SUPERIOR CHARTER TOWNSHIP PLANNING COMMISSION
SUPERIOR TOWNSHIP HALL
3040 N. PROSPECT, SUPERIOR TOWNSHIP, MI 48198
AGENDA
July 22, 2026 - 7:00 PM

1. CALL TO ORDER
2. ROLL CALL
3. DETERMINATION OF QUORUM
4. ADOPTION OF AGENDA
5. APPROVAL OF MINUTES
   A. Approval of the June 24, 2026, Regular Meeting Minutes
6. CITIZEN PARTICIPATION
7. CORRESPONDENCE
8. PUBLIC HEARINGS, DELIBERATIONS AND ACTIONS
9. OLD BUSINESS
   A. STPC #25-02 Conditional Use Permit/Preliminary Site Plan – DTE Grenada Substation Expansion
   B. STPC #25-09 Area Plan Amendment – Clay Hill Farm and Market (PC District)
10. NEW BUSINESS
11. POLICY DISCUSSION
12. REPORTS
    A. June Planning & Zoning Report to the Board of Trustees
13. ADJOURNMENT

Thomas Brennan III, Commission Secretary
Michelle Marin, Planning & Zoning Administrator
3040 N. Prospect, Ypsilanti, MI 48198
734-482-6099

SUPERIOR CHARTER TOWNSHIP

Planning Commission
Regular Meeting Minutes - DRAFT
June 24, 2026, 7:00 PM
Township Hall - 3040 North Prospect
Superior Township, MI 48198

1. CALL TO ORDER

Chair Gardner called the regular meeting to order at 7:00 p.m.

2. ROLL CALL

Present: Jay Gardner, Chair
Dr. Robert Steele, Vice Chair
Curt Wolf
Nahid Sanii-Yahyai
Thomas Brennan, Secretary
Patrick McGill
Brenda McKinney, Board Representative

Absent: None

Also Present: Planning Consultant – Michelle Marin, Carlisle Wortman Associates

3. DETERMINATION OF QUORUM

A quorum was present.

4. ADOPTION OF AGENDA

MOTION by Brennan, supported by McKinney to adopt the June 24, 2026, agenda as amended.

Motion passed unanimously by voice vote.

5. APPROVAL OF MEETING MINUTES

MOTION by Sanii-Yahyai, supported by Brennan, to adopt the May 27, 2026, regular meeting minutes as amended.

Motion passed unanimously by voice vote.

6. CITIZEN PARTICIPATION

Jeff Yoder of 1625 N Prospect Road made a comment about the need to widen the roads near him or to provide sidewalks in areas of new development.

7. CORRESPONDANCE

MOTION by McKinney, supported by Brennan, to accept the correspondence.

Motion passed unanimously by voice vote.

8. PUBLIC HEARINGS, DELIBERATIONS AND ACTIONS

A. Public Hearing: Zoning Map Amendments

Property Address / Location	Parcel ID #	Current Zoning	Proposed Zoning
Stamford Road, south of Fairway Glens	J -10-35-300-018	R4	NC
Highland Preserve	J -10-33-400-029	PC	RC
Vreeland Road, south	J -10-29-200-001	A2	A2 + OSP
Vreeland Road, south	J -10-29-200-006	A2	A2 + OSP
Geddes Road, north	J -10-30-400-037	A2	A2 + OSP
Vreeland Road, north	J -10-20-300-001	A1	A1 + OSP
Cherry Hill Road, south	J -10-20-100-002	A1	A1 + OSP
Cherry Hill Road, south	J -10-20-200-003	A1	A1 + OSP
Cherry Hill Road, south	J -10-20-200-002	A1	A1 + OSP
Meyer Preserve West	J -10-28-100-006	A2 + OSP	RC + OSP
SE of Vreeland and Prospect Roads	J -10-22-300-006	A1	A1 + OSP
Meyer Preserve East	J -10-22-300-003	A1 + OSP	RC + OSP
East of Meyer Preserve East	J -10-22-300-002	A1	A1 + OSP
North of Meyer Preserve East	J -10-22-200-004	A1	A1 + OSP
NE of Meyer Preserve East	J -10-22-200-005	A1	A1 + OSP
Jack R Smiley Nature Preserve	J -10-22-200-002	A1	A1 + OSP
NW of Prospect and Cherry Hill Roads	J -10-16-400-013	R1	R1 + OSP
NW of Prospect and Cherry Hill Roads	J -10-16-400-012	R1	R1 + OSP
Kosch Headwaters Preserve	J -10-15-200-001	A1	RC + OSP
Weatherbee Woods Preserve	J -10-10-100-010	A1	RC + OSP
	J -10-11-200-004	A1	RC + OSP
	J -10-11-200-011	A1	RC + OSP
South of Weatherbee Woods Preserve	J -10-10-400-001	A1	RC + OSP
Lost Wagon Lake Preserve	J -10-12-200-004	A1	RC + OSP
	J -10-12-200-002	A1	RC + OSP

Motion by Brennan, supported by Sanii-Yahyai, to open the public hearing for the Zoning Map Amendments.

Motion passed unanimously by voice vote.

Marin provided an overview of the proposed zoning map amendments, which were developed in response to Board direction and public feedback. She explained that all properties proposed for rezoning are publicly owned by the Township, Washtenaw County, or the Southeast Michigan Land Conservancy. The amendments primarily involve rezoning A-1 and A-2 properties to the Open Space Preservation (OSP) Overlay District and/or the Recreation Conservation District. An additional amendment would rezone a vacant Township-owned parcel from the R-4 Single-Family Residential District to the Neighborhood Commercial (N-C) District to create a larger, contiguous area for neighborhood-scale commercial development.

Marin also addressed several misconceptions regarding the proposed Neighborhood Commercial District. She explained that the district is intended to accommodate convenience-oriented commercial uses that serve nearby neighborhoods. She discussed the district's design standards, the site plan review

process, the role of conditional land uses, and how the proposed zoning is consistent with the goals of the Township's Master Plan for the area.

Chair Gardner asked whether any of the properties proposed for rezoning to the Recreation Conservation (RC) District and Open Space Preservation (OSP) Overlay District were privately owned. Marin responded that all of the affected properties are publicly owned.

Trustee McKinney commended Marin's recent presentation to the Board of Trustees.

Amber Mason 1638 Greenway Drive expressed concern in the neighborhood regarding infestations and trash that may result from commercial uses, including strip malls.

Marin provided a response describing the uses that may or may not be permitted within the neighborhood commercial district, as well as the conditional land use and site plan review processes. Marin indicated that large-format retail and strip mall uses are not permitted in the Neighborhood Commercial zoning district. She listed several of the uses that are permitted in the Neighborhood Commercial district.

Jack Smiley or Cherry Hill Road indicated that more should be done to protect agricultural lands. He indicated that the A-2 zoning district should not be permitted or at least rezone parcels from Geddes to Vreeland Roads from A-2 to A-1. He expressed concerns about the loss of farmlands. He indicated that two areas on the zoning map are zoned PC when they should not be.

Kirk Novel on Greenway Drive indicated concerns with the NC zoning designation, including food service establishments resulting in poor waste management that affects the adjacent residents.

Motion by Brennan, supported by McKinney, to close the public hearing.

Motion passed unanimously by voice vote.

B. Comprehensive Zoning Ordinance Update

Marin summarized the changes that have been made to the comprehensive zoning ordinance update since February 2026, as detailed in the memorandum provided in the meeting packet. The proposed revisions are the result of Board of Trustees work sessions, internal meetings with Board members, a tabling at Superior Day, and an open house at the Library. The revisions included in the latest draft are substantive although not misaligned with the Planning Commission's intent throughout the zoning ordinance update review process.

Dr. Steele asked for clarity on the private event venue and farm-based tourism regulations.

Chair Gardner inquired about the rationale for the temporary moratorium authority language. Marin explained that the provision was drafted by the Township Attorney.
Chair Gardner also asked questions regarding the utility requirements for temporary structures and the proposed bed and breakfast standards. Mr. Steele inquired whether short-term rentals and bed and breakfasts were treated as the same use. Marin clarified the distinction between the two, explaining the state licensing requirements applicable to bed and breakfasts, the conditional land use approval process, and the differing building code requirements.

Rob Self of 5782 Stoney Valley Drive indicated that he was frustrated with the zoning ordinance update process, including lack of public engagement. He indicated that there should have been mailers sent to everyone in the Township regarding the process. Rob also expressed concern about A-1 permitting private event venues and gun ranges.

Marin responded that the Township complied with all public notice requirements of the Michigan Zoning Enabling Act throughout the ordinance update process. In addition to the required notices, the Planning Commission held numerous public meetings, work sessions, and public hearings over the course of the multi-year update, all of which were open to the public and provided opportunities for public comment. She noted that while Township-wide mailings are not required by state law and were not conducted, meeting notices, agendas, and draft materials were made publicly available. Regarding the ordinance content, Marin clarified that private event venues are permitted in the A-1 and A-2 zoning districts with a conditional use permit under the proposed ordinance. She also clarified that sportsman's clubs and gun ranges are permitted currently in the A-1 zoning district as set forth in Article 4. Under the proposed zoning ordinance update, sportsman's clubs and gun ranges could only be permitted in the A-1 zoning district with a conditional land use permit.

Rob Self stated that he could not find the Open Space Preservation (OSP) Overlay District standards in Article 5 of the proposed zoning ordinance. Chair Gardner suggested that Mr. Self discuss his questions with Marin outside of the meeting to allow the Board to continue its agenda.

Mr. Self also asked why the prohibition on conditional rezonings contained in the current zoning ordinance had been removed and expressed concerns regarding the proposed data center regulations. Marin explained that the existing prohibition was inconsistent with the Michigan Zoning Enabling Act, which authorizes property owners to voluntarily offer conditions as part of a rezoning request. She also summarized the proposed data center regulations, highlighting the operational and design standards included in the ordinance and explaining that the Township must avoid adopting regulations that could be considered exclusionary under Michigan law.

Self asked about the conditional rezoning requirement. Marin indicated that a conditional rezoning request must meet the rezoning standards of any rezoning request. Chair Gardner mentioned that all rezoning requests go before the Planning Commission and that they must be supported by the Master Plan.

Steven Slesky of Meadow Lane spoke about the private recreation facilities and private event venue regulations, expressing concern about the impact of these uses on adjacent residential users. He asked about the process for amending the zoning map and indicated that insufficient notice was provided.

Jeff Yoder asked about the updated ordinance. Marin provided direction on where the latest draft may be found.

Michelle Deitrich thanked the Commission for the regulations surrounding data centers and expressed general appreciation regarding the work that has gone into the update. She indicated that the impervious and lot coverage limits for ground-mounted solar are not workable.

Commissioner Steele discussed the pre-emption of PA 233 that requires commercial scale solar facilities.

Motion by Brennan, supported by McGill, to adopt a resolution recommending approval to the Township Board of the newly rewritten Superior Township Zoning Ordinance, as amended at the June 24, 2026, meeting.

Wolf asked whether the proposed ordinance would permit gun clubs in districts where they are not currently allowed. Marin clarified that the amendments are not intended to expand where firearm ranges may be permitted.

During the discussion, Mr. Self interjected, stating that he could not locate the relevant regulations in the current zoning ordinance. Chair Gardner indicated that the matter should be discussed with Marin outside of the meeting, as the Planning Commission was in the midst of deliberations on a pending motion.

WHEREAS, Superior Charter Township is authorized under the Michigan Zoning Enabling Act, Public Act 110 of 2006, as amended (MCL 125.3101 et seq.), to adopt and amend zoning regulations; and

WHEREAS, the Superior Charter Township Planning Commission is authorized and directed to review and make recommendations to the Superior Township Board regarding the adoption and amendment of the Township Zoning Ordinance; and

WHEREAS, the Superior Charter Township Planning Commission has undertaken a process to prepare a newly rewritten Superior Township Zoning Ordinance, intended to modernize, clarify, reorganize, and improve the Township's zoning regulations; and

WHEREAS, the Superior Charter Township Planning Commission held a public hearing on the proposed newly rewritten Zoning Ordinance on February 25, 2026, and June 24, 2026, after providing notice in the manner required by law; and

WHEREAS, the Superior Charter Township Planning Commission has reviewed the proposed newly rewritten Zoning Ordinance, considered public comments received, and finds that the proposed ordinance is consistent with the Township's Master Plan and is intended to promote the public health, safety, and general welfare.

NOW, THEREFORE BE IT RESOLVED: that the Superior Charter Township Planning Commission hereby recommends approval and adoption of the newly rewritten Superior Township Zoning Ordinance, including all maps and text, as discussed at the June 24, 2026, meeting and as may be revised to incorporate any non-substantive edits, corrections, formatting changes, or clarifications as directed by the Township Attorney and Township staff.

BE IT FURTHER RESOLVED: that the Superior Township Planning Commission further recommends that the Superior Township Board proceed with adoption of the newly rewritten Zoning Ordinance following all required procedures, including any final review, publication, and effective date requirements under applicable law.

Motion passes unanimously by roll call vote.

9. REPORTS

Marin summarized the May Planning & Zoning Report to the Board. Marin also provided an overview of development projects that the Planning Commission can expect to see in coming months, including DTE and Clay Hill Farm and Market. There is an administrative site plan being reviewed for a cooling tower at Hyundai.

Motion by Brennan, Support by McKinney to accept the Planners' report.

Motion passed unanimously by voice vote.

10. OLD BUSINESS

None.

11. NEW BUSINESS

None.

12. POLICY DISCUSSION

None.

13. ADJOURNMENT – *next regularly scheduled meeting on July 22, 2026.*

MOTION by Brennan, supported by McKinney to adjourn the meeting.

Motion passed unanimously by voice vote.
The meeting was adjourned at 7:56 p.m.

Meeting Minutes Respectfully submitted,

Thomas Brennan III, Planning Commission Secretary
Michelle Marin, Recording Secretary
3040 N. Prospect, Ypsilanti, MI 48198, 734-482-6099

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

Date: February 14, 2025
December 8, 2025
April 24, 2026
June 24, 2026

Conditional Use and Preliminary Site Plan Review
For
Superior Township, Michigan

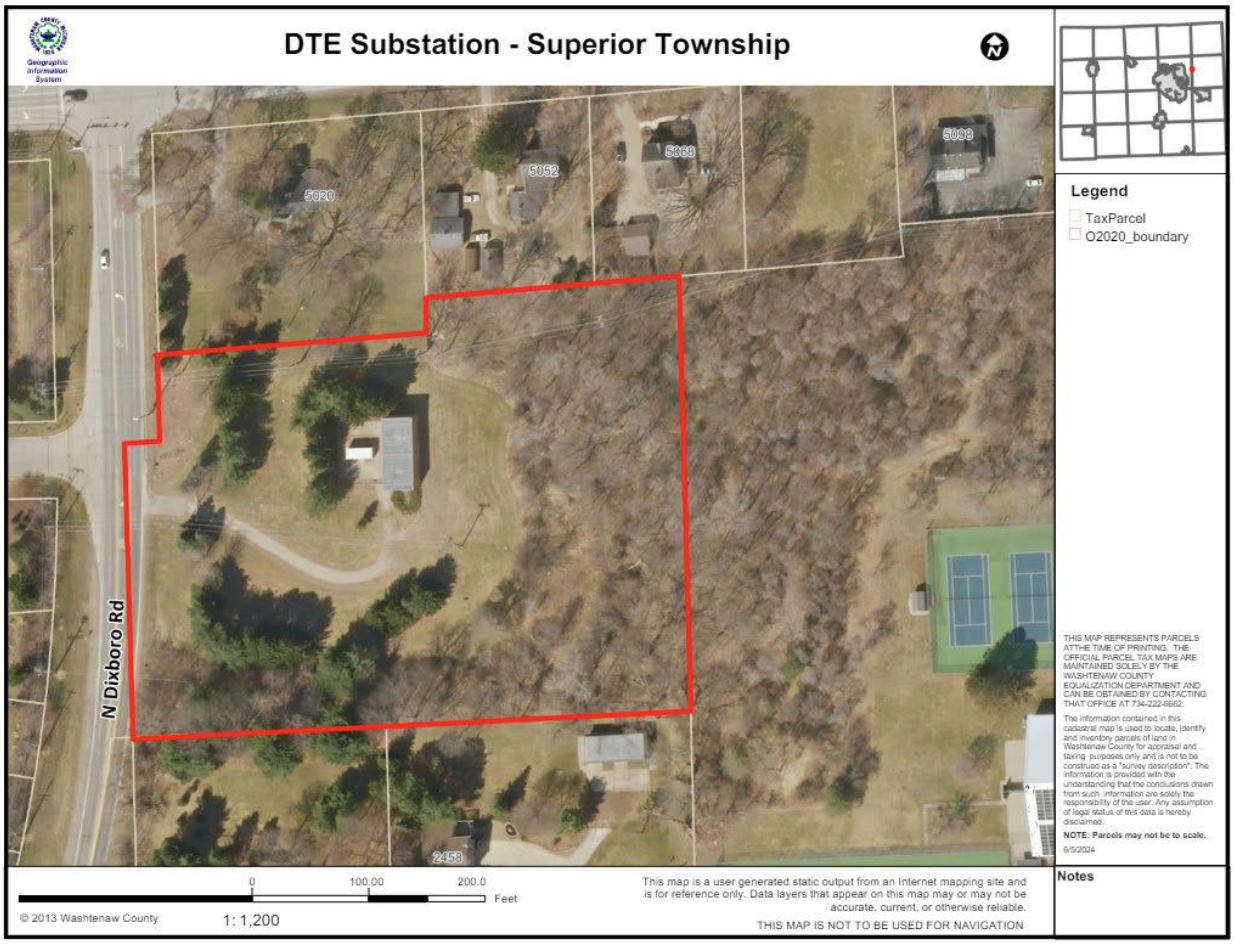
Applicant:	DTE Electric Company (John Erb, DTE Real Estate and Terry Spryszak, DTE Corp Permits)
Project Name:	STPC 25-02 - DTE Grenada Substation Expansion
Plan Date:	Revised date of June 4, 2026
Location:	East side of N. Dixboro Road, south of Plymouth Road J -10-18-261-012
Zoning:	R-4 (Single-Family Residential) Urban Residential District
Action Requested:	Conditional Use Permit / Preliminary Site Plan Approval
Required Information:	As noted in review.

PROJECT DESCRIPTION

DTE Electric Company is seeking approval for a combined Conditional Use Permit and Preliminary Site Plan to expand an existing electrical substation on a 3.76 acres parcel (J -10-18-261-012) located on the east side of Dixboro Road, south of Plymouth Road (see Figure 1). The property is in an Urban Residential District zoned R-4 (Single-Family Residential). The proposed new Grenada Substation would be classified as a "Utility Transmission and Distribution Lines and Pipelines not in Existing Easements or Rights-of-Way" and requires a Conditional Use Permit approval in an R-4 (Urban Residential District).

Benjamin R. Carlisle, *President* John L. Enos, *Vice President* Douglas J. Lewan, *Principal*
David Scurto, *Principal* Sally M. Elmiger, *Principal* R. Donald Wortman, *Principal* Craig Strong, *Principal*
Paul Montagno, *Principal* Megan Masson-Minock, *Principal* Laura Kreps, *Principal* Brent Strong, *Principal*
Richard K. Carlisle, *Past President/Senior Principal*

Figure 1 - Aerial Image of Subject Site



The applicant has provided the following use description:

> *THIS PROJECT IS TO CONSTRUCT AN ELECTRICAL SUBSTATION WHICH WILL IMPROVE POWER RELIABILITY IN THE SURROUNDING AREAS. WORK INCLUDES OVERHEAD SUPPORT STRUCTURES, LIGHTNING MASTS, TRANSFORMERS, CIRCUIT BREAKERS, POWER DISTRIBUTION CONTROL EQUIPMENT, ITC CONTROL HOUSE, ACCESS DRIVES WITH SECURITY FENCE AND LIGHTING. GRENADA SUBSTATION IS AN UN-OCCUPIED ELECTRIC SWITCHING/DISTRIBUTION SUBSTATION, AFTER CONSTRUCTION IS COMPLETE, AN OPERATOR WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH TO PERFORM ROUTINE MAINTENANCE AND DATA COLLECTION.*

There is an existing substation facility on this property that was constructed around 1990 and the applicant is proposing to improve and expand the facility to improve power reliability in the surrounding areas.

PROPOSAL

DTE proposes the following items at the site:

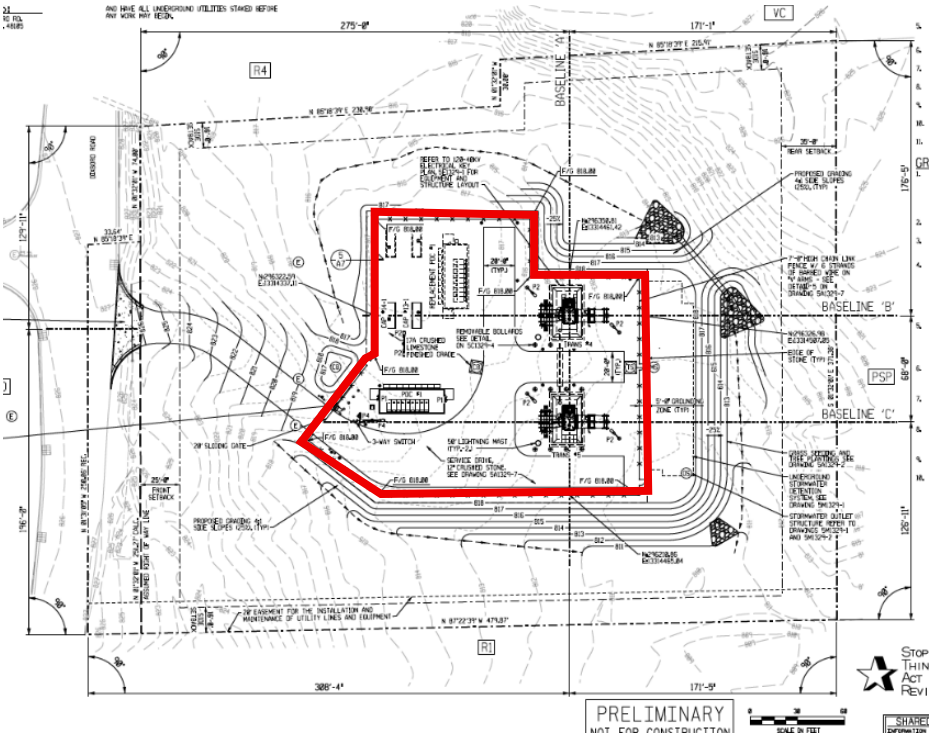
- New fenced substation yard with:
  - Transformers #4 and #5.
  - PDC #1 control enclosure.
  - Capacitor banks, breakers, support structures.
  - 50-foot-tall lightning mast
  - Equipment functions as utility infrastructure, not occupied buildings.
- New landscaping
  - Tree preservation where possible
  - Additional trees to provide screening
- New lighting
  - Exterior lighting:
  - LED wall packs and limited pole-mounted fixtures.
- New fencing
  - 8-foot ornamental fence with security toppers.
  - Locked gates and controlled access.
- Gated drive off Dixboro Road
- Onsite stormwater management
- Site grading

EXISTING VS. PROPOSED

The existing pad is approximately 4,100 sq/ft



The proposed pad is 40,510 square feet.



PROCESS

The proposed Grenada Substation facility is considered to be a "Utility Transmission and Distribution Lines and Pipelines not in Existing Easements or Rights-of-Way" and is permitted on parcels zoned R-4 (Urban Residential District) with a Conditional Use Permit approval.

Article 11 (Conditional Uses) specifies the procedures and standards to be followed in granting such permits. A site plan meeting all the requirements of a Preliminary Site Plan as outlined under Article 10.0 (Site Plan Review) must accompany the Conditional Use Permit application. A public hearing shall be held on the petition and notice shall be given in accordance with Section 1.14 (Public Hearing Procedures).

PREVIOUS PLANNING COMMISSION REVIEW

The item was last reviewed by the Planning Commission on December 17, 2025. At the meeting, there were a number of public and Planning Commission comments:

- Landscape buffers and durable landscaping installed with a diversity of tree species and mixture of understory, shrubs, grasses, and canopy trees.
- Stormwater run-off due to increased impervious surface.
- Whether the expansion would actually increase capacity and directly benefit Superior Township residents by reducing outages.

- Proximity of substation to sensitive natural areas (i.e., Botanical Garden and Flemming Creek).
- Visual impact of industrial scale substation to residential areas and the Village of Dixboro.
- Potential health effects of electromagnetic radiation from transformers and other equipment.
- Transmission structures constructed outside of the fenced areas.
- Changes to local aesthetics and viewsheds.
- Noise constant humming or buzzing noise may be audible several hundred feet from the substation.
- Potential light pollution.
- Reduction in property values for adjacent owners.
- Tree maintenance and vegetation management now and in the future.

The item was postponed to allow the applicant to address the following items:

1. Township to independently review the following:
    a. Environmental Impact Study
    b. Electromagnetic Field Study
    c. Noise Study
2. Provide graphics to confirm if the combination of a berm and landscaping is sufficient to screen all site operations from all property lines. If deficient, increase berm and landscaping.
3. Confirm ability to obtain 12-foot-tall evergreens.
4. Clarify tree replacement shortfall (97 required vs. 63 proposed) and how remaining replacement obligations will be satisfied (additional on-site trees, off-site planting, or other Township-acceptable mitigation).
5. Provide more detailed tree preservation analysis to confirm viability of “to remain” trees whose critical root zones may be disturbed.
6. Provide formal landscape maintenance plan (practices, products, schedule, and replacement of dead/diseased plant material).
7. Confirm whether site lighting will be used only for emergencies and maintenance normal condition: lights off) and ensure any operating schedule is clearly documented.
8. Confirm feasibility of brick wall around facility.

CHANGES SINCE LAST PLANNING COMMISSION REVIEW

Based on public and Planning Commission comments at the December Planning Commission meeting, the applicant has made the following updates to their application:

- Sheet set / plan content
    - The revised application includes aerial and cross section renderings of the site from 5 pedestrian-level vantage points, including along Plymouth and Dixboro Roads. The renderings notably do not indicate the pedestrian view from the site entrance.
- EMF and Noise

    - Provided EMF and Noise PDF, reviewed by a subconsultant.
- Environmental Impact Statement
    - Provided Environmental Impact Statement (EIS)
    - Reviews potential environmental impacts of woodlands and trees, threated species, air quality, water quality, social impacts, historic and cultural resources, and economic impacts.
    - Rare Species Review
        - Provided Rare Species Review from Michigan State Extension noting that several at-risk species and/or natural communities have been documented within 1.5 miles of the project location and it is possible that adverse impacts will occur.
        - Provides management recommendations.
        - OHM reviewed the EIS and the Threatened and Engendered Species Review and requested that the site-specific habitat assessment be submitted by the Applicant's Consultant for review. The applicant's consultant provided a site-specific habitat assessment on April 22, 2026, which has not yet been reviewed.

The following items remain unchanged from the previous application submittal:

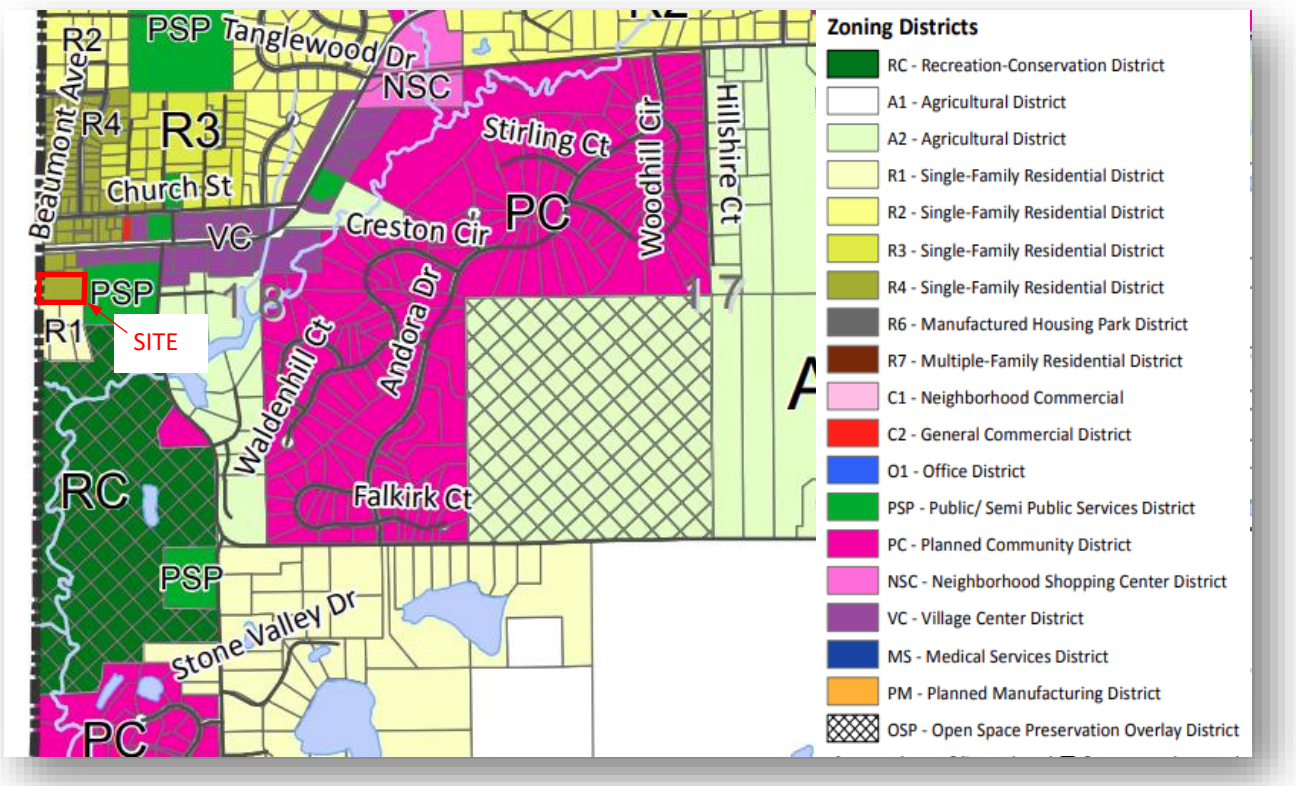
- The Substation pad and construction disturbance area was not reduced.

ZONING AND LAND USE

Zoning and existing land uses for the subject site and surrounding parcels are identified in the following table and shown on Figure 2.

DIRECTION	ZONING	LAND USE
North	R4 (Single-Family Residential) VC (Village Center)	Single Family Dwelling and Commercial Office
South	R1 (Single-Family Residential)	Single Family Vacant and Rural Residential
East	PSP (Public/ Semi Public Services)	Huron Valley Tennis Club
West	PUD (Ann Arbor Township)	Dixboro Road and Flemming Creek Residential Subdivision

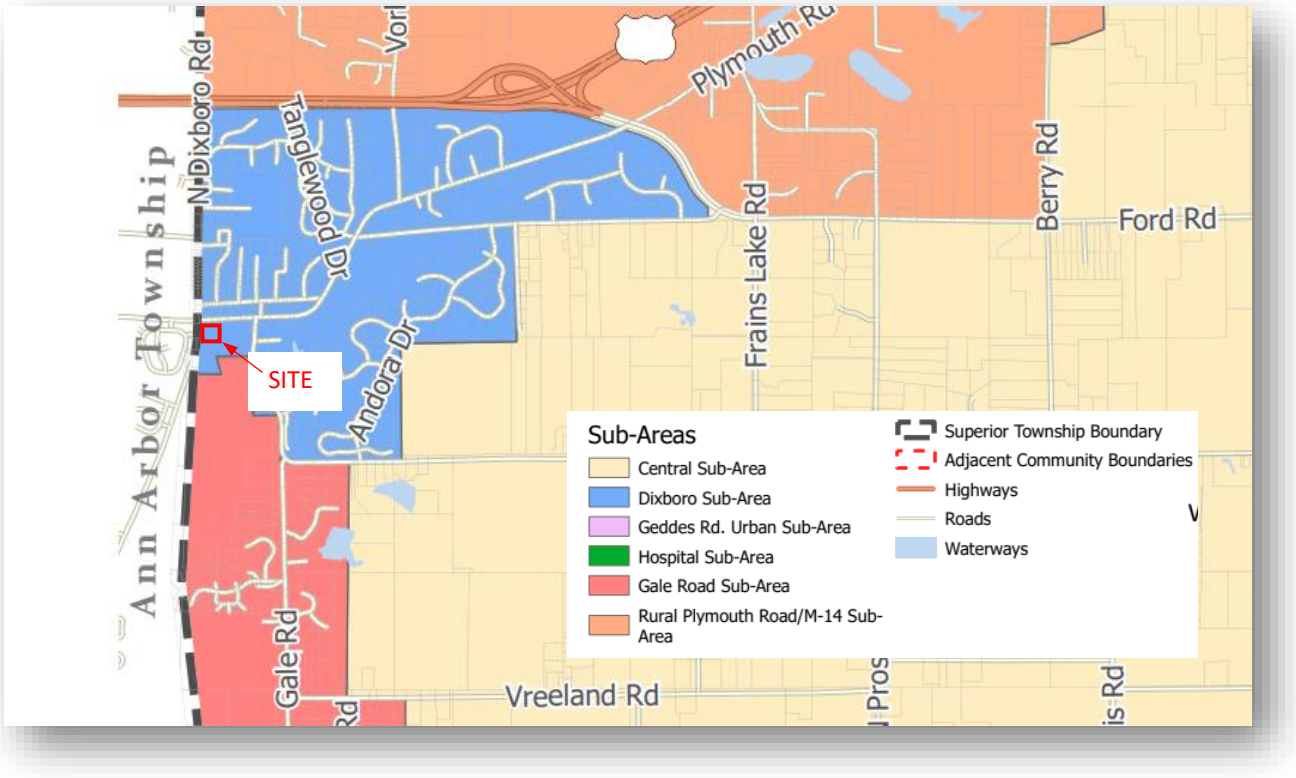
***F*igure 2 – Superior Township Zoning Map**



MASTER PLAN

The Future Land Use Map designates the subject site and the properties to the north, south, and east in the Dixboro Sub-Area (Figure 3). Properties west of the site and N Dixboro Road are in Ann Arbor Township and these parcels are designated as Residential 0.2-0.5 DU/acre (2 to 5-ac. lots) on the Township's Future Land Use Map.

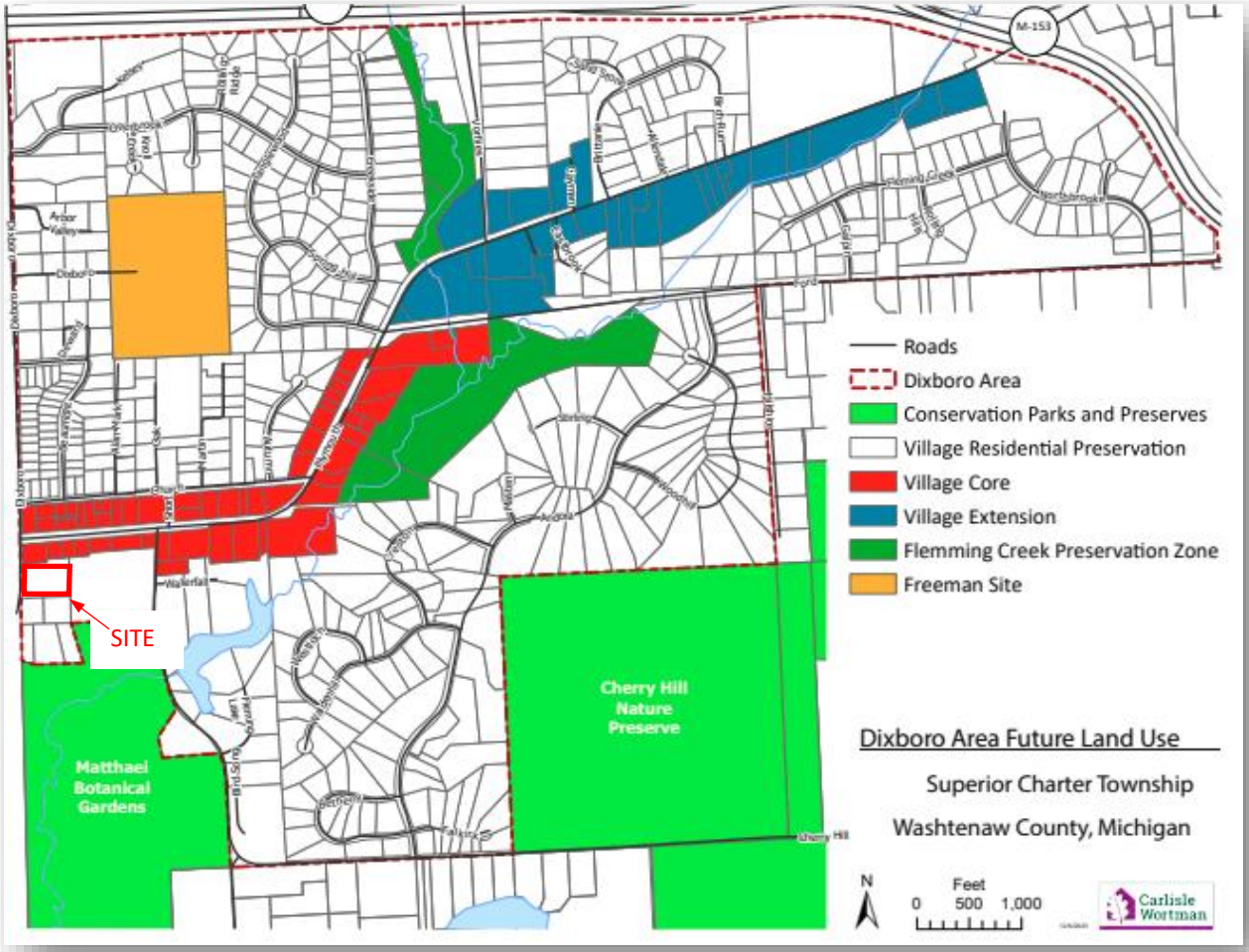
Figure 3 – Superior Township Future Land Use Map



The Dixboro Sub-Area has a more detailed Future Land Use Map (Figure 4). Areas within the Dixboro Sub-Area have been divided into five (5) place types based upon the context of existing build form, physical conditions, environmental conditions, land uses, development patterns, and community input, goals, and strategies. The subject site is included in the "Village Residential Preservation" place type which is intended for large- and small-lot single-family homes, open spaces and parks. It is the Township's desire to maintain and seek continuing reinvestment in the existing housing stock in the Village Residential Preservation area and new development must fit the character of the area. This being said, the intent of the Future Land Use Map is not to predetermine land uses or zoning on a specific parcel or at specific locations. Rather, individual properties or projects can be considered within the context of the location and surrounding properties, and not by a strict set of land use categories.

The existing DTE electrical substation facility on this parcel was constructed in the early-1990s and while the conditional use request to expand this facility does not specifically meet the intent of the Village Residential Preservation place type, expansion of the substation and associated improvements are intended to increase power reliability in the surrounding areas including the Dixboro Sub-Area. The property is located outside the area requiring Dixboro Design Review Board's review under Section 14.04 (Design Review).

Figure 4 – Dixboro Sub-Area Future Land Use Map



NATURAL RESOURCES

The property is currently partially developed and there are no "significant" natural resources including woodlands, steep slopes, and wetlands on site. The property is located outside the 100-year floodplain.

Watercourses and Wetlands: Sheet 5A1329-1 (Site Plan) states there are no regulated or unregulated wetlands within the subject parcel boundary. Sheet 5A1329-4 (Existing Conditions Plan) supports this claim and a note on sheet 5A1329-8 (Soil Erosion and Sediment Control Plan) states that based on the EGLE wetland inventory the nearest water body is associated with Flemming Creek approximately 300 ft south of the site boundaries.

Slopes: No development shall be permitted in areas where the soil is highly erodible, or in any area with existing steep slopes of twenty five percent (25%) or greater. The natural drainage path is from the northwest corner to the southeast corner of the property. Existing topography

has fairly steep areas now, with slopes on the site ranging from about 1.25% up to 33.25% as the land falls from the northwest toward the southeast low area. The grading plan will re-grade a 0.93-acre pad and associated drives to create a relatively level substation yard surfaced with stone. The remainder of the 2.5-acre disturbance area is reshaped to tie back into existing grades. New embankments and swales are required to be no steeper than 4:1 (25%) per Superior Township standards, so the constructed slopes around the pad and drainage features are flatter and more controlled than the steepest existing slopes. Drainage is still directed from the northwest toward the southeast, but runoff will now be captured in swales and an underground detention system before discharging at the southeast corner, with riprap at the outlet to limit erosion of the downslope area

Floodplain: As noted on sheet 5A1329-4 (Existing Conditions Plan), the site is within Zone "X" determined to be outside the 0.2% annual chance flood plain per Flood Insurance Map No 26161C0266E (effective April 3, 2012).

Woodlands and Tree Preservation: Sheet 5A1329-4 (Existing Conditions Plan) including limits of wooded areas on the subject parcel and sheet 5A1329-5 (Site Preparation and Demolition Plan) includes an inventory of existing trees on site as well as those proposed to be removed and preserved with details on tree protection measures. The applicant has identified 137 trees on site. Of those 137 trees, the applicant proposes to remove 26 of them, of which 15 of those removed are regulated by the Township Woodland Regulations. The applicant is required to provide 97 trees as replacement. They are proposing to provide 63 trees. The applicant shall confirm how the other replacement trees are being addressed.

SITE ARRANGEMENT

As described on the cover sheet under "General Notes", during construction, approximately 2.5 acres of land will be disturbed and, after expansion, the substation structures and buildings will be constructed on a gravel pad that totals 0.93 acres. A fence will be installed around the pad and areas outside the pad will largely remain pervious open space and enhanced with new landscape along the south, east, and portions of the northern fence line. As shown in the table below, the plan is compliant with the dimensional standards in Section 3.101.

STANDARD	REQUIRED/PERMITTED	PROVIDED	COMPLIANCE
Minimum Lot Size	7,200 Sq Ft (0.16 Acres)	3.76 Acres	Compliant
Minimum Lot Width	60 Feet	324 Feet	Compliant
Max. Building Height	35 feet / 2.5 Stories	12 feet	Compliant
Front Setback	25 Feet	~25 Feet	Compliant
Side Setback	6 Feet (16 Feet Total)	~16 Feet	Compliant
Rear Setback	35 Feet	~35 Feet	Compliant
Max. Ground Floor Coverage	25%	25%	Compliant
Max Floor Area Ratio (FAR)	0.40	<0.40	Complaint

ENVIRONMENTAL IMPACT STATEMENT (EIS)

An Environmental Impact Statement (EIS) provides a general overview of the potential environmental effects of upgrading and operating Grenada Substation.

Alternative Site Analysis:

The EIS included an alternative site analysis:

- Upgrade Prospect Substation: Rejected due to lack of space and circuit capacity constraints, including issues with spans over Frain Lake.
- Construct New Substation Elsewhere: Sites along Plymouth-Ann Arbor Road rejected due to distance from 40kV lines and inability to pull enough circuits.
- Upgrade Wolverine Substation: No room for additional equipment and would not adequately relieve load at Grenada or Prospect.
- Conclusion: Rebuilding and upgrading the existing Grenada site is the only feasible option.

Site Plan Changes & Footprint Reduction

- Original site plan had a substantially larger footprint and would have impacted over 100 existing trees across most of the parcel.
- In response to Township feedback, DTE:
    - Removed restroom, drain field, and well.
    - Removed provisions for future circuits.
    - Reduced the substation footprint by approximately 47%.
    - Reduced tree impacts so that 74 existing trees are preserved and only 26 impacted. DTE Grenada Substation EISLandscape plan revised to add mature 12’ trees and shrubs along property lines to maintain visual screening.

Woodlands & Trees

- Tree survey identified 138 trees: 64 Protected and 30 Landmark trees under Article 14.
- Final design requires removal of 24 trees, including 10 Protected and 4 Landmark trees, with protective fencing around remaining trees during construction.
- Replacement landscaping around the perimeter is intended to maintain woodland character and screening.

Threatened & Endangered Species

- MNFI review identified potential for Goldenseal, Eastern Massasauga Rattlesnake, and listed bat species; site-specific review found:
    - No preferred habitat for Goldenseal.
    - No potential bat roost trees on site.
- Additional review for rare reptiles and amphibians found:
    - Eastern Massasauga: no suitable habitat on site; unlikely to be impacted if mitigation is followed.

    - Eastern Box Turtle and Butler's Garter Snake: suitable habitat exists in nearby forest and grassland areas; may use the site seasonally.
- Mitigation/Best Management Practices include wildlife barrier fencing, pre-construction surveys and relocation, wildlife-friendly erosion controls, educational signage, and timing tree removal within the USFWS bat window (Oct 15, 2025–Mar 31, 2026).

Air Quality

- Daily substation operations are not expected to affect air quality.
- Construction dust will be controlled through standard practices such as watering and temporary coverings.

Water Quality & Stormwater

- EGLE confirmed no regulated wetlands or streams on the parcel that would be impacted.
- Design includes underground stormwater detention and infiltration to Washtenaw County standards; plans will be reviewed by the County.
- Soil erosion and sedimentation controls (silt fence, stabilized construction entrance, sequencing, vegetation protection) will be employed during construction.

Historic & Cultural Resources

- Cultural resources desktop review of SHPO database found no anticipated adverse impacts to historic or cultural resources.

Social, Noise, and EMF Impacts

- Site currently operates as a substation; operations and use will remain essentially the same.
- Noise studies of comparable Class "A" substations show:
    - 65 dBA near transformers (5 feet).
    - Approximately 30 dBA at the substation boundary—comparable to a whisper; not expected to disturb nearby neighborhoods.
- EMF measurements at the site boundary are similar to typical household background levels (~10 mG), well below the public exposure guideline of 2,000 mG from ACGIH/ICNIRP.

Economic & Reliability Impacts

- Expansion improves the ability to transfer load between adjacent substations, reducing outages and improving reliability for customers.

EIS Overall Conclusion

- The project provides significant reliability benefits to the local electrical system.
- Some environmental impacts (tree removal, construction disturbance) are anticipated, but are reduced from the original plan and further minimized through specific mitigation measures and BMPs.

- With these measures, the EIS concludes impacts can be managed while achieving infrastructure improvements, and ongoing stakeholder engagement is recommended.

OHM provided a a review of this Environmental Impact Statement.

EMF AND NOISE

The applicant provided a PDF of EMF and noise studies. The PDF concludes that EMF readings taken at the substation site boundaries are approximately 10 milligauss (mG), comparable to typical household background levels and well below the most conservative guideline for public exposure (2,000 mG) from ACGIH/ICNIRP.

Noise measurements from comparable, recently constructed substations indicate that transformer sound levels diminish to roughly 30 dBA at the property boundaries—about the level of a whisper—indicating minimal noise impact on adjacent properties.

The noise and EMF studies have been reviewed by a Township subconsultant.

PARKING AND LOADING

The facility is largely unmanned and there are no parking or loading requirements.

Items to be Addressed: *None*

SITE ACCESS AND CIRCULATION

The Grenada Substation will be accessed from the existing driveway curb cut off of N Dixboro Road. A new concrete drive approach will be constructed, and the facility improvements will be accessed by a 20-foot wide crushed stone service driveway that circles the substation pad. The proposed layout is shown on sheet 5A1329-6. The concrete driveway opening details are included on both sheets 5A1329-6 and 5A1329-7 and the access drive details are included on sheet 5A1329-7.

FENCING

The applicant proposes to fence in the entire facility with an 8-foot-tall ornamental fence.

There is a motorized slide gate and a pedestrian gate with details provided on sheet 5A1329-7. The slide gate will be installed at the bottom of the driveway approximately 150 feet from N Dixboro Road.

LANDSCAPING

The applicant has provided a landscape plan that complies with Township requirements. The proposed landscape plan remains largely unchanged from the previous submission, with the exception of the addition of a landscape maintenance schedule.

We note that the applicant is proposing to install sixty-three (63) 12-foot tall evergreens to better screen the facility. The 12-foot tall evergreens are distributed around the site. The new submission includes calculations of impacts to the critical root zone (CRZ) of existing trees.

The screening plan and CRZ calculations were reviewed by our Landscape Architect who makes the following notes:

- Per guidelines from the International Society of Arboriculturists (ISA), the critical root zone (CRZ) of a tree equates to a 1 foot radius from the trunk per caliper inch of tree, e.g. a 10-inch DBH tree would have a 10-radius CRZ. The ISA further recommends that no more than 25% of the tree's CRZ be disrupted. Generally speaking, under 20% impact is usually tolerated if the tree is healthy. Impacts to 20-30% of the CRZ may cause stress, and there is a moderate risk of failure. Impacts to 30-40% to the CRZ carry high risk of significant damage including canopy dieback and structural instability. If there are structural roots impacted (large roots near the trunk), the risk to structural stability increases. There are two (2) trees with greater than 30% impact and one with greater than 20% impact:
    - 298, 10" Black walnut: 33% CRZ impact, 18" cut 2.2' from the trunk.
    - 1522, 16" Black walnut: 33% CRZ impact, 18" cut 4.3' from the trunk.
    - 275, 7" Black walnut: 26% CRZ impact, fill material starting 2' from the trunk.
- Trees 298 and 1522 will likely fail as a result of this activity. Tree 275 may also fail; the root zone will be compacted by the construction activities. The applicant should consider reducing or eliminating the amount of fill in that area.
- The proposed layout uses a strategic mix of new and existing trees to screen the site from neighboring properties. While heights are not provided for all of the trees, their DBH can be used to develop a conservative estimate. We are confident that the combination vegetation and topography should adequately screen the site. Light pollution does remain a concern, however, and it will be critical that the developers adhere to the photometric plan provided.
- The proposed screening will be thin for the first couple of years, especially along the west and northern property lines.
- The plant palette consists of mostly Michigan native species, with most commonly available in the nursery trade. There is some concern regarding the proposed sizes. While it is possible to find larger trees, most nurseries in southeast Michigan stock trees in the 6- to 8-foot range, less commonly 10-foot, and rarely 12-foot. For the deciduous trees, Eastern redbud is rarely sold above 2.5-inch DBH. Paw paws are relatively uncommon and are rarely if ever sold as 3-inch specimens. The developer should anticipate challenges in obtaining trees of this caliper and plan accordingly.

In response to our comments regarding the proposed impacts to Trees 298, 1522, and 275, the applicant has offered to make a contribution to a tree-planting fund. However, the Zoning Ordinance does not require the Township to accept a payment in lieu of on-site replacement planting. We therefore recommend that replacement trees be planted on-site rather than through a fund contribution. On-site replacement plantings would help maintain and enhance screening of the facility, particularly from the site entrance.

It's also worth noting that the proposed facility is approximately 5 to 10 feet lower than Dixboro Road and the rear property line. However, 1 to 2 feet taller than the property to the northeast and southeast.

The screening method should be suited to the existing conditions and are subject to Planning Commission approval. The Planning Commission may require additional plantings to achieve the screening objectives of Section 14.10D.

The applicant has provided renderings of the site from five vantage points, indicating the anticipated impact of the landscape screening at time of planting and five years thereafter.

LIGHTING

The applicant did not provide a revised lighting and photometric plan with the new application submittal. The previously provided lighting and photometric plan indicated site lighting is entirely LED, using a combination of building-mounted wall sconces and pole-mounted area lights. Fixtures are high-efficiency, long-life luminaires with neutral white color temperature (3,500K) and photometric distributions selected for parking/drive aisles and building perimeter illumination.

Overall

The Grenada Substation lighting is focused entirely inside the fenced yard, with light levels concentrated around the equipment and control building. The maximum footcandle reading is 14.5 internal to the fenced in area and tapers to 0.5–0.2 fc approaching the fenceline. Illumination drops to zero at the property line.

Pole Lighting

Pole lighting is provided by two (2) two headed LED pole light and four (4) single headed LED light pole. The fixtures are full-cutoff, zero-up light fixtures with high efficacy. The pole heights are up to 15-feet. The proposed tree plantings should screen the lights from all adjacent property lines.

Building lighting

Building lighting is provided by two (2) Lithonia MRW LED architectural wall sconces. These are fully shielded LED wall packs with no up light (Nighttime Friendly). The applicant should confirm if the site will be lit fulltime or only during emergencies.

FLOOR PLAN AND ELEVATIONS

Elevations and dimensions were not provided in the revised application submittal. It does not appear that any changes are proposed from the previous plan submittal where elevations and dimensions were provided.

SUPPLEMENTAL REGULATIONS

Section 5.604 sets forth additional requirements for Utility Transmission and Distribution Lines. Electricity transmission and distribution lines, gas and oil pipelines, and other utility structures, lines, and pipelines shall be subject to the following:

1) *Storage of materials, equipment, vehicles, or supplies shall be prohibited on the premises, except as required during periods of maintenance and servicing.*
2) *No personnel shall be quartered or employed on the premises.*
3) *Structures or buildings shall be located, designed, constructed, and landscaped in conformance to the character of the surrounding area and zoning district.*

CONDITIONAL USE STANDARDS

The Planning Commission has the authority to approve a Conditional Use Permit if the proposed use complies with Section 11.05.C (Standards for Conditional Use Permit Approval) as follows:

a) *The proposed use will be harmonious, and in accordance with the objectives, intent, and purposes of this Ordinance;*

b) *The proposed use will be compatible with the natural environment and existing and future land uses in the vicinity;*

c) *The proposed use will be compatible with the Growth Management Plan;*

d) *The proposed use 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 any such services;*

e) *The proposed use will not be detrimental, hazardous, or disturbing to existing or future neighboring uses, persons, property, or the public welfare; and*

f) *The proposed use will not create additional requirements at public cost for public facilities and services that will be detrimental to the economic welfare of the community.*

g) *The proposed use complies with all applicable standards of this Ordinance, including Article 5.0 (Use Standards).*

h) *The proposed use complies with all applicable regulations of federal, state,*

regional, and county agencies with jurisdiction.

Planning Commission to consider if conditional use standards have been met.

CONDITIONS

In granting a Conditional Use Permit, the Planning Commission may impose conditions that it deems necessary to ensure that:

a) *Public services and facilities affected by a proposed conditional use will be capable of accommodating increased service and facility loads caused by the proposed conditional use;*
b) *The natural environment will be protected and natural resources and energy conserved;*
c) *The proposed use is compatible with adjacent land uses; and*
d) *The proposed use promotes the use of land in a socially and economically desirable manner.*

Conditions imposed shall meet the following requirements:

a) *The conditions shall be designed to protect natural resources, the health, safety, and welfare and the social and economic well being of those who will use the proposed land use or activity, residents and landowners immediately adjacent to the proposed conditional use, and the community as a whole.*
b) *The conditions shall be related to the valid exercise of the police power of the Township, and purposes that are affected by the proposed conditional use.*
c) *The conditions imposed shall be necessary to meet the intent and purpose of the Ordinance, shall be related to the standards established in the Ordinance for conditional uses, and shall be necessary to ensure compliance with those standards.*

RECOMMENDATION

The revised DTE Grenada Substation includes an ornamental fence rather than a chain link fence. No other notable plan changes have been provided. and providing additional technical documentation (EIS, EMF and noise analysis). Ultimately, the Planning Commission must determine whether, with appropriate conditions, the project satisfies the Conditional Use standards regarding compatibility, environmental protection, and neighborhood character.

We recommend that the Planning Commission:

1. **Confirm response to prior PC direction**
    - Review how the revised plan addresses the December 17, 2025, Planning Commission comments regarding footprint reduction, tree preservation, stormwater, landscaping, visual screening, EMF/noise, and public benefit.

2. **Evaluate Conditional Use standards**
    - Deliberate explicitly on whether the project, as revised, meets the Conditional Use standards for harmony with the Ordinance, compatibility with existing/future land uses and the Growth Management Plan, and protection of public health and welfare.

3. **Tree preservation and replacement**
    - Require on-site tree replacement for 2 trees where the proposed impact to the CRZ is greater than 30%, indicated in final site plan submittal.

4. **Landscape screening and visual impact**
    - Consider requiring supplemental plantings and/or layout adjustments in final site plan submittal to ensure that the fence and 16-foot equipment are not visible from surrounding properties and N. Dixboro Road at installation and within a short establishment period.

5. **Noise, EMF, and EIS**
    - Confirm acceptance of EMF and noise reports and the EIS.
    - If approving, consider conditioning approval on adherence to the mitigation and best-management practices identified in the EIS and rare species/ wildlife recommendations (e.g., timing of tree removal, wildlife fencing, pre-construction surveys).

6. **Outside approvals and technical compliance**
    - Condition any approval on:
        - Final stormwater and soil erosion approval by the Washtenaw County Water Resources Commissioner.
        - Compliance with Township grading and slope standards (4:1 maximum slopes).

- Compliance with supplemental utility regulations (no storage of materials/equipment outside maintenance periods, no personnel quartered on site).
- Any other conditions as required by Planning Commission

After discussion with the applicant, direct staff to:

- Draft a **Conditional Use and Preliminary Site Plan Resolution of Approval with conditions**, or

Draft a **Resolution of Denial** if standards are not found to be met

Sincerely,

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

CARLISLE/WORTMAN ASSOC., INC.
Michelle Marin, AICP
Associate Planner

April 27, 2026

CHARTER TOWNSHIP OF SUPERIOR
3040 N. Prospect Road
Ypsilanti, MI 48198

Attention: **Emily Dabish Yahkind, Township Supervisor**

Regarding: **DTE Grenada Substation**
Preliminary Site Plan Review – Review No. 3
OHM Job No. 0140-24-1010

Dear Ms. Dabish Yahkind,

On behalf of the Township, we have reviewed the revised Preliminary Site Plan submittal for the above referenced project, as provided to the Township by the Applicant on April 6, 2026. Please note that this review includes additional aspects of evaluating site impact for an environmental impact study, noise study, and electromagnetic field study that were submitted by the applicant at various times over the previous couple month period. OHM's ecological and environmental engineering staff reviewed the environmental impact report, but other studies were reviewed by our subconsultants that offer expertise in evaluating noise studies and data related to electromagnetic fields. We offer the following items for the Applicant's consideration:

Preliminary Site Plan related comments for Civil Engineering

1. A more detailed technical review of the site engineering will take place during a potential future final site plan stage. Grading details would be reviewed during final site plan if the project were to move forward.

2. Work proposed in the Dixboro Road Right-of-way (ROW) must meet the requirements of the Washtenaw County Road Commission (WCRC) as they have jurisdiction within the public ROW of Dixboro Rd. The Applicant should coordinate with WCRC to meet their requirements and obtain any necessary permits. A copy of their approval letter will be required or must be reasonably assured prior to presentation of a Final Site Plan to the Planning Commission for this project.

3. The stormwater management design must meet Washtenaw County Water Resources Commissioner (WCWRC) Standards. The Applicant should coordinate with WCWRC to facilitate review and obtain necessary approvals. A copy of their approval letter will be required prior to presentation of a Final Site Plan to the Planning Commission for this project.

4. Soil erosion and sedimentation control (SESC) measures for the project must meet the requirements of WCWRC and the Applicant should coordinate with WCWRC regarding the review process. A copy of their approval letter will be required or must be reasonably assured prior to presentation of a Final Site Plan to the Planning Commission for this project.

Environmental Impact Statement (EIS) Review

We have reviewed the site-specific habitat assessment provided by the Applicant on April 22, 2026, and found that it fulfills the threatened and endangered species review for this site and we take no exception to the EIS provided. No further action is needed by the Applicant regarding the EIS.

Noise Study Review

We have received supporting documentation for the proposed transformers provided by the Applicant on April 22, 2026. Our acoustic engineering subconsultant, ABD Engineering, has reviewed this documentation and requested the following clarification and additional information from the Applicant:

- The Industrial Hygiene Report dated August 27, 2025, states: "The average SPL as measured by the manufacturer is found in the Pennsylvania Transformer Technology Certified Test Report. The average SPL found on page 67 of the report is 66.5 dBA." The performance data sheet provided via email on April 22, 2026, does not appear to be the same as the Pennsylvania Transformer Technology Certified Test Report. The performance data sheet includes a table titled "Auxiliary Losses" that states an "NLL Sound Level of 65/67/68 dBA" which is not aligned with the value in the Industrial Hygiene Report. Please provide the Pennsylvania Transformer Technology Certified Test Report that is referenced in the Industrial Hygiene Report.

- Understanding that the Industrial Hygiene Report is for a different site called the Gramer Substation, please confirm that the transformers installed at the Gramer Substation are the same as the transformers proposed to be installed at the Grenada Substation. If different equipment is proposed, then a performance data sheet should be provided for that equipment, and clarification should be made on which data sheet is for the Gramer Substation and which is for the Grenada Substation. Additionally, please provide a site plan for the Gramer Substation showing property lines and transformer locations to support interpretation of the property line noise measurements in the Industrial Hygiene Report.

Electromagnetic Field (EMF) Study Review

Our electrical engineering subconsultant, Peter Basso Associates, has reviewed the electromagnetic field report provided by the Applicant on February 18, 2026, to identify concerns with the findings or assumptions made in the report. Based on the information provided, our subconsultant indicates that the measurement methodology used in the report appears consistent with standard EMF survey practices. The measured magnetic field levels reported in the study (approximately 0.3 - 9.5 milligauss) fall within the range typically observed near electrical infrastructure. For context, the National Institute of Environmental Health Sciences (NIEHS), which is referenced in the study, reports that typical background magnetic field levels in U.S. homes range from approximately 0.5 to 5 milligauss, with higher levels occurring closer to electrical equipment or power infrastructure.

Our subconsultant also notes that the levels measured at the site are consistent with commonly observed conditions around electrical facilities and are well below widely recognized international exposure guidelines referenced in the report. In addition, it is important to note that magnetic field levels decrease rapidly with increasing distance from electrical equipment.

Overall, the measurements reported appear typical for an existing substation environment and do not indicate unusually elevated magnetic field levels. However, the study provided is limited to measurements of existing conditions only and does not include modeling or prediction of magnetic field levels that may occur after the proposed expansion is constructed and operating.

Because magnetic field levels are primarily influenced by electrical loading and equipment configuration, we request that the Applicant clarify how the proposed expansion could affect existing EMF levels, particularly at the property boundary and nearest residential areas. Our subconsultant is requesting the Applicant provide the following additional information for evaluation of future conditions:

- The predicted EMF levels under the expanded configuration.

- Confirmation of the electrical loading conditions at the time the measurements were taken on the existing conditions scenario.

This review is based solely on the information contained in the EMF report and supporting materials provided by the Applicant and does not constitute an independent electromagnetic field analysis of the proposed facility.

If you have any questions regarding our review, please do not hesitate to contact me at (734) 466-4439.

Sincerely,
OHM Advisors

_____
George Tsakoff, PE
Principal

cc: Angela Robinson, Township Clerk (via email)
Bill Balmes, CBO, Building Department (via email)
Ben Carlisle, CWA, Township Planner (via email)
Michelle Marin, CWA, Zoning Administrator/Township Planner (via email)
Mariah Cummings, OHM
Terry Spryszakl, DTE
file

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June 23, 2026

CHARTER TOWNSHIP OF SUPERIOR
3040 N. Prospect Road
Ypsilanti, MI 48198

Attention: **Emily Dabish Yahkind, Township Supervisor**

Regarding: **DTE Grenada Substation**
Noise and EMF Studies Review
OHM Job No. 0140-24-1010

Dear Ms. Dabish Yahkind,

On behalf of the Township, we have reviewed the additional information provided by the Applicant on May 15, 2026, for the noise and electromagnetic field studies for the above referenced project. Studies were reviewed by our subconsultants that offer expertise in evaluating noise studies and data related to electromagnetic fields. We offer the following summary for the Township's consideration in evaluating this application further for site plan approval:

Noise Study Review
Our acoustic engineering subconsultant, ABD Engineering, has reviewed the response letter and additional materials related to the noise study provided by the Applicant on May 15, 2026. The Applicant previously supplied the Industrial Hygiene Report dated August 27, 2025, performed at the Gramer Substation located in Lenox Township to demonstrate noise levels at a comparable site. Our subconsultant notes that there are differences between the two sites, as identified below.

The Gramer Site:
- 120kV-40kV transformer
- Pennsylvania Transformer Technology (PTT) report indicates:
  - Sound rating of 66.5 dBA* (no load, fans off).
  - *PTT report does not state a specific weighting, but IEEE C57.12.00-2021 is referenced and this standard specifies A weighting (dBA).
- Industrial Hygiene Report
  - Average at 6' from unit, 5' above grade: 65.8 dBA (Transformer 101), 63.8 dBA (Transformer 102)
  - Average at fence line: North 33.9 dBA, South 32.5 dBA, East 30.8 dBA, West 26.8 dBA
  - "Average" at fence line implies several measurements were taken along a single fence line and were then averaged. If this is how the measurement data was gathered or processed, then a measurement at a point along the property line that represents the shortest distance to the transformers will be higher than what was reported (and is the relevant value for comparison to noise ordinance limits).
  - Two different fence lines are indicated on west side of the property. It is not clear which fence line was used for the measurements.
  - It is not stated in the Industrial Hygiene report whether or not both Transformers are operating at the same time. It also does not state whether or not the transformer fans were operating during the sound level testing. IEEE C57.12.90-2021 defines a 1' measurement distance from the

unit when fans are off and a 6' measurement when fans are on. Lower measured overall sound level around T102 indicates possibility that T102 fans were not operating at the time of testing.

The Grenada Site:

- 40kV-13.2kV transformer
- PTT report indicates:
  - Tested sound ratings: 62.6 dBA* (ONAN, fans off), 64.4 dBA* (ONAF2, fans on)
  - Maximum guaranteed sound ratings: 65 dBA* (ONAN, fans off), 68 dBA* (ONAF2, fans on)
  - *PTT report does not state a specific weighting, but IEEE C57.12.00-2021 is referenced and this standard specifies A weighting (dBA).

Our subconsultant also noted the following observations:

- The Gramer site is essentially flat.
- There is some mild/moderate grading at the Grenada site but is not a significant factor.
- The PTT reports indicate that the transformer proposed for the Grenada site is approximately 4 dB quieter (with fans off) than what was installed at the Gramer site (66.5 – 62.6 = 3.9). A similar comparison is not possible with fans on because the ONAF2 condition is not included in the PTT report for the 120 kV-40kV transformer.
- Noise Ordinance requirements:
  - Gramer Site: New Haven nighttime limit: 55 dBA
  - Grenada Site: Ann Arbor nighttime limit: 55 dBA
- Conservative approximations for Grenada site (assuming flat terrain, no barriers, 68 dBA maximum guaranteed rating with fans on):
  - Property line predictions:
    - North (115'): 46 dBA
    - South (115'): 46 dBA
    - East (163'): 44 dBA
    - West (297'): 38 dBA
  - Above estimates are based upon shortest distance between transformer and listed property line (i.e. not an average)
- Conservative approximations are all below ordinance limits.

Based on their review and calculations, our subconsultant indicates that the proposed Grenada site is likely to comply with the local noise ordinance based on information provided by the Applicant on a similar built out site and what is proposed at this location in Superior Township.

Electromagnetic Field (EMF) Study Review

Our electrical engineering subconsultant, Peter Basso Associates, has reviewed the response letter dated May 18, 2026, provided by the Applicant regarding the electromagnetic field study review.

Our subconsultant previously requested the predicted EMF levels under the expanded configuration. The Applicant did not provide specific values but indicated that existing background levels are below 10 milligauss and are expected to remain in a similar range following the expansion – well below applicable ACGIH and ICNIRP guidelines.

Our subconsultant also previously requested confirmation of the electrical loading conditions at the time the measurements were taken on the existing conditions scenario. It is noted that measurements were taken under typical conditions on October 25, 2025, which is standard practice for background EMF monitoring.

Based on the information provided, our subconsultant is of the opinion that concerns have been addressed adequately and that, should any EMF-related concerns arise in the future, it has been documented that due diligence was performed based on data provided by the Applicant.

If you have any questions regarding our review, please do not hesitate to contact me at (734) 466-4439.

Sincerely,
OHM Advisors

_____
George Tsakoff, PE
Principal

cc: Angela Robinson, Township Clerk (via email)
Bill Balmes, CBO, Building Department (via email)
Ben Carlisle, CWA, Township Planner (via email)
Michelle Marin, CWA, Zoning Administrator/Township Planner (via email)
Claire Martin, OHM
Mariah Cummings, OHM
Terry Spryszakl, DTE
file

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March 4, 2026

CHARTER TOWNSHIP OF SUPERIOR
3040 N. Prospect Road
Ypsilanti, MI 48198

Attn: **Emily Dabish Yahkind, Township Supervisor**

RE: **DTE Grenada Substation**
Environmental Impact Statement Review
OHM Job No. 0140-24-1010

Dear Ms. Dabish Yahkind:

On behalf of the Township, we have reviewed the Environmental Impact Statement (EIS) provided by DTE Energy as it relates to their Grenada Substation preliminary site plan. The EIS provides a general overview of the potential environmental effects of upgrading and operating the substation and identifies proposed mitigation measures. We offer the following comments for consideration:

Regarding the Threatened and Endangered Species Review
After conducting a Michigan Natural Features Inventory (MNFI) Rare Species review, DTE performed a site-specific habitat assessment and determined that "the site does not contain preferred habitat for Goldenseal." However, the habitat assessment was not provided with the rest of the submittal package and therefore cannot be verified for accuracy. Additionally, the DTE Electric - Grenada Substation System Conduit Project Rare Herpetofauna Report, prepared by Herpetological Resource and Management, LLC and dated November 2024, lists habitat present on the site consistent with that needed for Goldenseal. Therefore, we request that the site-specific habitat assessment be submitted by the Applicant's Consultant for review and to allow confirmation of the conclusion made in the EIS.

If you have any questions regarding our review, please do not hesitate to contact me at (734) 466-4439.

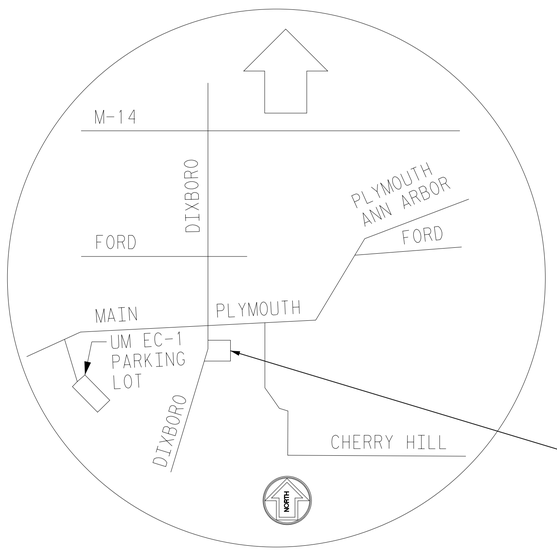
Sincerely,
OHM Advisors

_____
George Tsakoff, PE
Principal

cc: Angela Robinson, Township Clerk
Bill Balmes, CBO, Building Department
Ben Carlisle, CWA, Township Planner
Michelle Marin, CWA, Township Planner
Mariah Cummings, OHM



NORTH ARROW



GRENADA SUBSTATION
3270 N. DIXBORO RD.
ANN ARBOR, MI. 48105

SITE LOCATION MAP

SCALE: NONE

PLANNED PROJECT

GRENADA SUBSTATION

5A1329-1 SITE PLAN
5A1329-2 LANDSCAPE PLAN
5A1329-4 EXISTING CONDITIONS PLAN
5A1329-5 SITE PREPARATION AND DEMOLITION PLAN
5A1329-6 FENCE AND SERVICE DRIVE PLAN
5A1329-7 SITE DETAILS
5A1329-8 SOIL EROSION AND SEDIMENT CONTROL PLAN
5A1329-9 SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
5A1329-10 DECORATIVE FENCE AND GATE DETAILS
5M1329-1 STORMWATER MANAGEMENT PLAN
5M1329-2 STORMWATER DETAILS (1 OF 4)
5M1329-3 STORMWATER DETAILS (2 OF 4)
5M1329-4 STORMWATER DETAILS (3 OF 4)
5M1329-5 STORMWATER DETAILS (4 OF 4)

GRENADA SUBSTATION LANDSCAPE PLANS (FOR REFERENCE) - PEA:

L-1.0 LANDSCAPE PLAN
L-1.1 LANDSCAPE DETAILS
L-2.1 LANDSCAPE SPECIFICATIONS
L-2.2 LANDSCAPE SPECIFICATIONS
T-1.0 TREE PROTECTION AND REMOVAL PLAN
T-1.1 EXISTING TREE LIST

PROPERTY OWNER/APPLICANT/DEVELOPER:

DTE ENERGY - DTE ELECTRIC CO.
ONE ENERGY PLAZA
DETROIT, MI 48226-1279
(313)235-0177

ENGINEER:

BLACK & VEATCH LTD. OF MICHIGAN
3550 GREEN COURT
ANN ARBOR, MICHIGAN 48105
(734) 655-1000 FAX (734) 622-8816

ADDRESS:

GRENADA SUBSTATION
3270 N. DIXBORO RD.
ANN ARBOR, MI. 48105

NOTES TO CONTRACTOR:

1. THE CONTRACTOR IS RESPONSIBLE FOR SECURING CONSTRUCTION PERMITS FOR ALL JURISDICTIONAL AGENCIES.
2. APPROVAL BY WASHTENAW COUNTY DEPARTMENT OF ROADS IS REQUIRED FOR THE PROPOSED WORK WITHIN THE ROW (INCLUDING DRIVEWAYS).
3. APPROVAL BY WASHTENAW COUNTY SOIL EROSION OFFICE IS REQUIRED BY THE PROPOSED ACTIVITIES.
4. APPROVAL BY WASHTENAW COUNTY DRAIN IS REQUIRED FOR ANY RUNOFF DISCHARGE TO A WATER COURSE.
5. APPROVALS BY WASHTENAW COUNTY HEALTH DEPARTMENT IS REQUIRED FOR ALL PROPOSED WELL AND Sseptic SYSTEMS.
6. THE TOWNSHIP SHALL BE HELD HARMLESS FOR LIABILITIES OR DAMAGES OF ANY STORM, DRAINAGE, AND FLOODING ISSUES AS A RESULT OF THE PROPOSED ACTIVITIES.
7. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING POSITIVE DRAINAGE TO STORM WATER OUTLETS ON SITE TO ELIMINATE STANDING WATER IN VACANT AREAS DURING CONSTRUCTION.

DTE Energy

PROJECT DESCRIPTION

THIS PROJECT IS TO CONSTRUCT AN ELECTRICAL SUBSTATION WHICH WILL IMPROVE POWER RELIABILITY IN THE SURROUNDING AREAS. WORK INCLUDES OVERHEAD SUPPORT STRUCTURES, LIGHTNING MASTS, TRANSFORMERS, CIRCUIT BREAKERS, POWER DISTRIBUTION CONTROL EQUIPMENT, ITC CONTROL HOUSE, ACCESS DRIVES WITH SECURITY FENCE AND LIGHTING.

GRENADA SUBSTATION IS AN UN-OCCUPIED ELECTRIC SWITCHING/DISTRIBUTION SUBSTATION. AFTER CONSTRUCTION IS COMPLETE, AN OPERATOR WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH TO PERFORM ROUTINE MAINTENANCE AND DATA COLLECTION.

LEGAL DESCRIPTION

ALL THE PART OF SECTION 18, TOWN 2 SOUTH, RANGE 7 EAST, SUPERIOR TOWNSHIP, WASHTENAW COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT THE WEST 1/4 CORNER OF SECTION 18, AFORESAID; THENCE NORTH 02°30'36" EAST, 250.06 FEET ALONG THE WEST LINE OF SAID SECTION 18, (BEING COMMON TO THE EAST LINE OF SECTION 13, TOWN 2 SOUTH, RANGE 6 EAST); THENCE NORTH 89°20'20" EAST, 33.64 FEET TO THE SOUTHWEST CORNER OF LOT 13 ON THE PLAT OF THE VILLAGE OF DIXBORO, AS RECORDED IN LIBER A ON PAGE 272, WASHTENAW COUNTY RECORDS; THENCE NORTH 02°29'40" EAST, 74.00 FEET ALONG THE WEST LINE OF SAID LOT 134; THENCE NORTH 89°20'20" EAST, 230.90 FEET (ALSO RECORDED AS 231.00 FEET); THENCE NORTH 02°29'40" EAST, 30.00 FEET ALONG THE LINE COMMON TO LOTS 14 AND 15 ON SAID PLAT OF THE VILLAGE OF DIXBORO; THENCE NORTH 89°20'20" EAST, 215.91 FEET; THENCE SOUTH 02°29'40" WEST, 371.38 FEET; THENCE NORTH 88°35'40" WEST, ALONG THE SOUTH LINE OF THREE PARCELS OF LAND AS MONUMENTED AND DESCRIBES IN WARRANTY DEEDS RECORDED IN LIBER 1528, PAGE 598, LIBER 1535, PAGE 253, AND LIBER 1674, PAGE 890, WASHTENAW COUNTY RECORDS TO THE POINT OF BEGINNING, BEING PART OF LOTS 13, 14, 15, 16, AND 17 ON THE SAID PLATE OF THE VILLAGE OF DIXBORO. RESERVING AN EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF UTILITY LINES AND EQUIPMENT OF THE SOUTHERLY 20 FEET OF THE SUBJECT PROPERTY FOR THE BENEFIT OF THE PROPERTY LYING ADJACENT AND TO THE EAST OF THE ABOVE DESCRIBED PROPERTY.

QUANTITATIVE SUMMARY

TOTAL ACREAGE OF LAND AREA: 3.76 ACRES

ELECTRICAL EQUIPMENT SUMMARY:

* DTE PDC EQUIPMENT ENCLOSURE: AREA = 116 SFT / HEIGHT = 12 FT / USE = UTILITY
* REPLACEMENT PDC EQUIPMENT ENCLOSURES: AREA = 116 SFT / HEIGHT = 12 FT / USE = UTILITY
* LOT COVERAGE = 0.93 AC / 3.76 AC = 25%
* LIGHTNING MASTS - HEIGHT = 50 FT
* TRANSFORMER - HEIGHT = 13 FT

STRUCTURE COUNT ONLY INCLUDES CONTROL ENCLOSURE AND DOES NOT INCLUDE EXTERIOR ELECTRICAL EQUIPMENT.

GROUND FLOOR COVERAGE/FLOOR AREA RATIO:

SITE DOES NOT INCLUDE "BUILDINGS", ONLY ELECTRICAL DISTRIBUTION EQUIPMENT. THE AREA OF ELECTRICAL EQUIPMENT REPLACES THE AREA OF PRINCIPLE/ACCESSORY BUILDINGS FOR THIS CALCULATION.

EQUIPMENT AREA (PDC #1, TRANS #4/#5, CAP BANKS): 440 SF
NET LOT AREA: 163,785.6 SF
GFC = 440/163,785.6 = 0.27%

SITE ZONING:

* DESIGNATION: R4 (SINGLE FAMILY RESIDENTIAL)
* FRONT SETBACK: 25'
* REAR SETBACKS: 35'
* SIDE SETBACKS: 16'

GENERAL NOTES

DURING CONSTRUCTION APPROXIMATELY 2.5 ACRES OF LAND WILL BE DISTURBED. THE EXPANSION OF THE SUBSTATION PAD WILL BE A TOTAL OF 0.93 ACRES AND THE REMAINING CONSTRUCTION OUTSIDE OF THE PAD FOR GRADING, STORMWATER, AND LANDSCAPING, WILL BE APPROXIMATELY 1.57 ACRES.

GRENADA SUBSTATION IS AN UN-OCCUPIED ELECTRIC SWITCHING/DISTRIBUTION SUBSTATION. AFTER CONSTRUCTION IS COMPLETE, AN OPERATOR WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH TO PERFORM ROUTINE MAINTENANCE AND DATA COLLECTION.

THERE WILL NOT BE CONNECTIONS TO PUBLIC SEWER AND WATER UTILITIES AT THIS SITE.

THIS FACILITY WILL GENERATE LESS THAT 100 PEAK HOUR DIRECTIONAL TRIPS. DURING UNDERGROUND UTILITY CONSTRUCTION, DIXBORO ROAD WILL REMAIN OPEN AND HAVE MINIMAL IMPACTS TO TRAFFIC.

SITE TRANSFORMER MAY EMIT LOW LEVEL NOISE. THIS NOISE WILL BE ATTENUATED BY HAVING TRANSFORMERS SETBACK 120 FT FROM THE ADJACENT PROPERTY LINES.

CONSTRUCTION PHASING NOTES

PHASE 1: CONTRACTOR TO CLEAR SITE AND ROUGH GRADE PROPOSED SUBSTATION PAD. INSTALL FOUNDATIONS AND ALL UNDERGROUND UTILITIES FOR ELECTRICAL AND CIVIL. INSTALL TRANSFORMER #4 AND #5, PDC #1, AND CAP BANKS PER PLANS.
PHASE 2: TRANSFER ELECTRICAL LOAD TO NEW ELECTRICAL DISTRIBUTION EQUIPMENT AND DECOMISSION EXISTING SUBSTATION.
PHASE 3: RESTORE SITE TO FINISH GRADE PER PLANS AND FURNISH PROPOSED LANDSCAPING.

PRELIMINARY

DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
6/4/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
4/1/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
11/24/25	WASHTENAW COUNTY PERMITTING
DATE	SUBMITTED FOR
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

SITE INFORMATION:

EXISTING AND PROPOSED LAND USE:
ELECTRICAL SUBSTATION EXPANSION
(120-40kV)

EXISTING AND PROPOSED ZONING CLASSIFICATION:
R4 (SINGLE FAMILY RESIDENTIAL)

ADJACENT ZONING CLASSIFICATIONS:
NORTH: R4 (SINGLE-FAMILY RESIDENTIAL)
SOUTH: R1 (SINGLE-FAMILY RESIDENTIAL)
EAST: PSP (PUBLIC/SEMI PUBLIC SERVICES)
WEST: PUD (PLANNED UNIT DEVELOPMENT)
VC: VILLAGE CENTER

SITE AREA:
163,606.77 S.F. (3.76 ACRES)

SETBACKS:
FRONT: 25'
SIDES: 16'
REAR: 35'
45% LOT COVERAGE (SUBSTATION PAD)

PROPERTY OWNER/ APPLICANT/DEVELOPER:

DTE ENERGY - DTE ELECTRIC CO.
ONE ENERGY PLAZA
DETROIT, MI 48226-1279
(313)235-0177

ENGINEER:

BLACK & VEATCH LTD. OF MICHIGAN
3550 GREEN COURT
ANN ARBOR, MICHIGAN 48105
(734) 665-1000 FAX (734) 622-8816

ADDRESS:

3270 N. DIXBORO RD.
ANN ARBOR, MI. 48105

WETLAND NOTE:

NO REGULATED OR UNREGULATED WETLANDS PRESENT WITHIN THE SUBJECT PARCEL BOUNDARY.

UTILITY WARNING:

UNDERGROUND UTILITY LOCATIONS, AS SHOWN ON THE PLAN, WERE OBTAINED FROM TOPOGRAPHIC SURVEY DRAWING NUMBER 5SE 1502-001 DATED 5/19/2022. THE ACCURACY AND COMPLETENESS OF THE UTILITY INFORMATION CAN NOT BE GUARANTEED.

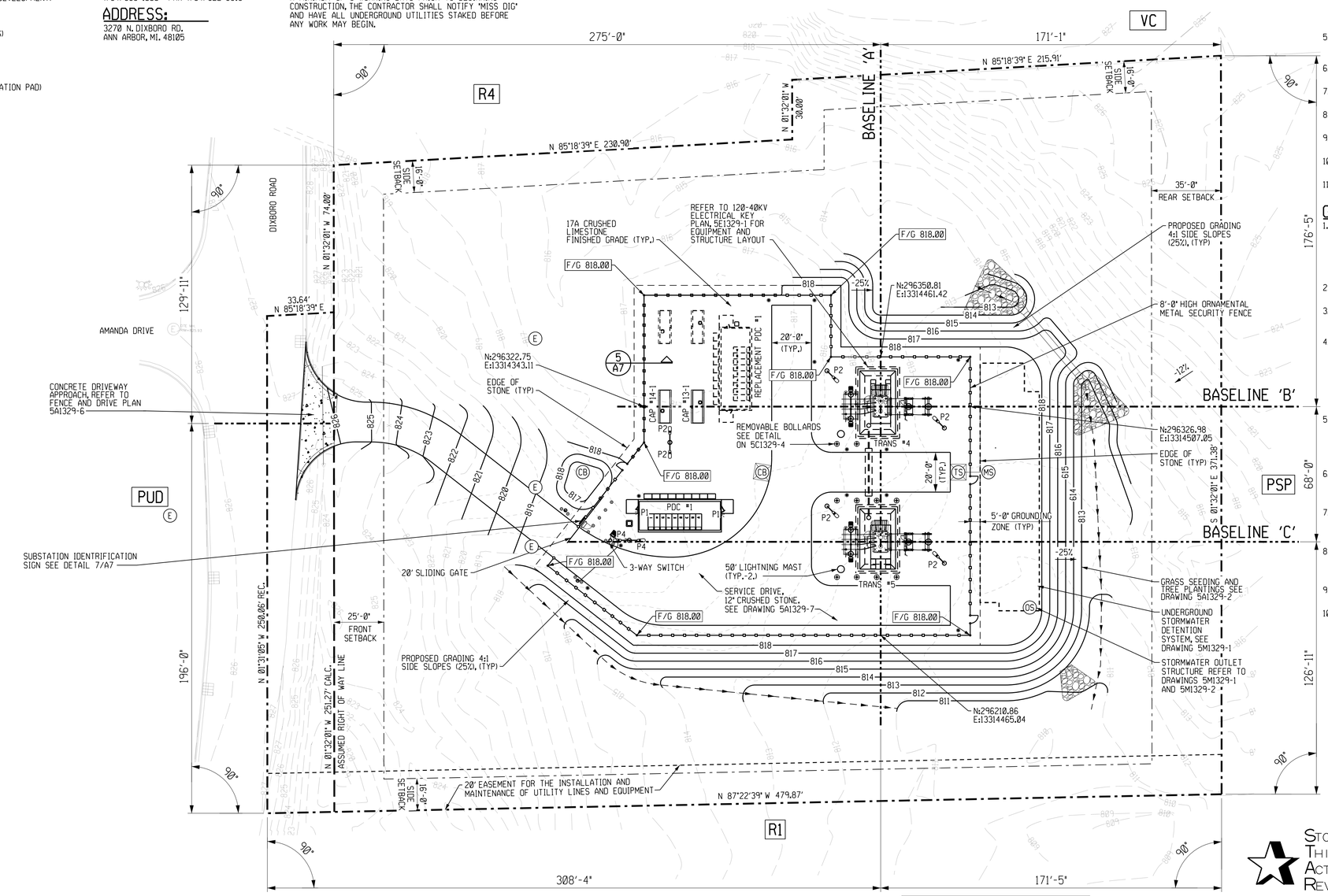
A MINIMUM OF 3 WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY "MISS DIG" AND HAVE ALL UNDERGROUND UTILITIES STAKED BEFORE ANY WORK MAY BEGIN.

FLOODPLAIN NOTE:

SITE IS WITHIN ZONE 'X' AREA DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN, PER FLOOD INSURANCE RATE MAP NUMBER 26161C0266E, DATED APRIL 3, 2012.

NORTH ARROW

SITE LIGHTING FIXTURE TABLE (SEE NOTE 4)			
FIXTURE	QTY	LABEL	DESCRIPTION
	2	P1	LITHONIA MRW LED P1 SP2 30K MVOLT
	6	P2	LITHONIA DSXI LED P2 35K 80CRI TFTM
	2	P4	LITHONIA DSXI LED P4 35K 80CRI TFTM

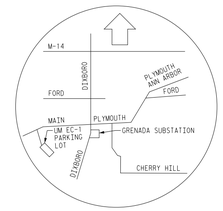


GENERAL NOTES:

1. SEE 5A1329-4 FOR PARCEL DESCRIPTION. ALL EXISTING INFORMATION SHOWN IS OBTAINED FROM THE SURVEY DRAWING PREPARED BY DTE ENERGY'S SURVEYING SERVICE. DWG. 6SE-1329-002, DATED: 07-17-2023.
2. REFER TO DRAWING 5A1329-2 FOR LANDSCAPING AND RESTORATION.
3. FIELD TO VERIFY CONDITIONS THAT AFFECT THE WORK. INFORM THE ARCHITECTS/ENGINEERS OF ANY DISCREPANCIES IN DIMENSIONS, SIZE, LOCATIONS AND CONDITIONS BEFORE PROCEEDING WITH THE WORK.
4. STATION LIGHTING: EXTERIOR LIGHTING CONSISTS OF LED WALLPACK LIGHTS MOUNTED ON THE PDC AND RESTROOM WALLS NEAR EACH DOORWAY. LITHONIA D-SERIES DSXI LED LIGHT FIXTURES MOUNTED ON 15' TALL SQUARE STRAIGHT STEEL POLES FOR GENERAL SITE LIGHTING. LIGHTS ARE NORMALLY OFF EXCEPT DURING EMERGENCY SWITCHING OR MAINTENANCE OPERATIONS. REFER TO THIS DRAWING FOR LIGHTING FIXTURE TABLE AND FIXTURE LOCATIONS.
5. THIS FACILITY WILL NOT BE USED FOR OUTDOOR STORAGE OF ANY ADDITIONAL MATERIAL OTHER THAN PROPOSED ELECTRICAL EQUIPMENT ON PLANS.
6. CALL 'MISS DIG' (811) 3 WORKING DAYS PRIOR TO START OF CONSTRUCTION.
7. THERE WILL BE NO TRASH RECEPTACLES ON SITE, NO TRASH WILL BE LEFT ON SITE OVERNIGHT.
8. PROVIDE SEDIMENTATION CONTROLS AS INDICATED ON PLANS. REFER TO SOIL EROSION PLAN 5A1329-8.
9. THE OWNER, DTE ELECTRIC COMPANY, SHALL BE RESPONSIBLE FOR MAINTAINING ALL OPEN AREAS ON SITE.
10. PROPOSED STORM STRUCTURE, REFER TO M-DRAWINGS FOR STORMWATER MANAGEMENT PLAN AND DETAILS.
11. ALL AGGREGATE MATERIALS SHALL COMPLY WITH PROJECT CONSTRUCTION SPECIFICATION SECTION 312000, 334600, AND 312302.

GRADING NOTES:

1. ALL UNSUITABLE MATERIAL (TOP SOIL, ORGANICS, ETC.) TO BE STRIPPED FROM AREA COMPRISING DTE STATION BOUNDARY. ANY BACKFILL MATERIAL NEEDED IS TO MEET MDOT CLASS II SPECIFICATION, COMPACT BACKFILL IN 8" LIFTS TO 95% MAX. DENSITY AS DETERMINED BY MODIFIED PROCTOR TEST (ASTM D1557) ENGINEER TO APPROVE THIS FILL MATERIAL PRIOR TO ITS INSTALLATION.
2. SITE GRADING SHALL BE 4:1 SLOPES OR LESS PER SUPERIOR TOWNSHIP UNLESS NOTES OTHERWISE ON PLANS.
3. ALL EXCAVATED MATERIALS THAT CANNOT BE RE-USED SHALL BE DISPOSED OF AT AN APPROVED FACILITY IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
4. PROTECT IMPROVEMENTS ON ADJOINING PROPERTIES AS WELL AS THOSE ON DTE ELECTRIC COMPANY'S PROPERTY. RESTORE ANY IMPROVEMENTS DAMAGED BY THIS WORK TO THEIR ORIGINAL CONDITION, AS ACCEPTABLE TO DTE ELECTRIC COMPANY OR OTHER PARTIES OR AUTHORITIES HAVING JURISDICTION. PROVIDE AND MAINTAIN SHORING, BRACING, SHEET PILING, UNDERPINNING OR OTHER TEMPORARY WORK AS REQUIRED TO PREVENT CAVE-INS AND TO PROTECT ADJACENT PROPERTY. PROVIDE SAFETY FENCING AROUND EXCAVATIONS AS REQUIRED TO PROTECT THE PUBLIC.
5. THE SUBGRADE SHALL BE THOROUGHLY PROOF-ROLLED WITH A HEAVY RUBBER-TIRED VEHICLE SUCH AS A LOADED SCRAPER OR LOADED DUMP TRUCK. ANY AREAS THAT EXHIBIT EXCESSIVE PUMPING AND YIELDING DURING PROOF-ROLLING SHALL BE STABILIZED BY AERATION, DRYING AND COMPACTION IF WEATHER CONDITIONS ARE FAVORABLE OR REMOVAL AND REPLACEMENT WITH ENGINEERED FILL.
6. DO NOT PLACE, SPREAD OR COMPACT ANY FILL MATERIAL DURING UNFAVORABLE WEATHER CONDITIONS AND DO NOT RESUME COMPACTION OPERATIONS UNTIL MOISTURE CONTENT AND DENSITY OF IN-PLACE FILL MATERIAL ARE WITHIN SPECIFIED LIMITS.
7. PLACE FILL MATERIAL IN 8" MAXIMUM LIFTS AND COMPACT TO 95% MODIFIED PROCTOR DRY DENSITY (ASTM D-1557) W/-3% TO +3% OPTIMUM WATER CONTENT. FILL MATERIAL SHALL BE FREE FROM ORGANIC MATTER, DEBRIS AND OTHER DELETERIOUS SUBSTANCES.
8. TESTING FREQUENCY
   COMPACTION TESTING
   SUBGRADE: ONE TEST PER 2,500 SQ. FT.
   GRANULAR FILL: ONE TEST PER 2,500 SQ. FT. PER LIFT
9. GRANULAR BACKFILL MATERIAL SHALL BE CLASS II GRANULAR SAND MATERIAL PER SECTION 902 OF MICHIGAN DOT SPECIFICATIONS.
10. ALL DISTURBED AREAS OUTSIDE OF SUBSTATION PAD SHALL BE RESTORED WITH GRASSES AND NATIVE PLANTS TO NATURAL CONDITIONS. REFER TO LANDSCAPE PLAN 5A1329-2.



SITE LOCATION MAP
1 MILE

LEGEND:

- PROPERTY LINE
- PROPOSED ORNAMENTAL FENCE
- EXISTING FENCE
- RIGHT-OF-WAY
- SETBACKS
- STORM/WATER UTILITY EASEMENT
- EDGE OF STONE
- EXISTING FIRE HYDRANT
- EXISTING WATER SHUT OFF
- EXISTING ELECTRICAL MANHOLE
- EXISTING CATCH BASIN
- ABANDONED CONTOUR
- EXISTING CONTOURS
- PROPOSED CONTOURS
- CABLE TRENCH
- CLEANOUT
- (MH) PROPOSED STORM MANHOLE
- (E) UNDERGROUND CONDUIT MANHOLE
- (OS) PROPOSED STORM OUTLET STRUCTURE
- (CB) PROPOSED CATCH BASIN
- REMOVABLE BOLLARD
- FIXED BOLLARD
- CARD READER
- DRAINAGE FLOW
- XXX.XX PROPOSED SPOT GRADE
- PROPOSED DRAINAGE SWALE CENTERLINE
- CONCRETE PAVEMENT
- LM ZONING IDENTIFICATION

REFERENCE DRAWINGS:

LANDSCAPE PLAN	5A1329-2
MASONRY TRANSFORMER ENCLOSURE PLAN, ELEVATIONS & SECTIONS	6A1329-3
EXISTING CONDITIONS PLAN	5A1329-4
SITE PREPARATION AND DEMOLITION PLAN	5A1329-5
FENCE AND SERVICE DRIVE PLAN	5A1329-6
SITE DETAILS	5A1329-7
SOIL EROSION AND SEDIMENT CONTROL PLAN	5A1329-8
SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	5A1329-9
DECORATIVE FENCE AND GATE DETAILS	5A1329-10
STORMWATER MANAGEMENT PLAN	5M1329-1
STORMWATER DETAILS (1 OF 4)	5M1329-2
STORMWATER DETAILS (2 OF 4)	5M1329-3
STORMWATER DETAILS (3 OF 4)	5M1329-4
STORMWATER DETAILS (4 OF 4)	5M1329-5

DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
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6/4/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
4/1/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

STOP THINK ACT REVIEW

Know what's below. Call before you dig.

PRELIMINARY
NOT FOR CONSTRUCTION

0 30 60
SCALE IN FEET

SHARED DRAWING
INFORMATION ON DRAWING SHARED WITH ITC HOLDINGS CORP.

REV	NOTE TO FIELD
B	FOR ANY QUESTIONS ON THIS DESIGN, PLEASE CONTACT:
	PROJECT ENGINEER
	ERIC M. MYRICK (313)235-6728

C	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

WO

MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

B	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

EXISTING SUBSTATION DECOMMISIONED AND DEMOLISHED. NEW SUBSTATION REDRAWN IN MICROSTATION AND SHEET SIZE CHANGED FROM SIZE 6 TO 5. DRAWING RENAMED FROM PLOT PLAN TO SITE PLAN.

GRENA-PDL-A-69084198 WO 69084198

MADE BY	DATE	ACT	RELAY
ZEW/BV	4/1/26		
CH'K BY	DATE	EPPM	APVD FOR ISSUE
GJE/BV	4/1/26		

A	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

ADDED GRASS PAVER DRIVE ALONG NORTH PROPERTY LINE.

PROJECT NO RFW NO 9GA6A

MADE BY	DATE	ACT	RELAY
G.K.YEE	4-25-91		
CH'K BY	DATE	EPPM	APVD FOR ISSUE
D.KELLY	4-26-91		D.M.KELLY

APPROVALS		
	OTHER	DATE
RELAY		
EPPM		
ACT		
OTHERS		

ENGINEERING	
MADE BY	DATE
GORDON K. YEE	9/27/89
LAYOUT BY	DATE
CHECKED BY	DATE
DENNIS M. KELLY	9/27/89
PROJECT DESIGN/ELECT	DATE
M. HUDAH	9/27/89
PROJECT DESIGN/ACT	DATE
D. M. KELLY	9/27/89
APPROVED FOR ISSUE	DATE

DTE Energy *DTE Electric* *Central Design/Standards*

TITLE
SITE PLAN

LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	1"=30'-0"
DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST
5A1329-1		

DOCUMENTUM FILENAME
GRENA-A-0001

c:\pw working\bve powerdelivery\na rob106660\d3311542\GRENA-A-0001.dgn
6/3/2026 / Rob106660

LANDSCAPE CALCULATIONS PER SUPERIOR TWP. ZONED (R-4) SINGLE FAMILY RESIDENTIAL:

GREENBELT BUFFER

REQUIRED: 1 TREE AND 3 SHRUBS / 15 LF, WITH UP TO 50% OF TREES COUNTING TOWARD TREE REPLACEMENT

NORTH BOUNDARY: 446.81 LF / 15 • 3 = 30 TREES AND 90 SHRUBS

DIXBORO RD: 250 LF - 20 (ACCESS DRIVE) = 230 / 15 • 3 = 18 TREES AND 46 SHRUBS

EAST BOUNDARY: 317.39 LF / 15 • 3 = 21 TREES AND 64 SHRUBS

SOUTH BOUNDARY: 479.88 LF / 15 • 3 = 32 TREES AND 96 SHRUBS

TOTAL REQUIRED TREES: 30+18+21+32=101
101• 0.5 = 50 TREES COUNTING TOWARD REPLACEMENT

PROVIDED

NORTH BOUNDARY: 90 30" HT. SHRUBS AND 30 EVG REPLACEMENT TREES

DIXBORO RD: 15 DEC TREES AND 46 SHRUBS

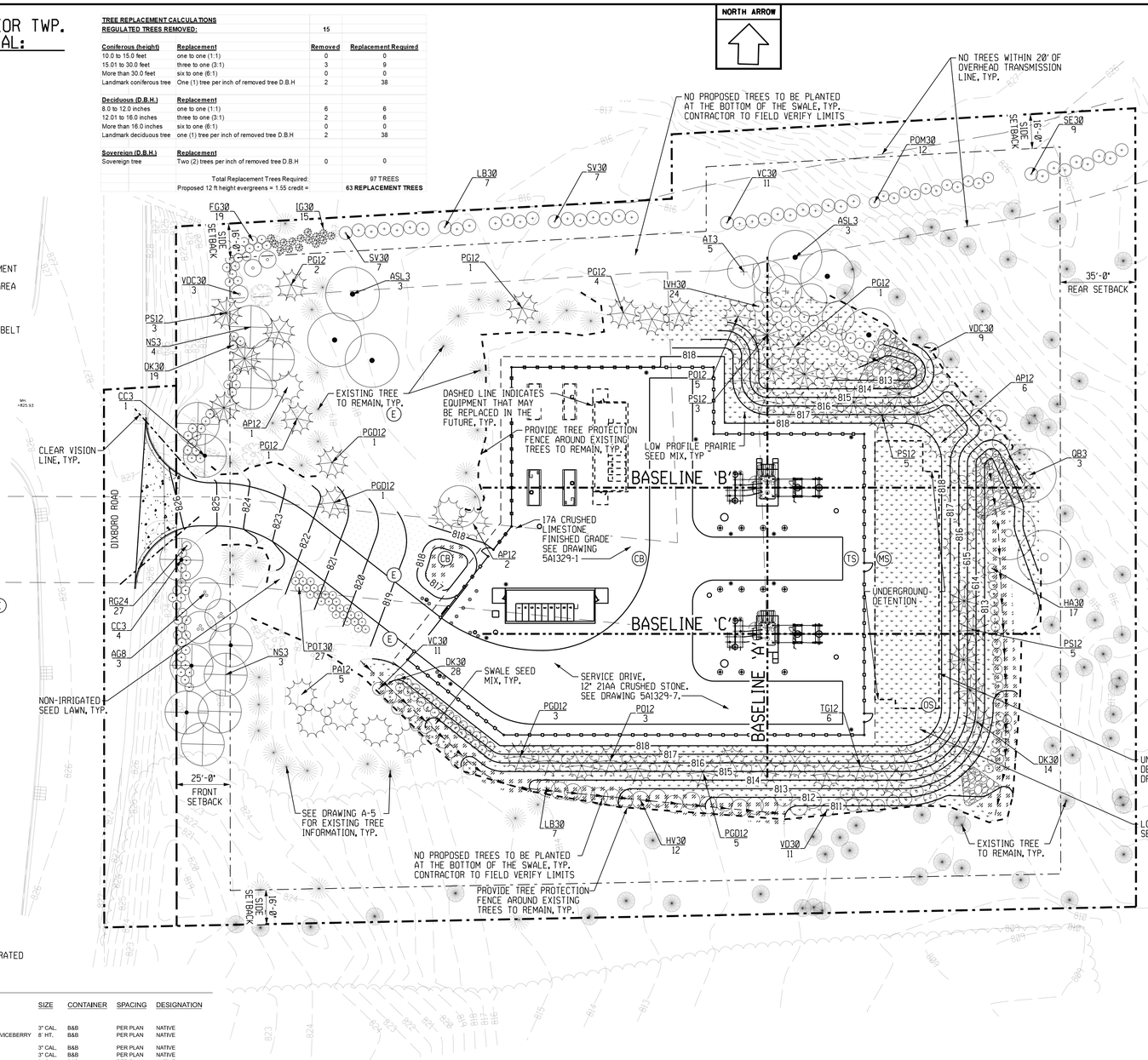
EAST BOUNDARY: 64 30" SHRUBS AND 11 DEC TREES AND 1 EVG REPLACEMENT TREE
9 TREES NOT PROVIDED DUE TO LACK OF SPACE IN HEAVILY WOODED AREA

SOUTH BOUNDARY: 96 30" SHRUBS AND 19 EVG REPLACEMENT TREES
11 NOT PROVIDED DUE TO LACK OF SPACE IN HEAVILY WOODED AREA

NOTE: TOTAL OF 50 EVG REPLACEMENT TREES COUNTING TOWARD GREENBELT TREES

TREE REPLACEMENT CALCULATIONS

REGULATED TREES REMOVED:		15	
Coniferous (height)	**Replacement**	**Removed**	**Replacement Required**
10.0 to 15.0 feet	one to one (1:1)	0	0
15.01 to 30.0 feet	three to one (3:1)	3	9
More than 30.0 feet	six to one (6:1)	0	0
Landmark coniferous tree	One (1) tree per inch of removed tree D.B.H	2	38
Deciduous (D.B.H.)	**Replacement**		
8.0 to 12.0 inches	one to one (1:1)	6	6
12.01 to 16.0 inches	three to one (3:1)	2	6
More than 16.0 inches	six to one (6:1)	0	0
Landmark deciduous tree	one (1) tree per inch of removed tree D.B.H	2	38
Sovereign (D.B.H.)	**Replacement**		
Sovereign tree	Two (2) trees per inch of removed tree D.B.H	0	0
	Total Replacement Trees Required:		97 TREES
	Proposed 12 ft height evergreens = 1.55 credit =		**63 REPLACEMENT TREES**



0 30 60
SCALE IN FEET

NOTE:

ALL PLANT SELECTIONS HAVE BEEN CHOSEN FOR THEIR DEMONSTRATED RESISTANCE TO DEER BROWSING.

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	DESIGNATION
DECIDUOUS TREES							
ASL3	6	ACER SACCHARUM 'LEGACY'	LEGACY SUGAR MAPLE	3" CAL.	B&B	PER PLAN	NATIVE
AG8	3	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE' MULTI-TRUNK	AUTUMN BRILLIANCE SERVICEBERRY	8' HT.	B&B	PER PLAN	NATIVE
AT3	5	ASIMINA TRILOBA	PAWPAW	3" CAL.	B&B	PER PLAN	NATIVE
CC3	5	CERCIS CANADENSIS	EASTERN REDBUD	3" CAL.	B&B	PER PLAN	NATIVE
NS3	7	NYSSA SYLVATICA	TUPELO	3" CAL.	B&B	PER PLAN	NATIVE
QB3	3	QUERCUS BICOLOR	SWAMP WHITE OAK	3" CAL.	B&B	PER PLAN	NATIVE
	29	SUBTOTAL:					
EVERGREEN TREES							
AP12	9	ABIES BALSAMEA PHANEROLEPIS	CANAAN BALSAM FIR	12' HT.	B&B	PER PLAN	NATIVE
PA12	5	PICEA ABIES	NORWAY SPRUCE	12' HT.	POT	PER PLAN	NON-NATIVE
PG12	9	PICEA GLAUCA	WHITE SPRUCE	12' HT.	B&B	PER PLAN	NATIVE
PGD12	10	PICEA GLAUCA 'DENSATA'	BLACK HILLS SPRUCE	12' HT.	B&B	PER PLAN	NATIVE
PO12	8	PICEA OMORIKA	SERBIAN SPRUCE	12' HT.	B&B	PER PLAN	NON-NATIVE
PS12	16	PINUS STROBUS	EASTERN WHITE PINE	12' HT.	B&B	PER PLAN	NATIVE
TG12	6	THUJA STANDISHII X PLICATA 'GREEN GIANT'	GREEN GIANT ARBORVITAE	12' HT.	B&B	PER PLAN	ADAPTED NATIVE
	63	SUBTOTAL:					

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	DESIGNATION
SHRUBS							
DK30	61	DIERVILLA X 'GX08544'	KODIAK® ORANGE DIERVILLA	30"HT.	B&B OR CONT.	4' O.C.	ADAPTED NATIVE
FG30	19	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	30" HT.	B&B OR CONT.	4' O.C.	ADAPTED NATIVE
HV30	12	HAMAMELIS VIRGINIANA	COMMON WITCH HAZEL	30" HT.	B&B OR CONT.	10' O.C.	NATIVE
IG30	32	ILEX GLABRA	INKBERRY HOLLY	30" HT.	B&B OR CONT.	4' O.C.	ADAPTED NATIVE
IVH30	24	ITEA VIRGINICA 'HENRY'S GARNET' SWEETSPIRE	HENRY'S GARNET SWEETSPIRE	30" HT.	B&B OR CONT.	5' O.C.	ADAPTED NATIVE
LB30	14	LINDERA BENZOIN	SPICEBUSH	30" HT.	B&B OR CONT.	6' O.C.	NATIVE
POM30	12	PHYSOCARPUS OPULIFOLIUS 'MONLO'	DIABOLO® NINEBARK	30" HT.	B&B OR CONT.	5' O.C.	NATIVE
POT30	27	PHYSOCARPUS OPULIFOLIUS 'TINY WINE'	TINY WINE NINEBARK	30"HT.	B&B OR CONT.	42" O.C.	NATIVE
RG24	27	RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	24" SPRD	B&B OR CONT.	4' O.C.	NATIVE
SE30	9	SAMBUCUS CANADENSIS	AMERICAN ELDERBERRY	30"HT.	CONT.	8' O.C.	NATIVE
SV30	14	SYRINGA VULGARIS 'SENSATION'	SENSATION LILAC	30" HT	CONT.	8' O.C.	NON-NATIVE
VD30	11	VIBURNUM DENTATUM 'ARROWWOOD'	ARROWWOOD VIBURNUM	30"HT.	B&B OR CONT.	6' O.C.	NATIVE
VDC30	12	VIBURNUM DENTATUM 'CHICAGO LUSTRE'	CHICAGO LUSTRE VIBURNUM	30" HT.	B&B OR CONT.	8' O.C.	NATIVE
VC30	22	VIBURNUM TRILOBUM 'WENTWORTH'	WENTWORTH AMERICAN CRANBERRYBUSH	30" HT.	B&B OR CONT.	6' O.C.	NATIVE
	296	SUBTOTAL:					

GENERAL PLANTING NOTES:

1. LANDSCAPE CONTRACTOR SHALL VISIT SITE, INSPECT EXISTING SITE CONDITIONS AND REVIEW PROPOSED PLANTING AND RELATED WORK. IN CASE OF DISCREPANCY BETWEEN PLAN AND PLANT LIST, PLAN SHALL GOVERN QUANTITIES. CONTACT LANDSCAPE ARCHITECT WITH ANY CONCERNS.
2. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ON SITE UTILITIES PRIOR TO BEGINNING CONSTRUCTION ON HIS/HER PHASE OF WORK. ELECTRIC, GAS, TELEPHONE, CABLE TELEVISION MAY BE LOCATED BY CALLING MISS DIG 1-800-482-7171. ANY DAMAGE OR INTERRUPTION OF SERVICES SHALL BE THE RESPONSIBILITY OF CONTRACTOR. CONTRACTOR SHALL COORDINATE ALL RELATED ACTIVITIES WITH OTHER TRADES ON THE JOB AND SHALL REPORT ANY UNACCEPTABLE JOB CONDITIONS TO OWNER'S REPRESENTATIVE PRIOR TO COMMENCING.
3. ALL PLANT MATERIAL TO BE PREMIUM GRADE NURSERY STOCK AND SHALL SATISFY AMERICAN ASSOCIATION OF NURSERYMEN STANDARD FOR NURSERY STOCK. ALL LANDSCAPE MATERIAL SHALL BE NORTHERN GROWN, NO. 1. GRADE.
4. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON LANDSCAPE PLAN PRIOR TO PRICING THE WORK.
5. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL NOT MEETING SPECIFICATIONS.
6. ALL SINGLE STEM SHADE TREES TO HAVE STRAIGHT TRUNKS AND SYMMETRICAL CROWNS.
7. ALL SINGLE TRUNK SHADE TREES TO HAVE A CENTRAL LEADER; TREES WITH FORKED OR IRREGULAR TRUNKS WILL NOT BE ACCEPTED.
8. ALL MULTI STEM TREES SHALL BE HEAVILY BRANCHED AND HAVE SYMMETRICAL CROWNS. ONE SIDED TREES OR THOSE WITH THIN OR OPEN CROWNS SHALL NOT BE ACCEPTED.
9. ALL EVERGREEN TREES SHALL BE HEAVILY BRANCHED AND FULL TO THE GROUND, SYMMETRICAL IN SHAPE AND NOT SHEARED FOR THE LAST FIVE GROWING SEASONS.
10. ALL TREES TO HAVE CLAY OR CLAY LOAM BALLS, TREES WITH SAND BALLS WILL BE REJECTED.
11. NO MACHINERY IS TO BE USED WITHIN THE DRIP LINE OF EXISTING TREES; HAND GRADE ALL LAWN AREAS WITHIN THE DRIP LINE OF EXISTING TREES.
12. ALL TREE LOCATIONS SHALL BE STAKED BY LANDSCAPE CONTRACTOR AND ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OF THE PLANT MATERIAL.
13. IT IS MANDATORY THAT POSITIVE DRAINAGE IS PROVIDED AWAY FROM ALL BUILDINGS.
14. ALL LANDSCAPED AREAS SHALL RECEIVE 3" COMPACTED TOPSOIL.
15. SEE SPECIFICATIONS FOR ADDITIONAL COMMENTS, REQUIREMENTS, PLANTING PROCEDURES AND WARRANTY STANDARDS.
16. FOR NON-LAWN SEED MIX AREAS, AS NOTED ON PLAN, BRUSH MOW ONCE SEASONALLY FOR INVASIVE SPECIES CONTROL.
17. CONTRACTOR SHALL NOT INSTALL PLANTS UNDER BUILDING OVERHANG AND SHALL NOTIFY LANDSCAPE ARCHITECT IF DRAWINGS CONFLICT WITH BUILDING OVERHANGS.
18. TREES SHALL NOT CONFLICT/ BLOCK PROPOSED REGULATORY/ DIRECTION SIGNAGE, MONUMENT SIGNS, ADDRESS OR LIGHT POLES. SHIFT TREES AS NECESSARY TYP.

TREE LEGEND:

- PROPOSED REPLACEMENT EVERGREEN TREES
- EXISTING TREES TO REMAIN
- PROPOSED DECIDUOUS GREENBELT TREES
- PROPOSED DECIDUOUS GREENBELT SHRUBS
- SWALE SEED MIX SEEL L-1.1 FOR SEED MIX INFO
- LOW ECONOMY PRAIRIE SEED MIX SEEL L-1.1 FOR SEED MIX INFO
- LOW IRRIGATED SEED LAWN
- TREE PROTECTION FENCE

SEE SPECIFICATION 39 92 00 FOR SEED MIXTURE SPECIFICATION AND APPLICATION RATE.

LEGEND:

- PROPERTY LINE
- PROPOSED FENCE
- SETBACK LINE
- RIGHT-OF-WAY
- EXISTING CONTOURS
- ABANDONED CONTOURS
- PROPOSED CONTOURS
- EDGE OF STONE
- CONCRETE PAVEMENT
- XXX.XX — PROPOSED SPOT GRADE
- PROPOSED DRAINAGE SWALE CENTERLINE
- EXISTING CATCH BASIN
- (CB) PROPOSED CATCH BASIN
- (MH) PROPOSED STORM STRUCTURE
- (E) UNDERGROUND CONDUIT MANHOLE
- (OS) PROPOSED STORM OUTLET STRUCTURE
- (TS) TREATMENT STRUCTURE
- REMOVABLE BOLLARD
- FIXED BOLLARD
- CARD READER
- EXISTING TREELINE

REFERENCE DRAWINGS:

SITE PLAN	5A1329-1
SOIL EROSION AND SEDIMENT CONTROL PLAN	5A1329-8
SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	5A1329-9
LANDSCAPE DETAILS	5A1329-10
STORMWATER MANAGEMENT PLAN	5M1329-1

PRELIMINARY
NOT FOR CONSTRUCTION

REV	NOTE TO FIELD
–	FOR ANY QUESTIONS ON THIS DESIGN, PLEASE CONTACT:
	PROJECT ENGINEER
	ERIC M. MYRICK
	(313)235-6728

STOP THINK ACT REVIEW

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

DATE	SUBMITTED FOR
4/1/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

D	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

WO

MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

C	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

EXISTING SUBSTATION TO BE DECOMMISIONED AND DEMOLISHED. NEW SUBSTATION REDRAWN IN MICROSTATION AND SHEET SIZE CHANGED FROM SIZE 6 TO 5.

GRENA-PDL-A-69084198 wo69084198

MADE BY	DATE	ACT	RELAY
ZEW/BV	4/1/26		
CH'K BY	DATE	EPPM	APVD FOR ISSUE
GJE/BV	4/1/26		

B	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

ADDED GRASS PAVER DRIVE ALONG NORTH PROPERTY LINE.

PROJECT NO RFW NO 9GA6A

MADE BY	DATE	ACT	RELAY
G.K.YEE	4-25-91		
CH'K BY	DATE	EP&PM	APVD FOR ISSUE
D.KELLY	4-26-91		D.M.KELLY

A	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

RELOCATE 4 NORWAY SPRUCE AWAY FROM SUBSTATION DRIVE.

PROJECT NO RFW NO 9GA6A

MADE BY	DATE	ACT	RELAY
G.K.YEE	4-10-90		
CH'K BY	DATE	EP&PM	APVD FOR ISSUE
D.KELLY	4-11-90		D.M.KELLY

APPROVALS		
OTHER		DATE
RELAY		
EPPM		
ACT		
OTHERS		

ENGINEERING	
MADE BY	DATE
GORDON K. YEE	9-27-89
LAYOUT BY	DATE
CHECKED BY	DATE
DENNIS M. KELLY	9-27-89
PROJECT DESIGN/ELECT	DATE
JOHN JAMESON	9-27-89
PROJECT DESIGN/ACT	DATE
BORIS A. JAKOWENKO	10-16-89
APPROVED FOR ISSUE	DATE
D.M. KELLY	9-27-89

DTE Energy *DTE Electric* *Central Design/Standards*

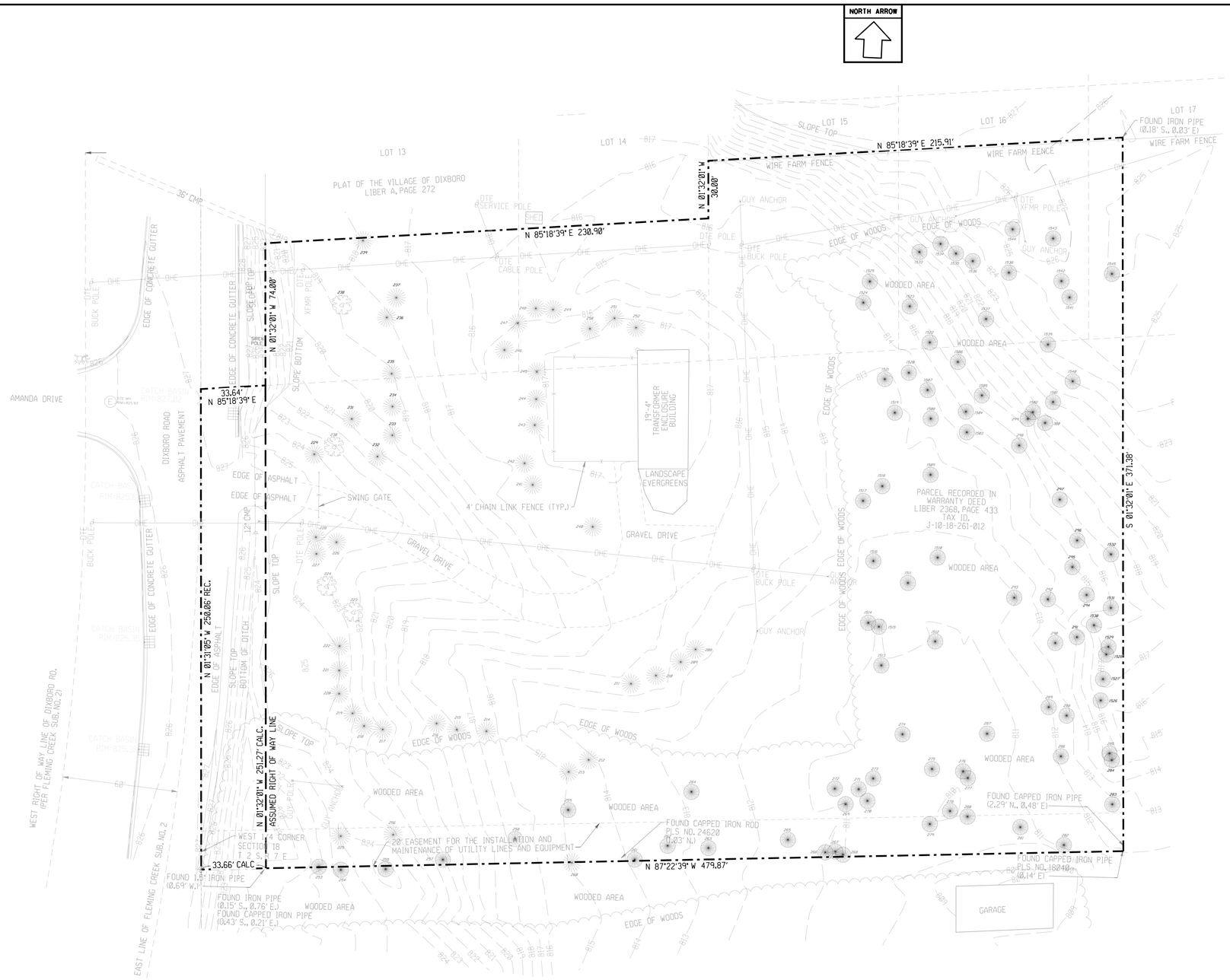
TITLE

LANDSCAPE PLAN

LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	1"=30'-0"
DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST
5A1329-2	9GA6A	

DOCUMENTUM FILENAME
GRENA-A-0002

c:\pw working\bve powerdeliver\na rob106660\d3311542\GRENA-A-0002 C-NEW.dgn
4/2/2026 /Rob106660



PROPERTY OWNER/ APPLICANT/DEVELOPER:

DTE ENERGY - DTE ELECTRICAL CO.
ONE ENERGY PLAZA
DETROIT, MI 48226-1279
(313) 235-0177

ENGINEER:

BLACK & VEATCH LTD. OF MICHIGAN
3550 GREEN COURT
ANN ARBOR, MICHIGAN 48105
(734) 665-1000 FAX (734) 622-8816

ADDRESS:

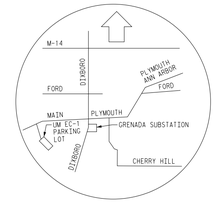
3270 N. DIXBORO RD.
ANN ARBOR, MI. 48105

BENCHMARKS:

BM #1:
ARROW ON HYDRANT
NORTHING: 296276.69
EASTING 1331441.90
ELEV: 828.62'

BM#2:
NAIL IN S. SIDE OF POLE
NORTHING: 296444.93
EASTING 1331414.33
ELEV: 817.01'

BM#3:
ARROW ON HYDRANT
NORTHING: 296378.21
EASTING 1331488.67
ELEV: 828.62'



SITE LOCATION MAP

NOT TO SCALE

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY
- STORM/WATER UTILITY EASEMENT
- EXISTING SWING GATE
- EXISTING FENCE
- EXISTING CONTOUR
- EXISTING OVERHEAD ELECTRIC
- EXISTING GRAVEL DRIVE
- EXISTING CATCH BASIN
- EXISTING CULVERT
- EXISTING TREE LINE
- EXISTING TREES
- EXISTING ELECTRICAL MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING WATER SHUT OFF
- EXISTING DTE POLE

NOTES:

1. DRAWING IS SET UP IN THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, INTERNATIONAL FOOT.
2. THE HORIZONTAL DATUM IS NAD 83 (2011).
3. THE ELEVATIONS ARE IN FEET AND DECIMALS THEREOF AND ARE REFERENCED TO THE NAVD 88 DATUM.
4. CONTOURS INDICATED ARE AT 1 FOOT INTERVALS.
5. BEARING STRUCTURE IS BASED ON THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, INTERNATIONAL FOOT.
6. THE LOCATION OF UTILITIES AND IMPROVEMENTS INDICATED HEREON ARE APPROXIMATE ONLY AND WERE OBTAINED FROM SOURCES BELEIVED TO BE RELIABLE, BUT NO GUARANTEE IS EXPRESSED OR IMPLIED AS TO LOCATION, TYPE OR COMPLETENESS OF UTILITIES OR IMPROVEMENTS.
7. SITE IS WITHIN ZONE 'X', AREA DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN, PER FLOOD INSURANCE RATE MAP NUMBER 26161C0266E EFFECTIVE APRIL 3, 2012.
8. SEE DRAWING 5A1329-5 FOR TREE REMOVAL AND TREE PROTECTION REQUIREMENTS.
9. PROPERTY LINE INFORMATION, TOPOGRAPHY, UNDERGROUND UTILITIES, AND SITE FEATURES SHOWN ON THIS DRAWING WERE OBTAINED FROM DTE DRAWING 6SE 1329-002 TOPOGRAPHIC SURVEY.

REFERENCE DRAWINGS:

TOPOGRAPHIC SURVEY — — — — — — — — — — — — 6SE 1329-002
SITE PLAN — — — — — — — — — — — — — — — — 5A1329-1
SITE PREPARATION AND DEMOLITION PLAN — — — 5A1329-5

LEGAL DESCRIPTION

ALL THE PART OF SECTION 18, TOWN 2 SOUTH, RANGE 7 EAST, SUPERIOR TOWNSHIP, WASHTENAW COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT THE WEST 1/4 CORNER OF SECTION 18, AFORESAID; THENCE NORTH 02°30'36" EAST, 250.06 FEET ALONG THE WEST LINE OF SAID SECTION 18, (BEING COMMON TO THE EAST LINE OF SECTION 13, TOWN 2 SOUTH, RANGE 6 EAST); THENCE NORTH 89°20'20" EAST, 33.64 FEET TO THE SOUTHWEST CORNER OF LOT 13 ON THE PLAT OF THE VILLAGE OF DIXBORO, AS RECORDED IN LIBER A ON PAGE 272, WASHTENAW COUNTY RECORDS; THENCE NORTH 02°29'40" EAST, 74.00 FEET ALONG THE WEST LINE OF SAID LOT 134; THENCE NORTH 89°20'20" EAST, 230.90 FEET (ALSO RECORDED AS 231.00 FEET); THENCE NORTH 02°29'40" EAST, 30.00 FEET ALONG THE LINE COMMON TO LOTS 14 AND 15 ON SAID PLAT OF THE VILLAGE OF DIXBORO; THENCE NORTH 89°20'20" EAST, 215.91 FEET; THENCE SOUTH 02°29'40" WEST, 371.38 FEET; THENCE NORTH 88°35'40" WEST, ALONG THE SOUTH LINE OF THREE PARCELS OF LAND AS MONUMENTED AND DESCRIBES IN WARRANTY DEEDS RECORDED IN LIBER 1528, PAGE 598, LIBER 1535, PAGE 253, AND LIBER 1674, PAGE 898, WASHTENAW COUNTY RECORDS TO THE POINT OF BEGINNING, BEING PART OF LOTS 13, 14, 15, 16, AND 17 ON THE SAID PLATE OF THE VILLAGE OF DIXBORO, RESERVING AN EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF UTILITY LINES AND EQUIPMENT OF THE SOUTHERLY 20 FEET OF THE SUBJECT PROPERTY FOR THE BENEFIT OF THE PROPERTY LYING ADJACENT AND TO THE EAST OF THE ABOVE DESCRIBED PROPERTY.

STOP THINK ACT REVIEW

Know what's below. Call before you dig.

PRELIMINARY
NOT FOR CONSTRUCTION

0 30 60
SCALE IN FEET

REV	NOTE TO FIELD
-	FOR ANY QUESTIONS ON THIS DESIGN, PLEASE CONTACT:
	PROJECT ENGINEER
	ERIC M. MYRICK (313)235-6728

DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
4/1/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

C	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

WO

MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

B	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

WO

MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

A	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

WO

MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

APPROVALS		
	OTHER	DATE
RELAY		
EPPM		
ACT		
OTHERS		

ENGINEERING	DATE
MADE BY	DATE
I. KRYCHYLSKA/BV	4/1/26
LAYOUT BY	DATE
Z.E. WIACEK/BV	4/1/26
CHECKED BY	DATE
G.J. ESKOLA/BV	4/1/26
PROJECT DESIGN/ELECT	DATE
PROJECT DESIGN/ACT	DATE
APPROVED FOR ISSUE	DATE

DTE Energy *DTE Electric* *Central Design/Standards*

TITLE

EXISTING CONDITIONS PLAN

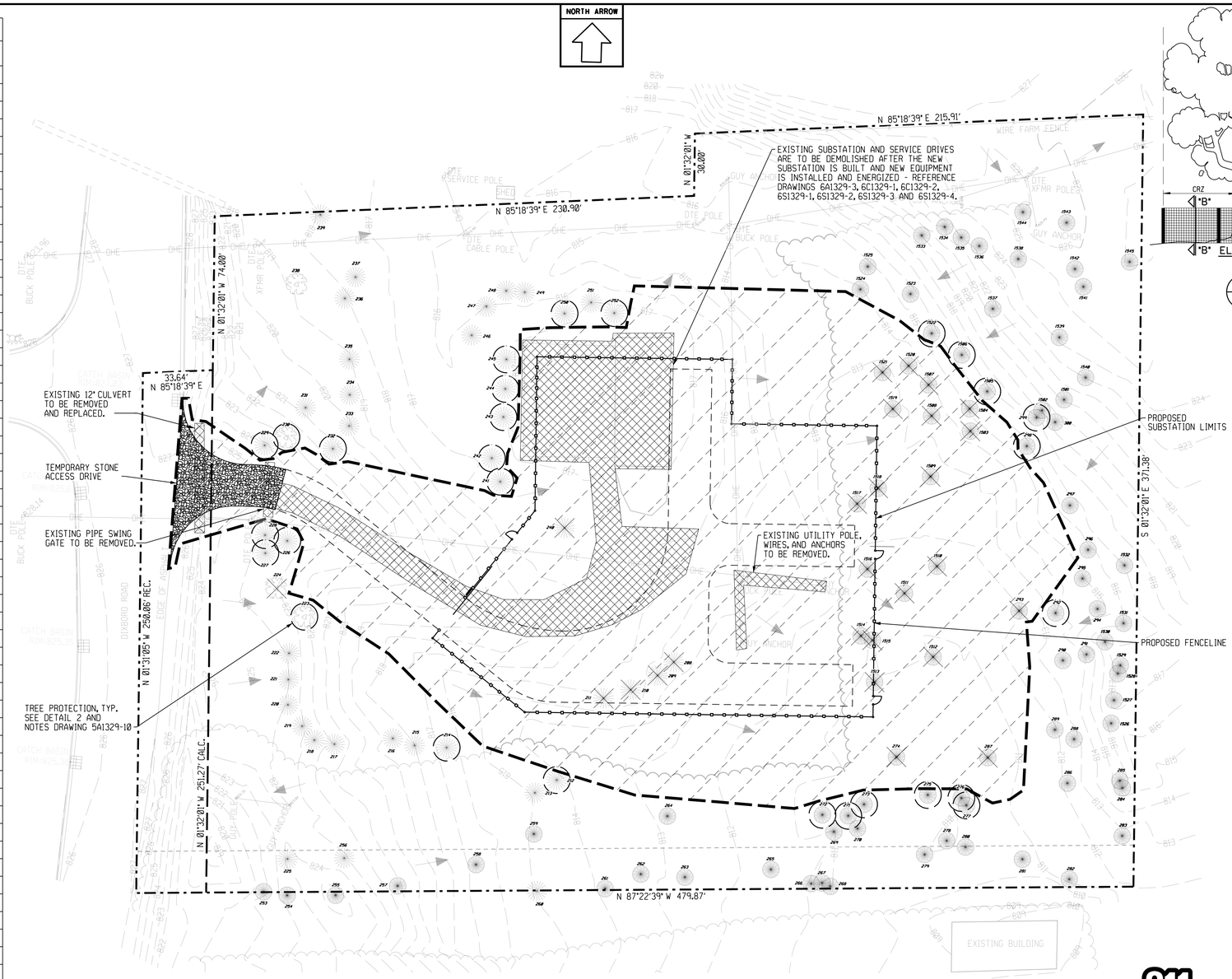
LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	1"=30'-0"
DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST
5A1329-4	69084198	GRENA-PDL-A-69084198

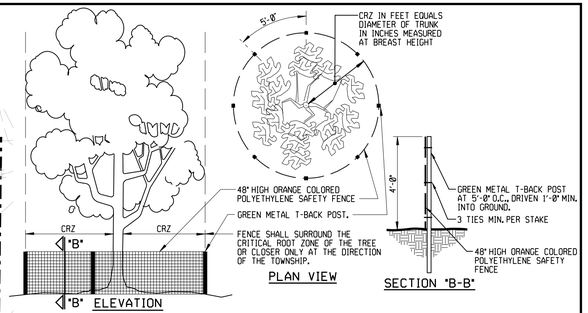
DOCUMENTUM FILENAME
GRENA-A-0004

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4/2/2026 rRob106660

TREE SPECIES DATA

TAG #	REMARKS	DBH (INCHES)	TAG #	REMARKS	DBH (INCHES)
~~200~~	~~NORWAY SPRUCE/PICEA ABIES~~	19	279	AMERICAN ELM/ULMUS AMERICANA	9
~~209~~	~~BLUE SPRUCE/PICEA PUNGENS~~	10	280	EASTERN COTTONWOOD/POPULUS DELTOIDES	16
~~210~~	~~NORWAY SPRUCE/PICEA ABIES~~	16	281	BLACK CHERRY/PRUNUS SEROTINA	10
~~211~~	~~NORWAY SPRUCE/PICEA ABIES~~	19	282	BOXELDER/ACER NEGUNDO	28
212	WHITE PINE/PINUS STROBUS	18	283	BLACK CHERRY/PRUNUS SEROTINA	16
213	WHITE PINE/PINUS STROBUS	25	284	BOXELDER/ACER NEGUNDO	12
214	NORWAY SPRUCE/PICEA ABIES	30	285	BOXELDER/ACER NEGUNDO	14
215	NORWAY SPRUCE/PICEA ABIES	32	286	BLACK CHERRY/PRUNUS SEROTINA	24
216	NORWAY SPRUCE/PICEA ABIES	30	~~287~~	~~BLACK WALNUT/JUGLANS NIGRA~~	7
217	WHITE PINE/PINUS STROBUS	22	288	HACKBERRY/CELTIS OCCIDENTALIS	10
218	WHITE PINE/PINUS STROBUS	13	289	BLACK WALNUT/JUGLANS NIGRA	8
219	WHITE PINE/PINUS STROBUS	9, 18	290	HACKBERRY/CELTIS OCCIDENTALIS	14
220	WHITE PINE/PINUS STROBUS	16	291	BOXELDER/ACER NEGUNDO	10
221	WHITE PINE/PINUS STROBUS	18	292	AMERICAN ELM/ULMUS AMERICANA	7
222	WHITE PINE/PINUS STROBUS	15	~~293~~	~~BLACK WALNUT/JUGLANS NIGRA~~	14
223	SUGAR MAPLE/ACER SACCHARUM	16	294	BLACK CHERRY/PRUNUS SEROTINA	12
~~224~~	~~SUGAR MAPLE/ACER SACCHARUM~~	15	295	BLACK WALNUT/JUGLANS NIGRA	12
225	WHITE PINE/PINUS STROBUS	17	296	BLACK WALNUT/JUGLANS NIGRA	14
226	BLUE SPRUCE/PICEA PUNGENS	10	297	BLACK CHERRY/PRUNUS SEROTINA	12
227	BLUE SPRUCE/PICEA PUNGENS	12	298	BLACK WALNUT/JUGLANS NIGRA	10
228	BLUE SPRUCE/PICEA PUNGENS	13	299	HACKBERRY/CELTIS OCCIDENTALIS	7
229	BLUE SPRUCE/PICEA PUNGENS	11	300	HACKBERRY/CELTIS OCCIDENTALIS	13
230	SUGAR MAPLE/ACER SACCHARUM	20	1501	BLACK WALNUT/JUGLANS NIGRA	11
231	BLUE SPRUCE/PICEA PUNGENS	13	1502	BOXELDER/ACER NEGUNDO	16
232	WHITE PINE/PINUS STROBUS	7, 10	~~1503~~	~~BLACK WALNUT/JUGLANS NIGRA~~	20
233	WHITE PINE/PINUS STROBUS	17	~~1504~~	~~BLACK WALNUT/JUGLANS NIGRA~~	18
234	WHITE PINE/PINUS STROBUS	19	1505	BLACK WALNUT/JUGLANS NIGRA	6
235	WHITE PINE/PINUS STROBUS	20	1506	BOXELDER/ACER NEGUNDO	7
236	NORWAY SPRUCE/PICEA ABIES	25	~~1507~~	~~NORTHERN CATALPA/CATALPA SPECIOSA~~	8
237	NORWAY SPRUCE/PICEA ABIES	28	~~1508~~	~~BLACK WALNUT/JUGLANS NIGRA~~	16
238	SUGAR MAPLE/ACER SACCHARUM	14	~~1509~~	~~BLACK WALNUT/JUGLANS NIGRA~~	6
239	BLUE SPRUCE/PICEA PUNGENS	15	~~1510~~	~~BLACK WALNUT/JUGLANS NIGRA~~	9
~~240~~	~~WHITE PINE/PINUS STROBUS~~	8	~~1511~~	~~BLACK WALNUT/JUGLANS NIGRA~~	9
241	WHITE PINE/PINUS STROBUS	20	~~1512~~	~~BLACK WALNUT/JUGLANS NIGRA~~	7
242	WHITE PINE/PINUS STROBUS	17	~~1513~~	~~BOXELDER/ACER NEGUNDO~~	9
243	NORWAY SPRUCE/PICEA ABIES	14	~~1514~~	~~BLACK WALNUT/JUGLANS NIGRA~~	6
244	NORWAY SPRUCE/PICEA ABIES	12, 13	~~1515~~	~~BLACK WALNUT/JUGLANS NIGRA~~	8
245	NORWAY SPRUCE/PICEA ABIES	17	~~1516~~	~~BLACK WALNUT/JUGLANS NIGRA~~	8
246	WHITE PINE/PINUS STROBUS	13	~~1517~~	~~BLACK WALNUT/JUGLANS NIGRA~~	8
247	WHITE PINE/PINUS STROBUS	18	~~1518~~	~~BOXELDER/ACER NEGUNDO~~	11
248	WHITE PINE/PINUS STROBUS	16	~~1519~~	~~BOXELDER/ACER NEGUNDO~~	6
249	WHITE PINE/PINUS STROBUS	17	~~1520~~	~~EASTERN COTTONWOOD/POPULUS DELTOIDES~~	12
250	NORWAY SPRUCE/PICEA ABIES	20	~~1521~~	~~EASTERN COTTONWOOD/POPULUS DELTOIDES~~	16
251	NORWAY SPRUCE/PICEA ABIES	16	1522	BLACK WALNUT/JUGLANS NIGRA	16
252	NORWAY SPRUCE/PICEA ABIES	20	1523	BLACK WALNUT/JUGLANS NIGRA	14
253	AMERICAN ELM/ULMUS AMERICANA	9	1524	BLACK WALNUT/JUGLANS NIGRA	16
254	BLACK CHERRY/PRUNUS SEROTINA	28	1525	BLACK WALNUT/JUGLANS NIGRA	14
255	BLACK CHERRY/PRUNUS SEROTINA	17, 24	1526	BOXELDER/ACER NEGUNDO	12
256	WHITE PINE/PINUS STROBUS	10	1527	BOXELDER/ACER NEGUNDO	8
257	BOXELDER/ACER NEGUNDO	13, 14	1528	BOXELDER/ACER NEGUNDO	9, 9
258	BLACK WALNUT/JUGLANS NIGRA	13	1529	BOXELDER/ACER NEGUNDO	10
259	BLACK WALNUT/JUGLANS NIGRA	8	1530	BOXELDER/ACER NEGUNDO	7
260	WHITE PINE/PINUS STROBUS	21	1531	BLACK WALNUT/JUGLANS NIGRA	8
261	BLACK CHERRY/PRUNUS SEROTINA	25	1532	BOXELDER/ACER NEGUNDO	9
262	BLACK CHERRY/PRUNUS SEROTINA	21, 14	1533	BOXELDER/ACER NEGUNDO	12
263	BLACK CHERRY/PRUNUS SEROTINA	11, 14, 14	1534	BLACK WALNUT/JUGLANS NIGRA	18
264	BLACK WALNUT/JUGLANS NIGRA	10	1535	BLACK WALNUT/JUGLANS NIGRA	11
265	NORWAY MAPLE/ACER PLATANOIDES	18	1536	BLACK WALNUT/JUGLANS NIGRA	7
266	BLACK CHERRY/PRUNUS SEROTINA	10, 12	1537	BLACK WALNUT/JUGLANS NIGRA	9
267	BLACK CHERRY/PRUNUS SEROTINA	7, 10	1538	ULMUS PUMILA/SIBERIAN ELM	18
268	BLACK CHERRY/PRUNUS SEROTINA	15	1539	ULMUS PUMILA/SIBERIAN ELM	42
269	BOXELDER/ACER NEGUNDO	10	1540	BLACK WALNUT/JUGLANS NIGRA	14
270	BOXELDER/ACER NEGUNDO	11	1541	COMMON BUCKHORN	6
271	BOXELDER/ACER NEGUNDO	9	1542	ULMUS PUMILA/SIBERIAN ELM	8
272	BOXELDER/ACER NEGUNDO	8	1543	BLACK WALNUT/JUGLANS NIGRA	12
273	BOXELDER/ACER NEGUNDO	13	1544	BLACK WALNUT/JUGLANS NIGRA	11
~~274~~	~~BOXELDER/ACER NEGUNDO~~	16	1545	ULMUS PUMILA/SIBERIAN ELM	11
275	BLACK WALNUT/JUGLANS NIGRA	7			
276	BOXELDER/ACER NEGUNDO	8, 10			
277	BOXELDER/ACER NEGUNDO	11			
278	EASTERN COTTONWOOD/POPULUS DELTOIDES	22			





1 / A5 TEMPORARY TREE PROTECTION BARRIER FENCE DETAIL

NO SCALE

TREE PROTECTION NOTES:

1. ALL TREES TO BE REMOVED WILL BE IDENTIFIED BY RED FLAGGING.
2. TREES NOT INDICATED TO BE REMOVED OR TRANSPLANTED SHALL BE FENCED OFF WITH 4' HIGH ORANGE CONSTRUCTION FENCE AT A DISTANCE OFF THE TREE OF THE TRUNK DIAMTER IN INCHES MEASURED AT BREAST HEIGHT.
3. TREE PROTECTION FENCING IS TO BE ERECTED PRIOR TO ANY EARTHWORK OR CONSTRUCTION AND IS TO REMAIN IN PLACE UNTIL CONSTRUCTION GRADING IS COMPLETE.
4. INSTALL TREE PROTECTION FENCING SURROUNDING THE CRITICAL ROOT ZONE (CRZ), THE CRZ IS THE RADIAL DISTANCE FROM THE TRUNK IN FEET EQUAL TO THE DIAMETER IN INCHES MEASURED AT BREAST HEIGHT (dbh).
5. ALL DEBRIS, FILL, EQUIPMENT OR MATERIAL IS TO BE KEPT CLEAR OF AREA WITHIN PROTECTIVE FENCE. NO CLEANING OF EQUIPMENT OR MATERIAL STORAGE OR STORAGE OR DISPOSAL OF ANY MATERIAL WITHIN THE DRIP LINE OF ANY TREES TO BE SAVED.
6. REFERENCE SOIL EROSION PLAN DRAWING 5A1329-8 PRIOR TO ANY DEMOLITION OR TREE REMOVAL.

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY
- PROPOSED GRADING LIMITS
- EDGE OF PROPOSED DRIVE
- PROPOSED ORNAMENTAL FENCE
- EXISTING FENCE
- STORM/WATER UTILITY EASEMENT
- 820 EXISTING CONTOUR
- EXISTING DRAINAGE FLOW DIRECTION
- P EXISTING DTE POLE
- OHE EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING TREE LINE
- EXISTING WATER SHUT OFF
- EXISTING FIRE HYDRANT
- EXISTING CATCH BASIN
- LIMITS OF TREE REMOVAL
- EXISTING TREES
- TREE REMOVAL
- TREE PROTECTION BARRIER
- TEMPORARY STONE ACCESS DRIVE
- LIMITS OF DISTURBANCE
- TO BE DEMOLISHED/REMOVED

DEMOLITION NOTES:

1. ALL EXCAVATED MATERIALS SHALL BE DISPOSED OF AT AN OWNER APPROVED FACILITY IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS. SITE SOILS SHALL NOT BE RELOCATED OR STOCK PILED ON SITE UNLESS NOTED ON PLANS BY THE ENGINEER.

0 30 60
SCALE IN FEET

PRELIMINARY
NOT FOR CONSTRUCTION

STOP THINK ACT REVIEW

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

REV	NOTE TO FIELD
-	FOR ANY QUESTIONS ON THIS DESIGN, PLEASE CONTACT:
	PROJECT ENGINEER
	ERIC M. MYRICK (313)235-6728

REFERENCE DRAWINGS:

TOPOGRAPHIC SURVEY	GSE 1329-002
SITE PLAN	5A1329-1
EXISTING CONDITIONS PLAN	5A1329-4
SOIL EROSION AND SEDIMENT CONTROL PLAN	5A1329-8
SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	5A1329-9
DECORATIVE FENCE AND GATE DETAILS	5A1329-10

DATE	SUBMITTED FOR
4/1/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

ESTIMATED CLEAN FILL VOLUME
COMPACTED IN PLACE VOLUME (CY)
xx,xxx

TOPSOIL SOIL REMOVAL VOLUME
COMPACTED IN PLACE VOLUME (CY)
x,xxx FROM SITE
x,xxx FROM OFFSITE

• QUANTITIES LISTED ARE IN-PLACE BANK VOLUME ESTIMATES AND ARE FOR INFORMATION ONLY. CONTRACTOR SHALL DO THEIR OWN QUANTITY ESTIMATE AND INCLUDE ALL SOIL ADJUSTMENTS NECESSARY FOR EXPANSION, HAULING, UNIT WEIGHTS ETC, IN ORDER TO PROVIDE A NOT TO EXCEED LUMP SUM BID.

C	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			
WO			
MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

B	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			
WO			
MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

A	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			
WO			
MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

APPROVALS		
OTHER		DATE
RELAY		
EPPM		
ACT		
OTHERS		

ENGINEERING	
MADE BY	DATE
I. KRYCHYLSKA/BV	4/1/26
LAYOUT BY	DATE
Z.E. WIACEK/BV	4/1/26
CHECKED BY	DATE
G.J. ESKOLA/BV	4/1/26
PROJECT DESIGN/ELECT	DATE
PROJECT DESIGN/ACT	DATE
APPROVED FOR ISSUE	DATE

DTE Energy *DTE Electric* *Central Design/Standards*

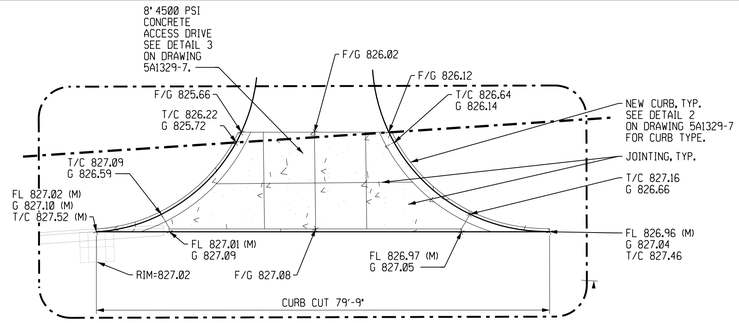
TITLE

SITE PREPARATION AND DEMOLITION PLAN

LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	1"=30'-0"
DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST
5A1329-5	69084198	GRENA-PDL-A-69084198

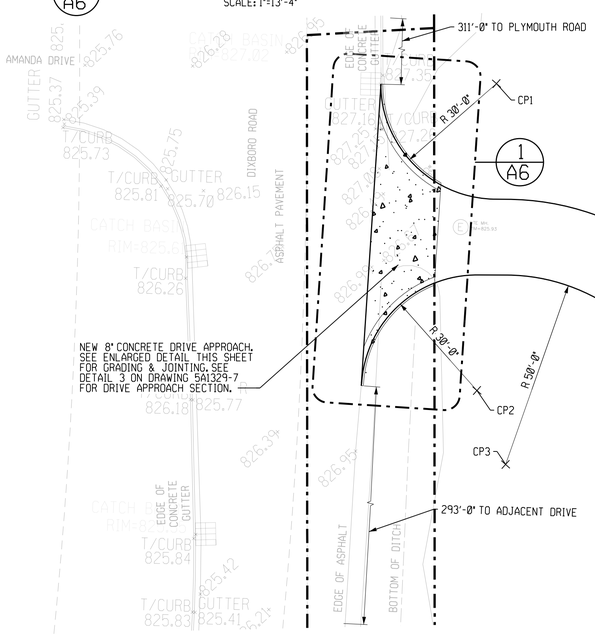
DOCUMENTUM FILENAME GRENA-A-0005

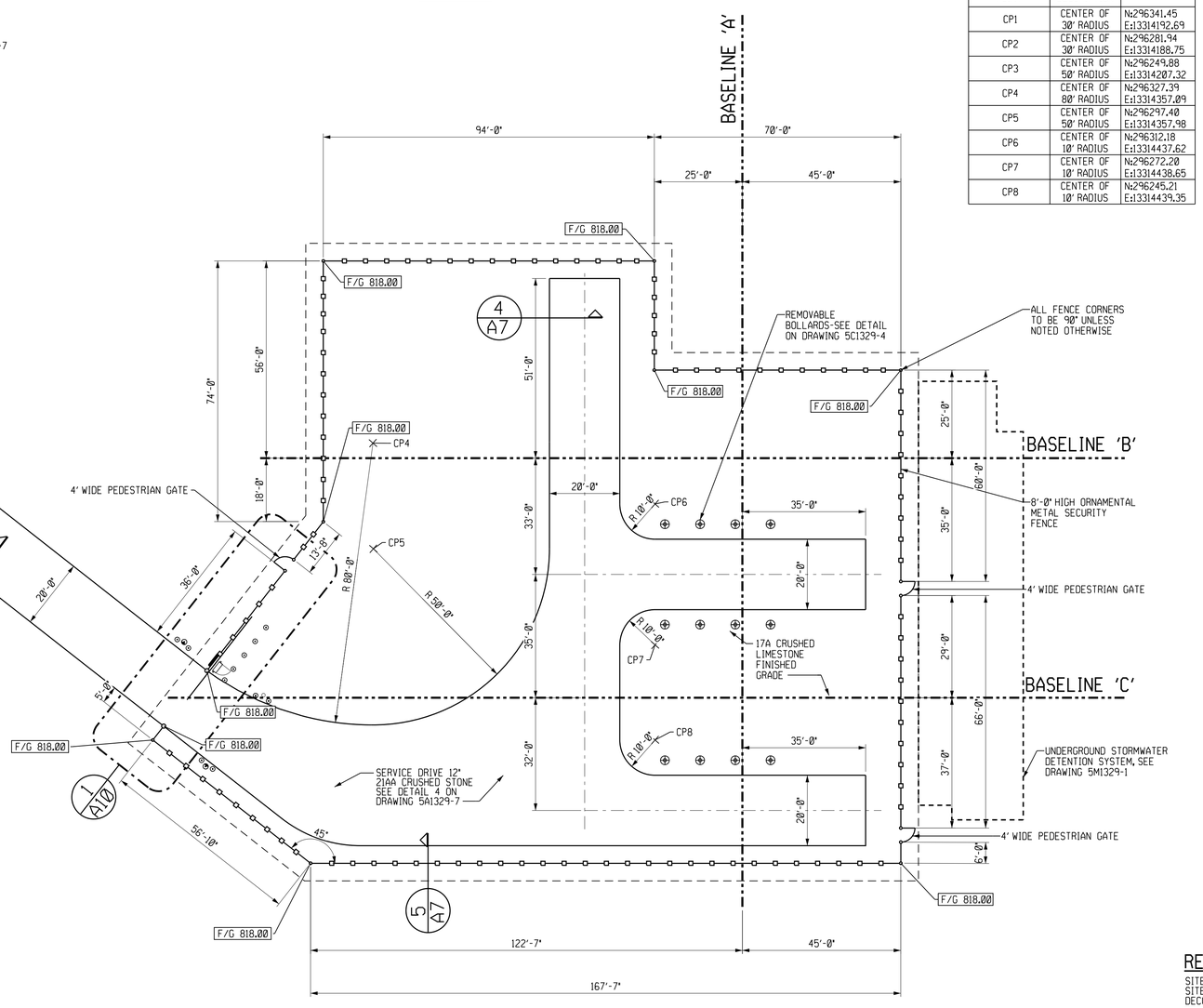
c:\pw working\dve powerdelivery\na rob106660\d331142\GRENA-A-0005.0.dgn
4/2/2026 rob106660



1/A6 ENLARGED CONCRETE DRIVE APPROACH

SCALE: 1"=13'-4"





DRIVEWAY RADII TABLE		
CONSTRUCTION POINT	POINT DESCRIPTION	COORDINATE
CP1	CENTER OF 30' RADIUS	N:296341.45 E:1314192.69
CP2	CENTER OF 30' RADIUS	N:296281.94 E:1314188.75
CP3	CENTER OF 50' RADIUS	N:296249.88 E:1314207.32
CP4	CENTER OF 80' RADIUS	N:296327.39 E:1314357.09
CP5	CENTER OF 50' RADIUS	N:296297.40 E:1314357.98
CP6	CENTER OF 10' RADIUS	N:296312.18 E:1314437.62
CP7	CENTER OF 10' RADIUS	N:296272.20 E:1314438.65
CP8	CENTER OF 10' RADIUS	N:296245.21 E:1314439.35

GENERAL NOTES:

1. REFER TO SITE PLAN DRAWING 5A1329-1 FOR SITE GRADING CONTOURS.
2. ALL RADII FOR PROPOSED DRIVES ARE DIMENSIONED TO EDGE OF GRAVEL. RADII FOR COMMERCIAL DRIVE APPROACH ARE DIMENSIONED TO BACK OF CURB.
3. ALL AGGREGATE MATERIALS SHALL COMPLY WITH PROJECT CONSTRUCTION SPECIFICATION SECTION 312000 EARTH MOVING.
4. JOINTING SHALL CONFORM TO THE LATEST EDITION OF ACI 330 GUIDE FOR DESIGN & CONSTRUCTION OF CONCRETE PARKING LOTS AS WELL AS OTHER APPLICABLE GOVERNING STANDARDS.
5. INSTALL MDOT 21AA UNDER NEW CURB TO MATCH NEW PAVEMENT SECTION AGGREGATE BASE THICKNESS. EXTEND MDOT 21AA 12" BEYOND BACK OF CURB.
6. ADJUST TO GUTTER PAN SPILL OUT AT 1" PER FOOT AS REQUIRED TO PROVIDE POSITIVE DRAINAGE OR NOTED ON PLAN.
7. BACKFILL BEHIND BACK OF CURB TO MATCH EXISTING AND PROVIDE POSITIVE DRAINAGE UNLESS OTHERWISE NOTED.
8. JOINTS SHALL BE PLACED AT RIGHT ANGLES TO THE EDGE OF CONCRETE CURB AND GUTTER.
9. BOTTOM SLOPE OF CURB AND GUTTER STRUCTURE MAY BE THE SAME SLOPE AS TOP OF PAVEMENT. BACK OF CURB AND VERTICAL EDGE OF GUTTER PAN MAY HAVE A MAXIMUM 1/2" BATTER TO FACILITATE FORMING.
10. TAPER CURB TO ZERO AT FREE ENDS.
11. ALL FENCE MATERIALS SHALL COMPLY WITH PROJECT CONSTRUCTION SPECIFICATION SECTION 323100 CHAINLINK FENCE AND GATES.

LEGEND:

- PROPERTY LINE
- PROPOSED ORNAMENTAL FENCE
- EDGE OF STONE
- EXISTING FIRE HYDRANT
- EXISTING WATER SHUT OFF
- EXISTING ELECTRICAL MANHOLE
- EXISTING CATCH BASIN
- 827.92 EXISTING SPOT GRADE
- XXX.XX PROPOSED SPOT GRADE
- CONCRETE PAVEMENT
- REMOVABLE BOLLARD
- FIXED BOLLARD
- CARD READER
- F/G FINISH GRADE ELEVATION
- T/C TOP OF CURB ELEVATION
- G GUTTER ELEVATION
- FL FLOWLINE ELEVATION
- (M) MATCH GRADE ELEVATION

REFERENCE DRAWINGS:

SITE PLAN — 5A1329-1
SITE DETAILS — 5A1329-7
DECORATIVE FENCE AND GATE DETAILS — 5A1329-10

DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
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DATE	SUBMITTED FOR
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

0 20 40
SCALE IN FEET

PRELIMINARY
NOT FOR CONSTRUCTION

REV	NOTE TO FIELD
-	FOR ANY QUESTIONS ON THIS DESIGN, PLEASE CONTACT:
	PROJECT ENGINEER
	ERIC M. MYRICK
	(313)235-6728

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	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

WO

MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

APPROVALS		
OTHER		DATE
RELAY		
EPPM		
ACT		
OTHERS		

ENGINEERING	
MADE BY	DATE
I. KRYCHYLSKA/BV	4/1/26
LAYOUT BY	DATE
Z.E. WIACEK/BV	4/1/26
CHECKED BY	DATE
G.J. ESKOLA/BV	4/1/26
PROJECT DESIGN/ELECT	DATE
PROJECT DESIGN/ACT	DATE
APPROVED FOR ISSUE	DATE

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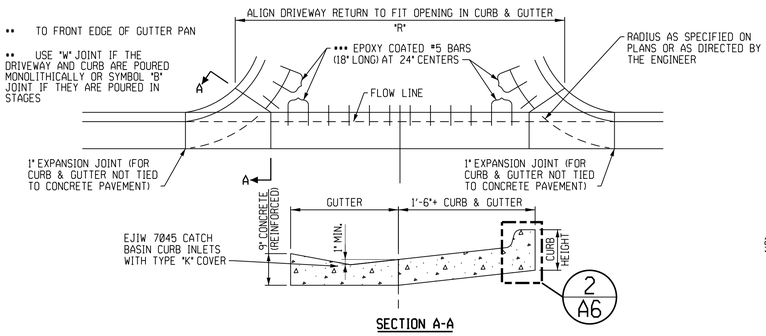
TITLE

FENCE AND SERVICE DRIVE PLAN

LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	1"=20'-0"
DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST
5A1329-6	69084198	GRENA-PDL-A-69084198

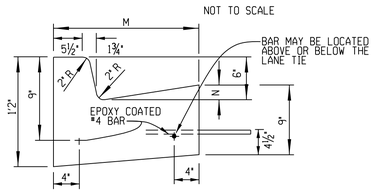
DOCUMENTUM FILENAME
GRENA-A-0006

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4/1/2026 /Rob106660



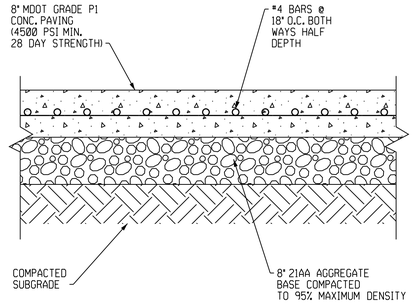
1 A6 CONCRETE DRIVEWAY OPENING LAYOUT

NOT TO SCALE



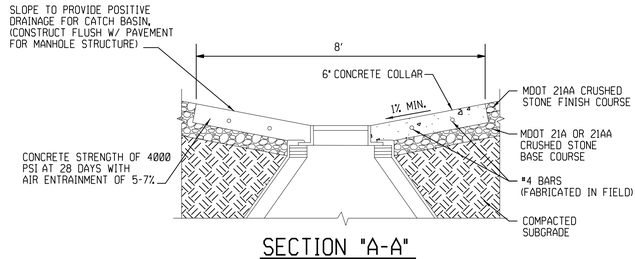
2 A6 CURB & GUTTER DETAIL

NOT TO SCALE



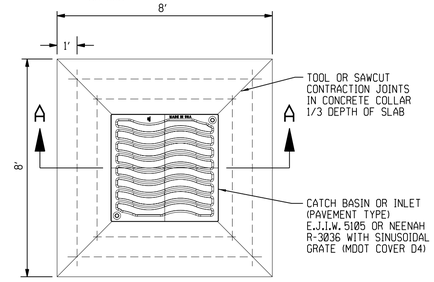
3 A6 TYPICAL 8" CONCRETE DRIVEWAY APPROACH PAVEMENT SECTION

NOT TO SCALE



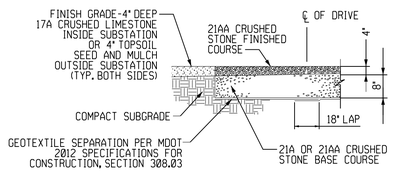
SECTION "A-A"

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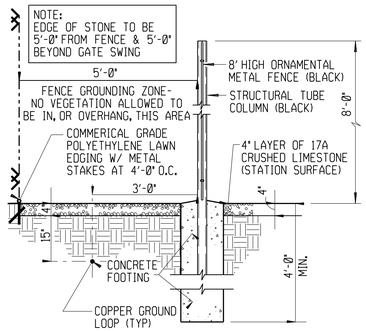
6 A1 CONCRETE COLLAR AT CATCH BASIN

NO SCALE



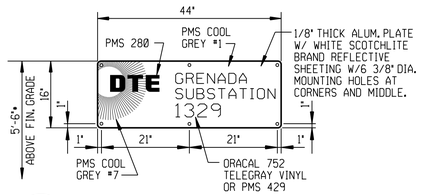
4 A6 SECTION THRU SUBSTATION AND ACCESS DRIVE

NO SCALE



5 A6 YARD EDGE DETAIL

NOT TO SCALE



7 A1 SUBSTATION IDENTIFICATION SIGN

NO SCALE

REFERENCE DRAWINGS:

SITE PLAN ——— 5A1329-1
FENCE AND SERVICE DRIVE PLAN ——— 5A1329-6
DECORATIVE FENCE AND GATE DETAILS ——— 5A1329-10

PRELIMINARY
NOT FOR CONSTRUCTION

REV.	NOTE TO FIELD
—	FOR ANY QUESTIONS ON THIS DESIGN, PLEASE CONTACT:
	PROJECT ENGINEER: ERIC M. MYRICK (313)235-6728

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DATE	SUBMITTED FOR
4/1/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

	PROJ DESIGN	PROJ MANAGER	OTHERS
C DATE			
B DATE			
A DATE			

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MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

APPROVALS			
OTHER			DATE
RELAY			
EPPM			
ACT			
OTHERS			

ENGINEERING	
MADE BY	DATE
I. KRYCHYLSKA/BV	4/1/26
LAYOUT BY	DATE
Z.E. WIACEK/BV	4/1/26
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G.J. ESKOLA/BV	4/1/26
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PROJECT DESIGN/ACT	DATE
APPROVED FOR ISSUE	DATE

DTE Energy *DTE Electric* *Central Design/Standards*

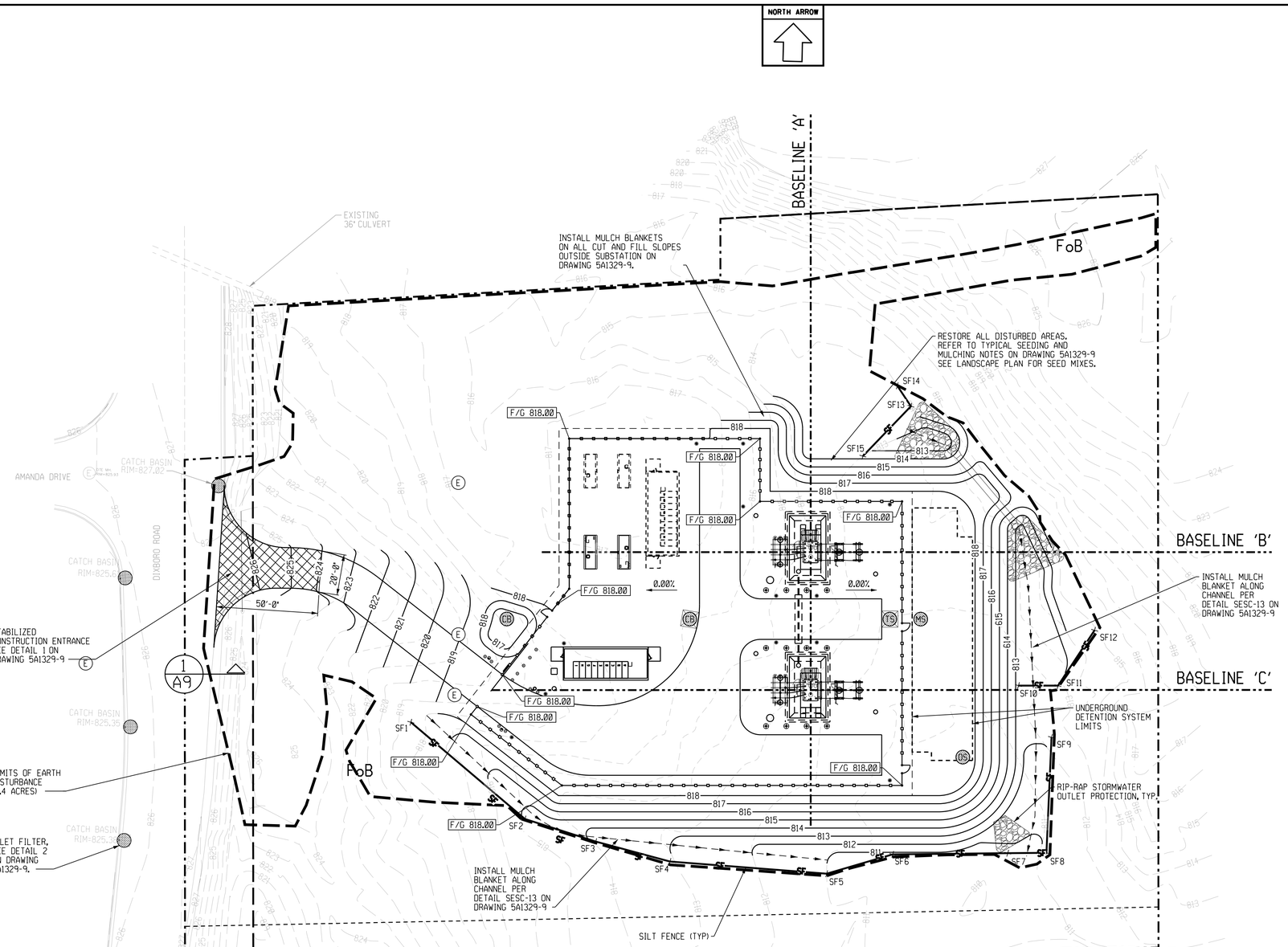
TITLE: SITE DETAILS

LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	NONE

DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST
5A1329-7	69084198	GRENA-PDL-A-69084198

DOCUMENTUM FILENAME: GRENA-A-0007

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4/1/2026 / Rob106660



PROPERTY OWNER/ APPLICANT/DEVELOPER:

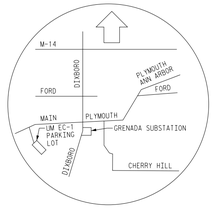
DTE ENERGY - DTE ELECTRIC CO.
ONE ENERGY PLAZA
DETROIT, MI 48226-1279
(313)235-0177

ENGINEER:

BLACK & VEATCH LTD. OF MICHIGAN
3550 GREEN COURT
ANN ARBOR, MICHIGAN 48105
(734) 665-1000 FAX (734) 622-8816

ADDRESS:

3270 N. DIXBORO RD.
ANN ARBOR, MI. 48105



SITE LOCATION MAP

1 MILE

USDA SOIL CLASSIFICATIONS	
MAP UNIT SYMBOL	MAP UNIT NAME
FoB	FOX SANDY LOAM, TILL PLAIN, 2 TO 6 PERCENT SLOPES

SOIL EROSION GENERAL NOTES:

1. REFER TO DRAWING 5A1329-9 FOR GENERAL SOIL EROSION NOTES AND DETAILS.
2. EGLE WETLAND INVENTORY INDICATES NEAREST WATER BODY IS ASSOCIATED WITH FLEMMING CREEK AND IS APPROXIMATELY 300' SOUTH OF SITE PROPERTY BOUNDARIES.
3. THE DTE GRENADA SUBSTATION IS NOT WITHIN 500'-0" OF SURFACE WATER. THE FLEMING CREEK IS THE CLOSEST WATER BODY LOCATED APPROXIMATELY 1,000 FEET SOUTH OF THE SITE.

SILT FENCE CONSTRUCTION POINT TABLE	
POINT NUMBER	COORDINATE
SF1	N:296236.91 E:13314267.23
SF2	N:296190.68 E:13314324.69
SF3	N:296180.45 E:13314359.88
SF4	N:296171.57 E:13314396.70
SF5	N:296167.54 E:13314474.03
SF6	N:296177.97 E:13314506.33
SF7	N:296179.98 E:13314562.99
SF8	N:296180.65 E:13314582.06
SF9	N:296237.63 E:13314583.08
SF10	N:296262.70 E:13314566.15
SF11	N:296263.31 E:13314585.62
SF12	N:296290.97 E:13314602.92
SF13	N:296399.00 E:13314509.60
SF14	N:296408.93 E:13314502.61
SF15	N:296373.82 E:13314486.55

LEGEND:

- PROPERTY LINE
- PROPOSED ORNAMENTAL FENCE
- LIMITS OF DISTURBANCE
- 000 EXISTING CONTOUR
- 000 ABANDONED CONTOUR
- 000 PROPOSED CONTOUR
- EXISTING CULVERT
- RIGHT-OF-WAY
- EDGE OF STONE
- STORM/WATER UTILITY EASEMENT
- SF SILT FENCE
- XXX.XX PROPOSED SPOT GRADE
- PROPOSED DRAINAGE SWALE CENTERLINE
- EXISTING CATCH BASIN
- E EXISTING ELECTRICAL MANHOLE
- CB PROPOSED CATCH BASIN
- MH PROPOSED MANHOLE
- E UNDERGROUND CONDUIT MANHOLE
- OS PROPOSED STORM OUTLET STRUCTURE
- TS TREATMENT STRUCTURE
- REMOVABLE BOLLARD
- FIXED BOLLARD
- CARD READER
- TEMPORARY STONE ACCESS DRIVE
- INLET FILTER
- SF9 SILT FENCE LOCATION
- CLEANOUT

REFERENCE DRAWINGS:

SITE PLAN — 5A1329-1
LANDSCAPE PLAN — 5A1329-2
EXISTING CONDITIONS PLAN — 5A1329-4
FENCE AND SERVICE DRIVE PLAN — 5A1329-6
SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS — 5A1329-9
STORMWATER MANAGEMENT PLAN — 5M1329-1

LEGAL DESCRIPTION

ALL THE PART OF SECTION 18, TOWN 2 SOUTH, RANGE 7 EAST, SUPERIOR TOWNSHIP, WASHTENAW COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT THE WEST 1/4 CORNER OF SECTION 18, AFORESAID; THENCE NORTH 02°30'36" EAST, 250.06 FEET ALONG THE WEST LINE OF SAID SECTION 18, (BEING COMMON TO THE EAST LINE OF SECTION 13, TOWN 2 SOUTH, RANGE 6 EAST); THENCE NORTH 89°20'20" EAST, 33.64 FEET TO THE SOUTHWEST CORNER OF LOT 13 ON THE PLAT OF THE VILLAGE OF DIXBORO, AS RECORDED IN LIBER A ON PAGE 272, WASHTENAW COUNTY RECORDS; THENCE NORTH 02°29'40" EAST, 74.00 FEET ALONG THE WEST LINE OF SAID LOT 134; THENCE NORTH 89°20'20" EAST, 230.90 FEET (ALSO RECORDED AS 231.00 FEET); THENCE NORTH 02°29'40" EAST, 30.00 FEET ALONG THE LINE COMMON TO LOTS 14 AND 15 ON SAID PLAT OF THE VILLAGE OF DIXBORO; THENCE NORTH 89°20'20" EAST, 215.91 FEET; THENCE SOUTH 02°29'40" WEST, 371.38 FEET; THENCE NORTH 88°35'40" WEST, ALONG THE SOUTH LINE OF THREE PARCELS OF LAND AS MONUMENTED AND DESCRIBES IN WARRANTY DEEDS RECORDED IN LIBER 1528, PAGE 598, LIBER 1535, PAGE 253, AND LIBER 1674, PAGE 890, WASHTENAW COUNTY RECORDS TO THE POINT OF BEGINNING, BEING PART OF LOTS 13, 14, 15, 16, AND 17 ON THE SAID PLAT OF THE VILLAGE OF DIXBORO, RESERVING AN EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF UTILITY LINES AND EQUIPMENT OF THE SOUTHERLY 20 FEET OF THE SUBJECT PROPERTY FOR THE BENEFIT OF THE PROPERTY LYING ADJACENT AND TO THE EAST OF THE ABOVE DESCRIBED PROPERTY.

REV.	NOTE TO FIELD
-	FOR ANY QUESTIONS ON THIS DESIGN, PLEASE CONTACT:
	PROJECT ENGINEER
	ERIC M. MYRICK (313)235-6728

PRELIMINARY
NOT FOR CONSTRUCTION

0 30 60
SCALE IN FEET

STOP THINK ACT REVIEW

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

DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
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DATE	SUBMITTED FOR
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

PROJ DESIGN	PROJ MANAGER	OTHERS
DATE		
WO		
MADE BY	DATE	ACT
CH'K BY	DATE	EPPM
		RELAY
		APVD FOR ISSUE

APPROVALS		
OTHER		DATE
RELAY		
EPPM		
ACT		
OTHERS		

ENGINEERING	
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I. KRYCHYLSKA/BV	4/1/26
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CHECKED BY	DATE
G.J. ESKOLA/BV	4/1/26
PROJECT DESIGN/ELECT	DATE
PROJECT DESIGN/ACT	DATE
APPROVED FOR ISSUE	DATE

DTE Energy *DTE Electric* *Central Design/Standards*

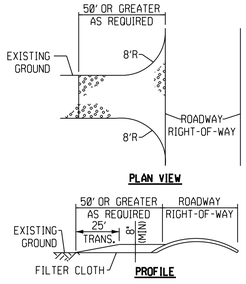
TITLE

SOIL EROSION AND SEDIMENT CONTROL PLAN

LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	1"=30'-0"
DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST
5A1329-8	69084198	GRENA-PDL-69084198

DOCUMENTUM FILENAME: GRENA-A-008

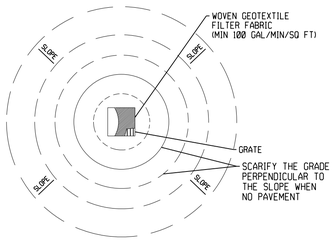
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4/2/2026 / Rob106660

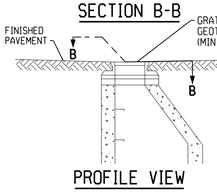


1. PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND PUBLIC R.O.W.
2. DESIGN CRITERIA FOR STABILIZED CONSTRUCTION ENTRANCE.
   A. STONE SIZE - USE ASTM C-33, SIZE NO 2 OR 3, USE CRUSHED STONE. (NO CRUSHED CONCRETE)
   B. THICKNESS - NOT LESS THAN 8 INCHES.
   C. WIDTH - NOT LESS THAN FULL WIDTH OF POINTS OF INGRESS OR EGRESS.
   D. LENGTH - 50 FEET MINIMUM WHERE THE SOILS ARE SAND OR GRAVEL OR 100 FEET MINIMUM WHERE SOILS ARE CLAYS OR SILTS, EXCEPT WHERE THE TRAVELED LENGTH IS LESS THAN 50 TO 1 FEET RESPECTIVELY. THESE LENGTHS MAY BE INCREASED WHERE FIELD CONDITIONS DICTATE.
   E. FILTER CLOTH - WILL BE PLACED OVER ENTIRE AREA PRIOR TO PLACING OF STONE.
   F. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ON TO PUBLIC RIGHT-OF WAY THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.

1 / A9 STABILIZED CONSTRUCTION ENTRANCE DETAIL

NO SCALE

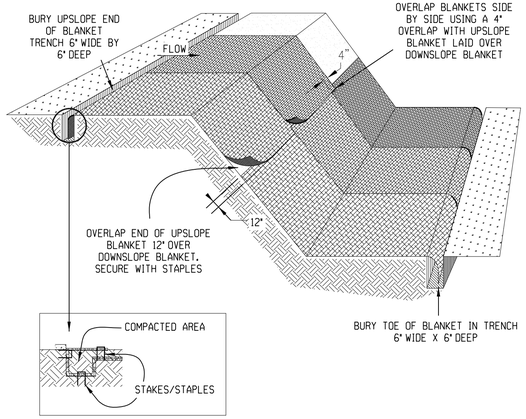




2 / A9 INLET FILTER DETAIL

NO SCALE

MULCH BLANKETS



NOTES: (1) PLACE MULCH BLANKET PARALLEL TO FLOW AND ANCHOR SECURELY.

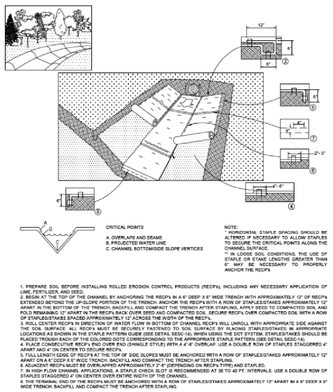
(2) WHEN BLANKETS ARE USED IN FLOWING DITCH, BLANKETS SHOULD NOT OVERLAP IN DITCH CENTER PARALLEL TO FLOW.

(3) STAPLES INSTALLED/SECURED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

(4) WHERE POSSIBLE, CONSTRUCT WITH BIODEGRADABLE MATERIAL.

1. PREPARE SUBGRADE TO PROPER GRADE AND COMPACTION REQUIREMENTS.
2. REMOVE RUTS, ROOTS, SOIL CLODS, OR OTHER DEBRIS FROM SURFACE SUBJECT TO MULCH BLANKET INSTALLATION.
3. SPREAD OR DRILL SEED.
4. CONSULT WITH EROSION CONTROL MATERIAL SUPPLIER TO SELECT MULCH BLANKET BASED ON SLOPE GRADIENT, EXPECTED SURFACE RUN-OFF, AND PROTECTION TERM NECESSARY (LONG OR SHORT TERM).
5. POSITION SELECTED MULCH BLANKET AS CLOSE AS POSSIBLE TO INTENDED USE LOCATION.
6. INSTALL BLANKET AT TOP OF SLOPE, FIRST ANCHORING TOE IN TRENCH 6" WIDE X 6" DEEP, PROGRESSING DOWN-SLOPE OR DOWN-GRADIENT WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH.
7. ANCHOR THE BLANKET WITH STAPLES/STAKES PLACED APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH, BACKFILL AND COMPACT THE TRENCH AFTER SECURING.
8. APPLY SEED TO COMPACTED SOIL AND FOLD THE 12" PORTION OF THE BLANKET OVER COMPACTED AREA AND SECURE WITH A ROW OF STAPLES/STAKES PLACED 12" APART ACROSS THE WIDTH OF THE BLANKET.
9. UNROLL THE BLANKETS DOWN OR HORIZONTALLY ACROSS THE SLOPE.
10. OVERLAP BLANKET EDGES BY A MINIMUM OF 4" AND BLANKET ENDS BY A MINIMUM OF 12". OVERLAPS SHOULD BE IN THE DIRECTION OF EXPECTED FLOW WITH THE UP-SLOPE BLANKET PLACED OVER THE DOWN-SLOPE BLANKET EDGE.
11. SECURE DOWN-SLOPE END OF BLANKET WITH STAPLES/STAKES AND TRENCH IN.

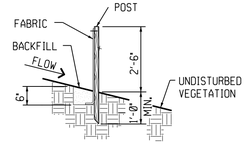
MULCH BLANKET CHANNEL INSTALLATION
(SESC-13)



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECPS IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECPS EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPS WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD THE 12" PORTION OF RECPS OVER SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" ACROSS THE WIDTH OF THE RECPS.
3. ROLL CENTER RECPS IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECPS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE (SEE DETAIL SESC-14). WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED ALONG THE OUTSIDE EDGE OF THE DOT (SEE DETAIL SESC-14). THE LOWER END OF EACH RECPS WILL BE OVERLAPPED BY THE UPPER RECPS.
4. PLACE CONSECUTIVE RECPS END OVER END (SHINGLE STYLE) WITH A 4" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE RECPS.
5. IF RECPS MUST BE SPLICED DOWN THE CHANNEL, SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART ON A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECPS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (DEPENDING ON RECPS TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FT. INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. TERMINAL END OF RECPS MUST BE ANCHORED WITH STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

GENERAL SEDIMENTATION AND EROSION CONTROL NOTES:

1. THIS PROJECT SHALL BE CONSTRUCTED IN COMPLIANCE WITH PART 91 OF MICHIGAN ACT 451 OF 1994, AS AMENDED. THE SOIL EROSION AND SEDIMENT CONTROL ACT.
2. CONTRACTOR SHALL NOTIFY WASHTENAW COUNTY SOIL EROSION INSPECTORS OFFICE 48 HOURS BEFORE WORK IS TO BEGIN (734) 222-6860.
3. THE CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES WHEN REQUIRED, AND AS DIRECTED ON THESE PLANS. THE CONTRACTOR SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES, AND OTHER EARTH CHANGES HAVE BEEN ACCOMPLISHED.
4. STAGING OF THE WORK SHALL BE DONE BY THE CONTRACTOR AS DIRECTED IN THESE PLANS, AND AS REQUIRED TO ENSURE PROGRESSIVE STABILIZATION OF DISTURBED EARTH.
5. PERMANENT SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY PERMANENT SOIL EROSION CONTROL MEASURES FOR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 5 CALENDAR DAYS AFTER FINAL GRADING, OR THE FINAL EARTH CHANGE, HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISRUPTED AREA AFTER EARTH CHANGE HAS BEEN COMPLETED, OR WHERE SIGNIFICANT EARTH CHANGE ACTIVITY CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED IMMEDIATELY UNTIL A NOTICE OF TERMINATION IS OBTAINED FORM THE EGLE.
6. ALL STOCKPILED SOILS SHALL BE MAINTAINED IN SUCH A WAY AS TO PREVENT EROSION FROM THE SITE. ANY STOCKPILE THAT REMAINS LONGER THAN 15 DAYS SHALL BE GRASS SEEDED.
7. BURLAP IS NOT ALLOWED, AND STRAW BALES CAN ONLY BE USED TO BACKUP SILT FENCES.
8. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL NECESSARY EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AS IDENTIFIED BY THE OWNER.
9. THE CONTRACTOR SHALL BE RESPONSIBLE TO IMPLEMENT THE ACTIONS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
10. STORM WATER FROM THE SITE SHALL NOT BE PERMITTED TO ADVERSELY IMPACT TO ADJACENT PROPERTIES.



3 / A9 SEDIMENTATION CONTROL FABRIC FENCE (SF)

NO SCALE

SEQUENCE OF CONSTRUCTION AND SOIL EROSION AND SEDIMENTATION CONTROL:

SUBSTATION CONSTRUCTION (DATE TBD)

1. INSTALL FILTERS WITHIN DIXBORO ROAD FOR SEWER INLET PROTECTION DURING CONSTRUCTION AS INDICATED ON DRAWING 5A1329-8. (DAY 1)
2. INSTALL TEMPORARY STABILIZED CONSTRUCTION ACCESS ENTRANCE AS INDICATED ON DRAWING 5A1329-8. (DAY 1)
3. INSTALL SILT FENCE ALONG PROPERTY LINE OR AT LIMITS OF GRADING AS INDICATED ON DRAWING 5A1329-8. (DAY 1)
4. SITE WORK. (DAY 2 - DATE TBD)
   A. TOTAL AREA OF DISTURBANCE 2.4 ACRES.
   B. DURING DRY PERIODS ALL AREAS SHALL BE WATER FOR DUST CONTROL.
   C. ALL DIRT AND MUD TRACKED ONTO ROADWAY SHALL BE REMOVED IMMEDIATELY.
   D. EXCAVATE AND DISPOSE OF SOIL AS INDICATED ON DRAWING 5A1329-5.
   E. MASS GRADE SITE TO ROUGH GRADE.
   F. MAINTAIN ALL TEMPORARY SOIL EROSION MEASURES DURING AND AFTER MASS GRADING OF SITE. INSPECT AND REPAIR ANY TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES ON A WEEKLY BASIS AND WITHIN 24 HOURS OF A RAINFALL EVENT.
   G. INSTALL ALL STORM SEWER STRUCTURES, SOLID STORM PIPING AND INLET PROTECTION ON NEW STORM SEWER, CAP AND PROTECT UNDERDRAIN CONNECTIONS AT MANHOLE UNTIL UNDERDRAINS ARE INSTALLED. INSTALL PERFORATED UNDERDRAIN SYSTEM AND CONNECT TO STORM STRUCTURES PER DRAWING 5M1329-1.
   H. INSTALL UNDERGROUND DETENTION SYSTEM AND TREATMENT UNIT PER VENDOR SPECIFICATIONS. PROTECT INSPECTION PORTS, ACCESS RISERS, STORM SEWER CONNECTIONS UNTIL DETENTION SYSTEM OUTLET IS INSTALLED.
   I. INSTALL OUTLET CONTROL STRUCTURE AND DISCHARGE PIPE AS INDICATED ON STORMWATER MANAGEMENT PLANS.
   J. ROUTE ALL SURFACE WATER TO NEW STORM OUTLET. CONTRACTOR IS RESPONSIBLE TO MANAGE SURFACE WATER DURING CONSTRUCTION AND PROVIDE PROPER AND NECESSARY FILTRATION TO ENSURE THAT NO SEDIMENT ENTERS DETENTION SYSTEM.
   K. INSTALL ALL UNDERGROUND ELECTRIC MANHOLES AND CONDUIT.
   L. INSTALL REMAINING UNDERGROUND UTILITIES AND FOUNDATIONS.
   M. CONSTRUCT 12-INCH THICK GRAVEL DRIVES AS INDICATED ON PLANS.
   N. INSTALL 4-INCH THICK SURFACING STONE OVER REMAINDER OF SITE TO RESTORE AND STABILIZE SURFACE.
   O. INSTALL PROPOSED LANDSCAPING AND SCREENING PER DRAWING 5A1329-2.
   P. RESTORE GREENBELT AREA BETWEEN SUBSTATION AND PROPERTY LINES WITH SEED AND MULCH PER PLANS.
   Q. INSTALL ABOVE GRADE STRUCTURES AND EQUIPMENT.
   R. REMOVE TEMPORARY STABILIZED CONSTRUCTION ENTRANCES AFTER SUBSTATION WORK IS COMPLETE AND INSTALL NEW CONCRETE CURBS AND DRIVE APRONS AS INDICATED ON PLANS.
5. REMOVE REMAINING TEMPORARY SOIL EROSION MEASURES AFTER SURFACE RESTORATION IS COMPLETE AND STABILIZED AFTER ACCEPTANCE BY WASHTENAW COUNTY SOIL EROSION INSPECTOR.

NOTES:

1. DATES, IF PROVIDED ARE ESTIMATES ONLY, AND MAY VARY DUE TO WEATHER OR PROJECT DELAYS. REFER TO SOIL EROSION CONTROL SEQUENCE OF CONSTRUCTION NOTES ON THIS SHEET.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF SOIL EROSION AND SEDIMENTATION CONTROL DEVICES AND SHALL COMPLY WITH THE WASHTENAW COUNTY PERMIT PROCEDURES FOR SOIL EROSION AND SEDIMENTATION CONTROL PER WASHTENAW COUNTY DEPARTMENT OF PUBLIC SERVICES AND LAND RESOURCE MANAGEMENT DIVISION.

DEWATERING:

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING APPROPRIATE PERMITS FROM LOCAL AUTHORITIES FOR DISCHARGE INTO RECEIVING WATERS WHEN APPLICABLE.
2. IF REQUIRED, DEWATERING MUST BE CONDUCTED SO THAT DISCHARGE WATER VELOCITY DOESN'T CAUSE SCOURING OF RECEIVING AREA.
3. IF SEDIMENT IS PRESENT IT SHALL BE REMOVED PRIOR TO DISCHARGE. DISCHARGE SHALL BE MAINTAINED A MINIMUM OF 100'-0" AWAY FROM ANY WETLAND OR WATER BODY.
4. SURFACE WATER THAT CONTACTS CONTAMINATED SOILS, AND DECONTAMINATION WATER THAT IS GENERATED WHILE CLEANING EQUIPMENT WILL BE CONSIDERED CONTACT WATER. CONTACT WATER SHALL BE COLLECTED AND STORED AND PROPERLY DISPOSED OF OFF SITE AT OWNER APPROVED FACILITY BY THE CONTRACTOR.
5. DEWATERING SHALL BE CONDUCTED IN ACCORDANCE TO DEWATERING PLAN PROVIDED BY THE CONTRACTOR AND APPROVED BY DTE. SEE SPECIFICATIONS FOR DETAILS.

SEEDING AND MULCHING:

1. ALL DISTURBED AREAS NOT AGGREGATE SURFACED SHALL BE STABILIZED WITH SEED AND MULCH. THE AREA TO BE SEEDED SHALL BE GRADED TO A SMOOTH EVEN SUBGRADE TO AN ELEVATION THREE INCHES BELOW THE PREPARED FINISHED GRADE.
2. AFTER APPROVAL BY THE ENGINEER OF THE GRADING OF THE SUBGRADE AS ABOVE DESCRIBED, THREE INCHES OF TOPSOIL SHALL BE PLACED THEREON. AFTER SPREADING OF TOPSOIL TO THE PREPARED FINISHED GRADE, ANY LARGE CLODS OR LUMPS SHALL BE BROKEN WITH A PULVERIZER OR OTHER EFFECTIVE MEANS AND ALL FOREIGN MATTER SHALL BE REMOVED AND DISPOSED OF OFF THE SITE. IMMEDIATELY BEFORE FERTILIZING AND SEEDING, THE TOPSOIL SHALL BE BROUGHT TO A FRIABLE CONDITION BY DISKING AND HARROWING TO A DEPTH OF THREE INCHES.
3. MDOT CLASS A CHEMICAL FERTILIZER SHALL BE UNIFORMLY APPLIED ON THE PREPARED TOPSOIL SURFACE AT A RATE OF 540 POUNDS PER ACRE OF 12-12-12, PER MDOT SPEC 917.10.
4. IMMEDIATELY AFTER THE FERTILIZER HAS BEEN PLACED, GRASS SEED MIXTURE TDS SHALL BE SOWN IN ACCORDANCE WITH MDOT SPEC. 816. REFER TO MDOT TABLE 917-1 FOR SEED MIXTURE TDS.
5. SEEDS SHALL NOT BE SOWN THROUGH MULCH. THE SEED MIXTURE REQUIRED SHALL BE SOWN, OR RESOWN, AT A RATE OF 220 POUNDS PER ACRE WITH EITHER MECHANICAL DRILLS, BROADCAST, OR HYDRO-SEEDER TYPE EQUIPMENT. AREAS THAT ARE SOWN BY HYDRO-SEEDER OR THE BROADCAST METHOD WILL BE VISUALLY INSPECTED FOR UNIFORMITY OF APPLICATION. AREAS SOWN BY HYDRO-SEEDER OR THE BROADCAST METHOD SHALL BE FLOATED AND LIGHTLY COMPACTED TO INCORPORATE THE SEED INTO THE UPPERMOST 1*4 INCH OF THE SOIL.
6. SEED SHALL BE SOWN IN THE PERIOD FROM APRIL 20 TO OCTOBER 1. NO SEED SHALL BE SOWN OUTSIDE THIS PERIOD UNLESS APPROVED BY ENGINEER.
7. IMMEDIATELY AFTER COMPLETION OF THE SEEDING OPERATION, THE SEEDED AREAS SHALL BE MULCHED. MULCH SHALL CONSIST OF STRAW SPREAD OVER THE SURFACE TO A UNIFORM THICKNESS AT A RATE OF 2 TONS PER ACRE (0.83 POUNDS PER SQUARE YARD) OR AS APPROVED BY THE ENGINEER, UNLESS OTHERWISE SPECIFIED, THE MULCH SHALL BE HELD IN PLACE BY A SPRAY COATING OF ADHESIVE MATERIAL APPROVED BY THE ENGINEER OR BY USING A NOTCHED DISK THAT PUNCHES AND ANCHORS THE MULCH MATERIAL. THE CONTRACTOR SHALL PROTECT ALL TRAFFIC SIGNS, STRUCTURES, AND OTHER OBJECTS FROM BEING MARKED OR DISFIGURED BY THE ADHESIVE MATERIAL. THE MULCH SHALL BE LOOSE ENOUGH TO ALLOW SUNLIGHT TO PENETRATE AND AIR TO SLOWLY CIRCULATE, BUT THICK ENOUGH TO SHADE THE GROUND, REDUCE THE RATE OF WATER EVAPORATION, AND PREVENT OR REDUCE WATER AND WIND EROSION. MULCH THAT HAS BECOME DISPLACED SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
8. DURING THE PERIOD FROM APRIL 20 TO NOVEMBER 1, ALL AREAS SEEDED SHALL BE WATERED AS NECESSARY UNTIL THE GRASS HAS BEEN ESTABLISHED AS REQUIRED BY THE SOIL EROSION PERMIT.
9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN A FINAL RESULT THAT WILL PROVIDE A WELL ROOTED GROWTH, RESISTANT TO NORMAL WASHING AND DROUGHT. SHOULD THE FIRST ATTEMPT AT SEEDING FAIL TO PRODUCE THE REQUIRED RESULT, THE CONTRACTOR WILL BE RESPONSIBLE FOR REPEATING THE NECESSARY OPERATIONS TO PRODUCE THE DESIGNED RESULTS, AT NO ADDITIONAL COST TO OWNER.
10. AFTER VEGETATION IS ESTABLISHED, SLOPED AREAS WILL BE MOWED ONLY TO DETER THE GROWTH OF BRUSH.

SOIL EROSION & SEDIMENTATION CONTROL MAINTENANCE:

1. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THE SOIL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS BEFORE AND AT ALL TIMES DURING CONSTRUCTION ON THE PROJECT. ANY MODIFICATIONS OR ADDITIONS TO SOIL EROSION CONTROL MEASURES DUE TO CONSTRUCTION OR CHANGED CONDITIONS SHALL BE COMPLIED WITH AS REQUIRED OR DIRECTED BY THE ENGINEER OR ENFORCEMENT AGENCY.
2. ALL SOIL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE PERMIT REQUIREMENTS OF WASHTENAW COUNTY.
3. DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR, PERIODIC INSPECTIONS MAY BE MADE BY THE OWNER/ENGINEER TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES. ANY NECESSARY CORRECTIONS SHALL BE MADE WITHIN 48 HOURS.
4. ALL SILT FENCE SHALL BE INSPECTED DAILY, INCLUDING AROUND YARD DRAINS. SILT FENCE WHICH IS UNDERMINED, CLOGGED, FALLING OVER, OR OTHERWISE FUNCTIONING IMPROPERLY SHALL BE REPAIRED AND RESTORED TO ITS ORIGINAL INSTALLATION DETAIL WITHIN 48 HRS.
5. EROSION AND ANY SEDIMENTATION FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
6. THE CONTRACTOR SHALL INSTRUCT ALL DRIVERS TO CLEAN SOIL MATERIALS FROM TIRES PRIOR TO EXITING THE SITE.
7. ALL MUD/DIRT TRACKED INTO CITY STREETS & STATE ROADS FROM THIS SITE DUE TO CONSTRUCTION SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR. ALL MUD/DIRT TRACKED OR SPILLED ON PAVED ROAD SURFACES WITHIN AND ADJACENT TO THIS SITE SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR DAILY. STREETS SHALL BE SWEEPED WEEKLY AT A MINIMUM.
8. SHOULD DUST BECOME A PROBLEM ON SITE, CONTRACTOR SHALL USE WATERING OR ANY OTHER METHOD OF DUST CONTROL ACCEPTABLE TO THE OWNER.
9. THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
10. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTION.

REFERENCE DRAWINGS:

SITE PLAN	5A1329-1
SITE PREPARATION AND DEMOLITION PLAN	5A1329-5
SOIL EROSION AND SEDIMENT CONTROL PLAN	5A1329-8
STORMWATER MANAGEMENT PLAN	5M1329-1

PRELIMINARY
NOT FOR CONSTRUCTION

REV	NOTE TO FIELD
-	FOR ANY QUESTIONS ON THIS DESIGN, PLEASE CONTACT:
	PROJECT ENGINEER
	ERIC M. MYRICK (313)235-6728

STOP THINK ACT REVIEW

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DATE	SUBMITTED FOR
4/1/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

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MADE BY	DATE	ACT	RELAY
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APPROVALS	OTHER	DATE
RELAY		
EPPM		
ACT		
OTHERS		

ENGINEERING	DATE
MADE BY	
I. KRYCHYLSKA/BV	4/1/26
LAYOUT BY	
Z.E. WIACEK/BV	4/1/26
CHECKED BY	
G.J. ESKOLA/BV	4/1/26
PROJECT DESIGN/ELECT	
PROJECT DESIGN/ACT	
APPROVED FOR ISSUE	

DTE Energy *DTE Electric* *Central Design/Standards*

TITLE

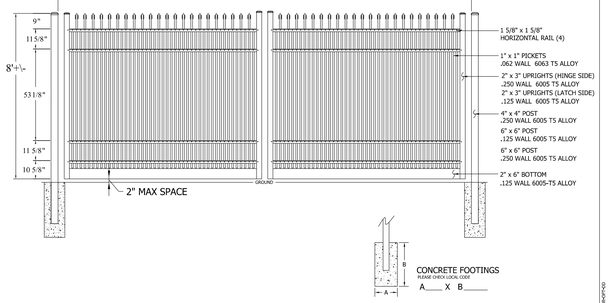
SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	NONE
DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST
5A1329-9	69084198	GRENA-PDL-A-69084198

DOCUMENTUM FILENAME
GRENA-A-009

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4/2/2026 rRob106660

NOTES:
1) SHOWN FACING (SCREW SIDE)
2) PICKETS SCREWED ONE SIDE ONLY
3) PAINT: POWDER COATED (AAMA 2604 COMPLIANT)
4) # OF PICKETS AND EXACT SPACING VARIES WITH OPENING SIZE



NOTE: DRAWING FULL SCALE (ACAD)

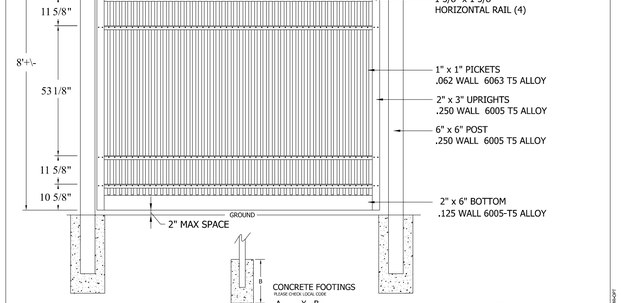
EFS-10 INDUSTRIAL	8' HIGH 20' WIDE 4-RAIL DOUBLE GATE (WELDED NO BRACE) W/ OPT PICKET SPACING	CONTRACTOR: N/A	COLOR:
	PAGE 1 of 1 | MF	PROJECT: N/A	DATE: 5/4/2023

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ELITE FENCE PRODUCTS, INC.
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CHESTERFIELD TWP., MI 48051
WWW.ELITEFENCE.COM
1-800-783-1331

EFS10-HDSD-RHS-RHDPHDD

NOTES:
1) SHOWN FACING (SCREW SIDE)
2) PICKETS SCREWED ONE SIDE ONLY
3) PAINT: POWDER COATED (AAMA 2604 COMPLIANT)
4) # OF PICKETS AND EXACT SPACING VARIES WITH OPENING SIZE
5) SHOWN WITH OPTIONAL PICKET SPACING.



NOTE: DRAWING FULL SCALE (ACAD)

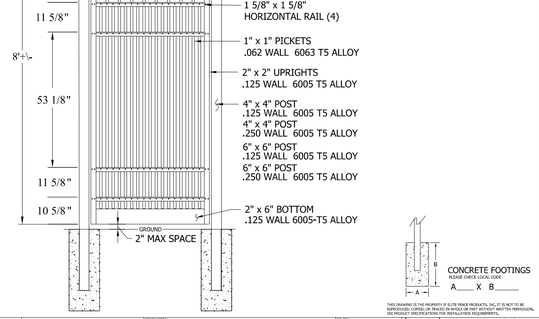
EFS-10 INDUSTRIAL	8' HIGH 10' WIDE 4-RAIL SINGLE GATE (WELDED NO BRACE)	CONTRACTOR: N/A	COLOR:
	PAGE 1 of 1 | MF	PROJECT: N/A	DATE: 5/4/2023

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ELITE FENCE PRODUCTS, INC.
50925 RICHARD W. BLVD
CHESTERFIELD TWP., MI 48051
WWW.ELITEFENCE.COM
1-800-783-1331

EFS10-SHDD-RHS-RHDPHDD

NOTES:
1) SHOW FACING (SCREW SIDE)
2) PICKETS SCREWED ONE SIDE ONLY
3) PAINT: POWDER COATED (AAMA 2604 COMPLIANT)
4) # OF PICKETS AND EXACT SPACING VARIES WITH OPENING SIZE



NOTE: DRAWING FULL SCALE (ACAD)

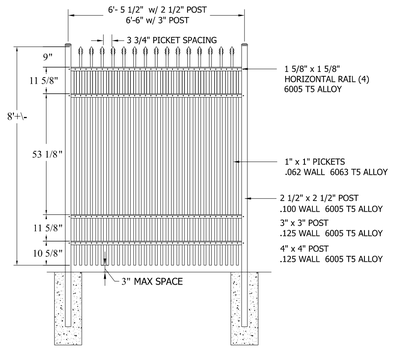
EFS-10 INDUSTRIAL	8' HIGH 4' WIDE SINGLE GATE (WELDED NO BRACE) W/ OPTIONAL PICKET SPACING	CONTRACTOR: N/A	COLOR:
	PAGE 1 of 1 | MF	PROJECT: N/A	DATE: 03/14/2019

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1-800-783-1331

EFS10-SHDD-RHS-RHDPHDD

NOTES:
1) SHOWN FACING (SCREW SIDE)
2) PICKETS SCREWED ONE SIDE ONLY
3) PAINT: POWDER COATED (AAMA 2604 COMPLIANT)
4) # OF PICKETS AND EXACT SPACING VARIES WITH OPENING SIZE



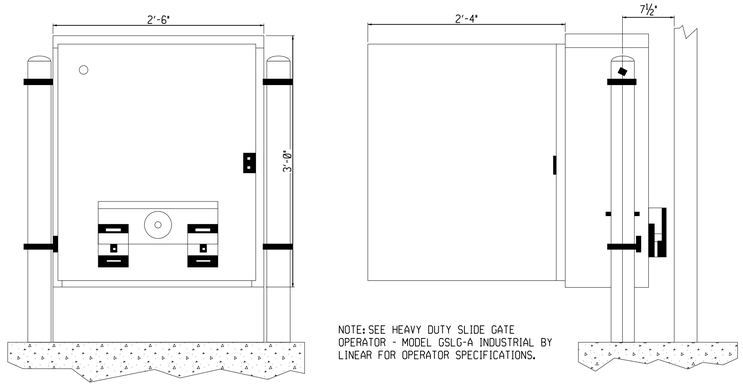
NOTE: DRAWING FULL SCALE (ACAD)

EFS-10 INDUSTRIAL	8' HIGH 6' WIDE 4-RAIL PANEL SECTION W/ OPT PICKET SPACING.	CONTRACTOR: N/A	COLOR:
	PAGE 1 of 1 | MF	PROJECT: N/A	DATE: 5/4/2023

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EFS10-SHDD-RHS-RHDPHDD

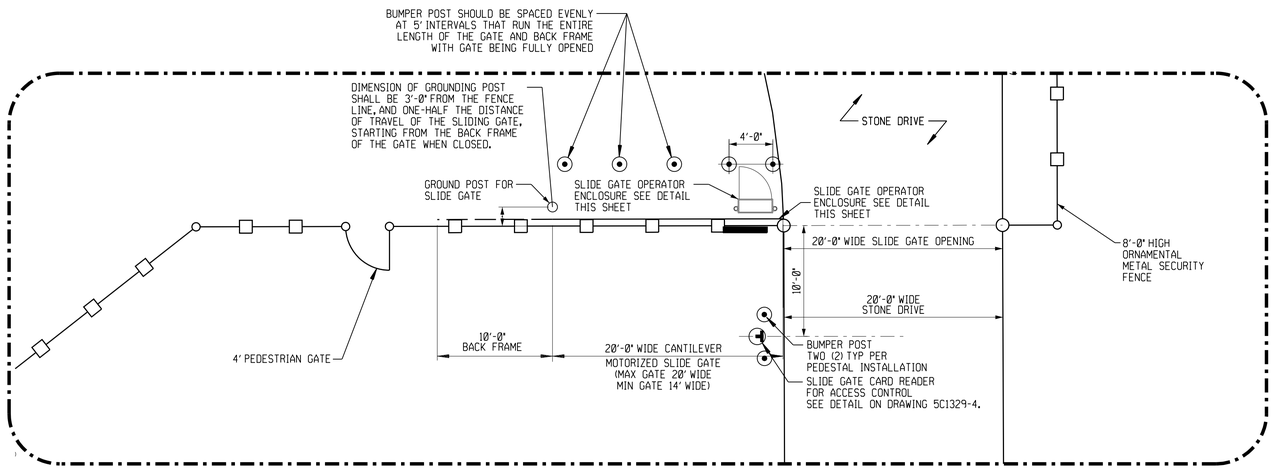


GSGL-A SERIES SLIDE GATE OPERATOR SPECIFICATIONS

SLIDE GATE OPERATOR W/ COLD WEATHER PACKAGE, #50 CHAIN LINEAR CORP. MODEL GSLA-A (1HP, 115VAC, SINGLE PHASE)	BY CONTRACTOR

HEAVY DUTY SLIDE GATE OPERATOR

SCALE: NOT TO SCALE



1 / A6 ENLARGED SLIDE GATE LAYOUT

SCALE: NOT TO SCALE

PRELIMINARY
NOT FOR CONSTRUCTION

REV	NOTE TO FIELD
-	FOR ANY QUESTIONS ON THIS DESIGN, PLEASE CONTACT:
	PROJECT ENGINEER: ERIC M. MYRICK (313)235-6728

STOP THINK ACT REVIEW

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

REFERENCE DRAWINGS:

FENCE AND SERVICE DRIVE PLAN ---------- 5A1329-6

DATE	SUBMITTED FOR
4/1/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

C	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

B	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

A	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

WO

APPROVALS	OTHER	DATE
RELAY		
EPPM		
ACT		
OTHERS		

ENGINEERING	DATE
MADE BY	
I. KRYCHYLSKA/BV	4/1/26
LAYOUT BY	
Z.E. WIACEK/BV	4/1/26
CHECKED BY	
G.J. ESKOLA/BV	4/1/26
PROJECT DESIGN/ELECT	
PROJECT DESIGN/ACT	
APPROVED FOR ISSUE	

DTE Energy *DTE Electric* *Central Design/Standards*

TITLE

DECORATIVE FENCE & GATE DETAILS

LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	NONE

DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST
5A1329-10	69084198	GRENA-PDL-A-69084198

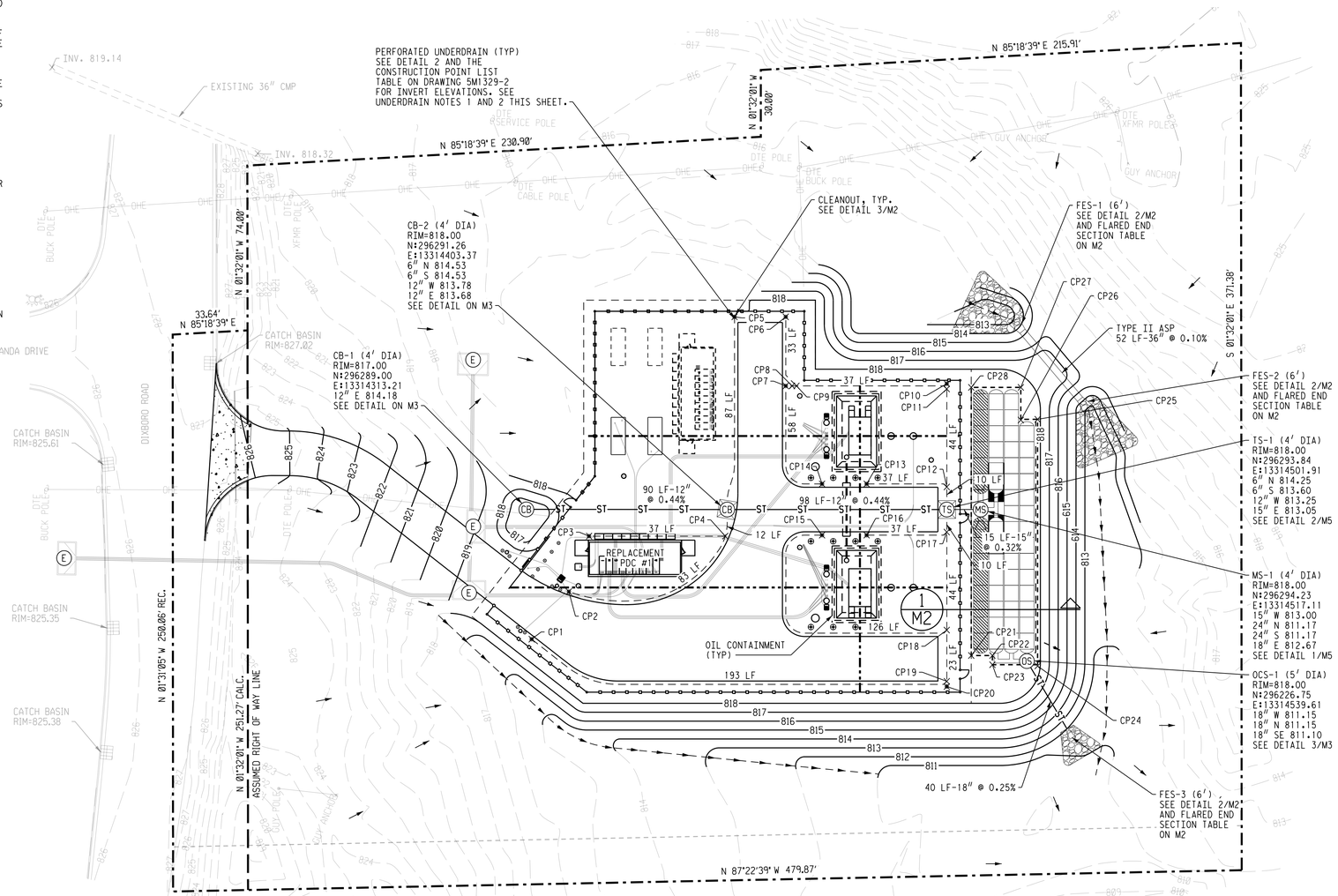
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c:\pw working\bve powerdelivery\na rob106660\d3311542\GRENA-A-0010.0 NEW.dgn
4/2/2026 / Rob106660

STORMWATER MANAGEMENT

THE GRENADA SUBSTATION SITE IS LOCATED WITHIN SUPERIOR TOWNSHIP, EAST OF DIXBORO ROAD AND SOUTH OF PLYMOUTH ROAD IN WASHTENAW COUNTY, MI. THE TOPOGRAPHY OF THE SITE HAS SLOPES ACROSS THE SITE RANGING FROM (1.25% - 33.25%) WITH ELEVATIONS RANGING BETWEEN (810.00 AND 826.00) AND HAS A NATURAL DRAINAGE PATH FROM THE NORTHWEST CORNER TO THE SOUTH EAST CORNER OF THE PROPERTY. THE SITE HAS AN EXISTING SUBSTATION BUILDING AND YARD THAT WILL BE EXPANDED AS PART OF THIS PROJECT. THE COMPLETED SUBSTATION YARD WILL BE SURFACED WITH LOOSE MDOT 17A STONE MATERIAL ABOVE A CLEAN FILL MATERIAL LAYER WITH INTERIOR DRIVEWAYS SURFACED WITH 21AA CRUSHED GRAVEL. THE EXISTING ACCESS DRIVEWAY TO THE SUBSTATION WILL BE WIDENED TO 20-FEET WIDE AND A NEW CONCRETE APPROACH OFF OF DIXBORO ROAD WILL BE CONSTRUCTED. AREAS OUTSIDE OF THE SUBSTATION WILL BE STABILIZED WITH SEED AND MULCH, AND NEW TREES WILL BE FURNISHED FOR SCREENING. STORMWATER GENERATED ON SITE WILL FILTER THROUGH THE LOOSE STONE SURFACING OF THE SUBSTATION AND WILL BE COLLECTED BY A PERFORATED UNDERDRAIN SYSTEM. THESE UNDERDRAINS CONNECT TO A NETWORK OF STORM SEWERS AND STRUCTURES THAT WILL CONVEY RUNOFF ON SITE TO AN UNDERGROUND DETENTION SYSTEM EAST OF THE SUBSTATION PAD. AN OUTLET CONTROL STRUCTURE WILL BE INSTALLED WITHIN THE DETENTION AREA. THE STRUCTURE WILL CONTAIN AN 18" OUTLET PIPE AND A PRECAST CONCRETE FLOW RESTRICTOR WALL WITH AN OVERFLOW OPTION. THE PRECAST RESTRICTOR WALL WILL HAVE A TWO-STAGED OUTLET CONTROLLING THE 100-YEAR DETENTION VOLUME. THE FIRST FLUSH AND BANKFULL VOLUMES WILL BE INFILTRATED THROUGH THE BOTTOM OF THE DETENTION SYSTEM. THE 18" OUTLET PIPE WILL DISCHARGE TO A LOW AREA IN THE SOUTH EAST CORNER OF THE SITE, HEAVY LINED WITH RIP-RAP TO AVOID EROSION OF ADJACENT PROPERTIES. OFFSITE DRAINAGE WILL BE ABLE TO FLOW AROUND THE SITE THROUGH A 36" CULVERT TO THE SOUTHEAST CORNER OF THE SITE AS IT DOES CURRENTLY. ALL RUNOFF FROM THE SITE WILL ULTIMATELY DRAIN BACK TO FLEMMING CREEK. THERE ARE NO WETLANDS, STREAMS, OR LAKES WITHIN THE PROPERTY OR WITHIN 1,000 FEET OF THE PROPERTY THAT WILL BE AFFECTED DURING CONSTRUCTION.

NORTH ARROW



PIPE MATERIAL:

ALL DRAIN PIPES ARE 6" DIAMETER PERFORATED ADS N-12 DUAL WALL PIPE WITH PROTECTIVE WRAP U.N.O.
ESTIMATED QUANTITY 6" ADS N-12 ST IB HDPE PERFORATED PIPE = 871 LINEAL FT.
ESTIMATED QUANTITY 12" CL IV REINFORCED CONCRETE PIPE = 188 LINEAL FT.
ESTIMATED QUANTITY 15" CL IV REINFORCED CONCRETE PIPE = 15 LINEAL FT.
ESTIMATED QUANTITY 18" CL IV REINFORCED CONCRETE PIPE = 40 LINEAL FT.
ESTIMATED QUANTITY 36" TYPE II ALUMINIZED STEEL = 52 LINEAL FT.
(VERIFY ALL LENGTHS OF PIPE IN THE FIELD)

STORMWATER NOTES:

1. SEE DRAWING 5M1329-3 FOR ALL STORM STRUCTURE FRAMES AND COVERS.
2. SEE DETAIL ON DRAWING 5M1329-2 FOR TYPICAL SECTION THRU UNDERGROUND DETENTION.
3. MDOT 17A STONE AROUND FOUNDATIONS SHALL BE COMPACTED TO 95% OF ITS' MAXIMUM DENSITY AS DETERMINED BY THE MODIFIED PROCTOR METHODS (ASTM D1557), IN LIFTS NOT EXCEEDING 12-INCHES.
4. SEE DRAWING 5M1329-4 AND 5 FOR UNDERGROUND DETENTION SYSTEM DETAILS.
5. CONTRACTOR SHALL HAVE AN ENGINEER ONSITE FROM ADVANCED DRAINAGE SYSTEMS DURING CONSTRUCTION OF THE STORMWATER DETENTION SYSTEM AND STRUCTURES FOR INSPECTION.
6. CONTRACTOR TO NOTIFY BLACK AND VEATCH 48 HOURS PRIOR TO INSTALLING BASE STONE, PRE-TREATMENT STRUCTURES, AND STORMWATER DETENTION CHAMBERS FOR INSPECTION.

UTILITY WARNING

A MINIMUM OF 3 WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY "MISS DIG" AND HAVE ALL UNDERGROUND UTILITIES STAKED BEFORE ANY WORK MAY BEGIN.

UNDERDRAIN NOTES:

1. ALL UNDERDRAIN PIPE SHALL BE SLOPED AT A MINIMUM 0.50%.
2. ALL UNDERDRAIN SHALL BE 6" DIAMETER UNLESS NOTED OTHERWISE ON THIS PLAN.

LEGEND:

- EXISTING FIRE HYDRANT
- EXISTING WATER SHUT OFF
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- PROPERTY LINE
- PROPOSED ORNAMENTAL FENCE
- PROPOSED FOUNDATION
- FUTURE FOUNDATION
- 6" PERFORATED UNDERDRAIN
- PROPOSED STORM SEWER
- REMOVABLE BOLLARD
- FIXED BOLLARD
- PROPOSED DRAINAGE SWALE CENTERLINE
- STORM/WATER UTILITY EASEMENT
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED STORM OUTLET STRUCTURE
- TREATMENT STRUCTURE
- UNDERGROUND CONDUIT MANHOLE
- CARD READER
- CLEANOUT
- DRAINAGE FLOW ARROW
- RIP RAP
- CABLE TRENCH

REFERENCE DRAWINGS:

SITE PLAN	5A1329-1
EXISTING CONDITIONS PLAN	5A1329-4
SOIL EROSION AND SEDIMENT CONTROL PLAN	5A1329-8
SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	5A1329-9
STORMWATER DETAILS (1 OF 4)	5M1329-2
STORMWATER DETAILS (2 OF 4)	5M1329-3
STORMWATER DETAILS (3 OF 4)	5M1329-4
STORMWATER DETAILS (4 OF 4)	5M1329-5

STOP THINK ACT REVIEW

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REV	NOTE TO FIELD
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	PROJECT ENGINEER
	ERIC M. MYRICK (313)235-6728

PRELIMINARY
NOT FOR CONSTRUCTION

0 30 60
SCALE IN FEET

DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
4/1/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

PROJ DESIGN	PROJ MANAGER	OTHERS
DATE		

WO

MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

APPROVALS		
OTHER		DATE
RELAY		
EPPM		
ACT		
OTHERS		

ENGINEERING	
MADE BY	DATE
I. KRYCHYLSKA/BV	4/1/26
LAYOUT BY	DATE
Z.E. WIACEK/BV	4/1/26
CHECKED BY	DATE
G.J. ESKOLA/BV	4/1/26
PROJECT DESIGN/ELECT	DATE
PROJECT DESIGN/ACT	DATE
APPROVED FOR ISSUE	DATE

DTE Energy *DTE Electric* *Central Design/Standards*

TITLE

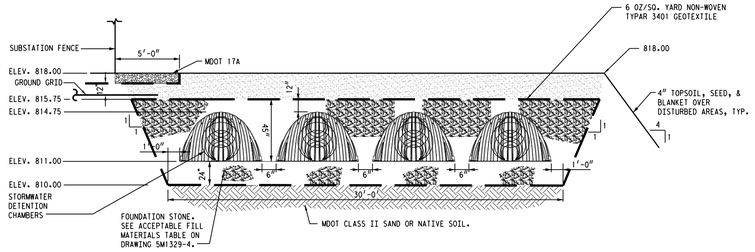
STORMWATER MANAGEMENT PLAN

LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	1"=30'-0"
DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST
5M1329-1	69084198	GRENA-PDL-A-69084198

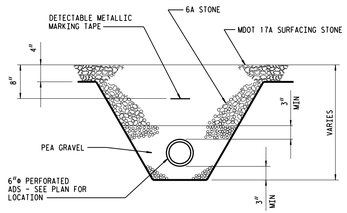
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4/2/2026 rRob106660

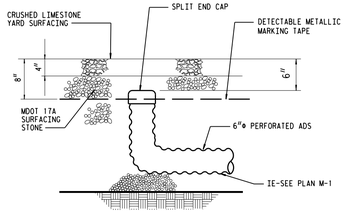
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CP-2	N:296252.61 E:13314333.25	815.00	6″ CLEANOUT
CP-3	N:296277.76 E:13314341.64	814.78	6″ CLEANOUT
CP-4	N:296279.34 E:13314402.80	814.59	6″ TEE
CP-5	N:296377.86 E:13314404.41	814.97	6″ CLEANOUT
CP-6	N:296378.45 E:13314427.40	814.87	6″ CLEANOUT
CP-7	N:296347.45 E:13314428.21	814.90	6″ CLEANOUT
CP-8	N:296347.53 E:13314431.03	814.71	6″ WYE
CP-9	N:296347.58 E:13314433.03	814.70	6″ WYE
CP-10	N:296350.32 E:13314500.45	814.54	6″ CLEANOUT
CP-11	N:296347.94 E:13314500.51	814.52	6″ WYE
CP-12	N:296303.97 E:13314501.64	814.30	6″ WYE
CP-13	N:296304.41 E:13314465.62	814.48	6″ CLEANOUT
CP-14	N:296303.89 E:13314445.63	815.00	6″ CLEANOUT
CP-15	N:296280.90 E:13314446.22	814.50	6″ CLEANOUT
CP-16	N:296281.41 E:13314466.22	813.83	6″ CLEANOUT
CP-17	N:296283.72 E:13314502.17	814.64	6″ WYE
CP-18	N:296239.73 E:13314503.31	813.86	6″ WYE
CP-19	N:296216.74 E:13314503.90	814.00	6″ WYE
CP-20	N:296214.36 E:13314503.96	814.02	6″ CLEANOUT
CP-21	N:296228.61 E:13314514.60	-	DETENTION BASIN CORNER
CP-22	N:296228.86 E:13314524.09	-	DETENTION BASIN CORNER
CP-23	N:296224.72 E:13314524.20	-	DETENTION BASIN CORNER
CP-24	N:296225.24 E:13314544.46	-	DETENTION BASIN CORNER
CP-25	N:296335.38 E:13314541.62	-	DETENTION BASIN CORNER
CP-26	N:296335.18 E:13314534.10	-	DETENTION BASIN CORNER
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CP-28	N:296348.93 E:13314511.49	-	DETENTION BASIN CORNER



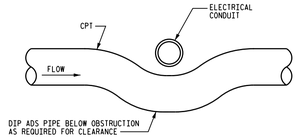
1 M1 SECTION THRU UNDERGROUND DETENTION
NO SCALE



2 M1 TYPICAL SUBSURFACE DRAINAGE SECTION
NO SCALE

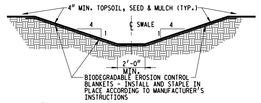


3 M1 TYPICAL SUBDRAIN CLEANOUT AT SPLIT END CAP
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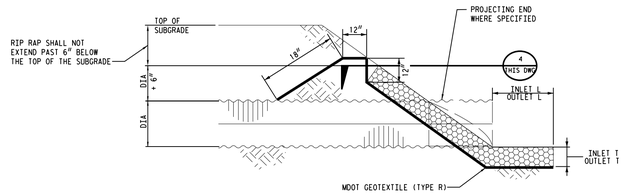


DETAIL @ INTERSECTION OF ADS
(NO SCALE) TO BE USED AT ANY OBSTRUCTION

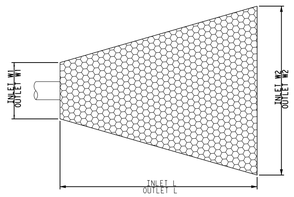
NOTE: IF CPI IS ENCASED IN CONCRETE AT INTERSECTION AND CPI ENCASEMENT IS CAUSING OBSTRUCTION, CPI ENCASEMENT SHALL BE TERMINATED AS NEEDED TO DIP PIPE BELOW OBSTRUCTION.



4 M1 TYPICAL SWALE SECTION
NO SCALE



5 M1 TYPICAL CULVERT RPI RAP INLET/OUTLET END
NO SCALE
SEE RIP RAP TABLE



SECTION 4
NO SCALE
SEE RIP RAP TABLE

FLARED END SECTION TABLE										
FLARED END SECTION					RIP RAP					REMARKS
F.E.S. NO.	NORTH	EAST	DIA	INV. EL.	L	T	W1	W2	D50	
1	296379.24	13314529.84	36″	813.00	23′-0″	0′-9″	9′-0″	32′-0″	SEE NOTE 1	DESIGNED FOR 25-YEAR STORM EVENT
2	296340.40	13314564.42	36″	812.95	23′-0″	0′-9″	9′-0″	32′-0″	SEE NOTE 1	DESIGNED FOR 25-YEAR STORM EVENT
3	296192.85	13314560.85	18″	811.00	14′-0″	0′-9″	4′-6″	19′-0″	SEE NOTE 1	DESIGNED FOR 25-YEAR STORM EVENT

1. RIP RAP SHALL BE MDOT PLAIN REVETMENT GRADATION AND SHALL BE INSTALLED PER MDOT STANDARD SPECIFICATION 916.01.0 FOR RIP RAP SPECIFICATIONS.

REFERENCE DRAWINGS:

SITE PLAN ——— 5A1329-1
STORMWATER MANAGEMENT PLAN ——— 5M1329-1
STORMWATER DETAILS (2 OF 4) ——— 5M1329-3
STORMWATER DETAILS (3 OF 4) ——— 5M1329-4
STORMWATER DETAILS (4 OF 4) ——— 5M1329-5

PRELIMINARY
NOT FOR CONSTRUCTION

REV	NOTE TO FIELD
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	ERIC M. MYRICK (313)235-6728

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DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
4/1/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

WO

MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

APPROVALS		
OTHER		DATE
RELAY		
EPPM		
ACT		
OTHERS		

ENGINEERING	
MADE BY	DATE
I. KRYCHYLSKA/BV	4/1/26
LAYOUT BY	DATE
Z.E. WIACEK/BV	4/1/26
CHECKED BY	DATE
G.J. ESKOLA/BV	4/1/26
PROJECT DESIGN/ELECT	DATE
PROJECT DESIGN/ACT	DATE
APPROVED FOR ISSUE	DATE

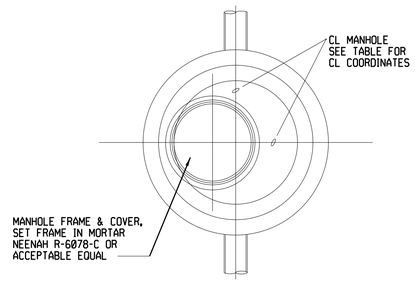
DTE Energy *DTE Electric* *Central Design/Standards*

TITLE
STORMWATER DETAILS
(1 OF 4)

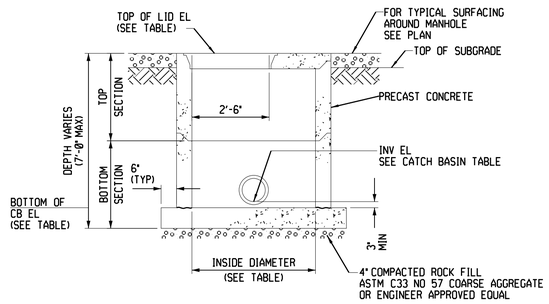
LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	NONE
DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST
5M1329-2	69084198	GRENA-PDL-A-69084198

DOCUMENTUM FILENAME
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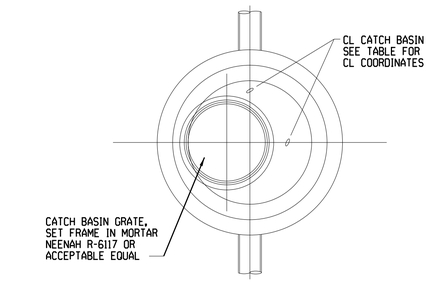


PLAN

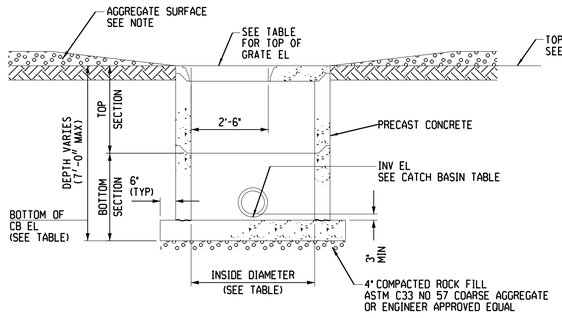


SECTION

TYPICAL PRECAST MANHOLE UNDER 7'-0"
NO SCALE

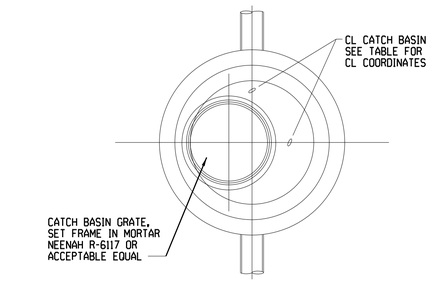


PLAN

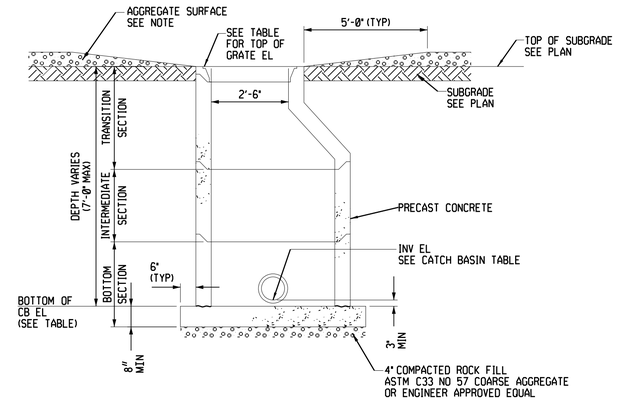


SECTION

TYPICAL PRECAST CATCH BASIN UNDER 7'-0"
NO SCALE

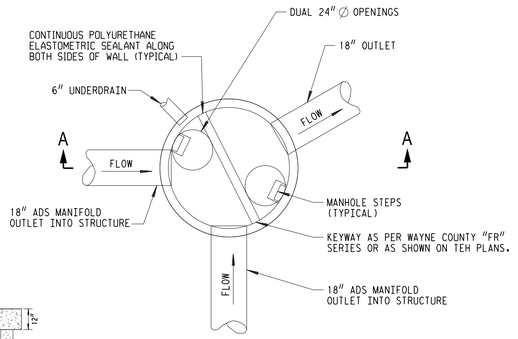


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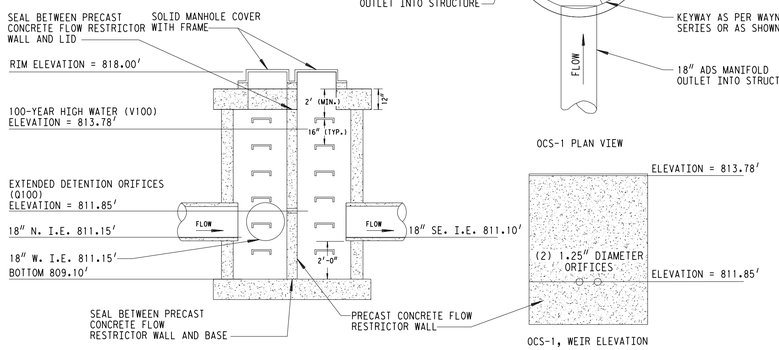


SECTION

TYPICAL PRECAST CATCH BASIN 7'-0" AND OVER
NO SCALE



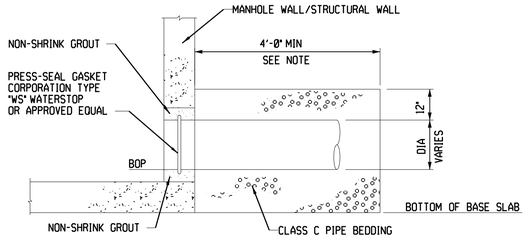
OCS-1 PLAN VIEW



SECTION A-A, THROUGH OCS-1

OCS-1, WEIR ELEVATION

3 M1 OUTLET CONTROL STRUCTURE (OCS-1)
NO SCALE



NOTE: CLASS C PIPE BEDDING TO LIMITS SHOWN OR EDGE OF MANHOLE EXCAVATION WHICHEVER IS GREATER.

TYPICAL WALL PENETRATION DETAIL
NO SCALE

PRELIMINARY
NOT FOR CONSTRUCTION

REV	NOTE TO FIELD
-	FOR ANY QUESTIONS ON THIS DESIGN, PLEASE CONTACT:
	PROJECT ENGINEER
	ERIC M. MYRICK (313)235-6728

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

REFERENCE DRAWINGS:

SITE PLAN ——— 5A1329-1
SOIL EROSION AND SEDIMENT CONTROL PLAN ——— 5A1329-8
STORMWATER MANAGEMENT PLAN ——— 5M1329-1
STORMWATER DETAILS (1 OF 4) ——— 5A1329-2
STORMWATER DETAILS (3 OF 4) ——— 5A1329-4
STORMWATER DETAILS (4 OF 4) ——— 5A1329-5

DATE	SUBMITTED FOR
4/1/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

PROJ DESIGN	PROJ MANAGER	OTHERS
DATE		

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MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

APPROVALS		
OTHER		DATE
RELAY		
EPPM		
ACT		
OTHERS		

ENGINEERING	
MADE BY	DATE
I. KRYCHYLSKA/BV	4/1/26
LAYOUT BY	DATE
Z.E. WIACEK/BV	4/1/26
CHECKED BY	DATE
G.J. ESKOLA/BV	4/1/26
PROJECT DESIGN/ELECT	DATE
PROJECT DESIGN/ACT	DATE
APPROVED FOR ISSUE	DATE

DTE Energy *DTE Electric* *Central Design/Standards*

TITLE

STORMWATER DETAILS (2 OF 4)

LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	NONE
DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST
5M1329-3	69084198	GRENA-PDL-A-69084198

DOCUMENTUM FILENAME
GRENA-M-0003

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4/1/2026 / Rob106660

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	

Advanced Drainage Systems, Inc.

SiteAssist™ FOR STORMTECH INSTALLATION INSTRUCTIONS VISIT OUR APP

DTE GRENADA
ANN ARBOR, MI, USA

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 1595 LBS/FT/% OR LIMIT ACCESS FOR INSPECTION AS SPECIFIED IN ASTM F2418 AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
10. MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
11. ADS DOES NOT DESIGN OR PROVIDE MEMBRANE LINER SYSTEMS. TO MINIMIZE THE LEAKAGE POTENTIAL OF LINER SYSTEMS, THE MEMBRANE LINER SYSTEM SHOULD BE DESIGNED BY A KNOWLEDGEABLE GEOTEXTILE PROFESSIONAL AND INSTALLED BY A QUALIFIED CONTRACTOR.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE, AASHTO M43 #3, 357, 4, 467, 5, 56, OR 57.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-800-821-6710 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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PROPOSED LAYOUT

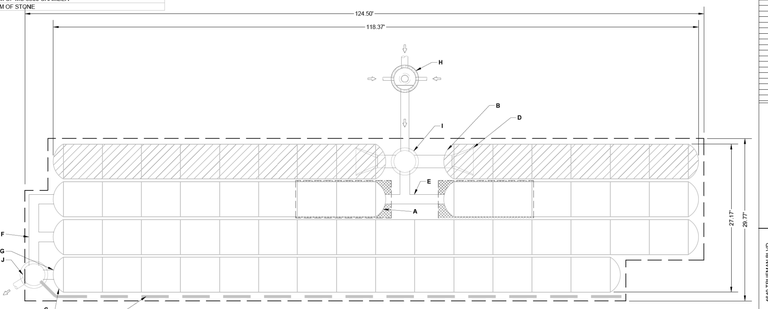
58	STORMTECH MC-3500 CHAMBERS
12	STORMTECH MC-3500 END CAPS
12	STONE ABOVE (in)
12	STONE BELOW (in)
30	% STONE VOID
19,729	**INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)**
3559	SYSTEM AREA (ft²)
309	SYSTEM PERIMETER (ft)

PROPOSED ELEVATIONS

822.75	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
816.75	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
816.25	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
816.25	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
816.25	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
815.75	TOP OF STONE
814.75	TOP OF MC-3500 CHAMBER
812.67	18" TOP MANIFOLD/CONNECTION INVERT
811.17	24" ISOLATOR ROW PLUS CONNECTION INVERT
811.15	18" BOTTOM MANIFOLD/CONNECTION INVERT
811.15	6" UNDERDRAIN INVERT
811.00	BOTTOM OF MC-3500 CHAMBER
810.00	BOTTOM OF STONE

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED END CAP	A	18" TOP PRE-CORED END CAP, PART#: MC3500EPP18TC / TYP OF ALL 18" TOP CONNECTIONS	20.03"	
PREFABRICATED END CAP	B	24" BOTTOM PRE-CORED END CAP, PART#: MC3500EPP24BC / TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	2.06"	
PREFABRICATED END CAP	C	18" BOTTOM PRE-CORED END CAP, PART#: MC3500EPP18BC / TYP OF ALL 18" BOTTOM CONNECTIONS	1.77"	
FLAMP	D	INSTALL FLAMP ON 24" ACCESS PIPE (PART# MCFLAMP) (TYP 2 PLACES)		
MANIFOLD	E	18" x 18" TOP MANIFOLD, ADS N.12	20.03"	
MANIFOLD	F	18" x 18" BOTTOM MANIFOLD, ADS N.12	1.77"	
PIPE CONNECTION	G	18" BOTTOM CONNECTION	1.73"	
CONCRETE STRUCTURE	H	MH1 - 4FT DIA ARCADIA WATER QUALITY UNIT (SEE SEPARATE SUBMITTAL)		
CONCRETE STRUCTURE	I	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		5.5 CFS IN
CONCRETE STRUCTURE	J	OCS (DESIGN BY ENGINEER / PROVIDED BY OTHERS)		8.0 CFS OUT
UNDERDRAIN	K	6" ADS N.12 DUAL WALL PERFORATED HDPE UNDERDRAIN		



ISOLATOR ROW PLUS (SEE DETAIL)

PLACE MINIMUM 17.50' OF ADSPLUS125 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDENEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- **NOT FOR CONSTRUCTION** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

DTE GRENADA — ANN ARBOR, MI, USA — DRAWN: ZW — CHECKED: NA — DATE: 10/16/2025 — PROJECT #

StormTech® Chamber System

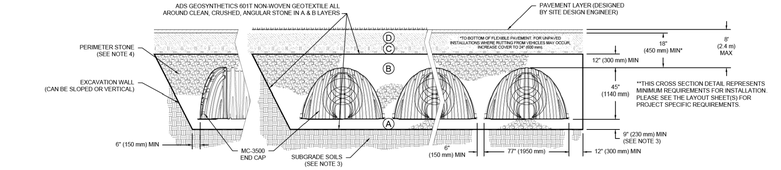
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SHEET 2 OF 6

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[4] A-1, A-2-4, A-3 OR AASHTO M43[4] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[4] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[4] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[3,5]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



NOTES:

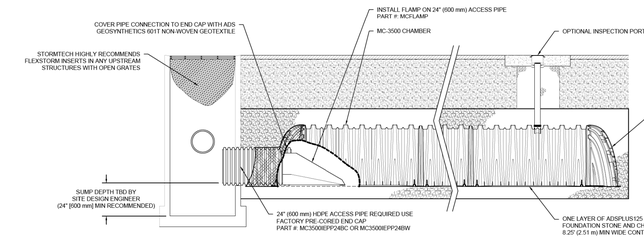
1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/% THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS

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StormTech® Chamber System

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SHEET 3 OF 6



MC-3500 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

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SHEET 4 OF 6

REFERENCE DRAWINGS:

SITE PLAN	5A1329-1
STORMWATER MANAGEMENT PLAN	5M1329-1
STORMWATER DETAILS (1 OF 4)	5M1329-2
STORMWATER DETAILS (2 OF 4)	5M1329-3
STORMWATER DETAILS (4 OF 4)	5M1329-5

PRELIMINARY
NOT FOR CONSTRUCTION

REV.	NOTE TO FIELD
-	FOR ANY QUESTIONS ON THIS DESIGN, PLEASE CONTACT:
	PROJECT ENGINEER ERIC M. MYRICK (313)235-6728

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DATE	SUBMITTED FOR
4/1/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

WO

MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

APPROVALS	OTHER	DATE
RELAY		
EPPM		
ACT		
OTHERS		

ENGINEERING	DATE
MADE BY	I. KRYCHYLSKA/BV 4/1/26
LAYOUT BY	Z.E. WIACEK/BV 4/1/26
CHECKED BY	G.J. ESKOLA/BV 4/1/26
PROJECT DESIGN/ELECT	
PROJECT DESIGN/ACT	
APPROVED FOR ISSUE	

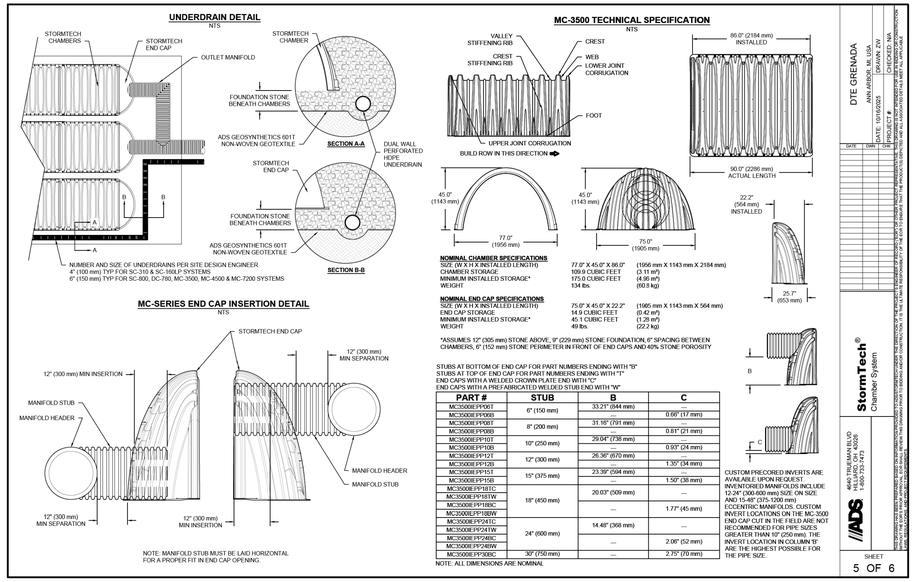
DTE Energy *DTE Electric* *Central Design/Standards*

TITLE: STORMWATER DETAILS (3 OF 4)

LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	NONE
DRAWING NUMBER: 5M1329-4	WORK ORDER: 69084198	PROJECT DOCUMENT LIST: GRENA-PDL-A-69084198

DOCUMENTUM FILENAME: GRENA-M-0004

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4/1/2026 rRob106660



PART #	STUB	B	C
MC3500EPP06T	6" (150 mm)	33.21" (844 mm)	0.66" (17 mm)
MC3500EPP06B		31.95" (791 mm)	
MC3500EPP08T	8" (200 mm)		0.81" (21 mm)
MC3500EPP08B		29.04" (738 mm)	
MC3500EPP10T	10" (250 mm)		0.93" (24 mm)
MC3500EPP10B		26.36" (670 mm)	
MC3500EPP12T	12" (300 mm)		1.35" (34 mm)
MC3500EPP12B		23.39" (594 mm)	
MC3500EPP15T	15" (375 mm)		1.50" (38 mm)
MC3500EPP15B		20.03" (509 mm)	
MC3500EPP18TC	18" (450 mm)		1.77" (45 mm)
MC3500EPP18BW		14.48" (368 mm)	
MC3500EPP24TC	24" (600 mm)		2.06" (52 mm)
MC3500EPP24BW			
MC3500EPP24BC			
MC3500EPP24BW			
MC3500EPP30BC	30" (750 mm)		2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

DTE GRENADA
ANN ARBOR, MI, USA
DATE: 10/16/2025
DRAWN: ZW
CHECKED: -
PROJECT #: 5423944

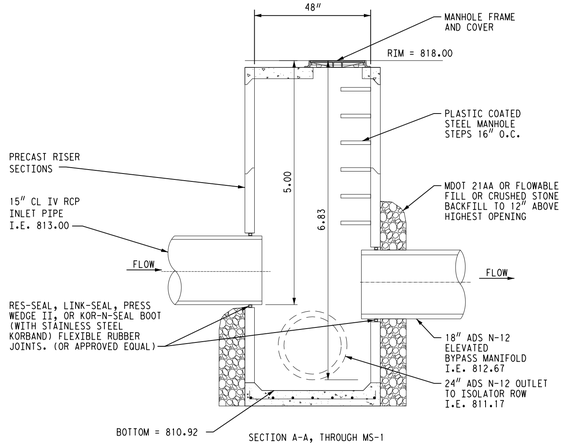
DATE	DWN	CHK

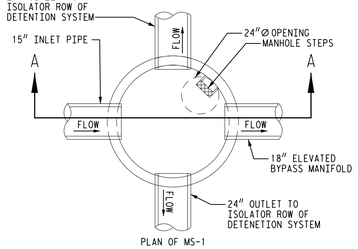
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StormTech® Chamber System

4640 TRUEMAN BLVD HILLIARD, OH 43026 1-800-733-7473

SHEET 5 OF 6





1 MI MANIFOLD STRUCTURE (MS-1)
NO SCALE

PRE-MANUFACTURED STORMWATER UNDERGROUND DETENTION TREATMENT SYSTEM CONSTRUCTION NOTES

TESTING:
THE MANUFACTURER OF UNDERGROUND DETENTION SYSTEM ELEMENTS MUST CONTACT THE WASHTENAW COUNTY TESTING OFFICE (734-222-6860) AT LEAST 72 HOURS PRIOR TO FABRICATION TO SCHEDULE INSPECTION DURING FABRICATION. WASHTENAW COUNTY INSPECTS THE MATERIAL FABRICATION PROCESS TO ENSURE THAT THE MANUFACTURER'S TESTING OF THE PRODUCT OCCURS AT THE APPLICABLE AASHTO OR ASTM STANDARDS. TESTING OF PIPE MATERIALS SHOULD OCCUR AT THE FOLLOWING FREQUENCIES:

TESTING OF SCC AND END CAPS SHOULD OCCUR AT A FREQUENCY OF ONE TEST PER 200 PIECES (CHAMBERS OR END CAPS) OR PER SHIFT, WHICHEVER IS LESS.

FOR UNDERGROUND DETENTION SYSTEMS CONSISTING OF PIPES AND SCC, A STABLE FOUNDATION IS NECESSARY TO INSURE THAT THE PROPER LINE AND GRADE IS MAINTAINED. UNSTABLE FOUNDATIONS MAY BE UNDERCUT AND REPLACED WITH MDOT CLASS I GRANULAR BEDDING MATERIAL PLACED IN 6 INCH LIFTS AND COMPACTED TO 95% OF ITS MAXIMUM UNIT WEIGHT. OTHER METHODS OF STABILIZATION CAN BE USED IF APPROVED BY THE WASHTENAW COUNTY PERMIT ENGINEER.

WHEN INSTALLING UNDERGROUND PIPE AS PART OF A UNDERGROUND DETENTION SYSTEM, BACKFILL SHOULD BE AS FOLLOWS:

FOR UNDERGROUND DETENTION SYSTEMS CONSISTING OF SCC, FOUNDATIONS AND EMBEDMENT STONE SHOULD BE CLEAN, ANGULAR STONE MEETING THE REQUIREMENTS OF MDOT 4AA, 6AA, 6A OR THE REQUIREMENTS OF WAYNE COUNTY SPECIFICATIONS FOR 3-IN X 1-IN MAINTENANCE AGGREGATE (NO CRUSH CONCRETE) WITH A MAXIMUM PERCENTAGE OF 5% PASSING THE #200 SIEVE.

BACKFILL FOR ALL TYPES OF UNDERGROUND DETENTION SYSTEM SHOULD BE INSTALLED AS FOLLOWS:

- ALL BACKFILL MATERIALS SHOULD BE PLACED IN A BALANCED MANNER MAKING SURE THAT NO MORE THAN A 2 LIFT DIFFERENTIAL IS PRESENT FROM ONE SIDE OF THE PIPE/SCC/STRUCTURE TO THE OTHER. BALANCED LIFTS SHOULD BE ADVANCED ACROSS THE WIDTH OF THE SYSTEM, EVENLY ALONG THE LENGTH OF THE SYSTEM THROUGHOUT THE BACKFILLING PROCESS.
- ALL BACKFILL MATERIALS SHOULD BE PLACED IN LIFTS OF MAXIMUM 10-INCHES.
- FOR EACH BACKFILL LIFT, ALL MATERIALS SHOULD BE COMPACTED TO A MINIMUM OF 95% (90% MINIMUM REQUIRED FOR 6A AND 21AA) OF THE BACKFILL MATERIAL'S MAXIMUM UNIT WEIGHT AT MOISTURE CONTENT NOT GREATER THAN OPTIMUM. THE MAXIMUM UNIT WEIGHT OF THE BACKFILL MATERIALS SHOULD BE DETERMINED BY THE AASHTO T 180 OR MICHIGAN CONE METHOD. THE FREQUENCY OF THE COMPACTION TESTING SHOULD BE ONE TEST PER LIFT OF BACKFILL PER 200 LINEAL FEET OR LESS OF TRENCH.

A WASHTENAW COUNTY PERMIT ENGINEER MUST OBSERVE THE INSTALLATION OF ALL UNDERGROUND DETENTION SYSTEMS. CONTACT THE WASHTENAW COUNTY PERMIT OFFICE (734-222-6860) AT LEAST 72 HOURS PRIOR TO INSTALLATION TO SCHEDULE INSPECTION DURING INSTALLATION. WASHTENAW COUNTY WILL NOT ACCEPT ANY UNDERGROUND DETENTION SYSTEMS INSTALLED WHEN A COUNTY PERMIT ENGINEER IS NOT PRESENT; PERMITS AND FINANCIAL ASSURANCES WILL NOT BE RELEASED AT THE CONCLUSION OF CONSTRUCTION FOR SUCH SYSTEMS.

DOCUMENTATION OF THE FOLLOWING ITEMS RELATIVE TO THE INSTALLATION OF UNDERGROUND DETENTION SYSTEMS IS REQUIRED TO BE SUBMITTED TO THE WASHTENAW COUNTY PERMIT ENGINEER BEFORE PERMITS AND FINANCIAL ASSURANCES ARE RELEASED:

- ALL BACKFILL MATERIALS ARE FROM WAYNE COUNTY TESTED STOCK.
- ALL BACKFILL MATERIALS WERE PLACED IN LIFTS OF MAXIMUM 10-INCHES.
- FOR EACH BACKFILL LIFT, ALL MATERIALS WERE COMPACTED TO A MINIMUM OF 95% OF THE BACKFILL MATERIAL'S MAXIMUM UNIT WEIGHT AT MOISTURE CONTENT NOT GREATER THAN OPTIMUM. IF 6A AND 21AA BACKFILL WAS USED, MATERIALS WERE COMPACTED TO 90% OF THE BACKFILL MATERIAL'S MAXIMUM UNIT WEIGHT AT MOISTURE CONTENT NOT GREATER THAN OPTIMUM.
- THE MAXIMUM UNIT WEIGHT OF THE BACKFILL MATERIAL WAS DETERMINED BY THE AASHTO T 180 OR MICHIGAN CONE METHOD.
- THE COMPACTION WAS TESTED A MINIMUM OF ONE TEST PER LIFT OF BACKFILL PER 200 LINEAL FEET OR LESS OF TRENCH.

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER:	MIGUEL VARGAS 419-215-8020 MIGUEL.VARGAS@ADSPIPE.COM
ADS SALES REP:	RYAN METCALF 810-986-5074 RYAN.METCALF@ADSPIPE.COM
PROJECT NO:	5423944

Advanced Drainage Systems, Inc.

DTE GRENADA SUBSTATION

SUPERIOR TWP, MI

ARCADIA SPECIFICATIONS

MATERIALS AND DESIGN
CONCRETE STRUCTURES: DESIGNED FOR H-20 AND/OR HS-20 TRAFFIC LOADING AND APPLICABLE SOIL LOADS OR AS OTHERWISE DETERMINED BY A LICENSED PROFESSIONAL ENGINEER. THE MATERIALS AND STRUCTURAL DESIGN OF THE DEVICES SHALL BE PER ASTM C857 AND ASTM C858.

HP MANHOLE STRUCTURES: MADE FROM AN IMPACT MODIFIED COPOLYMER POLYPROPYLENE MEETING THE MATERIAL REQUIREMENTS OF ASTM F2764. THE EXCAVATED CORE HOLE SHALL BE MANUFACTURED FROM POLYETHYLENE MATERIAL MEETING ASTM D3350 CELL CLASS 213320C. GASKETS SHALL BE MADE OF MATERIAL MEETING THE REQUIREMENTS OF ASTM F477.

PERFORMANCE
THE STORMWATER TREATMENT UNIT SHALL BE AN INLINE UNIT CAPABLE OF CONVEYING 100% OF THE DESIGN PEAK FLOW. IF PEAK FLOW RATES EXCEED MAXIMUM HYDRAULIC RATE, THE UNIT SHALL BE INSTALLED OFFLINE.

THE STORMWATER TREATMENT UNIT INTERNALS SHALL CONSIST OF (1) SEPARATOR ASSEMBLY.

THE ARCADIA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 80% OF THE SUSPENDED SOLIDS ON AN ANNUAL AGGREGATE REMOVAL BASIS. SAID REMOVAL SHALL BE BASED ON FULL-SCALE THIRD PARTY TESTING USING OK-110 MEDIA GRADATION OR EQUIVALENT AND 300 mg/L INFLUENT CONCENTRATION. SAID FULL SCALE TESTING SHALL HAVE INCLUDED SEDIMENT CAPTURE BASED ON ACTUAL TOTAL MASS COLLECTED BY THE STORMWATER TREATMENT UNIT.
- OR -
THE ARCADIA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 50% OF TSS USING A MEDIA MIX WITH d50=75 MICRON AND 200 MG/L INFLUENT CONCENTRATION.
- OR -
THE ARCADIA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 50% OF TSS PER CURRENT NJDEP/NJCAT HDS PROTOCOL.

MANUFACTURER
EACH STORMWATER TREATMENT SYSTEM SHALL BE AN ARCADIA SYSTEM AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS™, 2650 HAMILTON-EATON RD., HAMILTON, OH, 45011.

ARCADIA MAINTENANCE

ARCADIA SYSTEMS MUST BE INSPECTED AND MAINTAINED PERIODICALLY. INSPECTION IS MADE BY CHECKING THE DEPTH OF SEDIMENT IN EACH MANHOLE WITH A GRADE STICK OR SIMILAR DEVICE. MAINTENANCE IS REQUIRED WHEN THE SEDIMENT DEPTH EXCEEDS 18 INCHES. MINIMUM INSPECTION IS RECOMMENDED TWICE A YEAR TO MAINTAIN OPERATION AND FUNCTION OF THE UNIT.

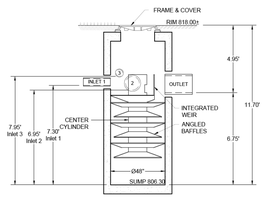
MAINTENANCE INSTRUCTIONS
1. REMOVE THE MANHOLE COVER TO PROVIDE ACCESS TO THE POLLUTANT STORAGE. POLLUTANTS ARE STORED IN THE SUMP, BELOW THE BOWL ASSEMBLY VISIBLE FROM THE SURFACE. YOU'LL ACCESS THIS AREA THROUGH THE CENTER ACCESS CYLINDER.
2. USE A VACUUM TRUCK OR OTHER SIMILAR EQUIPMENT TO REMOVE ALL WATER, DEBRIS, OILS AND SEDIMENT.
3. USE A HIGH PRESSURE HOSE TO CLEAN THE MANHOLE OF ALL THE REMAINING SEDIMENT AND DEBRIS. THEN, USE THE VACUUM TRUCK TO REMOVE THE WATER.
4. FILL THE CLEANED MANHOLE WITH WATER UNTIL THE LEVEL REACHES THE INVERT OF THE OUTLET PIPE.
5. REPLACE THE MANHOLE COVER.
6. DISPOSE OF THE POLLUTED WATER, OILS, SEDIMENT AND TRASH AT AN APPROVED FACILITY.
   - LOCAL REGULATIONS PROHIBIT THE DISCHARGE OF SOLID MATERIAL INTO THE SANITARY SYSTEM. CHECK WITH THE LOCAL SEWER AUTHORITY FOR AUTHORITY TO DISCHARGE THE LIQUID.
   - SOME LOCALITIES TREAT THE POLLUTANTS AS LEACHATE. CHECK WITH LOCAL REGULATORS ABOUT DISPOSAL REQUIREMENTS.
   - ADDITIONAL LOCAL REGULATIONS MAY APPLY TO THE MAINTENANCE PROCEDURE.

ARCADIA INSTALLATION NOTES

INSTALLATION OF THE STORMWATER TREATMENT UNIT(S) SHALL BE PERFORMED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. SUCH INSTRUCTIONS CAN BE OBTAINED BY CALLING ADVANCED DRAINAGE SYSTEMS AT (800) 821-6710 OR BY LOGGING ON TO WWW.ADSPIPE.COM.

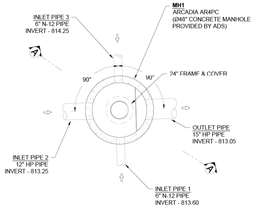
©2025 ADS, INC.

ARCADIA AR4PC			MH1
TREATMENT RATE (OK-110 80% REMOVAL)			2.75 CFS
BYPASS RATE*			—
	DIAMETER	PIPE MATERIAL	INVERT
INLET 1	6"	N-12	813.60
INLET 2	112"	HP	813.25
INLET 3	6"	N-12	814.25
INLET 4			
OUTLET	15"	HP	813.05



PROFILE VIEW
NTS

PRODUCT SPECIFICATIONS
- THE STORMWATER TREATMENT UNIT SHALL BE AN INLINE UNIT CAPABLE OF CONVEYING 100% OF THE DESIGN PEAK FLOW. IF PEAK FLOW RATES EXCEED MAXIMUM HYDRAULIC RATE, THE UNIT SHALL BE INSTALLED OFFLINE.
- THE ARCADIA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 80% OF THE SUSPENDED SOLIDS ON AN ANNUAL AGGREGATE REMOVAL BASIS. SAID REMOVAL SHALL BE BASED ON FULL-SCALE THIRD PARTY-VERIFIED TESTING USING OK-110 MEDIA GRADATION OR EQUIVALENT AND 300 MG/L INFLUENT CONCENTRATION. FULL SCALE TESTING SHALL HAVE INCLUDED SEDIMENT CAPTURE BASED ON ACTUAL TOTAL MASS COLLECTED BY THE STORMWATER TREATMENT UNIT.
  - OR -
  THE ARCADIA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 50% OF TSS USING A MEDIA MIX WITH D50=75 MICRON AND 200 MG/L INFLUENT CONCENTRATION PER CURRENT NJDEP/NJCAT HDS PROTOCOL.



SITE SPECIFIC PLAN VIEW
SCALE: 1/8"=1'

DTE GRENADA SUBSTATION
SUPERIOR TWP, MI
DATE: 10/16/2025
PROJECT #: 5423944
DRAWN: MDV
CHECKED: -

DATE	DWN	CHK

ARCADIA Stormwater Separator

ADS 4640 TRUEMAN BLVD HILLIARD, OH 43026

AS NOTED

SHEET 2 OF 3

REFERENCE DRAWINGS:

SITE PLAN ---------- 5A1329-1
STORMWATER MANAGEMENT PLAN ---------- 5M1329-1
STORMWATER DETAILS (1 OF 4) ---------- 5M1329-2
STORMWATER DETAILS (2 OF 4) ---------- 5M1329-3
STORMWATER DETAILS (3 OF 4) ---------- 5M1329-4

2 M1 TREATMENT STRUCTURE (TS-1)
NO SCALE

PRELIMINARY
NOT FOR CONSTRUCTION

REV	NOTE TO FIELD
-	FOR ANY QUESTIONS ON THIS DESIGN, PLEASE CONTACT:
	PROJECT ENGINEER
	ERIC M. MYRICK (313)235-6728

STOP THINK ACT REVIEW

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

DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
DATE	SUBMITTED FOR
4/1/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
11/17/25	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT
DATE	SUBMITTED FOR
12/13/24	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

WO

MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

WO

MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

	PROJ DESIGN	PROJ MANAGER	OTHERS
DATE			

WO

MADE BY	DATE	ACT	RELAY
CH'K BY	DATE	EPPM	APVD FOR ISSUE

APPROVALS		
	OTHER	DATE
RELAY		
EPPM		
ACT		
OTHERS		

ENGINEERING	
MADE BY	DATE
I. KRYCHYLSKA/BV	4/1/26
LAYOUT BY	DATE
Z.E. WIACEK/BV	4/1/26
CHECKED BY	DATE
G.J. ESKOLA/BV	4/1/26
PROJECT DESIGN/ELECT	DATE
PROJECT DESIGN/ACT	DATE
APPROVED FOR ISSUE	DATE

DTE Energy *DTE Electric* *Central Design/Standards*

TITLE
STORMWATER DETAILS (4 OF 4)

LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	NONE
DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST
5M1329-5	69084198	GRENA-PDL-A-69084198

DOCUMENTUM FILENAME
GRENA-M-0005

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4/1/2026 / Rob106660

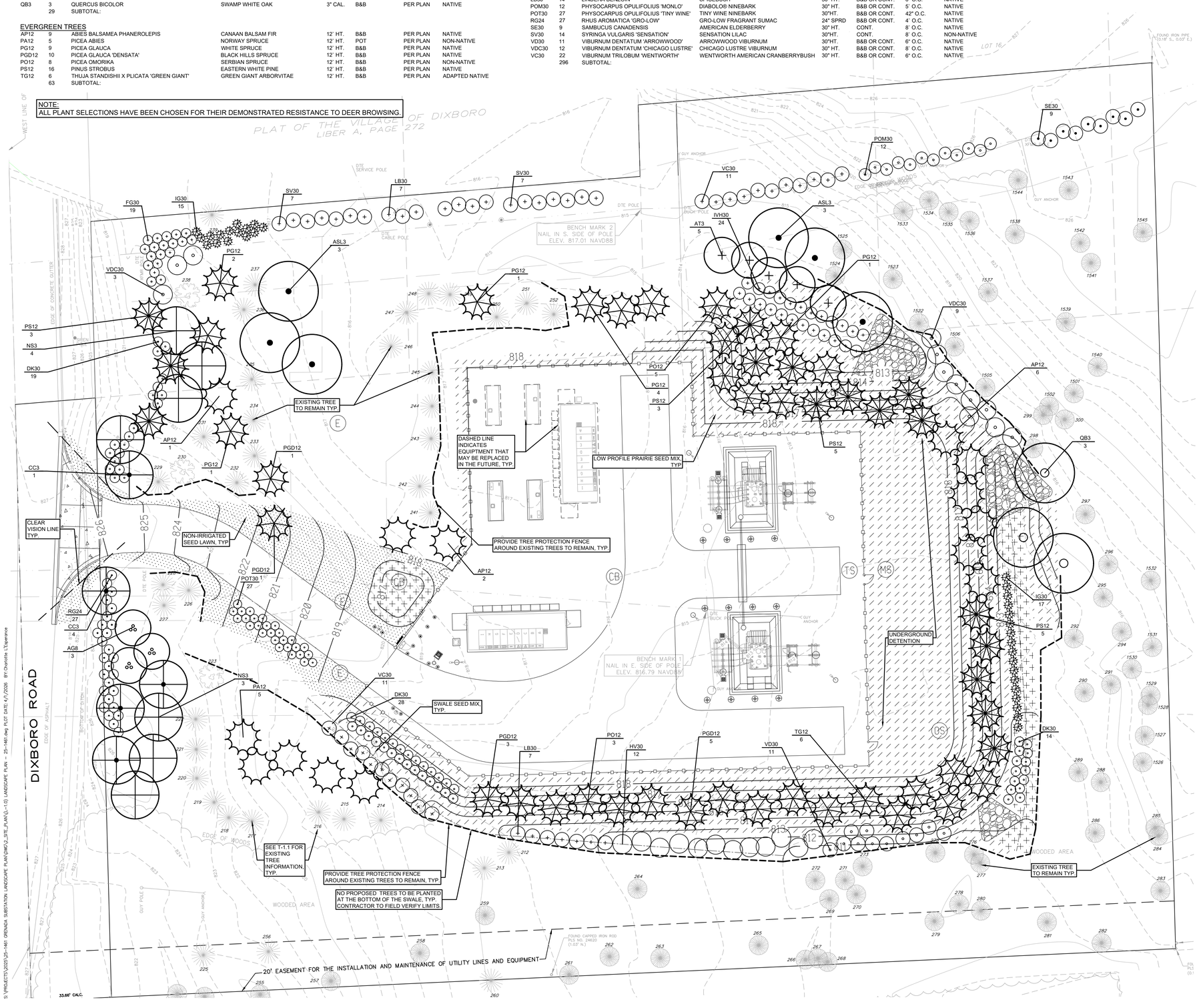
PLANT SCHEDULE L-1.0

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	DESIGNATION
DECIDUOUS TREES							
ASL3	6	ACER SACCHARUM 'LEGACY'	LEGACY SUGAR MAPLE	3" CAL.	B&B	PER PLAN	NATIVE
AG8	3	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE' MULTI-TRUNK	AUTUMN BRILLIANCE SERVICEBERRY	8' HT.	B&B	PER PLAN	NATIVE
AT3	5	ASIMINA TRILOBA	PAWPAW	3" CAL.	B&B	PER PLAN	NATIVE
CC3	5	CERCIS CANADENSIS	EASTERN REDBUD	3" CAL.	B&B	PER PLAN	NATIVE
NS3	7	NYSSA SYLVATICA	TUPELO	3" CAL.	B&B	PER PLAN	NATIVE
QB3	3	QUERCUS BICOLOR	SWAMP WHITE OAK	3" CAL.	B&B	PER PLAN	NATIVE
	29	SUBTOTAL:					
EVERGREEN TREES							
AP12	9	ABIES BALSAMEA PHANEROLEPIS	CANAAN BALSAM FIR	12' HT.	B&B	PER PLAN	NATIVE
PA12	5	PICEA ABIES	NORWAY SPRUCE	12' HT.	POT	PER PLAN	NON-NATIVE
PG12	9	PICEA GLAUCA	WHITE SPRUCE	12' HT.	B&B	PER PLAN	NATIVE
PGD12	10	PICEA GLAUCA 'DENSATA'	BLACK HILLS SPRUCE	12' HT.	B&B	PER PLAN	NATIVE
PO12	8	PICEA OMORIKA	SERBIAN SPRUCE	12' HT.	B&B	PER PLAN	NON-NATIVE
PS12	16	PINUS STROBUS	EASTERN WHITE PINE	12' HT.	B&B	PER PLAN	NATIVE
TG12	6	THUJA STANDISHII X PLICATA 'GREEN GIANT'	GREEN GIANT ARBORVITAE	12' HT.	B&B	PER PLAN	ADAPTED NATIVE
	63	SUBTOTAL:					

PLANT SCHEDULE L-1.0

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	DESIGNATION
SHRUBS							
DK30	61	DIERVILLA X 'G2X88544'	KODIAK® ORANGE DIERVILLA	30"HT.	B&B OR CONT.	4' O.C.	ADAPTED NATIVE
FG30	19	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	30" HT.	B&B OR CONT.	4' O.C.	ADAPTED NATIVE
HV30	12	HAMAMELIS VIRGINIANA	COMMON WITCH HAZEL	30" HT.	B&B OR CONT.	10' O.C.	NATIVE
IG30	32	ILEX GLABRA	INKBERRY HOLLY	30" HT.	B&B OR CONT.	4' O.C.	ADAPTED NATIVE
IVH30	24	ITEA VIRGINICA 'HENRY'S GARNET'	HENRY'S GARNET SWEETSPIRE	30" HT.	B&B OR CONT.	5' O.C.	ADAPTED NATIVE
LB30	14	LINDERA BENZOIN	SPICEBUSH	30" HT.	B&B OR CONT.	6' O.C.	NATIVE
POM30	12	PHYSOCARPUS OPULIFOLIUS 'MONLO'	DIABOLO® NINEBARK	30"HT.	B&B OR CONT.	5' O.C.	NATIVE
POT30	27	PHYSOCARPUS OPULIFOLIUS 'TINY WINE'	TINY WINE NINEBARK	30"HT.	B&B OR CONT.	42" O.C.	NATIVE
RG24	27	RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	24" SPRD	B&B OR CONT.	4' O.C.	NATIVE
SE30	9	SAMBUCUS CANADENSIS	AMERICAN ELDERBERRY	30" HT.	CONT.	8' O.C.	NATIVE
SV30	14	SYRINGA VULGARIS 'SENSATION'	SENSATION LILAC	30"HT.	CONT.	8' O.C.	NON-NATIVE
VD30	11	VIBURNUM DENTATUM 'ARROWWOOD'	ARROWWOOD VIBURNUM	30"HT.	B&B OR CONT.	6' O.C.	NATIVE
VDC30	12	VIBURNUM DENTATUM 'CHICAGO LUSTRE'	CHICAGO LUSTRE VIBURNUM	30" HT.	B&B OR CONT.	8' O.C.	NATIVE
VC30	22	VIBURNUM TRILOBUM 'WENTWORTH'	WENTWORTH AMERICAN CRANBERRYBUSH	30" HT.	B&B OR CONT.	6' O.C.	NATIVE
	296	SUBTOTAL:					

NOTE:
ALL PLANT SELECTIONS HAVE BEEN CHOSEN FOR THEIR DEMONSTRATED RESISTANCE TO DEER BROWSING.



KEY:

= PROPOSED REPLACEMENT EVERGREEN TREES

= EXISTING TREES TO REMAIN

= PROPOSED DECIDUOUS GREENBELT TREES

= PROPOSED DECIDUOUS GREENBELT SHRUBS

= SWALE SEED MIX SEE L-1.1 FOR SEED MIX INFO

= LOW ECONOMY PRAIRIE SEED MIX SEE L-1.1 FOR SEED MIX INFO

= NON IRRIGATED SEED LAWN

= TREE PROTECTION FENCE

SEE SHT. L-1.1 FOR LANDSCAPE DETAILS
SEE SHT. T-1.0 FOR TREE PROTECTION PLAN
SEE SHT. T-1.1 FOR EXISTING LIST

LANDSCAPE CALCULATIONS PER SUPERIOR TWP.
ZONED (R-4) SINGLE FAMILY RESIDENTIAL

GREENBELT BUFFER

REQUIRED: 1 TREE AND 3 SHRUBS / 15 LF, WITH UP TO 50% OF TREES COUNTING TOWARD TREE REPLACEMENT

NORTH BOUNDARY: 446.81 LF / 15 * 3 = 30 TREES AND 90 SHRUBS

DIXBORO RD: 250 LF - 20 (ACCESS DRIVE) = 230 / 15 * 3 =
18 TREES AND 46 SHRUBS

EAST BOUNDARY: 317.39 LF / 15 * 3 = 21 TREES AND 64 SHRUBS

SOUTH BOUNDARY: 479.88 LF / 15 * 3 = 32 TREES AND 96 SHRUBS

TOTAL REQUIRED TREES: 30+18+21+32=101
101* 0.5 = 50 TREES COUNTING TOWARD REPLACEMENT

PROVIDED

NORTH BOUNDARY: 90 30" HT. SHRUBS AND 30 EVG REPLACEMENT TREES

DIXBORO RD: 15 DEC TREES AND 46 SHRUBS

EAST BOUNDARY: 64 30" SHRUBS AND 11 DEC TREES AND 1 EVG REPLACEMENT TREE
9 TREES NOT PROVIDED DUE TO LACK OF SPACE IN HEAVILY WOODED AREA

SOUTH BOUNDARY: 96 30" SHRUBS AND 19 EVG REPLACEMENT TREES
11 NOT PROVIDED DUE TO LACK OF SPACE IN HEAVILY WOODED AREA

NOTE: TOTAL OF 50 EVG REPLACEMENT TREES COUNTING TOWARD GREENBELT TREES

TREE REPLACEMENT CALCULATIONS
REGULATED TREES REMOVED: **15**

Coniferous (height)	Replacement	Removed	Replacement Required
10.0 to 15.0 feet	one to one (1:1)	0	0
15.01 to 30.0 feet	three to one (3:1)	3	9
More than 30.0 feet	six to one (6:1)	0	0
Landmark coniferous tree	One (1) tree per inch of removed tree D.B.H	2	38

Deciduous (D.B.H.)	Replacement		
8.0 to 12.0 inches	one to one (1:1)	6	6
12.01 to 16.0 inches	three to one (3:1)	2	6
More than 16.0 inches	six to one (6:1)	0	0
Landmark deciduous tree	one (1) tree per inch of removed tree D.B.H	2	38

Sovereign (D.B.H.)	Replacement		
Sovereign tree	Two (2) trees per inch of removed tree D.B.H	0	0

Total Replacement Trees Required: 97 TREES
Proposed 12 ft height evergreens = 1.55 credit = **63 REPLACEMENT TREES**

EXISTING TREE NOTE:
ALL PROPOSED SITE ACTIVITIES SHALL BE CONFINED OUTSIDE THE CRITICAL ROOT ZONES OF ALL TREES DESIGNATED FOR PRESERVATION. IN THE EVENT THAT ANY TREE IDENTIFIED FOR PRESERVATION IS DAMAGED DURING CONSTRUCTION, IT SHALL BE MITIGATED IN ACCORDANCE WITH THE ORDINANCE REQUIREMENTS AND THE REPLACEMENT CALCULATIONS PROVIDED ABOVE.

PEA GROUP
t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN — JANET L. EVANS — LANDSCAPE ARCHITECT — No. 1301 — REGISTERED

NORTH

0 10 20 40
SCALE: 1" = 20'

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

CAUTION!!
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CLIENT
BLACK & VEATCH

PROJECT TITLE
GRENADA SUBSTATION
PLYMOUTH ROAD AND N. DIXBORO RD
ANN ARBOR TWP. / MI

REVISIONS
- -

04/01/26 SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

ORIGINAL ISSUE DATE:
OCTOBER 30, 2025

DRAWING TITLE
LANDSCAPE PLAN

PEA JOB NO.	25-1461
P.M.	LAW
DN.	CAL
DES.	LAW

DRAWING NUMBER:
L-1.0

NOT FOR CONSTRUCTION

S:\PROJECTS\2025\25-1461 GRENADA SUBSTATION LANDSCAPE PLAN\DWG\2_SITE_PLAN\(L-1.0) LANDSCAPE PLAN - 25-1461.dwg PLOT DATE: 4/1/2026 BY: Charlotte L'Esperance

NATIVE SEED MIX. BY STANTEC NATIVE PLANT NURSERY, 574-586-2412, OR EQUAL SPECIES TO BE NATIVE TO COUNTY, NO INVASIVE SPECIES ALLOWED

FOR ALL SEED MIXES, PROVIDE EROSION MAT ON SLOPES AND AREAS OF WASH OUT TYP. INSTALL AND PREP PER MANUFACTURES SPECIFICATIONS.

Swale Seed Mix

Stantec Native Plant Nursery 574-586-2412
stantec.com/native-plant-nursery

Botanical Name	Common Name
Permanent Grasses/Sedges:	
Andropogon gerardii	Big Bluestem
Carex comosa	Bristly Sedge
Carex cristatella	Crested Oval Sedge
Carex lurida	Bottlebrush Sedge
Carex spp.	Prairie Sedge Mix
Carex vulpnoidea	Brown Fox Sedge
Elymus virginicus	Virginia Wild Rye
Glyceria striata	Fowl Manna Grass
Panicum virgatum	Switch Grass
Scirpus atrovirens	Dark Green Rush
Scirpus cyperinus	Wool Grass
Spartina pectinata	Prairie Cord Grass
Temporary Cover:	
Avena sativa	Common Oat
Lolium multiflorum	Annual Rye
Forbs:	
Alisma spp.	Water Plantain (Various Mix)
Asclepias incarnata	Swamp Milkweed
Coreopsis tripteris	Tall Coreopsis
Eutrochium maculatum	Spotted Joe-Pye Weed
Iris virginica	Blue Flag
Liatris spicata	Marsh Blazing Star
Lobelia cardinalis	Cardinal Flower
Lobelia siphilitica	Great Blue Lobelia
Lycopus americanus	Common Water Horehound
Pycnanthemum virginianum	Common Mountian Mint
Rudbeckia triloba	Brown-Eyed Susan
Sagittaria latifolia	Common Arrowhead
Senna hebecarpa	Wild Senna
Silphium terebinthinaceum	Prairie Dock
Symphyotrichum novae-angliae	New England Aster
Verbena hastata	Blue Vervain
Zizia aurea	Golden Alexanders

Low-profile Prairie Seed Mix

Stantec Native Plant Nursery 574-586-2412
stantec.com/native-plant-nursery

Botanical Name	Common Name
Permanent Grasses:	
Bouteloua curtipendula	Side Oats Grama
Carex spp.	Prairie Carex Mix
Elymus canadensis	Canada Wild Rye
Koeleria pyramidata	June Grass
Panicum virgatum	Switch Grass
Schizachyrium scoparium	Little Bluestem
Temporary Cover:	
Avena sativa	Common Oat
Lolium multiflorum	Annual Rye
Forbs:	
Amorpha canescens	Lead Plant
Anemone cylindrica	ThimbleWeed
Asclepias syriaca	Common Milkweed
Asclepias tuberosa	Butterfly MilkWeed
Baptisia alba	White Wild Indigo
Chamaecrista fasciculata	Partridge Pea
Coreopsis lanceolata	Sand Coreopsis
Coreopsis palmata	Prairie Coreopsis
Dalea candida	White Prairie Clover
Dalea purpurea	Purple Prairie Clover
Desmanthus illinoensis	Illinois Sensitive Plant
Echinacea purpurea	Broad-Leaved Purple Coneflower
Eryngium yuccifolium	Rattlesnake Master
Lespedeza capitata	Round-Head Bush Clover
Liatris aspera	Rough Blazing Star
Lupinus perennis	Wild Lupine
Monarda fistulosa	Wild Bergamot
Oligoneuron rigidum	Stiff Goldenrod
Parthenium integrifolium	Wild Quinine
Penstemon digitalis	Foxglove Beard Tongue
Penstemon hirsutus	Hairy Beard Tongue
Pycnanthemum virginianum	Common Mountain Mint
Ratibida pinnata	Yellow Coneflower
Rudbeckia hirta	Black-Eyed Susan
Rudbeckia subtomentosa	Sweet Black-Eyed Susan
Silphium terebinthinaceum	Prairie Dock
Solidago speciosa	Showy Goldenrod
Symphyotrichum ericoides	Heath Aster
Symphyotrichum laeve	Smooth Blue Aster
Symphyotrichum novae-angliae	New England Aster
Tradescantia ohiensis	Common Spiderwort
Verbena stricta	Hoary Vervain
Vernonia spp.	Ironweed (Various Mix)
Veronicastrum virginicum	Culvers Root
	Total

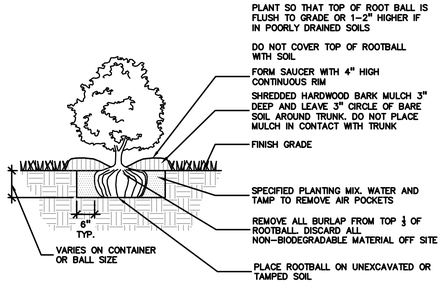
Mix Statistics:

MAINTENANCE SCHEDULE

LAWN	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Comments
Soil Aeration													Every 3 Years
Watering													Untill Established
Mowing													Weekly
Fertilization													
Weed Control													
Pest Control													As Needed
Lawn Restoration													
Clean-up													
TREES, SHRUBS AND GROUNDCOVER													
Planting													
Fertilization													
Weed Control													Bi-Weekly
Pest Control													As Needed
Plant Repair													As Needed
Pruning													See Specs
Mulching													

GENERAL PLANTING NOTES:

1. LANDSCAPE CONTRACTOR SHALL VISIT SITE, INSPECT EXISTING SITE CONDITIONS AND REVIEW PROPOSED PLANTING AND RELATED WORK. IN CASE OF DISCREPANCY BETWEEN PLAN AND PLANT LIST, PLAN SHALL GOVERN QUANTITIES. CONTACT LANDSCAPE ARCHITECT WITH ANY CONCERNS.
2. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ON SITE UTILITIES PRIOR TO BEGINNING CONSTRUCTION ON HIS/HER PHASE OF WORK. ELECTRIC, GAS, TELEPHONE, CABLE TELEVISION MAY BE LOCATED BY CALLING MISS DIG 1-800-482-7171. ANY DAMAGE OR INTERRUPTION OF SERVICES SHALL BE THE RESPONSIBILITY OF CONTRACTOR. CONTRACTOR SHALL COORDINATE ALL RELATED ACTIVITIES WITH OTHER TRADES ON THE JOB AND SHALL REPORT ANY UNACCEPTABLE JOB CONDITIONS TO OWNER'S REPRESENTATIVE PRIOR TO COMMENCING.
3. ALL PLANT MATERIAL TO BE PREMIUM GRADE NURSERY STOCK AND SHALL SATISFY AMERICAN ASSOCIATION OF NURSERYMEN STANDARD FOR NURSERY STOCK. ALL LANDSCAPE MATERIAL SHALL BE NORTHERN GROWN, NO. 1. GRADE.
4. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON LANDSCAPE PLAN PRIOR TO PRICING THE WORK.
5. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL NOT MEETING SPECIFICATIONS.
6. ALL SINGLE STEM SHADE TREES TO HAVE STRAIGHT TRUNKS AND SYMMETRICAL CROWNS.
7. ALL SINGLE TRUNK SHADE TREES TO HAVE A CENTRAL LEADER; TREES WITH FORKED OR IRREGULAR TRUNKS WILL NOT BE ACCEPTED.
8. ALL MULTI STEM TREES SHALL BE HEAVILY BRANCHED AND HAVE SYMMETRICAL CROWNS. ONE SIDED TREES OR THOSE WITH THIN OR OPEN CROWNS SHALL NOT BE ACCEPTED.
9. ALL EVERGREEN TREES SHALL BE HEAVILY BRANCHED AND FULL TO THE GROUND, SYMMETRICAL IN SHAPE AND NOT SHEARED FOR THE LAST FIVE GROWING SEASONS.
10. ALL TREES TO HAVE CLAY OR CLAY LOAM BALLS, TREES WITH SAND BALLS WILL BE REJECTED.
11. NO MACHINERY IS TO BE USED WITHIN THE DRIP LINE OF EXISTING TREES; HAND GRADE ALL LAWN AREAS WITHIN THE DRIP LINE OF EXISTING TREES.
12. ALL TREE LOCATIONS SHALL BE STAKED BY LANDSCAPE CONTRACTOR AND ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OF THE PLANT MATERIAL.
13. IT IS MANDATORY THAT POSITIVE DRAINAGE IS PROVIDED AWAY FROM ALL BUILDINGS.
14. ALL LANDSCAPED AREAS SHALL RECEIVE 3" COMPACTED TOPSOIL.
15. SEE SPECIFICATIONS FOR ADDITIONAL COMMENTS, REQUIREMENTS, PLANTING PROCEDURES AND WARRANTY STANDARDS.
16. FOR NON-LAWN SEED MIX AREAS, AS NOTED ON PLAN, BRUSH MOW ONCE SEASONALLY FOR INVASIVE SPECIES CONTROL.
17. CONTRACTOR SHALL NOT INSTALL PLANTS UNDER BUILDING OVERHANG AND SHALL NOTIFY LANDSCAPE ARCHITECT IF DRAWINGS CONFLICT WITH BUILDING OVERHANGS.
18. TREES SHALL NOT CONFLICT/ BLOCK PROPOSED REGULATORY/ DIRECTION SIGNAGE, MONUMENT SIGNS, ADDRESS OR LIGHT POLES. SHIFT TREES AS NECESSARY TYP.



3 SHRUB PLANTING DETAIL
SCALE: 1" = 2'-0"

NOTE:
PRUNE AS SPECIFIED
STAKE 3 LARGEST STEMS, IF TREE HAS MORE THAN 3 LEADERS, SET TREE STAKES VERTICAL AND AT SAME HEIGHT.

REMOVE ROPES/CABLES FROM AROUND THE BASE OF THE TREE.

MOUND TO FORM SAUCER MULCH 3" DEPTH WITH SHREDDED HARDWOOD BARK. NATURAL IN COLOR. LEAVE 3" CIRCLE OF BARE SOIL AT BASE OF TREE TRUNK TO EXPOSE ROOT FLARE. REMOVE EXCESS SOIL TO EXPOSE ROOT FLARE IF NECESSARY.

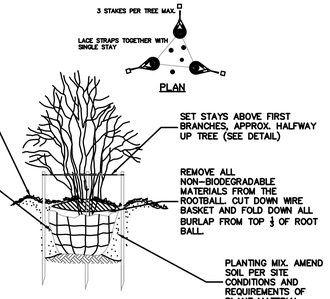
SCARIFY SUBGRADE AND PLANTING PIT SIDES. RE-COMPACT BASE TO 4"DEPTH.

PLANT MIXTURE AS SPECIFIED

SCARIFY TO 4" DEPTH AND RECOMPACT

DIRT FROM ROOTBALL IS TO BE REMOVED TO EXPOSE ROOT FLARE.

STAKES TO EXTEND 12" BELOW TREE PIT IN UNDISTURBED GROUND



5 MULTI-STEM TREE PLANTING DETAIL
SCALE: 1" = 2'-0"

TREE PROTECTION WILL BE ERECTED PRIOR TO START OF CONSTRUCTION ACTIVITIES AND SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE

NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY TREE DESIGNATED TO REMAIN, INCLUDING, BUT NOT LIMITED TO, PLACING SOLVENTS, BUILDING MATERIAL, CONSTRUCTION EQUIPMENT OR SOIL DEPOSITS WITHIN DRIP LINES

GRADE CHANGES MAY NOT OCCUR WITHIN THE DRIP LINE OF PROTECTED TREES

DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY DEVICE OR WIRE TO ANY REMAINING TREE

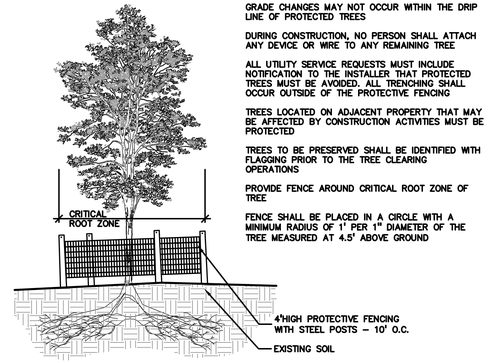
ALL UTILITY SERVICE REQUESTS MUST INCLUDE NOTIFICATION TO THE INSTALLER THAT PROTECTED TREES MUST BE AVOIDED. ALL TRENCHING SHALL OCCUR OUTSIDE OF THE PROTECTIVE FENCING

TREES LOCATED ON ADJACENT PROPERTY THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITIES MUST BE PROTECTED

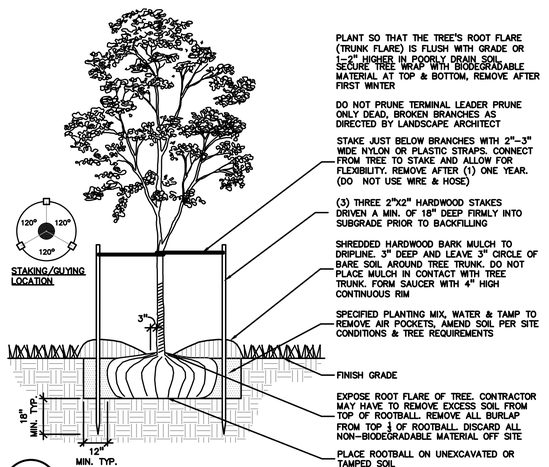
TREES TO BE PRESERVED SHALL BE IDENTIFIED WITH FLAGGING PRIOR TO THE TREE CLEARING OPERATIONS

PROVIDE FENCE AROUND CRITICAL ROOT ZONE OF TREE

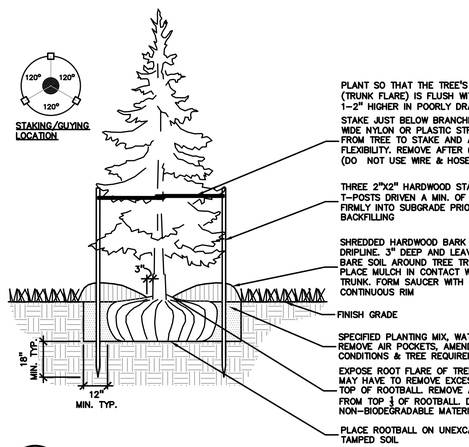
FENCE SHALL BE PLACED IN A CIRCLE WITH A MINIMUM RADIUS OF 1' PER 1" DIAMETER OF THE TREE MEASURED AT 4.5' ABOVE GROUND



2 TREE PROTECTION DETAIL
SCALE: 1" = 3'-0"



4 DECIDUOUS TREE PLANTING DETAIL
SCALE: 1" = 3'-0"



1 EVERGREEN TREE PLANTING DETAIL
SCALE: 1" = 3'-0"

NOT FOR CONSTRUCTION

PEA GROUP
t: 844.813.2949
www.peagroup.com

LYNN A. WHIPPLE LANDSCAPE ARCHITECT No. 4100 REGISTERED LANDSCAPE ARCHITECT STATE OF MICHIGAN

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CLIENT
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PROJECT TITLE
GRENADA SUBSTATION
PLYMOUTH ROAD AND N. DIXBORO RD
ANN ARBOR TWP. / MI

REVISIONS
-

04/01/26 SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

ORIGINAL ISSUE DATE:
OCTOBER 30, 2025

DRAWING TITLE
LANDSCAPE DETAILS

PEA JOB NO.	25-1461
P.M.	LAW
DN.	CAL
DES.	LAW

DRAWING NUMBER:
L-1.1

S:\PROJECTS\2025\25-1461 GRENADA SUBSTATION LANDSCAPE PLAN\DWG\L_SITE_PLAN\L-1.1 LANDSCAPE DETAILS- 25-1461.DWG PLOT DATE: 4/1/2026 BY: Charlotte L'Esperance

GENERAL LANDSCAPING REQUIREMENTS

1.0 GENERAL

1.1 SUMMARY

1.1.1 Includes But Not Limited To

1. General procedures and requirements for Site Work.

2.0 PRODUCTS - Not Used

3.0 EXECUTION

3.1 PREPARATION

3.1.1 Protection

1. Spillage:

A. Avoid spillage by covering and securing loads when hauling on or adjacent to public streets or highways.

B. Remove spillage and sweep, wash, or otherwise clean project, streets, and highways.

2. Erosion Control:

A. Take precautions necessary to prevent erosion and transportation of soil downstream, to adjacent properties, and into on-site or off-site drainage systems.

B. Develop, install, and maintain an erosion control plan if required by law.

C. Repair and correct damage caused by erosion.

3. Existing Plants And Features:

A. Do not damage tops, trunks, and roots of existing trees and shrubs on site which are intended to remain.

B. Do not use heavy equipment within branch spread. Interfering branches may be removed only with permission of Landscape Architect.

C. Do not damage other plants and features which are to remain.

3.1.2 If specified precautions are not taken or corrections and repairs made promptly, Owner may take such steps as may be deemed necessary and deduct costs of such from monies due to Contractor. Such action or lack of action on Owner's part does not relieve Contractor from responsibility for proper protection of the Work.

END OF SECTION

LANDSCAPING PREPARATION

1.0 GENERAL

1.1 SUMMARY

1.1.1 Includes But Not Limited To

1. General landscape work requirements.

1.2 QUALITY ASSURANCE

1.2.1 Comply with all applicable local, state and federal requirements, regarding materials, methods of work, and disposal of excess and waste materials.

1.2.2 Obtain and pay for all required inspections, permits, and fees.

1.2.3 Provide notices required by governmental authorities.

1.3 PROJECT CONDITIONS

1.3.1 Locate and identify existing underground and overhead services and utilities within contract limit work areas. (Call Miss Dig: 1-800-482-7171 in Michigan).

1.3.2 Provide adequate means to protect utilities and services designated to remain.

1.3.3 Repair utilities damaged during site work operations at Subcontractor's expense.

1.3.4 When uncharted or incorrectly charted underground piping or other utilities and services are encountered during site work operations, notify the applicable utility company immediately to obtain procedure directions. Cooperate with the applicable utility company in maintaining active services in operation.

1.3.5 Locate, protect, and maintain benchmarks, monuments, control points and project engineering reference points. Re-establish disturbed or destroyed items at Subcontractor's expense.

1.3.6 Perform landscape work operations and the removal of debris and materials to assure minimum interference with streets, walks, and other adjacent facilities.

1.3.7 Obtain governing authorities' written permission when required to close or obstruct streets, walks and adjacent facilities. Provide alternate routes around closed or obstructed traffic ways when required by governing authorities.

1.3.8 Protect and maintain street lights, utility poles and services, traffic signal control boxes, curb boxes, valves and other services, except items designated for removal.

1.3.9 The General Contractor will occupy the premises and adjacent facilities during the entire period of construction. Perform landscape work operations to minimize conflicts and to facilitate General Contractor's use of the premises and conduct of his normal operations.

1.3.10 Perform landscape preparation work before commencing landscape construction.

1.3.11 Provide necessary barricades, coverings and protection to prevent damage to existing improvements indicated to remain.

1.3.12 Protect existing trees scheduled to remain against injury or damage including cutting, breaking or skinning of roots, trunks or branches, smothering by stockpiled construction materials, excavated materials or vehicular traffic within branch spread.

2.0 PRODUCTS

2.1 MATERIALS/EQUIPMENT

2.1.1 As selected by the General Contractor, except as indicated.

1. Tree protection:

A. Wood fencing - Snow fencing 4' height.

B. Posts - Steel fence post.

C. Herbicide for lawn restoration - "Round-up" by Monsanto.

3.0 EXECUTION

3.1 EXISTING UTILITIES

3.1.1 Call "MISS DIG" 811 before construction begins. Information on the drawings related to existing utility lines and services is from the best sources presently available. All such information is furnished only for information and is not guaranteed. Excavate test pits as required to determine exact locations of existing utilities.

3.2 CLEARING

3.2.1 Locate and suitably identify trees and improvements indicated to remain.

3.2.2 Fencing/soil erosion fence is to be installed.

3.2.3 Any equipment that compacts the soil in the areas of existing trees is not allowed.

3.2.4 Protect trees scheduled to remain with 4' high snow fence per plans.

3.2.5 No vehicular traffic is permitted beneath drip line at any time. All lawn areas are to be worked by hand.

3.2.6 Clear and grub areas within contract limits as required for site access and execution of the work.

3.2.7 Remove trees, plants, undergrowth, other vegetation and debris, except items indicated to remain.

3.2.8 Treat planting and lawn areas as required with herbicide per manufacturer recommendations to kill existing vegetation prior to planting, seeding and sodding.

3.2.9 Remove stumps and roots to a clear depth of 36" below subgrades. Remove stumps and roots to their full depth within 5'0" of underground structures, utility lines, footings, and paved areas.

3.3 DISPOSAL OF WASTE MATERIALS

3.3.1 Stockpile, haul from site and legally dispose of waste materials and debris. Accumulation is not permitted.

3.3.2 Maintain disposal routes, clear, clean and free of debris.

3.3.3 On site burning of combustible cleared materials is not permitted.

3.3.4 Upon completion of landscape preparation work, clean areas within contract limits, remove tools and equipment. Site to be clear, clean and free of materials and debris and suitable for site work operations.

3.3.5 Materials, items and equipment not scheduled for reinstallation or salvaged for the General Contractor are the property of the Landscape Contractor. Remove cleared materials from the site as the work progresses. Storage and sale of Landscape Contractors salvage items on site is not permitted.

END OF SECTION

FINISH GRADING AND TOPSOIL PLACEMENT

1.0 GENERAL

1.1 SUMMARY

1.1.1 Includes But Not Limited To

1. Perform finish grading and topsoil placement required to prepare site for installation of landscaping as described in Contract Documents.

1.2 SUBMITTALS

1.2.1 Quality Assurance

1. Submit test on imported topsoil and on site stockpiled topsoil by independent licensed testing laboratory prior to use. Imported topsoil shall meet minimum specified requirements and be approved by Landscape Architect prior to use.

2. Provide and pay for testing and inspection during topsoil operations. Laboratory, inspection services, and Soils Engineer shall be acceptable to the Landscape Architect.

3. Submit report stating location of source of imported topsoil and account of recent use.

4. Test for pH factor, mechanical analysis, and percentage of organic content.

5. Submit test reports to General Contractor.

6. Sub-Contractor, or testing agency to make recommendations on type of quantity of additives required to establish satisfactory pH factor and supply of nutrients to bring nutrients to satisfactory level for planting.

1.3 QUALITY ASSURANCE

1.3.1 Participate in pre-installation meeting with Landscape Architect.

1.4 PROJECT CONDITIONS

1.4.1 Also see Landscape Preparation Section.

1.4.2 Protect existing trees, plants, lawns, and other features designated to remain as part of the landscaping work.

1.4.3 Promptly repair damage to adjacent facilities caused by topsoil operations. Cost of repair at Subcontractor's expense.

1.4.4 Promptly notify the General Contractor and Landscape Architect of unexpected subsurface conditions.

2.0 PRODUCTS

2.1 MATERIALS

2.1.1 Topsoil: supplied and stockpiled topsoil proposed for use must meet the testing criteria results specified. Topsoil must conform to adjustments and recommendations from the soil test and by the Landscape Architect.

2.1.2 Existing topsoil: existing topsoil from on-site stockpile shall be utilized. All processing, cleaning, and preparation of this stored topsoil to render it acceptable for use is the responsibility of the Subcontractor.

2.1.3 Provide additional topsoil as required to complete the job. Topsoil must meet testing criteria results specified.

2.1.4 All processing, cleaning, and preparation of this supplied topsoil to render it acceptable for use is the responsibility of the Subcontractor.

2.1.5 Supplied and stockpiled topsoil, shall be fertile, friable, dark in color and representative of local productive soil, capable of sustaining vigorous plant growth and free of clay lumps, subsoil, noxious weeds or other foreign matter such as stones of 1" in any dimension, roots, sticks, and other extraneous material: not frozen or muddy. PH of soil range between 5.0 and 7.5

2.1.6 Soil shall not contain more than 2 percent of particles measuring over 2.0 mm in largest size

2.1.7 Prepared topsoil shall be used in planting mixtures as specified in Trees, Plants, and Ground Cover; all beds prepared as specified.

3.0 EXECUTION

3.1 EXAMINATION

3.1.1 Do not commence work of this Section until grading tolerances specified are met.

3.2 PREPARATION

3.2.2 Prior to grading, dig out weeds from planting areas by their roots and remove from site. Before placing top soil inlandscape areas, remove rocks larger than 1 inch in any dimension and foreign matter such as building rubble, wire, cans, sticks, concrete, etc.

3.2.3 Prior to placing topsoil, remove any imported base material present in planting areas down to natural subgrade or other material acceptable to Landscape Architect.

3.3 PERFORMANCE

3.3.1 Site Tolerances

1. Total Topsoil Depth -

A. Lawn And Groundcover Planting Areas - 3 inches minimum compacted.

B. Shrub Planting Areas - 12 inches minimum throughout entire shrub bed area.

2. Elevation of topsoil relative to walks or curbs -

A. Seeded Lawn Areas - 1/4 inch below

B. Sodded Lawn Areas - 1 1/2 inches below

C. Shrub And Ground Cover Areas - 3 inches below

3.3.2 Do not expose or damage existing shrub or tree roots.

3.3.3 Redistribute approved existing top soil stored on site as a result of rough grading. Remove organic material, rocks and clods greater than 1 inch in any dimension, and other objectionable materials. Provide additional approved imported topsoil required for specified topsoil depth and bring surface to specified elevation relative to walk or curb.

3.3.4 For trees, shrubs, ground cover beds and plant mix for beds see Exterior Plants section.

3.3.5 Provide earth berming where indicated on Plans.

3.3.6 Berming to be free flowing in shape and design, as indicated, and to blend into existing grades gradually so that the toe of slope is not readily visible. Landscape Architect or General Contractor's representative to verify final contouring before planting.

3.3.7 Regardless of finish grading elevations indicated, it is intended that grading be such that proper drainage of surface water away from buildings will occur and that no low areas are created to allow ponding. Subcontractor to consult the General Contractor and Landscape Architect regarding variations in grade elevations before rough grading is completed.

3.3.8 Slope grade away from building for 12 feet minimum from walls at slope of 1/2 inch per ft minimum unless otherwise noted. High point of finish grade at building foundation shall be 6 inches minimum below finish floor level. Direct surface drainage in manner indicated on Drawings by molding surface to facilitate natural run-off of water. Fill low spots and pockets with top soil and grade to drain properly.

3.3.9 Rake all topsoil to remove clods, rocks, weeds, and debris.

3.3.10 Grade and shape area to bring surface to true uniform planes free from irregularities and to provide proper drainage and slopes per plans.

3.4 CLEANING

3.4.1 Upon completion of topsoil operations, clean areas within contract limits, remove tools, equipment, and haul all excess topsoil off-site. Site shall be clear, clean, free of debris, and suitable for site work operations.

END OF SECTION

LAWN SEEDING

1.0 GENERAL

1.1 SUMMARY

1.1.1 Includes But Not Limited To

1. Furnish and install seeded lawn as described in Contract Documents.

1.2 SUBMITTALS

1.2.1 Submit seed vendor's certification for required grass seed mixture, indicating percentage by weight, and percentage of purity, germination, and weed seed for each grass species.

1.3 DELIVERY AND STORAGE

1.3.1 Deliver seed and fertilizer materials in original unopened containers, showing weight, analysis, and name of manufacturer. Store in a manner to prevent wetting and deterioration.

1.4 PROJECT CONDITIONS

1.4.1 See landscape preparation section.

1.4.2 Work notification: Notify Landscape Architect of General Contractor's representative at least seven (7) working days prior to start of seeding operation.

1.4.3 Protect existing utilities, paving, and other facilities from damage caused by seeding operations.

1.4.4 Perform seeding work only after planting and other work affecting ground surface has been completed.

1.4.5 Provide hose and lawn watering equipment as required.

1.4.6 The irrigation system will be installed prior to seeding. Locate, protect, and maintain the irrigation system during seeding operations. Repair irrigation system components damaged during seeding operations at the Sub-Contractor's expense.

1.5 WARRANTY

1.5.1 See Landscape Maintenance and Warranty Section

2.0 PRODUCTS

2.1 MATERIALS

2.1.1 Topsoil for Seeded Areas: See Topsoil Placement and Drawings.

2.1.2 Lawn seeded areas: Fresh, clean and new crop seed mixture. Mixed by approved methods.

2.1.3 Seed mixture composed of the following varieties, mixed to the specified proportions by weight and tested to minimum percentages of purity and germination.

2.1.4 Irrigated Lawn Seed Mixture proportioned by volume as indicated below:

SEED TYPE	PROPORTION	PURITY	GERMINATION
Kentucky Bluegrass	50%	90%	75%
Penn Lawn Fescue	30%	95%	80%
Annual Ryegrass	20%	95%	80%

2.1.5 Non-Irrigated Seed Mixture proportioned by volume as indicated below:

SEED TYPE	PROPORTION	PURITY	GERMINATION
Creeping Red Fescue	40%	98%	80%
Kentucky Bluegrass	30%	90%	75%
Perennial Rye	30%	98%	90%

2.1.6 Fertilizer: granular, non burning product composed of not less that 50% organic slow acting, guaranteed analysis professional fertilizer.

2.1.7 Ground Limestone: Used if required by soil test report: Containing not less than 85% of total carbonates and ground to such fineness that 50% will pass through a 100 mesh sieve and 90% will pass through a 20% mesh sieve.

2.1.8 Straw Mulch: Used in crimping process only. Clean oat or wheat straw well seasoned before bailing, free from mature seed-bearing status, or roots of prohibited or noxious weeds.

2.1.9 Water: Free of substance harmful to seed growth. Hoses or other methods to transpiration furnished by Sub Contractor.

3.0 EXECUTION

3.1 INSPECTION

3.1.1 Landscape Architect or General Contractor's representative must approve finish surfaces, grades, topsoil quality and depth. Do not start seeding work until unsatisfactory conditions are corrected.

3.2 PREPARATION

3.2.1 SURFACE PREPARATION

1. Seven days maximum prior to seeding, -

A. Treat Lawn areas if required with "Round-Up" by Monsanto, per label direction to kill existing vegetation prior to seeding.

B. Loosen topsoil areas to minimum depth of 4", dampen thoroughly, and cultivate to properly break up clods and lumps.

C. Rake area to remove clods, rocks, weeds, roots, debris, and stones over 1" in any dimension.

D. Grade lawn areas to smooth, free draining even surface with a loose, moderately coarse texture. Roll and rake, remove ridges, and fill depressions as required to drain.

E. Apply limestone to supplied topsoil if required by soil test report at rate determined by the soil test, to adjust pH of topsoil to not less than 6.0 no more that 6.8. Distribute evenly by machine and incorporate thoroughly into topsoil.

F. Apply fertilizers to indicated turf areas at a rate equal to 1 lb. of actual nitrogen 1,000 sq. ft. (43 lbs / acre).

G. Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 1" by approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.

H. After lawn areas have been prepared, take no heavy objects over them except lawn rollers.

I. After preparation of lawn areas and with topsoil in semi-dry condition, roll lawn planting areas in two directions at approximately right angles with water ballast roller weighing 100 to 300 lbs according to soil type.

J. Rake or scarify and cut or fill irregularities that develop as required until area is true and uniform, free from lumps, depressions, and irregularities.

K. Restore prepared areas to specified condition if eroded, settled or otherwise disturbed after fine grading and prior to seeding.

3.3 INSTALLATION

3.3.1 SEEDING

1. Seed lawns only between April 1, and June 1, and fall seeding between August 15, and October 15, or at such other times acceptable to Landscape Architect.

2. Seed immediately after preparation of bed. Seed indicated areas within contract Limits and areas adjoining contract limits disturbed as a result of construction operations.

3. Perform seeding operations when the soil is dry and when the winds do not exceed five(5) miles per hour velocity.

4. Apply seed with a rotary or drop type distributor. Install seed evenly by sowing equal quantities in two (2) directions, at right angles to each other.

5. Sow seed at a rate of 300 lbs./acre.

6. After seeding, rake or drag surface of soil lightly to incorporate seed into top 1/8" of soil. Roll with light lawn roller.

7. Provide soil erosion planting mat where grade conditions required to stabilize the planting area.

3.3.2 HYDRO-SEEDING

1. Hydro-seeding: The application of grass seed and a wood cellulose fiber mulch tinted green shall be accomplished in one operation by use of an approved spraying machine.

A. Mix seed, fertilizer, and wood cellulose fiber in required amount of water to produce a homogeneous slurry. Add wood cellulous fiber after seed, water, and fertilizer have been thoroughly mixed and apply at the rate of 200 pounds per acre dry weight.

B. For hydro-seeding, wood cellulose fiber shall be used. Silva-Fiber Mulch by Weyerhaeuer Company, Tacoma, WA (800-443-9179).

C. Hydraulically spray material on ground to form a uniform cover impregnated with grass seed.

D. Immediately following application of slurry mix, make separate application of wood cellulose mulch at the rate of 1,000 pounds, dry weight, per acre.

E. Apply cover so that rainfall or applied water will percolate to underlying soil.

3.3.3 MULCHING

1. Place straw mulch on seeded areas within 24-hours after seeding.

2. Place straw mulch uniformly in a continuous blanket at a rate of 2-1/2 tons per acre, or two (2) 50 lb. bales per 1,000 sq. ft. of area. A mechanical blower may be used for straw mulch application when acceptable to the Landscape Architect.

3. Crimp straw into soil by use of a "crimper". Two passes in alternate direction required. Alternative methods on areas too small for crimper must be approved by the Landscape Architect or Owner's Representative.

3.3.3 ESTABLISH LAWN

1. Establish dense lawn of permanent grasses, free from lumps and depressions. Any area failing to show uniform germination to be reseeded; continue until dense lawn established.

2. Damage to seeded area resulting from erosion to be repaired by Sub Contractor.

3. In event Sub Contractor does not establish dense lawn during first germination period, return to project to refertilize and reseed to establish dense lawn.

4. Should the seeded lawn become largely weeds after germination, Sub Contractor is responsible to kill the weeds and reseed the proposed lawn areas to produce a dense turf, as specified.

3.4 CLEANING

3.4.1 Perform Cleaning during installation of the work and upon completion of the work to the approval of the Landscape Architect. Remove from site all excess materials, debris, and equipment. Repair damage resulting from seeding operations.

3.5 MAINTENANCE

3.5.1 See Landscape Maintenance and Warranty Section.

3.6 ACCEPTANCE

3.6.1 See Landscape Maintenance and Warranty Section.

END OF SECTION

LAWN SODDING

1.0 GENERAL

1.1 SUMMARY

1.1.1 Includes But Not Limited To

1. Furnish and install sodded lawn as described in Contract Documents.

1.2 QUALITY ASSURANCE

1.2.1 Sod: Comply with American Sod Producers Association (ASPA) classes of sod materials.

1.3 SUBMITTALS

1.3.1 Submit sod growers certification of grass species. Identify source location.

1.3.2 Submit manufacturer's certification of fertilizer.

1.4 DELIVERY, STORAGE, AND HANDLING

1.4.1 Cut, deliver, and install sod within 24 hour period.

1.4.2 Do not harvest or transport sod when moisture content may adversely affect sod survival.

1.4.3 Protect sod from sun, wind, and dehydration prior to installation. Do not tear, stretch, or drop sod during handling and installation.

1.4.4 Sod which dries out before installation will be rejected.

1.5 PROJECT CONDITIONS

1.5.1 See Landscape Preparation section.

1.5.2 Work notification: Notify Landscape Architect or General Contractor's representative at least seven (7) working days prior to start of sodding operation.

1.5.3 Protect existing utilities, paving, and other facilities from damage caused by sodding operations.

1.5.4 Perform sodding work only after planting and other work affecting ground surface has been completed.

1.5.5 Restrict traffic from lawn areas until grass is established. Erect signs and barriers as required.

1.5.6 Provide hose and lawn watering equipment as required.

1.5.7 The irrigation system will be installed prior to sodding. Locate, protect, and maintain the irrigation system during sodding operations. Repair irrigation system components damaged during sodding operations at the Subcontractor's expense.

1.6 WARRANTY

1.6.1 See Landscape Maintenance and Warranty Section.

2.0 PRODUCTS

2.1 MATERIALS

2.1.1 Sod: An "approved" nursery grown blend of improved Kentucky Bluegrass varieties.

2.1.2 Sod containing Common Bermudagrass, Quackgrass, Johnsongrass, Poison Ivy, Nutsedge, Nimblewill, Canada Thistle, Timothy, Bentgrass, Wild Garlic, Ground Ivy, Perennial Sorrel, or Bramegrass weeds will not be acceptable.

2.1.3 Provide well rooted, healthy sod, free of diseases, nematodes and soil borne insects. Provide sod uniform in color, leaf texture, density, and free of weeds, undesirable grasses, stones, roots, thatch, and extraneous material; viable and capable of growth and development when planted.

2.1.4 Furnish sod, machine stripped in square pads or strips not more than 3'-0" long; uniformly 1" to 1-1/2" thick with clean cut edges. Mow sod before stripping.

2.1.5 Fertilizer: granular, non burning product composed of not less that 50% organic slow acting, guaranteed analysis professional fertilizer.

2.1.6 Type A: starter fertilizer containing 20% nitrogen, 12% phosphoric acid, and 8% potash by by weight or similar approved composition.

2.1.7 Ground Limestone: Used if required by soil test report: Containing not less than 85% of total carbonates and ground to such fineness that 50% will pass through a 100 mesh sieve and 90% will pass through a 20% mesh sieve.

2.1.8 Stakes: softwood, 3/4" x 8" long.

2.1.9 Water: Free of substance harmful to seed growth. Hoses or other methods to transpiration furnished by Sub Contractor.

2.1.10 Topsoil: see Topsoil Placement section.

3.0 EXECUTION

3.1 INSPECTION

3.1.1 Landscape Architect or General Contractor's representative must approve finish surfaces, grades, topsoil quality and depth. Do not start sodding work until unsatisfactory conditions are corrected.

3.2 PREPARATION

3.2.1 Surface Preparation:

1. Seven days maximum prior to sodding, -

a. Treat Lawn areas if required with herbicide per manufacturer recommendations to kill existing vegetation prior to sodding.

b. Loosen topsoil areas to minimum depth of 4", dampen thoroughly, and cultivate to properly break up clods and lumps.

c. Rake area to remove clods, rocks, weeds, roots, debris, and stones over 1" in any dimension.

d. Grade lawn areas to smooth, free draining even surface with a loose, moderately coarse texture. Roll and rake, remove ridges, and fill depressions as required to drain.

e. Apply limestone to supplied topsoil if required by soil test report at rate determined by the soil test, to adjust pH of topsoil to not less than 6.0 no more that 6.8. Distribute evenly by machine and incorporate thoroughly into topsoil.

f. Apply fertilizers to indicated turf areas at a rate equal to 1 lb. of actual nitrogen 1,000 sq. ft. (43 lbs / acre).

g. Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 1" by approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.

h. After lawn areas have been prepared, take no heavy objects over them except lawn rollers.

i. After preparation of lawn areas and with topsoil in semi-dry condition, roll lawn planting areas in two directions at approximately right angles with water ballast roller weighing 100 to 300 lbs.

j. Rake or scarify and cut or fill irregularities that develop as required until area is true and uniform, free from lumps, depressions, and irregularities.

k. Restore prepared areas to specified condition if eroded, settled or otherwise disturbed after fine grading and prior to sodding.

l. Dampen dry soil prior to sodding.

3.3 INSTALLATION

3.3.1 Sodding:

1. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips. Do not overlay edges. Stagger strips to offset joints in adjacent course. Remove excess sod to avoid othering of adjacent grass. Provide sod pad top flush with adjacent curbs, sidewalks, drains, and seeded areas.

2. Do not lay dormant sod or install sod on saturated, frozen soil.

3. Install initial row of sod in a straight line, beginning at the bottom of slopes, perpendicular to direction of the sloped area. Place subsequent rows parallel to and lightly against previously installed row.

4. Peg sod on slopes greater than 3 to 1 or in centerline of swales to prevent slippage at a rate of 2 stakes per yard of sod.

5. Water sod thoroughly with a fine spray immediately after laying to obtain moisture penetration through sod into top 4 inches of topsoil.

6. Roll with light lawn roller in two directions perpendicular to each other to ensure contact with sub grade.

7. Install sod at indicated areas within contract limits and areas adjoining contract limits disturbed as a result of construction operations.

8. Damage to sodded area resulting from erosion to be repaired by Subcontractor.

3.4 CLEANING

3.4.1 Perform Cleaning during installation of the work and upon completion of the work to the approval of the Landscape Architect. Remove from site all excess materials, debris, and equipment. Repair damage resulting from sodding operations.

3.5 MAINTENANCE

3.5.1 See Landscape Maintenance and Warranty Section.

3.6 ACCEPTANCE

3.6.1 See Landscape Maintenance and Warranty Section.

END OF SECTION

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LYNN A. WHIPPLE
LANDSCAPE ARCHITECT
No. 1301
REGISTERED LANDSCAPE ARCHITECT

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

CAUTION!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE AND NOT NECESSARILY COMPLETE. NO REPRESENTATION IS MADE AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT
BLACK & VEATCH

PROJECT TITLE
GRENADA SUBSTATION
PLYMOUTH ROAD AND N. DIXBORO RD
ANN ARBOR TWP. / MI

REVISIONS
-

04/01/26 SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

ORIGINAL ISSUE DATE:
OCTOBER 30, 2025

DRAWING TITLE
LANDSCAPE SPECIFICATIONS

PEA JOB NO. 25-1461
P.M. LAW
DN. CAL
DES. LAW

DRAWING NUMBER:
L-2.1

NOT FOR CONSTRUCTION

S:\PROJECTS\2025\25-1461 GRENADA SUBSTATION LANDSCAPE PLAN\DWG\2_SITE_PLAN\[L-2.0] LANDSCAPE SPECS 1.2024-10-23.dwg PLOT DATE: 4/1/2026 BY: Charlotte L'Esperance

EXTERIOR PLANTS

1.0 GENERAL

1.1 SUMMARY

1.1.1 Includes But Not Limited To

1. Furnish and install landscaping plants as described in Contract Documents.

1.2 QUALITY ASSURANCE

1.2.1 Plant names indicated, comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed conform generally with names accepted by the nursery trade. Provide stock true to botanical name and legibly tagged.

1.2.2 Comply with sizing and grading standards of the latest edition of "American Standard for Nursery Stock". A plant shall be dimensioned as it stands in its natural position.

1.2.3 All plants shall be nursery grown under climatic conditions similar to those in the locality of the project for a minimum of two years.

1.2.4 Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable, at no additional charge. Larger plants shall not be cut back to size indicated.

1.2.5 Provide "specimen" plants with a special height, shape, or character of growth. Landscape Subcontractor is to tag specimen trees or shrubs at the source of supply. The Landscape Subcontractor shall inspect all plant material at source prior to Landscape Architect's approval. Landscape Subcontractor shall accompany Landscape Architect on final selection trip. The Landscape Architect will inspect specimen selections for suitability and adaptability to selected location. When specimen plants cannot be purchased locally, provide sufficient photographs of the proposed specimen plants for approval.

1.2.6 Plants may be inspected and approved at the place of growth for compliance with specification requirements for quality, size, and variety.

1.2.7 Approval of plant selection at the place of growth shall not impair the right of inspection and rejection upon delivery at the site or during progress of the work.

1.2.8 Provide percolation testing by filling plant pits with water and monitoring length of time for water to completely percolate into soil. Submit test results to Landscape Architect prior to starting work.

1.2.9 Before proceeding with work, check and verify dimensions and quantities. Report variations between Drawings and site to Landscape Architect before proceeding with work of this section.

1.2.10 Plant totals are for convenience only and are not guaranteed. Verify amounts shown on Drawings. All plantings indicated on Drawings are required unless indicated otherwise.

1.3 SUBMITTALS

1.3.1 Provide and pay for material testing. Testing agency shall be acceptable to the Landscape Architect. Provide the following data:

1. The loss of weight by ignition and moisture absorption capacity shall be tested for peat moss.

1.3.2 Submit the following material samples to Landscape Architect:

1. Peat moss, shredded hardwood bark mulch, planting accessories, pre-emergent herbicides, and plant fertilizers.

1.3.3 Submit the following materials certification to Landscape Architect:

1. Topsoil source and ph value, peat moss, and plant fertilizer.

1.4 DELIVERY, STORAGE, AND HANDLING

1.4.1 Deliver fertilizer materials in original, unopened and undamaged containers showing weight, analysis, and name of manufacturer. Store in manner to prevent wetting and deterioration.

1.4.2 Take all precautions customary in good trade practice in preparing plants for moving. Workmanship that fails to meet the highest standards will be rejected.

1.4.3 Spray deciduous plants in foliage with an approved "Anti-Desiccant" immediately after digging to prevent dehydration.

1.4.4 Dig, pack, transport, and handle plants with care to ensure protection against injury.

1.4.5 Inspection certificates required by law shall accompany each shipment invoice or order to stock on arrival. The certificate shall be filed with the General Contractor's representative.

1.4.6 Protect all plants from drying out. If plants cannot be planted immediately upon delivery, properly protect them with soil, shredded hardwood bark mulch, or in a manner acceptable to the General Contractor's representative.

1.4.7 Water heeled in plantings daily.

1.4.8 No plant shall be bound with rope or wire in a manner that could damage or break the branches.

1.4.9 Cover plants transported on open vehicles with a protective covering to prevent wind burn.

1.4.10 Frozen or muddy topsoil is not acceptable.

1.5 PROJECT CONDITIONS

1.5.1 See Landscape Preparation Section.

1.5.2 Work notification: notify Landscape Architect at least seven working days prior to installation of plant material.

1.5.3 Protect existing utilities, paving, and other facilities from damage caused by landscaping operations.

1.5.4 A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the proposal form. In the event that quantity discrepancies or material omissions occur in the proposal form, Subcontractor shall notify the Landscape Architect during the proposal bidding process.

1.5.5 An irrigation system will be installed prior to planting. Locate, protect, and maintain the irrigation system during planting operations. Repair irrigation system components, damaged during planting operations, at the Landscape Subcontractor's expense.

1.5.6 The Landscape Subcontractor shall inspect existing soil conditions in all areas of the site where his operations will take place, prior to the beginning of work. It is the responsibility of the Landscape Subcontractor to notify the General Contractor's representative and the Landscape Architect in writing of any conditions which could affect the survivability of plant material to be installed.

1.6 WARRANTY

1.6.1 See Landscape Maintenance and Warranty Standards.

2.0 PRODUCTS

2.1 MATERIALS

2.1.1 Plants: Provide plants typical of their species or variety; with normal, densely developed branches and vigorous, fibrous root systems. Provide only sound, healthy, vigorous plants free from defects, disfiguring knots, sunscald injuries, frost cracks, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All plants shall have a fully developed form without voids and open spaces.

1. Dig balled and burlapped plants with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Provide ball sizes complying with the latest edition of the "American Standard for Nursery Stock". Cracked or mushroomed balls are not acceptable.

2. All trees shall have clay or clay loam balls. Trees with sand balls will be rejected.

3. Provide tree species that mature at heights over 25'-0" with a single, main trunk. Trees that have the main trunk forming a "Y" shape are not acceptable.

4. Plants planted in rows shall be matched in form, (see specimen stock).

5. Plants larger than those specified in the plant list may be used when acceptable to the Landscape Architect.

6. No pruning wounds shall be present with a diameter of more than 1" and such wounds must show vigorous bark on all edges.

7. Evergreen trees shall be unsheared and branched to the ground.

8. Shrubs and small plants shall meet the requirements for spread and height indicated on the drawings.

9. Plant materials shall be subject to approval by the Landscape Architect as to size, health, quality, and character.

10. Bare root trees are not acceptable.

11. Provide plant materials from licensed nursery or grower.

2.1.2 Bare root plants: dug with adequate fibrous roots, to be covered with a uniformly thick coating of mud by being puddled immediately after they are dug or packed in moist straw or peat moss.

2.1.3 Container grown stock: grown in a container for sufficient length of time for the root system to have developed to hold its soil together, firm, and whole.

1. No plants shall be loose in the container.

2. Container stock shall not be root bound.

3. Single stemmed or thin plants will not be accepted.

4. Side branches shall be generous, well twigged, and the plant as a whole well bushed to the ground.

5. Plants shall be in a moist, vigorous condition, free from dead wood, bruises or other root or branch injuries.

2.1.4 Collected stock consists of plants growing under natural conditions in soils and climate as exist at location to be planted, in locations lending themselves to proper collecting practices. Root system (balls) to be at least twenty-five (25%) percent larger than specified for nursery grown material.

2.1.5 Specimen stock: all specimen designated plantings are to be nursery grown, fully developed, excellent quality, and typical example of the species. Plants designated to be planted in rows must be matched, symmetrical, and uniform in height, spread, caliper, and branching density.

1. Matched plantings should be obtained from the same nursery and, preferably, from the same row or line. All specimen material will be approved by the Landscape Architect at nursery.

2.1.6 Topsoil for planting mix: fertile, friable, natural topsoil of loamy character, without admixture of subsoil material, obtained from a well drained arable site, reasonably free from clay, lumps, coarse sands, stones, plants, roots, sticks, and other foreign materials with acidity range of between ph 6.0-6.8 for ericaceous plants.

2.1.7 Peat moss: brown to black in color, weed and seed free granulated raw peat.

1. Provide ASTM D2607 sphagnum peat moss with a ph below 6.0 for ericaceous plants.

2.1.8 Planting mixture Type A - trees: standard planting backfill shall be a mixture of ½ native soil (excavated from plant pits), ¼ topsoil, and ¼ sand. Add fertilizer Type "A" and "B" to planting mixture per manufacturer's requirements. Follow planting details.

2.1.9 Planting mixture Type B for perennial flowers, groundcover beds, and ericaceous plants: planting backfill shall be a mixture of 1/3 screened topsoil, 1/3 sand and 1/3 peat. All existing soil shall be excavated and removed. Adding fertilizer types "A" and "B" to mixture per manufacturer's requirements. Follow planting details.

2.1.10 Planting mixture Type C for annual flower beds: same as Type "B". Submit a sample to the Landscape Architect for approval prior to installation.

2.1.11 Planting mixture Type D for Bioretention Soil Mix, for use with shrubs and perennials in a bioswale rain garden or bioretention area. Planting backfill shall be a mixture of 50%-60% coarse sand, 25%–35% screened topsoil, and 10-15% Compost by volume. The following criteria for bioretention soil mix shall be provided:

1. Maximum clay content: 15%
2. Clay and silt content: 25%-40%
3. Nutrient content: 15-30 mg/kg
4. Hydraulic Conductivity: 1-4 inches per hour
5. Organic Matter Content: 2%-5%

Adding fertilizer to mixture per manufacturer's requirements and soil testing recommendations. Follow detail for installation. Submit a sample and testing results to the Landscape Architect for approval prior to installation.

2.1.12 Planting mixture Type E for Planter Soil Mix, Metro Mix 900 in 3 cubic foot bags or approved equal.

2.1.13 Plant fertilizer Type A to be "Drimanure" applied per manufacturer recommendations.

2.1.14 Plant fertilizer Type B to be "14-14-14". Apply per manufacturer recommendations.

2.1.15 Bone Meal - 5 lbs. per cubic yard of soil mixes.

2.1.16 Lime to be ground dolomitic limestone, ninety-five percent (95%) passing through #100 mesh screen. Use to adjust soil pH only, under direction of Landscape Architect.

2.1.17 Sand to be clean, coarse, ungraded conforming to ASTM-C-3 for fine aggregates.

2.1.18 Anti-Desiccant: protective film emulsion providing a protective film over plant surfaces; permeable to permit transpiration. Mixed and applied in accordance with Manufacturer's instructions.

2.1.19 Shredded bark mulch shall be double processed, dark shredded hardwood bark that is clean, free of debris and sticks. Materials shall be uniform in size, shape, and texture. Submit samples to Landscape Architect for approval prior to installation. Install mulch to finish grade, level smooth, without ridges, humps, or depressions.

2.1.20 Water: free of substances harmful to plant growth. Hoses or other methods of transportation shall be furnished by Sub Contractor.

2.1.21 Stakes for staking :(3) Three Hardwood, 2" x 2" x 8'-0" long. Driven a min. of 18" deep firmly into subgrade prior to backfilling. Stakes for guying: Hardwood, 2" x 2" x 36" long.

2.1.22 Guying/staking material:With 2"-3" wide fabric straps, connect from tree to stake. Remove after (1) year, allow for flexibility (do not use wire & hose).

2.1.23 Tree wrap: standard waterproofed tree wrapping paper, 2-1/2" wide, made of 2 layers of crepe kraft paper weighing not less than 30 lbs. per ream, cemented together with asphalt. Secure tree wrap with biodegradable material at top and bottom. Remove after first winter.

2.1.21 Twine: two-ply jute material.

2.2 MEASUREMENTS

2.2.1 Measure height and spread of specimen plant materials with branches in their normal positions as indicated on Drawings or Plant List.

2.2.2 The measurements for height shall be taken from the ground level to the average height of the top of the plant and not the longest branch.

2.2.3 Measurement should be average of plant, not greatest diameter. For example, plant measuring 15 inches in widest direction and 9 inches in narrowest direction would be classified as 12 inch stock.

2.2.4 Plants properly trimmed and transplanted should measure same in every direction.

2.2.5 Measure caliper of trees 6 inches above surface of ground.

2.2.6 Where caliper or other dimensions of plant materials are omitted from Plant List, plant materials shall be normal stock for type listed.

2.2.7 Plant materials larger than those specified may be supplied, with prior written approval of Landscape Architect, and:

1. If complying with Contract Document requirements in all other respects.

2. If at no additional cost to Owner.

3. If sizes of roots or balls are increased proportionately.

2.2.8 The height of the trees, specified by height, measured from the crown of the roots to the top of the top branch, shall not be less than the minimum size designated on the drawings.

3.0 EXECUTION

3.1 INSPECTION

3.1.1 Landscape Architect or General Contractor's representative must approve proposed planting areas and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected.

3.1.2 Individual plant locations shall be staked on the project site by the Landscape Contractor and approved by the Landscape Architect before any planting pits are dug. The Landscape Architect reserves the right to adjust plant material locations to meet field conditions, without additional cost to the General Contractor / Owner.

3.1.3 Accurately stake plant material according to the Drawings. Stakes shall be above grade, painted a bright color, and labeled with the name of the plant material to be installed at that location.

3.2 TIME OF PLANTING

3.2.1 Evergreen material: Plant Evergreen materials between September 1 and October 15 or in spring before new growth begins. If project requirements require planting at other times, plants shall be sprayed with anti-desiccant prior to planting operations.

3.2.2 Deciduous material: Plant deciduous materials in a dormant condition. If deciduous trees are planted in leaf, they shall be sprayed with anti-desiccant prior to planting operation.

3.2.3 Planting times other than those indicated must be acceptable to the Landscape Architect.

3.3 PREPARATION

3.3.1 General: See Landscape Preparation Section

3.3.2 Vegetation Removal

1. Strip existing grass and weeds, including roots from all bed areas leaving the soil surface one (1") inch below finish grade.

2. Herbicide: as required to prepare area for new planting applied to all ground cover, evergreen and shrubbery beds and all mulch areas before application of preemergence herbicide, per manufacture's recommendations. Clean area of all dead material after five (5) days.

3. Pre-Emergence Herbicide: applied per manufacturer recommendations to same area where "Herbicide" has been applied and to planting bed areas, after area is cleared of dead vegetation.

4. Herbicides to be applied by licensed applicator as required by the State.

5. Excavate circular plant pits with vertical sides, except for plants specifically indicated to be planted in beds. Provide plant pits per planting details. Depth of pit shall accommodate the root system. Scarify the bottom of the pit to a depth of 6".

6. Roughen sides of excavations.

7. Provide premixed planting mixture Type "A" for use around the balls and roots of all deciduous and evergreen tree plantings.

3.3.3 Percolation Testing of Plant Beds

Provide percolation testing by filling plant pits with water and monitoring length of time for water to completely percolate into soil. Submit test results to Landscape Architect prior to starting work.

1. Dig a hole at least 12" in diameter by 12" in depth, with straight sides, In excavated plant beds.
2. Fill hole with water and let it sit overnight.
3. Refill hole the next day.
4. Measure the water level by laying a straight edge across the top of the hole, then use a tape measure or yardstick to determine the water level. Continue to measure the water level every hour until the hole is empty, noting the number of inches the water level drops per hour.

Any test holes with a rate of 1" or less an hour is considered to slow and recommendations to remedy issue shall be provide to Architect and Owner.

3.3.4 Ground Cover Beds, Perennial Flower Beds, and Ericaceous Plant Beds

1. Excavate existing soil to 12" depth over entire bed area and remove soil from site. Scarify bottom of bed to a 4" depth. Set plants according to drawings and backfill entire bed with premixed planting mixture "Type B". Ground Cover shall be planted after bed has been backfilled with plant mix and mulched. Plant ground cover through mulch and into plant mix.

3.3.5 Mass Shrub Beds / Hedge Beds:

1. Excavate existing soil to 18" depth over entire bed area and remove soil from site. Scarify bottom of the bed to a 4" depth. Set plants according to drawings and Specifications. Backfill entire bed with (premixed) specified planting mixture Type "A".

3.3.6 Annual Flower Beds:

1. Excavate existing soil to 8" depth over entire bed area and remove soil from site. Scarify bottom of bed to a 4" depth. Backfill entire bed to an 8" depth with premixed planting mixture "Type B".

3.4 INSTALLATION

3.4.1 Planting shall be performed only by experienced workman familiar with planting procedures under the supervision of a qualified supervisor.

3.4.2 Planting pits shall be round, with vertical sides and flat bottoms, and sized in accordance with outlines and dimensions shown on the planting details.

3.4.3 See drawings for planting details.

3.4.4 If obstructions are encountered that are not indicated, do not proceed with planting operations until alternative plant locations have been selected and approved in writing by the Landscape Architect. Where location or spacing dimensions are not clearly shown, request clarification by the Landscape Architect.

3.4.5 Set plant material in the planting pit to proper grade and alignment.

1. Set plants upright, plumb, and faced to give the best appearance or relationship to each other or adjacent structure.

2. Set plant material so it is flush to finish grade after settling, or 1-2" higher in poorly drained soil, or as directed by Landscape Architect.

3. No filling will be permitted around the trunks or stems.

4. Do not cover top of root ball with soil.

5. Backfill pit with planting mixture. Do not use frozen or muddy mixtures for backfilling.

6. Form a ring of soil around the edge of the planting pit to retain water.

3.4.6 After balled and burlapped plants are set, tamp planting mixture around of balls and fill all voids and remove air pockets.

3.4.7 Remove all burlap, ropes, and wires from top 1/3 of balls.

3.4.8 Space ground cover plants in accordance with indicated dimensions. Adjust spacing as necessary to evenly fill planting bed with indicated quantity of plants. Plant to within 12" of trunks and shrubs and to within 6" of planting bed.

3.4.9 Spread and arrange roots of bare rooted plants in their natural position. Work in planting mixture. Do not mat roots together. Cut all broken and frayed roots before installing planting mixture.

3.4.10 Water immediately after planting.

3.4.11 Apply pre-emergent herbicide to bed areas per manufacturer's recommendations before mulching.

3.5 MULCHING

3.5.1 Mulch trees and shrub planting pits and shrub beds with shredded hardwood bark mulch 3" deep to dripline immediately after planting. Leave 3" circle of bare soil around tree trunk. Thoroughly water mulched areas. After watering, rake mulch to provide a uniform finished surface.

3.5.2 Mulch shall not be placed in contact with trunks or stems.

3.5.3 Mulch ground cover beds with shredded bark mulch 2" to 3" deep prior to planting.

3.5.4 Plant ground cover through mulch.

3.6 WRAPPING, GUYING, AND STAKING

3.6.1 Inspect trees for injury to trunks, evidence of insect infestation and improper pruning before wrapping.

3.6.2 Wrap trunks of all trees spirally from bottom to top with specified tree wrap and secure in place.

3.6.3 Stake deciduous trees under 4" caliper. Stake evergreen trees under 6'-0" tall and over with metal fence post, three (3)per tree.

3.6.4 Stake/guy all trees immediately after installation. When high winds or other conditions which may effect tree survival or appearance occur during the warranty period, the Sub-Contractor shall immediately repair the staking/guying.

3.6.5 Guy deciduous trees 4" caliper and over. Stake evergreen trees 6'-0" tall and over with metal fence post, three (3) per tree.

3.6.6 All work shall be acceptable to the Landscape Architect/Owner's representative.

3.7 PRUNING

3.7.1 Remove or cut back broken, damaged, and unsymmetrical growth of new wood.

3.7.2 Multiple leader plants: preserve the leader which will best promote the symmetry of the plant. Do not prune terminal leader.
Cut branches flush with the trunk of the main branch, at a point beyond a lateral shoot or bud a distance of not less than ½ the diameter of the supporting branch. Make cut on an angle.

3.7.3 Prune evergreens only to remove broken or damaged branches.

3.8 MAINTENANCE

3.8.1 See Landscape Maintenance and Warranty Standards.

3.9 CLEANING

3.9.1 Perform cleaning during installation of the work and upon completion of the work. Remove from all site excess materials, soil, debris, and equipment. Repair damage resulting from planting operations.

END OF SECTION

LANDSCAPE MAINTENANCE AND WARRANTY STANDARDS

1.0 GENERAL

1.1 SUMMARY

1.1.1 Includes But Not Limited To

1. Provide maintenance for new landscaping as described in Contract Documents.

2. The requirements of the Section include a one (1) year warranty period from date of acceptance of installation performed by the General Contractor's Representative and Landscape Architect.

2.0 PRODUCTS - Not Used

3.0 EXECUTION

3.1 PERFORMANCE

3.1.1 Acceptance of Installation

1. At the completion of all landscape installation, or pre-approved portions thereof, the Landscape Subcontractor shall request in writing an inspection for Acceptance of Installation in which the Landscape Subcontractor, Landscape Architect, and General Contractor's Representative shall be present.

   a. Following the acceptance inspection a punch list will be issued by the Landscape Architect.

   b. Upon completion of all punch list items, the Landscape Architect and/or General Contractor's Representative shall reinspect the project and issue a written statement of Acceptance of Installation and establish the beginning of the Project Warranty Period.

   c. At the time of acceptance all plant material shall be of vigorous health and planting bed and mulch rings are weed free.

   d. It is the responsibility of the Landscape Subcontractor to make the written request for inspection of installation in a timely fashion.

   e. If there is plant material loss prior to the Landscape Subcontractor's written request for inspection of installation, the Landscape Contractor shall make all replacements of this dead material at no additional cost These replacements are not considered to be the required one (1) replacement of dead plant material by the Landscape Subcontractor during the one (1) year project warranty period, as outlined below.

2. Landscape work may be inspected for acceptance in parts agreeable to the General Contractor's Representative and Landscape Architect provided work offered for Inspection is complete, including maintenance as required.

3. For work to be inspected for partial acceptance, the Landscape Subcontractor shall provide a drawing outlining work completed and supply a written statement requesting acceptance of this work completed to date.

3.1.2 Project Warranty

1. The Project Warranty Period begins upon written preliminary acceptance of the project installation by the Landscape Architect and General Contractor's representative.

2. The Landscape Subcontractor shall guarantee trees, shrubs, ground cover beds and seeded or sodded areas through construction and for a period of one (1) year after date of Acceptance of Installation against defects including death and unsatisfactory growth, except for defects resulting from neglect, abuse or damage by others or unusual phenomena or incidents which are beyond Landscape Subcontractor's control.

3.1.3 Maintenance During One (1) Year Project Warranty

1. To insure guarantee standards, the following maintenance procedures for trees, shrubs, and ground covers shall be executed during construction and for the full Project Warranty Periods.

   a. Landscape Subcontractor shall be responsible for only one (1) replacement of any plant materials during the one (1) year Project Warranty Period. These include those which are dead or in the opinion of the Landscape Architect are in an unhealthy or unsightly condition, or having lost natural shape, resulting from dieback, excessive pruning, or inadequate or improper maintenance as part of the guarantee.

   b. Prior to any replacements, Landscape Subcontractor shall review individual plants in question with Landscape Architect to determine reason for plant demise.

   c. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.

   d. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.

   e. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices when possible to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.

   f. The contractor will be responsible for irrigation system operation, watering schedules, watering amounts and general monitoring of irrigation system throughout construction, maintenance, and warranty period. Over watering or lack of water from the irrigation system is the responsibility of the landscape contractor and any required replacements at the cost of the contractor and not part of the warranty replacement.

2. Replacements must meet the standards specified on the Landscape plans and in the specifications, i.e. quality, species of plant material and planting procedures to receive approval of replacement materials by Landscape Architect.

3. Costs for replacements are assumed part of bid quotations and therefore will not result in an additional cost to General Contractor or Landscape Architect.

4. Areas damaged as a result of replacement operation are to be restored by Landscape Subcontractor at no cost to the General Contractor or Landscape Architect.

5. The Landscape Subcontractor shall be responsible for watering all plantings through the warranty period and shall keep guy wires taut, raise tree balls which settle, furnish and apply sprays as necessary to keep the plantings free of disease and insects until the end of the warranty period.

6. The Landscape Subcontractor shall remove and replace trees, shrubs or other plants found to be dead or in unhealthy condition.

   a. Rejected plants and materials shall be removed promptly.

   b. Replacements shall be made during the following normal planting schedule.

   c. Trees and shrubs which are in doubt shall be replaced, unless, in the opinion of the Landscape Architect, it is advisable to extend Project Warranty Period for full growing Season.

7. The Landscape Contractor shall apply anti-desiccants on evergreen trees and evergreen shrub beds within 150' of major streets and drives, no later than December 1, during the one (1) year project warranty.

8. The first spring after plant installation the contractor shall check all trees to insure twine has rotted from around the trunk. If twine is still present, it shall be removed and disposed of off-site.

9. All stakes, guy wires, tree wrap paper, dead twigs and branches shall be removed from tree and plant materials at the end of this warranty period.

3.1.4 Maintenance of Seeded Lawn Areas

1. The Landscape Subcontractor shall maintain seeded lawn areas.

   a. Water, fertilize, weed, and apply chemicals until a dense lawn of permanent grasses, free from lumps and depressions or any bare spots, none of which is larger than one (1) foot of area up to a maximum of 3% of the total seeded lawn area is established.

   b. Seeded lawn that fails to show a uniform growth and/or germination shall be reseeded until a dense cover is established, regardless of what season the seed was installed.

2. The Landscape Subcontractor shall maintain and mow all lawn areas for until acceptance of installation (typically 3 mows) . When lawn reaches 3" in height it shall be cut to 2" in height.

3. The Owner assumes cutting responsibilities following the Acceptance of Installation of the seeded lawn.

4. At conclusion of Project Warranty Period and after receiving Written Final Acceptance by General Contractor's representative and Landscape Architect, the Owner shall assume all seeded lawn maintenance responsibilities.

3.1.5 Maintenance of Sodded Lawn Areas

1. The Landscape Subcontractor shall maintain sodded lawn areas.

   a. Water, fertilize, spot weed, apply herbicides, fungicides, insecticides and resod until a full uniform, smooth stand of sod is knitted to topsoil, and accepted by the Landscape Architect or his or her representative.

2. Water sod thoroughly, as required to establish proper rooting.

3. Repair, rework, and resod all areas that have washed out or are eroded. Replace undesirable or dead areas with new sod.

4. Mow lawn areas once as soon as sod has rooted sufficiently and knitted to the topsoil. Cut back to 2" height. Not more than 40% of grass leaf shall be removed at any single mowing. Excess clipping to be removed by the Landscape Subcontractor. The Landscape Subcontractor shall be responsible for lawn mowing until acceptance of installation (typically 3-mows).

5. The Owner assumes mowing responsibilities following the Acceptance of Installation of the sodded lawn.

6. At conclusion of Project Warranty Period and after receiving Written Final Acceptance by General Contractor's representative and Landscape Architect, the Owner shall assume all sodded lawn maintenance responsibilities.

3.1.6 Final Acceptance Upon Conclusion of the Warranty Period

1. At the conclusion of the Project Warranty Period the Landscape Subcontractor shall request a project inspection for final acceptance in which the Landscape Contractor, Landscape Architect and Owner's Representative shall be present.

2. After the inspection for final acceptance, a punch list will be issued by the Landscape Architect. Upon completion of all punch list items, the Landscape Architect and the Owner's Representative shall reinspect the project and issue a Written Statement of Final Acceptance.

END OF SECTION

NOTE: The Owners may at their option elect to utilize a Construction Manager in lieu of a General Contractor for all matters pertaining to these specifications and the site work.

PEA GROUP
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www.peagroup.com

STATE OF MICHIGAN
LYNN A. WHIPPLE
LANDSCAPE ARCHITECT
No. 1301
REGISTERED LANDSCAPE ARCHITECT

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CAUTION!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS MADE OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT
BLACK & VEATCH

PROJECT TITLE
GRENADA SUBSTATION
PLYMOUTH ROAD AND N. DIXBORO RD
ANN ARBOR TWP. / MI

REVISIONS
- -

04/01/26 SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

ORIGINAL ISSUE DATE:
OCTOBER 30, 2025

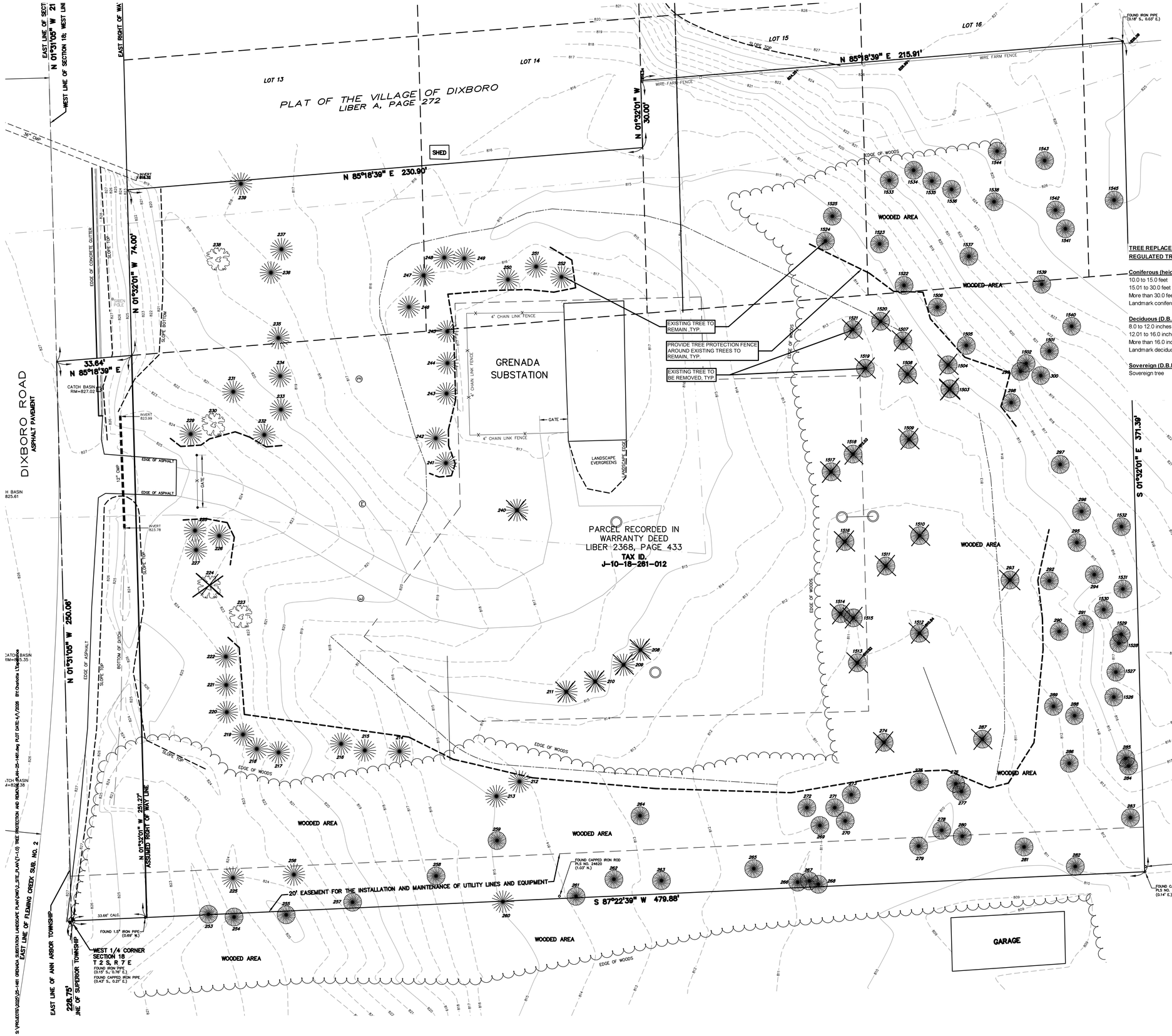
DRAWING TITLE
LANDSCAPE SPECIFICATIONS

PEA JOB NO.	25-1461
P.M.	LAW
DN.	CAL
DES.	LAW

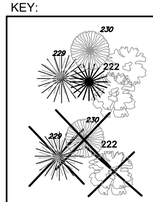
DRAWING NUMBER:
L-2.2

NOT FOR CONSTRUCTION

S:\PROJECTS\2025\25-1461 GRENADA SUBSTATION LANDSCAPE PLAN\DWG\2_SITE_PLAN\(L-2.0) LANDSCAPE SPECS 1_2024-10-23.dwg PLOT DATE: 4/1/2026 BY: Charlotte L'Esperance



KEY:



SEE LANDSCAPE DETAIL L-1.1 FOR TREE PROTECTION DETAIL

TREE REPLACEMENT CALCULATIONS

REGULATED TREES REMOVED: 15

Coniferous (height)	Replacement	Removed	Replacement Required
10.0 to 15.0 feet	one to one (1:1)	0	0
15.01 to 30.0 feet	three to one (3:1)	3	9
More than 30.0 feet	six to one (6:1)	0	0
Landmark coniferous tree	One (1) tree per inch of removed tree D.B.H	2	38

Deciduous (D.B.H.)	Replacement		
8.0 to 12.0 inches	one to one (1:1)	6	6
12.01 to 16.0 inches	three to one (3:1)	2	6
More than 16.0 inches	six to one (6:1)	0	0
Landmark deciduous tree	one (1) tree per inch of removed tree D.B.H	2	38

Sovereign (D.B.H.)	Replacement		
Sovereign tree	Two (2) trees per inch of removed tree D.B.H	0	0

Total Replacement Trees Required: 97 TREES

Proposed 12 ft height evergreens = 1.55 credit = **63 REPLACEMENT TREES**

PEA GROUP
t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN
LYNN A. WHIPPLE
LANDSCAPE ARCHITECT
No. 1301001944
REGISTERED LANDSCAPE ARCHITECT

0 10 20 40
SCALE: 1" = 20'

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ANN ARBOR TWP. / MI

REVISIONS
- -

04/01/26 SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

ORIGINAL ISSUE DATE: OCTOBER 30, 2025

DRAWING TITLE
TREE PROTECTION AND REMOVAL PLAN

PEA JOB NO.	25-1461
P.M.	LAW
DN.	CAL
DES.	LAW

DRAWING NUMBER:
T-1.0

NOT FOR CONSTRUCTION

TAG NO.	DBH	COMMON NAME	LATIN NAME	HEIGHT	NOTES	TYPE	SAVE / REMOVE
~~208~~	~~19~~	~~Norway spruce~~	~~Picea abies~~	~~25~~		~~LANDMARK~~	~~R~~
~~209~~	~~10~~	~~Blue spruce~~	~~Picea pungens~~	~~25~~		~~PROTECTED~~	~~R~~
~~210~~	~~16~~	~~Norway spruce~~	~~Picea abies~~	~~30~~		~~PROTECTED~~	~~R~~
~~211~~	~~19~~	~~Norway spruce~~	~~Picea abies~~	~~35~~		~~LANDMARK~~	~~R~~
212	18	White pine	Pinus strobus			LANDMARK	S
213	25	White pine	Pinus strobus		Poor, broken limbs, dead branches	LANDMARK	S
214	30	Norway spruce	Picea abies			LANDMARK	S
215	32	Norway spruce	Picea abies			LANDMARK	S
216	30	Norway spruce	Picea abies			LANDMARK	S
217	22	White pine	Pinus strobus		Poor, broken limbs, dead branches	LANDMARK	S
218	13	White pine	Pinus strobus			PROTECTED	S
219	9, 18	White pine	Pinus strobus		Split-trunk	LANDMARK	S
220	16	White pine	Pinus strobus			PROTECTED	S
221	18	White pine	Pinus strobus			LANDMARK	S
222	15	White pine	Pinus strobus			PROTECTED	S
223	16	Sugar maple	Acer saccharum			LANDMARK	S
~~224~~	~~15~~	~~Sugar maple~~	~~Acer saccharum~~		~~Dead~~	~~EXEMPT~~	~~R~~
225	17	White pine	Pinus strobus			PROTECTED	S
226	10	Blue spruce	Picea pungens			PROTECTED	S
227	12	Blue spruce	Picea pungens			PROTECTED	S
228	13	Blue spruce	Picea pungens			PROTECTED	S
229	11	Blue spruce	Picea pungens			PROTECTED	S
230	20	Sugar maple	Acer saccharum			LANDMARK	S
231	13	Blue spruce	Picea pungens			PROTECTED	S
232	7, 10	White pine	Pinus strobus		Split-trunk	PROTECTED	S
233	17	White pine	Pinus strobus			PROTECTED	S
234	19	White pine	Pinus strobus			LANDMARK	S
235	20	White pine	Pinus strobus			LANDMARK	S
236	25	Norway spruce	Picea abies			LANDMARK	S
237	28	Norway spruce	Picea abies		Poor, broken limbs, dead branches	LANDMARK	S
238	14	Sugar maple	Acer saccharum			PROTECTED	S
239	15	Blue spruce	Picea pungens			PROTECTED	S
~~240~~	~~8~~	~~White pine~~	~~Pinus strobus~~	~~25~~		~~PROTECTED~~	~~R~~
241	20	White pine	Pinus strobus	30		LANDMARK	S
242	17	White pine	Pinus strobus	35		PROTECTED	S
243	14	Norway spruce	Picea abies	40		PROTECTED	S
244	12, 13	Norway spruce	Picea abies	40	Split-trunk	PROTECTED	S
245	17	Norway spruce	Picea abies	35		PROTECTED	S
246	13	White pine	Pinus strobus			PROTECTED	S
247	18	White pine	Pinus strobus			LANDMARK	S
248	16	White pine	Pinus strobus			PROTECTED	S
249	17	White pine	Pinus strobus			PROTECTED	S
250	20	Norway spruce	Picea abies			LANDMARK	S
251	16	Norway spruce	Picea abies			PROTECTED	S
252	20	Norway spruce	Picea abies			LANDMARK	S
253	9	American elm	Ulmus americana			PROTECTED	S
254	28	Black cherry	Prunus serotina			LANDMARK	S
255	17, 24	Black cherry	Prunus serotina		Split-trunk	LANDMARK	S
256	10	White pine	Pinus strobus		Poor, broken limbs	PROTECTED	S
257	13, 14	Boxelder	Acer negundo		Split-trunk	EXEMPT	S
258	13	Black walnut	Juglans nigra			PROTECTED	S
259	8	Black walnut	Juglans nigra			PROTECTED	S
260	21	White pine	Pinus strobus			LANDMARK	S
261	25	Black cherry	Prunus serotina			LANDMARK	S
262	21, 14	Black cherry	Prunus serotina		Split-trunk	LANDMARK	S
263	11, 14, 14	Black cherry	Prunus serotina		Multi-trunk	PROTECTED	S
264	10	Black walnut	Juglans nigra			PROTECTED	S
265	18	Norway maple	Acer platanoides			LANDMARK	S
266	10, 12	Black cherry	Prunus serotina		Split-trunk	PROTECTED	S
267	7, 10	Black cherry	Prunus serotina		Split-trunk	PROTECTED	S
268	15	Black cherry	Prunus serotina			PROTECTED	S
269	10	Boxelder	Acer negundo			EXEMPT	S
270	11	Boxelder	Acer negundo			EXEMPT	S
271	9	Boxelder	Acer negundo			EXEMPT	S
272	8	Boxelder	Acer negundo			EXEMPT	S
273	13	Boxelder	Acer negundo			EXEMPT	S
~~274~~	~~16~~	~~Boxelder~~	~~Acer negundo~~			~~EXEMPT~~	~~R~~
275	7	Black walnut	Juglans nigra			EXEMPT	S
276	8, 10	Boxelder	Acer negundo		Split-trunk	EXEMPT	S

TAG NO.	DBH	COMMON NAME	LATIN NAME	HEIGHT	NOTES	TYPE	SAVE / REMOVE
277	11	Boxelder	Acer negundo			EXEMPT	S
278	22	Eastern cottonwood	Populus deltoides			EXEMPT	S
279	9	American elm	Ulmus americana			PROTECTED	S
280	16	Eastern cottonwood	Populus deltoides			EXEMPT	S
281	10	Black cherry	Prunus serotina			PROTECTED	S
282	28	Boxelder	Acer negundo			EXEMPT	S
283	16	Black cherry	Prunus serotina			PROTECTED	S
284	12	Boxelder	Acer negundo			EXEMPT	S
285	14	Boxelder	Acer negundo			EXEMPT	S
286	24	Black cherry	Prunus serotina			LANDMARK	S
~~287~~	~~7~~	~~Black walnut~~	~~Juglans nigra~~			~~EXEMPT~~	~~R~~
288	10	Hackberry	Celtis occidentalis			PROTECTED	S
289	8	Black walnut	Juglans nigra			PROTECTED	S
290	14	Hackberry	Celtis occidentalis			PROTECTED	S
291	10	Boxelder	Acer negundo			EXEMPT	S
292	7	American elm	Ulmus americana			EXEMPT	S
~~293~~	~~14~~	~~Black walnut~~	~~Juglans nigra~~			~~PROTECTED~~	~~R~~
294	12	Black cherry	Prunus serotina			PROTECTED	S
295	12	Black walnut	Juglans nigra			PROTECTED	S
296	14	Black walnut	Juglans nigra			PROTECTED	S
297	12	Black cherry	Prunus serotina			PROTECTED	S
298	10	Black walnut	Juglans nigra			PROTECTED	S
299	7	Hackberry	Celtis occidentalis			EXEMPT	S
300	13	Hackberry	Celtis occidentalis			PROTECTED	S
1501	11	Black walnut	Juglans nigra			PROTECTED	S
1502	16	Boxelder	Acer negundo			EXEMPT	S
~~1503~~	~~20~~	~~Black walnut~~	~~Juglans nigra~~			~~LANDMARK~~	~~R~~
~~1504~~	~~18~~	~~Black walnut~~	~~Juglans nigra~~			~~LANDMARK~~	~~R~~
1505	6	Black walnut	Juglans nigra			EXEMPT	S
1506	7	Boxelder	Acer negundo			EXEMPT	S
~~1507~~	~~8~~	~~Northern catalpa~~	~~Catalpa speciosa~~			~~PROTECTED~~	~~R~~
~~1508~~	~~16~~	~~Black walnut~~	~~Juglans nigra~~			~~PROTECTED~~	~~R~~
~~1509~~	~~6~~	~~Black walnut~~	~~Juglans nigra~~			~~EXEMPT~~	~~R~~
~~1510~~	~~9~~	~~Black walnut~~	~~Juglans nigra~~			~~PROTECTED~~	~~R~~
~~1511~~	~~9~~	~~Black walnut~~	~~Juglans nigra~~			~~PROTECTED~~	~~R~~
~~1512~~	~~7~~	~~Black walnut~~	~~Juglans nigra~~			~~EXEMPT~~	~~R~~
~~1513~~	~~9~~	~~Boxelder~~	~~Acer negundo~~			~~EXEMPT~~	~~R~~
~~1514~~	~~6~~	~~Black walnut~~	~~Juglans nigra~~			~~EXEMPT~~	~~R~~
~~1515~~	~~8~~	~~Black walnut~~	~~Juglans nigra~~			~~PROTECTED~~	~~R~~
~~1516~~	~~8~~	~~Black walnut~~	~~Juglans nigra~~			~~PROTECTED~~	~~R~~
~~1517~~	~~8~~	~~Black walnut~~	~~Juglans nigra~~			~~PROTECTED~~	~~R~~
~~1518~~	~~11~~	~~Boxelder~~	~~Acer negundo~~			~~EXEMPT~~	~~R~~
~~1519~~	~~6~~	~~Boxelder~~	~~Acer negundo~~			~~EXEMPT~~	~~R~~
~~1520~~	~~12~~	~~Eastern cottonwood~~	~~Populus deltoides~~			~~EXEMPT~~	~~R~~
~~1521~~	~~16~~	~~Eastern cottonwood~~	~~Populus deltoides~~			~~EXEMPT~~	~~R~~
1522	16	Black walnut	Juglans nigra			PROTECTED	S
1523	14	Black walnut	Juglans nigra			PROTECTED	S
1524	16	Black walnut	Juglans nigra			PROTECTED	S
1525	14	Black walnut	Juglans nigra			PROTECTED	S
1526	12	Boxelder	Acer negundo			EXEMPT	S
1527	8	Boxelder	Acer negundo			EXEMPT	S
1528	9, 9	Boxelder	Acer negundo		Split-trunk	EXEMPT	S
1529	10	Boxelder	Acer negundo			EXEMPT	S
1530	7	Boxelder	Acer negundo			EXEMPT	S
1531	8	Black walnut	Juglans nigra			PROTECTED	S
1532	9	Boxelder	Acer negundo		poor, broken, dead branches	EXEMPT	S
1533	12	Boxelder	Acer negundo			EXEMPT	S
1534	18	Black walnut	Juglans nigra			LANDMARK	S
1535	11	Black walnut	Juglans nigra			PROTECTED	S
1536	7	Black walnut	Juglans nigra			EXEMPT	S
1537	9	Black walnut	Juglans nigra			PROTECTED	S
1538	18	Siberian elm	Ulmus pumila			EXEMPT	S
1539	42	Siberian elm	Ulmus pumila			EXEMPT	S
1540	14	Black walnut	Juglans nigra			PROTECTED	S
1541	6	Common buckthorn	Rhamnus cathartica			EXEMPT	S
1542	8	Siberian elm	Ulmus pumila			EXEMPT	S
1543	12	Black walnut	Juglans nigra			PROTECTED	S
1544	11	Black walnut	Juglans nigra			PROTECTED	S
1545	11	Siberian elm	Ulmus pumila			EXEMPT	S

PEA GROUP
t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN
LYNN A. WHIPPLE
LANDSCAPE ARCHITECT
No. 4100
REGISTERED LANDSCAPE ARCHITECT

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

CAUTION!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT
BLACK & VEATCH

PROJECT TITLE
GRENADA SUBSTATION
PLYMOUTH ROAD AND N. DIXBORO RD
ANN ARBOR TWP. / MI

REVISIONS	
-	-
04/01/26	SUPERIOR TOWNSHIP CONDITIONAL USE PERMIT

ORIGINAL ISSUE DATE:
OCTOBER 30, 2025

DRAWING TITLE
EXISTING TREE LIST

PEA JOB NO.	25-1461
P.M.	LAW
DN.	CAL
DES.	LAW

DRAWING NUMBER:
T-1.1

NOT FOR CONSTRUCTION

S:\PROJECTS\2025\25-1461 GRENADA SUBSTATION LANDSCAPE PLAN\DWG\2_SITE_PLAN\T-1.1(I) TREE PROTECTION AND REMOVAL PLAN-25-1461.dwg PLOT DATE: 4/7/2026 BY: Charlotte L'Esperance



MRW LED

Architectural Wall Sconce

NIGHTTIME FRIENDLY · CERTIFIED IN TITLE 20 · BAA · BABA

OMERO

Inverted available with WLU option only.

Catalog Number

Notes

Type

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

Introduction

Classic Architectural Wall Sconce with the LED technology. Long-life, maintenance-free product with typical energy savings of 80% compared to metal halide versions. The integral battery backup option provides emergency egress lighting, without the use of a back-box or remote gear, so installations maintain their aesthetic integrity. The MRW LED is ideal for replacing existing 50 – 250W metal halide wall-mounted products. The expected service life is 20+ years of nighttime use.

Specifications

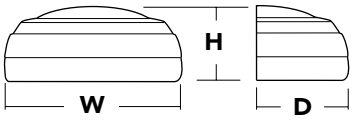
Luminaire

Height: 7-1/4" *(18.4 cm)*

Width: 18" *(45.7 cm)*

Depth: 9" *(22.8 cm)*

Weight: 18 lbs *(8.2 kg)*

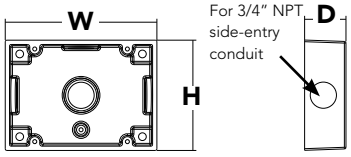


Optional Back Box (BBW)

Height: 4" *(10.2 cm)*

Width: 5-1/2" *(14.0 cm)*

Depth: 1-1/2" *(3.8 cm)*



Ordering Information

EXAMPLE: MRW LED P2 40K SR3 MVOLT DDBTXD

MRW LED							
Series	**Performance Package**	**Color Temperature**	**Distribution**	**Voltage**	**Mounting**	**Options**	**Finish *(required)***
MRW LED	P1 P2 P3 P4	30K 40K 50K	SR2 Type II SR3 Type III SR4 Type IV	MVOLT [1] 120 208 240 277 347 480	**Shipped included** (blank) Surface mount **Shipped separately** BBW Surface-mounted back box	**Shipped installed** PE Photoelectric cell, button type [2] SF Single fuse (120, 277, 347V) [3] DF Double fuse (208, 240, 480V) [3] DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately) E20WC Emergency battery backup, Certified in CA Title 20 MAEDBS (18W, -20°C) [4] E10WH Emergency battery backup, Certified in CA Title 20 MAEDBS (10W, 5°C)[4] WLU Wet location door for up orientation [5] PIR Motion/ambient light sensor [6] DS Dual switching [7] SPD Separate Surge Protection [8] **Shipped separately** VG Vandal guard WG Wire guard	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

Emergency Battery Operation

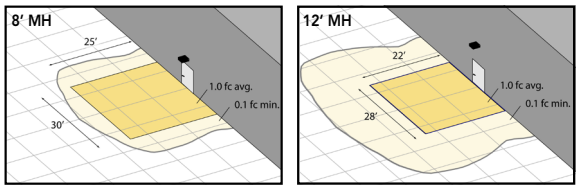
The emergency battery backup (E20WC & E10WH options) is integral to the luminaire - no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product.

All E20WC & E10WH configurations include an independent secondary driver with an integral relay to immediately detect AC power loss.

The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time supply power is lost, per International Building Code Section 1006 and NFPA 101 Life Safety Code Section 7.9, provided luminaires are mounted at an appropriate height and illuminate an open space with no major obstructions.

The examples below show illuminance of 1 fc average and 0.1 fc minimum of the P1 power package Type IV product in emergency mode.

MRW LED P1 40K SR4 MVOLT E20WC
10' x 10' Gridlines
8' and 12' Mounting Height



NOTES

1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
2. When PE is ordered, voltage needs to be specified. Not available with 480V option.
3. Single fuse (SF) requires 120V, 277V or 347V options. Double fuse (DF) requires 208V, 240V or 480V options,
4. Not available with 347V or 480V. Not available with WLU.
5. WLU not available with PIR, E20WC or E10WH.
6. When ordering PIR, "PE" will be automatically added to the order line for "dim to off" capability. See PIR Table for default settings.
7. Only available with P3 & P4 packages. Provides 50/50 luminaire operation via two independent drivers and light engines on two separate circuits. Not available with E20WC, E10WH, WLU, SF, or DF. When ordered with photocell (PE) or motion sensor (PIR), only the primary power source leads will be controlled.
8. See electrical section on page 2 for more details.

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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts.

Performance Package	System Watts (MVOLT[1])	Dist. Type	30K (3000K, 70CRI)		40K (4000K, 70CRI)		50K (5000K, 70CRI)	
			Lumens	LPW	Lumens	LPW	Lumens	LPW
P1	20W	SR2	2,111	108	2,251	115	2,305	118
		SR3	2,104	108	2,244	115	2,298	117
		SR4	2,053	105	2,189	112	2,242	115
P2	29W	SR2	2,943	101	3,139	108	3,214	110
		SR3	2,934	101	3,129	107	3,204	110
		SR4	2,863	98	3,053	105	3,126	107
P3	40W	SR2	4,500	114	4,799	122	4,913	125
		SR3	4,486	114	4,784	122	4,898	125
		SR4	4,377	111	4,667	119	4,779	122
P4	61W	SR2	6,159	102	6,567	108	6,724	111
		SR3	6,139	101	6,547	108	6,703	110
		SR4	5,991	99	6,388	105	6,541	108

Motion/Ambient Sensor Default Settings						
	Dimmed State	High Level (when triggered)	Photocell Operation	Ramp-up Time	Dwell Time	Ramp-down Time
*PIR	3V (37%) Output	10V (100%) Output	Enabled @ 5FC	3 sec	5 min	5 min
*PIR USES SFOD 7						

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Normalized Lumen Multiplier
0°C	32°F	1.05
10°C	50°F	1.03
20°C	68°F	1.01
25°C	**77°F**	**1.00**
30°C	86°F	0.99
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **MRW LED P4** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25000	50000	100000	L90
Lumen Maintenance Factor	1	0.96	0.95	0.92	>60000

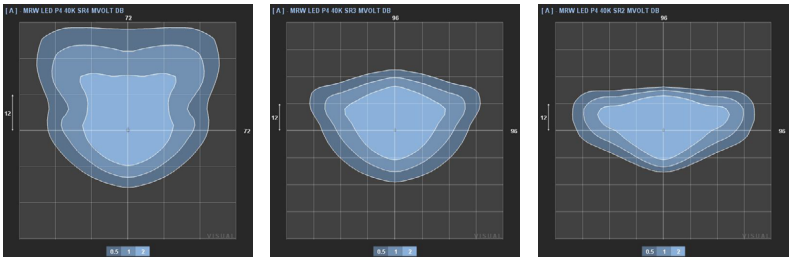
Electrical Load

Power Package	System Watts	Current (A)					
		120V	208V	240V	277V	347V	480V
P1	20W	0.17	0.10	0.09	0.08	0.06	0.05
P2	29W	0.26	0.15	0.13	0.12	0.09	0.07
P3	40W	0.37	0.21	0.18	0.16	0.13	0.09
P4	61W	0.59	0.33	0.18	0.25	0.19	0.14

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's MRW LED homepage.

Isofootcandle plots for the MRW LED P4 40K SR2, SR3, and SR4. Distances are in units of mounting height (12').



FEATURES & SPECIFICATIONS

INTENDED USE
The classic architectural shape of the MRW LED was designed for applications such as hospitals, schools, malls, restaurants, and commercial buildings. The long life LEDs and driver make this luminaire nearly maintenance-free.

CONSTRUCTION
The single-piece die-cast aluminum housing integrates secondary heat sinks to optimize thermal transfer from the internal light engine heat sinks and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP65 rating for the luminaire.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

OPTICS
Precision-molded acrylic lenses are engineered for superior distribution, uniformity, and spacing in wall-mount applications. Light engines are 4000K (70 CRI). The MRW LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal core circuit board and integral aluminum heat sinks to maximize heat dissipation and promote long life (100,000 hrs at 25°C, L77). Class 2 electronic driver has a power factor >90%, THD <20%and a minimum 6 KV surge protection. When ordering the SPD option, a separate surge protection device is installed within the luminaire which meets a minimum Category C low operation (per ANSI/IEEE C62.41.2).

INSTALLATION
A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections.

LISTINGS
CSA certified to U.S. and Canadian standards. Light engines are IP66 rated; luminaire is IP65 rated and suitable for wet locations when mounted with the lenses down. WLU option offers wet location listing in "up"orientation. Rated for -30°C minimum ambient.

GOVERNMENT PROCUREMENT
BAA – Buy America(n) Act: Product qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product also qualifies as manufactured in the United States under DOT Buy America regulations.
BABA – Build America Buy America: Product qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY-5YR
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/customer-support/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

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D-Series Size 1
LED Area Luminaire

Catalog Number

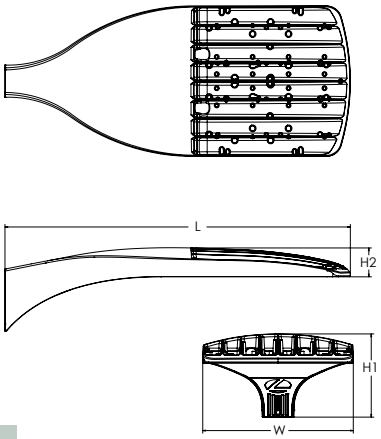
Notes

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Specifications

EPA:	0.69 ft² (0.06 m²)
Length:	32.71" (83.1 cm)
Width:	14.26" (36.2 cm)
Height H1:	7.88" (20.0 cm)
Height H2:	2.73" (6.9 cm)
Weight:	34 lbs (15.4 kg)



Design Select options indicated by this color background.

Introduction

The modern styling of the D-Series features a highly refined aesthetic that blends seamlessly with its environment. The D-Series offers the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. D-Series outstanding photometry aids in reducing the number of poles required in area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

design select

Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details

Ordering Information

EXAMPLE: DSX1 LED P7 40K 70CRI T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED

Series	LEDs	Color temperature [2]	Color Rendering Index [2]	Distribution	Voltage	Mounting
DSX1 LED	**Forward optics** P1 P6 P2 P7 P3 P8 P4 P9 P5 **Rotated optics** P10 [1] P12 [1] P11 [1] P13 [1]	(this section 70CRI only) 30K 3000K 40K 4000K 50K 5000K 27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K 5000K	70CRI 70CRI 70CRI 80CRI 80CRI 80CRI 80CRI 80CRI	AFR Automotive front row T1S Type I short T2M Type II medium T3M Type III medium T3LG Type III low glare [3] T4M Type IV medium T4LG Type IV low glare [3] TFTM Forward throw medium T5M Type V medium T5LG Type V low glare T5W Type V wide BLC3 Type III backlight control [3] BLC4 Type IV backlight control [3] LCCO Left corner cutoff [3] RCCO Right corner cutoff [3]	MVOLT (120V-277V) [4] HVOLT (347V-480V) [5,6] XVOLT (277V - 480V) [7,8] 120 [16, 26] 208 [16, 26] 240 [16, 26] 277 [16, 26] 347 [16, 26] 480 [16, 26]	**Shipped included** SPA Square pole mounting (#8 drilling) RPA Round pole mounting (#8 drilling) SPA5 Square pole mounting #5 drilling [9] RPA5 Round pole mounting #5 drilling [9] SPA8N Square narrow pole mounting #8 drilling WBA Wall bracket [10] MA Mast arm adapter (mounts on 2 3/8" OD horizontal tenon)

Control options

Shipped installed

NLTAIR2 PIRHN	nLight AIR gen 2 enabled with bi-level motion / ambient sensor, 8-40' mounting height, ambient sensor enabled at 2fc. [11, 12, 20, 21]
PIR	High/low, motion/ambient sensor, 8-40' mounting height, ambient sensor enabled at 2fc [13, 20, 21]
PER	NEMA twist-lock receptacle only (controls ordered separate) [14]
PER5	Five-pin receptacle only (controls ordered separate) [14, 21]
PER7	Seven-pin receptacle only (controls ordered separate) [14, 21]
FAO	Field adjustable output [15, 21]
BL30	Bi-level switched dimming, 30% [16, 21]
BL50	Bi-level switched dimming, 50% [16, 21]
DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately) [17]
DS	Dual switching [18, 19, 21]

Other options

Shipped installed

SPD20KV	20KV surge protection
HS	Houseside shield (black finish standard) [22]
L90	Left rotated optics [1]
R90	Right rotated optics [1]
CCE	Coastal Construction [23]
HA	50°C ambient operation [24]
BAA	Buy America(n) Act and/or Build America Buy America Qualified
SF	Single fuse (120, 277, 347V) [26]
DF	Double fuse (208, 240, 480V) [26]

Shipped separately

EGSR	External Glare Shield (reversible, field install required, matches housing finish)
BSDB	Bird Spikes (field install required)

Finish *(required)*

DDBXD	Dark Bronze
DBLXD	Black
DNAXD	Natural Aluminum
DWHXD	White
DDBTXD	Textured dark bronze
DBLBXD	Textured black
DNATXD	Textured natural aluminum
DWHGXD	Textured white

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Ordering Information

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [25]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [25]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [25]
DSHORT SBK	Shorting cap [25]
DSX1HS P#	House-side shield (enter package number 1-13 in place of #)
DSXRPA (FINISH)	Round pole adapter (#8 drilling, specify finish)
DSXSPA5 (FINISH)	Square pole adapter #5 drilling (specify finish)
DSXRPA5 (FINISH)	Round pole adapter #5 drilling (specify finish)
DSX1EGSR (FINISH)	External glare shield (specify finish)
DSX1BSDB (FINISH)	Bird spike deterrent bracket (specify finish)

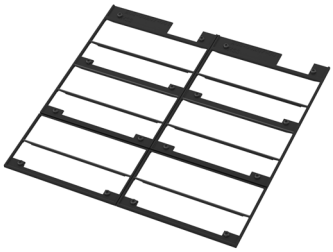
NOTES

1 Rotated optics available with packages P10, P11, P12 and P13. Must be combined with option L90 or R90.
2 30K, 40K, and 50K available in 70CRI and 80CRI. 27K and 35K only available with 80CRI. Contact Technical Support for other possible combinations.
3 T3LG, T4LG, BLC3, BLC4, LCCO, RCCO not available with option HS.
4 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
5 HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
6 HVOLT not available with package P1 and P10 when combined with option NLTAIR2 PIRHN or option PIR.
7 XVOLT operates with any voltage between 277V and 480V (50/60 Hz).
8 XVOLT not available in packages P1 or P10. XVOLT not available with P1 ,P2, P5, P7, P9, P10, P11 and P13 when combined with option NLTAIR2 PIRHN or PIR. XVOLT not available with fusing (SF or DF).
9 SPA5 and RPA5 for use with #5 drilling only (Not for use with #8 drilling).
10 WBA cannot be combined with Type 5 distributions plus photocell (PER).
11 NLTAIR2 and PIRHN must be ordered together. For more information on nLight AIR2 visit this link
12 NLTAIR2 PIRHN not available with other controls including PIR, PER, PER5, PER7, FAO, BL30, BL50, DMG and DS. NLTAIR2 PIRHN not available with P1 and P10 using HVOLT.
13 PIR not available with NLTAIR2 PIRHN, PER, PER5, PER7, FAO BL30, BL50, DMG and DS.
14 PER/PER5/PER7 not available with NLTAIR2 PIRHN, PIR, BL30, BL50, FAO, DMG and DS. Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included.
15 FAO not available with other dimming control options NLTAIR2 PIRHN, PIR, PER5, PER7, BL30, BL50, DMG and DS.
16 BL30 and BL50 are not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, FAO, DMG and DS. BL30 or BL50 must specify 120 or 277V.
17 DMG not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, BL30, BL50, FAO and DS.
18 DS not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, BL30, BL50, FAO and DMG.
19 DS requires (2) separately switched circuits. DS provides 50/50 fixture operation via (2) different sets of leads using (2) drivers. DS only available with packages P8, P9, P10, P11, P12 and P13.
20 Reference Motion Sensor Default Settings table on page 4 to see functionality.
21 Reference Controls Options table on page 4.
22 HS not available with T3LG, T4LG, BLC3, BLC4, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
23 CCE option not available with option BS and EGSR. Contact Technical Support for availability.
24 Option HA not available with performance packages P4, P5, P7, P8, P9 and P13.
25 Requires luminaire to be specified with PER, PER5 or PER7 option. See Controls Table on page 4.
26 Single fuse (SF) requires 120V, 277V, or 347V. Double fuse (DF) requires 208V, 240V or 480V. XVOLT not available with fusing (SF or DF).

Shield Accessories



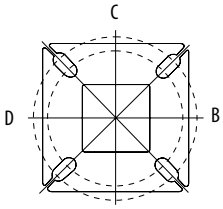
External Glare Shield (EGSR)

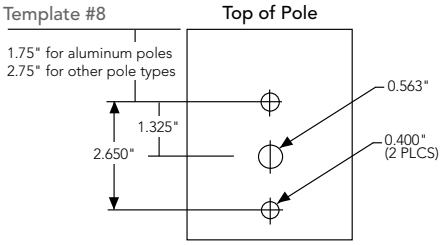


House Side Shield (HS)

Drilling

HANDHOLE ORIENTATION





Tenon Mounting Slipfitter

Tenon O.D.	Mounting	Single Unit	2 @ 180	2 @ 90	3 @ 90	3 @120	4 @ 90
2-3/8"	RPA	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 390	AS3-5 320	AS3-5 490
2-7/8"	RPA	AST25-190	AST25-280	AST25-290	AST25-390	AST25-320	AST25-490
4"	RPA	AST35-190	AST35-280	AST35-290	AST35-390	AST35-320	AST35-490

Mounting Option	Drilling Template	Single	2 @ 180	2 @ 90	3 @ 90	3 @ 120	4 @ 90
Head Location		Side B	Side B & D	Side B & C	Side B, C & D	Round Pole Only	Side A, B, C & D
Drill Nomenclature	#8	DM19AS	DM28AS	DM29AS	DM39AS	DM32AS	DM49AS
		Minimum Acceptable Outside Pole Dimension					
SPA	#8	3.5"	3.5"	3.5"	3.5"		3.5"
RPA	#8	3"	3"	3"	3"	3"	3"
SPA5	#5	3"	3"	3"	3"		3"
RPA5	#5	3"	3"	3"	3"	3"	3"
SPA8N	#8	3"	3"	3"	3"		3"

DSX1 Area Luminaire - EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

Fixture Quantity & Mounting Configuration	Single DM19	2 @ 180 DM28	2 @ 90 DM29	3 @ 90 DM39	3 @ 120 DM32	4 @ 90 DM49
Mounting Type						
DSX1 with SPA	0.69	1.38	1.23	1.54	---	1.58
DSX1 with SPA5, SPA8N	0.70	1.40	1.30	1.66	---	1.68
DSX1 with RPA, RPA5	0.70	1.40	1.30	1.66	1.60	1.68
DSX1 with MA	0.83	1.66	1.50	2.09	2.09	2.09

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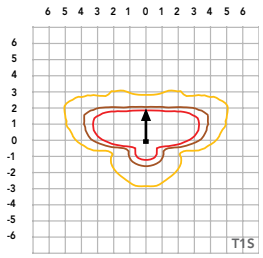
Photometric Diagrams

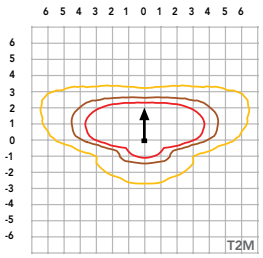
To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's homepage.

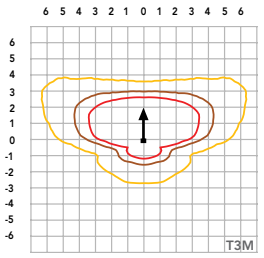
Isofootcandle plots for the DSX1 LED P9 40K 70CRI. Distances are in units of mounting height (25').

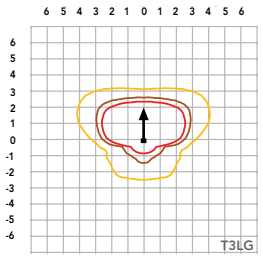
LEGEND

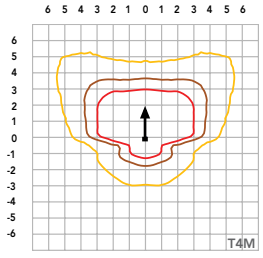
- 0.1 fc
- 0.5 fc
- 1.0 fc

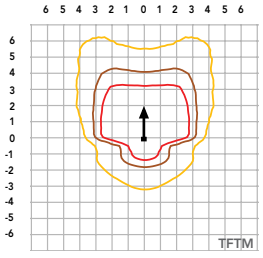


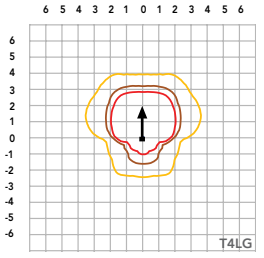


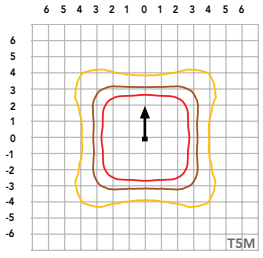


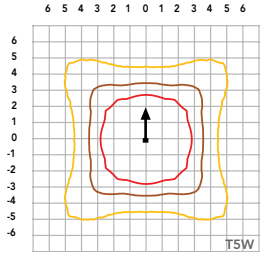


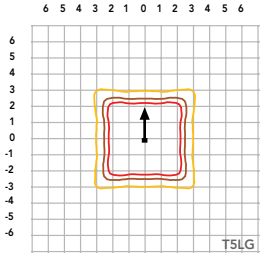


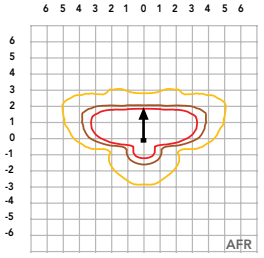


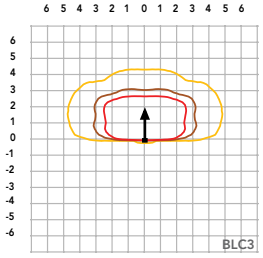


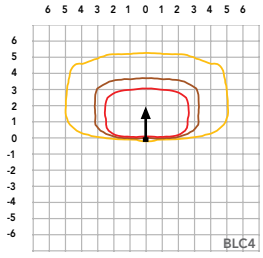


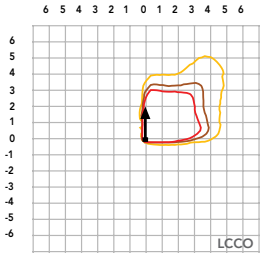


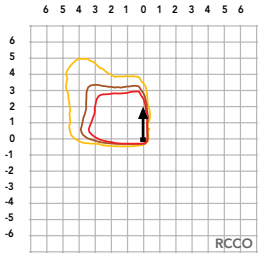












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Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
5°C	41°F	1.04
10°C	50°F	1.03
15°C	50°F	1.02
20°C	68°F	1.01
25°C	**77°C**	**1.00**
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	Lumen Maintenance Factor
0	1.00
25,000	0.95
50,000	0.90
100,000	0.81

FAO Dimming Settings

FAO Position	% Wattage	% Lumen Output
8	100%	100%
7	93%	95%
6	80%	85%
5	66%	73%
4	54%	61%
3	41%	49%
2	29%	36%
1	15%	20%

*Note: Calculated values are based on original performance package data. When calculating new values for given FAO position, use maximum published values by package listed on specification sheet (input watts and lumens by optic type).

Electrical Load

	Performance Package	LED Count	Drive Current (mA)	Wattage	Current (A) 120V	208V	240V	277V	347V	480V
Forward Optics (Non-Rotated)	P1	30	530	51	0.42	0.24	0.21	0.18	0.15	0.11
	P2	30	700	68	0.56	0.33	0.28	0.24	0.20	0.14
	P3	30	1050	104	0.85	0.49	0.43	0.37	0.29	0.21
	P4	30	1250	125	1.03	0.60	0.52	0.45	0.36	0.26
	P5	30	1400	142	1.15	0.66	0.58	0.50	0.40	0.29
	P6	40	1250	167	1.38	0.79	0.69	0.60	0.48	0.34
	P7	40	1400	188	1.54	0.89	0.77	0.67	0.53	0.38
	P8	60	1100	216	1.80	1.04	0.90	0.78	0.62	0.45
	P9	60	1400	279	2.31	1.33	1.15	1.00	0.80	0.58
Rotated Optics (Requires L90 or R90)	P10	60	530	101	0.84	0.49	0.42	0.37	0.29	0.21
	P11	60	700	135	1.12	0.65	0.56	0.49	0.39	0.28
	P12	60	1050	206	1.72	0.99	0.86	0.74	0.59	0.43
	P13	60	1400	279	2.30	1.33	1.15	1.00	0.79	0.57

LED Color Temperature / Color Rendering Multipliers

	70 CRI		80CRI		90CRI	
	Lumen Multiplier	Availability	Lumen Multiplier	Availability	Lumen Multiplier	Availability
5000K	102%	Standard	92%	Extended lead-time	71%	(see note)
4000K	100%	Standard	92%	Extended lead-time	67%	(see note)
3500K	100%	(see note)	90%	Extended lead-time	63%	(see note)
3000K	96%	Standard	87%	Extended lead-time	61%	(see note)
2700K	94%	(see note)	85%	Extended lead-time	57%	(see note)

Note: Some LED types are available as per special request. Contact Technical Support for more information.

Motion Sensor Default Settings

Option	Unoccupied Dimmed Level	High Level (when occupied)	Phototcell Operation	Dwell Time	Ramp-up Time	Dimming Fade Rate
PIR	30%	100%	Enabled @ 2FC	7.5 min	3 sec	5 min
NLTAIR2 PIRHN	30%	100%	Enabled @ 2FC	7.5 min	3 sec	5 min

Controls Options

Nomenclature	Description	Functionality	Primary control device	Notes
FAO	Field adjustable output device installed inside the luminaire; wired to the driver dimming leads.	Allows the luminaire to be manually dimmed, effectively trimming the light output.	FAO device	Cannot be used with other controls options that need the 0-10V leads
DS (not available on DSX0)	Drivers wired independently for 50/50 luminaire operation	The luminaire is wired to two separate circuits, allowing for 50/50 operation.	Independently wired drivers	Requires two separately switched circuits. Consider nLight AIR as a more cost effective alternative.
PER5 or PER7	Twist-lock photocell receptacle	Compatible with standard twist-lock photocells for dusk to dawn operation, or advanced control nodes that provide 0-10V dimming signals.	Twist-lock photocells such as DLL Elite or advanced control nodes such as ROAM.	Pins 4 & 5 to dimming leads on driver, Pins 6 & 7 are capped inside luminaire. Cannot be used with other controls options that need the 0-10V leads.
PIR	Motion sensor with integral photocell. Sensor suitable for 8' to 40' mounting height.	Luminaires dim when no occupancy is detected.	Acuity Controls rSBG	Cannot be used with other controls options that need the 0-10V leads.
NLTAIR2 PIRHN	nLight AIR enabled luminaire for motion sensing, photocell and wireless communication.	Motion and ambient light sensing with group response. Scheduled dimming with motion sensor over-ride when wirelessly connected to the nLight Eclypse.	nLight Air rSBG	nLight AIR sensors can be programmed and commissioned from the ground using the CIAIRity Pro app. Cannot be used with other controls options that need the 0-10V leads.
BL30 or BL50	Integrated bi-level device that allows a second control circuit to switch all light engines to either 30% or 50% light output	BLC device provides input to 0-10V dimming leads on all drivers providing either 100% or dimmed (30% or 50%) control by a secondary circuit	BLC UVOLT1	BLC device is powered off the 0-10V dimming leads, thus can be used with any input voltage from 120 to 480V

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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79.
Contact factory for performance data on any configurations not shown here.

Forward Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	51W	30	530	T1S	7,776	1	0	2	153	8,104	1	0	2	159	8,262	1	0	2	162
				T2M	7,203	1	0	3	142	7,507	2	0	3	147	7,653	2	0	3	150
				T3M	7,287	1	0	3	143	7,594	1	0	3	149	7,742	1	0	3	152
				T3LG	6,509	1	0	1	128	6,783	1	0	1	133	6,916	1	0	1	136
				T4M	7,395	1	0	3	145	7,707	1	0	3	151	7,857	1	0	3	154
				T4LG	6,726	1	0	1	132	7,010	1	0	1	138	7,146	1	0	1	140
				TFTM	7,446	1	0	3	146	7,760	1	0	3	152	7,912	1	0	3	155
				T5M	7,609	3	0	2	149	7,930	3	0	2	156	8,084	3	0	2	159
				T5W	7,732	3	0	2	152	8,058	4	0	2	158	8,215	4	0	2	161
				T5LG	7,631	3	0	1	150	7,953	3	0	1	156	8,108	3	0	1	159
				BLC3	5,300	0	0	2	104	5,524	0	0	2	109	5,631	0	0	2	111
				BLC4	5,474	0	0	3	108	5,705	0	0	3	112	5,816	0	0	3	114
				RCCO	5,348	0	0	2	105	5,573	0	0	2	109	5,682	0	0	2	112
				LCCO	5,348	0	0	2	105	5,573	0	0	2	109	5,682	0	0	2	112
				AFR	7,776	1	0	2	153	8,104	1	0	2	159	8,262	1	0	2	162
P2	68W	30	700	T1S	9,997	1	0	2	147	10,418	1	0	2	154	10,621	1	0	2	157
				T2M	9,260	2	0	3	137	9,651	2	0	3	142	9,839	2	0	3	145
				T3M	9,368	2	0	3	138	9,763	2	0	3	144	9,953	2	0	3	147
				T3LG	8,368	1	0	2	123	8,721	1	0	2	129	8,891	1	0	2	131
				T4M	9,507	2	0	3	140	9,909	2	0	3	146	10,102	2	0	3	149
				T4LG	8,647	1	0	2	128	9,012	1	0	2	133	9,187	1	0	2	136
				TFTM	9,573	2	0	3	141	9,977	2	0	3	147	10,172	2	0	3	150
				T5M	9,782	4	0	2	144	10,195	4	0	2	150	10,393	4	0	2	153
				T5W	9,940	4	0	2	147	10,360	4	0	2	153	10,562	4	0	2	156
				T5LG	9,810	3	0	1	145	10,224	3	0	1	151	10,423	3	0	1	154
				BLC3	6,814	0	0	2	101	7,101	0	0	2	105	7,240	0	0	2	107
				BLC4	7,038	0	0	3	104	7,334	0	0	3	108	7,477	0	0	3	110
				RCCO	6,875	1	0	2	101	7,165	1	0	2	106	7,305	1	0	2	108
				LCCO	6,875	1	0	2	101	7,165	1	0	2	106	7,305	1	0	2	108
				AFR	9,997	1	0	2	147	10,418	1	0	2	154	10,621	1	0	2	157
P3	102W	30	1050	T1S	14,093	2	0	2	138	14,687	2	0	2	144	14,973	2	0	2	147
				T2M	13,055	2	0	3	128	13,605	2	0	3	133	13,871	2	0	3	136
				T3M	13,206	2	0	4	129	13,763	2	0	4	135	14,031	2	0	4	137
				T3LG	11,797	2	0	2	115	12,294	2	0	2	120	12,534	2	0	2	123
				T4M	13,403	2	0	4	131	13,968	2	0	4	137	14,241	2	0	4	139
				T4LG	12,190	2	0	2	119	12,704	2	0	2	124	12,952	2	0	2	127
				TFTM	13,496	2	0	4	132	14,065	2	0	4	138	14,339	2	0	4	140
				T5M	13,790	4	0	2	135	14,371	4	0	2	141	14,652	4	0	2	143
				T5W	14,013	4	0	3	137	14,605	4	0	3	143	14,889	4	0	3	146
				T5LG	13,830	3	0	2	135	14,413	3	0	2	141	14,694	3	0	2	144
				BLC3	9,606	0	0	2	94	10,011	0	0	2	98	10,206	0	0	2	100
				BLC4	9,921	0	0	3	97	10,340	0	0	3	101	10,541	0	0	3	103
				RCCO	9,692	1	0	2	95	10,101	1	0	2	99	10,298	1	0	2	101
				LCCO	9,692	1	0	2	95	10,101	1	0	2	99	10,298	1	0	2	101
				AFR	14,093	2	0	2	138	14,687	2	0	2	144	14,973	2	0	2	147

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Performance Data

Lumen Output

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Contact factory for performance data on any configurations not shown here.

Forward Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P4	124W	30	1250	T1S	16,416	2	0	3	132	17,109	2	0	3	138	17,442	2	0	3	141
				T2M	15,207	3	0	4	123	15,849	3	0	4	128	16,158	3	0	4	130
				T3M	15,383	2	0	4	124	16,032	2	0	4	129	16,345	2	0	4	132
				T3LG	13,742	2	0	2	111	14,321	2	0	2	116	14,600	2	0	2	118
				T4M	15,613	2	0	4	126	16,272	2	0	4	131	16,589	2	0	4	134
				T4LG	14,200	2	0	2	115	14,799	2	0	2	119	15,087	2	0	2	122
				TFTM	15,721	2	0	4	127	16,384	2	0	4	132	16,703	2	0	4	135
				T5M	16,063	4	0	2	130	16,741	4	0	2	135	17,067	4	0	2	138
				T5W	16,324	5	0	3	132	17,013	5	0	3	137	17,344	5	0	3	140
				T5LG	16,110	3	0	2	130	16,790	4	0	2	135	17,117	4	0	2	138
				BLC3	11,190	0	0	3	90	11,662	0	0	3	94	11,889	0	0	3	96
				BLC4	11,557	0	0	3	93	12,044	0	0	3	97	12,279	0	0	4	99
				RCCO	11,291	1	0	3	91	11,767	1	0	3	95	11,996	1	0	3	97
				LCCO	11,291	1	0	3	91	11,767	1	0	3	95	11,996	1	0	3	97
				AFR	16,416	2	0	3	132	17,109	2	0	3	138	17,442	2	0	3	141
P5	138W	30	1400	T1S	18,052	2	0	3	131	18,814	2	0	3	136	19,180	2	0	3	139
				T2M	16,723	3	0	4	121	17,428	3	0	4	126	17,768	3	0	4	129
				T3M	16,917	3	0	4	122	17,630	3	0	4	128	17,974	3	0	4	130
				T3LG	15,111	2	0	2	109	15,749	2	0	2	114	16,055	2	0	2	116
				T4M	17,169	3	0	5	124	17,893	3	0	5	130	18,242	3	0	5	132
				T4LG	15,615	2	0	2	113	16,274	2	0	2	118	16,591	2	0	2	120
				TFTM	17,288	2	0	4	125	18,017	2	0	5	130	18,368	3	0	5	133
				T5M	17,664	5	0	3	128	18,410	5	0	3	133	18,768	5	0	3	136
				T5W	17,951	5	0	3	130	18,708	5	0	3	135	19,073	5	0	3	138
				T5LG	17,716	4	0	2	128	18,463	4	0	2	134	18,823	4	0	2	136
				BLC3	12,305	0	0	3	89	12,824	0	0	3	93	13,074	0	0	3	95
				BLC4	12,709	0	0	4	92	13,245	0	0	4	96	13,503	0	0	4	98
				RCCO	12,416	1	0	3	90	12,940	1	0	3	94	13,192	1	0	3	95
				LCCO	12,416	1	0	3	90	12,940	1	0	3	94	13,192	1	0	3	95
				AFR	18,052	2	0	3	131	18,814	2	0	3	136	19,180	2	0	3	139
P6	165W	40	1250	T1S	21,031	2	0	3	127	21,918	2	0	3	133	22,345	2	0	3	135
				T2M	19,482	3	0	4	118	20,303	3	0	4	123	20,699	3	0	4	125
				T3M	19,708	3	0	5	119	20,539	3	0	5	124	20,939	3	0	5	127
				T3LG	17,604	2	0	2	107	18,347	2	0	2	111	18,704	2	0	2	113
				T4M	20,001	3	0	5	121	20,845	3	0	5	126	21,251	3	0	5	129
				T4LG	18,191	2	0	2	110	18,959	2	0	2	115	19,328	2	0	2	117
				TFTM	20,140	3	0	5	122	20,989	3	0	5	127	21,398	3	0	5	129
				T5M	20,579	5	0	3	125	21,447	5	0	3	130	21,865	5	0	3	132
				T5W	20,912	5	0	3	127	21,795	5	0	3	132	22,219	5	0	3	134
				T5LG	20,638	4	0	2	125	21,509	4	0	2	130	21,928	4	0	2	133
				BLC3	14,335	0	0	3	87	14,940	0	0	3	90	15,231	0	0	3	92
				BLC4	14,805	0	0	4	90	15,430	0	0	4	93	15,731	0	0	4	95
				RCCO	14,464	1	0	3	88	15,074	1	0	3	91	15,368	1	0	3	93
				LCCO	14,464	1	0	3	88	15,074	1	0	3	91	15,368	1	0	3	93
				AFR	21,031	2	0	3	127	21,918	2	0	3	133	22,345	2	0	3	135

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Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79.
Contact factory for performance data on any configurations not shown here.

Forward Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P7	184W	40	1400	T1S	22,741	2	0	3	123	23,700	2	0	3	129	24,162	3	0	3	131
				T2M	21,066	3	0	4	114	21,955	3	0	4	119	22,383	3	0	4	121
				T3M	21,311	3	0	5	116	22,210	3	0	5	120	22,642	3	0	5	123
				T3LG	19,036	2	0	2	103	19,839	2	0	3	108	20,226	2	0	3	110
				T4M	21,628	3	0	5	117	22,541	3	0	5	122	22,980	3	0	5	125
				T4LG	19,671	2	0	2	107	20,501	2	0	3	111	20,900	2	0	3	113
				TFTM	21,778	3	0	5	118	22,697	3	0	5	123	23,139	3	0	5	125
				T5M	22,252	5	0	3	121	23,191	5	0	3	126	23,643	5	0	3	128
				T5W	22,613	5	0	3	123	23,567	5	0	4	128	24,027	5	0	4	130
				T5LG	22,317	4	0	2	121	23,258	4	0	2	126	23,712	4	0	2	129
				BLC3	15,501	0	0	3	84	16,155	0	0	4	88	16,470	0	0	4	89
				BLC4	16,010	0	0	4	87	16,685	0	0	4	90	17,010	0	0	4	92
				RCCO	15,641	1	0	3	85	16,301	1	0	3	89	16,619	1	0	3	90
				LCCO	15,641	1	0	3	85	16,301	1	0	3	89	16,619	1	0	3	90
				AFR	22,741	2	0	3	123	23,700	2	0	3	129	24,162	3	0	3	131
P8	216W	60	1100	T1S	28,701	3	0	3	133	29,912	3	0	4	139	30,495	3	0	4	141
				T2M	26,587	3	0	5	123	27,709	3	0	5	128	28,249	3	0	5	131
				T3M	26,895	3	0	5	125	28,030	3	0	5	130	28,576	3	0	5	132
				T3LG	24,025	3	0	3	111	25,038	3	0	3	116	25,526	3	0	3	118
				T4M	27,296	3	0	5	127	28,448	3	0	5	132	29,002	3	0	5	134
				T4LG	24,826	3	0	3	115	25,873	3	0	3	120	26,378	3	0	3	122
				TFTM	27,485	3	0	5	127	28,645	3	0	5	133	29,203	3	0	5	135
				T5M	28,084	5	0	4	130	29,269	5	0	4	136	29,839	5	0	4	138
				T5W	28,539	5	0	4	132	29,743	5	0	4	138	30,323	5	0	4	141
				T5LG	28,165	4	0	2	131	29,354	4	0	2	136	29,926	4	0	2	139
				BLC3	19,563	0	0	4	91	20,388	0	0	4	94	20,786	0	0	4	96
				BLC4	20,205	0	0	5	94	21,057	0	0	5	98	21,468	0	0	5	99
				RCCO	19,740	1	0	4	91	20,572	1	0	4	95	20,973	1	0	4	97
				LCCO	19,740	1	0	4	91	20,572	1	0	4	95	20,973	1	0	4	97
				AFR	28,701	3	0	3	133	29,912	3	0	4	139	30,495	3	0	4	141
P9	277W	60	1400	T1S	34,819	3	0	4	126	36,288	3	0	4	131	36,996	3	0	4	134
				T2M	32,255	3	0	5	116	33,616	3	0	5	121	34,271	3	0	5	124
				T3M	32,629	3	0	5	118	34,006	3	0	5	123	34,668	3	0	5	125
				T3LG	29,146	3	0	3	105	30,376	3	0	4	110	30,968	3	0	4	112
				T4M	33,116	3	0	5	120	34,513	3	0	5	125	35,185	3	0	5	127
				T4LG	30,119	3	0	3	109	31,389	3	0	4	113	32,001	3	0	4	116
				TFTM	33,345	3	0	5	120	34,751	3	0	5	125	35,429	3	0	5	128
				T5M	34,071	5	0	4	123	35,509	5	0	4	128	36,201	5	0	4	131
				T5W	34,624	5	0	4	125	36,084	5	0	4	130	36,788	5	0	4	133
				T5LG	34,170	5	0	3	123	35,612	5	0	3	129	36,306	5	0	3	131
				BLC3	23,734	0	0	4	86	24,735	0	0	4	89	25,217	0	0	4	91
				BLC4	24,513	0	0	5	88	25,547	0	0	5	92	26,045	0	0	5	94
				RCCO	23,948	1	0	4	86	24,958	1	0	4	90	25,445	1	0	4	92
				LCCO	23,948	1	0	4	86	24,958	1	0	4	90	25,445	1	0	4	92
				AFR	34,819	3	0	4	126	36,288	3	0	4	131	36,996	3	0	4	134

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Performance Data

Lumen Output

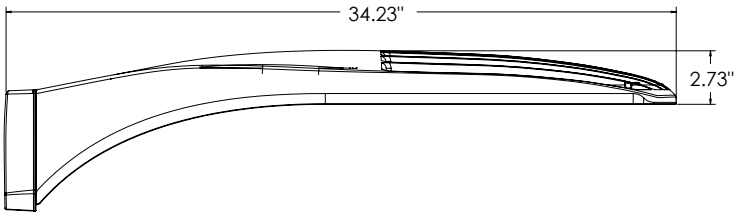
Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79. Contact factory for performance data on any configurations not shown here.

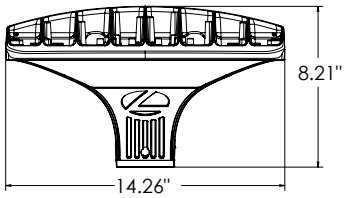
Rotated Optics

Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P10	101W	60	530	T1S	15,164	3	0	3	150	15,803	3	0	3	156	16,112	3	0	3	159
				T2M	14,047	4	0	4	139	14,640	4	0	4	145	14,925	4	0	4	147
				T3M	14,208	4	0	4	140	14,807	4	0	4	146	15,096	4	0	4	149
				T3LG	12,693	3	0	3	125	13,229	3	0	3	131	13,487	3	0	3	133
				T4M	14,420	4	0	4	142	15,028	4	0	4	148	15,321	4	0	4	151
				T4LG	13,115	3	0	3	129	13,668	3	0	3	135	13,934	3	0	3	138
				TFTM	14,522	4	0	4	143	15,134	4	0	4	149	15,429	4	0	4	152
				T5M	14,836	4	0	2	146	15,462	4	0	2	153	15,763	4	0	2	156
				T5W	15,076	4	0	3	149	15,712	5	0	3	155	16,019	5	0	3	158
				T5LG	14,879	3	0	2	147	15,507	3	0	2	153	15,809	3	0	2	156
				BLC3	10,335	3	0	3	102	10,771	4	0	4	106	10,981	4	0	4	108
				BLC4	10,674	4	0	4	105	11,124	4	0	4	110	11,341	4	0	4	112
				RCCO	10,429	1	0	2	103	10,869	1	0	2	107	11,080	1	0	2	109
				LCCO	10,429	1	0	2	103	10,869	1	0	2	107	11,080	1	0	2	109
				AFR	15,164	3	0	3	150	15,803	3	0	3	156	16,112	3	0	3	159
P11	135W	60	700	T1S	19,437	4	0	4	144	20,257	4	0	4	150	20,651	4	0	4	153
				T2M	18,005	4	0	4	133	18,765	4	0	4	139	19,131	4	0	4	142
				T3M	18,211	4	0	4	135	18,980	4	0	4	141	19,350	4	0	4	143
				T3LG	16,270	3	0	3	121	16,957	3	0	3	126	17,287	4	0	4	128
				T4M	18,483	4	0	4	137	19,263	5	0	5	143	19,638	5	0	5	146
				T4LG	16,810	3	0	3	125	17,519	3	0	3	130	17,861	3	0	3	132
				TFTM	18,614	4	0	4	138	19,399	4	0	4	144	19,777	5	0	5	147
				T5M	19,017	5	0	3	141	19,819	5	0	3	147	20,205	5	0	3	150
				T5W	19,325	5	0	3	143	20,140	5	0	3	149	20,533	5	0	3	152
				T5LG	19,072	4	0	2	141	19,876	4	0	2	147	20,264	4	0	2	150
				BLC3	13,247	4	0	4	98	13,806	4	0	4	102	14,075	4	0	4	104
				BLC4	13,682	4	0	4	101	14,259	4	0	4	106	14,537	4	0	4	108
				RCCO	13,367	1	0	3	99	13,931	1	0	3	103	14,203	1	0	3	105
				LCCO	13,367	1	0	3	99	13,931	1	0	3	103	14,203	1	0	3	105
				AFR	19,437	4	0	4	144	20,257	4	0	4	150	20,651	4	0	4	153
P12	206W	60	1050	T1S	27,457	4	0	4	133	28,616	4	0	4	139	29,174	4	0	4	142
				T2M	25,436	5	0	5	124	26,509	5	0	5	129	27,025	5	0	5	131
				T3M	25,727	5	0	5	125	26,812	5	0	5	130	27,335	5	0	5	133
				T3LG	22,984	4	0	4	112	23,954	4	0	4	116	24,421	4	0	4	119
				T4M	26,110	5	0	5	127	27,212	5	0	5	132	27,742	5	0	5	135
				T4LG	23,747	4	0	4	115	24,749	4	0	4	120	25,231	4	0	4	123
				TFTM	26,295	5	0	5	128	27,404	5	0	5	133	27,938	5	0	5	136
				T5M	26,864	5	0	4	130	27,997	5	0	4	136	28,543	5	0	4	139
				T5W	27,299	5	0	4	133	28,451	5	0	4	138	29,006	5	0	4	141
				T5LG	26,942	4	0	2	131	28,078	4	0	2	136	28,626	4	0	2	139
				BLC3	18,714	4	0	4	91	19,504	4	0	4	95	19,884	4	0	4	97
				BLC4	19,327	5	0	5	94	20,143	5	0	5	98	20,535	5	0	5	100
				RCCO	18,883	1	0	4	92	19,680	1	0	4	96	20,064	1	0	4	97
				LCCO	18,883	1	0	4	92	19,680	1	0	4	96	20,064	1	0	4	97
				AFR	27,457	4	0	4	133	28,616	4	0	4	139	29,174	4	0	4	142
P13	276W	60	1400	T1S	34,436	5	0	5	125	35,889	5	0	5	130	36,588	5	0	5	133
				T2M	31,900	5	0	5	116	33,246	5	0	5	121	33,894	5	0	5	123
				T3M	32,265	5	0	5	117	33,626	5	0	5	122	34,282	5	0	5	124
				T3LG	28,826	4	0	4	105	30,042	4	0	4	109	30,628	4	0	4	111
				T4M	32,746	5	0	5	119	34,128	5	0	5	124	34,793	5	0	5	126
				T4LG	29,782	4	0	4	108	31,039	4	0	4	113	31,644	5	0	4	115
				TFTM	32,978	5	0	5	120	34,369	5	0	5	125	35,039	5	0	5	127
				T5M	33,692	5	0	4	122	35,113	5	0	4	127	35,797	5	0	4	130
				T5W	34,238	5	0	4	124	35,682	5	0	4	129	36,378	5	0	4	132
				T5LG	33,789	5	0	3	122	35,215	5	0	3	128	35,901	5	0	3	130
				BLC3	23,471	5	0	5	85	24,461	5	0	5	89	24,937	5	0	5	90
				BLC4	24,240	5	0	5	88	25,262	5	0	5	92	25,755	5	0	5	93
				RCCO	23,683	1	0	4	86	24,682	1	0	4	89	25,163	1	0	4	91
				LCCO	23,683	1	0	4	86	24,682	1	0	4	89	25,163	1	0	4	91
				AFR	34,436	5	0	5	125	35,889	5	0	5	130	36,588	5	0	5	133

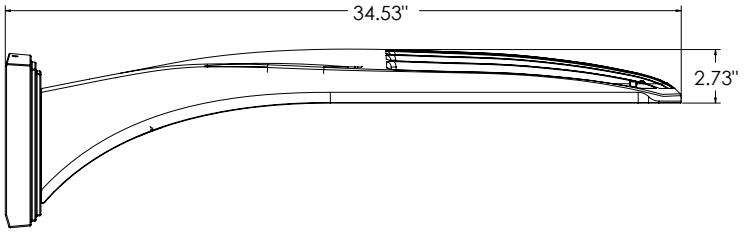
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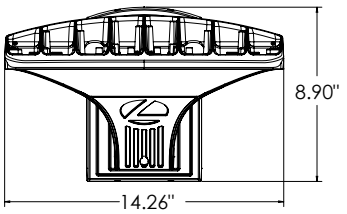
Dimensions



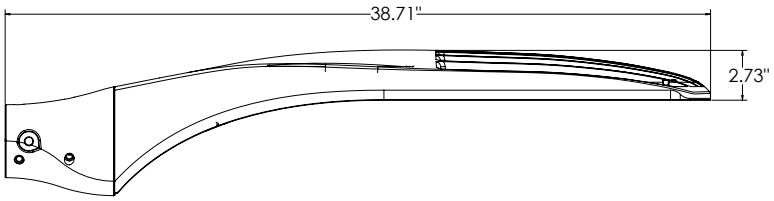


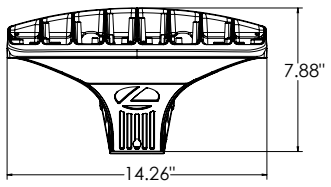
DSX1 with RPA, RPA5, SPA5, SPA8N mount
Weight: 36 lbs





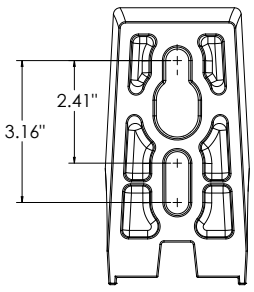
DSX1 with WBA mount
Weight: 38 lbs



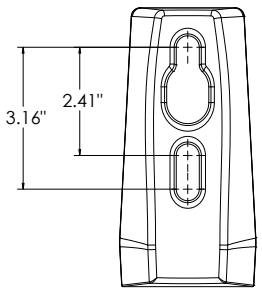


DSX1 with MA mount
Weight: 39 lbs

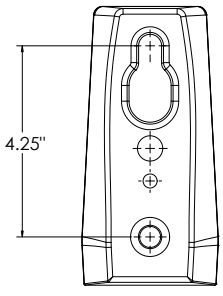
SPA (STANDARD ARM)



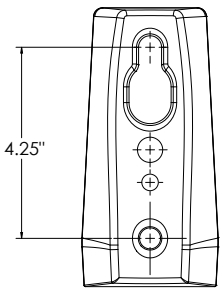
RPA



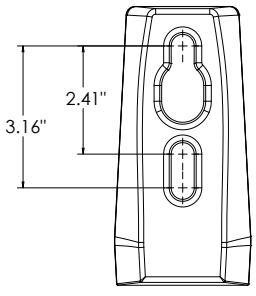
SPA5



RPA5



SPA8N



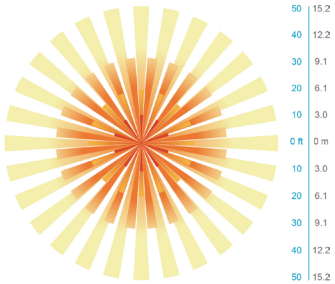
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nLight Control - Sensor Coverage and Settings

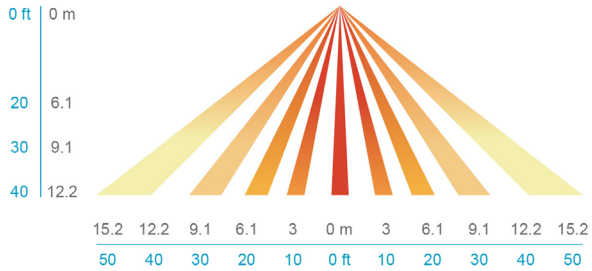
nLight Sensor Coverage Pattern

NLTAIR2 PIRHN





Top



Side

FEATURES & SPECIFICATIONS

INTENDED USE

The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION

Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED drivers are mounted in direct contact with the casting to promote low operating temperature and long life. Housing driver compartment is completely sealed against moisture and environmental contaminants (IP66). Vibration rated per ANSI C136.31 for 3G for SPA and MA. 1.5G for mountings RPA, RPA5, SPA5 and SPA8N. Low EPA (0.69 ft^2) for optimized pole wind loading.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

Coastal Construction (CCE)

Optional corrosion resistant construction is engineered with added corrosion protection in materials and/or pre-treatment of base material under super durable paint. Provides additional corrosion protection for applications near coastal areas. Finish is salt spray tested to over 5,000 hours per ASTM B117 with scribe rating of 10. Additional lead-times may apply.

OPTICS

Precision-molded proprietary silicone lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 3000 K, 4000 K and 5000 K (70 CRI) configurations. 80CRI configurations are also available. The D-Series Size 1 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine configurations consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L81/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS

The DSX1 LED area luminaire has a number of control options. DSX Size 1, comes standard with 0-10V dimming drivers. Dusk to dawn controls can be utilized via optional NEMA twist-lock photocell receptacles. Integrated motion sensor with on-board photocells feature field-adjustable programing and are suitable for mounting heights up to 40 feet. Control option BL features a bi-level device that allows a second control circuit to switch all light engines to either 30% or 50% light output.

nLIGHT AIR CONTROLS

The DSX1 LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing and photocontrol functionality and is suitable for mounting heights up to 40 feet. Once commissioned using a smartphone and the easy-to-use CLAIRITY app, nLight AIR equipped luminaries can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclypse. Additional information about nLight Air can be found here.

INSTALLATION

Integral mounting arm allows for fast mounting using Lithonia standard #8 drilling and accommodates pole drilling's from 2.41 to 3.12" on center. The standard "SPA" option for square poles and the "RPA" option for round poles use the #8 drilling. For #5 pole drillings, use SPA5 or RPA5. Additional mountings are available including a wall bracket (WBA) and mast arm (MA) option that allows luminaire attachment to a 2 3/8" horizontal mast arm.

LISTINGS

UL listed to meet U.S. and Canadian standards. UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP66 rated. Rated for -40ºC minimum ambient.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only.

GOVERNMENT PROCUREMENT

BAA – Buy America(n) Act: Product with the BAA option qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product with the BAA option also qualifies as manufactured in the United States under DOT Buy America regulations.
BABA – Build America Buy America: Product with the BAA option also qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

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LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	

FEATURES & SPECIFICATIONS

INTENDED USE — **These specifications are for USA standards only.** Square Straight Steel is a general purpose light pole for up to 39-foot mounting heights. This pole provides a robust yet cost effective option for mounting area lights and floodlights.

CONSTRUCTION —

Pole Shaft: The pole shaft is of uniform dimension and wall thickness and is made of a weldable-grade, hot-rolled, commercial-quality steel tubing with a minimum yield of 55 KSI (11-gauge, 0.120"), or 50 KSI (7-gauge, 0.179"). Shaft is one-piece with a full-length longitudinal high-frequency electric resistance weld. Uniformly square in cross-section with flat sides, small corner radii and excellent torsional qualities. Available shaft widths are 4", 5" and 6".

Pole Top: Options include 4" tenon top, drilled for side mount fixture, tenon with drilling (includes extra handhole) and open top. Side drilled and open top poles include a removable top cap.

Handhole: A reinforced handhole with grounding provision is provided at 18" from the base on side A. Positioning the handhole lower may not be possible and requires engineering review; consult Tech Support-Outdoor for further information. Every handhole includes a cover and cover attachment hardware. The handhole has a nominal dimension of 2.5" x 5".

Base Cover: A durable ABS plastic two-piece full base cover, finished to match the pole, is provided with each pole assembly. Additional base cover options are available upon request.

Anchor Base/Bolts: Anchor base is fabricated from steel that meets ASTM A36 standards and can be altered to match existing foundations; consult factory for modifications. Anchor bolts are manufactured to ASTM F1554 Standards grade 55, (55 KSI minimum yield strength and tensile strength of 75-95 KSI). Top threaded portion (nominal 12") is hot-dipped galvanized per ASTM A-153.

HARDWARE — All structural fasteners are high-strength galvanized carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

FINISH — Extra durable painted finish is coated with TGIC (Triglycidyl Isocyanurate) Polyester powder that meets 5A and 5B classifications of ASTM D3359. Powder-coat finishes include Dark Bronze, White, Black, and Natural Aluminum colors. Architectural Colors and Special Finishes are available by quote and include, but are not limited to Paint over Hot-dipped Galvanized, RAL Colors, Custom Colors and Extended Warranty Finishes.

GOVERNEMENT PROCUREMENT —

BAA – Buy America(n) Act: Product qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product also qualifies as manufactured in the United States under DOT Buy America regulations.

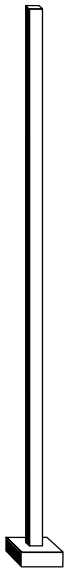
BABA – Build America Buy America: Product qualifies as produced in the United States under the definitions of the Build America, Buy America Act.

Please refer to www.acuitybrands.com/buy-american for additional information.

INSTALLATION — **Do not** erect poles without having fixtures installed. Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates. If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage. Lithonia Lighting is not responsible for the foundation design.

WARRANTY — 1-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

NOTE: Actual performance may differ as a result of end-user environment and application.
Specifications subject to change without notice.



Anchor Base Poles

SSS

SQUARE STRAIGHT STEEL

BAA BABA

SSS Square Straight Steel Poles

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative. **Example:** SSS 20 5C DM28AS DDBXD

SSS					
Series	**Nominal fixture mounting height**	**Nominal shaft base size/wall thickness[1]**	**Mounting[2]**	**Options**	**Finish**
SSS	10'-39' (for 1/2 ft increments, add -6 to the pole height. **Ex:** 20-6 equals 20ft 6in.) (See technical information table for complete ordering information.)	4C 4" 11g (0.120") 4G 4" 7g (0.179") 5C 5" 11g (0.120") 5G 5" 7g (0.179") 6G 6" 7g (0.179") (See technical information table for complete ordering information.)	Tenon mounting PT Open top (includes top cap) T20 2-3/8" O.D. (2" NPS) T25 2-7/8" O.D. (2-1/2" NPS) T30 3-1/2" O.D. (3" NPS) T35 4" O.D. (3-1/2" NPS) DSX/RSX/OMERO™ Drill mounting[3] DM19AS 1 at 90° DM28AS 2 at 180° DM29AS 2 at 90° DM39AS 3 at 90° DM49AS 4 at 90° RAD drill mounting[3] DM19RAD 1 at 90° DM28RAD 2 at 180° DM29RAD 2 at 90° DM39RAD 3 at 90° DM49RAD 4 at 90° ESX Drill mounting[3] DM19ESX 1 at 90° DM28ESX 2 at 180° DM29ESX 2 at 90° DM39ESX 3 at 90° DM49ESX 4 at 90° Arm drill mounting To be added as series + drill orientations **EX:** SMAC19 for SMAC arm drilling 1 at 90°	Shipped installed VD Vibration damper[4] JHxy J-Hook for cable strain relief[5] HAxy Horizontal arm bracket (1 fixture)[5,6] FDLxy Festoon outlet less electrical[5,7] FDLGFCIxy Festoon with GFCI outlet and in-use cover[5,8] CPL12/xy 1/2" coupling[5] CPL34/xy 3/4" coupling[5] CPL1/xy 1" coupling[5] NPL12/xy 1/2" threaded nipple[5] NPL34/xy 3/4" threaded nipple[5] NPL1/xy 1" threaded nipple[5] EHHxy Extra handhole[5,9] STLTMP Steel anchor bolt template (standard is paper) STLHHC Steel handhole cover (standard is plastic, finish is smooth)[10] FBCSTL2PC 2 Piece steel base cover (standard is plastic)[10] IC Interior coating[11] L/AB Less anchor bolts (Include when anchor bolts are not needed) TP Tamper resistant handhole cover fasteners NEC NEC 410.30 compliant gasketed handhole (Not UL Labeled) UL UL listed with label (Includes NEC compliant cover) BAA Buy America(n) Act Compliant[12] VM/original order# Match pole to prior order or project[13]	Super durable paint colors DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DGCXD Charcoal gray DTGXD Tennis green DBRXD Bright red DSBXD Steel blue DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white Other finishes GALV Galvanized finish Architectural colors and special finishes[14] [PAINT] GALV Paint over galvanizing VP30 3 year warranty extension VP53 5 year warranty extension RAL#### Use designated Lithonia Lighting nomenclature in brochure Custom color Nomenclature assigned through Customer Care "Custom Color Process"

Accessories: *Order as separate catalog number.*	
PL DT20	Plugs for ESX drillings
PL DT8	Plugs for DMxxAS drillings
FVD xxFT	Field installed vibration damper (snake style)

NOTES:
1. Wall thickness will be signified with a "C" (11 Gauge) or a "G" (7-Gauge) in nomenclature. "C" - 0.120" | "G" - 0.179".
2. PT open top poles include top cap. When ordering tenon mounting and drill mounting for the same pole, specify as drilling option/tenon option. The combination includes a required extra handhole.
   Example: DM28/T20.
3. Refer to the fixture spec sheet for the correct drilling template pattern and orientation compatibility.
4. On 4" and 5" poles, VD cannot be installed if provisions (EHH, FDL, NPL, CPL) are located higher than 2/3 of the pole's total height.
   Example: Pole height is 25ft, A provision cannot be placed above 16ft.
5. Specify location and orientation when ordering option.
   For "x": Specify the height above the base of pole in feet or feet and inches; separate feet and inches with a "-".
   Example: 5ft = 5 and 20ft 3in = 20-3
   For "y": Specify orientation from handhole (A,B,C,D) Refer to the Handhole Orientation diagram below.
   Example: 1/2" coupling at 5' 8 ", orientation C = CPL12/5-8C
6. Horizontal arm is 18" x 2-3/8" O.D. tenon standard, with radius curve providing 12" rise and 2-3/8" O.D. If ordering two horizontal arm at the same height, specify with HAxyy.
   Example: HA20BD.
7. FDL does not come with GFCI outlet or handhole cover. These must be supplied by contractor or electrician.
8. Festoon option that comes with GFCI and in-use cover. GFCI and in-use cover ship separately from pole.
9. Combination of tenon-top and drill mount includes extra handhole. EHH includes cover.
10. Plastic hand hole cover and base covers come standard with all poles. Items ship separately. Additional parts can be ordered as replacements.
11. N/A with GALV.
12. Use when mill certifications are required.
13. Must add original order number. Not for replacement parts or post sales issues, contact tech support or post sales teams. VM is used to ensure poles match in appearance exactly from order to order, on a single project site. A common use case would be a multi-phase project with multiple orders. *Example: VM/010-36784*
14. Must be quoted through AQD. Finishes do not require RFA. RAL colors available are shown in "Architectural Colors brochure". Lead times may be extended up to 2 weeks due to paint procurement.

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Rev. 02/27/25

SSS Square Straight Steel Poles

TECHNICAL INFORMATION — EPA (ft^2) with 1.3 gust

Catalog Number	Nominal Shaft Length (ft.)*	Pole Shaft Size (Base in. x Top in. x ft.)	Wall thick (in.)	Gauge	EPA (ft^2) with 1.3 gust						Approximate ship weight (lbs.)
					80 MPH	Max. weight	90 MPH	Max. weight	100 MPH	Max. weight	
SSS 10 4C	10	4.0 x 10.0	0.120"	11	30.6	765	23.8	595	18.9	473	75
SSS 12 4C	12	4.0 x 12.0	0.120"	11	24.4	610	18.8	470	14.8	370	90
SSS 14 4C	14	4.0 x 14.0	0.120"	11	19.9	498	15.1	378	11.7	293	100
SSS 16 4C	16	4.0 x 16.0	0.120"	11	15.9	398	11.8	295	8.9	223	115
SSS 18 4C	18	4.0 x 18.0	0.120"	11	12.6	315	9.2	230	6.7	168	125
SSS 20 4C	20	4.0 x 20.0	0.120"	11	9.6	240	6.7	167	4.5	150	140
SSS 20 4G	20	4.0 x 20.0	0.179"	7	14	350	11	275	8	200	198
SSS 20 5C	20	5.0 x 20.0	0.120"	11	17.7	443	12.7	343	9.4	235	185
SSS 20 5G	20	5.0 x 20.0	0.179"	7	28.1	703	21.4	535	16.2	405	265
SSS 25 4C	25	4.0 x 25.0	0.120"	11	4.8	150	2.6	100	1	50	170
SSS 25 4G	25	4.0 x 25.0	0.179"	7	10.8	270	7.7	188	5.4	135	245
SSS 25 5C	25	5.0 x 25.0	0.120"	11	9.8	245	6.3	157	3.7	150	225
SSS 25 5G	25	5.0 x 25.0	0.179"	7	18.5	463	13.3	333	9.5	238	360
SSS 30 4G	30	4.0 x 30.0	0.179"	7	6.7	168	4.4	110	2.6	65	295
SSS 30 5C	30	5.0 x 30.0	0.120"	11	4.7	150	2	50	--	--	265
SSS 30 5G	30	5.0 x 30.0	0.179"	7	10.7	267	6.7	167	3.9	100	380
SSS 30 6G	30	6.0 x 30.0	0.179"	7	19	475	13.2	330	9	225	520
SSS 35 5G	35	5.0 x 35.0	0.179"	7	5.9	150	2.5	100	--	--	440
SSS 35 6G	35	6.0 x 35.0	0.179"	7	12.4	310	7.6	190	4.2	105	540
SSS 39 6G	39	6.0 x 39.0	0.179"	7	7.2	180	3	75	--	--	605

NOTE: EPA values are based ASCE 7-93 wind map.
* For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.

TECHNICAL INFORMATION — EPA (ft^2) WITH 3-SECOND GUST PER AASHTO 2013

Series	Mounting Height (ft.)*	Shaft Base Size	90 MPH	Max. weight	100 MPH	Max. weight	110 MPH	Max. weight	120 MPH	Max. weight	130 MPH	Max. weight	140 MPH	Max. weight	150 MPH	Max. weight	Approximate ship weight (lbs.)
SSS	10	4C	20	500	16	400	13	325	10.5	263	8.5	213	7	175	6	150	75
SSS	12	4C	16	400	13	325	10	250	8	200	6.5	163	5	125	4	100	90
SSS	14	4C	13.5	338	10	250	7.5	188	6	150	4.5	113	3.5	88	2.5	63	100
SSS	16	4C	10.5	263	7.5	188	5.5	138	4	100	3	75	1.5	38	1	25	115
SSS	18	4C	8	200	5.5	138	4	100	2.5	63	1.5	38	0.5	13	-	-	125
SSS	18	4G	13	325	9.5	238	7	175	5	125	3.5	88	2.5	63	1.5	38	185
SSS	18	5C	13	325	9.5	238	6.5	163	4.5	113	3	75	1.5	38	.5	13	170
SSS	20	4C	6	150	4	100	2.5	63	1	25	-	-	-	-	-	-	140
SSS	20	4G	10.5	263	7.5	188	5.5	138	3.5	88	2	50	1	25			205
SSS	20	5C	10	250	7	175	4.5	113	2.5	63	1	25	-	-	-	-	185
SSS	20	5G	20	500	15	375	11.5	288	8.5	213	6	150	4.5	113	3	75	265
SSS	25	4C	2	50	0.5	13	-	-	-	-	-	-	-	-	-	-	170
SSS	25	4G	5.5	138	3	75	1.5	38	-	-	-	-	-	-	-	-	245
SSS	25	5C	4.5	113	2	50	-	-	-	-	-	-	-	-	-	-	225
SSS	25	5G	12	300	8.5	213	5.5	138	3	75	1.5	38	-	-	-	-	360
SSS	25	6G	19	475	13.5	338	9	225	5.5	138	3	75	1	25			445
SSS	30	4G	1.5	38	-	-	-	-	-	-	-	-	-	-	-	-	291
SSS	30	5C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	265
SSS	30	5G	6.5	163	3.5	88	1	25	-	-	-	-	-	-	-	-	380
SSS	30	6G	11	275	6	150	2.5	63	-	-	-	-	-	-	-	-	520
SSS	35	5G	2	50	-	-	-	-	-	-	-	-	-	-	-	-	440
SSS	35	6G	4	100	-	-	-	-	-	-	-	-	-	-	-	-	540
SSS	39	6G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	605

NOTE: AASHTO 2013 design criteria is the most common EPA and uses wind map ASCE7-05. Please review the project Spec document to determine the correct design criteria for the poles on your jobsite.
*For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.

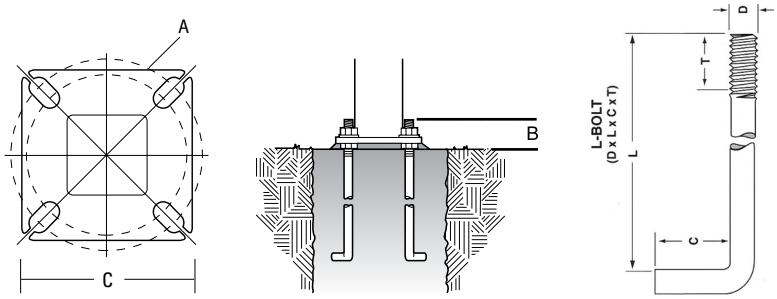
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SSS Square Straight Steel Poles

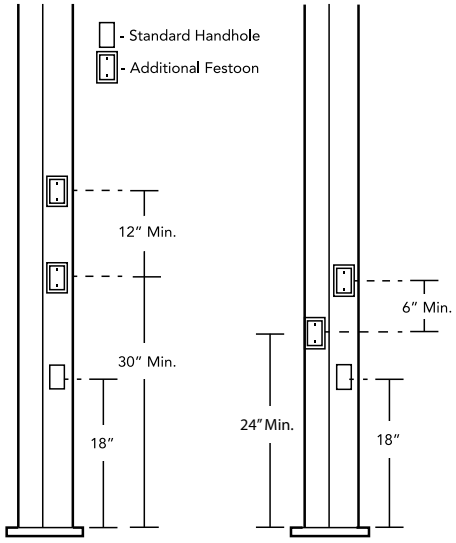
ANCHORAGE AND TEMPLATE INFORMATION								
Shaft base size	**Bolt circle A**	**Bolt projection B**	**Base square C**	**Base plate thickness**	**Template description ***	**Anchor bolt description**	**Bolt size (in.) D x L x C**	**Anchor bolt/ Template Combo**
4"C	8" – 9"	3.25"- 3.75"	8"- 8.25"	0.75"	ABTEMPLATE PJ50004	AB18-0	3/4 x 18 x 3	ABSSS-4C
4"G	8" – 9"	3.38"- 3.75"	8"- 8.25"	0.875"	ABTEMPLATE PJ50004	AB30-0	3/4 x 30 x 3	ABSSS-4G
5"	10" – 12"	3.5"- 4"	11"	1"	ABTEMPLATE PJ50010	AB36-0	1 x 36 x 4	ABSSS-5
6"	11" – 13"	4"- 4.50"	12.5"	1"	ABTEMPLATE PJ50011	AB36-0	1 x 36 x 4	N/A

* Paper template standard. Add STL to end of description for the steel template.

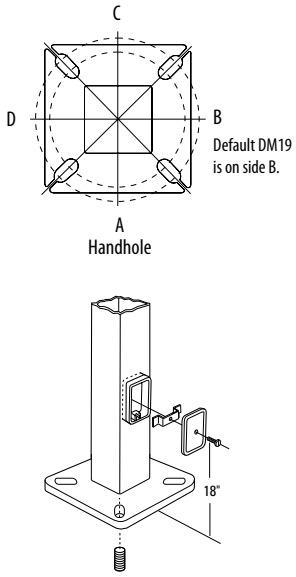
BASE & BOLT DETAIL



SQUARE STEEL HANDHOLE AND FESTOON - PLACEMENT RULES



HANDHOLE DETAIL



IMPORTANT INSTALLATION NOTES:

- **Do not** erect poles without having fixtures installed.
- Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates.
- If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage.
- Lithonia Lighting is not responsible for the foundation design.
- Bolt circles have +/- 1/2" tolerance.

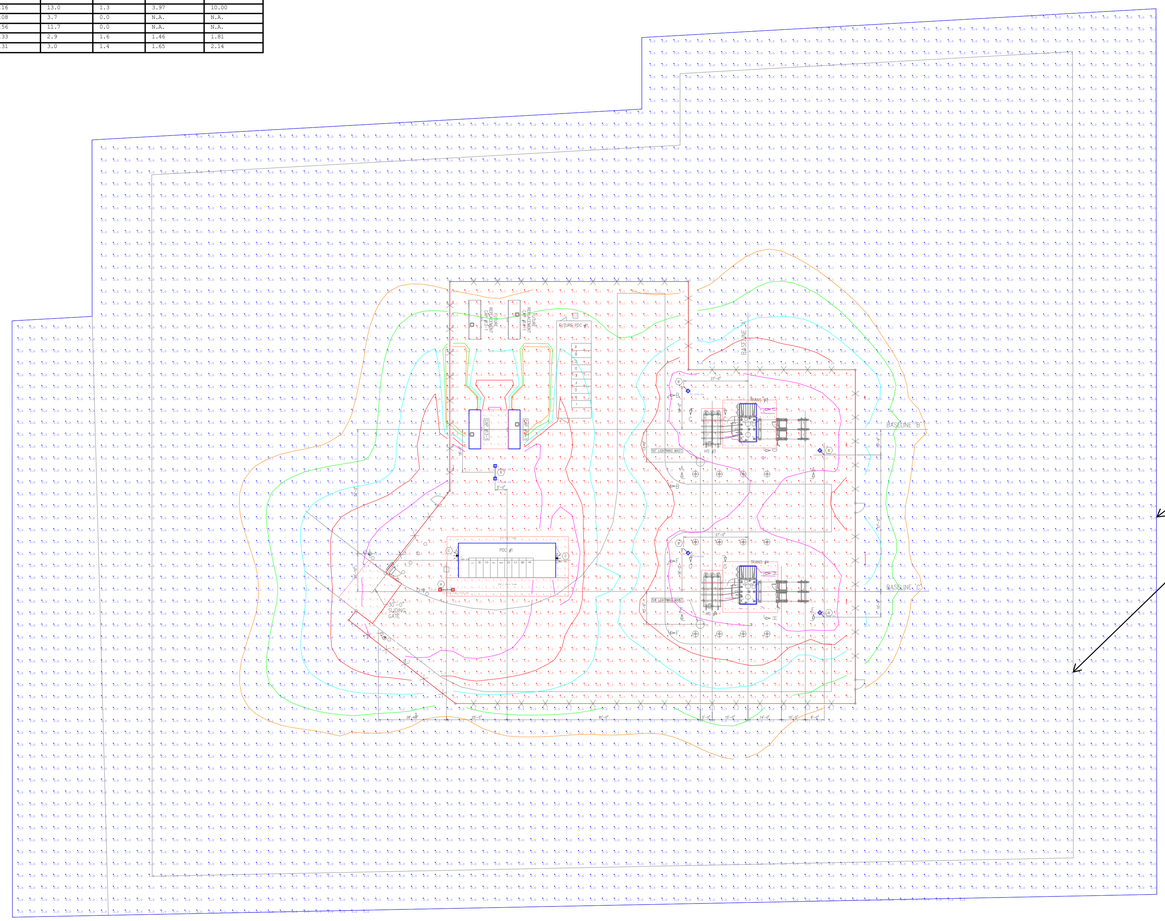
CAUTION: These specifications are intended for general purposes only. Lithonia Lighting reserves the right to change material or design, without prior notice, in a continuing effort to upgrade its products.

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Luminaire Schedule							
Symbol	Qty	Label	Arrangement	Description	Tag	LLF	Luminaire Lumens
	2	MRM_LED_P1_SR2_30K_MVOLT	Single	MRM LED P1 SR2 30K MVOLT	MRM 30K	0.800	3111
	6	DSX1_LED_P2_35K_80CRI_TFTM	Single	DSX1 LED P2 35K 80CRI TFTM	P2 TFTM 35K	0.800	8974
	2	DSX1_LED_P4_35K_80CRI_TFTM	Single	DSX1 LED P4 35K 80CRI TFTM	P4 TFTM 35K	0.800	14737

Luminaire Location Summary						
		Insertion Point				
Lumbo	Label	X	Y	Z	Orient	Tilt
1	DSX1_LED_P2_35K_80CRI_TFTM	293.613	223.592	15	315	0
2	DSX1_LED_P2_35K_80CRI_TFTM	348.656	200.67	15	135	0
3	DSX1_LED_P2_35K_80CRI_TFTM	212.739	194.195	15	90	0
4	DSX1_LED_P2_35K_80CRI_TFTM	212.739	188.828	15	270	0
5	DSX1_LED_P2_35K_80CRI_TFTM	293.627	157.624	15	315	0
6	MRM_LED_P1_SR2_30K_MVOLT	197.299	156.533	7.5	180	0
7	MRM_LED_P1_SR2_30K_MVOLT	239.156	155.431	7.5	0	0
8	DSX1_LED_P4_35K_80CRI_TFTM	189.627	142.288	15	180	0
9	DSX1_LED_P4_35K_80CRI_TFTM	195.02	142.288	15	0	0
10	DSX1_LED_P2_35K_80CRI_TFTM	348.84	132.668	15	135	0

Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CAP	Illuminance	Fc	3.62	4.9	2.5	1.45	1.96
NS #3	Illuminance	Fc	3.03	3.4	2.8	1.08	1.21
NS #4	Illuminance	Fc	3.13	3.5	2.9	1.08	1.21
Main Gate	Illuminance	Fc	2.56	4.9	1.2	2.13	4.08
POC	Illuminance	Fc	6.07	12.4	1.7	3.57	7.29
POC_1	Illuminance	Fc	5.16	13.0	1.3	3.97	10.00
Property Line	Illuminance	Fc	0.08	3.7	0.0	N.A.	N.A.
Switchyard	Illuminance	Fc	1.56	11.7	0.0	N.A.	N.A.
TRANS #3	Illuminance	Fc	2.33	2.9	1.6	1.46	1.81
TRANS #4	Illuminance	Fc	2.31	3.0	1.4	1.65	2.14

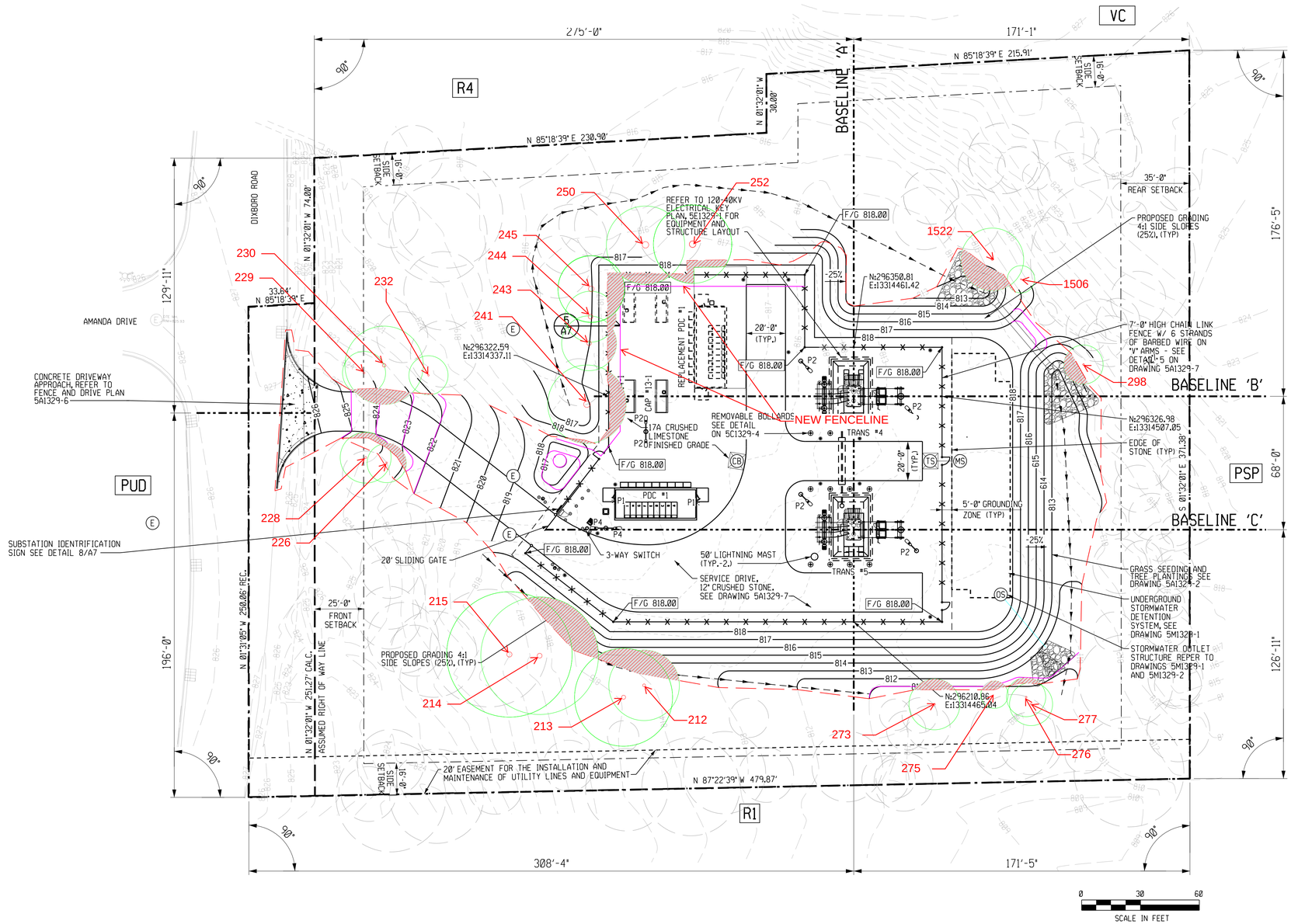


GRENADA SUBSTATION PHOTOMETRIC PLAN - 06/04/2026(REV1) - BV

0 30 60

SCALE IN FEET

Calculated Substation Critical Root Zone Impact Summary 3/22/26									
Tree Tag #	**Common Name**	**Scientific Name**	**DBH (inches)**	**CRZ (feet)**	**CRZ Area (sft)**	**Area CRZ impacted**	**% CRZ Impacted**	**Distance from Tree Trunk to Impact (feet)**	**Impact Description**
212	White pine	*Pinus strobus*	18	18	1017.4	162.3	16%	9.2	1v:4h fill slope starting 9.2' from trunk
213	White pine	*Pinus strobus*	25	25	1962.5	158.6	8%	15.6	1v:4h fill slope starting 15.6' from trunk
214	Norway spruce	*Picea abies*	30	30	2826.0	336.7	12%	17.3	1v:4h fill slope starting 17' from trunk
215	Norway spruce	*Picea abies*	32	32	3215.4	58.8	2%	27.4	Less than 6" fill starting 27.4 feet from trunk
226	Blue spruce	*Picea pungens*	10	10	314.0	55.1	18%	5.5	Less than 6" cut starting 5.5' from trunk
228	Blue spruce	*Picea pungens*	13	13	530.7	55.1	10%	9	Less than 6" cut starting 9' from trunk
229	Blue spruce	*Picea pungens*	11	11	379.9	28.85	8%	7.7	Less than 6" Cut Starting 7.7' from trunk
230	Sugar maple	*Acer saccharum*	20	20	1256.0	162.7	13%	11.1	Less than 6" Cut Starting 11.1' from trunk, 18" cut for driveway starting 15 ft from trunk
232	White pine	*Pinus strobus*	7, 10	10	314.0	2.9	1%	9	Less than 6" cut starting 9' from trunk
241	White pine	*Pinus strobus*	20	20	1256.0	224	18%	10	remove exiting fence and start 4" gravel surfacing at a 1V:5H fill slope starting at 10' from trunk, Install 18" deep ground wire at 12' from trunk install new fenceline at 15" from trunk
243	Norway spruce	*Picea abies*	14	14	615.4	66.3	11%	8.3	remove exiting fence and start 4" gravel surfacing at a 1V:5H fill slope starting at 8.3' from trunk, Install 18" deep ground wire at 10.3' from trunk install new fenceline at 13.3' from
244	Norway spruce	*Picea abies*	12, 13	13	530.7	59.1	11%	8.6	remove exiting fence and start 4" gravel surfacing at a 1V:5H fill slope starting at 8.6' from trunk, Install 18" deep ground wire at 10.6' from trunk install new fenceline at 13.6' from
245	Norway spruce	*Picea abies*	17	17	907.5	158.8	17%	6.8	remove exiting fence and start 4" gravel surfacing at a 1V:5H fill slope starting at 6.8' from trunk, Install 18" deep ground wire at 8.8'' from trunk install new fenceline at 11.6' from
250	Norway spruce	*Picea abies*	20	20	1256.0	107	9%	12.7	remove exiting fence and start 4" gravel surfacing at a 1V:5H fill slope starting at 12.7' from trunk, Install 18" deep ground wire at 14.7'' from trunk install new fenceline (Outside CRZ)
252	Norway spruce	*Picea abies*	20	20	1256.0	129.4	10%	6.6	remove existing foundation starting at 6.6' and start 4" gravel surfacing at a 1V:5H fill slope starting at 16 from trunk, Install 18" deep ground wire at 18' from trunk install
273	Boxelder	*Acer negundo*	13	13	530.7	82.8	16%	6.9	1V:4H fill slope starting at 6.9' from trunk
275	Black walnut	*Juglans nigra*	7	7	153.9	39.43	26%	2.1	1V:4H fill slope starting at 2.1' from trunk
276	Boxelder	*Acer negundo*	8, 10	10	314.0	31.3	10%	6.6	1V:4H fill slope starting at 6.6' from trunk
277	Boxelder	*Acer negundo*	11	11	379.9	2.1	1%	10.1	1V:4H fill slope starting at 10.6' from trunk
293	Black walnut	*Juglans nigra*	14	14	615.4	71.8	12%	8	1V:4H fill slope starting at 8' from trunk
298	Black walnut	*Juglans nigra*	10	10	314.0	104.4	33%	2.2	18" cut and rip rap placement starting 2.2 ' from trunk
1506	Boxelder	*Acer negundo*	7	7	153.9	4.5	3%	5.8	1v:4 H Cut Slope starting 5.8' from trunk
1522	Black walnut	*Juglans nigra*	16	16	803.8	265	33%	4.3	18" cut and rip rap placement starting 4.3 ' from trunk



1. TREE SIZES AND TYPES ARE TAKEN FROM TREE SURVEY

2. CRZ AREAS SHOWN ARE CALCULATED AS DBH (INCHES) * 1 = CRZ RADIUS (FEET).

3. SEE IMPACT TABLE FOR DECRIPTION OF PROPOSED IMPACTS.

DTE Energy *DTE Electric* *Central Design/Standards*

TITLE

SKETCH OF CRITICAL ROOT ZONE IMPACTS

LOCATION NAME	SERVICE CENTER	SCALE
GRENADA SUBSTATION	ANN ARBOR	1"=30'-0"
DRAWING NUMBER	WORK ORDER	PROJECT DOCUMENT LIST

DOCUMENTUM FILENAME

GRENADA Substation

MAGNETIC FIELD MEASUREMENTS

2025

Prepared By: DTE Energy
EMF Engineering

Measurement Date: October 25th, 2025

EMF Measurements

GRENADA Substation

October 25th, 2025

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EMF Measurements

GRENADA Substation

October 25, 2025

Introduction

Power frequency (60-hertz) magnetic field profile, spot, and time-based measurements were performed at the proposed Grenada Substation Expansion Site located on the east side of N. Dixboro Road just south of Plymouth Road in Ann Arbor, Michigan on Saturday, October 25, 2025. These magnetic field measurements were performed to provide background information about typical magnetic field levels that occur in the proposed substation expansion area. For comparison, additional EMF measurements are provided in the Comparisons of Magnetic Field Readings Chart on page 6 of this report.

Power frequency magnetic fields exist everywhere. They are created wherever there is a source of electric current, such as overhead or underground lines or appliances used at home or at work. Individual spot location measurements in the vicinity of strong sources such as appliances can vary over a wide range. General background magnetic field levels are also not constant and vary throughout the day and season with normal patterns of electricity consumption. Since there was no effort made to select any particular conditions for these measurements, the magnetic fields reported here may be considered to be typical of what could occur on any day. The scope of these measurements was limited and they are not intended to represent a complete characterization of magnetic field levels.

Measurements Summary

These measurements indicate that magnetic fields at the proposed new Grenada Substation Site on the east side of N. Dixboro Road, south of Plymouth are well below existing EMF guidelines found in other states and will be predominantly determined by the electrical infrastructure within the buildings themselves. Existing measured background levels in this area were below 10 milligauss (mG). The bar chart titled "Comparison of Magnetic Fields" on page 6 ndicates in graphic format magnetic field levels found and at different locations at the Site. Also shown on the chart are several guidelines found in other states, guidelines for work locations, ranges of typical appliances from the U.S. RAPID Booklet and typical household backgrounds.

Health Effects

Over the past 45 years, extensive research has been conducted to assess whether 60-hertz electric and/or magnetic fields cause adverse human health effects. This research has examined a broad range of possible effects, including effects on reproduction, growth and development and possible effects that could lead to the development of cancer. The studies of EMF generally consist of epidemiologic (i.e., health survey) studies, laboratory studies on whole animals, and experiments at the cellular and molecular levels.

The NIEHS (National Institute of Environmental Health Sciences) Executive Summary states: "The scientific evidence suggesting that ELF-EMF exposures pose any health risk is weak…The lack of connection between the human data and the experimental data (animal and mechanistic) severely complicates the interpretation of these results…This assessment is tempered by the observation that given the weak magnitude of these increased risks, some other factor or common source of error could explain these findings" and "The lack of consistent, positive findings in animal or mechanistic studies weakens the belief that this association is actually due to ELF-EMF…"

Reference Documents

Various documents are shown below for reference. Several of these documents have extensive lists of referenced material themselves that may be obtained for further background information.

1. "A pooled analysis of magnetic fields and childhood leukaemia", British Journal of Cancer (2000) 83(5), 692-698.
2. "Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields", National Institute of Environmental Health Sciences, National Institutes of Health Publication no. 99-4493
3. "Press Briefing, National Cancer Institute/Children's Cancer Group Study of Magnetic Fields and Childhood Leukemia", National Institutes of Health July 2, 1997

4. "Possible Health Effects of Exposure to Residential Electric and Magnetic Fields", Prepublication Copy National Research Council, Thursday October 31, 1996
5. "Questions and Answers About Electric and Magnetic Fields (EMFs)", U.S. EPA, December 1992; “Electric and Magnetic Fields from Power Lines”, https://www.epa.gov
6. "Questions and Answers About EMF Electric and Magnetic Fields Associated with the Use of Electric Power", National Institute of Environmental Health Sciences and U.S. Department of Energy, June 2002, sponsored by the NIEHS/DOE EMF RAPID Program; https://www.epa.gov , http://www.niehs.nih.gov/emfrapid
7. “UKCCCR-Major Study Finds No Link Between Overhead Power Cables And Childhood Cancer”, December 1999
8. "About Electromagnetic Fields", Channing Bete Co. Inc., 1991, 1993 edition
9. ICNIRP Guidelines on Limiting Exposure to Electromagnetic Fields, RF EMF Guidelines 2020, https://www.icnirp.org
9. "EMF Measurement Request Procedure", The Detroit Edison Company, May 1993

Standards

There are no federal standards or regulations governing the electric and/or magnetic fields or field levels associated with transmission or distribution lines. Nor are there any such standards in the state of Michigan. Indeed, none of the independent scientific panels, governmental bodies or other organizations that have reviewed the EMF research have found that the research to date provides a scientifically sound basis for the development of any health-based limits for typical environmental exposure to EMF.

However, there are two organizations that have issued guidelines for magnetic field exposure. The first is the American Conference of Governmental Industrial Hygienists (ACGIH). The ACGIH guideline calls for limiting occupational exposures to 10,000 mG. The second is the International Commission on Non-Ionizing Radiation Protection (ICNIRP). The ICNIRP also has a Guideline of 4.2 Gauss (4,200mG) for occupational exposures for 60Hz EMF for workers and had been updated in 2020 to 2,000mG from the previous level of 833mG for the general public.

Also, computer monitors using CRT (cathode ray tube) technology are typically affected by outside magnetic fields of 10mG or higher. In some cases, however, they are affected by power frequency magnetic field levels lower than 10mG. There are no magnetic field immunity standards in the USA for computer monitors. There are several mitigation techniques which may be taken should this situation arise.

Equipment Used for Measurements

All measurements were performed using EMDEX II Magnetic Field Meters and associated accessories. These meters are 3-axis meters utilizing on-board digital processing and memory. Measured data is transferred from the EMDEX II to a personal computer and all results are obtained through the use of EMCALC software. Complete meter specifications can be made available on request.

Measurement Descriptions

Proposed Site Area

Looking at the Paths Travelled section, "Path #1" is a profile around the existing substation starting at the southwest corner then travelling counterclockwise. The existing magnetic field levels are ~2.7mG at the southwest corner and increase to ~4.6mG at the southeast corner, then increase to ~6.1mG at the northeast corner and decrease to ~2.9mG at the northwest corner and continue to decrease to ~2.7mG at the southwest corner of the substation fence.

Looking at the Paths Travelled section, "Path #2" is a profile starting from the south gate that leads into the substation and travels south crossing under the existing power lines then continues south until we reach the tree line. The existing magnetic field levels are ~3.7mG at the south gate and then it decreases to ~2.4mG upon reaching the centerline (CL) of the driveway to the substation, then decrease to ~0.3mG at the south end of the property line at the edge of the mowed grass.

Looking at the Paths Travelled section, "Path #3" is a profile starting at the east side of the existing substation travelling east toward the property line. At the start of the path next to the substation, the existing magnetic field levels are ~7.0mG then decrease to ~3.3mG while crossing under the existing overhead power lines on the east side of the substation, then decrease to ~1.4mG at the east edge of the mowed grass.

Measurement Descriptions-continued

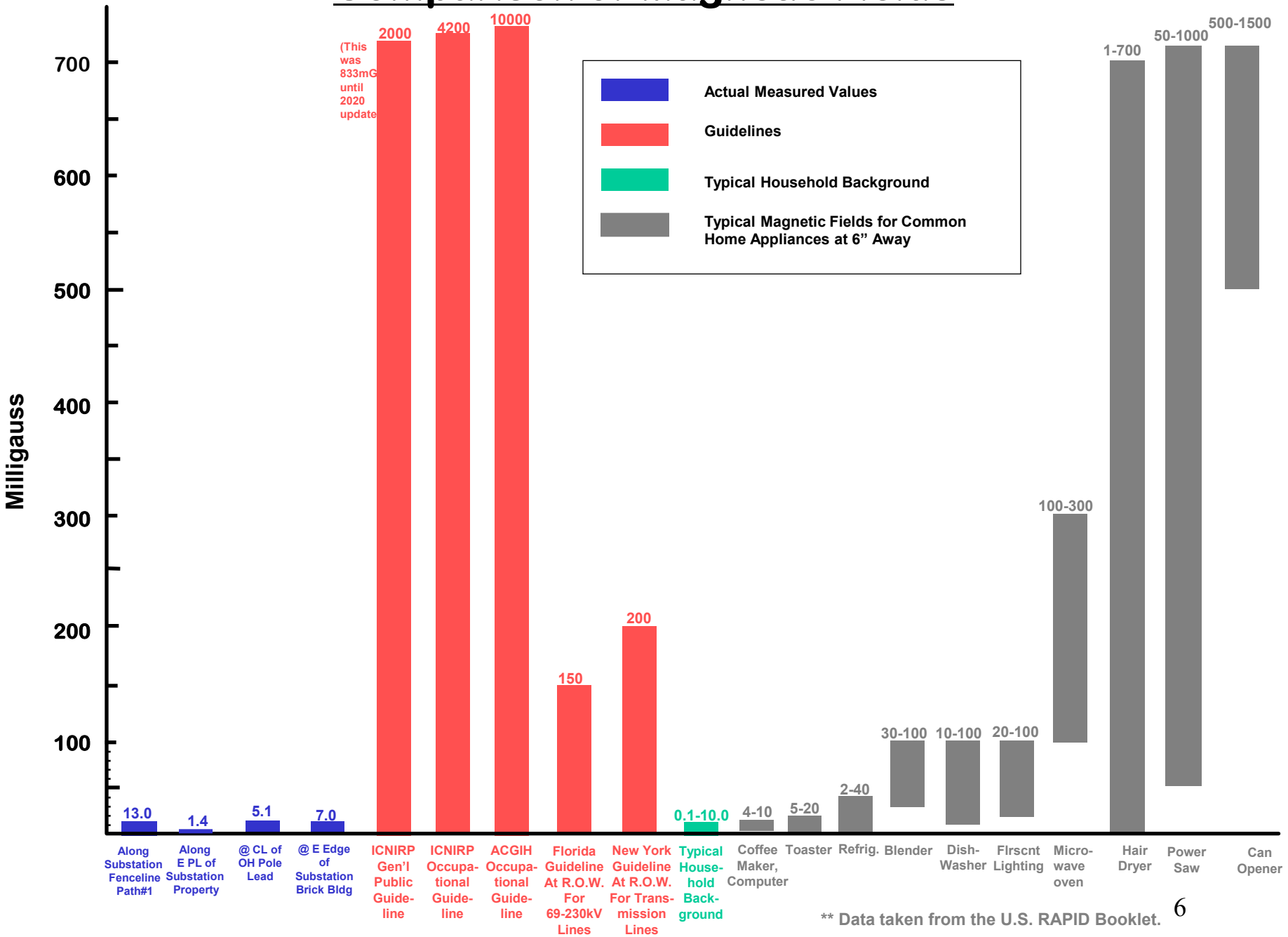
Looking at the Paths Travelled section, "Path #4" is a profile starting at the north side of the existing substation in line with the transformer in the brick building travelling north toward Plymouth Road and ending at the property line. At the substation brick wall, the existing magnetic field levels are ~9.5mG then decrease to ~1.8mG while crossing under the existing power lines on the north side of the property.

Looking at the Paths Travelled section, "Path #5" is a profile starting at the north side of the substation in line with the existing outside switchgear travelling north toward the property line. At the start, the existing magnetic fields are ~3.5mG then decrease to ~2.5mG crossing under the existing power lines on the north side of the property.

Looking at the Paths Travelled section, "Path #6" is a profile starting on the west side of the existing substation in line with the outdoor switchgear travelling west toward N. Dixboro Road. The existing magnetic field levels are ~5.5mG at the substation fence then slightly increase to ~7.5mG, then decrease to ~ 5.1mG when in line with the pole lead on the west side of the property, and then decrease to ~5.2mG near the trees south of N. Dixboro Road.

Looking at the Paths Travelled section, "Path #7" is a profile starting at the northeastern corner of the mowed grass area travelling south along the tree line toward the southeastern corner of the mowed grass and adjacent to the power lines on the east side of the property. The existing magnetic field levels at the start are ~1.4mG, and remain ~1.4mG until we are inline with the southeastern corner of the brick building. Then the magnetic field levels decrease to ~1.0mG in line with the CL of the pole lead then continue to decrease to ~0.3mG at the end of the mowed grass.

Comparison of Magnetic Fields

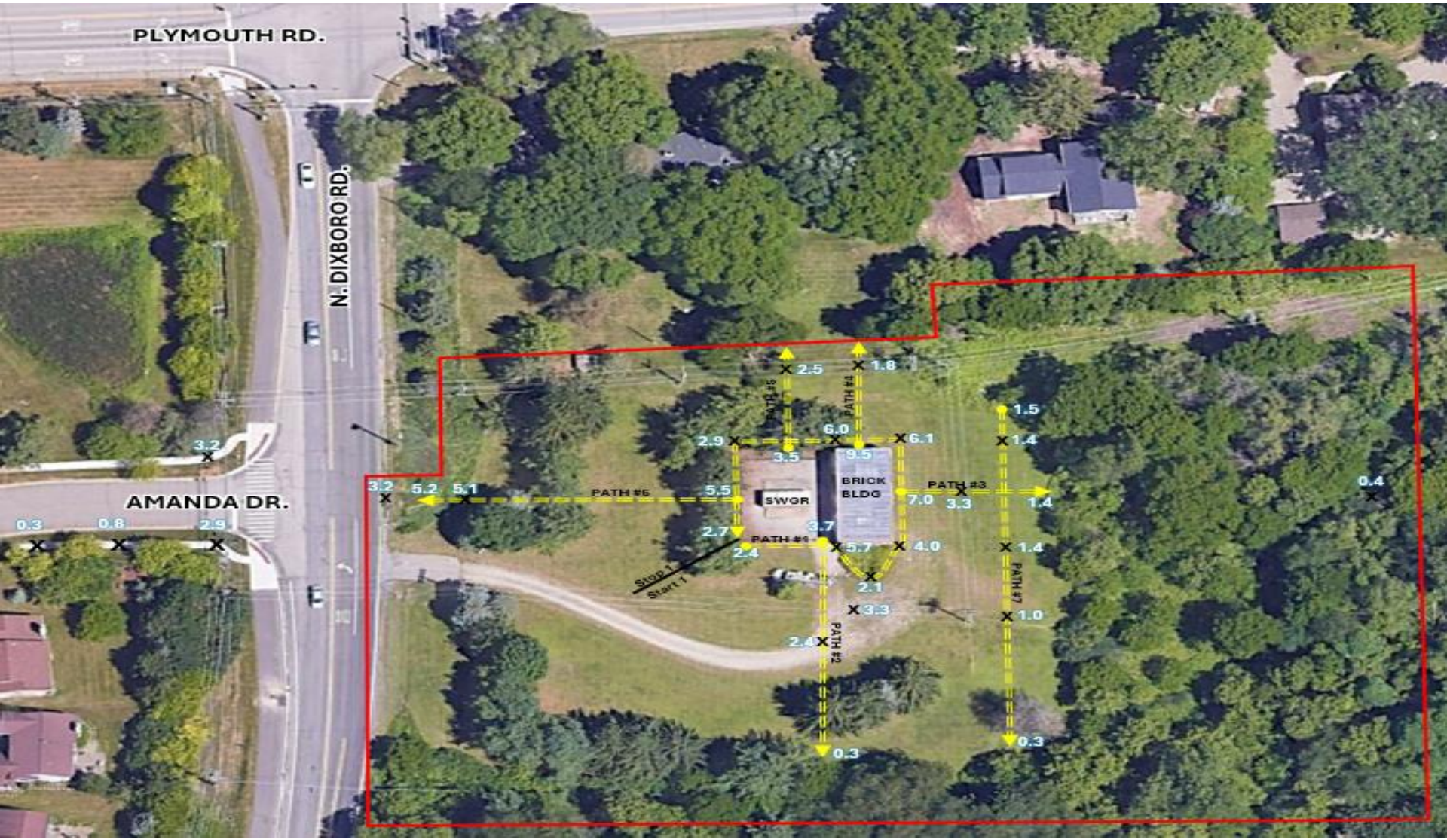


** Data taken from the U.S. RAPID Booklet.

GRENADA SUBSTATION

Path Traveled and Spot Measurements (in milligauss; mG) – 10/25/2025

(PLEASE NOTE: RED LINE INDICATES APPROXIMATE BOUNDARY OF THE PROJECT SITE AND IS FOR REFERENCE ONLY.)



N

GRENADA SUBSTATION—ZOOMED IN

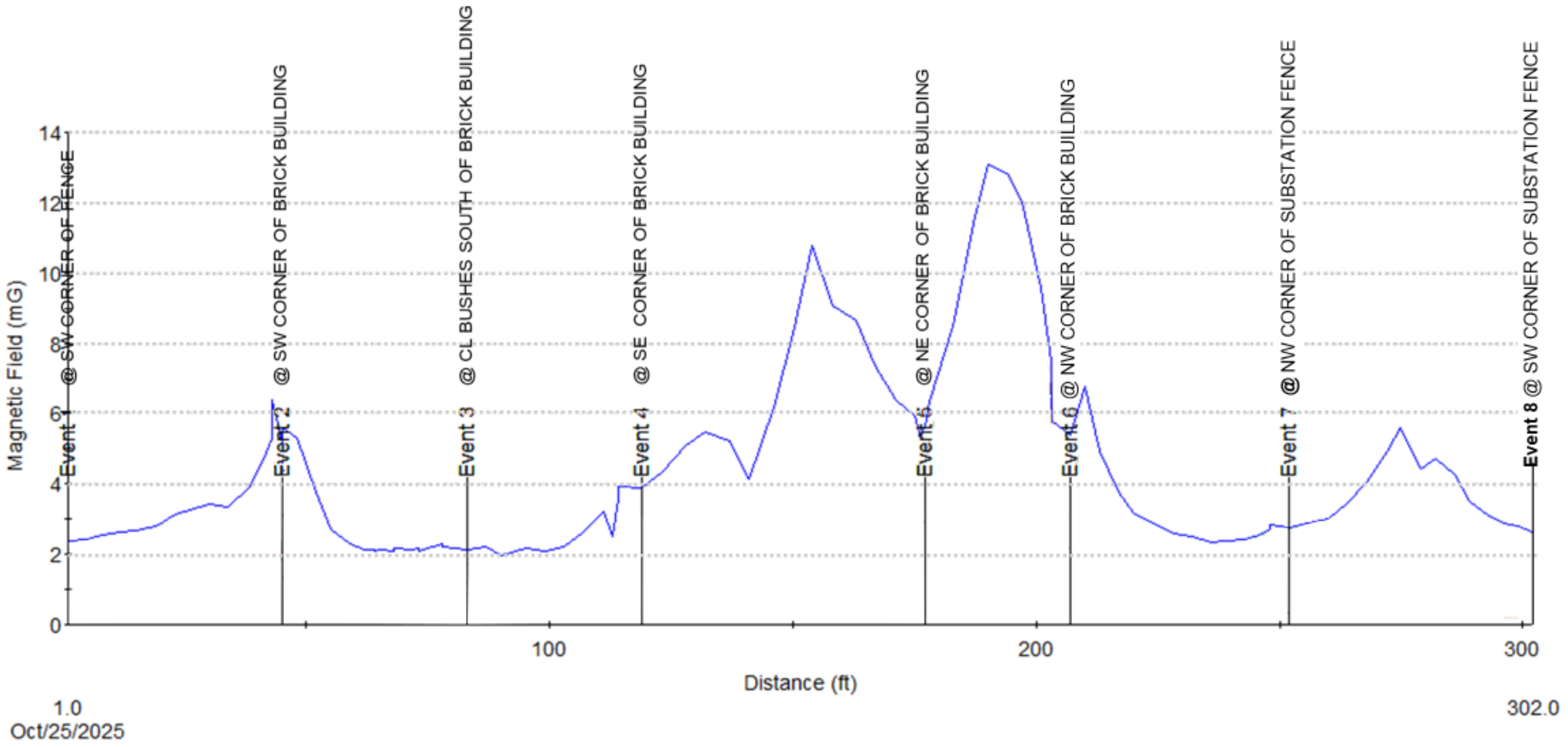
Path Traveled and Spot Measurements (in milligauss; mG) – 10/25/2025

(PLEASE NOTE: RED LINE INDICATES APPROXIMATE BOUNDARY OF THE PROJECT SITE AND IS FOR REFERENCE ONLY.)



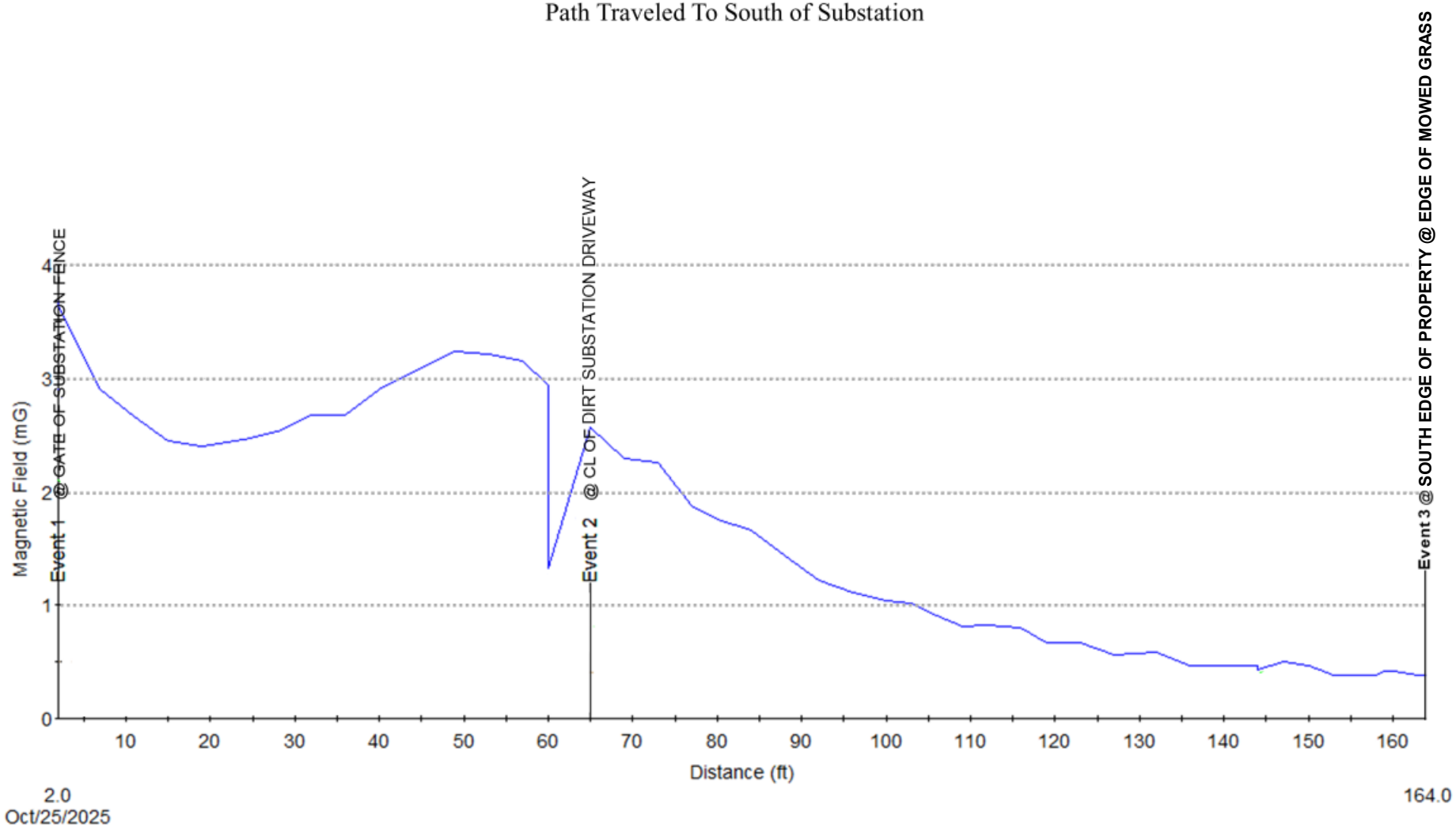
PATH#1-

Profile Around Substation Fence and Building



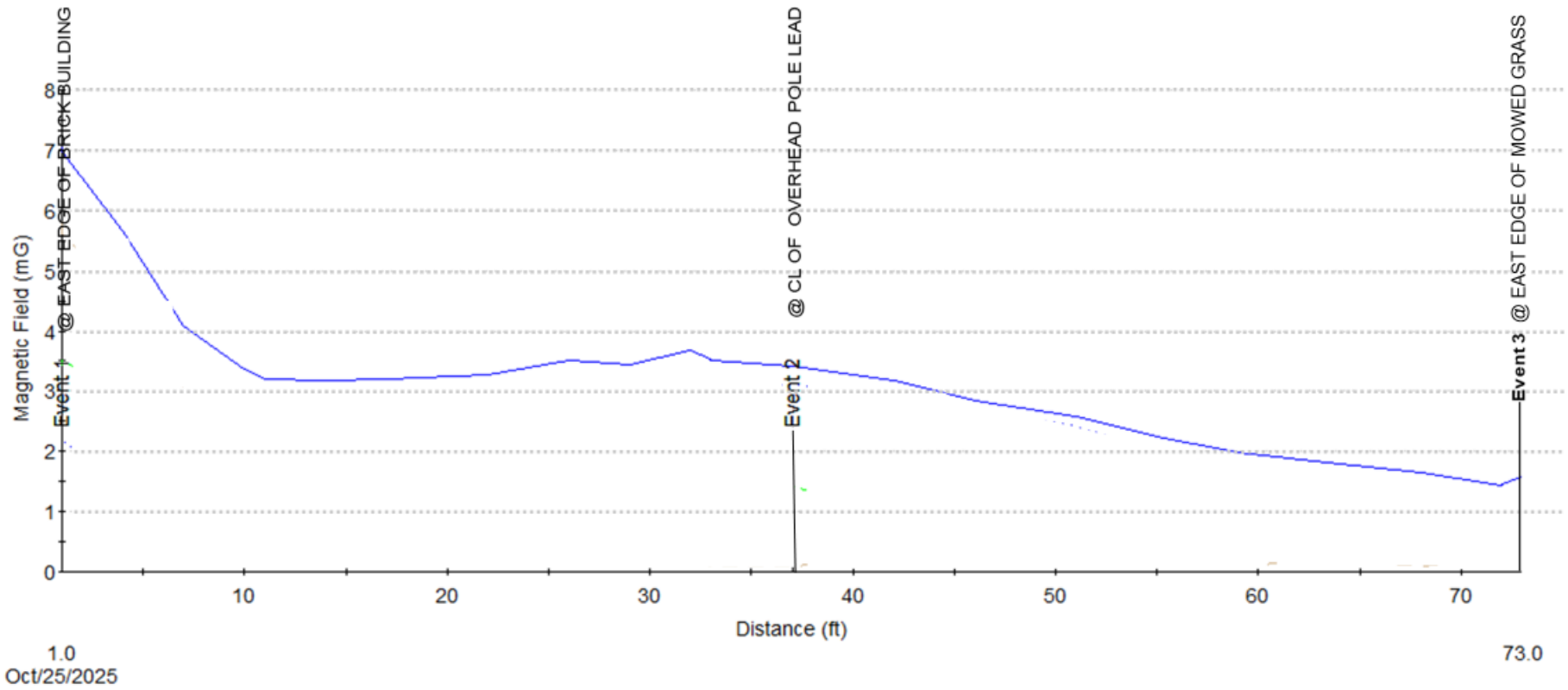
PATH#2-

Path Traveled To South of Substation



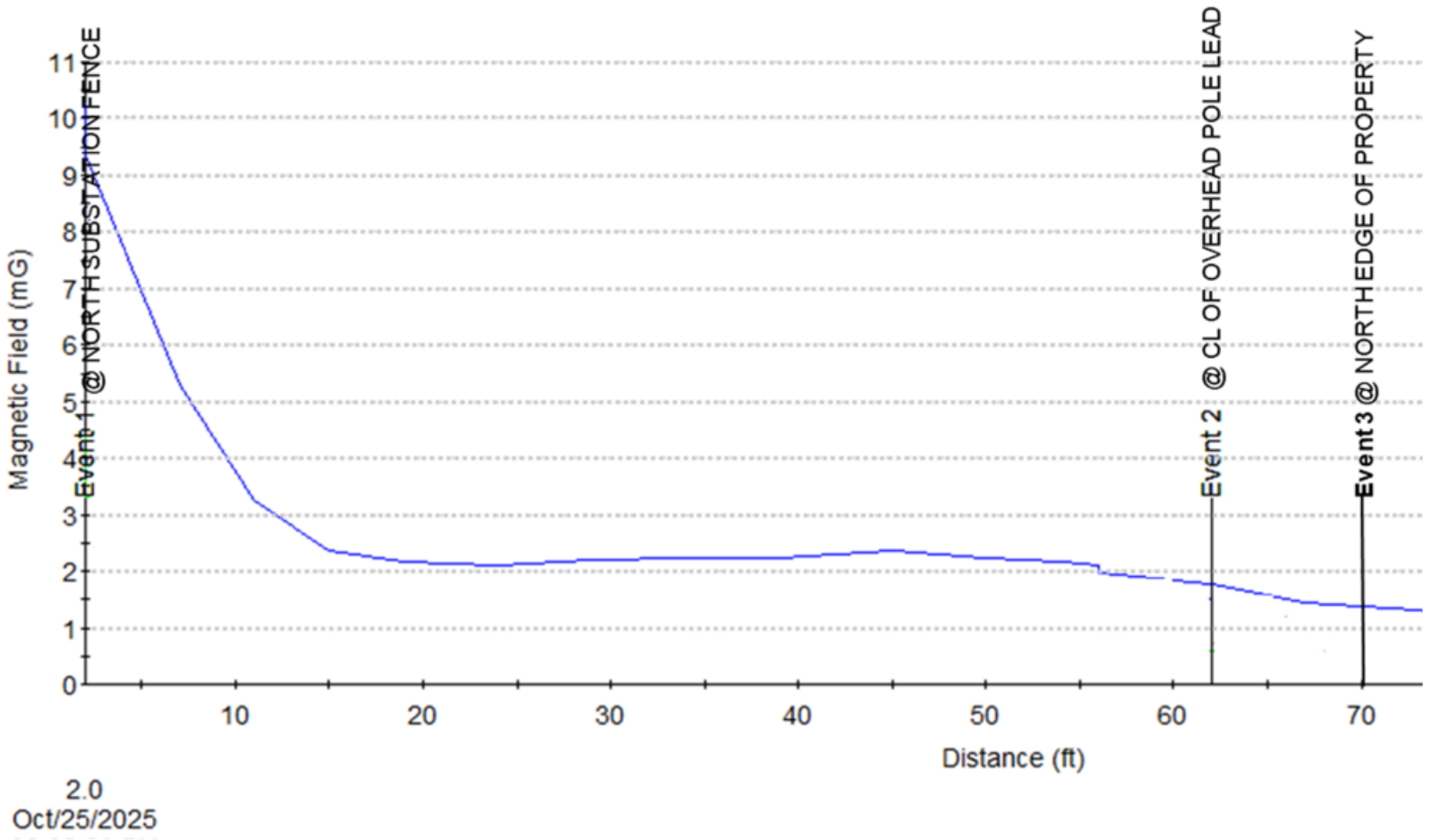
PATH#3-

Path Traveled Along East Side of Substation



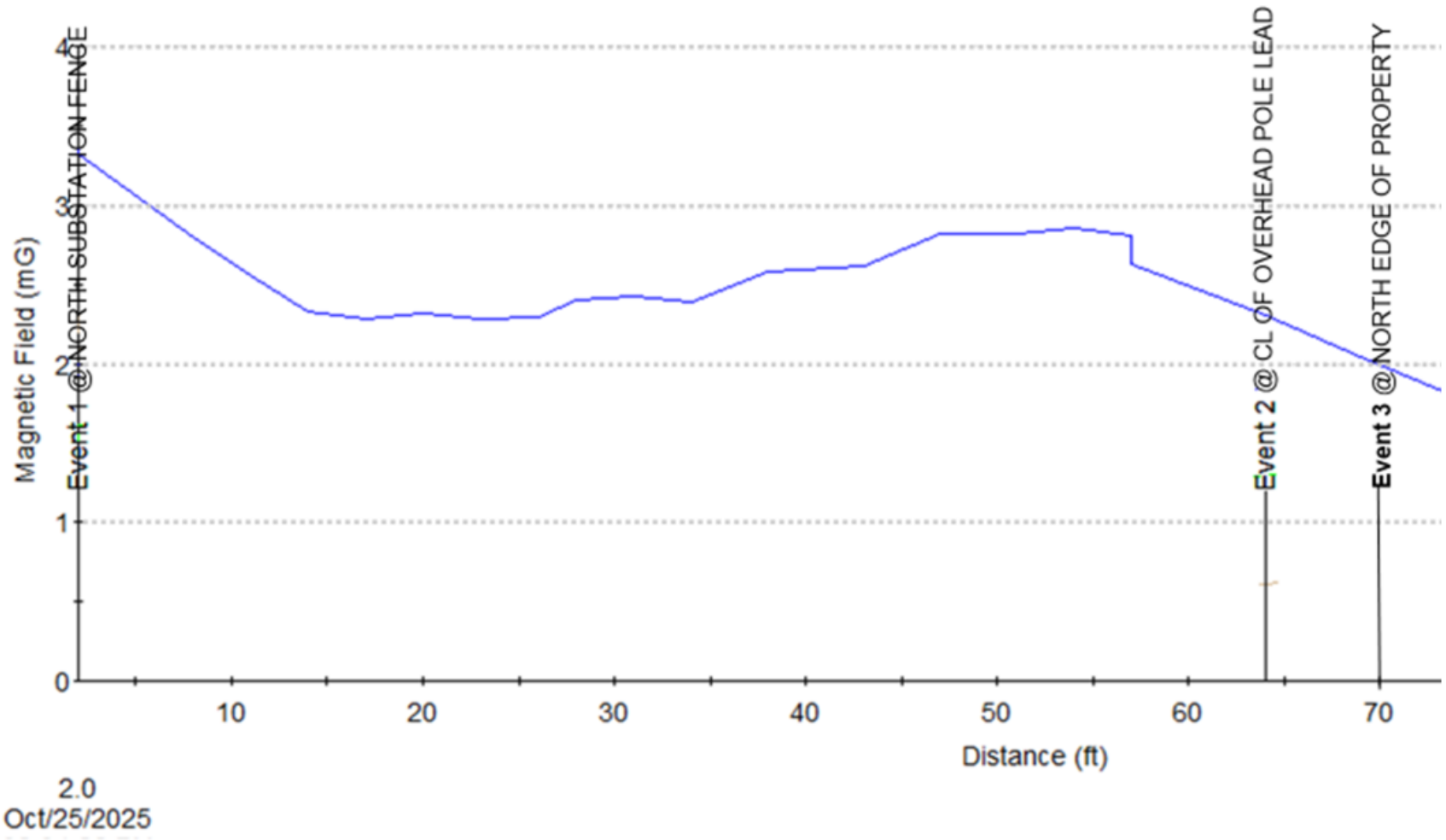
PATH#4-

Path Traveled To North of Substation @ Trsfmr @ Brick Building



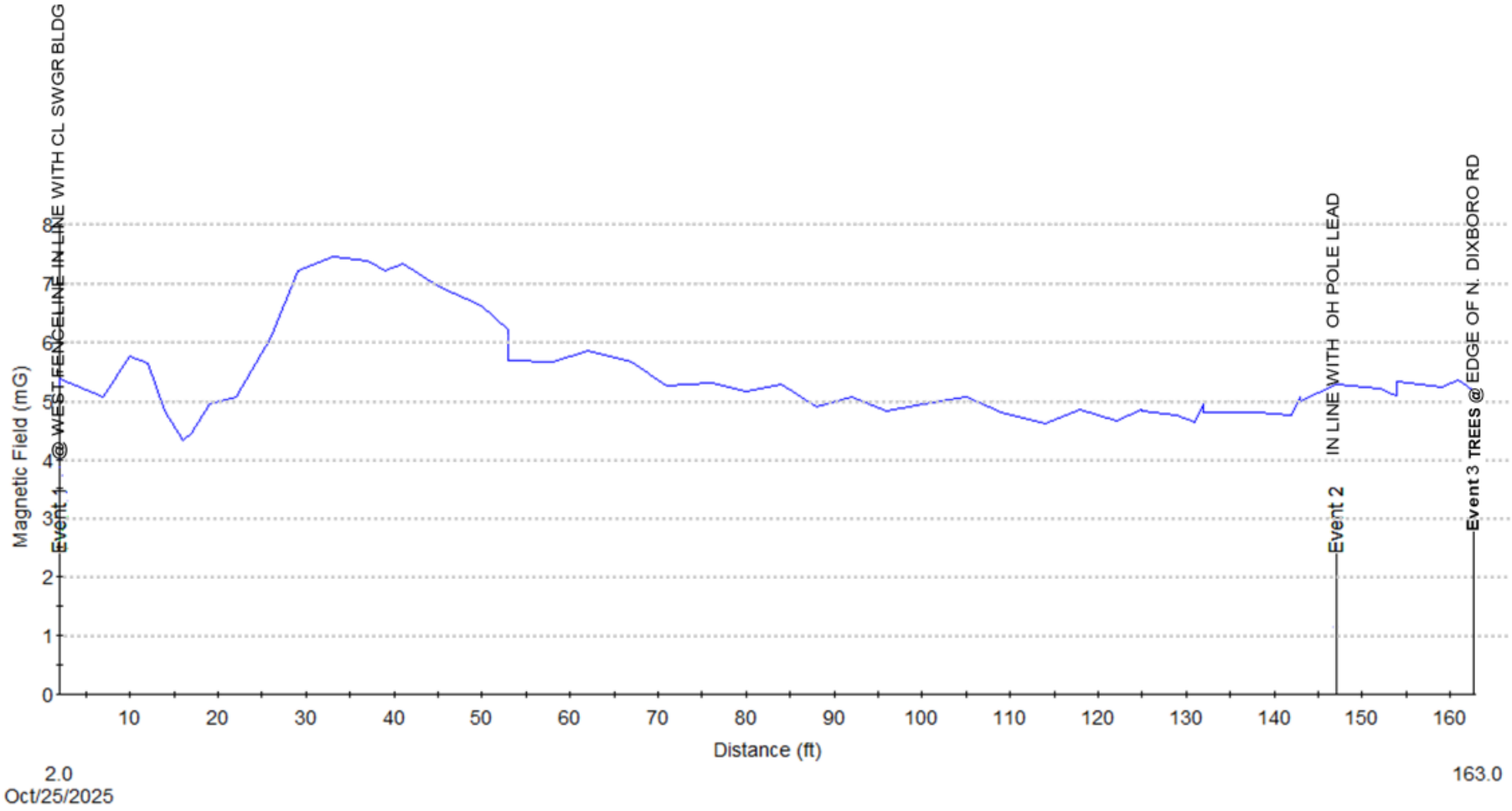
PATH#5-

Path Traveled To North of Substation @ Swgear Building



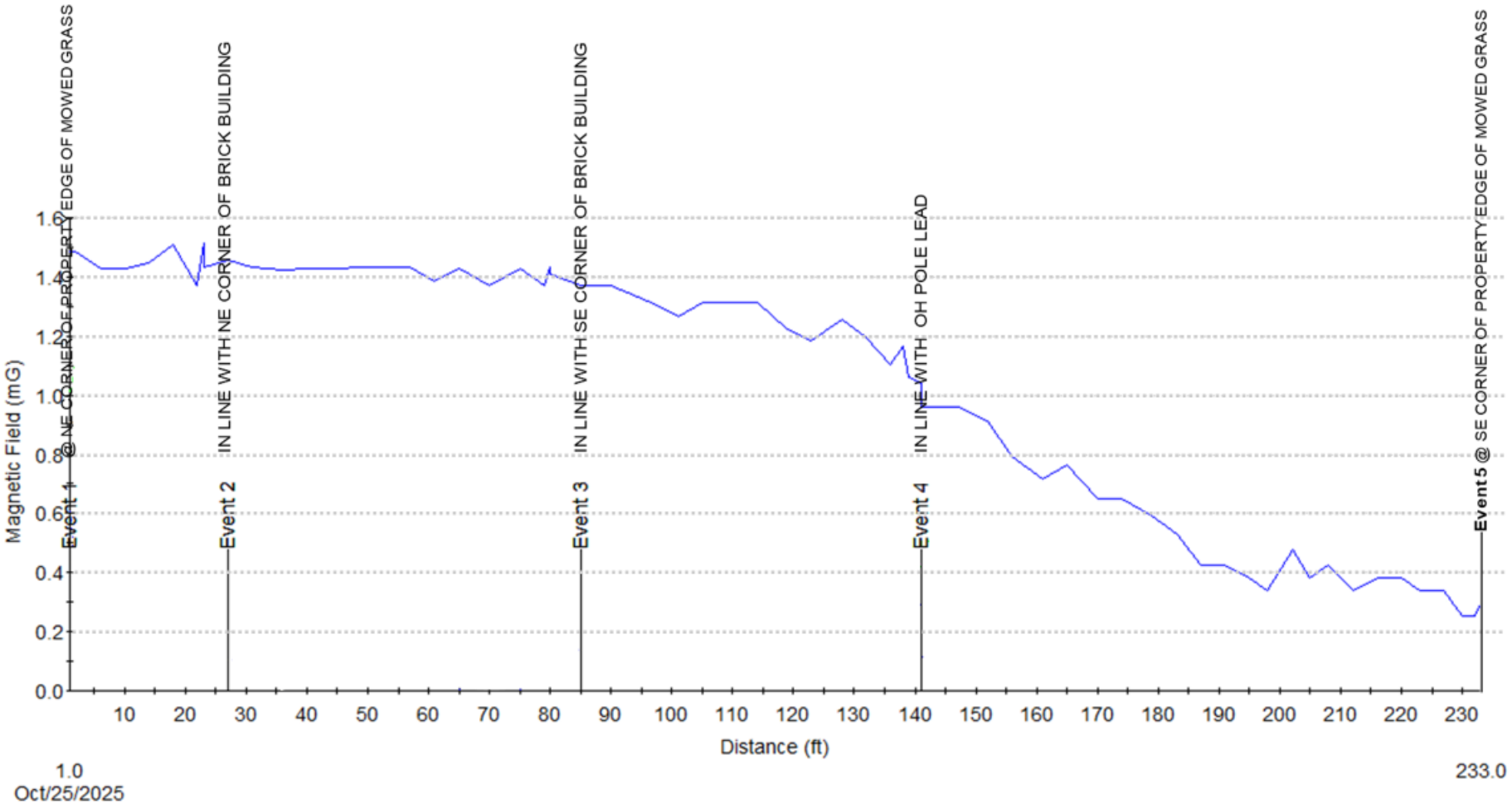
PATH#6-

Path Traveled Along West Side of Substation



PATH#7-

Path Traveled Along Eastern Edge of Mowed Grass



APPENDIX - POSTING OF PROPOSED PROPERTY EXPANSION-GRENADA SUB



Corporate Safety
Industrial Hygiene Report

Date: August 27, 2025
To: R. Miller, M. Muntasir, R. Nasutovich, M. Rajewski
CC: A. Boatner, M. Listello, R. Marvin, G. Maudie
From: B. Kositz, CIH, CSP
Subject: Gramer Substation Sound Pressure Level Survey

On Wednesday August 27, Corporate Safety Rob Marvin and I conducted a Sound Pressure Level Survey of the Gramer Substation, located at 65541 Gramer Road in Lenox Township. This was at the request of DTE PMO Musnad Muntasir.

Upon arrival to this location, we received a prejob brief from the substation operator, who escorted us throughout the facility. This survey covers:

1. Survey of the of the immediate perimeter of transformers 101 and 102
2. Survey of the property fence line on all four sides

These surveys were conducted utilizing the Quest Technologies SoundPro Model SE-DL Sound Level Meter (S/N BBF100001). This unit was last serviced in October 2024. This unit was successfully calibrated prior to use on August 28 with the Quest Technologies QC-10 Calibrator (S/N QIF090222). The unit was last serviced in October 2024. The meter was set to a fast response and A- weighted results.

Transformers 101 and 102
8 Sound Pressure Level (SPL) readings were taken around each transformer, 6 feet from transformer, 5 feet above grade. The results are as follows:

- Trans 101 (South): Average SPL = 65.8 dBA
- Trans 102 (North): Average SPL = 63.8 dBA

The average SPL as measured by the manufacturer is found in the Pennsylvania Transformer Technology Certified Test Report. The average SPL found on page 67 of the report is 66.5 dBA.

Fence Line Survey
Sound Pressure Level readings were taken on all four sides of the property: north, south, east and west. The results are as follows:

- North: Average SPL = 33.9 dBA
- South: Average SPL = 32.5 dBA
- East: Average SPL = 30.8 dBA
- West: Average SPL = 26.8 dBA

Please let me know if you have any questions.

Brian Kositz, CIH, CSP
Safety & Health Expert

Attorney- Client Privilege
Communication shall not be shared outside DTE Energy without approval from DTE Corporate Legal

Detroit Edison Electric
Power Transformer

PTTI / P29643
Transformer type:- T50-15

ANSI PERFORMANCE DATA

For: Detroit Edison Electric

RATING					
Type	Power	CLASS	H Winding	X Winding	Y Winding
Phase	3		41570 V	13800 Y / 7967 V	
Hertz	60	ONAN	15000/16800 KVA	15000/16800 KVA	
Temp. Rise	55/65°C	ONAF	20000/22400 KVA	20000/22400 KVA	
Insul. Liquid	Oil	ONAF	25000/28000 KVA	25000/28000 KVA	

ADDITIONAL TAP VOLTAGES	
H Winding:	**NO TAPS**
X Winding:	±15% in 32-15/16% (Approx.) Steps by "RMV-II" Type LTC RC

INSULATION LEVELS (KV BIL)		
	Winding	**Bushing**
H Line	200	250
H0 Neutral	––	–––
X Line	110	150
X Neutral	110	150
Y Line	––	–––

DIELECTRIC TESTS		
Applied Voltage (to other windings and ground)	H Winding	95 KV
	X Winding	34 KV
	Y Winding	
Induced Voltage	Line to Line	74.826 KV

PERFORMANCE DATA: Based on **75°C** Reference Temperature and Rated **15 MVA, 41.57-13.8Y KV** Base

Losses and Exciting Current					Regulation @ **15 MVA**	
Excitation	% Ex. I	No Load @ 20°C	Load Loss	Total Loss	Power Factor	% Regulation
100%	0.5	**12500 W ***	**40300 W**	**52800 W ***	1	0.51
105%	0.8	15625 W			0.9	3.44
110%	1.2	18750 W			0.8	4.56

AUXILIARY LOSSES		
Transformer KVA	Class	Aux Loss (Watts)
22400 KVA	ONAF	**1800 W ***
28000 KVA	ONAF	**3200 W ***
NLL Sound Level : **65/67/68 dBA***		

PERCENT IMPEDANCE					
% IZ	Btwn Wdg	At MVA	$\%Iz_o$	Btwn Wdg	At MVA
7	H-X	**15 ***			

MECHANICAL DATA			
Dimensions		**Assembled**	**Shipping**
Height	(A)	170	170
Width	(B)	204	204
Depth	(C)	151	134
Height Over Cover	(D)	131	
Untanking (Plus Sling)	(E)	232	

Weights (Approx.) (Pounds)	
Core & Coils	52850
Tank & Fittings	26000
Oil (4037 Gal) Main	30240
Oil (268 Gal) LTC	2010
Shipping Weight with Oil	113285
Total Weight	**113285**

EFFICIENCIES @ 15 MVA				
Load %	Full Load	3/4 Load	1/2 Load	1/4 Load
100	99.65	99.69	99.7	99.6

*** Guaranteed Parameters**

Note:- Guaranteed No load losses is Average of No load losses with LTC at N position and LTC at 15L tap position

DTE Electric - Grenada Substation System Conduit Project Rare Herpetofauna Report

November 2024



Prepared by:
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Prepared for:
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One Energy Plaza
Detroit, MI 48226

Suggested Citation: Herpetological Resource and Management. 2024. DTE Electric - Grenada Substation System Conduit Project Rare Herpetofauna Report. Herpetological Resource and Management, Chelsea MI. 31pp.

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Introduction

In 2024, Herpetological Resource and Management, LLC (HRM) was contracted by DTE Electric to conduct a habitat and species assessment targeting rare amphibians and reptiles, with emphasis on the federally protected Eastern Massasauga Rattlesnake (*Sistrurus catenatus*) (EMR), associated with the Grenada Substation System Conduit Project (hereafter referred to as the Project).

Amphibians and reptiles (collectively regionally known as herpetofauna) are recognized as key bioindicators, or gauges of environmental health. They are ecologically important as they fulfill an essential mid-level position in many food webs as both predators and as a prey base for other animals (Harding and Mifsud 2017). Their presence and relative abundance can be important tools in identifying and measuring overall ecosystem health (Cooperrider et al. 1986, Guilfoyle 2010). Efforts to protect and minimize impacts to these species and their habitat are becoming increasingly important.

The Project involves the installation of electrical conduit below ground using a combination of boring and open trench methodologies. The Project is located within Ann Arbor, Washtenaw County, Michigan. HRM's objectives were to identify the areas within the project area that have the potential to support federally or state protected species of herpetofauna and to provide recommendations for developing Best Management Practices (BMPs) to minimize possible negative impacts to herpetofauna populations and their habitat during and post-construction.

HRM completed a desktop review, conducted a field-based rapid habitat assessment, and BMP development in November 2024. This report focuses on the results of HRM's desktop review, field assessment, and BMP recommendations associated with the project area.

Site Description

The Project is located within Township 2 South, Range 7 East, Section 18 in the City of Ann Arbor, Washtenaw County, Michigan (Map 1). Habitat features include manicured lawn space, scrub-shrub upland, disturbed forest, and shrub-dominated edge habitat comprised of predominantly invasive species present within the project area (Photos 1-10). Land use within the surrounding area included single-family residential housing, the Huron Valley Tennis Club to the east, and bounded by North Dixboro Road to the west.

Herpetofauna Regulations

Michigan's Threatened and Endangered species are afforded protection against collection or *take* through the Natural Resources and Environmental Protection Act, Part 365, Endangered Species Protection, administered by the Michigan Department of Natural Resources (MDNR) Wildlife Division. The law requires permits when listed species might be harmed, handled, or disturbed, even if proposed work includes conservation activities that are likely to benefit the species long-term (Michigan Department of Natural Resources 1994). Most Special Concern species in Michigan are not afforded protection under this legislation; however, Special Concern reptiles and amphibians are protected from *take* in accordance with MDNR Fisheries Division Order (224.16). The order states that *take* from the wild or possession of any such species is prohibited except as authorized under a Scientific Collector's Permit (Michigan Department of Natural Resources 2016).

The EMR is listed as federally Threatened. The federal Endangered Species Act of 1973 protects Threatened and Endangered species by prohibiting *take* including harassing, harming, hunting, shooting, wounding, killing, trapping, capturing, or collecting individuals (U.S. Fish and Wildlife Service and National Marine Fisheries Service 1973).

Methods

Desktop Review

A desktop review was conducted by HRM with the objectives to (1) identify federally and state protected, or rare, herpetofauna that may occur in the project area using GIS-based spatial framework for analysis, and (2) compare the assembled information against the Project's proposed limits of disturbance to evaluate highest priority habitats for field assessments and impact avoidance were warranted. GIS resources included historical and recent observations of rare species from Michigan Herp Atlas submissions, HRM occurrence database, Michigan Natural Heritage database, museum records, and the United States Fish and Wildlife Service (USFWS) Tier 1 and Tier 2 designated EMR habitat locations. Tier 1 is defined as habitat that is known to support EMR; Tier 2 habitat is defined as areas that have landscape features known to be present in habitats suitable for EMR. A 3-mile buffer radius was used to determine potential species that may occur within the corridor.

Aerial photo interpretation was used to further evaluate the potential for rare species based on habitat type present, surrounding land use, and known ranges of species. Recent and historic aerial imagery was used spanning 1999 to 2022 to evaluate the corridor for potential rare herpetofauna. The assembled rare species information and the Project's proposed areas of disturbance identified a rapid habitat field assessment was warranted.

Rapid Habitat Field Assessment

HRM staff, trained in the sampling and identification of rare amphibians and reptiles, conducted a rapid habitat field assessment in November 2024 within the Project's proposed limits of disturbance. The objective was to confirm the findings of the desktop review, Michigan Natural Features Inventory (MNFI) desktop assessment and summary, assess the project area to determine potential impact, and identify protective measures to minimize impacts to rare species.

The assessment was completed via visual encounter transect surveys within the Project's proposed limits of disturbance to determine if appropriate habitat and/or microhabitat known to support rare species were present for one or more life stages of the species. HRM documented the habitat quality for each life stage of a given rare species that may utilize the habitat within the project area. Surveys were conducted during appropriate weather, though outside of the typical active season. Early November weather conditions were warm and sunny at the time of survey making conditions suitable for assessing the site and surveying for herpetofauna.

Each positively identified amphibian and reptile was recorded in the HRM database. The following data were collected for each record: (1) species, (2) sex (when possible), (3) behavior, (4) age class, (5) reproductive condition (if it can be determined), and (6) location. Observational location data were recorded using Trimble® Global Positioning System (GPS) Units, which record the location to U.S. Environmental Protection Agency (EPA) Tier II National Geospatial Data Spatial Standards and were mapped using ArcMap® software. Control points were obtained during the survey to confirm spatial accuracy and equipment functionality.

No voucher specimens were collected, though photographs were taken when possible. All survey activities were in accordance with HRM's Scientific Collector's and Threatened and Endangered Species permits issued by the state of Michigan and the USFWS.

Best Management Practices

Based on the results of the desktop review, rapid habitat field assessment, and HRM staff professional experience, a subset of BMPs were developed for the Project. These BMPs are designed to be implemented prior to, during, and after construction of the Project to minimize impacts to rare herpetofauna within the project area.

Results

Ongoing research into the genetics, physiology, behavior, and fossil history of amphibians and reptiles has led to debates about their proper classification. Some biologists have proposed the splitting of established genera like *Rana* ("typical frogs") and *Bufo* ("true toads") into the newer

genera *Lithobates* and *Anaxyrus*, respectively (Harding and Holman 1999). Some suggestions have included using the newly proposed groupings as subgenera, allowing recognition of the new divisions while maintaining name consistency. For the purposes of this report, this naming system will be followed for the genus of toad *Bufo* (*Anaxyrus*). The genus of "typical frogs" will not include subgenera based on a recent publication which supports the placement of all North American ranid frogs in the genus *Rana* (Yuan et al. 2016). These classifications are also recognized by Harding and Mifsud, authorities on herpetofauna within Michigan (Harding and Mifsud 2017).

Desktop Review

The desktop review revealed one or more occurrences of five (5) rare species of herpetofauna within a 3-mile buffer of the project area. The five (5) rare species included the Federally protected EMR, state Threatened Eastern Box Turtle (*Terrapene c. carolina*) and the state Special Concern Butler's Garter Snake (*Thamnophis butleri*), Blanding's Turtle (*Emydoidea blandingii*) and Northern Mudpuppy (*Necturus maculosus maculosus*). The Blanding's Turtle is also under review for Federal protection. Based on aerial imagery, habitat for the Blanding's Turtle and Northern Mudpuppy was ruled out leaving three (3) rare species identified during the desktop review to potentially occupy the project area.

Rapid Habitat Field Assessment Findings

The survey was conducted during ideal weather conditions to assess habitat conditions for rare species and observe rare species within the project area in November 2024. The rapid habitat field assessment confirmed suitable habitat within or adjacent to the project area for two (2) rare species: the Eastern Box Turtle and Butler's Garter Snake.

Habitat for the Eastern Box Turtle was assessed to occur within portions of the project area. These areas were found within the moderate quality forested areas to the east of the existing onsite building. The forested habitat would likely be utilized by the species as the understory is partially open and dominated by raspberry and blackberry shrubs and open travel corridors. The forested area functionally acts as an oak savannah habitat with dry soil conditions and an understory that is open and vegetated with herbaceous species. This habitat type is strongly associated with Eastern Box Turtles and in urban settings with disturbance, habitat spaces such as these are likely refugia areas for the species (Photo 11-17).

Habitat for the Butler's Garter Snake was assessed to occur within portions of the project area. These areas include the moderate forested habitats to the east-southeast and northeast of the project as well as alongside the roadway of North Dixboro Road. The open understory of the forested area and the open grassland alongside the roadway provide ideal habitat for the species.

Brush piles found in the wooded areas of the project provide important refugia for the species (Photo 18-28).

The majority of the project area is maintained lawn space with ornamental conifer species including White Pine (*Pinus strobus*), Douglas Fir (*Pseudotsuga menziesii*), and Black Spruce (*Picea mariana*). The mowed lawn areas do not represent any habitat quality that is utilized by any species of herpetofauna. The upland scrub-shrub-dominated edge habitats found around the project area were dominated by invasive species including Honeysuckle (*Lonicera spp.*), Common Buckthorn (*Rhamnus cathartica*), Japanese Barberry (*Berberis thunbergii*), Garlic Mustard (*Alliaria petiolate*), and other types of weeds. This habitat is unlikely to be utilized by herpetofauna species. The forested area is somewhat degraded compared to higher quality south of the project area where multiple rare species are known to occur. Species observed included various disturbance adapted agronomic weeds such as Creeping Charlie (*Glechoma hederacea*) and Bull Thistle (*Cirsium vulgare*), Wild Raspberry (*Rubus strigosus*), Blackberry (*Rubus allegheniensis*), Sugar Maple (*Acer saccharum*), Box Elder (*Acer negundo*), Black Walnut (*Juglans nigra*), Green Ash (*Fraxinus pennsylvanica*), and Asian Bittersweet (*Celastrus orbiculatus*) and other agronomic weeds (Photo 29-34). No herpetofauna species observations were made during the assessment.

Discussion

Three (3) rare species of amphibian and reptile were identified by the desktop review and two (2) species were verified by the rapid habitat field assessment as potentially occurring within the project area. These included the Eastern Box Turtle and Butler's Garter Snake. No herpetofauna species were observed during the rapid habitat field assessment. (Table 1, Map 1). This lack of detection is likely due to the late season survey. Many species had already begun transitioning to overwintering habitats and seasonal inactivity.

Based on the results of the desktop review and the rapid habitat field assessment, suitable habitat for EMR was **not** present within the project corridor. Based on the field review and project boundary, **EMR are not likely to use the project area and corridor. They are known to occur south of the project boundary and establishing wildlife barrier fence (WBF) made from 3-foot silt-fence is strongly recommended (Figure 1). It is the professional opinion of HRM that "take" would not occur if recommended BMP measures are incorporated.**

The project area does possess suitable habitat and known occurrences within the 3-mile buffer for the state Threatened Eastern Box Turtle; a species being protected under Part 365, Endangered Species Protection, of the Natural Resources and Environmental Protection Act, administered by the MDNR. Suitable habitat for the Eastern Box Turtle, a predominately terrestrial turtle species, is located within the forested area to the east of the proposed substation project area.

Given the habitat present on-site and nearby known occurrences, the Eastern Box Turtle has the potential to use the project area and travel within the Project's limits of disturbance. To avoid impact or harm incorporating appropriate BMPs is recommended.

In addition to the one (1) state Threatened species, one (1) species of Special Concern: the Butlers Garter Snake, are known or have the potential to use the project area or travel within the Project's limits of disturbance. Butler's Garter Snake is known to occur within 1.5-miles and potential habitat for the species was documented during HRM's survey. Incorporating appropriate BMPs would limit the potential harm to observed and possible protected species.

Overall, the project area has a relatively small footprint and impact is likely minimal if BMPs are incorporated. It is the professional opinion of HRM that if recommended BMP measures are incorporated, it is unlikely any short-term or long-term negative impacts would occur to any of the known or potential rare herpetofauna present within the Project.

Recommendations

Implementing appropriate BMPs is an effective way to minimize injury or mortality to amphibians and reptiles associated with construction activities (Mifsud 2023). These measures are particularly important to establish in areas where rare, sensitive, and long-lived species occur. Multiple species of conservation concern occur within the project area, and proactive measures can help minimize the potential risk to herpetofauna and avoid *take* of protected species.

The following recommendations are proposed to be implemented during and post construction of the Project. The proposed recommendations are the professional opinion of HRM and are built on our understanding of the scope of the Project based on the results of the desktop review and the rapid habitat field assessment.

Wildlife-Friendly Erosion Control Material: The use of synthetic or plastic erosion control mesh mats during construction and restoration activities is strongly discouraged as it can fatally entangle herpetofauna and other wildlife. Photodegradable varieties do not degrade when shaded by newly sprouted vegetation and must also be avoided. Several wildlife-friendly, biodegradable products are available and should be used as the standard for soil erosion control material.

Wildlife Clearance: HRM strongly recommends conducting wildlife rescue and relocation prior to construction given the probability of rare species seasonally using this site. HRM recommends a wildlife barrier fence (3-foot silt-fence) be used around the perimeter of the project area (Figure 1). HRM staff would conduct wildlife clearance removing any

amphibians and reptiles encountered and relocated to adjacent habitat off-site to prevent harm.

Rare Species Informative Signage: HRM can supply Project placards that provide the following information for the potential rare species: species identification, habitat, walk-downs, and what to do if a rare species is encountered. It is recommended that these signs be posted at the entrance and exit of workspace areas, along the edge of the workspace (where needed to identify nearby high priority habitat that is outside the workspace), and at high traffic road crossings. Placards should be installed at least three days prior to the proposed start of construction in any specified location. Signage should remain in place until all construction activities are complete.

Conclusion

HRM's rare herpetofauna assessment determined that the federally protected Eastern Massasauga Rattlesnake would not likely occupy or be found within the project area. It is the professional opinion of HRM that **a Section 7 Threatened and Endangered Species Consultation with the USFWS would not be necessary given the unlikelihood of EMR being present on-site.** The project area does have the potential to support the state Threatened Eastern Box Turtle and the state Special Concern Butler's Garter Snake. Both species are protected by the MDNR.

The proposed activities of the Project will be restricted to an already largely impacted corridor. Incorporation of the proposed BMPs including WBF around the project area, wildlife clearance, signage, and use of wildlife friendly soil erosion materials will significantly eliminate the threat of harm to both federal and state protected species.

Photos



Photo 1. Manicured lawn area and ornamental conifers at the entrance of the Grenada Substation.



Photo 2. Manicured lawn area and ornamental conifers around the Grenada Substation.



Photo 3. Invasive scrub-shrub habitat along the southern project boundary.



Photo 4. Dense invasive shrub stands with Common Buckthorn and Box Elder.



Photo 5. Disturbed forest on the eastern boundary of the Project.



Photo 6. Open understory in disturbed forest area in the southwestern boundary.



Photo 7. Woodland edge by residential area with berry shrubs in the grassy portions.



Photo 8. Disturbed woodland area near residential space.



Photo 9. Scrub-shrub edge habitat with some invasives present. Open grass space adjacent.



Photo 10. Mowed lawn space running up next to berry shrubs and edge habitat.



Photo 11. Forested area with open understory, ideal Box Turtle habitat.



Photo 12. Understory showing herbaceous foraging and berry foraging opportunities, the forest operates similarly to an oak savannah the species utilizes most.



Photo 13. Raspberry vines found throughout the project area, an ideal food source.



Photo 14. Blackberry shrubs occurring on the northern boundary near forested areas.



Photo 15. Woodland habitat with cover and foraging opportunities for the Box Turtle.



Photo 16. Travel corridor likely to be used by species present on site, facing southeast.



Photo 17. Travel corridor likely to be used by species present on site, facing northwest.



Photo 18. Grassy area in understory likely to be used by Butler's Garter Snake.



Photo 20. Herbaceous vegetation is not too dense in areas allowing for utilization.



Photo 22. Downed woody debris can serve as important hibernacula.



Photo 23. Woody debris can serve as important hibernacula, located on the eastern boundary.



Photo 24. Larger grassy area likely to be utilized as a travel corridor for species on site.



Photo 25. Powerline ROW that can allow for species movement on site.



Photo 26. Roadside habitat a Butler's Garter Snake is likely to use.

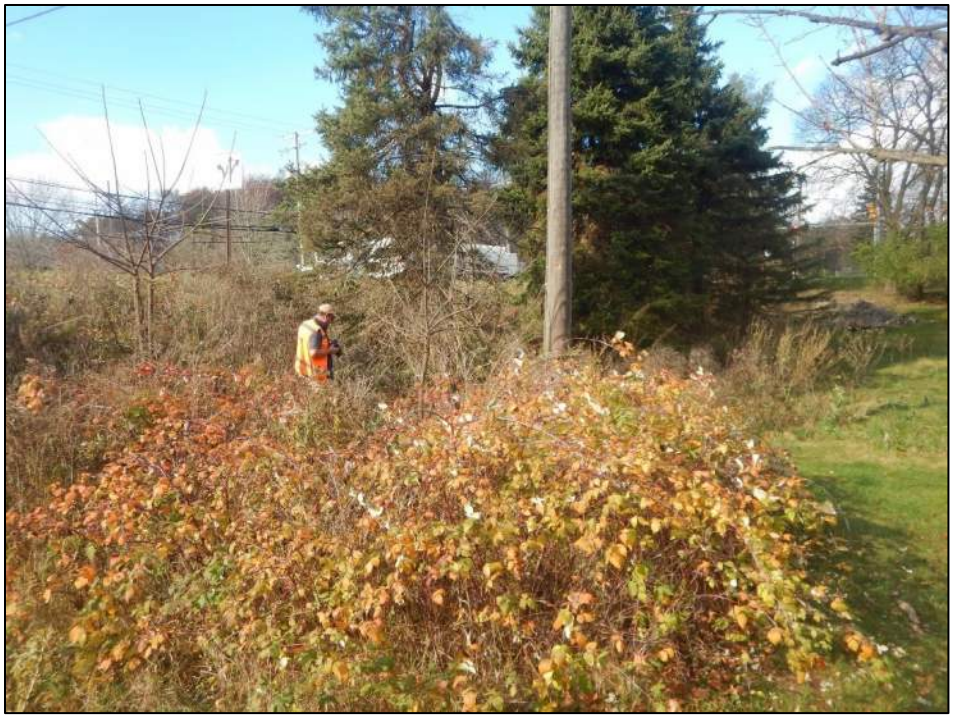


Photo 27. HRM biologists investigate roadside habitat suitability.



Photo 28. Roadside habitat with long grass, herbaceous cover and travel corridor areas.



Photo 29. Honeysuckle with berries found around project area.



Photo 30. Raspberry found in the project area. Common throughout the project area and a good food source for turtle species.



Photo 31. First year Garlic Mustard poking through.



Photo 32. Ornamental White Pine planted throughout the manicured project area.



Photo 33. Ornamental Black Spruce found in the manicured project areas.



Photo 34. Thistle spp. found in the northern boundary.

Tables

DTE Electric Grenada Substation System Conduit Project Potential & Observed Herpetofauna Species					
Common Name	**Species Name**	**Observed Species**	**Potential Species**	**State Status**	**Federal Status**
Eastern Massasauga Rattlesnake	*Sistrurus catenatus*)	-	X	ST	FT
Eastern Box Turtle	*Terrapene c. carolina*	-	X	ST	-
Butler's Garter Snake	*Thamnophis butleri*	-	X	SC	-

Table 1. Potential rare and observed herpetofauna species within the Grenada Substation System Conduit Project.

FT – Federally Threatened FR – Under review for listing
ST – Threatened SC – Special Concern
X – Denotes potential or observed species

Figure

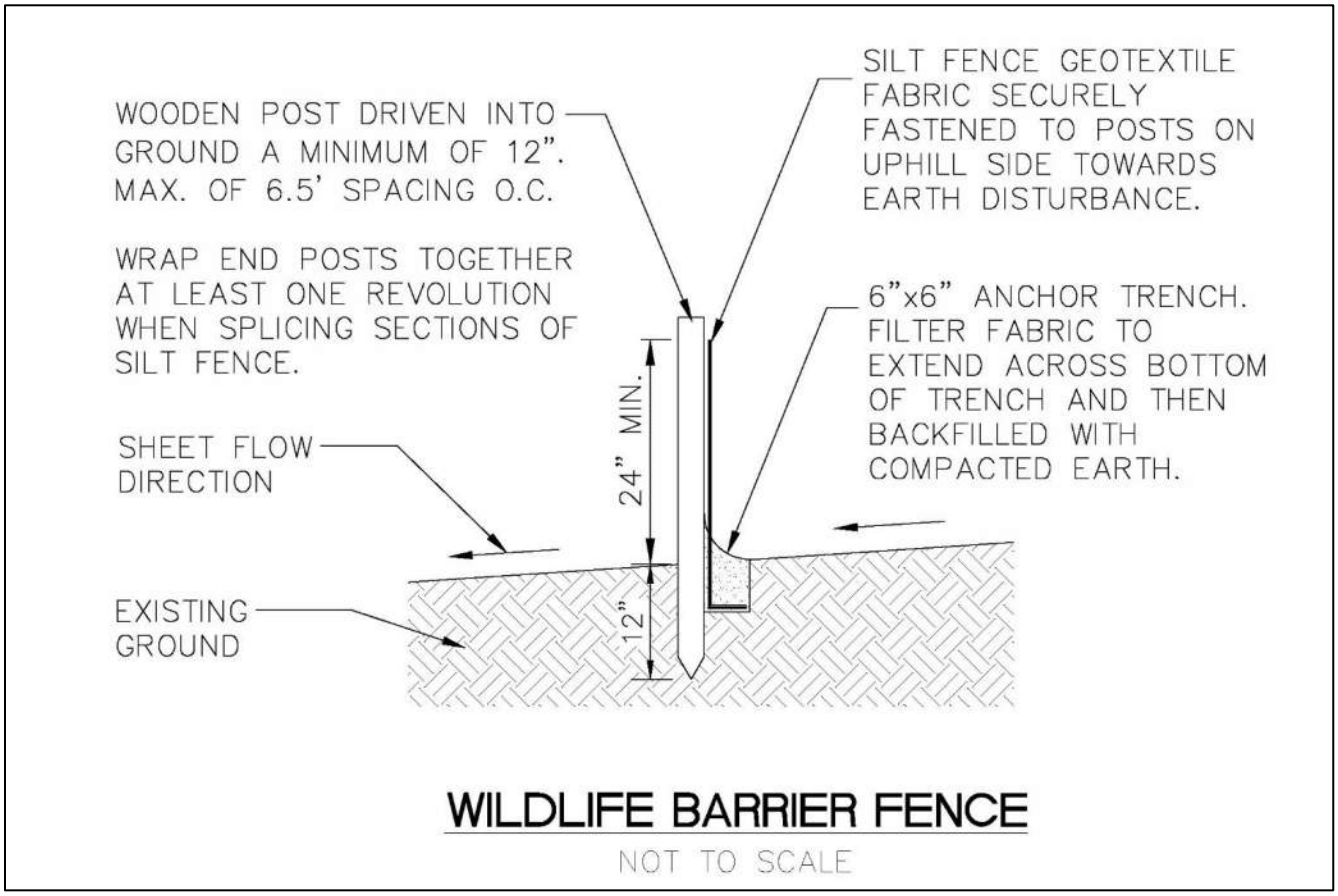
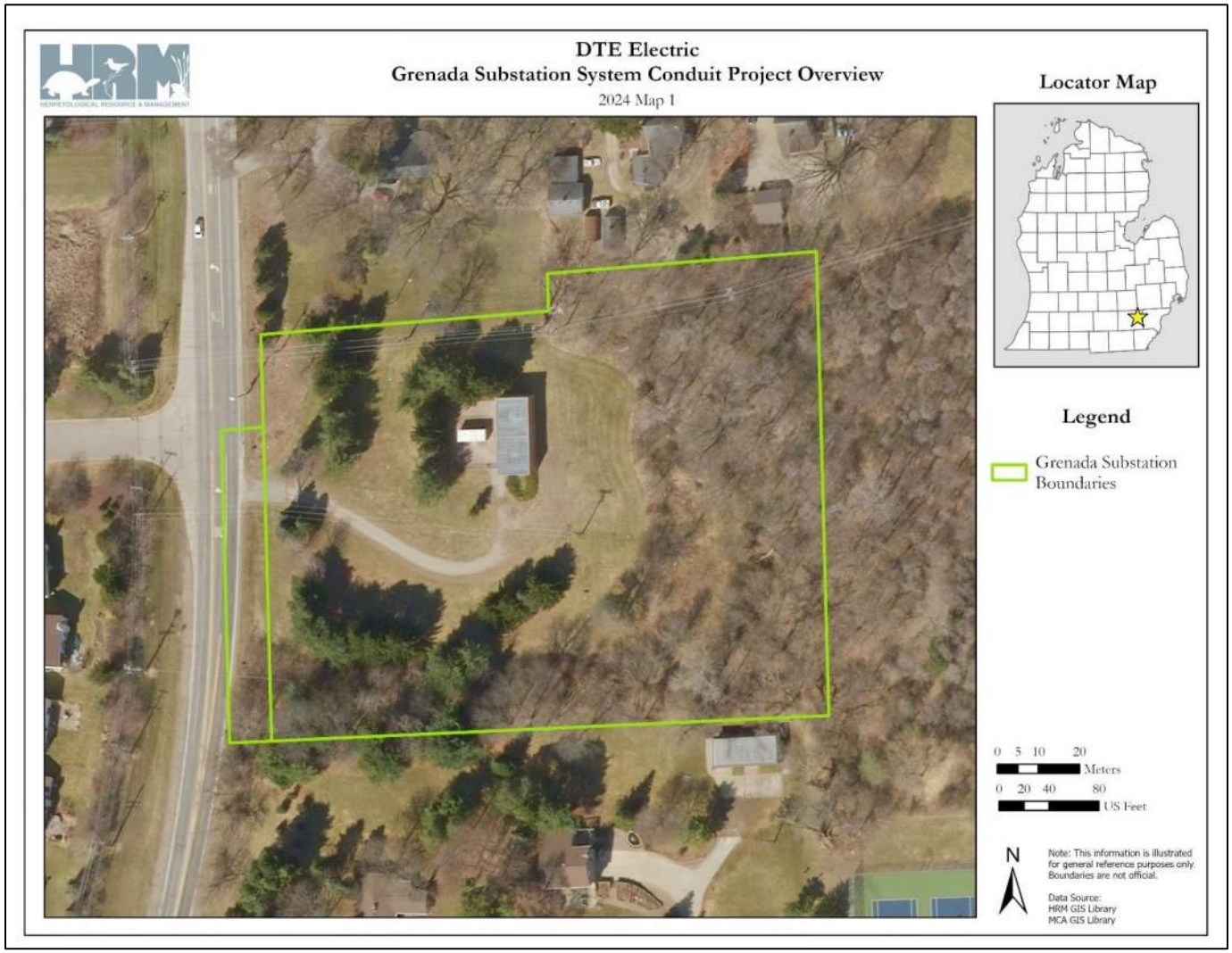


Figure 1. Sample detail for wildlife barrier fence placement.

Maps



Map 1. Overview of the Grenada Substation off N Dixboro Road.

Species Profiles

Eastern Massasauga Rattlesnake (*Sistrurus catenatus catenatus*)



The Eastern Massasauga Rattlesnake was elevated to a Federally Threatened status in the United States of America in September, 2016. In Michigan, it remains listed as a Species of Special Concern; however, it is endangered throughout the remainder of the range. Just across the Great Lakes, this species is listed as Endangered at both the provincial and federal level in the Province of Ontario and throughout Canada. The snake requires fen or marsh type habitat with abundant sedge and grass cover and plenty of sun-exposed areas. Additionally, female Massasaugas will migrate to upland fields during the reproductive season in order to regulate body temperature and incubate eggs internally. Females will give birth to 3-19 hatchlings usually in August. These snakes hibernate underground, typically in crayfish or mammal burrows near the edges of the fen or marsh, where they spend the winter submerged in the groundwater. Other species of herpetofauna are often found sharing the hibernaculum. This snake is considered extremely shy and secretive, making accurate inventory exceptionally difficult. There are limited natural predators of this species, such as other large snakes, some small mammals, and birds of prey. While Michigan remains a stronghold for this species, populations are declining due to decreasing available habitat and persecution towards this cryptic species (Harding 1997; Holman 2012).

Eastern Box Turtle (*Terrapene c. carolina*)



The Eastern Box Turtle is a state Threatened species in Michigan protected by Part 365, Endangered Species Protection, of the Natural Resources and Environmental Protection Act, administered by the Michigan Department of Natural Resources (Michigan Department of Natural Resources 1994). These turtles are primarily terrestrial, favoring wooded areas consisting of deciduous or mixed trees with sandy soils, but can also be found utilizing nearby open habitats such as fields and marshes. They require some form of access to water, including streams, ponds, or bogs, and spend most of the summer buried in leaf litter or, when temperatures are high, near a source of water. This species is diurnal, and peak periods of activity are typically in the morning or after a rain event. During the winter, Eastern Box Turtles hibernate by burrowing under leaf litter and into the ground. These turtles have relatively small ranges and have an omnivorous diet consisting of plants, berries, invertebrates, and some small vertebrates. Major predators include raccoons, skunks, foxes and other mid-sized carnivores; however, road mortality of these animals is an even larger threat. These long-lived animals (40-50 years in the wild but occasionally up to 100 years) can take around 10 years to reach sexual maturity, and, as a result, it takes time for adults to replace themselves in the population because of the high mortality rates of young Eastern Box Turtles. The largest threats facing the Eastern Box Turtle come from humans, ranging from habitat destruction and road mortality to collection for the pet trade (Harding and Mifsud 2017).

Butler's Garter Snake (*Thamnophis butleri*)



In Michigan, the Butler's Garter Snake was recently elevated to Special Concern, which affords it protection under MDNR Fisheries Order 224.16 (Michigan Department of Natural Resources 2016). In Canada, the species is listed as Endangered. Ranging from 15 to 29 inches long, these yellow/orange striped snakes are found only in the eastern half of the state. The Butler's Garter Snake requires wet grassy habitat including meadows, prairies, wetland shores, and old fields, and is commonly found under debris in these locations outside of its mating season, which occurs in early spring. Movements of this species tend to be restricted to the vicinity of water, and patterns of movement parallel the margins of such habitat. Butler's Garter Snakes are rarely observed in woods, so wooded areas likely act as barriers. The primary prey items for these snakes are earthworms, which they typically hunt in fairly small ranges of less than 2.5 acres. Being a relatively small snake, the Butler's Garter Snake faces predation from a variety of wildlife. The greatest growing threat for this snake is the development of urban and suburban lands which can devastate its communities. This species relies on open fields, which are particularly likely to be developed, and is attracted to gravel roads and walking/biking trails for basking (COSEWIC 2010; Harding and Mifsud 2017).

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FINAL

GRENADA SUBSTATION

Cultural Resources Desktop Review

BLACK & VEATCH PROJECT NO. 418320

PREPARED FOR

DTE Electric Company

11 NOVEMBER 2025

BLACK & VEATCH

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Abbreviations List

APE	Area of Potential Effects
Black & Veatch	Black & Veatch Corporation
CFR	Code of Federal Regulations
CRIS	Cultural Resource Information System
GIS	Geographic Information System
MCL	Michigan Compiled Laws
MiSHPO	Michigan State Historic Preservation Office
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NHD	National Hydrography Dataset
NWI	National Wetlands Inventory
PA	Public Act
Project	DTE Grenada Substation
Project Company	DTE Electric Company
SOI	Secretary of the Interior
USDA-NRCS	U.S. Department of Agriculture – Natural Resources Conservation Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Executive Summary

Project Title. DTE Grenada Substation, Washtenaw County, Michigan

Project Description. DTE Electric Company proposes construction of an un-occupied electrical substation, which will include overhead support structures, lightning masts, transformers, circuit breakers, power distribution control equipment, a control enclosure, access drive, security fence, and lighting, in Superior Township, immediately east of Ann Arbor, near the Village of Dixboro, Washtenaw County, Michigan. The proposed substation will replace an existing DTE substation and will be constructed on property currently owned by DTE Electric Company.

Location. 42°18'39.69"N, 83°39'37.91"W (latitude, longitude), Washtenaw County, Michigan

Number of Acres (Total). 3.76 acres

Number of Acres to be Disturbed. 3.76 acres or less

Author(s). Corinne Rosania (MA, RPA) and Elizabeth Newcomb (MA, RPA)

Principal Investigator(s). Corinne Rosania (MA, RPA) and Elizabeth Newcomb (MA, RPA)

Purpose of Work. Conduct a desktop review of the proposed Project area to determine if construction activities have the potential to cause adverse effects to known cultural resources.

Comments. The Project does not currently have a federal or state permitting nexus requiring compliance with Section 106 of the National Historic Preservation Act (NHPA); however, if a federal or state permit is required to support the Project, this review was conducted to support that effort. According to the Michigan State Historic Preservation Office's (MiSHPO's) Cultural Resource Information System (CRIS) database, there are three recorded architectural/history surveys and three recorded architectural (above-ground) historic resources within approximately 1 mile of the Project site. These resources are historic buildings, one of which is currently listed on the National Register of Historic Places (NRHP) and the other two are listed on the State Register and recommended eligible for listing on the NRHP. Trees, residences, a restaurant, paved roadways, and above-ground powerlines lie between the historic buildings and proposed substation. Therefore, it is reasonable to assume the proposed substation would not adversely affect the significance of the historic buildings.

There are no above-ground historic resources or archaeological resources recorded within the Project site (defined as the direct Area of Potential Effects or APE). However, there is no record of any previous archaeological surveys having been conducted within the direct APE.

Based upon review of historic topographic maps and aerial images, there were no structures within the direct APE until the 1990s when the existing substation was constructed.

Based on a review of the existing historic records and the environmental setting of the Project site, the direct APE has a low to moderate probability for historic and archaeological cultural resources.

1.0 Introduction

Black & Veatch Corporation (Black & Veatch) has been contracted by DTE Electric Company (Project Company) to perform a cultural resources desktop review for the proposed DTE Grenada Substation (Project) located in Superior Township, immediately east of Ann Arbor, near the Village of Dixboro, Washtenaw County, Michigan.

Black & Veatch prepared a Conditional Use Permit (CUP) application for the proposed Project for submittal to Superior Township. As part of that effort, Black & Veatch conducted a desktop review for known cultural resources in the Project area to determine if construction activities have potential to cause any adverse effects on known cultural resources.

1.1 Project Summary

The Project Company proposes construction of a 3.76-acre un-occupied electrical substation, which will include overhead support structures, lightning masts, transformers, circuit breakers, power distribution control equipment, a control enclosure, access drive, security fence, and lighting in Washtenaw County, Michigan. The proposed 40 kV-13.2 kV Class A substation will replace the existing DTE Grenada Class F substation. As such, the Project will be constructed on land owned by the Project Company.

1.2 Location

The Project site is located immediately east of Ann Arbor, near the Village of Dixboro, in Washtenaw County, Michigan (refer to maps in Appendices A and B). The substation address is 3270 Dixboro Road, Ann Arbor, MI 48105. The geographic location of the Project site is 42°18'39.69"N, 83°39'37.91"W (latitude, longitude). The Project site is approximately 1.3 miles east of Highway 23 and approximately 1 mile south of Highway 14.

The entire 3.76-acre Project site has been defined as the direct Area of Potential Effects (APE) for this desktop review. The study area for this review is defined as the direct APE plus a 1-mile radius surrounding the Project site (refer to map in Appendix A). A buffer area within 0.25 mile of the direct APE was considered as the indirect APE, which was reviewed for potential visual impacts of the Project.

1.3 Applicable Statutes and Regulations

1.3.1 State

Historic Preservation regulations started in Michigan with the Michigan Historical Markers Act in 1955. The act not only served as a registration of historic sites, but it also prescribed powers, duties, and responsibilities for certain state officers. In 1970, the Local Historic Districts Act was enacted. Act 451 of 1994, the Natural Resources and Environmental Protection Act, systematically organized and updated the Michigan laws relating to natural resources and environmental protections. Michigan Public Acts become part of Michigan Compiled Laws (MCL). The regulations below are listed by the Public Act (PA) number. For the sake of convenience, the most relevant of these laws and regulations are referenced below:

- PA 343 of 2020 - State Historic Preservation Tax Credit
- PA 343 of 2020 - Basic Information
- PA 169 of 1970 as amended - Local Historic Districts Act
- PA 10 of 1955 - Michigan Historical Markers Act

- PA 451 of 1994 Subpart 11 - Conservation and Historic Preservation Easements
- PA 451 of 1994 Part 761 - Aboriginal Records and Antiquities (Archaeology)

The Natural Resources and Environmental Protection Act, Subpart 11 of PA 451, Conservation and Historic Preservation Easements, establishes perpetual protection for the property by preventing inappropriate changes to the historical significance of the structure and its setting. Part 761 of 451 reserves the "exclusive right and privilege, except as provided in this part, of exploring, surveying, excavating, and regulating through its authorized officers, agents, and employees, all aboriginal records and other antiquities, including mounds, earthworks, forts, burial and village sites, mines or other relics, and abandoned property of historical or recreational value found upon or within any of the lands owned by or under the control of the state."

Furthermore, pursuant to MCL 750.160, Disinterment, mutilation, defacement, or carrying away of human body, a person shall not willfully or knowingly dig up, disinter, remove, or convey away a human body or human remains, from the place where the body was interred or deposited unless they are lawfully authorized to do so.

1.3.2 Federal

Section 106 of the National Historic Preservation Act (36 CFR 800; NHPA) requires federal agencies to consider the effects of their actions on historic properties, including the actions they fund, license, or permit. Based upon the Project regulatory and permitting review, the Project is not federally funded, licensed, or permitted and does not use federal land; therefore, a Section 106 review under the NHPA is not currently required. If a federal permit or license is required to support the Project in the future, this review was conducted in a manner to support that effort.

1.4 Consultation

The MiSHPO reviews and comments on the potential effects of applicable federal and state undertakings on historic and archaeological resources. Consultation efforts must be initiated by the lead federal or state permitting authority. To date, no consultation activities have taken place because the Project does not currently require a Section 106 or state compliance review. If the Project triggers a federal or state compliance review, this desktop study was conducted in a manner to support consultation efforts with MiSHPO.

2.0 Scope of Work

2.1 Objectives

The objective of this scope of work is to review available literature and resource databases to identify any resources in the Project vicinity that are eligible for or listed on the National Register of Historic Places (NRHP) that may be impacted by the Project. In addition, it is Black & Veatch archaeologists' objective to identify the potential for previously unidentified archaeological and/or above-ground historic resources that may be impacted by Project development.

2.2 Review Methods

The goal of the literature review is to identify previous cultural resource investigations and recorded above-ground architectural and archaeological sites to determine if the Project site contains or is likely to contain cultural resources listed on or deemed eligible for the NRHP. To provide the most comprehensive cultural resources literature review for the Project, archaeologists defined a 1-mile buffer surrounding the Project's direct APE as the study area. Additionally, archaeologists considered a 0.25-mile radius surrounding the Project site as the indirect APE to evaluate for potential visual impacts to cultural resources.

Black & Veatch professionals reviewed available cultural resource databases, parcel maps, Project plans, soil survey maps, geological maps, current and historic U.S. Geological Survey (USGS) topographic quadrangles, and historical aerial imagery base maps. The following online databases were referenced:

- Cultural Resource Information System (CRIS) (https://app.shpo.state.mi.us/Argus/Portal/archaeological.aspx.)
- National Register of Historic Places (NRHP) (https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466)
- Nationwide Environmental Title Review: Historic Aerials (https://www.historicaerials.com/)
- U.S. Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx)
- U.S. Geological Survey – Topo Viewer (https://ngmdb.usgs.gov/topoview/viewer/)
- U.S. Fish and Wildlife Service (USFWS) – National Wetlands Inventory (NWI) Mapper (https://fws.gov/program/national-wetlands-inventory/wetlands-mapper)
- Washtenaw County Assessor GIS Map (https://gisappsecure.ewashtenaw.org/Geocortex/WebViewer/?app=f0327644649f4fab96af11ca00b7e3b4)

Starting in February 2025, MiSHPO began granting public access to a beta version of their online CRIS database, which contains architectural/history surveys and above-ground historic sites in Michigan. However, MiSHPO is still in the process of digitizing archaeological survey reports and site forms; therefore, CRIS does not contain information regarding archaeological surveys or sites. To obtain access to MiSHPO's archaeological survey and site data, Black & Veatch Secretary of the Interior (SOI)-qualified professional archaeologists applied to MiSHPO to access an online Box Folder which contains scans of USGS topographic quadrangle maps. Black & Veatch archaeologists referenced the appropriate quadrangle maps to complete the archaeological site review. Please note that archaeological site data is

confidential, and as such, cannot be shared or disseminated to the public or beyond those involved in compliance reviews and land management. All maps with archaeological data must be labeled as confidential and redacted from public record.

2.3 Limitations

Online resources may have data gaps or data entry delays. Eligible sites may exist but have not been discovered, surveyed, or evaluated. Additionally, eligible sites may not have been submitted for review or have been submitted but have not yet been evaluated by the governing agency or added to the available databases. Further, some data, particularly precise locational data, for sensitive resources may be restricted and maintained confidential.

3.0 Environmental Setting

The Project site is located east of Ann Arbor and just outside of the city's densely populated suburbs. The Project site is currently occupied by a small, Class F substation and building with an access drive off Dixboro Road. The southern and eastern portions of the site are forested. Overhead powerlines come into the substation from the north and west side of the site. Residences surround the site to the north, west, and south; however, a large tennis club (Huron Valley Tennis Club) is located east of the site with dense tree coverage in between the two properties. While much of the study area is residential, Marshall Nature Area, a large, densely forested area lies northwest of the Project near the intersection of Plymouth Road (Ann Arbor Road) and Dixboro Road.

3.1 Geology/Physiography

Michigan has a lake-influenced continental climate with a history of glaciation that has left much of the land not characterized by pre-glacial mountains flat. The northern portion of the state falls within the Northern Forest ecoregion and is dominated by coniferous trees. However, the southern portion of the state falls within the Eastern Temperate Forest ecoregion and is dominated by hardwood deciduous forests. The Project site falls within the Eastern Temperate Forest ecoregion. Furthermore, the Project site falls within the Clayey High Lime Till Plains (level 4) ecoregion (USGS 2025c). This ecoregion was originally covered with closed-canopy forest. However, today much of the land has been cleared for agriculture, including corn, soybeans, wheat and livestock, with only small, isolated forests remaining and a few larger tracts of forest along streams within public lands (BPlant 2025).

The Project site is relatively flat (i.e., slopes <10%) with a slight downslope to the south. Elevations range from 810 feet in the south to 827 feet at the highest in the north-central portion of the site (USGS 2025b, refer to map in Appendix B).

3.2 Soils

The Project site is composed entirely of one soil map unit: Fox Sandy loam, till plain, 2 to 6 percent slopes (FoB). Fox Sandy loam, till plain, is typically found on outwash plains or terraces at 650 to 1,250 feet elevation. The parent material is loamy glaciofluvial deposits over sandy and gravelly outwash. It is a well-drained soil with an approximate depth to restrictive feature of 20 to 40 inches (USDA-NRCS 2025). A map of the Project site with the applicable soil map unit is provided in Appendix C.

3.3 Water Bodies

The Project site is located within the south-central portion of Fleming Creek Watershed. Fleming Creek runs east of the site and flows southward approximately 0.2 miles southeast of the site (refer to maps in Appendices B and F). Kirk Brook, a tributary to Fleming Creek runs from the northwest and joins Fleming Creek south of the Project site. Fleming Creek then drains into Huron River, which is approximately 2.5 miles south of the Project site.

There are no NWI or National Hydrography Dataset (NHD) wetlands, streams, or waterbodies within the Project site. Likewise, there are no floodplains overlapping the site.

4.0 Cultural Resources

4.1 Study Area

Washtenaw County has 83 places listed on the NRHP. Thirty-seven of the listed places are in Ann Arbor and one is in Dixboro. There are no NRHP-listed places in neighboring towns, Thurston or Logan. All the NRHP-listed places in Ann Arbor are west of Highway 23 with the closest Ann Arbor resource being 2.3 miles southwest of the proposed substation. The only resource listed in Dixboro is Dixboro United Methodist Church, which is located at 5221 Church St., approximately 0.25 miles northeast of the proposed substation. The church, a Greek Revival architectural style building, built in 1858, was listed to the NRHP in 1972 (CRIS 2025; NRHPa and NRHPb 2025). Trees, residences, a restaurant, a major roadway (Plymouth Road), and above-ground powerlines lie between the Church and proposed substation. Therefore, it is reasonable to assume the proposed substation would not adversely affect the significance of the church.

According to a review of the CRIS database, there have been three architectural (above-ground) history surveys completed within approximately 1 mile of the Project site (Table 4-1, Appendix D).

Table 4-1 Previous Architectural History Surveys within Approximately 1 Mile of the Project Site

Survey ID	Author	Year	Title
M91-320	Igleheart, Sarah	1991	The Village of Dixboro, Superior Township: Historic Resource Survey Report (Washtenaw County)
M94-360	Hanel, Ina V.	1994	Superior Township, Washtenaw County, Michigan: Historic Resources Inventory
CG95-331	Hanel-Gerdenich, Ina	1996	Intensive-Level Historic Survey: Superior Township, Washtenaw County, Michigan
CG95-331-I*	Glynn, Kathleen; Susan Kosky	1996	Canton Township Agricultural Survey (Wayne County)
CG95-331-II*	Glynn, Kathleen; Susan Kosky	1996	Canton Township Agricultural Survey Maps (Wayne County)

*Survey IDs in CRIS appear within Superior Township; however, upon review of the survey report, Black & Veatch archaeologists concluded that this survey was conducted on historic properties within Canton Township immediately east of Superior Township.

In 1991, Sarah Igleheart conducted an architectural (above-ground) historic resource survey of the historic Village of Dixboro (M91-320). The survey area included the entire area of Dixboro covered by Captain John Dix's original plat recorded in 1828. The survey did not include an evaluation of NRHP eligibility for recorded resources. However, the survey documented the NRHP-listed Dixboro United Methodist Church and the Superior and Ann Arbor Fractional District No. 2 Schoolhouse, which was previously recommended eligible for listing on the NRHP (Igleheart 1991).

In 1994, Ina Hanel conducted an architectural (above-ground) survey of Superior Township, Washtenaw County, Michigan (M94-360) for the Superior Land Conservancy. The survey was conducted to identify and document extant historic resources (i.e., buildings, structures, roads, and monuments at least 50 years old) in Superior Township. The survey did not include an evaluation of NRHP eligibility for recorded resources. The survey documented 215 existing historic resources, including buildings and cemeteries, and estimated that approximately 15% of the resources were considered significant. The survey noted that many of the significant resources are in the northeast corner of Superior Township, near Dixboro, which coincide with the regions first settled in the Township by pioneering families in the 1820s and 1830s. As such, many of the historic resources were homes from the 19th century (Hanel 1994).

In 1996, Ina Hanel-Gerdenich conducted an intensive architectural (above-ground) historic resource survey of 25 agricultural properties in Superior Township as part of a Section 106 Project funded in part with federal funds from the U.S. Department of Interior National Park Service. The purpose of the project was to evaluate the properties to determine their significance to the Township, and to make preservation recommendations for those determined to be significant. The survey recommended 19 of the 25 properties were eligible for NRHP-listing. Two of the resources, which were recommended eligible for listing on the NRHP, the Dixboro General Store and Superior and Ann Arbor Fractional District No. 2 Schoolhouse, are immediately northeast of the Project site. The other 23 properties evaluated are located east of the Project site, outside the Study Area (Hanel-Gerdenich 1996).

As documented in the above surveys, and according to a review of the CRIS database, there are three documented above-ground resources within approximately 1.0 mile of the Project site (Table 4-2, Appendix E). These resources include one building currently listed on the NRHP and two buildings listed on the State Register that have also been recommended eligible for listing on the NRHP (CRIS 2025).

Table 4-2 Above-Ground Architectural Resources Recorded within Approximately 1 Mile of the Project Site

Site No.	Site Name	Address	Resource Type	NRHP Status
P20872	Dixboro General Store	5202-5216 Plymouth Rd, Ann Arbor, MI	Building	Eligible
P24983	Superior and Ann Arbor Fractional District No. 2 Schoolhouse	5201 Plymouth Rd, Dixboro, MI	Building	Eligible
P24981	Dixboro United Methodist Church	5221 Church St, Dixboro, MI	Building	Listed (1972)

The Dixboro General Store was constructed between 1860 and 1870. It served as a primary public building in the historic rural Dixboro Village. The building remained in use as a general store until the 1950s. It is currently listed on the State Register and was determined eligible for listing on the NRHP by MiSHPO staff in 1980 (CRIS 2025). Trees, residences, a paved roadway (Cherry Hill Road), and above-ground powerlines lie between the historic general store and proposed substation. Therefore, it is reasonable to assume the proposed substation would not adversely affect the significance of the building.

The Superior and Ann Arbor Fractional District No. 2 Schoolhouse (aka Dixboro School) is a rectangular, one-story gable roof, brick building that was built in 1888. It serves as a significant symbol of the history of the Dixboro area. It is currently listed on the State Register and was determined eligible for listing on the NRHP by MiSHPO staff in 1984 (CRIS 2025). Trees, residences, a restaurant, a major roadway (Plymouth Road), and above-ground powerlines lie between the historic school and proposed substation. Therefore, it is reasonable to assume the proposed substation would not adversely affect the significance of the building.

According to review of the Ann Arbor East USGS topographic quadrangle map provided by MiSHPO, there have not been any archaeological surveys or archaeological sites recorded within 1-mile of the Project site.

4.2 Direct APE

According to review of the CRIS database and the Ann Arbor East USGS topographic quadrangle map provided by MiSHPO, there are no previously recorded above-ground resources or archaeological sites within the direct APE. Furthermore, there is no record of any previous archaeological surveys having been

performed within the direct APE. Therefore, it is possible that undocumented archaeological resources exist within the direct APE, though, the site has been disturbed in modern times during construction of the existing substation.

Black & Veatch also reviewed available historic topographic maps and aerial images of the Project site. According to historic topographic maps and aerial images from between 1902 and 1954, there were no structures on the Project site; however, there were structures north of the site along the north and south sides of Ann Arbor Road. A 1902 topographic map of the direct APE identifies the Project site location as vacant land south of residential structures. A photorevision from 1940 depicts the direct APE as an empty agricultural field. Between 1954 and 1965, residential areas appear to bloom north of Ann Arbor Road (refer to map in Appendix F), though, the Project site continues to remain undisturbed until the 1990s when the existing substation appears. According to a USGS historic topographic map, available in the MiSHPO Ann Arbor East Box Folder, from 1965 and photorevised in 1983, there were no structures on the Project site between 1965 and 1983. Residential structures appear north and south of the Project site on the 1965 topographic map, and structures appear in the location of the present-day Huron Valley Tennis Club on the 1983 photorevision. According to historic topographic maps and aerial images, the large residential community immediately west of the Project site was developed between 1987 and 1997.

According to review of the CRIS database and USGS topographic quadrangle map provided by MiSHPO, the direct APE has not been previously surveyed. Based on a review of the existing historic records and the environmental setting of the Project site, the direct APE has a low to moderate probability for historic and archaeological cultural resources.

5.0 Recommendations/Summary

Based on the above desktop review, there are three recorded architectural/history surveys and three recorded architectural (above-ground) historic resources within 1 mile of the Project site. These resources are historic buildings, one of which is currently listed on the NRHP and the other two are listed on the State Register and recommended eligible for listing on the NRHP. Trees, residences, a restaurant, paved roadways, and above-ground powerlines lie between the historic buildings and proposed substation. Therefore, it is reasonable to assume the proposed substation would not adversely affect the significance of the historic buildings.

There are no above-ground historic resources or archaeological resources recorded within the direct APE. However, there is no record of any previous archaeological surveys having been conducted within the direct APE.

Based upon review of historic topographic maps and aerial images, there were no structures on the Project site until the 1990s when the existing substation was constructed.

If the Project triggers a state or federal permit that requires Section 106 NHPA consultation or a state compliance review, it is possible that the MiSHPO could recommend a survey be performed prior to any ground-disturbing activities taking place at the Project site.

Lastly, please note that if any human remains are discovered during Project development, the Project must comply with MCL 750.160. All Project-related activities must cease in the area of discovery, and relevant agencies should be notified, including the county corner, sheriff, and MiSHPO, if appropriate.

6.0 References

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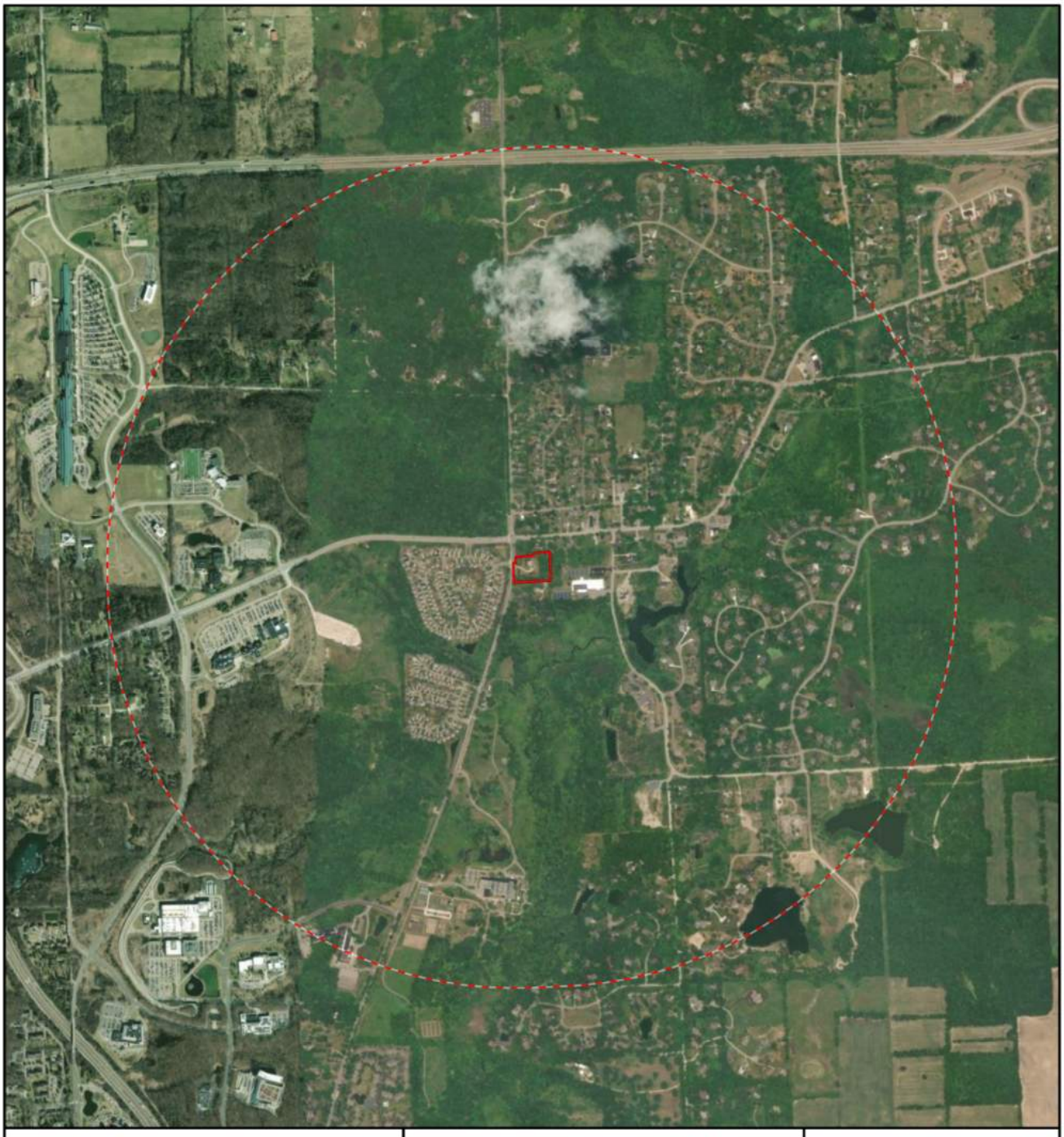
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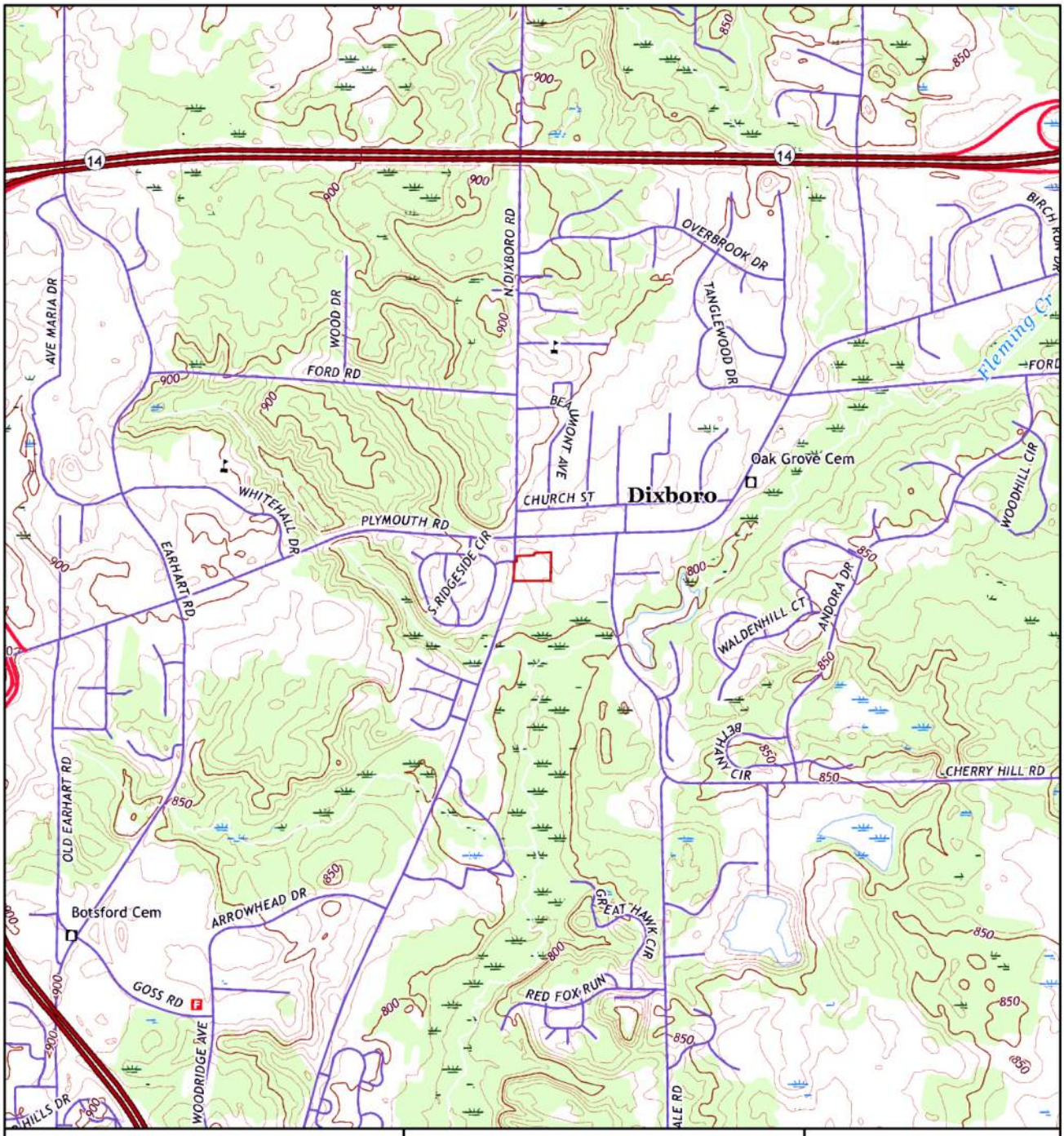
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Appendix A. Aerial Site Map


Site Boundary
1-mile Study Area
Aerial Imagery
DTE Grenada Substation
Washtenaw County, MI (USA)
0
0.25
0.5
Miles
Scale: 1:20,000
NP | 11/7/2025
This map is intended to be used for planning purposes only. It is not a survey product.
Source(s): Esri, Maxar, Earthstar Geographics, and the GIS User Community.
PCS: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Project Number
418320
BLACK & VEATCH
ENVIRONMENTAL

Appendix B. USGS 1:24,000 Topographic Quadrangle Map



Site Boundary

USGS 1:24,000 Topographic Map
DTE Grenada Substation
Washtenaw County, MI (USA)

0 0.25 0.5 Miles

Scale: 1:20,000

NP | 11/7/2025

This map is intended to be used for planning purposes only. It is not a survey product.

Source(s): USGS, 2019, Ann Arbor East Topographic Quadrangle 7.5 Minute Series.
PCS: GCS North American 1983 UTM Zone 17N Calculated

Project Number	418320

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Appendix C. USDA NCRS Soils Map



Site Boundary
Soil Map Unit

USDA-NRCS Soils
DTE Grenada Substation
Washtenaw County, MI (USA)

0 100 200
US Feet
Scale: 1:2,000

NP | 11/7/2025

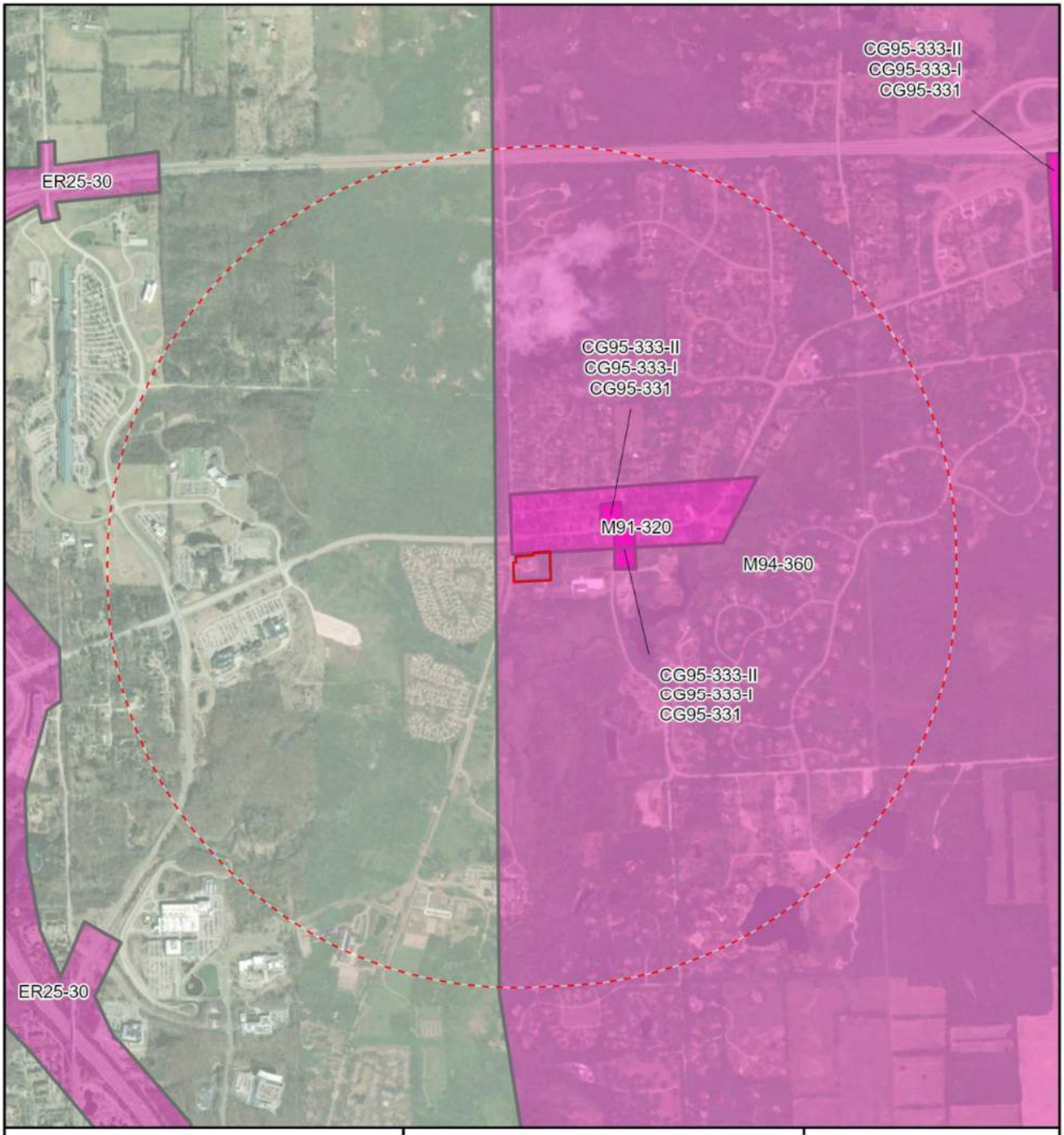
This map is intended to be used for planning purposes only. It is not a survey product.

Source(s): Esri, Maxar, Earthstar Geographics, and the GIS User Community.
PCS: NAD 1983 StatePlane Michigan South FIPS 2113 Feet

Project Number	418320

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Appendix D. Previous Architectural History Surveys



Site Boundary
1-mile Study Area
Previous Architectural History Surveys

Previous Architectural History Surveys within 1-mile APE
DTE Grenada Substation
Washtenaw County, MI (USA)

0 0.25 0.5 Miles
Scale: 1:20,000

NP | 11/7/2025

This map is intended to be used for planning purposes only. It is not a survey product.

Source(s): Michigan State Historic Preservation Office.
PCS: NAD 1983 StatePlane Michigan South FIPS 2113 Feet

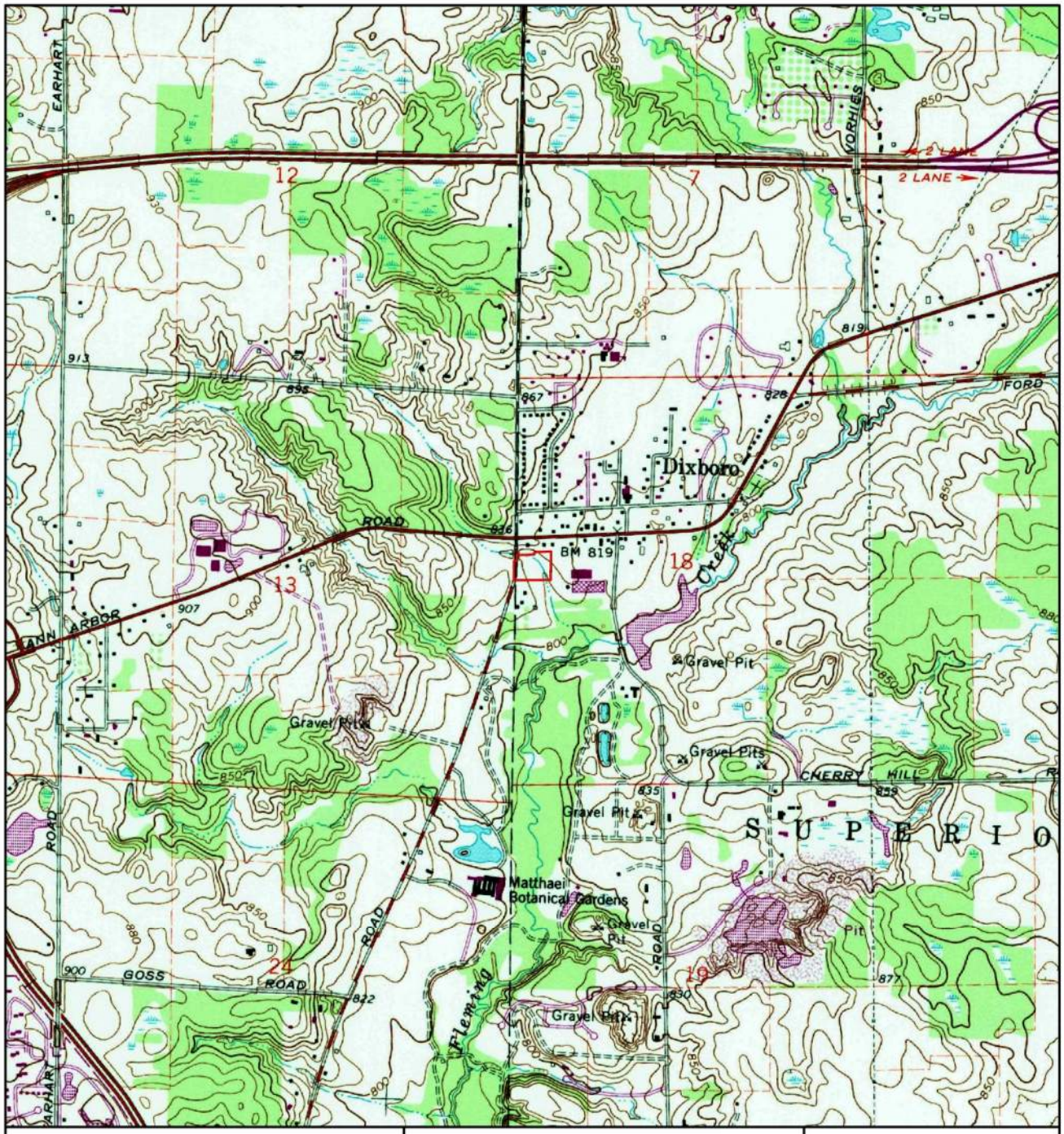
Project Number	418320

BLACK & VEATCH ENVIRONMENTAL

Appendix E. Previously Recorded Above-Ground Architectural Resources


Dixboro United Methodist Church P24981
Superior and Ann Arbor Fractional District No. 2 Schoolhouse P24983
Dixboro General Store P20872
Site Boundary
1-mile Study Area
National Register Status
Eligible for Listing in the National Register of Historic Places
Listed in the National Register of Historic Places
Previously Recorded Above-Ground Architectural Resources within 1-mile APE
DTE Grenada Substation
Washtenaw County, MI (USA)
0 0.25 0.5
Miles
Scale: 1:20,000
NP | 11/7/2025
This map is intended to be used for planning purposes only. It is not a survey product.
Source(s): Michigan State Historic Preservation Office.
PCS: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Project Number
418320
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Appendix F. 1965 USGS Topographic Map


EARHART
VORHIES
2 LANE
2 LANE
12
7
FORD
Dixboro
ROAD
BM 819
13
18
ANN ARBOR
Gravel Pit
Gravel Pits
Gravel Pits
CHERRY HILL
Gravel Pits
S U P E R I O
Matthaei Botanical Gardens
Gravel Pit
ROAD
ROAD
24
GOSS
ROAD
Fleming
Gravel Pits
Pit
19
Site Boundary
USGS 1:24,000 Topographic Map (1965)
DTE Grenada Substation
Washtenaw County, MI (USA)
0
0.25
0.5
Miles
Scale: 1:20,000
N
NP | 11/7/2025
This map is intended to be used for planning purposes only. It is not a survey product.
Source(s): USGS, 1965, Ann Arbor East Topographic Quadrangle 7.5 Minute Series.
PCS: GCS North American 1983 UTM Zone 17N Calculated
Project Number
418320
BLACK & VEATCH
ENVIRONMENTAL

Detroit Edison Electric
Power Transformer

PTTI / P29643
Transformer type:- T50-15

ANSI PERFORMANCE DATA

For: Detroit Edison Electric

RATING					
Type	Power	CLASS	H Winding	X Winding	Y Winding
Phase	3		41570 V	13800 Y / 7967 V	
Hertz	60	ONAN	15000/16800 KVA	15000/16800 KVA	
Temp. Rise	55/65°C	ONAF	20000/22400 KVA	20000/22400 KVA	
Insul. Liquid	Oil	ONAF	25000/28000 KVA	25000/28000 KVA	

ADDITIONAL TAP VOLTAGES	
H Winding:	**NO TAPS**
X Winding:	±15% in 32-15/16% (Approx.) Steps by "RMV-II" Type LTC RC

INSULATION LEVELS (KV BIL)		
	Winding	**Bushing**
H Line	200	250
H0 Neutral	––	–––
X Line	110	150
X Neutral	110	150
Y Line	––	–––

DIELECTRIC TESTS		
Applied Voltage (to other windings and ground)	H Winding	95 KV
	X Winding	34 KV
	Y Winding	
Induced Voltage	Line to Line	74.826 KV

PERFORMANCE DATA: Based on **75°C** Reference Temperature and Rated **15 MVA, 41.57-13.8Y KV** Base

Losses and Exciting Current					Regulation @ **15 MVA**	
Excitation	% Ex. I	No Load @ 20°C	Load Loss	Total Loss	Power Factor	% Regulation
100%	0.5	**12500 W ***	**40300 W**	**52800 W ***	1	0.51
105%	0.8	15625 W			0.9	3.44
110%	1.2	18750 W			0.8	4.56

AUXILIARY LOSSES		
Transformer KVA	Class	Aux Loss (Watts)
22400 KVA	ONAF	**1800 W ***
28000 KVA	ONAF	**3200 W ***
NLL Sound Level : **65/67/68 dBA***		

PERCENT IMPEDANCE					
% IZ	Btwn Wdg	At MVA	$\%Iz_o$	Btwn Wdg	At MVA
7	H-X	**15 ***			

MECHANICAL DATA			
Dimensions		**Assembled**	**Shipping**
Height	(A)	170	170
Width	(B)	204	204
Depth	(C)	151	134
Height Over Cover	(D)	131	
Untanking (Plus Sling)	(E)	232	

Weights (Approx.) (Pounds)	
Core & Coils	52850
Tank & Fittings	26000
Oil (4037 Gal) Main	30240
Oil (268 Gal) LTC	2010
Shipping Weight with Oil	113285
Total Weight	**113285**

EFFICIENCIES @ 15 MVA				
Load %	Full Load	3/4 Load	1/2 Load	1/4 Load
100	99.65	99.69	99.7	99.6

*** Guaranteed Parameters**

Note:- Guaranteed No load losses is Average of No load losses with LTC at N position and LTC at 15L tap position

Pennsylvania Transformer Technology, LLC
201 Carolina Dr, Raeford,
North Carolina, USA 28376

CERTIFIED TEST REPORT

Three Phase Transformer

15/20/25 MVA @ 55 °C Rise
16.8/22.4/28 MVA @ 65 Rise

41.57 - 13.8 kV

PTTI Order No.	:	R-08925-1
Customer P.O. No.	:	4701779756
Job Serial No.	:	R-08925-1-1
Customer	:	DTE
Sub-Station	:	EMT OASIS
Dates Of Testing	:	03.25.2025 to 04.02.2025

17. Temperature Rise Data. **Thermal Duplicate of R-08823-1-1**

IEEE Std C57.12.90 - 2021, Cl. No. 11

				* Calculated Results
KVA	:	**16800**	**28000**	**42000**
Top Oil Rise (°C)	:	41.7	46.1	75.0
Average Oil Rise (°C)	:	33.1	33.8	42.8
Bottom Oil Rise (°C)	:	24.5	21.5	38..6
Avg. HV Winding Rise (°C)	:	37.6	42.0	64.4
Avg. LV Winding Rise (°C)	:	38.5	44.1	---
HV Gradient	:	4.5	8.2	21.6
LV Gradient	:	5.4	10.3	----
HV Hotspot Rise (°C)	:	51.1	55.1	102.8
LV Hot Spot Rise (°C)	:	52.0	57.4	----

18. Sound Pressure Level Test **Conducted on R-08823-1-1**

IEEE Std C57.12.90 - 2021, clause 13

	Tested	**Guaranteed**
Audible noise level in Decibels @ ONAN rating:	62.6	65
Audible noise level in Decibels @ ONAF2 rating:	64.4	68

Black & Veatch Corporation
111 E Wisconsin Ave Ste. 1770, Milwaukee, Wisconsin USA
P +1 913-458-6317 (CT) leonardc@bv.com

8 April 2026

Daniel Okon – Principal Engineer
DTE Energy

DTE Grenada Substation
425700

Subject: DTE Grenada Substation, Superior Township, Michigan -
Goldenseal (*Hydrastis canadensis*) Suitable Habitat Assessment

The DTE Grenada Substation Environmental Impact Statement (EIS) concluded that suitable habitat for goldenseal (*Hydrastis canadensis*) does not occur within the site (study area). Subsequent review of the EIS by the Township of Superior resulted in a recommendation that an onsite habitat assessment be conducted to support confirmation of the conclusion made in the EIS (personal communication, Township of Superior, 4 March 2026).

Per the Michigan Natural Features Inventory (MNFI) goldenseal is legally protected, with a state listing status of threatened. The range of the species within Michigan encompasses the counties in the southern half of the state, including Washentaw County, MI. MNFI defines suitable habitat as southern hardwood forests, moist ravines, and riparian forests. Reasons for decline of the species include forest fragmentation, excessive canopy removal, excessive collecting, and disruption of natural processes. MNFI survey protocol is a meander survey within areas likely to have rare taxa, with a survey period associated with dates the leaves, flowers, or fruits would be observable, generally April - September.

To address the Township's comment, a meander survey of the 3.7-acre study area was conducted on 2 April 2026 by a Black & Veatch botanist. Survey event weather included temperatures from 40 to 50 °F, overcast conditions, and east/southeast winds at 5 to 10 miles per hour. Moderate precipitation occurred several hours prior to the survey. A figure depicting the study area (Figure 1) and a survey photo log are enclosed. The photo log includes common herbaceous plant species observed.

The study area consists of landscaped and mowed areas immediately surrounding the existing substation building and wooded areas along the eastern and southern boundaries. The study area is generally flat except near the eastern boundary, which slopes downward to the west towards the mowed lawn that sits between the tree line and the existing substation. Several small, isolated areas of wet depressions and mud were observed in the flat wooded areas.

Some shrub and herbaceous vegetation had already begun to emerge, but no deciduous trees had begun to leaf out yet. Both the sloped and flat wooded areas appeared to have moderate tree mortality, resulting in a decrease in canopy cover. Common trees, shrub, vine, and herbaceous plant species observed within the forested region of the study area are listed in Table 1. Based on professional judgement and phenology, seasonal conditions were sufficient for goldenseal to be observable (leaf emergence) at the date of the survey if the species were present.

Based on survey observations, the study area does not contain suitable habitat for goldenseal due to reduced canopy cover. Associated plant species indicating suitable habitat was represented only by sugar maple (*Acer saccharum*), no other indicator species occur within the understory or herbaceous layers. No goldenseal specimens were observed during the survey event. Black & Veatch does not recommend further surveys or investigations to confirm the EIS statement of no suitable habitat present for the species within the DTE Grenada Substation site.

Table 1 Dominant Vegetation Within Survey Area, DTE Grenada Substation (2 April 2026)

Scientific Name	Common Name
Canopy	
Acer saccharum	sugar maple
Acer negundo	boxelder
Celtis occidentalis	hackberry
Juglans nigra	black walnut
Populus deltoides	eastern cottonwood
Prunus serotina	black cherry
Quercus alba	white oak
Ulmus spp.	elm
Understory (Shrubs/Vines)	
Rosa multiflora	multiflora rose[I]
Rubus occidentalis	blackberry
Herbaceous	
Agrimonia parviflora	swamp agrimony
Galium asprellum	rough bedstraw
Geum canadense	white avens
Hesperis matronalis	dame's rocket[I]
Leonurus cardiaca	motherwort[I]
Poa sp.	bluegrass
Solidago sp.	goldenrod
Viola sp.	violet

Source: Black & Veatch, 2 April 2026
[I] = Nonnative, invasive.

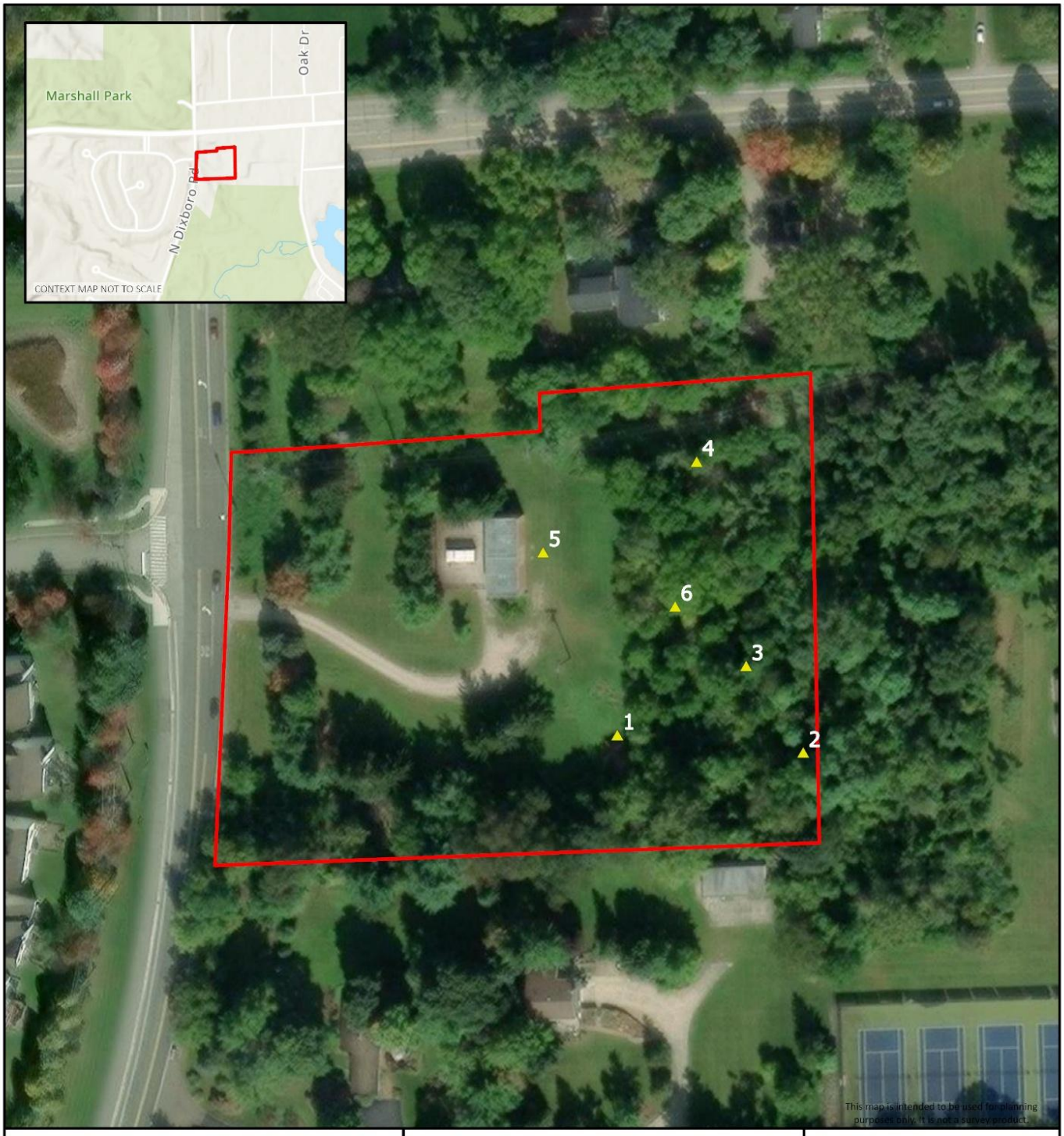
Very truly yours,



Black & Veatch Corporation
Christine Leonard
Natural Resources Biologist

Enclosures: Figure 1, Photo Log

cc: Marc Ranke (Black & Veatch)
John Richter (Black & Veatch)



Site Boundary

Photo Point

Figure 1. Goldenseal Habitat Assessment
Grenada Substation
Washtenaw County, MI (USA)

0 Scale: 1:1,649 200 US Feet

C. Leonard 04/08/2026

Source(s): USGS The National Map; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data, U.S. Department of State HIU; NOAA National Centers for Environmental Information; Microsoft; Vantor; BV, 2026.

PCS: WGS 1984 Web Mercator Auxiliary Sphere

Project Number

425700

BLACK & VEATCH



Photo Point 1: Wooded area, looking east.



Photo Point 2: Eastern site boundary, looking north.



Photo Point 3: Animal burrow, looking east.



Photo Point 4: Wooded area, looking south.



Photo Point 5: Grassy area between current substation and wooded area, looking east.



Photo Point 6: Wet depression in central wooded area, looking east.



Photo 7: Motherwort (*Leonurus cardiaca*).



Photo 8: Swamp agrimony (*Agrimonia parviflora*).



Photo 9: Rough bedstraw (*Galium asprellum*).



Photo 10: White avens (*Geum canadense*).

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

Date: July 17, 2026

Area Plan Amendment Review
For
Superior Township, Michigan

Applicant: Willow Run Acres

Project Name: Clay Hill Farm Market

Location: 1850 Harris Road and 9051 Macarthur Blvd (J-10-35-200-003, 004 and 009)

Plan Date: July 16, 2026

Current Zoning: PC, Planned Community

Action Requested: Amendment to Area Plan Petition Approval

PROJECT DESCRIPTION

An application has been submitted by Willow Run Acres for an amendment to the approved Area Plan in the PC, Planned Community District. The applicant provided a full site plan for use as the area plan, which illustrates the proposed layout of a community garden and educational center, including composting and vermiculture sheds, hoop house, multi-purpose building, sheds, detention basin, parking area, and gardens throughout. The property is owned by the Township and Willow Run Acres was issued a 15 year lease.

The applicant previously received area plan approval from the Board of Trustees on October 16, 2023, which was extended on June 16, 2025. Following this extension, the applicant submitted a site plan for consideration by the Planning Commission. The site plan substantially deviated from the approved area plan. As such, an area plan amendment is required.

The Planning Commission recommended approval of an area plan amendment at the April 22, 2026, regular meeting, with the following conditions:

Benjamin R. Carlisle, *President* John L. Enos, *Vice President*
Paul Montagno, *Principal* Megan Masson-Minock, *Principal* Laura Kreps, *Principal* Brent Strong, *Principal*
David Scurto, *Principal* Sally M. Elmiger, *Principal* Craig Strong, *Principal* Douglas J. Lewan, *Principal*
Richard K. Carlisle, *Past President/Senior Principal* R. Donald Wortman, *Past Principal*

1. Pending comprehensive soil testing by duly qualified professionals
2. Pending a due care plan or any remediation necessary by duly qualified professionals.

Michigan State University researchers assisted the Township as part of their ongoing work through MSU's College of Agriculture and Natural Science, which focuses on soil health, agricultural impacts, and PFAS-related environmental research. Their team regularly partners with local governments, communities, and landowners to investigate soil conditions, interpret environmental data, and develop science-based recommendations.

The project included collection of soil samples using established scientific sampling methods and specialized equipment. Prior to sampling, Dr. Jones reviewed historical information related to the Clay Hill sites to identify potential areas of concern and inform the testing parameters. The samples were analyzed by Metiri Group Laboratory, after which Dr. Jones and the MSU team evaluated the laboratory results and prepared recommendations based on their findings.

The investigation did not identify any significant soil health concerns or contamination requiring additional action. The testing results did not reveal PFAS or other environmental issues at levels warranting further investigation. The findings and supporting documentation were compiled into a summary report for presentation to the Township Board of Trustees.

Following receipt of these results, the Board of Trustees directed that the project scope be further reduced and phased. Improvements intended for completion by the end of 2026 using ARPA funding and a USDA grant were designated as Phase 2, while additional project elements were deferred to a future phase.

Willow Run Acres has conducted work on the property that was previously approved under “Phase 1” of the area plan.

Phase 1:

- J-10-35-200-009 (Harris Road)
    - Remove vegetation and plant crops, orchard, vineyard
    - Install a fence
    - Add a 12’ x 12’ shed (dirt floor)
    - Water spigot from well
    - Store a food cart on wheels
- J-10-35-200-003 (MacArthur Blvd West Parcel)
    - Install a well, which will include a pipeline to the Harris Road property
    - Pump House
- J-10-35-200-004 (MacArthur Blvd East Parcel)
    - Remove vegetation at eastern most border and plant a u-pick garden

The amended area plan petition includes three additional phases. The following structures and uses are in Phase 2, intended to be completed before 2027:

Phase 2:

- J-10-35-200-003 (MacArthur Blvd West Parcel)
    - Composting shed with solar array
    - Cargo shed
    - Interior walkways
    - Farmbot
    - Outdoor classroom area
    - Landscaping
    - Beehives
- J-10-35-200-004 (MacArthur Blvd East Parcel)
    - Remove any contaminated soil
    - Grading, detention basin, and other stormwater network features
    - Interior walkways
    - Pavement striping

Uses and structures to be included in Phase 3 are indicated below:

- Additional composting and cargo sheds
- Vermiculture shed
- Tea Tank
- Rainwater storage tank

Uses and structures to be included in Phase 4 are indicated below:

- Principal Building: Farmers Market Educational Center
- Additional rainwater storage tank

Features that were included in the original Area Plan approval which do not appear in the amended Area Plan application are listed below.

- Observational Tower
- Alpaca and fainting goat for children's entertainment and education
- Changes to the site layout

Aerial Photograph



The Zoning and existing land uses for the subject site and surrounding parcels are identified in the following table:

Direction	Zoning	Existing Use
North	A2 – Agriculture District	Vacant
South	R7	Multiple Family Residential
East	RC, and PD	Vacant
West	PSP and R4	Park, Stormwater, Single Family Residential

PROCESS

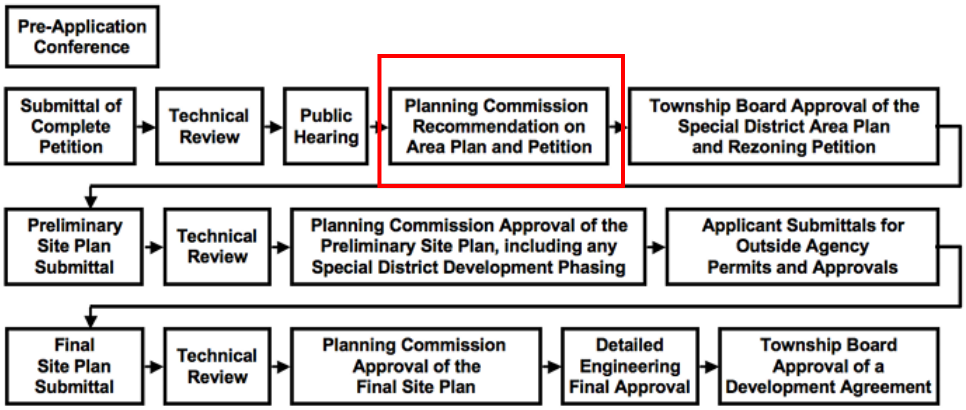
The Area Plan amendment procedure reflects the general Area Plan procedure outlined in 7.100. At this point in the process, the applicant is seeking approval of the Area Plan which area already zoned PC, Planned Community. The Planning Commission held the public

hearing and is the recommending body on the Area Plan. The Township Board has ultimate authority or approval or denial upon the Area Plan.

MASTER PLAN

Effective Date: August 14, 2008 **Article 7**
Special District Regulations

SECTION 7.100
REVIEW PROCEDURES



The site is located in the Geddes Road Urban Sub-area of the Township Growth Management Plan. As described in the Plan (Page 6-9 through 6-10):

> *This area of about one mile by four and one-half miles contains about 65% of the Township population in a mix of single-family, multi-family, and manufactured housing. There is also a small commercial area along the southern border of Superior Township, adjacent to the northern edge of the City of Ypsilanti and Ypsilanti Township, and another small commercial area across from the Township Fire Hall on Harris near MacArthur. This sub-area also includes the majority of land designated as the Urban Service Area of the Township (see Map 6-3).*
>
> *Existing dwelling unit densities in some locations within the designated Urban Service Area range up to eight dwelling units per acre. Most of the undeveloped land is planned at a maximum density of approximately four dwelling units per acre to stay within available utility capacity, based on:*
>
> 1) *the amount of developable land in the Urban Service Area; and*
> 2) *the size and capacity of utility infrastructure and the main sewer interceptor pipe;*
> 3) *anticipated flow rates and infiltration of groundwater into the system.*

Housing ranges in age from many decades old to new construction and also varies in size from small apartment units to large homes. This subarea is very important to the Township as it provides a variety of housing types in a range of densities with public sewer and water service. This option is not available elsewhere in the Township. The Township will continue to focus on improvements in this area. Among the most immediate of these improvements will be stabilizing and strengthening existing residential neighborhoods. This will be accomplished through:

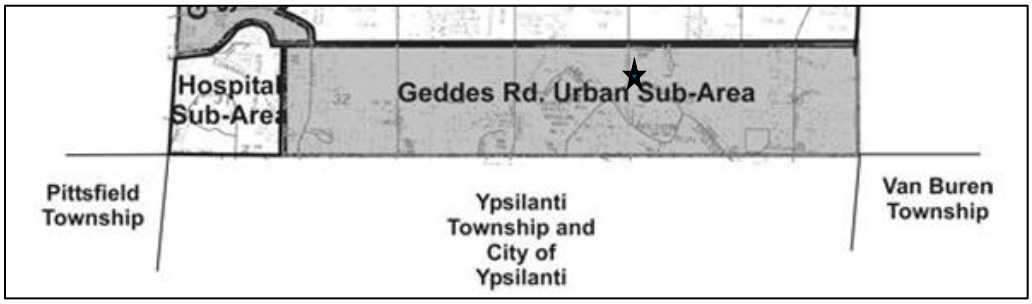
- *enforcement of property maintenance and building codes;*
- *support for resident-led initiatives to form or reactivate neighborhood groups or homeowners associations; and*
- *encouragement of public and private sector projects to remove blighted structures, rehabilitate older dwellings, and construct new infill dwellings on vacant lots.*

In addition, the Township expects that stalled or partially completed housing developments in this sub-area, which have already received preliminary or final approval from the Township, will be completed before development of additional urban residential lots may be approved.

The Township will also focus on further installation of sidewalks and paved bicycle/pedestrian pathways in those developed parts of the subarea that do not have them, and requiring all new development in the sub-area to put in sidewalks or an acceptable pedestrian/bike trail system.

The Future Land Use Plan (page 6-20) identifies this area as a Mixture of Urban Residential Development. The principal purpose of the Mixture of Urban Residential Development is to promote new residential development is expected at a density of four dwelling units per acre and is likely to occur via the Planned Community zoning classification (a form of planned unit development) where there are sensitive natural features, and via traditional subdivision or site condominium development designs in other areas.

The corresponding Zoning Plan (page 7-3) designates the area as Urban Residential Development.



The principal purpose of the Urban Residential District designation is to provide for a range of residential dwelling types at urban densities within individual zones tailored for that specific use. Densities range from two (2) to eight (8) dwelling units per acre. The bulk of land zoned into one of these districts is located in the designated Urban Service Area south of Geddes Road.

The Township's Master Plan is a comprehensive document that includes many other elements that should be considered these include community character/quality of life, impact/preservation of natural features, growth management, and housing and neighborhood design. These other elements should be considered by the Planning Commission.

PREVIOUS PLANNING COMMISSION REVIEW

The Planning Commission previously recommended approval of the Clay Hill Farm Area Plan and Rezoning on June 28, 2023. The proposed Area Plan amendment includes a reduction in the project scope beyond Phase 1.

The Planning Commission recommended approval of the reduced-scope Area Plan on April 22, 2026. The Board of Trustees subsequently referred the Area Plan back to the Planning Commission and requested a further reduction in scope, along with a phasing plan, which the applicant has now provided. As part of the review of the Area Plan, the Planning Commission may recommend any conditions they deem necessary to meet the required standards of the PC, Planned Community district. Each phase will require separate site plan approval, with Phase 2 site plan review anticipated in August 2026.

DISTRICT INTENT

Special Districts

As set forth in Section 7.001, the Authority to Establish Special Districts as defined in Article 2.0 (Zoning Districts), is established in accordance with Section 503 of the Michigan Zoning Enabling Act. These Special Districts are designed to accomplish the objectives of this Ordinance through a development review process intended to achieve integration of the proposed development project with the characteristics of the project area. These Special Districts are intended to permit flexibility in the regulation of land development; encourage innovation in land use and variety in design, layout, and type of structures constructed; achieve economy and efficiency in the development and use of land, natural resources, energy, and the provision of public services and facilities; encourage useful open space; and provide better housing, employment, and shopping opportunities particularly suited to the needs of the residents of the Township. The intent of these special districts is to:

- Provide for increased flexibility and encourage innovation in design and layout of land development, subject to proper administrative standards and procedures.
- Lessen the burden of traffic on streets and highways, and provide for an integrated system of sidewalks, pedestrian pathways, and other non-transportation facilities.
- Provide for a compatible mix of land uses in each Special District.
- Establish planning, review, and approval procedures that properly relate the type, design, and layout of development to the site and surrounding area.

- Encourage innovation in residential and nonresidential development so that greater opportunities for better housing, recreation, and shops conveniently located to each other may extend to all citizens and residents of Superior Township; and so that the growing demands of the Township's population may be met by a greater variety in type, design, and layout of buildings and by the conservation and more efficient use of open space ancillary to these buildings.

Planned Community District
The Township Zoning Ordinance has multiple "special districts", one of which is the PC, Planned Community District. The intent of the PC, Planned Community District is as follows:

The Planned Community (PC) Special District option encourages greater collaboration between the developer and the Township in the development process, and allows additional freedom for the developer to take an even more creative approach to land use and development than otherwise permitted under this Ordinance. The PC Special District option offers greater flexibility in the design of land development, maximizing the developer's ability to take advantage of natural topography, vegetation, watercourses, and other site features in designing the development.

STANDARDS

As set forth in Section 7.102.C, when reviewing an Area Plan amendment petition, the Planning Commission shall determine and provide evidence in its report to the Township Board that the petition meets the following standards:

1. **Growth Management Plan policies.** The proposed development shall conform to the adopted Growth Management Plan.

2. **Ordinance standards.** The proposed development shall conform to the intent, regulations, and standards of the proposed Special District and this Ordinance.

3. **Public facilities.** The proposed development shall be adequately served by public facilities and services, such as highways, streets, police and fire protection, drainage courses, water and sanitary sewer facilities, and refuse disposal, or that the persons or agencies responsible for the proposed development shall be able to provide, in a manner acceptable to the Township Board, such facilities and services.

4. **Open space and recreation areas.** The common open space, any other common properties, individual properties, and all other elements of a Special District are so planned that they will achieve a unified open space and recreation area system, with open space and all other elements in appropriate locations, suitably related to each other, the site, and the surrounding land.

5. **Common areas and improvements.** The petitioner shall have made satisfactory provision to ensure that those areas shown on the plan for use by the public or by occupants of the development will be or have been irrevocably committed for that purpose. Provisions shall have been made to provide for the financing and maintenance of improvements shown on the plan for open space areas, and common use areas which are to be included within the development.

6. **Location and layout.** The location of the proposed uses, layout of the site, and its relation to streets giving access to it, shall be such that traffic to, from, and within the site, and assembly of persons in connection therewith, will not be hazardous or inconvenient to the project or the neighborhood. In applying this standard, the Planning Commission shall consider, among other things, convenient routes for pedestrian traffic, particularly of children, relationship of the proposed project to main thoroughfares and street intersections, and the general character and intensity of the existing and potential development of the neighborhood.

7. **Compatibility of land uses.** The proposed use(s), mix of housing unit types and densities, or mix of residential and non-residential uses shall satisfy the intent of the proposed Special District, conform to applicable use standards and limitations, and be acceptable in terms of convenience, privacy, compatibility, and similar standards.

8. **Minimize adverse impacts.** That noise, odor, light, or other external effects from any source whatsoever, which is connected with the proposed use, will not adversely affect adjacent and neighboring lands and uses.

9. **Preservation of natural features.** The proposed development shall create a minimum disturbance to natural features and landforms.

10. **Streets.** Streets shall follow topography, be properly spaced, and be located and aligned in accordance with the intended function of each street. The property shall have adequate access to public streets. The plans shall provide for logical extensions of public streets and shall provide suitable street connections to adjacent parcels, where applicable.

11. **Pedestrian facilities.** Major pedestrian circulation shall be provided for within the site and shall interconnect all use areas, where applicable. The pedestrian system shall provide for logical extensions of pedestrian ways outside the site, and pedestrian connections to the site boundaries, where applicable.

SUMMARY

We recommend that the Planning Commission consider the area plan amendment and have drafted a Resolution of Approval.

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

CARLISLE/WORTMAN ASSOC., INC.
Michelle Marin, AICP
Associate Planner

cc: Emily Dabish Yahkind, Township Supervisor
Angela Robinson, Township Clerk
Dan Kimball, Fire Marshall
George Tsakof, Township Engineer
Mariah Cummings, Township Engineer

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

811

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

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

CONTACT INFORMATION:

OWNER

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ARCHITECT

STEVEN EGGLESTON
(970) 846-2147
solstudio@earthlink.net
24723 LEHIGH ST.
DEARBORN HEIGHTS, MI 48128

SITE PLAN
CLAY HILL COMMUNITY FARM & GARDEN

NORTHWEST 1/4 OF SECTION 35, TOWN 2 SOUTH, RANGE 7 EAST
SUPERIOR CHARTER TOWNSHIP, WASHTENAW COUNTY

SHEET INDEX:

C1 COVER
C2 DEMOLITION PLAN
C3 SITE PLAN
C4 UTILITY PLAN
C5 DRAINAGE PLAN
C6 STORM PROFILES
C7 GRADING & SESC PLAN
C8 DETENTION BASIN & OCS DETAIL
C9 DETENTION BASIN CALCULATIONS
C10 DETAILS
C11 OVERALL LANDSCAPING PLAN
C12 LANDSCAPING PLAN STORM FEATURES

REFERENCES:

TOPOGRAPHIC SURVEY

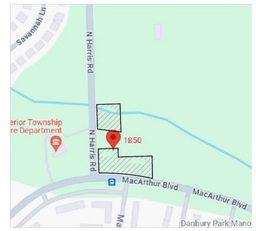
CHARTER TOWNSHIP OF SUPERIOR STANDARD STORM SEWER DETAILS



PUBLIC UTILTIES CONTACT

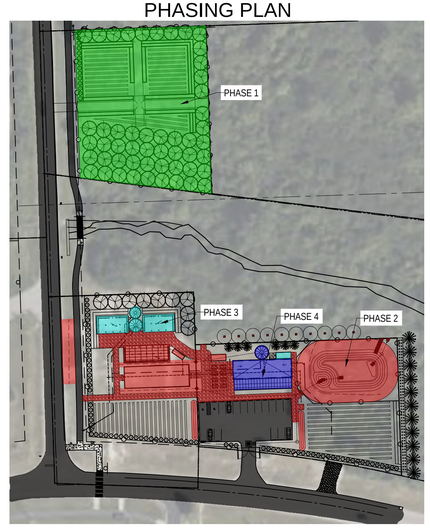
The existing utilities listed below and shown on these plans represent the best information available as obtained from surveys. This information does not relieve the contractor of the responsibility to be satisfied as to its accuracy and the location of existing utilities.

NAME OF OWNER	TYPE OF UTILITY
SUPERIOR TOWNSHIP (UTILITIES) 3040 NORTH PROSPECT SUPERIOR TOWNSHIP, MI 48198 (CORNER OF CLARK AND PROSPECT ROADS)' PHONE: 734-482-6099 FAX: 734-482-3842 UTILITYDEPT@SUPERIOR-TWP.ORG	Municipal
SUPERIOR TOWNSHIP (WASHTENAW) POTABLE WATER Phone: 7344805500	Municipal
SUPERIOR TOWNSHIP (WASHTENAW) SANITARY SEWER Phone: 7344805500	Municipal
COMCAST CABLE TV Phone: 8559628525 Email:	Telecom
DTE Energy/ Electric 101 S Washington Square, Lansing, MI 48933 Phone: 800-477-4747 www.dteenergy.com	Electric
CONSUMERS ENERGY GAS 530 W Willow St, Lansing, MI 48906 Phone: 800-477-5050 www.consumersenergy.com	Gas
Great Lakes GPR (Private Locator) 1230 N Maple Rd, Ann Arbor, MI 48103 Phone: (734)474-4591 Phone: (734)780-6849 Ann Arbor, MI (248)704-3879 www.greatlakesgpr.com	Utilities



LOCATION MAP
NOT TO SCALE

PHASING PLAN



PHASING PLAN
SCALE: 1" = 100'

PHASE 1:
NORTH PARCEL
PHASE 2:
DEMOLITION ITEMS, REMOVE CONTAMINATED SOIL, GRADING, SESC MEASURES, STORMWATER NETWORK, DETENTION BASIN, FENCE, HOOP HOUSE, COMPOSTING SHED W/SOLAR ARRAY, WALKWAYS, FARMBOT, WEST CARGO, BEEHIVES, OUTDOOR CLASSROOM, LANDSCAPING, PAVEMENT STRIPING
PHASE 3:
COMPOSTING SHED, VERMICULTURE SHED, TEA TANK, WEST RAINWATER STORAGE TANK, EAST CARGO SHED
PHASE 4:
FARMERS MARKET & EDUCATIONAL CENTER, EAST RAINWATER STORAGE TANK

STATE OF MICHIGAN
LICENSED PROFESSIONAL ENGINEER
MICHELLE J. THOMPSON
License No. 6201310001
07/13/2026

DATE	REVISION
12/19/2025	
4/15/2026	PER COUNTY
6/30/2026	PER COUNTY
7/16/2026	PER TOWNSHIP

Community Engineering Corps

ENGINEERS WITHOUT BORDERS USA DETROIT

CHAPTER NAME: EWB USA DETROIT
LOCATION: DETROIT, MI
CONTACT: CHAPTER@EWB-DETROIT.ORG

ROLE	CHECK DONE
REIC: MICHELLE THOMPSON, P.E.	12/14/2025
PROJECT LEAD: ANDREW O'CONNOR	4/15/2026
PROJECT LEAD:	6/23/2026
DRAWN BY: ANDREW O'CONNOR	7/13/2026

SECTION 35
TOWN 2 SOUTH, RANGE 7 EAST
SUPERIOR CHARTER TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLAY HILL COMMUNITY FARM & GARDEN
WILLOW RUN ACRES
111 SOUTH WALLACE BOULEVARD
YPSILANTI, MI 48197

COVER

SCALE
0 20 40
1" = 40 FEET

SHEET NO.: C1

SHEET 1 OF 12

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811

Know what's **below.**
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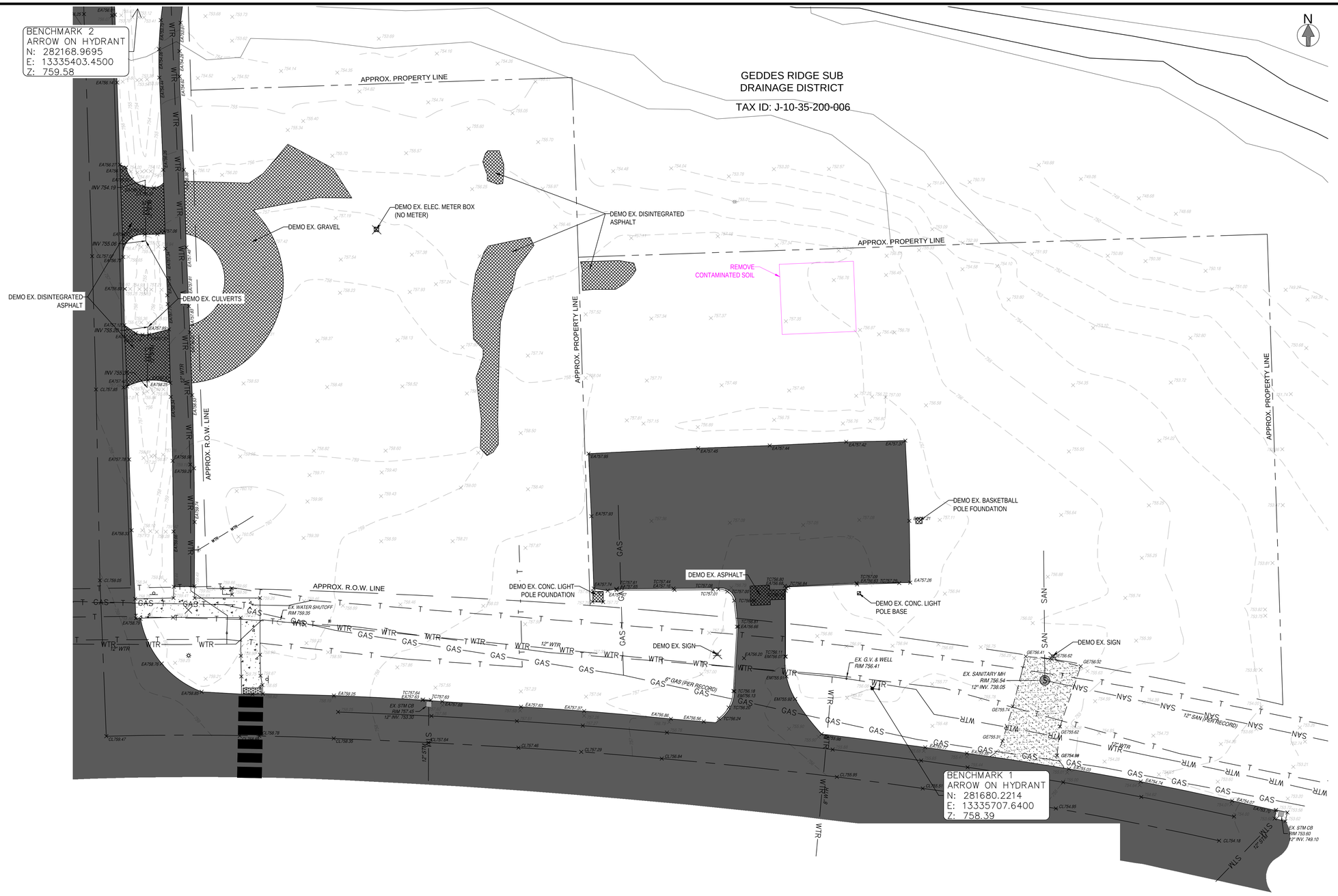
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LEGEND

- PROPERTY LINE
- PROPOSED GRAVEL
- PROPOSED STORM STRUCTURES
- PROPOSED STORM SEWER
- PROPOSED HYDRANT
- PROPOSED WATER VALVE
- PROPOSED WATER LEAD
- PROPOSED SANITARY CLEANOUT
- PROPOSED SANITARY LEAD
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- EXISTING WATER MAIN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING ASPHALT
- PROPOSED CONTOURS
- EXISTING CONTOURS

LABEL LEGEND

TC	TOP OF CURB
GU	GUTTER
TW	TOP OF WALK
TP	TOP OF PAVEMENT
T/W	TOP OF WALL
B/W	BOTTOM OF WALL
FG	FINISHED GRADE
FF	FINISHED FLOOR
FES	FLARED END SECTION
ME	MATCH EXISTING
PR	PROPOSED
H.P.	HIGH POINT



BENCHMARKS:
(NAVD88 DATUM)

BENCHMARK 1
ARROW ON EX. WATER HYDRANT
ELEV. = 758.39

BENCHMARK 2
ARROW ON EX. WATER HYDRANT
ELEV.= 759.58

STATE OF MICHIGAN
MICHELLE J. THOMPSON
License No. 6201310001
PROFESSIONAL ENGINEER
07/13/2026

DATE	REVISION
12/19/2025	
4/15/2026	PER COUNTY
6/30/2026	PER COUNTY
7/16/2026	PER TOWNSHIP

Community Engineering Corps

ENGINEERS WITHOUT BORDERS USA DETROIT

CHAPTER NAME: EWB USA DETROIT
LOCATION: DETROIT, MI
CONTACT: CHAPTER@EWB-DETROIT.ORG

REIC: MICHELLE THOMPSON, P.E.	12/14/2025
PROJECT LEAD: ANDREW O'CONNOR	4/15/2026
PROJECT LEAD:	6/23/2026
DRAWN BY: ANDREW O'CONNOR	7/13/2026
ROLE	CHECK DONE

SECTION 35
TOWN 2 SOUTH, RANGE 7 EAST
SUPERIOR CHARTER TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLAY HILL COMMUNITY FARM & GARDEN
WILLOW RUN ACRES
111 SOUTH WALLACE BOULEVARD
YPSILANTI, MI 48197

DEMOLITION PLAN

SCALE
0 10 20
1" = 20 FEET

SHEET NO.: C2

SHEET 2 OF 12

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- PROPOSED STORM STRUCTURES
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- EXISTING STORM SEWER
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING WATER MAIN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING ASPHALT
- PROPOSED CONTOURS
- EXISTING CONTOURS

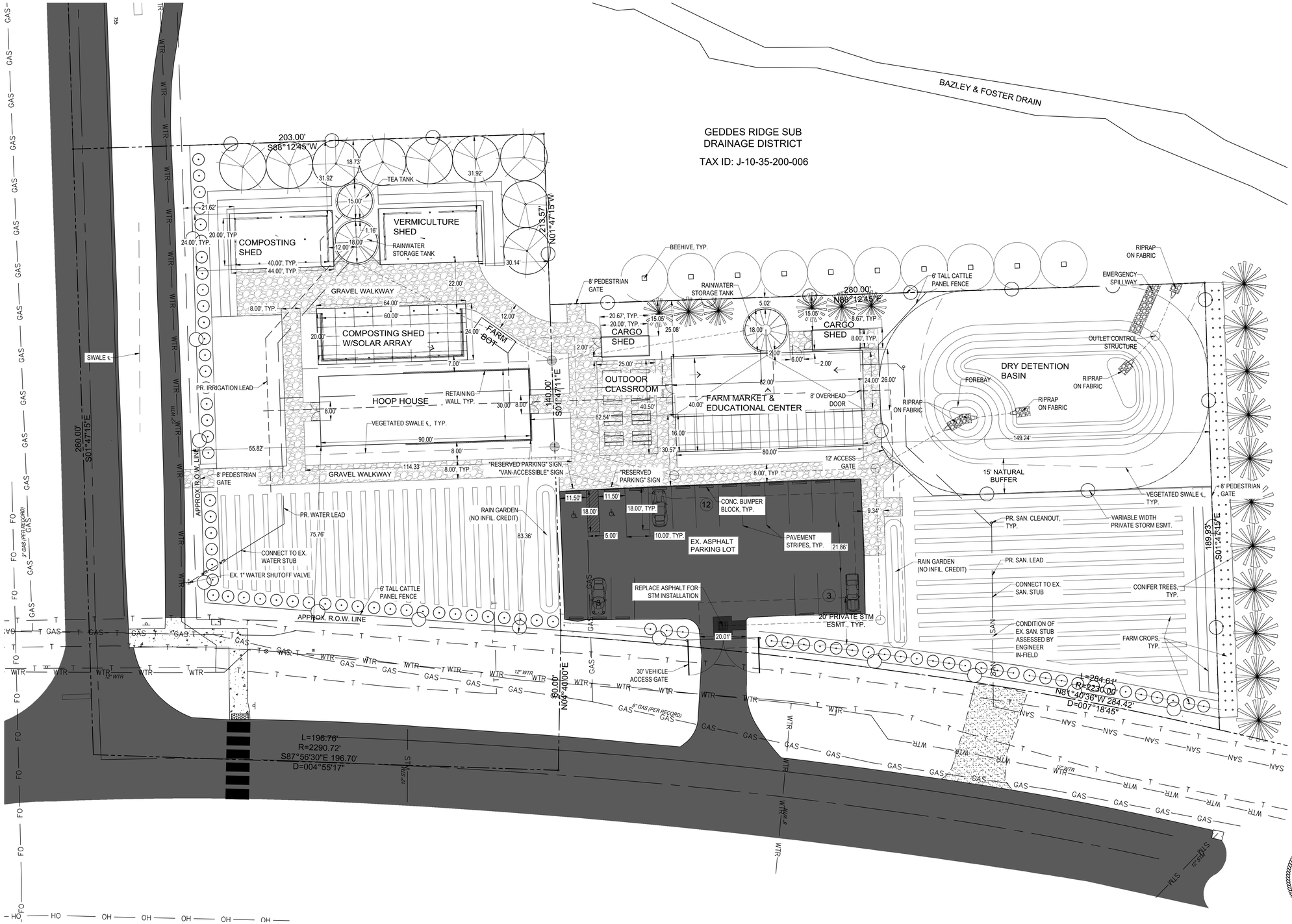
PROVIDED PARKING = 18 SPACES

GROSS LOT AREA = 94,525 SF

NET LOT AREA = 78,887 SF

TOTAL FLOOR AREA = 9,020 SF

FLOOR AREA RATIO = 11.43%



DATE	REVISION
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SECTION 35
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SUPERIOR CHARTER TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLAY HILL COMMUNITY FARM & GARDEN

WILLOW RUN ACRES
111 SOUTH WALLACE BOULEVARD
YPSILANTI, MI 48197

SITE PLAN

SCALE
0 10 20
1" = 20 FEET

SHEET NO.: C3

SHEET 3 OF 12

STATE OF MICHIGAN
LICENSED PROFESSIONAL ENGINEER
MICHELLE J. THOMPSON
License No. 6201310001
07/13/2026

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DRAINAGE NARRATIVE:

CONTRIBUTING AREA TO DETENTION BASIN = 0.52 ACRES

THE ON-SITE STORMWATER CONSISTS OF FOUR DRAINAGE AREAS. THESE AREAS ARE PROPOSED TO BE COLLECTED IN AN UNDERGROUND STORM SEWER COLLECTION SYSTEM WHICH OUTLETS INTO A DETENTION BASIN. RUNOFF FROM THE COMPOSTING SHED, VERMICULTURE SHED, FARM MARKET AND EDUCATIONAL CENTER BUILDING, AND EAST CARGO SHED IS DIVERTED INTO RAINWATER STORAGE TANKS WITH CAPACITIES EXCEEDING A 100-YEAR STORM. THE RUNOFF IS COLLECTED FROM GUTTERS ALONG THE ROOFS BEFORE PASSING THROUGH LEAF EATER FILTERS AND DOWNSPOUT PIPES CONNECTING INTO THE RAINWATER STORAGE TANKS AT INVERTS NO LOWER THAN THE TOP OF STORAGE ELEVATIONS. THE RAINWATER IS AUTOMATICALLY USED IN THE SITE'S IRRIGATION SYSTEM, AND THE RAINWATER STORAGE TANKS HAVE EMERGENCY OVERFLOW PIPES CONNECTED TO CATCH BASIN #1. THE ULTIMATE OUTLET OF THE STORM SEWER COLLECTION SYSTEM AND THE DETENTION BASIN IS THE BAZLEY AND FOSTER COUNTY DRAIN.

THE CALCULATIONS FOR THE DETENTION REQUIREMENTS WERE COMPLETED IN ACCORDANCE WITH THE WASHTENAW COUNTY WATER RESOURCES COMMISSION PROCEDURES AND DESIGN STANDARDS FOR STORMWATER MANAGEMENT.

NOTE:
ALL STORM CATCH BASINS AND MANHOLES ARE LOW-HEAD STRUCTURES.

LEGEND

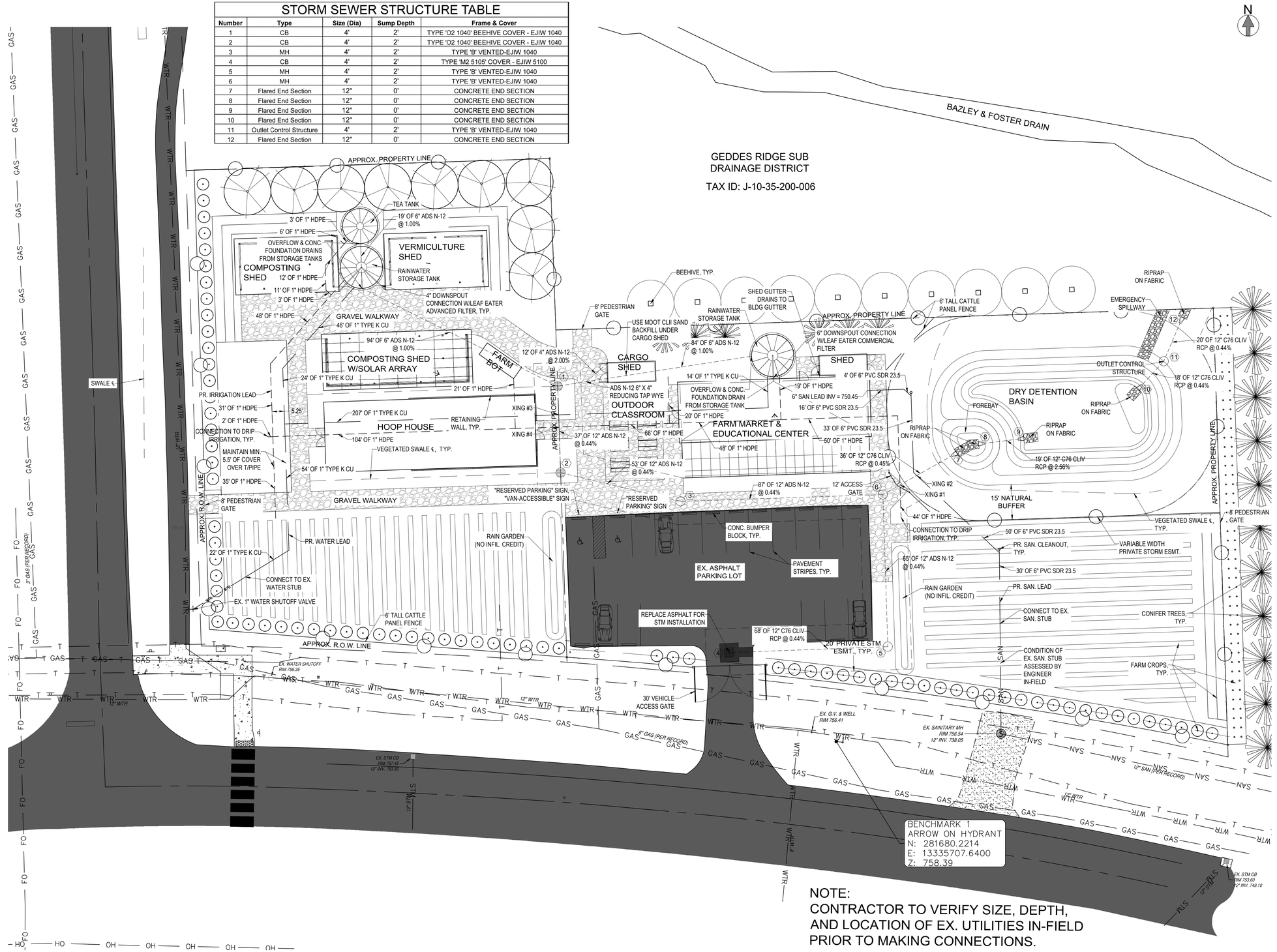
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- PROPOSED WATER VALVE
- PROPOSED WATER LEAD
- PROPOSED SANITARY CLEANOUT
- PROPOSED SANITARY LEAD
- EXISTING STORM STRUCTURE
- STM — STM — EXISTING STORM SEWER
- EXISTING HYDRANT
- EXISTING WATER VALVE
- WTR — WTR — EXISTING WATER MAIN
- EXISTING SANITARY MANHOLE
- SAN — SAN — EXISTING SANITARY SEWER
- OH — OH — EXISTING OVERHEAD ELECTRIC
- EXISTING ASPHALT
- 1000 — PROPOSED CONTOURS
- 1000 — EXISTING CONTOURS

NOTE:
TYPE K COPPER WATER LEAD SHALL BE POLY-WRAPPED.

NOTE:
WATER LEAD CONNECTIONS TO RAINWATER STORAGE TANKS MUST HAVE BACKFLOW PREVENTION.

STORM SEWER STRUCTURE TABLE

Number	Type	Size (Dia)	Sump Depth	Frame & Cover
1	CB	4'	2'	TYPE 'O2 1040' BEEHIVE COVER - EJIW 1040
2	CB	4'	2'	TYPE 'O2 1040' BEEHIVE COVER - EJIW 1040
3	MH	4'	2'	TYPE 'B' VENTED-EJIW 1040
4	CB	4'	2'	TYPE 'M2 5105' COVER - EJIW 5100
5	MH	4'	2'	TYPE 'B' VENTED-EJIW 1040
6	MH	4'	2'	TYPE 'B' VENTED-EJIW 1040
7	Flared End Section	12"	0'	CONCRETE END SECTION
8	Flared End Section	12"	0'	CONCRETE END SECTION
9	Flared End Section	12"	0'	CONCRETE END SECTION
10	Flared End Section	12"	0'	CONCRETE END SECTION
11	Outlet Control Structure	4'	2'	TYPE 'B' VENTED-EJIW 1040
12	Flared End Section	12"	0'	CONCRETE END SECTION



NOTE:
CONTRACTOR TO VERIFY SIZE, DEPTH, AND LOCATION OF EX. UTILITIES IN-FIELD PRIOR TO MAKING CONNECTIONS.

STATE OF MICHIGAN
MICHELLE J. THOMPSON
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07/13/2026

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UTILITY PLAN

SCALE
0 10 20
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SHEET NO.: C4

SHEET 4 OF 12

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LABEL LEGEND

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- EXISTING SANITARY SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING ASPHALT
- PROPOSED CONTOURS
- EXISTING CONTOURS

DRAINAGE AREAS LEGEND

- AREA 1: DRAINS TO CB #1
- AREA 1: DIVERTED INTO RAINWATER STORAGE TANKS, BMP CREDIT
- AREA 2: DRAINS TO CB #2
- AREA 3: DRAINS TO CB #4
- AREA 4: DRAINS DIRECTLY TO BASIN

BENCHMARKS:
(NAVD88 DATUM)

BENCHMARK 1
ARROW ON EX. WATER HYDRANT
ELEV. = 758.39

BENCHMARK 2
ARROW ON EX. WATER HYDRANT
ELEV.= 759.58

BENCHMARK 2
ARROW ON HYDRANT
N: 282168.9695
E: 13335403.4500
Z: 759.58

BENCHMARK 1
ARROW ON HYDRANT
N: 281680.2214
E: 13335707.6400
Z: 758.39

BAZLEY & FOSTER DRAIN

GEDDES RIDGE SUB
DRAINAGE DISTRICT

TAX ID: J-10-35-200-006

APPROX. PROPERTY LINE

TEA TANK

COMPOSTING SHED FG=758.00 T/STORAGE=768.00 T/ROOF=770.50

VERMICULTURE SHED FG=758.00

RAINWATER STORAGE TANK

TP=758.00

GRAVEL WALKWAY

COMPOSTING SHED W/SOLAR ARRAY

1.5% SWALE

FARM BOT.

INLET

CB #1=
0.11 AC
C=0.85

RIM=757.33

HOOP HOUSE FG=759.00

RETAINING WALL, TYP.

VEGETATED SWALE ℄, TYP.

CB #2=
0.06 AC
C=0.72

PROX.

8' PEDESTRIAN GATE

"RESERVED PARKING" SIGN, "VAN-ACCESSIBLE" SIGN

"RESERVED PARKING" SIGN

RAIN GARDEN (NO INFIL. CREDIT)

CONNECT TO EX. WATER STUB

EX. 1" WATER SHUTOFF VALVE

6' TALL CATTLE PANEL FENCE

APPROX. R.O.W. LINE

EX. WATER SHUTOFF RIM 759.35

BEEHIVE, TYP.

8' PEDESTRIAN GATE

CARGO SHED FG=757.55

CARGO SHED FG=758.00

OUTDOOR CLASSROOM

FARM MARKET & EDUCATIONAL CENTER FF=758.00

T/STORAGE=768.00

T/ROOF=771.33

12' ACCESS GATE

CONC. BUMPER BLOCK, TYP.

EX. ASPHALT PARKING LOT

PAVEMENT STRIPES, TYP.

REPLACE ASPHALT FOR STM INSTALLATION

CB #4=
0.22 AC
C=0.91

RIM=756.08

20' PRIVATE STM ESMT., TYP.

RIM=757.08

30' VEHICLE ACCESS GATE

EX. G.V. & WELL RIM 756.41

EX. SANITARY MH RIM 756.54
12" INV. 738.05

6" GAS (PER RECORD)

8" GAS (PER RECORD)

12" WTR

EX. STM CB RIM 757.45
12" INV. 753.30

12" STM

RIPRAP ON FABRIC

ME=748.75 EMERGENCY SPILLWAY

ME=748.54

FES=748.75

6' TALL CATTLE PANEL FENCE

FG=753.00

1.6% SWALE

OUTLET CONTROL STRUCTURE FES=748.90

RIM=754.00

BASIN AREA=
0.13 AC
C=0.89

DRY DETENTION BASIN

FOREBAY

RIPRAP ON FABRIC

FES=750.00

FES=749.50

FES=752.00

H.P.=754.00

1.7% SWALE

15' NATURAL BUFFER

FG=752.30

VEGETATED SWALE ℄, TYP.

8' PEDESTRIAN GATE

APPROX. PROPERTY LINE

PR. SAN. CLEANOUT, TYP.

VARIABLE WIDTH PRIVATE STORM ESMT.

PR. SAN. LEAD

CONNECT TO EX. SAN. STUB

CONIFER TREES, TYP.

CONDITION OF EX. SAN. STUB ASSESSED BY ENGINEER IN-FIELD

FARM CROPS, TYP.

EX. STM CB RIM 753.60
12" INV. 749.10

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DRAINAGE PLAN

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SHEET NO.: C5

SHEET 5 OF 12

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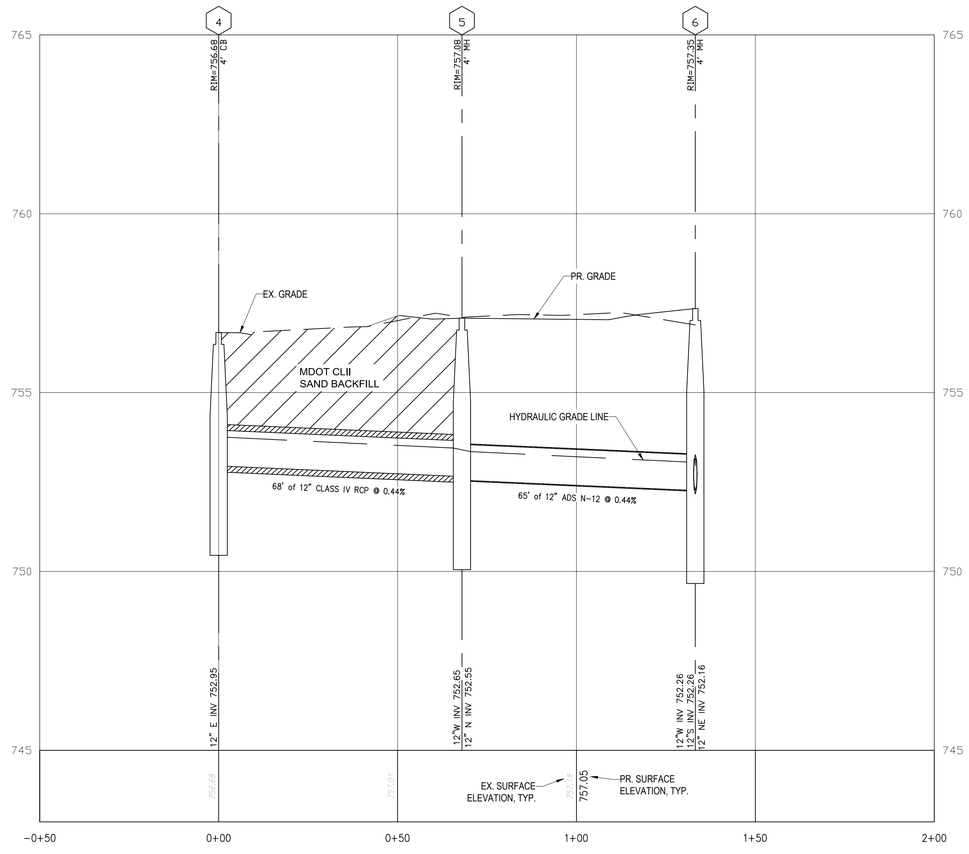
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				I =	175 / (T + 25)																						
				Clay Hill																							
											PIPE MATERIAL	PIPE			UPST	DWNST		V	VFULL		UPST	DWNST		UPST	DWNST		UPST
FROM	TO	C-Wtd	AREA	TOTAL	A*C	TOTAL	T	I	Q=CIA	QFULL	PIPE		LENGTH	HG	FALL	HG	HG	T to	AVG	mannings	PIPE	INV	INV		RIM	RIM		RIM TO
MH	MH		Ac	AREA		A*C	min	in/hr	cfs	cfs	dia		ft	SLOPE	in HG	ELEV	ELEV	DS MH	fps	fps	SLOPE	ELEV	ELEV	RIM	TO INV	TO INV	CVR	CVR	HG
1	2	0.90	0.24	0.24	0.22	0.22	15.00	4.38	0.95	2.36	12	ADS N-12	37.00	0.07%	0.03	754.04	753.88	0.51	1.20	3.01	0.44%	753.24	753.08	757.33	4.09	4.25	2.92	3.08	3.29
2	3	0.72	0.06	0.30	0.04	0.26	15.51	4.32	1.13	2.36	12	ADS N-12	53.00	0.10%	0.05	753.78	753.55	0.61	1.44	3.01	0.44%	752.98	752.75	757.33	4.35	4.80	3.18	3.64	3.55
3	6	0.00	0.00	0.30	0.00	0.26	16.13	4.26	1.13	2.36	12	ADS N-12	87.00	0.10%	0.09	753.45	753.06	1.01	1.44	3.01	0.44%	752.65	752.26	757.55	4.90	5.09	3.74	3.92	4.10
6	7	0.00	0.00	0.52	0.00	0.46	17.13	4.15	2.01	2.40	12	CLIV RCP	36.00	0.32%	0.11	752.96	750.94	0.23	2.56	3.05	0.45%	752.15	752.00	757.35	5.19		4.02		4.39
							17.37									750.94						752.00							
4	5	0.91	0.22	0.22	0.20	0.20	15.00	4.38	0.88	2.36	12	CLIV RCP	68.00	0.06%	0.04	753.75	753.45	1.02	1.12	3.01	0.44%	752.95	752.65	756.68	3.73	4.43	2.57	3.26	2.93
5	6	0.00	0.00	0.22	0.00	0.20	16.02	4.27	0.88	2.36	12	ADS N-12	65.00	0.06%	0.04	753.35	753.06	0.97	1.12	3.01	0.44%	752.55	752.26	757.08	4.53	5.09	3.36	3.92	3.73
																752.96						752.15		757.35					

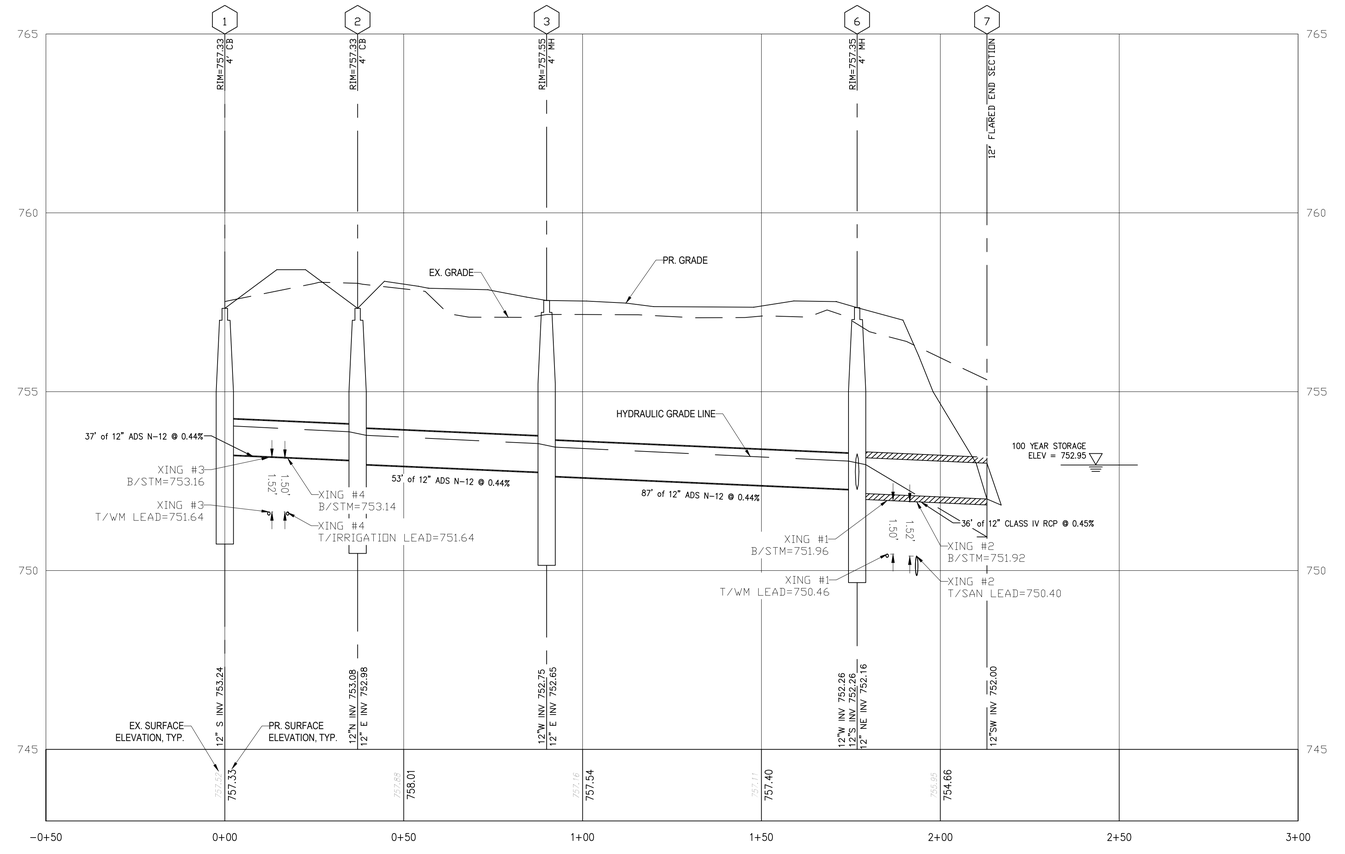
NOTE:
ALL STORM CATCH BASINS AND MANHOLES ARE LOW-HEAD STRUCTURES.

STM STR 4 TO STM STR 6



SCALE:
1" = 20' HORIZ.
1" = 2' VERT.

STM STR 1 TO STM STR 6



SCALE:
1" = 20' HORIZ.
1" = 2' VERT.

BENCHMARKS:
(NAVD88 DATUM)

BENCHMARK 1
ARROW ON EX. WATER HYDRANT
ELEV. = 758.39

BENCHMARK 2
ARROW ON EX. WATER HYDRANT
ELEV.= 759.58

STATE OF MICHIGAN
MICHELLE J. THOMPSON
License No. 6201310001
LICENSED PROFESSIONAL ENGINEER
07/13/2026

DATE	REVISION
12/19/2025	
4/15/2026	PER COUNTY
6/30/2026	PER COUNTY
7/16/2026	PER TOWNSHIP

Community Engineering Corps

ENGINEERS WITHOUT BORDERS USA DETROIT

CHAPTER NAME: EWB USA DETROIT
LOCATION: DETROIT, MI
CONTACT: CHAPTER@EWB-DETROIT.ORG

ROLE	CHECK DONE
REIC: MICHELLE THOMPSON, P.E.	12/14/2025
PROJECT LEAD: ANDREW O'CONNOR	4/15/2026
PROJECT LEAD:	6/23/2026
DRAWN BY: ANDREW O'CONNOR	7/13/2026

SECTION 35
TOWN 2 SOUTH, RANGE 7 EAST
SUPERIOR CHARTER TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLAY HILL COMMUNITY FARM & GARDEN
WILLOW RUN ACRES
111 SOUTH WALLACE BOULEVARD
YPSILANTI, MI 48197

STORM PROFILES

SCALE
0 - -
AS NOTED

SHEET NO.: C6

SHEET 6 OF 12

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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NOTE:
INSTALL SOIL EROSION CONTROL BLANKETS FOR SLOPES GREATER THAN 1:3.

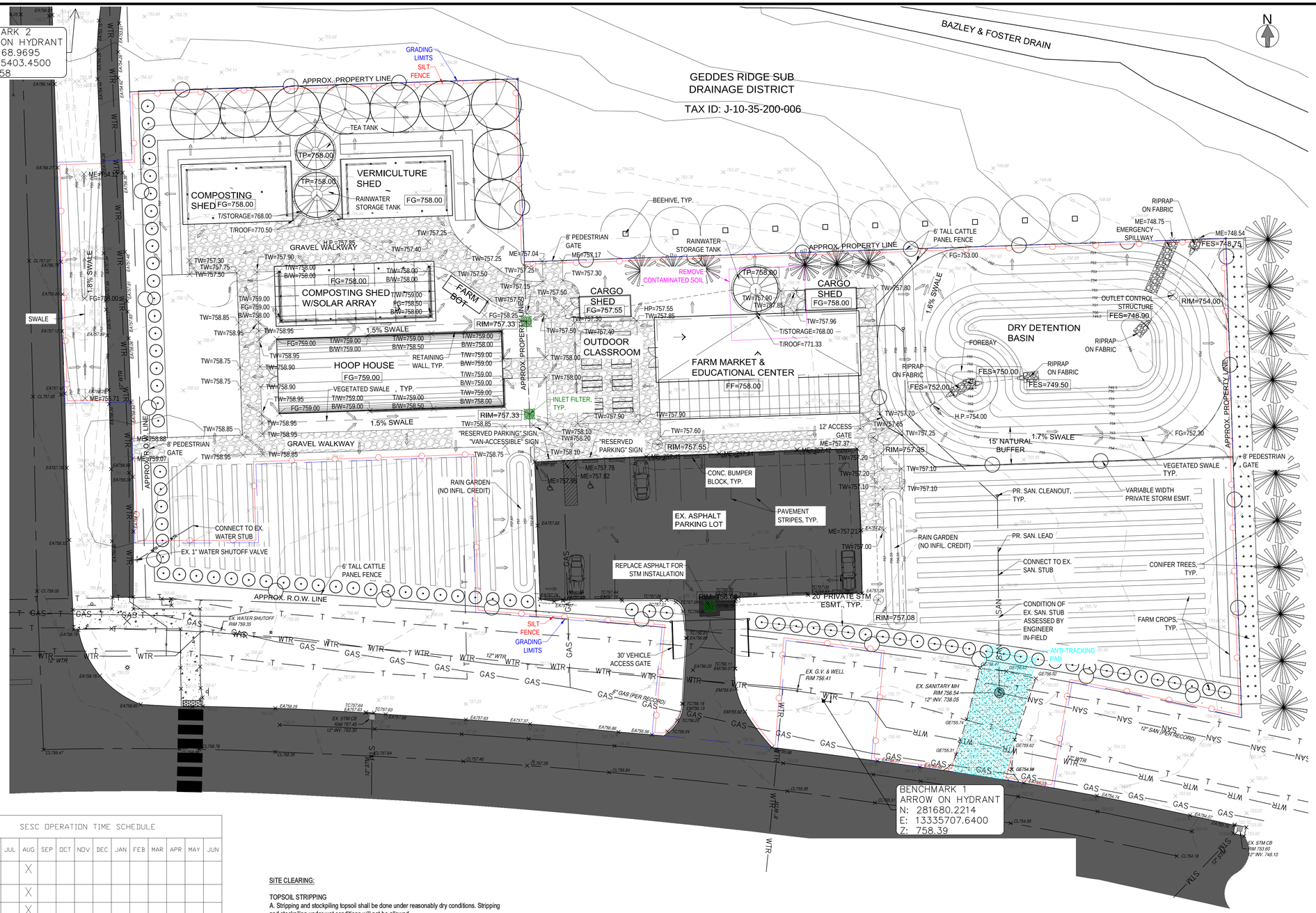
LEGEND

- PROPERTY LINE
- PROPOSED GRAVEL
- PROPOSED STORM STRUCTURES
- PROPOSED STORM SEWER
- PROPOSED HYDRANT
- PROPOSED WATER VALVE
- PROPOSED WATER LEAD
- PROPOSED SANITARY CLEANOUT
- PROPOSED SANITARY LEAD
- EXISTING STORM STRUCTURE
- STM STM EXISTING STORM SEWER
- EXISTING HYDRANT
- EXISTING WATER VALVE
- WTR WTR EXISTING WATER MAIN
- SAN SAN EXISTING SANITARY SEWER
- EXISTING SANITARY MANHOLE
- OH OH EXISTING OVERHEAD ELECTRIC
- EXISTING ASPHALT
- 1000 PROPOSED CONTOURS
- 1000 EXISTING CONTOURS

LABEL LEGEND

TC	TOP OF CURB
GU	GUTTER
TW	TOP OF WALK
TP	TOP OF PAVEMENT
T/W	TOP OF WALL
B/W	BOTTOM OF WALL
FG	FINISHED GRADE
FF	FINISHED FLOOR
FES	FLARED END SECTION
ME	MATCH EXISTING
PR	PROPOSED
H.P.	HIGH POINT

BENCHMARK 2
ARROW ON HYDRANT
N: 282168.9695
E: 13335403.4500
Z: 759.58



SEQUENCE OF CONSTRUCTION FOR SOIL EROSION CONTROL:

1. INSTALL SILT FENCE, INLET FILTERS, AND ANTI-TRACKING PAD AS SHOWN ON THE SOIL EROSION CONTROL PLAN.
2. STRIP AND STOCKPILE TOPSOIL.
3. CONSTRUCT DETENTION BASIN AND INSTALL STORM SEWER PIPE, STRUCTURES, AND SOIL STABILIZATION WITHIN SEDIMENT BASIN.
4. MASS GRADING OF ENTIRE SITE TO BE COMPLETED.
5. INSTALL SANITARY LEAD AND WATER LEAD.
6. COMPLETE STORM SEWER INSTALLATION; IMMEDIATELY INSTALL GEOTEXTILE FILTERS ON ALL CATCH BASINS AND INLETS. (TEMPORARY)
7. COMPLETE INSTALLATION OF PUBLIC UTILITIES (ELECTRIC, ETC.).
8. REPAIR AND/OR REPLACE ALL LOW POINT CATCH BASIN FILTERS AS NEEDED. (TEMPORARY)
9. FINISH GRADE, REDISTRIBUTE TOPSOIL, AND ESTABLISH VEGETATION ON ALL DISTURBED GROUND AREAS. COMPLETE LANDSCAPING. ALL AREAS BETWEEN SIDEWALKS AND ROADS NEED TO BE PERMANENTLY STABILIZED.
10. CLEAN PAVEMENT AND STORM SEWERS OF ALL SEDIMENT.
11. REMOVE TEMPORARY SOIL EROSION CONTROL MEASURES AFTER PERMANENT VEGETATION HAS BEEN ESTABLISHED.
12. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL SOIL EROSION CONTROL MEASURES ARE INSTALLED AND MAINTAINED.
13. WASHTENAW COUNTY OR ITS AGENT SHALL INSPECT ALL SOIL EROSION CONTROL MEASURES. UPON THEIR DIRECTION, ADDITIONAL MEASURES SHALL BE CONSTRUCTED OR MAINTENANCE WORK SHALL BE PERFORMED TO ASSURE PROPER SOIL EROSION AND SEDIMENTATION CONTROL. REMOVAL OF CONTROL MEASURES MAY ONLY TAKE PLACE ONCE ENTIRE SITE IS FULLY STABILIZED.
14. DUST MUST BE CONTROLLED AT ALL TIMES.
15. ALL MUD TRACKED ON PUBLIC ROADS AND INTERIOR ROADS SHALL BE REMOVED DAILY.

SESC OPERATION TIME SCHEDULE

CONST. SEQUENCE 2026	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
PRIOR TO CONST., SILT FENCE		X										
ROUGH GRADE		X										
STORM FACILITIES		X										
FOUNDATION/ BLDG. CONST.			X	X	X							
SITE CONST.			X	X	X							
PERM. CONTROL MEASURES									X			
FINISH GRADING									X			
LANDSCAPING										X		

SITE CLEARING:

TOPSOIL STRIPPING
A. Stripping and stockpiling topsoil shall be done under reasonably dry conditions. Stripping and stockpiling under wet conditions will not be allowed.

B. Contractor shall strip available topsoil to its full depth from within the Contract limits, excluding areas in close proximity to trees designated to remain, unless otherwise specified or directed by the Project Representative.

C. Contractor shall stockpile topsoil in a storage pile in an area shown on the Drawings or as directed by the Project Representative. Storage pile shall be shaped to freely drain surface water during and after stockpiling operations. Excess topsoil shall be hauled by the Contractor and stockpiled on the Owner's property as directed by the Project Representative. The stockpile shall be protected from soil and sediment erosion as required elsewhere in these Specifications.

BENCHMARKS:
(NAVD88 DATUM)

BENCHMARK 1
ARROW ON EX. WATER HYDRANT
ELEV. = 758.39

BENCHMARK 2
ARROW ON EX. WATER HYDRANT
ELEV.= 759.58

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SECTION 35
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WILLOW RUN ACRES
111 SOUTH WALLACE BOULEVARD
YPSILANTI, MI 48197

GRADING & SESC PLAN

SCALE
0 10 20
1" = 20 FEET

SHEET NO.: C7

SHEET 7 OF 12

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DRAINAGE NARRATIVE:

CONTRIBUTING AREA TO DETENTION BASIN = 0.52 ACRES

THE ON-SITE STORMWATER CONSISTS OF FOUR DRAINAGE AREAS. THESE AREAS ARE PROPOSED TO BE COLLECTED IN AN UNDERGROUND STORM SEWER COLLECTION SYSTEM WHICH OUTLETS INTO A DETENTION BASIN. RUNOFF FROM THE COMPOSTING SHED, VERMICULTURE SHED, FARM MARKET AND EDUCATIONAL CENTER BUILDING, AND EAST CARGO SHED IS DIVERTED INTO RAINWATER STORAGE TANKS WITH CAPACITIES EXCEEDING A 100-YEAR STORM. THE RUNOFF IS COLLECTED FROM GUTTERS ALONG THE ROOFS BEFORE PASSING THROUGH LEAF EATER FILTERS AND DOWNSPOUT PIPES CONNECTING INTO THE RAINWATER STORAGE TANKS AT INVERTS NO LOWER THAN THE TOP OF STORAGE ELEVATIONS. THE RAINWATER IS AUTOMATICALLY USED IN THE SITE'S IRRIGATION SYSTEM, AND THE RAINWATER STORAGE TANKS HAVE EMERGENCY OVERFLOW PIPES CONNECTED TO CATCH BASIN #1. THE ULTIMATE OUTLET OF THE STORM SEWER COLLECTION SYSTEM AND THE DETENTION BASIN IS THE BAZLEY AND FOSTER COUNTY DRAIN.

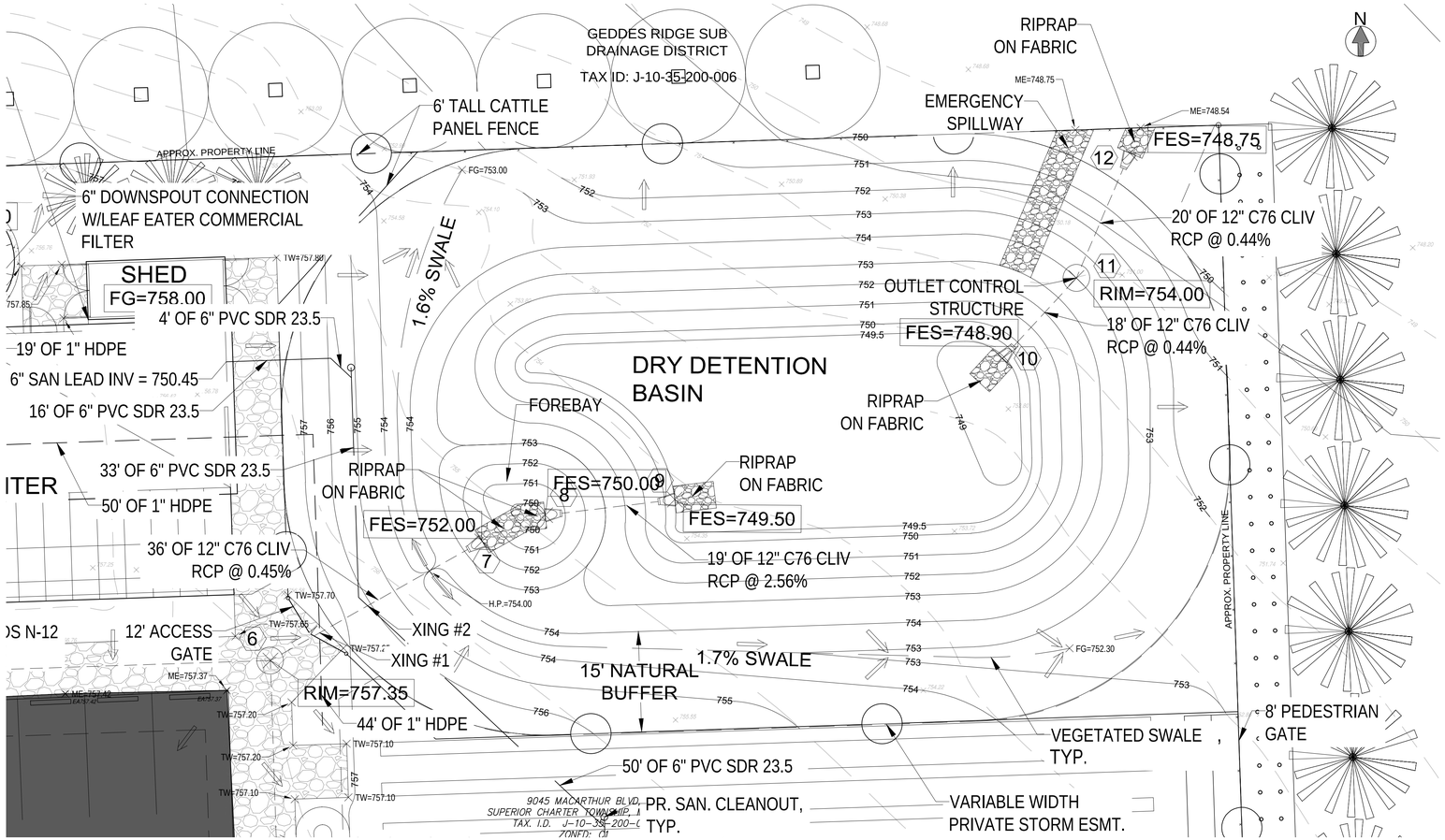
THE CALCULATIONS FOR THE DETENTION REQUIREMENTS WERE COMPLETED IN ACCORDANCE WITH THE WASHTENAW COUNTY WATER RESOURCES COMMISSION PROCEDURES AND DESIGN STANDARDS FOR STORMWATER MANAGEMENT.

LEGEND

- PROPERTY LINE
- PROPOSED GRAVEL
- PROPOSED STORM STRUCTURES
- PROPOSED STORM SEWER
- PROPOSED HYDRANT
- PROPOSED WATER VALVE
- PROPOSED WATER LEAD
- PROPOSED SANITARY CLEANOUT
- PROPOSED SANITARY LEAD
- EXISTING STORM STRUCTURE
- STM STM EXISTING STORM SEWER
- EXISTING HYDRANT
- EXISTING WATER VALVE
- WTR WTR EXISTING WATER MAIN
- EXISTING SANITARY MANHOLE
- SAN SAN EXISTING SANITARY SEWER
- OH OH EXISTING OVERHEAD ELECTRIC
- EXISTING ASPHALT
- 1000 PROPOSED CONTOURS
- 1000 EXISTING CONTOURS

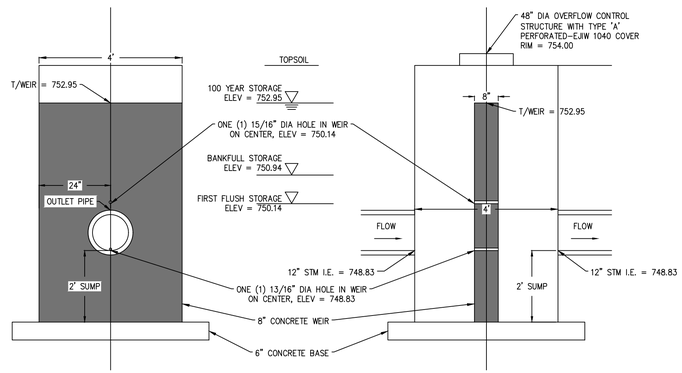
LABEL LEGEND

TC	TOP OF CURB
GU	GUTTER
TW	TOP OF WALK
TP	TOP OF PAVEMENT
T/W	TOP OF WALL
B/W	BOTTOM OF WALL
FG	FINISHED GRADE
FF	FINISHED FLOOR
FES	FLARED END SECTION
ME	MATCH EXISTING
PR.	PROPOSED
H.P.	HIGH POINT



NOTE:
A 2' CLAY LINER WILL BE INSTALLED UNDER THE FOREBAY AND DETENTION BASIN STARTING AT ELEVATION 753.

NOTE:
NO CHEMICALS ARE ALLOWED IN STORMWATER FEATURES OR BUFFER ZONES WITH THE FOLLOWING EXCEPTION: INVASIVE SPECIES MAY BE TREATED WITH CHEMICALS BY A CERTIFIED APPLICATOR.



DETENTION BASIN OUTLET CONTROL STRUCTURE
SCALE: 1" = 2'

BENCHMARKS:
(NAVD88 DATUM)

BENCHMARK 1
ARROW ON EX. WATER HYDRANT
ELEV. = 758.39

BENCHMARK 2
ARROW ON EX. WATER HYDRANT
ELEV.= 759.58

STATE OF MICHIGAN — MICHELLE J. THOMPSON — License No. 6201310001 — LICENSED PROFESSIONAL ENGINEER
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SECTION 35
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SUPERIOR CHARTER TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLAY HILL COMMUNITY FARM & GARDEN
WILLOW RUN ACRES
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YPSILANTI, MI 48197

DETENTION BASIN & OCS DETAIL

SCALE
0 5 10
1" = 10 FEET

SHEET NO.: C8

SHEET 8 OF 12

CURVE NUMBERS

Predevelopment Curve Number (Meadow, Group D)	78	Page 24
Post-Development Curve Number (Impervious Areas, Any Group)	98	Page 24

AREA	**SQFT**	**ACRE**
Total Site Area	83850	1.92
Roof Area	10874	0.25
Parking Lot Area	7439	0.17
Impervious Basin Area	4542	0.10
Total Impervious Area	22855	0.52

RAINFALL

First Flush	1	in
2 yr storm, 30 min	0.906	in
2 yr storm, 24 hrs	2.35	in
100 yr storm, 24 hrs	5.11	in
100 yr storm, 30 min	2.05	in

Water Use can be used to meet infiltration and storage requirements:
The amount of sotred water is equal to the volume reduction.

STANDARD METHOD RUNOFF VOLUME WORK SHEETS, Part E of Section 4, copied

Worksheet 1: Determining Post-Development Cover Types, Areas, Curve Numbers, and Runoff Coefficients

Total Site Area =	0.645	acres	
Total Site Area Excluding "Self-Crediting" BMPs =	0.515	acres	*Subtracting areas diverted into rainwater storage tanks.*

Area 1: Garden Center, Sheds, North Half of Hoop House and Vegetated Swale 0.112 acres
Area 2: South Half of Hoop House and Vegetated Swale 0.057 acres
Area 3: Parking Lot, Gravel Walkway, Green Space 0.217 acres
Area 4: Basin Surface Area 0.130 acres

Rational Method Variables (For First Flush Runoff Calculations)

Cover Type	Soil Type	Area (sqft)	Area (ac)	Runoff Coefficient (c)	(C) (Acreage)
Area 1:					
Garden Center Roof - Impervious Runoff into East Rainwater Storage	~~D~~	~~3354~~	~~0.0770~~	~~0.95~~	~~0.07~~
East Cargo Shed - Impervious Runoff into East Rainwater Storage	~~D~~	~~160~~	~~0.0037~~	~~0.95~~	~~0.00~~
West Cargo Shed - Impervious	D	160	0.0037	0.95	0.00
Compost and Vermiculture Sheds - Impervious Runoff into West Rainwater Storage	~~D~~	~~2142~~	~~0.0492~~	~~0.95~~	~~0.05~~
East Rainwater Storage Tank - Impervious	D	299	0.0069	0.95	0.01
West Rainwater Storage Tank - Impervious	D	299	0.0069	0.95	0.01
Tea Tank - Impervious	D	214	0.0049	0.95	0.00
Shed with Solar Array - Impervious	D	1546	0.0355	0.95	0.03
North Half of Hoop House Roof - Impervious	D	1350	0.0310	0.95	0.03
Tea Tank - Impervious	D	214	0.0049	0.95	0.00
Shed with Solar Array - Impervious	D	1546	0.0355	0.95	0.03
North Half of Hoop House Roof - Impervious	D	1350	0.0310	0.95	0.03
Area 2:					
South Half of Hoop House Roof - Impervious	D	1350	0.0310	0.95	0.03
South Vegetated Swale - Pervious	D	1112	0.0255	0.45	0.01
Area 3:					
Parking Lot - Impervious	D	7439	0.1708	0.95	0.16
Gravel Walkway - Impervious	D	1475	0.0339	0.85	0.03
Green Space - Pervious	D	524	0.0120	0.45	0.01
Area 4:					
Basin Storage Area - Impervious	D	4542	0.1043	1.00	0.10
Basin Freeboard Area (without Clay Liner) - Pervious	D	1142	0.0262	0.45	0.01
	Area 1:	Area 2:	Area 3:	Area 4:	
Total C*Ac	0.09	0.04	0.20	0.12	
Total Ac	0.112	0.057	0.217	0.130	
Weighted C	0.85	0.72	0.91	0.89	

NRCS Variables (For Bankfull and 100-year runoff Calculations)

Pervious Cover Type	Soil Type	Area (sqft)	Area (ac)	Curve Number	(C) (Area)
Area 1:					
North Vegetated Swale - Pervious	D	994	0.0228	78	1.78
Area 2:					
South Vegetated Swale - Pervious	D	1112	0.0255	78	1.99
Area 3:					
Green Space - Pervious	D	524	0.0120	80	0.96
Area 4:					
Basin Freeboard Area (without Clay Liner) - Pervious	D	1140	0.0262	80	2.09
	Area 1:	Area 2:	Area 3:	Area 4:	
Total C*A	1.78	1.99	0.96	2.09	
Total A	0.023	0.026	0.012	0.026	
Weighted C	78	78	80	80	

NRCS Variables (For Bankfull and 100-year runoff Calculations)

Impervious Cover Type	Soil Type	Area (sqft)	Area (ac)	Curve Number	(C) (Area)
Area 1:					
Garden Center Roof - Impervious Runoff into East Rainwater Storage	~~D~~	~~3354~~	~~0.0770~~	~~98~~	~~7.55~~
East Cargo Shed - Impervious Runoff into East Rainwater Storage	~~D~~	~~160~~	~~0.0037~~	~~98~~	~~0.36~~
Compost and Vermiculture Sheds - Impervious Runoff into West Rainwater Storage	~~D~~	~~2142~~	~~0.0492~~	~~98~~	~~4.82~~
East Rainwater Storage Tank - Impervious	D	299	0.0069	98	0.67
West Rainwater Storage Tank - Impervious	D	299	0.0069	98	0.67
Tea Tank - Impervious	D	214	0.0049	98	0.48
Shed with Solar Array - Impervious	D	1546	0.0355	98	3.48
North Half of Hoop House Roof - Impervious	D	1350	0.0310	98	3.04
Area 2:					
South Half of Hoop House Roof - Impervious	D	1350	0.0310	98	3.04
Area 3:					
Parking Lot - Impervious	D	7439	0.1708	98	16.74
Gravel Walkway - Impervious	D	1475	0.0339	91	3.08
Area 4:					
Basin Storage Area (with Clay Liner) - Impervious	D	4542	0.1043	98	10.22
	Area 1:	Area 2:	Area 3:	Area 4:	
Total C*A	8.70	3.04	19.82	10.22	
Total A	0.089	0.031	0.205	0.104	
Weighted C	98	98	97	98	

Worksheet 2: Standard Method - First Flush Runoff Calculations

First Flush Runoff Calculations (Vff)	Area 1	Area 2	Area 3	Area 4	
			Vff=P*A*C		
P (in) =	1	1	1	1	*Page 31*
A (ac)=	0.112	0.057	0.217	0.130	Above
C (weighted) =	0.85	0.72	0.91	0.89	Above
Vff (cft) =	343	149	713	421	*Calculated*
Total First Flush Volume (Vff) =	1626	cft			*Calculated: Area 1, 2, 3, and 4 added together*

Worksheet 3: Standard Method - Predevelopment Bankfull Runoff Calculations

Pre-development Bankfull Runoff Calculations (Vbf-pre)

Based on 2-yr, 24-hr storm	Area 1	Area 2	Area 3	Area 4	
			Vbf-pre = Q*(1/12)*A		
			Q = (P-0.2*S)^2/(P+0.8*S)		
P (in) =	2.35	2.35	2.35	2.35	*Page 32*
			S (in) = 1000/CN-10		
CN =	78	78	78	78	*Soil Group D, Good Cover Meadow, as required*
S (in) =	2.82	2.82	2.82	2.82	*Calculated*
Q (in) =	0.69	0.69	0.69	0.69	*Calculated*
A (sf) =	10518	2462	9438	5684	
Vbf-pre (cft) =	607	142	545	328	*Calculated*

Worksheet 4: Standard Method - Pervious Cover Post-development Bankfull Runoff Calculations

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

Based on 2-yr, 24-hr storm	Area 1	Area 2	Area 3	Area 4	
			Vbf-per-post (cft) = Q*(1/12)*A		
			Q = (P-0.2*S)^2/(P+0.8*S)		
P (in) =	2.35	2.35	2.35	2.35	*Page 33*
			S (in) = 1000/CN-10		
CN =	78	78	80	80	*Pervious Cover CN from Worksheet 1*
S (in) =	2.82	2.82	2.50	2.50	*Calculated*
Q (in) =	0.69	0.69	0.79	0.79	*Calculated*
A (sf) =	994	1112	524	1142	*Pervious Cover Area from Worksheet 1*
Vbf-per-post (cft) =	57	64	34	75	*Calculated*

Worksheet 5: Standard Method - Impervious Cover Post-development Bankfull Runoff Calculations

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

Based on 2-yr, 24-hr storm	Area 1	Area 2	Area 3	Area 4	
			Vbf-imp-post (cft) = Q*(1/12)*A		
			Q = (P-0.2*S)^2/(P+0.8*S)		
P (in) =	2.35	2.35	2.35	2.35	*Page 34*
			S (in) = 1000/CN-10		
CN =	98	98	97	98	*Impervious Cover CN from Worksheet 1*
S (in) =	0.20	0.20	0.33	0.20	*Calculated*
Q (in) =	2.12	2.12	2.00	2.12	*Calculated*
A (sf) =	3868	1350	8914	4542	*Impervious Cover Area from Worksheet 1*
Vbf-imp-post (cft) =	684	239	1485	803	*Calculated*

Worksheet 6: Standard Method - Pervious Cover Post-Development 100-yr Storm Runoff Calculations

Pervious Cover Post-Development 100-yr Storm Runoff Calculations (V100-per-post)

Based on 100-yr storm	Area 1	Area 2	Area 3	Area 4	
			V100-per-post (cft) = Q*(1/12)*A		
			Q = (P-0.2*S)^2/(P+0.8*S)		
P (in) =	5.11	5.11	5.11	5.11	*Page 35*
			S (in) = 1000/CN-10		
CN =	78	78	80	80	*Pervious Cover CN from Worksheet 1*
S (in) =	2.82	2.82	2.50	2.50	*Calculated*
Q100-per (in) =	2.81	2.81	2.99	2.99	*Calculated*
A (sf) =	994	1112	524	1142	*Pervious Cover Area from Worksheet 1*
V100-per-post (cft) =	232	260	131	284	*Calculated*

Worksheet 7: Standard Method - Impervious Cover Post-Development 100-yr Storm Runoff Calculations

Impervious Cover Post-Development 100-yr Storm Runoff Calculations (V100-imp-post)

Based on 100-yr storm	Area 1	Area 2	Area 3	Area 4	
			V100-imp-post (cft) = Q*(1/12)*A		
			Q = (P-0.2*S)^2/(P+0.8*S)		
P (in) =	5.11	5.11	5.11	5.11	*Page 35*
			S (in) = 1000/CN-10		
CN =	98	98	97	98	*Impervious Cover CN from Worksheet 1*
S (in) =	0.20	0.20	0.33	0.20	*Calculated*
Q100-imp (in) =	4.87	4.87	4.74	4.87	*Calculated*
A (sf) =	3868	1350	8914	4542	*Impervious Cover Area from Worksheet 1*
V100-imp-post (cft) =	1571	548	3520	1844	*Calculated*

Worksheet 8: Standard Method - Time of Concentration Calculations

Parking Lot to Basin
Time of Concentration for Applicable Flow Types (Tc-hrs)

Flow Type	K	Change in Elevation (ft)	Length, L (ft)	Slope, S (%)	S^0.5	V = K*S^0.5	Tc=L/(V*3600)
Sheet Flow 1 - Gravel Walkway to Parking Lot	0.48	0.90	26	3.46	1.86	0.89	0.01
Sheet Flow 2 - Parking Lot	0.48	1.27	91	1.40	1.18	0.57	0.04
Small Tributary - Pipe 1 - Parking Lot Catch Basin to Southeast Manhole	2.1		68	0.44	0.66	1.39	0.01
Small Tributary - Pipe 2 - Southeast Manhole to Combined Manhole	2.1		65	0.44	0.66	1.39	0.01
Small Tributary - Pipe 3 - Combined Manhole to Basin Discharge	2.1		37	0.44	0.66	1.39	0.01
					Total Time of Concentration (hrs) =		**0.09**

Worksheet 9: Standard Method - Runoff Summary & Onsite Infiltration Requirement

A. Runoff Summary from Previous Worksheets

Area 1: First Flush Volume (Vff) =	343	cft	*Worksheet 2*
Area 1: Pre-Development Bankfull Runoff Volume (Vbf-pre) =	607	cft	*Worksheet 3*
Pervious Cover Post-Development Bankfull Volume (Vbf-per-post) =	57	cft	*Worksheet 4*
Area 1: Impervious Cover Post-Development Bankfull Volume (Vbf-imp-post) =	684	cft	*Worksheet 5*
Area 1: Total Rainwater Storage Volume	38070	gal	*(2) 19,035 gal containers fed by both downspouts with emergency overflow to Area 1*
Area 1: Total Rainwater Storage Volume	5090	cft	*Conversion*
Area 1: Total BF Volume (Vbf-post) =	741	cft	*Calculated*
Area 2: First Flush Volume (Vff) =	149	cft	*Worksheet 2*
Area 2: Pre-Development Bankfull Runoff Volume (Vbf-pre) =	142	cft	*Worksheet 3*
Pervious Cover Post-Development Bankfull Volume (Vbf-per-post) =	64	cft	*Worksheet 4*
Area 2: Impervious Cover Post-Development Bankfull Volume (Vbf-imp-post) =	239	cft	*Worksheet 5*
Area 2: Total BF Volume (Vbf-post) =	303	cft	*Calculated*
Area 3: First Flush Volume (Vff) =	713	cft	*Worksheet 2*
Area 3: Pre-Development Bankfull Runoff Volume (Vbf-pre) =	545	cft	*Worksheet 3*
Pervious Cover Post-Development Bankfull Volume (Vbf-per-post) =	34	cft	*Worksheet 4*
Area 3: Impervious Cover Post-Development Bankfull Volume (Vbf-imp-post) =	1485	cft	*Worksheet 5*
Area 3: Total BF Volume (Vbf-post) =	1520	cft	*Calculated*
Area 4: First Flush Volume (Vff) =	421	cft	*Worksheet 2*
Area 4: Pre-Development Bankfull Runoff Volume (Vbf-pre) =	328	cft	*Worksheet 3*
Pervious Cover Post-Development Bankfull Volume (Vbf-per-post) =	75	cft	*Worksheet 4*
Area 4: Impervious Cover Post-Development Bankfull Volume (Vbf-imp-post) =	803	cft	*Worksheet 5*
Area 4: Total BF Volume (Vbf-post) =	878	cft	*Calculated*
Total Bankful Volume (Vbf-post) =	3442	cft	*Calculated: Area 1, 2, 3, and 4 added together*
Pervious Cover Post-Development 100-yr Volume (V100-per-post) =	232	cft	*Worksheet 6*
Area 1: Impervious Cover Post-Development 100-yr Volume (V100-imp-post) =	1571	cft	*Worksheet 7*
Area 1: Total Rainwater Storage Volume =	38070	gal	*(2) 19.035 gal containers fed by both downspouts with emergency overflow to Area 1*
Area 1: Total Rainwater Storage Volume =	5090	cft	*Conversion*
Area 1: Total 100-year Volume (V100) =	1803	cft	*Calculated*
Pervious Cover Post-Development 100-yr Volume (V100-per-post) =	260	cft	*Worksheet 6*
Area 2: Impervious Cover Post-Development 100-yr Volume (V100-imp-post) =	548	cft	*Worksheet 7*
Area 2: Total 100-year Volume (V100) =	808	cft	*Calculated*
Pervious Cover Post-Development 100-yr Volume (V100-per-post) =	131	cft	*Worksheet 6*
Area 3: Impervious Cover Post-Development 100-yr Volume (V100-imp-post) =	3520	cft	*Worksheet 7*
Area 3: Total 100-year Volume (V100) =	3650	cft	*Calculated*
Pervious Cover Post-Development 100-yr Volume (V100-per-post) =	284	cft	*Worksheet 6*
Area 4: Impervious Cover Post-Development 100-yr Volume (V100-imp-post) =	1844	cft	*Worksheet 7*
Area 4: Total 100-year Volume (V100) =	2129	cft	*Calculated*
Total 100-year Volume (V100) =	8391	cft	*Calculated*

B. Determine Onsite Infiltration Requirement
Subtracting the Pre-Development Bankfull from the Post-Development Bankfull volume

Total Post-Development Bankfull Volume (Vbf-post) =	3442	cft	*Part A, above*
Pre-Development Bankfull Runoff Volume (Vbf-pre) =	1621	cft	*Worksheet 3*
Bankfull Volume Difference =	1820	cft	*Calculated*
First flush volume is greater than the bankfull volume difference and will be used as the onsite infiltration requirement.			
Onsite Infiltration Requirement (Vinf) =	1626	cft	

Worksheet 10: Standard Method - Detention/Retention Requirement

Equation Summary:
Detention Volume = Vdet = Delta/PF*V100
Delta = PF-0.15*Ac
PF = Qp*Q100*Ac/640
Determine Peak of the unit hydrograph (Qp)

Qp = 238.6*Tc*(-*0.82)			
Tc =	0.09	hr	*Gravel walkway and parking lot sheet flow, pipes are waterway.*
Qp =	1685.74	cfs/(in-mi^2)	
Q100=Q100-per + Q100-imp			
Q100-per =	2.90	in	*Average Q100-per for all areas.*
Q100-imp =	4.84	in	*Average Q100-imp for all areas.*
Q100 =	7.74	in	
Total Site Area excluding self-crediting BMPs=	0.515	ac	
Peak Flow, PF =	10.50	cfs	
Delta =	10.42	cfs	
V100=	8391	cft	
	8329	cft	
Vdet =	62299	gal	
With additional 20%	9995	cft	
	74759	gal	

Worksheet 13: Summary

A. Stormwater Management Summary:

Onsite Infiltration Requirement (Vinf) =	1626	cft
Designed/Provided Onsite Infiltration =	0	cft
% Minimum Required Infiltration Provided =	0	%
Total Calculated Detention Volume, Vdet =	8329	cft
Net Required Detention Volume, (Vdet - Designed/Provided Onsite Infiltration) =	8329	cft
B. Detention Volume Increase For Sites Where Required Infiltration Cannot Be Achieved:		
% Required Infiltration NOT provided		
(100%-% Minimum Required Infiltration Provided) =	100	%
Net % Penalty		
(20% x % Required Infiltration NOT provided) =	20	%
Total Required Detention Volume, including penalty		
[(100% + Net % Penalty) x Net Required Detention Volume] =	9995	cft

DETENTION BASIN STORAGE CALCULATIONS

DETENTION BASIN CALCULATIONS

PROJECT NAME: Clay Hill
Design by: Andrew O'Connor Date: 6/30/2026

100 YEAR FLOOD VOLUME STORAGE
V100 = 9,995 ft3

BANKFULL FLOOD VOLUME
Vbf = 3,442 ft3

FIRST FLUSH VOLUME
Vff = 1,626 ft3

FOREBAY VOLUME REQUIRED
Vfo = V100 * 0.05
Vfo = 500 ft3

FOREBAY VOLUME

	Elevation	Area	Height, H	Incr Vol. (CU.FT.)	Vol (ft3)
Xbot	750	15	0	-	0
	751	94	1.00	49	49
	752	229	1.00	157	205
	753	434	1.00	326	532

DETENTION BASIN VOLUME

	Elevation	Area	Height, H	Incr Vol. (CU.FT.)	Vol (ft3)
Xbot	749	182	-	-	0
	749.5	1678	0.50	402	402
	750	1966	0.50	910	1,312
	751	2586	1.00	2,269	3,581
	752	3262	1.00	2,917	6,499
	753	4108	1.00	3,677	10,175
	754 IS FREEBOARD ELEVATION				

Bottom of Basin
750.14 = First Flush Storage Elevation (Xff)
750.94 = Bankfull Storage/2-Year Storm Elevation (Xbf)
752.95 = 100 Year Flood Volume Storage (X100)
748.83 = Outlet Control Structure Invert (XOutlet)

OUTLET CONTROL STRUCTURE DESIGN

FIRST FLUSH:
Calculate Allowable Release Rate for First Flush Runoff (Vff)
Qff = Vff/[(24 hrs)*(3600 s/hr)]
Qff = 0.019 cfs
Calculate Average Head for First Flush Runoff
*assume trapezoidal cross section
H(average) = F/3*(Xff - XOut)
H(average) = 0.87 ft
Calculate Orifice Area Required for First Flush Discharge
Aff = Qff/(0.62*(2*g*h)^(1/2))
Aff = 0.004 ft2
Calculate # of Orifice Openings
Orifice Diam. = **0.8125** inches (13/16")
Area = 0.004 ft2
# openings = Aff/(Area of orifice)
# openings = 1.13
 # openings required = 1.00
Total Area of orifice = 0.004 ft2
Calculate Detention Time for Orifice Openings
Qff(new) = Aff*0.62(2*g*Have)^(1/2)
Qff(new) = 0.02 cfs
Tff(new) = Vff/Qff(new)
Tff(new) = 97,230 sec
Tff(new) = 27.01 hours
> 24-hour minimum time for discharge

BANKFULL FLOOD
Check FF Orifice to Determine Whether Adequate for BF Discharge in Allowable T (36<T<48hrs)
Calculate Average Head for First Flush Runoff Orifice
*assume trapezoidal cross section
Hbf = F/3*(Xbf - XOutlet)
Hbf = 1.41 ft
Calculate Q Utilizing First Flush Orifice
Qbf = Aff*0.62(2*g*Hbf)^(1/2)
Qbf = 0.02 cfs
Calculate Time for Bankfull Discharge (36 hrs< Tbf <48 hrs)
Tbf = Vbf/Qbf
Tbf = 162,122 sec
Tbf = 45.03 hours
Determine Additional Orifice Required for Bankfull Discharge Within 48 hrs
T(target) = 39 hours
V(remaining) = Vbf - Vff
V(remaining) = 1,816 ft3
T(remaining) = T(target) - Tff
T(remaining) = 11.99 hours
Calculate Q and V for Remaining Time
Hbf+ff = 2/3(Xbf-Xff)+(Xff-XOutlet)
Hbf+ff = 1.84 ft
Qbf+ff = Aff*0.62(2*g*Hbf+ff)^(1/2)
Qbf+ff = 0.02 cfs
V = T(remaining)*Qbf+ff
V = 1,049.10 ft3
Calculate Discharge Volume for Bankfull Orifice
Vbfo = Vrem - V
Vbfo = 766.90 ft3
Qbfo = Vbfo/Trem
Qbfo = 0.02 cfs
Hbf = 2/3(Xbf-Xff)
Hbf = 0.53 ft
Abf = Qbf/[0.62*(2*g*h)^(1/2)]
Abf = 0.005 ft2
Calculate # of Orifice Openings
Orifice Diam. = **0.9375** inches (15/16")
Area = 0.005 ft2
# openings = Abf/(Area of orifice)
# openings = 1.02
 # openings required = 1.00
Total Area of orifice (Abf) = 0.005 ft2
Check Time for Bankfull Discharge (36 hrs< Tbf < 48hrs)
Qbfo = Aff*0.62(2*g*Hbf)^(1/2)
Qbfo = 0.02 cfs
Tbf = Tff(new)+Vrem/[(Qbf+ff + Qbfo)*(3600sec/1hr)]
Tbf = 39.10 hours

100 YEAR FLOOD
Maximum Allowable Flow = Qa
Qa = 0.15 * Total Area Tributary to Basin (acres)
Qa = 0.15 * 0.515
Qa = 0.077 cfs
Calculate Q100 (flow not accomodated by FF or BF orifice under 100 year conditions)
Hbf = X100 - Xff
Hbf = 2.81 ft
Hff = X100-XOutlet
Hff = 4.12 ft
Qff + Qbf = (0.62)(Aff)(2gHff)^(1/2) + (0.62)(Abf)(2gHbf)^(1/2)
Qff + Qbf = 0.076 cfs
Calculate Q100
Q100 = Qa - (Qff+Qbf)
0.00 cfs
Calculate Orifice Area required to Discharge Q100
H100 = X100 - Xbf
H100 = 2.01 ft
Atot = Q100/(0.62(2*g*H100)^0.5)
Atot = 0.00 ft2

USE ADDITIONAL BF ORIFICE FOR 100-YEAR DISCHARGE

Calculate # of Orifice Openings
Orifice Diam. = 1 inches
Area = 0.005 ft2
Calculate # of Orifices Needed
Orifice = Atot/(Area of Orifice)
Orifice = 0.03
of openings required = 0.000
Check allowable flow rate is not exceeded
Qact = Qff + Qbf + 0.62*#orifice*Aorifice*(2gH100)^0.5
Qact = 0.076 cfs
Check Time for 100-year Storm Discharge (T100 < 72 hrs)
Discharge through FF orifices
Hff = 2/3(X100-Xbf)+(Xbf-XOutlet)
Hff = 3.45 ft
Qff = (0.62)(#orifice)(Aforif)[2gHff]^0.5
Qff = 0.03 cfs
Discharge through BF orifices
Hbf = 2/3(X100-Xbf)+(Xbf-Xff)
Hbf = 2.14 ft
Qbf+100 = (0.62)(#oforif)(Aoforif)[2gHbf]^0.5
Qbf+100 = 0.03 cfs
Discharge through 100-year orifices
H100 = 2/3(X100-Xbf)
H100 = 1.34 ft
Q100 = (0.62)(#100orif)(A100orif)(2gH100]^0.5
Q100 = - cfs
Time to Discharge
Vrem = V100 - Vbf
Vrem = 6,553 ft3
T100 = Tbf + Vrem/[(Qall + Qbf+100 + Q100)*(3600sec/1hr)]
T100 = 71.74 hrs

ORIFICE TABLE

CALCULATED	ELEVATION	ORIFICE #	DIAM. (IN)
Xff	750.14	1	0.8125 (13/16")
Xbf	750.94	1	0.9375 (15/16")
X100	752.95	0	1

EMERGENCY SPILLWAY DESIGN

Detention Requirements
Tc for 100-Year Flood Volume Storage Calculation
Calculate Qo
A = 0.515
Weighted C = 0.87
Qa = 0.15 cfs/acre * Acres
Qa = 0.077 cfs
Qo = Qa/(A*C)
Qo = 0.172 cfs/(ac-imp)
Calculate Storage Time for 100-year storm event
Tc = 25 + (10312.5/Qa)^(1/2)
Tc = 219.57 min
Maximum Flow Rate
Qmax = C*I*A
Tc = 219.57 min
Itoyear = 175 / (Tc + 25)
Qmax = **0.32** cfs

Minimum Velocity = 2 fps
Maximum Velocity = 6 fps
Minimum Slope = 1.5 %
Side Slope No Steeper Than = 1V : 3H

Calculations:
Channel Bottom Width (B) = 1.00 ft
Channel Depth (d) = 0.50 ft
Channel Side Slope 1V : H = 4

Flow Area = B*d + 2*(1/2)*(d)H*D)
1.50 ft2

Wetted Perimeter = B+2*(d2+(d*H)2)^(1/2)
5.123

Hydraulic radius = Area / Wetted Perimeter
0.293

Mannings Formula:
n = 0.035
slope, s = 2 %

Full Flow, Q = 1.486/n*A*(A/P)2/3*(s/100)^(1/2)
3.971 cfs

Is Full Flow greater than Qmax? **YES**

Velocity, V = Q/A
2.65 fps

Is Velocity less than 10 fps? **YES**

CAPACITY OF DETENTION BASIN OUTLET PIPE

Sum of all Flow into Basin =	0.71 cfs
Volume of Detention Basin =	9,995 ft3
Time to Fill Det. Basin = Vprov / Flow into Basin =	234.62 min
Longest Tc (from Worksheet 8) =	5.53 min
Iia = [175/(tc+tfll basin+25)] =	0.66 in/ hr
Qexpa = C*Iia*A =	0.30 cfs
Outlet Size =	12 in
A =	0.79 ft2
Slope =	0.44 %
n =	0.013
Hydraulic Radius, R =	0.397
Velocityma, =	3.01 ft/s
Q = VA =	2.36 cfs

Use	12	in Dia Outlet

Use 12" Diameter Overflow Outlet Pipe @ 0.44% Slope

STATE OF MICHIGAN
MICHELLE J. THOMPSON
License No. 6201310001
LICENSED PROFESSIONAL ENGINEER
07/13/2026

BENCHMARKS:
(NAVD88 DATUM)

BENCHMARK 1
ARROW ON EX. WATER HYDRANT
ELEV. = 758.39

BENCHMARK 2
ARROW ON EX. WATER HYDRANT
ELEV.= 759.58

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

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

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

DATE	REVISION
12/19/2025	
4/15/2026	PER COUNTY
6/30/2026	PER COUNTY
7/16/2026	PER TOWNSHIP

Community Engineering Corps

ENGINEERS WITHOUT BORDERS USA DETROIT

CHAPTER NAME: EWB USA DETROIT
LOCATION: DETROIT, MI
CONTACT: CHAPTER@EWB-DETROIT.ORG

REIC: MICHELLE THOMPSON, P.E.	12/14/2025	SECTION 35
PROJECT LEAD: ANDREW O'CONNOR	4/15/2026	TOWN 2 SOUTH, RANGE 7 EAST
PROJECT LEAD:	6/23/2026	SUPERIOR CHARTER TOWNSHIP
DRAWN BY: ANDREW O'CONNOR	7/13/2026	WASHTENAW COUNTY, MICHIGAN
ROLE	CHECK DONE	

CLAY HILL COMMUNITY FARM & GARDEN
WILLOW RUN ACRES
111 SOUTH WALLACE BOULEVARD
YPSILANTI, MI 48197

DETENTION BASIN CALCULATIONS

SCALE 0 - - NO SCALE
SHEET NO.: C9
SHEET 9 OF 12

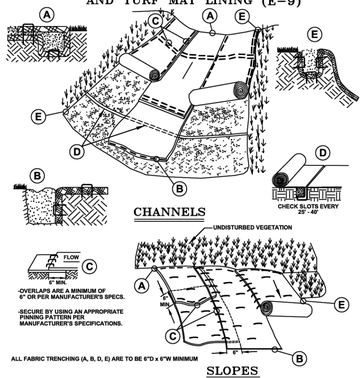
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811

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

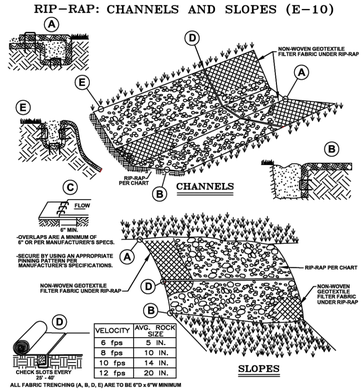
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EROSION CONTROL BLANKETS AND TURF MAT LINING (E-9)



DEPENDING ON THE VELOCITY, SLOPE, SOILS, USE PROPER BLANKET OR TURF MAT LINING PER MANUFACTURER'S SPECIFICATIONS TO HANDLE THE SHEER STRESSES OF THE SLOPE/CHANNEL.

RIP-RAP: CHANNELS AND SLOPES (E-10)



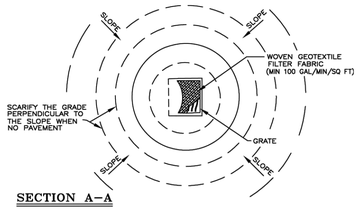
VELOCITY	AVG. ROCK SIZE
6 fps	5 IN.
8 fps	10 IN.
10 fps	14 IN.
12 fps	20 IN.

ALL FABRIC TRENCHING (A, B, D, E) ARE TO BE 6"D x 6"W MINIMUM

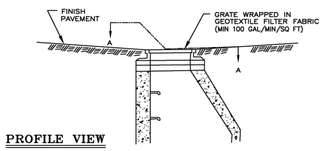
DEPENDING ON THE VELOCITY, SLOPE AND SOILS, USE THE PROPER SIZED RIP-RAP AND NON-WOVEN GEOTEXTILE FABRIC TO HANDLE THE SHEER STRESS OF THE SLOPE/CHANNEL.

LOW POINT INLET FILTER (SI-2)

ALTERNATIVE INLET FILTER MUST BE USED IN AREAS THAT MAY BECOME A SAFETY HAZARD DUE TO FLOODING OR FREEZING.

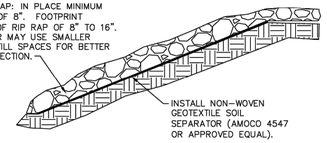


SECTION A-A

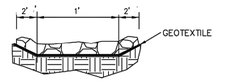


PROFILE VIEW

PLAIN RIP RAP: IN PLACE MINIMUM THICKNESS OF 8". FOOTPRINT DIMENSION OF RIP RAP OF 8" TO 16". CONTRACTOR MAY USE SMALLER PIECES TO FILL SPACES FOR BETTER SLOPE PROTECTION.



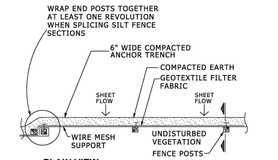
LONGITUDINAL SECTION OF SPILLWAY



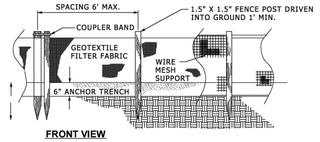
CROSS SECTION OF SPILLWAY

EMERGENCY OVERFLOW DETAIL

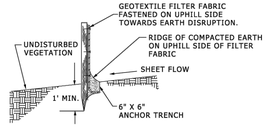
NOT TO SCALE



PLAIN VIEW



FRONT VIEW



SECTION A-A

MATERIAL REQUIREMENTS

WOVEN GEOTEXTILE FABRIC WIDTH (IN)	MIN. HARDWOOD POST LENGTH (IN)	MIN. GRAB TENSILE (LBS) (ASTM D 4632)	MIN. TRAPEZOIDAL TEAR STRENGTH (LBS) (ASTM D 4533)	MIN. PERMITTIVITY (SEC-1) (ASTM D 4491)	MAX. APPARENT OPENING SIZE (MM) (ASTM D 4751)
24	36	100	45	0.1	0.6

SILT FENCE

NO SCALE

NOTE: EROSION EELS ARE AN ACCEPTABLE ALTERNATIVE.



LEAF EATER ADVANCED FILTER

NO SCALE



LEAF EATER COMMERCIAL FILTER

NO SCALE



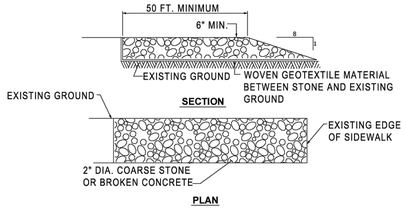
VEHICLE ACCESS GATE

NO SCALE



CATTLE PANEL FENCING & GATES

NO SCALE



PLAN

ANTI-TRACKING PAD

NO SCALE

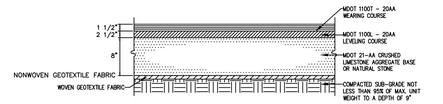
NOTE:
CONTRACTOR TO INSTALL & MAINTAIN ANTI-TRACKING PAD.

WHEN AGGREGATE BECOMES SATURATED WITH FINES, CONTRACTOR TO SCARIFY AND RELAY AGGREGATE.

ANTI-TRACKING PAD DOES NOT RELIEVE CONTRACTOR FROM SWEEPING AND CLEANING ADJACENT WALKS AND ROADS.

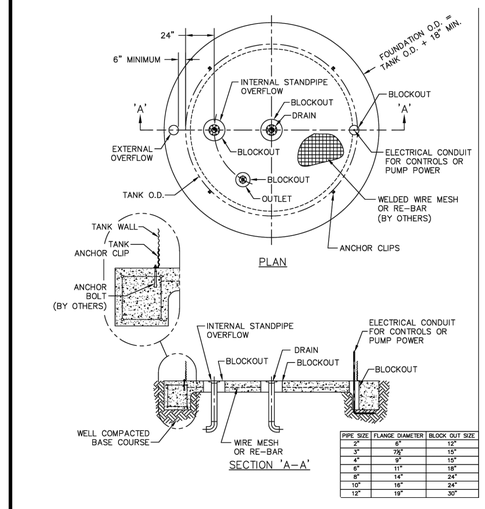
CRUSHED/BROKEN CONCRETE IS TO BE REMOVED AND LEGALLY DISPOSED OF OFF U-M PROPERTY UPON PROJECT COMPLETION.

NOTE:
ALL FENCES AND GATES HAVE A MINIMUM HEIGHT OF 6'. SEE PLAN FOR GATE WIDTHS. PEDESTRIAN GATES ARE SINGLE SPAN.



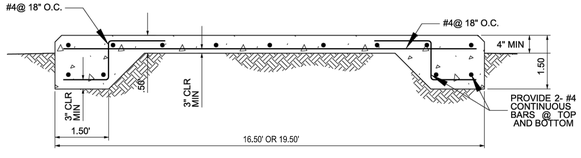
TYPICAL ASPHALT PAVEMENT CROSS-SECTION

NO SCALE



PIPE SIZE	FLANGE DIAMETER	BLOCK OUT SIZE
2"	6"	12"
3"	7½"	15"
4"	9"	15"
6"	11"	18"
8"	14"	24"
10"	16"	24"
12"	19"	30"

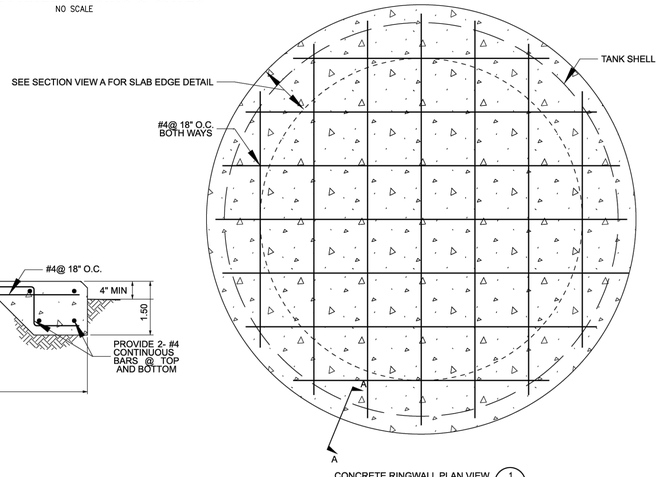




CONCRETE SLAB SECTION VIEW A

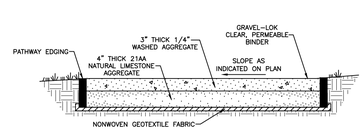
RAINWATER STORAGE TANK & TEA TANK DETAILS

NO SCALE



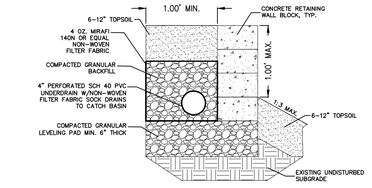
CONCRETE RINGWALL PLAN VIEW 1

NOTE:
EACH RAINWATER STORAGE TANK HAS A 18' DIAMETER, A 10' STORAGE HEIGHT, AND 19,035 GALLONS OF STORAGE. THE TEA TANK HAS A 15' DIAMETER, A 8' STORAGE HEIGHT, AND 10,575 GALLONS OF STORAGE.



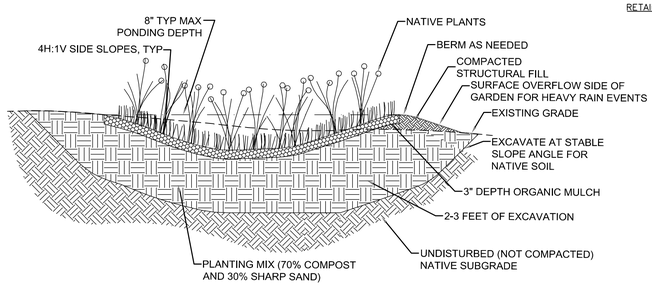
GRAVEL WALKWAY DETAIL

NO SCALE



RETAINING WALL SECTION, TYP.

NO SCALE



RAIN GARDEN DETAIL

NO SCALE

STATE OF MICHIGAN
MICHELLE J. THOMPSON
License No. 6201310001
LICENSED PROFESSIONAL ENGINEER
07/13/2026

DATE	REVISION
12/19/2025	
4/15/2026	PER COUNTY
6/30/2026	PER COUNTY
7/16/2026	PER TOWNSHIP

Community Engineering Corps

ENGINEERS WITHOUT BORDERS USA DETROIT

CHAPTER NAME: EWB USA DETROIT
LOCATION: DETROIT, MI
CONTACT: CHAPTER@EWB-DETROIT.ORG

REIC: MICHELLE THOMPSON, P.E.	12/14/2025
PROJECT LEAD: ANDREW O'CONNOR	4/15/2026
PROJECT LEAD:	6/23/2026
DRAWN BY: ANDREW O'CONNOR	7/13/2026
ROLE	CHECK DONE

SECTION 35	CLAY HILL COMMUNITY FARM & GARDEN
TOWN 2 SOUTH, RANGE 7 EAST	WILLOW RUN ACRES 111 SOUTH WALLACE BOULEVARD YPSILANTI, MI 48197
SUPERIOR CHARTER TOWNSHIP	DETAILS
WASHTENAW COUNTY, MICHIGAN	

SCALE 0 - -
NO SCALE
SHEET NO.: C10
SHEET 10 OF 12

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

811

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

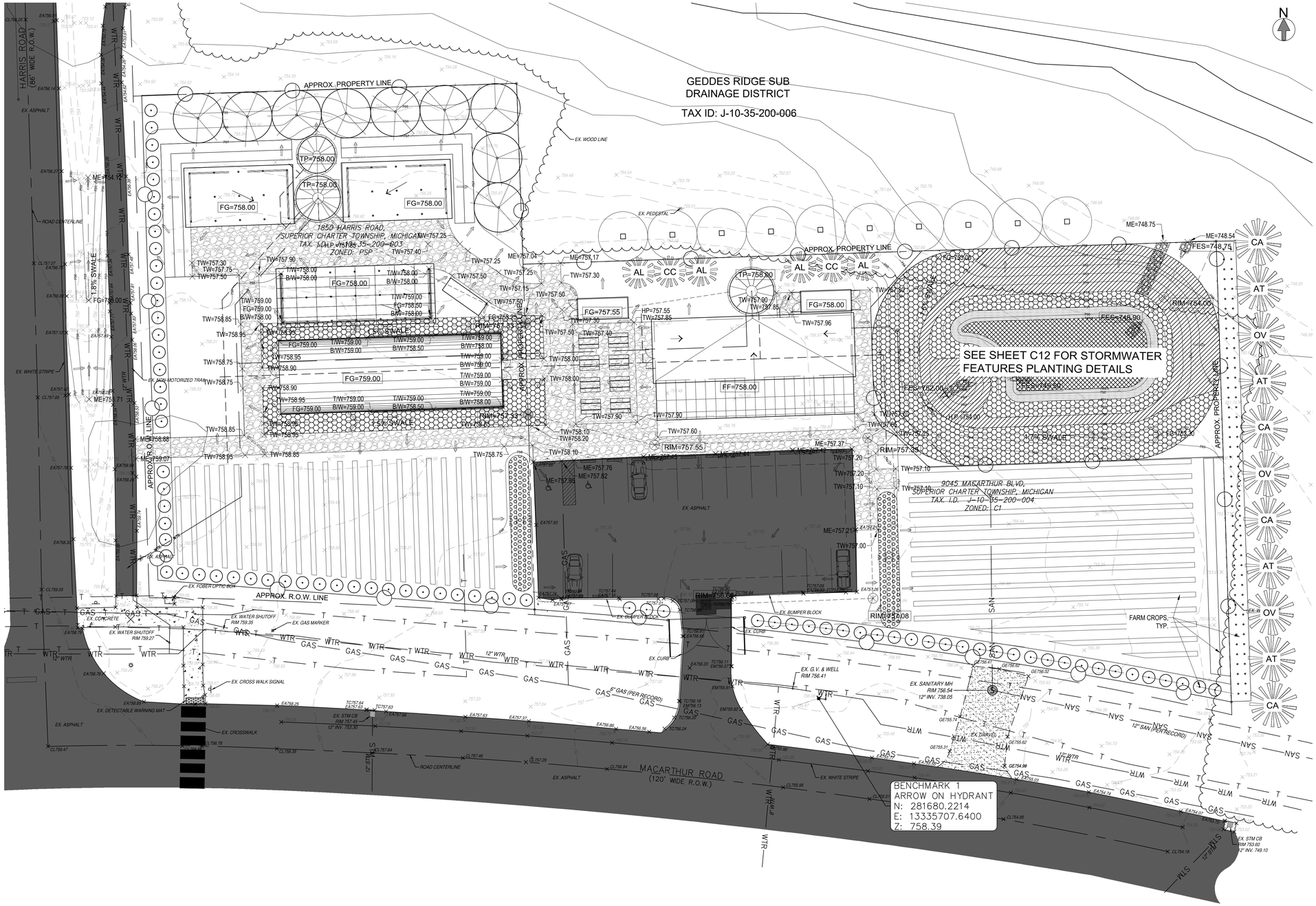
CONSTRUCTION SITE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

LEGEND

- PROPERTY LINE
- PROPOSED GRAVEL
- PROPOSED STORM STRUCTURES
- PROPOSED STORM SEWER
- PROPOSED HYDRANT
- PROPOSED WATER VALVE
- PROPOSED WATER LEAD
- PROPOSED SANITARY CLEANOUT
- PROPOSED SANITARY LEAD
- EXISTING STORM STRUCTURE
- EXISTING STORM SEWER
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING WATER MAIN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING ASPHALT
- PROPOSED CONTOURS
- EXISTING CONTOURS

PERIMETER TREE PLANTINGS

KEY	QUA.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
AL	4	Amelanchier laevis	ALLEGHENY SERVICEBERRY	2.5" CAL.	AS SHOWN
AT	4	Asimina triloba	COMMON PAWPAW	2.5" CAL.	AS SHOWN
CA	4	Carpinus Caroliniana	AMERICAN HORNBEAM	2.5" CAL.	AS SHOWN
CC	2	Cercis canadensis	EASTERN REDBUD	2.5" CAL.	AS SHOWN
OV	3	Ostrya virginiana	EASTERN HOPHORNBEAM	2.5" CAL.	AS SHOWN
TOTAL	17				



NOTE:
A 2' CLAY LINER WILL BE INSTALLED UNDER THE FOREBAY AND DETENTION BASIN STARTING AT ELEVATION 753.

NOTE:
NO CHEMICALS ARE ALLOWED IN STORMWATER FEATURES OR BUFFER ZONES WITH THE FOLLOWING EXCEPTION: INVASIVE SPECIES MAY BE TREATED WITH CHEMICALS BY A CERTIFIED APPLICATOR.

DATE	REVISION
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SECTION 35
TOWN 2 SOUTH, RANGE 7 EAST
SUPERIOR CHARTER TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLAY HILL COMMUNITY FARM & GARDEN
WILLOW RUN ACRES
111 SOUTH WALLACE BOULEVARD
YPSILANTI, MI 48197

OVERALL LANDSCAPING PLAN

SCALE
0 10 20
1" = 20 FEET

SHEET NO.: C11
SHEET 11 OF 12

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LEGEND

- PROPERTY LINE
- PROPOSED GRAVEL
- PROPOSED STORM STRUCTURES
- PROPOSED STORM SEWER
- PROPOSED HYDRANT
- PROPOSED WATER VALVE
- PROPOSED WATER LEAD
- PROPOSED SANITARY CLEANOUT
- PROPOSED SANITARY LEAD
- EXISTING STORM STRUCTURE
- EXISTING STORM SEWER
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING WATER MAIN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING ASPHALT
- 1000 PROPOSED CONTOURS
- 1000 EXISTING CONTOURS

860± SF

RAIN GARDEN SEED MIX

QUA.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
382	Aquligea canadensis	COLUMBINE	2"x6" LIVE PLUG	18" O.C.
382	Carex stipata	COMMON FOX SEDGE	2"x6" LIVE PLUG	18" O.C.
382	Rudbeckia hirta	BLACK EYED SUSAN	2"x6" LIVE PLUG	18" O.C.
215	Asclepias incarnata	SWAMP MILKWEED	2"x6" LIVE PLUG	24" O.C.

3,627± SF

FOREBAY AND BORDER GRASS SEED MIX

QUA.	BOTANICAL NAME	COMMON NAME
40%	Festuca Rubra	CREEPING RED FESCUE
30%	Lolium multiflorum	ANNUAL RYEGRASS
20%	Lolium perenne	PERENNIAL RYEGRASS
10%	Poa pratensis	KENTUCKY BLUEGRASS
5 LBS./1,000 SF		
NO FERTILIZER SHALL BE USED		

908± SF

DETENTION POND LOWER STORAGE AREA PLANTINGS

QUA.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
101	Aster novae-angliae	NEW ENGLAND ASTER	2"x6" LIVE PLUG	36" O.C.
101	Cornice sericea	RED TWIG DOGWOOD	2"x6" LIVE PLUG	36" O.C.
101	Eryngium yuccifolium	RATTLESNAKE MASTER	2"x6" LIVE PLUG	36" O.C.

7,136± SF

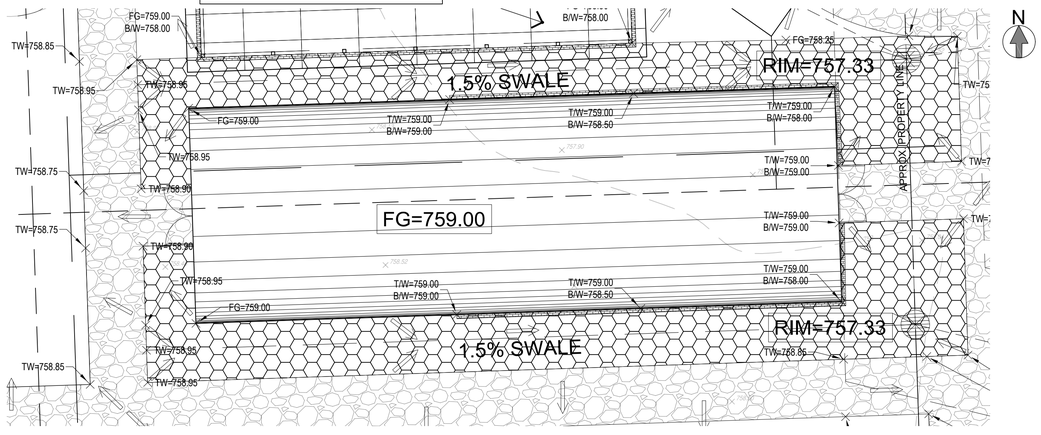
VEGETATED SWALES, DETENTION POND UPPER STORAGE AREA AND BORDER PLANTINGS

QUA.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
3172	Aquligea canadensis	COLUMBINE	2"x6" LIVE PLUG	18" O.C.
3172	Carex stipata	COMMON FOX SEDGE	2"x6" LIVE PLUG	18" O.C.
3172	Rudbeckia hirta	BLACK EYED SUSAN	2"x6" LIVE PLUG	18" O.C.

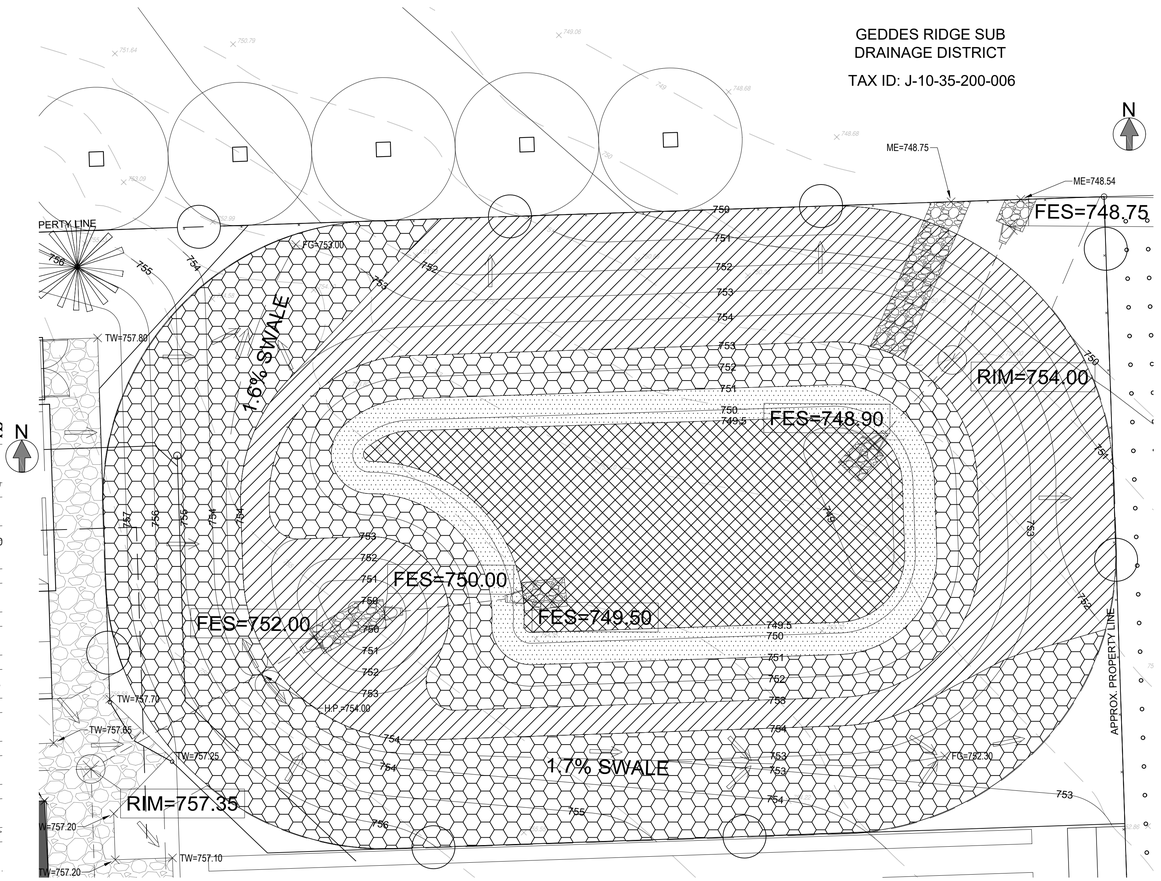
1,678± SF

DETENTION POND FLOOR AREA PLANTINGS

QUA.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
420	Asclepias incarnata	SWAMP MILKWEED	2"x6" LIVE PLUG	24" O.C.
420	Iris verginica	BLUE FLAG IRIS	2"x6" LIVE PLUG	24" O.C.
420	Lobelia siphilitica	BLUE LOBELIA	2"x6" LIVE PLUG	24" O.C.
420	Panicum virgatum	SWITCH GRASS	2"x6" LIVE PLUG	24" O.C.







NOTE:
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NOTE:
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SECTION 35
TOWN 2 SOUTH, RANGE 7 EAST
SUPERIOR CHARTER TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

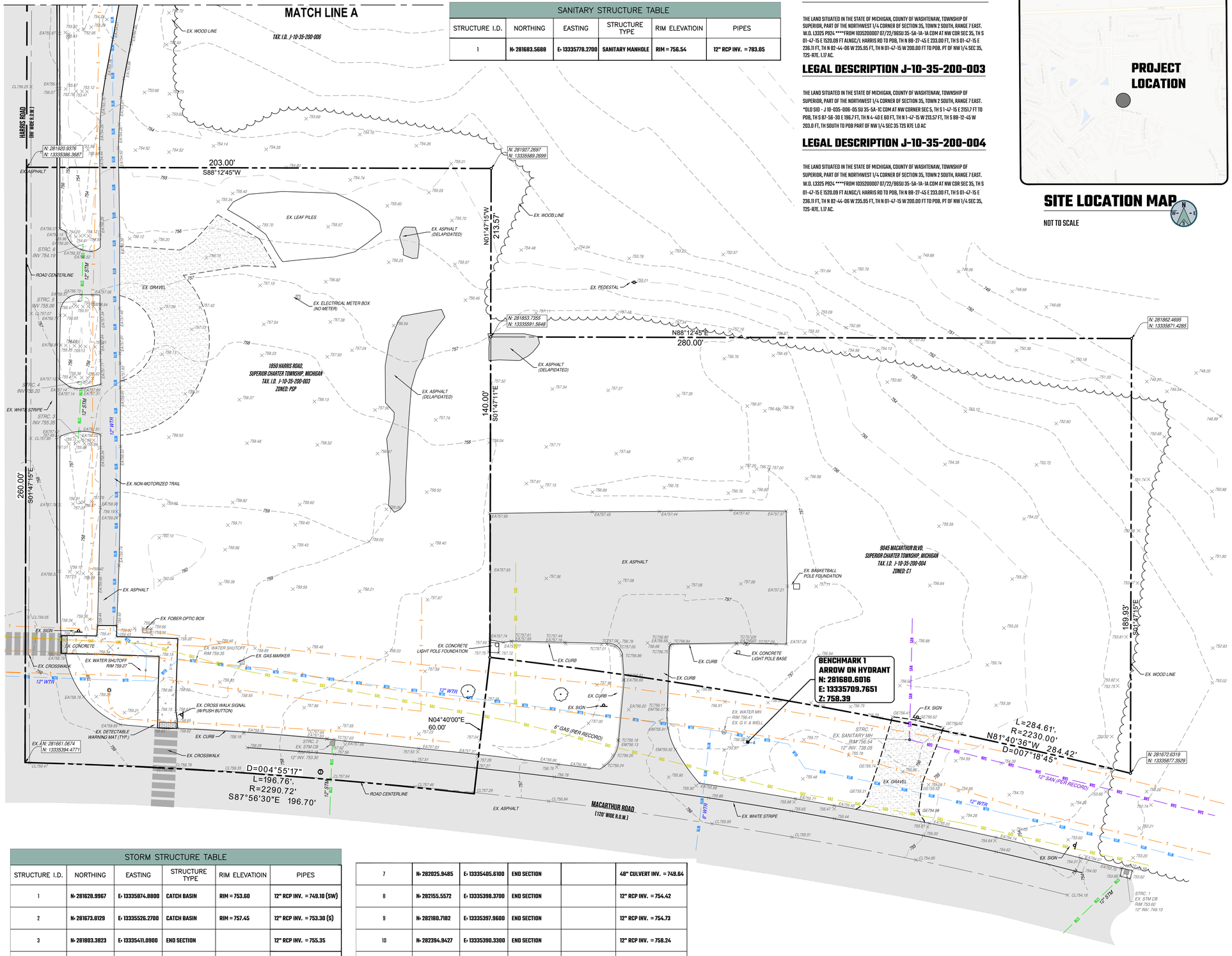
CLAY HILL COMMUNITY FARM & GARDEN
WILLOW RUN ACRES
111 SOUTH WALLACE BOULEVARD
YPSILANTI, MI 48197

LANDSCAPING PLAN STORM FEATURES

SCALE
0 5 10
1" = 10 FEET

SHEET NO.: C12

SHEET 12 OF 12



SANITARY STRUCTURE TABLE

STRUCTURE I.D.	NORTHING	EASTING	STRUCTURE TYPE	RIM ELEVATOIN	PIPES
1	N: 281683.5688	E: 13335778.2700	SANITARY MANHOLE	RIM = 756.54	12" RCP INV. = 783.05

LEGAL DESCRIPTION J -10-35-200-009

THE LAND SITUATED IN THE STATE OF MICHIGAN, COUNTY OF WASHTENAW, TOWNSHIP OF SUPERIOR, PART OF THE NORTHWEST 1/4 CORNER OF SECTION 35, TOWN 2 SOUTH, RANGE 7 EAST. W.D. L3325 P924 ****FROM 1035200067 07/22/9851U 35-5A-1A-1A COM AT NW COR SEC 35, TH S 01-47-15 E 1520.09 FT ALNGC/L HARRIS RD TO POB, TH N 88-27-45 E 233.00 FT, TH S 01-47-15 E 236.11 FT, TH N 82-44-06 W 235.95 FT, TH N 01-47-15 W 200.00 FT TO POB. PT OF NW1/4 SEC 35, T2S-R7E. 1.17 AC.

LEGAL DESCRIPTION J-10-35-200-003

THE LAND SITUATED IN THE STATE OF MICHIGAN, COUNTY OF WASHTENAW, TOWNSHIP OF SUPERIOR, PART OF THE NORTHWEST 1/4 CORNER OF SECTION 35, TOWN 2 SOUTH, RANGE 7 EAST. *OLD SID - J 10-035-006-05 SU 35-5A-1C COM AT NW CORNER SEC 5, TH S 1-47-15 E 2151.7 FT TO POB, TH S 87-56-30 E 196.7 FT, TH N 4-40 E 60 FT, TH N 1-47-15 W 213.57 FT, TH S 88-12-45 W 203.0 FT, TH SOUTH TO POB PART OF NW 1/4 SEC 35 T2S R7E 1.0 AC

LEGAL DESCRIPTION J-10-35-200-004

THE LAND SITUATED IN THE STATE OF MICHIGAN, COUNTY OF WASHTENAW, TOWNSHIP OF SUPERIOR, PART OF THE NORTHWEST 1/4 CORNER OF SECTION 35, TOWN 2 SOUTH, RANGE 7 EAST. W.D. L3325 P924 ****FROM 1035200067 07/22/9851U 35-5A-1A-1A COM AT NW COR SEC 35, TH S 01-47-15 E 1520.09 FT ALNGC/L HARRIS RD TO POB, TH N 88-27-45 E 233.00 FT, TH S 01-47-15 E 236.11 FT, TH N 82-44-06 W 235.95 FT, TH N 01-47-15 W 200.00 FT TO POB. PT OF NW1/4 SEC 35, T2S-R7E. 1.17 AC.

SITE LOCATION MAP

NOT TO SCALE

EXISTING UTILITY LEGEND

- EXISTING OVERHEAD UTILITY
- EXISTING OVERHEAD TELEPHONE
- EXISTING GAS MAIN
- EXISTING CONDENSATION LINE
- EXISTING UNDERGROUND ELECTRIC
- EXISTING TELEPHONE LINE
- EXISTING FIBER OPTIC LINE
- EXISTING CABLE TELEVISION
- FUEL LINE
- EXISTING IRRIGATION LINE
- EXISTING STORM SEWER
- EXISTING WATER MAIN, AS NOTED
- EXISTING SANITARY SEWER
- CONTOUR
- INDEX CONTOUR
- CHAIN LINK FENCE
- IRON FENCE
- WOOD FENCE
- HYDRANT
- GATE VALVE
- POST INDICATOR VALVE (PIV)
- WATER MAIN MANHOLE
- SQUARE CATCH BASIN
- ROUND CATCH BASIN
- BEEHIVE CATCH BASIN
- SANITARY MANHOLE
- END SECTION
- CULVERT
- STORM MANHOLE
- CLEAN OUT
- SIGN
- UTILITY POLE
- RISER
- LIGHT POLE
- LANDSCAPE LIGHT
- SPRINKLER
- ELECTRICAL BOX/TRANSFORMER
- ELECTRICAL MANHOLE
- FLAG POLE
- MAILBOX
- TOP OF CURB
- GUTTER
- EX. GRADE
- EDGE OF ASPHALT
- TOP OF WALL
- BOTTOM OF WALL
- TREE
- CONCRETE
- ASPHALT PAVEMENT
- GRAVEL
- RIP-RAP

NOTES

- DRAWING BASED ON NAD83 MICHIGAN STATE PLANE COORDINATES SYSTEM, SOUTH ZONE, INTERNATIONAL FOOT.
- THIS SURVEY WILL NOT SHOW ALL EASEMENTS OF RECORD UNTIL AN UPDATED TITLE POLICY HAS BEEN FURNISHED TO THE SURVEYOR BY THE OWNER.
- ALL ELEVATIONS ARE RECORD/EXISTING ELEVATIONS
- THE LOCATION OF THE EXISTING UTILITIES AS SHOWN WERE OBTAINED FROM CLIENT PROVIDED DOCUMENTS, MUNICIPAL AND UTILITY COMPANIES RECORDS. NO GUARANTEE CAN BE MADE REGARDING THE COMPLETENESS OR EXACTNESS OF THE UTILITIES LOCATION. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY IN THE FIELD THE LOCATION OF ALL UTILITIES.

BENCHMARK DATA:

BENCHMARK 1
ARROW ON HYDRANT
ELEV- 758.39

BENCHMARK 2
ARROW ON HYDRANT
ELEV- 759.58

FLOODPLAIN NOTE:

THE SUBJECT PROPERTY LIES IN FLOOD ZONE "X", ACCORDING TO FLOOD INSURANCE RATE MAP, MAP NO. 26161C0290E FOR WASHTENAW COUNTY, MICHIGAN, DATED APRIL 03, 2012 AND ISSUED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY. LINES SHOWN HAVE BEEN DIGITALLY TRANSLATED FROM DFIRM DATABASE INFORMATION SUPPLIED BY THE FEMA MAP SERVICE CENTER (HTTPS://MSC.FEMA.GOV). MAP NOT PRINTED

SOILS DATA

NeB - Nappanee silty clay loam, 2 to 6 percent slopes

PwmaoA - Pewamo clay loam, dense substratum, 0 to 1 percent slopes

SOIL INFORMATION TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE SOIL SURVEY SITE.

STORM STRUCTURE TABLE

STRUCTURE I.D.	NORTHING	EASTING	STRUCTURE TYPE	RIM ELEVATOIN	PIPES
1	N: 281628.9967	E: 13335874.8800	CATCH BASIN	RIM = 753.60	12" RCP INV. = 749.10 (SW)
2	N: 281673.8129	E: 13335526.2700	CATCH BASIN	RIM = 757.45	12" RCP INV. = 753.30 (S)
3	N: 281803.3823	E: 13335411.0900	END SECTION		12" RCP INV. = 755.35
4	N: 281828.1472	E: 13335411.4300	END SECTION		12" RCP INV. = 755.20
5	N: 281863.3248	E: 13335410.5200	END SECTION		12" RCP INV. = 755.06
6	N: 281888.1175	E: 13335410.2600	END SECTION		12" RCP INV. = 754.19
7	N: 282025.9485	E: 13335405.6100	END SECTION		48" CULVERT INV. = 749.64
8	N: 282155.5572	E: 13335398.3700	END SECTION		12" RCP INV. = 754.42
9	N: 282180.7182	E: 13335397.9600	END SECTION		12" RCP INV. = 754.73
10	N: 282394.9427	E: 13335390.3300	END SECTION		12" RCP INV. = 758.24
11	N: 282423.1958	E: 13335389.4800	END SECTION		12" RCP INV. = 758.11
12	N: 282436.8009	E: 13335389.4400	END SECTION		12" RCP INV. = 759.61
13	N: 281628.9967	E: 13335874.8800	CATCH BASIN	RIM = 761.43	12" RCP INV. = 761.43 (S)

PRIORITY ENGINEERING, LLC

Engineer's Seal

STATE OF MICHIGAN
Thomas M. Smith
License No. 4001031606
LICENSED PROFESSIONAL SURVEYOR

Certification

North

SCALE

0' 20' 40'

GRAPHIC SCALE: 1" = 20'

Project
CLAY HILL FARM MARKET

Project Location
9045 MACARTHUR BLVD, SUPERIOR CHARTER TOWNSHIP, MICHIGAN

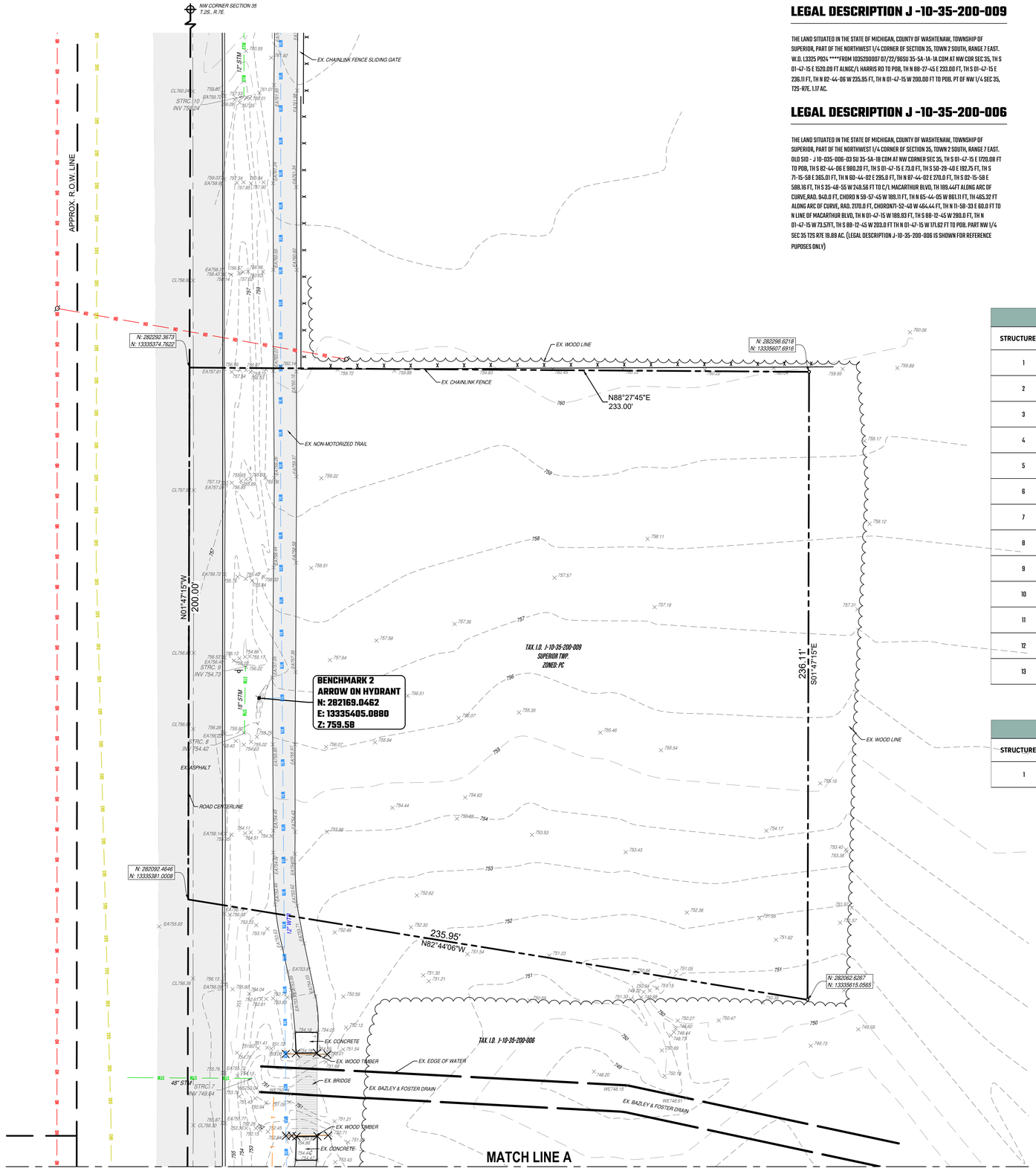
Sheet Name
TOPOGRAPHIC SURVEY

Revisions

REV	ISSUED FOR	ISSUE DATE	BY

Date:	04/15/2024
Reviewed By:	BF
ENG/CADD:	BH
Checked By:	KMA
PE Project No.	24-0008
Sheet No.	1

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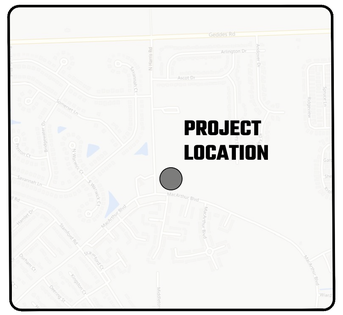


LEGAL DESCRIPTION J -10-35-200-009

THE LAND SITUATED IN THE STATE OF MICHIGAN, COUNTY OF WASHTENAW, TOWNSHIP OF SUPERIOR, PART OF THE NORTHWEST 1/4 CORNER OF SECTION 35, TOWN 2 SOUTH, RANGE 7 EAST. W.D. L 13325 P924 ****FROM 1035200007 07/22/08SU 35-5A-1A-1A COM AT NW COR SEC 35, TH S 01-47-15 E 1520.08 FT ALNGC/L HARRIS RD TO POB, TH N 88-27-45 E 233.00 FT, TH S 01-47-15 E 236.11 FT, TH N 82-44-06 W 235.95 FT, TH N 01-47-15 W 200.00 FT TO POB. PT OF NW 1/4 SEC 35, T2S-R7E. 1.17 AC.

LEGAL DESCRIPTION J -10-35-200-006

THE LAND SITUATED IN THE STATE OF MICHIGAN, COUNTY OF WASHTENAW, TOWNSHIP OF SUPERIOR, PART OF THE NORTHWEST 1/4 CORNER OF SECTION 35, TOWN 2 SOUTH, RANGE 7 EAST. OLD SID - J 10-035-006-03 SU 35-5A-1B COM AT NW CORNER SEC 35, TH S 01-47-15 E 1720.08 FT TO POB, TH S 82-44-06 E 980.20 FT, TH S 01-47-15 E 73.0 FT, TH S 50-29-40 E 192.75 FT, TH S 71-15-58 E 365.01 FT, TH N 60-44-02 E 295.0 FT, TH N 87-44-02 E 270.0 FT, TH S 02-15-58 E 588.16 FT, TH S 35-48-55 W 248.56 FT TO C/L MACARTHUR BLVD, TH 189.44FT ALONG ARC OF CURVE,RAD. 940.0 FT, CHORD N 58-57-45 W 189.11 FT, TH N 65-44-05 W 861.11 FT, TH 465.32 FT ALONG ARC OF CURVE, RAD. 2070.0 FT, CHORD N71-52-40 W 464.44 FT, TH N 11-58-33 E 60.0 FT TO N LINE OF MACARTHUR BLVD, TH N 01-47-15 W 189.93 FT, TH S 88-12-45 W 200.0 FT, TH N 01-47-15 W 73.57FT, TH S 88-12-45 W 203.0 FT TH N 01-47-15 W 171.62 FT TO POB. PART NW 1/4 SEC 35 T2S R7E 19.89 AC. (LEGAL DESCRIPTION J-10-35-200-006 IS SHOWN FOR REFERENCE PUPOSES ONLY)



SITE LOCATION MAP

NOT TO SCALE

STORM STRUCTURE TABLE

STRUCTURE I.D.	NORTHING	EASTING	STRUCTURE TYPE	RIM ELEVATOIN	PIPES
1	N= 281628.9967	E= 13335874.8800	CATCH BASIN	RIM = 753.60	12" RCP INV. = 749.10 (SW)
2	N= 281673.8129	E= 13335526.2700	CATCH BASIN	RIM = 757.45	12" RCP INV. = 753.30 (S)
3	N= 281803.3823	E= 13335411.0900	END SECTION		12" RCP INV. = 755.35
4	N= 281828.1472	E= 13335411.4300	END SECTION		12" RCP INV. = 755.20
5	N= 281863.3248	E= 13335410.5200	END SECTION		12" RCP INV. = 755.06
6	N= 281888.1175	E= 13335410.2600	END SECTION		12" RCP INV. = 754.19
7	N= 282025.9485	E= 13335405.6100	END SECTION		48" CULVERT INV. = 749.64
8	N= 282155.5572	E= 13335398.3700	END SECTION		12" RCP INV. = 754.42
9	N= 282180.7182	E= 13335397.9600	END SECTION		12" RCP INV. = 754.73
10	N= 282394.9427	E= 13335390.3300	END SECTION		12" RCP INV. = 758.24
11	N= 282423.1958	E= 13335389.4800	END SECTION		12" RCP INV. = 758.11
12	N= 282436.8009	E= 13335389.4400	END SECTION		12" RCP INV. = 759.61
13	N= 281628.9967	E= 13335874.8800	CATCH BASIN	RIM = 761.43	12" RCP INV. = 761.43 (S)

SANITARY STRUCTURE TABLE

STRUCTURE I.D.	NORTHING	EASTING	STRUCTURE TYPE	RIM ELEVATOIN	PIPES
1	N= 281683.5688	E= 13335778.2700	SANITARY MANHOLE	RIM = 756.54	12" RCP INV. = 783.05

EXISTING UTILITY LEGEND

- EXISTING OVERHEAD UTILITY
- EXISTING OVERHEAD TELEPHONE
- EXISTING GAS MAIN
- EXISTING CONDENSATION LINE
- EXISTING UNDERGROUND ELECTRIC
- EXISTING TELEPHONE LINE
- EXISTING FIBER OPTIC LINE
- EXISTING CABLE TELEVISION
- FUEL LINE
- EXISTING IRRIGATION LINE
- EXISTING STORM SEWER
- EXISTING WATER MAIN, AS NOTED
- EXISTING SANITARY SEWER
- CONTOUR
- INDEX CONTOUR
- CHAIN LINK FENCE
- IRON FENCE
- WOOD FENCE
- HYDRANT
- GATE VALVE
- POST INDICATOR VALVE (PIV)
- WATER MAIN MANHOLE
- SQUARE CATCH BASIN
- ROUND CATCH BASIN
- BEEHIVE CATCH BASIN
- SANITARY MANHOLE
- END SECTION
- CULVERT
- STORM MANHOLE
- CLEAN OUT
- SIGN
- UTILITY POLE
- RISER
- LIGHT POLE
- LANDSCAPE LIGHT
- SPRINKLER
- ELECTRICAL BOX/TRANSFORMER
- ELECTRICAL MANHOLE
- FLAG POLE
- MAILBOX
- TOP OF CURB
- GUTTER
- EX. GRADE
- EDGE OF ASPHALT
- TOP OF WALL
- BOTTOM OF WALL
- TREE
- CONCRETE
- ASPHALT PAVEMENT
- GRAVEL
- RIP-RAP

NOTES

- DRAWING BASED ON NAD83 MICHIGAN STATE PLANE COORDINATES SYSTEM, SOUTH ZONE, INTERNATIONAL FOOT.
- THIS SURVEY WILL NOT SHOW ALL EASEMENTS OF RECORD UNTIL AN UPDATED TITLE POLICY HAS BEEN FURNISHED TO THE SURVEYOR BY THE OWNER.
- ALL ELEVATIONS ARE RECORD/EXISTING ELEVATIONS
- THE LOCATION OF THE EXISTING UTILITIES AS SHOWN WERE OBTAINED FROM CLIENT PROVIDED DOCUMENTS, MUNICIPAL AND UTILITY COMPANIES RECORDS. NO GUARANTEE CAN BE MADE REGARDING THE COMPLETENESS OR EXACTNESS OF THE UTILITIES LOCATION. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY IN THE FIELD THE LOCATION OF ALL UTILITIES.

BENCHMARK DATA:

BENCHMARK 1
ARROW ON HYDRANT
ELEV= 758.39

BENCHMARK 2
ARROW ON HYDRANT
ELEV= 759.58

FLOODPLAIN NOTE:

THE SUBJECT PROPERTY LIES IN FLOOD ZONE "X", ACCORDING TO FLOOD INSURANCE RATE MAP, MAP NO. 26161C0290E FOR WASHTENAW COUNTY, MICHIGAN, DATED APRIL 03, 2012 AND ISSUED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY. LINES SHOWN HAVE BEEN DIGITALLY TRANSLATED FROM DFIRM DATABASE INFORMATION SUPPLIED BY THE FEMA MAP SERVICE CENTER HTTPS://MSC.FEMA.GOV). MAP NOT PRINTED

SOILS DATA

NoB - Nappanee silty clay loam, 2 to 6 percent slopes

PwmoaA - Pewamo clay loam, dense substratum, 0 to 1 percent slopes

SOIL INFORMATION TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE SOIL SURVEY SITE.

PRIORITY ENGINEERING, LLC

Engineer's Seal

STATE OF MICHIGAN
Thomas M. Smith
License No. 4001031606
LICENSED PROFESSIONAL SURVEYOR

Certification

North

SCALE

0' 20' 40'

GRAPHIC SCALE: 1" = 20'

Project
CLAY HILL FARM MARKET

Project Location
9045 MACARTHUR BLVD, SUPERIOR CHARTER TOWNSHIP, MICHIGAN

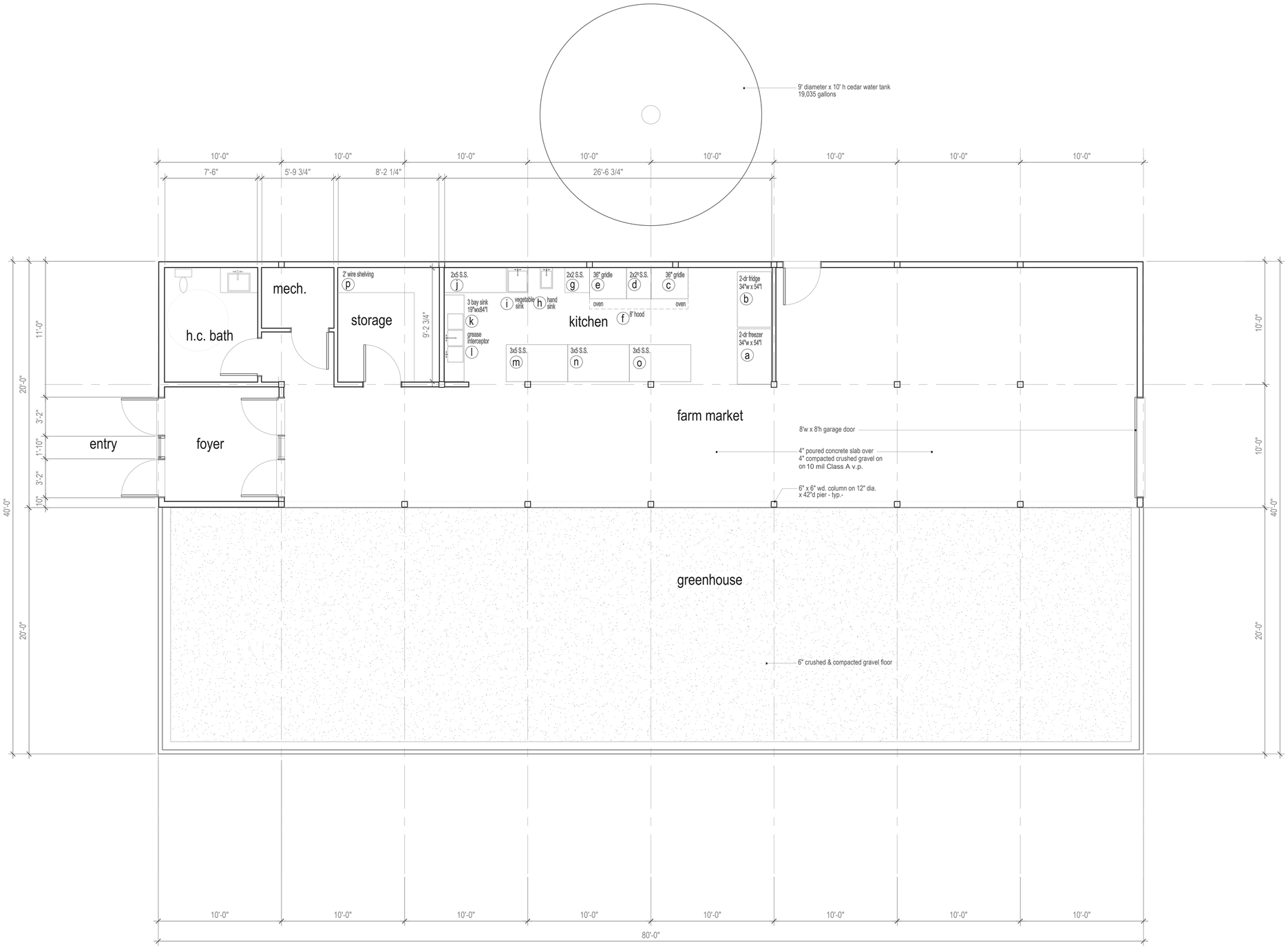
Sheet Name
TOPOGRAPHIC SURVEY

Revisions

REV	ISSUED FOR	ISSUE DATE	BY

Date:	04/15/2024
Reviewed By:	BF
ENG/CADD:	BH
Checked By:	KMA
PE Project No.	24-0008
Sheet No.	2

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Equipment List

(a)	Freezer	MoTak MSD-2DF-BAL-35-X 35"w x 39 1/2"l x 82.5"h 115v
(b)	Fridge	MoTak MSD-2DR-BAL-35-X 35"w x 39 1/2"l x 82.5"h 115v
(c)	Range w/ Griddle & Standard Oven	Garland C-36-1R 36"w x 34 1/8"l x 37 3/4"h gas
(d)	SS Table	Advance Tabco FT-3024 24"w x 30"d x 37"h w/ undershelf
(e)	Range w/ 6 burner & Convection Oven	Star 062-636MF 36"w x 29"l x 15.5"h gas
(f)	Commercial Kitchen Hood	Halifax SCH0848 type 1 96"w x 48"d x 28"h
(g)	SS Table	Advance Tabco SS-242 24"w x 24"d x 37"h w/ undershelf
(h)	Hand Sink	Advance Tabco 7-PS-EC-SP-X 10"w x 14"d x 5"h - wall mount gooseneck faucet
(i)	compartment sink	Spalsh 23" - ECS 1-18-18-12 18"w x 18"l x 12"h single compartment sink
(j)	SS Table	Regency - 30"w x 60"l 30"w x 60"d x 37"h w/ undershelf
(k)	3 bay sink	Advance Tabco FC-3-1620-18RL-X84 26"w x 84"l x 37"h 3 compartment sink
(l)	grease interceptor	John Boos - GT-20-X 14.5"w x 20.1"d x 12.1"h w/ 10 lb GPM capacity
(m)	SS Table	Advance Tabco SS-305 60" 30"w x 60"d x 37"h w/ undershelf
(n)	SS Table	Advance Tabco SS-305 30"w x 60"d x 37"h w/ undershelf & lockable wheels
(o)	SS Table	Advance Tabco SS-305 30"w x 60"d x 37"h w/ undershelf & lockable wheels
(p)	SS Wire Shelving	Winco VCS-1848 18"w x 48"d x 72"h 4 tier heavy duty typical (4)

2A Farm Market & Greenhouse plan

1/4" = 1'- 0"

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a proposed farm market, greenhouse & gardens for:

Clay Hill Farm Market

9045 macarthur/ 1850/1858 harris road . superior township . michigan

sheet title

Farm Market & Greenhouse Plan

date

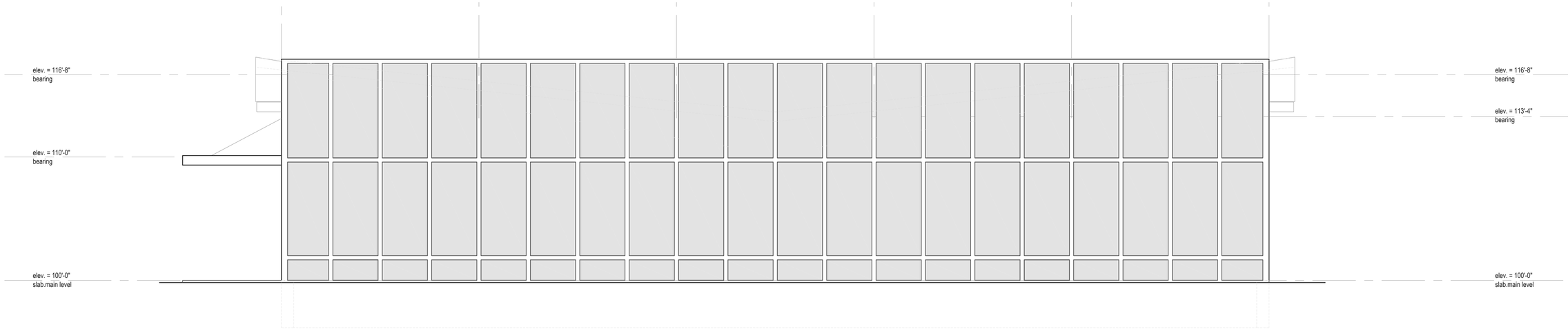
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feb. 3.2025 - revised
apr. 7.2025 - revised
july. 3.2025 - final
april.16.2026 - revised
july. 14.2026 - revised

job no.

2604

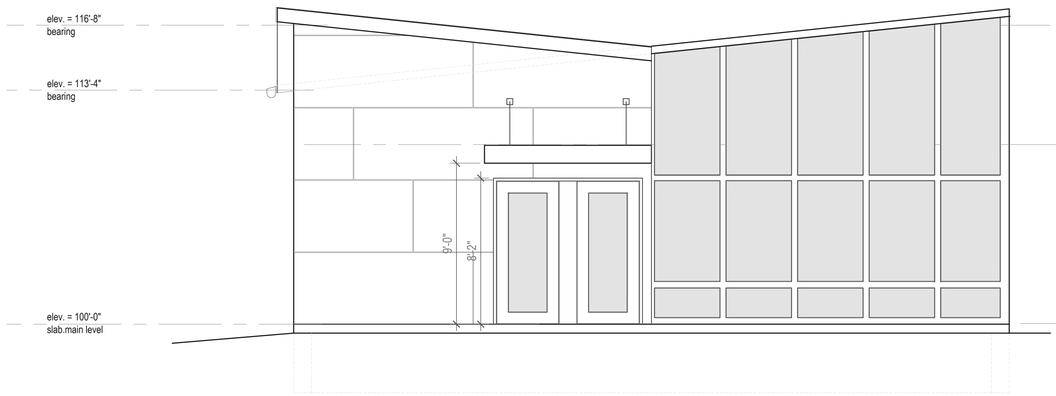
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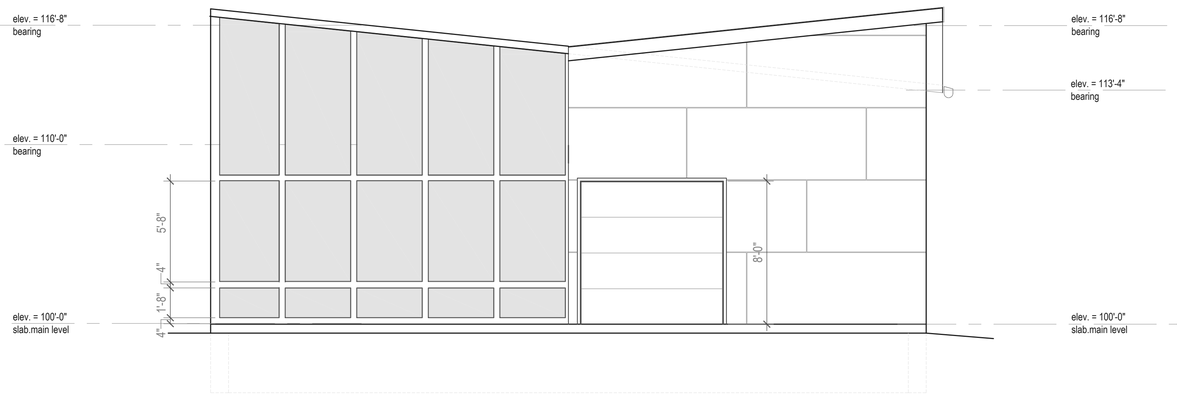
3D South Elevation

1/4" = 1'- 0"



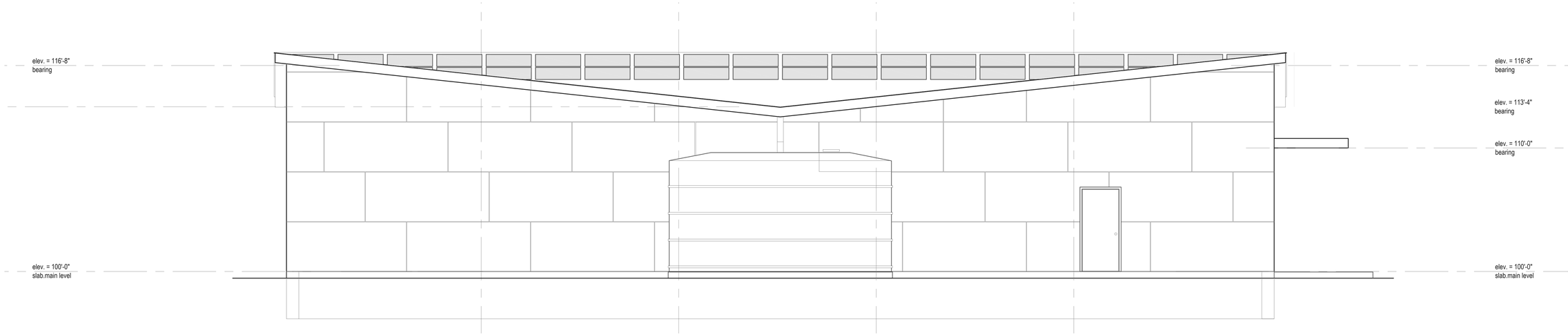
3B West Elevation

1/4" = 1'- 0"



3C East Elevation

1/4" = 1'- 0"



3A North Elevation

1/4" = 1'- 0"

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Farm Market & Greenhouse Elevations

date

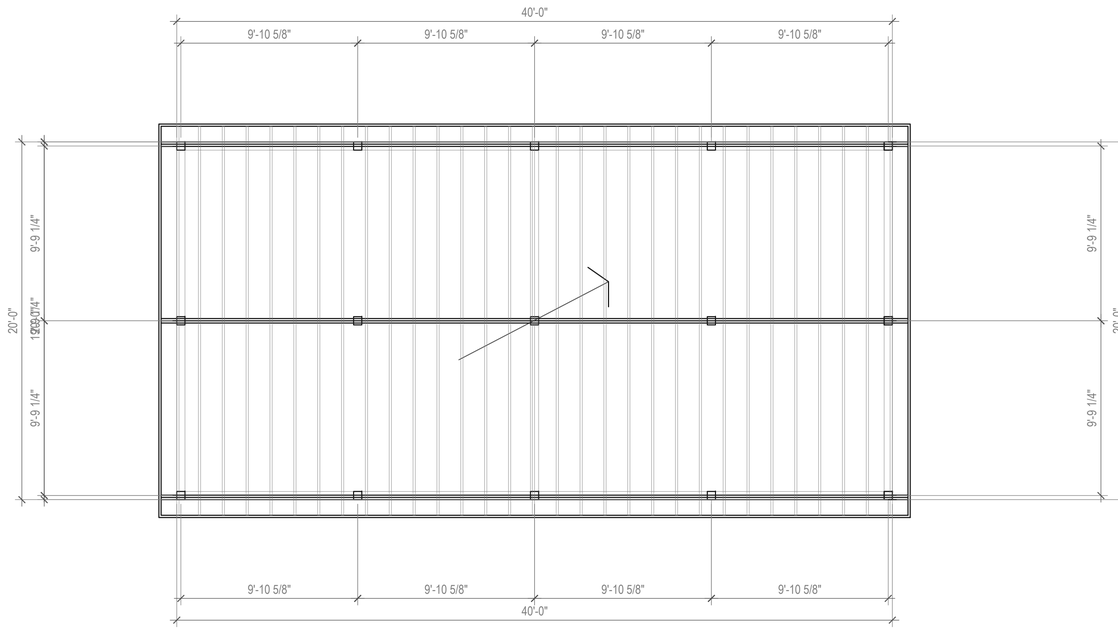
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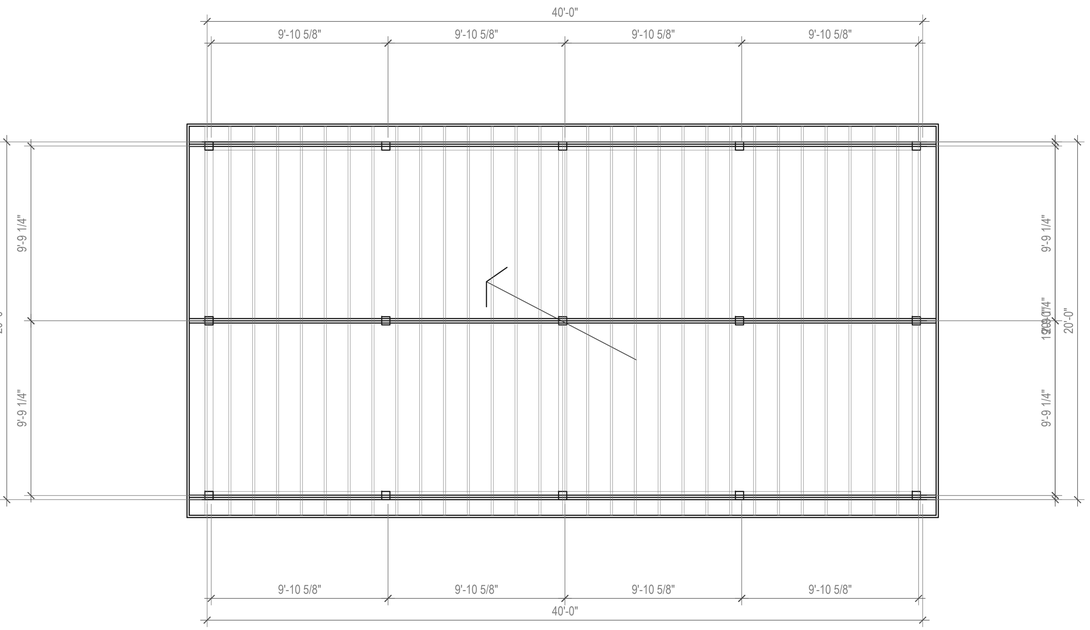
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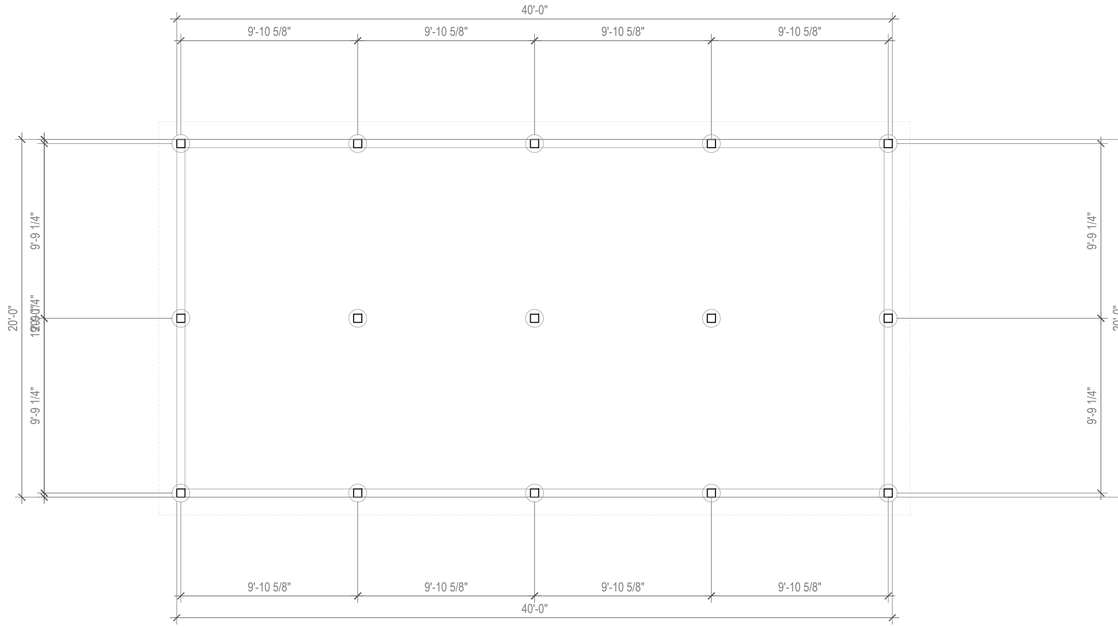
4C West Composting Shed Roof Framing Plan

1/4" = 1'- 0"



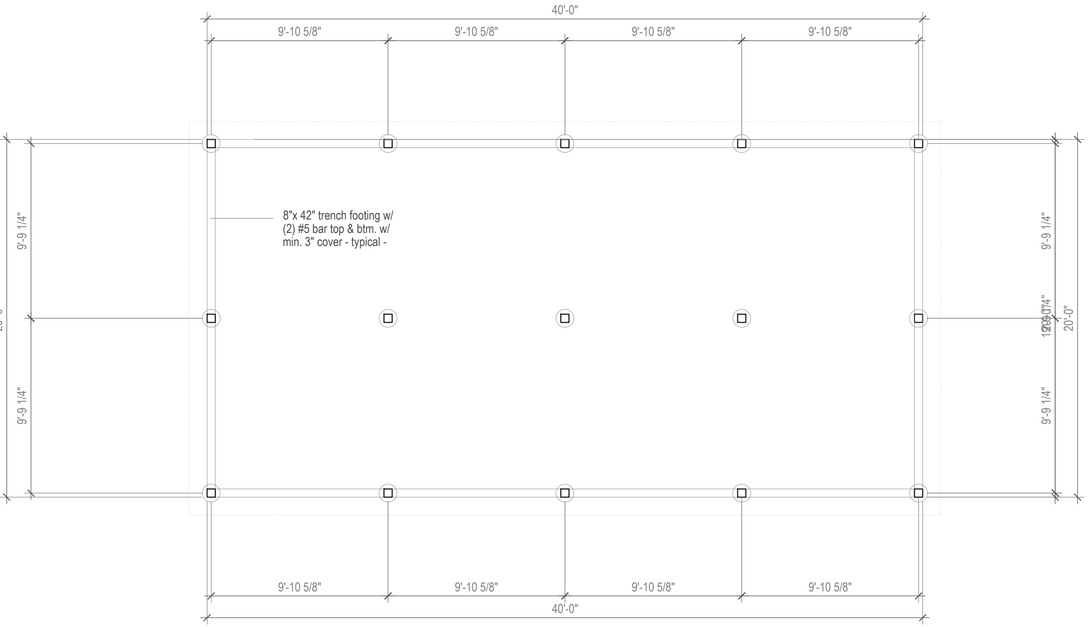
4D East Composting Shed Roof Framing Plan

1/4" = 1'- 0"



4A West Composting Shed Plan

1/4" = 1'- 0"



4B East Composting Shed Plan

1/4" = 1'- 0"

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Composting Sheds Plans

Composting Sheds Roof Framing Plans

date

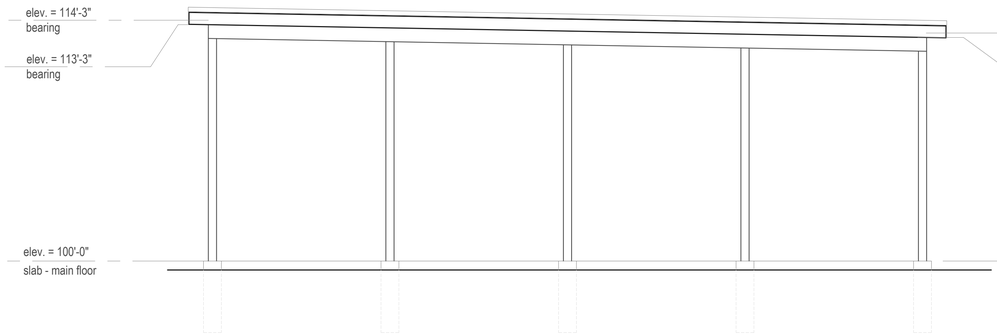
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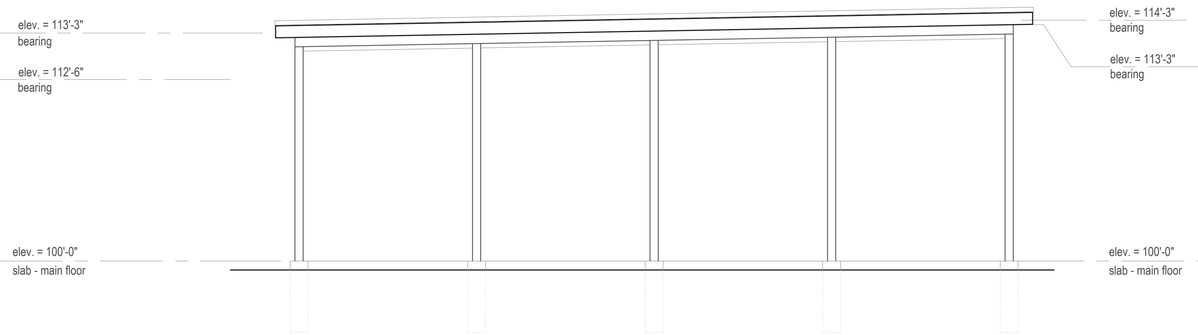
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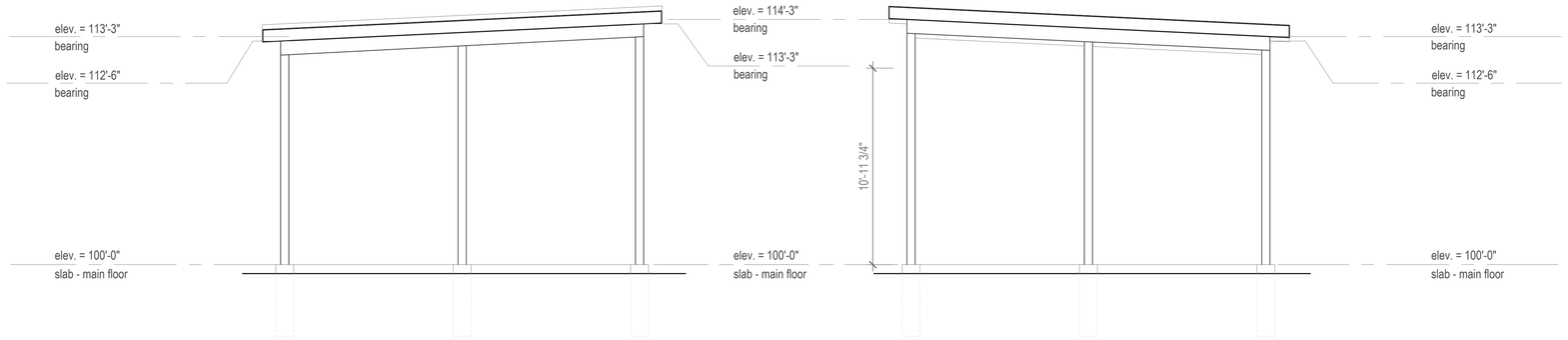
5G West Composting South Elevation

1/4" = 1'- 0"



5H East Composting South Elevation

1/4" = 1'- 0"

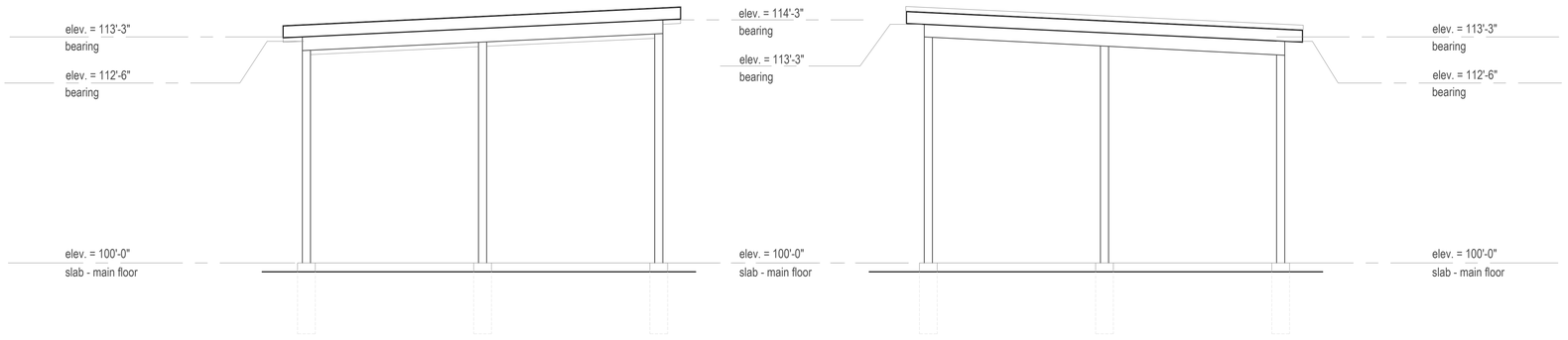


5E East Composting West Elevation

1/4" = 1'- 0"

5F East Composting East Elevation

1/4" = 1'- 0"

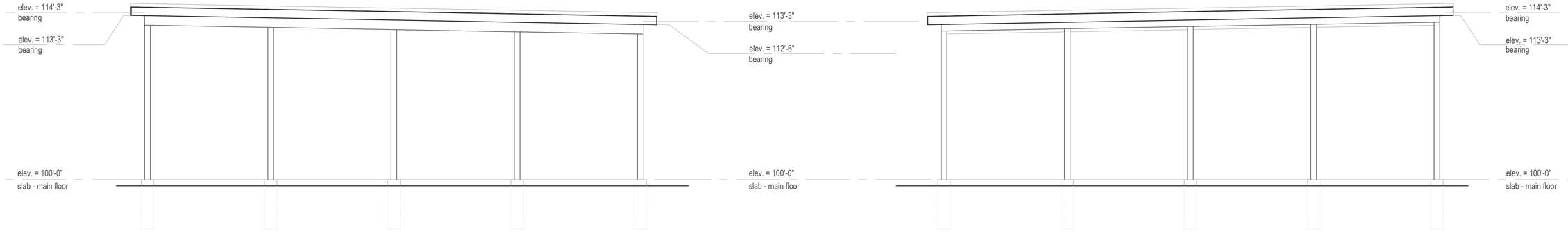


5C West Composting West Elevation

1/4" = 1'- 0"

5D West Composting East Elevation

1/4" = 1'- 0"



5A West Composting Shed North Elevation

1/4" = 1'- 0"

5B East Composting Shed North Elevation

1/4" = 1'- 0"

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sheet title

Composting Sheds
Elevations

date

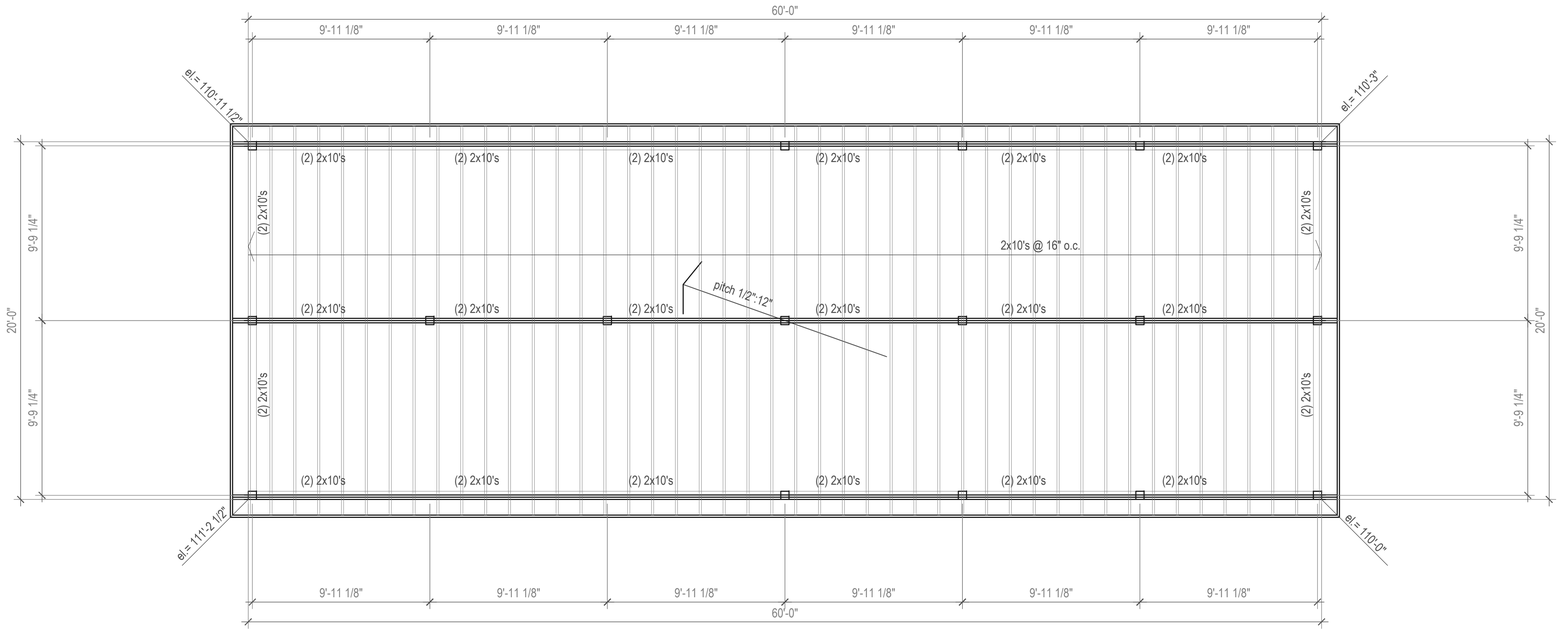
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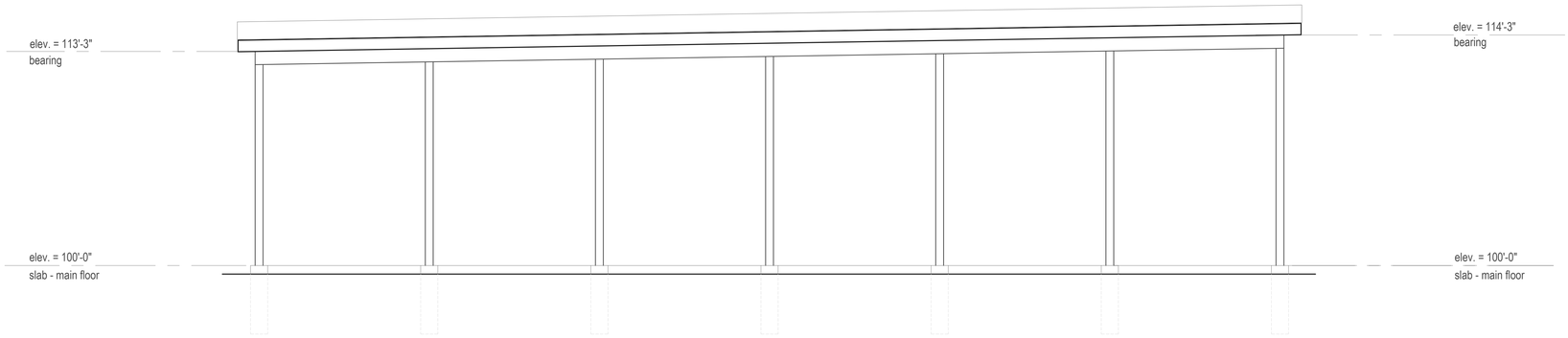
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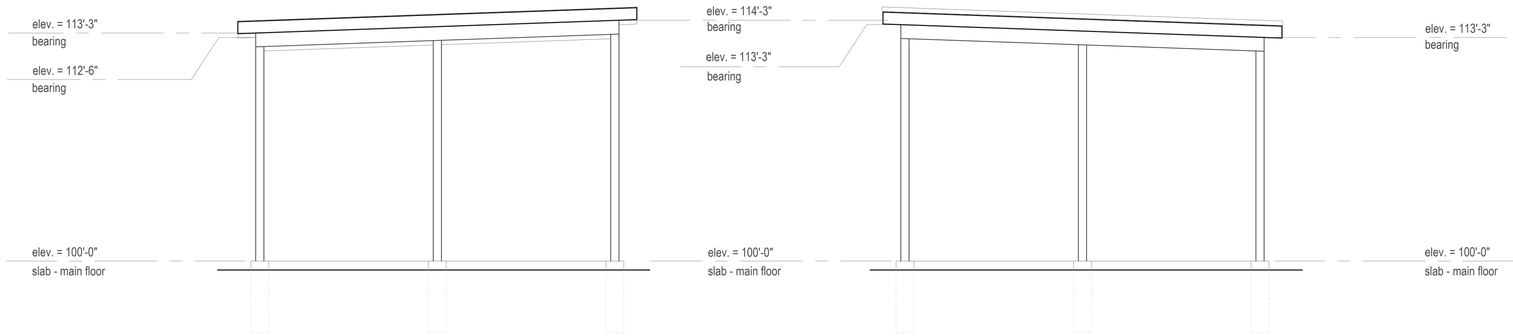
A5


60'-0"
9'-11 1/8"
9'-11 1/8"
9'-11 1/8"
9'-11 1/8"
9'-11 1/8"
9'-11 1/8"
el.= 110'-11 1/2"
el.= 110'-3"
(2) 2x10's
(2) 2x10's
(2) 2x10's
(2) 2x10's
(2) 2x10's
(2) 2x10's
(2) 2x10's
(2) 2x10's
2x10's @ 16" o.c.
pitch 1/2":12"
(2) 2x10's
(2) 2x10's
(2) 2x10's
(2) 2x10's
(2) 2x10's
(2) 2x10's
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(2) 2x10's



7D Elevated Solar Array/ Composting Shed North Elevation

1/4" = 1'- 0"

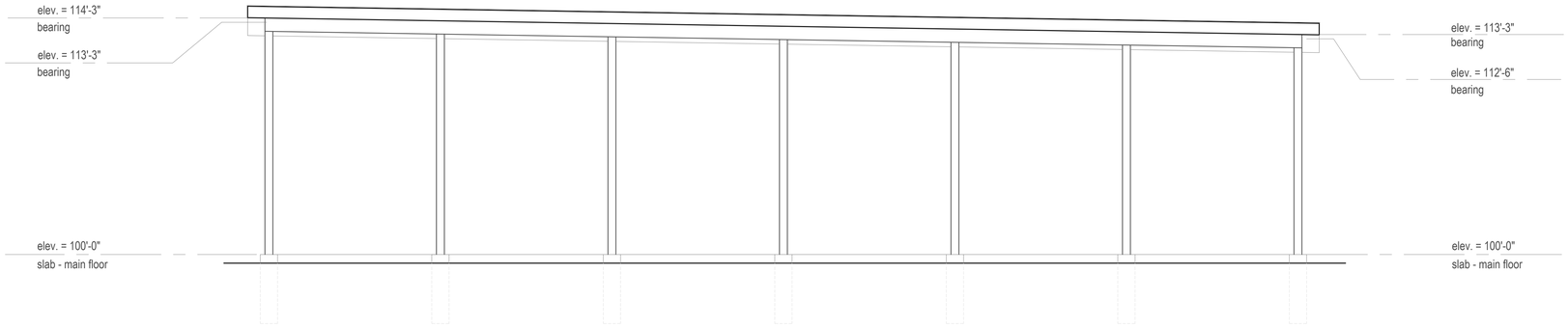


7B Solar Array/ Composting Shed East Elevation

1/4" = 1'- 0"

7C Solar Array/ Composting Shed West Elevation

1/4" = 1'- 0"



7A Elevated Solar Array/ Composting Shed South Elevation

1/4" = 1'- 0"

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a proposed farm market, greenhouse & gardens for:

Clay Hill Farm Market

9045 macarthur/ 1850/1858 harris road . superior township . michigan

sheet title

Solar Array/ Composting Shed Elevations

date

jan. 25.2025 - final
feb. 3.2025 - revised
apr. 7.2025 - revised
july. 3.2025 - final
april.16.2026 - revised
july. 14.2026 - revised

job no.

2604

A7

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

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

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

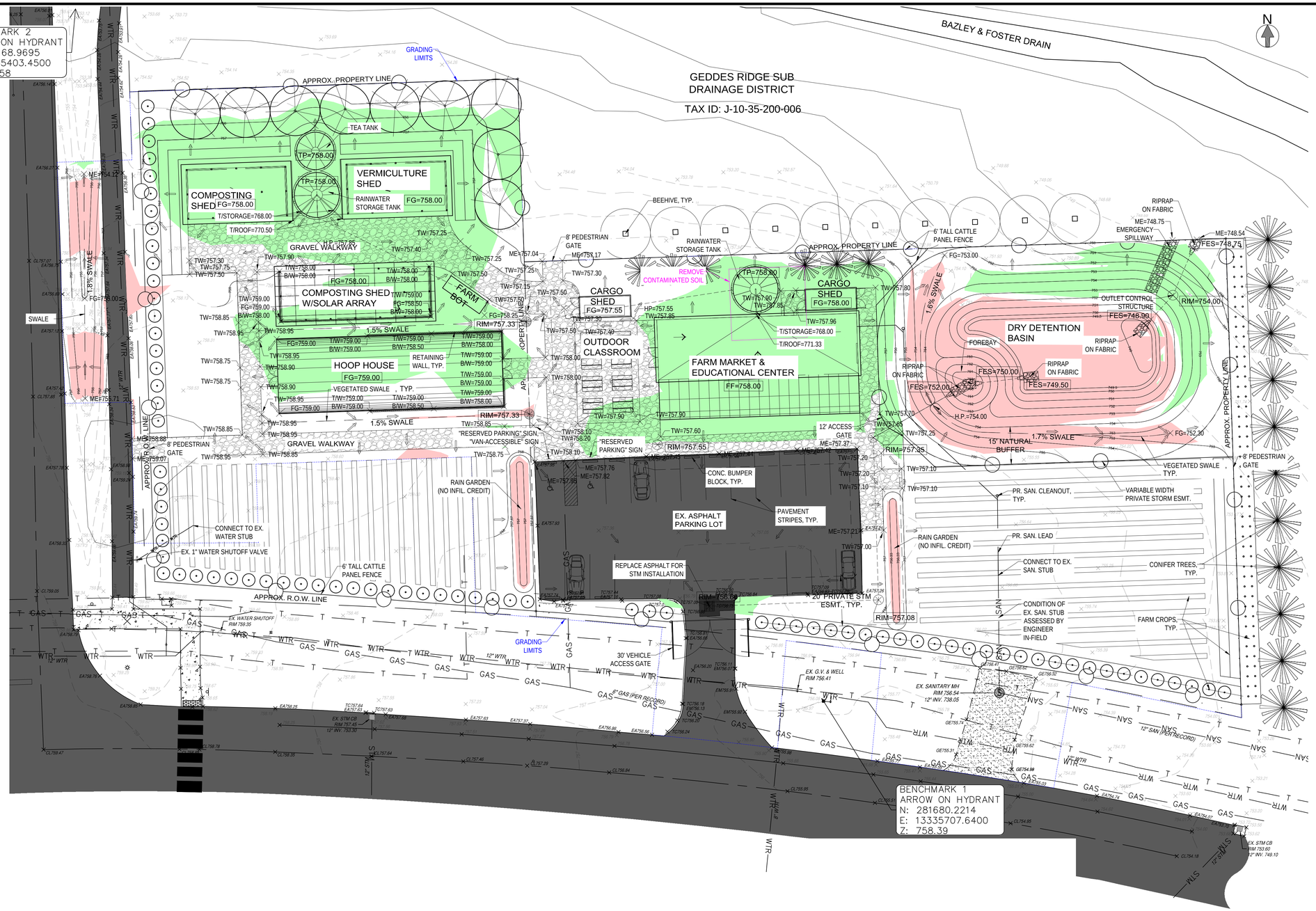
LEGEND

- PROPERTY LINE
- PROPOSED GRAVEL
- PROPOSED STORM STRUCTURES
- PROPOSED STORM SEWER
- PROPOSED HYDRANT
- PROPOSED WATER VALVE
- PROPOSED WATER LEAD
- PROPOSED SANITARY CLEANOUT
- PROPOSED SANITARY LEAD
- EXISTING STORM STRUCTURE
- EXISTING STORM SEWER
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING WATER MAIN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING ASPHALT
- PROPOSED CONTOURS
- EXISTING CONTOURS

LEGEND:
= CUT
= FILL

LABEL LEGEND

TC	TOP OF CURB
GU	GUTTER
TW	TOP OF WALK
TP	TOP OF PAVEMENT
T/W	TOP OF WALL
B/W	BOTTOM OF WALL
FG	FINISHED GRADE
FF	FINISHED FLOOR
FES	FLARED END SECTION
ME	MATCH EXISTING
PR	PROPOSED
H.P.	HIGH POINT



BENCHMARKS:
(NAVD88 DATUM)

BENCHMARK 1
ARROW ON EX. WATER HYDRANT
ELEV. = 758.39

BENCHMARK 2
ARROW ON EX. WATER HYDRANT
ELEV.= 759.58

STATE OF MICHIGAN · MICHELLE J. THOMPSON · License No. 6201310001 · LICENSED PROFESSIONAL ENGINEER · 07/13/2026

7/16/2026	
DATE	REVISION

Community Engineering Corps

ENGINEERS WITHOUT BORDERS USA DETROIT

CHAPTER NAME: EWB USA DETROIT
LOCATION: DETROIT, MI
CONTACT: CHAPTER@EWB-DETROIT.ORG

REIC: MICHELLE THOMPSON, P.E.	7/13/2026
PROJECT LEAD: ANDREW O'CONNOR	
PROJECT LEAD:	
DRAWN BY: ANDREW O'CONNOR	
ROLE	CHECK DONE

SECTION 35	CLAY HILL COMMUNITY FARM & GARDEN
TOWN 2 SOUTH, RANGE 7 EAST	WILLOW RUN ACRES 111 SOUTH WALLACE BOULEVARD YPSILANTI, MI 48197
SUPERIOR CHARTER TOWNSHIP	MASS GRADING ANALYSIS EXHIBIT
WASHTENAW COUNTY, MICHIGAN	

SCALE
0 10 20
1" = 20 FEET

SHEET NO.: C1

SHEET 1 OF 1

MEMO

TO: Superior Charter Township Board of Trustees

FROM: Michelle Marin, Planning & Zoning Administrator

RE: Planning & Zoning Department Report

DATE: July 6, 2026

Below is a summary of the planning and zoning activities for the month of June 2026.

HYUNDAI COOLING SYSTEM

Background: In May 2026, the applicant submitted a site plan for a cooling tower and water pump building on an existing lawn area between the principal building and parking. The site plan is subject to administrative review and approval. Planning, engineering, and fire department reviews are ongoing.

DTE GRENADA SUBSTATION

Update: The preliminary site plan and conditional use application is expected to reappear on the July 22nd Planning Commission meeting agenda. OHM reviewed the environmental reports and subconsultants reviewed the noise and EMF studies provided by DTE. The applicant submitted revised plans on June 9, 2026.

Background: Conditional Use Permit/Preliminary Site Plan - DTE Grenada Substation Expansion (STPC #25-02). The applicant submitted a revised application, including a revised site plan, noise study, EMF study, environmental impact statement, and site renderings. in November. The project appeared on the December 17, 2025, Planning Commission agenda. Following a lengthy discussion of the changes, the Planning Commission postponed action and directed the applicant to address the following items:

1. Township to independently review the following:
    i. Environmental Impact Study
    ii. Electromagnetic Field Study
    iii. Noise Study
2. Provide graphics to confirm if the combination of a berm and landscaping is sufficient to screen all site operations from all property lines.
    i. If deficient, increase berm and landscaping.
3. Confirm ability to obtain 12-foot-tall evergreens.
4. Clarify tree replacement shortfall (97 required vs. 63 proposed) and how remaining replacement obligations will be satisfied (additional on-site trees, off-site planting, or other Township-acceptable mitigation).
5. Provide more detailed tree preservation analysis to confirm viability of “to remain” trees whose critical root zones may be disturbed.
6. Provide formal landscape maintenance plan (practices, products, schedule, and replacement of dead/diseased plant material).
7. Confirm whether site lighting will be used only for emergencies and maintenance normal condition: lights off) and ensure any operating schedule is clearly documented.

8. Confirm feasibility of brick wall around facility.

CLAY HILL COMMUNITY FARM AND GARDEN

Update: None.

Background: The Board of Trustees issued a 1-year extension of the special district area plan approval for the Clay Hill community farm and garden at request of the applicant. The applicant indicated progress as well as the need to extend the approval to update wetland mapping and finalize permits with the County Road, Water, and Drain Commissions. The applicant submitted a site plan application that substantially deviated from the approved area plan. As such, the applicant is applying for an area plan amendment as well as site plan approval.

A public hearing for the area plan amendment was held at the April 22nd Planning Commission meeting. Following the Planning Commission recommendation, the Board postponed action on the area plan amendment at the May 2026 Board meeting.

TIMBER CREEK AREA PLAN

Update: PILOT Ordinance on July Board agenda. No plan updates from developer.

Background: The Planning Commission discussed a concept plan for a mixed density housing development located on MacArthur Blvd at parcel ID #J -10-35-300-003 at the December 17, 2025, meeting. The applicant has not formally submitted an area plan application, but provided a concept plan that was reviewed by Ben Carlisle for the housing project, aimed to be completed by the end of 2028. The developer, Elmington Capital, develops, owns, and operates income-restricted housing units financed through tax credits. For the proposed Timber Creek project, 20 acres of the site will be developed by Elmington, and the remainder of the site will be developed as a single-family housing community by another TBD developer. 80% of the units will be 60% AMI, which is $70,000-$90,000 annual household income. 10% of units will be at 70% AMI, which is up to $102,000 annual income, and 10% will be at 40% AMI. The applicant indicated that there will be no housing vouchers tied to the project.

After a public hearing and lengthy discussion at the regular April meeting, the Planning Commission held a special meeting at the applicant's request on May 6, 2026 to adopt a resolution recommending approval to the Township Board of the proposed area plan for the Timber Creek Flats.

ZONING ORDINANCE REWRITE

Update: Following review of the recent revisions and another public hearing at the regular June meeting, the Planning Commission recommend approval of the latest draft of the Zoning Ordinance.

Background: At the February 25th regular meeting, the Planning Commission passed a resolution to recommend to the Township Board approval of the rewritten zoning ordinance and zoning map. The recommendation came after the public hearing and the culmination of a nearly 2-year review process. For over 1 year, the Planning Commission reviewed the draft ordinance article at a time, with several articles being discussed at multiple Planning Commission meetings. A public open house to educate folks on the zoning ordinance occurred on April 23rd 6:30 – 8pm at the Library. Following internal discussions with individual board members and additional public feedback, a second Board of Trustees work session to discuss the zoning ordinance update occurred on June 15th at 5:30pm.

THE MEADOWS AT HAWTHORNE MILLS

Update: Pre-construction meeting held in May 2026.

Background: The Meadows at Hawthorne Mills is a 215 unit single-family residential site condominium located on 71 acres of land located south of Geddes Road and east of Leforge Rd. The site includes private roads that provide two (2) access points to Geddes Road and has two (2) connection points with the adjacent Prospect Pointe West Development. In addition, there is a road stub for future development to the south. The proposed development will be served with public utilities. A sewer will connect from Leforge Road, and the Prospect Pointe Development and water will be looped throughout the development from Geddes Road. Stormwater management will be handled with four (4) proposed detention ponds located throughout the development.
The entire development received preliminary site plan approval on October 28, 2020. There are five (5) phases of development, and each phase required final site plan approval. The final site plan for Phase 1 was approved by the Planning Commission with conditions on November 15, 2023. Phase 1 includes a total of 40 lots/units as well as construction of the roads and infrastructure items to directly serve those units, extension of a sanitary sewer from LeForge Road across the neighboring property to the west needed to service Phase 1, and mass grading of the entire site.

The Development Agreement was approved by the Board of Trustees at the August 2025 meeting, conditioned upon finalizing the Right-of-Way Dedication which was finalized in early 2026.

TRINITY HEALTH – ER ADDITION/RENOVATION

Update: Construction began in April 2026.

Background: On October 29th, the Planning Commission approved a site plan (STPC #25-07) for a renovation/addition project to the Trinity Health Emergency Department. The site plan includes alterations to the parking and drop off area as well as a building addition to allow additional ER rooms. The approval was conditioned upon the applicant addressing minor outstanding planning and engineering items. The conditions of approval were satisfied in December 2025.

PROSPECT POINTE WEST

Update: Construction on Phase 3 is ongoing.

Background: Prospect Pointe West is a four-phase single-family residential development project, on a ~67-acre parcel of land zoned R-4, an Urban Residential District. The development is located on the southwest corner of Geddes Road and Prospect Road, west of Hunters Creek Drive in the northeast quarter of Section 33. The applicant is proposing to develop Prospect Pointe West as a 157-unit site condominium.
The four (4) phases consist of the following number of units:

- Phase 1 – 39 units
- Phase 2 – 45 units
- Phase 3 – 26 units
- Phase 4 – 47 units

The proposed lot dimensions are 66' x 130' with a minimum lot size of 8,580 sf. The homes will range in size from 2,000 to 3,200 sf with sales prices starting in the $400,000s. The development has private roads with sidewalks on both sides and will be serviced by public sanitary sewer which will be designed as an extension of the existing Prospect Pointe development. Public water will also be extended from the existing subdivision. Each phase of the development is required to go through the Final Site Plan process.

The Final Site Plan for Prospect Pointe West Phase 1 (STPC #22-03) was approved by action of the Superior Township Planning Commission on April 26, 2023, and includes 39 single family lots. Building permits for individual homes are being issued and construction has commenced.

The Final Site Plan for Prospect Pointe West Phase 2 (STPC #24-01) was approved by action of the Superior Township Planning Commission on May 22, 2024, and includes 45 single family lots. The Development Agreement for Phase 2 has been recorded and a preconstruction meeting was held on September 10, 2024.

The Final Site Plan for Prospect Pointe West Phase 3 (STPC #25-01) was approved by the Planning Commission at the May 28, 2025, meeting. This phase includes 25 single family lots. The development agreement was approved by the Township Board of Trustees at the September 15th meeting.

The applicant submitted a final site plan application for Prospect Pointe West Phase 4 (STPC #25-08) in September. The final site plan was approved, without conditions, at the December 17, 2025, Planning Commission meeting.

MEADOWS 2 AT HAWTHORNE MILL AREA PLAN

Update: Pre-construction meeting not yet scheduled.

Background: Lombardo and Atwell have submitted an application for an area plan for 12 single family detached homes at 7330 Geddes Road, directly adjacent to the Meadows at Hawthorne Mill development. The Meadows 2 (STPC #25-10) includes interior connections to the original Meadows at Hawthorne Mill and proposes no new entrances from Geddes Road. The planning review of the proposed area plan questions how the 12 homes will be connected to the original Meadows at Hawthorne Mill homes, particularly with respect to a single HOA. The public hearing for the proposed area plan occurred at the November 19th Planning Commission meeting, where the Planning Commission had a lengthy discussion regarding the ways in which the proposed project is supported by some of the Master Plan goals but conflicts with others. Ultimately, the Planning Commission determined that the area plan was warranted and approved a resolution recommending approval to the Township Board of the proposed area plan and rezoning. The Township Board approved the Area Plan at their December 15, 2025, meeting.

HYUNDAI FUEL LOADING SYSTEM

Update: Construction began on the project in September 2025.

Background: On August 27th, the Planning Commission approved a combined preliminary and final site plan for a fueling facility at the Hyundai America Technical Center in the PM Planned Manufacturing District. The project (STPC #25-06) includes the construction of a two-pump accessory fueling facility and underground storage tanks. The facility is intended for vehicles being used on site and does not include a retail sales component. The planning and engineering reviews have been completed, with several outstanding items identified in both reviews.

GARRETT'S SPACE

Update: Site work ongoing.

Background: Garrett's Space is proposed to be a residential center where young adults suffering from depression and anxiety are treated. The facility will include both in-patient and daily services, with a non-medical and non-institutional focus. Garrett's Space is proposed on seven (7) parcels that will be combined into one lot totaling approximately 76.0 acres. The property has historically been used as a single-family residence with an address of 3900 Dixboro Road and is in Section 7 of the Township. The site includes significant natural resources including woodlands, steep slopes, a creek, floodplain, and wetlands. Building permits have been submitted and a preconstruction meeting was held on March 18, 2025. Preliminary site work has commenced. The approved Development Agreement requires the conservation area protection to

be recorded prior to Certificate of Occupancy (CO) for the main residential structure to be newly constructed (Phase 2). A temporary C of O was issued for the Phase 1 portion of the project on December 19, 2025.

BROOKWOOD

Update: Development Agreement was drafted and sent to applicant for review. Pre-construction meeting not yet scheduled. SESC and WCWRC permits required prior to scheduling pre-con meeting.

Brookwood is a Master Planned Community on an ~84 acre parcel of land zoned Planned Community (PC) a Special District. The development is located on the east side of Leforge Road approximately 700 feet north of Clark Road in the southwest corner of Section 33. The applicant is proposing to develop Brookwood with 318 dwelling units divided into three (3) residential dwelling product types (i.e., stacked flats, duplex units, four-plex units, and attached townhomes).

The development is designed for renters and owners plus a section dedicated for people over 55 years of age. Stacked flats and duplexes are anticipated to rent from $1.50 - $2.50 per square foot. The townhomes will be for sale and priced per unit according to the market. The development will also include a clubhouse, amenity areas, paved parking areas, landscape improvement, and a continuous sidewalk network along private drives throughout the development and walking paths that connect amenities with various areas of the development. Existing public water and sanitary sewer mains will be extended to serve the development.

The Final Site Plan for Brookwood Estates (STPC #23-05) was approved by the Planning Commission at the May 2025 meeting. The engineering plans have been reviewed by OHM.

ZONING BOARD OF APPEALS

Per bylaws, the ZBA consists of seven (7) regular and two (2) alternates members appointed by the Township Board. One (1) of the members must be a member of the Township Planning Commission and one member may be a member of the Township Board. The remaining members must reside in the unincorporated areas of the Township and represent the population distribution and various interests present. Current ZBA members include:

- Thomas Brennan, (Chair & PC Member)
- Rachel Smith
- Dana Greene (BOT)
- Tanya Markos-Vanno
- Meghan Winslow
- Jack Gilbreath
- William Schoefield
- Austin Anderson (alternate)

The Township has regularly scheduled ZBA meetings on the 2nd Wednesday of the month; if there are no agenda items, the meeting is cancelled. The May 2026 meeting was canceled due to a lack of agenda items. The June meeting has similarly been canceled.

PLANNING COMMISSION

Per bylaws, the Planning Commission shall consist of seven (7) members serving three (3) year terms with eligibility for re-appointment. One member of the Township Board shall be appointed to the Planning Commission as an ex officio member and Township Board Representative, with full voting rights. The current Planning Commission is comprised of the following members:

- Jay Gardner, Chair (Term expires 2/28/2029)
- Robert Steele, Vice Chair (Term expires 2/28/2028)
- Thomas Brennan, Secretary (Term expires 2/28/2027)
- Patrick McGill (Term expires 2/28/2027)
- Brenda McKinney– Board Rep. (Term expires 11/7/2028)
- Nahid Sanii-Yahyai (Term expires 2/28/2029)
- Curt Wolf (Term expires 1/01/2028)

OTHER BUSINESS/NEWS

1) Michelle Marin of Carlisle Wortman Associates (CWA) reviewed and approved 28 Certificates of Zoning Compliance and Burn Permits in June.

   Michelle responded to many general phone and email inquiries from the public both during and outside of office hours and met in person with numerous folks at the Township Hall during office hours. She prepared the packet and staffed the June Planning Commission meeting. Michelle works with Accounts Payable to ensure all escrow accounts are balanced at the end of each month. Michelle also began using the PZE module on BS&A to track all development projects and zoning permits.

2) Carlisle Wortman Associates staff also serve in the role as the Township Planner and review and manage projects that are paid from escrows including applicant inquiries and project coordination.