MEETING:	**REGULAR MEETING OF THE PLAN COMMISSION**
DATE & TIME:	**Monday, June 8, 2026 at 6:30 PM**
LOCATION:	**Germantown Village Hall Board Room** **N112 W17001 Mequon Road**

Any member of the body and/or citizen also attend the meeting virtually through the WebEx platform, Meeting #: **2553 216 2843** Password: **qRNiKJrY345** which can be accessed by phone at **408-418-9388** or by logging on at **https://villageofgermantown.my.webex.com/villageofgermantown.my/j.php?MTID=m3e60c9657945a5ad89155bdbfd3c356f**

Citizens not wishing to attend the meeting personally or virtually may submit any public comments by sending an email to comments@germantownwi.gov by 4 p.m. on the day of the meeting so that it can be provided to the members of the body for their consideration. Previously recorded Village Board Meeting Videos can be viewed at **https://www.youtube.com/channel/UCOYp0EgELzTCa9X_iCohyhQ**.

AGENDA

I. **CALL TO ORDER:** *This meeting has been given public notice in accordance with Section 19.83 and 19.84, Wis. Stats, in such form that will apprise the general public and news media of subject matter that is intended for consideration and action.*

II. **ROLL CALL:**

III. **CITIZEN INPUT/PUBLIC APPEARANCE:** *(Please be advised per 19.84(2) that information and comment will be received from the public. It is the policy of this municipality that public input be limited to a four (4) minute period per person with a time extension granted at the discretion of the Chairperson. Be advised that there may be limited discussion of the information received but no action will be taken under public comments.) Comments that may be injurious to village personnel or other individuals will not be allowed.*

IV. **MEETING MINUTES:**

A. PC Minutes 5-11-26

V. **NEW BUSINESS:**

A. Brandon O'Bryon, Agent for Mark Posey and Randall Wendland, Property Owner, at W212 N11206 Meeker Hill Lane; Application to Rezone 2.1 acres from the R-2: Single-Family Residential to the B-3: General Business District; and a Conditional Use Permit (CUP) Application to Allow the Operation of a Construction Service/Contractor Shop for a Tree Removal Business Operation. (PUBLIC HEARING & ACTION)

B. Cirrus Property Group, LLC, Agent for Faith Lutheran Church, Property Owner. Site Plan and Sign Permit applications for a 36-unit multifamily residential development ("The Carillon at Germantown") totaling 5.4 acres located at W172N11187 Division Road in the Lannon-Mequon Road Corridor. (ACTION)

C. Pinnacle Engineering Group, Agent for ZPG Development LLC, Property Owner - W210 N13145 Gateway Crossing; Site Development & Building Plans for a 252,512 sqft Multi-Tenant Industrial Building in the Germantown Gateway Corporate Park. (ACTION)

D. Joseph Schultz, Property Owner of N128W16824 Holy Hill Road. Request for a variance from the architecture and exterior materials requirements under

Section 17.41(2a) of the Zoning Code for a detached accessory building. (ACTION)

E. Signs & Gear, Agent for Daryl & Ralph Willing/Maple German LLC, Property Owner W188 N10707 Maple Road - Sign Review for Multi-Tenant Monument Sign. (ACTION)

F. Keaton Harrison, Property Owner. Zoning Permit application to install a 6' fence in a public drainage easement on property located at W142N9935 Amber Drive. (ACTION)

VI. COMMUNITY DEVELOPMENT DIRECTOR'S REPORT:

VII. NEXT MEETING DATE:

VIII. ANNOUNCEMENTS:

IX. ADJOURNMENT:

UPON REASONABLE NOTICE, efforts will be made to accommodate the needs of disabled individuals through appropriate aids and services. For additional information or to request this service, please contact the Village Clerk at (262)250-4745 at least 2 days prior to the meeting.

Notice is hereby given that a possible quorum of other boards, committees, and/or commissions may attend this meeting to gather information about an item over which they have decision-making responsibility. This may constitute a meeting of these bodies per State ex rel. Badke v Greendale Village Board, even though these bodies will not take formal action at this meeting.

MEETING:	**REGULAR MEETING OF THE PLAN COMMISSION**
DATE AND TIME:	**Monday, May 11, 2026 6:30 PM**
LOCATION:	**Germantown Village Hall Board Room** **N112 W17001 Mequon Road**

MINUTES

I. CALL TO ORDER: *This meeting has been given public notice in accordance with Section 19.83 and 19.84, Wis. Stats, in such form that will apprise the general public and news media of subject matter that is intended for consideration and action.*

Chairman Soderberg called the meeting to order at 6:30pm.

II. ROLL CALL:

Committee Members Soderberg, Warren, Henk and Ewert wer present. Also present were Community Development Director Retzlaff, Associate Planner Yanke and Planning Assistant Deb Remich (via Webex). Committee Members Williams, Tarantino and Fisher were absent excused.

III. CITIZEN INPUT/PUBLIC APPEARANCE: *(Please be advised per 19.84(2) that information and comment will be received from the public. It is the policy of this municipality that public input be limited to a four (4) minute period per person with a time extension granted at the discretion of the Chairperson. Be advised that there may be limited discussion of the information received but no action will be taken under public comments.) Comments that may be injurious to village personnel or other individuals will not be allowed.*

No citizens came forward to speak.

IV. MEETING MINUTES:

A. PC Minutes 4-13-26

Motion: Approve as presented
Motioned By: Robert Warren
Seconded By: Bridget Henk
Yes: Bob Soderberg, Robert Warren, Bridget Henk, Russell Ewert
No: None
Abstain: None
Motion Passed (Yes 4, No 0, Abstained 0)

V. NEW BUSINESS:

A. EKM Moose Lodge 1238, Property Owner W198 N10217 Appleton Avenue - Application to Amend Conditional Use Permit No. 07-2011 to revise restrictions on overnight camping on the Moose Lodge property by Moose Lodge members only from April 15 through October 15 each year. (PUBLIC HEARING & ACTION)

Director Retzlaff went over the history of the property and the background of the CUP.

Chairman Soderberg opened the public hearing at 6:39pm.
Citizens who spoke included:
Mary Erenyi who is the Moose Lodge Vice President stated that everyone that camps on the property has to become a member. She will fight against the 3-day restriction on camping because the pipeline workers need a reasonable place and they bring money into the community.
Don Deackler spoke in favor of the Moose Lodge.
Chairman Soderberg closed the public hearing at 6:44pm.

Commissioners asked whether there were any complaints about the property and no, there were not. Concerns included: taking income from local hotels, whether all campers are members of the lodge and the ability to police that, shipping container removal, they don't want this property to be a campground, put a limit on the number of days members are allowed to camp, whether the rules/restrictions will be followed, sanitation issues including the holding tank dumping and how not limiting the number of days campers can stay overnight could possibly lead to an eviction issue for the Lodge. Washington County does not allow the dumping of waste into an existing holding tank. The lodge provides porta toilets for non-lodge hours of operation for the campers' use. Erenyi stated that she would like a 30-day limit on camping and that they will require campers to dump waste off-site from now on. She also stated that becoming a member is easy, apply, pay a fee, pass a background check, and they need a sponsor. It only takes a day or two. Anita Hauner, a Moose Lodge member, stated that they want to extend the limit on camping for their members to come, camp, visit their families, etc., and their dump station is always locked, so they have to be there to allow campers to dump waste water into their holding tank. Henk stated that MMSD would not get involved in a holding tank issue that would be the State of WI and there are a lot of steps involved. Henk suggested adding a condition to obtain a permit from the State of WI for discharge into a holding tank or not using it at all would be another way to comply. Soderberg suggested possibly a 15-day limit and stated they would have to be compliant with Washington County.

Motion: Approve with the addition to Condition 7 to have the State of WI sanitary permit as an option
Motioned By: Bridget Henk
Seconded By: Robert Warren

Discussion Followed. Erenyi stated that campgrounds throughout the State don't have dumping stations and campers need to go elsewhere to dump. They allow water hook-ups, they charge a fee for camping and are a non-profit organization, and stated that the Moose Lodge is available 24 hours for campers to use the restrooms and for storm shelter.

Staff recommends approval of an amendment to Conditional Use Permit No. 07-2011 (as amended in 2013) to continue to allow the short-term overnight parking of vehicles by Moose Lodge members only on the property located at W198 N10217 Appleton Avenue subject to the following conditions where words that are ~~stricken~~ will be deleted and words <u>underlined</u> will be added:

1. The overnight parking of vehicles, e.g. cars, SUV's, campers, motor homes, travel trailers, etc. shall be limited to Moose Lodge members only and not for a period of time longer than 3 days per vehicle per month. Generally, overnight parking should be limited to ~~weekends during~~ the period of April 15th to October 15th each year ~~months of March through September~~. The number of vehicles to be parked overnight shall be limited to not more than eight (8) vehicles on the property at any one time.

2. Moose Lodge is responsible for providing ~~adequate sanitary facilities, including indoor bathroom facilities and up to (3) portable toilets. All portable toilets shall be properly cleaned and maintained and removed from the property during the "non-parking" months listed in #1 above.~~ adequate trash receptacles ~~shall be provided~~ on-site.

3. If the use, activities and/or operation subject of this permit falls out of conformity with the conditions herein, or where there is a change in the nature, character, intensity or extent of the permitted conditional use which causes special problems or harmful effects otherwise associated with the use to be no longer ameliorated or eliminated, or where conditions imposed were anticipated to ameliorate or eliminate harmful effects associated with the use but are insufficient to do so, or for similar cause based upon consideration for the public comfort, safety, and welfare, the conditional use permit may be terminated or modified by the Village Board by the amendment to or addition of conditions after public hearing thereon.

4. The Moose Lodge shall provide permanent bathroom, shower, sink, and toilet facilities on a 24 hour/day 7 day/week basis for overnight members-only guests;

5. The Moose Lodge maintain a permanent "guest log" or other accounting system to keep track of guests allowed to park overnight on the property; said log to include the names, permanent residence address, telephone number, email address, membership ID# and status; length of planned stay; vehicle description including license plate number, and other information deemed necessary to allow Village staff the ability to verify compliance with all CUP conditions. A copy of said log shall be made available by the Lodge for inspection by Village Staff upon request.

6. The Moose Lodge shall post on the property in a convenient location or otherwise provide updated contact information for at least one Lodge member who can respond to any on-site emergencies called in by a guest and responded to by Village Fire Department and Police Department staff.

7. The Moose Lodge shall contact the Washington County Natural Resources Department for purposes of obtaining necessary permits (if

required) and providing code compliant sanitary services for overnight guests, including the provision of an appropriate RV tank flushing station integrated with the existing holding tank if allowed. A copy of said permit(s) shall be provided to the Community Development Department.

8. The Moose Lodge shall remove the shipping container currently kept on the property within six (6) months after the approval of this conditional use permit.

Amended Motion: To revise Condition 1 to strike cars, SUVs and etc. and change the limit of days to 15
Motioned By: Robert Warren
Seconded By: Russ Ewert
Yes: Bob Soderberg, Robert Warren, Bridget Henk, Russell Ewert
No: None
Abstain: None
Motion Passed Yes 4, No 0, Abstained 0

B. Abacus Architects, Agent for DONTOF LLC, Property Owner, and Basic Metals, Inc.-- Review of revised architecture and exterior material plans for a 42,000 sqft industrial building addition and office remodeling for the facility located at W180 N11819 River Lane in the Germantown Industrial Park. (ACTION)

Director Retzlaff stated this is being brought back because at the April 13th Plan Commission meeting the architect was asked to make changes to the architecture and exterior materials for the building. Retzlaff introduced Jason Hartling from Abacus Architects who went over the changes that they made.

Staff recommends approval of the revised architecture, materials, and color palette for the 42,000 square foot building addition and office remodeling as presented for the Basic Metals facility located at W180N11819 River Lane.

Motion: Approve as presented
Motioned By: Robert Warren
Seconded By: Bridget Henk
Yes: Bob Soderberg, Robert Warren, Bridget Henk, Russell Ewert
No: None
Abstain: None
Motion Passed (Yes 4, No 0, Abstained 0)

C. Innovative Signs, Inc., Agent for Truck Country USA, Property Owner N128 W21795 Holy Hill Road. Sign application for additional monument signage. (ACTION)

Director Retzlaff went over the location of the 2 signs and stated that there is a need for these signs for wayfinding purposes.

Staff recommends approval of the two (2) proposed monument signs for Truck Country USA located at N128 W21795 Holy Hill Road, subject to the following conditions:

1. Applicant/owner shall obtain an electrical permit(s) from Building Inspection Services prior to sign installation.

2. Owner shall provide information required under 17.46(7)(h) and necessary to determine compliance with the electronic message center operational requirements.

Motion: Approve as presented
Motioned By: Robert Warren
Seconded By: Bridget Henk
Yes: Bob Soderberg, Robert Warren, Bridget Henk, Russell Ewert
No: None
Abstain: None
Motion Passed (Yes 4, No 0, Abstained 0)

D. Brian Sparrow, Property Owner. Zoning Permit application to install a 4' fence in a public storm drainage easement on property located at W143N10660 Magnolia Drive. (ACTION)

Associate Planner Yanke went over the fence proposal, which proposes a 4' fence with bottom 4" above grade within a public storm drainage easement and private storm drainage easement. He stated there does appear to be a 12" storm pipe along the northern property line within the public easement and showed photos of the drain inlet along the street and in the rear of the property. Committee members were concerned about surface drainage and stormwater runoff causing backups into basements during heavy rains, and they had concerns regarding the private easement, including the impact on the surrounding properties, and they felt that the 4" height may not be high enough to allow drainage. After discussion, no concerns about the public easement, but the private one is concerning. The Village Attorney stated that all the property owners in the subdivision would be the beneficiaries to that private drainage easement, since the HOA is not active. Brian Sparrow came forward and stated that he would like to strike condition 4 entirely, and he has a written statement from the developer who is claiming no rights to the easement. Does the PC have jurisdiction over the private easement? We are looking out for the welfare of all of our residents and while we may not have jurisdiction, the Village does. Committee members would like the 14 surrounding property owners that this drainage easement would affect to sign off on understanding the risk they are taking if this fence is approved. Based on the language that staff and the Village Attorney can come up with, that would be sufficient. This private drainage easement is a shared resource for all the 14 property owners, so it should be a shared decision.

Staff recommends approval of the zoning permit application to install a 4’ solid privacy fence in a public storm drainage easement along the northern (side) lot line of property located at W143N10660 Magnolia Drive, subject to the following conditions:

1. A fence permit is required from Building Inspection Services. The property owner is required to contact SAFEBuilt Inspection Services for more information.

2. Prior to issuance of a fence permit, owner shall submit proof of written authorization to the Village to install fence within the private storm drainage easement that runs along the eastern (rear) lot line. Said authorization shall be from the appropriate successor to the inactive Wooded Hills HOA (i.e. all homeowners in subdivision) as deemed acceptable by the Village Attorney.

3. The property owner shall enter into an encroachment agreement with the Village that specifies the property owner assumes responsibility for removing and/or replacing the fence and any other damages or costs if access to or maintenance of the easement is required by the Village.

4. It shall be the responsibility of the homeowner to maintain a free flow of water within the storm drainage easement at all times. Bottom of fence shall be installed at 4” above grade.

5. If the fence needs to be removed to make improvements and/or conduct maintenance within the easement, the property owner shall be responsible for all costs associated with removing the fence to the extent necessary within seven (7) days of being notified by the Village (or another mutually agreeable deadline). The property owner shall be responsible for any and all costs associated with any damage, removal, or re-installation of said fence.

6. The property owner and/or fence installer shall be liable for any and all damage to any storm sewer utility upon installation and all site restoration within the easements.

Motion: Approve with an amendment to Condition 2 to strike the "i.e. all homeowners in the subdivision" portion
Motioned By: Bridget Henk
Seconded By: Russell Ewert
Yes: Bob Soderberg, Robert Warren, Bridget Henk, Russell Ewert
No: None
Abstain: None
Motion Passed (Yes 4, No 0, Abstained 0)

E. Michael and Pam Madrzak, Property Owners of N116W13444 Elm Lane. Request for a variance from the architecture and exterior materials requirements under Section 17.41(2a) of the Zoning Code for a detached accessory building. (ACTION)

Associate Planner Yanke went over the proposed architectural variance for the siding on the accessory building, which will not be the same as the existing dwelling.

Staff recommends approval of the Zoning Permit application for an architectural variance from Section 17.41(2a) of the Zoning Code to construct a detached accessory building (pole building) with metal siding/roof materials on property located at N116W13444 Elm Lane, subject to the following condition;

1. Applicant/owner shall remove one (1) detached accessory building from the property within 3 months after the new pole building is constructed and has passed final inspection by SAFEBuilt Inspection Services.

Motion: Approve as presented
Motioned By: Robert Warren
Seconded By: Russell Ewert
Yes: Bob Soderberg, Robert Warren, Bridget Henk, Russell Ewert
No: None
Abstain: None
Motion Passed (Yes 4, No 0, Abstained 0)

F. Ruekert & Mielke, Agent for F Street Germantown LLC, Property Owner. Certified Survey Map (CSM) to divide an existing 37-acre parcel into (2) parcels to accommodate Phase 2 of an industrial development. Property is located at N104W12659 Donges Bay Road in the Town 9 Business Park. (ACTION)

Associate Planner Yanke briefly went over the proposed CSM for Phase 2 of the development.

Staff recommends approval of the proposed 2-lot Certified Survey Map (CSM) for F Street Germantown, LLC, for property located at N104W12659 Donges Bay Road, subject to the following condition:

1. All technical issues and corrections identified by the Village Surveyor (see attached May 6, 2026, memo from Bob Beilfuss, PLC) shall be addressed and reflected in a revised CSM reviewed and approved by Village staff prior to recording.

Motion: Approve as presented
Motioned By: Bridget Henk
Seconded By: Russell Ewert
Yes: Bob Soderberg, Robert Warren, Bridget Henk, Russell Ewert
No: None
Abstain: None
Motion Passed (Yes 4, No 0, Abstained 0)

VI. COMMUNITY DEVELOPMENT DIRECTOR'S REPORT:

Director Retzlaff gave an update on: Community Engagement for the Village Center District, Holy Hill Gateway District Master Plan, 2050 Plan implementation and why, and he gave a development projects status update.

VII. UPCOMING MEETING DATE(S):

VIII. ANNOUNCEMENTS:

IX. ADJOURNMENT:

Chairman Soderberg adjourned the meeting at 8:39pm.

REZONING & CONDITIONAL USE PERMIT (CUP) APPLICATIONS

6/8/26 Plan Commission Meeting

Mark Posey / Randall Wendland

Village Staff Report & Recommendation **Germantown, Wisconsin**

Summary

Brandon O'Bryon, Attorney and agent for Mark Posey and Randall Wendland, property owner, is requesting approval to rezone a 2.1 acre property from the Rs-2: Single-Family Residential to the B-3: General Business District and a Conditional Use Permit (CUP) to allow a construction services/contractor shop for a tree removal business on the property located at W212 N11206 Meeker Hill Lane in the "Meeker Hill Neighborhood".

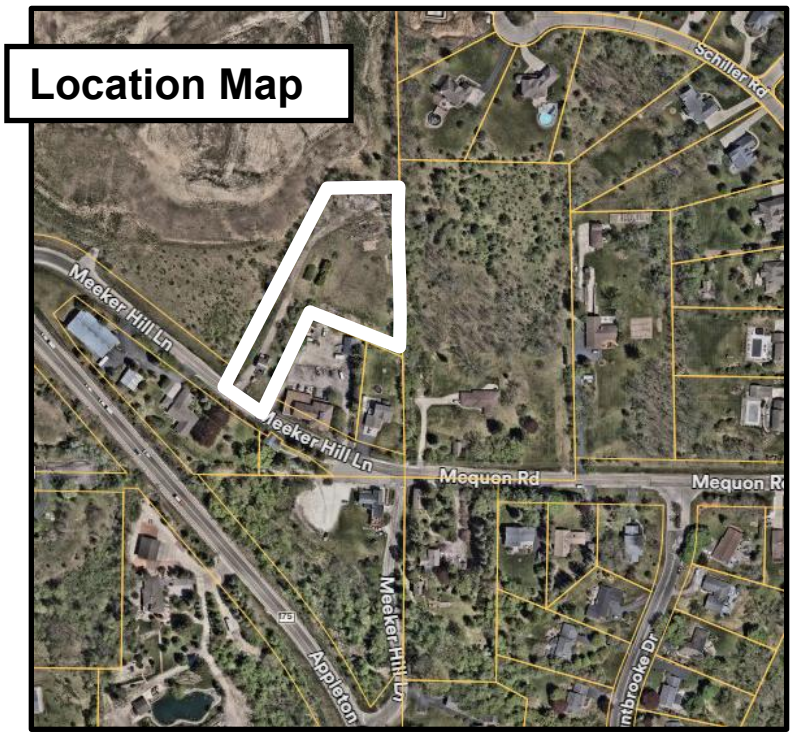
Location: W212 N11206 Meeker Hill Lane

Applicant/ Owner:

Brandon O'Bryon	Randall Wendland
N95W16975 Falls Pkwy	856 Ravine Ridge Drive
Menomonee Falls, WI	Colgate, WI

Current Zoning: **Rs-2: Single-Family Residential**
Proposed Zoning: **B-3: General Business**

Adjacent Land Uses		Zoning
North	Residential/PDD	Rs-2/PDD
South	Business	B-3
East	Residential	Rs-1/Rs-2
West	Residential/PDD	Rs-2/PDD



Proposal

Brandon O'Bryon, Attorney and agent for Mark Posey and Randall Wendland, property owner, is requesting approval to rezone a 2.1 acre property from the Rs-2: Single-Family Residential to the B-3: General Business District and a Conditional Use Permit (CUP) to allow a construction services/contractor shop for a tree removal business on the property located at W212 N11206 Meeker Hill Lane in the "Meeker Hill Neighborhood".

As indicated in the applications and supporting documents, Posey is a prospective purchaser of the 2.1-ac property and, subject to approval of the rezoning and conditional use permit applications, Posey proposes to operate a tree removal business from the property. Posey is the registered agent for "Just the Tree Guy LLC", an existing company registered with the State of Wisconsin associated with the address at W171 N8458 Allen Ave, Menomonee Falls, WI. The existing business rents space for equipment storage at the Billy Goat Mulch property located at N185 N7493 Narrow Lane, Menomonee Falls. If the rezoning and CUP applications are approved and the property acquired as proposed, "Just the Tree Guy LLC" will relocate all equipment storage and operations to the 2.1-acre subject property.

Business activities proposed include:

- Most firewood will be delivered to customers offsite.
- Firewood will be staged along the west property line along the lower driveway portion of the lot. Some customers may pick up from this same area by appointment only. This keeps any non-employee visits near the entrance of the property.
- No grinding of wood will happen on the property.
- Applicant does not intend to do mulching at this time. All chipping is done at customer's sites (offsite) and then chips are taken to the dump, no chips would be coming back to the Property
- Wood intended for firewood would be temporarily stored along the east side property line south of the proposed building; it would be processed in this same area. Cutting and splitting firewood would happen in this area only during business hours, or hours acceptable to the Village.
- The purpose of the proposed 50'x120' building is to house nearly all equipment indoors.
- Employee vehicles would park along the west side of the lot line opposite of the proposed building.

As part of the business operation, Posey proposes constructing a 54' x 120' (6,480 sqft) pole barn to store and service equipment. The business currently employes 10-15 employees. Hours of operation are proposed to be from 7:30am until dusk (generally 5:00 pm on December 22 and 9:00pm on June 22).

Staff Comments

Land Use

The 2.1-acre property is located in the "Meeker Hill Neighborhood" under the Village's 2050 Comprehensive Plan. The "Meeker Hill Neighborhood" is intended to develop as a low-density residential area:

> *"Desirable future land uses within the Meeker Hill Neighborhood include open space, recreational areas, agricultural and hobby farm uses, and limited residential development"…* "*Other than the pre-existing commercial parcels along Appleton Avenue, no additional commercial uses are intended to develop in this neighborhood." [2050 Comprehensive Plan page 75]*

With respect to pre-existing commercial and other non-residential land uses, future development/re-development under current zoning is allowed, but new commercial, industrial, and other non-residential uses are not allowed. The proposed rezoning from Rs-2: Single-Family Residential to B-3: General Business and the proposed tree removal business on the property are not consistent with the intended and desirable use of the subject property under the Village's 2050 Land Use Plan.

Historical Use

In the applications and supporting documents, the Applicant states that the property was used by the current owner to conduct a tree removal business including the storage of equipment and timber and, consequently, this proposal is a continuation of said historical use. This is the only argument provide in support of why the proposed rezoning should be approved. While it is true that the current owner, Randall Wendland, started using the property for a tree service business ("Wendland Tree Service") back in 2002, that use was unlawful under the Village's 2020 "Smart Growth" Comprehensive Land Use Plan and the (still current) Rs-2: Single-Family Residential Zoning District within which the property is located. After receiving code violation notices for illegally operating a commercial business in a residential zoning district, Wendland made multiple attempts in the years 2004-2006 to rezone the property.

In 2004, Wendland filed an application to rezone the property from the existing Rs-2: Single-Family District into the M-1: Limited Industrial District which was eventually denied by the Village Board in 2005. In 2005, Wendland filed applications to revise the 2020 Land Use Plan designation for the property from "Industrial/Office" to "Commercial" and to rezone the property from the Rs-2: Single-Family District to the B-1: Neighborhood Business District. Those applications were denied by the Village Board in 2006. Since 2002, when Wendland first began cutting and storing firewood on the property that led to code violation notices being issued and eventually to a Circuit Court decision in favor of the Village dismissing Wendland's complaint and request for an injunction and restraining order against the Village, Wendland's use of the property for a tree services business has never been a legal or code compliant use of the property. Staff does NOT agree with the Applicant's argument that the illegal non-conforming "historical" use of the property is justification to rezone the property.

Surrounding Uses

It's interesting to note that, In making their decision back in 2006 to deny the previous rezoning request, the Village Clerk summarized in a July 26, 2005 letter to Wendland *"that there is substantial residential development surrounding this [Wendland's 2.1-acre] property, and if and when the quarry is reclaimed, in all likelihood it would also be developed as residential".* This reasoning and observation proved prophetic given that a quarry reclamation plan for the 126-ac quarry site was approved in 2023 for a fifteen (15) lot private residential neighborhood rezoned into an Rs-2: Single-Family Zoning District. This area known as the "Moraine Development PDD" is located west and north of the 2.1-acre Wendland property. Equal in importance to this matter is the fact that another residential neighborhood, Bavarian Woods, was approved for development in 2007 with a majority of the twenty-three (23) single-family lots built in 2008-2009. Bavarian Woods is located north and east of the Wendland property. Other existing residential uses are located adjacent to and south of the Wendland property, south across Meeker Hill Lane, the 45-lot Mountbrooke neighborhood to the southeast (developed 1970-85), and the 18-lot Country Belle Manor neighborhood to the west (developed in 2005-2015).

Other uses in the area along Meeker Hill Lane include a small multi-tenant office and apartment building, bar & restaurant (Bixenberg Tavern), carpet cleaning services (Rickmeyer LLC), and used car sales (Meeker Hill Auto). All these businesses are pre-existing with all the properties being zoned B-3: General Business since the 1970's or earlier. As stated previously, under the 2050 Plan, these "non-conforming" businesses are allowed to continue operating as allowed under existing zoning.

Proposed Zoning & Conditional Use

Section 17.30 of the Zoning Code states that the B-3: District is intended to:

> *"…provide for the orderly continuation and revitalization of the older established Main Street central business district…of the Village where uses are not exclusively of one type but, rather, mixed and include retail sales shops, wholesale and warehousing outlets, and institutional, recreational and residential uses. Many of the existing businesses in this district may not meet the requirements of the B-1 or B-2 Districts. It is the intent of this district to provide minimum requirements for all new uses of land within the district and a guide for the redevelopment or revitalization of existing uses of land within the district…"*

In other words, the B-3 District, commonly referred to as the "junk drawer" district of the Zoning Code, was created and assigned to small, pre-existing parcels/properties with a mixture of residential and retail businesses in existence at the time the Zoning Code was first created because those parcels didn't "fit" into any of the other business districts created in the Code. That's why the list of permitted uses is so extensive and restrictions such as building setbacks and lot coverage are so generous. In Staff's opinion, the B-3 District is not one that should necessarily be expanded by adding new property into it, but rather only be used to guide re-development of those properties already located within a B-3 District. New businesses should be located on property that complies with the 2050 Land Use Plan classifications that allow for it and on parcels

created (or existing) that meet the requirements of the B-1: Neighborhood, B-2: Community, B-4: Professional Office, or B-5: Highway Business Districts.

Moreover, once a property is located in a particular business district, like the B-3 District, the allowable uses of that property are as set forth in the district regulations. As mentioned previously, the B-3 District has an extensive list of uses that are allowed with a conditional use permit and an even longer list of uses permitted “by right”. Many of these uses have the potential for having significant greater and possibly negative impacts on surrounding property than the single-family residential uses that comprise most of the land uses surrounding the Wendland property.

For the reasons discussed above, Staff does NOT support the request to rezone the property from the Rs-2: Single-Family District to B-3: General Business District (nor the proposed “construction services/contractor shop” conditional use that requires rezoning of the property as a pre-requisite).

VILLAGE STAFF RECOMMENDATION

DENY the request to rezone a 2.1-acre property from the Rs-2: Single-Family Residential to the B-3: General Business District and the request to grant a Conditional Use Permit (CUP) to allow operation of a construction services/contractor shop for a tree removal and firewood processing business on the property located at W212 N11206 Meeker Hill Lane.

NOTICE OF PUBLIC HEARING
VILLAGE OF GERMANTOWN

NOTICE is hereby given that a Public Hearing will be held before the Village of Germantown Plan Commission at the Germantown Village Hall located at N112W17001 Mequon Road, Germantown, Wisconsin and virtually through the WebEx platform on the following date and at the time noted below (or soon thereafter):

DATE: Monday, June 8th, 2026
TIME: 6:30 pm or later

The purpose of said hearing is to hear all parties, their attorneys or agents, for or against the following applications: (1) a REZONING application to rezone the following described property from the Rs-2: Single-Family Residential Zoning District to the B-3: General Business Zoning District; and (2) a CONDITIONAL USE PERMIT application for the purpose of operating a tree removal business ("horticultural services") and constructing a new pole building for the storage and service of equipment from the following described property pursuant to Section 17.30(3)(p) of the Village Zoning Code:

Applicant: Atty. Brandon O'Bryon & Mark Posey, Agents for Randall Wendland, Property Owner
Property: W212N11206 Meeker Hill Lane; Tax Key No. (GTNV_193996)

Property Description:
A PARCEL IN THE SOUTHEAST¼ OF THE SOUTHWEST¼ OF SECTION 19, TOWNSHIP 9 NORTH, RANGE 20 EAST, IN THE VILLAGE OF GERMANTOWN, WASHINGTON COUNTY, WISCONSIN AND DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTH ¼ CORNER SECTION 19-9-20, THENCE NORTH 00° - 33' EAST ON THE SOUTH¼ LINE OF SAID SECTION, 280.50 FEET (17) RODS TO PLACE OF BEGINNING OF THIS DESCRIPTION, THENCE NORTH 64° - 58' WEST 219.20 FEET, THENCE SOUTH 27° - 32' WEST 255.50 FEET TO CENTERLINE OF TOWN ROAD (OLD FOND DU LAC ROAD), THENCE NORTH 52° - 13' WEST ON CENTERLINE OF TOWN ROAD 93.00 FEET, THENCE NORTH 28° 01' EAST, 499.75 FEET, THENCE SOUTH 87° - 04' EAST (AS FENCED) 156.00 FEET TO THE SOUTH ¼ LINE, THENCE SOUTH 00° - 33' WEST ON SOUTH ¼ LINE 354.75 FEET TO PLACE OF BEGINNING.

A copy of the application and a map showing the property described above are on file at the Community Development Department-Planning & Zoning Services office in the Germantown Village Hall and can be viewed on the Village's website by following this link:

Website: https://www.germantownwi.gov/589/Proposed-Development-Projects

Citizens wishing to submit any public comments should do so by sending them by email to: comments@germantownwi.gov no later than 4:00pm on the meeting date listed above.

Donna Ott, Village Clerk
Dated this 13th day of May 2026

To Be Published On: May 20th and May 27th, 2026

SCANNED

Village of Germantown
...Willkommen

Fee must accompany application
owes-$1250
~~$1085~~ Paid 4/29/26 Date ck# 1103
~~$200~~ Plan Commission Consultation

APPLICATION TO REZONE PROPERTY

Pursuant to Section 17.51 of the Municipal Code

Please read and complete this application carefully. **All applications must be signed and dated.**

RECEIVED
APR 13 REC'D
OFFICE OF THE VILLAGE PLANNER
VILLAGE OF GERMANTOWN

1 APPLICANT OR AGENT

Atty. Brandon O'Bryon as Agent for
Mark Posey, with permission from the
Owner, Randall Wendland

Phone [redacted]
Fax [redacted]
E-Mail [redacted]

PROPERTY OWNER

Randall Wendland
[redacted]

PLEASE NOTE: **Applicant contact information has been redacted for security purposes.**

2 PROPERTY ADDRESS OR GENERAL LOCATION

W212N11206 Meeker Hill Lane

TAX KEY NUMBER

GTNV193996

3 REZONING REQUEST

FROM	TO
R-2	B-3

METES AND BOUNDS LEGAL DESCRIPTION OF PROPERTY – REQUIRED

Attach pages as necessary

See Attached Legal Description

4 PURPOSE OF REZONING REQUEST

Briefly describe why the applicant is rezoning the property. Include a description of the proposed use, including any new construction and number of employees, if applicable.

This is an undeveloped flag lot that sits behind and near B-3 zoned lots at the top of Meeker Hill. The present owner conducted his tree removal business from this location for the last several decades. The applicant, Mr. Posey, has an accepted Offer to Purchase for this Property. Mr. Posey seeks to build a roughly 54 x 120 foot pole barn and then continue to operate a tree removal business from the land. (Drawing forthcoming). The Mr. Posey runs a family owned tree removal business that employs approximately 10-15 people. Nearly all work is done off site at customer homes and businesses. Mr. Posey needs a location to store and service equipment indoors. Also some felled timbers my be temporarily stored on site. Firewood might be sold to customers. This request continues the historical use of the Property, but allows for the construction of a necessary building to store and maintain equipment.

5 SUPPORTING DOCUMENTATION:

- [x] Plat of Survey (1:100)
- [ ] Site Plan and elevations for new construction (can be conceptual)
- [ ) _____
- [ ] _____

RECEIVED
APR 13 REC'D
OFFICE OF THE VILLAGE PLANNER
VILLAGE OF GERMANTOWN

6 READ AND INITIAL THE FOLLOWING:

MP I understand that the Village is under no obligation to rezone property and that density and lot coverages provided in the Zoning Code are maximums. Actual build out will depend on myriad factors including topography and other natural conditions, surrounding neighborhood context and the detailed design of a project.

MP I understand that Village Staff, Plan Commission and/or Village Board may request additional information to properly evaluate this request and failure to provide such information may in itself by sufficient cause to deny the petition.

MP I am aware that this rezoning shall go into effect immediately upon the final approval of the Village Board and its execution of the rezoning ordinance

7 SIGNATURES – ALL APPLICATIONS MUST BE SIGNED BY OWNER!

Mark A. Posey 4/13/26
Applicant Date

Owner Date
4-13-2026

GTNV 193996

V Germantown
SE SW 17-9-20

ENTERED 4-25-06

JAMES R. ELDER, SR.

PROFESSIONAL ENGINEER – REGISTERED LAND SURVEYOR
ELDER ENGINEERING, LLC 3782 OVERLOOK DRIVE WEST HUBERTUS, WI 53033
PHONE (262)628-1409 FAX (262)628-1855

PLAT OF SURVEY

SCALE 1"=60'

LEGEND:
- ● Denotes Iron Pipe found.
- ○ Denotes Iron Pipe SET.
- ⊕ Denotes Rebar found.
- ⊕ Denotes Section Corner (Brass Cap).

Note:
Bearings or Distances in ( ) are recorded measurements.

Total Area
91491.3 SQ. FT.
2.10 ACRES

Tax Key# 193996

(S 87°04' E 156.00')
S 89°56'41" E 159.10'

Unplatted Lands

East line of the Southwest 1/4 of Section 19-9-20

S 02°19'41" E 356.23'
(S 00°33' W 354.75')

Unplatted Lands

N 25°08'19" E 499.75'
(N 28°01' E)

6.44'

S 67°46'38" E 62.00'
(S 67°51'01" E)

(N 64°58' W 219.20')
N 67°50'41" W 218.31'

Gap in Legal Descriptions

9.00'
S 02°15'38" E
(S 02°20'01" E)

S 67°46'38" E 160.00'
(S 67°51'01" E)

I.P. Set
near tree
N – 0.12'
E – 0.59'
P.O.B.

16.50'

(N 02°20'01" W)
(N 00°33' E)
N 02°19'41" W 280.50'

Parcel 2

Parcel 1

CSM# 5070

S 24°43'22" W 255.65'
(S 27°32' W 255.50')
(N 24°38'59" E)
West line of CSM# 5070

South 1/4 Corner
Section 19-9-20

33.00'

R.O.W. Line

N 55°05'41" W 93.60'
(N 52°13' W 93.00')

(34.10')
34.22'

C/L Meeker Hill Lane

Description:
A parcel in the Southeast 1/4 of the Southwest 1/4 of Section 19, Township 9 North, Range 20 East, Village of Germantown, Washington County, Wisconsin and described as follows: Commencing at the South 1/4 corner of Section 19, Township 9 North, Range 20 East, thence N02°19'41"W along the East line of the Southwest 1/4 of said section 19, 280.50 feet to the point of beginning of this description; thence N67°50'41"W, 218.31 feet; thence S24°43'22"W 255.65 feet to the C/L of Meeker Hill Lane (Old Fond Du Lac Road); thence N55°05'41"W along said C/L, 93.60 feet; thence N25°08'19"E, 499.75 feet; thence S89°56'41"E, 159.10 feet to said East line; thence S02°19'41"E along said East line, 356.23 feet to the point of beginning of this description.

SURVEY FOR: Randy Wendland
N112 W21193 Mequon Road

Dated this 15th day of November, 2004.

James R. Elder
SURVEYOR
THIS IS AN ORIGINAL PRINT ONLY IF SEAL IS IMPRINTED IN RED

STATE OF WISCONSIN) SS.
COUNTY OF WASHINGTON)

"I HAVE SURVEYED THE ABOVE DESCRIBED PROPERTY ACCORDING TO OFFICIAL RECORDS AND THE ABOVE MAP IS A TRUE REPRESENTATION THEREOF. THIS SURVEY IS MADE FOR THE EXCLUSIVE USE OF THE PRESENT OWNERS OF THE PROPERTY AND ALSO THOSE WHO PURCHASE, MORTGAGE OR GUARANTEE THE TITLE THERETO, WITHIN ONE YEAR FROM THE DATE HERETO.

Seq #1220

JUN 22 2005

Legal Description

A parcel in the southeast ¼ of the southwest ¼ of section 19, Township 9 North, Range 20 East, in the Village of Germantown, Washington County, Wisconsin and described as follows: Commencing at the South ¼ corner Section 19-920, thence North 00° - 33' East on the South ¼ line of said section, 280.50 feet (17) rods to place of beginning of this description, thence North 64° - 58' West 219.20 feet, thence South 27° - 32' West 255.50 feet to centerline of Town Road (Old Fond Du Lac Road), thence North 52° - 13' West on centerline of Town Road 93.00 feet, thence North 28° 01' East, 499.75 feet, thence South 87° - 04' East (as fenced) 156.00 feet to the South ¼ line, thence South 00° - 33' West on South ¼ line 354.75 feet to place of beginning.

Village of
Germantown

Village of Germantown
Clerk Treasurer
N112W17001 MEQUON ROAD
Germantown, WI 53022
(262)250-4700
Welcome

04/29/2026 08:18AM PRAVINA P
001117-0088
Payment effective date 04/27/2026

MISCELLANEOUS
PLAN COMMISSION REVIEW
FEES (GENPLN)
2026 GENPLN
1 @ $1250.00 $1,250.00

$1,250.00

Subtotal **$1,250.00**
Total **$1,250.00**

Tenders
CHECK $1,250.00
Check Number1103

Change due **$0.00**

Thank you for your payment

CUSTOMER COPY

Village of SCANNED Germantown ...Willkommen

Community Development Department
Jeffrey Retzlaff, Community Development Director
N112W17001 Mequon Road, PO Box 337
Germantown, WI 53022

Fee must accompany application.

$1680 CUP Review Fee
Paid On: 5/13/26 Check/CC 1107

CONDITIONAL USE PERMIT APPLICATION

Pursuant to Section 17.42 of the Municipal Code

Please read and complete this application carefully. All applications must be signed and dated.

1 APPLICANT/AGENT:

Atty. Brandon O'Bryan as Agent for Mark Posey, with permission from the Owner, Randall Wendland

Phone [redacted]

Email [redacted]

PROPERTY OWNER:

Randall Wendland

Phone [redacted]

Email

PLEASE NOTE: Applicant contact information has been redacted for security purposes.

2 TO WHOM SHOULD THE PERMIT BE ISSUED?

Mark Posey

3

PROPERTY ADDRESS	TAX KEY NUMBER
W212N11206 Meeker Hill Lane	GTNV193996

4 DESCRIPTION OF EXISTING OPERATION

Briefly describe the use as it exists today, including use, size, number of employees, hours of operation, etc. If this permit involves new construction, describe the current status of the property, e.g. "vacant." Use additional pages if necessary.

See Attached

RECEIVED
MAY 13 RECD
OFFICE OF THE VILLAGE PLANNER
VILLAGE OF GERMANTOWN

5 DESCRIPTION OF PROPOSED OPERATION

Write the name of the proposed conditional use exactly as it appears in the Municipal Code.

See Attached

Describe the proposed use, including size, number of employees, hours of operation and extent of any new construction/alterations.

6 METES AND BOUNDS LEGAL DESCRIPTION OF PROPERTY - REQUIRED

Please submit a separate WORD Document with this information.
See Attached

7 SUPPORTING DOCUMENTATION:

- ☐ Site Plan and elevations for new construction (can be conceptual)
- ☒ Photos of existing use and/or proposed use operating elsewhere forthcoming
- ☒ Drawing forthcoming of proposed building
- ☐ _____

8 READ AND INITIAL THE FOLLOWING:

MP I understand that the Village is under no obligation to issue a Conditional Use Permit and will do so only if the applicant successfully demonstrates that the proposed use is harmonious with the neighborhood and the long-range goals of the Village.

MP I will notify the Village if <u>any</u> aspects of the conditional use changes. I understand that failure to do so may result in the revocation of the CUP.

MP I understand that a Conditional Use Permit is valid only if the conditions and restrictions of the permit are met. I understand that failure to comply with any aspect of the permit may result in revocation.

9 SIGNATURES - ALL APPLICATIONS MUST BE SIGNED BY OWNER

Mark A Posey 5/13/26
Applicant Date

Randall J Wendland 5-13-2026
Owner Date

Additional Information

Condition Use Permit

W212N11206 Meeker Hill Lane

4. Description of Existing Operation

The property is currently vacant. Historically, it was used to conduct a tree removal business, including storage of equipment and temporary storage of felled timber by the current owner.

5. Description of Proposed Operation

Municipal Code Description:17.30(3)(j): Construction Services, Contractor Shops

Proposed Use: to operate a family-owned tree removal business that employs approximately 10-15 people and to construct a pole barn roughly 54 x 120 feet. Nearly all business or work is done off site at customer homes and businesses. Mr. Posey needs a location to store and service equipment indoors. Some felled timbers may be temporarily stored on site. Firewood might be sold to customers. This request continues the historical use of the Property, but allows for the construction of a necessary building to store and maintain equipment. Hours of operation would generally run from 7:30 am until dusk.

6. Metes and Bounds Legal Description of Property

A parcel in the Southeast 1/4 of the Southwest 1/4 of Section 19, Township 9 North, Range 20 East, Village of Germantown, Washington County, Wisconsin and described as follows:

Commencing at the South 1/4 corner of Section 19, Township 9 North, Range 20 East, thence N02°19'41" along the East line of the Southwest 1/4 of said section 19, 280.50 feet to the point of beginning of this description; thence N67°50'41"W, 218.31 feet; thence S24°43'22"W, 255.65 feet to the C/L of Meeker Hill Lane (Old Fond Du Lac Road); thence N55°05'41"W along said C/L, 93.60 feet; thence N25°08'19"E, 499.75 feet; thence S89°56'41"E, 159.10 feet to said East line; thence S02°19'41"E along said East line, 356.23 feet to the beginning of this description.

Village of
Germantown

Village of Germantown
Clerk Treasurer
N112W17001 MEQUON ROAD
Germantown, WI 53022
(262)250-4700
Welcome

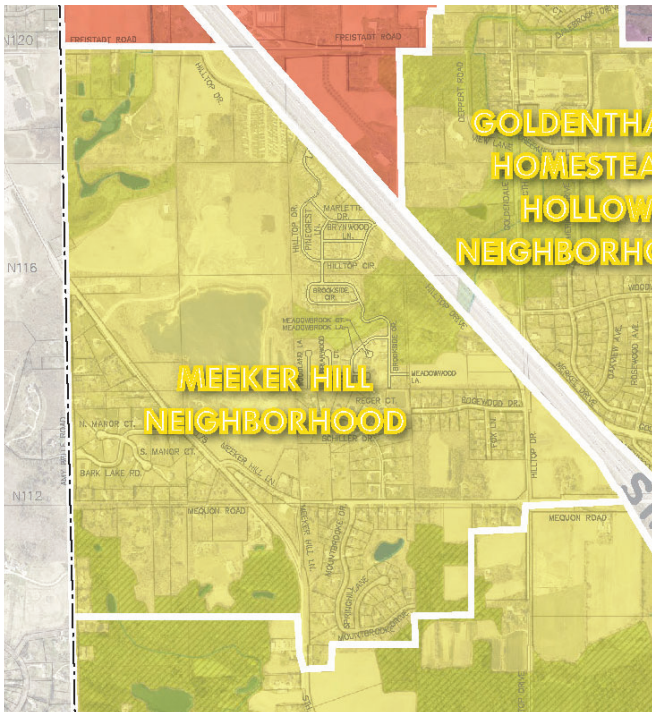
05/13/2026 03:35PM PRAVINA P
001122-0027
Payment effective date 05/11/2026

MISCELLANEOUS	
CONDITIONAL USE PERMITS	
(GENCON)	
2026 GENCON	
1 @ $1680.00	$1,680.00
	$1,680.00
Subtotal	**$1,680.00**
Total	**$1,680.00**
Tenders	
CHECK	$1,680.00
Check Number1107	
Change due	**$0.00**

Thank you for your payment

Village of Germantown COPY
DUPLICATE RECEIPT

Meeker Hill NEIGHBORHOOD



GENERAL CHARACTER

The Meeker Hill neighborhood is comprised of a mix of single-family residential lot sizes and is home to the Village's only Mobile Home Park. Residential zoning within this neighborhood is predominantly Rs-4 (2.2 DU's/acre with minimum 20,000 sqft lots) and Rs-3 (1.0 DU's/acre with minimum 1-acre lots). Mobile Home Park (MHP) zoning allows a density of 4.4 DU's/acre with 6,000 sqft "lots").

There are a few commercially zoned properties located at the intersection of Mequon Road and Appleton Avenue. There is approximately 100 acres of mineral extraction area located in the Meeker Hill neighborhood which is inactive and privately owned.

SPECIAL FEATURES

Transportation The Meeker Hill neighborhood is bounded by the western limits of the Village and I-41 to the east. The neighborhood extends approximately ¼ mile south of Mequon Road. Mequon Road connects the Meeker neighborhood to Lannon Road to the east, which connects to I-41.

Environmental, Natural & Agricultural There are environmental areas located in the east central and northwestern portions of the neighborhood. There is approximately 100 acres of mineral extraction area located in the Meeker neighborhood which is inactive and privately owned. There are scattered sites of agricultural row cop production throughout the neighborhood.

Public Park, Education, Safety & Utility This neighborhood is located outside the Sewer Service Area. Residential lots are served by onsite septic and well water.

PREFERRED FUTURE LAND USE

Meeker Hill Neighborhood

Preferred Future Land Uses												Enviro Corr.	SSA	Preferred Site Design			Maximum Density (residential uses)
Existing Uses (+ existing non-conforming zoning) See NOTE 5 for details	Residential: Single Family	Residential: Two to Four Family	Residential: Multi-family / Senior	Mixed-Use: Commercial / Residential	Mixed-Use: Commercial / Industrial	Commercial (includes "Activity Centers")	Institutional	Open Space & Recreational	Mineral Extraction	Industrial	Agricultural / Hobby Farming / Agribusiness	Contains an Environmental Corridor?	Sewered? (Y/N/Partial)	Traditional Neighborhood	Suburban Subdivision	Conservation Subdivision**	Dwelling Units / Acre See NOTE 4 for details
A	D	u	u	u	u	u	u	D	u	u	D	Yes	P	A	U	D	see NOTE 2 and NOTE 3

Desirable future land uses within the Meeker Hill Neighborhood include open space, recreational areas, agricultural and hobby farm uses, and limited residential development given that this neighborhood is currently outside the sewer service area. Future residential development is acceptable at an average density of 1 DU/5 acres for 4 or fewer individual lots created by minor land division (certified survey map), or 1 DU/3 acres for 5 or greater conservation subdivision lots. No new or expanded mobile home development is intended to occur in the neighborhood.

In the event that the SSA is expanded and public sewer and water facilities extended into this neighborhood, future residential development is acceptable at an average density of 2.2 DU's/acre for 4 or fewer lots created by minor land division (certified survey map) or 3.5 DU's/acre for 5 or more lots in a conservation subdivision.

Other than the pre-existing commercial parcels along Appleton Avenue, no additional commercial uses are intended to develop in this neighborhood.

D =	**Desirable** – These uses should be encouraged because they are consistent with, support, and enhance the desired character of the area.
A =	**Allowable** – These uses are generally considered appropriate for the area, but may require additional consideration and/or specific modification or developed features to be compatible with other uses in the area.
u =	**Undesirable** – These uses should not be encouraged but may still be acceptable for the area under special circumstances.

NOTE 2:	Neighborhood in SSA (w/ water & sewer)	2.2 units/ acre (4 or fewer CSM lots)
		3.5 units/acre with Conservation Subdivision (5 or greater lots subdivided)
NOTE 3:	Neighborhood outside SSA (no sewer & water)	1 unit/ 5 acres (4 or fewer CSM lots)
		1 unit/ 3 acres with Conservation Subdivision (5 or greater lots subdivided)

See all notes on page 42.

17.30 - B-3 GENERAL BUSINESS DISTRICT . (Am. Ord. #16-17)

The B-3 District is intended to provide for the orderly continuation and revitalization of the older established Main Street "central business district" (including the area designated as "Village Mixed Use" on the Future Land Use Plan) area of the Village where uses are not exclusively of one type but, rather, mixed and include retail sales shops, wholesale and warehousing outlets, and institutional, recreational and residential uses. Many of the existing businesses in this district may not meet the requirements of the B-1 or B-2 Districts. It is the intent of this district to provide minimum requirements for all new uses of land within the district and a guide for the redevelopment or revitalization of existing uses of land within the district. Further, it is intended that the conversion of buildings located in the historic Main Street area and categorized as "Village Mixed Use" on the Village's Land Use Plan map from a residential use to a business use or from a business use to a residential use can occur provided that such conversion does not create conflicts with other nearby land uses, or, that impede the intended transformation of the Main Street area into a pedestrian-oriented retail and entertainment area.

(1) **PERMITTED PRINCIPAL USES.** (Rep. & Recr. Ord. #1-95) The following uses and activities:

(a) Antique stores.

(b) Appliance sales and service.

(c) Art, dance or music studios.

(d) Bakeries, including the baking of goods for local sale.

(e) Banks, savings and loan associations and other financial institutions.

(f) Barber and beauty shops.

(g) Book stores.

(h) Bowling/pool establishments.

(i) Business offices.

(j) Candy and confectionery stores.

(k) Caterers.

(l) Clock/watch shops.

(m) Clothing repair shops.

(n) Clothing stores.

(o) Computer sales and service.

(p) Convenience food stores.

(q) Delicatessens.

(r) Dentist, physician or other similar professional health offices.

(s) Department stores, maximum 50,000 square feet.

(t) Drug stores.

(u) Dry cleaning pickup and delivery establishments.

(v) Electrical supply stores.

(w) Financial or tax consultants.

(x) Florists.

(y) Furniture stores.

(z) Furniture upholstery/repair.

(aa) Furriers.

(bb) Gift stores.

(cc) Grocery stores.

(dd) Hardware stores.

(ee) Heating supply stores.

(ff) Hobby shops.

(gg) Interior decorators.

(hh) Jewelry stores.

(ii) Liquor stores.

(jj) Meat, fish or poultry markets.

(kk) Museums.

(ll) Music and musical instrument stores.

(mm) Optical stores.

(nn) Paint, glass and wallpaper stores.

(oo) Pet shops.

(pp) Photo and film pickup stores.

(qq) Photo studios.

(rr) Photographic supplies and camera stores.

(ss) Plumbing supply stores.

(tt) Professional offices.

(uu) Quick printing shops.

(vv) Radio broadcasting studios.

(ww) Real estate and insurance offices.

(xx) Restaurants. (Am. Ord. #7-04)

(yy) Self-service laundries.

(zz) Shoe repair shops.

(aaa) Shoe stores.

(bbb) Soda fountains.

(ccc) Sporting goods stores.

(ddd) Stationery stores.

(eee) Taverns.

(fff) Variety stores.

(ggg) Video sales/rental.

(hhh) Secondhand stores less than 5,000 square feet in area. (Cr. Ord. #26-97)

(iii) Single-family residential uses in a building originally constructed for residential use that was subsequently converted into a business use, in whole or in part, that the owner wants to revert back to a residential use, in whole or in part, subject to all applicable requirements, restrictions and allowances of the Village's Zoning and Building Codes. (Cr. Ord. #16-17)

(2) **PERMITTED ACCESSORY USES.** (Rep. & Recr. Ord. #1-95)

(a) Attached or detached garages for storage of vehicles used in conjunction with the operation of a business.

(b) Off-street parking and loading areas.

(c) Roof-mounted satellite transmitting and receiving fixtures.

(d) Drive-through establishments and facilities provided that all such facilities meet the yard requirements set forth herein, any protective canopy shall be located not closer than 25 feet to the property line, and any parking stall or driveway, shall not be closer than 50 feet to a residential district lot line (per section 17.45(1)(b)). (Cr. Ord. #7-04)

(e) Outdoor vending (see section 17.50). (Cr. Ord. #24-10)

(3) **CONDITIONAL USES.** (Rep. & Recr. Ord. #1-95) See section 17.42 of this chapter.

(a) Amusement arcades.

(b) Animal hospitals, clinics.

(c) Auto accessory sales and service.

(d) Auto and truck rental.

(e) Auto repair shops.

(f) Bed and breakfast establishments.

(g) Boarding houses.

(h) Body shops.

(i) Clubs, fraternities, lodges and meeting places of a noncommercial nature.

(j) Construction services; contractor shops.

(k) Department stores (50,000 to 100,000 square foot area).

(l) Experimental testing labs.

(m) Food lockers.

(n) Fuel oil, bottled gas, ice dealers.

(o) Funeral homes, mortuaries.

(p) Garden supplies, horticultural services.

(q) Indoor health or recreation establishment.

(r) Indoor tennis/racket ball establishment.

(s) Indoor theaters.

(t) Millwork, lumber yards, saw mills and planing mills.

(u) New and used marine sales and service.

(v) Outdoor recreation facilities.

(w) Parks, leisure or ornamental.

(x) Pawn shops.

(y) Petroleum service stations.

(z) Public administrative offices, and fire and police stations.

(aa) Radio and television transmitting and receiving towers, microwave relay stations, and water towers.

(bb) Rest homes, nursing homes and elderly housing (20 units per acre maximum).

(cc) Self-service carwashes.

(dd) Trailer sales or rental.

(ee) Transit and car pooling parking areas.

(ff) Warehouse and indoor storage.

(gg) Wind energy conversion systems.

(hh) Residential quarters for the owner or proprietor or caretaker/watchman provided that such quarters are in the principal building, not on the ground level floor, and that entrances and exits to such quarters are direct to the exterior of the building. There shall also be a minimum floor area of 400 square feet for an efficiency unit, 600 square feet for a one-bedroom unit and 750 square feet for a 2-bedroom unit. A dwelling unit with more than 2 bedrooms shall not be allowed. Residential quarters in a B-3 District shall be reviewed by the Plan Commission in the same manner provided for in section 17.24 of this chapter.

(ii) Any use similar to a permitted use.

(jj) Reserved. (Cr. Ord. #42-95; Rep. Ord. #7-04)

(kk) Child care, day care centers or preschool centers licensed by the State and in continuous compliance with all applicable State and local regulations. (Cr. Ord. #34-97)

(ll) Churches, length of duration and permit renewal schedule as determined by the Village Board. (Cr. Ord. #2-01; Am. Ord. #37-04)

(mm) Tattoo and body piercing establishments. (Cr. Ord. #06-09)

(nn) Off-site parking areas (see section 17.45). (Cr. Ord. #9-10)

(3a) **TEMPORARY USES.** (Cr. Ord. #32-91)

(4) **LOT, YARD AND BUILDING REQUIREMENTS.** (Rep. & Recr. Ord. #1-95)

Lot frontage at setback	Minimum 50 ft.
Lot area	Minimum 5,000 sq. ft.
Principal buildings:	
Front yard	None, except that the front yard for newly constructed principal buildings shall be the average of the front yard of adjoining or neighboring properties.
Side yards	None, except as required in sections 17.07 and 17.50 of this chapter
Rear yard	Minimum 25 ft.
Number of stories	Maximum 2½

Accessory building:	
Front yard	Minimum 5 ft.
Side yards	Minimum 5 ft.
Rear yard	Minimum 5 ft.
Building height:	
Principal building	Maximum 45 ft.
Accessory building	Maximum 15 ft.
Percent of lot coverage	Maximum 90%, including parking and loading
Floor area per store	No minimum, Maximum 50,000 sq. ft.

(5) **PARKING AND LOADING REQUIREMENTS.** See section 17.45 of this chapter.

(6) **SITE PLAN APPROVAL REQUIRED.** See sections 17.43 and 17.44 of this chapter.

(7) **SCREENING REQUIREMENTS.** Same as for B-1 District. All outdoor storage and trash areas shall be screened from view by an enclosure or by landscape screening, or by a combination of both methods.

GTNV 193996

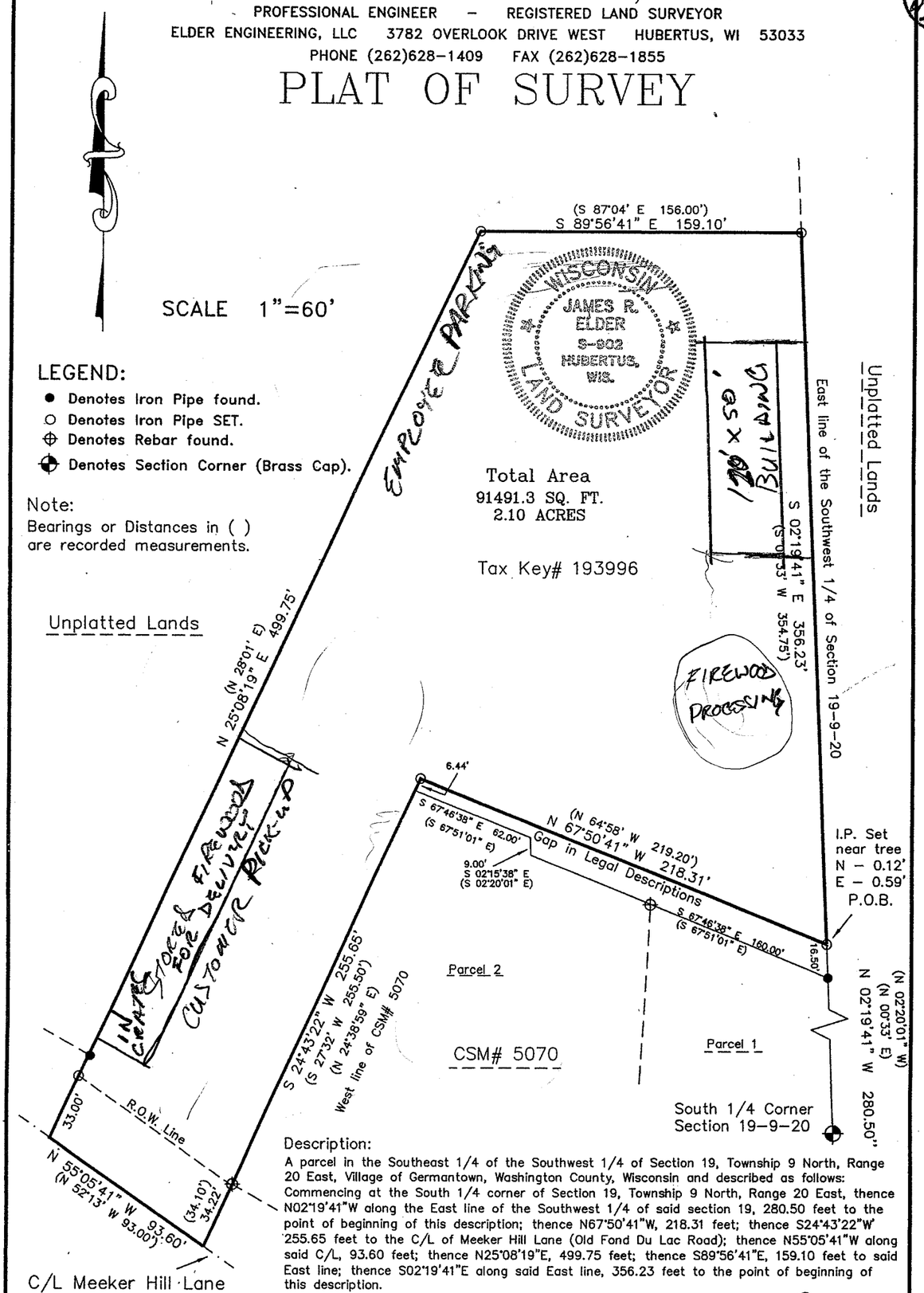
V Germantown
SE SW 19-9-20

ENTERED 4-25-06

JAMES R. ELDER, SR.

PROFESSIONAL ENGINEER - REGISTERED LAND SURVEYOR
ELDER ENGINEERING, LLC 3782 OVERLOOK DRIVE WEST HUBERTUS, WI 53033
PHONE (262)628-1409 FAX (262)628-1855

PLAT OF SURVEY



Description:
A parcel in the Southeast 1/4 of the Southwest 1/4 of Section 19, Township 9 North, Range 20 East, Village of Germantown, Washington County, Wisconsin and described as follows: Commencing at the South 1/4 corner of Section 19, Township 9 North, Range 20 East, thence N02°19'41"W along the East line of the Southwest 1/4 of said section 19, 280.50 feet to the point of beginning of this description; thence N67°50'41"W, 218.31 feet; thence S24°43'22"W 255.65 feet to the C/L of Meeker Hill Lane (Old Fond Du Lac Road); thence N55°05'41"W along said C/L, 93.60 feet; thence N25°08'19"E, 499.75 feet; thence S89°56'41"E, 159.10 feet to said East line; thence S02°19'41"E along said East line, 356.23 feet to the point of beginning of this description.

SURVEY FOR: Randy Wendland
N112 W21193 Mequon Road
Dated this 15th day of November, 2004.

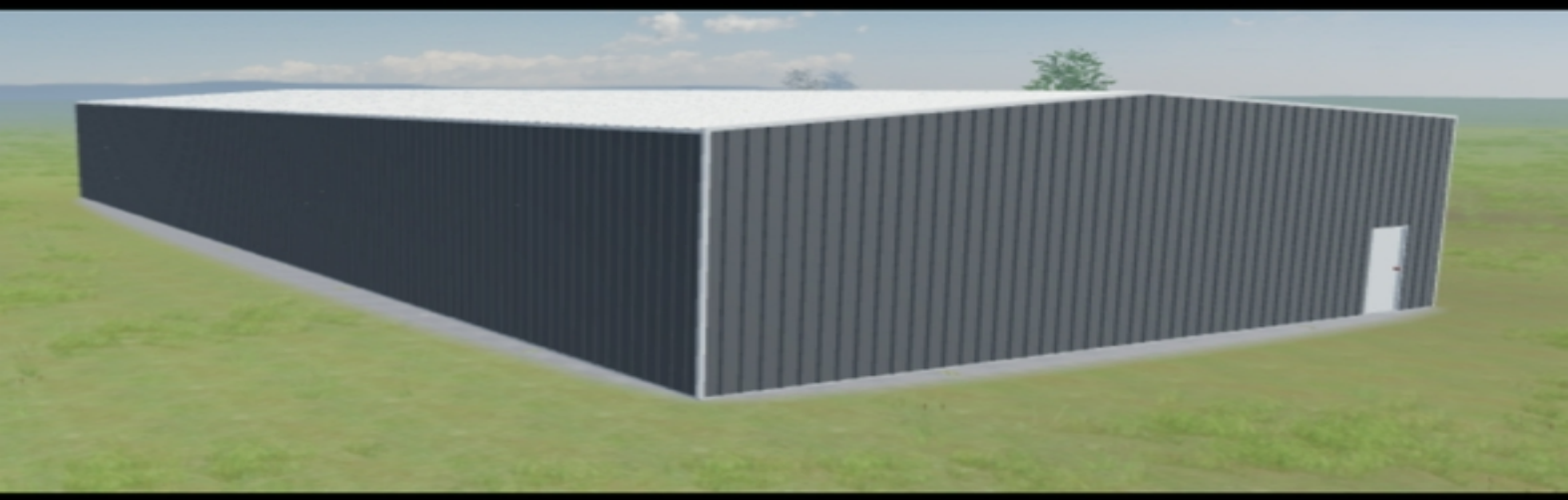
James R. Elder
SURVEYOR
THIS IS AN ORIGINAL PRINT ONLY IF SEAL IS IMPRINTED IN RED

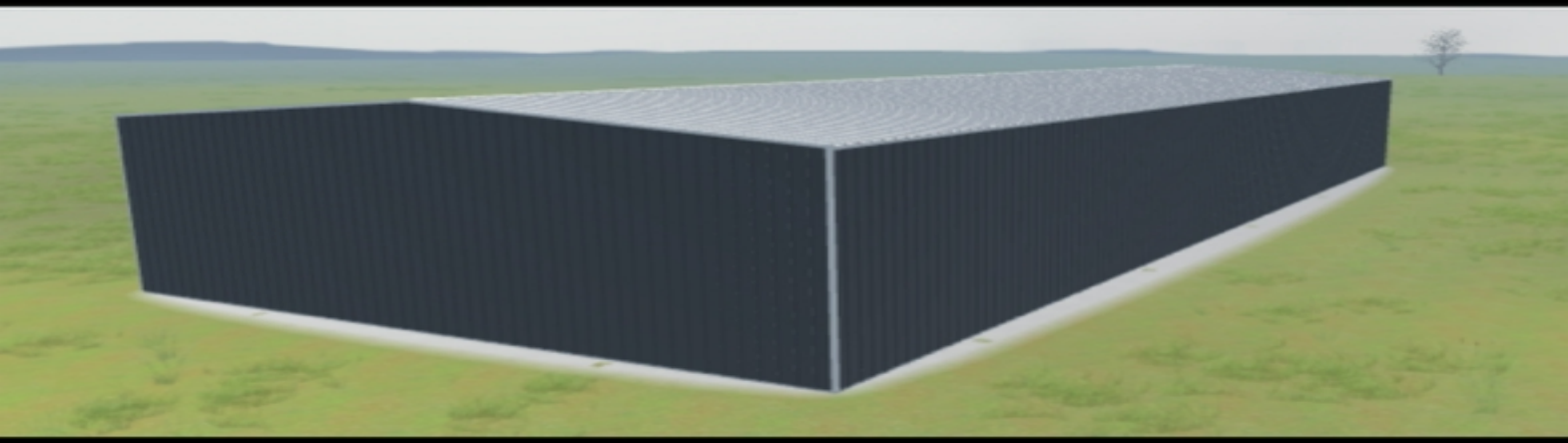
STATE OF WISCONSIN) SS.
COUNTY OF WASHINGTON)

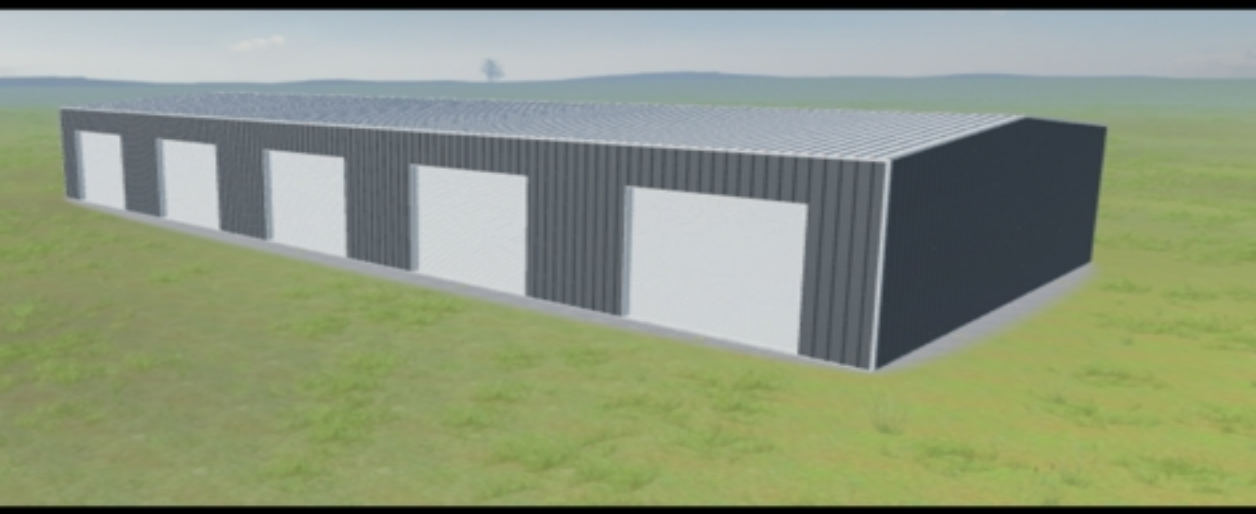
"I HAVE SURVEYED THE ABOVE DESCRIBED PROPERTY ACCORDING TO OFFICIAL RECORDS AND THE ABOVE MAP IS A TRUE REPRESENTATION THEREOF. THIS SURVEY IS MADE FOR THE EXCLUSIVE USE OF THE PRESENT OWNERS OF THE PROPERTY AND ALSO THOSE WHO PURCHASE, MORTGAGE OR GUARANTEE THE TITLE THERETO, WITHIN ONE YEAR FROM THE DATE HERETO.

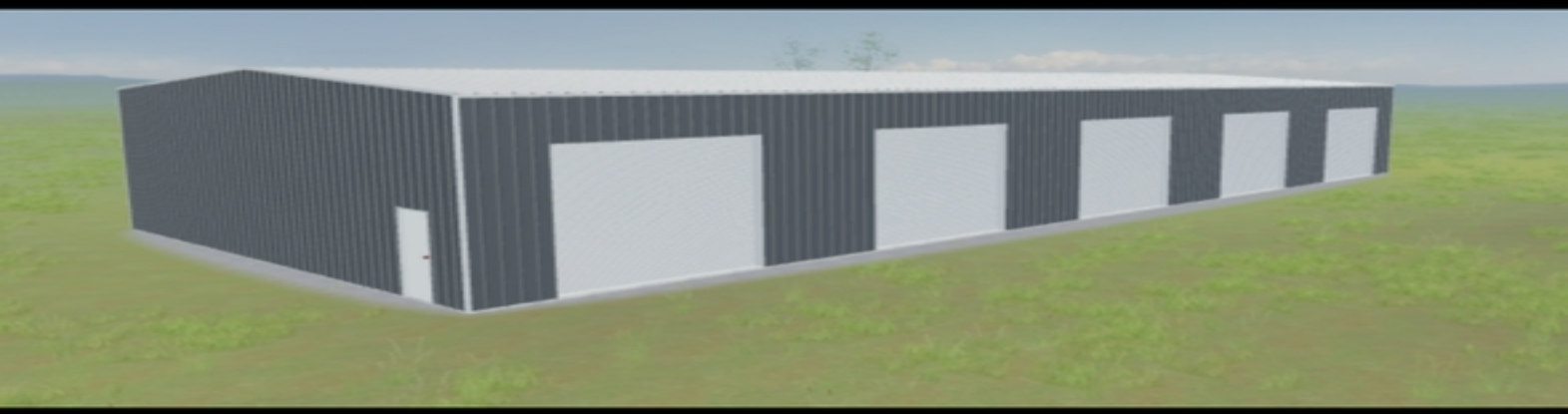
Sept 11220

JUN 22 2005









SITE PLAN & SIGN PERMIT APPLICATIONS

06/08/26 Plan Commission Meeting

Cirrus Property Group, LLC / Faith Lutheran Church

Village Staff Report & Recommendation ***Germantown, Wisconsin***

SUMMARY

Cirrus Property Group, LLC, Agent for Faith Lutheran Church, Property Owner. Site Plan and Sign Permit applications for a 36-unit multifamily residential development ("The Carillon at Germantown") totaling 5.4 acres located at W172N11187 Division Road in the *Lannon-Mequon Road Corridor*.

Location: W172N11187 Division Road

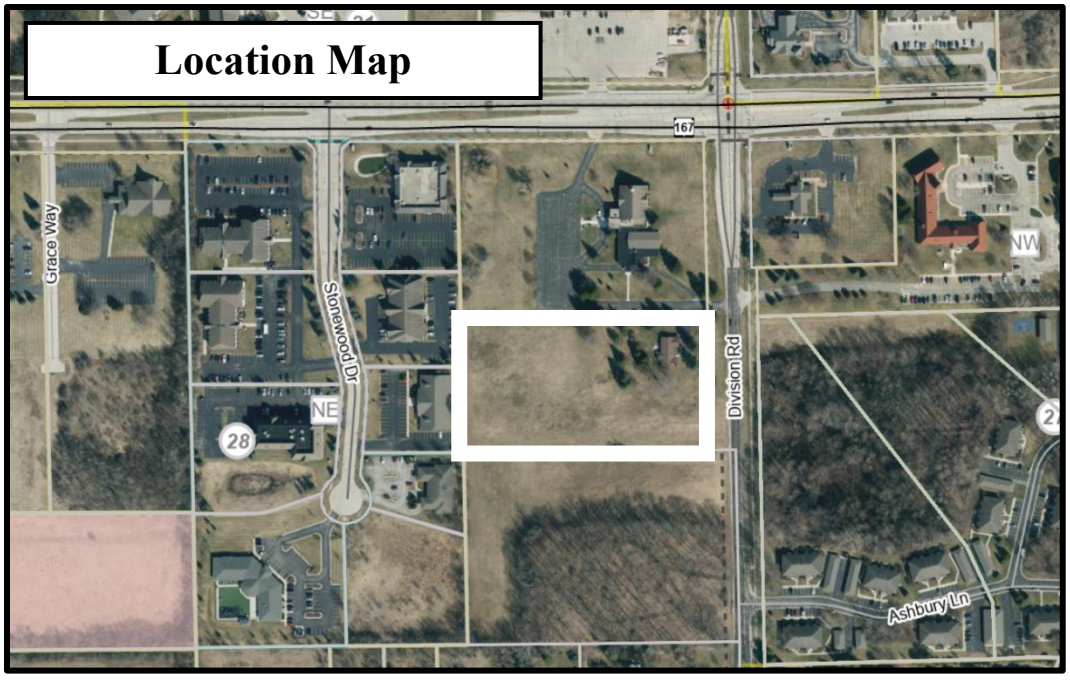
Applicant/ Owner:

Cirrus Property Group, LLC
1661 N Water Street, Suite 500
Milwaukee, WI 53202

Faith Lutheran Church
W172N11183 Division Road
Germantown, WI 53022

Zoning: Rm-2: Multi-Family Residential District/Planned Development District (PDD) Overlay

Adjacent Land Uses		Zoning
North	Institutional (Church)	I
South	Residential	Rs-1
East	Commercial/Institutional/Residential	B-1/I/Rm-1
West	Commercial	B-4



Background/Proposal

Cirrus Property Group, LLC, Agent for Faith Lutheran Church, Property Owner. Site Plan and Sign Permit applications for a 36-unit multifamily residential development ("The Carillon at Germantown") totaling 5.4 acres located at W172N11187 Division Road in the *Lannon-Mequon Road Corridor*.

In January 2026, the Village Board approved a Certified Survey Map (CSM) to divide the 5.4-acre parcel from the overall 10-acre church property and a Planned Development District (The Carillon at Germantown PDD) to rezone the 5.4-acre property into the PDD under the Rm-2: Multi-Family zoning district. A resolution containing development-specific allowances for the PDD, the General Development Plan (GDP), and other conditions of approval was adopted at the time and is attached to this memo. The most significant limitations and allowances of the Carillon PDD include:

- General Development Plan (GDP) and set of restrictions that specify a maximum of 36 multifamily residential units not to exceed 6.7 dwelling units/acre.
- Approved densities less than the maximum allowed in the underlying Rm-2 District (8.0 DU/acre) and less than the maximum densities prescribed for the *Lannon-Mequon Road Corridor* (up to 10 DU/acre for multi-family).
- Approved modifications in the PDD to the underlying Rm-2 Zoning District requirements:
    - Reduce the minimum Front Yard Setback from 35 feet to 15 feet.
    - Reduce the minimum Side Yard Setback from 25 feet to 18 feet.
    - Reduce the minimum Rear Yard Setback from 35 feet to 20 feet.

At this time, the developer has submitted final site development and building plans, architectural plans, landscaping plan, and a sign permit for the project consistent with the approved PDD and General Development Plan (GDP).

Site Plan

As presented in the submitted materials, the proposed site plan contains 11 buildings with a total of 36 dwelling units (rental). The development will be served by a private U-shaped drive with two (2) access points to Division Road. Sixty-five (65) percent of the lot will be impervious area. For a more detailed list of project specifications, please refer to the following summary:

- Total number of dwellings (36) on 5.4 acres.
- Overall density proposed at 6.7 du/acre.
- Housing types:
    - Quadplex (3 Buildings)
    - Triplex 2 Bedroom (5 Buildings)
    - Triplex 3 Bedroom (3 Buildings)
- Architectural details:
    - Craftsman style buildings incorporating stone base along front building façades and certain side façades. Fiber cement siding (Hardie board throughout buildings with varied color schemes.
    - For complete details, reference floor plans and building elevations attached to this report.

- Parking:
    - Units to have 1-car or 2-car attached garage with driveway apron spaces.
    - Six (6) visitor parking spaces.
- Each unit to have private front entrance and enclosed yard.
- Private drive serving development with (1) full access point and one (1) right-turn only point of access for residents/visitors to Division Road.
- Two (2) on-site detention areas for stormwater management.
- *Note*: The existing parsonage on the property will be demolished as part of the development project.

Access and Traffic Circulation

Access will be provided by a private street with two (2) access points to accommodate the development. The "North Site Driveway" connects to Division Road approximately 135 feet south of the Faith Lutheran Church driveway, and the "South Site Driveway" connects to Division Road approximately 200 feet south of the North Site Driveway. Due to limited driveway spacing, the North Site Driveway is proposed as a restricted right-in/right-out only access point.

A Traffic Impact Analysis (TIA) was conducted and is attached with a supplemental Site Distance Analysis. The TIA includes recommended modifications to address traffic impacts associated with the development summarized below:

- Division Road @ Mequon Road Intersection
    - Restripe the northbound left-turn lane to accommodate Year 2030 Build traffic queues. This modification was recommended in the recent Blackstone Creek TIA to mitigate existing and Year 2030 Build queues, which extend beyond the available turn lane storage area. The additional northbound left turn traffic from the Carillon at Germantown development is very low (5 AM and 5 PM) and does not significantly contribute to queue increases at the intersection.
- Division Road @ North Driveway
    - Construct the new intersection as shown on the site plan with single-lane approaches and stop sign control on the eastbound driveway approach. Configure the eastbound approach to allow either full-access movements or with a pork-chop-style median to restrict access to right-in/right-out only movements. The proposed residential development is expected to generate very low trips (220 trips per weekday, with 15 trips during both AM and PM peak hour) resulting in very low peak hour volumes, delays, and queues with either alternative.
- Division Road @ South Driveway
    - Construct the new intersection as shown on the site plan with unrestricted movements, single-lane approaches and stop sign control on the eastbound driveway approach.

Storm Water Management and Utilities

The development incorporates two (2) new stormwater ponds to manage storm water runoff on site. Stormwater will be detained and treated by both ponds, one in the northwest portion of the site and the other in the southeast portion of the site. The northwest pond will discharge into an existing stormwater facility in the adjacent Faith

Lutheran Church property to the north, while the southeast pond will discharge into an existing ditch in the right-of-way along Division Road.

Public sanitary and water utilities are proposed to serve the development. Utility profiles have been included with the site development plan submittal.

Landscaping and Buffering

Landscape screening is proposed around the project site, as illustrated by the submitted planting plan. The majority of trees, shrubs, and grasses are shown within a 15-foot wide strip of land along Division Road on the site's eastern boundary. Trees are also proposed along the southern boundary, spaced apart just south of the drive serving the development. The proposal includes arborvitae along the northern boundary and western boundary, between the church to the north and the commercial buildings to the west, respectively. Other trees are shown around the stormwater ponds and along the U-shaped drive, as well as additional small plantings shown in the front of each building.

A 4-foot picket style fence (vinyl) is proposed around the rear yard of each dwelling unit. Specific to Buildings 3 and 4 on the west side of the site, the fencing at the back of the yard will be 6-foot solid fencing for added screening from the commercial properties to the west. This fencing will taper down to the 4-foot picket style in between the units. All fencing along the northern and western property lines will be 5 feet from property lines. A specification sheet was provided to show fence details.

Lighting

A photometric lighting plan was submitted and is included with the application materials. The site will include the following key lighting components:

- (10) Garden light posts at height of 13.5 feet with decorative post top LED luminaire for private drive lighting.
- (72) Wall-mounted decorative light fixtures for front garage/building entrance illumination.
- (72) Recessed canopy LED light fixtures for rear yard/building entrance illumination.

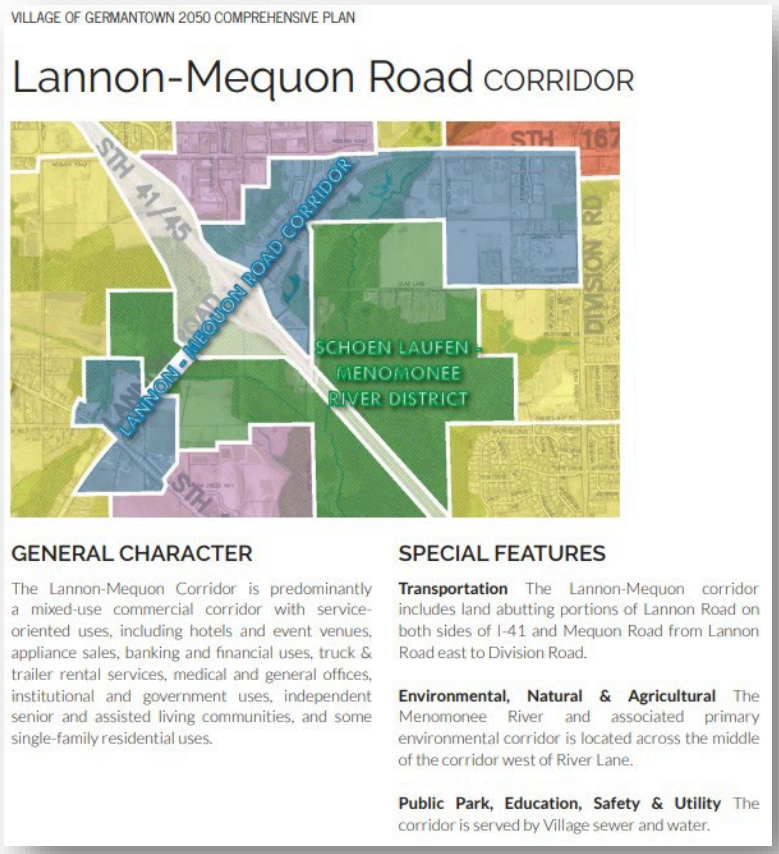
Signage

One (1) permanent real estate sign is proposed for identification purposes. The sign is located near the southern driveway entrance at Division Road and will include the name of the development ("Carillon") and logo. The sign totals 24 sqft in area, comprised of limestone veneer with masonry foundation and powder coated aluminum sign face.

Staff Comments

Community Development: Planning and Zoning

The project site is in the *Lannon-Mequon Road Corridor* under the Village's 2050 Comprehensive Plan. The Corridor is predominantly a mixed-use commercial corridor with service-oriented uses, including hotels and event venues, appliance sales, banking and financial uses, truck and trailer rental services, medical and general offices, institutional and government uses, independent senior and assisted living-communities, and some single-family residential uses. The *Lannon-Mequon Road Corridor* is intended to further develop as a mixed-use area with commercial, mixed-use commercial, institutional, and residential development. Residential development is intended to develop in a traditional neighborhood design pattern. Future commercial uses are desirable including retail, office, hospitality and other service-oriented uses. The subject site's Rm-2 zoning designation is intended to provide for multiple-family residential development at densities not exceeding 8.0 dwelling units per net acre and served by municipal sewer and water facilities.



The Carillon at Germantown development meets the intent of the *Lannon-Mequon Road Corridor*. The Corridor specifies that multifamily residential uses are "allowable" in the district and that elements of Traditional Neighborhood site design is "desirable" over suburban or conservation style design. While the development in and of itself does not rise to the level of what is generally considered a "neighborhood", it does incorporate patterns/principles of Traditional Neighborhood Design (TND) as part of the preferred site design within the larger *Lannon-Mequon Road Corridor*. Namely, the development proposes a more compact type of land use and should generally be considered infill development. As the Corridor builds out over time with a mixture of other land uses, the subject development will be well-situated in terms of proximity to other new developments, whether they are residential, commercial, civic, or mixed-use.

Additionally, the proposed development meets many of the objectives contained within the Housing element under the Implementation section of the Village's 2050 Comprehensive Plan. The 2050 Plan maintains the following "*Developing a diversity of*

housing choices is also an important part of community resiliency, allowing residents of all ages to grow up and stay in the community through all life's stages and encouraging inter-generational interaction and support. Diverse housing choices are also important for Germantown's economic development, allowing the workers that earn their livelihood in Germantown the opportunity to live in the Village as well. Finally, a diverse housing stock can help ensure that living in Germantown is accessible to residents of various income levels and family sizes." The development not only meets this goal/objective laid out in the 2050 Plan, but it also provides for a needed housing product in the Village as specified in the Residential Market Analysis prepared by Tracy Cross & Associates, Inc., dated February 9, 2024 (attached).

The PDD rezoning was approved with conditions requiring certain issues being addressed in the final/detailed site plan. To address the need for additional landscape screening along the northern and western property boundaries, the PDD approval requires *"The Developer shall provide additional landscape buffering along the west and north property lines in the vicinity of Buildings 3, 4, 6, 7, 9, and 11. Said buffer shall include a minimum of 10-foot setback (i.e. width) between the property line and proposed fencing with plantings sufficient in type, size, and quantity to provide visual screening to a height of 6 feet within 3 years after plant installation, or a mutually acceptable alternative determined and approved at the Site Plan approval stage."* The Developer has addressed this condition by adding landscape plantings (arborvitae) along the northern boundary and western boundary in the vicinity of said buildings. While the setback distance from property line to fencing is only 5 feet, the Village Forester affirms the type of plantings will provide the type of screening intended under the condition. The Plan Commission should discuss the revised landscaping as part of this site plan review and determine if the condition above has been satisfied.

Pedestrian connectivity was an issue discussed during the PDD approval process. Ultimately, the Village approved the PDD requiring a sidewalk to be installed along Division Road from Mequon Road south to the southern end of the site. The sidewalk has been added by the developer to the construction plans that are being considered by the Plan Commission as part of site plan approval.

The proposal does provide for the required amount of off-street parking and incorporates visitor parking spaces. Based on direction from the Village at the time of PDD approval, the developer has relocated the visitor parking spaces to one area on the western side of the site. Also, the setback issue pertaining to the proximity of the existing church driveway and the new property boundary separating the project site from the church has been resolved.

Finally, the developer has provided architectural building elevations consistent with the elevation drawings and building type products that were included during the PDD and General Development Plan (GDP) approval stage. As noted in the architectural package submitted, the applicant has revised/enhanced certain elements of the building design, which are noted below. The Plan Commission will need to discuss the proposed architecture and building design and determine if any alterations will be required before granting final approval.

- Side elevations facing Division Road on Buildings 1, 10, and 11 include four (4) total windows, a combination of board and batten siding and shake siding, an attic vent detail, and masonry wainscot at the building base.
- Three (3) gables added to the rear elevations of Buildings 7 and 11 to break up the flat roofline.
- Four (4) gables added to the rear elevations of Buildings 1, 5, and 10 to break up the flat roofline.
- Two (2) transom windows added, and masonry extended along the bottom of the side elevation of Building 5.
- Masonry extended along the bottom of the side elevations of Buildings 2 and 3.

Single-Family vs. Multi-Family Housing Ratio

In 2025, staff was directed to keep track of the Village's ratio of multi-to-single-family housing units. Using January 1, 2024, estimates as a baseline, the table below presents the effect of the proposed Carillon at Germantown development on the number and ratio of single-family vs. multi-family housing units in the Village (middle table). The cumulative effect of the Carillon at Germantown development plus all residential development approved since January 1, 2024, is also shown below (lower table).

Baseline (Jan. 1, 2024)	Total Units	Single-Family Units	Multi-Family Units	Single-Family to Multi-Family Ratio	
				% SF Units	% MF Units
Housing Units	8,619	6,464	2,155	**75.0%**	**25.0%**

Cirrus/Carillon		Total Units	Single-Family Units	Multi-Family Units	Single-Family to Multi-Family Ratio	
SF Units:	0	8,655	6,464	2,191	% SF Units	% MF Units
MF Units:	36				**74.7%**	**25.3%**

Cumulative (Jan. 1, 2024, to June 8, 2026)		Total Units	Single-Family Units	Multi-Family Units	Single-Family to Multi-Family Ratio	
SF Units:	169	8,978	6,633	2,345	% SF Units	% MF Units
MF Units:	190				**73.9%**	**26.1%**

Residential Development Included in Cumulative Total:		
Sutton Farm - Home Path Financial; 2025	169 SF	102 MF
Victory Place - Pre/3; 2026	0 SF	48 MF
Virtus Townhomes; 2026	0 SF	4 MF

Impact on School District Capacities

The proposed development is in Neighborhood 47 of the Germantown School District's (GSD) attendance areas, which is a County Line Elementary School attendance area.

With a student generation ratio of 0.11 students/new multi-family unit, the development would generate close to four (4) school-aged children (4K-12 students).

According to the previously published *MDRoffers Community Growth & Projections Report* (dated June 2, 2025), 126 new dwelling units are anticipated within Neighborhood 47 of the GSD by 2040, with the report accounting for 26 new units within the subject development proposal. While the development proposal includes 36 total units, there have been no new units proposed or constructed within Neighborhood 47 since the report was published earlier this year. Thus, the 36 units proposed for this development are not expected to significantly impact the overall housing units/student enrollment projections noted in the *MDRoffers* report, or impact school capacity to a different degree than summarized in the report findings.

Financial Impact (Property Tax Revenue)

Shown below is a breakdown of estimated annual property tax revenue the development is expected to generate. The estimated number is based on current tax info. Note that the development is expected to generate $44,335 in annual property tax revenue for the Village of Germantown (only) and a total of $131,462 in annual property tax revenue across all taxing jurisdictions combined.

Est Assessed Value	$	9,757,294		
Taxing Jurisdiction	**Mill Rate**		**Est Tax Collection**	
Washington County	$	1.51	$	14,722.24
Village Of Germantown	$	4.54	$	44,335.94
GTSD	$	6.62	$	64,610.52
MATC	$	0.80	$	7,793.71
Total	**$**	**13.47**	**$**	**131,462.41**

Impact Fee Revenue

As the applicant/developer points out in the attached Project Narrative, the proposed development is expected to contribute approximately $300,000 in one-time impact fee revenue for the Village of Germantown. The following table includes a summary of the expected impact fee revenue.

Impact Fee	**Units**	**Fee (2026)**	**Total**
Water Connection	36	$1,003	$36,108
Fire Protection	36	$171	$6,156
Police Protection	36	$148	$5,328
Parks & Rec.	36	$1,311	$47,196
Library	36	$711	$25,596
Sewer Connection	36	$5,244	$188,784
Total			**$309,168**

Public Works/Village Engineer

Public Works and the Village Engineer have identified several technical issues and plan revisions that need to be resolved or otherwise addressed by the applicant prior to commencing construction activities. Staff is recommending conditional approval of the submitted site plan application subject to all outstanding items and issues identified in the following review memo being resolved and reflected in additional information and/or revised plans submitted to staff for further review, comments, and approval prior to commencing site construction:

- June 3, 2026 – Public Works/Village Engineer Review Memo

Fire and Police Departments

The Police Department has no comments/concerns. The Fire Department has a stipulation that if fire hydrants are privately owned they must be maintained according to WI NR 810.13 with documentation available by request of the Germantown Fire Department. Final road design is subject to Fire Department acceptance to ensure adequate turning radius/movement for fire trucks and other emergency vehicles.

Village Forester

After review of the landscape plan, the Village Forester approved the proposed tree species, quantities, nursery stock sizes, and planting locations throughout site. One comment remains regarding the planting specifications, which is listed below and will be required prior to final approval/acceptance of the landscape plan:

- *Planting Notes and Details, Sheet LP501. The included tree planting specifications/details should note that "If needed, soil should be removed from the top of root ball to expose the tree root flare. The exposed tree root flare shall be planted at, or slightly above, the existing grade."*

VILLAGE STAFF RECOMMENDATIONS

APPROVE the site development plan architectural building plans submitted by Cirrus Property Group, LLC, for a 36-unit multifamily residential development ("The Carillon at Germantown") on a 5.4-acre property located at W172N11187 Division Road, subject to the following conditions:

1. This approval is for the various plan sheets that comprise the site development plan set as noted below and is subject to compliance with all the conditions and requirements set forth herein and subsequently adopted and/or revised by the Plan Commission. Approval is granted for the following unless superseded by subsequent plan sheets approved by Village Staff pursuant to revisions required herein and/or by the Plan Commission:
    a. *Site/civil engineering plans dated May 20, 2026.*
    b. *Landscaping and planting plan dated May 5, 2026.*
    c. *Photometric lighting plan dated October 13, 2025.*
    d. *Architectural building plans and elevations dated October 6, 2025; March 13, 2026; May 18, 2026.*

    If revised plan sheets are necessary, each revised sheet shall contain the date of said revision clearly stamped in the lower right corner.
2. A revised landscape plan shall be submitted and subject to final review and approval by the Village Forester. Said plan shall address the following comment:
    a. *Planting Notes and Details, Sheet LP501.* The included tree planting specifications/details should note that "If needed, soil should be removed from the top of root ball to expose the tree root flare. The exposed tree root flare shall be planted at, or slightly above, the existing grade."
3. The technical issues and plan revisions identified in the June 3, 2026, memo from Public Works and the Village Engineer shall be addressed in revised plan sheets and/or supplemental documents as necessary prior to commencing construction activities and/or issuance of building permits.
4. State agency (DSPS) approved plans and a $20,000 occupancy bond are required by Inspection Services. The Village of Germantown is an authorized delegated agent of DSPS and may be used as an alternative to provide all commercial plan review and inspection services through SAFEBuilt of WI and the Village of Germantown.
5. The Developer shall install 6-foot wide sidewalk along the west side of Division Road from Mequon Road to the southern end of the subject 5.4-acre parcel. Sidewalk construction method shall be in compliance with the Village of Germantown Development Handbook design standards and constructed as set forth in a Development Agreement.
6. Public utilities (i.e. sanitary and water) shall be installed in compliance with the Village of Germantown Development Handbook design standards and/or as set forth in a Development Agreement. Final utility profiles, plans, and precise location shall be coordinated with the Public Works Director, Village Engineer, and Water and Wastewater Utility Superintendents.

7. The private road construction and driveway intersections on Division Road shall be designed and coordinated with the Public Works Director, Village Engineer, and the Fire Department.
8. Unless mutually agreed to between the Developer and the Village as set forth in the Development Agreement, the provisions of Village Code Section 11.08 pertaining to garbage and recycling collection for a property containing five (5) or more residential units ("multiple-family dwellings") shall apply.
9. The approved Certified Survey Map (CSM) creating the subject development site shall be recorded at the Washington County Register of Deeds prior to commencing construction activities and/or issuance of building permits.
10. A Development Agreement shall be reviewed by the Public Works and Highways Committee and approved by the Village Board. Maintenance guarantees pertaining to stormwater management facilities, walking paths, and utilities shall be included in the Development Agreement.

APPROVE the Sign Permit for Cirrus Property Group, LLC, for property located at W172N11187 Division Road, subject to the following condition:

1. Prior to sign installation, the applicant shall revise the sign plan details to incorporate landscaping for the real estate development (monument) sign meeting the requirements of Village Sign Code Section 17.46(7). Said plan to be submitted to the Village Planner for review and approval prior to sign installation.

Village of Germantown
...Willkommen

SCANNED

Fee must accompany application
- ☐ $810 Minor Addition
- ☐ $1,430 Construction <10,000 SF
- ☐ $2,410 Construction 10,000 SF to 50,000
- ☒ $3,980 Industrial Construction >50,000 SF
- ☐ $3,980 Commercial Construction >50,000
- ☐ $350 Plan Commission Consultation
- ☐ $125 Fire Department Plan Review

Paid On: 3/13/26 Check/CC # 1059

SITE PLAN REVIEW APPLICATION

Pursuant to Section 17.43 of the Municipal Code

Please read and complete this application carefully. **All applications must be signed and dated.**

1 APPLICANT OR AGENT

Daniel Hasbani
Cirrus Property Group, LLC
1661 N Water St, Suite 500
Milwaukee, WI 53202

Phone [redacted]
E-Ma[redacted]

PROPERTY OWNER

Tanner Hahn
Faith Lutheran Church
W172 N11187 Division Rd
Germantown, WI 53022

Phone ( )
[redacted]

PLEASE NOTE: Applicant contact information has been redacted for security purposes.

2 PROPERTY ADDRESS

W172 N11187 Division Rd (refer to recently approved CSM)

3 NEIGHBORING USES – Specify name and type of use, e.g. Enviro Tech – Industrial, Smith – Residential, etc.

North	South	East	West
Faith Luther Church - Institutional	Martin (vacant) - RS-1	Ashbury - RM-1	WECFS BUILDING CORPORATION - B4

4 READ AND INITIAL THE FOLLOWING:

DH I am aware of the Village of Germantown ordinance requiring fire sprinklers in most new construction.

DH I understand that all new development is subject to Impact and/or Connection Fees that must be paid before building permits will be issued.

DH I understand that an incomplete application will be withdrawn from the Plan Commission agenda and that all resubmissions to the Plan Commission are subject to a new application fee.

5 SIGNATURES – ALL APPLICATION MUST BE SIGNED BY OWNER!

CIRRUS PROPERTY GROUP, LLC,
a Delaware Limited Liability Company

By: [signature] 2026.03.09 15:35:59-05'00'
Name: Daniel Hasbani
Its: VP of Development

FAITH LUTHERAN CHURCH
By: Cirrus Property Group, LLC
Its: Authorized Agent

By: [signature] 2026.03.09 15:36:17-05'00'
Name: Daniel Hasbani
Its: VP of Development

RECEIVED
MAR 13 REC'D
OFFICE OF THE VILLAGE PLANNER
VILLAGE OF GERMANTOWN

Revised

Village of Germantown ...Willkommen

Fee must accompany application

☒ $320 Sign Review Fee

☐ $ 90 Sign Face Replacement

Paid On: _____ Check/CC_____

SIGN REVIEW APPLICATION

Pursuant to Section 17.46 of the Municipal Code

Please read and complete this application carefully. **All applications must be signed and dated.**

1

APPLICANT/AGENT:

Daniel Hasbani
Cirrus Property Group, LLC
1661 N Water St, Suite 500
Milwaukee, WI 53202

Phone [redacted]

Email [redacted]

PROPERTY OWNER:

Tanner Hahn
Faith Lutheran Church
W172 N11187 Division Rd
Germantown, WI 53022

Phone (_____) _____

Ema[redacted]

PLEASE NOTE: Applicant contact information has been redacted for security purposes.

2 **PROPERTY ADDRESS OR GENERAL LOCATION** **TAX KEY NUMBER**

W172 N11187 Division Rd (refer to recently approved CSM)

3 **SIGN INFORMATION**

Sign Dimensions 4' height x 6' width Single/Multi Tenant (circle one)
Number of Sides 1 Building Frontage SF _____
Total Square Footage of Sign (include all sides) 24sf
Total height of the Sign 4'
Is the Sign to be illuminated _____ yes X no
Type of Sign Construction Materials Masonry, aluminum
Distance to Closest Property Line 5'

Are there any existing signs on the property No
If yes, what is the total Square Footage of existing signs_____

What are the intentions for the existing signs: Take down _____ Remain _____

4 **SIGNATURES -- ALL APPLICATIONS MUST BE SIGNED BY OWNER!**

CIRRUS PROPERTY GROUP, LLC,
a Delaware Limited Liability Company

By: _____
Name: Daniel Hasbani
Its: VP of Development

FAITH LUTHERAN CHURCH
By: Cirrus Property Group, LLC
Its: Authorized Agent

By: _____
Name: Daniel Hasbani
Its: VP of Development

Revised 12/5/25

Cirrus Property Group, LLC
1661 N Water St, Suite 500
Milwaukee, WI 53202

March 9, 2026

Village of Germantown – Planning & Zoning Services
N112W17001 Mequon Road
Germantown, WI 53022
Attn: Mr. Jordan Yanke

Re: The Carillon at Germantown – Site Plan & Design Intent Narrative

Dear Mr. Yanke,

Cirrus Property Group, LLC ("**Cirrus**") is pursuing the acquisition of approximately 5.39 acres of real property located at W72N11183 Division Road (the "**Project Site**") in the Village of Germantown for its proposed residential development to be named "The Carillon at Germantown" (the "**Project**"), a 36-unit for-lease community.

The Project Site is owned by Faith Lutheran Church and makes up the southern portion of the larger 10.40-acre parcel that includes a vacant parsonage and vacant land, which was subdivided through the approval of a Certified Survey Map in January 2026. As part of the lot split, the Project Site was rezoned from Institutional to a Detailed Planned Development with RM-2 base zoning and adjustments to the building setback requirements.

The Project will consist of 36 total units in a range of open-concept 2- and 3-bedroom floor plans. The development will offer upscale, professionally managed market-rate rental housing options not currently available in Germantown. All units will have the primary bedroom on the main floor. Each 2-bedroom unit will feature either a one-car attached garage with an additional driveway apron space or a two-car attached garage with two driveway apron spaces. All 3-bedroom units will include a two-car attached garage with two driveway apron spaces. Overall, the Project will contain 108 parking spots, equating to 3.00 parking spaces per unit, which greatly exceeds the minimum required parking count.

Access will be provided by a newly-constructed private drive with two connection points at Division Road – one offering full access and the other limited to right-turn ingress and egress only, designed to enhance circulation for both residents and service vehicles. A traffic impact analysis was completed by Traffic Analysis & Design, Inc. on October 8, 2025, which is attached as part of the applications. Stormwater will be managed onsite through the construction of two new retention basins.

Cirrus Property Group, LLC
1661 N Water St, Suite 500
Milwaukee, WI 53202

The Carillon at Germantown is a build-to-rent community designed to provide enduring, human-scaled housing that supports residents through multiple stages of life. Thoughtfully conceived for both young families and empty nesters, the homes balance flexibility, comfort, and long-term livability within a cohesive neighborhood setting.

At the heart of the design is a commitment to aging-in-place principles. Every unit—whether single-story or two-story—features a ground-level primary suite, allowing homeowners to enjoy the convenience of single-level living while maintaining the option for expanded space. Secondary bedrooms and upper-level living areas in select units provide flexibility for growing families, visiting grandchildren, home offices, or hobby spaces. This adaptability ensures that the homes can evolve alongside their residents without requiring relocation.

The architectural character draws from the enduring qualities of the Craftsman tradition, expressed in a way that feels warm, grounded, and appropriately scaled. A synthetic stone base anchors each building to the landscape, providing visual weight and durability at the pedestrian level. Above, fiber cement siding is articulated in a Craftsman-inspired arrangement that introduces depth, rhythm, and proportion to the façade. Varied color schemes between buildings create a sense of individuality and richness across the community while maintaining a cohesive overall identity.

Garage options for one- and two-car configurations allow residents to select a layout that aligns with their lifestyle and storage needs. These options are integrated carefully into the façade composition to maintain balance and avoid overpowering the residential character of the streetscape.
The result is a neighborhood of homes that feels established and welcoming, designed not simply for immediate market appeal, but for long-term comfort, resilience, and belonging. By combining flexible floor plans, accessible living strategies, and timeless architectural language, this community supports daily life with dignity, ease, and architectural integrity.

We expect that The Carillon at Germantown will attract two primary renter segments – current Germantown residents, most likely empty-nesters, that may be looking to downsize and/or who do not want to deal with the maintenance and other burdens of owning a home, and young families who want to live in Germantown and enjoy the benefits of single-family living but are not yet in a financial position to purchase a home in today's market.

The need for this type of housing is further supported by the Germantown Residential Market Analysis, which was completed by Tracy Cross & Associates on February 9, 2024 and states that "…strong consideration should be given to the introduction of… a ranch villa rental program targeting the active adult aged 55-74, but not restricted to this segment since other profiles will find this product desirable." Providing a high-quality single-family style rental housing option allows existing Germantown residents an opportunity to downsize, remain in Germantown, and free up housing stock for new families that desire to move into the community.

Cirrus Property Group, LLC
1661 N Water St, Suite 500
Milwaukee, WI 53202

Since the Project Site is currently owned by Faith Lutheran Church and exempt from property taxes, the Project will place property back on the tax rolls. We estimate the Project will generate approximately $140,000 in new annual property tax revenue. We also expect to contribute approximately $300,000 in one-time fees for utility connections and service expenses. Beyond its financial impact, the Project will provide a high-quality housing option that aligns with the Village's goal for thoughtful growth.

We respectfully submit this Site Plan & Building Plan application for your consideration, and we look forward to continuing working through the details with the Village.

Sincerely,

Daniel Hasbani

Daniel Hasbani
Cirrus Property Group, LLC

THE CARILLON AT GERMANTOWN

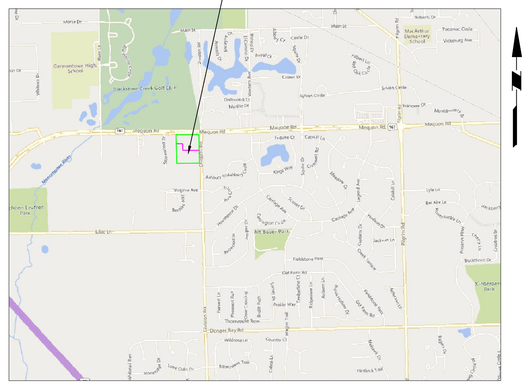
VILLAGE OF GERMANTOWN, WASHINGTON COUNTY, WISCONSIN

SITE PLAN SUBMITTAL SET

SHEET INDEX

DRAWING NUMBER	DRAWING TITLE
CS001	COVER SHEET
CS100	GENERAL NOTES & LEGEND
CE101	EROSION CONTROL PLAN
CS101	SITE PLAN
CG101	OVERALL GRADING PLAN
CG102-CG108	DETAILED GRADING PLAN
CU101	UTILITY PLAN
PF101-PF102	SANITARY PROFILES
PF201-PF202	WATER PROFILES
CS501-CS503	DETAILS
LP101	PLANTING PLAN
LP501-LP502	PLANTING NOTES AND DETAILS
LL101	LANDSCAPE LIGHTING PLAN
LL501	LIGHTING NOTES & DETAILS

INDEX MAP
SCALE: 1-IN = 200-FT



VICINITY MAP
SCALE: 1-IN = 2000-FT

CONTACT LIST

DEVELOPER/OWNER

Cirrus 002 Fund, LLC
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Attn: John Riordan

ARCHITECT

Galbraith Carnahan Architects
401 North Houston Street
Dallas, TX 75202
T: (414) 291-0772
E: bmr@galbraithcarnahan.com
Attn: Brandon Reinke, AIA

SURVEYOR

Land Surveys Inc.
21005 Watertown Road, Suite A2
Waukesha, WI 53186
T: (262) 312-1034
E: phil@landsurveysinc.com
Attn: Phil Landry, Professional Land Surveyor

CIVIL ENGINEER

Langan Engineering & Environmental, Surveying,
Landscape Architecture and Geology, D.P.C.
790 N Milwaukee Street, Suite 500E
Milwaukee, WI 53204
T: (414) 451-9800
E: jkastner@langan.com
Attn: John Kastner, Professional Engineer

LANDSCAPE ARCHITECT

Langan Engineering & Environmental, Surveying,
Landscape Architecture and Geology, D.P.C.
790 N Milwaukee Street, Suite 500E
Milwaukee, WI 53204
T: (312) 547-7725
E: mstrange@langan.com
Attn: Matthew Strange, Professional Landscape Architect

TO OBTAIN LOCATIONS OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

CALL DIGGERS HOTLINE
1-800-242-8511
TOLL FREE

WIS STATUTE 182.0175(1974)
REQUIRES MIN. 3 WORK DAYS
NOTICE BEFORE YOU EXCAVATE

MILW. AREA 259-1181

THE UNDERGROUND UTILITY INFORMATION SHOWN ON THIS MAP IS BASED ON FIELD MARKINGS AND INFORMATION FURNISHED BY UTILITY COMPANIES AND THE LOCAL MUNICIPALITY. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ITS ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED.

Date	Description	No.
Revisions		
05/20/26	VILLAGE COMMENTS	1

LANGAN
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T: 973.560.4580
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Project
THE CARILLON AT GERMANTOWN
GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title
Title Sheet

Project No.	Drawing No.
543001101	CS001
Date: 03-06-2026	
Drawn By: ZRF	
Checked By: SDP	

LANGAN
Project No. 543001101

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GENERAL NOTES

1. EXISTING SITE TOPOGRAPHY, UTILITIES, RIGHT–OF–WAY AND HORIZONTAL CONTROL SHOWN ON THE DRAWINGS WERE OBTAINED FROM A SURVEY ENTITLES "TOPOGRAPHIC MAP" PREPARED BY: LAND SURVEYS INC. ON AUGUST 14, 2025. COPIES OF THE SURVEY ARE AVAILABLE FROM THE SURVEYOR. SITE CONDITIONS MAY HAVE CHANGED SINCE THE SURVEY WAS PREPARED. CONTRACTORS TO VISIT SITE TO FAMILIARIZE THEMSELVES WITH THE CURRENT CONDITIONS.

2. ALL EXISTING TOPOGRAPHY, UNDERGROUND UTILITIES, STRUCTURES AND ASSOCIATED FACILITIES SHOWN ON THESE DRAWINGS HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATIONS AND ELEVATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHER FACILITIES, THE EXISTENCE OF WHICH ARE NOT PRESENTLY KNOWN.

3. CONTRACTOR IS TO VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, ELEVATIONS, STRUCTURES AND FACILITIES PRIOR TO THE FABRICATION AND INSTALLATION OF ANY MATERIALS. ANY DISCREPANCIES BETWEEN INFORMATION SHOWN ON THE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.

4. ALL APPLICABLE PROVISIONS OF THE CURRENT OCCUPATIONAL SAFETY AND HEALTH ACT ARE HEREIN INCORPORATED BY REFERENCE.

5. THE CONTRACTOR SHALL SUBSCRIBE TO ALL GOVERNING REGULATIONS AND SHALL OBTAIN ALL NECESSARY PUBLIC AGENCY PERMITS PRIOR TO STARTING WORK. THE CONTRACTOR, BY USING THESE PLANS FOR THEIR WORK, AGREE TO HOLD HARMLESS LANGAN ENGINEERING, ENVIRONMENTAL, SURVEYING, LANDSCAPE ARCHITECTURE, AND GEOLOGY D.P.C., THE MUNICIPALITY, THEIR EMPLOYEES AND AGENTS AND THE OWNER WHILE ACTING WITHIN THE SCOPE OF THEIR DUTIES FROM AND AGAINST ANY AND ALL LIABILITY, CLAIMS, DAMAGES, AND THE COST OF DEFENSE ARISING OUT OF CONTRACTOR(S) PERFORMANCE OF THE WORK DESCRIBED HEREIN, BUT NOT INCLUDING THE SOLE NEGLIGENCE OF THE OWNER, THEIR AGENTS, THE ENGINEER, THEIR EMPLOYEES AND AGENTS.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS FOR CONSTRUCTION ALONG OR ACROSS EXISTING STREETS OR HIGHWAYS. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE PROPER BRACING, SHORING AND OTHER REQUIRED PROTECTION OF ALL ROADWAYS BEFORE CONSTRUCTION BEGINS. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE STREETS OR ROADWAYS AND ASSOCIATED STRUCTURES AND SHALL MAKE REPAIRS AS NECESSARY TO THE SATISFACTION OF THE OWNER OF THE ROADWAY.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ADEQUATE SIGNS, TRAFFIC CONTROL DEVICES AND WARNING DEVICES TO INFORM AND PROTECT THE PUBLIC DURING ALL PHASES OF CONSTRUCTION. BARRICADES AND WARNING SIGNS SHALL BE PROVIDED IN ACCORDANCE WITH THE WISDOT STANDARD SPECIFICATIONS. ALL TRAFFIC CONTROL WORK SHALL BE DONE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."

8. EXCEPT WHERE MODIFIED BY THE CONTRACT DOCUMENTS, ALL WORK PROPOSED HEREON SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS WHICH ARE HEREBY MADE A PART HEREOF:

   a. LATEST EDITION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS".
   b. LATEST EDITION OF THE "STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN".
   c. LATEST EDITION OF THE WISCONSIN ADMINISTRATIVE CODE.
   d. THE LATEST EDITIONS OF THE MUNICIPAL CODE AND STANDARDS OF THE VILLAGE OF GERMANTOWN, WI.
   e. THE NATIONAL ELECTRIC CODE.
   g. LATEST EDITION OF THE WISCONSIN ACCESSIBILITY CODE.

   h. CONSTRUCTION & DEMOLITION (C&D) WASTE REGULATIONS REQUIREMENTS AS PUBLISHED BY THE WISCONSIN ADMINISTRATIVE CODE. TESTING OF SOILS BEING EXPORTED FROM THE SITE AND APPROPRIATE DISPOSAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

   THE MORE STRINGENT REQUIREMENT SHALL GOVERN IF THERE ARE ANY CONFLICTING SPECIFICATIONS.

10. FOR REGULATED UTILITY LOCATIONS, THE CONTRACTOR SHALL CONTACT THE JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS, "DIGGERS HOTLINE" AT 1–800–242–8511. LOCAL GOVERNMENT AGENCIES SHOULD BE CONTACTED BY THE CONTRACTOR FOR LOCATION OF ALL NONREGULATED UTILITY LOCATIONS. CALL FOR LOCATIONS AT LEAST 48 HOURS IN ADVANCE OF CONSTRUCTION.

11. BEFORE EXCAVATING OVER OR ADJACENT TO ANY EXISTING UTILITIES, CONTRACTOR SHALL NOTIFY THE OWNER OF SUCH UTILITIES TO ENSURE THAT PROTECTIVE WORK WILL BE COORDINATED AND PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE OWNER OF THE UTILITY INVOLVED. IF ANY EXISTING SERVICE LINES, UTILITIES AND UTILITY STRUCTURES WHICH ARE TO REMAIN IN SERVICE ARE UNCOVERED OR ENCOUNTERED DURING THIS OPERATION, THEY SHALL BE SAFEGUARDED, PROTECTED FROM DAMAGE AND SUPPORTED IF NECESSARY.

12. A 48 HOUR NOTICE SHALL BE GIVEN FOR ANY ITEM THAT REQUIRES FINAL TESTING AND INSPECTION. ALL TREES TO BE SAVED SHALL BE IDENTIFIED PRIOR TO CONSTRUCTION AND SHALL BE PROTECTED PER WISDOT STANDARDS. THE RIGHT–OF–WAY LINE AND LIMITS OF THE CONTRACTOR'S OPERATIONS SHALL BE CLEARLY DEFINED THROUGHOUT THE CONSTRUCTION PERIOD. ALL TREES IDENTIFIED TO REMAIN SHALL BE PROTECTED FROM DAMAGE INCLUDING TRUNKS, BRANCHES AND ROOTS. NO EXCAVATING, FILLING OR GRADING IS TO BE DONE INSIDE THE DRIP LINE OF TREES UNLESS OTHERWISE INDICATED.

13. CONSTRUCTION ACCESS POINTS TO THE SITE SHALL BE PROTECTED IN SUCH A WAY AS TO PREVENT ACCUMULATION OF MUD OR SOIL ON PUBLIC THOROUGHFARES. AT THE END OF EACH DAY AND AS OFTEN AS OTHERWISE NECESSARY THE CONTRACTOR SHALL CLEAN UP ALL MUD OR SOIL WHICH HAS BEEN TRACKED ONTO PUBLIC STREETS AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION AND AS DETAILED IN THE STORM WATER POLLUTION PREVENTION PLAN.

14. THE CONTRACTOR SHALL PROVIDE FOR THE SAFE AND ORDERLY PASSAGE OF TRAFFIC AND PEDESTRIANS WHERE THEIR OPERATIONS ABUT PUBLIC THOROUGHFARES AND ADJACENT PROPERTY IN ACCORDANCE WITH THE CITY OF PORT WASHINGTON MUNICIPAL CODE AND WISDOT REQUIREMENTS.

15. ALL EXISTING PAVEMENT OR CONCRETE TO BE REMOVED SHALL BE SAWCUT ALONG LIMITS OF PROPOSED REMOVAL BEFORE COMMENCEMENT OF PAVEMENT REMOVAL.

16. NO BURNING OR INCINERATION OF RUBBISH WILL BE PERMITTED ON SITE.

17. THE CONTRACTOR IS RESPONSIBLE FOR HAVING A SET OF "APPROVED" ENGINEERING PLANS WITH THE LATEST REVISION DATE ON THE JOB SITE PRIOR TO THE START OF CONSTRUCTION.

18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENTATION CONTROL AS DETAILED IN THE SOIL EROSION & SEDIMENT CONTROL PLAN.

19. DURING CONSTRUCTION, THE CONTRACTOR WILL BE REQUIRED, AT THEIR EXPENSE, TO HAVE AVAILABLE A WATER TRUCK OR SIMILAR EQUIPMENT TO CONTROL DUST. IF NECESSARY, THE CONTRACTOR SHALL BE REQUIRED TO CONTROL DUST DURING NON–WORKING HOURS.

20. ANY AREAS THAT ARE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED IN CONFORMANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION AND SHALL BE INCIDENTAL TO THE CONTRACT.

21. THE CONTRACTOR SHALL PROTECT EXISTING ROADS AND STRUCTURES FROM ANY DAMAGE DUE TO CONSTRUCTION ACTIVITIES. DAMAGES SHALL BE REPAIRED BY CONTRACTOR AT CONTRACTOR'S EXPENSE.

22. STREET PAVING AND CURBS TO REMAIN SHALL BE PROTECTED FROM DAMAGE AND IF DAMAGED, SHALL BE REPLACED PROMPTLY IN CONFORMANCE WITH THE MUNICIPALITY OR WISDOT STANDARD SPECIFICATIONS IN MATERIALS AND WORKMANSHIP.

23. PROPOSED ELEVATIONS INDICATE FINISHED CONDITIONS. FOR ROUGH GRADING ELEVATIONS ALLOW FOR THICKNESS OF PROPOSED PAVING (ROADS, WALKS, DRIVES, ETC.) OR TOPSOIL AS INDICATED ON DRAWINGS.

24. THE CONTRACTOR SHALL USE APPROPRIATE EQUIPMENT TO EXPEDITE COMPLETION OF THE IMPROVEMENTS WHILE AVOIDING ENCROACHMENT ON NEIGHBORING PROPERTIES AND AREAS OUTSIDE THE SPECIFIED CONSTRUCTION LIMITS WITH MATERIALS AND EQUIPMENT, UNLESS AUTHORIZED BY THE OWNER.

25. CONSTRUCTION ACCESS AND MATERIALS STORAGE SHALL BE LIMITED TO THE AREAS DESIGNATED ON THE PLANS OR BY THE OWNER.

26. PROPER AND LEGAL DISPOSAL OF CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. DISPOSAL OF EXCESS OR WASTE MATERIAL ON OWNER'S PROPERTY OR ADJACENT PROPERTIES SHALL BE UNACCEPTABLE UNLESS PROVIDED FOR IN THE PLAN DOCUMENTS.

27. THE CONTRACTOR SHALL INFORM THE OWNER AND ENGINEER BEFORE WORK COMMENCES ON EACH CATEGORY OF CONSTRUCTION, I.E. GRADING, DRAINAGE, AND EROSION AND SEDIMENTATION CONTROL.

28. THE CONTRACTOR RESPONSIBLE FOR DRAINAGE IMPROVEMENTS (UNDERGROUND WORK) SHALL DISPOSE OF ALL EXCESS SOIL MATERIALS ON THE SITE AS DIRECTED BY THE ENGINEER. NO ADDITIONAL COMPENSATION SHALL BE BE PAID AND SAID WORK SHALL BE INCIDENTAL TO THE OTHER ITEMS OF CONSTRUCTION.

29. THE CONTRACTOR WILL BE RESPONSIBLE TO ESTABLISH LINES AND GRADES NECESSARY FOR THE PROPER PROSECUTION AND CONTROL OF THE WORK. THE CONTRACTOR SHALL CALL THE ATTENTION OF THE OWNER'S REPRESENTATIVE TO ANY ERRORS OR DISCREPANCIES WHICH MAY BE SUSPECTED IN LINES AND GRADES, AND SHALL NOT PROCEED WITH THE WORK UNTIL ANY LINES AND GRADES WHICH ARE BELIEVED TO BE IN ERROR HAVE BEEN VERIFIED OR CORRECTED BY THE OWNER'S REPRESENTATIVE.

30. THE UNDERGROUND CONTRACTOR SHALL BE RESPONSIBLE TO PLACE ON GRADE AND COORDINATE WITH OTHER CONTRACTORS ALL UNDERGROUND STRUCTURE FRAMES SUCH AS CATCH BASINS, INLETS, MANHOLES, ETC. NO ADDITIONAL COMPENSATION WILL BE PAID AND SAID ADJUSTMENTS SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS OF CONSTRUCTION.

31. PRIOR TO NEW WORK, THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF EXISTING UTILITY LINES AND STRUCTURES TO BE CONNECTED TO PROPOSED WORK. DISCREPANCIES SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.

32. ALL SEDIMENT WILL BE PREVENTED FROM ENTERING ANY EXISTING STORM DRAINAGE SYSTEMS BY THE USE OF SILT FENCE OR OTHER APPROVED FUNCTIONAL METHODS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING SEDIMENT RESULTING FROM THIS PROJECT FROM STORM SEWERS AND DRAINAGE STRUCTURES. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL UP UNTIL THE WORK IS ACCEPTED AND FINAL PAYMENT IS MADE.

33. BUTT JOINTS SHALL BE PROVIDED WHEREVER NEW PAVEMENT ABUTS EXISTING PAVEMENT. ALL BUTT JOINTS SHALL BE CONSTRUCTED BY MILLING AND SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE HOT–MIX ASPHALT HMA SURFACE COURSE.

34. WHEN AN EXISTING DRAINAGE ROUTE, EITHER A STORM SEWER OR WATERWAY, IS INTERRUPTED DUE TO CONSTRUCTION, THE DRAINAGE ROUTE SHALL BE REESTABLISHED TO ORIGINAL CONDITIONS BY THE END OF THE SAME WORK DAY. POSITIVE DRAINAGE MUST BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.

35. FINAL ADJUSTMENT OF FIRE HYDRANTS, VALVE VAULTS, AND MANHOLES TO FINISHED GRADE ARE INCIDENTAL TO THEIR COST.

GENERAL NOTES (CONT.)

40. ANY EXISTING UTILITY STRUCTURES REQUIRING ADJUSTMENT ARE TO BE ADJUSTED OR RECONSTRUCTED BY THE CONTRACTOR TO THE UTILITY OWNER'S SATISFACTION. ADJUSTMENTS OR RECONSTRUCTIONS NOT CALLED FOR ON THE PLANS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

41. ALL UTILITY CONNECTIONS TO EXISTING LINES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REGULATIONS AND TO THE SATISFACTION OF THE UTILITY OWNER.

42. THE GENERAL CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO PROVIDE CABLE TV, PHONE, ELECTRIC, GAS AND IRRIGATION SERVICES. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING SITE LAYOUTS FOR THESE UTILITIES AND SHALL COORDINATE AND PROVIDE CONDUIT CROSSINGS AS REQUIRED. THIS COORDINATION SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. ANY CONFLICTS IN UTILITIES SHALL BE CORRECTED BY THE GENERAL CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

43. PROVIDE TRENCH BACKFILL IN ACCORDANCE WITH THE DETAILS OF THE PLANS FOR ALL UTILITY LINES (OR AS OTHERWISE NOTED ON PLANS). BACKFILL SHALL BE PLACED AND COMPACTED PER THE MUNICIPALITY AND WISDOT SPECIFICATIONS. COST OF BACKFILL IS TO BE CONSIDERED INCIDENTAL TO THE UTILITY WORK.

44. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

45. PRIOR TO DEMOBILIZATION, ALL WORK SHALL BE CLEANED AND INSPECTED TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE COST OF THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

46. BAND–SEAL CONNECTORS OR EQUIVALENT SHALL BE USED TO JOIN PIPES OF DISSIMILAR MATERIAL.

47. CONTRACTOR SHALL MAINTAIN ACCURATE RECORDS OF ALL CONSTRUCTION IN CONFORMANCE WITH ALL MUNICIPAL AND CLIENT REQUIREMENTS FOR USE IN PREPARING RECORD DRAWINGS.

48. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING ANY EXCAVATION. ANY DEWATERING REQUIRED SHALL BE INCIDENTAL TO THE CONTRACT. WATER PUMPED FROM THE SITE SHALL BE TREATED BY SEDIMENT BASINS OR OTHER APPROPRIATE MEASURES SPECIFIED IN THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES TECHNICAL STANDARDS. WATER MAY NOT BE DISCHARGED IN A MANNER THAT CAUSES EROSION OF THE SITE, ADJACENT SITES, OR RECEIVING CHANNELS.

49. COPIES OF SOILS INVESTIGATION REPORTS MAY BE OBTAINED FROM THE OWNER. ANY BRACING, SHEETING OR SPECIAL CONSTRUCTION METHODS REQUIRED IN ORDER TO INSTALL THE PROPOSED IMPROVEMENTS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE PROJECT. ANY ADDITIONAL SOILS DATA NEEDED TO CONFIRM THE CONTRACTOR'S OPINIONS OF THE SUBSOIL CONDITIONS SHALL BE DONE AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL OBTAIN THE OWNER'S WRITTEN AUTHORIZATION TO ACCESS THE SITE TO CONDUCT A SUPPLEMENTAL SOILS INVESTIGATION.

50. ALL FIELD TILE ENCOUNTERED DURING CONSTRUCTION OPERATIONS SHALL BE CONNECTED TO THE PROPOSED STORM SEWER OR EXTENDED TO OUTLET INTO A PROPOSED DRAINAGE WAY AS DETERMINED BY THE ENGINEER. IF THIS CANNOT BE ACCOMPLISHED, THEN IT SHALL BE REPAIRED WITH NEW PIPE OF SIMILAR SIZE AND MATERIAL TO THE ORIGINAL LINE AND PUT IN ACCEPTABLE OPERATIONAL CONDITION. A RECORD OF THE LOCATION OF ALL FIELD TILE FOR ON–SITE DRAIN PIPE ENCOUNTERED SHALL BE KEPT BY THE SUBCONTRACTOR AND SUBMITTED TO THE ENGINEER UPON COMPLETION OF THE PROJECT. ALL FIELD TILE REPAIRS SHALL BE CONSIDERED AS INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE PROVIDED.

51. THE ENGINEER AND OWNER ARE NOT RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, TIME OF PERFORMANCE, PROGRAMS OR FOR ANY SAFETY PRECAUTIONS USED BY THE CONTRACTOR. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXECUTION OF THEIR WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS.

52. CONSTRUCTION WITHIN THE VILLAGE OF GRAFTON SHALL BE CONSTRUCTED IN ACCORDANCE WITH:
   a. THE VILLAGE OF GRAFTON'S COMPREHENSIVE PLAN.
   b. WASTEWATER FACILITY PLAN.
   c. POTABLE WATER FACILITY PLAN.
   d. THE VILLAGE OF GRAFTON'S CITY CODE.
   e. VILLAGE OF GRAFTON CONSTRUCTION STANDARDS.
   f. FEDERAL, STATE, AND COUNTY STATUTES AND REGULATIONS.

54. IN THE EVENT OF CONFLICT WITH VARIOUS REGULATIONS, PLANS, ETC. THE MOST RESTRICTIVE REGULATIONS SHOULD APPLY.

55. NO WORK SHALL BEGIN UNTIL THE FOLLOWING MINIMUM CONDITIONS ARE MET:
   a. ALL PERMITS, EASEMENTS, LICENSING AGREEMENTS ETC., OBTAINED, INCLUDING THE VILLAGE OF GRAFTON PERMIT TO EXCAVATE IN CITY RIGHT–OF–WAY OR EASEMENT.
   b. CERTIFICATE OF INSURANCE POSTED.
   c. SECURITY POSTED.
   d. PRECONSTRUCTION MEETING HELD.
   e. SHOP DRAWINGS APPROVED.
   f. VILLAGE BUILDING/ENGINEERING DEPARTMENT COORDINATION.
   g. VILLAGE BUILDING/ENGINEERING DEPARTMENT CONCURRENCE TO BEGIN WORK.
   h. PAYMENT OF ALL FEES.

56. ALL RETAINING WALL DRAWINGS AND DETAILS WILL BE SUBMITTED TO THE VILLAGE OF GRAFTON FOR RECORD PRIOR TO START OF WALL CONSTRUCTION.

EARTHWORK & GRADING NOTES

1. THE GRADING OPERATIONS ARE TO BE INSPECTED BY A THIRD PARTY SOILS ENGINEER. THE CONTRACTOR'S REPRESENTATIVE MUST BE NOTIFIED PRIOR TO ANY UNSUITABLE SOIL REMOVAL AND MUST APPROVE, IN WRITING, ANY REMEDIATION. BOTH THE CONTRACTOR AND SOILS ENGINEER MUST BE PRESENT DURING REMEDIATION.

2. THE PROPOSED GRADING ELEVATIONS SHOWN ON THE PLANS ARE FINISH GRADE. A MINIMUM OF 6 INCHES OF TOPSOIL IS TO BE PLACED BEFORE FINISH GRADE ELEVATIONS ARE ACHIEVED, UNLESS OTHERWISE NOTED. AREAS IN DETENTION FACILITIES NOTED TO BE ESTABLISHED WITH NATIVE VEGETATION SHALL REQUIRE A MINIMUM OF 12 INCHES OF TOPSOIL. REFER TO PLANTING PLANS TO VERIFY TOPSOIL THICKNESS REQUIREMENTS.

3. THE SURFACE VEGETATION, TOPSOIL, TRANSITIONAL MATERIAL, AND ANY OBVIOUSLY SOFT UNDERLYING SOIL SHALL BE STRIPPED FROM ALL AREAS TO RECEIVE STRUCTURAL FILL. IF THE UNDERLYING SUBGRADE IS FOUND TO BE UNSUITABLE FOR PROPER COMPACTION, CONTRACTOR TO CONSULT WITH SOILS ENGINEER PRIOR TO REMEDIATION.

4. EMBANKMENT MATERIAL WITHIN ROADWAY, DRIVEWAY, BUILDING AND OTHER STRUCTURAL CLAY FILL AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM SPECIFICATION D1557 (MODIFIED PROCTOR METHOD), OR TO SUCH OTHER DENSITY AS MAY BE DETERMINED APPROPRIATE BY THE SOILS ENGINEER, THE AUTHORITY HAVING JURISDICTION, AND THE CONTRACTOR.

5. ALL PAVEMENT SUBGRADE SHALL MEET THE REQUIREMENTS DETERMINED BY THE SOILS ENGINEER AND DOCUMENTED IN THE GEOTECHNICAL REPORT. IF AREAS OF PAVEMENT SUBGRADE ARE ENCOUNTERED WHICH DO NOT MEET THESE REQUIREMENTS, SUBGRADE REPLACEMENT OR PAVEMENT DESIGN REVISIONS SHALL BE PROVIDED WHICH ARE ADEQUATE TO OBTAIN EQUIVALENT PAVEMENT STRENGTH AS DETERMINED BY THE ENGINEER, SOILS ENGINEER, AND THE AUTHORITY HAVING JURISDICTION.

6. COMPLETED GRADING (FINISHED FINE GRADE) FOR PROPOSED PAVEMENT SUBGRADE AREAS, BUILDING PADS, AND OPEN SPACE AREAS SHALL BE WITHIN A 0.1 FEET TOLERANCE OF DESIGN SUBGRADE.

7. THE SUBGRADE FOR PROPOSED STREET AND PAVEMENT AREAS SHALL BE PROOF–ROLLED BY THE SUBCONTRACTOR IN THE PRESENCE OF THE JURISDICTIONAL INSPECTOR, CONTRACTOR, AND SOILS ENGINEER.

8. BORROW PIT LOCATION(S) SHALL BE APPROVED BY THE OWNER, ENGINEER, AND GEOTECHNICAL ENGINEER.

9. PROVIDE SMOOTH VERTICAL CURVES THROUGH HIGH AND LOW POINTS INDICATED BY SPOT ELEVATIONS. PROVIDE UNIFORM SLOPES BETWEEN NEW AND EXISTING GRADES. AVOID RIDGES AND DEPRESSIONS.

PAVING NOTES

1. BASE COURSE SHALL BE AGGREGATE BASE COURSE, CONFORMING TO WISDOT STANDARD SPECIFICATIONS (SEE PLANS FOR THICKNESS).

2. SURFACE COURSE AND BINDER COURSE SHALL BE HOT–MIX ASPHALT (HMA) CONFORMING TO WISDOT STANDARD SPECIFICATIONS (SEE PLANS FOR THICKNESS).

3. CURB & GUTTER AND SIDEWALK SHALL BE CLASS SI PORTLAND CEMENT CONCRETE CONFORMING TO WISDOT STANDARD SPECIFICATIONS.

4. SUBGRADE SHALL BE FINISHED TO BE WITHIN 0.1 FEET OF DESIGN SUBGRADE ELEVATIONS BY THE EARTHWORK CONTRACTOR. FINE GRADING FOR PAVEMENTS AND SIDEWALKS SHALL BE THE RESPONSIBILITY OF THE PAVING CONTRACTOR.

5. AGGREGATE BASE COURSES SHALL BE PRIMED AT THE RATE OF 0.25 TO 0.50 GALLONS PER SQUARE YARD AND BRICK, CONCRETE, OR HMA BASES SHALL BE PRIMED AT THE RATE OF 0.05 TO 0.10 GALLONS PER SQUARE YARD WITH LIQUID ASPHALT CONFORMING TO THE WISDOT STANDARD SPECIFICATIONS AND APPROPRIATE FOR PREVAILING WEATHER AND SITE CONDITIONS. PRIME COAT AND CLEANING THE EXISTING SURFACE SHALL BE CONSIDERED AS INCIDENTAL TO THE CONTRACT.

6. PAVEMENT SHALL BE CONSTRUCTED ON A THOROUGHLY COMPACTED SUBGRADE MEETING THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT. PRIOR TO PLACEMENT OF THE NEW PAVEMENT, THE SUBGRADE SHALL BE PROOF ROLLED WITH LOADED TANDEM VEHICLES (25 TON LOAD SEMI–VEHICLES ARE ACCEPTABLE). PROOF ROLLING SHALL BE WITNESSED BY THE GEOTECHNICAL CONSULTANT.

7. SIDEWALKS SHALL BE OF THE THICKNESS AND DIMENSIONS AS SHOWN IN THE CONSTRUCTION PLANS. ALL SIDEWALKS CONSIDERED TO BE ACCESSIBLE ROUTES AS DEFINED BY THE AMERICANS WITH DISABILITIES ACT (ADA) SHALL BE SUBJECT TO WISCONSIN ACCESSIBILITY CODE REQUIREMENTS, UNLESS OTHERWISE NOTED.

8. TESTING OF THE SUBBASE, BASE COURSE, BINDER COURSE, SURFACE COURSE, AND CONCRETE WORK SHALL BE REQUIRED IN ACCORDANCE WITH WISDOT STANDARD SPECIFICATIONS AND IN ACCORDANCE WITH THE SPECIFIC REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. A QUALIFIED TESTING FIRM SHALL BE EMPLOYED TO PERFORM THE REQUIRED TESTS.

9. ASPHALT JOINTS FOR BINDER AND SURFACE COURSES ARE TO BE STAGGERED.

LEGEND

	EXISTING	PROPOSED
MATCHLINE		
PROPERTY LINE		
ADJACENT PROPERTY LINE		
INTERIOR PROPERTY LINE		
RIGHT–OF–WAY		
EASEMENT		
PAVED ROADWAY		
GRAVEL ROADWAY		
SETBACK LINE		
LIMIT OF WORK		LOW
BUILDING LINE		
NORMAL WATER LEVEL		
4–FT WHITE VINYL FENCE		
SILT FENCE		
CONCRETE SIDEWALK		
ASPHALT		
CONTOUR	137	135
SPOT ELEVATION	×192.54	×135.19
STORM PIPE		
STORM CATCH BASIN		
STORM MANHOLE		
TELECOM LINE	T	T
ELECTRIC LINE	E	E
4" MOUNTABLE CURB		
4" MOUNTABLE REJECT CURB		
VEGETATION		
FIRE WATER MAIN		FW
SANITARY SEWER MAIN		
WATER MAIN		W
FIRE HYDRANT		
WATER VALVE		
INLET PROTECTION		
STABILIZED CONSTRUCTION ENTRANCE		
TEMPORARY CONCRETE WASHOUT FACILITY		

SOIL EROSION & SEDIMENT CONTROL NOTES

SEE SOIL EROSION AND SEDIMENT CONTROL PLAN DETAILS IN THESE PLANS.

STANDARDS:

1. THE FOLLOWING PUBLICATIONS WILL BE USED AS A GUIDE FOR THE IMPLEMENTATION OF SOIL EROSION AND SEDIMENT CONTROL: WISCONSIN CONSTRUCTION SITE BEST MANAGEMENT PRACTICES (BMP) (CURRENT EDITION)

REQUIREMENTS:

1. SEDIMENT AND EROSION CONTROLS SPECIFIED ON THE PLANS WILL BE FUNCTIONAL BEFORE ANY EARTHWORK OPERATIONS COMMENCE OR BEFORE LAND IS OTHERWISE DISTURBED ON THE SITE.

2. STOCKPILES OF EARTH MATERIAL WILL BE PLACED AT LOCATIONS AS INDICATED ON THE PLANS.

3. SHOULD THE VOLUME, VELOCITY, SEDIMENT LOAD, OR PEAK FLOW RATES OF STORMWATER RUNOFF TEMPORARILY INCREASE DURING CONSTRUCTION, THEN ADDITIONAL MEASURES TO PROTECT ADJACENT PROPERTIES AND SPECIAL MANAGEMENT AREAS DOWNSTREAM SHALL BE UNDERTAKEN.

4. STORM SEWER INLETS SHALL BE PROTECTED BY STRAW BALE SEDIMENT TRAPS OR FILTER CONTROL DEVICES FOLLOWING INSTALLATION.

5. THE SURFACE OF STRIPPED AREAS SHALL BE PERMANENTLY OR TEMPORARILY PROTECTED FROM SOIL EROSION WITHIN 15 DAYS AFTER FINAL GRADE IS REACHED. STRIPPED AREAS NOT AT FINAL GRADE THAT WILL REMAIN UNDISTURBED FOR MORE THAN 15 DAYS AFTER INITIAL DISTURBANCE SHALL BE PROTECTED FROM EROSION. TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED CONTINUOUSLY UNTIL PERMANENT COVER IS ESTABLISHED.

REQUIREMENTS:

6. WATER DUMPED OR OTHERWISE DISCHARGED FROM THE SITE DURING CONSTRUCTION DEWATERING WILL BE FILTERED

7. VEHICULAR ACCESS TO THE SITE SHALL BE RESTRICTED TO A STABILIZED CONSTRUCTION ENTRANCE. SAID CONSTRUCTION ENTRANCE SHALL BE INSTALLED BEFORE ANY CONSTRUCTION COMMENCES.

8. ALL CONTROL MEASURES NECESSARY WILL BE KEPT OPERATIONAL AND MAINTAINED CONTINUOUSLY THROUGH THE PERIOD OF LAND DISTURBANCE UNTIL PERMANENT EROSION CONTROL IS OPERATIONAL.

9. ALL DISTURBED GROUND LEFT INACTIVE FOR SEVEN OR MORE DAYS SHALL BE STABILIZED BY TEMPORARY OR PERMANENT SEEDING, MULCHING, SODDING, COVERING WITH TARPS, OR EQUIVALENT PRACTICE FOUND IN THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES TECHNICAL STANDARD. IF TEMPORARY SEEDING IS USED, A PERMANENT COVER SHALL ALSO BE REQUIRED AS PART OF THE FINAL SITE STABILIZATION. SEEDING OR SODDING SHALL BE REQUIRED AS PART OF THE FINAL SITE STABILIZATION.

10. PERMANENT TURF SEEDING OF DISTURBED AREA MUST OCCUR PRIOR TO SEPTEMBER 15TH. IF ADEQUATE TIME IS NOT AVAILABLE TO APPLY PERMANENT SEEDING PRIOR TO SEPTEMBER 15TH, THEN DISTURBED AREAS SHALL BE TEMPORARILY SEEDED WITH AN ANNUAL RYE GRASS PER WDNR TECHNICAL STANDARD 1059, WHERE THE TEMPORARY SEEDING MUST OCCUR PRIOR TO OCTOBER 15TH.

11. IF TEMPORARY SEEDING IS NOT COMPLETED BY OCTOBER 15TH, APPLY SOIL STABILIZERS AND DORMANT SEED TO DISTURBED AREA PER WDNR TECHNICAL STANDARD 1050. INSPECT ANIONIC PAM APPLICATION AT A MINIMUM FREQUENCY OF EVERY TWO MONTHS AND REAPPLY AS NECESSARY.

MAINTENANCE:

1. THE EXCAVATING CONTRACTOR SHALL BE RESPONSIBLE FOR THE INITIAL CONSTRUCTION OF THE EROSION CONTROL MEASURES SHOWN IN THE PLAN, AND SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF SAID FACILITIES UNTIL THE COMPLETION OF FINAL GRADING OPERATIONS AFTER CONSTRUCTION OF THE IMPROVEMENTS. THE CONTRACTOR MAY REQUEST IN WRITING A RELEASE FROM THE THE OWNER FOR MAINTENANCE OF THE SITE SOIL EROSION CONTROL MEASURES UPON COMPLETION OF THE WORK. THE OWNER SHALL ISSUE SAID RELEASE WITHIN 15 DAYS OF THE CONTRACTOR'S REQUEST PROVIDING THE CONTRACTOR HAS COMPLETED ALL WORK REQUIRED UNDER THE CONTRACT. THE CONTRACTOR'S EROSION AND CONTROL MAINTENANCE RESPONSIBILITIES SHALL BE EXCLUSIVE OF THE CONSTRUCTION WARRANTY AND/OR GUARANTEE PERIOD.

INSPECTIONS:

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED FOR STABILITY AND OPERATION AFTER A RAINFALL OF 0.5 INCHES OR MORE, BUT NO LESS THAN ONCE EVERY WEEK. MAINTENANCE OF ALL EROSION CONTROL STRUCTURES SHALL BE PROVIDED TO INSURE INTENDED PURPOSE IS ACCOMPLISHED. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANUP AND REMOVAL OF ALL SEDIMENT WHEN LEAVING PROPERTY. EROSION CONTROL MEASURES MUST BE IN WORKING CONDITION AT END OF EACH WORK DAY. DOCUMENT AND MAINTAIN RECORDS OF INSPECTIONS IN ACCORDANCE WITH WDNR NR216 REQUIREMENTS.

   A. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFF–SITE SEDIMENT TRACKING.

   B. BASED ON THE RESULTS OF THE INSPECTION, THE PLAN AND EROSION CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE REVISED AS APPROPRIATE AS SOON AS PRACTICABLE AFTER INSPECTION. SUCH MODIFICATIONS SHALL PROVIDE FOR TIMELY IMPLEMENTATION OF ANY CHANGES TO THE PLAN WITHIN SEVEN CALENDAR DAYS FOLLOWING THE INSPECTION.

   C. A REPORT SUMMARIZING THE SCOPE OF THE INSPECTION, NAME(S) AND QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION CONTROL PLAN, AND ACTIONS TAKEN SHALL BE MADE AND RETAINED FOR AT LEAST THREE YEARS AFTER THE DATE OF INSPECTION.

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Project
THE CARILLON AT GERMANTOWN
GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title
Title Sheet

Project No. 543001101
Date 03-06-2026
Drawn By ZRF
Checked By SDP
Drawing No. CS001

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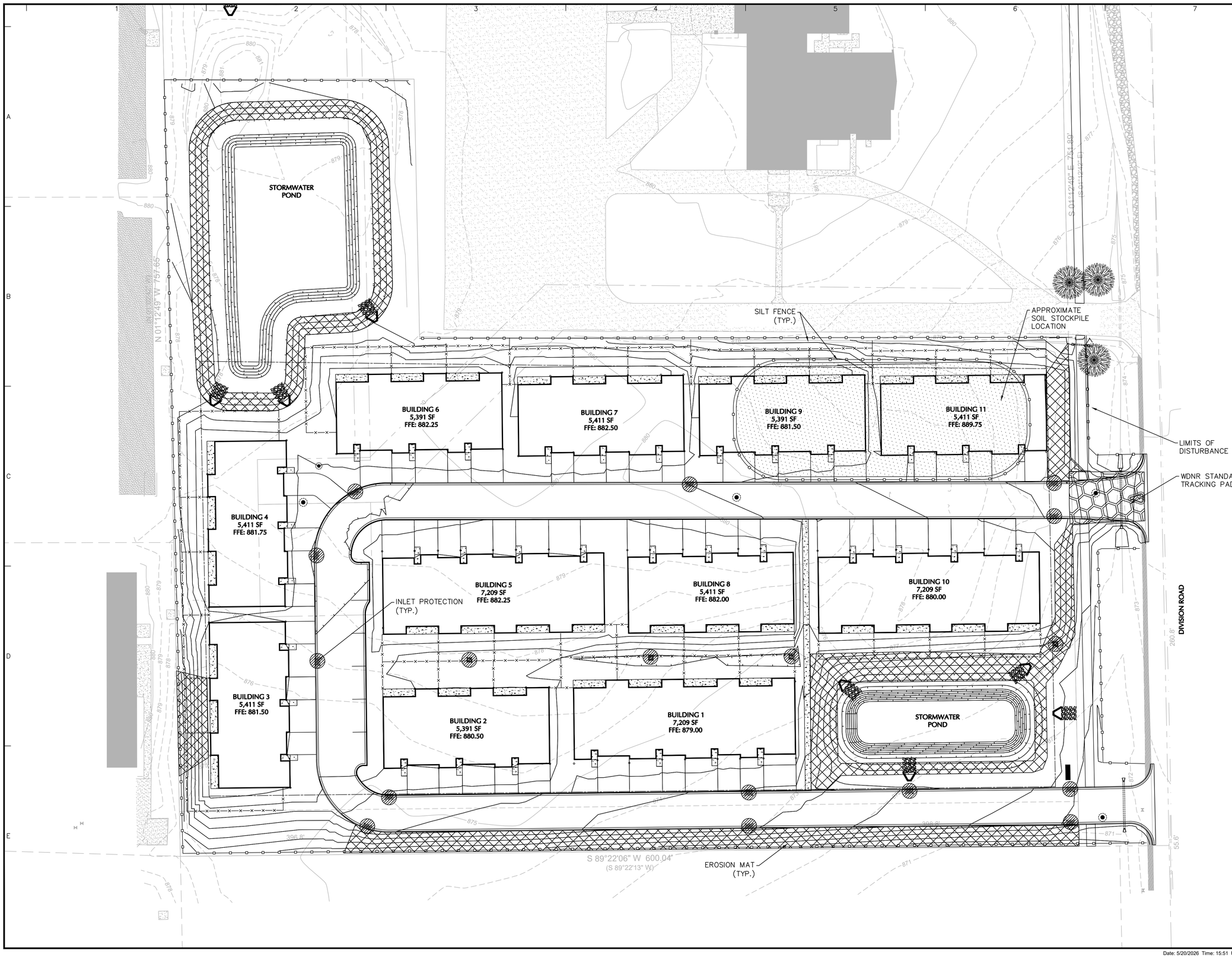

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WASHINGTON COUNTY WISCONSIN

Drawing Title
SOIL EROSION & SEDIMENT CONTROL PLAN VIEW

Project No.	Drawing No.
543001101	CE101
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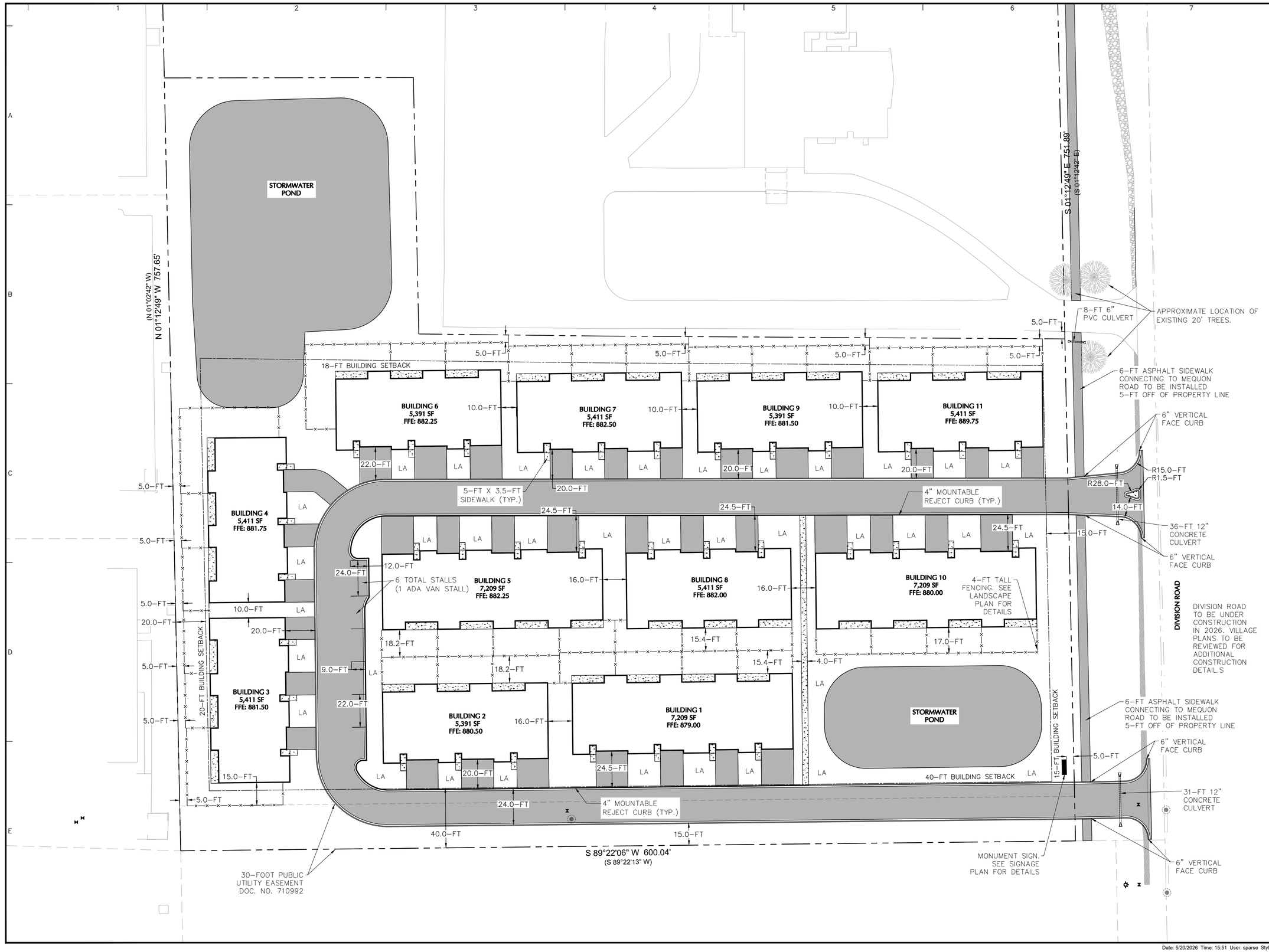

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TOTAL AREA:	5.39 AC
PERVIOUS AREA:	1.89 AC (35%)
IMPERVIOUS AREA:	3.51 AC
NUMBER OF BUILDINGS:	11
NUMBER OF UNITS:	36
TOTAL BUILDING AREA:	64,855 SF
LOT COVERAGE PERCENTAGE:	27%
TOTAL REQUIRED PARKING:	72 STALLS
TOTAL PROVIDED PARKING:	108 STALLS

Property Address:
W172N11183 Division Road
Germantown, WI 53022

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SITE PLAN

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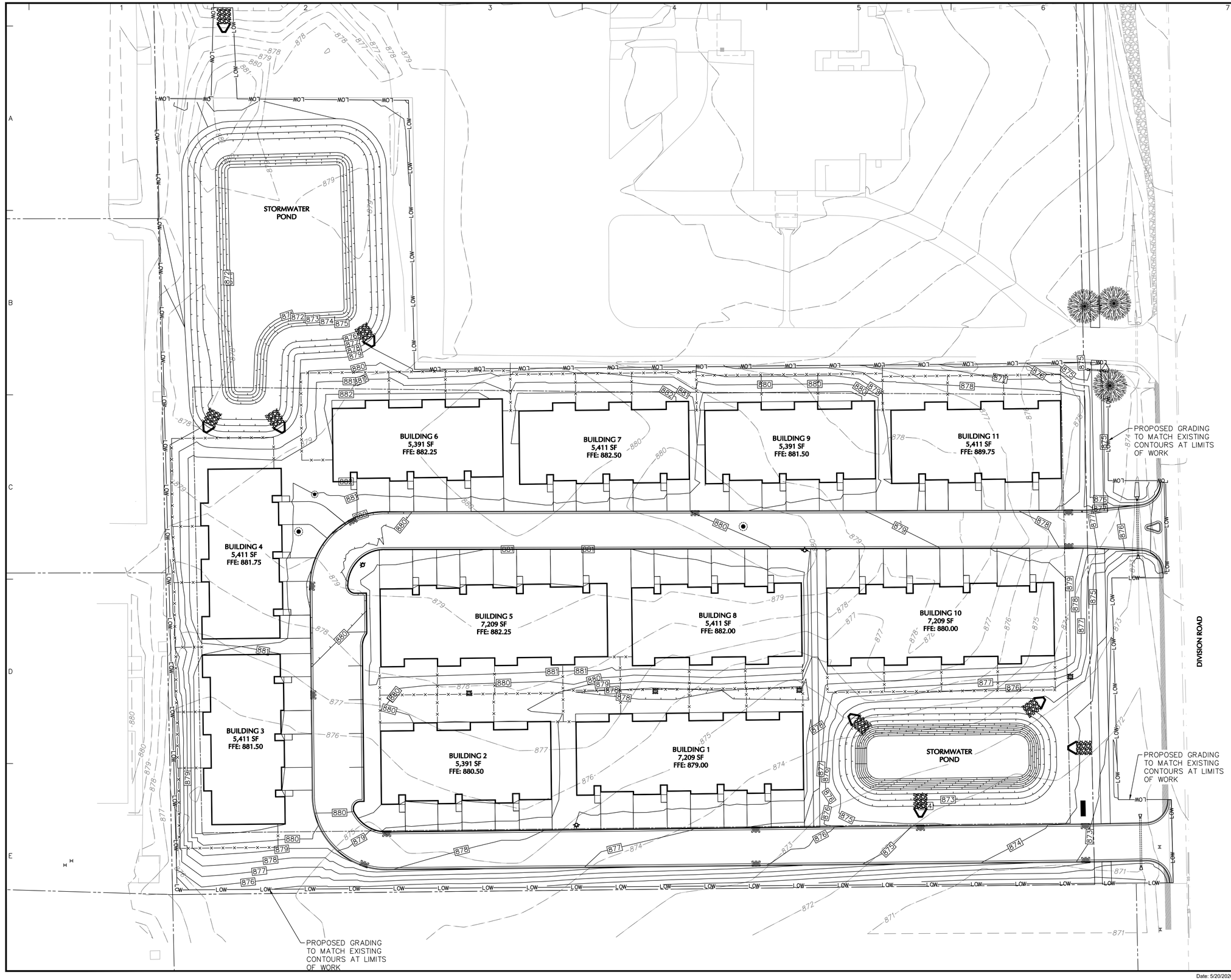

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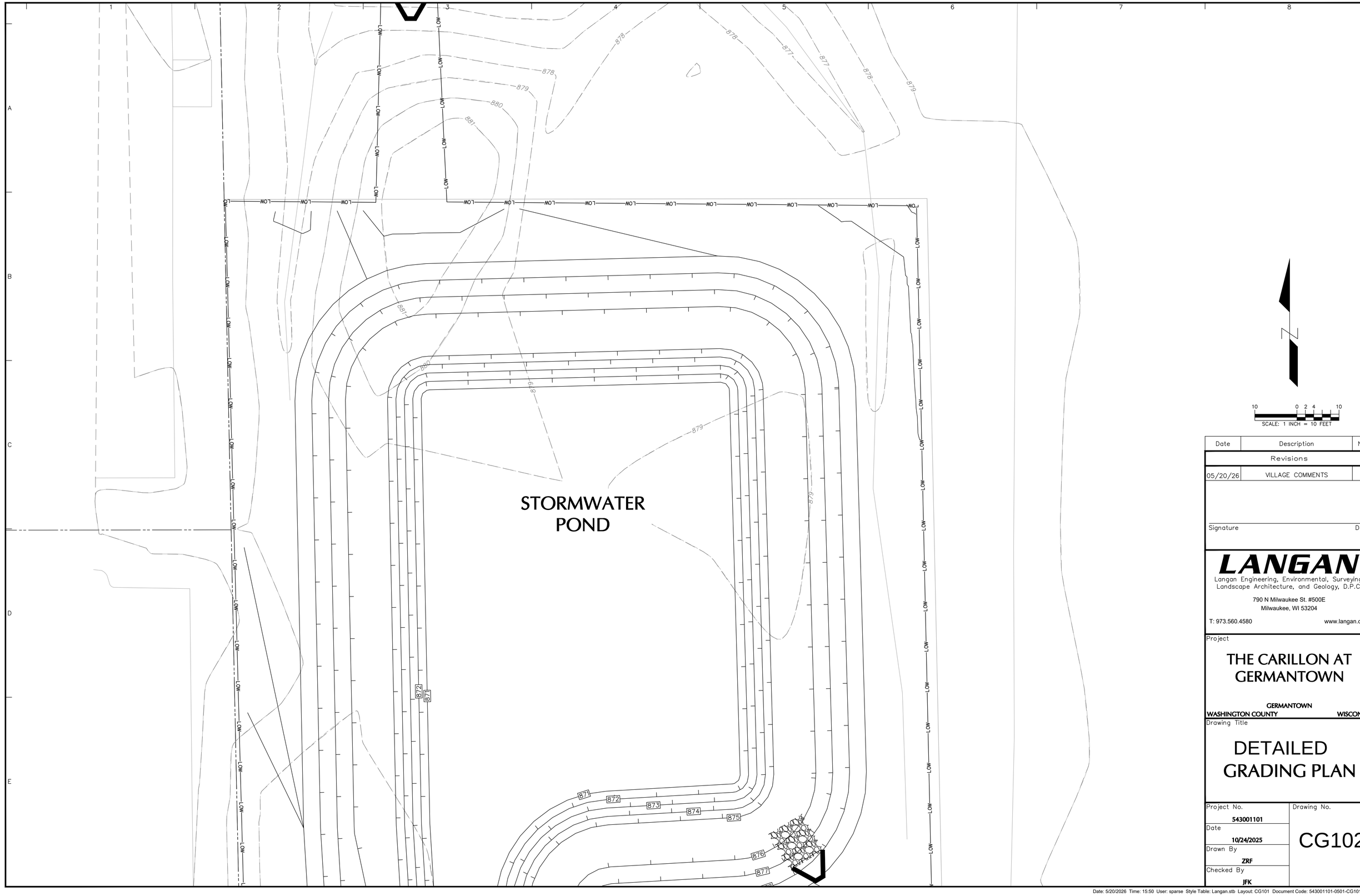

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Drawing Title

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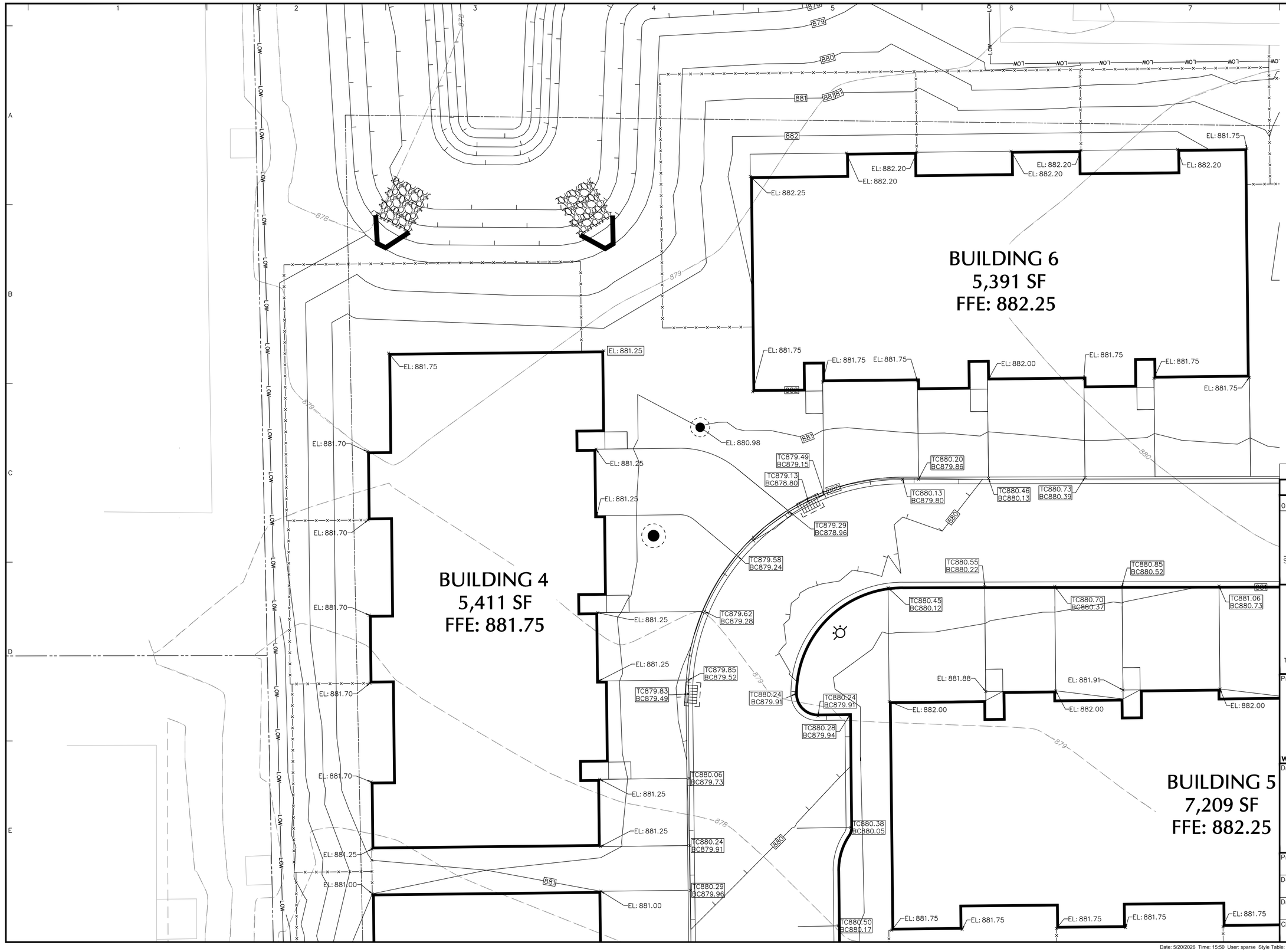

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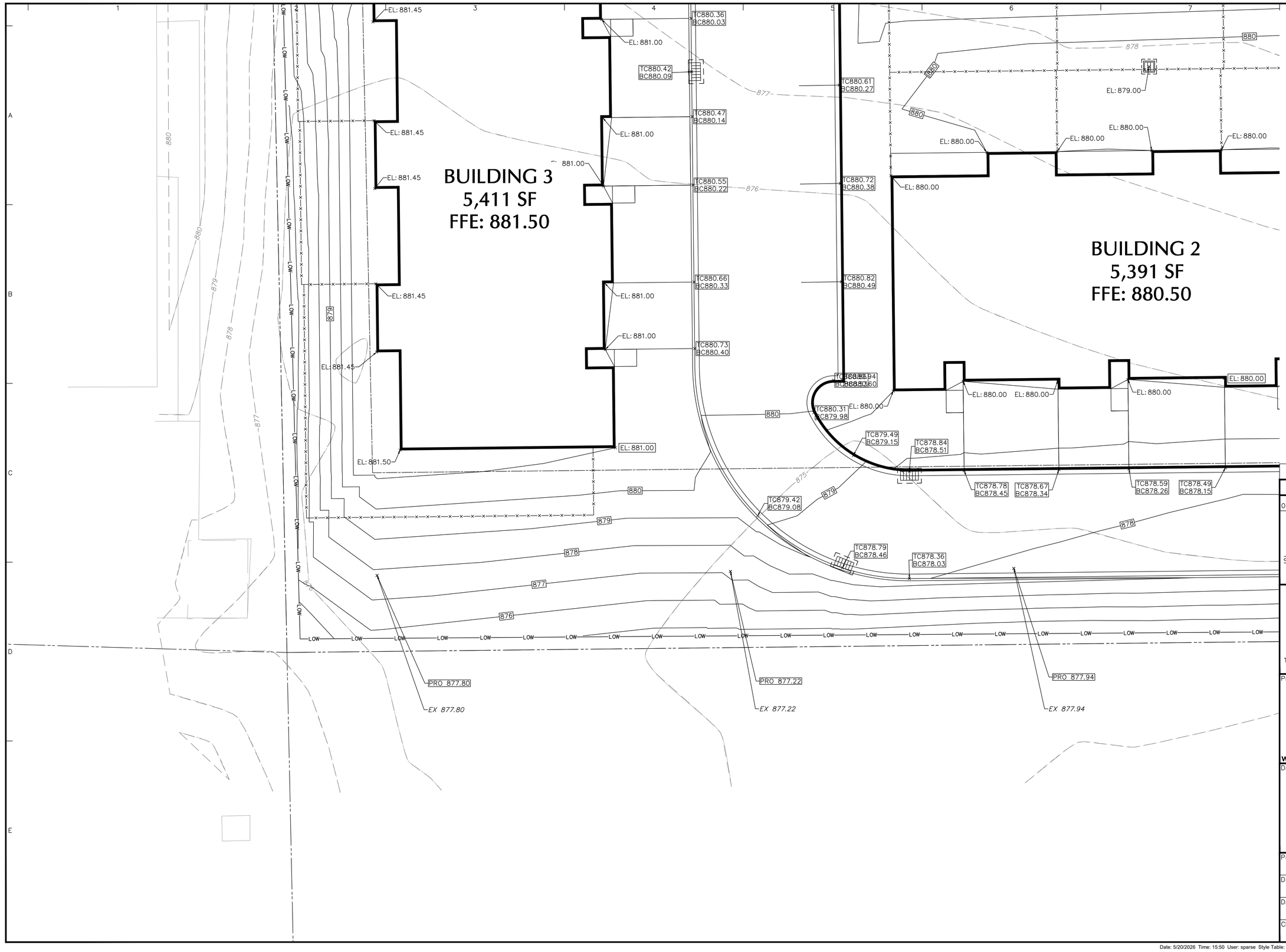

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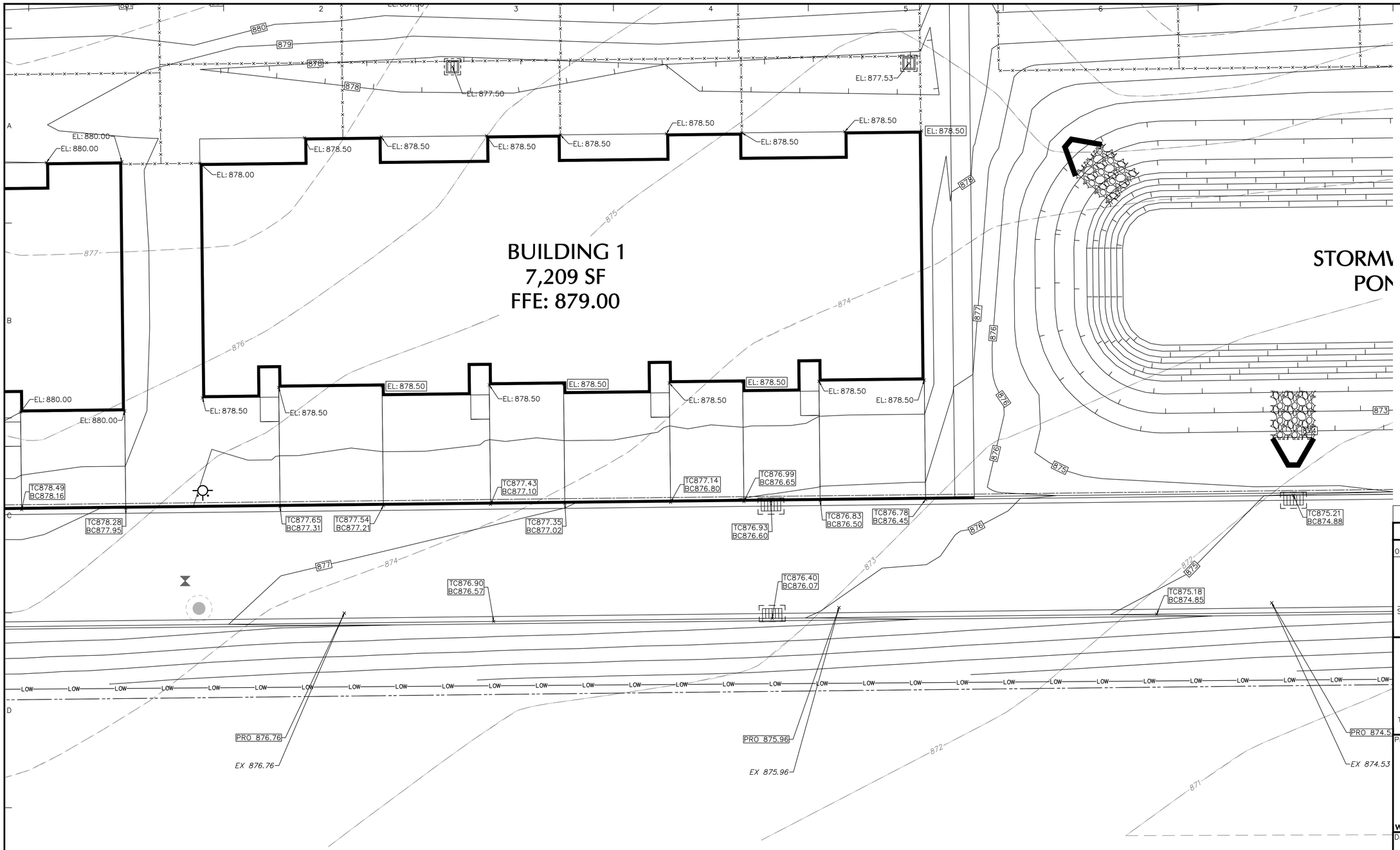

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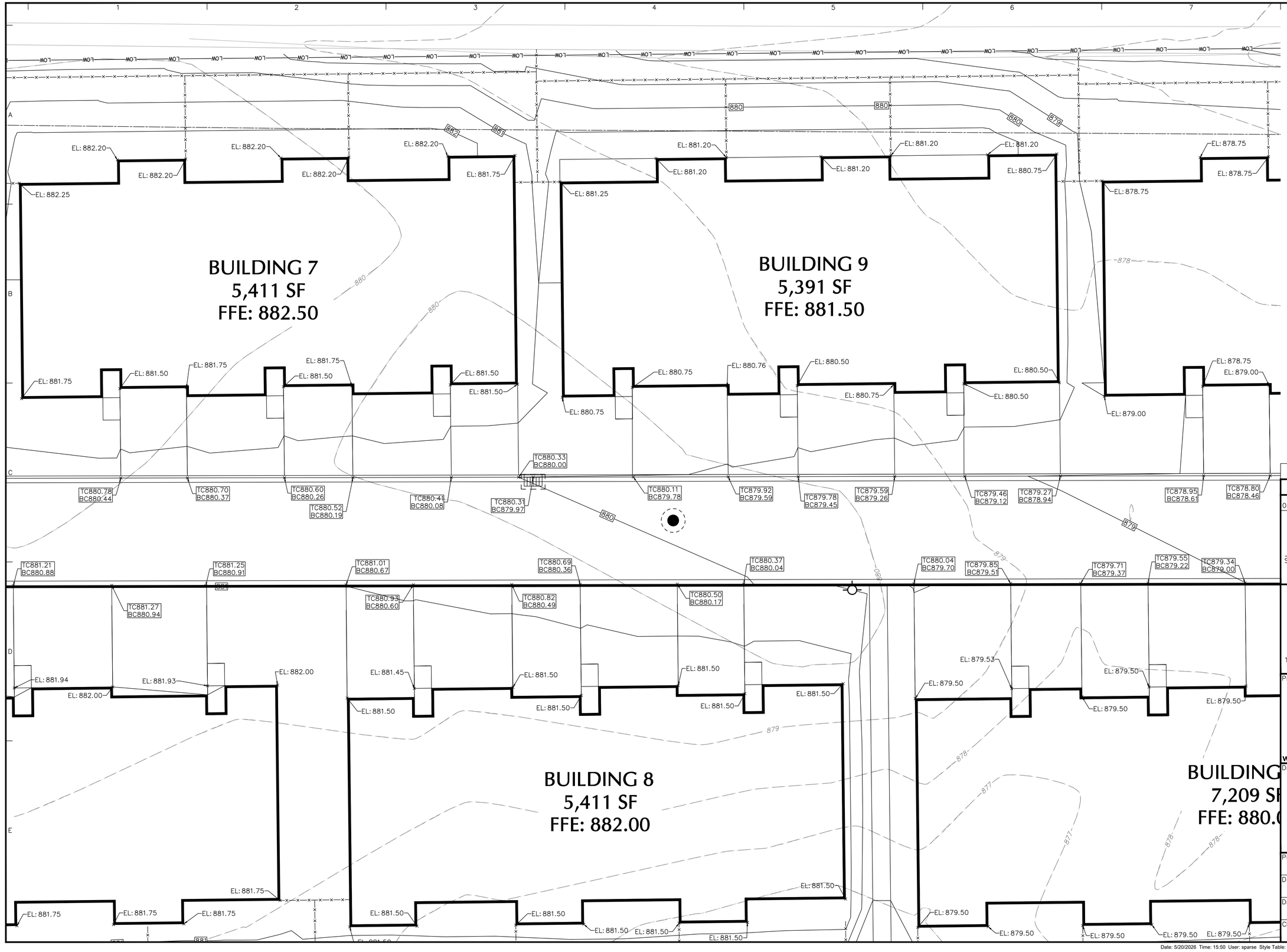

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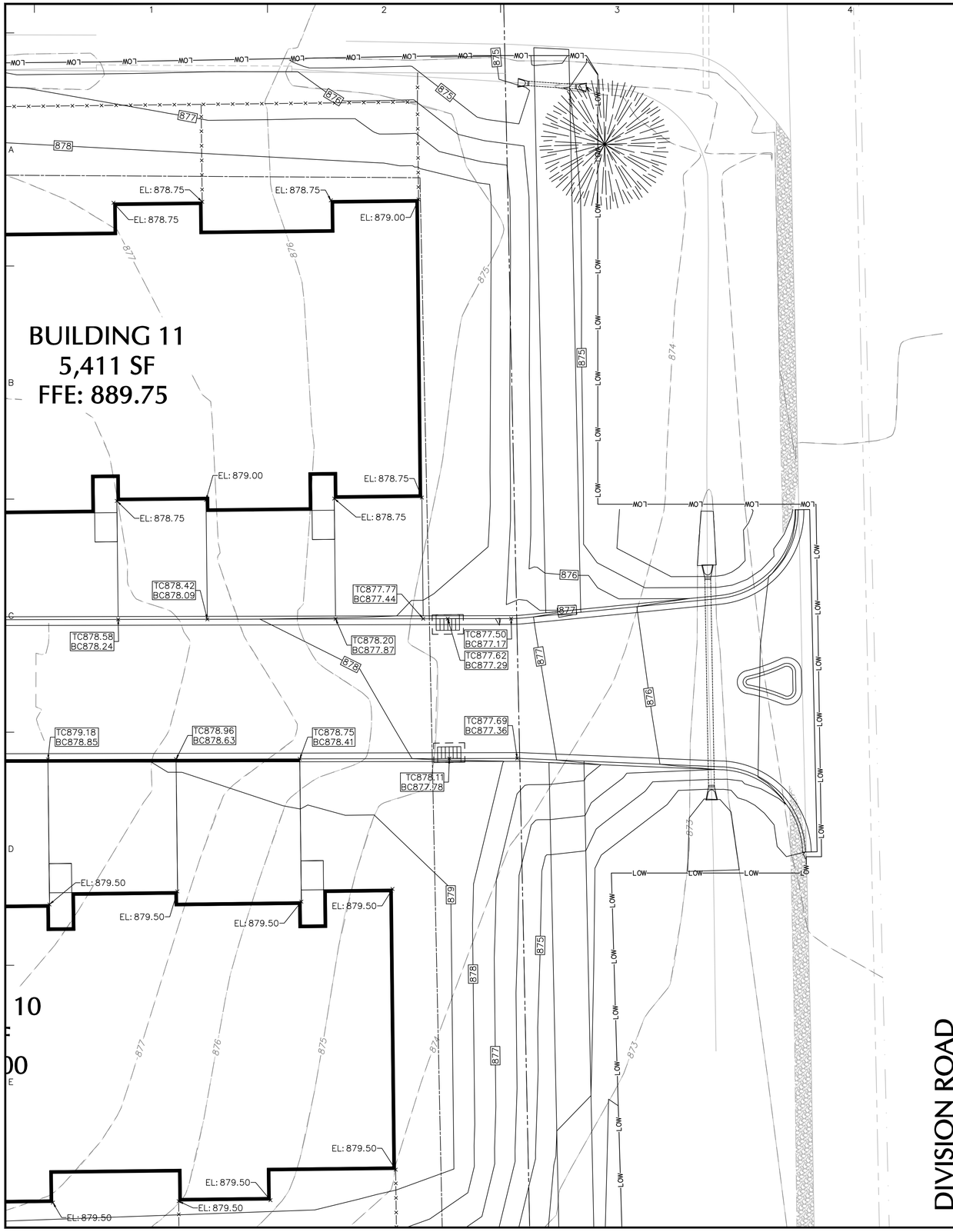

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DETAILED GRADING PLAN

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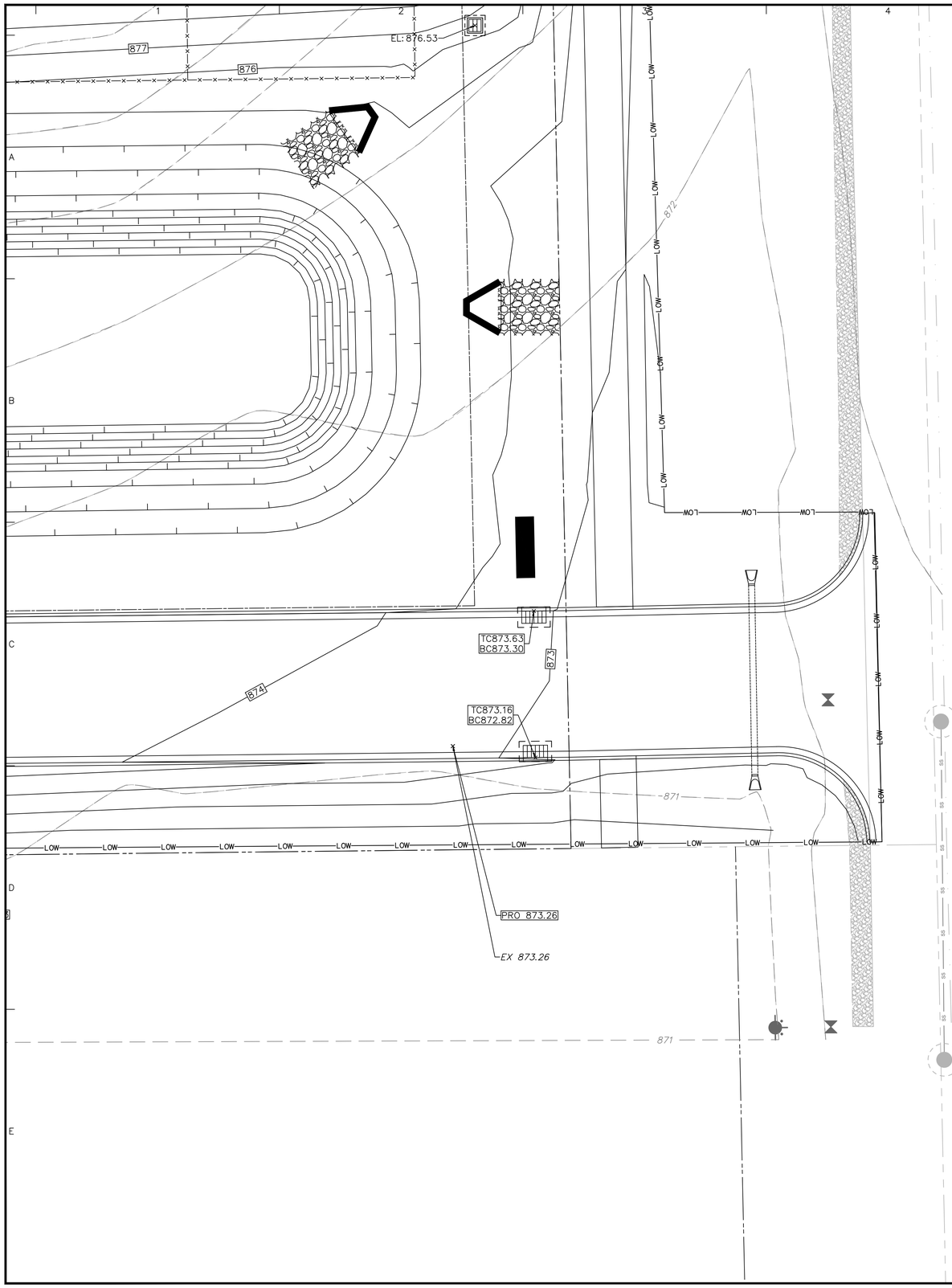

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Revisions		
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DETAILED GRADING PLAN

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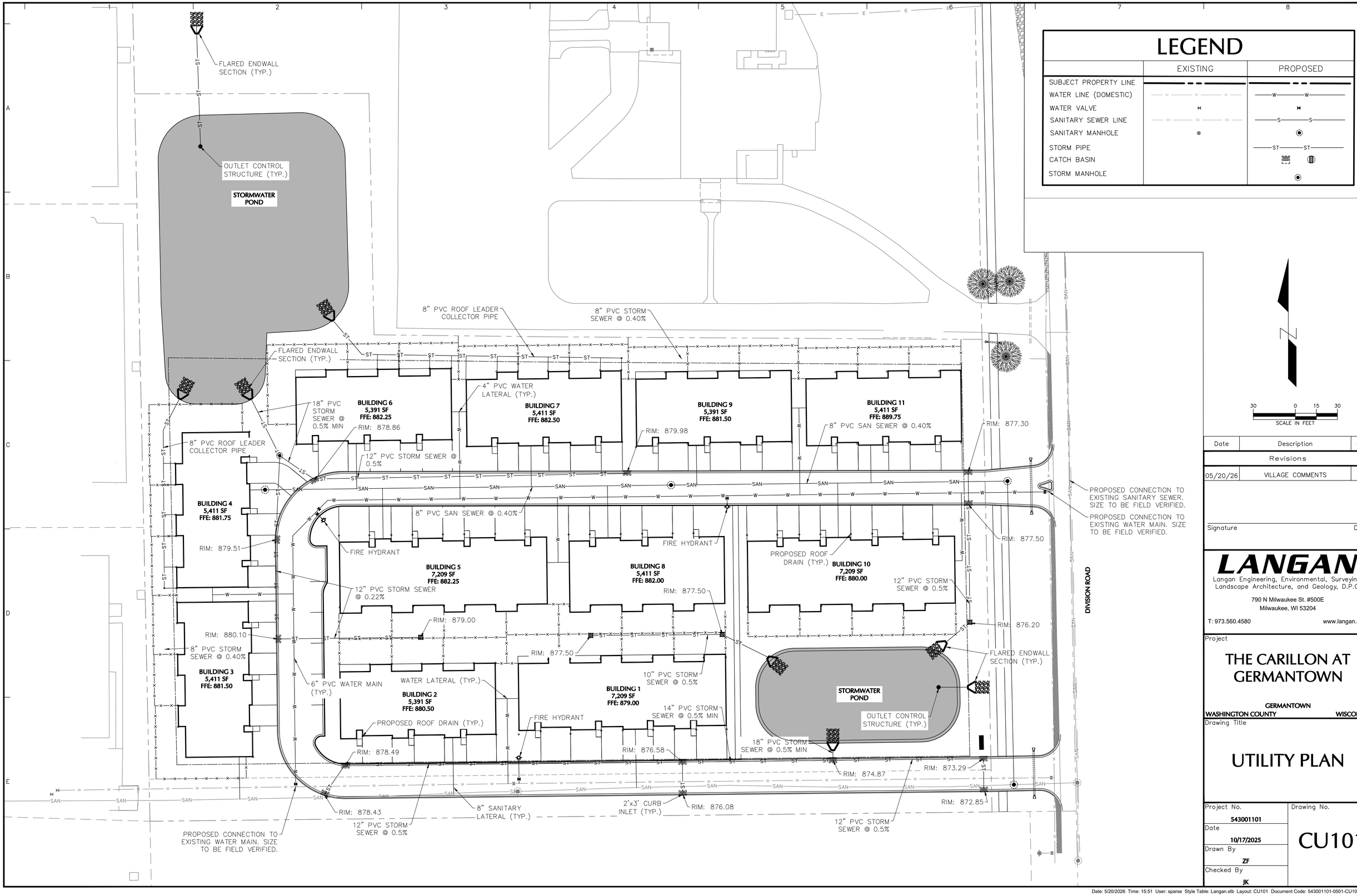

LEGEND

	EXISTING	PROPOSED
SUBJECT PROPERTY LINE		
WATER LINE (DOMESTIC)	W	W
WATER VALVE		
SANITARY SEWER LINE	SS	S
SANITARY MANHOLE		
STORM PIPE		ST
CATCH BASIN		
STORM MANHOLE		

N

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Date	Description	No.
Revisions		
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Project
THE CARILLON AT GERMANTOWN
GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title
UTILITY PLAN

Project No.	Drawing No.
543001101	CU101
Date: 10/17/2025	
Drawn By: ZF	
Checked By: JK	

LANGAN
Project No. 543001101

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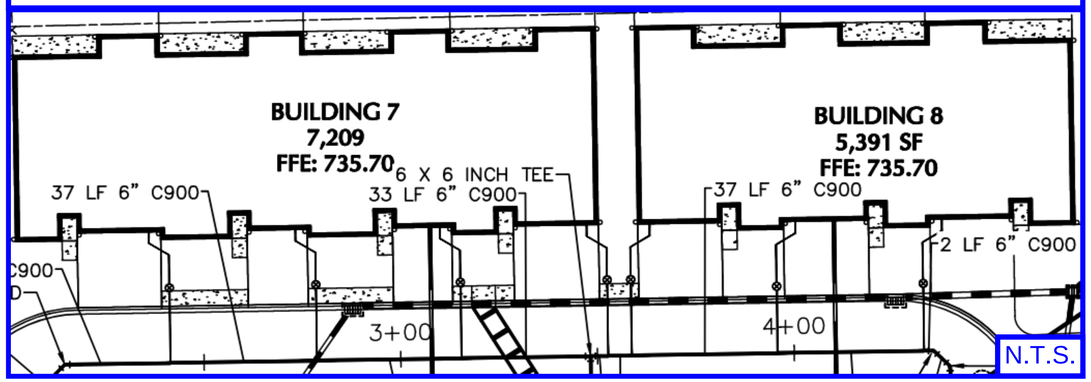
THE CARILLON COMMUNITY EXAMPLE
FOR WATER LATERAL LAYOUTS

THE CARILLON AT GERMANTOWN WILL BE REVISED
AS A CONDITION OF APPROVAL TO THIS EXAMPLE



LEGEND

	EXISTING	PROPOSED
SUBJECT PROPERTY LINE		
WATER LINE (DOMESTIC)	W W W	W W
WATER VALVE		
SANITARY SEWER LINE	SS SS SS	S S
SANITARY MANHOLE		
STORM PIPE		ST ST
CATCH BASIN		
STORM MANHOLE		

FLARED ENDWALL SECTION (TYP.)
OUTLET CONTROL STRUCTURE (TYP.)
STORMWATER POND
FLARED ENDWALL SECTION (TYP.)
18" PVC STORM SEWER @ 0.5% MIN
BUILDING 6
5,391 SF
FFE: 882.25
RIM: 878.86
4" PVC WATER LATERAL (TYP.)
BUILDING 7
5,411 SF
FFE: 882.50
BUILDING 9
5,391 SF
FFE: 881.50
RIM: 879.98
BUILDING 11
5,411 SF
FFE: 889.75
8" PVC SAN SEWER @ 0.40%
RIM: 877.30
8" PVC ROOF LEADER COLLECTOR PIPE
12" PVC STORM SEWER @ 0.5%
BUILDING 4
5,411 SF
FFE: 881.75
RIM: 879.51
8" PVC SAN SEWER @ 0.40%
FIRE HYDRANT
FIRE HYDRANT
PROPOSED ROOF DRAIN (TYP.)
BUILDING 10
7,209 SF
FFE: 880.00
PROPOSED CONNECTION TO EXISTING SANITARY SEWER. SIZE TO BE FIELD VERIFIED.
PROPOSED CONNECTION TO EXISTING WATER MAIN. SIZE TO BE FIELD VERIFIED.
RIM: 877.50
BUILDING 5
7,209 SF
FFE: 882.25
12" PVC STORM SEWER @ 0.22%
BUILDING 8
5,411 SF
FFE: 882.00
RIM: 877.50
12" PVC STORM SEWER @ 0.5%
RIM: 879.00
RIM: 876.20
RIM: 880.10
8" PVC STORM SEWER @ 0.40%
RIM: 877.50
FLARED ENDWALL SECTION (TYP.)
BUILDING 3
5,411 SF
FFE: 881.50
6" PVC WATER MAIN (TYP.)
WATER LATERAL (TYP.)
BUILDING 2
5,391 SF
FFE: 880.50
BUILDING 1
7,209 SF
FFE: 879.00
10" PVC STORM SEWER @ 0.5%
STORMWATER POND
14" PVC STORM SEWER @ 0.5% MIN
OUTLET CONTROL STRUCTURE (TYP.)
PROPOSED ROOF DRAIN (TYP.)
FIRE HYDRANT
RIM: 876.58
18" PVC STORM SEWER @ 0.5% MIN
RIM: 878.49
RIM: 874.87
RIM: 873.29
RIM: 872.85
RIM: 876.08
2'x3' CURB INLET (TYP.)
8" SANITARY LATERAL (TYP.)
12" PVC STORM SEWER @ 0.5%
RIM: 878.43
12" PVC STORM SEWER @ 0.5%
PROPOSED CONNECTION TO EXISTING WATER MAIN. SIZE TO BE FIELD VERIFIED.
DIVISION ROAD

30 0 15 30
SCALE IN FEET

Date	Description	No.
Revisions		
05/20/26	VILLAGE COMMENTS	1

Signature Date

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Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology, D.P.C.
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Project
THE CARILLON AT GERMANTOWN
GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title
UTILITY PLAN

Project No.	543001101
Date	10/17/2025
Drawn By	ZF
Checked By	JK

Water Lateral Utility Exhibit
5-22-26
JFK

LANGAN
Project No. 543001101

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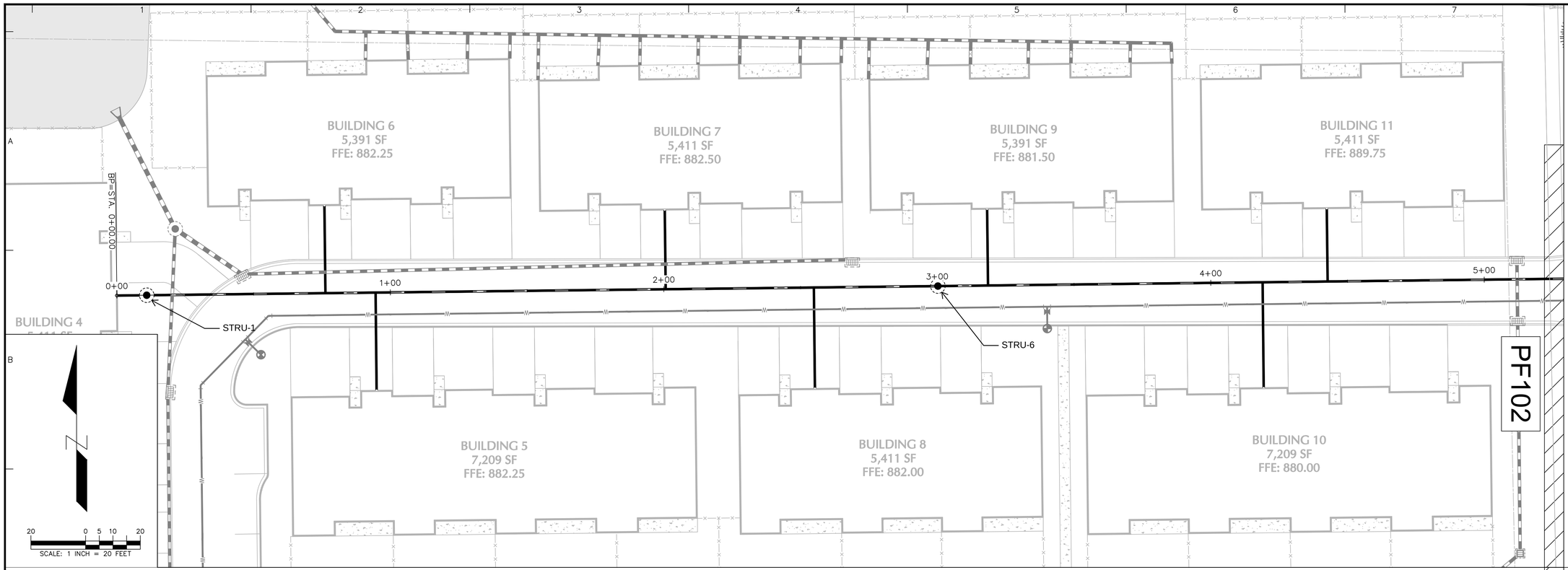

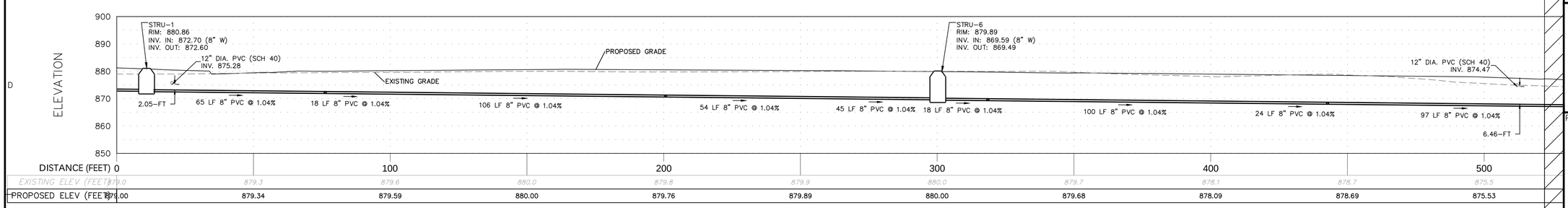

DISTANCE (FEET)	0	100	200	300	400	500
EXISTING ELEV (FEET)	879.0	879.3	879.6	880.0	879.8	879.9	880.0	879.7	878.1	878.7	875.5
PROPOSED ELEV (FEET)	879.00	879.34	879.59	880.00	879.76	879.89	880.00	879.68	878.09	878.69	875.53

PF102

20 0 5 10 20
SCALE: 1 INCH = 20 FEET

Date	Description	No.
Revisions		
05/20/26	VILLAGE COMMENTS	1

Signature Date

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Project
THE CARILLON AT GERMANTOWN
GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title
SANITARY PROFILE

Project No.	Drawing No.
543001101	PF101
Date: 2026-05-20	
Drawn By: ZRF	
Checked By: SDP	

LANGAN Project No. 543001101

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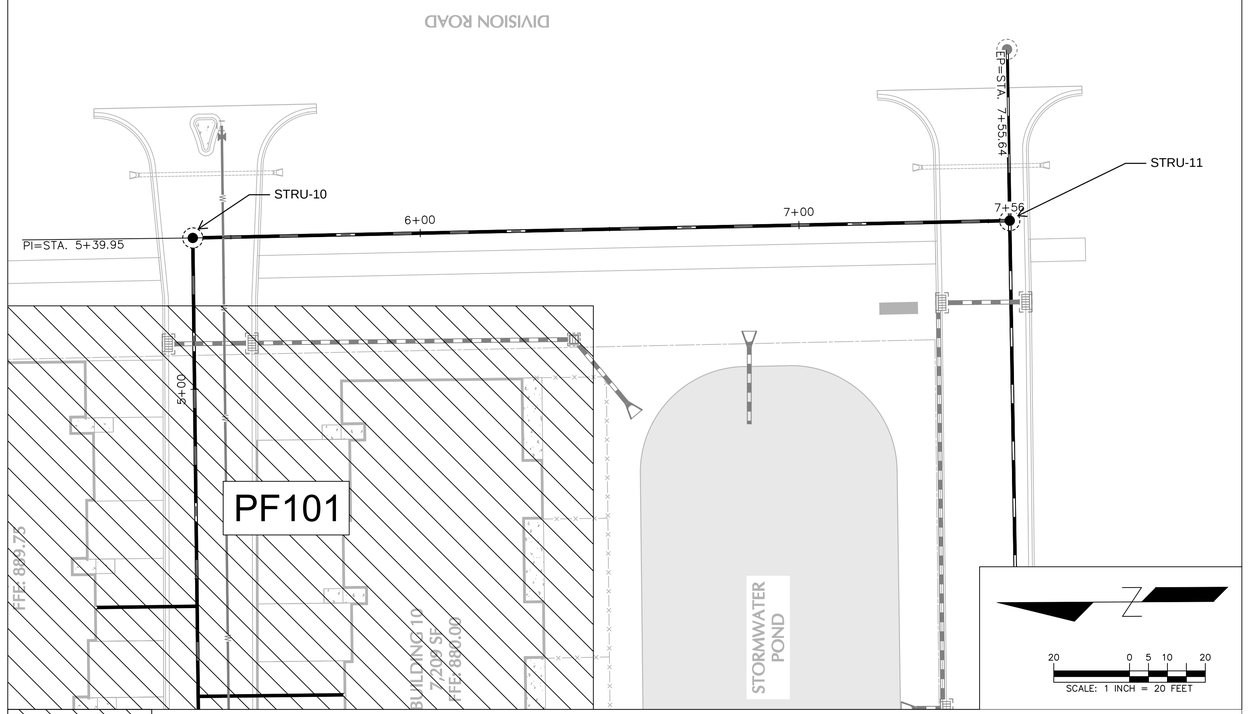

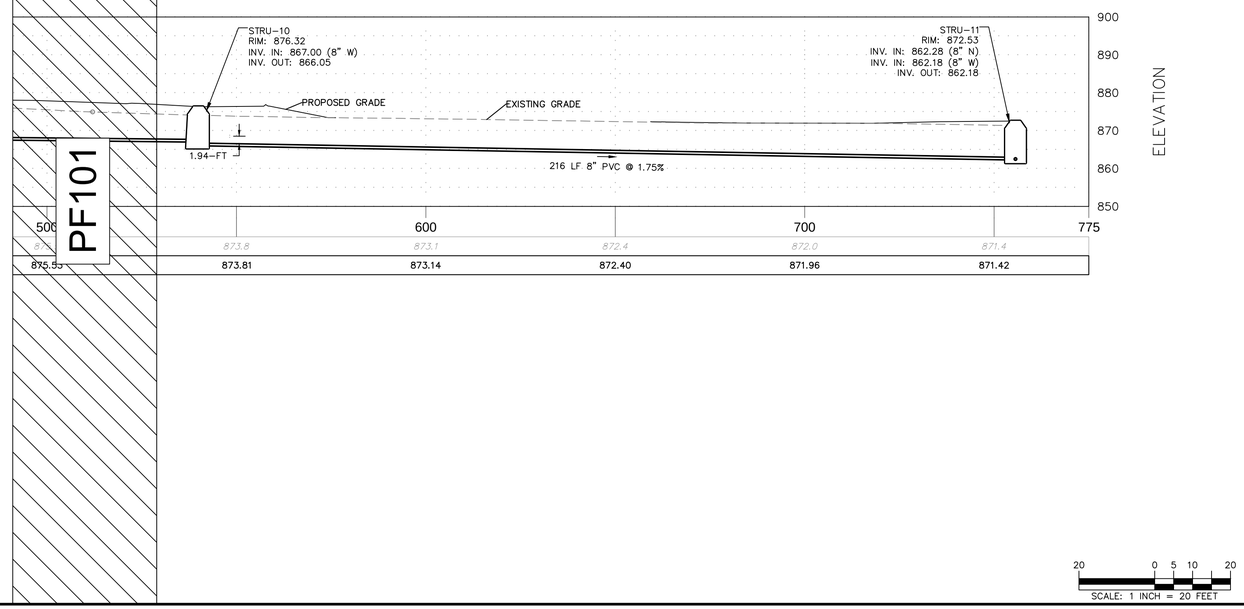

Date	Description	No.
Revisions		
05/20/26	VILLAGE COMMENTS	1

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Project

THE CARILLON AT GERMANTOWN

GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title

SANITARY PROFILE

Project No.	Drawing No.
543001101	PF102
Date: 2026-05-20	
Drawn By: ZRF	
Checked By: SDP	

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Project No. 543001101

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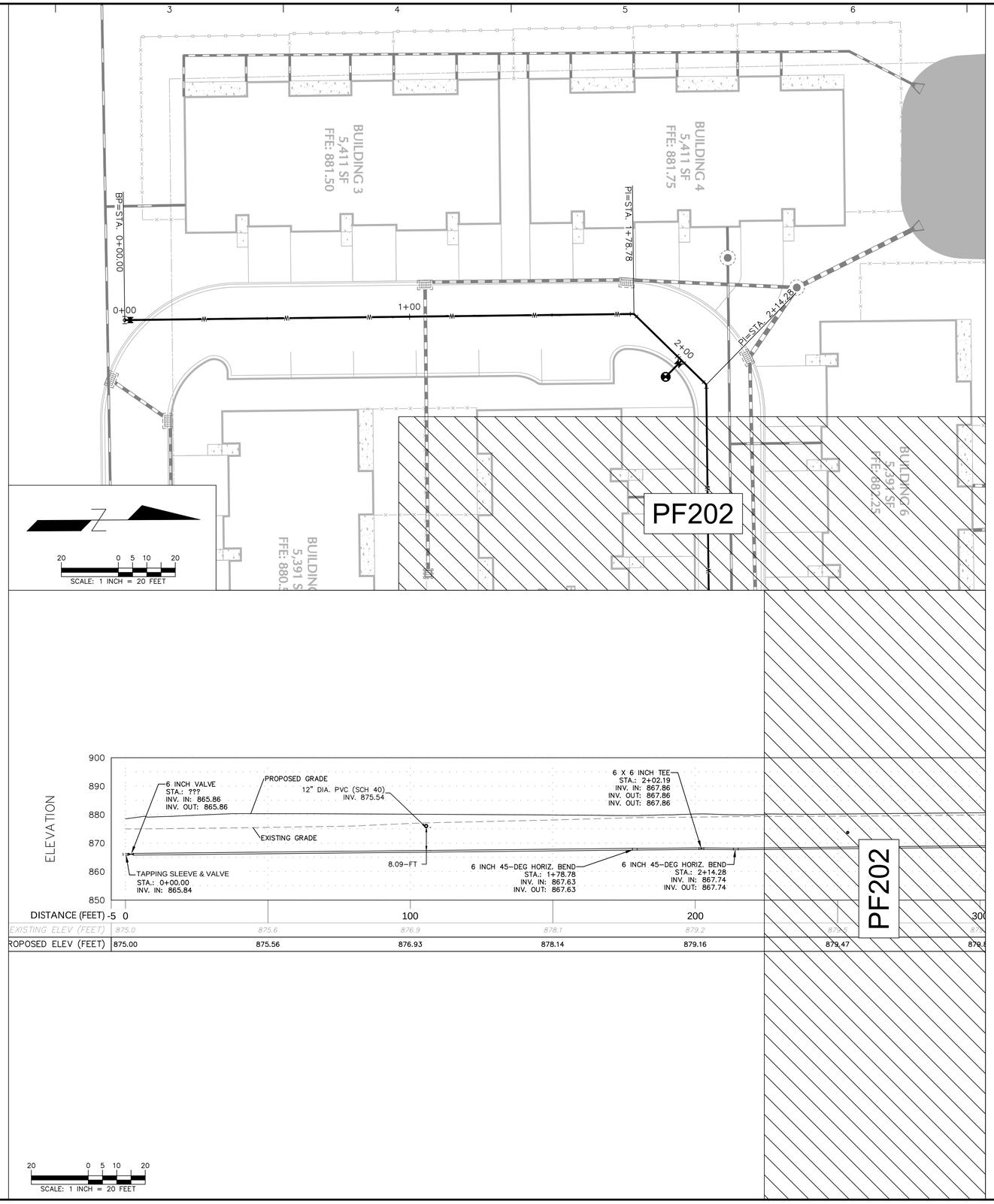

Date	Description	No.
Revisions		
05/20/26	VILLAGE COMMENTS	1

Signature Date

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Project

THE CARILLON AT GERMANTOWN

GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title

WATER PROFILE

Project No.	Drawing No.
543001101	PF201
Date: 2026-05-20	
Drawn By: ZRF	
Checked By: SDP	

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Project No. 543001101

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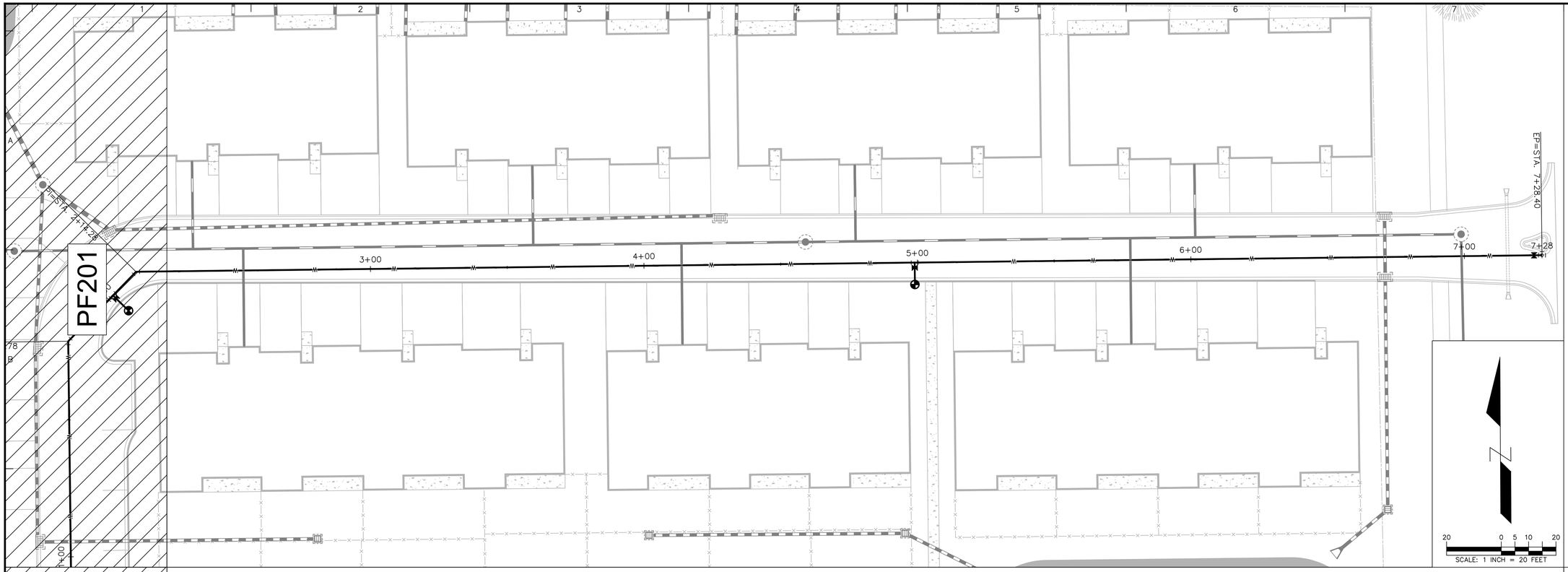

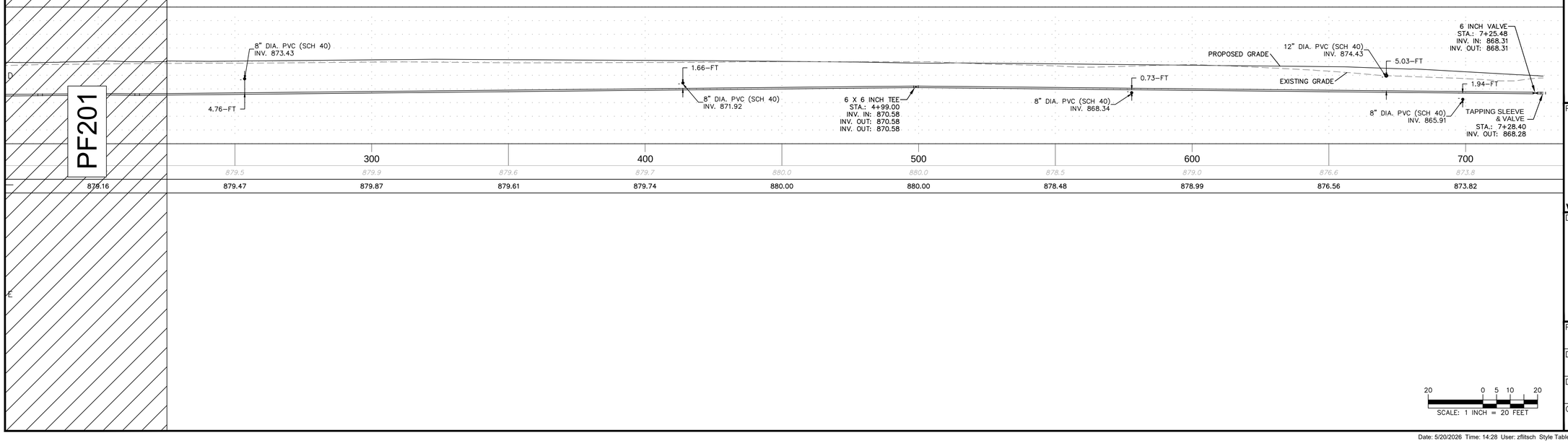

Date	Description	No.
Revisions		
05/20/26	VILLAGE COMMENTS	1

Signature Date

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Project

THE CARILLON AT GERMANTOWN

GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title

WATER PROFILE

Project No.	Drawing No.
543001101	PF202
Date: 2026-05-20	
Drawn By: ZRF	
Checked By: SDP	

LANGAN Project No. 543001101

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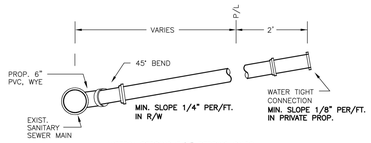
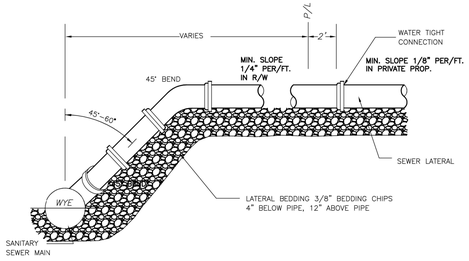
Village of Germantown Standard Details 40



SANITARY SEWER LATERAL



SANITARY SEWER "RISER" LATERAL

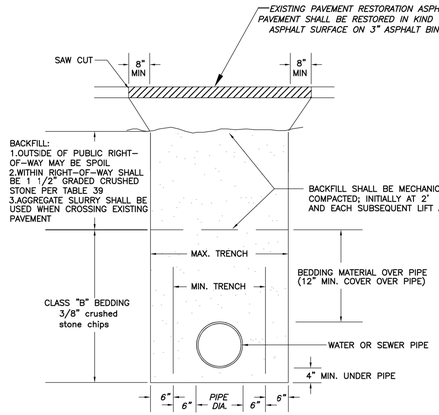
NOT TO SCALE

ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

STANDARD DETAIL
SANITARY SEWER LATERAL

REVISED SEPTEMBER 3, 2019 RCB

Village of Germantown Standard Details 50



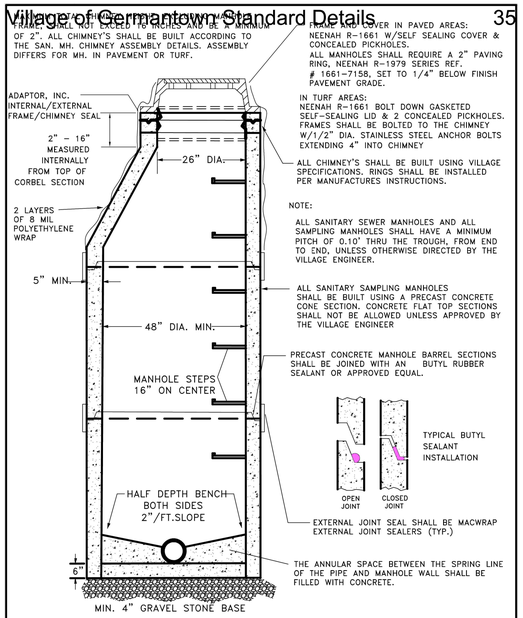
DATE: 8/30/2019 RCB

ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

STANDARD WATER MAIN AND SANITARY SEWER TRENCH DETAIL

NOT TO SCALE

Village of Germantown Standard Details 35



SPRAY EPOXY COATINGS

MH EXTERIOR: 2 COATS (BLACK) OF AMERON INTERNATIONAL, AMERCOAT 78 HB AT 8-10 MILS EA.
MH INTERIOR: 2 COATS (WHITE) OF PERMITE PCS-9043 TYPE II PERMOX PIPE GLAZE AT 20 MILS EA.
COATINGS SHALL BE APPLIED BY SUPPLIERS AT THE PLANT.

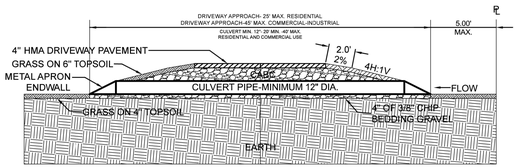
REVISED DATE: 10/11/2019 FJR

ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

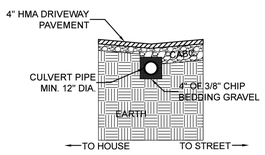
STANDARD
SANITARY MANHOLE &
SAMPLING MANHOLE DETAIL

NOT TO SCALE

Village of Germantown Standard Details 18



PROFILE VIEW



DITCH CROSS-SECTION DETAIL

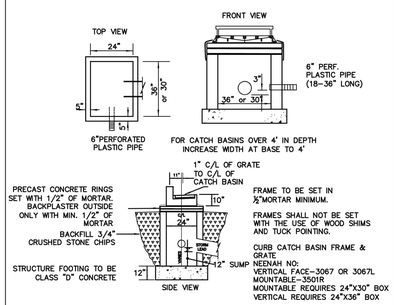
ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

STANDARD
DRIVEWAY CULVERT
CROSS SECTION DETAIL

REVISED DATE: 10/9/2018 RCB

NOT TO SCALE

T:\Engineering\Details\CATCHBASIN DETAIL.dwg

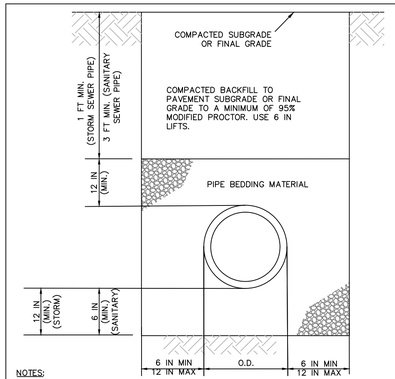


DATE: 4/21/05

ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

2 / 2.1 STANDARD DETAIL
STANDARD CATCH BASIN DETAIL
REVISED 3/2005

NOT TO SCALE

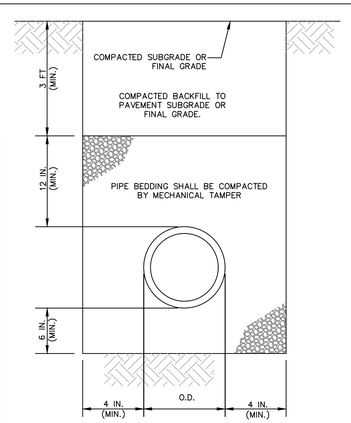


NOTES:

1. ALL BACKFILL MATERIALS SHALL BE APPROVED BY THE OWNER OR THE OWNERS REPRESENTATIVE BEFORE BEING PLACED.
2. TRENCHES SHALL BE ADEQUATELY SHORED IN ACCORDANCE WITH OSHA REGULATIONS.
3. THE CONTRACTOR SHALL VERIFY THAT THE MINIMUM PIPE COVER IS PROVIDED BETWEEN FINAL GRADE AND TOP OF PIPE.
4. 2 FT MINIMUM COVER FOR ALL STORM SEWER PIPE MEASURED FROM TOP OF PIPE TO FINAL GRADE.
5. 42" (3.5 FT) MINIMUM COVER FOR ALL SANITARY SEWER PIPE MEASURED FROM TOP OF PIPE TO FINAL GRADE.
6. STORM PIPE BEDDING MATERIAL SHALL CONSIST OF AASHTO NO. 67 GRADATION CRUSHED STONE.
7. THE MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT FOR THE BACKFILL MATERIALS SHALL BE DETERMINED BY ASTM D1557. THE RELATIVE DENSITY OF THE AASHTO NO. 67 STONE SHALL BE DETERMINED BY ASTM D4253 AND ASTM D4254.

N.T.S

STORM/SANITARY TRENCH AND BEDDING



NOTES:

1. PIPE BEDDING MATERIAL SHALL BE 2B CRUSHED LIMESTONE OR APPROVED SOIL PER AUTHORITY REGULATIONS.
2. TRENCH SHALL BE ADEQUATELY SHORED IN ACCORDANCE WITH OSHA REGULATIONS.
3. SUITABLE BACKFILL IS TO BE PLACED IN MAXIMUM 8-IN. LIFTS TO PAVEMENT SUBGRADE OR FINAL GRADES. BACKFILL SHALL BE COMPACTED TO 95% MODIFIED PROCTOR.
4. WATERLINES SHALL BE CLASS 52 DUCTILE IRON PIPE.
5. BEDDING AND BACKFILL SHALL BE APPROVED BY THE OWNER OR HIS REPRESENTATIVE BEFORE BEING PLACED.
6. 4 FT MINIMUM COVER FOR ALL WATERLINE MEASURED FROM TOP OF PIPE TO FINAL GRADE.

N.T.S

WATERLINE TRENCH AND BEDDING

Date	Description	No.
Revisions		
05/20/26	VILLAGE COMMENTS	1

Signature Date

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Project

THE CARILLON AT GERMANTOWN

GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title

DETAILS

Project No.	Drawing No.
543001101	CS501
Date: 03-06-2026	
Drawn By: ZRF	
Checked By: SDP	

LANGAN Project No. 543001101

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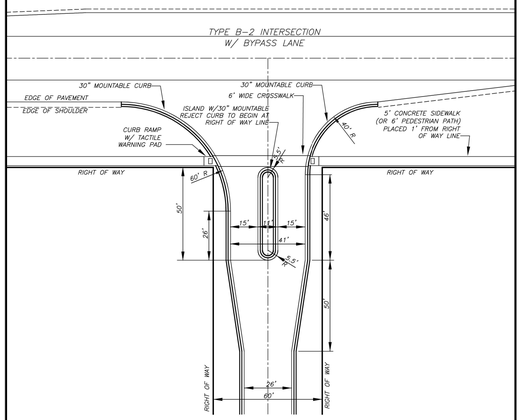
Village of Germantown Standard Details 16



NOTE: INTERIOR SUBDIVISION ROADS ARE STANDARD RESIDENTIAL TYPICAL SECTION WITH 30-INCH MOUNTABLE CONCRETE CURB & GUTTER.

MAINTENANCE OF ALL ISLAND AREAS INCLUDING GRASS MOWING IS THE RESPONSIBILITY OF THE SUBDIVISION HOMEOWNERS ASSOCIATION.

THIS DETAIL IS A TYPE-B2 INTERSECTION DETAIL PER WISDOT AND INCLUDES THE DECELL AND ACCELL LANES PER THAT SPECIFIC DETAIL.

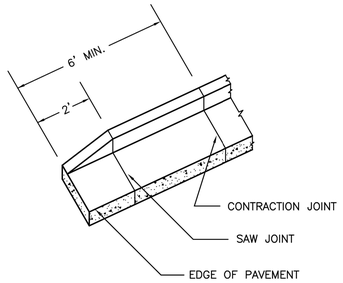
NOT TO SCALE

ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

STANDARD DETAIL
SUBDIVISION ENTRANCE
WITH ISLAND

REVISED SEPTEMBER 3, 2019 RCB

Village of Germantown Standard Details 17



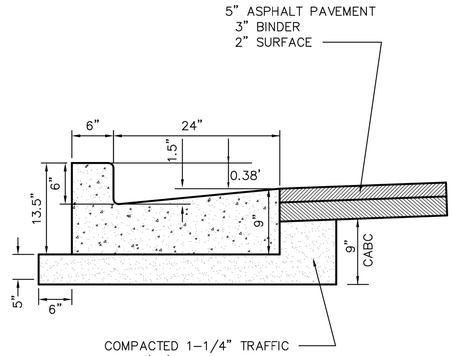
REV. 8/28/2019 RCB

ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

END SECTION OF CURB & GUTTER

NOT TO SCALE

Village of Germantown Standard Details 12



JOINT SAWCUTS AT 10' INTERVALS

FELT SPACERS AT 150' INTERVALS AND AT ALL P.C.'S, P.T.'S, AND P.R.C.

ASPHALT TYPE TO BE PER CONTRACT SPECIFICATIONS.

ALL CONCRETE CURB TO BE A 6 BAG MIX.

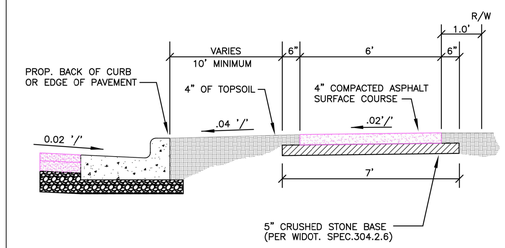
NO. 4 EPOXY COATED REBAR TO BE USED TO JOIN NEW CURB WITH EXISTING CURB.

DATE: 8/28/2019 RCB

ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

STANDARD DETAIL
30" VERTICAL FACE CURB AND GUTTER
REVISED 8/28/2019

NOT TO SCALE



NOTE: THE PROPOSED BACK OF PATH PAVEMENT WILL BE LOCATED 1.00' FROM THE EXISTING R/W LINE. CHANGES TO THIS LOCATION CAN BE DONE ONLY WITH PERMISSION OF THE VILLAGE ENGINEER.

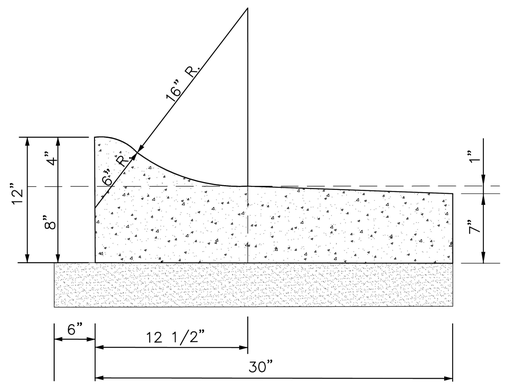
ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

STANDARD DETAIL
PEDESTRIAN PATH DETAIL-ASPHALT

NOT TO SCALE

REVISION DATE 9/28/2018 RCB

Village of Germantown Standard Details 14



1 / 3.1 TYPICAL REJECT MOUNTABLE CURB DETAIL

NOT TO SCALE

PROJECT NUMBER: NA	DESIGNED BY: RCB	DATE: 8/28/2019
PROJECT FILE:	DRAWN BY: RCB	DATE: 8/28/2019
SCALE: AS SHOWN	APPROVED BY: RN	DATE: 8/28/2019
SHEET NUMBER: 1	CADFILE: C:\proj\12000 proj\Jobs no's\dwg\ST1.dwg	

ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

30" TYPICAL CURB SECTION
MOUNTABLE-REJECT
GERMANTOWN, WIS.
VILLAGE OF GERMANTOWN, WI

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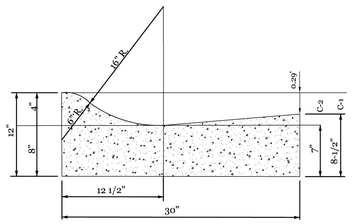
Village of Germantown Standard Details 15



CURB & GUTTER TYPE SCHEDULE	
TYPE C-1	SEPERATE CURB & GUTTER - LOW SIDE
TYPE C-2	SEPERATE CURB & GUTTER - HIGH SIDE

PROJECT NUMBER: NA	DESIGNED BY: RCB	DATE: 8/28/2019
PROJECT FILE:	DRAWN BY: RCB	DATE: 8/28/2019
SCALE: AS SHOWN	APPROVED BY: RN	DATE: 8/28/2019
SHEET NUMBER: 1	CADFILE: C:\proj\12000 proj\Jobs no's\dwg\ST1.dwg	

ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

TYPICAL CURB SECTION
MOUNTABLE-ROLL FACE
GERMANTOWN, WIS.
VILLAGE OF GERMANTOWN, WI

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Date	Description	No.
Revisions		
05/20/26	VILLAGE COMMENTS	1

Signature Date

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Project

THE CARILLON AT GERMANTOWN

GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title

DETAILS

Project No.	Drawing No.
543001101	CS502
Date: 03-06-2026	
Drawn By: ZRF	
Checked By: SDP	

LANGAN Project No. 543001101

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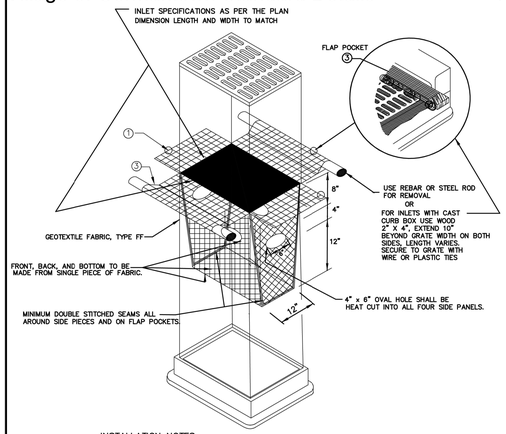
Village of Germantown Standard Details 47



INSTALLATION NOTES

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTES

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

② FOR INLET PROTECTION, TYPE D (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2" x 4".

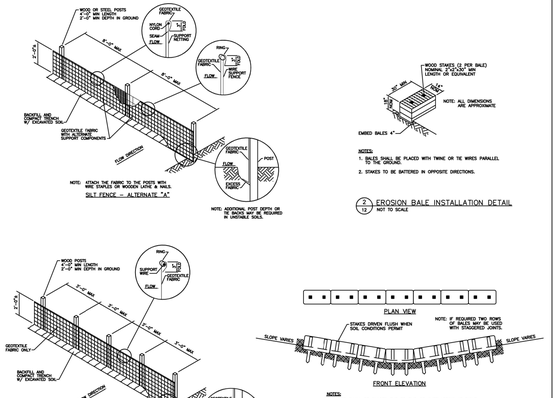
REV. 8/30/2019 RCB

ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

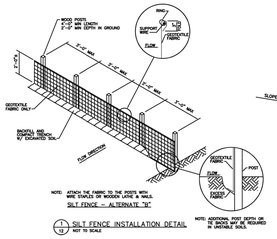
NOT TO SCALE

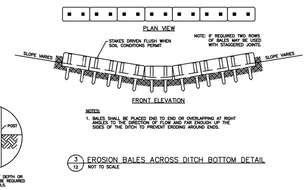


① SILT FENCE INSTALLATION DETAIL
NOT TO SCALE

NOTES:
1. BALES SHALL BE PLACED WITH TWINE OR TIE WIRES PARALLEL TO THE GROUND.
2. STAKES TO BE BATTERED IN OPPOSITE DIRECTIONS.

② EROSION BALE INSTALLATION DETAIL
NOT TO SCALE





NOTES:
1. BALES SHALL BE PLACED END TO END OR OVERLAPPING AT RIGHT ANGLES TO THE DIRECTION OF FLOW AND AN EXCAVATION OF THE SIDES OF THE DITCH TO PREVENT ENDING AROUND ENDS.

③ EROSION BALES ACROSS DITCH BOTTOM DETAIL
NOT TO SCALE

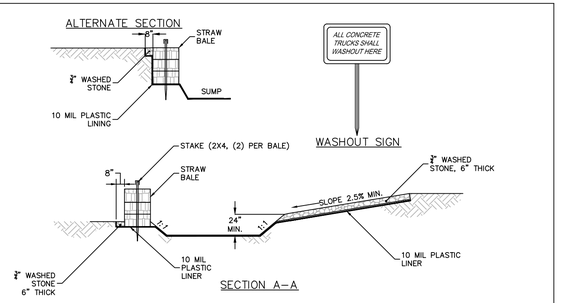
NOT TO SCALE

ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

STANDARD DETAIL

EROSION CONTROL MEASURES

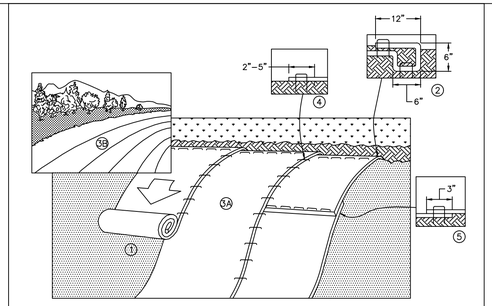
APPROVED 2/2006 REVISED: 09/28/2018 RCB



NOTES:
1. CONCRETE WASHOUT AREAS SHALL BE INSTALLED TO PREVENT RUNOFF FROM CONCRETE TRUCK WASHING FROM REACHING STORMWATER CONVEYANCES OR SURFACE WATERS.
2. CONTRACTOR SHALL INSPECT DAILY FOR REQUIRED MAINTENANCE TO PREVENT OVERFLOWS AND ENSURE NO RUNOFF IS REACHING STORMWATER CONVEYANCES OR SURFACE WATER.
3. STRAW BALES SHALL BE INSTALLED IN ACCORDANCE WITH WISCONSIN DEPARTMENT OF NATURAL RESOURCES TECHNICAL STANDARD 1055: SEDIMENT BALE BARRIER.

N.T.S.

CONCRETE WASHOUT AREA



NOTES:
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL–O–SEED DO NOT SEED PREPARED AREA. CELL–O–SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF BLANKET EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) PORTION OF THE BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH THE APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"–5" (5 CM – 12.5 CM) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE BLANKET WIDTH.
6. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

BOS N.T.S.

EROSION CONTROL BLANKET

Date	Description	No.
Revisions		
05/20/26	VILLAGE COMMENTS	1

Signature Date

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Project

THE CARILLON AT GERMANTOWN

GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title

DETAILS

Project No.	Drawing No.
543001101	CS503
Date: 03-06-2026	
Drawn By: ZRF	
Checked By: SDP	

LANGAN Project No. 543001101

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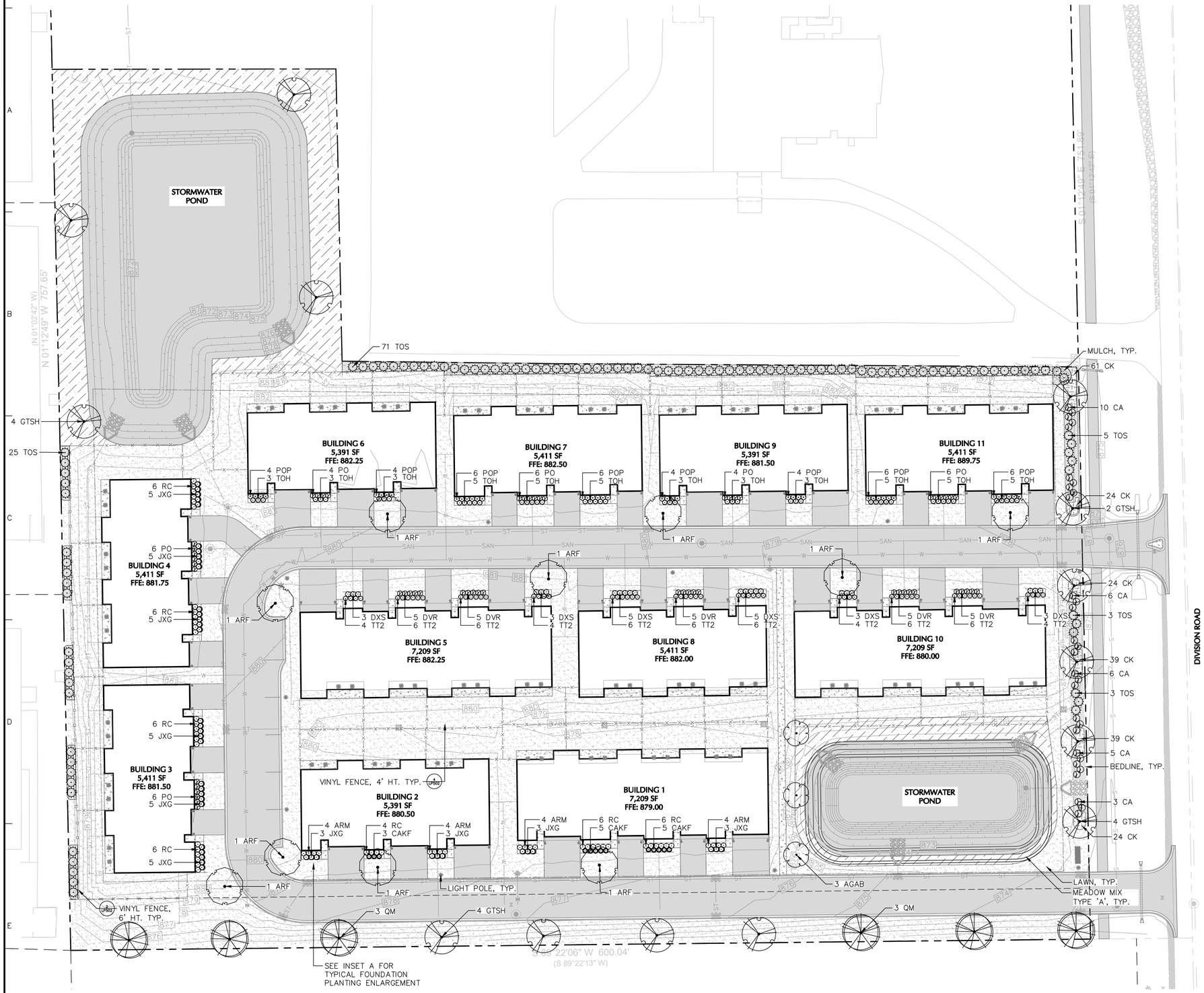
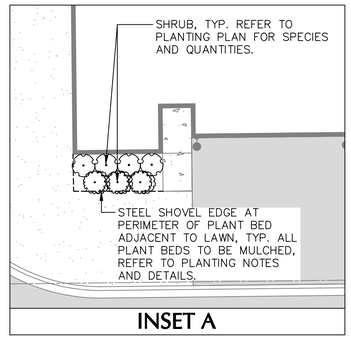
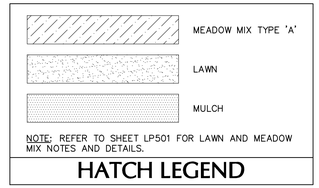




INSET A



NOTE: REFER TO SHEET LP501 FOR LAWN AND MEADOW MIX NOTES AND DETAILS.

HATCH LEGEND

30 0 15 30
SCALE IN FEET

NOTE:

1. REFER TO SHEETS LP501-LP503 FOR PLANTING NOTES, DETAILS, LANDSCAPE COMPLIANCE CHART, AND PLANT SCHEDULE.

Date	Description	No.
Revisions		
05/05/26	VILLAGE COMMENTS	1

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Project
THE CARILLON AT GERMANTOWN
GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title
PLANTING PLAN

Project No.	Drawing No.
543001101	LP101
Date: 10/13/2025	
Drawn By: SD	
Checked By: MS	

LANGAN
Project No. 543001101

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GENERAL LANDSCAPE PLANTING NOTES

1. NAMES OF PLANTS AS DESCRIBED ON THIS PLAN CONFORM TO THOSE GIVEN IN "STANDARDIZED PLANT NAMES", 1942 EDITION, PREPARED BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE. NAMES OF PLANT VARIETIES NOT INCLUDED THEREIN CONFORM TO NAMES GENERALLY ACCEPTED IN NURSERY TRADE.
2. STANDARDS FOR TYPE, SPREAD, HEIGHT, ROOT BALL AND QUALITY OF NEW PLANT MATERIAL SHALL BE IN ACCORDANCE WITH GUIDELINES AS SET FORTH IN THE "AMERICAN STANDARD FOR NURSERY STOCK", PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION. PLANT MATERIAL SHALL HAVE NORMAL HABIT OF GROWTH AND BE HEALTHY, VIGOROUS, AND FREE FROM DISEASES AND INSECT INFESTATION.
3. NEW PLANT MATERIAL SHALL BE NURSERY GROWN UNLESS SPECIFIED OTHERWISE. ALL PLANTS SHALL BE SET PLUMB AND SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL GRADE BEFORE DIGGING. PLANT MATERIAL OF THE SAME SPECIES AND SPECIFIED AS THE SAME SIZE SHOULD BE SIMILAR IN SHAPE, COLOR AND HABIT. THE LANDSCAPE ARCHITECT HAS THE RIGHT TO REJECT PLANT MATERIAL THAT DOES NOT CONFORM TO THE TYPICAL OR SPECIFIED HABIT OF THAT SPECIES. ALL TREES SHALL HAVE A STRAIGHT TRUNK AND FULL HEAD AND MEET ALL REQUIREMENTS SPECIFIED. ANY TREE THAT LOSES THE MAIN LEADER SHALL BE REPLACED.
4. THE BACKFILL MIXTURE AND SOIL MIXES TO BE INSTALLED PER THE SPECIFICATIONS.
5. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SITE AND SUBGRADE DRAINAGE OR PERCOLATION CHARACTERISTICS, WHETHER THE SUBGRADE SOILS ARE EXISTING TO REMAIN OR IMPORTED AND PLACED. CONTRACTOR TO ENSURE POSITIVE VERTICAL DRAINAGE THROUGHOUT PLANTED AREAS. DISCREPANCIES SHALL BE ADDRESSED WITH THE PROJECT LANDSCAPE ARCHITECT PRIOR TO PURCHASING PLANT MATERIALS.
6. NO PLANT SHALL BE PUT INTO THE GROUND BEFORE FINISH GRADING HAS BEEN COMPLETED AND APPROVED BY THE PROJECT LANDSCAPE ARCHITECT OR PROJECT ENGINEER.
7. ALL PLANT INSTALLATIONS SHALL BE COMPLETED EITHER BETWEEN APRIL 1 – JUNE 15 OR SEPT 1 – NOVEMBER 1, UNLESS OTHERWISE DIRECTED BY THE PROJECT LANDSCAPE ARCHITECT. SEE LAWN SEEDING DATES IN SEEDING NOTES.
8. ALL FENCE AND GUIDE RAIL INSTALLATIONS SHALL BE COMPLETED PRIOR TO COMMENCEMENT OF ANY LANDSCAPE PLANTING, LAWN AND GRASSES, OR IRRIGATION WORK.
9. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITY AND SEWER LINES AND SHALL AVOID DAMAGE TO ALL UTILITIES DURING THE COURSE OF CONSTRUCTION. NOTIFY THE PROJECT ENGINEER AND OWNER IMMEDIATELY OF ANY CONFLICTS WITH PROPOSED PLANTING LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE.
10. LOCATIONS OF EXISTING BURIED UTILITY LINES SHOWN ON THE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AND ARE TO BE CONSIDERED APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR 1) TO VERIFY THE LOCATIONS OF ALL UTILITY LINES AND ADJACENT TO THE WORK AREA 2) TO PROTECT OF ALL UTILITY LINES DURING THE CONSTRUCTION PERIOD 3) TO REPAIR ANY AND ALL DAMAGE TO UTILITIES, STRUCTURES, SITE APPURTENANCES, ETC. WHICH OCCURS AS A RESULT OF THE CONSTRUCTION.
11. THE CONTRACTOR SHALL NOT MAKE SUBSTITUTIONS WITHOUT PRIOR WRITTEN CONSENT OF THE LANDSCAPE ARCHITECT. IF THE SPECIFIED LANDSCAPE MATERIAL IS NOT OBTAINABLE, THE CONTRACTOR SHALL SUBMIT PROOF OF NON-AVAILABILITY TO THE LANDSCAPE ARCHITECT AND OWNER, TOGETHER WITH A WRITTEN PROPOSAL FOR USE OF AN EQUIVALENT MATERIAL.
12. LANDSCAPE CONTRACTOR TO STAKE OUT PLANTING LOCATIONS, FOR REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT AND/OR OWNER BEFORE PLANTING WORK BEGINS. THE LANDSCAPE ARCHITECT AND/OR OWNER SHALL HAVE THE AUTHORITY AND DIRECTOR IN THE FINAL PLACEMENT OF ALL PLANT MATERIAL AND LOCATION OF PLANTING BEDS TO ENSURE COMPLIANCE WITH DESIGN INTENT UNLESS OTHERWISE INSTRUCTED.
13. ALL MATERIALS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT BEFORE, DURING, AND AFTER INSTALLATION. THE LANDSCAPE ARCHITECT MAY REVIEW PLANT MATERIALS AT THE SITE FOR COMPLIANCE WITH REQUIREMENTS FOR GENUS, SPECIES, VARIETY, SIZE, AND QUALITY. THE LANDSCAPE ARCHITECT RETAINS THE RIGHT TO FURTHER REVIEW PLANT MATERIALS FOR SIZE AND CONDITION OF BALLS AND ROOT SYSTEM, INSECTS, INJURIES, AND LATENT DEFECTS, AND TO REJECT UNSATISFACTORY OR DEFECTIVE MATERIAL AT ANY TIME DURING PROGRESS OF WORK. THE CONTRACTOR SHALL REMOVE REJECTED PLANT MATERIALS IMMEDIATELY FROM PROJECT SITE AS DIRECTED BY THE LANDSCAPE ARCHITECT OR OWNER.
14. ALL PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS, AND FREE OF DISEASE. ANY PLANT MATERIAL WHICH IS DISEASED, DISTRESSED, MISSING, 25% OR MORE DEAD, WHICH DO NOT DEVELOP FROM PLANTING STOCK, THAT APPEAR UNHEALTHY OR UNSIGHTLY AND/OR HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES, OR REJECTED FOR ANY REASON (PRIOR TO SUBSTANTIAL COMPLETION) SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, AND SIZE AND MEETING ALL PLANT LIST SPECIFICATIONS.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY SCHEDULE AND PROTECTION BETWEEN DELIVERY AND PLANTING PER SPECIFICATIONS TO MAINTAIN HEALTHY PLANT CONDITIONS.
16. DELIVERY, STORAGE, AND HANDLING:
    A. PACKAGED MATERIALS: PACKAGED MATERIALS SHALL BE DELIVERED IN CONTAINERS SHOWING WEIGHT, ANALYSIS, AND NAME OF MANUFACTURER. MATERIALS SHALL BE PROTECTED FROM DETERIORATION DURING DELIVERY, AND WHILE STORED AT SITE.
    B. TREES AND SHRUBS: THE CONTRACTOR SHALL PROVIDE TREES AND SHRUBS DUG FOR THE GROWING SEASON FOR WHICH THEY WILL BE PLANTED. DO NOT PRUNE PRIOR TO DELIVERY UNLESS OTHERWISE DIRECTED BY THE LANDSCAPE ARCHITECT. DO NOT BEND OR BIND—TIE TREES OR SHRUBS IN SUCH A MANNER AS TO DAMAGE BARK, BREAK BRANCHES, OR DESTROY NATURAL SHAPE. PROVIDE PROTECTIVE COVERING DURING TRANSIT. DO NOT DROP BALLED AND BURLAPPED STOCK DURING DELIVERY OR HANDLING.
    C. ALL PLANTS SHALL BE BALLED AND BURLAPPED OR CONTAINER GROWN AS SPECIFIED. NO CONTAINER GROWN STOCK WILL BE ACCEPTED IF IT IS ROOT BOUND. ALL ROOTBALL WRAPPING AND BINDING MATERIAL MADE OF SYNTHETICS OR PLASTICS SHALL BE REMOVED FROM THE TOP OF THE BALL AT THE TIME OF PLANTING. IF THE PLANT IS SHIPPED WITH A WIRE BASKET AROUND THE ROOT BALL, THE WIRE BASKET SHALL BE CUT AND FOLDED DOWN 8 INCHES INTO THE PLANTING HOLE. WITH CONTAINER GROWN STOCK, THE CONTAINER SHALL BE REMOVED AND THE ROOT BALL SHALL BE CUT THROUGH THE SURFACE IN TWO LOCATIONS.
    D. THE CONTRACTOR SHALL HAVE TREES AND SHRUBS DELIVERED TO SITE AFTER PREPARATIONS FOR PLANTING HAVE BEEN COMPLETED AND PLANT IMMEDIATELY. IF PLANTING IS DELAYED MORE THAN 6 HOURS AFTER DELIVERY, THE CONTRACTOR SHALL SET TREES AND SHRUBS IN SHADE, PROTECT FROM WEATHER AND MECHANICAL DAMAGE AND KEEP ROOTS MOIST BY COVERING WITH MULCH, BURLAP OR OTHER ACCEPTABLE MEANS OF RETAINING MOISTURE.
17. ALL LANDSCAPED AREAS TO BE CLEARED OF ROCKS, STUMPS, TRASH AND OTHER UNSIGHTLY DEBRIS. ALL FINE GRADED AREAS SHALL BE RAKED AND MADE SMOOTH ELIMINATING ANY CLUMPS AND UNEVEN SURFACES PRIOR TO PLANTING OR MULCHING.
18. ALL PLANT MATERIAL SHALL BE INSTALLED AS PER DETAILS, NOTES AND CONTRACT SPECIFICATIONS. THE LANDSCAPE ARCHITECT MAY REVIEW INSTALLATION AND MAINTENANCE PROCEDURES.
19. CONTRACTOR'S GUARANTEE: ALL PLANTINGS AND PLANTING AREAS SHALL BE PERMANENTLY MAINTAINED. NEW PLANT MATERIAL SHALL BE GUARANTEED TO BE ALIVE AND IN VIGOROUS GROWING CONDITION FOR A PERIOD OF TWO YEARS FOLLOWING ACCEPTANCE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FULLY MAINTAINING (INCLUDING BUT NOT LIMITED TO: WATERING, PRUNING, SPRAYING, MULCHING, FERTILIZING, ETC.) ALL OF THE PLANT MATERIALS AND LAWN FOR THE DURATION OF THE GUARANTEED PERIOD. PLANT MATERIAL FOUND TO BE UNHEALTHY, DYING OR DEAD DURING THIS PERIOD, SHALL BE REMOVED AND REPLACED IN KIND BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
20. THE CONTRACTOR SHALL KEEP AREA CLEAN DURING DELIVERY AND INSTALLATION OF PLANT MATERIALS. REMOVE AND DISPOSE OF OFF-SITE ANY ACCUMULATED DEBRIS OR UNUSED MATERIALS. REPAIR DAMAGE TO ADJACENT AREAS CAUSED BY LANDSCAPE INSTALLATION OPERATIONS.
21. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24– HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL THEN BE WATERED WEEKLY OR AS REQUIRED BY SITE AND WEATHER CONDITIONS TO MAINTAIN VIGOROUS AND HEALTHY PLANT GROWTH. CONTRACTOR SHALL CONFIRM WATER SOURCE WITH OWNER PRIOR TO BID AND INCLUDE ALTERNATE MEANS OF WATERING IF NECESSARY.
22. ON–SITE WATER SHALL BE FURNISHED BY THE CONTRACTOR. HOSE AND OTHER WATERING EQUIPMENT SHALL BE FURNISHED BY THE CONTRACTOR.
23. AFTER PLANT IS PLACED IN TREE PIT LOCATION, ALL TWINE HOLDING ROOT BALL TOGETHER SHOULD BE COMPLETELY REMOVED AND THE BURLAP SHOULD BE PULLED DOWN SO 1/3 OF THE ROOT BALL IS EXPOSED. SYNTHETIC BURLAP SHOULD BE COMPLETELY REMOVED AFTER INSTALLATION.
24. ALL TREES MUST BE GUYED OR STAKED IF REQUIRED BY ORDINANCE, IF LOCATED ON A SLOPE 3:1 OR GREATER, OR IF THE SITE IS LOCATED IN A HIGH WIND ZONE.
25. ALL EXPOSED GROUND SURFACES THAT ARE NOT PAVED WITHIN THE CONTRACT LIMIT LINE, AND THAT ARE NOT COVERED BY LANDSCAPE PLANTING OR SEEDING AS SPECIFIED, SHALL BE COVERED BY A NATURAL MULCH FROM A LOCAL SOURCE HARVESTED IN A SUSTAINABLE MANNER THAT WILL PREVENT SOIL EROSION AND THE EMANATION OF DUST. MULCH SHALL BE A FIBROUS SHREDDED HARDWOOD MULCH. MULCH SHOULD NOT BE PILED UP AROUND THE TRUNK OF ANY PLANT MATERIAL. NO MULCH OR TOPSOIL SHOULD BE TOUCHING THE BASE OF THE TRUNK ABOVE THE ROOT COLLAR.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON THESE PLANS BEFORE PRICING THE WORK. FOR ANY DISCREPANCIES BETWEEN THE PLANT SCHEDULE AND PLANTING PLAN THE GRAPHIC QUANTITY SHOWN SHALL GOVERN.
27. LANDSCAPE PUNCH LIST SITE VISITS TO BE PERFORMED BY THE PROJECT LANDSCAPE ARCHITECT, IF UNDER CONTRACT FOR SUCH WORK, WILL NOT BE SCHEDULED UNTIL CONFIRMATION IS RECEIVED THAT ALL PROPOSED LANDSCAPE ITEMS HAVE BEEN INSTALLED, OR DEFICIENCIES NOTED IN THE PRIOR PUNCH LIST REPORT HAVE BEEN CORRECTED. THE PUNCH LIST SITE VISIT WILL THEN BE PERFORMED WITHIN 10 BUSINESS DAYS.
28. CONTRACTOR SHALL ASSESS THE NEED FOR DEER PROTECTION ON SITE. IF DEEMED NECESSARY, SHADE AND ORNAMENTAL TREES SHALL BE PROTECTED THROUGH WINTER WITH SPIRAL WRAP TREE GUARDS, OR APPROVED EQUAL. PROTECTION LENGTH TO BE FROM BELOW THE LOWEST BRANCH AND DOWN TO WITHIN A FEW INCHES OF THE GROUND. THE GUARDS CAN BE REMOVED IN SPRING AND SAVED FOR RE–INSTALLATION DURING FOLLOWING WINTERS AS PART OF A MAINTENANCE PROGRAM.
29. ALL SLOPES 3:1 OR GREATER AND ALL SIDE SLOPES OF BASINS SHALL REQUIRE AN EROSION CONTROL BLANKET: ERONET SC150 BY NORTH AMERICAN GREEN, OR APPROVED EQUAL.

LAWN SEED MIX

1. PRIOR TO SEEDING, AREA IS TO BE TOPSOILED, FINE GRADED, AND RAKED OF ALL DEBRIS.
2. PRIOR TO SEEDING, CONSULT MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
3. SEEDING RATE AT 220 POUNDS PER ACRE:
    - 20% PERENNIAL RYEGRASS
    - 20% SPREADING FESCUE
    - 30% KENTUCKY BLUEGRASS
    - 30% RED FESCUE
4. SEEDING DATES FOR THIS MIXTURE SHALL BE BETWEEN MARCH 15TH TO MAY 15TH OR SEPT 1ST TO OCTOBER 30TH.
5. GERMINATION RATES WILL VARY AS TO TIME OF YEAR FOR SOWING. CONTRACTOR TO IRRIGATE SEEDED AREA UNTIL A STAND OF COVER IS ESTABLISHED AND FOUND ACCEPTABLE TO THE OWNER. SEE LAWN WATERING SCHEDULE NOTES.

LAWN WATERING SCHEDULE

THE FOLLOWING WATERING SCHEDULE COVERS ROUGHLY 8 WEEKS TO ESTABLISH A HEALTHY STAND OF GRASS FROM SEED. THE CONTRACTOR SHALL BE OBLIGATED TO ENSURE A HEALTHY STAND OF GRASS AT THE END OF THE MAINTENANCE/BOND PERIOD. ANY BARE OR DEAD AREAS IN THE LAWN SHALL BE PREPARED, RESEEDED AND REESTABLISHED PRIOR TO THE END OF THE MAINTENANCE/BOND PERIOD AND TO THE SATISFACTION OF THE PROJECT LANDSCAPE ARCHITECT AND THE OWNER. THE LANDSCAPE MUST BE ACCEPTED BY THE OWNER AT WHICH POINT A 1 YEAR WARRANTY WILL START AFTER ACCEPTANCE.

IMPORTANT ASPECTS TO ATTAINING AND SUSTAINING A HEALTHY STAND OF GRASS ARE THE INSTALLATION OF TOPSOIL, SEED BED PREPARATION, ATTAINING OPTIMAL pH FOR THE INTENDED PLANT SPECIES, FERTILIZING, MULCH COVERING, AND SUFFICIENT WATERING PER THESE NOTES AND/OR PROJECT SPECIFICATIONS.

1. SEEDING SHALL BE DONE DURING THE SEASONS SPECIFIED IN THE LAWN SEED MIX NOTES AND/OR PROJECT SPECIFICATIONS.
2. AFTER THE SEEDBED IS PREPARED, SEED IS INSTALLED, AND MULCH IS APPLIED, WATER LIGHTLY TO KEEP THE TOP 2 INCHES OF SOIL CONSISTENTLY MOIST, NOT SATURATED. AT NO TIME SHOULD WATER BE APPLIED TO THE POINT OF RUNOFF OR THE DISPLACEMENT OF SEED.
3. DEPENDING ON SOIL TEMPERATURES, IT MAY TAKE SEVERAL WEEKS FOR GERMINATION TO OCCUR. DIFFERENT SPECIES WITHIN THE MIX GERMINATE AT DIFFERENT TIMES AND THEREFORE CONTRACTOR SHOULD CONTINUE THE LIGHT WATERING, AS DESCRIBED ABOVE, UNTIL THERE IS AT LEAST 2 INCHES OF GROWTH THROUGHOUT. ONE YEAR WARRANTY BEGINS ONCE LAWN HAS REACHED A HEIGHT OF TWO INCHES.
4. AT THIS POINT, WATERING FREQUENCY MAY BE REDUCED TO EVERY 3 TO 5 DAYS. WATER SHALL BE APPLIED TO WET A 6 INCH MINIMUM SOIL DEPTH TO PROMOTE HEALTHY DEEP ROOTS.
5. BEGIN MOWING ONCE PER WEEK AFTER THE GRASS HAS REACHED 3 INCHES HEIGHT. MOW TO A HEIGHT OF NO LESS THAN 2–½ INCHES. AFTER 2 TO 3 WEEKS OF MOWING, CONTINUE TO WATER TO A 6 INCH MINIMUM SOIL DEPTH AS NECESSARY PER WEATHER CONDITIONS, AND SOIL MOISTURE SENSORS IF APPLICABLE.

PLANTING SOIL SPECIFICATIONS

1. PLANTING SOIL, ALTERNATELY MAY BE REFERRED TO AS TOPSOIL, SHOULD BE FRIABLE, FERTILE, WELL DRAINED, FREE OF DEBRIS, TOXINS, TRASH AND STONES. IT SHOULD HAVE A HIGH ORGANIC CONTENT SUITABLE TO SUSTAIN HEALTHY PLANT GROWTH AND SHOULD LOOK AESTHETICALLY PLEASING HAVING NO NOXIOUS ODORS.
2. PLANTING SOIL:
    REUSE SURFACE SOILS STOCKPILED ON SITE, VERIFYING COMPLIANCE WITH PLANTING SOIL AND TOPSOIL CRITERIA IN THIS SPECIFICATION THROUGH TESTING. CLEAN SURFACE SOIL OF ALL ROOTS, PLANTS, SOD, AND GRAVEL OVER 1" IN DIAMETER AND DELETERIOUS MATERIALS. IF ON–SITE SOILS ARE TO BE USED FOR PROPOSED PLANTING, THE CONTRACTOR SHALL DEMONSTRATE, THROUGH SOIL TESTING, THAT ON–SITE SOILS MEET THE SAME CRITERIA AS INDICATED IN NOTES PLANS AND SPECIFICATIONS.
    SUPPLEMENT WITH IMPORTED OR MANUFACTURED TOPSOIL FROM OFF SITE SOURCES WHEN TOPSOIL AND PLANTING SOIL QUANTITIES ARE INSUFFICIENT. OBTAIN SOIL DISPLACED FROM NATURALLY WELL–DRAINED SITES WHERE TOPSOIL OCCURS AT LEAST 4" DEEP. DO NOT OBTAIN FROM AGRICULTURAL BOGS, MARSHES OR CONTAMINATED SITES.
    AT A MINIMUM, PLANTING SOILS MEETING THESE SPECIFICATIONS MAY BE OBTAINED FROM WECARE DENAIL P:888–325–1522, OR APPROVED EQUAL.
    CONTRACTOR SHALL TEST SOILS AND FURNISH SAMPLES UPON REQUEST. PACKAGED MATERIALS SHALL BE UNOPENED BAGS OR CONTAINERS, EACH BEARING A NAME, GUARANTEE, AND TRADEMARK OF THE PRODUCER, MATERIAL COMPOSITION. MANUFACTURER'S CERTIFIED ANALYSIS AND TYPE OF MATERIAL TO BE USED. ALL AMENDMENT MATERIALS SHALL BE STORED ON SITE TEMPORARILY IN STOCKPILES PRIOR TO PLACEMENT AND SHALL BE PROTECTED FROM INTRUSION OF CONTAMINANTS AND EROSION. AFTER MIXING, SOIL MATERIALS SHALL BE COVERED WITH A TARPAULIN UNTIL TIME OF ACTUAL USE.
    ALL PLANTING SOILS SHALL BE SUBMITTED FOR TESTING TO THE STATE COOPERATIVE EXTENSION SERVICE, OR APPROVED EQUAL, PRIOR TO DELIVERY TO THE SITE. CONTRACTOR SHALL FURNISH SOIL SAMPLES AND SOIL TEST RESULTS TO LANDSCAPE ARCHITECT OR OWNER AT A RATE OF ONE SAMPLE PER 500 CUBIC YARDS TO ENSURE CONSISTENCY ACROSS THE TOTAL VOLUME OF PLANTING SOIL REQUIRED. TEST RESULTS SHALL EVALUATE FOR ALL CRITERIA LISTED IN THIS SPECIFICATION. IF TESTING AGENCY DETERMINES THAT THE SOILS ARE DEFICIENT IN ANY MANNER AND MAY BE CORRECTED BY ADDING AMENDMENTS, THE CONTRACTOR SHALL FOLLOW STATED RECOMMENDATIONS FOR SOIL IMPROVEMENT AND FURNISH SUBMITTALS FOR ALL AMENDMENTS PRIOR TO DELIVERY OF SOIL TO THE PROJECT SITE.
    THE FOLLOWING TESTING SHOULD BE PERFORMED AND RESULTS GIVEN TO THE LANDSCAPE ARCHITECT FOR APPROVAL BEFORE INSTALLATION:
    A. WHERE A PERMANENT IRRIGATION SYSTEM IS PLANNED:
        a. PARTICLE SIZE ANALYSIS – SANDY LOAM: 60–75% SAND, 25–40% SILT, AND 5–15% CLAY.
        b. GRAVEL CONTENT (2mm): LESS THAN 10%
        c. FERTILITY ANALYSIS: pH (6.0–6.8), SOLUBLE SALTS (0.2 to 1.0 MMHO/CM), NITRATE, PHOSPHATE, POTASSIUM, CALCIUM AND MAGNESIUM
        d. ORGANIC MATTER CONTENT: 2.5–5% IN NATIVE SOILS; UP TO 10% IN AMENDED SOILS
        e. TOXIC SUBSTANCE ANALYSIS
        f. MATERIAL DRAINAGE RATE: 60% PASSING IN 2 MINUTES, 40% RETAINED
        g. NOT MORE THAN 1% OF MATERIAL SHALL BE RETAINED BY A #4 SIEVE
    B. WHERE NO PERMANENT IRRIGATION IS PLANNED:
        a. PARTICLE SIZE ANALYSIS – LOAM: 40–65% SAND, 25–60% SILT, AND 5–20% CLAY.
        b. GRAVEL CONTENT (2mm): LESS THAN 10%
        c. FERTILITY ANALYSIS: pH (6.0–6.8), SOLUBLE SALTS (0.2 to 1.0 MMHO/CM), NITRATE, PHOSPHATE, POTASSIUM, CALCIUM AND MAGNESIUM
        d. ORGANIC MATTER CONTENT: 2.5–5% IN NATIVE SOILS; UP TO 10% IN AMENDED SOILS
        e. TOXIC SUBSTANCE ANALYSIS
        f. MATERIAL DRAINAGE RATE: 60% PASSING IN 2 MINUTES, 40% RETAINED
        g. NOT MORE THAN 1% OF MATERIAL SHALL BE RETAINED BY A #4 SIEVE
    C. SOILS FOR BASINS (BIO–RETENTION, INFILTRATION, ETC.) AND BIOSWALES SHALL BE TESTED FOR COMPLIANCE WITH THE CIVIL ENGINEERING SPECIFICATIONS, OR OTHERWISE THE BEST MANAGEMENT PRACTICES MANUAL FOR THE RESPECTIVE STATE IN WHICH THE PROJECT IS LOCATED.
3. SOIL AMENDMENT FOR PLANT MATERIAL:
    IF SOIL ORGANIC CONTENT IS INADEQUATE, SOIL SHALL BE AMENDED WITH COMPOST OR ACCEPTABLE, WEED FREE, ORGANIC MATTER. ORGANIC AMENDMENT SHALL BE WELL COMPOSTED, PH RANGE OF 6–8; MOISTURE CONTENT 35–55% BY WEIGHT 100% PASSING THROUGH 1" SIEVE; SOLUBLE SALT CONTENT LESS THAN 0.5 MM HOS/CM; MEETING ALL APPLICABLE ENVIRONMENTAL CRITERIA FOR CLEAN FILL:
    A. ORGANIC MATTER AS A SOIL AMENDMENT: LEAF MOLD WITH 60–90% ORGANIC CONTENT BY WEIGHT. SHREDDED LEAF LITTER, COMPOSTED FOR A MINIMUM OF 1 YR. SHOULD BE FREE OF DEBRIS, STONES OVER 1/2", WOOD CHIPS OVER 1".
    B. SOIL IN BEDS AND PLANTING ISLANDS OTHER THAN BACKFILL MATERIAL AND TOPSOIL, SHOULD BE FRIABLE, WELL DRAINED, AND FREE OF DEBRIS, INCLUDING STONES AND TRASH.
    C. AMENDMENTS FOR BACK FILL IN TREE AND SHRUB PITS:
        a. GROUND LIMESTONE SHALL A MIN. OF 98% OF CALCIUM AND MAGNESIUM CARBONATES) USED PENDING RESULTS OF SOIL ANALYSIS.
            – BRING pH LEVELS TO 5.5 MIN. TO 6.5 FOR NON–ERICACEOUS PLANTS
            – BRING pH LEVELS TO 4.5 MIN. TO 5.5 FOR ERICACEOUS PLANTS
        b. TERRA–SORB COMPLETE FOR TREES IN CANOPY, 800–421–9051 (SEE MANUFACTURER RECOMMENDATIONS) USED IN PLANTER BACKFILL MIXTURE WITH TREES AND SHRUBS.
        c. MYCOR–ROOT SAVER BY "PLANT HEALTH CARE" 800–421–9051 (SEE MANUFACTURER RECOMMENDATIONS) USED IN BACKFILL MIXTURE WITH TREES.
4. WHERE PLANTING AREAS ARE PROPOSED FOR FORMER PAVED OR GRAVEL AREAS, BEDS SHALL BE EXCAVATED TO A MINIMUM 30" DEPTH AND, AT A MINIMUM, BE BACKFILLED WITH BOTTOM LAYER OF SANDY LOAM (ORGANIC CONTENT LESS THAN 2%) OVER WHICH TOPSOIL SHALL BE PLACED. SUBSOIL SHALL BE PLACED AT DEPTHS INDICATED IN PLANS, DETAILS AND NOTES.
5. CLEAN SOIL FILL IN LANDSCAPE AREAS:
    LANDSCAPE FILL MATERIAL, BELOW PLANTING SOILS, SHALL HAVE THE PHYSICAL PROPERTIES OF A SANDY LOAM WITH AN ORGANIC CONTENT OF LESS THAN 2% AND A PH BETWEEN 5 – 7.
6. SOIL PLACEMENT:
    A. CONTRACTOR TO PROVIDE SIX INCHES (6") MINIMUM DEPTH PLANTING SOIL LAYER IN LAWN AREAS, TWELVE INCHES (12") MINIMUM DEPTH PLANTING SOIL LAYER IN GROUND COVER AND UNEVEN SURFACES PRIOR TO PLANTING OR MULCHING. PLANTING SOIL LAYER IN SHRUB AREAS, AND THIRTY–SIX INCHES (36") MINIMUM DEPTH PLANTING SOIL LAYER IN TREE PLANTING AREAS.
    B. SCARIFY AND/OR TILL COMPACTED SUBSOILS TO A MINIMUM DEPTH OF 6 INCHES. THOROUGHLY MIX A 6 INCH DEPTH LAYER OF PLANTING SOIL INTO THE SUBSOIL PRIOR TO PLACING PLANTING SOIL AT THE DEPTHS INDICATED ABOVE. PLANTING SOIL SHALL BE PLACED IN 12–18" LIFTS AND WATERED BEFORE INSTALLING NEXT LIFT UNTIL DEPTHS AND FINISH GRADES HAVE BEEN ACHIEVED. NO SOILS SHALL BE PLACED IN A FROZEN OR MUDDY CONDITION.
    C. PLANTING SOIL PRESENT AT THE SITE, IF ANY, MAY BE USED TO SUPPLEMENT TOTAL AMOUNT REQUIRED. CONTRACTOR TO FURNISH ANY ANALYSIS OF ON–SITE PLANTING SOIL UTILIZED IN ALL PLANTING AREAS.
    D. ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
    C. SOIL MODIFICATIONS (PENDING RESULTS OF SOIL ANALYSIS):
        a. THOROUGHLY TILL ORGANIC MATTER (LEAF COMPOST) INTO THE TOP 6 TO 12 IN. OF MOST PLANTING SOILS TO IMPROVE THE SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A pH HIGHER THAN 7.0. PEAT MOSS MAY NOT BE USED AS ORGANIC MATTER AMENDMENT.
        b. MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. IMPROVE DRAINAGE IN HEAVY SOILS BY PLANTING ON RAISED MOUNDS OR BEDS AND INCLUDING SUBSURFACE DRAINAGE LINES.
        c. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.

LANDSCAPE MAINTENANCE NOTES

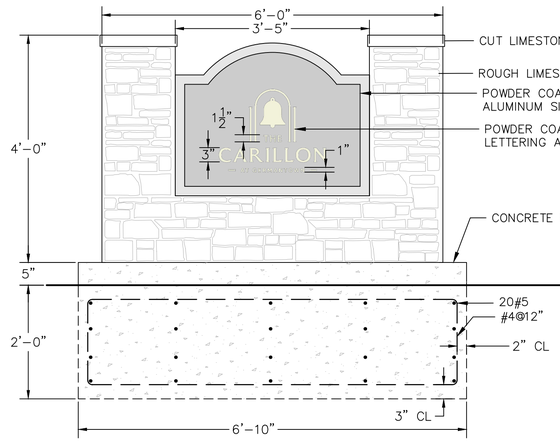
1. MAINTENANCE OPERATIONS BEFORE APPROVAL:
    A. PLANT CARE SHALL BEGIN IMMEDIATELY AFTER EACH PLANT IS SATISFACTORILY INSTALLED AND SHALL CONTINUE THROUGHOUT THE LIFE OF THE CONTRACT UNTIL FINAL ACCEPTANCE OF THE PROJECT.
    B. CARE SHALL INCLUDE, BUT NOT BE LIMITED TO, REPLACING MULCH THAT HAS BEEN DISPLACED BY EROSION OR OTHER MEANS, REPAIRING AND RESHAPING WATER RINGS OR SAUCERS, MAINTAINING STAKES AND GUYS AS ORIGINALLY INSTALLED, WATERING WHEN NEEDED OR DIRECTED, AND PERFORMING ANY OTHER WORK REQUIRED TO KEEP THE PLANTS IN A HEALTHY CONDITION.
    C. CONTRACTOR SHALL REMOVE AND REPLACE ALL DEAD, DEFECTIVE AND/OR REJECTED PLANTS AS REQUIRED BEFORE FINAL ACCEPTANCE.
2. MAINTENANCE DURING CONSTRUCTION:
    A. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER PLANTING. PLANTS SHALL BE WATERED, MULCHED, WEEDED, PRUNED, SPRAYED, FERTILIZED, CULTIVATED, AND OTHERWISE MAINTAINED AND PROTECTED UNTIL PROVISIONAL ACCEPTANCE. SETTLED PLANTS SHALL BE RESET TO PROPER GRADE AND POSITION, PLANTING SAUCER RESTORED AND DEAD MATERIAL REMOVED. STAKES AND WIRES SHALL BE TIGHTENED AND REPAIRED. DEFECTIVE WORK SHALL BE CORRECTED AS SOON AS POSSIBLE AFTER IT BECOMES APPARENT AND WEATHER AND SEASON PERMIT.
    B. IF A SUBSTANTIAL NUMBER OF PLANTS ARE SICKLY OR DEAD AT THE TIME OF INSPECTION, ACCEPTANCE SHALL NOT BE GRANTED AND THE CONTRACTOR'S RESPONSIBILITY FOR MAINTENANCE OF ALL PLANTS SHALL BE EXTENDED FROM THE TIME REPLACEMENTS ARE MADE OR EXISTING PLANTS ARE DEEMED ACCEPTABLE BY THE LANDSCAPE ARCHITECT.
    C. ALL REPLACEMENTS SHALL BE PLANTS OF THE SAME KIND AND SIZE SPECIFIED ON THE PLANT LIST OR THAT WHICH WAS TO REMAIN OR BE RELOCATED. THEY SHALL BE FURNISHED AND PLANTED AS SPECIFIED. THE COST SHALL BE BORNE BY THE CONTRACTOR. REPLACEMENTS RESULTING FROM REMOVAL, LOSS, OR DAMAGE DUE TO OCCUPANCY OF THE PROJECT IN ANY PART, VANDALISM, PHYSICAL DAMAGE BY ANIMALS, VEHICLES, ETC., AND LOSSES DUE TO CURTAILMENT OF WATER BY LOCAL AUTHORITIES SHALL BE APPROVED AND PAID FOR BY THE OWNER.
    D. PLANTS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR AFTER INSPECTION AND PROVISIONAL ACCEPTANCE.
    E. AT THE END OF THE ESTABLISHMENT PERIOD, INSPECTION SHALL BE MADE AGAIN. ANY PLANT REQUIRED UNDER THIS CONTRACT THAT IS DEAD OR UNSATISFACTORY TO THE LANDSCAPE ARCHITECT OR OWNER SHALL BE REMOVED FROM THE SITE AND REPLACED DURING THE NORMAL PLANTING SEASON.

PLANTING SOIL

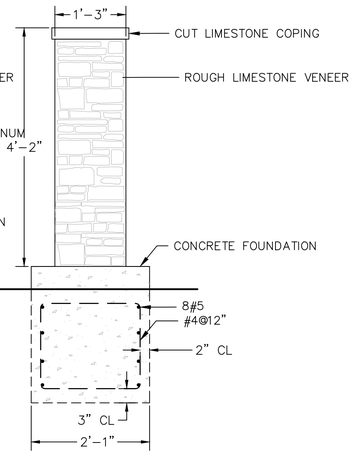
GENERAL NOTE:

DUE TO GENERAL CONSTRUCTION ACTIVITIES AND ADJACENT SITE COMPACTION REQUIREMENTS, SUBGRADE SOILS WITHIN PROPOSED PLANTING AREAS TEND TO BECOME HIGHLY COMPACTED. IN ORDER TO CREATE A HEALTHY GROWTH MEDIUM TO ALLOW PROPOSED PLANTINGS TO ESTABLISH A VIGOROUS ROOT MASS, THIS SUBGRADE SOIL MUST UNDERGO A RESTORATION PROCESS. IN ADDITION, IMPORTED OR AMENDED EXISTING SOILS SHALL BE MIXED WITH SUBGRADE SOILS WHERE THEY MEET IN ORDER TO CREATE A

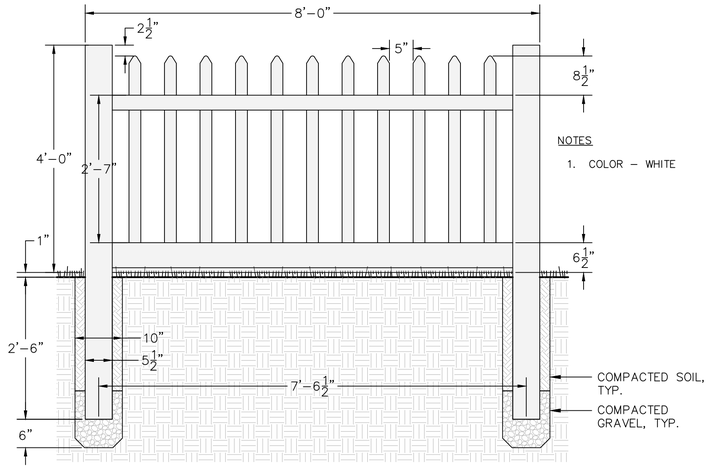
PLAN VIEW



SECTION VIEW



1 SIGN AT ENTRANCE
3/4"=1'-0"



NOTES

1. COLOR – WHITE

3 4' HT. VINYL PICKET FENCE
3/4"=1'-0"

NOTE: IMAGE INCLUDED FOR REFERENCE ONLY. REFER TO DETAILS 2, 3, AND 4 ON THIS SHEET FOR FENCE INSTALLATION AND PRODUCT INFORMATION

5 FENCE REFERENCE IMAGE
NTS

NOTES

1. COLOR – WHITE

2 6' HT. SOLID PANEL VINYL FENCE
3/4"=1'-0"

NOTES

1. TAPER FROM 6' TO 4' HT.
2. COLOR – WHITE

4 TAPERED SOLID PANEL VINYL FENCE
3/4"=1'-0"

Date	Description	No.
Revisions		
05/05/26	VILLAGE COMMENTS	1

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Project
THE CARILLON AT GERMANTOWN
GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title
PLANTING NOTES & DETAILS

Project No.	Drawing No.
543001101	LP502
Date: 10/13/2025	
Drawn By: SD	
Checked By: MS	

LANGAN Project No. 543001101

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GERMANTOWN, WISCONSIN - CODE OF ORDINANCES

§19.05.03 LANDSCAPING REQUIREMENTS

ORDINANCE SECTION	REQUIREMENT	SITE SPECIFIC CALCULATION	PROVIDED	COMPLIANCE
14.085 GRADING AND LANDSCAPING REQUIRED	(1) WITHIN ONE YEAR AFTER THE ISSUANCE OF AN OCCUPANCY PERMIT OR A FINAL INSPECTION FOR A NEW RESIDENCE, COMMERCIAL OR INDUSTRIAL BUILDING, AN ADDITION TO A RESIDENCE, A BUSINESS STRUCTURE, ACCESSORY STRUCTURE OR OTHER STRUCTURE WHERE THE SURFACE CONDITIONS HAVE BEEN AFFECTED BY CONSTRUCTION, FINAL GRADING SHALL BE COMPLETED. THE GRADING SHALL BE DONE SUCH THAT ALL SURFACE DRAINAGE IS PITCHED OR CARRIED AWAY FROM THE STRUCTURE. ALL GROUND PILES OR MOUNDS SHALL BE GRADED LEVEL OR REMOVED FROM THE SITE UNLESS SUCH PILES OR MOUNDS ARE TO BE UTILIZED FOR THE CONSTRUCTION OF LANDSCAPE BERMS OR AREAS. ALL FILL OR SPOIL NOT NEEDED ON THE SITE SHALL BE COMPLETELY REMOVED. A MINIMUM OF 4 INCES OF TOPSOIL SHALL BE PLACED ON ALL SEEDED OR LANDSCAPED AREAS.	N/A	4 INCHES OF TOPSOIL WILL BE PROVIDED. REFER TO PLANTING NOTES AND DETAILS.	COMPLIES
17.43 SITE PLAN APPROVAL, (5) LANDSCAPE REQUIREMENTS	B. 1. i. ALL YARDS SODDED OR SEEDED ON AT LEAST 4 INCHES OF TOPSOIL. RAIN GARDENS AS DEFINED IN THIS CHAPTER MAY BE INCORPORATED INTO LAWN AREAS WHERE PLANNED AND DESIGNED TO RECEIVE DRAINAGE OR RUNOFF.	N/A	4 INCHES OF TOPSOIL WILL BE PROVIDED. REFER TO PLANTING NOTES AND DETAILS.	COMPLIES
	B. 1. ii. TWO TREES AND/OR SHRUBS PER DWELLING UNIT. TREES SHALL BE A MINIMUM OF 1½ INCHES IN DIAMETER AT BREAST HEIGHT AND SHRUBS SHALL BE A MINIMUM OF 3 YEARS OLD, WITH PLACEMENT ACCORDING TO THE PLAN APPROVED UNDER SECTION 17.43(5)(A) ABOVE.	36 PROPOSED UNITS REQUIRES 36 TREES AND/OR SHRUBS	30 DECIDUOUS TREES AND 353 SHRUBS PROPOSED. REFER TO PLANT SCHEDULE.	COMPLIES
	C. 1. LANDSCAPING SHALL BE PROVIDED ON THE PERIMETER AND WITHIN THE INTERIOR OF ALL PARKING AREAS TO PROVIDE SCREENING, CANOPY COVER, AND STORMWATER TREATMENT AND MANAGEMENT. THE INTEGRATION OF VEGETATED STORMWATER MANAGEMENT MEASURES WITH PARKING LOT LANDSCAPING IS STRONGLY ENCOURAGED. ALL LANDSCAPED AREAS SHALL BE MULCHED OR SEEDED IN KEEPING WITH THE OVERALL LANDSCAPING PLAN. THE VILLAGE MAY MAINTAIN A LIST OF ACCEPTED SPECIES OF TREES AND LANDSCAPING MATERIALS, INCLUDING PLANTS AND TREES SUITABLE FOR USE IN VEGETATED STORMWATER MANAGEMENT MEASURES.	N/A	LAWN AND SHADE TREES ARE PROPOSED WITHIN THE PARKING AREA.	COMPLIES
	C.2. IN PARKING LOTS, AT LEAST 5% OF THE INTERIOR PARKING AREA SHALL BE LANDSCAPED WITH PLANTINGS, AND ONE TREE OF A MINIMUM 2-INCH CALIPER, FOR EACH 10 SPACES, ALL AS SHALL BE SUBMITTED AND APPROVED AS PART OF THE PLAN PROVIDED FOR HEREIN ABOVE. PLANTING REQUIRED WITHIN THE PARKING LOT SHALL BE IN ADDITION TO, AND NOT IN LIEU OF, OTHER PLANTING REQUIREMENTS, SUCH AS FOR STREET TREES. THE PLANTING PLAN MAY BE VARIED TO ACCOMMODATE THE DESIGN OF VEGETATED STORMWATER CONTROL MEASURES, SO LONG AS THE TOTAL NUMBER OF REQUIRED TREES IS MET WITHIN THE OVERALL PARKING AREA. THE USE OF DECIDUOUS TREES (WHICH MAY FUNCTION AS STORMWATER TREES, AS DEFINED IN THIS CHAPTER) IS ENCOURAGED TO PROVIDE CANOPY SHADING WITHIN PARKING AREAS. EACH INTERIOR LANDSCAPED AREA SHALL BE A MINIMUM OF 75 SF IN SIZE.	1,299 SF PARKING AREA PROPOSED 1,299 X 0.05 = 64.95 = 65 SF PLANTING REQUIRED	101 SF PLANTING PROPOSED	COMPLIES
	C. 3. PARKING LOT STREET FRONTAGE SCREENING AND PERIMETER SCREENING AREAS SHALL BE A MINIMUM OF 5 FEET WIDE.	N/A	PARKING AREA IS WILL NOT BE VISIBLE FROM DIVISION ROAD.	COMPLIES

PLANT SCHEDULE

KEY	QTY	BOTANICAL / COMMON NAME	SIZE	ROOT	SPACING	REMARKS
DECIDUOUS TREES						
ARF	10	ACER RUBRUM 'FRANKSRED' / RED SUNSET®MAPLE	1 1/2" CAL.	B&B	AS SHOWN	
GTSH	14	GLEDITSIA TRIACANTHOS INERMIS 'SHADEMASTER' / SHADEMASTER HONEY LOCUST	1 1/2" CAL.	B&B	AS SHOWN	
QM	6	QUERCUS MUEHLENBERGII / CHINKAPIN OAK	1 1/2" CAL.	B&B	AS SHOWN	
EVERGREEN TREES						
TOS	107	THUJA OCCIDENTALIS 'SMARAGD' / EMERALD GREEN ARBORVITAE	#10	CONTAINER	AS SHOWN	
ORNAMENTAL TREES						
AGAB	3	AMELANCHIER X GRANDIFLORA 'AUTUMN SUNSET' / AUTUMN SUNSET APPLE SERVICEBERRY	#7	CONTAINER	AS SHOWN	SINGLE-STEM
DECIDUOUS SHRUBS						
ARM	16	ARONIA MELANOCARPA 'AUTUMN MAGIC' / AUTUMN MAGIC BLACK CHOKEBERRY	#3	CONTAINER	AS SHOWN	
CA	30	CORNUS SERICEA 'SILVER AND GOLD' / SILVER AND GOLD RED TWG DOGWOOD	#3	CONTAINER	AS SHOWN	
DVR	25	DIERVILLA RIVULARIS 'SMNDRSF' / KODIAK®BLACK HONEYSUCKLE	#3	CONTAINER	AS SHOWN	
DXS	22	DIERVILLA X 'SMNDSS' / KODIAK®FRESH™DIERVILLA	#3	CONTAINER	AS SHOWN	
PO	32	PHYSOCARPUS OPULIFOLIUS 'BERT DART'S G' / FESTIVUS GOLD®NINEBARK	#3	CONTAINER	AS SHOWN	
POP	40	PHYSOCARPUS OPULIFOLIUS 'SMPOTW' / TINY WINE®NINEBARK	#3	CONTAINER	AS SHOWN	
RC	40	ROSA CAROLINA / CAROLINA ROSE	#3	CONTAINER	AS SHOWN	
EVERGREEN SHRUBS						
JXG	42	JUNIPERUS X 'GREY OWL' / GREY OWL JUNIPER	#3	CONTAINER	AS SHOWN	
TT2	58	TAXUS X MEDIA 'TAUNTONII' / TAUNTON'S ANGLO-JAPANESE YEW	#3	CONTAINER	AS SHOWN	
TOH	48	THUJA OCCIDENTALIS 'HETZ MIDGET' / HETZ MIDGET ARBORVITAE	#3	CONTAINER	AS SHOWN	
GRASSES						
CAKF	13	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / KARL FOERSTER FEATHER REED GRASS	#1	CONTAINER	AS SHOWN	
CK	211	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / KARL FOERSTER FEATHER REED GRASS	#1	CONTAINER	18" o.c.	

NOTES:
1. IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN IN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE.

LANGAN

Project No. 543001101

Date	Description	No.
Revisions		
05/05/26	VILLAGE COMMENTS	1

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Project
THE CARILLON AT GERMANTOWN
GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title
PLANTING NOTES & DETAILS

Project No.	Drawing No.
543001101	LP503
Date: 10/13/2025	
Drawn By: SD	
Checked By: MS	

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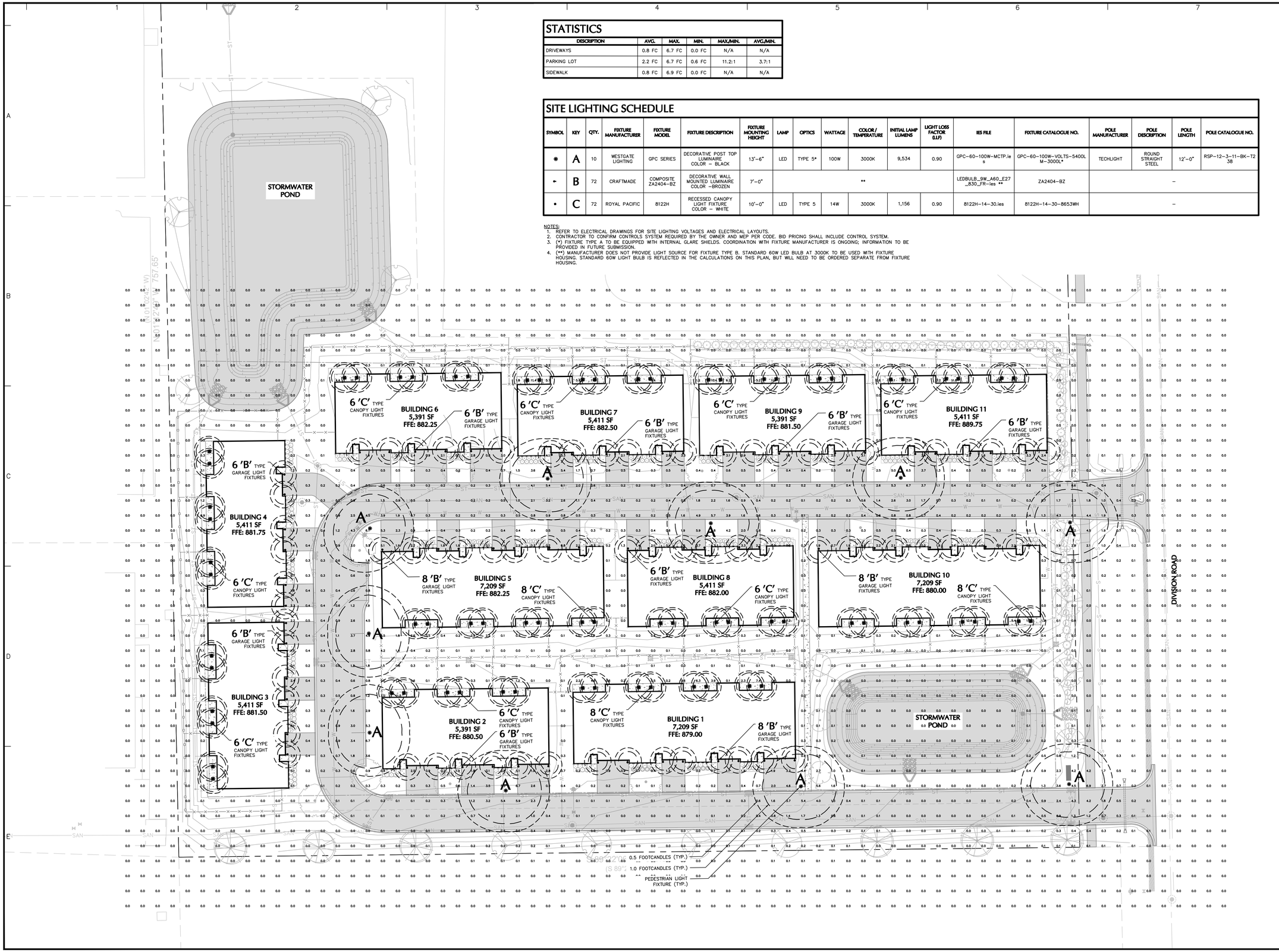
STATISTICS

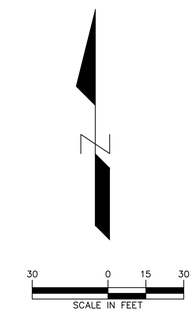
DESCRIPTION	AVG.	MAX.	MIN.	MAX./MIN.	AVG./MIN.
DRIVEWAYS	0.8 FC	6.7 FC	0.0 FC	N/A	N/A
PARKING LOT	2.2 FC	6.7 FC	0.6 FC	11.2:1	3.7:1
SIDEWALK	0.8 FC	6.9 FC	0.0 FC	N/A	N/A

SITE LIGHTING SCHEDULE

SYMBOL	KEY	QTY.	FIXTURE MANUFACTURER	FIXTURE MODEL	FIXTURE DESCRIPTION	FIXTURE MOUNTING HEIGHT	LAMP	OPTICS	WATTAGE	COLOR / TEMPERATURE	INITIAL LAMP LUMENS	LIGHT LOSS FACTOR (LLF)	IES FILE	FIXTURE CATALOGUE NO.	POLE MANUFACTURER	POLE DESCRIPTION	POLE LENGTH	POLE CATALOGUE NO.
●	A	10	WESTGATE LIGHTING	GPC SERIES	DECORATIVE POST TOP LUMINAIRE COLOR – BLACK	13'–6"	LED	TYPE 5*	100W	3000K	9,534	0.90	GPC–60–100W–MCTP.ies	GPC–60–100W–VOLTS–5400LM–3000L*	TECHLIGHT	ROUND STRAIGHT STEEL	12'–0"	RSP–12–3–11–BK–T238
◆	B	72	CRAFTMADE	COMPOSITE ZA2404–BZ	DECORATIVE WALL MOUNTED LUMINAIRE COLOR –BROZEN	7'–0"	**						LEDBULB_9W_A60_E27_830_FR–ies **	ZA2404–BZ	–			
■	C	72	ROYAL PACIFIC	8122H	RECESSED CANOPY LIGHT FIXTURE COLOR – WHITE	10'–0"	LED	TYPE 5	14W	3000K	1,156	0.90	8122H–14–30.ies	8122H–14–30–8653WH	–			

NOTES:
1. REFER TO ELECTRICAL DRAWINGS FOR SITE LIGHTING VOLTAGES AND ELECTRICAL LAYOUTS.
2. CONTRACTOR TO CONFIRM CONTROLS SYSTEM REQUIRED BY THE OWNER AND MEP PER CODE. BID PRICING SHALL INCLUDE CONTROL SYSTEM.
3. (*) FIXTURE TYPE A TO BE EQUIPPED WITH INTERNAL GLARE SHIELDS. COORDINATION WITH FIXTURE MANUFACTURER IS ONGOING; INFORMATION TO BE PROVIDED IN FUTURE SUBMISSION.
4. (**) MANUFACTURER DOES NOT PROVIDE LIGHT SOURCE FOR FIXTURE TYPE B. STANDARD 60W LED BULB AT 3000K TO BE USED WITH FIXTURE HOUSING. STANDARD 60W LIGHT BULB IS REFLECTED IN THE CALCULATIONS ON THIS PLAN, BUT WILL NEED TO BE ORDERED SEPARATE FROM FIXTURE HOUSING.





Date	Description	No.

Revisions

LANGAN

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology, D.P.C.

247 Freshwater Way, Suite 532
Milwaukee, WI 53204

T: 973.560.4580 www.langan.com

Project

THE CARILLON AT GERMANTOWN

GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title

LIGHTING PLAN

Project No.	Drawing No.
543001101	LL101
Date: 10/13/2025	
Drawn By: SD	
Checked By: MS	

LANGAN

Project No. 543001101

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LIGHTING NOTES:

GENERAL

1. POINT–BY–POINT CALCULATIONS PROVIDED WITHIN HAVE BEEN PREPARED IN ACCORDANCE TO IESNA STANDARDS AND IN CONSIDERATION OF THE VARIABLES WITHIN THESE NOTES AND SITE LIGHTING SCHEDULE. THE VALUES SHOWN ON THE PLANS ARE NOT AN INDICATION OF THE INITIAL LIGHT INTENSITIES OF THE LAMPS. THESE VALUES ARE AN APPROXIMATION OF THE MAINTAINED INTENSITIES DELIVERED TO THE GROUND PLANE USING INDUSTRY STANDARD LIGHT LOSS FACTORS (LLF) WHICH COVER LAMP DEGRADATION AND NATURAL BUILDUP/ DIRT DEGRADATION ON THE FIXTURE LENS. THE LIGHTING PLAN IS DESIGNED WITH AN INDUSTRY STANDARD LLF IN ACCORDANCE WITH GUIDANCE AS PROVIDED BY IESNA. MINOR VARIATIONS IN TOPOGRAPHY, PHYSICAL OBSTRUCTIONS, AMBIENT OR ADJACENT LIGHT SOURCES AND/OR OTHER POTENTIAL IMPACTS HAVE NOT BEEN INCLUDED IN THESE CALCULATIONS. THEREFORE, AS–BUILT LIGHT INTENSITIES MAY VARY, IN EITHER DIRECTION, FROM WHAT IS EXPLICITLY PORTRAYED WITHIN THESE DRAWINGS.NO GUARANTEE OF LIGHT LEVELS IS EXPRESSED OR IMPLIED BY THE POINT BY POINT CALCULATIONS SHOWN ON THESE PLANS.
2. LIGHT LEVEL POINT SPACING IS 15 FT. LEFT TO RIGHT AND 15 FT TOP TO BOTTOM. POINT BY POINT CALCULATIONS ARE BASED ON THE LIGHT LOSS FACTOR AS STATED IN THE LIGHTING SCHEDULE.

COMPLIANCE

3. ALL SITE LIGHTING RELATED WORK AND MATERIALS SHALL COMPLY WITH CITY, COUNTY, AND OTHER APPLICABLE GOVERNING AUTHORITY REQUIREMENTS.
4. LIGHTING LAYOUT COMPLIES WITH THE ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA) SAFETY STANDARDS FOR LIGHT LEVELS.

COORDINATION

5. CONTRACTOR TO COORDINATE POWER SOURCE WITH LIGHT FIXTURES TO ENSURE ALL SITE LIGHTING IS OPERATING EFFECTIVELY, EFFICIENTLY AND SAFELY.
6. REFER TO ELECTRIFICATION PLAN FOR PROVIDING ADEQUATE POWER FOR SITE LIGHTING.
7. CONTRACTOR TO COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
8. INSTALLATION OF ALL LIGHTING FIXTURES, POLES, FOOTINGS, AND FEEDER CABLE TO BE COORDINATED WITH ALL SITE WORK TRADES TO AVOID CONFLICT WITH FINISHED AND PROPOSED WORK.
9. CONTRACTOR TO COORDINATE INSTALLATION OF UNDERGROUND FEEDER CABLE FOR EXTERIOR LIGHTING WITH EXISTING AND PROPOSED UTILITIES, SITE DRAINAGE SYSTEMS, AND PAVING. CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER'S REPRESENTATIVE SHOULD ANY UTILITIES, NOT SHOWN ON THE PLANS, BE FOUND DURING EXCAVATIONS.

POLES AND FOOTINGS

10. PROVIDE A CONCRETE BASE FOR EACH LIGHT POLE AT THE LOCATIONS INDICATED ON THE CONSTRUCTION DRAWINGS AND/OR IN ACCORDANCE WITH PROJECT PLANS AND SPECIFICATIONS RELATING DIRECTLY TO CAST–IN–PLACE CONCRETE. THE USE OF ALTERNATE LIGHTING FOUNDATIONS, SUCH AS PRECAST, MAY CHANGE THE SIZING AND REINFORCEMENT REQUIREMENTS FROM THOSE SHOWN ON THESE PLANS. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO ORDERING ANY SUBSTITUTED PRODUCTS.
11. CONTRACTOR SHALL EXAMINE AND VERIFY THAT SOIL CONDITIONS ARE SUITABLE TO SUPPORT LOADS EXERTED UPON THE FOUNDATIONS DURING EXCAVATION. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY UNSATISFACTORY CONDITIONS.
12. POLE FOUNDATIONS SHALL NOT BE POURED IF FREE STANDING WATER IS PRESENT IN EXCAVATED AREA.
13. ALL POLES HIGHER THAN 25 FT. SHALL BE EQUIPPED WITH FACTORY INSTALLED VIBRATION DAMPENERS.

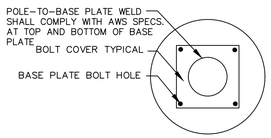
WALL MOUNTED FIXTURES

14. CONTRACTOR TO COORDINATE INSTALLATION OF ALL THE WALL MOUNTED FIXTURES AND ELECTRICAL CONNECTIONS TO SITE STRUCTURE(S) WITH BUILDING MEP, ARCHITECT, AND/OR OWNER.
15. INSTALLATION AND ELECTRICAL CONNECTIONS FOR WALL MOUNTED FIXTURES TO BE COORDINATED WITH ARCHITECTURAL, STRUCTURAL, UTILITY AND SITE PLANS AND TO BE IN ACCORDANCE WITH ALL APPLICABLE CODES.

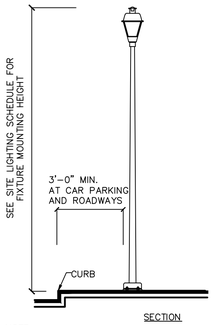
ADJUSTMENT AND INSPECTION

16. CONTRACTOR TO OPERATE EACH LUMINAIRE AFTER INSTALLATION AND CONNECTION. INSPECT FOR IMPROPER CONNECTIONS AND OPERATION.
17. CONTRACTOR TO AIM AND ADJUST ALL LUMINAIRES TO PROVIDE ILLUMINATION LEVELS AND DISTRIBUTION AS INDICATED ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE LANDSCAPE ARCHITECT AND/OR OWNER.
18. CONTRACTOR TO CONFIRM THAT LIGHT FIXTURES, TILT ANGLE AND AIMING MATCH SPECIFICATIONS ON THE PLANS.

LIGHT FIXTURE AND POLE



PLAN

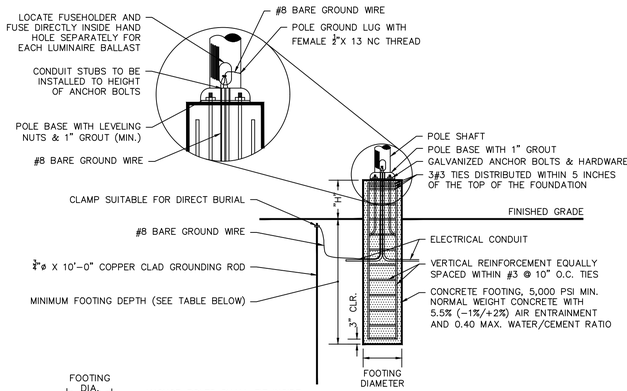


SECTION

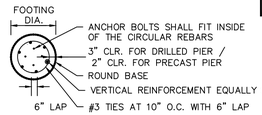
NOTE:

CURB LOCATION IS SHOWN FOR SCHEMATIC PURPOSE. LIGHT POLES SHALL BE LOCATED PER THE LIGHTING PLANS.

LIGHT POLE BASE



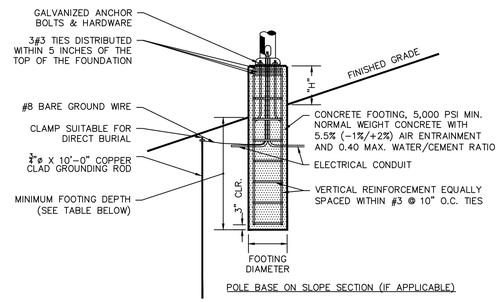
POLE BASE SECTION



PLAN

NOTES:

EXPOSED HEIGHT OF POLE BASE (H) SHALL BE MEASURED ON THE UPHILL SIDE OF A SLOPE. FOOTING DEPTH (D) SHALL BE MEASURED ON THE DOWNHILL SIDE OF A SLOPE. AN ADDITIONAL VARIABLE HEIGHT (V) WILL BE BASED ON THE SLOPE ON WHICH THE POLE BASE IS LOCATED. CONTRACTOR TO CALCULATE FULL LENGTH OF EACH POLE BASE REQUIRED ON SLOPES (H+D+V = TOTAL BASE LENGTH)



POLE BASE ON SLOPE SECTION (IF APPLICABLE)

MOUNTING HEIGHT	FOOTING DEPTH	FOOTING DIAMETER	EXPOSED HEIGHT "H"	VERTICAL REINFORCEMENT
13'–6"	4'–6"	2'–0"	AT GRADE	6#5 BARS

NOTES:

1. SHAFT CAP, ARMS, BASE FLANGE, ANCHOR BOLTS, LEVELING NUTS, CONNECTION HARDWARE, BOLT COVERS, HANDHOLE COVER, AND BOLT CIRCLE TEMPLATE SHALL BE FURNISHED BY POLE MANUFACTURER.
2. EACH STANDARD TO BE PROTECTED AGAINST LIGHTNING WITH AN INTERCONNECTED GROUND ROD. THIS ROD SHALL BE BONDED PER SECTION NUMBER 250–86, N.E.C.
3. CONCRETE WORK SHALL COMPLY WITH THE REQUIREMENT OF ACI 318. CAST–IN–PLACE SHALL HAVE UNCONFINED COMPRESSIVE STRENGTH OF AT LEAST 5,000 PSI AT 28–DAYS. DEFORMED REINFORCEMENT BARS SHALL CONFORM TO ASTM A615, GRADE 60.
4. CONTRACTOR TO ENSURE CONCRETE POLE BASES ARE POURED / PLACED ABSOLUTELY VERTICAL & LEVEL.
5. IF POLE BASE IS CAST–IN–PLACE, POLE BASE SHALL BE ONE CONTINUOUS POUR. EXPOSED PORTION OF BASE SHALL BE HAND–RUBBED SMOOTH.
6. CONTRACTOR TO COMPACT SUBGRADE AROUND POLE BASE PER EARTHWORK SPECIFICATIONS / GEOTECH REPORT.
7. CONTRACTOR TO CONFIRM GROUNDING DESIGN WITH MEP.

THE INFORMATION ILLUSTRATED IN THE LIGHT POLE FOUNDATION DETAIL HAS BEEN PROVIDED FOR GENERAL REFERENCE AND PRELIMINARY COST ESTIMATE PURPOSES. LIGHT POLE FOUNDATIONS SHOULD BE DESIGNED AND DETAILED BY A LICENSED STRUCTURAL ENGINEER BASED ON EXISTING SOIL CONDITIONS, LOCAL DESIGN STANDARDS AND MANUFACTURERS RECOMMENDATIONS.

Date	Description	No.
Revisions		

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology, D.P.C.
247 Freshwater Way, Suite 532
Milwaukee, WI 53204
T: 973.560.4580
www.langan.com

Project

THE CARILLON AT GERMANTOWN

GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title

LIGHTING NOTES & DETAILS

Project No.	Drawing No.
543001101	LL501
Date: 10/13/2025	
Drawn By: SD	
Checked By: MS	

LANGAN
Project No. 543001101

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GARAGE LIGHT FIXTURE

CRAFTMADE™

ZA2404-BZ-C

Resilience 1 Light Small Outdoor Wall Lantern (Clear Lens)

Bronze

UPC#647881259525

Additional Finishes

ZA2404-BZ
ZA2404-TB
ZA2404-TB-C
ZA2404-TW

Measurements	
Length (in):	N/A
Width (in):	5
Height (in):	11.38
Extension (in):	6.75
Downrod/Chain Length (in):	N/A
Leadwire (in):	6
Product Weight (lbs):	1.23
Carton Length (in):	7.5
Carton Width (in):	6.25
Carton Height (in):	14
Carton Cube:	0.38
Carton Weight (lbs):	1.7
Oversize:	No

Fixture	
Mounting Method:	Wall Mount
Mounting Location:	Wet
Body Material:	Polymer
Up/Down Mount:	No

Certifications	
Safety Rating:	cULus
Title 20	N/A
Title 24 (JA8):	N/A
ADA:	No

Electrical/Lighting	
Light Source Type:	N/A
Number of Bulbs:	1
Bulbs Included:	No
Total Wattage:	N/A
Socket Type:	Medium (E26)
Dimmable	N/A
Delivered Lumens:	N/A
CRI:	N/A
Color Temp:	N/A
Shade Finish/Material:	Clear Acrylic
Shade Width (in):	4.09
Shade Height (in):	7.56

Warranty

5 Year Limited Warranty

Made in the USA

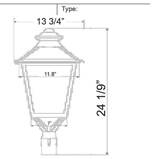
Craftmade.com | 1-800-486-4892

PEDESTRIAN LIGHT FIXTURE

GPC SERIES Outdoor Lighting

GPC-60-100W-MCTP
GARDEN POST COACH LIGHT

KTP MS SECTION



24 1/9"(H) x 13 3/4"(W)

Ideal for Residential Landscaping, Commercial Landscaping, Public Parks and Gardens, Pathway Lighting, Architectural Highlights, Hospitality and Outdoor Dining And Residential Communities.

Features

- Housing: Aluminum
- Finish: Black powder coated
- 70,000 Hours Rated Life
- 7-Year Warranty
- Multi CCT: Selectable CCTs Switch Located Under the Top Hat
- Open Sides & Bottom

Technical Specification

Electrical:

- Voltage: 120-277V AC/50–60 Hz
- Wattage: 60W/80W/100W Selectable
- Power factor: >0.9
- Efficacy: 90 LP
- THD: ≤20%

Lighting:

- Multi CCT: Selectable CCTs Switch Located Under the Top Hat
- Total Lumens: 5400LM/7200LM/9000LM
- Color Temperature: 3000K/4000K/5000K
- Color Rendering Index: ≥ 70
- 70,000 Hours Rated Life

Mechanical:

- Die-cast Aluminum Housing with Powder Coat Finish
- Open Sides & Bottom
- Operating Temperature: -40°F to 104°F
- IP Rating: IP65
- Suitable for Wet Locations
- 7-Year Warranty

Applications:

- Ideal for Residential Landscaping, Commercial Landscaping, Public Parks and Gardens, Pathway Lighting, Architectural Highlights, Hospitality and Outdoor Dining And Residential Communities.

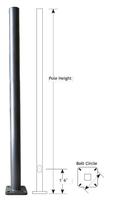
Phone: (877) 805-2252 | Fax: (877) 805-2252
www.westgatemfg.com

Z2022081104

Customer Name:
Project Name:
Note:
Type:

LIGHT POLE

RSP ROUND STRAIGHT POLE



Pole

The pole shaft is fabricated from hot rolled carbon steel having a minimum yield of 55,000 PSI and conforms to ASTM A500 grade C requirements. The shaft construction is a single piece of formed steel welded longitudinally. The hand hole is located 1' 6" above the pole base. A ground lug is provided standard.

Anchor Base

The anchor base is fabricated from a structural quality hot rolled carbon steel plate that has a minimum yield strength of 36,000 PSI. The anchor base telescopes the pole shaft and has a circumferential weld on the top and bottom.

Base Cover

A full base cover is provided which encapsulates the base plate and anchor bolts to provide a clean transition from pier to pole.

Finish

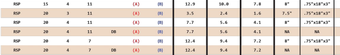
The pole is finished with a Super Durable Powdercoat Paint. Multiple colors available. Galvanizing and T-Guard treatments available upon request. Additional warranty extensions available with these treatments.

Round Straight Pole	Pole Height	Shaft Size	Wall Gauge	Direct Burial	Finish	Mounting	Max EPA (1.3 MPH Gust) 90 MPH	100 MPH	110 MPH	Bolt Circle	Anchor Bolt Size	Shipping Weight
RSP	10	3	11		(A)	(B)	11.3	9.8	7.2	7.5"	.75"x18"x3"	50 lbs
RSP	10	4	11		(A)	(B)	25.6	17.0	13.8	8"	.75"x18"x3"	69 lbs
RSP	15	3	11		(A)	(B)	6.5	4.9	3.7	7.5"	.75"x18"x3"	55 lbs
RSP	15	4	11		(A)	(B)	12.9	10.0	7.4	8"	.75"x18"x3"	96 lbs
RSP	20	3	11		(A)	(B)	5.5	2.4	1.6	7.5"	.75"x18"x3"	73 lbs
RSP	20	4	11		(A)	(B)	7.7	5.6	4.1	8"	.75"x18"x3"	135 lbs
RSP	20	4	11	DB	(A)	(B)	7.7	5.6	4.1	NA	NA	176 lbs
RSP	20	4	7		(A)	(B)	12.4	9.4	7.2	8"	.75"x18"x3"	157 lbs
RSP	20	4	7	DB	(A)	(B)	12.4	9.4	7.2	NA	NA	184 lbs
RSP	20	5	11		(A)	(B)	13.3	10.0	7.6	11"	1"x36"x4"	307 lbs
RSP	20	5	11	DB	(A)	(B)	13.3	10.0	7.6	NA	NA	328 lbs
RSP	20	5	7		(A)	(B)	21.8	16.3	12.8	11"	1"x36"x4"	259 lbs
RSP	20	5	7	DB	(A)	(B)	21.8	16.3	12.8	NA	NA	339 lbs
RSP	24	4	11		(A)	(B)	6.4	2.8	1.6	8"	.75"x36"x3"	163 lbs
RSP	24	4	7		(A)	(B)	6.8	5.3	4.0	11"	1"x36"x4"	183 lbs
RSP	24	5	11		(A)	(B)	8.3	3.9	11"	1"x36"x4"	343 lbs
RSP	24	5	7		(A)	(B)	15.3	11.5	8.6	11"	1"x36"x4"	331 lbs
RSP	30	5	11		(A)	(B)	4.7	1.2	11"	1"x36"x4"	378 lbs	
RSP	30	5	7		(A)	(B)	9.5	6.6	4.4	11"	1"x36"x4"	383 lbs
RSP	35	5	7		(A)	(B)	5.7	3.4	1.6	11"	1"x36"x4"	436 lbs

Option Codes

(A) Finish
BK - Black
BZ - Bronze
GR - OD Green
SI - Silver
UGI - UI Green
GGY - Galvanized
GUM - Galvanized & Painted
(must specify paint color - example: GUM-BRZ)
TGI - Tenon Internal Coating
(must specify paint color - example: TG-BRZ)
SP - Special

(B) Mounting
T238 - 2 3/8" OD tenon (standard)
T278 - 2 7/8" OD tenon
T312 - 3 1/2" OD tenon
DM - Drill 1 Side
DM1 - Drill One Side
DM2RD - Drill 2 Sides at 90°
DM2SID - Drill 2 Sides at 180°
DM3RD - Drill 3 Sides at 90°
DM3120 - Drill 3 Sides at 120°
DM4RD - Drill 4 Sides at 90°



"Anchor Bolts and Templates can be pre-shipped at the customers' expense upon request.

All specifications are subject to change without notice. Please refer to www.lochlightusa.com for the most current information.

223

POLES

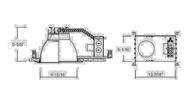
CANOPY LIGHT FIXTURE

8122H

120V-277V Universal Voltage

6" LED Frame-In

Catalog #:		Type
Project:		
Prepared by:		Date



8122H - 6" LED Frame-In Housing & Trims

DESCRIPTION

An ideal solution for efficiency, safety, and flexible design aesthetics. The 8122H housing and available trims offer balance, power, and efficiency to bring you the options needed to complete a variety of high-end residential, multi-family, or commercial projects with a reliable and modern LED down light solution.

DESIGN FEATURES

Electrical

- 120V-277V Universal Voltage
- Housing Output Options:
  - -14W | 1150 lms (delivered)
  - -23W | 1950 lms (delivered)
  - -30W | 2720 lms (delivered)
  - -45W | 3640 lms (delivered)
- 3000K | 3500K | 4000K
- 80 CRI | 50,000 hour projected life
- Dimmable TRIAC, ELV, and 0-10V DC dimming

Housing

- Sturdy aluminum construction
- Suitable for use in new construction applications
- Junction Box listed for through branch circuit wiring with (5) 3/4" knockouts and easy opening access plate
- Heavy gauge captive bar hangers included for ceiling joist or suspended "T" construction
- Bar hangers are adjustable to 24" with 4 captive nails included

Available Trims

- 8651HZ - Haze cone reflector
- 8652WH - Haze reflector with White Baffle
- 8653WH - Haze reflector with White Baffle with Lens; Wet Listed

Emergency (-EM) Option

- RP Lighting 4782EM emergency battery factory installed
- Emergency Battery Output = 9W
- Emergency Lumen Output = 9W x Fixture L/W

Certifications

- cCSAus Listed for damp location (wet trim available)
- Energy Star Listed
- LED Lamp: 5 Year Limited Warranty
- Other Components: 1 Year Limited Warranty

ORDERING GUIDE *Example: 8122H-30-40-EM*

Model #	Wattage	CCT	Emergency
8122H			
8122H	-14 : 14W -23 : 23W -30 : 30W -45 : 45W	-30 : 3000K -35 : 3500K -40 : 4000K	blank : no EM option -EM : adds Battery Pack

TEL: 800.937.6925 | Fax: 800.207.9509 | www.rplighting.com

7/2/24 R3

RP LIGHTING + FANS

Certified Survey Map_____

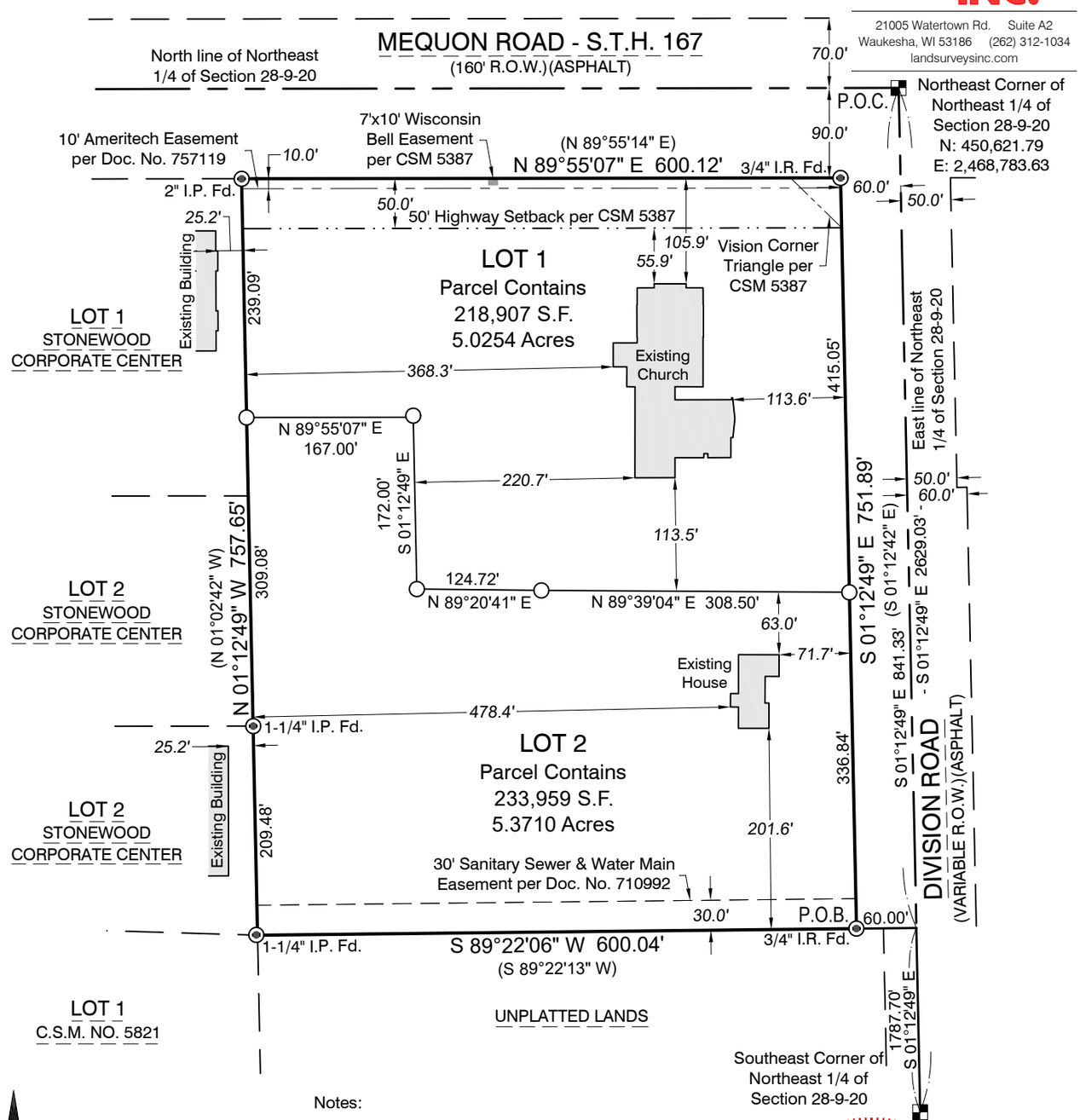
All of Certified Survey Map No. 5387 being in the Northeast 1/4 of the Northeast 1/4 of Section 28, Township 9 North, Range 20 East, in the Village of Germantown, Washington County, State of Wisconsin.

Owner:
Faith Lutheran Church
W172N11183 Division Road
Germantown, WI 53022
262-251-8250

Property Address:
W172N11183 Division Road
Germantown, WI 53022

Surveyor:
Phillip J. Landry
21005 Watertown Road
Suite A2
Waukesha, WI 53186

LAND SURVEYS INC.
21005 Watertown Rd. Suite A2
Waukesha, WI 53186 (262) 312-1034
landsurveysinc.com



Notes:

1. Outside diameter measured on all monuments. Set monuments are 1.50Lbs/Lineal Foot.
2. ( ) Indicates recorded as bearings and dimensions.
3. Field work completed on 09-05-25.
4. According to the flood insurance rate map of the Village of Germantown, Community Panel No. 5504720376D, effective date of November 20, 2013, this site falls in Zone X (Area of Minimal Flood Hazard).

LEGEND

- Monument Found as Noted
- 3/4"X18" Iron Rod Set
- Mag Nail Set
- Brass Disc in Conc.

Graphic Scale 1" = 150'

0' 150' 300'

BEARINGS ARE REFERENCED TO WISCONSIN STATE PLANE COORDINATE SYSTEM SOUTH ZONE NAD 83/2011 IN WHICH THE EAST LINE OF THE NE 1/4 OF SECTION 28, T 9 N, R 20 E, BEARS S 01°14'49" E.

WISCONSIN
PHILLIP J. LANDRY
S-3176
BROOKFIELD
WI
LAND SURVEYOR

Revised 01-09-26
Revised 12-16-25
Revised 12-01-25
October 10, 2025

This Instrument was drafted by Phillip J. Landry, a Professional Land Surveyor, S-3176

Job# 25514 - BS Sheet 1 of 4

Certified Survey Map_____

All of Certified Survey Map No. 5387 being in the Northeast 1/4 of the Northeast 1/4 of Section 28, Township 9 North, Range 20 East, in the Village of Germantown, Washington County, State of Wisconsin.

SURVEYOR'S CERTIFICATE:

I, Phillip J. Landry, Professional Land Surveyor, do hereby certify:

That I have surveyed, divided and mapped all of Certified Survey Map No. 5387 being in the Northeast 1/4 of the Northeast 1/4 of Section 28, Township 9 North, Range 20 East, in the Village of Germantown, Washington County, State of Wisconsin, bounded and described as follows:

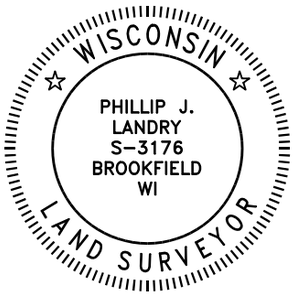
Commencing at the Northeast Corner of the Northeast 1/4 Section; thence South 01°12'49" East along the East line of said Section 841.33 feet; thence South 89°22'06" West 60.00 feet to a point on the South line of said CSM No. 5387 and the Point of Beginning of the lands described hereinafter; thence continuing South 89°22'06" West along said South line 600.04 feet to a point on the West line of said CSM; thence North 01°12'49" West along said West line 757.65 feet to a point on the North line of said CSM and the South line of Mequon Road; thence North 89°55'07" East along said North line 600.12 feet to a point on the East line of said CSM and West line of Division Road; thence South 01°12'49" East along said East line 751.89 feet to the Point of Beginning of this description.

The gross area of said parcel contains 452,866 square feet or 10.3964 acres of land more or less.

That I have made such survey, land division and map by the direction of Faith Lutheran Church, owner's of said land. That such map is a correct representation of all exterior boundaries of land surveyed and land division made thereof. That I have fully complied with the provisions of chapter 236.34 of the Wisconsin Statutes and Chapter 18 of the Village of Germantown Subdivision Control Ordinance in surveying, dividing and mapping same.

Dated this 10th day of October, 2025.

Phillip J. Landry, PLS
Professional Land Surveyor S-3176



LAND SURVEYS INC.
21005 Watertown Rd. Suite A2
Waukesha, WI 53186 (262) 312-1034
landsurveysinc.com

Revised 01-09-26
Revised 12-16-25
Revised 12-01-25
October 10, 2025

This Instrument was drafted by Phillip J. Landry, a Professional Land Surveyor, S-3176

Job# 25514 - BS Sheet 2 of 4

Certified Survey Map_____

All of Certified Survey Map No. 5387 being in the Northeast 1/4 of the Northeast 1/4 of Section 28, Township 9 North, Range 20 East, in the Village of Germantown, Washington County, State of Wisconsin.

CORPORATE OWNER'S CERTIFICATE:

Faith Lutheran Church, a corporation duly organized and existing under and by virtue of the laws of the State of Wisconsin, as owner, certifies that said corporation caused the land described on this map to be surveyed, divided, mapped, and dedicated as represented on this Certified survey Map. As Owners, we hereby dedicate that part of Mequon Road - S.T.H. 167 and that part of Division Road to the Village of Germantown for public road purposes as represented on Sheet 1 of 4 of this Certified Survey Map.

Faith Lutheran Church, does further certify that this Certified Survey Map is mapped as represented on this map in accordance with the provisions of Chapter 236 of the Wisconsin State Statutes and requirements and ordinances of the Village of Germantown, this _____ day of _____, 20_____.

_____

_____

In the presence of:
Faith Lutheran Church

_____

_____

STATE OF WISCONSIN)
) SS
County of Washington)

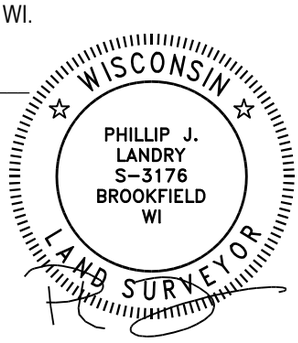
Personally came before me this _____ day of _____, 2025, _____ and _____ of the above named corporation, to me known as the person(s) who executed the foregoing instrument, and to me known to be the _____ and _____ of the corporation, and acknowledged that {they, he, or she} executed the foregoing instrument and acknowledged the same.

_____

Print Name_____

Notary Public, _____ County, WI.

My Commission Expires: _____



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Revised 01-09-26
Revised 12-16-25
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October 10, 2025

This Instrument was drafted by Phillip J. Landry, a Professional Land Surveyor, S-3176

Job# 25514 - BS Sheet 3 of 4

Certified Survey Map_____

All of Certified Survey Map No. 5387 being in the Northeast 1/4 of the Northeast 1/4 of Section 28, Township 9 North, Range 20 East, in the Village of Germantown, Washington County, State of Wisconsin.

VILLAGE OF GERMANTOWN BOARD APPROVAL:

This Certified Survey Map, being a division of Certified Survey Map No. 5387 being in the Northeast 1/4 of the Northeast 1/4 of Section 28, Township 9 North, Range 20 East, in the Village of Germantown, Washing County, Wisconsin, having been approved by the Planning Commission being the same, is hereby approved and the dedicated of that part of Mequon Road - S.T.H. 167 and that part of Division Road for public road purposes as shown on Sheet 1 of 4 is hereby accepted by the Village Board of Trustees of the Village of Germantown on _____ day of _____, 20_____.

Signed: _____ _____
Robert A. Soderberg, Village President Date

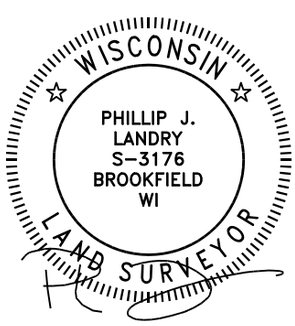
Signed: _____ _____
Donna Ott, Village Clerk Date

VILLAGE OF GERMANTOWN PLANNING COMMISSION APPROVAL:

This Certified Survey Map is hereby approved by the Planning Commission of the Village of Germantown on this _____ day of _____, 20_____.

Signed: _____ _____
Robert A. Soderberg, Chairman Date

Signed: _____ _____
Deborah J. Remich, Secretary Date



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Revised 01-09-26
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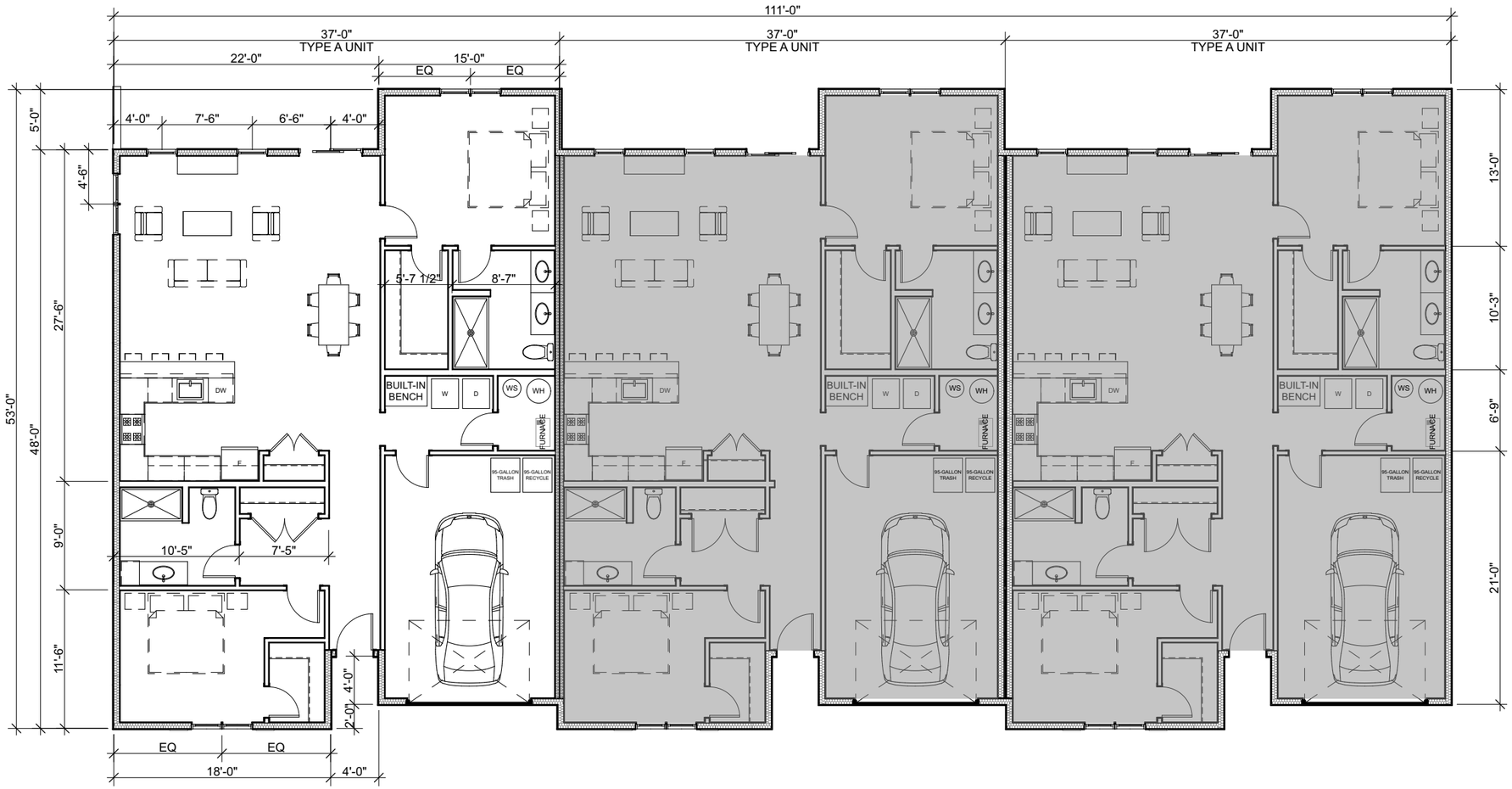
October 10, 2025

This Instrument was drafted by Phillip J. Landry, a Professional Land Surveyor, S-3176

Job# 25514 - BS Sheet 4 of 4



1 SD101

FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

TYPE A UNIT

FIRST FLOOR: 1,387 SF
(GARAGE AND MECH. NOT INCLUDED)

TOTAL:
1,387 SF

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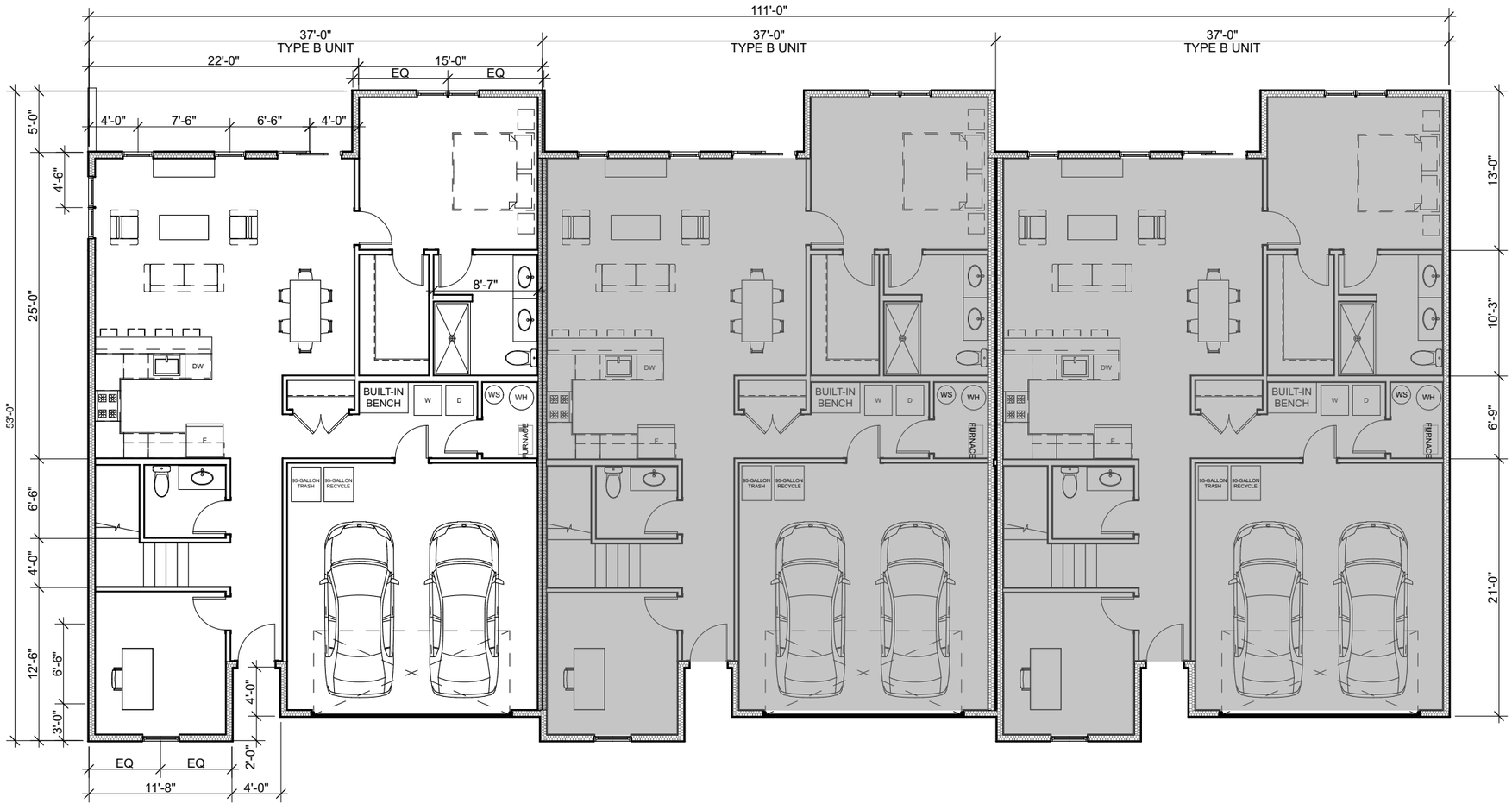
SD102



1 SD102

FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

TYPE B UNIT

FIRST FLOOR: 1,247 SF
(GARAGE AND MECH. NOT INCLUDED)

TOTAL:
1,858 SF

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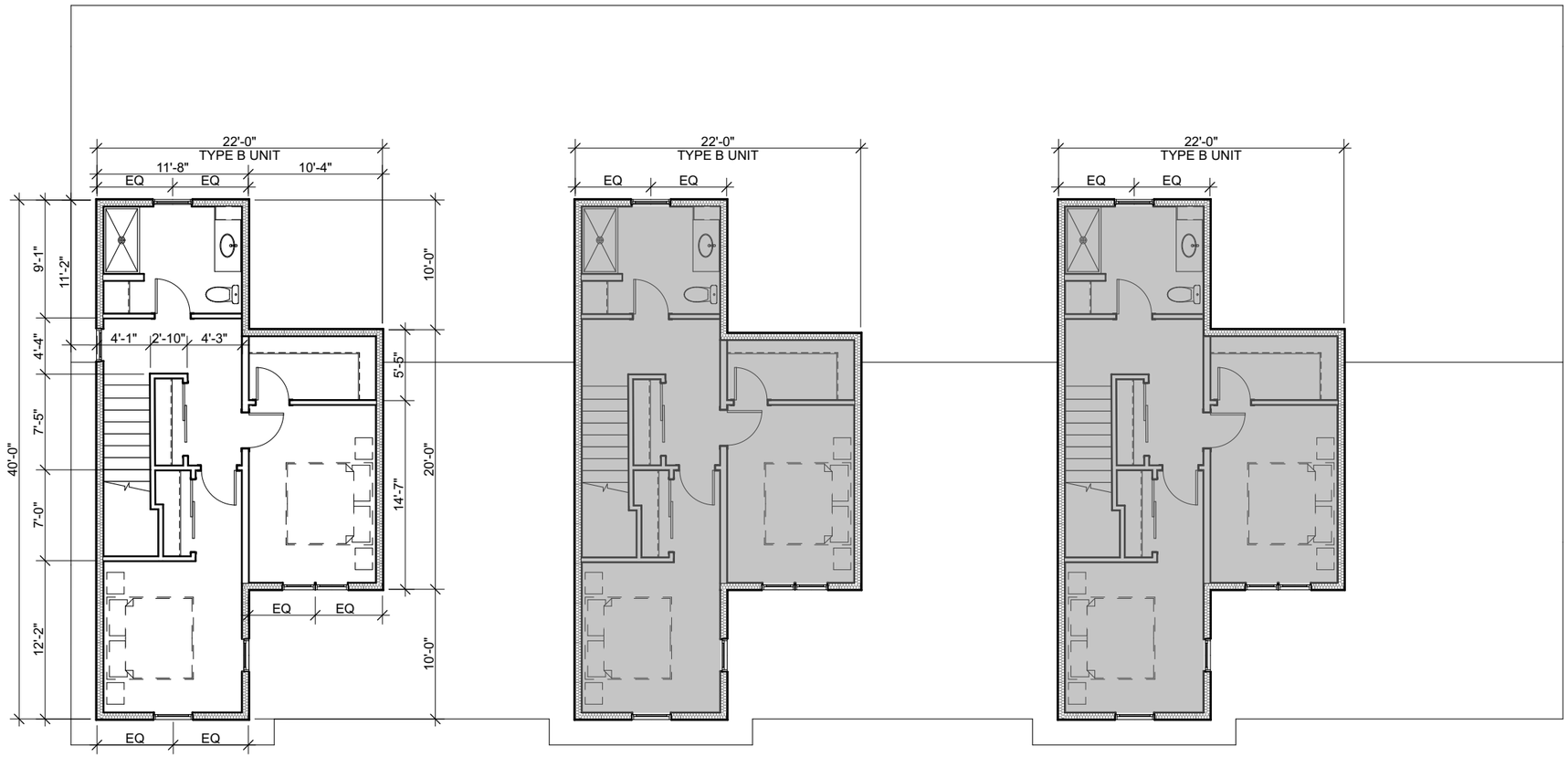
SD103



1 SD103 SECOND FLOOR PLAN

SCALE: 3/32" = 1'-0"

TYPE B UNIT

SECOND FLOOR: 611 SF

TOTAL:
1,858 SF

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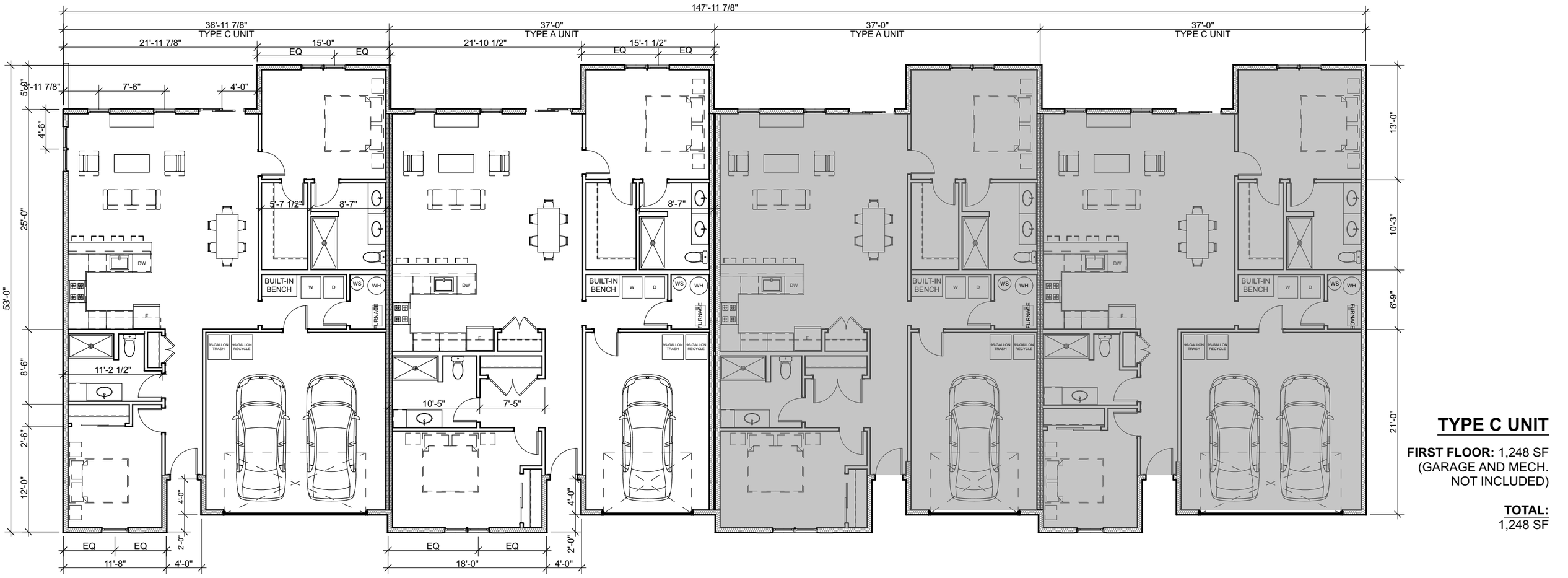

1 SD104 FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

TYPE C UNIT

FIRST FLOOR: 1,248 SF
(GARAGE AND MECH. NOT INCLUDED)

TOTAL:
1,248 SF

TYPE A UNIT

FIRST FLOOR: 1,387 SF
(GARAGE AND MECH. NOT INCLUDED)

TOTAL:
1,387 SF

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JAMES HARDIE BOARD AND BATTEN SIDING
COLOR: NIGHT GRAY

JAMES HARDIE LAP SIDING
COLOR: IRON GRAY

JAMES HARDIE TRIM
COLOR: ARCTIC WHITE

PRESTIGE STONE PRODUCTS - SOUTHERN LIMESTONE
COLOR: VENICE

CLOPAY - CLASSIC STEEL GARAGE DOORS
COLOR: CHARCOAL

OWENS CORNING - TRU DEFINITION DURATION SHINGLES
COLOR: ESTATE GRAY

ROCKRIDGE CAST STONE - WALL CAP
COLOR: IMITATION LIMESTONE

FRONT DOOR AND SHUTTERS
COLOR: SW 7069 - IRON ORE

ROCHESTER CONCRETE PRODUCTS
PREMIER 8 - RETAINING WALL
COLOR: CHARCOAL

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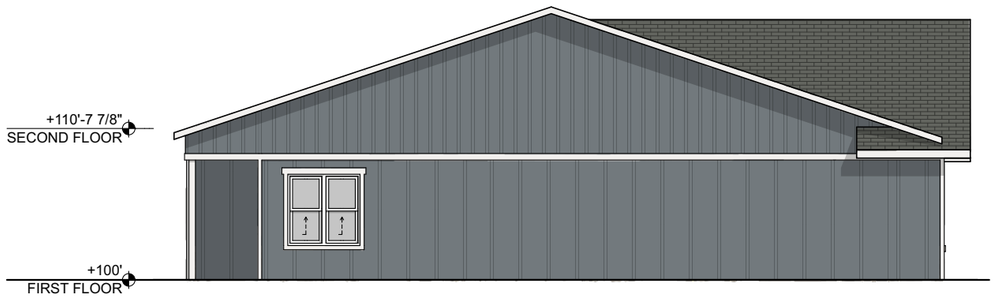
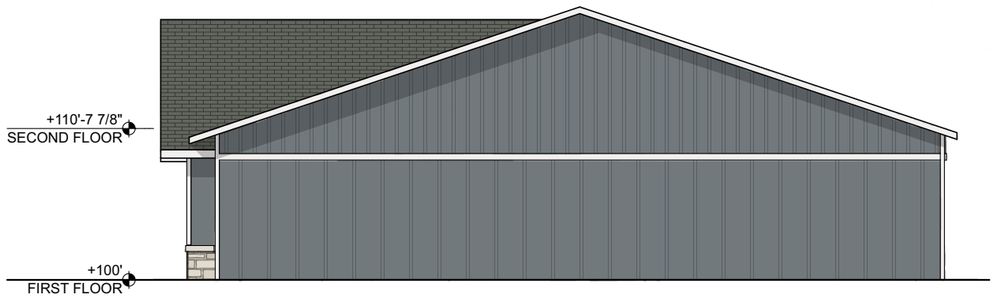
SD101

1 SD106 NORTH ELEVATION
SCALE: 3/32" = 1'-0"

2 SD106 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



3 SD106 WEST ELEVATION
SCALE: 3/32" = 1'-0"



4 SD106 EAST ELEVATION
SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 1

- Owens Corning - TruDefinition Duration Shingles
  Color: **Estate Gray**
- James Hardie Board and Batten Siding
  Color: **Night Gray**
- James Hardie Lap Siding
  Color: **Iron Gray**
- James Hardie Trim
  Color: **Arctic White**
- Clopay - Classic Steel Garage Doors
  Color: **Charcoal**
- Front Door and Shutters
  Color: **SW 7069 - Iron Ore**
- Prestige Stone Products - Southern Limestone
  Color: **Venice**
- Rockridge Cast Stone - Wall Cap
  Color: **Imitation Limestone**
- Vinyl Doors and Windows
  Color: **White**

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1
SD107

NORTH ELEVATION

SCALE: 3/32" = 1'-0"

2
SD107

SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 1

- Owens Corning - TruDefinition Duration Shingles
  Color: **Estate Gray**
- James Hardie Board and Batten Siding
  Color: **Night Gray**
- James Hardie Lap Siding
  Color: **Iron Gray**
- James Hardie Trim
  Color: **Arctic White**
- Clopay - Classic Steel Garage Doors
  Color: **Charcoal**
- Front Door and Shutters
  Color: **SW 7069 - Iron Ore**
- Prestige Stone Products - Southern Limestone
  Color: **Venice**
- Rockridge Cast Stone - Wall Cap
  Color: **Imitation Limestone**
- Vinyl Doors and Windows
  Color: **White**

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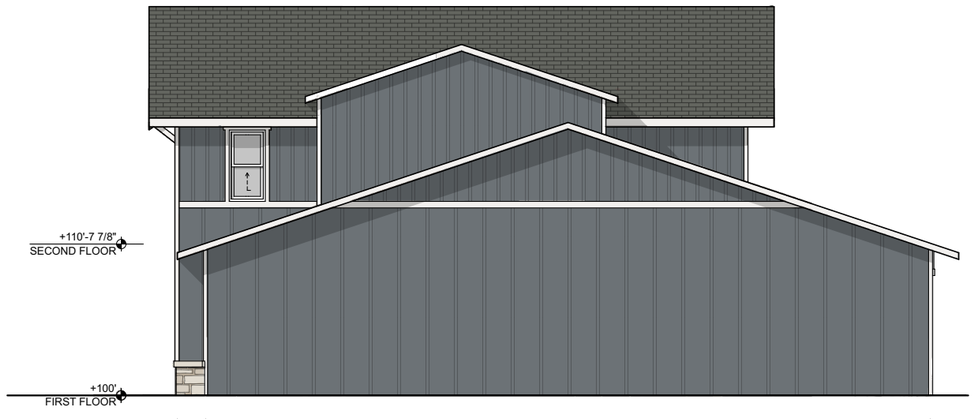
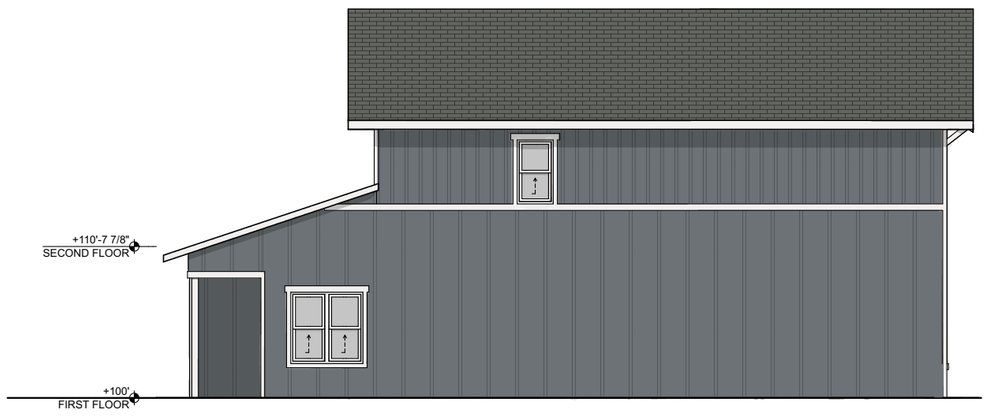


1
SD108

EAST ELEVATION

SCALE: 3/32" = 1'-0"



2
SD108

WEST ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 1

Owens Corning - TruDefinition Duration Shingles
Color: **Estate Gray**

James Hardie Board and Batten Siding
Color: **Night Gray**

James Hardie Lap Siding
Color: **Iron Gray**

James Hardie Trim
Color: **Arctic White**

Clopay - Classic Steel Garage Doors
Color: **Charcoal**

Front Door and Shutters
Color: **SW 7069 - Iron Ore**

Prestige Stone Products - Southern Limestone
Color: **Venice**

Rockridge Cast Stone - Wall Cap
Color: **Imitation Limestone**

Vinyl Doors and Windows
Color: **White**

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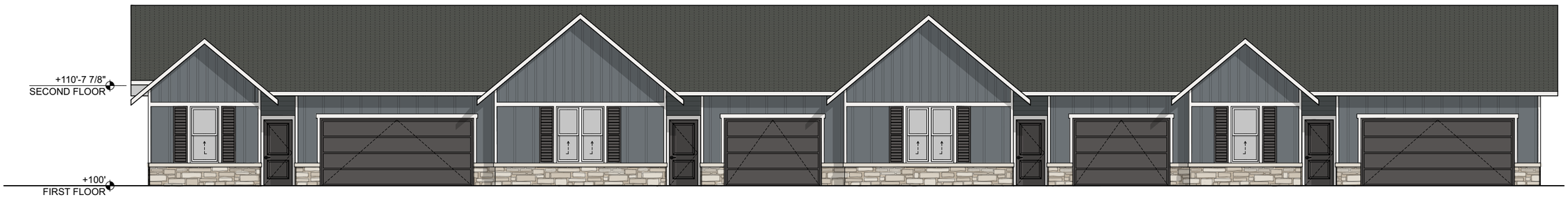


1 SD109

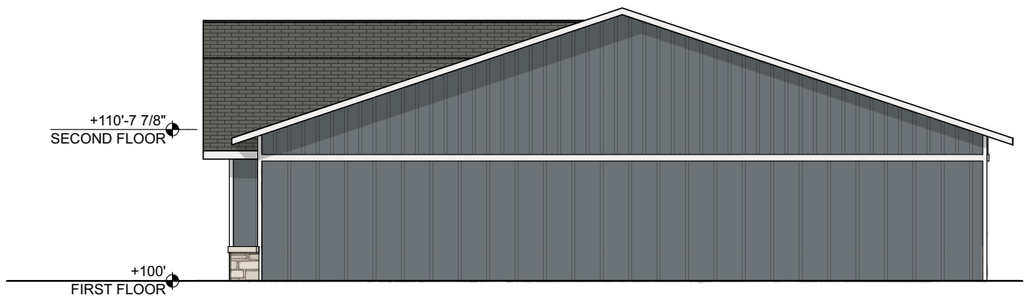
NORTH ELEVATION

SCALE: 3/32" = 1'-0"

2 SD109

SOUTH ELEVATION

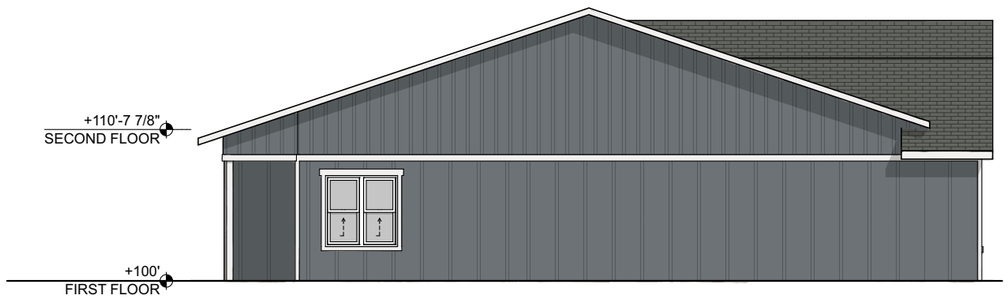
SCALE: 3/32" = 1'-0"



3 SD109

EAST ELEVATION

SCALE: 3/32" = 1'-0"



1 SD109

WEST ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 1

- Owens Corning - TruDefinition Duration Shingles Color: **Estate Gray**
- James Hardie Board and Batten Siding Color: **Night Gray**
- James Hardie Lap Siding Color: **Iron Gray**
- James Hardie Trim Color: **Arctic White**
- Clopay - Classic Steel Garage Doors Color: **Charcoal**
- Front Door and Shutters Color: **SW 7069 - Iron Ore**
- Prestige Stone Products - Southern Limestone Color: **Venice**
- Rockridge Cast Stone - Wall Cap Color: **Imitation Limestone**
- Vinyl Doors and Windows Color: **White**

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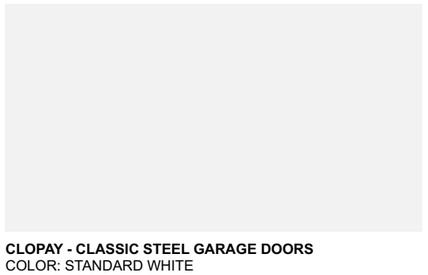
JAMES HARDIE BOARD AND BATTEN SIDING
COLOR: PEARL GRAY

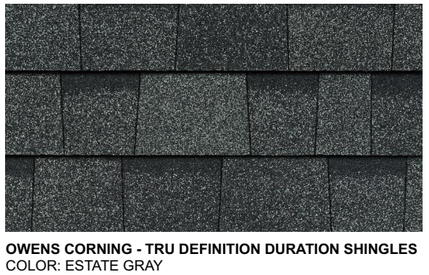
JAMES HARDIE LAP SIDING
COLOR: AGED PEWTER

JAMES HARDIE TRIM
COLOR: ARCTIC WHITE

PRESTIGE STONE PRODUCTS - OLD COUNTY LEDGE
COLOR: BLACK ONYX



CLOPAY - CLASSIC STEEL GARAGE DOORS
COLOR: STANDARD WHITE



OWENS CORNING - TRU DEFINITION DURATION SHINGLES
COLOR: ESTATE GRAY

ROCKRIDGE CAST STONE - WALL CAP
COLOR: LIGHT GRAY

FRONT DOOR AND SHUTTERS
COLOR: SW 9140 - BLUSTERY SKY

ROCHESTER CONCRETE PRODUCTS
PREMIER 8 - RETAINING WALL
COLOR: CHARCOAL

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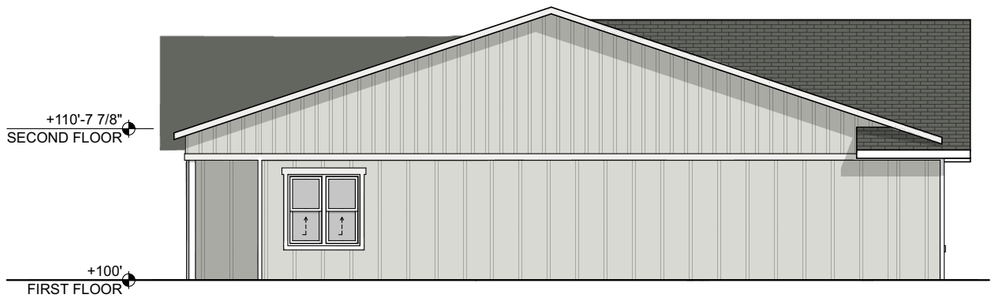
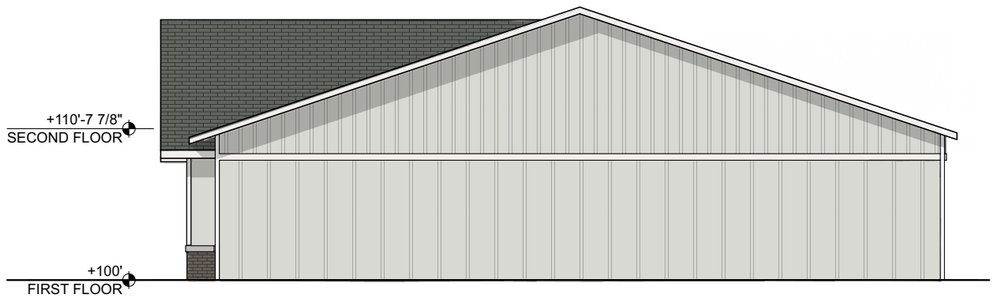
SD106

1 SD111 NORTH ELEVATION
SCALE: 3/32" = 1'-0"

2 SD111 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



3 SD111 WEST ELEVATION
SCALE: 3/32" = 1'-0"



4 SD111 EAST ELEVATION
SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 2

- Owens Corning - TruDefinition Duration Shingles
  Color: **Estate Gray**
- James Hardie Board and Batten Siding
  Color: **Pearl Gray**
- James Hardie Lap Siding
  Color: **Aged Pewter**
- James Hardie Trim
  Color: **Arctic White**
- Clopay - Classic Steel Garage Doors
  Color: **Standard White**
- Front Door and Shutters
  Color: **SW 9140 - Blustery Sky**
- Prestige Stone Products - Old County Ledge
  Color: **Black Onyx**
- Rockridge Cast Stone - Wall Cap
  Color: **Light Gray**
- Vinyl Doors and Windows
  Color: **White**

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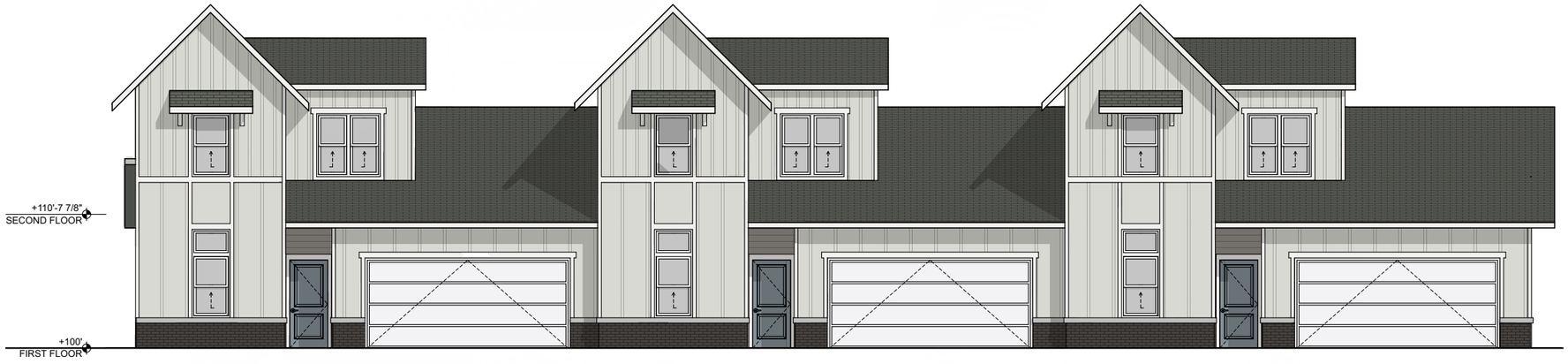
SD107



1
SD112

NORTH ELEVATION

SCALE: 3/32" = 1'-0"

2
SD112

SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 2

- Owens Corning - TruDefinition Duration Shingles
  Color: **Estate Gray**
- James Hardie Board and Batten Siding
  Color: **Pearl Gray**
- James Hardie Lap Siding
  Color: **Aged Pewter**
- James Hardie Trim
  Color: **Arctic White**
- Clopay - Classic Steel Garage Doors
  Color: **Standard White**
- Front Door and Shutters
  Color: **SW 9140 - Blustery Sky**
- Prestige Stone Products - Old County Ledge
  Color: **Black Onyx**
- Rockridge Cast Stone - Wall Cap
  Color: **Light Gray**
- Vinyl Doors and Windows
  Color: **White**

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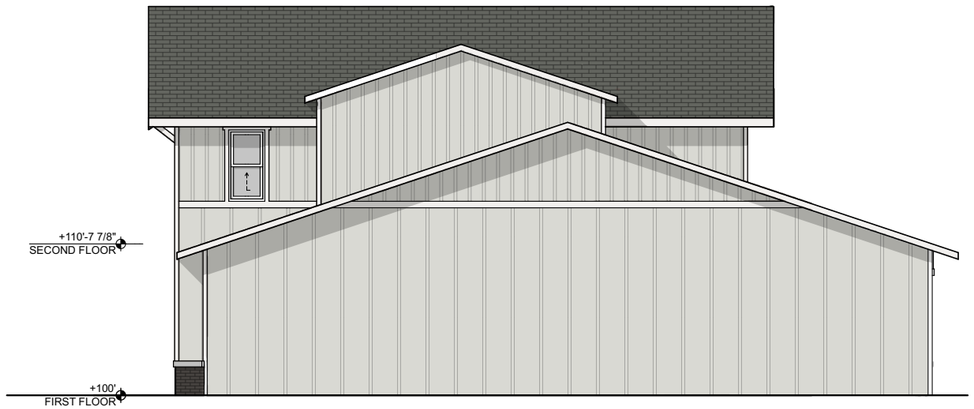
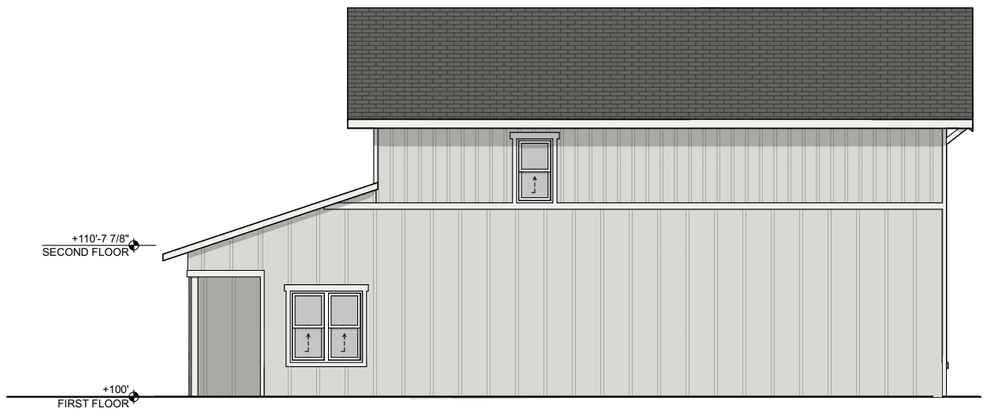


1
SD113

EAST ELEVATION

SCALE: 3/32" = 1'-0"



2
SD113

WEST ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 2

Owens Corning - TruDefinition Duration Shingles
Color: **Estate Gray**

James Hardie Board and Batten Siding
Color: **Pearl Gray**

James Hardie Lap Siding
Color: **Aged Pewter**

James Hardie Trim
Color: **Arctic White**

Clopay - Classic Steel Garage Doors
Color: **Standard White**

Front Door and Shutters
Color: **SW 9140 - Blustery Sky**

Prestige Stone Products - Old County Ledge
Color: **Black Onyx**

Rockridge Cast Stone - Wall Cap
Color: **Light Gray**

Vinyl Doors and Windows
Color: **White**

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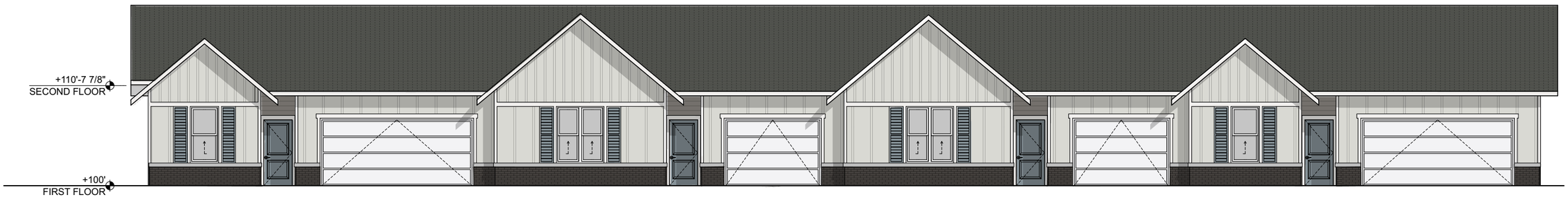
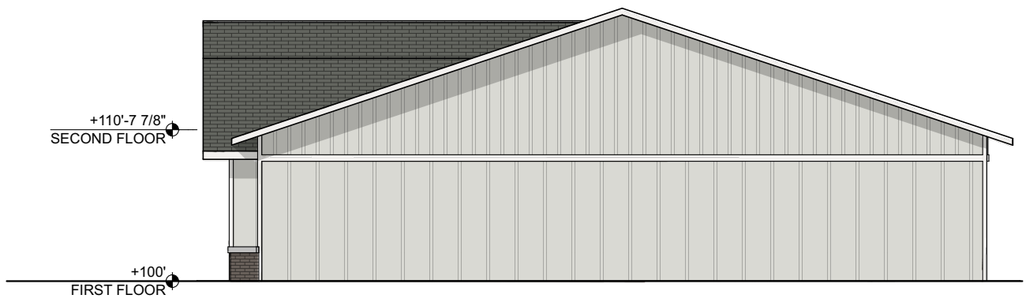


1 SD114 NORTH ELEVATION

SCALE: 3/32" = 1'-0"

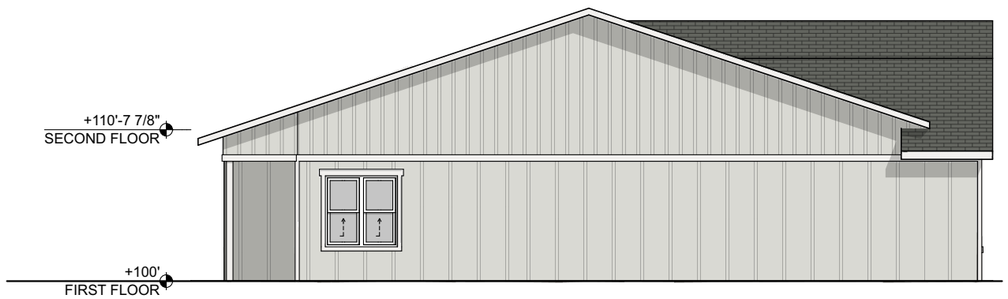
2 SD114 SOUTH ELEVATION

SCALE: 3/32" = 1'-0"



3 SD114 EAST ELEVATION

SCALE: 3/32" = 1'-0"



1 SD114 WEST ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 2

- Owens Corning - TruDefinition Duration Shingles Color: **Estate Gray**
- James Hardie Board and Batten Siding Color: **Pearl Gray**
- James Hardie Lap Siding Color: **Aged Pewter**
- James Hardie Trim Color: **Arctic White**
- Clopay - Classic Steel Garage Doors Color: **Standard White**
- Front Door and Shutters Color: **SW 9140 - Blustery Sky**
- Prestige Stone Products - Old County Ledge Color: **Black Onyx**
- Rockridge Cast Stone - Wall Cap Color: **Light Gray**
- Vinyl Doors and Windows Color: **White**

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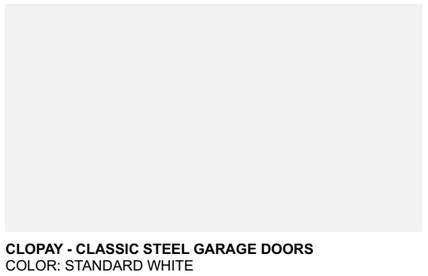
JAMES HARDIE BOARD AND BATTEN SIDING
COLOR: BOOTHBAY BLUE

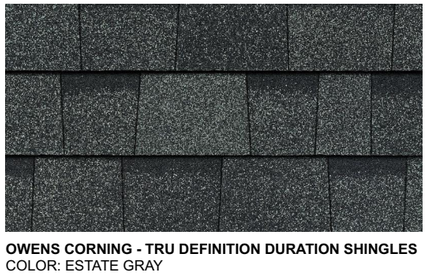
JAMES HARDIE LAP SIDING
COLOR: NIGHT GRAY

JAMES HARDIE TRIM
COLOR: ARCTIC WHITE

PRESTIGE STONE PRODUCTS - THIN VENEER BRICK
COLOR: FARMHOUSE

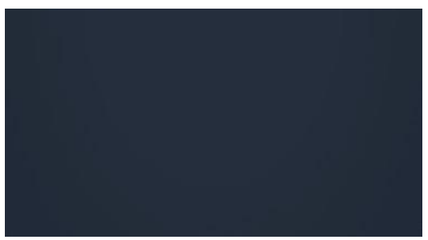


CLOPAY - CLASSIC STEEL GARAGE DOORS
COLOR: STANDARD WHITE



OWENS CORNING - TRU DEFINITION DURATION SHINGLES
COLOR: ESTATE GRAY

ROCKRIDGE CAST STONE - WALL CAP
COLOR: LIGHT GRAY



FRONT DOOR AND SHUTTERS
COLOR: SW 6244 - NAVAL

ROCHESTER CONCRETE PRODUCTS
PREMIER 8 - RETAINING WALL
COLOR: CHARCOAL

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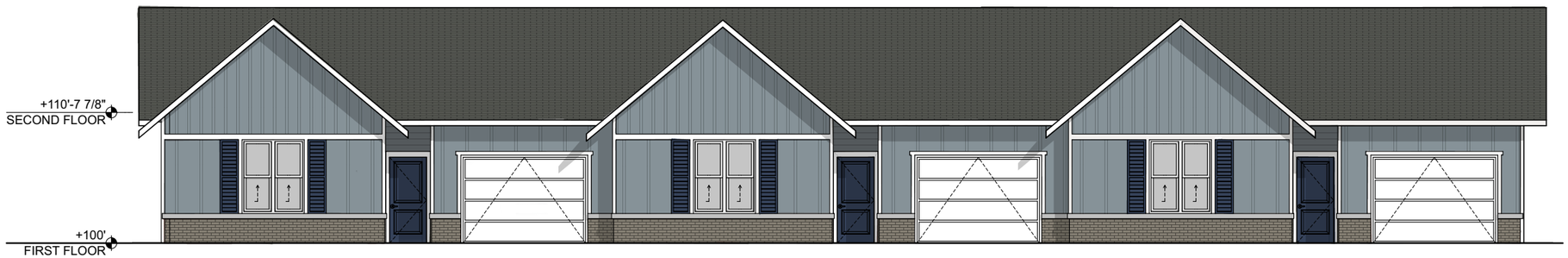
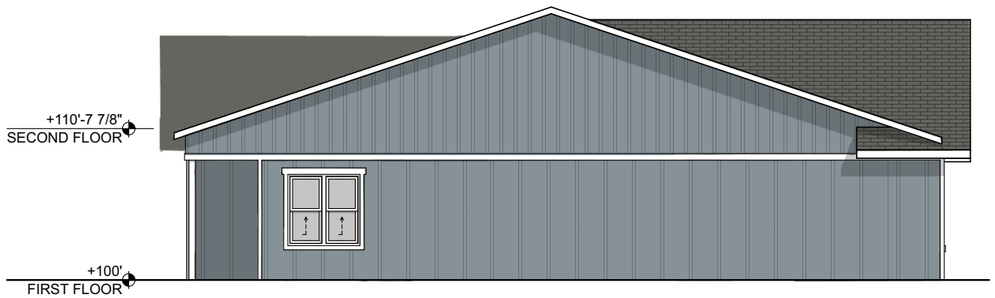
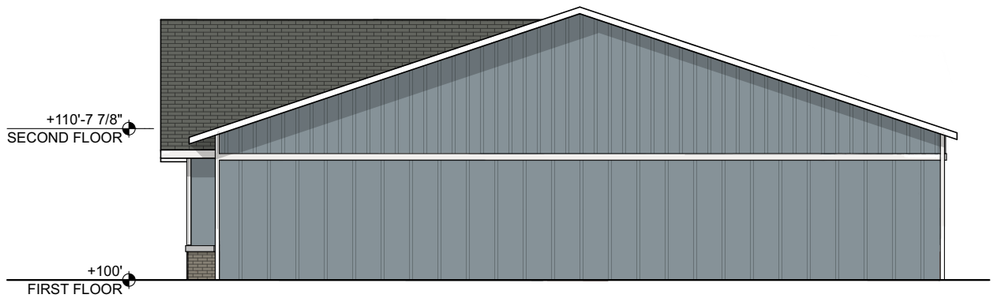


1 SD116 NORTH ELEVATION
SCALE: 3/32" = 1'-0"

2 SD116 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



3 SD116 WEST ELEVATION
SCALE: 3/32" = 1'-0"



4 SD116 EAST ELEVATION
SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 3

- Owens Corning - TruDefinition Duration Shingles
  Color: **Estate Gray**
- James Hardie Board and Batten Siding
  Color: **Boothbay Blue**
- James Hardie Lap Siding
  Color: **Night Gray**
- James Hardie Trim
  Color: **Arctic White**
- Clopay - Classic Steel Garage Doors
  Color: **Standard White**
- Front Door and Shutters
  Color: **SW 6244 - Naval**
- Prestige Stone Products - Thin Veneer Brick
  Color: **Farmhouse**
- Rockridge Cast Stone - Wall Cap
  Color: **Light Gray**
- Vinyl Doors and Windows
  Color: **White**

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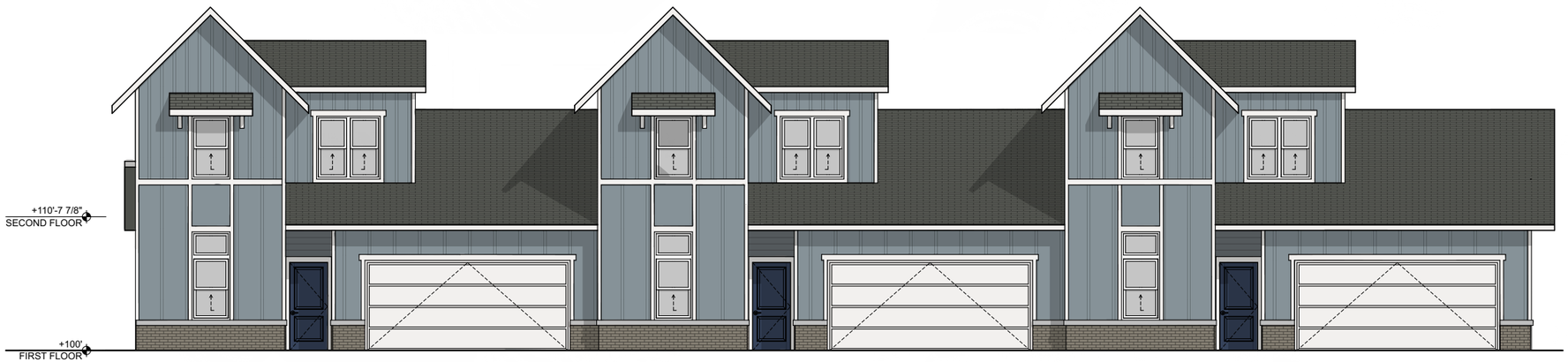
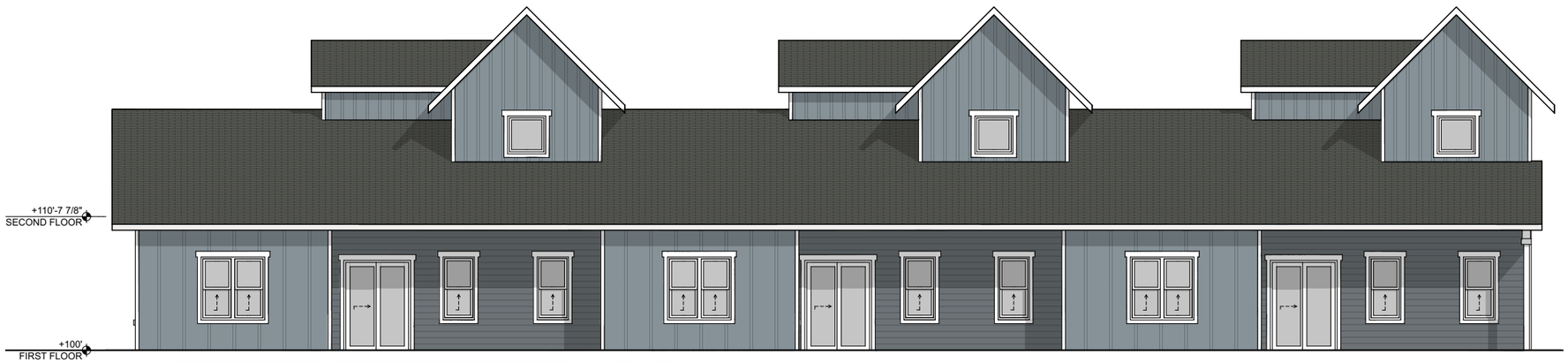
SD112



1 SD117

NORTH ELEVATION

SCALE: 3/32" = 1'-0"



2 SD117

SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 3

- Owens Corning - TruDefinition Duration Shingles
  Color: **Estate Gray**
- James Hardie Board and Batten Siding
  Color: **Boothbay Blue**
- James Hardie Lap Siding
  Color: **Night Gray**
- James Hardie Trim
  Color: **Arctic White**
- Clopay - Classic Steel Garage Doors
  Color: **Standard White**
- Front Door and Shutters
  Color: **SW 6244 - Naval**
- Prestige Stone Products - Thin Veneer Brick
  Color: **Farmhouse**
- Rockridge Cast Stone - Wall Cap
  Color: **Light Gray**
- Vinyl Doors and Windows
  Color: **White**

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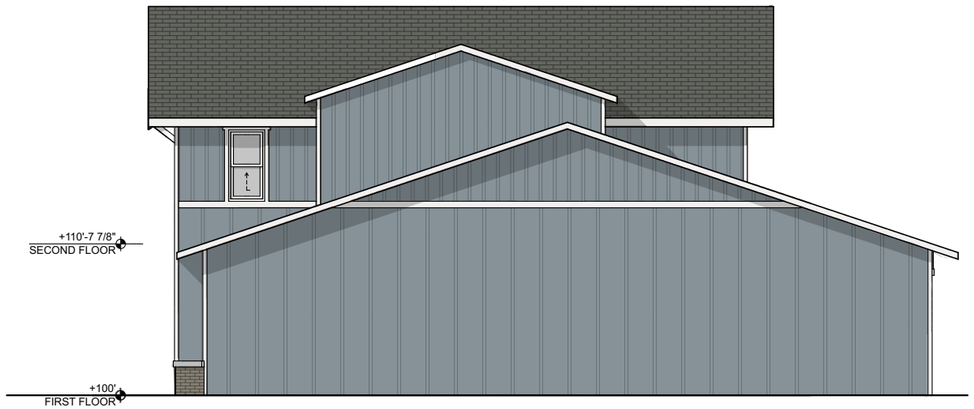
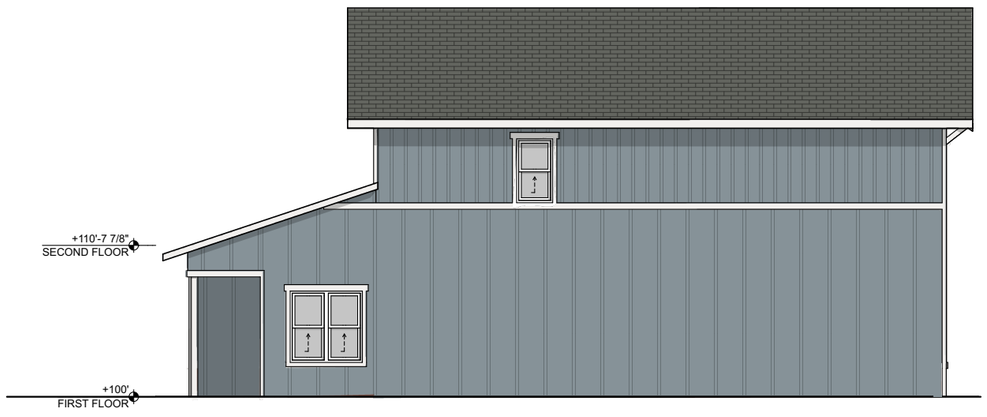


1
SD118

EAST ELEVATION

SCALE: 3/32" = 1'-0"



2
SD118

WEST ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 3

Owens Corning - TruDefinition Duration Shingles
Color: **Estate Gray**

James Hardie Board and Batten Siding
Color: **Boothbay Blue**

James Hardie Lap Siding
Color: **Night Gray**

James Hardie Trim
Color: **Arctic White**

Clopay - Classic Steel Garage Doors
Color: **Standard White**

Front Door and Shutters
Color: **SW 6244 - Naval**

Prestige Stone Products - Thin Veneer Brick
Color: **Farmhouse**

Rockridge Cast Stone - Wall Cap
Color: **Light Gray**

Vinyl Doors and Windows
Color: **White**

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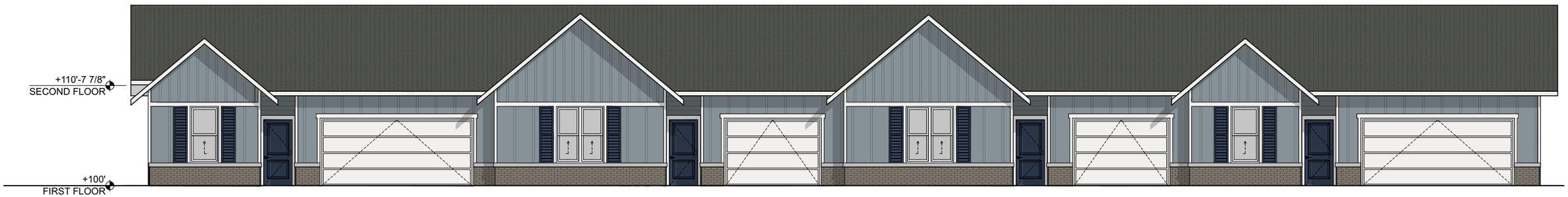


1 SD119

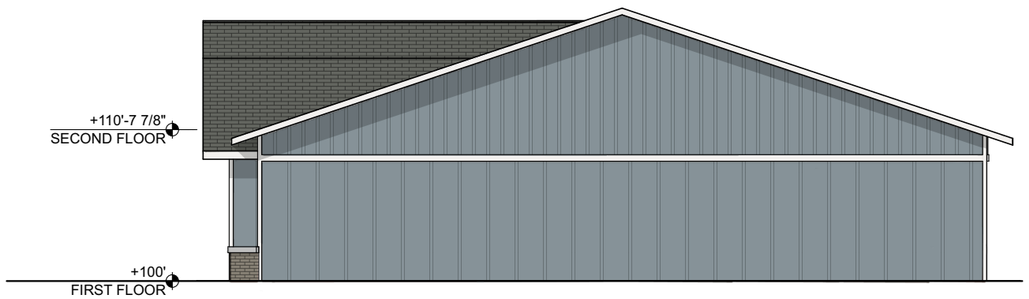
NORTH ELEVATION

SCALE: 3/32" = 1'-0"

2 SD119

SOUTH ELEVATION

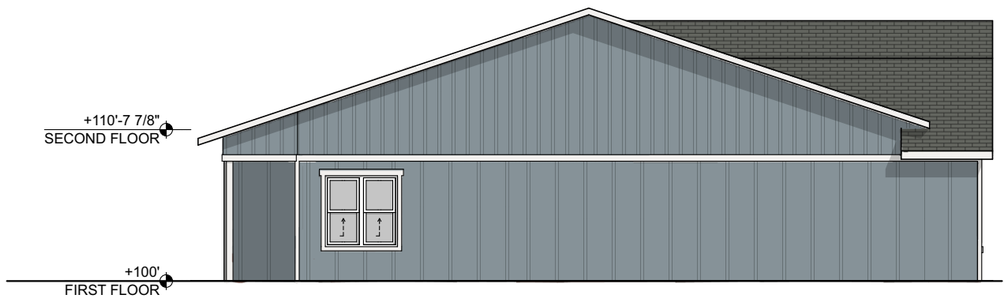
SCALE: 3/32" = 1'-0"



3 SD119

EAST ELEVATION

SCALE: 3/32" = 1'-0"



1 SD119

WEST ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 3

- Owens Corning - TruDefinition Duration Shingles Color: **Estate Gray**
- James Hardie Board and Batten Siding Color: **Boothbay Blue**
- James Hardie Lap Siding Color: **Night Gray**
- James Hardie Trim Color: **Arctic White**
- Clopay - Classic Steel Garage Doors Color: **Standard White**
- Front Door and Shutters Color: **SW 6244 - Naval**
- Prestige Stone Products - Thin Veneer Brick Color: **Farmhouse**
- Rockridge Cast Stone - Wall Cap Color: **Light Gray**
- Vinyl Doors and Windows Color: **White**

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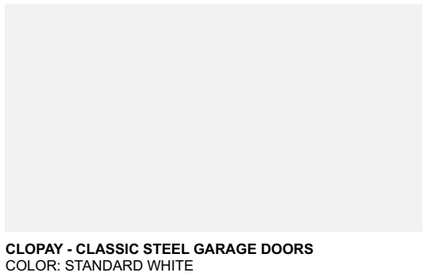
SD115

JAMES HARDIE BOARD AND BATTEN SIDING
COLOR: DEEP OCEAN

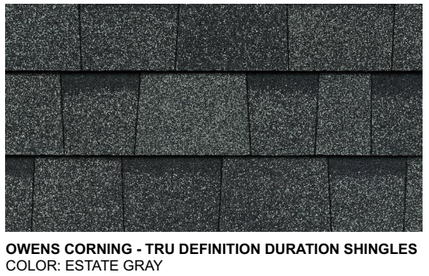
JAMES HARDIE LAP SIDING
COLOR: COBBLE STONE

JAMES HARDIE TRIM
COLOR: ARCTIC WHITE

PRESTIGE STONE PRODUCTS - PLYMBRICK
COLOR: SANIBEL



CLOPAY - CLASSIC STEEL GARAGE DOORS
COLOR: STANDARD WHITE



OWENS CORNING - TRU DEFINITION DURATION SHINGLES
COLOR: ESTATE GRAY

ROCKRIDGE CAST STONE - WALL CAP
COLOR: IMITATION LIMESTONE

FRONT DOOR AND SHUTTERS
COLOR: SW 9140 - BLUSTERY SKY

ROCHESTER CONCRETE PRODUCTS
PREMIER 8 - RETAINING WALL
COLOR: CHARCOAL

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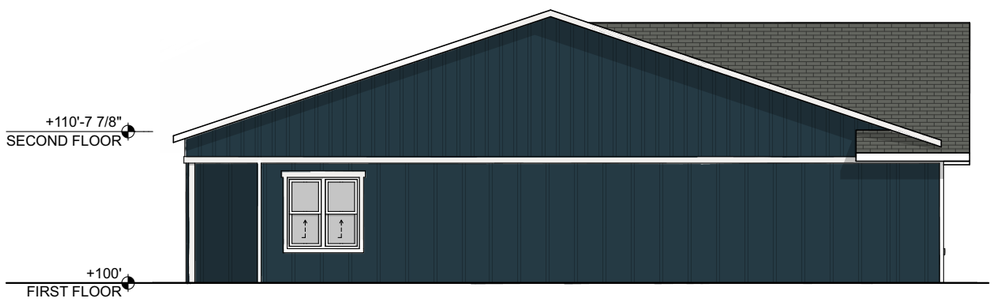
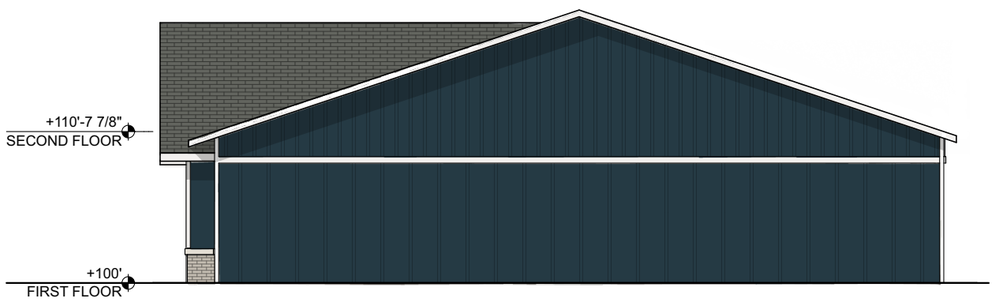
1 SD111 NORTH ELEVATION
SCALE: 3/32" = 1'-0"

2 SD111 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



3 SD111 WEST ELEVATION
SCALE: 3/32" = 1'-0"



4 SD111 EAST ELEVATION
SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 4

- Owens Corning - TruDefinition Duration Shingles
  Color: **Estate Gray**
- James Hardie Board and Batten Siding
  Color: **Deep Ocean**
- James Hardie Lap Siding
  Color: **Cobble Stone**
- James Hardie Trim
  Color: **Arctic White**
- Clopay - Classic Steel Garage Doors
  Color: **Standard White**
- Front Door and Shutters
  Color: **SW 9140 - Blustery Sky**
- Prestige Stone Products - PlymBrick
  Color: **Sanibel**
- Rockridge Cast Stone - Wall Cap
  Color: **Imitation Limestone**
- Vinyl Doors and Windows
  Color: **White**

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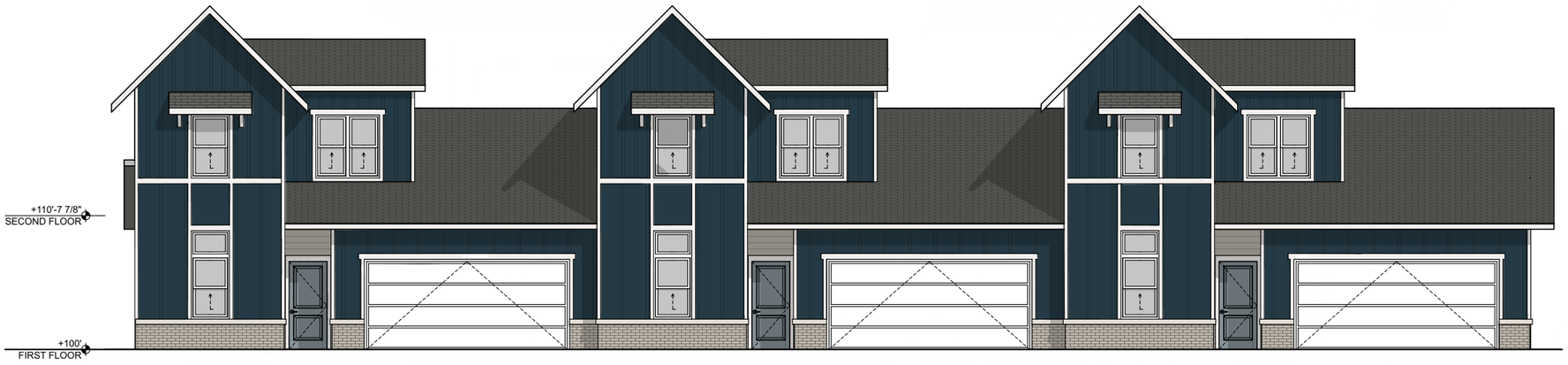
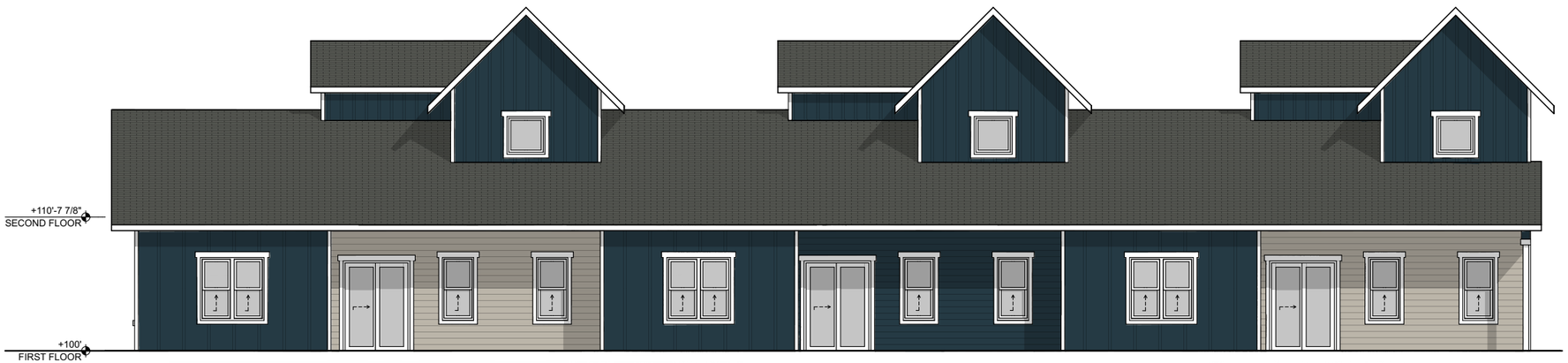


1
SD112

NORTH ELEVATION

SCALE: 3/32" = 1'-0"



2
SD112

SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 4

Owens Corning - TruDefinition Duration Shingles
Color: **Estate Gray**

James Hardie Board and Batten Siding
Color: **Deep Ocean**

James Hardie Lap Siding
Color: **Cobble Stone**

James Hardie Trim
Color: **Arctic White**

Clopay - Classic Steel Garage Doors
Color: **Standard White**

Front Door and Shutters
Color: **SW 9140 - Blustery Sky**

Prestige Stone Products - PlymBrick
Color: **Sanibel**

Rockridge Cast Stone - Wall Cap
Color: **Imitation Limestone**

Vinyl Doors and Windows
Color: **White**

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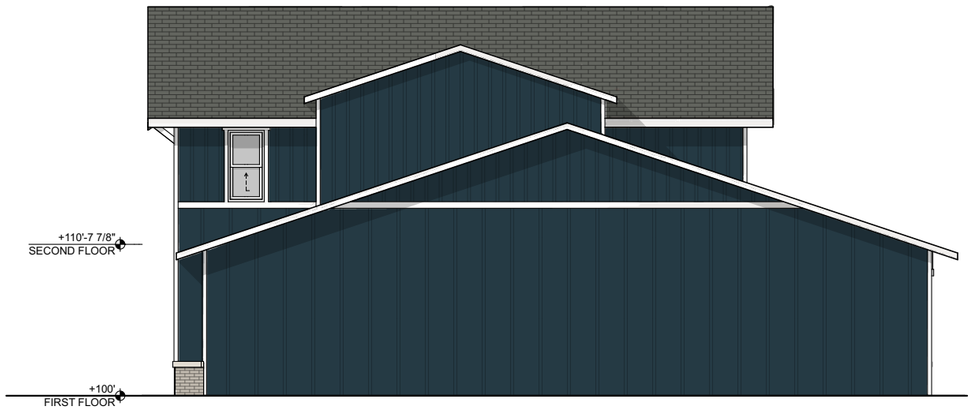
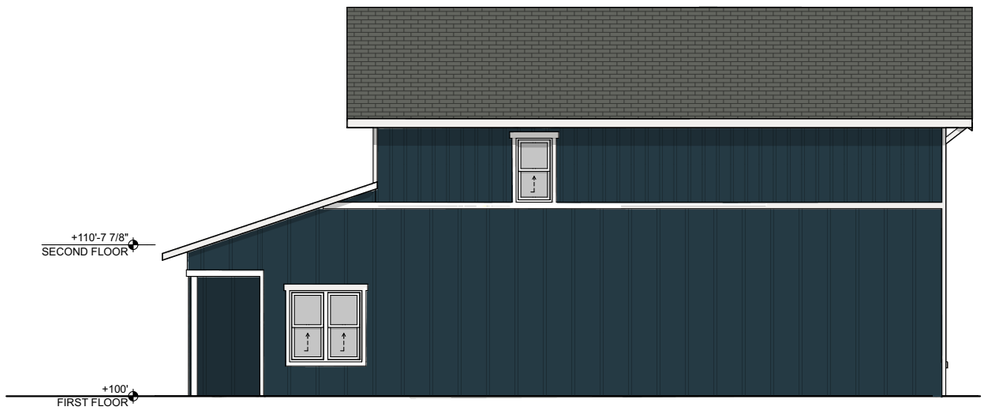


1 SD113 EAST ELEVATION

SCALE: 3/32" = 1'-0"



2 SD113 WEST ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 4

Owens Corning - TruDefinition Duration Shingles
Color: **Estate Gray**

James Hardie Board and Batten Siding
Color: **Deep Ocean**

James Hardie Lap Siding
Color: **Cobble Stone**

James Hardie Trim
Color: **Arctic White**

Clopay - Classic Steel Garage Doors
Color: **Standard White**

Front Door and Shutters
Color: **SW 9140 - Blustery Sky**

Prestige Stone Products - PlymBrick
Color: **Sanibel**

Rockridge Cast Stone - Wall Cap
Color: **Imitation Limestone**

Vinyl Doors and Windows
Color: **White**

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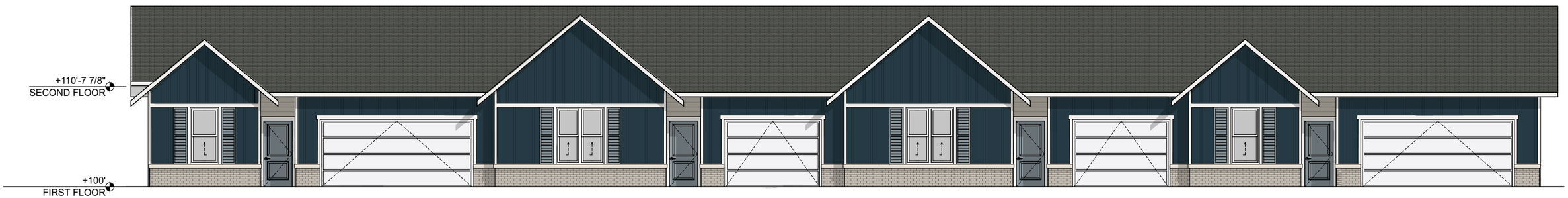
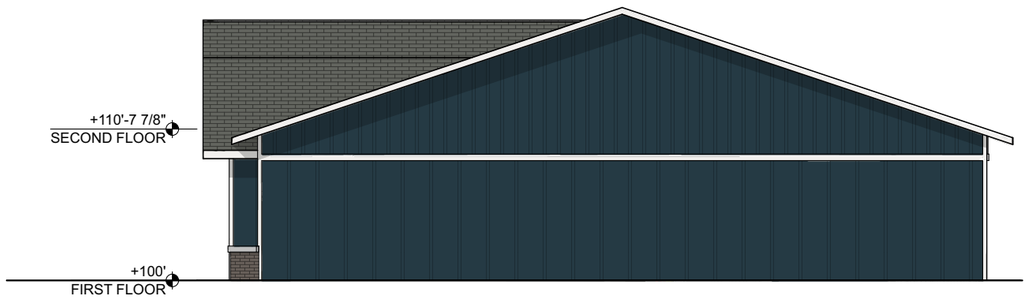


1 SD114 NORTH ELEVATION

SCALE: 3/32" = 1'-0"

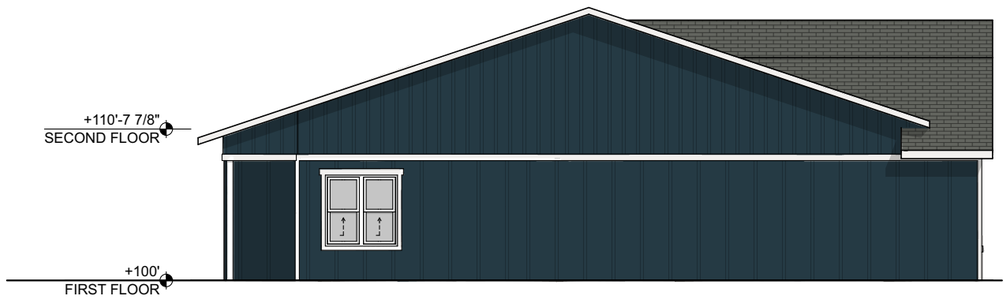
2 SD114 SOUTH ELEVATION

SCALE: 3/32" = 1'-0"



3 SD114 EAST ELEVATION

SCALE: 3/32" = 1'-0"



1 SD114 WEST ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:

OPTION 4

- Owens Corning - TruDefinition Duration Shingles Color: **Estate Gray**
- James Hardie Board and Batten Siding Color: **Deep Ocean**
- James Hardie Lap Siding Color: **Cobble Stone**
- James Hardie Trim Color: **Arctic White**
- Clopay - Classic Steel Garage Doors Color: **Standard White**
- Front Door and Shutters Color: **SW 9140 - Blustery Sky**
- Prestige Stone Products - PlymBrick Color: **Sanibel**
- Rockridge Cast Stone - Wall Cap Color: **Imitation Limestone**
- Vinyl Doors and Windows Color: **White**

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JAMES HARDIE BOARD AND BATTEN SIDING
COLOR: COBBLE STONE

JAMES HARDIE LAP SIDING
COLOR: IRON GRAY

JAMES HARDIE TRIM
COLOR: ARCTIC WHITE

PRESTIGE STONE PRODUCTS - THIN VENEER BRICK
COLOR: MAHOGANY

CLOPAY - CLASSIC STEEL GARAGE DOORS
COLOR: STANDARD WHITE

OWENS CORNING - TRU DEFINITION DURATION SHINGLES
COLOR: ESTATE GRAY

ROCKRIDGE CAST STONE - WALL CAP
COLOR: LIGHT GRAY

FRONT DOOR AND SHUTTERS
COLOR: SW 7504 - KEYSTONE GRAY

ROCHESTER CONCRETE PRODUCTS
PREMIER 8 - RETAINING WALL
COLOR: CHARCOAL

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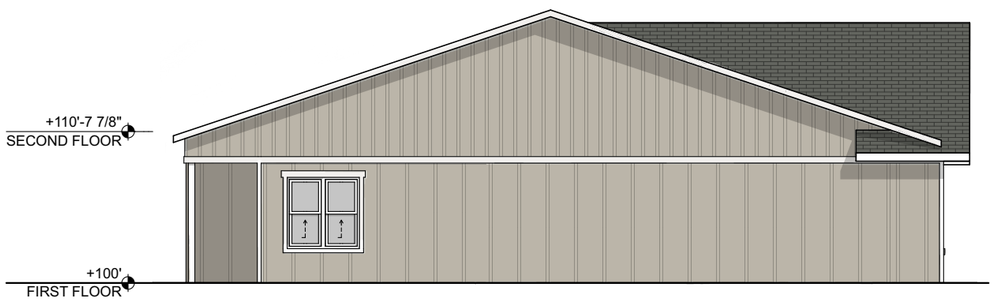
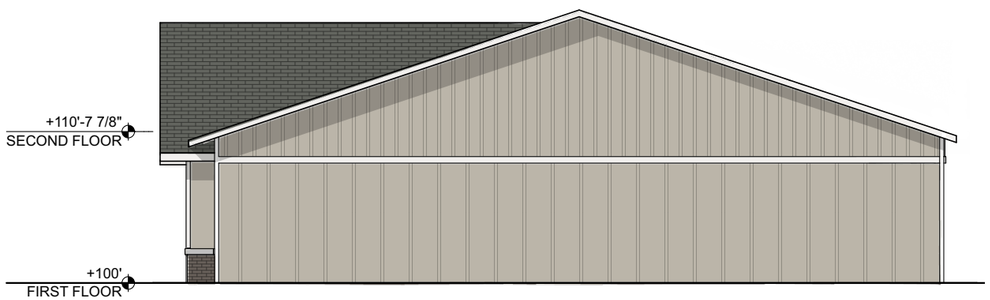
1 SD111 NORTH ELEVATION
SCALE: 3/32" = 1'-0"

2 SD111 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



3 SD111 WEST ELEVATION
SCALE: 3/32" = 1'-0"



4 SD111 EAST ELEVATION
SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 5

- Owens Corning - TruDefinition Duration Shingles
  Color: **Estate Gray**
- James Hardie Board and Batten Siding
  Color: **Cobble Stone**
- James Hardie Lap Siding
  Color: **Iron Gray**
- James Hardie Trim
  Color: **Arctic White**
- Clopay - Classic Steel Garage Doors
  Color: **Standard White**
- Front Door and Shutters
  Color: **SW 7504 - Keystone Gray**
- Prestige Stone Products - Thin Veneer Brick
  Color: **Mahogany**
- Rockridge Cast Stone - Wall Cap
  Color: **Light Gray**
- Vinyl Doors and Windows
  Color: **White**

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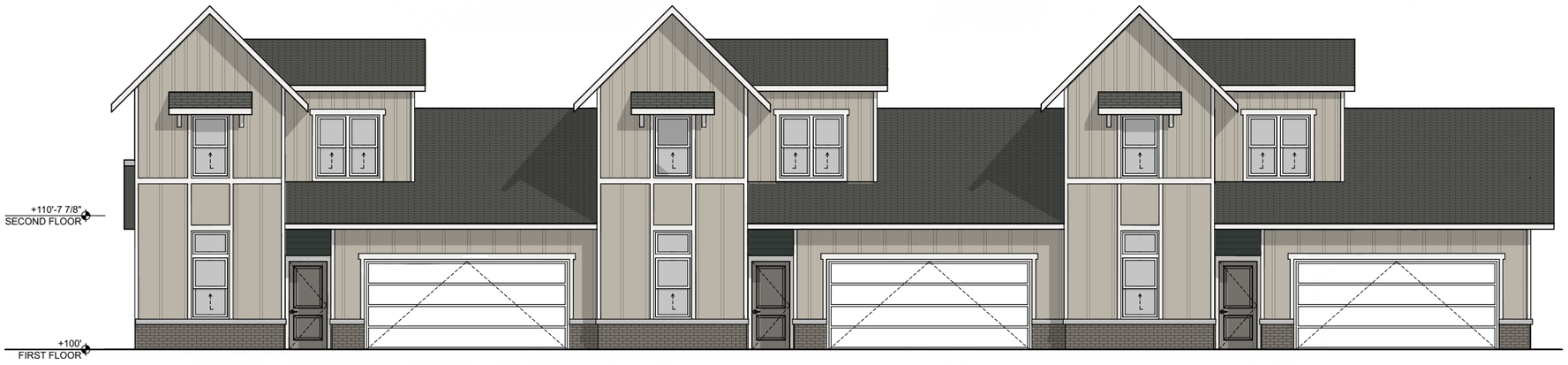
SD122



1 SD112

NORTH ELEVATION

SCALE: 3/32" = 1'-0"

2 SD112

SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 5

- Owens Corning - TruDefinition Duration Shingles
  Color: **Estate Gray**
- James Hardie Board and Batten Siding
  Color: **Cobble Stone**
- James Hardie Lap Siding
  Color: **Iron Gray**
- James Hardie Trim
  Color: **Arctic White**
- Clopay - Classic Steel Garage Doors
  Color: **Standard White**
- Front Door and Shutters
  Color: **SW 7504 - Keystone Gray**
- Prestige Stone Products - Thin Veneer Brick
  Color: **Mahogany**
- Rockridge Cast Stone - Wall Cap
  Color: **Light Gray**
- Vinyl Doors and Windows
  Color: **White**

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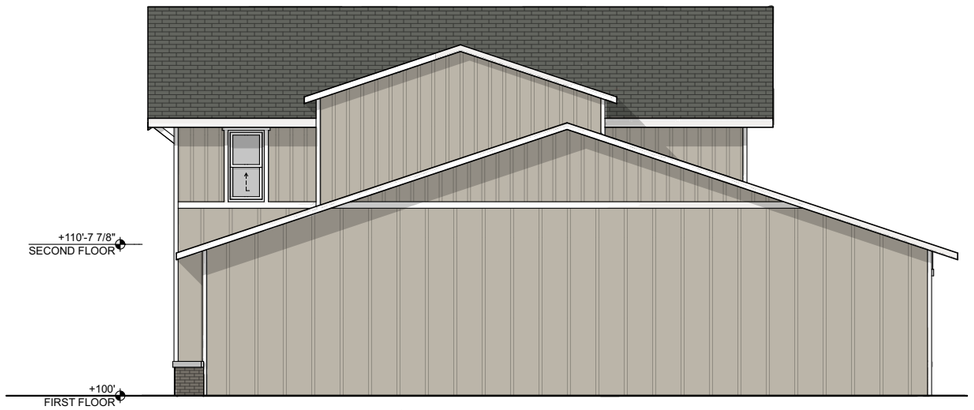
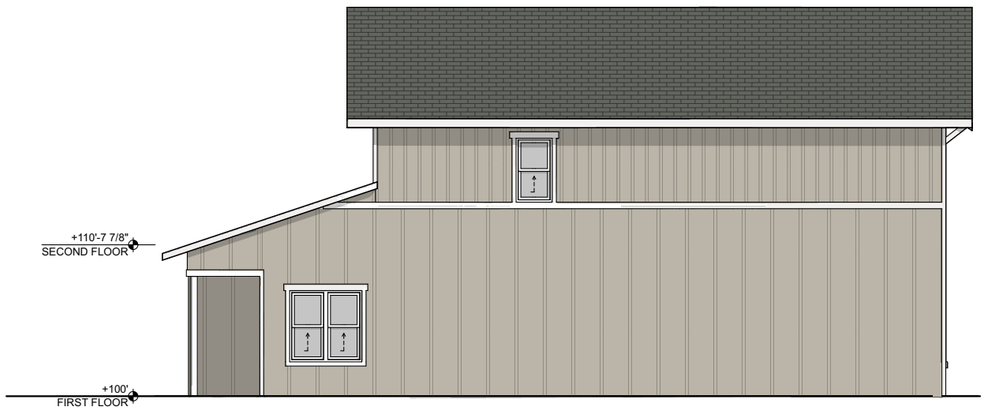


1
SD113

EAST ELEVATION

SCALE: 3/32" = 1'-0"



2
SD113

WEST ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
OPTION 5

Owens Corning - TruDefinition Duration Shingles
Color: **Estate Gray**

James Hardie Board and Batten Siding
Color: **Cobble Stone**

James Hardie Lap Siding
Color: **Iron Gray**

James Hardie Trim
Color: **Arctic White**

Clopay - Classic Steel Garage Doors
Color: **Standard White**

Front Door and Shutters
Color: **SW 7504 - Keystone Gray**

Prestige Stone Products - Thin Veneer Brick
Color: **Mahogany**

Rockridge Cast Stone - Wall Cap
Color: **Light Gray**

Vinyl Doors and Windows
Color: **White**

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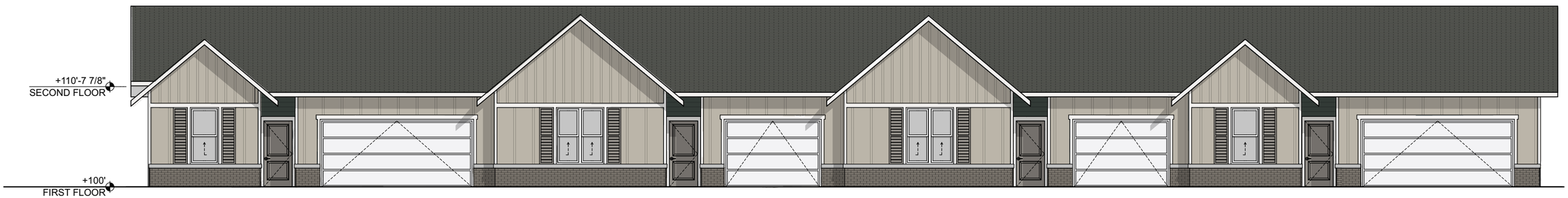
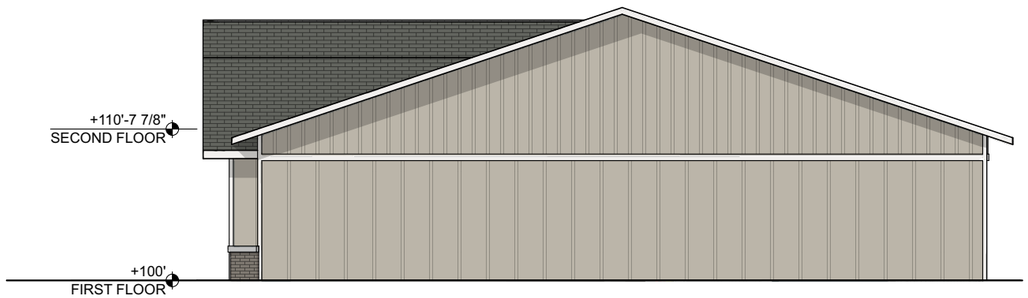


1 SD114 NORTH ELEVATION

SCALE: 3/32" = 1'-0"

2 SD114 SOUTH ELEVATION

SCALE: 3/32" = 1'-0"



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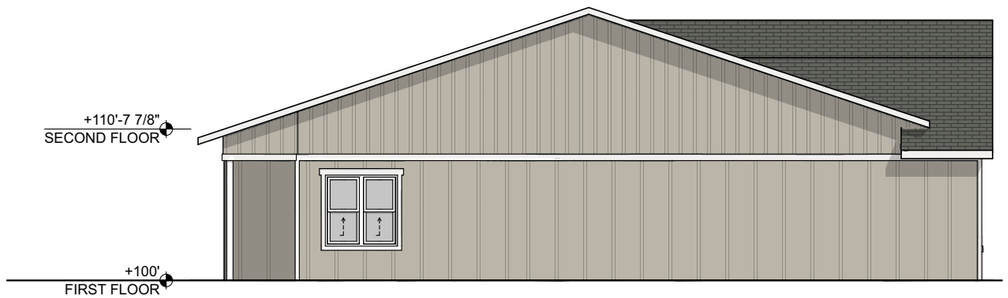
SCALE: 3/32" = 1'-0"



1 SD114 WEST ELEVATION

SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:

OPTION 5

- Owens Corning - TruDefinition Duration Shingles Color: **Estate Gray**
- James Hardie Board and Batten Siding Color: **Cobble Stone**
- James Hardie Lap Siding Color: **Iron Gray**
- James Hardie Trim Color: **Arctic White**
- Clopay - Classic Steel Garage Doors Color: **Standard White**
- Front Door and Shutters Color: **SW 7504 - Keystone Gray**
- Prestige Stone Products - Thin Veneer Brick Color: **Mahogany**
- Rockridge Cast Stone - Wall Cap Color: **Light Gray**
- Vinyl Doors and Windows Color: **White**

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Architectural Revisions

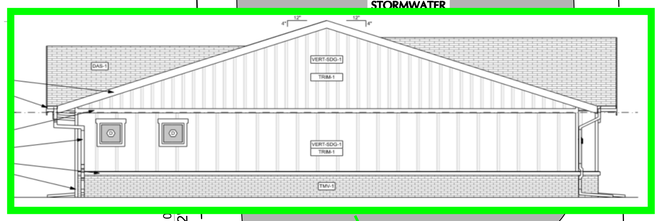
1.) Side elevations facing Division Rd on Buildings 1, 10, and 11 highlighted in orange below shall include 4 total windows, a combination of board and batten siding and shake siding, an attic vent detail, and masonry wainscot at the building base. Please see Pages 2 and 3 for elevations of Buildings 10 and 11 as reference.

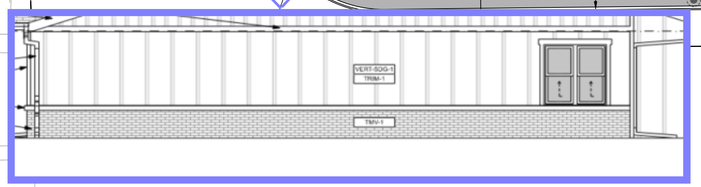
2.) Three gables shall be added to the rear elevations of Buildings 7 and 11 to break up the flat roofline. Please see the rear elevation of Building 11 on Page 3 as reference.

3.) Four gables shall be added to the rear elevations of Buildings 1, 5, and 10 to break up the flat roofline. Please see the rear elevation of Building 10 on Page 2 as reference.

4.) Add two transom windows and extend masonry along the bottom of the side elevation of Building 5 as highlighted in green below.

5.) Extend masonry along the bottom of the side elevations of Buildings 2 and 3 as highlighted in purple below.





STORMWATER

STORMWATER POND

BUILDING 1 7,209 SF FFE: 879.00
BUILDING 2 5,391 SF FFE: 880.50
BUILDING 3 5,411 SF FFE: 881.50
BUILDING 4 5,411 SF FFE: 881.75
BUILDING 5 7,209 SF FFE: 882.25
BUILDING 6 5,391 SF FFE: 882.25
BUILDING 7 5,411 SF FFE: 882.50
BUILDING 8 5,411 SF FFE: 882.00
BUILDING 9 5,391 SF FFE: 881.50
BUILDING 10 7,209 SF FFE: 880.00
BUILDING 11 5,411 SF FFE: 889.75

18-FT BUILDING SETBACK
20-FT BUILDING SETBACK
5-FT X 3.5-FT SIDEWALK (TYP.)
6 TOTAL STALLS (1 ADA VAN STALL)
4-FT TALL FENCING. SEE LANDSCAPE PLAN FOR DETAILS
6-FT ASPHALT SIDEWALK CONNECTING TO MEQUON ROAD TO BE INSTALLED 5-FT OFF OF PROPERTY LINE
36-FT 12" CONCRETE CULVERT
DIVISION ROAD
S 89°22'06" W 600.04'
(S 89°22'13" W)

TOTAL REQUIRED PARKING: 72 STALLS
TOTAL PROVIDED PARKING: 108 STALLS

Property Address:
W172N11183 Division Road
Germantown, WI 53022

Date	Description	No.
Revisions		
05/05/26	VILLAGE COMMENTS	1

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology, D.P.C.
247 Freshwater Way, Suite 532
Milwaukee, WI 53204
T: 973.560.4580 www.langan.com

Project
THE CARILLON AT GERMANTOWN
GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title
PRELIMINARY SITE PLAN

Project No.	Drawing No.
543001101	CS101
Date: 10/13/2025	
Drawn By: ZF	
Checked By: JK	

LANGAN
Project No. 543001101

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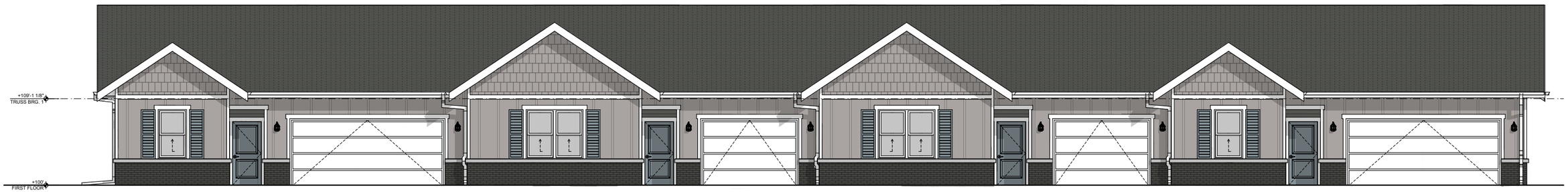
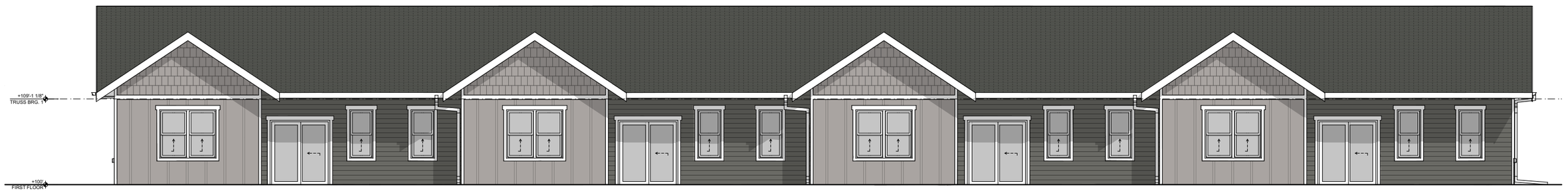
SD101



1 SD101 FRONT ELEVATION
SCALE: 3/32" = 1'-0"



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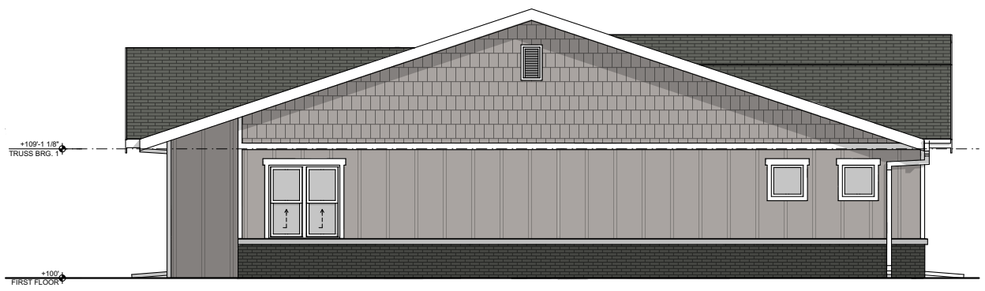

3 SD101 SIDE ELEVATION - DIVISION ROAD
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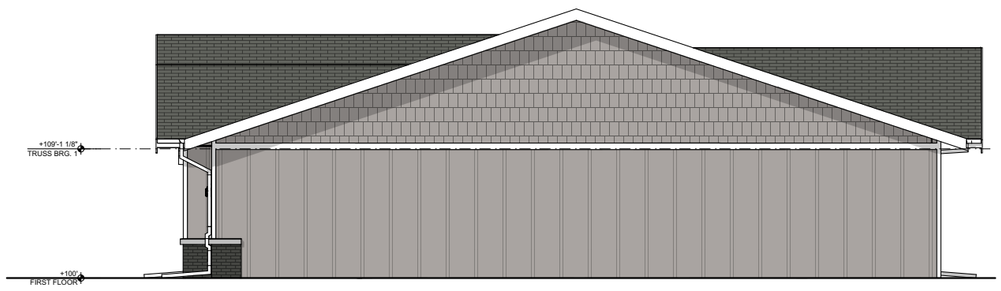

4 SD101 SIDE ELEVATION
SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
SCHEME A

- Owens Corning - TruDefinition Duration Shingles
  Color: **Estate Gray**
- James Hardie Board and Batten
  Color: **Pearl Gray**
- James Hardie Lap Siding / Shake Siding
  Color: **Aged Pewter**
- James Hardie Trim
  Color: **Arctic White**
- Clopay - Classic Steel Garage Doors
  Color: **Standard White**
- Front Door and Shutters
  Color: **SW 9140 - Blustery Sky**
- Prestige Stone Products - Old County Ledge
  Color: **Black Onyx**
- Rockridge Cast Stone - Wall Cap
  Color: **Light Gray**
- Vinyl Doors and Windows
  Color: **White**

THE CARILLON AT GERMANTOWN

5/18/26

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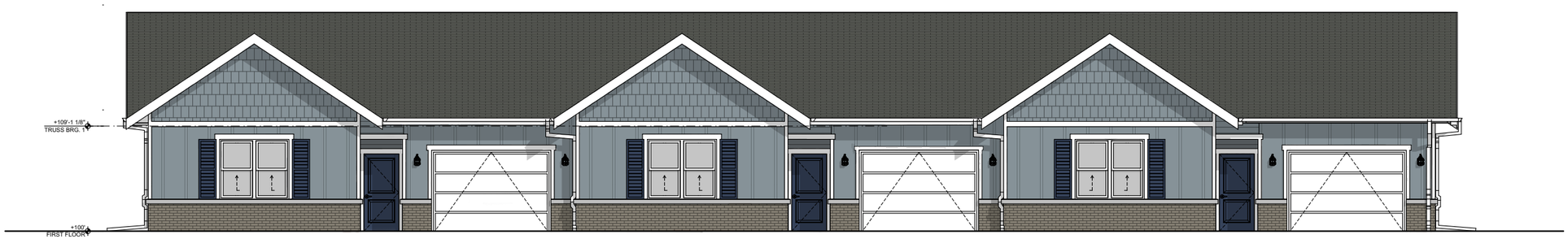
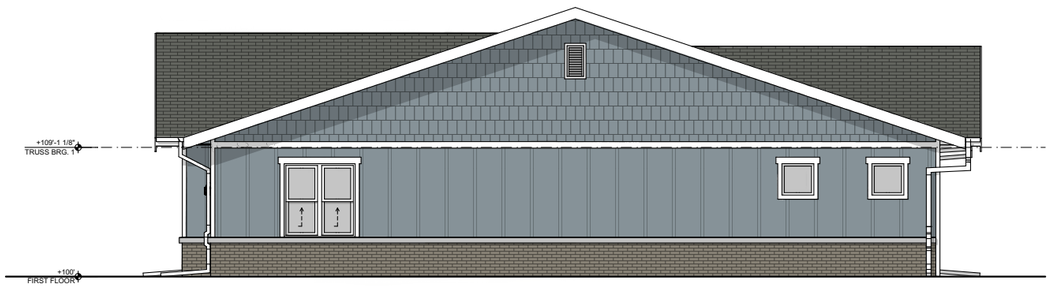
SD100

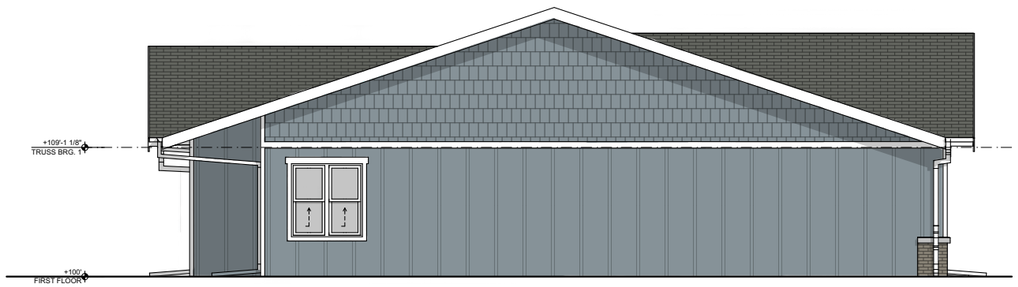


1 SD100 FRONT ELEVATION
SCALE: 3/32" = 1'-0"

2 SD100 REAR ELEVATION
SCALE: 3/32" = 1'-0"



3 SD100 SIDE ELEVATION - DIVISION ROAD
SCALE: 3/32" = 1'-0"



4 SD100 SIDE ELEVATION
SCALE: 3/32" = 1'-0"

MATERIAL PALETTE:
SCHEME C

- Owens Corning - TruDefinition Duration Shingles Color: **Estate Gray**
- James Hardie Board and Batten Siding Color: **Boothbay Blue**
- James Hardie Lap Siding / Shake Siding Color: **Night Gray**
- James Hardie Trim Color: **Arctic White**
- Clopay - Classic Steel Garage Doors Color: **Standard White**
- Front Door and Shutters Color: **SW 6244 - Naval**
- Prestige Stone Products - Thin Veneer Brick Color: **Farmhouse**
- Rockridge Cast Stone - Wall Cap Color: **Light Gray**
- Vinyl Doors and Windows Color: **White**

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STORMWATER MANAGEMENT REPORT

for

The Carillon at Germantown
Village of Germantown
Ozaukee County, Wisconsin

Prepared For:

Cirrus Property Group, LLC
1661 N. Water Street, Suite 500
Milwaukee, WI 53202

Prepared By:

Langan Engineering & Environmental, Survey, Landscape Architecture and Geology, D.P.C.
790 N Milwaukee St, Suite 500 E
Milwaukee, WI 53204

Steven Parse
Wisconsin Professional Engineer No. E-46683-6

LANGAN

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E	Stormwater Maintenance Agreement

INTRODUCTION

General

Cirrus Property Group is proposing a multi-family residential development known as The Carillon at Germantown, located in the Village of Germantown, WI. The 5.37 acre site is located on Division Road south of Mequon Road and includes the southern portion of parcel GTNV_281967 owned by Faith Luteran Church. Stormwater will be detained and treated via two proposed stormwater ponds, one in the northwest portion of the site and one in the southeast portion of the site.

Site Location & Existing Conditions

The 5.37 acre project site is located on Division Road south of Mequon Road and includes the southern portion of parcel GTNV_281967 (Faith Luteran Church).

Watershed Location Description

There is a ridge in the middle of the site, south of the ridge slopes southeast toward the neighboring property and a ditch in the right of way of Division Road, north of the ridge flows north via an existing swale to a stormwater facility in the northwest corner of the Faith Lutheran Church property. The existing land is undeveloped grass field that has been maintained by the Faith Lutheran Church.

The site is located within the Menomonee River watershed.

Wetlands

According to the National Wetland Inventory (NWI), there are no wetlands nor wetland indicating soils present.

FEMA Flood Zones

According to the Federal Emergency Management Agency (FEMA) National Hazard Layer for the Village of Germantown community-panel number 550472 0376 E with an effective date of February 20, 2026, the entirety of the site is located within an "Area of Minimal Flood Hazard", unshaded. See Figure 2.

Soil Conditions

The site has been delineated using the Natural Resources Conservation Service (NRCS) soil survey for Germantown, Wisconsin as well as a Geotechnical Investigation, (see Appendix G for the NRCS Soils Map and Geotechnical Report). The site contains predominantly Hydraulic Group D silt loam soils with evidence of high bedrock.

STORMWATER MANAGEMENT

The stormwater management system has been designed in line with Village and County ordinances to effectively manage runoff from the site. A traditional below grade, closed pipe network collects and conveys runoff in conjunction to a drainage swales to two stormwater wet ponds (one in the southeast corner and one in the northwest corner) where runoff is detained, treated, attenuated, and released at a controlled rate off site.

Village of Germantown Stormwater Requirements

Stormwater management within the Village of Germantown must meet both quantity and quality performance standards to mitigate adverse impacts on downstream infrastructure and natural resources. A summary of the Village's stormwater requirements are provided in Table 1 below:

Table 1: Summary of the Village of Germantown Stormwater Requirements

Standard	Requirement
Peak Discharge must meet one of the two requirements	"Allowable runoff release rate" means a post-development peak outflow during the 1% probability (100-year) storm that is no more than 0.5 cubic feet per second multiplied by the area of the site in acres and a post-development peak outflow during the 50% probability (2-year) storm event that is no more than 0.15 cubic feet per second multiplied by the area of the site in acres.
	"Allowable runoff volume" means a post-development runoff volume that is no greater than the pre-development volume for both the 1% probability (100-year) and 50% probability (2-year) storm events during the critical time. The critical time for the Menomonee River is 9.5 hours.
Water Quality	Reduce the Total Suspended Solids by 80% based on the average annual rainfall, as compared to no runoff management controls.
Water Infiltration	Moderate imperviousness. For development with more than 40% and up to 80% connected imperviousness, such as medium- and high-density residential, multifamily development, industrial and institutional development, and office parks infiltrate sufficient runoff volume so that the post-development infiltration volume shall be at least 75% of the predevelopment infiltration volume, based on an average annual rainfall. However, when designing appropriate infiltration systems to meet this requirement, no more than 2% of the post-construction site is required as an effective infiltration area.

Additionally, WDNR peak flow requirement that BMPs shall be employed to maintain or reduce the 1-year, 24-hour and the 2-year, 24-hour post-construction peak runoff discharge rates to the 1-year, 24- hour and the 2-year, 24-hour pre-development peak runoff discharge rates respectively, or to the maximum extent practicable shall be achieved.

Design Criteria

Runoff volume under the proposed conditions have been modeled and compared to the runoff volume under the existing conditions per the critical time for the Menomonee River basin of 9.5 minutes as defined by the Village of Germantown Stormwater Requirements discussed above.

Design Methodology

Peak runoff rates for existing and proposed conditions have been modeled and analyzed using the TR-55 runoff curve number methodology with Atlas 14 precipitation depths, and a MSE3 precipitation distribution. The TR-55 methodology outlines procedures for calculating peak rates resulting from precipitation events, and procedures for developing runoff hydrographs. Values for area, curve number and time of concentration were calculated for the existing and proposed conditions.

The curve number "CN" is a land-sensitive coefficient that dictates the relationship between total rainfall depth and direct storm runoff. The soils within the watershed are divided into hydrologic soil groups (A, B, C, and D) as previously described.

The time of concentration, Tc, is defined as the time for runoff to travel from the hydraulically most distant point in the watershed to a point of interest. Values of time of concentration were determined for existing and proposed conditions based on land cover and lope of the flow path, using methods outlined in the TR-55 methodology.

Summary of Existing Conditions and Stormwater Controls

The existing site is currently classified as open space and undeveloped land. The watershed is divided by a ridge in the middle of the site sending the south portion of the site to the southeast and the north portion of the site via a ditch to an existing stormwater facility in the northwest corner of the Faith Lutheran Church property.

Summary of Proposed Conditions and Stormwater Controls

The proposed Carillon at Germantown development will convert approximately 5 acres of open space to multi-family residential, increasing the impervious surface area and associated runoff volume. Two stormwater wet ponds will be used to meet the Village's stormwater management requirements. Along with detaining runoff from the project site, the northwest pond will detain a portion of the Faith Lutheran Church site and the property to the west. The design rainfall used for stormwater management facility design was the one-year, two-year and 100-year recurrence interval, twenty-four-hour duration

events with an NRCS MSE3 distribution with the latest rainfall depths as determined by the National Oceanic and Atmospheric Administration's (NOAA) Atlas 14. The total rainfall depths for the 1-year 24-hour, 2-year 24-hour, and 100-year 24-hour storm events are 2.36 inches, 2.66 inches, and 6.36 inches, respectively.

Table 2: NOAA Atlas 14 – Germantown, WI

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)[1]										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.334** (0.258-0.415)	**0.403** (0.312-0.502)	**0.514** (0.396-0.641)	**0.602** (0.463-0.753)	**0.720** (0.537-0.911)	**0.807** (0.593-1.03)	**0.891** (0.639-1.15)	**0.973** (0.678-1.28)	**1.08** (0.729-1.44)	**1.15** (0.768-1.56)
10-min	**0.489** (0.378-0.608)	**0.590** (0.457-0.735)	**0.752** (0.580-0.938)	**0.882** (0.678-1.10)	**1.05** (0.786-1.33)	**1.18** (0.868-1.51)	**1.30** (0.936-1.69)	**1.42** (0.992-1.88)	**1.58** (1.07-2.11)	**1.69** (1.12-2.29)
15-min	**0.596** (0.461-0.741)	**0.720** (0.557-0.896)	**0.917** (0.708-1.14)	**1.08** (0.827-1.34)	**1.28** (0.959-1.63)	**1.44** (1.06-1.84)	**1.59** (1.14-2.06)	**1.74** (1.21-2.29)	**1.92** (1.30-2.57)	**2.06** (1.37-2.79)
30-min	**0.812** (0.629-1.01)	**0.987** (0.763-1.23)	**1.26** (0.975-1.58)	**1.49** (1.14-1.86)	**1.78** (1.33-2.25)	**2.00** (1.47-2.55)	**2.21** (1.58-2.86)	**2.42** (1.68-3.18)	**2.67** (1.81-3.58)	**2.86** (1.91-3.88)
60-min	**1.05** (0.810-1.30)	**1.26** (0.977-1.57)	**1.62** (1.25-2.02)	**1.92** (1.48-2.40)	**2.34** (1.75-2.98)	**2.66** (1.96-3.42)	**2.99** (2.15-3.90)	**3.33** (2.33-4.40)	**3.78** (2.57-5.08)	**4.12** (2.75-5.60)
2-hr	**1.28** (1.00-1.58)	**1.54** (1.20-1.90)	**1.98** (1.54-2.44)	**2.35** (1.83-2.91)	**2.90** (2.20-3.68)	**3.33** (2.49-4.25)	**3.77** (2.75-4.89)	**4.24** (3.00-5.58)	**4.88** (3.35-6.53)	**5.38** (3.62-7.25)
3-hr	**1.44** (1.14-1.76)	**1.71** (1.35-2.10)	**2.19** (1.72-2.68)	**2.61** (2.05-3.22)	**3.24** (2.50-4.12)	**3.77** (2.84-4.81)	**4.32** (3.18-5.60)	**4.92** (3.50-6.47)	**5.75** (3.98-7.68)	**6.42** (4.34-8.61)
6-hr	**1.74** (1.39-2.11)	**2.02** (1.61-2.44)	**2.53** (2.02-3.07)	**3.01** (2.39-3.67)	**3.76** (2.96-4.78)	**4.41** (3.38-5.62)	**5.12** (3.82-6.61)	**5.90** (4.26-7.73)	**7.02** (4.91-9.34)	**7.94** (5.40-10.6)
12-hr	**2.06** (1.67-2.48)	**2.33** (1.89-2.80)	**2.85** (2.30-3.43)	**3.36** (2.70-4.05)	**4.18** (3.33-5.27)	**4.89** (3.80-6.18)	**5.68** (4.30-7.29)	**6.57** (4.80-8.56)	**7.86** (5.56-10.4)	**8.94** (6.13-11.8)
24-hr	**2.36** (1.94-2.80)	**2.66** (2.18-3.17)	**3.25** (2.66-3.87)	**3.82** (3.11-4.56)	**4.71** (3.80-5.88)	**5.50** (4.32-6.88)	**6.36** (4.86-8.08)	**7.33** (5.40-9.45)	**8.73** (6.21-11.4)	**9.88** (6.83-12.9)

Table 3: Summary of Pre- and Post-Development Land Cover

Land Cover	**Pre-Development (AC)**	**Post-Development (AC)**
Impervious	0.13	3.88
Pervious/Landscaping	5.24	1.99
Total Area	5.37	5.37

Stormwater Management Features

Wet Detention Ponds

The Carillon at Germantown development will utilize two proposed wet detention ponds to achieve its stormwater requirements; one in the northwest portion of the site (Northwest Pond) and one in the southeast portion of the site (Southeast Pond). The Northwest pond will discharge into an existing stormwater facility in the Faith Lutheran Church property. The Southeast Pond will discharge into an existing ditch in the right of way of Division Road.

Stormwater Quantity

The site achieves the Village's requirement of having a post-development runoff volume that is no greater than the pre-development volume for both the 1% probability (100-year) and 50% probability (2-year) storm events during the critical time. The critical time for the Menomonee River is 9.5 hours. A summary is provided in Table 3 below:

Table 4: Summary of Volumetric Peak Flow Calculations

	Existing Conditions Volume (Cubic Feet)	**Proposed Conditions Volume (Cubic Feet)**
2-Year Storm Event	23,305	17,627
100-Year Storm Event	87,181	83,839

Water Quality Performance

The pond has demonstrated effective treatment of stormwater runoff through modeling using WinSLAMM v10.5. The model evaluated pollutant removal performance based on the existing watershed conditions and the proposed land use change from open space to multi-family residential. The results confirm that the pond meets and exceeds the Village of Germantown's Total Suspended Solids (TSS) water quality requirements.

Table 3: Water Quality Performance Summary

Pollutant	**Percent Reduction (%)**	**Requirement (%)**
Total Suspended Solids (TSS)	84.6%	80.0

These reductions are based on average annual rainfall and are compared to conditions without runoff management controls. The TSS reduction exceeds the Village's minimum requirements.

Infiltration

NRCS soil survey provided evidence of an existing subsurface comprising of silt loam which, according to Table 2 the Wisconsin Department of Natural Resources Technical Standard 1002, has an infiltration rate of 0.13 inches per hour. Additionally, high bedrock provides limited room for separation distance between the bottom of a stormwater facility and the bedrock. As such, we are assuming an exception from the Village's infiltration requirement.

STORMWATER ANALYSIS

Methodology

Stormwater runoff for the Carillon at Germantown development was estimated using the USDA Soil Conservation Service TR-55 methodology, "Urban Hydrology for Small Watersheds." This approach calculates peak runoff rates and hydrographs based on precipitation events, land cover, and soil characteristics. The analysis was performed using HydroCAD software to model both existing and proposed site conditions.

Soil data was obtained from the NRCS Soil Survey for Washington County, Wisconsin, which classifies the site's soils predominantly as Hydrologic Soil Group D, indicating high runoff potential and low infiltration rates. This classification was used conservatively throughout the modeling process.

Runoff Curve Numbers (CN) were determined based on existing land use (open space) and proposed land use (multi-family residential), with adjustments made to reflects increased impervious surface coverage. A factor of safety was applied to CN values to account for potential future changes in site layout.

Time of Concentration (Tc) values were calculated using TR-55 procedures, considering slope, flow path length, and surface roughness. These values were used to generate hydrographs for each sub-watershed contributing to the regional pond.

STORMWATER MAINTENANCE AGREEMENT

Ownership Entity

The Cirrus Property Group will be owner of the stormwater facility.

Maintenance for All Facilities

Stormwater facilities on site, including the storm sewers, inlets, and manholes, must be maintained in a clean and operable condition by the Cirrus Property Group. Sediment and debris shall be removed regularly to ensure proper function. Elevations, grades, and flow paths must be preserved as designed.

A detailed maintenance plan will be developed upon final design completion and will include:

- Routine inspection schedules
- Sediment removal procedures
- Vegetation management
- Equipment and materials required for maintenance

Refer to Appendix E for the Stormwater Maintenance Agreement Template.

CONCLUSION

The stormwater management strategy for the Carillon at Germantown development has been carefully engineered to meet or exceed all applicable requirements discussed and determined by the Village of Germantown.

The design leverages two proposed wet ponds to manage increased runoff from the proposed development. Modeling confirms that peak flows and water quality targets are met and highwater level remaining below the emergency overflow elevation.

Figure 1 – Aerial and Location Map

Date	Description	No.

Revisions

LANGAN

Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology, D.P.C.

247 Freshwater Way, Suite 532
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Project

THE CARILLON AT GERMANTOWN

GERMANTOWN
WASHINGTON COUNTY WISCONSIN

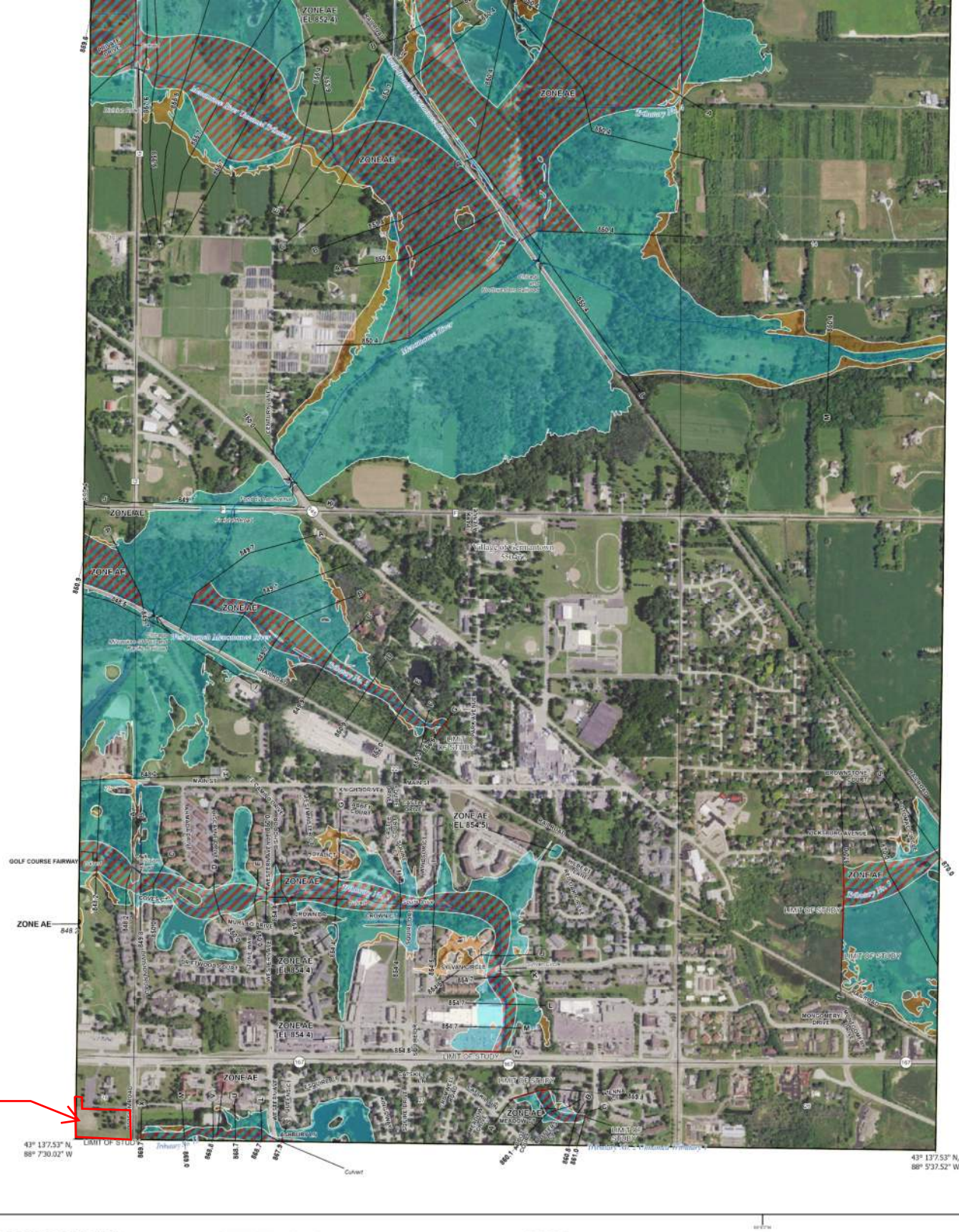
Drawing Title

SITE LOCATION MAP

Project No.	543001101
Date	
Drawn By	
Checked By	

Sheet of 1

Figure 2 – FEMA Map



Project Site

FLOOD HAZARD INFORMATION

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

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTPS://MSC.FEMA.GOV

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

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

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

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance; Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available effective flood hazard information for your community, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Mapping and Insurance eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be downloaded from the website. Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be acquired directly from the Flood Map Service Center at the website listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Basemap information shown on this FIRM was provided in digital format by the United States Geological Survey (USGS). The basemap shown is the USGS National Map: Orthoimagery. Last refreshed October, 2020.

Note: Some Special Flood Hazard Areas with elevations may not appear with elevation labels if the Base Flood Elevation or Cross-section line which communicates the elevation for the location appears on the adjacent panel. Please see the Panel Locator Diagram on this map panel to determine the adjacent panel and find the elevations feature there, or alternatively use the Flood Insurance Study report for detailed elevations by flood source.

SCALE

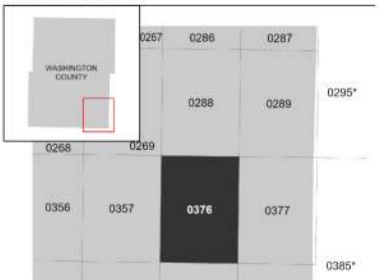
1 inch = 500 feet 1:6,000

0 250 500 1,000 1,500 2,000 feet

0 50 100 200 300 400 meters

Map Projection: NAD 1983 HARN UTM Zone 16N
Vertical Datum: NAVD88

PANEL LOCATOR



FEMA National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

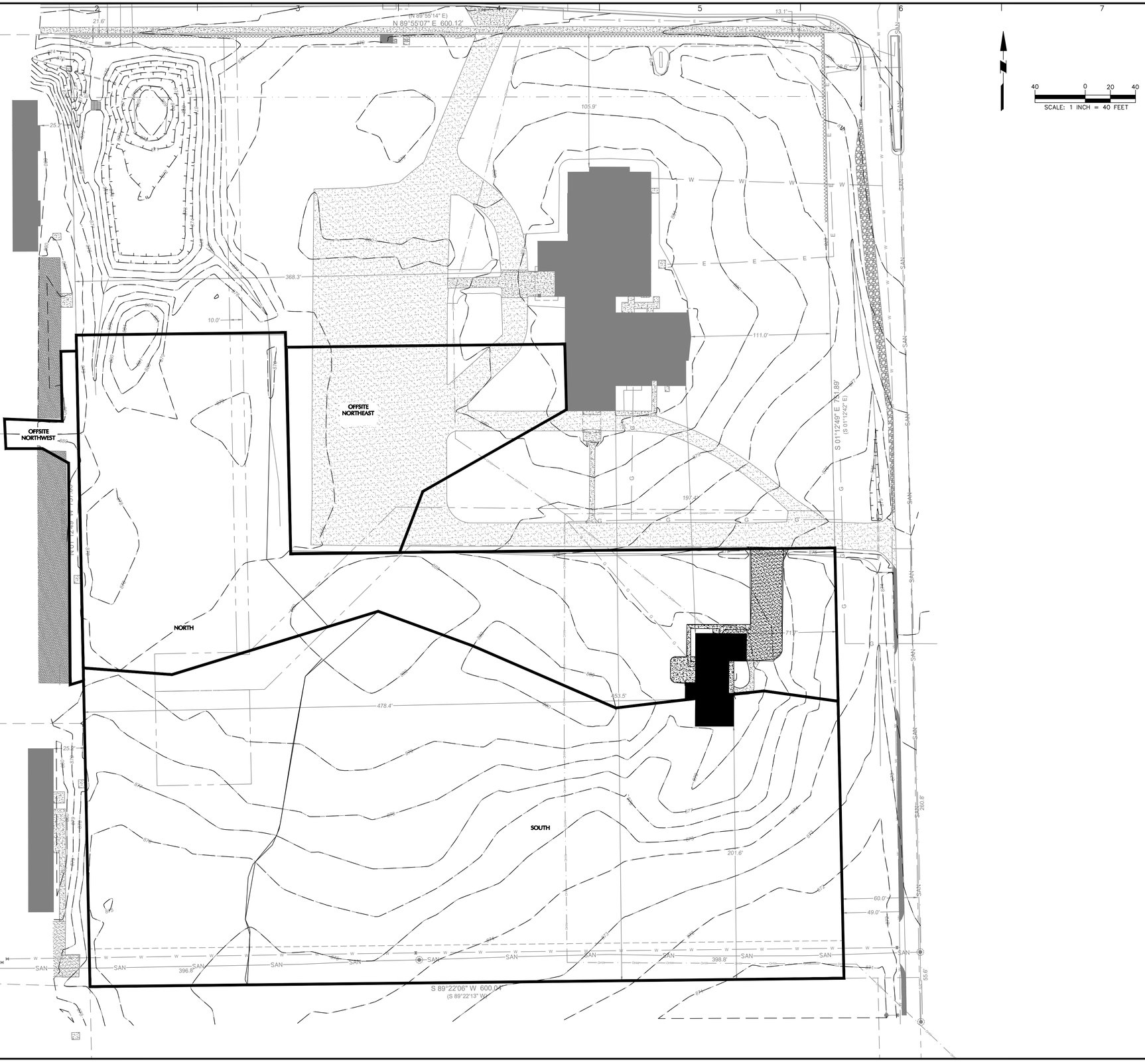
WASHINGTON COUNTY
WISCONSIN
AND INCORPORATED
AREAS

FEMA

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
VILLAGE OF GERMANTOWN	550472	0376	E

Drawing 1 – Existing Watershed Map



Date	Description	No.
Revisions		

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Project

THE CARILLON AT GERMANTOWN

GERMANTOWN
WASHINGTON COUNTY WISCONSIN

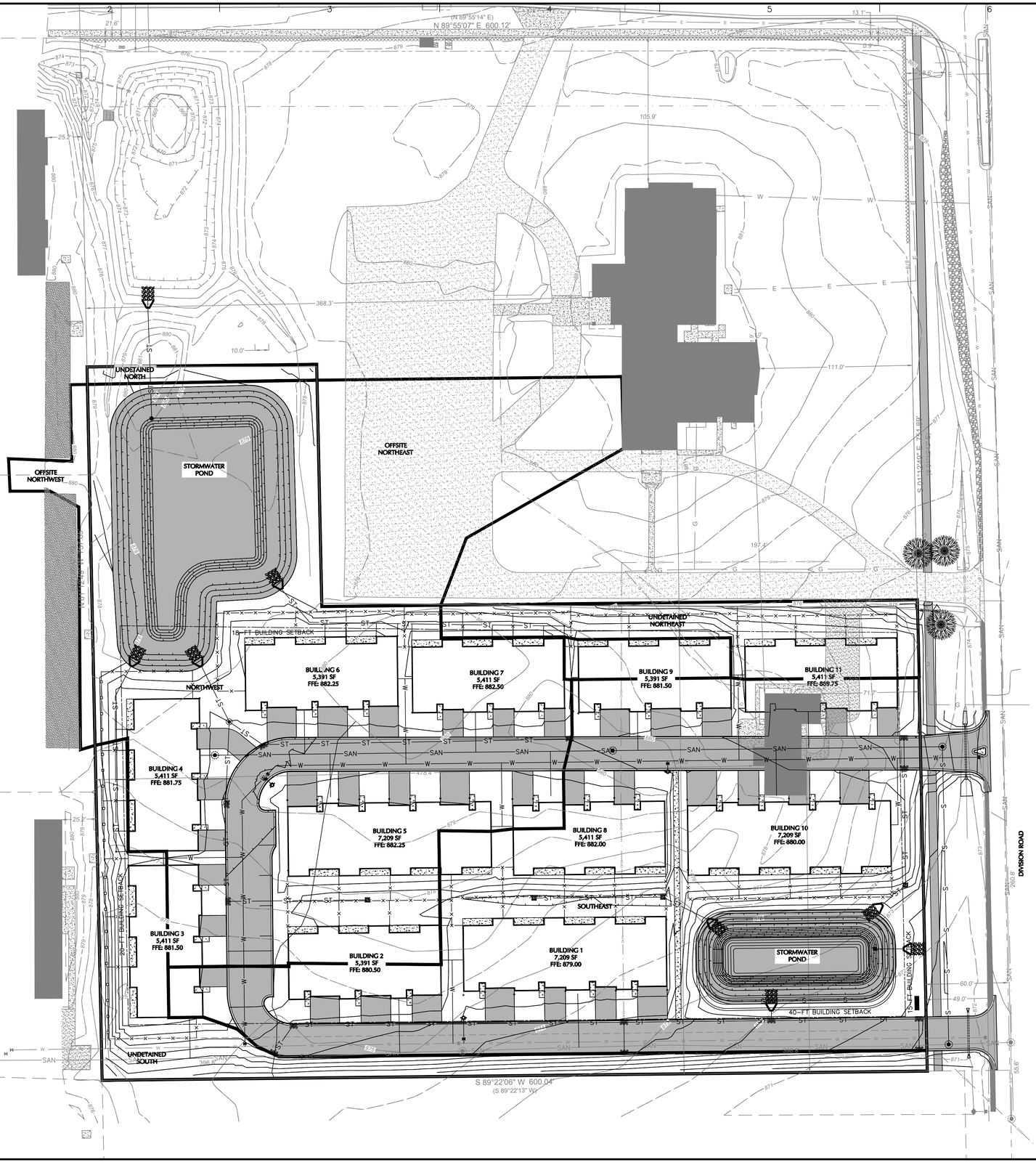
Drawing Title

EXISTING DRAINAGE AREA PLAN

Project No.	543001101
Date	
Drawn By	
Checked By	

Sheet of 1

Drawing 2 – Proposed Watershed Map



Date	Description	No.
Revisions		

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Project

THE CARILLON AT GERMANTOWN

GERMANTOWN
WASHINGTON COUNTY WISCONSIN

Drawing Title

PROPOSED DRAINAGE AREA PLAN

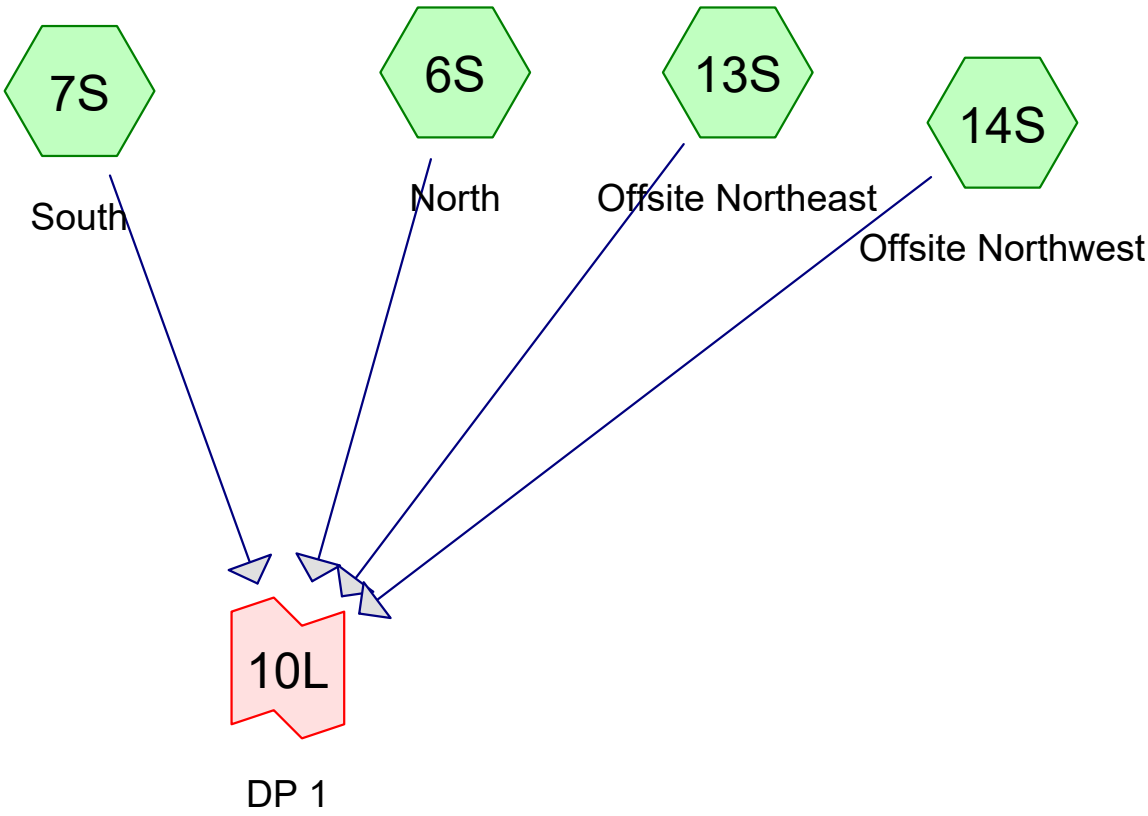
Project No.	543001101
Date	
Drawn By	
Checked By	

Sheet of 1

Drawing 3 – Civil Plan Set

Appendix A – Pre-Construction HydroCAD

Iteration



Subcat Reach Pond Link

Routing Diagram for 20260501_543001101 - Existing Peak Rate
Prepared by Langan Engineering, Printed 5/20/2026
HydroCAD® 10.20-7a s/n 08223 © 2025 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1yr-24hr	MSE 24-hr	3	Default	24.00	1	2.36	2
2	2yr-24hr	MSE 24-hr	3	Default	24.00	1	2.66	2
3	100yr-24hr	MSE 24-hr	3	Default	24.00	1	6.36	2

Summary for Subcatchment 6S: North

Runoff = 1.60 cfs @ 12.37 hrs, Volume= 0.136 af, Depth= 0.84"
Routed to Link 10L : DP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1yr-24hr Rainfall=2.36"

	Area (sf)	CN	Description
	3,264	98	Paved roads w/curbs & sewers, HSG D
	79,393	80	>75% Grass cover, Good, HSG D
*	1,732	98	Roof
	84,389	81	Weighted Average
	79,393		94.08% Pervious Area
	4,996		5.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.67"
3.6	153	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	253	Total			

Summary for Subcatchment 7S: South

Runoff = 2.91 cfs @ 12.32 hrs, Volume= 0.229 af, Depth= 0.79"
Routed to Link 10L : DP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1yr-24hr Rainfall=2.36"

	Area (sf)	CN	Description
*	719	98	Building
	149,840	80	>75% Grass cover, Good, HSG D
	150,559	80	Weighted Average
	149,840		99.52% Pervious Area
	719		0.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	100	0.0180	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.67"
4.1	233	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.4	333	Total			

Summary for Subcatchment 13S: Offsite Northeast

Runoff = 0.96 cfs @ 12.34 hrs, Volume= 0.080 af, Depth= 1.56"
Routed to Link 10L : DP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1yr-24hr Rainfall=2.36"

	Area (sf)	CN	Description
*	17,249	98	Parking Lot
	9,459	80	>75% Grass cover, Good, HSG D
	26,708	92	Weighted Average
	9,459		35.42% Pervious Area
	17,249		64.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.67"
3.6	153	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	253	Total			

Summary for Subcatchment 14S: Offsite Northwest

Runoff = 0.11 cfs @ 12.16 hrs, Volume= 0.006 af, Depth= 0.79"
Routed to Link 10L : DP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1yr-24hr Rainfall=2.36"

	Area (sf)	CN	Description
*	0	98	Parking Lot
	3,870	80	>75% Grass cover, Good, HSG D
	3,870	80	Weighted Average
	3,870		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	58	0.0340	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.67"

Summary for Link 10L: DP 1

Inflow Area = 6.096 ac, 8.65% Impervious, Inflow Depth = 0.89" for 1yr-24hr event
Inflow = 5.48 cfs @ 12.34 hrs, Volume= 0.451 af
Primary = 5.48 cfs @ 12.34 hrs, Volume= 0.451 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 6S: North

Runoff = 2.03 cfs @ 12.36 hrs, Volume= 0.171 af, Depth= 1.06"
Routed to Link 10L : DP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2yr-24hr Rainfall=2.66"

	Area (sf)	CN	Description
	3,264	98	Paved roads w/curbs & sewers, HSG D
	79,393	80	>75% Grass cover, Good, HSG D
*	1,732	98	Roof
	84,389	81	Weighted Average
	79,393		94.08% Pervious Area
	4,996		5.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.67"
3.6	153	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	253	Total			

Summary for Subcatchment 7S: South

Runoff = 3.74 cfs @ 12.32 hrs, Volume= 0.288 af, Depth= 1.00"
Routed to Link 10L : DP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2yr-24hr Rainfall=2.66"

	Area (sf)	CN	Description
*	719	98	Building
	149,840	80	>75% Grass cover, Good, HSG D
	150,559	80	Weighted Average
	149,840		99.52% Pervious Area
	719		0.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	100	0.0180	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.67"
4.1	233	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.4	333	Total			

Summary for Subcatchment 13S: Offsite Northeast

Runoff = 1.13 cfs @ 12.34 hrs, Volume= 0.094 af, Depth= 1.84"
Routed to Link 10L : DP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2yr-24hr Rainfall=2.66"

	Area (sf)	CN	Description
*	17,249	98	Parking Lot
	9,459	80	>75% Grass cover, Good, HSG D
	26,708	92	Weighted Average
	9,459		35.42% Pervious Area
	17,249		64.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.67"
3.6	153	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	253	Total			

Summary for Subcatchment 14S: Offsite Northwest

Runoff = 0.15 cfs @ 12.16 hrs, Volume= 0.007 af, Depth= 1.00"
Routed to Link 10L : DP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2yr-24hr Rainfall=2.66"

	Area (sf)	CN	Description
*	0	98	Parking Lot
	3,870	80	>75% Grass cover, Good, HSG D
	3,870	80	Weighted Average
	3,870		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	58	0.0340	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.67"

Summary for Link 10L: DP 1

Inflow Area = 6.096 ac, 8.65% Impervious, Inflow Depth = 1.10" for 2yr-24hr event
Inflow = 6.90 cfs @ 12.33 hrs, Volume= 0.561 af
Primary = 6.90 cfs @ 12.33 hrs, Volume= 0.561 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 6S: North

Runoff = 8.20 cfs @ 12.34 hrs, Volume= 0.680 af, Depth= 4.21"
Routed to Link 10L : DP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100yr-24hr Rainfall=6.36"

	Area (sf)	CN	Description
	3,264	98	Paved roads w/curbs & sewers, HSG D
	79,393	80	>75% Grass cover, Good, HSG D
*	1,732	98	Roof
	84,389	81	Weighted Average
	79,393		94.08% Pervious Area
	4,996		5.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.67"
3.6	153	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	253	Total			

Summary for Subcatchment 7S: South

Runoff = 15.62 cfs @ 12.30 hrs, Volume= 1.183 af, Depth= 4.11"
Routed to Link 10L : DP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100yr-24hr Rainfall=6.36"

	Area (sf)	CN	Description
*	719	98	Building
	149,840	80	>75% Grass cover, Good, HSG D
	150,559	80	Weighted Average
	149,840		99.52% Pervious Area
	719		0.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	100	0.0180	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.67"
4.1	233	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.4	333	Total			

Summary for Subcatchment 13S: Offsite Northeast

Runoff = 3.17 cfs @ 12.34 hrs, Volume= 0.277 af, Depth= 5.42"
Routed to Link 10L : DP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100yr-24hr Rainfall=6.36"

	Area (sf)	CN	Description
*	17,249	98	Parking Lot
	9,459	80	>75% Grass cover, Good, HSG D
	26,708	92	Weighted Average
	9,459		35.42% Pervious Area
	17,249		64.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.67"
3.6	153	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	253	Total			

Summary for Subcatchment 14S: Offsite Northwest

Runoff = 0.59 cfs @ 12.15 hrs, Volume= 0.030 af, Depth= 4.11"
Routed to Link 10L : DP 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100yr-24hr Rainfall=6.36"

	Area (sf)	CN	Description
*	0	98	Parking Lot
	3,870	80	>75% Grass cover, Good, HSG D
	3,870	80	Weighted Average
	3,870		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	58	0.0340	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.67"

Summary for Link 10L: DP 1

Inflow Area = 6.096 ac, 8.65% Impervious, Inflow Depth = 4.27" for 100yr-24hr event
Inflow = 27.06 cfs @ 12.31 hrs, Volume= 2.171 af
Primary = 27.06 cfs @ 12.31 hrs, Volume= 2.171 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Events for Subcatchment 6S: North

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1yr-24hr	2.36	1.60	0.136	0.84
2yr-24hr	2.66	2.03	0.171	1.06
100yr-24hr	**6.36**	**8.20**	**0.680**	**4.21**

Events for Subcatchment 7S: South

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1yr-24hr	2.36	2.91	0.229	0.79
2yr-24hr	2.66	3.74	0.288	1.00
100yr-24hr	**6.36**	**15.62**	**1.183**	**4.11**

Events for Subcatchment 13S: Offsite Northeast

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1yr-24hr	2.36	0.96	0.080	1.56
2yr-24hr	2.66	1.13	0.094	1.84
100yr-24hr	**6.36**	**3.17**	**0.277**	**5.42**

Events for Subcatchment 14S: Offsite Northwest

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1yr-24hr	2.36	0.11	0.006	0.79
2yr-24hr	2.66	0.15	0.007	1.00
100yr-24hr	**6.36**	**0.59**	**0.030**	**4.11**

Events for Link 10L: DP 1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1yr-24hr	5.48	5.48	**0.00**
2yr-24hr	6.90	6.90	0.00
100yr-24hr	**27.06**	**27.06**	0.00

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0	0	0	0
0.05	0	0	0
0.1	0	0	0
0.15	0	0	0
0.2	0	0	0
0.25	0	0	0
0.3	0	0	0
0.35	0	0	0
0.4	0	0	0
0.45	0	0	0
0.5	0	0	0
0.55	0	0	0
0.6	0	0	0
0.65	0	0	0
0.7	0	0	0
0.75	0	0	0
0.8	0	0	0
0.85	0	0	0
0.9	0	0	0
0.95	0	0	0
1	0	0	0
1.05	0	0	0
1.1	0	0	0
1.15	0	0	0
1.2	0	0	0
1.25	0	0	0
1.3	0	0	0
1.35	0	0	0
1.4	0	0	0
1.45	0	0	0
1.5	0	0	0
1.55	0	0	0
1.6	0	0	0
1.65	0	0	0
1.7	0	0	0
1.75	0	0	0
1.8	0	0	0
1.85	0	0	0
1.9	0	0	0
1.95	0	0	0
2	0	0	0
2.05	0	0	0
2.1	0	0	0
2.15	0	0	0
2.2	0	0	0
2.25	0	0	0
2.3	0	0	0

2.35	0	0	0
2.4	0	0	0
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2.95	0	0	0
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3.25	0	0	0
3.3	0	0	0
3.35	0	0	0
3.4	0	0	0
3.45	0	0	0
3.5	0	0	0
3.55	0	0	0
3.6	0	0	0
3.65	0	0	0
3.7	0	0	0
3.75	0	0	0
3.8	0	0	0
3.85	0	0	0
3.9	0	0	0
3.95	0	0	0
4	0	0	0
4.05	0	0	0
4.1	0	0	0
4.15	0	0	0
4.2	0	0	0
4.25	0	0	0
4.3	0	0	0
4.35	0	0	0
4.4	0	0	0
4.45	0	0	0
4.5	0	0	0
4.55	0	0	0
4.6	0	0	0
4.65	0	0	0
4.7	0	0	0
4.75	0	0	0

4.8	0	0	0
4.85	0	0	0
4.9	0	0	0
4.95	0	0	0
5	0	0	0
5.05	0	0	0
5.1	0	0	0
5.15	0	0	0
5.2	0	0	0
5.25	0	0	0
5.3	0	0	0
5.35	0	0	0
5.4	0	0	0
5.45	0	0	0
5.5	0	0	0
5.55	0	0	0
5.6	0	0	0
5.65	0	0	0
5.7	0	0	0
5.75	0	0	0
5.8	0	0	0
5.85	0	0	0
5.9	0	0	0
5.95	0	0	0
6	0	0	0
6.05	0	0	0
6.1	0	0	0
6.15	0	0	0
6.2	0	0	0
6.25	0	0	0
6.3	0	0	0
6.35	0	0	0
6.4	0	0	0
6.45	0	0	0
6.5	0	0	0
6.55	0	0	0
6.6	0	0	0
6.65	0	0	0
6.7	0	0	0
6.75	0	0	0
6.8	0	0	0
6.85	0	0	0
6.9	0	0	0
6.95	0	0	0
7	0	0	0
7.05	0	0	0
7.1	0	0	0
7.15	0	0	0
7.2	0	0	0

7.25	0	0	0
7.3	0	0	0
7.35	0	0	0
7.4	0	0	0
7.45	0	0	0
7.5	0	0	0
7.55	0	0	0
7.6	0	0	0
7.65	0	0	0
7.7	0	0	0
7.75	0	0	0
7.8	0	0	0
7.85	0	0	0
7.9	0	0	0
7.95	0	0	0
8	0	0	0
8.05	0	0	0
8.1	0	0	0
8.15	0	0	0
8.2	0	0	0
8.25	0	0	0
8.3	0	0	0
8.35	0	0	0
8.4	0	0	0
8.45	0	0	0
8.5	0	0	0
8.55	0	0	0
8.6	0	0	0
8.65	0	0	0
8.7	0	0	0
8.75	0	0	0
8.8	0	0	0
8.85	0	0	0
8.9	0	0	0
8.95	0.01	0	0.01
9	0.01	0	0.01
9.05	0.01	0	0.01
9.1	0.01	0	0.01
9.15	0.01	0	0.01
9.2	0.01	0	0.01
9.25	0.01	0	0.01
9.3	0.01	0	0.01
9.35	0.01	0	0.01
9.4	0.01	0	0.01
9.45	0.01	0	0.01
9.5	0.01	0	0.01
9.55	0.01	0	0.01
9.6	0.01	0	0.01
9.65	0.01	0	0.01

9.7	0.01	0	0.01				
9.75	0.01	0	0.01				
9.8	0.01	0	0.01				
9.85	0.01	0	0.01				
9.9	0.02	0	0.02				
9.95	0.02	0	0.02				
10	0.02	0	0.02				
10.05	0.02	0	0.02				
10.1	0.02	0	0.02				
10.15	0.02	0	0.02				
10.2	0.02	0	0.02				
10.25	0.02	0	0.02				
10.3	0.02	0	0.02				
10.35	0.02	0	0.02				
10.4	0.02	0	0.02				
10.45	0.02	0	0.02				
10.5	0.02	0	0.02				
10.55	0.02	0	0.02				
10.6	0.02	0	0.02				
10.65	0.02	0	0.02				
10.7	0.02	0	0.02				
10.75	0.03	0	0.03				
10.8	0.03	0	0.03				
10.85	0.03	0	0.03				
10.9	0.04	0	0.04				
10.95	0.04	0	0.04				
11	0.04	0	0.04				
11.05	0.05	0	0.05				
11.1	0.05	0	0.05				
11.15	0.06	0	0.06				
11.2	0.07	0	0.07				
11.25	0.08	0	0.08				
11.3	0.1	0	0.1	Hr	Minutes	Seconds	Cubic Feet
11.35	0.11	0	0.11	0.05	3	180	19.8
11.4	0.13	0	0.13	0.05	3	180	23.4
11.45	0.15	0	0.15	0.05	3	180	27
11.5	0.18	0	0.18	0.05	3	180	32.4
11.55	0.2	0	0.2	0.05	3	180	36
11.6	0.23	0	0.23	0.05	3	180	41.4
11.65	0.27	0	0.27	0.05	3	180	48.6
11.7	0.32	0	0.32	0.05	3	180	57.6
11.75	0.38	0	0.38	0.05	3	180	68.4
11.8	0.48	0	0.48	0.05	3	180	86.4
11.85	0.6	0	0.6	0.05	3	180	108
11.9	0.76	0	0.76	0.05	3	180	136.8
11.95	0.98	0	0.98	0.05	3	180	176.4
12	1.3	0	1.3	0.05	3	180	234
12.05	1.78	0	1.78	0.05	3	180	320.4
12.1	2.55	0	2.55	0.05	3	180	459

12.15	3.66	0	3.66	0.05	3	180	658.8
12.2	4.96	0	4.96	0.05	3	180	892.8
12.25	6.14	0	6.14	0.05	3	180	1105.2
12.3	6.81	0	6.81	0.05	3	180	1225.8
12.35	6.87	0	6.87	0.05	3	180	1236.6
12.4	6.46	0	6.46	0.05	3	180	1162.8
12.45	5.8	0	5.8	0.05	3	180	1044
12.5	5.07	0	5.07	0.05	3	180	912.6
12.55	4.39	0	4.39	0.05	3	180	790.2
12.6	3.82	0	3.82	0.05	3	180	687.6
12.65	3.32	0	3.32	0.05	3	180	597.6
12.7	2.88	0	2.88	0.05	3	180	518.4
12.75	2.5	0	2.5	0.05	3	180	450
12.8	2.19	0	2.19	0.05	3	180	394.2
12.85	1.94	0	1.94	0.05	3	180	349.2
12.9	1.75	0	1.75	0.05	3	180	315
12.95	1.6	0	1.6	0.05	3	180	288
13	1.48	0	1.48	0.05	3	180	266.4
13.05	1.38	0	1.38	0.05	3	180	248.4
13.1	1.3	0	1.3	0.05	3	180	234
13.15	1.23	0	1.23	0.05	3	180	221.4
13.2	1.17	0	1.17	0.05	3	180	210.6
13.25	1.11	0	1.11	0.05	3	180	199.8
13.3	1.06	0	1.06	0.05	3	180	190.8
13.35	1.01	0	1.01	0.05	3	180	181.8
13.4	0.97	0	0.97	0.05	3	180	174.6
13.45	0.92	0	0.92	0.05	3	180	165.6
13.5	0.88	0	0.88	0.05	3	180	158.4
13.55	0.84	0	0.84	0.05	3	180	151.2
13.6	0.8	0	0.8	0.05	3	180	144
13.65	0.75	0	0.75	0.05	3	180	135
13.7	0.7	0	0.7	0.05	3	180	126
13.75	0.64	0	0.64	0.05	3	180	115.2
13.8	0.59	0	0.59	0.05	3	180	106.2
13.85	0.55	0	0.55	0.05	3	180	99
13.9	0.52	0	0.52	0.05	3	180	93.6
13.95	0.49	0	0.49	0.05	3	180	88.2
14	0.47	0	0.47	0.05	3	180	84.6
14.05	0.46	0	0.46	0.05	3	180	82.8
14.1	0.45	0	0.45	0.05	3	180	81
14.15	0.44	0	0.44	0.05	3	180	79.2
14.2	0.43	0	0.43	0.05	3	180	77.4
14.25	0.43	0	0.43	0.05	3	180	77.4
14.3	0.42	0	0.42	0.05	3	180	75.6
14.35	0.42	0	0.42	0.05	3	180	75.6
14.4	0.42	0	0.42	0.05	3	180	75.6
14.45	0.41	0	0.41	0.05	3	180	73.8
14.5	0.41	0	0.41	0.05	3	180	73.8
14.55	0.41	0	0.41	0.05	3	180	73.8

14.6	0.41	0	0.41	0.05	3	180	73.8
14.65	0.4	0	0.4	0.05	3	180	72
14.7	0.4	0	0.4	0.05	3	180	72
14.75	0.4	0	0.4	0.05	3	180	72
14.8	0.4	0	0.4	0.05	3	180	72
14.85	0.39	0	0.39	0.05	3	180	70.2
14.9	0.39	0	0.39	0.05	3	180	70.2
14.95	0.39	0	0.39	0.05	3	180	70.2
15	0.39	0	0.39	0.05	3	180	70.2
15.05	0.38	0	0.38	0.05	3	180	68.4
15.1	0.38	0	0.38	0.05	3	180	68.4
15.15	0.37	0	0.37	0.05	3	180	66.6
15.2	0.35	0	0.35	0.05	3	180	63
15.25	0.33	0	0.33	0.05	3	180	59.4
15.3	0.31	0	0.31	0.05	3	180	55.8
15.35	0.29	0	0.29	0.05	3	180	52.2
15.4	0.27	0	0.27	0.05	3	180	48.6
15.45	0.26	0	0.26	0.05	3	180	46.8
15.5	0.25	0	0.25	0.05	3	180	45
15.55	0.25	0	0.25	0.05	3	180	45
15.6	0.24	0	0.24	0.05	3	180	43.2
15.65	0.24	0	0.24	0.05	3	180	43.2
15.7	0.23	0	0.23	0.05	3	180	41.4
15.75	0.23	0	0.23	0.05	3	180	41.4
15.8	0.23	0	0.23	0.05	3	180	41.4
15.85	0.23	0	0.23	0.05	3	180	41.4
15.9	0.22	0	0.22	0.05	3	180	39.6
15.95	0.22	0	0.22	0.05	3	180	39.6
16	0.22	0	0.22	0.05	3	180	39.6
16.05	0.22	0	0.22	0.05	3	180	39.6
16.1	0.22	0	0.22	0.05	3	180	39.6
16.15	0.22	0	0.22	0.05	3	180	39.6
16.2	0.22	0	0.22	0.05	3	180	39.6
16.25	0.22	0	0.22	0.05	3	180	39.6
16.3	0.21	0	0.21	0.05	3	180	37.8
16.35	0.21	0	0.21	0.05	3	180	37.8
16.4	0.21	0	0.21	0.05	3	180	37.8
16.45	0.21	0	0.21	0.05	3	180	37.8
16.5	0.21	0	0.21	0.05	3	180	37.8
16.55	0.21	0	0.21	0.05	3	180	37.8
16.6	0.21	0	0.21	0.05	3	180	37.8
16.65	0.21	0	0.21	0.05	3	180	37.8
16.7	0.21	0	0.21	0.05	3	180	37.8
16.75	0.21	0	0.21	0.05	3	180	37.8
16.8	0.2	0	0.2	0.05	3	180	36
16.85	0.2	0	0.2	0.05	3	180	36
16.9	0.2	0	0.2	0.05	3	180	36
16.95	0.2	0	0.2	0.05	3	180	36
17	0.2	0	0.2	0.05	3	180	36

17.05	0.2	0	0.2	0.05	3	180	36
17.1	0.2	0	0.2	0.05	3	180	36
17.15	0.2	0	0.2	0.05	3	180	36
17.2	0.2	0	0.2	0.05	3	180	36
17.25	0.19	0	0.19	0.05	3	180	34.2
17.3	0.19	0	0.19	0.05	3	180	34.2
17.35	0.19	0	0.19	0.05	3	180	34.2
17.4	0.19	0	0.19	0.05	3	180	34.2
17.45	0.19	0	0.19	0.05	3	180	34.2
17.5	0.19	0	0.19	0.05	3	180	34.2
17.55	0.19	0	0.19	0.05	3	180	34.2
17.6	0.19	0	0.19	0.05	3	180	34.2
17.65	0.19	0	0.19	0.05	3	180	34.2
17.7	0.18	0	0.18	0.05	3	180	32.4
17.75	0.18	0	0.18	0.05	3	180	32.4
17.8	0.18	0	0.18	0.05	3	180	32.4
17.85	0.18	0	0.18	0.05	3	180	32.4
17.9	0.18	0	0.18	0.05	3	180	32.4
17.95	0.18	0	0.18	0.05	3	180	32.4
18	0.18	0	0.18	0.05	3	180	32.4
18.05	0.18	0	0.18	0.05	3	180	32.4
18.1	0.18	0	0.18	0.05	3	180	32.4
18.15	0.17	0	0.17	0.05	3	180	30.6
18.2	0.17	0	0.17	0.05	3	180	30.6
18.25	0.17	0	0.17	0.05	3	180	30.6
18.3	0.17	0	0.17	0.05	3	180	30.6
18.35	0.17	0	0.17	0.05	3	180	30.6
18.4	0.17	0	0.17	0.05	3	180	30.6
18.45	0.17	0	0.17	0.05	3	180	30.6
18.5	0.17	0	0.17	0.05	3	180	30.6
18.55	0.17	0	0.17	0.05	3	180	30.6
18.6	0.16	0	0.16	0.05	3	180	28.8
18.65	0.16	0	0.16	0.05	3	180	28.8
18.7	0.16	0	0.16	0.05	3	180	28.8
18.75	0.16	0	0.16	0.05	3	180	28.8
18.8	0.16	0	0.16	0.05	3	180	28.8
18.85	0.16	0	0.16	0.05	3	180	28.8
18.9	0.16	0	0.16	0.05	3	180	28.8
18.95	0.16	0	0.16	0.05	3	180	28.8
19	0.16	0	0.16	0.05	3	180	28.8
19.05	0.15	0	0.15	0.05	3	180	27
19.1	0.15	0	0.15	0.05	3	180	27
19.15	0.15	0	0.15	0.05	3	180	27
19.2	0.15	0	0.15	0.05	3	180	27
19.25	0.15	0	0.15	0.05	3	180	27
19.3	0.15	0	0.15	0.05	3	180	27
19.35	0.15	0	0.15	0.05	3	180	27
19.4	0.15	0	0.15	0.05	3	180	27
19.45	0.15	0	0.15	0.05	3	180	27

19.5	0.14	0	0.14	0.05	3	180	25.2
19.55	0.14	0	0.14	0.05	3	180	25.2
19.6	0.14	0	0.14	0.05	3	180	25.2
19.65	0.14	0	0.14	0.05	3	180	25.2
19.7	0.14	0	0.14	0.05	3	180	25.2
19.75	0.14	0	0.14	0.05	3	180	25.2
19.8	0.14	0	0.14	0.05	3	180	25.2
19.85	0.14	0	0.14	0.05	3	180	25.2
19.9	0.14	0	0.14	0.05	3	180	25.2
19.95	0.13	0	0.13	0.05	3	180	23.4
20	0.13	0	0.13	0.05	3	180	23.4
20.05	0.13	0	0.13	0.05	3	180	23.4
20.1	0.13	0	0.13	0.05	3	180	23.4
20.15	0.13	0	0.13	0.05	3	180	23.4
20.2	0.13	0	0.13	0.05	3	180	23.4
20.25	0.13	0	0.13	0.05	3	180	23.4
20.3	0.13	0	0.13	0.05	3	180	23.4
20.35	0.13	0	0.13	0.05	3	180	23.4
20.4	0.12	0	0.12	0.05	3	180	21.6
20.45	0.12	0	0.12	0.05	3	180	21.6
20.5	0.12	0	0.12	0.05	3	180	21.6
20.55	0.12	0	0.12	0.05	3	180	21.6
20.6	0.12	0	0.12	0.05	3	180	21.6
20.65	0.12	0	0.12	0.05	3	180	21.6
20.7	0.12	0	0.12	0.05	3	180	21.6
20.75	0.12	0	0.12	0.05	3	180	21.6
20.8	0.11	0	0.11	0.05	3	180	19.8
20.85	0.11	0	0.11	0.05	3	180	19.8
20.9	0.11	0	0.11				
20.95	0.11	0	0.11	**Total**			**23304.6**
21	0.11	0	0.11				
21.05	0.11	0	0.11				
21.1	0.11	0	0.11				
21.15	0.11	0	0.11				
21.2	0.11	0	0.11				
21.25	0.1	0	0.1				
21.3	0.1	0	0.1				
21.35	0.1	0	0.1				
21.4	0.1	0	0.1				
21.45	0.1	0	0.1				
21.5	0.1	0	0.1				
21.55	0.1	0	0.1				
21.6	0.1	0	0.1				
21.65	0.09	0	0.09				
21.7	0.09	0	0.09				
21.75	0.09	0	0.09				
21.8	0.09	0	0.09				
21.85	0.09	0	0.09				
21.9	0.09	0	0.09				

21.95	0.09	0	0.09
22	0.09	0	0.09
22.05	0.09	0	0.09
22.1	0.08	0	0.08
22.15	0.08	0	0.08
22.2	0.08	0	0.08
22.25	0.08	0	0.08
22.3	0.08	0	0.08
22.35	0.08	0	0.08
22.4	0.08	0	0.08
22.45	0.08	0	0.08
22.5	0.07	0	0.07
22.55	0.07	0	0.07
22.6	0.07	0	0.07
22.65	0.07	0	0.07
22.7	0.07	0	0.07
22.75	0.07	0	0.07
22.8	0.07	0	0.07
22.85	0.07	0	0.07
22.9	0.07	0	0.07
22.95	0.06	0	0.06
23	0.06	0	0.06
23.05	0.06	0	0.06
23.1	0.06	0	0.06
23.15	0.06	0	0.06
23.2	0.06	0	0.06
23.25	0.06	0	0.06
23.3	0.06	0	0.06
23.35	0.05	0	0.05
23.4	0.05	0	0.05
23.45	0.05	0	0.05
23.5	0.05	0	0.05
23.55	0.05	0	0.05
23.6	0.05	0	0.05
23.65	0.05	0	0.05
23.7	0.05	0	0.05
23.75	0.05	0	0.05
23.8	0.04	0	0.04
23.85	0.04	0	0.04
23.9	0.04	0	0.04
23.95	0.04	0	0.04
24	0.04	0	0.04

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0	0	0	0
0.05	0	0	0
0.1	0	0	0
0.15	0	0	0
0.2	0	0	0
0.25	0	0	0
0.3	0	0	0
0.35	0	0	0
0.4	0	0	0
0.45	0	0	0
0.5	0	0	0
0.55	0	0	0
0.6	0	0	0
0.65	0	0	0
0.7	0	0	0
0.75	0	0	0
0.8	0	0	0
0.85	0	0	0
0.9	0	0	0
0.95	0	0	0
1	0	0	0
1.05	0	0	0
1.1	0	0	0
1.15	0	0	0
1.2	0	0	0
1.25	0	0	0
1.3	0	0	0
1.35	0	0	0
1.4	0	0	0
1.45	0	0	0
1.5	0	0	0
1.55	0	0	0
1.6	0	0	0
1.65	0	0	0
1.7	0	0	0
1.75	0	0	0
1.8	0	0	0
1.85	0	0	0
1.9	0	0	0
1.95	0	0	0
2	0	0	0
2.05	0	0	0
2.1	0	0	0
2.15	0	0	0
2.2	0	0	0
2.25	0	0	0
2.3	0	0	0

2.35	0	0	0
2.4	0	0	0
2.45	0	0	0
2.5	0	0	0
2.55	0	0	0
2.6	0	0	0
2.65	0	0	0
2.7	0	0	0
2.75	0	0	0
2.8	0	0	0
2.85	0	0	0
2.9	0	0	0
2.95	0	0	0
3	0	0	0
3.05	0	0	0
3.1	0	0	0
3.15	0	0	0
3.2	0	0	0
3.25	0	0	0
3.3	0	0	0
3.35	0	0	0
3.4	0	0	0
3.45	0	0	0
3.5	0	0	0
3.55	0	0	0
3.6	0	0	0
3.65	0	0	0
3.7	0	0	0
3.75	0	0	0
3.8	0	0	0
3.85	0	0	0
3.9	0	0	0
3.95	0	0	0
4	0	0	0
4.05	0	0	0
4.1	0	0	0
4.15	0	0	0
4.2	0	0	0
4.25	0	0	0
4.3	0	0	0
4.35	0	0	0
4.4	0	0	0
4.45	0	0	0
4.5	0	0	0
4.55	0	0	0
4.6	0	0	0
4.65	0	0	0
4.7	0	0	0
4.75	0	0	0

4.8	0	0	0
4.85	0	0	0
4.9	0	0	0
4.95	0	0	0
5	0	0	0
5.05	0	0	0
5.1	0	0	0
5.15	0	0	0
5.2	0.01	0	0.01
5.25	0.01	0	0.01
5.3	0.01	0	0.01
5.35	0.01	0	0.01
5.4	0.01	0	0.01
5.45	0.01	0	0.01
5.5	0.01	0	0.01
5.55	0.01	0	0.01
5.6	0.01	0	0.01
5.65	0.01	0	0.01
5.7	0.01	0	0.01
5.75	0.01	0	0.01
5.8	0.01	0	0.01
5.85	0.01	0	0.01
5.9	0.01	0	0.01
5.95	0.01	0	0.01
6	0.01	0	0.01
6.05	0.01	0	0.01
6.1	0.01	0	0.01
6.15	0.01	0	0.01
6.2	0.01	0	0.01
6.25	0.01	0	0.01
6.3	0.01	0	0.01
6.35	0.02	0	0.02
6.4	0.02	0	0.02
6.45	0.02	0	0.02
6.5	0.02	0	0.02
6.55	0.02	0	0.02
6.6	0.02	0	0.02
6.65	0.02	0	0.02
6.7	0.02	0	0.02
6.75	0.02	0	0.02
6.8	0.02	0	0.02
6.85	0.02	0	0.02
6.9	0.02	0	0.02
6.95	0.02	0	0.02
7	0.02	0	0.02
7.05	0.02	0	0.02
7.1	0.02	0	0.02
7.15	0.02	0	0.02
7.2	0.02	0	0.02

7.25	0.02	0	0.02
7.3	0.02	0	0.02
7.35	0.03	0	0.03
7.4	0.03	0	0.03
7.45	0.03	0	0.03
7.5	0.03	0	0.03
7.55	0.03	0	0.03
7.6	0.03	0	0.03
7.65	0.03	0	0.03
7.7	0.03	0	0.03
7.75	0.03	0	0.03
7.8	0.03	0	0.03
7.85	0.03	0	0.03
7.9	0.03	0	0.03
7.95	0.04	0	0.04
8	0.04	0	0.04
8.05	0.04	0	0.04
8.1	0.04	0	0.04
8.15	0.05	0	0.05
8.2	0.05	0	0.05
8.25	0.05	0	0.05
8.3	0.06	0	0.06
8.35	0.06	0	0.06
8.4	0.06	0	0.06
8.45	0.07	0	0.07
8.5	0.07	0	0.07
8.55	0.07	0	0.07
8.6	0.08	0	0.08
8.65	0.08	0	0.08
8.7	0.09	0	0.09
8.75	0.09	0	0.09
8.8	0.09	0	0.09
8.85	0.1	0	0.1
8.9	0.1	0	0.1
8.95	0.1	0	0.1
9	0.11	0	0.11
9.05	0.11	0	0.11
9.1	0.12	0	0.12
9.15	0.13	0	0.13
9.2	0.14	0	0.14
9.25	0.15	0	0.15
9.3	0.17	0	0.17
9.35	0.19	0	0.19
9.4	0.21	0	0.21
9.45	0.22	0	0.22
9.5	0.24	0	0.24
9.55	0.25	0	0.25
9.6	0.26	0	0.26
9.65	0.27	0	0.27

9.7	0.29	0	0.29
9.75	0.3	0	0.3
9.8	0.31	0	0.31
9.85	0.32	0	0.32
9.9	0.33	0	0.33
9.95	0.34	0	0.34
10	0.35	0	0.35
10.05	0.36	0	0.36
10.1	0.37	0	0.37
10.15	0.39	0	0.39
10.2	0.4	0	0.4
10.25	0.41	0	0.41
10.3	0.42	0	0.42
10.35	0.43	0	0.43
10.4	0.44	0	0.44
10.45	0.45	0	0.45
10.5	0.46	0	0.46
10.55	0.48	0	0.48
10.6	0.49	0	0.49
10.65	0.52	0	0.52
10.7	0.56	0	0.56
10.75	0.62	0	0.62
10.8	0.68	0	0.68
10.85	0.76	0	0.76
10.9	0.83	0	0.83
10.95	0.91	0	0.91
11	1	0	1
11.05	1.08	0	1.08
11.1	1.17	0	1.17
11.15	1.26	0	1.26
11.2	1.35	0	1.35
11.25	1.44	0	1.44

				Hr	Minutes	Seconds	Cubic Feet
11.3	1.54	0	1.54				
11.35	1.65	0	1.65	0.05	3	180	297
11.4	1.75	0	1.75	0.05	3	180	315
11.45	1.86	0	1.86	0.05	3	180	334.8
11.5	1.98	0	1.98	0.05	3	180	356.4
11.55	2.1	0	2.1	0.05	3	180	378
11.6	2.24	0	2.24	0.05	3	180	403.2
11.65	2.43	0	2.43	0.05	3	180	437.4
11.7	2.71	0	2.71	0.05	3	180	487.8
11.75	3.08	0	3.08	0.05	3	180	554.4
11.8	3.57	0	3.57	0.05	3	180	642.6
11.85	4.2	0	4.2	0.05	3	180	756
11.9	5	0	5	0.05	3	180	900
11.95	6.04	0	6.04	0.05	3	180	1087.2
12	7.48	0	7.48	0.05	3	180	1346.4
12.05	9.52	0	9.52	0.05	3	180	1713.6
12.1	12.58	0	12.58	0.05	3	180	2264.4

12.15	16.76	0	16.76	0.05	3	180	3016.8
12.2	21.37	0	21.37	0.05	3	180	3846.6
12.25	25.22	0	25.22	0.05	3	180	4539.6
12.3	26.98	0	26.98	0.05	3	180	4856.4
12.35	26.45	0	26.45	0.05	3	180	4761
12.4	24.31	0	24.31	0.05	3	180	4375.8
12.45	21.35	0	21.35	0.05	3	180	3843
12.5	18.32	0	18.32	0.05	3	180	3297.6
12.55	15.65	0	15.65	0.05	3	180	2817
12.6	13.41	0	13.41	0.05	3	180	2413.8
12.65	11.5	0	11.5	0.05	3	180	2070
12.7	9.88	0	9.88	0.05	3	180	1778.4
12.75	8.5	0	8.5	0.05	3	180	1530
12.8	7.38	0	7.38	0.05	3	180	1328.4
12.85	6.49	0	6.49	0.05	3	180	1168.2
12.9	5.79	0	5.79	0.05	3	180	1042.2
12.95	5.25	0	5.25	0.05	3	180	945
13	4.82	0	4.82	0.05	3	180	867.6
13.05	4.48	0	4.48	0.05	3	180	806.4
13.1	4.2	0	4.2	0.05	3	180	756
13.15	3.95	0	3.95	0.05	3	180	711
13.2	3.74	0	3.74	0.05	3	180	673.2
13.25	3.55	0	3.55	0.05	3	180	639
13.3	3.38	0	3.38	0.05	3	180	608.4
13.35	3.22	0	3.22	0.05	3	180	579.6
13.4	3.06	0	3.06	0.05	3	180	550.8
13.45	2.92	0	2.92	0.05	3	180	525.6
13.5	2.78	0	2.78	0.05	3	180	500.4
13.55	2.65	0	2.65	0.05	3	180	477
13.6	2.5	0	2.5	0.05	3	180	450
13.65	2.35	0	2.35	0.05	3	180	423
13.7	2.18	0	2.18	0.05	3	180	392.4
13.75	2.01	0	2.01	0.05	3	180	361.8
13.8	1.85	0	1.85	0.05	3	180	333
13.85	1.72	0	1.72	0.05	3	180	309.6
13.9	1.61	0	1.61	0.05	3	180	289.8
13.95	1.53	0	1.53	0.05	3	180	275.4
14	1.47	0	1.47	0.05	3	180	264.6
14.05	1.43	0	1.43	0.05	3	180	257.4
14.1	1.39	0	1.39	0.05	3	180	250.2
14.15	1.37	0	1.37	0.05	3	180	246.6
14.2	1.35	0	1.35	0.05	3	180	243
14.25	1.33	0	1.33	0.05	3	180	239.4
14.3	1.31	0	1.31	0.05	3	180	235.8
14.35	1.3	0	1.3	0.05	3	180	234
14.4	1.29	0	1.29	0.05	3	180	232.2
14.45	1.28	0	1.28	0.05	3	180	230.4
14.5	1.27	0	1.27	0.05	3	180	228.6
14.55	1.26	0	1.26	0.05	3	180	226.8

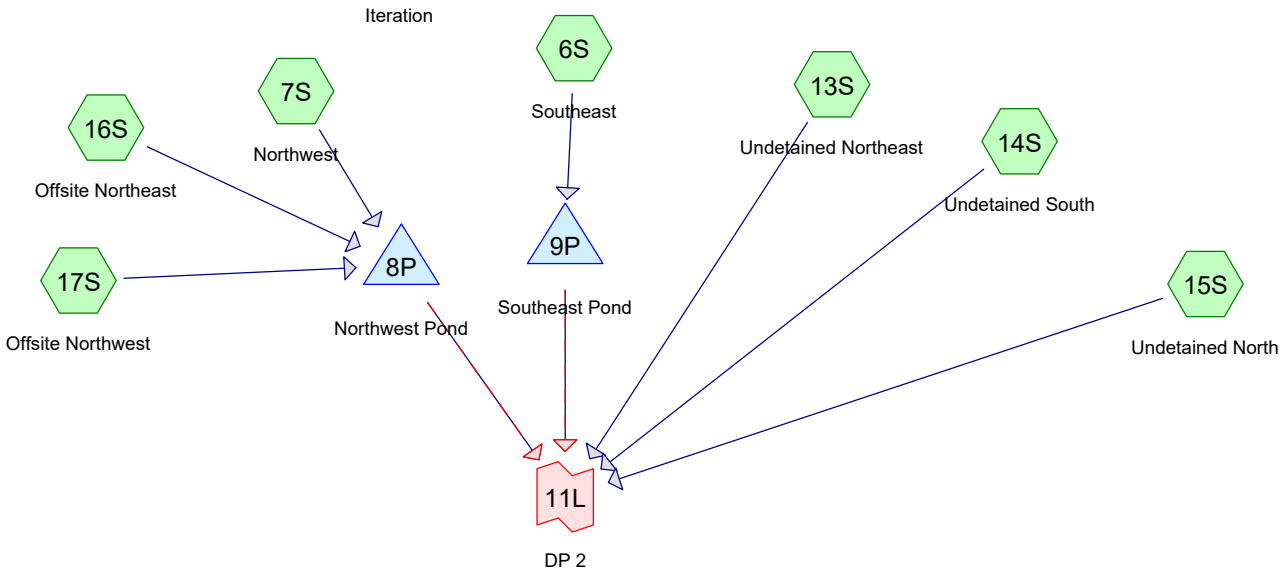
14.6	1.25	0	1.25	0.05	3	180	225
14.65	1.24	0	1.24	0.05	3	180	223.2
14.7	1.24	0	1.24	0.05	3	180	223.2
14.75	1.23	0	1.23	0.05	3	180	221.4
14.8	1.22	0	1.22	0.05	3	180	219.6
14.85	1.21	0	1.21	0.05	3	180	217.8
14.9	1.21	0	1.21	0.05	3	180	217.8
14.95	1.2	0	1.2	0.05	3	180	216
15	1.19	0	1.19	0.05	3	180	214.2
15.05	1.18	0	1.18	0.05	3	180	212.4
15.1	1.16	0	1.16	0.05	3	180	208.8
15.15	1.13	0	1.13	0.05	3	180	203.4
15.2	1.08	0	1.08	0.05	3	180	194.4
15.25	1.02	0	1.02	0.05	3	180	183.6
15.3	0.95	0	0.95	0.05	3	180	171
15.35	0.89	0	0.89	0.05	3	180	160.2
15.4	0.84	0	0.84	0.05	3	180	151.2
15.45	0.8	0	0.8	0.05	3	180	144
15.5	0.77	0	0.77	0.05	3	180	138.6
15.55	0.75	0	0.75	0.05	3	180	135
15.6	0.73	0	0.73	0.05	3	180	131.4
15.65	0.72	0	0.72	0.05	3	180	129.6
15.7	0.71	0	0.71	0.05	3	180	127.8
15.75	0.7	0	0.7	0.05	3	180	126
15.8	0.7	0	0.7	0.05	3	180	126
15.85	0.69	0	0.69	0.05	3	180	124.2
15.9	0.69	0	0.69	0.05	3	180	124.2
15.95	0.68	0	0.68	0.05	3	180	122.4
16	0.68	0	0.68	0.05	3	180	122.4
16.05	0.67	0	0.67	0.05	3	180	120.6
16.1	0.67	0	0.67	0.05	3	180	120.6
16.15	0.67	0	0.67	0.05	3	180	120.6
16.2	0.66	0	0.66	0.05	3	180	118.8
16.25	0.66	0	0.66	0.05	3	180	118.8
16.3	0.65	0	0.65	0.05	3	180	117
16.35	0.65	0	0.65	0.05	3	180	117
16.4	0.65	0	0.65	0.05	3	180	117
16.45	0.64	0	0.64	0.05	3	180	115.2
16.5	0.64	0	0.64	0.05	3	180	115.2
16.55	0.64	0	0.64	0.05	3	180	115.2
16.6	0.63	0	0.63	0.05	3	180	113.4
16.65	0.63	0	0.63	0.05	3	180	113.4
16.7	0.63	0	0.63	0.05	3	180	113.4
16.75	0.62	0	0.62	0.05	3	180	111.6
16.8	0.62	0	0.62	0.05	3	180	111.6
16.85	0.62	0	0.62	0.05	3	180	111.6
16.9	0.61	0	0.61	0.05	3	180	109.8
16.95	0.61	0	0.61	0.05	3	180	109.8
17	0.61	0	0.61	0.05	3	180	109.8

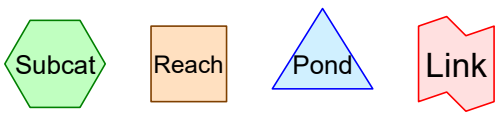
17.05	0.6	0	0.6	0.05	3	180	108
17.1	0.6	0	0.6	0.05	3	180	108
17.15	0.6	0	0.6	0.05	3	180	108
17.2	0.59	0	0.59	0.05	3	180	106.2
17.25	0.59	0	0.59	0.05	3	180	106.2
17.3	0.59	0	0.59	0.05	3	180	106.2
17.35	0.58	0	0.58	0.05	3	180	104.4
17.4	0.58	0	0.58	0.05	3	180	104.4
17.45	0.58	0	0.58	0.05	3	180	104.4
17.5	0.57	0	0.57	0.05	3	180	102.6
17.55	0.57	0	0.57	0.05	3	180	102.6
17.6	0.57	0	0.57	0.05	3	180	102.6
17.65	0.56	0	0.56	0.05	3	180	100.8
17.7	0.56	0	0.56	0.05	3	180	100.8
17.75	0.56	0	0.56	0.05	3	180	100.8
17.8	0.55	0	0.55	0.05	3	180	99
17.85	0.55	0	0.55	0.05	3	180	99
17.9	0.55	0	0.55	0.05	3	180	99
17.95	0.54	0	0.54	0.05	3	180	97.2
18	0.54	0	0.54	0.05	3	180	97.2
18.05	0.53	0	0.53	0.05	3	180	95.4
18.1	0.53	0	0.53	0.05	3	180	95.4
18.15	0.53	0	0.53	0.05	3	180	95.4
18.2	0.52	0	0.52	0.05	3	180	93.6
18.25	0.52	0	0.52	0.05	3	180	93.6
18.3	0.52	0	0.52	0.05	3	180	93.6
18.35	0.51	0	0.51	0.05	3	180	91.8
18.4	0.51	0	0.51	0.05	3	180	91.8
18.45	0.51	0	0.51	0.05	3	180	91.8
18.5	0.5	0	0.5	0.05	3	180	90
18.55	0.5	0	0.5	0.05	3	180	90
18.6	0.5	0	0.5	0.05	3	180	90
18.65	0.49	0	0.49	0.05	3	180	88.2
18.7	0.49	0	0.49	0.05	3	180	88.2
18.75	0.49	0	0.49	0.05	3	180	88.2
18.8	0.48	0	0.48	0.05	3	180	86.4
18.85	0.48	0	0.48	0.05	3	180	86.4
18.9	0.48	0	0.48	0.05	3	180	86.4
18.95	0.47	0	0.47	0.05	3	180	84.6
19	0.47	0	0.47	0.05	3	180	84.6
19.05	0.47	0	0.47	0.05	3	180	84.6
19.1	0.46	0	0.46	0.05	3	180	82.8
19.15	0.46	0	0.46	0.05	3	180	82.8
19.2	0.45	0	0.45	0.05	3	180	81
19.25	0.45	0	0.45	0.05	3	180	81
19.3	0.45	0	0.45	0.05	3	180	81
19.35	0.44	0	0.44	0.05	3	180	79.2
19.4	0.44	0	0.44	0.05	3	180	79.2
19.45	0.44	0	0.44	0.05	3	180	79.2

19.5	0.43	0	0.43	0.05	3	180	77.4
19.55	0.43	0	0.43	0.05	3	180	77.4
19.6	0.43	0	0.43	0.05	3	180	77.4
19.65	0.42	0	0.42	0.05	3	180	75.6
19.7	0.42	0	0.42	0.05	3	180	75.6
19.75	0.42	0	0.42	0.05	3	180	75.6
19.8	0.41	0	0.41	0.05	3	180	73.8
19.85	0.41	0	0.41	0.05	3	180	73.8
19.9	0.41	0	0.41	0.05	3	180	73.8
19.95	0.4	0	0.4	0.05	3	180	72
20	0.4	0	0.4	0.05	3	180	72
20.05	0.4	0	0.4	0.05	3	180	72
20.1	0.39	0	0.39	0.05	3	180	70.2
20.15	0.39	0	0.39	0.05	3	180	70.2
20.2	0.39	0	0.39	0.05	3	180	70.2
20.25	0.38	0	0.38	0.05	3	180	68.4
20.3	0.38	0	0.38	0.05	3	180	68.4
20.35	0.37	0	0.37	0.05	3	180	66.6
20.4	0.37	0	0.37	0.05	3	180	66.6
20.45	0.37	0	0.37	0.05	3	180	66.6
20.5	0.36	0	0.36	0.05	3	180	64.8
20.55	0.36	0	0.36	0.05	3	180	64.8
20.6	0.36	0	0.36	0.05	3	180	64.8
20.65	0.35	0	0.35	0.05	3	180	63
20.7	0.35	0	0.35	0.05	3	180	63
20.75	0.35	0	0.35	0.05	3	180	63
20.8	0.34	0	0.34	0.05	3	180	61.2
20.85	0.34	0	0.34	0.05	3	180	61.2
20.9	0.34	0	0.34				
20.95	0.33	0	0.33	**Total**			**87181.2**
21	0.33	0	0.33				
21.05	0.33	0	0.33				
21.1	0.32	0	0.32				
21.15	0.32	0	0.32				
21.2	0.31	0	0.31				
21.25	0.31	0	0.31				
21.3	0.31	0	0.31				
21.35	0.3	0	0.3				
21.4	0.3	0	0.3				
21.45	0.3	0	0.3				
21.5	0.29	0	0.29				
21.55	0.29	0	0.29				
21.6	0.29	0	0.29				
21.65	0.28	0	0.28				
21.7	0.28	0	0.28				
21.75	0.28	0	0.28				
21.8	0.27	0	0.27				
21.85	0.27	0	0.27				
21.9	0.26	0	0.26				

21.95	0.26	0	0.26
22	0.26	0	0.26
22.05	0.25	0	0.25
22.1	0.25	0	0.25
22.15	0.25	0	0.25
22.2	0.24	0	0.24
22.25	0.24	0	0.24
22.3	0.24	0	0.24
22.35	0.23	0	0.23
22.4	0.23	0	0.23
22.45	0.23	0	0.23
22.5	0.22	0	0.22
22.55	0.22	0	0.22
22.6	0.22	0	0.22
22.65	0.21	0	0.21
22.7	0.21	0	0.21
22.75	0.21	0	0.21
22.8	0.2	0	0.2
22.85	0.2	0	0.2
22.9	0.19	0	0.19
22.95	0.19	0	0.19
23	0.19	0	0.19
23.05	0.18	0	0.18
23.1	0.18	0	0.18
23.15	0.18	0	0.18
23.2	0.17	0	0.17
23.25	0.17	0	0.17
23.3	0.17	0	0.17
23.35	0.16	0	0.16
23.4	0.16	0	0.16
23.45	0.16	0	0.16
23.5	0.15	0	0.15
23.55	0.15	0	0.15
23.6	0.15	0	0.15
23.65	0.14	0	0.14
23.7	0.14	0	0.14
23.75	0.13	0	0.13
23.8	0.13	0	0.13
23.85	0.13	0	0.13
23.9	0.12	0	0.12
23.95	0.12	0	0.12
24	0.12	0	0.12

Appendix B – Post-Construction HydroCAD





Routing Diagram for 20260519_543001101 - Peak Rate - 9 Roof to Undetained
Prepared by Langan Engineering, Printed 5/20/2026
HydroCAD® 10.20-7a s/n 08223 © 2025 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1yr-24hr	MSE 24-hr	3	Default	24.00	1	2.36	2
2	2yr-24hr	MSE 24-hr	3	Default	24.00	1	2.66	2
3	100yr-24hr	MSE 24-hr	3	Default	24.00	1	6.36	2

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment6S: Southeast Runoff Area=96,740 sf 60.47% Impervious Runoff Depth=1.48"
Tc=6.0 min CN=91 Runoff=5.79 cfs 0.275 af

Subcatchment7S: Northwest Runoff Area=100,894 sf 63.80% Impervious Runoff Depth=1.48"
Tc=6.0 min CN=91 Runoff=6.04 cfs 0.286 af

Subcatchment13S: Undetained Northeast Runoff Area=15,677 sf 53.77% Impervious Runoff Depth=1.41"
Tc=6.0 min CN=90 Runoff=0.90 cfs 0.042 af

Subcatchment14S: Undetained South Runoff Area=19,459 sf 0.00% Impervious Runoff Depth=0.79"
Tc=6.0 min CN=80 Runoff=0.63 cfs 0.030 af

Subcatchment15S: Undetained North Runoff Area=2,023 sf 0.00% Impervious Runoff Depth=0.79"
Tc=6.0 min CN=80 Runoff=0.07 cfs 0.003 af

Subcatchment16S: Offsite Northeast Runoff Area=26,708 sf 64.58% Impervious Runoff Depth=1.56"
Tc=6.0 min CN=92 Runoff=1.67 cfs 0.080 af

Subcatchment17S: Offsite Northwest Runoff Area=3,870 sf 0.00% Impervious Runoff Depth=0.79"
Tc=6.0 min CN=80 Runoff=0.13 cfs 0.006 af

Pond 8P: Northwest Pond Peak Elev=876.69' Storage=11,932 cf Inflow=7.83 cfs 0.372 af
Primary=0.18 cfs 0.352 af Secondary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.352 af

Pond 9P: Southeast Pond Peak Elev=872.60' Storage=7,947 cf Inflow=5.79 cfs 0.275 af
Primary=0.23 cfs 0.272 af Secondary=0.00 cfs 0.000 af Outflow=0.23 cfs 0.272 af

Link 11L: DP 2 Inflow=1.87 cfs 0.699 af
Primary=1.87 cfs 0.699 af

Total Runoff Area = 6.092 ac Runoff Volume = 0.722 af Average Runoff Depth = 1.42"
44.02% Pervious = 2.682 ac 55.98% Impervious = 3.410 ac

Summary for Subcatchment 6S: Southeast

Runoff = 5.79 cfs @ 12.13 hrs, Volume= 0.275 af, Depth= 1.48"
Routed to Pond 9P : Southeast Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1yr-24hr Rainfall=2.36"

	Area (sf)	CN	Description
	13,621	98	Paved roads w/curbs & sewers, HSG D
	27,936	98	Unconnected roofs, HSG D
	5,116	98	Water Surface, HSG D
	38,244	80	>75% Grass cover, Good, HSG D
*	2,893	98	Sidewalk
*	8,930	98	Driveway
	96,740	91	Weighted Average
	38,244		39.53% Pervious Area
	58,496		60.47% Impervious Area
	27,936		47.76% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 7S: Northwest

Runoff = 6.04 cfs @ 12.13 hrs, Volume= 0.286 af, Depth= 1.48"
Routed to Pond 8P : Northwest Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1yr-24hr Rainfall=2.36"

	Area (sf)	CN	Description
	10,504	98	Paved roads w/curbs & sewers, HSG D
	27,833	98	Roofs, HSG D
	36,527	80	>75% Grass cover, Good, HSG D
	16,623	98	Water Surface, HSG D
*	7,520	98	Driveway
*	1,887	98	Sidewalk
	100,894	91	Weighted Average
	36,527		36.20% Pervious Area
	64,367		63.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13S: Undetained Northeast

Runoff = 0.90 cfs @ 12.13 hrs, Volume= 0.042 af, Depth= 1.41"
Routed to Link 11L : DP 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1yr-24hr Rainfall=2.36"

	Area (sf)	CN	Description
*	8,107	98	Roof
*	323	98	Sidewalk
*	7,247	80	Greenspace
	15,677	90	Weighted Average
	7,247		46.23% Pervious Area
	8,430		53.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: Undetained South

Runoff = 0.63 cfs @ 12.14 hrs, Volume= 0.030 af, Depth= 0.79"
Routed to Link 11L : DP 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1yr-24hr Rainfall=2.36"

	Area (sf)	CN	Description
*	0	98	
*	19,459	80	
	19,459	80	Weighted Average
	19,459		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15S: Undetained North

Runoff = 0.07 cfs @ 12.14 hrs, Volume= 0.003 af, Depth= 0.79"
Routed to Link 11L : DP 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1yr-24hr Rainfall=2.36"

	Area (sf)	CN	Description
*	0	98	
*	2,023	80	Greenspace
	2,023	80	Weighted Average
	2,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 16S: Offsite Northeast

Runoff = 1.67 cfs @ 12.13 hrs, Volume= 0.080 af, Depth= 1.56"
Routed to Pond 8P : Northwest Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1yr-24hr Rainfall=2.36"

	Area (sf)	CN	Description
*	17,249	98	Parking
*	9,459	80	Greenspace
	26,708	92	Weighted Average
	9,459		35.42% Pervious Area
	17,249		64.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 17S: Offsite Northwest

Runoff = 0.13 cfs @ 12.14 hrs, Volume= 0.006 af, Depth= 0.79"
Routed to Pond 8P : Northwest Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1yr-24hr Rainfall=2.36"

	Area (sf)	CN	Description
*	0	98	Parking
*	3,870	80	Greenspace
	3,870	80	Weighted Average
	3,870		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Pond 8P: Northwest Pond

Inflow Area = 3.018 ac, 62.08% Impervious, Inflow Depth = 1.48" for 1yr-24hr event
Inflow = 7.83 cfs @ 12.13 hrs, Volume= 0.372 af
Outflow = 0.18 cfs @ 15.07 hrs, Volume= 0.352 af, Atten= 98%, Lag= 176.3 min
Primary = 0.18 cfs @ 15.07 hrs, Volume= 0.352 af
Routed to Link 11L : DP 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 11L : DP 2

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 876.69' @ 15.07 hrs Surf.Area= 18,207 sf Storage= 11,932 cf

Plug-Flow detention time= 883.4 min calculated for 0.352 af (95% of inflow)
Center-of-Mass det. time= 857.1 min (1,651.1 - 794.0)

Volume	Invert	Avail.Storage	Storage Description
#1	876.00'	60,273 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
876.00	16,623	0	0
879.00	23,559	60,273	60,273

Device	Routing	Invert	Outlet Devices
#1	Primary	876.00'	**12.0" Round Culvert** L= 40.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 876.00' / 875.50' S= 0.0125 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#2	Device 1	876.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	877.00'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	878.00'	**10.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.18 cfs @ 15.07 hrs HW=876.69' (Free Discharge)
└**1=Culvert** (Passes 0.18 cfs of 1.62 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 3.60 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=876.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 9P: Southeast Pond

Inflow Area = 2.221 ac, 60.47% Impervious, Inflow Depth = 1.48" for 1yr-24hr event
Inflow = 5.79 cfs @ 12.13 hrs, Volume= 0.275 af
Outflow = 0.23 cfs @ 13.58 hrs, Volume= 0.272 af, Atten= 96%, Lag= 86.7 min
Primary = 0.23 cfs @ 13.58 hrs, Volume= 0.272 af
Routed to Link 11L : DP 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 11L : DP 2

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 872.60' @ 13.58 hrs Surf.Area= 7,835 sf Storage= 7,947 cf

Plug-Flow detention time= 473.1 min calculated for 0.272 af (99% of inflow)
Center-of-Mass det. time= 467.7 min (1,262.1 - 794.3)

Volume	Invert	Avail.Storage	Storage Description
#1	871.50'	24,881 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
871.50	6,678	0	0
872.00	7,194	3,468	3,468
873.00	8,269	7,732	11,200
874.00	9,400	8,835	20,034
874.50	9,986	4,847	24,881

Device	Routing	Invert	Outlet Devices
#1	Primary	871.50'	**12.0" Round Culvert** L= 40.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 871.50' / 871.25' S= 0.0063 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#2	Device 1	871.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	872.75'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	874.00'	**10.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.23 cfs @ 13.58 hrs HW=872.60' (Free Discharge)
└**1=Culvert** (Passes 0.23 cfs of 2.71 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.23 cfs @ 4.74 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=871.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link 11L: DP 2

Inflow Area = 6.092 ac, 55.98% Impervious, Inflow Depth > 1.38" for 1yr-24hr event
Inflow = 1.87 cfs @ 12.14 hrs, Volume= 0.699 af
Primary = 1.87 cfs @ 12.14 hrs, Volume= 0.699 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment6S: Southeast Runoff Area=96,740 sf 60.47% Impervious Runoff Depth=1.76"
Tc=6.0 min CN=91 Runoff=6.80 cfs 0.325 af

Subcatchment7S: Northwest Runoff Area=100,894 sf 63.80% Impervious Runoff Depth=1.76"
Tc=6.0 min CN=91 Runoff=7.09 cfs 0.339 af

Subcatchment13S: Undetained Northeast Runoff Area=15,677 sf 53.77% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=90 Runoff=1.06 cfs 0.050 af

Subcatchment14S: Undetained South Runoff Area=19,459 sf 0.00% Impervious Runoff Depth=1.00"
Tc=6.0 min CN=80 Runoff=0.80 cfs 0.037 af

Subcatchment15S: Undetained North Runoff Area=2,023 sf 0.00% Impervious Runoff Depth=1.00"
Tc=6.0 min CN=80 Runoff=0.08 cfs 0.004 af

Subcatchment16S: Offsite Northeast Runoff Area=26,708 sf 64.58% Impervious Runoff Depth=1.84"
Tc=6.0 min CN=92 Runoff=1.95 cfs 0.094 af

Subcatchment17S: Offsite Northwest Runoff Area=3,870 sf 0.00% Impervious Runoff Depth=1.00"
Tc=6.0 min CN=80 Runoff=0.16 cfs 0.007 af

Pond 8P: Northwest Pond Peak Elev=876.81' Storage=14,313 cf Inflow=9.20 cfs 0.441 af
Primary=0.20 cfs 0.419 af Secondary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.419 af

Pond 9P: Southeast Pond Peak Elev=872.78' Storage=9,419 cf Inflow=6.80 cfs 0.325 af
Primary=0.35 cfs 0.323 af Secondary=0.00 cfs 0.000 af Outflow=0.35 cfs 0.323 af

Link 11L: DP 2 Inflow=2.26 cfs 0.833 af
Primary=2.26 cfs 0.833 af

Total Runoff Area = 6.092 ac Runoff Volume = 0.857 af Average Runoff Depth = 1.69"
44.02% Pervious = 2.682 ac 55.98% Impervious = 3.410 ac

Summary for Subcatchment 6S: Southeast

Runoff = 6.80 cfs @ 12.13 hrs, Volume= 0.325 af, Depth= 1.76"
Routed to Pond 9P : Southeast Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2yr-24hr Rainfall=2.66"

	Area (sf)	CN	Description
	13,621	98	Paved roads w/curbs & sewers, HSG D
	27,936	98	Unconnected roofs, HSG D
	5,116	98	Water Surface, HSG D
	38,244	80	>75% Grass cover, Good, HSG D
*	2,893	98	Sidewalk
*	8,930	98	Driveway
	96,740	91	Weighted Average
	38,244		39.53% Pervious Area
	58,496		60.47% Impervious Area
	27,936		47.76% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 7S: Northwest

Runoff = 7.09 cfs @ 12.13 hrs, Volume= 0.339 af, Depth= 1.76"
Routed to Pond 8P : Northwest Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2yr-24hr Rainfall=2.66"

	Area (sf)	CN	Description
	10,504	98	Paved roads w/curbs & sewers, HSG D
	27,833	98	Roofs, HSG D
	36,527	80	>75% Grass cover, Good, HSG D
	16,623	98	Water Surface, HSG D
*	7,520	98	Driveway
*	1,887	98	Sidewalk
	100,894	91	Weighted Average
	36,527		36.20% Pervious Area
	64,367		63.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13S: Undetained Northeast

Runoff = 1.06 cfs @ 12.13 hrs, Volume= 0.050 af, Depth= 1.67"
Routed to Link 11L : DP 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2yr-24hr Rainfall=2.66"

	Area (sf)	CN	Description
*	8,107	98	Roof
*	323	98	Sidewalk
*	7,247	80	Greenspace
	15,677	90	Weighted Average
	7,247		46.23% Pervious Area
	8,430		53.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: Undetained South

Runoff = 0.80 cfs @ 12.14 hrs, Volume= 0.037 af, Depth= 1.00"
Routed to Link 11L : DP 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2yr-24hr Rainfall=2.66"

	Area (sf)	CN	Description
*	0	98	
*	19,459	80	
	19,459	80	Weighted Average
	19,459		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15S: Undetained North

Runoff = 0.08 cfs @ 12.14 hrs, Volume= 0.004 af, Depth= 1.00"
Routed to Link 11L : DP 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2yr-24hr Rainfall=2.66"

	Area (sf)	CN	Description
*	0	98	
*	2,023	80	Greenspace
	2,023	80	Weighted Average
	2,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 16S: Offsite Northeast

Runoff = 1.95 cfs @ 12.13 hrs, Volume= 0.094 af, Depth= 1.84"
Routed to Pond 8P : Northwest Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2yr-24hr Rainfall=2.66"

	Area (sf)	CN	Description
*	17,249	98	Parking
*	9,459	80	Greenspace
	26,708	92	Weighted Average
	9,459		35.42% Pervious Area
	17,249		64.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 17S: Offsite Northwest

Runoff = 0.16 cfs @ 12.14 hrs, Volume= 0.007 af, Depth= 1.00"
Routed to Pond 8P : Northwest Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2yr-24hr Rainfall=2.66"

	Area (sf)	CN	Description
*	0	98	Parking
*	3,870	80	Greenspace
	3,870	80	Weighted Average
	3,870		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Pond 8P: Northwest Pond

Inflow Area = 3.018 ac, 62.08% Impervious, Inflow Depth = 1.75" for 2yr-24hr event
Inflow = 9.20 cfs @ 12.13 hrs, Volume= 0.441 af
Outflow = 0.20 cfs @ 15.08 hrs, Volume= 0.419 af, Atten= 98%, Lag= 177.0 min
Primary = 0.20 cfs @ 15.08 hrs, Volume= 0.419 af
Routed to Link 11L : DP 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 11L : DP 2

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 876.81' @ 15.08 hrs Surf.Area= 18,507 sf Storage= 14,313 cf

Plug-Flow detention time= 930.0 min calculated for 0.419 af (95% of inflow)
Center-of-Mass det. time= 905.2 min (1,695.9 - 790.7)

Volume	Invert	Avail.Storage	Storage Description
#1	876.00'	60,273 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
876.00	16,623	0	0
879.00	23,559	60,273	60,273

Device	Routing	Invert	Outlet Devices
#1	Primary	876.00'	**12.0" Round Culvert** L= 40.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 876.00' / 875.50' S= 0.0125 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#2	Device 1	876.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	877.00'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	878.00'	**10.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.20 cfs @ 15.08 hrs HW=876.81' (Free Discharge)
└**1=Culvert** (Passes 0.20 cfs of 2.11 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.20 cfs @ 4.00 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=876.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 9P: Southeast Pond

Inflow Area = 2.221 ac, 60.47% Impervious, Inflow Depth = 1.76" for 2yr-24hr event
Inflow = 6.80 cfs @ 12.13 hrs, Volume= 0.325 af
Outflow = 0.35 cfs @ 13.44 hrs, Volume= 0.323 af, Atten= 95%, Lag= 78.6 min
Primary = 0.35 cfs @ 13.44 hrs, Volume= 0.323 af
Routed to Link 11L : DP 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 11L : DP 2

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 872.78' @ 13.44 hrs Surf.Area= 8,034 sf Storage= 9,419 cf

Plug-Flow detention time= 490.6 min calculated for 0.323 af (99% of inflow)
Center-of-Mass det. time= 485.8 min (1,276.7 - 790.9)

Volume	Invert	Avail.Storage	Storage Description
#1	871.50'	24,881 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
871.50	6,678	0	0
872.00	7,194	3,468	3,468
873.00	8,269	7,732	11,200
874.00	9,400	8,835	20,034
874.50	9,986	4,847	24,881

Device	Routing	Invert	Outlet Devices
#1	Primary	871.50'	**12.0" Round Culvert** L= 40.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 871.50' / 871.25' S= 0.0063 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#2	Device 1	871.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	872.75'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	874.00'	**10.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.34 cfs @ 13.44 hrs HW=872.78' (Free Discharge)
└**1=Culvert** (Passes 0.34 cfs of 3.12 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.25 cfs @ 5.18 fps)
└**3=Orifice/Grate** (Weir Controls 0.09 cfs @ 0.58 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=871.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link 11L: DP 2

Inflow Area = 6.092 ac, 55.98% Impervious, Inflow Depth > 1.64" for 2yr-24hr event
Inflow = 2.26 cfs @ 12.14 hrs, Volume= 0.833 af
Primary = 2.26 cfs @ 12.14 hrs, Volume= 0.833 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment6S: Southeast Runoff Area=96,740 sf 60.47% Impervious Runoff Depth=5.31"
Tc=6.0 min CN=91 Runoff=19.22 cfs 0.983 af

Subcatchment7S: Northwest Runoff Area=100,894 sf 63.80% Impervious Runoff Depth=5.31"
Tc=6.0 min CN=91 Runoff=20.04 cfs 1.025 af

Subcatchment13S: Undetained Northeast Runoff Area=15,677 sf 53.77% Impervious Runoff Depth=5.20"
Tc=6.0 min CN=90 Runoff=3.08 cfs 0.156 af

Subcatchment14S: Undetained South Runoff Area=19,459 sf 0.00% Impervious Runoff Depth=4.11"
Tc=6.0 min CN=80 Runoff=3.21 cfs 0.153 af

Subcatchment15S: Undetained North Runoff Area=2,023 sf 0.00% Impervious Runoff Depth=4.11"
Tc=6.0 min CN=80 Runoff=0.33 cfs 0.016 af

Subcatchment16S: Offsite Northeast Runoff Area=26,708 sf 64.58% Impervious Runoff Depth=5.42"
Tc=6.0 min CN=92 Runoff=5.37 cfs 0.277 af

Subcatchment17S: Offsite Northwest Runoff Area=3,870 sf 0.00% Impervious Runoff Depth=4.11"
Tc=6.0 min CN=80 Runoff=0.64 cfs 0.030 af

Pond 8P: Northwest Pond Peak Elev=877.76' Storage=32,859 cf Inflow=26.04 cfs 1.332 af
Primary=4.25 cfs 1.305 af Secondary=0.00 cfs 0.000 af Outflow=4.25 cfs 1.305 af

Pond 9P: Southeast Pond Peak Elev=874.00' Storage=20,044 cf Inflow=19.22 cfs 0.983 af
Primary=5.35 cfs 0.980 af Secondary=0.00 cfs 0.000 af Outflow=5.35 cfs 0.980 af

Link 11L: DP 2 Inflow=14.94 cfs 2.610 af
Primary=14.94 cfs 2.610 af

Total Runoff Area = 6.092 ac Runoff Volume = 2.640 af Average Runoff Depth = 5.20"
44.02% Pervious = 2.682 ac 55.98% Impervious = 3.410 ac

Summary for Subcatchment 6S: Southeast

Runoff = 19.22 cfs @ 12.13 hrs, Volume= 0.983 af, Depth= 5.31"
Routed to Pond 9P : Southeast Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100yr-24hr Rainfall=6.36"

	Area (sf)	CN	Description
	13,621	98	Paved roads w/curbs & sewers, HSG D
	27,936	98	Unconnected roofs, HSG D
	5,116	98	Water Surface, HSG D
	38,244	80	>75% Grass cover, Good, HSG D
*	2,893	98	Sidewalk
*	8,930	98	Driveway
	96,740	91	Weighted Average
	38,244		39.53% Pervious Area
	58,496		60.47% Impervious Area
	27,936		47.76% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 7S: Northwest

Runoff = 20.04 cfs @ 12.13 hrs, Volume= 1.025 af, Depth= 5.31"
Routed to Pond 8P : Northwest Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100yr-24hr Rainfall=6.36"

	Area (sf)	CN	Description
	10,504	98	Paved roads w/curbs & sewers, HSG D
	27,833	98	Roofs, HSG D
	36,527	80	>75% Grass cover, Good, HSG D
	16,623	98	Water Surface, HSG D
*	7,520	98	Driveway
*	1,887	98	Sidewalk
	100,894	91	Weighted Average
	36,527		36.20% Pervious Area
	64,367		63.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13S: Undetained Northeast

Runoff = 3.08 cfs @ 12.13 hrs, Volume= 0.156 af, Depth= 5.20"
Routed to Link 11L : DP 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100yr-24hr Rainfall=6.36"

	Area (sf)	CN	Description
*	8,107	98	Roof
*	323	98	Sidewalk
*	7,247	80	Greenspace
	15,677	90	Weighted Average
	7,247		46.23% Pervious Area
	8,430		53.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: Undetained South

Runoff = 3.21 cfs @ 12.13 hrs, Volume= 0.153 af, Depth= 4.11"
Routed to Link 11L : DP 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100yr-24hr Rainfall=6.36"

	Area (sf)	CN	Description
*	0	98	
*	19,459	80	
	19,459	80	Weighted Average
	19,459		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15S: Undetained North

Runoff = 0.33 cfs @ 12.13 hrs, Volume= 0.016 af, Depth= 4.11"
Routed to Link 11L : DP 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100yr-24hr Rainfall=6.36"

	Area (sf)	CN	Description
*	0	98	
*	2,023	80	Greenspace
	2,023	80	Weighted Average
	2,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 16S: Offsite Northeast

Runoff = 5.37 cfs @ 12.13 hrs, Volume= 0.277 af, Depth= 5.42"
Routed to Pond 8P : Northwest Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100yr-24hr Rainfall=6.36"

	Area (sf)	CN	Description
*	17,249	98	Parking
*	9,459	80	Greenspace
	26,708	92	Weighted Average
	9,459		35.42% Pervious Area
	17,249		64.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 17S: Offsite Northwest

Runoff = 0.64 cfs @ 12.13 hrs, Volume= 0.030 af, Depth= 4.11"
Routed to Pond 8P : Northwest Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100yr-24hr Rainfall=6.36"

	Area (sf)	CN	Description
*	0	98	Parking
*	3,870	80	Greenspace
	3,870	80	Weighted Average
	3,870		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Pond 8P: Northwest Pond

Inflow Area = 3.018 ac, 62.08% Impervious, Inflow Depth = 5.30" for 100yr-24hr event
Inflow = 26.04 cfs @ 12.13 hrs, Volume= 1.332 af
Outflow = 4.25 cfs @ 12.47 hrs, Volume= 1.305 af, Atten= 84%, Lag= 20.8 min
Primary = 4.25 cfs @ 12.47 hrs, Volume= 1.305 af
Routed to Link 11L : DP 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 11L : DP 2

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 877.76' @ 12.47 hrs Surf.Area= 20,695 sf Storage= 32,859 cf

Plug-Flow detention time= 489.6 min calculated for 1.304 af (98% of inflow)
Center-of-Mass det. time= 479.5 min (1,248.7 - 769.1)

Volume	Invert	Avail.Storage	Storage Description
#1	876.00'	60,273 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
876.00	16,623	0	0
879.00	23,559	60,273	60,273

Device	Routing	Invert	Outlet Devices
#1	Primary	876.00'	**12.0" Round Culvert** L= 40.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 876.00' / 875.50' S= 0.0125 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#2	Device 1	876.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	877.00'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	878.00'	**10.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=4.25 cfs @ 12.47 hrs HW=877.76' (Free Discharge)
└**1=Culvert** (Inlet Controls 4.25 cfs @ 5.41 fps)
├**2=Orifice/Grate** (Passes < 0.30 cfs potential flow)
└**3=Orifice/Grate** (Passes < 20.43 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=876.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 9P: Southeast Pond

Inflow Area = 2.221 ac, 60.47% Impervious, Inflow Depth = 5.31" for 100yr-24hr event
Inflow = 19.22 cfs @ 12.13 hrs, Volume= 0.983 af
Outflow = 5.35 cfs @ 12.32 hrs, Volume= 0.980 af, Atten= 72%, Lag= 11.7 min
Primary = 5.35 cfs @ 12.32 hrs, Volume= 0.980 af
Routed to Link 11L : DP 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 11L : DP 2

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 874.00' @ 12.32 hrs Surf.Area= 9,401 sf Storage= 20,044 cf

Plug-Flow detention time= 236.9 min calculated for 0.979 af (100% of inflow)
Center-of-Mass det. time= 236.7 min (1,005.9 - 769.2)

Volume	Invert	Avail.Storage	Storage Description
#1	871.50'	24,881 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
871.50	6,678	0	0
872.00	7,194	3,468	3,468
873.00	8,269	7,732	11,200
874.00	9,400	8,835	20,034
874.50	9,986	4,847	24,881

Device	Routing	Invert	Outlet Devices
#1	Primary	871.50'	**12.0" Round Culvert** L= 40.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 871.50' / 871.25' S= 0.0063 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#2	Device 1	871.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	872.75'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	874.00'	**10.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=5.34 cfs @ 12.32 hrs HW=874.00' (Free Discharge)
└**1=Culvert** (Inlet Controls 5.34 cfs @ 6.80 fps)
├**2=Orifice/Grate** (Passes < 0.36 cfs potential flow)
└**3=Orifice/Grate** (Passes < 9.50 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=871.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link 11L: DP 2

Inflow Area = 6.092 ac, 55.98% Impervious, Inflow Depth > 5.14" for 100yr-24hr event
Inflow = 14.94 cfs @ 12.15 hrs, Volume= 2.610 af
Primary = 14.94 cfs @ 12.15 hrs, Volume= 2.610 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Events for Subcatchment 6S: Southeast

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1yr-24hr	2.36	5.79	0.275	1.48
2yr-24hr	2.66	6.80	0.325	1.76
100yr-24hr	**6.36**	**19.22**	**0.983**	**5.31**

Events for Subcatchment 7S: Northwest

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1yr-24hr	2.36	6.04	0.286	1.48
2yr-24hr	2.66	7.09	0.339	1.76
100yr-24hr	**6.36**	**20.04**	**1.025**	**5.31**

Events for Subcatchment 13S: Undetained Northeast

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1yr-24hr	2.36	0.90	0.042	1.41
2yr-24hr	2.66	1.06	0.050	1.67
100yr-24hr	**6.36**	**3.08**	**0.156**	**5.20**

Events for Subcatchment 14S: Undetained South

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1yr-24hr	2.36	0.63	0.030	0.79
2yr-24hr	2.66	0.80	0.037	1.00
100yr-24hr	**6.36**	**3.21**	**0.153**	**4.11**

Events for Subcatchment 15S: Undetained North

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1yr-24hr	2.36	0.07	0.003	0.79
2yr-24hr	2.66	0.08	0.004	1.00
100yr-24hr	**6.36**	**0.33**	**0.016**	**4.11**

Events for Subcatchment 16S: Offsite Northeast

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1yr-24hr	2.36	1.67	0.080	1.56
2yr-24hr	2.66	1.95	0.094	1.84
100yr-24hr	**6.36**	**5.37**	**0.277**	**5.42**

Events for Subcatchment 17S: Offsite Northwest

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1yr-24hr	2.36	0.13	0.006	0.79
2yr-24hr	2.66	0.16	0.007	1.00
100yr-24hr	**6.36**	**0.64**	**0.030**	**4.11**

Events for Pond 8P: Northwest Pond

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1yr-24hr	7.83	0.18	0.18	**0.00**	876.69	11,932
2yr-24hr	9.20	0.20	0.20	0.00	876.81	14,313
100yr-24hr	**26.04**	**4.25**	**4.25**	0.00	**877.76**	**32,859**

Events for Pond 9P: Southeast Pond

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1yr-24hr	5.79	0.23	0.23	**0.00**	872.60	7,947
2yr-24hr	6.80	0.35	0.35	0.00	872.78	9,419
100yr-24hr	**19.22**	**5.35**	**5.35**	0.00	**874.00**	**20,044**

Events for Link 11L: DP 2

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1yr-24hr	1.87	1.87	**0.00**
2yr-24hr	2.26	2.26	0.00
100yr-24hr	**14.94**	**14.94**	0.00

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0	0	0	0
0.05	0	0	0
0.1	0	0	0
0.15	0	0	0
0.2	0	0	0
0.25	0	0	0
0.3	0	0	0
0.35	0	0	0
0.4	0	0	0
0.45	0	0	0
0.5	0	0	0
0.55	0	0	0
0.6	0	0	0
0.65	0	0	0
0.7	0	0	0
0.75	0	0	0
0.8	0	0	0
0.85	0	0	0
0.9	0	0	0
0.95	0	0	0
1	0	0	0
1.05	0	0	0
1.1	0	0	0
1.15	0	0	0
1.2	0	0	0
1.25	0	0	0
1.3	0	0	0
1.35	0	0	0
1.4	0	0	0
1.45	0	0	0
1.5	0	0	0
1.55	0	0	0
1.6	0	0	0
1.65	0	0	0
1.7	0	0	0
1.75	0	0	0
1.8	0	0	0
1.85	0	0	0
1.9	0	0	0
1.95	0	0	0
2	0	0	0
2.05	0	0	0
2.1	0	0	0
2.15	0	0	0
2.2	0	0	0
2.25	0	0	0
2.3	0	0	0

2.35	0	0	0
2.4	0	0	0
2.45	0	0	0
2.5	0	0	0
2.55	0	0	0
2.6	0	0	0
2.65	0	0	0
2.7	0	0	0
2.75	0	0	0
2.8	0	0	0
2.85	0	0	0
2.9	0	0	0
2.95	0	0	0
3	0	0	0
3.05	0	0	0
3.1	0	0	0
3.15	0	0	0
3.2	0	0	0
3.25	0	0	0
3.3	0	0	0
3.35	0	0	0
3.4	0	0	0
3.45	0	0	0
3.5	0	0	0
3.55	0	0	0
3.6	0	0	0
3.65	0	0	0
3.7	0	0	0
3.75	0	0	0
3.8	0	0	0
3.85	0	0	0
3.9	0	0	0
3.95	0	0	0
4	0	0	0
4.05	0	0	0
4.1	0	0	0
4.15	0	0	0
4.2	0	0	0
4.25	0	0	0
4.3	0	0	0
4.35	0	0	0
4.4	0	0	0
4.45	0	0	0
4.5	0	0	0
4.55	0	0	0
4.6	0	0	0
4.65	0	0	0
4.7	0	0	0
4.75	0	0	0

4.8	0	0	0
4.85	0	0	0
4.9	0	0	0
4.95	0	0	0
5	0	0	0
5.05	0	0	0
5.1	0	0	0
5.15	0	0	0
5.2	0	0	0
5.25	0	0	0
5.3	0	0	0
5.35	0	0	0
5.4	0	0	0
5.45	0	0	0
5.5	0	0	0
5.55	0	0	0
5.6	0	0	0
5.65	0	0	0
5.7	0	0	0
5.75	0	0	0
5.8	0	0	0
5.85	0	0	0
5.9	0	0	0
5.95	0	0	0
6	0	0	0
6.05	0	0	0
6.1	0	0	0
6.15	0	0	0
6.2	0	0	0
6.25	0	0	0
6.3	0	0	0
6.35	0	0	0
6.4	0	0	0
6.45	0	0	0
6.5	0	0	0
6.55	0	0	0
6.6	0	0	0
6.65	0	0	0
6.7	0	0	0
6.75	0	0	0
6.8	0	0	0
6.85	0	0	0
6.9	0	0	0
6.95	0	0	0
7	0	0	0
7.05	0	0	0
7.1	0	0	0
7.15	0	0	0
7.2	0	0	0

7.25	0	0	0
7.3	0	0	0
7.35	0	0	0
7.4	0	0	0
7.45	0	0	0
7.5	0	0	0
7.55	0	0	0
7.6	0	0	0
7.65	0	0	0
7.7	0	0	0
7.75	0	0	0
7.8	0	0	0
7.85	0	0	0
7.9	0	0	0
7.95	0	0	0
8	0	0	0
8.05	0	0	0
8.1	0	0	0
8.15	0	0	0
8.2	0	0	0
8.25	0	0	0
8.3	0	0	0
8.35	0	0	0
8.4	0	0	0
8.45	0	0	0
8.5	0	0	0
8.55	0	0	0
8.6	0	0	0
8.65	0	0	0
8.7	0	0	0
8.75	0	0	0
8.8	0	0	0
8.85	0	0	0
8.9	0	0	0
8.95	0	0	0
9	0	0	0
9.05	0	0	0
9.1	0	0	0
9.15	0	0	0
9.2	0	0	0
9.25	0	0	0
9.3	0	0	0
9.35	0.01	0	0.01
9.4	0.01	0	0.01
9.45	0.01	0	0.01
9.5	0.01	0	0.01
9.55	0.01	0	0.01
9.6	0.01	0	0.01
9.65	0.01	0	0.01

9.7	0.01	0	0.01				
9.75	0.01	0	0.01				
9.8	0.01	0	0.01				
9.85	0.01	0	0.01				
9.9	0.01	0	0.01				
9.95	0.01	0	0.01				
10	0.01	0	0.01				
10.05	0.01	0	0.01				
10.1	0.01	0	0.01				
10.15	0.01	0	0.01				
10.2	0.01	0	0.01				
10.25	0.01	0	0.01				
10.3	0.01	0	0.01				
10.35	0.01	0	0.01				
10.4	0.01	0	0.01				
10.45	0.02	0	0.02				
10.5	0.02	0	0.02				
10.55	0.02	0	0.02				
10.6	0.02	0	0.02				
10.65	0.02	0	0.02				
10.7	0.03	0	0.03				
10.75	0.03	0	0.03				
10.8	0.03	0	0.03				
10.85	0.03	0	0.03				
10.9	0.04	0	0.04				
10.95	0.04	0	0.04				
11	0.05	0	0.05				
11.05	0.05	0	0.05				
11.1	0.06	0	0.06				
11.15	0.06	0	0.06				
11.2	0.07	0	0.07				
11.25	0.08	0	0.08				
11.3	0.09	0	0.09	Hr	Minutes	Seconds	Cubic Feet
11.35	0.09	0	0.09	0.05	3	180	16.2
11.4	0.1	0	0.1	0.05	3	180	18
11.45	0.11	0	0.11	0.05	3	180	19.8
11.5	0.12	0	0.12	0.05	3	180	21.6
11.55	0.14	0	0.14	0.05	3	180	25.2
11.6	0.17	0	0.17	0.05	3	180	30.6
11.65	0.2	0	0.2	0.05	3	180	36
11.7	0.24	0	0.24	0.05	3	180	43.2
11.75	0.29	0	0.29	0.05	3	180	52.2
11.8	0.36	0	0.36	0.05	3	180	64.8
11.85	0.43	0	0.43	0.05	3	180	77.4
11.9	0.54	0	0.54	0.05	3	180	97.2
11.95	0.7	0	0.7	0.05	3	180	126
12	1.01	0	1.01	0.05	3	180	181.8
12.05	1.39	0	1.39	0.05	3	180	250.2
12.1	2.04	0	2.04	0.05	3	180	367.2

12.15	2.23	0	2.23	0.05	3	180	401.4
12.2	1.64	0	1.64	0.05	3	180	295.2
12.25	1.24	0	1.24	0.05	3	180	223.2
12.3	1.04	0	1.04	0.05	3	180	187.2
12.35	0.94	0	0.94	0.05	3	180	169.2
12.4	0.86	0	0.86	0.05	3	180	154.8
12.45	0.8	0	0.8	0.05	3	180	144
12.5	0.75	0	0.75	0.05	3	180	135
12.55	0.71	0	0.71	0.05	3	180	127.8
12.6	0.67	0	0.67	0.05	3	180	120.6
12.65	0.64	0	0.64	0.05	3	180	115.2
12.7	0.63	0	0.63	0.05	3	180	113.4
12.75	0.63	0	0.63	0.05	3	180	113.4
12.8	0.62	0	0.62	0.05	3	180	111.6
12.85	0.62	0	0.62	0.05	3	180	111.6
12.9	0.61	0	0.61	0.05	3	180	109.8
12.95	0.61	0	0.61	0.05	3	180	109.8
13	0.62	0	0.62	0.05	3	180	111.6
13.05	0.63	0	0.63	0.05	3	180	113.4
13.1	0.64	0	0.64	0.05	3	180	115.2
13.15	0.65	0	0.65	0.05	3	180	117
13.2	0.66	0	0.66	0.05	3	180	118.8
13.25	0.66	0	0.66	0.05	3	180	118.8
13.3	0.66	0	0.66	0.05	3	180	118.8
13.35	0.66	0	0.66	0.05	3	180	118.8
13.4	0.65	0	0.65	0.05	3	180	117
13.45	0.65	0	0.65	0.05	3	180	117
13.5	0.64	0	0.64	0.05	3	180	115.2
13.55	0.63	0	0.63	0.05	3	180	113.4
13.6	0.61	0	0.61	0.05	3	180	109.8
13.65	0.59	0	0.59	0.05	3	180	106.2
13.7	0.58	0	0.58	0.05	3	180	104.4
13.75	0.57	0	0.57	0.05	3	180	102.6
13.8	0.56	0	0.56	0.05	3	180	100.8
13.85	0.55	0	0.55	0.05	3	180	99
13.9	0.55	0	0.55	0.05	3	180	99
13.95	0.54	0	0.54	0.05	3	180	97.2
14	0.53	0	0.53	0.05	3	180	95.4
14.05	0.53	0	0.53	0.05	3	180	95.4
14.1	0.52	0	0.52	0.05	3	180	93.6
14.15	0.52	0	0.52	0.05	3	180	93.6
14.2	0.52	0	0.52	0.05	3	180	93.6
14.25	0.51	0	0.51	0.05	3	180	91.8
14.3	0.51	0	0.51	0.05	3	180	91.8
14.35	0.51	0	0.51	0.05	3	180	91.8
14.4	0.51	0	0.51	0.05	3	180	91.8
14.45	0.51	0	0.51	0.05	3	180	91.8
14.5	0.51	0	0.51	0.05	3	180	91.8
14.55	0.51	0	0.51	0.05	3	180	91.8

14.6	0.51	0	0.51	0.05	3	180	91.8
14.65	0.5	0	0.5	0.05	3	180	90
14.7	0.5	0	0.5	0.05	3	180	90
14.75	0.5	0	0.5	0.05	3	180	90
14.8	0.5	0	0.5	0.05	3	180	90
14.85	0.5	0	0.5	0.05	3	180	90
14.9	0.5	0	0.5	0.05	3	180	90
14.95	0.5	0	0.5	0.05	3	180	90
15	0.5	0	0.5	0.05	3	180	90
15.05	0.5	0	0.5	0.05	3	180	90
15.1	0.49	0	0.49	0.05	3	180	88.2
15.15	0.48	0	0.48	0.05	3	180	86.4
15.2	0.48	0	0.48	0.05	3	180	86.4
15.25	0.48	0	0.48	0.05	3	180	86.4
15.3	0.48	0	0.48	0.05	3	180	86.4
15.35	0.48	0	0.48	0.05	3	180	86.4
15.4	0.48	0	0.48	0.05	3	180	86.4
15.45	0.48	0	0.48	0.05	3	180	86.4
15.5	0.48	0	0.48	0.05	3	180	86.4
15.55	0.47	0	0.47	0.05	3	180	84.6
15.6	0.47	0	0.47	0.05	3	180	84.6
15.65	0.47	0	0.47	0.05	3	180	84.6
15.7	0.47	0	0.47	0.05	3	180	84.6
15.75	0.47	0	0.47	0.05	3	180	84.6
15.8	0.47	0	0.47	0.05	3	180	84.6
15.85	0.47	0	0.47	0.05	3	180	84.6
15.9	0.47	0	0.47	0.05	3	180	84.6
15.95	0.47	0	0.47	0.05	3	180	84.6
16	0.47	0	0.47	0.05	3	180	84.6
16.05	0.47	0	0.47	0.05	3	180	84.6
16.1	0.47	0	0.47	0.05	3	180	84.6
16.15	0.47	0	0.47	0.05	3	180	84.6
16.2	0.47	0	0.47	0.05	3	180	84.6
16.25	0.47	0	0.47	0.05	3	180	84.6
16.3	0.47	0	0.47	0.05	3	180	84.6
16.35	0.46	0	0.46	0.05	3	180	82.8
16.4	0.46	0	0.46	0.05	3	180	82.8
16.45	0.46	0	0.46	0.05	3	180	82.8
16.5	0.46	0	0.46	0.05	3	180	82.8
16.55	0.46	0	0.46	0.05	3	180	82.8
16.6	0.46	0	0.46	0.05	3	180	82.8
16.65	0.46	0	0.46	0.05	3	180	82.8
16.7	0.46	0	0.46	0.05	3	180	82.8
16.75	0.46	0	0.46	0.05	3	180	82.8
16.8	0.46	0	0.46	0.05	3	180	82.8
16.85	0.46	0	0.46	0.05	3	180	82.8
16.9	0.46	0	0.46	0.05	3	180	82.8
16.95	0.46	0	0.46	0.05	3	180	82.8
17	0.46	0	0.46	0.05	3	180	82.8

17.05	0.46	0	0.46	0.05	3	180	82.8
17.1	0.46	0	0.46	0.05	3	180	82.8
17.15	0.45	0	0.45	0.05	3	180	81
17.2	0.45	0	0.45	0.05	3	180	81
17.25	0.45	0	0.45	0.05	3	180	81
17.3	0.45	0	0.45	0.05	3	180	81
17.35	0.45	0	0.45	0.05	3	180	81
17.4	0.45	0	0.45	0.05	3	180	81
17.45	0.45	0	0.45	0.05	3	180	81
17.5	0.45	0	0.45	0.05	3	180	81
17.55	0.45	0	0.45	0.05	3	180	81
17.6	0.45	0	0.45	0.05	3	180	81
17.65	0.45	0	0.45	0.05	3	180	81
17.7	0.45	0	0.45	0.05	3	180	81
17.75	0.45	0	0.45	0.05	3	180	81
17.8	0.45	0	0.45	0.05	3	180	81
17.85	0.44	0	0.44	0.05	3	180	79.2
17.9	0.44	0	0.44	0.05	3	180	79.2
17.95	0.44	0	0.44	0.05	3	180	79.2
18	0.44	0	0.44	0.05	3	180	79.2
18.05	0.44	0	0.44	0.05	3	180	79.2
18.1	0.44	0	0.44	0.05	3	180	79.2
18.15	0.44	0	0.44	0.05	3	180	79.2
18.2	0.44	0	0.44	0.05	3	180	79.2
18.25	0.44	0	0.44	0.05	3	180	79.2
18.3	0.44	0	0.44	0.05	3	180	79.2
18.35	0.44	0	0.44	0.05	3	180	79.2
18.4	0.44	0	0.44	0.05	3	180	79.2
18.45	0.44	0	0.44	0.05	3	180	79.2
18.5	0.44	0	0.44	0.05	3	180	79.2
18.55	0.43	0	0.43	0.05	3	180	77.4
18.6	0.43	0	0.43	0.05	3	180	77.4
18.65	0.43	0	0.43	0.05	3	180	77.4
18.7	0.43	0	0.43	0.05	3	180	77.4
18.75	0.43	0	0.43	0.05	3	180	77.4
18.8	0.43	0	0.43	0.05	3	180	77.4
18.85	0.43	0	0.43	0.05	3	180	77.4
18.9	0.43	0	0.43	0.05	3	180	77.4
18.95	0.43	0	0.43	0.05	3	180	77.4
19	0.43	0	0.43	0.05	3	180	77.4
19.05	0.43	0	0.43	0.05	3	180	77.4
19.1	0.43	0	0.43	0.05	3	180	77.4
19.15	0.43	0	0.43	0.05	3	180	77.4
19.2	0.43	0	0.43	0.05	3	180	77.4
19.25	0.42	0	0.42	0.05	3	180	75.6
19.3	0.42	0	0.42	0.05	3	180	75.6
19.35	0.42	0	0.42	0.05	3	180	75.6
19.4	0.42	0	0.42	0.05	3	180	75.6
19.45	0.42	0	0.42	0.05	3	180	75.6

19.5	0.42	0	0.42	0.05	3	180	75.6
19.55	0.42	0	0.42	0.05	3	180	75.6
19.6	0.42	0	0.42	0.05	3	180	75.6
19.65	0.42	0	0.42	0.05	3	180	75.6
19.7	0.42	0	0.42	0.05	3	180	75.6
19.75	0.42	0	0.42	0.05	3	180	75.6
19.8	0.42	0	0.42	0.05	3	180	75.6
19.85	0.41	0	0.41	0.05	3	180	73.8
19.9	0.41	0	0.41	0.05	3	180	73.8
19.95	0.41	0	0.41	0.05	3	180	73.8
20	0.41	0	0.41	0.05	3	180	73.8
20.05	0.41	0	0.41	0.05	3	180	73.8
20.1	0.41	0	0.41	0.05	3	180	73.8
20.15	0.41	0	0.41	0.05	3	180	73.8
20.2	0.41	0	0.41	0.05	3	180	73.8
20.25	0.41	0	0.41	0.05	3	180	73.8
20.3	0.41	0	0.41	0.05	3	180	73.8
20.35	0.41	0	0.41	0.05	3	180	73.8
20.4	0.41	0	0.41	0.05	3	180	73.8
20.45	0.41	0	0.41	0.05	3	180	73.8
20.5	0.4	0	0.4	0.05	3	180	72
20.55	0.4	0	0.4	0.05	3	180	72
20.6	0.4	0	0.4	0.05	3	180	72
20.65	0.4	0	0.4	0.05	3	180	72
20.7	0.4	0	0.4	0.05	3	180	72
20.75	0.4	0	0.4	0.05	3	180	72
20.8	0.4	0	0.4	0.05	3	180	72
20.85	0.4	0	0.4	0.05	3	180	72
20.9	0.4	0	0.4				
20.95	0.4	0	0.4	**Total**			**17627.4**
21	0.4	0	0.4				
21.05	0.39	0	0.39				
21.1	0.39	0	0.39				
21.15	0.39	0	0.39				
21.2	0.39	0	0.39				
21.25	0.39	0	0.39				
21.3	0.39	0	0.39				
21.35	0.39	0	0.39				
21.4	0.39	0	0.39				
21.45	0.39	0	0.39				
21.5	0.39	0	0.39				
21.55	0.39	0	0.39				
21.6	0.39	0	0.39				
21.65	0.38	0	0.38				
21.7	0.38	0	0.38				
21.75	0.38	0	0.38				
21.8	0.38	0	0.38				
21.85	0.38	0	0.38				
21.9	0.38	0	0.38				

21.95	0.38	0	0.38
22	0.38	0	0.38
22.05	0.38	0	0.38
22.1	0.38	0	0.38
22.15	0.38	0	0.38
22.2	0.37	0	0.37
22.25	0.37	0	0.37
22.3	0.37	0	0.37
22.35	0.37	0	0.37
22.4	0.37	0	0.37
22.45	0.37	0	0.37
22.5	0.37	0	0.37
22.55	0.37	0	0.37
22.6	0.37	0	0.37
22.65	0.37	0	0.37
22.7	0.36	0	0.36
22.75	0.36	0	0.36
22.8	0.36	0	0.36
22.85	0.36	0	0.36
22.9	0.36	0	0.36
22.95	0.36	0	0.36
23	0.36	0	0.36
23.05	0.36	0	0.36
23.1	0.36	0	0.36
23.15	0.36	0	0.36
23.2	0.36	0	0.36
23.25	0.35	0	0.35
23.3	0.35	0	0.35
23.35	0.35	0	0.35
23.4	0.35	0	0.35
23.45	0.35	0	0.35
23.5	0.35	0	0.35
23.55	0.35	0	0.35
23.6	0.35	0	0.35
23.65	0.35	0	0.35
23.7	0.35	0	0.35
23.75	0.34	0	0.34
23.8	0.34	0	0.34
23.85	0.34	0	0.34
23.9	0.34	0	0.34
23.95	0.34	0	0.34
24	0.34	0	0.34

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0	0	0	0
0.05	0	0	0
0.1	0	0	0
0.15	0	0	0
0.2	0	0	0
0.25	0	0	0
0.3	0	0	0
0.35	0	0	0
0.4	0	0	0
0.45	0	0	0
0.5	0	0	0
0.55	0	0	0
0.6	0	0	0
0.65	0	0	0
0.7	0	0	0
0.75	0	0	0
0.8	0	0	0
0.85	0	0	0
0.9	0	0	0
0.95	0	0	0
1	0	0	0
1.05	0	0	0
1.1	0	0	0
1.15	0	0	0
1.2	0	0	0
1.25	0	0	0
1.3	0	0	0
1.35	0	0	0
1.4	0	0	0
1.45	0	0	0
1.5	0	0	0
1.55	0	0	0
1.6	0	0	0
1.65	0	0	0
1.7	0	0	0
1.75	0	0	0
1.8	0	0	0
1.85	0	0	0
1.9	0	0	0
1.95	0	0	0
2	0	0	0
2.05	0	0	0
2.1	0	0	0
2.15	0	0	0
2.2	0	0	0
2.25	0	0	0
2.3	0	0	0

2.35	0	0	0
2.4	0	0	0
2.45	0	0	0
2.5	0	0	0
2.55	0	0	0
2.6	0	0	0
2.65	0	0	0
2.7	0	0	0
2.75	0	0	0
2.8	0	0	0
2.85	0	0	0
2.9	0	0	0
2.95	0	0	0
3	0	0	0
3.05	0	0	0
3.1	0	0	0
3.15	0	0	0
3.2	0	0	0
3.25	0	0	0
3.3	0	0	0
3.35	0	0	0
3.4	0	0	0
3.45	0	0	0
3.5	0	0	0
3.55	0	0	0
3.6	0	0	0
3.65	0	0	0
3.7	0	0	0
3.75	0	0	0
3.8	0	0	0
3.85	0	0	0
3.9	0	0	0
3.95	0	0	0
4	0	0	0
4.05	0	0	0
4.1	0	0	0
4.15	0	0	0
4.2	0	0	0
4.25	0	0	0
4.3	0	0	0
4.35	0	0	0
4.4	0	0	0
4.45	0	0	0
4.5	0	0	0
4.55	0	0	0
4.6	0	0	0
4.65	0	0	0
4.7	0	0	0
4.75	0	0	0

4.8	0	0	0
4.85	0	0	0
4.9	0	0	0
4.95	0	0	0
5	0	0	0
5.05	0	0	0
5.1	0	0	0
5.15	0	0	0
5.2	0	0	0
5.25	0	0	0
5.3	0	0	0
5.35	0	0	0
5.4	0	0	0
5.45	0	0	0
5.5	0	0	0
5.55	0	0	0
5.6	0	0	0
5.65	0	0	0
5.7	0	0	0
5.75	0	0	0
5.8	0.01	0	0.01
5.85	0.01	0	0.01
5.9	0.01	0	0.01
5.95	0.01	0	0.01
6	0.01	0	0.01
6.05	0.01	0	0.01
6.1	0.01	0	0.01
6.15	0.01	0	0.01
6.2	0.01	0	0.01
6.25	0.01	0	0.01
6.3	0.01	0	0.01
6.35	0.01	0	0.01
6.4	0.01	0	0.01
6.45	0.01	0	0.01
6.5	0.01	0	0.01
6.55	0.01	0	0.01
6.6	0.01	0	0.01
6.65	0.01	0	0.01
6.7	0.01	0	0.01
6.75	0.01	0	0.01
6.8	0.01	0	0.01
6.85	0.01	0	0.01
6.9	0.02	0	0.02
6.95	0.02	0	0.02
7	0.02	0	0.02
7.05	0.02	0	0.02
7.1	0.02	0	0.02
7.15	0.02	0	0.02
7.2	0.02	0	0.02

7.25	0.02	0	0.02
7.3	0.02	0	0.02
7.35	0.02	0	0.02
7.4	0.02	0	0.02
7.45	0.02	0	0.02
7.5	0.03	0	0.03
7.55	0.03	0	0.03
7.6	0.03	0	0.03
7.65	0.03	0	0.03
7.7	0.03	0	0.03
7.75	0.03	0	0.03
7.8	0.03	0	0.03
7.85	0.03	0	0.03
7.9	0.04	0	0.04
7.95	0.04	0	0.04
8	0.04	0	0.04
8.05	0.04	0	0.04
8.1	0.04	0	0.04
8.15	0.04	0	0.04
8.2	0.05	0	0.05
8.25	0.05	0	0.05
8.3	0.05	0	0.05
8.35	0.05	0	0.05
8.4	0.05	0	0.05
8.45	0.06	0	0.06
8.5	0.06	0	0.06
8.55	0.06	0	0.06
8.6	0.06	0	0.06
8.65	0.07	0	0.07
8.7	0.07	0	0.07
8.75	0.07	0	0.07
8.8	0.07	0	0.07
8.85	0.08	0	0.08
8.9	0.08	0	0.08
8.95	0.08	0	0.08
9	0.08	0	0.08
9.05	0.09	0	0.09
9.1	0.1	0	0.1
9.15	0.11	0	0.11
9.2	0.12	0	0.12
9.25	0.12	0	0.12
9.3	0.13	0	0.13
9.35	0.13	0	0.13
9.4	0.14	0	0.14
9.45	0.14	0	0.14
9.5	0.15	0	0.15
9.55	0.16	0	0.16
9.6	0.16	0	0.16
9.65	0.17	0	0.17

9.7	0.17	0	0.17
9.75	0.18	0	0.18
9.8	0.19	0	0.19
9.85	0.19	0	0.19
9.9	0.2	0	0.2
9.95	0.2	0	0.2
10	0.21	0	0.21
10.05	0.21	0	0.21
10.1	0.22	0	0.22
10.15	0.22	0	0.22
10.2	0.23	0	0.23
10.25	0.24	0	0.24
10.3	0.24	0	0.24
10.35	0.25	0	0.25
10.4	0.25	0	0.25
10.45	0.26	0	0.26
10.5	0.26	0	0.26
10.55	0.28	0	0.28
10.6	0.31	0	0.31
10.65	0.33	0	0.33
10.7	0.35	0	0.35
10.75	0.37	0	0.37
10.8	0.39	0	0.39
10.85	0.41	0	0.41
10.9	0.43	0	0.43
10.95	0.45	0	0.45
11	0.47	0	0.47
11.05	0.49	0	0.49
11.1	0.52	0	0.52
11.15	0.54	0	0.54
11.2	0.57	0	0.57
11.25	0.59	0	0.59

11.3	0.62	0	0.62	Hr	Minutes	Seconds	Cubic Feet
11.35	0.64	0	0.64	0.05	3	180	115.2
11.4	0.67	0	0.67	0.05	3	180	120.6
11.45	0.7	0	0.7	0.05	3	180	126
11.5	0.73	0	0.73	0.05	3	180	131.4
11.55	0.78	0	0.78	0.05	3	180	140.4
11.6	0.89	0	0.89	0.05	3	180	160.2
11.65	1	0	1	0.05	3	180	180
11.7	1.15	0	1.15	0.05	3	180	207
11.75	1.3	0	1.3	0.05	3	180	234
11.8	1.53	0	1.53	0.05	3	180	275.4
11.85	1.77	0	1.77	0.05	3	180	318.6
11.9	2.13	0	2.13	0.05	3	180	383.4
11.95	2.98	0	2.98	0.05	3	180	536.4
12	5.35	0	5.35	0.05	3	180	963
12.05	8.85	0	8.85	0.05	3	180	1593
12.1	13.79	0	13.79	0.05	3	180	2482.2

12.15	14.93	0	14.93	0.05	3	180	2687.4
12.2	13.32	0	13.32	0.05	3	180	2397.6
12.25	12.17	0	12.17	0.05	3	180	2190.6
12.3	11.57	0	11.57	0.05	3	180	2082.6
12.35	11.25	0	11.25	0.05	3	180	2025
12.4	10.95	0	10.95	0.05	3	180	1971
12.45	10.73	0	10.73	0.05	3	180	1931.4
12.5	10.49	0	10.49	0.05	3	180	1888.2
12.55	10.28	0	10.28	0.05	3	180	1850.4
12.6	10.02	0	10.02	0.05	3	180	1803.6
12.65	9.81	0	9.81	0.05	3	180	1765.8
12.7	9.64	0	9.64	0.05	3	180	1735.2
12.75	9.48	0	9.48	0.05	3	180	1706.4
12.8	9.32	0	9.32	0.05	3	180	1677.6
12.85	9.16	0	9.16	0.05	3	180	1648.8
12.9	9	0	9	0.05	3	180	1620
12.95	8.83	0	8.83	0.05	3	180	1589.4
13	8.66	0	8.66	0.05	3	180	1558.8
13.05	8.49	0	8.49	0.05	3	180	1528.2
13.1	8.32	0	8.32	0.05	3	180	1497.6
13.15	8.13	0	8.13	0.05	3	180	1463.4
13.2	7.55	0	7.55	0.05	3	180	1359
13.25	6.96	0	6.96	0.05	3	180	1252.8
13.3	6.5	0	6.5	0.05	3	180	1170
13.35	6.15	0	6.15	0.05	3	180	1107
13.4	5.85	0	5.85	0.05	3	180	1053
13.45	5.6	0	5.6	0.05	3	180	1008
13.5	5.38	0	5.38	0.05	3	180	968.4
13.55	5.18	0	5.18	0.05	3	180	932.4
13.6	4.96	0	4.96	0.05	3	180	892.8
13.65	4.77	0	4.77	0.05	3	180	858.6
13.7	4.61	0	4.61	0.05	3	180	829.8
13.75	4.48	0	4.48	0.05	3	180	806.4
13.8	4.36	0	4.36	0.05	3	180	784.8
13.85	4.25	0	4.25	0.05	3	180	765
13.9	4.07	0	4.07	0.05	3	180	732.6
13.95	3.78	0	3.78	0.05	3	180	680.4
14	3.38	0	3.38	0.05	3	180	608.4
14.05	3.06	0	3.06	0.05	3	180	550.8
14.1	2.8	0	2.8	0.05	3	180	504
14.15	2.59	0	2.59	0.05	3	180	466.2
14.2	2.41	0	2.41	0.05	3	180	433.8
14.25	2.26	0	2.26	0.05	3	180	406.8
14.3	2.13	0	2.13	0.05	3	180	383.4
14.35	2.03	0	2.03	0.05	3	180	365.4
14.4	1.94	0	1.94	0.05	3	180	349.2
14.45	1.86	0	1.86	0.05	3	180	334.8
14.5	1.79	0	1.79	0.05	3	180	322.2
14.55	1.73	0	1.73	0.05	3	180	311.4

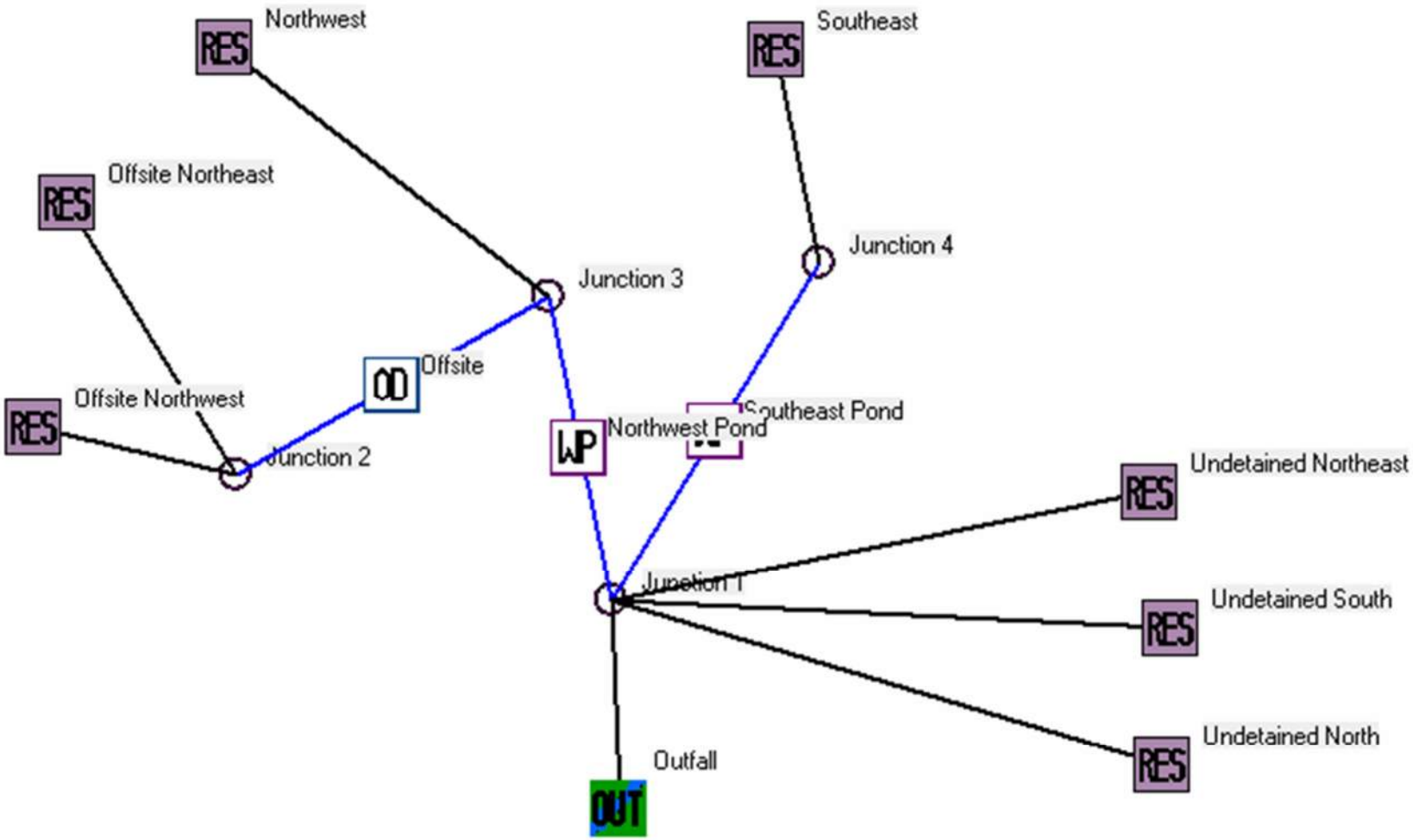
14.6	1.68	0	1.68	0.05	3	180	302.4
14.65	1.63	0	1.63	0.05	3	180	293.4
14.7	1.59	0	1.59	0.05	3	180	286.2
14.75	1.55	0	1.55	0.05	3	180	279
14.8	1.52	0	1.52	0.05	3	180	273.6
14.85	1.49	0	1.49	0.05	3	180	268.2
14.9	1.47	0	1.47	0.05	3	180	264.6
14.95	1.44	0	1.44	0.05	3	180	259.2
15	1.42	0	1.42	0.05	3	180	255.6
15.05	1.38	0	1.38	0.05	3	180	248.4
15.1	1.32	0	1.32	0.05	3	180	237.6
15.15	1.25	0	1.25	0.05	3	180	225
15.2	1.2	0	1.2	0.05	3	180	216
15.25	1.15	0	1.15	0.05	3	180	207
15.3	1.11	0	1.11	0.05	3	180	199.8
15.35	1.07	0	1.07	0.05	3	180	192.6
15.4	1.04	0	1.04	0.05	3	180	187.2
15.45	1.01	0	1.01	0.05	3	180	181.8
15.5	0.99	0	0.99	0.05	3	180	178.2
15.55	0.97	0	0.97	0.05	3	180	174.6
15.6	0.95	0	0.95	0.05	3	180	171
15.65	0.93	0	0.93	0.05	3	180	167.4
15.7	0.92	0	0.92	0.05	3	180	165.6
15.75	0.9	0	0.9	0.05	3	180	162
15.8	0.89	0	0.89	0.05	3	180	160.2
15.85	0.87	0	0.87	0.05	3	180	156.6
15.9	0.86	0	0.86	0.05	3	180	154.8
15.95	0.85	0	0.85	0.05	3	180	153
16	0.83	0	0.83	0.05	3	180	149.4
16.05	0.82	0	0.82	0.05	3	180	147.6
16.1	0.81	0	0.81	0.05	3	180	145.8
16.15	0.8	0	0.8	0.05	3	180	144
16.2	0.79	0	0.79	0.05	3	180	142.2
16.25	0.78	0	0.78	0.05	3	180	140.4
16.3	0.78	0	0.78	0.05	3	180	140.4
16.35	0.77	0	0.77	0.05	3	180	138.6
16.4	0.76	0	0.76	0.05	3	180	136.8
16.45	0.75	0	0.75	0.05	3	180	135
16.5	0.75	0	0.75	0.05	3	180	135
16.55	0.74	0	0.74	0.05	3	180	133.2
16.6	0.73	0	0.73	0.05	3	180	131.4
16.65	0.72	0	0.72	0.05	3	180	129.6
16.7	0.72	0	0.72	0.05	3	180	129.6
16.75	0.72	0	0.72	0.05	3	180	129.6
16.8	0.71	0	0.71	0.05	3	180	127.8
16.85	0.71	0	0.71	0.05	3	180	127.8
16.9	0.7	0	0.7	0.05	3	180	126
16.95	0.7	0	0.7	0.05	3	180	126
17	0.69	0	0.69	0.05	3	180	124.2

17.05	0.69	0	0.69	0.05	3	180	124.2
17.1	0.68	0	0.68	0.05	3	180	122.4
17.15	0.68	0	0.68	0.05	3	180	122.4
17.2	0.67	0	0.67	0.05	3	180	120.6
17.25	0.67	0	0.67	0.05	3	180	120.6
17.3	0.67	0	0.67	0.05	3	180	120.6
17.35	0.66	0	0.66	0.05	3	180	118.8
17.4	0.66	0	0.66	0.05	3	180	118.8
17.45	0.66	0	0.66	0.05	3	180	118.8
17.5	0.65	0	0.65	0.05	3	180	117
17.55	0.65	0	0.65	0.05	3	180	117
17.6	0.65	0	0.65	0.05	3	180	117
17.65	0.64	0	0.64	0.05	3	180	115.2
17.7	0.64	0	0.64	0.05	3	180	115.2
17.75	0.64	0	0.64	0.05	3	180	115.2
17.8	0.64	0	0.64	0.05	3	180	115.2
17.85	0.63	0	0.63	0.05	3	180	113.4
17.9	0.63	0	0.63	0.05	3	180	113.4
17.95	0.63	0	0.63	0.05	3	180	113.4
18	0.63	0	0.63	0.05	3	180	113.4
18.05	0.63	0	0.63	0.05	3	180	113.4
18.1	0.63	0	0.63	0.05	3	180	113.4
18.15	0.62	0	0.62	0.05	3	180	111.6
18.2	0.62	0	0.62	0.05	3	180	111.6
18.25	0.62	0	0.62	0.05	3	180	111.6
18.3	0.62	0	0.62	0.05	3	180	111.6
18.35	0.62	0	0.62	0.05	3	180	111.6
18.4	0.61	0	0.61	0.05	3	180	109.8
18.45	0.61	0	0.61	0.05	3	180	109.8
18.5	0.61	0	0.61	0.05	3	180	109.8
18.55	0.61	0	0.61	0.05	3	180	109.8
18.6	0.61	0	0.61	0.05	3	180	109.8
18.65	0.6	0	0.6	0.05	3	180	108
18.7	0.6	0	0.6	0.05	3	180	108
18.75	0.6	0	0.6	0.05	3	180	108
18.8	0.6	0	0.6	0.05	3	180	108
18.85	0.59	0	0.59	0.05	3	180	106.2
18.9	0.59	0	0.59	0.05	3	180	106.2
18.95	0.59	0	0.59	0.05	3	180	106.2
19	0.59	0	0.59	0.05	3	180	106.2
19.05	0.59	0	0.59	0.05	3	180	106.2
19.1	0.58	0	0.58	0.05	3	180	104.4
19.15	0.58	0	0.58	0.05	3	180	104.4
19.2	0.58	0	0.58	0.05	3	180	104.4
19.25	0.58	0	0.58	0.05	3	180	104.4
19.3	0.57	0	0.57	0.05	3	180	102.6
19.35	0.57	0	0.57	0.05	3	180	102.6
19.4	0.57	0	0.57	0.05	3	180	102.6
19.45	0.57	0	0.57	0.05	3	180	102.6

19.5	0.56	0	0.56	0.05	3	180	100.8
19.55	0.56	0	0.56	0.05	3	180	100.8
19.6	0.56	0	0.56	0.05	3	180	100.8
19.65	0.56	0	0.56	0.05	3	180	100.8
19.7	0.55	0	0.55	0.05	3	180	99
19.75	0.55	0	0.55	0.05	3	180	99
19.8	0.55	0	0.55	0.05	3	180	99
19.85	0.55	0	0.55	0.05	3	180	99
19.9	0.54	0	0.54	0.05	3	180	97.2
19.95	0.54	0	0.54	0.05	3	180	97.2
20	0.54	0	0.54	0.05	3	180	97.2
20.05	0.54	0	0.54	0.05	3	180	97.2
20.1	0.53	0	0.53	0.05	3	180	95.4
20.15	0.53	0	0.53	0.05	3	180	95.4
20.2	0.53	0	0.53	0.05	3	180	95.4
20.25	0.53	0	0.53	0.05	3	180	95.4
20.3	0.52	0	0.52	0.05	3	180	93.6
20.35	0.52	0	0.52	0.05	3	180	93.6
20.4	0.52	0	0.52	0.05	3	180	93.6
20.45	0.52	0	0.52	0.05	3	180	93.6
20.5	0.51	0	0.51	0.05	3	180	91.8
20.55	0.51	0	0.51	0.05	3	180	91.8
20.6	0.51	0	0.51	0.05	3	180	91.8
20.65	0.51	0	0.51	0.05	3	180	91.8
20.7	0.51	0	0.51	0.05	3	180	91.8
20.75	0.51	0	0.51	0.05	3	180	91.8
20.8	0.51	0	0.51	0.05	3	180	91.8
20.85	0.5	0	0.5	0.05	3	180	90
20.9	0.5	0	0.5				
20.95	0.5	0	0.5	**Total**			**83838.6**
21	0.5	0	0.5				
21.05	0.5	0	0.5				
21.1	0.5	0	0.5				
21.15	0.5	0	0.5				
21.2	0.5	0	0.5				
21.25	0.5	0	0.5				
21.3	0.5	0	0.5				
21.35	0.5	0	0.5				
21.4	0.49	0	0.49				
21.45	0.49	0	0.49				
21.5	0.49	0	0.49				
21.55	0.49	0	0.49				
21.6	0.49	0	0.49				
21.65	0.49	0	0.49				
21.7	0.49	0	0.49				
21.75	0.49	0	0.49				
21.8	0.49	0	0.49				
21.85	0.49	0	0.49				
21.9	0.48	0	0.48				

21.95	0.48	0	0.48
22	0.48	0	0.48
22.05	0.48	0	0.48
22.1	0.48	0	0.48
22.15	0.48	0	0.48
22.2	0.48	0	0.48
22.25	0.48	0	0.48
22.3	0.48	0	0.48
22.35	0.48	0	0.48
22.4	0.47	0	0.47
22.45	0.47	0	0.47
22.5	0.47	0	0.47
22.55	0.47	0	0.47
22.6	0.47	0	0.47
22.65	0.47	0	0.47
22.7	0.47	0	0.47
22.75	0.47	0	0.47
22.8	0.47	0	0.47
22.85	0.47	0	0.47
22.9	0.46	0	0.46
22.95	0.46	0	0.46
23	0.46	0	0.46
23.05	0.46	0	0.46
23.1	0.46	0	0.46
23.15	0.46	0	0.46
23.2	0.46	0	0.46
23.25	0.46	0	0.46
23.3	0.45	0	0.45
23.35	0.45	0	0.45
23.4	0.45	0	0.45
23.45	0.45	0	0.45
23.5	0.45	0	0.45
23.55	0.45	0	0.45
23.6	0.45	0	0.45
23.65	0.45	0	0.45
23.7	0.45	0	0.45
23.75	0.44	0	0.44
23.8	0.44	0	0.44
23.85	0.44	0	0.44
23.9	0.44	0	0.44
23.95	0.44	0	0.44
24	0.44	0	0.44

Appendix C – WinSLAMM Model


Northwest
RES
Southeast
RES
Offsite Northeast
RES
Junction 4
Junction 3
OD
Offsite
Offsite Northwest
RES
Southeast Pond
WP
Northwest Pond
Junction 2
Undetained Northeast
RES
Junction 1
Undetained South
RES
Undetained North
RES
Outfall
OUT

Data file name: \\langan.com\data\MKE\data1\543001101\Project Data_Discipline\Site Civil\Stormwater\Water Quality\2026.05.19 Germantown.mdb
WinSLAMM Version 10.5.0
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 01/01/81 Study period ending date: 12/31/81
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 05-20-2026 Time: 09:58:10
Site information:

LU# 1 - Residential: Offsite Northwest Total area (ac): 0.089
  51 - Small Landscaped Areas 1: 0.089 ac. Normal Clayey Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 2 - Residential: Offsite Northeast Total area (ac): 0.613
  13 - Paved Parking 1: 0.396 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  51 - Small Landscaped Areas 1: 0.217 ac. Normal Clayey Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 3 - Residential: Northwest Total area (ac): 2.317
  1 - Roofs 1: 0.639 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  25 - Driveways 1: 0.173 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  31 - Sidewalks 1: 0.043 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  37 - Streets 1: 0.241 ac. Smooth Street Length = 0.0828 mi Street Width = 24.01268 ft Street Edges = 2
    Default St. Dirt Accum. Annual Winter Load = 2500 lbs Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

```
     51 - Small Landscaped Areas 1:  0.839 ac.    Normal Clayey    Source Area PSD
File: C:\WinSLAMM Files\NURP.cpz
     70 - Water Body Areas:  0.382 ac.    Source Area PSD File:

LU# 4 - Residential:  Southeast     Total area (ac):  2.220
     1 - Roofs 1:  0.641 ac.    Pitched    Connected    Source Area PSD File:
C:\WinSLAMM Files\NURP.cpz
     25 - Driveways 1:  0.205 ac.    Connected    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     31 - Sidewalks 1:  0.066 ac.    Connected    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     37 - Streets 1:  0.313 ac.    Smooth    Street Length = 0.1076 mi    Street
Width = 23.9986 ft     Street Edges = 2
           Default St. Dirt Accum.    Annual Winter Load = 2500 lbs    Source Area
PSD File: C:\WinSLAMM Files\NURP.cpz
     51 - Small Landscaped Areas 1:  0.878 ac.    Normal Clayey    Source Area PSD
File: C:\WinSLAMM Files\NURP.cpz
     70 - Water Body Areas:  0.117 ac.    Source Area PSD File:

LU# 5 - Residential:  Undetained Northeast     Total area (ac):  0.359
     1 - Roofs 1:  0.186 ac.    Pitched    Connected    Source Area PSD File:
C:\WinSLAMM Files\NURP.cpz
     31 - Sidewalks 1:  0.007 ac.    Connected    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     51 - Small Landscaped Areas 1:  0.166 ac.    Normal Clayey    Source Area PSD
File: C:\WinSLAMM Files\NURP.cpz

LU# 6 - Residential:  Undetained South     Total area (ac):  0.447
     51 - Small Landscaped Areas 1:  0.447 ac.    Normal Clayey    Source Area PSD
File: C:\WinSLAMM Files\NURP.cpz

LU# 7 - Residential:  Undetained North     Total area (ac):  0.046
     51 - Small Landscaped Areas 1:  0.046 ac.    Normal Clayey    Source Area PSD
File: C:\WinSLAMM Files\NURP.cpz


      Control Practice 1:  Wet Detention Pond CP# 1 (DS) - Northwest Pond
         Particle Size Distribution file name:  Not needed - calculated by program
         Initial stage elevation (ft):   5
         Peak to Average Flow Ratio:   3.8
         Maximum flow allowed into pond (cfs):  No maximum value entered
         Outlet Characteristics:
              Outlet type:  Orifice 1
                    1.  Orifice diameter (ft):   0.25
                    2.  Number of orifices:   1
                    3.  Invert elevation above datum (ft):   5
              Outlet type:  Broad Crested Weir
                    1.  Weir crest length (ft):   10
                    2.  Weir crest width (ft):   4
                    3.  Height from datum to bottom of weir opening:   7
```

```
            Outlet type:  Vertical Stand Pipe
                   1.  Stand pipe diameter (ft):   36
                   2.  Stand pipe height above datum (ft):   6
       Pond stage and surface area
                  Entry       Stage     Pond Area   Natural Seepage   Other Outflow
                  Number      (ft)      (acres)              (in/hr)
(cfs)
                    0           0.00        0.0000            0.00
  0.00
                    1           0.01        0.1820            0.00
  0.00
                    2           1.00        0.2020            0.00
  0.00
                    3           2.00        0.2220            0.00
  0.00
                    4           3.00        0.2430            0.00
  0.00
                    5           4.00        0.2640            0.00
  0.00
                    6           5.00        0.3820            0.00
  0.00
                    7           6.00        0.4320            0.00
  0.00
                    8           7.00        0.4850            0.00
  0.00
                    9           8.00        0.5410            0.00
  0.00

    Control Practice 2:  Wet Detention Pond CP# 2 (DS) - Southeast Pond
       Particle Size Distribution file name:  Not needed - calculated by program
       Initial stage elevation (ft):   5
       Peak to Average Flow Ratio:   3.8
       Maximum flow allowed into pond (cfs):  No maximum value entered
       Outlet Characteristics:
            Outlet type:  Orifice 1
                   1.  Orifice diameter (ft):   0.25
                   2.  Number of orifices:   1
                   3.  Invert elevation above datum (ft):   5
            Outlet type:  Broad Crested Weir
                   1.  Weir crest length (ft):   10
                   2.  Weir crest width (ft):   4
                   3.  Height from datum to bottom of weir opening:   7.5
            Outlet type:  Vertical Stand Pipe
                   1.  Stand pipe diameter (ft):   1.5
                   2.  Stand pipe height above datum (ft):   6.5
       Pond stage and surface area
                  Entry       Stage     Pond Area   Natural Seepage   Other Outflow
                  Number      (ft)      (acres)              (in/hr)
(cfs)
                    0           0.00        0.0000            0.00
```

0.00				
	1	0.01	0.0370	0.00
0.00				
	2	1.00	0.0470	0.00
0.00				
	3	2.00	0.0580	0.00
0.00				
	4	3.00	0.0700	0.00
0.00				
	5	4.00	0.0810	0.00
0.00				
	6	5.00	0.1530	0.00
0.00				
	7	5.50	0.1650	0.00
0.00				
	8	6.50	0.1900	0.00
0.00				
	9	7.50	0.2160	0.00
0.00				
	10	8.00	0.2290	0.00
0.00				

Control Practice 3: Other Device CP# 1 (DS) - Offsite
Fraction of drainage area served by device (ac) = 1.00
Particulate Concentration reduction fraction = 0.00
Filterable Concentration reduction fraction = 0.00
Runoff volume reduction fraction = 0

SLAMM for Windows Version 10.5.0
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Data file name: \\langan.com\data\MKE\data1\543001101\Project Data_Discipline\Site Civil\Stormwater\Water Quality\2026.05.19 Germantown.mdb
Data file description:
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Start of Winter Season: 12/02 End of Winter Season: 03/12
Model Run Start Date: 01/01/81 Model Run End Date: 12/31/81
Date of run: 05-20-2026 Time of run: 09:57:46
Total Area Modeled (acres): 6.091
Years in Model Run: 1.00

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	329505	-	91.63	1885	-
Outfall Total with Controls:	330257	-0.23%	14.05	289.7	84.63%
Annualized Total After Outfall Controls:	331164			290.5	

Appendix D – Geotechnical Report

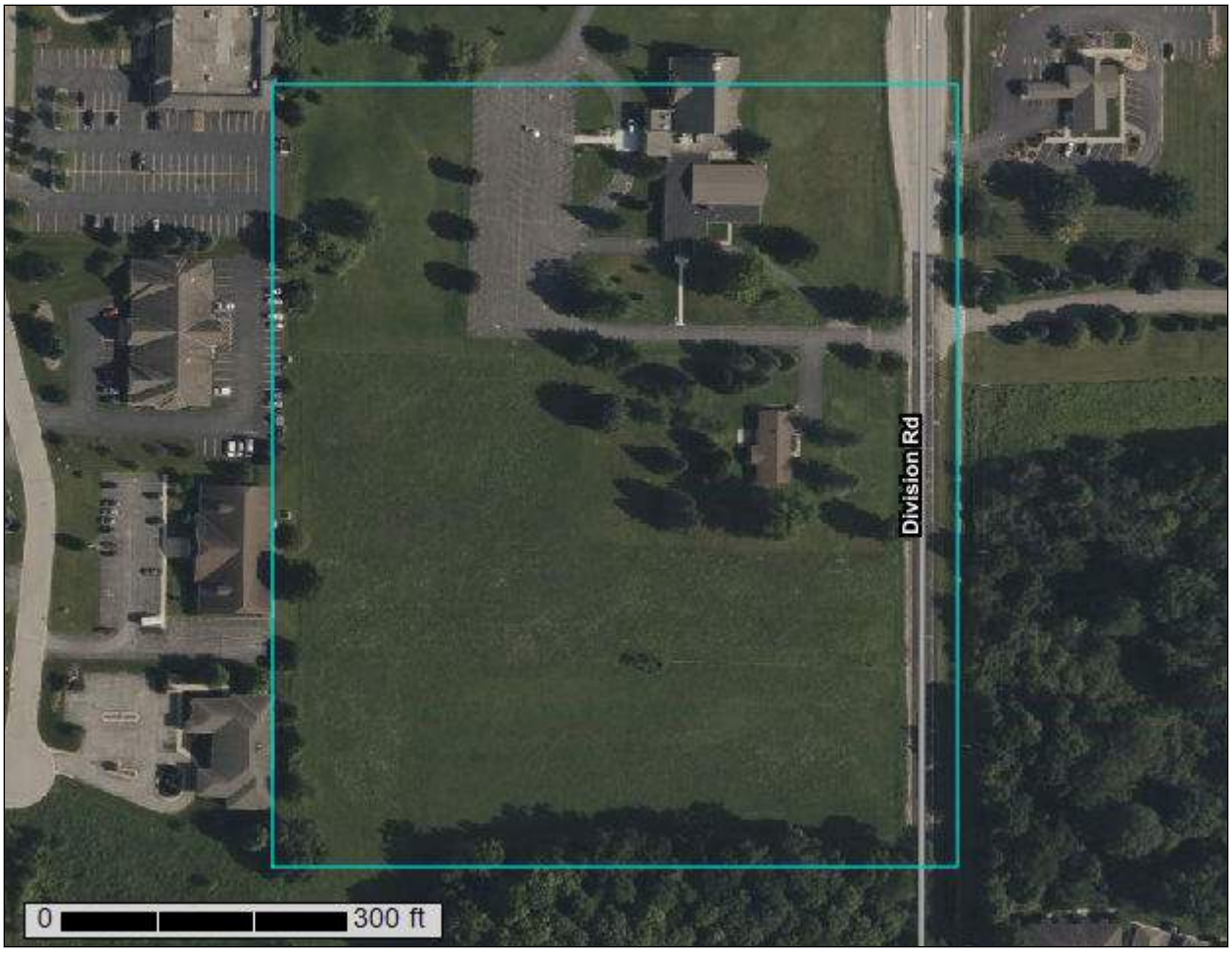
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Washington County, Wisconsin



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

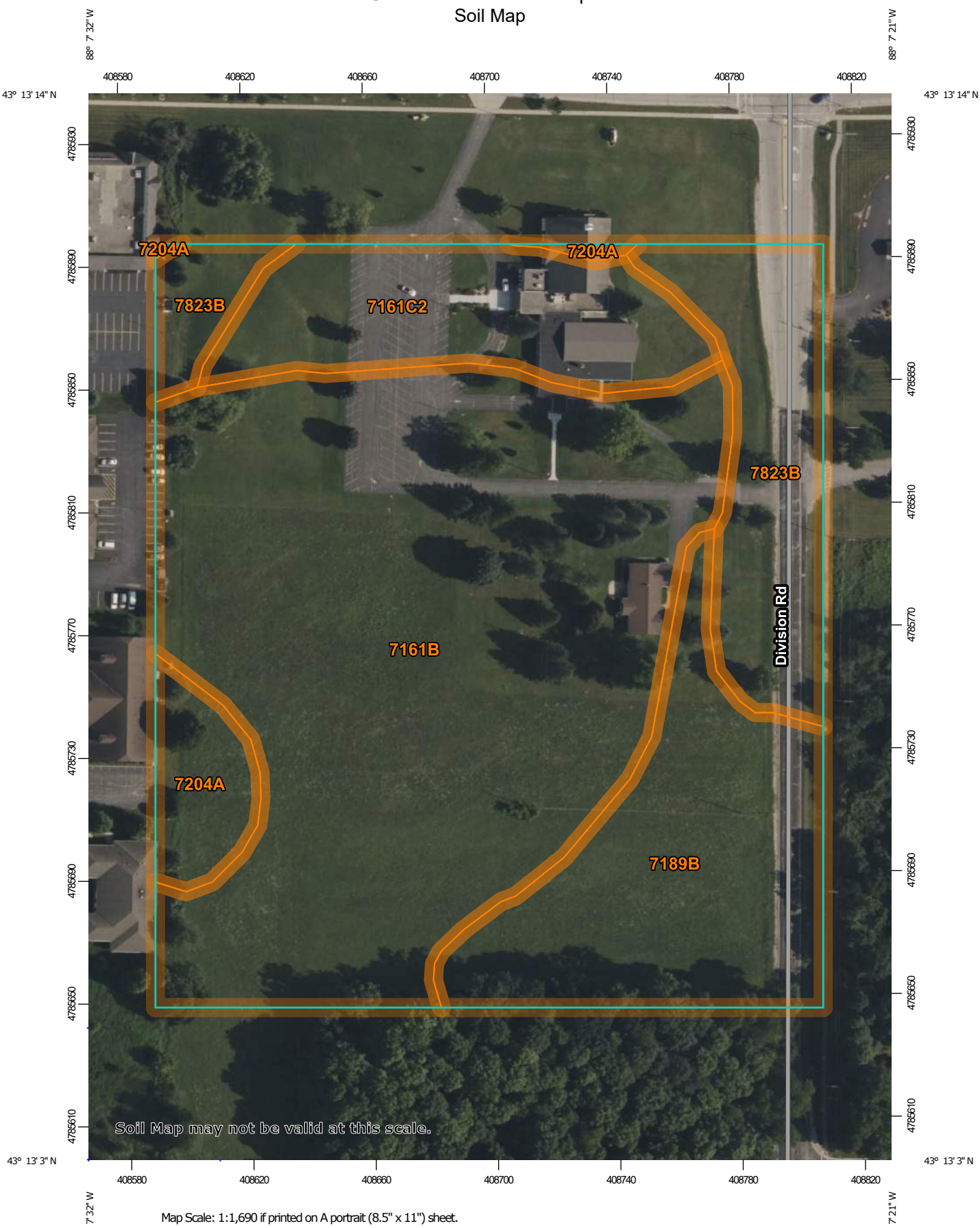
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



Map Scale: 1:1,690 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Washington County, Wisconsin
Survey Area Data: Version 25, Sep 10, 2025

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

Date(s) aerial images were photographed: Aug 4, 2022—Sep 13, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7161B	Ritchey silt loam, 2 to 6 percent slopes	7.4	54.7%
7161C2	Ritchey silt loam, 6 to 12 percent slopes, eroded	1.5	11.2%
7189B	Martinton silt loam, 1 to 3 percent slopes	2.4	17.5%
7204A	Virgil silt loam, gravelly substratum, 0 to 3 percent slopes	0.5	3.8%
7823B	Knowles silt loam, 2 to 6 percent slopes	1.7	12.7%
Totals for Area of Interest		**13.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Washington County, Wisconsin

7161B—Ritchey silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: g91f
Elevation: 760 to 1,310 feet
Mean annual precipitation: 32 to 35 inches
Mean annual air temperature: 37 to 55 degrees F
Frost-free period: 145 to 165 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Ritchey and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ritchey

Setting

Landform: Bluffs
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Fine-loamy loess over till over dolomite

Typical profile

Ap, E - 0 to 8 inches: silt loam
Bt - 8 to 14 inches: clay loam
2R - 14 to 79 inches: bedrock

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 60 to 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: F095XB006WI - Shallow Upland
Forage suitability group: Low AWC, adequately drained (G095BY002WI)
Other vegetative classification: Low AWC, adequately drained (G095BY002WI)
Hydric soil rating: No

7161C2—Ritchey silt loam, 6 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: g91g
Elevation: 760 to 1,120 feet
Mean annual precipitation: 32 to 35 inches
Mean annual air temperature: 37 to 55 degrees F
Frost-free period: 145 to 165 days
Farmland classification: Not prime farmland

Map Unit Composition

Ritchey and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ritchey

Setting

Landform: Bluffs
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Fine-loamy loess over till over dolomite

Typical profile

Ap - 0 to 8 inches: silt loam
Bt - 8 to 14 inches: clay loam
2R - 14 to 79 inches: bedrock

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 60 to 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: F095XB006WI - Shallow Upland
Forage suitability group: Low AWC, adequately drained (G095BY002WI)
Other vegetative classification: Low AWC, adequately drained (G095BY002WI)
Hydric soil rating: No

7189B—Martinton silt loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: g90v
Elevation: 790 to 1,280 feet
Mean annual precipitation: 32 to 35 inches
Mean annual air temperature: 37 to 55 degrees F
Frost-free period: 145 to 165 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Martinton and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Martinton

Setting

Landform: Drainageways
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Calcareous silty and clayey lacustrine deposits

Typical profile

Ap - 0 to 11 inches: silt loam
Btg, 2Btg - 11 to 23 inches: silty clay loam
2Cg - 23 to 60 inches: stratified sandy loam to silty clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 0.57 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: R110XY007IL - Moist Glacial Drift Upland Prairie
Forage suitability group: High AWC, high water table (G095BY007WI)
Other vegetative classification: High AWC, high water table (G095BY007WI)
Hydric soil rating: No

Minor Components

Pella

Percent of map unit: 10 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R110XY024IL - Ponded Depressional Sedge Meadow
Hydric soil rating: Yes

7204A—Virgil silt loam, gravelly substratum, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wsqx
Elevation: 750 to 1,150 feet
Mean annual precipitation: 31 to 35 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 171 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Virgil, gravelly substratum, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Virgil, Gravelly Substratum

Setting

Landform: Drainageways on outwash plains
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loess over calcareous, stratified sandy and gravelly outwash

Typical profile

Ap - 0 to 9 inches: silt loam
E - 9 to 13 inches: silt loam
Bt - 13 to 44 inches: silty clay loam
2BC - 44 to 49 inches: sandy loam
2C - 49 to 79 inches: stratified gravel to sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: None

Frequency of ponding: Occasional
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F095XB005WI - Moist Loamy or Clayey Lowland
Forage suitability group: High AWC, high water table (G095BY007WI)
Other vegetative classification: High AWC, high water table (G095BY007WI)
Hydric soil rating: No

Minor Components

Sebewa

Percent of map unit: 4 percent
Landform: Depressions on outwash plains
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave
Across-slope shape: Concave, linear
Ecological site: F095XB004WI - Wet Loamy or Clayey Lowland
Hydric soil rating: Yes

Drummer, drained

Percent of map unit: 4 percent
Landform: Depressions on outwash plains
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave
Across-slope shape: Concave, linear
Ecological site: F095XB004WI - Wet Loamy or Clayey Lowland
Hydric soil rating: Yes

Sable

Percent of map unit: 2 percent
Landform: Depressions on outwash plains
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave
Across-slope shape: Concave, linear
Ecological site: F095XB004WI - Wet Loamy or Clayey Lowland
Hydric soil rating: Yes

7823B—Knowles silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2wsry
Elevation: 640 to 1,180 feet
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 124 to 181 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Knowles and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Knowles

Setting

Landform: Ground moraines
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loess over loamy till over dolomite

Typical profile

Ap - 0 to 8 inches: silt loam
BE - 8 to 12 inches: silt loam
Bt1 - 12 to 29 inches: silty clay loam
2Bt2 - 29 to 39 inches: clay loam
3R - 39 to 79 inches: bedrock

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 33 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F095XB006WI - Shallow Upland
Forage suitability group: Mod AWC, adequately drained (G095BY005WI)
Other vegetative classification: Mod AWC, adequately drained (G095BY005WI)
Hydric soil rating: No

Minor Components

Dodge

Percent of map unit: 4 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F095XB007WI - Loamy Upland with Carbonates
Other vegetative classification: High AWC, adequately drained (G095BY008WI)

Hydric soil rating: No

Lamartine

Percent of map unit: 3 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F095XB005WI - Moist Loamy or Clayey Lowland
Other vegetative classification: High AWC, high water table (G095BY007WI)
Hydric soil rating: No

Ritchey

Percent of map unit: 3 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F095XB006WI - Shallow Upland
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

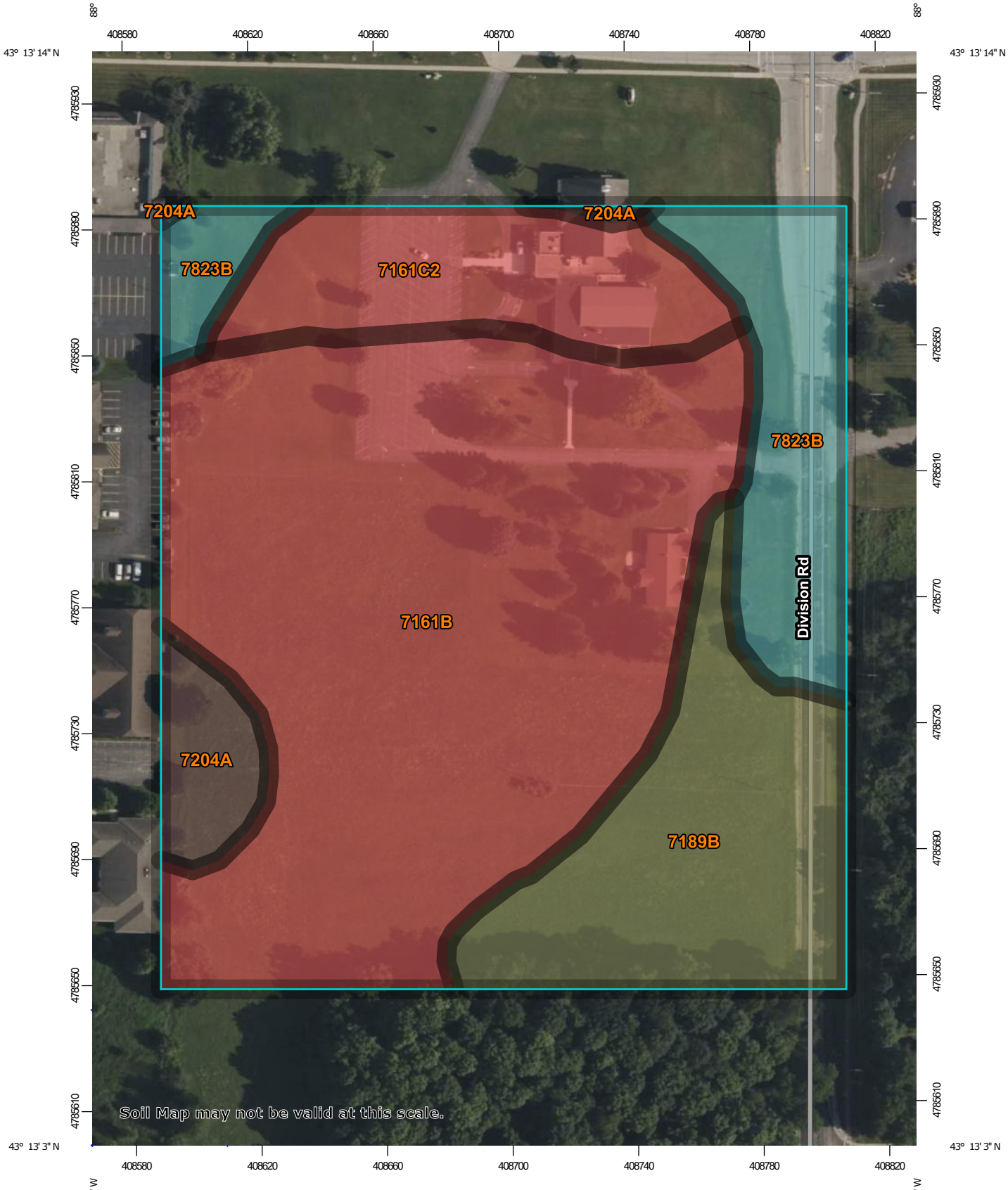
Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.



Map Scale: 1:1,690 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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

MAP LEGEND

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

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Washington County, Wisconsin
Survey Area Data: Version 25, Sep 10, 2025

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

Date(s) aerial images were photographed: Aug 4, 2022—Sep 13, 2022

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

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
7161B	Ritchey silt loam, 2 to 6 percent slopes	D	7.4	54.7%
7161C2	Ritchey silt loam, 6 to 12 percent slopes, eroded	D	1.5	11.2%
7189B	Martinton silt loam, 1 to 3 percent slopes	C/D	2.4	17.5%
7204A	Virgil silt loam, gravelly substratum, 0 to 3 percent slopes	B/D	0.5	3.8%
7823B	Knowles silt loam, 2 to 6 percent slopes	C	1.7	12.7%
Totals for Area of Interest			**13.5**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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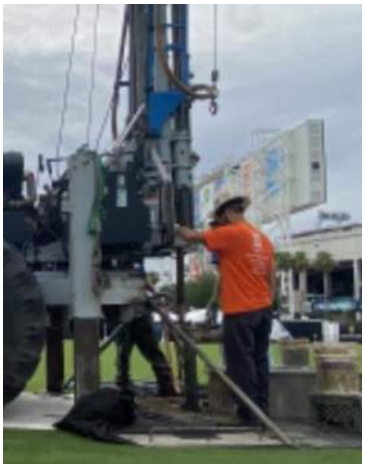

ECS Midwest, LLC

Geotechnical Engineering Report

The Carillon at Germantown

W172N11183 Division Road
Germantown, Washington County, Wisconsin

ECS Project Number 42:2698

March 24, 2025

March 24, 2025

Mr. Daniel Hasbani
Cirrus Property Group
1661 N Water Street, Suite 500
Milwaukee, Wisconsin 53202

ECS Project No. 42:2698

Reference: Geotechnical Engineering Report
The Carillon at Germantown
W172N11183 Division Road
Germantown, Washington County, Wisconsin

Dear Mr. Hasbani:

ECS Midwest, LLC (ECS) has completed the subsurface exploration, field and laboratory testing, and geotechnical engineering analyses for the above-referenced project. Our services were performed in general accordance with our agreed scope of services. This report presents our understanding of the geotechnical aspects of the project, the results of the field exploration and laboratory testing conducted, and our design and construction recommendations.

It has been our pleasure to be of service to you on this project. ECS would like to continue its services during design and provide our services during construction to check the assumptions of subsurface conditions made for this report. Please contact us should you have questions about the information contained in this report, or if ECS can be of further assistance to you.

Respectfully submitted,

ECS Midwest, LLC

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Appendix A – Drawings & Reports

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- Geologic Map
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- Reference Notes for Boring Logs
- Subsurface Exploration Procedures: SPT
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Appendix C – Laboratory Testing

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- Soil Evaluation – Storm Form (SBD10793)

Appendix E – Other Information

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EXECUTIVE SUMMARY

This Executive Summary is intended as a very brief overview of the primary geotechnical conditions expected to affect design and construction. Information gleaned from this Executive Summary should not be utilized in lieu of reading the entire geotechnical report.

- The main site development challenges are expected to include moisture control of the site soils, and excavation difficulties due to very dense soils and the presence of shallow bedrock. The bedrock elevation should be taken into consideration in establishing site grade.
- A shallow foundation system bearing in competent native soils or bearing on engineered fill placed from a competent bearing native soil subgrade may be designed for a maximum, net, allowable bearing pressure of 3,000 psf. Where foundations are fully supported on bedrock, a 6,000 psf bearing pressure may be used.
- In our opinion the site soils can be characterized as Site Class C for seismic design considerations.
- The building floor slab thicknesses may be determined based on an estimated modulus of subgrade reaction of 125 psi/in. Undercut may be needed in areas due to the presence of silty soils, which are highly sensitive to disturbance and strength loss during construction and excavation operations particularly if the moisture becomes elevated.
- The site soils encountered at the borings located within the proposed stormwater management (SWM) area are anticipated to have low infiltration rates. Shallow bedrock is expected to be a limitation.
- It is recommended ECS review the design documents to evaluate consistency with our recommendations.
- We recommended ECS be retained for the construction materials testing to help facilitate proper implementation of our recommendations.

1.0 INTRODUCTION

The purpose of this study was to provide geotechnical information for the design of foundations, floor slabs, pavements, and stormwater management basins for the proposed residential development. The recommendations developed for this report are based on project information supplied by Cirrus Property Group.

Our services were provided in accordance with ECS Proposal No. 42:3923-GPR, dated January 29, 2025, as authorized by John Riordan of Cirrus Property Group, LLC. on February 17, 2025, which includes the Terms and Conditions of Service included therein.

This report contains the procedures and results of the subsurface exploration and laboratory testing programs, a description of existing site conditions, engineering analyses, and geotechnical recommendations for the design and construction.

The report includes the following items:

- A brief description of the field and laboratory test procedures and results.
- A description of the observed surface topographical features and site conditions.
- A description of area and site geologic conditions.
- A description of the interpreted subsurface soil stratigraphy with pertinent available physical properties.
- Records of the subsurface explorations (test boring logs).
- Foundation recommendations.
- General ground-supported floor slab design recommendations, including a recommended design subgrade modulus value.
- Recommended seismic Site Class.
- General recommendations for pavement design, including a recommended design CBR value.
- Evaluation and recommendations for wet detention pond design in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard 1001 and NRCS.
- Evaluation of infiltration in accordance with the Wisconsin Department of Natural Resources Conservation Practice Standard 1002 and NRCS.
- Recommendations for site preparation and construction of engineered fills, including an evaluation of on-site soils for use as engineered fills, and delineation of potentially unsuitable soils and/or soils exhibiting excessive moisture at the time of sampling.
- General considerations relative to groundwater.

PROJECT INFORMATION

1.1 PROJECT LOCATION/CURRENT SITE USE/PAST SITE USE

The project site is located at W172N11183 Division Road, just south of Mequon Road, in Germantown, Washington County, Wisconsin. The subject property is bounded to the north by Faith Lutheran Church and Mequon Road, to the south by undeveloped property, to the east by Division Road, and to the west by commercial developments. The site location is shown in Figure 2.1.1 below, and on the Site Location Diagram in Appendix A.

Figure 2.1.1 Site Location (approximate site outlined in red)

The site is currently occupied by a church and residence along with associated parking lots and drives, and a stormwater management area. The remainder of the site is grass-covered with some trees. It is understood the current parcel will be split into two, and the southern 4¾ acres with the home that is currently used for storage will become the subject property. A site-specific topographic survey was not available. The ground surface elevations at the site, estimated from the topographic information on the Washington County, Public GIS Viewer, vary from approximately EL. 869 to EL. 881 feet.

ECS performed a cursory review of aerial photographs of the subject site, dated 1941, 1950, 1963, 1970, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2013, 2015, 2017, 2020, 2022, and 2024 available on the Washington County Public GIS Viewer website. The site appeared to be vacant farmland up until the 1970 aerial at which time a residence and separate building were constructed with some paved roads. The 1980 aerial shows an addition was made to the building, landscaping trees were planted, and the construction of new roads/ parking lots continued. The 1985 and 1990 aerials show some areas of pavement were repaired. The site remained relatively unchanged through the 2024 aerial.

1.2 PROPOSED CONSTRUCTION

We understand the proposed project will include the construction of three duplexes, seven triplexes, five 2-1-2 triplexes, associated parking lots and drives, and a stormwater management (SWM) basin. Structural building and traffic loading conditions **were not** available. The information in the table below summarizes our understanding and estimates of the project details.

DESIGN INFORMATION			
Subject		**Expectation**	
Buildings	Construction	Wood frame	B
	Dimensions	3,290± to 4,935± SF in plan view	R
	Usage	Residential	R
	Levels	Single to two-story, slab-on-grade	R
	Column Loads	40 kips maximum	B
	Wall Loads	3 kips per lineal foot (klf) maximum	B
	Slab-on-Grade Live Load	100 psf	B
	Finished Floor Elevation	876±	B
	Foundation Type	Conventional spread footing foundation system	B
	Settlement Tolerance	1 inch total and ½ inch differential	B
Pavement	Type	Hot mix asphalt (concrete in high stress areas)	B
	Traffic	Unknown – Expected to be relatively light	B
	Design Service Life	20 years	B
SWM Device	Type	Infiltration	B
	Bottom Depth	4 to 6 feet below site grades	B
Grading	Cut	Less than 5 feet	B
	Fill	Less than 5 feet	B

R: Reported by client and/or design team
B: Based on ECS estimates in absence of information from client and/or design team

If ECS' understanding of the project is not correct or the design changes, especially if the structural loads or elevations are different, please contact ECS so that we may review these changes and revise our recommendations, as appropriate.

2.0 FIELD EXPLORATION AND LABORATORY TESTING

2.1 FIELD EXPLORATION

The exploration procedures are described in greater detail in Appendix B in the insert titled Subsurface Exploration Procedures: SPT.

ECS used a handheld GPS unit to field locate the borings prior to mobilization of the drilling equipment. The approximate as-drilled boring locations are shown on the Boring Location Diagram in Appendix A. Ground surface elevations at the boring locations were estimated from the topographic information on the Washington County Public GIS Viewer website. Ground surface elevations and boring locations determined without professional survey are approximate and may not be appropriate for final design and construction.

Our scope of services included drilling 22 borings at the site on March 18, 2025, by a subcontracted driller. Borings B-01 through B-15 located in the proposed building location encountered auger refusal at depths ranging from approximately 1½ to 13 feet below existing site grade. Borings B-16 through B-20 located in proposed pavement areas were each advanced to depths ranging from approximately 3 to 5 feet. Borings B-21 and B-21 located in proposed stormwater management areas were each advanced to refusal at depths of approximately 4 and 5 feet. Most of the borings were offset and at least one attempt made to advance the boring deeper. The drill crew utilized a GeoProbe 7822DT track-mounted rotary drilling rig equipped with continuous flight, hollow stem augers.

The drill crew backfilled the boreholes at completion of drilling. Settlement or expansion of borehole backfill can occur over time resulting in a hazard. Monitoring the boreholes after initial drilling activities is not within our scope but should be done by the client or property owner.

2.2 SUBSURFACE CHARACTERIZATION

The observed subsurface conditions were generally consistent with published geological mapping. Information regarding the site geology (Soil Survey Mapping and Bedrock Mapping) is included in Appendix A. Below is a generalized characterization of the subsurface materials observed at the boring locations. Please refer to the Boring Logs in Appendix B.

GENERALIZED SUBSURFACE STRATIGRAPHY					
Approx. Depth to Stratum Bottom (feet)	**Strata**	**Description**	**SPT [1] N-value Range (bpf)**	**Calibrated Penetrometer Resistance (tsf)**	**Moisture Content (%)**
Surface	--	Topsoil (4 to 8 inches ±)	--	--	--
2 to 6	I	(CL) LEAN CLAY, stiff to hard, *[B-01, B-03, B-04, B-05, B-07, B-09, B-11, B-12, B-16, B-17, B-19 through B-22]*	4 - 9	1 - 4	8 - 38
1½ to 13	II	(WR) HIGHLY WEATHERED to WEATHERED ROCK, loose to very dense	8 - 50/1”	--	--

1. Standard Penetration Test.

A graphical presentation of the subsurface conditions is shown on the Subsurface Cross Section Diagram(s) included in Appendix A.

An exception to the generalized profile is (SM/GM) SILTY SAND WITH GRAVEL/GRAVEL WITH SAND encountered at Boring B-04 at an approximate depth of 4 to 12½ feet, and POSSIBLE FILL: (CL) LEAN CLAY and (ML/CL) CLAYEY SILT encountered at Boring B-14 to approximate depths of 2 and 4 feet, respectively.

The possible fill was classified as such because distinguishing the difference between native soil and clean fill from a small sample can be difficult in the absence of observable deleterious material (such as organics, bricks, concrete or other deleterious materials).

The soil stratification shown on the boring logs represents the interpreted soil conditions at the boring locations. Variations in the stratification can occur between sample intervals and between boring locations. The subsurface conditions at other times and locations on the site may differ from those found at the boring locations. If different site conditions are encountered during construction, ECS should be contacted to review our recommendations relative to the new information.

Because the split-spoon sampler has a 1⅜-inch inside diameter, the soil classifications noted on the boring logs may not be representative of the entire soil matrix. Material larger than the 1⅜-inch inside diameter of the split-spoon sampler cannot be collected and observed directly.

2.3 GROUNDWATER OBSERVATIONS

The drillers observed the boreholes for the presence of measurable free water during drilling and at the completion of drilling. No measurable water was encountered at the boring locations.

Based on the boring data, ECS estimates the static groundwater level to be at a depth deeper than the depths explored of approximately 1½ to 13 feet below the site surface at the boring locations.

Variations in the long-term water table elevation may result because of changes in precipitation, evaporation, surface water runoff, construction activities, and other factors. Perched water conditions may also develop and/or exist at shallower or variable depths seasonally, particularly within more permeable soil underlain by less permeable soil/bedrock, within existing fill, within existing utility and structure backfill, and within fissured soil.

2.4 LABORATORY TESTING

The laboratory services performed by ECS for this project included classification and index property tests on select representative soil samples.

Each soil sample was visually classified based on texture and plasticity using ASTM D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedures) and ASTM D2487 Standard Practice for Classification for Engineering Purposes (Unified Soil Classification System (USCS)) as a general guideline. After classification, the samples were grouped into the major zones noted on the boring logs in Appendix B. The USCS group symbols for each soil type are indicated in parentheses along with the soil descriptions. The stratification lines between strata on the boring logs are approximate; in-situ, the transitions may be gradual.

The soils retained from the infiltration basin borings were also classified using the U.S. Department of Agriculture (USDA) Soil Classification System. The USDA classification system is briefly described in Appendix B. The USDA classifications can be found on the "Soil and Site Evaluation – Storm" form (SBD10793) included in Appendix D of this report.

The results of the laboratory tests are included on the boring logs in Appendix B or separate test sheets in Appendix C. These tests included:

- Moisture content (ASTM D2216)
- Calibrated Penetrometer Resistance
- Atterberg Limits (ASTM D4318)
- Particle Size Distribution (ASTM D6913)
- Organic content by Loss on Ignition (LOI) (ASTM D2974)

The laboratory procedures are described in greater detail in Appendix C including the insert titled Laboratory Procedures.

The soil samples will be retained in our laboratory for a period of 60 days, after which, the samples will be discarded, unless other instructions are received as to their disposal.

3.0 DESIGN RECOMMENDATIONS

The following sections contain geotechnical design recommendations for foundations, soil supported slabs, pavement, and stormwater management devices.

3.1 FOUNDATIONS

Provided subgrades and engineered fills are prepared recommended in this report, the proposed structure may be supported by a shallow conventional individual column (spread) footing and

continuous wall (strip) footing foundation system. The existing undocumented possible fill should not be used for support. The parameters in the table below are recommended for foundation design.

FOUNDATION DESIGN [1]			
Design Parameter		**Column Footings**	**Wall Footings**
Net Allowable Bearing Pressure [2]		3,000 psf	3,000 psf
Acceptable Bearing Soil Material		Stratum I [5] Stratum II [6]	Stratum I [5] Stratum II [6]
Minimum Foundation Width		24 inches	16 inches
Minimum Footing Embedment Depth (below slab or finished grade) [3]		24 inches	18 inches
Minimum Exterior Frost Depth (below final exterior grade)		48 inches	48 inches
Post-Construction Estimated Settlement [4]	Total	1 inch or less	1 inch or less
	Differential	½ inch or less between columns	½ inch or less

1. ECS recommends a structural engineer provide specific foundation details including footing dimensions, reinforcing, and other details.
2. Applied pressure in excess of the surrounding overburden soils above the base of the foundation and includes a factor of safety of 3.
3. For bearing considerations. Deeper frost embedment should be utilized for interior foundations not in continuously heated areas.
4. Based on estimated structural loads and anticipated bearing elevation(s). If final loads or bearing elevations are different, ECS must be contacted to update foundation recommendations and settlement estimates. Differential settlement is based on estimated column/wall loads and variability among the borings. Differential settlement can be re-evaluated once the foundation plans are available.
5. With an Unconfined compressive strength of 1½ tsf or more.
6. With corrected SPT N-values of 10 blows per foot or more.

Potential Undercuts: Most of the soils at the foundation bearing elevation(s) are anticipated to be adequate for support of the proposed structure. Undercut may be needed due to the nature of the highly sensitive silty soils, present at the B-14 boring location. Additionally, possible fill soils may be present and may need to be removed from below foundations. Where soft or otherwise unsuitable soils are observed at the footing bearing elevations, the unsuitable soils should be undercut and removed. We recommend ECS be retained to observe and test the foundation bearing grade as recommended in the **Foundation and Slab Observations** section. It is also recommended backfill of foundation undercuts be done as recommended in the **Earthwork Operations** section.

Foundations on Rock: Depending on the final site grades, it is possible building foundations could bear on rock, in which case, a higher bearing pressure is feasible. Foundations bearing on rock may be preliminarily designed for a 6,000 psf bearing capacity. For the higher bearing pressure, the foundations are recommended to bear completely on bedrock. Where the foundations would be supported on a combination of soil and bedrock, the lower 3,000 psf bearing pressure noted in the table above should be used.

Footings that bear partially on rock and partially on soil due have a greater risk of brittle fracture at hinging points. Where foundation subgrades would result in partially supported rock conditions, consider undercutting an additional six inches and replacing it with well graded granular engineered fill to provide a yield cushion against brittle fracture.

Some foundation preparation may be required on the rock to facilitate a relatively flat and smooth bearing surface, and to remove loose rock. A leveling course of lean concrete or granular material may be required to create an adequate working surface for structural work.

Foundation Lateral Loading: Lateral load resistance will be developed by friction or cohesion acting at the base of foundations, and the passive earth pressure developed by the footings below-grade. Passive pressure and sliding resistance (friction or cohesion) may be used in combination in estimating the lateral resistance. The parameters in the following table are recommended for lateral foundation loading.

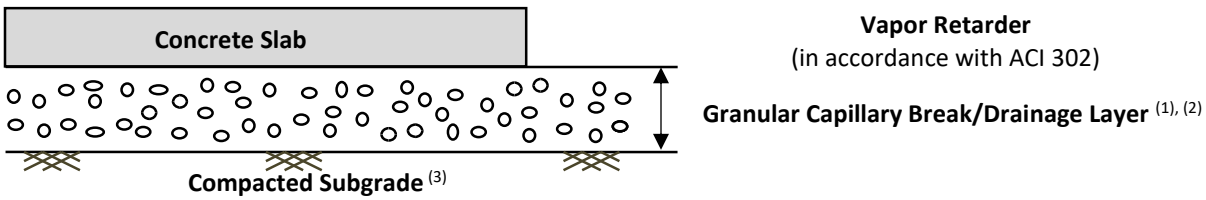
FOUNDATION LATERAL LOADING RESISTANCE PARAMETERS	
Soil Parameter	**Estimated Value**
Coefficient of Passive Earth Pressure (K_p)	2.0
Soil Moist Unit Weight (γ)	125 pcf
Cohesion [Concrete *on clay*] (C) (1)	1,250 psf
Interface Friction Angle [*Concrete on granular soil*] (ϕ_f)	21°
Sliding Friction Coefficient [*Concrete on granular soil*] (μ)	0.38
Sliding Friction Coefficient [*Concrete on rock*] (μ)	0.5
Passive Equivalent Fluid Pressure (2)	250H (psf/ft)

1. Cohesion may be used for lateral sliding resistance on the clay soil, but in no case should the lateral sliding resistance exceed half the dead load.
2. Neglect the passive resistance in the frost zone due to loss of strength seasonally and strain required to mobilize.

Design of the foundation for lateral loads should include a minimum factor of safety against sliding of 1.5 and overturning of 2. If the resultant force of the maximum vertical force does not act within the middle one-third (kern) of the footing, a smaller effective bearing area will occur and thereby result in a higher effective bearing pressure. If the soil to provide passive resistance against the side of the foundation may not be present during the life of the structure (e.g., the soil could be excavated or be subject to erosion) then passive pressure should be ignored.

3.2 SLABS-ON-GRADE

Provided subgrades and engineered fills are prepared as discussed herein, the proposed floor slabs can be constructed as ground-supported slabs (or slabs-on-grade). Based on an approximate lowest finished floor elevation of EL. 876 feet, it appears that the slabs will bear on newly placed engineered fill and/or Stratum I – LEAN CLAY (CL) and Stratum II – HIGHLY WEATHERED ROCK and WEATHERED ROCK (WR). The following graphic depicts our soil-supported slab recommendations:



1. **Drainage Layer:** Minimum 6 inches thick
2. **Drainage Layer Material:** Gravel (GP, GW) having a maximum aggregate size of 1 inch, no more than 10 percent passing the No. 200 sieve, and follow the recommendations of ACI 302.
3. **Compacted Subgrade:** Compacted to at least 95 percent of the maximum dry density per Modified Proctor (ASTM D1557).

The structural engineer should determine the slab thickness and other requirements. The design should include adequate construction joints, contraction joints and isolation joints in the slab to reduce the impacts of cracking and shrinkage. Refer to the ACI 302.1R04 *Guide for Concrete Floor and Slab Construction* for additional information regarding concrete slab joint design. Inclusion of welded wire fabric or an appropriate fiber mesh admixture is recommended to help control shrinkage cracking.

Slabs-on-grade are recommended to be underlain by a granular drainage layer placed on a properly prepared subgrade as recommended in the **Site Construction Considerations** section. The granular material will serve as a capillary break, which if properly designed and installed can assist in more uniform curing of concrete.

Modulus of Subgrade Reaction: Provided the subgrade is prepared, and engineered fill and the granular drainage layer are placed as recommended in this report, design the slabs assuming an un-factored modulus of subgrade reaction, k_{v1}, of 125 psi/in (pounds per square inch per inch). This estimated modulus of subgrade reaction value is based on the recommended minimum drainage base thickness and correlation of index properties and soil type to historical 1 foot by 1 foot plate load tests.

Vapor Retarder: Inclusion of a vapor retarder should be considered if the building will contain moisture-sensitive floor coverings, equipment or materials. The vapor retarder will help reduce the potential of upward migration of water vapor from the soil into and through the concrete slab, which can contribute to excess humidity and microbial growth in the building. Where a vapor retarder is considered, special attention should be given to the surface curing of the slabs to reduce uneven drying of the slabs and associated cracking and/or slab curling. The designer should consider the moisture sensitivity of floor coverings and finishes, and the potential effects of slab curling and cracking when determining if the vapor retarder will be in direct contact with the slab or beneath a layer of granular fill. The use of a blotter or cushion layer above the vapor retarder may be considered for project specific reasons. Refer to ACI 302.1R04 *Guide for Concrete Floor and Slab Construction* and ASTM E 1643 *Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs* for additional guidance on these issues.

Positive drainage around the perimeter of the proposed structures should be used to reduce the potential for water accumulation under the structure elements. Slope exterior grades such that runoff is directed away from the structure. Direct downspouts away from the structure. Direct surface runoff to appropriate stormwater infrastructure.

Slab Isolation: Ground-supported slabs are recommended to be isolated from the foundations and foundation-supported elements of the structure to help reduce shear and bending stresses in the floor caused by differential movement between the foundations and slab. Where the structural configuration prevents the use of a free-floating slab, ECS recommends the slab be designed with suitable reinforcement and load transfer devices to preclude overstressing of the slab.

Frost Susceptible Areas: Frost susceptible soils were encountered. Exterior slabs and slabs in poorly or unheated areas may be subject to frost heave. To help reduce frost heave potential, consider additional insulation, installation of subgrade drainage, and/or replacement to the frost depth with non-frost-susceptible backfill. Slope pavement and ground surface grades away from the building and flatwork, to help reduce water infiltration and potential frost heave problems.

3.3 SEISMIC DESIGN CONSIDERATIONS

Seismic Site Class: The International Building Code (IBC) requires the site be classified as Site Class A, B, C, D, E or F in accordance with Chapter 20 of ASCE 7 based on the site soil properties. The three parameters used to classify sites are shear wave velocity (v_s); undrained shear strength (s_u); and Standard Penetration Test (SPT) resistance (N-value). The seismic Site Class definitions for the weighted average of shear wave velocity, shear strength or SPT N-value in the upper 100 feet of the soil profile are listed below.

SEISMIC SITE CLASS				
Site Class	**Soil Profile Name**	**Shear Wave Velocity, Vs, (ft./s)**	**N-Value (bpf)**	**S_u Value (psf)**
A	Hard Rock	Vs > 5,000 fps	N/A	N/A
B	Rock	2,500 < Vs ≤ 5,000 fps	N/A	N/A
C	Very dense soil and soft rock	1,200 < Vs ≤ 2,500 fps	>50	≥ 2,000
D	Stiff Soil Profile	600 ≤ Vs ≤ 1,200 fps	15 to 50	1,000 to 2,000
E	Soft Soil Profile	Vs < 600 fps	<15	≤ 1,000

It is our opinion, based on the subsurface conditions encountered and our knowledge of the area geology, the site soils can be characterized as Site Class C. If a more favorable Site Class is beneficial to the project, ECS would be pleased to discuss our ReMi testing capabilities.

3.4 PAVEMENT DESIGN CONSIDERATIONS

The following sections provide recommendations for pavements.

Subgrade Characteristics: A California Bearing Ratio (CBR) test is commonly used to determine soil support parameters for pavement design. A CBR test or other appropriate test was not part of the scope for this project, so it was necessary to estimate the CBR design value. Based on the subsurface conditions encountered, it appears the pavement subgrade soils will mainly consist of lean clay existing fill. The clay soil at the borings was found to have a very stiff to hard consistency at the anticipated subgrade, but because it is frost susceptible and does not drain well, it is generally considered a poor subgrade material. ECS estimated a preliminary design CBR value of 3 for the flexible pavement and a preliminary design modulus of subgrade reaction, k_{v1}, of 125 psi/in for the rigid pavement. The pavement design recommendations are based on the subgrade soil materials being evaluated by ECS, and the subgrade being prepared as recommended in the **Subgrade Preparation** and **Earthwork Operations** sections of this report.

The subgrade soils are considered moderately to highly susceptible to frost heave. A reduced service life, increased pavement maintenance and associated costs should be expected where the frost susceptible soil is present. The risk associated with frost susceptible soils can be reduced by removal of frost susceptible soils and replacement with properly drained low frost susceptible engineered fill. The greater the depth of frost susceptible material removed the lower the risk of frost heave up to the commonly used area frost depth of 4 feet. It has been our experience that removal depths in the range of 2 to 3 feet with appropriate drainage have often been successful in reducing frost-related issues. In areas where the pavement grade will be raised, low frost susceptible fill should be used.

Pavement Sections: The recommended minimum pavement sections listed in the table below are based on the anticipated usage of the project site and a 20-year design service life, but were not developed based on specific traffic patterns, loading and resiliency factors, as those parameters were not provided

by the design team. ***ECS should be contacted for potential revision of the pavement design recommendations once the traffic is known; otherwise, increased pavement maintenance and a shortened pavement life could result.*** The preliminary pavement sections below are guidelines that may or may not comply with local jurisdictional minimums.

RECOMMENDED MINIMUM PAVEMENT SECTIONS				
Pavement Material	**Compacted Material Thicknesses (Inches)**			
	Flexible Pavement		**Rigid Pavement**	
	Light Duty	**Heavy Duty**	**Light Duty**	**Heavy Duty**
Portland Cement Concrete [1]	--	--	5	6
Hot Mix Asphalt [2] Surface Course	1¾	1¾	--	--
Hot Mix Asphalt [2] Binder Course	1¾	2¼	--	--
Dense Graded Crushed Stone Base [3]	8	10	6	6

1. Section 415 of WisDOT Standard Specification for Highway and Structure Construction (WisDOT Standard Specs).
2. Section 460 of WisDOT Standard Specs.
3. Section 305 of WisDOT Standard Specs. ECS recommends dense graded crushed stone base. If crushed gravel or some other material is used in lieu of crushed stone, the material may have a lower structural coefficient and a thicker base may be required. Note where the pavement subgrade is rock, considered replacing the bottom 3 to 4 inches of the aggregate base course layer with Section 310 of WisDOT Standard Specs Open Graded Crushed Stone to help facilitate drainage.

In frequent and higher stress traffic areas, such as where trucks frequently turn, drive through lanes, and points of ingress or egress, heavy duty rigid (concrete) pavement is recommended.

Pavement materials and construction should be in accordance with the AASHTO Guide for Design of Pavement Structures, and the WisDOT Standard Specifications for Highway and Structure Construction.

If the pavements will be constructed early during site development to accommodate construction traffic, consideration should be given to the construction of designated haul roads, where thickened pavement sections are provided to accommodate the construction traffic, as well as the future in-service traffic.

Rigid Pavements: ECS recommends an air-entrained concrete mix (compressive strength of at least 4,000 pounds per square inch at 28 days) for rigid pavement. Adequate construction joints, contraction joints and isolation joints should be provided in the areas of rigid pavement to reduce the impacts of cracking and shrinkage. Please refer to ACI 330R-92 *Guide for Design of Concrete Parking Lots* and ACI 325.12R-02 *Guide for Design and Construction of Jointed Concrete Pavements for Streets and Local Roads*. The ACI Guide recommends an appropriate spacing strategy for the anticipated loads and pavement thickness. It has been our experience that joint spacing closer to the recommended values in ACI results in a pavement with less cracks outside the joints and better long-term performance. Control joint spacing should be determined in accordance with the current ACI code. Separation joints should be provided where the pavement abuts fixed objects, such as the buildings and light poles.

Drainage: An important consideration with the design and construction of pavements is surface and subsurface drainage. Water which infiltrates the pavement and remains trapped within the pavement components during traffic loading is one of the leading causes of premature pavement failure. Based on the estimated groundwater level, surface water infiltration and seasonal perched water are expected to be the main sources of water for pavement design.

The permeability of the clay and weathered rock subgrade is expected to be low, which can cause water to remain within the base material for longer periods and reduce the base material support characteristics. The pavement surface is recommended to be shaped or crowned to properly direct surface water to suitable on or off-site stormwater drainage infrastructure. The pavement subgrade should be properly sloped or crowned to avoid dips or pockets where water may become trapped. Dips in the subgrade can result in a "bathtub" effect, which may trap water. This trapped water can soften the subgrade and potentially heave the pavement during freezing weather. The subgrade in areas requiring undercut and backfill with granular soils are recommended to be graded to drain toward a drainpipe. The drainpipe should be sloped a minimum of ½ to 1 percent to discharge to nearby storm sewers, drainage ditches or other appropriate drainage facilities. Edge drains should be installed where site grades slope toward the pavement edge to reduce the potential for water to enter the base course layer. Edge drains should be sloped to the nearest appropriate drainage facility. Water that ponds on the subgrade surface can lead to deterioration of the subgrade soils, reduction of the base course support characteristics, and result in pavement heave during freezing conditions. Good drainage should help reduce the possibility of the subgrade materials being wet over a long period of time.

Installation of "stub" or "finger" drains around catch basins and in other low-lying pavement areas should be considered to help reduce the accumulation of water above and within the subgrade soils and aggregate base. As an alternative to stub or finger drains, existing manholes and storm sewer inlets could be perforated with 1-inch diameter holes at 2-foot centers at the subgrade level. The holes are recommended to be covered with a wire mesh and the manhole/inlet wrapped with a non-woven geotextile to reduce migration of material into the manhole/inlet. The excavation around the manhole is recommended to be backfilled with free draining granular materials. Consider installation of pavement edge drains or trench drains to reduce the accumulation of water within the base course and on the subgrade soils.

Water should not be allowed to pond behind curbs and saturate the pavement base course and subgrade. In downgrade areas, the base course should extend through the slope face to allow water to drain from the base course layer.

Maintenance: A sound maintenance program should be implemented to help maintain and enhance pavement performance and help attain the design service life. A preventative maintenance program should be started early in the pavement life to be effective. The "standard in the industry" supported by research indicates that preventative maintenance should typically begin within 2 to 5 years of the placement of pavement. Failure to perform preventative maintenance will reduce the service life of the pavement and increase the costs for corrective maintenance and full pavement rehabilitation. Seal joints and cracks with elastomeric caulk in a timely manner to help reduce water infiltration through the pavement section into the base course layer, which may result in softening of the subgrade and deterioration of the pavement. Pavements should be observed for distresses, such as cracks, depressions and poor drainage, at least twice a year, typically once in the spring and once in the fall.

Shrinkage cracking is common with asphalt and occurs with age. Development of cracks should be expected with normal exposure to weather, wear and age. These cracks may become larger when exposed to such things as weather and vegetation growth and should be treated promptly.

3.5 INFILTRATION CONSIDERATIONS

The recommendations presented in this section are limited to stormwater infiltration considerations, which follows the general guidelines of WDNR Conservation Practice Standard 1002, Site Evaluation for Stormwater Infiltration. The recommendations in this section are based on the soil and groundwater

conditions observed at Borings B-21 and B-22 anticipated to be located in the area of the proposed stormwater management (SWM) device.

Specific details of the proposed infiltration device and its location were not available at the time of this report preparation; it is recommended ECS be provided the infiltration device plans, when available, to check that the recommendations provided herein are applicable. ECS should be retained to provide observation and testing during infiltration device construction.

Our scope of services is not inclusive of each step involved in the initial site screening (Part A) of the WDNR Technical Standard 1002. Therefore, other conditions may exist at, or near the site that could exclude or exempt the site, or portions of the site from the infiltration requirements.

Infiltration Rates: Estimated soil infiltration rates based on the textural classification of the soils encountered and the guidelines provided in the WDNR Conservation Practice Standard 1002 ranged from 0.03 to 3.60 inches/hour and are listed on the Soil and Site Evaluation - Storm form (SBD10793) included in Appendix D. Infiltration rates based on soil textural classification and the guidelines provided in Table 2 of the WDNR Conservation Practice Standard 1002 should be adjusted for the least permeable soil layer within 5 feet of each of the listed intervals. These infiltration rates are estimates only. If better estimates of infiltration are required, ECS recommends field double ring infiltrometer tests be conducted.

Estimation of the final design infiltration rate should consider the effects of engineered fill placed, surface vegetation, erosion control devices, and potential groundwater mounding. Prior to and during construction, the design infiltration rate of the soil at the SWM device bottom should be verified. Compaction of the basin bottom subgrade during and following construction should be prevented as this may reduce the infiltration rate of the soil. This may require exclusion of construction traffic from the infiltration bottom, or loosening of the subgrade soil, such as by raking or discing. Sediment allowed to accumulate at the basin bottom will reduce infiltration. Measures should be taken to reduce accumulation of sediment. Periodic removal of sediment should be expected.

Seasonal High Water Table: Intermittent wet and dry periods may lead to soil mottling. The NRCS considers soil matrix or mottle colors of chroma 2 or lower (gray colors) as a potential indication of horizons that may be saturated for at least part of the year. The upper limits of this matrix or mottle coloration have been used to estimate the seasonal high water table. The absence of low chroma or gray soil colors or mottles in the observed soils suggest the estimated seasonal high water level may be deeper than the depths explored at the approximate depths/elevations noted in the table below.

ESTIMATED SEASONAL HIGH WATER LEVEL		
Boring/Test Pit	Estimated Water Level	
	Approximate Depth (feet)	Approximate Elevation
B-21	Below 4	Below 874.4
B-22	Below 5	Below 874.5

Estimation of the seasonal high water level based on colors (redoximorphic features) may not be reliable. Redox features can be difficult to distinguish in sandy soils. Also, we often don't know how often or long the soil is saturated at a given depth from color alone. A better estimate of the seasonal high groundwater table would require installation of groundwater observation wells along with observing the wells over a long time period.

The SWM basin bottom elevation is not anticipated to be near the estimated groundwater table. If the bottom of the infiltration pond extends to within 5 feet of the highest groundwater level noted at the borings, it would be excluded from the infiltration requirements based on Chapter NR 151.12(5)(c)5.f of the Wisconsin Administrative Code.

Bedrock: Bedrock is estimated to be present at an approximate depth of 4 feet (approximately EL 874.5 to EL. 875.5 ft) at Borings B-21 and B-22 in the proposed stormwater management area.

3.6 WET DETENTION POND DESIGN CONSIDERATIONS

The recommendations presented in this section are limited to a wet detention pond, which follows the general guidelines of Wisconsin Department of Natural Resources (WDNR) Conservation Practice Standard 1001, Wet Detention Ponds.

The predominant site lean clay soils are considered to have relatively low infiltration rates. The weather rock sampled as gravels and sands may have moderate infiltration rates. The construction and use of a wet detention basin is considered to be feasible at this site provided more permeable soils are lined with clay.

Construction of a liner is recommended to reduce lateral and/or vertical movement of water through the basin walls and bottom, particularly if a stable pool elevation is desired. Based on the boring information and laboratory test results the lean clay excavated to construct the pond is expected to be adequate for use as a clay liner. Testing of compacted samples of the soil to be used as liner material is recommended to check its suitability for use as a wet detention basin liner. Scarification and recompaction of the basin sidewalls and bottom, to help disrupt fissures or more permeable soil seams or lenses, is recommended before basin liner construction. A minimum 2-feet-thick, compacted clay liner is recommended at the basin sides and bottom. Moisture content adjustment of the existing lean and fat clay soils prior to placement and compaction is expected to be needed. Scarification and recompaction of basin walls and bottom, and construction of the clay liner are recommended to be observed and tested by ECS.

Liner material is recommended to conform to WDNR Conservation Practice Standard 1001, Type A or Type B Liner requirements, as appropriate, which include the properties listed below.

RECOMMENDED CLAY LINER MATERIAL PROPERTIES		
Material Characteristic	**Material Values**	
	Type A Liner	**Type B Liner**
USCS Classification	CL or CH	CL or CH
Percentage Passing a No. 200 Sieve	50% minimum	50% minimum
In-Place Hydraulic Conductivity (cm/sec)	1×10^{-7} or less	1×10^{-6} or less
Liquid Limit (%)	25 or greater average, no value less than 20	16 or greater average, no value less than 14
Plasticity Index (%)	12 or greater average, no value less than 10	7 or greater average, no value less than 5
Organic Content per ASTM D2487	Less than 3% loss on ignition	Less than 3% loss on ignition

Clay liner material is recommended to be compacted at a moisture content 0 to 4 percent above the optimum moisture content and to a minimum of 90 percent of the maximum dry density determined by Modified Proctor (ASTM D1557) or to a minimum of 95 percent of the maximum dry density determined by Standard Proctor (ASTM D698). Compact with a footed compactor weighing at least 25,000 pounds, operated continuously, in loose lift thicknesses not to exceed the smaller of 6 inches or the length of the

teeth on the footed compactor used. The liner material must not contain deleterious materials. Materials considered deleterious include but are not limited to miscellaneous construction material, rubble fragments, wood fragments, material greater than 3 inches in nominal diameter, and hazardous materials.

A higher density than the minimum required by Natural Resources Conservation Practice Standard 1001 may be required depending on permeability requirements and should be determined based on laboratory testing of compacted samples of the liner material to be used. USDA-NRCS Wisconsin Construction Specification 300 Clay Liner gives additional information pertaining to selection and compaction of engineered fill for the clay liner. In addition to the USDA-NRCS Wisconsin Construction Specification 300 Clay Liner requirement that the water content of fill material be above the optimum moisture content, it is recommended the water content of fill material be no more than 4 percent above the optimum moisture content. The clay is recommended to be mechanically processed, such as with discing, prior to compaction to break up clods of clay to no more than half the loose lift thickness in size. The clay liner, once placed, should be protected from desiccation caused by drying of the soil. The formation of desiccation cracks will increase the risk of water loss through the clay liner.

As an alternative to a compacted clay liner, Appendix D of the WDNR Conservation Practice Standard 1001 outlines other acceptable liner materials, which include high density polyethylene (HDPE) and Geosynthetic Clay (GCL) liners.

Remove water that accumulates in excavations and other construction areas, along with unstable soil as soon as possible.

Take measures to reduce seepage along conduits where inlet and outlet pipes are constructed. Typically accepted measures may include the use of granular filters, anti-seepage collars or bentonite.

Provide erosion protection to protect the pond side slopes and embankments. The placement of a granular riprap and/or establishment of vegetation can be considered for erosion control within the pond and surrounding areas. The interior slopes of the ponds should be constructed at an inclination of 3:1 (Horizontal: Vertical) or flatter to help reduce the potential for instability related problems. If steeper slopes are required, then slope stability analysis is recommended to be conducted.

4.0 SITE CONSTRUCTION CONSIDERATIONS

4.1 SUBGRADE PREPARATION

The method of site preparation will be influenced by factors unknown at the time this report was prepared, which may include weather before and during construction, the possibility of subsurface conditions not revealed by the boring(s), and the final project details.

4.1.1 Demolition

We understand the existing residence will be demolished. ECS recommends the remnants of the existing structure and any former structures (i.e., slabs, below-grade walls, footings and associated excavation, etc.) be completely removed during demolition activities and backfilled with compacted engineered fill to the final design site grades. Special attention should be given to the protection of adjacent pavements, sidewalks, and hardscapes that are to be left in place. It has been our experience that many demolition contractors place the debris in excavations from the structure and cap with soil. These types of activities will not provide a suitable subgrade for foundations, slabs or pavements. The foundation

contractor should mobilize appropriate equipment to remove and/or break up existing slabs and other obstructions without delay. The resulting excavations must be backfilled in lifts as described in the **Earthwork Operations** section of this report.

The existing building occupies a portion of a planned building location. It is recommended the demolition and backfilling operations at the project site be observed by ECS to check and document that work is performed as recommended herein, the backfill materials used are appropriate materials, and the backfill is adequately placed and compacted. If removal of the existing building and placement of engineered fill is not observed by ECS, consider additional test borings and/or test pits to evaluate the demolition backfill material and underlying subgrade soils prior to construction.

4.1.2 Existing Utilities

Existing utilities should be located. Utilities planned to be maintained should be relocated outside the proposed building area, if possible. For utilities not reused, the utility should be caped-off and removed, or properly abandon in-place in accordance with local codes and ordinances. Excavations for utilities to be removed in the influence zone of new construction should be backfilled with engineered fill. Grading operations must be done carefully so that existing utilities are not damaged or disturbed. Utility invert elevations, depths and sizes are recommended to be checked relative to the planned foundation elevations to determine what specific concerns are present.

4.1.3 Stripping and Grubbing

The subgrade preparation should include stripping pavement, vegetation, rootmat, topsoil, and other soft or otherwise unsuitable materials from the 10-foot expanded building limits, 5-foot expanded pavement limits, and 5 feet beyond the toe of engineered fills, where feasible. Topsoil deposits (approximately 4 to 8 inches thick) were observed at the boring locations. Deeper topsoil or organic laden soils may be present, particularly in wet, low-lying, and poorly drained areas. The project team should be prepared to remove unsuitable material in its entirety within the limits noted above. Because topsoil depths can vary greatly across a site the contractor should verify topsoil depths as part of their bidding process. Note topsoil removal should not be based on soil coloration alone. After removal of the rootmat, it may be possible to leave some darker soils in place provided the soil contains no more than 5 percent organic matter, by dry weight, as determined by Loss on Ignition ASTM D2974, has the recommended strength characteristics and is stable under proofroll. ECS should be retained to observe and document that topsoil and other unsuitable surficial materials have been removed prior to the placement of engineered fill or construction of structures.

The subgrade should not be left exposed to the elements or construction traffic for a prolonged time as the subgrade may become disturbed and/or softened. If pavement or other protective coverings are not placed within a few days after exposing the final design subgrade, consideration should be given to leaving the subgrade approximately 1 foot above the final design subgrade, where feasible, to help reduce softening of the design subgrade soil.

4.1.4 Proofrolling

Prior to fill placement or other construction on subgrades, the subgrades should be evaluated by ECS. The exposed subgrade is recommended to be thoroughly proofrolled with construction equipment having a minimum axle load of 10 tons (e.g., fully loaded tandem-axle dump truck for clayey soils or a large vibratory smooth drum roller for sandy soils). The subgrade should be traversed with the proofroll

equipment in two perpendicular (orthogonal) directions with overlapping passes of the vehicle. This procedure is intended to assist identification of yielding subgrade materials.

Unstable or pumping subgrade areas identified during the proofroll should be repaired prior to the placement of subsequent engineered fill or other construction materials. Unstable subgrade repair methods, such as undercutting, or moisture conditioning and recompaction, or chemical stabilization, should be discussed with ECS to evaluate appropriate procedures to repair the existing conditions causing the instability. Test pits may be excavated in unstable areas to explore the shallow subsurface materials and to help determine the appropriate remedial action to stabilize the subgrade.

Seasonal reduction of the near surface soil strength can occur during wet times of the year (such as during the spring and fall months) or immediately following extended periods of rain. This may result in additional unstable or pumping subgrade areas. ***The high moisture content and low blow count soils present near surface at several of the boring locations, and highly sensitive silt soils present at the B-14 boring location, may not pass a proofroll, and may need to be undercut or repaired.*** Some undercutting or repair of unstable subgrade soils should be anticipated during subgrade preparation. Dependent on the results of proofroll observations, undercuts of as much as 2 feet may be necessary to develop a stable subgrade. The method of subgrade repair or improvement chosen may be influenced by several factors such as weather and schedule, area, depth, and nature of the unstable subgrade soils. Depending on these and other factors the actual depth of subgrade undercut and/or stabilization method should be determined at the time of construction. Some common subgrade repair methods include the following or a combination of the following:

- Scarification, aeration, and recompaction;
- Undercut and replacement with engineered fill;
- Placement of a geogrid on the subgrade along with granular engineered fill; or,
- Chemical stabilization/modification techniques. Alterations to the pavement sections to include additional drainage, such as an open-graded aggregate subdrainage layer, may be needed if a chemically modified subgrade is used.

4.1.5 Site Temporary Dewatering

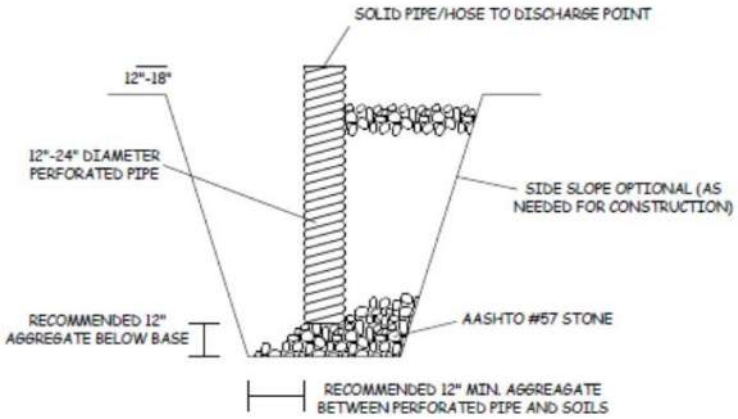
The contractor shall make their own assessment of temporary dewatering needs based upon the limited subsurface groundwater information presented in this report. Soil and groundwater conditions may vary between sampling intervals. If the contractor believes additional subsurface information is needed to assess dewatering needs, the contractor should obtain such information at their own expense. ECS makes no warranties or guarantees regarding the adequacy of the provided information to determine dewatering requirements; such recommendations are beyond our scope of services.

Dewatering systems are a critical component of many construction projects. Dewatering systems must be selected, designed, and maintained by a qualified and experienced (specialty or other) contractor familiar with the geotechnical and other aspects of the project. The failure to properly design and maintain a dewatering system for a given project can result in delayed construction, unnecessary undercuts, detrimental phenomena such as ‘running sand’ conditions, heaved subgrades, internal erosion (i.e., ‘piping’), the migration of ‘fines’ down-gradient towards the dewatering system, localized settlement of nearby infrastructure, foundations, slabs-on-grade and pavements, etc. Water discharged from site dewatering systems are recommended to be discharged in accordance with local, state and federal requirements.

Surface Water: The surface of the site should be kept properly graded to enhance drainage of the surface water to appropriate discharge or storage areas during construction. Effort should be made to enhance the natural drainage without interrupting its pattern.

Subsurface Water: Groundwater observations are described in the **Groundwater Observations** section of this report. Excavations for new conventional shallow foundations are not expected to extend below the groundwater level encountered at the boring locations. Based upon the results of the subsurface exploration and proposed construction, ECS' opinion is that construction dewatering at this site will be mainly to remove accumulated runoff water and perched water. Strategies for addressing groundwater are discussed below.

Strategies for Addressing Perched Groundwater: The typical strategy for addressing perched groundwater seepage into excavations and where excavations extend typically less than 1 to 2 feet below the water level, especially in areas containing primarily clay soils, is pumping from trench (or French) drains and sump pits with sump pumps which are backfilled with drainage aggregate such as AASHTO Size No. 57 Stone or open-graded bedding material. A typical sump pump drain (found in a sump pit or along a French drain) is depicted below. The inlet of the sump pump is placed at the bottom of the corrugated pipe and the discharge end of the sump is directed to an appropriate stormwater drain.



Sump Pit/Pump Conceptual Sketch

A typical French drain consists of an 18 to 24-inch wide by 18- to 24-inch-deep bed of AASHTO No. 57 aggregate (or similar open graded aggregate) wrapped in a medium duty, non-woven geotextile and (sometimes) containing a 6-inch diameter, Schedule 40 PVC perforated or slotted pipe. Actual dimensions should be determined during construction. After installation, the geotextile should be wrapped over the top of the aggregate and pipe followed by placement of backfill. The top of the drain should be positioned at least 3½ feet below the design subgrade elevation. Drains should not be routed within the expanded building limits.

Pumping wells or a vacuum system could also be used to address perched groundwater. These techniques often are only effective during the initial depletion of the perched water quantity and may quickly be ineffective at addressing accumulation of water from rain, snow, etc.

Strategies for Addressing Long-Term Groundwater Levels: Where water control cannot be maintained with sump pumps, or where excavations extend more than 2 feet below the groundwater level, dewatering likely will require installation of a more specialized dewatering system, possibly in conjunction with tight sheeting to help cut off water bearing seams/layers. However, driving of sheeting

is likely not possible due to shallow rock. Excavation to anticipated subgrade levels is expected to encounter the long-term water level, which can adversely affect construction below-grade. ECS recommends the groundwater level be lowered to at least 3 feet below planned subgrades to help reduce the potential development of an unstable subgrade. Techniques for lowering groundwater commonly include pumping from deep wells with down-hole submersible pumps, vacuum system dewatering (i.e., well points) and possibly eductor wells. These techniques are more complex than pumping from sumps or drains and require engineered design. Lowering the static groundwater level can adversely affect nearby structures, utilities and other construction. ECS recommends a delegated design for dewatering and hiring a contractor specialized in design, installation and management of dewatering systems. ECS should be retained to review the delegated design before it is implemented. Dewatering should continue until earthwork operations and backfilling have extended sufficiently above the water table.

The stabilized pumping rate for the temporary dewatering system is recommended to be established by calculation submitted in the delegated design. The actual dewatering flow rates should be measured during construction to confirm the adequacy of the delegated design.

As is often the case, a saturated subgrade can exist even after the implementation of the strategies mentioned above. In these instances, adding supplemental dewatering such as French drains and sump pumping (described in the **Strategies for Addressing Perched Groundwater** subsection above) are often required.

Install required sump pits and other dewatering systems outside the perimeter of the pond liner to reduce the potential for the formation of a detrimental preferential flow path through the liner.

4.2 EARTHWORK OPERATIONS

The following sections describe soil reusability, and recommendations for engineered fill.

4.2.1 Engineered Fill

Product Submittals: Prior to placement of engineered fill, representative bulk samples (typically at least 50 to 100 pounds) of on-site and off-site borrow per material type should be submitted to ECS for laboratory testing, which may include natural moisture content, organic content, grain-size distribution, Atterberg limits, and moisture-density relationships for compaction. Import material should be tested prior to being hauled to the site to determine if it complies with project specifications. Alternatively, Proctor data from other accredited laboratories can be submitted if the test results are within the last 90 days.

Satisfactory Engineered Fill Materials: Engineered fills should consist of materials free of debris with the following engineering properties.

ENGINEERED FILL INDEX PROPERTIES		
Subject		**Property**
Plasticity	Upper 4 feet in Building Areas and Upper 2 feet in Pavement Areas	LL ≤ 40, PI ≤ 15
	Below 4 feet in Building Areas and Below 2 feet in Pavement Areas	LL ≤ 50, PI ≤ 20
Max. Particle Size		3 inches
Max. Organic Content (by dry weight)		5 percent

Open-graded materials, such as coarser sands, and gravels (SP and GP), which contain increased void space in their mass may need to be encapsulated within a filter geotextile. If the engineered fill is to provide low-frost susceptible characteristics, the engineered fill must be classified as a clean GP or GW (or clean coarser SW or SP) per Unified Soil Classification System (ASTM D-2487) and must be properly drained.

Unsatisfactory Materials: Unsatisfactory fill materials, which do not satisfy the requirements for suitable materials, include topsoil and organic materials (PT, OH, OL), silt (ML) within the frost zone, and high plasticity soils elastic silt (MH) and fat clay (CH).

Pea gravel is not recommended to be used as engineered fill. Pea gravel has round/smooth characteristics, no fines and does not interlock when compacted, which makes it more susceptible to future movement and instability resulting in excessive and variable settlement.

On-Site Borrow Suitability: Natural deposits of soils that meet the definition of Satisfactory Engineered Fill Materials are expected to be present at the site. Site soil used as engineered fill must not contain more than 5 percent organic matter as determined by ASTM D2974, and must be free of frozen matter, deleterious materials, over-sized material (maximum 3-inch particle diameter), or chemicals that may result in the material being classified as "contaminated." The on-site soil may be feasible to use as engineered fill with proper moisture conditioning during favorable conditions, with an exception being the silt soil encountered at the B-14 boring location which is generally difficult to moisture condition properly and compact even under favorable condition. Additionally, the silt soil is not recommended to be reused within the frost zone due to its high frost susceptibility. Site soil considered for use as engineered fill should be further evaluated by ECS prior to its use.

Several soil samples had relatively high moisture contents so some drying of site soil prior to reuse as engineered fill is expected to be needed. This may involve spreading and discing to aerate, chemical modification or other methods to reduce the soil moisture to within a narrow range of the soil's optimum moisture content to facilitate placement and compaction. Reuse of soils having elevated moisture content is often a point of contention and a source of delays and change orders. From a technical standpoint, soils with moisture contents wet of optimum can be reused provided the moisture is properly adjusted to within a workable range of the material optimum moisture content. From a practical standpoint, wet soils can be difficult to dry, particularly within small or congested areas or during unfavorable weather, and such difficulties should be considered during planning and budgeting. A clear understanding by the general contractor and grading subcontractor regarding the reuse of excavated soils will be important to reduce delays and unexpected cost overruns. It is important to establish as part of the contract whether soils having elevated moisture content will be considered suitable for reuse. Some conditions at the time of construction, such as wet or freezing weather, may preclude the use of on-site soil, and use of an imported less moisture sensitive and/or less frost susceptible granular material may be needed. Some sorting to remove over-sized material (i.e., cobbles and/or boulders) is expected to be needed prior to re-use of on-site soil as engineered fill.

4.2.2 Compaction

Subgrade Benching: Fill material should be placed in horizontal lifts. Where fill materials will be placed to widen existing embankment fills, or placed up against sloping ground, the soil subgrade should be scarified, and the new fill benched and keyed into the existing material. Placement and compaction of fill is recommended to be on a 5 (H):1 (V) or flatter slope, or stepped or benched as required to flatten.

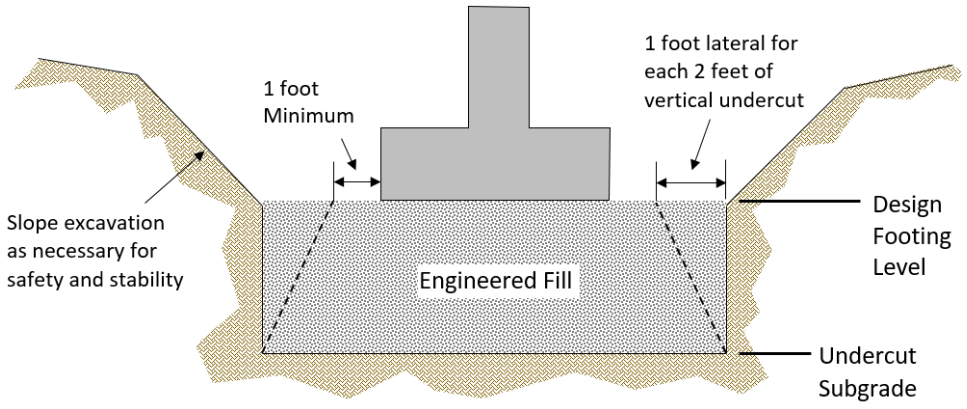
Engineered Fill Compaction: Engineered fill is recommended to be placed and compacted in appropriate thickness loose lifts as recommended below. Give as much importance to the moisture content requirements of the material as the density requirements during placement and compaction considering the moisture sensitivity of the soil.

ENGINEERED FILL COMPACTION RECOMMENDATIONS			
Subject			**Recommendation**
Compaction Standard			Modified Proctor, ASTM D1557
Recommended Compaction	Structural Areas		≥ 95 percent of Maximum Dry Density
	Landscape/Greenspace Areas		≥ 88 percent of Maximum Dry Density
Moisture Content		Fine-grained	-1 to +3 % points of the material's optimum value
		Coarse-grained	-3 to +3 % points of the material's optimum value
Maximum Loose Thickness			8 inches prior to compaction (1)

1. The maximum loose lift thickness depends upon the type of compaction equipment used and material being compacted. Density testing during fill placement is important to check and document that the specified compaction is being achieved. In some cases, thinner lifts than noted above and/or more compaction energy may be needed to achieve the required degree of compaction.

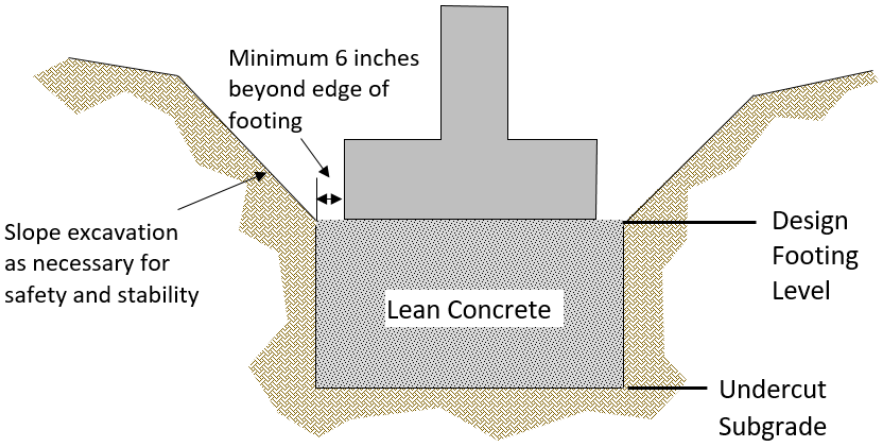
Compaction equipment appropriate for the material type being compacted should be used. Sheepsfoot compaction equipment is typically used for the fine-grained soils (clays). A vibratory steel drum roller is typically used for compaction of coarse-grained soils (sands and gravels) as well as to help seal compacted surfaces. Vibratory compaction methods should be done with caution near the water table because an unstable subgrade condition could develop. Static compaction and thinner lifts may be needed near the water table.

Engineered Fill Below Foundations: Unsuitable bearing material such as soft and very loose soils encountered at the proposed foundation bearing grade or within the foundation influence zone are recommended to be recompacted, if feasible, or removed to a competent bearing subgrade and to a lateral extent, as conceptually illustrated below and replaced with engineered fill. The zone of the engineered fill placed below the foundations is recommended to extend 1 foot beyond the outside edges of the footings and from that point, outward laterally 1 foot for every 2 feet of fill thickness below the footing.



Alternatively, undercuts could be backfilled with lean concrete ($f'_c \geq 1{,}000$ psi at 28 days) up to the original design bottom of footing elevation. The original footing should be constructed on top of the hardened lean concrete. If lean concrete is utilized the excavation is recommended to be 1 foot wider

than the footing (6 inches on each side), as conceptually illustrated below, and the lean concrete should be allowed to sufficiently harden prior to placement of the foundation concrete.



4.3 GENERAL CONSIDERATIONS

Fill Placement Considerations: Fill materials should not be placed on frozen soils, on frost-heaved soils, on excessively wet soils, or soils that are otherwise unstable. Borrow fill materials should not contain frozen materials at the time of placement, and frozen or frost-heaved soils should be removed prior to placement of engineered fill or other fill soils and aggregates. Excessively wet soils or aggregates should be scarified, aerated, and moisture conditioned.

Excavation Safety: Excavations and slopes should be maintained in accordance with OSHA excavation safety standards. The Contractor is solely responsible for designing and constructing stable, temporary excavations and slopes and should shore, slope, or bench the sides of the excavations and slopes as required to maintain stability of both the excavation sides and bottom. The Contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. In some cases, the use of shoring, bracing, or trench boxes may be required. ECS is providing this information solely as a service to our client. ECS is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.

Possible Fill Considerations: Possible fill was encountered at one of the boring locations. Unsuitable materials may be buried beneath the site surface not identified by the borings. Questionable material encountered is recommended to be evaluated by ECS to determine if removal and replacement with engineered fill is necessary. Alteration to the recommendations of this report may be needed, if conditions different than those noted on the boring logs are revealed.

Bidding/Estimating Considerations: Contractors bidding or undertaking work at the site should examine the results of the subsurface exploration, satisfy themselves as to the adequacy of the information for bidding and construction, make their own interpretation of the data, and consider the effect it may have on their cost proposal, construction techniques, schedule, and equipment capabilities. Furthermore, it is recommended contractors complete additional fieldwork and exploration they deem necessary to properly prepare a cost proposal for the site work. Soil borings do not provide the same wide-scale view of the subsurface conditions that is obtained during site grading, excavation or other aspects of earthwork construction. Additional scope may be required to obtain more detailed subsurface information needed for earthwork bid preparation, which could include test pits to better understand

the lateral and vertical extents of subsurface materials of concern, particularly topsoil and existing undocumented fill, which may not be as easily identifiable from disturbed auguring and/or with spilt-spoon samples. Even with this additional information, budget contingencies should be carried in construction to help cover potential variations in subsurface conditions.

4.4 DIFFICULT EXCAVATION

Excavation and site grading difficulties are expected to occur due to cobbles, boulders and shallow bedrock, but will depend on the final site grades.

The degree of excavation difficulty generally depends upon the depth of excavation and capabilities of the excavation equipment. The rip-ability of extremely dense material and bedrock depends on several factors, including the nature of the soils/rock, moisture content, strength, degree of weathering, and the type of excavation equipment. Based on historical data and conversations with excavation contractors, it is our opinion that standard penetration test (SPT) N-values provide only a preliminary general indicator of the rip-ability of extremely dense soil/weathered rock. Soils having SPT N-values less than 50 bpf can usually be excavated with standard construction techniques. Soils with N-values above 50 bpf, and where auger refusal has not yet been met, can usually be excavated with larger machinery equipped for ripping rock. Some of the likely attachments would include heavy shanks (ripping teeth), shank protectors, and narrow track shoes. Extremely dense soils and rock where auger refusal has been met will likely need blasting to remove the rock. Excavatability of bedrock material will be greatly controlled by in-situ jointing and bedding and may vary from location to location.

In our opinion, excavation contractors should expect special excavation equipment to be necessary and excavation rates will be slow. The boundary between soil and rock may not be sharply defined due to variations in weathering and potential presence of cobbles and/or boulders in the till above the bedrock. ***Consider test pits to help evaluate the most cost-effective excavation methods, and to confirm the material types and depth of bedrock.*** Test pits performed are recommended to be backfilled with engineered fill properly benched out into the surrounding soil.

The approximate depth and elevation of difficult excavation anticipated at the test boring locations is indicated in the table below. The depth is expected to be variable based on the test borings. Therefore, the depth and elevation of difficult excavation outside the test boring locations may be shallower or deeper than interpolated from the table.

APPROXIMATE DEPTH/ELEVATION OF ANTICIPATED DIFFICULT EXCAVATION		
Test Boring	**Depth Below Ground Surface (Feet)**	**Elevation**
B-01	6	873.5
B-02	1	879
B-03	3½	876.5
B-04	12½	866
B-05	3½	873.5
B-06	4	873
B-07	2	875.5
B-08	1	877
B-09	4	874.5
B-10	1	877
B-11	1½	873.5
B-12	1	875
B-13	1	873.5

APPROXIMATE DEPTH/ELEVATION OF ANTICIPATED DIFFICULT EXCAVATION		
Test Boring	**Depth Below Ground Surface (Feet)**	**Elevation**
B-14	6	867.5
B-15	3½	868.5
B-16	> 5	< 866
B-17	4	870
B-18	1½	875
B-19	3	876.5
B-20	3½	871.5
B-21	4	874.5
B-22	4	875.5

Excavation and removal problems may occur and should be expected and budgeted for this project. Geophysical testing could be done to help estimate the ripability of the bedrock for a given piece of equipment. The anticipated depths and elevations of difficult excavation should be taken into consideration when establishing site grades. To help reduce excavation difficulties, site grades should be kept as high as practical.

If blasting is performed, it should be done so carefully by a qualified specialty contractor so that nearby construction is not damaged. Pre- and post-blast video surveys of the surrounding properties are recommended to be performed in the presence of the adjacent property owners or representatives to help reduce the potential for fraudulent post-blast liability claims. A maximum peak particle velocity of less than 2 inches per second is typically considered the threshold for building damage, but the human annoyance threshold is less. Therefore, control of blasting vibrations and vibration monitoring is recommended. Additionally, blasting of bedrock has a potential to cause carbon monoxide gas to develop and migrate through utility trenches or fractures in the bedrock. Appropriate precautions should be taken to prevent migration of gases and nearby property owners should be notified.

Blasting frequently results in over-break (rock breakage exceeding that required for excavation to design grade), or fractures and disturbance to a greater depth than desired. If it is necessary to blast, over-break should be removed and replaced with structural compacted fill. Disturbed or loosened rock that is left in-place could cause excessive structural settlement. The distinction between soil and rock excavation should be clearly delineated in the construction documents; otherwise, costly contract disputes and change orders could result.

The specifications should call out excavation as being either classified or unclassified. Unclassified excavation means it is left up to the contractor to determine his own means and methods to excavate material and one unit price is used for excavation regardless of the material that is present on the site. Classified excavation is typically used on sites where excavation problems are expected either due to difficult excavation from shallow bedrock or granular (caving) soil. On sites with shallow bedrock, such as this site, specifications typically read that material that can be excavated with a given piece of equipment with a given amount of torque (foot-pounds) will be considered “normal” excavation and excavation requiring equipment with a greater amount of torque (foot-pounds) will be considered “special” excavation. Contractors are then required to provide unit rates for “normal” excavation and a separate rate for “special” excavation.

4.5 FOUNDATION AND SLAB OBSERVATIONS

Protection of Foundation Excavations: Exposure to the environment may weaken the soils at the footing bearing level if the foundation excavations remain open for too long a time. Foundation concrete should be placed the same day that excavations are made. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the foundation concrete will not be placed soon after excavation and observation and testing of bearing grade, or if rainfall becomes imminent while the bearing soils are exposed, consider placement of a 2 to 3-inch thick "mud mat" of "lean" concrete on the bearing soils before the placement of reinforcing steel to help protect the bearing material otherwise a recheck of the bearing grade may be needed.

Footing Subgrade Observations: The recommendations of this report are predicated upon ECS checking the suitability of the in-situ foundation support soils during construction. The suitability of the actual bearing grade is recommended to be observed and tested to check that the soils are as indicated by the borings and are capable of supporting the recommended maximum net allowable bearing pressure.

Slab Subgrade Observation and Testing: ECS should be retained to observe and test the exposed subgrade within the expanded building limits prior to engineered fill placement and slab construction to check that adequate subgrade preparation has been achieved as recommended in the **Subgrade Preparation** section.

5.0 CLOSING

ECS has prepared this report to guide geotechnical-related design and construction aspects of the project. We performed these services in accordance with the standard of care expected of professionals in the industry performing similar services on projects of like size and complexity at this time in the region. No other representation, express or implied, and no warranty or guarantee is included or intended in this report.

The description of the proposed project is based on information provided to ECS. If this information is inaccurate, either because of our interpretation of the documents provided, or site or design changes that may occur later, ECS should be contacted so that we can review our recommendations and provide additional or alternate recommendations as may be required to reflect the proposed construction.

We recommend ECS review the project's plans and specifications so that we may evaluate consistency of those plans/specifications with the intent of the geotechnical report recommendations.

Field observations and quality assurance testing during earthwork and foundation installation are an extension of, and integral to, the geotechnical design recommendations. We recommend that ECS be retained to apply our expertise throughout the geotechnical phases of construction, and to provide consultation and recommendations should issues arise.

ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.

Appendix A - Drawings and Reports

Site Location Diagram
Boring Location Diagram(s)
Subsurface Cross-Section(s)
Geologic/Soil Survey Maps
Soil Survey Map

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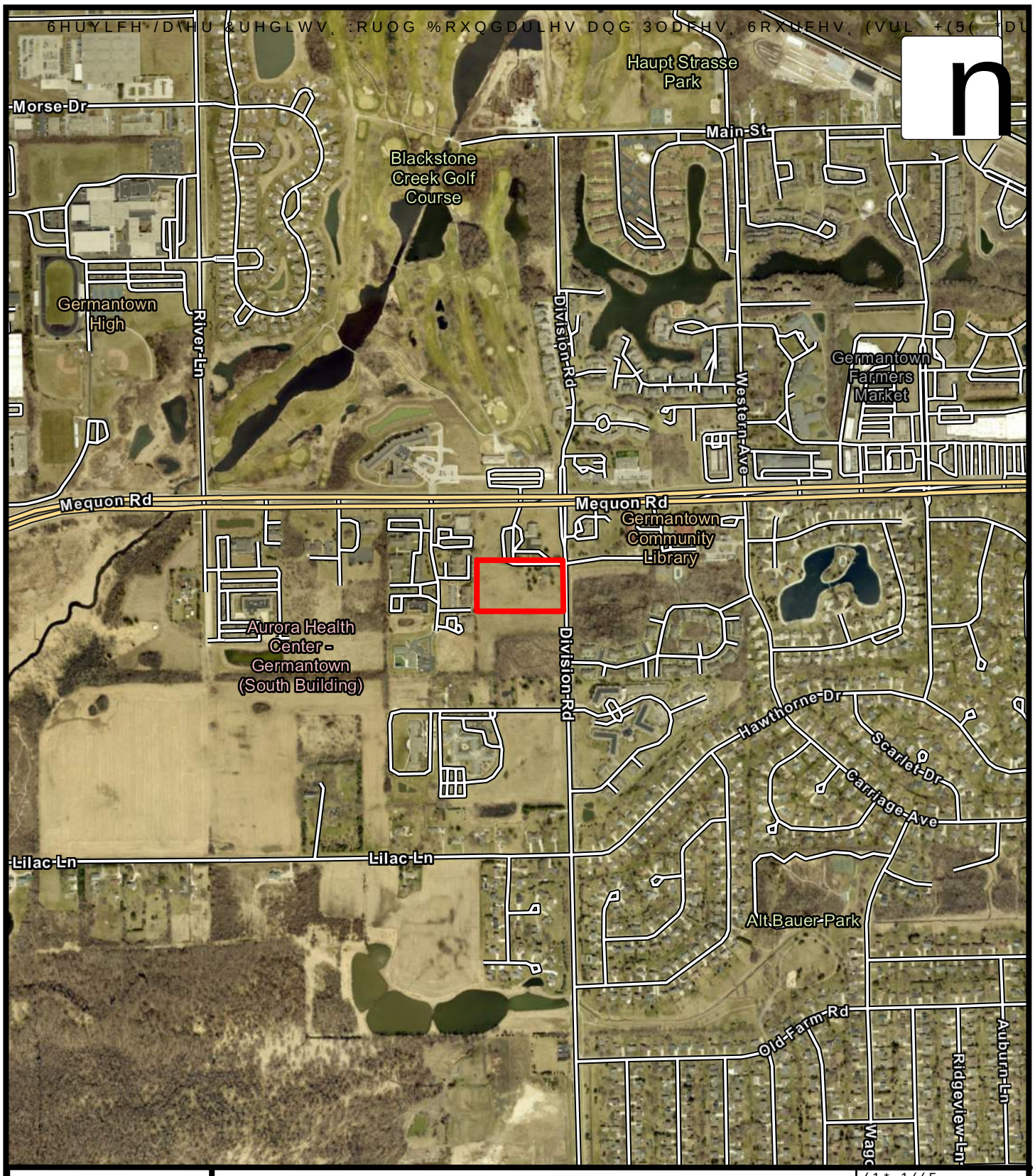

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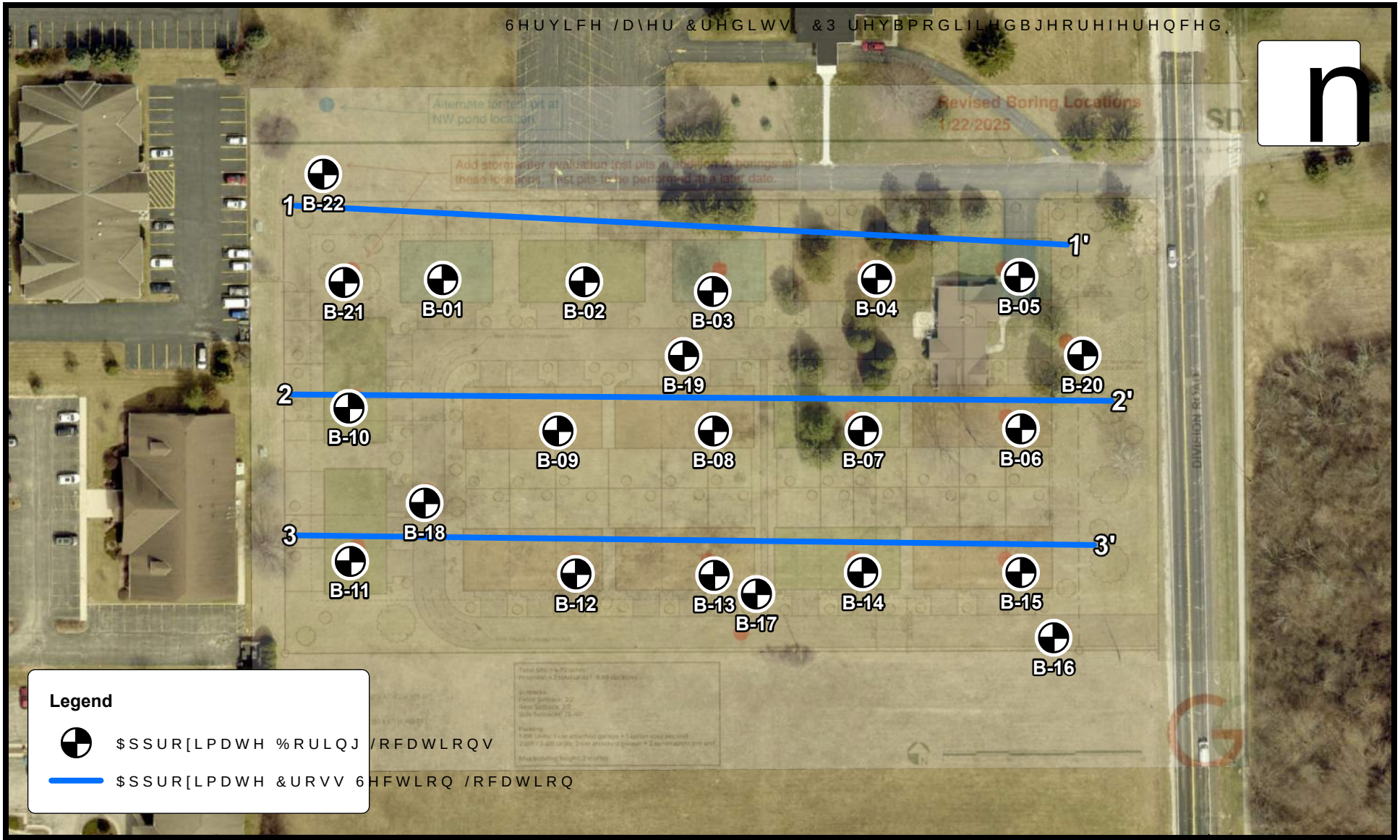

BORING LOCATION DIAGRAM

The Carillon at Germantown

W172N11183 Division Road, Germantown, Wisconsin
Cirrus Property Group

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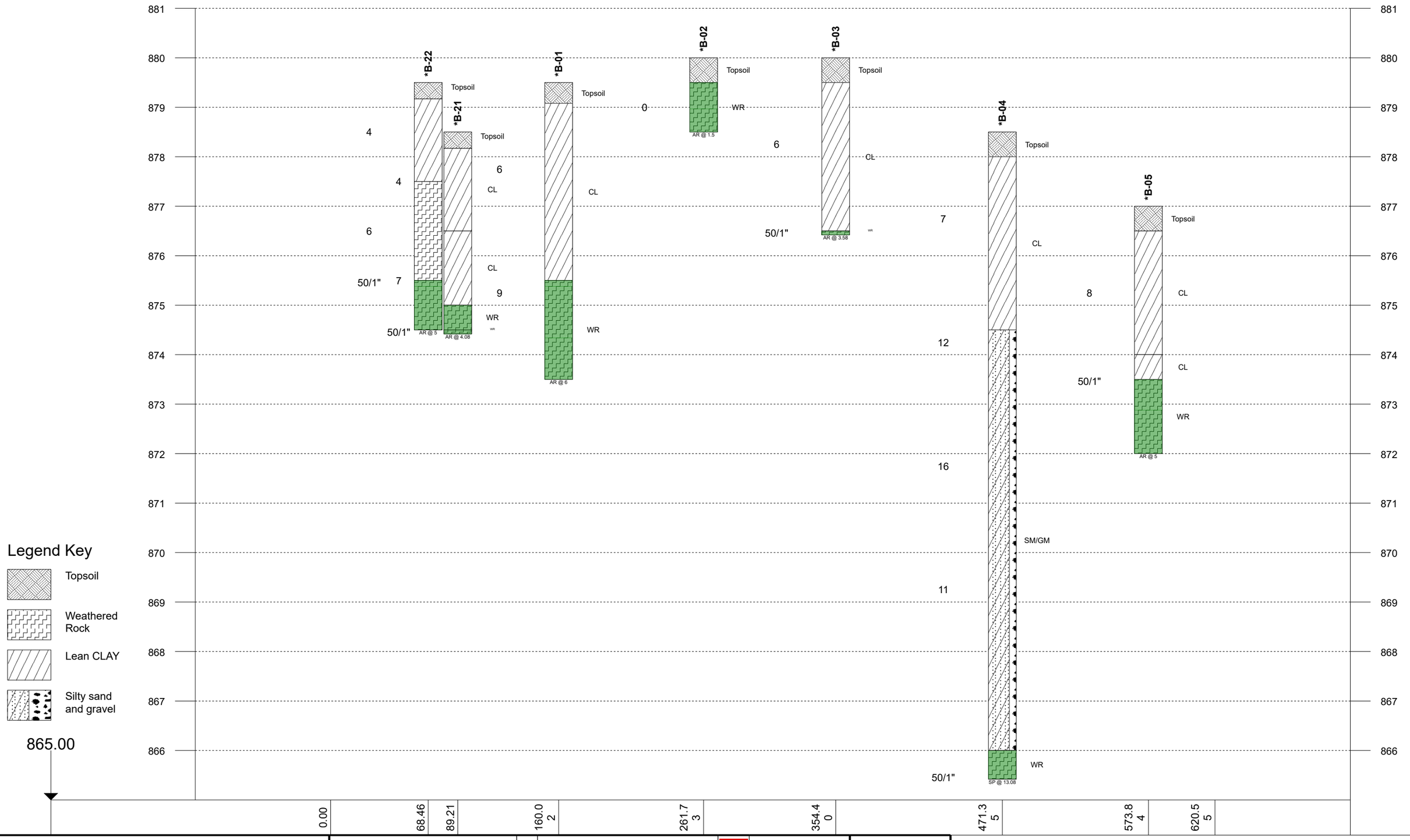


Notes:

1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit Water Content Liquid Limit X—●—△	WL (First Encountered)	Fill	
[FINES CONTENT %]	WL (Completion)	Possible Fill	
BOTTOM OF CASING	WL (Estimated Seasonal High Water)	Probable Fill	
LOSS OF CIRCULATION	WL (Stabilized)	Rock	
CALIBRATED PENETROMETER			

GENERALIZED SUBSURFACE SOIL PROFILE

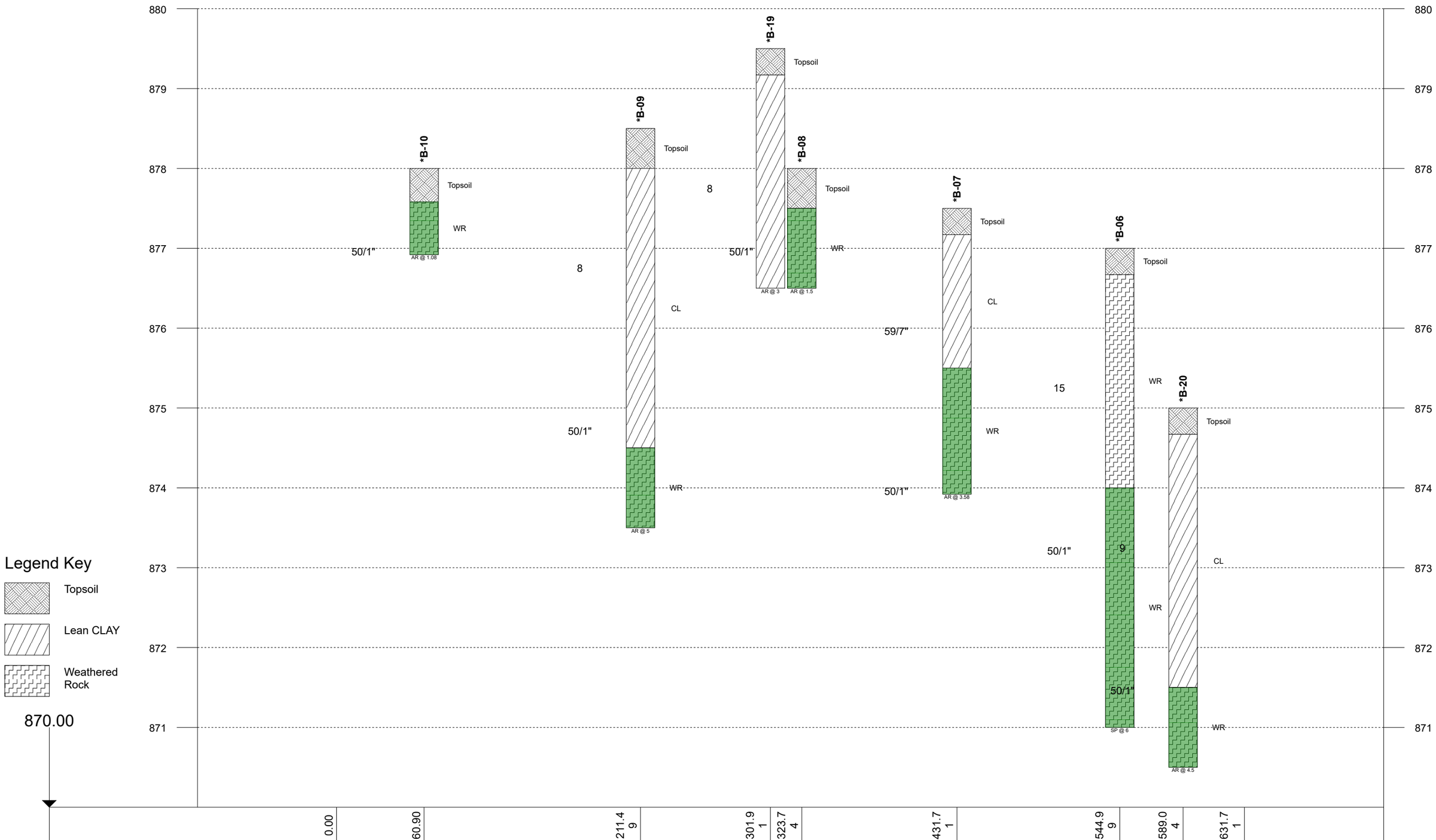
Section line 1

The Carillon at Germantown

Cirrus Property Group

W172N11183 Division Road, Germantown, Wisconsin, 53022

Project No:	42:2698	Date:	03/24/2025



Legend Key

- Topsoil
- Lean CLAY
- Weathered Rock

870.00

Notes:

1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit Water Content Liquid Limit
X———●———△
[FINES CONTENT %]
BOTTOM OF CASING
100 LOSS OF CIRCULATION
CALIBRATED PENETROMETER

WL (First Encountered)	Fill
WL (Completion)	Possible Fill
WL (Estimated Seasonal High Water)	Probable Fill
WL (Stabilized)	Rock

ECS

GENERALIZED SUBSURFACE SOIL PROFILE

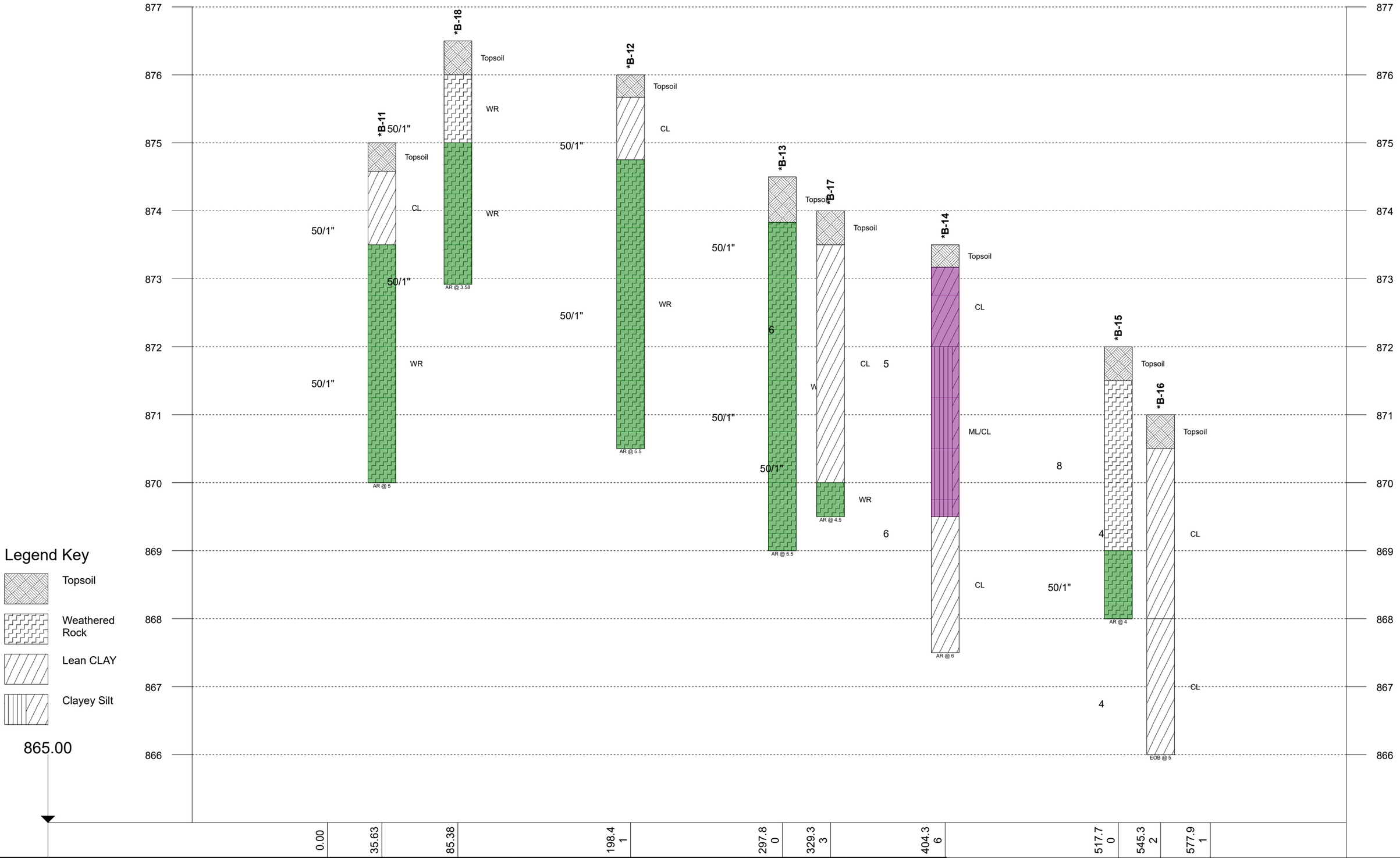
Section line 2

The Carillon at Germantown

Cirrus Property Group

W172N11183 Division Road, Germantown, Wisconsin, 53022

Project No: 42:2698 Date: 03/24/2025



Legend Key

- Topsoil
- Weathered Rock
- Lean CLAY
- Clayey Silt

865.00

Notes:

1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit Water Content Liquid Limit
X———●———△
[FINES CONTENT %]
BOTTOM OF CASING
100 LOSS OF CIRCULATION
CALIBRATED PENETROMETER

WL (First Encountered)
WL (Completion)
WL (Estimated Seasonal High Water)
WL (Stabilized)

Fill
Possible Fill
Probable Fill
Rock

ECS

GENERALIZED SUBSURFACE SOIL PROFILE

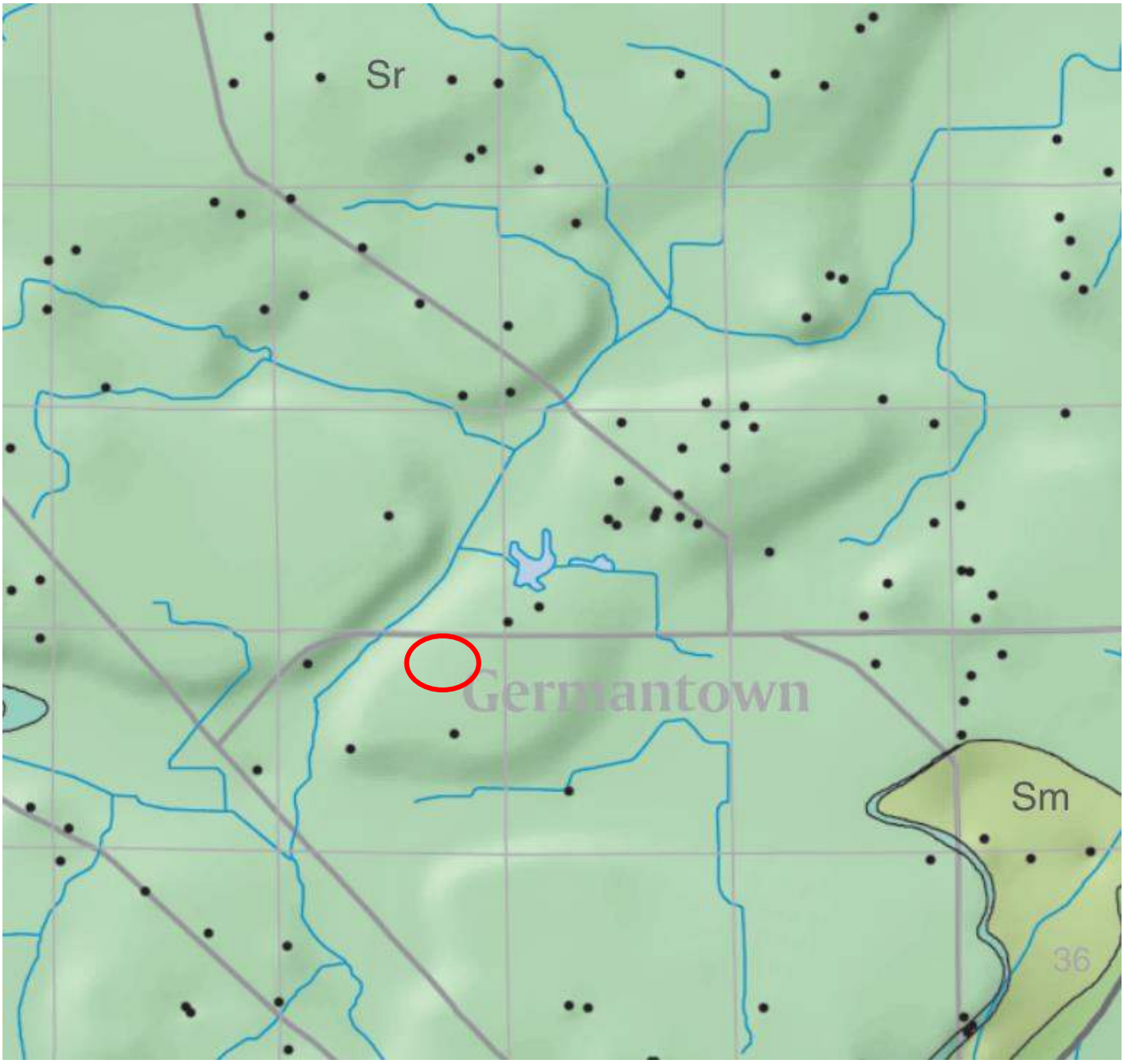
Section line 3

The Carillon at Germantown

Cirrus Property Group

W172N11183 Division Road, Germantown, Wisconsin, 53022

Project No: 42:2698 Date: 03/24/2025



Source: Wisconsin Geological and Natural History Survey Open-File Report (WOFR) 2004-17A Preliminary Bedrock Geologic Map of Washington County, Wisconsin, WOFR 2004-17B Preliminary Elevation of Bedrock Map of Washington County, Wisconsin, and WOFR 2004-17C Preliminary Depth to Bedrock Map of Washington County, Wisconsin

Description: Silurian aged Racine Formation (Sr) underlies the site. The bedrock is reported to consist of dolomite, which is medium to coarse grained, thin to thickly bedded, very light to light gray and fossiliferous.

Depth: < 50 feet
Elevation: > EL. 850

ECS	**BEDROCK MAPPING** **The Carillon at Germantown** **W172N11183 Division Road, Germantown, Wisconsin** **Cirrus Property Group**	Engineer DM Scale NTS Project No. 42:2698 Figure BRM Date 3/24/2025

SOIL SURVEY MAPPING

The Carillon at Germantown

W172N11183 Division Road, Germantown, Wisconsin

Cirrus Property Group

Engineer	DM
Scale	AS SHOWN
Project No.	42:2698
Figure	1 of 1
Date	3/20/2025

SUMMARY OF SOIL SURVEY MAP UNIT CHARACTERISTICS				
Item	**Map Unit**			
Symbol	KwB	MgA	RkB	VsA
Name	Knowles silt loam	Martinton silt loam	Ritchey silt loam	Virgil silt loam, gravelly substratum
Percent of Project Site	6	11	80	3
Landforms	Ground moraines	Drainageways	Bluffs	Drainageways on outwash plains
Parent Material	Loess over loamy till over dolomite	Calcareous silty and clayey lacustrine deposits	Fine-loamy loess over till over dolomite	Loess over calcareous, stratified sandy and gravelly outwash
Typical Soil Profile	silt loam, silty clay loam, clay loam, bedrock	silt loam, silty clay loam, stratified sandy loam to silty clay	silt loam, clay loam, bedrock	silt loam, silty clay loam, sandy loam, stratified gravel to sand
Shrink-Swell Potential	Moderate	Moderate	Moderate	Moderate
Potential for Frost Action	High	High	Moderate	High
Corrosion Risk– Uncoated Steel	Low	High	Low	High
Corrosion Risk – Concrete	Moderate	Low	Low	Low
Drainage	Well drained	Somewhat poorly drained	Well drained	Somewhat poorly drained
Hydrologic Group	C	C/D	D	B/D
Hydric Soil	No	No	No	No
Ksat (in/hr)	0.20 to 0.60	0.14 to 0.57	0.20 to 1.98	0.60 to 2.00
Depth to Water Table (inches)	More than 80	About 0 to 24	About 60 to 80	About 0 to 24

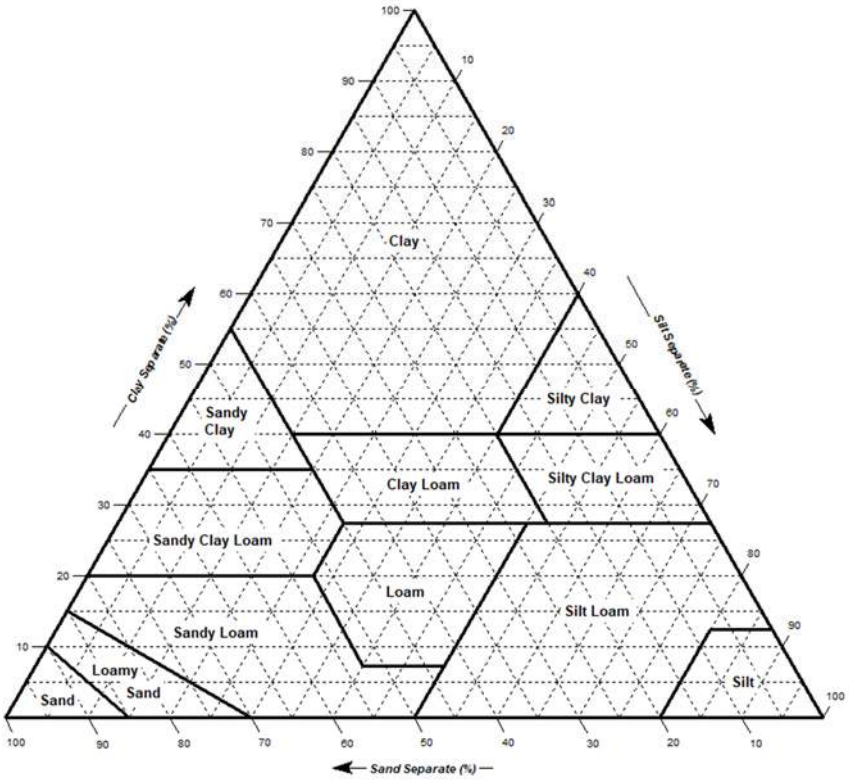
Appendix B – Field Operations

Reference Notes
Exploration Procedures
Boring Logs

U.S. Department of Agriculture (USDA) Soil Classification System

Texture Triangle

Fine Earth Texture Classes (▬)



Texture Class

Texture Class or Subclass	Code	
	Conv.	NASIS
Coarse Sand	cos	COS
Sand	s	S
Fine Sand	fs	FS
Very Fine Sand	vfs	VFS
Loamy Coarse Sand	lcos	LCOS
Loamy Sand	ls	LS
Loamy Fine Sand	lfs	LFS
Loamy Very Fine Sand	lvfs	LVFS
Coarse Sandy Loam	cosl	COSL
Sandy Loam	sl	SL
Fine Sandy Loam	fsl	FSL
Very Fine Sandy Loam	vfsl	VFSL
Loam	l	L
Silt Loam	sil	SIL
Silt	si	SI
Sandy Clay Loam	scl	SCL
Clay Loam	cl	CL
Silty Clay Loam	sicl	SICL
Sandy Clay	sc	SC
Silty Clay	sic	SIC
Clay	c	C

Texture Modifiers – Conventions for using "Rock Fragment Texture Modifiers" and for using textural adjectives that convey the "% volume" ranges for **Rock Fragments – Size and Quantity.**

Fragment Content % By Volume	Rock Fragment Modifier Usage
< 15	No texture adjective is used (noun only; e.g., *loam*).
15 to < 35	Use adjective for appropriate size; e.g., *gravelly*.
35 to < 60	Use "very" with the appropriate size adjective; e.g., *very gravelly.*
60 to < 90	Use "extremely" with the appropriate size adjective; e.g., *extremely gravelly.*
≥ 90	No adjective modifier. If ≤ 10% fine earth, use the appropriate noun for the dominant size class; e.g., *gravel.* **Use terms in lieu of texture.**

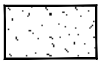
Texture Modifiers – (Adjectives)

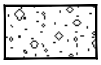
Rock Fragments: Size and Quantity	Code		Criteria: Percent (by volume) of total rock fragments and dominated by (*name size*):
	Conv.	PDP/ NASIS	
Rock Fragments (> 2mm; ≥ Strongly Cemented)			
Gravelly	GR	GR	≥ 15% but < 35% gravel
Fine Gravelly	FGR	GRF	≥ 15% but < 35% fine gravel
Medium Gravelly	MGR	GRM	≥ 15% but < 35% med. gravel
Coarse Gravelly	CGR	GRC	≥ 15% but <35% coarse gravel
Very Gravelly	VGR	GRV	≥ 35% but < 60% gravel
Extremely Gravelly	XGR	GRX	≥ 60% but < 90% gravel
Cobbly	CB	CB	≥ 15% but < 35% cobbles
Very Cobbly	VCB	CBV	≥ 35% but < 60% cobbles
Extremely Cobbly	XCB	CBX	≥ 60% but < 90% cobbles
Stony	ST	ST	≥ 15% but < 35% stones
Very Stony	VST	STV	≥ 35% but < 60% stones
Extremely Stony	XST	STX	≥ 60% but < 90% stones
Boudlery	BY	BY	≥ 15% but < 35% boulders
Very Bouldery	VBY	BYV	≥ 35% but < 60% boulders
Extremely Bouldery	XBY	BYX	≥ 60% but < 90% boulders
Channery	CN	CN	≥ 15% but < 35% channers
Very Channery	VCN	CNV	≥ 35% but < 60% channers
Extremely Channery	XCN	CNX	≥ 60% but < 90% channers
Flaggy	FL	FL	≥ 15% but < 35% flagstones
Very Flaggy	VFL	FLV	≥ 35% but < 60% flagstones
Extremely Flaggy	XFL	FLX	≥ 60% but < 90% flagstones

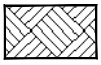
REFERENCE NOTES FOR BORING LOGS

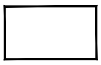
MATERIAL[1,2]

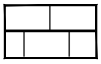
ASPHALT


CONCRETE


GRAVEL

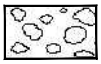

TOPSOIL

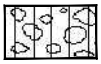

VOID


BRICK

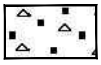
AGGREGATE BASE COURSE

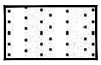
GW **WELL-GRADED GRAVEL**
gravel-sand mixtures, little or no fines

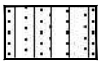

GP **POORLY-GRADED GRAVEL**
gravel-sand mixtures, little or no fines


GM **SILTY GRAVEL**
gravel-sand-silt mixtures

GC **CLAYEY GRAVEL**
gravel-sand-clay mixtures

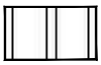

SW **WELL-GRADED SAND**
gravelly sand, little or no fines


SP **POORLY-GRADED SAND**
gravelly sand, little or no fines


SM **SILTY SAND**
sand-silt mixtures

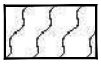
SC **CLAYEY SAND**
sand-clay mixtures

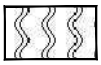
ML **SILT**
non-plastic to medium plasticity

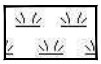

MH **ELASTIC SILT**
high plasticity

CL **LEAN CLAY**
low to medium plasticity

CH **FAT CLAY**
high plasticity


OL **ORGANIC SILT or CLAY**
non-plastic to low plasticity


OH **ORGANIC SILT or CLAY**
high plasticity


PT **PEAT**
highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION

DESIGNATION		PARTICLE SIZES
Boulders		12 inches (300 mm) or larger
Cobbles		3 inches to 12 inches (75 mm to 300 mm)
Gravel:	Coarse	¾ inch to 3 inches (19 mm to 75 mm)
	Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand:	Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
	Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
	Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")		<0.074 mm (smaller than a No. 200 sieve)

COHESIVE SILTS & CLAYS

UNCONFINED COMPRESSIVE STRENGTH, Q_P[4]	SPT[5] (BPF)	CONSISTENCY[7] (COHESIVE)
<0.25	<2	Very Soft
0.25 - <0.50	2 - 4	Soft
0.50 - <1.00	5 - 8	Firm
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

GRAVELS, SANDS & NON-COHESIVE SILTS

SPT[5]	DENSITY
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

RELATIVE AMOUNT[7]	COARSE GRAINED (%)[8]	FINE GRAINED (%)[8]
Trace	≤5	≤5
With	10 - 20	10 - 25
Adjective *(ex: "Silty")*	25 - 45	30 - 45

WATER LEVELS[6]

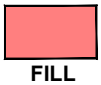
WL (First Encountered)

WL (Completion)

WL (Seasonal High Water)

WL (Stabilized)

FILL AND ROCK


FILL

POSSIBLE FILL

PROBABLE FILL

ROCK

[1]Classifications and symbols per ASTM D 2488-17 (Visual-Manual Procedure) unless noted otherwise.

[2]To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.

[3]Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-FILL)].

[4]Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).

[5]Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf). SPT correlations per 7.4.2 Method B and need to be corrected if using an auto hammer.

[6]The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.

[7]Minor deviation from ASTM D 2488-17 Note 14.

[8]Percentages are estimated to the nearest 5% per ASTM D 2488-17.

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SUBSURFACE EXPLORATION PROCEDURE: STANDARD PENETRATION TESTING (SPT) ASTM D 1586 Split-Barrel Sampling

Standard Penetration Testing, or **SPT**, is the most frequently used subsurface exploration test performed worldwide. This test provides samples for identification purposes, as well as a measure of penetration resistance, or N-value. The N-Value, or blow counts, when corrected and correlated, can approximate engineering properties of soils used for geotechnical design and engineering purposes.

SPT Procedure:

- Involves driving a hollow tube (split-spoon) into the ground by dropping a 140-lb hammer a height of 30-inches at desired depth
- Recording the number of hammer blows required to drive split-spoon a distance of 18-24 inches (in 3 or 4 Increments of 6 inches each)

- Auger is advanced* and an additional SPT is performed
- One SPT typically performed for every two to five feet. An approximate 1.5 inch diameter soil sample is recovered.

**Drilling Methods May Vary*— The predominant drilling methods used for SPT are open hole fluid rotary drilling and hollow-stem auger drilling.

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-01**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

LOSS OF CIRCULATION

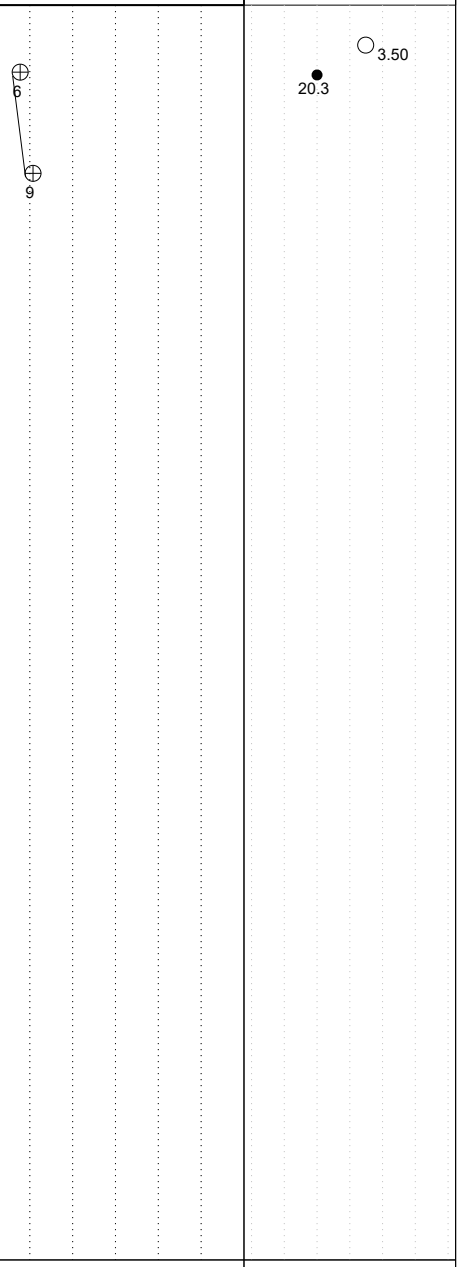
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:
43.219435	**-88.124928**		**879.5**

BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[5±"]			
	S-1	SS	18	10	(CL) LEAN CLAY WITH SAND, trace gravel, contains slight roots, brown, moist, very stiff			3-3-3 (6)
	S-2	SS	18	6	(WR) WEATHERED ROCK SAMPLED AS SILTY/CLAYEY SAND WITH GRAVEL, yellowish brown, moist, loose		875	3-4-5 (9)
5					**AUGER REFUSAL AT 6 FT**			
10							870	
15							865	
20							860	
25							855	
30							850	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-02**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING
43.219425	**-88.124546**		**880.0**	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-1	SS	0	0	Topsoil Thickness[6±"]		880	
					(WR) WEATHERED ROCK SAMPLED AS SILTY SAND WITH GRAVEL, trace clay, yellowish brown, moist, very dense, refusal at 1.5± feet for three attempts, **sampled auger cuttings**			
5					**AUGER REFUSAL AT 1.5 FT**		875	
10							870	
15							865	
20							860	
25							855	
30							850	

STANDARD PENETRATION BLOWS/FT: 10 20 30 40 50 | 20 40 60 80 100
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT: 10 20 30 40 50
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF: 1 2 3 4 5
WATER CONTENT %
[FINES CONTENT] %: 10 20 30 40 50

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**	CAVE IN DEPTH:	
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**	HAMMER TYPE: **Auto**	
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-03**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

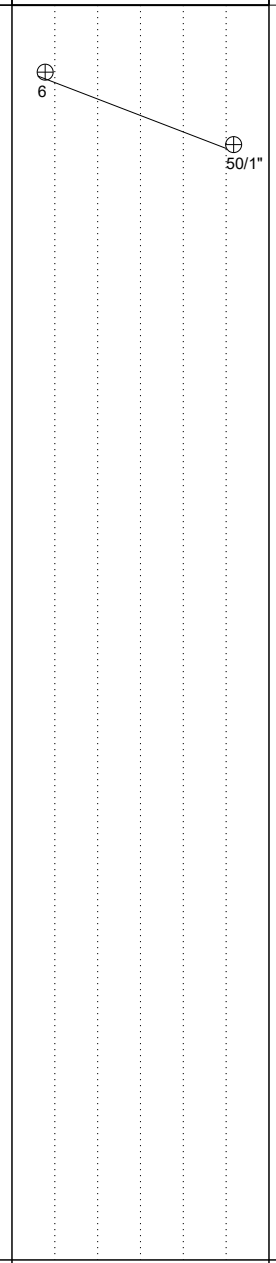
SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

LOSS OF CIRCULATION

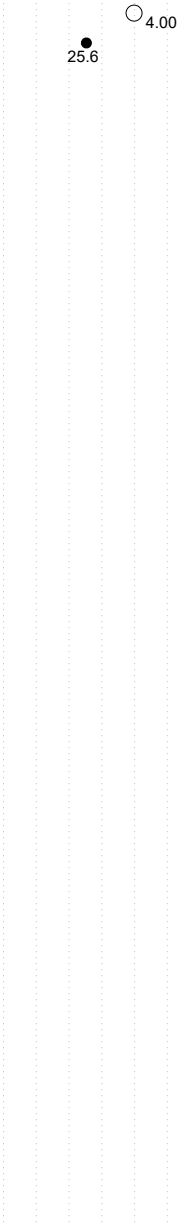
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING
43.219400	**-88.124200**		**880.0**	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[6±"]			
	S-1	SS	18	6	(CL) LEAN CLAY, trace sand, contains slight roots, brown, moist, hard			2-2-4 (6)
	~~S-2~~	~~SS~~	~~1~~	~~1~~	(WR) WEATHERED ROCK SAMPLED AS SILTY SAND WITH GRAVEL, very pale brown, moist, very dense, boring offset 3± feet E and refused at 3.5± feet			50/1" (50/1")
					AUGER REFUSAL AT 3.58 FT			
5							875	
10							870	
15							865	
20							860	
25							855	
30							850	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT



LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] %
(10 20 30 40 50)



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**	CAVE IN DEPTH:	
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**	HAMMER TYPE: **Auto**	
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-04**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

LOSS OF CIRCULATION

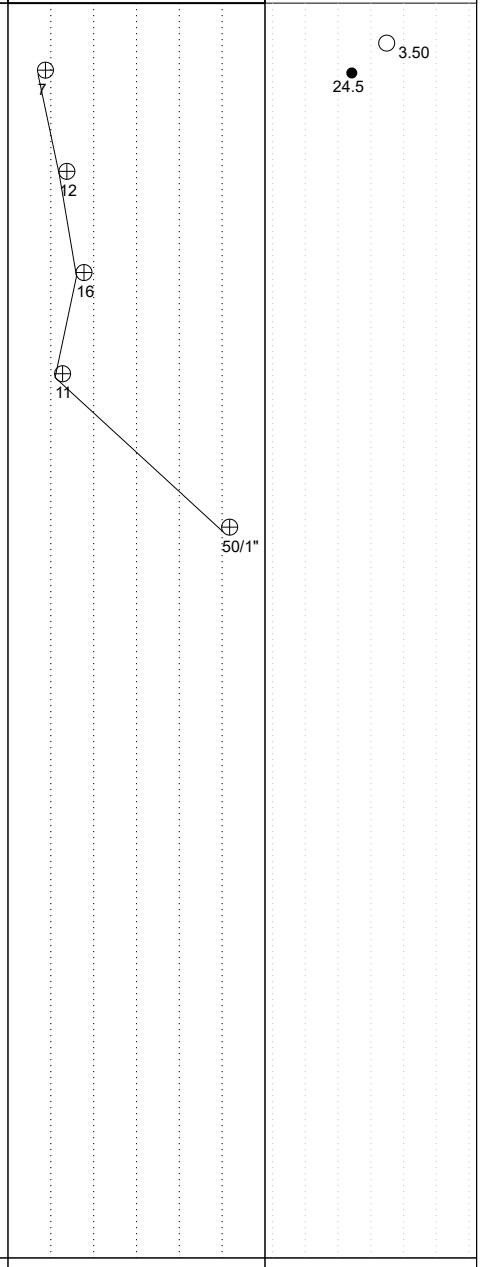
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING
43.219417	**-88.123757**		**878.5**	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[6±"]		
	S-1	SS	18	18	(CL) LEAN CLAY, trace sand, brown, moist, very stiff, contains slight calcareous leachate		3-3-4 (7)
	S-2	SS	18	16	(SM/GM) SILTY SAND WITH GRAVEL/ GRAVEL WITH SAND, yellowish brown, moist, medium dense to loose	874	4-5-7 (12)
5	S-3	SS	18	10			5-8-8 (16)
	S-4	SS	18	7		869	5-5-6 (11)
10	S-5	SS	1	1	(WR) WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, yellowish brown, moist, very dense, refused at bedrock		50/1" (50/1")
15					**SPOON REFUSAL AT 13.08 FT**	864	
20						859	
25						854	
30						849	

WATER LEVELS

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

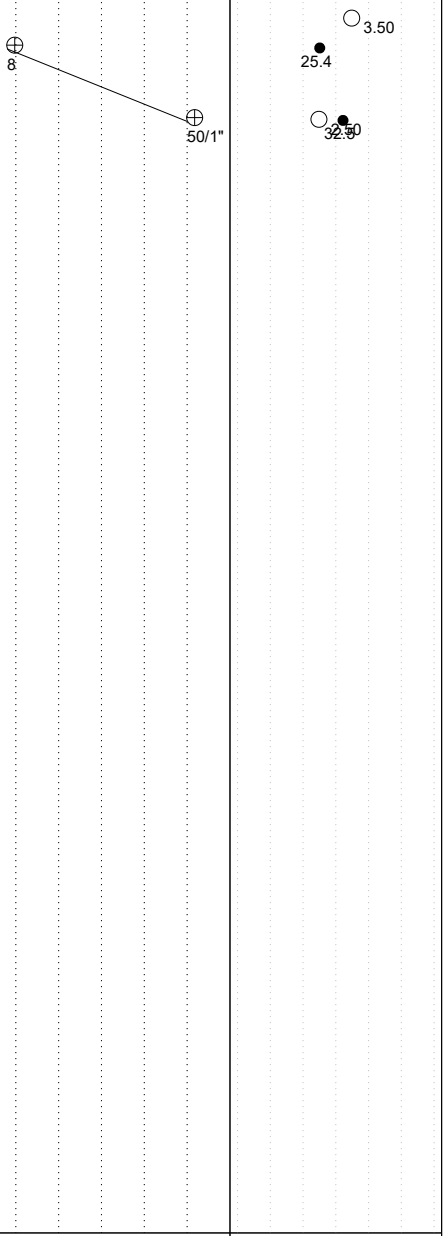
GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-05**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
The Carillon at Germantown	**Professional Testing Service**		
SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**			LOSS OF CIRCULATION
LATITUDE: **43.219415**	LONGITUDE: **-88.123371**	STATION:	SURFACE ELEVATION: **877.0**

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[6±"]			
	S-1	SS	18	16	(CL) LEAN CLAY, trace sand, brown with few dark brown spots, moist, very stiff			1-3-5 (8)
	~~S-2~~	~~SS~~	~~1~~	~~4~~	(CL) LEAN CLAY, trace sand, dark brown, moist, very stiff, contains very pale brown SILTY SAND lenses			50/1" (50/1")
5					(SM/GM) SILTY SAND WITH GRAVEL/ GRAVEL WITH SAND, yellowish brown, moist, very dense, boring offset 5± feet N and refused at 5± feet		872	
					AUGER REFUSAL AT 5 FT			
10							867	
15							862	
20							857	
25							852	
30							847	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50) (20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-06**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

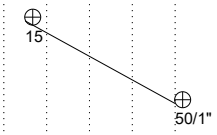
SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING
43.219114	**-88.123376**		**877.0**	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[4±"]			
	S-1	SS	18	1	(WR) HIGHLY WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, pale yellowish brown, moist, medium dense			5-7-8 (15)
	S-2	SS	7	4	(WR) WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, pale yellowish brown, moist, very dense, boring offset 4± feet W and refused at 6 ± feet			17-50/1" (50/1")
5					**SPOON REFUSAL AT 6 FT**		872	
10							867	
15							862	
20							857	
25							852	
30							847	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT



LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] %
(10 20 30 40 50)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-07**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING
43.219118	**-88.123801**		**877.5**	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[4±"]			
	S-1	SS	13	2	(CL) LEAN CLAY WITH SAND, brown, moist, stiff			5-9-50/1" (59/7")
	~~S-2~~	~~SS~~	~~1~~	~~0~~	(WR) WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, very pale brown, moist, very dense, refused at bedrock			50/1" (50/1")
5					**AUGER REFUSAL AT 3.58 FT**		873	
10							868	
15							863	
20							858	
25							853	
30							848	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT

59/7"
50/1"

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)

1.50
26.6

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**	CAVE IN DEPTH:	
WL (Completion)	BORING COMPLETED: **Mar 18 2025**	HAMMER TYPE: **Auto**	
WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-08**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING
43.219124	**-88.124206**		**878.0**	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-1	SS	1	0	Topsoil Thickness[6±"]			
					(WR) WEATHERED ROCK SAMPLED AS SILTY SAND WITH GRAVEL, very pale brown, moist, very dense, contains brown CLAY lenses, boring offset 5± feet S refused at 1± foot			50/1" (50/1")
5					**AUGER REFUSAL AT 1.5 FT**		873	
10							868	
15							863	
20							858	
25							853	
30							848	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT
50/1"

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**	CAVE IN DEPTH:	
WL (Completion)	BORING COMPLETED: **Mar 18 2025**	HAMMER TYPE: **Auto**	
WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

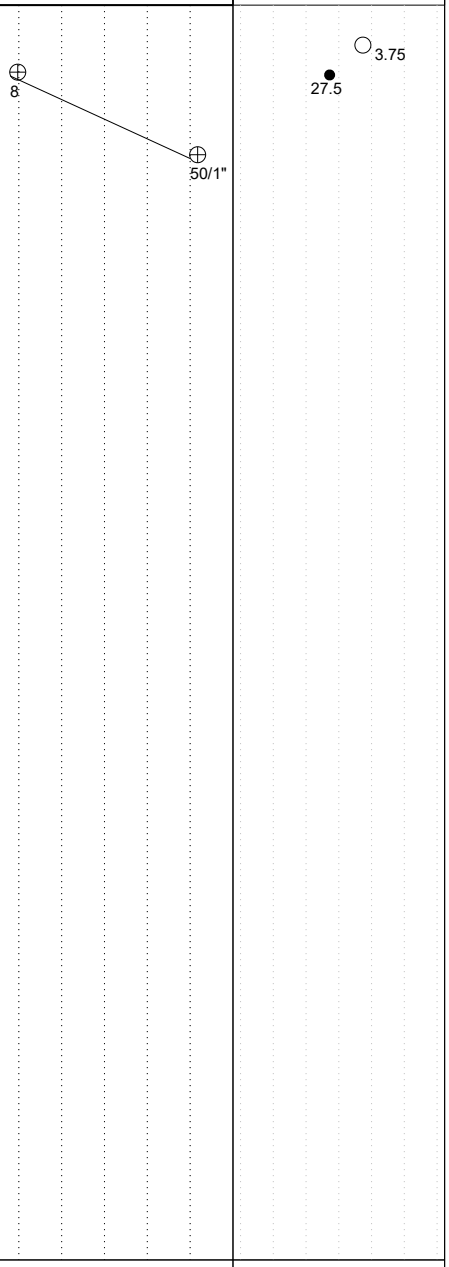
CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-09**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
The Carillon at Germantown	**Professional Testing Service**		
SITE LOCATION:			LOSS OF CIRCULATION
W172N11183 Division Road, Germantown, Wisconsin, 53022			
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:
43.219131	**-88.124627**		**878.5**

BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0					Topsoil Thickness[6±"]			
	S-1	SS	18	16	(CL) LEAN CLAY, trace sand, contains slight roots, brown, moist, very stiff, contains slight calcareous leachate			2-3-5 (8)
	S-2	SS	7	4				9-50/1" (50/1")
5					(WR) WEATHERED ROCK SAMPLED AS SILTY/CLAYEY SAND WITH GRAVEL, very pale brown, moist, very dense, refused at bedrock		874	
					AUGER REFUSAL AT 5 FT			
10							869	
15							864	
20							859	
25							854	
30							849	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50)
ROCK QUALITY DESIGNATION & RECOVERY (20 40 60 80 100)
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-10**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING
43.219186	**-88.125190**		**878.0**	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-1	SS	1	3	Topsoil Thickness[5±"] (WR) WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, very pale brown, moist, very dense, boring offset 3± feet S refused at 1.5± feet **AUGER REFUSAL AT 1.08 FT**		878	50/1" (50/1")
5							873	
10							868	
15							863	
20							858	
25							853	
30							848	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT
50/1"

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**	CAVE IN DEPTH:	
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**	HAMMER TYPE: **Auto**	
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-11**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING
43.218883	**-88.125196**		**875.0**	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[5±"]			
	S-1	SS	7	2	(CL) LEAN CLAY WITH SAND, contains slight roots, dark brown, moist, stiff, contains tan SILTY SAND lenses			12-50/1" (50/1")
	S-2	SS	1	1	(WR) WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, very pale brown, moist, very dense, few brown CLAY lenses, refused at bedrock			50/1" (50/1")
					AUGER REFUSAL AT 5 FT			
5							870	
10							865	
15							860	
20							855	
25							850	
30							845	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT
50/1"
50/1"

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)
34.9

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**	CAVE IN DEPTH:	
WL (Completion)	BORING COMPLETED: **Mar 18 2025**	HAMMER TYPE: **Auto**	
WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-12**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
The Carillon at Germantown	**Professional Testing Service**		
SITE LOCATION:			LOSS OF CIRCULATION
W172N11183 Division Road, Germantown, Wisconsin, 53022			
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:
43.218847	**-88.124587**		**876.0**

BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-1	SS	1	2	Topsoil Thickness[4±"] (CL) LEAN CLAY WITH SAND, brown, moist, stiff, contains very pale brown SILTY SAND lenses		876	50/1" (50/1")
5	S-2	SS	1	1	(WR) WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, very pale brown, moist, very dense, boring offset 3± feet N and refused at 4.5± feet **AUGER REFUSAL AT 5.5 FT**		871	50/1" (50/1")
10							866	
15							861	
20							856	
25							851	
30							846	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT

50/1"
50/1"

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] %
(10 20 30 40 50)

12.8

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**	CAVE IN DEPTH:	
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**	HAMMER TYPE: **Auto**	
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-13**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING
43.218839	**-88.124213**		**874.5**	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-1	SS	1	0	Topsoil Thickness[8±"]		874	
					(WR) WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, very pale brown, moist, very dense, boring offset 3± feet S and refused at 5.5± feet			50/1" (50/1")
	S-2	SS	1	3				50/1" (50/1")
5					**AUGER REFUSAL AT 5.5 FT**		870	
10							865	
15							860	
20							855	
25							850	
30							845	

STANDARD PENETRATION BLOWS/FT: 10 20 30 40 50 | 20 40 60 80 100
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT: 10 20 30 40 50
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF: 1 2 3 4 5
WATER CONTENT %
[FINES CONTENT] %: 10 20 30 40 50

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**	CAVE IN DEPTH:	
WL (Completion)	BORING COMPLETED: **Mar 18 2025**	HAMMER TYPE: **Auto**	
WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-14**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

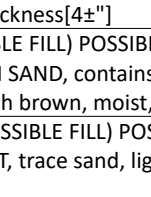
LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:
43.218837	**-88.123811**		**873.5**

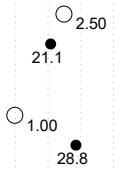
BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[4±"]			
	S-1	SS	18	18	(CL POSSIBLE FILL) POSSIBLE FILL, LEAN CLAY WITH SAND, contains slight roots, light grayish brown, moist, very stiff			1-2-3 (5)
	S-2	SS	18	10	(ML/CL POSSIBLE FILL) POSSIBLE FILL, CLAYEY SILT, trace sand, light brown, moist, stiff		869	1-2-4 (6)
5					(CL) LEAN CLAY WITH SAND, contains slight roots, brown, moist, stiff			
					AUGER REFUSAL AT 6 FT			
10							864	
15							859	
20							854	
25							849	
30							844	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT



LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] %
(10 20 30 40 50)



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-15**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

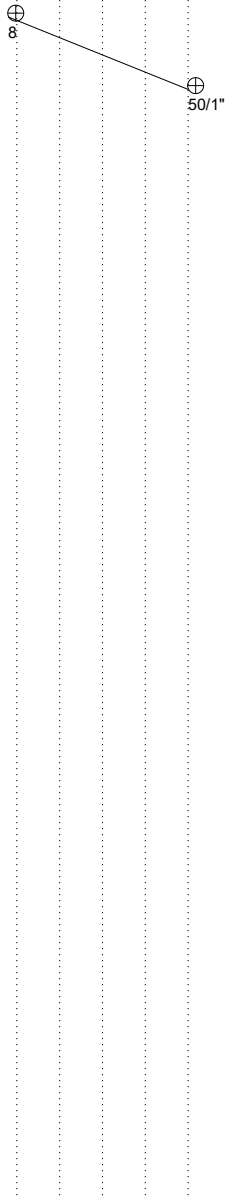
LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING
43.218831	**-88.123384**		**872.0**	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[6±"]			
	S-1	SS	18	16	(WR) HIGHLY WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, very pale brown, moist, medium dense			1-3-5 (8)
	~~S-2~~	~~SS~~	~~1~~	~~4~~	(WR) WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, very pale brown, moist, very dense, boring offset 4± feet W refused at 4± feet			50/1" (50/1")
5					**AUGER REFUSAL AT 4 FT**		867	
10							862	
15							857	
20							852	
25							847	
30							842	

STANDARD PENETRATION BLOWS/FT: 10 20 30 40 50 | 20 40 60 80 100
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT: 10 20 30 40 50
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF: 1 2 3 4 5
WATER CONTENT %
[FINES CONTENT] %: 10 20 30 40 50



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**	CAVE IN DEPTH:	
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**	HAMMER TYPE: **Auto**	
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-16**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

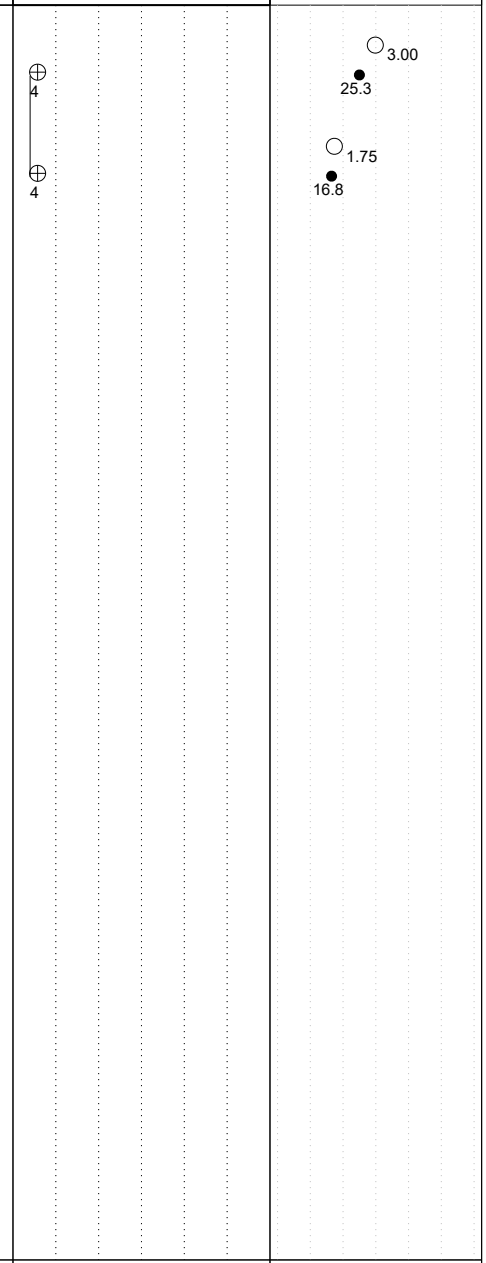
LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING
43.218700	**-88.123300**		**871.0**	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[6±"]			
	S-1	SS	18	18	(CL) LEAN CLAY, trace sand, dark yellowish brown and brownish gray mottled, moist, very stiff			4-2-2 (4)
	S-2	SS	18	18	(CL) LEAN CLAY, brown and brownish gray mottled, moist, stiff			2-2-2 (4)
5					**END OF BORING AT 5 FT**		866	
10							861	
15							856	
20							851	
25							846	
30							841	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-17**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

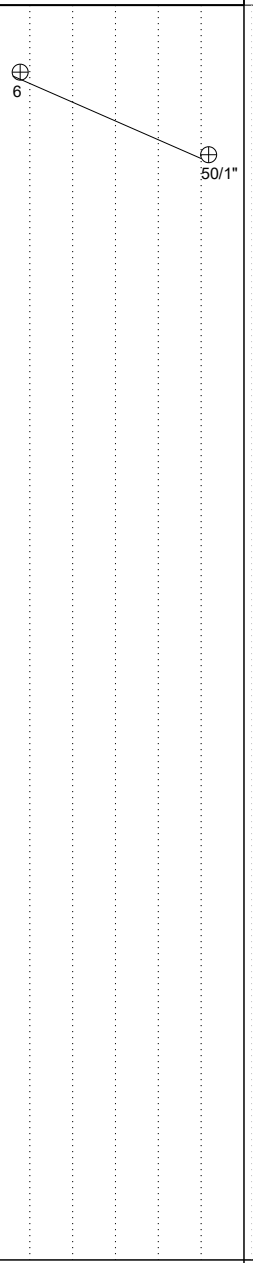
SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING
43.218800	**-88.124100**		**874.0**	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[6±"]			
	S-1	SS	18	7	(CL) LEAN CLAY, yellowish brown and brownish gray mottled with many small dark brown spots, moist, very stiff			3-3-3 (6)
	S-2	SS	7	3				17-50/1" (50/1")
5					(WR) WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, very pale brown, moist, very dense		869	
					AUGER REFUSAL AT 4.5 FT			
10							864	
15							859	
20							854	
25							849	
30							844	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT



LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**	CAVE IN DEPTH:	
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**	HAMMER TYPE: **Auto**	
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-18**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
The Carillon at Germantown	**Professional Testing Service**		
SITE LOCATION:			LOSS OF CIRCULATION
W172N11183 Division Road, Germantown, Wisconsin, 53022			
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:
43.218994	**-88.124991**		**876.5**

BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[6±"]			
	S-1	SS	7	1	(WR) HIGHLY WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, very pale brown, moist, very dense			12-50/1" (50/1")
	S-2	SS	1	1	(WR) WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, very pale brown, moist, very dense			50/1" (50/1")
5					**AUGER REFUSAL AT 3.58 FT**		872	
10							867	
15							862	
20							857	
25							852	
30							847	

STANDARD PENETRATION BLOWS/FT: 10 20 30 40 50 | 20 40 60 80 100
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT: 10 20 30 40 50
TEXAS CONE PENETRATION BLOWS/FT
50/1"
50/1"

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF: 1 2 3 4 5
WATER CONTENT %
[FINES CONTENT] %: 10 20 30 40 50

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**	CAVE IN DEPTH:	
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**	HAMMER TYPE: **Auto**	
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-19**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
The Carillon at Germantown	**Professional Testing Service**		
SITE LOCATION:			LOSS OF CIRCULATION
W172N11183 Division Road, Germantown, Wisconsin, 53022			
LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:
43.219274	**-88.124282**		**879.5**

BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[4±"]			
	S-1	SS	18	8	(CL) LEAN CLAY WITH GRAVEL, contains slight roots, brown, moist, stiff, boring offset 3± feet S and refused at 3± feet			3-4-4 (8)
					AUGER REFUSAL AT 3 FT			
5							875	
10							870	
15							865	
20							860	
25							855	
30							850	

STANDARD PENETRATION BLOWS/FT: 10 20 30 40 50 | 20 40 60 80 100
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT: 10 20 30 40 50
TEXAS CONE PENETRATION BLOWS/FT

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF: 1 2 3 4 5
WATER CONTENT %
[FINES CONTENT] %: 10 20 30 40 50

8
18.7

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-20**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
The Carillon at Germantown	**Professional Testing Service**

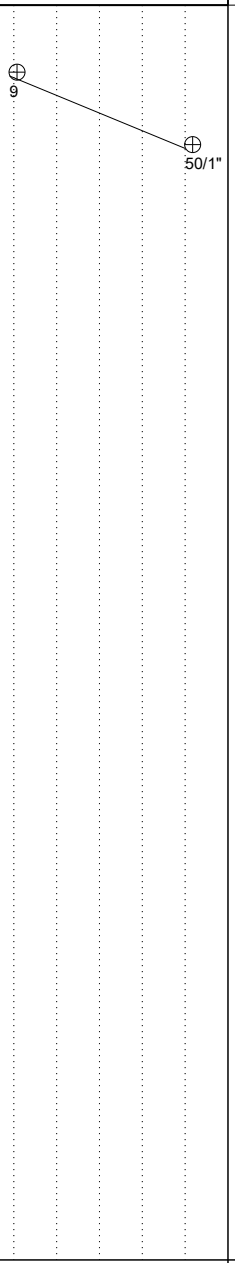
SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**

LOSS OF CIRCULATION

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING
43.219257	**-88.123205**		**875.0**	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
					Topsoil Thickness[4±"]			
	S-1	SS	18	10	(CL) SANDY LEAN CLAY WITH GRAVEL, brown and dark brown, moist, very stiff, contains very pale brown SILTY SAND lenses			3-4-5 (9)
	~~S-2~~	~~SS~~	~~1~~	~~0~~	(WR) WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, very pale brown, moist, very dense			50/1" (50/1")
					AUGER REFUSAL AT 4.5 FT			
5							870	
10							865	
15							860	
20							855	
25							850	
30							845	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT



LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

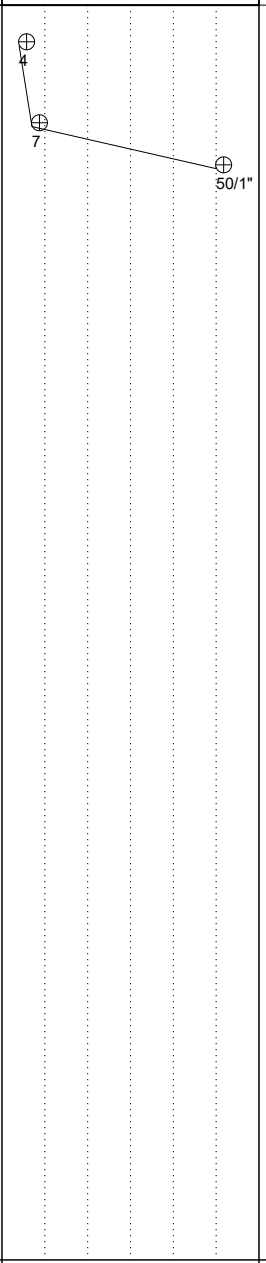
▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**		HAMMER TYPE: **Auto**
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

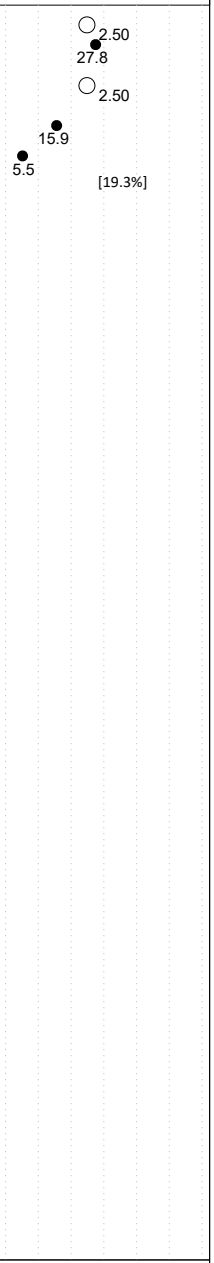
CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-21**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
The Carillon at Germantown	**Professional Testing Service**		
SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**			LOSS OF CIRCULATION
LATITUDE: **43.219434**	LONGITUDE: **-88.125195**	STATION:	SURFACE ELEVATION: **878.5**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-1	SS	24	12	Topsoil Thickness[4±"] (CL) LEAN CLAY, trace sand, contains slight roots, brown, moist, very stiff, contains some sandy seams			1-2-2-3 (4)
	S-2	SS	24	8	(CL) SANDY LEAN CLAY WITH GRAVEL, brown, moist, very stiff, contains very pale brown SILTY SAND lenses			2-2-5-6 (7)
	~~S-3~~	~~SS~~	~~1~~	~~1~~	(WR) WEATHERED ROCK SAMPLED AS SILTY SAND WITH GRAVEL, moist, loose, very pale brown		874	50/1" (50/1")
5					(WR) WEATHERED ROCK SAMPLED AS CLAYEY GRAVEL WITH SAND, moist, very dense, light gray and white, contains fat clay lenses, boring offset 3± feet and refused at 4± feet			
10					**AUGER REFUSAL AT 4.08 FT**		869	
15							864	
20							859	
25							854	
30							849	

STANDARD PENETRATION BLOWS/FT: 10 20 30 40 50
ROCK QUALITY DESIGNATION & RECOVERY: 20 40 60 80 100
RQD
REC
MC SAMPLER BLOWS/FT: 10 20 30 40 50
TEXAS CONE PENETRATION BLOWS/FT



LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF: 1 2 3 4 5
WATER CONTENT %
[FINES CONTENT] %: 10 20 30 40 50



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

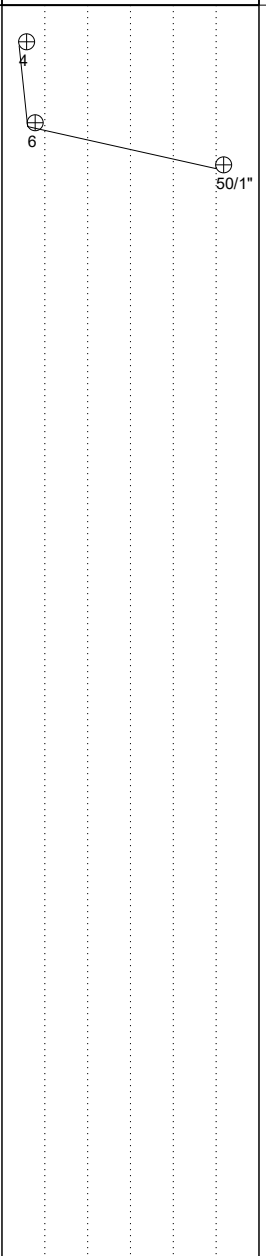
▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**	CAVE IN DEPTH:	
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**	HAMMER TYPE: **Auto**	
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

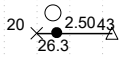
CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
Cirrus Property Group	**42:2698**	**B-22**	**1 of 1**
PROJECT NAME:	DRILLER/CONTRACTOR:		
The Carillon at Germantown	**Professional Testing Service**		
SITE LOCATION: **W172N11183 Division Road, Germantown, Wisconsin, 53022**			LOSS OF CIRCULATION
LATITUDE: **43.219649**	LONGITUDE: **-88.125245**	STATION:	SURFACE ELEVATION: **879.5**	BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" (TCP/MC/SPT-N value)*
0	S-1	SS	24	20	Topsoil Thickness[4±"] (CL) LEAN CLAY, trace sand, contains slight roots, brown, moist, very stiff, contains some sandy lenses		879	WOH-2-2-2 (4)
	S-2	SS	24	6	(WR) HIGHLY WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, very pale brown, moist, loose			2-3-3-7 (6)
	S-3	SS	1	1	(WR) WEATHERED ROCK SAMPLED AS SILTY GRAVEL WITH SAND, very pale brown, moist, very dense, boring offset 3± feet and refused at 5± feet		875	50/1" (50/1")
5					**AUGER REFUSAL AT 5 FT**			
10							870	
15							865	
20							860	
25							855	
30							850	

STANDARD PENETRATION BLOWS/FT (10 20 30 40 50 / 20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC
MC SAMPLER BLOWS/FT (10 20 30 40 50)
TEXAS CONE PENETRATION BLOWS/FT



LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] %
(10 20 30 40 50)



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **Dry**	BORING STARTED: **Mar 18 2025**	CAVE IN DEPTH:	
▼ WL (Completion)	BORING COMPLETED: **Mar 18 2025**	HAMMER TYPE: **Auto**	
▼ WL (Seasonal High Water)	EQUIPMENT: **Geoprobe 7822DT**	LOGGED BY: **LEM1**	DRILLING METHOD: **Hollow Stem Auger**
▽ WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

Appendix C – Laboratory Testing

Other Laboratory Test Results

LABORATORY PROCEDURES:

Index Testing

Moisture content determination was performed on select fine-grained soil samples in accordance with ASTM D 2216.

Calibrated hand penetrometer tests (Qp) were performed on select cohesive soil samples. In the hand penetrometer test, the unconfined compressive strength of a soil sample is estimated, to a maximum of 4.5 or 6 tons per square foot (tsf), depending on the penetrometer model, by measuring the resistance of a soil sample to penetration by a small, calibrated, spring-loaded cylinder.

Atterberg limits determination was performed on select fine-grained soil samples in accordance with ASTM D 4319. The Atterberg limits are a basic measure of the critical water contents of a fine-grained soil: its **liquid limit**, **plastic limit**, and s**hrinkage limit**. Depending on its water content, a soil may appear in one of four states: solid, semi-solid, plastic and liquid. In each state, the consistency and behavior of a soil is different and consequently so are its engineering properties. Atterberg limits can also be used to help distinguish between silt and clay, and to distinguish between different types of silts and clays.

Particle size distribution, also referred to as gradation or sieve analysis, refers to the proportions by dry mass of a soil particles distributed over specified particle-size ranges. The particle size distribution is used to help classify soils for engineering purposes. Particle size distribution determination was performed on select fine-grained soil samples in accordance with ASTM D 421, D 422 and/or D 1140.

A **loss on ignition (LOI)** test is used to estimate the organic content of the soil. In the LOI test a dry sample is heated to 440° C to burn off organic matter within the sample. The lost weight is compared to the initial dry weight to estimate the percentage of organics in the material. LOI determination was performed in accordance with ASTM D 2974.

Laboratory Testing Summary

Sample Location	Sample Number	Depth (ft)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
B-01	S-1	1.0-2.5	20.3										
B-03	S-1	1.0-2.5	25.6										
B-04	S-1	1.0-2.5	24.5										
B-05	S-1	1.0-2.5	25.4										
B-05	S-2	3.5-3.6	32.5										
B-07	S-1	1.0-2.1	26.6										
B-09	S-1	1.0-2.5	27.5										
B-11	S-1	1.0-1.6	34.9										
B-12	S-1	1.0-1.1	12.8										
B-14	S-1	1.0-2.5	21.1										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: The Carillon at Germantown
Client: Cirrus Property Group

Project No.: 42:2698
Date Reported: 3/24/2025

Office / Lab	Address	Office Number / Fax
ECS Midwest LLC - Milwaukee	3695 N. 126TH Street Unit C Brookfield, WI 53005	(414)286-7557 (262)886-1988

Tested by	Checked by	Approved by	Date Received
LMcGovern	LMcGovern	LMcGovern	3/19/2025

Laboratory Testing Summary

Sample Location	Sample Number	Depth (ft)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
B-14	S-2	3.5-5.0	28.8										
B-16	S-1	1.0-2.5	25.3										
B-16	S-2	3.5-5.0	16.8										
B-17	S-1	1.0-2.5	27.0										
B-19	S-1	1.0-2.5	18.7										
B-20	S-1	1.0-2.5	8.3										
B-21	S-1	0.0-2.0	27.8										2.6
B-21	S-2	3.5-4.0	5.5					19.3					
B-22	S-1	0.0-2.0	26.3		43	20	23						

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

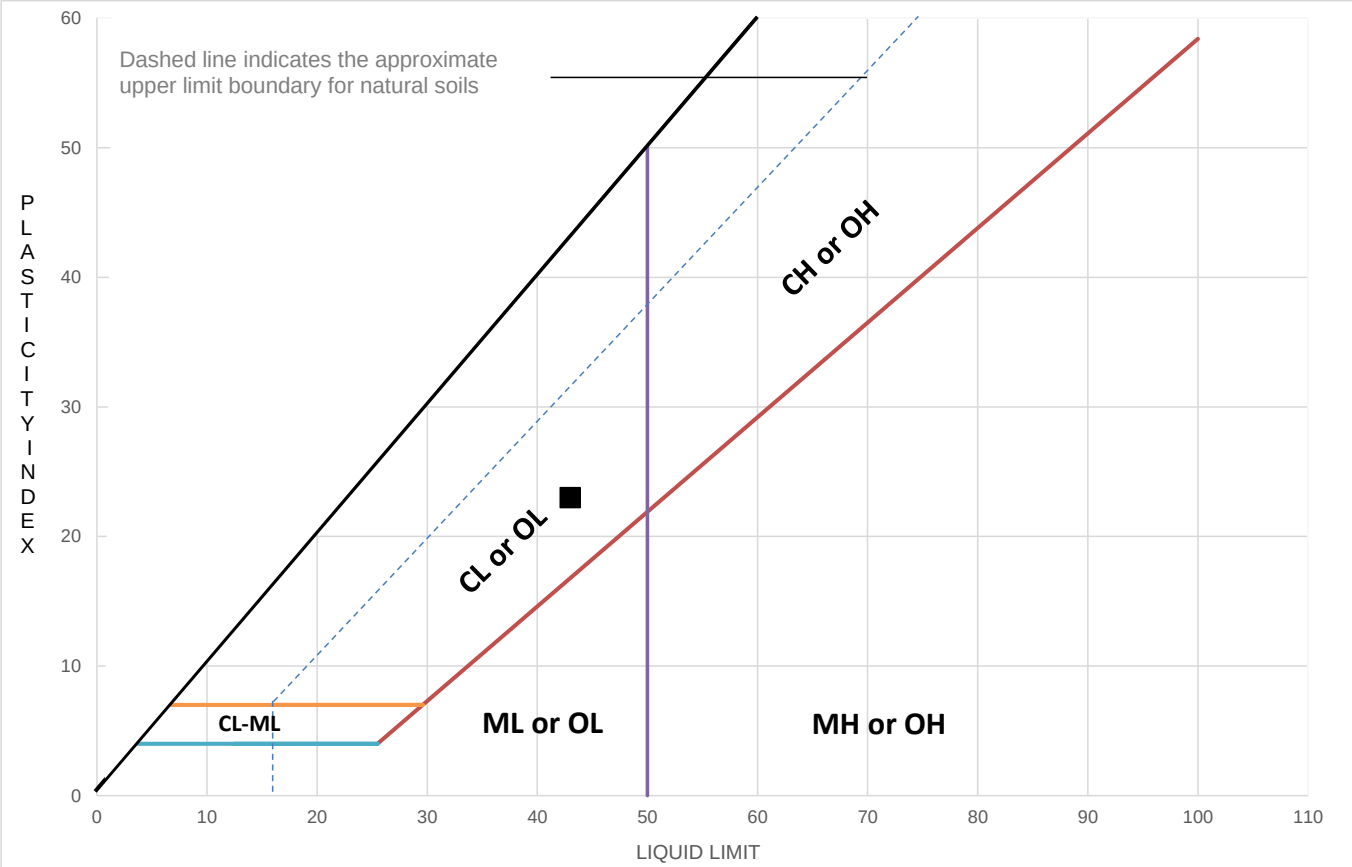
Project: The Carillon at Germantown
Client: Cirrus Property Group

Project No.: 42:2698
Date Reported: 3/24/2025

Office / Lab	Address	Office Number / Fax
ECS Midwest LLC - Milwaukee	3695 N. 126TH Street Unit C Brookfield, WI 53005	(414)286-7557 (262)886-1988

Tested by	Checked by	Approved by	Date Received
LMcGovern	LMcGovern	LMcGovern	3/19/2025

LIQUID AND PLASTIC LIMITS TEST REPORT



TEST RESULTS (ASTM D4318-10 (MULTIPOINT TEST))

	Sample Location	Sample Number	Sample Depth (ft)	LL	PL	PI	%<#40	%<#200	AASHTO	USCS	Material Description
■	B-22	S-1	0.00-2.00	43	20	23				CL	Brown Lean Clay, trace Sand

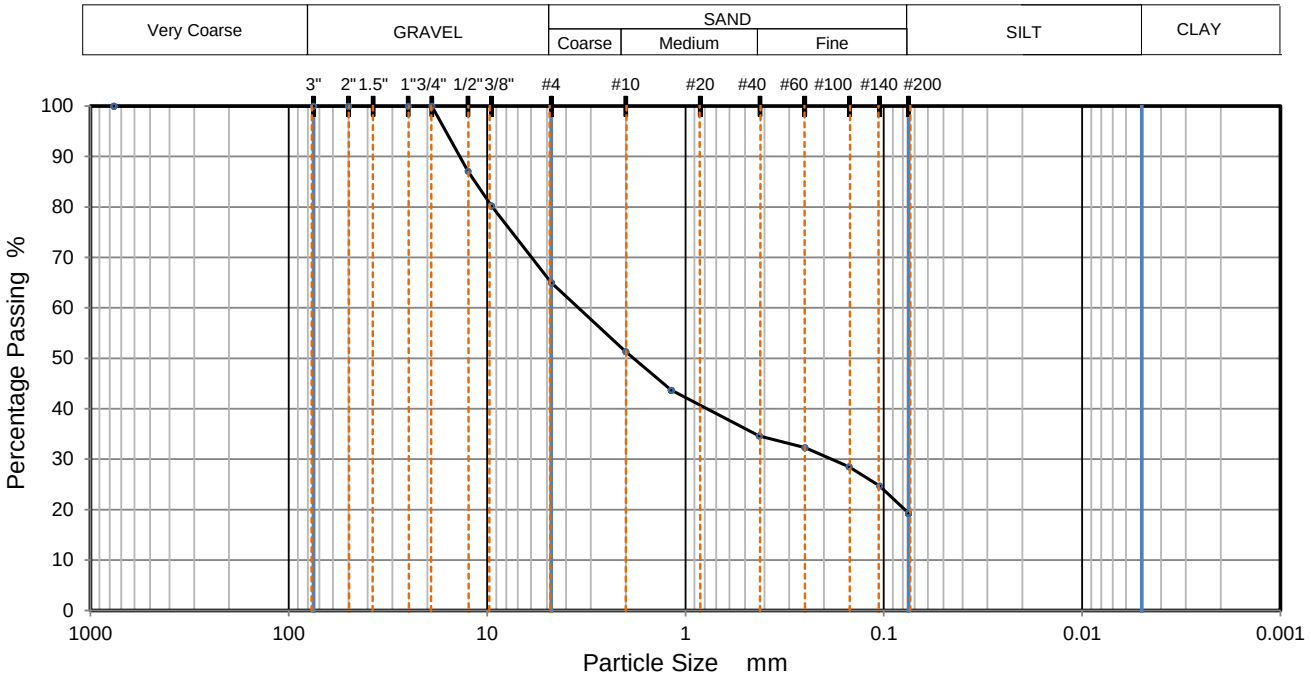
Project: The Carillon at Germantown
Client: Cirrus Property Group

Project No.: 42:2698
Date Reported: 3/24/2025

Office / Lab	Address	Office Number / Fax
ECS Midwest LLC - Milwaukee	3695 N. 126TH Street Unit C Brookfield, WI 53005	(414)286-7557 (262)886-1988

Tested by	Checked by	Approved by	Date Received
LMcGovern	LMcGovern	LMcGovern	3/19/2025

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1"	100		
3/4"	100		
1/2"	87		
3/8"	80		
#4	65		
#10	51		
#16	44		
#40	35		
#60	32		
#100	29		
#140	25		
#200	19		

Dry Mass of sample, g	131.4

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	35
Coarse Sand, #4 to #10 sieve	14
Medium Sand, #10 to #40	17
Fine Sand, #40 to #200	15
Fines <#200	19

USCS	SM	Liquid Limit		D90	13.730	D50	1.827	D10	
AASHTO		Plastic Limit		D85	11.500	D30	0.184	Cu	
USCS Group Name	Silty Sand with Gravel	Plasticity Index		D60	3.464	D15		Cc	

Project: The Carillon at Germantown
Client: Cirrus Property Group
Sample Description: Very Pale Brown Silty Sand with Gravel
Sample Source: B-21

Project No.: 42:2698
Depth (ft): 3.5 - 4.0
Sample No.: S-2
Date Reported: 3/24/2025

Office / Lab	Address	Office Number / Fax
ECS Midwest LLC - Milwaukee	3695 N. 126TH Street Unit C Brookfield, WI 53005	(414)286-7557 (262)886-1988

Tested by	Checked by	Approved by	Date Received	Remarks
LMcGovern	LMcGovern	LMcGovern	3/19/2025	

Appendix D – Supplemental Documents

Other Supplemental Documents

Wisconsin Department of Safety and Professional Services
Division of Industry Services
4822 Madison Yards Way
PO Box 7302
Madison, WI 53707

Phone: 608-266-2112
Web: http://dsps.wi.gov
Email: dsps@wisconsin.gov

Program: Plumbing
Web: https://dsps.wi.gov/Pages/Programs/Plumbing

Soil and Site Evaluation – Stormwater Infiltration

In accordance with SPS 382.365, 385, Wis. Adm. Code, and WDNR Standard 1002

Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m)]

Attach a complete site plan on paper not less than 8 ½ x 11 inches in size. Plan must include, but is not limited to: vertical and horizontal reference point (BM); direction and percent of slope; scale or dimensions; north arrow; and BM referenced to nearest road.

PLEASE PRINT ALL INFORMATION

COUNTY: Washington

PARCEL ID: 281967

PROPERTY OWNER: Faith Lutheran Church

PROPERTY OWNER'S MAILING ADDRESS: W172N11183 DIVISION RD

CITY, STATE, ZIP CODE: GERMANTOWN, WI 53022

PHONE:

PROPERTY LOCATION

Govt. Lot ____, NE ¼, NE ¼, S 28, T 9 N, R 20 E

Lot #, Block #, Subd. Name or CSM #: 5387

Municipality: Germantown

☐ City ☒ Village ☐ Town

Nearest Road: Mequon Road

Drainage area _____ ☐sq. ft. ☐acres

Test site suitable for (check all that apply):

☐Site not suitable ☐Bioretention

☐Reuse ☐Subsurface Dispersal System

☐Irrigation ☐Other _____

HYDRAULIC APPLICATION TEST METHOD

☒ Morphological Evaluation

☐ Double Ring Infiltrometer

☐ Other: (specify)

_____

SOIL MOISTURE

Date of soil borings: 03/18/2025

USDA-NRCS WETS VALUE:

☒ Dry = 1

☐ Normal = 2

☐ Wet = 3

B-21 #OBS. ☐ Pit ☒ Boring Ground Surface Elevation 878.5 ft. Elevation of Limiting Factor 4 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
A	4	--	--	Topsoil	--	--	--	--	--	--
B	24	10YR 5/3	no redox features	c	1 vf sbk	mfi	g	0-5	85-95	0.07
C	48	10YR 7/4	no redox features	gr-cl	1 vf m	mfi	c	15-20	60-70	0.03
R	49	10YR 7/2	no redox features	vgr-sl	3 vc m	ew	g	30-40	15-20	0.5
R	49	10YR 7/2	no redox features	xgr-s	3 vc m	ew	c	80-90	5-15	3.60

Comments:
Bedrock encountered at approximately 4 feet.

B-22 #OBS. ☐ Pit ■ Boring Ground Surface Elevation 879.5 ft. Elevation of Limiting Factor 5 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
A	4	--	--	Topsoil	--	--	--	--	--	--
B	24	10YR 5/3	no redox features	c	1 vf sbk	mfi	g	0-5	85-95	0.07
R	60	10YR 7/4	no redox features	xgr-s	3 vc m	ew	c	80-90	5-15	3.60

Comments:
Bedrock encountered at approximately 5 feet.

____ #OBS. ☐ Pit ☐ Boring Ground Surface Elevation _____ ft. Elevation of Limiting Factor _____ ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.

Comments:

____ #OBS. ☐ Pit ☐ Boring Ground Surface Elevation _____ ft. Elevation of Limiting Factor _____ ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.

Comments:

____ #OBS. ☐ Pit ☐ Boring Ground Surface Elevation _____ ft. Elevation of Limiting Factor _____ ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.

Comments:

____ #OBS. ☐ Pit ☐ Boring Ground Surface Elevation _____ ft. Elevation of Limiting Factor _____ ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.

Comments:

Overall Site Comments:

Matthew Meyer — Name (Please Print)

Signature

1053414 (SP-110700001) — Credential Number

1060 Breezewood Ln, Suite 102 Neenah, WI 54956 — Address

03/21/2025 — Date Evaluation Conducted

920.886.1406 — Phone Number

Appendix E – Other Information

GBA - Geotechnical Engineering Report Information Sheet

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

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Appendix E – Stormwater Maintenance Agreement

DECLARATION OF COVENANT FOR STORM WATER MANAGEMENT FACILITY MAINTENANCE

Document Number

THIS DECLARATION OF COVENANT FOR STORM WATER MANAGEMENT FACILITY MAINTENANCE and related covenants is declared and made this _____ day of _____, 200_ by_____ ____ ("Developer").

WHEREAS, _____as Developer owns the real property described below on Exhibit A attached hereto and incorporated herein by reference (the "Property"); and

WHEREAS, Developer has [subdivided or developed] the Property; and

WHEREAS, pursuant to subdivision and/or other applicable approvals, including permit approvals granted by the Village of Germantown, and in accordance with and obedience to conditions of such approvals and the applicable code provisions and Village policies governing storm water management facilities, and in order to insure that the storm water facilities constructed on and serving the Property continue to function according to the design and performance standards which they were constructed to meet, in perpetuity, Developer, for the benefit of itself, its successors in interest and the Property in perpetuity, hereby declares the following covenants, conditions and restrictions relating to the installation and maintenance of the storm water facilities on the subject Property.

Name and Return Address

WHEREAS, This Agreement includes the following exhibits:

Exhibit A: Legal Description of the real estate which this Agreement applies ("Property").

Exhibit B: Location Map(s) – shows an accurate location of each storm water management facility affected by this Agreement.

Exhibit C: Minimum Maintenance Requirements – prescribes those activities that must be carried out to maintain compliance with this Agreement.

_____

Parcel Identification Number(s) – (PIN)

Through this Declaration Developer hereby subjects the Property to the following covenants, conditions and restrictions:

1. Developer and its assigns and successors in interest ("Responsible Party") shall be responsible for the routine and extraordinary maintenance of the storm water management facilities identified in Exhibit B, and shall maintain the storm water management facilities and drainage easements in accordance with Exhibit C.
2. The Village of Germantown, or its designee, is authorized to access the Property as necessary to conduct inspections of the storm water management facilities and drainage easements to ascertain compliance with this Agreement and the minimum storm water management practice maintenance requirements prescribed in Exhibit C.
3. Upon notification to the Responsible Party by the Village of Germantown of maintenance deficiencies which require correction, the specified corrective actions shall be performed by the Responsible Party within a reasonable time frame, as shall be prescribed by the Village Engineer, which shall be no less than thirty (30) calendar days.

4. The Village of Germantown is authorized to perform the corrective actions identified in its inspection report or its notice if the Responsible Party does not make the required corrections within the time period prescribed by the Village Engineer for corrective action. The costs and expenses of such corrective actions shall, in accordance with Section 66.0627 of the Wisconsin Statues, shall be invoiced to the Responsible Party and if not paid within the time determined by the Village Board, shall be entered on the tax roll as a special charge against the Property, and collected with any other taxes levied thereon for the year in which the work is completed.
5. This Declaration shall run with the Property and be binding upon the Developer and its successors and assigns. This Declaration may not be amended or abrogated in part or whole, without the express written consent of the Village of Germantown.

Dated this ___ day of _____, 200_.

Owner:

_____
(Owners Signature)

(Owners Typed Name)

Acknowledgements

State of Wisconsin) :ss
County of Washington)

Personally came before me this ____ day of _____, 200_, the above named ___[Owners name]_____ to me known to be the person who executed the foregoing instrument and acknowledged the same.

_____.
[Name]
Notary Public, Washington County, WI
My commission expires:_____.

This document was drafted by:

_____

_____

[Name and address of drafter]

Exhibit A – Legal Description

The following description and reduced copy map identifies the land parcel(s) affected by this Declaration. For a larger scale view of the referenced document, contact the Washington County Register of Deeds office.

[Provide appropriate legal description/metes and bounds here.]

[Note: An <u>example</u> map is shown below. This exhibit must be customized for each site, including the minimum elements shown. It must include a reference to a Subdivision Plat, Certified Survey number, or Condominium Plat, and a map to illustrate the affected parcel(s).]

Project Identifier: **ABC Subdivision**
Date of Recording: **October 22, 2002**
Map Produced By: **Engineering, Inc., P.O. Box 123, Sturgeon Bay, WI**
Legal Description: **All that part of the Southwest Quarter (SW ¼) of Section 32, Township 9N, Range 20E Washington County, Wisconsin.** [If no land division is involved, enter legal description as described on the property title here.]

ABC Subdivision

<u>Note</u>: Shaded area indicates a drainage easement for stormwater collection, conveyance and treatment. See subdivision plat for restrictions in this area.

Exhibit B - Location Map
Storm Water Management Facilities Covered by this Declaration

[An example location map and the minimum elements that must accompany the map are shown below. This exhibit must be customized for each site.]

The storm water management practices covered by this Declaration are depicted in the reduced copy of the construction plans, as shown below. The practices include one wet detention basin, two forebays, two grass swales (conveying storm water to the forebays) and all associated pipes, earthen berms, rock chutes, storm sewer and all associate structures, and other components of these practices. All of the noted storm water management facilities are located within a drainage easement in Outlot 1 of the subdivision plat, as noted in Exhibit A.

Subdivision Name: **Preserve**
Storm water Practices: **Wet Detention Basin, Forebays (2), Grass swales (2)**
Location of Practices: **All that part of Outlot 1, bounded and described as follows:** [If no land division is involved, enter a metes and bounds description of the easement area.]
Owners of Outlot 1: **Equally-divided among Owners of Lots 1-22**

Figure 1
Plan View of Storm Water Management Facilities

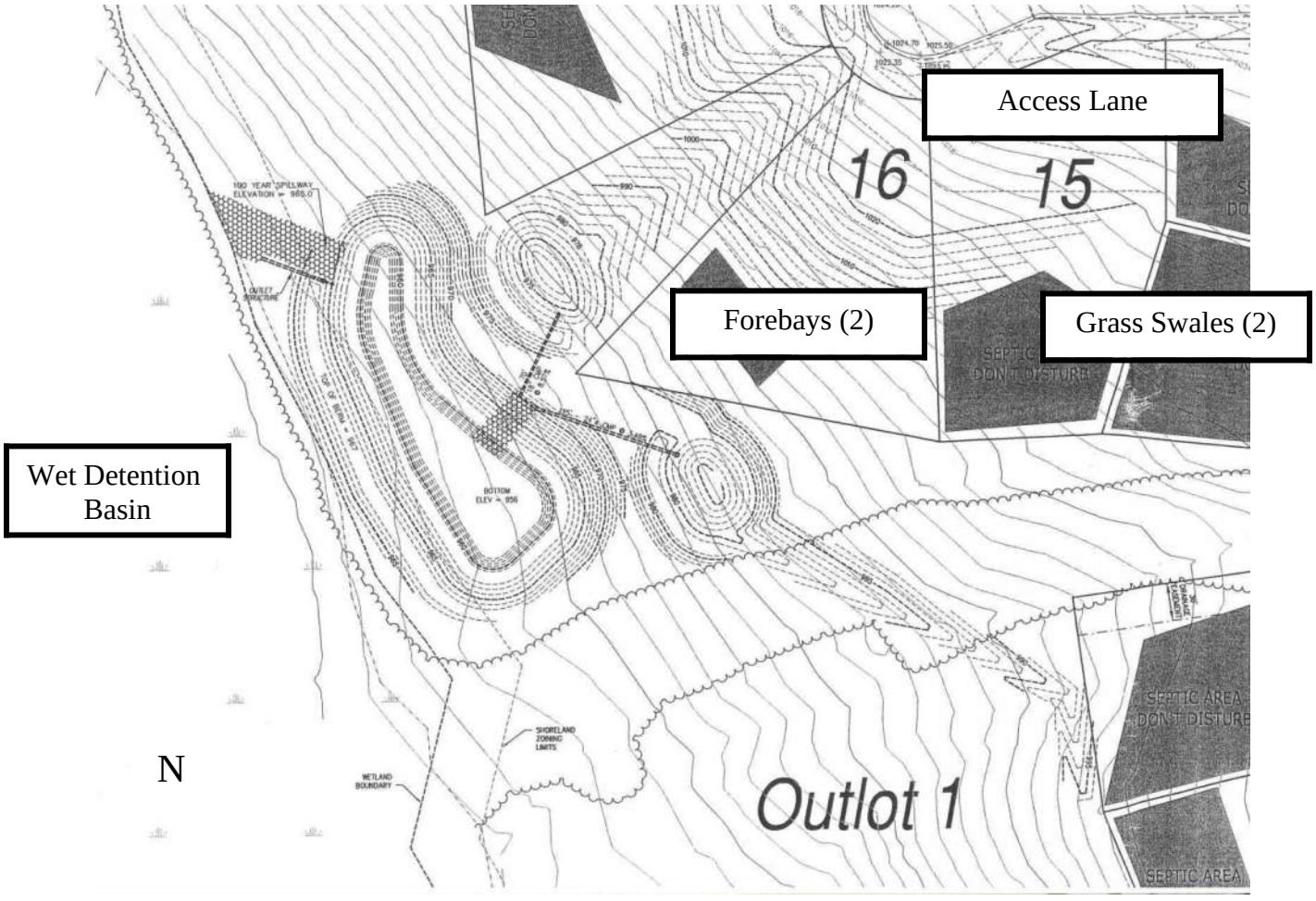


Exhibit C
Minimum Storm Water Management Facility Maintenance Requirements

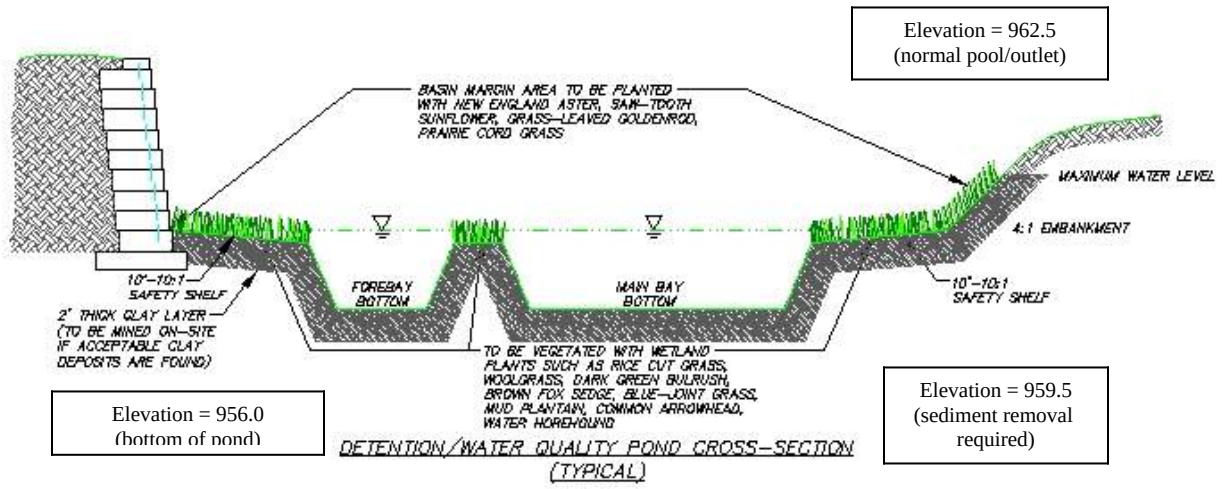
This exhibit explains the basic function of each of the storm water management facilities shown on Exhibit B and prescribes the minimum maintenance requirements to remain compliant with conditions of subdivision or development approval, storm water management plan acceptance, and Village ordinances and policies, as well as the rules of MMSD, and the Declaration to which this is appended. The maintenance activities listed below are aimed to ensure these facilities continue serving their intended functions in perpetuity. The list of activities is not all inclusive, but rather indicates the minimum type of maintenance that can be expected for this particular site. Access to the stormwater facilities for maintenance vehicles is shown in Exhibit B. Any failure of a storm water facility that is caused by a lack of maintenance will subject the Party to enforcement of the provisions in this Declaration, by the Village of Germantown.

[Example maintenance language is listed below. This exhibit must be customized for each site. The minimum elements of this exhibit include: a description of the drainage area and the installed storm water management system & best management practices, a list of BMP maintenance requirements, and detailed construction drawings showing all critical components and their planned elevations.]

System Description:
The wet detention basin is designed to trap at least 80% of sediment in runoff and maintain MMSD restricted peak flows. The basin has two forebays (smaller ponds) located at the low end of two grass swales. In addition to runoff conveyance, the grass swales also allow infiltration and filtering of pollutants, especially from smaller storms. The forebays are each 5 feet deep. They are connected to the main pool by 18 and 24-inch metal pipes that outlet onto a rock chute. The forebays will trap coarse sediments in runoff, such as road sands, thus reducing maintenance of the main basin. The main pool will trap the finer suspended sediment. To do this, the pond size, water level and outlet structures must be maintained as specified in this Declaration (see Figures 1, 2 and 3).

The main basin receives runoff from a 67.1 acre drainage area (41.2 acres within the subdivision and 25.9 acres off-site tributary drainage coming from the east). During high rainfall or snow melt events, the water level will temporarily rise and slowly drain down to the elevation of the control structure. The water level is controlled by a 12-inch concrete pipe extending through the berm in the northwest corner of the basin (see Figures 1 and 3). On the face of the 12-inch pipe, there is metal plate with a 3-inch drilled hole (orifice) with clog-protection in front of it. This orifice controls the water level at elevation 962.5 and causes the pond to temporarily rise during runoff events. A grate structure is placed in front of the orifice to prevent clogging. High flows may enter the grated concrete riser or flow over the high-performance turf reinforcement mat lined emergency overflow spillway.

All elevations indicated in Exhibit C represent planned values and are presented in feet above mean sea level (NAD 1929). These are required to be field verified upon construction. Actual elevations (and more detailed information on the designs) can be obtained by contacting the Village of Germantown, and can be used as a reference point during maintenance inspections.

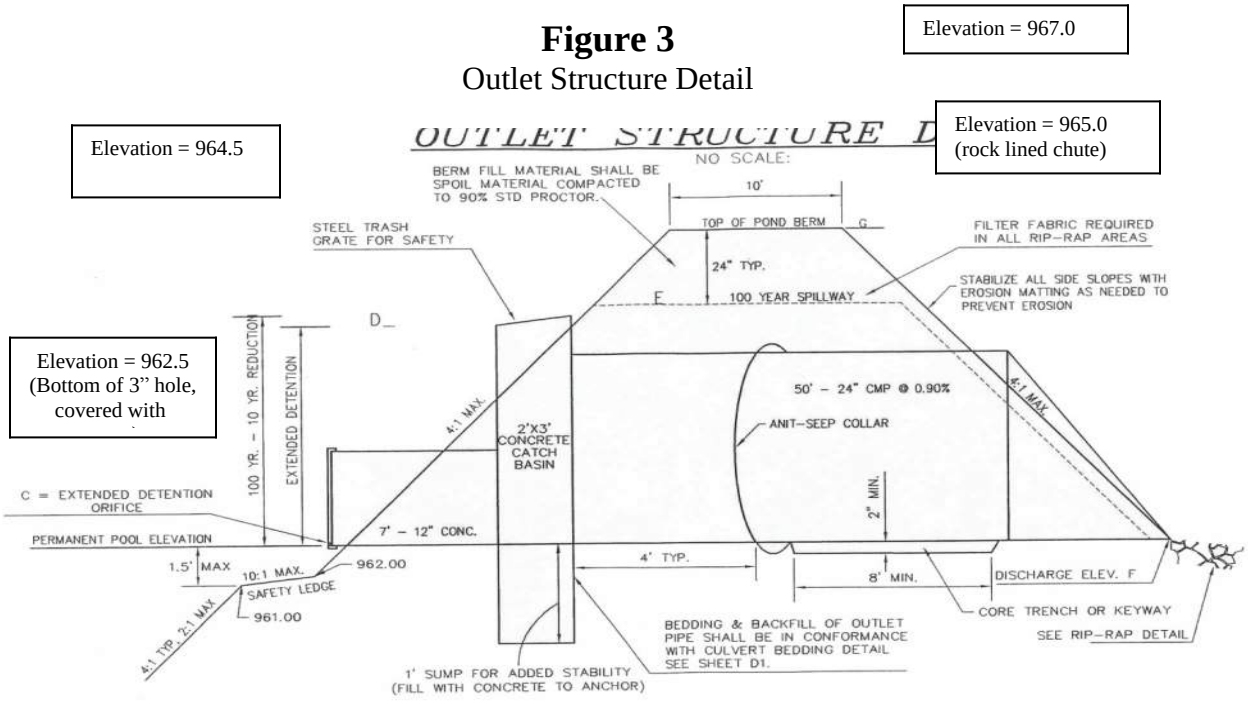


Minimum Maintenance Requirements:

There is hereby incorporated by reference as though fully set forth at length, the latest edition of the Village of Germantown Stormwater Maintenance Manual for Private Facilities and Declarant shall observe all of the performance standards and undertake to perform all required inspection and maintenance activities provided therein, as a material provision of this covenant.

Figure 3

Outlet Structure Detail



TIA TECHNICAL MEMORANDUM

DATE: October 8, 2025

BY: Tammi Czewski, P.E., PTOE
Traffic Analysis & Design, Inc.

SUBJECT: **The Carillon at Germantown Residential Development Traffic Impact Analysis Village of Germantown, WI**

INTRODUCTION & PURPOSE

The Carillon at Germantown is a 35-unit residential development on 5.4 acres along the west side of Division Road, just south of the Faith Lutheran Church property in Germantown, Wisconsin. This study was prepared to evaluate peak hour traffic impacts to intersections on Division Road with additional traffic from the proposed on-site development and area off-site developments approved from previous studies. The location of the proposed on-site and off-site developments with respect to the surrounding roadway system are on Exhibit 1.

PROPOSED DEVELOPMENT

On-Site Development: The Carillon at Germantown

The conceptual site plan for The Carillon at Germantown development is on Exhibit 2. The proposed residential units are a mix of quadplex and triplex buildings with individual driveway access to a U-shaped drive that connects to Division Road at two locations: the "North Site Driveway" connects to Division Road approximately 135 feet south of the Faith Lutheran Church driveway, and the "South Site Driveway" connects to Division Road approximately 200 feet south of the North Site Driveway.

Due to driveway spacing, the Village of Germantown has indicated that the North Site Driveway should be restricted to right-in/right-out only turning movements. This study evaluates the North Site Driveway with both full access turning movements and restricted access movements to compare operations for both alternatives.

Off-Site Developments

The off-site developments evaluated in this study include the site and off-site developments evaluated in the *September 3, 2025, Blackstone Creek Mixed-Use Development TIA* (herein referred to as the Blackstone Creek TIA).

The Blackstone Creek mixed-use development includes 205 apartment units on the north portion of the redeveloped golf course site, plus retail and restaurant uses on the southern portion of the site. Full buildout is anticipated to occur over the next few years with construction of the northern residential buildings beginning in 2026. Tenants for the southern commercial lots are not known at this time and will move forward as market conditions allow. For traffic study purposes, the full build out is expected to be complete by the Year 2030.

Additional area developments include the previously approved Kwik Trip development located to the west on Mequon Road (STH 167), near Maple Road and the previously approved STH 167/Pilgrim Road mixed-use development, located in the southeast quadrant of Mequon Road (STH 167) at Pilgrim Road. Traffic assignment data from these land uses were sourced from the *October 14, 2024, Kwik Trip TIA* and the *July 29, 2024, STH 167/Pilgrim Road Mixed-Use Development TIA*.

STUDY AREA

Exhibit 1 shows the study intersections evaluated in this TIA report. The study intersections are also listed below:

- Division Road & Mequon Road (STH 167)
- Division Road & Faith Lutheran Church/Village Hall Driveways
- Division Road & North Site Driveway (proposed)
- Division Road & South Site Driveway (proposed)

The existing geometrics, traffic control, posted speed limits, and annual average daily traffic (AADT) from the Wisconsin Department of Transportation (WisDOT) in the study area are shown on Exhibit 3. Following is a description of the roadways within the study area.

Mequon Road (also designated as STH 167) is a four-lane divided east/west Principal arterial highway with a posted speed limit of 35 miles per hour (mph) within the limits of the study area. It is part of the state trunk highway network as a connecting highway under the jurisdiction of the Village of Germantown. According to the Wisconsin Department of Transportation (WisDOT), the Year 2023 average annual daily traffic volumes (AADT's) on STH 167 were approximately 16,700 vehicles per day (vpd) west of the project limits and 16,600 vpd east of the project limits. Sidewalks are provided along both sides of STH 167.

Division Road is a two-lane undivided north/south minor arterial to the south of STH 167 and a two-lane undivided local street to the north. The posted speed limit on Division Road is 35 mph to the south of STH 167 and 25 mph to the north. The WisDOT Year 2023 AADT's on Division Road were approximately 4,200 vpd south of STH 167 and 1,100 vpd to the north. A multi-use trail is provided along the east side of Division Road, from STH 167 to the south; however, no other sidewalks exist to the north.

PEAK HOUR TRAFFIC VOLUMES

Data Collection/Background Traffic Volumes

Turning movement traffic counts were collected at the Division Road/Mequon Road (STH 167) intersection for the Blackstone Creek TIA in July 2025. Traffic counts for that study were compiled for the weekday AM peak hour (7:30-8:30 a.m.) and weekday PM peak hour (4:15-5:15 p.m.). The peak hour volumes were balanced with adjacent intersections along Mequon Road (STH 167) and are shown as the Existing intersection traffic volumes in this study.

Additional traffic counts were collected for this study at the Division Road/Faith Lutheran Church Driveway/Village Hall Driveway intersection in September 2025. These counts were compiled for the same peak hours as and balanced with the Division Road/Mequon Road (STH 167) intersection. The balanced peak hour traffic volumes at the study intersections on Division Road are shown on Exhibit 4. Traffic count data sheets are in Appendix A.

Development Trip Generation

Trip rates and fitted curve equations (FCE) from the ITE *Trip Generation Manual, 11th Edition* were used to estimate trips for the proposed residential development. Trips were generated using the "single-family-attached" land use, which applies to residential types with shared walls but not shared floors. Based on ITE, the 35-units in The Carillon at Germantown development generates 220 trips per weekday, with 15 trips in the AM peak hour and 15 trips in the PM peak hour. The trip generation table is on Exhibit 5.

Development Trip Distribution

The Carillon at Germantown site trips were distributed to the adjacent study intersection using the same trip distributions developed for the Blackstone Creek TIA, which were based on existing traffic patterns in the study area. The trip distributions are listed below and also shown graphically on Exhibit 5:

- 43% to/from the west on Mequon Road (STH 167)
- 42% to/from the east on Mequon Road (STH 167)
- 3% to/from the north on Division Road
- 12% to/from the south on Division Road

Site & Off-Site Development Traffic Assignments, Build Traffic Volumes

The Kwik Trip, Pilgrim Mixed-Use Development, and Blackstone Creek Mixed-Use Development traffic assignments through the study intersections from the Blackstone Creek TIA are shown on the following exhibits:

- Exhibit 6: Off-Site Development Traffic Assignment – Kwik Trip
- Exhibit 7: Off-Site Development Traffic Assignment – Pilgrim Mixed-Use Development
- Exhibit 8: Off-Site Development Traffic Assignment – Blackstone Creek Mixed-Use Development

The Carillon at Germantown development peak hour trips were assigned to the study intersections and driveways based on the above trip distribution (Exhibit 9). The exhibit shows site traffic assignments for both a full-access option and right-in/right-out restricted access option at the North Driveway.

The site and off-site traffic assignments were added to the Year 2025 Existing traffic volumes to generate the Year 2030 Build traffic volumes, as shown on Exhibit 10.

PEAK HOUR TRAFFIC OPERATIONS

The study intersections were analyzed using the Synchro 12 traffic analysis model (outputs based on the *Highway Capacity Manual, 7th Edition*) and the peak hour turning movement volumes estimated for each intersection. Intersection operation is defined by "level of service." Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS 'A', to very poor, represented by LOS

'F'. For the purposes of this study, LOS D or better was used to define acceptable peak hour operating conditions. The LOS definitions for signalized and unsignalized intersections are included before the existing analysis output in Appendix B. Build analysis output is in Appendix C.

The Existing traffic (no build) and Build traffic (additional traffic from on-site and off-site developments) peak hour traffic operations for the study intersections are shown on Exhibits 11 and 12, respectively. The Existing analysis was completed using the existing geometrics and traffic signal control at the Division Road intersections with Mequon Road (STH 167) and the Faith Lutheran Church/Village Hall driveways. Based on the analysis, all turning movements at these intersections operate at LOS D or better during both the AM and PM peak hours.

Synchro reports 110-115-foot peak hour 95th percentile queues in the northbound left-turn lane at the Division Road/Mequon Road (STH 167) intersection, which exceed the existing storage capacity by 35-40 feet. Similar peak hour queues were reported in the Blackstone Creek TIA, which recommended that the northbound left-turn lane be extended to at least 125 feet.

At the Village's request, a separate analysis was completed to evaluate traffic operations at the Division Road/Mequon Road (STH 167) if the northbound lanes were restriped as a shared left-turn/through plus right-turn lane instead of the existing left-turn plus shared through/right-turn lane. Based on the analysis (Appendix C), this results in LOS F delays for the northbound and southbound Division Road approaches and therefore is not a recommended change.

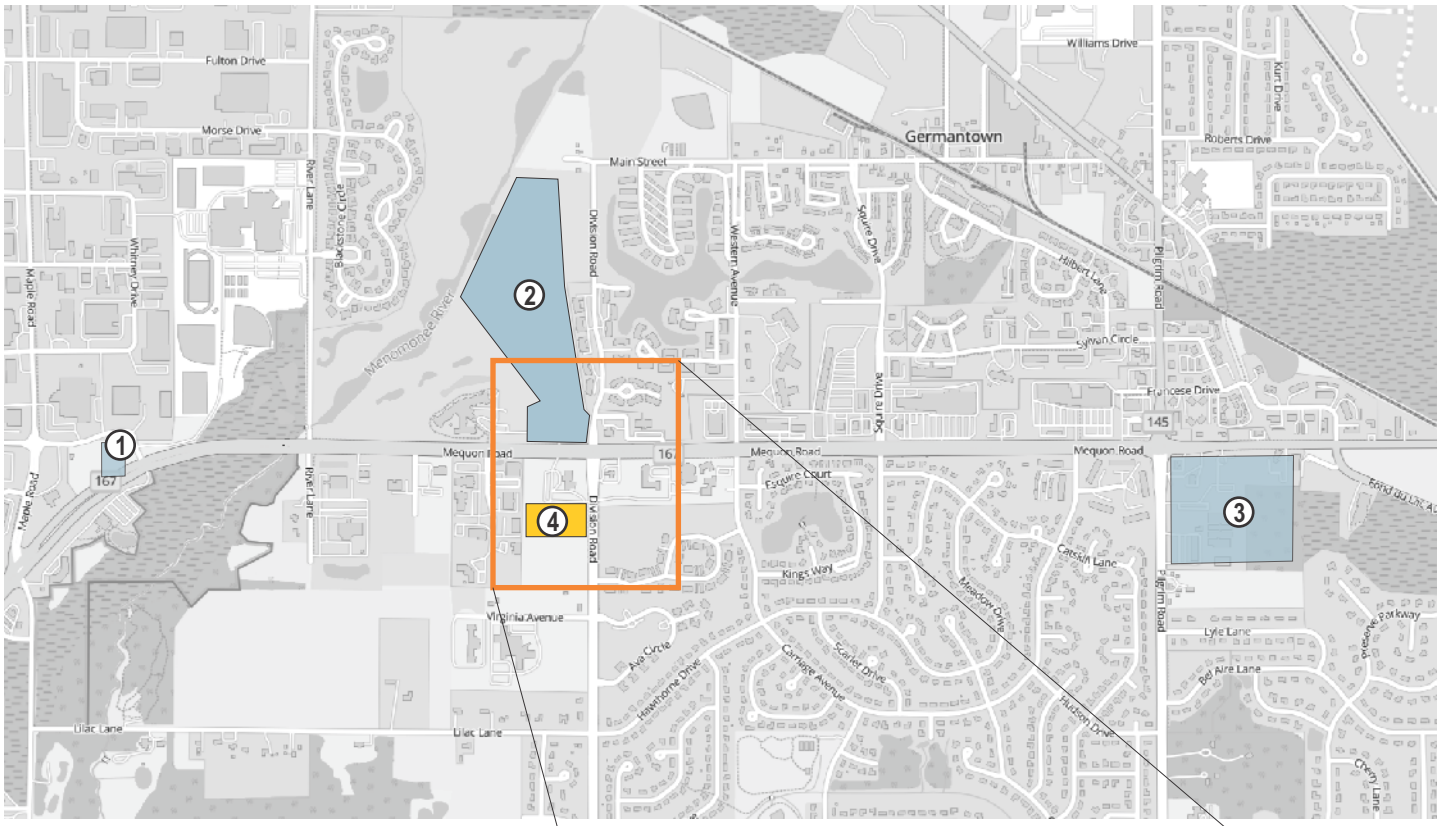
RECOMMENDATIONS/CONCLUSIONS

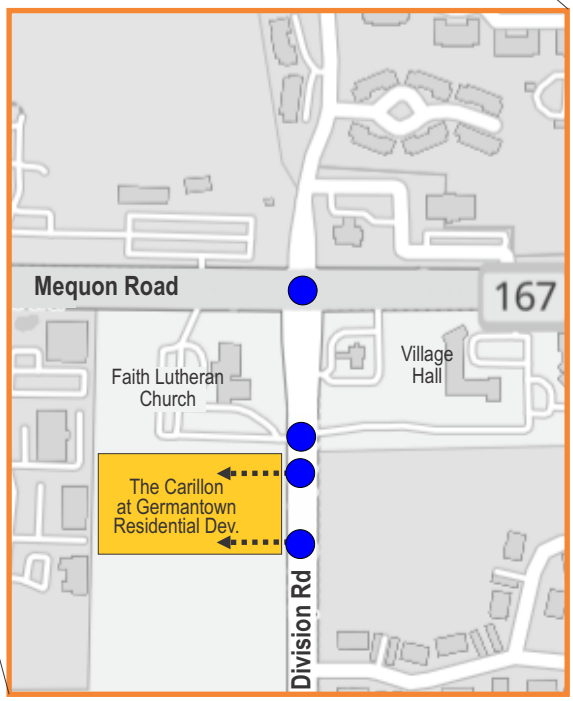
Modifications are for jurisdictional consideration and are not legally binding. The Village of Germantown reserves the right to determine alternative solutions.

The recommended modifications are listed below and also shown graphically on Exhibit 13.

- Division Road & Mequon Road (STH 167): Restripe the northbound left-turn lane to accommodate Year 2030 Build traffic queues. This modification was recommended in the Blackstone Creek TIA to mitigate existing and Year 2030 Build queues, which extend beyond the available turn lane storage area. The additional northbound left-turn traffic from The Carillon at Germantown development is very low (5 AM and 5 PM vph) and does not significantly contribute to queue increases at the intersection.
- Division Road & Church/Village Driveways: No Modifications
- Division Road & North Site Driveway: Construct the new intersection as shown on the site plan with single-lane approaches and stop sign control on the eastbound driveway approach. Configure the eastbound approach to allow either full-access movements or with a pork-chop-style median to restrict access to right-in/right-out only movements. The proposed residential development is expected to generate very low trips resulting in very low peak hour volumes, delays, and queues with either alternative.
- Division Road & South Site Driveway: Construct the new intersection as shown on the site plan with unrestricted movements, single-lane approaches and stop sign control on the eastbound driveway approach.

With the modifications listed above, the Build traffic volumes result in acceptable traffic operations (LOS D or better for all movements) and queues at the study intersections.





LEGEND

- Study Area Intersection
- On-Site Development
- Off-Site Development

1. Kwik Trip Development
2. Blackstone Creek Development
3. Pilgrim Mixed-Use Development
4. The Carillon at Germantown Development

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EXHIBIT 1
PROJECT LOCATION MAP & STUDY INTERSECTIONS

THE CARILLON AT GERMANTOWN TIA - GERMANTOWN, WISCONSIN

GERMANTOWN SITE PLAN

SD100

SCALE: 1" = 60'-0"

0 30 60 120 180

QUADPLEX - ONE STORY
[7,209 SF] - 5 TOTAL

TRIPLEX 2BR - ONE STORY
[5,411 SF] - 3 TOTAL

TRIPLEX 3BR - TWO STORY
[5,391 SF] - 2 TOTAL

TOTAL LOT SIZE:
5.4 ACRES

Total Site: 5.40 acres
Proposal: 35 total units (~6.48 du/acre)

Setbacks:
Front Setback: 20'
Rear Setback: 20'
Side Setbacks: 25-40'

Parking:
2-BR Type A Units: 1-car attached garage + 1 apron spot per unit
2-BR Type B & 3-BR Units: 2-car attached garage + 2 apron spots per unit
Overall: 102 Parking Spaces / 2.91 per unit

Max building height: 2 stories

THE CARILLON AT GERMANTOWN

05.15.25

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EXHIBIT 2
CONCEPTUAL SITE PLAN

THE CARILLON AT GERMANTOWN TIA - GERMANTOWN, WISCONSIN

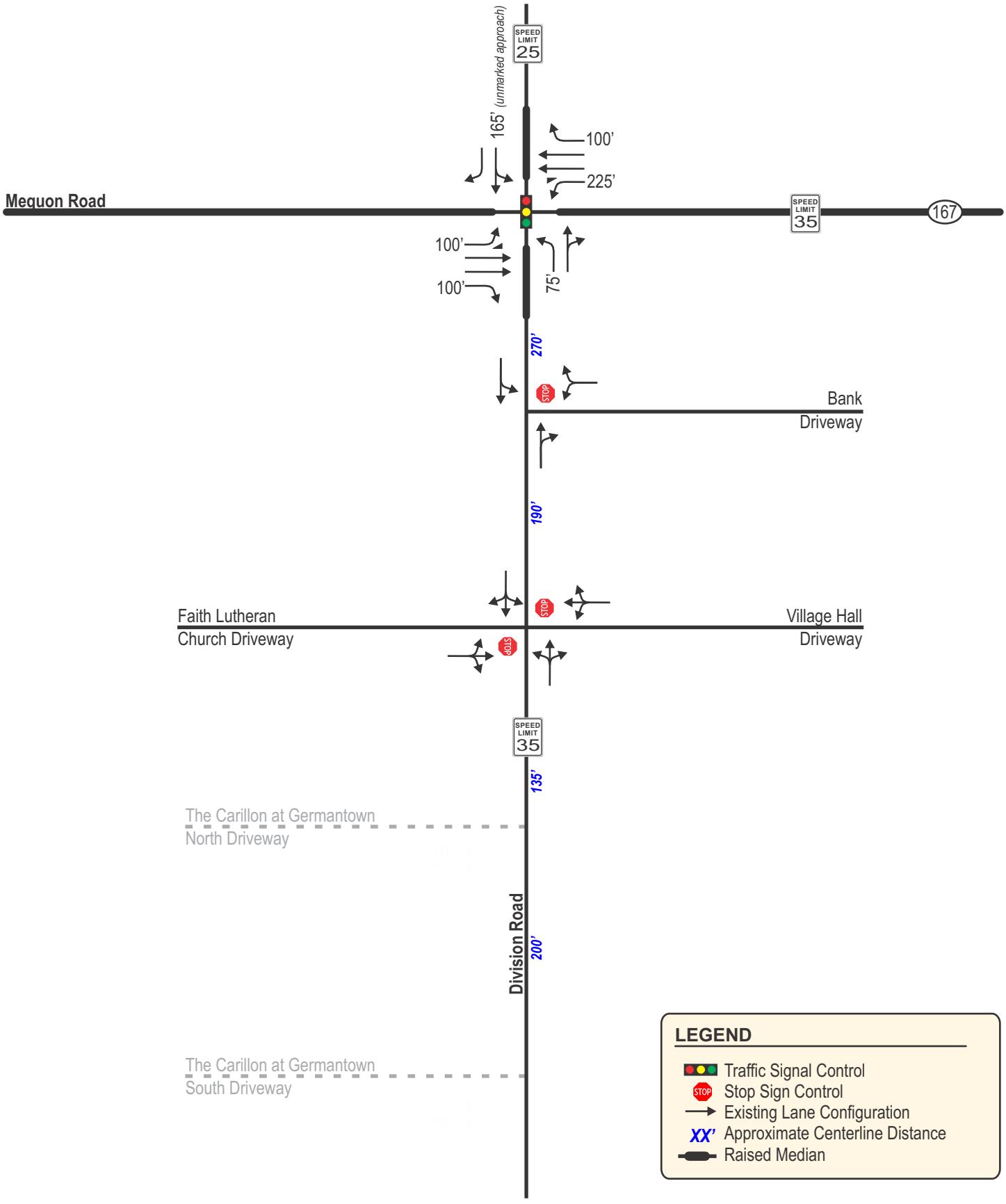

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EXHIBIT 3
EXISTING TRANSPORTATION SYSTEM

THE CARILLON AT GERMANTOWN TIA - GERMANTOWN, WISCONSIN

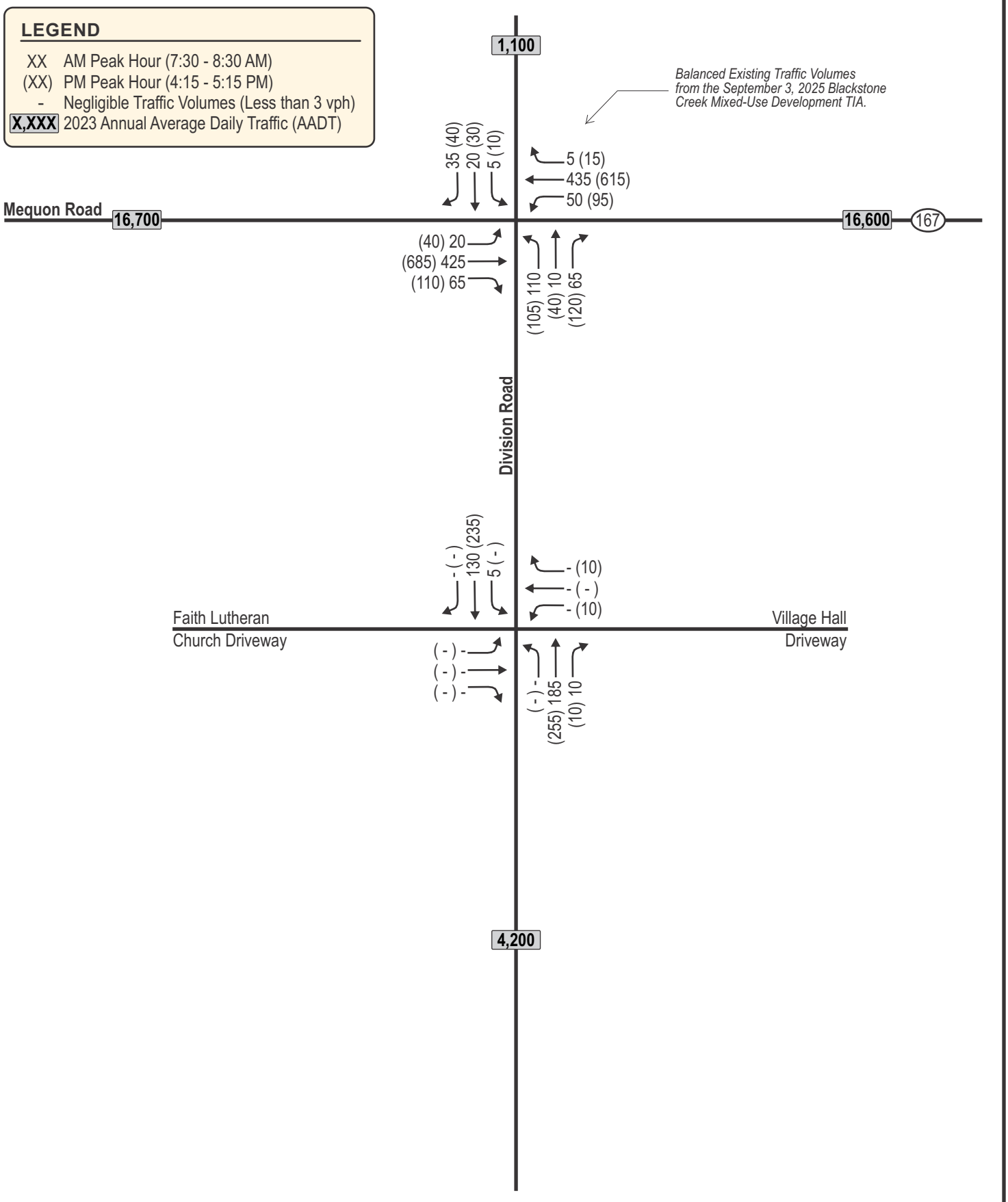

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EXHIBIT 4
YEAR 2025 EXISTING TRAFFIC VOLUMES

THE CARILLON AT GERMANTOWN TIA - GERMANTOWN, WISCONSIN

The Carillon at Germantown - Trip Generation Table [1]

Land Use	ITE Code	Proposed Size	Weekday Daily	AM Peak In	AM Peak Out	AM Peak Total	PM Peak In	PM Peak Out	PM Peak Total
Single-Family Attached Housing	215	35 Units	220 FCE	5 (25%)	10 (75%)	15 FCE	10 (59%)	5 (41%)	15 FCE
Total New Trips			**220**	**5**	**10**	**15**	**10**	**5**	**15**

[1] *Trip Rates (X.XX) and/or Fitted Curve Equations (FCE) are from the ITE Trip Generation Manual, 11th Edition.*

TRIP DISTRIBUTION (New Trips)						
N. on Division Road	3%	0	0	0	0	
S. on Division Road	12%	0	0	0	0	
W. on Mequon Road	43%	5	5	5	5	
E. on Mequon Road	42%	0	5	5	0	
	100%	***5***	***10***	***10***	***5***	

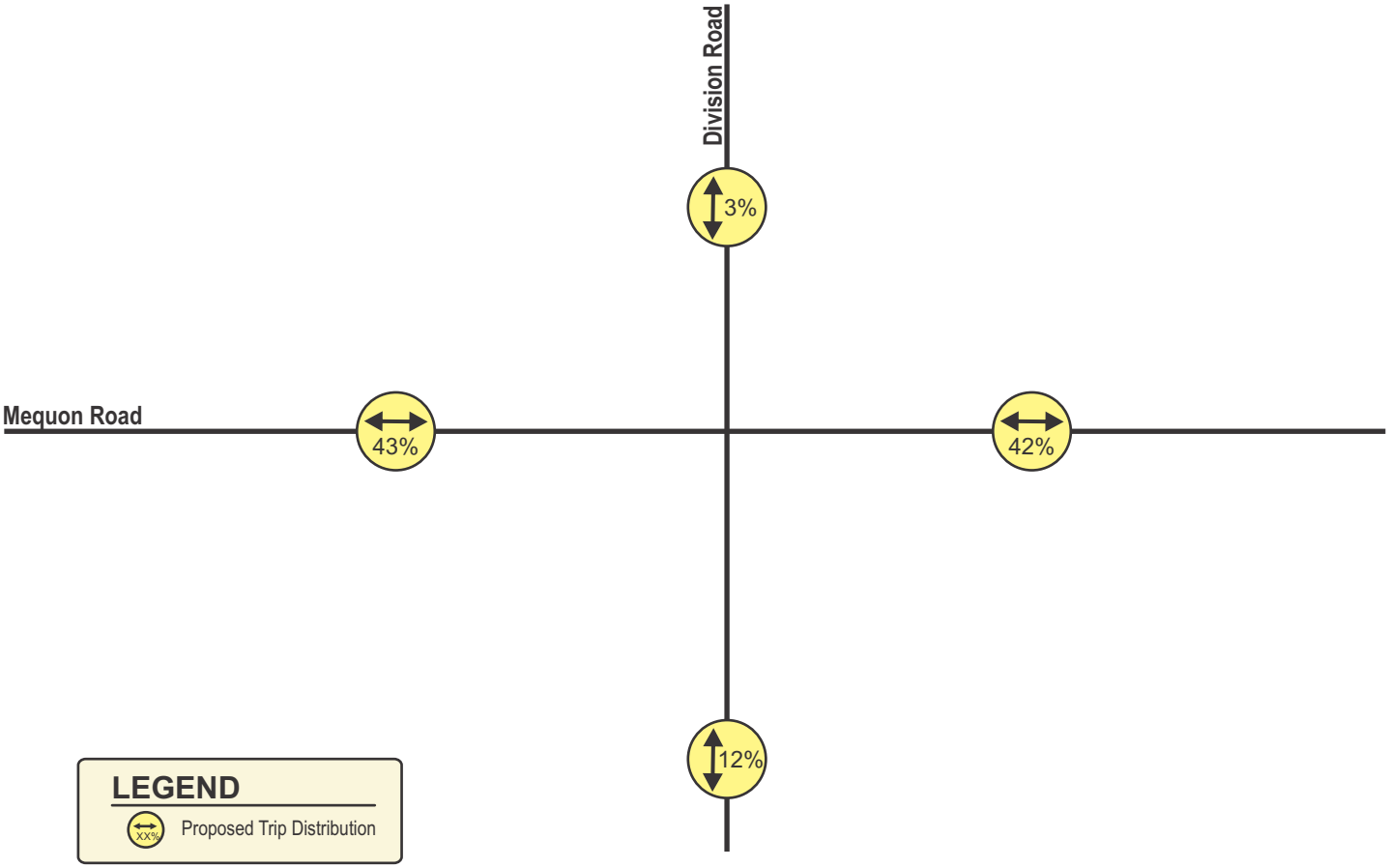

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EXHIBIT 6
ON-SITE DEVELOPMENT TRIP GENERATION & TRIP DISTRIBUTION

THE CARILLON AT GERMANTOWN TIA - GERMANTOWN, WISCONSIN

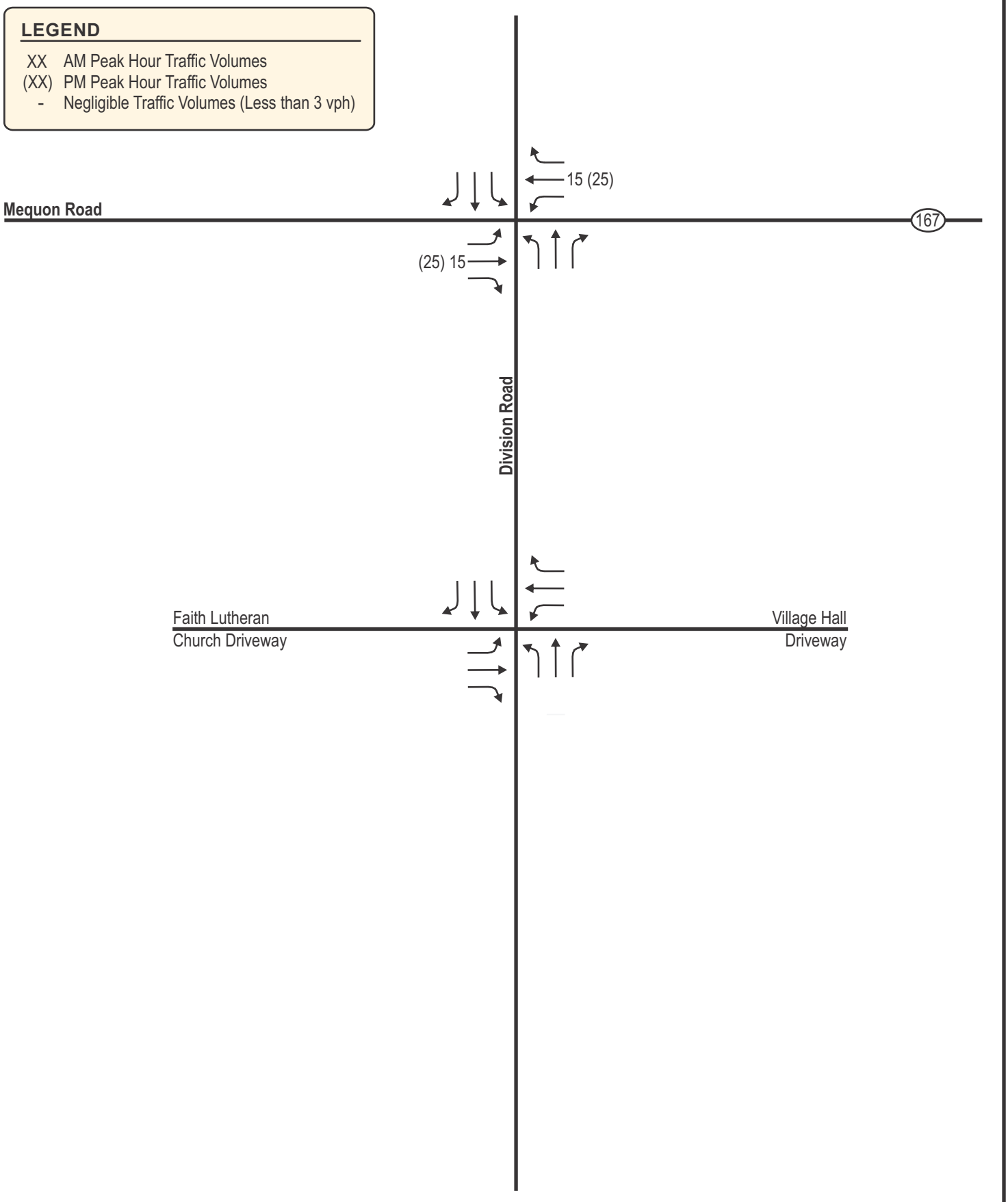

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EXHIBIT 8
OFF-SITE DEVELOPMENT TRAFFIC ASSIGNMENT
KWIK TRIP - WEST ON MEQUON ROAD

THE CARILLON AT GERMANTOWN TIA - GERMANTOWN, WISCONSIN

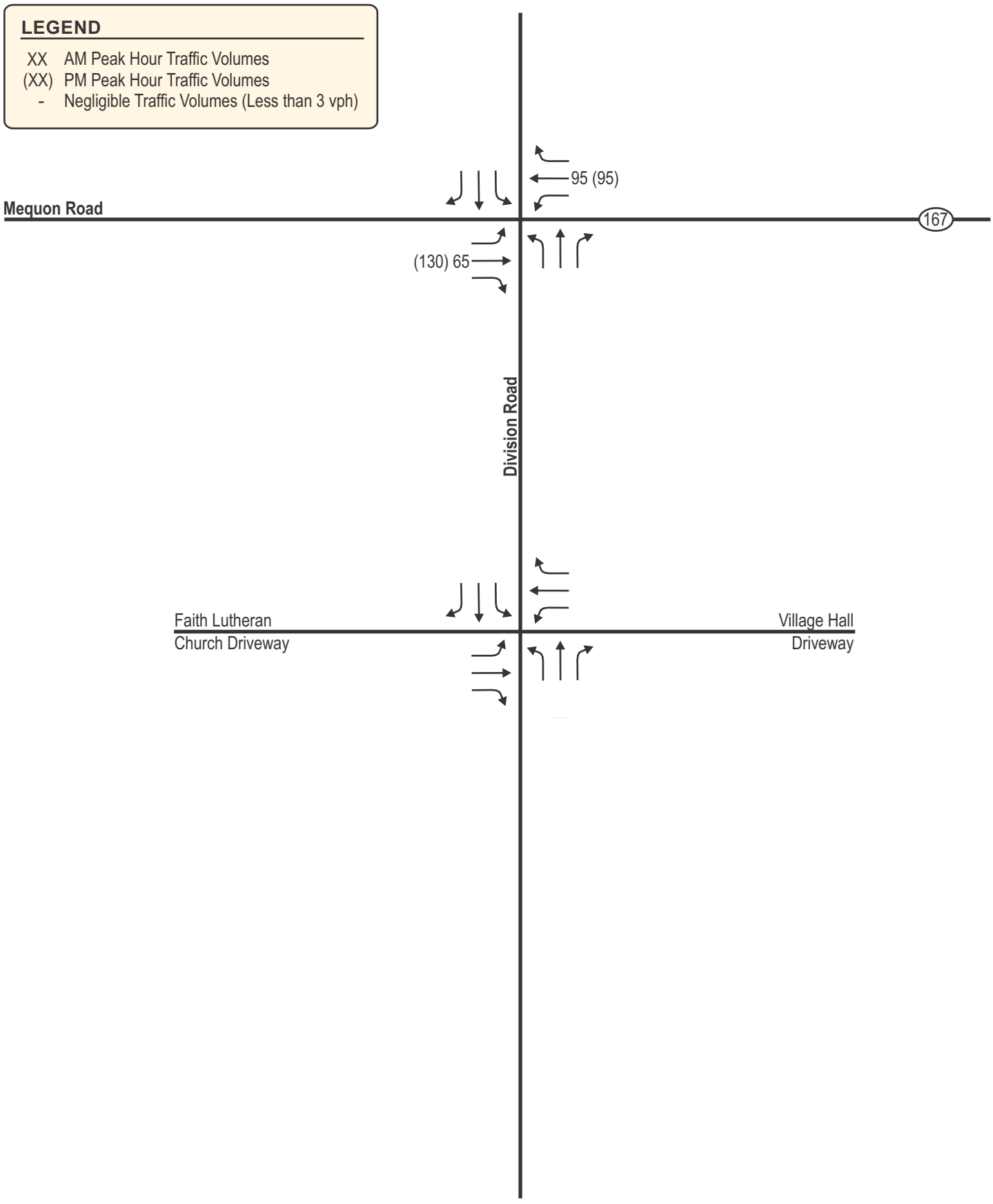

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EXHIBIT 8
OFF-SITE DEVELOPMENT TRAFFIC ASSIGNMENT
PILGRIM MIXED-USE DEVELOPMENT - EAST ON MEQUON ROAD

THE CARILLON AT GERMANTOWN TIA - GERMANTOWN, WISCONSIN

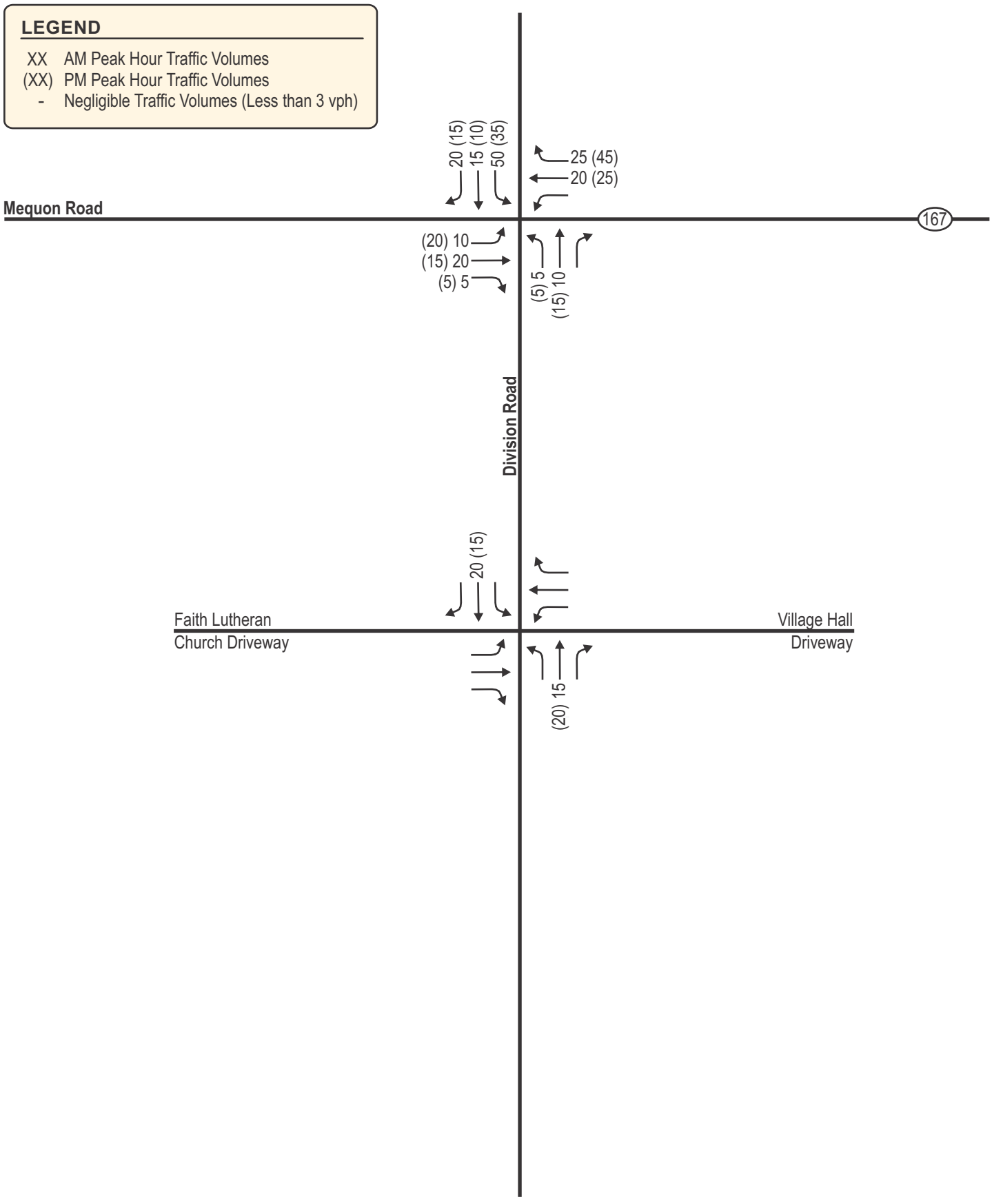

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EXHIBIT 8
OFF-SITE DEVELOPMENT TRAFFIC ASSIGNMENT
BLACKSTONE CREEK MIXED-USE DEVELOPMENT -
NORTHWEST QUADRANT OF MEQUON ROAD/DIVISION ROAD
THE CARILLON AT GERMANTOWN TIA - GERMANTOWN, WISCONSIN

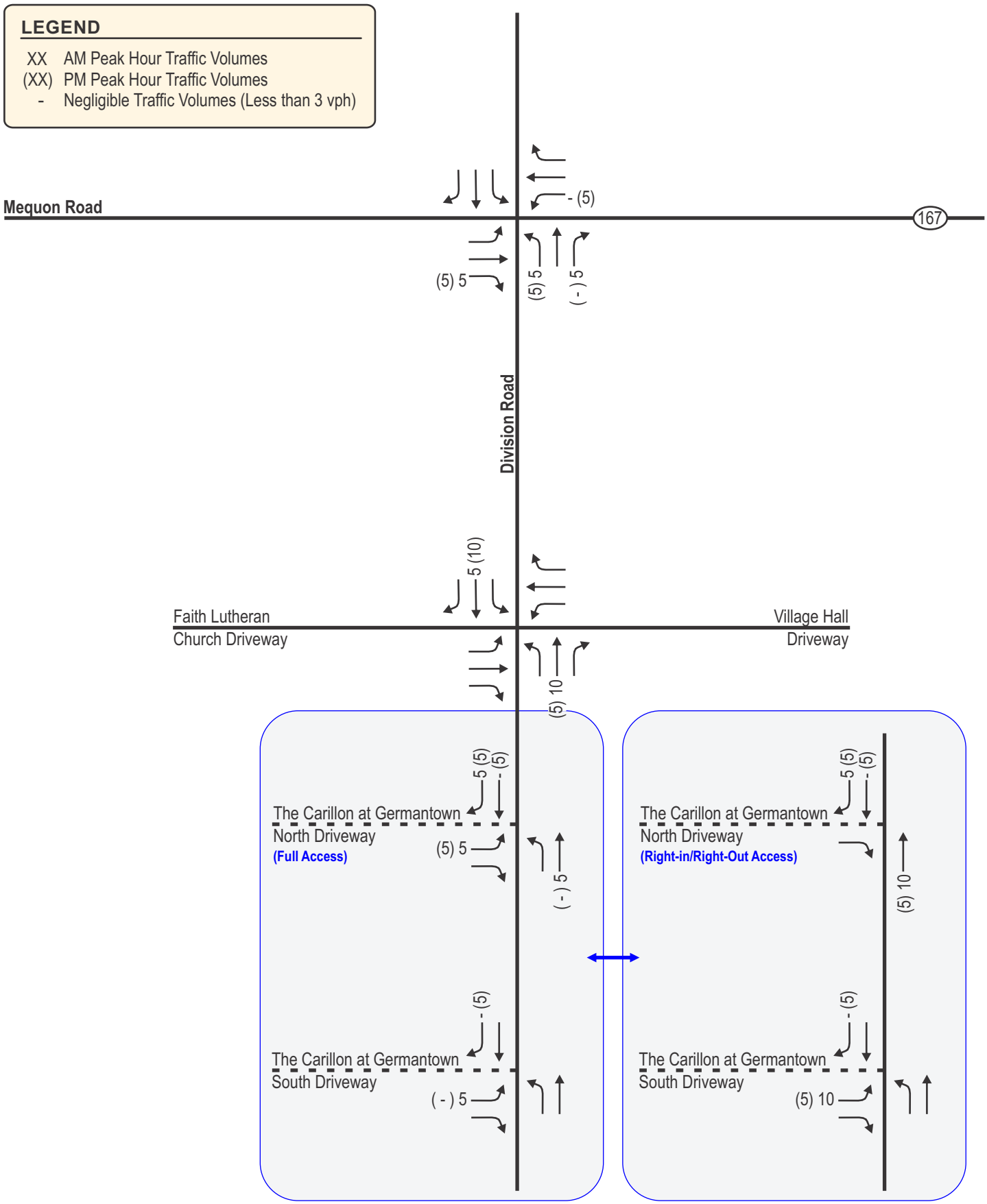

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EXHIBIT 9
ON-SITE DEVELOPMENT TRAFFIC ASSIGNMENT

THE CARILLON AT GERMANTOWN TIA - GERMANTOWN, WISCONSIN

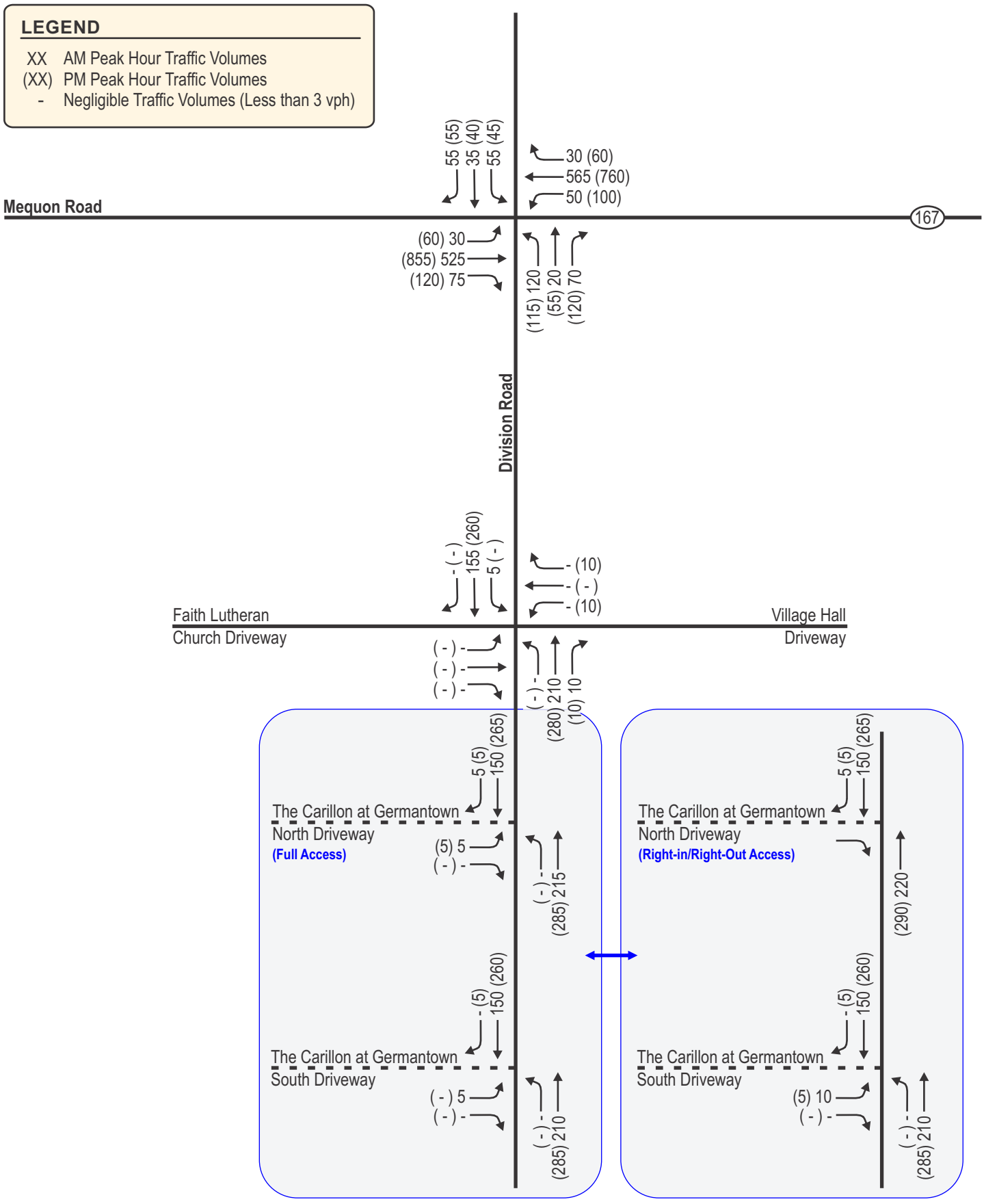

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EXHIBIT 10
YEAR 2030 BUILD TRAFFIC VOLUMES

THE CARILLON AT GERMANTOWN TIA - GERMANTOWN, WISCONSIN

Year 2025 Existing Traffic Peak Hour Operating Conditions

Existing Transportation System

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙	
		Lanes->	*1*	*2*	*1*	*1*	*2*	*1*	*1*	*1>*		*1*	*1>*		
Mequon Road & Division Road *Traffic Signal Control*	AM	LOS	A	A	A	A	A	A	D	C		D	C		B
		Delay	6.5	5.4	4.6	7.0	5.4	4.4	38.9	33.7		35.7	32.9		11.6
		Queue	15'	75'	20'	25'	75'	5'	110'	75'		10'	60'		
	PM	LOS	A	A	A	A	A	A	D	D		D	C		B
		Delay	6.5	5.3	4.3	8.2	5.1	4.0	39.4	37.6		40.9	34.3		11.4
		Queue	20'	115'	30'	45'	105'	5'	105'	145'		20'	70'		
		Lanes->	*<1>*			*<1>*			*<1>*			*<1>*			
Faith Church/Village Hall Driveways & Division Road *Stop Sign Control (EB/WB)*	AM	LOS	B			B			A			A			
		Delay	10.6			10.7			7.5			7.7			0.3
		Queue	0'			0'			0'			0'			
	PM	LOS	B			B			A			A			
		Delay	12.4			12.2			7.8			7.9			0.6
		Queue	0'			5'			0'			0'			

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement; (< or >) indicates a shared lane movement.

Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

Year 2030 Build Traffic Peak Hour Operating Conditions

Existing Transportation System

	Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
				Eastbound			Westbound			Northbound			Southbound			
				↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙	
All Access Options			*Lanes->*	*1*	*2*	*1*	*1*	*2*	*1*	*1*	*1>*		*1*	*1>*		
	Mequon Road & Division Road	AM	LOS	A	A	A	A	A	A	D	C		D	C		B
	Traffic Signal Control		Delay	9.4	7.1	5.8	9.7	7.2	5.6	38.3	31.1		35.4	31.0		13.2
			Queue	20'	100'	25'	30'	110'	15'	115'	85'		60'	85'		
		PM	LOS	A	A	A	B	A	A	D	D		D	C		B
			Delay	9.1	6.6	5.0	11.7	6.3	4.8	39.0	35.6		41.0	33.0		12.3
			Queue	30'	160'	35'	55'	140'	20'	110'	155'		50'	90'		
			Lanes->	*<1>*			*<1>*			*<1>*			*<1>*			
	Faith Church/Village Hall Driveways & Division Road	AM	LOS	B			B			A			A			
	Stop Sign Control (EB/WB)		Delay	11.0			11.2			7.6			7.8			0.3
			Queue	0'			0'			0'			0'			
		PM	LOS	B			B			A			A			
			Delay	12.9			12.7			7.9			8.0			0.6
			Queue	0'			5'			0'			0'			
North Driveway - Full Access			*Lanes->*	*<1>*			-			*<1*		-	-	*1>*		
	The Carillon of Germantown North Driveway & Division Road (Full Access)	AM	LOS	B			-			A		-	-	*		
	Stop Sign Control (EB)		Delay	10.8			-			7.6		-	-	*		0.2
			Queue	0'			-			0'		-	-	*		
		PM	LOS	B			-			A		-	-	*		
			Delay	12.9			-			7.9		-	-	*		0.2
			Queue	0'			-			0'		-	-	*		
			Lanes->	*<1>*			-			*<1*		-	-	*1>*		
	The Carillon of Germantown South Driveway & Division Road	AM	LOS	B			-			A		-	-	*		
	Stop Sign Control (EB)		Delay	10.8			-			7.6		-	-	*		0.2
			Queue	0'			-			0'		-	-			
		PM	LOS	B			-			A		-	-	*		
			Delay	11.6			-			7.9		-	-	*		0.1
			Queue	0'			-			0'		-	-	*		
North Driveway - Restricted Access			*Lanes->*	-	*1*		-			-	*1*	-	-	*1>*		
	The Carillon of Germantown North Driveway & Division Road (Right-in/Right-Out Access)	AM	LOS	-	A		-			-	*	-	-	*		
	Stop Sign Control (EB)		Delay	-	9.1		-			-	*	-	-	*		0.0
			Queue	-	0'		-			-	*	-	-	*		
		PM	LOS	-	B		-			-	*	-	-	*		
			Delay	-	10.0		-			-	*	-	-	*		0.0
			Queue	-	0'		-			-	*	-	-	*		
			Lanes->	*<1>*			-			*<1*		-	-	*1>*		
	The Carillon of Germantown South Driveway & Division Road	AM	LOS	B			-			A		-	-	*		
	Stop Sign Control (EB)		Delay	11.0			-			7.6		-	-	*		0.3
			Queue	5'			-			0'		-	-	*		
		PM	LOS	B			-			A		-	-	*		
			Delay	12.8			-			7.9		-	-	*		0.2
			Queue	0'			-			0'		-	-	*		

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement; (< or >) indicates a shared lane movement.

Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

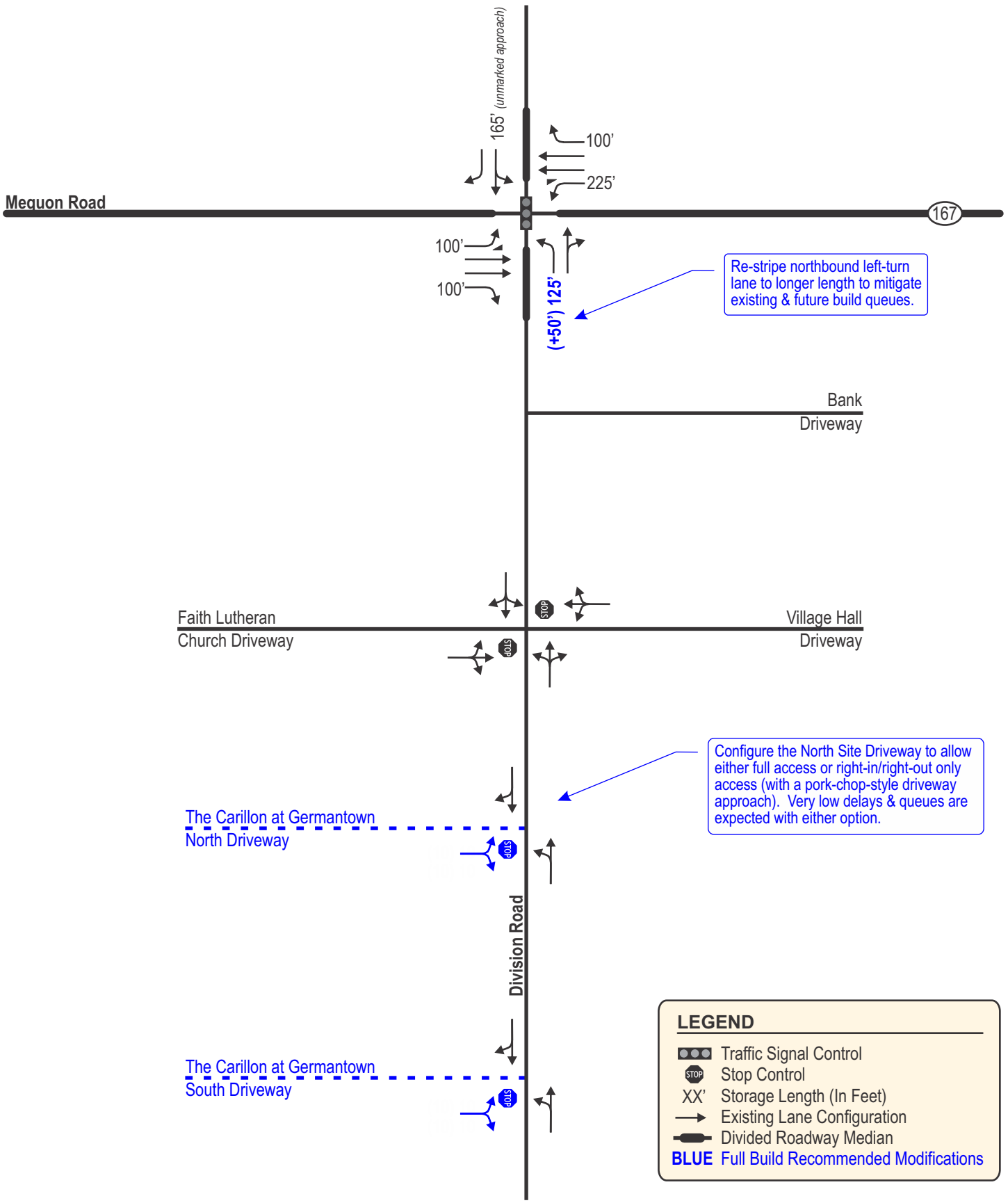

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EXHIBIT 13
RECOMMENDATIONS

THE CARILLON AT GERMANTOWN TIA - GERMANTOWN, WISCONSIN

APPENDIX A

TRAFFIC COUNT DATA

Intersection Traffic Volume Report

Count Basics	Version 2025.03		Page 1 of 13
Start Date:	Thursday, September 25, 2025	Weekday	Schools in Session
Total Number of Hours Counted: 5.75		Non-Holiday	No Special Events

Base Information, Observed (5.75) Hour and Estimated (24) Hour Volume Summaries

Major St: **Division Road**
Minor St: **Germantown Municipal DW**
Intersection of: ***Division Road & Germantown Municipal DW***

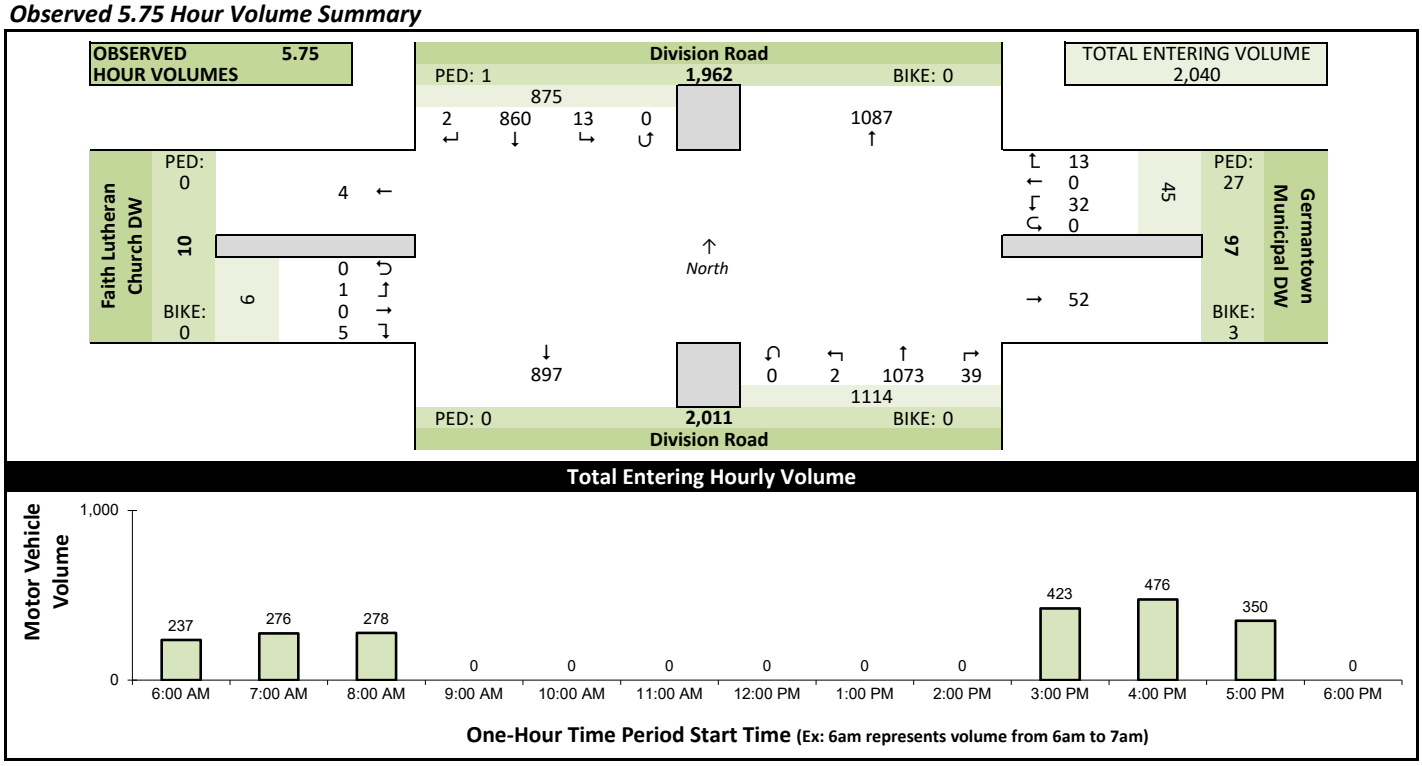
Site Information

Municipality	Village of Germantown		
County	66 - Washington	WisDOT Region	SE
Traffic Control	Partial Stop Control		
Roadway Names		North Direction	↑
North Leg	Division Road		
East Leg	Germantown Municipal DW		
South Leg	Division Road		
West Leg	Faith Lutheran Church DW		
Special Considerations			
Schools	In Session		
Holidays	None		
Special Events	None		
Special Pedestrians Observed			
Pre-school children	None		
Elementry school age children	None		
Visually impaired (white cane/helper dog)	None		
Elderly/disabled (except wheelchairs)	None		
Wheelchairs/electric scooters	None		
Other (describe)	None	None	

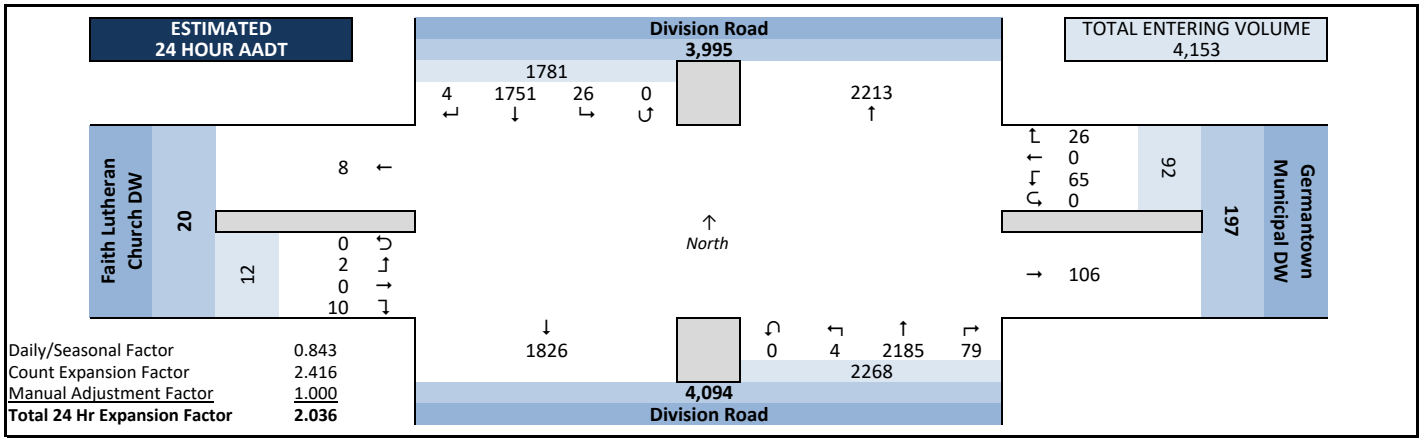
Count Information

Hrs Counted:	06:00 AM-09:00 AM and 03:00 PM-05:45 PM				
1st Day of Count	Thursday, September 25, 2025			Weather	
AM Peak Period	Friday, September 26, 2025			Clear and Dry	
Midday Peak Period	Thursday, September 25, 2025			Clear and Dry	
PM Peak Period	Thursday, September 25, 2025			Clear and Dry	
Calculated Peak Hours					
	AM	6:30-7:30am	MD	PM	4:30-5:30pm
Peak Hours Selected for Analysis					
	AM	7:30-8:30am	MD	PM	4:15-5:15pm
Daily/Seasonal Adjustment Group	(1) Non-Interstate Low Truck %				
Count Expansion Group	(1) Non-Interstate Low Truck %				
Daily/Seasonal Adjustment Factor	0.843		Count Expansion Factor		2.416
Company Name	TADI		Manual Adj.		1.000
Observers	AM Peak Period	Jane Fait			
	Midday Peak Period	None			
	PM Peak Period	Bill Moldenhauer			
Comments	Wis DOT Daily & Seasonal Factors are final for 2012 through 2024, and 2025 uses 2024 final factors.				

Observed 5.75 Hour Volume Summary



Estimated 24 Hour AADT



Intersection Traffic Volume Report

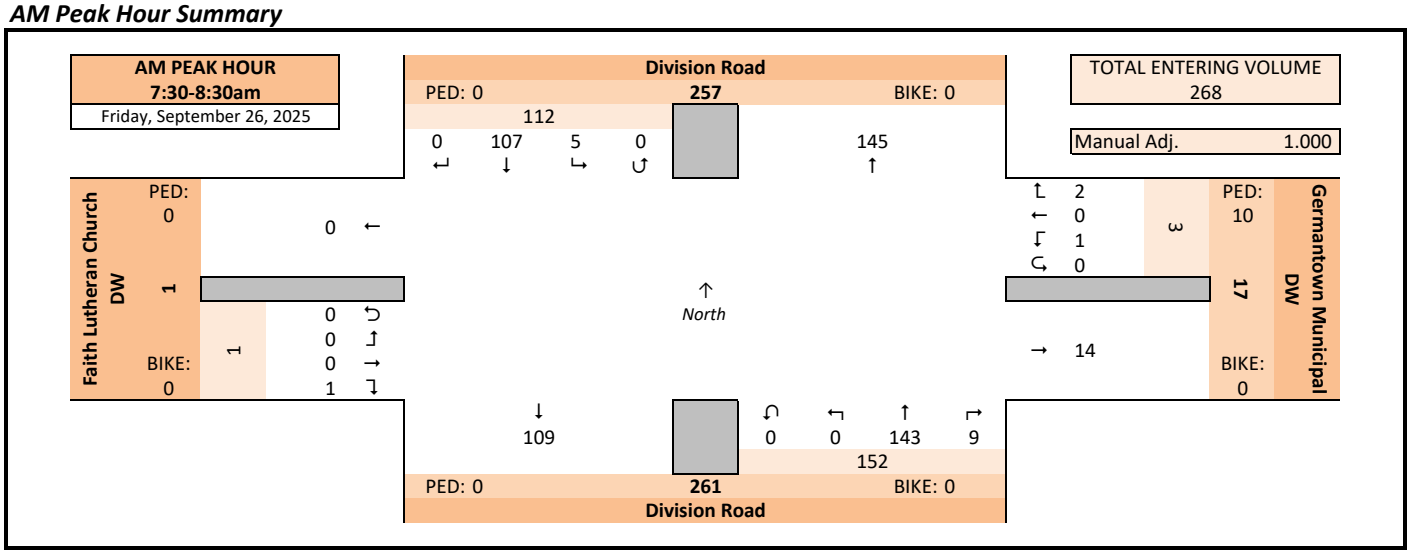
Peak Hour Volume Graphical Summary

Division Road & Germantown Municipal DW

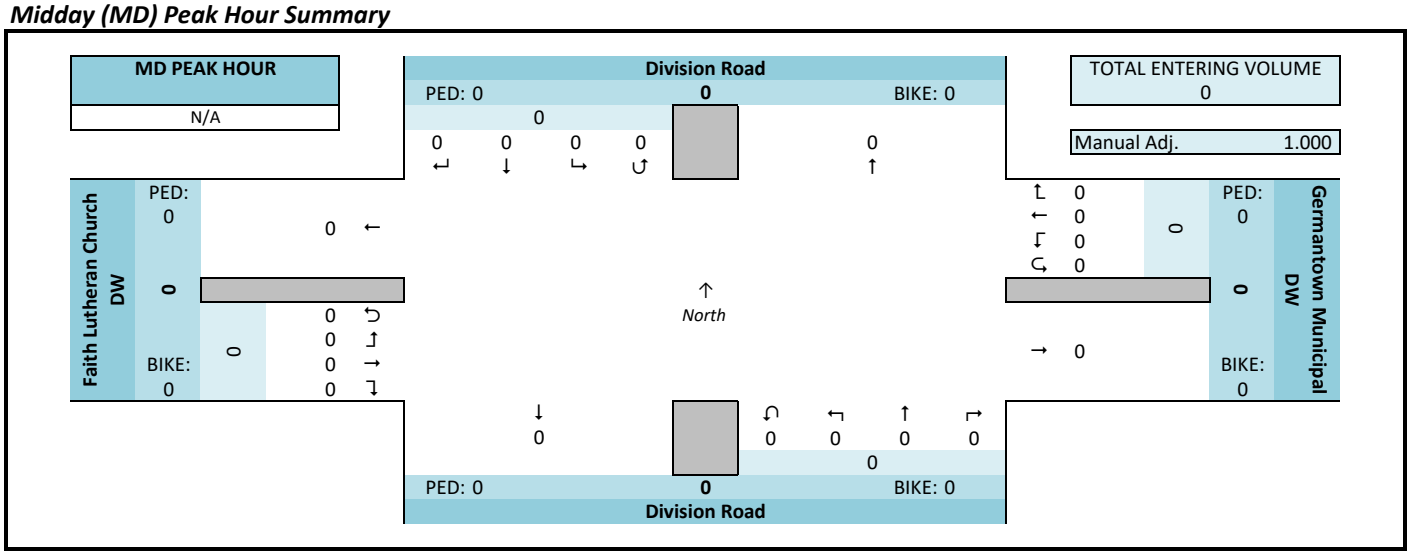
Count Basics			*Page 2 of 13*
Start Date:	Thursday, September 25, 2025	Weekday	Schools in Session
Total Number of Hours Counted: 5.75		Non-Holiday	No Special Events

All Motor Vehicles

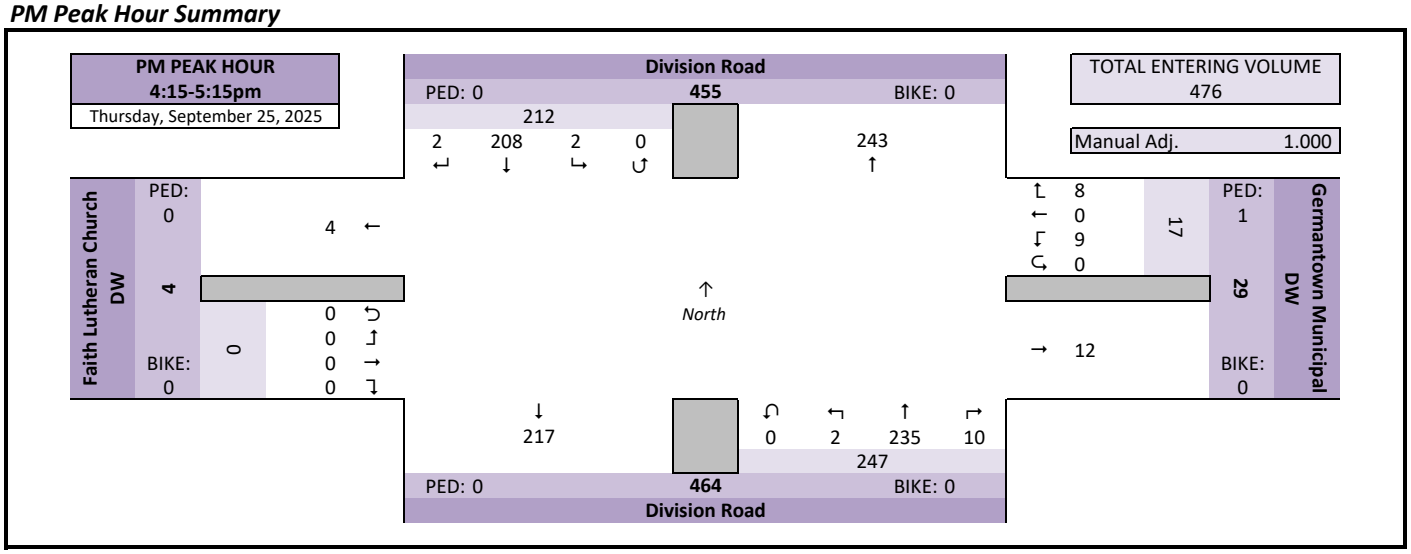
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary



Intersection Traffic Volume Report

Count Basics			Page 3 of 13
Start Date:	Thursday, September 25, 2025	Weekday	Schools in Session
Total Number of Hours Counted: 5.75		Non-Holiday	No Special Events

Peak Hour Volume Summary

Division Road & Germantown Municipal DW

All Motor Vehicles

Peak Hour Volumes, Truck Percentages, and PHFs

Friday, September 26, 2025	From North					From East					From South					From West					
AM Peak Hour	Division Road					Germantown Municipal DW					Division Road					Faith Lutheran Church DW					
Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
7:30 AM	0	16	1	0	17	0	0	0	0	0	2	33	0	0	35	0	0	0	0	0	52
7:45 AM	0	27	0	0	27	0	0	0	0	0	4	45	0	0	49	0	0	0	0	0	76
8:00 AM	0	26	3	0	29	1	0	1	0	2	0	38	0	0	38	1	0	0	0	1	70
8:15 AM	0	38	1	0	39	1	0	0	0	1	3	27	0	0	30	0	0	0	0	0	70
Peak Hour Volume	0	107	5	0	112	2	0	1	0	3	9	143	0	0	152	1	0	0	0	1	268
Rounded Hourly Volume	0	105	5	0	110	0	0	0	0	0	10	145	0	0	155	0	0	0	0	0	265
% Single Unit Trucks	0.0	3.7	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	3.0
% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% Trucks (Total)	0.0	3.7	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	3.0
Peak Hour Factor (PHF)	0.00	0.70	0.42	0.00	0.72	0.50	0.00	0.25	0.00	0.37	0.56	0.79	0.00	0.00	0.78	0.25	0.00	0.00	0.00	0.25	0.88

N/A	From North					From East					From South					From West					
Midday (MD) Peak Hour	Division Road					Germantown Municipal DW					Division Road					Faith Lutheran Church DW					
Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Thursday, September 25, 2025	From North					From East					From South					From West					
PM Peak Hour	Division Road					Germantown Municipal DW					Division Road					Faith Lutheran Church DW					
Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
4:15 PM	0	31	1	0	32	3	0	1	0	4	4	56	0	0	60	0	0	0	0	0	96
4:30 PM	2	61	1	0	64	4	0	3	0	7	1	51	2	0	54	0	0	0	0	0	125
4:45 PM	0	59	0	0	59	1	0	3	0	4	3	74	0	0	77	0	0	0	0	0	140
5:00 PM	0	57	0	0	57	0	0	2	0	2	2	54	0	0	56	0	0	0	0	0	115
Peak Hour Volume	2	208	2	0	212	8	0	9	0	17	10	235	2	0	247	0	0	0	0	0	476
Rounded Hourly Volume	0	210	0	0	210	10	0	10	0	20	10	235	0	0	245	0	0	0	0	0	475
% Single Unit Trucks	50.0	1.4	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	2.1	50.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	2.1
% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% Trucks (Total)	50.0	1.4	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	2.1	50.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	2.1
Peak Hour Factor (PHF)	0.25	0.85	0.50	0.00	0.83	0.50	0.00	0.75	0.00	0.61	0.62	0.79	0.25	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.85

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists	Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			Total Ped & Bike Volume
	Division Road			Germantown Municipal DW			Division Road			Faith Lutheran Church DW			
15-Minute Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
7:30 AM	0	0	0	1	0	1	0	0	0	0	0	0	1
7:45 AM	0	0	0	2	0	2	0	0	0	0	0	0	2
8:00 AM	0	0	0	2	0	2	0	0	0	0	0	0	2
8:15 AM	0	0	0	5	0	5	0	0	0	0	0	0	5
Total	0	0	0	10	0	10	0	0	0	0	0	0	10
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	1	0	1	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	1	0	0	0	0	0	0	1

Intersection Traffic Volume Report

15-Minute Motor Vehicle Data

Division Road & Germantown Municipal DW

Count Basics		*Page 5 of 13*
Start Date: Thursday, September 25, 2025	Weekday	Schools in Session
Total Number of Hours Counted: 5.75	Non-Holiday	No Special Events

All Motor Vehicles

15-Minute Motor Vehicle Data

	15-Minute Time Period	From North (↓) Division Road					From East (←) Germantown Municipal DW					From South (↑) Division Road					From West (→) Faith Lutheran Church DW					15-Min	Hourly	
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals	Sum	PHF
AM Peak Period	6:00 AM	0	5	0	0	5	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	13	237	0.47
	6:15 AM	0	5	0	0	5	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	22	331	0.66
	6:30 AM	0	18	0	0	18	0	0	1	0	1	1	55	0	0	56	1	0	0	0	1	76	350	0.69
	6:45 AM	0	28	0	0	28	0	0	0	0	0	0	98	0	0	98	0	0	0	0	0	126	326	0.65
	7:00 AM	0	57	1	0	58	0	0	0	0	0	0	49	0	0	49	0	0	0	0	0	107	276	0.64
	7:15 AM	0	18	0	0	18	0	0	1	0	1	2	20	0	0	22	0	0	0	0	0	41	239	0.79
	7:30 AM	0	16	1	0	17	0	0	0	0	0	2	33	0	0	35	0	0	0	0	0	52	268	0.88
	7:45 AM	0	27	0	0	27	0	0	0	0	0	4	45	0	0	49	0	0	0	0	0	76	279	0.92
	8:00 AM	0	26	3	0	29	1	0	1	0	2	0	38	0	0	38	1	0	0	0	1	70	278	0.93
	8:15 AM	0	38	1	0	39	1	0	0	0	1	3	27	0	0	30	0	0	0	0	0	70		
	8:30 AM	0	26	1	0	27	0	0	0	0	0	3	33	0	0	36	0	0	0	0	0	63		
	8:45 AM	0	32	2	0	34	0	0	1	0	1	1	38	0	0	39	1	0	0	0	1	75		
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:00 PM	0	56	0	0	56	0	0	4	0	4	2	43	0	0	45	0	0	0	0	0	105	423	0.96
	3:15 PM	0	40	0	0	40	1	0	4	0	5	0	63	0	0	63	0	0	0	0	0	108	433	0.94
	3:30 PM	0	43	1	0	44	1	0	2	0	3	0	63	0	0	63	0	0	0	0	0	110	421	0.92
	3:45 PM	0	48	0	0	48	1	0	0	0	1	1	50	0	0	51	0	0	0	0	0	100	436	0.87
	4:00 PM	0	49	0	0	49	0	0	3	0	3	4	59	0	0	63	0	0	0	0	0	115	476	0.85
	4:15 PM	0	31	1	0	32	3	0	1	0	4	4	56	0	0	60	0	0	0	0	0	96	476	0.85
	4:30 PM	2	61	1	0	64	4	0	3	0	7	1	51	2	0	54	0	0	0	0	0	125	518	0.93
	4:45 PM	0	59	0	0	59	1	0	3	0	4	3	74	0	0	77	0	0	0	0	0	140	490	0.88
	5:00 PM	0	57	0	0	57	0	0	2	0	2	2	54	0	0	56	0	0	0	0	0	115		
	5:15 PM	0	63	0	0	63	0	0	4	0	4	3	65	0	0	68	2	0	1	0	3	138		
	5:30 PM	0	57	1	0	58	0	0	2	0	2	3	34	0	0	37	0	0	0	0	0	97		
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		2	860	13	0	875	13	0	32	0	45	39	1073	2	0	1114	5	0	1	0	6	2040		

Peak Hour All Vehicle Volume Summary

	Hourly Time Period	From North (↓) Division Road					From East (←) Germantown Municipal DW					From South (↑) Division Road					From West (→) Faith Lutheran Church DW					Total Hourly	
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume	PHF
AM	7:30 AM	0	107	5	0	112	2	0	1	0	3	9	143	0	0	152	1	0	0	0	1	268	0.88
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM	4:15 PM	2	208	2	0	212	8	0	9	0	17	10	235	2	0	247	0	0	0	0	0	476	0.85

Intersection Traffic Volume Report

Count Basics		*Page 9 of 13*
Start Date: Thursday, September 25, 2025	Weekday	Schools in Session
Total Number of Hours Counted: 5.75	Non-Holiday	No Special Events

15-Minute Heavy Vehicle Data

Division Road & Germantown Municipal DW

15-Minute Heavy Vehicle Data

15-Minute		From North (↓)					From East (←)					From South (↑)					From West (→)						
Time Period		Division Road					Germantown Municipal DW					Division Road					Faith Lutheran Church DW					15-Min	Hourly
Start Time		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals	Sum
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	15
	6:30 AM	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	7	16
	6:45 AM	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4	13
	7:00 AM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3	13
	7:15 AM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2	10
	7:30 AM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4	8
	7:45 AM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4	11
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 AM	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	7	
	8:45 AM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	5	0	0	5	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	10	20
	3:15 PM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4	14
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
	3:45 PM	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	6	16
	4:00 PM	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4	12
	4:15 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	10
	4:30 PM	1	0	0	0	1	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	4	9
	4:45 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	7
	5:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	
	5:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		1	31	0	0	32	0	0	0	0	0	1	37	1	0	39	2	0	0	0	2	73	
otal Truck %age:		50.0%	3.6%	0.0%	0.0%	3.7%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	3.4%	50.0%	0.0%	3.5%	40.0%	0.0%	0.0%	0.0%	33.3%	3.6%	

Peak Hour Heavy Vehicle Volume Summary

Hourly		From North (↓)					From East (←)					From South (↑)					From West (→)					Total
Time Period		Division Road					Germantown Municipal DW					Division Road					Faith Lutheran Church DW					Hourly
Start Time		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume
AM	7:30 AM	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	8
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	1	3	0	0	4	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	10

Intersection Traffic Volume Report

Count Basics	Version 2025.03		Page 1 of 13
Start Date:	Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries

Major St: **STH 167 - Mequon Road**
Minor St: **Division Road**
Intersection of: ***STH 167 - Mequon Road & Division Road***

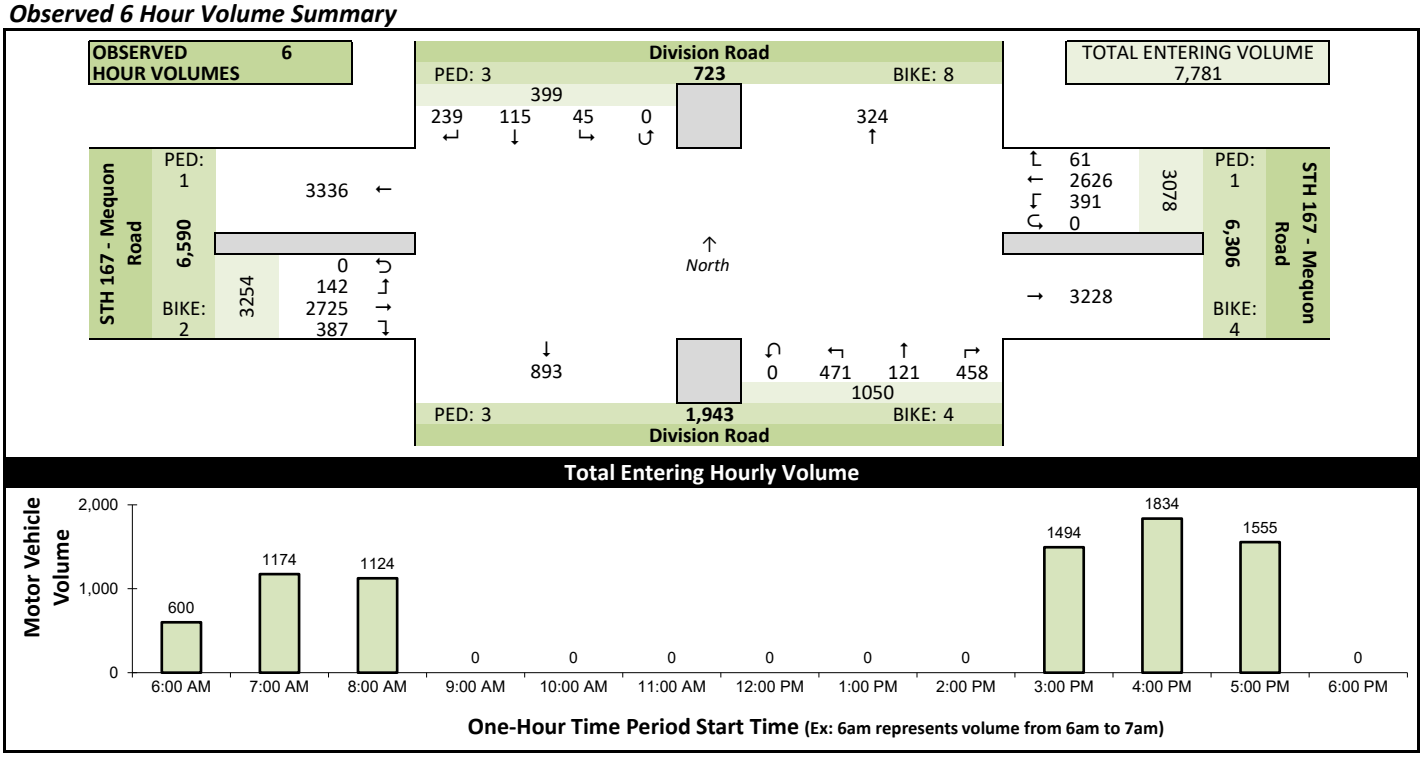
Site Information

Municipality	Village of Germantown		
County	66 - Washington	WisDOT Region	SE
Traffic Control	Traffic Signal		
Roadway Names		North Direction	↑
North Leg	Division Road		
East Leg	STH 167 - Mequon Road		
South Leg	Division Road		
West Leg	STH 167 - Mequon Road		
Special Considerations			
Schools	Not in Session		
Holidays	None		
Special Events	None		
Special Pedestrians Observed			
Pre-school children	None		
Elementry school age children	None		
Visually impaired (white cane/helper dog)	None		
Elderly/disabled (except wheelchairs)	None		
Wheelchairs/electric scooters	None		
Other (describe)	None		

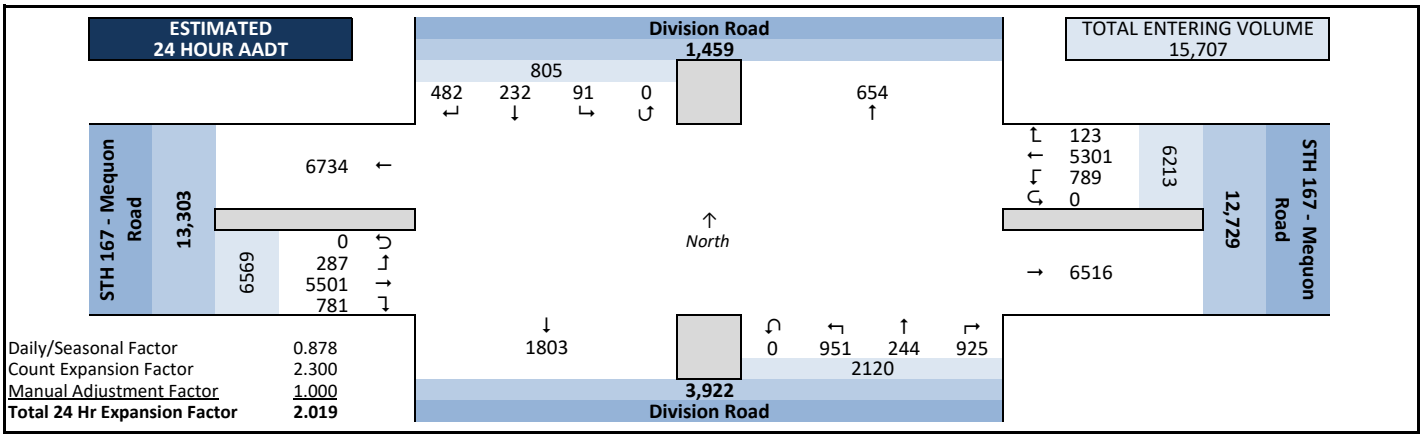
Count Information

Hrs Counted:	06:00 AM-09:00 AM and 03:00 PM-06:00 PM				
1st Day of Count	Tuesday, July 29, 2025			Weather	
AM Peak Period	Wednesday, July 30, 2025			Clear and Dry	
Midday Peak Period	Wednesday, July 30, 2025			Clear and Dry	
PM Peak Period	Tuesday, July 29, 2025			Clear and Dry	
Calculated Peak Hours					
AM	7:30-8:30am	MD		PM	4:15-5:15pm
Peak Hours Selected for Analysis					
AM	7:30-8:30am	MD		PM	4:15-5:15pm
Daily/Seasonal Adjustment Group	(1) Non-Interstate Low Truck %				
Count Expansion Group	(1) Non-Interstate Low Truck %				
Daily/Seasonal Adjustment Factor	0.878	Count Expansion Factor	2.300		
Company Name	TADI			Manual Adj.	1.000
Observers	AM Peak Period	Lee Oestreich			
	Midday Peak Period	None			
	PM Peak Period	Wendy Picard			
Comments	Wis DOT Daily & Seasonal Factors are final for 2012 through 2024, and 2025 uses 2024 final factors.				

Observed 6 Hour Volume Summary



Estimated 24 Hour AADT



Intersection Traffic Volume Report

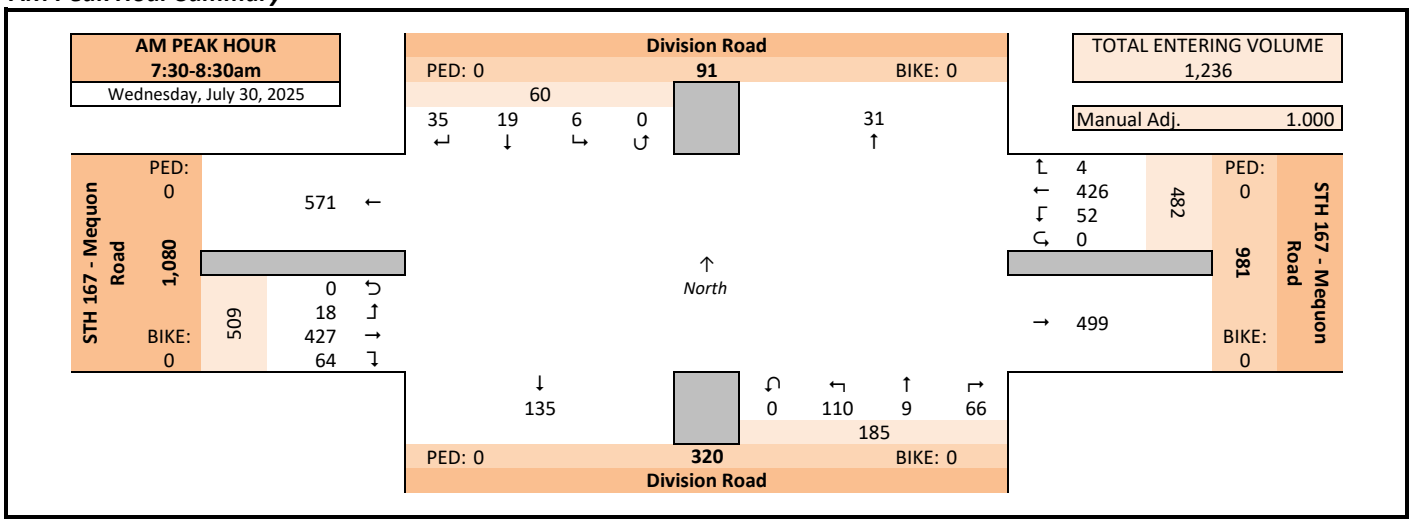
Peak Hour Volume Graphical Summary

Count Basics			*Page 2 of 13*
Start Date:	Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

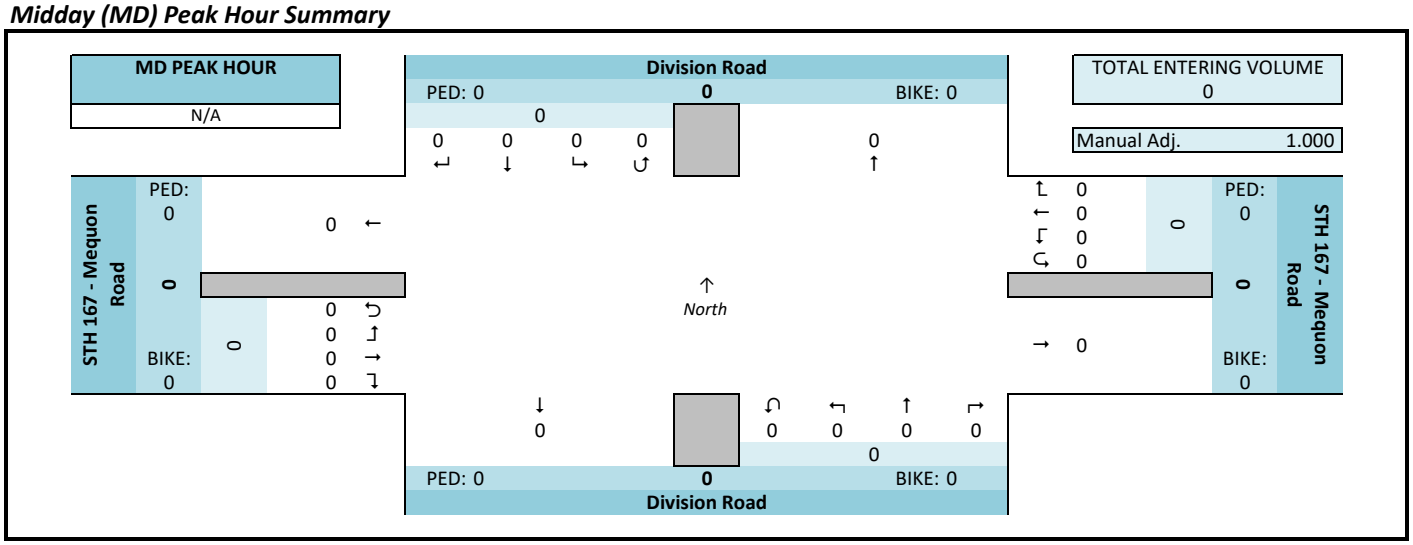
All Motor Vehicles

STH 167 - Mequon Road & Division Road

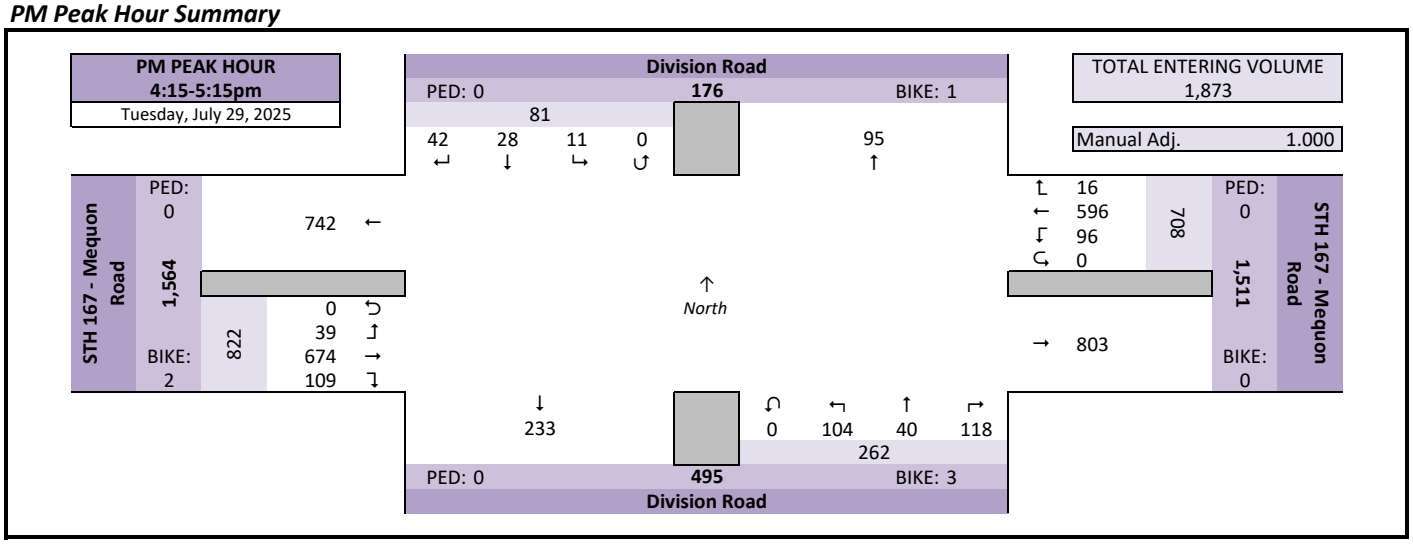
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary

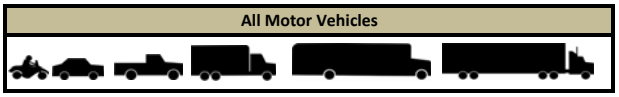


Intersection Traffic Volume Report

Count Basics			Page 3 of 13
Start Date:	Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

Peak Hour Volume Summary

STH 167 - Mequon Road & Division Road



Peak Hour Volumes, Truck Percentages, and PHFs

Wednesday, July 30, 2025		From North					From East					From South					From West					
	AM Peak Hour	Division Road					STH 167 - Mequon Road					Division Road					STH 167 - Mequon Road					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
AM Peak Hour	7:30 AM	14	6	2	0	22	2	99	15	0	116	17	1	30	0	48	10	100	4	0	114	300
	7:45 AM	10	4	2	0	16	0	131	14	0	145	23	2	44	0	69	17	135	10	0	162	392
	8:00 AM	7	4	0	0	11	1	104	16	0	121	12	5	18	0	35	18	93	2	0	113	280
	8:15 AM	4	5	2	0	11	1	92	7	0	100	14	1	18	0	33	19	99	2	0	120	264
	Peak Hour Volume	35	19	6	0	60	4	426	52	0	482	66	9	110	0	185	64	427	18	0	509	1236
	Rounded Hourly Volume	35	20	5	0	60	5	425	50	0	480	65	10	110	0	185	65	425	20	0	510	1235
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0	4.8	1.5	11.1	0.9	0.0	1.6	0.0	5.2	5.6	0.0	4.5	4.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.6	0.0	11.1	0.0	0.0	0.5	0.0	0.9	0.0	0.0	0.8	0.6
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	5.4	1.5	22.2	0.9	0.0	2.2	0.0	6.1	5.6	0.0	5.3	4.6
	Peak Hour Factor (PHF)	0.62	0.79	0.75	0.00	0.68	0.50	0.81	0.81	0.00	0.83	0.72	0.45	0.62	0.00	0.67	0.84	0.79	0.45	0.00	0.79	0.79

N/A		From North					From East					From South					From West					
	MD Peak Hour	Division Road					STH 167 - Mequon Road					Division Road					STH 167 - Mequon Road					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
Midday (MD) Peak Hour	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tuesday, July 29, 2025		From North					From East					From South					From West					
	PM Peak Hour	Division Road					STH 167 - Mequon Road					Division Road					STH 167 - Mequon Road					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
PM Peak Hour	4:15 PM	8	8	4	0	20	4	136	22	0	162	34	11	25	0	70	25	148	8	0	181	433
	4:30 PM	11	9	4	0	24	3	132	19	0	154	27	6	28	0	61	24	193	14	0	231	470
	4:45 PM	11	5	0	0	16	4	168	24	0	196	31	9	26	0	66	28	166	5	0	199	477
	5:00 PM	12	6	3	0	21	5	160	31	0	196	26	14	25	0	65	32	167	12	0	211	493
	Peak Hour Volume	42	28	11	0	81	16	596	96	0	708	118	40	104	0	262	109	674	39	0	822	1873
	Rounded Hourly Volume	40	30	10	0	80	15	595	95	0	705	120	40	105	0	265	110	675	40	0	825	1875
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.1	2.5	0.0	1.9	0.0	1.9	2.8	1.6	0.0	0.0	1.7	1.8
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.0	0.6
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	2.7	2.5	0.0	1.9	0.0	1.9	2.8	2.8	0.0	0.0	2.7	2.5
	Peak Hour Factor (PHF)	0.87	0.78	0.69	0.00	0.84	0.80	0.89	0.77	0.00	0.90	0.87	0.71	0.93	0.00	0.94	0.85	0.87	0.70	0.00	0.89	0.95

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			Total Ped & Bike Volume
		Division Road			STH 167 - Mequon Road			Division Road			STH 167 - Mequon Road			
	15-Minute Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	0	0	0	0	0	0	0	2	2	0	2	2	4
	4:30 PM	0	1	1	0	0	0	0	0	0	0	0	0	1
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	1	1	0	0	0	1
	Total	0	1	1	0	0	0	0	3	3	0	2	2	6

Intersection Traffic Volume Report

Hourly Volume Summary - Motor Vehicle Data

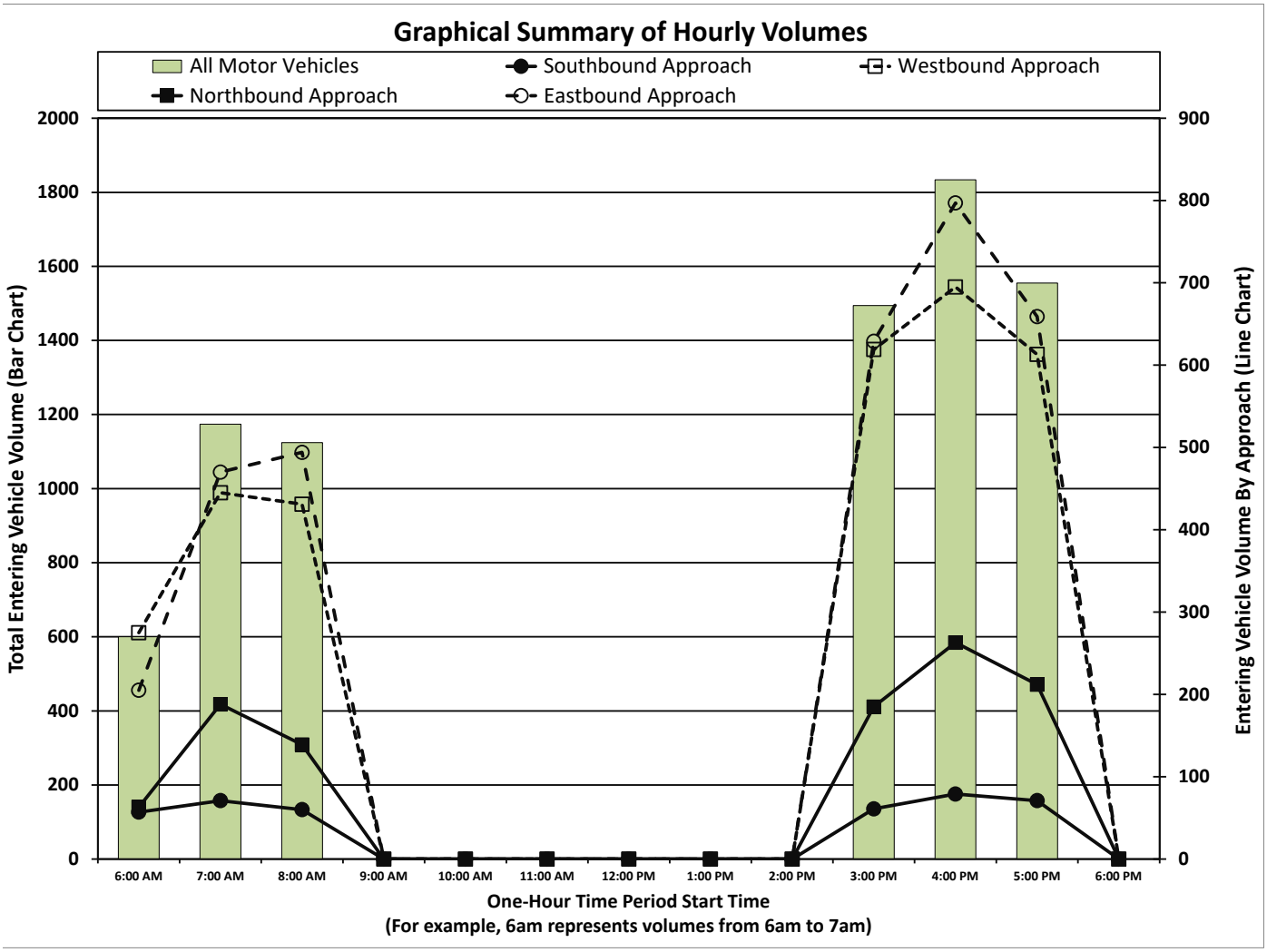
STH 167 - Mequon Road & Division Road

Count Basics			*Page 4 of 13*
Start Date:	Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

All Motor Vehicles

One-Hour Motor Vehicle Data

	One-Hour Time Period Start Time	From North (↓) Division Road					From East (←) STH 167 - Mequon Road					From South (↑) Division Road					From West (→) STH 167 - Mequon Road					Total Vehicle Volume	Directional Volume Totals	
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		E/W	N/S
AM	6:00 AM	41	11	5	0	57	0	261	14	0	275	18	3	42	0	63	18	185	2	0	205	600	480	120
AM	7:00 AM	42	20	9	0	71	3	400	42	0	445	66	9	113	0	188	46	406	18	0	470	1174	915	259
AM	8:00 AM	33	22	5	0	60	6	373	52	0	431	63	8	68	0	139	74	407	13	0	494	1124	925	199
AM	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:00 PM	42	13	6	0	61	15	517	87	0	619	95	28	62	0	185	57	532	40	0	629	1494	1248	246
PM	4:00 PM	40	26	13	0	79	15	591	89	0	695	122	31	110	0	263	104	655	38	0	797	1834	1492	342
PM	5:00 PM	41	23	7	0	71	22	484	107	0	613	94	42	76	0	212	88	540	31	0	659	1555	1272	283
PM	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals		239	115	45	0	399	61	2626	391	0	3078	458	121	471	0	1050	387	2725	142	0	3254	7781	6332	1449



Intersection Traffic Volume Report

15-Minute Motor Vehicle Data

STH 167 - Mequon Road & Division Road

Count Basics		*Page 5 of 13*
Start Date: Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events

All Motor Vehicles

15-Minute Motor Vehicle Data

	15-Minute Time Period	From North (↓) Division Road					From East (←) STH 167 - Mequon Road					From South (↑) Division Road					From West (→) STH 167 - Mequon Road					15-Min	Hourly	
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals	Sum	PHF
AM Peak Period	6:00 AM	11	3	2	0	16	0	41	3	0	44	1	1	4	0	6	1	40	1	0	42	108	600	0.68
	6:15 AM	7	1	0	0	8	0	63	1	0	64	6	1	12	0	19	2	39	0	0	41	132	722	0.78
	6:30 AM	8	2	2	0	12	0	66	2	0	68	5	0	7	0	12	3	45	0	0	48	140	842	0.84
	6:45 AM	15	5	1	0	21	0	91	8	0	99	6	1	19	0	26	12	61	1	0	74	220	1002	0.84
	7:00 AM	5	4	4	0	13	0	81	6	0	87	9	4	18	0	31	14	83	2	0	99	230	1174	0.75
	7:15 AM	13	6	1	0	20	1	89	7	0	97	17	2	21	0	40	5	88	2	0	95	252	1224	0.78
	7:30 AM	14	6	2	0	22	2	99	15	0	116	17	1	30	0	48	10	100	4	0	114	300	1236	0.79
	7:45 AM	10	4	2	0	16	0	131	14	0	145	23	2	44	0	69	17	135	10	0	162	392	1227	0.78
	8:00 AM	7	4	0	0	11	1	104	16	0	121	12	5	18	0	35	18	93	2	0	113	280	1124	0.97
	8:15 AM	4	5	2	0	11	1	92	7	0	100	14	1	18	0	33	19	99	2	0	120	264		
	8:30 AM	15	7	2	0	24	2	91	16	0	109	21	1	15	0	37	15	103	3	0	121	291		
	8:45 AM	7	6	1	0	14	2	86	13	0	101	16	1	17	0	34	22	112	6	0	140	289		
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:00 PM	11	4	3	0	18	4	132	22	0	158	19	3	11	0	33	19	144	11	0	174	383	1494	0.96
	3:15 PM	10	2	1	0	13	3	120	20	0	143	23	7	16	0	46	10	125	10	0	145	347	1565	0.86
	3:30 PM	7	2	2	0	11	2	135	24	0	161	30	7	11	0	48	13	129	13	0	155	375	1651	0.91
	3:45 PM	14	5	0	0	19	6	130	21	0	157	23	11	24	0	58	15	134	6	0	155	389	1746	0.93
	4:00 PM	10	4	5	0	19	4	155	24	0	183	30	5	31	0	66	27	148	11	0	186	454	1834	0.96
	4:15 PM	8	8	4	0	20	4	136	22	0	162	34	11	25	0	70	25	148	8	0	181	433	1873	0.95
	4:30 PM	11	9	4	0	24	3	132	19	0	154	27	6	28	0	61	24	193	14	0	231	470	1845	0.94
	4:45 PM	11	5	0	0	16	4	168	24	0	196	31	9	26	0	66	28	166	5	0	199	477	1734	0.88
	5:00 PM	12	6	3	0	21	5	160	31	0	196	26	14	25	0	65	32	167	12	0	211	493	1555	0.79
	5:15 PM	9	5	1	0	15	8	128	26	0	162	23	8	22	0	53	24	144	7	0	175	405		
	5:30 PM	9	9	1	0	19	6	107	32	0	145	20	10	16	0	46	23	121	5	0	149	359		
	5:45 PM	11	3	2	0	16	3	89	18	0	110	25	10	13	0	48	9	108	7	0	124	298		
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		239	115	45	0	399	61	2626	391	0	3078	458	121	471	0	1050	387	2725	142	0	3254	7781		

Peak Hour All Vehicle Volume Summary

	Hourly Time Period	From North (↓) Division Road					From East (←) STH 167 - Mequon Road					From South (↑) Division Road					From West (→) STH 167 - Mequon Road					Total Hourly	
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume	PHF
AM	7:30 AM	35	19	6	0	60	4	426	52	0	482	66	9	110	0	185	64	427	18	0	509	1236	0.79
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM	4:15 PM	42	28	11	0	81	16	596	96	0	708	118	40	104	0	262	109	674	39	0	822	1873	0.95

Intersection Traffic Volume Report

Count Basics		*Page 6 of 13*
Start Date: Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events

15-Minute Automobile Data

STH 167 - Mequon Road & Division Road

Automobiles (Cars, Light Trucks, & Motorcycles)

15-Minute Automobile Data

15-Minute Time Period		From North (↓) Division Road					From East (←) STH 167 - Mequon Road					From South (↑) Division Road					From West (→) STH 167 - Mequon Road					15-Min	Hourly
Start Time		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals	Sum
AM Peak Period	6:00 AM	11	3	2	0	16	0	38	3	0	41	1	1	4	0	6	1	40	1	0	42	105	569
	6:15 AM	7	1	0	0	8	0	59	1	0	60	6	1	12	0	19	2	34	0	0	36	123	682
	6:30 AM	8	2	2	0	12	0	62	2	0	64	5	0	7	0	12	2	42	0	0	44	132	798
	6:45 AM	14	5	1	0	20	0	87	8	0	95	6	1	19	0	26	10	57	1	0	68	209	956
	7:00 AM	4	4	3	0	11	0	75	6	0	81	9	4	18	0	31	14	79	2	0	95	218	1125
	7:15 AM	13	6	1	0	20	1	83	7	0	91	16	2	20	0	38	4	84	2	0	90	239	1165
	7:30 AM	14	6	2	0	22	2	94	15	0	111	17	1	29	0	47	10	96	4	0	110	290	1179
	7:45 AM	10	4	2	0	16	0	127	14	0	141	23	2	44	0	69	17	125	10	0	152	378	1171
	8:00 AM	7	4	0	0	11	1	91	16	0	108	11	3	18	0	32	18	87	2	0	107	258	1061
	8:15 AM	4	5	2	0	11	1	88	7	0	96	14	1	18	0	33	19	93	1	0	113	253	
	8:30 AM	15	7	2	0	24	2	85	16	0	103	21	1	14	0	36	15	101	3	0	119	282	
	8:45 AM	7	5	0	0	12	1	76	13	0	90	16	1	16	0	33	22	106	5	0	133	268	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	11	4	3	0	18	4	125	22	0	151	19	3	9	0	31	18	133	11	0	162	362	1433
	3:15 PM	10	2	1	0	13	3	117	20	0	140	23	7	14	0	44	9	121	10	0	140	337	1511
	3:30 PM	7	2	2	0	11	2	130	24	0	156	29	7	11	0	47	11	122	13	0	146	360	1595
	3:45 PM	13	5	0	0	18	6	122	21	0	149	23	11	23	0	57	15	129	6	0	150	374	1694
	4:00 PM	10	4	5	0	19	4	149	23	0	176	29	5	29	0	63	27	144	11	0	182	440	1784
	4:15 PM	8	8	4	0	20	4	131	22	0	157	33	11	25	0	69	23	144	8	0	175	421	1827
	4:30 PM	11	9	4	0	24	3	129	19	0	151	27	6	27	0	60	24	186	14	0	224	459	1798
	4:45 PM	11	5	0	0	16	4	162	24	0	190	29	9	26	0	64	27	162	5	0	194	464	1689
	5:00 PM	12	6	3	0	21	5	155	31	0	191	26	14	24	0	64	32	163	12	0	207	483	1513
	5:15 PM	9	5	1	0	15	8	127	26	0	161	23	8	22	0	53	24	132	7	0	163	392	
	5:30 PM	9	9	1	0	19	6	103	31	0	140	20	10	16	0	46	21	119	5	0	145	350	
	5:45 PM	10	3	2	0	15	3	83	18	0	104	25	10	11	0	46	9	107	7	0	123	288	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		235	114	43	0	392	60	2498	389	0	2947	451	119	456	0	1026	374	2606	140	0	3120	7485	

Peak Hour Automobile Volume Summary

Hourly Time Period		From North (↓) Division Road					From East (←) STH 167 - Mequon Road					From South (↑) Division Road					From West (→) STH 167 - Mequon Road					Total Hourly
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume
AM	7:30 AM	35	19	6	0	60	4	400	52	0	456	65	7	109	0	181	64	401	17	0	482	1179
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	42	28	11	0	81	16	577	96	0	689	115	40	102	0	257	106	655	39	0	800	1827

Intersection Traffic Volume Report

15-Minute Single Unit (SU) Truck & Bus Data

STH 167 - Mequon Road & Division Road

Count Basics		*Page 7 of 13*
Start Date: Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events

Single Unit (SU) Trucks & Buses

15-Minute Single Unit (SU) Truck & Bus Data

	15-Minute	From North (↓)					From East (←)					From South (↑)					From West (→)						
	Time Period	Division Road					STH 167 - Mequon Road					Division Road					STH 167 - Mequon Road					15-Min	Hourly
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals	Sum
AM Peak Period	6:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3	22
	6:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5	28
	6:30 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	1	2	0	0	3	7	33
	6:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	3	0	0	5	7	34
	7:00 AM	1	0	1	0	2	0	6	0	0	6	0	0	0	0	0	0	1	0	0	1	9	39
	7:15 AM	0	0	0	0	0	0	5	0	0	5	1	0	1	0	2	1	2	0	0	3	10	50
	7:30 AM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	0	3	0	0	3	8	49
	7:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	9	0	0	9	12	47
	8:00 AM	0	0	0	0	0	0	12	0	0	12	1	1	0	0	2	0	6	0	0	6	20	53
	8:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	1	0	5	9	
	8:30 AM	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	2	0	0	2	6	
	8:45 AM	0	1	1	0	2	1	10	0	0	11	0	0	1	0	1	0	3	1	0	4	18	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	0	0	0	7	0	0	7	0	0	2	0	2	1	6	0	0	7	16	48
	3:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	2	0	2	1	2	0	0	3	8	43
	3:30 PM	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	2	5	0	0	7	11	42
	3:45 PM	1	0	0	0	1	0	7	0	0	7	0	0	1	0	1	0	4	0	0	4	13	42
	4:00 PM	0	0	0	0	0	0	5	1	0	6	1	0	2	0	3	0	2	0	0	2	11	38
	4:15 PM	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	2	1	0	0	3	7	34
	4:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	7	0	0	7	11	39
	4:45 PM	0	0	0	0	0	0	5	0	0	5	2	0	0	0	2	1	1	0	0	2	9	36
	5:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	0	2	0	0	2	7	35
	5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	11	0	0	11	12	
	5:30 PM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	2	1	0	0	3	8	
	5:45 PM	1	0	0	0	1	0	4	0	0	4	0	0	2	0	2	0	1	0	0	1	8	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		3	1	2	0	6	1	107	2	0	110	7	1	15	0	23	13	81	2	0	96	235	
SU Truck %age:		1.3%	0.9%	4.4%	0.0%	1.5%	1.6%	4.1%	0.5%	0.0%	3.6%	1.5%	0.8%	3.2%	0.0%	2.2%	3.4%	3.0%	1.4%	0.0%	3.0%	3.0%	

Peak Hour Single Unit (SU) Truck & Buses Volume Summary

	Hourly	From North (↓)					From East (←)					From South (↑)					From West (→)					Total
	Time Period	Division Road					STH 167 - Mequon Road					Division Road					STH 167 - Mequon Road					Hourly
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume
AM	7:30 AM	0	0	0	0	0	0	23	0	0	23	1	1	1	0	3	0	22	1	0	23	49
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	0	0	0	0	0	0	15	0	0	15	3	0	2	0	5	3	11	0	0	14	34

Intersection Traffic Volume Report

Count Basics		*Page 8 of 13*
Start Date: Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events

15-Minute Semi-Truck Data

STH 167 - Mequon Road & Division Road

Semi-Trucks

15-Minute Semi-Truck Data

	15-Minute Time Period	↓ From North					← From East					↑ From South					→ From West					15-Min	Hourly
		Division Road					STH 167 - Mequon Road					Division Road					STH 167 - Mequon Road						
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals	Sum
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
	6:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4	12
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	11
	6:45 AM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	4	12
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3	10
	7:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3	9
	7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	8
	7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	9
	8:00 AM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	2	10
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	
	8:30 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3	
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	5	13
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	11
	3:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4	14
	3:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	10
	4:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3	12
	4:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5	12
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
	4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4	9
	5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3	7
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	
	5:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		1	0	0	0	1	0	21	0	0	21	0	1	0	0	1	0	38	0	0	38	61	
Semi Truck %age:		0.4%	0.0%	0.0%	0.0%	0.3%	0.0%	0.8%	0.0%	0.0%	0.7%	0.0%	0.8%	0.0%	0.0%	0.1%	0.0%	1.4%	0.0%	0.0%	1.2%	0.8%	

Peak Hour Semi-Truck Volume Summary

	Hourly Time Period	↓ From North					← From East					↑ From South					→ From West					Total Hourly
		Division Road					STH 167 - Mequon Road					Division Road					STH 167 - Mequon Road					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume
AM	7:30 AM	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	0	4	0	0	4	8
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	8	0	0	8	12

Intersection Traffic Volume Report

Count Basics		*Page 9 of 13*
Start Date: Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events

15-Minute Heavy Vehicle Data

STH 167 - Mequon Road & Division Road

Heavy Vehicles (Single-Unit Trucks, Buses & Semi-Trucks)

15-Minute Heavy Vehicle Data

	15-Minute Time Period	From North (↓) Division Road					From East (←) STH 167 - Mequon Road					From South (↑) Division Road					From West (→) STH 167 - Mequon Road					15-Min	Hourly
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals	Sum
AM Peak Period	6:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3	31
	6:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	5	0	0	5	9	40
	6:30 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	1	3	0	0	4	8	44
	6:45 AM	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	2	4	0	0	6	11	46
	7:00 AM	1	0	1	0	2	0	6	0	0	6	0	0	0	0	0	0	4	0	0	4	12	49
	7:15 AM	0	0	0	0	0	0	6	0	0	6	1	0	1	0	2	1	4	0	0	5	13	59
	7:30 AM	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	0	4	0	0	4	10	57
	7:45 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	10	0	0	10	14	56
	8:00 AM	0	0	0	0	0	0	13	0	0	13	1	2	0	0	3	0	6	0	0	6	22	63
	8:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	6	1	0	7	11	
	8:30 AM	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	0	2	0	0	2	9	
	8:45 AM	0	1	1	0	2	1	10	0	0	11	0	0	1	0	1	0	6	1	0	7	21	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	0	0	0	7	0	0	7	0	0	2	0	2	1	11	0	0	12	21	61
	3:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	2	0	2	1	4	0	0	5	10	54
	3:30 PM	0	0	0	0	0	0	5	0	0	5	1	0	0	0	1	2	7	0	0	9	15	56
	3:45 PM	1	0	0	0	1	0	8	0	0	8	0	0	1	0	1	0	5	0	0	5	15	52
	4:00 PM	0	0	0	0	0	0	6	1	0	7	1	0	2	0	3	0	4	0	0	4	14	50
	4:15 PM	0	0	0	0	0	0	5	0	0	5	1	0	0	0	1	2	4	0	0	6	12	46
	4:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	7	0	0	7	11	47
	4:45 PM	0	0	0	0	0	0	6	0	0	6	2	0	0	0	2	1	4	0	0	5	13	45
	5:00 PM	0	0	0	0	0	0	5	0	0	5	0	0	1	0	1	0	4	0	0	4	10	42
	5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	12	0	0	12	13	
	5:30 PM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	2	2	0	0	4	9	
	5:45 PM	1	0	0	0	1	0	6	0	0	6	0	0	2	0	2	0	1	0	0	1	10	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		4	1	2	0	7	1	128	2	0	131	7	2	15	0	24	13	119	2	0	134	296	
Total Truck %age:		1.7%	0.9%	4.4%	0.0%	1.8%	1.6%	4.9%	0.5%	0.0%	4.3%	1.5%	1.7%	3.2%	0.0%	2.3%	3.4%	4.4%	1.4%	0.0%	4.1%	3.8%	

Peak Hour Heavy Vehicle Volume Summary

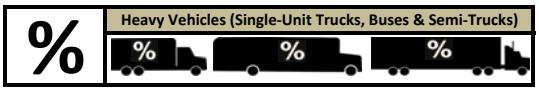
	Hourly Time Period	From North (↓) Division Road					From East (←) STH 167 - Mequon Road					From South (↑) Division Road					From West (→) STH 167 - Mequon Road					Total Hourly
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume
AM	7:30 AM	0	0	0	0	0	0	26	0	0	26	1	2	1	0	4	0	26	1	0	27	57
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	0	0	0	0	0	0	19	0	0	19	3	0	2	0	5	3	19	0	0	22	46

Intersection Traffic Volume Report

15-Minute Heavy Vehicle Percentages

STH 167 - Mequon Road & Division Road

Count Basics		*Page 10 of 13*
Start Date: Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events



15-Minute Heavy Vehicle Percentages

	15-Minute Time Period	From North (↓) Division Road					From East (←) STH 167 - Mequon Road					From South (↑) Division Road					From West (→) STH 167 - Mequon Road					Total Heavy Vehicle	Hourly Heavy Vehicle
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Percent	Percent
AM Peak Period	6:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	5.2
	6:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	6.3	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	12.8	0.0	0.0	12.2	6.8	5.5
	6:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	5.9	0.0	0.0	0.0	0.0	0.0	33.3	6.7	0.0	0.0	8.3	5.7	5.2
	6:45 AM	6.7	0.0	0.0	0.0	4.8	0.0	4.4	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	16.7	6.6	0.0	0.0	8.1	5.0	4.6
	7:00 AM	20.0	0.0	25.0	0.0	15.4	0.0	7.4	0.0	0.0	6.9	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	4.0	5.2	4.2
	7:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	6.7	0.0	0.0	6.2	5.9	0.0	4.8	0.0	5.0	20.0	4.5	0.0	0.0	5.3	5.2	4.8
	7:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	5.1	0.0	0.0	4.3	0.0	0.0	3.3	0.0	2.1	0.0	4.0	0.0	0.0	3.5	3.3	4.6
	7:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	7.4	0.0	0.0	6.2	3.6	4.6
	8:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	10.7	8.3	40.0	0.0	0.0	8.6	0.0	6.5	0.0	0.0	5.3	7.9	5.6
	8:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	50.0	0.0	5.8	4.2	
	8:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	6.6	0.0	0.0	5.5	0.0	0.0	6.7	0.0	2.7	0.0	1.9	0.0	0.0	1.7	3.1	
	8:45 AM	0.0	16.7	100.0	0.0	14.3	50.0	11.6	0.0	0.0	10.9	0.0	0.0	5.9	0.0	2.9	0.0	5.4	16.7	0.0	5.0	7.3	
	9:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	9:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	9:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	9:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Midday Peak Period	10:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	10:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	10:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	10:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	11:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	11:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	11:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	11:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	12:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	12:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	12:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	12:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	1:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	1:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	1:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	1:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PM Peak Period	2:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	2:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	2:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	2:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	3:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	4.4	0.0	0.0	18.2	0.0	6.1	5.3	7.6	0.0	0.0	6.9	5.5	4.1
	3:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.1	0.0	0.0	12.5	0.0	4.3	10.0	3.2	0.0	0.0	3.4	2.9	3.5
	3:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0	3.1	3.3	0.0	0.0	0.0	2.1	15.4	5.4	0.0	0.0	5.8	4.0	3.4
	3:45 PM	7.1	0.0	0.0	0.0	5.3	0.0	6.2	0.0	0.0	5.1	0.0	0.0	4.2	0.0	1.7	0.0	3.7	0.0	0.0	3.2	3.9	3.0
	4:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	3.9	4.2	0.0	3.8	3.3	0.0	6.5	0.0	4.5	0.0	2.7	0.0	0.0	2.2	3.1	2.7
	4:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0	3.1	2.9	0.0	0.0	0.0	1.4	8.0	2.7	0.0	0.0	3.3	2.8	2.5
	4:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	1.9	0.0	0.0	3.6	0.0	1.6	0.0	3.6	0.0	0.0	3.0	2.3	2.5
	4:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.1	6.5	0.0	0.0	0.0	3.0	3.6	2.4	0.0	0.0	2.5	2.7	2.6
	5:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	2.6	0.0	0.0	4.0	0.0	1.5	0.0	2.4	0.0	0.0	1.9	2.0	2.7
	5:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	0.0	6.9	3.2	
	5:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	3.7	3.1	0.0	3.4	0.0	0.0	0.0	0.0	0.0	8.7	1.7	0.0	0.0	2.7	2.5	
	5:45 PM	9.1	0.0	0.0	0.0	6.3	0.0	6.7	0.0	0.0	5.5	0.0	0.0	15.4	0.0	4.2	0.0	0.9	0.0	0.0	0.8	3.4	
	6:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	6:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	6:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	6:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	7:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	7:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	7:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	7:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	8:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	8:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	8:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	8:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	9:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	9:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	9:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	9:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Totals		1.7	0.9	4.4	0.0	1.8	1.6	4.9	0.5	0.0	4.3	1.5	1.7	3.2	0.0	2.3	3.4	4.4	1.4	0.0	4.1	3.8	

Semi Truck Percentage: 0.784

Peak Hour Heavy Vehicle Percentages Summary

	Hourly Time Period	From North (↓) Division Road					From East (←) STH 167 - Mequon Road					From South (↑) Division Road					From West (→) STH 167 - Mequon Road					Hourly Heavy Vehicle	
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Percent	
AM	7:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	5.4	1.5	22.2	0.9	0.0	2.2	0.0	6.1	5.6	0.0	5.3	4.6	
MD	12:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PM	4:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	2.7	2.5	0.0	1.9	0.0	1.9	2.8	2.8	0.0	0.0	2.7	2.5	

Intersection Traffic Volume Report

Count Basics			*Page 11 of 13*
Start Date:	Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

15-Minute Pedestrian and Bicyclist Data

STH 167 - Mequon Road & Division Road

Pedestrians and Bicyclists

15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period	Start Time	Crossing North Approach – Division Road			Crossing East Approach – STH 167 - Mequon Road			Crossing South Approach – Division Road			Crossing West Approach – STH 167 - Mequon Road			15-Min Totals	Hourly Sum
		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	1	0	1	0	0	0	1	7
	6:15 AM	0	0	0	0	0	0	1	0	1	0	0	0	1	6
	6:30 AM	0	2	2	1	2	3	0	0	0	0	0	0	5	6
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	7:15 AM	0	1	1	0	0	0	0	0	0	0	0	0	1	1
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 AM	3	0	3	0	0	0	0	0	0	0	0	0	3	
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	1	6
	3:15 PM	0	1	1	0	1	1	0	0	0	1	0	1	3	5
	3:30 PM	0	2	2	0	0	0	0	0	0	0	0	0	2	6
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
	4:15 PM	0	0	0	0	0	0	0	2	2	0	2	2	4	6
	4:30 PM	0	1	1	0	0	0	0	0	0	0	0	0	1	5
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4
	5:00 PM	0	0	0	0	0	0	0	1	1	0	0	0	1	4
	5:15 PM	0	1	1	0	1	1	0	1	1	0	0	0	3	
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		**3**	**8**	**11**	**1**	**4**	**5**	**3**	**4**	**7**	**1**	**2**	**3**	**26**	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementry School Age Children	x					
Visually Impaired (white cane/help	x					
Elderly/Disabled (except wheelchai	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

Intersection Traffic Volume Report

Count Basics			Page 12 of 13
Start Date:	Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

15-Minute Adult & Children Count (Manual Entry)

STH 167 - Mequon Road & Division Road

Adults & Children

15-Minute Adult & Children Pedestrian Data

	15-Minute Time Period	Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			15-Min	Hourly
		Division Road			STH 167 - Mequon Road			Division Road			STH 167 - Mequon Road				
	Start Time	Adults	Children	Total	Adults	Children	Total	Adults	Children	Total	Adults	Children	Total	Totals	Sum
Pre-AM Peak Period	12:00 AM	0		0	0		0	0		0	0		0	0	0
	12:15 AM	0		0	0		0	0		0	0		0	0	0
	12:30 AM	0		0	0		0	0		0	0		0	0	0
	12:45 AM	0		0	0		0	0		0	0		0	0	0
	1:00 AM	0		0	0		0	0		0	0		0	0	0
	1:15 AM	0		0	0		0	0		0	0		0	0	0
	1:30 AM	0		0	0		0	0		0	0		0	0	0
	1:45 AM	0		0	0		0	0		0	0		0	0	0
	2:00 AM	0		0	0		0	0		0	0		0	0	0
	2:15 AM	0		0	0		0	0		0	0		0	0	0
	2:30 AM	0		0	0		0	0		0	0		0	0	0
	2:45 AM	0		0	0		0	0		0	0		0	0	0
	3:00 AM	0		0	0		0	0		0	0		0	0	0
	3:15 AM	0		0	0		0	0		0	0		0	0	0
	3:30 AM	0		0	0		0	0		0	0		0	0	0
	3:45 AM	0		0	0		0	0		0	0		0	0	0
	4:00 AM	0		0	0		0	0		0	0		0	0	0
	4:15 AM	0		0	0		0	0		0	0		0	0	0
	4:30 AM	0		0	0		0	0		0	0		0	0	0
	4:45 AM	0		0	0		0	0		0	0		0	0	0
	5:00 AM	0		0	0		0	0		0	0		0	0	0
	5:15 AM	0		0	0		0	0		0	0		0	0	1
	5:30 AM	0		0	0		0	0		0	0		0	0	2
	5:45 AM	0		0	0		0	0		0	0		0	0	3
AM Peak Period	6:00 AM	0		0	0		0	1		1	0		0	1	3
	6:15 AM	0		0	0		0	1		1	0		0	1	2
	6:30 AM	0		0	1		1	0		0	0		0	1	1
	6:45 AM	0		0	0		0	0		0	0		0	0	0
	7:00 AM	0		0	0		0	0		0	0		0	0	0
	7:15 AM	0		0	0		0	0		0	0		0	0	0
	7:30 AM	0		0	0		0	0		0	0		0	0	0
	7:45 AM	0		0	0		0	0		0	0		0	0	3
	8:00 AM	0		0	0		0	0		0	0		0	0	3
	8:15 AM	0		0	0		0	0		0	0		0	0	3
	8:30 AM	3		3	0		0	0		0	0		0	3	3
	8:45 AM	0		0	0		0	0		0	0		0	0	0
	9:00 AM	0		0	0		0	0		0	0		0	0	0
	9:15 AM	0		0	0		0	0		0	0		0	0	0
	9:30 AM	0		0	0		0	0		0	0		0	0	0
	9:45 AM	0		0	0		0	0		0	0		0	0	0
Midday Peak Period	10:00 AM	0		0	0		0	0		0	0		0	0	0
	10:15 AM	0		0	0		0	0		0	0		0	0	0
	10:30 AM	0		0	0		0	0		0	0		0	0	0
	10:45 AM	0		0	0		0	0		0	0		0	0	0
	11:00 AM	0		0	0		0	0		0	0		0	0	0
	11:15 AM	0		0	0		0	0		0	0		0	0	0
	11:30 AM	0		0	0		0	0		0	0		0	0	0
	11:45 AM	0		0	0		0	0		0	0		0	0	0
	12:00 PM	0		0	0		0	0		0	0		0	0	0
	12:15 PM	0		0	0		0	0		0	0		0	0	0
	12:30 PM	0		0	0		0	0		0	0		0	0	0
	12:45 PM	0		0	0		0	0		0	0		0	0	0
	1:00 PM	0		0	0		0	0		0	0		0	0	0
	1:15 PM	0		0	0		0	0		0	0		0	0	0
	1:30 PM	0		0	0		0	0		0	0		0	0	0
	1:45 PM	0		0	0		0	0		0	0		0	0	0
PM Peak Period	2:00 PM	0		0	0		0	0		0	0		0	0	0
	2:15 PM	0		0	0		0	0		0	0		0	0	1
	2:30 PM	0		0	0		0	0		0	0		0	0	2
	2:45 PM	0		0	0		0	0		0	0		0	0	2
	3:00 PM	0		0	0		0	1		1	0		0	1	2
	3:15 PM	0		0	0		0	0		0	1		1	1	1
	3:30 PM	0		0	0		0	0		0	0		0	0	0
	3:45 PM	0		0	0		0	0		0	0		0	0	0
	4:00 PM	0		0	0		0	0		0	0		0	0	0
	4:15 PM	0		0	0		0	0		0	0		0	0	0
	4:30 PM	0		0	0		0	0		0	0		0	0	0
	4:45 PM	0		0	0		0	0		0	0		0	0	0
	5:00 PM	0		0	0		0	0		0	0		0	0	0
	5:15 PM	0		0	0		0	0		0	0		0	0	0
	5:30 PM	0		0	0		0	0		0	0		0	0	0
	5:45 PM	0		0	0		0	0		0	0		0	0	0
	6:00 PM	0		0	0		0	0		0	0		0	0	0
	6:15 PM	0		0	0		0	0		0	0		0	0	0
	6:30 PM	0		0	0		0	0		0	0		0	0	0
	6:45 PM	0		0	0		0	0		0	0		0	0	0
	7:00 PM	0		0	0		0	0		0	0		0	0	0
	7:15 PM	0		0	0		0	0		0	0		0	0	0
	7:30 PM	0		0	0		0	0		0	0		0	0	0
	7:45 PM	0		0	0		0	0		0	0		0	0	0
	8:00 PM	0		0	0		0	0		0	0		0	0	0
	8:15 PM	0		0	0		0	0		0	0		0	0	0
	8:30 PM	0		0	0		0	0		0	0		0	0	0
	8:45 PM	0		0	0		0	0		0	0		0	0	0
	9:00 PM	0		0	0		0	0		0	0		0	0	0
	9:15 PM	0		0	0		0	0		0	0		0	0	0
	9:30 PM	0		0	0		0	0		0	0		0	0	0
	9:45 PM	0		0	0		0	0		0	0		0	0	0
Post PM Peak Period	10:00 PM	0		0	0		0	0		0	0		0	0	0
	10:15 PM	0		0	0		0	0		0	0		0	0	0
	10:30 PM	0		0	0		0	0		0	0		0	0	0
	10:45 PM	0		0	0		0	0		0	0		0	0	0
	11:00 PM	0		0	0		0	0		0	0		0	0	0
	11:15 PM	0		0	0		0	0		0	0		0	0	
	11:30 PM	0		0	0		0	0		0	0		0	0	
	11:45 PM	0		0	0		0	0		0	0		0	0	
Totals		**3**	**0**	**3**	**1**	**0**	**1**	**3**	**0**	**3**	**1**	**0**	**1**	**8**	

Intersection Traffic Volume Report

Count Basics			Page 13 of 13
Start Date:	Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

15-Minute Bicycle Turning Movement Count (Manual Entry)

STH 167 - Mequon Road & Division Road

Bicyclists

15-Minute Bicycle Data

	15-Minute Time Period	From North (↓) Division Road					From East (←) STH 167 - Mequon Road					From South (↑) Division Road					From West (→) STH 167 - Mequon Road					15-Min Totals	Hourly Sum
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
Pre-AM Peak Period	12:00 AM					0					0					0					0	0	0
	12:15 AM					0					0					0					0	0	0
	12:30 AM					0					0					0					0	0	0
	12:45 AM					0					0					0					0	0	0
	1:00 AM					0					0					0					0	0	0
	1:15 AM					0					0					0					0	0	0
	1:30 AM					0					0					0					0	0	0
	1:45 AM					0					0					0					0	0	0
	2:00 AM					0					0					0					0	0	0
	2:15 AM					0					0					0					0	0	0
	2:30 AM					0					0					0					0	0	0
	2:45 AM					0					0					0					0	0	0
	3:00 AM					0					0					0					0	0	0
	3:15 AM					0					0					0					0	0	0
	3:30 AM					0					0					0					0	0	0
	3:45 AM					0					0					0					0	0	0
	4:00 AM					0					0					0					0	0	0
	4:15 AM					0					0					0					0	0	0
	4:30 AM					0					0					0					0	0	0
	4:45 AM					0					0					0					0	0	0
	5:00 AM					0					0					0					0	0	0
	5:15 AM					0					0					0					0	0	0
	5:30 AM					0					0					0					0	0	0
	5:45 AM					0					0					0					0	0	0
AM Peak Period	6:00 AM					0					0					0					0	0	0
	6:15 AM					0					0					0					0	0	0
	6:30 AM					0					0					0					0	0	0
	6:45 AM					0					0					0					0	0	0
	7:00 AM					0					0					0					0	0	0
	7:15 AM					0					0					0					0	0	0
	7:30 AM					0					0					0					0	0	0
	7:45 AM					0					0					0					0	0	0
	8:00 AM					0					0					0					0	0	0
	8:15 AM					0					0					0					0	0	0
	8:30 AM					0					0					0					0	0	0
	8:45 AM					0					0					0					0	0	0
	9:00 AM					0					0					0					0	0	0
	9:15 AM					0					0					0					0	0	0
	9:30 AM					0					0					0					0	0	0
	9:45 AM					0					0					0					0	0	0
Midday Peak Period	10:00 AM					0					0					0					0	0	0
	10:15 AM					0					0					0					0	0	0
	10:30 AM					0					0					0					0	0	0
	10:45 AM					0					0					0					0	0	0
	11:00 AM					0					0					0					0	0	0
	11:15 AM					0					0					0					0	0	0
	11:30 AM					0					0					0					0	0	0
	11:45 AM					0					0					0					0	0	0
	12:00 PM					0					0					0					0	0	0
	12:15 PM					0					0					0					0	0	0
	12:30 PM					0					0					0					0	0	0
	12:45 PM					0					0					0					0	0	0
	1:00 PM					0					0					0					0	0	0
	1:15 PM					0					0					0					0	0	0
	1:30 PM					0					0					0					0	0	0
	1:45 PM					0					0					0					0	0	0
PM Peak Period	2:00 PM					0					0					0					0	0	0
	2:15 PM					0					0					0					0	0	0
	2:30 PM					0					0					0					0	0	0
	2:45 PM					0					0					0					0	0	0
	3:00 PM					0					0					0					0	0	0
	3:15 PM					0					0					0					0	0	0
	3:30 PM					0					0					0					0	0	0
	3:45 PM					0					0					0					0	0	0
	4:00 PM					0					0					0					0	0	0
	4:15 PM					0					0					0					0	0	0
	4:30 PM					0					0					0					0	0	0
	4:45 PM					0					0					0					0	0	0
	5:00 PM					0					0					0					0	0	0
	5:15 PM					0					0					0					0	0	0
	5:30 PM					0					0					0					0	0	0
	5:45 PM					0					0					0					0	0	0
	6:00 PM					0					0					0					0	0	0
	6:15 PM					0					0					0					0	0	0
	6:30 PM					0					0					0					0	0	0
	6:45 PM					0					0					0					0	0	0
	7:00 PM					0					0					0					0	0	0
	7:15 PM					0					0					0					0	0	0
	7:30 PM					0					0					0					0	0	0
	7:45 PM					0					0					0					0	0	0
	8:00 PM					0					0					0					0	0	0
	8:15 PM					0					0					0					0	0	0
	8:30 PM					0					0					0					0	0	0
	8:45 PM					0					0					0					0	0	0
	9:00 PM					0					0					0					0	0	0
	9:15 PM					0					0					0					0	0	0
	9:30 PM					0					0					0					0	0	0
	9:45 PM					0					0					0					0	0	0
Post PM Peak Period	10:00 PM					0					0					0					0	0	0
	10:15 PM					0					0					0					0	0	0
	10:30 PM					0					0					0					0	0	0
	10:45 PM					0					0					0					0	0	0
	11:00 PM					0					0					0					0	0	0
	11:15 PM					0					0					0					0	0	
	11:30 PM					0					0					0					0	0	
	11:45 PM					0					0					0					0	0	
Totals		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Peak Hour Bicycle Turning Movement Volume Summary

	Hourly Time Period	From North (↓) Division Road					From East (←) STH 167 - Mequon Road					From South (↑) Division Road					From West (→) STH 167 - Mequon Road					Total Hourly Volume
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Traffic Volume Report

Count Basics			Special Report
Start Date:	Tuesday, July 29, 2025	Weekday	Schools Not in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

15-Minute Motor Vehicle Data (Daily & Seasonally Adjusted)

STH 167 - Mequon Road & Division Road

All Motor Vehicles

15-Minute Motor Vehicle Data

15-Minute Time Period		From North (↓) Division Road					From East (←) STH 167 - Mequon Road					From South (↑) Division Road					From West (→) STH 167 - Mequon Road					15-Min	Hourly	
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals	Sum	PHF
Pre-AM Peak Period	12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
AM Peak Period	6:00 AM	10	3	2	0	15	0	36	3	0	39	1	1	4	0	6	1	35	1	0	37	97	530	0.68
	6:15 AM	6	1	0	0	7	0	55	1	0	56	5	1	11	0	17	2	34	0	0	36	116	636	0.78
	6:30 AM	7	2	2	0	11	0	58	2	0	60	4	0	6	0	10	3	39	0	0	42	123	740	0.84
	6:45 AM	13	4	1	0	18	0	80	7	0	87	5	1	17	0	23	11	54	1	0	66	194	881	0.83
	7:00 AM	4	4	4	0	12	0	71	5	0	76	8	4	16	0	28	12	73	2	0	87	203	1032	0.75
	7:15 AM	11	5	1	0	17	1	78	6	0	85	15	2	18	0	35	4	77	2	0	83	220	1076	0.78
	7:30 AM	12	5	2	0	19	2	87	13	0	102	15	1	26	0	42	9	88	4	0	101	264	1089	0.79
	7:45 AM	9	4	2	0	15	0	115	12	0	127	20	2	39	0	61	15	118	9	0	142	345	1080	0.78
	8:00 AM	6	4	0	0	10	1	91	14	0	106	11	4	16	0	31	16	82	2	0	100	247	987	0.97
	8:15 AM	4	4	2	0	10	1	81	6	0	88	12	1	16	0	29	17	87	2	0	106	233		
	8:30 AM	13	6	2	0	21	2	80	14	0	96	18	1	13	0	32	13	90	3	0	106	255		
	8:45 AM	6	5	1	0	12	2	75	11	0	88	14	1	15	0	30	19	98	5	0	122	252		
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:00 PM	10	4	3	0	17	4	116	19	0	139	17	3	10	0	30	17	126	10	0	153	339	1313	0.97
	3:15 PM	9	2	1	0	12	3	105	18	0	126	20	6	14	0	40	9	110	9	0	128	306	1373	0.86
	3:30 PM	6	2	2	0	10	2	118	21	0	141	26	6	10	0	42	11	113	11	0	135	328	1448	0.91
	3:45 PM	12	4	0	0	16	5	114	18	0	137	20	10	21	0	51	13	118	5	0	136	340	1534	0.93
	4:00 PM	9	4	4	0	17	4	136	21	0	161	26	4	27	0	57	24	130	10	0	164	399	1613	0.96
	4:15 PM	7	7	4	0	18	4	119	19	0	142	30	10	22	0	62	22	130	7	0	159	381	1647	0.95
	4:30 PM	10	8	4	0	22	3	116	17	0	136	24	5	25	0	54	21	169	12	0	202	414	1620	0.94
	4:45 PM	10	4	0	0	14	4	147	21	0	172	27	8	23	0	58	25	146	4	0	175	419	1521	0.88
	5:00 PM	11	5	3	0	19	4	140	27	0	171	23	12	22	0	57	28	147	11	0	186	433	1365	0.79
	5:15 PM	8	4	1	0	13	7	112	23	0	142	20	7	19	0	46	21	126	6	0	153	354		
	5:30 PM	8	8	1	0	17	5	94	28	0	127	18	9	14	0	41	20	106	4	0	130	315		
	5:45 PM	10	3	2	0	15	3	78	16	0	97	22	9	11	0	42	8	95	6	0	109	263		
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Post PM Peak Period	10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		211	102	44	0	357	57	2302	342	0	2701	401	108	415	0	924	341	2391	126	0	2858	6840		

Peak Hour All Vehicle Volume Summary

Hourly Time Period		From North (↓) Division Road					From East (←) STH 167 - Mequon Road					From South (↑) Division Road					From West (→) STH 167 - Mequon Road					Total Hourly	
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Volume	PHF
AM	7:30 AM	31	17	6	0	54	4	374	45	0	423	58	8	97	0	163	57	375	17	0	449	1089	0.79
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM	4:15 PM	38	24	11	0	73	15	522	84	0	621	104	35	92	0	231	96	592	34	0	722	1647	0.95

APPENDIX B

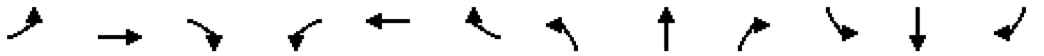
LOS DEFINITIONS
SYNCHRO INTERSECTION CAPACITY ANALYSIS

Existing Traffic Volumes

Level of Service Definitions

LOS	Signalized Intersections Control Delay/Vehicle (sec/veh)	Unsignalized Intersections Avg. Control Delay (sec/veh)	Relative Delay
A	≤10	≤10	Short Delays
	Free-flow traffic operations at avearge travel speeds. Vehicles completely unimpeded in ability to maneuver. Minimal delay at signalized intersections.		
B	> 10 - 20	> 10 - 15	
	Reasonably unimpeded traffic operations at average travel speeds. Vehicle maneuverability slightly restricted. Low traffic delays.		
C	> 20 - 35	> 15 - 25	
	Stable traffic operations. Lane changes becoming more restricted. Travel speeds reduced to half of average free flow travel speeds. Longer intersection delays.		
D	> 35 - 55	> 25 - 35	Moderate Delays
	Small increases in traffic flow can cause increased delays. Delays likely attributable to increased traffic, reduced signal progression, and adverse timing.		
E	> 55 - 80	> 35 - 50	
	Significant delays. Travel speeds reduced to one-third of average free flow travel speed.		
F	> 80	> 50	Long Delays
	Extremely low speeds. Intersection congestion. Long delays. Extensive traffic queues at intersections.		

Source: Highway Capacity Manual, Transportation Research Board, Washington, D.C., 2010

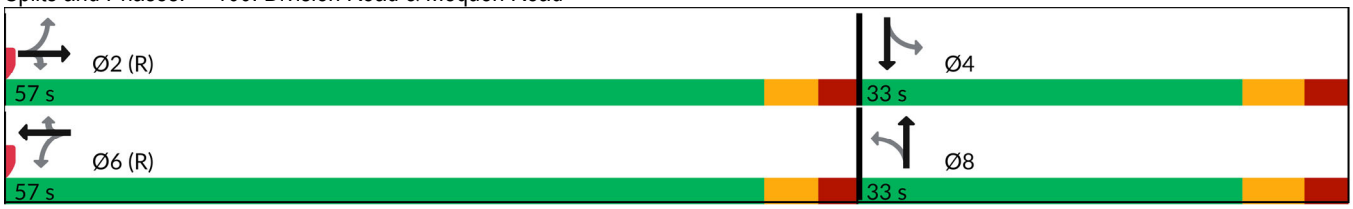


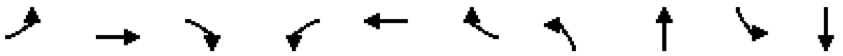
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	425	65	50	435	5	110	10	65	5	20	35
Future Volume (vph)	20	425	65	50	435	5	110	10	65	5	20	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		100	225		100	75		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Right Turn on Red			No			No			No			No
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1077			1302			456			774	
Travel Time (s)		21.0			25.4			8.9			21.1	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	62%	100%	100%	62%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	538	51	63	551	4	139	95	0	6	69	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	21.1	21.1	21.1	21.1	21.1	21.1	17.1	17.1		17.1	17.1	
Total Split (s)	57.0	57.0	57.0	57.0	57.0	57.0	33.0	33.0		33.0	33.0	
Total Split (%)	63.3%	63.3%	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	50.9	50.9	50.9	50.9	50.9	50.9	25.9	25.9		25.9	25.9	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.1	4.1		4.1	4.1	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	7.1	7.1		7.1	7.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0		2.0	2.0	
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Time Before Reduce (s)	25.0	25.0	25.0	25.0	25.0	25.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	15.0	15.0	15.0	15.0	15.0	15.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.04	0.23	0.05	0.11	0.23	0.00	0.66	0.37		0.03	0.26	
Control Delay (s/veh)	5.8	5.8	5.5	6.2	5.8	5.7	49.9	36.7		29.2	33.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	5.8	5.8	5.5	6.2	5.8	5.7	49.9	36.7		29.2	33.9	
Queue Length 50th (ft)	4	48	8	10	50	1	76	49		3	35	
Queue Length 95th (ft)	13	75	20	26	77	4	109	76		11	58	
Internal Link Dist (ft)		997			1222			376			694	
Turn Bay Length (ft)	100		100	225		100	75					
Base Capacity (vph)	559	2385	1044	567	2385	1044	381	461		375	485	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.04	0.23	0.05	0.11	0.23	0.00	0.36	0.21		0.02	0.14	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 70 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	

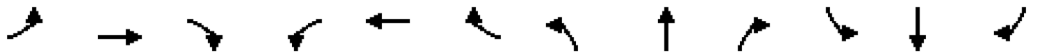
Splits and Phases: 100: Division Road & Mequon Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	25	538	51	63	551	4	139	95	6	69
v/c Ratio	0.04	0.23	0.05	0.11	0.23	0.00	0.66	0.37	0.03	0.26
Control Delay (s/veh)	5.8	5.8	5.5	6.2	5.8	5.7	49.9	36.7	29.2	33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	5.8	5.8	5.5	6.2	5.8	5.7	49.9	36.7	29.2	33.9
Queue Length 50th (ft)	4	48	8	10	50	1	76	49	3	35
Queue Length 95th (ft)	13	75	20	26	77	4	109	76	11	58
Internal Link Dist (ft)		997			1222			376		694
Turn Bay Length (ft)	100		100	225		100	75			
Base Capacity (vph)	559	2385	1044	567	2385	1044	381	461	375	485
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.23	0.05	0.11	0.23	0.00	0.36	0.21	0.02	0.14

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	425	65	50	435	5	110	10	65	5	20	35
Future Volume (veh/h)	20	425	65	50	435	5	110	10	65	5	20	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	25	538	51	63	551	4	139	13	82	6	25	44
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	5	5	5	5	5	5	2	2	2	1	1	1
Cap, veh/h	605	2390	1043	590	2390	1043	251	36	227	226	100	175
Arrive On Green	0.69	0.69	0.69	0.69	0.69	0.69	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	833	3469	1514	807	3469	1514	1330	219	1379	1309	606	1067
Grp Volume(v), veh/h	25	538	51	63	551	4	139	0	95	6	0	69
Grp Sat Flow(s),veh/h/ln	833	1735	1514	807	1735	1514	1330	0	1597	1309	0	1674
Q Serve(g_s), s	1.0	5.1	1.0	2.8	5.3	0.1	9.2	0.0	4.8	0.4	0.0	3.2
Cycle Q Clear(g_c), s	6.3	5.1	1.0	7.9	5.3	0.1	12.4	0.0	4.8	5.1	0.0	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.86	1.00		0.64
Lane Grp Cap(c), veh/h	605	2390	1043	590	2390	1043	251	0	263	226	0	275
V/C Ratio(X)	0.04	0.23	0.05	0.11	0.23	0.00	0.55	0.00	0.36	0.03	0.00	0.25
Avail Cap(c_a), veh/h	605	2390	1043	590	2390	1043	415	0	460	388	0	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.3	5.2	4.5	6.6	5.2	4.4	38.2	0.0	33.4	35.7	0.0	32.8
Incr Delay (d2), s/veh	0.1	0.2	0.1	0.4	0.2	0.0	0.7	0.0	0.3	0.0	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	2.8	0.5	0.9	2.9	0.0	5.3	0.0	3.3	0.2	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	6.5	5.4	4.6	7.0	5.4	4.4	38.9	0.0	33.7	35.7	0.0	32.9
LnGrp LOS	A	A	A	A	A	A	D		C	D		C
Approach Vol, veh/h		614			618			234			75	
Approach Delay, s/veh		5.4			5.6			36.8			33.2	
Approach LOS		A			A			D			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		68.1		21.9		68.1		21.9				
Change Period (Y+Rc), s		6.1		7.1		6.1		7.1				
Max Green Setting (Gmax), s		50.9		25.9		50.9		25.9				
Max Q Clear Time (g_c+I1), s		8.3		7.1		9.9		14.4				
Green Ext Time (p_c), s		8.7		0.2		9.0		0.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			11.6									
HCM 7th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	1	1	1	1	185	10	5	130	1
Future Volume (vph)	1	1	1	1	1	1	1	185	10	5	130	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		359			429			1167			456	
Travel Time (s)		8.2			9.8			22.7			8.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	3%	3%	3%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	3	0	0	222	0	0	155	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

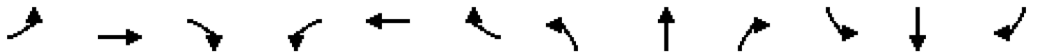
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	1	1	1	1	1	1	185	10	5	130	1
Future Vol, veh/h	1	1	1	1	1	1	1	185	10	5	130	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	1	1	1	1	1	1	3	3	3	4	4	4
Mvmt Flow	1	1	1	1	1	1	1	210	11	6	148	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	373	384	148	378	378	216	149	0	0	222	0	0
Stage 1	160	160	-	218	218	-	-	-	-	-	-	-
Stage 2	213	224	-	160	160	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.13	-	-	4.14	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.227	-	-	2.236	-	-
Pot Cap-1 Maneuver	586	551	901	582	555	826	1426	-	-	1336	-	-
Stage 1	845	768	-	786	724	-	-	-	-	-	-	-
Stage 2	791	720	-	845	767	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	581	548	901	576	552	826	1426	-	-	1336	-	-
Mov Cap-2 Maneuver	581	548	-	576	552	-	-	-	-	-	-	-
Stage 1	841	764	-	786	724	-	-	-	-	-	-	-
Stage 2	788	720	-	839	764	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.62	10.74	0.04	0.28
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	9	-	-	644	631	66	-	-
HCM Lane V/C Ratio	0.001	-	-	0.005	0.005	0.004	-	-
HCM Ctrl Dly (s/v)	7.5	0	-	10.6	10.7	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

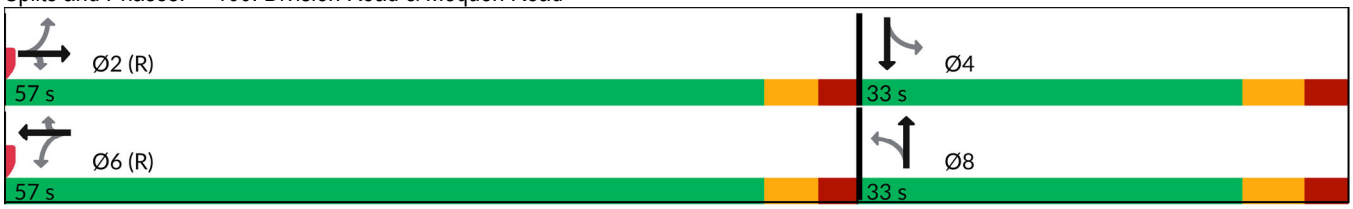


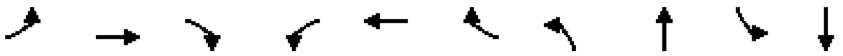
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	685	110	95	615	15	105	40	120	10	30	40
Future Volume (vph)	40	685	110	95	615	15	105	40	120	10	30	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		100	225		100	75		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Right Turn on Red			No			No			No			No
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1077			1302			456			774	
Travel Time (s)		21.0			25.4			8.9			21.1	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			3			1			1			2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	62%	100%	100%	62%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	721	72	100	647	10	111	168	0	11	74	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	21.1	21.1	21.1	21.1	21.1	21.1	17.1	17.1		17.1	17.1	
Total Split (s)	57.0	57.0	57.0	57.0	57.0	57.0	33.0	33.0		33.0	33.0	
Total Split (%)	63.3%	63.3%	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	50.9	50.9	50.9	50.9	50.9	50.9	25.9	25.9		25.9	25.9	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.1	4.1		4.1	4.1	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	7.1	7.1		7.1	7.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0		2.0	2.0	
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Time Before Reduce (s)	25.0	25.0	25.0	25.0	25.0	25.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	15.0	15.0	15.0	15.0	15.0	15.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.08	0.30	0.07	0.21	0.26	0.01	0.54	0.66		0.06	0.28	
Control Delay (s/veh)	5.8	6.0	5.4	7.0	5.8	5.4	44.0	47.7		30.6	34.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	5.8	6.0	5.4	7.0	5.8	5.4	44.0	47.7		30.6	34.8	
Queue Length 50th (ft)	6	69	11	17	60	2	59	91		5	38	
Queue Length 95th (ft)	21	117	29	47	104	7	105	147		19	72	
Internal Link Dist (ft)		997			1222			376			694	
Turn Bay Length (ft)	100		100	225		100	75					
Base Capacity (vph)	519	2442	1067	475	2442	1069	379	470		334	491	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.08	0.30	0.07	0.21	0.26	0.01	0.29	0.36		0.03	0.15	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 19 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	

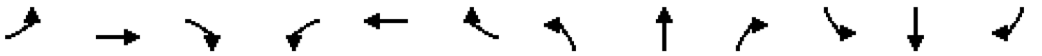
Splits and Phases: 100: Division Road & Mequon Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	42	721	72	100	647	10	111	168	11	74
v/c Ratio	0.08	0.30	0.07	0.21	0.26	0.01	0.54	0.66	0.06	0.28
Control Delay (s/veh)	5.8	6.0	5.4	7.0	5.8	5.4	44.0	47.7	30.6	34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	5.8	6.0	5.4	7.0	5.8	5.4	44.0	47.7	30.6	34.8
Queue Length 50th (ft)	6	69	11	17	60	2	59	91	5	38
Queue Length 95th (ft)	21	117	29	47	104	7	105	147	19	72
Internal Link Dist (ft)		997			1222			376		694
Turn Bay Length (ft)	100		100	225		100	75			
Base Capacity (vph)	519	2442	1067	475	2442	1069	379	470	334	491
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.30	0.07	0.21	0.26	0.01	0.29	0.36	0.03	0.15

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	685	110	95	615	15	105	40	120	10	30	40
Future Volume (veh/h)	40	685	110	95	615	15	105	40	120	10	30	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	42	721	72	100	647	10	111	42	126	11	32	42
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	1	1	1
Cap, veh/h	571	2481	1082	506	2481	1083	227	61	183	144	110	144
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	770	3526	1537	679	3526	1539	1324	407	1221	1226	732	961
Grp Volume(v), veh/h	42	721	72	100	647	10	111	0	168	11	0	74
Grp Sat Flow(s),veh/h/ln	770	1763	1537	679	1763	1539	1324	0	1628	1226	0	1693
Q Serve(g_s), s	1.9	6.9	1.3	5.8	6.0	0.2	7.3	0.0	8.8	0.8	0.0	3.5
Cycle Q Clear(g_c), s	7.9	6.9	1.3	12.7	6.0	0.2	10.8	0.0	8.8	9.6	0.0	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.75	1.00		0.57
Lane Grp Cap(c), veh/h	571	2481	1082	506	2481	1083	227	0	244	144	0	253
V/C Ratio(X)	0.07	0.29	0.07	0.20	0.26	0.01	0.49	0.00	0.69	0.08	0.00	0.29
Avail Cap(c_a), veh/h	571	2481	1082	506	2481	1083	409	0	468	313	0	487
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.3	5.0	4.1	7.3	4.8	4.0	38.8	0.0	36.3	40.8	0.0	34.0
Incr Delay (d2), s/veh	0.3	0.3	0.1	0.9	0.3	0.0	0.6	0.0	1.3	0.1	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	3.7	0.6	1.5	3.2	0.1	4.2	0.0	6.3	0.4	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	6.5	5.3	4.3	8.2	5.1	4.0	39.4	0.0	37.6	40.9	0.0	34.3
LnGrp LOS	A	A	A	A	A	A	D		D	D		C
Approach Vol, veh/h		835			757			279			85	
Approach Delay, s/veh		5.2			5.5			38.3			35.1	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.4		20.6		69.4		20.6				
Change Period (Y+Rc), s		6.1		7.1		6.1		7.1				
Max Green Setting (Gmax), s		50.9		25.9		50.9		25.9				
Max Q Clear Time (g_c+I1), s		9.9		11.6		14.7		12.8				
Green Ext Time (p_c), s		12.7		0.2		11.4		0.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			11.4									
HCM 7th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	10	1	10	1	255	10	1	235	1
Future Volume (vph)	1	1	1	10	1	10	1	255	10	1	235	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		359			429			1172			456	
Travel Time (s)		8.2			9.8			22.8			8.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	25	0	0	313	0	0	278	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	10	1	10	1	255	10	1	235	1
Future Vol, veh/h	1	1	1	10	1	10	1	255	10	1	235	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	1	1	1	2	2	2	2	2	2
Mvmt Flow	1	1	1	12	1	12	1	300	12	1	276	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	582	594	277	588	588	306	278	0	0	312	0	0
Stage 1	279	279	-	308	308	-	-	-	-	-	-	-
Stage 2	303	314	-	279	280	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	426	420	764	422	422	736	1285	-	-	1249	-	-
Stage 1	729	681	-	704	662	-	-	-	-	-	-	-
Stage 2	709	658	-	729	681	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	417	419	764	419	422	736	1285	-	-	1249	-	-
Mov Cap-2 Maneuver	417	419	-	419	422	-	-	-	-	-	-	-
Stage 1	729	681	-	703	661	-	-	-	-	-	-	-
Stage 2	695	657	-	726	680	-	-	-	-	-	-	-

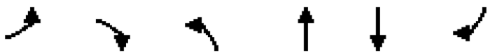
Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.37	12.16	0.03	0.03
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	7	-	-	492	528	8	-	-
HCM Lane V/C Ratio	0.001	-	-	0.007	0.047	0.001	-	-
HCM Ctrl Dly (s/v)	7.8	0	-	12.4	12.2	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

APPENDIX C

SYNCHRO INTERSECTION CAPACITY ANALYSIS

Build Traffic Volumes



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	1	1	215	150	5
Future Volume (vph)	5	1	1	215	150	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	100		100			
Link Speed (mph)	25			35	35	
Link Distance (ft)	358			200	135	
Travel Time (s)	9.8			3.9	2.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	0	245	176	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

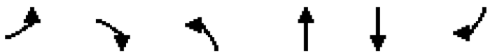
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	1	1	215	150	5
Future Vol, veh/h	5	1	1	215	150	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	3	3	4	4
Mvmt Flow	6	1	1	244	170	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	420	173	176	0	-	0
Stage 1	173	-	-	-	-	-
Stage 2	247	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.13	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.227	-	-	-
Pot Cap-1 Maneuver	590	870	1394	-	-	-
Stage 1	857	-	-	-	-	-
Stage 2	794	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	589	870	1394	-	-	-
Mov Cap-2 Maneuver	589	-	-	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	794	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.84	0.04	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	8	-	623	-	-
HCM Lane V/C Ratio	0.001	-	0.011	-	-
HCM Ctrl Dly (s/v)	7.6	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	1	1	210	150	1
Future Volume (vph)	5	1	1	210	150	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	100		100			
Link Speed (mph)	25			35	35	
Link Distance (ft)	358			728	200	
Travel Time (s)	9.8			14.2	3.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	0	240	171	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

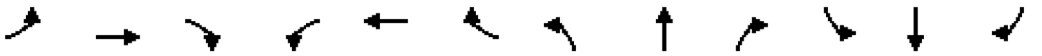
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	1	1	210	150	1
Future Vol, veh/h	5	1	1	210	150	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	3	3	4	4
Mvmt Flow	6	1	1	239	170	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	412	171	172	0	-	0
Stage 1	171	-	-	-	-	-
Stage 2	241	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.13	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.227	-	-	-
Pot Cap-1 Maneuver	596	873	1399	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	799	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	596	873	1399	-	-	-
Mov Cap-2 Maneuver	596	-	-	-	-	-
Stage 1	858	-	-	-	-	-
Stage 2	799	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.79	0.04	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	9	-	629	-	-
HCM Lane V/C Ratio	0.001	-	0.011	-	-
HCM Ctrl Dly (s/v)	7.6	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



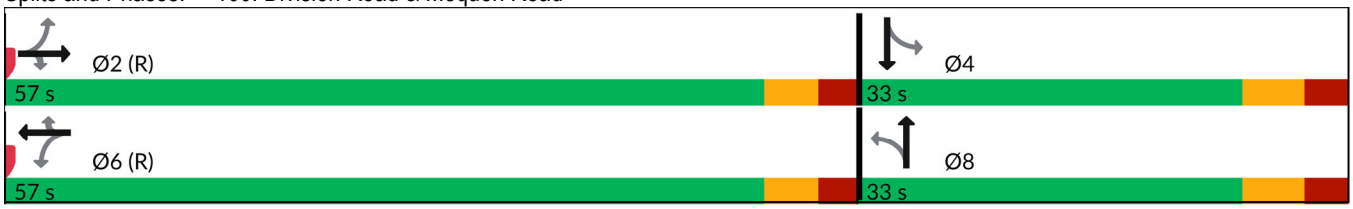
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	525	75	50	565	30	120	20	70	55	35	55
Future Volume (vph)	30	525	75	50	565	30	120	20	70	55	35	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		100	225		100	75		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Right Turn on Red			No			No			No			No
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1077			1302			456			774	
Travel Time (s)		21.0			25.4			8.9			21.1	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	62%	100%	100%	62%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	665	59	63	715	24	152	114	0	70	114	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	21.1	21.1	21.1	21.1	21.1	21.1	17.1	17.1		17.1	17.1	
Total Split (s)	57.0	57.0	57.0	57.0	57.0	57.0	33.0	33.0		33.0	33.0	
Total Split (%)	63.3%	63.3%	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	50.9	50.9	50.9	50.9	50.9	50.9	25.9	25.9		25.9	25.9	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.1	4.1		4.1	4.1	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	7.1	7.1		7.1	7.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0		2.0	2.0	
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Time Before Reduce (s)	25.0	25.0	25.0	25.0	25.0	25.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	15.0	15.0	15.0	15.0	15.0	15.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.08	0.28	0.06	0.13	0.31	0.02	0.69	0.41		0.32	0.39	
Control Delay (s/veh)	6.7	6.6	6.1	7.1	6.8	6.1	50.8	36.2		34.7	35.6	

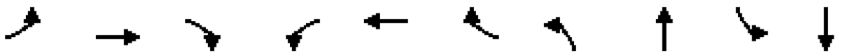
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	6.7	6.6	6.1	7.1	6.8	6.1	50.8	36.2		34.7	35.6	
Queue Length 50th (ft)	6	67	10	11	74	4	83	59		35	58	
Queue Length 95th (ft)	19	100	24	28	108	13	115	86		59	86	
Internal Link Dist (ft)		997			1222			376			694	
Turn Bay Length (ft)	100		100	225		100	75					
Base Capacity (vph)	456	2340	1024	485	2340	1024	366	468		370	487	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.08	0.28	0.06	0.13	0.31	0.02	0.42	0.24		0.19	0.23	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 70 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 40
Control Type: Actuated-Coordinated

Splits and Phases: 100: Division Road & Mequon Road





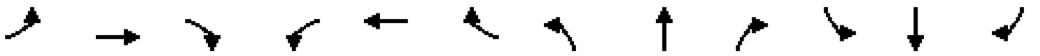
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	665	59	63	715	24	152	114	70	114
v/c Ratio	0.08	0.28	0.06	0.13	0.31	0.02	0.69	0.41	0.32	0.39
Control Delay (s/veh)	6.7	6.6	6.1	7.1	6.8	6.1	50.8	36.2	34.7	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.7	6.6	6.1	7.1	6.8	6.1	50.8	36.2	34.7	35.6
Queue Length 50th (ft)	6	67	10	11	74	4	83	59	35	58
Queue Length 95th (ft)	19	100	24	28	108	13	115	86	59	86
Internal Link Dist (ft)		997			1222			376		694
Turn Bay Length (ft)	100		100	225		100	75			
Base Capacity (vph)	456	2340	1024	485	2340	1024	366	468	370	487
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.28	0.06	0.13	0.31	0.02	0.42	0.24	0.19	0.23

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	525	75	50	565	30	120	20	70	55	35	55
Future Volume (veh/h)	30	525	75	50	565	30	120	20	70	55	35	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	38	665	59	63	715	24	152	25	89	70	44	70
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	5	5	5	5	5	5	2	2	2	1	1	1
Cap, veh/h	475	2263	988	486	2263	988	262	71	254	261	130	207
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.65	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	702	3469	1514	712	3469	1514	1277	355	1265	1287	649	1032
Grp Volume(v), veh/h	38	665	59	63	715	24	152	0	114	70	0	114
Grp Sat Flow(s),veh/h/ln	702	1735	1514	712	1735	1514	1277	0	1621	1287	0	1681
Q Serve(g_s), s	2.3	7.4	1.3	3.8	8.1	0.5	10.4	0.0	5.4	4.4	0.0	5.2
Cycle Q Clear(g_c), s	10.4	7.4	1.3	11.2	8.1	0.5	15.7	0.0	5.4	9.9	0.0	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.78	1.00		0.61
Lane Grp Cap(c), veh/h	475	2263	988	486	2263	988	262	0	326	261	0	338
V/C Ratio(X)	0.08	0.29	0.06	0.13	0.32	0.02	0.58	0.00	0.35	0.27	0.00	0.34
Avail Cap(c_a), veh/h	475	2263	988	486	2263	988	373	0	466	373	0	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.1	6.7	5.7	9.1	6.8	5.5	37.5	0.0	30.9	35.2	0.0	30.8
Incr Delay (d2), s/veh	0.3	0.3	0.1	0.6	0.4	0.0	0.8	0.0	0.2	0.2	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	4.3	0.7	1.1	4.7	0.3	5.8	0.0	3.8	2.5	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.4	7.1	5.8	9.7	7.2	5.6	38.3	0.0	31.1	35.4	0.0	31.0
LnGrp LOS	A	A	A	A	A	A	D		C	D		C
Approach Vol, veh/h		762			802			266			184	
Approach Delay, s/veh		7.1			7.4			35.2			32.7	
Approach LOS		A			A			D			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	64.8	25.2	64.8	25.2
Change Period (Y+Rc), s	6.1	7.1	6.1	7.1
Max Green Setting (Gmax), s	50.9	25.9	50.9	25.9
Max Q Clear Time (g_c+I1), s	12.4	11.9	13.2	17.7
Green Ext Time (p_c), s	11.2	0.4	12.2	0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	13.2
HCM 7th LOS	B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	1	1	1	1	210	10	5	155	1
Future Volume (vph)	1	1	1	1	1	1	1	210	10	5	155	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		359			429			135			456	
Travel Time (s)		8.2			9.8			2.6			8.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	3%	3%	3%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	3	0	0	251	0	0	183	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

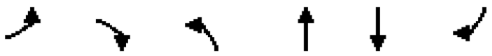
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	1	1	1	1	210	10	5	155	1
Future Vol, veh/h	1	1	1	1	1	1	1	210	10	5	155	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	1	1	1	1	1	1	3	3	3	4	4	4
Mvmt Flow	1	1	1	1	1	1	1	239	11	6	176	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	430	440	177	435	435	244	177	0	0	250	0	0
Stage 1	188	188	-	247	247	-	-	-	-	-	-	-
Stage 2	241	252	-	188	189	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.13	-	-	4.14	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.227	-	-	2.236	-	-
Pot Cap-1 Maneuver	538	512	869	533	516	797	1393	-	-	1304	-	-
Stage 1	816	746	-	759	704	-	-	-	-	-	-	-
Stage 2	764	700	-	816	746	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	533	509	869	528	513	797	1393	-	-	1304	-	-
Mov Cap-2 Maneuver	533	509	-	528	513	-	-	-	-	-	-	-
Stage 1	812	743	-	759	703	-	-	-	-	-	-	-
Stage 2	761	699	-	810	742	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.02	11.15	0.03	0.24
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	8	-	-	601	589	56	-	-
HCM Lane V/C Ratio	0.001	-	-	0.006	0.006	0.004	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	11	11.2	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	1	1	285	265	5
Future Volume (vph)	5	1	1	285	265	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	100		100			
Link Speed (mph)	30			35	35	
Link Distance (ft)	358			200	135	
Travel Time (s)	8.1			3.9	2.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	0	336	318	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

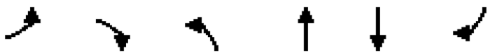
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	1	1	285	265	5
Future Vol, veh/h	5	1	1	285	265	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	1	1	335	312	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	652	315	318	0	-	0
Stage 1	315	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	432	726	1242	-	-	-
Stage 1	740	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	432	726	1242	-	-	-
Mov Cap-2 Maneuver	432	-	-	-	-	-
Stage 1	739	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.89	0.03	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	6	-	463	-	-
HCM Lane V/C Ratio	0.001	-	0.015	-	-
HCM Ctrl Dly (s/v)	7.9	0	12.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	1	1	285	260	5
Future Volume (vph)	1	1	1	285	260	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	100		100			
Link Speed (mph)	30			35	35	
Link Distance (ft)	358			833	200	
Travel Time (s)	8.1			16.2	3.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	0	336	312	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

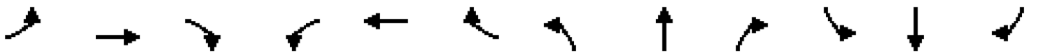
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	1	285	260	5
Future Vol, veh/h	1	1	1	285	260	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	1	335	306	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	646	309	312	0	-	0
Stage 1	309	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	436	731	1249	-	-	-
Stage 1	745	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	435	731	1249	-	-	-
Mov Cap-2 Maneuver	435	-	-	-	-	-
Stage 1	744	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.63	0.03	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	6	-	546	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Ctrl Dly (s/v)	7.9	0	11.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



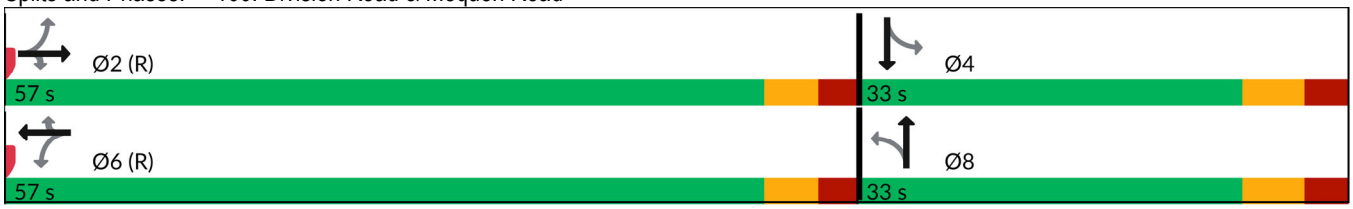
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	855	120	100	760	60	115	55	120	45	40	55
Future Volume (vph)	60	855	120	100	760	60	115	55	120	45	40	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		100	225		100	75		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Right Turn on Red			No			No			No			No
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1077			1302			456			774	
Travel Time (s)		21.0			25.4			8.9			21.1	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			3			1			1			2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	62%	100%	100%	62%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	900	78	105	800	39	121	184	0	47	100	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	21.1	21.1	21.1	21.1	21.1	21.1	17.1	17.1		17.1	17.1	
Total Split (s)	57.0	57.0	57.0	57.0	57.0	57.0	33.0	33.0		33.0	33.0	
Total Split (%)	63.3%	63.3%	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	50.9	50.9	50.9	50.9	50.9	50.9	25.9	25.9		25.9	25.9	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.1	4.1		4.1	4.1	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	7.1	7.1		7.1	7.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0		2.0	2.0	
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Time Before Reduce (s)	25.0	25.0	25.0	25.0	25.0	25.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	15.0	15.0	15.0	15.0	15.0	15.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.15	0.37	0.07	0.28	0.33	0.04	0.58	0.68		0.27	0.36	
Control Delay (s/veh)	6.9	6.9	5.7	8.8	6.5	5.6	44.9	47.7		35.1	35.8	

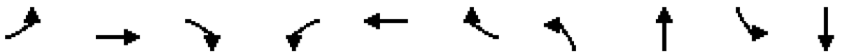
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	6.9	6.9	5.7	8.8	6.5	5.6	44.9	47.7		35.1	35.8	
Queue Length 50th (ft)	11	95	12	20	81	6	65	100		24	51	
Queue Length 95th (ft)	32	159	33	56	138	19	112	157		52	91	
Internal Link Dist (ft)		997			1222			376			694	
Turn Bay Length (ft)	100		100	225		100	75					
Base Capacity (vph)	427	2416	1056	377	2416	1057	370	476		312	490	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.15	0.37	0.07	0.28	0.33	0.04	0.33	0.39		0.15	0.20	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 19 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

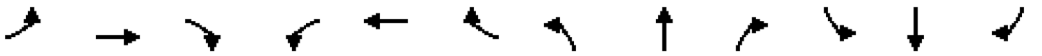
Splits and Phases: 100: Division Road & Mequon Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	900	78	105	800	39	121	184	47	100
v/c Ratio	0.15	0.37	0.07	0.28	0.33	0.04	0.58	0.68	0.27	0.36
Control Delay (s/veh)	6.9	6.9	5.7	8.8	6.5	5.6	44.9	47.7	35.1	35.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.9	6.9	5.7	8.8	6.5	5.6	44.9	47.7	35.1	35.8
Queue Length 50th (ft)	11	95	12	20	81	6	65	100	24	51
Queue Length 95th (ft)	32	159	33	56	138	19	112	157	52	91
Internal Link Dist (ft)		997			1222			376		694
Turn Bay Length (ft)	100		100	225		100	75			
Base Capacity (vph)	427	2416	1056	377	2416	1057	370	476	312	490
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.37	0.07	0.28	0.33	0.04	0.33	0.39	0.15	0.20

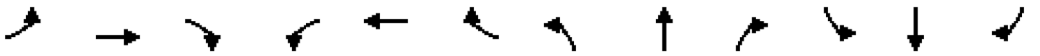
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	855	120	100	760	60	115	55	120	45	40	55
Future Volume (veh/h)	60	855	120	100	760	60	115	55	120	45	40	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	63	900	78	105	800	39	121	58	126	47	42	58
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	1	1	1
Cap, veh/h	462	2400	1047	406	2400	1048	236	90	195	163	122	169
Arrive On Green	0.68	0.68	0.68	0.68	0.68	0.68	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	650	3526	1537	570	3526	1539	1293	519	1128	1208	710	980
Grp Volume(v), veh/h	63	900	78	105	800	39	121	0	184	47	0	100
Grp Sat Flow(s),veh/h/ln	650	1763	1537	570	1763	1539	1293	0	1647	1208	0	1690
Q Serve(g_s), s	4.0	9.8	1.5	8.7	8.4	0.7	8.2	0.0	9.4	3.4	0.0	4.7
Cycle Q Clear(g_c), s	12.4	9.8	1.5	18.6	8.4	0.7	12.9	0.0	9.4	12.8	0.0	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.68	1.00		0.58
Lane Grp Cap(c), veh/h	462	2400	1047	406	2400	1048	236	0	284	163	0	292
V/C Ratio(X)	0.14	0.37	0.07	0.26	0.33	0.04	0.51	0.00	0.65	0.29	0.00	0.34
Avail Cap(c_a), veh/h	462	2400	1047	406	2400	1048	385	0	474	302	0	486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.5	6.2	4.8	10.1	5.9	4.7	38.4	0.0	34.7	40.6	0.0	32.7
Incr Delay (d2), s/veh	0.6	0.4	0.1	1.5	0.4	0.1	0.6	0.0	0.9	0.4	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	5.6	0.8	2.1	4.8	0.4	4.6	0.0	6.7	1.8	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.1	6.6	5.0	11.7	6.3	4.8	39.0	0.0	35.6	41.0	0.0	33.0
LnGrp LOS	A	A	A	B	A	A	D		D	D		C
Approach Vol, veh/h		1041			944			305			147	
Approach Delay, s/veh		6.6			6.8			37.0			35.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		67.4		22.6		67.4		22.6				
Change Period (Y+Rc), s		6.1		7.1		6.1		7.1				
Max Green Setting (Gmax), s		50.9		25.9		50.9		25.9				
Max Q Clear Time (g_c+I1), s		14.4		14.8		20.6		14.9				
Green Ext Time (p_c), s		16.3		0.3		13.8		0.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			12.3									
HCM 7th LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	10	1	10	1	280	10	1	260	1
Future Volume (vph)	1	1	1	10	1	10	1	280	10	1	260	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		359			429			135			456	
Travel Time (s)		8.2			9.8			2.6			8.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	25	0	0	342	0	0	308	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

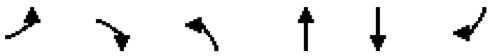
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	10	1	10	1	280	10	1	260	1
Future Vol, veh/h	1	1	1	10	1	10	1	280	10	1	260	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	1	1	1	2	2	2	2	2	2
Mvmt Flow	1	1	1	12	1	12	1	329	12	1	306	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	641	652	306	646	647	335	307	0	0	341	0	0
Stage 1	309	309	-	338	338	-	-	-	-	-	-	-
Stage 2	332	344	-	309	309	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	389	388	736	386	391	709	1254	-	-	1218	-	-
Stage 1	703	661	-	679	643	-	-	-	-	-	-	-
Stage 2	683	639	-	703	661	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	380	387	736	383	390	709	1254	-	-	1218	-	-
Mov Cap-2 Maneuver	380	387	-	383	390	-	-	-	-	-	-	-
Stage 1	703	661	-	678	642	-	-	-	-	-	-	-
Stage 2	670	638	-	700	660	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.94	12.72	0.03	0.03
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	6	-	-	457	491	7	-	-
HCM Lane V/C Ratio	0.001	-	-	0.008	0.05	0.001	-	-
HCM Ctrl Dly (s/v)	7.9	0	-	12.9	12.7	8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	1	0	220	150	5
Future Volume (vph)	0	1	0	220	150	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	0	1	0			0
Taper Length (ft)	100		100			
Link Speed (mph)	25			35	35	
Link Distance (ft)	358			200	135	
Travel Time (s)	9.8			3.9	2.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1	0	250	176	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

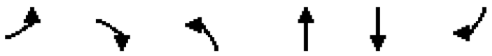
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	0	220	150	5
Future Vol, veh/h	0	1	0	220	150	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	3	3	4	4
Mvmt Flow	0	1	0	250	170	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	173	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	870	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	870	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.14	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	870	-	-
HCM Lane V/C Ratio	-	0.001	-	-
HCM Ctrl Dly (s/v)	-	9.1	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	1	1	210	150	1
Future Volume (vph)	10	1	1	210	150	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	100		100			
Link Speed (mph)	25			35	35	
Link Distance (ft)	358			728	200	
Travel Time (s)	9.8			14.2	3.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	0	0	240	171	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

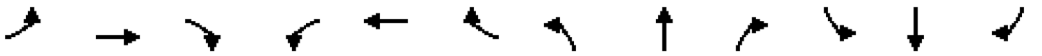
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	1	1	210	150	1
Future Vol, veh/h	10	1	1	210	150	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	3	3	4	4
Mvmt Flow	11	1	1	239	170	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	412	171	172	0	-	0
Stage 1	171	-	-	-	-	-
Stage 2	241	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.13	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.227	-	-	-
Pot Cap-1 Maneuver	596	873	1399	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	799	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	596	873	1399	-	-	-
Mov Cap-2 Maneuver	596	-	-	-	-	-
Stage 1	858	-	-	-	-	-
Stage 2	799	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.99	0.04	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	9	-	613	-	-
HCM Lane V/C Ratio	0.001	-	0.02	-	-
HCM Ctrl Dly (s/v)	7.6	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



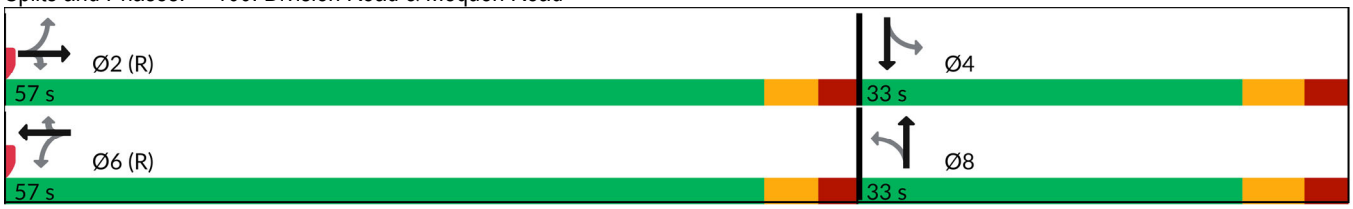
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	525	75	50	565	30	120	20	70	55	35	55
Future Volume (vph)	30	525	75	50	565	30	120	20	70	55	35	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		100	225		100	75		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Right Turn on Red			No			No			No			No
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1077			1302			456			774	
Travel Time (s)		21.0			25.4			8.9			21.1	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	62%	100%	100%	62%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	665	59	63	715	24	152	114	0	70	114	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	21.1	21.1	21.1	21.1	21.1	21.1	17.1	17.1		17.1	17.1	
Total Split (s)	57.0	57.0	57.0	57.0	57.0	57.0	33.0	33.0		33.0	33.0	
Total Split (%)	63.3%	63.3%	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	50.9	50.9	50.9	50.9	50.9	50.9	25.9	25.9		25.9	25.9	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.1	4.1		4.1	4.1	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	7.1	7.1		7.1	7.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0		2.0	2.0	
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Time Before Reduce (s)	25.0	25.0	25.0	25.0	25.0	25.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	15.0	15.0	15.0	15.0	15.0	15.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.08	0.28	0.06	0.13	0.31	0.02	0.69	0.41		0.32	0.39	
Control Delay (s/veh)	6.7	6.6	6.1	7.1	6.8	6.1	50.8	36.2		34.7	35.6	

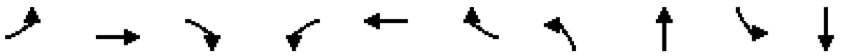
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	6.7	6.6	6.1	7.1	6.8	6.1	50.8	36.2		34.7	35.6	
Queue Length 50th (ft)	6	67	10	11	74	4	83	59		35	58	
Queue Length 95th (ft)	19	100	24	28	108	13	115	86		59	86	
Internal Link Dist (ft)		997			1222			376			694	
Turn Bay Length (ft)	100		100	225		100	75					
Base Capacity (vph)	456	2340	1024	485	2340	1024	366	468		370	487	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.08	0.28	0.06	0.13	0.31	0.02	0.42	0.24		0.19	0.23	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 70 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 40
Control Type: Actuated-Coordinated

Splits and Phases: 100: Division Road & Mequon Road





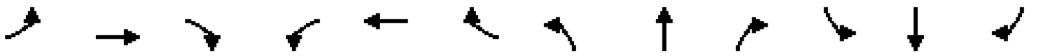
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	665	59	63	715	24	152	114	70	114
v/c Ratio	0.08	0.28	0.06	0.13	0.31	0.02	0.69	0.41	0.32	0.39
Control Delay (s/veh)	6.7	6.6	6.1	7.1	6.8	6.1	50.8	36.2	34.7	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.7	6.6	6.1	7.1	6.8	6.1	50.8	36.2	34.7	35.6
Queue Length 50th (ft)	6	67	10	11	74	4	83	59	35	58
Queue Length 95th (ft)	19	100	24	28	108	13	115	86	59	86
Internal Link Dist (ft)		997			1222			376		694
Turn Bay Length (ft)	100		100	225		100	75			
Base Capacity (vph)	456	2340	1024	485	2340	1024	366	468	370	487
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.28	0.06	0.13	0.31	0.02	0.42	0.24	0.19	0.23

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	525	75	50	565	30	120	20	70	55	35	55
Future Volume (veh/h)	30	525	75	50	565	30	120	20	70	55	35	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	38	665	59	63	715	24	152	25	89	70	44	70
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	5	5	5	5	5	5	2	2	2	1	1	1
Cap, veh/h	475	2263	988	486	2263	988	262	71	254	261	130	207
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.65	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	702	3469	1514	712	3469	1514	1277	355	1265	1287	649	1032
Grp Volume(v), veh/h	38	665	59	63	715	24	152	0	114	70	0	114
Grp Sat Flow(s),veh/h/ln	702	1735	1514	712	1735	1514	1277	0	1621	1287	0	1681
Q Serve(g_s), s	2.3	7.4	1.3	3.8	8.1	0.5	10.4	0.0	5.4	4.4	0.0	5.2
Cycle Q Clear(g_c), s	10.4	7.4	1.3	11.2	8.1	0.5	15.7	0.0	5.4	9.9	0.0	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.78	1.00		0.61
Lane Grp Cap(c), veh/h	475	2263	988	486	2263	988	262	0	326	261	0	338
V/C Ratio(X)	0.08	0.29	0.06	0.13	0.32	0.02	0.58	0.00	0.35	0.27	0.00	0.34
Avail Cap(c_a), veh/h	475	2263	988	486	2263	988	373	0	466	373	0	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.1	6.7	5.7	9.1	6.8	5.5	37.5	0.0	30.9	35.2	0.0	30.8
Incr Delay (d2), s/veh	0.3	0.3	0.1	0.6	0.4	0.0	0.8	0.0	0.2	0.2	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	4.3	0.7	1.1	4.7	0.3	5.8	0.0	3.8	2.5	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.4	7.1	5.8	9.7	7.2	5.6	38.3	0.0	31.1	35.4	0.0	31.0
LnGrp LOS	A	A	A	A	A	A	D		C	D		C
Approach Vol, veh/h		762			802			266			184	
Approach Delay, s/veh		7.1			7.4			35.2			32.7	
Approach LOS		A			A			D			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	64.8	25.2	64.8	25.2
Change Period (Y+Rc), s	6.1	7.1	6.1	7.1
Max Green Setting (Gmax), s	50.9	25.9	50.9	25.9
Max Q Clear Time (g_c+I1), s	12.4	11.9	13.2	17.7
Green Ext Time (p_c), s	11.2	0.4	12.2	0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	13.2
HCM 7th LOS	B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	1	1	1	1	210	10	5	155	1
Future Volume (vph)	1	1	1	1	1	1	1	210	10	5	155	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		359			429			135			456	
Travel Time (s)		8.2			9.8			2.6			8.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	3%	3%	3%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	3	0	0	251	0	0	183	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

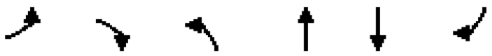
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	1	1	1	1	210	10	5	155	1
Future Vol, veh/h	1	1	1	1	1	1	1	210	10	5	155	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	1	1	1	1	1	1	3	3	3	4	4	4
Mvmt Flow	1	1	1	1	1	1	1	239	11	6	176	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	430	440	177	435	435	244	177	0	0	250	0	0
Stage 1	188	188	-	247	247	-	-	-	-	-	-	-
Stage 2	241	252	-	188	189	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.13	-	-	4.14	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.227	-	-	2.236	-	-
Pot Cap-1 Maneuver	538	512	869	533	516	797	1393	-	-	1304	-	-
Stage 1	816	746	-	759	704	-	-	-	-	-	-	-
Stage 2	764	700	-	816	746	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	533	509	869	528	513	797	1393	-	-	1304	-	-
Mov Cap-2 Maneuver	533	509	-	528	513	-	-	-	-	-	-	-
Stage 1	812	743	-	759	703	-	-	-	-	-	-	-
Stage 2	761	699	-	810	742	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.02	11.15	0.03	0.24
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	8	-	-	601	589	56	-	-
HCM Lane V/C Ratio	0.001	-	-	0.006	0.006	0.004	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	11	11.2	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	1	0	290	265	5
Future Volume (vph)	0	1	0	290	265	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	0	1	0			0
Taper Length (ft)	100		100			
Link Speed (mph)	30			35	35	
Link Distance (ft)	358			200	135	
Travel Time (s)	8.1			3.9	2.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1	0	341	318	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

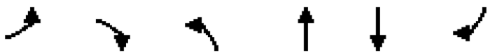
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	0	290	265	5
Future Vol, veh/h	0	1	0	290	265	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	341	312	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	315	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	726	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	726	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.97	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	726	-	-
HCM Lane V/C Ratio	-	0.002	-	-
HCM Ctrl Dly (s/v)	-	10	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	1	1	285	260	5
Future Volume (vph)	5	1	1	285	260	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	100		100			
Link Speed (mph)	30			35	35	
Link Distance (ft)	358			833	200	
Travel Time (s)	8.1			16.2	3.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	0	336	312	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

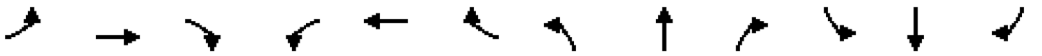
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	1	1	285	260	5
Future Vol, veh/h	5	1	1	285	260	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	1	1	335	306	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	646	309	312	0	-	0
Stage 1	309	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	436	731	1249	-	-	-
Stage 1	745	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	435	731	1249	-	-	-
Mov Cap-2 Maneuver	435	-	-	-	-	-
Stage 1	744	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.83	0.03	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	6	-	467	-	-
HCM Lane V/C Ratio	0.001	-	0.015	-	-
HCM Ctrl Dly (s/v)	7.9	0	12.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



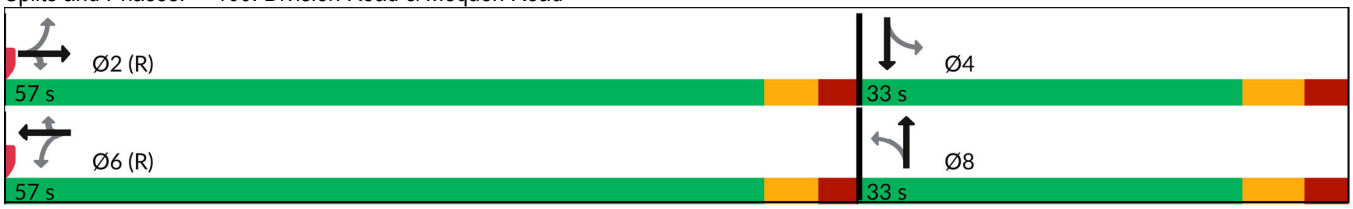
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	855	120	100	760	60	115	55	120	45	40	55
Future Volume (vph)	60	855	120	100	760	60	115	55	120	45	40	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		100	225		100	75		0	0		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Right Turn on Red			No			No			No			No
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1077			1302			456			774	
Travel Time (s)		21.0			25.4			8.9			21.1	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			3			1			1			2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	62%	100%	100%	62%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	900	78	105	800	39	121	184	0	47	100	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	21.1	21.1	21.1	21.1	21.1	21.1	17.1	17.1		17.1	17.1	
Total Split (s)	57.0	57.0	57.0	57.0	57.0	57.0	33.0	33.0		33.0	33.0	
Total Split (%)	63.3%	63.3%	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	50.9	50.9	50.9	50.9	50.9	50.9	25.9	25.9		25.9	25.9	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.1	4.1		4.1	4.1	
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	7.1	7.1		7.1	7.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0		2.0	2.0	
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Time Before Reduce (s)	25.0	25.0	25.0	25.0	25.0	25.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	15.0	15.0	15.0	15.0	15.0	15.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.15	0.37	0.07	0.28	0.33	0.04	0.58	0.68		0.27	0.36	
Control Delay (s/veh)	6.9	6.9	5.7	8.8	6.5	5.6	44.9	47.7		35.1	35.8	

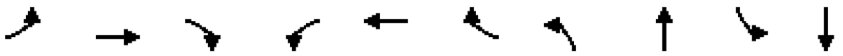
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	6.9	6.9	5.7	8.8	6.5	5.6	44.9	47.7		35.1	35.8	
Queue Length 50th (ft)	11	95	12	20	81	6	65	100		24	51	
Queue Length 95th (ft)	32	159	33	56	138	19	112	157		52	91	
Internal Link Dist (ft)		997			1222			376			694	
Turn Bay Length (ft)	100		100	225		100	75					
Base Capacity (vph)	427	2416	1056	377	2416	1057	370	476		312	490	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.15	0.37	0.07	0.28	0.33	0.04	0.33	0.39		0.15	0.20	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 19 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

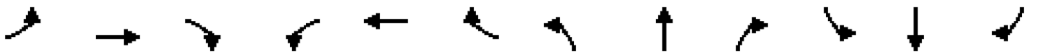
Splits and Phases: 100: Division Road & Mequon Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	900	78	105	800	39	121	184	47	100
v/c Ratio	0.15	0.37	0.07	0.28	0.33	0.04	0.58	0.68	0.27	0.36
Control Delay (s/veh)	6.9	6.9	5.7	8.8	6.5	5.6	44.9	47.7	35.1	35.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.9	6.9	5.7	8.8	6.5	5.6	44.9	47.7	35.1	35.8
Queue Length 50th (ft)	11	95	12	20	81	6	65	100	24	51
Queue Length 95th (ft)	32	159	33	56	138	19	112	157	52	91
Internal Link Dist (ft)		997			1222			376		694
Turn Bay Length (ft)	100		100	225		100	75			
Base Capacity (vph)	427	2416	1056	377	2416	1057	370	476	312	490
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.37	0.07	0.28	0.33	0.04	0.33	0.39	0.15	0.20

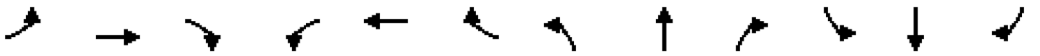
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	855	120	100	760	60	115	55	120	45	40	55
Future Volume (veh/h)	60	855	120	100	760	60	115	55	120	45	40	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	63	900	78	105	800	39	121	58	126	47	42	58
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	1	1	1
Cap, veh/h	462	2400	1047	406	2400	1048	236	90	195	163	122	169
Arrive On Green	0.68	0.68	0.68	0.68	0.68	0.68	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	650	3526	1537	570	3526	1539	1293	519	1128	1208	710	980
Grp Volume(v), veh/h	63	900	78	105	800	39	121	0	184	47	0	100
Grp Sat Flow(s),veh/h/ln	650	1763	1537	570	1763	1539	1293	0	1647	1208	0	1690
Q Serve(g_s), s	4.0	9.8	1.5	8.7	8.4	0.7	8.2	0.0	9.4	3.4	0.0	4.7
Cycle Q Clear(g_c), s	12.4	9.8	1.5	18.6	8.4	0.7	12.9	0.0	9.4	12.8	0.0	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.68	1.00		0.58
Lane Grp Cap(c), veh/h	462	2400	1047	406	2400	1048	236	0	284	163	0	292
V/C Ratio(X)	0.14	0.37	0.07	0.26	0.33	0.04	0.51	0.00	0.65	0.29	0.00	0.34
Avail Cap(c_a), veh/h	462	2400	1047	406	2400	1048	385	0	474	302	0	486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.5	6.2	4.8	10.1	5.9	4.7	38.4	0.0	34.7	40.6	0.0	32.7
Incr Delay (d2), s/veh	0.6	0.4	0.1	1.5	0.4	0.1	0.6	0.0	0.9	0.4	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	5.6	0.8	2.1	4.8	0.4	4.6	0.0	6.7	1.8	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.1	6.6	5.0	11.7	6.3	4.8	39.0	0.0	35.6	41.0	0.0	33.0
LnGrp LOS	A	A	A	B	A	A	D		D	D		C
Approach Vol, veh/h		1041			944			305			147	
Approach Delay, s/veh		6.6			6.8			37.0			35.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		67.4		22.6		67.4		22.6				
Change Period (Y+Rc), s		6.1		7.1		6.1		7.1				
Max Green Setting (Gmax), s		50.9		25.9		50.9		25.9				
Max Q Clear Time (g_c+I1), s		14.4		14.8		20.6		14.9				
Green Ext Time (p_c), s		16.3		0.3		13.8		0.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			12.3									
HCM 7th LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	10	1	10	1	280	10	1	260	1
Future Volume (vph)	1	1	1	10	1	10	1	280	10	1	260	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		359			429			135			456	
Travel Time (s)		8.2			9.8			2.6			8.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	25	0	0	342	0	0	308	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

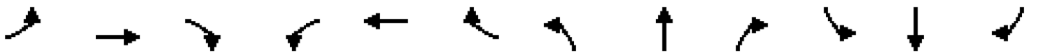
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	10	1	10	1	280	10	1	260	1
Future Vol, veh/h	1	1	1	10	1	10	1	280	10	1	260	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	1	1	1	2	2	2	2	2	2
Mvmt Flow	1	1	1	12	1	12	1	329	12	1	306	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	641	652	306	646	647	335	307	0	0	341	0	0
Stage 1	309	309	-	338	338	-	-	-	-	-	-	-
Stage 2	332	344	-	309	309	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	389	388	736	386	391	709	1254	-	-	1218	-	-
Stage 1	703	661	-	679	643	-	-	-	-	-	-	-
Stage 2	683	639	-	703	661	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	380	387	736	383	390	709	1254	-	-	1218	-	-
Mov Cap-2 Maneuver	380	387	-	383	390	-	-	-	-	-	-	-
Stage 1	703	661	-	678	642	-	-	-	-	-	-	-
Stage 2	670	638	-	700	660	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.94	12.72	0.03	0.03
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	6	-	-	457	491	7	-	-
HCM Lane V/C Ratio	0.001	-	-	0.008	0.05	0.001	-	-
HCM Ctrl Dly (s/v)	7.9	0	-	12.9	12.7	8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-



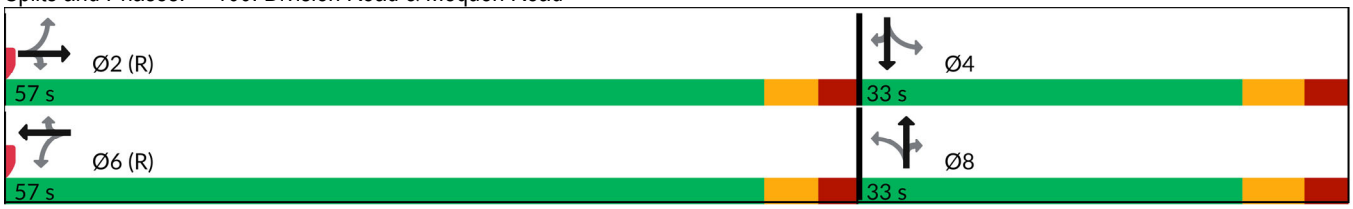
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	525	75	50	565	30	120	20	70	55	35	55
Future Volume (vph)	30	525	75	50	565	30	120	20	70	55	35	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		100	225		100	75		0	0		0
Storage Lanes	1		1	1		1	0		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			No			No			No			No
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1077			1302			433			774	
Travel Time (s)		21.0			25.4			8.4			21.1	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	62%	100%	100%	62%	100%	100%	62%	100%	100%	62%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	665	59	63	715	24	0	177	55	0	114	43
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.1	21.1	21.1	21.1	21.1	21.1	17.1	17.1	17.1	17.1	17.1	17.1
Total Split (s)	57.0	57.0	57.0	57.0	57.0	57.0	33.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	63.3%	63.3%	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%	36.7%	36.7%	36.7%	36.7%
Maximum Green (s)	50.9	50.9	50.9	50.9	50.9	50.9	25.9	25.9	25.9	25.9	25.9	25.9
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1		7.1	7.1		7.1	7.1
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Time Before Reduce (s)	25.0	25.0	25.0	25.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	15.0	15.0	15.0	15.0	15.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.09	0.29	0.06	0.13	0.31	0.02		0.74	0.19		0.47	0.14
Control Delay (s/veh)	7.7	7.5	7.0	8.1	7.6	6.9		51.8	29.7		37.5	28.9

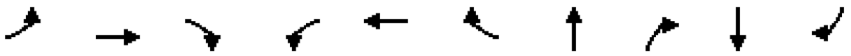
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay (s/veh)	7.7	7.5	7.0	8.1	7.6	6.9		51.8	29.7		37.5	28.9
Queue Length 50th (ft)	7	73	10	12	80	4		96	27		58	21
Queue Length 95th (ft)	20	108	26	30	117	14		128	46		86	39
Internal Link Dist (ft)		997			1222			353			694	
Turn Bay Length (ft)	100		100	225		100						
Base Capacity (vph)	441	2280	998	468	2280	998		363	449		366	453
Starvation Cap Reductn	0	0	0	0	0	0		0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	0
Reduced v/c Ratio	0.09	0.29	0.06	0.13	0.31	0.02		0.49	0.12		0.31	0.09

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 70 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 40
Control Type: Actuated-Coordinated

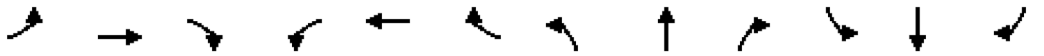
Splits and Phases: 100: Division Road & Mequon Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	38	665	59	63	715	24	177	55	114	43
v/c Ratio	0.09	0.29	0.06	0.13	0.31	0.02	0.74	0.19	0.47	0.14
Control Delay (s/veh)	7.7	7.5	7.0	8.1	7.6	6.9	51.8	29.7	37.5	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.7	7.5	7.0	8.1	7.6	6.9	51.8	29.7	37.5	28.9
Queue Length 50th (ft)	7	73	10	12	80	4	96	27	58	21
Queue Length 95th (ft)	20	108	26	30	117	14	128	46	86	39
Internal Link Dist (ft)		997			1222		353		694	
Turn Bay Length (ft)	100		100	225		100				
Base Capacity (vph)	441	2280	998	468	2280	998	363	449	366	453
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.29	0.06	0.13	0.31	0.02	0.49	0.12	0.31	0.09

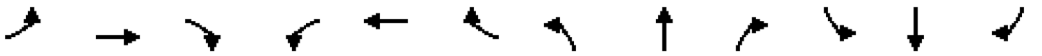
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	525	75	50	565	30	120	20	70	55	35	55
Future Volume (veh/h)	30	525	75	50	565	30	120	20	70	55	35	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	38	665	59	63	715	24	152	25	55	70	44	43
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	5	5	5	5	5	5	2	2	2	1	1	1
Cap, veh/h	398	1962	856	409	1962	856	74	7	450	65	26	453
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	702	3469	1514	712	3469	1514	0	24	1563	0	92	1576
Grp Volume(v), veh/h	38	665	59	63	715	24	177	0	55	114	0	43
Grp Sat Flow(s),veh/h/ln	702	1735	1514	712	1735	1514	24	0	1563	92	0	1576
Q Serve(g_s), s	2.8	9.3	1.6	4.7	10.2	0.6	0.0	0.0	2.3	0.0	0.0	1.8
Cycle Q Clear(g_c), s	13.0	9.3	1.6	14.0	10.2	0.6	25.9	0.0	2.3	25.9	0.0	1.8
Prop In Lane	1.00		1.00	1.00		1.00	0.86		1.00	0.61		1.00
Lane Grp Cap(c), veh/h	398	1962	856	409	1962	856	81	0	450	91	0	453
V/C Ratio(X)	0.10	0.34	0.07	0.15	0.36	0.03	2.18	0.00	0.12	1.25	0.00	0.09
Avail Cap(c_a), veh/h	398	1962	856	409	1962	856	81	0	450	91	0	453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.2	10.5	8.8	14.3	10.7	8.6	42.8	0.0	23.7	37.7	0.0	23.5
Incr Delay (d2), s/veh	0.5	0.5	0.2	0.8	0.5	0.1	569.3	0.0	0.0	177.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	6.0	0.9	1.4	6.5	0.4	26.3	0.0	1.5	11.7	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.7	11.0	9.0	15.1	11.2	8.7	612.1	0.0	23.7	215.1	0.0	23.5
LnGrp LOS	B	B	A	B	B	A	F		C	F		C
Approach Vol, veh/h		762			802			232			157	
Approach Delay, s/veh		11.0			11.4			472.6			162.6	
Approach LOS		B			B			F			F	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		57.0		33.0		57.0		33.0				
Change Period (Y+Rc), s		6.1		7.1		6.1		7.1				
Max Green Setting (Gmax), s		50.9		25.9		50.9		25.9				
Max Q Clear Time (g_c+I1), s		15.0		27.9		16.0		27.9				
Green Ext Time (p_c), s		11.0		0.0		11.9		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			78.2									
HCM 7th LOS			E									

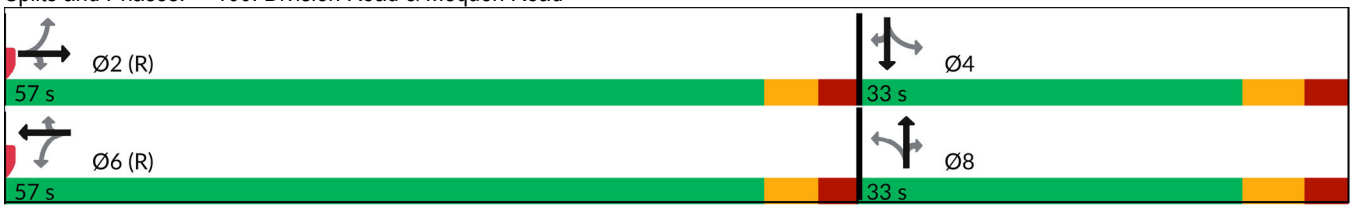


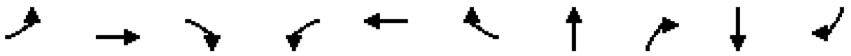
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	855	120	100	760	60	115	55	120	45	40	55
Future Volume (vph)	60	855	120	100	760	60	115	55	120	45	40	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	100		100	225		100	75		0	0		0
Storage Lanes	1		1	1		1	0		1	0		1
Taper Length (ft)	100			100			100			100		
Right Turn on Red			No			No			No			No
Link Speed (mph)		35			35			35			25	
Link Distance (ft)		1077			1302			433			774	
Travel Time (s)		21.0			25.4			8.4			21.1	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			3			1			1			2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	62%	100%	100%	62%	100%	100%	62%	100%	100%	62%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	900	78	105	800	39	0	179	78	0	89	36
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.1	21.1	21.1	21.1	21.1	21.1	17.1	17.1	17.1	17.1	17.1	17.1
Total Split (s)	57.0	57.0	57.0	57.0	57.0	57.0	33.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	63.3%	63.3%	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%	36.7%	36.7%	36.7%	36.7%
Maximum Green (s)	50.9	50.9	50.9	50.9	50.9	50.9	25.9	25.9	25.9	25.9	25.9	25.9
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1		7.1	7.1		7.1	7.1
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Time Before Reduce (s)	25.0	25.0	25.0	25.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	15.0	15.0	15.0	15.0	15.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.15	0.38	0.08	0.29	0.34	0.04		0.72	0.28		0.38	0.13
Control Delay (s/veh)	7.9	7.7	6.5	9.9	7.3	6.4		50.3	32.5		35.6	29.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay (s/veh)	7.9	7.7	6.5	9.9	7.3	6.4		50.3	32.5		35.6	29.5
Queue Length 50th (ft)	11	103	13	21	88	7		97	39		45	17
Queue Length 95th (ft)	35	174	36	62	151	21		153	72		82	40
Internal Link Dist (ft)		997			1222			353			694	
Turn Bay Length (ft)	100		100	225		100						
Base Capacity (vph)	413	2359	1031	364	2359	1032		397	449		374	453
Starvation Cap Reductn	0	0	0	0	0	0		0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	0
Reduced v/c Ratio	0.15	0.38	0.08	0.29	0.34	0.04		0.45	0.17		0.24	0.08

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 19 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	

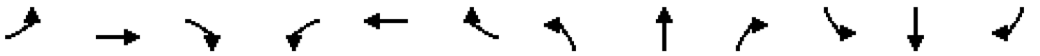
Splits and Phases: 100: Division Road & Mequon Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	63	900	78	105	800	39	179	78	89	36
v/c Ratio	0.15	0.38	0.08	0.29	0.34	0.04	0.72	0.28	0.38	0.13
Control Delay (s/veh)	7.9	7.7	6.5	9.9	7.3	6.4	50.3	32.5	35.6	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.9	7.7	6.5	9.9	7.3	6.4	50.3	32.5	35.6	29.5
Queue Length 50th (ft)	11	103	13	21	88	7	97	39	45	17
Queue Length 95th (ft)	35	174	36	62	151	21	153	72	82	40
Internal Link Dist (ft)		997			1222		353		694	
Turn Bay Length (ft)	100		100	225		100				
Base Capacity (vph)	413	2359	1031	364	2359	1032	397	449	374	453
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.38	0.08	0.29	0.34	0.04	0.45	0.17	0.24	0.08

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	855	120	100	760	60	115	55	120	45	40	55
Future Volume (veh/h)	60	855	120	100	760	60	115	55	120	45	40	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	63	900	78	105	800	39	121	58	78	47	42	36
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	2	2	2	1	1	1
Cap, veh/h	365	1994	869	318	1994	870	67	20	450	61	37	453
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	650	3526	1537	570	3526	1539	0	69	1563	0	130	1574
Grp Volume(v), veh/h	63	900	78	105	800	39	179	0	78	89	0	36
Grp Sat Flow(s),veh/h/ln	650	1763	1537	570	1763	1539	69	0	1563	130	0	1574
Q Serve(g_s), s	5.4	13.4	2.1	11.8	11.5	1.0	0.0	0.0	3.4	0.0	0.0	1.5
Cycle Q Clear(g_c), s	16.9	13.4	2.1	25.2	11.5	1.0	25.9	0.0	3.4	25.9	0.0	1.5
Prop In Lane	1.00		1.00	1.00		1.00	0.68		1.00	0.53		1.00
Lane Grp Cap(c), veh/h	365	1994	869	318	1994	870	87	0	450	99	0	453
V/C Ratio(X)	0.17	0.45	0.09	0.33	0.40	0.04	2.06	0.00	0.17	0.90	0.00	0.08
Avail Cap(c_a), veh/h	365	1994	869	318	1994	870	87	0	450	99	0	453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.7	11.4	8.9	18.8	11.0	8.7	39.2	0.0	24.0	34.5	0.0	23.4
Incr Delay (d2), s/veh	1.0	0.7	0.2	2.8	0.6	0.1	513.6	0.0	0.1	59.3	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	8.5	1.2	3.1	7.5	0.6	25.8	0.0	2.2	6.5	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	16.8	12.1	9.2	21.5	11.6	8.8	552.8	0.0	24.1	93.7	0.0	23.4
LnGrp LOS	B	B	A	C	B	A	F		C	F		C
Approach Vol, veh/h		1041			944			257			125	
Approach Delay, s/veh		12.2			12.6			392.3			73.5	
Approach LOS		B			B			F			E	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		57.0		33.0		57.0		33.0				
Change Period (Y+Rc), s		6.1		7.1		6.1		7.1				
Max Green Setting (Gmax), s		50.9		25.9		50.9		25.9				
Max Q Clear Time (g_c+I1), s		18.9		27.9		27.2		27.9				
Green Ext Time (p_c), s		15.3		0.0		12.1		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			56.9									
HCM 7th LOS			E									

TECHNICAL MEMORANDUM

DATE: November 26, 2025

BY: Tammi Czewski, P.E., PTOE
Traffic Analysis & Design, Inc.

SUBJECT: **The Carillon at Germantown Residential Development Sight Distance Analysis Village of Germantown, WI**

PURPOSE

This memo documents the intersection and stopping sight distance analysis completed for the proposed The Carillon at Germantown development's north and south site driveways to Division Road in Germantown, Wisconsin. The North Site Driveway is planned with right-in/right-out only turns to Division Road and the South Site Driveway is planned with full-access turns to Division Road.

SIGHT DISTANCE EVALUATION

Both intersection and stopping sight distance were evaluated at The Carillon site driveways to Division Road. Sight distances were calculated in accordance with the latest edition of the American Association of State Highway Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets. Sight distance compliance was evaluated using photographs representing driver visibility to objects/targets in the field.

Sight distance requirements were calculated using the roadway design speed of 40 mph (five mph over the posted speed limit), geometry (one through lane in each direction), and design vehicle (passenger car and single-unit truck). Sight distance calculations for The Carillon North Site Driveway are in Appendix A and sight distance calculations for the South Site Driveway are in Appendix B.

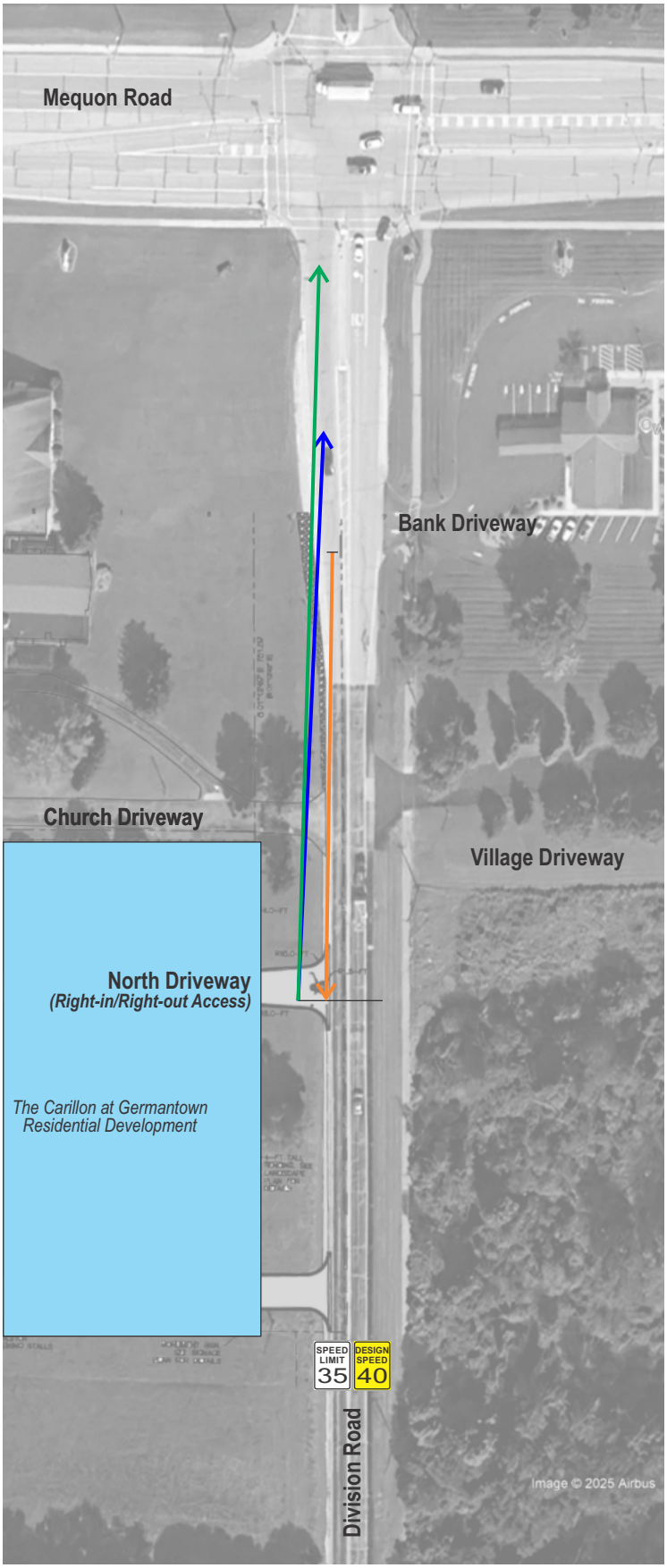
For intersection sight distance (ISD) evaluations, TADI took field photos from the site driveway locations, 14.5 feet from the edge of Division Road travel lanes at eye heights of 3.5 feet (representing the eye height of a person in a passenger car) and 7.6 feet (representing the eye height of a person in an SU truck). Photos were taken of an upstream 3.5-foot target ("object") on Division Road, representing an approaching vehicle. Photos to the left of the site driveways represent the ISD for a vehicle making a right-turn exit to Division Road and photos to the right of the site driveways represent the ISD for a vehicle making a left-turn exit.

For stopping sight distance (SSD) evaluations, TADI took field photos from the north and southbound travel lanes on Division Road to a 2.0-foot target positioned at each site driveway. The stopping sight distance (SSD) photos were taken at a 3.5-foot eye height.

ISD and SSD photos for the site driveways are presented on Exhibits 1-3. As shown, AASHTO ISD and SSD requirements are met for both passenger cars and single-unit trucks at both site driveways.

CONCLUSIONS

There is adequate visibility to meet AASHTO ISD and SSD requirements for traffic turning at The Carillon of Germantown's north and south site driveways to Division Road.



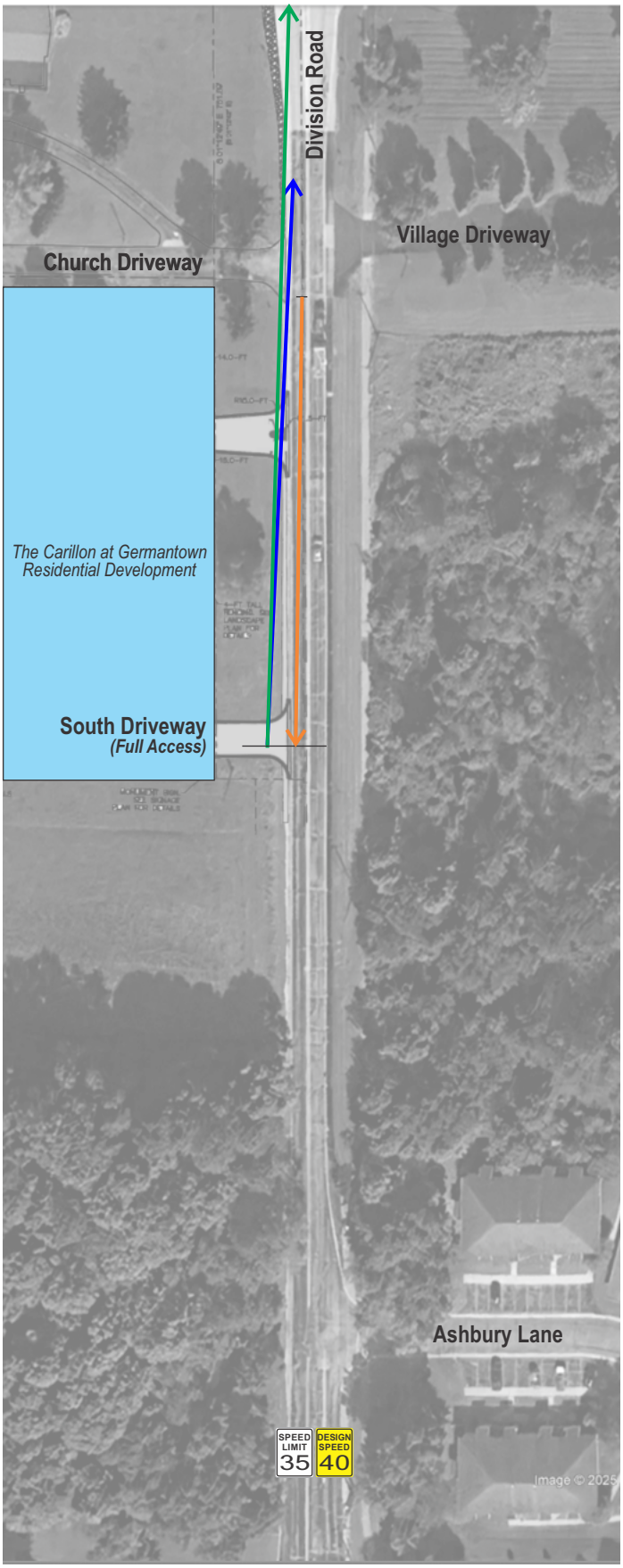
LEGEND

- Passenger Car (PC) Intersection Sight Distance
- Single-Unit (SU) Truck Intersection Sight Distance
- All Vehicles Stopping Sight Distance

TADI
TRAFFIC ANALYSIS & DESIGN, INC.
3547: 11-26-25

N
NOT TO SCALE

EXHIBIT 1
THE CARILLON NORTH SITE DRIVEWAY
INTERSECTION SIGHT DISTANCE (RIGHT TURN, LOOKING LEFT) & SOUTHBOUND STOPPING SIGHT DISTANCE
THE CARILLON SIGHT DISTANCE ANALYSIS - GERMANTOWN, WISCONSIN



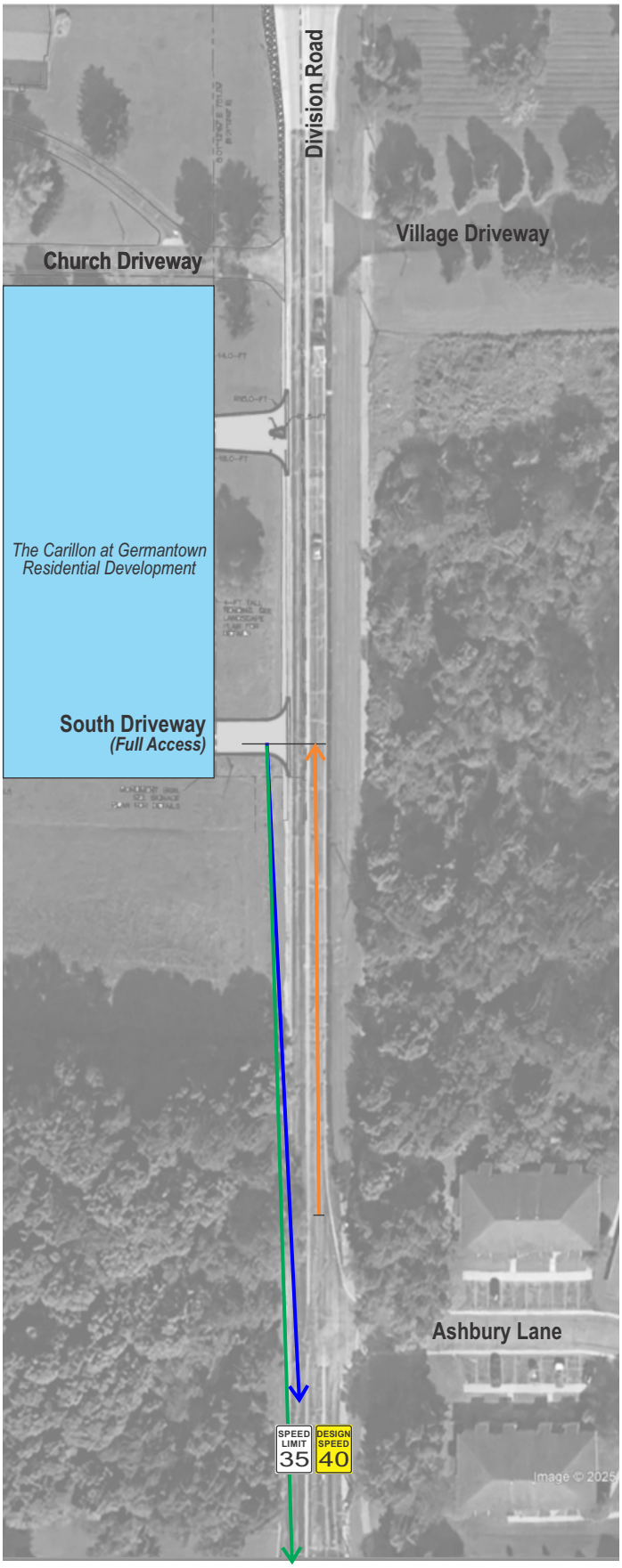
LEGEND

- Passenger Car (PC) Intersection Sight Distance
- Single-Unit (SU) Truck Intersection Sight Distance
- All Vehicles Stopping Sight Distance

TRAFFIC ANALYSIS & DESIGN, INC.
3547: 11-26-25

N
NOT TO SCALE

EXHIBIT 2
THE CARILLON SOUTH SITE DRIVEWAY
INTERSECTION SIGHT DISTANCE (RIGHT TURN, LOOKING LEFT) & SOUTHBOUND STOPPING SIGHT DISTANCE
THE CARILLON SIGHT DISTANCE ANALYSIS - GERMANTOWN, WISCONSIN



LEGEND

- Passenger Car (PC) Intersection Sight Distance
- Single-Unit (SU) Truck Intersection Sight Distance
- All Vehicles Stopping Sight Distance

TADI
TRAFFIC ANALYSIS & DESIGN, INC.
3547: 11-26-25

N
NOT TO SCALE

EXHIBIT 3
THE CARILLON SOUTH SITE DRIVEWAY
INTERSECTION SIGHT DISTANCE (LEFT TURN, LOOKING RIGHT) & NORTHBOUND STOPPING SIGHT DISTANCE
THE CARILLON SIGHT DISTANCE ANALYSIS - GERMANTOWN, WISCONSIN

APPENDIX A

SIGHT DISTANCE CALCULATION WORKSHEET

North Site Driveway

ISD CALCULATIONS (TWSC)

Performed by: TADI - TSC Date: 11/20/2025
Intersection: Division Road & North Site Driveway (RIRO)
Community: Village of Germantown

Mainline Name: Division Road
Sidestreet Name: North Driveway

Left-In Allowed?	No					
Left-Out Allowed?	No		P-vehicle Design Length:	19.0	feet (P = 19.0. Overwrite if other design veh)	
Right-In Allowed?	Yes		SU-vehicle Design Length:	39.5	feet (SU-40 = 39.5. Overwrite if other design veh)	
Right-Out Allowed?	Yes		WB-vehicle Design Length:	73.5	feet (WB-67 = 73.5. Overwrite if other design veh)	
Through-Out Allowed?	No					
Design Speed from Left:	40	mph		P	SU	WB
Design Speed from Right:	40	mph	Design Vehicles:	x	x	(place an "X")
Median Width:	0	feet				
Minor Street Approach Grade:	0.0%	If a minor street vehicle approaches the major street at greater than 3%, enter grade.				
Number of Near Side Right & Bike:	0.00	equivalent 12-ft lanes. Include tapers, auxiliary lanes, parking lanes, and bicycle accommodations.				
Number of Near Side Thru:	1.00	equivalent 12-ft lanes.				
Number of Far Side Thru:	1.00	equivalent 12-ft lanes.				
Number of Far Side Right & Bike:	0.00	equivalent 12-ft lanes. Include tapers, auxiliary lanes, parking lanes, and bicycle accommodations.				
AASHTO or WisDOT:	AASHTO					

ISD CASE B1: Left Turn from Minor Street or Median (driver looking right)

	AASHTO ISD			*WISDOT UPPER MINIMUM ISD*		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	7.50	9.50	11.50	10.00	12.00	13.00
Additional Time Gap 1, sec:	-7.50	-9.50	-11.50	-10.00	-12.00	-13.00
Additional Time Gap 2, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Total Time Gap, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Case B1 ISD, feet:	0.0	0.0	0.0	0.0	0.0	0.0
Rounded Case B1 ISD, feet:	*0*	*0*	*0*	*0*	*0*	*0*

ISD CASE B2: Right Turn from Minor Street (driver looking left)

	AASHTO ISD			*WISDOT UPPER MINIMUM ISD*		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	6.50	8.50	10.50	8.00	10.00	12.00
Additional Time Gap 1, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Additional Time Gap 2, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Total Time Gap, sec:	6.50	8.50	10.50	8.00	10.00	12.00
Case B2 ISD, feet:	381.3	498.7	616.0	469.3	586.7	704.0
Rounded Case B2 ISD, feet:	*385*	*500*	*620*	*470*	*590*	*705*

ISD CASE B3a: Crossing from Minor Street Traffic from Left (driver looking left)

	AASHTO ISD			*WISDOT UPPER MINIMUM ISD*		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	6.50	8.50	10.50	7.00	10.00	13.00
Additional Time Gap 1, sec:	-6.50	-8.50	-10.50	-7.00	-10.00	-13.00
Additional Time Gap 2, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Total Time Gap, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Case B3a ISD, feet:	0.0	0.0	0.0	0.0	0.0	0.0
Rounded Case B3a ISD, feet:	*0*	*0*	*0*	*0*	*0*	*0*

ISD CASE B3b: Crossing from Minor Street or Median (driver looking right)

	AASHTO ISD			*WISDOT UPPER MINIMUM ISD*		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	6.50	8.50	10.50	7.00	10.00	13.00
Additional Time Gap 1, sec:	-6.50	-8.50	-10.50	-7.00	-10.00	-13.00
Additional Time Gap 2, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Total Time Gap, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Case B3b ISD, feet:	0.0	0.0	0.0	0.0	0.0	0.0
Rounded Case B3b ISD, feet:	*0*	*0*	*0*	*0*	*0*	*0*

ISD CASE F: Left from Major to Minor (driver looking to left of access towards oncoming traffic)

	AASHTO ISD			*WISDOT UPPER MINIMUM ISD*		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	5.50	6.50	7.50	8.00	8.00	8.00
Additional Time Gap 1, sec:	-5.50	-6.50	-7.50	-8.00	-8.00	-8.00
Additional Time Gap 2, sec:	N/A	N/A	N/A	N/A	N/A	N/A
Total Time Gap, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Case F ISD, feet:	0.0	0.0	0.0	0.0	0.0	0.0
Rounded Case F ISD, feet:	*0*	*0*	*0*	*0*	*0*	*0*

ISD CONTROLLING DISTANCES:

	AASHTO ISD			*WISDOT UPPER MINIMUM ISD*		
	P	**SU**	WB	P	SU	WB
To Left of Access:	**385'**	**500'**	620'	470'	590'	705'
To Right of Access:	**0'**	**0'**	0'	0'	0'	0'
Left-Turn from Mainline:	**0'**	**0'**	0'	0'	0'	0'

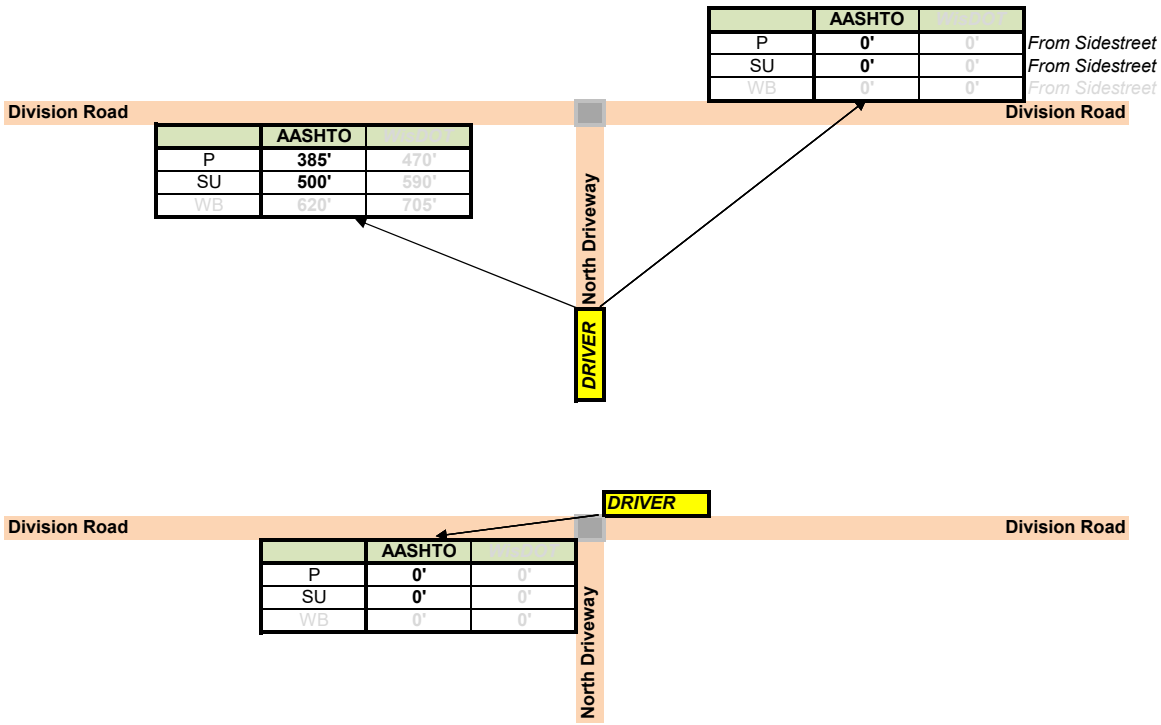
ISD CALCULATIONS (TWSC)

Performed by: TADI - TSC Date: 11/20/2025
Intersection: Division Road & North Site Driveway (RIRO)
Community: Village of Germantown

Eye Height (start of Arrows): 3.5-ft for P, 7.6-ft for SU & WB
Object Height (head of Arrows): 3.5-ft
Eye Location: 14.5-ft from edge of traveled way

North

Special Instructions



SSD CALCULATIONS

	EB	WB	NB	SB	
Design Speed:			40	40	
Deceleration (ft/s^2):	11.2	11.2	11.2	11.2	*Default rate is 11.2 ft/s^2 per AASHTO GDHS*
Estimated Grade (%):	0.0%	0.0%	0.0%	0.0%	*Positive is uphill, negative is downhill*
Brake Reaction Time (s):	2.5	2.5	2.5	2.5	*Default rate is 2.5s per AASHTO GDHS*
Brake Reaction (ft):	0.0	0.0	146.7	146.7	
Braking Distance (ft):	0.0	0.0	153.3	153.3	
Calculated SSD (ft):	0.0	0.0	300.0	300.0	
Rounded SSD (ft):	0	0	**305**	**305**	

Eye Height (upstream of object to be seen): 3.5-ft
Object Height (downstream of motorist): 2.0-ft

Special Instructions

APPENDIX B

SIGHT DISTANCE CALCULATION WORKSHEET

South Site Driveway

ISD CALCULATIONS (TWSC)

Performed by: TADI - TSC Date: 11/20/2025
Intersection: Division Road & South Site Driveway (Full Access)
Community: Village of Germantown

Mainline Name: Division Road
Sidestreet Name: South Driveway

Left-In Allowed?	Yes		P-vehicle Design Length:	19.0	feet (P = 19.0. Overwrite if other design veh)
Left-Out Allowed?	Yes		SU-vehicle Design Length:	39.5	feet (SU-40 = 39.5. Overwrite if other design veh)
Right-In Allowed?	Yes		WB-vehicle Design Length:	73.5	feet (WB-67 = 73.5. Overwrite if other design veh)
Right-Out Allowed?	Yes				
Through-Out Allowed?	No				
Design Speed from Left:	40	mph			
Design Speed from Right:	40	mph			
Median Width:	0	feet			
Minor Street Approach Grade:	0.0%	If a minor street vehicle approaches the major street at greater than 3%, enter grade.			
Number of Near Side Right & Bike:	0.00	equivalent 12-ft lanes. Include tapers, auxiliary lanes, parking lanes, and bicycle accommodations.			
Number of Near Side Thru:	1.00	equivalent 12-ft lanes.			
Number of Far Side Thru:	1.00	equivalent 12-ft lanes.			
Number of Far Side Right & Bike:	0.00	equivalent 12-ft lanes. Include tapers, auxiliary lanes, parking lanes, and bicycle accommodations.			
AASHTO or WisDOT:	AASHTO				

Design Vehicles:	P	SU	WB	
	x	x		(place an "X")

ISD CASE B1: Left Turn from Minor Street or Median (driver looking right)

	AASHTO ISD			WISDOT UPPER MINIMUM ISD		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	7.50	9.50	11.50	10.00	12.00	13.00
Additional Time Gap 1, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Additional Time Gap 2, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Total Time Gap, sec:	7.50	9.50	11.50	10.00	12.00	13.00
Case B1 ISD, feet:	440.0	557.3	674.7	586.7	704.0	762.7
Rounded Case B1 ISD, feet:	*445*	*560*	*675*	*590*	*705*	*765*

ISD CASE B2: Right Turn from Minor Street (driver looking left)

	AASHTO ISD			WISDOT UPPER MINIMUM ISD		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	6.50	8.50	10.50	8.00	10.00	12.00
Additional Time Gap 1, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Additional Time Gap 2, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Total Time Gap, sec:	6.50	8.50	10.50	8.00	10.00	12.00
Case B2 ISD, feet:	381.3	498.7	616.0	469.3	586.7	704.0
Rounded Case B2 ISD, feet:	*385*	*500*	*620*	*470*	*590*	*705*

ISD CASE B3a: Crossing from Minor Street Traffic from Left (driver looking left)

	AASHTO ISD			WISDOT UPPER MINIMUM ISD		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	6.50	8.50	10.50	7.00	10.00	13.00
Additional Time Gap 1, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Additional Time Gap 2, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Total Time Gap, sec:	6.50	8.50	10.50	7.00	10.00	13.00
Case B3a ISD, feet:	381.3	498.7	616.0	410.7	586.7	762.7
Rounded Case B3a ISD, feet:	*385*	*500*	*620*	*415*	*590*	*765*

ISD CASE B3b: Crossing from Minor Street or Median (driver looking right)

	AASHTO ISD			WISDOT UPPER MINIMUM ISD		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	6.50	8.50	10.50	7.00	10.00	13.00
Additional Time Gap 1, sec:	-6.50	-8.50	-10.50	-7.00	-10.00	-13.00
Additional Time Gap 2, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Total Time Gap, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Case B3b ISD, feet:	0.0	0.0	0.0	0.0	0.0	0.0
Rounded Case B3b ISD, feet:	*0*	*0*	*0*	*0*	*0*	*0*

ISD CASE F: Left from Major to Minor (driver looking to left of access towards oncoming traffic)

	AASHTO ISD			WISDOT UPPER MINIMUM ISD		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	5.50	6.50	7.50	8.00	8.00	8.00
Additional Time Gap 1, sec:	0.00	0.00	0.00	0.00	0.00	0.00
Additional Time Gap 2, sec:	N/A	N/A	N/A	N/A	N/A	N/A
Total Time Gap, sec:	5.50	6.50	7.50	8.00	8.00	8.00
Case F ISD, feet:	322.7	381.3	440.0	469.3	469.3	469.3
Rounded Case F ISD, feet:	*325*	*385*	*445*	*470*	*470*	*470*

ISD CONTROLLING DISTANCES:

	AASHTO ISD			WISDOT UPPER MINIMUM ISD		
	P	**SU**	**WB**	**P**	**SU**	**WB**
To Left of Access:	**385'**	**500'**	**620'**	**470'**	**590'**	**765'**
To Right of Access:	**445'**	**560'**	**675'**	**590'**	**705'**	**765'**
Left-Turn from Mainline:	**325'**	**385'**	**445'**	**470'**	**470'**	**470'**

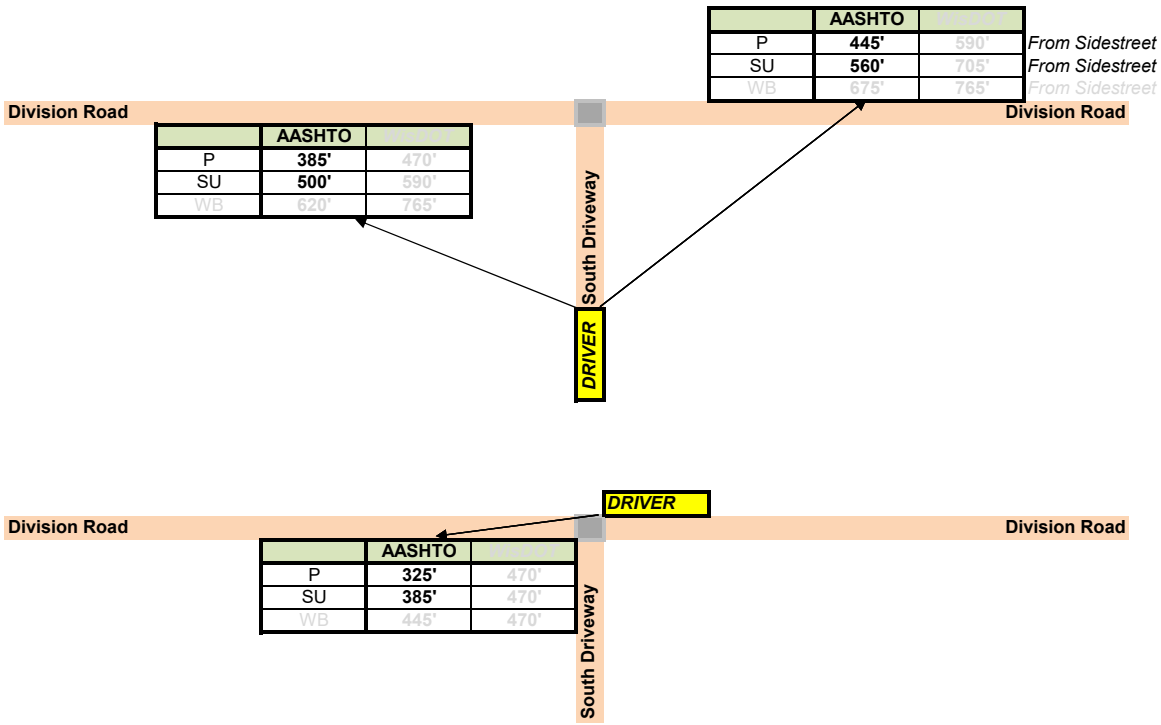
ISD CALCULATIONS (TWSC)

Performed by: TADI - TSC Date: 11/20/2025
Intersection: Division Road & South Site Driveway (Full Access)
Community: Village of Germantown

Eye Height (start of Arrows): 3.5-ft for P, 7.6-ft for SU & WB
Object Height (head of Arrows): 3.5-ft
Eye Location: 14.5-ft from edge of traveled way

North

Special Instructions



SSD CALCULATIONS

	EB	WB	NB	SB	
Design Speed:			40	40	
Deceleration (ft/s^2):	11.2	11.2	11.2	11.2	*Default rate is 11.2 ft/s^2 per AASHTO GDHS*
Estimated Grade (%):	0.0%	0.0%	0.0%	0.0%	*Positive is uphill, negative is downhill*
Brake Reaction Time (s):	2.5	2.5	2.5	2.5	*Default rate is 2.5s per AASHTO GDHS*
Brake Reaction (ft):	0.0	0.0	146.7	146.7	
Braking Distance (ft):	0.0	0.0	153.3	153.3	
Calculated SSD (ft):	0.0	0.0	300.0	300.0	
Rounded SSD (ft):	0	0	**305**	**305**	

Eye Height (upstream of object to be seen): 3.5-ft
Object Height (downstream of motorist): 2.0-ft

Special Instructions

Engineering Department Memorandum

To : Jeffrey W. Retzlaff, AICP, Planning Director/Zoning Administrator

From : Timothy Zimmerman, Director of Public Works

Date : June 3, 2026

Re : The Carillon

Items Reviewed:

1. Civil Plan Set Dated: 03-06-26
2. Stormwater Management Plans Dated: May 2026

General Comments:

1. Please respond to each item below. **A written response addressing each item shall be included in your submittal**.
2. The submitted plans have been reviewed for general conformance with State and Village design guidelines. Additional comments could arise as a result of the plan completion and modifications. The items listed below will need to be fully resolved before the Engineering Dept. can recommend a formal approval of the plans and permit for construction.
3. This project will require a WRAPP/NOI from the DNR. Please submit a copy of the approved permit prior to final approval.
4. As-builts prepared to Village standards shall be prepared and provided to the Village post-construction (for all applicable items).
5. A professional engineer's original seal is to be affixed, signed and dated on the final set of construction plans.
6. Utility permits and permits for work within the ROW are required. Contact the Village engineering department to obtain permits.
7. As a guide to the review response: Items in *italics* are resolved or acknowledged, items in regular font are to be addressed yet, items in **Bold** are additional feedback to remaining original comment.

Water Utility Comments

1. In leu of a meter manifold room, each livable unit will be serviced by its own water individual water lateral, and the meter will be installed in each building's utility room. The following design parameters must be met:
    a. Not behind the furnace
    b. Not behind the water softener
    c. Not in the ceiling
    d. 2'-3' off the floor
    e. The room needs to have a floor drain and lights
    f. We have to be able to walk up to it

CE101 Soil Erosion and Sediment Control Plan

1. Label proposed contours.
2. Erosion matting is required in all areas 4:1 or greater. Specify type of erosion matting.
3. Provide a legend or label erosion control devices.
4. Silt fence is not appropriate for concentrate flow area (culvert, swales, and storm sewer end sections) provide rock bag overflows at those locations.
5. Provide permanent erosion control and all pipe end sections.
6. Provide late season stabilization requirements.

CS101 Site Plan

1. The standard Germantown entrance detail calls for 40' radius at roadway connections. The radius's provided are only 15'.

CG101

1. Both proposed stormwater basins are labeled as "Stormwater Pond." Identify proposed basins with separate identifiers.
2. Most proposed contours do not tie into the existing contours. Please clean up the plan and properly connect to existing contours.
3. Add additional contour labels
4. Show proposed overflow spillway on proposed basins. Label elevations and show permanent erosion protection.
5. Show storm sewer pipes on grading plans.
6. Show overland flow route through the site with large bold arrows.
7. In general please add additional spot elevations and contours labels to the grading plans.

CG102

1. There does not appear to be an overflow broad crested weir for the northwest basin. Please define the location, depth, width and elevation of the broad crested weir.
2. Provide additional contour labels.
3. Provide a minimum 10' berm around the basin
4. Show basin outlet structure and pipe locations.
5. Provide additional spot elevations at high and low points.

CG103

1. Provide additional spot elevations at high and low points.
2. Appears what will pond in the roadway to nearly 3' deep before overtopping between building 4 and 6 to the stormwater basin. Adjust to a max of 1' of ponding in the roadway.
3. Its not clear how the area west of buildings 3 and 4 drains

CU101

1. Provide additional details on storm sewer systems. Pipe sizes, materials, inverts, etc. Confirm adequate cover over all pipes.
2. Provide more detail on plans for outlet control structures.

PF101 and PF102

1. Vertical scale of the profiles makes it difficult to read. Please adjust scale to stretch out the vertical view.
2. Review development handbook requirements and ensure all required items are shown and labeled.
3. Pipes have multiple lengths noted. Please adjust to clarify lengths and slopes.
4. Label building laterals

PF201 and PF202

1. Vertical scale of the profiles makes it difficult to read. Please adjust scale to stretch out the vertical view.
2. Review development handbook requirements and ensure all required items are shown and labeled.

CS501

1. Provide basin and outlet control details for both basins.

Stormwater Management Report

1. Provide information on the start and end time used for the critical time period. Critical time period to start at 11.75 hours.
2. Provide hydrocad hydrograph print out shows the volume during the critical time period.
3. It appears many areas of the site will not overflow to the basin. Provide information on how the 100 year flow is getting to the basins or adjust calcs to represent the actual routing for the 100 year event.
4. Provide information on the roof plans for the buildings and how the runoff from the back side of the roofs will be routed to the basins. Including the 100 year event.
5. Show and label Tc paths on the drainage maps.
6. Compute actual Tc times for the proposed condition.
7. Some of the drainage areas are using unconnected roofs for the CN calculations. Provide information on which roofs those are and demonstrate they meet WNDR requirements to be considered disconnected.
8. Adjust existing drainage boundaries. The north area currently includes a portion of the site that drains east to Division Road.
9. The existing site appears to have two discharge locations. The southeast corner of the site and the northwest corner of the site. Provide documentation that the post developed flow will not be increased at either discharge location.
10. Appears the north basin will discharge to an existing stormwater basin. Provide documentation this basin is sized to handle the additional flow.
11. The stand pipe diameter for the northwest basin is called out as 36 ft in the WinSLAMM calculations. Input correct diameter.
12. Use the Milwaukee rain file in SLAMM with the correct winter season dates.
13. The other control device used for the offsite areas does not appear to be set to remove the pollutant load from offsite.
14. Provide stormwater pipe calculations.
15. Provide information on estimated bedrock levels at the basin locations and if blasting will be needed to construct the basins.

STATE OF WISCONSIN VILLAGE OF GERMANTOWN WASHINGTON COUNTY

RESOLUTION NO. 02-2026

A RESOLUTION ADOPTING CONDITIONS AND RESTRICTIONS
FOR THE CARILLON AT GERMANTOWN PLANNED DEVELOPMENT DISTRICT
("CARILLON AT GERMANTOWN PDD")

WHEREAS, Cirrus Property Group, LLC, agent (hereinafter the "Developer") for Faith Lutheran Church, property owner has applied for an Rm-2: Multi-Family Residential Planned Development District (Rm-2/PDD) to be applied to the property located in the Village of Germantown as described in Exhibit A attached hereto; and

WHEREAS, Section 17.27(4) of the Village of Germantown Municipal Code allows for the adoption of conditions and restrictions for Planned Development Districts (PDD) that modify the basic allowances, limitations, and bulk regulations of the underlying zoning districts, as well as allow for the establishment of specific uses, bulk regulations, density standards, yard setbacks, etc. to ensure proper development, operation, and maintenance of the proposed development in the General Development Plan; and

WHEREAS, the Village of Germantown Plan Commission at its public hearing/meeting on December 8, 2025, reviewed the Rm-2/PDD rezoning application and forwarded a positive recommendation regarding both the rezoning and General Development Plan to the Village Board.

NOW THEREFORE, BE IT RESOLVED by the Village Board of the Village of Germantown hereby adopts the following specific conditions and restrictions that shall apply to all development on and the use of property within the PDD:

1. **GENERAL DEVELOPMENT PLAN (GDP)**. The General Development Plan (Exhibit B dated November 24, 2025) establishes the basic parameters for development within the Carillon at Germantown PDD including the approximate size and orientation of the lot, density of development, setbacks, location of internal roadways and intersections to the adjacent road system, and the general location and extent of landscaping, buffering, and walking path(s). The General Development Plan (GDP) shall be updated/revised where needed to illustrate compliance with all following sections contained within this resolution, including but not limited to Sections 9, 10, 11, and 14). While all development within the Carillon at Germantown PDD shall be generally consistent with the GDP, the GDP does not grant specific site development or building approval. Subsequent Village approvals shall be required as a prerequisite for development, including but not limited to site plan approval.

2. **PERMITTED LAND USES**. Permitted uses allowed within the Carillon at Germantown PDD shall be limited to only multi-family residential dwellings as proposed and shall be as set forth in the Rm-2: Multi-Family Residential (Section

17.23) Zoning District of the Zoning Code and in accordance with the Carillon at Germantown General Development Plan (GDP).

3. **ACCESS**. Public road/driveway access to the Carillon at Germantown PDD shall be limited only to the proposed private road to/from Division Road as shown on the GDP.

4. **RESIDENTIAL DENSITY, UNIT SIZE, AND TYPE**. The project shall include a maximum of thirty-six (36) multi-family dwelling units within eleven (11) buildings including 3-unit (triplex) and 4-unit (quadplex) building types on a 5.4-acre lot. Buildings include units that range from 2-bedroom to 3-bedroom and 1-story to 2-story in height. Development of the multi-family residential units shall be approved consistent with and pursuant to the Village's Site Plan review and approval procedure under Section 17.43 of the Zoning Code.

5. **SITE PLAN APPROVAL REQUIRED**. Development of the multi-family residential units shall be consistent with and pursuant to the Village's Site Plan review and approval procedure under Section 17.43 of the Zoning Code.

6. **ARCHITECTURAL DESIGN AND BUILDIGN MATERIALS**. Final architecture design and exterior materials of all residential structures shall be consistent with the conceptual elevation drawings and building type products included with the Developer's General Development Plan submittal package, and attached hereto as Exhibit C.

7. **PUBLIC UTILITIES**. Sanitary sewer, water, and storm sewer (if applicable) shall be installed to Village standards. The precise location of sanitary sewer and water service shall be coordinated with the Public Works Director, Village Engineer, Water and Wastewater Utility Superintendents, and be approved by the Public Works Committee. The Developer shall obtain all necessary permits and provide all necessary easements and dedications where required.

8. **STORM WATER MANAGEMENT**. A Storm Water Management Plan (SWMP) must be submitted to and approved by the Village Engineer and submitted to the Plan Commission prior to granting Site Plan approval. The plan shall conform to current Village of Germantown engineering standards.

9. **PEDESTRIAN CIRCULATION**. The Developer shall be required to install sidewalk along the west side of Division Road from Mequon Road to the southern end of the subject 5.4-acre development parcel. Size of sidewalk and construction method shall be in compliance with the Village of Germantown Development Handbook design standards and constructed as set forth in the Development Agreement.

10. **SPECIFIC LIGHTING AND LANDSCAPING PLANS**. The Developer shall submit detailed lighting and landscaping plans to the Plan Commission and Village Forester for review and approval prior to final Site Plan approval. Lighting and landscaping shall comply with Village guidelines. The Developer shall provide

additional landscape buffering along the west and north property lines in the vicinity of Buildings 3, 4, 6, 7, 9, and 11. Said buffer shall include a minimum 10-foot setback (i.e. width) between the property line and proposed fencing with plantings sufficient in type, size, and quantity to provide visual screening to a height of 6 feet within 3 years after plant installation, or a mutually acceptable alternative determined and approved at the Site Plan approval stage. Additionally, the 4-foot fence to enclose each yard behind the residential units shall be modified to an open-style "picket" or "garden" fence for aesthetic purposes and to allow better drainage flow through the site.

11. **SITE DEVELOPMENT AND BUILDING REQUIREMENTS**. Unless otherwise modified as set forth below, all development and buildings shall be in accordance with the lot, building, and other applicable bulk requirements set forth in the applicable underlying Rm-2: Multi-Family Residential Zoning Districts and other applicable Zoning Code regulations:

    Modifications to the Rm-2: Multi-Family Residential District:
    a. Reduce the minimum Front Yard Setback from 35 feet to 15 feet.
    b. Reduce the minimum Side Yard Setback from 25 feet to 18 feet.
    c. Reduce the minimum Rear Yard Setback from 35 feet to 20 feet.

12. **DEVELOPMENT AGREEMENT REQUIRED**. The Development Agreement shall be reviewed by the Public Works and Highways Committee and approved by the Village Board. The Development Agreement shall include a requirement that private covenants and restrictions, if any, be submitted to the Village prior to final Site Plan review and approval. Maintenance guarantees pertaining to storm water management facilities and walking path(s) shall be included in the Development Agreement.

13. **GARBAGE AND RECYCLING COLLECTION**. Unless mutually agreed to between the Developer and the Village as set forth in the Development Agreement, the provisions of Village Code Section 11.08 pertaining to garbage and recycling collection for a property containing five (5) or more residential units ("multiple-family dwellings") shall apply.

14. **PARKING**. Residential units shall include a range of parking, but at a minimum have a 1-car attached garage and 1 apron spot (Type A units), with certain units having a 2-car attached garage and 2 apron spots (Type B units). The visitor parking currently shown along the southern boundary shall be relocated to be positioned next to the visitor parking spaces shown along the drive on the western portion of the site.

15. **SIGNAGE**. No signage is approved as part of this resolution approving the Planned Development District (PDD). Specific design and location of any proposed signage must comply with the Village's Sign Code regulations and be submitted and approved by the Plan Commission, prior to installation.

16. **CERTIFIED SURVEY MAP (CSM) REQUIRED**. A Certified Survey Map (CSM) shall be completed, approved, and recorded to create the subject development site. The

CSM shall include the adjacent parcel to the north of the development site, which includes the existing church.

17. **EXPIRATION**. The Developer shall obtain all necessary approvals and permits from the Village and other agencies in a timely manner consistent with the Development Agreement. If construction of the improvements have not commenced within two (2) years after the date of PDD approval and continued toward completion, the Village may determine that the approvals and provisions granted under this PDD resolution and General Development Plan have expired and are null and void, unless an extension of said approvals and provisions is granted by the Village pursuant to the procedures under Section 17.43(11) and (11a) of the Zoning Code. If this requirement is not satisfied, the Carillon at Germantown PDD and General Development Plan (GDP) shall become null and void, and the property shall revert back to the previous I: Institutional Zoning District.

18. **APPLICABILITY OF MUNICIPAL CODE**. Unless otherwise set forth herein, all other applicable zoning and development regulations contained in the Germantown Municipal Code (e.g. Shoreland-Wetland Zoning, Floodplain Zoning, Subdivision) shall apply to development and land use within the Carillon at Germantown PDD. In the event a requirement, restriction, or limitation set forth herein conflicts with a similar requirement, restriction, or limitation found in another section of the Municipal Code, the most stringent requirement, restriction, or limitation shall apply.

Adopted: January 19, 2026

Robert A. Soderberg, Village President

ATTEST:

Donna Ott, Village Clerk

EXHIBIT A

Carillon at Germantown Planned Development District (PDD)
Metes and Bounds Legal Description

ALL OF CERTIFIED SURVEY MAP NO. 5387 BEING IN THE NORTHEAST ¼ OF THE NORTHEAST ¼ OF SECTION 28, TOWNSHIP 9 NORTH, RANGE 20 EAST, IN THE VILLAGE OF GERMANTOWN, WASHINGTON COUNTY, STATE OF WISCONSIN, AND FURTHER DESCRIBED BELOW:

COMMENCING AT THE NORTHEAST CORNER OF THE NORTHEAST ¼ SECTION; THENCE SOUTH 01°12’49” EAST ALONG THE EAST LINE OF SAID SECTION 841.33 FEET; THENCE SOUTH 89°22’06” WEST 60.00 FEET TO A THE SOUTHEAST CORNER OF CSM NO. 5387 AND THE POINT OF BEGINNING OF THE LANDS DESCRIBED HEREINAFTER; THENCE CONTINUING SOUTH 89°22’06” WEST ALONG SAID SOUTH LINE 600.04 FEET TO THE SOUTHWEST CORNER OF SAID CSM; THENCE NORTH 01°12’49” WEST ALONG SAID WEST OF SAID CSM, 518.56 FEET TO A POINT; THENCE NORTH 89°55’07” EAST, 167.00 FEET TO A POINT; THENCE SOUTH 01°12’49” EAST, 172.00 FEET TO A POINT; THENCE SOUTH 89°20’41” EAST, 124.72 FEET TO A POINT; THENCE SOUTH 89°39’04” EAST, 308.50 FEET TO A POINT ALONG THE EAST LINE OF SAID CSM AND THE WEST RIGHT-OF-WAY DIVISION ROAD; THENCE SOUTH 01°12’49” EAST ALONG SAID EAST LINE, 336.84 FEET TO THE POINT OF BEGINNING OF THIS DESCRIPTION..

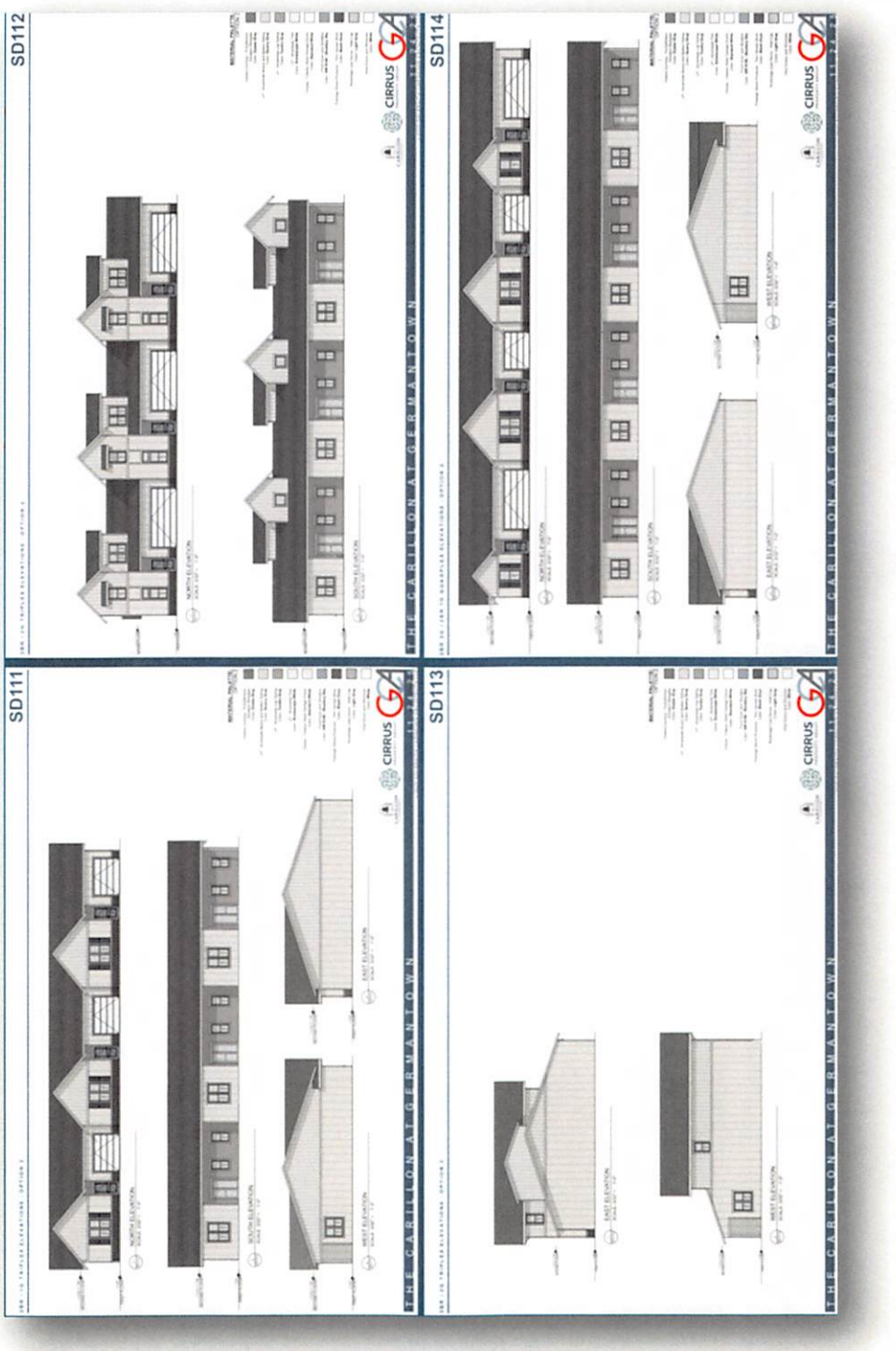
Tax Key No: GTNV_281-967

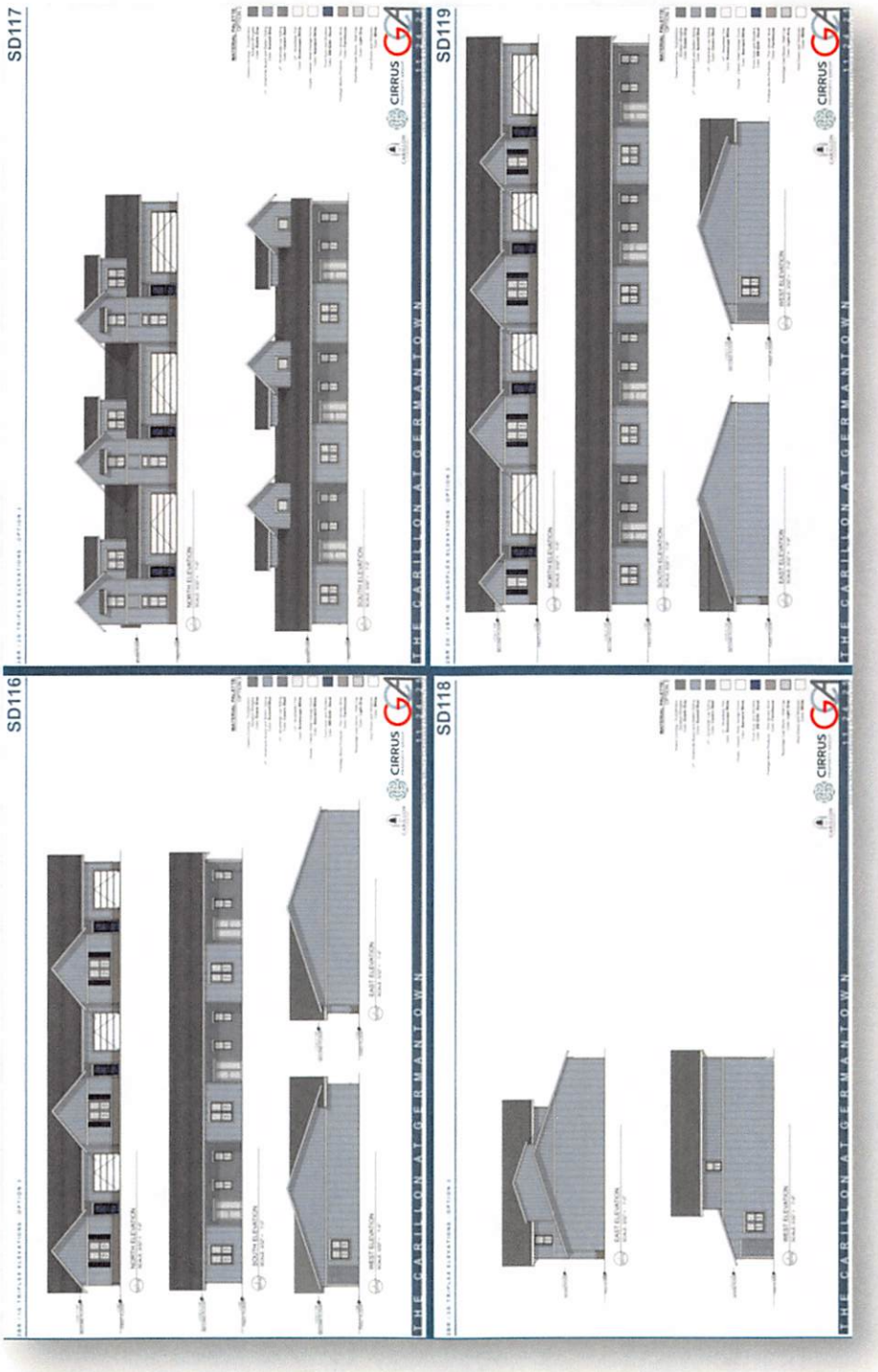
EXHIBIT B

Carillon at Germantown Planned Development District (PDD)
General Development Plan
(See Attached General Development Plan Dated November 24, 2025)

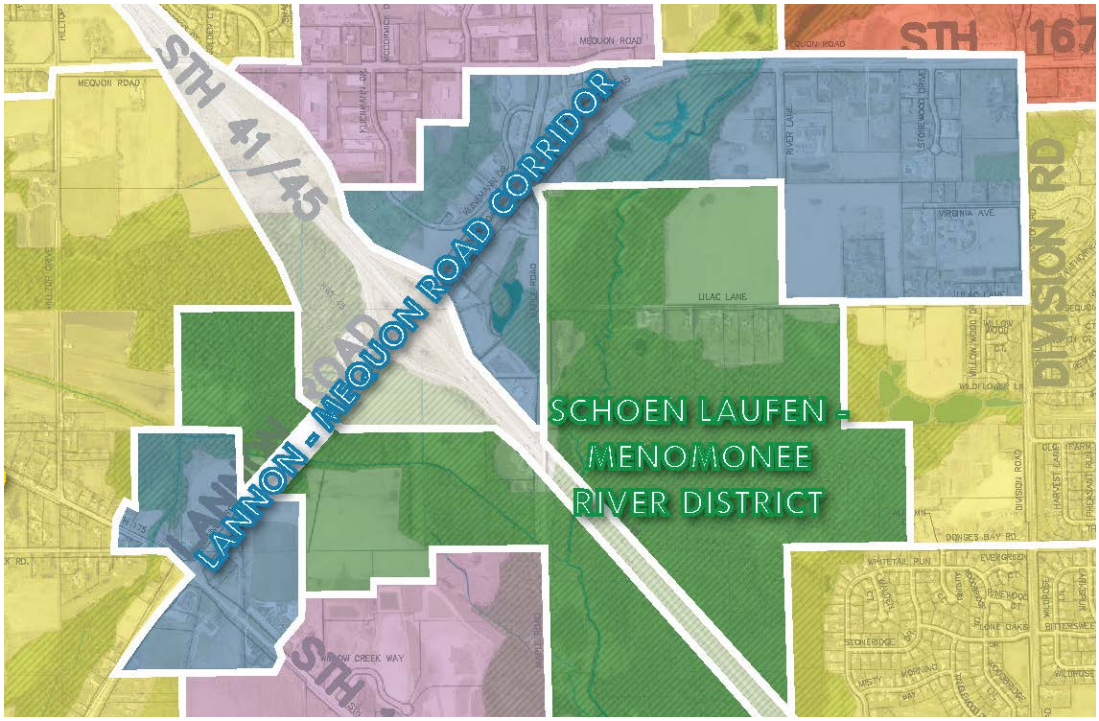
EXHIBIT C

Carillon at Germantown Architectural Design and Building Materials
(See Attached Elevations and Building Type Products)




SD117
SD116
SD119
SD118
THE CARILLON AT GERMANTOWN
CIRRUS

Lannon-Mequon Road CORRIDOR



GENERAL CHARACTER

The Lannon-Mequon Corridor is predominantly a mixed-use commercial corridor with service-oriented uses, including hotels and event venues, appliance sales, banking and financial uses, truck & trailer rental services, medical and general offices, institutional and government uses, independent senior and assisted living communities, and some single-family residential uses.

SPECIAL FEATURES

Transportation The Lannon-Mequon corridor includes land abutting portions of Lannon Road on both sides of I-41 and Mequon Road from Lannon Road east to Division Road.

Environmental, Natural & Agricultural The Menomonee River and associated primary environmental corridor is located across the middle of the corridor west of River Lane.

Public Park, Education, Safety & Utility The corridor is served by Village sewer and water.

PREFERRED FUTURE LAND USE

Lannon-Mequon Road Corridor

Preferred Future Land Uses												Enviro Corr.	SSA	Preferred Site Design			Maximum Density (residential uses)
Existing Uses (+ existing non-conforming zoning) See NOTE 5 for details	Residential: Single Family	Residential: Two to Four Family	Residential: Multi-family / Senior	Mixed-Use: Commercial / Residential	Mixed-Use: Commercial / Industrial	Commercial (includes "Activity Centers")	Institutional	Open Space & Recreational	Mineral Extraction	Industrial	Agricultural / Hobby Farming / Agribusiness	Contains an Environmental Corridor?	Sewered? (Y/N/Partial)	Traditional Neighborhood	Suburban Subdivision	Conservation Subdivision**	Dwelling Units / Acre See NOTE 4 for details
A	A	A	A	A	A	D	A	A	u	u	u	Yes	P	D	U	U	SF: 2.9 units/ac 2-4F: 6 units/ac MF: 10 units/ac

The Lannon-Mequon Road corridor is intended to further develop as a mixed-use area with commercial, mixed-use commercial, institutional, and residential development. Residential development is intended to develop in a traditional or conservation design pattern with average single-family densities of 2.2 to 2.9 DU's/acre on 15-20,000 sqft lots, two- to four-family densities up to 6 DU's/acre, and multi-family densities up to 10.0 DU's/acre. Future commercial uses are desirable including retail, office, hospitality and other service-oriented uses.

D =	**Desirable** – These uses should be encouraged because they are consistent with, support, and enhance the desired character of the area.
A =	**Allowable** – These uses are generally considered appropriate for the area, but may require additional consideration and/or specific modification or developed features to be compatible with other uses in the area.
u =	**Undesirable** – These uses should not be encouraged but may still be acceptable for the area under special circumstances.

See all notes on page 42.

Community Growth & Projections Report

June 2, 2025

Germantown SCHOOL DISTRICT

MDR
MDROFFERS CONSULTING

ACKNOWLEDGEMENTS

Board of Education

Russell Ewert, President
Eric Brown, Vice President
Michael Loth, Treasurer
Tom Barney, Clerk
Kimberly Higginbotham
Jeff Voyer
Tracy Pawlak

Administrative Support

Dr. Chris Reuter, Superintendent
Brittany Altendorf, Director of Business & Auxiliary Services

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MDRoffers Consulting
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Special thanks to the officials and staff from municipalities in the GSD and local real estate professionals for their contributions to this report.

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I. INTRODUCTION AND SUMMARY

A. PURPOSE AND OVERVIEW

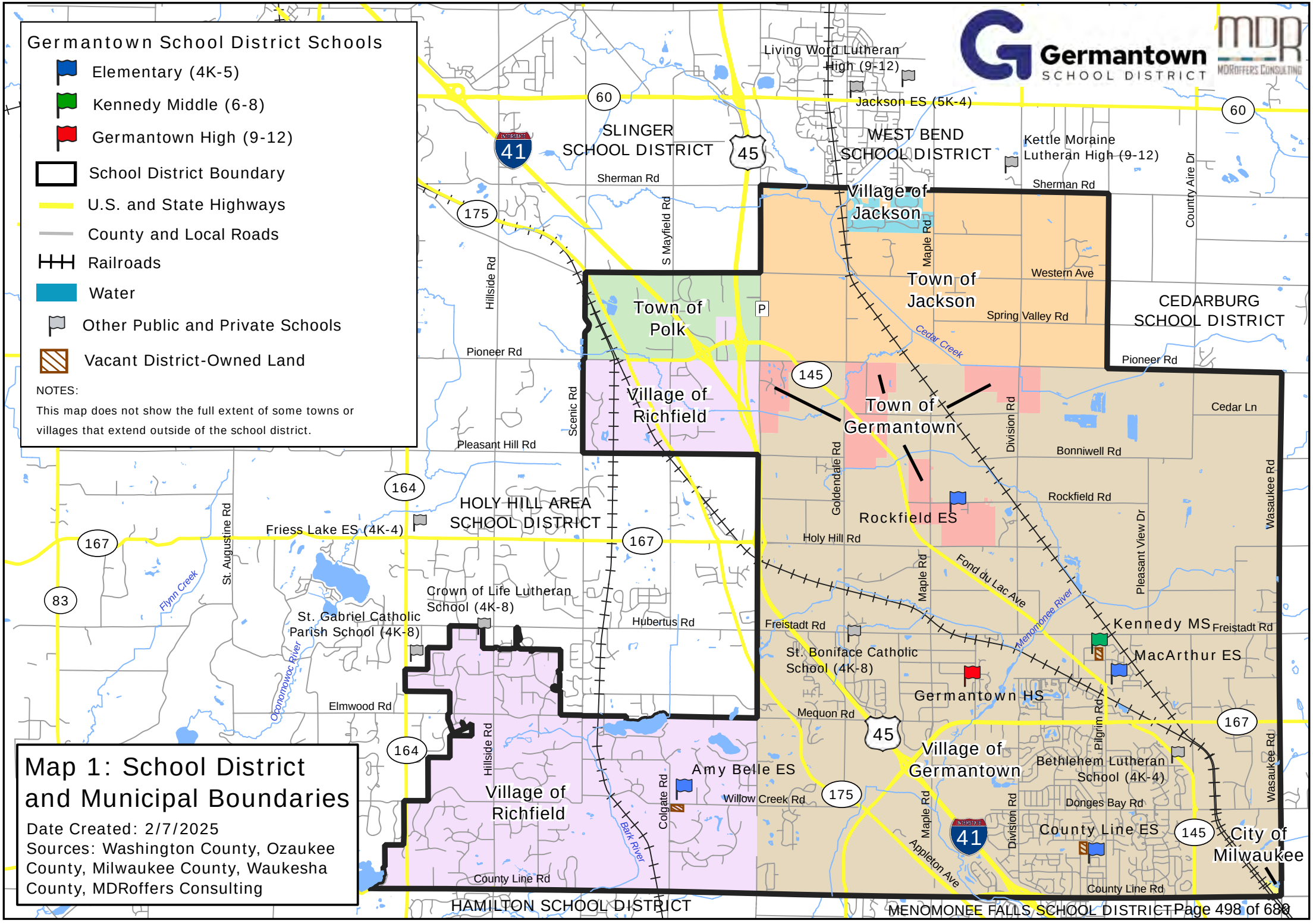
The Germantown School District (GSD) is a public school district in southern Washington County, Wisconsin (see Map 1). As of the 2024-25 academic year, the GSD educates approximately 3,800 grade 4K-12 students across four elementary schools, one middle school, and one high school.

This Community Growth & Projections Report will assist the GSD to understand the impact of future residential development and demographic change on future student enrollment, where in the GSD enrollment change may occur, and how enrollment projections compare with current school configurations and capacities. As a result, the Report may inform the GSD's long-range school facility planning combined with other efforts beyond the Report's scope, such as a building condition assessment.

The process to complete this Community Growth & Projections Report included:

- Review of demographic and enrollment trends for different grade levels and geographic areas within the GSD.
- Review of recent, pending, and potential residential development proposals.
- Analysis of local land use plans, utility systems, intergovernmental agreements, and housing and economic trends.
- Engagement with municipal planning staff and local real estate professionals on community growth trends and prospects.
- Projections of future housing growth and demographic changes.
- Projections of GSD student enrollment by small geographic area ("neighborhood"), school, and grade grouping.

This Report features housing unit and GSD student enrollment projections in four periods: through 2027 (for '27-'28 school year), from 2028 to 2030 (for '30-'31 school year), from 2031 to 2035 (for '35-'36 school year), and from 2036 to 2040 (for '40-'41 school year). The projections are broken down by 75 different "neighborhoods," as depicted on Map 2. Enrollment projections are compared to the capacities of the GSD's schools, which were provided by GSD staff.


Germantown School District Schools
Elementary (4K-5)
Kennedy Middle (6-8)
Germantown High (9-12)
School District Boundary
U.S. and State Highways
County and Local Roads
Railroads
Water
Other Public and Private Schools
Vacant District-Owned Land
NOTES:
This map does not show the full extent of some towns or villages that extend outside of the school district.
Germantown SCHOOL DISTRICT
MDR MDRoffers Consulting
Map 1: School District and Municipal Boundaries
Date Created: 2/7/2025
Sources: Washington County, Ozaukee County, Milwaukee County, Waukesha County, MDRoffers Consulting
Living Word Lutheran High (9-12)
Jackson ES (5K-4)
SLINGER SCHOOL DISTRICT
WEST BEND SCHOOL DISTRICT
Kettle Moraine Lutheran High (9-12)
Village of Jackson
Town of Jackson
Town of Polk
Village of Richfield
Town of Germantown
CEDARBURG SCHOOL DISTRICT
HOLY HILL AREA SCHOOL DISTRICT
Friess Lake ES (4K-4)
Crown of Life Lutheran School (4K-8)
St. Gabriel Catholic Parish School (4K-8)
Rockfield ES
St. Boniface Catholic School (4K-8)
Kennedy MS
MacArthur ES
Germantown HS
Village of Germantown
Bethlehem Lutheran School (4K-4)
Amy Belle ES
Village of Richfield
County Line ES
City of Milwaukee
HAMILTON SCHOOL DISTRICT
MENOMONEE FALLS SCHOOL DISTRICT
Sherman Rd
Pioneer Rd
Pleasant Hill Rd
Holy Hill Rd
Freistadt Rd
Hubertus Rd
Elmwood Rd
Mequon Rd
Willow Creek Rd
County Line Rd
Bonniwell Rd
Rockfield Rd
Cedar Ln
Spring Valley Rd
Western Ave
Donges Bay Rd
Appleton Ave
Fond du Lac Ave
Hillside Rd
S Mayfield Rd
Scenic Rd
Maple Rd
Division Rd
Goldendale Rd
Pleasant View Dr
Pilgrim Rd
Wasaukee Rd
Country Aire Dr
St. Augustine Rd
Colgate Rd
Cedar Creek
Flynn Creek
Oconomowoc River
Menomonee River
Bark River
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41
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175
145
164
167
83
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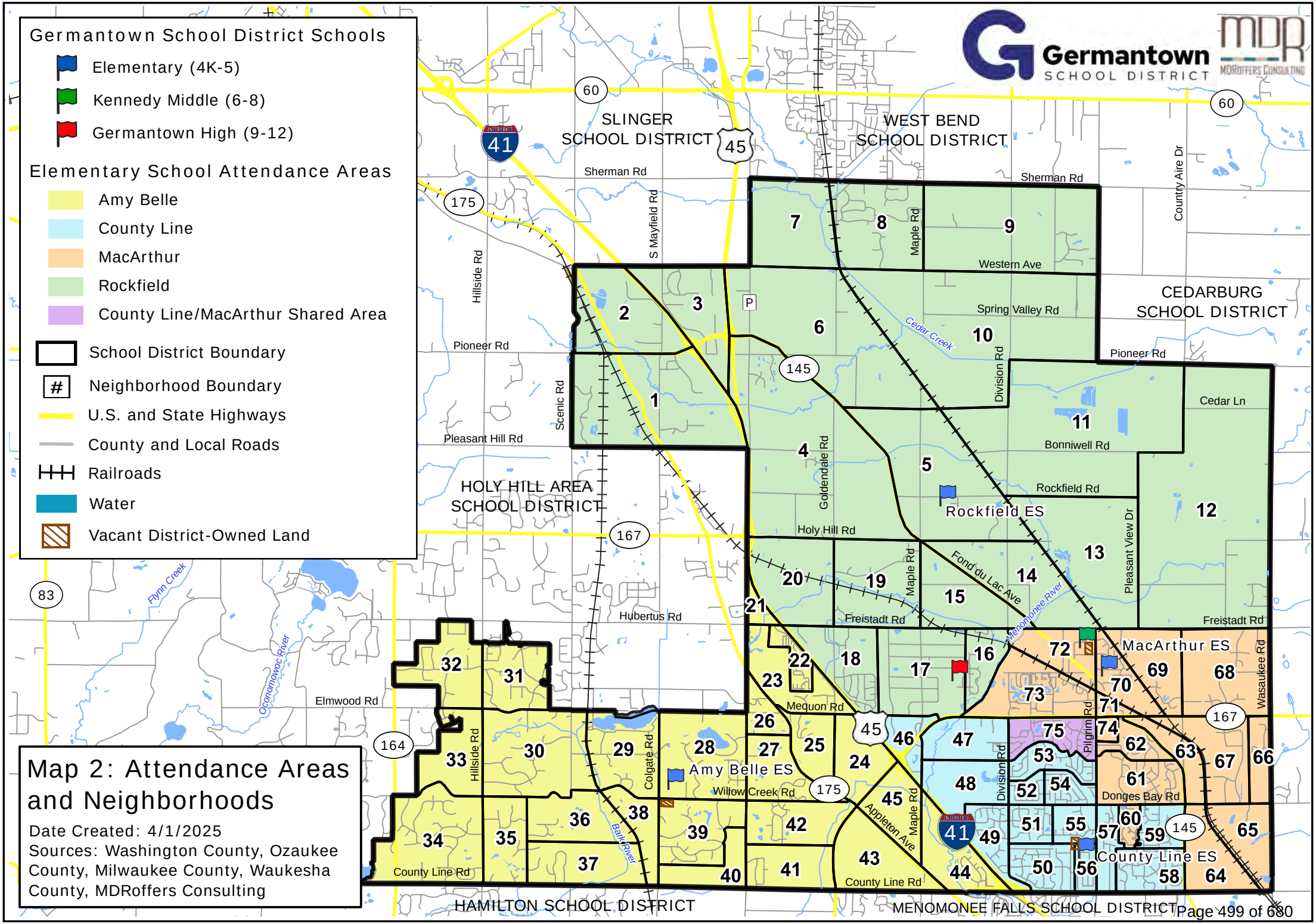
Germantown School District Schools
Elementary (4K-5)
Kennedy Middle (6-8)
Germantown High (9-12)
Elementary School Attendance Areas
Amy Belle
County Line
MacArthur
Rockfield
County Line/MacArthur Shared Area
School District Boundary
Neighborhood Boundary
U.S. and State Highways
County and Local Roads
Railroads
Water
Vacant District-Owned Land
Germantown SCHOOL DISTRICT
MDR MDRoffers Consulting
SLINGER SCHOOL DISTRICT
WEST BEND SCHOOL DISTRICT
CEDARBURG SCHOOL DISTRICT
HOLY HILL AREA SCHOOL DISTRICT
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Pleasant Hill Rd
Hubertus Rd
Elmwood Rd
Mequon Rd
Willow Creek Rd
Donges Bay Rd
County Line Rd
Hillside Rd
S Mayfield Rd
Scenic Rd
Goldendale Rd
Maple Rd
Division Rd
Pleasant View Dr
Wasaukee Rd
Pilgrim Rd
Colgate Rd
Bark River
Appleton Ave
Fond du Lac Ave
Menomonee River
Cedar Creek
Flynn Creek
Ocononowoc River
Country Aire Dr
Map 2: Attendance Areas and Neighborhoods
Date Created: 4/1/2025
Sources: Washington County, Ozaukee County, Milwaukee County, Waukesha County, MDRoffers Consulting

B. STATISTICAL SUMMARY

1. In September 2024, the GSD educated 3,812 students in grades 4K-12. Elementary school (grade 4K-5) enrollment was 1,661 students, middle school (grade 6-8) enrollment was 865 students, and high school (grade 9-12) enrollment was 1,286 students.
2. Total GSD enrollment decreased by 45 students between the 2014-15 and 2024-25 school years. This slight decrease occurred even with 4K programming being introduced in the 2022 academic year. Without, GSD enrollment would have decreased by 212 students, or 5 percent, over the past decade.
3. Since 2014-15, grade 5K-5 enrollment decreased by 91 students or 6 percent, middle school enrollment (grades 6-8) decreased by 5 students or 1 percent, and high school enrollment (grades 9-12) decreased by 116 students or 8 percent.
4. Births in the GSD remained relatively stable over the past decade, with between 320 to 330 births per year. This is after a significant *decrease* in the number of births in the late-2000s and early-2010s, which correlated to the decrease in grade 5K-12 student population.
5. From 2010 to 2020, most of the total population increase in the GSD was in the age 65 year and older group. As these populations continue to age and move on, their homes may transition to new families with children. The timing and extent of this turnover will depend in part on other available housing options in the community, interest rates, and housing costs.
6. For its projections the consultant generally utilized a student generation ratio of 0.61 GSD grade 4K-12 students per each newer single-family home, which is fairly typical among similarly positioned school districts. This student generation ratio was discovered through a consultant analysis comparing March 2025 student addresses with the addresses of newer single-family homes permitted over the past few years. The actual ratio used varied somewhat by neighborhood based on factors such as proximity to schools and housing price and other characteristics.
7. The consultant also found that the limited amount of newer multiple-family development in the GSD generates an average of 0.11 GSD 4K-12 students-per-unit—or about one additional student for every 10 new multiple-family units. This figure is higher than most comparable school districts, driven by both the small sample size and the fact that it includes a recent multiple family development with a number of 3-bedroom units. Using statistics from other area communities like Mequon and Cedarburg, the consultant anticipates that future multiple-family housing in Germantown will generate students at a rate of around 0.06 GSD students-per-unit—but this varied a bit by neighborhood and anticipated housing type and size.

C. HOUSING UNIT PROJECTIONS SUMMARY

1. The consultant has prepared its housing unit growth projections at a transitional period for Germantown. Regionally and nationally, the community is confronting a significant housing shortage and demand, at times battling higher interest rates and housing costs. Locally, the Village of Germantown in 2022 adopted a new Comprehensive Plan that appeared to open the community to additional housing options and densities. Leadership changes and community reaction in the past few months may be causing at least a partial return to prior policies. For example, the consultant understands that the Village may now be considering a cap in the number or percentage of multiple-family units permitted per year. The consultant endeavored to prepare as accurate of projections as practical in this unsettled context.
2. With the above as a qualifier, the consultant projects construction of 2,140 new housing units within the GSD by 2040. This is an average of 138 new units per year—greater than the average of 84 new units per year over the past decade but similar to levels of residential development in the 2000s.
3. The consultant's housing unit projections include single-family homes, duplex units, and multiple-family units, including senior-restricted housing. The consultant anticipates that around 44 percent of projected housing units in the GSD between 2025 and 2040 will be new single-family homes, which have the highest levels of student generation per unit. Emerging Village of Germantown policy shifts might increase this percentage, but it is already higher than recent experience in comparable districts and 47 percent of that Village's housing units were single-family homes over the past decade.
4. Most new housing development in the GSD is expected to be in the Village of Germantown, where the consultant projects just over 1,700 new housing units through 2040. This 107-unit average per year is somewhat higher than the 71-unit average over the past decade, but similar to the Village's residential building activity in the 2000s.
5. The most significant projected housing growth is along Highway 167/Mequon Road and Freistadt Road, in neighborhoods 69, 73, and 74 on Map 2. Growth in neighborhood 69 is anticipated to be driven by single-family housing development while neighborhoods 73 and 74 are projected for mostly townhouse and apartment development.
6. The consultant projects that 556 new single-family homes will be built in the Village of Germantown, an average of 36 new single-family homes per year, which is similar to the average of the past decade of 34 new single-family homes per year as subdivisions like Heritage Park North, Harvest Hills, Wrenwood, and Wrenwood North have quickly built out.

7. The consultant projects 210 new housing units expanding in the Village of Jackson portion of the GSD through 2040, all of which are projected to be new single-family homes. This is an average of 14 new single-family homes built per year through 2040—similar to the average contribution from Jackson over the past decade.
8. The consultant projects 187 new housing units in the Village of Richfield portion of the GSD through 2040, the majority of which will be new single-family homes. Most parts of Richfield within the GSD have already built out, with a few exceptions.
9. Over 40 percent of all new housing units are projected to be built in the current MacArthur Elementary School attendance area, about 30 percent are projected to be built in the current Amy Belle Elementary School attendance area, and 15 percent and 12 percent are projected to be built in the current Rockfield and County Line Elementary School attendance areas respectively. The projected housing mix in different current attendance area varies (i.e., single- to multiple-family), which significantly influences anticipated student generation from that new housing.

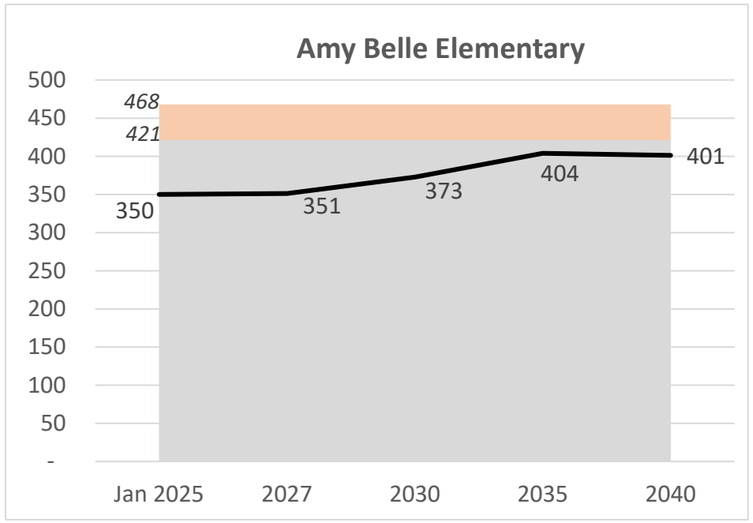
D. STUDENT ENROLLMENT PROJECTIONS SUMMARY

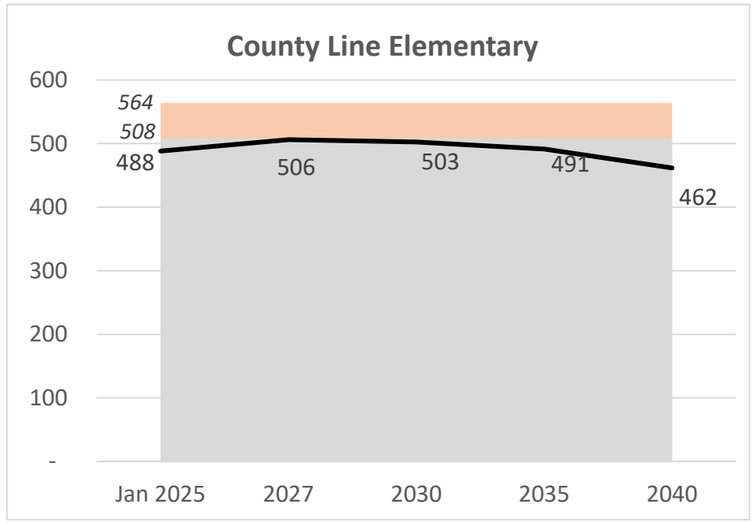
1. Between January 2025 and 2040, the consultant projects an increase of 148 4K-12 resident students enrolled in GSD schools based on its assessment of most likely housing and demographic changes. The consultant projects grade 4K-5 resident enrollment to increase by 129 students, grade 6-8 resident enrollment to increase by 21 students, and grade 9-12 resident enrollment to decrease by 2 students.
2. By 2040 and without any attendance area changes, the consultant projects GSD resident enrollment at MacArthur Elementary School to increase by 73 students, resident enrollment at Amy Belle Elementary School to increase by 51 students, resident enrollment at Rockfield Elementary School to increase by 31 students, and resident enrollment at County Line Elementary School to *decrease* by 26 students.
3. The consultant projects that the *combined* 4K-5 resident enrollment at the GSD's four elementary schools will remain below the *combined* maximum capacity of the four elementary school buildings through 2040. Though the consultant was not involved in capacity calculations, maximum elementary school capacity is often around 10 percent greater than functional or comfortable capacity. Without changes in attendance areas, building capacities, or other factors, enrollment at MacArthur Elementary is projected to exceed 90 percent of that building's capacity by around 2035 and enrollment at Rockfield Elementary School is projected to exceed 90 percent of its capacity by 2040. Projected enrollment at County Line is expected

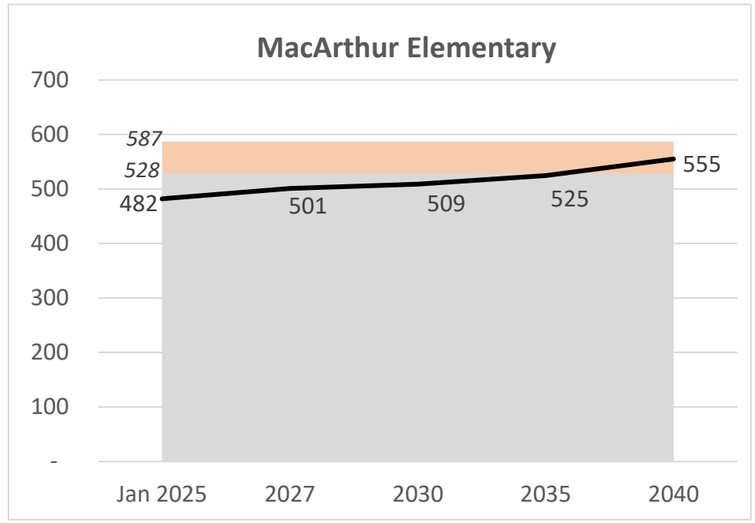
to exceed 90 percent of that building's capacity through around 2030, then decrease below 90 percent through the remainder of the 2030s.

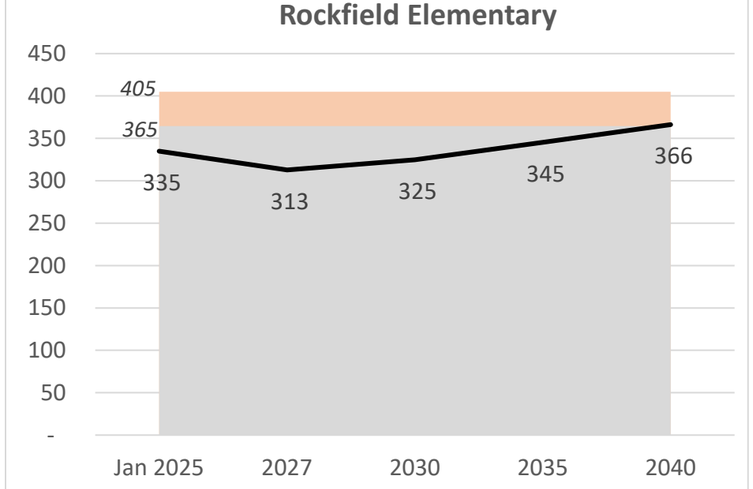
4. The consultant projects Kennedy Middle School (grade 6-8) resident enrollment will increase by 21 students between January 2025 and 2040—totaling 860 grade 6-8 students by 2040. Middle school enrollment is projected to decrease over the next few years due to current larger middle school classes being replaced by generally smaller current elementary classes. GSD resident grade 6-8 enrollment is projected to remain well below the maximum building capacity of Kennedy Middle School through 2040.
5. The consultant projects Germantown High School (grade 9-12) resident enrollment will decrease by 2 students by 2040. High School enrollment is projected to remain stable over the next few years, as large middle school classes enter, but then decrease in the late-2020s and early-2030s as generally smaller current elementary classes enter high school. Grade 9-12 enrollment is expected to remain well below the maximum capacity of the Germantown High School building through 2040, even if current levels of open-enrollment-in were continued.
6. The above projected grade GSD resident enrollment increases are driven by expected modest increases in new housing development and (in the 2020s at least) births. Were the GSD to have *no* new housing development through 2040, projected GSD resident 4K-12 enrollment would have instead *decreased* by around 420 students. In contrast, were the GSD to have housing development more in line with the Village's 2022 Comprehensive Plan—as opposed to emerging Village policy shifts or reversions—projected GSD resident 4K-12 enrollment would have instead increased by around 280 students. Both alternative scenarios are in contrast with the consultant's "most likely" 15-year 4K-12 enrollment increase of 148 students.
7. Several options could be explored to address projected capacity constraints at the elementary school level in the late-2030s, particularly at MacArthur Elementary but also Rockfield Elementary. These include elementary attendance area shifts, additional attendance "flex" neighborhoods, elementary school expansions or replacements, construction of a fifth elementary school, or even potentially shifting 5th grade students to the middle school level with expansion or replacement there. Further exploration of these options is beyond the scope of this Report. Also, comparing enrollment projections to current building capacities is only one factor to consider in long-range facilities planning. Other factors include basic goals and parameters (e.g., maximum school and class sizes), interest and tolerances for attendance area or grade grouping changes, the suitability for older buildings to operate efficiently and serve modern educational needs, existing building expansion opportunities and constraints, the suitability of different potential sites for new or expanded schools, the relative costs of different options to address needs, and the GSD's financial picture including its borrowing capacity.

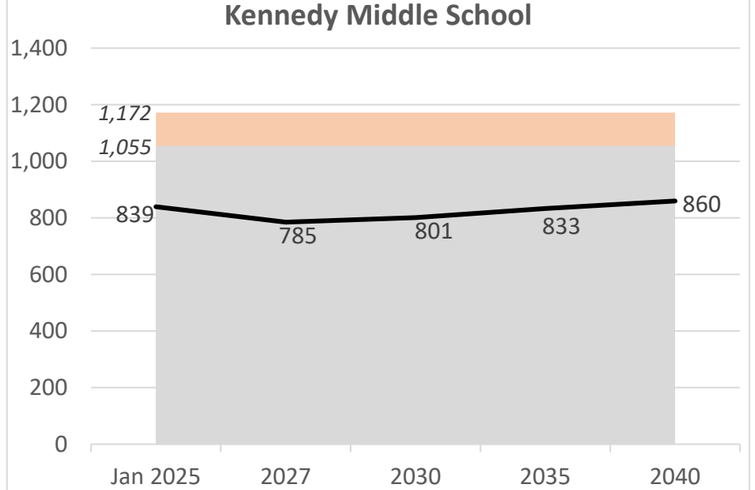
Projected GSD Resident Enrollment vs. Building Capacity at Current GSD Schools

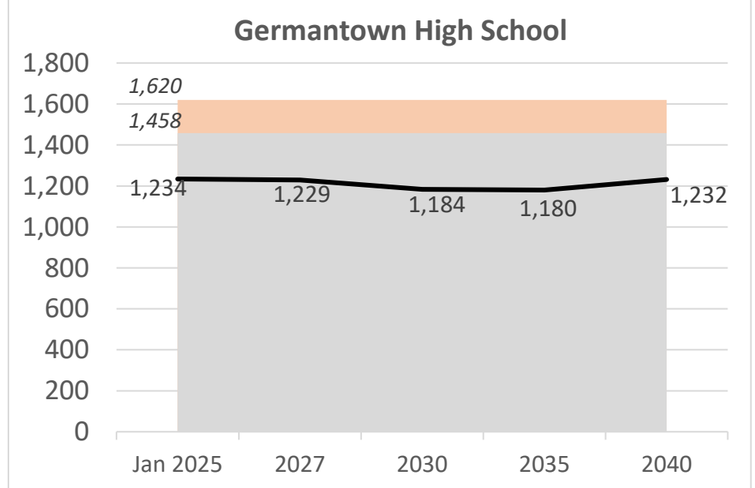












100% Maximum Building Capacity 90% Maximum Building Capacity Projected Resident Enrollment

Note:
These charts assume no changes in current attendance areas, distribution of students from the shared attendance area, grade groupings, or building capacity of each of the GSD's schools. They also include only GSD resident enrollment.

II. SCHOOL DISTRICT OVERVIEW AND STUDENT ENROLLMENT TRENDS

A. GERMANTOWN SCHOOL DISTRICT OVERVIEW

The Germantown School District (GSD) spans 57 square miles in southern Washington County. The GSD encompasses all of the Village of Germantown and Town of Germantown, the eastern one-quarter of the Village of Richfield, and smaller portions of the Village of Jackson, Town of Jackson, Town of Polk, and even City of Milwaukee. The GSD's current school buildings are indicated on the maps in this Report and described in Figure 1. All 4K students are housed in the four GSD elementary schools, along with 5K-5 students. The GSD does not anticipate any significant changes to 4K programming.

Figure 1: Current Germantown School District Building Overview

School	Year Built	Latest Addition/ Renovation	Grades Served	Neighborhood (see Map 2)	January 2025 Enrollment		Maximum Building Capacity
					GSD Resident Students	Total Students in Seats	
Amy Belle Elementary	1951	2018	4K-5	28	350	350	468
County Line Elementary	1957	2018	4K-5	56	488	489	564
MacArthur Elementary	1928	2018	4K-5	70	482	489	587
Rockfield Elementary	1957	2018	4K-5	5	335	346	405
Kennedy Middle	1961	2018	6-8	72	839	858	1,172
Germantown High	1968	2018	9-12	17	1,234	1,277	1,620

Source: GSD

In 2016, GSD voters approved a $84 million referendum to renovate and improve GSD schools. This included new classrooms, a new field house, performing arts center, swimming pool, and secure main entrance and administrative offices at Germantown High School. At Kennedy Middle School, this included replacing and rebuilding the entire 6th grade wing as well as upgraded interiors throughout the rest of the school. At GSD elementary schools, upgrades included classroom finishes, new gym floors, and remodeled library areas.

The GSD's District Office is northeast of the intersection of Fond du Lac Avenue and Donges Bay Road in neighborhood 63 on Map 2. The GSD also owns vacant parcels adjacent to three of its existing schools. These include a 4.9-acre parcel immediately north of the County Line Elementary parcel, a 3.4-acre parcel across Willow Creek Road from Amy Belle Elementary School, and a 5.6-acre parcel immediately east of the Kennedy Middle School parcel. These are also shown on Map 2 and on other maps in this Report.

B. PRIVATE AND HOME SCHOOL ENROLLMENT TRENDS

There are five private schools operating in the GSD, and three private schools operating in other districts nearby (see Map 1 for locations). These eight private schools attract students from the GSD, as well as the Holy Hill Area, Slinger, West Bend, and other school districts. Figure 2 includes enrollment data for these eight private schools over the past ten years. Private school enrollment increases were concentrated at Kettle Moraine Lutheran High and Living Word Lutheran High, which both had 100+ student enrollment increases over the past decade. Combined enrollment at other area private schools was stable over the decade.

Figure 2: Enrollment of Private Schools Operating in and near the GSD, 2014-2024

Private School (District where located)	Grades Served	2014-15	2016-17	2018-19	2020-21	2022-23	2024-25	10 Year Change
Bethlehem Evangelical Lutheran (GSD)	4K-4	184	248	251	218	180	205	**+21**
Crown of Life Evangelical Lutheran (GSD)	4K-8	65	74	77	98	119	117	**+52**
David's Star Lutheran School (GSD)	4K-8	128	136	126	127	158	166	**+38**
Saint Boniface Grade School (GSD)	4K-8	177	145	110	90	72	56	**-121**
Saint Augustine School (GSD)	4K-12	55	65	68	78	94	49	**-6**
Saint Gabriel Grade School (Holy Hill)	4K-8	130	115	121	130	135	144	**+14**
Kettle Moraine Lutheran High (West Bend)	9-12	395	427	487	522	553	574	**+179**
Living Word Lutheran High (West Bend)	9-12	132	198	202	205	231	270	**+138**
TOTALS	-	**1,266**	**1,408**	**1,442**	**1,468**	**1,542**	**1,581**	**+315**

Source: Wisconsin Department of Public Instruction

From 2012 to 2019, home schooling in the GSD remained relatively stable, with around 80 to 90 students choosing home school. In 2020, with the COVID-19 pandemic's onset, the number of students being home schooled increased to 150 students. The number of students being home schooled slightly decreased after 2020, to 128 students by 2023.

In its enrollment projections later in this Report, the consultant assumed that the rate of GSD resident students being home schooled would remain constant at the 2024 levels. The projections do include an anticipated increase over time of GSD resident high school students attending private schools instead of Germantown High School. This is given the significant recent increase in private high school enrollment in and near the GSD and an expansion of Kettle Moraine Lutheran High School that is anticipated over the next few years.

C. GSD STUDENT ENROLLMENT TRENDS AND IMPLICATIONS

As reported in Figure 3, the GSD had a 45 student, or 1 percent, decrease in total enrollment between the 2014-15 and 2024-25 school years. This slight decrease occurred even with the start of 4K programming in the 2022 academic year. Without the implementation of 4K, GSD enrollment would have decreased by 212 students, or 5 percent, over the past decade. Since 2014-15, grade 5K-5 enrollment decreased by 91 students or 6 percent, middle school enrollment (grades 6-8) decreased by 5 students or 1 percent, and high school enrollment (grades 9-12) decreased by 116 students or 8 percent.

Figure 3: GSD Total Enrollment by Grade Group, September 2014 to September 2024

Grade Group	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	10 Year Change
4K	0	0	0	0	0	0	0	171	141	167	**+167**
5K-5	1,585	1,584	1,568	1,578	1,622	1,518	1,586	1,510	1,503	1,494	**-91**
6-8	870	907	894	931	889	886	867	898	867	865	**-5**
9-12	1,402	1,402	1,370	1,327	1,346	1,350	1,334	1,295	1,290	1,286	**-116**
4K-12 Enrollment	**3,857**	**3,893**	**3,832**	**3,836**	**3,857**	**3,754**	**3,787**	**3,874**	**3,801**	**3,812**	**-45**

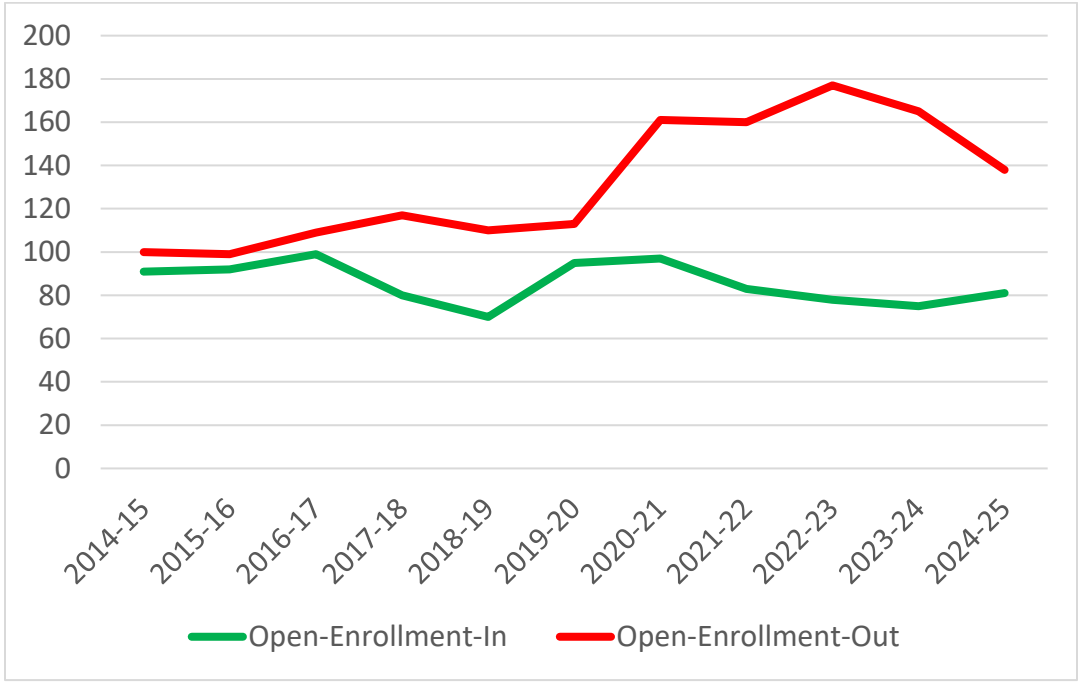
Source: GSD

D. OPEN ENROLLMENT TRENDS AND IMPLICATIONS

The GSD has consistently lost more resident students to other public school districts than it has gained through open enrollment. As shown in Figure 4, the number of non-resident students open-enrolling-in has remained relatively constant—generally between 80 and 100 students per year. The number of resident students open-enrolling-out increased most of the past ten years, especially during the pandemic 2020-21 year, in which over 160 resident students open-enrolled-out. The GSD fluctuated between in-person, virtual, and hybrid learning during that academic year. Since then, open-enrollment-in has increased while open-enrollment-out has decreased.

In its enrollment projections later in this Report, the consultant assumed that the rate of GSD resident students open-enrolling-out would remain constant at 2024-25 levels. The consultant did not include non-resident students open-enrolling-in to the projections, per guidance the consultant received from the GSD staff. At around 80 students, open-enrollment-in is only about 2 percent of the GSD's total enrollment.

Figure 4: GSD 4K-12 Open Enrollment Trends, 2014-15 through 2024-25



Source: GSD

III. DEMOGRAPHIC TRENDS AND EXPECTATIONS

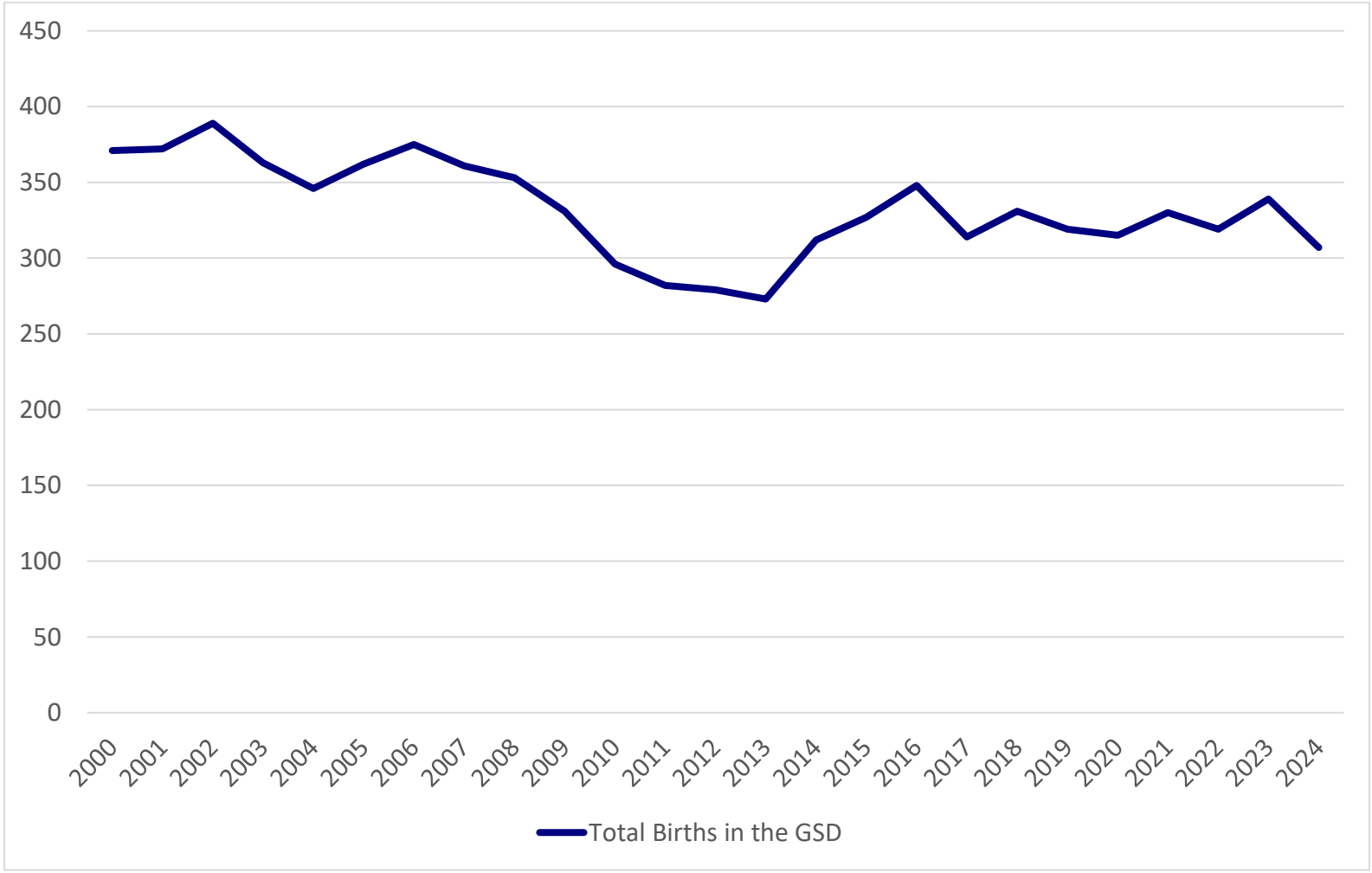
A. BIRTHS AND CHILD POPULATION TRENDS

The number of children born within a school district affects future enrollment in that district's schools. Annual births in the Germantown School District (GSD) decreased over the past 20+ years, from 371 births in 2000 to 307 births in 2024, or by 17 percent. Most of that decrease occurred in the 2000s and into the early-2010s, which helps to explain the past 10-year grade 5K-12 enrollment decrease. Since the early-2010s, births have remained relatively stable, with around 320 to 330 births per year.

The consultant believes births will slightly increase in the GSD through the rest of the 2020s, due to the large Millennial generation entering their prime reproductive years and more anticipated housing units in which to live. Still, the consultant expects that births will remain lower than in the early-2000s, when large numbers of children were born in the GSD.

The number of children aged 0-4 years in a district is another important influence over future enrollment. Per the 2010 Census, there were 1,596 children aged 0-4 living in the GSD. The 2020 Census indicated that the 0-4 population in the GSD decreased by 8 percent to 1,470 children aged 0-4. This generally tracks with recent elementary school enrollment decreases, and the lower number of births in the latter half of the 2010s (i.e., children 0-4 years old in 2020) compared to the greater number of births in the latter half of the 2000s (i.e., children 0-4 years old in 2010).

Figure 5: Births in the GSD, 2000-2024



Source: Wisconsin Department of Health Services

B. POPULATION TRENDS BY AGE

The average age in the GSD increased from 40.2 years old in 2010 to 41.2 in 2020. The GSD is slightly younger than Washington County and slightly older than Wisconsin as a whole. From 2010 to 2020, the median age in Washington County increased from 40.0 years old to 43.2 years old and the median age for Wisconsin increased from 38.1 years old to 39.6 years old.

As shown in Figure 6, most of the increase in the GSD population from 2010 to 2020 was in the population aged 65 and older. The population aged 45 to 64 also increased. These increases were contrasted by a 626-resident decrease in the child-aged population, which also correlates with the decrease in births in the 2000s and early-2010s and recent enrollment decreases. The number of persons in the GSD between 25-44 years of age (i.e., reproductive age) remained stable from 2010 to 2020. As of 2020, this age group comprised much of the Millennial generation—the main generator of births over the next decade.

Together, these statistics suggest an aging community, but also increasing future turnover potential of homes to younger families as older residents move on by 2040. Local housing choices attractive to seniors and empty-nesters—such as single-family condominiums, townhomes, and senior housing—may help support the turnover of larger single-family homes from older generations to younger generations. Still, housing is more expensive in the GSD than in many other areas in southeastern Wisconsin (see Section IV.E). This may limit the potential and number of young families with children who can afford a home in the GSD. See Section IV. E for more information about the impacts of housing costs, turnover, and student generation.

Figure 6: GSD Population by Age Group, 2010-2020

Age Group	2010	2020	Change
0-4	1,596	1,470	**-126**
5-19 (School Age)	5,851	5,351	**-500**
20-24	1,013	1,379	**+366**
25-44 (Reproductive Age)	**6,357**	**6,372**	**+15**
45-64	7,649	8,148	**+499**
65+ (Seniors)	2,786	4,183	**+1,397**
Total	**25,251**	**26,903**	**+1,652**

Source: US Census Bureau

IV. HOUSING AND ECONOMIC TRENDS AND EXPECTATIONS

A. RECENT RESIDENTIAL BUILDING CONSTRUCTION

Trends in residential construction are one indicator of future housing development. Figure 7 lists recent housing starts (based on building permits issued) within municipalities in the Germantown School District (GSD). Residential building activity decreased over the past few years. Between 2014 and 2019, an average of 190 new housing units were permitted per year. Between 2020 and 2024, an average of 130 new housing units were permitted per year. This recent decrease is mostly due to a combination of fewer new single-family homes in the Village of Richfield and fewer multiple-family housing units in the Village of Germantown (see Figure 8).

Figure 7: Housing Starts by GSD Municipality, 2014-2024

MUNICIPALITY	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Village of Germantown	78	40	38	180	67	111	52	96	40	38	38	**778**
Village of Jackson*	36	44	65	33	31	36	12	68	24	57	82	**488**
Village of Richfield*	40	45	53	53	38	35	41	38	14	17	21	**395**
Town of Germantown	0	0	1	0	1	0	0	1	0	0	0	**3**
Town of Jackson*	24	22	22	18	11	9	7	8	3	8	3	**135**
Total by Year	**178**	**151**	**179**	**284**	**148**	**191**	**112**	**211**	**81**	**120**	**144**	**1,799**

Sources: Villages and Towns
** Includes housing starts across the entire municipality, including areas outside of the GSD. Most Jackson and Richfield units were not in the GSD.*

Figure 8 lists housing starts by type within the Village of Germantown between 2014 and 2024. Overall, new housing development decreased in the Village over this period. In the first half of the past decade, the City permitted an average of 86 new housing units per year. Over the second half, the City permitted an average of 53 new housing units per year. This is mostly due to a decrease in the number of multiple-family housing units permitted over the past few years. Between 2020 and 2024, the Village permitted 28 multiple-family units. Single-family housing starts have ebbed and flowed in the Village, mostly due to

the development, and subsequent quick build out, of new subdivisions like Wrenwood, Wrenwood North, Heritage Park North, Harvest Hills, and Prairie Glen.

Figure 8: Village of Germantown Housing Starts by Type, 2014-2024

Unit Type	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Single-family	54	34	23	18	15	12	46	72	34	34	30	**372**
Duplex	6	6	0	0	0	2	6	0	6	0	8	**34**
Multiple-family	18	0	15	162	52	97	0	24	0	4	0	**372**
Total	**78**	**40**	**38**	**180**	**67**	**111**	**52**	**96**	**40**	**38**	**38**	**778**

Source: Village of Germantown

B. NEW HOUSING IMPACT ON ENROLLMENT

Understanding the rate of student generation from new housing construction is critical to enrollment projections using the consultant's method. Typically, new single-family homes generate the most students within the first 5 to 10 years of being built, as new homes are often purchased by families with young school-aged children. The number of students then decreases as the neighborhood ages and the composition of the neighborhood changes from mostly families with young children to a combination of families with children of all ages, childless families, seniors, and empty nesters.

The consultant compared March 2025 student addresses to permit addresses of newer single-family homes. The intent was to understand how single-family homes are generating students for the GSD. This analysis suggests an average current student generation ratio of 0.61 GSD 4K-12 students per newer single-family home. This ratio is typical for similarly-sized and positioned suburban school districts.

New multiple-family development in the GSD generates an average of 0.11 GSD 4K-12 students-per- unit. This ratio is based on analysis of three newer multiple-family housing developments—Hillstone Apartments, The Reserve at Wrenwood, and Saxony Village Apartments. These three developments have a combined 214 units, in which 24 4K-12 GSD students live. This 0.11 ratio is a bit above average for new multiple-family housing in suburban communities like Germantown, and may be explained by the relatively lower-density, suburban development style of these three newer multiple-family housing developments. Additionally,

most of these newer multiple-family units (172 units of the 214 total newer units) are in the Saxony Village Apartments development, which contains a larger percentage of 3-bedroom units than typical of newer market-rate apartments. Apartments with 3-bedroom units often produce students at greater rates than apartments with mostly 1- and 2-bedroom units.

Other suburban Milwaukee school districts have had more newer multiple-family housing developments. Examples include the Fox Run Apartments and Townhomes in the Cedarburg School District, Mequon Town Center in the Mequon-Thiensville School District, Velo Village in the Franklin Public School District, and Drexel Town Square in the Oak Creek-Franklin School District. Most of the over 1,000 combined units in these developments are studios, 1-bedroom units, and 2-bedroom units. The student-per-housing unit ratios from these newer multiple-family units have been between 0.04 to 0.08, with a combined ratio of 0.06 student-per-housing unit.

C. EXISTING HOUSING IMPACT ON ENROLLMENT

Understanding the rate of student generation from *existing* housing is just as important, as most of the housing that will exist in 2040 has already been constructed. There were approximately 11,653 housing units in the GSD in March 2025. The consultant projects 2,140 new housing units between 2025 and 2040. This means that about 84 percent of the housing units projected to be on the ground in 2040 are already built.

Using March 2025 housing unit and student address data, the consultant's analysis suggests a student generation ratio of 0.30 to 0.40 GSD 4K-12 students per each older existing single-family home, depending on proximity to GSD schools and housing age. Therefore, older single-family homes in the GSD generate students at about 50 to 65 percent of newer single-family homes. The GSD's student generation ratio from older single-family homes is typical among comparable suburban districts.

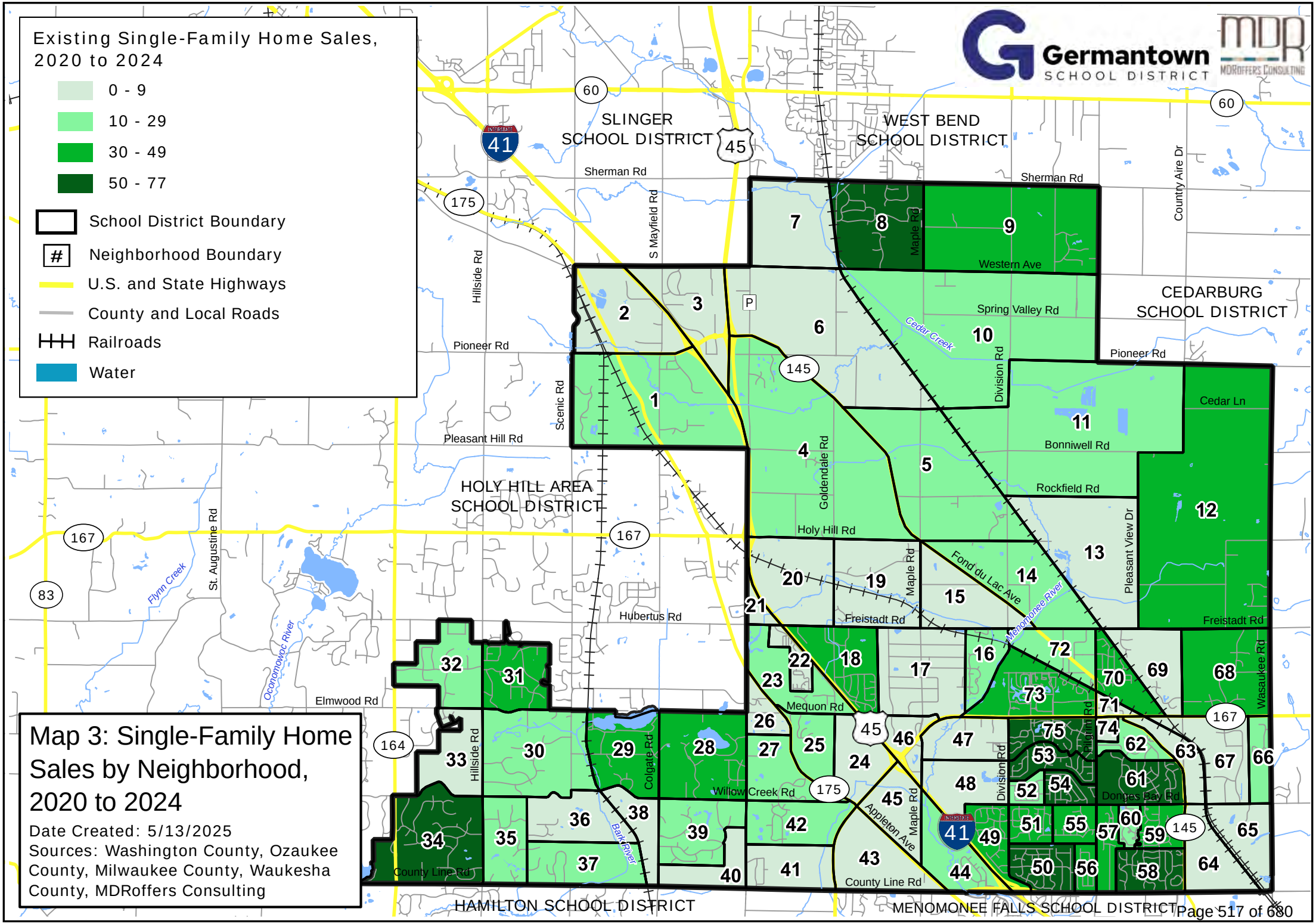
In contrast, older multiple-family housing units tend to generate *greater* numbers of students than newer multiple-family units, as older units tend to be more affordable and sometimes include more bedrooms per unit. The consultant found existing multiple-family units in the GSD generate students at a rate of 0.16 GSD 4K-12 student-per-housing unit. This ratio is slightly higher than what the consultant has seen in similar suburban Milwaukee school districts, in which existing multiple-family housing generates students at ratios of 0.08 through 0.13 per housing unit. This difference could be due to the relative age and size (e.g., more 3-bedroom units) of multiple-family housing in the GSD.

D. EXISTING HOME SALES AND IMPACT ON ENROLLMENT

Understanding where sales of existing homes are occurring can also help a school district understand where future student growth may occur—even if no new housing units are being built. Part of the consultant's methodology for projecting future enrollment in the GSD includes assessing the likelihood, timing, and extent of turnover in existing neighborhoods. This assessment is based on a variety of factors, including an analysis of neighborhood age (30± years old is when major turnover usually occurs), recent trends in student generation by neighborhood, and analysis of sales of existing homes.

Map 3 aggregates single-family homes sales from January 2020 to December 2024 for each neighborhood in the GSD. Concentrations of recent existing home sales are clustered in southern Village of Germantown neighborhoods. Neighborhoods 50, 53, 54, 58, 61, and 75 in southern portions of Germantown all had 50 or more single-family home sales over the past five years. Other neighborhoods with greater numbers of home sales include neighborhood 8, located in the Village of Jackson along the northern boundary of the GSD, and neighborhood 34 located in the Village of Richfield in the far western portion of the GSD.

A significant portion of housing in some of these neighborhoods—particularly in neighborhoods 8, 53, 54, 58, 61, and 75—was built in the 1990s and 2000s, and is therefore in or approaching a significant turnover period. The GSD can expect stabilizing, or even increasing, numbers of students from some of these neighborhoods through 2040. In contrast, neighborhoods built in the 2010s and later (with no new housing built) will likely have decreasing enrollment through 2040, as current elementary school-aged students age and more of this housing becomes populated by empty nesters by the 2030s. The consultant does not expect neighborhoods built in the 2010s to turn over in significant numbers until the 2040s, after the consultant's final projection period. The effect of housing turnover on projected enrollment is discussed further in Appendices A and B.



Map 3: Single-Family Home Sales by Neighborhood, 2020 to 2024

Date Created: 5/13/2025

Sources: Washington County, Ozaukee County, Milwaukee County, Waukesha County, MDRoffers Consulting

E. OTHER HOUSING AND ECONOMIC TRENDS

Housing in the GSD and Washington County tends to be more expensive than elsewhere in the State. As of 2024, the median home sale price in Washington County was $375,000. While higher than the median for the entire State of Wisconsin ($310,000), this median home sale price is lower than nearby Ozaukee County ($471,217) and Waukesha County ($455,650). Still, Washington County's 2024 median home sale price is more than double its median home sale price in 2014 of $182,750. Most of the increase in median home sale price has occurred over the past few years.

In the early-2020s, Washington County established the Next Generation Housing (NGH) Initiative. The NGH is a $10 million initiative to build 1,000 homes in the County over the next decade, all of which will be priced under $420,000, with 75 percent listed under $320,000. The goal is to attract millennials, young adults, and young families to put down roots in the County. Since its establishment, NGH has led to several housing developments in Washington County, though none in the GSD in part based on decisions of local villages to not participate.

Housing, population, and student enrollment growth in the GSD is driven in large part by local and regional job growth. As of the early-2020s, the Village of Germantown had over 11,000 jobs, concentrated in manufacturing, health care, educational services, social assistance, education, and finance and insurance. Major employers in the Village of Germantown include MGS Manufacturing Group, JW Speaker, Gehl Foods, David J Frank Landscape Contracting, and Westrock. The consultant anticipates continued employment growth in and near the GSD, particularly in the Germantown Industrial Park, Germantown Business Park, Omega Hills Industrial Park, Willow Creek Business Park, and the Village's planned Freistadt and Holy Hill Gateway Districts.

The region's extensive transportation network, with access to Interstate 41, Highway 45, Highway 145, Highway 167, and Highway 175 both fuels this local employment and provides easy access from the GSD to nearby jobs in Mequon, Menomonee Falls, Wauwatosa, Waukesha, and Milwaukee. Large regional employers include Advocate Aurora Health, Froedtert, Quad, Medical College of Wisconsin, Kohl's, General Electric, Northwestern Mutual, Rockwell Automation, Milwaukee Tool, and Harley-Davidson.

Washington County is part of the WOW Workforce Development Area (WDA), which also includes Ozaukee County and Waukesha County. Employment in the WOW WDA is projected to grow by 10 percent from 2020 to 2030, amounting to 36,500 more jobs. This projected growth outpaces the State, which is projected to grow by 6.3 percent during the same period. In total, local and regional employment—and the GSD's advantageous access to it—is an asset that should lead to continued appeal for existing and new residents and continued local demand for different housing types suited to different earned incomes.

V. COMMUNITY AND DEVELOPER PLAN ANALYSIS

A. SECTION OVERVIEW

Local land use planning, growth management, economic development, and infrastructure investments (and limitations) influence future housing and enrollment growth. Other factors influencing future residential and enrollment growth include transportation (highway and road improvements or expansions), natural barriers (e.g., wetlands, rivers), utility availability, and landowner interest for selling or developing their land.

As part of the projection process, the consultant analyzed local community and residential developer plans in the Germantown School District (GSD). These plans provide insight to the growth and development goals and expectations of the municipalities, landowners, and residential developers in the GSD. To best understand how the plans were being executed (and at times questioned and adjusted), the consultant also interviewed and obtained data from local municipal staff and residential real estate developers and professionals.

Broadly speaking, the Village of Germantown has accommodated new housing development of different types, the Village of Richfield and Village of Jackson are most receptive to new single-family housing development, and the Towns desire to remain mostly rural. Still, many of the easiest and best areas for new housing development have already been developed, are distant from public sewer and water services, or have owners that appear disinterested in development.

B. VILLAGE OF GERMANTOWN PLANS AND EXPECTATIONS

The Village of Germantown is a village of almost 21,000 residents in Washington County and serves as the commercial, industrial, and social center for the GSD. The Village is located northwest of the City of Milwaukee, along Interstate 41, Highway 45, Highway 145, Highway 167, and Highway 175. Per the U.S. Census, over 80 percent of workers that reside in Germantown work in other municipalities in the Milwaukee region. The City is a 10 minute drive from Menomonee Falls, 30 minutes from Wauwatosa, 35 minutes from Downtown Milwaukee, and 40 minutes from the City of Waukesha. This appeals to individuals seeking a suburban lifestyle in commuting distance to their jobs. Recent residential and industrial development in the Village has extended north and west, generally along and near Interstate 41, Highway 45, Highway 167, and Freistadt Road.

The Village updated its Comprehensive Plan in 2022. The 2050 future land use map overview from the Village's Plan, reproduced as Figure 9, is together with an associated table intended to guide the location, type, and density of future development. The Village's plan is based on a "Neighborhood, District, and Corridor Framework," with different future land uses listed as desirable, allowable, or undesirable in different parts of the Village shown in Figure 9. Generally, lower-density residential uses, such as single-family homes, duplexes, and townhomes, are identified as either desirable or allowable throughout most of the already developed portions of the Village, generally south of Freistadt Road and east of Interstate 41/Highway 45. Moderate- and higher-density housing, including apartment buildings, are identified in the 2022 Plan as either desirable or allowable in Village Center District, Freistadt District, County Line District, Lannon-Mequon Road Corridor, and Victory Center Corridor in Figure 9.

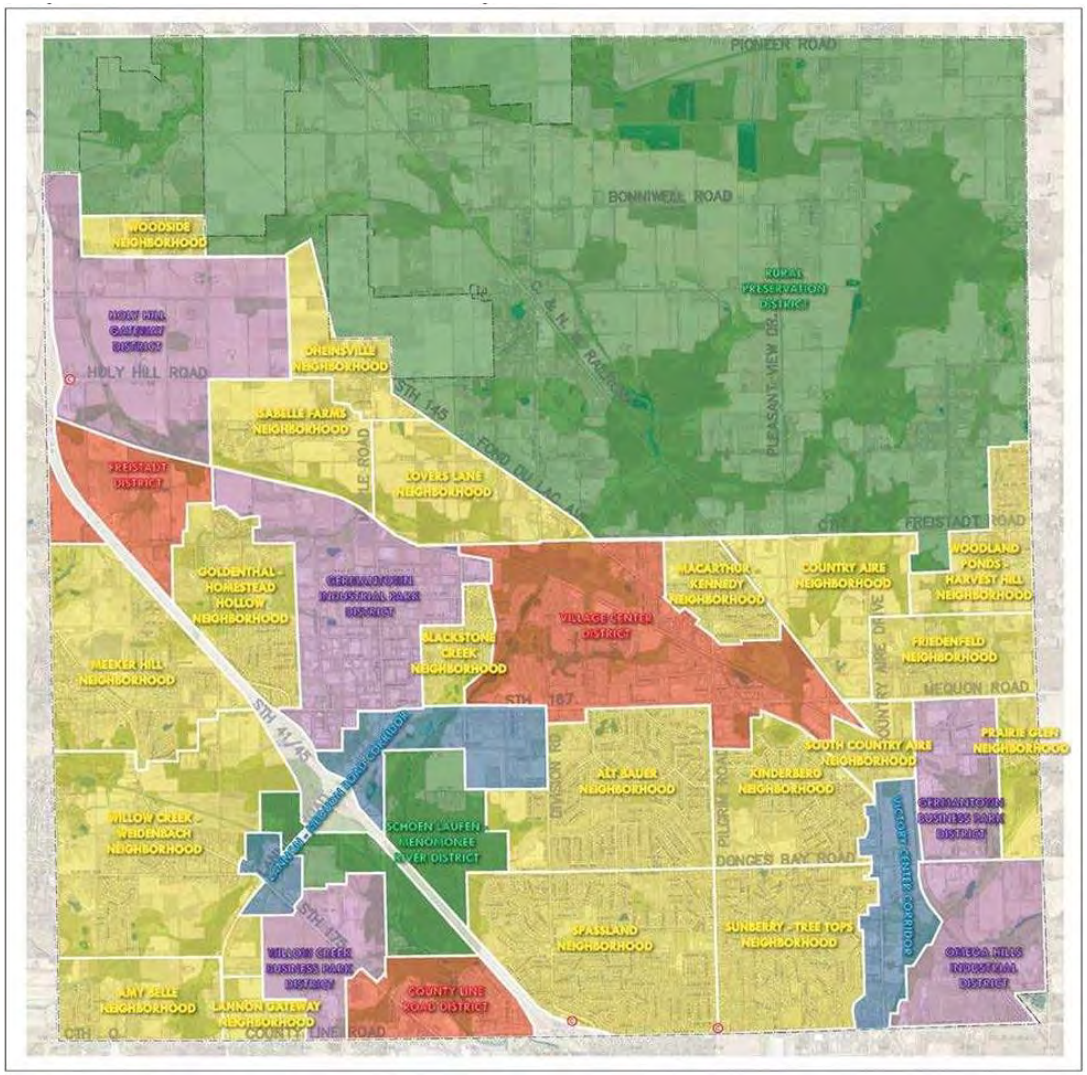
Compared to prior Village plans, and broadly speaking, the Village's 2022 Comprehensive Plan reduced recommended future housing density in the northern portions of the Village (i.e., Rural Preservation District in Figure 9) and increased recommended future housing density and types in some southern parts of the Village that were either undeveloped or had characteristics that suggested redevelopment. This includes the Village Center District as shown on Figure 9, including parts of the Mequon Road and Fond du Lac Avenue corridors, with available (re)development sites and good local and regional transportation access.

The 2024 Residential Market Analysis—prepared by Tracy Cross and Associates for the Village—outlined the market potential for new residential development in the Germantown Primary Market Area (PMA) which extends across most of the GSD and into other nearby municipalities. The Analysis showed demand for over 5,000 new renter- and owner-occupied housing units across the Germantown PMA, which was double the number of housing units then in the planning pipeline. Additionally, the Analysis indicated that the majority of new owner-occupied offerings in this PMA were priced between $400,000 and $700,000 while the greatest demand was for homes below $400,000.

Recent Village actions and communications suggest that some community members and Village officials are now questioning these 2022 Comprehensive Plan policies and efforts to fill these gaps as new development concepts come forward, particularly in the Village Center District. This reaction may result in at least a partial return to prior Village policies favoring more moderate housing densities. For example, the consultant understands that the Village may now be considering a cap in the number or percentage of multiple-family units permitted per year.

The consultant spoke with a handful of residential builders currently building or planning new housing and subdivisions in the Village. These builders emphasized the attractiveness of the Germantown market to families and reaffirmed strong demand. Interviewed builders expressed some hesitation regarding emerging policy changes and how they may impact housing prospects.

Figure 9: Village of Germantown Comprehensive Plan, 2050 Future Land Use Map Overview



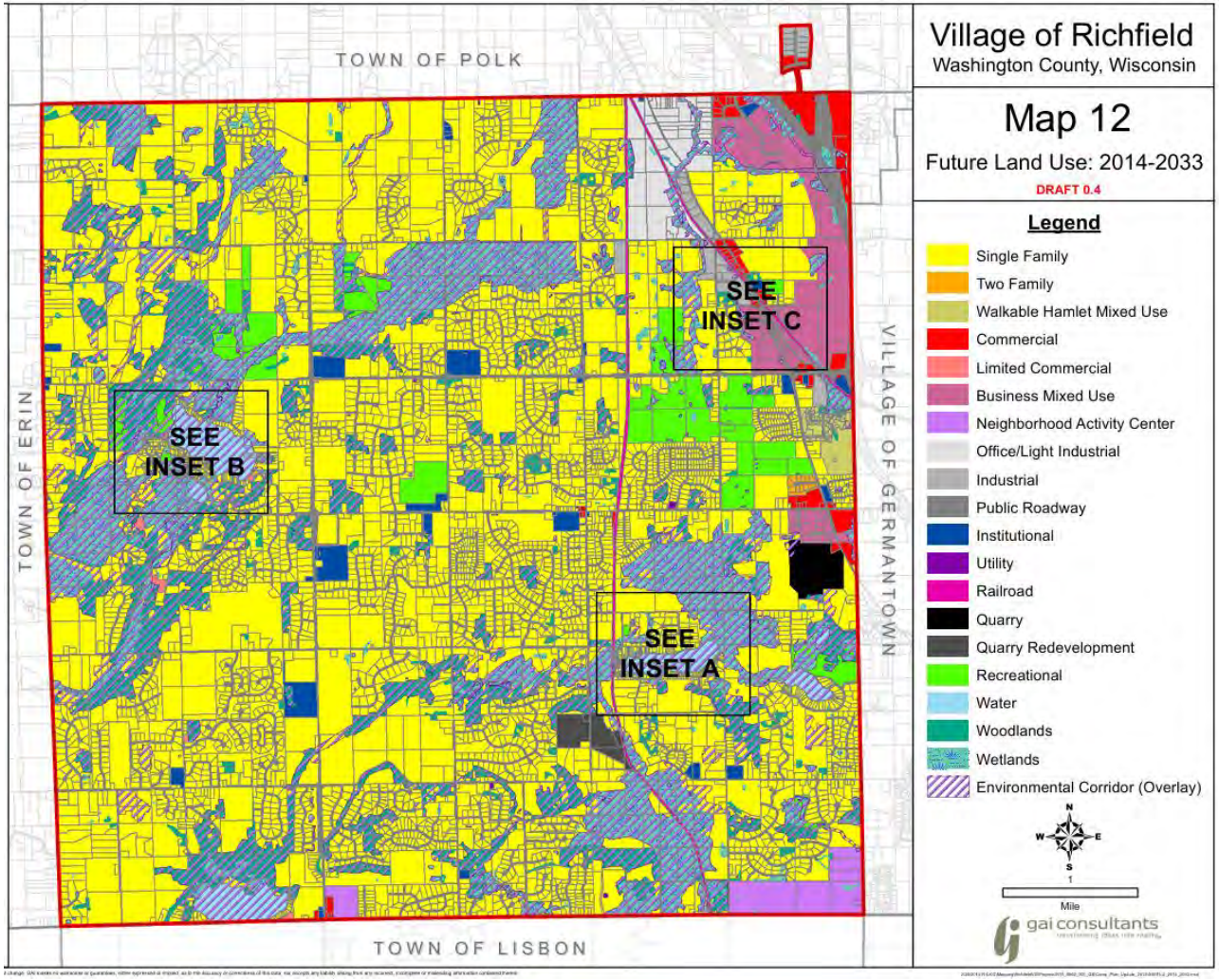
C. VILLAGE OF RICHFIELD PLANS AND EXPECTATIONS

The Village of Richfield is located west of the Village of Germantown and had a population of 11,700 residents in 2020. Significant portions of Richfield are developed with larger-lot single-family homes. Many of these are located on and near Highway 167, Highway 164, Willow Creek Road, Elmwood Road, and Scenic Road. The southeast one-quarter (including Amy Belle Elementary School) and northeast corner of the Village are in the GSD. Most of Richfield is in the Holy Hill Area School District, which feeds into the Hartford Union High School District.

Much of the land both in the Village and in the GSD is built-out with single-family homes, however some developable tracts remain along Hillside Road, Colgate Road, Willow Creek Road, and County Line Road. These areas are mostly planned for single-family residential uses on large-lots. Opportunities for other residential development (such as duplex condos) and non-residential development exist in the southern part of the Village along County Line Road and in the northeastern part of the Village along Pioneer Road and Interstate 41. Other areas, mostly west of Colgate Road, have extensive environmental limitations such as wetlands and floodplains.

Overall, the consultant anticipates single-family housing development to continue in the Village of Richfield at a similar pace to that experienced over the past decade, due to community desire to maintain the rural, open, and agricultural character of the Village. However, after 2040, many of the best and easiest areas for development in portions of the Village in the GSD will have already been developed, and this area of the GSD will be mostly built-out.

Figure 10: Village of Richfield Comprehensive Plan, Future Land Use Map



D. VILLAGE OF JACKSON PLANS AND EXPECTATIONS

The majority of the Village of Jackson is located outside of the GSD in the West Bend School District, except that the southern expanding edge of Jackson is in the GSD. This includes the developed Twin Creeks and Sherman Parc subdivisions. This also includes the currently developing Maple Fields subdivision, which the consultant projects will develop through the rest of the 2020s and into the early-2030s (see neighborhood 8 on Map 2).

Outside of these subdivisions, the Village plans for additional, primarily single-family residential uses east of Maple Road (neighborhood 9 on Map 2) and south of Sherman Road (neighborhood 7 on Map 2). The consultant projects Village-based single-family housing development to extend into neighborhoods 7 and 9, especially during the 2030s. The Village does not currently plan for any other lands in the northern part of the GSD for future development at this time.

E. TOWN OF JACKSON PLANS AND EXPECTATIONS

The majority of the Town of Jackson is located outside of the GSD, mostly in the West Bend School District but also the Cedarburg School District. The southern quarter of the Town is located in the GSD. The Town plans several areas for future residential development, but most are located outside of the GSD. The main area of residential development planned by the Town and in the GSD is south of Sherman Road. Overall, the Town plans for almost 200 acres for single-family residential development in the GSD; however, many of these areas are also planned by the Village of Jackson for future development and may most likely develop in that Village following annexation. The rest of the Town of Jackson land in the GSD is planned for continued agricultural use. The consultant anticipates minimal new housing and enrollment change from the Town of Jackson.

F. PLANS AND EXPECTATIONS OF OTHER MUNICIPALITIES IN THE GSD

The GSD includes small areas in the Town of Polk, Town of Germantown, and City of Milwaukee but none of those municipalities are expected to have notable impact on GSD housing or enrollment.

VI. HOUSING AND ENROLLMENT GROWTH EXPECTATIONS

This section synthesizes information from earlier sections to provide housing unit and enrollment growth projections for the Germantown School District (GSD) through the year 2040, broken down into four time periods and into 75 different neighborhoods. The consultant's general expectation for housing growth beyond 2040 is also shared. Projection methodology is described in Appendix A. Each neighborhood's projections are detailed in Appendix B (housing) and Appendix C (enrollment).

A. HOUSING UNIT PROJECTIONS

The consultant expects that the pace of new housing development through 2040 will be greater than that over the past 15 years, but similar to the pace in the 2000s and less than the pace in the 1980s and 1990s. The consultant projects construction of 2,140 new housing units within the GSD between 2025 and 2040. This is an average of 138 new units per year, greater than the average of 84 new units per year over the past decade. The consultant's new housing construction expectation is based on multiple factors, which include:

- A significant unmet need for new housing of different types and price points in Germantown, as evidenced by recent housing studies and echoed by local builders. The consultant's projected 2,140 new housing units by 2040 is just over 40 percent of the anticipated current need in the Germantown area, per a 2024 professional housing study.
- Municipal plans of the Villages of Germantown, Richfield, and Jackson, which support new housing development over hundreds of acres—even as the Village of Germantown may be questioning the ideal or supportable future housing *density* in some of these areas.
- The significant and growing number of jobs in Germantown, and other regional jobs that are accessible to a local resident population by a well-developed highway network. The Village of Germantown alone has over 11,000 jobs within its border.
- The Germantown area's continued appeal as a destination for families with children. The Germantown School District is an "Exceeds Expectations" school district, per the State Department of Public Instruction.

- Significant residential development proposed in the past couple of years, particularly new single-family subdivisions along Freistadt Road and County Line Road, and multiple-family developments along the Mequon Road corridor, reflecting strong market sentiment.
- Projected decreases in interest rates over the next few years, per sources like Fannie Mae, Mortgage Bankers Association, and Wells Fargo.

All this said, the consultant's projections do not consider the possibility of a major economic or real estate downturn, such as the "Great Recession" of the late-2000s. If another such event were to occur, new housing development could be placed on hold for a few to several years. This, in turn, would affect the enrollment projections presented later in this section.

The consultant anticipates that about 44 percent of the GSD's new housing units built between 2025 and 2040 will be single-family homes. This percentage is slightly lower than over the past decade, when about 50 percent of all new housing units built in the GSD were single-family homes. This slight anticipated shift is due to market demand for multiple-family housing, particularly for the local workforce, young families, and senior populations. The shift has implications for future enrollment, as market-rate multiple-family residences almost always generate substantially fewer students-per-unit than single-family homes.

Map 4 indicates projected housing unit growth by neighborhood between 2025 and 2040. Complete housing unit growth projections by neighborhood, including rationale, are included as Appendix B.

The majority of projected housing development is expected to occur in the Village of Germantown, where the consultant projects just over 1,700 new housing units through 2040, or an average of 107 new units per year. This is somewhat higher than the average experienced over the past decade, when 71 new housing units were built each year, but similar to levels of development in the Village in the 2000s. The most significant projected housing growth is in south-central parts of the Village, along Highway 167/Mequon Road and Freistadt Road, in neighborhoods 69, 73, and 74 on Map 4. Growth in neighborhood 69 (current home of Wrenwood) is anticipated to be driven by single-family housing development while neighborhoods 73 and 74 are projected with mostly townhouse and apartment development. About one-half of all new housing in the Village by 2040 is projected to occur in these three neighborhoods. Neighborhood 43 is another notable area of projected housing development in the Village, where mostly new single-family homes are projected, largely via a recently-proposed subdivision by Home Path.

The consultant projects that 556 new single-family homes will be built in the Village of Germantown between 2025 and 2040. This equals an average of 36 new single-family homes per year, which is similar to the average of the past decade of 34 new

single-family homes per year. Over this period, subdivisions like Heritage Park North, Harvest Hills, Wrenwood, and Wrenwood North have quickly built out.

The consultant projects 210 new housing units in the Village of Jackson portion of the GSD through 2040, all of which are projected to be new single-family homes. This is an average of 14 new single-family homes built per year through 2040, which is similar to the average built over the past decade in portions of the Village in the GSD.

The consultant projects 187 new housing units in the Village of Richfield portion of the GSD through 2040, the majority of which will be new single-family homes. The consultant projects lower housing development in the Village through the rest of the 2020s, due to limited inventory of vacant single-family lots, with housing development increasing in the 2030s. However, by 2040, much of the Village-based land in the GSD will be built out, except for a few sizable remaining vacant areas in neighborhoods 33 and 37.

The consultant projects only 26 new housing units to be built in other municipalities in the GSD, mostly in the Town of Jackson.

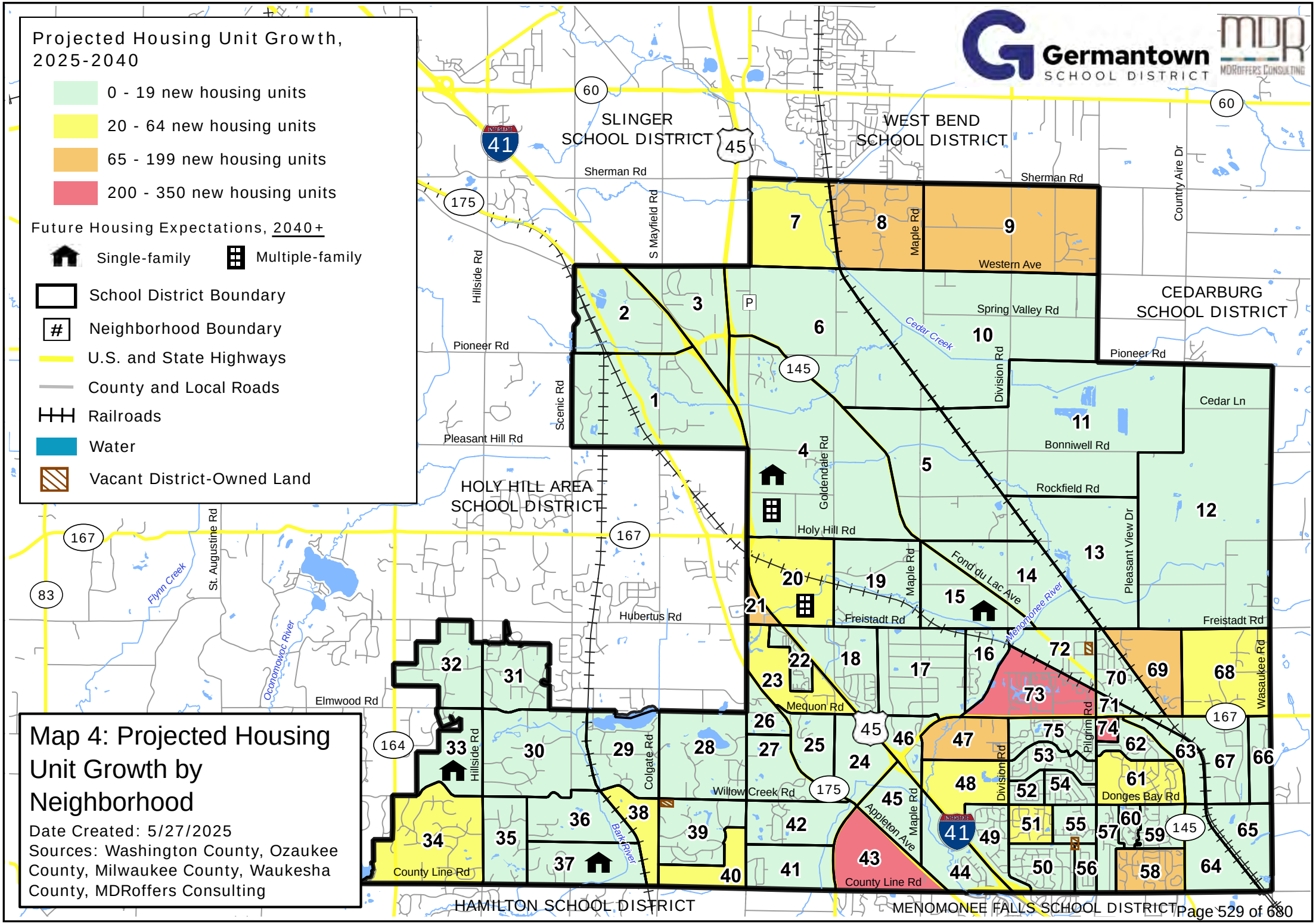
As shown in Figure 11, just over 40 percent of all new housing units are projected to be built in the current MacArthur Elementary School attendance area, about 30 percent are projected to be built in the current Amy Belle Elementary School attendance area, and 15 percent and 12 percent are projected to be built in the current Rockfield Elementary School and County Line Elementary School attendance areas respectively. Focusing only on single-family homes, 36 percent of all new single-family homes are projected to be built in the current Amy Belle attendance area, 30 percent in the current Rockfield attendance area, and 29 percent in the current MacArthur attendance area. Only 5 percent of new single-family homes are projected to be built in the current County Line attendance area, given this attendance area spans most of the developed, built-out portion of the Village, and has minimal land remaining for large-scale subdivision development.

Figure 11: Housing Unit Projections by Current Elementary School Attendance Area

2024-25 Elementary School Attendance Area	Estimated/Projected Housing Units within 2024-25 Attendance Area					Projected Total Housing Unit Increase 2025 – 2040	Projected Single-Family Home Increase 2025 - 2040
	March 2025	2027	2030	2035	2040		
Amy Belle	2,643	2,694	2,838	3,211	3,301	**+658**	**+336**
County Line	2,712	2,786	2,829	2,879	2,971	**+259**	**+45**
MacArthur	3,394	3,469	3,575	3,875	4,291	**+897**	**+272**
Rockfield	2,058	2,105	2,180	2,281	2,384	**+326**	**+286**
Shared County Line/MacArthur Area	846	846	846	846	846	-	-
TOTALS	**11,653**	**11,900**	**12,268**	**13,092**	**13,793**	**+2,140**	**+939**

Areas projected for housing development beyond 2040 are marked with "house" and "apartment" symbols on Map 4. Additional projected post-2040 growth areas in and around the Village of Germantown are planned for future housing development, logically situated for potential utility extensions, and contain significant acreage of developable land. These includes neighborhoods 4 and 15 (see Map 4) for post-2040 single-family housing, and neighborhoods 4 and 20 for multiple-family housing driven by proximity to Interstate 41/Highway 45 and Village plans for denser housing in these neighborhoods.

The consultant also anticipates post-2040 Village of Richfield-based single-family housing in neighborhood 33 and 37. Once these two neighborhoods develop, minimal additional land will exist for future Village of Richfield-based housing development in the GSD.


Projected Housing Unit Growth, 2025-2040
0 - 19 new housing units
20 - 64 new housing units
65 - 199 new housing units
200 - 350 new housing units
Future Housing Expectations, 2040+
Single-family
Multiple-family
School District Boundary
Neighborhood Boundary
U.S. and State Highways
County and Local Roads
Railroads
Water
Vacant District-Owned Land
Germantown SCHOOL DISTRICT
MDR MDRoffers Consulting
SLINGER SCHOOL DISTRICT
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CEDARBURG SCHOOL DISTRICT
HOLY HILL AREA SCHOOL DISTRICT
HAMILTON SCHOOL DISTRICT
MENOMONEE FALLS SCHOOL DISTRICT
Sherman Rd
Pioneer Rd
Pleasant Hill Rd
Spring Valley Rd
Western Ave
Bonniwell Rd
Rockfield Rd
Holy Hill Rd
Freistadt Rd
Hubertus Rd
Elmwood Rd
Mequon Rd
Willow Creek Rd
County Line Rd
Donges Bay Rd
Cedar Ln
Hillside Rd
S Mayfield Rd
Scenic Rd
Goldendale Rd
Maple Rd
Division Rd
Pleasant View Dr
Country Aire Dr
Wasaukee Rd
Pilgrim Rd
Colgate Rd
St. Augustine Rd
Flynn Creek
Oconomowoc River
Cedar Creek
Menomonee River
Bark River
Fond du Lac Ave
Appleton Ave
Map 4: Projected Housing Unit Growth by Neighborhood
Date Created: 5/27/2025
Sources: Washington County, Ozaukee County, Milwaukee County, Waukesha County, MDRoffers Consulting

B. PROJECTED STUDENT-PER-HOUSING UNIT RATIOS

The consultant projected GSD resident student enrollment within each of the 75 neighborhoods by multiplying projected housing units by projected student-per-housing unit ratios in the 4K, 5K-5, 6-8, and 9-12 grade groups. Complete 4K-12 enrollment projections by neighborhood and grade group are included as Appendix C. Projected student-per-housing unit ratios are a lynchpin for enrollment projections under the consultant's methodology. The following student-per-housing unit ratios and characteristics contributed to the consultant's calculation of student enrollment change in the GSD:

- Newer single-family homes in the GSD generate an average of 0.61 GSD 4K-12 students-per-housing unit. The ratio varies depending on the type of home built (e.g., starter versus move-up) but not necessarily by location, with new single-family homes in the Villages of Germantown, Richfield, and Jackson generating similar numbers of students. Student-per-housing unit ratios are typically highest in the first 5 to 10 years after a home is first built, and then slowly decline as the home (and family) gets older.
- Larger quantities of housing built in Germantown during the 1990s and 2000s have begun and will continue to turn over to new households in greater numbers through the 2020s and 2030s. The GSD may see increasing enrollment from turnover of these homes, particularly at the elementary school level. Expected interest rate decreases should fuel this transition, as higher interest rates (and lower-rate older mortgages) have had the effect of locking many empty-nester residents in place.
- Rural areas plus neighborhoods with housing that is 50+ years old typically have lower student-per-housing unit ratios, likely based on distance from schools and other child-friendly amenities plus the generally lower suitability of older housing for modern family living (e.g., fewer bedrooms, bathrooms, garage space; more upgrades required).
- Germantown has a relatively low collection of newer multiple-family housing upon which to base a student-per-housing unit ratio—no significant multiple-family housing development has been provided a building permit since 2019 in the GSD. However, comparable market-rate multiple-family developments across comparable suburban communities in the greater Milwaukee area generate an average of 0.06 students-per-housing unit. Older market-rate multiple-family housing in the GSD generates students at rate of about 0.16 students-per-unit, due to its relative affordability and often-higher bedroom counts. There is no real turnover effect in multiple-family housing.

C. STUDENT ENROLLMENT PROJECTIONS VERSUS SCHOOL CAPACITY

The consultant's GSD resident enrollment projections are shown in Figure 12 for each school and grade group in the GSD. The consultant's projections in Figure 12 suggest where and when current school building capacities may be tested and are based on the following assumptions:

- No shifts in current school configurations, school sizes or quantities, grade groups, or 4K delivery model.
- All elementary school students would attend their current "home" elementary school based on their home address, per current District policy and with no changes in attendance areas.
- For neighborhood 75, within which elementary school students may attend one of two schools, 55 percent would continue to choose County Line and 45 percent would continue to choose MacArthur.
- A constant rate of resident students choosing home schooling and open-enrolling-out to other public school districts as during the 2024-25 academic year.
- An increase in the number of resident high school-aged students choosing to attend private schools, based on recent enrollment increases at private high schools in proximity to the GSD and a planned expansion of a private high school located just outside the GSD boundary—up to 25 more students than today choosing private high schools by 2040.
- Student-per-housing unit assumptions and housing unit projections shared in the previous section. Later in this section, the consultant shares impacts under two alternative housing unit projection assumptions.

As shown in Figure 12, between January 2025 and 2040, the consultant projects an increase of 148 4K-12 resident students enrolled in GSD schools. The consultant projects grade 4K-5 resident enrollment to increase by 129 students, grade 6-8 resident enrollment to increase by 21 students, and grade 9-12 resident enrollment to decrease by 2 students. A footnote in Figure 12 suggests the nominal impact continuation that the same quantity of open-enrollment-in students would have.

At the elementary school level, the consultant projects:

- A 73-student enrollment increase at MacArthur Elementary School by 2040. This is mostly due to projected housing development in the current MacArthur attendance area, with nearly two-thirds of that projected increase from anticipated single-family housing in neighborhood 69 (see Map 4).

- A 51-student enrollment increase at Amy Belle Elementary School by 2040. This is mostly due to new housing development in the current Amy Belle attendance area, with a majority of that projected increase from anticipated new homes in neighborhood 43.
- A 31-student enrollment increase at Rockfield Elementary School, with such increase entirely attributed to projected Village of Jackson-based single-family housing development in neighborhoods 7, 8, and 9 on Map 4.
- A 26-student enrollment *decrease* at County Line Elementary School by 2040. This decrease is attributed to the largely built-out nature of County Line's attendance area, with the handful of smaller vacant tracts more likely to develop with two- and multiple-family housing with low student-per-housing unit ratios. Still, because the County Line attendance area contains a significant amount of housing built in the 1990s and 2000s, there has been turnover of existing housing particularly in neighborhoods 53, 54, and 59 and some evidence that many of these homes are being purchased by younger families. The consultant, therefore, projects slightly increasing enrollment at County Line over the next few years, followed by a period of stability and then modest decrease.

Enrollment projections gather the most meaning when compared to school building capacities. The consultant projects that the combined 4K-5 resident enrollment at the GSD's four elementary schools will remain below the combined maximum capacity of the four elementary school buildings through 2040. Though the consultant was not involved in capacity calculations, maximum elementary school capacity is often around 10 percent greater than functional or comfortable capacity. Without changes in attendance areas, building capacities, or other factors, resident enrollment at MacArthur Elementary is projected to exceed 90 percent of that building's capacity by around 2035 and resident enrollment at Rockfield Elementary School is projected to exceed 90 percent of its capacity by 2040. Projected resident enrollment at County Line is expected to exceed 90 percent of that building's capacity through around 2030, then decrease below 90 percent through the remainder of the 2030s.

The consultant projects Kennedy Middle School (grade 6-8) resident enrollment will increase by 21 students between January 2025 and 2040—totaling 860 grade 6-8 students by 2040. Middle school enrollment is projected to decrease over the next few years due to current larger middle school classes being replaced by generally smaller current elementary classes. GSD resident grade 6-8 enrollment is projected to remain well below the maximum building capacity of Kennedy Middle School through 2040.

The consultant projects Germantown High School (grade 9-12) resident enrollment will decrease by 2 students by 2040. High School enrollment is projected to remain stable over the next few years, as large middle school classes enter, but then decrease in the late-2020s and early-2030s as generally smaller current elementary classes enter high school. Grade 9-12 enrollment is expected to remain well below the maximum capacity of the Germantown High School building through 2040, even if current levels of open-enrollment-in were continued.

Figure 12: GSD Projected Resident Enrollment Compared to Current Building Capacities

School	Resident Student Enrollment January 2025 [1]	GSD Resident Student Enrollment Projections [2, 3]				Projected Enrollment Change, 2025-2040	Maximum Building Capacity [4]
		Sept. 2027	Sept. 2030	Sept. 2035	Sept. 2040		
Amy Belle (4K-5)	350	351	373	404	401	**+51**	**468**
County Line (4K-5)	488	506	503	491	462	**-26**	**564**
MacArthur (4K-5)	482	501	509	525	555	**+73**	**587**
Rockfield (4K-5)	335	313	325	345	366	**+31**	**405**
Grades 4K-5 Total	**1,655**	**1,671**	**1,709**	**1,765**	**1,784**	**+129**	**2,024**
Kennedy Middle (6-8)	**839**	**785**	**801**	**833**	**860**	**+21**	**1,172**
Germantown High (9-12)	**1,234**	**1,229**	**1,184**	**1,180**	**1,232**	**-2**	**1,620**
Grades 4K-12 Total	**3,728**	**3,686**	**3,693**	**3,778**	**3,876**	**+148**	**4,816**

Notes and Sources:

[1] From the GSD's January 2025 2nd Friday count. Totals do not include non-resident students open-enrolling-in to the GSD. Totals include 4K students, all of which are educated in the four GSD elementary schools.

[2] Projections include grade 4K-12 resident students. Projections do not include non-resident students attending GSD schools via open enrollment. In the 2024-25 academic year, there were 0 open-enrollment-in students at Amy Belle, 1 at County Line, 7 at MacArthur, 11 at Rockfield, 19 at Kennedy Middle, and 43 at Germantown High.

[3] Yellow cells = projected enrollment at or near 90 percent of maximum building capacity.

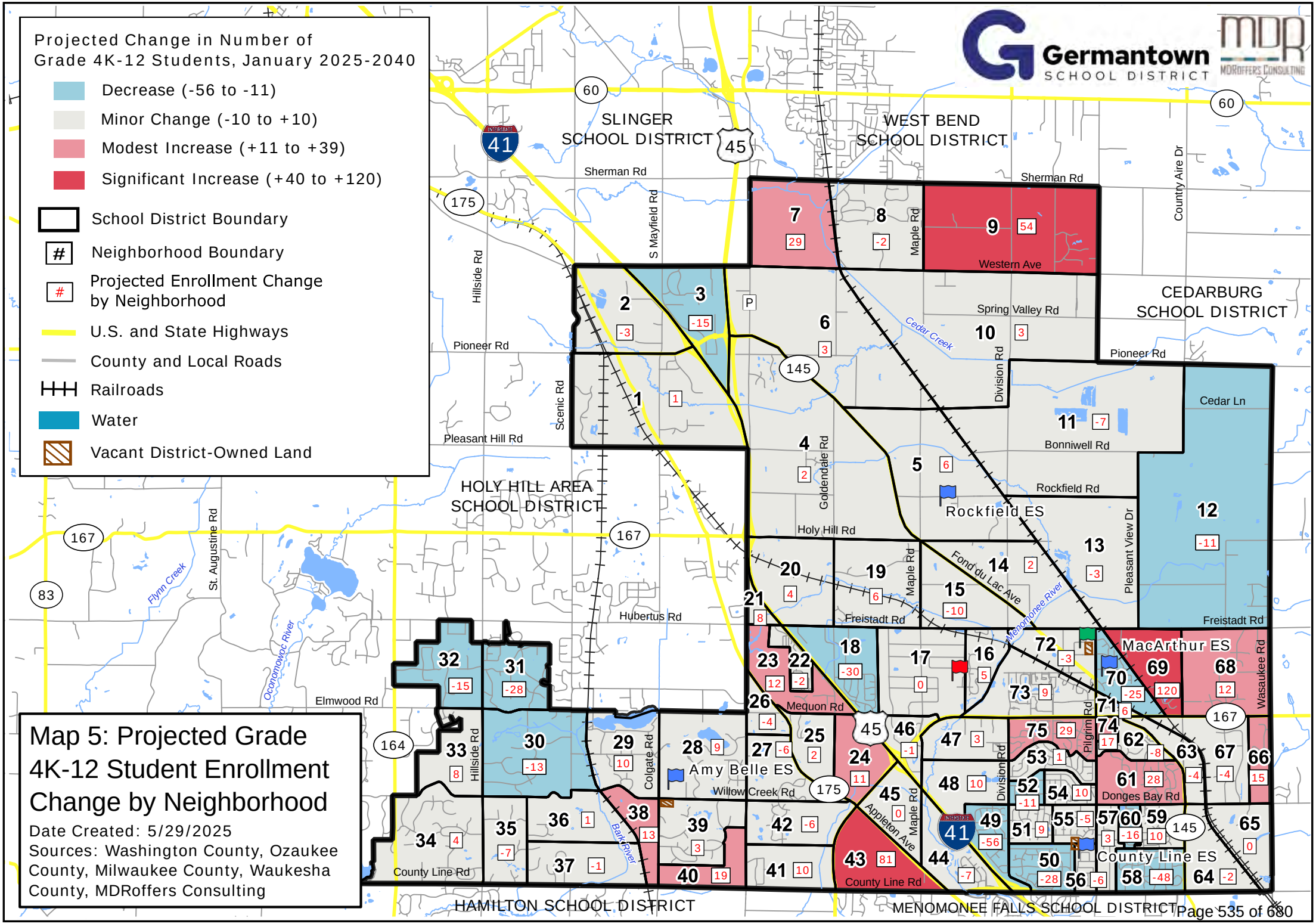
[4] Maximum building capacities provided by GSD.

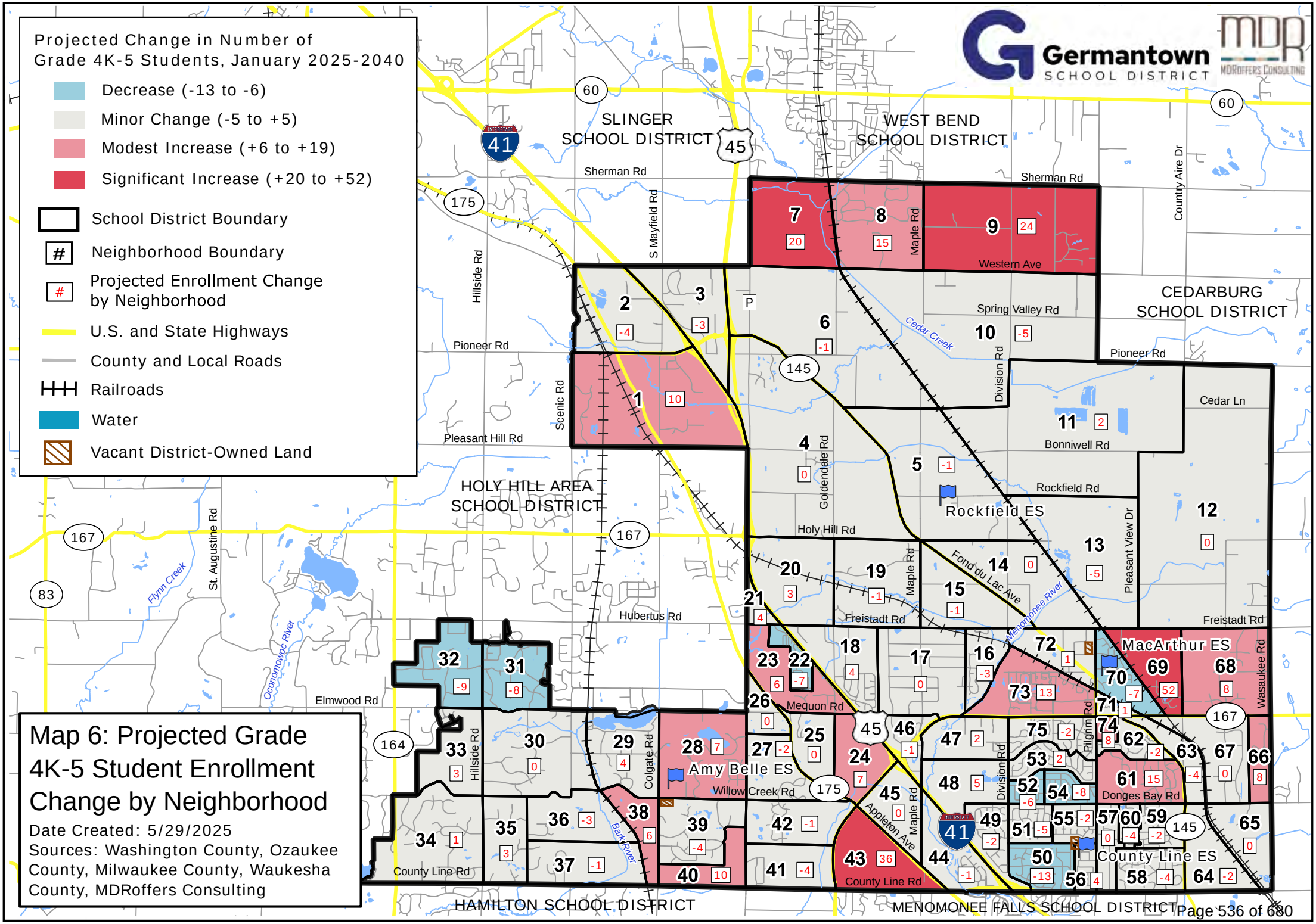
D. STUDENT ENROLLMENT PROJECTIONS BY NEIGHBORHOOD

Map 5 indicates the consultant's projected grade 4K-12 GSD resident student enrollment change (between January 2025 and September 2040) within each of the 75 neighborhoods. For Map 5, the consultant categorized and color-coded neighborhoods as being in one of four groups, described as follows:

- **Decrease.** Projected 2025 to 2040 school enrollment *decrease* of 56 to 11 students. This includes several older Village of Germantown neighborhoods and a few Village of Richfield neighborhoods developed before the 1980s. Many of these neighborhoods have significant numbers of current high school students. Furthermore, minimal new housing development is projected in many of these neighborhoods.
- **Minor Change.** Projected school enrollment *decrease* of 10 students to an *increase* of 10 students. Most neighborhoods on Map 5 fall within this group, particularly in rural areas and in Village-based neighborhoods with housing that has already experienced its first major turnover (i.e., housing built more than 30 years ago).
- **Modest Increase.** Projected *increase* of between 11 and 39 students. This group includes neighborhoods projected to have modest levels of new single-family housing development (such as neighborhoods 7, 23, 38, 40, 61, 68), larger quantities of multiple-family housing development (such as neighborhood 74), or recent turnover to younger families as evidenced by recent home sales and recent increases in elementary student population (such as neighborhood 75).
- **Significant Increase.** Projected *Increase* of between 40 and 120 resident students. Neighborhoods 9, 43, and 69 make up this category, in which significant new single-family housing development is anticipated. About 42 percent of all new single-family homes projected in the GSD through 2040 are projected to occur in these three neighborhoods.

Maps 6, 7, and 8 indicate resident enrollment change by neighborhood for the 4K-5, 6-8, and 9-12 grade groups, respectively. They largely reflect trends on the 4K-12 projections Map 5. However, there are subtle differences that reflect variations in housing and student ages, and reflect the bubble of larger, current middle school class sizes.


Projected Change in Number of Grade 4K-12 Students, January 2025-2040
Decrease (-56 to -11)
Minor Change (-10 to +10)
Modest Increase (+11 to +39)
Significant Increase (+40 to +120)
School District Boundary
Neighborhood Boundary
Projected Enrollment Change by Neighborhood
U.S. and State Highways
County and Local Roads
Railroads
Water
Vacant District-Owned Land
Germantown SCHOOL DISTRICT
MDR MDRoffers Consulting
SLINGER SCHOOL DISTRICT
WEST BEND SCHOOL DISTRICT
CEDARBURG SCHOOL DISTRICT
HOLY HILL AREA SCHOOL DISTRICT
HAMILTON SCHOOL DISTRICT
MENOMONEE FALLS SCHOOL DISTRICT
Rockfield ES
MacArthur ES
Amy Belle ES
County Line ES
Sherman Rd
Pioneer Rd
Spring Valley Rd
Bonniwell Rd
Rockfield Rd
Holy Hill Rd
Freistadt Rd
Meguon Rd
Willow Creek Rd
Donges Bay Rd
Western Ave
Cedar Ln
Pleasant Hill Rd
Hubertus Rd
Elmwood Rd
County Line Rd
Hillside Rd
S Mayfield Rd
Scenic Rd
Goldendale Rd
Maple Rd
Division Rd
Pleasant View Dr
Wasaukee Rd
Pilgrim Rd
Country Aire Dr
St. Augustine Rd
Colgate Rd
Appleton Ave
Fond du Lac Ave
Cedar Creek
Menomonee River
Oconomowoc River
Flynn Creek
Bark River
Map 5: Projected Grade 4K-12 Student Enrollment Change by Neighborhood
Date Created: 5/29/2025
Sources: Washington County, Ozaukee County, Milwaukee County, Waukesha County, MDRoffers Consulting


Projected Change in Number of Grade 4K-5 Students, January 2025-2040
Decrease (-13 to -6)
Minor Change (-5 to +5)
Modest Increase (+6 to +19)
Significant Increase (+20 to +52)
School District Boundary
Neighborhood Boundary
Projected Enrollment Change by Neighborhood
U.S. and State Highways
County and Local Roads
Railroads
Water
Vacant District-Owned Land
Germantown SCHOOL DISTRICT
MDR MDRoffers Consulting
SLINGER SCHOOL DISTRICT
WEST BEND SCHOOL DISTRICT
CEDARBURG SCHOOL DISTRICT
HOLY HILL AREA SCHOOL DISTRICT
HAMILTON SCHOOL DISTRICT
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MacArthur ES
Amy Belle ES
County Line ES
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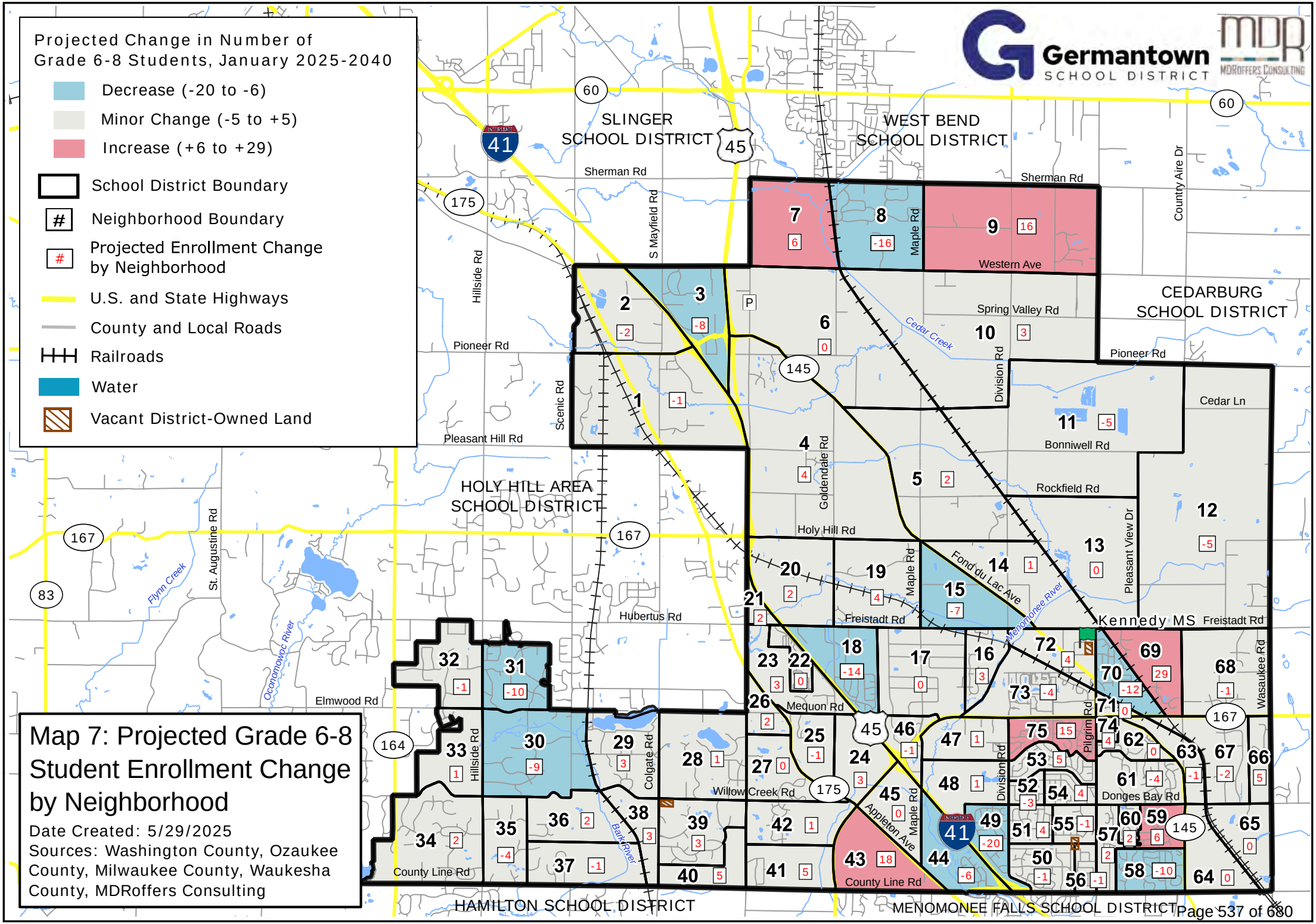
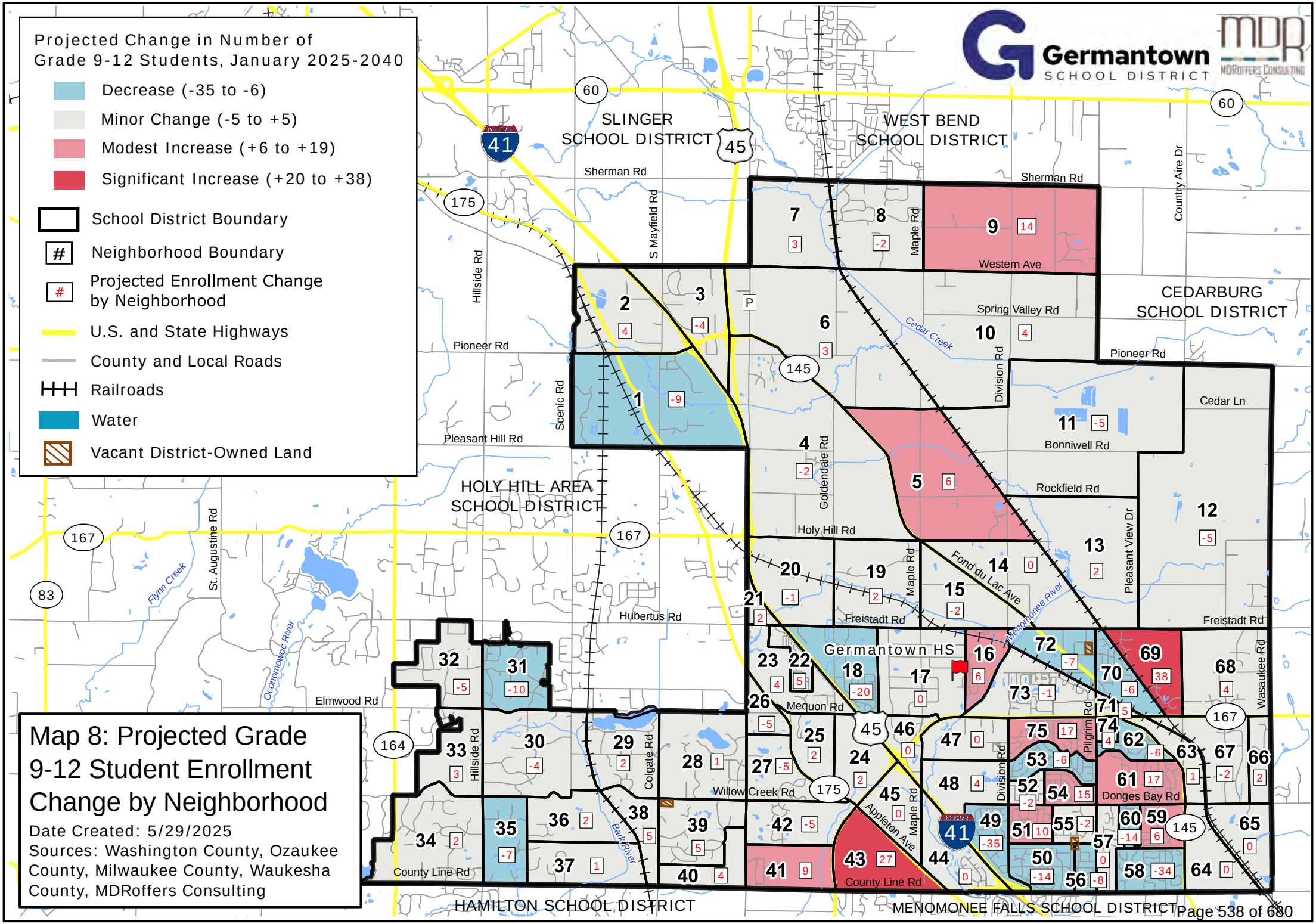
Spring Valley Rd
Western Ave
Bonniwell Rd
Cedar Ln
Rockfield Rd
Holy Hill Rd
Freistadt Rd
Pleasant Hill Rd
Hubertus Rd
Elmwood Rd
Meguon Rd
Willow Creek Rd
Donges Bay Rd
County Line Rd
Fond du Lac Ave
Menomonee River
Cedar Creek
Bark River
Oconomowoc River
Flynn Creek
Hillside Rd
S Mayfield Rd
Maple Rd
Country Aire Dr
Division Rd
Scenic Rd
Goldendale Rd
Pleasant View Dr
St. Augustine Rd
Colgate Rd
Appleton Ave
Pilgrim Rd
Wasaukee Rd
Map 6: Projected Grade 4K-5 Student Enrollment Change by Neighborhood
Date Created: 5/29/2025
Sources: Washington County, Ozaukee County, Milwaukee County, Waukesha County, MDRoffers Consulting


Projected Change in Number of Grade 6-8 Students, January 2025-2040
Decrease (-20 to -6)
Minor Change (-5 to +5)
Increase (+6 to +29)
School District Boundary
Neighborhood Boundary
Projected Enrollment Change by Neighborhood
U.S. and State Highways
County and Local Roads
Railroads
Water
Vacant District-Owned Land
Germantown SCHOOL DISTRICT
MDR MDRoffers Consulting
SLINGER SCHOOL DISTRICT
WEST BEND SCHOOL DISTRICT
CEDARBURG SCHOOL DISTRICT
HOLY HILL AREA SCHOOL DISTRICT
HAMILTON SCHOOL DISTRICT
MENOMONEE FALLS SCHOOL DISTRICT
Kennedy MS
Sherman Rd
Western Ave
Spring Valley Rd
Pioneer Rd
Cedar Ln
Bonniwell Rd
Rockfield Rd
Holy Hill Rd
Freistadt Rd
Mequon Rd
Willow Creek Rd
Donges Bay Rd
Elmwood Rd
County Line Rd
Pleasant Hill Rd
Hubertus Rd
Hillside Rd
S Mayfield Rd
Scenic Rd
Goldendale Rd
Maple Rd
Division Rd
Country Aire Dr
Pleasant View Dr
Wasaukee Rd
Pilgrim Rd
Colgate Rd
Fond du Lac Ave
Appleton Ave
St. Augustine Rd
Cedar Creek
Menomonee River
Oconomowoc River
Bark River
Flynn Creek
60
45
41
175
145
167
83
164
Map 7: Projected Grade 6-8 Student Enrollment Change by Neighborhood
Date Created: 5/29/2025
Sources: Washington County, Ozaukee County, Milwaukee County, Waukesha County, MDRoffers Consulting


Projected Change in Number of Grade 9-12 Students, January 2025-2040
Decrease (-35 to -6)
Minor Change (-5 to +5)
Modest Increase (+6 to +19)
Significant Increase (+20 to +38)
School District Boundary
Neighborhood Boundary
Projected Enrollment Change by Neighborhood
U.S. and State Highways
County and Local Roads
Railroads
Water
Vacant District-Owned Land
Germantown SCHOOL DISTRICT
MDR MDRoffers Consulting
SLINGER SCHOOL DISTRICT
WEST BEND SCHOOL DISTRICT
CEDARBURG SCHOOL DISTRICT
HOLY HILL AREA SCHOOL DISTRICT
HAMILTON SCHOOL DISTRICT
MENOMONEE FALLS SCHOOL DISTRICT
Germantown HS
Sherman Rd
Pioneer Rd
Spring Valley Rd
Western Ave
Bonniwell Rd
Cedar Ln
Rockfield Rd
Holy Hill Rd
Freistadt Rd
Pleasant Hill Rd
Hubertus Rd
Elmwood Rd
Mequon Rd
Willow Creek Rd
Donges Bay Rd
County Line Rd
Fond du Lac Ave
Appleton Ave
Maple Rd
Division Rd
Hillside Rd
Scenic Rd
Goldendale Rd
Pleasant View Dr
Wasaukee Rd
Pilgrim Rd
Colgate Rd
S Mayfield Rd
St. Augustine Rd
Country Aire Dr
Cedar Creek
Flynn Creek
Oconomowoc River
Menomonee River
Bark River
45
60
41
175
145
167
83
164
Map 8: Projected Grade 9-12 Student Enrollment Change by Neighborhood
Date Created: 5/29/2025
Sources: Washington County, Ozaukee County, Milwaukee County, Waukesha County, MDRoffers Consulting

E. POTENTIAL IMPLICATIONS OF ENROLLMENT PROJECTIONS TO SCHOOL CAPACITIES

The GSD is advised to engage in a facility planning effort. Elementary school capacity is projected to become a concern over the projection period. Projected increases in elementary enrollment growth are mostly attributed to projected modest increases in housing development, particularly new single-family homes which are the main generators of new students for the GSD.

Several options–or a combination or progression of options–could be explored to address the projected capacity constraints at the elementary school level, including the following:

- Elementary attendance area shifts, which could forestall the need for new or expanded elementary schools. This being said, no shifts are particularly obvious given current school locations, enrollment, and capacities. Shifts of existing, developed neighborhoods are frequently also unpopular.
- Expansion of "flex" neighborhoods like current neighborhood 75 on the maps in this Report, within which the families can choose to send their children to different elementary schools, or the GSD could even make assignments based on capacity assessments. The opportunities and challenges, perhaps including bussing, of providing more "flex" neighborhoods would need to be explored.
- Expansion or replacement of one or more elementary schools to serve more students, potentially Rockfield and/or Amy Belle to match or approach the number of grade sections currently at County Line and MacArthur. However, these two schools are on relatively small sites and on well and septic systems, which may limit expansion or replacement potential. Accompanying attendance area changes would also be required, because with current areas Amy Belle in particular does not have projected capacity issues.
- Construction of the GSDs fifth elementary school, which would likely need to occur on a newly-acquired site given that all existing GSD lands are small and adjacent to existing GSD schools. Typically, a minimum of 15 acres is appropriate for the construction of a new, modern elementary school. For comparison, the GSD's largest elementary school site today is Rockfield Elementary at 15 acres.
- Transition 5th graders to Kennedy Middle School to free space at the four GSD elementary school buildings. Such action may require expansion to the existing Middle School building—if it is determined suitable to house four transitional grades even with expansion.

Further exploration of these and other options is beyond the scope of this Report. Comparing enrollment projections to current building capacities is one factor to consider in long-range facilities planning. Other factors include basic goals and parameters (e.g., maximum school and class sizes), interest and tolerances for attendance area or grade grouping changes, the suitability for older buildings to operate efficiently and serve modern educational needs, existing building expansion opportunities and constraints, the suitability of different potential sites for new or expanded schools, the relative costs of different options to address needs, and the GSD's financial picture including its borrowing capacity.

F. STUDENT ENROLLMENT PROJECTIONS UNDER ALTERNATIVE ASSUMPTIONS

As indicated earlier, the consultant's projections in this Report were prepared in a transitional period that includes evolving Village of Germantown policies related to new housing development. The consultant endeavored to prepare as accurate of projections as practical in this context. The consultant stands by the projections shared in Figure 12 and elsewhere above as representing the most likely scenario. In review, those projections suggest a GSD grade 4K-12 enrollment increase of 148 students by 2040.

The consultant's model allows consideration of what future enrollment might look like under two alternative assumptions. The first would assume no new housing development through 2040. The second assumes new housing development densities more closely aligned to the Village of Germantown's 2022 Comprehensive Plan than evolving policies now suggest.

The first alternative scenario is an academic but instructive exercise. In this "no new housing" scenario, the only factors affecting future enrollment would be demographic trends including births, inmigration, and turnover of existing housing. Were these the only factors applied to the consultant's model, this first alternative scenario would result in a projected GSD grade 4K-12 enrollment *decrease* of 426 students. This decrease would be spread across all schools, but particularly those with attendance areas in which the consultant has in fact projected significant housing development.

The second alternative scenario reflects the consultant's initial understanding of possibilities under the Village of Germantown's 2022 Comprehensive Plan without modification and housing market conditions that suggest significant unmet demand in Germantown. In this second alternative scenario, around 2,675 new housing units would be constructed by 2040, compared to the 2,140 new housing units the consultant actually projected under evolving policies. About 80 percent of this difference would be in multiple-family housing. Under this second alternative scenario, projected GSD resident 4K-12 enrollment would have instead increased by around 280 students—or about 130 students more than the consultant's actual projection.

APPENDIX A: PROJECTION METHODOLOGY

Appendix A describes the consultant's housing and enrollment projection methodology, which led to the projections in the body of this Community Growth & Projections Report and in Appendices B and C. The methodology is based upon a professional analysis of local and regional plans, the plans and subdivisions of private housing developers, and emerging housing policies and market conditions. The methodology also considers the dynamics within older, emerging, and future neighborhoods within the Germantown School District (GSD). Different neighborhoods generate students at different rates and at different times in their evolution. The methodology relies on computations of expected ratios of students-per-housing unit in each neighborhood and how the ratios may change over time. The methodology is described in the "steps" that make up the remainder of this Appendix A.

STEP 1 – DIVIDE DISTRICT INTO NEIGHBORHOODS

The consultant divided the GSD into 75 different neighborhoods (see Map 2). These neighborhoods became the basis for data collection and analysis, and for housing and enrollment projections. This approach enables understanding of not only *how many* students the GSD may be educating, but also *where* future students may live. This approach also has several future applications, which include identifying which schools may become the most crowded, which schools have the greatest excess capacity, and how attendance areas might be shifted or realigned in the future. Neighborhood delineations were based on several factors, including commonly understood neighborhoods or "subdivisions," elementary attendance areas, major roads, rivers, other physical barriers, municipal limits, and planned municipal growth areas including Village of Germantown neighborhoods and districts,.

STEP 2 – ALLOCATE 2025 HOUSING UNITS AND ENROLLMENT BY NEIGHBORHOOD

The consultant estimated the number of housing units in March 2025 for each of the 75 neighborhoods. The consultant began with 2020 U.S. Census housing unit counts by Census designated blocks, assigning them to the appropriate neighborhoods. Next, the consultant updated neighborhood-by-neighborhood housing unit totals to 2025 based on building permit data and aerial photo and Washington County map interpretation. The GSD provided Spring 2025 student enrollment data. The consultant used geographic analysis software to place each GSD resident 4K-12 student within one of the 75 neighborhoods. Using the above data, the consultant estimated March 2025 student-per-housing unit ratios for each neighborhood within each of the GSD's current school grade groupings: 4K, 5K-5, 6-8, and 9-12.

STEP 3 – ANALYZE COMMUNITY AND DEVELOPER PLANS FOR EACH NEIGHBORHOOD

The consultant reviewed and analyzed local government comprehensive, land use, neighborhood development, and utility system plans; evolving municipal policies that may or may not yet be reflected in local government plans; intergovernmental agreements and relationships; and private developer plats and plans as they affected each of the 75 neighborhoods. Already-platted yet unbuilt lots in each neighborhood were identified, which signaled the potential for new housing in the near future. Preliminary and conceptual plans and possibilities were also assessed for longer-term projections. Interviews, data sharing, document review, and past experience contributed to the consultant's understanding of housing market dynamics and future development patterns in the GSD. See Section V and Appendix B of this Report for details.

STEP 4 – COMPLETE HOUSING UNIT PROJECTIONS BY NEIGHBORHOOD

The consultant projected the number of additional housing units within each of the 75 different neighborhoods for four periods: 2025-2027, 2028-2030, 2031-2035, and 2036-2040. These were added to March 2025 housing unit estimates to arrive at total projected 2027, 2030, 2035, and 2040 housing units by neighborhood. These preliminary projections tracked projected development of new major neighborhoods in the area and accounted for single-family, multiple-family, and other residential developments. The Appendix B table includes a column with factors expected to influence new housing unit growth in each neighborhood.

STEP 5 – ANALYZE FACTORS TO DETERMINE GSD STUDENT-PER-HOUSING UNIT RATIOS

As part of this Report, the consultant compared March 2025 student addresses to permit addresses of new single-family homes. This analysis suggests an average current student generation ratio of 0.61 GSD 4K-12 students per newer single-family home—or a little less than two new single-family homes required for each additional student. In the consultant's experience, this ratio is typical for suburban Milwaukee school districts.

A significant portion of recently built and projected new housing in the GSD has been and is expected to take the form of multiple-family housing, such as apartments, townhomes, and condominiums. Therefore, understanding the rate of student generation from multiple-family housing is also critical. On average, the limited array of new multiple-family housing in the GSD generates about 0.11 GSD students-per-unit while older multiple-family housing generates about 0.16 GSD students-per-unit.

Student-per-housing unit ratios for five unique multiple-family housing developments in the GSD, provided in Figure A-1, show how student generation ratios differ across the GSD by unit type, number of bedrooms, and location.

Figure A-1: Student-Per-Housing Unit Ratios in Existing Multiple-Family Complexes

Neighbor-hood	Multiple-Family Development	Number of Bedrooms	Housing Units	Student-Per-Housing Unit Ratio			
				4K-5	6-8	9-12	Total
71	Montgomery Square Apartments	2 beds	93	0.09	0.06	0.08	**0.23**
58	Seven Pines Condominiums	2-3 beds	28	0.06	0.04	0.04	**0.14**
73	Saxony Village Apartments	1-3 beds	172	0.03	0.04	0.06	**0.13**
69	The Reserve at Wrenwood	2 beds	24	0.00	0.04	0.00	**0.04**
61	Hillstone Apartments	1-2 beds	18	0.00	0.00	0.00	**0.00**
		Totals [1]	**2,011**	**0.07**	**0.04**	**0.04**	**0.15**

Source: MDRoffers Consulting. The figures listed in the "Totals" row are for all of the existing multiple-family housing units in the GSD, including but not limited to the five examples.

The biggest factor in student generation from existing multiple-family housing appears to be affordability of the multiple-family housing, with older, more affordable multiple-family housing generating more students than newer, more expensive multiple-family housing. Newer multiple-family units tend to generate fewer students than older multiple-family units, as most newer apartment buildings tend to be marketed towards young professionals, young Millennials, Generation Z, and other childless families. These new multiple-family developments tend to have amenities such as gyms and pools instead of playgrounds. Another major factor is the composition of units in the multiple-family development, with those having greater numbers of 3-bedroom units (such as Saxony Village Apartments) producing greater numbers of students than those with mostly 1- and 2-bedroom units.

Other suburban Milwaukee school districts have had more newer multiple-family housing developments. Examples include the Fox Run Apartments and Townhomes in the Cedarburg School District, Mequon Town Center in the Mequon-Thiensville School District, Velo Village in the Franklin Public School District, and Drexel Town Square in the Oak Creek-Franklin School District. Most of the over 1,000 combined units in these developments are studios, 1-bedroom units, and 2-bedroom units. The student-per-housing unit ratios from these newer multiple-family developments have been between 0.04 to 0.08, with a combined ratio of 0.06 student-per-housing unit. The consultant used this lower student-per-housing unit ratio of 0.06 for new multiple-family housing in the

projections, with the understanding that newer, market-rate multiple-family housing will generate fewer students than older, established multiple-family housing.

Still, it is critical not to attach too much importance to the impact of *new* housing development on future student enrollment. The *existing* housing stock is much more impactful on future enrollment than new housing. There were approximately 11,653 housing units in the GSD in March 2025. The consultant projects 2,140 new housing units between March 2025 and 2040. This means that about 84 percent of the housing units projected to be on the ground in 2040 are already built. Still, older single-family homes in the GSD generate students at lower ratios than new single-family homes, at between 0.30 and 0.40 students-per-home.

STEP 6 – PROJECT GSD STUDENT-PER-HOUSING UNIT RATIOS BY NEIGHBORHOOD

The consultant then projected the number of GSD students-per-housing unit by neighborhood for 2027, 2030, 2035, and 2040 within each of the 4K, 5K-5, 6-8, and 9-12 grade groups. These projections were based on trends from projected demographic shifts in the region, community, and neighborhood; the projected mix of new single-family and multiple-family housing in each neighborhood; acquired data of student-per-housing unit ratios from recently built and more established housing within the GSD and within other similarly sized and positioned suburban school districts in the Milwaukee area; recent trends for birth rates and age 0-4 population; recent housing and residential subdivisions in the GSD; and the anticipated progression of students through the grade groups.

In general, the consultant projected that already existing housing units would have fewer students-per-unit than when they were newer, as described further in the body of this Report. The consultant projected stable to declining student ratios in many older neighborhoods. The GSD has several neighborhoods with developments of 1990s through 2000s vintage. These neighborhoods are projected to have relatively stable student-per-housing unit ratios through 2040, with some of them shifting from current high school dominated numbers to elementary school dominated before 2040.

STEP 7 – COMPLETE GSD ENROLLMENT PROJECTIONS BY NEIGHBORHOOD AND GRADE GROUP

The consultant multiplied the projected number of housing units by neighborhood by the projected GSD student-per-housing unit ratio for each grade grouping in 2027, 2030, 2035, and 2040. The result was GSD resident student enrollment projections by grade group for each of the 75 neighborhoods, for the 2027-28, 2030-31, 2035-36, and 2040-41 school years.

The 2025 student-per-housing unit ratios for each neighborhood exclude those students residing in the GSD, but not attending GSD schools. These include students who open-enroll-out to other school districts, attend private schools, or are home-schooled. The projections assume home schooling and resident students open-enrolling-out remain at a constant rate as during the 2024-25 academic year. The projections assume a slight increase in the number of resident high school students attending local private schools, given the recent and expected enrollment increase in private high schools in and near the GSD, fueled by a planned expansion of Kettle Moraine Lutheran High School.

The projections assume a consistent distribution of grade 4K-5 students from neighborhood 75, a shared attendance area for County Line Elementary and MacArthur Elementary, as is currently occurring today. As of the 2024–25 school year, 55 percent of grade 4K-5 students from this shared neighborhood attend County Line, while 45 percent attend MacArthur.

The consultant included in the projections a 4 percent increase in class sizes as grades progress from grade 5 to grade 6 (elementary to middle) and an 8 percent increase from grade 8 to grade 9 (middle to high), based on average increases over the past decade.

APPENDIX B: HOUSING UNIT PROJECTIONS BY NEIGHBORHOOD, 2025-2040

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
1	Includes Scenic Hill Run (1990s-2000s), Eagles Ridge (2000s), and Prairie Hollow (2000s). Also includes Endeavor Business Park. Neighborhood 1 is in a mixture of uses, with lands southwest of the Interstate 41 and Pioneer Road in employment and industrial uses while other lands in a combination of residential and agricultural uses. The Village of Richfield plans eastern areas of neighborhood 1, abutting Interstate 41, for business mixed-use while other lands are planned for single-family residential uses. ~100 developable acres across two sites in neighborhood 1 are planned for future single-family residential uses. The consultant projects one of the sites to develop before 2040, with 15 single-family homes between 2030 and 2040. Overall, enrollment is projected to decrease through 2030, then increase with new single-family development through 2040.	135	135	135	143	150	**15**
2	Neighborhood 2 is mostly built out, with a combination of residential uses in the eastern half, along Mayfield Court and Monica Lane and employment uses northwest of the Pioneer Road/Interstate 41 interchange as well as along Highway 175. The Town of Polk plans for most of neighborhood 2 for agricultural and residential uses, with a small area of commercial uses in the southeastern corner. There are two vacant lots along Monica Lane and Amanda Lane, which the consultant projects will develop by 2030. Otherwise, minimal other opportunities exist for large-scale residential development. Overall, stable student enrollment is expected from neighborhood 2.	75	76	77	77	77	**2**
3	Includes Wide Horizons (1980s). The southern half of neighborhood 3 contains employment uses while the northern half contains mostly residential uses. Neighborhood 3 is mostly built out. The Town of Polk plans for most lands in neighborhood 3 for future residential uses, except in the extreme southern part, where commercial uses are planned. A few vacant lots exist in northern parts of the neighborhood, which the consultant projects will be built on over the next handful of years. Enrollment is projected to decrease due to large current middle and high school-aged cohorts.	87	88	89	90	90	**3**
4	Includes Sunset Shadows (1970s) and Woodside Acres (1970s). Other lands in neighborhood 4 are predominately in agricultural use, with employment and industrial uses north of Holy Hill Road. Most lands in neighborhood 4 are planned by the Village of Germantown as part of its Holy Hill Gateway District, in which commercial, industrial, mixed-use, employment, and multiple-family residential uses are listed in the Village's Comprehensive Plan as "desirable" future uses. A utility extension is expected to provide sewer service to this general area by the late-2020s. The consultant projects neighborhood 4 to be a 2040+ development area for residential uses, given developable land that exists to the south, significant acreage owned by long-term agricultural producers, and areas owned by industrial entities for potential future expansion and non-residential development. The consultant projects generally steady enrollment from neighborhood 4 through the projection period.	122	122	122	122	122	**-**
5	Includes Rockfield Elementary School and Dheinsville Historic Park. Also includes the Rockfield hamlet. Lands north of Rockfield Road are mostly in agricultural use while lands south are in a combination of agricultural, residential, and employment uses. Lands in neighborhood 5 are planned by the Village of Germantown as part of the its Rural Preservation District, in which agricultural and open space uses are "desirable" future land uses, and new homes are permitted at a maximum density of 1 dwelling unit per 20 acres. The consultant projects a few new single-family homes here by 2040 in scattered locations. A large current elementary cohort will result in slightly increasing, then stabilizing, enrollment in neighborhood 5 through 2040.	146	146	147	149	150	**4**

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
6	Lands in neighborhood 6 are predominately in agricultural use, with wetlands and forested uses on the southeastern part of the neighborhood associated with Cedar Creek. Scattered rural residential and employment uses exist along neighborhood roads. Lands in neighborhood 6 are planned mostly for future agricultural uses, except the extreme western part, adjacent to Highways 145 and 45, planned for commercial uses. The consultant projects a handful of single-family homes in neighborhood 6 through 2040. Stable enrollment expected.	59	60	61	63	65	**6**
7	Neighborhood 7 is mostly in agricultural uses with scattered rural residences. The Town of Jackson plans for the northern quarter of neighborhood 7, on lands immediately south of Sherman Road, for future single-family residential uses (1 acre per dwelling unit) while the Village of Jackson plans for the same area for future medium-density residential uses of primarily single-family homes at a density of 5 homes per acre. Village plans are likely to prevail. The consultant projects ~60 single-family homes here in the mid-2030s, with 15 between 2030 and 2035 and 45 between 2035 and 2040. Enrollment is projected to be very low from neighborhood 7 through the early-2030s, then increase with more single-family housing development.	17	17	17	32	77	**60**
8	Includes Twin Creeks (2000s-2010s), Sherman Parc (2000s-2010s), Crosswind Farms (2010s), and Maple Fields (2020s). Northern half of neighborhood is in the Village of Jackson and is mostly built out with single-family homes. The southern half of the neighborhood is in the Town of Jackson, and besides the Crosswind Farms subdivision, is mostly in agricultural use. The Village does not plan any lands in neighborhood 8 for future development that isn't already developed or platted to be over the next couple of years. While the Town plans for remaining lands in neighborhood 8 for future agricultural uses, the Village plans for some additional housing development in neighborhood 8. Across existing subdivisions in neighborhood 8, there are 13 homes under construction and 9 vacant lots remaining. The consultant projects all to be built out and occupied by 2027. In a future phase of Maple Fields, 56 additional single-family lots are planned. The consultant projects a new phase to open over the next year, with building of 15 homes per year, and build out occurring before 2030. Most other lands in neighborhood 8 are owned by long-term agricultural entities, are projected to remain in the Town, and will not likely develop until after 2040. However, the consultant projects development of a smaller subdivision in the northern part of the neighborhood between 2035 and 2040 of 12 single-family homes. Overall, enrollment in neighborhood 8 is expected to remain stable, with enrollment increases due to development of new housing balanced by emerging enrollment decreases from existing single-family homes built in the 2010s and early-2020s.	249	286	327	327	339	**90**
9	Includes Prairie Meadow Estates (2000s), Camino Estates (1970s-1980s), and Jackson Town Hall. Neighborhood 9 is in a combination of rural residential and agricultural uses. Much of the eastern half and southwestern quarter of the neighborhood has been subdivided into single-family lots. The Village plans for 80 acres in the northwestern corner of neighborhood for mostly single-family homes at a maximum 5 home per acre density. The Town plans a similar area for future single-family uses at a density of 1 acre per dwelling unit. The consultant projects Village-based single-family development from neighborhood 8 to the west to extend eastward into neighborhood 9, with development beginning in the late-2020s and extending into the mid-2030s, with 20 single-family homes by 2030 and another 40 between 2030 and 2035. The consultant also projects a few other small Town-based divisions to occur in neighborhood 9, providing 10-15 additional single-family homes by 2040. Increasing enrollment is projected, due to expected turnover of 2000s-era housing and development of new single-family homes.	183	185	208	252	256	**73**
10	Includes Mockingbird Hill (1990s). The northeastern two thirds of neighborhood is in mostly agricultural uses while the southwestern third is in mostly forested and wetland uses associated with Cedar Creek. All local governments plan for these lands to remain mainly in agricultural and open space uses. The consultant projects a couple of new homes by 2040. Generally stable student-per-housing unit ratios and enrollment expected.	96	96	97	97	98	**2**

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
11	Neighborhood 11 is mostly in agricultural and forested uses, with scattered rural residential uses along neighborhood roads. Lands in neighborhood 11 are planned by the Village of Germantown as part of its Rural Preservation District, in which agricultural and open space uses are identified "desirable" future land uses, and homes are allowed at a maximum density of 1 dwelling unit per 20 acres. The consultant projects a few new single-family homes here by 2040. Larger middle school and high school-aged cohorts will result in slight enrollment decreases through 2040.	78	79	80	81	83	**5**
12	Includes West Wood Lane, Knollwood Drive, Crestwood Lane (all 1970s), and Germantown Wilderness Park. Northwestern areas of the neighborhood 12 are heavily forested, while the rest of the neighborhood is in mostly agricultural uses, except for rural residential uses in its southeastern corner. Most lands in neighborhood 12 are planned by the Village of Germantown as part of the its Rural Preservation District, in which agricultural and open space uses are "desirable" future land uses, and homes can be built at a maximum density of 1 dwelling unit per 20 acres. The southeastern quadrant is part of the Village's Woodlands Ponds-Harvest Hill Neighborhood. The consultant projects a 10-lot subdivision to develop there between 2030 and 2040 here, along with 1-2 other homes elsewhere in neighborhood 12 per projection period. The consultant projects slightly decreasing student-per-housing unit ratios in the neighborhood, even with the influx of small amounts of new single-family homes.	188	190	192	199	206	**18**
13	Neighborhood 13 contains large-lot homes in the southern half of the neighborhood and agricultural uses in the northern half. Areas of forests and wetlands extend from the northwest corner southeasterly along the railroad tracks, encompassing almost half of the land of neighborhood 13. Lands in neighborhood 13 are planned by the Village of Germantown as part of its Rural Preservation District, in which agricultural and open space uses are identified "desirable" future land uses, and homes are allowed at a maximum density of 1 dwelling unit per 20 acres. The consultant projects a few new single-family homes in various locations in neighborhood 13 by 2040. Generally stable enrollment projected from neighborhood 13.	35	36	37	37	38	**3**
14	Neighborhood 14 contains a mixture of uses, with scattered employment, rural residential, and agricultural lands across the neighborhood. The southern part of neighborhood 14 contains extensive wetlands. Lands in neighborhood 14 are planned by the Village of Germantown as part of its Rural Preservation District, in which agricultural and open space uses are identified "desirable" future land uses, and homes are allowed at a maximum density of 1 dwelling unit per 20 acres. The consultant projects a couple new homes by 2040. Generally low and stable enrollment projected.	47	47	48	48	49	**2**
15	Includes Little League Park. Lands in neighborhood 15 are mostly in agricultural use, except employment and rural residential uses along Fond du Lac Avenue and Freistadt Road. Lands in neighborhood 15 are planned by the Village of Germantown as part of its Lovers Lane Neighborhood, where predominately single-family housing is planned. However, this area is not in the Sewer Service Area (meaning utilities cannot yet be extended)_, and southern third of neighborhood is undevelopable due to extensive wetlands associated with the Menomonee River. Therefore, the consultant does not anticipate significant housing development here until after 2040. The current large middle school cohort living in neighborhood 15 will result in stable enrollment through 2030, then decreasing enrollment through 2040.	38	38	38	38	38	-
16	Neighborhood 16 includes The Glen at Blackstone Creek (2010s), The Cove in Germantown (2000s), and the western half of the Blackstone Creek Golf Course. Lands are mostly in single-family residential or parkland/open space uses, with a small industrial use in the north. Blackstone Creek Golf Course has had recent proposals for redevelopment, but redevelopment is concentrated in the eastern half of the golf course located in neighborhood 73. The portion of the golf course in neighborhood 16 is projected to remain in open space uses. Therefore, the consultant does not project any new housing here through 2040. Generally stable enrollment is projected as neighborhood 16 is expected to turn over to new families in the 2030s and also due to proximity to Germantown High School.	168	168	168	168	168	-

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
17	Includes Germantown High School. Also includes the Germantown Industrial Park. Neighborhood 17 is built out with industrial and institutional uses. The consultant does not anticipate any new housing here through 2040. However, the area will continue to be attractive to existing and future employers, and increasing job opportunities in this neighborhood could help attract new housing and families to the Germantown area. No enrollment projected due to minimal housing in neighborhood.	2	2	2	2	2	-
18	Includes Woodland Manor (1960s), Rosewood (1990s), Shadow Wood (1990s). Neighborhood 18 also includes Homestead Hollow County Park. The southern half of neighborhood 18 contains residential uses while the northern half contains parkland and forested lands and scattered residential and employment uses. Neighborhood 18 is essentially built out - most undeveloped land has environmental constraints and is low and wet. Neighborhood currently has larger elementary and middle school-aged cohorts, given that most of neighborhood 18 has already experienced its first significant turnover to new households. Decreasing enrollment expected as students age through 2040.	244	244	244	244	244	-
19	Includes Isabelle Farms (2010s) and Neuland (1960s). Neighborhood 19 also includes JW Speaker Corporation's headquarters. Neighborhood 19 is about half undeveloped, with agricultural and forested uses, with residential uses in the northern part southwestern corner and employment uses in the southern part. The Village of Germantown includes the northern parts of neighborhood 19 in its Isabelle Farms Neighborhood and southern portions as part of its Germantown Industrial Park District. The consultant projects a handful of homes in neighborhood 19 through 2040, given planned areas for non-residential development. Generally stable enrollment is expected from neighborhood 19.	77	78	79	80	80	**3**
20	Lands in neighborhood 20 are mostly in agricultural use, except for a large warehousing operation in the northern part of the neighborhood and a landscaping company in the southwestern corner. Lands south of the railroad tracks are planned by the Village as part of its Freistadt District while lands north are planned as part of its Holy Hill Gateway District. Mixed-uses and multiple-family uses are listed in the Village's Comprehensive Plan as "desirable" future uses in both districts. The type and density of future development is dependent on a railroad crossing approval for High Point Pass that will provide direct frontage road between Freistadt Road and Holy Hill Road. Crossing approvals are notorious arduous. A large area of wetlands encompasses around half of the lands north of the railroad tracks. In the mid-2020s, a project to extend sewer through the neighborhood to areas west of the GSD boundary in the Village of Richfield, is anticipated to begin. However, water services would still need to be extended to neighborhood 20 before large-scale residential uses could develop. The southwestern quarter of neighborhood 20 is owned by a large landscaping company, which recently made significant investments. The south central portion of the neighborhood contains some wetlands while the southeastern portion of neighborhood 20 appears more readily developable in the nearer term. The consultant projects development here between 2030 and 2040, with ~40 condominium units split between the two projection periods. The consultant does not project additional housing development in neighborhood 20 until after 2040, once all utility and access issues are resolved and more owners become interested in developing or selling their lands. Enrollment is projected to remain very low and stable through 2040.	12	12	12	32	52	**40**
21	Neighborhood 21 is in agricultural use. Lands are almost entirely in ownership by one family, who recently submitted a proposal for The Farm—a mixed-use development providing multiple-family housing, a farming component, a farm-to-table restaurant, and other retail and commercial uses. Neighborhood 21 is in the Freistadt District of the Village of Germantown, where the Village's Comprehensive Plan envisions higher-density uses, including residential uses. However, the area is not currently serviced by water or in the sewer service area. The consultant anticipates utility extension to this area in the late-2020s, providing the opportunity for development to begin in the 2030s. The consultant projects 150 multiple-family units here between 2030 and 2035. Neighborhood 21 will then be built out. Enrollment is projected to slightly increase due to development of new housing in that period.	3	3	3	153	153	**150**

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
22	Includes American Mobile Home Community and Brookside Meadows, two manufactured home communities. Neighborhood 22 is built out. The consultant does not project any new housing here through 2040. However, neighborhood 22 generates fairly large numbers of students, which the consultant projects will continue through 2040, as is typical from manufactured home communities.	280	280	280	280	280	-
23	Includes Bavarian Woods (2010s) and Golden Meadows (1960s). Neighborhood 23 is mostly built out, with a large former quarry operation in the western two thirds, and rural residential subdivisions in the southeastern third. Neighborhood 23 is part of the Village of Germantown's Meeker Hill Neighborhood, in which single-family homes are the desired use per the Village's Comprehensive Plan. The consultant projects modest single-family home development near the quarry, with a few homes by 2030, and another few homes by 2040. Additionally, the consultant projects single-family housing development to occur across 40 developable acres spread across three landowners in the southeastern corner of the neighborhood between 2030 and 2040, totaling ~20 single-family homes. Increasing enrollment is projected due to new housing development.	63	65	66	78	89	**26**
24	Neighborhood 24 is in forested and agricultural uses, with scattered residential uses. Neighborhood 24 is in the Village's Willow Creek-Weidenbach Neighborhood, in which the Village's Comprehensive Plan lists single-family residential uses as "desirable". The southern half of neighborhood 24 is in wetlands and undevelopable. The northern half that is developable encompasses ~90 acres, is under single ownership, but not located in the sewer service area. The consultant projects single-family housing development here to begin around 2030, with 12 single-family homes between 2030 and 2035. Alternatively, some of this projected housing could occur in neighborhood 25 to the south, depending on landowner interest and other factors. Current enrollment is low, and projected to remain low and stable through 2030. Increasing enrollment is projected through the 2030s due to new single-family housing development.	17	17	17	29	29	**12**
25	Includes Mountbrooke (1970s). Residential uses are located in the northwestern quadrant and southern edge of neighborhood 25. Otherwise, the rest of neighborhood 25 is predominately in agricultural and forested uses. Neighborhood 25 is in the Village of Germantown's Willow Creek-Weidenbach Neighborhood, in which the Village's Comprehensive Plan intends mostly single-family residential uses. The consultant projects a small subdivision in the late-2030s. Generally stable enrollment is also projected.	70	70	70	70	75	**5**
26	Includes Country Belle Manor (2010s). North of Mequon Road, neighborhood 26 is built out with residential uses. South of Mequon Road, lands contain scattered residential uses, wetlands, forested areas, and small ponds. Neighborhood 26 is part of the Village's Meeker Hill Neighborhood, in which single-family homes are the desired use per the Village's Comprehensive Plan. The consultant does not project any new housing here through 2040. A slight enrollment decrease is projected over the next few years due to large high school-aged cohort, with enrollment remaining stable then through 2040.	43	43	43	43	43	-
27	Southeastern one-third contains rural residential uses, central third is mostly in agricultural uses, and northern third is in forested and wetland uses. Neighborhood 27 is in the Village's Willow Creek-Weidenbach Neighborhood, in which the its Comprehensive Plan intends mostly single-family residential uses. The consultant does not anticipate any new housing here through 2040 though. The consultant projects generally stable enrollment.	101	101	101	101	101	-

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
28	Includes Beechwood (1940s), Lake Highlands (1970s), Stonegate (1990s), Stonegate 2 (2000s), Stonegate North (2000s). Also includes Amy Belle Elementary School, YMCA Camp Minikani, and Amy Belle Lake. Neighborhood 28 is mostly built out with single-family residential uses, except for some scattered forested and agricultural areas. The Village of Richfield plans single-family residential uses for remaining developable lands in the neighborhood, but only a couple areas have development potential. The consultant projects a 10-15 unit subdivision to develop between 2035 and 2040. Slightly increasing enrollment projected, due to this new housing development and proximity to Amy Belle Elementary School.	183	183	183	183	195	**12**
29	Includes Kettle Moraine Highlands (1970s), Ridge Wood (1970s), Lakeview Ridge (2010s-2020s), Becker's Bark Lake Heights (1970s), Kletsch's Beach (1970s), Bark Lake Sunny Shore (1950s), Wierl's Bark Lake Park (1950s), and Neuburg's Bark Lake (1950s). Also includes Bark Lake. Neighborhood 29 is mostly built out with single-family residential uses, except for some scattered forested and agricultural areas. The Village of Richfield plans for single-family residential uses for the neighborhood. The consultant projects 10 single-family homes scattered around the neighborhood through 2040. Slightly increasing enrollment projected, due to this new housing development and proximity to Amy Belle Elementary School.	218	220	221	224	228	**10**
30	Includes Wooded Ridge Estates (1990s), Meadow View Estates (2000s), and Windemere (2000s). Neighborhood 30 is built out with rural residential uses. Undeveloped lands near its north edge have environmental restrictions associated with the Bark River. A large quarry operation exists in the eastern part of the neighborhood. The Village plans for single-family residential uses for the majority of the neighborhood, where development is possible. The consultant projects a small division between 2030 and 2035, and otherwise 1-2 additional scattered single-family homes per projection period through 2040. Slightly decreasing enrollment is projected as this neighborhood ages and turnover concludes.	167	168	169	176	178	**11**
31	Includes Timber Stone (2010s), Elmwood Hills (1990s), Sunset View Estates (1970s), Maple Grove Addition (1960s), and Maple Grove Addition 1 (1960s-1970s). Neighborhood 31 is built out with single-family homes. 1 vacant lot exists in this neighborhood; consultant projects its development by 2027. Decreasing enrollment is projected as fewer students are generated from 2010s housing as neighborhood (and students) age, and more of the housing is populated by empty-nesters by 2040. The consultant projects turnover to occur at a greater magnitude after 2040.	191	192	192	192	192	**1**
32	Includes Whispering Meadows (1990s), Dakotah Fields (2010s), Kingswood of Kettle Moraine (1970s), and Cherokee Highlands (1980s-1990s). Neighborhood 32 is mostly built out with residential uses, except for scattered agricultural, and developable, lands in the western and southeastern portions of the neighborhood. 4 vacant lots exist in neighborhood, which the consultant projects will develop by 2030. Slightly decreasing student-per-housing unit ratios expected as students and housing age, and given proximity to private schools and distance from GSD schools.	149	151	153	153	153	**4**
33	Includes Ravine Ridge Estates (1990s-2000s). Neighborhood 33 contains scattered residential uses in the north and along Hillside Road and Monches Road, with a large agricultural operation spanning almost the entire neighborhood. The Village of Richfield plans for single-family residential uses for the neighborhood. The consultant projects a development of ~15 single-family homes at the end of the 2020s, with other parts of neighborhood 33 having potential for significant future single-family residential development, but projected to be after 2040. Enrollment is currently low and stable. The consultant projects increasing enrollment with infusion of new single-family homes and turnover in Ravine Ridge Estates.	46	46	56	61	61	**15**

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
34	Includes Grand View Hills (1990s), Lake Five Hills (1970s), Lake Five Hills South (1970s), Country Squire Estates (1960s), Timber Ridge Estates (1970s), Debby Lane (1960s), Hillside Manor Estates (1980s), and Bridlewood Estates (2020s). Neighborhood 34 is mostly built out with single-family homes, except for the southwestern quadrant, which is in a combination of agricultural and commercial uses. Undeveloped areas are planned by the Village of Richfield for mostly single-family homes, except for the area northeast of the Hillside Road/County Line Road intersection, which is planned as a Neighborhood Activity Center. The consultant projects a 5-8 lot subdivision between 2027 and 2030 in neighborhood 34. The consultant also anticipates an ~40-unit development including duplexes, with half of these units between 2030 and 2035 and remaining units shortly after 2035. The consultant anticipates such developments will be attractive to empty nesters and seniors. Overall stable enrollment is projected in neighborhood.	298	298	305	325	345	**47**
35	Includes Whispering Ridge (2010s), Whispering Ridge 1st Addition (2010s), Woodridge West (2000s), and Scenic Springs (1970s-1980s). Neighborhood 35 is mostly built out with single-family homes, with scattered agricultural and wooded areas. There are minimal areas for development, but the consultant projects a handful of new homes through 2040. The consultant also projects slightly decreasing enrollment as large 4K-5 age cohort ages through school system by the late-2030s.	91	92	92	94	95	**4**
36	Includes Scenic Grove and the Final Plat of Woodridge East (both 2000s). The western half of neighborhood 36 is built out with single-family homes. The eastern half contains significant wetlands associated with the Bark River. The consultant projects a few new single-family homes through 2040. Generally, enrollment is projected to remain stable.	35	35	36	37	38	**3**
37	Includes Scenic Ridge (2000s), Nob Hill Estates (1960s), and Nob Hill West (1970s). The west part of neighborhood 37 is built out with single-family homes while the eastern part is mostly undevelopable due to wetlands associated with the Bark River. In the central part of the neighborhood, a landowner owns 100 acres of which 80 are developable, but the consultant does not anticipate this land developing until after 2040. Stable enrollment is projected.	103	103	103	103	103	**-**
38	Neighborhood 38 contains significant environmental constraints associated with the Bark River and wetlands, comprising two-thirds of the neighborhood. The remaining one-third is in agricultural use along Colgate Road. The Village of Richfield plans for single-family residential uses on the developable areas in neighborhood 38. One landowner owns ~80 acres in the neighborhood, of which ~40 acres are developable. These are the only really developable parts of neighborhood 38. These ~40 acres could provide for ~30 single-family homes. The consultant projects such development beginning in the early-2030s, with ~20 single-family homes between 2030 and 2035 and the remaining ~10 homes between 2035 and 2040. Very low enrollment is projected through 2030, then increasing in the 2030s with development of the new single-family homes.	9	9	9	29	39	**30**
39	Includes Willowgate (1980s-1990s), Willowgate Addition No. 1 (1990s), Hunters' Hills (1980s-1990s), and Woodland View Highlands (1970s). Neighborhood 39 is mostly built out with single-family homes. The consultant projects a few new single-family homes through 2040 resulting from small divisions. A 33-acre vacant site in the northwestern part of the neighborhood is not anticipated to develop until after 2040. Generally stable student-per-housing unit ratios are expected to continue.	136	137	138	138	139	**3**
40	Includes Basse's Farms. Neighborhood 40 contains mostly agriculture and woodland. The Village of Richfield plans these lands for Neighborhood Activity Center land uses. The consultant projects two vacant, estate-sized lots near the east edge of neighborhood 40 to develop by 2030. The consultant also projects some or all of the 80 undeveloped acres in the southeastern corner of the neighborhood to develop with ~30 single-family homes between 2030 and 2040. Increasing enrollment projected due to this new single-family housing development.	6	7	8	23	38	**32**

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
41	Includes Happy Hollow Estates (1970s). The western one-third of neighborhood 41 contains rural residential uses. The remaining parts of neighborhood 41 are in a combination of agricultural, residential, forested, and wetland uses. Neighborhood 41 is in Village of Germantown's the Amy Belle Neighborhood, in which the Village's Comprehensive Plan lists single-family homes as "desirable". The eastern one-third of neighborhood 41 is not developable due to wetlands and other lands in the western half have already been subdivided. A 40-acre developable parcel exists in the northern part of neighborhood 41, but has access challenges. The consultant projects its development beginning in the mid-2030s, as development and access extends from neighborhood 42 to the north. The consultant projects 5-10 single-family homes here between 2035 and 2040. Neighborhood 41 contains a large elementary aged-cohort today, which together with expected housing results in an expected increase in student-per-housing unit ratios and slightly increasing enrollment.	68	68	68	68	76	**8**
42	Includes Willow Creek Heights (1960s-1970s) and Weidenbach Park. The western half of neighborhood 42 contains residential uses. The remaining parts of neighborhood 42 are in a combination of agricultural, residential, forested, and wetland uses. Neighborhood 42 is in the Village of Germantown's Willow Creek-Weidenbach Neighborhood, in which the Village's Comprehensive Plan expresses a desire for mostly single-family residential uses. Neighborhood 42 is presently outside of the sewer service area and as such can develop at a maximum density of one home per 5 acres. The consultant projects ~10 single-family homes here between 2030 and 2035. The current large high school-aged cohort will lead to decreasing enrollment over the next few years, stabilizing afterwards through 2040.	96	96	96	106	106	**10**
43	Includes Germantown Power Plant and retail and commercial uses along Appleton Avenue and County Line Road, encompassing the southeastern half of neighborhood 43. The northwestern half is mostly in agricultural use, with scattered residential uses. Different parts of neighborhood 43 are planned for several uses by the Village of Germantown. The southwestern portion is part of the Village's Lannon Gateway Neighborhood, in which single-family, multiple-family, and senior housing are listed in the Village's Comprehensive Plan as "desirable" future uses. The central and northern portions of the neighborhood is in the Village's Willow Creek Business Park District, in which the Village's Comprehensive Plan lists employment uses as "desirable" and residential uses as "undesirable". The eastern portion is in the County Line Road District, in which multiple-family and mixed-uses are listed in the Village's Comprehensive Plan as "allowable" uses. Finally, the northern edge of neighborhood 43 is in the Village's planned Lannon-Mequon Road Corridor, in which residential uses are "allowed" per the its Comprehensive Plan. In the mid-2020s, Home Path proposed a large development in the southwestern part of neighborhood 43, proposed to provide 275 total housing units including 143 single-family homes, 28 paired homes/duplex units, and 104 "attached" housing units (rowhouses). The consultant anticipates approval of this development, with 20 single-family homes and 20 rowhouse units built and occupied by 2027; 75 single-family homes, 14 paired homes/duplexes, 30 rowhouses built and occupied by 2030; and all remaining housing units built and occupied by 2035. The consultant does not project any other residential development in neighborhood 43 through 2040. Very low current enrollment from this neighborhood is projected to increase significantly with new housing development. Generally, a blended student-per-housing unit ratio of 0.30 students-per-unit is expected in the neighborhood, due to the varying housing types and sizes projected.	26	66	185	301	301	**275**
44	Includes Riversbend Townhomes, commercial, and retail uses in the eastern half of neighborhood 44. The western half is undeveloped, but contains significant wetlands associated with the Menomonee River, limiting its potential for development. The Village plans the northern part of neighborhood 44 for future open space/parkland uses, and the southern portion as part of its County Line Road District, in which multiple-family and mixed-uses are listed as "allowed" in its Comprehensive Plan. In reality, minimal opportunities for development/redevelopment appear to exist. Therefore, the consultant does not project any new housing here through 2040. The current Large middle school aged cohort will keep enrollment stable through 2027, with enrollment expected to slightly decrease thereafter.	236	236	236	236	236	**-**

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
45	The southern half of neighborhood 45 is in a mixture of industrial and commercial uses while the northern half is mostly in woodland and wetland. Neighborhood 45 is planned by the Village for a mixture of parkland/open space uses and also as a part of the Willow Creek Business Park District, in which the Village's Comprehensive Plan lists employment uses as "desirable" and residential uses as "undesirable". The far western portion of the neighborhood 45 is planned by the Village as part of the Lannon-Mequon Road Corridor, in which residential uses of all types are allowed. Additionally, the State of Wisconsin owns 65 acres in the central part of the neighborhood. The consultant does not project any new housing in neighborhood 25 through 2040. The consultant projects very low enrollment to continue.	8	8	8	8	8	-
46	Neighborhood 46 includes industrial uses south of Mequon Road associated with the Germantown Industrial Park, plus scattered employment uses east in the Interstate 41/Lannon Road interchange. The Village plans for northwestern half of neighborhood 46 as part of the Germantown Industrial Park District, in which residential uses are listed by the Village as "undesirable". Neighborhood 46 is essentially built out, except for a vacant 2.5-acre site near Mequon Road, a 4-acre site off Maple Road, a 3-acre site off Commerce Circle, and a 5-acre site off Kleinmann Drive. The area including these vacant parcels is planned as part of the Village's Lannon-Mequon Road Corridor, in which non-residential uses are generally desired but residential uses are listed as "allowed". The consultant anticipates that all of these vacant sites to develop with non-residential uses, given this planning preference; existing industrial and commercial uses nearby; and proximity to Interstate 41, Highway 45, and Mequon Road. Enrollment is projected to remain very low due to very few housing units in neighborhood.	3	3	3	3	3	-
47	Includes Stonewood Corporate Center (1990s-2000s). Neighborhood 47 also includes Schoen Laufen Park and Frontida Assisted Living of Germantown. South of Mequon Road/Lannon Road, lands are mostly built out with a mixture of uses. The southern half of neighborhood 47 is used for senior housing, parkland, and agricultural uses. Areas outside of parkland are planned by the Village as part of its Lannon-Mequon Road Corridor, in which residential uses of all types are listed as "allowed" per the Village's Comprehensive Plan. In the mid-2020s, Faith Lutheran Church proposed a residential development (Carillion) on lands south of the church. The consultant anticipates ~13 units in this development by 2027 and another ~13 by 2030. The consultant projects additional multiple-family housing in neighborhood 47 in the mid-2030s, with ~100 multiple-family units, some of which could be restricted or attractive to seniors. Stable enrollment projected.	20	33	46	86	146	**126**
48	Includes Willow Wood (1990s-2000s). Neighborhood 48 is mostly in woodland. The western two-thirds of this neighborhood are planned by the Village for future parkland and open space uses, while the eastern third is part of its Alt Bauer Neighborhood, in which single-family homes are listed as "desirable" uses up to four-family homes are listed as "allowed" uses. The consultant projects single-family housing development in neighborhood 48 commencing in the mid-2030s, with ~10 single-family homes between 2030 and 2035 and an additional ~12 between 2035 and 2040. Stable enrollment is projected through the early-2030s, with increasing enrollment due to anticipated single-family home development in the late-2030s.	33	33	33	43	55	**22**
49	Includes Lone Oaks (1990s-2000s), Lone Oaks Addition No. 1 (1990s-2000s), Meadow Creek Crossing (2000s), Washington Hills (1950s), and Washington Hills No. 2 (1960s-1970s). Neighborhood 49 is built out with single-family homes and a small commercial area near its south edge along County Line Road. The consultant does not anticipate new housing here through 2040. Enrollment is projected to decrease through 2030, due to the current large high school-aged cohort, which is almost twice as large as current middle school and elementary school-aged cohorts. Enrollment is then projected stabilize in the 2030s as new students are generated from home sales and turnover to some young families.	247	247	247	247	247	-

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
50	Includes Rustic Meadows (1970s-1980s), Rustic Meadows Addition No. 1 (1970s-1980s), Hilltop View (1960s-1970s), Indian Hills (1980s), Navajo Hill (1950s), and Pilgrim Heights (1950s). Neighborhood 50 is built out. Neighborhood 50 has had turnover recently, with a large elementary school aged cohort. The consultant projects slightly decreasing enrollment through 2040 as the neighborhood's current children age.	404	404	404	404	404	-
51	Includes Country Meadows (1990s), Country Meadows West (1990s), Kosterman's Garden (1990s), Heritage Park (2020s), Heritage Park North (2020s), and Pebblebrook Estates (2000s). Heritage Park North has 8 homes under construction and 15 vacant lots remaining. The consultant projects all to be built and occupied by 2027. Then, neighborhood 51 will be built out. Generally increasing enrollment is projected through 2030, due to recent and continued single-family home development. Then, between 2030 and 2040, slightly decreasing enrollment is projected.	186	209	209	209	209	**23**
52	Includes Old Farm at Germantown (1970s). Neighborhood 52 also includes part of Alt Bauer Park. Neighborhood 52 is built out. Slightly decreasing student-per-housing unit ratios are expected.	144	144	144	144	144	-
53	Includes southwestern portion of Legend Acres (1970s), Cedar Hills (1980s-1990s), southern portion of Cedar Hills 2 (1990s), southern and western portions of Hawthorne Meadows Addition No. 1 (1980s), most of Hawthorne Meadows 2 (1980s-1990s), Hawthorne Meadows 3 (1990s), Hawthorne Meadows 4 (1990s), northern portion of Old Farm Annex No. 1 (1970s-1980s), northern portion of Brook Hollow (1990s), Brook Hollow 2 (1990s), and northern portion of Yorktowne Estates (1970s). Neighborhood 53 also includes part of Alt Bauer Park. Neighborhood 53 is built out. Attributable to its mixed housing vintage, neighborhood 53 has generally similar numbers of students across the grade groups. The consultant projects stable enrollment to continue as homes turn over and new students are generated to replace students aging out of the school system.	355	355	355	355	355	-
54	Includes Hawthorne Meadows 2 (1980s-1990s), southern portion of Old Farm Annex No. 1 (1970s-1980s), Old Farm Annex No. 2 (1980s), southern portion of Brook Hollow (1990s), and southern portion of Yorktowne Estates (1970s). Neighborhood 54 is built out. Very large 4K and 5K-5 age cohorts will result in increasing enrollment through the early-2030s, with enrollment projected to remain stable thereafter.	278	278	278	278	278	-
55	Includes Spooner Estates (1990s), Yorktowne South (1990s), and Park View Hills (1970s). Neighborhood 55 includes Spassland Park south of Santa Fe Drive. Neighborhood is built out with residential and institutional uses. Generally stable enrollment is projected as 1990s housing continues to turn over and generate new students for the next several years.	172	172	172	172	172	-
56	Includes County Line Elementary School, Hickory Hills (1960s), Hickory Hills Addition No. 1 (1990s), Glenwood Park (1960s-1970s), and Ardell Homesites (1990s). Neighborhood 56 is built out. The consultant projects stable enrollment due in part to proximity to County Line Elementary but also due to neighborhood turnover.	104	104	104	104	104	-
57	Includes Starlite Subdivision (1950s-1960s) and Donges Bay Village (1990s). Neighborhood 57 is built out. Variety of housing ages and proximity to County Line Elementary is projected to keep enrollment stable.	172	172	172	172	172	-

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
58	Includes Seven Pines Condominiums (2000s-2020s, 28 units built, with 4 additional under construction), Tree Tops (2000s), Tree Tops Addition No. 1 (2000s), Tree Tops Addition No. 2 (2000s), Tree Tops Addition No. 3 (2000s), Deer Ridge Estates (1990s), and Autumn Ridge (1990s-2000s). The Village of Germantown includes most of neighborhood 58 in its Sunberry-Tree Tops Neighborhood, in which single-family homes are listed in the Village's Comprehensive Plan as "desirable" future uses and two- to four-family homes are listed as "allowed" future uses. The east edge of neighborhood 58 is in the Village's Victory Center Corridor, in which the Village's Comprehensive Plan lists all types of residential uses as "allowed". A vacant 7-acre site in the eastern part of neighborhood 58, along Fond du Lac Avenue, was recently proposed for 66 multiple-family units in a combination of 6 to 12 unit buildings (Victory Place). However, the Village rejected this proposal due to density concerns. The consultant anticipates the development to return and be approved with fewer units, with construction and occupancy around 2027. The consultant projects a separate 5-acre site in the eastern part of the neighborhood to redevelop between 2035 and 2040, with ~20 duplex or similar units. After this, neighborhood 58 will be entirely built out. Neighborhood 58's current high school-aged cohort is more than twice as large as its middle school-age cohort, as is common for neighborhoods where most housing was built in the 2000s. The consultant projects decreasing enrollment through 2030, as the large high school-aged cohort ages out of the schools, with enrollment generally stable between 2030 and 2040 as housing turns over to some new families.	391	425	455	455	475	**84**
59	Includes Sunberry Downs (1990s), Sunberry Downs South (1990s), Sunberry Downs Addition No. 1 (1990s), Sunberry Woods (2000s), and Berrywood (2000s). Neighborhood 59 is built out with residential uses. The western two-thirds of neighborhood 59 is within the Village of Germantown's Sunberry-Tree Top Neighborhood, in which single-family homes are listed in the Village's Comprehensive Plan as "desirable" future uses and two- to four-family homes are listed as "allowed" future uses. The eastern one-third of neighborhood 59 is in the Village's Victory Center Corridor, in which the Village's Comprehensive Plan allows all residential uses. In the early-2020s, a 4-unit townhome development was approved in the northeastern corner of the neighborhood, but that development may have been stalled due to financing issues. The consultant projects this or a similar development on this suite by 2027. The consultant does not project any additional housing in neighborhood 59 through 2040. Neighborhood 59 seems to have turned over to new families, with current large 4K and 5K-5 age cohorts. The consultant projects generally increasing enrollment here through 2040.	203	207	207	207	207	**4**
60	Includes Windsong At Germantown (1990s). Neighborhood 60 is built out. The large current high school age cohort in neighborhood 60 will result in slightly decreasing enrollment through 2030, with enrollment projected to remain stable in the 2030s.	110	110	110	110	110	**-**
61	Includes southern portion of Bel Aire Subdivision (1990s), southern portion of The Preserve (1990s), Kinderberg Estates (2020s), Heritage Hills (1990s), Heritage Hills Addition No. 1 (1990s), Wooded Hills (1990s), and Hillside View (2000s-2010s). Neighborhood 61 also includes Kinderberg Park. The eastern three-quarters of neighborhood 61 is built out with mostly single-family homes, but also includes parkland uses and scattered employment uses along Fond du Lac Avenue. The western one-quarter is in a mixture of institutional, wooded, and wetland uses. The western three-quarters of neighborhood 61 are within the Village's Kinderberg Neighborhood, in which single-family homes are listed in the Village's Comprehensive Plan as "desirable" future uses and two- to four-family homes are listed as "allowed" future uses. The eastern one-quarter is in the Village's Victory Center Corridor, in which the Comprehensive Plan allows all types of residential uses. 55 acres in the western part of neighborhood 61 (~40 developable) are owned by one landowner and intended for lower-density residential development. This parcel is attractive for future development, with proximity to Village parks and GSD schools. The consultant projects development to begin in the early 2030s, with ~10 single-family homes between 2030 and 2035 and ~30 single-family homes between 2035 and 2040. The consultant also projects increasing enrollment through 2040, due to a combination of 1990s/2000s era housing turning over to new families through 2040 and the development of this new housing in the neighborhood.	355	355	355	365	395	**40**

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
62	Includes northern portion of Bel Air Subdivision (1990s), northern portion of The Preserve (1990s), The Preserve II (2000s), The Preserve III (2000s), Pilgrim Estates (1980s), and High Pointe (1990s). Neighborhood 62 is built out. The consultant projects generally stable enrollment.	164	164	164	164	164	-
63	Neighborhood 63 is mostly in agricultural use, except for small industrial uses to the north and the Germantown School District office along Donges Bay Road. ~60 acres in the southern part of the neighborhood (Frenz) has received several proposals for multiple-family housing, with the latest proposing over 500 multiple-family units. This area is in the Village's Victory Center Corridor, in which the Village's Comprehensive Plan lists all types of residential uses as "allowed" but lists commercial and employment uses as "desirable" future uses due to proximity to railroads and the Germantown Business Park in neighborhood 67 to the east. Based on the Village's preferred uses and challenges with larger-scale multiple-family housing, the consultant does not anticipate any new housing here through 2040. Low and stable enrollment is anticipated from neighborhood 63.	19	19	19	19	19	-
64	Neighborhood 64 includes FC Wisconsin Soccer Park. Neighborhood is mostly undevelopable due to employment and industrial land on its north side and a large landfill in its southern half. Neighborhood 64 is divided between the Village's Victory Center Corridor and Omega Hills Industrial District, in which employment uses are desired. The consultant does not project any new housing here through 2040. Low enrollment projected to continue.	11	11	11	11	11	-
65	Neighborhood 65 includes the Village of Germantown Public Works site. Neighborhood is mostly built out, containing mainly industrial and institutional uses. The neighborhood is part of the Village's Omega Hills Industrial District, in which employment uses are desired. The consultant does not project any new housing here through 2040. Low enrollment is projected to continue.	5	5	5	5	5	-
66	Includes Prairie Glen (2000s-2010s) and Prairie Glen II (2010s-2020s). Neighborhood 66 contains a residential subdivision in its northern half with mostly agricultural uses in the southern half. Neighborhood 66 is part of the Village's Prairie Glen Neighborhood, in which single-family homes are listed in the Village's Comprehensive Plan as "desirable" future uses and two- to four-family homes are listed as "allowed" future uses. The consultant projects that the ~30 undeveloped, developable acres in the southern half of neighborhood 66 will develop with 15-20 single-family homes between 2035 and 2040. Increasing enrollment is projected in neighborhood 66, as the 2000s housing turns over to new families in the 2030s and new housing is built.	54	54	54	54	72	**18**
67	Neighborhood 67 includes the Germantown Business Park, and is mostly built out, except for its northwest corner identified by the Village as part of its South Country Aire Neighborhood, in which single-family homes are listed in the Village's Comprehensive Plan as "desirable" future uses and two- to four-family homes are listed as "allowed" future uses. The consultant projects a few single-family homes in this corner by 2040, but most of this land has already been subdivided. Low enrollment is projected to continue.	9	9	10	12	12	**3**
68	Includes Harvest Hills (2020s, has 5 homes under construction and 3 vacant lots remaining), Forest Heights (1960s), Forest Heights East (1960s), Forest Heights West (1960s), Forest Heights North (1960s-1970s), Woodland Ponds (2000s-2010s), and Woodland Ponds Estates (2020s). Neighborhood 68's northeast and southwest quadrants are built out with single-family residential and parkland uses, including Friedenfeld Park. Its two other quadrants are mostly undeveloped and in agriculture and woodland, but also contain scattered rural residential uses on larger lots. Neighborhood 68 is split between the Village's Friedenfield Neighborhood and Woodland Ponds/Harvest Hill Neighborhood, in which single-family homes are listed in the Village's Comprehensive Plan as "desirable" future uses and two- to four-family homes are listed as "allowed" future uses. The consultant projects remaining homes in Harvest Hills to be built by 2027 plus 1-2 additional homes per year in neighborhood 68 through 2040. Stable student-per-housing unit ratios are expected, with increasing enrollment projected due to new housing development.	144	152	157	165	173	**29**

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
69	Includes Wrenwood (2020s) and Wrenwood North (2020s, has 0 homes under construction and 24 vacant lots remaining). Neighborhood 69 has been steadily developing with single-family homes in the 2020s, consistent with the Village's Comprehensive Plan. The consultant projects all improved lots within Wrenwood Norh, plus all lots in an additional expected 23-lot phase, to be occupied with homes by 2027. The northeastern part of neighborhood 69, between Wrenwood North and Wrenwood "South", remains mostly in agriculture and woodland and owned by three different entities with uncertain development interest. In the near term, some of this land may be parceled off for larger rural homesites. Beyond this, the consultant projects single-family housing development in neighborhood 69 to recommence in the early 2030s, and is projecting 50-60 single-family homes between 2030 and 2035 and a similar number between 2035 and 2040. Student-per-housing unit ratios are expected to remain around 0.60 student-per-home, with total enrollment projected to significantly increase due to significant new housing development.	125	192	192	247	307	**182**
70	Includes MacArthur Elementary School, Green Meadow (1960s), Brownstone (1990s), Kuhns Pleasant View (1950s), Kuhns Pleasant View Addition No. 1 (1950s-1960s), Kuhns Pleasant View Addition No. 2 (1950s-1960s), and The Woodlands (2000s). Neighborhood 70 is essentially built out—its northern half contains single-family residential homes and institutional uses while its southern half contains mostly wetlands and wooded areas. While the Village's plans would technically allow more lower-density housing in neighborhood 70, as a practical matter new housing of any significance is unlikely. The consultant does not project any new housing here through 2040. Slightly decreasing enrollment is projected from established housing in the area, but proximity to MacArthur Elementary should limit the extent of the decrease.	235	235	235	235	235	-
71	Neighborhood 71 is built out with multiple-family residential uses. Entire neighborhood is part of the Village Center District, in which the Village's Comprehensive Plan lists multiple-family and mixed-use developments as "desirable", while other residential housing types are listed as "allowed". Still, the consultant does not project any new housing here through 2040. Stable enrollment is projected.	273	273	273	273	273	-
72	Includes Kennedy Middle School and Firemens Park. Subdivisions include Firemans Park (1940s-1950s), H.V. Schwalbach's Addition (pre-1940s), Walterlin's Addition (pre-1940s), and Pleasant Hill Estates (1990s). Neighborhood 72 is built out with a mixture of uses, including residential uses, institutional uses, and commercial and employment uses. The western one-third is undeveloped but heavily forested and contains significant wetlands associated with the Menomonee River. The eastern one-third of neighborhood 72 is within the Village's Macarthur-Kennedy Neighborhood, in which single-family homes are listed as "desirable" and two- to four-family homes are listed as "allowed" in the Village's Comprehensive Plan. The rest of neighborhood 72 is part of the Village Center District, in which multiple-family and mixed-use developments are list in the Village's plan as "desired".. A 5-acre, Village-owned parcel in neighborhood 72 is now intended to be sold and developed for commercial use. Due to this intent and environmental constraints, the consultant projects no new housing in neighborhood 72 through 2040. Stable enrollment is projected, due to proximity to MacArthur Elementary and Kennedy Middle Schools.	191	191	191	191	191	-

Neighborhood (as depicted on Report maps)	Description and Rationale	Total Housing Unit Estimates/Projections					Projected Housing Unit Increase, 2025-2040
		March 2025	Sept. 2027	2030	2035	2040	
73	Neighborhood 73 includes Haupt Strasse Park and the eastern half of the Blackstone Creek Golf Club. Neighborhood 73 contains a mixture of uses, but generally commercial and employment uses along Mequon Road and multiple-family residential uses elsewhere. Existing multiple-family developments in neighborhood 73 vary by age and by renter vs. owner occupancy. Neighborhood 73 is within the Village Center District, Village's Comprehensive Plan lists commercial, multiple-family, and mixed-use developments as "desirable". Lands in the western part of neighborhood 73 are part of the Blackstone Creek Golf Club, which has had redevelopment proposals for the last 20 or so years. The most recent concepts include residential redevelopment concentrated in eastern portions of the golf course that are at a higher elevation. The consultant projects, within this area, ~100 apartment units and ~50 townhome units between 2030 and 2035 and another ~100 apartment units and ~50 townhome units between 2035 and 2040. The consultant projects a separate redevelopment project along Mequon Road between 2035 and 2040, including ~50 multiple-family units. Student-per-housing unit ratios are expected to remain stable and typical of an established multiple-family area in Germantown (0.15 student-per-unit), with enrollment totals projected to increase slightly with added housing development expected.	1,699	1,699	1,699	1,849	2,049	**350**
74	The western half of neighborhood 74 is contains a mix of older commercial and employment uses while the eastern half is wooded. The Village places neighborhood 74 within its Village Center District, in which the Village's Comprehensive Plan lists multiple-family and mixed-use developments as "desirable". The Village currently owns much of neighborhood 74 and has proposed a tax incremental district (TID 10) to promote development of a Town Center/Village Plaza, with commercial, mixed-use, and multiple-family components. The consultant projects this proposal to move forward for multiple reasons, including Village plans supporting for this type of development here; Village ownership and redevelopment efforts to date; the site's location in the center of the Village, along busy Mequon and Pilgrim Roads and in proximity to municipal and commercial services; utilities readily available; low value of current uses; and heaving market demand for different housing types in the area. The consultant project housing development to begin in the late-2020s, with ~100 market-rate multiple-family units anticipated between 2027 and 2030, another ~75 between 2030 and 2035, and another ~100 between 2035 and 2040 (perhaps as part of a later phase designation). Enrollment is projected to increase with new housing development, but with under 20 students anticipated at buildout due to low anticipated student-per-housing unit ratios.	-	-	100	175	275	**275**
75	Includes most of Legend Acres (1970s), Legend Acres Vienna Court (1970s-1980s), Hawthorne Meadows (1980s), northern and eastern portions of Hawthorne Meadows Addition No. 1 (1980s), northern portion of Hawthorne Meadows 2 (1980s-1990s), Esquire Estates (1980s-1990s), and northern portion of Cedar Hills 2 (1990s). Neighborhood 75 also includes the Village Hall and the Community Library. Lands in neighborhood 75 are predominately in single-family use, but contain institutional and multiple-family residential uses in the western third and northeastern corner. Majority of neighborhood 75 is planned is within the Village's Alt Bauer Neighborhood, in which single-family homes are listed as "desirable" uses, per the Village's Comprehensive Plan and two- to four-family homes are listed as "allowed". Still, no additional housing is projected here through 2040. Neighborhood 75 seems to have recently turned over, with a large number of recent home sales and a large 4K and 5K-5 age cohort. The consultant projects slightly increasing enrollment in neighborhood 75, due to aging of elementary students to the secondary level, proximity to schools, central location in the Village, proximity to jobs.	846	846	846	846	846	-
	Totals	**11,653**	**11,900**	**12,268**	**13,092**	**13,793**	**+2,140**

APPENDIX C: GSD 4K-12 RESIDENT ENROLLMENT PROJECTIONS BY GRADE GROUP AND NEIGHBORHOOD, 2025-2040

Neighborhood	Grades 4K-5 [2]					Grades 6-8 [2]					Grades 9-12 [2]					Grades 4K-12 [2]				
	2025 [1]	2027	2030	2035	2040	2025 [1]	2027	2030	2035	2040	2025 [1]	2027	2030	2035	2040	2025 [1]	2027	2030	2035	2040
1	15	17	19	24	25	13	7	8	9	12	26	22	14	14	17	54	46	41	48	55
2	12	9	9	8	8	6	6	5	4	4	2	7	9	6	6	20	23	22	18	17
3	18	15	15	15	15	15	9	7	7	7	14	20	15	10	10	47	44	37	33	32
4	18	23	20	18	18	5	8	11	10	9	15	9	11	15	13	38	40	42	43	40
5	23	26	26	23	22	9	10	12	12	11	11	12	14	18	17	43	49	52	53	49
6	6	4	4	5	5	2	3	2	2	2	0	2	4	3	3	8	10	10	10	11
7	0	0	0	5	20	0	0	0	1	6	2	1	0	1	5	2	1	0	7	31
8	54	59	68	67	69	50	33	35	33	34	50	73	61	48	48	154	164	164	149	152
9	21	23	30	43	45	4	9	12	17	20	12	8	14	21	26	37	41	56	81	91
10	13	11	10	9	8	1	6	6	5	4	2	2	7	8	6	16	19	23	21	19
11	8	5	6	9	10	9	4	2	3	4	10	12	8	3	5	27	21	16	15	20
12	29	23	21	24	29	17	15	11	10	12	23	24	22	18	18	69	62	55	52	58
13	9	6	5	6	4	3	5	3	3	3	2	4	6	4	4	14	14	15	12	11
14	6	8	8	7	6	2	3	4	4	3	5	3	4	5	5	13	14	16	16	15
15	5	4	4	4	4	9	3	2	2	2	5	11	6	3	3	19	18	12	9	9
16	27	28	28	27	24	10	12	13	13	13	13	14	17	19	19	50	55	58	59	55
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	25	23	24	25	29	25	13	12	11	11	36	36	23	16	16	86	72	59	53	56
19	23	26	27	24	22	7	11	13	13	11	15	11	14	18	17	45	48	54	55	51
20	1	1	1	3	4	0	1	0	1	2	3	1	1	1	2	4	2	2	5	8
21	0	0	0	5	4	0	0	0	1	2	0	0	0	0	2	0	0	0	5	8
22	40	38	37	34	33	16	19	18	18	16	19	22	26	26	24	75	79	81	77	73
23	18	19	19	22	24	8	9	9	10	11	12	12	12	14	16	38	40	41	46	50
24	3	5	4	9	10	0	1	2	3	3	1	0	1	2	3	4	6	8	14	15
25	12	13	11	9	12	5	5	6	5	4	5	7	7	8	7	22	24	23	22	24
26	9	9	9	9	9	2	4	4	4	4	11	5	6	6	6	22	18	19	19	18
27	12	9	10	10	10	4	6	4	4	4	11	7	9	6	6	27	23	22	20	21
28	20	20	21	23	27	10	9	9	10	11	15	15	14	14	16	45	44	44	47	54
29	14	17	19	20	18	7	6	8	9	10	11	10	9	12	13	32	34	36	41	42
30	18	14	15	17	18	17	9	7	7	8	15	22	15	10	11	50	45	37	35	37
31	35	31	30	26	27	23	18	16	15	13	30	33	27	22	20	88	82	73	63	60
32	29	24	23	21	20	11	15	12	11	10	21	17	21	17	16	61	56	56	49	46
33	3	2	4	8	6	3	2	1	2	4	1	3	3	2	4	7	7	8	12	15
34	37	38	41	39	38	14	17	18	17	16	21	20	24	23	23	72	75	83	79	76
35	19	22	24	26	22	16	7	10	11	12	24	24	14	16	17	59	53	48	53	52
36	15	15	12	12	12	4	7	7	6	6	6	6	9	9	8	25	27	28	27	26
37	11	11	10	10	10	6	5	5	5	5	6	8	8	7	7	23	24	23	22	22
38	2	1	1	6	8	2	1	1	2	5	1	2	2	4	6	5	4	3	12	18
39	18	22	20	19	14	7	7	10	9	10	9	10	10	14	14	34	39	41	43	37

Neighborhood	Grades 4K-5 [2]					Grades 6-8 [2]					Grades 9-12 [2]					Grades 4K-12 [2]				
	2025 [1]	2027	2030	2035	2040	2025 [1]	2027	2030	2035	2040	2025 [1]	2027	2030	2035	2040	2025 [1]	2027	2030	2035	2040
40	1	2	2	8	11	0	0	1	2	5	1	0	0	2	5	2	2	2	11	21
41	24	22	20	18	20	5	11	10	10	10	6	7	14	14	15	35	40	45	42	45
42	10	8	8	8	9	3	5	4	4	4	11	6	7	6	6	24	19	19	19	18
43	1	8	31	42	37	3	2	10	23	21	4	5	10	20	31	8	14	52	85	89
44	3	2	2	2	2	7	2	1	1	1	2	8	4	2	2	12	12	7	5	5
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	2	1	1	1	1	1	1	1	0	0	0	1	1	0	0	3	3	3	1	2
47	2	3	4	3	4	1	2	2	1	2	2	3	3	2	2	5	7	8	7	8
48	3	2	2	5	8	2	2	1	1	3	0	2	2	1	4	5	5	5	7	15
49	38	32	35	37	36	37	19	15	16	17	59	55	34	23	24	134	106	84	76	78
50	63	57	53	51	50	25	30	27	25	24	49	39	42	37	35	137	126	123	113	109
51	35	40	38	35	30	12	19	19	18	16	15	19	25	26	25	62	77	81	79	71
52	24	19	18	18	18	12	12	9	8	9	14	16	17	13	12	50	47	44	39	39
53	57	68	69	65	59	26	25	31	32	31	51	41	38	46	45	134	134	138	143	135
54	52	55	55	50	44	20	24	26	26	24	21	27	33	37	36	93	106	113	113	103
55	22	20	17	19	20	10	11	10	8	9	14	14	16	13	12	46	46	43	40	41
56	10	14	15	15	14	8	4	6	7	7	18	13	8	9	10	36	31	29	31	30
57	23	26	26	24	23	9	10	12	12	11	17	14	15	18	17	49	51	53	55	52
58	50	47	47	47	46	33	26	23	22	23	67	57	45	32	33	150	130	115	101	102
59	57	65	63	65	55	25	25	30	29	31	37	37	37	43	43	119	128	130	137	129
60	21	16	14	17	17	6	10	8	7	8	24	12	14	10	10	51	39	36	33	35
61	87	89	89	93	102	51	41	41	43	47	49	67	61	62	66	187	196	191	198	215
62	29	27	27	26	27	13	15	13	13	13	24	20	21	19	18	66	61	61	58	58
63	7	4	3	3	3	2	4	2	2	1	1	2	5	2	2	10	10	10	7	6
64	2	1	1	0	0	0	1	1	0	0	0	0	1	1	0	2	2	2	1	0
65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	14	21	20	17	22	5	6	10	9	10	13	9	8	14	15	32	35	38	41	47
67	0	0	0	0	0	2	0	0	0	0	2	3	1	0	0	4	3	1	0	0
68	25	25	26	29	33	15	13	12	13	14	18	22	21	21	22	58	60	60	63	70
69	28	55	56	68	80	8	21	25	31	37	11	17	29	39	49	47	92	110	139	167
70	55	49	50	49	48	35	27	24	24	23	40	48	41	34	34	130	124	115	107	105
71	19	22	23	23	20	11	8	10	11	11	10	14	13	15	15	40	44	45	48	46
72	12	14	13	13	13	2	5	6	6	6	16	6	7	9	9	30	25	27	28	27
73	126	132	133	134	139	68	58	58	63	64	97	98	87	91	96	291	288	278	289	300
74	0	0	3	4	8	0	0	1	3	4	0	0	0	2	4	0	0	4	10	17
75	99	106	111	104	97	34	42	48	52	49	56	51	58	72	73	189	199	217	228	218

Notes:

[1] 2025 totals in this figure are March 2025 GSD resident student enrollment.

[2] These numbers in this figure do not include non-resident students who open-enroll-in to GSD schools from other districts.

Residential Market Analysis - Final -- Strategy Planning Guidelines -- Germantown, Wisconsin

Prepared on behalf of:

Village of Germantown
N112 W17001 Mequon Road
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February 9, 2024

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EXECUTIVE SUMMARY

At the request of the Village of Germantown, Tracy Cross & Associates, Inc. evaluated the market potential for residential development in Germantown, Washington County, Wisconsin. Specifically, this analysis provides a comprehensive evaluation of the housing market in and around Germantown, together with detailed conclusions regarding the demand/need for new construction housing. It also identifies opportunities that exist (or voids that need to be filled) for certain types of homes, along with the specific direction that should be taken to address/meet demand.

Based upon a thorough evaluation of all relevant economic, demographic, socio-economic and residential market conditions in the village of Germantown and surrounding areas (both today and going forward), it was concluded that the state of the new construction home market throughout the area shows a significant opportunity for the development of, primarily, mainstream or workforce housing (i.e., the middle of the market). The words *mainstream*, *workforce* or *middle of the market*, as used throughout the body of this report, refer to new housing units that target households earning between roughly 50 and 150 percent of the area's $86,185 median income, or approximately $40,000 to $125,000+ annually).

The identified need for new mainstream housing is founded on the basis of supply deficiencies (both rental and for sale) that exist in the market, along with the extreme price disparity that can be found in the for sale sector between new construction alternatives and resale units. In other words, given current market conditions in both the rental apartment and for sale/ownership sectors, the potential or need for properly positioned housing targeting renters earning, primarily, between $40,000 and $125,000 annually and ownership households earning from $75,000 to $150,000+ is viewed as *significant.*

Because new/newer apartment developments throughout Germantown and surrounding areas are, for the most part, already offering product that targets the threshold of renter households earning between $40,000 and $125,000, the area simply needs more properly positioned rental product given the tightness of this market and only marginal new/newer supply.

In the for sale sector, however, the large disparity that exists between new construction price points and those incomes represented by the middle of the market (again, those earning between roughly 50 and 150 percent of median), reflects the reality that a different approach must be taken for the introduction of new for sale housing in the marketplace. This new approach will require discipline by all stakeholders and builders/developers as it relates to land planning, densities, product design, and most importantly, implementation. *Note: the rising cost of land, development, materials and labor is the primary reason new for sale housing prices have risen so dramatically, coupled with the lack of new product initiatives.*

As outlined in our full report, the introduction of ***new apartment product*** can occur within a reasonable time period simply by following our recommendations for three specific products, all of which are efficient to build from a construction cost standpoint and have proven successful throughout the Midwest and southeast Wisconsin. These products can be readily produced (with a manageable level of discipline) at rental rates generally consistent with the new/newer offerings in the market today.

As it relates to ***new for sale housing***, our recommendations represent a departure from the status quo in the new construction ownership sector in and around Germantown and will require a *much greater* level of discipline to produce properly positioned new homes – homes that the workforce can afford, but still represent a comparable quality to that which Germantown is accustomed. To achieve this objective, it will be imperative for the Village of Germantown, and other stakeholders, to work closely with builders/developers so that our recommendations regarding four (4) very specific ownership product lines are understood and embraced. Specifically, builders/developers (and governing bodies) will need to think differently in terms of land planning, densities, development, approvals, product design (and possibly some

form of incentives) in order to *substantially reduce costs*, a key component to meeting the price requirements for the local workforce or middle of the market.

In addition to the disparity that exists between local area incomes and the current price alignment of new construction for sale housing, demand potentials for ownership housing over the next five years in the Germantown Primary Market Area (PMA), which includes Washington County, along with the neighboring areas of northeast Waukesha County, southern Ozaukee County and the northern edge of Milwaukee County, are expected to exceed supply given what is formally in the planning pipeline at this time. For example, a total of at least 2,975 for sale housing units could be absorbed in the Germantown PMA through 2028 (595 yearly), although just 1,139 for sale housing units are currently in the planning pipeline, many of which may never come to fruition. Likewise, demand for new rental housing in the Germantown PMA stands at 2,075 total units through 2028 (415 annually), yet only 1,271 units are in the pipeline, some of which may not move forward. *Moreover, not only is "derived demand" likely to outstrip supply near term, but the overall base of residential construction requirements could actually be much higher (i.e., double) during any given year where properly positioned supply is made available. This doubling of demand factors pent-up demand; upside household growth potentials if properly positioned development were actually to occur; the limited amount of new construction housing alternatives throughout the PMA (to be discussed later); and spillover potentials from areas outside the local market area.*

Focusing on the for sale/ownership sector, and to highlight the importance of working diligently in order to cost-effectively produce mainstream/workforce ownership housing units, the following text table outlines the qualitative distribution of annual for sale housing demand based solely on incomes, then cast against where new construction closings are occurring today. This table shows the need for new for sale housing largely concentrated at price points below $400,000, which corresponds with the mainstream, workforce or middle of the market. Currently, the majority of new construction offerings in the market are concentrated at prices between $400,000 and $700,000, thus leaving workforce ownership households disenfranchised by the current alignment of new construction for sale product. *Note: single family closing prices in Germantown itself are currently 10 percent higher than those reflected throughout the PMA as a whole.*

THE CURRENT DISCONNECT IN THE FOR SALE SECTOR OF THE NEW CONSTRUCTION HOUSING MARKET
GERMANTOWN PRIMARY MARKET AREA (PMA)

	Annual For Sale Housing Demand (Based Upon Current Incomes)		Qualitative Distribution of New Construction Residential Closings[(1)]	
Price Range	Number	Percent	Number	Percent
Under 250,000	30	5.0	---	---
250,000 - 299,999	108	18.1	5	1.2
300,000 - 349,999	100	16.8	6	1.5
350,000 - 399,999	84	14.1	36	8.8
400,000 - 449,999	66	11.1	67	16.3
450,000 - 499,999	48	8.1	76	18.5
500,000 - 549,999	38	6.4	65	15.9
550,000 - 599,999	26	4.4	53	12.9
600,000 - 699,999	20	3.4	59	14.4
700,000 & Above	75	12.6	43	10.5
Total	*595*	*100.0*	*410*	*100.0*
Median	*- - - - - - - $385,815 - - - - - - -*		*- - - - - - - $511,634 - - - - - - -*	

(1) Reflects new construction townhome/duplex/condominium and single family closings recorded in 2023

Source: Tracy Cross & Associates, Inc. and Southeast Wisconsin Multiple Listing Service

For Sale Housing Price Points Required for Mainstream/Workforce/Middle Market Households

Current Threshold of Homes Being Produced, Which Cannot be Afforded by the Bulk of the Market

NEXT GENERATION HOUSING INITIATIVE – WASHINGTON COUNTY

With the village of Germantown situated within the boundaries of Washington County, the municipality is in a position to benefit from the county's *Next Generations Housing* initiative, which aims to assist communities, developers, builders, etc. in filling voids that exist in the market relative to ownership housing forms. As highlighted in this executive summary, and detailed throughout the full report, recent price escalation among virtually all new construction for sale developments throughout Germantown and surrounding areas has created a significant void for more properly positioned for sale housing. As such, our analysis, which independently and objectively identified this void, provides specific product/price recommendations in order to fill it – recommendations that conform to the goals of the Next Generation Housing initiative. With this said, and because several of Germantown's identified development/redevelopment properties are already being considered for Next Generation Housing, *the municipality should continue to consider this opportunity.* Note: our detailed recommendations can be found in Section I of the full report.

All told, the effort involved with bringing for sale housing product to market in Germantown (at the prices outlined in Section I), along with a variety of new rental products, will be rewarded by significant sales/absorption volumes per development, which will translate to increases in population and households and, in turn, foster economic growth locally that will have a measurable fiscal impact.

INTRODUCTION

At the request of the Village of Germantown, Tracy Cross & Associates, Inc. evaluated the market potential for residential development in Germantown, Washington County, Wisconsin – a northwest suburb of Milwaukee. Specifically focusing upon *new construction housing* opportunities throughout the village, this analysis establishes the following:

- ❑ Conclusions regarding the depth of the market (demand) for new construction residential development throughout Germantown based upon pertinent economic, demographic, and residential trends which define the marketplace.

- ❑ Conclusions regarding highest-and-best residential uses within the village over the next 5+ years. These conclusions are based upon factors associated with the location of Germantown, depth of market, demographic and socio-economic characteristics of existing and future households, and the alignment of residential developments, both existing and planned.

- ❑ Detailed recommendations regarding those housing forms viewed to hold measurable market support near- to mid-term. Investigative uses range from a variety of rental housing idioms to all forms of for sale housing such as condominiums, townhomes, villas/duplexes, single family, etc. These recommendations address specific product types, plan styles/sizes, features/amenities, etc., along with benchmark rent/pricing strategies necessary to achieve acceptable levels of absorption. Please note that these recommendations will focus on all segments of the conventional market ranging from younger (entry level) profiles to active adult (55+) households.

- ❑ A detailed development matrix summarizing the most marketable mix of residential uses (and their absorption/sales potentials) in order to facilitate/inform future planning efforts, architecture, financial modeling, approvals, marketing, builder/developer participation, etc.

- ❑ A geographic positioning strategy for the introduction of new housing development in Germantown.

WORK PLAN

The work plan for this assignment involved a series of inter-related research investigations as summarized below:

- ❑ A thorough investigation of Germantown and surrounding areas to determine geographic boundaries of the local market area; identify factors which may impact residential potentials within the municipality: and examine areas that may be suitable for residential development.

- ❑ A detailed analysis of all relevant employment, demographic, and residential trends/statistics including a comprehensive evaluation of key socio-economic and income variables of area households.

- ❑ A thorough assessment of both the *for rent* and *for sale* sectors of the local housing market (and adjoining areas as applicable).

- ❑ A demand forecast for residential development in and around Germantown over the next 5+ years.

- ❑ A case study evaluation of "like" residential initiatives throughout similar markets in the Midwest in order to assess trends, products, performance levels, etc.

THE REPORT

This report is divided into four sections. Of particular importance is **Section 1** which forwards detailed conclusions and recommendations regarding the highest-and-best housing options for development in Germantown over the next several years. Not to be dismissed, however, are the remaining three sections which can be defined as *fundamentals.* **Section 2**, for instance, provides an outlook for future residential development in the market area based upon all demand-related variables, while **Sections 3 and 4** present a thorough analysis of market's current and future residential marketplace, i.e., both the rental and for sale.

CERTIFICATION AND SIGNATURE

This analysis represents our objective and independent opinion regarding the market potential for new construction housing development within Germantown, Washington County, Wisconsin as certified below:

TRACY CROSS & ASSOCIATES, INC.
An Illinois Corporation

By:
Erik A. Doersching
Its: President & CEO

Date: January 4, 2024

1. A FRAMEWORK FOR PLANNING

The demand/need for ***properly positioned*** new construction housing product in the village of Germantown is considered *substantial.* In other words, future new construction housing potentials in the village of Germantown (and throughout Washington County and other adjoining areas to the south and east) are *ample* provided specific criteria can be met relative to product and price. Specifically, the market is showing a clear need for both *market rate and mainstream/workforce housing* ranging from additional rental idioms to various forms of conventional for sale offerings.

This favorable conclusion, which is supported in Sections 2, 3 and 4 of this report, is based upon: 1) more than adequate demand support for a variety of new construction housing alternatives; 2) notable supply-side constraints, especially for product that targets the mainstream of the market, i.e., those households earning between 50 and 150 percent of the market area's $86,185 median annual income; 3) an ample base of existing (and future) households with strong demographic profiles; 4) tightness (and certain disjointedness) in both the rental and for sale sectors of the market; 5) an excellent localized environment characterized by in-place employment, transportation, shopping/services, entertainment and recreation, along with quality schools; and 6) the opportunity to introduce new and differentiated housing product in a market where such product is definitely needed.

Overall, the village of Germantown is in a unique position to help guide future residential development efforts in a direction of discipline and insight as it relates to specific products that meet the demands of the market relative to densities/lot sizes, product forms, unit types/styles, and most importantly, rent/price positioning. At the same, the village of Germantown has land available within its boundaries for multiple residential development initiatives.

A PLANNING STRATEGY: THE PRODUCT

Because supply-side issues throughout Germantown and adjoining areas are largely driven by the type of product being offered, together with current density allocations for such product idioms (and the cost to produce it), the village of Germantown must think *strategically* in order guide future development efforts to meet the demands/needs of the market, primarily as it relates to the rather large gap that exists between area incomes and new residential development, especially in the for sale sector.

With this said, the following bullet-point summary provides specific product guidelines for establishing the most practical and marketable hierarchy of conventional, mainstream and/or workforce housing – to serve as a guide for future planning and implementation efforts:

- Mirroring a number of successful mainstream rental housing communities throughout the Midwest, including southern Wisconsin, strong consideration should be given to the introduction of three different market rate rental housing series, one consisting of a two-story garden-style walkup idiom directed to all renter households; one representing a ranch villa rental program targeting the active adult aged 55-74, but not restricted to this segment since other profiles will find this product desirable; and one reflecting a single family detached alternative appealing to a cross-section of the market. Together, these three product forms, which are extremely efficient and cost effective to build, will allow for a broad and varied mix of unit types, sizes, and rents capable of penetrating the threshold of mainstream conventional renter households in the marketplace – and those emanating to Germantown in the years to come. In other words, the introduction of these three new construction product lines in Germantown would allow the full breadth of mainstream renter profiles to be targeted. These include Millennials, also known and Echo Boomers or Generation Y, along with Centennials, also known as Generation Z (i.e., younger singles and couples without

children), together with traditional and non-traditional households such as divorcees, middle-age singles, never-nested couples, singles living together as couples in a roommate condition, young families, etc., and, of course, the move-down empty-nester/active adult/pre-retiree/retiree aged 55 to 74 – *a segment which shows substantial growth near term – many of which desire a rental alternative in lieu of home ownership.*

- The ***two-story garden apartment program*** would consist of a "private entry" product with a component of attached, direct-access garages. In this regard, one of the most successful garden-style developments in the Midwest (and in other portions of southern Wisconsin) consists of a series of eight-unit buildings (each with four direct-access one-car garages) or 16-unit buildings (each with eight direct-access one-car garages). With just 50 percent direct-access garages suggested per structure, two different versions of the garden apartment building should be designed in order for each of the individual floorplans to be offered *with a direct access garage* in one of the two building types. By following this formula, each plan offering would have a 50 percent representation of direct-access one-car garages.

- Individual designs for the garden apartment product should be broad and varied consisting of eight (8) plan offerings including one-, two- and three-bedroom options ranging in size from 600 to 1,250 square feet. Please note that this product line would also be accompanied by buildings with optional detached garages. As such, renter profiles could elect either surface parking only; a detached garage; or a unit with an attached garage, thus giving future residents a full continuum of rental options to choose from as it relates to their choice of parking cast against their desired (or needed) monthly payment based upon income. This scenario will also provide competitive consistency with other developments in the market, current and future.

- The ***ranch villa apartment program***, which would target households aged 55+, although not be restricted to this consumer segment, would consist of direct-entry single-level ranch-type townhome plans, most with one-car attached garages, but also including a two-car garage offering. Modeled, in part, after very successful empty nester ranches in other parts of Wisconsin and elsewhere throughout the Midwest, this product line would consist of four different plan designs ranging from a one-bedroom residence at 725 square feet to a three-bedroom unit with 1,275 square feet. This product line would be configured in 3-, 4-, 5- and 6-unit buildings (duplexed where necessary).

- Representing a compliment to both the garden apartments and attached ranch villa rentals, and as an extension of the overall continuum of rental housing product within Germantown, strong consideration should be given to introducing a ***small-lot single family detached rental program***. Targeting a broad range of consumer profiles ranging from younger households to empty-nesters not interested in homeownership, but desirous of a new detached single family housing form, this product line would include one ranch plan at 1,300 square feet and three two-story offerings in the 1,500-1,700 square foot band (all with two-car garages).

- Mirroring competitive counterparts overall, size increments between floorplans (for all three rental products) should not exceed 200 square feet (and be narrower in many instances). This discipline will keep lease rate differentials between plans small and in concert with the gradual upward movement of mainstream (and workforce) household incomes.

- If elevated properly, the three rental housing products can exemplify tasteful suburban architecture and be very complimentary to other development initiatives (including for sale developments) both internal to an individual community and elsewhere throughout the municipality.

- Representing the first of four product lines in the "for sale" sector of the market, and in an effort to establish an overall hierarchy of ownership product starting with an alternative that should be able to achieve price points directly in-line with the lower-end of the qualitative distribution of mainstream/workforce incomes, is an efficiently designed mid-density ***townhome/rowhome series***. This product line would include three separate three-story plan types, each with two main living areas configured over an integral two-car garage and a finished lower level, all with two-car garages. Plan sizes for this series, which will average 1,400 square feet, should range from 1,200 to 1,550 square feet including finished lower levels. This can be achieved in very efficient and cost effective 20' wide modules. With rear-entry garages, individual buildings are generally designed to face one another, thus allowing for a small pedestrian greenway between buildings, or they can be configured fronting a street. Combined, the three individual plan offerings will be capable of attracting a broad range of buyer profiles, with attentive focus directed toward young singles and couples without children, couples in their initial stages of family formation and young families.

- Architecturally, the townhome/rowhome product line can support either a traditional elevation scheme, or it can command something more contemporary/urban oriented, i.e., at the builder's discretion and dependent upon cost. Overall, this product line can achieve a density of 12+ units per acre, thus allowing builders to distribute land and development costs across more units – in an attempt to bring prices down from the current representation of condominium products (i.e., luxury duplexes/fourplexes) that dot the landscape throughout the market.

- Representing a more "cost conscious" or "value-oriented" age-targeted alternative to the highly stylized ranch duplex/fourplex condominiums currently found in Germantown and surrounding areas, yet still directed toward the more mature, move-down home purchasers aged 55-74+, a very efficient ***attached ranch villa*** for sale series is recommended. This product line, which could be configured in 3-, 4-, 5 and/or 6-unit linear buildings (duplexed only where necessary) would consist exclusively of single-level ranch plans, each with a front-load two-car garage and a small, but usable, back-yard or patio area. Ranging in size from 1,375 to 1,675 square feet, the average attached villa unit would carry 1,525 square feet of living space. These homes would be configured slab-on-grade, although a modicum of lots could/should be designated to accommodate optional basements. While directed toward the move-down consumer or empty-nester, this product line would be capable of attracting other segments of the market as well. Ultimately, the goal of creating a villa product slab on grade (as opposed to straight duplex or fourplex buildings with full basements) would be to achieve a higher-density and construction efficiencies which, again, would allow lower costs to be distributed across more units – ultimately leading to more competitive (and appropriate) prices.

- In the single family sector, and representing a departure from the current larger-lot semi-custom/custom home development currently represented among new developments in and around Germantown, would be an urban/suburban detached product line with rear-load garages. Representing a derivation of the neo-traditional planning concept, i.e. Traditional Neighborhood Development (TND), this single family series, ideally, would be comprised of two single-level "ranch" plans, two traditional two-story units (with second floor master bedrooms) and one two-story unit with a first-floor master bedroom, all with optional basements. Ranging in size from 1,500 to 1,900 square feet, and averaging roughly 1,700 square feet across the group, homes in this series should be approximately 30'-35' wide configured on 40'-45' wide homesites. At the Harmony community in Westfield, Indiana, this particular product line has been extremely successful as it has allowed new construction single family housing (through density and unit sizes) to meet a mainstream or workforce price point – one not typically seen among more traditional counterparts on larger lots. In Madison, Wisconsin, Veridian Homes carries a similar style of homes, which allows the builder to offer more mainstream price points. Because of the escalation of new construction single family prices throughout the local market, a similar strategy is warranted. The TND single family product line will be able to attract a broad spectrum of mainstream detached home purchasers including young childless married couples, couples in their initial stages of family formation, and young families. And, with the incorporation of several ranch plans and a two-story master-down design, this program will be in a position to also appeal to the 55 and older empty-nester segment desirous of detached ownership housing.

- The second single family product line should consist of a smaller-lot, more traditional single family series with front-access, two-car garages and optional basements. This product line should be comprised of two single-level "ranch" plans and four traditional two-story units. Ranging in size from 1,750 to 2,400 square feet, and averaging roughly 2,050 square feet across the group, homes in this program should be configured on 50'-55" wide homesites. The smaller lot sizes would, once again, assist in reducing costs, thus allowing for a more competitive price position. Together, the six single family plans will also appeal to a broad spectrum of single family home purchasers including young childless married couples, couples in their initial stages of family formation, and first- and second-time move up families. And, with the inclusion of two ranch plans on small low-maintenance lots, this series will appeal to the 55 and older empty-nester segment as well. *While the price points for this product line align the upper end of mainstream incomes, they more closely align the resale sector. As such, this series will provide a reasonably priced move-up alternative in an effort to alleviate pressure among area resales and open up more options for the mainstream of the market or workforce in the existing home market as well.*

- It is important to note that with proper land planning and architecture, smaller single family lots (both TND and traditional) can still provide for aesthetically appealing community orientation and, most importantly, at the price points not widely represented in the new construction single family sector of the market – price points necessary for the bulk of the market.

For a detailed outline of each recommended mainstream housing idiom including individual product/plan criteria, unit sizes, *current dollar* rents/prices, features, etc., consult **Exhibits 1.1 through 1.7**. As depicted, plan offerings are broad and varied, and reflect some of the best-selling floorplan alternatives among successful "like" products throughout the Midwest.

It is important to note that the detailed planning guidelines and benchmark rent/price suggestions for the various housing products are not arbitrary, but rather *strategic.* Specially, these guidelines will allow five important goals to be met. First, the continuum of home types, styles and rents/prices will directly align mainstream household incomes in the market. Second, the for sale product lines (and their prices) will assist builders in bridging the rather large price gap that exists between area resales and new construction alternatives which, in turn, will provide for "above average" absorption/sales rates. Third, the suggested products (and their typical density allocations) will allow each home series to improve upon total unit counts per acre, which will help minimize raw land costs per unit. Fourth, each suggested product line and plan offering can be built in an efficient manner, which will assist in keeping direct construction costs at a minimum. Finally, the rents/prices assigned to each product line will allow each housing idiom to draw consumers from both the village of Germantown itself, as well as other areas throughout the Milwaukee region, primarily its north/northwest/west suburbs.

Because each product line has been positioned competitively (and strategically) relative to the market, absorption rates for the rental products and sales rates for the ownership offerings are expected to be "at" or "above the market average." And, while absorption and sales are dependent upon other factors such as the scale of a development, i.e., number of total units; site location; community amenities, etc., the following text table offers a general outline of what an individual location would be capable of attaining per product series:

ABSORPTION / SALES SUMMARY - A GUIDE
SUGGESTED HOUSING PRODUCTS: GERMANTOWN, WISCONSIN

Product Line	Estimated Total Units For a Typical Development or Phase (of Relative Scale)	Annual Absorption/ Sales Potential (In Units) At Benchmark Rents/Prices	Marketing Life (In Years)
Two-Story Garden Apts	240	144	1.7 (1)
Ranch Villa Rentals	140	84	1.7 (1)
Single Family Rentals	100	60	1.7 (1)
Townhomes/Rowhomes	60	30	2.0
Attached Ranch Villas	60	30	2.0
TND Single Family	60	30	2.0
Conventional Single Family	40	20	2.0

(1) Marketing life will actually be slightly shorter to get to a stabilized occupancy level of 95 percent.

Source: Tracy Cross & Associates, Inc.

The absorption/sales volumes outlined above are reflective of a series of residential product lines that will appeal to households earning incomes, generally, in the $50,000 to $125,000 range for the rental products and in the $75,000 to $150,000+ range for the ownership idioms. These income segments, which are some of the deepest in the village of Germantown and surrounding communities (including all of Washington County), have been disenfranchised of late relative to new construction alternatives.

1.1

PRODUCT CRITERIA AND BENCHMARK RENTS - TWO-STORY GARDEN APARTMENTS
-- CONVENTIONAL/MAINSTREAM HOUSING --
GERMANTOWN, WISCONSIN

Product Line Summary

Product Form:	***Two-Story Garden Apartments (8- or 16-Unit Buildings with 4 or 8 Direct Access One-Car Garages Per Building)***
Density in Units Per Acre:	***20.0***
Average Plan Size (Sq. Ft.):	***925***
Average Benchmark Base Rent w/50 % Garages:	***$1,716***
Per Sq. Ft.: [1]	***$1.86***

Plan Detail

Plan Designation	A-1	A-2	A-3	B	C-1	C-2	C-3	D
Percent Distribution	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Plan Type	1BR	1BR	1BR	1BR DEN	2BR	2BR	2BR	3BR
Bedroom/Bath Mix	1/1.0	1/1.0	1/1.0	1+Den/1.0	2/2.0	2/2.0	2/2.0	3/2.0
Unit Size (Sq. Ft.)	600	700	775	875	975	1,075	1,150	1,250
Benchmark Base Rent w/o Garage:[1]	$1,245	$1,370	$1,465	$1,590	$1,715	$1,840	$1,935	$2,060
Per Sq. Ft.:[1]	$2.08	$1.96	$1.89	$1.82	$1.76	$1.71	$1.68	$1.65
Benchmark Base Rent w/ Garage:[2]	**$1,370**	**$1,495**	**$1,590**	**$1,715**	**$1,840**	**$1,965**	**$2,060**	**$2,185**
Per Sq. Ft.:[2]	**$2.28**	**$2.14**	**$2.05**	**$1.96**	**$1.89**	**$1.83**	**$1.79**	**$1.75**

Unit Features and Community Amenities

UNIT STANDARDS

- Painted Trim
- Plank Flooring in Living Areas
- "White" Interior Paint Finish
- Direct Wire Smoke Detectors
- Cable/Satellite Access
- High-Speed Internet Connectivity
- USB Ports
- Air Conditioning
- Quality Door Hardware
- Quality Lighting Package
- Private Balcony/Patio

KITCHEN FEATURES

- Quality Wood Cabinetry
- Plank Flooring
- Self Clean Range Oven
- Built-In Dishwasher
- Refrigerator with Ice-Maker
- Garbage Disposal
- Microwave with Vent
- Hard Surface Countertops
- Stainless Steel Sink

BATH/POWDER ROOM STANDARDS

- Plank Flooring
- Hard Surface Vanity Tops
- Quality Cabinetry
- Ceramic Tub/Shower Surround
- Framed Glass Mirror Over Vanity

CLOSETS, UTILITIES, AND STORAGE

- Walk-In MBR Closet (Per Plan)
- Wire Closet Shelving
- Full Size Washer/Dryer (Stacked or Side-by-Side)
- Storage Area (Either In-Unit or Separate)
- Linen Closet(s)
- Programmable Thermostat

COMMUNITY FEATURES/AMENITIES (LARGE-SCALE DEVELOPMENTS) (SHARED W/RANCH VILLA AND/OR SF RENTALS)

- Architecturally-enhanced Exteriors
- Secured Access Entry Per Unit
- Clubhouse w/ Community Room, Kitchen, Fitness Center, E-Lounge, Etc.
- Outdoor Fireside Lounge & Grilling Stations
- Outdoor Swimming Pool/Deck Area
- Dog Park & Dog Washing Station
- Trail System
- Sport Courts/Playground
- Extensive Landscaping/Hardscaping
- Wi-Fi in all Common Areas
- Direct Access Garages at 50%
- Adequate Surface Parking
- Detached Garages @ $65 Monthly Per Space

[1] Benchmark base monthly rents, which are presented in January 2024 dollars, reflect the posted base rents for units without direct access garages. They do not include potential premiums for corner units, floor or view. They also do not include application/administration fees, pet fees, storage rental, utilities, or detached garages.

[2] Benchmark base monthly rents, which are presented in January 2024 dollars, reflect the posted base rents for units with direct access garages. They do not include potential premiums for corner units, floor or view. They also do not include application/administration fees, pet fees, storage rental, utilities, or detached garages.

Source: Tracy Cross & Associates, Inc.

1.2

PRODUCT CRITERIA AND BENCHMARK RENTS - RANCH VILLA RENTALS
-- CONVENTIONAL/MAINSTREAM HOUSING --
GERMANTOWN, WISCONSIN

Product Line Summary

Product Form:	***Single-Level Ranch Villas w/Attached Garages - Slab on Grade/No Basements (3-, 4-, 5- and/or 6-Unit Buildings-Duplexed Where Necessary)***
Density in Units Per Acre:	***12.0***
Average Plan Size (Sq. Ft.):	***1,000***
Average Benchmark Base Rent:	***$1,981***
Per Sq. Ft.: [1]	***$1.98***

Plan Detail

Plan Designation	A	B	C	D
Percent Distribution	25.0	25.0	25.0	25.0
Plan Type	1BR	1BR DEN	2BR	3BR
Garage Condition	1-Car	1-Car	1-Car	2-Car
Bedroom/Bath Mix	1/1.0	1+Den/1.0	2/2.0	3/2.0
Unit Size (Sq. Ft.)	725	925	1,075	1,275
Benchmark Base Rent:[1]	$1,625	$1,850	$2,050	$2,400
Per Sq. Ft.:[1]	$2.24	$2.00	$1.91	$1.88

Unit Features and Community Amenities

UNIT STANDARDS

- Painted Trim
- Plank Flooring in Living Areas
- "White" Interior Paint Finish
- Direct Wire Smoke Detectors
- Cable/Satellite Access
- High-Speed Internet Connectivity
- USB Ports
- Air Conditioning
- Quality Door Hardware and Lighting Package
- Private Patio

KITCHEN FEATURES

- Quality Wood Cabinetry
- Plank Flooring
- Self Clean Range Oven
- Built-In Dishwasher
- Refrigerator with Ice-Maker
- Garbage Disposal
- Microwave with Vent
- Hard Surface Countertops
- Stainless Steel Sink

BATH/POWDER ROOM STANDARDS

- Plank Flooring
- Hard Surface Vanity Tops
- Quality Cabinetry
- Ceramic Tub/Shower Surround
- Framed Glass Mirror Over Vanity

CLOSETS, UTILITIES, AND STORAGE

- Walk-In MBR Closet (Per Plan)
- Wire Closet Shelving
- Full Size Washer/Dryer (Stacked or Side-by-Side)
- Storage Area (Either In-Unit or Separate)
- Linen Closet(s)
- Programmable Thermostat

COMMUNITY FEATURES/AMENITIES (LARGE-SCALE DEVELOPMENTS) (SHARED W/GARDEN APARTMENTS AND/OR SF RENTALS)

- Architecturally-enhanced Exteriors
- Secured Access Entry Per Unit
- Clubhouse w/ Community Room, Kitchen, Fitness Center, E-Lounge, Etc.
- Outdoor Fireside Lounge & Grilling Stations
- Outdoor Swimming Pool/Deck Area
- Trail System
- Dog Park
- Dog Washing Station
- Sport Courts/Playground
- Extensive Landscaping/Hardscaping
- Wi-Fi in all Common Areas
- Direct Access Garages at 100%
- Additional Surface Parking

[1] Benchmark base monthly rents, which are presented in January 2024 dollars, reflect the posted base rents, each of which includes an attached garage. They do not include potential premiums for end units or view. They also do not include application/administration fees, pet fees, storage rental, or utilities.

Source: Tracy Cross & Associates, Inc.

1.3

PRODUCT CRITERIA AND BENCHMARK RENTS - SINGLE FAMILY RENTALS
-- CONVENTIONAL/MAINSTREAM HOUSING --
GERMANTOWN, WISCONSIN

Product Line Summary

Product Form:	***Single Family Rentals w/Attached Garages - Slab on Grade/No Basements (35'-40' Wide Homes on 45'-50' Wide Homesites)***
Density in Units Per Acre:	***8.0***
Average Plan Size (Sq. Ft.):	***1,525***
Average Benchmark Base Rent:	***$2,906***
Per Sq. Ft.: [1]	***$1.91***

Plan Detail

Plan Designation	A	B	C	D
Percent Distribution	25.0	25.0	25.0	25.0
Plan Type	Ranch	2-Story	2-Story	2-Story
Garage Condition	2-Car	2-Car	2-Car	2-Car
Bedroom/Bath Mix	2+Den/2.0	3/2.5	3/2.5	3+Loft/2.5
Unit Size (Sq. Ft.)	1,300	1,500	1,600	1,700
Benchmark Base Rent:[1]	$2,625	$2,875	$3,000	$3,125
Per Sq. Ft.:[1]	$2.02	$1.92	$1.88	$1.84

Unit Features and Community Amenities

UNIT STANDARDS

- Painted Trim
- Plank Flooring in Living Areas
- "White" Interior Paint Finish
- Direct Wire Smoke Detectors
- Cable/Satellite Access
- High-Speed Internet Connectivity
- USB Ports
- Air Conditioning
- Quality Door Hardware and Lighting Package
- Private Patio

KITCHEN FEATURES

- Quality Wood Cabinetry
- Plank Flooring
- Self Clean Range Oven
- Built-In Dishwasher
- Refrigerator with Ice-Maker
- Garbage Disposal
- Microwave with Vent
- Hard Surface Countertops
- Stainless Steel Sink

BATH/POWDER ROOM STANDARDS

- Plank Flooring
- Hard Surface Vanity Tops
- Quality Cabinetry
- Ceramic Tub/Shower Surround
- Framed Glass Mirror Over Vanity

CLOSETS, UTILITIES, AND STORAGE

- Walk-In MBR Closet (Per Plan)
- Wire Closet Shelving
- Full Size Washer/Dryer (Stacked or Side-by-Side)
- Storage Area (Either In-Unit or Separate)
- Linen Closet(s)
- Programmable Thermostat

COMMUNITY FEATURES/AMENITIES (LARGE-SCALE DEVELOPMENTS) (SHARED W/GARDEN APARTMENTS AND/OR RANCH VILLA RENTALS)

- Architecturally-enhanced Exteriors
- Secured Access Entry Per Unit
- Clubhouse w/ Community Room, Kitchen, Fitness Center, E-Lounge, Etc.
- Outdoor Fireside Lounge & Grilling Stations
- Outdoor Swimming Pool/Deck Area
- Trail System
- Dog Park
- Dog Washing Station
- Sport Courts/Playground
- Extensive Landscaping/Hardscaping
- Wi-Fi in all Common Areas
- Direct Access Garages at 100%
- Additional Surface Parking

[1] Benchmark base monthly rents, which are presented in January 2024 dollars, reflect the posted base rents, each of which includes an attached garage. They do not include potential premiums for end units or view. They also do not include application/administration fees, pet fees, storage rental, or utilities.

Source: Tracy Cross & Associates, Inc.

1.4

PRODUCT CRITERIA AND BENCHMARK PRICES - FOR SALE TOWNHOMES/ROWHOMES
-- CONVENTIONAL/MAINSTREAM HOUSING --
GERMANTOWN, WISCONSIN

Product Line Summary

Product Form:	***Townhomes/Rowhomes***
Garage Condition:	***2-Car (Rear Load)***
Lower Level of Townhomes/Rowhomes	***Finished***
Average Plan Size (Sq. Ft.):	***1,400***
Average Benchmark Base Price: [1]	***$266,990***
Per Sq. Ft.:	***$190.71***
Average Anticipated Closing Price: [2]	***$283,000***
Per Sq. Ft.:	***$202.14***

Plan Detail

Plan Designation	A	B	C
Plan Style	3-Story	3-Story	3-Story
Bedrooms	2	2+Loft+Flex	3+Flex
Baths	2.5	2.5	2.5
Unit Size (Sq. Ft.)	1,200	1,450	1,550
Benchmark Base Price:[1]	$254,990	$269,990	$275,990
Per Sq. Ft.:	$212.49	$186.20	$178.06
Anticipated Closing Price: [2]	***$270,300***	***$286,200***	***$292,500***
Per Sq. Ft.:	***$225.25***	***$197.38***	***$188.71***

Features and Amenities

UNIT STANDARDS

- Luxury Plank Flooring in Main Living Areas
- Carpeting in Bedroom Areas
- "White" Interior Paint Finish
- Painted Trim
- Direct-Wire Smoke Detectors Per Code
- Cable/Satellite/Telephone Prewire
- Paneled Doors
- High-Speed Internet Connectivity
- Air Conditioning
- Designer Door Hardware
- Designer Lighting Package
- Private Balcony

KITCHEN FEATURES

- Quality Cabinetry
- Luxury Plank Flooring
- Four Burner Cooktop
- Self Clean Single Oven-Stainless Steel
- Built-In 5-Cycle Dishwasher-Stainless Steel
- Refrigerator with Ice-Maker-Stainless Steel
- Garbage Disposal
- Microwave with Vent
- Granite or Quartz Countertops
- Double Bowl Stainless Steel Sink

BATH/POWDER ROOM STANDARDS

- Ceramic Flooring
- Granite or Quartz Vanity Tops
- Quality Cabinetry
- Ceramic Tub/Shower Surround
- Framed Glass Mirror Over Vanity

CLOSETS, UTILITIES, AND LAUNDRY

- Walk-In MBR Closet (Per Plan)
- Laminate Closet Shelving
- Washer/Dryer Hook-Up
- Linen Closet(s)
- Programmable Thermostat

BUILDING FEATURES/AMENITIES

- Architecturally-Enhanced Exteriors
- Extensive Hardscaping/Landscaping
- Finished Lower Level
  (Note: Lower Level in the Smallest Unit is Limited to A Laundry Room, Closet, Etc.)
- Front-Oriented Sidewalks
- Modest, But Desirable Community Amenities (Depends on Size of Development)

[1] Benchmark base sales prices, which are presented in January 2024 dollars, do not include options, upgrades or premiums.
[2] Includes an estimate for options, upgrades and premiums, i.e. 6.0 percent above the base sales price.

Source: Tracy Cross & Associates, Inc.

1.5

PRODUCT CRITERIA AND BENCHMARK PRICES - FOR SALE ATTACHED RANCH VILLAS
-- CONVENTIONAL/MAINSTREAM HOUSING --
GERMANTOWN, WISCONSIN

Product Line Summary

Product Form:	***Attached Ranch Villas (3-, 4-, 5 and 6-Unit Buildings - Duplexed Where Necessary)***
Garage Condition:	***2-Car (Front)***
Average Plan Size (Sq. Ft.):	***1,525***
Average Benchmark Base Price: [1]	***$288,990***
Per Sq. Ft.:	***$189.50***
Average Anticipated Closing Price: [2]	***$309,200***
Per Sq. Ft.:	***$202.75***

Plan Detail

Plan Designation	A	B	C
Plan Style	Ranch	Ranch	Ranch
Bedrooms	2	2+Den	3
Baths	2	2	2
Unit Size (Sq. Ft.)	1,375	1,525	1,675
Benchmark Base Price:[1]	$279,990	$288,990	$297,990
Per Sq. Ft.:	$203.63	$189.50	$177.90
Anticipated Closing Price: [2]	***$299,600***	***$309,200***	***$318,800***
Per Sq. Ft.:	***$217.89***	***$202.75***	***$190.33***

Features and Amenities

UNIT STANDARDS

- Luxury Plank Flooring in Main Living Areas
- Carpeting in Bedroom Areas
- "White" Interior Paint Finish
- Painted Trim
- Direct-Wire Smoke Detectors Per Code
- Cable/Satellite/Telephone Prewire
- Paneled Doors
- High-Speed Internet Connectivity
- Air Conditioning
- Designer Door Hardware
- Designer Lighting Package
- Private Patio Area

KITCHEN FEATURES

- Quality Cabinetry
- Luxury Plank Flooring
- Four Burner Cooktop
- Self Clean Single Oven-Stainless Steel
- Built-In 5-Cycle Dishwasher-Stainless Steel
- Refrigerator with Ice-Maker-Stainless Steel
- Garbage Disposal
- Microwave with Vent
- Hard Surface Countertops
- Double Bowl Stainless Steel Sink

BATH/POWDER ROOM STANDARDS

- Ceramic Flooring
- Hard Surface Vanity Tops
- Quality Cabinetry
- Ceramic Tub/Shower Surround
- Framed Glass Mirror Over Vanity

CLOSETS, UTILITIES, AND LAUNDRY

- Walk-In MBR Closet (Per Plan)
- Laminate Closet Shelving
- Washer/Dryer Hook-Up
- Linen Closet(s)
- Programmable Thermostat

HOME FEATURES/AMENITIES

- Architecturally-Enhanced Exteriors
- Extensive Hardscaping/Landscaping
- Basements Optional on Select Lots
- Front-Oriented Sidewalks
- Modest, But Desirable Community Amenities (Depends on Size of Development)

[1] Benchmark base sales prices, which are presented in January 2024 dollars, do not include options, upgrades or premiums.
[2] Includes an estimate for options, upgrades and premiums, i.e. 7.0 percent above the base sales price.

Source: Tracy Cross & Associates, Inc.

1.6

PRODUCT CRITERIA AND BENCHMARK PRICES - SMALL LOT TND FOR SALE SINGLE FAMILY
-- CONVENTIONAL/MAINSTREAM HOUSING --
GERMANTOWN, WISCONSIN

Product Line Summary

Product Form:	***Single Family***
Lot Dimensions:	***40'-45" x 100'-110'***
Garage Condition:	***2-Car (Rear Load)*** ***(Front-Load As Necessary)***
Average Plan Size (Sq. Ft.):	***1,700***
Average Benchmark Base Price: [1]	***$329,990***
Per Sq. Ft.:	***$194.11***
Average Anticipated Closing Price: [2]	***$353,100***
Per Sq. Ft.:	***$207.71***

Plan Detail

Plan Designation	A	B	C	D	E
Plan Style	Ranch	Ranch	2-Story	2-Story	2-Story (1st Floor MBR)
Bedrooms	2 + Den	2 + Flex	3	3 + Flex	3 + Loft
Baths	2	2	2.5	2.5	2.5
Unit Size (Sq. Ft.)	1,500	1,600	1,700	1,800	1,900
Benchmark Base Price:[1]	$311,990	$320,990	$329,990	$338,990	$347,990
Per Sq. Ft.:	$207.99	$200.62	$194.11	$188.33	$183.15
Anticipated Closing Price: [2]	***$333,800***	***$343,500***	***$353,100***	***$362,700***	***$372,300***
Per Sq. Ft.:	***$222.53***	***$214.69***	***$207.71***	***$201.50***	***$195.95***

Features and Amenities

UNIT STANDARDS

- Luxury Plank Flooring in Main Living Areas
- Carpeting in Bedroom Areas
- "White" Interior Paint Finish
- Painted Trim
- Direct-Wire Smoke Detectors Per Code
- Cable/Satellite/Telephone Prewire
- Paneled Doors
- High-Speed Internet Connectivity
- Air Conditioning
- Designer Door Hardware
- Designer Lighting Package
- Private Patio Area

KITCHEN FEATURES

- Quality Cabinetry
- Luxury Plank Flooring
- Four Burner Cooktop
- Self Clean Single Oven-Stainless Steel
- Built-In 5-Cycle Dishwasher-Stainless Steel
- Refrigerator with Ice-Maker-Stainless Steel
- Garbage Disposal
- Microwave with Vent
- Hard Surface Countertops
- Double Bowl Stainless Steel Sink

BATH/POWDER ROOM STANDARDS

- Ceramic Flooring
- Hard Surface Vanity Tops
- Quality Cabinetry
- Ceramic Tub/Shower Surround
- Framed Glass Mirror Over Vanity

CLOSETS, UTILITIES, AND LAUNDRY

- Walk-In MBR Closet (Per Plan)
- Laminate Closet Shelving
- Washer/Dryer Hook-Up
- Linen Closet(s)
- Programmable Thermostat

HOME FEATURES/AMENITIES

- Architecturally-Enhanced Exteriors
- Extensive Hardscaping/Landscaping
- Optional Basements
- Front-Oriented Sidewalks
- Modest, But Desirable Community Amenities (Depends on Size of Development)

[1] Benchmark base sales prices, which are presented in January 2024 dollars, do not include options, upgrades or premiums.
[2] Includes an estimate for options, upgrades and premiums, i.e. 7.0 percent above the base sales price.

Source: Tracy Cross & Associates, Inc.

1.7

PRODUCT CRITERIA AND BENCHMARK PRICES - CONVENTIONAL FOR SALE SINGLE FAMILY
-- CONVENTIONAL/MAINSTREAM/MOVE-UP HOUSING --
GERMANTOWN, WISCONSIN

Product Line Summary

Product Form:	***Single Family***
Lot Dimensions:	***55'-60' x 120'***
Garage Condition:	***2-Car (Front)***
Average Plan Size (Sq. Ft.):	***2,050***
Average Benchmark Base Price: [1]	***$386,490***
Per Sq. Ft.:	***$188.53***
Average Anticipated Closing Price: [2]	***$413,600***
Per Sq. Ft.:	***$201.76***

Plan Detail

Plan Designation	A	B	C	D	E	F
Plan Style	Ranch	Ranch	2-Story	2-Story	2-Story	2-Story
Bedrooms	3	3	3+Flex	4	4 + Loft	4 + Den
Baths	2.0	2.0	2.5	2.5	2.5	2.5
Unit Size (Sq. Ft.)	1,750	1,850	1,950	2,100	2,250	2,400
Benchmark Base Price:[1]	$359,990	$368,990	$377,990	$390,990	$403,990	$416,990
Per Sq. Ft.:	$205.71	$199.45	$193.84	$186.19	$179.55	$173.75
Anticipated Closing Price: [2]	***$385,200***	***$394,800***	***$404,400***	***$418,400***	***$432,300***	***$446,200***
Per Sq. Ft.:	***$220.11***	***$213.41***	***$207.38***	***$199.24***	***$192.13***	***$185.92***

Features and Amenities

UNIT STANDARDS

- Luxury Plank Flooring in Main Living Areas
- Carpeting in Bedroom Areas
- "White" Interior Paint Finish
- Painted Trim
- Direct-Wire Smoke Detectors Per Code
- Cable/Satellite/Telephone Prewire
- Paneled Doors
- High-Speed Internet Connectivity
- Air Conditioning
- Designer Door Hardware
- Designer Lighting Package
- Large Private Patio Area

KITCHEN FEATURES

- Quality Cabinetry
- Luxury Plank Flooring
- Four Burner Cooktop
- Self Clean Single Oven-Stainless Steel
- Built-In 5-Cycle Dishwasher-Stainless Steel
- Refrigerator with Ice-Maker-Stainless Steel
- Garbage Disposal
- Microwave with Vent
- Hard Surface Countertops
- Double Bowl Stainless Steel Sink

BATH/POWDER ROOM STANDARDS

- Ceramic Flooring
- Hard Surface Vanity Tops
- Quality Cabinetry
- Ceramic Tub/Shower Surround
- Framed Glass Mirror Over Vanity

CLOSETS, UTILITIES, AND LAUNDRY

- Walk-In MBR Closet (Per Plan)
- Laminate Closet Shelving
- Washer/Dryer Hook-Up
- Linen Closet(s)
- Programmable Thermostat

HOME FEATURES/AMENITIES

- Architecturally-Enhanced Exteriors
- Extensive Hardscaping/Landscaping
- Optional Basements
- Modest, But Desirable Community Amenities (Depends on Size of Development)

[1] Benchmark base sales prices, which are presented in January 2024 dollars, do not include options, upgrades or premiums.
[2] Includes an estimate for options, upgrades and premiums, i.e. 7.0 percent above the base sales price.

Source: Tracy Cross & Associates, Inc.

Please keep in mind that the product recommendations outlined in the previous paragraphs (and in Exhibits 1.1 through 1.7) reflect the most strategic approach for filling the voids that exist in Germantown and surrounding areas and for penetrating the threshold or mainstream of the market. This is not to suggest that the higher-end of the new construction for sale home market (at price points of $450,000 and above) will not still have its place locally (it will), but with lower sales volumes much akin to those currently being generated by area builders, i.e., 12 units annually per product line. Nevertheless, highly-stylized duplex/fourplex residences and larger-lot single family homes (with more square footage, three-car garages, etc.) will continue to reflect and important part of the hierarchy of new construction product in the market and should also be viewed as viable (at the appropriate scale).

MARKET POSITIONING

It is important to reiterate that the benchmark rents/prices outlined in Exhibits 1.1 through 1.7 have been *carefully* established so that each product line can penetrate the mainstream of the new construction housing market based, primarily, on incomes, while at the same time supporting a value position necessary to appeal to consumers from inside and outside the local area. For example, the three rental products will each occupy an appropriate (and competitive) rent/value variance when cast against some of the newer, most proximate apartment communities of scale, i.e., those developments of 100+ units introduced in the last 10 years within 4-5 miles of Germantown (see **Exhibits 1.8 and 1.9**).

The various for sale products, in turn, will occupy much lower/more competitive value positions in the market considering the higher price points currently represented in the new construction sector (see **Exhibits 1.10 and 1.11).** As such, these product lines can expect higher absorption rates than what is typically seen among area developments, especially considering the lack of competitive substitution at benchmark prices. In other words, the more value-oriented nature of the for sale products will allow for 20-30 sales annually per series – in a market where the typical annual sales rate hovers at 12 units annually *or lower*.

A DISCIPLINE APPROACH TO PRODUCT DEVELOPMENT

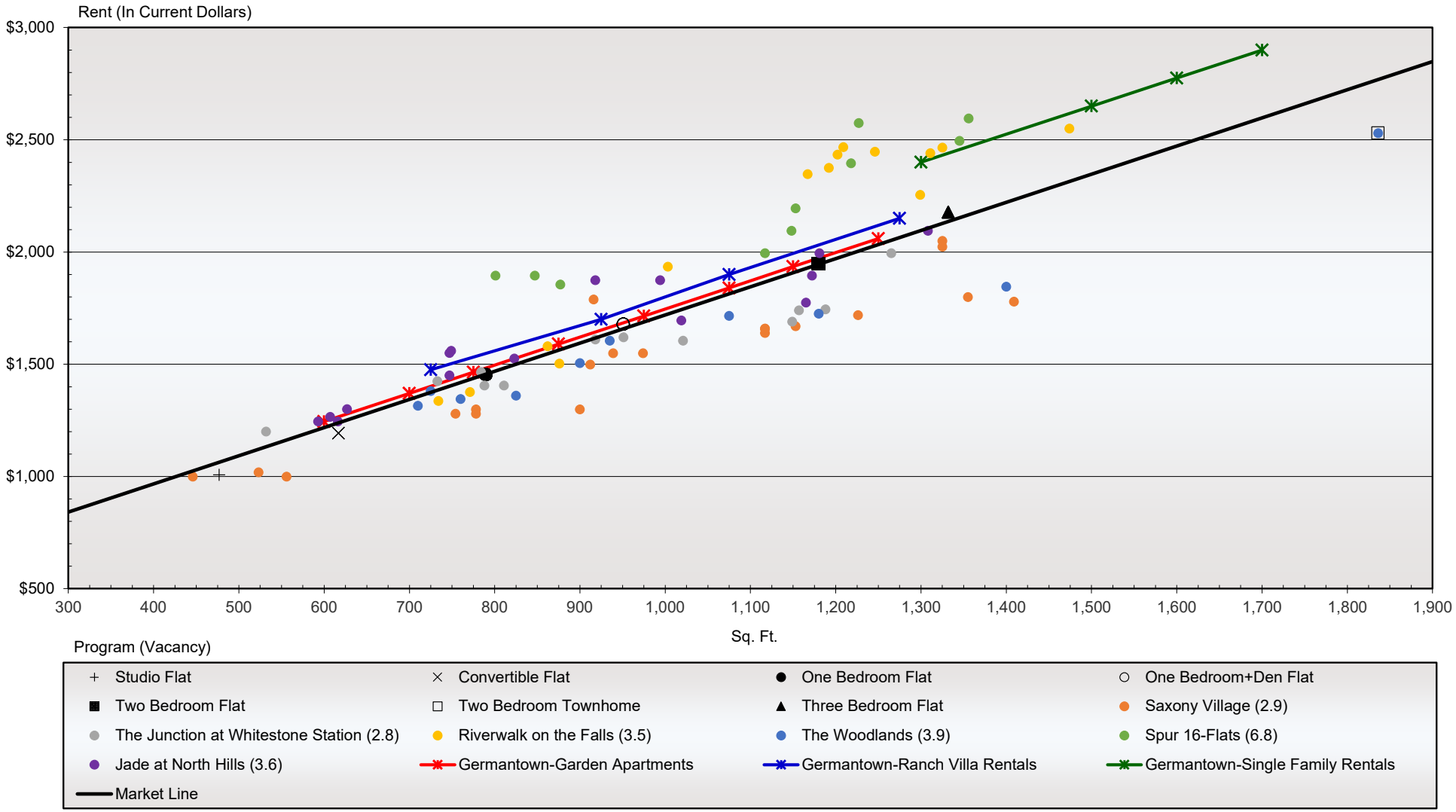
To achieve the rents/prices (and absorption) outlined for each product line, and apart from the requirement of higher densities, it will be imperative for the Village of Germantown, and other stakeholders, to work closely with builders/developers so that the recommendations are understood and embraced. Specifically, builders/developers (and governing bodies) will need to think differently in terms of land planning, development, and product design in order to *substantially reduce costs*, a key component to meeting the rent/price requirements. Provided below are number of guiding principles for bringing properly positioned conventional, mainstream and/or workforce housing to market, especially as it relates to the ownership products:

- Each product line must be efficient and cost effective to build from a design standpoint (value engineered). This can be achieved while still offering functional and desirable floorplan alternatives.

- The basis for design should be modeled after box-on-box/four-corner construction with no wasted space; however, exterior elevations should still be very appealing. Referencing the latter, a strong use of colors *not materials* is but one example of how quality can be portrayed to the consumer. This has been accomplished in numerous communities throughout the U.S. with specific reference made to re-development efforts at Stapleton Airport in Denver, among others. To reiterate, by creating value-oriented floorplans, we are not suggesting that quality be minimized, nor is there implication that overall curb appeal be comprised. It simply needs to be accomplished strategically "behind the scenes."

1.8

Rent/Value Analysis
Selected Rental Housing Communities
Germantown Primary Market Area (PMA)



Rent/value analysis uses a scatter diagram to graphically represent a set of observations found in today's marketplace, specifically the square footage of units offered and their associated rent levels. Regression analysis is then used to fit a line through the set of market observations that represent the "best fit" or average market line. This market line can then be used to predict the performance of a new, untested product line or offer explanations regarding the occupancy/absorption rates of currently available product lines.

Source: Tracy Cross & Associates, Inc.

Rent/Value Analysis
Selected Rental Housing Communities
Germantown Primary Market Area (PMA)

Plan Size (Sq. Ft.)	Average Market Rent	Program/Location	Year Built	Total Units	Average Plan Size (Sq. Ft.)	Average Posted Base Rent		Average Base Market Rent	Price Variance From Market	Vacancy Rate
						Dollars	Rent per Sq. Ft.			
300	$844	Spur 16-Flats/Mequon	2019	146	1,163	$2,257	$1.94	$1,923	+$334	6.8
400	969	(1) ***Germantown-Single Family Rentals***	---	---	***1,525***	***2,681***	***1.76***	***2,375***	***+306***	---
500	1,094	(1) Riverwalk on the Falls/Menomonee Falls	2018	114	1,057	1,973	1.87	1,791	+182	3.5
600	1,219	(1) ***Germantown-Ranch Villa Rentals***	---	---	***1,000***	***1,831***	***1.83***	***1,719***	***+112***	---
700	1,344	Jade at North Hills/Menomonee Falls	2018	139	874	1,593	1.82	1,562	+31	3.6
800	1,469	(1) ***Germantown-Garden Apartments***	---	---	***925***	***1,653***	***1.79***	***1,625***	***+28***	---
900	1,594									
1,000	1,719	***---- Market Average ----***	---	---	***1,003***	***1,723***	***1.72***	***1,723***	***0***	***3.7***
1,100	1,844									
1,200	1,969	(1) The Junction at Whitestone Station/Menomonee Falls	2016	318	954	1,589	1.67	1,662	-73	2.8
1,300	2,094	(1) Saxony Village/Germantown	2018	172	972	1,533	1.58	1,684	-151	2.9
1,400	2,219	(1) The Woodlands/Menomonee Falls	2015	153	1,066	1,649	1.55	1,802	-153	3.9
1,500	2,344									
1,600	2,469									
1,700	2,594									
1,800	2,719									
1,900	2,844									

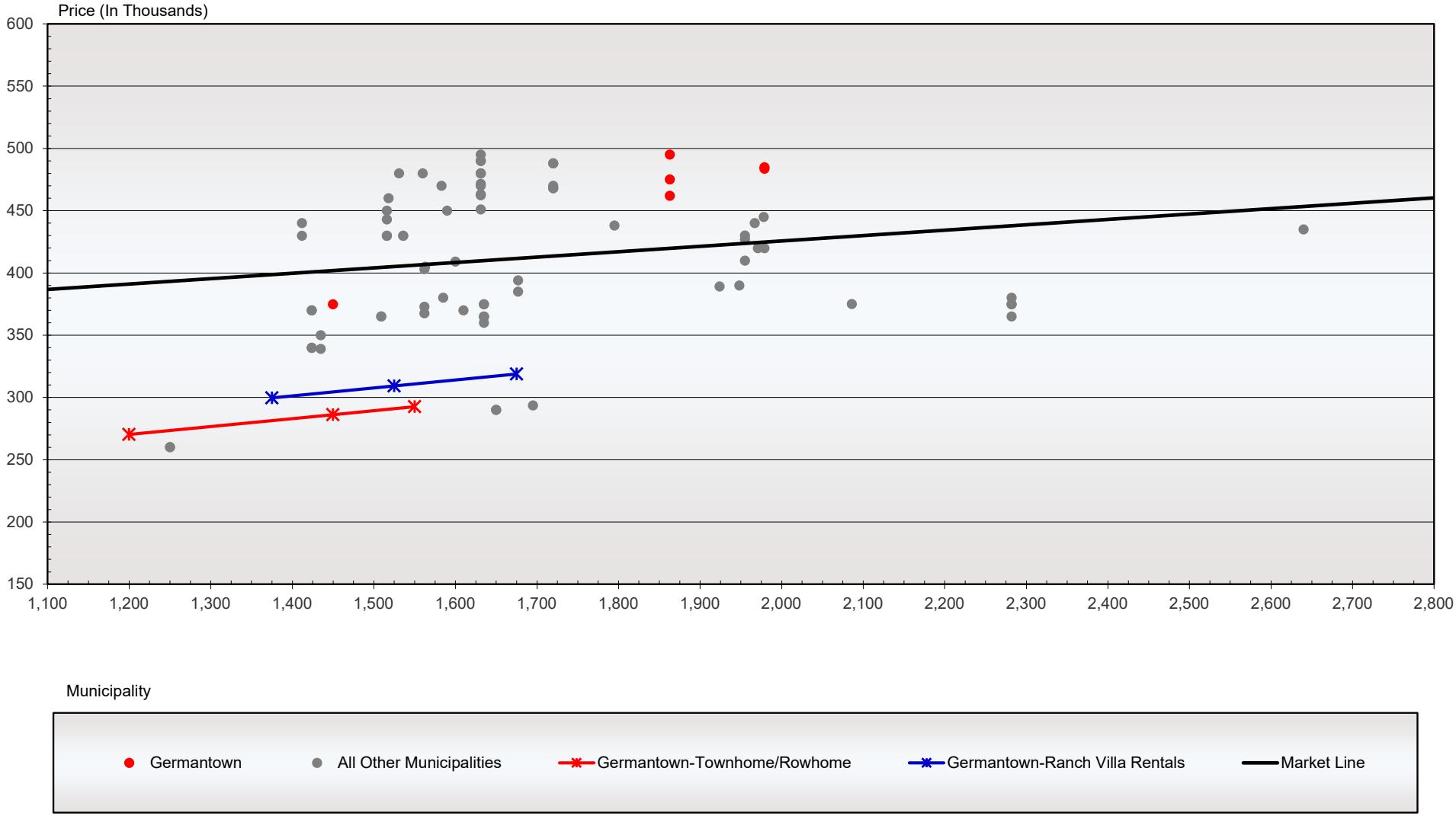
Slope: $1.25 per sq. ft.

(1) Development includes one enclosed parking space in some or all of its units. As such, an adjustment has been made (for analytical purposes only) so each development can be assessed as if garages were optional.

Source: Tracy Cross & Associates, Inc.

1.10

Price/Value Analysis
New Construction Duplex/Fourplex/Condominium Closings (Priced from $250,000 - $499,999)
Germantown Primary Market Area (PMA): Last 12 Months

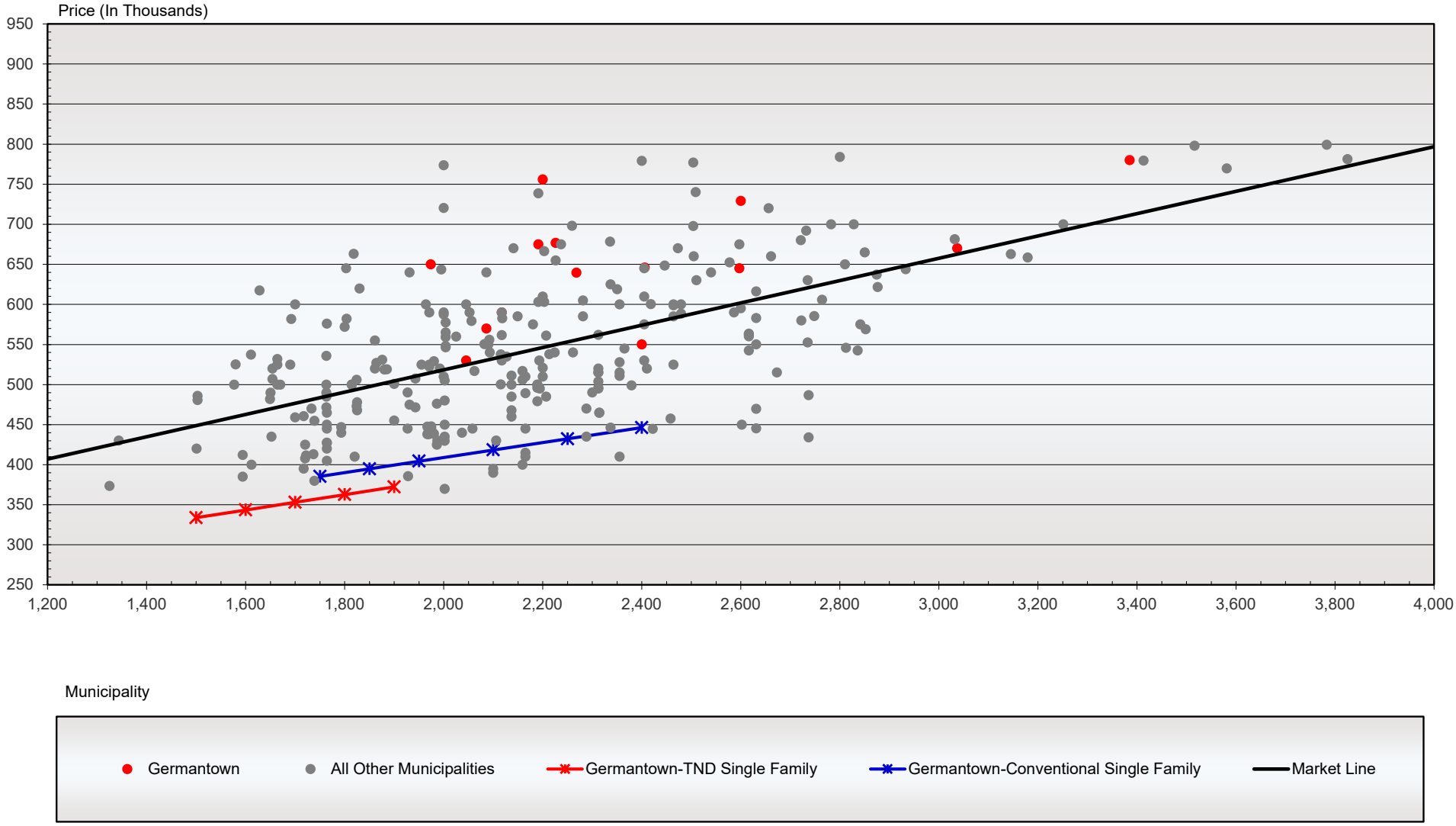


Price/value analysis uses a scatter diagram to graphically represent a set of observations found in today's marketplace, specifically the square footage of models offered and their associated sales prices. Regression analysis is then used to fit a line through the set of market observations that represent the "best fit" or average market line. This market line can then be used to predict the performance of a new, untested product line or offer explanations regarding the sales rate of currently available product lines.

Source: Tracy Cross & Associates, Inc.

1.11

Price/Value Analysis
New Construction Single Family Closings (Priced from $350,000 - $799,999)
Germantown Primary Market Area (PMA): Last 12 Months



Price/value analysis uses a scatter diagram to graphically represent a set of observations found in today's marketplace, specifically the square footage of models offered and their associated sales prices. Regression analysis is then used to fit a line through the set of market observations that represent the "best fit" or average market line. This market line can then be used to predict the performance of a new, untested product line or offer explanations regarding the sales rate of currently available product lines.

Source: Tracy Cross & Associates, Inc.

- ❑ Once value-engineering has taken place, and efficient/cost effective housing units/buildings are designed, these efficiencies must be conveyed to all subcontractors for bidding purposes.

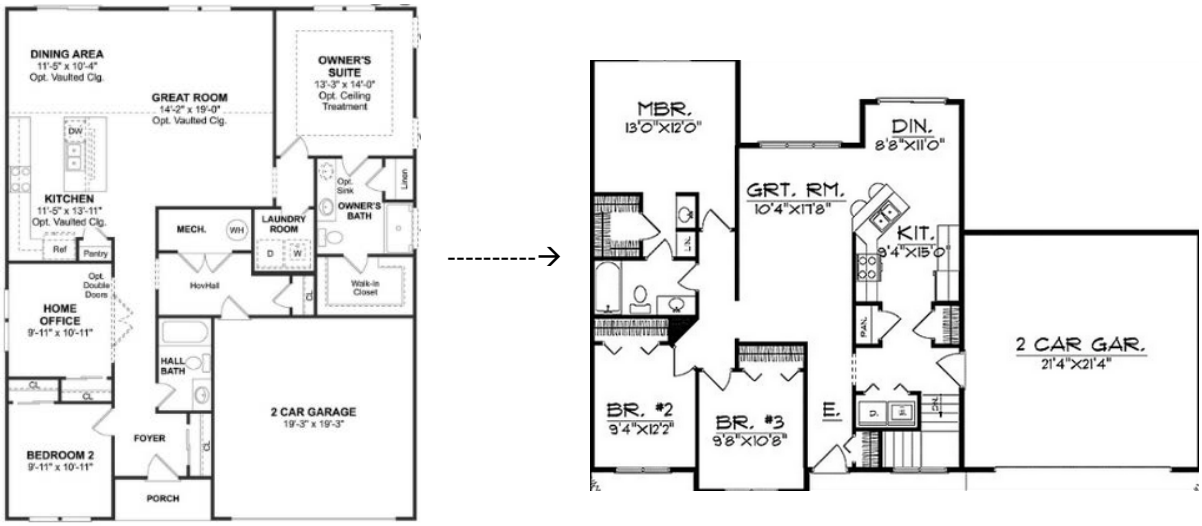
- ❑ None of the product lines should offer standard (included) basements, although the option for a basement can be made available in certain series (as indicated).

- ❑ Additionally, outdoor living space for each residence (within each product line) is essential, but need not be extensive. Specifically, private balconies for both apartment series and the townhomes/rowhomes will be sufficient, along with private courtyards/patios/backyard areas for the attached ranch villas and most single family homes.

Provided below are a few floorplan examples that portray efficiency in design:

Efficient Three-Story Townhome/Rowhome Plan

Efficient Conventional SF Ranch Plan (Left) – As Opposed to Inefficient SF Ranch Plan (Right)



Finally, in achieving higher densities across the various product lines, strong consideration should be placed on "to the street" product, smaller lots, along with front-to-back living (i.e., narrower units). At the same time, the mixing of products within neighborhood areas will help improve densities, while also establishing a desirable architectural landscape. In reference to this latter point, in many instances, higher-density communities (with strong exterior elevations) can create an architectural landscape that is much more desirable in terms of community orientation compared to larger-lot developments with minimal landscaping and/or natural amenities.

PRODUCT CLARIFICATION

Please keep in mind that while our product guidelines are very specific, there are a number of derivatives to each of the recommended generic forms that could evolve through the design efforts of individual builders/developers – or through the overall implementation process. However, when considering any derivatives during the course of the planning process, it is still important to follow the general parameters outlined for each of the recommended products relative to unit types, bedroom counts, rents, prices, etc., in order to insure acceptable absorption and/or sales, and most importantly, the appeal to the mainstream or middle of the market.

In addition, consideration can certainly be given to the introduction of other generic forms on the basis of the imbalance that exists market-wide between supply and demand – but done so with the same general planning strategy in mind – that being differentiation, efficiency, tasteful architecture, and rent/price positioning.

GEOGRAPHIC AND COMMUNITY POSITIONING

Given such severe supply-side constraints in the new construction housing market (i.e., deficiencies in supply for properly positioned product), practically any suitable location within Germantown could be considered for residential development or redevelopment. With this said, the Village of Germantown is in a position to move rather swiftly with its planning efforts considering the municipality has already identified 12 initial sites (both large and small) that could potentially contain a component (or components) of residential units (see **Exhibit 1.12**). In fact, with the Village getting close to securing the Grosenick parcel, which contains roughly five (5) total acres, the introduction of, say, the suggested for sale townhome/rowhome product line (as depicted earlier in Exhibit 1.4) could bring a much needed new construction price point to the village. In this regard, it is likely that 60+/- units could be configured within this parcel and, at the price points indicated earlier, a development of this scale could achieve full sellout in just two short years at 30 sales annually.

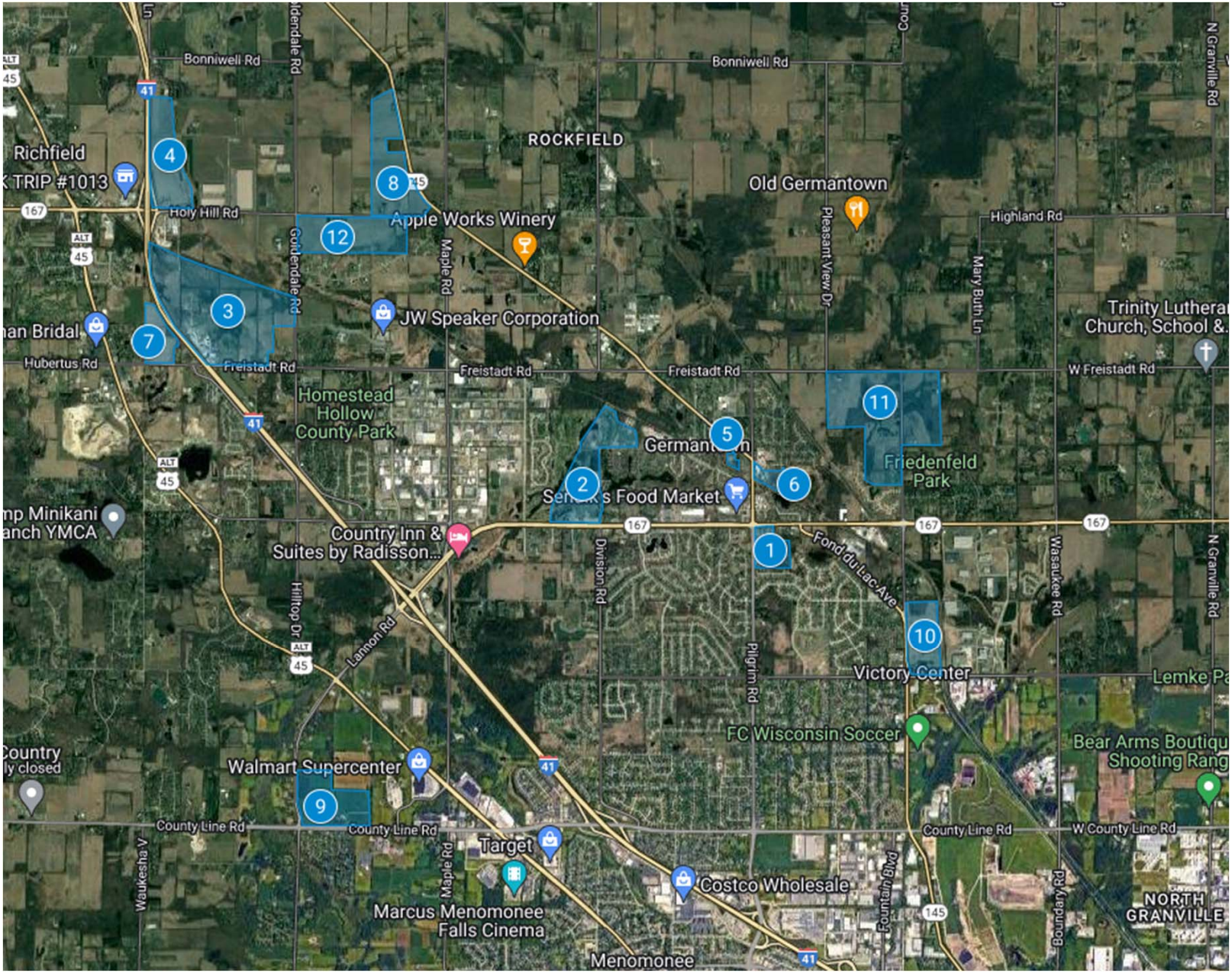
Most of the other properties identified by the Village could contain multiple product lines given their size (and the higher density allocations of each recommended home series). As a general guide, among the various larger assemblages that are proximate to Interstate 41 and/or align some of Germantown's most prominent business/industrial areas, communities offering a combination of the various rental products should be considered. For example, the Holy Hill Gateway District assemblage carries enough acreage for all three rental housing products to be introduced in a planned and be marketed concurrently. At the same time, larger assemblages on the east side of the municipality like the Country Aire North Neighborhood, which are more aesthetically appealing relative to surrounding residential uses and/or open space, should be earmarked for larger-scale ownership communities with multiple product lines/neighborhood areas.

1.12

GEOGRAPHIC DELINEATION OF POTENTIAL DEVELOPMENT / REDEVELOPMENT SITES
GERMANTOWN, WISCONSIN

Potential Development/Redevelopment Sites

1. Pilgrim Rd & Mequon Rd
2. Blackstone Crk Golf Course
3. Freistadt District-E of I-41
4. Holy Hill Gateway District
5. Grosenick Parcel
6. Fond du Lac Ave & Pilgrim
7. Freistadt District-W of I-41
8. Dheinsville Neighborhood
9. Lannon Rd & County Line Rd
10. Victory Center Corridor
11. Country Aire North Nghbrhd
12. Isabelle Farms Nghbrhd



Source: Village of Germantown, Tracy Cross & Associates, Inc. and Google Maps

With this said, and again considering the size of many of the identified development/redevelopment sites, strong consideration should be given to the creation of a true master-planned community (or two) whereby multiple product lines would be introduced within an amenity enhanced environment. Such a community could become a ***destination point development*** whereby a full hierarchy of residential products are combined with heavy landscaping and hardscaping, together with amenities such as pocket parks, walking/jogging/biking trails, playgrounds, sport courts, open space areas, etc. – *representing a true lifestyle environment.* Such a development in the new construction sector is generally absent in northwest suburban Milwaukee, especially with the product and price points recommended, and would most certainly allow the village of Germantown to capture a *disproportionate share of market-wide demand*, while also inducing spillover from other areas.

Provided below are several items to consider if planning a destination-point master-planned community:

- ❑ To provide strong community infrastructure created around a theme of livability, functionality, walkability, and recreation/convenience.

- ❑ To create a community where emphasis is placed on all segments of the market ranging from younger childless singles and couples to families living, playing, and growing together; and where active adult residents can see and experience the vibrancy of youth. Establishing this reality includes the combination of all products with appropriate, but minimally expensive, amenities.

- ❑ To create a community in which a variety of densities are carefully combined with pocket parks and other recreational uses – and that all are highly integrated and exposed for everyone to enjoy. *Like the architecture and design of the homes, the land plan must be very efficient as well.*

OTHER CONSIDERATIONS

Even with a disciplined planning and design approach, it is possible that some incentives or concessions from the municipality might also be necessary to bring the *for sale products* (as positioned) to market, especially in larger-scale communities. While this will need to be determined through the planning process, it should be given due consideration. For the rental products, it is unlikely that incentives/concessions would be required at benchmark rents as they are more consistent with new/newer market comparables, although rising construction costs may also require some assistance in this regard.

Examples of the types of incentives being utilized by other municipalities to bring the gap between costs and "needed" housing prices include Tax Increment Financing (TIF) and/or land subsidies or land subordination, i.e., reducing the cost of land or eliminating the cost whatsoever.

Also, it is important to note that when considering parcels for the introduction of properly priced, mainstream housing throughout the village, vacant sites typically represent a stronger alternative as there are added costs associated with redevelopment sites including demolition and debris removal.

NEXT GENERATION HOUSING INITIATIVE – WASHINGTON COUNTY

With the village of Germantown situated within the boundaries of Washington County, the municipality is in a position to benefit from the county's *Next Generations Housing* initiative, which aims to assist communities, developers, builders, etc. in filling voids that exist in the market relative to ownership housing forms. As highlighted thus far in this report, and detailed more thoroughly in Sections 2, 3 and 4 that follow, the recent price escalation among virtually all new construction for sale developments throughout Germantown and surrounding areas has created a significant void for properly positioned for sale idioms. As such, our analysis empirically identified this void and made specific product/price recommendations to fill it – recommendations that conform to the goals of the Next Generation Housing initiative. With this said, and because several of Germantown's identified development/redevelopment properties are already being considered for Next Generation Housing, *the municipality should continue to consider this opportunity.*

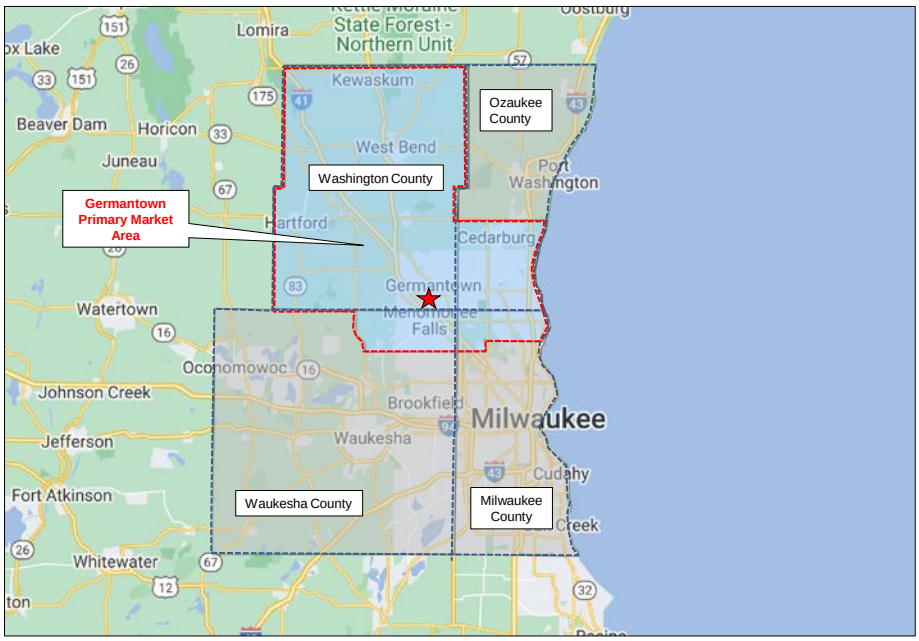
One only has to look at the first Pilot program under the Next Generation Housing banner to see the impact it is having and the success in terms of sales. In Jackson, roughly eight miles north of Germantown, Harbor Homes and Hillcrest Builders recently introduced new construction single family homes starting in the low $300,000s (in a market where this price point is virtually non-existent). Within the first six months, 14 homes have been sold with closings pending – a sales rate stronger than any other development locally.

All told, the effort involved with bringing for sale housing product to market in Germantown (at the prices suggested), along with the variety of new rental products, will be rewarded by significant sales/absorption volumes per development, which will translate to increases in population and households and, in turn, foster economic growth locally that will have a measurable fiscal impact.

2. *MARKET FUNDAMENTALS FOR NEW CONSTRUCTION HOUSING*

Any new residential development within the village of Germantown will receive its primary demand support from its host county, Washington, along with several municipalities within the nearby areas of northeast Waukesha County, southern Ozaukee County, and the northern edge of Milwaukee County. Defined for the purposes of this analysis as the Germantown Primary Market Area (PMA), this combined area shares commonalities relative to household composition, commutation patterns to major concentrations of employment and/or the alignment of residential developments which will serve as sources of competitive influence, both direct and indirect. As illustrated below, the Germantown PMA is a component of the Milwaukee-Waukesha-West Allis, WI Metropolitan Statistical Area (MSA) which includes Milwaukee, Ozaukee, Washington and Waukesha counties in their entirety.

GEOGRAPHIC DELINEATION OF THE GERMANTOWN PRIMARY MARKET AREA



Source: Google Maps and Tracy Cross & Associates, Inc.

Note: while the Germantown PMA includes the whole of Washington County, 90 percent of its population is concentrated in the central and southern portions of the county (from West Bend south to the county line). As such, this portion of the county, combined with the adjoining areas of northeast Waukesha County, southern Ozaukee County and the northern tip of Milwaukee County, represents the heart of the PMA.

As summarized in this section of the report, new residential development in Germantown *can clearly be supported* by empirical evidence found in the key demand variables of population, household, incomes, employment, residential construction, etc. throughout both the Milwaukee region and the PMA.

POPULATION AND HOUSEHOLDS

During the 2010-2020 time period, household additions in the Germantown PMA were *healthy* totaling 7,836, or 784 yearly. And, while not immune to the impacts of the recent Covid-19 pandemic, the PMA added another 381 households annually between 2020 and 2023. The village of Germantown, too, has witnessed continual household growth moving from a base of 7,773 in 2010 to a current estimated level of

8,583. As highlighted in the following text table, the village of Germantown has seen its share of total households in PMA grow slightly from 6.9 percent in 2010 to 7.1 percent in 2023.

POPULATION AND HOUSEHOLD TRENDS
GERMANTOWN PMA AND THE VILLAGE OF GERMANTOWN, WISCONSIN

Area	2010	2020	2023 (Estimate)	2028 (Projected)	Average Annual Change 2010 - 2020	Average Annual Change 2020 - 2023	Average Annual Change 2023 - 2028
Population							
Germantown PMA	281,258	292,587	293,822	298,266	+1,133	+412	+889
Village of Germantown	19,783	20,917	21,054	21,424	+113	+46	+74
Percent of PMA	7.0	7.1	7.2	7.2	---	---	---
Households							
Germantown PMA	112,429	120,265	121,407	124,889	+784	+381	+696
Village of Germantown	7,773	8,472	8,583	8,839	+70	+37	+51
Percent of PMA	6.9	7.0	7.1	7.1	---	---	---

Source: U.S. Census Bureau, Environics Analytics and Tracy Cross & Associates, Inc.

According to recent estimates provided by Environics Analytics through its evaluation of the Census Bureau's annual American Community surveys, household growth in the Germantown PMA over the next five years will total another 3,480 new households, or 696 annually. As a result, the PMA will approach the 125,000-household mark by 2028.

HOUSEHOLD COMPOSITION

Relative to households by age group, not only is there a rather large base of existing households in each of the PMA's various age categories, but all segments show growth over the next five years – led by the 65-74 segment and the Under 35 group.

Likewise, the village of Germantown shows growth in each of its various household age classifications as highlighted in the adjacent text table.

HOUSEHOLD GROWTH BY AGE GROUP
-- GERMANTOWN PMA AND THE VILLAGE OF GERMANTOWN, WISCONSIN --

Age Range	Germantown PMA 2023	Germantown PMA 2028	Village of Germantown 2023	Village of Germantown 2028
Under 35	17,385	17,920	1,129	1,154
35-44	18,687	18,772	1,315	1,320
45-54	19,948	19,987	1,467	1,470
55-64	25,573	26,203	1,939	1,958
65-74	22,372	24,069	1,610	1,760
75 and over	17,442	17,938	1,123	1,177
Total	***121,407***	***124,889***	***8,583***	***8,839***

Source: Environics Analytics: 2023 Demographic Snapshot Report.

The current composition of area households lends support to the development of a variety of residential product forms at various locations throughout the PMA and the village of Germantown in particular. As highlighted in the adjacent table, there is an ample number of one- and two- person households (for rental apartments and for sale townhomes, duplexes and/or condominiums), and also a significant number of three-, four- and five-person households (for both attached for sale housing products and single family detached homes).

Most notable are one- and two-person occupied housing units which, together, comprise 64.4 percent of the PMA's household base and 64.5 percent in the village of Germantown.

2023 COMPOSITION OF AREA HOUSEHOLDS:
GERMANTOWN PMA AND THE VILLAGE OF GERMANTOWN, WISCONSIN

Attribute	Germantown PMA	Village of Germantown
Total Households	**121,407**	**8,583**
1-Person Household	31,776	2,114
2-Person Household	46,353	3,422
3-Person Household	17,908	1,231
4-Person Household	16,134	1,072
5-Person Household	6,313	574
6 or More Person Household	2,923	170
1 Person Households		
Percent	26.2	24.6
Number	31,776	2,114
2 Person Households		
Percent	38.2	39.9
Number	46,353	3,422

Source: Environics Analytics; *2023 Demographic Snapshot*

INCOMES

Households in the Germantown PMA support higher incomes than the overall region as evidenced by an estimated 2023 median of $86,185, a level 19.2 percent higher than the $72,303 median noted for the entire Milwaukee-Waukesha-West Allis, WI MSA. *Market wide, 52.5 percent of all current households earn between $40,000 and $124,999 annually, which generally represents the mainstream or middle of the market (the workforce), i.e., those earning between 50 and 150 percent of the PMA's median. Another 30.9 percent of all households earn $125,000 or more annually with the balance (16.6 percent) earning less than $40,000 per year. Overall, the concentration of household incomes in the $40,000-$124,999 and $125,000+ categories signifies significant income support locally for new construction mainstream/workforce and market rate housing development, both rental and for sale.*

HOUSEHOLDERS BY AGE AND INCOME: 2023
-- GERMANTOWN PMA --

	Number of Households by Age of Householder						
Income Range	Total Households	Under 35	35 - 44	45 - 54	55 - 64	65 - 74	75 and Over
Under $15,000	6,389	1,196	549	466	989	1,380	1,809
15,000 - 24,999	6,227	635	457	381	703	1,616	2,435
25,000 - 39,999	7,821	1,403	640	654	970	1,829	2,325
40,000 - 49,999	12,842	2,104	1,426	1,333	2,012	3,090	2,877
50,000 - 74,999	19,602	3,258	2,778	2,487	3,330	4,437	3,312
75,000 - 99,999	16,779	2,789	3,070	2,610	3,421	3,195	1,694
100,000 - 124,999	14,558	1,827	2,727	3,062	3,539	2,278	1,125
125,000 - 149,999	11,043	1,525	2,318	2,310	2,774	1,383	733
150,000 - 199,999	12,144	1,672	2,603	2,886	3,274	1,233	476
200,000 and Over	14,002	976	2,119	3,759	4,561	1,931	656
Total	***121,407***	***17,385***	***18,687***	***19,948***	***25,573***	***22,372***	***17,442***
Median	***$86,185***	***$75,926***	***$103,674***	***$116,392***	***$109,412***	***$67,776***	***$46,023***

Sources: U.S. Bureau of the Census; Environics Analytics; and Tracy Cross & Associates, Inc.

Note: The median household income in the host Washington County currently stands at $84,794, generally consistent with the defined Germantown PMA.

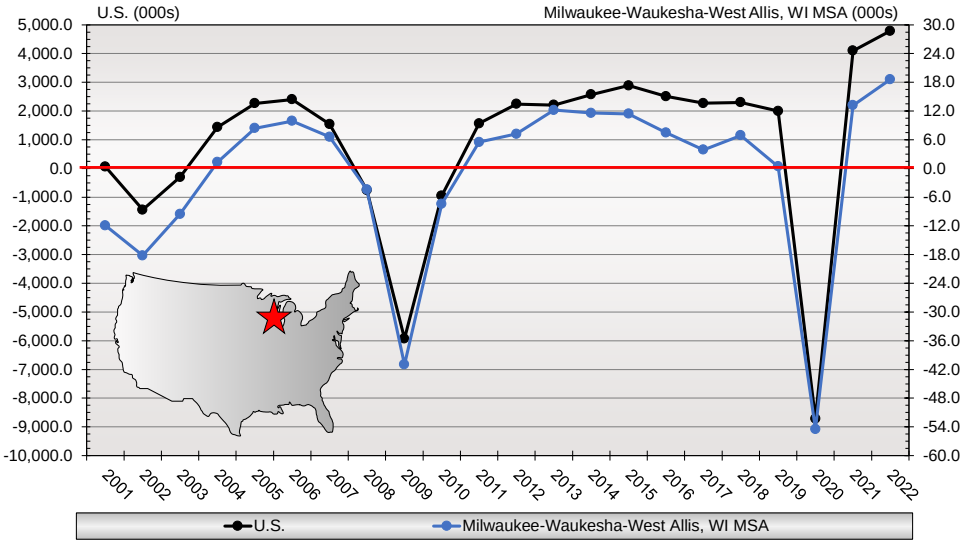
EMPLOYMENT

Germantown, while supporting its own internal economy and concentrations of localized employment (i.e., the community's major business/industrial parks and standalone office buildings/retail centers), is also within a reasonable driving distance to employment clusters in other areas of the Milwaukee region given its immediate access to the US-45/I-41 expressway system, and their connection with other major arterials. Overall, employment sources throughout much of the Milwaukee metropolitan area are accessible to Germantown residents, especially those situated in the northwestern and western suburban areas including Menomonee Falls, Wauwatosa, and Brookfield.

While one cannot discount the effect that the Great Recession had on the region's economy, not to mention the more recent Covid-19 pandemic, employment growth throughout the four-county Milwaukee-Waukesha-West Allis, WI MSA had been on the positive side for nine years in a row through 2019. For example, after losing 6.1 percent of its total nonagricultural wage and salary employed workforce from 2007 through 2010 (during the heart of the Great Recession), the metropolitan area saw its job rosters grow by 66,600 workers during the subsequent 2011-2019 period, averaging 7,400 annually, and equal to a growth rate of approximately 1.1 percent.

Most recently, and due entirely to the global/national pandemic and its impact on the economy, the MSA witnessed job losses of 54,500 in 2020 – erasing roughly 80 percent of the net gains witnessed during the 2011-2019 period. However, this severe loss of jobs is/was temporary, and primarily affected those sectors of the economy most impacted by the pandemic. Moreover, this most recent Covid-related downturn reversed course quickly – bolstering the economy. As illustrated in the following graphic, most of the employment losses in 2020 were replenished in 2021 and 2002.

YEAR-OVER-YEAR CHANGE IN NONFARM EMPLOYMENT
-- MILWAUKEE-WAUKESHA-WEST ALLIS, WI MSA AND THE U.S. --



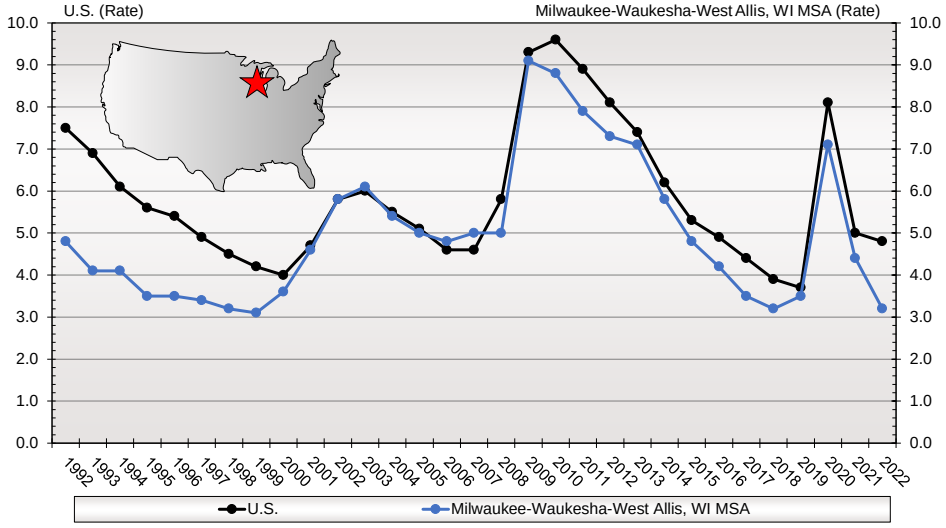
Source: U.S. Department of Labor, Bureau of Labor Statistics

Moreover, year-over-year employment gains during the January-November 2023 period totaled over 3,200 jobs. In addition, the Wisconsin Department of Revenue, the Job Center of Wisconsin, and the Wisconsin

Department of Workforce Development expect the Milwaukee region's employment rosters to increase by an average of 0.9 percent annually over the next five years. As such, the four-county MSA is expected to witness the addition of at least 38,000 total new jobs through 2028, once again supporting the development of new housing throughout the area.

During the Milwaukee region's economic growth period of 2011 through 2019 (prior to the pandemic), the area's unemployment rate had been dropping steadily. As highlighted in the following graphic, the Milwaukee area unemployment rate decreased from 8.8 percent in 2010 to just 3.5 in 2019. During this entire timeframe, the four-county MSA's unemployment rate remained at or *below* the nation as a whole. In addition, while unemployment in Milwaukee rose to 7.1 percent in 2020, i.e., the Covid-19 crisis, it remained lower than the 8.1 percent unemployment rate posted nationally. In addition, by 2022, Milwaukee's unemployment rate had already retreated to 3.3 percent compared to a national average of 4.8 percent during the same period.

UNEMPLOYMENT RATES BY YEAR
-- MILWAUKEE-WAUKESHA-WEST ALLIS, WI MSA AND THE U.S. --



Source: U.S. Department of Labor, Bureau of Labor Statistics

Recently, the MSA's unemployment rate during the first 11 months of 2023 averaged just 3.1 percent.

RESIDENTIAL BUILDING ACTIVITY

Since 2000, the Germantown PMA has recorded an average of 1,020 residential building permits per year ranging from a recessionary-impacted low of 313 units in 2011 to a high of 1,839 units during the boom period of 2003 (see **Exhibit 2.1**).

Historically, single family permit authorizations have outpaced multifamily issuances at a ratio of roughly two-to-one. For example, between 2000 and 2022, single family permits, which include single-address duplex/townhome/villa units, averaged 696 units yearly, while multifamily volumes, which include both rental apartments and high-density condominiums, averaged 324 units per annum. More recently, and due to an increase in apartment construction over the last few years, primarily in Menomonee Falls and Mequon, the PMA's ratio between single family and multifamily permits narrowed to a level of less than two-to-one during the 2015-2022 timeframe.

RESIDENTIAL BUILDING PERMIT TRENDS
GERMANTOWN PMA
2000 - 2022

2.1

Year	Total	Single Family	Multi-Family
2000	1,445	977	468
2001	1,683	1,084	599
2002	1,530	1,054	476
2003	1,839	1,314	525
2004	1,709	1,284	425
2005	1,719	1,143	576
2006	1,453	905	548
2007	907	741	166
2008	506	414	92
2009	399	324	75
2010	436	348	88
2011	313	244	69
2012	386	346	40
2013	581	507	74
2014	660	472	188
2015	875	522	353
2016	1,213	616	597
2017	946	662	284
2018	854	627	227
2019	1,077	572	505
2020	1,033	621	412
2021	915	687	228
2022	983	542	441
Averages			
2000 - 2022	1,020	696	324

Source: U.S. Department of Commerce, Bureau of the Census: *C-40 Construction Reports*

From a regional capture rate perspective, between 2000 and 2022, the Germantown PMA accounted for a healthy 28.5 percent of all residential permit activity in the four-county Milwaukee metropolitan region, with the Washington County portion of the PMA accounting for a 17.1 percent share by itself. However, during the eight-year period from 2015 through 2022, as the PMA's regional capture rate jumped to 30.5 percent, the Washington County portion of the PMA dropped to 14.7 percent. In other words, residential development in areas of the PMA just outside of Washington County (i.e., Cedarburg, Grafton, Mequon, and Menomonee Falls) gained significant momentum relative to residential construction on a regional basis, while Washington County failed to keep pace with other portions of the PMA and the region. All told, as the four-county MSA moved upward in overall residential construction volumes during the last eight years (compared to the eight years prior), as did those areas of the PMA near Germantown outside of Washington County, municipalities in the host county (including the village of Germantown) did not increase proportionately (see **Exhibit 2.2**). This resulted, primarily, from supply-side constraints (not demand) – as will be discussed in more detail in Sections 3 and 4 of this report.

HOUSING DEMAND – AN OUTLOOK

During the 2023-2028 timeframe, construction requirements for new housing in the Germantown PMA will average 1,010 units annually. This forecast can be tied to household growth levels estimated at 696 per annum through 2026, along with 300+/- units representing the replacement of residences lost to demolition and abandonment and the need to provide a vacancy allowance for filtering or movement from one residence to another.

Of the 1,010 units expected to be constructed annually in the PMA during the five-year forecast period, 595 will occur among for sale housing forms with 415 represented in the rental housing sector. As detailed in the adjacent text table, for sale housing demand will be distributed among 395 single family detached homes and 200 in the attached sector, i.e., duplexes, fourplexes, and condominiums.

RESIDENTIAL ABSORPTION POTENTIALS BY PRODUCT TYPE
-- GERMANTOWN PMA --
2023 - 2028

Product Type	Annual	Total Through 2028
Total	***1,010***	***5,050***
For Sale	**595**	**2,975**
Single Family Detached	395	1,975
Duplex/Fourplex/Condominium	200	1,000
For Rent	**415**	**2,075**

Source: Tracy Cross & Associates, Inc.

Given the supply-side constraints throughout the PMA (which, again, will be discussed in the following sections of the report), it is highly likely that demand will exceed supply near term, especially in the for sale sector, but also among multifamily rental forms as well. This market reality bodes extremely well for housing initiatives in the village of Germantown, if properly planned and executed.

In addition, not only is "derived demand" likely to outstrip supply near term, but the overall base of residential construction requirements could actually be *much higher* (i.e., double) during any given year where properly positioned supply is made available. This *doubling of demand* factors pent-up demand; upside household growth potentials if properly positioned development were actually to occur; the limited amount of new construction housing alternatives throughout the PMA (again, to be discussed later); and spillover potentials from areas outside the defined primary market area.

2.2

RESIDENTIAL BUILDING PERMIT TRENDS
MILWAUKEE-WAUKESHA-WEST ALLIS, WI METROPOLITAN STATISTICAL AREA (MSA)
2000 - 2022

	Milwaukee-Waukesha-West Allis, WI MSA			Milwaukee County, WI			Ozaukee County, WI			Washington County, WI			Waukesha County, WI		
Year	Total	Single Family	Multi-Family	Total	Single Family	Multi-Family	Total	Single Family	Multi-Family	Total	Single Family	Multi-Family	Total	Single Family	Multi-Family
2000	5,631	3,581	2,050	1,750	736	1,014	502	360	142	931	637	294	2,448	1,848	600
2001	5,879	3,564	2,315	1,524	671	853	737	335	402	890	736	154	2,728	1,822	906
2002	5,936	3,456	2,480	2,061	645	1,416	502	353	149	1,006	682	324	2,367	1,776	591
2003	6,467	3,939	2,528	2,138	742	1,396	596	406	190	1,226	929	297	2,507	1,862	645
2004	5,902	3,840	2,062	2,117	773	1,344	380	302	78	1,205	921	284	2,200	1,844	356
2005	5,444	3,361	2,083	1,697	785	912	406	277	129	1,371	850	521	1,970	1,449	521
2006	4,290	2,624	1,666	1,436	550	886	304	256	48	995	609	386	1,555	1,209	346
2007	3,266	2,082	1,184	1,230	378	852	252	232	20	661	501	160	1,123	971	152
2008	2,444	1,234	1,210	1,032	247	785	166	142	24	356	270	86	890	575	315
2009	1,443	891	552	584	160	424	163	107	56	263	233	30	433	391	42
2010	1,941	967	974	1,006	178	828	121	105	16	328	242	86	486	442	44
2011	1,593	915	678	802	231	571	132	110	22	202	133	69	457	441	16
2012	1,793	1,064	729	654	164	490	123	113	10	242	206	36	774	581	193
2013	2,000	1,326	674	411	154	257	279	181	98	383	309	74	927	682	245
2014	2,416	1,318	1,098	795	138	657	264	176	88	337	291	46	1,020	713	307
2015	3,048	1,416	1,632	1,269	128	1,141	170	170	0	444	315	129	1,165	803	362
2016	4,055	1,671	2,384	1,721	146	1,575	443	213	230	585	356	229	1,306	956	350
2017	3,693	1,588	2,105	1,579	101	1,478	376	230	146	504	360	144	1,234	897	337
2018	3,791	1,734	2,057	1,535	127	1,408	260	221	39	416	344	72	1,580	1,042	538
2019	2,440	1,509	931	548	170	378	452	234	218	460	294	166	980	811	169
2020	2,753	1,586	1,167	749	218	531	396	219	177	407	345	62	1,201	804	397
2021	2,981	1,811	1,170	371	145	226	298	247	51	520	410	110	1,792	1,009	783
2022	3,127	1,603	1,524	882	167	715	345	293	52	461	232	229	1,439	911	528
Averages															
2000 - 2022	3,580	2,047	1,533	1,213	337	876	333	230	104	617	444	173	1,417	1,036	380

Source: U.S. Department of Commerce, Bureau of the Census: *C-40 Construction Reports*

3. *THE RENTAL HOUSING MARKET*

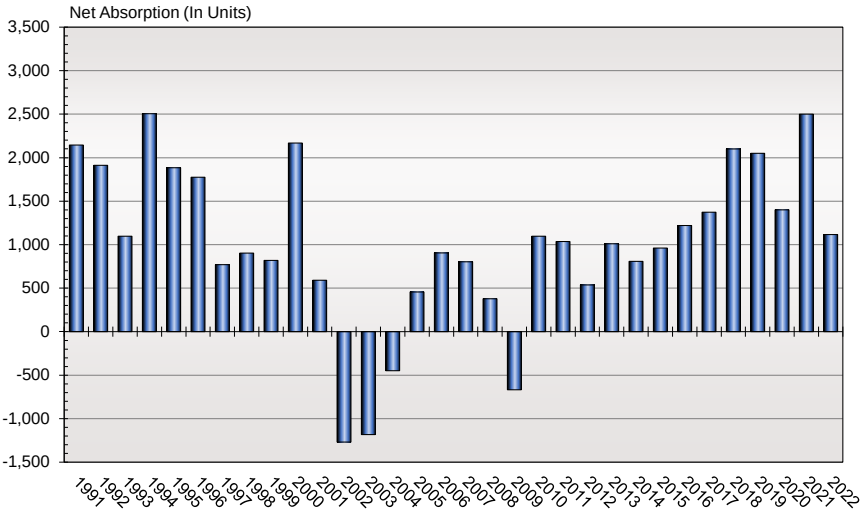
The current condition of the rental housing market in and around Germantown *lends full support* to the development of additional units throughout the area and within the village of Germantown in particular. Specifically, given the overall strength of this sector of the market (as highlighted in the following bullet-point summary), the introduction of additional *for rent* housing product is *definitely warranted.*

THE REGIONAL APARTMENT MARKET

- Serving as a backdrop to rental housing potentials within the Germantown PMA is the overall health of the market in the greater Milwaukee region. For example, according to Moody's Analytics, among all asset classifications of apartments in the two core counties of the greater Milwaukee region, i.e., Milwaukee and Waukesha, a vacancy rate of 3.6 percent was reported at the close of the 3rd Quarter 2023, reflecting tight market conditions. For reference, in a normal (or balanced) market, vacancies of 5.0 to 6.0 percent are typically required for filtering, or movement between developments. In addition, the overall 3.6 percent vacancy rate includes new "un-leased" units among those developments still undergoing their initial absorption periods. When these communities are excluded, the vacancy rate in Milwaukee and Waukesha counties drops to an even tighter 3.1 percent.

- At the same time, net rental absorption in the two core counties of the Milwaukee region has averaged over 1,400 units annually during the last 12 years – reaching or exceeding the 2,000-unit mark in three of the last five including 2,500 units in 2021. For perspective, during the 11-year period from 1990 through 2000, Waukesha and Milwaukee counties saw their occupied apartment stock, among all asset classifications, increase by a total of 19,191 units, or an annual average of 1,745. Following this period of positive absorption, the 2001-2009 timeframe saw net absorption drop into negative territory for four of the eight years during the period due to recessionary overtones during the first part of the decade, a dramatic increase in home ownership at the time, and a fair amount of rental-to-condominium conversion activity.

RENTAL APARTMENT ABSORPTION TRENDS: 1991-2022
-- MILWAUKEE & WAUKESHA COUNTIES, WI --



Source: Moody's Analytics

THE LOCAL APARTMENT MARKET

- Not only are vacancies among all asset classifications of apartments in nearby Milwaukee and Waukesha counties in a relatively tight condition at 3.6 percent (3.1 percent excluding new/unabsorbed units), but vacancies are *even tighter* in the Germantown PMA. For example, among 40 conventional rental housing communities that have been constructed market-wide in the last 10 years, i.e., since 2013, 35 developments (containing 3,587 total units) have reached stabilized occupancy and reported a vacancy rate of just 2.1 percent at the time of our December 2023 survey.

- In Washington County alone, newer stabilized developments in the communities of Germantown, Hartford, Jackson, Slinger and West Bend reported a vacancy rate of only 1.3 percent.

- The five communities in the Germantown PMA still undergoing their initial lease-up periods at the time of our recent survey have performed well. These developments, which include Fox Run-Flats and Fox Run-Townhomes in Grafton; Creekside Crossing and Highlands/Aero Park-Flats-AA in Menomonee Falls; and The District-Lithia Lofts in West Bend, are absorbing units at an average per-project rate of 10.0 monthly.

- While 40 market rate apartment communities have opened in the Germantown PMA since 2013, only two developments were constructed from 2000-2012 in this broad geographic area. Given the lack of supply during this timeframe, which has led to significant levels of pent-up demand for new apartment product throughout the area, the 40 developments that have been introduced in the market area over the last ten years have all been well received. In fact, despite the introduction of the 40 newest developments, vacancies remain *extremely tight* among stabilized communities. In other words, the amount of new development activity in the PMA over the past 10 years has not been sufficient enough to provide balance in the market and satisfy both pent-up and net-new demand.

- In Germantown itself, only two apartment communities with a combined 190 total units have been introduced in the last 10 years, i.e., Hillstone (18 units) and Saxony (172 units). These apartments were all absorbed quickly and are currently at a collective occupancy level of nearly 98.0 percent.

- As highlighted in **Exhibit 3.1**, the average posted base rent level among new/newer apartment communities in the Germantown PMA, not including premiums or extras, currently stands at $1,779 monthly which includes a typical 1,104 square foot apartment. This translates to a value ratio of $1.61 per square foot. The effective rent is nearly the same as only a handful of developments were offering any type of incentive or concession at the time of our survey. Base rents are the highest in the highly desirable Cedarburg, Mequon and Menomonee Falls areas where rents approach or exceed the $2.00 per-square-foot mark in several instances.

FUTURE SUPPLY

- It is important to note that the *demand for rental housing in the Germantown PMA will likely exceed supply* near term given the fact that just six communities (1,271 total units) are currently in the planning pipeline or under construction and not yet leasing. This compares with net-new demand of 2,075+ units through 2028 as highlighted earlier in Section 2. *In Germantown itself, there are currently no multifamily developments formally in the pipeline.*

3.1

COMPOSITE RENTAL SUMMARY: APARTMENT COMMUNITIES CONSTRUCTED IN 2013 OR AFTER
GERMANTOWN PMA
DECEMBER 2023

Development	Municipality	Year Built	Total Units	Number Vacant	Percent Vacant (Absorption Rate in Units)	Average Unit Size (Sq. Ft.)	Average Posted Base Monthly Rent	
							$	$/Sq. Ft.
The Bevy	Brown Deer	2020	175	0	0.0	979	$1,608	$1.64
Arabelle	Cedarburg	2019	69	3	4.3	1,147	2,358	2.06
Cedar Place	Cedarburg	2019	192	4	2.1	1,102	1,739	1.58
Fox Run-Flats[1]	Cedarburg	2023	160	154	96.3 (12.0/Mo)	1,110	2,118	1.91
Fox Run-Townhomes[1]	Cedarburg	2023	44	40	90.9 (8.0/Mo)	2,040	3,084	1.51
Hillstone	Germantown	2015	18	0	0.0	1,211	1,802	1.49
Saxony Village	Germantown	2018	172	5	2.9	972	1,583	1.63
1505	Grafton	2017	130	5	3.8	889	1,640	1.84
2185 On Wisconsin-THR	Grafton	2023	18	0	0.0	1,424	2,495	1.75
Birch Crossing	Hartford	2017	84	1	1.2	1,152	1,539	1.34
Oriole Pond	Hartford	2017	156	0	0.0	1,051	1,130	1.08
Rincon 225	Hartford	2020	82	1	1.2	804	1,326	1.65
Wilson Heights	Hartford	2017	82	1	1.2	1,305	1,493	1.14
Cranberry Creek	Jackson	2013	16	1	6.3	1,269	1,550	1.22
Rosewood Commons	Jackson	2021	72	2	2.8	1,088	1,531	1.41
Sherman Heights	Jackson	2020	36	0	0.0	1,280	1,488	1.16
Rock Pointe Village	Lannon	2021	264	1	0.4	972	1,559	1.60
Creekside Crossing[1]	Menomonee Falls	2022	120	13	10.8 (11.6/Mo)	1,409	2,123	1.51
Highlands/Aero Park CO-AA	Menomonee Falls	2021	32	0	0.0	1,384	2,938	2.12
Highlands/Aero Park Flt-AA[1]	Menomonee Falls	2023	95	56	58.9 (9.2/Mo)	1,177	2,178	1.85
Jade at North Hills	Menomonee Falls	2018	139	5	3.6	874	1,593	1.82
Junction at Whitestone Stn	Menomonee Falls	2016	318	9	2.8	954	1,639	1.72
Riverwalk on the Falls	Menomonee Falls	2018	114	4	3.5	1,057	2,023	1.91
Tamarack Springs	Menomonee Falls	2021	152	6	3.9	1,429	2,094	1.47
The Woodlands	Menomonee Falls	2015	153	6	3.9	1,066	1,699	1.59
Artesa	Mequon	2017	33	3	9.1	1,215	2,114	1.74
Encore	Mequon	2015	28	0	0.0	1,733	2,931	1.69
The Reserve	Mequon	2017	81	4	4.9	1,200	2,202	1.84
Spur 16-Flats	Mequon	2019	146	10	6.8	1,163	2,257	1.94
Spur 16-THs	Mequon	2019	10	0	0.0	2,368	4,995	2.11
West House at Foxtown-Apt	Mequon	2020	96	0	0.0	1,245	2,146	1.72
West House at Foxtown-TH	Mequon	2023	42	1	2.4	1,751	2,662	1.52
Ridge View Terrace	Slinger	2019	48	0	0.0	1,220	1,369	1.12
Stonefield Terrace	Slinger	2021	80	3	3.8	1,224	1,481	1.21
Mammoth Springs-Ph 1	Sussex	2014	153	0	0.0	976	1,521	1.56
Mammoth Springs-Ph 2	Sussex	2017	107	2	1.9	1,285	2,018	1.57
Mammoth Springs-Ph 3	Sussex	2020	40	0	0.0	855	1,498	1.75
Cast Iron (Conversion)	West Bend	2016	129	0	0.0	950	1,288	1.36
The District-Lithia Lofts[1]	West Bend	2022	46	6	13.0 (8.9/Mo)	1,046	1,766	1.69
Trails Edge	West Bend	2022	120	0	0.0	912	1,500	1.64
Total/ Weighted Average	---	---	***4,052 / 3,587*** [2]	***346 / 77*** [2]	***8.5 / 2.1*** [2]	***1,104***	***$1,779***	***$1.61***

[1] Community is still undergoing its initial absorption period.
[2] Excludes communities still undergoing their initial absorption periods.

Source: Tracy Cross & Associates, Inc.

4. THE FOR SALE HOUSING MARKET

New construction for sale development throughout the Germantown PMA is generally characterized by smaller- to moderate-scale broker- or builder-represented communities reflecting single family and duplex/fourplex/condominium subdivisions directed to both primary and lifestyle consumer segments which (in many cases) have been marketed in phases over extended periods of time, although some larger-scale communities of 100+ units have been developed in recent years, primarily in areas of Menomonee Falls and Cedarburg (outside of Washington County). Overall, however, there has been a limited number of recently introduced developments *of significant scale* actively marketing new units in proprietary communities throughout the PMA, yet some scattered site/lot sale development and/or larger-scale, more custom-oriented product is also evident.

In the entirety of the PMA, single family building permits which, again, include single family detached homes as well as single-address duplexes, fourplexes and condominium/villa units, has generally ranged from 450 to 675 units annually over the last ten years *in this very broad geographic area*, despite "upside" demand potentials being stronger. This current level of new construction for sale development activity is due, in large part, to the higher price points that now accompany newly built for sale developments which, in turn, has resulted in more modest per-project sales volumes. In fact, most proprietary subdivisions throughout the county are generating sales volumes at or below 12 homes per year – a rate viewed as modest by most standards, i.e., a typical builder, in most instances, desires 18-24+ sales annually per product series.

In Germantown itself, active for sale development currently includes just a few condominium and single family communities priced in the higher ranges and generating sales volumes viewed as moderate. As highlighted in the following table, notable new construction for sale communities in Germantown generated a total of 17 sales/closings over the last 12 months, or roughly 4-5 per development during the period, on average.

NOTABLE NEW CONSTRUCTION FOR SALE RESIDENTIAL DEVELOPMENTS
-- GERMANTOWN, WISCONSIN --

Development / Builder(s)	Product Type	Number of Sales/Closings (Last 12 Months)	Average Plan Size (Sq. Ft.)	Average Sales/Closing Price	Average Price Per Sq. Ft.
The Reserve at Wrenwood / Harbor	Fourplex/Condo	7	1,921	$484,267	$252.09
Wrenwood North / Tim O'Brien & Aspen	Single Family	5	2,320	740,175	319.04
Prairie Glen / Bielinski	Single Family	3	2,393	767,900	320.89
Heritage Park North / Stepping Stone	Single Family	2	2,209	675,858	305.96

Source: Tracy Cross & Associates, Inc.

Note: Not included in the above table are a few recently completed developments such as Veridian Homes' Kinderberg Estates community, i.e., single family homes priced primarily in the $600,000s, along with smaller-scale attached projects such as Stepping Stone's Seven Pines condominiums.

SINGLE FAMILY DETACHED ACTIVITY – GERMANTOWN PMA

In the entirety of the Germantown PMA, new construction ***single family*** closing activity has been generally steady over the last three years, with little improvement, mainly because of the overall limited number of new developments entering the market—and, most importantly, *escalating prices.* As highlighted in the

following text table, roughly 300 new single family detached homes are sold/closed annually in the PMA (through the local multiple listing service), at price points now supporting a median above $500,000. In fact, with the median closing price of a new construction single family home in the PMA approaching $550,000 in 2023, and considering a less-than-favorable interest rate environment, the average marketing time of a new single family home (days on market) rose precipitously between 2022 and 2023.

NEW CONSTRUCTION SINGLE FAMILY CLOSINGS
GERMANTOWN PMA
2021-2023

Price Range	2021		2022		2023	
	Number of Closings	Percent of Total	Number of Closings	Percent of Total	Number of Closings	Percent of Total
Under $250,000	---	---	---	---	---	---
250,000 - 299,999	1	0.3	---	---	---	---
300,000 - 349,999	10	3.3	---	---	---	---
350,000 - 399,999	43	14.1	20	6.8	10	3.2
400,000 - 449,999	47	15.4	47	15.9	45	14.4
450,000 - 499,999	63	20.7	46	15.6	48	15.3
500,000 - 549,999	29	9.5	57	19.3	60	19.2
550,000 - 599,999	40	13.1	36	12.2	48	15.3
600,000 - 699,999	35	11.5	51	17.3	59	18.8
700,000 & Above	37	12.1	38	12.9	43	13.8
Total	***305***	***100.0***	***295***	***100.0***	***313***	***100.0***
Median	***- - - - - $490,820 - - - - -***		***- - - - - $530,310 - - - - -***		***- - - - - $544,530 - - - - -***	
Avg. Days on Market	***- - - - - - - 45 - - - - - - -***		***- - - - - - - 41 - - - - - - -***		***- - - - - - - 67 - - - - - - -***	

Source: Southeast Wisconsin Multiple Listing Service

Please note that new construction closings recorded by the multiple listing service, while representing the majority, do not include all proprietary subdivision activity among single family developments, especially where individual lots are sold directly to the end consumer, who in turn, builds a semi-custom or custom home.

While the overall limited amount of new single family development (of scale) is keeping volumes in the more modest ranges, especially when demand could be stronger, so, too, is the overall higher price position of the new construction homes being built (as mentioned earlier). In fact, with the median price of a new/newer single family closing (as recorded through the multiple listing service) standing at $544,530 in 2023, there is a disconnect with the distribution of household incomes, which is putting extreme pressure on the existing home market, i.e. the resale sector. For example, the median closing price among new construction units in the PMA is now almost $150,000 higher than that of a resale counterpart. As a result, prices in the existing home market have been increasing even more rapidly and the average “days on market” in the resale sector are extremely low. Moreover, the volume of resale closings has dropped each year since 2021 as inventory continues to wane.

As highlighted in the following text table, the average market time of an older-stock single family resale closing in 2023 period stood at just 15 days, down from an already-low 16 days in 2022 and 20 days in 2021. For reference, the typical marketing time for a single family detached resale in the Midwest ranges from 72-90 days. *In the village of Germantown, the average market time of a single family resale during the last six months stood at just 11 days, and at closing prices 10 percent higher than to those reflected throughout the PMA as a whole.*

SINGLE FAMILY RESALE CLOSINGS
GERMANTOWN PMA
2021-2023

Price Range	2021		2022		2023	
	Number of Closings	Percent of Total	Number of Closings	Percent of Total	Number of Closings	Percent of Total
Under $200,000	200	6.6	68	2.8	39	2.0
200,000 - 249,999	310	10.3	233	9.7	129	6.6
250,000 - 299,999	536	17.8	332	13.8	228	11.7
300,000 - 349,999	478	15.9	382	15.9	288	14.7
350,000 - 399,999	337	11.2	310	12.9	298	15.3
400,000 - 449,999	244	8.1	290	12.1	216	11.1
450,000 - 499,999	204	6.8	166	7.0	175	9.0
500,000 - 549,999	169	5.6	127	5.3	118	6.0
550,000 - 599,999	126	4.2	106	4.4	75	3.8
600,000 - 699,999	165	5.5	147	6.2	151	7.7
700,000 & Above	242	8.0	237	9.9	237	12.1
Total	***3,011***	***100.0***	***2,398***	***100.0***	***1,954***	***100.0***
Median	***- - - - - $348,112 - - - - -***		***- - - - - $380,232 - - - - -***		***- - - - - $399,019 - - - - -***	
Avg. Days on Market	***- - - - - - - 20 - - - - - - -***		***- - - - - - - 16 - - - - - - -***		***- - - - - - - 15 - - - - - - -***	

Source: Southeast Wisconsin Multiple Listing Service

DUPLEX/FOURPLEX/CONDOMINIUM ACTIVITY

In the ***duplex/fourplex/condominium*** sector, a similar condition exists in the Germantown PMA relative to pricing differentials between new construction units and resales. As highlighted in the adjacent table, there are currently roughly 100 new attached units being sold annually market-wide, again a relatively modest volume because of limited supply in this sector, coupled with a median price point that now exceeds $425,000.

NEW CONSTRUCTION DUPLEX/FOURPLEX/CONDOMINIUM CLOSINGS
GERMANTOWN PMA
2021-2023

Price Range	2021		2022		2023	
	Number of Closings	Percent of Total	Number of Closings	Percent of Total	Number of Closings	Percent of Total
Under $100,000	---	---	---	---	---	---
100,000 - 149,999	---	---	---	---	---	---
150,000 - 199,999	1	0.9	---	---	---	---
200,000 - 249,999	13	11.6	1	1.0	---	---
250,000 - 299,999	22	19.6	17	17.7	5	5.1
300,000 - 349,999	29	25.9	12	12.5	6	6.2
350,000 - 399,999	16	14.3	22	22.9	26	26.8
400,000 - 449,999	15	13.4	28	29.2	22	22.7
450,000 - 499,999	7	6.3	6	6.3	28	28.9
500,000 & Above	9	8.0	10	10.4	10	10.3
Total	***112***	***100.0***	***96***	***100.0***	***97***	***100.0***
Median	***- - - - - $334,555 - - - - -***		***- - - - - $391,047 - - - - -***		***- - - - - $426,210 - - - - -***	
Avg. Days on Market	***- - - - - - - 99 - - - - - - -***		***- - - - - - - 54 - - - - - - -***		***- - - - - - - 80 - - - - - - -***	

Source: Southeast Wisconsin Multiple Listing Service

Again, the higher price position found in the new construction attached sector is putting tremendous pressure on the existing home market as evidenced by duplex/fourplex/condominium resale closings averaging just 12 days on market in 2023, down from 18 and 16 days in 2021 and 2022, respectively. As highlighted in the following text table (compared to the table on the previous page), the difference in price between typical resale and new construction attached sector units is approximately $175,000.

DUPLEX/FOURPLEX/CONDOMINIUM RESALE CLOSINGS
GERMANTOWN PMA
2021-2023

Price Range	2021		2022		2023	
	Number of Closings	Percent of Total	Number of Closings	Percent of Total	Number of Closings	Percent of Total
Under $100,000	73	9.3	39	5.4	31	5.1
100,000 - 149,999	116	14.9	69	9.7	60	9.9
150,000 - 199,999	173	22.2	179	25.0	92	15.2
200,000 - 249,999	156	20.1	140	19.6	119	19.6
250,000 - 299,999	91	11.7	113	15.8	93	15.3
300,000 - 349,999	72	9.3	65	9.1	63	10.4
350,000 - 399,999	35	4.5	40	5.6	57	9.4
400,000 - 449,999	25	3.2	28	3.9	39	6.4
450,000 - 499,999	20	2.6	17	2.4	22	3.7
500,000 & Above	17	2.2	25	3.5	30	5.0
Total	***778***	***100.0***	***715***	***100.0***	***606***	***100.0***
Median	***- - - - - $208,954 - - - - -***		***- - - - - $225,254 - - - - -***		***- - - - - $250,653 - - - - -***	
Avg. Days on Market	***- - - - - - - 18 - - - - - - -***		***- - - - - - - 16 - - - - - - -***		***- - - - - - - 12 - - - - - - -***	

Source: Southeast Wisconsin Multiple Listing Service

The moderate amount of *new construction* product in the overall market, especially at price points more in-line with typical "new versus resale" differentials, is also having an impact on overall inventory levels among both newly built homes and resale units. For example, among all residential activity in the PMA (both detached and attached, and including both new construction and resales), *inventory levels are low*. With only 429 single family listings reported at the beginning of January 2024, and with overall closing activity totaling 2,267 units in 2023, single family inventory levels in PMA stand at just 2.27 months, which falls below the typical three-month inventory period that exists in more normal, or balanced, home markets. In the attached sector, a similar level of inventory exists at just 2.30 months (see **Exhibit 4.1**). *The most notable areas of imbalance in the detached sector can be found at price points below $500,000, and in the attached sector, below $400,000 where little (if any) new construction listings are represented. In fact, at the higher price points (where new construction listings are concentrated), inventory levels exceed three months in all instances.*

FUTURE FOR SALE COMPETITION

According to planning and zoning officials throughout the PMA's constituent municipalities, just a modicum of for sale housing communities are in the pipeline, i.e., less 1,139 units market-wide. These proposed developments, which consist of various single family and duplex/fourplex/condominium projects, appear to be very similar to other new construction products that exist today. Overall, future "known" supply further indicates a clear imbalance relative to underlying demand potentials.

4.1

RESIDENTIAL INVENTORY ANALYSIS IN MONTH'S SUPPLY
GERMANTOWN PMA

Price Range	Closings 2023	Current Listings As of 1/1/2023	Months of Inventory
Single Family Detached			
Under $200,000	39	6	1.85
200,000 - 249,999	129	18	1.67
250,000 - 299,999	228	32	1.68
300,000 - 349,999	288	42	1.75
350,000 - 399,999	308	32	1.25
400,000 - 449,999	261	28	1.29
450,000 - 499,999	223	37	1.99
500,000 - 549,999	178	46	3.10
550,000 - 599,999	123	42	4.10
600,000 - 699,999	210	56	3.20
700,000 & Above	280	90	3.86
Total	***2,267***	***429***	***2.27***
Duplex/Fourplex/Condominium			
Under $100,000	31	1	0.39
100,000 - 149,999	60	3	0.60
150,000 - 199,999	92	13	1.70
200,000 - 249,999	119	17	1.71
250,000 - 299,999	98	11	1.35
300,000 - 349,999	69	12	2.09
350,000 - 399,999	83	16	2.31
400,000 - 449,999	61	17	3.34
450,000 - 499,999	50	18	4.32
500,000 & Above	40	27	8.10
Total	***703***	***135***	***2.30***

Source: Southeast Wisconsin Multiple Listing Service

GENERAL LIMITING CONDITIONS

Tracy Cross & Associates, Inc. has made extensive efforts to confirm the accuracy and timeliness of the information contained in this study. Such information was compiled from a variety of sources, including interviews with developers/property managers and their agents, government officials, and other third parties. Although Tracy Cross & Associates, Inc. believes all information in this study is correct, it does not warrant the accuracy of such information and assumes no responsibility for inaccuracies in the information provided by third parties.

Conclusions and recommendations established in this analysis represent a professional opinion and are based upon forecasts into the future which could be significantly altered by outside occurrences. These include, among others, the possible interplay of unforeseen social, economic, physical/environmental, and governmental actions. In this regard, Tracy Cross & Associates, Inc., its owners, and its employees shall be held harmless of changes in conditions that may materially result from these occurrences.

SITE PLAN REVIEW
6/8/26 Plan Commission Meeting

Zilber Development LLC / TI Investors of Germantown VI LLC

Village Staff Report & Recommendation ***Germantown, Wisconsin***

Summary

Andrew Shoaf, Pinnacle Engineering, and Frank Dekan, agents for ZPG Development LLC and TI Investors of Germantown VI LLC, property owner, are requesting approval of site development and building plans for a 252,512 sqft multi-tenant industrial building (Zilber #7) in the Germantown Gateway Corporate Park.

Location: W210 N13145 Gateway Crossing

Applicant/ Property Owner:

Andrew Shoaf
Pinnacle Engineering
20725 Watertown Road
Brookfield, WI

Frank Dekan
ZPG Development LLC
Zilber Property Group
710 N. Plankinton Ave
Milwaukee, WI

Current Zoning: M-1: Limited Industrial/PDD

Adjacent Land Uses		Zoning
North	Agricultural	A-1
South	Industrial	M-1
East	Industrial	M-1
West	Industrial	M-1

Location Map

Background

In March, 2022, the Zilber Property Group and ZPG Development, LLC, property owner, received approval to amend/expand the Germantown Gateway Corporate Park Planned Development District (M-1/PDD) to add 55.9 acres to the Germantown Gateway Corporate Park PDD on the west side of Gateway Crossing. Since then, site development and building plans were approved for a 233,327 sqft industrial building (Zilber #5) and a 233,482 sqft industrial building (Zilber #6) to the south in 2023. Site development & buildings plans for the last building in the Corporate Park (Zilber #7) were submitted and subsequently approved by the Plan Commission in 2023 but never constructed.

Proposal

At this time, the Zilber Property Group is requesting approval for site development and building plans for the last building in the Germantown Gateway Corporate Park. Zilber #7 is a proposed 252,512 sqft industrial building north of Zilber 6 west of Gateway Crossing and south of Rockfield Road. As detailed in the attached plans, development of the Zilber #7 building will have the following characteristics:

Site Improvements:

- Two (2) access driveways onto Gateway Crossing (one main access driveway for employees and visitors on the north side of the lot and another access for trucks on the south side of the proposed building);
- Public sanitary sewer and water facilities with connections to the public utilities being extended to the site and installed in the Gateway Crossing public right-of-way;
- Underground storm sewer across the site for storm water management with connections to the “regional” storm water pond already constructed on the west side of the Zilber #7 parcel;
- Parking along the north and east side of the site with a total of 242 employee/visitor parking stalls (9’x20’) w/ 6 ADA-compliant stalls; 102 stalls future parking along north side of site & 70 future trailer stalls
- Truck parking along the south side of the site with 62 truck/trailer stalls (12’x55’) and 26 dock bays w/ “knockout” panels for an additional 28 docks; 2 drive-in bays w/ 4 “knockout” panels for an additional 4 drive-in bays;
- Perimeter berming & plantings along Rockfield Road and Gateway Crossing with deciduous street trees, ornamental trees and shrubs and building foundation landscaping along the west, north and east sides of the building.

Building Improvements:

- 252,512 total square foot industrial building
- 13’ & 14’ wide x 37 & 39’ clear height painted pre-cast concrete wall panels with multiple vertical joints & reveals, painted white, medium grey, dark grey, and an accent bands of charcoal 2 two corner entry points
- Elevation is stepped to reduce the scale w/ recessed panels and reveals
- Aluminum storefront window systems with clearstory windows

Storm Water Management. A total of 484,089 sqft (11.1 acres) of impervious surfaces are proposed as part of the Zilber #7 site development or 48.8% of the total 22.8-acre site leaving 51.2% in open/green space. All on-site storm sewer is connected to the corporate park “regional” storm water pond constructed along the west side of all the lots west side of Gateway Crossing.

Landscaping & Buffering. A significant amount of landscaping and berming is proposed along the north and east sides of the site and foundations of the building. Overall, plantings consist of a variety of deciduous street and shade trees, ornamental trees, evergreen trees, deciduous and evergreen shrubs, perennial plantings and ornamental grasses.

Lighting. Exterior lighting for the site includes:

- (11) 111W LED cut-off style building-mounted fixtures at a height of 35' on all building elevations
- (6) 111W LED cut-off style exterior pole mounted fixtures mounted at a height of 23' (20' pole + 2' base)

Given the location of the building on the perimeter of the corporate park and across the road from an area with future land uses that have not yet been determined, Staff recommends that the light poles in the north parking lot also be fitted with appropriate shielding to cast light south onto the parking lot to limit glare and light being cast north of Rockfield Road.

Signage. No signage is proposed at this time. A sign permit will need to be reviewed and approved by the Plan Commission prior to any sign installation.

Staff Comments

No roof-top HVAC units are proposed at this time and no roof plan showing potential RTU locations has been provided at this time given the speculative nature of the building being constructed. Depending on future tenants, roof-mounted HVAC mechanicals may be installed in the future; While there is a modest 2' high parapet proposed along portions of the roof line, no roof plan showing the actual location and possible sight lines has been provided (despite a note indicating one was provided). Consequently, no screening is proposed at this time. A sight-line diagram was prepared for previous Zilber buildings that indicated a minimum setback distance of 14 feet would be required from the edge of the parapet wall to not be visible from Gateway Crossing. It is unknown if the same holds true for the Zilber #7 building. Therefore, the future tenant should be required to provide a roof plan with RTU location and sightline diagrams as part of any building "build out" plans. RTU's should be screened from view by line of sight and setback a minimum 14 feet from the outer wall edge. If RTU's cannot be hidden from view, screen walls or other mutually acceptable features intended to shield the view of said RTU's should be submitted to the Village Planner (or Plan Commission if determined necessary by the Village Planner) for review and approval prior to build out construction and tenant occupancy (determined at the time a Zoning Permit is applied for by the prospective tenant).

No details regarding the size, location and materials for any dumpster enclosure(s) have been provided. Dumpster enclosures should be designed to meet the Village's dumpster enclosure guidelines. Future tenants should be required to provide proposed dumpster enclosure plans to be reviewed by staff prior to occupancy.

Fire Department/Police Department

No comment (site development & building plans are acceptable).

Public Works/Village Engineer
The Village Engineer has identified a few technical corrections needed in the water & wastewater utility plans in a June 2, 2026, memo from Tim Zimmerman, Public Works Director. These items should be addressed in a revised set of plans prior to commencing construction and issuance of a building permit.

Village Forester
No comment (landscape plans are acceptable).

Building Inspection Services
State agency (DSPS) approved plans and a $20,000 occupancy bond are required by Inspection Services at the time of building permit application. The Village of Germantown is an authorized delegated agent of and alternative to DSPS for all commercial plan review and inspection services through SAFEBuilt of WI and the Village of Germantown.

VILLAGE STAFF RECOMMENDATION

APPROVE the site development and building plans for the 252,512 sqft Zilber #7 industrial building located at W210 N13145 Gateway Crossing in the Germantown Gateway Corporate Park subject to the following conditions:

1. This approval is subject to all the conditions and requirements set forth herein and adopted by the Plan Commission. Approval is granted for the following architectural and engineering plans unless superseded by subsequent plan sheets approved by Village Staff pursuant to revisions required herein and/or by the Plan Commission:
    a. Civil Engineering and Infrastructure Plans labeled Germantown Zilber 7 at Gateway Corporate Park dated April 16, 2026;
    b. Architectural plans labeled Zilber 7 at Germantown Gateway Corporate Park dated April 15, 2026;
    c. Exterior lighting plans dated April 14, 2026;
    d. Landscaping Plans dated April 16, 2026

2. All landscaping, screening, grading, and paving improvements shown on the approved site plans shall be installed as proposed prior to issuance of an occupancy permit unless a cash bond or letter of credit in an amount equal to 120 percent of the estimated installation and material costs reviewed and approved by the Village is submitted to the Village as necessary to ensure that installation of the proposed features and improvements will be completed within one (1) year after issuance of the occupancy permit.

3. All exterior doors (except primary entrance) shall be clearly marked with reflective 5” or larger letters/numbers to aid emergency personnel access as required by the Police Department.

4. All outstanding items, issues and plan revisions required by Village Staff in the following review memos shall be resolved and reflected in additional information and/or revised plans submitted to Staff for further review, comment and approval prior to issuance of a building permit for the Zilber #7 building (excluding “early start” site clearing and footing/foundation work approved by the Village and/or WI DSPS):
    a. June 2, 2026, memo from Public Works Director, Tim Zimmerman

5. State agency (DSPS) approved plans and a $20,000 occupancy bond are required by Inspection Services at the time of building permit application. The Village of Germantown is an authorized delegated agent of DSPS to provide all commercial plan review and inspection services through SAFEBuilt of WI and the Village of Germantown (if necessary).

6. The Zilber Property Group shall notify the prospective tenant that the tenant is responsible for providing a roof plan with the location of all roof-mounted HVAC units and any other roof-mounted equipment along with sightline diagrams as part of all future building “build out” plans at the time a Zoning/Occupancy Permit is obtained. RTU’s shall be setback a minimum of 14 feet from the perimeter roof/wall edge to obscure the view of all RTU’s from property lines around the building and the centerline of the Gateway Crossing. If RTU’s cannot be hidden from view, screen walls or other mutually acceptable features intended to shield the view of said RTU’s shall be submitted to the Village Planner (or Plan Commission if determined necessary by the Village Planner) for review and approval prior to build out construction and issuance of an occupancy permit.

7. Dumpster enclosures shall be designed to meet the Village’s dumpster enclosure guidelines. Future tenants shall be required to provide proposed dumpster enclosure plans for review and approval by the Village Planner prior to issuance of an occupancy permit.

Village of Germantown
...Willkommen

SCANNED

Fee must accompany application
- ☐ $810 Minor Addition
- ☐ $1,430 Construction <10,000 SF
- ☐ $2,410 Construction 10,000 SF to 50,000
- ☒ $3,980 Industrial Construction >50,000 SF
- ☐ $3,980 Commercial Construction >50,000
- ☐ $350 Plan Commission Consultation
- ☐ $125 Fire Department Plan Review

Paid On: 4/16/26 Check/CC 01132198

SITE PLAN REVIEW APPLICATION

Pursuant to Section 17.43 of the Municipal Code

Please read and complete this application carefully. All applications must be signed and dated.

1 APPLICANT OR AGENT

Andrew Shoaf, P.E.
Pinnacle Engineering Group
20725 Watertown Road, Suite 100
Brookfield, WI 53186

Phone [redacted]
E-Mail [redacted]

PROPERTY OWNER

Frank Dekan
ZPG Development LLC
710 N. Plankinton Ave
Milwaukee, WI 53203

Phone [redacted]
E-Mail [redacted]

PLEASE NOTE: Applicant contact information has been redacted for security purposes.

2 PROPERTY ADDRESS

Located within lot 9 of the Germantown Gateway Corporate Park in Germantown WI
W210 N13145 Gateway Crossing

3 NEIGHBORING USES – Specify name and type of use, e.g. Enviro Tech – Industrial, Smith – Residential, etc.

North	South	East	West
Rockfield Rd - Public Road	Zilber Industrial 6 W210 N12995 Gateway Crossing	Gateway Crossing / Gateway Crossing Business Park	Brian A Kazmierczal Undeveloped

4 READ AND INITIAL THE FOLLOWING:

X I am aware of the Village of Germantown ordinance requiring fire sprinklers in most new construction.

X I understand that all new development is subject to Impact and/or Connection Fees that must be paid before building permits will be issued.

X I understand that an incomplete application will be withdrawn from the Plan Commission agenda and that all resubmissions to the Plan Commission are subject to a new application fee.

5 SIGNATURES – ALL APPLICATION MUST BE SIGNED BY OWNER!

Applicant 4/15/26 Date

Owner 3/26/26 Date

RECEIVED
APR 16 RECD
OFFICE OF THE VILLAGE PLANNER
VILLAGE OF GERMANTOWN

Revised 12/5/25

Sharepoint>06-APPLICATIONS ALL>Application Forms>Site Plan

ZILBER
PROPERTY GROUP SM

ABACUS ARCHITECTS

ZILBER
PROPERTY GROUP SM

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ARCHITECTS

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PROPERTY GROUP SM

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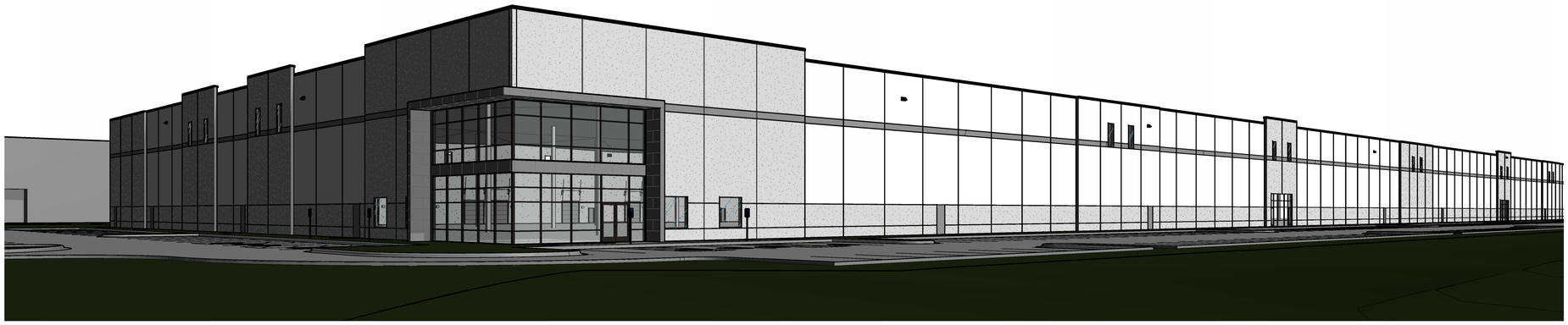
ZILBER PROPERTY GROUP

ZILBER INDUSTRIAL 7 AT GERMANTOWN
GATEWAY CORPORATE PARK

GERMANTOWN, WI



CIVIL	
C-1	COVER SHEET
C-2	EXISTING CONDITIONS / DEMOLITION PLAN
C-3	OVERALL SITE DIMENSIONAL & PAVING PLAN
C-4	SITE DIMENSIONAL & PAVING PLAN
C-5	SITE DIMENSIONAL & PAVING PLAN
C-6	OVERALL GRADING PLAN
C-7	GRADING PLAN
C-8	GRADING PLAN
C-9	OVERALL UTILITY PLAN
C-10	UTILITY PLAN
C-11	UTILITY PLAN
C-12	OVERALL SITE STABILIZATION PLAN
C-13	SITE STABILIZATION PLAN
C-14	SITE STABILIZATION PLAN
C-15	CONSTRUCTION DETAILS
C-16	CONSTRUCTION DETAILS

PINNACLE ENGINEERING
710 N PLANKINTON AVE,
MILWAUKEE, WI, 53203
414-224-8068

LANDSCAPE	
L-1	LANDSCAPE PLAN
L-2	LANDSCAPE PLAN
L-3	LANDSCAPE PLAN
L-4	LANDSCAPE PLAN
L-5	LANDSCAPE PLAN

PINNACLE ENGINEERING
710 N PLANKINTON AVE,
MILWAUKEE, WI, 53203
414-224-8068

ARCHITECTURAL	
A 101	TITLE SHEET
A 201	SITE PLAN
A 302	FLOOR PLAN & CLERESTORY PLAN
A 303	FLOOR PLAN AREA "A"
A 304	FLOOR PLAN AREA "B"
A 502	COLORED EXTERIOR ELEVATIONS
A 503	ENLARGED ENRTY ELEVATIONS
A 504	MATERIAL BOARD
A 701	ROOF PLAN & DETAILS

ABACUS ARCHITECTS, INC.
1135A MICHIGAN AVENUE
SHEBOYGAN, WISCONSIN 53081
P: 920-452-4444

STRUCTURAL
RA SMITH 16745 W BLUEMOUND RD BROOKFIELD, WI, 53005 262-781-1000

SITE LIGHTING
ENTERPRISE LIGHTING 2007 PEWAUKEE RD WAUKESHA, WI, 53188 262-953-2700

PROJECT INFORMATION

APPLICABLE BUILDING CODES

2025 WISCONSIN ADMINISTRATIVE CODE (W.C.B.C.), SPS 361-366
2021 INTERNATIONAL BUILDING CODE (IBC)
2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
2017 ICC / ANSI A117.1 ACCESSIBLE AND USABLE BUILDING AND FACILITIES
2017 ANSI A117.1 WISCONSIN ACCESSIBILITY CODE (A117.1 20170)
2019 WISCONSIN SPRINKLER CODE 2019 (NFPA 13, 2019)
2019 WISCONSIN FIRE ALARM CODE (NFPA 72, 2019)

PROJECT SUMMARY

'GERMANTOWN INDUSTRIAL' IS A NEW PRECAST INDUSTRIAL BUILDING WITH FUTURE TENANT SPACE BUILD-OUT.

BUILDING AREA

NEW BUILDING AREA:
FIRST FLOOR AREA - 252,720 S.F.

CONSTRUCTION CLASSIFICATION

TYPE IIB CONSTRUCTION (W.C.B.C. SECTION 602.2)

FIRE-RESISTIVE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS) (W.C.B.C. TABLE 601)

PRIMARY STRUCTURAL FRAME:	0 HR
BEARING WALLS - EXTERIOR:	0 HR
BEARING WALLS - INTERIOR:	0 HR
NON-BEARING WALLS - EXTERIOR:	0 HR
NON-BEARING WALLS - INTERIOR:	0 HR
FLOOR CONSTRUCTION & SECONDARY FRAMING:	0 HR
ROOF CONSTRUCTION & SECONDARY FRAMING:	0 HR

OCCUPANCY CLASSIFICATION

NON-SEPARATED OCCUPANCIES (W.C.B.C. SECTION 508.3)

OTHER USE GROUPS PRESENT IN THE BUILDING INCLUDE:

FACTORY INDUSTRIAL GROUP "F-1" MODERATE HAZARD (W.C.B.C. SECTION 306.2)

*BUILDING IS CLASSIFIED AS A FULLY SPRINKLERED F-1 OCCUPANCY. IT MAY INCLUDE FUTURE, LESS RESTRICTIVE NON-SEPARATED OCCUPANCIES SUCH AS F-2, S-1, S-2, OR B.

FIRE PROTECTION

BUILDING IS FULLY PROTECTED WITH AN AUTOMATIC SPRINKLER SYSTEM PER NFPA 13

ALLOWABLE HEIGHT AND AREA

TABULAR AREA ALLOWANCE (W.C.B.C. TABLE 506.2)
USE GROUP F-1* / CONSTRUCTION
CLASSIFICATION TYPE IIB
SPRINKLERED, SINGLE STORY
ALLOWABLE AREA = UL AREA PER I.B.C. 507.4

ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE: 75' (W.C.B.C. TABLE 504.3)
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE: 3 (W.C.B.C. TABLE 504.4)

BUILDING HEIGHT (ACTUAL) = 1 STORY / 40FT.
BUILDING AREA (ACTUAL) = 252,720 SQ. FT.

BUILDING QUALIFIES FOR UNLIMITED AREA PER (W.C.B.C. SECTION 507.4)

MEANS OF EGRESS AND EXIT DISTANCE

EXIT ACCESS TRAVEL DISTANCE - WITH AUTOMATIC SPRINKLER SYSTEM (W.C.B.C. TABLE 1017.2) = 250 FT.

OCCUPANT LOAD

254,851 SF/ 500 GROSS (WAREHOUSE) = 505 OCCUPANTS (W.C.B.C. TABLE 1004.5)

DETERMINATION OF NO. OF STORIES ABOVE GRADE

BUILDING IS 1 STORY ABOVE GRADE WITHOUT BASEMENT (W.C.B.C. TABLE 504.4)

SANITARY FIXTURES

(2) ACCESSIBLE RESTROOMS ARE PROVIDED. REMAINING REQUIRED PLUMBING FIXTURES TO BE PROVIDED DURING TENANT BUILD-OUTS, BASED ON TENANT PERMITTING.

CLIENT SIGN-OFF

PRINT NAME:	DATE:
SIGNATURE	
PRINT NAME:	DATE:
SIGNATURE:	

BY SIGNING THIS DOCUMENT, I ACKNOWLEDGE THAT I HAVE RECEIVED THE DESIGN INTENT DELIVERABLES FOR THIS PHASE OF THE PROJECT.

GENERAL CONTRACTOR

RILEY CONSTRUCTION
N19 RIDGEVIEW PKWY,
WAUKESHA, WI, 53188
414-359-0100

PROJECT NOTES

EXTENT OF WORK

THE INTENT OF THE CONTRACT DOCUMENTS IS TO INCLUDE ALL ITEMS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK BY THE CONTRACTOR. PERFORMANCE BY THE CONTRACTOR SHALL BE REQUIRED TO THE EXTENT CONSISTENT WITH THE CONTRACT DOCUMENTS AND REASONABLY INFERABLE FROM THEM AS BEING NECESSARY TO PRODUCE THE INTENDED RESULTS.

SITE VISIT

THE CONTRACTOR SHALL VISIT THE SITE, BECOME FAMILIAR WITH LOCAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND CORRELATE PERSONAL OBSERVATIONS WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS.

NOTICE TO BIDDERS

BIDDERS SHALL REVIEW ALL DRAWINGS AND ALL SPECIFICATION SECTIONS TO DETERMINE THE IMPACT OF OTHER SECTIONS OF WORK ON THEIR OWN WORK.

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PRELIMINARY - NOT FOR CONSTRUCTION

ISSUE DATE: 4/15/2026

ZILBER PROPERTY GROUP

ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK

GERMANTOWN, WI

1135A MICHIGAN AVE. SHEBOYGAN, WI 53081 | (920) 452-4444 | 640 VEL R. PHILLIPS AVE. SUITE 210, MILWAUKEE, WI 53203

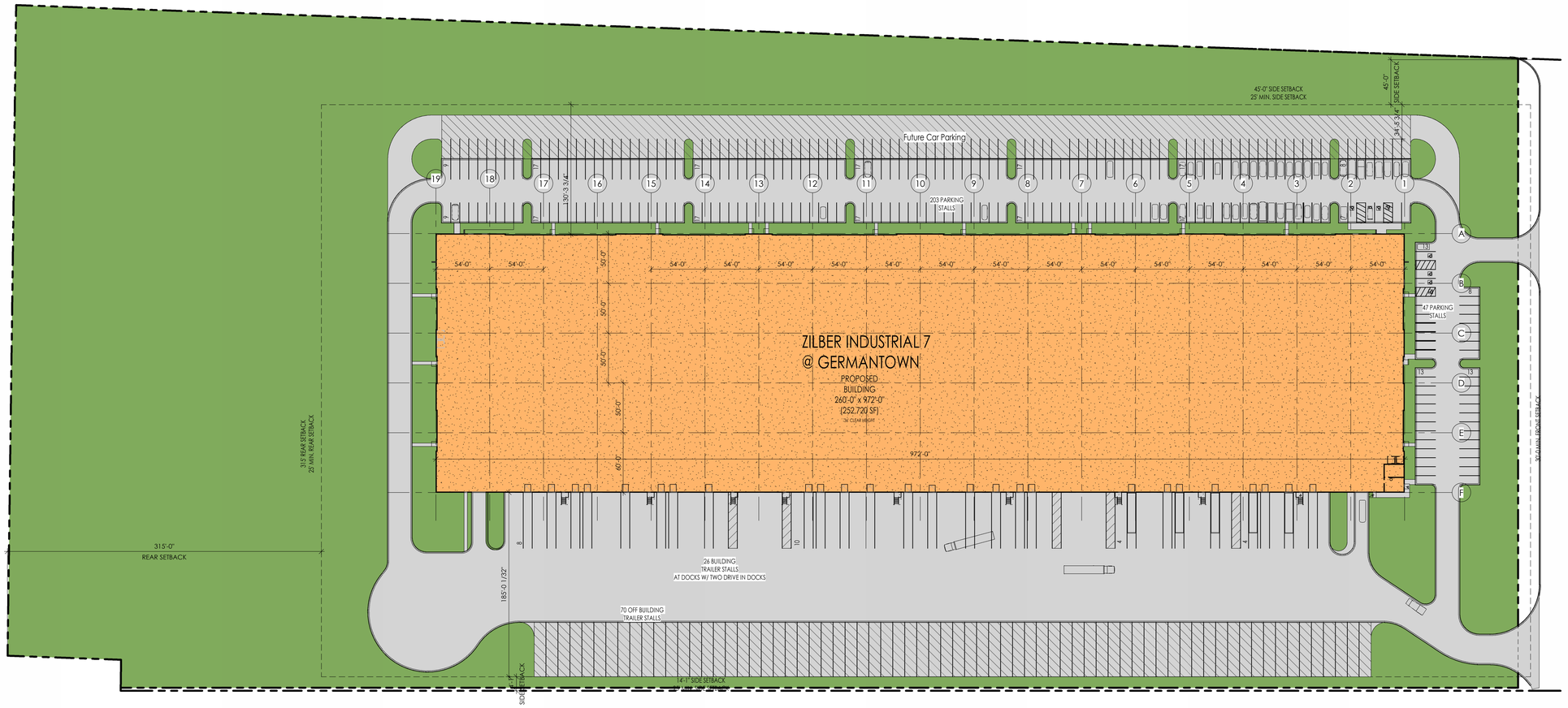
DRAWN BY: MSJ

CHECKED BY: JMH

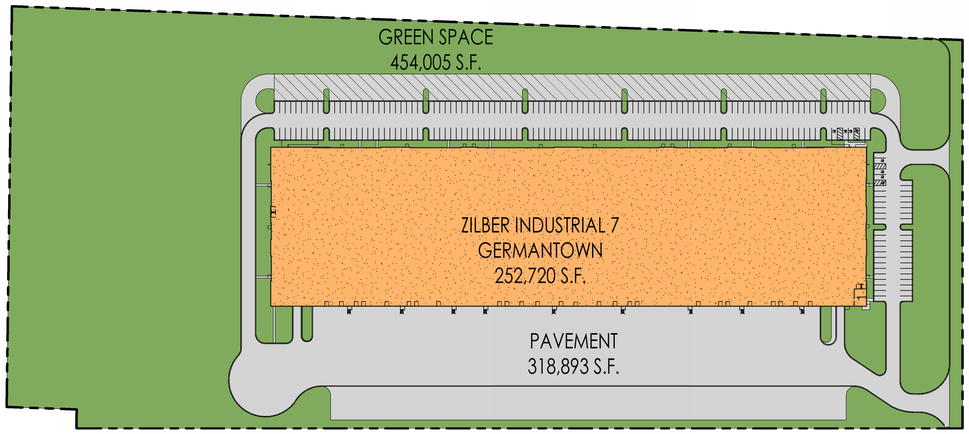
TITLE SHEET

A
101

PROJ. NO. 2026-053



ARCHITECTURAL SITE PLAN (1 / A 201)
SCALE: 1" = 50'-0"



ARCHITECTURAL SITE PLAN - GREEN SPACE CALCULATIONS (2 / A 201)
SCALE: 1" = 100'-0"

SITE KEY

PAVEMENT	
GREEN SPACE	
BUILDING	

ZONING REQUIREMENTS AND CLEARANCES

ZILBER INDUSTRIAL 7
GATEWAY CORPORATE PARK
GERMANTOWN, WI, 53022

SITE TOTALS

PROPOSED USE (SEC. 17.42) LIGHT INDUSTRIAL, MANUFACTURING TOTAL REQUIRED STALLS: 1 PER 500 SF ### STALLS REQUIRED TOTAL PROVIDED STALLS ON ZILBER LOT: 230 STALLS - (8) ADA 70 OFF BUILDING TRAILER STALLS 26 TRAILER STALLS FOR DOCKS	23.54 AC TOTAL 5.80 AC BUILDING 10.43 AC GREEN SPACE 7.31 AC PAVEMENT
346 PARKING STALLS TOTAL	24.6% BUILDING 44.2% GREEN SPACE 31.2% PAVEMENT

ABACUS ARCHITECTS

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ZILBER PROPERTY GROUP

ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK

GERMANTOWN, WI

1135A MICHIGAN AVE. SHEBOYGAN, WI 53081 | (920) 452-4444 | 640 VEL R. PHILLIPS AVE. SUITE 210, MILWAUKEE, WI 53203

PRELIMINARY - NOT FOR CONSTRUCTION

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CHECKED BY: JMH

SITE PLAN

A 201

PROJ. NO. 2026-053

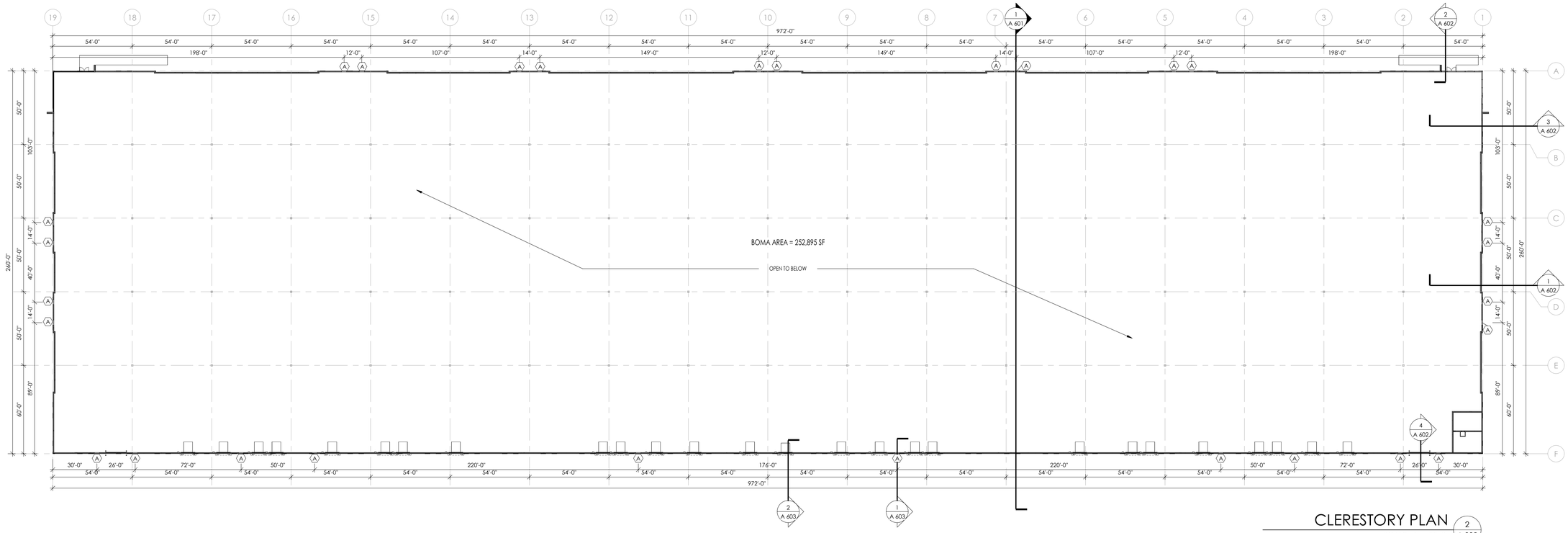
FLOOR PLAN KEYNOTES

NO.	DESCRIPTION
1	DOCK STAIR
2	8'-0" x 7'-0" DOCK LEVELER
3	CANOPY ABOVE

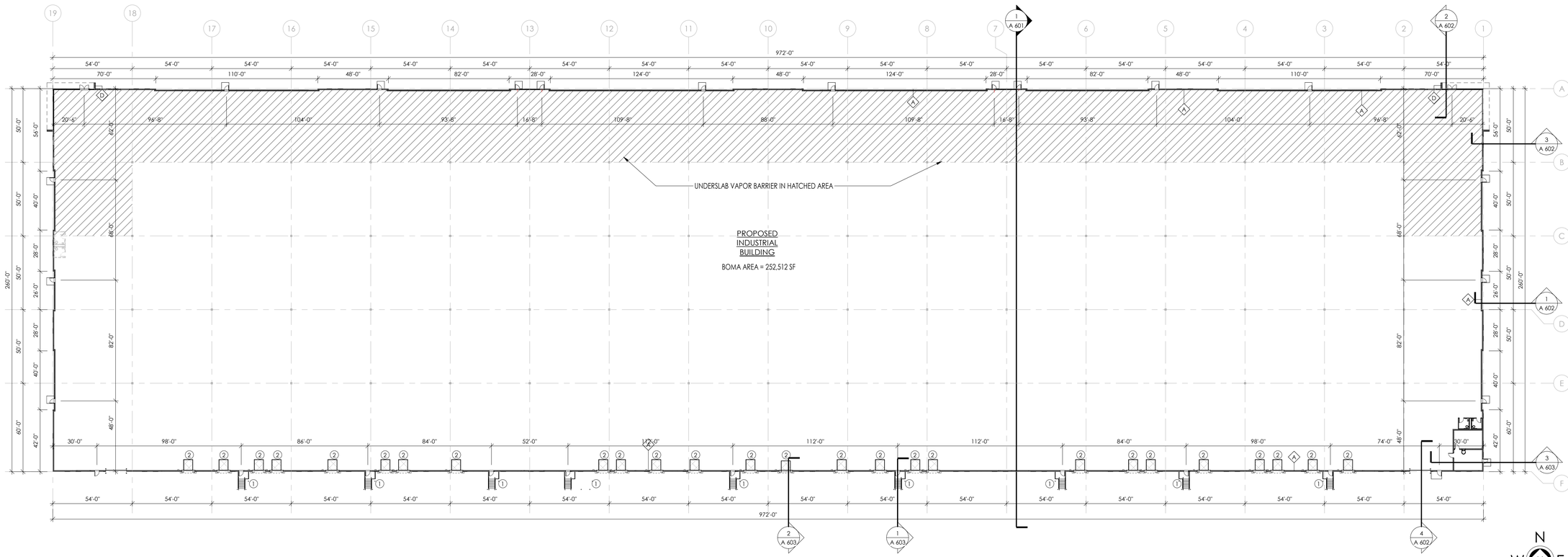
GENERAL PLAN NOTES

- ALL LOOSE FURNISHINGS SHOWN ON PLANS ARE NOT IN CONTRACT AND ARE SHOWN FOR REFERENCE PURPOSES ONLY. ANY DEVICES OR EQUIPMENT TO BE LOCATED BASED ON LOCATION OR CONFIGURATION OF LOOSE FURNISHINGS SHALL BE VERIFIED WITH THE OWNER PRIOR TO INSTALLATION.
- INTERIOR DIMENSIONS ARE GIVEN FROM FACE OF STUD TO FACE OF STUD.

PRELIMINARY



CLERESTORY PLAN
SCALE: 1" = 30'-0"



FIRST FLOOR PLAN
SCALE: 1" = 30'-0"

N W E S

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ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK

GERMANTOWN, WI

1135A MICHIGAN AVE. SHEBOYGAN, WI 53081 | (920) 452-4444 | 640 VEL R. PHILLIPS AVE. SUITE 210, MILWAUKEE, WI 53203

ISSUE DATE: 4/15/2026

ZILBER PROPERTY GROUP

DRAWN BY: MSJ

CHECKED BY: JMH

FLOOR PLAN & CLERESTORY PLAN

A 302

PROJ. NO. 2026-053

FLOOR PLAN KEYNOTES

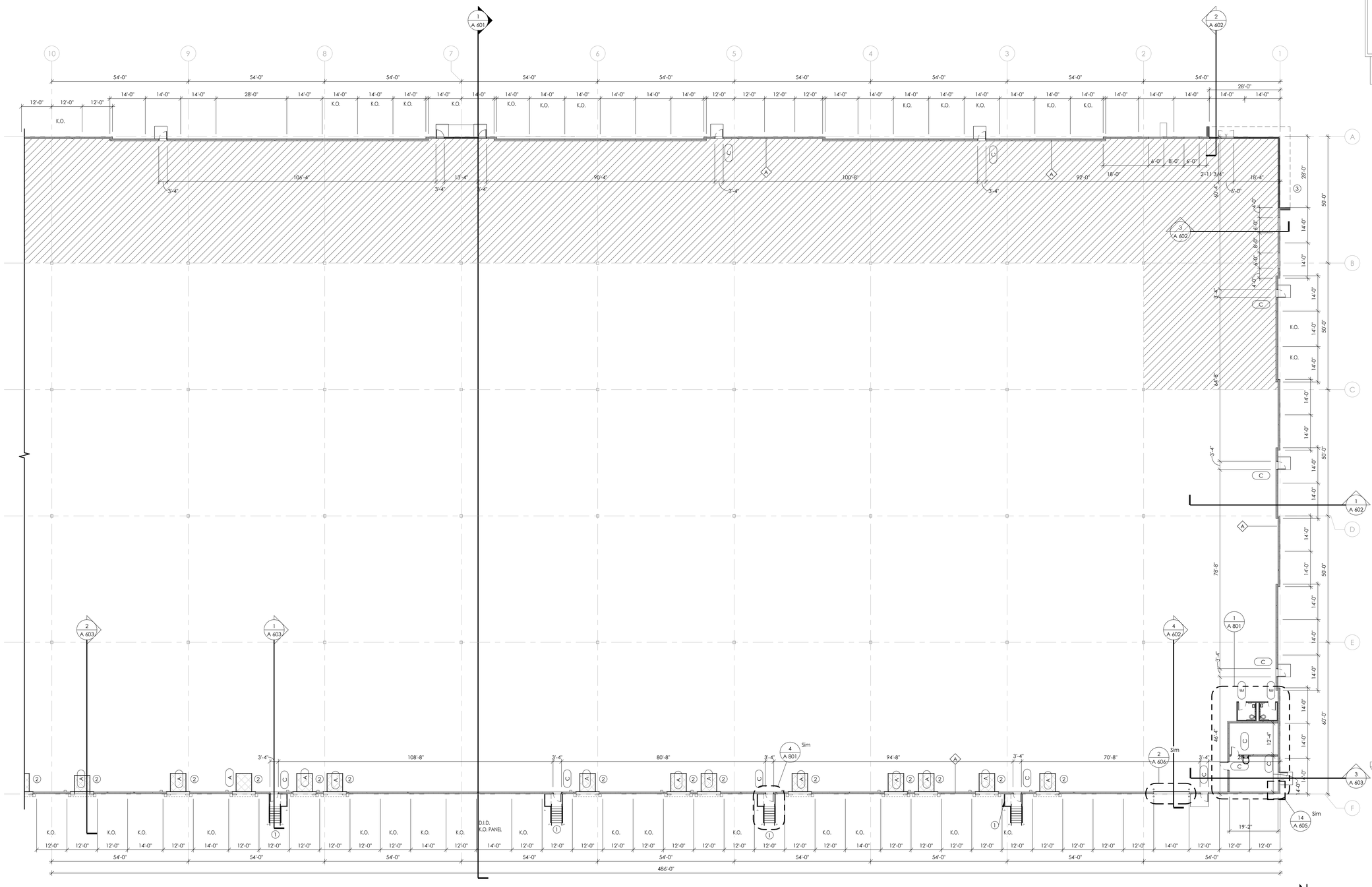
NO.	DESCRIPTION
1	DOCK STAIR
2	8'-0" x 7'-0" DOCK LEVELER
3	CANOPY ABOVE

GENERAL PLAN NOTES

- ALL LOOSE FURNISHINGS SHOWN ON PLANS ARE NOT IN CONTRACT AND ARE SHOWN FOR REFERENCE PURPOSES ONLY. ANY DEVICES OR EQUIPMENT TO BE LOCATED BASED UPON LOCATION OR CONFIGURATION OF LOOSE FURNISHINGS SHALL BE VERIFIED WITH THE OWNER PRIOR TO INSTALLATION.
- INTERIOR DIMENSIONS ARE GIVEN FROM FACE OF STUD TO FACE OF STUD.

PRELIMINARY

KEY PLAN AREA "A"



FIRST FLOOR PLAN 1 A 303
SCALE: 1/16" = 1'-0"

N W E S

ABACUS ARCHITECTS

REVISIONS:

	DATE	ISSUE

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ISSUE DATE: 4/15/2026
ZILBER PROPERTY GROUP
ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK
GERMANTOWN, WI
1135A MICHIGAN AVE. SHEBOYGAN, WI 53081 | (920) 452-4444 | 640 VEL R. PHILLIPS AVE. SUITE 210, MILWAUKEE, WI 53203
PRELIMINARY - NOT FOR CONSTRUCTION

DRAWN BY: MSJ
CHECKED BY: JMH

FLOOR PLAN AREA "A"

A
303

PROJ. NO. 2026-053

FLOOR PLAN KEYNOTES

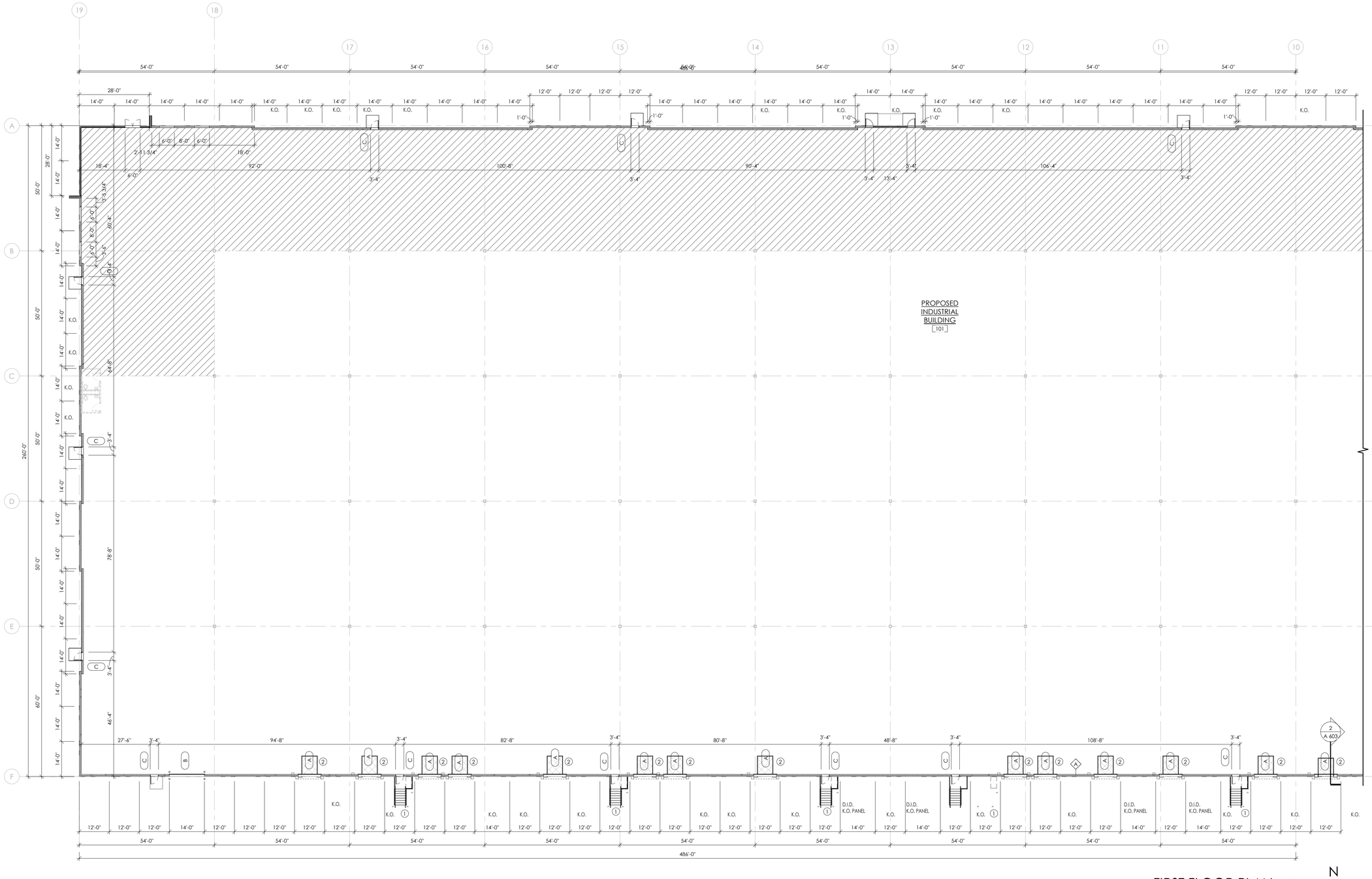
NO.	DESCRIPTION
1	DOCK STAIR
2	8'-0" x 7'-0" DOCK LEVELER
3	CANOPY ABOVE

GENERAL PLAN NOTES

- ALL LOOSE FURNISHINGS SHOWN ON PLANS ARE NOT IN CONTRACT AND ARE SHOWN FOR REFERENCE PURPOSES ONLY. ANY DEVICES OR EQUIPMENT TO BE LOCATED BASED ON LOCATION OR CONFIGURATION OF LOOSE FURNISHINGS SHALL BE VERIFIED WITH THE OWNER PRIOR TO INSTALLATION.
- INTERIOR DIMENSIONS TAKEN FROM FACE OF STUD TO FACE OF STUD.

PRELIMINARY

KEY PLAN AREA "B"



FIRST FLOOR PLAN (1 / A 304)

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

N W E S

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ZILBER PROPERTY GROUP

ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK

GERMANTOWN, WI

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PRELIMINARY - NOT FOR CONSTRUCTION

DRAWN BY: MSJ

CHECKED BY: JMH

FLOOR PLAN AREA "B"

A
304

PROJ. NO. 2026-053

EXTERIOR ELEV. KEYNOTES

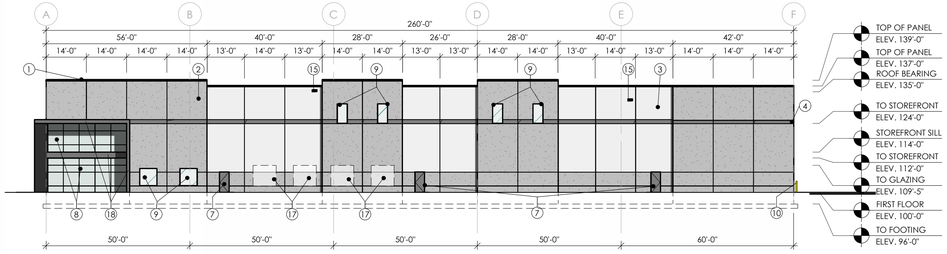
NO.	DESCRIPTION
1	PREFINISHED METAL COPING
2	PRECAST CONCRETE WALL PANEL - PAINTED P-01 (LIGHT GRAY)
3	PRECAST CONCRETE WALL PANEL - PAINTED P-02 (WHITE)
4	PRECAST CONCRETE WALL PANEL - PAINTED P-03 (DARK GRAY)
5	PREFINISHED STEEL INSULATED OVERHEAD DOOR
6	PREFINISHED STEEL INSULATED OVERHEAD DOOR WITH DOCK SEAL
7	INSULATED HOLLOW METAL DOOR AND FRAME
8	PREFINISHED ALUMINUM STOREFRONT SYSTEM, THERMALLY BROKEN w/ INSULATED GLASS

EXTERIOR ELEV. KEYNOTES

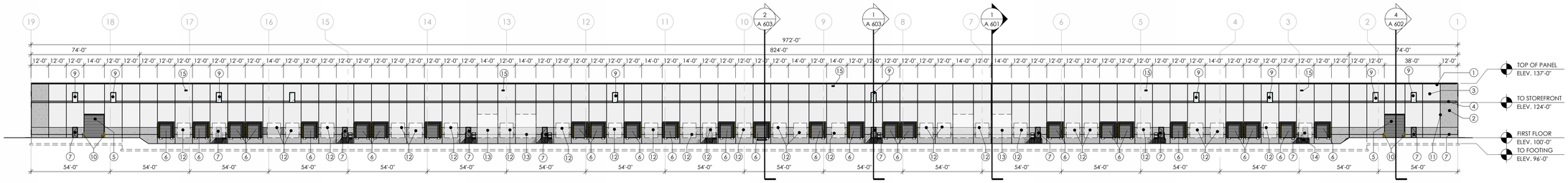
NO.	DESCRIPTION
9	PREFINISHED THERMALLY BROKEN ALUMINUM FRAME w/ INSULATED GLASS
10	6" DIA STEEL BOLLARD FILLED WITH CONCRETE - PAINTED
11	VERTICAL JOINT AT PRECAST CONCRET WALL PANEL
12	FUTURE PUNCHOUTS FOR DOCK DOORS
13	FUTURE PUNCHOUT FOR OVERHEAD DRIVE IN DOOR
14	GALVANIZED STEEL STAIR, HANDRAIL/ GUARDRAIL
15	OVERFLOW DRAIN DISCHARGE
16	KNOX BOX
17	FUTURE PUNCHOUT FOR WINDOWS
18	PREFINISHED METAL PANEL CLADDING
19	FUTURE PUNCHOUT FOR STOREFRONT ENTRY

GENERAL EXTERIOR ELEVATION NOTES

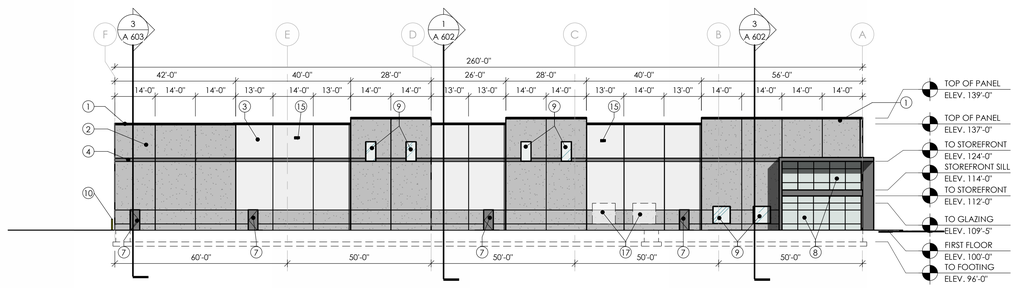
- ALL EXPOSED MISC. EXTERIOR STEEL SHALL BE PAINTED WITH PAINT FINISH E-1.
- MASONRY COURSING SHOWN FOR MATERIAL REPRESENTATION ONLY. ACTUAL COURSING MAY VARY.
- MASONRY CONTROL JOINTS SHALL BE LOCATED AT ALL MASONRY HEIGHT CHANGES, WINDOW OPENINGS, DOOR OPENINGS, 5' MAX. FROM BUILDING CORNERS, AND 25' MAX. AT CONTINUOUS WALL LOCATIONS.



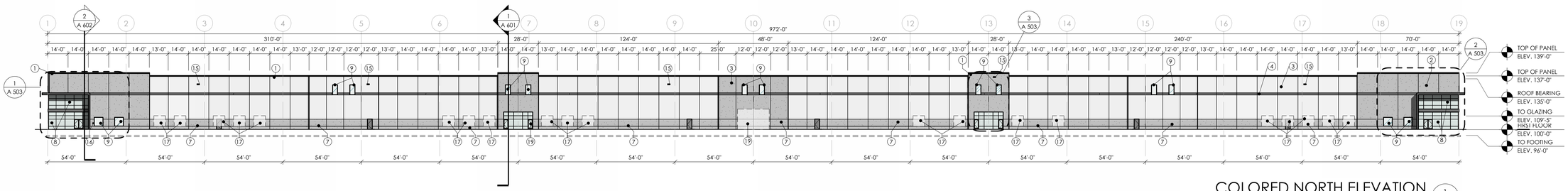
COLORED WEST ELEVATION (4 / A 502)
SCALE: 3/64" = 1'-0"



COLORED SOUTH ELEVATION (3 / A 502)
SCALE: 1" = 30'-0"



COLORED EAST ELEVATION (2 / A 502)
SCALE: 3/64" = 1'-0"



COLORED NORTH ELEVATION (1 / A 502)
SCALE: 1" = 30'-0"

ABACUS ARCHITECTS

REVISIONS:

△	DATE	ISSUE

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PRELIMINARY - NOT FOR CONSTRUCTION

ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK

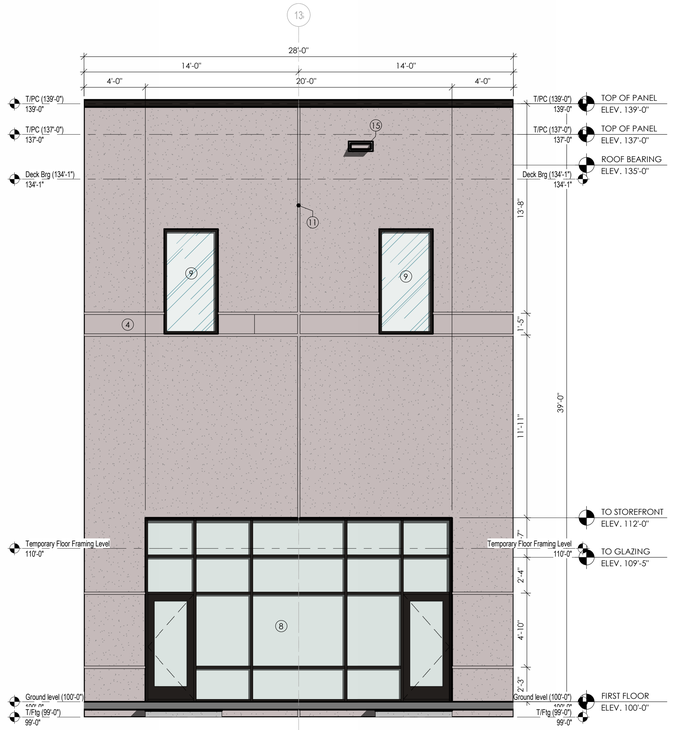
ISSUE DATE: 4/15/2026
ZILBER PROPERTY GROUP
GERMANTOWN, WI
1135A MICHIGAN AVE., SHEBOYGAN, WI 53081 | (920) 452-4444 | 640 VEL R. PHILLIPS AVE, SUITE 210., MILWAUKEE, WI 53203

DRAWN BY: MSJ
CHECKED BY: JMH

COLORED EXTERIOR ELEVATIONS

A
502

PROJ. NO. 2026-053



ENLARGED ENTRY ELEVATION

SCALE: 1/4" = 1'-0"

3 / A 503

EXTERIOR ELEV. KEYNOTES

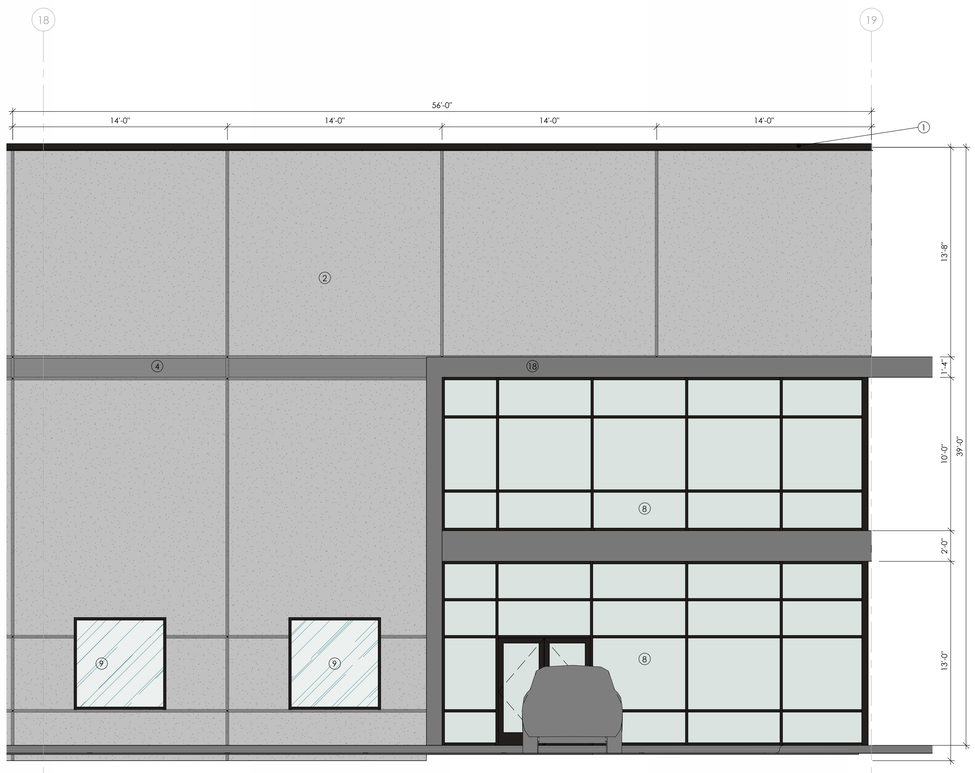
NO.	DESCRIPTION
1	PREFINISHED METAL COPING
2	PRECAST CONCRETE WALL PANEL - PAINTED P-01 (LIGHT GRAY)
3	PRECAST CONCRETE WALL PANEL - PAINTED P-02 (WHITE)
4	PRECAST CONCRETE WALL PANEL - PAINTED P-03 (DARK GRAY)
5	PREFINISHED STEEL INSULATED OVERHEAD DOOR
6	PREFINISHED STEEL INSULATED OVERHEAD DOOR WITH DOCK SEAL
7	INSULATED HOLLOW METAL DOOR AND FRAME
8	PREFINISHED ALUMINUM STOREFRONT SYSTEM, THERMALLY BROKEN w/ INSULATED GLASS

EXTERIOR ELEV. KEYNOTES

NO.	DESCRIPTION
9	PREFINISHED THERMALLY BROKEN ALUMINUM FRAME w/ INSULATED GLASS
10	6" DIA STEEL BOLLARD FILLED WITH CONCRETE - PAINTED
11	VERTICAL JOINT AT PRECAST CONCRET WALL PANEL
12	FUTURE PUNCHOUTS FOR DOCK DOORS
13	FUTURE PUNCHOUT FOR OVERHEAD DRIVE IN DOOR
14	GALVANIZED STEEL STAIR, HANDRAIL/ GUARDRAIL
15	OVERFLOW DRAIN DISCHARGE
16	KNOX BOX
17	FUTURE PUNCHOUT FOR WINDOWS
18	PREFINISHED METAL PANEL CLADDING
19	FUTURE PUNCHOUT FOR STOREFRONT ENTRY

GENERAL EXTERIOR ELEVATION NOTES

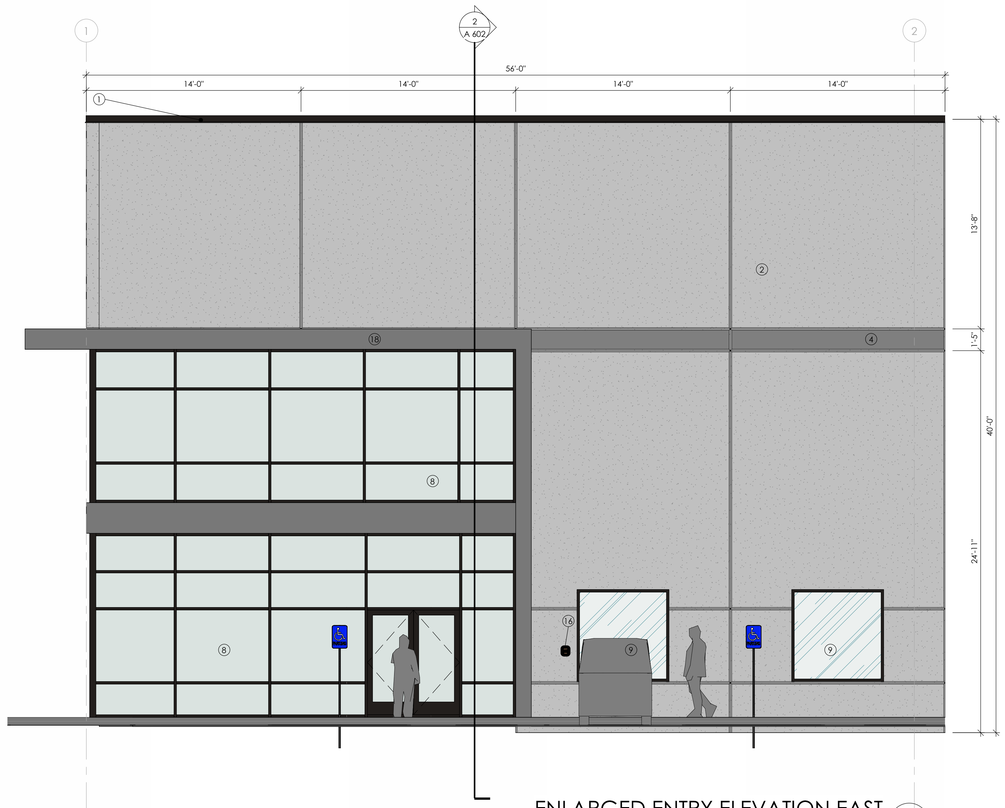
- ALL EXPOSED MISC. EXTERIOR STEEL SHALL BE PAINTED WITH PAINT FINISH E-1.
- MASONRY COURSING SHOWN FOR MATERIAL REPRESENTATION ONLY. ACTUAL COURSING MAY VARY.
- MASONRY CONTROL JOINTS SHALL BE LOCATED AT ALL MASONRY HEIGHT CHANGES, WINDOW OPENINGS, DOOR OPENINGS, 5' MAX. FROM BUILDING CORNERS, AND 25' MAX. AT CONTINUOUS WALL LOCATIONS.



ENLARGED ENTRY ELEVATION WEST

SCALE: 1/4" = 1'-0"

2 / A 503



ENLARGED ENTRY ELEVATION EAST

SCALE: 1/4" = 1'-0"

1 / A 503

ABACUS ARCHITECTS

REVISIONS:

△	DATE	ISSUE

NOTICE TO BIDDERS
BIDDERS SHALL REVIEW ALL DRAWINGS AND SPECIFICATION SECTIONS TO DETERMINE THE IMPACT OF OTHER SECTIONS OF WORK ON THEIR OWN WORK.

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ISSUE DATE: 4/15/2026

ZILBER PROPERTY GROUP

ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK

GERMANTOWN, WI

11355A MICHIGAN AVE. SHEBOYGAN, WI 53081 | (920) 452-4444 | 640 VEL R. PHILLIPS AVE. SUITE 210, MILWAUKEE, WI 53203

PRELIMINARY - NOT FOR CONSTRUCTION

DRAWN BY: MSJ

CHECKED BY: JMH

ENLARGED ENRTY ELEVATIONS

A 503

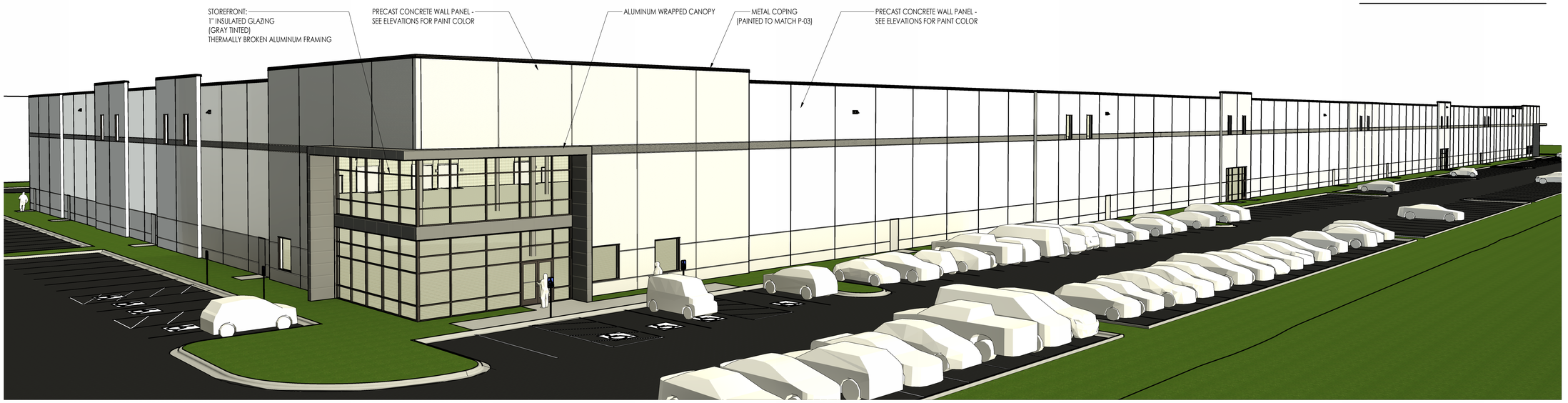
PROJ. NO. 2026-053

PAINT P-01
SW 9541 WHITE SNOW

PAINT P-02
SW 7072 ONLINE

PAINT P-03
SW 7075 WEB GRAY

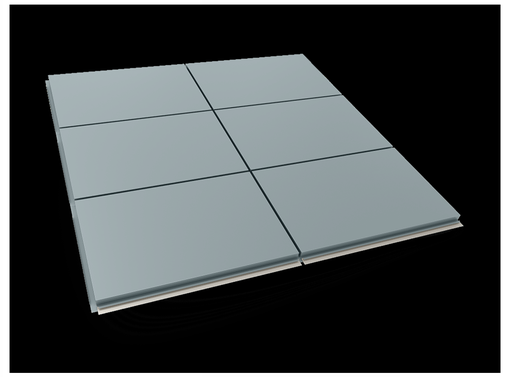
FRONT AXON



STOREFRONT GLAZING WITH
THERMALLY BROKEN ALUMINUM FRAMES

1" INSULATED GLAZING
(GRAY TINTED)

METAL COPING
(PAINTED TO MATCH P-03)



METAL PANEL
(PAINTED TO MATCH P-03)

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ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK

ISSUE DATE: 4/15/2026

ZILBER PROPERTY GROUP

GERMANTOWN, WI

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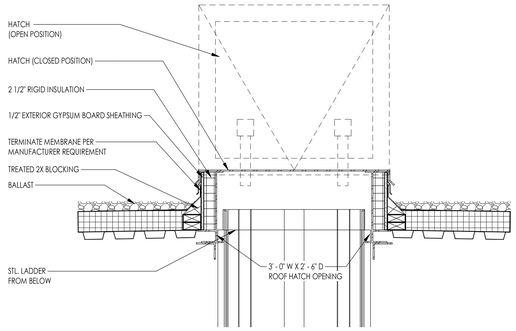
MATERIAL BOARD

A
504

PROJ. NO. 2026-053



ROOF HATCH 5 / A 701

SCALE: 1" = 1'-0"

GENERAL ROOF NOTES

- ROOF CONTRACTOR IS RESPONSIBLE FOR ROOF DRAINAGE INCLUDING TAPERED INSULATION LAYOUT, CRICKETS & SADDLES. SEE STRUCTURAL PLANS AND COORDINATE WITH PLUMBING, HVAC AND ELECTRICAL CONTRACTORS FOR ROOF TOP PENETRATIONS. PROVIDE WATER TIGHT INTEGRITY AT ALL ROOF PENETRATIONS AND EQUIPMENT PER FSR MANUFACTURERS REQUIREMENTS AND CURRENT NRCA STANDARDS.
- TAPERED INSULATION SLOPE TO BE 1/8" PER 1'-0" MINIMUM.

ROOF SYMBOLS

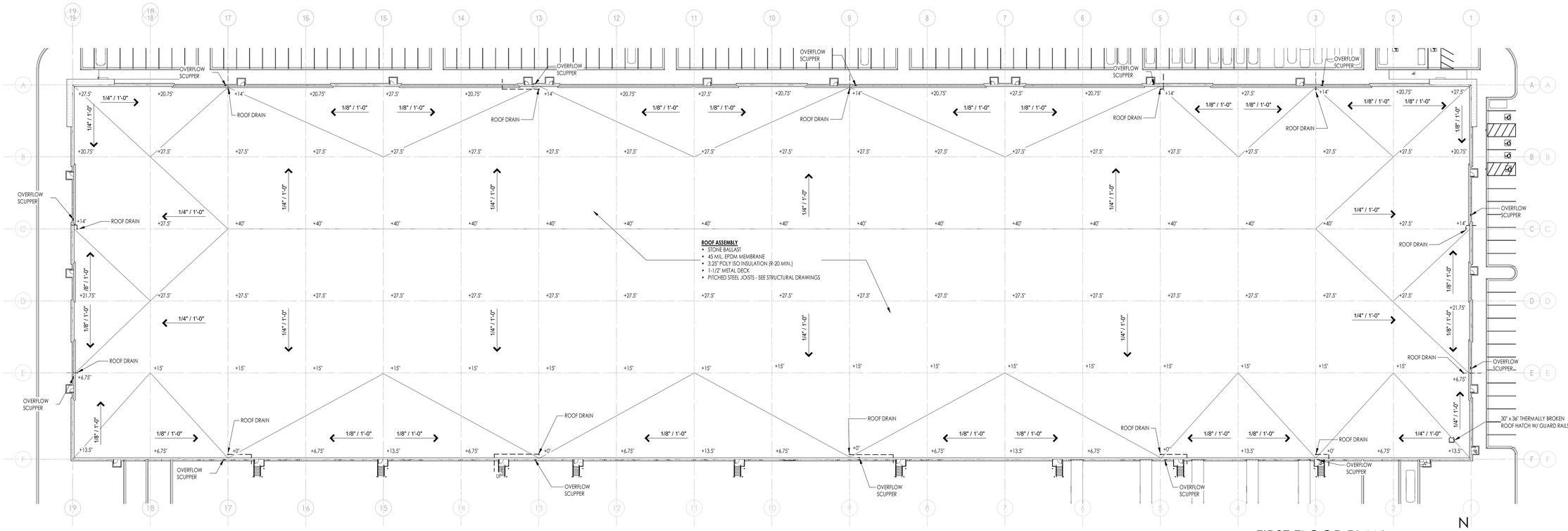
TAPERED INSULATION ROOF DRAINAGE
TAPERED EPS INSULATION OVER
____" ISO INSULATION OVER
1 1/2" METAL DECK OVER
FLAT STRUCTURE
(SEE ROOF PLAN FOR
TAPERED INSULATION THICKNESS)

SLOPED STRUCTURE ROOF DRAINAGE
____" ISO INSULATION OVER
1 1/2" METAL DECK OVER
SLOPED STRUCTURE

TAPERED INSULATION SADDLE / EDGE STRIP

ROOF PLAN KEYNOTES

NO.	DESCRIPTION



FIRST FLOOR PLAN 1 / A 701

SCALE: 1" = 30'-0"

N W E S

ABACUS ARCHITECTS

REVISIONS:

	DATE	ISSUE

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ISSUE DATE: 4/15/2026

ZILBER PROPERTY GROUP

ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK

GERMANTOWN, WI

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ROOF PLAN & DETAILS

A
701

PROJ. NO. 2026-053

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ONSITE CIVIL ENGINEERING INFRASTRUCTURE PLANS

FOR

ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK

GERMANTOWN, WI

PLANS PREPARED FOR

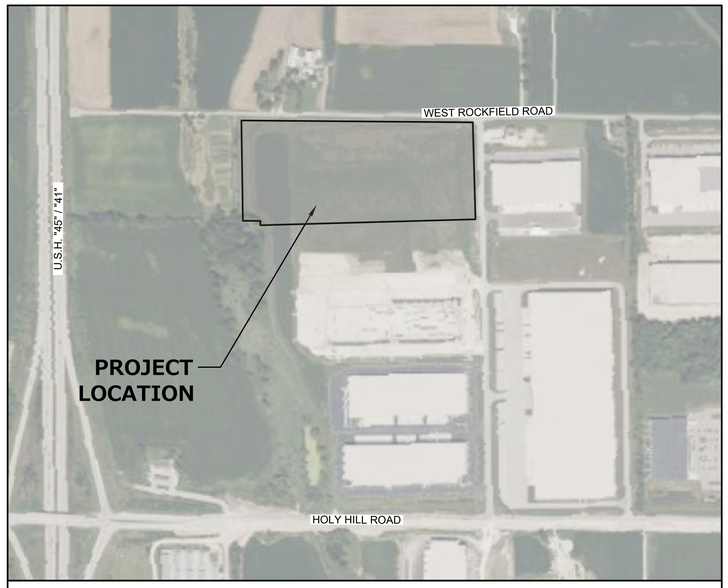
ZILBER PROPERTY GROUP SM

LEGEND

	EXISTING	PROPOSED
SANITARY SEWER MANHOLE	S	S
STORM SEWER MANHOLE	ST	ST
STORM SEWER CATCH BASIN (ROUND CASTING)	D	D
STORM SEWER CATCH BASIN (RECTANGULAR CASTING)	□	■
PRECAST FLARED END SECTION	◁	▶
CONCRETE HEADWALL	⌐	⌐
VALVE BOX	WV	WV
FIRE HYDRANT		
CLEANOUT	⊡	⊡
SANITARY SEWER		
FORCE MAIN		
STORM SEWER		
DRAIN TILE		
WATER MAIN	W	W
FIRE PROTECTION		FP
ELECTRICAL CABLE	E	E
OVERHEAD WIRES	OHW	OHW
GAS MAIN	G	G
TELEPHONE LINE	T	T
UTILITY CROSSING		
CAUTION EXISTING UTILITIES NEARBY		CAUTION
GRANULAR TRENCH BACKFILL		
LIGHTING		
ELECTRICAL TRANSFORMER OR PEDESTAL	TF	
POWER POLE		
POWER POLE WITH LIGHT		
GUY WIRE		
STREET SIGN		
CONTOUR	749	749
SPOT ELEVATION	×(750.00)	+750.00
WETLANDS	WET	
PRIMARY ENVIRONMENTAL CORRIDOR	PEC	
FLOODWAY		
FLOODPLAIN		
HIGH WATER LEVEL (HWL)		
NORMAL WATER LEVEL (NWL)		
DIRECTION OF SURFACE FLOW		
DITCH OR SWALE		
DIVERSION SWALE		
OVERFLOW RELIEF ROUTING		
TREE WITH TRUNK SIZE	6"	
SOIL BORING	B-1	B-1
TOPSOIL PROBE	P-2	P-1
FENCE LINE, TEMPORARY SILT	SF	SF
FENCE LINE, WIRE		
FENCE LINE, CHAIN LINK OR IRON		
FENCE LINE, WOOD OR PLASTIC		
CONCRETE SIDEWALK		
CURB AND GUTTER		
DEPRESSED CURB		
REVERSE PITCH CURB & GUTTER		
EASEMENT LINE		

ABBREVIATIONS

BL	BASE LINE	NWL	NORMAL WATER LEVEL
C	LONG CHORD OF CURVE	PC	POINT OF CURVATURE
C & G	CURB AND GUTTER	PT	POINT OF TANGENCY
CB	CATCH BASIN	PVI	POINT OF VERTICAL INTERSECTION
CL	CENTERLINE	R	RADIUS
D	DEGREE OF CURVE	ROW	RIGHT-OF-WAY
EP	EDGE OF PAVEMENT	SAN	SANITARY SEWER
FF	FINISHED FLOOR	ST	STORM SEWER
FG	FINISHED GRADE	T	TANGENCY OF CURVE
FL	FLOW LINE	TB	TOP OF BANK
FP	FLOODPLAIN	TC	TOP OF CURB
FR	FRAME	TF	TOP OF FOUNDATION
FW	FLOODWAY	TP	TOP OF PIPE
HWL	HIGH WATER LEVEL	TS	TOP OF SIDEWALK
INV	INVERT	TW	TOP OF WALK
L	LENGTH OF CURVE	WM	WATER MAIN
MH	MANHOLE	Δ	INTERSECTION ANGLE



LOCATION MAP
SCALE: 1" = 400"

GENERAL NOTES

1. THE INTENTION OF THE PLANS AND SPECIFICATIONS IS TO SET FORTH PERFORMANCE AND CONSTRUCTION MATERIAL STANDARDS FOR THE PROPER EXECUTION OF WORK. ALL WORKS CONTAINED WITHIN THE PLANS AND SPECIFICATIONS SHALL BE COMPLETED IN ACCORDANCE WITH ALL REQUIREMENTS FROM LOCAL, STATE, FEDERAL OR OTHER GOVERNING AGENCY'S LAWS, REGULATIONS, JURISDICTIONAL ORDINANCES/CODES/RULES/ETC., AND THE OWNER'S DIRECTION.
2. A GEOTECHNICAL REPORT HAS BEEN PREPARED BY GILES ENGINEERING ASSOCIATES, INC. JUNE 28TH, 2018. THE DATA ON SUB-SURFACE SOIL CONDITIONS IS NOT INTENDED AS A REPRESENTATION OR WARRANTY OF THE CONTINUITY OF SUCH CONDITIONS BETWEEN BORINGS OR INDICATED SAMPLING LOCATIONS. IT SHALL BE EXPRESSLY UNDERSTOOD THAT OWNER WILL NOT BE RESPONSIBLE FOR ANY INTERPRETATIONS OR CONCLUSIONS DRAWN THERE FROM BY THE CONTRACTOR. DATA IS MADE AVAILABLE FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ANY ADDITIONAL SOILS INVESTIGATIONS THEY FEEL IS NECESSARY FOR THE PROPER EVALUATION OF THE SITE FOR PURPOSES OF PLANNING, BIDDING, OR CONSTRUCTING THE PROJECT AT NO ADDITIONAL COST TO THE OWNER.
3. THE CONTRACTOR IS RESPONSIBLE TO REVIEW AND UNDERSTAND ALL COMPONENTS OF THE PLANS AND SPECIFICATIONS, INCLUDING FIELD VERIFYING SOIL CONDITIONS, PRIOR TO SUBMISSION OF A BID PROPOSAL.
4. THE CONTRACTOR SHALL PROMPTLY REPORT ANY ERRORS OR AMBIGUITIES LEARNED AS PART OF THEIR REVIEW OF PLANS, SPECIFICATIONS, REPORTS AND FIELD INVESTIGATIONS.
5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE COMPUTATION OF QUANTITIES AND WORK REQUIRED TO COMPLETE THIS PROJECT. THE CONTRACTOR'S BID SHALL BE BASED ON ITS OWN COMPUTATIONS AND IN NO SUCH INSTANCE RELY ON THE ENGINEER'S ESTIMATE.
6. QUESTIONS/CLARIFICATIONS WILL BE INTERPRETED BY ENGINEER/OWNER PRIOR TO THE AWARD OF CONTRACT. ENGINEER/OWNER WILL SUBMIT OFFICIAL RESPONSES IN WRITING. INTERPRETATIONS PRESENTED IN OFFICIAL RESPONSES SHALL BE BINDING ON ALL PARTIES ASSOCIATED WITH THE CONTRACT. IN NO WAY SHALL WORD-OF-MOUTH DIALOG CONSTITUTE AN OFFICIAL RESPONSE.
7. PRIOR TO START OF WORK, CONTRACTOR SHALL BE COMPLETELY FAMILIAR WITH ALL CONDITIONS OF THE SITE, AND SHALL ACCOUNT FOR CONDITIONS THAT AFFECT, OR MAY AFFECT CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, LIMITATIONS OF WORK ACCESS, SPACE LIMITATIONS, OVERHEAD OBSTRUCTIONS, TRAFFIC PATTERNS, LOCAL REQUIREMENTS, ADJACENT ACTIVITIES, ETC. FAILURE TO CONSIDER SITE CONDITIONS SHALL NOT BE CAUSE FOR CLAIM OF JOB EXTRAS.
8. COMMENCEMENT OF CONSTRUCTION SHALL EXPLICITLY CONFIRM THAT THE CONTRACTOR HAS REVIEWED THE PLANS AND SPECIFICATIONS IN ENTIRETY AND CERTIFIES THAT THEIR SUBMITTED BID PROPOSAL CONTAINS PROVISIONS TO COMPLETE THE PROJECT, WITH THE EXCEPTION OF UNFORESEEN FIELD CONDITIONS; ALL APPLICABLE PERMITS HAVE BEEN OBTAINED; AND CONTRACTOR UNDERSTANDS ALL OF THE REQUIREMENTS OF THE PROJECT.
9. SHOULD ANY DISCREPANCIES OR CONFLICTS IN THE PLANS OR SPECIFICATIONS BE DISCOVERED AFTER THE AWARD OF CONTRACT, ENGINEER SHALL BE NOTIFIED IN WRITING IMMEDIATELY AND CONSTRUCTION OF ITEMS AFFECTED BY THE DISCREPANCIES/CONFLICTS SHALL NOT COMMENCE, OR CONTINUE, UNTIL A WRITTEN RESPONSE FROM ENGINEER/OWNER IS DISTRIBUTED. IN THE EVENT OF A CONFLICT BETWEEN REFERENCED CODES, STANDARDS, SPECIFICATIONS AND PLANS, THE ONE ESTABLISHING THE MOST STRINGENT REQUIREMENTS SHALL BE FOLLOWED.
10. THE CONTRACTOR SHALL, AT ITS OWN EXPENSE, OBTAIN ALL NECESSARY PERMITS AND LICENSES TO COMPLETE THE PROJECT. OBTAINING PERMITS, OR DELAYS, IS NOT CAUSE FOR DELAY OF THE CONTRACT OR SCHEDULE. CONTRACTOR SHALL COMPLY WITH ALL PERMIT REQUIREMENTS.
11. THE CONTRACTOR SHALL NOTIFY ALL INTERESTED GOVERNING AGENCIES, UTILITY COMPANIES AFFECTED BY THIS CONSTRUCTION PROJECT, AND DIGGER'S HOTLINE IN ADVANCE OF CONSTRUCTION TO COMPLY WITH ALL JURISDICTIONAL ORDINANCES/CODES/RULES/ETC., PERMIT STIPULATIONS, AND OTHER APPLICABLE STANDARDS.
12. SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE TO INITIATE, INSTITUTE, ENFORCE, MAINTAIN, AND SUPERVISE ALL SAFETY PRECAUTIONS AND JOB SITE SAFETY PROGRAMS IN CONNECTION WITH THE WORK.
13. CONTRACTOR SHALL KEEP THE JOBSITE CLEAN AND ORDERLY AT ALL TIMES. ALL LOCATIONS OF THE SITE SHALL BE KEPT IN A WORKING MANNER SUCH THAT DEBRIS IS REMOVED CONTINUOUSLY AND ALL RESPECTIVE CONTRACTORS OPERATE UNDER GENERAL "GOOD HOUSEKEEPING."
14. THE CONTRACTOR SHALL INDEMNIFY THE OWNER, ENGINEER, AND THEIR AGENTS FROM ALL LIABILITY INVOLVED WITH THE CONSTRUCTION, INSTALLATION, AND TESTING OF THE WORK ON THIS PROJECT.

REQUIRED SUBMITTALS FOR APPROVAL

1. **HOT MIX ASPHALT** - MIX DESIGN
2. **CONCRETE PAVEMENTS (EXTERIOR)** - MIX DESIGN & JOINT PLAN
3. **PAVEMENT STONE BASE COURSE** - GRADATION
4. **PIPE BEDDING & TRENCH BACKFILL** - GRADATION
5. **MANHOLE BACKFILL** - GRADATION
6. **PAVEMENT MARKING PAINT**

REQUIRED SUBMITTALS FOR RECORDS

1. **WATER MAIN PIPES, VALVES, HYDRANTS & FITTINGS**
2. **SANITARY SEWER PIPE & FITTINGS**
3. **STORM SEWER PIPE, STRUCTURES, & FITTINGS**
4. **TRACER WIRE**
5. **UNDERGROUND UTILITY LOCATION RECORD DRAWINGS**
6. **ADA SIGN, PAINT & STENCILS**
7. **CHEMICAL SOIL STABILIZATION MIX DESIGN (IF APPLICABLE)**

PROJECT TEAM CONTACTS

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SR. PROJECT MANAGER
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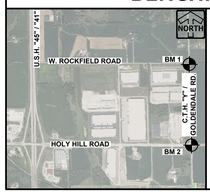
APPLICANT:
FRANK DEKAN
ZILBER PROPERTY GROUP
710 N. PLANKINGTON AVENUE
MILWAUKEE, WI 53202
(414) 234-1100

BENCHMARKS



VERTICAL DATUM: NGVD 29
HORIZONTAL DATUM: NAD 1927

BM 1: CONCRETE MONUMENT WITH BRASS CAP AT THE SOUTHEAST CORNER OF THE SOUTHEAST 1/4 SECTION 7, TOWN 9 NORTH, RANGE 20 EAST, ELEVATION = 933.82.

BM 2: CONCRETE MONUMENT WITH BRASS CAP AT THE NORTHEAST CORNER OF THE SOUTHEAST 1/4 SECTION 7, TOWN 9 NORTH, RANGE 20 EAST, ELEVATION = 945.69.

INDEX OF SHEETS

C-1	COVER SHEET
C-2	EXISTING CONDITIONS / DEMOLITION PLAN
C-3	OVERALL SITE DIMENSIONAL & PAVING PLAN
C-4 - C-5	SITE DIMENSIONAL & PAVING PLAN
C-6	OVERALL GRADING PLAN
C-7 - C-8	GRADING PLAN
C-9	OVERALL UTILITY PLAN
C-10 - C-11	UTILITY PLAN
C-12	OVERALL SITE STABILIZATION PLAN
C-13 - C-14	SITE STABILIZATION PLAN
C-15 - C-16	CONSTRUCTION DETAILS
L-1 - L-5	LANDSCAPE PLAN

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EXPIRATION DATE: JULY 31, 2026

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FURTHERMORE, PINNACLE ENGINEERING GROUP, LLC IS NOT RESPONSIBLE FOR CONSTRUCTION SAFETY OR THE MEANS AND METHODS OF CONSTRUCTION.

REVIEWED: ###
DESIGNED: ###
DRAWN: AJS

PLAN I DESIGN I DELIVER
www.pinnacle-engr.com

PINNACLE ENGINEERING GROUP
ENGINEERING I NATURAL RESOURCES I SURVEYING

WISCONSIN OFFICE:
20725 WATERTOWN ROAD, SUITE 100
BROOKFIELD, WI 53186
(262) 754-8888
CHICAGO I MILWAUKEE - NATIONWIDE

ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK
GERMANTOWN, WI

COVER SHEET

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26			

PEG JOB # 1296.10G-WI
PEG PM AJS
PLAN DATE 04/16/26
SCALE N.T.S.

SHEET C-1 OF C-16

COVER SHEET

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Z:\PROJECTS\2018\1296.10G-WI\CAD\SHEETS\1296.10G-WI COVER SHEET.DWG

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NORTH

GRAPHICAL SCALE (FEET)
0 1" = 50' 100'

WEST ROCKFIELD ROAD

12" CMP CULVERT
E INV=920.17
W INV=919.90

12" CMP CULVERT
E INV=913.29
W INV=914.00

12" CMP CULVERT
E INV=912.42
W INV=912.11

12" CMP CULVERT
E INV=917.63
W INV=917.29

12" CMP CULVERT
E INV=920.34
W INV=920.04

SANITARY MANHOLE
RIM=932.21
INV=904.46 (12" S)

54" RCP CULVERT
NW INV=914.95

15" RCP CULVERT
E INV=927.50
W INV=926.58

SANITARY MANHOLE
RIM=930.54
INV=903.42 (12" N)
INV=903.42 (12" S)
INV=903.17 (12" E)
INV=903.69 (12" E)

REMOVE EXISTING RIPRAP

REMOVE 91 LF OF EXISTING 54" RCP PIPE AND END SECTION

REMOVE AND SALVAGE EXISTING FIRE HYDRANT AND RELOCATE PER UTILITY PLAN

REMOVE 84 LF OF EXISTING CURB AND GUTTER

CATCH BASIN
RIM=929.68
INV=920.53 (54" NW)
INV=921.58 (36" S)
INV=927.48 (24" NW)

SANITARY MANHOLE
RIM=929.68
INV=902.96 (12" N)
INV=902.96 (12" S)

CURB INLET
RIM=927.85
INV=925.03 (12" W)

CURB INLET
RIM=927.91
INV=924.86 (12" W)

STORM MANHOLE
RIM=926.23
INV=924.45 (12" E)
INV=924.15 (12" W)
INV=923.95 (12" S)

REMOVE AND SALVAGE EXISTING LIGHT POLE AND REPLACE AFTER INSTALLATION OF CURB AND GUTTER

REMOVE 85 LF OF EXISTING CURB AND GUTTER

REMOVE AND SALVAGE EXISTING FIRE HYDRANT AND RELOCATE PER UTILITY PLAN

45° BEND 2.5
INV=928.67

BEND 2.7
V=926.85

SANITARY MANHOLE
RIM=927.36
INV=902.01 (12" W)
INV=902.04 (12" S)

CURB INLET
RIM=926.17
INV=923.29 (12"W)

STORM MANHOLE
RIM=926.62
SEIZED SHUT

EXISTING POND
NWL = 907.00

TAX KEY #
GTNV 073992
OWNER: KLUMB

WETLANDS DELINEATED BY EVERGREEN CONSULTANTS, LLC - JUNE 2018

CENTERLINE CREEK

EXISTING POND
NWL = 907.00

EXISTING BUILDING

CROSS ACCESS EASEMENT

DRAINAGE EASEMENT

REVIEWED: ####
DESIGNED: ####
DRAFTED: AJS

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PINNACLE ENGINEERING GROUP
ENGINEERING I NATURAL RESOURCES I SURVEYING

WISCONSIN OFFICE:
20725 WATERTOWN ROAD, SUITE 100
BROOKFIELD, WI 53186
(262) 754-8888
CHICAGO I MILWAUKEE - NATIONWIDE

ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK
GERMANTOWN, WI

EXISTING CONDITIONS / DEMOLITION PLAN

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26	

PEG JOB: 1296.10G-WI
PEG PM: AJS
PLAN DATE: 04/16/26
SCALE: 1" = 50'

SHEET
C-2
OF
C-16

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EXISTING CONDITIONS / DEMOLITION PLAN

Z:\PROJECTS\2018\1296.10G-WI\CAD\SHEETS\1296.10G-WI EXISTING CONDITIONS.DWG

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NORTH

GRAPHICAL SCALE (FEET)
0 1" = 50' 100'

WEST ROCKFIELD ROAD

SHEET C-4

SHEET C-5

EXISTING POND
NWL = 907.00

PROPOSED BUILDING
252,512 SF | FFE = 922.80

EXISTING BUILDING 6

178.8'

390.3'

GATEWAY CROSSING

PROPOSED MONUMENT SIGN

SITE AND DIMENSIONAL PLAN NOTES

1. ALL DIMENSIONS ARE EDGE OF PAVEMENT, FACE OF CURB, SHOULDER, OR CENTER OF LANE LINE UNLESS NOTED OTHERWISE. ALL UTILITY DIMENSIONS ARE TO OUTSIDE OF PIPE OR CENTER OF STRUCTURE UNLESS OTHERWISE NOTED.
2. ALL PROPOSED CURB AND GUTTER SHALL BE 18" STANDARD CURB AND GUTTER (SEE DETAIL) UNLESS OTHERWISE NOTED. CURB AND GUTTER DRAINING AWAY FROM THE FACE OF CURB IS NOTED AS REVERSE CURB AND GUTTER.
3. BUILDING DIMENSIONS AND ADJACENT PARKING AND UTILITY LAYOUT HAVE BEEN PREPARED BASED UPON ARCHITECTURAL INFORMATION CURRENT AT THE DATE OF THIS DRAWING. SUBSEQUENT ARCHITECTURAL CHANGES MAY EXIST. THEREFORE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR PRECISE BUILDING DIMENSIONS AND EXACT UTILITY ENTRANCE LOCATIONS AND NOTIFY THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL CONTACT DIGGERS HOTLINE (1-800-242-8511) PRIOR TO ANY WORK TO LOCATE UTILITIES AND SHALL CONTACT THE OWNER SHOULD UTILITIES APPEAR TO BE IN CONFLICT WITH THE PROPOSED IMPROVEMENT.
5. IMPROVEMENTS ADJACENT TO BUILDING IF SHOWN SUCH AS TRUCK DOCK, RETAINING WALLS, SIDEWALKS, CURBING, FENCES, CANOPIES, RAMPS, HANDICAP ACCESS, PLANTERS, DUMPSTERS, AND TRANSFORMERS ETC. HAVE BEEN SHOWN FOR APPROXIMATE LOCATION ONLY. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS, SPECIFICATIONS, AND DETAILS.
6. REFER TO ELECTRICAL PLANS FOR LIGHTING LOCATIONS, SPECIFICATIONS, AND DETAILS.
7. SEE ADDITIONAL NOTES AND DETAILS ON SITE DIMENSIONAL PLANS AND CONSTRUCTION DETAILS.
8. ALL PAVING SHALL CONFORM TO STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY & STRUCTURE CONSTRUCTION AND APPLICABLE VILLAGE OF GERMANTOWN ORDINANCES, AND SPECIFICATIONS CONTAINED WITHIN THIS PLAN SET.
9. CONTRACTOR SHALL CONSULT STRIPING COLOR WITH OWNER PRIOR TO CONSTRUCTION.
10. PROVIDE CONTRACTOR GRADE ACRYLIC, STRIPING PAINT FOR NEW ASPHALT OR COATED ASPHALT. APPLY MARKING PAINT AT A RATE OF ONE (1) GALLON PER THREE TO FOUR HUNDRED (300-400) LINEAL FEET OF FOUR (4) INCH WIDE STRIPES OR TO MANUFACTURER'S SPECIFICATION, WHICHEVER IS GREATER.
11. THOROUGHLY CLEAN SURFACES FREE OF DIRT, SAND, GRAVEL, OIL AND OTHER FOREIGN MATTER. CONTRACTOR RESPONSIBLE TO INSPECT EXISTING PAVEMENT SURFACES FOR CONDITIONS AND DEFECTS THAT WILL ADVERSELY AFFECT QUALITY OF WORK, AND WHICH CANNOT BE PUT INTO AN ACCEPTABLE CONDITION THROUGH NORMAL PREPARATORY WORK AS SPECIFIED.
12. DO NOT PLACE MARKING OVER UNSOUND PAVEMENTS. IF THESE CONDITIONS EXIST, NOTIFY OWNER. STARTING INSTALLATION CONSTITUTES CONTRACTOR'S ACCEPTANCE OF SURFACE AS SUITABLE FOR INSTALLATION.
13. LAYOUT MARKINGS USING GUIDE LINES, TEMPLATES AND FORMS. STENCILS AND TEMPLATES SHALL BE PROFESSIONALLY MADE TO INDUSTRY STANDARDS. "FREE HAND" PAINTING OF ARROWS, SYMBOLS, OR WORDING SHALL NOT BE ALLOWED. APPLY STRIPES STRAIGHT AND EVEN.
14. PROTECT ADJACENT CURBS, WALKS, FENCES, AND OTHER ITEMS FROM RECEIVING PAINT.
15. BARRICADE MARKED AREAS DURING INSTALLATION AND UNTIL THE MARKING PAINT IS DRIED AND READY FOR TRAFFIC.
16. ASPHALTIC CONCRETE PAVING SPECIFICATIONS-

    CODES AND STANDARDS: THE PLACING, CONSTRUCTION AND COMPOSITION OF THE ASPHALTIC BASE COURSE AND ASPHALTIC CONCRETE SURFACING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTIONS 450, 455, 460 AND 465 OF THE STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, LATEST EDITION. HEREAFTER, THIS PUBLICATION WILL BE REFERRED TO AS THE STATE HIGHWAY SPECIFICATIONS.

    WEATHER LIMITATIONS: APPLY TACK COATS WHEN AMBIENT TEMPERATURE IS ABOVE 50° F (10° C) AND WHEN TEMPERATURE HAS NOT BEEN BELOW 35° F (1° C) FOR 12 HOURS IMMEDIATELY PRIOR TO APPLICATION. DO NOT APPLY WHEN BASE IS WET OR CONTAINS EXCESS OF MOISTURE. CONSTRUCT ASPHALTIC CONCRETE SURFACE COURSE WHEN ATMOSPHERIC TEMPERATURE IS ABOVE 40° (4°C) AND WHEN BASE IS DRY AND WHEN WEATHER IS NOT RAINY. BASE COURSE MAY BE PLACED WHEN AIR TEMPERATURE IS ABOVE 30° F (-1° C).

    GRADE CONTROL: ESTABLISH AND MAINTAIN REQUIRED LINES AND ELEVATIONS FOR EACH COURSE DURING CONSTRUCTION.

    CRUSHED AGGREGATE BASE COURSE: THE TOP LAYER OF BASE COURSE SHALL CONFORM TO SECTIONS 301 AND 305, STATE HIGHWAY SPECIFICATIONS. BINDER COURSE AGGREGATE: THE AGGREGATE FOR THE BINDER COURSE SHALL CONFORM TO SECTIONS 460.2.7 AND 315, STATE HIGHWAY SPECIFICATIONS.

    SURFACE COURSE AGGREGATE: THE AGGREGATE FOR THE SURFACE COURSE SHALL CONFORM TO SECTIONS 460.2.7 AND 465, STATE HIGHWAY SPECIFICATIONS.

    ASPHALTIC MATERIALS: THE ASPHALTIC MATERIALS SHALL CONFORM TO SECTION 455 AND 460, STATE HIGHWAY SPECIFICATIONS.

    SURFACE PREPARATION: NOTIFY CONTRACTOR OF UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING WORK UNTIL DEFICIENT SUBBASE AREAS HAVE BEEN CORRECTED AND ARE READY TO RECEIVE PAVING.
17. TRAFFIC CONTROL SHALL BE PER M.U.T.C.D.
18. PUBLIC CURB & GUTTER REPLACEMENT SHALL BE TIED TO EXISTING CURB & GUTTER WITH #4 TIE BARS. PUBLIC CURB & GUTTER SHALL BE A 6-BAG MIX.

SITE DATA

SITE AREA:	992,418 S.F./22.78 AC
ZONING CLASSIFICATION:	M2
BUILDING FOOTPRINT AREA:	252,512 S.F./5.80 AC/25.5%
PAVING AREA:	231,577 S.F./5.32 AC/23.4%
GREEN SPACE:	508,329 S.F./11.67 AC/51.2%
PARKING PROVIDED (9'x20')	247 (8 ADA)

ALL WORK WITHIN PUBLIC R.O.W. SHALL CONFORM TO VILLAGE OF GERMANTOWN STANDARDS.

LEGEND

- (A) 4" SOLID WHITE STRIPE
- (B) 4" DIAGONAL AT 45° SPACED 2' O.C.
- (C) ADA PARKING STALL SIGNAGE (SEE DETAIL)
- (D) 18" CURB & GUTTER (SEE DETAIL)
- (E) 18" REVERSE CURB & GUTTER (SEE DETAIL)
- (F) TAPER CURB HEAD (SEE DETAIL)
- (G) BUILDING DOOR SLAB (2% MAX SLOPE WITHIN 5-FT OF DRIVE IN OR MAN DOOR)
- (H) ADA STALL INSIGNIA
- (I) ADA CURB RAMP (SEE DETAIL)
- (J) STEEL STAIRS (SEE ARCHITECTURAL PLANS)
- (K) BOLLARD (SEE DETAIL)
- (L) 18" MOUNTABLE CURB & GUTTER (SEE DETAIL)
- (P) PARKING COUNT (FOR INFORMATION ONLY, NOT TO BE PAINTED)
- MAN DOOR
- D.I.D OVERHEAD DOOR

LIGHT DUTY PAVEMENT
- 8" CRUSHED AGGREGATE BASE COURSE (1-½" DENSE GRADED VIRGIN LIMESTONE)
- 3 ½" ASPHALTIC CONC. (2 LIFTS)
  1.75" LOWER LAYER (3MT 58-28 S)
  1.75" UPPER LAYER (9MT 58-28 S)

HEAVY DUTY PAVEMENT
- 10" CRUSHED AGGREGATE BASE COURSE (1-½" DENSE GRADED VIRGIN LIMESTONE)
- 4 ½" ASPHALTIC CONC. (2 LIFTS)
  2.75" LOWER LAYER (3MT 58-28 S)
  1.75" UPPER LAYER (9MT 58-28 S)

CONCRETE PAVEMENT (TRUCK COURT)
- 6" CRUSHED AGGREGATE BASE COURSE (1-1/4" DENSE GRADED VIRGIN LIMESTONE)
- 8" PCC (4000 PSI AIR ENTRAINED CONCRETE

CONCRETE SIDEWALK
- 4" CRUSHED AGGREGATE BASE COURSE (1-1/2" DENSE GRADED LIMESTONE)
- 5" PCC (4000 PSI AIR ENTRAINED CONCRETE

DRAWN: AJS
DESIGNED: ####
REVIEWED: ####

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ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK
GERMANTOWN, WI

OVERALL SITE DIMENSIONAL & PAVING PLAN

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26			

PEC JOB # 1296.10G-WI
PEC PM AJS
PLAN DATE 04/16/26
SCALE 1" = 50'

SHEET
C-3
OF
C-16

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OVERALL SITE DIMENSIONAL & PAVING PLAN

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WEST ROCKFIELD ROAD

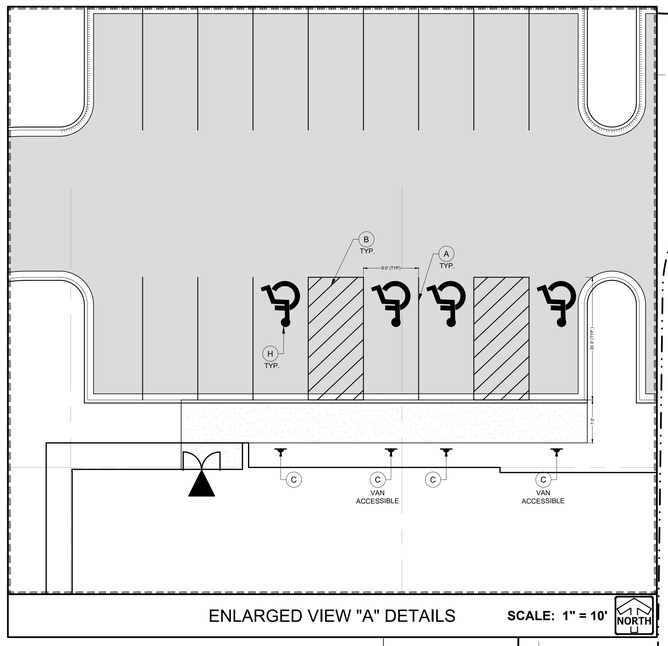
PROPERTY LINE

30.0'
SETBACK

NORTH

GRAPHICAL SCALE (FEET)
0 1" = 30' 60'

STORM WATER
DRAINAGE EASEMENT



ENLARGED VIEW "A" DETAILS SCALE: 1" = 10'

SEE ENLARGED VIEW "A"
ON SHEET C-4

EXISTING POND
NWL = 907.00

PROPOSED BUILDING
252,512 SF | FFE = 922.80

PROPERTY LINE

10.0'
SETBACK

LEGEND

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ALL WORK WITHIN PUBLIC R.O.W. SHALL CONFORM TO VILLAGE OF GERMANTOWN STANDARDS.

SEE SHEET C-5

DRAWN: AJS
DESIGNED: ####
REVIEWED: ####

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ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK
GERMANTOWN, WI

OVERALL SITE DIMENSIONAL & PAVING PLAN

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26	

PEC JOB #: 1296.10G-WI
PEC PM: AJS
PLAN DATE: 04/16/26
SCALE: 1" = 30'

SHEET
C-4
OF
C-16

SITE DIMENSIONAL & PAVING PLAN

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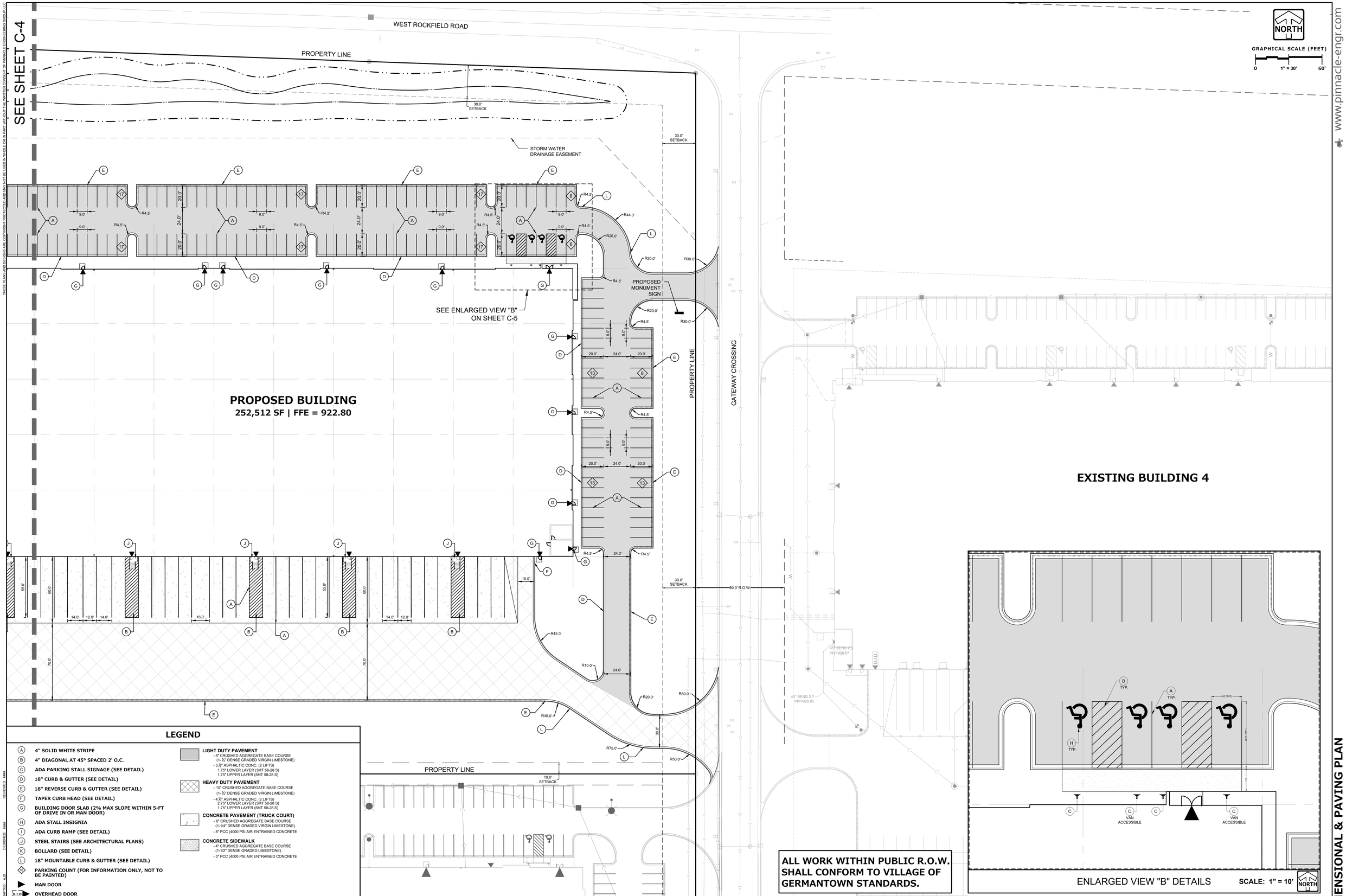

LEGEND

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ALL WORK WITHIN PUBLIC R.O.W. SHALL CONFORM TO VILLAGE OF GERMANTOWN STANDARDS.

ENLARGED VIEW "B" DETAILS

SCALE: 1" = 10'

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GERMANTOWN, WI

OVERALL SITE DIMENSIONAL & PAVING PLAN

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26

PEG JOB NO. 1296.10G-WI
PEG PM AJS
PLAN DATE 04/16/26
SCALE 1" = 30'

SHEET C-5 OF C-16

SITE DIMENSIONAL & PAVING PLAN

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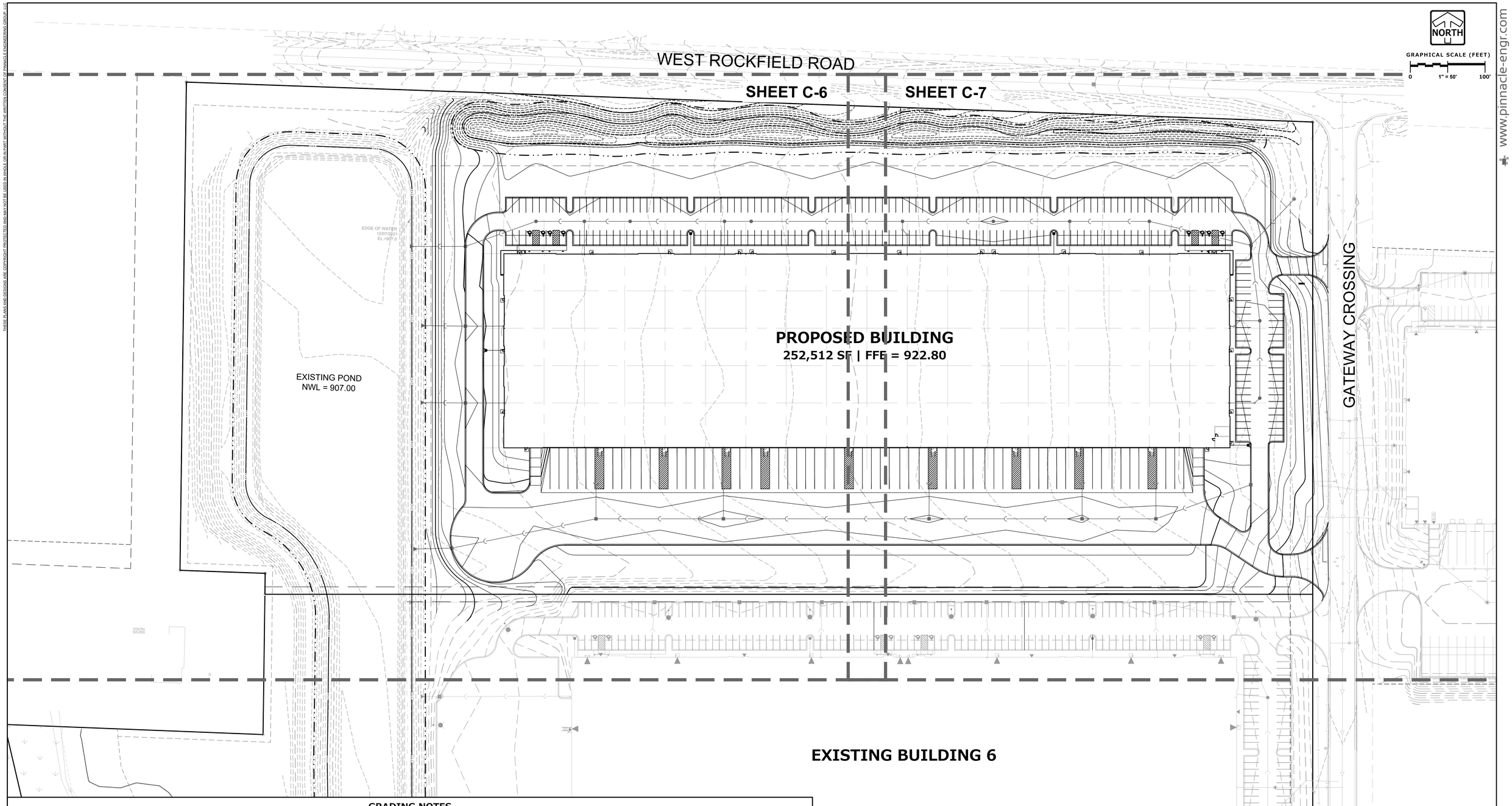

GRADING NOTES

1. CONTRACTOR SHALL VERIFY ALL GRADES, ENSURE ALL AREAS DRAIN PROPERLY AND REPORT ANY DISCREPANCIES TO PINNACLE ENGINEERING GROUP PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES.
2. ALL EXISTING CONTOURS REPRESENT EXISTING SURFACE GRADES UNLESS OTHERWISE NOTED. ALL PROPOSED GRADES SHOWN ARE FINISH SURFACE GRADES UNLESS OTHERWISE NOTED.
3. SPOT ELEVATIONS REPRESENT THE GRADE ALONG THE CURB AND GUTTER FLOWLINE UNLESS OTHERWISE NOTED.
4. ALL EXCAVATIONS AND MATERIAL PLACEMENT SHALL BE COMPLETED TO DESIGN ELEVATIONS AS DEPICTED IN THE PLANS.

   CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE COMPUTATION(S) OF ALL GRADING QUANTITIES. WHILE PEG ATTEMPTS TO PROVIDE A COST EFFECTIVE APPROACH TO BALANCE EARTHWORK, GRADING DESIGN IS BASED ON MANY FACTORS, INCLUDING SAFETY, AESTHETICS, AND COMMON ENGINEERING STANDARD OF CARE, THEREFORE NO GUARANTEE CAN BE MADE FOR A BALANCED SITE.

   THE CONTRACTOR MAY SOLICIT APPROVAL FROM ENGINEER/OWNER TO ADJUST FINAL GRADES FROM DESIGN GRADES TO PROVIDE AN OVERALL SITE BALANCE AS A RESULT OF FIELD CONDITIONS.
5. GRADING ACTIVITIES SHALL BE IN A MANNER TO ALLOW POSITIVE DRAINAGE ACROSS DISTURBED SOILS, WHICH MAY INCLUDE EXCAVATION OF TEMPORARY DITCHES TO PREVENT PONDING, AND IF NECESSARY PUMPING TO ALLEVIATE PONDING. CONTRACTOR SHALL PREVENT SURFACE WATER FROM ENTERING INTO EXCAVATIONS. IN NO WAY SHALL OWNER BE RESPONSIBLE FOR REMEDIATION OF UNSUITABLE SOILS CREATED/ORIGINATED AS A RESULT OF IMPROPER SITE GRADING OR SEQUENCING. CONTRACTOR SHALL SEQUENCE GRADING ACTIVITIES TO LIMIT EXPOSURE OF DISTURBED SOILS DUE TO WEATHER.
6. THE CONTRACTOR IS RESPONSIBLE FOR MEETING MINIMUM COMPACTION STANDARDS. THE CONTRACTOR SHALL NOTIFY ENGINEER/OWNER IF PROPER COMPACTION CANNOT BE OBTAINED. THE PROJECT'S GEOTECHNICAL CONSULTANT SHALL DETERMINE WHICH IN-SITU SOILS ARE TO BE CONSIDERED UNSUITABLE SOILS. THE ENGINEER/OWNER AND GEOTECHNICAL TESTING CONSULTANT WILL DETERMINE IF REMEDIAL MEASURES WILL BE NECESSARY.
7. IN THE EVENT THAT ANY MOISTURE-DENSITY TEST(S) FAIL TO MEET SPECIFICATION REQUIREMENTS, THE CONTRACTOR SHALL PERFORM CORRECTIVE WORK AS NECESSARY TO BRING THE MATERIAL INTO COMPLIANCE AND RETEST THE FAILED AREA AT NO COST TO THE OWNER.
8. WITH THE AUTHORIZATION OF THE ENGINEER/OWNER, MATERIAL THAT IS TOO WET TO PERMIT PROPER COMPACTION MAY BE SPREAD ON FILL AREAS IN AN EFFORT TO DRY. CONTRACTOR SHALL CLEARLY FIELD MARK THE EXTERIOR LIMITS OF SPREAD MATERIAL WITH PAINTED LATH AND SUBMIT A PLAN TO THE ENGINEER/OWNER THAT IDENTIFIES THE LIMITS. UNDER NO CONDITION SHALL THE SPREAD MATERIAL DEPTH EXCEED THE MOST RESTRICTIVE OF: THE EFFECTIVE TREATMENT DEPTH OF MACHINERY THAT WILL BE USED TO TURNOVER THE SPREAD MATERIAL; OR THE MAXIMUM COMPACTION LIFT DEPTH.
9. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER/OWNER IF GROUNDWATER IS ENCOUNTERED DURING EXCAVATION.
10. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ADEQUATE AND SAFE TEMPORARY SHORING, BRACING, RETENTION STRUCTURES, AND EXCAVATIONS.
11. THE SITE SHALL BE COMPLETED TO WITHIN 0.10-FT (+/-) OF THE PROPOSED GRADES AS INDICATED WITHIN THE PLANS PRIOR TO PLACEMENT OF TOPSOIL OR STONE. CONTRACTOR IS ENCOURAGED TO SEQUENCE CONSTRUCTION SUCH THAT THE SITE IS DIVIDED INTO SMALLER AREAS TO ALLOW STABILIZATION OF DISTURBED SOILS IMMEDIATELY UPON COMPLETION OF INDIVIDUAL SMALLER AREAS.
12. CONTRACTOR SHALL CONTACT "DIGGER'S HOTLINE" FOR LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES AND SHALL BE RESPONSIBLE FOR PROTECTING SAID UTILITIES FROM ANY DAMAGE DURING CONSTRUCTION.
13. CONTRACTOR SHALL PROTECT INLETS AND ADJACENT PROPERTIES WITH SILT FENCING OR APPROVED EROSION CONTROL METHODS UNTIL CONSTRUCTION IS COMPLETED. CONTRACTOR SHALL PLACE SILT FENCING AT DOWN SLOPE SIDE OF GRADING LIMITS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY EXISTING FACILITIES OR UTILITIES. ANY DAMAGE SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AT THE EXPENSE OF THE CONTRACTOR.
15. WORK WITHIN ANY ROADWAY RIGHT-OF-WAY SHALL BE COORDINATED WITH THE APPROPRIATE MUNICIPAL OFFICIAL PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FEES. GRADING WITHIN RIGHT-OF-WAY IS SUBJECT TO APPROVAL BY SAID OFFICIALS. RESTORATION OF RIGHT-OF-WAY IS CONSIDERED INCIDENTAL AND SHALL BE INCLUDED IN THE COST OF GRADING. RESTORATION SHALL INCLUDE ALL ITEMS NECESSARY TO RESTORE RIGHT-OF-WAY IN-KIND INCLUDING LANDSCAPING.
16. CONTRACTOR SHALL COMPLY WITH ALL VILLAGE OF GERMANTOWN CONSTRUCTION STANDARDS/ORDINANCES.
17. LANDSCAPE AND TURF AREAS SHALL HAVE A MINIMUM OF 4-INCH TOPSOIL REPLACEMENT.
18. TOPSOIL BERMING SHALL ACHIEVE 90% STANDARD PROCTOR DENSITY AT 3%(±) OPTIMUM MOISTURE CONTENT.
19. SURVEY BENCHMARKS AND MAPPING HAS BEEN PROVIDED BY PINNACLE ENGINEERING GROUP. IN NO WAY DOES PEG WARRANT THE BASEMAP IS ALL INCLUSIVE OR REPRESENTATIVE OF ACTUAL CONDITIONS. CONTRACTOR SHALL PROVIDE CHECKS AS NECESSARY TO VERIFY THE BASEMAP CONTENT AND ACCURACY.

CONSTRUCTION SITE SEQUENCING

1. INSTALL PERIMETER SILT FENCE, INLET PROTECTION AND TEMPORARY CONSTRUCTION ENTRANCE.
2. STRIP AND STOCKPILE TOPSOIL, INSTALL SILT FENCE AROUND PERIMETER OF STOCKPILE.
3. CONDUCT ROUGH GRADING EFFORTS AND INSTALL CHECK DAMS AND SEDIMENT TRAPS/BASINS AS NEEDED.
4. INSTALL UTILITY PIPING AND STRUCTURES, IMMEDIATELY INSTALL INLET PROTECTION.
5. COMPLETE FINAL GRADING, INSTALLATION OF GRAVEL BASE COURSES, PLACEMENT OF CURBS, PAVEMENTS, WALKS, ETC.
6. PLACE TOPSOIL AND IMMEDIATELY STABILIZE DISTURBED AREAS WITH EROSION CONTROLS.
7. EROSION CONTROL MEASURES SHALL BE REMOVED ONLY AFTER SITE CONSTRUCTION IS COMPLETE WITH ALL SOIL SURFACES HAVING AN ESTABLISHED VEGETATIVE COVER.

   CONTRACTOR MAY MODIFY SEQUENCING AFTER ITEM 1 AS NEEDED TO COMPLETE CONSTRUCTION IF EROSION CONTROLS ARE MAINTAINED IN ACCORDANCE WITH THE CONSTRUCTION SITE EROSION CONTROL REQUIREMENTS.

LEGEND

- SANITARY MANHOLE STORM
- CATCH BASIN
- CURB CATCH BASIN
- 749 — CONTOUR
- 750.00 — SPOT ELEVATION
- DIRECTION OF SURFACE FLOW
- DITCH OR SWALE
- FLOODPLAIN
- OVERFLOW RELIEF ROUTING
- CONCRETE SIDEWALK
- CURB AND GUTTER
- REVERSE PITCH CURB & GUTTER

ALL WORK WITHIN PUBLIC R.O.W. SHALL CONFORM TO VILLAGE OF GERMANTOWN STANDARDS.

THE VILLAGE OF GERMANTOWN SHALL NOT APPROVE ANY GRADE CHANGE I EXCESS OF 0.25 FEET UNLESS AUTHORIZED TO DO SO BY THE VILLAGE ENGINEER.

REVIEWED ####
DESIGNED ####
DRAWN AJS

PLAN I DESIGN I DELIVER
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PINNACLE ENGINEERING GROUP
ENGINEERING I NATURAL RESOURCES I SURVEYING

WISCONSIN OFFICE:
20725 WATERTOWN ROAD, SUITE 100
BROOKFIELD, WI 53186
(262) 754-8888
CHICAGO I MILWAUKEE - NATIONWIDE

ZILBER INDUSTRIAL 7 AT GERMANTOWN
GATEWAY CORPORATE PARK
GERMANTOWN, WI

OVERALL GRADING PLAN

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26			

PEG JOB # 1296.10G-WI
PEG PM AJS
PLAN DATE 04/16/26
SCALE 1" = 50'

SHEET C-6 OF C-16

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OVERALL GRADING PLAN

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WEST ROCKFIELD ROAD

PROPERTY LINE

30.0' SETBACK

NORTH

GRAPHICAL SCALE (FEET)

0 1" = 30' 60'

EDGE OF WATER
12/07/2021
EL.=907.0

EXISTING POND
NWL = 907.00

PROPOSED BUILDING
252,512 SF | FFE = 922.80

PROPERTY LINE

10.0' SETBACK

EXISTING BUILDING

LEGEND

- SANITARY MANHOLE STORM
- CATCH BASIN
- CURB CATCH BASIN
- 749 CONTOUR
- 750.00 SPOT ELEVATION
- DIRECTION OF SURFACE FLOW
- DITCH OR SWALE
- FLOODPLAIN
- OVERFLOW RELIEF ROUTING
- CONCRETE SIDEWALK
- CURB AND GUTTER
- REVERSE PITCH CURB & GUTTER

REVIEWED: ####
DESIGNED: ####
DRAFTED: AJS

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GRADING PLAN

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26	

PEC JOB: 1296.10G-WI
PEC PM: AJS
PLAN DATE: 04/16/26
SCALE: 1" = 30'

SHEET C-7 OF C-16

SEE SHEET C-8

GRADING PLAN

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SEE SHEET C-7

WEST ROCKFIELD ROAD

PROPERTY LINE

30.0' SETBACK

PROPOSED BUILDING
252,512 SF | FFE = 922.80

PROPERTY LINE

GATEWAY CROSSING

30.0' SETBACK

60.0' R.O.W.

10.0' SETBACK

PROPERTY LINE

D.I.D.

F.P.

EXISTING BUILDING 4

NORTH

GRAPHICAL SCALE (FEET)

0 1" = 30' 60'

ALL WORK WITHIN PUBLIC R.O.W. SHALL CONFORM TO VILLAGE OF GERMANTOWN STANDARDS.

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LEGEND

- SANITARY MANHOLE STORM
- CATCH BASIN
- CURB CATCH BASIN
- 749 CONTOUR
- 750.00 SPOT ELEVATION
- DIRECTION OF SURFACE FLOW
- DITCH OR SWALE
- FLOODPLAIN
- OVERFLOW RELIEF ROUTING
- CONCRETE SIDEWALK
- CURB AND GUTTER
- REVERSE PITCH CURB & GUTTER

REVIEWED: ###
DESIGNED: ###
DRAWN BY: AJS

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GRADING PLAN

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26	

PES JOB # 1296.10G-WI
PES PM AJS
PLAN DATE 04/16/26
SCALE 1" = 30'

SHEET C-8 OF C-16

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GRADING PLAN

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ALL UNDERGROUND WATER UTILITY WORK SHALL CONFORM TO VILLAGE OF GERMANTOWN STANDARDS.

ALL PRIVATE HYDRANTS SHALL BE PAINTED YELLOW PER VILLAGE OF GERMANTOWN STANDARDS.

ALL WORK WITHIN PUBLIC R.O.W. SHALL CONFORM TO VILLAGE OF GERMANTOWN STANDARDS.

CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL EXITSING UTILITIES PRIOR TO INSTALLATION OF PROPOSED UTILITIES.

ALL PRIVATE HYDRANTS LEADS FROM THE BUILDING MUST RUN THROUGH A WATER METER AND WILL BE ADDED AS "PRIVATE HYDRANTS" ON THE VILLAGE GIS

LOOP AND FIRE DEPARTMENT CONNECTION SHOWN FOR CONCEPTUAL HYDRANT SPACING ONLY. THIS PLAN SHALL NOT BE USED FOR FIRE PROTECTION SYSTEM AND SYSTEM CONSTRUCTION. FINAL DESIGN AND SIZING SHALL BE BY FIRE PROTECTION ENGINEER.

LEGEND

- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN (ROUND CASTING)
- STORM SEWER CATCH BASIN (RECTANGULAR CASTING)
- PRECAST CONCRETE FLARED END SECTION
- CLEANOUT
- VALVE BOX
- FIRE HYDRANT
- SANITARY SEWER
- STORM SEWER
- DRAIN TILE

NORTH

GRAPHICAL SCALE (FEET)

0 1" = 50' 100'

WEST ROCKFIELD ROAD

SHEET C-10

SHEET C-11

EXISTING POND
NWL = 907.00

PROPOSED BUILDING
252,512 SF | FFE = 922.80

GATEWAY CROSSING

EXISTING BUILDING 6

UTILITY NOTES

1. EXISTING UTILITIES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE TYPE, LOCATION, SIZE AND ELEVATION OF UNDERGROUND UTILITIES AS THEY DEEM NECESSARY FOR PROPOSED UTILITY CONNECTIONS AND/OR TO AVOID DAMAGE THERETO. CONTRACTOR SHALL CALL "DIGGER'S HOTLINE" PRIOR TO ANY CONSTRUCTION.
2. ALL UTILITY WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN (LATEST EDITION AND ADDENDUM) AND ALL STATE AND LOCAL CODES AND SPECIFICATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE WHICH SPECIFICATIONS AND CODES APPLY, AND TO COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE APPROPRIATE LOCAL AND STATE AUTHORITIES.
3. UTILITY CONSTRUCTION AND SPECIFICATIONS SHALL COMPLY WITH THE VILLAGE OF GERMANTOWN SPECIAL PROVISIONS AND WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES SPS 382.
4. LENGTHS OF PROPOSED UTILITIES ARE TO CENTER OF STRUCTURES OR FITTINGS AND MAY VARY SLIGHTLY FROM PLAN. LENGTHS ARE SHOWN FOR CONTRACTOR CONVENIENCE ONLY. CONTRACTOR IS SOLELY RESPONSIBLE FOR COMPUTATIONS OF MATERIALS REQUIRED TO COMPLETE WORK. LENGTHS SHALL BE FIELD VERIFIED DURING CONSTRUCTION.
5. CONTRACTOR SHALL ADJUST AND/OR RECONSTRUCT EXISTING UTILITY COVERS (SUCH AS MANHOLE COVERS, VALVE BOX COVERS, ETC.) TO MATCH FINISHED GRADES OF THE AREAS DISTURBED DURING CONSTRUCTION.
6. CONTRACTOR SHALL FIELD VERIFY LOCATIONS, ELEVATIONS, AND SIZES OF PROPOSED UTILITIES AND CHECK ALL UTILITY CROSSINGS FOR CONFLICTS PRIOR TO ATTEMPTING CONNECTIONS AND BEGINNING UTILITY CONSTRUCTION AND NOTIFY THE OWNER OF ANY DISCREPANCIES OR CONFLICTS.
7. ALL NEW ON-SITE SANITARY, STORM AND WATER UTILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE PROPERTY OWNER.
8. THE CONTRACTOR SHALL CONTACT THE VILLAGE OF GERMANTOWN PUBLIC WORKS DEPARTMENT 48-HOURS IN ADVANCE OF SANITARY, WATER AND STORM CONNECTIONS TO THE VILLAGE-OWNED SYSTEM TO SCHEDULE INSPECTIONS.
9. ROUTING OF GAS, ELECTRIC AND TELEPHONE SERVICES ARE SHOWN ON THE ARCHITECTURAL PLANS AND SUBJECT TO CHANGE BASED UPON FINAL REVIEW AND APPROVAL BY RESPECTIVE UTILITY COMPANIES AND OWNER. CONTRACTOR SHALL CONTACT EACH UTILITY COMPANY AND COORDINATE FINAL LOCATIONS FOR ALL UTILITY SERVICES PRIOR TO START OF CONSTRUCTION.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE PROPER AUTHORITIES FOR ANY REQUIRED PERMITS, AUTHORIZATIONS, TRAFFIC CONTROL AND ANY PERMIT FEES REQUIRED.
11. FIELD TILE CONNECTION - ALL FIELD TILE ENCOUNTERED DURING CONSTRUCTION SHALL BE INCLUDED IN THE UNIT PRICE(S) FOR STORM SEWER. TILE LINES CROSSED BY THE TRENCH SHALL BE REPLACED WITH THE SAME MATERIAL AS THE STORM SEWER.
12. THE CONTRACTOR IS RESPONSIBLE FOR THE SIZE, TYPE AND NUMBER OF WATER MAIN BENDS, HORIZONTAL AND VERTICAL, REQUIRED TO COMPLETE CONSTRUCTION. COST FOR BENDS, HORIZONTAL AND VERTICAL, SHALL BE INCIDENTAL AND INCLUDED IN THE OVERALL COST OF THE CONTRACT.
13. STORM SEWER SPECIFICATIONS -

    PIPE - REINFORCED CONCRETE PIPE (RCP) SHALL MEET THE REQUIREMENTS OF ASTM CLASS C-76 WITH RUBBER GASKET JOINTS CONFORMING TO ASTM C-443. STRENGTH CLASSIFICATIONS SHALL BE IN ACCORDANCE WITH THE FOLLOWING:

    HEIGHT OF COVER (FEET): 0-2 2-3 3-6 6-15 15-25 25+
    MINIMUM CONCRETE PIPE CLASSIFICATION: IV III II III IV ENGINEER TO SPECIFY

    HIGH DENSITY DUAL-WALL POLYETHYLENE N-12 CORRUGATED PIPE (HDPE) SHALL BE AS MANUFACTURED BY ADS OR EQUAL WITH WATER TIGHT JOINTS, AND SHALL MEET THE REQUIREMENTS OF AASHTO DESIGNATION M-294 TYPE "S", OR POLYVINYL CHLORIDE (PVC) - CLASS PS46 MEETING AASHTO M278, AS NOTED. IF HDPE PIPE IS USED FOR POND OUTFALLS, A MINIMUM OF THREE (3) SECTIONS (2 STRAPS) SHALL BE STRAPPED TOGETHER.

    INLETS/CATCH BASINS - INLETS/CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FILE NO. 25 OF THE "STANDARD SPECIFICATIONS" WITH A 1'-8" X 2'-6" MAXIMUM OPENING. FRAME & GRATE SHALL BE NEENAH R-2502 WITH TYPE D GRATE, OR EQUAL. CURB FRAME & GRATE SHALL BE NEENAH R-3067, OR EQUAL. THE SUMP DEPTH (VERTICAL DISTANCE FROM THE BASE OF THE STRUCTURE TO OUTFALL INVERT OF THE PIPE) SHALL BE 18" MIN. STRUCTURE SHOP DRAWINGS SHALL BE SUBMITTED TO PINNACLE ENGINEERING GROUP FOR REVIEW AND APPROVAL PRIOR TO MANUFACTURING AND INSTALLATION.

    BACKFILL AND BEDDING - STORM SEWER SHALL BE CONSTRUCTED WITH GRAVEL BACKFILL AND CLASS "B" BEDDING IN ALL PAVED AREAS AND TO A POINT 5 FEET BEYOND THE EDGE OF PAVEMENT. TRENCHES RUNNING PARALLEL TO AND LESS THAN 5 FEET FROM THE EDGE OF PAVEMENT SHALL ALSO REQUIRE GRAVEL BACKFILL. SLURRY BACK FILL UNDER PUBLIC ROAD PAVEMENT. SLURRY LIMITS: FROM TOP OF COVER STONE TO PAVEMENT. SLURRY TO BE 1-BAG PORTLAND MIX. LANDSCAPED AREAS MAY BE BACKFILLED WITH EXCAVATED MATERIAL IN CONFORMANCE WITH SECTION 8.43.5 OF THE "STANDARD SPECIFICATIONS".
    MANHOLE FRAMES AND COVERS - MANHOLE FRAMES AND COVERS SHALL BE NEENAH R-1661 W/ NEENAH R-1660-0003 ROCKING COVER W/ 2 PICK HOLES AND 8 VENT HOLES
14. WATER MAIN SPECIFICATIONS -

    PIPE - WATER MAIN SHALL BE POLYVINYL CHLORIDE (PVC) PIPE MEETING THE REQUIREMENTS OF AWWA STANDARD C-900, CLASS 235, DR-18, WITH CAST IRON O.D. AND INTEGRAL ELASTOMERIC BELL AND SPIGOT JOINTS. VALVES AND VALVE BOXES - GATE VALVES SHALL BE AWWA GATE VALVES MEETING THE REQUIREMENTS OF AWWA C-500 AND CHAPTER 8.27.0 OF THE "STANDARD SPECIFICATIONS". GATE VALVES AND VALVE BOXES SHALL CONFORM TO LOCAL PLUMBING ORDINANCES.

    HYDRANTS - HYDRANTS SHALL CONFORM TO THE SPECIFICATIONS OF THE AND IN ACCORDANCE WITH FILE NO. 38 OF THE "STANDARD SPECIFICATIONS." THE DISTANCE FROM THE GROUND LINE TO THE CENTERLINE OF THE LOWEST NOZZLE AND THE LOWEST CONNECTION OF THE FIRE DEPARTMENT SHALL BE NO LESS THAN 18-INCHES AND NO GREATER THAN 24-INCHES. HYDRANT MANUFACTURE: KENNEDY GUARDIAN. HYDRANT AND TAP VALES: TRAFFIC MODEL W/ BREAKAWAY FLANGES, TWO 2-1/2" HOSE NOZZLES (7-12" NST0 AND ONE 5-1/4" PUMPER OR STEAMER NOZZLE (4 NST), A 1-1/2" PENTAGON OPERATING NUT AND CCW OPENING, 6" MECHANICAL JOINT INLET CONNECTION.

    BEDDING AND COVER MATERIAL - PIPE BEDDING AND COVER MATERIAL SHALL BE SAND, CRUSHED STONE CHIPS OR CRUSHED STONE SCREENINGS CONFORMING TO CHAPTER 8.43.2 OF THE "STANDARD SPECIFICATIONS".

    BACKFILL - BACKFILL MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH CHAPTER 2.6.0 OF THE "STANDARD SPECIFICATIONS". GRAVEL BACKFILL IS REQUIRED IN ALL PAVED AREAS AND TO A POINT 5 FEET BEYOND THE EDGE OF PAVEMENT. TRENCHES RUNNING PARALLEL TO AND LESS THAN 5 FEET FROM THE EDGE OF PAVEMENT SHALL ALSO REQUIRE GRAVEL BACKFILL. SLURRY BACK FILL UNDER PUBLIC ROAD PAVEMENT. SLURRY LIMITS: FROM TOP OF COVER STONE TO PAVEMENT. SLURRY TO BE 1-BAG PORTLAND MIX. LANDSCAPED AREAS MAY BE BACKFILLED WITH EXCAVATED MATERIAL IN CONFORMANCE WITH SECTION 8.43.5 OF THE "STANDARD SPECIFICATIONS".
15. SANITARY SEWER SPECIFICATIONS -

    PIPE - SANITARY SEWER PIPE MATERIAL SHALL BE POLYVINYL CHLORIDE (PVC) MEETING REQUIREMENTS OF ASTM D 3034, SDR-35, WITH INTEGRAL BELL TYPE FLEXIBLE ELASTOMERIC JOINTS, MEETING THE REQUIREMENTS OF ASTM D-3212.

    BEDDING AND COVER MATERIAL - BEDDING AND COVER MATERIAL SHALL CONFORM TO THE APPROPRIATE SECTIONS OF THE "STANDARD SPECIFICATION" WITH THE FOLLOWING MODIFICATION: "COVER MATERIAL SHALL BE THE SAME AS USED FOR BEDDING AND SHALL CONFORM TO SECTION 8.43.2 (A). BEDDING AND COVER MATERIAL SHALL BE PLACED IN A MINIMUM OF THREE SEPARATE LIFTS, OR AS REQUIRED TO INSURE ADEQUATE COMPACTING OF THESE MATERIALS, WITH ONE LIFT OF BEDDING MATERIAL ENDING AT OR NEAR THE SPRINGLINE OF THE PIPE. THE CONTRACTOR SHALL TAKE CARE TO COMPLETELY WORK BEDDING MATERIAL UNDER THE HAUNCH OF THE PIPE TO PROVIDE ADEQUATE SIDE SUPPORT."

    BACKFILL - BACKFILL MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE CHAPTER 2.6.0 OF THE "STANDARD SPECIFICATIONS." SLURRY BACK FILL UNDER PUBLIC ROAD PAVEMENT. SLURRY LIMITS: FROM TOP OF COVER STONE TO PAVEMENT. SLURRY TO BE 1-BAG PORTLAND MIX. GRAVEL BACKFILL IS REQUIRED IN ALL PAVED AREAS AND TO A POINT 5 FEET BEYOND THE EDGE OF PAVEMENT. TRENCHES RUNNING PARALLEL TO AND LESS THAN 5 FEET FROM THE EDGE OF PAVEMENT SHALL ALSO REQUIRE GRAVEL BACKFILL. LANDSCAPED AREAS MAY BE BACKFILLED WITH EXCAVATED MATERIAL IN CONFORMANCE WITH SECTION 8.43.5 OF THE "STANDARD SPECIFICATIONS."

    MANHOLES - MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH FILE NOS. 12, 13 AND 15 OF THE "STANDARD SPECIFICATIONS" AND ALL SPECIAL PROVISIONS OF THE VILLAGE OF GERMANTOWN. STRUCTURE SHOP DRAWINGS SHALL BE SUBMITTED TO PINNACLE ENGINEERING GROUP FOR REVIEW AND APPROVAL PRIOR TO MANUFACTURING AND INSTALLATION.

    MANHOLE FRAMES AND COVERS - NEENAH R-1661 FRAME W/ SOLID GASKETED LID AND 2 CONCEALED PICK HOLES. CONFORM TO STANDARD SPECIFICATIONS CH. 3.5.0
16. WATER MAIN AND SANITARY SEWER SHALL BE INSULATED WHEREVER THE DEPTH OF COVER IS LESS THAN 6 FEET. INSULATION AND PLACING OF INSULATION SHALL CONFORM TO CHAPTER 4.17.0 "INSULATION" OF THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN 6TH EDITION UPDATED WITH ITS LATEST ADDENDUM (TYP.).
17. TRACER WIRE SHALL BE INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THESE CODE SECTIONS AS PER 182.0715(2R) OF THE STATUTES. TRACER WIRE: COPPERHEAD TRACERWIRE #10 SOLID CCS SUPERFLEX (BLUE). WIRE CONNECTORS SHALL BE SNAKEBITE (BLUE) MADE BYCOPPERHEAD INDUSTRIES, LLC. THE TRACER WIRE FOR THE SANITARY SEWER LATERAL SHALL BE CONTINUOUS AND SHALL BE EXTENDED ABOVE GRADE VIA A 4-INCH PVC PIPE WITH SCREW-ON CAP ADJACENT TO THE PROPOSED TERMINATION POINT OF THE LATERAL FOR THE PROPOSED BUILDING.
18. SEE UTILITY PLANS AND CONSTRUCTION DETAILS FOR ADDITIONAL INFORMATION.

REVIEWED ###
DESIGNED ###
DRAWN AJS

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OVERALL UTILITY PLAN

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26	

PEG JOB # 1296.10G-WI
PEG PM AJS
PLAN DATE 04/16/26
SCALE 1" = 50'

SHEET
C-9
OF
C-16

OVERALL UTILITY PLAN

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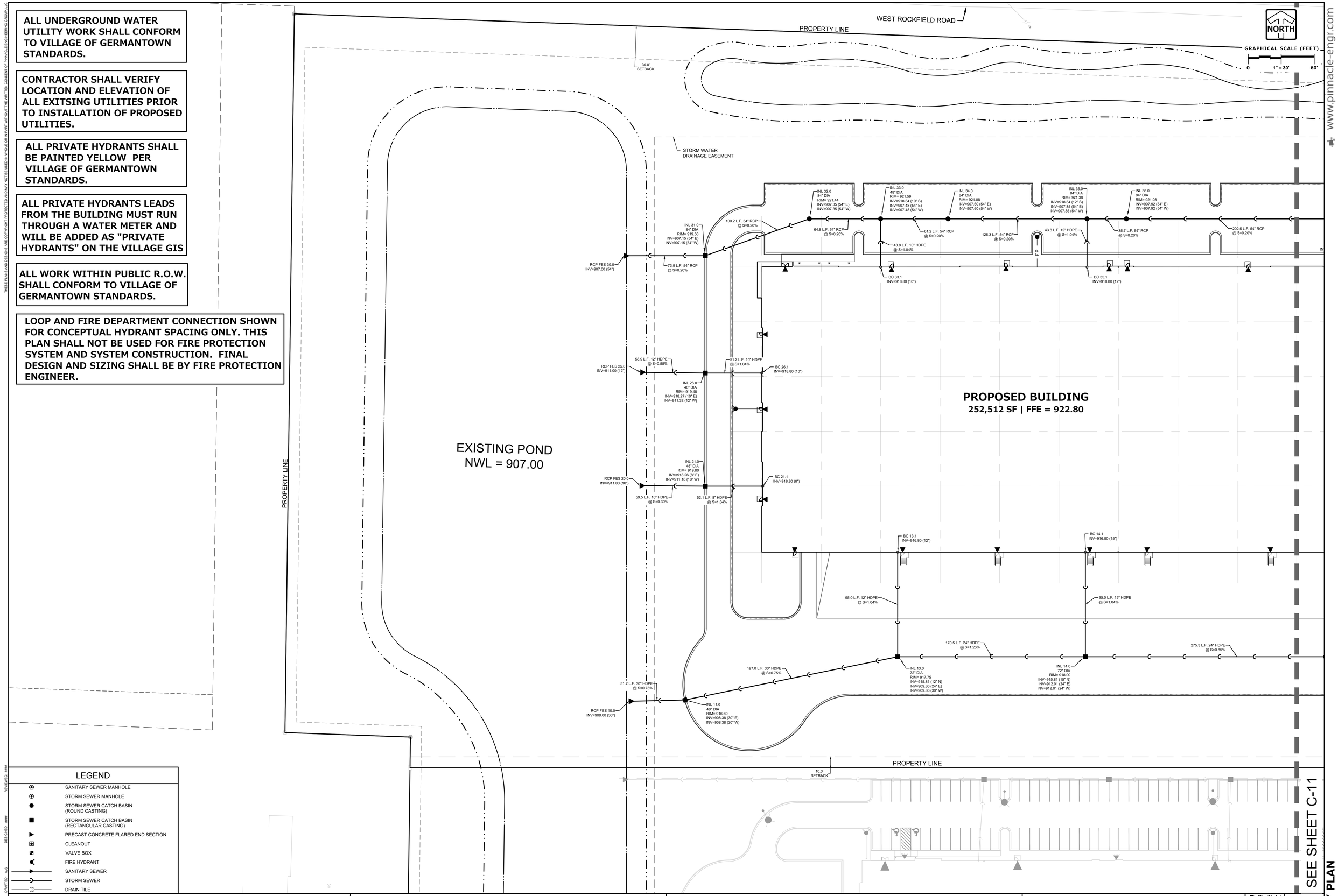

LEGEND

- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN (ROUND CASTING)
- STORM SEWER CATCH BASIN (RECTANGULAR CASTING)
- PRECAST CONCRETE FLARED END SECTION
- CLEANOUT
- VALVE BOX
- FIRE HYDRANT
- SANITARY SEWER
- STORM SEWER
- DRAIN TILE

REVIEWED: ####
DESIGNED: ####
DRAFTED: AJS

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REVISIONS

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PEC JOB # 1296.10G-WI
PEC PM AJS
PLAN DATE 04/16/26
SCALE 1" = 30'

SHEET
C-10
OF
C-16

SEE SHEET C-11

UTILITY PLAN

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SEE SHEET C-10

WEST ROCKFIELD ROAD

PROPERTY LINE

30.0' SETBACK

STORM WATER DRAINAGE EASEMENT

PROPOSED BUILDING
252,512 SF | FFE = 922.80

INL 37.0
84" DIA
RIM= 921.35
INV=918.31 (12" S)
INV=908.32 (54" E)
INV=908.32 (54" W)

11.2 L.F. 12" HDPE @ S=1.04%

9.1 L.F. 12" HDPE @ S=1.04%

45° BEND 37.1
INV=918.43 (12")

45° BEND 37.2
INV=918.53 (12")

26.0 L.F. 12" HDPE @ S=1.04%

BC 37.3
INV=918.80 (12")

121.5 L.F. 54" RCP @ S=0.20%

INL 38.0
84" DIA
RIM= 920.80
INV=908.56 (54" E)
INV=908.56 (54" W)

102.2 L.F. 54" RCP @ S=0.20%

INL 39.0
60" DIA
RIM= 921.15
INV=918.35 (10" S)
INV=908.76 (54" E)
INV=908.76 (54" W)

43.0 L.F. 10" HDPE @ S=1.04%

BC 39.1
INV=918.80 (10")

106.6 L.F. 54" RCP @ S=0.20%

INL 40.0
60" DIA
RIM= 921.15
INV=908.97 (54" E)
INV=918.34 (8" S)
INV=908.97 (54" W)

43.8 L.F. 8" HDPE @ S=1.04%

BC 40.1
INV=918.80 (8")

139.5 L.F. 54" RCP @ S=0.20%

MH 42.0
84" DIA
RIM= 923.24
INV=920.20 (54" SE)
INV=916.17 (54" SW)
(FIELD VERIFY INVERT)

84.9 L.F. 54" RCP @ S=1.10%

INSTALL SALVAGED FIRE HYDRANT

CONNECT TO EXISTING FIRE HYDRANT LEAD, VERIFY INVERT IN FIELD

INL 41.0
60" DIA
RIM= 921.82
INV=909.25 (15" S)
INV=915.24 (54" NE)
INV=909.25 (54" W)

101.7 L.F. 15" HDPE @ S=0.65%

45° BEND 50.1
INV=918.64 (10")

BC 50.3
INV=918.80 (12")

5.0 L.F. 12" HDPE @ S=1.04%

10.9 L.F. 10" HDPE @ S=1.04%

45° BEND 50.2
INV=918.75 (10")

INL 50.0
48" DIA
RIM= 921.07
INV=909.91 (12" S)
INV=918.36 (10" W)
INV=909.91 (15" N)

26.8 L.F. 10" HDPE @ S=1.04%

103.5 L.F. 12" HDPE @ S=0.35%

INL 51.0
48" DIA
RIM= 921.05
INV=918.35 (8" SW)
INV=910.27 (12" N)

45° BEND 51.1
INV=918.45 (8")

BC 51.2
INV=918.80 (8")

9.5 L.F. 8" HDPE @ S=1.04%

33.7 L.F. 8" HDPE @ S=1.04%

WM BC 100.0
INV=913.90 (4")

24.8 L.F. 4" C-900 PVC WM @ S=10.30%

SAN BC 83.1
INV=911.54 (8")

45° BEND 101.0
INV=911.34 (4")

22.8 L.F. 8" SDR-26 PVC @ S=1.04%

98.7 L.F. 4" C-900 PVC WM @ S=-4.74%

45° BEND 102.0
INV=916.02 (4")

18.5 L.F. 4" C-900 PVC WM @ S=-20.00%

CONNECT TO EXIST 103.0
INV=919.72 (4")

60.0' R.O.W.

CONNECT TO EXIST SAN RISER 80.0
INV=909.43 (8")

SAN MH 83.0
48" DIA
RIM= 922.02
INV=911.30 (8" W)
INV=911.20 (8" SE)

101.7 L.F. 8" SDR-26 PVC @ S=1.04%

SAN MH 82.0
48" DIA
RIM= 925.02
INV=910.14 (8" NW)
INV=910.04 (8" E)

15.0 L.F. 8" SDR-26 PVC @ S=1.04%

43.2 L.F. 8" SDR-26 PVC @ S=1.04%

SAN SAMPLING MH 81.0
INV=909.88 (8")

INSTALL SALVAGED FIRE HYDRANT

CONNECT TO EXISTING FIRE HYDRANT LEAD, VERIFY INVERT IN FIELD

BC 15.1
INV=916.80 (15")

BC 16.1
INV=916.80 (12")

BC 17.1
INV=916.80 (10")

95.0 L.F. 15" HDPE @ S=1.04%

95.0 L.F. 12" HDPE @ S=1.04%

95.0 L.F. 10" HDPE @ S=1.04%

204.7 L.F. 24" HDPE @ S=0.50%

98.7 L.F. 15" HDPE @ S=0.85%

134.9 L.F. 12" HDPE @ S=0.20%

INL 15.0
72" DIA
RIM= 918.00
INV=915.81 (15" N)
INV=914.35 (24" E)
INV=914.35 (24" W)

INL 16.0
72" DIA
RIM= 918.37
INV=915.81 (12" N)
INV=915.37 (15" E)
INV=915.37 (24" W)

INL 17.0
72" DIA
RIM= 918.40
INV=915.81 (10" N)
INV=916.21 (12" E)
INV=916.21 (15" W)

INL 18.0
48" DIA
RIM= 921.00
INV=916.48 (12" W)

PROPERTY LINE

10.0' SETBACK

GATEWAY CROSSING

EXISTING BUILDING 4

ALL UNDERGROUND WATER UTILITY WORK SHALL CONFORM TO VILLAGE OF GERMANTOWN STANDARDS.

CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL EXITSING UTILITIES PRIOR TO INSTALLATION OF PROPOSED UTILITIES.

ALL WORK WITHIN PUBLIC R.O.W. SHALL CONFORM TO VILLAGE OF GERMANTOWN STANDARDS.

ALL PRIVATE HYDRANTS SHALL BE PAINTED YELLOW PER VILLAGE OF GERMANTOWN STANDARDS.

ALL PRIVATE HYDRANTS LEADS FROM THE BUILDING MUST RUN THROUGH A WATER METER AND WILL BE ADDED AS "PRIVATE HYDRANTS" ON THE VILLAGE GIS

LOOP AND FIRE DEPARTMENT CONNECTION SHOWN FOR CONCEPTUAL HYDRANT SPACING ONLY. THIS PLAN SHALL NOT BE USED FOR FIRE PROTECTION SYSTEM AND SYSTEM CONSTRUCTION. FINAL DESIGN AND SIZING SHALL BE BY FIRE PROTECTION ENGINEER.

NORTH

GRAPHICAL SCALE (FEET)
0 1" = 30' 60'

LEGEND

- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN (ROUND CASTING)
- STORM SEWER CATCH BASIN (RECTANGULAR CASTING)
- PRECAST CONCRETE FLARED END SECTION
- CLEANOUT
- VALVE BOX
- FIRE HYDRANT
- SANITARY SEWER
- STORM SEWER
- DRAIN TILE

REVIEWED: ####
DESIGNED: ####
DRAWN BY: AJS

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ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK
GERMANTOWN, WI

UTILITY PLAN

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26

PEG JOB # 1296.10G-WI
PEG PM AJS
PLAN DATE 04/16/26
SCALE 1" = 30'

SHEET C-11 OF C-16

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UTILITY PLAN

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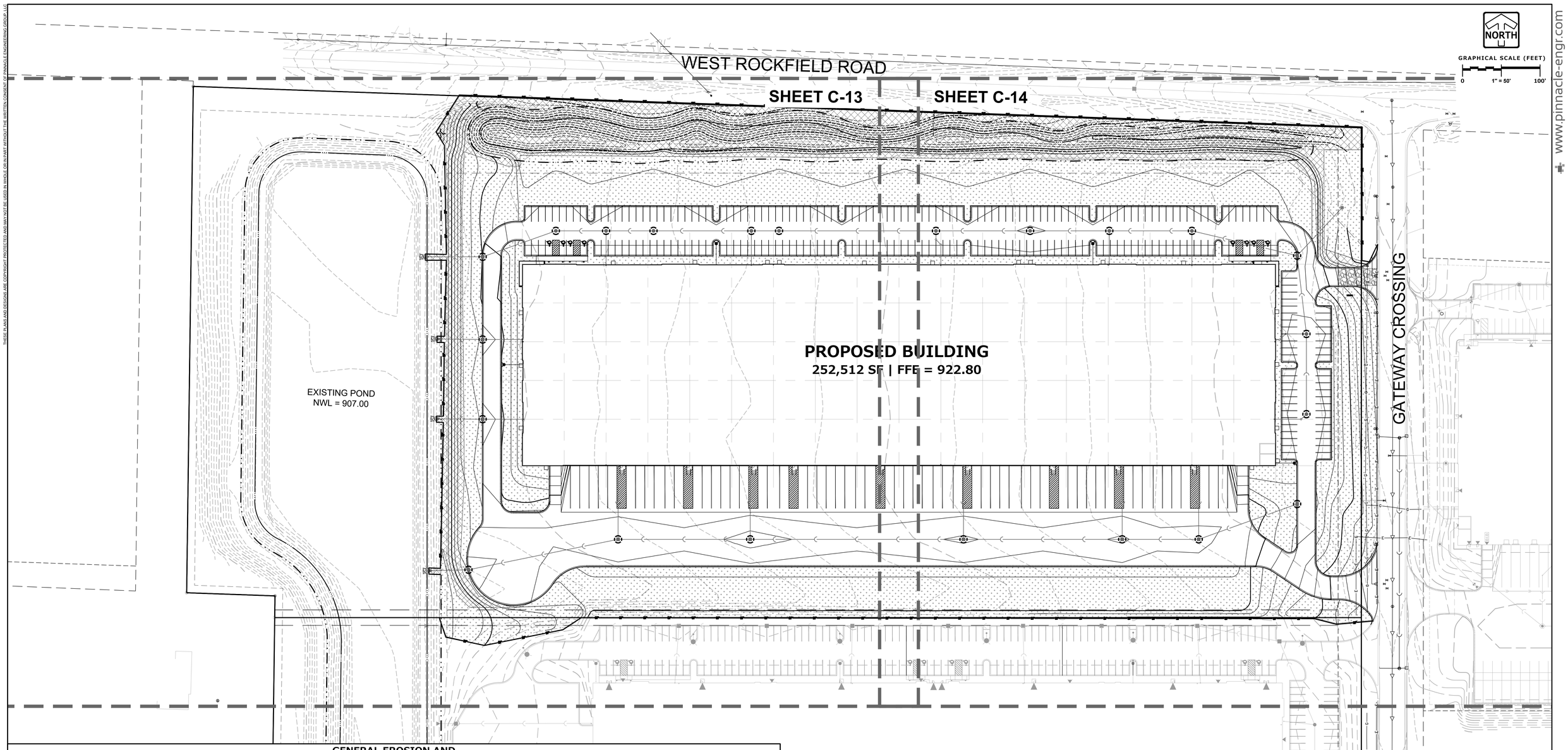

GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. ALL CONSTRUCTION SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER GENERAL PERMIT FOR CONSTRUCTION SITE LAND DISTURBANCE ACTIVITIES. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL TECHNICAL STANDARDS AND PROVISIONS IN EFFECT AT THE TIME OF CONSTRUCTION. THESE PROCEDURES AND STANDARDS SHALL BE REFERRED TO AS BEST MANAGEMENT PRACTICES (BMP'S). IT IS THE RESPONSIBILITY OF ALL CONTRACTORS ASSOCIATED WITH THE PROJECT TO OBTAIN A COPY OF, AND UNDERSTAND, THE BMP'S PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
2. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL CONTROL MEASURES AS DIRECTED BY OWNER/ENGINEER OR GOVERNING AGENCIES SHALL BE INSTALLED WITHIN 24 HOURS OF REQUEST.
3. MODIFICATIONS TO THE APPROVED SWPPP IN ORDER TO MEET UNFORESEEN FIELD CONDITIONS ARE ALLOWED IF MODIFICATIONS CONFORM TO BMP'S. ALL MODIFICATIONS MUST BE APPROVED BY OWNER/ENGINEER/GOVERNING AGENCY PRIOR TO DEVIATION OF THE APPROVED PLAN.
4. INSTALL PERIMETER EROSION CONTROL MEASURES (SUCH AS CONSTRUCTION ENTRANCES, SILT FENCE AND EXISTING INLET PROTECTION) PRIOR TO ANY SITE WORK, INCLUDING GRADING OR DISTURBANCE OF EXISTING SURFACE COVER, AS SHOWN ON PLAN IN ORDER TO PROTECT ADJACENT PROPERTIES/STORM SEWER SYSTEMS FROM SEDIMENT TRANSPORT.
5. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT ALL LOCATIONS OF VEHICLE INGRESS/EGRESS POINTS. CONTRACTOR IS RESPONSIBLE TO COORDINATE LOCATION(S) WITH THE PROPER AUTHORITIES, PROVIDE NECESSARY FEES AND OBTAIN ALL REQUIRED APPROVALS OR PERMITS. ADDITIONAL CONSTRUCTION ENTRANCES OTHER THAN AS SHOWN ON THE PLANS MUST BE APPROVED BY THE APPLICABLE GOVERNING AGENCIES PRIOR TO INSTALLATION.
6. PAVED SURFACES ADJACENT TO CONSTRUCTION ENTRANCES SHALL BE SWEPT AND/OR SCRAPED TO REMOVE ACCUMULATED SOIL, DIRT AND/OR DUST IMMEDIATELY AND AS REQUESTED BY THE GOVERNING AGENCIES.
7. ALL EXISTING STORM SEWER FACILITIES THAT WILL COLLECT RUNOFF FROM DISTURBED AREAS SHALL BE PROTECTED TO TO PREVENT SEDIMENT DEPOSITION WITHIN STORM SEWER SYSTEMS. INLET PROTECTION SHALL BE IMMEDIATELY FITTED AT THE INLET OF ALL INSTALLED STORM SEWER AND SILT FENCE SHALL BE IMMEDIATELY FITTED AT ALL INSTALLED CULVERT INLETS . ALL INLETS, STRUCTURES, PIPES, AND SWALES SHALL BE KEPT CLEAN AND FREE OF SEDIMENTATION AND DEBRIS.
8. EROSION CONTROL FOR UTILITY CONSTRUCTION (STORM SEWER, WATER MAIN, ETC.) OUTSIDE OF THE PERIMETER CONTROLS SHALL INCORPORATE THE FOLLOWING:

   PLACE EXCAVATED TRENCH MATERIAL ON THE HIGH SIDE OF THE TRENCH.

   BACKFILL, COMPACT AND STABILIZE THE TRENCH IMMEDIATELY AFTER PIPE CONSTRUCTION.

   DISCHARGE TRENCH WATER INTO A SEDIMENTATION BASIN OR FILTERING TANK IN ACCORDANCE WITH BMP'S PRIOR TO RELEASE INTO STORM SEWER OR DITCHES.
9. AT A MINIMUM, SEDIMENT BASINS AND NECESSARY TEMPORARY DRAINAGE PROVISIONS SHALL BE CONSTRUCTED AND OPERATIONAL BEFORE BEGINNING OF SIGNIFICANT MASS GRADING OPERATIONS TO PREVENT OFFSITE DISCHARGE OF UNTREATED RUNOFF.
10. ALL WATERCOURSES AND WETLANDS SHALL BE PROTECTED WITH SILT FENCE TO PREVENT ANY DIRECT DISCHARGE FROM DISTURBED SOILS.
11. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR INSPECTION AND REPAIR DURING CONSTRUCTION. THE OWNER WILL BE RESPONSIBLE IF EROSION CONTROL IS REQUIRED AFTER THE CONTRACTOR HAS COMPLETED THE PROJECT.
12. TOPSOIL STOCKPILES SHALL HAVE A BERM OR TRENCH AROUND THE CIRCUMFERENCE AND PERIMETER SILT FENCE TO CONTROL SILT. IF TOPSOIL STOCKPILE REMAINS UNDISTURBED FOR MORE THAN SEVEN (7) DAYS, TEMPORARY SEEDING AND STABILIZATION IS REQUIRED.
13. EROSION CONTROL MEASURES TEMPORARILY REMOVED FOR UNAVOIDABLE CONSTRUCTION ACTIVITIES SHALL BE IN WORKING ORDER IMMEDIATELY FOLLOWING COMPLETION OF SUCH ACTIVITIES OR PRIOR TO THE COMPLETION OF EACH WORK DAY, WHICH EVER OCCURS FIRST.
14. MAINTAIN SOIL EROSION CONTROL DEVICES THROUGH THE DURATION OF THIS PROJECT. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN THIRTY (30) DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. DISTURBANCES ASSOCIATED WITH EROSION CONTROL REMOVAL SHALL BE IMMEDIATELY STABILIZED.
15. PUMPS MAY BE USED AS BYPASS DEVICES. IN NO CASE SHALL PUMPED WATER BE DIVERTED OUTSIDE THE PROJECT LIMITS. PUMP DISCHARGE SHALL BE DIRECTED INTO AN APPROVED FILTER BAG OR APPROVED SETTLING DEVICE.
16. GRADING EFFORTS SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. EROSION AND SEDIMENT CONTROL MEASURES SHALL CONSIDER THE TIME OF YEAR, SITE CONDITIONS, AND THE USE OF TEMPORARY OR PERMANENT MEASURES. ALL DISTURBED AREAS THAT WILL NOT BE WORKED FOR A PERIOD OF FOURTEEN (14) DAYS REQUIRE TEMPORARY SEEDING FOR EROSION CONTROL. SEEDING FOR EROSION CONTROL SHALL BE IN ACCORDANCE WITH TECHNICAL STANDARDS.
17. ALL DISTURBED SLOPES EXCEEDING 4:1, SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75BN. EROSION MATTING (OR APPROVED EQUAL) AND ALL CHANNELS SHALL BE STABILIZED WITH CLASS I TYPE B (SEE WISCONSIN DOT PRODUCT ACCEPTABILITY LISTS) OR APPLICATION OF AN APPROVED POLYMER SOIL STABILIZATION TREATMENT OR A COMBINATION THEREOF, AS REQUIRED. EROSION MATTING AND/OR NETTING USED ONSITE SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES.
18. DURING PERIODS OF EXTENDED DRY WEATHER, THE CONTRACTOR SHALL KEEP A WATER TRUCK ON SITE FOR THE PURPOSE OF WATERING DOWN SOILS WHICH MAY OTHERWISE BECOME AIRBORNE.THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING WIND EROSION (DUST) DURING CONSTRUCTION AT HIS/HER EXPENSE.
19. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE VISUALLY INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM ON A DAILY BASIS.
20. QUALIFIED PERSONNEL (PROVIDED BY THE GENERAL/PRIME CONTRACTOR) SHALL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED AND EROSION AND SEDIMENT CONTROLS WITHIN 24 HOURS OF ALL 0.5-INCH, OR MORE, PRECIPITATION EVENTS WITH A MINIMUM INSPECTION INTERVAL OF ONCE EVERY SEVEN (7) CALENDAR DAYS IN THE ABSENCE OF A QUALIFYING RAIN OR SNOWFALL EVENT. REPORTING SHALL BE IN ACCORDANCE WITH OF THE GENERAL PERMIT. CONTRACTOR SHALL IMMEDIATELY ARRANGE TO HAVE ANY DEFICIENT ITEMS REVEALED DURING INSPECTIONS REPAIRED/REPLACED.
21. SEE ADDITIONAL DETAILS AND NOTES ON SITE STABILIZATION AND CONSTRUCTION DETAILS.

LEGEND

- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- STORM STORM CATCH BASIN (ROUND CASTING)
- STORM SEWER CATCH BASIN (RECTANGULAR CASTING)
- RISER
- PRECAST FLARED END SECTION
- CLEANOUT
- VALVE BOX
- FIRE HYDRANT
- PROPOSED CONTOUR
- 750.0 PROPOSED SPOT ELEVATION
- WETLANDS
- HIGH WATER LEVEL (HWL)
- NORMAL WATER LEVEL (NWL)
- DIRECTION OF SURFACE FLOW
- DIVERSION SWALE
- DIVERSION DITCH
- OVERFLOW RELIEF ROUTING
- SILT FENCE
- INLET PROTECTION
- STRAW WATTLE
- CONSTRUCTION ENTRANCE
- HYDROSEED (PER MANUFACTURER SPECIFICATIONS)
- EROSION CONTROL BLANKET (NORTH AMERICAN GREEN S75 OR EQUAL)

ALL WORK WITHIN PUBLIC R.O.W. SHALL CONFORM TO VILLAGE OF GERMANTOWN STANDARDS.

EXISTING CONDITIONS SURVEY:

EXISTING CONDITIONS SURVEY PROVIDED BY PINNACLE ENGINEERING GROUP. ALTHOUGH PEG HAS NO REASON TO BELIEVE THE SURVEY IS INACCURATE, PEG MAKES NO WARRANTS THAT EXISTING INFORMATION CONTAINED WITHIN THESE PLANS IS ALL-INCLUSIVE OR ACCURATE. CONTRACTOR SHALL UNDERTAKE NECESSARY EFFORTS TO VERIFY THE EXISTING CONDITIONS PRIOR TO THE START OF MATERIAL PROCUREMENT AND CONSTRUCTION EFFORTS/ACTIVITIES.

DRAFTED AJS | DESIGNED ### | REVIEWED ###

PLAN | DESIGN | DELIVER
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CHICAGO | MILWAUKEE: NATIONWIDE

ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK
GERMANTOWN, WI

OVERALL SITE STABILIZATION PLAN

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26	

PEG JOB # 1296.10G-WI
PEG PM AJS
PLAN DATE 04/16/26
SCALE 1" = 50'

SHEET C-12 OF C-16

OVERALL SITE STABILIZATION PLAN

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NORTH

GRAPHICAL SCALE (FEET)
0 1" = 30' 60'

30.0' SETBACK

STRAW WADDLE (TYP.)

WEST ROCKFIELD ROAD

PROPERTY LINE

INLET PROTECTION (TYP.)

MEDIUM RIPRAP (TYP.)

SILT FENCING (TYP.)

EXISTING POND
NWL = 907.00

PROPOSED BUILDING
252,512 SF | FFE = 922.80

INLET PROTECTION (TYP.)

PROPERTY LINE

10'0" SETBACK

SILT FENCING (TYP.)

ALL WORK WITHIN PUBLIC R.O.W. SHALL CONFORM TO VILLAGE OF GERMANTOWN STANDARDS.

LEGEND

- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- STORM STORM CATCH BASIN (ROUND CASTING)
- STORM SEWER CATCH BASIN (RECTANGULAR CASTING)
- RISER
- PRECAST FLARED END SECTION
- CLEANOUT
- VALVE BOX
- FIRE HYDRANT
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- WETLANDS
- HIGH WATER LEVEL (HWL)
- NORMAL WATER LEVEL (NWL)
- DIRECTION OF SURFACE FLOW
- DIVERSION SWALE
- DIVERSION DITCH
- OVERFLOW RELIEF ROUTING
- SILT FENCE
- INLET PROTECTION
- STRAW WATTLE
- CONSTRUCTION ENTRANCE
- HYDROSEED (PER MANUFACTURER SPECIFICATIONS)
- EROSION CONTROL BLANKET (NORTH AMERICAN GREEN S75 OR EQUAL)

REVISED: ####
DESIGNED: ####
DRAFTED: AJS

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GERMANTOWN, WI

SITE STABILIZATION PLAN

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26			

PEC JOB #: 1296.10G-WI
PEC PM: AJS
PLAN DATE: 04/16/26
SCALE: 1" = 30'

SHEET
C-13
OF
C-16

SEE SHEET C-14

SITE STABILIZATION PLAN

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WEST ROCKFIELD ROAD

PROPERTY LINE

30.0' SETBACK

SILT FENCING (TYP.)

INLET PROTECTION (TYP.)

CONSTRUCTION ENTRANCE

PROPOSED BUILDING
252,512 SF | FFE = 922.80

PROPERTY LINE

GATEWAY CROSSING

60.0' R.O.W.

EXISTING BUILDING 4

INLET PROTECTION (TYP.)

PROPERTY LINE

10.0' SETBACK

SILT FENCING (TYP.)

SEE SHEET C-13

NORTH

GRAPHICAL SCALE (FEET)
0 1" = 30' 60'

ALL WORK WITHIN PUBLIC R.O.W. SHALL CONFORM TO VILLAGE OF GERMANTOWN STANDARDS.

LEGEND

- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
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SITE STABILIZATION PLAN

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PEG JOB # 1296.10G-WI
PEG PM AJS
PLAN DATE 04/16/26
SCALE 1" = 30'

SHEET
C-14
OF
C-16

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SITE STABILIZATION PLAN

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1.0 POTENTIAL POLLUTANT SOURCES

GIVEN THE PROPOSED ACTIVITY ON THE PROJECT SITE, THE PRIMARY POTENTIAL POLLUTANT SOURCE ASSOCIATED WITH THIS CONSTRUCTION PROJECT IS SOIL EROSION AND TRANSPORTATION; REFER TO SECTION 4 OF THIS PLAN. ADDITIONAL POTENTIAL SOURCES OF POLLUTION MAY INCLUDE: FUEL TANKS, WASTE CONTAINERS, OIL OR OTHER PETROLEUM PRODUCTS, DETERGENTS, PAINTS, CONSTRUCTION DEBRIS, SANITARY STATIONS, FERTILIZERS, AND DUST; REFER TO SECTION 5 OF THIS PLAN.

2.0 EROSION AND SEDIMENT CONTROL IMPLEMENTATION

THE FOLLOWING ARE DESCRIPTIONS OF THE EROSION AND SEDIMENT CONTROL PRACTICES THAT SHALL BE IMPLEMENTED DURING CONSTRUCTION OF THIS PROJECT. IN ADDITION TO THESE MEASURES, CONTRACTOR SHALL DISTURB ONLY AREAS NECESSARY TO COMPLETE THE CONSTRUCTION PROJECT. ALL PRACTICES SHALL BE CONDUCTED IN ACCORDANCE WITH THE BEST MANAGEMENT PRACTICES (BMP).

2.1 CONSTRUCTION AND EROSION CONTROL SEQUENCING

CONSTRUCTION SEQUENCING WILL BE UTILIZED AS A MEANS OF CONTROLLING EROSION AND LIMITING SEDIMENT TRANSPORT. SEQUENCING AS LISTED BELOW IS GENERAL IN NATURE AND MAY VARY DEPENDING ON WEATHER CONDITIONS AND/OR PHASING OF CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A DETAILED SITE SEQUENCING PLAN TO OWNER FOR APPROVAL AT LEAST 5 BUSINESS DAYS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. CONTRACTOR MAY MODIFY SEQUENCING AFTER ITEM 6 AS NEEDED TO COMPLETE CONSTRUCTION ONLY IF EROSION CONTROLS ARE MAINTAINED IN ACCORDANCE WITH THE CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL REQUIREMENTS.

1. INSTALL TEMPORARY CONSTRUCTION ENTRANCES, INLET PROTECTION ON EXISTING STORM SEWER AND CULVERT INLET LOCATIONS SEDIMENT TRAPS, DIVERSION BERMS, DITCH CHECKS, AND PERIMETER SILT FENCING.
2. INSTALL SILT FENCING ALONG THE PERIMETER OF PROPOSED TOPSOIL STOCKPILE LOCATIONS. THE FIRST TOPSOIL DEPOSITED WITHIN THE STOCKPILE LIMITS SHALL BE PLACED TO CREATE TEMPORARY BERMING ALONG THE SILT FENCE TO PREVENT DIRECT STORMWATER RUNOFF AGAINST SILT FENCING. CONTRACTOR SHALL LIMIT LAND DISTURBING ACTIVITIES ASSOCIATED WITH TEMPORARY BERMING TO A MINIMUM.
3. CONDUCT ROUGH GRADING OPERATIONS AND UTILITY PIPING INSTALLATION. DRAIN TILE SHALL NOT BE INSTALLED UNTIL UPLAND AREAS CONTRIBUTING STORMWATER RUNOFF ARE STABILIZED. DITCH CHECKS SHALL BE INSTALLED WITHIN DRAINAGE DITCHES IMMEDIATELY FOLLOWING CREATION OF DITCHES AND INLET PROTECTION SHALL BE INSTALLED TO PROTECT ANY STORM SEWER OR CULVERTS THAT WILL FUNCTION DURING CONSTRUCTION.
4. FINE GRADE SUB-GRADE SOILS WITHIN PAVEMENT AND BUILDING LIMITS. PLACE STONE BASE MATERIAL AS SOON AS POSSIBLE FOLLOWING COMPLETION OF FINE GRADING EFFORTS.
5. FINE GRADE REMAINING DISTURBED AREAS. PLACE SALVAGED TOPSOIL, EROSION BLANKETS/MATTING, AND SEED/MULCH AS SOON AS POSSIBLE FOLLOWING COMPLETION OF FINE GRADING EFFORTS.
6. EROSION CONTROLS SHALL NOT BE REMOVED UNTIL SITE IS FULLY STABILIZED OR 70% VEGETATIVE COVER IS ESTABLISHED. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF SILT FENCE, TEMPORARY FENCING/PRETECTION, DITCH CHECKS, AND OTHER TEMPORARY CONTROLS, AND RESTORATION PRACTICES AS NECESSARY, TO THE SATISFACTION OF THE OWNER.

2.2 STABILIZATION PRACTICES

THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR, WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE, AND WHEN STABILIZATION MEASURES ARE INITIATED, SHALL BE RECORDED ON THE STABILIZATION SCHEDULE FOR MAJOR GRADING ACTIVITIES.

STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. NO MORE THAN SEVEN (7) DAYS SHALL PASS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS PERMANENTLY CEASED UNLESS:

THE INITIATION OF STABILIZATION MEASURES BY THE SEVENTH (7) DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASE IS PRECLUDED BY SNOW COVER. IN THAT EVENT, STABILIZATION MEASURE SHALL BE INITIATED AS SOON AS PRACTICABLE.

CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN FOURTEEN (14) DAYS FROM WHEN ACTIVITIES CEASED, (I.E. THE TOTAL TIME PERIOD THAT THE CONSTRUCTION ACTIVITY IS TEMPORARILY CEASED IS LESS THAN FOURTEEN (14) DAYS). IN THAT EVENT, STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE SEVENTH (7) DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED. SEE THE SOIL PROTECTION CHART PRESENTED IN THE CONSTRUCTION DOCUMENTS FOR RATES OF PERMANENT AND TEMPORARY VEGETATION.

STABILIZATION MEASURES SHALL BE DETERMINED BASED ON SITE CONDITIONS AT THE TIME CONSTRUCTION ACTIVITY HAS CEASED, INCLUDING BUT NOT LIMITED TO WEATHER CONDITIONS AND LENGTH OF TIME MEASURE MUST BE EFFECTIVE. THE FOLLOWING ARE ACCEPTABLE STABILIZATION MEASURES.

PERMANENT SEEDING; IN ACCORDANCE WITH APPROVED LANDSCAPING PLAN
TEMPORARY SEEDING MAY CONSIST OF SPRING OATS (100LBS/ACRE) AND/OR WHEAT OR CEREAL RYE (150LBS/ACRE)
HYDRO-MULCHING WITH A TACKIFIER
GEOTEXTILE EROSION MATTING
SODDING

2.3 STRUCTURAL PRACTICES

THE FOLLOWING ARE DESCRIPTIONS OF STRUCTURAL PRACTICES TO BE IMPLEMENTED TO DIVERT FLOWS FROM EXPOSED SOILS, STORE FLOWS, OR OTHERWISE LIMIT THE DISCHARGE OF POLLUTANTS FROM EXPOSED AREAS OF THE SITE INCLUDING THE PROPOSED AND EXISTING WETLAND AREAS. SUCH PRACTICES COULD INCLUDE SILT FENCE, PROTECTION FENCE, CONSTRUCTION ENTRANCE, DITCH CHECK, EROSION CONTROL MATTING, DIVERSION BERM/SWALE, SEDIMENT TRAP, LEVEL SPREADER, INLET PROTECTION, OUTLET PROTECTION, AND TEMPORARY OR PERMANENT SEDIMENT BASIN. THE FOLLOWING STRUCTURAL PRACTICES ARE TO BE UTILIZED DURING THIS PROJECT.

SILT FENCE SHALL BE PLACED DOWN SLOPE OF DISTURBED AREAS OF THE CONSTRUCTION SITE AND AROUND THE PERIMETER OF THE TOPSOIL STOCKPILE. THIS INCLUDES PROTECTION OF EXISTING WETLAND AREAS TO BE MAINTAINED. SILT FENCE MAY ALSO BE USED AS A TEMPORARY CONTROL DEVICE WHERE SEDIMENTATION RUNOFF IS DISCOVERED.

CONSTRUCTION ENTRANCE SHALL BE INSTALLED TO REDUCE SOIL EROSION POLLUTANTS FROM LEAVING THE SITE DURING CONSTRUCTION ACTIVITIES. IF THE CRUSHED STONE DOES NOT ADEQUATELY REMOVE MUD FROM VEHICLE TIRES, THEY SHALL BE HOSED OFF BEFORE ENTERING A PAVED ROADWAY. ANY SOIL DEPOSITED ON THE PUBLIC PAVED ROAD WAY SHALL BE REMOVED IMMEDIATELY.

DITCH CHECK SHALL BE INSTALLED IN DRAINAGE CHANNELS AS NEEDED.

EROSION CONTROL MATTING SHALL BE PLACED ON AREAS OR EMBANKMENTS HAVING SLOPES GREATER THAN OR EQUAL TO 3H:1V, BEFORE VEGETATION IS ESTABLISHED.

INLET PROTECTION SHALL BE INSTALLED AT STORMWATER DRAINAGE INLETS TO REDUCE SEDIMENT WITHIN STORM SEWER CONVEYANCE FEATURES.

OUTLET SCOUR PROTECTION SHALL BE INSTALLED AT STORMWATER DRAINAGE OUTLETS TO DIFFUSE FLOWS.

3.0 ADDITIONAL PRACTICES

ADDITIONAL POLLUTANT CONTROL MEASURES TO BE IMPLEMENTED DURING CONSTRUCTION ACTIVITIES SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING.

CONSTRUCTION WASTE SHALL BE PROPERLY DISPOSED OF. THIS INCLUDES ALL CONSTRUCTION SITE WASTE MATERIAL, SANITARY WASTE, AND WASTE FROM VEHICLE TRACKING OF SEDIMENTS. THE CONTRACTOR SHALL ENSURE THAT NO MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, BURNED, OR DISCHARGED TO THE WATERS OF THE STATE. VEHICLES HAULING MATERIAL AWAY FROM THE SITE SHALL BE COVERED WITH A TARPAULIN TO PREVENT BLOWING DEBRIS.

DUST CONTROL SHALL BE ACCOMPLISHED BY ONE OR MORE OF THE FOLLOWING METHODS:

COVERING 30% OR MORE OF THE SOIL SURFACE WITH A NON-ERODIBLE MATERIAL.

ROUGHENING (EQUIPMENT TRACKING) THE SOIL TO PRODUCE RIDGES PERPENDICULAR TO THE PREVAILING WIND. RIDGES SHALL BE AT LEAST SIX (6) INCHES IN HEIGHT.

FREQUENT WATERING OF EXCAVATION AND FILL AREAS.

PROVIDING GRAVEL OR PAVING AT ENTRANCE/EXIT DRIVES, PARKING AREAS AND TRANSIT PATHS.

STREET SWEEPING SHALL BE PERFORMED TO IMMEDIATELY REMOVE ANY SEDIMENT TRACKED ON PAVEMENTS.

4.0 EROSION AND SEDIMENT STRUCTURAL PRACTICE MAINTENANCE

THE FOLLOWING MAINTENANCE PRACTICES SHALL BE USED TO MAINTAIN, IN GOOD AND EFFECTIVE OPERATING CONDITIONS, VEGETATION, EROSION AND SEDIMENT CONTROL MEASURES, AND OTHER PROTECTIVE MEASURES IDENTIFIED IN THIS PLAN. UPON IDENTIFICATION, DEFICIENCIES IN STORMWATER CONTROLS SHALL BE ADDRESSED IMMEDIATELY. THE MAINTENANCE PROCEDURES FOR THIS DEVELOPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO THE BELOW.

SILT FENCE - REPAIR OR REPLACE ANY DAMAGED FILTER FABRIC AND/OR STAKES. REMOVE ACCUMULATED SEDIMENT WHEN IT HAS REACHED ONE-HALF THE ABOVE GROUND HEIGHT OF THE FENCE.

CONSTRUCTION ENTRANCE - AS NEEDED, ADD STONE TO MAINTAIN CONSTRUCTION ENTRANCE DIMENSIONS AND EFFECTIVENESS.

DITCH CHECK - RE-SECURE STAKES; ADJUST OR REPOSITION BALES TO ADDRESS PROPER FLOW OF STORMWATER; AND REMOVE ACCUMULATED SEDIMENT WHEN IT HAS REACHED ONE-HALF THE HEIGHT OF THE BALE.

EROSION CONTROL MATTING - REPAIR MATTING IMMEDIATELY IF INSPECTION REVEALS BREACHED OR FAILED CONDITIONS. REPAIR AND RE-GRADE SOIL WHERE CHANNELIZATION HAS OCCURRED.

INLET PROTECTION - CLEAN, REPAIR OR REPLACE FILTER FABRIC AND/OR STONE WHEN CONTROL MEASURE IS CLOGGED. INLET FILTER BAGS SHALL BE REPLACED ONCE ONE-HALF FULL OF SEDIMENT.

OUTLET PROTECTION - CLEAN, REPAIR OR REPLACE FILTER FABRIC, TURF REINFORCEMENT MATTING AND/OR STONE WHEN CONTROL MEASURE IS ONE-HALF FULL OF SEDIMENT.

5.0 INSPECTION

INSPECTIONS SHALL BE COMPLETED WITHIN TWENTY-FOUR (24) HOURS OF THE END OF A RAINFALL EVENT THAT IS ONE-HALF INCH OR GREATER OR EQUIVALENT SNOWFALL, OR AT A MINIMUM ONCE EVERY SEVEN (7) CALENDAR DAYS. INSPECTIONS SHALL BE UNDERTAKEN BY QUALIFIED PERSONNEL PROVIDED BY THE CONTRACTOR, AND SHALL INCLUDE: DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE. A STORMWATER POLLUTION PREVENTION PLAN INSPECTION REPORT SHALL BE COMPLETED AND ADDED TO THE SWPPP. RAINFALL SHALL BE RECORDED ON THE SWPPP RAINFALL LOG. CONTRACTOR SHALL IMMEDIATELY ARRANGE FOR REPAIR OR REPLACEMENT OF ANY DAMAGED OR DEFICIENT CONTROL MEASURES OBSERVED DURING THE INSPECTION.

QUALIFIED PERSONNEL MEANS A PERSON KNOWLEDGEABLE IN THE PRINCIPLES AND PRACTICES OF EROSION AND SEDIMENT CONTROL MEASURES, SUCH AS A LICENSED PROFESSIONAL ENGINEER, A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL, A CERTIFIED EROSION SEDIMENT OR STORMWATER INSPECTOR, OR OTHER TRAINED INDIVIDUAL.

6.0 SPILL PREVENTION

6.1 GENERAL MATERIAL MANAGEMENT PRACTICES

THE GOOD HOUSEKEEPING PRACTICES LISTED BELOW SHALL BE FOLLOWED THROUGHOUT THE CONSTRUCTION PROJECT.

1. CONTRACTOR SHALL STORE ONLY ENOUGH PRODUCTS REQUIRED TO COMPLETE THIS PROJECT.
2. ALL MATERIAL SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR ORIGINAL CONTAINERS CONTAINING MANUFACTURER'S LABEL.
3. MANUFACTURERS' RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED.
4. MATERIALS REQUIRED TO HAVE A MATERIAL SAFETY DATA SHEET (MSDS) SHALL HAVE A COPY STORED IN THE PROJECT'S MSDS DATABASE.

6.2 SPILL CONTROL PRACTICES

THE PRACTICES LISTED BELOW SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP.

1. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE MAINTAINED ONSITE.
2. IMMEDIATELY UPON DISCOVERY, ALL SPILLS SHALL BE CLEANED UP ACCORDING TO THE MANUFACTURERS' RECOMMENDED METHODS.
3. PERSONNEL CLEANING UP A SPILL SHALL USE PERSONAL PROTECTIVE EQUIPMENT.
4. IMMEDIATELY UPON DISCOVERY, SPILLS OF TOXIC OR HAZARDOUS MATERIALS SHALL BE REPORTED TO THE OWNER AND GENERAL CONTRACTOR.
5. NOTIFICATION AND REPORTING TO THE APPROPRIATE FEDERAL, STATE, AND LOCAL GOVERNMENT AGENCIES SHALL BE MADE AS REQUIRED.

GENERAL INFORMATION:

THIS STORMWATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN DEVELOPED TO FULFILL ONE OF THE REQUIREMENTS OF THE GENERAL ENVIRONMENTAL PROTECTION AGENCY (EPA) NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (WISCONSIN POLLUTION DISCHARGE ELIMINATION SYSTEM "WPDES") FOR THE DISCHARGE OF STORMWATER ASSOCIATED WITH CONSTRUCTION PROJECTS DISTURBING ONE ACRE OR MORE. THE OWNER AND CONTRACTORS SHALL COMPLY WITH ALL REQUIREMENTS OF THE WPDES FOR ALL SUCH CONSTRUCTION PROJECTS. THE STORMWATER DISCHARGES ASSOCIATED WITH THE CONSTRUCTION ACTIVITY FROM THIS SITE ARE SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF THE PERMITS.

THE EXECUTED OWNER CERTIFICATION AND THE CONTRACTOR CERTIFICATIONS SHALL BE KEPT ONSITE WITH THE APPROVED PLANS.

SWPPP AVAILABILITY:

THE OWNER SHALL RETAIN A COPY OF THE SWPPP AT THE CONSTRUCTION SITE FROM THE DATE OF THE PROJECT INITIATION TO THE DATE OF FINAL STABILIZATION.

KEEPING PLANS CURRENT:

THE CONTRACTOR SHALL AMEND THE PLAN WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, WHICH HAS A SIGNIFICANT EFFECT ON THE POTENTIAL FOR THE DISCHARGE OF POLLUTANTS TO THE WATERS OF THE STATE AND WHICH HAS NOT OTHERWISE BEEN ADDRESSED IN THE PLAN OR IF THE PLAN PROVES TO BE INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY CONTROLLING POLLUTANTS IN STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION SITE ACTIVITY. IN ADDITION, THE THE PLAN SHALL BE AMENDED TO IDENTIFY ANY NEW CONTRACTOR AND/OR SUBCONTRACTOR THAT WILL IMPLEMENT A MEASURE OF THE PLAN. AMENDMENTS TO THE PLAN MAY BE REQUIRED BY THE MUNICIPALITY, OWNER, OR OTHER REVIEWING AGENCY. COPIES OF THE AMENDMENTS SHALL BE KEPT ONSITE AS PART OF THE SWPPP.

RETENTION OF RECORDS:

THE OWNER SHALL RETAIN COPIES OF THIS AND ALL REPORTS AND NOTICES REQUIRED BY THIS PERMIT, AND RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT, FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE PERMIT COVERAGE EXPIRES OR IS TERMINATED. THIS PERIOD MAY BE EXTENDED BY THE REQUEST OF THE AGENCY AT ANY TIME. IN ADDITION, THE OWNER SHALL RETAIN A COPY OF THE PLAN REQUIRED BY THIS PERMIT AT THE CONSTRUCTION SITE FROM THE DATE OF PROJECT INITIATION TO THE DATE OF FINAL STABILIZATION.

A NOTICE OF INTENT (NOI) APPLICATION MUST BE COMPLETED AND INCORPORATED INTO THE SWPPP.

WPDES NOTICE OF TERMINATION GUIDANCE:

WHEN A SITE HAS BEEN FINALLY STABILIZED AND ALL STORMWATER DISCHARGES FROM CONSTRUCTION SITES THAT ARE AUTHORIZED BY THE PERMIT ARE ELIMINATED, THE OWNER OF THE FACILITY MUST SUBMIT A COMPLETED NOTICE OF TERMINATION THAT IS SIGNED IN ACCORDANCE WITH THE PERMIT. CONTRACTOR SHALL SUBMIT A COMPLETED NOTICE OF TERMINATION TO OWNER FOR EXECUTION PRIOR TO THEIR FINAL PAY APPLICATION REQUEST.

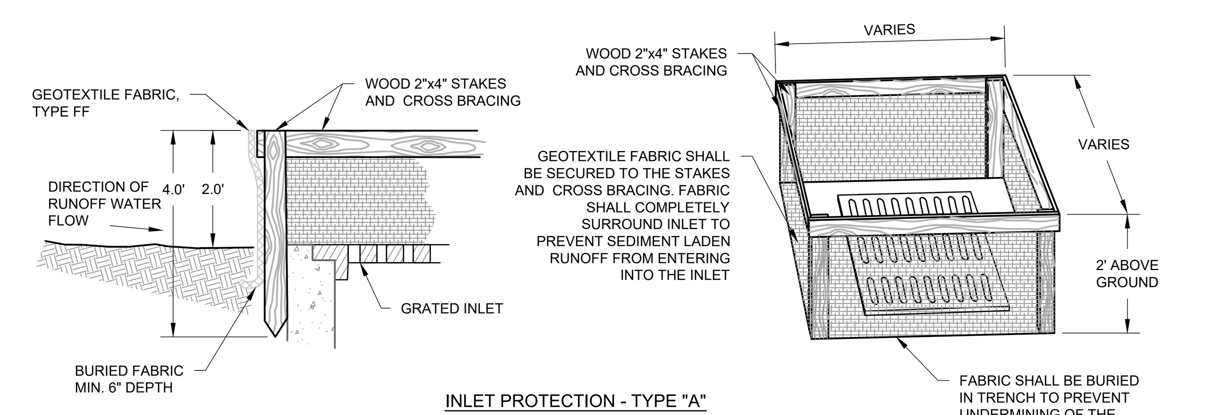
CONTROL MEASURE GROUP	CONTROL MEASURE	CONTROL MEASURE CHARACTERISTICS
VEGETATIVE SOIL COVER	TEMPORARY SEEDING	PROVIDES QUICK TEMPORARY COVER TO CONTROL EROSION WHEN PERMANENT SEEDING IS NOT DESIRED OR TIME OF YEAR IS INAPPROPRIATE.
	PERMANENT SEEDING	PROVIDES PERMANENT VEGETATIVE COVER TO CONTROL EROSION, FILTERS SEDIMENT FROM WATER. MAY BE PART OF FINAL LANDSCAPE PLAN.
NON VEGETATIVE SOIL COVER	AGGREGATE COVER	PROVIDES TEMPORARY COVER ON ROADS AND PARKING LOTS AND AREAS WHERE VEGETATION CANNOT BE ESTABLISHED. PREVENTS MUD FROM BEING PICKED UP AND TRANSPORTED OFF-SITE.
	PAVING	PROVIDES PERMANENT COVER ON PARKING LOTS AND ROADS OR OTHER AREAS WHERE VEGETATION CANNOT BE ESTABLISHED.
DIVERSIONS	DIVERSION BERM / SWALE	DIVERTS RUNOFF TO A SEDIMENT TRAP OR OTHER CONTROL.
ENCLOSED DRAINAGE	STORM SEWER	CONVEYS SEDIMENT LADEN WATER TO A SEDIMENT BASIN.
OUTLETS	APRON ENDWALL OR RIPRAP	PROTECTS DOWNSTREAM CHANNEL FROM HIGH VELOCITY OF FLOW DISCHARGING FROM STRUCTURE.
SEDIMENT BASINS	TEMPORARY SEDIMENT TRAP	CONSTRUCTED TO REMOVE SILTATION FROM RUNOFF FROM SITE DIVERSION BERMS/SWALES AND IN OVERLAND FLOOD ROUTE. CAN BE CONVERTED TO PERMANENT SEDIMENT BASIN.
SEDIMENT FILTERS	SILT FENCE	PLACED DOWN SLOPE OF DISTURBED AREA TO KEEP RUNOFF CONTAINED ON-SITE.
	INLET PROTECTION	INSTALLED IN OPEN GRATE STRUCTURES TO COLLECT SEDIMENT.
	DITCH CHECK	PLACED IN DRAINAGE CHANNELS TO FILTER SEDIMENT FROM RUNOFF.
MUD AND DUST CONTROL	CONSTRUCTION ENTRANCE	REDUCES SOIL EROSION POLLUTANTS BEING TRANSPORTED OFF-SITE.
	STREET SWEEPING	REDUCES POLLUTANTS TRACKED FROM CONSTRUCTION SITE.
	DUST CONTROL	PREVENTS DUST FROM LEAVING CONSTRUCTION SITE.

STABILIZATION EFFECTIVENESS (TIME OF YEAR)

STABILIZATION TYPE	STABILIZATION UTILIZATION PERIODS											
	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
PERMANENT SEEDING			A →	*	*	*	*	*	* →			
DORMANT SEEDING	B →	→	→								B →	→
TEMPORARY SEEDING			C →	*	*	* →	D *	*	* →			
SODDING			E →	*	*	*	*	*	* →			

A. KENTUCKY BLUEGRASS 90 LBS/ACRE MIXED WITH PERENNIAL RYEGRASS 30 LBS/ACRE.
B. KENTUCKY BLUEGRASS 135 LBS/ACRE MIXED WITH PERENNIAL RYEGRASS 45 LBS/ACRE + 2 TONS STRAW MULCH/ACRE.
C. SPRING OATS 100 LBS/ACRE.
D. WHEAT OR CEREAL RYE 150 LBS/ACRE.
E. SOD.
F. STRAW MULCH 2 TONS/ACRE.

* IRRIGATION/WATERING REQUIRED TO SUPPORT ESTABLISHMENT AS NEEDED.



INLET PROTECTION - TYPE "A"

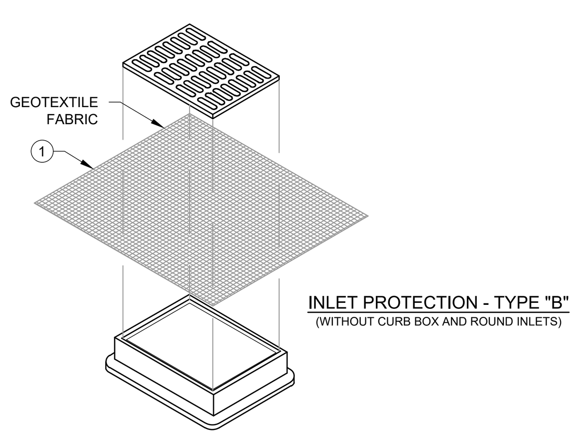
NOTES:

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF MATERIAL SPECIFICATION 592 GEOTEXTILE TABLE 1 OR 2, CLASS I, WITH AN EOS OF AT LEAST 30 FOR NONWOVEN AND 50 FOR WOVEN.
2. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

(1) FINISHED SIZE, INCLUDING FLAP POCKET WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

(2) FOR INLET PROTECTION, TYPE "C" (WITH CURB BOX), AN ADDITIONAL 18 INCHES OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

(3) FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2x4.

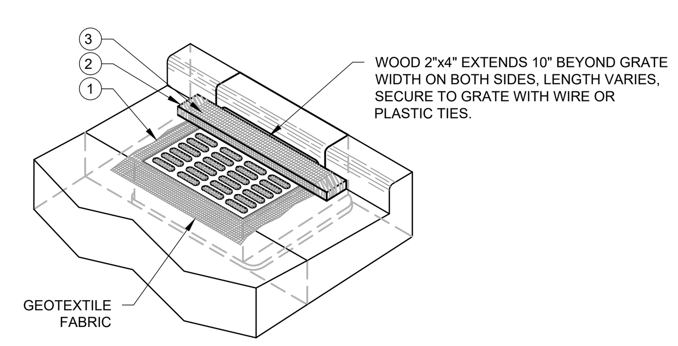


INLET PROTECTION - TYPE "B"
(WITHOUT CURB BOX AND ROUND INLETS)

TYPE "B" & "C" INSTALLATION NOTES

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3 INCHES OF THE GRATE.

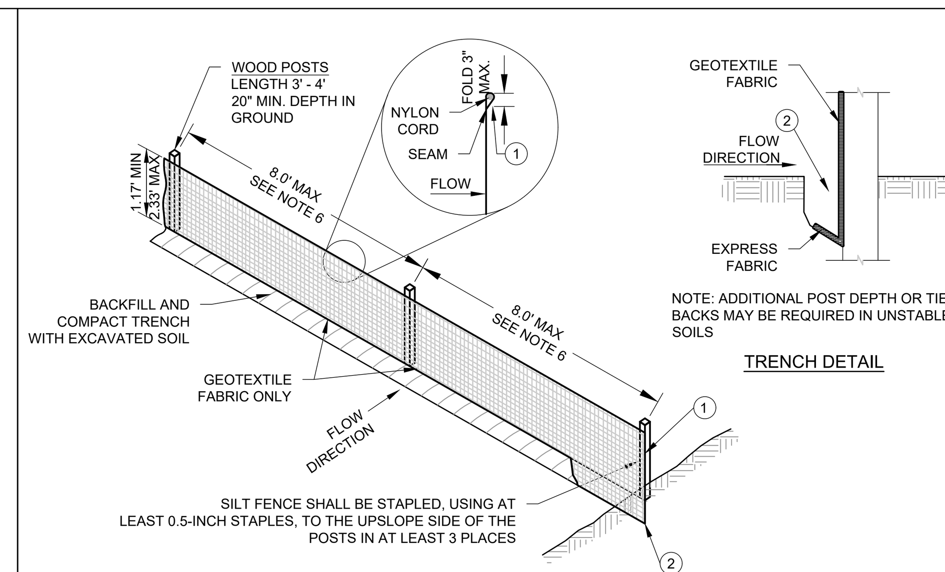
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHODS TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.



INLET PROTECTION, TYPE "C"
(WITH CURB BOX)

INLET PROTECTION

#104 04-24-13



NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

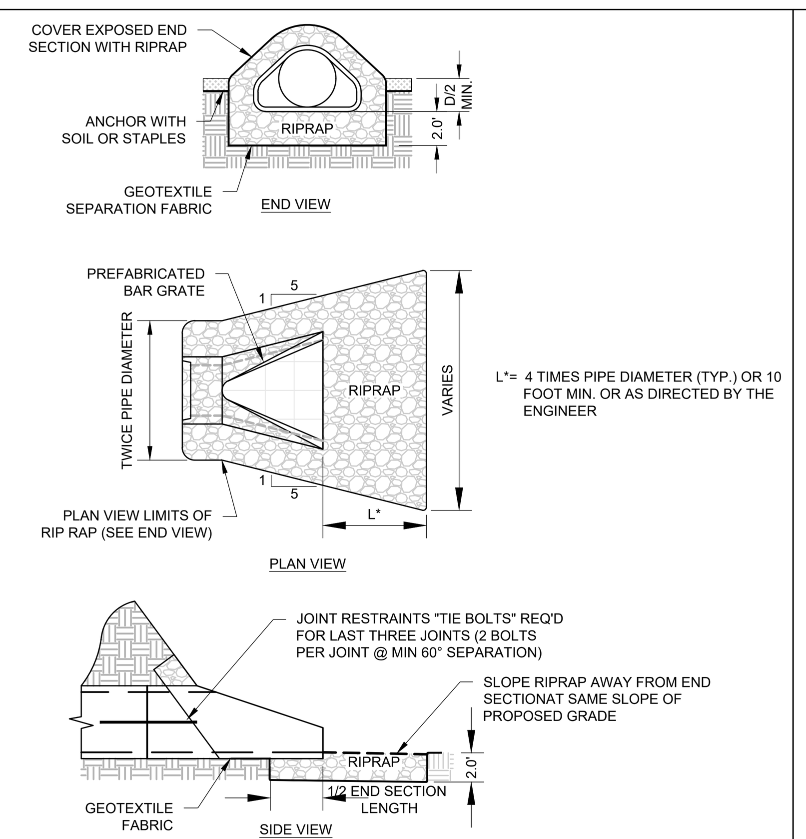
TRENCH DETAIL

NOTES:

1. ALL SILT FENCE MATERIALS AND INSTALLATION SHALL BE IN CONFORMANCE WITH WI DNR TECHNICAL STANDARD 1056.
2. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF MATERIAL SPECIFICATION 592 GEOTEXTILE TABLE 1 OR 2, CLASS I WITH EQUIVALENT OPENING SIZE OF AT LEAST 30 FOR NONWOVEN AND 50 FOR WOVEN.
3. SILT FENCE SHALL BE ANCHORED BY SPREADING AT LEAST 8-INCHES OF FABRIC IN A 4-INCH WIDE AND 6-INCH DEEP TRENCH OR 6-INCH DEEP V-TRENCH ON THE UPSLOPE SIDE OF THE FENCE. TRENCHES SHALL NOT BE EXCAVATED WIDER OR DEEPER THAN NECESSARY FOR PROPER INSTALLATION.
4. FOLD MATERIAL TO FIT TRENCH AND BACKFILL AND COMPACT TRENCH WITH EXCAVATED SOIL.
5. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1.125-INCHES x 1.125-INCHES OF DRIED OAK OR HICKORY.
6. SILT FENCE TO EXTEND ABOVE THE TOP OF PIPE, WHERE APPLICABLE.
7. POST SPACING SHALL BE SELECTED BASED ON GEOTEXTILE FABRIC (8-FEET FOR WOVEN AND 3-FEET FOR NON-WOVEN).

SILT FENCE

#100-C 07-31-14

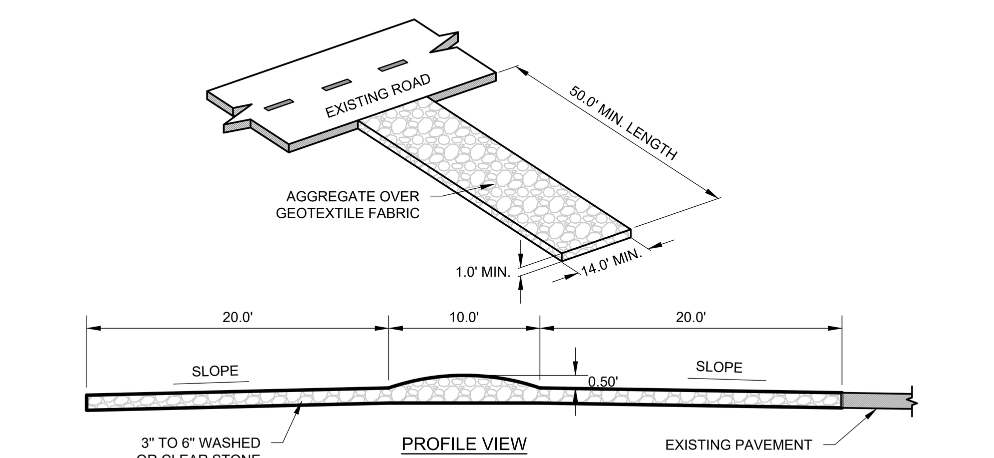


NOTES:

1. RIP RAP AND GEOTEXTILE FABRIC SHALL MEET REQUIREMENTS FOR STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.

RIP RAP AT END SECTIONS

#124 12/26/12



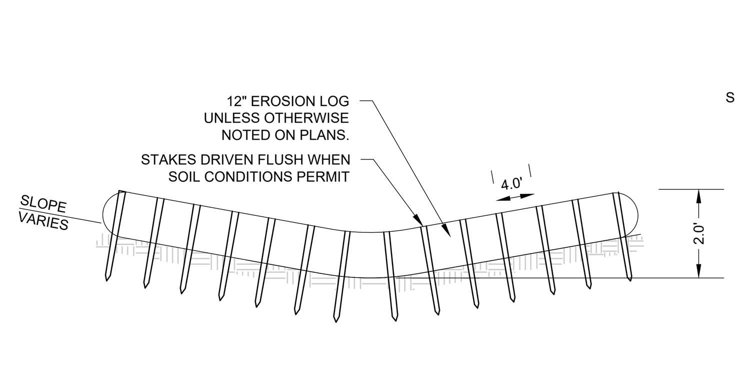
PROFILE VIEW

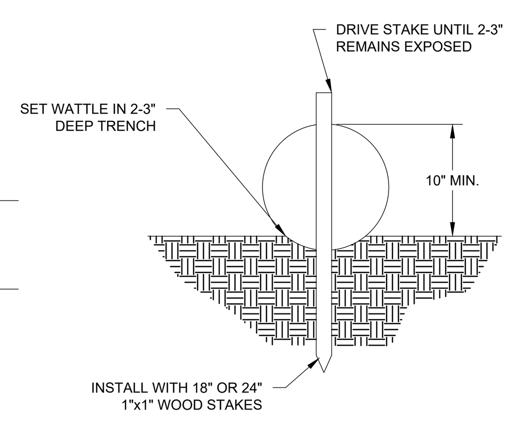
NOTES:

1. ALL TRACKING PAD MATERIALS AND INSTALLATION SHALL BE IN CONFORMANCE WITH WI DNR TECHNICAL STANDARD 1057.
2. TRACKING PADS SHALL BE INSTALLED PRIOR TO ANY TRAFFIC LEAVING THE SITE. CONTRACTOR SHALL VERIFY LOCATION WITH OWNER.
3. THE AGGREGATE FOR TRACKING PADS SHALL BE 3 TO 6 INCH CLEAR OR WASHED STONE. ALL MATERIALS TO BE RETAINED ON A 3-INCH SIEVE
4. THE AGGREGATE SHALL BE PLACED IN A LAYER AT LEAST 12-INCHES THICK. ON SITES WHERE SATURATED CONDITIONS ARE EXPECTED DURING THE LIFE OF THE PAD, THE PAD SHALL BE UNDERLAIN WITH GEOTEXTILE FABRIC WHICH MEETS MATERIAL SPECIFICATION 592 GEOTEXTILE, TABLE 1 OR 2, CLASS I, II OR IV, TO PREVENT MIGRATION OF UNDERLYING SOILS INTO THE STONE LAYER.
5. THE TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT. MINIMUM WIDTH IS 14 FEET FOR ONE-WAY TRAFFIC AND 20 FEET FOR TWO-WAY TRAFFIC, WITH AN ADDITIONAL INCREASE OF 4 FEET FOR TRAILER TRAFFIC. THE TRACKING PAD SHALL BE A MINIMUM 50-FEET LONG.
6. ANY SEDIMENT TRACKED ONTO A PUBLIC OR PRIVATE ROAD SHOULD BE REMOVED BY STREET CLEANING, NOT FLUSHING, AT THE END OF EACH WORKING DAY.
7. TRACKING PADS SHALL, AT A MINIMUM, BE INSPECTED WEEKLY AND WITHIN 24-HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5-INCHES OF RAIN OR MORE DURING A 24-HOUR PERIOD.
8. THE TRACKING PAD PERFORMANCE SHALL BE MAINTAINED BY SCRAPING OR TOP-DRESSING WITH ADDITIONAL AGGREGATE.

CONSTRUCTION ENTRANCE

#107-WI 10-02-12

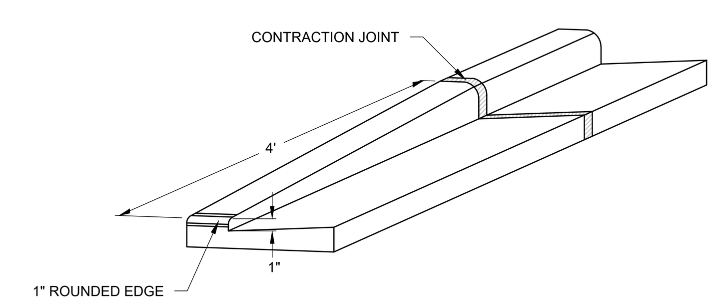




ENTRENCHMENT DETAIL

STRAW WATTLE DITCH CHECK

#138 05/21/2018



NOTES:

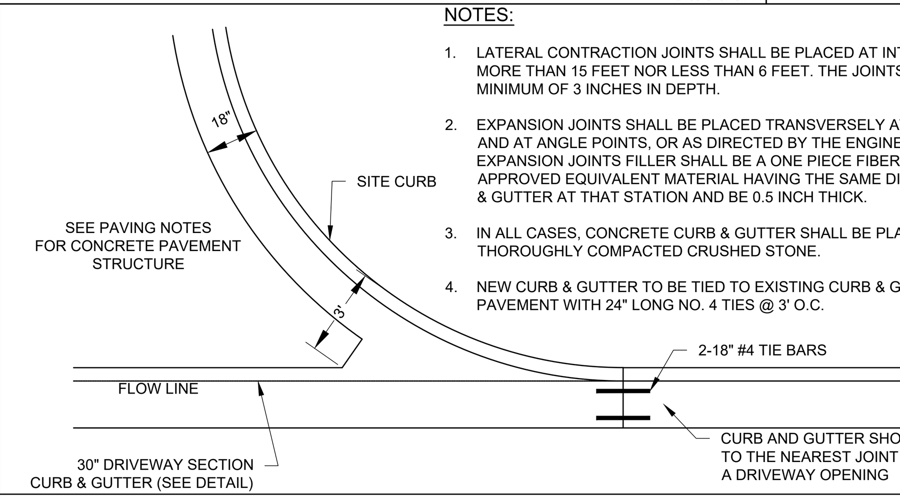
1. CONTRACTION JOINTS SHALL BE PLACED EVERY 10 FEET
2. EXPANSION JOINTS (3/4" EXPANSION FIBER MATERIAL) SHALL BE PLACED EVERY 300 FEET AND AT EVERY PC/PT AND 3 FEET FROM STRUCTURES

TAPER CURB HEAD

#623 10-11-12

NOTES:

1. LATERAL CONTRACTION JOINTS SHALL BE PLACED AT INTERVALS OF NOT MORE THAN 15 FEET NOR LESS THAN 6 FEET. THE JOINTS SHALL BE A MINIMUM OF 3 INCHES IN DEPTH.
2. EXPANSION JOINTS SHALL BE PLACED TRANSVERSELY AT ALL PT'S AND PC'S, AND AT ANGLE POINTS, OR AS DIRECTED BY THE ENGINEER OF RECORD. THE EXPANSION JOINTS FILLER SHALL BE A ONE PIECE FIBERBOARD OR THE APPROVED EQUIVALENT MATERIAL HAVING THE SAME DIMENSIONS AS CURB & GUTTER AT THAT STATION AND BE 0.5 INCH THICK.
3. IN ALL CASES, CONCRETE CURB & GUTTER SHALL BE PLACED ON THOROUGHLY COMPACTED CRUSHED STONE.
4. NEW CURB & GUTTER TO BE TIED TO EXISTING CURB & GUTTER AND PAVEMENT WITH 24" LONG NO. 4 TIES @ 3' O.C.



DRIVEWAY ENTRANCE

#633 2/20/15

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CHICAGO I MILWAUKEE : NATIONWIDE

ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK
GERMANTOWN, WI

CONSTRUCTION DETAILS

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26

PEG JOB No. 1296.10G-WI
PEG PM AJS
START DATE 04/16/26
SCALE

SHEET
C-15
OF
C-16

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CONSTRUCTION DETAILS

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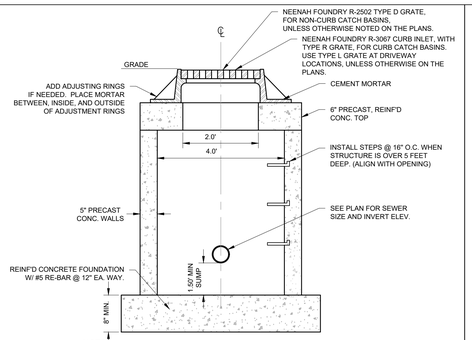
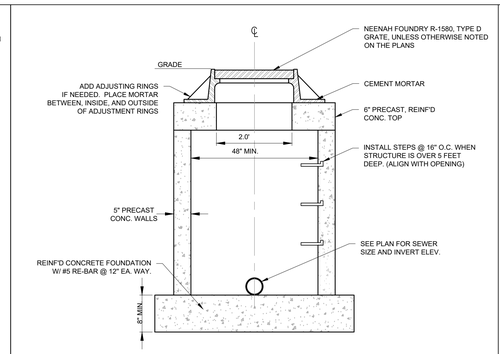


NOTES:

1. EASY STICK, RUBBER GASKET OR APPROVED EQUIVALENT SHALL BE PLACED AT ALL JOINTS BETWEEN ADJUSTING RINGS FOR STORM CATCH BASINS.
2. THE FLAT TOP MAY BE USED IN LIEU OF THE TAPERED TOP WHEN FIELD CONDITIONS PROHIBIT USE OF A TAPERED TOP.
3. STRUCTURE TO BE 4.0' DIA. OR AS INDICATED ON THE PLANS.

CATCH BASIN

#302 10-04-17

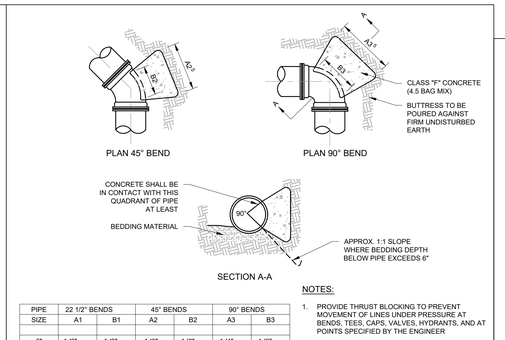


NOTES:

1. EASY STICK, RUBBER GASKET OR APPROVED EQUIVALENT SHALL BE PLACED AT ALL JOINTS BETWEEN ADJUSTING RINGS FOR STORM CATCH BASINS.
2. THE FLAT TOP MAY BE USED IN LIEU OF THE TAPERED TOP WHEN FIELD CONDITIONS PROHIBIT USE OF A TAPERED TOP.
3. STRUCTURE TO BE 4.0' DIA. OR AS INDICATED ON THE PLANS.

STORM SEWER MANHOLE

#321 10-04-17



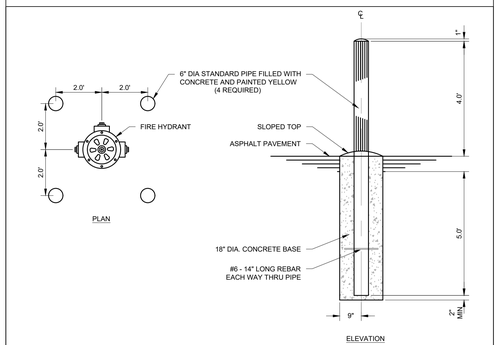
PIPE SIZE	22 1/2° BENDS		45° BENDS		90° BENDS	
	A1	B1	A2	B2	A3	B3
6"	1'-0"	1'-0"	1'-0"	1'-0"	1'-4"	1'-2"
8"	1'-0"	1'-0"	1'-4"	1'-2"	1'-10"	1'-6"
12"	1'-4"	1'-4"	1'-10"	1'-10"	2'-8"	2'-3"
16"	1'-10"	1'-8"	2'-6"	2'-4"	3'-10"	2'-10"
20"	2'-4"	2'-0"	3'-3"	2'-10"	5'-0"	3'-4"
24"	2'-10"	2'-4"	4'-0"	3'-3"	6'-4"	3'-10"
30"	3'-6"	3'-0"	5'-4"	3'-10"	8'-0"	4'-8"

NOTES:

1. PROVIDE THRUST BLOCKING TO PREVENT MOVEMENT OF LINES UNDER PRESSURE AT BENDS, TEES, CAPS, VALVES, HYDRANTS, AND AT POINTS SPECIFIED BY THE ENGINEER
2. ALL BLOCKING SHALL BE WITH POURED CLASS SI CONCRETE AGAINST UNDISTURBED VERTICAL EARTH SURFACE
3. THRUST BLOCKS TO BE AT ALL BENDS 11½° OR GREATER
4. THE COST OF INSTALLING THE THRUST BLOCK SHALL BE INCIDENTAL TO THE CONSTRUCTION OF THE WATER
5. DIMENSION A2 & A3 SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH M.J BOLTS

THRUST BLOCK

#322 10-10-17

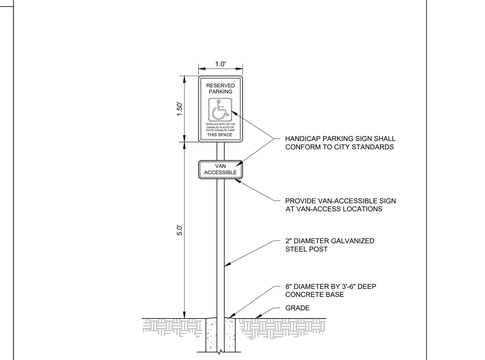


NOTES:

1. USE WHERE HYDRANT IS LOCATED WITHIN PAVED AREAS, COST INCIDENTAL.

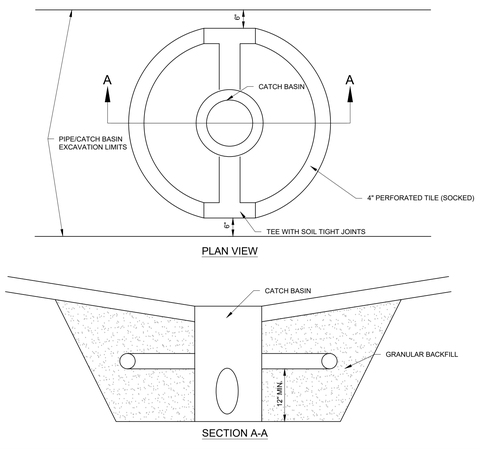
HYDRANT BOLLARD

#323 10-10-17



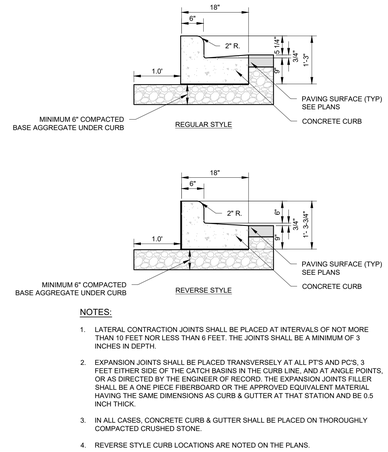
ADA SIGN

#706 10-11-17



CATCH BASIN - UNDERDRAIN

#310 10-04-17

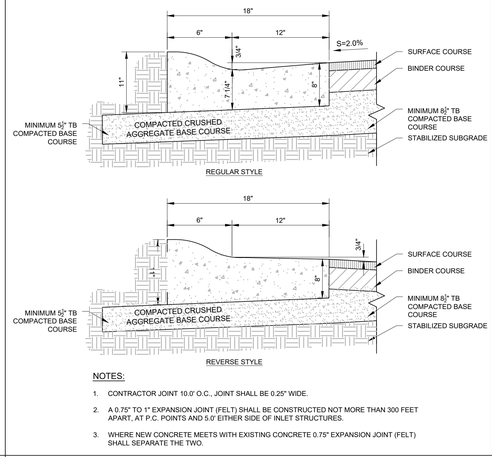


NOTES:

1. LATERAL CONTRACTION JOINTS SHALL BE PLACED AT INTERVALS OF NOT MORE THAN 10 FEET NOR LESS THAN 6 FEET. THE JOINTS SHALL BE A MINIMUM OF 3 INCHES IN DEPTH.
2. EXPANSION JOINTS SHALL BE PLACED TRANSVERSELY AT ALL PT'S AND PC'S, 3 FEET EITHER SIDE OF THE CATCH BASINS IN THE CURB LINE, AND AT ANGLE POINTS, OR AS DIRECTED BY THE ENGINEER OF RECORD. THE EXPANSION JOINTS FILLER SHALL BE A ONE PIECE FIBERBOARD OR THE APPROVED EQUIVALENT MATERIAL HAVING THE SAME DIMENSIONS AS CURB & GUTTER AT THAT STATION AND BE 0.5 INCH THICK.
3. IN ALL CASES, CONCRETE CURB & GUTTER SHALL BE PLACED ON THOROUGHLY COMPACTED CRUSHED STONE.
4. REVERSE STYLE CURB LOCATIONS ARE NOTED ON THE PLANS.

18" VERTICAL FACE CURB

#600/601 10-14-17

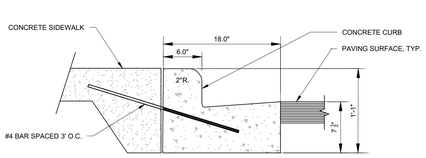


NOTES:

1. CONTRACTOR JOINT 10.0' O.C., JOINT SHALL BE 0.25" WIDE.
2. A 0.75" TO 1" EXPANSION JOINT (FELT) SHALL BE CONSTRUCTED NOT MORE THAN 300 FEET APART, AT P.C. POINTS AND 5.0' EITHER SIDE OF INLET STRUCTURES.
3. WHERE NEW CONCRETE MEETS WITH EXISTING CONCRETE 0.75" EXPANSION JOINT (FELT) SHALL SEPARATE THE TWO.

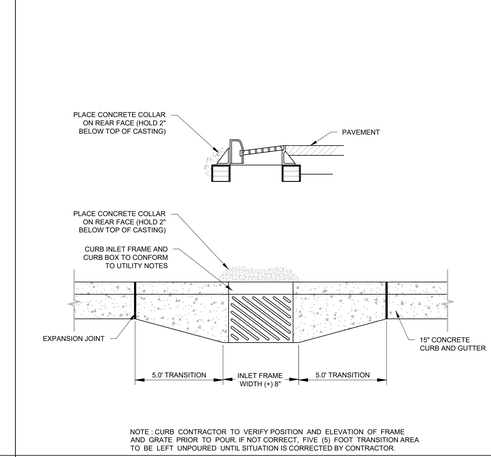
18" MOUNTABLE CURB & GUTTER

#312 2/20/19



18" CURB ADJACENT TO SIDEWALK

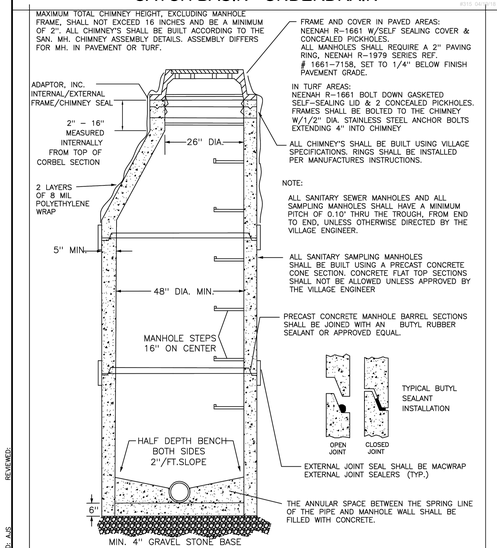
#313 2/20/19



NOTE : CURB CONTRACTOR TO VERIFY POSITION AND ELEVATION OF FRAME AND GRATE PRIOR TO POUR. IF NOT CORRECT, FIVE (5) FOOT TRANSITION AREA TO BE LEFT UNPOURED UNTIL SITUATION IS CORRECTED BY CONTRACTOR.

CURB AND GUTTER BUMP OUT

#600 10-14-17

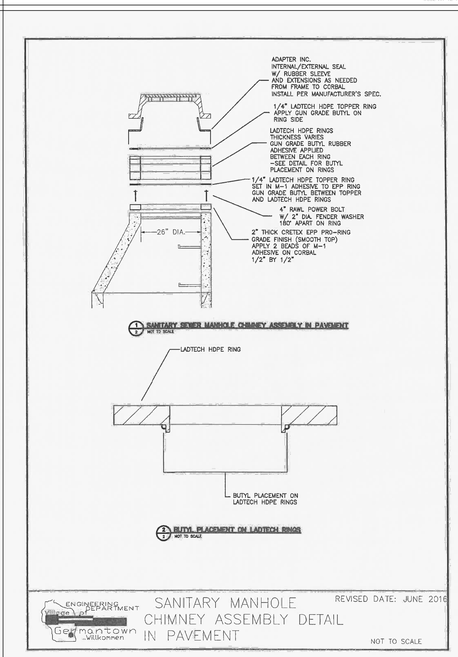


REVISED DATE: 10/11/2019 FJR

ENGINEERING DEPARTMENT Village of Germantown Willkommen

STANDARD SANITARY MANHOLE & SAMPLING MANHOLE DETAIL

NOT TO SCALE



ENGINEERING DEPARTMENT Village of Germantown Willkommen

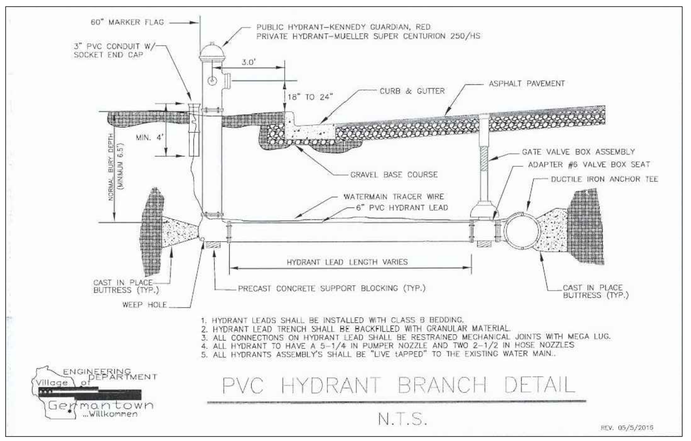
SANITARY MANHOLE CHIMNEY ASSEMBLY DETAIL IN PAVEMENT

REVISED DATE: JUNE 2016

NOT TO SCALE

18" CATCH BASIN

#600/601 10-14-17



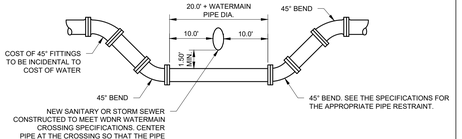
1. HYDRANT LEADS SHALL BE INSTALLED WITH CLASS B BEDDING.
2. HYDRANT LEAD TRENCH SHALL BE BACKFILLED WITH GRANULAR MATERIAL.
3. ALL CONNECTIONS ON HYDRANT LEAD SHALL BE RESTRAINED MECHANICAL JOINTS WITH MEGA LUG.
4. ALL HYDRANT TO HAVE A 5-1/4 IN PUMPER NOZZLE AND TWO 2-1/2 IN HOSE NOZZLES
5. ALL HYDRANTS ASSEMBLY'S SHALL BE "LIVE TAPPED" TO THE EXISTING WATER MAIN..

ENGINEERING DEPARTMENT Village of Germantown Willkommen

PVC HYDRANT BRANCH DETAIL

N.T.S.

REV. 05/5/2015



NOTES:

1. IN LIEU OF 45° BENDS, WATERMAIN DEPRESSION MAYBE CONSTRUCTED BY DEFLECTING THE WATERMAIN PER MANUFACTURER'S RECOMMENDATION TO ACHIEVE THE MINIMUM 18" OF VERTICAL SEPARATION.

WATER MAIN DEPRESSION

#308 10-10-17

REVIEWED:

DESIGNED: AJS

DRAWN: AJS

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ZILBER INDUSTRIAL 7 AT GERMANTOWN GATEWAY CORPORATE PARK
GERMANTOWN, WI

CONSTRUCTION DETAILS

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26			

PEG JOB # 1296.10G-WI
PEG PM AJS
START DATE 04/16/26
SCALE

SHEET
C-16
OF
C-16

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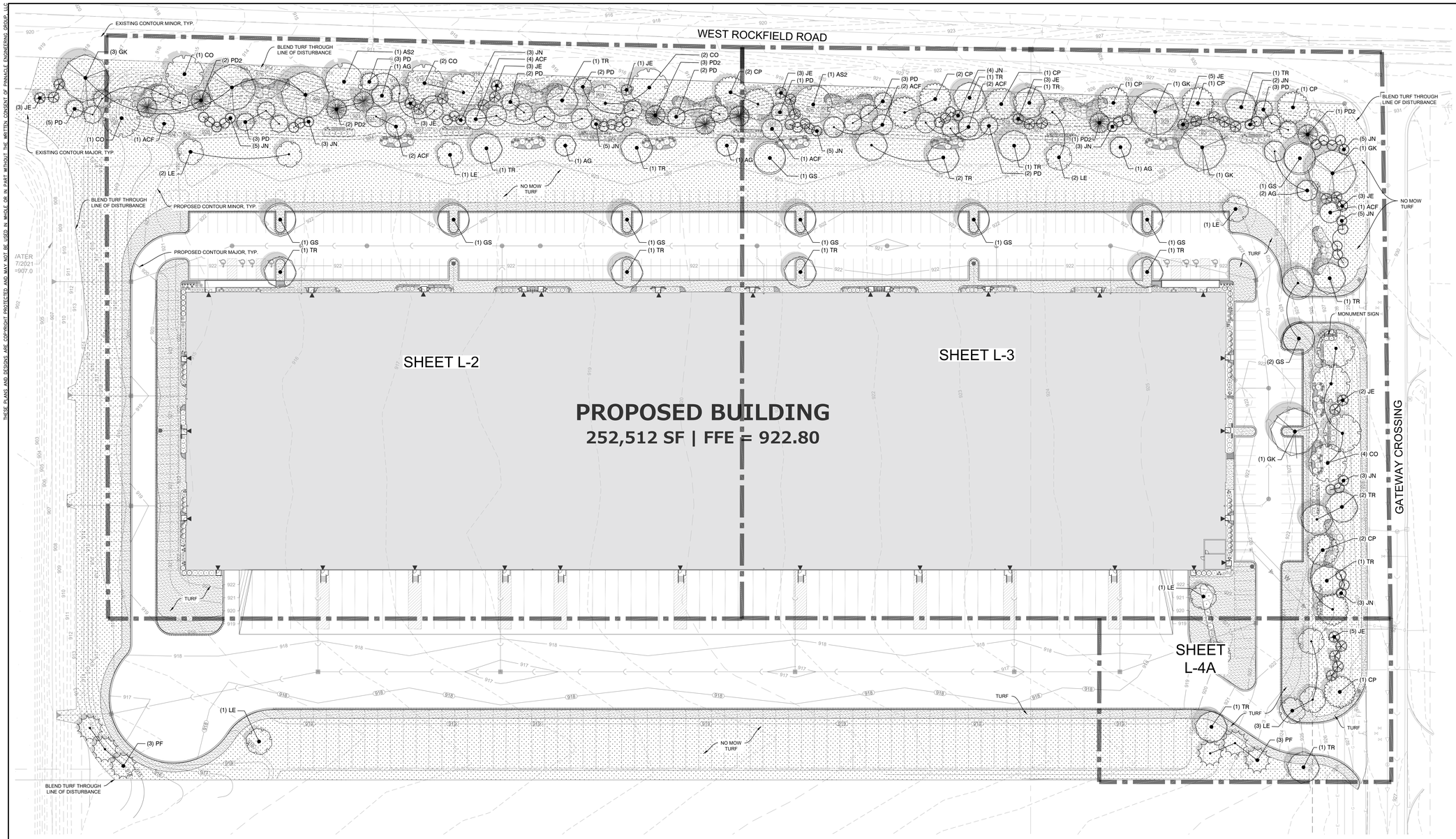
CONSTRUCTION DETAILS

Z:\PROJECTS\2018\1296.10G-WI\CAD\SHEETS\1296.10G-WI CONSTRUCTION DETAILS.DWG



TREE & GROUNDCOVER PLANT KEY

CODE	REMARKS	BOTANICAL NAME	COMMON NAME	SIZE
DECIDUOUS TREES				
AS2	50` T x 40` W	Acer miyabei `State Street`	Miyabei Maple	2.5" Cal.
CO	80' T x 40' W	Carya ovata	Shagbark Hickory	2.5" Cal.
CP	50' T x 40' W	Celtis occidentalis `Prairie Pride`	Prairie Pride Hackberry	2.5" Cal.
GS	50` T x 35` W	Gleditsia triacanthos `Shademaster`	Shademaster Honeylocust	2.5" Cal.
GK	60` T x 50` W	Gymnocladus dioica	Kentucky Coffee Tree	2.5" Cal.
LE	55` T x 25` W	Liriodendron tulipifera `JFS-Oz`	Emerald City® Tulip Poplar	2" Cal.
TR	60' T x 40' W	Tilia americana `Redmond`	Redmond American Linden	2.5" Cal.
EVERGREEN TREES				
ACF	40` T x 23` W	Abies concolor	White Fir	5` Tall
JE	30' T x 12' W	Juniperus virginiana	Eastern Red Cedar	5` Tall
JN	30' T x 12' W	Juniperus virginiana `J.N. Select Green`	Emerald Feather™ Eastern Redcedar	5` Tall
PD	35' T x 20' W	Picea glauca `Densata`	Black Hills Spruce	5` Tall
PF	45' T x 30` W	Pinus flexilis `Vanderwolf`s Pyramid`	Vanderwolf`s Pyramid Pine	5` Tall
PD2	60` T x 25` W	Pseudotsuga menziesii	Douglas Fir	5` Tall
ORNAMENTAL TREES				
AG	20' T x 20' W	Amelanchier x grandiflora `Autumn Brilliance`	`Autumn Brilliance` Serviceberry	1.5" Cal.

TURF	QTY	BOTANICAL NAME
	57,382 sf	Turf Seed Drought Tolerant Dwarf Fescue Blend
	231,052 sf	Turf Seed Low Grow Mix

NORTH

GRAPHICAL SCALE (FEET)

0 1" = 40' 80'

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GERMANTOWN, WI

LANDSCAPE OVERVIEW

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26

PEG JOB # 1296.10G-WI
PEG PM AJS
START DATE 04/16/26
SCALE 1" = 40'

SHEET L-1 OF L-5

LANDSCAPE OVERVIEW

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REVIEWED:
DESIGNED: SAT
DRAFTED: SAT

Z:\PROJECTS\2018\1296.10G-WI\CAD\SHEETS\1296.10G-WI LANDSCAPE PLAN.DWG

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WEST ROC

(5) PCG
(9) PNW
(14) LBS
(3) SMP
(6) NWL
(3) SLB
(1) VD2
(5) WD
(3) JPK
(7) SA
(1) VI
(3) JPK
(9) PH
(1) JPK
(3) ACB
(1) VI
(3) JPK
(9) PH
(1) JPK
(3) ACB
(14) LBS
(3) SMP
(6) NWL

(1) WD
(16) HE
(6) HA
(3) WD
(3) CA
(3) DS
(3) DS
(9) IVH
(3) DS
(4) TC
(23) HE
(9) DS
(6) BY
(6) CA
(2) DC
(3) CA
(1) TC
(3) DS
(15) HO2
(12) HE
(24) HO2
(17) HE
(3) DS
(2) TG
(3) IM
(6) HA
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(3) IM
(3) DKO
(3) HD
(6) HD
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(6) HA
(2) TB

(5) JGO
(2) WD
(5) CA
(4) CFO
(6) NWL
(3) HVS
(1) JSB
(3) STD
(4) SA
(3) ABC
(6) ESP
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(3) ABC
(4) SA
(3) STD
(1) JSB
(6) HVS
(7) NWL
(2) CFO
(1) JSB
(3) STD
(6) CFO
(3) HBO
(3) JGO
(1) SMP
(3) ABC

FP

SHEET L-2
SHEET L-3

PROPOSED BU

252,512 SF | FFE =

SHRUB & PERENNIAL PLANT KEY

CODE	BOTANICAL / COMMON NAME	SIZE
SHRUBS		
ACB	Aronia arbutifolia `Brilliantissima` / Brilliant Red Chokeberry 7` T x 6` W	3 gal.
ABC	Aronia melanocarpa `Elata` / Glossy Black Chokeberry 5` T x 5` W	3 gal.
CA	Cornus sanguinea 'Cato' / Arctic Sun® Bloodtwig Dogwood 4' T x 4' W	2 gal.
DKO	Diervilla lonicera'Kodiak Orange' / Kodiak Orange Dwarf Bush Honeysuckle 3` T x 4` W	2 gal.
HVS	Hydrangea p `Vanilla Strawberry` / Vanilla Strawberry Hydrangea 6` T x 5` W	3 gal.
HBO	Hydrangea paniculata `Bobo` / Bobo Hydrangea 3` T x 4` W	2 gal.
IVH	Itea virginica `Little Henry` / Little Henry Sweetspire 3` T x 3` W	2 gal.
IM	Itea virginica 'Morton' / Scarlet Beauty™ Sweetspire 5' T x 5' W	3 gal.
PCG	Physocarpus opulifolius `Center Glow` / Center Glow Ninebark 8` T x 8` W	3 gal.
SMP	Syringa meyeri `Palibin` / Dwarf Korean Lilac 5` T x 5` W	3 gal.
SB4	Syringa x 'SMSJBP7' TM / Bloomerang Dark Purple Lilac 4' T x 3' W	3 gal.
VD2	Viburnum dentatum deamii `SMVDLS` / All That Glitters® Viburnum 6` T x 6` W	3 gal.
VI	Viburnum dentatum deamii 'SMVDBL' / All That Glows® Arrowwood Viburnum 5' T x 5' W	3 gal.
WD	Weigela florida `Dark Horse` / Weigela 3` T x 3`	2 gal.
EVERGREEN SHRUBS		
JSP	Juniperus chinensis `J.N. Select Blue` / Star Power Juniper 16` T x 8` W	4` Ht.
JPK	Juniperus chinensis `Pfitzeriana Kallays` / Kallay Compact Juniper 3` T x 7` W	3 gal.
JWN	Juniperus horizontalis `Wisconsin` / Wisconsin Juniper 8" T x 5` W	2 gal.
JSB	Juniperus sabina `Buffalo` / Buffalo Juniper 1` T x 7` W	3 gal.
JGO	Juniperus virginiana `Grey Owl` / Eastern Redcedar Juniper 3` T x 5` W	2 gal.
TG	Taxus x media 'SMNTHDB' / Stonehenge Dark Druid® Yew 3' T x 3' W	2 gal.
TC	Taxus x media 'SMNTHDC' / Stonehenge® Anglo-Japanese Yew 8' T x 3' W	3 gal.
TB	Thuja occidentalis 'Bobozam' TM / Mr. Bowling Ball Arborvitae 3' T x 3' W	2 gal.
ORNAMENTAL GRASSES		
AGD	Andropogon gerardii `Dancing Wind` / Dancing Wind Big Blue Stem 36" T x 30" W	1 gal.
CFO	Calamagrostis x a `Overdam` / Overdam Reed Grass 24" T x 24" W	1 gal.
DC	Deschampsia cespitosa 'Northern Lights' / Northern Lights Tufted Hair Grass 24" T x 24" W	1 gal.
DS	Deschampsia cespitosa 'Schottland' / Schottland Tufted Hair Grass 4' T x 3' W	1 gal.
ESP	Eragrostis spectabilis / Purple Love Grass 24" T x 18" W	1 gal.
HA	Hakonechloa macra 'Aureola' / Golden Variegated Forest Grass 18" T x 24" W	1 gal.
PH	Panicum virgatum `Heavy Metal` / Blue Switch Grass 4' T x 3` W	1 gal.
PNW	Panicum virgatum `Northwind` / Northwind Switch Grass 42" T x 28" W	1 gal.
SLB	Schizachyrium scoparium `Blue Heaven` / Blue Heaven Little Bluestem Grass 30" T x 28" W	1 gal.
STD	Sporobolus heterolepis `Tara` / Prairie Dropseed 15" T x 20" W	1 gal.

PERENNIALS	BOTANICAL / COMMON NAME	SIZE
BY	Bergenia cordifolia 'Miss Piggy' / Miss Piggy Heartleaf Bergenia 18" T x 24" W	4.5" Cont.
CZ	Coreopsis verticillata `Zagreb` / Zagreb Thread Leaf Coreopsis 18" T x 18"	4.5" Cont.
EMS	Echinacea purpurea `Magnus Superior` / Magnus Superior Coneflower 28" T x 16" W	4.5" Cont.
HO2	Heuchera x `Obsidian` / Coral Bells 24" T x 12" W	4.5" Cont.
HE	Heuchera x 'Pink Panther' / Pink Panther Coral Bells 36" T x 18" W	4.5" Cont.
HD	Hosta x 'Dancing Queen' / Dancing Queen Hosta 24" T x 36" W	4.5" Cont.
HR8	Hosta x 'Rainforest Sunrise' / Rainforest Sunrise Hosta 12" T x 18" W	4.5" Cont.
LBS	Leucanthemum x `Becky` / Becky Shasta Daisy 15" T x 15" W	4.5" Cont.
NWL	Nepeta x `Walker`s Low` / Walker`s Low Catmint 20" T x 24" W	4.5" Cont.
SMN	Salvia nemorosa `May Night` / May Night Sage 18" T x 18" W	4.5" Cont.
SA	Sedum x `Autumn Joy` / Autumn Joy Sedum 24" T x 24" W	4.5" Cont.

NORTH

GRAPHICAL SCALE (FEET)
0 1" = 20' 40'

REVIEWED:
DESIGNED: SAT
DRAFTED: SAT

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LANDSCAPE ENLARGEMENT

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26	

PEG JOB # 1296.10G-WI
PEG PM: AJS
START DATE: 04/16/26
SCALE: 1" = 20'

SHEET L-2 OF L-5

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LANDSCAPE ENLARGEMENT

Z:\PROJECTS\2018\1296.10G-WI\CAD\SHEETS\1296.10G-WI LANDSCAPE PLAN.DWG

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SHEET L-2
SHEET L-3

BUILDING
FE = 922.80

SHEET L-3
SHEET L-4A

SHRUB & PERENNIAL PLANT KEY

CODE	BOTANICAL / COMMON NAME	SIZE
SHRUBS		
ACB	Aronia arbutifolia `Brilliantissima` / Brilliant Red Chokeberry 7` T x 6` W	3 gal.
ABC	Aronia melanocarpa `Elata` / Glossy Black Chokeberry 5` T x 5` W	3 gal.
CA	Cornus sanguinea 'Cato' / Arctic Sun® Bloodtwig Dogwood 4' T x 4' W	2 gal.
DKO	Diervilla lonicera'Kodiak Orange' / Kodiak Orange Dwarf Bush Honeysuckle 3` T x 4` W	2 gal.
HVS	Hydrangea p `Vanilla Strawberry` / Vanilla Strawberry Hydrangea 6` T x 5` W	3 gal.
HBO	Hydrangea paniculata `Bobo` / Bobo Hydrangea 3` T x 4` W	2 gal.
IVH	Itea virginica `Little Henry` / Little Henry Sweetspire 3` T x 3` W	2 gal.
IM	Itea virginica 'Morton' / Scarlet Beauty™ Sweetspire 5' T x 5' W	3 gal.
PCG	Physocarpus opulifolius `Center Glow` / Center Glow Ninebark 8` T x 8` W	3 gal.
SMP	Syringa meyeri `Palibin` / Dwarf Korean Lilac 5` T x 5` W	3 gal.
SB4	Syringa x 'SMSJBP7' TM / Bloomerang Dark Purple Lilac 4' T x 3' W	3 gal.
VD2	Viburnum dentatum deamii `SMVDLS` / All That Glitters® Viburnum 6` T x 6` W	3 gal.
VI	Viburnum dentatum deamii 'SMVDBL' / All That Glows® Arrowwood Viburnum 5' T x 5' W	3 gal.
WD	Weigela florida `Dark Horse` / Weigela 3` T x 3`	2 gal.
EVERGREEN SHRUBS		
JSP	Juniperus chinensis `J.N. Select Blue` / Star Power Juniper 16` T x 8` W	4` Ht.
JPK	Juniperus chinensis `Pfitzeriana Kallays` / Kallay Compact Juniper 3` T x 7` W	3 gal.
JWN	Juniperus horizontalis `Wisconsin` / Wisconsin Juniper 8' T x 5` W	2 gal.
JSB	Juniperus sabina `Buffalo` / Buffalo Juniper 1` T x 7` W	3 gal.
JGO	Juniperus virginiana `Grey Owl` / Eastern Redcedar Juniper 3` T x 5` W	2 gal.
TG	Taxus x media 'SMNTHDB' / Stonehenge Dark Druid® Yew 3' T x 3' W	2 gal.
TC	Taxus x media 'SMNTHDC' / Stonehenge® Anglo-Japanese Yew 8' T x 3' W	3 gal.
TB	Thuja occidentalis 'Bobozam' TM / Mr. Bowling Ball Arborvitae 3' T x 3' W	2 gal.
ORNAMENTAL GRASSES		
AGD	Andropogon gerardii `Dancing Wind` / Dancing Wind Big Blue Stem 36" T x 30" W	1 gal.
CFO	Calamagrostis x a `Overdam` / Overdam Reed Grass 24" T x 24" W	1 gal.
DC	Deschampsia cespitosa 'Northern Lights' / Northern Lights Tufted Hair Grass 24" T x 24" W	1 gal.
DS	Deschampsia cespitosa 'Schottland' / Schottland Tufted Hair Grass 4' T x 3' W	1 gal.
ESP	Eragrostis spectabilis / Purple Love Grass 24" T x 18" W	1 gal.
HA	Hakonechloa macra 'Aureola' / Golden Variegated Forest Grass 18" T x 24" W	1 gal.
PH	Panicum virgatum `Heavy Metal` / Blue Switch Grass 4' T x 3` W	1 gal.
PNW	Panicum virgatum `Northwind` / Northwind Switch Grass 42" T x 26" W	1 gal.
SLB	Schizachyrium scoparium `Blue Heaven` / Blue Heaven Little Bluestem Grass 30" T x 26" W	1 gal.
STD	Sporobolus heterolepis `Tara` / Prairie Dropseed 15" T x 20" W	1 gal.

PERENNIALS	BOTANICAL / COMMON NAME	SIZE
BY	Bergenia cordifolia 'Miss Piggy' / Miss Piggy Heartleaf Bergenia 18" T x 24" W	4.5" Cont.
CZ	Coreopsis verticillata `Zagreb` / Zagreb Thread Leaf Coreopsis 18" T x 18"	4.5" Cont.
EMS	Echinacea purpurea `Magnus Superior` / Magnus Superior Coneflower 28" T x 16" W	4.5" Cont.
HO2	Heuchera x `Obsidian` / Coral Bells 24" T x 12" W	4.5" Cont.
HE	Heuchera x 'Pink Panther' / Pink Panther Coral Bells 36" T x 18" W	4.5" Cont.
HD	Hosta x 'Dancing Queen' / Dancing Queen Hosta 24" T x 36" W	4.5" Cont.
HR8	Hosta x 'Rainforest Sunrise' / Rainforest Sunrise Hosta 12" T x 18" W	4.5" Cont.
LBS	Leucanthemum x `Becky` / Becky Shasta Daisy 15" T x 15" W	4.5" Cont.
NWL	Nepeta x `Walker`s Low` / Walker`s Low Catmint 20" T x 24" W	4.5" Cont.
SMN	Salvia nemorosa `May Night` / May Night Sage 18" T x 18" W	4.5" Cont.
SA	Sedum x `Autumn Joy` / Autumn Joy Sedum 24" T x 24" W	4.5" Cont.

NORTH

GRAPHICAL SCALE (FEET)
0 1" = 20' 40'

REVIEWED:
DESIGNED: SAT
DRAFTED: SAT

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REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26			

PEG JOB # 1296.10G-WI
PEG PM AJS
START DATE 04/16/26
SCALE 1" = 20'

SHEET L-3 OF L-5

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ENLARGEMENT L-4A

SCALE: 1"=20'

NORTH

GRAPHICAL SCALE (FEET)

0 1" = 20' 40'

SHRUB & PERENNIAL PLANT KEY

CODE	BOTANICAL / COMMON NAME	SIZE
SHRUBS		
ACB	Aronia arbutifolia `Brilliantissima` / Brilliant Red Chokeberry 7` T x 6` W	3 gal.
ABC	Aronia melanocarpa `Elata` / Glossy Black Chokeberry 5` T x 5` W	3 gal.
CA	Cornus sanguinea 'Cato' / Arctic Sun® Bloodtwig Dogwood 4' T x 4' W	2 gal.
DKO	Diervilla lonicera'Kodiak Orange' / Kodiak Orange Dwarf Bush Honeysuckle 3` T x 4` W	2 gal.
HVS	Hydrangea p `Vanilla Strawberry` / Vanilla Strawberry Hydrangea 6` T x 5` W	3 gal.
HBO	Hydrangea paniculata `Bobo` / Bobo Hydrangea 3` T x 4` W	2 gal.
IVH	Itea virginica `Little Henry` / Little Henry Sweetspire 3` T x 3` W	2 gal.
IM	Itea virginica 'Morton' / Scarlet Beauty™ Sweetspire 5' T x 5' W	3 gal.
PCG	Physocarpus opulifolius `Center Glow` / Center Glow Ninebark 8` T x 8` W	3 gal.
SMP	Syringa meyeri `Palibin` / Dwarf Korean Lilac 5` T x 5` W	3 gal.
SB4	Syringa x 'SMSJBP7' TM / Bloomerang Dark Purple Lilac 4' T x 3' W	3 gal.
VD2	Viburnum dentatum deamii `SMVDLS` / All That Glitters® Viburnum 6` T x 6` W	3 gal.
VI	Viburnum dentatum deamii 'SMVDBL' / All That Glows® Arrowwood Viburnum 5' T x 5' W	3 gal.
WD	Weigela florida `Dark Horse` / Weigela 3` T x 3`	2 gal.
EVERGREEN SHRUBS		
JSP	Juniperus chinensis `J.N. Select Blue` / Star Power Juniper 16` T x 8` W	4` Ht.
JPK	Juniperus chinensis `Pfitzeriana Kallays` / Kallay Compact Juniper 3` T x 7` W	3 gal.
JWN	Juniperus horizontalis `Wisconsin` / Wisconsin Juniper 8" T x 5` W	2 gal.
JSB	Juniperus sabina `Buffalo` / Buffalo Juniper 1` T x 7` W	3 gal.
JGO	Juniperus virginiana `Grey Owl` / Eastern Redcedar Juniper 3` T x 5` W	2 gal.
TG	Taxus x media 'SMNTHDB' / Stonehenge Dark Druid® Yew 3' T x 3' W	2 gal.
TC	Taxus x media 'SMNTHDC' / Stonehenge® Anglo-Japanese Yew 8' T x 3' W	3 gal.
TB	Thuja occidentalis 'Bobozam' TM / Mr. Bowling Ball Arborvitae 3' T x 3' W	2 gal.
ORNAMENTAL GRASSES		
AGD	Andropogon gerardii `Dancing Wind` / Dancing Wind Big Blue Stem 36" T x 30" W	1 gal.
CFO	Calamagrostis x a `Overdam` / Overdam Reed Grass 24" T x 24" W	1 gal.
DC	Deschampsia cespitosa 'Northern Lights' / Northern Lights Tufted Hair Grass 24" T x 24" W	1 gal.
DS	Deschampsia cespitosa 'Schottland' / Schottland Tufted Hair Grass 4' T x 3' W	1 gal.
ESP	Eragrostis spectabilis / Purple Love Grass 24" T x 18" W	1 gal.
HA	Hakonechloa macra 'Aureola' / Golden Variegated Forest Grass 18" T x 24" W	1 gal.
PH	Panicum virgatum `Heavy Metal` / Blue Switch Grass 4' T x 3` W	1 gal.
PNW	Panicum virgatum `Northwind` / Northwind Switch Grass 40" T x 28" W	1 gal.
SLB	Schizachyrium scoparium `Blue Heaven` / Blue Heaven Little Bluestem Grass 30" T x 28" W	1 gal.
STD	Sporobolus heterolepis `Tara` / Prairie Dropseed 15" T x 20" W	1 gal.

PERENNIALS	BOTANICAL / COMMON NAME	SIZE
BY	Bergenia cordifolia 'Miss Piggy' / Miss Piggy Heartleaf Bergenia 18" T x 24" W	4.5" Cont.
CZ	Coreopsis verticillata `Zagreb` / Zagreb Thread Leaf Coreopsis 18" T x 18"	4.5" Cont.
EMS	Echinacea purpurea `Magnus Superior` / Magnus Superior Coneflower 28" T x 16" W	4.5" Cont.
HO2	Heuchera x `Obsidian` / Coral Bells 24" T x 12" W	4.5" Cont.
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LBS	Leucanthemum x `Becky` / Becky Shasta Daisy 15" T x 15" W	4.5" Cont.
NWL	Nepeta x `Walker`s Low` / Walker`s Low Catmint 20" T x 24" W	4.5" Cont.
SMN	Salvia nemorosa `May Night` / May Night Sage 18" T x 18" W	4.5" Cont.
SA	Sedum x `Autumn Joy` / Autumn Joy Sedum 24" T x 24" W	4.5" Cont.

GENERAL PLANTING NOTES

1. THE LAYOUT OF ALL PLANTING BEDS AND INDIVIDUAL TREES AND SHRUBS SHALL BE STAKED BY THE CONTRACTOR IN ADVANCE OF INSTALLATION. FLAGGING, STAKES, OR PAINT MAY BE USED TO DELINEATE LOCATIONS AS SCALED FROM THE PLANS. AN APPROVED REPRESENTATIVE WILL REVIEW THESE LOCATIONS WITH THE CONTRACTOR AND MAKE MINOR ADJUSTMENTS AS NECESSARY. BED LAYOUT SHALL ALSO INCLUDE PERENNIAL GROUPINGS BY SPECIES.
2. THE CONTRACTOR IS RESPONSIBLE FOR INDEPENDENTLY DETERMINING THE PLANT MATERIAL QUANTITIES REQUIRED BY THE LANDSCAPE PLANS. REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT.
3. NO PLANT MATERIAL OR PLANT SIZE SUBSTITUTIONS WILL BE ACCEPTED WITHOUT APPROVAL BY THE LANDSCAPE ARCHITECT. ANY CHANGES SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT IN WRITING PRIOR TO INSTALLATION.
4. ALL BNB STOCK SHALL BE NURSERY GROWN IN A CLAY LOAM SOIL FOR A MINIMUM OF THREE GROWING SEASONS WITHIN 200 MILES OF PROJECT LOCATION, IN A ZONE COMPATIBLE WITH USDA HARDINESS ZONE 5A. SEED SHALL BE PROVIDED FROM A NURSERY (WITHIN 200 MILES) WITH A SIMILAR PLANT HARDINESS ZONE AS PROJECT LOCATION. EXISTING SOIL SHALL BE AMENDED PER SOIL ANALYSIS REPORT TO ENSURE A PROPER GROWING MEDIUM IS ACHIEVED.
5. ALL PLANT MATERIAL SHALL COMPLY WITH STANDARDS DESCRIBED IN AMERICAN STANDARD OF NURSERY STOCK - Z60.1 ANSI. LANDSCAPE ARCHITECT OR OWNERS AUTHORIZED REPRESENTATIVE RESERVES THE RIGHT TO INSPECT AND POTENTIALLY REJECT ANY PLANT MATERIAL DEEMED TO NOT MEET THE REQUIRED STANDARDS.
6. ALL STOCK SHALL BE FREE OF DISEASES AND HARMFUL INSECTS, DAMAGE, DISORDERS AND DEFORMITIES.
7. TREES SHALL HAVE SINGLE, STRAIGHT TRUNKS AND WELL BALANCED BRANCH SYSTEMS. MUTLI-STEM TREES SHALL HAVE 3-4 STRAIGHT TRUNKS AND WELL BALANCED BRANCH SYSTEMS. HEIGHT-TO-CALIPER RATIOS SHALL BE CONSISTENT WITH THE LATEST EDITION OF ANSI Z60.1.
8. ROOT SYSTEMS SHALL BE LARGE ENOUGH TO ALLOW FOR FULL RECOVERY OF THE TREE, AND SHALL CONFORM TO STANDARDS AS THEY APPEAR IN THE MOST CURRENT REVISION OF THE AMERICAN ASSOCIATION OF NURSERYMEN'S AMERICAN STANDARD OF NURSERY STOCK ANSI Z60.1.
9. BNB TREES SHALL BE DUG WITH A BALL OF SOIL, NOT SOFT BALLED OR POTTED AND SHALL BE FIRM IN THEIR ROOTBALL. ROOT BALL SHALL BE WRAPPED (WITH BIODEGRADABLE MATERIAL). THE TREE ROOT FLARE, OR COLLAR, SHALL BE AT OR WITHIN THE TOP THREE INCHES OF GRADE.
10. ALL SPRING TREES MUST BE FRESHLY DUG IN THE MOST RECENT SPRING.
11. ALL AUTUMN TREES MUST BE FRESHLY DUG IN THE MOST RECENT AUTUMN.
12. TREES SHALL BE ALIVE, HEALTHY AND APPROPRIATELY MOIST, AT TIME OF DELIVERY. TREES SHALL BE SUBJECT TO INSPECTION FOR CONFORMITY TO SPECIFICATION REQUIREMENTS AND APPROVAL BY THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIVE. THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIVE RESERVES THE RIGHT TO REJECT ANY TREES THAT DO NOT MEET THE SPECIFICATIONS OR THAT HAVE BEEN DAMAGED DURING SHIPMENT. THE LANDSCAPE INSTALLER MUST RECEIVE APPROVAL FROM LANDSCAPE ARCHITECT FOR ANY SUBSTITUTIONS OR ALTERATIONS.
13. ALL PLANT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH PLANTING DETAILS. FOR STREET TREE PLANTINGS, REFER TO TREE PLANTING DETAIL AND TO THE VILLAGE OF GERMANTOWN SPECIFICATIONS FOR PLANTING STREET TREES.
14. ALL PLANTING BEDS SHALL HAVE A MINIMUM 10" DEPTH OF PREPARED SOIL. WITH APPROVAL, EXISTING SOIL MAY BE UTILIZED PROVIDED THE PROPER SOIL AMENDMENTS ARE TILLED THOROUGHLY INTO THE TOP 10" OF SOIL. REFER TO SOIL PLACEMENT NOTES.
15. WHILE PLANTING TREES AND SHRUBS, BACKFILL ¾ OF PLANTING HOLE AND WATER TREE THOROUGHLY BEFORE INSTALLING THE REMAINDER OF SOIL MIXTURE. AFTER ALL SOIL HAS BEEN PLACED INTO THE PLANTING HOLE WATER THOROUGHLY AGAIN.
16. THE CONTRACTOR MUST LABEL ALL TREES WITH THE COMMON AND BOTANICAL NAMES PRIOR TO FINAL INSPECTION.
17. ALL PLANTING BEDS SHALL BE MULCHED WITH 3" DEEP SHREDDED HARDWOOD MULCH, AND ALL TREES PLANTED IN TURF AREAS SHALL RECEIVE A 3" DEEP SHREDDED HARDWOOD MULCHED RING AS SHOWN IN PLANTING DETAILS.
18. ALL PLANTING BEDS AND TREE RINGS SHALL HAVE A 4" DEEP TRENCHED BED EDGE CREATED BY EITHER A FLAT LANDSCAPE SPADE OR MECHANICAL EDGER. BED EDGES ARE TO BE CUT CLEAN AND SMOOTH AS SHOWN ON LANDSCAPE PLANS WITH A CLEAN DEFINITION BETWEEN TURF AND PLANTING AREAS.
19. ALL TURF SEED AREAS SHALL HAVE A MINIMUM DEPTH OF 6" OF TOPSOIL. WITH APPROVAL, EXISTING SOIL MAY BE UTILIZED PROVIDED THE PROPER SOIL AMENDMENTS ARE TILLED THOROUGHLY INTO THE TOP 6" OF SOIL AS INDICATED IN THE SOIL PLACEMENT NOTES. REQUIRED AMENDMENTS SHALL BE DETERMINED BASED ON A SOIL ANALYSIS TO BE PERFORMED. ALL TOPSOIL AMENDMENT SHALL BE AGED WEED FREE MANURE OR CLASS 1 ORGANIC MATTER.
20. FOR LAWN SEEDING, APPLY A STARTER FERTILIZER AND SEED UNIFORMLY AT THE RATE RECOMMENDED BY MANUFACTURER, AND PROVIDE A MULCH COVERING THAT IS SUITABLE TO PROMOTE SEED GERMINATION AND TURF ESTABLISHMENT. CONTRACTOR TO PROVIDE FERTILIZER, SEED, AND MULCH SPECIFICATIONS TO THE LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION. EROSION CONTROL MEASURES ARE TO BE INSTALLED IN THOSE AREAS REQUIRING STABILIZATION (SWALES, SLOPES EXCEEDING 1:3, AND THOSE LOCATIONS INDICATED IN CIVIL DRAWINGS).
21. THE CONTRACTOR TO ENSURE A SMOOTH, UNIFORM QUALITY TURF IS ACHIEVED WITH NO BARE SPOTS LARGER THAN 6" X 6". ANY BARE SPOTS LARGER THAN 6" X6" AT THE END OF ESTABLISHMENT PERIOD SHALL BE RESEEDED AT THE CONTRACTORS EXPENSE TO OBTAIN A DENSE, UNIFORM LAWN.
22. ALL FINISH GRADING AND LAWN AREAS TO BE INSTALLED BY LANDSCAPE CONTRACTOR.
23. ALL DISTURBED AREAS WITHIN THE PROJECT SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.
24. ALL DISTURBED AREAS OUTSIDE THE LIMITS OF WORK SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE OWNER.
25. THE CONTRACTOR SHALL ENSURE THAT SOIL CONDITIONS AND COMPACTION ARE ADEQUATE TO ALLOW FOR PROPER DRAINAGE AROUND THE CONSTRUCTION SITE. UNDESIRABLE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING OF WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER SURFACE AND SUBSURFACE DRAINAGE IN ALL AREAS
26. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES, INCLUDING ANY IRRIGATION LINES, PRIOR TO DIGGING. CONSULT DIGGERS HOTLINE.
27. TREES SHALL BE INSTALLED A MINIMUM OF 25' FROM STREET CORNERS OF MINOR ROADS, AND 50' FROM STREET CORNERS OF ARTERIAL ROADS.
28. TREES SHALL BE INSTALLED A MINIMUM DISTANCE OF 5' FROM ANY SEWER AND WATER LINES, 10' FROM DRIVEWAYS, LIGHT POLES, AND FIRE HYDRANTS.
29. THE CONTRACTOR SHALL ENSURE THAT SOIL CONDITIONS AND COMPACTION ARE ADEQUATE TO ALLOW FOR PROPER DRAINAGE AROUND THE CONSTRUCTION SITE. UNDESIRABLE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING OF WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER SURFACE AND SUBSURFACE DRAINAGE IN ALL AREAS
30. THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS, FEES, AND LICENSES NECESSARY FOR THE INSTALLATION OF THIS PLAN.
31. THE CONTRACTOR IS TO REVIEW ALL SITE ENGINEERING DOCUMENTS PRIOR TO INSTALLATION. ANY CONFLICTS MUST BE REPORTED TO THE LANDSCAPE ARCHITECT. THESE LANDSCAPE DRAWINGS ARE FOR THE INSTALLATION OF PLANT MATERIALS ONLY UNLESS OTHERWISE STATED.
32. THE CONTRACTOR SHALL PROVIDE WATERING AND MAINTENANCE SERVICES FOR A PERIOD OF 60 DAYS TO ENSURE VEGETATIVE ESTABLISHMENT. UPON COMPLETION OF THE PROJECT, CONTRACTOR SHALL SUPPLY THE OWNER IN WRITING WITH ONGOING WATERING AND MAINTENANCE INSTRUCTIONS.
33. PLANT MATERIALS SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM TIME OF OWNER ACCEPTANCE. ONLY ONE REPLACEMENT PER PLANT WILL BE REQUIRED DURING THE WARRANTY PERIOD EXCEPT IN THE EVENT OF FAILURE TO COMPLY WITH THE SPECIFIED REQUIREMENTS.
34. THE CONTRACTOR IS RESPONSIBLE TO CONDUCT A FINAL WALK THROUGH WITH THE LANDSCAPE ARCHITECT, VILLAGE FORESTER, AND OR OWNERS REPRESENTATIVE TO ANSWER QUESTIONS, PROVIDE INSTRUCTIONS, AND ENSURE THAT PROJECT REQUIREMENTS HAVE BEEN MET.

SOIL PLACEMENT NOTES

1. LOOSEN SUBGRADE TO A MINIMUM DEPTH INDICATED IN PLANTING NOTES USING A CULTI-MULCHER OR SIMILAR EQUIPMENT, AND REMOVE STONES MEASURING OVER 1-1/2 INCHES IN ANY DIMENSION, STICKS, RUBBISH AND OTHER EXTRANEOUS MATTER. INTERNAL PARKING ISLANDS SHALL BE LOOSENED TO A DEPTH OF 30".
2. THOROUGHLY BLEND PLANTING SOIL MIX FOR PLANTING BED AREAS. (1 PART EXISTING SOIL, 1 PART TOPSOIL, 1 PART ORGANIC SOIL AMENDMENT, 2.9 POUNDS PER CUBIC YARD OF 4-4-4 ANALYSIS SLOW-RELEASE FERTILIZER)
3. TREE AND SHRUB HOLES SHALL BE FILLED WITH A PREPARED PLANTING MIXTURE OF 1 PART TOPSOIL, 2 PARTS PLANTING SOIL MIX.
4. SPREAD SOIL AND SOIL AMENDMENTS TO DEPTH INDICATED ON DRAWINGS, BUT NOT LESS THAN REQUIRED TO MEET FINISH GRADES AFTER NATURAL SETTLEMENT. (FINISH GRADE OF PLANTING BEDS SHALL BE 3" BELOW ALL ADJACENT SURFACES. FINISH GRADE OF TURF SEEDING AREAS SHALL BE 1" BELOW ALL ADJACENT HARD SURFACES, WALKS, AND CURBS.)
5. PLACE APPROXIMATELY 1/2 OF TOTAL AMOUNT OF SOIL REQUIRED. WORK INTO TOP OF LOOSENED SUBGRADE TO CREATE A TRANSITION LAYER, THEN PLACE REMAINDER OF THE SOIL. SOIL TRANSITION LAYER SHALL BE TILLED TO A MINIMUM DEPTH OF 6" BELOW THE DEPTH OF NEWLY PLACED SOIL. PARKING LOT ISLANDS SHALL BE CROWNED TO A HEIGHT OF 6" TO PROVIDE PROPER DRAINAGE UNLESS OTHERWISE NOTED.
6. DO NOT SPREAD IF PLANTING SOIL OR SUBGRADE IS FROZEN, MUDDY, OR EXCESSIVELY WET.
7. FINISH GRADING: GRADE SOIL TO A SMOOTH, UNIFORM SURFACE PLANE WITH A LOOSE, UNIFORMLY FINE TEXTURE.
8. ROLL AND RAKE, REMOVE RIDGES, AND FILL DEPRESSIONS TO MEET FINISH GRADES.
9. RESTORE PLANTING BEDS IF ERODED OR OTHERWISE DISTURBED AFTER FINISH GRADING AND BEFORE PLANTING.

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PROJ. NO. 1296.10G-WI
DES. PM AJS
DRAWN BY SAT
START DATE 04/16/26
SCALE 1" = 20'

SHEET L-4 OF L-5

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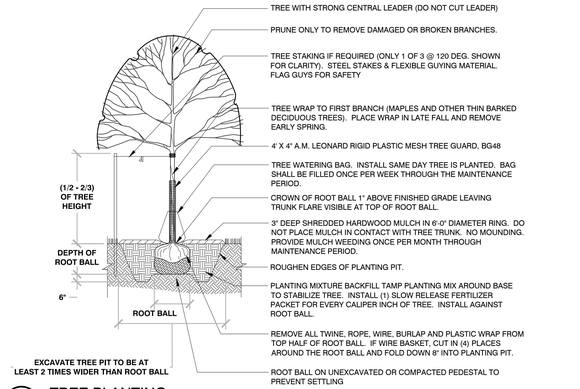
PLANT SCHEDULE

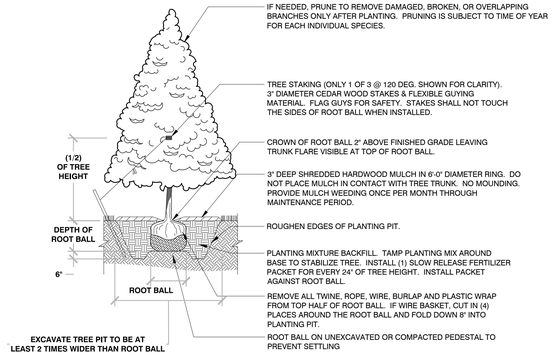
CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
DECIDUOUS TREES					
AS2	2	Acer miyabei `State Street`	Miyabei Maple	2.5" Cal.	50` T x 40` W
CO	10	Carya ovata	Shagbark Hickory	2.5" Cal.	80' T x 40' W
CP	11	Celtis occidentalis `Prairie Pride`	Prairie Pride Hackberry	2.5" Cal.	50' T x 40' W
GS	10	Gleditsia triacanthos `Shademaster`	Shademaster Honeylocust	2.5" Cal.	50` T x 35` W
GK	7	Gymnocladus dioica	Kentucky Coffee Tree	2.5" Cal.	60` T x 50` W
LE	12	Liriodendron tulipifera `JFS-Oz`	Emerald City® Tulip Poplar	2" Cal.	55` T x 25` W
TR	19	Tilia americana `Redmond`	Redmond American Linden	2.5" Cal.	60' T x 40' W
EVERGREEN TREES					
ACF	13	Abies concolor	White Fir	5` Tall	40` T x 23` W
JE	31	Juniperus virginiana	Eastern Red Cedar	5` Tall	30' T x 12' W
JN	46	Juniperus virginiana `J.N. Select Green`	Emerald Feather™ Eastern Redcedar	5` Tall	30' T x 12' W
PD	26	Picea glauca `Densata`	Black Hills Spruce	5` Tall	35' T x 20' W
PF	6	Pinus flexilis `Vanderwolf`s Pyramid`	Vanderwolf`s Pyramid Pine	5` Tall	45' T x 30` W
PD2	9	Pseudotsuga menziesii	Douglas Fir	5` Tall	60` T x 25` W
ORNAMENTAL TREES					
AG	6	Amelanchier x grandiflora `Autumn Brilliance`	`Autumn Brilliance` Serviceberry	1.5" Cal.	20' T x 20' W
SHRUBS					
ACB	24	Aronia arbutifolia `Brilliantissima`	Brilliant Red Chokeberry	3 gal.	7` T x 6` W
ABC	17	Aronia melanocarpa `Elata`	Glossy Black Chokeberry	3 gal.	5` T x 5` W
CA	29	Cornus sanguinea 'Cato'	Arctic Sun® Bloodtwig Dogwood	2 gal.	4' T x 4' W
DKO	15	Diervilla lonicera'Kodiak Orange'	Kodiak Orange Dwarf Bush Honeysuckle	2 gal.	3` T x 4` W
HVS	25	Hydrangea p `Vanilla Strawberry`	Vanilla Strawberry Hydrangea	3 gal.	6` T x 5` W
HBO	76	Hydrangea paniculata `Bobo`	Bobo Hydrangea	2 gal.	3` T x 4` W
IVH	14	Itea virginica `Little Henry`	Little Henry Sweetspire	2 gal.	3` T x 3` W
IM	24	Itea virginica 'Morton'	Scarlet Beauty™ Sweetspire	3 gal.	5' T x 5' W
PCG	16	Physocarpus opulifolius `Center Glow`	Center Glow Ninebark	3 gal.	8` T x 8` W
SMP	44	Syringa meyeri `Palibin`	Dwarf Korean Lilac	3 gal.	5` T x 5` W
SB4	30	Syringa x 'SMSJBP7' TM	Bloomerang Dark Purple Lilac	3 gal.	4' T x 3' W
VD2	10	Viburnum dentatum deamii `SMVDLS`	All That Glitters® Viburnum	3 gal.	6` T x 6` W
VI	12	Viburnum dentatum deamii 'SMVDBL'	All That Glows® Arrowwood Viburnum	3 gal.	5' T x 5' W
WD	34	Weigela florida `Dark Horse`	Weigela	2 gal.	3` T x 3`
EVERGREEN SHRUBS					
JSP	26	Juniperus chinensis `J.N. Select Blue`	Star Power Juniper	4` Ht.	16` T x 8` W
JPK	49	Juniperus chinensis `Pfitzeriana Kallays`	Kallay Compact Juniper	3 gal.	3` T x 7` W
JWN	4	Juniperus horizontalis `Wisconsin`	Wisconsin Juniper	2 gal.	8" T x 5` W
JSB	9	Juniperus sabina `Buffalo`	Buffalo Juniper	3 gal.	1` T x 7` W
JGO	16	Juniperus virginiana `Grey Owl`	Eastern Redcedar Juniper	2 gal.	3` T x 5` W
TG	16	Taxus x media 'SMNTHDB'	Stonehenge Dark Druid® Yew	2 gal.	3' T x 3' W
TC	11	Taxus x media 'SMNTHDC'	Stonehenge® Anglo-Japanese Yew	3 gal.	8' T x 3' W
TB	8	Thuja occidentalis 'Bobozam' TM	Mr. Bowling Ball Arborvitae	2 gal.	3' T x 3' W
ORNAMENTAL GRASSES					
AGD	6	Andropogon gerardii `Dancing Wind`	Dancing Wind Big Blue Stem	1 gal.	36" T x 30" W
CFO	57	Calamagrostis x a `Overdam`	Overdam Reed Grass	1 gal.	24" T x 24" W
DC	4	Deschampsia cespitosa 'Northern Lights'	Northern Lights Tufted Hair Grass	1 gal.	24" T x 24" W
DS	48	Deschampsia cespitosa 'Schottland'	Schottland Tufted Hair Grass	1 gal.	4` T x 3' W
ESP	12	Eragrostis spectabilis	Purple Love Grass	1 gal.	24" T x 18" W
HA	57	Hakonechloa macra 'Aureola'	Golden Variegated Forest Grass	1 gal.	18" T x 24" W
PH	72	Panicum virgatum `Heavy Metal`	Blue Switch Grass	1 gal.	4` T x 3` W
PNW	18	Panicum virgatum `Northwind`	Northwind Switch Grass	1 gal.	42" T x 28" W
SLB	73	Schizachyrium scoparium `Blue Heaven`	Blue Heaven Little Bluestem Grass	1 gal.	30" T x 28" W
STD	119	Sporobolus heterolepis `Tara`	Prairie Dropseed	1 gal.	15" T x 20" W

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
PERENNIALS						
BY	12	Bergenia cordifolia 'Miss Piggy'	Miss Piggy Heartleaf Bergenia	4.5" Cont.	20" o.c.	18" T x 24" W
CZ	30	Coreopsis verticillata `Zagreb`	Zagreb Thread Leaf Coreopsis	4.5" Cont.	18" o.c.	18" T x 18"
EMS	37	Echinacea purpurea `Magnus Superior`	Magnus Superior Coneflower	4.5" Cont.	18" o.c.	28" T x 16" W
HO2	123	Heuchera x `Obsidian`	Coral Bells	4.5" Cont.	12" o.c.	24" T x 12" W
HE	188	Heuchera x 'Pink Panther'	Pink Panther Coral Bells	4.5" Cont.	15" o.c.	36" T x 18" W
HD	12	Hosta x 'Dancing Queen'	Dancing Queen Hosta	4.5" Cont.	30" o.c.	24" T x 36" W
LBS	144	Leucanthemum x `Becky`	Becky Shasta Daisy	4.5" Cont.	15" o.c.	15" T x 15" W
NWL	79	Nepeta x `Walker`s Low`	Walker`s Low Catmint	4.5" Cont.	20" o.c.	20" T x 24" W
SMN	15	Salvia nemorosa `May Night`	May Night Sage	4.5" Cont.	18" o.c.	18" T x 18" W
SA	117	Sedum x `Autumn Joy`	Autumn Joy Sedum	4.5" Cont.	24" o.c.	24" T x 24" W

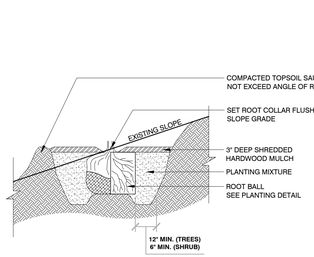
SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	REMARKS
TURF				
	57,687 sf	Turf Seed Drought Tolerant Dwarf Fescue Blend		
	230,879 sf	Turf Seed Low Grow Mix		



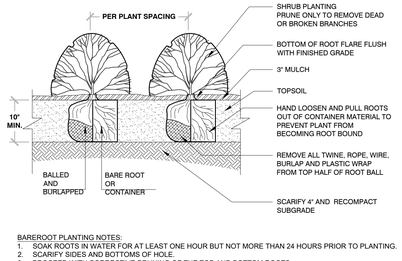
1 TREE PLANTING
1/4" = 1'-0" 329343-01



2 EVERGREEN TREE PLANTING
1/4" = 1'-0" 329343-03

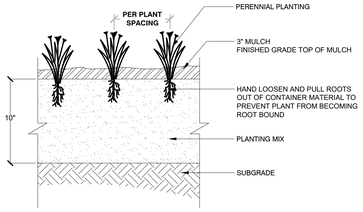


3 TREE PLANTING ON SLOPE
3/8" = 1'-0" 329343-02

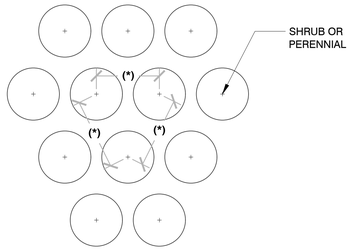


BAREROOT PLANTING NOTES:
1. SOAK ROOTS IN WATER FOR AT LEAST ONE HOUR BUT NOT MORE THAN 24 HOURS PRIOR TO PLANTING.
2. SCARIFY SIDES AND BOTTOMS OF HOLE.
3. PROCEED WITH CORRECTIVE PRUNING OF THE TOP AND BOTTOM ROOTS.
4. TRANSFER PLANT DIRECTLY FROM WATER TO HOLE. SET PLANT SO THE ROOT FLARE IS APPROXIMATELY AT THE FINISHED SOIL ELEVATION. SPREAD ROOTS OUT EVENLY. PLUMB AND IMMEDIATELY BACKFILL WITH PLANTING SOIL MIX.
5. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANTS AND FILL VOIDS.
6. BACKFILL VOIDS AND WATER SECOND TIME.
7. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

4 SHRUB PLANTING
1/2" = 1'-0" 329333-02

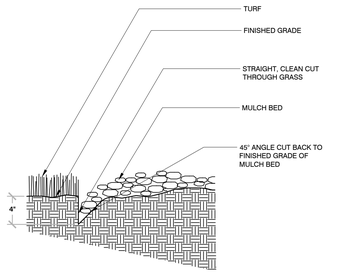


5 PERENNIAL PLANTING
1" = 1'-0" 3293-01



(*) = SPECIFIED PLANT SPACING PER PLANTING LIST

6 PLANT SPACING
3/4" = 1'-0" 3293-02



7 TRENCHED BED EDGE
3/4" = 1'-0" 3293-03

REVIEWED:
DESIGNED: SAT
DRAFTED: SAT

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BROOKFIELD, WI 53186
(262) 754-8888
CHICAGO | MILWAUKEE | NATIONWIDE

ZILBER INDUSTRIAL 7 AT GERMANTOWN
GATEWAY CORPORATE PARK
GERMANTOWN, WI

LANDSCAPE NOTES & DETAILS

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26	

PEG JOB 1296.10G-WI
PEG PM ASS
START DATE 04/16/26
SCALE VARIES

SHEET L-5 OF L-5

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LANDSCAPE NOTES & DETAILS

Z:\PROJECTS\2018\1296.10G-WI\CAD\SHEETS\1296.10G-WI LANDSCAPE PLAN.DWG

NOTES:

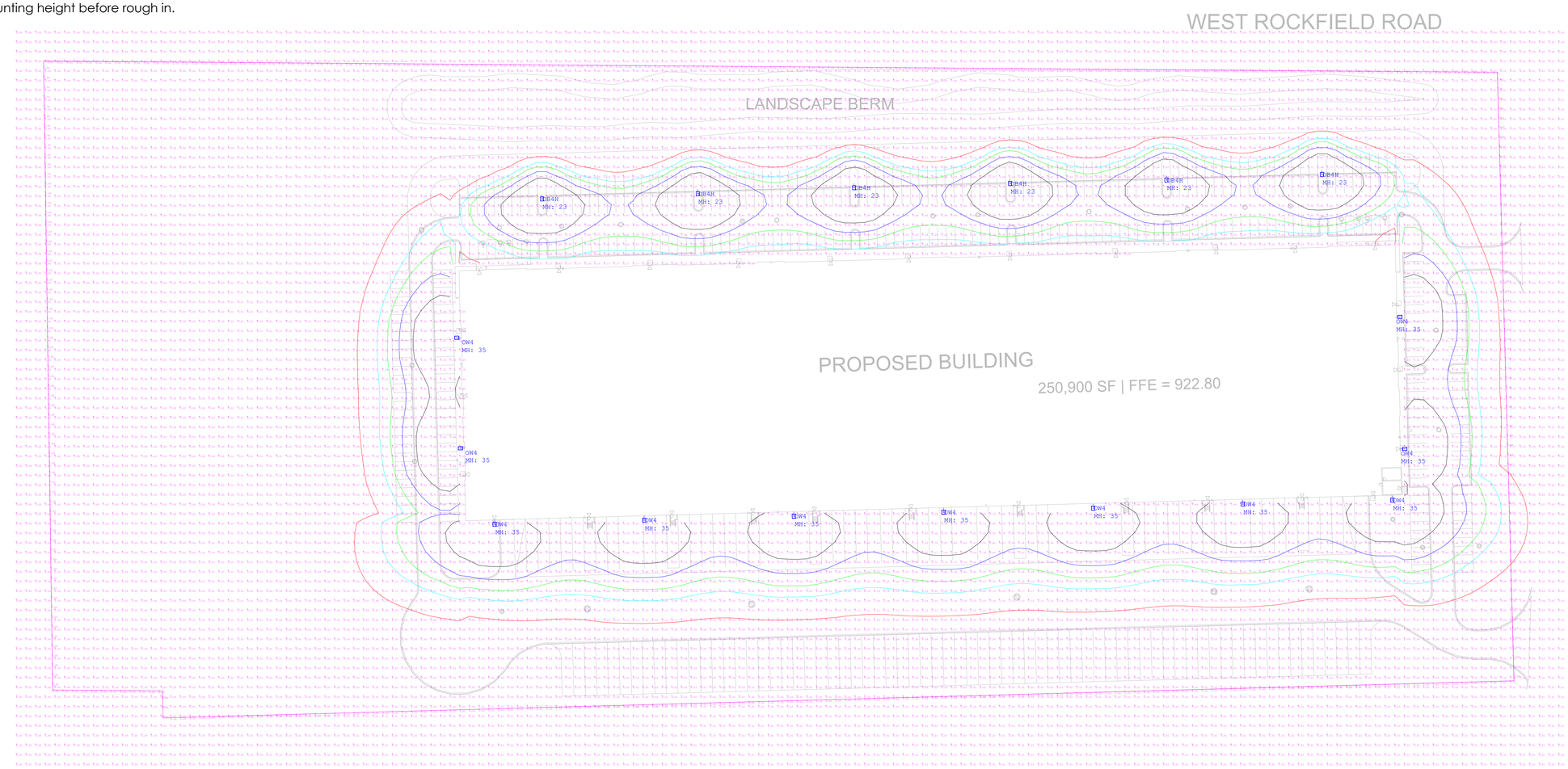
- Customers are responsible for confirming mounting heights, fixture suspension types/ lengths, color temperature, CRI, linear fixture lengths, pole lengths, and bollard heights/ lengths prior to ordering.
- Mounting height (MH) is measured from the bottom of the fixture to the floor.
- This Lighting layout assumes the following unless values are specified and must be confirmed by the customer prior to ordering.
  - Room reflectance of 80, 50, 20 for standard ceilings and 50, 50, 20 for exposed ceilings
  - Wall sconces are mounted at 7' for calculation purposes. Customer must confirm desired mounting height before rough in.

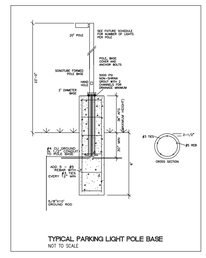
Luminaire Schedule

Qty	Label	LLF	MFG	Description	Lum. Watts	Total Watts	Lum. Lumens
6	OB4H	1.000	LITHONIA	EAX1 ALO SWW2 SO UVOLT UPM PER DDB + EAX1HSEGSBL M6 + 20' POLE + 3' BASE TYPE IV (MAX setting)	111	666	14704
11	OW4	1.000	LITHONIA	EAX1 ALO SWW2 SO UVOLT UPM PER DDB + EAX WBA DDB M6 TYPE IV (MAX setting)	111	1221	15781

Calculation Summary

Label	Calc Type	Units	Avg.	Max	Min	Avg/Min	Max/Min
Presumed Property Line	Illuminance	Fc	0.02	0.16	0.00	N.A.	N.A.
East Parking Area	Illuminance	Fc	1.00	2.9	0.2	5.00	14.50
Loading Docks	Illuminance	Fc	1.08	2.9	0.4	2.70	7.25
North Parking Area	Illuminance	Fc	1.00	6.1	0.1	10.00	61.00
West Parking Area	Illuminance	Fc	1.06	3.0	0.2	5.30	15.00





ENTERPRISE Lighting & Control

#	DATE	COMMENTS

REVISIONS

DRAWN BY : JT

DATE : APRIL 14, 2026

SCALE : 1" = 60'

ZILBER

GERMANTOWN, WISCONSIN

Z7 SITE LIGHTING LAYOUT

From: Pinnacle Engineering Group
20725 Watertown Rd. Suite 100
Brookfield, WI 53186

Date: April 16, 2026

Subject: Zilber Industrial 7

This memo summarizes the proposed stormwater management for the Zilber Industrial 7 Project.

The project consists of construction of a new building with concrete and asphalt pavement, landscaping, and storm sewer. The project is located within lot 9 the Germantown Gateway Corporate Park in Germantown, WI and is part of an approved stormwater management report for the business park. The storm sewer was designed per Section 8.09 of the Village of Germantown ordinances.

Proposed Conditions

The proposed development will consist of a 252,512 square foot building with parking, trailer docks, and trailer parking. A stormwater management plan dated September 14, 2018 was created for the Germantown Gateway Corporate Park. The project site is located within the PR-2 drainage basin from this report. This drainage basin is 45.97 acres in total, and the proposed development occupies 22.78 acres of this drainage basin. Per the report the drainage basin has a curve number of 92, however, this is a typo, the HydroCAD report found within the appendix shows a curve number of 94 for PR-2, a copy of the results is attached to this memo. A curve number 94 is equal to a 85% impervious value for the site with type C soils. The table below shows the areas and curve numbers of the Building 5 and Building 6 site and the proposed Building 7 site (Building 7 is calculated as fully constructed).

Proposed Areas and Curve Number Table for PR-2

Area	Area (Ac)	CN
Proposed Building 5, Sidewalks, and Pavement	**11.55**	**98**
Proposed Building 6, Sidewalks, and Pavement	**9.66**	**98**
Proposed Building 7, Sidewalks, and Pavement	**11.12**	**98**
Pond	**4.72**	**98**
Green Space	**8.92**	**76**
TOTAL	**45.97**	**94**

The site will be drained by an underground storm sewer system and discharge into the existing pond located to the west of the building.

Runoff Water Quality

During construction silt fencing, inlet protection, erosion blankets will be used for water quality. The storm runoff will also use the existing pond as a sediment basin. Post-development water quality will be obtained using the existing wet pond located to the west of the building.

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NORTH

GRAPHICAL SCALE (FEET)

0 1" = 50' 100'

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WEST ROCKFIELD ROAD

GATEWAY CROSSING

EDGE OF WATER
12/07/2021
EL.=907.0

EXISTING POND
NWL = 907.00

EXISTING BUILDING

PROPOSED BUILDING
252,512 SF | FFE = 922.80

EXISTING BUILDING 6

INL 33.0 SF:5200 AC:0.12
INL 35.0 SF:5978 AC:0.14
INL 31.0 SF:3345 AC:0.08
INL 32.0 SF:7853 AC:0.18
INL 34.0 SF:8908 AC:0.20
INL 36.0 SF:15195 AC:0.35
INL 37.0 SF:7060 AC:0.16
INL 38.0 SF:14125 AC:0.32
INL 40.0 SF:7074 AC:0.16
INL 39.0 SF:7034 AC:0.16
INL 41.0 SF:12391 AC:0.28
INL 26.0 SF:8707 AC:0.20
INL 21.0 SF:6386 AC:0.15
INL 11.0 SF:16219 AC:0.37
INL 13.0 SF:24844 AC:0.57
INL 14.0 SF:28227 AC:0.65
INL 15.0 SF:28821 AC:0.66
INL 16.0 SF:20469 AC:0.47
INL 17.0 SF:16890 AC:0.39
INL 18.0 SF:13463 AC:0.31
INL 50.0 SF:6377 AC:0.15
INL 51.0 SF:9909 AC:0.23

BC 33.1 SF:14760 AC:0.34
BC 35.1 SF:21453 AC:0.49
BC 38.1 SF:21472 AC:0.49
BC 40.1 SF:16147 AC:0.37
BC 42.1 SF:9343 AC:0.21
BC 26.1 SF:13417 AC:0.31
BC 21.3 SF:5633 AC:0.13
BC 13.1 SF:22155 AC:0.51
BC 14.1 SF:34584 AC:0.79
BC 15.1 SF:34536 AC:0.79
BC 16.1 SF:25944 AC:0.60
BC 17.1 SF:13483 AC:0.31
BC 50.3 SF:13423 AC:0.31
BC 51.3 SF:5637 AC:0.13

EXISTING POND
NWL = 907.00

REVIEWED: ####
DESIGNED: ####
DRAWN: AJS

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WISCONSIN OFFICE:
20725 WATERTOWN ROAD, SUITE 100
BROOKFIELD, WI 53186
(262) 754-8888
CHICAGO | MILWAUKEE - NATIONWIDE

ZILBER INDUSTRIAL 7 AT GERMANTOWN
GATEWAY CORPORATE PARK
GERMANTOWN, WI

OVERALL STORM DRAINAGE EXHIBIT

REVISIONS

1	MUNICIPAL SUBMITTAL	4/16/26			

PEG JOB: 1296.10G-WI
PEG PM: AJS
PLAN DATE: 04/16/26
SCALE: 1" = 50'

SHEET
EX-1
OF
EX-1

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OVERALL STORM DRAINAGE EXHIBIT

Z:\PROJECTS\2018\1296.10G-WI\CAD\EXHIBITS\1296.10G-WI STORM DRAINAGE EXHIBIT.DWG

STORM SEWER COMPUTATIONS

GERMANTOWN Z7

GERMANTOWN, WI

DATE: 4/16/2026

PROJECT #: 1296.10G

DESIGNED BY: AJS

CHECKED BY: AJS

PINNACLE ENGINEERING GROUP

STRUCTURE DATA			AREA AND C-VALUE CALCULATIONS								
			TOTAL		GREENSPACE 0.25		PAVEMENT 0.95		ROOF 0.95		WEIGHTED C-VALUE
NOTES	UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	SF	AC	SF	AC	SF	AC	SF	AC	
			1	2	3	4	5	6	7	8	9
	BC 17.1	INL 17.0	13,483	0.31	0	0.00	0	0.00	13,483	0.31	0.95
	INL 17.0	INL 16.0	16,888	0.39	0	0.00	16,888	0.39	0	0.00	0.95
	BC 16.1	INL 16.0	25,944	0.60	0	0.00	0	0.00	25,944	0.60	0.95
	INL 16.0	INL 15.0	20,469	0.47	0	0.00	20,469	0.47	0	0.00	0.95
	BC 15.1	INL 15.0	34,537	0.79	0	0.00	0	0.00	34,537	0.79	0.95
	INL 15.0	INL 14.0	28,819	0.66	0	0.00	28,819	0.66	0	0.00	0.95
	BC 14.1	INL 14.0	34,593	0.79	0	0.00	0	0.00	34,593	0.79	0.95
	INL 14.0	INL 13.0	28,227	0.65	0	0.00	28,227	0.65	0	0.00	0.95
	BC 13.1	INL 13.0	22,155	0.51	0	0.00	0	0.00	22,155	0.51	0.95
	INL 13.0	INL 11.0	24,842	0.57	0	0.00	24,842	0.57	0	0.00	0.95
	INL 11.0	ES 10.0	16,217	0.37	4,169	0.10	12,049	0.28	0	0.00	0.77
	INL 18.0	INL 17.0	13,464	0.31	6,752	0.16	6,713	0.15	0	0.00	0.60
	BC 21.1	INL 21.0	5,632	0.13	0	0.00	0	0.00	5,632	0.13	0.95
	INL 21.0	ES 20.0	6,386	0.15	3,611	0.08	2,775	0.06	0	0.00	0.55
	BC 26.1	INL 26.0	13,416	0.31	0	0.00	0	0.00	13,416	0.31	0.95
	INL 26.0	ES 25.0	8,707	0.20	4,911	0.11	3,797	0.09	0	0.00	0.56
	BC 51.2	INL 51.0	5,637	0.13	0	0.00	0	0.00	5,637	0.13	0.95
	INL 51.0	INL 50.0	9,910	0.23	1,968	0.05	7,941	0.18	0	0.00	0.81
	BC 50.3	INL 50.0	13,421	0.31	0	0.00	0	0.00	13,421	0.31	0.95
	INL 50.0	INL 41.0	6,377	0.15	1,298	0.03	5,079	0.12	0	0.00	0.81
	MH 42.0	INL 41.0	0	0.00	0	0.00	0	0.00	0	0.00	---
	INL 41.0	INL 40.0	12,393	0.28	3,222	0.07	9,171	0.21	0	0.00	0.77
	BC 40.1	INL 40.0	9,344	0.21	0	0.00	0	0.00	9,344	0.21	0.95
	INL 40.0	INL 39.0	7,074	0.16	1,938	0.04	5,136	0.12	0	0.00	0.76
	BC 39.1	INL 39.0	16,146	0.37	0	0.00	0	0.00	16,146	0.37	0.95
	INL 39.0	INL 38.0	7,031	0.16	1,895	0.04	5,136	0.12	0	0.00	0.76
	INL 38.0	INL 37.0	14,127	0.32	3,855	0.09	10,271	0.24	0	0.00	0.76
	BC 37.3	INL 37.0	21,471	0.49	0	0.00	0	0.00	21,471	0.49	0.95
	INL 37.0	INL 36.0	7,061	0.16	1,925	0.04	5,136	0.12	0	0.00	0.76
	INL 36.0	INL 35.0	15,194	0.35	4,008	0.09	11,186	0.26	0	0.00	0.77
	BC 35.1	INL 35.0	21,453	0.49	0	0.00	0	0.00	21,453	0.49	0.95
	INL 35.0	INL 34.0	5,976	0.14	1,755	0.04	4,221	0.10	0	0.00	0.74
	INL 34.0	INL 33.0	8,908	0.20	2,248	0.05	6,660	0.15	0	0.00	0.77
	BC 33.1	INL 33.0	14,758	0.34	0	0.00	0	0.00	14,758	0.34	0.95
	INL 33.0	INL 32.0	5,201	0.12	1,591	0.04	3,610	0.08	0	0.00	0.74
	INL 32.0	INL 31.0	7,854	0.18	1,834	0.04	6,020	0.14	0	0.00	0.79
	INL 31.0	ES 30.0	3,345	0.08	1,667	0.04	1,677	0.04	0	0.00	0.60

STORM SEWER COMPUTATIONS

GERMANTOWN Z7
GERMANTOWN, WI

DATE: 4/16/2026
PROJECT #: 1296.10G
COUNTY: WASHINGTON

DESIGNED BY: AJS
CHECKED BY: AJS

	STORM 1	STORM 2	
DESIGN STORMS:	10-YR	100-YR	
STORM DURATION:	10-MIN	10-MIN	
DESIGN INTENSITY (I):	5.34	7.86	IN/HR

STORM NOTES:

STRUCTURE DATA			DRAINAGE AREA AND FLOW DATA (FLOW IS DETERMINED BY RATIONAL METHOD Q = CIA)					PIPE DATA				PIPE CAPACITY INFORMATION (PIPE CAPACITY IS DETERMINED BY MANNING'S EQUATION Q = 1.486/n AR$^{2/3}$ S$^{1/2}$)					ELEVATIONS		
NOTES	UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	INDIVIDUAL ACRES A 26	INDIVIDUAL COEFFICIENT C 27	STORM EVENT 28	INDIVIDUAL FLOW Q (CFS) 29	CUMULATIVE FLOW (CFS) 31	LENGTH (FT) 32	DIAMETER (IN) 33	SLOPE (%) 34	MANNING COEFFICIENT 35	REQUIRED DROP (FT) 36	ACTUAL DROP (FT) 37	PERCENT FULL (%) 38	ACTUAL VELOCITY (FPS) 39	MAX. CAPACITY (CFS) 40	RIM/TOC UP 41	INVERT UP 42	INVERT DOWN 43
	BC 17.1	INL 17.0	0.31	0.95	10-YR	1.57	1.57	95.0	10	1.04	0.012	0.42	0.99	61%	4.72	2.60			
	INL 17.0	INL 16.0	0.39	0.95	10-YR	1.97	4.53	98.8	15	0.85	0.012	0.41	0.84	65%	5.69	6.94			
	BC 16.1	INL 16.0	0.60	0.95	10-YR	3.02	3.02	95.1	12	1.04	0.012	0.58	0.99	70%	5.53	4.23			
	INL 16.0	INL 15.0	0.47	0.95	10-YR	2.38	9.93	204.8	24	0.50	0.012	0.34	1.02	55%	5.70	18.64			
	BC 15.1	INL 15.0	0.79	0.95	10-YR	4.02	4.02	95.0	15	1.04	0.012	0.31	0.99	55%	5.99	7.68			
	INL 15.0	INL 14.0	0.66	0.95	10-YR	3.36	17.31	275.3	24	0.85	0.012	1.37	2.34	70%	7.93	24.30			
	BC 14.1	INL 14.0	0.79	0.95	10-YR	4.03	4.03	95.0	15	1.04	0.012	0.31	0.99	55%	5.99	7.68			
	INL 14.0	INL 13.0	0.65	0.95	10-YR	3.29	24.63	170.5	24	1.26	0.012	1.72	2.15	79%	9.90	29.59			
	BC 13.1	INL 13.0	0.51	0.95	10-YR	2.58	2.58	95.0	12	1.04	0.012	0.42	0.99	61%	5.35	4.23			
	INL 13.0	INL 11.0	0.57	0.95	10-YR	2.89	30.10	197.0	30	0.75	0.012	0.90	1.48	71%	8.67	41.39			
	INL 11.0	ES 10.0	0.37	0.77	10-YR	1.53	31.63	51.2	30	0.75	0.012	0.26	0.38	74%	8.75	41.39			
				---		---	---					-	-						
	INL 18.0	INL 17.0	0.31	0.6	10-YR	0.99	0.99	134.9	12	0.20	0.012	0.09	0.27	55%	2.27	1.86			
				---		---	---					-	-						
	BC 21.1	INL 21.0	0.13	0.95	10-YR	0.66	0.66	52.1	8	1.04	0.012	0.13	0.54	49%	3.81	1.44			
	INL 21.0	ES 20.0	0.15	0.55	10-YR	0.43	1.09	59.5	10	0.30	0.012	0.12	0.18	75%	2.67	1.40			
				---		---	---					-	-						
	BC 26.1	INL 26.0	0.31	0.95	10-YR	1.56	1.56	51.3	10	1.04	0.012	0.22	0.53	61%	4.72	2.60			
	INL 26.0	ES 25.0	0.20	0.56	10-YR	0.60	2.16	58.9	12	0.55	0.012	0.18	0.32	69%	4.01	3.08			
				---		---	---					-	-						
				---		---	---					-	-						
				---		---	---					-	-						
	BC 51.2	INL 51.0	0.13	0.95	10-YR	0.66	0.66	43.2	8	1.04	0.012	0.11	0.45	49%	3.81	1.44			
	INL 51.0	INL 50.0	0.23	0.81	10-YR	0.98	1.64	103.5	12	0.35	0.012	0.19	0.36	66%	3.16	2.46			
	BC 50.3	INL 50.0	0.31	0.95	10-YR	1.56	1.56	42.7	10	1.04	0.012	0.19	0.44	61%	4.72	2.60			
	INL 50.0	INL 41.0	0.15	0.81	10-YR	0.63	3.84	101.7	15	0.65	0.012	0.31	0.66	63%	4.94	6.07			
	MH 42.0	INL 41.0	0.00	---	10-YR	---		84.9	54	1.10	0.012		0.93						
	INL 41.0	INL 40.0	0.28	0.77	10-YR	1.17	5.01	139.5	54	0.20	0.012	0.00	0.28	10%	3.17	102.48			
	BC 40.1	INL 40.0	0.21	0.95	10-YR	1.09	1.09	43.8	8	1.04	0.012	0.30	0.46	73%	4.26	1.44			
	INL 40.0	INL 39.0	0.16	0.76	10-YR	0.66	6.75	106.6	54	0.20	0.012	0.00	0.21	12%	3.46	102.48			
	BC 39.1	INL 39.0	0.37	0.95	10-YR	1.88	1.88	43.0	10	1.04	0.012	0.27	0.45	70%	4.90	2.60			
	INL 39.0	INL 38.0	0.16	0.76	10-YR	0.66	9.29	102.2	54	0.20	0.012	0.00	0.20	15%	3.80	102.48			
	INL 38.0	INL 37.0	0.32	0.76	10-YR	1.32	10.61	121.5	54	0.20	0.012	0.00	0.24	17%	3.95	102.48			
	BC 37.3	INL 37.0	0.49	0.95	10-YR	2.50	2.50	46.3	12	1.04	0.012	0.19	0.48	60%	5.31	4.23			
	INL 37.0	INL 36.0	0.16	0.76	10-YR	0.66	13.76	202.5	54	0.20	0.012	0.01	0.41	20%	4.26	102.48			
	INL 36.0	INL 35.0	0.35	0.77	10-YR	1.43	15.20	35.7	54	0.20	0.012	0.00	0.07	22%	4.39	102.48			
	BC 35.1	INL 35.0	0.49	0.95	10-YR	2.50	2.50	43.8	12	1.04	0.012	0.18	0.46	60%	5.31	4.23			
	INL 35.0	INL 34.0	0.14	0.74	10-YR	0.54	18.24	126.3	54	0.20	0.012	0.01	0.25	25%	4.62	102.48			
	INL 34.0	INL 33.0	0.20	0.77	10-YR	0.84	19.08	61.2	54	0.20	0.012	0.00	0.12	26%	4.68	102.48			
	BC 33.1	INL 33.0	0.34	0.95	10-YR	1.72	1.72	43.8	10	1.04	0.012	0.23	0.46	65%	4.82	2.60			
	INL 33.0	INL 32.0	0.12	0.74	10-YR	0.47	21.27	64.8	54	0.20	0.012	0.01	0.13	28%	4.82	102.48			
	INL 32.0	INL 31.0	0.18	0.79	10-YR	0.76	22.03	100.2	54	0.20	0.012	0.01	0.20	28%	4.87	102.48			
	INL 31.0	ES 30.0	0.08	0.6	10-YR	0.25	22.28	73.9	54	0.20	0.012	0.01	0.15	29%	4.89	102.48			

Engineering Department Memorandum

To : Jeffrey W. Retzlaff, AICP, Planning Director/Zoning Administrator

From : Timothy Zimmerman, Director of Public Works

Date : June 2, 2026

Re : Zilber #7

Items Reviewed:

1. Civil Plan Set Dated: 04-16-26

General Comments:

1. Please respond to each item below. **A written response addressing each item shall be included in your submittal**.
2. The submitted plans have been reviewed for general conformance with State and Village design guidelines. Additional comments could arise as a result of the plan completion and modifications. The items listed below will need to be fully resolved before the Engineering Dept. can recommend a formal approval of the plans and permit for construction.
3. This project will require a WRAPP/NOI from the DNR. Please submit a copy of the approved permit prior to final approval.
4. As-builts prepared to Village standards shall be prepared and provided to the Village post-construction (for all applicable items).
5. A professional engineer's original seal is to be affixed, signed and dated on the final set of construction plans.
6. Utility permits and permits for work within the ROW are required. Contact the Village engineering department to obtain permits.
7. As a guide to the review response: Items in *italics* are resolved or acknowledged, items in regular font are to be addressed yet, items in **Bold** are additional feedback to remaining original comment.

Water Utility Comments

1. Utility Plan Sheet C-11 is calling out Connect to existing 103.0 INV=919.72 (4") water lateral to the building is also for a 4" C900. The connection at the ROW is a 12". Since this property also is providing private hydrants a 4" water lateral is undersized or a mistake on the plan.

Waste Water Comments

1. A sampling manhole meeting Village standards is required.
2. A notice of intent for waste water will be required before a building permit is issued.

Stormwater Management Comments

1. Storm sewer on the north side of the site appears to take drainage from a larger area to the north than shown. Adjust and confirm storm sewer sizing. Is there parking expansion planned in the future? If so I recommend including that pavement area in the storm sewer sizing.

ZONING PERMIT REVIEW

06/08/26 Plan Commission Meeting

Joseph Schultz

Village Staff Report & Recommendation ***Germantown, Wisconsin***

SUMMARY

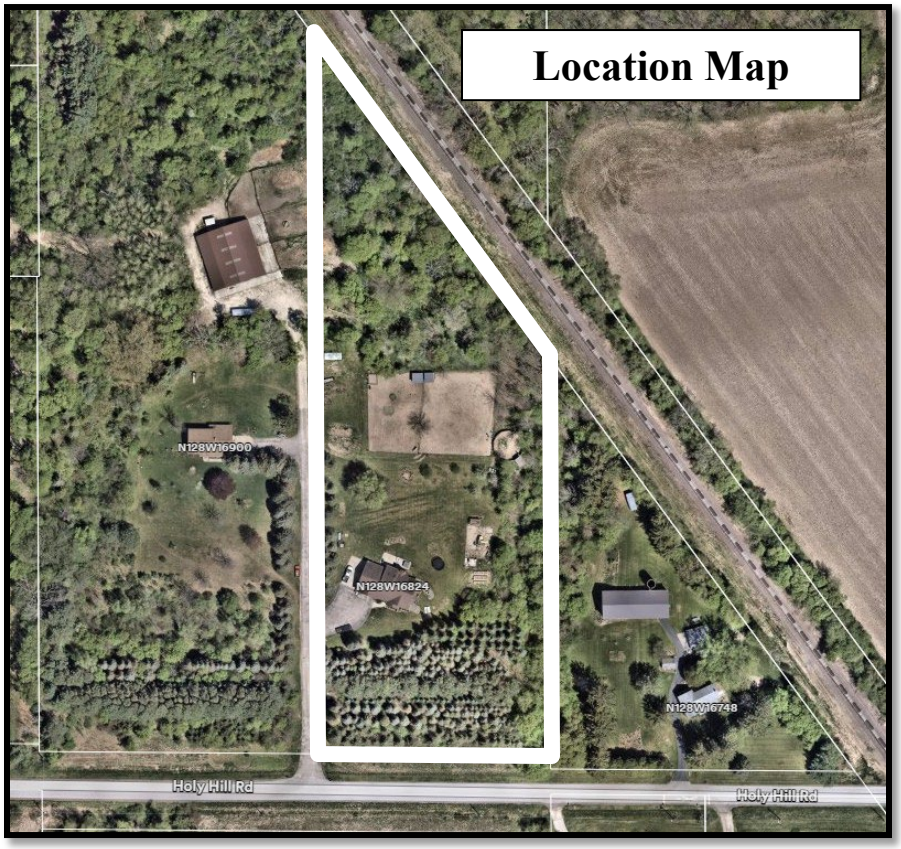
Joseph Schultz, Property Owner of N128W16824 Holy Hill Road. Request for a variance from the architecture and exterior materials requirements under Section 17.41(2a) of the Zoning Code for a detached accessory building.

Property Location: N128W16824 Holy Hill Road

Applicant/Owner: Joseph Schultz
N128W16824 Holy Hill Road
Germantown, WI 53022

Zoning: Rs-1: Single-Family Residential District

Adjacent Land Uses		Zoning
North	Agricultural	A-2
South	Agricultural	A-2
East	Residential	Rs-2
West	Residential	Rs-1



Proposal/Background

Joseph Schultz, property owner of N128W16824 Holy Hill Road, is requesting a variance from the architecture and exterior materials requirements under Section 17.41(2a) of the Zoning Code for a detached accessory building.

As indicated in the application materials, the owner is requesting approval to construct a 50' x 84' (4,200 sqft) detached accessory building (pole building) for personal use. The proposed building will incorporate metal siding and roof materials with brown/tan colors. Section 17.41(2a) of the Zoning Code requires detached accessory buildings over 160 square feet to have "…a similar architectural appearance and exterior material as the dwelling on the property." The existing dwelling (image attached) has green Hardie plank siding and a copper metal roof.

The Schultz building proposal has been referred to the Plan Commission pursuant to Section 17.41(2a) of the Zoning Code that requires accessory buildings greater than 160 sqft to have a similar architectural appearance and exterior materials as the dwelling unless a variance is granted by the Plan Commission:

17.41(2a) ARCHITECTURAL APPEARANCE AND MATERIALS. *(Cr. Ord. #02-18) In single-family and 2-family zoning districts (Rs-1 through Rs-7 and Rd-2), accessory buildings which exceed 160 square feet in area shall be of a similar architectural appearance and exterior material as the dwelling on the property. For accessory buildings greater than 160 square feet in area, the Plan Commission may, in circumstances which it deems appropriate, grant a variance to this requirement and approve different architecture and/or exterior materials with a Zoning Permit.*

In 2018 the Village made several revisions to the accessory building allowances for all the residential districts. Generally speaking, the number, size, and height of accessory buildings in all the residential districts was increased to allow more, taller, and larger accessory buildings. The Village also revised the provision that requires the architecture and materials of larger accessory buildings to be like those of an existing dwelling on a property. The revisions made were to add the word "similar" (vs. "same") and to allow the Plan Commission the ability to approve different materials and architecture (vs. an owner filing an appeal to the Board of Zoning Appeals). The requirement is less stringent, and the process is streamlined compared to years ago for owners to seek a "variance" from this requirement if the architecture and materials for a proposed accessory building are different. In 2021, the Plan Commission reviewed the ordinance adopted in 2018 and directed staff to leave the ordinance as written with respect to the "similar architectural appearance and exterior material…" requirement.

Staff Comments

As indicated above, the Plan Commission has the authority to approve the architectural appearance and exterior materials for residential accessory buildings that the Zoning Administrator and/or Building Inspector determine do not meet the requirements of Section 17.41(2a). In doing so, the Plan Commission acting as the Architectural Review Board is to consider the following principles pursuant to Section 17.49(3) of the Zoning Code:

a) *No building shall be permitted, the design or exterior appearance of which is of unorthodox or abnormal character in relation to its surroundings as to be unsightly or offensive to generally accepted taste and community standards.*
b) *No building shall be permitted, the design or exterior appearance of which is so identical with those adjoining as to create excessive monotony or drabness.*
c) *No building shall be permitted where any exposed facade is constructed or faced with a finished material which is aesthetically incompatible with the other facades, and which presents an unattractive appearance to the public and to surrounding properties.*
d) *No building or sign shall be permitted to be sited on the property in a manner which would unnecessarily destroy or substantially damage the natural beauty of the area, particularly insofar as it would adversely affect values incident to ownership of land in that area; or which would unnecessarily have an adverse effect on the beauty and general enjoyment of existing structures on adjoining properties.*

The applicant has provided building details and an example image showing exterior materials and color specifications for the proposed detached accessory building (pole building). The pole building will be finished with metal siding and roof materials with brown/tan colors. An image of the existing dwelling provided by the applicant is attached to this memo, which shows the dwelling's green Hardie plank siding and copper metal roof.

Although the proposed pole building incorporates metal materials for its siding (vs. Hardie plank siding on home), staff understands the metal materials were chosen based on durability and affordability. Additionally, the metal roof of the pole building will generally align with the copper metal roof on the existing dwelling. Given these reasons, the fact that the property is situated in a rural residential setting, and the adjacent property to the west has an existing pole building of similar style, staff supports the variance and finds that the above principles are upheld.

VILLAGE STAFF RECOMMENDATION

APPROVE the Zoning Permit application for an architectural variance from Section 17.41(2a) of the Zoning Code to construct a detached accessory building (pole building) with metal siding/roof materials on property located at N128W16824 Holy Hill Lane.

Village of Germantown ...Willkommen

SCANNED

Fee must accompany application.

- ☐ $210 Zoning Permit (New construction or tenant occupancy)
- ☒ $30 Residential/Agricultural (accessory buildings, fences & other minor items)
- ☐ $60 Non-Residential (accessory buildings, fences & other minor items)

Paid On: 4/23/26 Check/CC #2247

ZONING COMPLIANCE / OCCUPANCY PERMIT

Please read and complete this application carefully. **All applications must be signed and dated.**

APPLICANT/AGENT:
Joseph Schultz
N128 W16824 Holy Hill Rd
Germantown WI 53022

Phone [redacted]

Email [redacted]

PROPERTY OWNER:
Joseph Schultz
N128 W16824 Holy Hill Rd
Germantown WI 53022

Phone [redacted]

PLEASE NOTE: Applicant contact information has been redacted for security purposes.

PROPERTY ADDRESS	TAX KEY NUMBER
N128 W16824 Holy Hill Rd	103981

DESCRIPTION OF PROPOSED USE (Describe improvements, structures, uses and activities conducted, services provided, products made or sold, # of employees, hours of operation, etc. that will enable Zoning Administrator to determine if the proposed use or operation complies with the applicable zoning district and/or other use restrictions that may apply to the subject property. Use back side or additional sheets as needed):

person vehicle storage

50' X 84'
4,200 SQ FT

READ AND INITIAL THE FOLLOWING:

- ☐ I understand that Village Staff may request additional information to properly evaluate this request and failure to provide such information may in itself by sufficient cause to deny the petition.
- ☐ I understand that Village Staff can impose conditions or other requirements necessary in order to meet and/or remain in compliance with the Village's Zoning Codes and/or other Village requirements that may apply to the subject property.

INCLUDE THE FOLLOWING WITH YOUR APPLICATION:

- ☐ A scaled site plan showing location of proposed use on the property (not required if within building).
- ☐ Other Information required by Zoning Administrator

VILLAGE USE ONLY

RECEIVED
APR 23 REC'D
OFFICE OF THE VILLAGE PLANNER
VILLAGE OF GERMANTOWN

SIGNATURES: ALL APPLICATIONS MUST BE SIGNED

Applicant 4-23-26 Date

Owner Date

Revised 12/5/25

Sharepoint>06-APPLICATIONS ALL>Application Forms>Zoning Compliance

METROPOLITAN ENGINEERING, INC.

ENGINEERS - LAND SURVEYORS
20875 CROSSROADS CIRCLE, SUITE 150 WAUKESHA, WI 53186
(262) 782-2221 FAX 782-4426

PLAT OF SURVEY

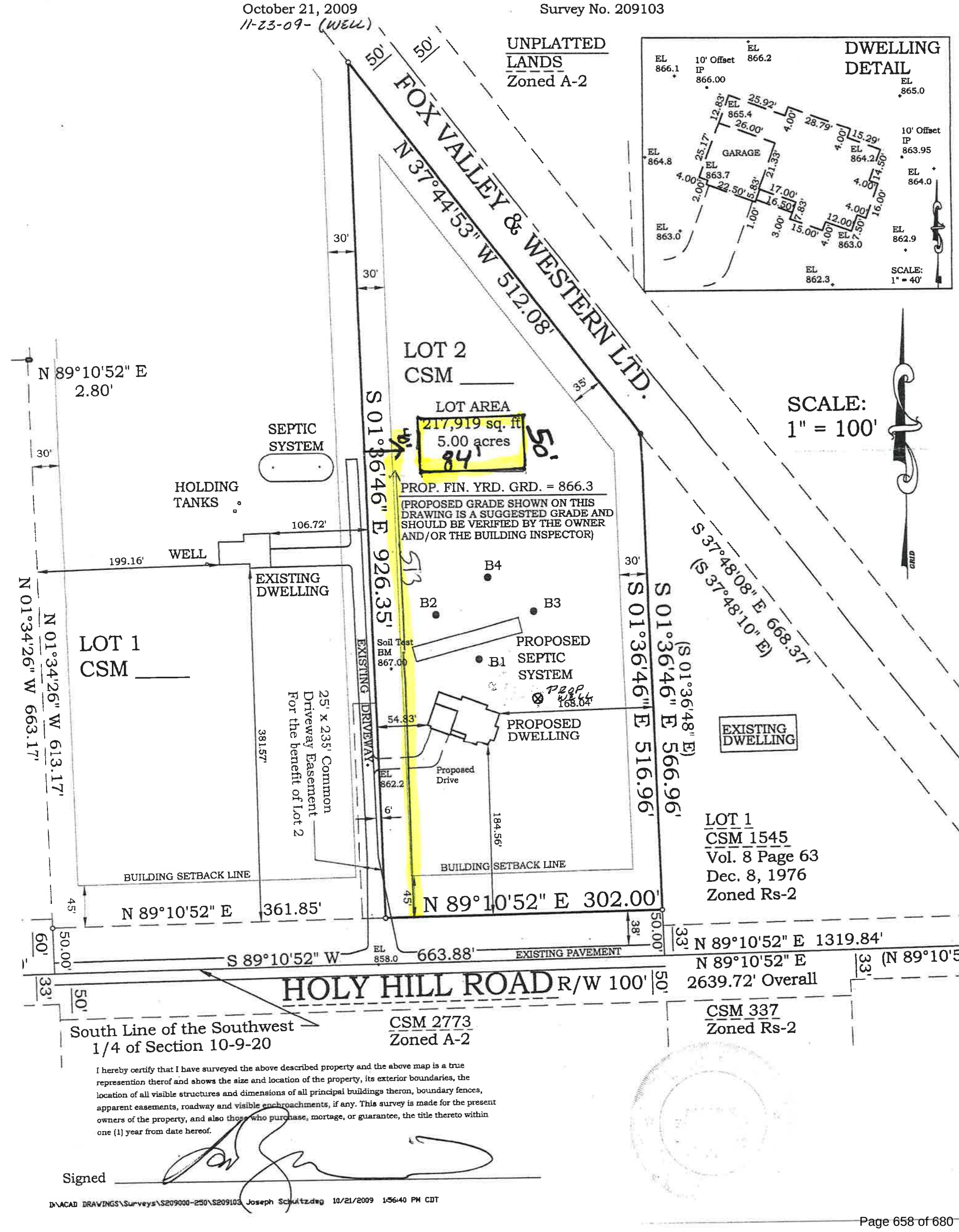
PREPARED FOR: JOSEPH SCHULTZ

LOCATION: Holy Hill Road, Germantown, WI 53022

LEGAL DESCRIPTION: LOT 2 in CERTIFIED SURVEY MAP NO. _____, being a part of the Northwest 1/4 and the Southwest 1/4 of the Southwest 1/4 of Section 10, Township 9 North, Range 20 East, in the Village of Germantown, Washington County, Wisconsin.

October 21, 2009
11-23-09- (WELL)

Survey No. 209103



I hereby certify that I have surveyed the above described property and the above map is a true represention therof and shows the size and location of the property, its exterior boundaries, the location of all visible structures and dimensions of all principal buildings theron, boundary fences, apparent easements, roadway and visible enchroachments, if any. This survey is made for the present owners of the property, and also those who purchase, mortage, or guarantee, the title thereto within one (1) year from date hereof.

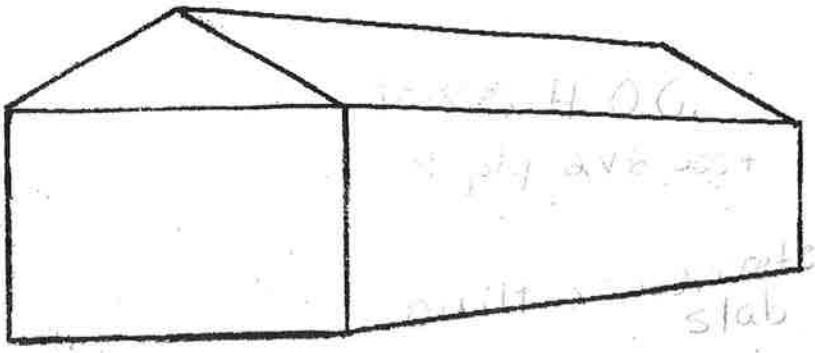
Signed _____

D:\ACAD DRAWINGS\Surveys\S209000-250\S209103 Joseph Schultz.dwg 10/21/2009 1:56:40 PM CDT

Price Quotation

Bontrager Construction

Mervin and Mary Ellen Bontrager
W2432 County Road E
Cambria, WI 53923



SOLD TO:
NAME Joe Schultz
ADDRESS N128 W16824 Holy Hill Rd
CITY Germantown STATE WI ZIP 53032
PHONE 1-414-397-1670 PUR. ORD. # Qu 2604-5033053

BUILDING DIMENSIONS
WIDTH 50'
LENGTH 84'
WALL HEIGHT 16'
PITCH TO RIDGE 4/12

MATERIAL SELECTION
Wainescote
Peaklite
Sidelite
Windows
Roof
Side
Trim
Serv Door
Slide Dr
O H Dr
Vents
Nails
Screws
Cupola
Insol.
Soffitt
Poured Walls
Flatwork
Radiant Heat

QUANTITY	DESCRIPTION	UNIT PRICE	TOTAL
	#1 28 ga. 40 yr G-rib		14,516.00
	trim material		2,610.00
2x8 trim 5/8" arch	lumber material + headers		8,180.00
SW 60 bdt	ply 2x6 post on slab		6,800.00
	trusses 4 O.C.		6,940.00
	24" soffit all around		1,280.00
gable 3	CHT 12 x 14 3285 glass + operators		11,700.00
blank 1	3285 10' x 10 Hi-rise on side no oper		2,110.00
	wainscote all around		300.00
8	4x3 sliders		1,680.00
R-11 foil	f cougar shield all around		3,100.00
2	36" 20ST service w/ lite stack		1,120.00
	crane labor		1,350.00
	labor on all		16,850.00
			78,336.00

CUSTOMER SIGNATURE

DATE OF ORDER

Mervin Bontrager
ORDER RECEIVED BY BONTRAGER CONSTRUCTION

4-1-26
DATE RECEIVED

end April [illegible] 2026
APPROXIMATE BUILDING DATE

KEEP SECOND COPY RETURN THIRD COPY TO BONTRAGER CONSTRUCTION WITH ORDER

Elevation Views

SIGN PERMIT APPLICATION

6/8/26 Plan Commission Meeting

Signs & Gear / Maple German LLC

Village Staff Report & Recommendation ***Germantown, Wisconsin***

SUMMARY

Signs & Gear, agent for Maple German LLC, property owner, is requesting approval of a new monument sign for the multi-tenant retail building located at W188 N10707 Maple Road in the "Lannon-Mequon Road Corridor".

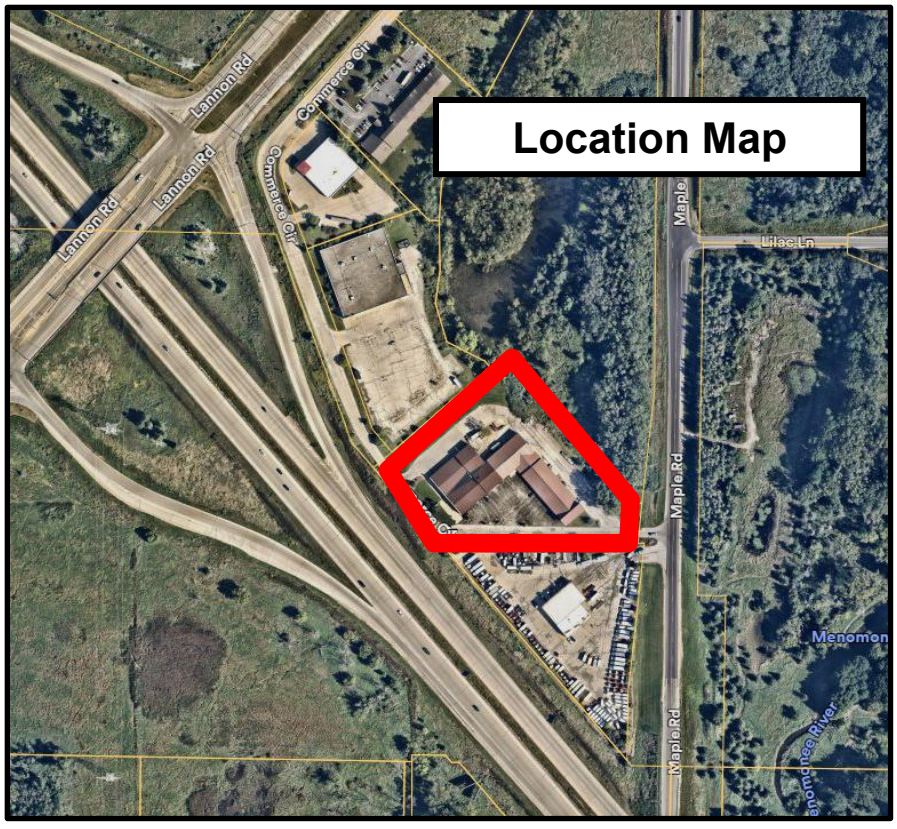
Location: W188 N10707 Maple Road

Applicants/ Owner:

Signs & Gear 12605 W North Ave Brookfield, WI 53005	Ralph Willing W188 N10707 Maple Road Germantown, WI 53022

Zoning: B-1: Neighborhood Business District

Adjacent Land Uses		Zoning
North	Business	B-1
South	Highway Business	B-5
East	Agricultural	A-1
West	Institutional / I-41	I



Proposal

Signs & Gear, agent for Maple German LLC, property owner, is requesting approval of a new monument sign for the multi-tenant retail building located at W188 N10707 Maple Road in the "Lannon-Mequon Road Corridor".

This sign replaces a previously installed and non-conforming pylon sign that was damaged by wind in 2025. The proposed sign is intended to serve a total of three (3) tenants, including two existing tenants: Grand Appliance and BBQ Grills of WI. The proposed sign is described below:

Monument Sign

- (1) Monument sign comprised of a two-sided, internally illuminated fixed cabinet measuring 11' tall x 11' wide (120 sqft per side) mounted on a sign base comprised of split-faced concrete block measuring 4' tall x 11' wide for a total height of 15' tall above the finished ground elevation.

Staff Comments

The proposed monument signs comply with the sign regulations for a multi-tenant monument sign with single road frontage (one monument sign per road frontage with a maximum of 120 sqft per side/240 total sqft and a maximum height of 15 feet).

Dimensions are not shown for the address coordinates but must be a minimum of 5" high. Landscaping around the sign base will be provided in a mulched area 5' x 14' with (10) low growing evergreen shrubs.

VILLAGE STAFF RECOMMENDATION

APPROVE the proposed monument sign for the Maple German LLC property located at W188 N10707 Maple Road subject to the following conditions:

1. Applicant/owner shall obtain an electrical permit(s) from Building Inspection Services prior to sign installation.

Village of Germantown ...Willkommen

SCANNED

Fee must accompany application

~~$275~~ 320 Sign Review Fee

$ 75 Sign Face Replacement

Paid 4/23/26 date ck#1952

SIGN REVIEW APPLICATION

Pursuant to Section 17.46 of the Municipal Code

Please read and complete this application carefully. **All applications must be signed and dated.**

1 APPLICANT OR AGENT

Signs + Gear
12605 W. North Ave #123
Brookfield WI. 53005

Phone [redacted]
Fax ( )
E-Mail [redacted]

PROPERTY OWNER

Daryl Willing
Maple German
W188N10707 Maple Rd.
Germantown WI 53022

Phone [redacted]

PLEASE NOTE: Applicant contact information has been redacted for security purposes.

2 PROPERTY ADDRESS OR GENERAL LOCATION

W188N10707 Maple Rd.
Germantown WI. 53022

3 SIGN INFORMATION

Sign Dimensions 132" height x 132" width
Single/Multi Tenant (circle one)
Number of Sides 2
Building Frontage SF 90,000.0 ABOUT
Total Square Footage of Sign (include all sides) 121
Total height of the Sign 180"
Is the Sign to be illuminated X (yes) ____ no
Type of Sign Construction Materials aluminum, acrylic, LED
Distance to Closest Property Line ~~30ft~~ 55ft

Are there any existing signs on the property yes
If yes, what is the total Square Footage of existing signs 90

What are the intentions for the existing signs: Take down X Remain ____

4 SIGNATURES -- ALL APPLICATIONS MUST BE SIGNED BY OWNER!

D'Shawyer 12/3/25
Applicant Date

Owner 12.8.25 Date

Resubmitted 4/23/26

RECEIVED
APR 23 REC'D
OFFICE OF THE VILLAGE PLANNER
VILLAGE OF GERMANTOWN

Proposed Signage- Box Sign Double Sided

Sign Details:
Size-132" x 132"
Cabinet Depth-24"
Cabinet Color-Red
Face Type-RSF with Push Thru
Face Size-30" x 132"
Switch Placement-Left
Lighting -LED

COLORS ON PROOF MAY VARY FROM ACTUAL PRODUCT USED

ELECTRICAL

120-208 Volts
20 Amps

PRIMARY ELECTRICAL CONNECTIONS TO BE MADE BY LICENSED ELECTRICAL CONTRACTORS

SQFT CALCULATION	
Wide:	132"
High:	132"
Total SQFT:	121sqft

The SIGN GUYZ
4600 N 124th ST
Wauwatosa, WI 53225
414-779-1092

Date
04/16/26

Project Name
Wil-surge

Address
Maple Rd

Sign Type
Box Sign Double Sided

Project Manager
Scott A

Designer
Scott A

CUSTOMER TO PROVIDE:
ALL BRANCH (PRIMARY ELECTRICAL SERVICE) CIRCUITS & FINAL CONNECTION TO EACH SIGN (WITHIN 6 FT.) TO BE BY CERTIFIED ELECTRICIAN:

A. All branch circuits for signs must be totally dedicated to signs (including dedicated ground and dedicated neutral per circuit).
B. Sign circuits must not be shared with other loads such as lighting, air conditioning, and other equipment.
C. Properly sized ground wire that can be traced back to the breaker panel must be provided.
D. Number and size of circuits for each sign to meet Sign Company Sign's requirement.
Any deviation from the above recommendations may result in:
1. Damage to or improper operation of the sign(s).
2. Delays and additional costs.

THIS IS AN ORIGINAL UNPUBLISHED DRAWING CREATED BY SIGNS & GEAR. IT IS SUBMITTED FOR YOUR PERSONAL USE IN CONNECTION WITH A PROJECT BEING PLANNED FOR YOU BY SIGNS & GEAR. IT IS NOT TO SHOWN TO ANYONE OUTSIDE YOUR ORGANIZATION, NOR IS IT TO BE USED, REPRODUCED, COPIED OR EXHIBITED IN ANY FASHION.
THIS SIGN IS INTENDED TO BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 600 OF THE NATIONAL ELECTRICAL CODE AND/OR OTHER APPLICABLE LOCAL CODES.
THIS INCLUDES PROPER GROUNDING AND BONDING OF THE SIGN.

Init.

Overlays are for illustrative purposes only.
Final result, size of sign & scale may vary very slightly.

WIL - SURGE
ELECTRICAL | MECHANICAL | EXCAVATION

Village of Germantown

Jeffery Retzlaff AICP

Community Development Department 4/14/26

Re: Fallen Sign Replacement Permit
Maple-German Property
W188 N10707 Maple Rd
Germantown, WI 53022

Enclosed Find
1-Sign Review Application
2- Sign-Re-done per letter
From Jordan Yankee 3/25/26
Wil-surge Sign (Attached)
3- Check From S.G Wholesale #1952 $320
4- Site Plan Sign Location
5- Sign Foundation Plan

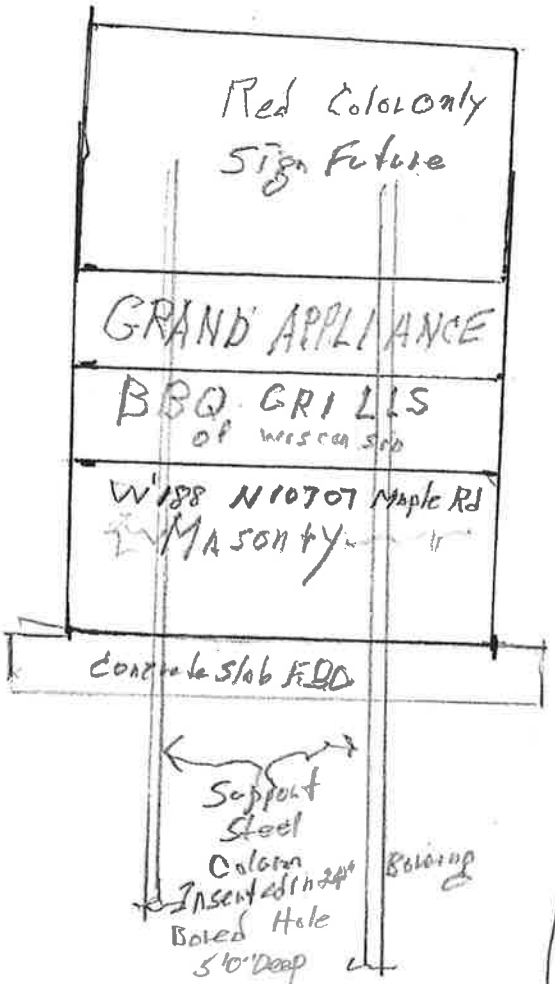
Any Questions or Concerns please contact,
Ralph Willing
262-613-1148
RGWW@ymail.com

Ralph Willing

13201 West Silver Spring Road • Butler, WI 53007
@wilsurge.com • 262-781-9210 ext.

Will Surge Electric
W188 N10707 Maple Rd
Germantown WI 53022
Replacement + Existing Sign Location

Sign
Contractor Signs + Gear
4600 N124th St
Wauwatosa Wis
414-799 1092



Wide 132"
High 132"
Total Sq Ft 121
Electrical 120/20A
20 Amp

Sign Revised 4/2/26
Project Manager
Ralph Williams
262-613-1148
Reviewed by Mailo Com

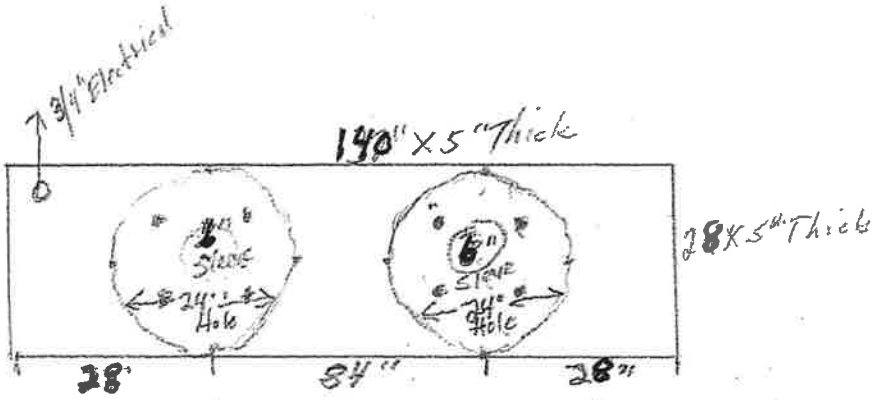
Sign Foundation

W.I Surge Electric

W188N10727 Maple Rd

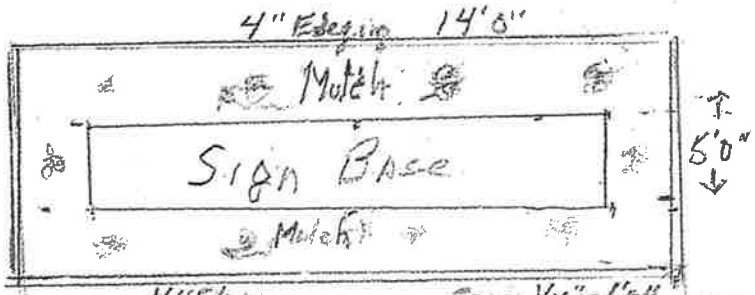
Germantown Wis. 53022

Location along Hy 41 Sign 4/2/26



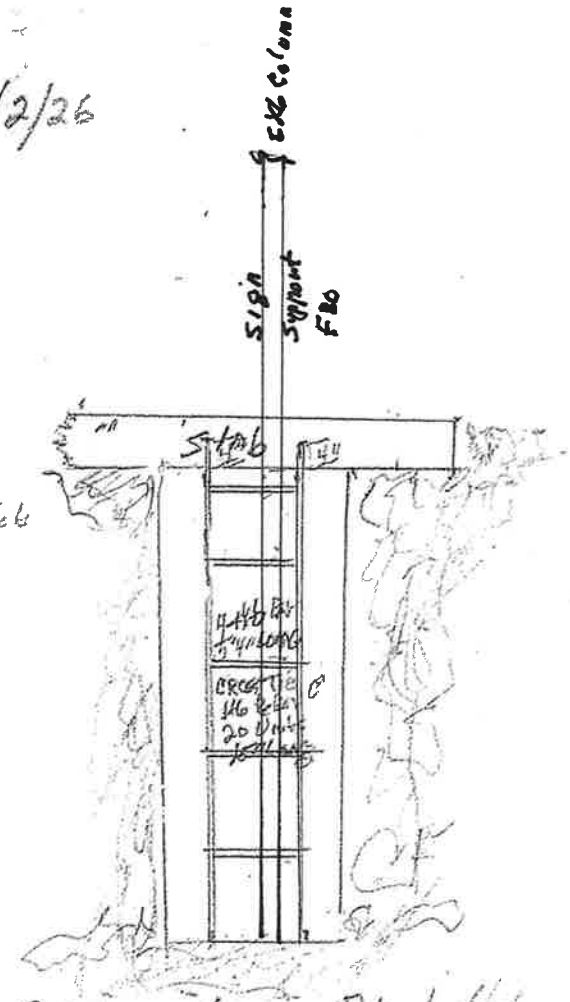
5" Thick Concrete Slab

With #6 Mesh wire



3 Sister Landscaping - 10 Low Schrubs

Landscaping Site Plan

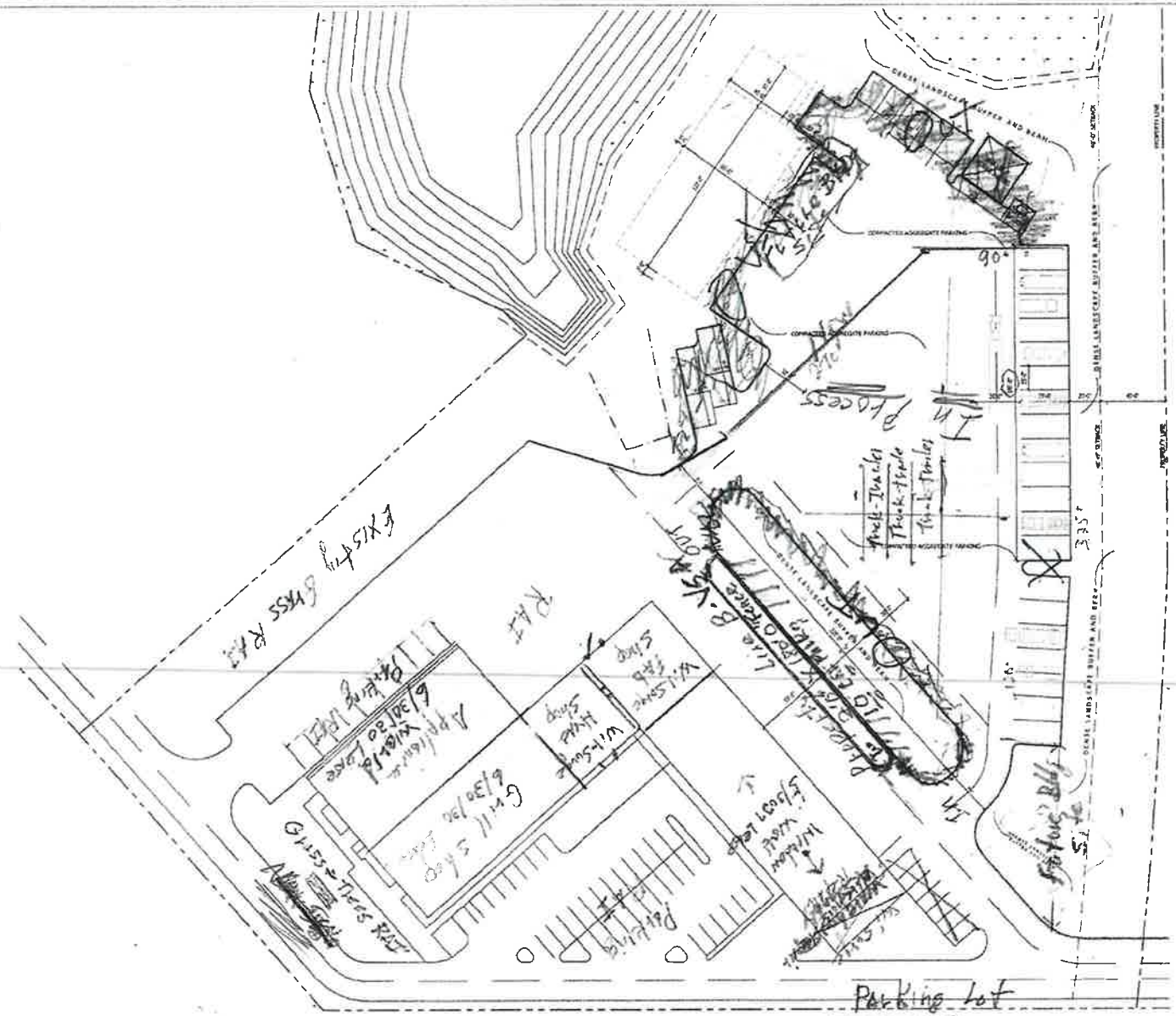


24" Dia 5'6" Deep Bored Hole

With Sleeve for Sign

X2 - Right and Left

Scale 1/2" = 1'0"


Existing Grass Area
Parking Lot
Gravel Storage Area
Asphalt Paving
Wil-Surge Shop
Gravel Storage Area
Asphalt Paving
Wil-Surge Shop
Existing Trees Row
Existing Trees
Existing Trees
Existing Trees

320.00

Checking Rd 320.00

Village of
Germantown

Village of Germantown
Clerk Treasurer
N112W17001 MEQUON ROAD
Germantown, WI 53022
(262)250-4700
Welcome

04/23/2026 01:40PM PRAVINA P
001114-0126
Payment effective date 04/22/2026

MISCELLANEOUS
ZONING FEES (GENZON)
2026 GENZON
1 @ $320.00 $320.00

$320.00

Subtotal $320.00
Total $320.00

Tenders
CHECK $320.00
Check Number1952

Change due $0.00

Thank you for your payment

CUSTOMER COPY

ZONING PERMIT REVIEW

06/08/26 Plan Commission Meeting

Keaton Harrison

Village Staff Report & Recommendation ***Germantown, Wisconsin***

SUMMARY

Keaton Harrison, Property Owner. Zoning Permit application to install a 6' fence in a public drainage easement on property located at W142N9935 Amber Drive.

Property Location: W142N9935 Amber Drive

Property Owner: Keaton Harrison
W142N9935 Amber Drive
Germantown, WI 53022

Zoning: Rd-2: One-Family and 2-Family Residential District

Adjacent Land Uses		Zoning
North	Single-Family Residential	Rd-2
South	Single-Family Residential	Rd-2
East	Single-Family Residential	Rd-2
West	Single-Family Residential	Rd-2

Background/Proposal

Keaton Harrison, Property Owner. Zoning Permit application to install a 6' fence in a public drainage easement on property located at W142N9935 Amber Drive.

As indicated in the supporting documentation, the applicant would like to install a 6’ high cedar privacy fence around the rear yard with bottom of fence 2”-3” above grade. The proposed fence would encroach into a public drainage easement that runs through a portion of the rear yard (see attached site plan/survey). Per field inspection done by staff, no evidence of an underground storm pipe/utility could be found. It appears the drainage easement serves the purpose of directing surface flow water through the easement and to the south towards a drain pipe. See attached site photos for reference.

Note that Section 17.50(2)(f)6. of the Zoning Code restricts fences from being installed within a publicly owned and maintained drainage easement, except when authorized by the Plan Commission:

6. Fences and Easements.

- ***i. Fences should not be located within any type of utility or private easement unless written authorization to install said fence is provided to the Village at the time a building permit is submitted by the utility owner and/or beneficiary of the easement.***
- ***ii. The Plan Commission may authorize the installation of a fence in a publicly owned and maintained drainage easement where the owner of the land encumbered by the easement shows to the satisfaction of the Plan Commission that, considering the proposed location, design, and materials of the proposed fence, the encroachment of the fence into the easement will not materially interfere with drainage flow within the easement, and, in the case of a subdivision, the homeowners association consents in writing to the encroachment, or if not in a subdivision, the adjacent landowners consent in writing.***
- ***iii. If the Plan Commission deems it necessary in order to make its decision to authorize an encroachment into a drainage easement by a fence, it may require that the applicant provide a report by a professional engineer providing an opinion that the encroachment will not impair drainage flow within the easement.***
- ***iv. Should it be necessary and in the public interest for the Village or its designee to remove a fence installed in a publicly owned and maintained easement or right-of-way, all costs (materials and labor) shall be borne by the owner of the fence.***
- ***v. If the installation of a fence in a public drainage easement is approved, the Plan Commission may require as a condition of approval that the property owner enter into an agreement with the Village that the property owner assumes responsibility for removing and/or replacing the fence and any other damages or costs if access to or maintenance of the easement is required by the Village.***
- ***vi. If the applicant whose property abuts the drainage way shall be aggrieved by the decision of the Plan Commission, such aggrieved person may appeal the decision to the Village’s Board of Zoning Appeals by filing an appeal within thirty (30) days after the date of the Plan Commission’s decision.***

Staff Analysis

The Plan Commission may authorize the installation of a fence in a publicly owned and maintained drainage easement where the owner of the land encumbered by the easement shows to the satisfaction of the Plan Commission that, considering the proposed location, design, and materials of the proposed fence, the encroachment of the fence into the easement will not materially interfere with drainage flow within the easement, and, in the case of a subdivision, the homeowners association consents in writing to the encroachment, or if not in a subdivision, the adjacent landowners consent in writing.

Regarding drainage flow interference, the applicant has proposed a 6' cedar privacy fence and advises that they will install the fence with the bottom 2"-3" above grade. Regarding the Homeowner's Association (HOA) provision, staff understands there is no active HOA for the Autumn Ridge Subdivision.

As discussed during a number of similar fence proposals (i.e. in a public easement) over the past year, **"if the Plan Commission deems it necessary in order to make its decision to authorize an encroachment into a drainage easement by a fence, it may require that the applicant provide a report by a professional engineer providing an opinion that the encroachment will not impair drainage flow within the easement."** Also like recent fence proposals within easements that the Plan Commission has considered, this application does not include a report by a professional engineer at this point, so the PC will need to review the details associated with the fence/property and determine whether a report is required prior to PC action or as a condition of approval prior to issuance of a fence permit.

The Public Works Department recommends fences to be installed outside of easements, but in the event a fence is authorized to be installed in a publicly maintained easement they recommend that extreme caution be taken when installing the fence. Furthermore, the Public Works Department recommends that the Village be held harmless in the event the fence needs to be removed for any reason and not be made responsible for any costs associated with removal and/or replacement. These recommendations have been reflected in the conditions of approval.

VILLAGE STAFF RECOMMENDATION

APPROVE the zoning permit application to install a 6’ cedar fence in a public drainage easement along the western (rear) lot line of property located at W142N9935 Amber Drive, subject to the following conditions:

1. A fence permit is required from Building Inspection Services. The property owner is required to contact SAFEBuilt Inspection Services for more information.
2. The property owner shall enter into an encroachment agreement with the Village that specifies the property owner assumes responsibility for removing and/or replacing the fence and any other damages or costs if access to or maintenance of the easement is required by the Village.
3. It shall be the responsibility of the homeowner to maintain a free flow of water within the drainage easement at all times. Bottom of fence shall be installed at 3” above grade.
4. If the fence needs to be removed to make improvements and/or conduct maintenance within the easement, the property owner shall be responsible for all costs associated with removing the fence to the extent necessary within seven (7) days of being notified by the Village (or another mutually agreeable deadline). The property owner shall be responsible for any and all costs associated with any damage, removal, or re-installation of said fence.

Village of SCANNED
Germantown
...Willkommen

Fee must accompany application.

- ☐ $210 Zoning Permit (New construction or tenant occupancy)
- ☒ $30 Residential/Agricultural (accessory buildings, fences & other minor items)
- ☐ $60 Non-Residential (accessory buildings, fences & other minor items)

Paid On: 4/29/26 Check/CC Cash

ZONING COMPLIANCE / OCCUPANCY PERMIT

Please read and complete this application carefully. **All applications must be signed and dated.**

APPLICANT/AGENT:

Keaton Harrison
W142N9935 Amber drive
Germantown WI 53022

Phone [redacted]

Email [redacted]

PROPERTY OWNER:

Same

Phone ( )

PLEASE NOTE: Applicant contact information has been redacted for security purposes.

PROPERTY ADDRESS	TAX KEY NUMBER
W142N9935 Amber drive Germantown WI 53022	GTNV 354-084

DESCRIPTION OF PROPOSED USE (Describe improvements, structures, uses and activities conducted, services provided, products made or sold, # of employees, hours of operation, etc. that will enable Zoning Administrator to determine if the proposed use or operation complies with the applicable zoning district and/or other use restrictions that may apply to the subject property. Use back side or additional sheets as needed):

Installation of a 6' cedar fence in the backyard within the drainage easement. Fence will be 2" above the grade and at least 5 feet away from the low points in the easement.

READ AND INITIAL THE FOLLOWING:

☒ I understand that Village Staff may request additional information to properly evaluate this request and failure to provide such information may in itself by sufficient cause to deny the petition.

☒ I understand that Village Staff can impose conditions or other requirements necessary in order to meet and/or remain in compliance with the Village's Zoning Codes and/or other Village requirements that may apply to the subject property.

RECEIVED
APR 29 REC'D
OFFICE OF THE VILLAGE PLANNER
VILLAGE OF GERMANTOWN

INCLUDE THE FOLLOWING WITH YOUR APPLICATION:

☒ A scaled site plan showing location of proposed use on the property (not required if within building).

☒ Other Information required by Zoning Administrator

VILLAGE USE ONLY

SIGNATURES: ALL APPLICATIONS MUST BE SIGNED

Applicant — Date 4/28/26

Owner — Date 4/28/26

Revised 12/5/23

1" = 35' = 70'

GTNV 354 084

V Germantown
NE SE 35-9-20

Plat of Survey

SCALE 1" = 40'

JAHNKE & JAHNKE ASSOCIATES INC.

Consultants in Engineering, Planning, Subdivisions and Surveying

711 W. MORELAND BLVD. -- WAUKESHA, WISCONSIN 53188

TELEPHONE (414) 542-5797 FAX (414) 542-7698

FOR: BIELINSKI BROS. BUILDERS, INC. RE: KONOBRODSKI

LEGAL DESCRIPTION: Lot 84, AUTUMN RIDGE, being a subdivision of part of the NE 1/4 and part of the SE 1/4 of the SE 1/4 of Section 35, Town 9 North, Range 20 East, Village of Germantown, Washington County, Wisconsin.

Bench Mark 833.01 (USGS) Northwest sanitary sewer invert in manhole as shown.

833.14 - Existing elevation — Existing Top of Foundation 850.20

Suggested Residence Grade: First Floor 851.2* — Garage Opening 849.38

Top of Foundation 850.0* — 3/2/00 - **Basement constructed**

Proposed Yard Grade per Grading Plan 849.50 North — and located as shown.

847.50 South

*suggested grade only

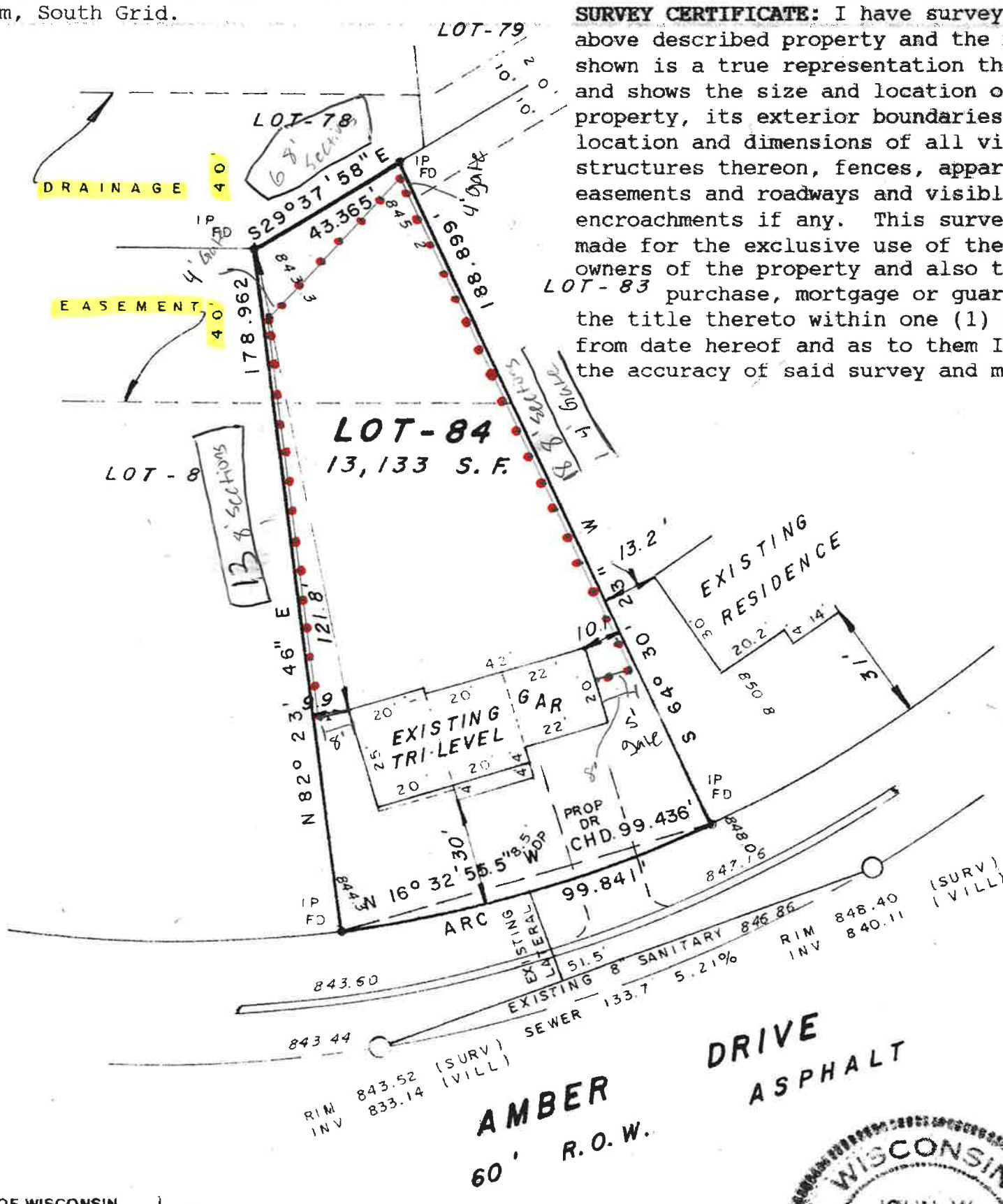
● Iron pipes found

NOTE: No pipes set as part of survey.

NOTE: Expose sanitary sewer lateral before construction to verify gravity flow from the basement.

REFERENCE BEARING: The south line of the SE 1/4 of Section 35 was used as the reference bearing and has a bearing of S88°02'36"W based on the Wisconsin State Plane Coordinate System, South Grid.

SURVEY CERTIFICATE: I have surveyed the above described property and the map shown is a true representation thereof and shows the size and location of the property, its exterior boundaries, the location and dimensions of all visible structures thereon, fences, apparent easements and roadways and visible encroachments if any. This survey is made for the exclusive use of the present owners of the property and also those who purchase, mortgage or guarantee the title thereto within one (1) year from date hereof and as to them I warrant the accuracy of said survey and map.



STATE OF WISCONSIN }
COUNTY OF WAUKESHA } SS.

WE, JAHNKE & JAHNKE ASSOCIATES INC., DO HEREBY CERTIFY THAT WE HAVE MADE THIS SURVEY AND THAT THE INFORMATION AS SHOWN ON THE ABOVE PLAT OF SURVEY IS TRUE AND CORRECT REPRESENTATION THEREOF.

Revised 1/31/00 (Restake)
3/2/00 (Basement survey)

DATED THIS 4th DAY OF January 2000

PLAT No. P.S. Washington 800 BOOK Wash 35 PAGE 6

WISCONSIN JOHN W. JAHNKE WAUKESHA, WIS. REGISTERED LAND SURVEYOR

JOHN W. JAHNKE, WIS. REG. NO. S-917

AUG 21 2000

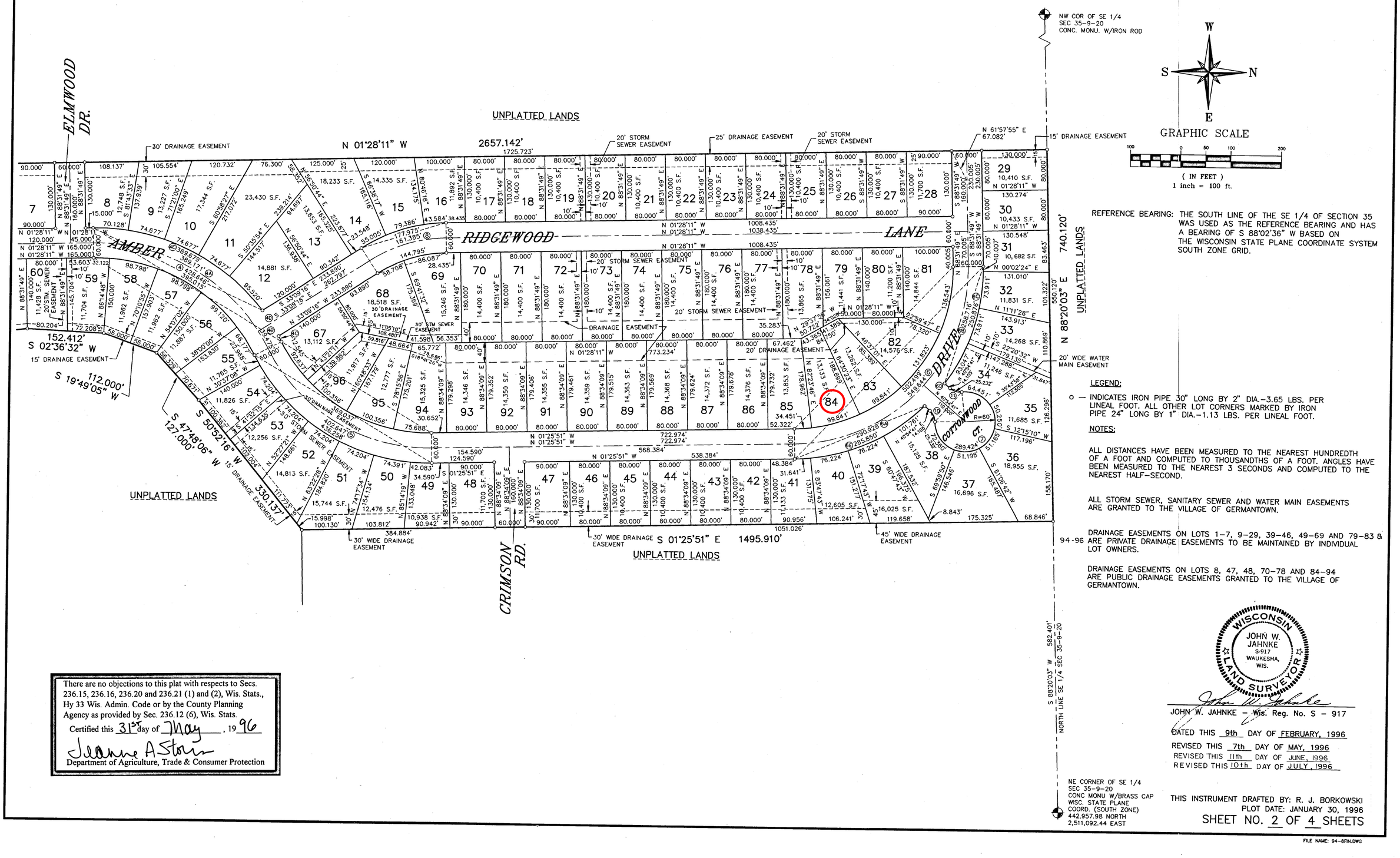
BLUEPRINT CO. 608321

725637

Map Book 33
Page 35

AUTUMN RIDGE

BEING A SUBDIVISION OF PART OF THE NE 1/4 AND PART OF THE SE 1/4 OF THE SE 1/4 OF SECTION 35, TOWN 9 NORTH, RANGE 20 EAST VILLAGE OF GERMANTOWN, WASHINGTON COUNTY, WISCONSIN



REFERENCE BEARING: THE SOUTH LINE OF THE SE 1/4 OF SECTION 35 WAS USED AS THE REFERENCE BEARING AND HAS A BEARING OF S 88°02'36" W BASED ON THE WISCONSIN STATE PLANE COORDINATE SYSTEM SOUTH ZONE GRID.

LEGEND:

o — INDICATES IRON PIPE 30" LONG BY 2" DIA.–3.65 LBS. PER LINEAL FOOT. ALL OTHER LOT CORNERS MARKED BY IRON PIPE 24" LONG BY 1" DIA.–1.13 LBS. PER LINEAL FOOT.

NOTES:

ALL DISTANCES HAVE BEEN MEASURED TO THE NEAREST HUNDREDTH OF A FOOT AND COMPUTED TO THOUSANDTHS OF A FOOT. ANGLES HAVE BEEN MEASURED TO THE NEAREST 3 SECONDS AND COMPUTED TO THE NEAREST HALF–SECOND.

ALL STORM SEWER, SANITARY SEWER AND WATER MAIN EASEMENTS ARE GRANTED TO THE VILLAGE OF GERMANTOWN.

DRAINAGE EASEMENTS ON LOTS 1–7, 9–29, 39–46, 49–69 AND 79–83 & 94–96 ARE PRIVATE DRAINAGE EASEMENTS TO BE MAINTAINED BY INDIVIDUAL LOT OWNERS.

DRAINAGE EASEMENTS ON LOTS 8, 47, 48, 70–78 AND 84–94 ARE PUBLIC DRAINAGE EASEMENTS GRANTED TO THE VILLAGE OF GERMANTOWN.

There are no objections to this plat with respects to Secs. 236.15, 236.16, 236.20 and 236.21 (1) and (2), Wis. Stats., Hy 33 Wis. Admin. Code or by the County Planning Agency as provided by Sec. 236.12 (6), Wis. Stats.

Certified this 31st day of May, 19 96

Jeanne A Storm
Department of Agriculture, Trade & Consumer Protection

WISCONSIN
JOHN W. JAHNKE
S-917
WAUKESHA, WIS.
LAND SURVEYOR

John W. Jahnke

JOHN W. JAHNKE – Wis. Reg. No. S – 917

DATED THIS 9th DAY OF FEBRUARY, 1996

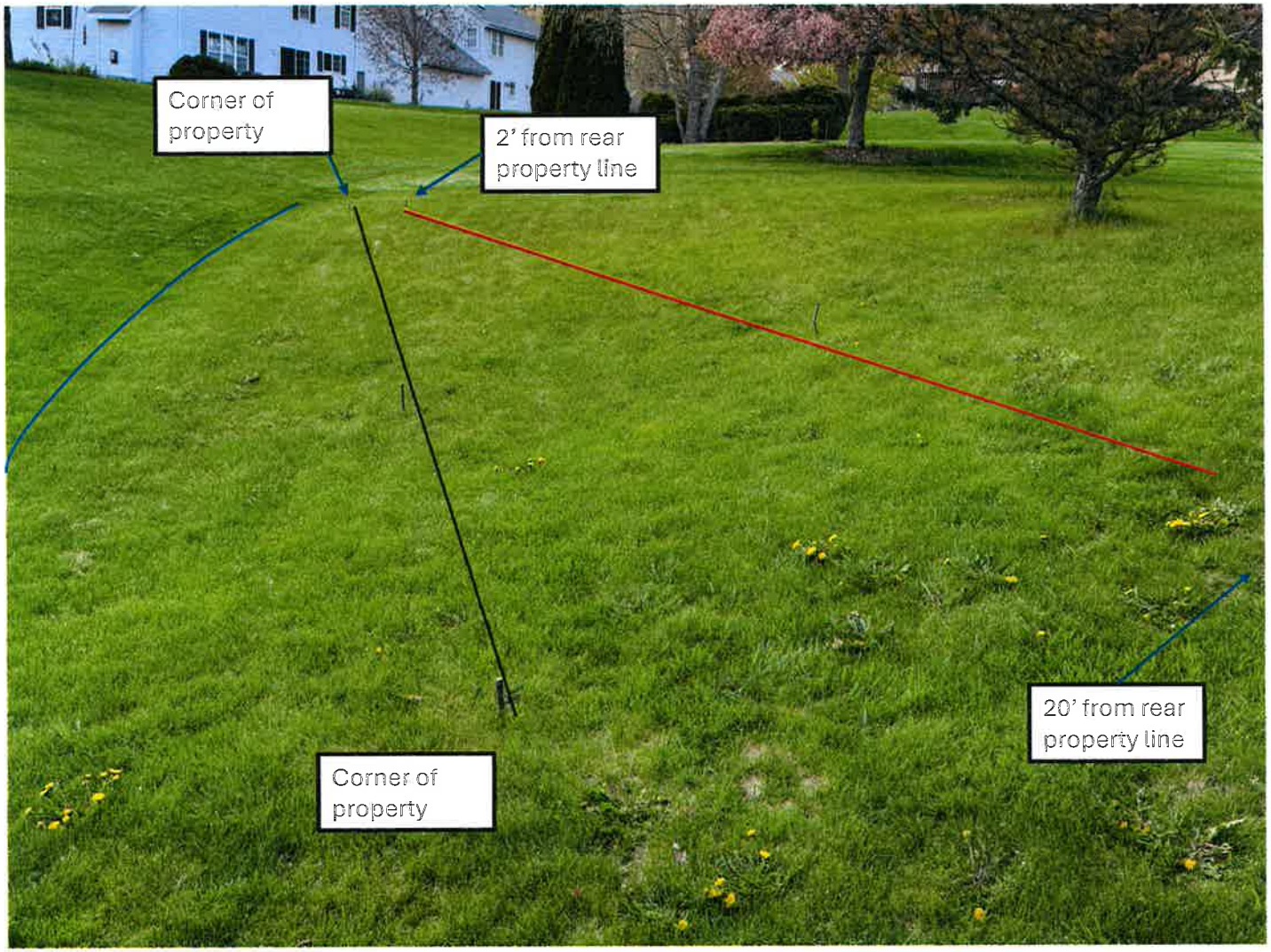
REVISED THIS 7th DAY OF MAY, 1996
REVISED THIS 11th DAY OF JUNE, 1996
REVISED THIS 10th DAY OF JULY, 1996

NE CORNER OF SE 1/4 SEC 35-9-20 CONC MONU W/BRASS CAP WISC. STATE PLANE COORD. (SOUTH ZONE) 442,957.98 NORTH 2,511,092.44 EAST

THIS INSTRUMENT DRAFTED BY: R. J. BORKOWSKI
PLOT DATE: JANUARY 30, 1996

SHEET NO. 2 OF 4 SHEETS

FILE NAME: 94-8FIN.DWG

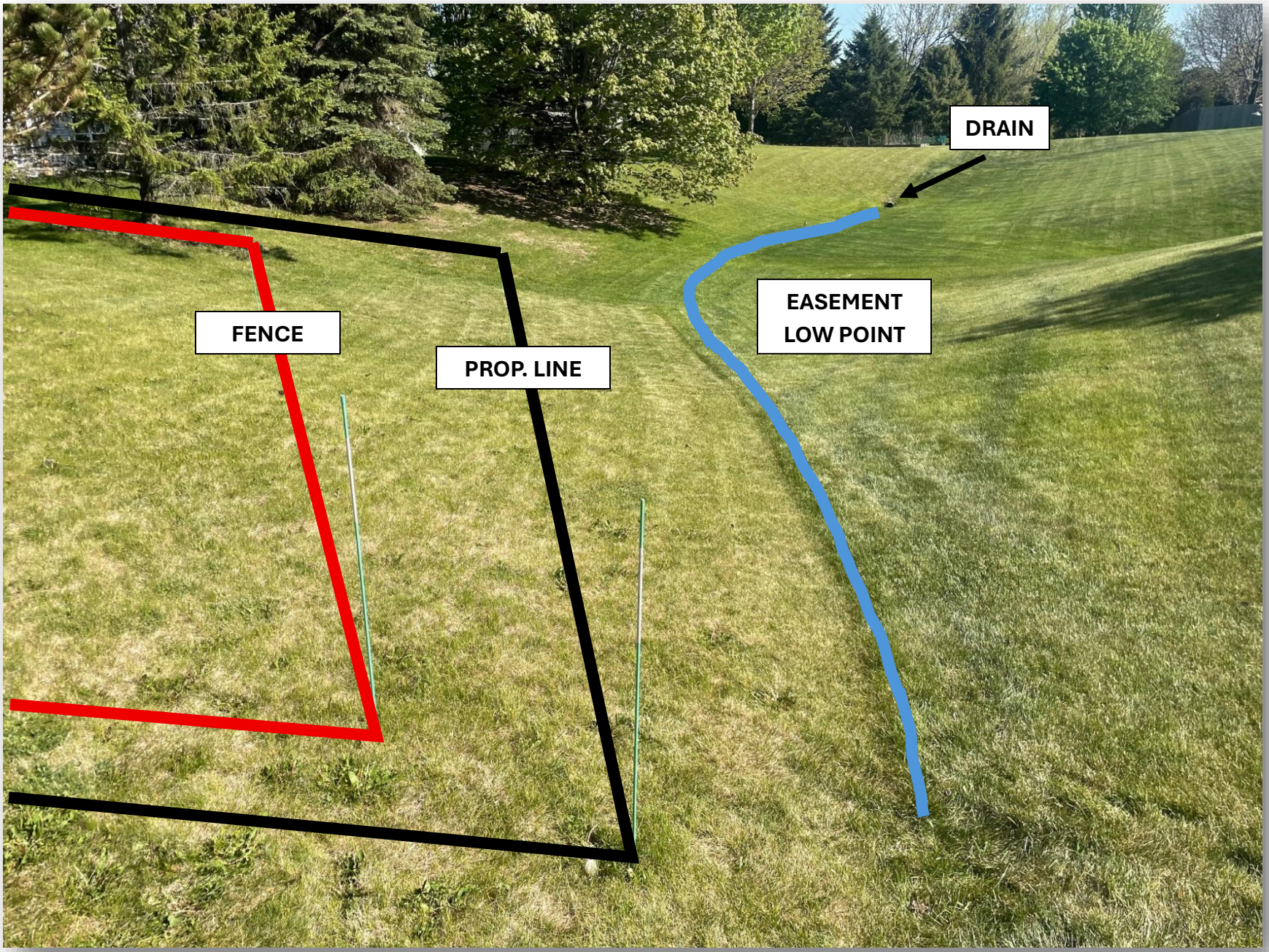


Internal

Photo taken from the rear of the property (W142N9935 Amber Drive)
Black Line: Rear property line
Blue Line: Low point in the ditch
Red Line: Proposed fence line

Fence Material: 6'Cedar Privacy Fence
Fence can be set 2-3" off of the ground if needed

Wood stakes mark the property line and proposed fence installation


DRAIN
FENCE
PROP. LINE
EASEMENT
LOW POINT