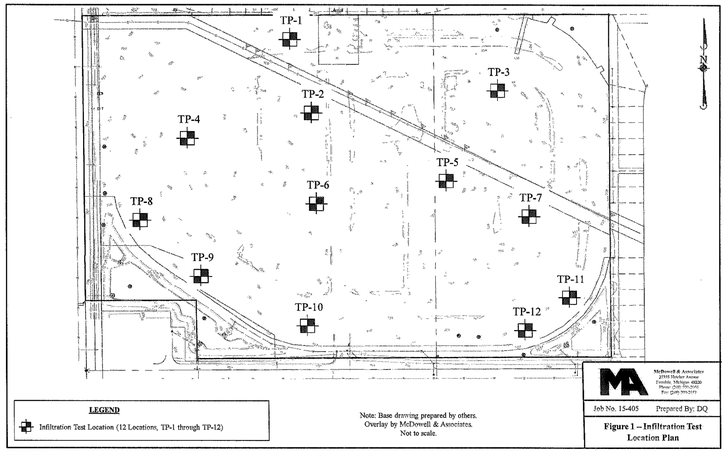
REVISIONS

SCALE 0 — — —
NO SCALE

DR.	SK
CH.	— —
P.M.	KS
BOOK	
JOB	15001707
SHEET NO.	24

CAD FILE: 15001707SP-08-01.DWG

K:\AWA\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-08-01.DWG, 10/17/2025 3:51 PM, KEVIN SULLIVAN



LEGEND

Infiltration Test Location (12 Locations, TP-1 through TP-12)

Note: Base drawing prepared by others.
Overlay by McDowell & Associates.
Not to scale.

McDowell & Associates
1395 Doris Road, Suite 2
Ann Arbor, Michigan 48103
Phone: (248) 391-3721
Fax: (248) 391-3191

Job No. 15-405 Prepared By: DQ

Figure 1 – Infiltration Test Location Plan

McDowell & Associates

Test Pit #: 1

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/10/2015
Weather: Cloudy T=45°F
Ground Elv.:

Soil Stratigraphy:	
0" - 9"	Moist dark brown silty sandy topsoil
9" - 1'6"	Moist brown silty sand with clay (Fill)
1'6" - 2'2"	Moist black silty sandy topsoil
2'2" - 4'4"	Moist yellowish brown silty fine sand
4'4" - 8'0"	Moist to wet gravelly fine to medium sand with traces of silt and occasional stones
8'0" - 8'6"	Wet gravelly fine to medium sand with occasional stones

Groundwater Depth: 8'0"

Pipe Installation #1	
Soil Depth:	4'9"
Pipe Diameter:	6"
Embedment:	6"
Stick-up:	12"
Total Length:	1'6"

Pipe Installation #2	
Soil Depth:	4'9"
Pipe Diameter:	6"
Embedment:	6"
Stick-up:	12"
Total Length:	1'6"

Pipe Distance: 2'5"

Soak Period (Pipe #1)			
Start Date:	12/10/2015		
Start Time:	9:02 AM	Water Head:	12 inches
Notes:			
Time:	10:30 AM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	11:30 AM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	12:45 PM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:		Water Head:	inches
Notes:			
Time:		Water Head:	inches
Notes:			
End Date:	12/10/2015		
End Time:	1:05 PM	Water Head:	6.8 inches

Total Soak Duration: 4 hours 3 minutes

Notes:

Soak Period (Pipe #2)			
Start Date:	12/10/2015		
Start Time:	9:02 AM	Water Head:	12 inches
Notes:			
Time:	10:30 AM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	11:30 AM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	12:45 PM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:		Water Head:	inches
Notes:			
Time:		Water Head:	inches
Notes:			
End Date:	12/10/2015		
End Time:	1:05 AM	Water Head:	5.8 inches

Total Soak Duration: 4 hours 3 minutes

Notes:

McDowell & Associates

Test Pit #: 2

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/10/2015
Weather: Cloudy T=45°F
Ground Elv.:

Soil Stratigraphy:	
0" - 3'9"	Moist dark brown to black silty clay with sand and topsoil layers (Fill)
3'9" - 5'3"	Moist brown silty fine sand with traces of gravel
5'3" - 7'0"	Moist brown gravelly fine to medium sand with traces of silt and occasional cobbles
7'0" - 9'6"	Moist to wet gray gravelly fine to coarse sand with traces of silt and occasional cobbles

Groundwater Depth: 9'0"

Pipe Installation #1	
Soil Depth:	5'0"
Pipe Diameter:	6"
Embedment:	6"
Stick-up:	12"
Total Length:	1'6"

Pipe Installation #2	
Soil Depth:	5'0"
Pipe Diameter:	6"
Embedment:	6"
Stick-up:	12"
Total Length:	1'6"

Pipe Distance: 2'7"

Soak Period (Pipe #1)			
Start Date:	12/10/2015		
Start Time:	8:10 AM	Water Head:	12 inches
Notes:			
Time:	9:15 AM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	10:30 AM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	11:45 AM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:		Water Head:	inches
Notes:			
Time:		Water Head:	inches
Notes:			
End Date:	12/10/2015		
End Time:	12:15 PM	Water Head:	3 inches

Total Soak Duration: 4 hours 5 minutes

Notes:

Soak Period (Pipe #2)			
Start Date:	12/10/2015		
Start Time:	8:10 AM	Water Head:	12 inches
Notes:			
Time:	9:15 AM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	10:30 AM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	11:45 AM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:		Water Head:	inches
Notes:			
Time:		Water Head:	inches
Notes:			
End Date:	12/10/2015		
End Time:	12:15 PM	Water Head:	1 inches

Total Soak Duration: 4 hours 5 minutes

Notes:

McDowell & Associates

Test Pit #: 2

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/10/2015
Weather: Cloudy T=45°F

Infiltration Test Data

Pipe #1				Pipe #2			
	Water Head (in.)				Water Head (in.)		
Time (min.)	Test #1	Test #2	Test #3	Time (min.)	Test #1	Test #2	Test #3
0	12.00	12.00	12.00	0	12.00	12.00	12.00
1	11.75	11.63	11.75	1	11.63	11.50	11.44
2	11.31	11.38	11.38	2	11.25	11.06	11.00
3	11.00	11.06	11.00	3	10.38	10.69	10.56
4	10.75	10.75	10.69	4	10.13	10.38	10.13
5	10.38	10.50	10.63	5	9.75	9.75	9.81
6	10.00	10.06	10.13	6	9.38	9.38	9.50
7	9.56	9.75	9.75	7	8.88	9.00	8.88
8	9.25	9.44	9.44	8	8.50	8.56	8.38
9	9.00	9.13	9.19	9	8.38	8.13	8.00
10	8.56	8.75	8.81	10	7.38	7.63	7.56
15	7.44	7.38	7.44	15	5.81	6.13	6.00
20	5.63	5.81	5.88	20	4.50	4.25	4.25
25	4.38	4.56	4.88	25	2.56	2.81	2.94
30	3.06	3.44	3.63	30	1.00	1.13	1.06
40	0.56	1.19	1.50	40	0 @ 33:40	0 @ 33:20	0 @ 33:35
50	0 @ 42:08	0 @ 44:19	0 @ 44:40	50			
60				60			
70				70			
80				80			
90				90			
100				100			
110				110			
120				120			

Notes: Start at 12:15 PM

McDowell & Associates

Test Pit #: 3

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/10/2015
Weather: Cloudy T=45°F
Ground Elv.: 705.64

Soil Stratigraphy:	
0" - 1'0"	Moist dark brown silty sandy topsoil
1'0" - 3'4"	Moist variegated clayey sand with silt and traces of gravel
3'4" - 6'0"	Moist brown gravelly fine to coarse sand with traces of silt
6'0" - 8'0"	Wet grey gravelly fine to coarse sand with traces of silt

Groundwater Depth: 6'0"

Pipe Installation #1	
Soil Depth:	4'6"
Pipe Diameter:	6"
Embedment:	6"
Stick-up:	12"
Total Length:	1'6"

Pipe Installation #2	
Soil Depth:	4'6"
Pipe Diameter:	6"
Embedment:	6"
Stick-up:	12"
Total Length:	1'6"

Pipe Distance: 2'3"

Soak Period (Pipe #1)			
Start Date:	12/10/2015		
Start Time:	9:50 AM	Water Head:	12 inches
Notes:			
Time:	10:45 AM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	12:00 PM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	12:50 PM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	1:40 PM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:		Water Head:	inches
Notes:			
End Date:	12/10/2015		
End Time:	1:55 PM	Water Head:	6.3 inches

Total Soak Duration: 4 hours 5 minutes

Notes:

Soak Period (Pipe #2)			
Start Date:	12/10/2015		
Start Time:	8:10 AM	Water Head:	12 inches
Notes:			
Time:	10:45 AM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	12:00 PM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	12:50 PM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:	1:40 PM	Water Head:	0 inches
Notes:	Refill to 12"		
Time:		Water Head:	inches
Notes:			
End Date:	12/10/2015		
End Time:	1:55 PM	Water Head:	7 inches

Total Soak Duration: 4 hours 5 minutes

Notes:

McDowell & Associates

Test Pit #: 3

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/10/2015
Weather: Cloudy T=45°F

Infiltration Test Data

Pipe #1				Pipe #2			
	Water Head (in.)				Water Head (in.)		
Time (min.)	Test #1	Test #2	Test #3	Time (min.)	Test #1	Test #2	Test #3
0	12.00	12.00	12.00	0	12.00	12.00	12.00
1				1			
2	11.31	11.38	11.44	2	11.50	11.50	11.56
3				3			
4	10.31	10.50	10.63	4	10.75	10.75	10.81
5				5			
6	9.56	9.69	9.69	6	9.94	10.06	10.13
7				7			
8	8.75	8.88	8.88	8	9.25	9.31	9.44
9				9			
10	8.00	8.13	8.13	10	8.44	8.63	8.75
15	6.56	6.38	6.50	15	7.25	7.06	7.19
20	4.75	4.94	5.00	20	5.44	5.63	5.88
25	3.38	3.56	3.63	25	4.19	4.44	4.56
30	2.25	2.38	2.38	30	3.13	3.25	3.50
40	0 @ 38:45	0.13	0.44	40	1.19	1.38	1.63
50		0 @ 41:00	0 @ 42:00	50	0 @ 45:00	0 @ 48:00	0 @ 49:00
60				60			
70				70			
80				80			
90				90			
100				100			
110				110			
120				120			

Notes: Start at 1:55 PM

Know what's below. Call before you dig.

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.

NOTICE:
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734.994.4000

SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

INFILTRATION TEST PITS

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP

10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

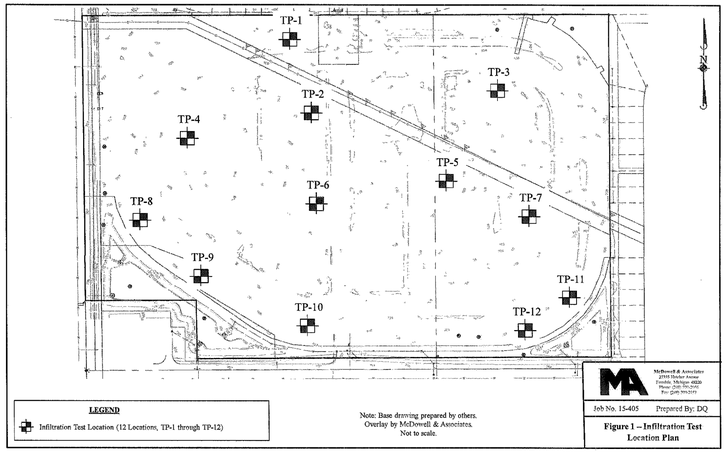
SCALE 0 -- --
NO SCALE

DR. SK | CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 25

CAD FILE: 15001707SP-09-TP.DWG

K:\ANN\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-09-TP.DWG 10/17/2025 3:52 PM KEVIN SULLIVAN

PRELIMINARY - NOT FOR CONSTRUCTION



LEGEND

Infiltration Test Location (12 Locations, TP-1 through TP-12)

Note: Base drawing prepared by others.
Overlay by McDowell & Associates.
Not to scale.

McDowell & Associates
2395 South Main Street
Ann Arbor, Michigan 48103
Phone: (248) 391-3192
Fax: (248) 391-3193

Job No. 15-405 Prepared By: DQ

Figure 1 – Infiltration Test Location Plan

McDowell & Associates

Test Pit #: 4

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/8/2015
Weather: Cloudy T=41°F
Ground Elv.: 706.94

Soil Stratigraphy:

0" - 2" Moist dark brown sandy topsoil (Fill)
2" - 2'8" Moist brown silty fine sand with occasional topsoil and clay streaks (Fill)
2'8" - 7'4" Moist brown gravelly fine to medium sand with traces of gravel
7'4" - 9'0" Wet grey gravelly fine to coarse sand

Groundwater Depth: 7'4"

Pipe Installation #1

Soil Depth: 3'6"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Installation #2

Soil Depth: 3'6"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Distance: 4'8"

Soak Period (Pipe #1)

Start Date: 12/8/2015
Start Time: 8:30 AM Water Head: 12 inches
Notes:
Time: 9:15 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 10:45 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 11:55 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:31 PM Water Head: 0 inches
Notes: Refill to 12"
Time: Water Head: inches
Notes:
End Date: 12/8/2015
End Time: 12:55 PM Water Head: 7.4 inches

Total Soak Duration: 4 hours 25 minutes

Notes:

Soak Period (Pipe #2)

Start Date: 12/8/2015
Start Time: 8:30 AM Water Head: 12 inches
Notes:
Time: 9:15 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 10:45 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 11:55 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:31 PM Water Head: 0 inches
Notes: Refill to 12"
Time: Water Head: inches
Notes:
End Date: 12/8/2015
End Time: 12:15 PM Water Head: 6.9 inches

Total Soak Duration: 4 hours 25 minutes

Notes:

McDowell & Associates

Test Pit #: 4

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/8/2015
Weather: Cloudy T=46°F

Infiltration Test Data

Time (min.)	Pipe #1 Water Head (in.) Test #1	Test #2	Test #3	Time (min.)	Pipe #2 Water Head (in.) Test #1	Test #2	Test #3
0	12.00	12.00	12.00	0	12.00	12.00	12.00
1				1			
2	10.00	10.06	10.06	2	9.63	9.69	9.69
3				3			
4	8.19	8.25	8.25	4	7.38	7.63	7.56
5				5			
6	6.50	6.56	6.56	6	5.31	5.69	5.63
7				7			
8	4.88	5.06	5.13	8	3.50	3.88	3.88
9				9			
10	3.44	3.63	3.69	10	1.81	2.38	2.38
15	0 @ 14:40			15	0 @ 12:00	0 @ 13:00	0 @ 13:00
20		0 @ 15:10	0 @ 15:20	20			
25				25			
30				30			
40				40			
50				50			
60				60			
70				70			
80				80			
90				90			
100				100			
110				110			
120				120			

Notes: Start at 12:55 PM

McDowell & Associates

Test Pit #: 5

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/9/2015
Weather: Cloudy T=52°F

Infiltration Test Data

Time (min.)	Pipe #1 Water Head (in.) Test #1	Test #2	Test #3	Time (min.)	Pipe #2 Water Head (in.) Test #1	Test #2	Test #3
0	12.00	12.00	12.00	0	12.00	12.00	12.00
1				1			
2	10.63	10.63	10.63	2	10.63	10.88	10.94
3				3			
4	9.31	9.38	9.38	4	9.31	9.63	9.69
5				5			
6	8.06	8.13	8.19	6	8.06	8.44	8.56
7				7			
8	6.88	7.00	7.06	8	6.88	7.31	7.44
9				9			
10	5.75	5.81	5.94	10	5.69	6.25	6.44
15	3.19	3.31	3.50	15	3.19	3.88	4.00
20	1.00	1.06	1.31	20	1.00	1.88	2.00
25	0 @ 22:30	0 @ 22:45	0 @ 23:30	25	0 @ 22:30	0 @ 24:50	0 @ 25:15
30				30			
40				40			
50				50			
60				60			
70				70			
80				80			
90				90			
100				100			
110				110			
120				120			

Notes: Start at 1:03 PM

McDowell & Associates

Test Pit #: 5

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/9/2015
Weather: Cloudy T=41°F
Ground Elv.: 708.83

Soil Stratigraphy:

0" - 3'0" Moist dark brown sandy silty clay with topsoil (Fill)
3'0" - 4'2" Moist black sandy topsoil with clay
4'2" - 5'0" Moist brown silty fine to medium sand
5'0" - 9'5" Moist brown gravelly fine to medium sand with traces of silt
9'5" - 10'0" Wet brown gravelly fine to medium sand

Groundwater Depth: 9'5"

Pipe Installation #1

Soil Depth: 5'6"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Installation #2

Soil Depth: 6'0"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Distance: 4'0"

Soak Period (Pipe #1)

Start Date: 12/9/2015
Start Time: 8:37 AM Water Head: 12 inches
Notes:
Time: 9:24 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 10:42 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 11:55 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:58 PM Water Head: 0 inches
Notes: Refill to 12"
Time: Water Head: inches
Notes:
End Date: 12/9/2015
End Time: 1:03 PM Water Head: 8 inches

Total Soak Duration: 4 hours 26 minutes

Notes:

Soak Period (Pipe #2)

Start Date: 12/9/2015
Start Time: 8:37 AM Water Head: 12 inches
Notes:
Time: 9:24 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 10:42 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 11:55 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:58 PM Water Head: 0 inches
Notes: Refill to 12"
Time: Water Head: inches
Notes:
End Date: 12/9/2015
End Time: 1:03 PM Water Head: 8.2 inches

Total Soak Duration: 4 hours 26 minutes

Notes:

McDowell & Associates

Test Pit #: 6

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/8/2015
Weather: Cloudy T=43°F
Ground Elv.: 708.82

Soil Stratigraphy:

0" - 3'10" Moist dark brown sandy silty clay with traces of gravel and topsoil (Fill)
3'10" - 4'6" Moist black sandy topsoil with silt
4'6" - 6'0" Moist brown silty fine sand with traces of gravel
6'0" - 9'0" Moist brown gravelly fine to medium sand with traces of silt
9'0" - 10'0" Wet grey gravelly fine to coarse sand

Groundwater Depth: 9'0"

Pipe Installation #1

Soil Depth: 6'6"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Installation #2

Soil Depth: 6'6"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Distance: 4'6"

Soak Period (Pipe #1)

Start Date: 12/8/2015
Start Time: 11:25 AM Water Head: 12 inches
Notes:
Time: 11:55 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:44 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:50 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 2:48 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 3:16 PM Water Head: 0 inches
Notes: Refill to 12"
End Date: 12/8/2015
End Time: 3:29 PM Water Head: 5.4 inches

Total Soak Duration: 4 hours 26 minutes

Notes:

Soak Period (Pipe #2)

Start Date: 12/8/2015
Start Time: 11:25 AM Water Head: 12 inches
Notes:
Time: 11:55 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:44 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:50 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 2:48 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 3:16 PM Water Head: 0 inches
Notes: Refill to 12"
End Date: 12/8/2015
End Time: 3:29 PM Water Head: 3.1 inches

Total Soak Duration: 4 hours 26 minutes

Notes:

Know what's below. Call before you dig.

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NOTICE:
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734.994.4000

SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

INFILTRATION TEST PITS

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

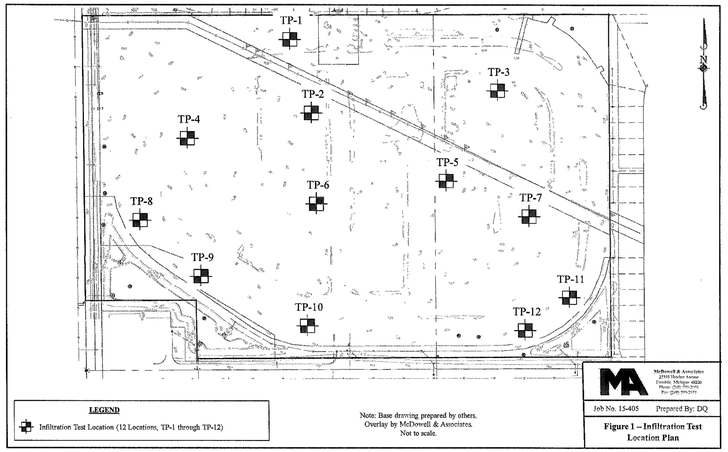
REVISIONS

SCALE 0 -- --
NO SCALE
DR. SK CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 26

CAD FILE: 15001707SP-09-TP.DWG

K:\ANN\PROJECTS\15001707 - CREKSIDE NORTH\DWG\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-09-TP.DWG 10/17/2025 3:52 PM KEVIN SULIVAN

PRELIMINARY - NOT FOR CONSTRUCTION



LEGEND

Infiltration Test Location (12 Locations, TP-1 through TP-12)

Note: Base drawing prepared by others.
Overlay by McDowell & Associates.
Not to scale.

McDowell & Associates
1395 Doris Road
Auburn Hills, Michigan 48326
Phone: (248) 391-3740
Fax: (248) 391-3191

Job No. 15-405 Prepared By: DQ

Figure 1 – Infiltration Test Location Plan

McDowell & Associates

Test Pit #: 6

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/8/2015
Weather: Cloudy T=46°F

Infiltration Test Data

Pipe #1				Pipe #2			
Time (min.)	Water Head (in.)			Time (min.)	Water Head (in.)		
	Test #1	Test #2	Test #3		Test #1	Test #2	Test #3
0	12.00	12.00	12.00	0	12.00	12.00	12.00
1				1			
2	10.69	10.75	10.75	2	10.25	10.19	10.25
3				3			
4	9.44	9.44	9.44	4	8.50	8.44	8.56
5				5			
6	8.25	8.25	8.31	6	7.00	7.38	7.31
7				7			
8	7.06	7.19	7.19	8	5.50	6.00	5.94
9				9			
10	6.00	6.13	6.13	10	4.13	4.88	4.88
15	3.50	3.63	3.38	15	1.06	2.00	2.00
20	1.25	1.44	1.56	20	0 @ 16:50	0 @ 18:50	0 @ 18:45
25	0 @ 23:00	0 @ 23:30	0 @ 23:45	25			
30				30			
40				40			
50				50			
60				60			
70				70			
80				80			
90				90			
100				100			
110				110			
120				120			

Notes: Start at 3:29 PM

McDowell & Associates

Test Pit #: 7

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/9/2015
Weather: Cloudy T=46°F
Ground Elv.: 709.02

Soil Stratigraphy:

0" - 2'6" Moist dark brown sandy clay with topsoil, silt and sandy clay layers (Fill)
2'6" - 4'3" Moist dark brown silty sand with traces of topsoil and clay (Fill)
4'3" - 5'5" Moist brown silty fine sand
5'5" - 9'10" Moist brown gravelly fine to medium sand with traces of silt
9'10" - 11'0" Wet grey gravelly fine to coarse sand

Groundwater Depth: 9'10"

Pipe Installation #1

Soil Depth: 6'6"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Installation #2

Soil Depth: 6'6"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Distance: 4'11"

Soak Period (Pipe #1)

Start Date: 12/9/2015
Start Time: 10:24 AM Water Head: 12 inches
Notes:
Time: 11:17 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:20 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:11 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 2:18 PM Water Head: 0 inches
Notes: Refill to 12"
Time: Water Head: inches
Notes:
End Date: 12/9/2015
End Time: 2:26 PM Water Head: 9.1 inches

Total Soak Duration: 4 hours 2 minutes

Notes:

Soak Period (Pipe #2)

Start Date: 12/9/2015
Start Time: 11:25 AM Water Head: 12 inches
Notes:
Time: 11:17 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:20 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:11 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 2:18 PM Water Head: 0 inches
Notes: Refill to 12"
Time: Water Head: inches
Notes:
End Date: 12/9/2015
End Time: 3:29 PM Water Head: 3.1 inches

Total Soak Duration: 4 hours 2 minutes

Notes:

McDowell & Associates

Test Pit #: 7

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/9/2015
Weather: Cloudy T=49°F

Infiltration Test Data

Pipe #1				Pipe #2			
Time (min.)	Water Head (in.)			Time (min.)	Water Head (in.)		
	Test #1	Test #2	Test #3		Test #1	Test #2	Test #3
0	12.00	12.00	12.00	0	12.00	12.00	12.00
1				1			
2	11.44	11.44	11.50	2	9.75	9.63	9.75
3				3			
4	10.63	10.88	11.75	4	7.44	7.38	7.44
5				5			
6	9.88	10.25	10.06	6	5.25	5.19	5.31
7				7			
8	9.19	9.56	9.44	8	3.38	3.25	3.44
9				9			
10	8.50	9.06	9.00	10	1.63	1.50	1.75
15	7.00	7.56	7.44	15	0 @ 12:15	0 @ 12:00	0 @ 12:30
20	5.50	6.31	6.19	20			
25	4.19	5.25	5.13	25			
30	2.81	4.13	4.00	30			
40	0.81	2.13	2.00	40			
50	0 @ 42:30	0.50	0.44	50			
60		0 @ 51:45	0 @ 51:30	60			
70				70			
80				80			
90				90			
100				100			
110				110			
120				120			

Notes: Start at 2: 26 PM

McDowell & Associates

Test Pit #: 8

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/8/2015
Weather: Cloudy T=41°F
Ground Elv.: 707.68

Soil Stratigraphy:

0" - 4'0" Moist dark brown sandy clay with silt, topsoil, silty sand layers and topsoil layers (Fill)
4'0" - 4'6" Moist brown silty fine sand
4'6" - 7'9" Moist brown gravelly fine to medium sand with traces of silt
7'9" - 9'0" Wet grey gravelly fine to coarse sand

Groundwater Depth: 7'9"

Pipe Installation #1

Soil Depth: 5'4"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Installation #2

Soil Depth: 5'4"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Distance: 3'7"

Soak Period (Pipe #1)

Start Date: 12/8/2015
Start Time: 10:24 AM Water Head: 12 inches
Notes:
Time: 11:26 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:28 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:31 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 2:32 PM Water Head: 0 inches
Notes: Refill to 12"
Time: Water Head: inches
Notes:
End Date: 12/8/2015
End Time: 2:37 PM Water Head: 9.5 inches

Total Soak Duration: 4 hours 13 minutes

Notes:

Soak Period (Pipe #2)

Start Date: 12/8/2015
Start Time: 10:24 AM Water Head: 12 inches
Notes:
Time: 11:26 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:28 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:31 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 2:32 PM Water Head: 0 inches
Notes: Refill to 12"
Time: Water Head: inches
Notes:
End Date: 12/8/2015
End Time: 2:37 PM Water Head: 9.4 inches

Total Soak Duration: 4 hours 13 minutes

Notes:

McDowell & Associates

Test Pit #: 8

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/8/2015
Weather: Cloudy T=45°F

Infiltration Test Data

Pipe #1				Pipe #2			
Time (min.)	Water Head (in.)			Time (min.)	Water Head (in.)		
	Test #1	Test #2	Test #3		Test #1	Test #2	Test #3
0	12.00	12.00	12.00	0	12.00	12.00	12.00
1				1			
2	11.69	11.63	11.75	2	11.44	11.56	11.63
3				3			
4	11.19	11.25	11.31	4	10.81	10.88	10.88
5				5			
6	10.69	10.75	10.81	6	10.00	10.25	10.25
7				7			
8	10.25	10.25	10.38	8	9.38	9.56	9.50
9				9			
10	9.75	9.75	10.00	10	8.63	8.88	8.94
15	8.56	8.75	8.88	15	6.94	7.38	7.38
20	7.50	7.69	7.88	20	5.50	6.00	5.94
25	6.38	6.63	6.75	25	3.94	4.50	4.50
30	5.50	5.75	5.94	30	0.75	3.44	3.44
40	3.56	4.00	4.19	40	0.19	1.25	1.31
50	2.00	2.38	2.50	50	0 @ 42:00	0 @ 45:00	0 @ 46:00
60	0.50	0.88	1.00	60			
70				70			
80				80			
90				90			
100				100			
110				110			
120				120			

Notes: Start at 2:37 PM

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

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.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE 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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734.994.4000

SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

INFILTRATION TEST PITS

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

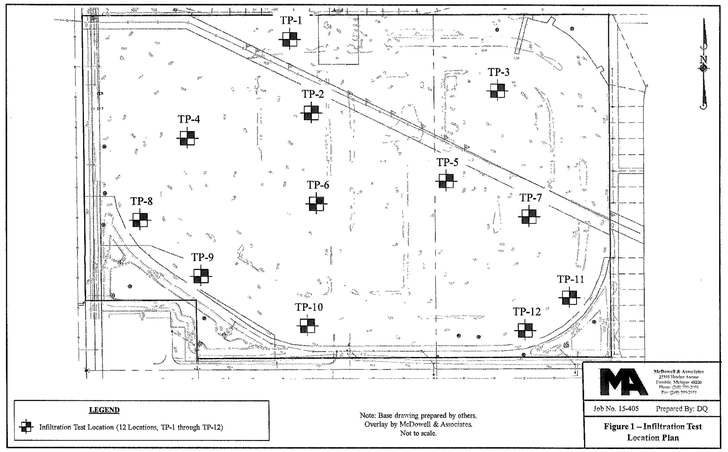
REVISIONS

SCALE 0 -- --
NO SCALE
DR. SK CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 27

CAD FILE: 15001707SP-09-TP.DWG

K:\ANN\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-09-TP.DWG 10/17/2025 3:52 PM KEVIN SULLIVAN

PRELIMINARY - NOT FOR CONSTRUCTION



LEGEND

Infiltration Test Location (12 Locations, TP-1 through TP-12)

Note: Base drawing prepared by others.
Overlay by McDowell & Associates.
Not to scale.

McDowell & Associates
2395 Oakland Drive
Franklin, Michigan 48025
Phone: (248) 595-5192
Fax: (248) 595-5193

Job No. 15-405 Prepared By: DQ

Figure 1 – Infiltration Test Location Plan

McDowell & Associates

Test Pit #: 9

Job Number: 15-405 **Date:** 12/8/2015
Project: Creekside North Infiltration Study **Weather:** Cloudy T=39°F
Location: Ypsilanti Twp., Washtenaw County, Michigan **Ground Elv.:** 708.21

Soil Stratigraphy:

0" - 4'0" Moist dark brown sandy silty clay with topsoil and traces of gravel (Fill)
4'0" - 5'2" Moist brown silty fine sand
5'2" - 8'6" Moist brown gravelly fine to medium sand with traces of silt
8'6" - 10'0" Wet grey gravelly fine to coarse sand

Groundwater Depth: 8'6"

Pipe Installation #1

Soil Depth: 5'8"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Installation #2

Soil Depth: 5'8"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Distance: 2'8"

Soak Period (Pipe #1)

Start Date: 12/8/2015
Start Time: 9:43 AM Water Head: 12 inches
Notes:
Time: 10:30 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 11:17 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:55 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:37 PM Water Head: 0 inches
Notes: Refill to 12"
Time: Water Head: inches
Notes:
End Date: 12/8/2015
End Time: 1:44 PM Water Head: 7.8 inches

Total Soak Duration: 4 hours 1 minutes

Notes:

Soak Period (Pipe #2)

Start Date: 12/8/2015
Start Time: 9:43 AM Water Head: 12 inches
Notes:
Time: 10:30 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 11:17 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:55 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:37 PM Water Head: 0 inches
Notes: Refill to 12"
Time: Water Head: inches
Notes:
End Date: 12/8/2015
End Time: 1:44 PM Water Head: 8.3 inches

Total Soak Duration: 4 hours 1 minutes

Notes:

McDowell & Associates

Test Pit #: 9

Job Number: 15-405 **Date:** 12/8/2015
Project: Creekside North Infiltration Study **Weather:** Cloudy T=45°F
Location: Ypsilanti Twp., Washtenaw County, Michigan

Infiltration Test Data

Time (min.)	Pipe #1 Water Head (in.) Test #1	Test #2	Test #3	Time (min.)	Pipe #2 Water Head (in.) Test #1	Test #2	Test #3
0	12.00	12.00	12.00	0	12.00	12.00	12.00
1				1			
2	10.63	10.63	10.75	2	11.06	11.06	11.06
3				3			
4	9.31	9.38	9.44	4	10.06	10.06	10.13
5				5			
6	8.06	8.19	8.19	6	9.06	9.13	9.13
7				7			
8	6.88	7.13	7.19	8	8.13	8.19	8.25
9				9			
10	5.63	6.06	6.13	10	7.13	7.31	7.38
15	3.13	3.63	3.75	15	5.06	5.25	5.38
20	0.88	1.44	1.69	20	3.25	3.56	3.63
25	0 @ 22:10	0 @ 23:40	0 @ 23:50	25	1.63	1.81	1.94
30				30	0 @ 29:15	0 @ 30:30	0 @ 31:00
40				40			
50				50			
60				60			
70				70			
80				80			
90				90			
100				100			
110				110			
120				120			

Notes: Start at 1:44 PM

McDowell & Associates

Test Pit #: 10

Job Number: 15-405 **Date:** 12/8/2015
Project: Creekside North Infiltration Study **Weather:** Cloudy T=39°F
Location: Ypsilanti Twp., Washtenaw County, Michigan **Ground Elv.:** 707.95

Soil Stratigraphy:

0" - 11" Moist dark brown sandy clay with gravel and topsoil (Fill)
11" - 4'0" Moist brown to dark brown silty sandy clay with traces of gravel (Fill)
4'0" - 5'8" Moist brown silty fine sand
5'8" - 8'0" Moist brown gravelly fine to medium sand with traces of silt
8'0" - 9'0" Wet grey gravelly medium to coarse sand

Groundwater Depth: 8'0"

Pipe Installation #1

Soil Depth: 5'6"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Installation #2

Soil Depth: 6'0"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Distance: 4'0"

Soak Period (Pipe #1)

Start Date: 12/8/2015
Start Time: 9:08 AM Water Head: 12 inches
Notes:
Time: 9:59 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 10:44 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 11:22 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:37 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:03 PM Water Head: 0 inches
Notes: Refill to 12"
End Date: 12/8/2015
End Time: 1:13 PM Water Head: 7.4 inches

Total Soak Duration: 4 hours 5 minutes

Notes:

Soak Period (Pipe #2)

Start Date: 12/8/2015
Start Time: 9:08 AM Water Head: 12 inches
Notes:
Time: 9:59 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 10:44 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 11:22 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:37 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:03 PM Water Head: 0 inches
Notes: Refill to 12"
End Date: 12/8/2015
End Time: 1:13 PM Water Head: 5.1 inches

Total Soak Duration: 4 hours 5 minutes

Notes:

McDowell & Associates

Test Pit #: 10

Job Number: 15-405 **Date:** 12/8/2015
Project: Creekside North Infiltration Study **Weather:** Cloudy T=45°F
Location: Ypsilanti Twp., Washtenaw County, Michigan

Infiltration Test Data

Time (min.)	Pipe #1 Water Head (in.) Test #1	Test #2	Test #3	Time (min.)	Pipe #2 Water Head (in.) Test #1	Test #2	Test #3
0	12.00	12.00	12.00	0	12.00	12.00	12.00
1				1			
2	10.69	10.69	10.75	2	10.06	10.44	10.50
3				3			
4	9.25	9.25	9.25	4	8.25	8.50	8.56
5				5			
6	7.88	7.88	7.88	6	6.56	6.81	7.06
7				7			
8	6.56	6.63	6.63	8	4.81	5.38	5.50
9				9			
10	5.38	5.44	5.38	10	3.44	3.88	4.13
15	2.63	2.69	2.69	15	0.25	0.63	0.94
20	0 @ 20:00	0 @ 20:15	0 @ 20:15	20	0 @ 15:30	0 @ 16:00	0 @ 16:30
25				25			
30				30			
40				40			
50				50			
60				60			
70				70			
80				80			
90				90			
100				100			
110				110			
120				120			

Notes: Start at 1:13 PM

McDowell & Associates

Test Pit #: 11

Job Number: 15-405 **Date:** 12/9/2015
Project: Creekside North Infiltration Study **Weather:** Partly Cloudy T=°F
Location: Ypsilanti Twp., Washtenaw County, Michigan **Ground Elv.:** 708.12

Soil Stratigraphy:

0" - 4'0" Moist dark brown sandy clay to clayey sand with silt, gravel and topsoil (Fill)
4'0" - 5'2" Moist black sandy topsoil with clay
5'2" - 5'10" Moist brown silty fine sand
5'10" - 9'8" Moist brown gravelly fine to medium sand with traces of silt
9'8" - 10'0" Wet grey gravelly fine to coarse sand

Groundwater Depth: 9'8"

Pipe Installation #1

Soil Depth: 6'10"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Installation #2

Soil Depth: 6'10"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Distance: 4'0"

Soak Period (Pipe #1)

Start Date: 12/9/2015
Start Time: 9:44 AM Water Head: 12 inches
Notes:
Time: 10:05 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:02 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:33 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:59 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:46 PM Water Head: 0 inches
Notes: Refill to 12"
End Date: 12/9/2015
End Time: 1:50 PM Water Head: 8.4 inches

Total Soak Duration: 4 hours 6 minutes

Notes:

Soak Period (Pipe #2)

Start Date: 12/9/2015
Start Time: 9:44 AM Water Head: 12 inches
Notes:
Time: 10:05 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:02 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:33 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:59 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:46 PM Water Head: 0 inches
Notes: Refill to 12"
End Date: 12/9/2015
End Time: 1:50 PM Water Head: 8.0 inches

Total Soak Duration: 4 hours 6 minutes

Notes:

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ANN ARBOR, MI 48104
734.994.4000

SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

INFILTRATION TEST PITS

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

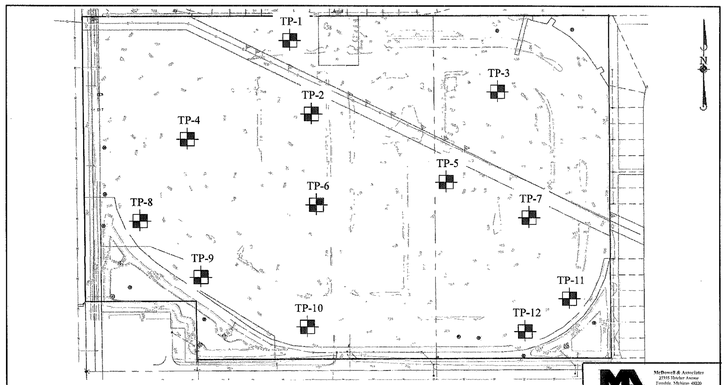
REVISIONS

SCALE 0 -- --
NO SCALE
DR. SK CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 28

CAD FILE: 15001707SP-09-TP.DWG

K:\MAIN\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-09-TP.DWG 10/17/2025 3:52 PM KEVIN SULLIVAN

PRELIMINARY - NOT FOR CONSTRUCTION



LEGEND

Infiltration Test Location (12 Locations, TP-1 through TP-12)

Note: Base drawing prepared by others.
Overlay by McDowell & Associates.
Not to scale.

McDowell & Associates
2395 Oak Valley Drive
Ann Arbor, Michigan 48103
Phone: (248) 391-3721
Fax: (248) 391-3191

Job No. 15-405 Prepared By: DQ

Figure 1 – Infiltration Test Location Plan

McDowell & Associates

Test Pit #: 11

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/9/2015
Weather: Cloudy T=48°F

Infiltration Test Data

	Pipe #1				Pipe #2		
Time (min.)	Water Head (in.)			Time (min.)	Water Head (in.)		
	Test #1	Test #2	Test #3		Test #1	Test #2	Test #3
0	12.00	12.00	12.00	0	12.00	12.00	12.00
1				1			
2	10.00	10.13	10.19	2	10.13	10.13	10.00
3				3			
4	8.06	8.44	8.38	4	8.25	8.38	8.19
5				5			
6	6.19	6.94	6.81	6	6.63	6.88	6.69
7				7			
8	4.69	5.38	5.31	8	5.00	5.38	5.31
9				9			
10	3.25	4.00	4.00	10	3.63	4.00	3.94
15		1.13	1.06	15		1.06	1.00
20	0 @ 15:10	0 @ 17:00	0 @ 17:00	20	0 @ 15:50	0 @ 17:00	0 @ 17:00
25				25			
30				30			
40				40			
50				50			
60				60			
70				70			
80				80			
90				90			
100				100			
110				110			
120				120			

Notes: Start at 1:50 PM

McDowell & Associates

Test Pit #: 12

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/9/2015
Weather: Partly Cloudy T=41°F
Ground Elv.: 709.04

Soil Stratigraphy:

0" - 4'3" Moist dark brown sandy silty clay with topsoil (Fill)
4'3" - 5'4" Moist black sandy topsoil with silt and clay
5'4" - 8'0" Brown silty fine to medium sand
8'0" - 10'6" Brown gravelly fine to coarse sand with seams of fine silty sand
10'6" - 11'0" Wet grey gravelly fine to coarse sand

Groundwater Depth: 10'6"

Pipe Installation #1

Soil Depth: 8'0"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Installation #2

Soil Depth: 8'0"
Pipe Diameter: 6"
Embedment: 6"
Stick-up: 12"
Total Length: 1'6"

Pipe Distance: 3'6"

Soak Period (Pipe #1)

Start Date: 12/9/2015
Start Time: 9:06 AM Water Head: 12 inches
Notes:
Time: 10:25 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 11:13 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:27 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:02 PM Water Head: 0 inches
Notes: Refill to 12"
Time: Water Head: inches
Notes:
End Date: 12/9/2015
End Time: 1:09 PM Water Head: 7.3 inches

Total Soak Duration: 4 hours 3 minutes

Notes:

Soak Period (Pipe #2)

Start Date: 12/9/2015
Start Time: 9:06 AM Water Head: 12 inches
Notes:
Time: 10:25 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 11:13 AM Water Head: 0 inches
Notes: Refill to 12"
Time: 12:27 PM Water Head: 0 inches
Notes: Refill to 12"
Time: 1:02 PM Water Head: 0 inches
Notes: Refill to 12"
Time: Water Head: inches
Notes:
End Date: 12/9/2015
End Time: 1:09 PM Water Head: 9.8 inches

Total Soak Duration: 4 hours 3 minutes

Notes:

McDowell & Associates

Test Pit #: 12

Job Number: 15-405
Project: Creekside North Infiltration Study
Location: Ypsilanti Twp., Washtenaw County, Michigan

Date: 12/9/2015
Weather: Cloudy T=48°F

Infiltration Test Data

	Pipe #1				Pipe #2		
Time (min.)	Water Head (in.)			Time (min.)	Water Head (in.)		
	Test #1	Test #2	Test #3		Test #1	Test #2	Test #3
0	12.00	12.00	12.00	0	12.00	12.00	12.00
1				1			
2	10.25	10.25	10.31	2	11.31	11.19	11.31
3				3			
4	8.50	8.63	8.56	4	10.25	10.19	10.25
5				5			
6	6.88	6.88	6.88	6	9.25	9.25	9.25
7				7			
8	5.38	5.44	5.50	8	8.31	8.31	8.38
9				9			
10	4.00	4.13	4.13	10	7.44	7.50	7.50
15	0.75	1.00	1.06	15	5.38	5.31	5.38
20	0 @ 16:15	0 @ 16:40	0 @ 16:45	20	3.50	3.81	3.75
25				25	1.88	2.13	2.19
30				30	0.25	0.50	0.63
40				40	0 @ 31:00	0 @ 31:30	0 @ 31:35
50				50			
60				60			
70				70			
80				80			
90				90			
100				100			
110				110			
120				120			

Notes: Start at 1:09 P.M

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

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.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE 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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ANN ARBOR, MI 48104
734.994.4000

SECTION 26
TOWN 3 SOUTH, RANGE 7 EAST
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SE MICHIGAN LAND HOLDINGS, LLC

CREEKSIDE VILLAGE NORTH
PRELIMINARY SITE PLAN

INFILTRATION TEST PITS

DATE
NOVEMBER 11, 2024

3/6/2025: PER TWP
10/17/25: PER TWP/YUCA/WCWRC

REVISIONS

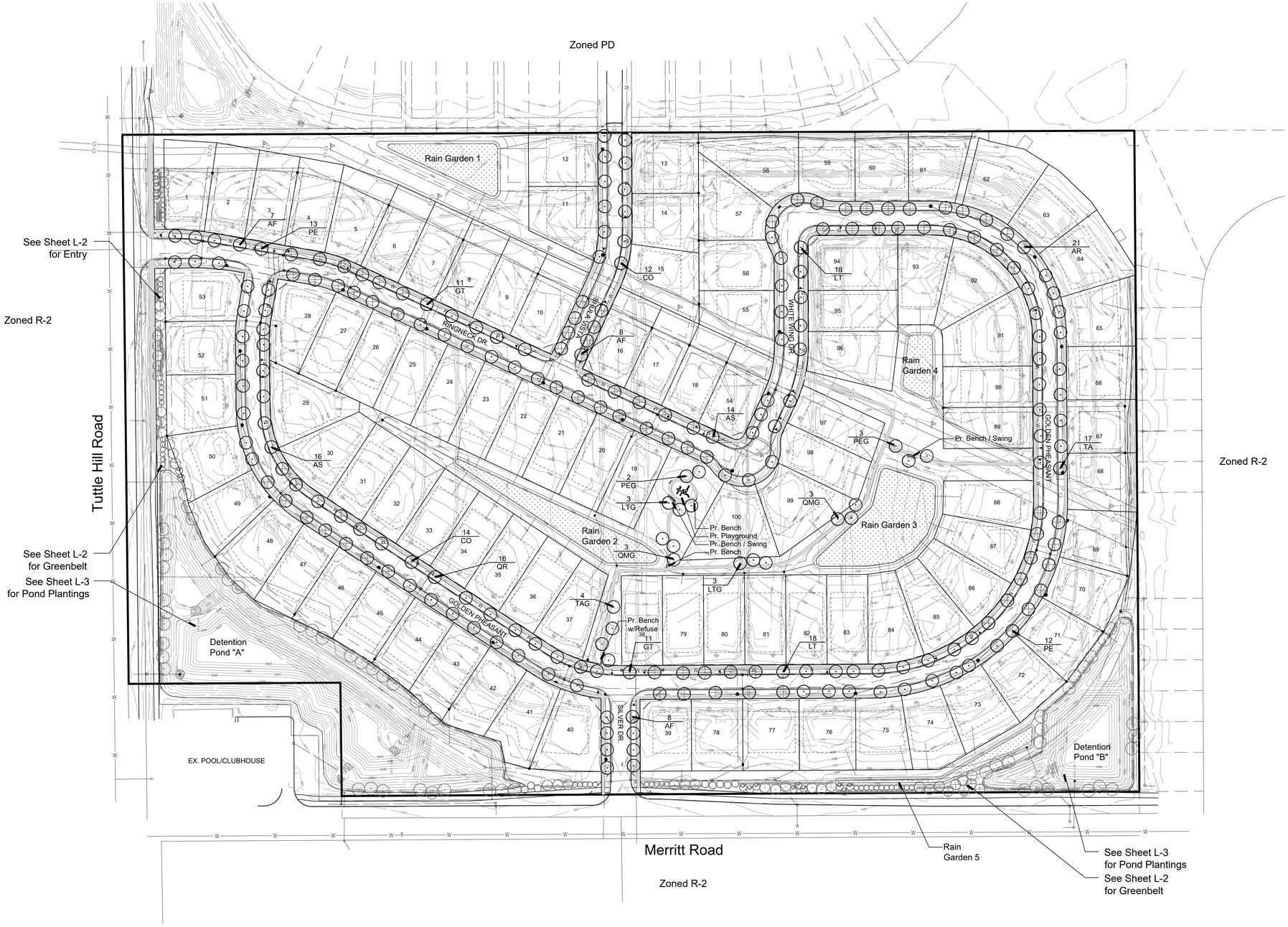
SCALE 0 -- --
NO SCALE

DR. SK CH. --
P.M. KS
BOOK
JOB 15001707
SHEET NO. 29

CAD FILE: 15001707SP-09-TP.DWG

K:\ANN\PROJECTS\15001707 - CREEKSIDE NORTH\DWG\PLAN SETS\PRELIMINARY SITE PLAN\15001707SP-09-TP.DWG 10/17/2025 3:52 PM KEVIN SULLIVAN

PRELIMINARY - NOT FOR CONSTRUCTION



Landscape Summary

Street Trees	
Street Frontage	10,798 l.f.
Street Trees Required	215.9 Trees (10,798 / 50)
Street Trees Provided	216 Trees

Key

Rain Garden - See Sheet L-4

Plant List - Sheet L-1

sym.	qty.	botanical name	common name	caliper	spacing	root	height
Street Trees							
AF	23	Acer x. freemanii 'Autumn Blaze'	Autumn Blaze Maple	2.5"	as shown	B&B	
AR	21	Acer rubrum 'October Glory'	October Glory Red Maple	2.5"	as shown	B&B	
AS	30	Acer saccharum 'Green Mountain'	Green Mountain Sugar Maple	2.5"	as shown	B&B	
CO	26	Celtis occidentalis	Northern Hackberry	2.5"	as shown	B&B	
GT	22	Gleditsia triacanthos var. Inermis	Honey Locust	2.5"	as shown	B&B	
LT	36	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	
PE	25	Platanus x acerifolia 'Exclamation'	Exclamation London Planetree	2.5"	as shown	B&B	
QR	16	Quercus rubra	Red Oak	2.5"	as shown	B&B	
TA	17	Tilia americana 'Redmond'	Redmond Linden	2.5"	as shown	B&B	
	216	Trees Provided					

sym.	qty.	botanical name	common name	caliper	spacing	root	height
General Plantings							
LTG	6	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	
PEG	5	Platanus x acerifolia 'Exclamation'	Exclamation London Planetree	2.5"	as shown	B&B	
QMG	6	Quercus rubra	Bur Oak	2.5"	as shown	B&B	
TAG	4	Tilia americana 'Redmond'	Redmond Linden	2.5"	as shown	B&B	

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Northville, Michigan 48167
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t. 248.467.4668

Seal:

STATE OF MICHIGAN
JAMES C. ALLEN
Landscape Architect
REGISTERED LANDSCAPE ARCHITECT

Title:

Street Tree Plan

Project:

Creekside
Ypsilanti Township, Michigan

Prepared for:

SE Michigan Land Holdings LLC
13001 23 Mile Road, Suite 200
Shelby Township, Michigan 48315

Revision:	Issued:
Submission	October 10, 2024
Revised	October 17, 2025

Job Number:

21-031

Drawn By:	Checked By:
jca	jca

0' 25' 50' 100'

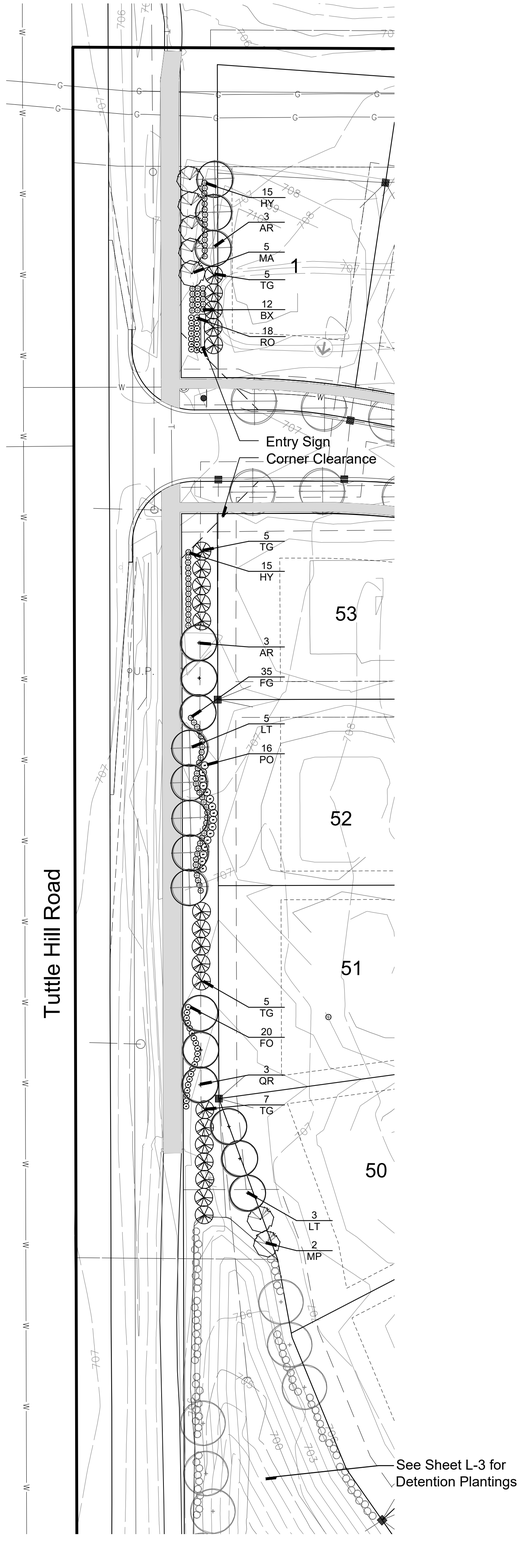
NORTH
1"=100'

Know what's below. Call before you dig.

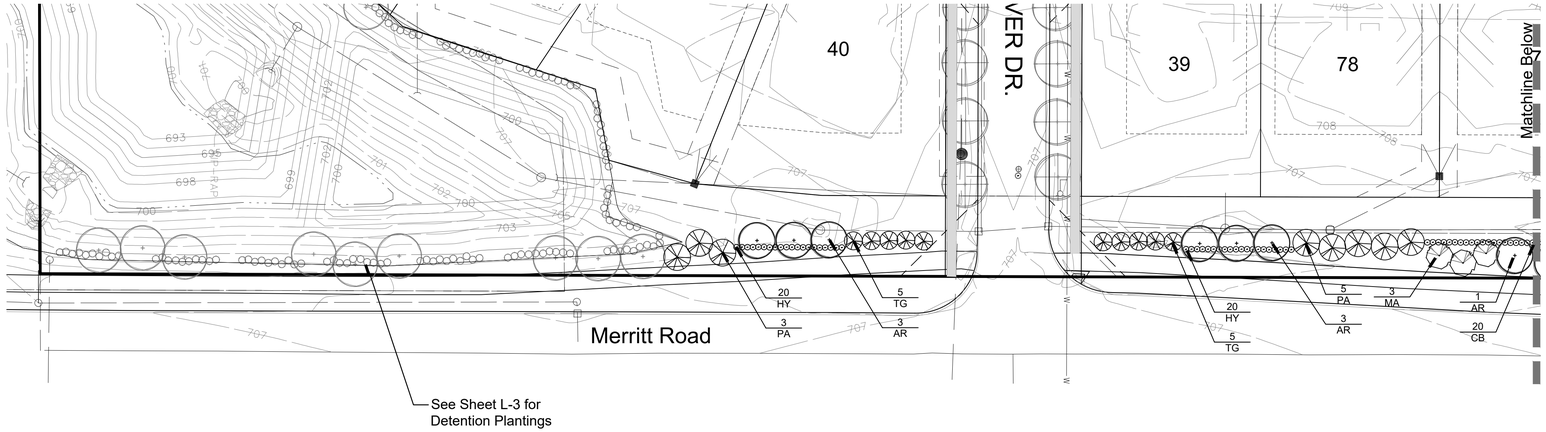
Sheet No.

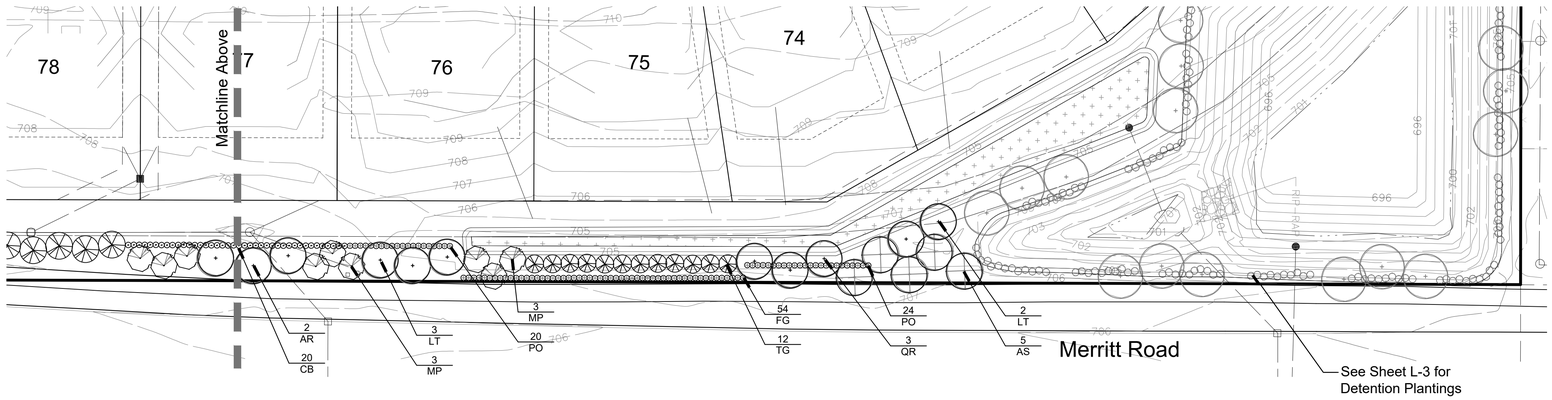
L-1

Tuttle Hill Greenbelt



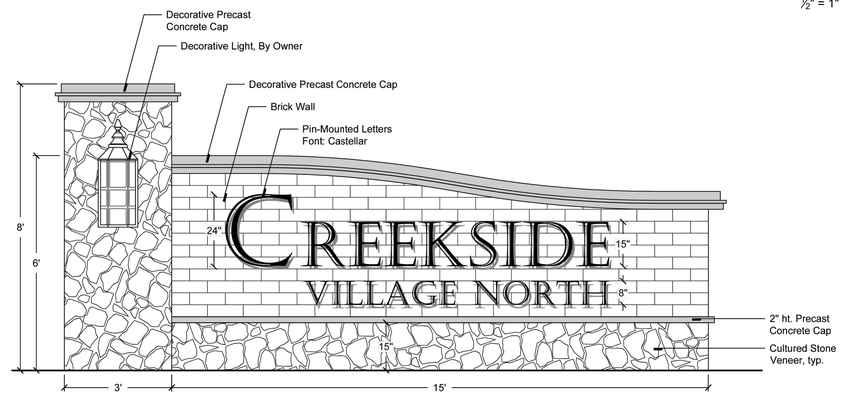
Merritt Greenbelt





Entry Monument Sign

½" = 1"



Plant List - L-2

sym.	qty.	botanical name	common name	caliper	spacing	root	height
Greenbelt							
AR	15	Acer x. freemanii 'Autumn Blaze'	Autumn Blaze Maple	2.5"	as shown	B&B	
AS	5	Acer saccharum 'Green Mountain'	Sugar Maple	2.5"	as shown	B&B	
BX	12	Buxus 'Green Mountain'	Green Mountain Boxwood		as shown	cont	24"
CB	40	Cornus stolinifera 'Bailey's'	Bailey's Red Osier Dogwood		as shown	cont	30"
FG	89	Forsythia 'Gold Tide'	Gold Tide Forsythia		as shown	cont	30"
FO	20	Forsythia x intermedia 'Spectabilis'	Showy Forsythia		as shown	cont	30"
HY	70	Hydrangea 'Lime Light'	Lime Light Hydrangea		as shown	cont	30"
LT	13	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	
MA	8	Malus 'Royal Raindrops'	Royal Raindrops Crab Apple	2.0"	as shown	B&B	
MP	8	Malus 'Profusion'	Profusion Crab	2.0"	as shown	B&B	
PA	8	Picea abies	Norway Spruce		as shown	B&B	6'-7'
PO	60	Physocarpus opulifolius 'Summer Wine'	Summer Wine Ninebark		as shown	cont	30"
QR	6	Quercus rubra	Red Oak	2.5"	as shown	B&B	
RO	18	Rosa 'Oso Double Red'	Double Red Oso Rose		as shown	cont	#2
TG	44	Thuja 'Green Giant'	Green Giant Arborvitae		as shown	B&B	6'-7'
	39	Trees Provided					
	52	Evergreens Provided					
	16	Ornamentals Provided					
	309	Shrubs Provided					

Landscape Summary

Greenbelt	
Tuttle Hill Road	
Road Frontage	1,070 l.f.
Less Detention within Greenbelt	416 l.f.
Net Greenbelt	654 l.f.
Trees Required	16.4 Trees (654 / 40)
Trees Provided	17 Trees
Evergreens Required	21.8 Trees (654 x 50%) / 15
Evergreens Provided	22 Trees
Ornamental Trees Required	6.5 Trees (654 / 100)
Ornamental Trees Provided	7 Trees
Shrubs Required	130.8 Shrubs (654 / 40) x 8
Shrubs Provided	131 Shrubs
Greenbelt	
Merritt Road	
Road Frontage	1,553 l.f.
Less Detention within Greenbelt	663 l.f.
Net Greenbelt	890 l.f.
Trees Required	22 Trees (890 / 40)
Trees Provided	22 Trees
Evergreens Required	29.6 Trees (890 x 50%) / 15
Evergreens Provided	30 Trees
Ornamental Trees Required	8.9 Trees (890 / 100)
Ornamental Trees Provided	9 Trees
Shrubs Required	178 Shrubs (890 / 40) x 8
Shrubs Provided	178 Shrubs

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Seal:

STATE OF MICHIGAN
JAMES C. ALLEN
Landscape Architect
No. 1301
REGISTERED LANDSCAPE ARCHITECT

Title:

Greenbelt and Entry

Project:

Creekside
Ypsilanti Township, Michigan

Prepared for:

SE Michigan Land Holdings LLC
13001 23 Mile Road, Suite 200
Shelby Township, Michigan 48315

Revision:	Issued:
Submission	October 10, 2024
Revised	October 17, 2025

Job Number:

21-031

Drawn By:	Checked By:
jca	jca

0' 10' 20' 40'

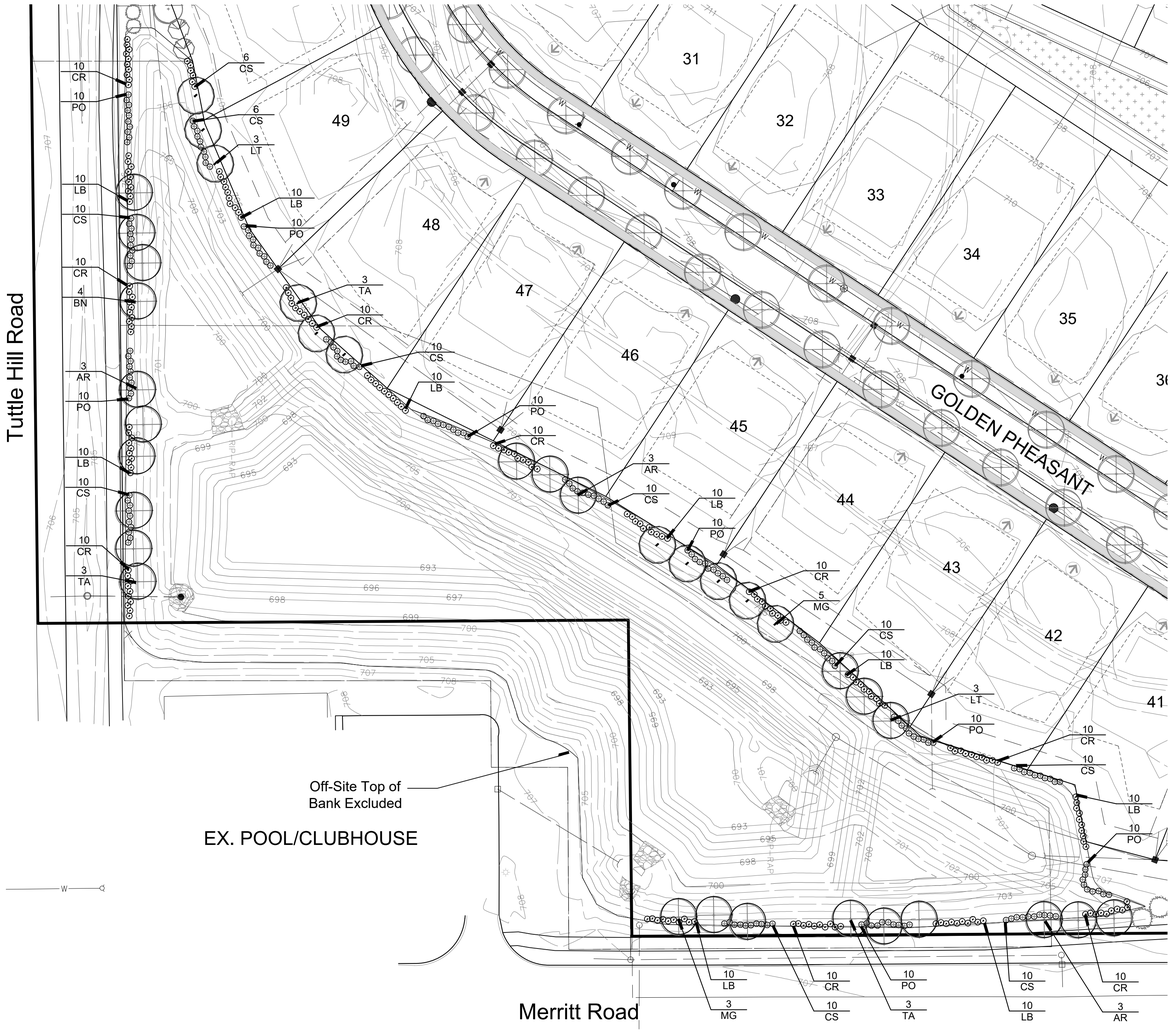
NORTH
1"=40'

Know what's below. Call before you dig.

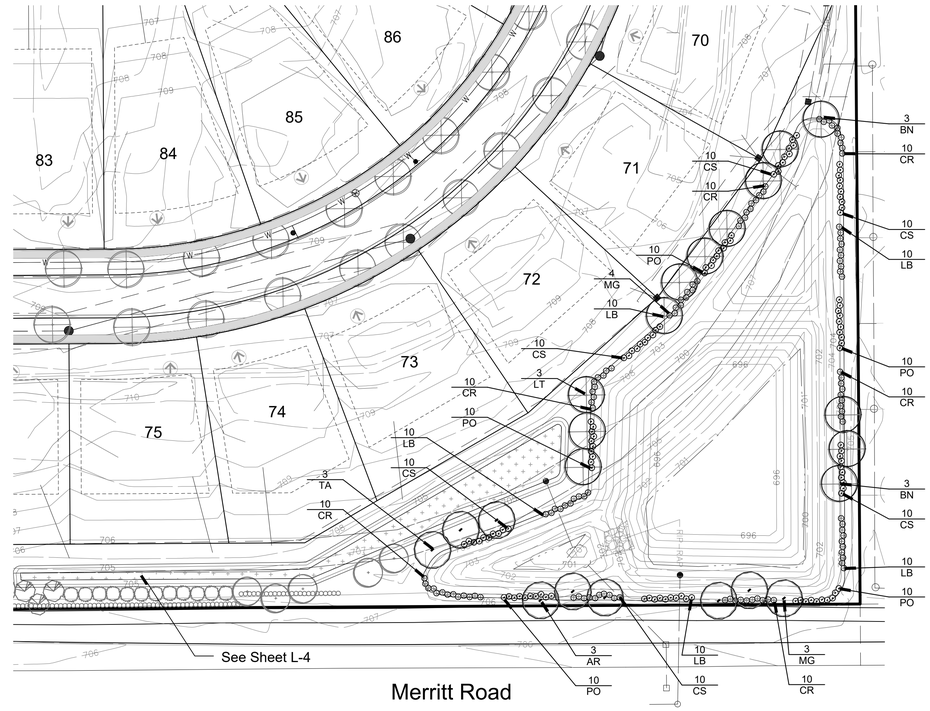
Sheet No.

L-2

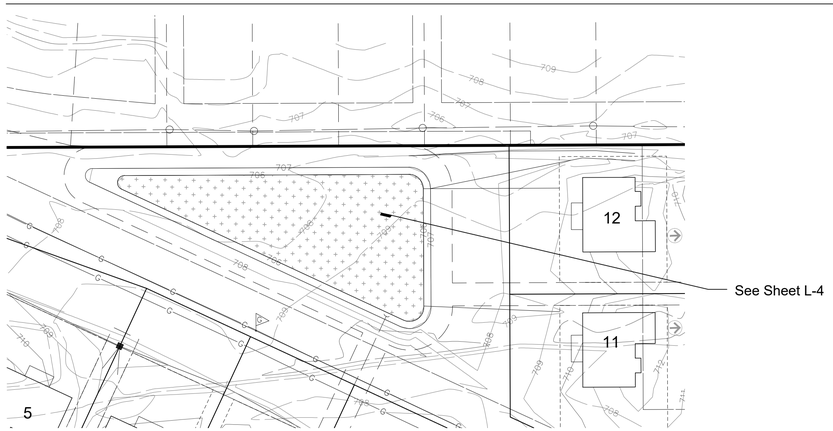
Pond A



Pond B and Rain Garden 5



Rain Garden 1



Key

Rain Garden - See Sheet L-4

Landscape Summary

Pond A	
Top of Bank Length	1,782 l.f.
Trees Required	35.6 Trees (1,782 / 50)
Trees Provided	36 Trees
Shrubs Required	356 Shrubs (1,782 / 50) x 10
Shrubs Provided	356 Shrubs
Pond B	
Top of Bank Length	1,101 l.f.
Trees Required	22 Trees (1,101 / 50)
Trees Provided	22 Trees
Shrubs Required	220 Shrubs (1,101 / 50) x 10
Shrubs Provided	220 Shrubs

Plant List - L-3

sym.	qty	botanical name	common name	caliper	spacing	root	height
Detention Plantings							
AR	12	Acer rubrum 'October Glory'	Red Maple 'October Glory'	2.5"	as shown	B&B	
BN	10	Betula nigra	Multi-stem River Birch		as shown	B&B	10'
CR	150	Cornus racemosa	Gray Dogwood		as shown	Cont	30"
CS	156	Cornus stolonifera	Red-osier Dogwood		as shown	Cont	30"
LB	140	Lindera benzoin	Spicebush		as shown	Cont	30"
LT	9	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	
MG	15	Metasequoia glyptostroboides	Dawn Redwood	2.5"	as shown	B&B	
PO	130	Physocarpus opulifolius	Eastern Ninebark		as shown	Cont	30"
TA	12	Tilia americana 'Redmond'	Redmond Linden	2.5"	as shown	B&B	
	58	Trees Provided					
	576	Shrubs Provided					

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Seal:

STATE OF MICHIGAN
JAMES C. ALLEN
Landscape Architect
REGISTERED LANDSCAPE ARCHITECT

Title:

Storm Water Plan

Project:

Creekside
Ypsilanti Township, Michigan

Prepared for:

SE Michigan Land Holdings LLC
13001 23 Mile Road, Suite 200
Shelby Township, Michigan 48315

Revision:	Issued:
Submission	October 10, 2024
Revised	October 17, 2025

Job Number:

21-031

Drawn By:	Checked By:
jca	jca

0' 25' 50'

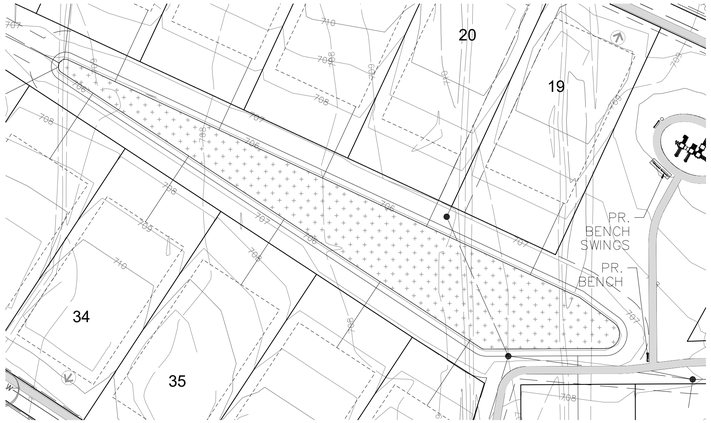
NORTH
1"=50'

Know what's below. Call before you dig.

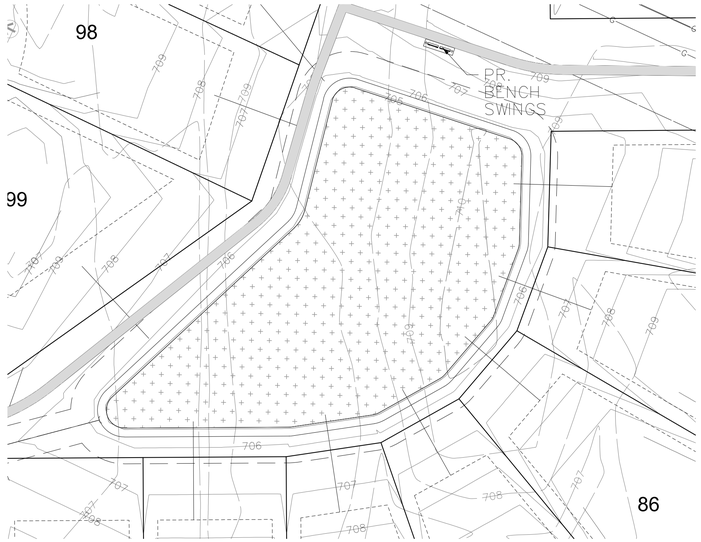
Sheet No.

L-3

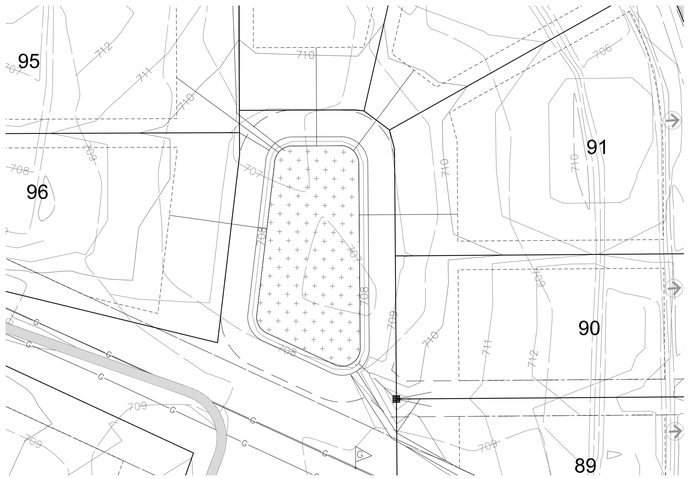
Rain Garden 2



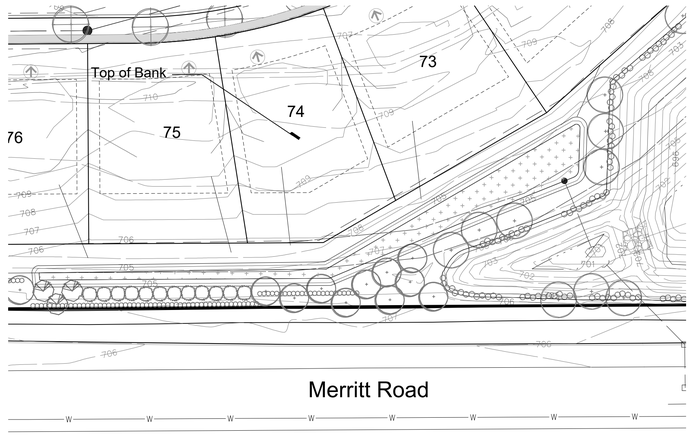
Rain Garden 3



Rain Garden 4



Rain Garden 5



Live Plantings Plant List

qty.	botanical name	common name	spacing	Container
1,450	Agastache nepetoides	Yellow Giant Hyssop	24" o.c.	2" Pot or cells
1,450	Asclepias incarnata	Swamp Milkweed	24" o.c.	2" Pot or cells
1,450	Carex grayi	Gray's Sedge	24" o.c.	2" Pot or cells
1,450	Doellingeria umbellata	Flat-Top White Aster	24" o.c.	2" Pot or cells
1,450	Eupatorium perfoliatum	Boneset	24" o.c.	2" Pot or cells
1,450	Eutrochium maculatum	Joe-Pye Weed	24" o.c.	2" Pot or cells
1,450	Helenium autumnale	Sneezeweed	24" o.c.	2" Pot or cells
1,450	Liatris spicata	Marsh Blazing Star	24" o.c.	2" Pot or cells
1,450	Lobelia siphilitica	Big Blue Lobelia	24" o.c.	2" Pot or cells
1,450	Penstemon digitalis	Smooth Penstemon	24" o.c.	2" Pot or cells
1,450	Silphium terebinthinaceum	Prarie Dock	24" o.c.	2" Pot or cells
63,908 s.f. of Rain Garden Area				

Key

Rain Garden

Notes

1. No Chemicals are Allowed in Stormwater Features or Buffer Zones with the Following Exception: Invasive Spacies may be Treated with Chemicals by a Certified Applicator. Mowing is Allowed Only Twice a Year.
2. Soils Must be Amended with a Composted Organic Material. Soils Must be Free of Construction Debris and Subsoils. Soils Must Contain 20%-30% Compost.
3. Rain Garden Soils must Contain 20%-30% Compost, 70%-80% Topsoil with a Maximum of 10% Clay.
4. At the time of plant and seed delivery, a WCWRC landscape reviewer must be present. The quantity and species delivered will be reviewed on site. Contact Catie Wytychak at wytychakc@ewashtenaw.org or (734) 222-6813 to coordinate.

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LAND PLANNING / LANDSCAPE ARCHITECTURE
557 Carpenter
Northville, Michigan 48167
e. jca@wideopenwest.com
t. 248.467.4668

Seal:

Title:

Storm Water Plan

Project:

Creekside
Ypsilanti Township, Michigan

Prepared for:

SE Michigan Land Holdings LLC
13001 23 Mile Road, Suite 200
Shelby Township, Michigan 48315

Revision:	Issued:
Submission	October 10, 2024
Revised	October 17, 2025

Job Number:

21-031

Drawn By:	Checked By:
jca	jca

0' 10' 25' 50'

NORTH
1"=50'

Know what's below. Call before you dig.

Sheet No.

L-4

ALLENDESIGN
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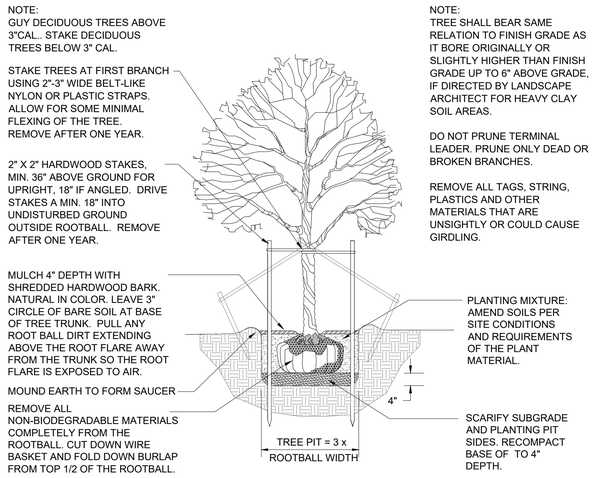
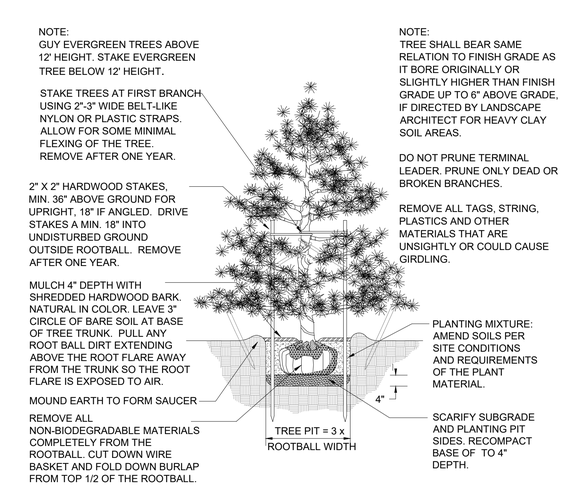
t. 248.467.4668



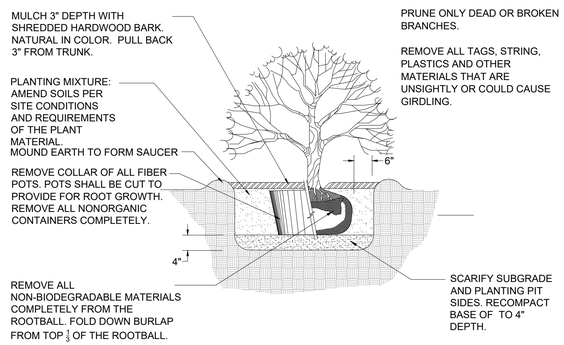
DECIDUOUS TREE PLANTING DETAIL

Not to scale



EVERGREEN TREE PLANTING DETAIL

Not to scale



SHRUB PLANTING DETAIL

NOT TO SCALE

Play Structure

Superior Play Model CPS3-31290

Seating - 3 Instances

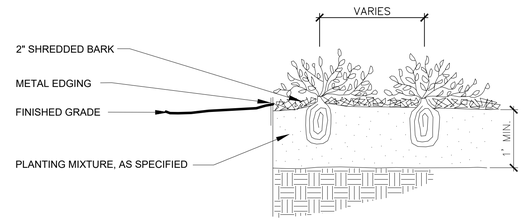
DuMor 79 Recycled Plastic Bench
Color - Brown

LANDSCAPE NOTES

1. All plants shall be north Midwest American region grown, No. 1 grade plant materials, and shall be true to name, free from physical damage and wind burn.
2. Plants shall be full, well-branched, and in healthy vigorous growing condition.
3. Plants shall be watered before and after planting is complete.
4. All trees must be staked, fertilized and mulched and shall be guaranteed to exhibit a normal growth cycle for at least two (2) full years following Township approval.
5. All material shall conform to the guidelines established in the most recent edition of the American Standard for Nursery Stock.
6. Provide clean backfill soil, using material stockpiled on site. Soil shall be screened and free of any debris, foreign material, and stone.
7. "Agriform" tabs or similar slow-release fertilizer shall be added to the planting pits before being backfilled.
8. Amended planting mix shall consist of 1/3 screened topsoil, 1/3 sand and 1/3 peat, mixed well and spread to the depth as indicated in planting details.
9. All plantings shall be mulched per planting details located on this sheet.
10. The Landscape Contractor shall be responsible for all work shown on the landscape drawings and specifications.
11. No substitutions or changes of location, or plant types shall be made without the approval of the Landscape Architect.
12. The Landscape Architect shall be notified in writing of any discrepancies between the plans and field conditions prior to installation.
13. The Landscape Contractor shall be responsible for maintaining all plant material in a vertical condition throughout the guaranteed period.
14. The Landscape Architect shall have the right, at any stage of the installation, to reject any work or material that does not meet the requirements of the plans and specifications, if requested by owner.
15. Contractor shall be responsible for checking plant quantities to ensure quantities on drawings and plant list are the same. In the event of a discrepancy, the quantities on the plans shall prevail.
16. The Landscape Contractor shall seed and mulch or sod (as indicated on plans) all areas disturbed during construction, throughout the contract limits.
17. A pre-emergent weed control agent, "Preen" or equal, shall be applied uniformly on top of all mulching in all planting beds.
18. All landscape areas shall be provided with an underground automatic sprinkler system.
19. Sod shall be two year old "Baron/Cheriadelphi" Kentucky Blue Grass grown in a sod nursery on loam soil.

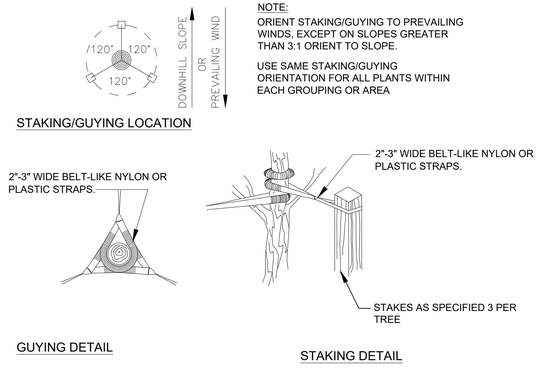
Refuse - 3 Instances

DuMor 41
Color - Brown



PERENNIAL PLANTING DETAIL

Not to scale

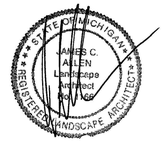


TREE STAKING DETAIL

Not to scale

© 2025 Allen Design L.L.C.

Seal:



Title:

Landscape Details

Project:

Creekside
Ypsilanti Township, Michigan

Prepared for:

SE Michigan Land Holdings LLC
13001 23 Mile Road, Suite 200
Shelby Township, Michigan 48315

Revision:	Issued:
Submission	October 10, 2024
Revised	October 17, 2025

Job Number:

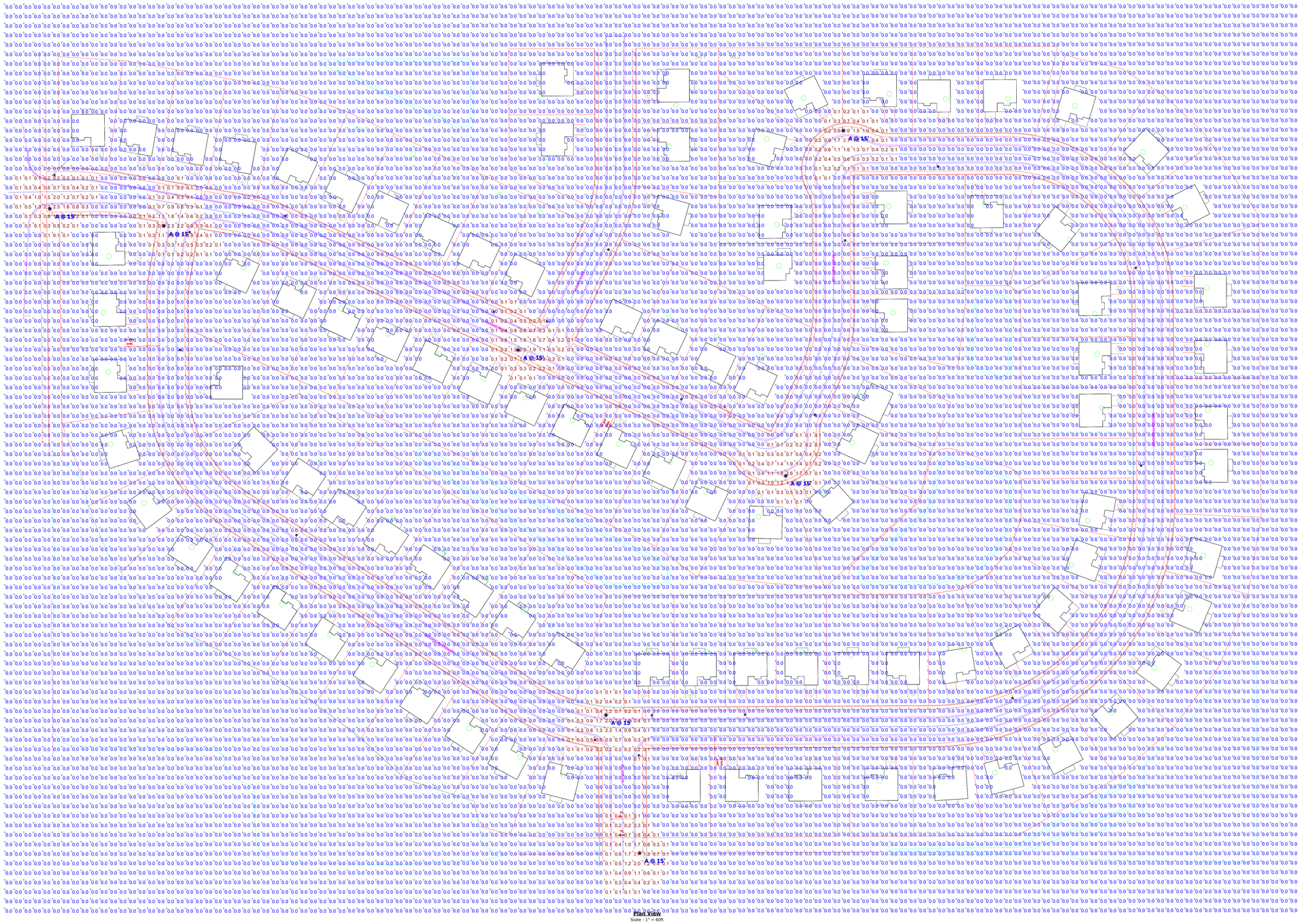
21-031

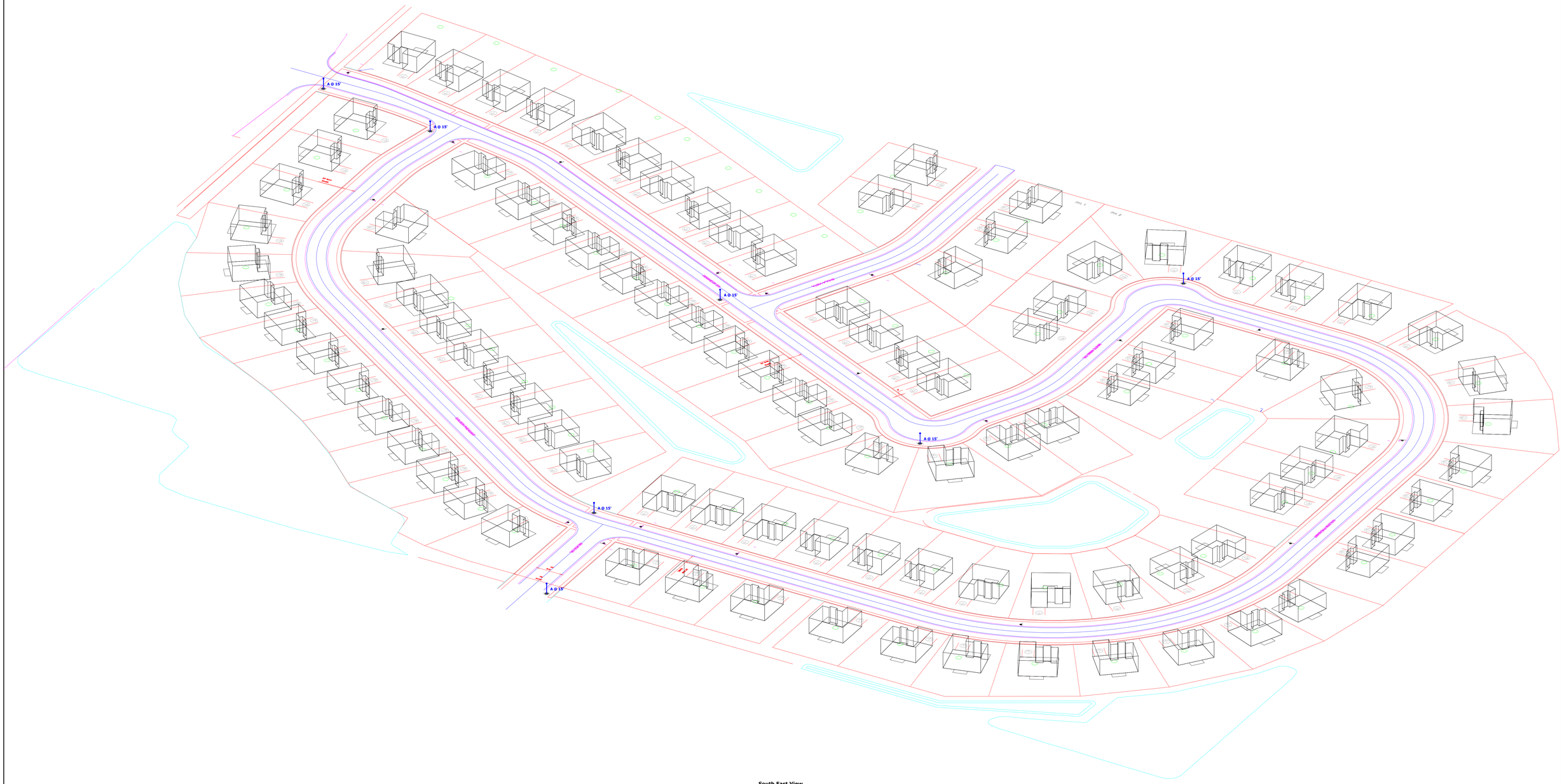
Drawn By:	Checked By:
jca	jca

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

Sheet No.

L-5


A @ 15'
A @ 15'
A @ 15'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PPL 1
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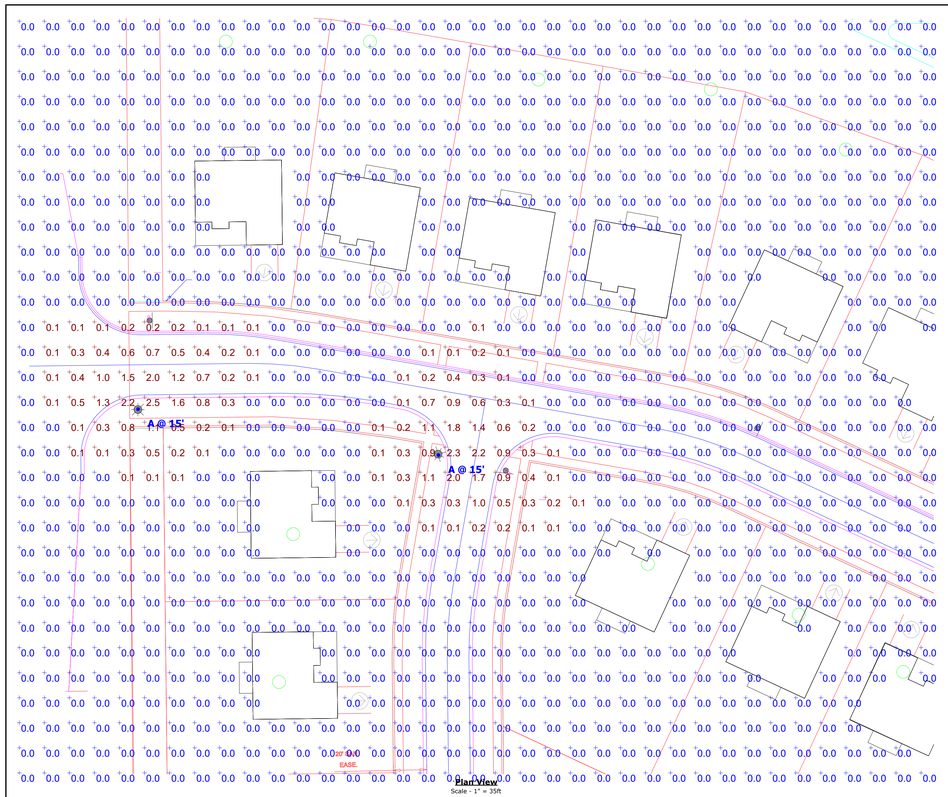
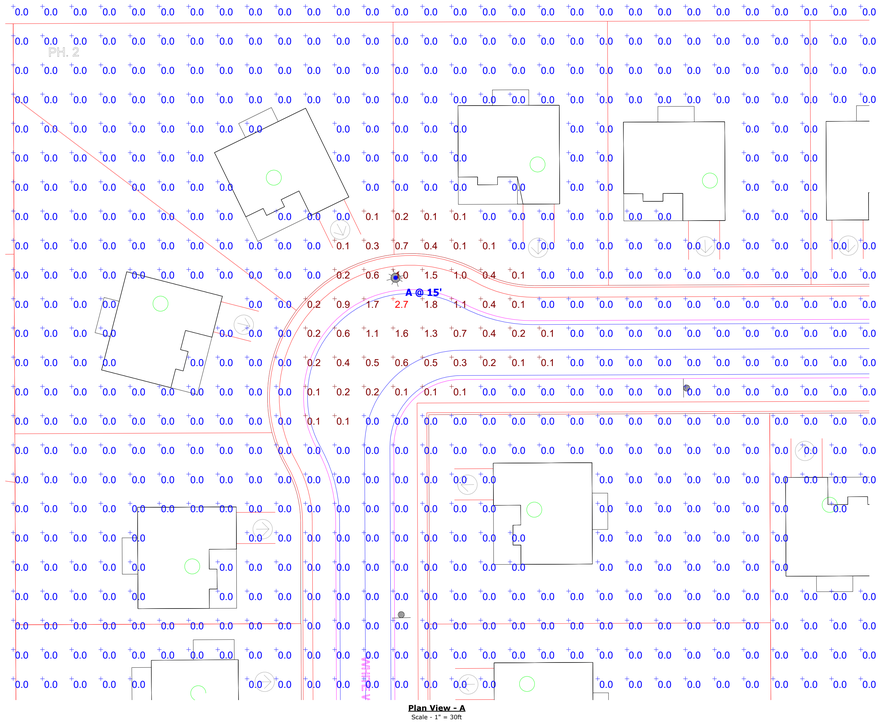
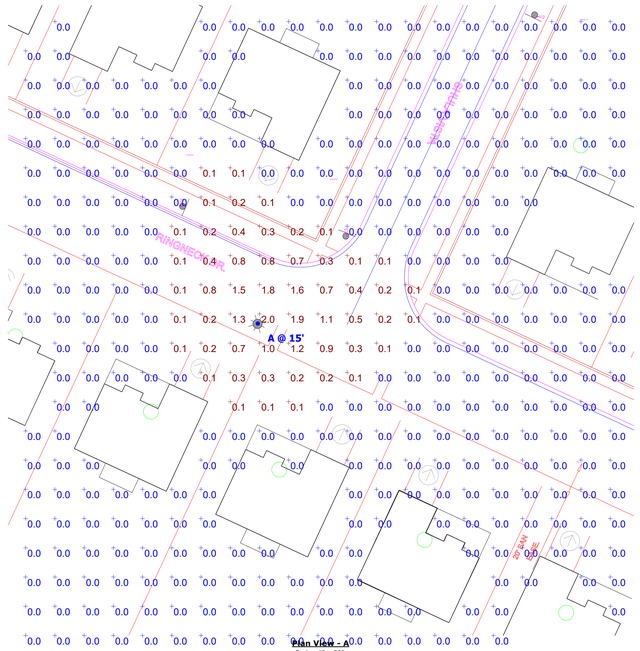


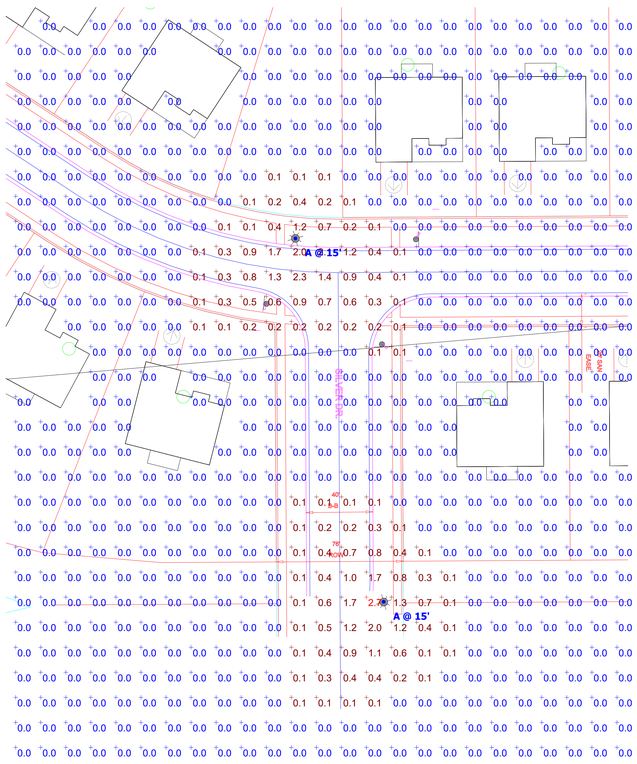
Plan View
Scale - 1" = 35ft



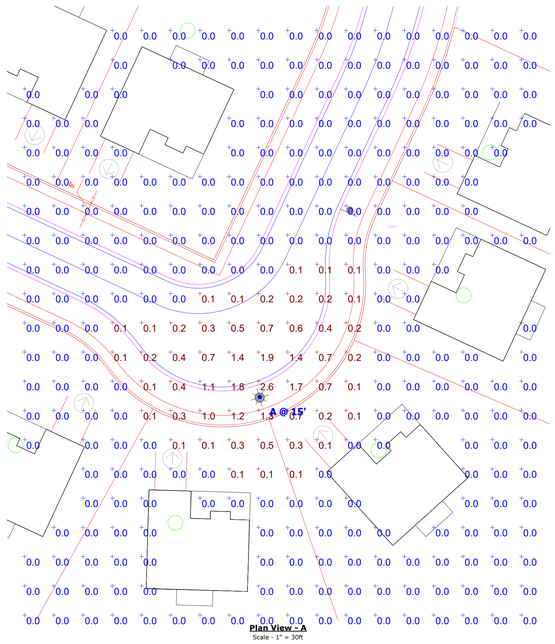
Plan View - A
Scale - 1" = 30ft



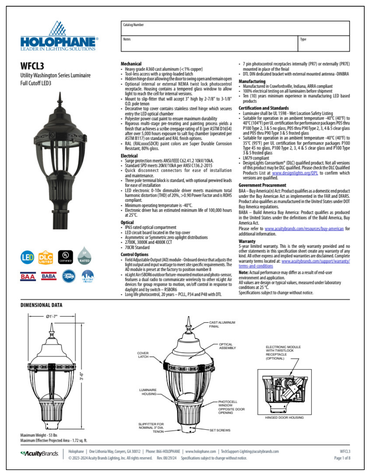
Plan View - A
Scale - 1" = 30ft



Plan View - A
Scale - 1" = 35ft



Plan View - A
Scale - 1" = 30ft



HOLOPHANE

WFCL3
Utility Washington Series Luminaire
Full Cutoff LED

Mechanical
- Heavy grade A360 cast aluminum (< 1% copper)
- Tool-less access with a spring-loaded latch
- Hidden hinge visor allowing the door to swing open and remain open
- Optional internal or external NEMA® 7-pin twist photocontrol receptacle (PE7) with a clear polycarbonate glass window to allow light to reach the cell for external versions.
- Mount to slip fitter that will accept 2" high by 2-7/8" to 3-1/8" O.D. tenon
- Decorative top cover contains stainless steel hasp which secures entry the LED optical chamber
- Die-cast aluminum housing to prevent maximum durability
- Rigorous, multi-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) when tested for 5,000 hours in salt fog (per ASTM B117) per ASTM B117 5 mm standard and RAL finish options.
- RAL 7004,textured (DOK) paint colors are Super Durable Corrosion Resistant, 80% gloss.

Electrical
- Surge protection meets ANSI/IEEE C62.41.2 TRAN100A.
- Certified to NEMA 284-2000 per ANSI C136.2-2013
- Quick disconnect connectors for ease of installation/maintenance
- Three-pole terminal block is standard, with optional grounded leads for ease of installation
- 120V, 208V, 240V, 277V dimmable driven meets maximum total harmonic distortion (THD) of 20%, >.90 Power factor and is ADDRC compliant.
- Maximum operating temperature is -40°C.
- Electronic driven has an estimated minimum life of 100,000 hours @ 25°C.

Optical
- IP65 rated optical compartment
- Full cutoff distribution with flat top cover
- Economical, efficient and reliable light distributions
- 2700K, 3000K and 4000K CCT
- 70CRI Standard

Control Options
- 0-10V (sinking) Standard Output (ND) module - Onboard driver that adjusts the light output and input wattage to meet site specific requirements. The ND module is preset at the factory to position number 9
- Bluetooth® Low Energy (BLE) enabled with integrated occupancy sensor, features a dual radio to communicate wirelessly to other ALight Ac devices for group response to motion, on/off control in response to daylight and by switch – PCBDRA
- Long life photocontrol, 20 years – PC21, PC4 and PC8 with DTL

- 7 pin photocontrol receptacles internally (PE7) or externally (PE7E) mounted in place of the decal
- DTL DIN dedicated bracket with external-mounted antenna: DIMBRA

Manufacturing
- Manufactured in Covert(north), Indiana, ARRA compliant
- Optional Buy American Act compliant configurations available
- Ten (10) years minimum experience in manufacturing LED board products

Certification and Standards
- Luminaire shall be UL 1598 - Wet Location Safety Listing
- 3G vibration tested in accordance with ANSI C136.31-2010 (40°C to 40°C (104°F to 104°F). certification for performance packages P03 thru P30 Type 2, 3 & 5 no glass, P05 thru P30 Type 2, 3, 4 & 5 clear glass and P30 Type 2, 3, 4 & 5 frosted glass
- Suitable for operation in an ambient temperature -40°C (40°F) to 25°C (95°F) per UL certification for performance packages P10D thru P30 Type 2, 3, 4 & 5 HSS Type 2, 3, 4 & 5 clear glass and P30K Type 2, 3, 4 frosted glass
- LM79 compliant
- Design Lights Consortium® (DLC) qualified product; Not all versions may be listed, refer to DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

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 is substantially transformed, manufactured in the United States under BAP 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/resources/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/warranties/terms-and-conditions

Some sensor configurations 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.

DIMENSIONAL DATA

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Overall	+	0.0 fc	2.7 fc	0.0 fc	N/A	N/A

Schedule

Symbol	Label	QTY	Manufacturer	Catalog	Description	Lamp Output	LLF	Input Power	Mounting Height
▢	A	7	Holophane	WFCL3 P30 40K xxxx FC4	Washington LED Post-Top Full Cutoff Lantern 60W 4000 series CCT Type 4 distribution zero uplight No glass No HSS	6964	0.9	58.97	

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

Alternates Note
THE USE OF FIXTURE ALTERNATES MUST BE RESUBMITTED TO THE CITY FOR APPROVAL.

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.

Mounting Height Note
MOUNTING HEIGHT IS MEASURED FROM GRADE TO FACE OF FIXTURE. POLE HEIGHT SHOULD BE CALCULATED AS THE MOUNTING HEIGHT LESS BASE HEIGHT.

CREEKSIDE VILLAGE NORTH
PHOTOMETRIC LAYOUT
GASSER BUSH ASSOCIATES
WWW.GASSERBUSH.COM

Designer
KS
Date
02/27/2025
Scale
Not to Scale
Drawing No.
#24-34766_V2

October 17, 2025

Mr. Benjamin R. Carlisle
Carlisle | Wortman Associates, INC.
117 North First Street
Ann Arbor, MI 49546

Re: Creekside Village North
Planning Department Report

Dear Mr. Carlisle:

Thank you for providing your review and feedback for the above referenced project. We have revised the plans in accordance with your review letter dated March 24, 2025. For your use, below are our responses on how we have addressed or plan to address each of the comments in your letter.

1. **Natural Resources:**
   a. Provide wetland delineation to confirm if wetlands are MDEQ regulated.
   Response: *Wetland delineation was performed by Wilson Road Group, inc. on July 22, 2025. No wetlands were found to exist on site.*

2. ***Layout and Open Space:***
   a. *Provide additional/functional open space. We encourage the applicant to reconfigure the site to remove a few lots to provide functional open space.*
   Response: *The layout has been revised to remove a lot and now include additional pathway around the site and a playground area as requested.*

3. ***Traffic Impact:***
   a. *Work with the Road Commission in establishing the necessary escrow to complete the study and install the light if warranted.*
   Response: *Comment noted. An escrow amount will be established prior to Final Site Plan Approval.*

4. ***Floor Plan and Elevations:***
   a. *Indicate siding material.*
   Response: *Siding material will be brick veneer first floor and vinyl siding second floor, this is indicated on the elevations included on sheets 22 and 23.*

We appreciate your continued review and assistance with this project. Should you have any remaining questions or need anything else from us to help facilitate your approvals, please do not hesitate to contact me direct at (810) 923-6878.

Sincerely,
ATWELL, LLC

Matthew W. Bush, P.E.
Director

October 17, 2025

Stacie L. Monte & Matthew D. Parks, P.E.
OHM Advisors
34000 Plymouth Road
Livonia, MI 48150

Re: Creekside Village North
Preliminary Site Plan Review #1

Dear Ms. Monte & Mr. Parks:

Thank you for providing your review and feedback for the above referenced project. We have revised the plans in accordance with your review letter dated March 28, 2025. For your use, below are our responses on how we have addressed or plan to address each of the comments in your letter.

Preliminary Site Plans Comments:

1. **Stormwater Management:**
   a. *It is noted that the first flush volume is proposed to be infiltrated within the rain gardens; however, per the Washtenaw County Water Resources Commissioner's Standards, the outlet control structures shall be designed based on the volumes of runoff excluding the infiltration volume. The applicant shall review and revise the basin storage volumes and all subsequent calculations accordingly.*
   Response: *Comment noted. The required detention volume is reduced by the provided infiltration volume and then a pro-rated penalty percentage is applied as shown in W13, on sheet 14.*

   b. *The applicant noted on the plans that a minimum horizontal separation of ten (10) feet between all water main and storm sewer structures shall be provided, per EGLE permitting requirements; however, the applicant shall review and revise the horizontal separation distance accordingly, as there appears to be areas that may not meet this requirement, or note that deviations will be required to be reviewed and approved by EGLE and/or YCUA during the permitting process.*
   Response: *Comment noted.* 10' of separation between watermain and storm sewer structures is provided, however, *The watermain alignment has been revised where possible to provide additional separation. In instances where it is not practical to move the watermain, a note has been added to the utility plan to provide a full stick of watermain pipe at each storm structure crossing.*

Preliminary Detailed Engineering Comments:

1. *The applicant shall provide utility pipe profiles, including pipe diameter, material, length, slope, and hydraulic grade line (where applicable) for all proposed utilities (water, sanitary, storm).*
   Response: *Acknowledged, this information will be provided during detailed engineering.*

2. *It is recommended that all public utilities (water, sanitary) be constructed in Phase 1. This office defers to YCUA on the review and approval of the proposed phasing of public utilities.*
   Response: *Comment noted. The utility layout has been revised to reduce the length of dead end watermain constructed in phase 1.*

3. *The applicant shall provide spot elevations at all four (4) corners of all ramps and level landings, as well as along both sides of all proposed and existing sidewalk/pathway at 50-foot intervals. The applicant shall note that the cross-slope shall not exceed 2%, per ADA Standards. The applicant shall also verify the existing sidewalk/pathway along both Merritt Road and Tuttle Hill Road is ADA compliant and note that anything out of compliance will need to be removed and replaced.*
   Response: *Acknowledged, this information will be provided during detailed engineering.*

4. *The applicant shall provide a detailed drainage area map that provides drainage areas corresponding to each catch basin, including their acreages, C-factors, and C-factor calculations.*
   Response: *Acknowledged, this information will be provided during detailed engineering.*

5. *The applicant shall review and revise the proposed storm sewer layout in the as there appears to be a discrepancy between the Utility Plan and Landscape Plan.*
   Response: *Acknowledged.*

6. *The applicant shall provide the location of the water and sanitary sewer services, as well as the curb stop boxes and the sanitary cleanouts. The applicant shall also clarify the material of the proposed water and sanitary services.*
   Response: *Acknowledged, this information will be provided during detailed engineering as stated by OHM.*

7. *The applicant shall provide a quantity list for all proposed utilities (water, sanitary, storm) on the Cover Sheet, delineated by existing or proposed road right-of-way or easement, per Township Standards.*
   Response: *Acknowledged, this information will be provided during detailed engineering.*

8. *The applicant shall provide the Ypsilanti Township Standard Detail Sheets within the plan set, including the Ypsilanti Township SESC Standard Detail Sheet. These can be obtained by emailing Stacie.monte@ohm-advisors.com.*
   Response: *Acknowledged, this information will be provided during detailed engineering.*

We appreciate your continued review and assistance with this project. Should you have any remaining questions or need anything else from us to help facilitate your approvals, please do not hesitate to contact me direct at (810) 923-6878.

Sincerely,
ATWELL, LLC

Matthew W. Bush, P.E.
Director

October 17, 2025

Scott D. Westover, P.E., Director of Engineering
Ypsilanti Community Utilities Authority
2777 State Road
Ypsilanti, MI 48198-9112

Re: Creekside Village North
Preliminary Site Plan Review #1

Dear Mr. Westover:

Thank you for providing your review and feedback for the above referenced project. We have revised the plans in accordance with your review letter dated March 28, 2025. For your use, below are our responses on how we have addressed or plan to address each of the comments in your letter.

1. *The proposed phasing of the water main construction is unacceptable to YCUA. The phasing must be revised such that no residences will be connected to dead-end water mains that may never get extended to the required loop, such as proposed valves V1 (if moved the center of proposed unit 92) and V8. Further clarification is needed as to what exactly a "watertight boot" is at the proposed temporary dead-end locations on each water main.*
   Response: *The utility and unit phasing has been revised to prevent water services on dead end watermains. The handing of unit 92 has been adjusted to allow for the water service to be pulled off the looped water main. The note has been revised to say "Watertight Cap" at the temporary dead-end water main locations.*

2. *The revised notes on plan sheet 7 indicate the proposed water main will be 12" diameter pipe. While this is acceptable to YCUA, all existing water mains that will be connected to by the proposed system are 8" diameter pipe, which would be also be acceptable for all proposed water main for the development.*
   Response: *The note on sheet 7 has been revised from 12" to 8".*

3. The minimum width for sanitary sewer easement is 25'
   Response: *Sanitary Easement widths are proposed to be 25', as requested.*

4. *Proposed sanitary manhole S25 may still need to be moved southwest to increase the length of the sanitary sewer between it and proposed sanitary manhole S26. This will be reviewed when Detailed Engineering plans are received by YCUA.*
   Response: *Manhole S25 has been moved to as requested.*

We appreciate your continued review and assistance with this project. Should you have any remaining questions or need anything else from us to help facilitate your approvals, please do not hesitate to contact me direct at (810) 923-6878.

Sincerely,
ATWELL, LLC

Matthew W. Bush, P.E.
Director

311 N. Main Street, Ann Arbor, MI 48104 Tel: 734.994.4000 Fax: 734.994.1590
www.atwell-group.com

October 17, 2025

Maty Byrne, P.E.
Washtenaw County Water Resources Commissioner
705 N. Zeeb Road
Ann Arbor, Michigan 48103

Re: Creekside Village North
661 Tuttle Hill Road
WCWRC Project No. 4433

Dear Mr. Byrne:

Thank you for providing your review and feedback for the above referenced project. We have revised the plans in accordance with your review comments dated April 2, 2025. For your use, below are our responses on how we have addressed or plan to address each of the comments in your letter.

Preliminary Site Plans Comments:

1. *The current preliminary plans are approved, contingent upon the inclusion of the piezometer results in the future construction plans. The piezometer results will impact the overall basin design and may significantly alter the stormwater design methodology.*
   Response: *Comment noted. The piezometer results will be submitted during detailed engineering.*

2. *The following comments are noted during the current preliminary plan review phase. These items should be addressed for the future construction plan review phase but are not required for preliminary plan approval. (Please note that a full construction plan review has not been completed and there may be additional comments at the time of review.*
   a. *The certificate of outlet must include hydraulic calculations to ensure that the receiving drains have capacity for the proposed flow.*
   b. *When available, please provide the executed agreement between the developer and Wolverine/Enbridge Pipeline.*
   c. *Provide calculations for worksheet W8 for both Basin A and Basin B. Include both surface flow and pipe flow travel time in accordance with the rules. The standard 20-minute initial time of concentration used in the conveyance calculations cannot be carried through to worksheet W8. For example, the pipe flow travel time from R44-R30 is 8.1 minutes. List this time in worksheet W8, in addition to the surface flow travel time upstream of R44. Use a similar approach for Basin B.*
   d. *Include an end section with a metal bar grate in the rain garden typical detail.*
   e. *Provide profiles for enclosed drains and piping.*
   f. *Show the 10-year HGL (contained within the pipe) for all proposed pipes.*
   g. *Ensure all invert elevations are above bankfull elevations. Multiple basin inlets are below the bankfull elevation.*
   h. *Match the 8/10^{ths} line of pipes with differing sizes.*
   i. *Include a minimum 0.1 drop at all structures.*
   j. *Provide C values for each catchment.*
   k. *Provide off-site topography for at least 150 feet.*
   l. *Provide an emergency overflow/spillway for each basin and include design calculations on the plans*
   m. *A permanent forebay depth marker should be indicated on the detention basin profiles and in plan view.*

311 N. Main Street, Ann Arbor, MI 48104 Tel: 734.994.4000 Fax: 734.994.1590
www.atwell-group.com

n. *Field verification of infiltration rates must be completed prior to planting. If the field measured infiltration rates do not meet or exceed design infiltration rates, then design modifications will be required.*
o. *Provide the geotechnical report including the infiltration testing results summary.*
p. *Revise the grading plan to meet the maximum impervious loading ratios for rain gardens #2, #4, and #5.*
q. *Revise the grading plan to meet the maximum total loading ratio for rain gardens #2 and #4.*
r. *Ensure velocities entering the rain gardens are non-erosive.*
s. *Ensure rain garden overflows are routed to avoid property damage.*

Response: *Comments noted. These will be addressed during detailed engineering.*

3. *Please see the attached invoice for the current fees and remit these fees upon receipt.*
   Response: *Comment noted.*

We appreciate your continued review and assistance with this project. Should you have any remaining questions or need anything else from us to help facilitate your approvals, please do not hesitate to contact me direct at (810) 923-6878.

Sincerely,
ATWELL, LLC

Matthew W. Bush, P.E.
Director

WILSON ROAD GROUP, INC.

WETLAND
DETERMINATI0N/DELINEATION REPORT

For

Creekside Village North

Located on the Northeast corner of Tuttle Hill Road and Merritt Road

Section 26 of Ypsilanti Township, Washtenaw County, Michigan

PREPARED FOR:

Ms. Aubrey Merhib
Lombardo Companies, LLC
13001 23 Mile Road, Suite 200
Shelby Township, Michigan 48315

July 22, 2025

WRG Project Number: 010-2507057-1

56383 Hayes Road • Shelby Township, Michigan 48315
Phone: 810-895-1219 • WilsonRoadGroup.com

TABLE OF CONTENTS

1.0 - Introduction 1
2.0 - Site Description 2
3.0 - Methods 2
3.1 – Aerial Photograph Review 2
3.2 – USGS Topographic Map Review 3
3.3 – Wetland Inventory Map Review 3
3.4 – USDA Soil Map Review 3
3.5 – Floodplain Map Review 3
3.6 – On-Site Landscape Assessment 4
3.7 – On-Site Wetland Assessment 4
3.8 – On-Site Watercourse Assessment 4
4.0 – Results, Findings and Discussions 4
4.1 – Overall Landscape 4
4.2 - Upland 5
4.3 - Wetlands 5
4.3.2 – Watercourses 5
4.3.3 - Floodplains 5
4.3.4 – Soils 5
4.3.5 – Threatened and Endangered Species Review 6
5.0 - Conclusions and Recommendations 6
6.0 – References 8

APPENDICES

I. Figures
Figure 1 - Site Location Map
Figure 2 – Site Map
II. Aerial Photograph's 1998/2012/2020
III. National Wetland Inventory Map & EGLE Wetland Inventory Map
IV. NRCS Soil Map
V. FEMA Floodplain Map
VI. Site Photo Log
VII. EGLE Conservation Easement Map
VIII. USFWS TES IPaC Data

WETLAND
DETERMINATION/DELINEATION REPORT
For
Creekside Village North
Located on the Northeast corner of Tuttle Hill Road and Merritt Road
Section 26 of Ypsilanti Township, Washtenaw County, Michigan

1.0 - Introduction

Wilson Road Group, Inc., (WRG) was contracted by Ms. Aubrey Merhib, of Lombardo Companies, LLC to perform a wetland determination and delineation for the 56.17-acre (+/-) property located at the northeast corner of Tuttle Hill Road and Merritt Road in Ypsilanti Township, Washtenaw County, Michigan (Section 26, Town 3S, Range 7E). A *Site Location Map* (Figure 1), and *Site Map* (Figure 2), are presented in Appendix I. The purpose of WRG's site investigation is to evaluate the subject property for the potential presence of wetlands or watercourses and if found, delineate (flag) each system's boundaries to determine their size, location and jurisdictional status of Michigan's Department of Environment, Great Lakes and Energy (EGLE). Upon completion of our assessment, WRG has prepared this wetland determination and delineation report which documents our findings.

In general, wetlands in Michigan may fall under the jurisdiction of the Michigan Department of Environment, Great Lakes & Energy (EGLE) by Part 303, Wetlands Protection, of the *Natural Resources and Environmental Protection Act, 1994 PA 451* (NREPA) as amended, and/or the U.S. Army Corps of Engineers (USACE). USACE wetland participating authority is often associated with the Great Lakes and their connecting waterways and is authorized by Section 404 of the *Federal Water Pollution Control Act of 1972 (Clean Water Act)*.

A wetland is considered regulated by the EGLE if it is 5 acres in size or larger, and/or if it is connected to or located within 500 feet of a lake, pond, river, or stream. Watercourses (rivers or streams) are regulated by the EGLE under Part 301, Inland Lake or Streams, of the NREPA, if the body of water contains defined banks, a bed, and visible evidence of continued flow or continued occurrence of water. *The State definition of lake, pond, river and stream is found in Parts 301 and 303 of PA 631 of Public Acts of 2018, amending NREPA, 1994 PA 451.*

Watercourses that meet the requirements of Part 301, Inland Lakes and Streams, of the NREPA, fall under the jurisdiction of EGLE and floodplains fall under the jurisdiction of EGLE by Part 31, Water Resources Protection, of the NREPA. Activities that may impact regulated or protected wetlands or watercourses must be permitted or cleared by authorizing agencies prior to project activities taking place. When a project requires federal oversight, EGLE forwards the permit

application to federal agencies such as the United States Environmental Protection Agency (USEPA), United States Army Corps of Engineers (USACE), and the United States Fish and Wildlife Service (USFWS). EGLE does not typically issue permits for projects objected by the USEPA unless specific concerns are resolved. This report summarizes the natural features found within the subject property and any permits that may be required prior to the commencement of project activities.

WRG also conducted a preliminary and threatened and endangered species (TES) habitat assessment for the site. This assessment will help to determine if the site contains habitat suitable for supporting TES and to determine the likely presence or absence of listed TES on the Site. To complete the TES review, the USFWS Information for Planning and Conservation (IPaC) and the Michigan Natural Features Inventory (MNFI) databases were reviewed followed by an on-site visit to assess the Site for potential TES habitat and potential occurrence of TES. The results of the wetland determination / delineation and TES site visit conducted on July 12, 2025, are outlined below.

2.0 - Site Description

The subject property consists of a rectangular shaped 56.17-acre (+/-) parcel. A review of aerial photography and a site visit were conducted to characterize the Site and surrounding area. The surrounding landscape consists primarily of single-family residential. The existing land use and land cover within the Site consists largely of a fallow field, pipeline, wetland conservation easement, and stormwater detention basin.

3.0 - Methods

Prior to any conducting any field work, WRG conducted an extensive desktop review of existing information and imagery, including aerial photographs, United States Geological Service (USGS) topographic maps, U.S. Fish and Wildlife National Wetland Inventory (NWI) maps, EGLE wetland inventory maps, USDA county soil survey maps, Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), and threatened and endangered species (TES) information. The results of the desktop review were used to focus field evaluation efforts on protected natural resources that may occur within the subject property. An on-site reconnaissance of the subject property, including a wetland determination / delineation and site assessment, were then conducted in order to locate, verify, or ascertain the probability of protected resources.

3.1 – Aerial Photograph Review

WRG conducted aerial photograph interpretation of Google Earth aerial photograph and the EGLE Wetlands Map Viewer aerial imagery dated 1985, 2000, 2002-2003, 2005-2007, 2010-2011, 2015-2025. WRG used this aerial imagery to outline land cover characteristics within the subject property. Copies of the 1998, 2012 & 2020 *Aerial Photographs* are presented in *Appendix II* for review purposes.

3.2 – USGS Topographic Map Review

The 2023 Ypsilanti East USGS 7.5-minute series Topographic Quadrangle map was reviewed for over-all topography, natural features and additional site characteristics of the site. The topography of the site can be characterized as relatively flat. The approximate elevation of the site appears to approximately 700-710. The topo map illustrates the site as cleared platted subdivision. See to the *Site Location Map* for reference.

3.3 – Wetland Inventory Map Review

A review of the NWI maps and the EGLE final county wetland inventory maps for Washtenaw County were conducted to determine the likely presence, location, size, and type of wetlands that may be located on the subject property. The U.S. Fish and Wildlife Service (USFWS) produced NWI maps through aerial photograph interpretation. The EGLE produced county wetland inventory maps for the State of Michigan on a county-by-county basis through compilation of data from NWI, land cover, and soil survey data. The results of WRG's review revealed one forested wetland NWI wetland system within the northeastern corner of the Site. Copies of the *NWI and EGLE Wetland Inventory Maps* are presented in *Appendix III.*

3.4 – USDA Soil Map Review

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil data was reviewed for the subject property to obtain an overall sense of the soil types, conditions and moisture levels likely to be encountered at the subject site.

Hydric soils are conducive to the growth and regeneration of hydrophytic (i.e., wetland) vegetation by their ability to hold water for extended periods of time. The Washtenaw County soil survey identified three (3) soil types within the Site. A copy of the *NRCS Soil Map* is presented in *Appendix IV.*

3.5 – Floodplain Map Review

FEMA-FIRM maps show floodplain areas along rivers and their tributaries. These maps record the following data: 100-year floodplains (1% chance of annual flooding) and 500-year floodplains (0.2% annual chance of flooding), the base flood elevation, and the risk to premium areas developed across a floodplain. A review of the FEMA FIRMs for Ypsilanti Township, Washtenaw County (Panel 26161C0430E effective April 3, 2012) was conducted to determine the existence, location, and zone of any 100-year floodplain that may be located within the site. The Site does not appear to contain a 100-year FEMA Zone A or AE floodplain or floodway. A copy of the *FEMA FIRMette Map* is presented in *Appendix V.*

3.6 – On-Site Landscape Assessment

An on-site assessment of the subject property was conducted in an effort to ascertain and verify landscape and land use characteristics. WRG staff traversed the subject property, noting primary and overall land use types, topography, soil characteristics and land cover types. These were compared and contrasted with topographic maps and aerial photograph reviews. Potential environmental challenges or regulatory requirements were noted if encountered.

3.7 – On-Site Wetland Assessment

The on-site wetland determination was performed in accordance with the *Midwest Interim Regional Supplement to the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual* and the Regional Supplement to the USACE Wetland Delineation Manual: Midwest (USACE 1987; USACE 2012). The delineation of any wetland depends on three basic, inter-related parameters: (1) the presence of hydrophytic vegetation or plants adapted to living in saturated soils; (2) the presence of hydric soils meaning; distinctive soil types that develop under saturated conditions, and (3) the presence of wetland hydrology or the presence of water at or near the surface for a specific period of time.

3.8 – On-Site Watercourse Assessment

Potentially protected watercourses if encountered were identified and recorded based upon stream morphological characteristics such as the presence of a defined bed, banks and evidence of continued flow or occurrence of water. WRG did not observe any water features consisting of the morphological stream characteristics required to meet EGLE's definition of a stream under Part 301 of NREPA, 1994 PA 451, as amended. Therefore, it does not appear that watercourses occur within the subject site as defined by EGLE and Part 301 of NREPA, 1994 PA 451, as amended.

4.0 – Results, Findings and Discussions

WRG performed our initial desktop review of the subject property on July 11, 2025. WRG performed a field assessment and delineation activities on July 12, 2025. The weather at the time of our field activities was partly sunny and the temperature of approximately 85°F. A photographic log is presented in *Appendix VI* for review purposes.

4.1 – Overall Landscape

The subject property consists of a rectangular shaped parcel. The site appears to have been mass-graded in 2006 as part of a single-family residential development. Currently the site consists largely of a fallow field with pipeline running through the parcel in a northwest/southeast direction; an EGLE wetland conservation easement area associated with permit number 04-81-0003 located in the northeast corner of the site; and a designed stormwater basin constructed in 2006 located in the southeast corner of the site. A copy of the *EGLE Conservation Easement Map* is presented in *Appendix VII.*

4.2 - Upland

Common upland vegetation within the Site consisted of chicory (Cichorium *intybus*; UPL), wild carrot (*Daucus carota*; UPL), teasle (*Dipsacus fullonum*; UPL), spotted knapweed (*Centaurea sp.*; UPL), milkweed (*Asclepias syriaca*; UPL), and scatted cottonwood (*Populus deltoides*; FAC) saplings, staghord sumac (*Rhus typhina*; UPL), honey locus (*Gleditsia triacanthos*; FAC), and box elder (*Acer negundo*; FACW) saplings.

4.3 - Wetlands

Based on the WRG's field visit on July 12, 2025, no wetlands were identified within the subject site.

4.3.2 – Watercourses

Based on the desktop review and field inspection, WRG did not identify any watercourses within the subject site.

4.3.3 - Floodplains

FEMA FIRMs were reviewed to determine if the Site is located within areas of mapped floodplains, floodways, or other flood prone areas, and to determine the presence, extent, location, and zone of floodplains on-site. Based a review of the FEMA FIRM Panel – Panel 26161C0430E effective April 3, 2012, the site does not appear to contain a FEMA Zone A or AE 100-year floodplain or floodway.

Part 31, Water Resources Protection, of NREPA regulates activities within the 100-year floodplain and floodway of rivers, streams, drains, and watercourses that have upstream drainage areas of two square miles or larger. WRG did not identify any on-site watercourses therefore EGLE regulated floodplains do not appear to occur within the subject site.

4.3.4 – Soils

A review of the U.S. Department of Agriculture (USDA) NRCS Web Soil Survey, illustrates that three (3) soil series to be located on the subject property and include the following:

Soil Symbol	Soil Type	NRCS Hydric Rating
BnB	Boyer loamy sand, 1-6% Slope	No
Gf	Gilford sandy loam, till plain, 0-2% Slope	Yes
WaA	Wasepi sandy loam, 0-4% Slope	No

Gilford sandy loam, till plain (Gf) appears to be the only on-site soil type that would be considered hydric by the NRCS. Hydric soils are conducive to the growth and regeneration of hydrophytic vegetation by their ability to hold water for extended periods of time (USDA-NRCS 2010).

4.3.5 – Threatened and Endangered Species Review

Federally listed species are protected by federal law under the Endangered Species Act (ESA) of 1973 (16 U.S.C §1531-1544). In Michigan, Part 365, Endangered Species Protection, of the NREPA confers legal protection to state listed species, including plants and animals.

WRG reviewed the USFWS IPaC database for a preliminary list of federally TES for the site. IPaC results list five (5) threatened or endangered species (refer to *Appendix VIII* for the *IPaC Results*):

- Indiana bat (*Myotis sodalis*; federally endangered)
- northern long-eared bat (*Myotis septentrionalis*; federally endangered)
- eastern massasauga rattlesnake (*Sistrurus catenatus*; federally threatened)
- mitchell's satyr butterfly (*Neonympha mitchellii mitchellii*; federally endangered)
- eastern prairie fringed orchid (*Platanthera leucophaea*; federally threatened)

The Michigan Natural Features Inventory (MNFI) online database was also reviewed for TES and listed three (3) state listed TES:

- Blanchard's cricket frog (*Acris blanchardi*; state threatened)
- Pale avens (*Geum virginianum*; state threatened)
- Swamp metalmark (Calephelis muticum; state endangered)

Based on the field visit, WRG has determined that the preferred habitat for all of the above listed species does not appear to exist within the subject site. Therefore, the lack of potentially suitable habitat required to support these species, the development of the site should not have negative impacts to the TES or their preferred habitats.

5.0 - Conclusions and Recommendations

WRG has completed a wetland determination and delineation for the 56.17-acre (+/-) property located at the northeast corner of Tuttle Hill Road and Merritt Road in Ypsilanti Township, Washtenaw County, Michigan (Section 26, Town 3S, Range 7E). The subject property consists of a rectangular shaped parcel. The site appears to have been mass-graded in 2006 as part of a single-family residential development. Currently the site consists largely of a fallow field with pipeline running through the parcel in a northwest/southeast direction; an EGLE wetland conservation easement area associated with permit number 04-81-0003 located in the northeast corner of the site; and a designed stormwater basin constructed in 2006 located in the southeast corner of the site.

WRG's wetland specialist did not identify any wetland, watercourses, or floodplains within the subject property.

Additionally, the subject property does not appear to contain preferred suitable habitat for all of the above listed species.

Should you have any questions regarding this or any other matter, please feel free to contact our office at (810) 895-1219.

Wilson Road Group Project Number: 010-2507057-1

Data assembly and report preparation by:

Jeffrey D. Hurley
Director of Ecological & Environmental Services
WILSON ROAD GROUP, INC.

6.0 – References

MNFI. 2009. "Michigan's Rare Animals." Michigan Natural Features Inventory. 2009.
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Moore JA, Gillingham JC. 2006. Spatial Ecology and Multi-Scale Habitat Selection by a Threatened Rattlesnake: The Eastern Massasauga (*Sistrurus catenatus catenatus*). Copeia. 4:742–751.

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USFWS. 1999. Eastern Massasauga Rattlesnake - Fact Sheet.
———. 2007. "Indiana Bat (Myotis Sodalis) Draft Recovery Plan: First Revision." Fort Snelling, Minnesota, USA: U.S. Fish and Wildlife Service. http://www.fws.gov/midwest/endangered/mammals/inba/pdf/inba_fnldrftrecpln_apr07.pdf.
.
———. 2019a. "IPaC - Information for Planning and Consultation." Environmental Conservation Online System. 2025. http://ecos.fws.gov/ipac/.

APPENDIX I

SITE LOCATION MAP

SITE MAP

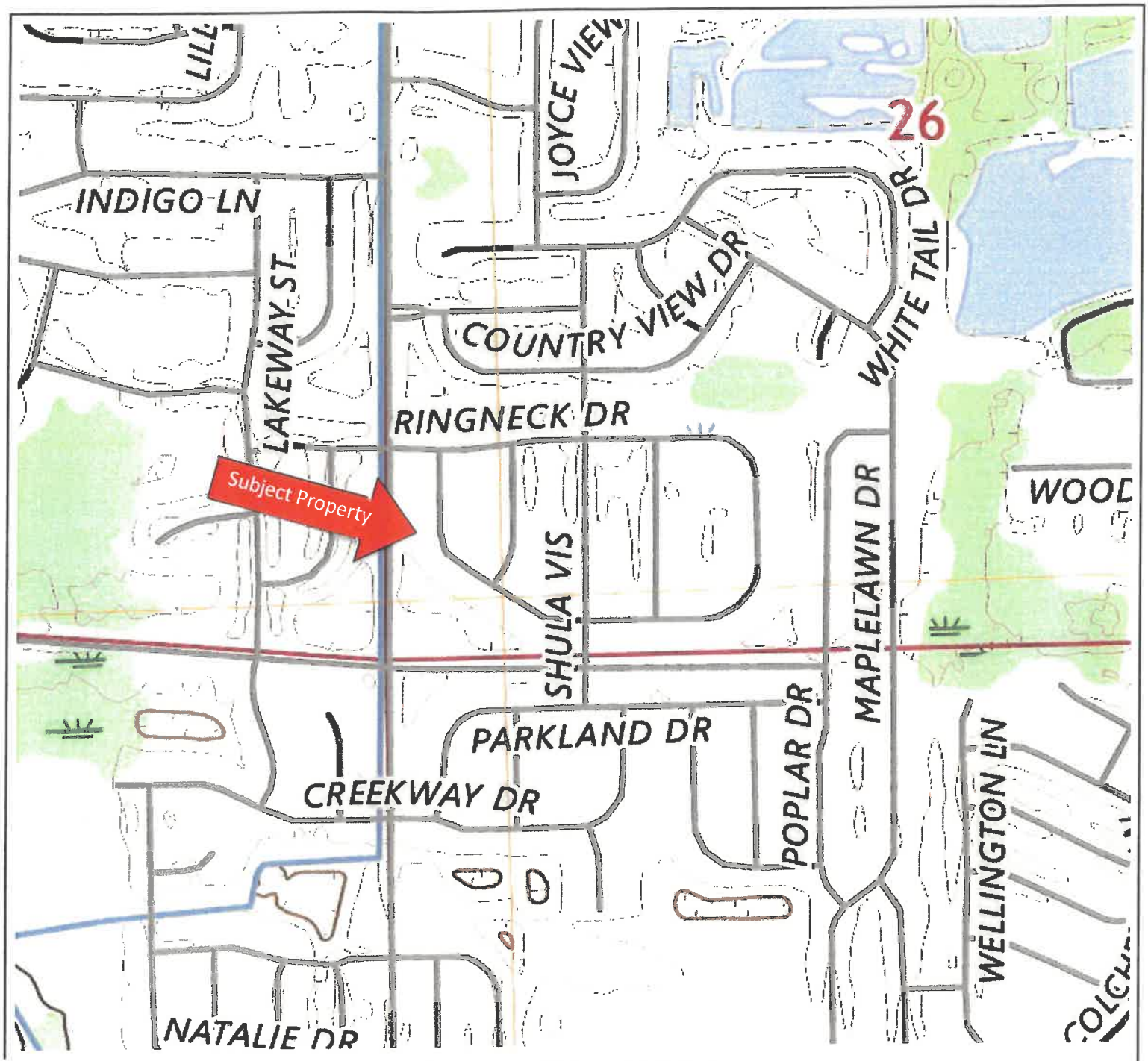


FIGURE 1: SITE LOCATION MAP
CREEKSIDE VILLAGE NORTH
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

WRG PROJECT NO. 010-2507057-1	DATE: JULY 2025 DRAWN: NJH CHECKED: JDH	WRG WILSON ROAD GROUP, INC. 56383 HAYES ROAD ENVIRONMENTAL ECOLOGICAL SHELBY TOWNSHIP, MICHIGAN 483 810-895-1219

FIGURE 2: SITE MAP
CREEKSIDE VILLAGE NORTH
YPSILANTI TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

WRG PROJECT NO. 010-2507057-1	DATE: JULY 2025 DRAWN: NJH CHECKED: JDH	**WRG** **WILSON ROAD GROUP, INC.** 56383 HAYES ROAD ENVIRONMENTAL ECOLOGICAL SHELBY TOWNSHIP, MICHIGAN 483 810-895-1219

APPENDIX II

AERIAL PHOTOGRAPHS

1998/2012/2020

Wetlands Map Viewer

July 22, 2025

1:6,390

0 0.04 0.08 0.16 mi

0 0.05 0.1 0.2 km

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Disclaimer: This map is not intended to be used to determine the specific

Wetlands Map Viewer

July 22, 2025

1:6,390

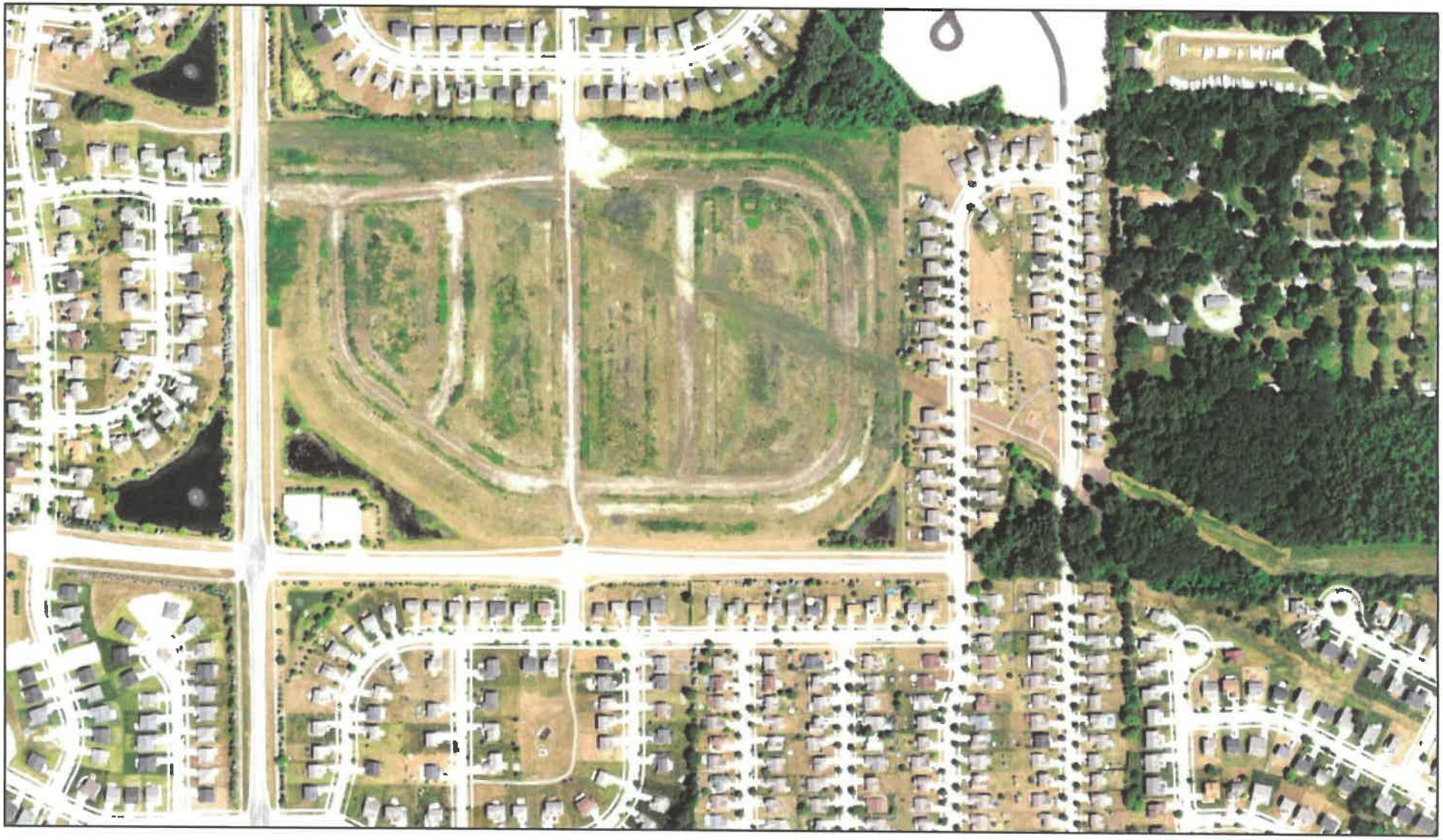
0 0.04 0.08 0.16 mi

0 0.05 0.1 0.2 km

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Disclaimer: This map is not intended to be used to determine the specific

Wetlands Map Viewer



July 22, 2025

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0 0.05 0.1 0.2 km

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Disclamer: This map is not intended to be used to determine the specific

APPENDIX III

NATIONAL WETLAND INVENTORY MAP

EGLE WETLAND MAP

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands

July 22, 2025

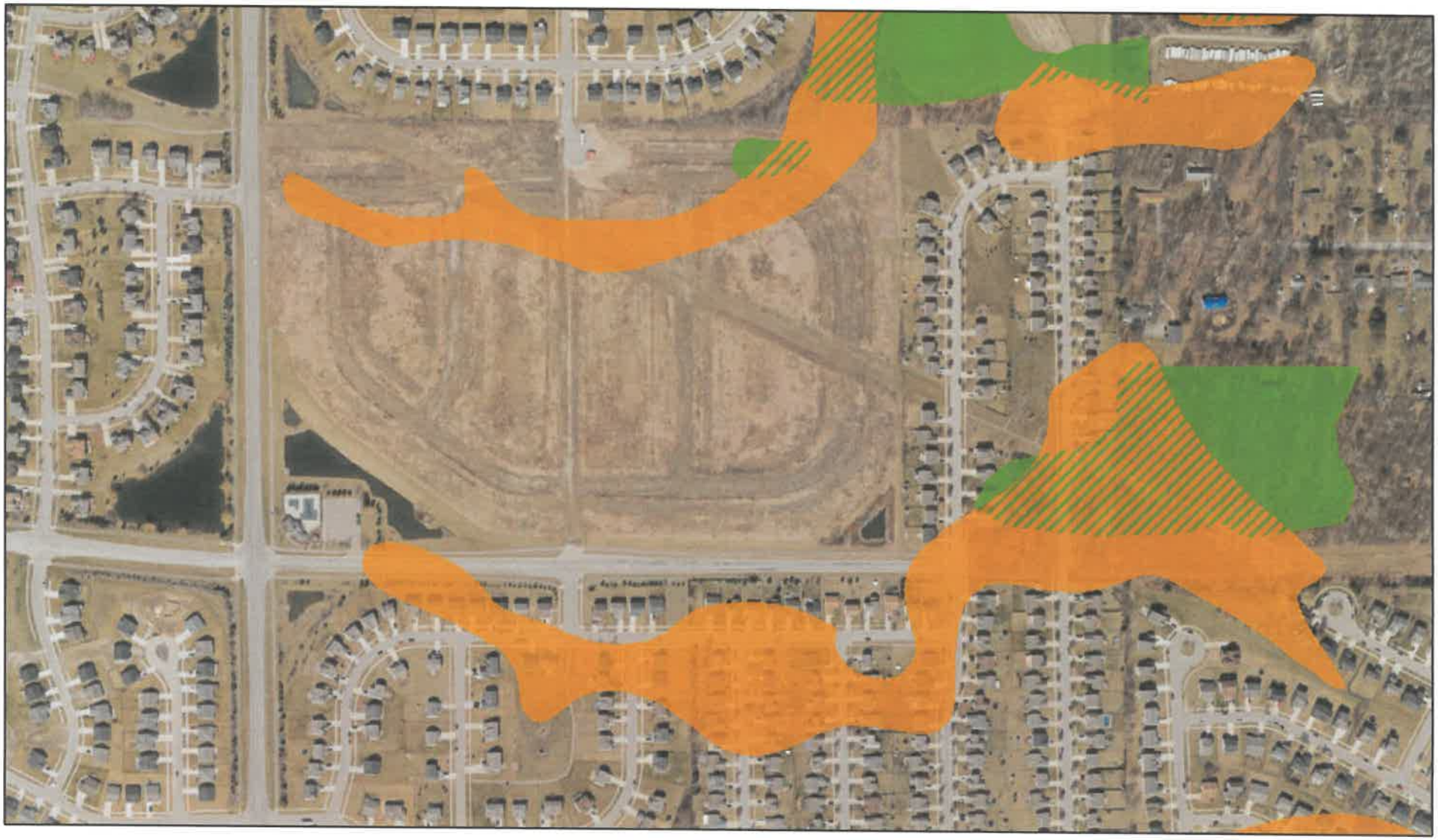
Wetlands

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

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

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Wetlands Map Viewer



July 22, 2025

Part 303 Final Wetlands Inventory

- Wetlands as identified on NWI and MIRIS maps
- Soil areas which include wetland soils
- Wetlands as identified on NWI and MIRIS maps and soil areas which include wetland soils

1:6,390

0 0.04 0.08 0.16 mi

0 0.05 0.1 0.2 km

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Disclaimer: This map is not intended to be used to determine the specific

APPENDIX IV

NRCS SOIL MAP

Soil Map—Washtenaw County, Michigan

Map Scale: 1:3,340 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

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

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

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

Soil Survey Area: Washtenaw County, Michigan
Survey Area Data: Version 23, Aug 28, 2024

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

Date(s) aerial images were photographed: Sep 8, 2022—Oct 4, 2022

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

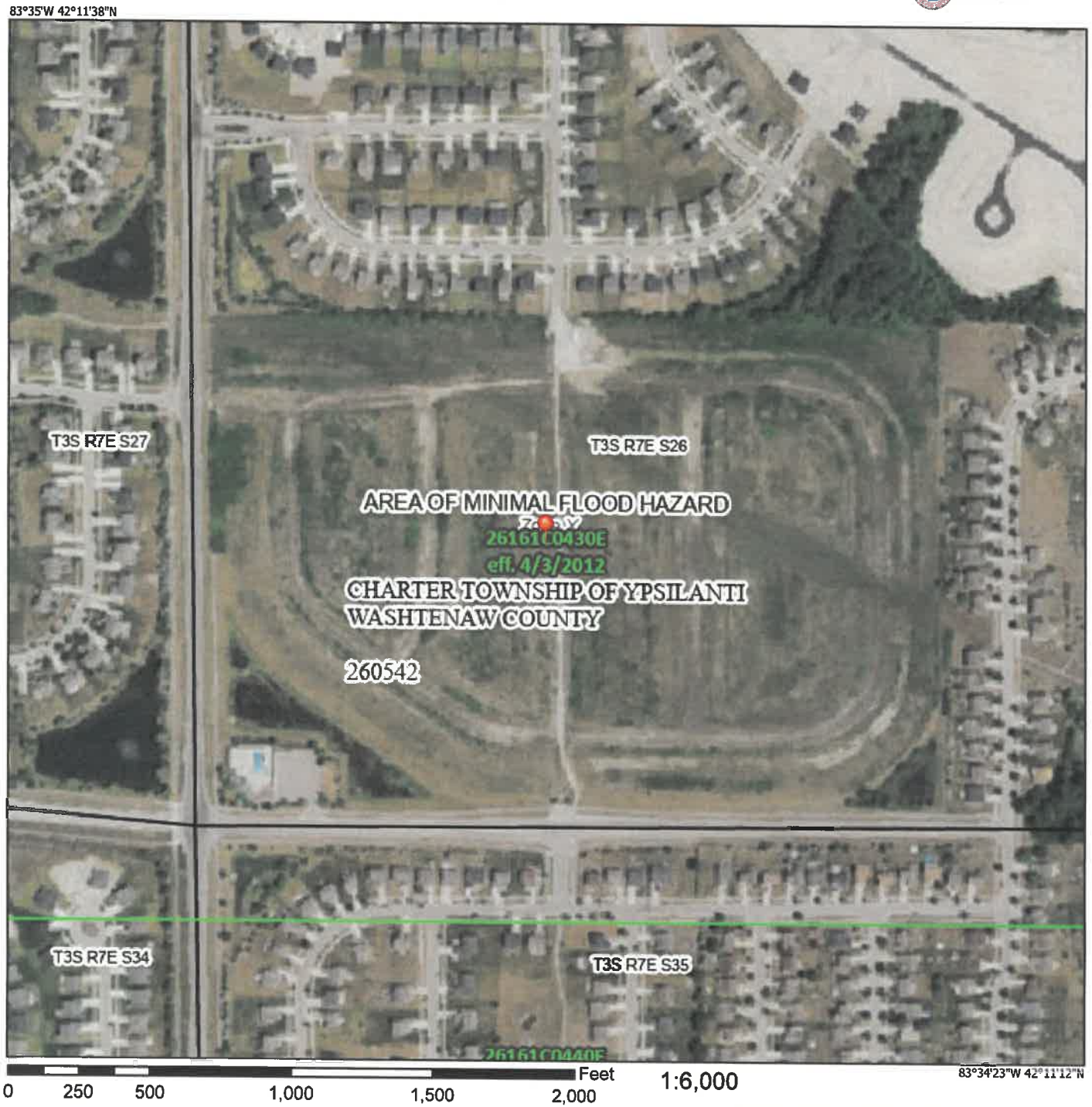
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BnB	Boyer loamy sand, 1 to 6 percent slopes	12.3	21.2%
Gf	Gilford sandy loam, till plain, 0 to 2 percent slopes	5.7	9.8%
WaA	Wasepi sandy loam, 0 to 4 percent slopes	40.0	69.0%
Totals for Area of Interest		**57.9**	**100.0%**

APPENDIX V

FEMA FLOODPLAIN MAP

National Flood Hazard Layer FIRMette



Basemap Imagery Source: USGS National Map 2023

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/22/2025 at 4:06 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

APPENDIX VI

SITE PHOTOGRAPHS

PHOTOGRAPHIC LOG

1) Photograph looking north across the central portion of the site taken on July 12, 2025.

2) Photograph looking northwest across the central portion of the site taken on July 12, 2025.

PHOTOGRAPHIC LOG

3) Photograph looking northeast across the central portion of the site taken on July 12, 2025.

4) Photograph looking south across the eastern portion of the site taken on July 12, 2025.

PHOTOGRAPHIC LOG

5) Photograph looking north across the eastern portion of the site taken on July 12, 2025.

6) Photograph looking northeast across the EGLE wetland conservation easement located in the northeastern corner of the subject site taken on July 12, 2025.

PHOTOGRAPHIC LOG

7) Photograph looking south across the central portion of the site taken on July 12, 2025.

APPENDIX VII

EGLE CONSERVATION EASEMENT MAP

Wetlands Map Viewer

July 22, 2025

EGLE Conservation Easement

1:6,390

0 0.04 0.08 0.16 mi

0 0.05 0.1 0.2 km

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Disclaimer: This map is not intended to be used to determine the specific