

Tuesday, June 17, 2025

7:00 PM

McFarland Municipal Center
5915 Milwaukee St, McFarland
Community Room

AGENDA

The public may attend in-person or remotely through the Zoom webinar or telephone options listed below. *Please Note: Virtual attendance is offered as a convenience, but technical difficulties beyond the Village's control may prevent or limit its availability at any meeting. The public is encouraged to attend the meeting in person to assure full access to the proceedings.*

PLEASE CLICK THE LINK BELOW TO JOIN THE ZOOM WEBINAR:

<https://us02web.zoom.us/j/85755749643>

Or by Telephone: +1 (312) 626-6799

Webinar ID: 857 5574 9643

Press *9 to raise/lower hand. Press *6 to mute/unmute.

1. CALL TO ORDER, ROLL CALL.

2. PUBLIC APPEARANCES.

- a. This is an opportunity for members of the public to address the Plan Commission for items that are not on the agenda. Please remember this is a hybrid meeting conducted in person and through the Zoom online meeting platform. Meeting attendees wishing to address the Commission about items not on the agenda may do so at this time. Zoom attendees should type their name and address in the Question and Answer feature within the Zoom online meeting platform at this time. Members of the public who are present in person and wish to address the Commission should fill out a public comment form and turn into the meeting chairperson. When you are called upon to speak, state your name, address, and provide your comments to the Commission for their consideration. Please adhere to the 3-minute time limit. Additionally, you may send your public comments to community.development@mcfarland.wi.us to be included as part of the meeting.

Members of the public may also speak during their selected agenda item as they designate on the public comment form or in the Question and Answer feature on Zoom.

3. APPROVAL OF MINUTES.

- a. Motion to approve the minutes of the May 20, 2025 meeting.

4. BUSINESS.

- a. Discussion and action to make a recommendation to the Village Board regarding Ordinance 2025-07, an ordinance rezoning parcel #0610-024-9691-1 from A-1 Agricultural Transition to PD - Planned Development District - General Plan Approved. Rezoning requested by Lakestone Properties.
- b. Discussion and action to make a recommendation to the Village Board regarding Sperle Corners, a preliminary plat submitted by Lakestone Properties for a proposed 147-unit residential subdivision at the northwest intersection of Elvehjem Road and CTH AB, parcel #061002496911.

5. SCHEDULE NEXT MEETING DATE.

- a. Tuesday, July 15, 2025 at 7:00PM.

6. ADJOURNMENT.

Any person who has a qualifying disability as defined by the Americans with Disabilities Act that requires the meeting or materials at the meeting to be in an accessible location or format should contact the McFarland Municipal Center at (608)838-3153, 5915 Milwaukee Street, McFarland, Wisconsin, or village.clerk@mcfarland.wi.us by 2:00 p.m. at least 5 business days prior to the meeting so that any necessary arrangements can be made to accommodate each request. If the meeting or request is less than 5 business days from the meeting, requests for accommodations may still be made and reasonable efforts will be made to accommodate each request.

Plan Commission Minutes May 20, 2025, at 7:00 P.M.

Members Present: Stephanie Brassington, Luke Fessler, Austen Conrad, Scott Peters, Karen Pominville, Eric Johnson, Chris Reynolds

Staff Present: Andrew Bremer, Kong Thao

1. CALL TO ORDER, ROLL CALL

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

2. PUBLIC APPEARANCES.

There were no public appearances during this section.

3. APPROVAL OF MINUTES.

- a. Motion to approve the minutes of the January 8, 2025, Joint Plan Commission and Community Development Authority meeting.

Brassington moved to approve the minutes of the January 8, 2025, Joint Plan Commission and Community Development Authority meeting. Peters seconded the motion. Motion passed 7-0.

- b. Motion to approve the minutes of the January 13, 2025, Joint Community Development Authority meeting and Plan Commission meeting.

Brassington moved to approve the minutes of the January 13, 2025, Joint Community Development Authority and Plan Commission meeting. Peters seconded the motion. Motion passed 7-0.

- c. Motion to approve the minutes of the April 15, 2025 meeting.

Brassington moved to approve the minutes of the April 15, 2025, Plan Commission meeting. Fessler seconded the motion. Motion passed 6-0-1, with abstentions from Reynolds.

4. PUBLIC HEARINGS.

- a. Public hearing for a Conditional Use Permit requested by Jason Preisler for an additional fifth dwelling unit located at 6212 South Court.

Prior to opening the public hearing, Chair Brassington noted that the Commission will address agenda items 4a, 5a, and 5b first before 4b and 4c. The Commission

were in consensus with the reordering of the agenda. Brassington opened the public hearing at 7:05 PM on the agenda item. Thao provided a summary on the agenda item, reviewing past activities and past approved conditions of approval. Thao's summary included the impact of the additional fifth unit on the property. The applicant was present in-person for questions. Staff asked the applicant to clarify responses in their application regarding separate meters if it was an electrical meter they were referring to or water. The applicant affirmed it was an electrical meter. No additional comments or concerns from the Commission. Brassington closed the public hearing at 7:07 PM.

- b. Public Hearing on Ordinance 2025-07, an ordinance rezoning parcel #0610-024-9691-1 from A-1 Agricultural Transition to PD – Planned Development District – General Plan Approved. Rezoning requested by Lakestone Properties.

Brassington opened the public hearing at 7:17 PM. Bremer provided a summary of the procedures for submitting for a Planned Development District and activities the Applicant has completed to this point. Bremer provided a summary of the general development plan concept highlighting the buildings, lot sizes, setbacks, ROW, and Department Head's letters. Bremer explained potential next steps if the project moved forward and answered scenarios where if no future action was taken by the Applicant the zoning would revert back to A-1 per the terms within Ordinance 2025-07.

Brett Reimen and Brian Spanos, Lakestone Properties and Applicant, were present and provided additional comments on the preapplications and concept. Reimen indicated that Lakestone is closing on the acquisition of 2921 CTH AB at the end of the month.

Jeff Knudson and Noah Leonard, with SRF (Traffic Engineers), presented to the Commission a slide summary on the completed Traffic Impact Analysis. Leonard discussed the data collected, areas of study, and recommendations based on findings. Leonard's discussion included recommendations for the development site and general area. The Commission discussed details of the data collected, direction of traffic flow, site improvements, on-street parking, street cross sections, areas of congestions not included in the study, speed limit changes, and park improvement. Bremer and Spanos provided clarification on the parkland dedication. Further the Commission discussed annexation of the adjacent 2921 CTH AB into the Village, vision triangle, building size and setback, and homeownership.

Barbara Foy, 5350 N Peninsula Way, commented on the flow of traffic and its findings in the study in contrast to available amenities in the Village. Leonard provided additional clarification on the data's forecast for future growth, referencing the data and slides shown.

Lynne Hettrick, 5711 Main St, had questions regarding on-street parking, household sizes, number of rooms per unit offered within the General Plan and how Lakestone will regulate this. Reimen provided clarification on unit size, vehicles per unit, on-street parking,

Bremer read into record two letters submitted to the Plan Commission in support of the project. The letters were from:

- Jackie Hammond, 6060 Perrot Place
- Nate Kirch, 2891 CTH AB

Brassington closed the public hearing at 8:52 PM.

- c. Public Hearing on Sperle Corners, a preliminary plat submitted by Lakestone Properties for a proposed 147-unit residential subdivision at the northwest intersection of Elvehjem Road and CTH AB, parcel #061002496911.

Brassington opened the public hearing at 8:53 PM. Bremer provided summary on the agenda item and reviewed the time limitations under state statutes for consideration of approval of a Preliminary Plat. No comments were received during this time. The Commission did not have additional comments or concerns. Brassington closed the public hearing at 8:55 PM.

5. BUSINESS.

- a. Discussion and action on a Conditional Use Permit requested by Jason Preisler for an additional fifth dwelling unit located at 6212 South Court.

No additional updates from staff. No additional comments or concerns from the Commission members.

Brassington motioned to approve a Conditional Use Permit requested by Jason Preisler for an additional fifth dwelling unit located at 6212 South Court, with the following conditions of approval:

1. Applicant to provide confirmation of private trash and recycling pick-up services for the property to the Village Public Works Department prior to receiving an occupancy permit for the fifth dwelling unit.
2. Applicant to provide payment for all applicable Village impact fees for the additional fifth dwelling unit as part of the building permit.

Fessler seconded the motion. Motion passed 7-0.

- b. Discussion and action on a Site Design Review Permit requested by Carlos Aranda to remodel the rear portion of the existing commercial building located at 4307 Triangle Street.

Thao provided a summary on the agenda item discussing the scope of the building's remodeled rear. Bremer provided additional background information on the previous remodeling to the building's front façade. Staff explained the details of the proposed workshop's conformance to the Village's side setback. The Commission discussed the scope of work being done and changes impacting less than 50% of the property, and rear yard easement of the building and adjacent properties.

Brassington motioned to approve a site design review permit requested by Carlos Aranda to remodel the rear portion of the commercial building, located at 4307 Triangle Street with the following conditions of approval:

1. Exterior rear wall-mounted light fixtures shall be full cutoff downcast fixtures to limit light trespass.
2. Applicant to maintain the existing green space in the rear yard as pervious area.

Peters seconded the motion. Motioned passed 7-0.

6. SCHEDULE NEXT MEETING DATE.

- a. Tuesday, June 17, 2025, at 7:00PM

7. ADJOURNMENT.

Fessler motioned to adjourn. Peters seconded the motion. Motion passed 7-0. Meeting adjourned at 8:56 PM.

VILLAGE OF
McFarland
SUMMARY SHEET

MEETING DATE: Tuesday, June 17, 2025

SECTION: Business

DEPARTMENT: Community Development

CONTACT: Andrew Bremer, Comm & Eco Dev Director, Kong Thao, Associate Planner

AGENDA ITEM: Discussion and action to make a recommendation to the Village Board regarding Ordinance 2025-07, an ordinance rezoning parcel #0610-024-9691-1 from A-1 Agricultural Transition to PD - Planned Development District - General Plan Approved. Rezoning requested by Lakestone Properties.

PREVIOUS ACTION:

January 21, 2025 - Plan Commission preapplication meeting #1

February 19, 2025 - Plan Commission preapplication meeting #2

February 26, 2025 - Lakestone Properties held their own neighborhood meeting at the Municipal Center

March 18, 2025 - Plan Commission preapplication meeting #3

May 20, 2025 - Plan Commission held public hearing on request for rezone and preliminary plat review.

ISSUE SUMMARY:

Lakestone Properties is requesting to rezone [parcel #0610-024-9691-1](#), from A-1 Agricultural Transition to PD Planned Development District, General Development Plan Approved. The submittal also includes a request for approval of a Preliminary Plat to divide the property for the proposed 147-unit residential subdivision named Sperle Corners. The proposed plat will include 18 residential Lots and 2 public Outlots. The proposed plat includes a mix of 2-unit, 4-unit, multifamily buildings, dedicated stormwater (Outlot 1) and parkland (Outlot 2). Lots 3-16 each are designed for zero lot line duplex buildings (14 total units), Lots 1, 2, and 17 each include four-plex buildings (16 total units), and Lot 18 includes two 40-unit multifamily apartments and one 37-unit apartment building (117 total units). The plat also includes extension of a public right-of-way for Devil's Lake Way from the east and south to Elvehjem Road on the site. The packet also includes Lakestone's Stormwater Management Plan and their Traffic Impact Analysis. Please note that after the initial submittal of the Preliminary Plat and General Development Plan in April, the applicant amended the submittal to correctly show each duplex lot as two lots (one for each half of the zero lot line duplex). The overall number of units did not change. The packet includes these updates.

Since the May 20, 2025 Plan Commission public hearings, the applicant team has completed the following updates. It should be noted that some of the details within the Village Engineer and Fire Chief's letters are to be included in the future Final Plat and Detailed Plan.



- Updates to GDP text addressing Planning Staff comments.
- Updates to the Traffic Impact Analysis to address Planning Staff, Village Traffic Engineer, and Dane County Highway Department comments.
- Updates to preliminary Street and Utility Plans, and Stormwater Management Plan to address Village Engineer comments.
- Inclusion of a Fire Lane Plan exhibit to address Fire Chief comments.
- Responses to the Village Engineer and Fire Chief staff May review letters.

Past meeting activities

The applicant has appeared before the Plan Commission in three voluntary preapplication meetings. Additionally, the applicant also held their own neighborhood meeting at the Municipal Center on February 26, 2025. A summary of the applicant's preapplication meeting dates and discussion is provided below.

- January 21, 2025 Preapplication meeting #1, first introduction of a 170-unit residential subdivision.
- February 19, 2025 Preapplication meeting #2, revised concept plan with 167-unit residential subdivision, including a public park.
- February 26, 2025 Lakestone Properties held a neighborhood meeting for public feedback.
- March 18, 2025 Preapplication meeting #3, second revised concept plan with 166-unit residential subdivision, including a public park.

Review Procedures for Planned Development District Rezoning and Preliminary Plat Applications

Per [Sec. 62-68\(c\)](#) Statement of Purpose of the Zoning Code, *"the Planned Development District is established to provide a voluntary regulatory framework designed to encourage greater variety and flexibility in land development while achieving substantial compliance with the Village Land Use Plan and basic intent of the zoning ordinance and land uses beneficial to the Village. Such district is also established to promote the maximum benefit from coordinated area site planning, including diversified location of structures and mixed compatible uses, and to provide for safe and efficient systems for pedestrian and vehicular traffic, attractive recreation and landscaped open spaces, and economic design and location of public and private utilities and community facilities. Within this district are allowed the diversification and variation in the bulk and relationship of uses, structures and spaces in developments planned as comprehensive and cohesive unified plans and projects."*

Per [Sec. 62-67](#) of the Zoning Code, a Planned Unit Development (PUD) consists of two parts, a General Plan and a Detailed Plan. The General Plan establishes the uses of the property, total residential units, the general location of proposed streets, stormwater basins, public parks, building dimensions and stories. A Detailed Plan establishes the specific architectural character and design of each building, the dimensioned yards between buildings or structures and lot lines, final location and dimensions of vehicular and pedestrian facilities, including dimensioned



streets walkways, access driveways, off-street parking, refuse receptacle areas, utility plans (water, sewer, storm sewer, lighting), and landscaping. Applicants can either request approval of the General and Detailed Plan in one stage, or in two stages. The Applicant is requesting approval of a two-staged Planned Unit Development (PUD) to provide a level of assurance regarding the proposed use of the property before completing the Detailed Implementation Plan. This is a common approach.

Approval of a General Plan requires a public hearing by the Plan Commission, a recommendation by the Plan Commission to the Village Board, and Village Board approval. The public hearing for the General Plan and Rezone request was held at the May 20, 2025 regular Plan Commission meeting. If granted approval of the PD General Plan, the applicant would have one year after the recording of the General Plan to obtain approval of a Detailed Plan for at least one stage of the General Plan, unless an extension is granted by the Village Board per Sec. 62-67(i) of the Zoning Code. This will be incorporated as a condition of approval, but mostly a reminder to the applicant. Additionally, no building construction shall be permitted in any portion of the approved General Plan until a Detailed Plan is approved by the Village per Sec. 62-67(h)(3)(a) of the Zoning Code. Once a Detailed Plan is submitted to the Village, the Plan Commission is required to hold a separate public hearing on the Detailed Plan and will have final approval authority for the Detailed Plan.

The division of property into five or more lots is called a subdivision and requires approval of a Preliminary Plat and a Final Plat. The requirements for review and approval of plats are defined within [Chapter 56](#) of the Municipal Code. Similar to approvals of Planned Development zoning, plats are approved in a two-stage process, progressing from general to more detailed information within each stage. Refer to agenda Item 4.b for more information on the approval processes for plats. The public hearing for the Preliminary Plat occurred at the May 21, 2025 regular Plan Commission meeting.

Proposed Development Characteristics

The concept includes 14 buildings with a variety of housing types composed of seven zero lot line duplexes, four four-unit buildings, and three multifamily apartments, totaling 147 residential units. The property is 17.92 acres in size, including right-of-way along Elvehjem Road and CTH AB. The gross density of the proposed development is 8.2 dwelling units per acre. Excluding existing and proposed ROW and Outlots, the estimated net acreage is 12.3, or 11.9 dwelling units per acre. All duplex and four-unit buildings are anticipated to be one-story, no more than two-story, and include a basement. Lots 3-16 include seven zero-lot line duplex buildings. The buildings are expected to be owner-occupied, but if the two units were owned by a single owner, the owner may rent the other half of the duplex. The following summarizes the proposed buildings.

- Lot 1 includes two four-unit buildings. Each unit will have a two-car garage and two stalls in front of the garage, plus 10 additional visitor stalls.
- Lot 2 includes one, four-unit building. Each unit will have a two-car garage and two stalls in front of the garage.
- Lots 3 & 4, include one zero-lot-line duplex. Each unit will have a two-car garage and two stalls in front of the garage.



- Lots 5 & 6, include one zero-lot-line duplex. Each unit will have a two-car garage and two stalls in front of the garage.
- Lots 7 & 8, include one zero-lot-line duplex. Each unit will have a two-car garage and two stalls in front of the garage.
- Lots 9 & 10, include one zero-lot-line duplex. Each unit will have a two-car garage and two stalls in front of the garage.
- Lots 11 & 12, include one zero-lot-line duplex. Each unit will have a two-car garage and two stalls in front of the garage.
- Lots 13 & 14, include one zero-lot-line duplex. Each unit will have a two-car garage and two stalls in front of the garage.
- Lots 15 & 16, include one zero-lot-line duplex. Each unit will have a two-car garage and two stalls in front of the garage.
- Lot 17 includes one, four-unit building. Each unit will have a two-car garage and two stalls in front of the garage.
- Lot 18 includes two 40-unit and one 37-unit garden-style apartment buildings (three-story). Each unit will have one dedicated underground parking stall plus 97 surface stalls for a total of 214 stalls, or 1.83 stalls per unit.
- Outlot 1 will be dedicated to the Village for stormwater management purposes and is approximately 66,857 square feet, or 1.54 acres.
- Outlot 2 will be dedicated to the Village for public parkland and is 15,342 square feet, or 0.35 acres.

The four-unit and garden apartment buildings on Lots 1, 2, 17, and 18 will be owned and managed by Lakestone. All units are anticipated to be at market rate. The General Plan includes 344 off-street parking stalls for a ratio of 2.34 parking stalls per unit. The preliminary plat continues the existing right of way from Devil's Lake Way east connecting through the property, then exiting south connecting back towards Elvehjem Road. The location of buildings on Lots 8 through 17 all appear to meet the minimum 75 feet setback from wetlands, as indicated in orange on the plan. The property owner had a wetland delineation completed in October 2022. The developer anticipates construction over multiple phases starting in 2025 and concluding in Spring of 2028, based on actual market conditions.

Existing Property & Neighborhood Conditions

- Property Size: 17.92 acres (780,586 square feet), including Elvehjem Road and CTH AB right-of-way.
- The property is within the Village's urban service area with public water and sanitary sewer utilities located adjacent to the west lot line.
- Current Use: Undeveloped farmland
- Current Zoning: A1 Agricultural Transition
- Adjacent Uses:
 - An agricultural drainage ditch follows the west and north property line. An existing public bike and pedestrian trail borders the property's perimeter along the west and north lot lines. This trail connects the Lower Yahara River Trail to



Rosewood Fields Subdivision.

- North - Parcel #061002495301 is a 15.7-acre lot, used as farmland and open space (wetlands). The parcel is zoned A1 Agricultural Transition. Further north is the Rosewood Fields Subdivision, currently in the final phase of its construction. The subdivision is zoned PD Planned Development and includes 117 dwelling units. The subdivision is 36.25 acres and has a gross density of ~3.23 dwelling units per acre. The net density (subtracting outlots and ROW dedications) is ~6.94 dwelling units per acre. This subdivision includes 100 detached single-family homes and 10 zero-lot line duplex units.
- East - The parcel wraps around 2921 County Highway AB, a ~0.9-acre lot with a single-family home located in the Town of Dunn, zoned SFR-1 under the Dane County Zoning Code. Lakestone Properties has secured an option to purchase this property and will close on the property at the end of May, 2025. East of CTH AB is 3418 and 3408 Elvehjem Road, located within the Village of McFarland. The property is mostly undeveloped open space. The 22.3-acre lot is zoned A1 Agricultural Transition.
- West - Properties to the west include a variety of residential properties in the Park View Estates subdivision, separated by a 50-foot-wide Village parcel containing an existing recreational trail that connects to the Lower Yahara Trail to the Rosewood subdivision to the north. The existing residential properties are composed of single-family homes, duplexes, and townhomes. The mentioned properties include zoning within districts: R1, R-1A, R-2, R-3, and PD Planned Development (Skaalen Village). Duplexes along Perrot Place have net densities ranging from 5.7 to 7.3 dwelling units per acre (average of 6.4), while single-family homes have a net density ranging from 1.7 to 3.9 dwelling units per acre (average 2.9). West of Perrot Place is the Skaalen Village Condominiums include 57 dwelling units, at ~10 acres with a density of ~5.7 units per acre, 1-story senior residential properties, buildings include 3- and 4-unit townhomes with a shared clubhouse building.
- South - To the south are two lots, 2891 County Highway AB, a 3.4-acre lot with a single-family home zoned RR-2 (Dane County) and a 36.6-acre lot used for farmland zoned FP-35 (Dane County). Both lots to the south are located in the Town of Dunn and privately owned.

Sec. 62-67(4) PD Planned Development District Standards

The applicant's submittal includes responses to the standards provided in the Zoning Code.

Staff have provided comments following a review of the responses provided regarding the applicant's responses to (c), (f), (g), and (i).

- (c) The site plan includes multiple speed humps on Lot 18 for the off-street parking lot to help regulate speeds. The Village's Fire Chief recommended speed humps maintaining an angle of approach or departure for fire apparatus to be 8 degrees or less, while less than 8 inches.
- (f)1. It should be noted the impact fees provided in the response are estimates based on current 2025 rates and the final impact fee total will be incorporated into the



Development Agreement with the Final Plat. The estimate also does not include public water well and water tower impact fees, which will be based on the final meter size of each structure. Impact fees are due at the time a building permit is submitted unless otherwise agreed to in an approved development agreement.

- (g) The proposed development adds potentially 147 new dwelling units to the Village. As mentioned in the Housing Needs Assessment, 2023, the Village's vacancy rate is at or below 1%. This creates a limitation on housing options for homeowners looking to transition to their next home but do not want to leave the McFarland community. The construction of new dwelling units may provide empty-nesters in existing single-family homes an opportunity to move or downsize while still staying in the community. As homes become available, opportunities arise for new families to purchase homes within the community. Village Staff have shared a copy of the applicant's submittal with McFarland School District staff Jeff Mahoney (Director of Business Development) and Aaron Tarnutzer (Superintendent) and to date no concerns have been raised to Village staff regarding providing school services. In February 2025, Mahoney presented at Village meetings to share the McFarland School District's current and projected enrollment rates. In summary, the School District reported enrollment rates were going down, suggesting shrinking household sizes and affordable housing options as factors contributing to this, (See [Plan Commission Meeting 2.19.2025 video recording; discussion begins at 6:00](#)). Additionally, having a variety of housing options helps the recruitment and retention of teachers not ready to buy.
- (i) In addition to the applicant's response, as a part of the final plat approval, the Village will require a development agreement and the developer will be required to provide a surety bond for the proposed improvements.

Review of Comprehensive Plan, 2017

The Village Comprehensive Plan Future Land Use Map identifies the proposed development site for future "Neighborhood" uses and wetlands. Page 33 of Volume 2, describes that *areas planned for "Neighborhood" development include a range of housing choices compatible with the Village's current and desired character are permitted, along with parks and smaller-scale institutional uses like senior housing and churches....see the Village's separate East Side Neighborhood Plan for further conceptual guidance for future land uses in this area.* Figure 4.1 lists the Typical Implementing Zoning Districts in Neighborhood areas include R-1 Residence District, R-2 Single- and Two-Family Residence, R-3 General Residence, R-E Elderly Residence, PD, PD-I Planned Development. The Applicant's General Plan includes a range of housing choices, a public park, and proposing the use of PD Planned Development zoning. Figure 4.1 (page 35) includes the following development policies for the Neighborhood and DNR Wetlands and Potential Wetland Indicators. Staff comments on the proposed conceptual development are included.

1. *Unless the developer is following the Village's East Side Neighborhood Growth Area Plan, require preparation of detailed neighborhood plans in advance of development applications in planned Neighborhood areas. Neighborhood development plans specify the arrangement of different land uses, environmentally sensitive areas, roadways, parks and trails, and other major infrastructure investments. Additional comments on the*



integration of the 2023 East Side Plan are provided in the next section. The concept includes a variety of housing types among the lots indicated, working to preserve environmentally sensitive areas and offer a range of housing options.

2. *Accommodate a mixture of housing types, costs, and densities, while maintaining the predominance of single-family housing in the community. The Village policy is that at least 65% of new housing units in the planned Neighborhood area as a whole should be single family residences.* The housing types presented do not include single-family residences but offer a range of housing choices. In 2023, the Village amended the Comprehensive Plan to adopt and incorporate the policies of the 2023 East Side Plan ([Ordinance 2023-3](#)) to replace the 2008 East Side Growth Area Plan; therefore, the requirement for single-family dwelling units should be viewed through the lens of the 2023 East Side Plan policies for developments located within that plan as this is the more contemporary plan. In addition, the 65% single-family does not apply to each individual development site but is an average throughout the neighborhood area. The 2023 East Side Neighborhood Plan does not include a policy for 65% single-family homes; however, there are many locations for the development of future single-family homes. For example, to date, the only other subdivision constructed in the East Side Plan is Rosewood Fields, which includes 107 single-family homes.
3. *Promote neighborhoods that instill a sense of community with their design – including gathering places, parks, open spaces, pedestrian and bicycle access, schools, and churches.* The concept includes sidewalks on both sides of Devils Lake Way, extending east then south towards Elvehjem Road. The PD General Plan and Preliminary Plat include an approximate 16,000 square foot park, which should be large enough to accommodate a neighborhood playground similar to other mini-parks in the Village. Other existing public parks are in close proximity, including Orchard Hill Park and Urso Park within 100 feet to the southwest providing dog exercise equipment and passive recreational trails. This also includes the tail-end of Dane County's Lower Yahara River Trail. To the north is a recently added public park located in the Rosewood Field subdivision. This concept includes a public pathway extending east along Elvehjem Road and north along CTH AB.
4. *Refer also to policies applicable to Single Family Residential, Two Family and Townhouse Residential, Multiple Family Residential, and other future land use categories that comprise each Neighborhood area.* Applicable future land use categories include Two Family and Townhouse Residential and Multiple Family Residential. Both development policies encourage dispersed housing uses throughout the Village, avoiding clustering of similar or like buildings in one location of the Village.

East Side Plan, 2023

The 2023 East Side Master Plan Concept ([Chapter 4](#)) identifies multiple uses for the property (see image below). The uses include Low Density Residential, Medium Density Residential, Stormwater/Conservation, and Wetlands. The following land use category descriptions are as provided. As stated, "*these policies shall be enforceable through the generalized future land map in the Village's Comprehensive Plan (Chapter 4, Page 65).*"

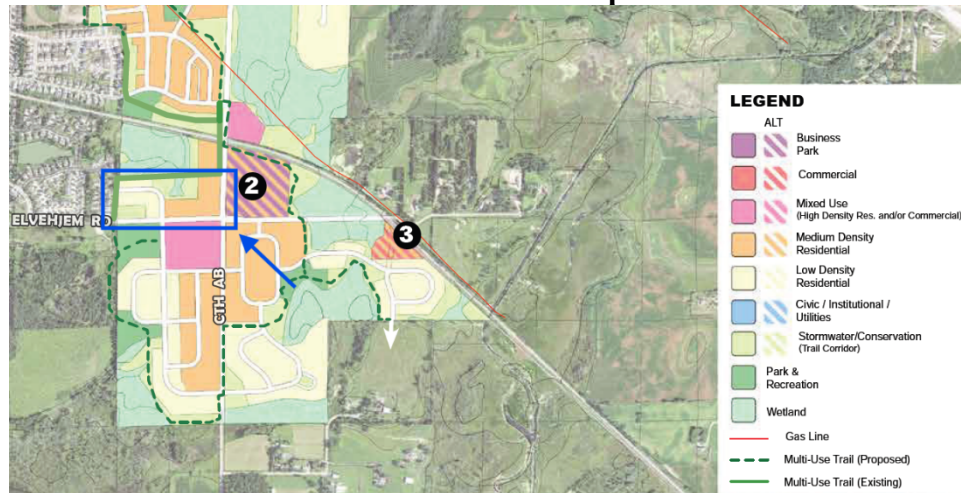


- Stormwater & Conservation (SC) *"areas include conservation areas, cemeteries, stormwater management, greenways, major public trails, and land recommendations for preservation."* The location of wetlands shown in the 2023 East Side Plan was based on available WDNR aerial data. A wetland delineation was completed for the property in October 2022 that showed considerably fewer wetland areas than the WDNR aerial data. The Village requires a minimum 75-foot building setback from wetland boundaries. The PD General Plan and Preliminary Plat concept includes additional detail on the size of the infiltration basins and wet ponds.
- Low Density Residential (LDR) *primarily consists of single-unit detached homes with strategically located 2-unit attached, 3-/4-unit buildings (triple and fourplex, respectively). Typical net densities should average 2-5 units per acre (throughout the entire neighborhood plan), with individual developments up to 10 units per acre. Three and 4-unit structures are most appropriate as a transition use when facing or next to more intensive institutional, residential or commercial uses.* Lots 1-17 are generally aligned with the area mapped as LDR in the 2023 East Side Plan. These lots have net densities ranging from 2.0-8.5 dwelling units per acre with a total net density of 6.0 dwelling units per acre, below the maximum 10 units per acre for individual developments. The 2023 East Side Plan does not mandate that all areas mapped LDR must include single-family dwelling units. The context of each development area should be considered as well. While the General Plan does not include any single-family homes, it does continue the existing pattern of duplex developments to the west before transitioning to 4-unit buildings and then apartment buildings. In addition, the existing duplex residential buildings on Perrot Place are more than 150 feet from the proposed building footprints on Lots 8 and 9. Physical barriers from the existing bike and pedestrian path, existing tree line, and wetlands, create added separation between the existing residential homes and the proposed dwelling units.
- Medium Density Residential (MDR) *"includes detached single-unit homes and attached housing units such as duplexes, triplexes, townhomes, small and mid-sized multi-unit buildings. Developments in MDR areas should provide the greatest diversity of housing unit types, forms, and prices. Typical net densities should average 5-15 units per acre (throughout the entire neighborhood plan), with individual developments up to 20 dwelling units/acre...densities greater than 20 DU/AC for legally restricted affordable housing units."* The net density of Lot 18 is 15.9 DU/AC, below the maximum 20 units per acre for individual developments, and slightly higher than the conditional use permit requirements within the traditional R-3 General Residence District of 15 DU/AC, which adds to the purpose for requesting the PD zoning.

Page 62 of Chapter 4 of the East Side Plan states that *"while the general pattern of land uses and major streets shown in this concept should be reflected in actual development, it is recognized that more detailed elements within the concept, such as the locations of minor streets, location/sizing of stormwater management areas, precise boundaries of land uses, or the specific dimensions of blocks, are only concepts."* Along the west lot line, the concept includes similar scale housing types to the existing neighborhood to the west, transitioning to larger residential type buildings with higher unit counts to the east along CTH AB, consistent with the

intent of the 2023 East Side Plan. In Staff's opinion, the concept provides a consistent layout with the intent of the Master Plan Concept from the 2023 East Side Plan.

East Side Master Plan Future Land Use Map.



Department Head Comments

The following items have been discussed in previous preapplication meetings and were topics of discussion by Village Department Heads. The topics are expected to be addressed or incorporated as part of the Applicant's final Preliminary Plat/General Development Plan or Final Plat/Detailed Development Plan submittal as applicable. Included in the packet are review letters from the Village Engineer/Director of Public Works and the Fire Chief. The interim Police Chief recommended lowering the speed limit on Elvehjem Road to 25 mph all the way to CTH AB intersection.

- **Elvehjem Road.** Elvehjem Road is scheduled for reconstruction in 2030 within the Village's Capital Improvement Plan. This would reconstruct the road from a rural to urban cross-section (i.e. curb installation, pavement replacement, etc.). The construction date for this project is adjustable and would likely be timed with the conclusion of the last phase of the Lakestone projection if approved to avoid construction traffic damaging the new road. Current speeds on this road start at 25 miles per hour (mph) as Creamery Road turns into Elvehjem Road, then increases to 45 mph going west after Urso Park. Since the road is owned and within the Village's jurisdiction, the Village can adjust speed limits as needed. Staff are recommending a speed reduction from 45 mph to 25 mph for the length of road following Urso Park until CTH AB. The reconstruction of Elvehjem Road would be a future Village construction project.
- **CTH AB.** The applicant's plat includes adjustments that incorporate a vision triangle at the intersection which follows WisDOT FDM 11-10 Attachment 5.10, as well as the required 40' ROW dedication from the centerline of the road. Unlike Elvehjem Road, CTH AB is a road regulated by Dane County Highway Department. The current speed limit for this north-to-south road is 55 mph. The Traffic Impact Analysis recommends tree removal in the southwest corner of the public right-of-way at the Elvehjem/CTH AB intersection to improve sight vision at this intersection. The County has indicated that



this would be a responsibility of the developer. The Village is also considering realigning the portion of Elvehjem Road east of CTH AB to remove the jog at the intersection. This would be a future Village project, likely timed with the reconstruction of the west side of Elvehjem Road.

- **Devil's Lake Way Extended.** The extension of Devils Lake Way is shown as a 60-foot right-of-way with 28 feet curb-to-curb, and on-street parking on one side (north/east). The General Plan concept assumes a similar design; however given the number of driveways on the north and south of the proposed road between Lots 13-17, on-street parking would be somewhat limited. The Fire Chief and Village Engineer letters include recommendations for parking restrictions along the mentioned roadside. The Village Engineer's comments include maneuverability for fire response vehicle and activity, recommending a 32-width curb-to-curb design or an exhibit showing the turning movements with parked cars for review to confirm acceptance of the 28 feet curb-to-curb for fire truck maneuverability with one-sided on-street parking restrictions. This detail can be integrated into the Detailed Plan and Final Plat for Department Staff review. The TIA recommended lower speed limits at 20 mph on this road for added safety, considering the road curvature and dedicated park area.
- **Utilities.** Existing water mains are available as stubs at the end of Devils Lake Way and near the SW corner of the property on Elvehjem Road. The General Plan includes continuation of water mains along the Devils Lake Way, completing a loop to Elvehjem Road. The water main continues along Elvehjem Road (south side of ROW) and then extends north along CTH AB (east side of ROW). The location of the water main along CTH AB will need further review by the Village Engineer for acceptance during the Final Plat. Along Devils Lake Road, Lots 3-16 include separate water and sewer lateral connections for each unit per code. Lots 1, 2, and 17 include one water and sewer lateral as permitted for multifamily structures. Each apartment building on Lot 18 includes separate water and sewer laterals. Within the description of Devil's Lake Way, it includes the location of two fire hydrants. Along Elvehjem Road, three additional hydrants are shown, all across the ROW of Elvehjem Road. One hydrant is located across the west four-unit building on Lot 1, one located south from the center 40-unit apartment building and one hydrant at the southwest corner of CTH AB and Elvehjem Road. An additional fire hydrant has been added to Lot 18 near the east wet pond per the Fire Chief's recommendation. Sanitary sewer main extends along Devil's Lake Way to the driveway of Lot 1. From this, lateral connections are shown to connect to each lot. The Village Engineer's recommends common utilities and stormwater easements be provided along all sides and rear lot lines as part of the Final Plat.
- **Stormwater Management.** The General Plan includes a wet retention pond on Outlot 1, and an east retention pond north of the center building on Lot 18 with an infiltration basin. Lot 1 includes a smaller infiltration basin near the northwest corner of Devils Lake Way and Elvehjem Road. Another infiltration basin is present along the north and east sides of the 37-unit building is shown. The Village Engineer's June letter includes comments related to providing inlet sizing/spacing calculations and overland water flow during a 200-year storm and grass areas should be at least 0.75% slope, and/or be provided with a structural bottom (concrete, open pavers, etc.).
- **Bicycle and Pedestrian Improvements.** The General Plan includes sidewalks along both



sides of Devil's Lake Way. Additionally, the General Plan includes an extension of an off-street trail along the north side of Elvehjem Road and the west side of CTH AB to the existing trail.

- **Parks.** A designated park area is shown on Outlot 2, located between Lots 17 and 18. The park is approximately 0.362 acres (~15,782 square feet), comparable to Ridgeview Tot lot. The size of the park would accommodate a small playground.
- **Parking.** The General Plan includes 344 total off-street parking for a ratio of 2.34 parking stalls per unit over the entire development. This includes surface, underground and garage parking. Traditional zoning requirements are two spaces for one- and two-bedroom units, and 2.5 for three-bedroom units. Using PD Planned Development zoning provides an opportunity to adjust the off-street parking to meet the needs of the development. The Applicant's General Plan states for Lot 18, there will be approximately 97 above-ground parking stalls and one designated underground stall per unit of the building, providing a total of ~1.83 stalls per unit. In Staff's opinion, this is an adequate number of stalls, considering every unit will not need two parking stalls.
- **Public Safety.** Refer to Chief Dennis' letter dated June 12, 2025, regarding comments on required fire suppression systems in buildings with 3 or more units, additional fire hydrant placements, Knox key boxes, emergency response radio coverage, etc. Several of the comments from the letter can be incorporated into the Detailed Plan, which includes expansion of driveway widths on Lots 1 and 17's to 20', improving points of fire access for buildings within 150' of the 20' driveway and "speed humps/tables" on Lot 18. The packet includes a Fire Lane Plan drafted by Lakestone following the May 20th Plan Commission meeting to address some of the comments within the Village Fire Chief's letter. The interim Police Chief recommended lowering the speed limit on Elvehjem Road to 25 mph all the way to CTH AB intersection.
- **Building Layout and Design.** The duplexes and 4-unit buildings will include a raised basement and with one-story above the lower level, details are shown on Grading and Storm Water Management Plan, sheet C-3. Details regarding building materials and colors are not required at this stage for a General Plan. Past public feedback to date has included incorporating different building colors to differentiate each building's facades and apartment buildings. The Fire Chief's letters include comments on access roads suitable for fire department access 28' for turns greater than 60 degrees and 26' for turns of 60 degrees and less (based on IFC figure D103.1) with a 20' access roadway exclusive of curbs.
- **Landscaping and Lighting.** Details regarding landscaping and lighting are not required in the General Plan. Preliminary landscaping has been included between the forty-unit apartment buildings to screen headlights leading to the underground parking for the 37-unit apartment building.
- **Unit Affordability.** The applicant anticipates the units will be at market rate. The applicant's response to Section 67(4)(j) states, "*The estimated value of Sperle Corners is as follows: \$600,000 per duplex (both units of one building), \$1,000,000 per 4-unit, and \$4,500,000 per 40 unit building for a total estimated value of \$21,700,000.*"
- **Zoning.** The applicant's submittal includes a rezoning request from A1 Agricultural Transition to PD Planned Development District to accommodate the need for reduced setbacks due to wetlands, increases in density and decreases in off-street parking



requirements compared to traditional R-2 and R-3 zoning requirements.

- **Environmental Corridor.** The General Plan shows buildings on Lots 7-17 to be outside the 75-foot wetland delineation. Staff met with the Capital Area Regional Planning Commission (CARPC) Staff to discuss permitted uses and exemptions within an identified delineated wetland buffer. In summary, no impervious surfaces are allowed in the 75' setback area (see [CARPC Environmental Corridors Policies](#)). This includes patios and accessory structures (e.g. sheds). Village Staff were concerned future property owner would install a patio, something that does not require a building permit, but does for an accessory structure without knowledge of the restrictions. [CARPC Environmental Corridor Policies and Criteria](#) III(F) *identities major changes are those that have the potential for significant adverse impacts on water quality (determined through a technical analysis by the RPC staff)*. Further, within (5) of the same section, this includes, *"Grading in a wetland vegetative buffer and within 30 feet of the wetland edge, where the buffer has been delineated in environmental corridors, unless the grading is intended to re-establish natural grades or to restore wetland habitat."* Simply, grading can not occur within the first 30 feet of the 75-foot buffer, however no permanent structures may be built on the space. Lots 10-17 should have approximately 12 feet from the rear of the building to the 75-foot buffer for the installation of patios, decks, and accessory structures. As part of the Final Plat, staff recommends a notation be placed on the plat noting the grading and impervious surface restrictions within the 75-foot wetland buffer, so future owners of these properties are aware of the restriction.

Summary of Traffic Impact Analysis (TIA)

A traffic study was completed by SRF, a traffic engineering consultant, in coordination with Dane County, the Village of McFarland and Lakestone Properties. The TIA reviewed five analysis scenarios across eight different intersections and the proposed Elvehjem Road and Devils Lake Way. In the report, the TIA study found, *"the operational analysis found no LOS [level of service] or queuing deficiencies at any study intersection and determined all study intersections currently and will continue to operate acceptably with their current traffic control as no study intersections satisfy signal warrants, even with the inclusion of development-generated traffic."* The study includes recommendations on operational, safety, parking, and other public improvements. See below for a summary of some of the recommendations:

- **Operational Considerations.** No parking along south/west side of Devils Lake Way through the development site.
- **Safety Considerations.** Reduce speeds to 20 MPH for Devils Lake Way and add additional pedestrian signs, including neighborhood park and pedestrian crossing to the Dog Park.
- **Parking Considerations.** Identify the appropriate number of accessible parking spaces.
- **Additional Considerations.** Reduction of speed limit to 25 mph on Elvehjem Road within Village jurisdiction, Elvehjem Road approach leg deflection,

Since the May 2025 Plan Commission meeting, the draft TIA has been reviewed by the Dane County Highway Department and the Village's consultant traffic engineer. Initial comments



from Dane County include clarification on reported numbers and text update. The only requirement from Dane County included: *a Type B2 intersection configuration with a SB right turn lane with bike lane and a NB left turn lane to be constructed at the Elvehjem Road Intersection, similar to Tuscobia Trail configuration to the north.* The Village consultant traffic engineer's review of the TIA included comments that helped to improve clarity among background information presented and data analysis. The Village's traffic engineer concurred with the methodology and recommendations provided by SRF in their TIA. Overall, no significant changes were altered from the previously presented TIA at the May 20th Public Hearing.

Public Comments

The Department did not receive any written comments prior to the publication of this packet in addition to those previously provided at the May 20th public hearing.

Next Steps

The public hearing for this item was held on May 20th Plan Commission meeting on the request for rezone to PD General Development Plan and Preliminary Plat for both applications. The Plan Commission will consider a recommendation for Village Board consideration at their June 24th meeting. Assuming the project progresses further, the following additional official zoning applications will be required. There is no specific timeline for submittal of official applications at this time.

- PD Detailed Plan Approval (similar to a Site Design Review Permit). Requires a public hearing and approval by the Plan Commission.
- Final Plat. The division of land into five or more lots requires approval of a Preliminary and Final Plat. A preliminary plat was submitted and a Final plat is still required. If the preliminary plan is approved, the final plat requires Plan Commission recommendation and Village Board approval. The Final Plat does not require a public hearing by the Plan Commission.
- Development Agreement. To be included as part of the Final Plat approval process.

FINANCIAL/BUDGET IMPACT:

The applicant's response to Section 67(4)(j) states, "*The estimated value of Sperle Corners is as follows: \$600,000 per duplex (both units of one building), \$1,000,000 per 4-unit, and \$4,500,000 per 40 unit building for a total estimated value of \$21,700,000.*" These assessed values would translate to approximately \$350,000 per year in property tax payments.

The plat includes 15,342 sq ft of dedicated public parkland space along Devil's Lake Way (Outlot 2). This is a partial dedication which will be credited toward the remaining fees in lieu of parkland dedication impact fee as shown below. The developer would be responsible for all project costs, including payment of applicable building permit, impact fees, and construction of right-of-way (Devil's Lake Way) and utilities. As a part of the final plat approval, the Village will require a development agreement and the developer will be required to provide a surety bond for the proposed improvements.



	Required sq.ft./Unit	Units	Total Dedication (SF)
Parkland Dedication Requirements	1,463	147	215,061
Less Proposed Outlot 2 Dedication			15,342
Subtotal (parkland dedication deficit)			199,719
Percent of total required dedication			7.134%
2025 Required Fee in Lieu of Parkland and Dedication per Unit ¹			\$3,321.52
Sperle Corners Required Fee in Lieu of Parkland Dedication per Unit w/ Partial Parkland Dedication Requirement			\$3,084.57
Total Fee in Lieu of Parkland Dedication w/ Partial Parkland Dedication			\$453,431.75

¹. Values are subject to change in subject years. Actual to be based on actual fee in lieu values for the year in which a building permit is applied unless prepaid.

Estimated impact fees as of 2025 rates:

- Fees-in-Lieu of Parkland Dedication (as adjusted for partial parkland dedication) = (\$3,084.57 per unit >> \$453,431.75)
- Park Improvement Fee = (\$2,182.13 per unit >> \$320,773.11)
- Public Safety Center Fee = (\$1,673.00 per unit >> \$245,931.00)
- Library Impact Fee = (\$431.00 per unit >> \$63,357.00)
- Public Water Well Fee = TBD, based on actual meter size for each building
- Public Water Tower Fee = TBD, based on actual meter size for each building

VILLAGE PLAN REFERENCE:

[Comprehensive Plan, 2017](#)

In addition to the summary provided under the Issue Summary, the following chapters from the Comprehensive Plan (Volume 2) relate to the concept presented.

- Chapter 2 - Natural and Agricultural Resources of the Comprehensive Plan includes Initiative 3, Refine and Protect Environmental Corridors stating, "*The layering of areas and building limitations comprise environmental corridors. Corridors serve multiple stormwater management, groundwater protection and recharge, erosion control, wildlife habitat, passive recreation, and scenic functions. McFarland's easterly expansion will be characterized by a thoughtfully protected and connected environment corridor network.*" Previously mentioned, the concept includes wetland areas along the west and north lot lines with Lots 3 through 7 appearing to be beyond 75 feet of the wetland boundary. Additional wetlands identified are located at the parcel's southwest corner and adjacent to the northcentral retention pond.
- Chapter 6 - Housing and Neighborhoods provides guidance on new housing and neighborhood development, while maintaining existing homes and neighborhoods.



Policies 3, *"Integrate two and multiple family developments into the fabric of neighborhoods and the community, rather than isolating and concentrating them."* and Policy 5, *"Promote affordable housing through allowing modest lot sizes and higher suburban densities, revisiting certain public improvement requirements (e.g., street widths), appropriately planned and located multiple family housing, incentives where practical, and continued participation in County and State housing programs"*. The mentioned policies encourage the development for a variety of affordable housing and growth opportunity. Initiative 2 from Chapter 6 includes the following statement, *"Encourage Neighborhood Development on the Village's East Side."* This is further expanded in Staff comments in the East Side Plan Summary.

East Side Plan, 2023

Other applicable policies within the East Side Plan include policies and site and building design guidelines in [Chapter 2](#):

- Chapter 2, Policy 1.1. *Ensure that a variety of housing types are included within the East Side growth area, including requiring each subdivision to consider 2-4 housing types/forms and encouraging every development to provide a unit mix that supports varying household sizes.* The proposed development includes 3 different housing types, duplexes, 4-plex, and apartments. The General Plan identifies owner-occupied units and rentals.
- Chapter 2, Policy 1.2. *Use the design guidelines in this Plan to encourage building and site design that provides transition and compatibility between low-intensity residential development and more intensive multi-unit residential, office, and mixed-use developments.* The proposed development transitions from lower density duplexes to the west, to smaller four-unit multi-family buildings, to mid-sized 3-story garden apartment buildings. The proposed eastern apartment building is setback 32.9' from the side lot line with the single family home at 2921 CTH AB. This is the maximum setbacks distance while allowing for Dane County's 150' vision triangle requirement at Elvehjem Road and CTH AB. In addition, for reference purposes, the minimum side yard setback in the R-3 General Residence District (which allows for multi-family buildings) is 10 feet.
- Chapter 2, Policy 1.4. *Encourage site and building design strategies that provides comfortable, safe and attractive walking environments (e.g. decreased setbacks, front porches, balconies, etc.).* This policy is most applicable during the Planned Development Detail Plan; however, the General Development Plan does anticipate balconies on the apartment buildings, sidewalks on both sides of Devils Lake Way and a wider trail along Elvehjem Road and CTH AB, although the latter should extend to the northeast corner of the property.
- Chapter 2, Policy 1.5. *The Village encourages developments that incorporate "missing middle" (3-8 unit buildings) development types supporting both rental and homeownership.* The development includes four 4-unit buildings.

[Housing Needs Assessment, 2023](#)



This plan identified a shortage of renter-occupied housing units in the Village, including market rate apartments. The proposed concept includes 147 new units, ranging from duplex, 4-unit multifamily buildings, and three 37-40 unit garden style multifamily buildings. The Housing Needs Assessment provides low and high projections on rental housing demand by 2030 based on 2020 data. Population projections and target vacancy rate for low projections show the total rental units needed by 2030 is 117, or approximately 15 net new units constructed per year. For high projections, a total of 293 rental units is needed by 2030, or approximately 37 net new units constructed per year. For reference, no new apartment units have been built in McFarland in 2023 or 2024 since the Housing Needs Assessment was completed. The plan calculates a 0.0% vacancy rate between rental and owner-occupied units. This would indicate that there is a high demand for additional housing opportunity for both rental and owner-occupied units. Typically, a 5-7% vacancy rate would indicate a healthy range for rental units, and 2% for owner-occupied units. The plan also identified an under supply of rental units at 80% or more of the County median income. Housing Goal #1 (page 67) states *"increase the supply of ownership and rental units."* The concepts within Housing Goal #3, create healthy neighborhoods is also applicable including *"varied housing types, size and price points, including both owner- and renter-occupied units. This enables more people to stay in the neighborhood through shifting housing needs, and it limits future instability due to changes in the housing market."* The developer has indicated that Lots 3-16 will become zero lot-line owner-occupied duplexes.

Non-binding County and Regional Plans:

Dane County Regional Housing Strategy

From September 2022 to August 2023, an 80-person Housing Advisory Committee (HAC), including representatives from McFarland, joined together through a strategic planning process to create the Dane County Regional Housing Strategy (RHS). The RHS Action Plan identified five housing priorities to guide future efforts around housing:

1. Increase the number of housing units attainable to low-income and moderate-income households.
2. Increase the overall number of housing units.
3. Provide housing, resources and protections for the most vulnerable populations.
4. Rehabilitate and preserve affordability of existing housing.
5. Provide more pathways to homeownership.

Capital Area Regional Planning Commission, 2050 Regional Development Framework, 2022

The 2050 Regional Development Framework is a nonbinding regional advisory land use guide for the Dane County region. This plan identifies six strategies to guide regional development patterns:

1. Focus growth in centers and along corridors.
2. Prioritize growth in already developed areas.
3. Plan areas for quality business growth.
4. Plan complete neighborhoods.



5. Preserve stewardship areas.

ORDINANCE REFERENCE:

Chapter 56. Subdivisions

Sec. 62-4(d). Planned residential development, dwelling

Sec. 62-9(d). Number of residential buildings on a zoning lot

Sec. 62-67. PD Planned Development District

Sec. 62-68(c). Statement of Purpose, PD Planned Development District

BOARD, COMMISSION OR COMMITTEE RECOMMENDATION:

Recommended motion:

Motion, and second, to recommend to the Village Board approval of Ordinance 2025-07, an ordinance rezoning parcel #0610-024-9691-1 from A-1 Agricultural Transition to PD - Planned Development District - General Plan Approved with the following conditions of approval:

- 1. The applicant to provide at least one phase of the PD Detailed Plan within one (1) year after adoption of this ordinance, or submit a request for extension. Failure to complete either will result in rescinding the PD zoning back to A-1 Agricultural Transition District.*
- 2. The applicant to address the Village Fire Chief's comments included in the letter dated June 12, 2025 as part of the Planned Development Detailed Plan or Final Plat as applicable.*
- 3. The applicant to address the Village Engineer's comments included in the letter dated June 12, 2025 as part of the Planned Development Detailed Plan or Final Plat as applicable.*

ATTACHMENTS:

1. 5.20.25 - Rezone - Cty. Hwy AB - Lakestone
2. 2025-07 Rezoning Lands at the Northwest Corner of Elvehjem and CTH AB from A-1 Agricultural Transition to PD Planned Development General Plan Approved
3. Sperle Corners Rezone and Preliminary Plat Submittal_4.8.2025(rev. 6.6.2025)
4. Sperle Corners Stormwater Submittal (6-6-2025)
5. 18939 - Lakestone Properties TIA Draft Report with Attachments_06.11.25
6. AECOM McFarland TIA review_20250609
7. Sperle Corners GDP - Fire Chief Letter of Review_06.12.2025
8. Sperle Corners GDP - Fire Chief Letter of Review_05.12.2025_quam responses
9. Sperle Corners GDP - Village Engineer Letter of Review_06.12.2025
10. Sperle Corners GDP - Village Engineer Letter of Review_05.14.2025 Quam Responses
11. Sperle Corners_Hammond Comments_05.19.25
12. Sperle Farms - Sperle Corners Development Letter of Support_05.20.25

Please publish in the
Leader Independent on
May 1, 2025 and May 8, 2025

**VILLAGE OF MCFARLAND
NOTICE OF PUBLIC HEARING
BEFORE THE PLAN COMMISSION**

NOTICE IS HEREBY GIVEN that there will be a Public Hearing before the Plan Commission on Tuesday May 20, 2025, at 7:00 p.m. in the Community Room of the Municipal Center, 5915 Milwaukee St., McFarland, Wisconsin, at which time interested parties and citizens shall have an opportunity to be heard concerning the following:

A request by Lakestone Properties and Management LLC regarding Ordinance No. 2025-07, An Ordinance Rezoning Lands in the Village of McFarland at the northwest intersection of Elvehjem Road and County Highway AB, parcel #154/0610-024-9691-1, McFarland, WI. from A1-Agricultural Transition District to PD-Planned Development District.

A complete copy of the applicant's application is available for review online at www.mcfarland.wi.us/pendingrequests or at the Village of McFarland Municipal Center, Community & Economic Development Department, 5915 Milwaukee Street, McFarland, WI 53558 (Monday-Friday, 8:00 a.m. to 4:30 p.m.).

Residents wishing to attend the meeting can do so in-person at the Municipal Center or via Zoom by visiting <https://us02web.zoom.us/j/85755749643> or Telephone: Dial (for higher quality, dial a number based on your current location): US: +1 (312) 626-6799 Webinar ID: 857 5574 9643. Please Note: Virtual attendance is offered as a convenience, but technical difficulties beyond the Village's control may prevent or limit its availability at any meeting. The public is encouraged to attend the meeting in person to assure full access to the proceedings.

If you cannot attend the meeting, you may submit your written comments to the Plan Commission by email to community.development@mcfarland.wi.us or by mail to Community Development Department, Village of McFarland, P.O. Box 110, McFarland, WI 53558-0110. Submission must be received no later than the Wednesday prior to the meeting date to be included in the packet.

ORDINANCE 2025-07

AN ORDINANCE REZONING LANDS IN THE VILLAGE OF MCFARLAND FROM A-1 AGRICULTURAL TRANSITION TO PD PLANNED DEVELOPMENT - GENERAL PLAN APPROVED

Purpose: To rezone lands on parcel #0610-024-9691-1, from A-1 Agricultural Transition to PD Planned Development General Plan Approved.

Sponsor: Andrew Bremer, Community & Economic Development Director

Recommended Referral: Plan Commission (Required)

Public Hearing: Required; Preceded by Class 2 Notice

WHEREAS, the lands described under Section 1 of this Ordinance, as shown in Exhibit A, includes parcel #0610-024-9691-1; and

WHEREAS, Lakestone Properties (developer) has an option to purchase the property with the property owner, and has submitted a rezone application to the Village, and requested that the PD General Plan and PD Detailed Plan be processed and approved as a two stage Planned Development; and,

WHEREAS, the lands described under Section 1 of this Ordinance requests a rezone from A-1 Agricultural Transition to PD Planned Development General Plan Approved; and,

WHEREAS, the Plan Commission held a public hearing on the proposed zoning amendment on May 20, 2025, preceded by a Class Two Notice; and,

WHEREAS, the PD General Plan for the development includes 14 residential buildings composed of duplexes, four-unit townhomes, and apartment buildings totaling 147-dwelling units, as conceptually shown in Exhibit A, and preferred to as the Sperle Corners Plat; and,

WHEREAS, the proposed development within the PD General Plan, and Sperle Corners Plat, are consistent with the General Description of Land Uses Allowed within the Village of McFarland Comprehensive Plan for the Neighborhood Future Land Use Category as amended by adoption of the 2023 East Side Plan (Ordinance 2023-03); and,

WHEREAS, the proposed PD General Plan includes improvements for 147 new residential units providing a variety of housing options and types, consistent with several objectives, policies, and initiatives within Chapter 6 Housing and Neighborhood Policies of Village of McFarland Comprehensive Plan which include Objective #1 & 2, Initiative #3, and Policy #1-4; and,

WHEREAS, the proposed General Development Plan is consistent with the following sections within the 2023 East Side Plan's Chapter 2, Policy #1.1, #1.2, #1.4, #1.5, #2.1, #2.2, #2.3, #4.2, #5.1, and #5.3, and is consistent with the Master Plan Concept within Chapter 4.

WHEREAS, the proposed rezone for a PD General Plan is consistent with Housing Goals #1 and #3 of the Village of McFarland's 2023 Housing Needs Assessment; and,

WHEREAS, the Village Board is willing to grant approval of the request to rezone and the Village Board finds approval thereof is in the public interest;

NOW, THEREFORE, the Village Board of the Village of McFarland, does ordain as follows:

1. Section 62-62(a) of the McFarland Municipal Code and the Official Zoning Map are hereby amended so that the following described real estate is hereby rezoned from A-1 Agricultural Transition to PD Planned Development General Plan Approved:

Parcel #0610-024-9691-1

SEC 2-6-10 S 19 A SE1/4 SE ¼ EXC Lot 1 CSM 1455

Legal Description:

A part of the Southeast one-quarter of the Southeast one-quarter of Section 2, Township 6 North, Range 10 East, Village of McFarland, Dane County, Wisconsin, being more particularly described as follows:

BEGINNING at the Southeast Corner of said Section 2; thence, along the South line of said Southeast 1/4, South 87°41'38" West, 1321.53 feet to the Southwest corner of said Southeast 1/4 of the Southeast 1/4, said point also being the Southeast corner of the plat of Park View Estates, recorded in Volume 57 of Plats on Pages 782 through 785 as Document No. 3459436; thence, along the East line of said plat, North 02°34'49" East, 626.90 feet to the Southwest corner of Lot 3 of Certified Survey Map (CSM) No. 15493, recorded in Volume 111 of CSMs on Pages 284 through 286 as Document No. 5637506; thence, along the South line of said CSM and its Easterly extension, North 87°40'27" East, 1316.58 feet to the Southeast corner of said CSM, lying on the East line of aforesaid Southeast one-quarter; thence, along said East line, South 02°07'34" East, 149.72 feet to the Northeast corner of Lot 1 of CSM No. 1455, recorded in Volume 6 of CSMs on Page 144 as Document No. 1400799; thence, along the North line of last said CSM, South 87°41'15" West, 291.58 feet to the Northwest corner of said Lot 1; thence, along the West line of said Lot 1, South 02°07'34" West, 150.00 feet to the Southwest corner of said Lot 1; thence, along the South line of said Lot 1, North 87°41'15" East, 291.58 feet to the Southeast corner of said Lot 1, lying on said East line of the Southeast one-quarter; thence, along said East line, South 02°07'34" East, 327.23 feet to the **POINT OF BEGINNING**.

The above-described parcel contains 780,586 sq. feet or 17.9198 acres, more or less, and is **SUBJECT TO** easements for Public road right-of-way purposes for Elvehjem Road and County Trunk Highway “AB” and is **ALSO SUBJECT TO** all other matters of record and/or fact.

2. The Zoning Administrator is hereby directed to label these changes on the Official Zoning Map, once the rezoning is effective.

3. This ordinance does not constitute approval of any building construction within any of the property described in the ordinance. No construction of any kind, including earthwork or building construction, is permitted on the parcel described in Section 1 of this ordinance until applicable PD Detailed Plans, erosion control and building permits are approved by the Village. If the applicant of this ordinance amendment fails to obtain approve of a PD Detailed Plan for at least one phase of the PD General Plan within one (1) year after adoption of this ordinance, then Section 1 of this ordinance shall become null and void, and the zoning of the afore stated lands shall continue to be the existing A-1 Agricultural Transition District unless an extension is approved by the Village Board.

The above and foregoing Ordinance was duly adopted at a regular meeting of the Village Board of the Village of McFarland held on the ____ of July, 2025.

APPROVED:

Stephanie Brassington, Village President

ATTEST:

Cassandra Suettinger, Deputy Administrator/Clerk

ORDINANCE 2025 – 07	
MOTION	SECOND
ACTION	DATE
Adopted	
Referred	
Tabled	
Withdrawn	
Defeated	
Published	
INDIVIDUAL VOTING RECORD	
Annen –	Leamy –
Boyd –	Peña –
Brassington –	Prill –
Fessler –	
VOTING RESULTS	
Motion Carried	
Motion Defeated:	



April 8, 2025

Village of McFarland

Attn: Andrew Bremer
5915 Milwaukee Street
McFarland, WI 53558-0110

Re: Sperle Corners Proposed Development – General Development Plan

Dear Mr. Andrew Bremer,

Lakestone Properties and Management, LLC is requesting Village approvals for the Preliminary Plat Application, Planned Development Rezone, and General Development Plan. Attached are the following:

- 1) Preliminary Plat Application
- 2) Preliminary Plat Map
- 3) General Development Plan Narrative
- 4) General Development Plan
- 5) Street and Utilities Construction Plan Set
- 6) Erosion Control and Stormwater Management Report

Please let me know if you have any questions or comments,

Sincerely,

Ryan D. Quam, P.E.

FN: LS-03-19

McFarland

VILLAGE OF
Community & Economic Development

Plan Commission Application – 2025

~Application must be completed in full~

Applicant	Lakestone Properties and Management, LLC	Applicant's Agent	Brett Riemen
Property Owner (if different)	Diana Sperle & Mary Teppo	Name	
Address		Address	5910 Main St, McFarland WI 53558
Email		Email	brett@lakestoneproperties.com
Phone #		Phone #	608-838-1800

Parcel No(s). _____ **Type of Proposal – Please check boxes below that apply**

Requires Public Hearing (Class One)	FEES	Requires Public Hearing (Class Two)	FEES	Public Hearing Not required	FEES
☒ Preliminary Plat \$1,150	\$500+AF	☐ Conditional Use	\$425+F	☐ Annexation	At cost
☐ Preliminary Plat (reapplication)	\$500+BF	☒ Rezoning (map) \$475	\$475+F	☐ Dev. Agreement Including Addendums	\$400+F
☐ Certified Survey Map	\$300+FG	☐ Zoning Amendment (text)	\$475+F	☐ Final Plat	\$500+CF
☐ Condominium	\$300+EF	☐ USA/MMSD Annexation	At cost	☐ Final Plat (reapplication)	\$400+DF
☐ Comprehensive Plan Amendment	\$500+F			☐ Site/Design Review	\$400+F

+ = Plus publication and notification charges

A = Plus \$50.00 per lot

B = Any preliminary plat which has previously been reviewed/revised within the last 36 months

C = Plus \$50.00 for each lot within the final plat

D = Any final plat which has been previously reviewed/revised within the last 36 months

E = Plus \$40.00 for each unit shown

F = Plus actual legal, engineering and financial consulting costs incurred by the Village

G = Plus \$25.00 per lot for two or more lots.

Escrow Deposits
(covers costs for outside consultants;
e.g., engineers, attorneys, etc.)

☐ R-E, R-3 & PD (up to 50 acres)	\$5,000
☐ R-E, R-3 & PD (greater than 50 acres)	\$10,000
☐ Site/Design Review (less than 2,000 sq. ft.)	\$1,000
☐ Site/Design Review (2,000 sq. ft. or more)	\$2,000
☒ All Plats including condominiums	\$5,000

Nature of the development proposal: Must provide address of proposed development, legal description, current zoning and description of proposal/request. (Attach additional papers if needed)

Development of the land with 2-unit, 4-unit and multistory apartment buildings, associated drive aisles, parking lots, Devils Lake Way extension, and regional ponds as shown on the General Development Plan. SEC 2-6-10 S 19 A SE1/4 SE1/4 EXC Lot 1 CSM 1455

Requesting rezone to a Planned Development.

Requesting rezone to a Planned Development.

PLEASE READ AND SIGN AT THE BOTTOM ON THE REVERSE SIDE

Has this specific proposal been previously discussed or acted upon by the Plan Commission?

☒ **YES** ☐ **NO** (If "yes" state the nature and the date(s) of the previous application.)

Yes, January, February, and March 2025 preapplication meetings.

Submittal Requirements: One (1) hard copy 8 ½ x 11, except site plan sheets which should be 11 x 17, and one (1) electronic (pdf) copy. A completed in full application can be submitted to the Community Development Department (5915 Milwaukee Street, McFarland, WI 53558, community.development@mcfarland.wi.gov), with fees included with submittal **by *NOON of the deadline day**, according to the schedule below.

Village of McFarland Plan Commission 2025 Schedule

The Village of McFarland Plan Commission normally conducts meetings on the third Tuesday of each month, unless otherwise noted below at 7:00 p.m. at the McFarland Municipal Center in the Community Room. To ensure adequate time for staff review, and publication of legal notices, potential agenda item materials are required to be submitted per the schedule listed below.

***Submittal Deadline Noon on:**

For Scheduled 2025 Meeting date of:

December 10 (2024)-----	January 21
January 7-----	February 18
February 4-----	March 18
March 4-----	April 15
April 8-----	May 20
May 5-----	June 17
June 3-----	July 15
July 8-----	August 19
August 5-----	September 16
September 9-----	October 21
October 7-----	November 18
November 4-----	December 16
December 9-----	January 20, 2026

Applications requiring a public hearing will be scheduled for a hearing according to the schedule above. If there is written or verbal public opposition submitted as part of the public hearing the Plan Commission will postpone action on the application to a subsequent meeting so that concerns can be analyzed if concerns can't be addressed during the hearing. If there is no public opposition and no unresolved issues by Village Staff or Plan Commission members, the Plan Commission may take action on the application at the same meeting as the public hearing. Applicants are encouraged to contact the Community & Economic Development Director for a pre-application meeting to review the project and submittal requirements prior to submitting an official application.

Acknowledgements:

- I understand failure to provide required materials/information/fees by the submittal deadline can result in this application being withdrawn for consideration by the Plan Commission. Materials submitted for review after the submittal deadline date, or incomplete submittals, may be held over until the next scheduled meeting.
- I understand any fees not paid for (i.e. legal notices, mailings, consultant review costs, etc.) will require any permits to be withheld until all payments are made in full. In addition, all application fees are non-refundable.
- I understand Plan Commission applications requiring a Public Hearing may not be acted on the same night as the Public Hearing.

X

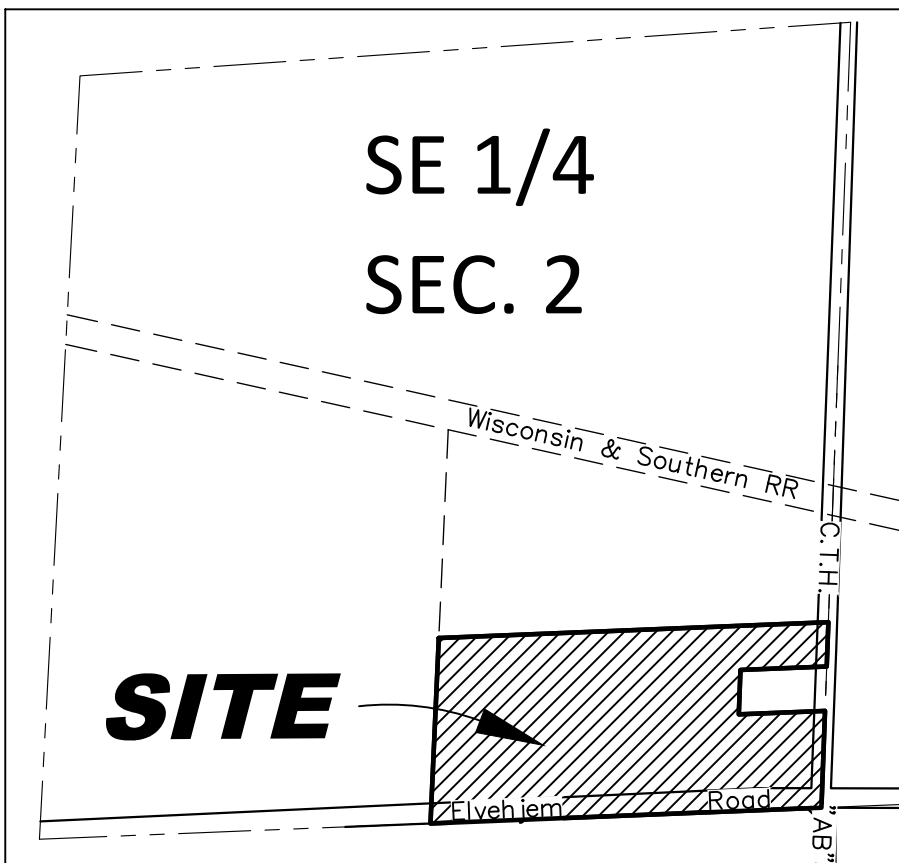
Signature of Applicant/Agent

Date

4/8/24

SPERLE CORNERS

Part of the SE 1/4 of the SE 1/4 of Section 2, Township 6 North, Range 10 East, Village of McFarland, Dane County, Wisconsin PRELIMINARY PLAT



Vicinity Map

Not to Scale

Legal Description:

A part of the Southeast one-quarter of the Southeast one-quarter of Section 2, Township 6 North, Range 10 East, Village of McFarland, Dane County, Wisconsin, being more particularly described as follows:

BEGINNING at the Southeast Corner of said Section 2; thence, along the South line of said Southeast 1/4, South 87°41'38" West, 1321.53 feet to the Southwest corner of said Southeast 1/4 of the Southeast 1/4, said point also being the Southeast corner of the plat of Park View Estates, recorded in Volume 57 of Plats on Pages 782 through 785 as Document No. 3459436; thence, along the East line of said plat, North 02°34'49" East, 626.90 feet to the Southwest corner of Lot 3 of Certified Survey Map (CSM) No. 15493, recorded in Volume 111 of CSMs on Pages 284 through 286 as Document No. 5637506;

thence, along the South line of said CSM and its Easterly extension, North 87°40'27" East, 1316.58 feet to the Southeast corner of said CSM, lying on the East line of aforesaid Southeast one-quarter;

thence, along said East line, South 02°07'34" East, 149.72 feet to the Northeast corner of Lot 1 of CSM No. 1455, recorded in Volume 6 of CSMs on Page 144 as Document No. 1400799;

thence, along the North line of last said CSM, South 87°41'15" West, 291.58 feet to the Northwest corner of said Lot 1;

thence, along the West line of said Lot 1, South 02°07'34" West, 150.00 feet to the Southwest corner of said Lot 1;

thence, along the South line of said Lot 1, North 87°41'15" East, 291.58 feet to the Southeast corner of said Lot 1, lying on said East line of the Southeast one-quarter;

thence, along said East line, South 02°07'34" East, 327.23 feet to the **POINT OF BEGINNING**.

The above-described parcel contains 780,586 sq. feet or 17.9198 acres, more or less, and is **SUBJECT TO** easements for Public road right-of-way purposes for Elvehjem Road and County Trunk Highway "AB" and is **ALSO SUBJECT TO** all other matters of record and/or fact.

NOTES:

- See engineering plans and reports submitted concurrently herewith for details of existing and proposed streets, sidewalks, sanitary sewer, water, storm sewer and stormwater management facilities.
- Outlot 1 will be dedicated to the Public for wetland preservation and stormwater management purposes to be owned & maintained by the the Village of McFarland.
- Outlot 2 will be dedicated to the Public for park and recreational purposes to be owned & maintained by the the Village of McFarland.
- All streets will be dedicated to the Public to be owned & maintained by the Village of McFarland.
- Current zoning of the property within this plat is A-1 Agricultural Transition, with portions also being in the Dane County Wetland District (inland & Shoreland) 75' buffer and Shoreland District (Secondary) 1000' buffer.
- Proposed zoning for Lots 1-18 and Outlots 1 and 2 is PD - Planned Development.
- Wetlands shown were digitized from the October 13, 2022 Wetland Delineation Report by Ruekert-Mielke.
- Date of boundary field survey: February 6, 2025.
- See Sheet 2 for Boundary and Lot Survey Details.
- See Sheet 3 for Topographic Survey Details.
- Monuments will be set in accordance with the Final Plat.

SURVEYOR'S CERTIFICATE:

I hereby certify, to the best of my knowledge and belief, that I have surveyed the property shown hereon; that this map represents an accurate survey of said property and that I have complied with the applicable requirements of Wisconsin Administrative Code Chapter A-E 7 and Chapter 56 of the Village of McFarland Subdivision Ordinance.

Dated this 6th day of June 2025.

C: ____Matt\Matt Sign

By: Matthew E. Hoglund
P.L.S. S-1910



VILLAGE APPROVAL CERTIFICATE:

I hereby certify that this Preliminary Plat of "Sperle Corners" is approved by the Village of McFarland.

Date: _____ By: _____

ENGINEER/SURVEYOR:

Ryan Quam, P.E.
Matthew E. Hoglund, P.L.S.
Quam Engineering, LLC
4604 Siggelkow Road - Suite A
McFarland, WI 53558
Ph: (608) 838-7750

OWNER:

Diana Sperle & Mary Teppo
6027 Canyon Parkway
McFarland, WI 53558

SUBDIVIDER:

Lakestone Properties & Management, LLC
c/o Brian Spanos
5910 Main Street, Suite 1
McFarland, WI 53558
Ph: (608) 838-1800

SHEET 1 OF 3

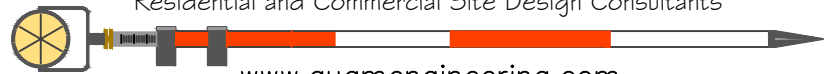
REVISIONS

- 5/13/25 - Added additional zero lot line duplex lots - addressed misc. Village comments.
- 6/6/25 - Added radius to R/W intersection of CTH AB and Elvehjem Road and revised lot dimensions and areas for Lot 18 and Outlot 2 accordingly.

PRELIMINARY PLAT SPERLE CORNERS

PROJECT NO. LS-03-19

QUAM ENGINEERING, LLC
Residential and Commercial Site Design Consultants



www.quamengineering.com

4604 Siggelkow Road, Suite A - McFarland, Wisconsin 53558
Phone (608) 838-7750; Fax (608) 838-7752

There are no objections to this plat with respect to Secs. 236.15, 236.16, 236.20 and 236.21(1) and (2), Wis. Stats. as provided by s. 236.12, Wis. Stats.

Certified _____, 20____

Department of Administration



Part of the SE 1/4 of the SE 1/4 of Section 2, Township 6 North, Range 10 East, Village of McFarland, Dane County, Wisconsin

PRELIMINARY PLAT

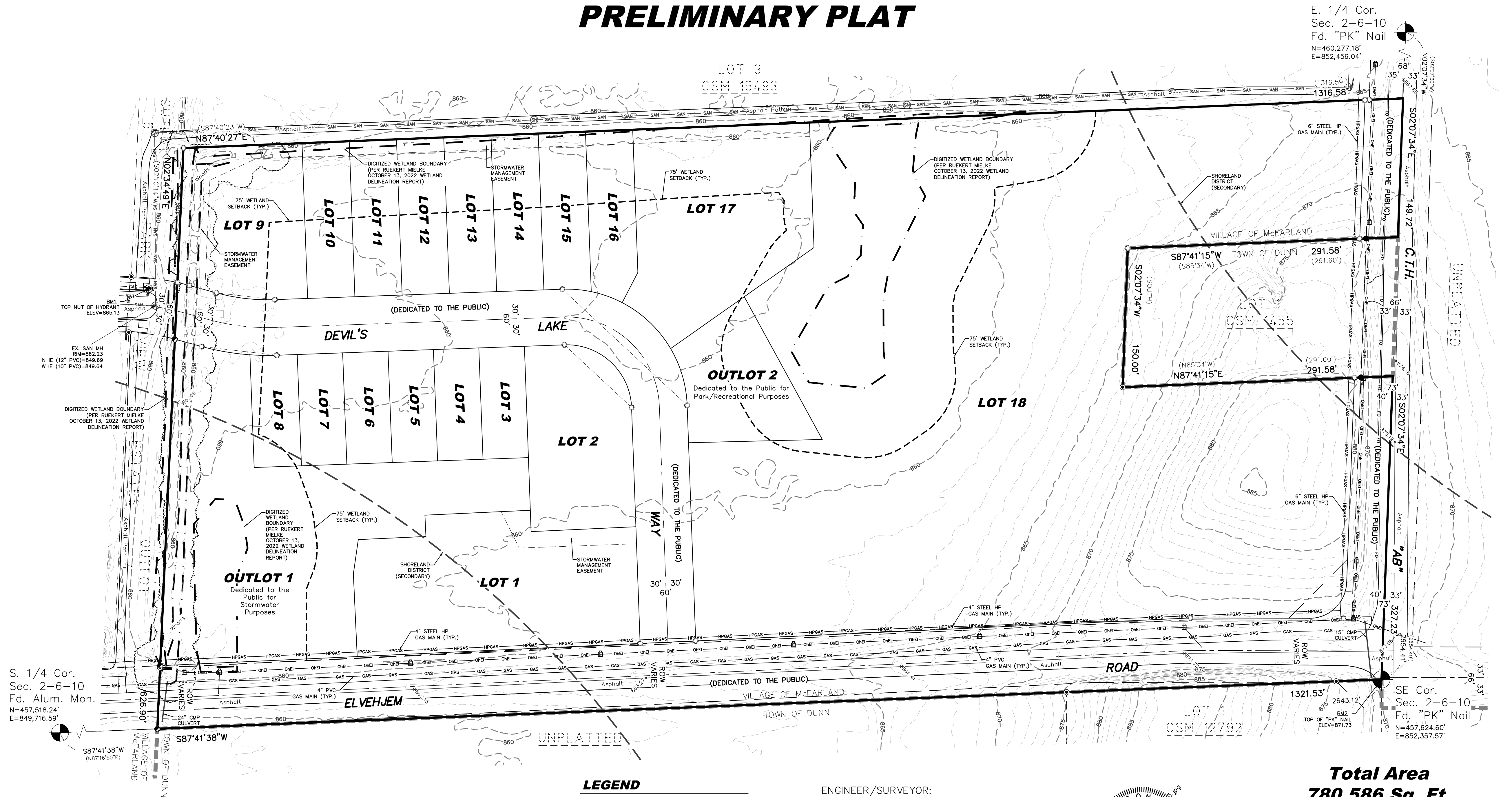
E. 1/4 Cor.
Sec. 2-6-10



SPERLE CORNERS

Part of the SE 1/4 of the SE 1/4 of Section 2, Township 6 North, Range 10 East, Village of McFarland, Dane County, Wisconsin

PRELIMINARY PLAT



LEGEND

- 3/4" Rebar Found
- 1-1/4" Iron Rebar Found
- 1" Iron Pipe Found (unless noted)
- 1-1/4" by 18" Iron Rebar Set Weighing 4.30 lbs./ft.
- All other Lot and Outlot Corners are Set 3/4" by 18" Iron Rebar Weighing 1.50 lbs./ft.
- (43.12') Record Dimensions (if different)
- Boundary Lines per this Survey
- Deed/Survey Line of Record
- Existing R/W Line
- Sectional Subdivision Line
- Existing Easement Line
- Wetland Line
- 75' Wetland Buffer
- Lot or R/W Line
- Centerline
- 20' Wide Public Stormwater Management Easement Line Dedicated Hereon
- Storm Sewer/Stormwater Management Easement Line Dedicated Hereon
- Municipal Boundary

ENGINEER/SURVEYOR:

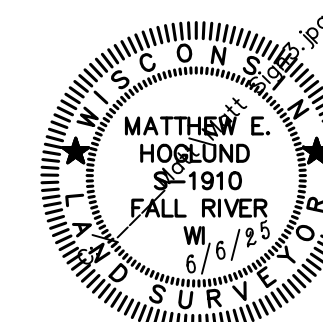
Ryan Quam, P.E.
Matthew E. Hoglund, P.L.S.
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4604 Siggekow Road - Suite A
McFarland, WI 53558
Ph: (608) 838-7750

OWNER:

Diana Sperle & Mary Teppo
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McFarland, WI 53558

SUBDIVIDER:

Lakestone Properties & Management, LLC
c/o Brian Spanos
5910 Main Street, Suite 1
McFarland, WI 53558
Ph: (608) 838-1800



SEE SHEET 1 FOR NOTES:

There are no objections to this plat with respect to Secs. 236.15, 236.16, 236.20 and 236.21(1) and (2), Wis. Stats. as provided by s. 236.12, Wis. Stats.

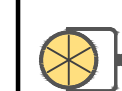
Certified _____, 20____

Department of Administration

Total Area
780,586 Sq. Ft.
17.9198 Acres±

TOPOGRAPHIC
SURVEY DETAILS SHEET 3 OF 3

PRELIMINARY PLAT
SPERLE CORNERS
PROJECT NO. LS-03-19
QUAM ENGINEERING, LLC
Residential and Commercial Site Design Consultants

 www.quamengineering.com
4604 Siggekow Road, Suite A - McFarland, Wisconsin 53558
Phone (608) 838-7750; Fax (608) 838-7752

Legal Description

Sperle Corners

A part of the Southeast one-quarter of the Southeast one-quarter of Section 2, Township 6 North, Range 10 East, Village of McFarland, Dane County, Wisconsin, being more particularly described as follows:

BEGINNING at the Southeast Corner of said Section 2; thence, along the South line of said Southeast 1/4, South 87°41'38" West, 1321.53 feet to the Southwest corner of said Southeast 1/4 of the Southeast 1/4, said point also being the Southeast corner of the plat of Park View Estates, recorded in Volume 57 of Plats on Pages 782 through 785 as Document No. 3459436;

thence, along the East line of said plat, North 02°34'49" East, 626.90 feet to the Southwest corner of Lot 3 of Certified Survey Map (CSM) No. 15493, recorded in Volume 111 of CSMs on Pages 284 through 286 as Document No. 5637506;

thence, along the South line of said CSM and its Easterly extension, North 87°40'27" East, 1316.58 feet to the Southeast corner of said CSM, lying on the East line of aforesaid Southeast one-quarter;

thence, along said East line, South 02°07'34" East, 149.72 feet to the Northeast corner of Lot 1 of CSM No. 1455, recorded in Volume 6 of CSMs on Page 144 as Document No. 1400799;

thence, along the North line of last said CSM, South 87°41'15" West, 291.58 feet to the Northwest corner of said Lot 1;

thence, along the West line of said Lot 1, South 02°07'34" West, 150.00 feet to the Southwest corner of said Lot 1;

thence, along the South line of said Lot 1, North 87°41'15" East, 291.58 feet to the Southeast corner of said Lot 1, lying on said East line of the Southeast one-quarter;

thence, along said East line, South 02°07'34" East, 327.23 feet to the **POINT OF BEGINNING**.

The above-described parcel contains 780,586 sq. feet or 17.9198 acres, more or less, and is **SUBJECT TO** easements for Public road right-of-way purposes for Elvehjem Road and County Trunk Highway "AB" and is **ALSO SUBJECT TO** all other matters of record and/or fact.

General Development Plan

Statement of Owners Intent, and
General Plan for Staged
Development

6-6-2025

Project:
Sperle Corners Subdivision

Owner:
Lakestone Properties and Management, LLC
Attn: Brett Riemen

Statement of Owners Intent

It is the intent of the Owner to develop the lands controlled by the Owner as neighborhood development in general conformance with the McFarland Future Land Use Map and Comprehensive Plan. The purpose of this submittal is to seek the following Village approvals:

- 1) General Plan for Development for all controlled lands;

Legal Description

The land controlled by the Owner is located at the northwest corner of Elvehjem Road and CTH AB, and the legal description is as follows:

SEC 2-6-10 S 19 A SE1/4 SE ¼ EXC Lot 1 CSM 1455

Existing Site

The Existing Site Plan is included as Page 2 of 17 of the construction plan set and site features are as follows:

- 1) 15.37 total acres;
- 2) Currently zoned A1 Agricultural Transition.
- 3) Sloping with 25 feet of fall from the southeast property corner to the drainage ditch and wetlands at the west portion of the property.
- 4) Wetland boundary has been delineated per Ruekert Mielke October 13, 2022 report.
- 5) CTH AB is adjacent to the east.
- 6) Elvehjem Road is adjacent to the south.
- 7) Devils Lake Way dead ends to the west.
- 8) Eastern portion of land surrounds an existing residential home.
- 9) Public sanitary sewer and water main is available to the west at Devils Lake Way.
- 10) Public water main connection is available at Elvehjem Road.

Description of General Plan for Staged Development

The General Plan proposes the development of the land with multistory apartments, 2-unit, and 4-unit buildings, associated drive aisles, parking lots, Devils Lake Way extension, and regional ponds as shown on the General Development Plan included as Exhibit 1. In general, the intent of the General Plan is for the duplex lots (Lots 3-16) to follow the Village's R-2 Zoning Code Regulations and the other lots (Lots 1, 2, 17, and 18) to follow the Village's R-3 Zoning Code regulations, with the exceptions noted in the tables that follow. The applicable residential bulk standards for Lots 1-18 are described in the tables under "PUD-GP Standard". The tables include the "R-2 Standard" and "R-3 Standard" for informational purposes only. In addition to the minimum principal building setbacks described in the following tables, a 75-foot wetland setback applies to lots as shown in the General Development Plan site plan. The 75-foot setback applies to principal and accessory structures as well as impervious surfaces as required for Environmental Corridor policies of the Capital Area Regional Planning Commission, as administered by the Village of McFarland. Unless otherwise stated within this General Plan, or future approved Detailed Plans, applicable building and zoning requirements shall be those of the Village's Building and Zoning codes, including but not limited to, permitted obstructions in required yards (e.g. flagpoles, overhanging eaves and gutters, etc.), accessory uses and structures, fences, and exterior signage. The buildings and site layout are described as follows:

- 1) Lot 1 Buildings (R-3)
 - Two (2) 4-unit buildings;
 - Approximately 5,500 square foot footprint per building, up to 2-story 11,000 gross floor area per building;

- Each unit will have a two-car garage and parking space for two cars in each unit's driveway.
- Approximately 10 visitor parking stalls will be provided.

R-3	R-3 Standard	PUD-GP Standard
Minimum Lot Area (sq.ft.)	None	41,000
Minimum Lot Width (ft.)	80	80
Minimum Front and Street Yard Setback (ft.)	25 or 35 (where the garage faces a public street)	20 for Elvehjem and Devils Lake Way
Maximum Building Height (ft.)	35	35
Minimum Side Yard Setback (ft.)	8 (one story) & 10 (2-story building)	10
Minimum Side Yard Setback both sides combined (ft.)	20	20
Minimum Rear Yard Setback (ft.)	35	35
Minimum Building Separation between buildings on the same lot (ft.)	10	20
Minimum Usable open space per dwelling unit (sq.ft)	500	500
Minimum Lot area per dwelling unit (sq.ft)	5,445 (permitted use) 2,904 (conditional use)	5,125

2) Lot 2 Building (R-3)

- One (1) 4-unit building;
- Approximately 5,500 square foot footprint, up to 2-story 11,000 gross floor area per building;
- Each unit will have a two-car garage and parking space for two cars in each unit's driveway.

R-3	R-3 Standard	PUD-GP Standard
Minimum Lot Area (sq.ft.)	None	21,500
Minimum Lot Width (ft.)	80	80
Maximum Building Height (ft.)	35	35
Minimum Front and Street Yard Setback (ft.)	25 or 35 (where the garage faces a public street)	20
Minimum Side Yard Setback (ft.)	8 (one story) & 10 (2-story building)	10
Minimum Side Yard Setback both sides combined (ft.)	20	20
Minimum Rear Yard Setback (ft.)	35	35
Minimum Usable open	500	500

space per dwelling unit (sq.ft)		
Minimum Lot area per dwelling unit (sq.ft)	5,445 (permitted use)	5,375
	2,904 (conditional use)	

3) Lots 3&4 (R-2)

- One (1) 2-unit zero lot line building;
- Approximately 3,800 square foot footprint, up to 2-story, 7,600 gross floor area per building;
- Each unit will have a two-car garage and parking space for two cars in each unit's driveway.

R-2	R-2 Standard (zero lot line duplex)	PUD-GP Standard
Minimum Lot Area (sq. ft.)	5,000	5,850
Minimum Lot Width (ft.)	40	45
Maximum Building Height (ft.)	35	35
Minimum Front Yard Setback (ft.)	25 or 30 (front yard with snout garage)	20
Minimum Side Yard Setback (ft.)	0 (party wall) & 8 (exterior building to lot line)	0 (party wall) & 8 (exterior building to lot line)
Minimum Side Yard Setback both sides combined (ft.)	8 (one story structure) & 10 (two story structure)	16 (combined building)
Minimum Rear Yard Setback (ft.)	30	30
Minimum Usable open space per dwelling unit (sq.ft)	750 Each Lot	750 Each Lot
Minimum Lot area per dwelling unit (sq.ft)	5,000 Each Lot	5,000 Each Lot

4) Lots 5&6 (R-2)

- One (1) 2-unit zero lot line building;
- Approximately 3,800 square foot footprint, up to 2-story, 7,600 gross floor area per building;
- Each unit will have a two-car garage and parking space for two cars in each unit's driveway.

R-2	R-2 Standard (zero lot line duplex)	PUD-GP Standard
Minimum Lot Area (sq.ft.)	5,000	5,850
Minimum Lot Width (ft.)	40	40
Maximum Building Height (ft.)	35	35
Minimum Front Yard Setback (ft.)	25 or 30 (front yard with snout garage)	20
Minimum Side Yard Setback (ft.)	0 (party wall) & 8 (exterior building to lot	0 (party wall) & 8 (exterior building to lot

	line)	line)
Minimum Side Yard Setback both sides combined (ft.)	8 (one story structure) & 10 (two story structure)	16 (combined building)
Minimum Rear Yard Setback (ft.)	30	30
Minimum Usable open space per dwelling unit (sq.ft)	750 Each Lot	750 Each Lot
Minimum Lot area per dwelling unit (sq.ft)	5,000 Each Lot	5,000 Each Lot

5) Lots 7&8 (R-2)

- One (1) 2-unit zero lot line building;
- Approximately 3,800 square foot footprint, up to 2-story, 7,600 gross floor area per building;
- Each unit will have a two-car garage and parking space for two cars in each unit's driveway.

R-2	R-2 Standard (zero lot line duplex)	PUD-GP Standard
Minimum Lot Area (sq.ft.)	5,000	5,850
Minimum Lot Width (ft.)	40	40
Maximum Building Height (ft.)	35	35
Minimum Front Yard Setback (ft.)	25 or 30 (front yard with snout garage)	20
Minimum Side Yard Setback (ft.)	0 (party wall) & 8 (exterior building to lot line)	0 (party wall) & 8 (exterior building to lot line)
Minimum Side Yard Setback both sides combined (ft.)	8 (one story structure) & 10 (two story structure)	16 (combined building)
Minimum Rear Yard Setback (ft.)	30	30
Minimum Usable open space per dwelling unit (sq.ft)	750 Each Lot	750 Each Lot
Minimum Lot area per dwelling unit (sq.ft)	5,000 Each Lot	5,000 Each Lot

6) Lots 9&10 (R-2)

- One (1) 2-unit zero lot line building;
- Approximately 3,800 square foot footprint, up to 2-story, 7,600 gross floor area per building;
- Each unit will have a two-car garage and parking space for two cars in each unit's driveway.

R-2	R-2 Standard (zero lot line duplex)	PUD-GP Standard
Minimum Lot Area (sq.ft.)	5,000	21,650 (Lot 9) & 8,550 (Lot 10)
Minimum Lot Width (ft.)	40	50

Maximum Building Height (ft.)	35	35
Minimum Front Yard Setback (ft.)	25 or 30 (front yard with snout garage)	20
Minimum Side Yard Setback (ft.)	0 (party wall) & 8 (exterior building to lot line)	0 (party wall) & 96 (Lot 9 exterior building to lot line) & 8 (Lot 10 exterior building to lot line)
Minimum Side Yard Setback both sides combined (ft.)	8 (one story structure) & 10 (two story structure)	104 (combined building)
Minimum Rear Yard Setback (ft.)	30	30
Minimum Usable open space per dwelling unit (sq.ft)	750 Each Lot	750 Each Lot
Minimum Lot area per dwelling unit (sq.ft)	5,000 Each Lot	5,000 Each Lot

- 7) Lots 11&12 (R-2)
- One (1) 2-unit zero lot line building;
 - Approximately 3,800 square foot footprint, up to 2-story, 7,600 gross floor area per building;
 - Each unit will have a two-car garage and parking space for two cars in each unit's driveway.

R-2	R-2 Standard (zero lot line duplex)	PUD-GP Standard
Minimum Lot Area (sq. ft.)	5,000	8,550
Minimum Lot Width (ft.)	40	50
Maximum Building Height (ft.)	35	35
Minimum Front Yard Setback (ft.)	25 or 30 (front yard with snout garage)	20
Minimum Side Yard Setback (ft.)	0 (party wall) & 10 (exterior building to lot line)	0 (party wall) & 8 (exterior building to lot line)
Minimum Side Yard Setback both sides combined (ft.)	8 (one story structure) & 10 (two story structure)	16 (combined building)
Minimum Rear Yard Setback (ft.)	30	30
Minimum Usable open space per dwelling unit (sq.ft)	750 Each Lot	750 Each Lot
Minimum Lot area per dwelling unit (sq.ft)	5,000 Each Lot	5,000 Each Lot

- 8) Lot 13&14 (R-2)
- One (1) 2-unit zero lot line building;

- Approximately 3,800 square foot footprint, up to 2-story, 7,600 gross floor area per building;
- Each unit will have a two-car garage and parking space for two cars in each unit's driveway.

R-2	R-2 Standard (zero lot line duplex)	PUD-GP Standard
Minimum Lot Area (sq.ft.)	5,000	8,550
Minimum Lot Width (ft.)	40	50
Maximum Building Height (ft.)	35	35
Minimum Front Yard Setback (ft.)	25 or 30 (front yard with snout garage)	20
Minimum Side Yard Setback (ft.)	0 (party wall) & 10 (exterior building to lot line)	0 (party wall) & 8 (exterior building to lot line)
Minimum Side Yard Setback both sides combined (ft.)	8 (one story structure) & 10 (two story structure)	16 (combined building)
Minimum Rear Yard Setback (ft.)	30	30
Minimum Usable open space per dwelling unit (sq.ft)	750 Each Lot	750 Each Lot
Minimum Lot area per dwelling unit (sq.ft)	5,000 Each Lot	5,000 Each Lot

9) Lot 15&16 (R-2)

- One (1) 2-unit zero lot line building;
- Approximately 3,800 square foot footprint, up to 2-story, 7,600 gross floor area per building;
- Each unit will have a two-car garage and parking space for two cars in each unit's driveway.

R-2	R-2 Standard (zero lot line duplex)	PUD-GP Standard
Minimum Lot Area (sq.ft.)	5,000	8,550
Minimum Lot Width (ft.)	40	50
Maximum Building Height (ft.)	35	35
Minimum Front Yard Setback (ft.)	25 or 30 (front yard with snout garage)	20
Minimum Side Yard Setback (ft.)	0 (party wall) & 10 (exterior building to lot line)	0 (party wall) & 8 (exterior building to lot line)
Minimum Side Yard Setback both sides combined (ft.)	8 (one story structure) & 10 (two story structure)	16 (combined building)
Minimum Rear Yard Setback (ft.)	30	30
Minimum Usable open space per dwelling unit (sq.ft)	750 Each Lot	750 Each Lot

Minimum Lot area per dwelling unit (sq.ft)	5,000 Each Lot	5,000 Each Lot
--	----------------	----------------

10) Lot 17 Building (R-3)

- One (1) 4-Unit condominium building;
- Approximately 5,500 square foot footprint, up to 2-story, 11,000 gross floor area per building;
- Each unit will have a two-car garage and parking space for two cars in each unit's driveway.

R-3	R-3 Standard	PUD-GP Standard
Minimum Lot Area (sq.ft.)	None	36,850
Minimum Lot Width (ft.)	80	70 at frontage 80 at 20' Setback Line
Maximum Building Height (ft.)	35	35
Minimum Front Yard Setback (ft.)	25 or 35 (where the garage faces a public street)	20
Minimum Side Yard Setback (ft.)	8 (one story) & 10 (2-story building)	10
Minimum Side Yard Setback both sides combined (ft.)	20	20
Minimum Rear Yard Setback (ft.)	35	35
Minimum Usable open space per dwelling unit (sq.ft)	500	500
Minimum Lot area per dwelling unit (sq.ft)	5,445 (permitted use) 2,904 (conditional use)	9,210

11) Lot 18 Apartment Buildings (R-3)

- Three (3) Three-story apartment buildings;
- 40 units for the Phase 1 and 2 buildings;
- 37 units for the Phase 3 building;
- Approximately 15,750 square foot footprint per building, 47,250 gross floor area per building;
- Approximately 210 feet long per building;
- Approximately 75 feet deep per building;
- 40 underground parking stalls per building 40 unit building, 37 underground parking stalls for the 37 unit building;
- Approximately 97 above ground parking stalls are proposed on Lot 18 to supplement the apartment buildings underground parking and to meet overall parking requirements;
- Mix of 1, 2, and 3 bedroom units with individual washers and dryers and private balconies;

R-3	R-3 Standard	PUD-GP Standard
Minimum Lot Area (sq.ft.)	None	319,800
Minimum Lot Width (ft.)	80	80

Maximum Building Height (ft.)	35	33' Eave, 51' Ridge, 42' Roof mid pointe
Minimum Front and Street Yard Setback (ft.)	25 or 35 (where the garage faces a public street)	20 for Elvehjem and Devils Lake Way, 30 for CTH AB
Minimum Side Yard Setback (ft.)	8 (one story) & 10 (2-story building)	30 (to 2921 CTH AB) & 10 (to all other side lot lines)
Minimum Side Yard Setback both sides combined (ft.)	20	30 (to 2921 CTH AB) & 10 (to all other side lot lines)
Minimum Rear Yard Setback (ft.)	35	35
Minimum Building Separation between buildings on the same lot (ft.)	10	20
Minimum Usable open space per dwelling unit (sq.ft)	500	500
Minimum Lot area per dwelling unit (sq.ft)	5,445 (permitted use) 2,904 (conditional use)	2,175

12) Preliminary Plat is included as Exhibit 2 with the submittal;

- Lot 1 contains 0.941 acres ±;
- Lot 2 contains 0.494 acres ±;
- Lot 3 contains 0.135 acres ±;
- Lot 4 contains 0.135 acres ±;
- Lot 5 contains 0.135 acres ±;
- Lot 6 contains 0.135 acres ±;
- Lot 7 contains 0.135 acres ±;
- Lot 8 contains 0.141 acres ±;
- Lot 9 contains 0.497 acres ±;
- Lot 10 contains 0.196 acres ±;
- Lot 11 contains 0.197 acres ±;
- Lot 12 contains 0.197 acres ±;
- Lot 13 contains 0.197 acres ±;
- Lot 14 contains 0.197 acres ±;
- Lot 15 contains 0.199 acres ±;
- Lot 16 contains 0.205 acres ±;
- Lot 17 contains 0.846 acres ±;
- Lot 18 contains 7.351 acres ±;
- Outlot 1 contains 1.535 acres ±;
- Outlot 2 contains 0.352 acres ±.

13) Site Layout

- Two regional wet detention ponds will meet rate runoff control, sediment control requirements and six infiltration ponds will meet infiltration requirements for all proposed impervious areas. Outlot 1 will be dedicated to the Village;
- Approximately 0.352 acre active park area. Outlot 2 to be dedicated to the Village;
- 11.93 Dwelling Units / Acre (overall development site which is 12.323 acres)

- 14) Schedule
- Lot 1 two 4-Unit buildings open in Spring 2027
 - Lot 2 4-Unit building open in Spring 2026
 - Lot 3&4 2-Unit building (combined) open in Spring 2026
 - Lot 5&6 2-Unit building (combined) open in Spring 2026
 - Lot 7&8 2-Unit building (combined) open in Spring 2027
 - Lot 9&10 2-Unit building (combined) open in Fall 2027
 - Lot 11&12 2-Unit building (combined) open in Fall 2027
 - Lot 13&14 2-Unit building (combined) open in Fall 2026
 - Lot 15&16 2-Unit building (combined) open in Fall 2026
 - Lot 17 4-Unit building open in Spring 2027
 - Lot 18 Phase 1 40-unit apartment building open in Spring 2026
 - Lot 18 Phase 2 40-unit apartment building open in Spring 2027
 - Lot 18 Phase 3 37-unit apartment building open in Spring 2028

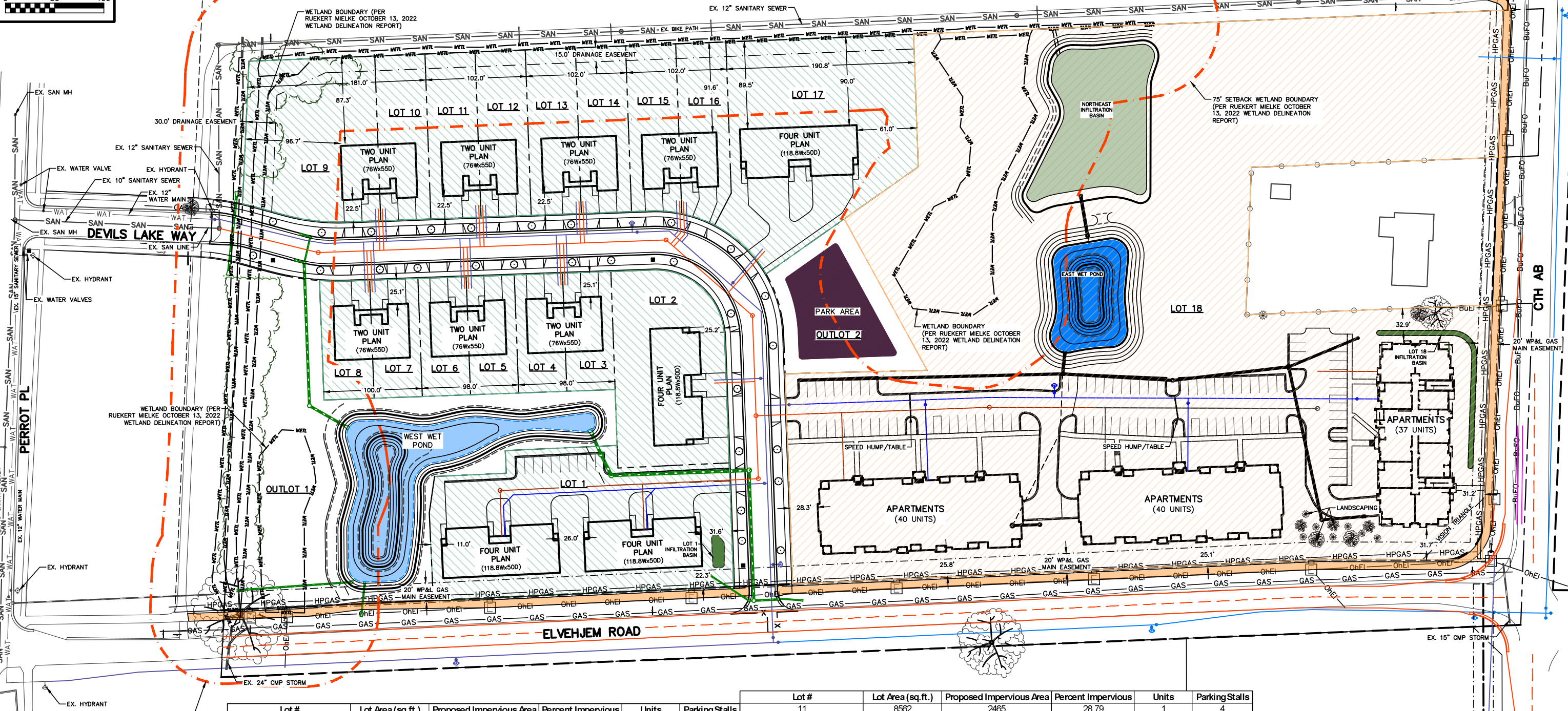
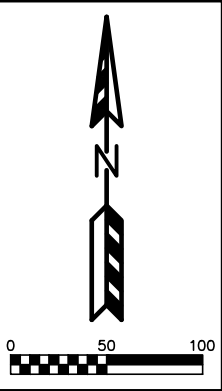
Planned Development District Standards and Responses

Section 62-67(4) lists the standards shall apply in the review of all general or detailed plans proposed for the Planned Development District. The standards and this submittal responses are as follows:

- a) *“The uses proposed in the planned development shall be in general conformance with the Village Comprehensive Plan”.* This application includes a proposed use in conformance with the future land use map of “Neighborhood”, as well as with the 2023 East Side Plan Master Plan Concept of Medium and Low Density Residential.
- b) *“The establishment, maintenance or operation of the uses proposed in the planned development shall not substantially impair or diminish the use value and enjoyment of other properties within the neighborhood”.* The proposed General Plan will not substantially impair or diminish the use value and enjoyment of the adjacent properties. Similar duplex developments are immediately to the west of the development; proposed setbacks to adjacent developments are in excess of the required setbacks.
- c) *“Traffic circulation into and within the development shall be designed to minimize traffic congestion and traffic hazards, provide for the accessibility of all uses and buildings and also provide for the safe and convenient movement of both vehicles and pedestrians”.* The 28’ to 32’ wide Devil’s Lake Way extension will provide safe and convenient movement of vehicles and the adjacent sidewalk as well as perimeter bike paths will provide safe movement for pedestrians.
- d) *“The planned development shall incorporate environmental design considerations, including the preservation of topography, trees and ground cover, streams and natural bodies of waters, and other significant natural features and control of erosion and runoff in accord with the Village Erosion Control and Stormwater Management Ordinances”.* The proposed buildings are located a minimum of 75’ from the delineated wetlands. Stormwater runoff from the development will pass through detention ponds and infiltration ponds. The proposed development will include storm sewer, detention ponds, and infiltration ponds to meet Village Erosion Control and Stormwater Management Ordinances. Many deciduous trees along the west property line and the existing wetlands buffer will be protected during construction in order to remain. The Landscape Plan will meet Village landscaping ordinances for R-2 properties (Lots 3-16) and R-3 properties (Lots 1, 2, 17, and 18).
- e) *“The planned development shall provide for convenient and harmonious groups of buildings, structures and uses; and buildings shall be spaced and sited to ensure adequate safety, light, ventilation and privacy”.* The proposed buildings will be

designed with similar materials and architectural style. The existing landscaping will be maintained to maximize privacy to the neighboring properties.

- f) *“The following provisions shall apply:”*
1. *“In a planned development for residential use, adequate open space and recreational areas shall be provided in appropriate locations, and all public and common open spaces shall be designed and located to provide safe and convenient access to residents”.* The planned development will provide a blend of park dedication and fee in lieu of dedication. An approximately 0.352 acre park area is proposed as shown the General Development Plan, Exhibit 1. The lawn and landscaped areas will provide a common open space that is safe and accessible to residents.
 2. *“Planned Development Districts housing impacts on community resources in the same manner as other new development, which are characterized by division of land into lots. In particular, the additional population density places demands upon Village parks and recreation areas. Accordingly, each dwelling unit newly established shall be required to dedicate land or provide fees in lieu of land, in accordance with the procedures set forth in Section 62-64”.* The proposed 147 dwelling units will provide \$452,432.80 of fees-in-lieu of parkland dedication (\$3,073.67 per unit accounting for Outlot 2 dedication), \$320,773.11 in Park Improvement fees (\$2,182.13 per unit), \$245,931.00 in Public Safety Center fees (\$1,673.00 per unit) and \$63,357 in Library Impact fees (\$431.00 per unit). The final impact fees shall be determined at the time a building permit is submitted based on the Village’s approved rates.
- g) *“The planned development will not adversely affect the ability of public agencies to provide school or other municipal services”.* The planned development will not adversely affect the ability of public agencies to provide school or other municipal services. This area is planned for future residential development in the Village’s 2023 East Side Plan and there is a current declining enrollment within the McFarland School District.
- h) *“The width of street rights-of-way, width of paving, width and location of street or other paving, outdoor lighting, location of sewer and water lines, provision for stormwater drainage or other similar environmental engineering considerations shall be based on a determination and the appropriate standards necessary to implement the specific function in the specific situation; provided, however, that in no case shall standards be less than those necessary to ensure the public safety and welfare as determined by the Village”.* The construction will meet Village and State requirements.
- i) *“The proponents of a Planned Development District application shall provide evidence satisfactory to the Village Board of its economic feasibility of available adequate financing and that it would not adversely affect the economic prosperity of the Village or the values of surrounding properties”.* The applicant feels that this proposal will be a benefit to the Village and not adversely affect surrounding properties. The estimated value of Sperle Corners is as follows: \$600,000 per duplex, \$1,000,000 per 4 unit, and \$4,500,000 per 40 unit building for a total estimated value of \$21,700,000;
- j) *“The proponents of a Planned Development District shall submit a reasonable schedule for the implementation of the development of the development to the satisfaction of the Village Board, including suitable provisions for assurance that each phase could be brought to completion in a manner that would not result in an adverse effect upon the community as a result of termination at that point”.* The anticipated development schedule is included on page 9 of this submittal.



- LOW DENSITY RESIDENTIAL**
4.98 ACRES
10 DWELLING UNITS PER ACRE
49 DWELLING UNITS ALLOWED
30 DWELLING UNITS PROPOSED
- MEDIUM DENSITY RESIDENTIAL**
7.35 ACRES
20 DWELLING UNITS PER ACRE
147 DWELLING UNITS ALLOWED
117 DWELLING UNITS PROPOSED

Lot #	Lot Area (sq.ft.)	Proposed Impervious Area	Percent Impervious	Units	Parking Stalls	Lot #	Lot Area (sq.ft.)	Proposed Impervious Area	Percent Impervious	Units	Parking Stalls
1	41008	24502	59.75	8	42	11	8562	2465	28.79	1	4
2	21509	8047	37.41	4	16	12	8574	2466	28.76	1	4
3	5896	2525	42.83	1	4	13	8585	2464	28.70	1	4
4	5885	2515	42.74	1	4	14	8597	2465	28.67	1	4
5	5885	2514	42.72	1	4	15	8647	2465	28.51	1	4
6	5885	2515	42.74	1	4	16	8944	2680	29.96	1	4
7	5885	2514	42.72	1	4	17	36864	10995	29.83	4	16
8	6140	2517	40.99	1	4	18	320229	87117	27.20	117	214
9	21653	2465	11.38	1	4	Outlot 1	66857	0	0.00	0	0
10	8551	2464	28.82	1	4	Outlot 2	15342	0	0.00	0	0
11	8562	2465	28.79	1	4	Street ROW	50005	38570	77.13	0	0
						TOTALS	669503	204265	30.51	147	344

SPERLE CORNERS – VILLAGE OF MCFARLAND
GENERAL DEVELOPMENT PLAN
EXHIBIT: 1 OF 1
DATED: JUNE 6, 2025

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SPERLE CORNERS RESIDENTIAL

SUBDIVISION

STREET AND UTILITY CONSTRUCTION

VILLAGE OF MCFARLAND

DANE COUNTY, WISCONSIN

SHEET	INDEX	DESCRIPTION
1		COVER PAGE
2		EXISTING SITE PLAN
3		OVERALL GRADING AND STORM WATER MANAGEMENT PLAN
3.1		GRADING PLAN - PHASE 1
4		WEST POND PLAN
5		EAST POND PLAN
6	0+00 - 6+00	DEVILS LAKE WAY - PLAN AND PROFILE
7	6+00 - 10+00	DEVILS LAKE WAY - PLAN AND PROFILE
8	20+00 - 27+50	STORM SEWER - PLAN AND PROFILE
9	29+00 - 35+00	STORM SEWER - PLAN AND PROFILE
10	50+00 - 56+00	WATER MAIN - PLAN AND PROFILE
11	56+00 - 62+00	WATER MAIN - PLAN AND PROFILE
12		SIGN & LIGHTING PLAN
13		STREET TREE PLAN
14		DETAILS #1
15		DETAILS #2
16		DETAILS #3
17		DETAILS #4



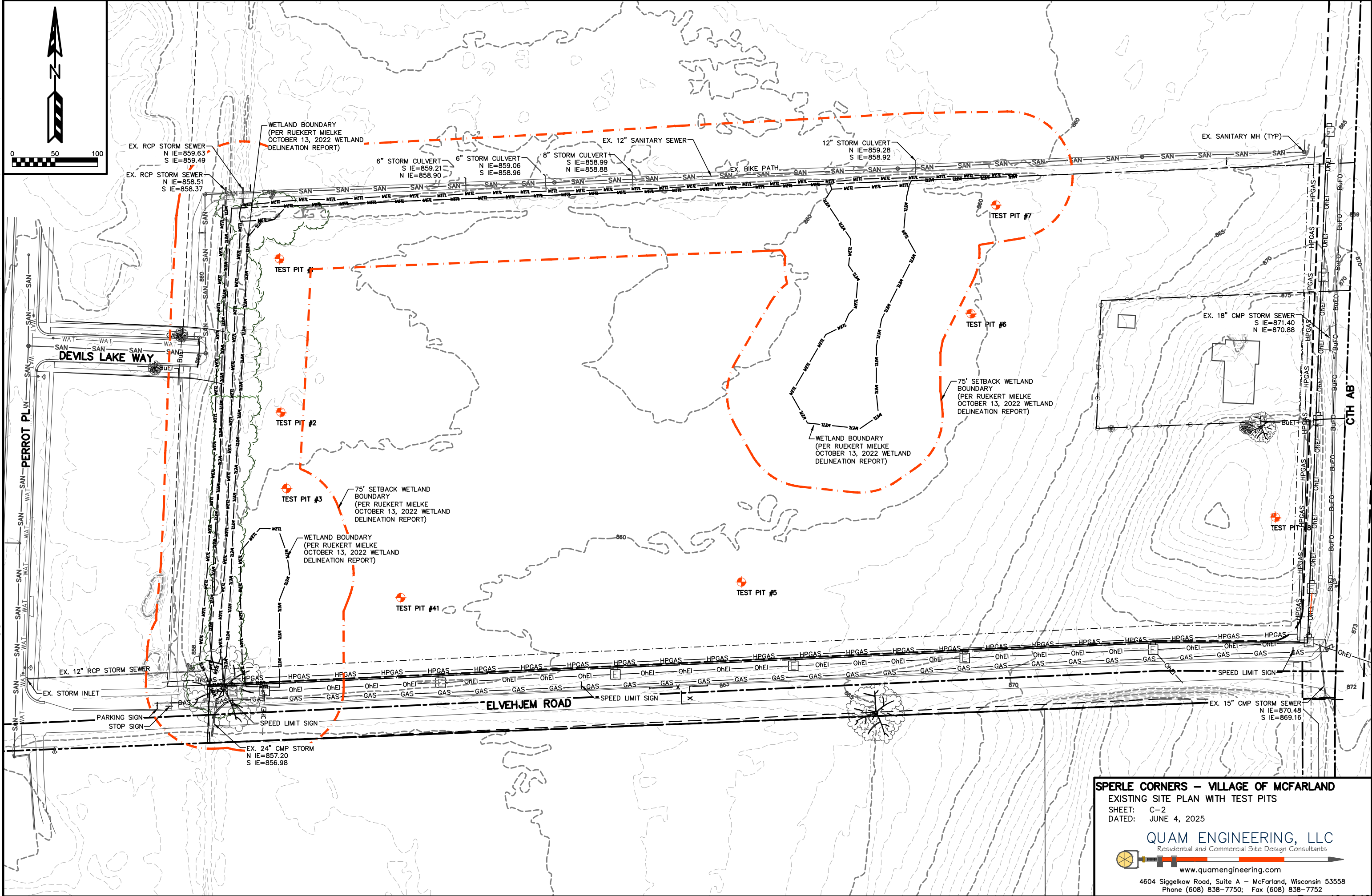
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SPERLE CORNERS - VILLAGE OF MCFARLAND

EXISTING SITE PLAN WITH TEST PITS

SHEET: C-2

DATED: JUNE 4, 2025

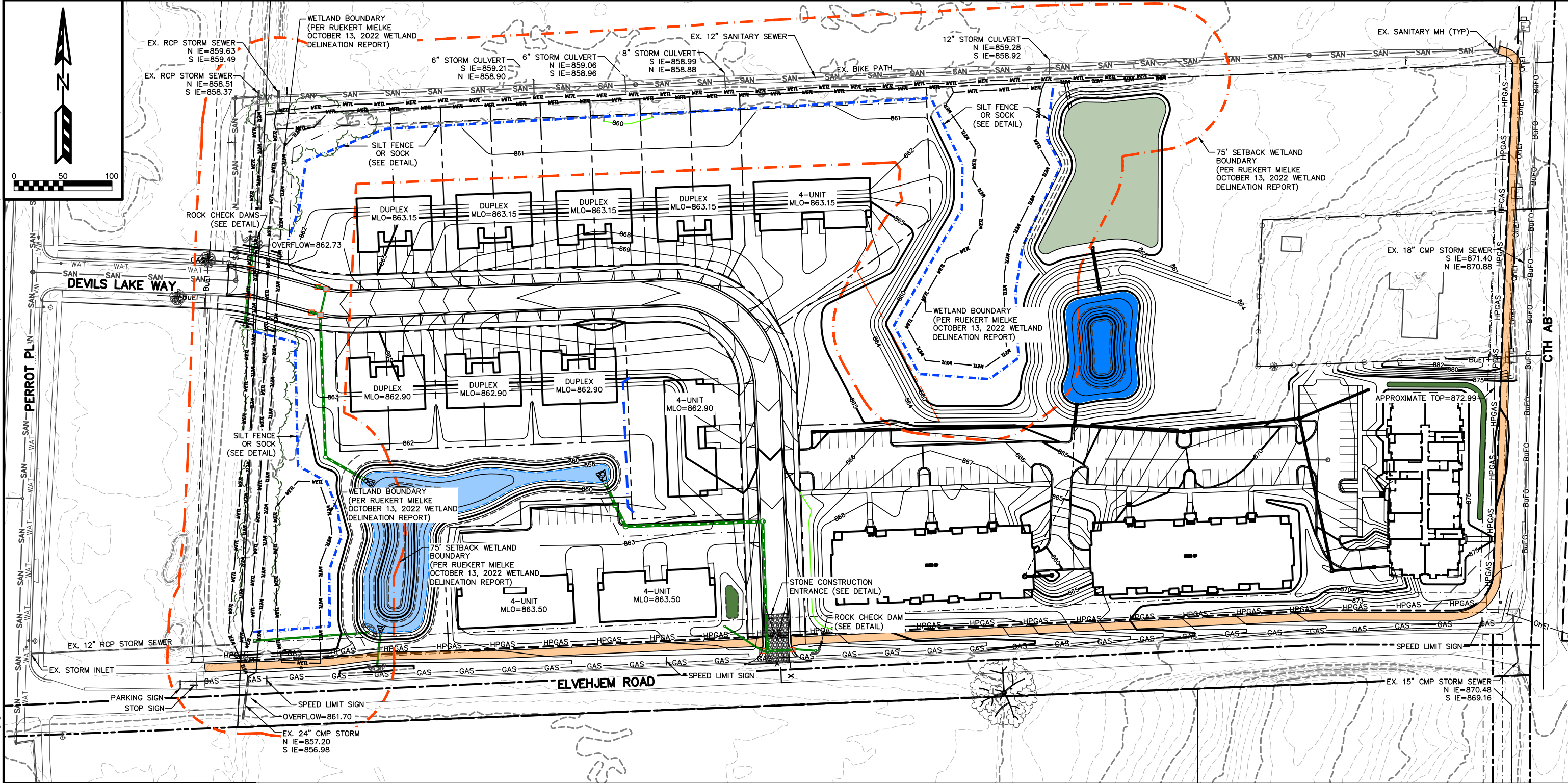
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LEGEND FOR COMMON LINES:	
	EXISTING MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPERTY LINE
	ROAD RIGHT-OF-WAY
	EASEMENT LINE
	75 FT SHORELINE SETBACK
	EXISTING FENCE
	EXISTING BURIED WATER MAIN/SERVICE
	EXISTING BURIED SANITARY SEWER/LATERAL
	EXISTING BURIED GAS LINE
	EXISTING BURIED COMMUNICATION LINE
	EXISTING BURIED FIBER OPTIC LINE
	EXISTING BURIED TELEPHONE LINE
	EXISTING BURIED ELECTRIC LINE
	EXISTING OVERHEAD UTILITY LINE
	EXISTING OVERHEAD ELECTRIC LINE
	PROPOSED SILT FENCE/SOCK (SEE DETAIL)
	PROPOSED LIMITS OF DISTURBANCE
	MINIMUM LOWEST OPENING
	FLEXSTORM INLET PROTECTION (SEE DETAIL)

SPERLE CORNERS - VILLAGE OF MCFARLAND

OVERALL GRADING & STORM WATER MANAGEMENT PLAN

SHEET: C-3

DATED: JUNE 4, 2025

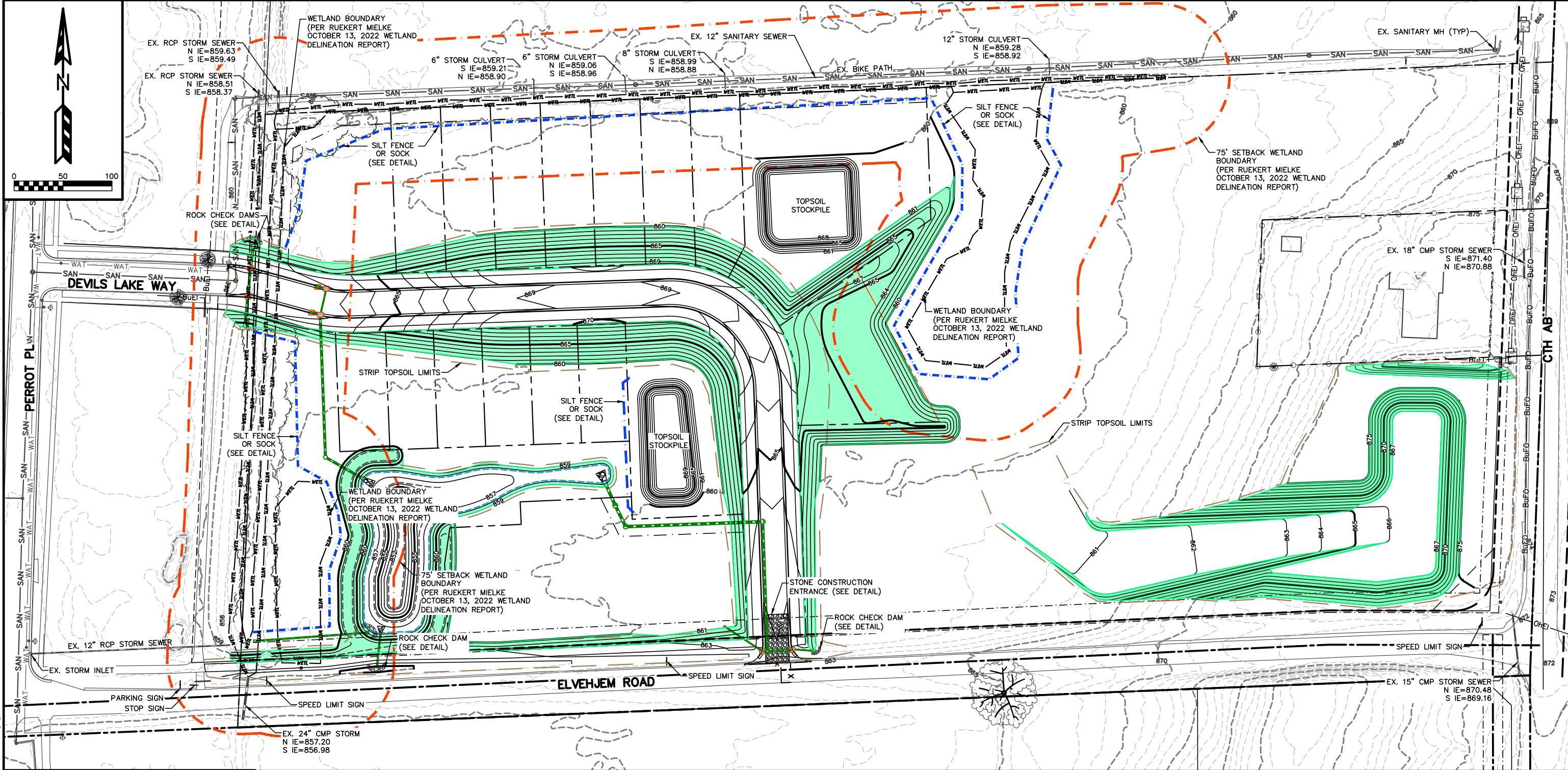
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LEGEND FOR COMMON LINES:	
	EXISTING MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPERTY LINE
	ROAD RIGHT-OF-WAY
	EASEMENT LINE
	75 FT SHORELINE SETBACK
	EXISTING FENCE
	EXISTING BURIED WATER MAIN/SERVICE
	EXISTING BURIED SANITARY SEWER/LATERAL
	EXISTING BURIED GAS LINE
	EXISTING BURIED COMMUNICATION LINE
	EXISTING BURIED FIBER OPTIC LINE
	EXISTING BURIED TELEPHONE LINE
	EXISTING BURIED ELECTRIC LINE
	EXISTING OVERHEAD UTILITY LINE
	EXISTING OVERHEAD ELECTRIC LINE
	PROPOSED SILT FENCE/SOCK (SEE DETAIL)
	PROPOSED LIMITS OF DISTURBANCE
	PROPOSED EROSION MATTING
	PROPOSED ROCK CHECK DAM (SEE DETAIL)
	FLEXSTORM INLET PROTECTION (SEE DETAIL)

SPERLE CORNERS – VILLAGE OF MCFARLAND

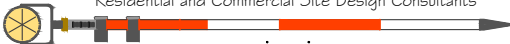
GRADING PLAN – PHASE 1

SHEET: C-3.1

DATED: JUNE 4, 2025

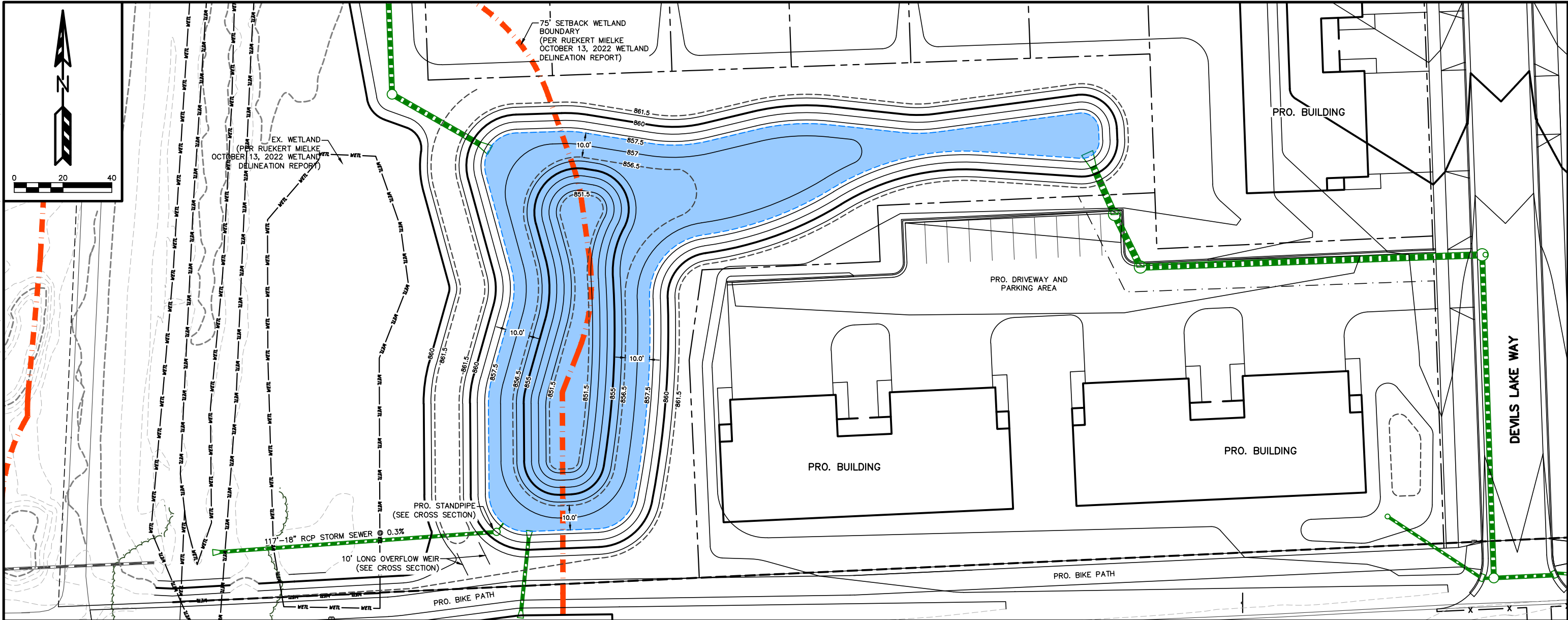
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TO WISCONSIN DNR TECHNICAL STANDARD #1001

36" DIA. RCP STANDPIPE W/ HAALA INDUSTRIES TRASH RACK OR EQUAL
RIM=859.50; 3" IE=857.50
18" IE=857.50

10' BERM EL=861.50

10' WIDE OVERFLOW WEIR
EL=861.00

200-YEAR WATER ELEV=861.17

18" RCP STORM SEWER

5'-3" PVC STORM SEWER (LAID FLAT)

PERMANENT WATER ELEV=857.50

MINIMUM 10' WIDE SAFETY SHELF AROUND BASIN

856.50

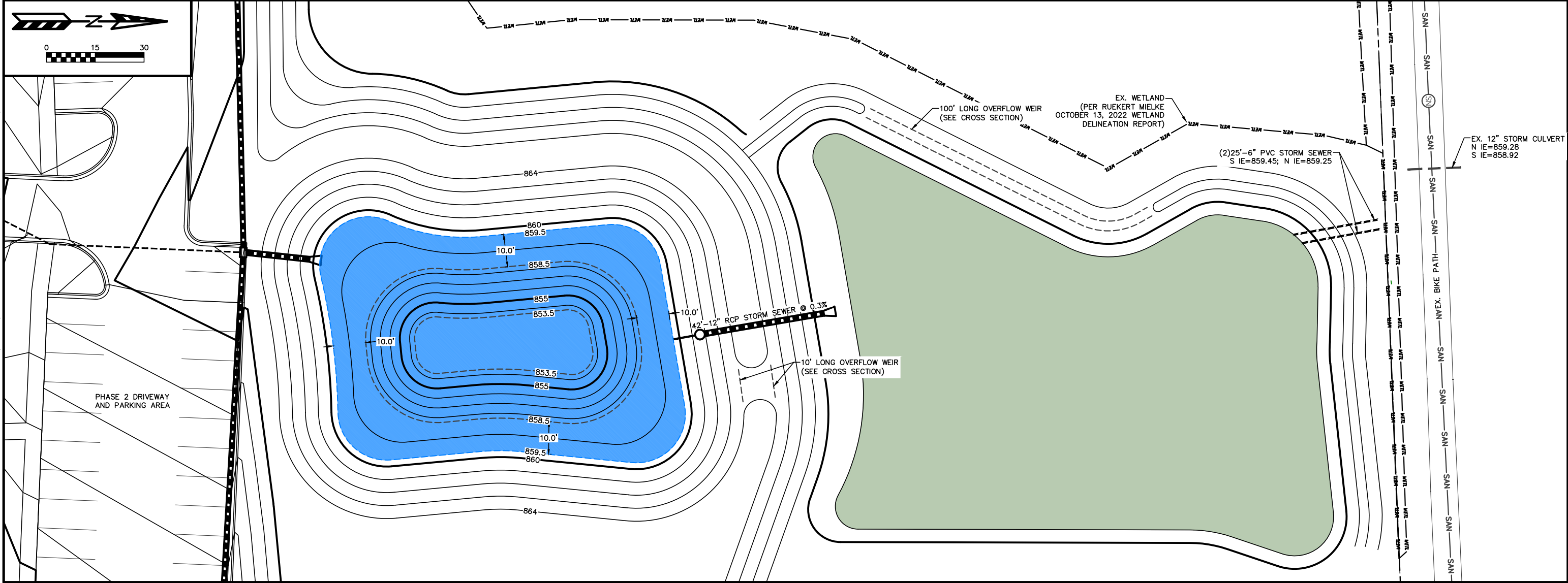
2' TYPE C CLAY LINER (EXTEND TO 2-YEAR WATER ELEVATION)

30" RCP STORM SEWER

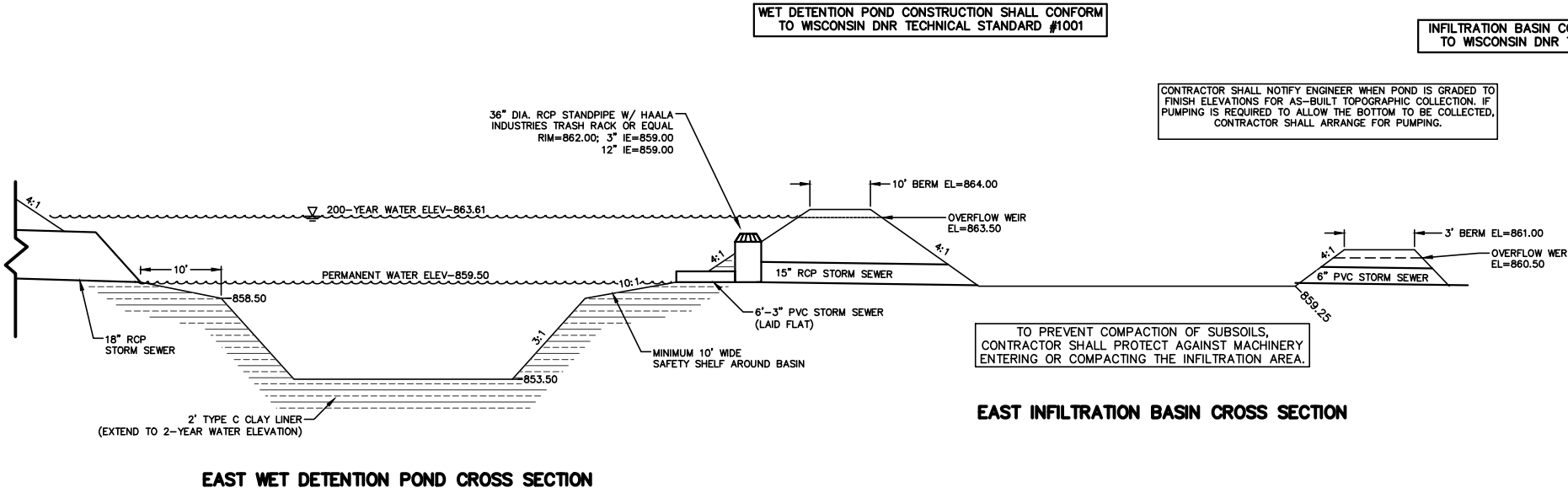
CONTRACTOR SHALL NOTIFY ENGINEER WHEN POND IS GRADED TO FINISH ELEVATIONS FOR AS-BUILT TOPOGRAPHIC COLLECTION. IF PUMPING IS REQUIRED TO ALLOW THE BOTTOM TO BE COLLECTED, CONTRACTOR SHALL ARRANGE FOR PUMPING.

WET DETENTION POND CONSTRUCTION SHALL CONFORM
TO WISCONSIN DNR TECHNICAL STANDARD #1001

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EAST WET POND PEAK ELEVATIONS	
STORM	ELEV
1-YR	861.45
2-YR	861.77
10-YR	862.23
100-YR	863.22
200-YR	863.61



EAST INFILTRATION BASIN PEAK ELEVATIONS	
STORM	ELEV
1-YR	859.63
2-YR	859.66
10-YR	860.12
100-YR	860.62
200-YR	860.65

LAKESTONE PROPERTIES - VILLAGE OF MCFARLAND

EAST POND PLAN

SHEET: C-5

DATED: JUNE 4, 2025

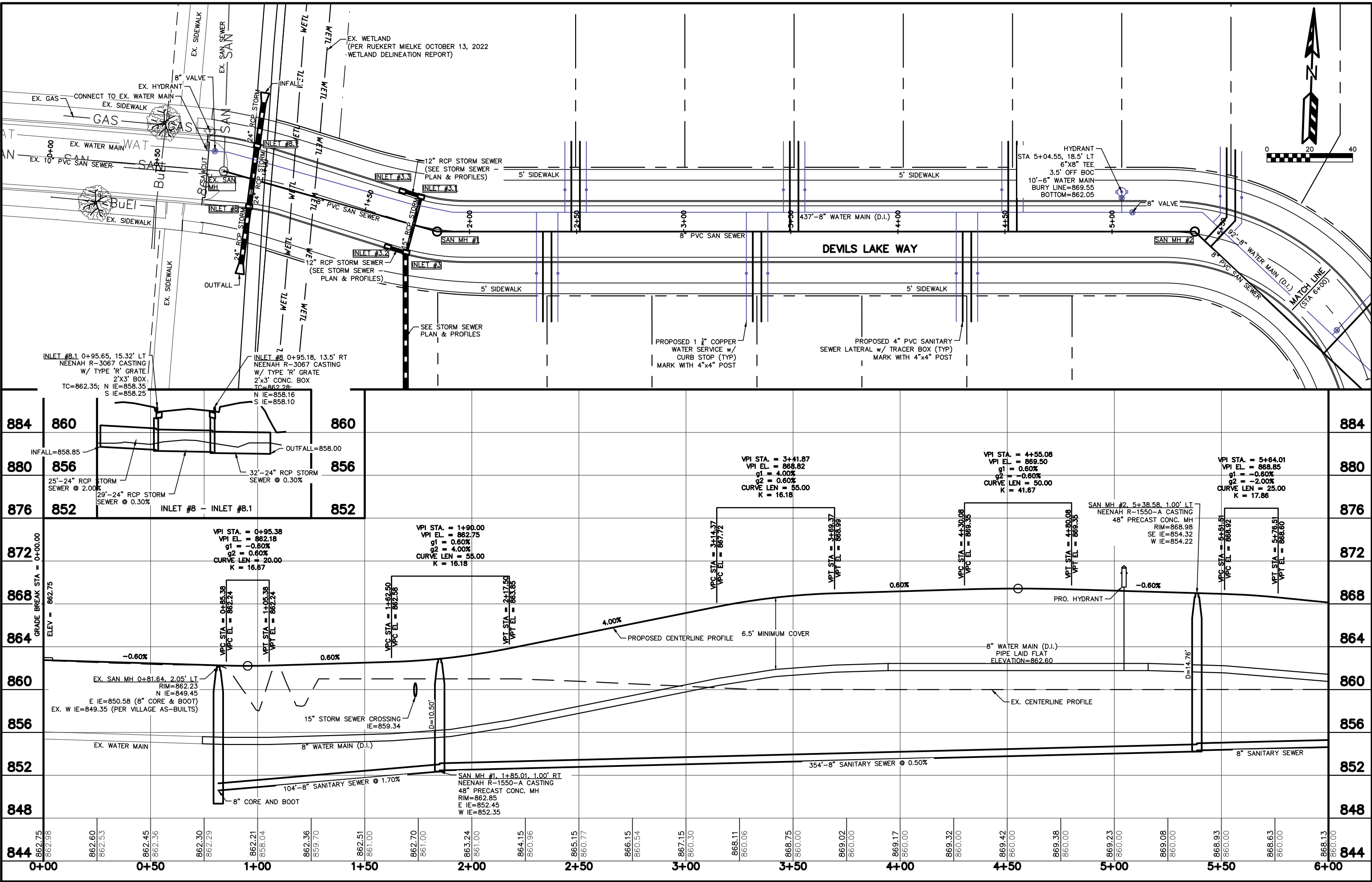
QUAM ENGINEERING, LLC

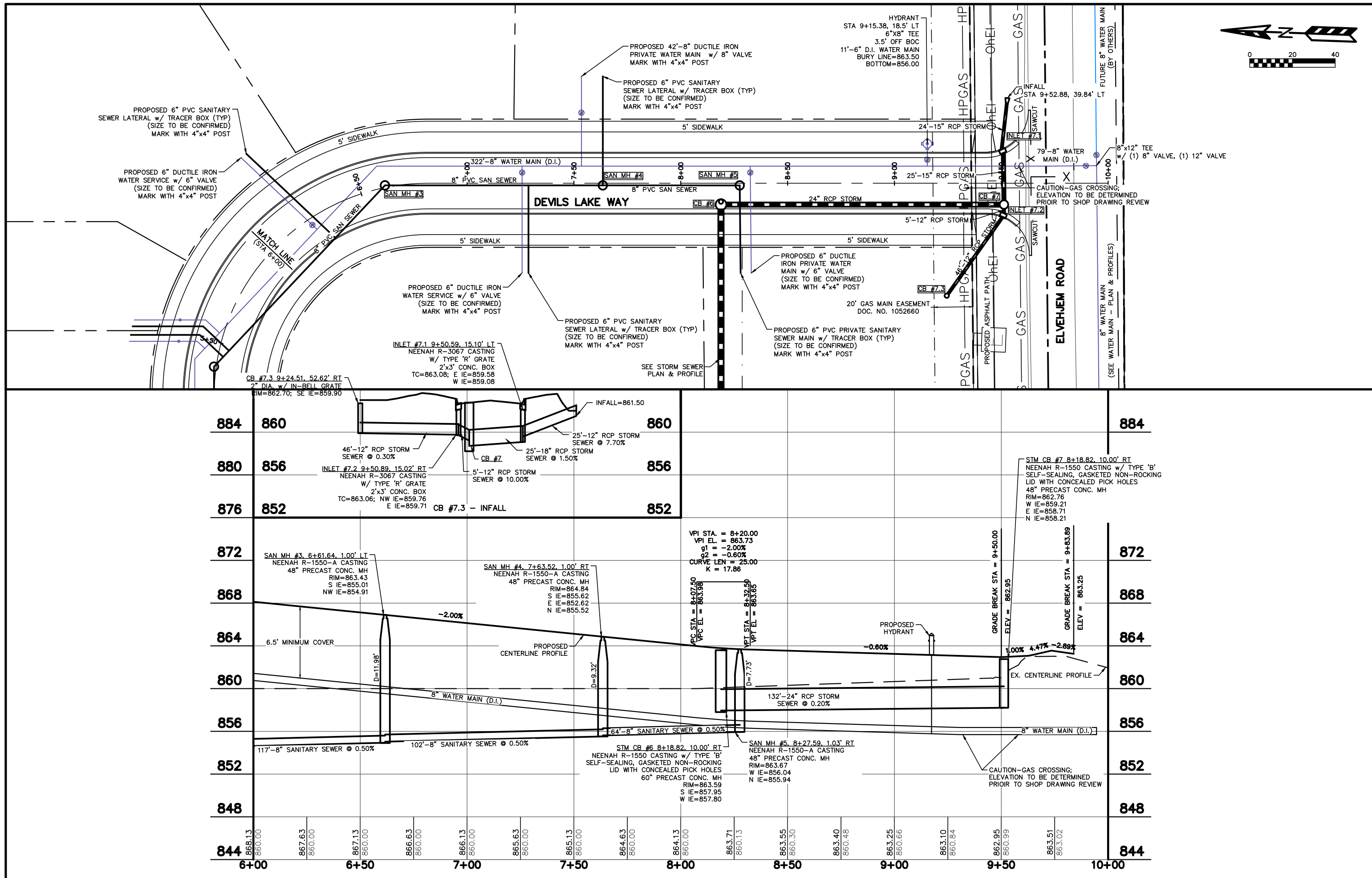
Residential and Commercial Site Design Consultants

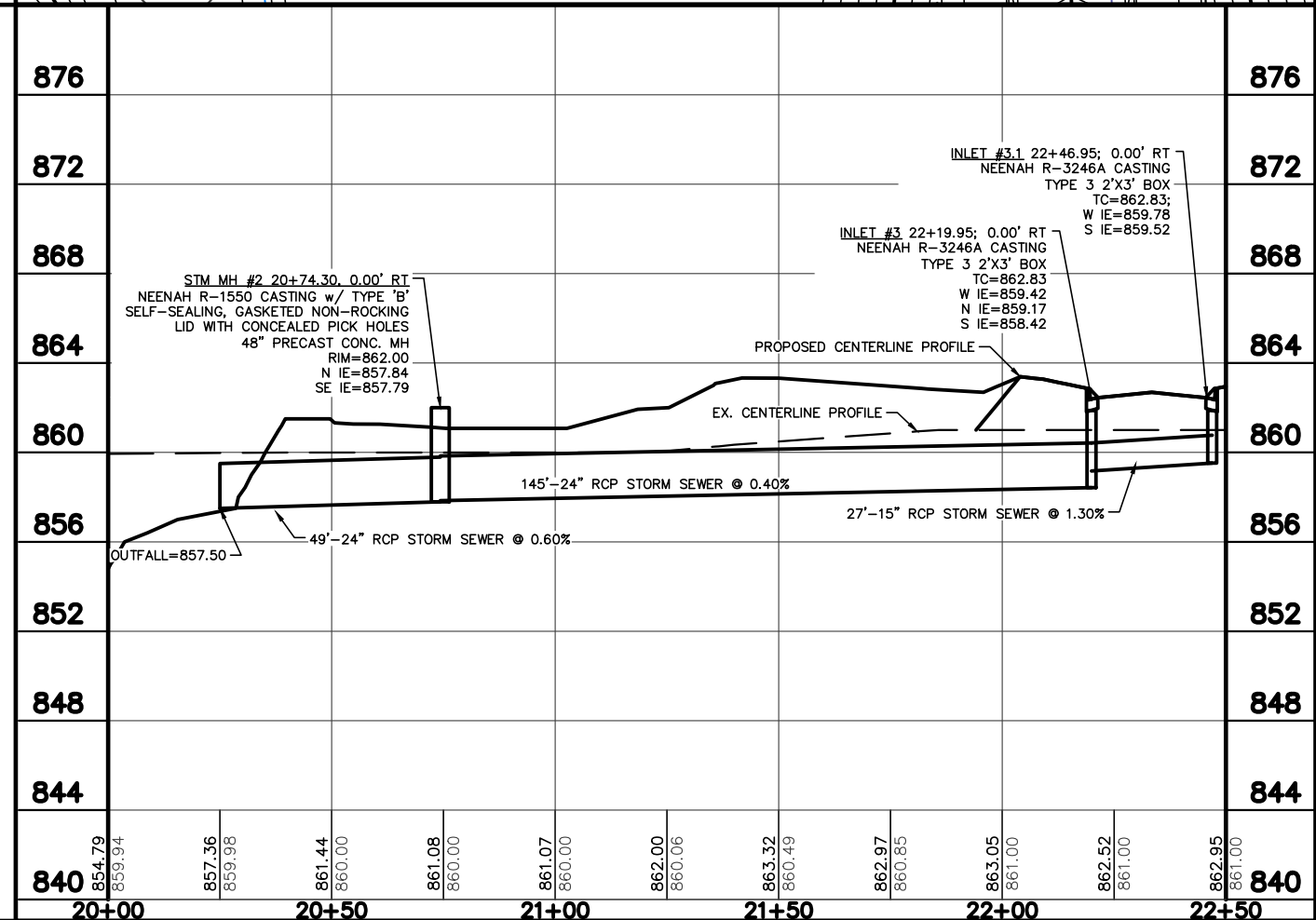
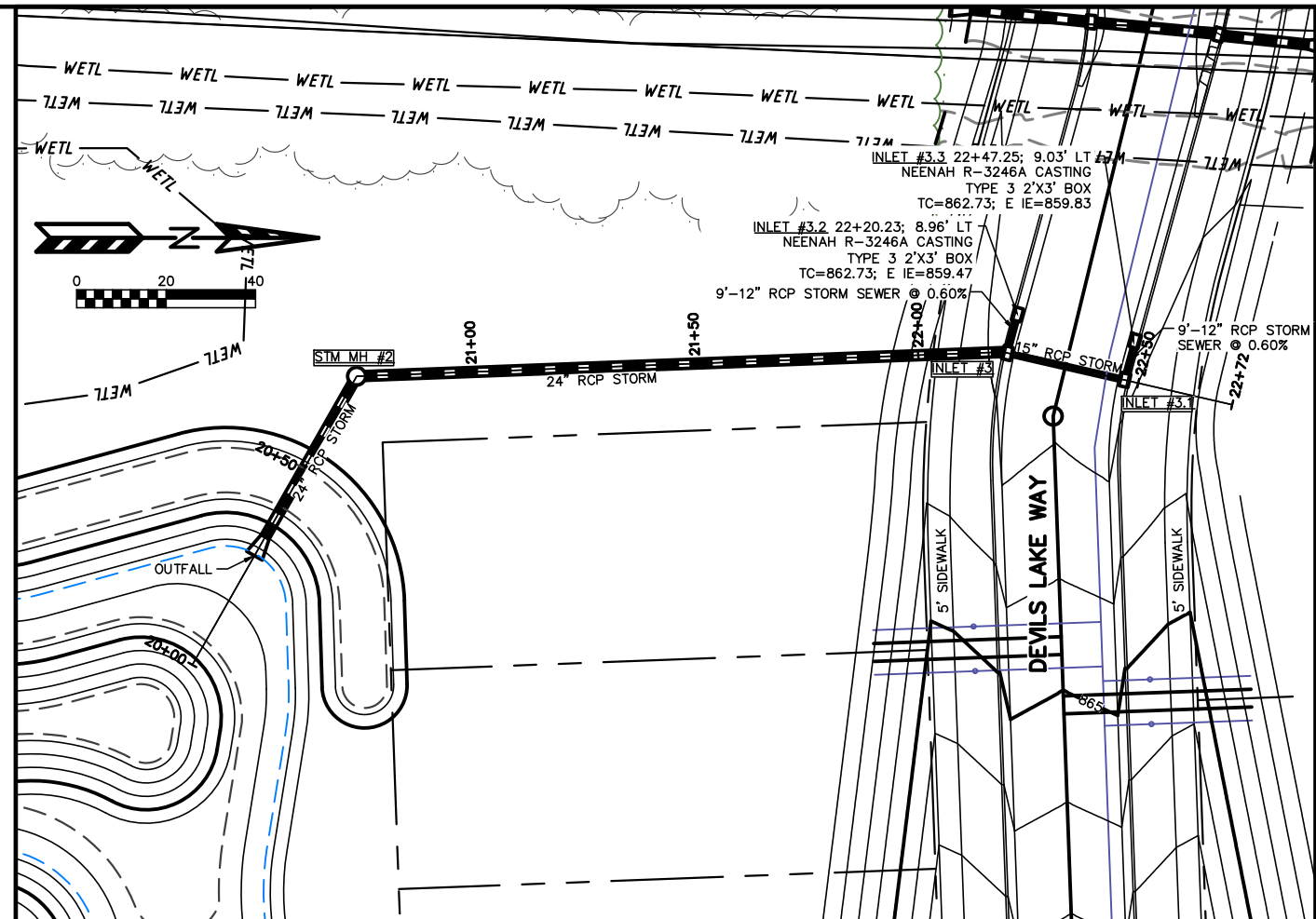
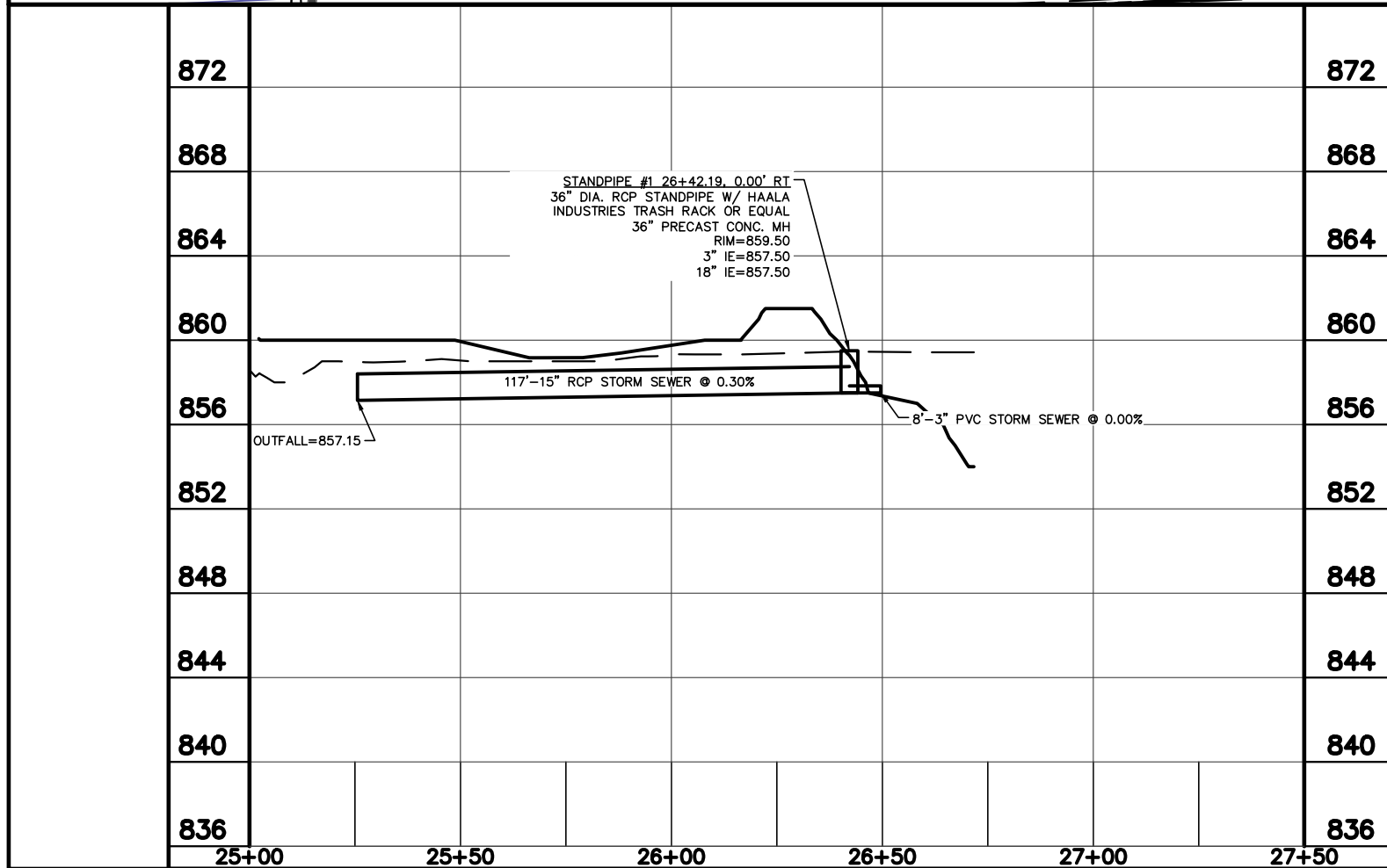
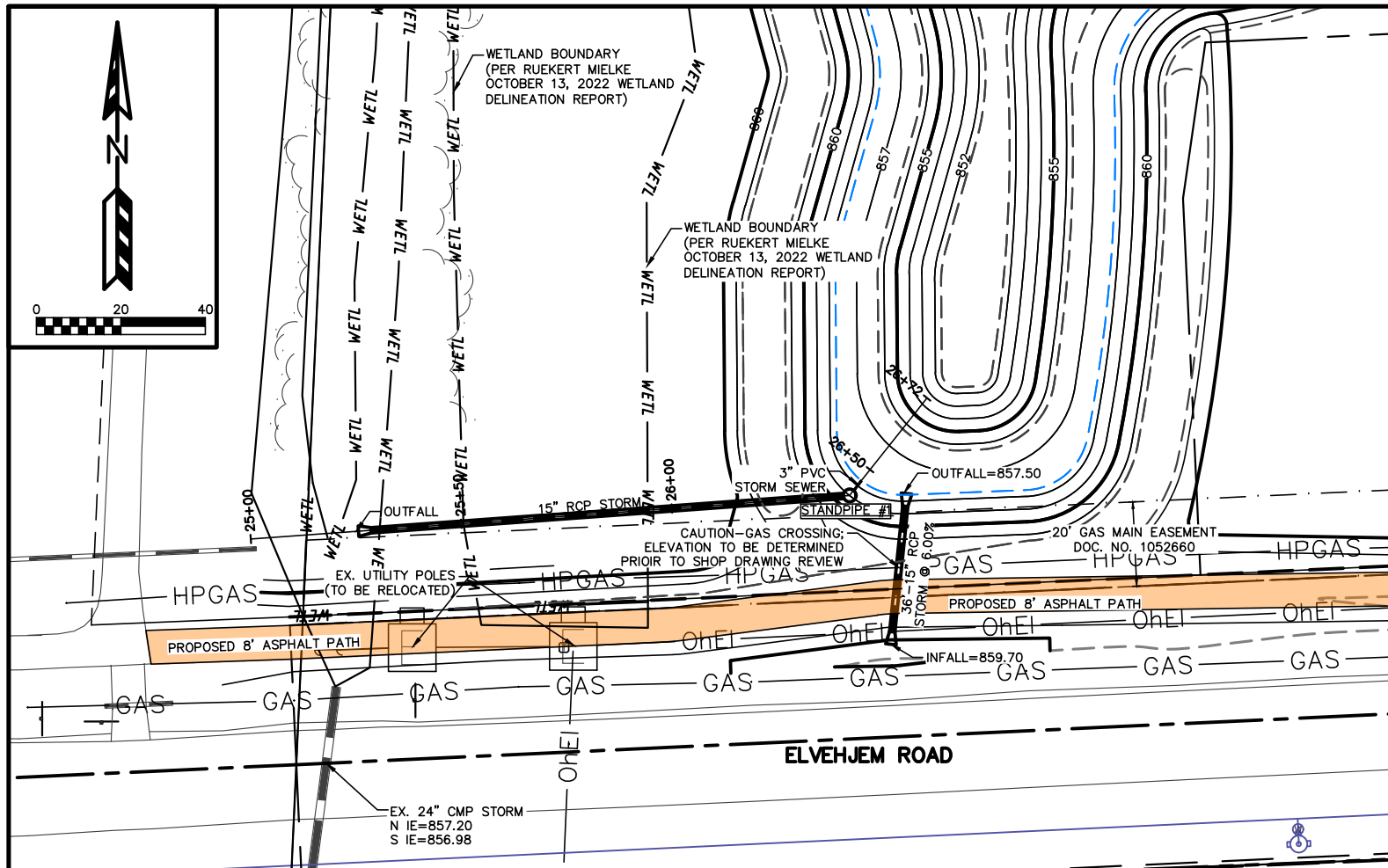
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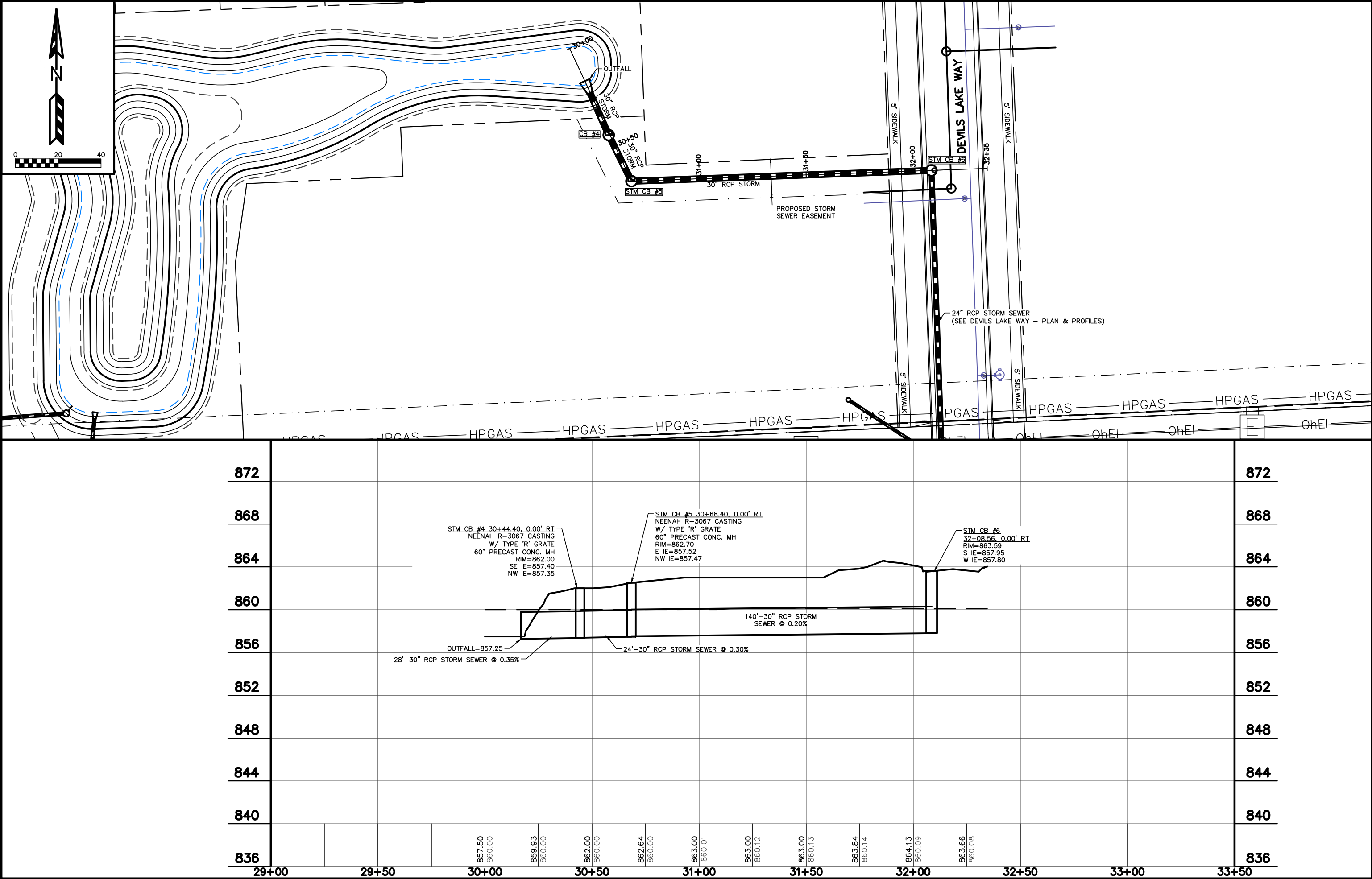
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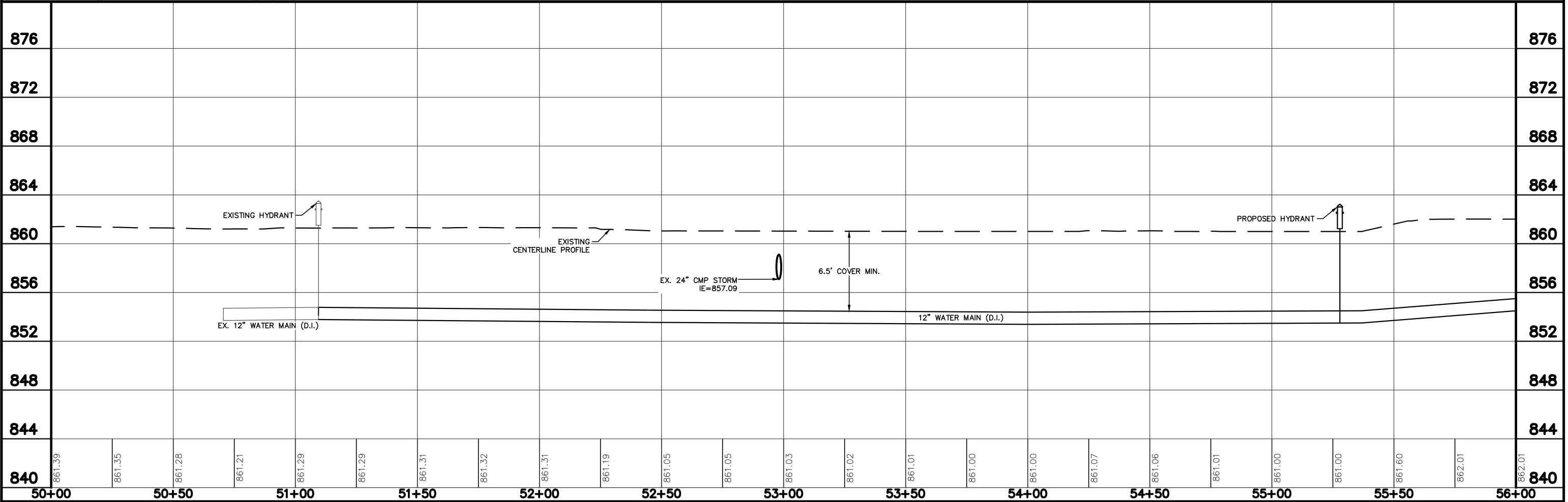
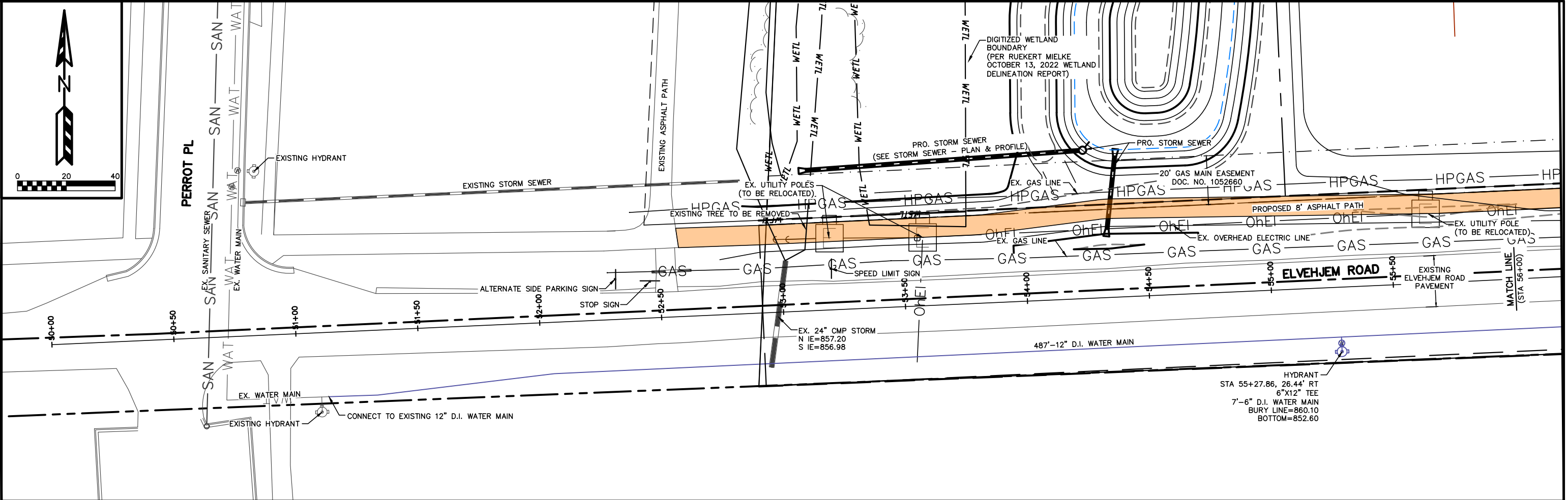
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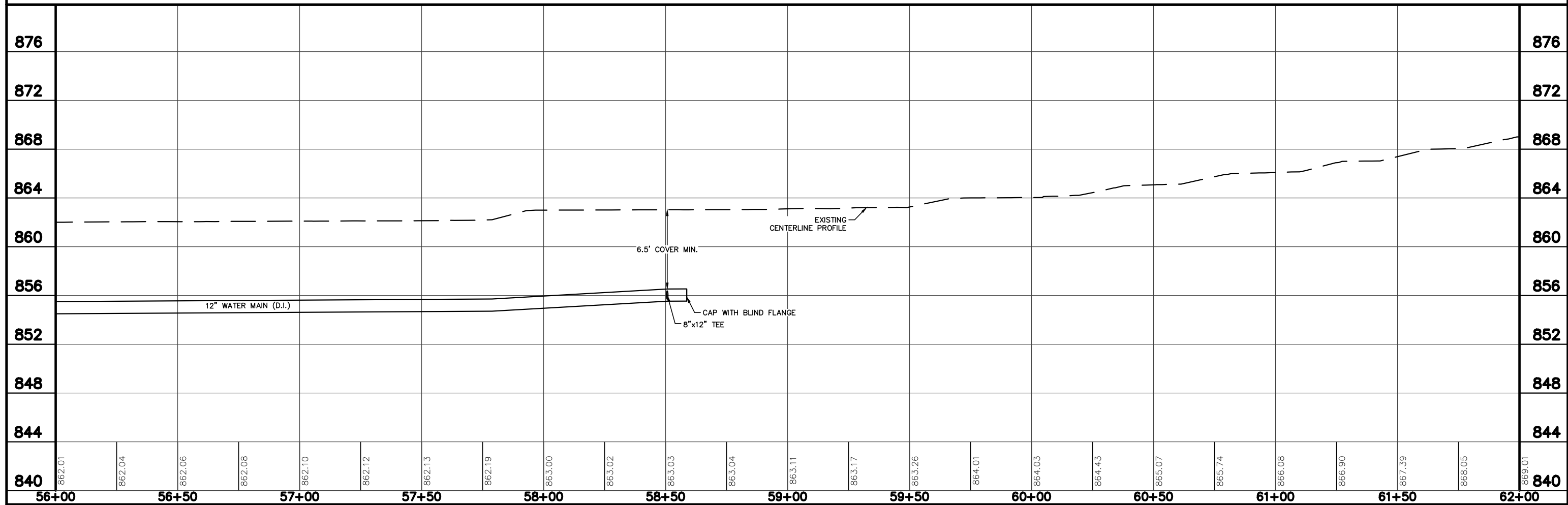
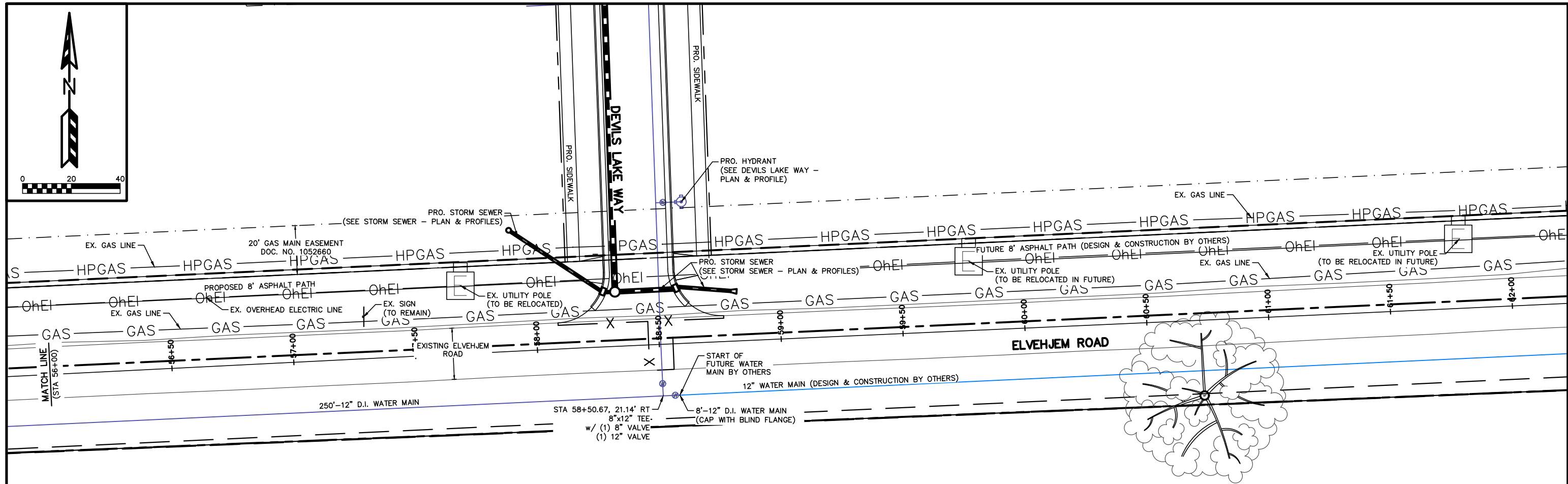


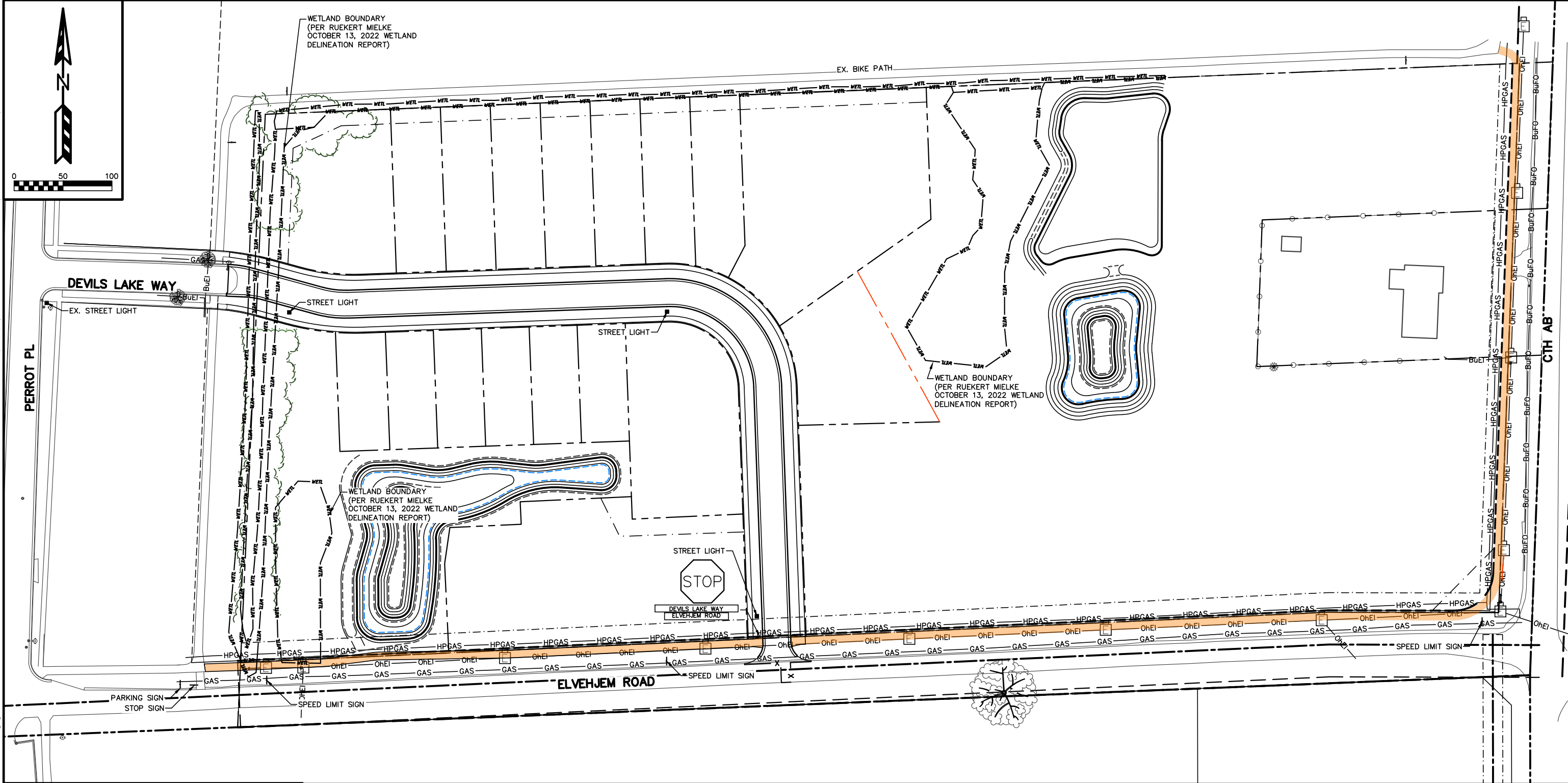












SIGNING AND LIGHTING LEGEND

STOP SIGN - SIGN DESIGNATION R1-1

STREET SIGNS

DEVILS LAKE WAY STREET NAME SIGNS

STREET LIGHT (DESIGN BY OTHERS)

SIGNAGE NOTES:

ALL SIGNS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SIGNS SHALL BE A DISTANCE OF 7" FROM GROUND LEVEL TO THE BOTTOM OF THE SIGN MOUNTED ON THE POST AND LOCATED 3' BEHIND THE BACK OF CURB.

STREET NAME SIGNS SHALL HAVE WHITE LETTERS AND GREEN BACKGROUND.

STREET NAME SIGNS SHALL BE PLACED ABOVE STOP SIGNS AT INTERSECTIONS THAT REQUIRE STOP SIGNS.

SIGN POSTS SHALL BE 2-3/8" O.D. GALVANIZED 10 FT LONG, 13 GAUGE, AND 0.095 WALL THICKNESS. MOUNT SIGN AT TOP OF THE POST, AND INSTALL POSTS 3' DEEP AND MIX 1/2 BAG OF 80 LB SAKRETE CONCRETE POURING IS AROUND THE POST BELOW THE GROUND BEFORE COVERING WITH 8".

SPERLE CORNERS - VILLAGE OF MCFARLAND

SIGN AND LIGHTING PLAN

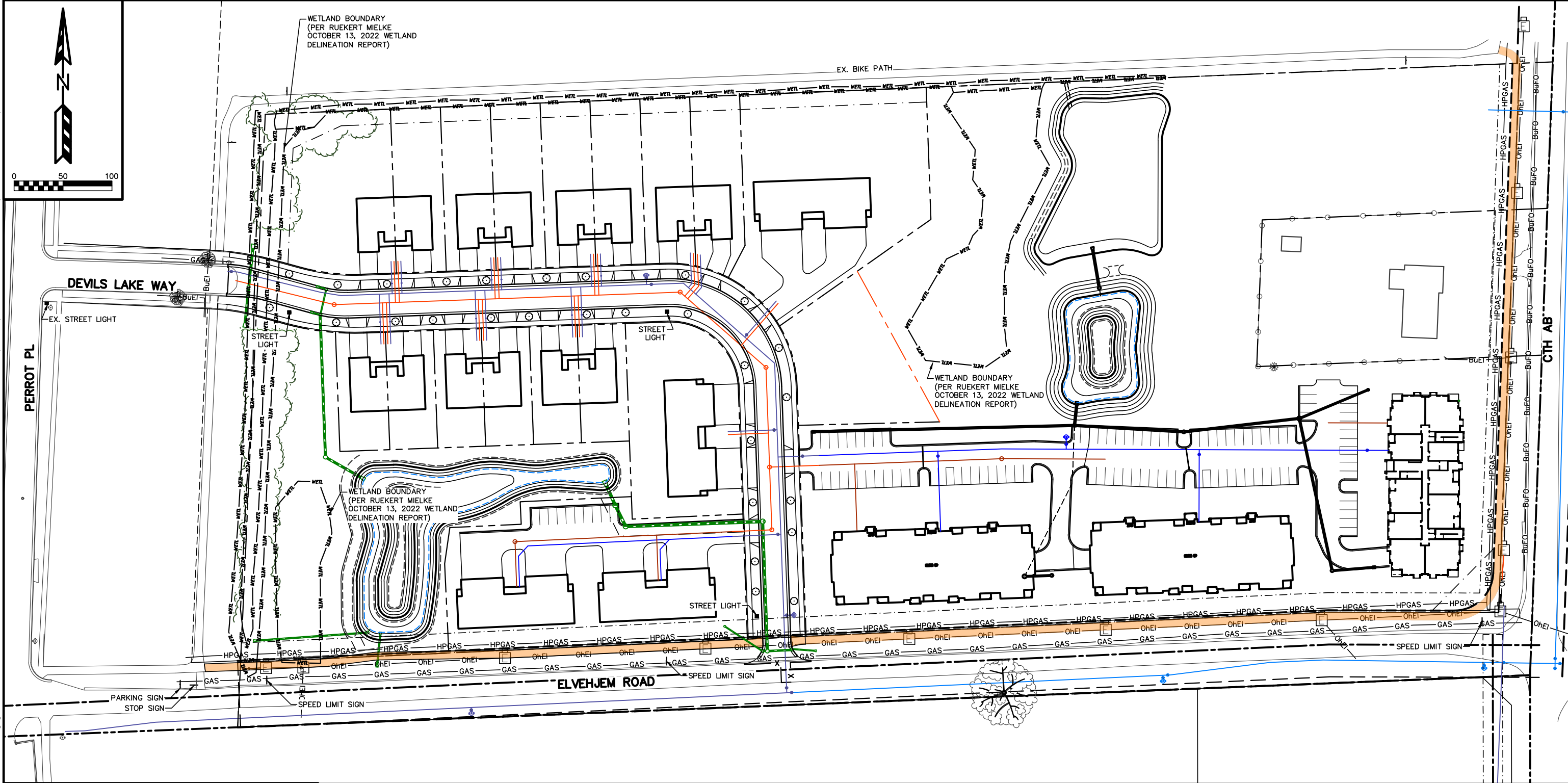
SHEET: C-12

DATED: JUNE 4, 2025

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GENERAL NOTES:

ALL PLANTINGS SHALL CONFORM TO QUALITY REQUIREMENTS AS PER ANSI Z60.1.

ALL PLANT MATERIAL SHALL BE TRUE TO THE SPECIES, VARIETY AND SIZE SPECIFIED, NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURE PRACTICES, AND UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE OF THE PROJECT SITE.

CONTACT LANDSCAPE ARCHITECT, IN WRITING, TO REQUEST AND PLANT MATERIAL SUBSTITUTIONS DUE TO AVAILABILITY ISSUES.

ALL DISTURBED AREAS, UNLESS OTHERWISE NOTED, TO BE SEEDDED WITH WISDOT SEED MIX #40 OR EQUIVALENT, PER MANUFACTURE'S SPECIFIED APPLICATION RATES. ALL SEEDDED AREAS ARE TO BE WATERED DAILY TO MAINTAIN ADEQUATE SOIL MOISTURE FOR PROPER GERMINATION. AFTER VIGOROUS GROWTH IS ESTABLISHED, APPLY 1/2" WATER TWICE WEEKLY UNTIL FINAL ACCEPTANCE.

ALL PLANTS SHALL BE GUARANTEED TO BE IN HEALTHY AND FLOURISHING CONDITION DURING THE GROWING SEASON FOLLOWING INSTALLATION. ALL PLANT MATERIAL SHALL BE GUARANTEED FOR TWO YEARS FROM THE TIME OF INSTALLATION.

TREES SHALL BE A MINIMUM 2" CALIPER.

NOTES:

MINIMUM DISTANCE FROM A STREETLIGHT TO A TREE IS 20'.

MINIMUM DISTANCE FROM THE FRONT OF A STREET SIGN IS 25' AND 10' FROM THE BACK OF THE SIGN.

MINIMUM DISTANCE FROM ANY SANITARY SEWER, WATER MAIN, AND STORM SEWER STRUCTURE OR PIPE IS 10'.

NO TREE SHALL BE PLANTED WITHIN THE VISION TRIANGLE.

SPERLE CORNERS – VILLAGE OF MCFARLAND

STREET TREE PLAN

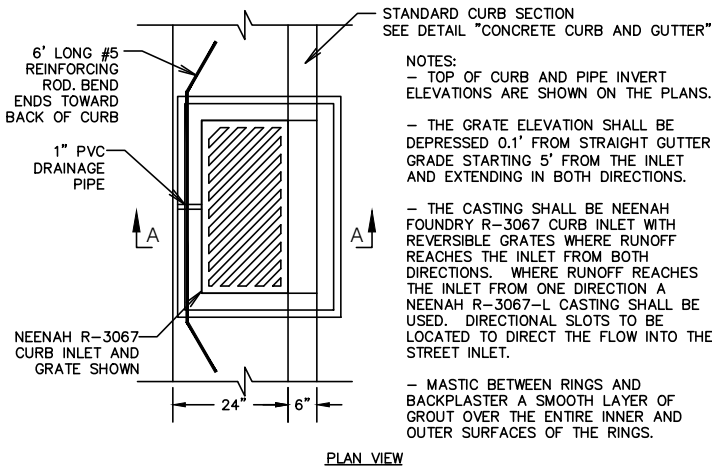
SHEET: C-13

DATED: JUNE 4, 2025

QUAM ENGINEERING, LLC
Residential and Commercial Site Design Consultants

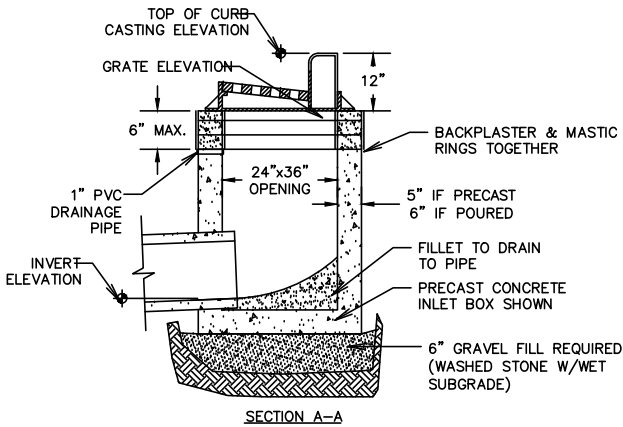
 www.quamengineering.com

4604 Siggelkow Road, Suite A – McFarland, Wisconsin 53558
Phone (608) 838-7750; Fax (608) 838-7752



1 RECTANGULAR STREET INLET

2 NOT TO SCALE



MANHOLE SIZE	DIMENSION	
	A	B (MIN.)
48"	48"	5"
60"	60"	6"
72"	72"	7"
84"	84"	7"
96"	96"	9"

NOTES:
CONCRETE SHALL BE 4000 PSI, 28 DAY COMPRESSIVE STRENGTH, 6.5 BAG MIX WITH 1~2% AIR ENTRAINMENT.

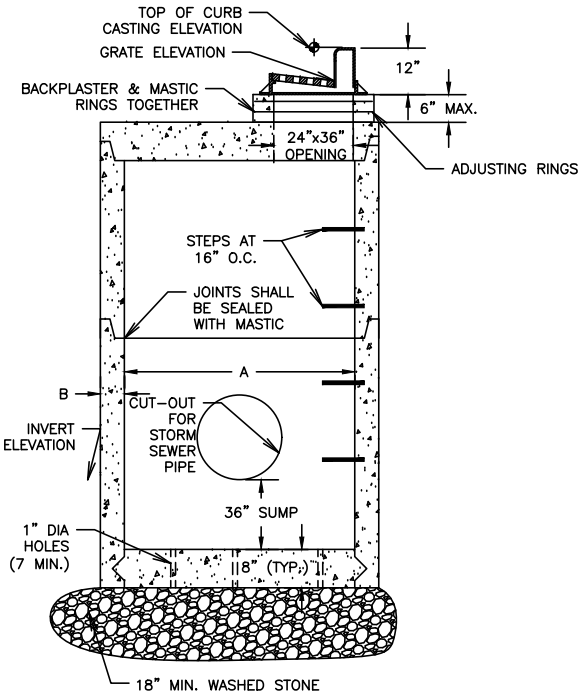
MANHOLE STEPS SHALL CONFORM TO ASTM-C478 & SHALL BE NEENAH FOUNDRY R-1981-N OR APPROVED EQUAL. STEPS SHALL BE SPACED 16" ON CENTER.

A MAXIMUM OF 6" OF ADJUSTING RINGS SHALL BE USED TO ADJUST THE MANHOLE-TYPE CURB CATCH BASIN CASTING TO THE FINISHED GRADE. ALL RINGS SHALL BE SEALED TOGETHER USING MASTIC AND ALL JOINTS SHALL BE BACK PLASTERED INSIDE AND OUT WITH CEMENT MORTAR.

THE GRATE ELEVATION SHALL BE DEPRESSED 0.1' FROM STRAIGHT GUTTER GRADE STARTING 5' FROM THE INLET AND EXTENDING IN BOTH DIRECTIONS.

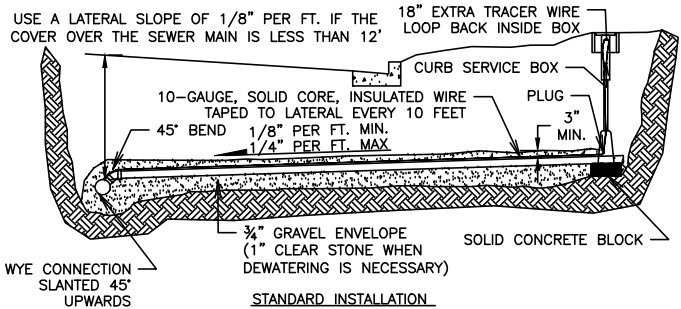
MANHOLE-TYPE CURB CATCH BASIN CASTING SHALL BE NEENAH FOUNDRY R-3067 WITH REVERSIBLE GRATES WHERE RUNOFF REACHES THE INLET FROM BOTH DIRECTIONS. WHERE RUNOFF REACHES THE INLET FROM ONE DIRECTION A NEENAH R-3067-L CASTING SHALL BE USED. DIRECTIONAL SLOTS TO BE LOCATED TO DIRECT THE FLOW INTO THE STREET INLET.

A 2x3 LID OPENING IS REQUIRED FOR MANHOLE-TYPE CURB CATCH BASINS.

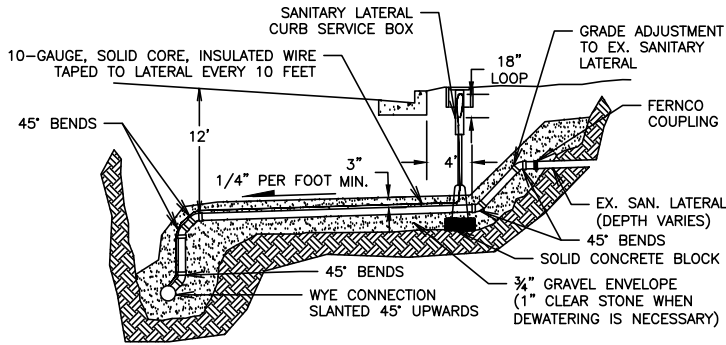


1 STORM SEWER MANHOLE

2 NOT TO SCALE

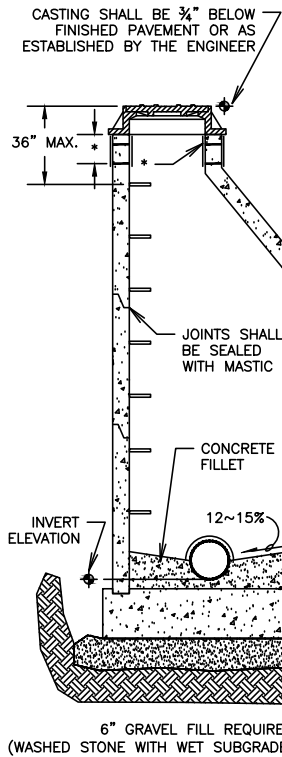


- NOTES:
1. CONSTRUCT LATERALS IN CONFORMANCE WITH CHAPTER SPS 382 OF THE WISCONSIN ADMINISTRATIVE CODE.
 2. LATERAL SLOPE SHALL BE 1/8" PER FOOT WHERE SUFFICIENT COVER EXISTS.
 3. CONTRACTOR SHALL VERIFY SIZE, DEPTH, AND LOCATION OF EXISTING LATERALS.
 4. WHERE LATERALS ARE NOT IMMEDIATELY CONNECTED TO BUILDING SEWERS THE ENDS OF THE LATERALS SHALL BE MARKED BY POSITIONING 4"x4" BOARDS VERTICALLY FROM THE ENDS OF THE LATERALS TO AT LEAST 2' ABOVE THE GROUND SURFACE.
 5. THE LOCATION OF ALL SEWER LATERALS CROSSING UNDER THE CURB & GUTTER SHALL BE MARKED BY STAMPING AN "S" IN THE TOP OF THE CURB OVER THE LOCATION OF THE SEWER LATERAL.



1 LATERAL WITH TRACER WIRE

2 NOT TO SCALE



NOTES:
MANHOLE CASTING SHALL BE HEAVY DUTY, NEENAH FOUNDRY CO. CATALOG LISTING NO. R-1710, WITH TYPE "B" NON-ROCKING LID, GASKET SEAL AND CONCEALED PICKHOLES

ADJUST FRAME TO GRADE WITH AT LEAST TWO RINGS OF DIFFERENT THICKNESSES. RINGS SHALL BE REINFORCED WITH ONE NO. 3 STEEL BAR CENTERED WITHIN EACH RING.

MANHOLE CASTINGS AND STEPS SHALL BE LOCATED OVER THE EFFLUENT PIPE FOR PIPES BETWEEN 8" AND 18" IN DIAMETER. CASTINGS AND STEPS SHALL BE LOCATED OVER THE BENCH FOR PIPES GREATER THAN 18" IN DIAMETER.

CONCRETE SHALL BE 4000 PSI, 28 DAY COMPRESSIVE STRENGTH, 6.5 BAG MIX WITH 1~2% AIR ENTRAINMENT.

STEEL REINFORCEMENT SHALL CONFORM TO ASTM C-478 STANDARDS.

FLAT-TOP COVERS SHALL BE USED WHERE THE TOTAL RIM TO INVERT DEPTH IS LESS THAN 6 FEET AND MAY BE USED FOR MANHOLE DIAMETERS GREATER THAN 5 FEET.

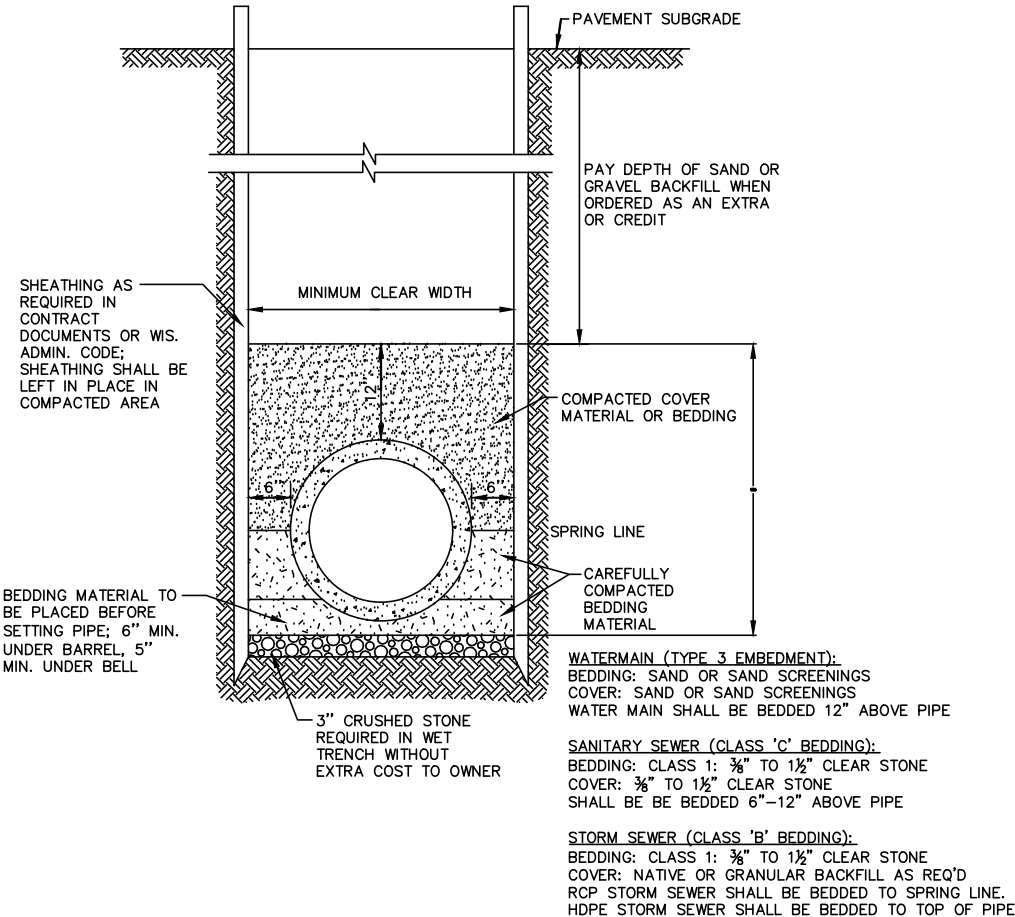
SEE SPECIFICATION NARRATIVE FOR PIPE SEAL AND CHIMNEY SEAL REQUIREMENTS.

MANHOLE STEPS SHALL CONFORM TO ASTM-C478 & SHALL BE NEENAH FOUNDRY CO. R-1981-N OR APPROVED EQUAL. STEPS SHALL BE SPACED 16" ON CENTER.

* A MINIMUM OF 3" TO A MAXIMUM OF 6" OF ADJUSTING RINGS SHALL BE USED TO ADJUST THE MANHOLE-TYPE CURB CATCH BASIN CASTING TO THE FINISHED GRADE. ALL RINGS SHALL BE SEALED TOGETHER USING MASTIC AND ALL JOINTS SHALL BE BACK PLASTERED INSIDE AND OUT WITH CEMENT MORTAR.

1 SANITARY SEWER MANHOLE

2 NOT TO SCALE



1 STANDARD TRENCH SECTION

2 NOT TO SCALE

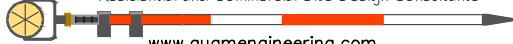
SPERLE CORNERS – VILLAGE OF MCFARLAND

DETAILS

SHEET: C-14

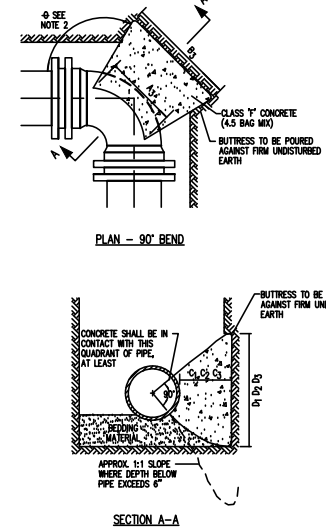
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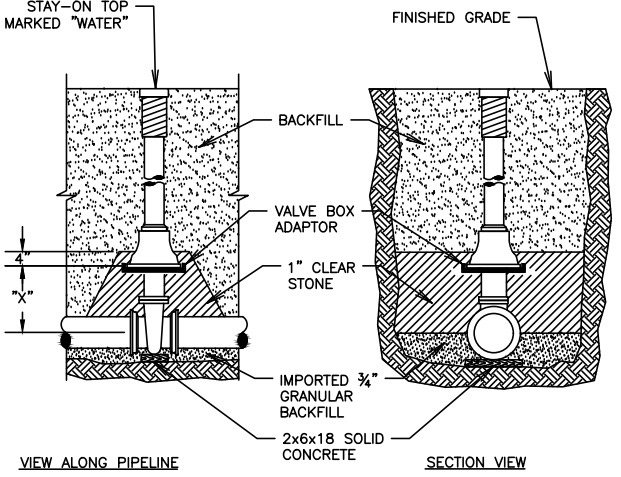
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BUTTRISS DIMENSIONS			
PIPE SIZE	B ₁	B ₂	B ₃
6"	1'-0"	1'-0"	1'-0"
8"	1'-0"	1'-0"	1'-0"
12"	1'-0"	1'-0"	1'-0"
16"	1'-0"	1'-0"	1'-0"
20"	1'-0"	1'-0"	1'-0"
24"	1'-0"	1'-0"	1'-0"
30"	1'-0"	1'-0"	1'-0"

NOTES:
1. DIMENSIONS IN TABLE ARE BASED ON A WATER PRESSURE OF 150 PSI AND ON EARTH RESISTANCE OF 2 TONS PER SQUARE FOOT.
2. DIMENSION C1 C2 C3 SHOULD BE LARGE ENOUGH TO MAKE ANGLE θ EQUAL TO OR LARGER THAN 45°.
3. DIMENSION A1 A2 A3 SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH M.J. BOLTS.
4. SHAPE OF BACK OF BUTTRISS MAY VARY AS LONG AS POUR IS AGAINST FIRM UNDISTURBED EARTH.
5. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED IN POLYETHYLENE.

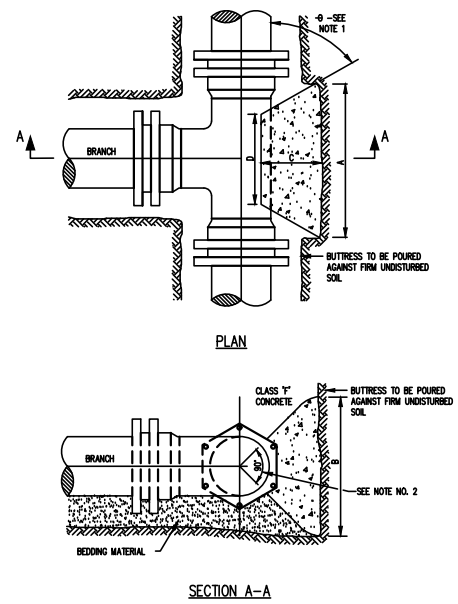


PIPE DIA., INCHES	6	8	10	12	14	16
"X" DIMENSION, INCHES	12	13	17	21	25	30

NOTES:
- VALVES SHALL BE SECURED WITH RODDING OR MEGALUGS TO THE NEAREST "TEE" FITTING OR TO THE FIRST JOINT CONNECTING A FULL SECTION OF WATER MAIN PIPE. SEE RODDING DETAIL "OFFSET AND RODDING".

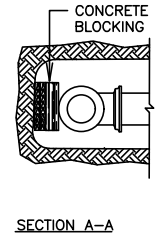
DETAIL
VALVE BOX SETTING

2 STANDARD GATE VALVE BOX SETTING
2 NOT TO SCALE



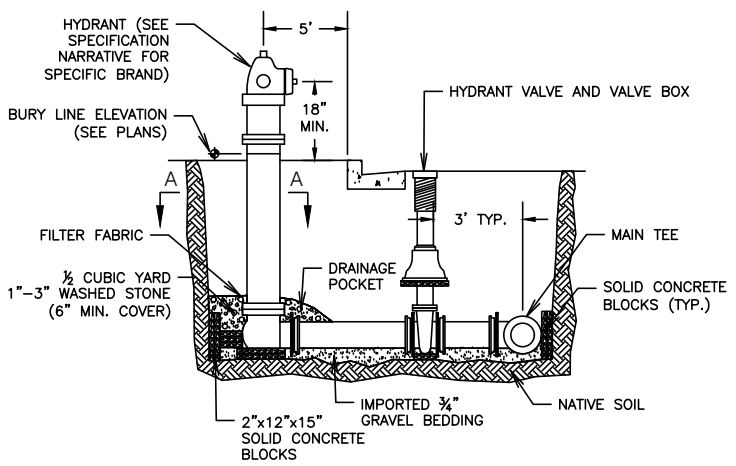
BUTTRISS DIMENSIONS			
B.D.	A	B	C
6"	1'-3"	1'-0"	1'-0"
8"	1'-6"	1'-0"	1'-0"
12"	2'-3"	2'-0"	2'-0"
16"	3'-2"	2'-6"	2'-6"
20"	4'-0"	3'-0"	3'-0"
24"	5'-3"	3'-4"	3'-4"
30"	6'-3"	4'-3"	4'-3"

NOTES:
1. DIMENSION 'C' SHOULD BE LARGE ENOUGH TO MAKE ANGLE EQUAL TO OR LARGER THAN 45°.
2. CONCRETE SHOULD BEAR ON THIS QUADRANT OF PIPE AS A MINIMUM.
3. DIMENSION 'D' SHOULD BE AS LARGE AS POSSIBLE BUT CONCRETE SHOULD NOT INTERFERE WITH MECHANICAL JOINTS.
4. BUTTRISS DIMENSIONS ARE BASED ON A SOIL RESISTANCE OF TWO TONS PER SQ. FT. AND A WATER PRESSURE OF 150 PSI.
5. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED IN POLYETHYLENE.



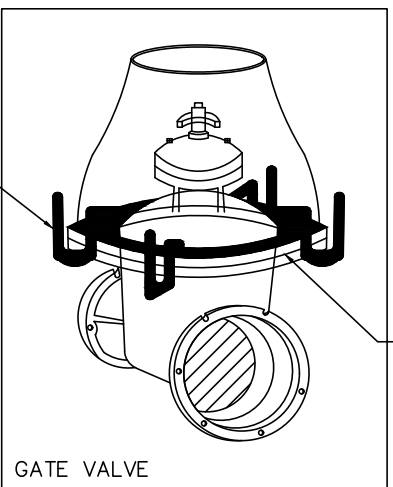
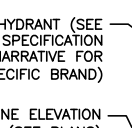
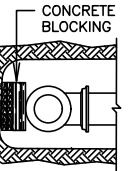
2 STANDARD HYDRANT SETTING
2 NOT TO SCALE

1 GATE VALVE AND GATE VALVE ADAPTOR
1 NOT TO SCALE



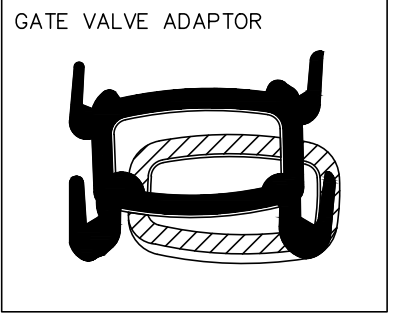
NOTES:
- THE HYDRANT AND HYDRANT VALVE SHALL BE CONNECTED TO THE MAIN TEE BY MEGALUGS.
- FILTER FABRIC SHALL BE WRAPPED AROUND THE DRAIN POCKET.
- WHERE THE HYDRANT IS INSTALLED AT THE HIGH POINT OF THE WATER MAIN ON MAINS 10 INCHES IN DIAMETER AND LARGER, THE CONTRACTOR SHALL TIP THE MAIN TEE UPWARDS 45 DEGREES AND USE A 45 DEGREE FITTING TO ALLOW AIR TO ESCAPE FROM THE MAIN.
- WHERE THE LOCATION OF THE HYDRANT VALVE BOX WOULD BE IN ANY PORTION OF THE CURB AND GUTTER, THE CONTRACTOR SHALL PLACE THE VALVE IN THE TERRACE AREA.

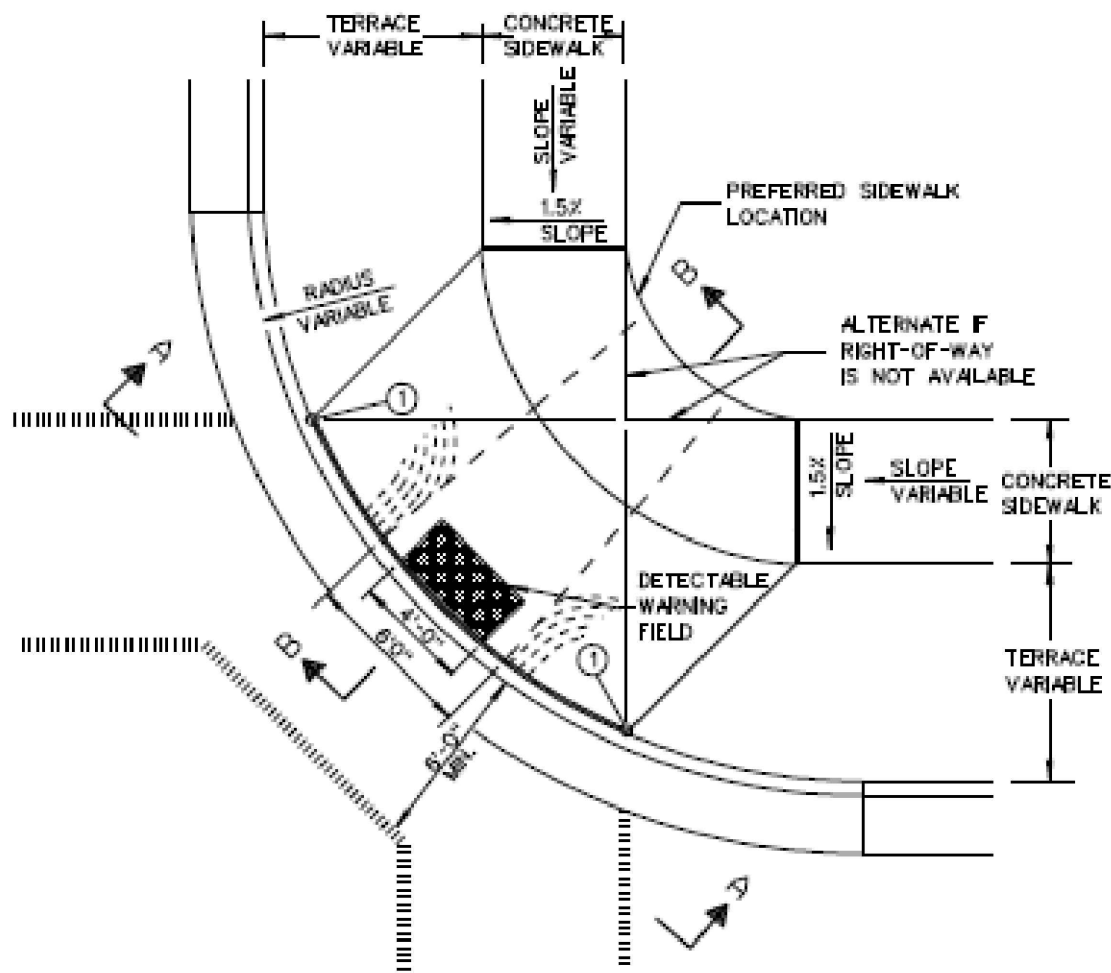
SECTION A-A



NOTE: GATE VALVE ADAPTORS ARE MANDATORY IN THE VILLAGE OF DEFOREST

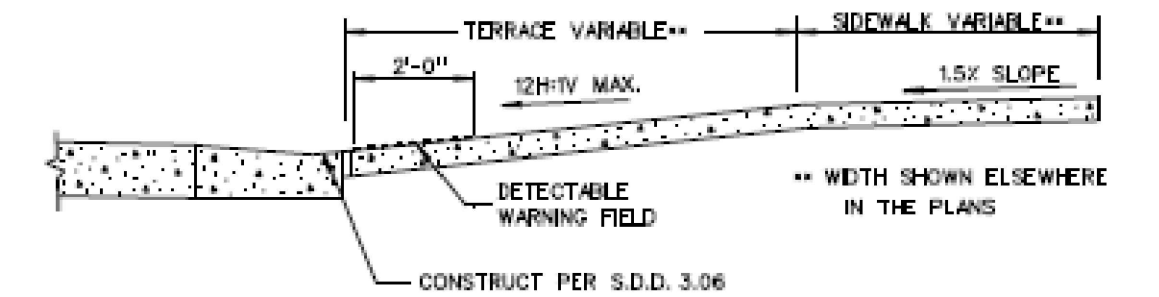
MANUFACTURED BY ADAPTOR, INC. 3642 E. AMERICAN AVE. MILWAUKEE, WI 53154



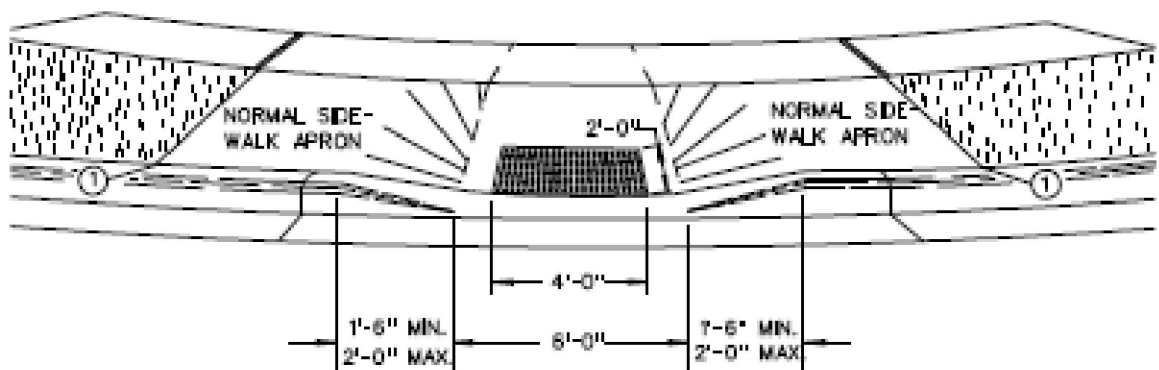


PLAN VIEW
TYPE 1 RAMP
(CENTER OF CORNER RADIUS)

2
2 STANDARD CURB RAMP – TYPE 1
NOT TO SCALE



SECTION B-B



SECTION A-A

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

RAMPS SHALL BE BUILT AT 12H:1V OR FLATTER. WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD".

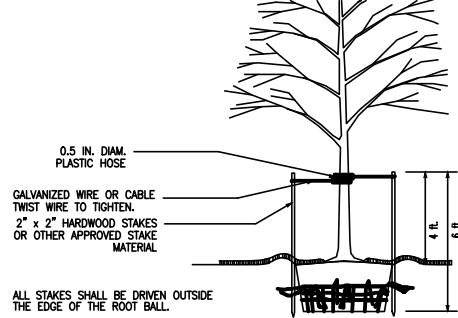
SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE.

① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.

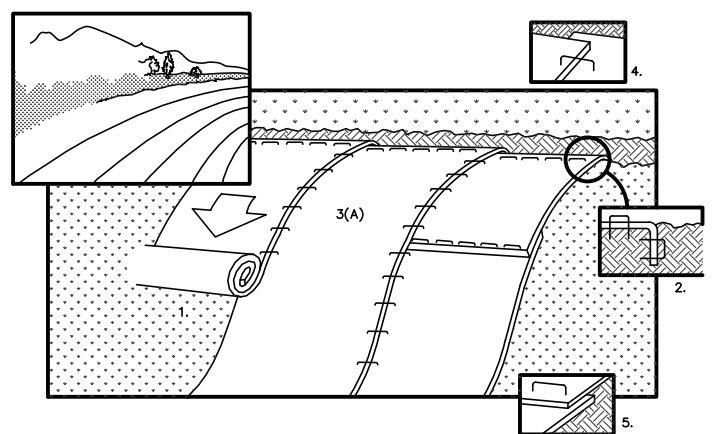
DETECTABLE WARNING FIELDS SHALL BE METAPANEL BY METADOME, LLC OR NEENAH 4984 PLATES.

WIRE OR CABLE SIZES SHALL BE AS FOLLOWS:
4 INCH CAULPER – 11-12 GAUGE
LARGER THAN 4 INCH CAULPER – 9-10 GAUGE
TIGHTEN WIRE OR CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. PLASTIC HOSE SHALL BE LONG ENOUGH TO ACCOMMODATE 1.5 IN. OF GROWTH AND BUFFER ALL BRANCHES FROM THE WIRE.
TUCK ANY LOOSE ENDS OF THE WIRE OR CABLE INTO THE WIRE WRAP SO THAT NO SHARP WIRE ENDS ARE EXPOSED.
ALL BURLAP AND WIRE CAGES SHALL BE REMOVED FROM ROOTS PRIOR TO PLANTING.
PLANTING DEPTH OF TREE SHALL BE SUCH THAT ROOT FLAIR IS VISIBLE JUST ABOVE GRADE.



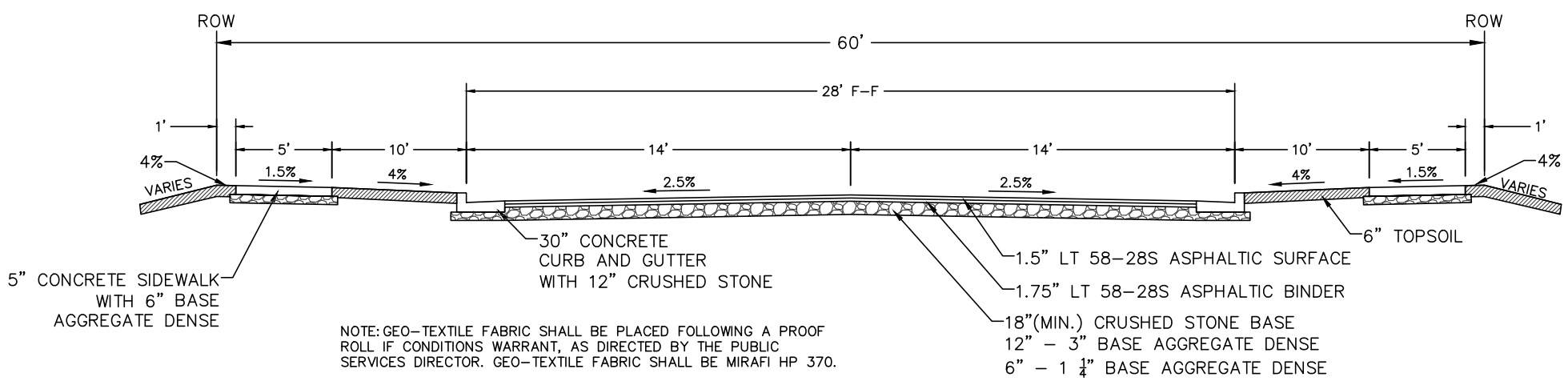
PROVIDE 4" THICKNESS OF ORGANIC MULCH AROUND ALL TREES. MULCH SHOULD NOT REST AGAINST THE TREE TRUNK. LEAVE 3" AROUND THE TRUNK FREE OF MULCH.
ASSURE THAT THE BEARING SURFACE OF THE PROTECTIVE COVERING OF THE WIRE OR CABLE AGAINST THE TREE TRUNK IS A MINIMUM OF 0.5 INCH.
REMOVE ALL STAKING AS SOON AS THE TREE HAS GROWN SUFFICIENT ROOTS TO OVERCOME THE PROBLEM THAT REQUIRED THE TREE TO BE STAKED. STAKES SHALL BE REMOVED NO LATER THE END OF THE FIRST GROWING SEASON AFTER PLANTING.
TREES NORMALLY DO NOT NEED TO BE STAKED AND STAKING CAN BE HARMFUL TO THE TREE. STAKING SHOULD BE DONE ONLY WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT IF IT IS EXPECTED THAT THE TREE WILL NOT BE ABLE TO SUPPORT ITSELF. THE FOLLOWING ARE REASONS WHY TREES DO NOT REMAIN STRAIGHT.
• TREES WITH POOR – QUALITY ROOT BALLS OR ROOT BALLS THAT HAVE BEEN CRACKED OR DAMAGED. REJECT RATHER THAN STAKE.
• TREES THAT HAVE GROWN TOO CLOSE TOGETHER IN THE NURSERY, RESULTING IN WEAK TRUNKS. REJECT RATHER THAN STAKE.
• PLANTING PROCEDURES THAT DO NOT ADEQUATELY TAMP SOILS AROUND THE ROOT BALL. CORRECT THE PLANTING PROCEDURE.
• ROOT BALLS PLACED ON SOFT SOIL. TAMP SOILS UNDER ROOT BALL PRIOR TO PLANTING.
• ROOT BALLS WITH VERY SANDY SOIL OR VERY WET CLAY SOIL. STAKING ADVISABLE.
• TREES LOCATED IN A PLACE OF EXTREMELY WINDY CONDITIONS. STAKING ADVISABLE.

TREE PLANTING DETAIL



- NOTE: REFER TO GENERAL STAPLE PATTERN GUIDE FOR CORRECT STAPLE PATTERN RECOMMENDATIONS FOR SLOPE INSTALLATIONS.
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF FERTILIZER AND SEED.
NOTE: WHEN USING CELL-0-SEED DO NOT SEED PREPARED AREA. CELL-0-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
 2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
 3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE.
 4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
 5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 4" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY
 6. ALL BLANKETS MUST BE SECURELY FASTENED TO THE SLOPE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS RECOMMENDED BY THE MANUFACTURER.
 7. SLOPES 5:1 SHOULD BE COVERED WITH CLASS I TYPE A AT A MINIMUM.

EROSION CONTROL MAT – SLOPE INSTALLATION

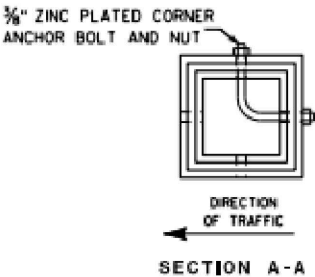
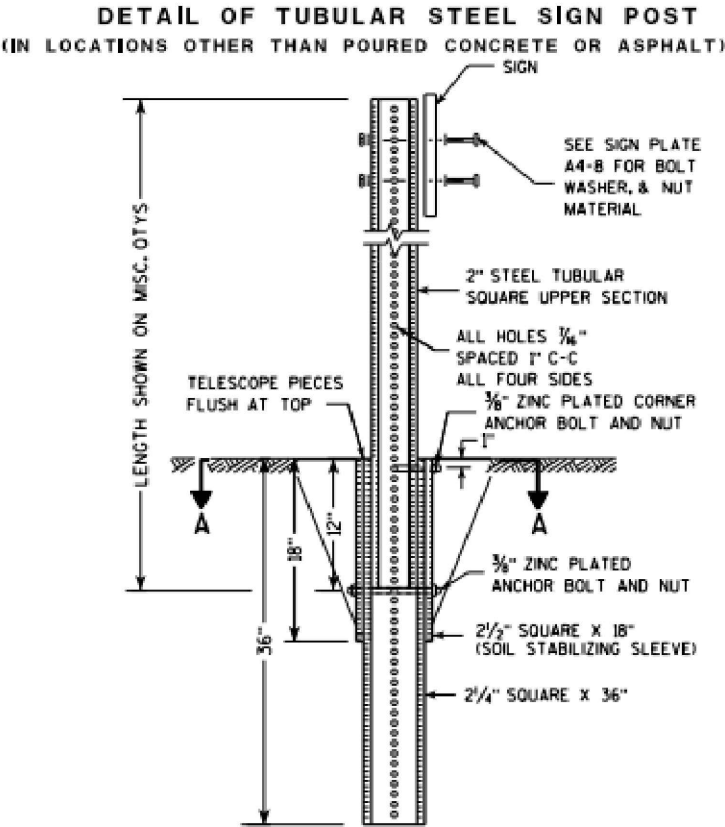
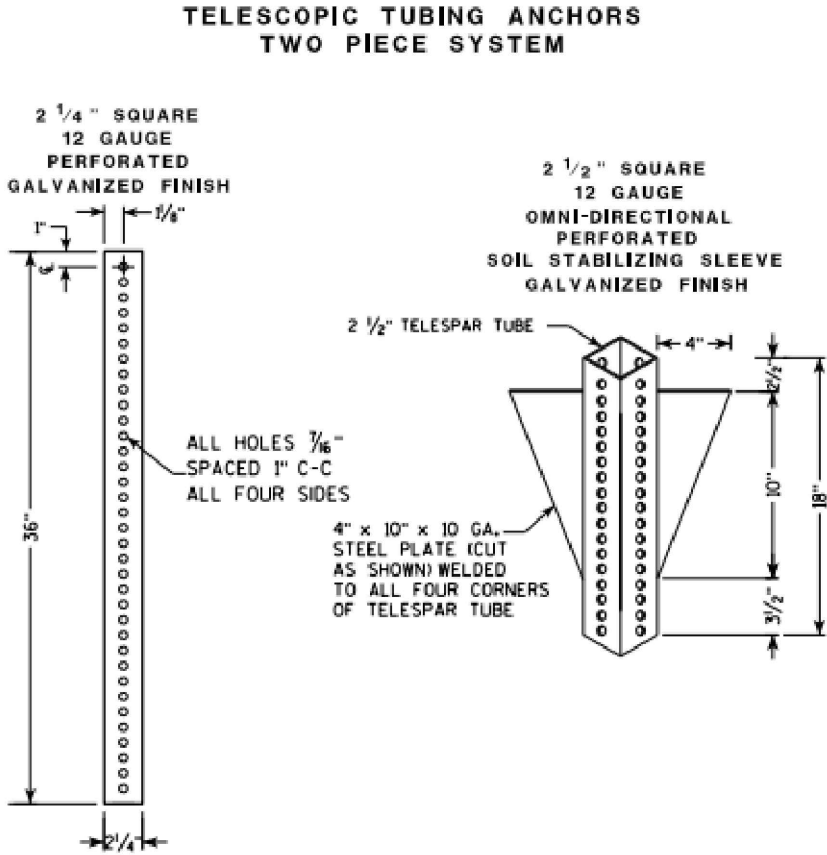


NOTE: GEO-TEXTILE FABRIC SHALL BE PLACED FOLLOWING A PROOF ROLL IF CONDITIONS WARRANT, AS DIRECTED BY THE PUBLIC SERVICES DIRECTOR. GEO-TEXTILE FABRIC SHALL BE MIRAFI HP 370.

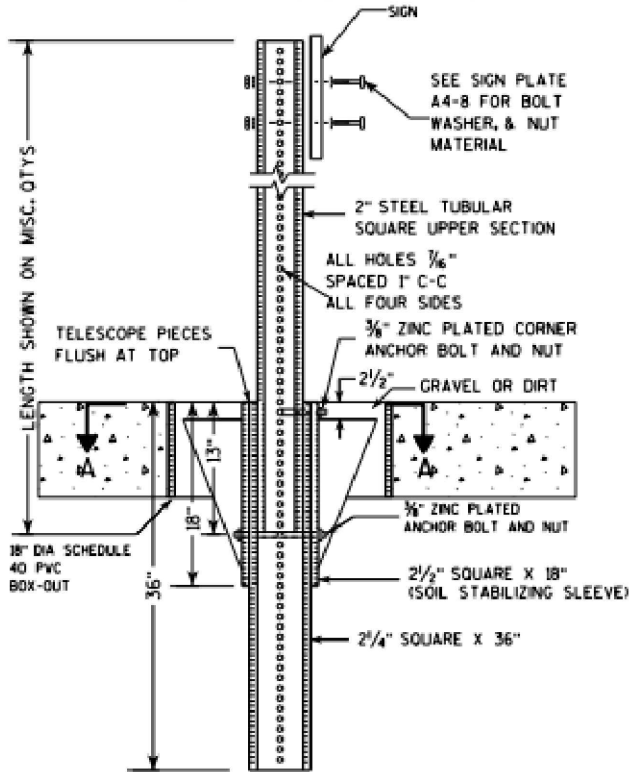
TYPICAL ROADWAY CROSS-SECTIONS

SPERLE CORNERS – VILLAGE OF MCFARLAND
DETAILS
SHEET: C-16
DATED: JUNE 4, 2025

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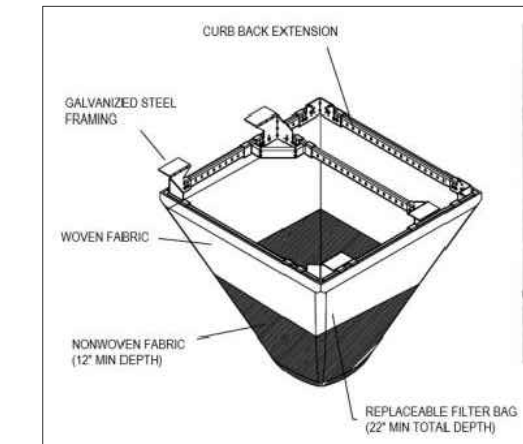
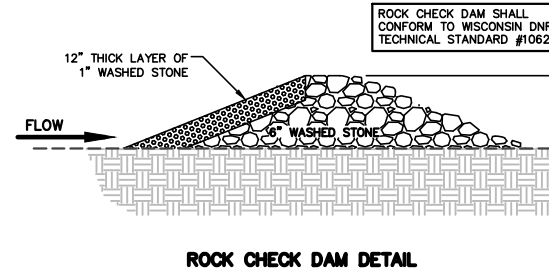
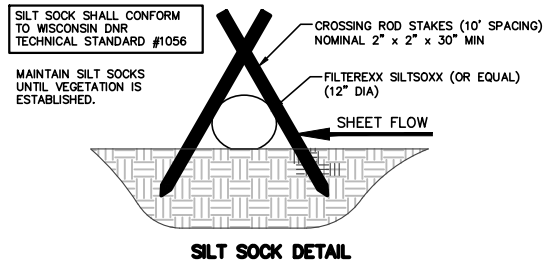
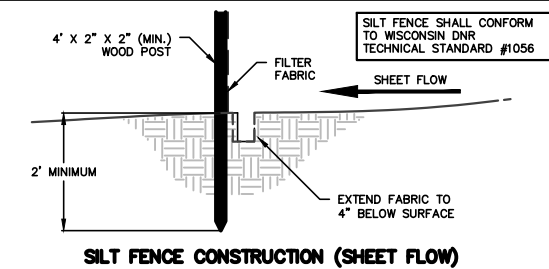
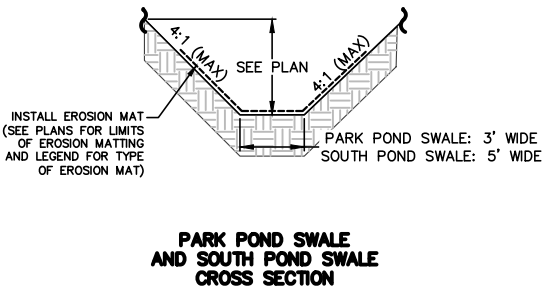


**DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)**



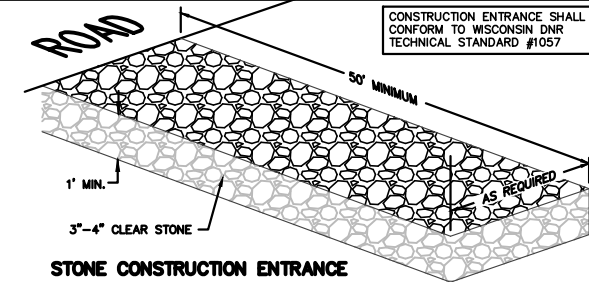
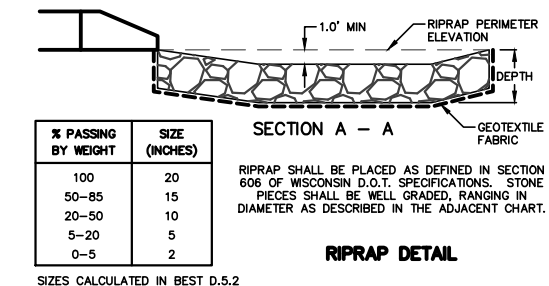
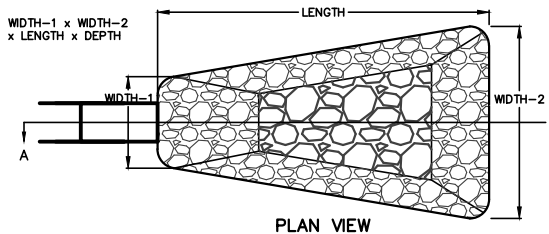
Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall
be mounted on multiple posts (see above table).



FRAMED INLET PROTECTION MUST MEET THE FOLLOWING SPECIFICATIONS:

- ALL ASTM STANDARD D8057-17 REQUIREMENTS
- NO PART OF INLET PROTECTION PROJECTING ABOVE THE GRATE
- CAPTURE RUNOFF ENTERING BOTH GRATE AND CURB OPENING
- "DUAL FABRIC" FILTER BAG, WITH NONWOVEN BOTTOM AND WOVEN TOP



EROSION NOTES:

THE STONE CONSTRUCTION ENTRANCE SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION. THE STONE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED BY THE CONTRACTOR IN A CONDITION, WHICH WILL PREVENT THE TRACKING OF MUD OR DRY SEDIMENT ONTO THE PUBLIC STREET. SEDIMENT REACHING PUBLIC STREET SHALL BE REMOVED BY STREET CLEANING (NOT HYDRAULIC FLUSHING) BEFORE THE END OF EACH WORKDAY.

EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO GRADING OPERATIONS AND SHALL BE PROPERLY MAINTAINED FOR MAXIMUM EFFECTIVENESS UNTIL VEGETATION IS ESTABLISHED. ALL EROSION CONTROL MEASURES AND STRUCTURES SERVING THE SITE MUST BE INSPECTED AT LEAST WEEKLY OR WITHIN 24 HOURS OF A 0.5 INCH RAIN EVENT. ALL MAINTENANCE WILL FOLLOW AN INSPECTION WITHIN 24 HOURS.

CUT AND FILL SLOPES SHALL BE NO GREATER THAN 3:1.

ALL DISTURBED AREAS MUST BE TEMPORARILY STABILIZED WITHIN 14 DAYS OF LAST ACTIVITY. ALL DISTURBED AREAS SHOULD BE STABILIZED WITHIN 7 DAYS OF FINAL GRADING.

PERIMETER CONTROL SHALL BE INSTALLED AROUND STOCKPILES, AND STOCKPILES SHALL BE STABILIZED THAT WILL REMAIN INACTIVE FOR 7 DAYS OR LONGER.

EROSION CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ACCEPTANCE OF THIS PROJECT. EROSION CONTROL MEASURES AS SHOWN SHALL BE THE MINIMUM PRECAUTIONS THAT WILL BE ALLOWED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECOGNIZING AND CORRECTING ALL EROSION CONTROL PROBLEMS THAT ARE A RESULT OF CONSTRUCTION ACTIVITIES. ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTORS, OR THE DEVELOPER'S ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.

TIME SCHEDULE:

SEPTEMBER 15 – OCTOBER 1, 2025	INSTALL INITIAL EROSION CONTROL DEVICES AND ROUGH GRADE SITE.
OCTOBER 1, 2025 – MAY 15, 2026	CONSTRUCT UTILITIES AND STREETS. RESTORE ALL PERVIOUSLY DISTURBED AREAS.

RESTORATION NOTES:

RESTORATION SHALL OCCUR AS SOON AFTER THE DISTURBANCE AS PRACTICAL.

ALL PERVIOUSLY DISTURBED AREAS SHALL RECEIVE A MINIMUM OF FOUR (4) INCHES OF TOPSOIL, SEED, AND MULCH. RESTORATION WILL OCCUR AS SOON AFTER THE DISTURBANCE AS PRACTICAL. SEED MIXTURE 40 SHALL BE USED ON ALL DISTURBED AREAS. ALL SEED MIXTURES SHALL BE IN ACCORDANCE WITH SECTION 630 OF D.O.T. SPECIFICATIONS. AN EQUAL AMOUNT OF ANNUAL RYEGRASS SHALL BE ADDED TO THE MIX.

ALL PERVIOUSLY DISTURBED AREAS SHALL RECEIVE FERTILIZER. FERTILIZER SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS: NITROGEN, NOT LESS THAN 16%; PHOSPHORIC ACID, NOT LESS THAN 8%; POTASH, NOT LESS THAN 8%. FERTILIZER SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. SEED MIXTURE 40 SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. MULCH SHALL CONSIST OF HAY OR STRAW APPLIED AT THE RATE OF TWO (2) TONS PER ACRE.

SEEDING FROM SEPTEMBER 16 THROUGH NOVEMBER 15 IS TO BE AVOIDED TO PREVENT FREEZING OF NEW GROWTH. DORMANT SEEDING, IF NECESSARY, SHALL BE COMPLETED AFTER NOVEMBER 15. DORMANT SEEDING SHALL NOT BE APPLIED ON TOP OF SNOW. DISTURBED AREAS SHALL HAVE EROSION MAT APPLIED OVER DORMANT SEEDING. IF DORMANT SEEDING DOES NOT RESULT IN AT LEAST 70% COVER BY MAY 15, ADDITIONAL SEEDING SHALL BE REQUIRED.

OWNER:
LAKESTONE PROPERTIES &
MANAGEMENT, LLC
ATTN: BRETT RIEMEN
BRIAN SPANOS
5910 MAIN STREET, SUITE 1
MCFARLAND, WI 53558

ENGINEER:
QUAM ENGINEERING, LLC
ATTN: RYAN QUAM
4604 SIGGELKOW ROAD, SUITE A
MCFARLAND, WI 53558

1. EXCAVATED MATERIAL FROM THE UTILITY TRENCH NOT SUITABLE FOR BACKFILL AS DEEMED BY THE PUBLIC SERVICES DIRECTOR SHALL BE REMOVED AND REPLACED WITH SELECT TRENCH BACKFILL.
2. ALL SILT FENCE SHALL BE PROPERLY INSTALLED, MAINTAINED, AND REMOVED UPON ESTABLISHMENT OF TURF.
3. ALL SITES SHALL BE ADEQUATELY PROTECTED TO PREVENT SEDIMENT FROM LEAVING THE SITE.
4. ACCESS TO THE CONSTRUCTION SITE SHALL BE LIMITED TO THE STONE ENTRANCE PADS SHOWN ON THE PLANS.
5. STREETS SHALL BE SWEEPED CLEAN EVERY DAY.
6. EROSION MAT IS REQUIRED FOR ALL RESTORATION ON SLOPES AT OR GREATER THAN 5:1, AND IN AREAS THAT CHANNEL WATER. EROSION MAT SHALL ALSO BE PROVIDED IN ALL STREET TERRACES WITHIN THE ROW.
7. EROSION MAT AND STAPLES SHALL BE BIODEGRADABLE (CURLEX NET FREE OR APPROVED EQUAL).
8. ALL STORM WATER MANAGEMENT FACILITIES SHALL BE SEED WITH A NATIVE SEED MIXTURE WITHIN THE LIMITS OF THE OUTLOT OR EASEMENT. THE NATIVE SEED MIXTURE SHALL BE APPROVED BY THE DIRECTOR OF PUBLIC SERVICES.
9. ANY PROPOSED CHANGES TO THE GRADING AND EROSION CONTROL PLAN MUST BE SUBMITTED TO THE VILLAGE ENGINEER AND APPROVED.

SPERLE CORNERS – VILLAGE OF MCFARLAND

DETAILS

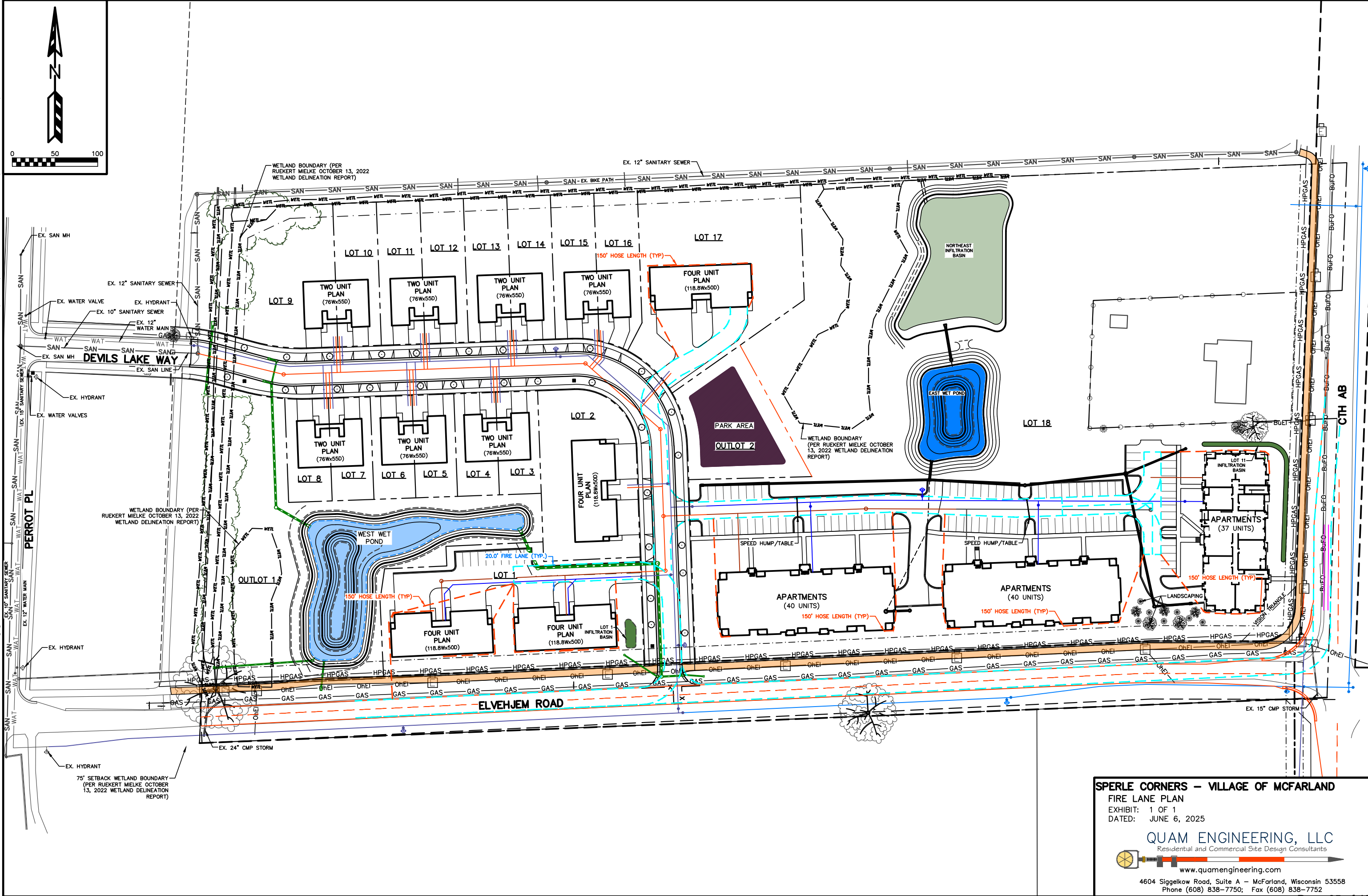
SHEET: C-17

DATED: JUNE 4, 2025

QUAM ENGINEERING, LLC
Residential and Commercial Site Design Consultants

 www.quamengineering.com

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Phone (608) 838-7750; Fax (608) 838-7752



SPERLE CORNERS - VILLAGE OF MCFARLAND

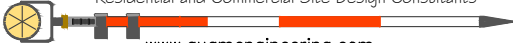
FIRE LANE PLAN

EXHIBIT: 1 OF 1

DATED: JUNE 6, 2025

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Residential and Commercial Site Design Consultants



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Phone (608) 838-7750; Fax (608) 838-7752



June 6, 2025

Community & Economic Development Department

Attn: Andrew Bremer
5915 Milwaukee Street
McFarland, WI 53558

Re: Sperle Corners – Village of McFarland

Enclosed are the following documents for the above referenced project:

1. Sperle Corners – Village of McFarland Plan Set (18 Pages)
2. Universal Soil Loss Equation (USLE) worksheet
3. Existing Drainage Plan
4. Pre-Development HydroCAD Report
5. Proposed Drainage Plan
6. Post-Development HydroCAD Reports
7. Phase 1 Storm Sewer Drainage Plan
8. Phase 1 Rational Method Worksheets
9. WinSLAMM Drainage Plan
10. Sediment Control Calculations
11. Hydrologic Soil Information;
12. Soil and Site Evaluation – Storm (2024)
13. Stormwater Management Maintenance Agreement;

The proposed development includes the construction of several new duplexes and 4-unit homes, as well as the construction of larger apartment buildings in phase 2. Phase 1 of the development includes the extension of Devils Lake Way to connect with Elvehjem Road and the construction of seven duplexes and four four-unit buildings as well as a wet pond to meet rate and sediment control standards. Phase 2 includes the construction of three apartment buildings along with the adjacent parking lots. An additional wet pond and infiltration basin are proposed to meet rate, sediment, and infiltration standards.

The documents are being submitted to address erosion control and stormwater management requirements for the proposed combination of new development for all phases and will meet the following performance standards as defined in the Village of McFarland Ordinance as follows:

Erosion Control

The proposed construction shall include erosion control measures to prevent gully and bank erosion and limit total off-site erosion to less than 5.0 tons per acre per year.

All runoff during construction shall be directed to flow through erosion control measures as shown on the Grading and Erosion Control Plan. The USLE calculation worksheet is included and indicates that soil loss will be less than 5.0 tons per acre per year.

SPERLE CORNERS RESIDENTIAL

SUBDIVISION

STREET AND UTILITY CONSTRUCTION

VILLAGE OF MCFARLAND

DANE COUNTY, WISCONSIN

SHEET	INDEX	DESCRIPTION
1		COVER PAGE
2		EXISTING SITE PLAN
3		OVERALL GRADING AND STORM WATER MANAGEMENT PLAN
3.1		GRADING PLAN - PHASE 1
4		WEST POND PLAN
5		EAST POND PLAN
6	0+00 - 6+00	DEVILS LAKE WAY - PLAN AND PROFILE
7	6+00 - 10+00	DEVILS LAKE WAY - PLAN AND PROFILE
8	20+00 - 27+50	STORM SEWER - PLAN AND PROFILE
9	29+00 - 35+00	STORM SEWER - PLAN AND PROFILE
10	50+00 - 56+00	WATER MAIN - PLAN AND PROFILE
11	56+00 - 62+00	WATER MAIN - PLAN AND PROFILE
12		SIGN & LIGHTING PLAN
13		STREET TREE PLAN
14		DETAILS #1
15		DETAILS #2
16		DETAILS #3
17		DETAILS #4



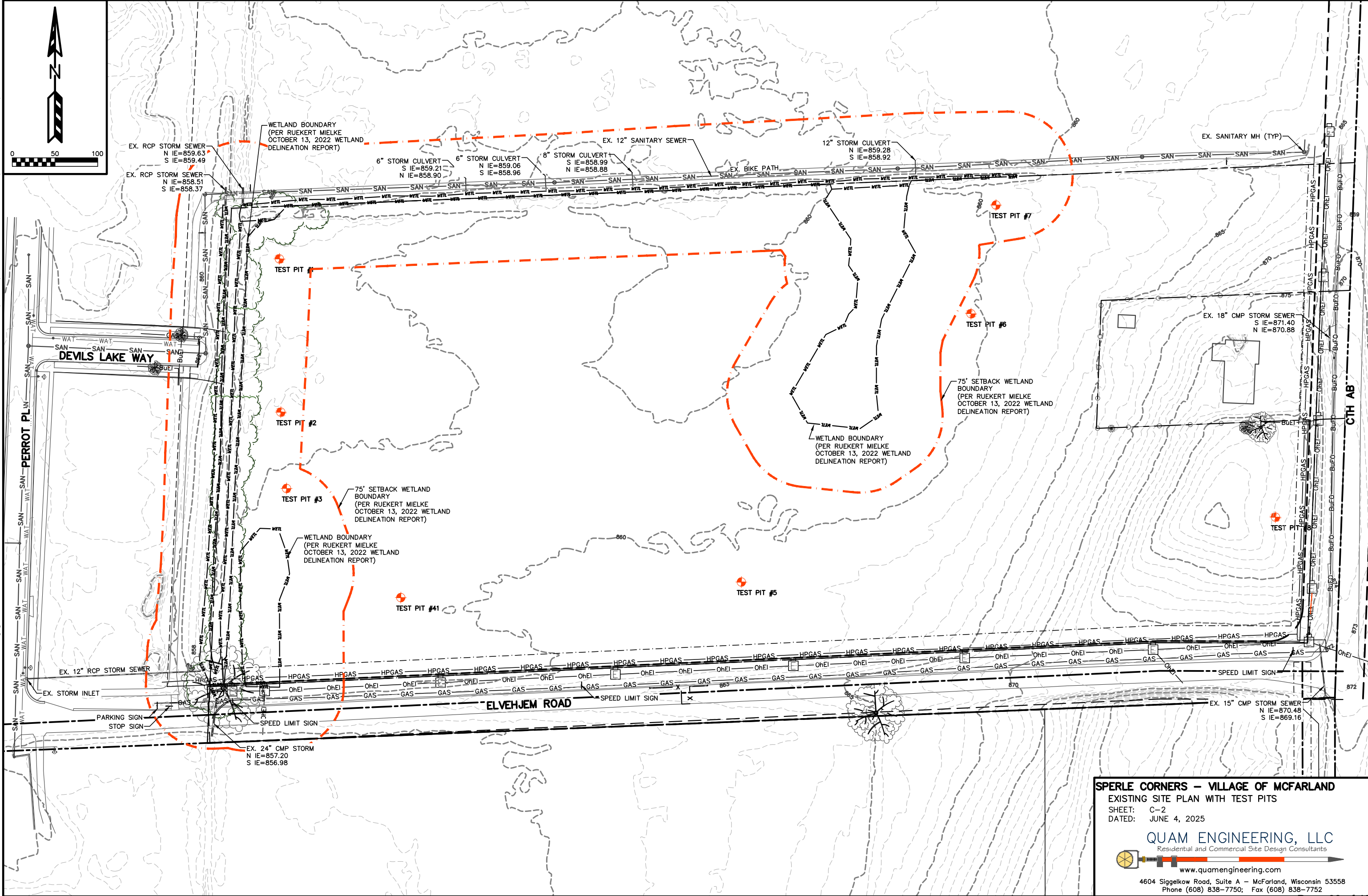
QUAM ENGINEERING, LLC

Residential and Commercial Site Design Consultants

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Phone (608) 838-7750; Fax (608) 838-7752



SPERLE CORNERS - VILLAGE OF MCFARLAND

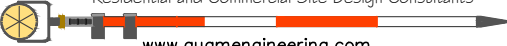
EXISTING SITE PLAN WITH TEST PITS

SHEET: C-2

DATED: JUNE 4, 2025

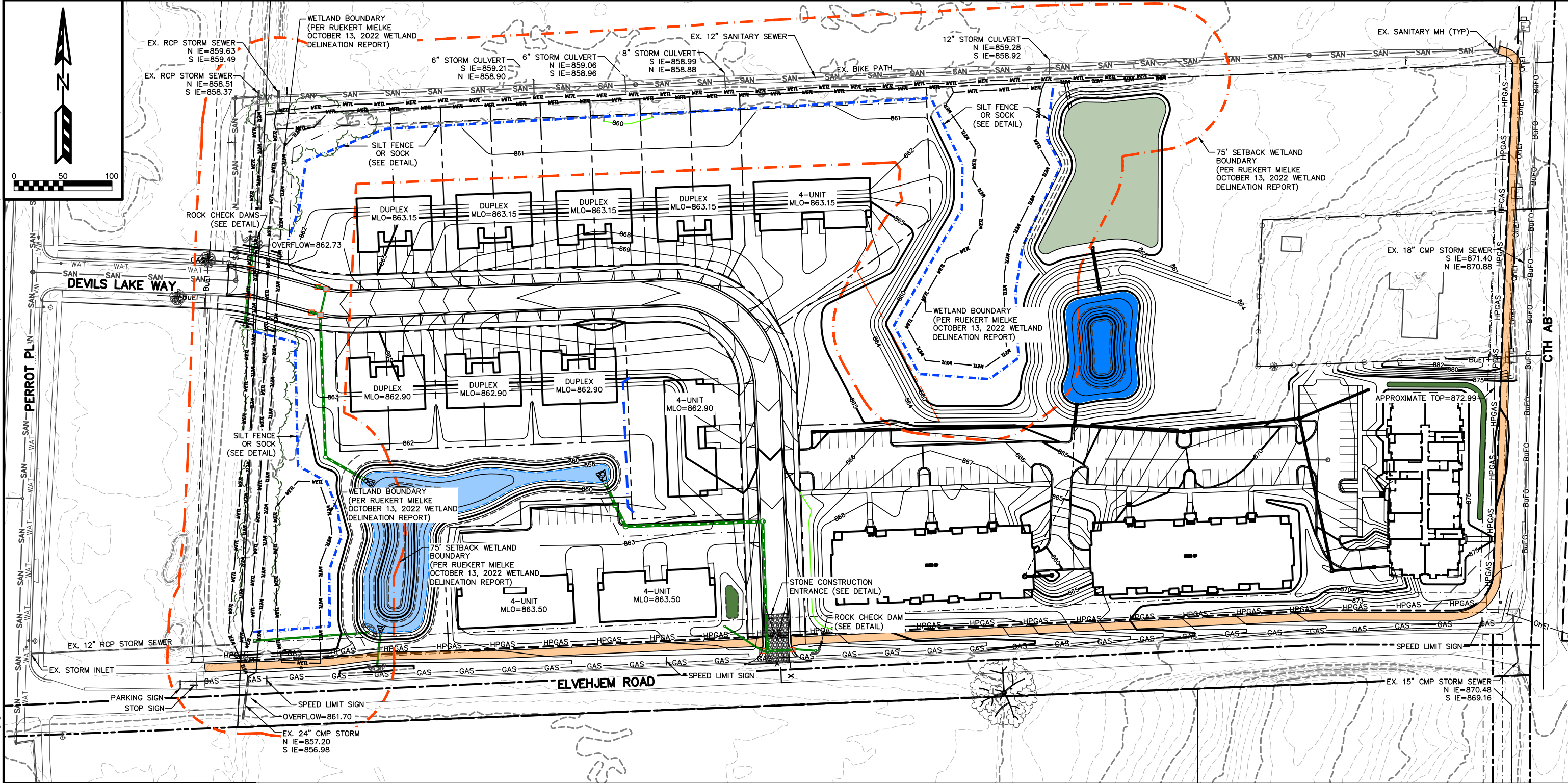
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Phone (608) 838-7750; Fax (608) 838-7752



LEGEND FOR COMMON LINES:	
964	EXISTING MINOR CONTOUR
965	EXISTING MAJOR CONTOUR
964	PROPOSED MINOR CONTOUR
965	PROPOSED MAJOR CONTOUR
---	PROPERTY LINE
---	ROAD RIGHT-OF-WAY
---	EASEMENT LINE
---	75 FT SHORELINE SETBACK
---	EXISTING FENCE
---	EXISTING BURIED WATER MAIN/SERVICE
---	EXISTING BURIED SANITARY SEWER/LATERAL
---	EXISTING BURIED GAS LINE
---	EXISTING BURIED COMMUNICATION LINE
---	EXISTING BURIED FIBER OPTIC LINE
---	EXISTING BURIED TELEPHONE LINE
---	EXISTING BURIED ELECTRIC LINE
---	EXISTING OVERHEAD UTILITY LINE
---	EXISTING OVERHEAD ELECTRIC LINE
---	PROPOSED SILT FENCE/SOCK (SEE DETAIL)
---	PROPOSED LIMITS OF DISTURBANCE
---	MINIMUM LOWEST OPENING
---	FLEXSTORM INLET PROTECTION (SEE DETAIL)

SPERLE CORNERS – VILLAGE OF MCFARLAND

OVERALL GRADING & STORM WATER MANAGEMENT PLAN

SHEET: C-3

DATED: JUNE 4, 2025

QUAM ENGINEERING, LLC

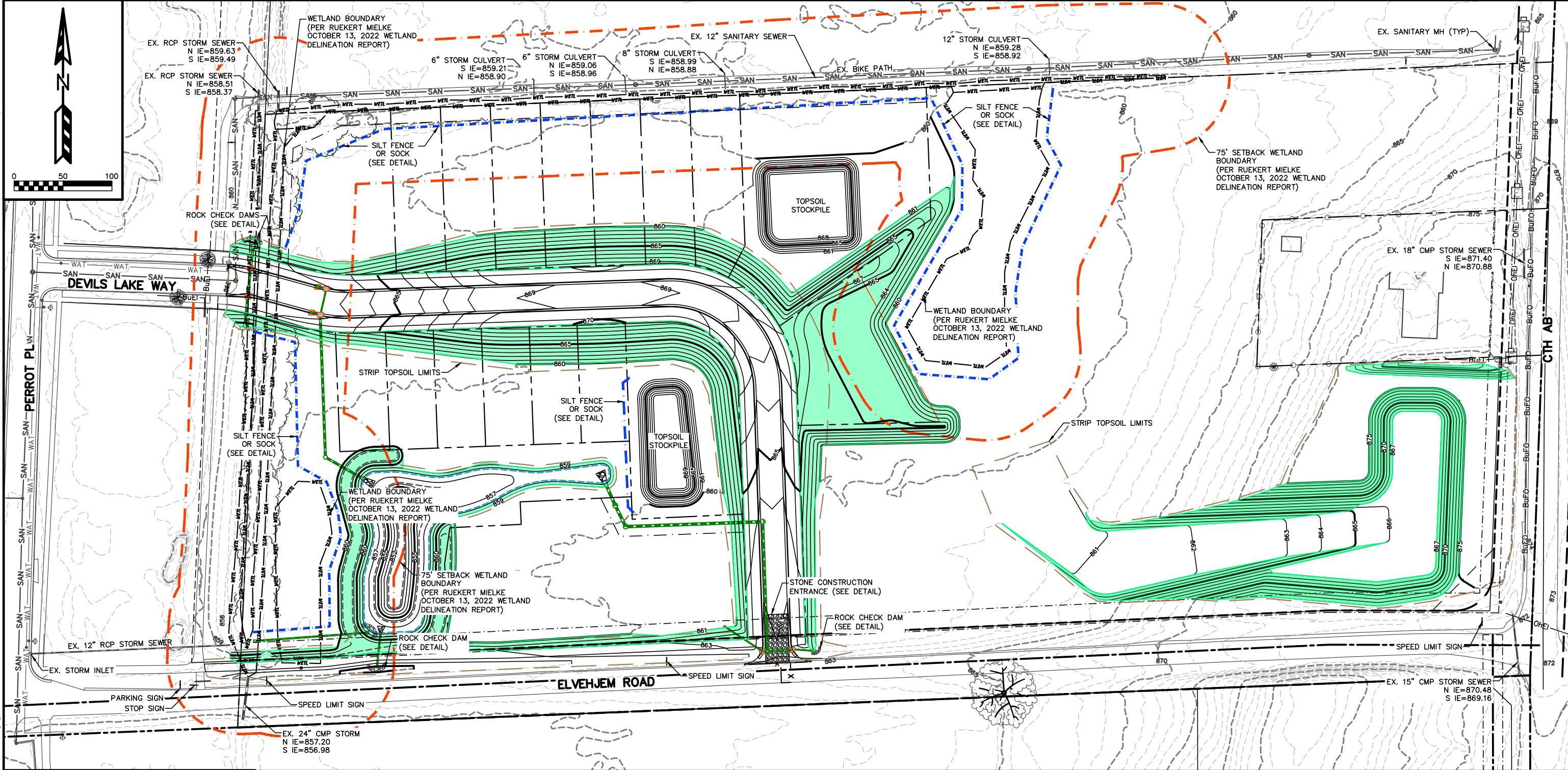
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LEGEND FOR COMMON LINES:	
	EXISTING MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPERTY LINE
	ROAD RIGHT-OF-WAY
	EASEMENT LINE
	75 FT SHORELINE SETBACK
	EXISTING FENCE
	EXISTING BURIED WATER MAIN/SERVICE
	EXISTING BURIED SANITARY SEWER/LATERAL
	EXISTING BURIED GAS LINE
	EXISTING BURIED COMMUNICATION LINE
	EXISTING BURIED FIBER OPTIC LINE
	EXISTING BURIED TELEPHONE LINE
	EXISTING BURIED ELECTRIC LINE
	EXISTING OVERHEAD UTILITY LINE
	EXISTING OVERHEAD ELECTRIC LINE
	PROPOSED SILT FENCE/SOCK (SEE DETAIL)
	PROPOSED LIMITS OF DISTURBANCE
	PROPOSED EROSION MATTING
	PROPOSED ROCK CHECK DAM (SEE DETAIL)
	FLEXSTORM INLET PROTECTION (SEE DETAIL)

SPERLE CORNERS – VILLAGE OF MCFARLAND

Grading Plan – Phase 1

SHEET: C-3.1

DATED: JUNE 4, 2025

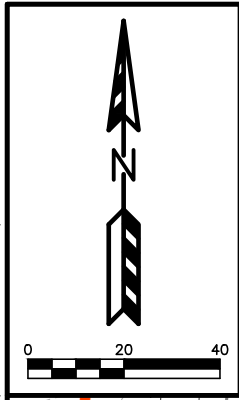
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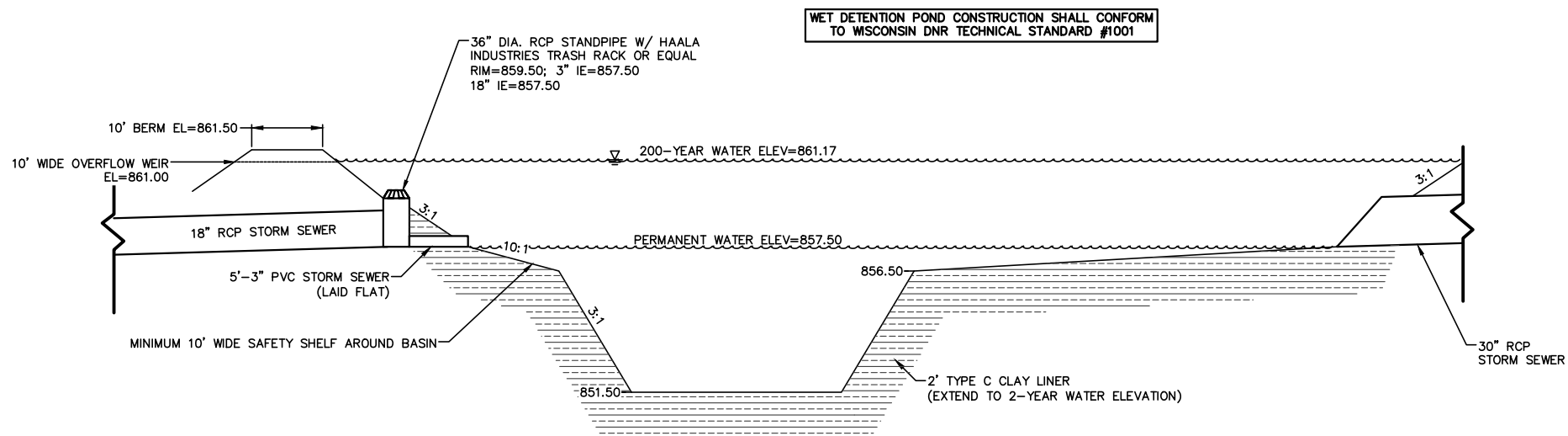
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Phone (608) 838-7750; Fax (608) 838-7752



WEST WET POND PEAK ELEVATIONS	
STORM	ELEV
1-YR	859.21
2-YR	859.49
10-YR	859.80
100-YR	860.86
200-YR	861.17

CONTRACTOR SHALL NOTIFY ENGINEER WHEN POND IS GRADED TO FINISH ELEVATIONS FOR AS-BUILT TOPOGRAPHIC COLLECTION. IF PUMPING IS REQUIRED TO ALLOW THE BOTTOM TO BE COLLECTED, CONTRACTOR SHALL ARRANGE FOR PUMPING.



WEST WET DETENTION POND CROSS SECTION

SPERLE CORNERS – VILLAGE OF MCFARLAND

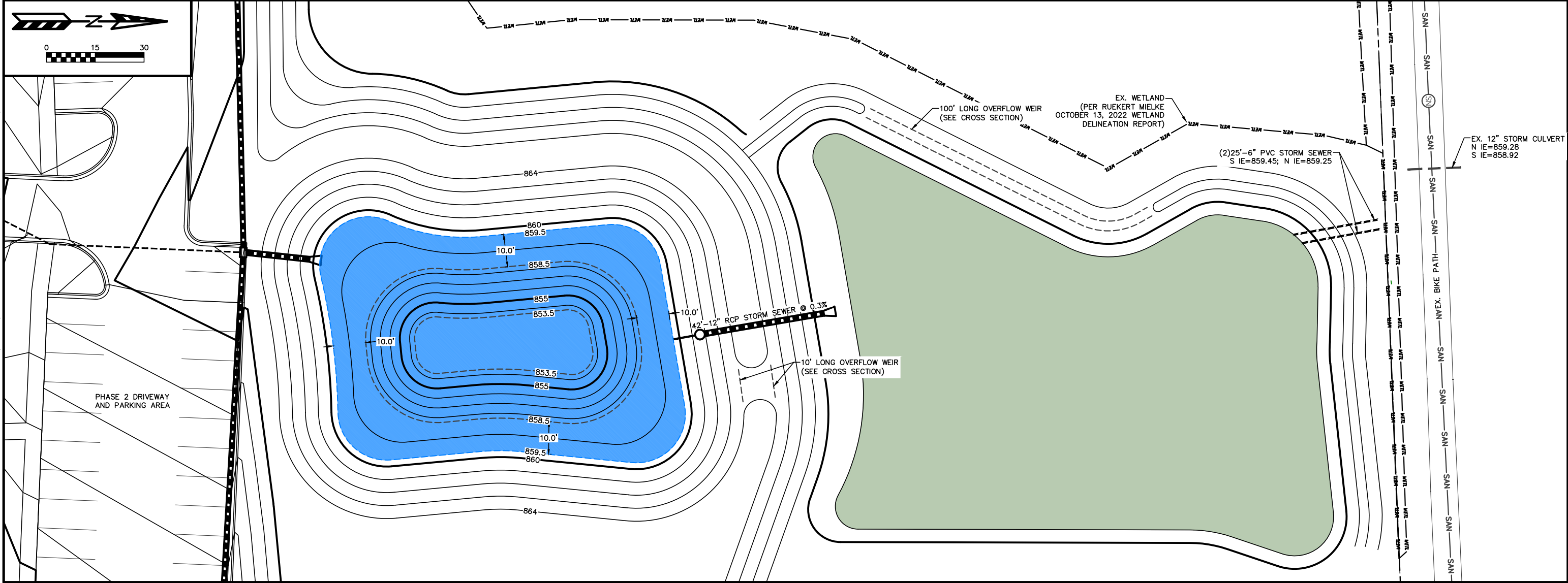
WEST POND PLAN

SHEET: C-4
DATED: JUNE 4, 2025

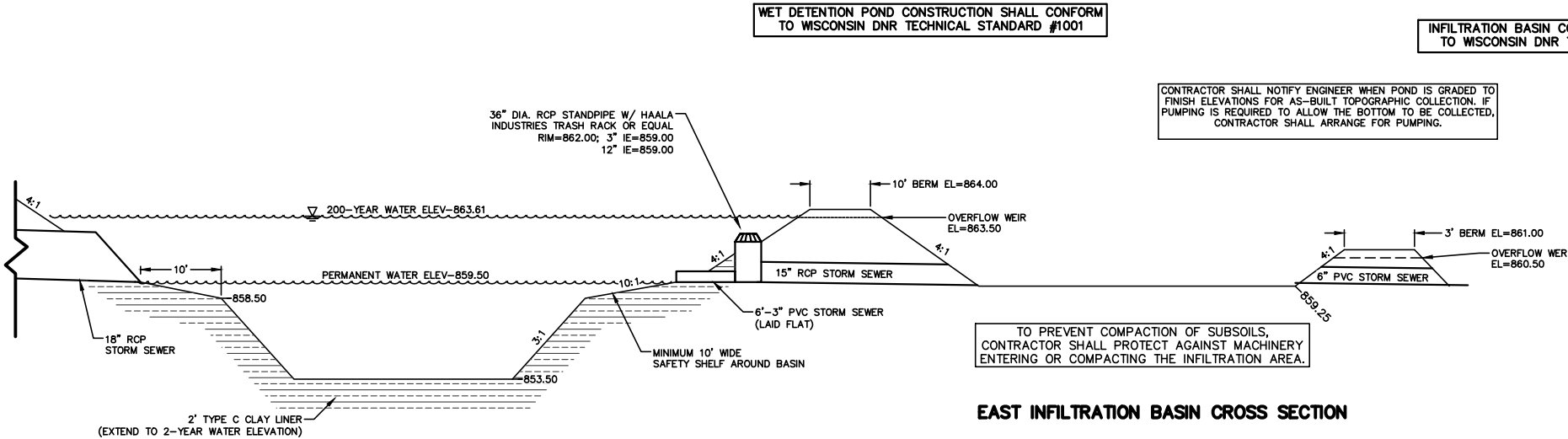
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Residential and Commercial Site Design Consultants



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Phone (608) 838-7750; Fax (608) 838-7752



EAST WET POND PEAK ELEVATIONS	
STORM	ELEV
1-YR	861.45
2-YR	861.77
10-YR	862.23
100-YR	863.22
200-YR	863.61



EAST WET DETENTION POND CROSS SECTION

EAST INFILTRATION BASIN CROSS SECTION

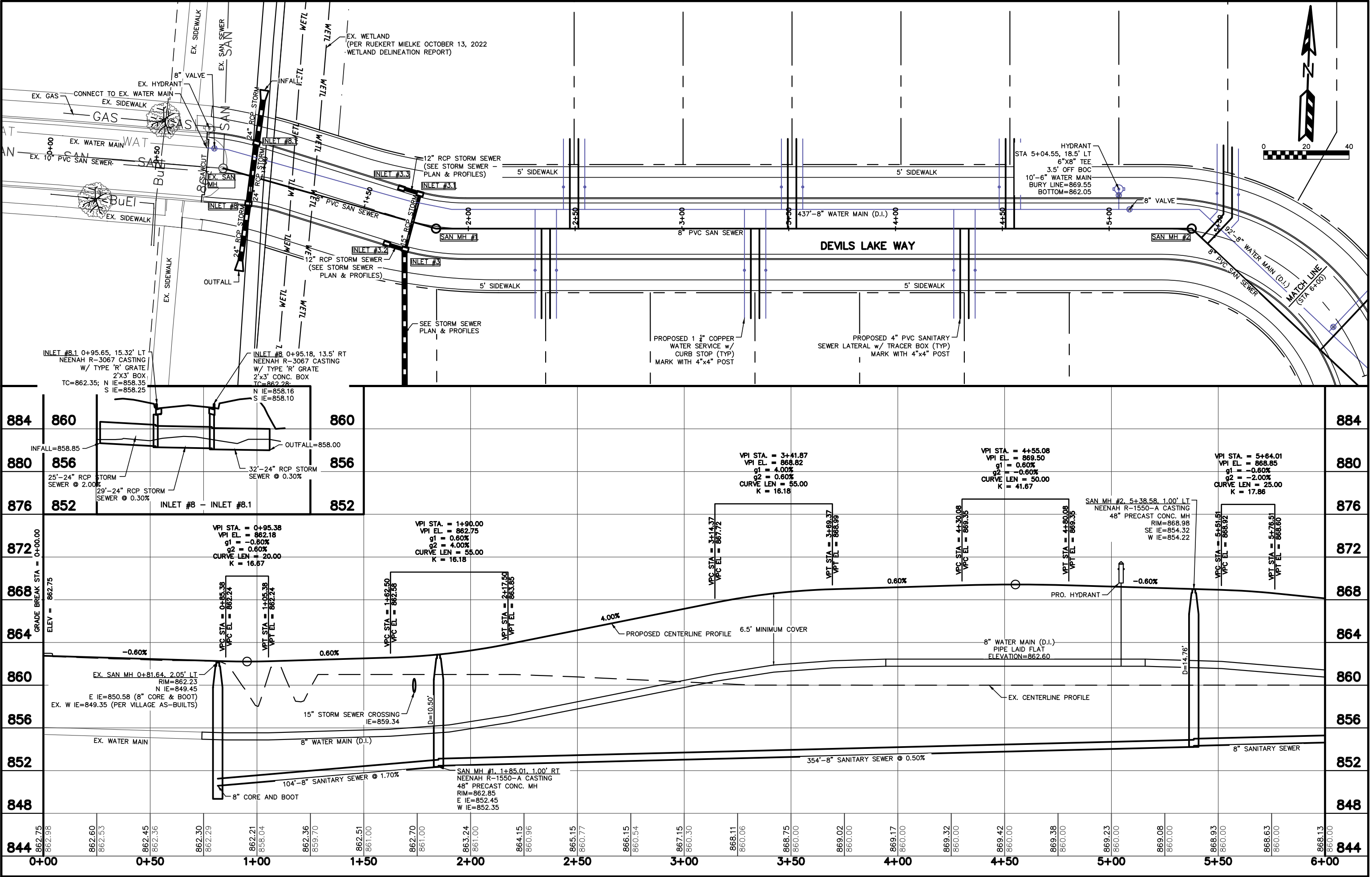
EAST INFILTRATION BASIN PEAK ELEVATIONS	
STORM	ELEV
1-YR	859.63
2-YR	859.66
10-YR	860.12
100-YR	860.62
200-YR	860.65

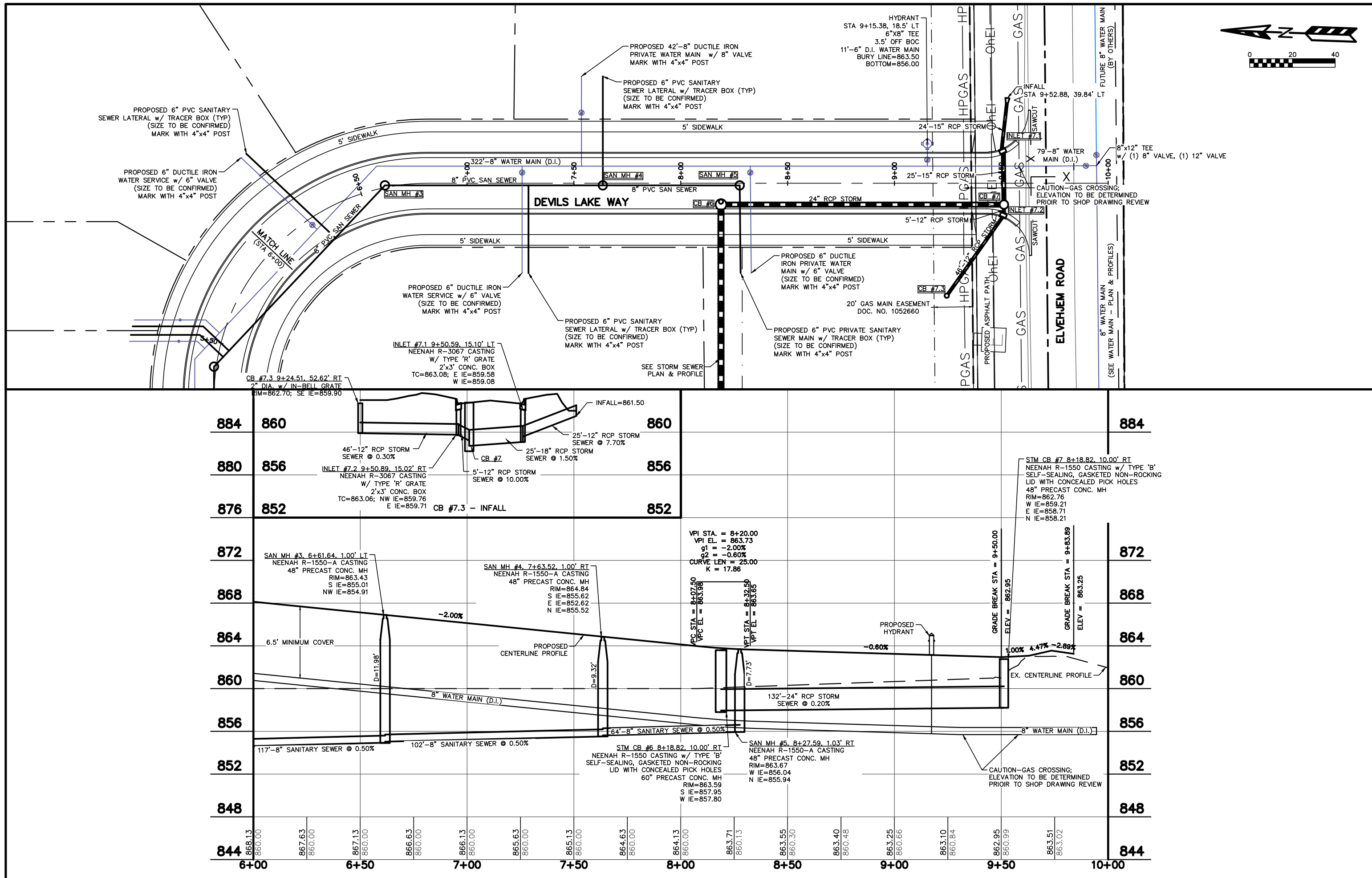
LAKESTONE PROPERTIES - VILLAGE OF MCFARLAND

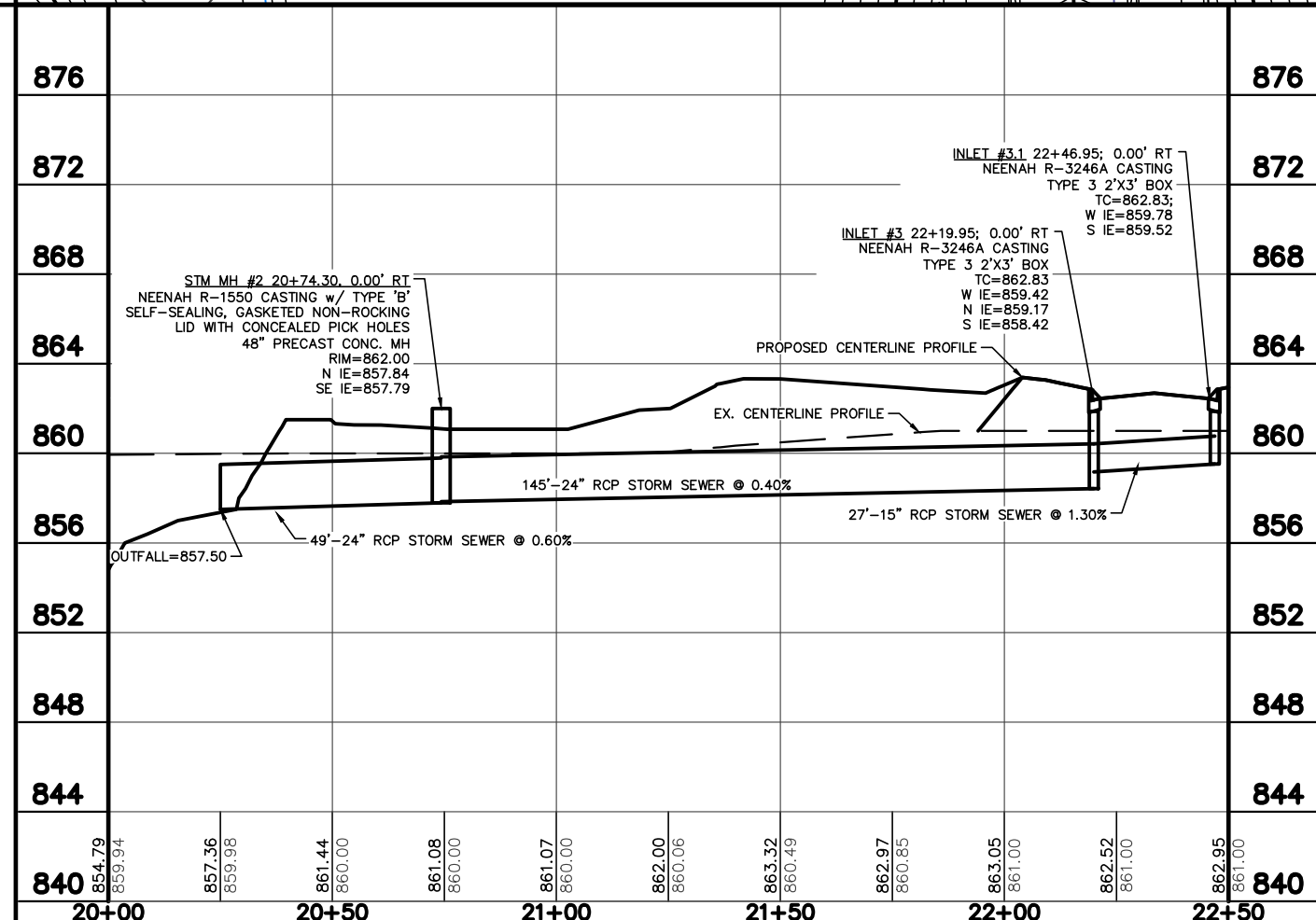
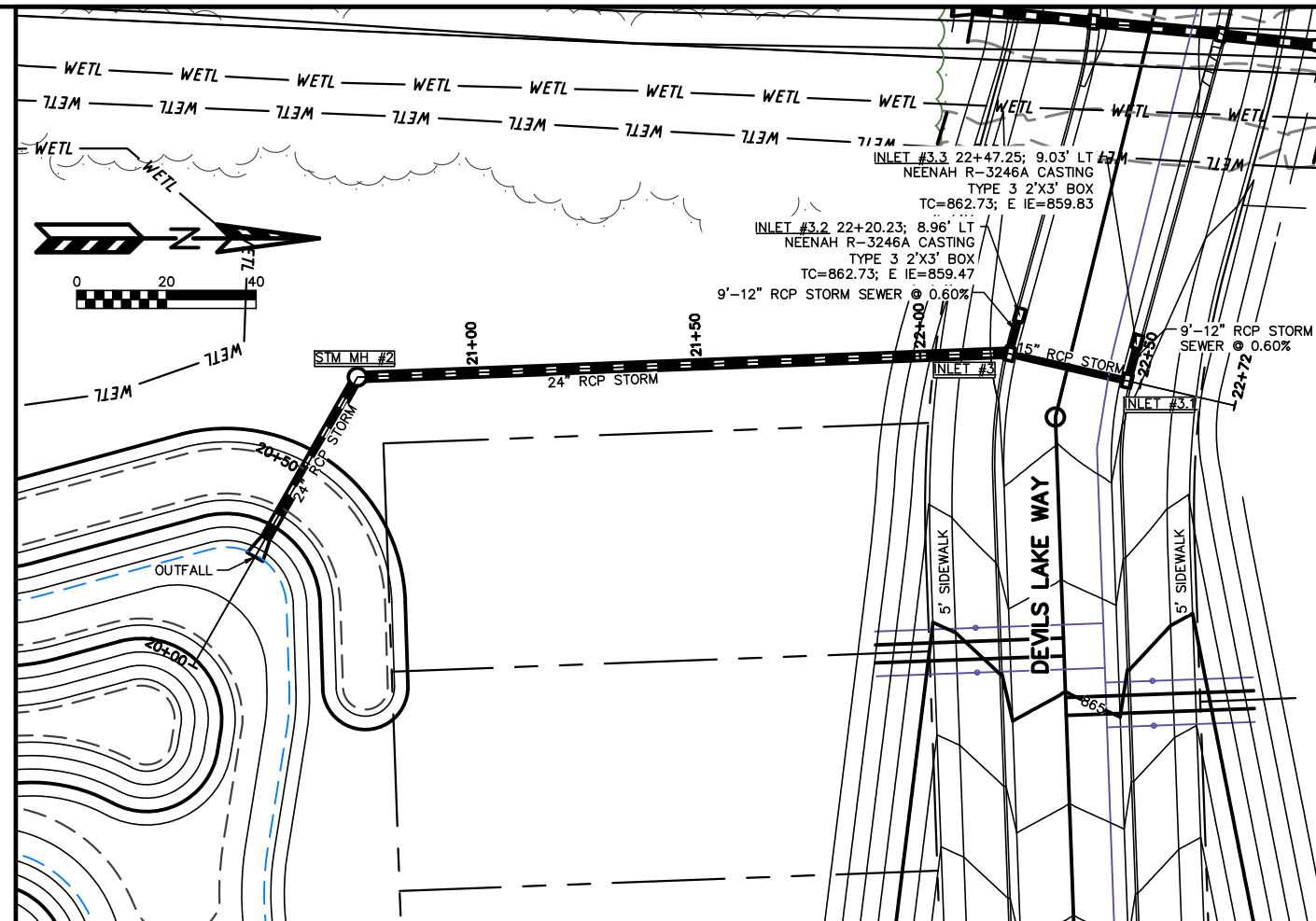
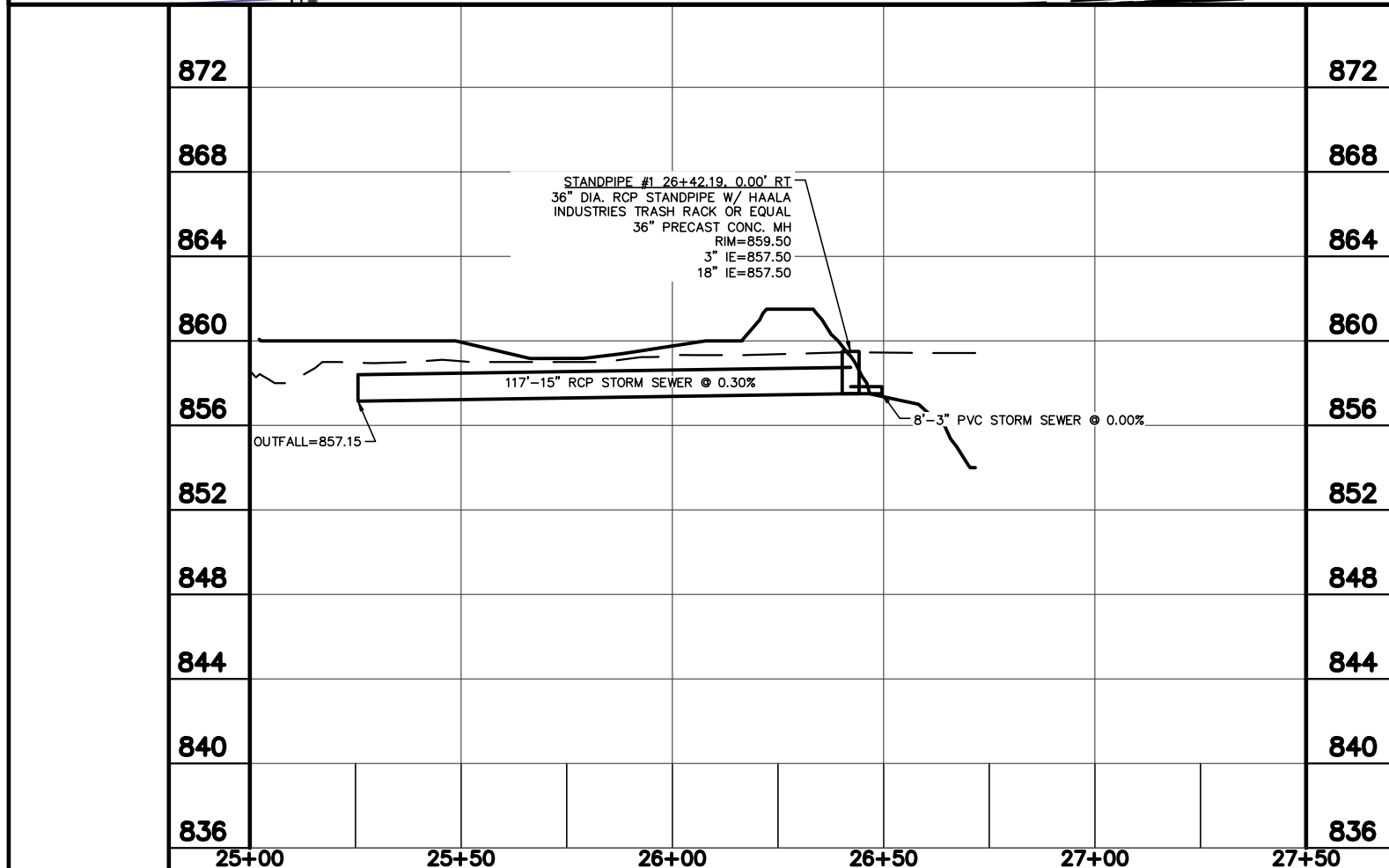
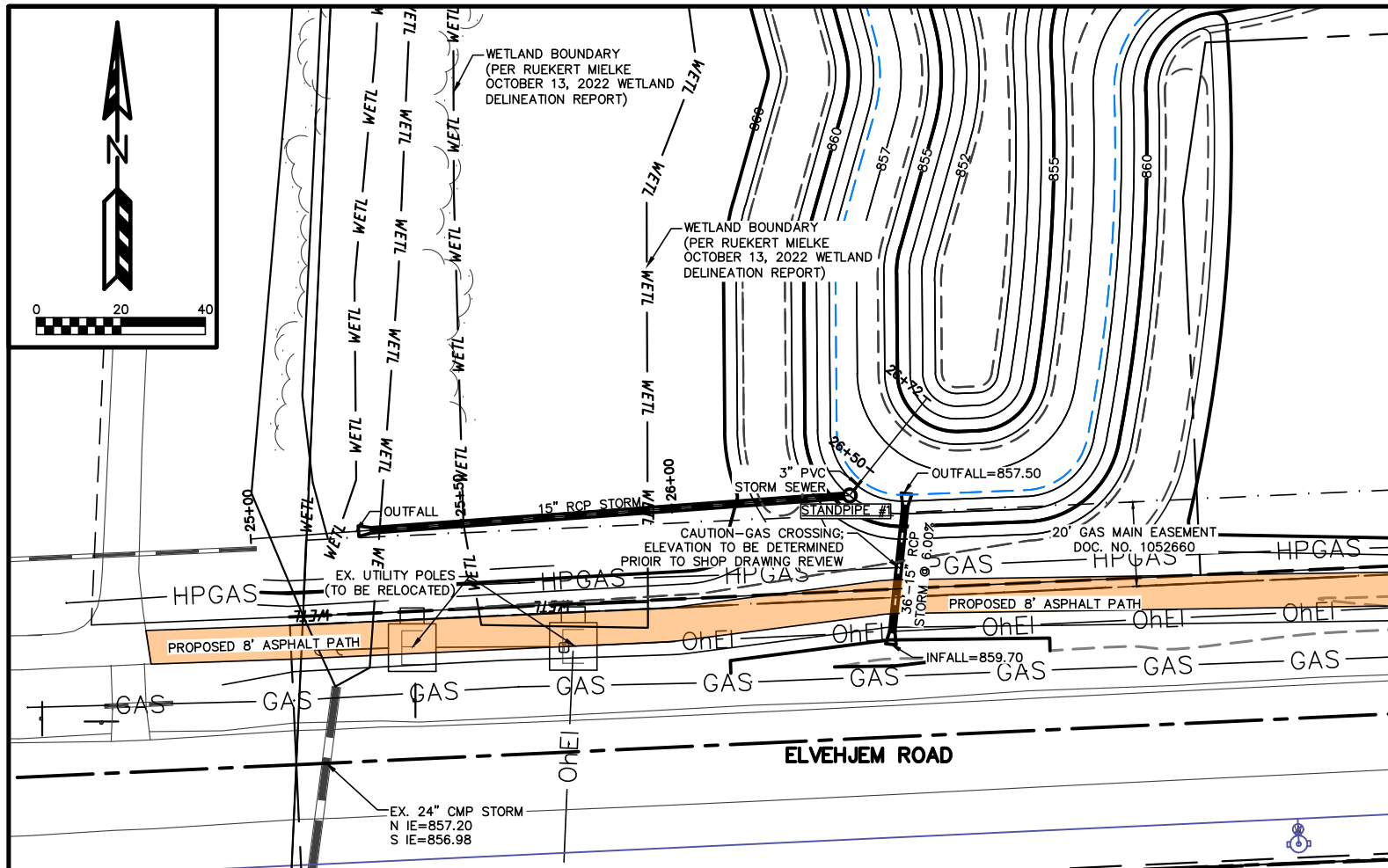
EAST POND PLAN
SHEET: C-5
DATED: JUNE 4, 2025

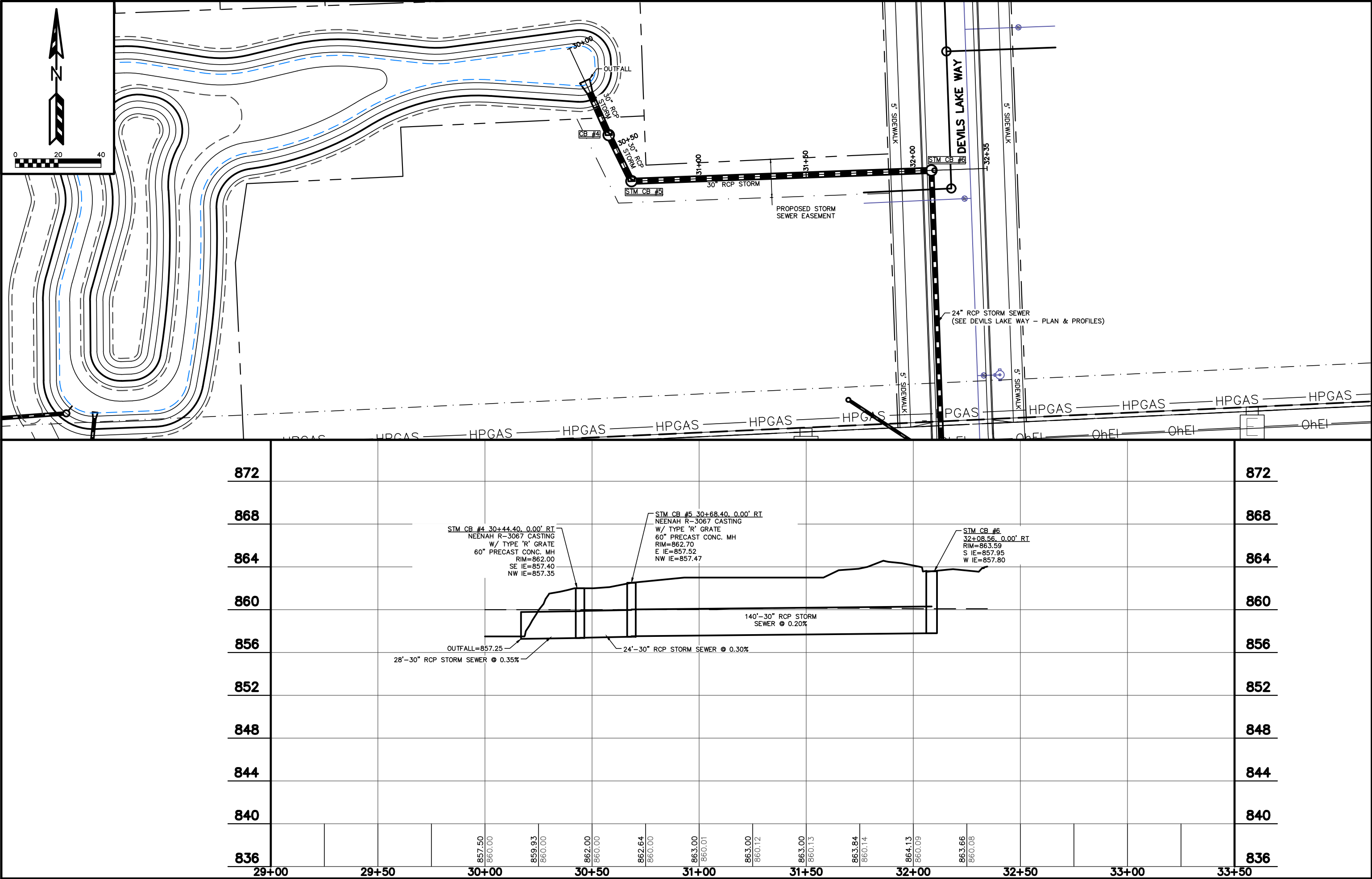


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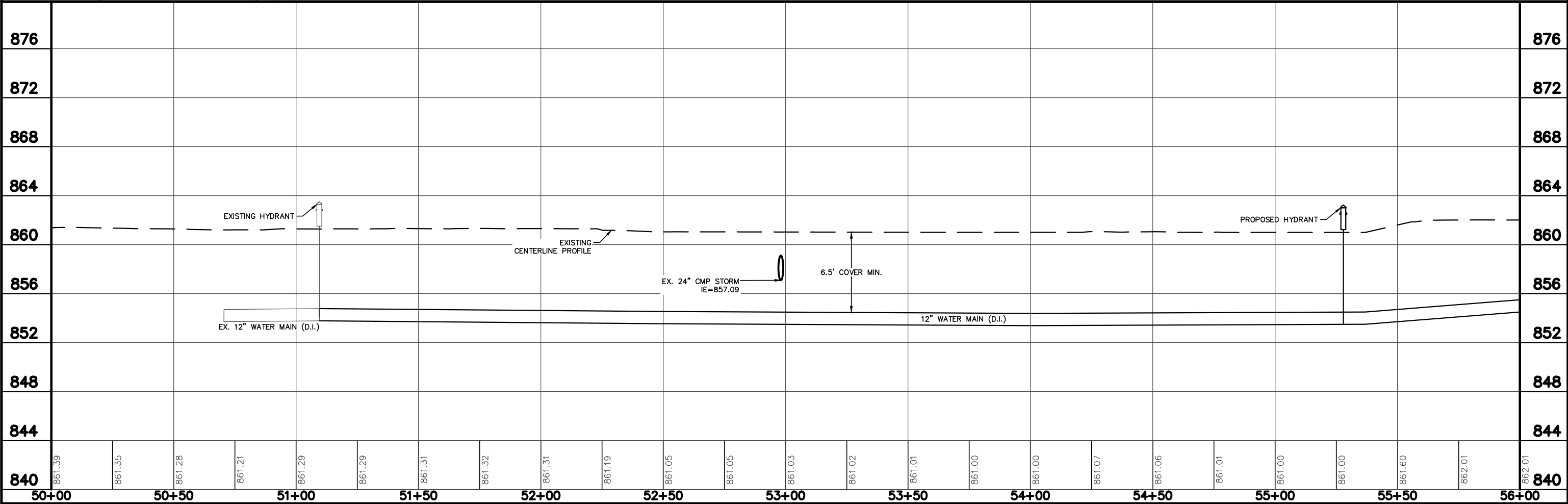
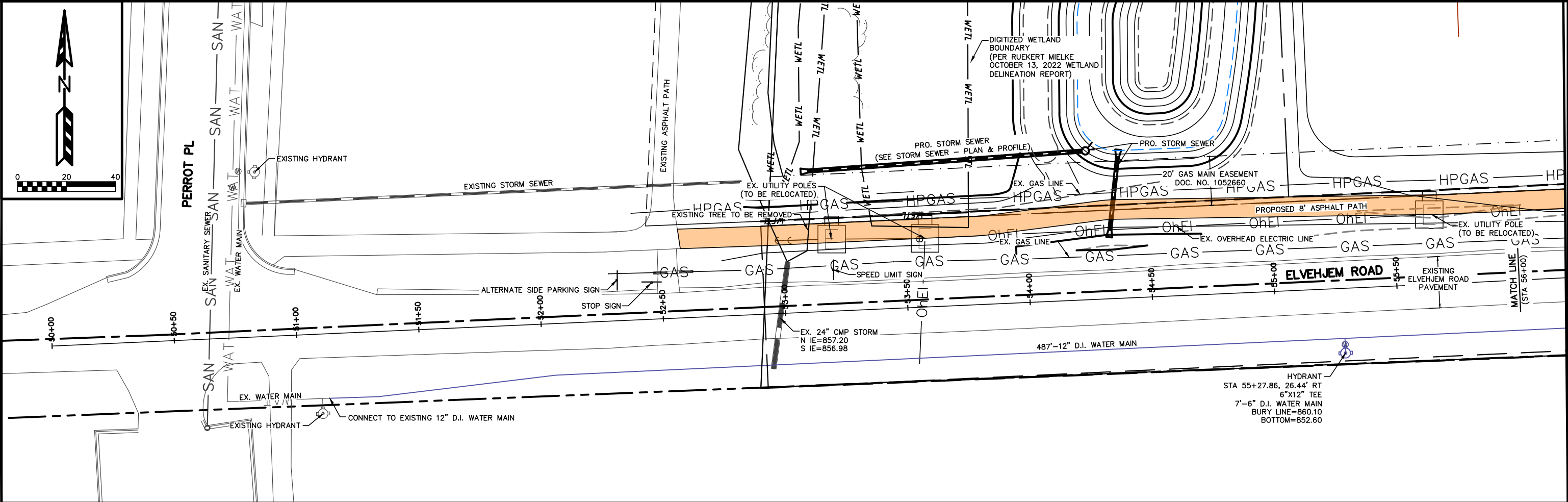




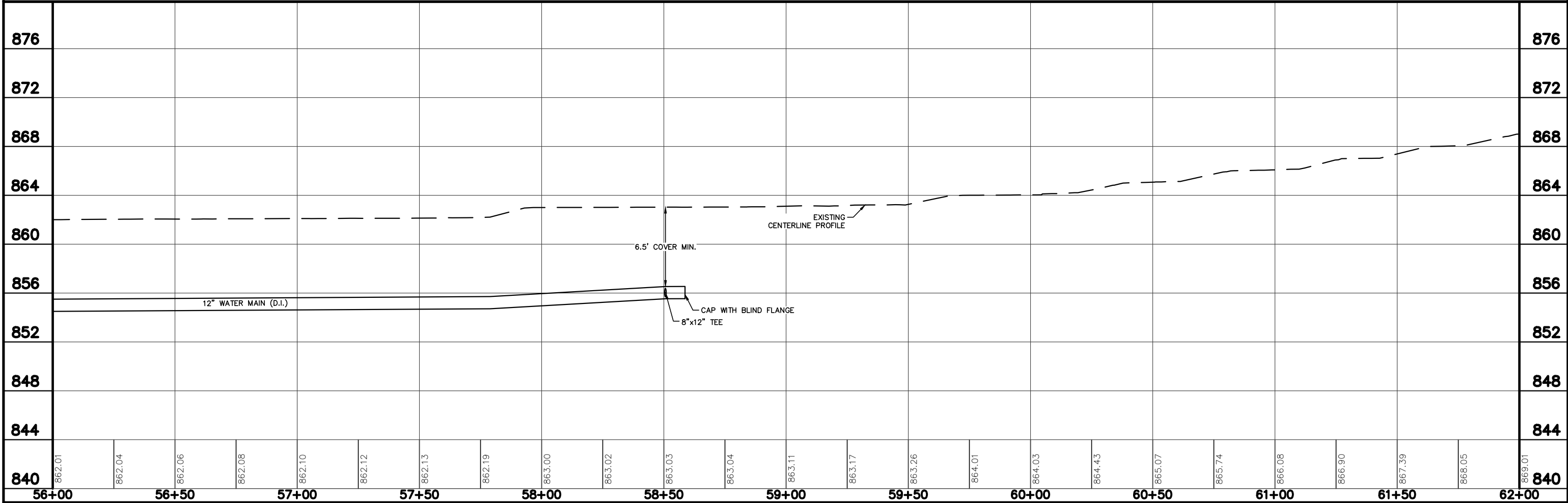
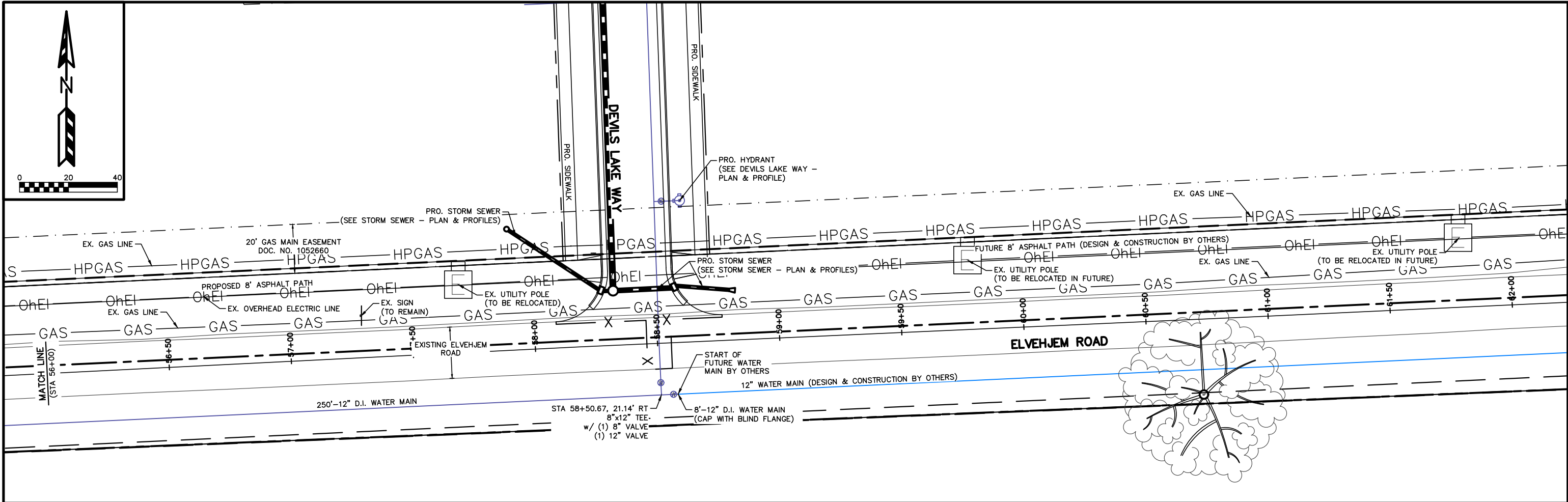
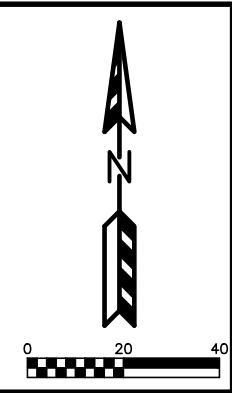


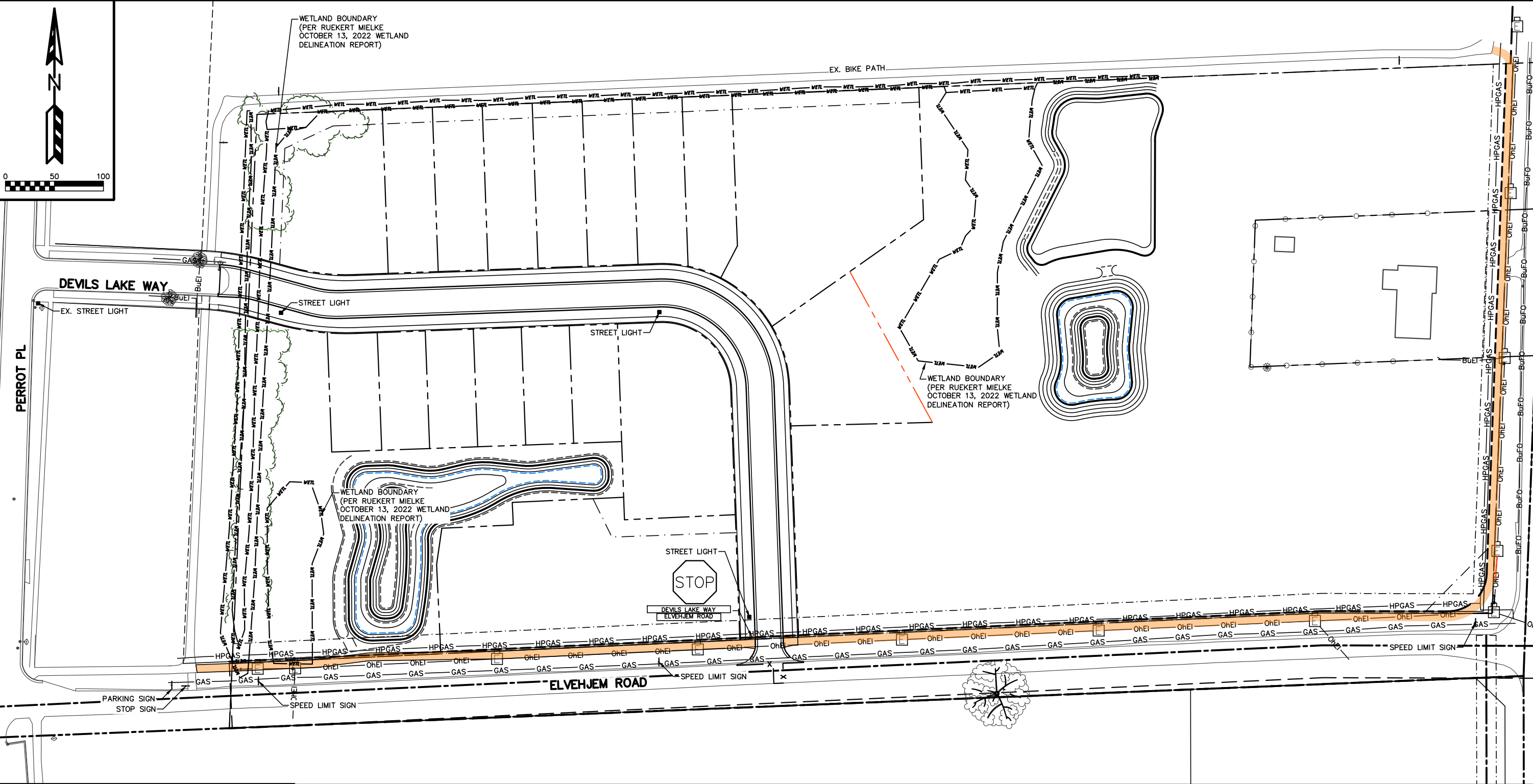


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SIGNING AND LIGHTING LEGEND

STOP SIGN – SIGN DESIGNATION R1-1

STREET SIGNS

DEVILS LAKE WAY STREET NAME SIGNS

STREET LIGHT (DESIGN BY OTHERS)

SIGNAGE NOTES:

ALL SIGNS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SIGNS SHALL BE A DISTANCE OF 7" FROM GROUND LEVEL TO THE BOTTOM OF THE SIGN MOUNTED ON THE POST AND LOCATED 3' BEHIND THE BACK OF CURB.

STREET NAME SIGNS SHALL HAVE WHITE LETTERS AND GREEN BACKGROUND.

STREET NAME SIGNS SHALL BE PLACED ABOVE STOP SIGNS AT INTERSECTIONS THAT REQUIRE STOP SIGNS.

SIGN POSTS SHALL BE 2-3/8" O.D. GALVANIZED 10 FT LONG, 13 GAUGE, AND 0.095 WALL THICKNESS. MOUNT SIGN AT TOP OF THE POST, AND INSTALL POSTS 3' DEEP AND MIX 1/2 BAG OF 80 LB SAKRETE CONCRETE POURING IS AROUND THE POST BELOW THE GROUND BEFORE COVERING WITH 8".

SPERLE CORNERS – VILLAGE OF MCFARLAND

SIGN AND LIGHTING PLAN

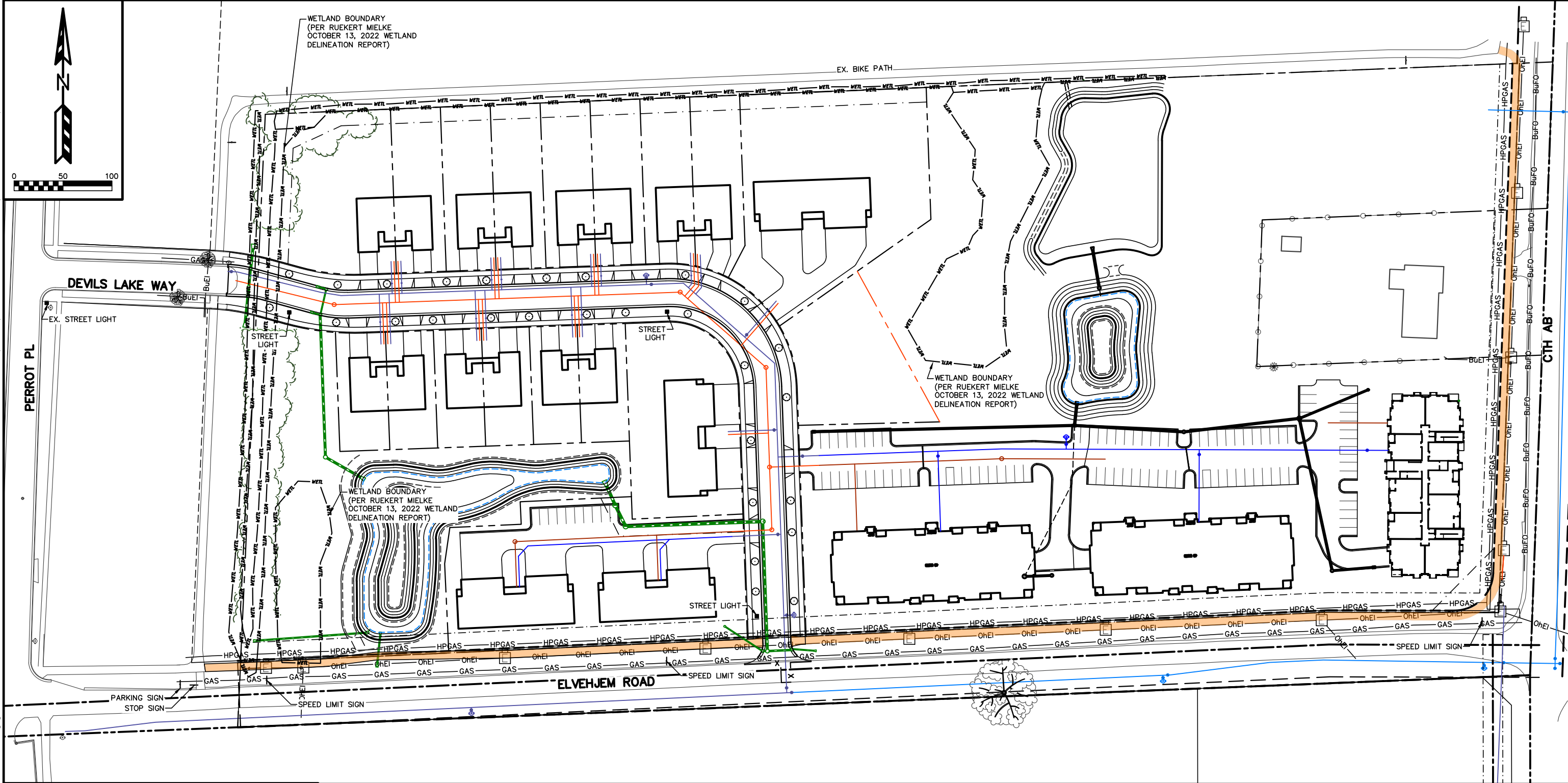
SHEET: C-12

DATED: JUNE 4, 2025

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GENERAL NOTES:

ALL PLANTINGS SHALL CONFORM TO QUALITY REQUIREMENTS AS PER ANSI Z60.1.

ALL PLANT MATERIAL SHALL BE TRUE TO THE SPECIES, VARIETY AND SIZE SPECIFIED, NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURE PRACTICES, AND UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE OF THE PROJECT SITE.

CONTACT LANDSCAPE ARCHITECT, IN WRITING, TO REQUEST AND PLANT MATERIAL SUBSTITUTIONS DUE TO AVAILABILITY ISSUES.

ALL DISTURBED AREAS, UNLESS OTHERWISE NOTED, TO BE SEEDDED WITH WISDOT SEED MIX #40 OR EQUIVALENT, PER MANUFACTURE'S SPECIFIED APPLICATION RATES. ALL SEEDDED AREAS ARE TO BE WATERED DAILY TO MAINTAIN ADEQUATE SOIL MOISTURE FOR PROPER GERMINATION. AFTER VIGOROUS GROWTH IS ESTABLISHED, APPLY 1/2" WATER TWICE WEEKLY UNTIL FINAL ACCEPTANCE.

ALL PLANTS SHALL BE GUARANTEED TO BE IN HEALTHY AND FLOURISHING CONDITION DURING THE GROWING SEASON FOLLOWING INSTALLATION. ALL PLANT MATERIAL SHALL BE GUARANTEED FOR TWO YEARS FROM THE TIME OF INSTALLATION.

TREES SHALL BE A MINIMUM 2" CALIPER.

NOTES:

MINIMUM DISTANCE FROM A STREETLIGHT TO A TREE IS 20'.

MINIMUM DISTANCE FROM THE FRONT OF A STREET SIGN IS 25' AND 10' FROM THE BACK OF THE SIGN.

MINIMUM DISTANCE FROM ANY SANITARY SEWER, WATER MAIN, AND STORM SEWER STRUCTURE OR PIPE IS 10'.

NO TREE SHALL BE PLANTED WITHIN THE VISION TRIANGLE.

SPERLE CORNERS – VILLAGE OF MCFARLAND

STREET TREE PLAN

SHEET: C-13

DATED: JUNE 4, 2025

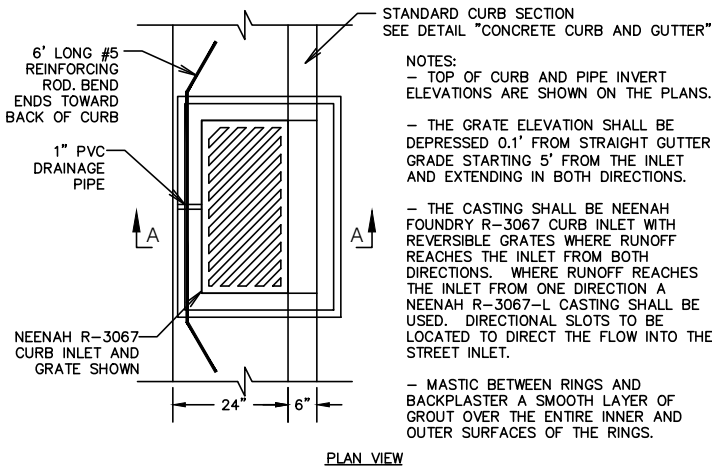
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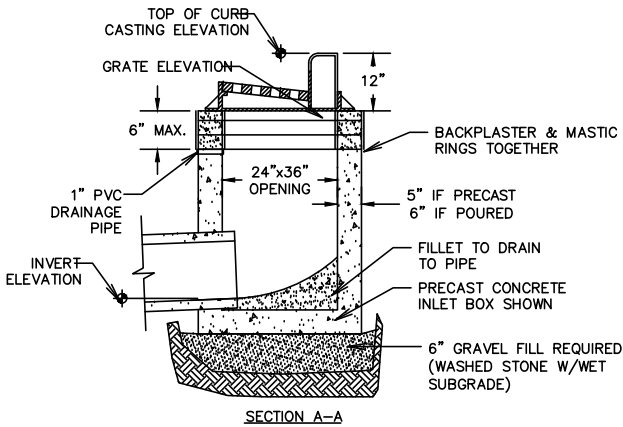
4604 Siggelkow Road, Suite A – McFarland, Wisconsin 53558

Phone (608) 838-7750; Fax (608) 838-7752



1 RECTANGULAR STREET INLET

2 NOT TO SCALE



MANHOLE SIZE	DIMENSION	
	A	B (MIN.)
48"	48"	5"
60"	60"	6"
72"	72"	7"
84"	84"	7"
96"	96"	9"

NOTES:

CONCRETE SHALL BE 4000 PSI, 28 DAY COMPRESSIVE STRENGTH, 6.5 BAG MIX WITH 1~2% AIR ENTRAINMENT.

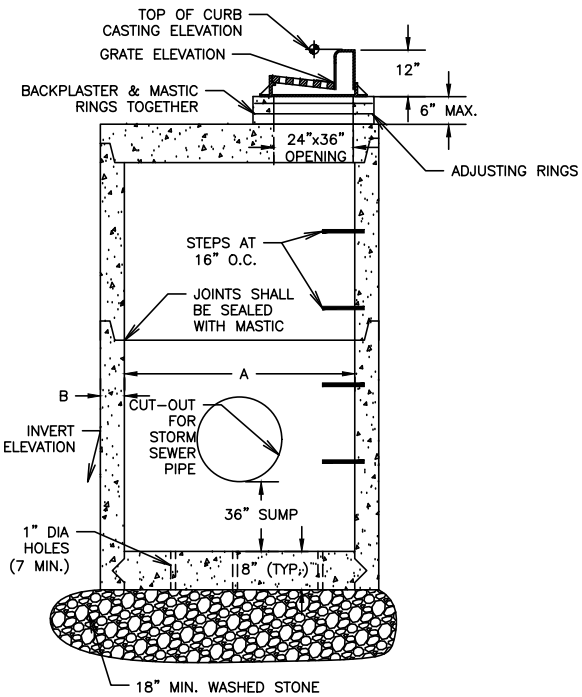
MANHOLE STEPS SHALL CONFORM TO ASTM-C478 & SHALL BE NEENAH FOUNDRY R-1981-N OR APPROVED EQUAL. STEPS SHALL BE SPACED 16" ON CENTER.

A MAXIMUM OF 6" OF ADJUSTING RINGS SHALL BE USED TO ADJUST THE MANHOLE-TYPE CURB CATCH BASIN CASTING TO THE FINISHED GRADE. ALL RINGS SHALL BE SEALED TOGETHER USING MASTIC AND ALL JOINTS SHALL BE BACK PLASTERED INSIDE AND OUT WITH CEMENT MORTAR.

THE GRATE ELEVATION SHALL BE DEPRESSED 0.1' FROM STRAIGHT GUTTER GRADE STARTING 5' FROM THE INLET AND EXTENDING IN BOTH DIRECTIONS.

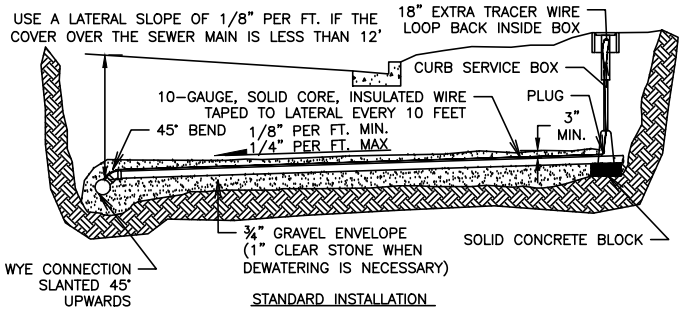
MANHOLE-TYPE CURB CATCH BASIN CASTING SHALL BE NEENAH FOUNDRY R-3067 WITH REVERSIBLE GRATES WHERE RUNOFF REACHES THE INLET FROM BOTH DIRECTIONS. WHERE RUNOFF REACHES THE INLET FROM ONE DIRECTION A NEENAH R-3067-L CASTING SHALL BE USED. DIRECTIONAL SLOTS TO BE LOCATED TO DIRECT THE FLOW INTO THE STREET INLET.

A 2x3 LID OPENING IS REQUIRED FOR MANHOLE-TYPE CURB CATCH BASINS.



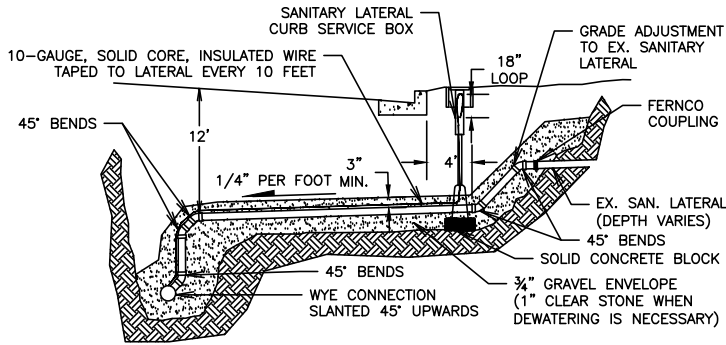
1 STORM SEWER MANHOLE

2 NOT TO SCALE



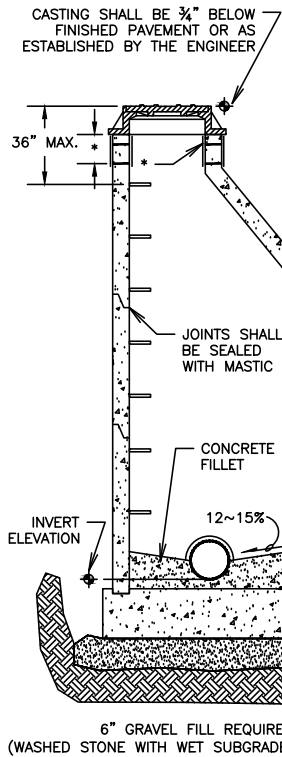
NOTES:

- CONSTRUCT LATERALS IN CONFORMANCE WITH CHAPTER SPS 382 OF THE WISCONSIN ADMINISTRATIVE CODE.
- LATERAL SLOPE SHALL BE 1/8" PER FOOT WHERE SUFFICIENT COVER EXISTS.
- CONTRACTOR SHALL VERIFY SIZE, DEPTH, AND LOCATION OF EXISTING LATERALS.
- WHERE LATERALS ARE NOT IMMEDIATELY CONNECTED TO BUILDING SEWERS THE ENDS OF THE LATERALS SHALL BE MARKED BY POSITIONING 4"x4" BOARDS VERTICALLY FROM THE ENDS OF THE LATERALS TO AT LEAST 2' ABOVE THE GROUND SURFACE.
- THE LOCATION OF ALL SEWER LATERALS CROSSING UNDER THE CURB & GUTTER SHALL BE MARKED BY STAMPING AN "S" IN THE TOP OF THE CURB OVER THE LOCATION OF THE SEWER LATERAL.



1 LATERAL WITH TRACER WIRE

2 NOT TO SCALE



1 SANITARY SEWER MANHOLE

2 NOT TO SCALE

NOTES:

MANHOLE CASTING SHALL BE HEAVY DUTY, NEENAH FOUNDRY CO. CATALOG LISTING NO. R-1710, WITH TYPE "B" NON-ROCKING LID, GASKET SEAL AND CONCEALED PICKHOLES

ADJUST FRAME TO GRADE WITH AT LEAST TWO RINGS OF DIFFERENT THICKNESSES. RINGS SHALL BE REINFORCED WITH ONE NO. 3 STEEL BAR CENTERED WITHIN EACH RING.

MANHOLE CASTINGS AND STEPS SHALL BE LOCATED OVER THE EFFLUENT PIPE FOR PIPES BETWEEN 8" AND 18" IN DIAMETER. CASTINGS AND STEPS SHALL BE LOCATED OVER THE BENCH FOR PIPES GREATER THAN 18" IN DIAMETER.

CONCRETE SHALL BE 4000 PSI, 28 DAY COMPRESSIVE STRENGTH, 6.5 BAG MIX WITH 1~2% AIR ENTRAINMENT.

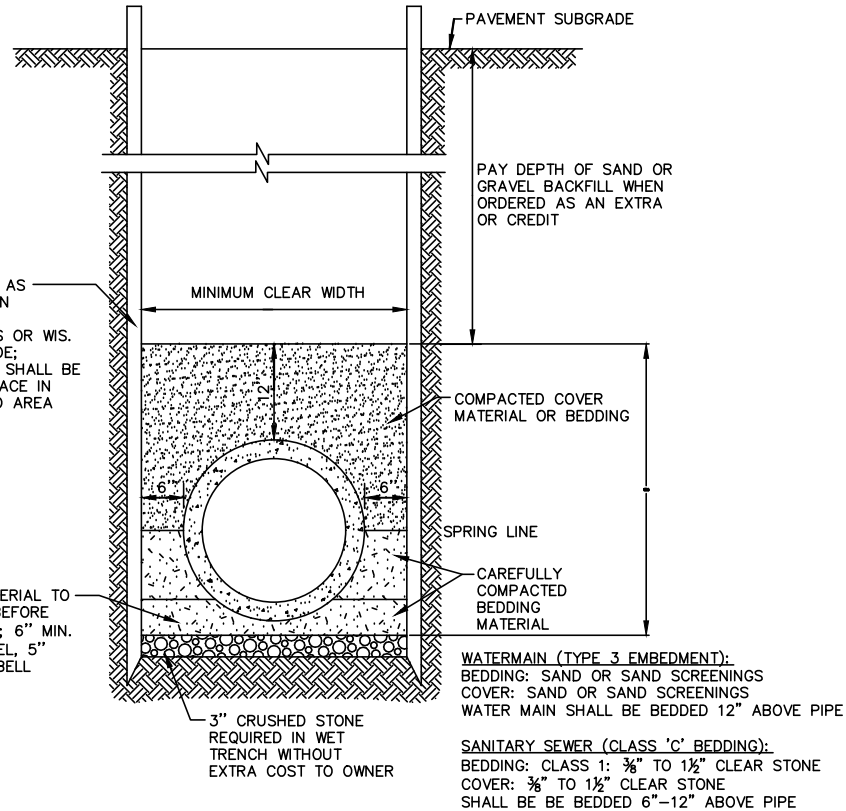
STEEL REINFORCEMENT SHALL CONFORM TO ASTM C-478 STANDARDS.

FLAT-TOP COVERS SHALL BE USED WHERE THE TOTAL RIM TO INVERT DEPTH IS LESS THAN 6 FEET AND MAY BE USED FOR MANHOLE DIAMETERS GREATER THAN 5 FEET.

SEE SPECIFICATION NARRATIVE FOR PIPE SEAL AND CHIMNEY SEAL REQUIREMENTS.

MANHOLE STEPS SHALL CONFORM TO ASTM-C478 & SHALL BE NEENAH FOUNDRY CO. R-1981-N OR APPROVED EQUAL. STEPS SHALL BE SPACED 16" ON CENTER.

* A MINIMUM OF 3" TO A MAXIMUM OF 6" OF ADJUSTING RINGS SHALL BE USED TO ADJUST THE MANHOLE-TYPE CURB CATCH BASIN CASTING TO THE FINISHED GRADE. ALL RINGS SHALL BE SEALED TOGETHER USING MASTIC AND ALL JOINTS SHALL BE BACK PLASTERED INSIDE AND OUT WITH CEMENT MORTAR.



1 STANDARD TRENCH SECTION

2 NOT TO SCALE

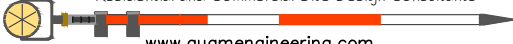
SPERLE CORNERS – VILLAGE OF MCFARLAND

DETAILS

SHEET: C-14

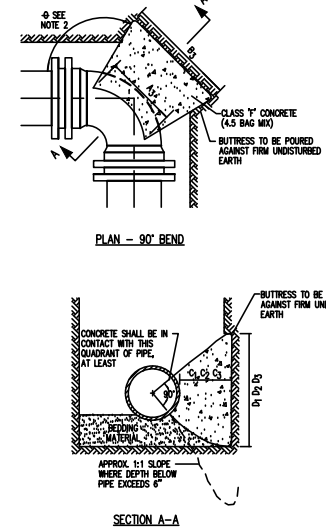
DATED: JUNE 4, 2025

QUAM ENGINEERING, LLC
Residential and Commercial Site Design Consultants



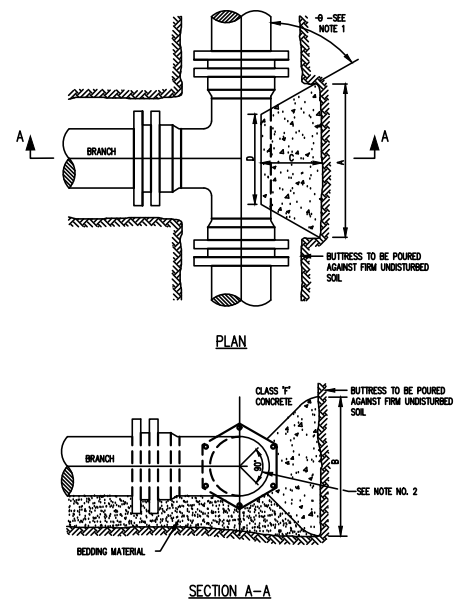
www.quamengineering.com

4604 Siggelkow Road, Suite A – McFarland, Wisconsin 53558
Phone (608) 838-7750; Fax (608) 838-7752



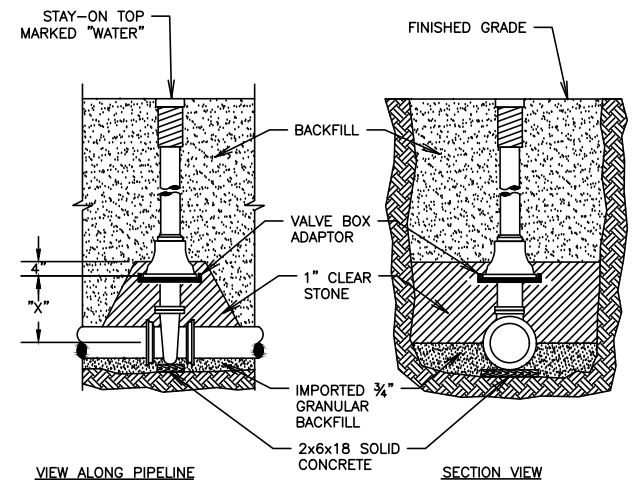
BUTRESS DIMENSIONS					
PIPE SIZE	22 1/2° BENDS	45° BENDS	90° BENDS	135° BENDS	180° BENDS
6"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
8"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
12"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
16"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
20"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
24"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
30"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"

NOTES:
1. DIMENSIONS IN TABLE ARE BASED ON A WATER PRESSURE OF 150 PSI AND ON EARTH RESISTANCE OF 2 TONS PER SQUARE FOOT.
2. DIMENSION C1 C2 C3 SHOULD BE LARGE ENOUGH TO MAKE ANGLE Ø EQUAL TO OR LARGER THAN 45°.
3. DIMENSION A1 A2 A3 SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH M.J. BOLTS.
4. SHAPE OF BACK OF BUTRESS MAY VARY AS LONG AS POUR IS AGAINST FIRM UNDISTURBED EARTH.
5. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED IN POLYETHYLENE.



BUTRESS DIMENSIONS					
B.D.	A	B	C	D	
6"	1'-3"	1'-0"	1'-0"	1'-0"	1'-0"
8"	1'-6"	1'-0"	1'-0"	1'-0"	1'-0"
12"	2'-3"	2'-0"	2'-0"	2'-0"	2'-0"
16"	3'-2"	2'-6"	2'-6"	2'-6"	2'-6"
20"	4'-0"	3'-0"	3'-0"	3'-0"	3'-0"
24"	5'-3"	3'-4"	3'-4"	3'-4"	3'-4"
30"	6'-3"	4'-3"	4'-3"	4'-3"	4'-3"

NOTES:
1. DIMENSION 'C' SHOULD BE LARGE ENOUGH TO MAKE ANGLE EQUAL TO OR LARGER THAN 45°.
2. CONCRETE SHOULD BEAR ON THIS QUADRANT OF PIPE AS A MINIMUM.
3. DIMENSION 'D' SHOULD BE AS LARGE AS POSSIBLE BUT CONCRETE SHOULD NOT INTERFERE WITH MECHANICAL JOINTS.
4. BUTRESS DIMENSIONS ARE BASED ON A SOIL RESISTANCE OF TWO TONS PER SQ. FT. AND A WATER PRESSURE OF 150 PSI.
5. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED IN POLYETHYLENE.



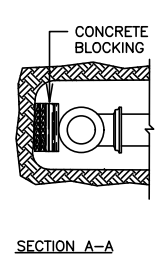
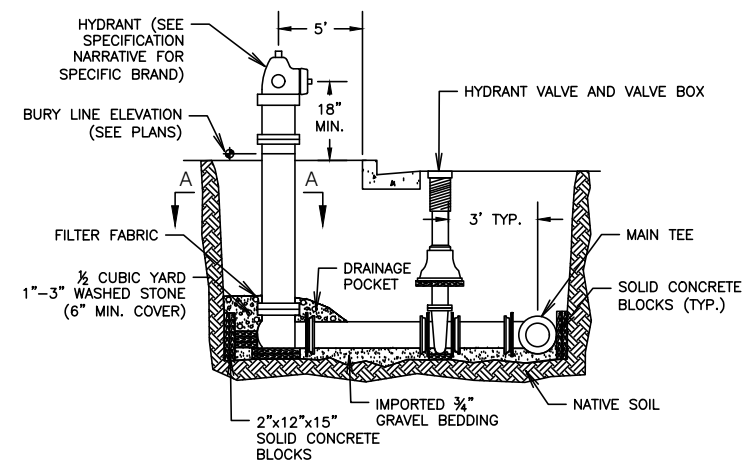
PIPE DIA., INCHES	6	8	10	12	14	16
"X" DIMENSION, INCHES	12	13	17	21	25	30

NOTES:
- VALVES SHALL BE SECURED WITH RODDING OR MEGALUGS TO THE NEAREST "TEE" FITTING OR TO THE FIRST JOINT CONNECTING A FULL SECTION OF WATER MAIN PIPE. SEE RODDING DETAIL "OFFSET AND RODDING".

DETAIL
VALVE BOX SETTING

2 STANDARD GATE VALVE BOX SETTING
2 NOT TO SCALE

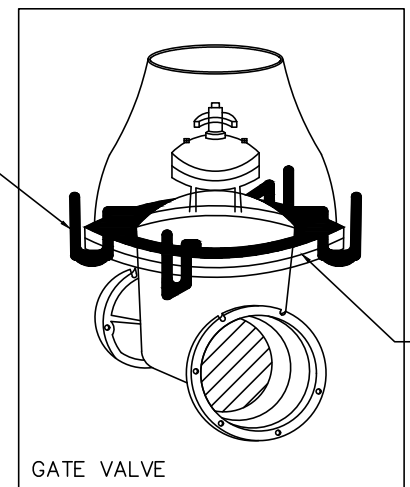
1 GATE VALVE AND GATE VALVE ADAPTOR
1 NOT TO SCALE



NOTES:
- THE HYDRANT AND HYDRANT VALVE SHALL BE CONNECTED TO THE MAIN TEE BY MEGALUGS.
- FILTER FABRIC SHALL BE WRAPPED AROUND THE DRAIN POCKET.
- WHERE THE HYDRANT IS INSTALLED AT THE HIGH POINT OF THE WATER MAIN ON MAINS 10 INCHES IN DIAMETER AND LARGER, THE CONTRACTOR SHALL TIP THE MAIN TEE UPWARDS 45 DEGREES AND USE A 45 DEGREE FITTING TO ALLOW AIR TO ESCAPE FROM THE MAIN.
- WHERE THE LOCATION OF THE HYDRANT VALVE BOX WOULD BE IN ANY PORTION OF THE CURB AND GUTTER, THE CONTRACTOR SHALL PLACE THE VALVE IN THE TERRACE AREA.

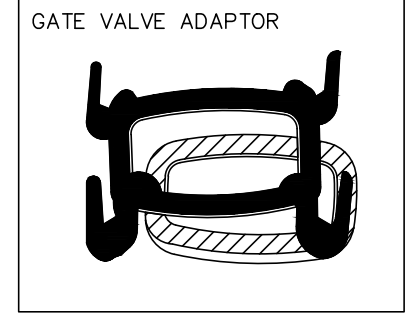
2 STANDARD HYDRANT SETTING
2 NOT TO SCALE

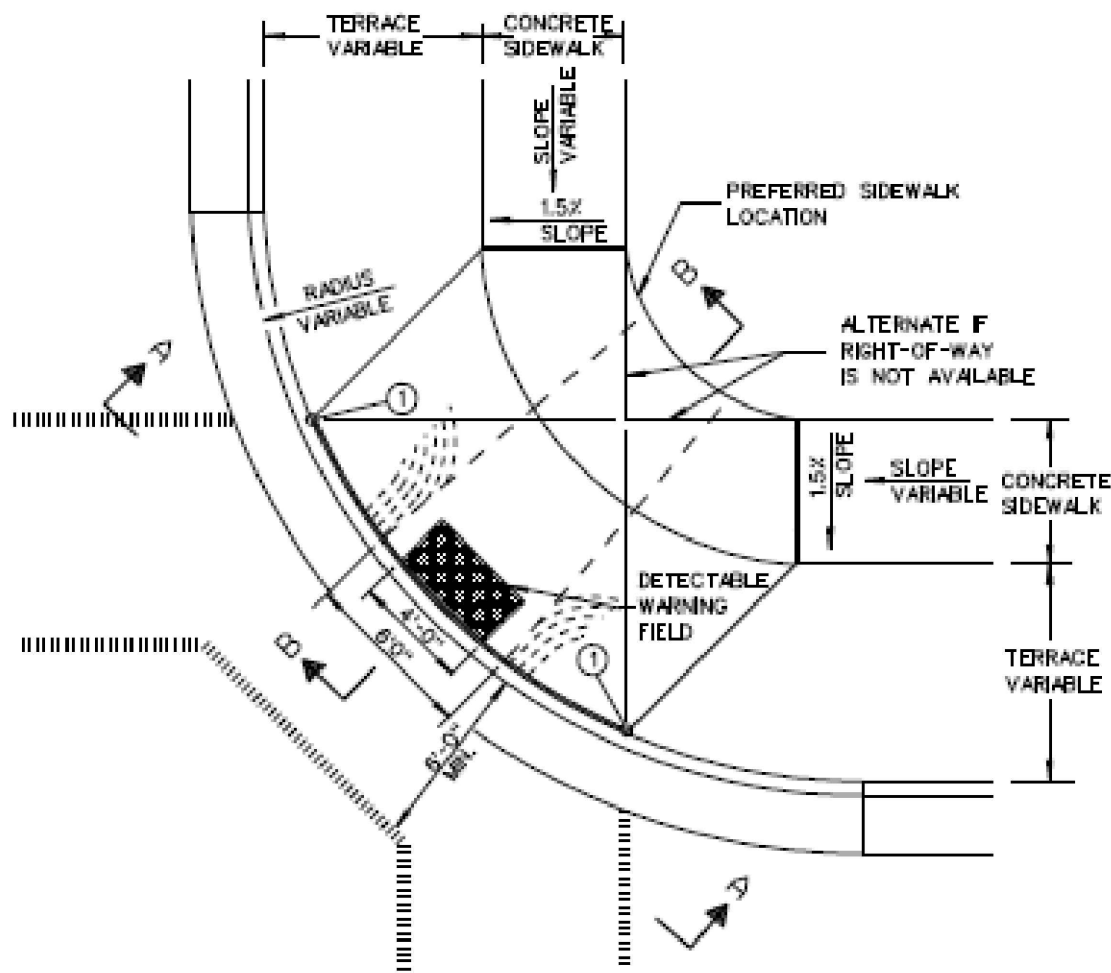
GATE VALVE ADAPTOR
1/4" STEEL WITH UNDERGROUND COATING



NOTE: GATE VALVE ADAPTORS ARE MANDATORY IN THE VILLAGE OF DEFOREST

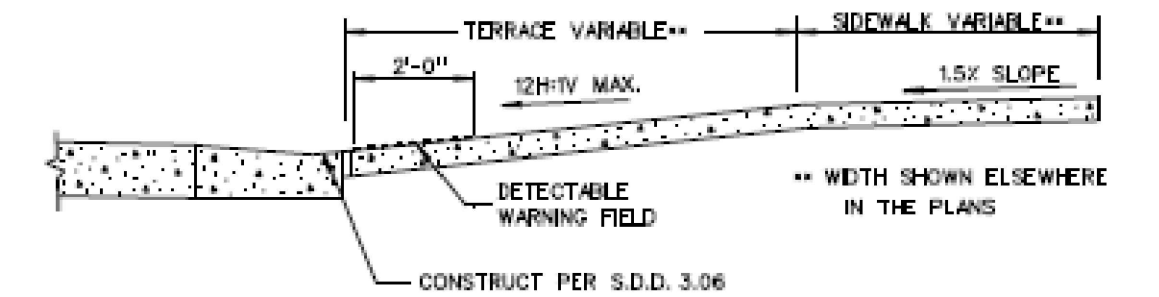
MANUFACTURED BY ADAPTOR, INC.
3642 E. AMERICAN AVE.
MILWAUKEE, WI 53154



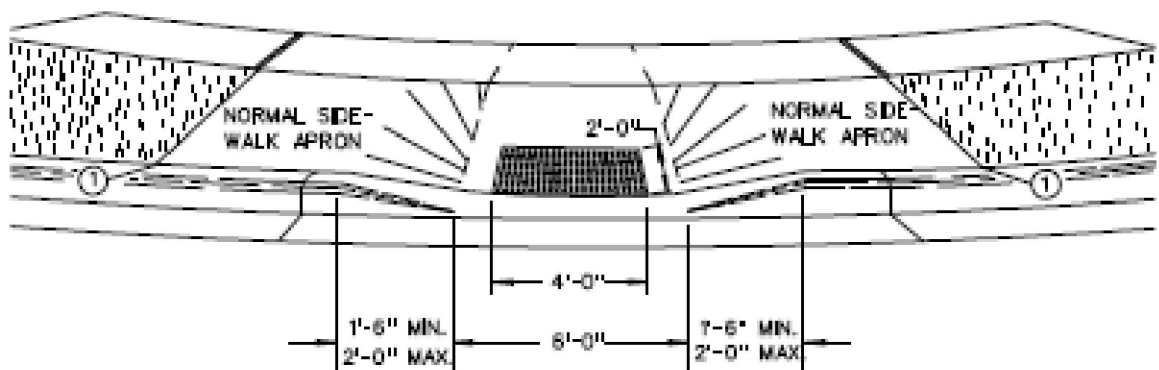


PLAN VIEW
TYPE 1 RAMP
(CENTER OF CORNER RADIUS)

2 STANDARD CURB RAMP – TYPE 1
2 NOT TO SCALE



SECTION B-B



SECTION A-A

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

RAMPS SHALL BE BUILT AT 12H:1V OR FLATTER. WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD".

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE.

① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.

DETECTABLE WARNING FIELDS SHALL BE METAPANEL BY METADOME, LLC OR NEENAH 4984 PLATES.

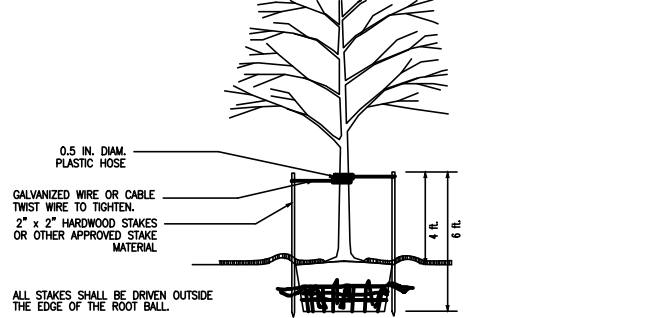
WIRE OR CABLE SIZES SHALL BE AS FOLLOWS:
4 INCH CAULPER – 11-12 GAUGE
LARGER THAN 4 INCH CAULPER – 9-10 GAUGE

TIGHTEN WIRE OR CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. PLASTIC HOSE SHALL BE LONG ENOUGH TO ACCOMMODATE 1.5 IN. OF GROWTH AND BUFFER ALL BRANCHES FROM THE WIRE.

TUCK ANY LOOSE ENDS OF THE WIRE OR CABLE INTO THE WIRE WRAP SO THAT NO SHARP WIRE ENDS ARE EXPOSED.

ALL BURLAP AND WIRE CAGES SHALL BE REMOVED FROM ROOTS PRIOR TO PLANTING.

PLANTING DEPTH OF TREE SHALL BE SUCH THAT ROOT FLAIR IS VISIBLE JUST ABOVE GRADE.



PROVIDE 4" THICKNESS OF ORGANIC MULCH AROUND ALL TREES. MULCH SHOULD NOT REST AGAINST THE TREE TRUNK. LEAVE 3" AROUND THE TRUNK FREE OF MULCH.

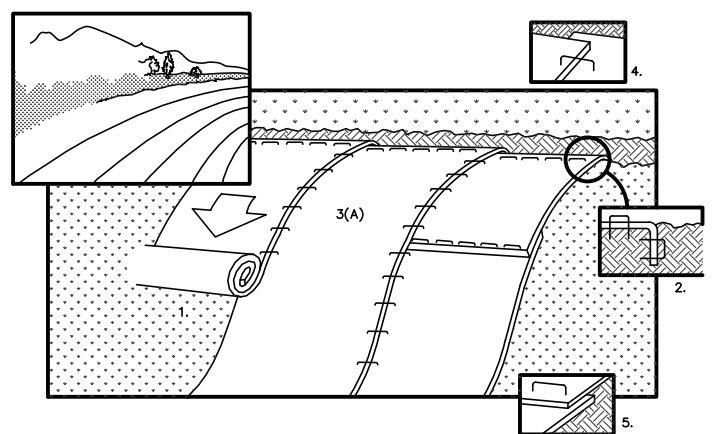
ASSURE THAT THE BEARING SURFACE OF THE PROTECTIVE COVERING OF THE WIRE OR CABLE AGAINST THE TREE TRUNK IS A MINIMUM OF 0.5 INCH.

REMOVE ALL STAKING AS SOON AS THE TREE HAS GROWN SUFFICIENT ROOTS TO OVERCOME THE PROBLEM THAT REQUIRED THE TREE TO BE STAKED. STAKES SHALL BE REMOVED NO LATER THE END OF THE FIRST GROWING SEASON AFTER PLANTING.

TREES NORMALLY DO NOT NEED TO BE STAKED AND STAKING CAN BE HARMFUL TO THE TREE. STAKING SHOULD BE DONE ONLY WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT IF IT IS EXPECTED THAT THE TREE WILL NOT BE ABLE TO SUPPORT ITSELF. THE FOLLOWING ARE REASONS WHY TREES DO NOT REMAIN STRAIGHT.

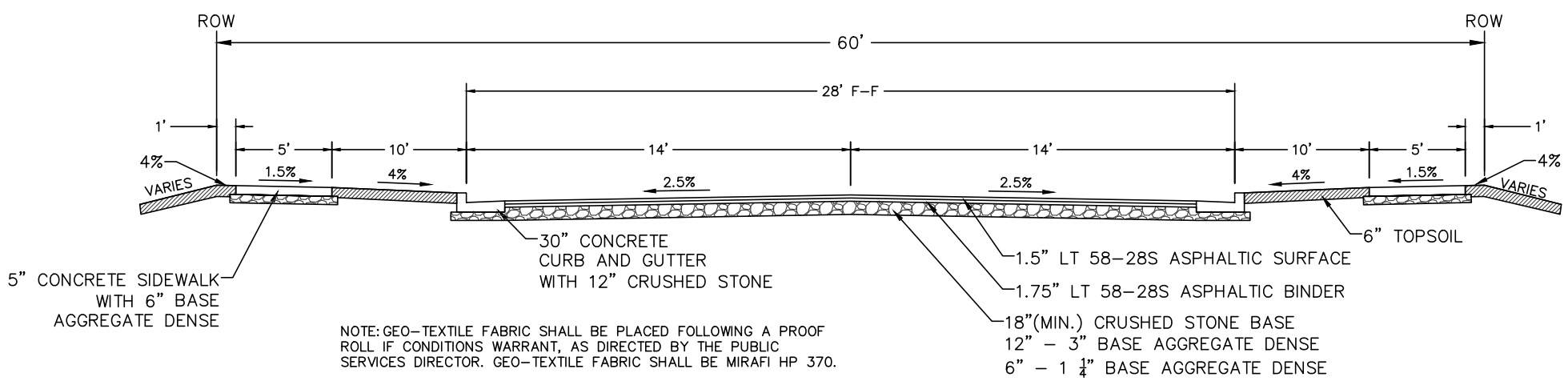
- TREES WITH POOR – QUALITY ROOT BALLS OR ROOT BALLS THAT HAVE BEEN CRACKED OR DAMAGED. REJECT RATHER THAN STAKE.
- TREES THAT HAVE GROWN TOO CLOSE TOGETHER IN THE NURSERY, RESULTING IN WEAK TRUNKS. REJECT RATHER THAN STAKE.
- PLANTING PROCEDURES THAT DO NOT ADEQUATELY TAMP SOILS AROUND THE ROOT BALL. CORRECT THE PLANTING PROCEDURE.
- ROOT BALLS PLACED ON SOFT SOIL. TAMP SOILS UNDER ROOT BALL PRIOR TO PLANTING.
- ROOT BALLS WITH VERY SANDY SOIL OR VERY WET CLAY SOIL. STAKING ADVISABLE.
- TREES LOCATED IN A PLACE OF EXTREMELY WINDY CONDITIONS. STAKING ADVISABLE.

TREE PLANTING DETAIL



- NOTE: REFER TO GENERAL STAPLE PATTERN GUIDE FOR CORRECT STAPLE PATTERN RECOMMENDATIONS FOR SLOPE INSTALLATIONS.
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF FERTILIZER AND SEED.
NOTE: WHEN USING CELL-0-SEED DO NOT SEED PREPARED AREA. CELL-0-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
 2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
 3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE.
 4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
 5. WHEN BLANKETS MUST BE SPICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 4" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY
 6. ALL BLANKETS MUST BE SECURELY FASTENED TO THE SLOPE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS RECOMMENDED BY THE MANUFACTURER.
 7. SLOPES 5:1 SHOULD BE COVERED WITH CLASS I TYPE A AT A MINIMUM.

EROSION CONTROL MAT – SLOPE INSTALLATION



NOTE: GEO-TEXTILE FABRIC SHALL BE PLACED FOLLOWING A PROOF ROLL IF CONDITIONS WARRANT, AS DIRECTED BY THE PUBLIC SERVICES DIRECTOR. GEO-TEXTILE FABRIC SHALL BE MIRAFI HP 370.

TYPICAL ROADWAY CROSS-SECTIONS

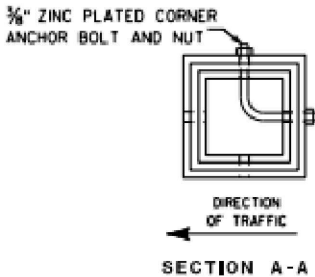
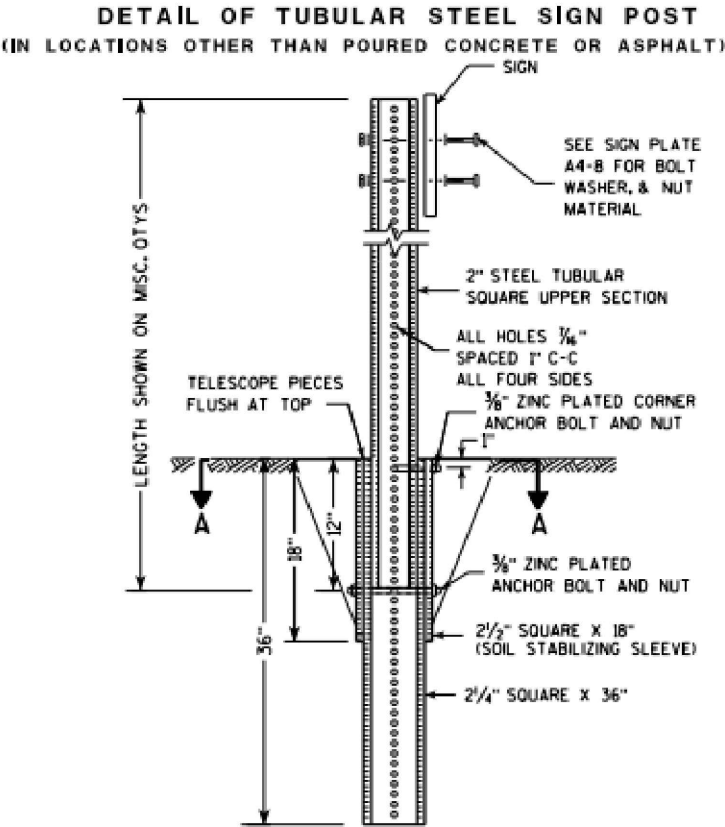
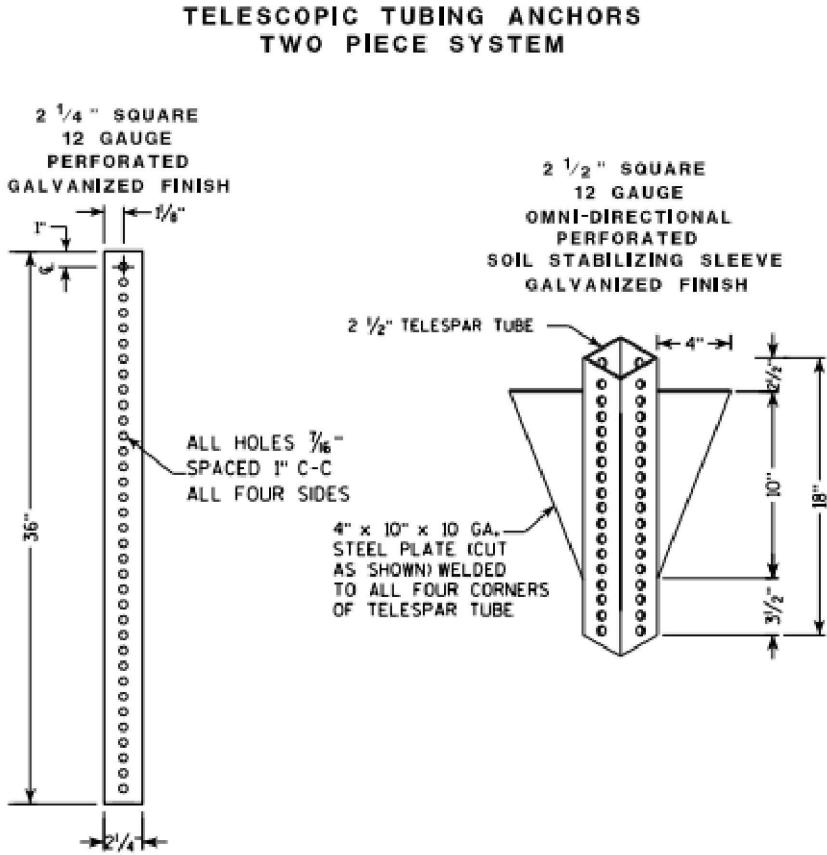
SPERLE CORNERS – VILLAGE OF MCFARLAND

DETAILS
SHEET: C-16
DATED: JUNE 4, 2025

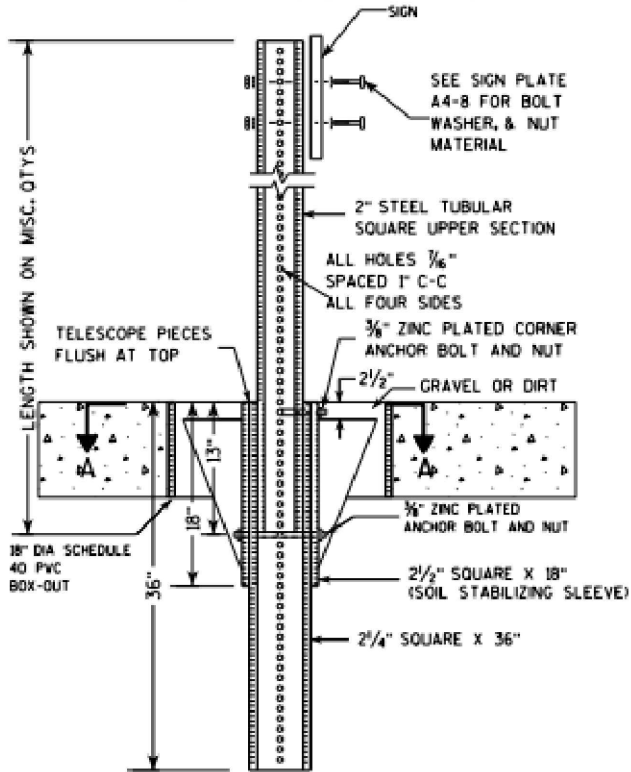
QUAM ENGINEERING, LLC
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4604 Siggelkow Road, Suite A – McFarland, Wisconsin 53558
Phone (608) 838-7750; Fax (608) 838-7752

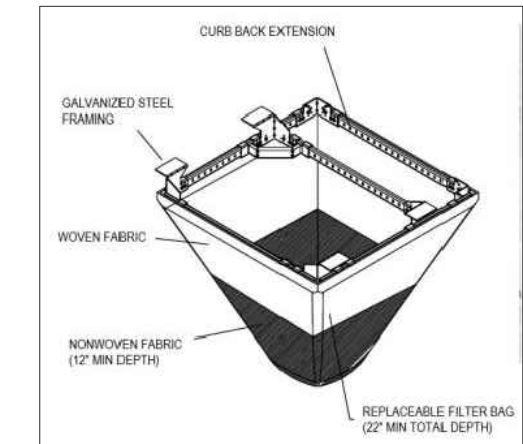
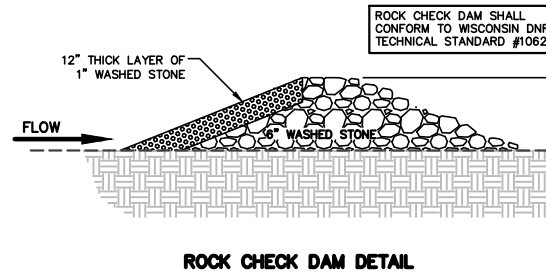
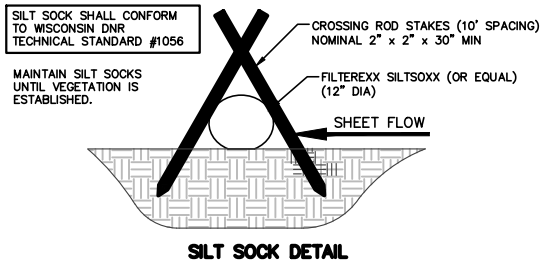
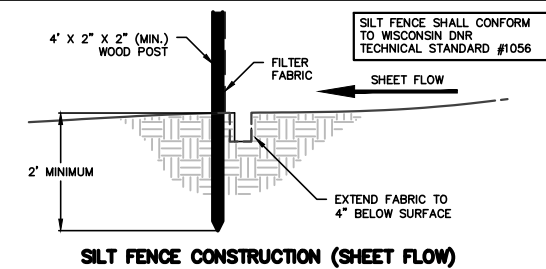
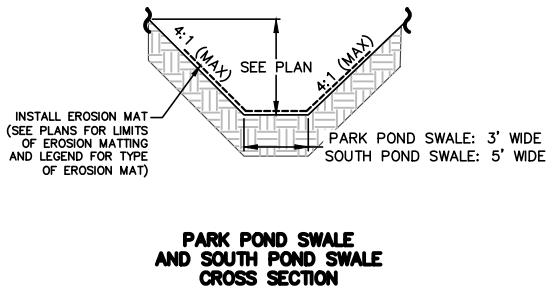


**DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)**



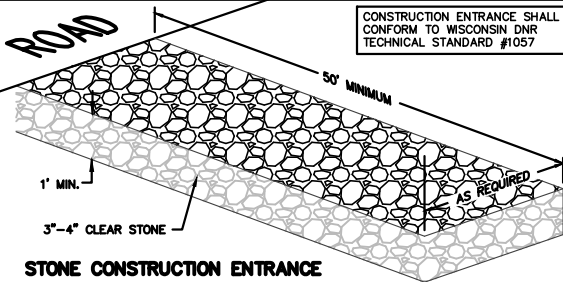
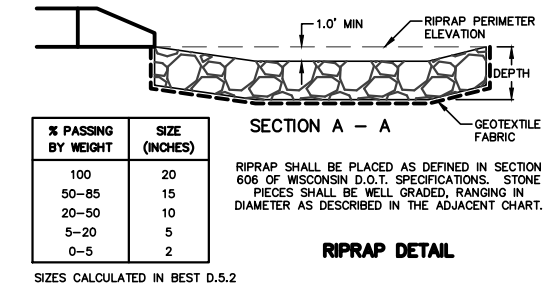
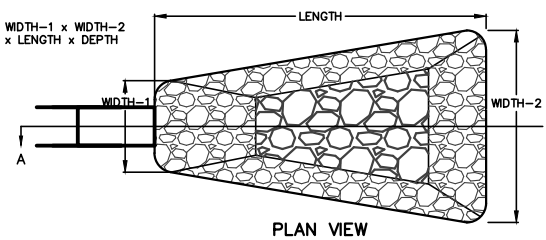
Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall
be mounted on multiple posts (see above table).



- FRAMED INLET PROTECTION MUST MEET THE FOLLOWING SPECIFICATIONS:
- ALL ASTM STANDARD D8057-17 REQUIREMENTS
 - NO PART OF INLET PROTECTION PROJECTING ABOVE THE GRATE
 - CAPTURE RUNOFF ENTERING BOTH GRATE AND CURB OPENING
 - "DUAL FABRIC" FILTER BAG, WITH NONWOVEN BOTTOM AND WOVEN TOP

FLEXSTORM INLET PROTECTION DETAIL



EROSION NOTES:
THE STONE CONSTRUCTION ENTRANCE SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION. THE STONE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED BY THE CONTRACTOR IN A CONDITION, WHICH WILL PREVENT THE TRACKING OF MUD OR DRY SEDIMENT ONTO THE PUBLIC STREET. SEDIMENT REACHING PUBLIC STREET SHALL BE REMOVED BY STREET CLEANING (NOT HYDRAULIC FLUSHING) BEFORE THE END OF EACH WORKDAY.

EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO GRADING OPERATIONS AND SHALL BE PROPERLY MAINTAINED FOR MAXIMUM EFFECTIVENESS UNTIL VEGETATION IS ESTABLISHED. ALL EROSION CONTROL MEASURES AND STRUCTURES SERVING THE SITE MUST BE INSPECTED AT LEAST WEEKLY OR WITHIN 24 HOURS OF A 0.5 INCH RAIN EVENT. ALL MAINTENANCE WILL FOLLOW AN INSPECTION WITHIN 24 HOURS.

CUT AND FILL SLOPES SHALL BE NO GREATER THAN 3:1.
ALL DISTURBED AREAS MUST BE TEMPORARILY STABILIZED WITHIN 14 DAYS OF LAST ACTIVITY. ALL DISTURBED AREAS SHOULD BE STABILIZED WITHIN 7 DAYS OF FINAL GRADING.

PERIMETER CONTROL SHALL BE INSTALLED AROUND STOCKPILES, AND STOCKPILES SHALL BE STABILIZED THAT WILL REMAIN INACTIVE FOR 7 DAYS OR LONGER.

EROSION CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ACCEPTANCE OF THIS PROJECT. EROSION CONTROL MEASURES AS SHOWN SHALL BE THE MINIMUM PRECAUTIONS THAT WILL BE ALLOWED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECOGNIZING AND CORRECTING ALL EROSION CONTROL PROBLEMS THAT ARE A RESULT OF CONSTRUCTION ACTIVITIES. ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTORS, OR THE DEVELOPER'S ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.

TIME SCHEDULE:
SEPTEMBER 15 – OCTOBER 1, 2025 INSTALL INITIAL EROSION CONTROL DEVICES AND
ROUGH GRADE SITE.
OCTOBER 1, 2025 – MAY 15, 2026 CONSTRUCT UTILITIES AND STREETS. RESTORE ALL
PERVIOUSLY DISTURBED AREAS.

RESTORATION NOTES:
RESTORATION SHALL OCCUR AS SOON AFTER THE DISTURBANCE AS PRACTICAL.

ALL PERVIOUSLY DISTURBED AREAS SHALL RECEIVE A MINIMUM OF FOUR (4) INCHES OF TOPSOIL, SEED, AND MULCH. RESTORATION WILL OCCUR AS SOON AFTER THE DISTURBANCE AS PRACTICAL. SEED MIXTURE 40 SHALL BE USED ON ALL DISTURBED AREAS. ALL SEED MIXTURES SHALL BE IN ACCORDANCE WITH SECTION 630 OF D.O.T. SPECIFICATIONS. AN EQUAL AMOUNT OF ANNUAL RYEGRASS SHALL BE ADDED TO THE MIX.

ALL PERVIOUSLY DISTURBED AREAS SHALL RECEIVE FERTILIZER. FERTILIZER SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS: NITROGEN, NOT LESS THAN 16%; PHOSPHORIC ACID, NOT LESS THAN 8%; POTASH, NOT LESS THAN 8%. FERTILIZER SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. SEED MIXTURE 40 SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. MULCH SHALL CONSIST OF HAY OR STRAW APPLIED AT THE RATE OF TWO (2) TONS PER ACRE.

SEEDING FROM SEPTEMBER 16 THROUGH NOVEMBER 15 IS TO BE AVOIDED TO PREVENT FREEZING OF NEW GROWTH. DORMANT SEEDING, IF NECESSARY, SHALL BE COMPLETED AFTER NOVEMBER 15. DORMANT SEEDING SHALL NOT BE APPLIED ON TOP OF SNOW. DISTURBED AREAS SHALL HAVE EROSION MAT APPLIED OVER DORMANT SEEDING. IF DORMANT SEEDING DOES NOT RESULT IN AT LEAST 70% COVER BY MAY 15, ADDITIONAL SEEDING SHALL BE REQUIRED.

OWNER:
LAKESTONE PROPERTIES &
MANAGEMENT, LLC
ATTN: BRETT RIEMEN
BRIAN SPANOS
5910 MAIN STREET, SUITE 1
MCFARLAND, WI 53558

ENGINEER:
QUAM ENGINEERING, LLC
ATTN: RYAN QUAM
4604 SIGGELKOW ROAD, SUITE A
MCFARLAND, WI 53558

1. EXCAVATED MATERIAL FROM THE UTILITY TRENCH NOT SUITABLE FOR BACKFILL AS DEEMED BY THE PUBLIC SERVICES DIRECTOR SHALL BE REMOVED AND REPLACED WITH SELECT TRENCH BACKFILL.
2. ALL SILT FENCE SHALL BE PROPERLY INSTALLED, MAINTAINED, AND REMOVED UPON ESTABLISHMENT OF TURF.
3. ALL SITES SHALL BE ADEQUATELY PROTECTED TO PREVENT SEDIMENT FROM LEAVING THE SITE.
4. ACCESS TO THE CONSTRUCTION SITE SHALL BE LIMITED TO THE STONE ENTRANCE PADS SHOWN ON THE PLANS.
5. STREETS SHALL BE SWEEPED CLEAN EVERY DAY.
6. EROSION MAT IS REQUIRED FOR ALL RESTORATION ON SLOPES AT OR GREATER THAN 5:1, AND IN AREAS THAT CHANNEL WATER. EROSION MAT SHALL ALSO BE PROVIDED IN ALL STREET TERRACES WITHIN THE ROW.
7. EROSION MAT AND STAPLES SHALL BE BIODEGRADABLE (CURLEX NET FREE OR APPROVED EQUAL).
8. ALL STORM WATER MANAGEMENT FACILITIES SHALL BE SEED WITH A NATIVE SEED MIXTURE WITHIN THE LIMITS OF THE OUTLOT OR EASEMENT. THE NATIVE SEED MIXTURE SHALL BE APPROVED BY THE DIRECTOR OF PUBLIC SERVICES.
9. ANY PROPOSED CHANGES TO THE GRADING AND EROSION CONTROL PLAN MUST BE SUBMITTED TO THE VILLAGE ENGINEER AND APPROVED.

SPERLE CORNERS – VILLAGE OF MCFARLAND

DETAILS
SHEET: C-17
DATED: JUNE 4, 2025

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Residential and Commercial Site Design Consultants
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Sediment Control

For new development, the proposed construction shall include design practices to retain soil particles greater than five microns (80% reduction) on the entire site resulting from the one-year 24-hour storm event. For redevelopment resulting in exposed surface parking and drive areas, design practices to retain soil particles greater than twenty microns (40% reduction) resulting from a one-year 24-hour storm event shall be included.

The proposed wet ponds and infiltration basin are designed to retain soil particles greater than five microns (80% reduction) on the entire site resulting from the one-year 24-hour storm event. The sediment control calculations include treatment of the existing roadway as a substitution for portions of the proposed roadway and roof area that will not be treated by the proposed wet ponds and infiltration basin. The detailed sediment control calculations are included as Exhibit #10.

Oil and Grease Control

The first ½" runoff shall be treated using oil and grease removal technology.

Oil and grease control is not required for phase 1 of the site because the driveways and streets will contain minimal vehicle parking, and the proposed use does not include drive-through or vehicle maintenance. Therefore, the site is not a significant contributor of oil and grease.

On phase 2 of the site contains oil and grease control will be provided by the FlexStorm PCP inlet filter.

Runoff Rate Control

All stormwater facilities shall be designed, installed and maintained to effectively maintain pre-development peak runoff rates for the 1, 2, 10, 100, and 200-year, 24-hour storm event.

The proposed wet pond and infiltration basin will effectively maintain pre-development peak runoff rates for the 1, 2, 10, 100, and 200 year, 24-hour storm event. The following table summarizes how the proposed stormwater management practices meet standards for peak flow rates.

Storm Event (Year)	Total Existing Flow Rate (cfs)	Total Proposed Flow Rate Without Pond (cfs)	Total Proposed Flow Rate With Pond (cfs)
1	3.11	25.12	2.80
2	4.68	30.52	3.68
10	11.89	51.76	7.80
100	30.78	99.97	27.74
200	37.82	116.98	37.46

Outlets

Discharges from the site must have a stable outlet capable of carrying the designed flow at a non-erosive velocity.

The wet ponds, infiltration basin, riprap pads, and restored lawn area will provide a stable outlet for the site.

Infiltration

All downspouts, driveways, and other impervious areas shall be directed to pervious areas, where feasible. Additionally, for residential and non-residential developments design practices to infiltrate sufficient runoff volume so that post-development infiltration volume shall be at least 90% of the pre-development infiltration volume, based on average annual rainfall per Dane County Ordinance. If entire site has 5+ feet of clay-textured soils dedicate 2% of the site to infiltration practices that maximize infiltration and conform to applicable standards.

Due to the clayey soils throughout the site, 2% of the site has been proposed for an infiltration basin and a phase 2 infiltration swale while maintaining the design draw down depth of the infiltration basin.

If the documents are satisfactory, please approve the erosion control and storm water management permits. If you have any questions or comments, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark A. Fendry". The signature is fluid and cursive, with the first name "Mark" being the most prominent.

Mark Fendry, P.E.

CC: Brian Berquist, Town and County Engineering
Brett Riemen, Lakestone Properties and Management

FN: LS-03-19



Soil Loss & Sediment Discharge Calculation Tool

for use on Construction Sites in the State of Wisconsin

WDNR Version 2.0 (06-29-2017)



YEAR 1

Developer: Lakestone Properties and Management

Project: Sperle Corners - Village of McFarland (Phase 1)

Date: 04/08/25

County: Dane

Version 1.0

Activity (1)	Begin Date (2)	End Date (3)	Period % R (4)	Annual R Factor (5)	Sub Soil Texture (6)	Soil Erodibility K Factor (7)	Slope (%) (8)	Slope Length (ft) (9)	LS Factor (10)	Land Cover C Factor (11)	Soil loss A (tons/acre) (12)	SDF (13)	Sediment Control Practice (14)	Sediment Discharge (t/ac) (15)
Bare Ground	09/15/25	10/01/25	4.0%	150	Silt Loam	0.43	0.2%	300	0.10	1.00	0.3	0.284	Silt Fence	0.0
Bare Ground	10/01/25	05/15/26	22.8%	150	Silt Loam	0.43	7.0%	30	0.45	1.00	6.7	0.750	Silt Fence	3.0
Seed with Mulch or Er	05/15/26	07/14/26	37.1%	150	Silt Loam	0.43	7.0%	30	0.45	0.10	1.1	0.750	Silt Fence	0.5
End	07/14/26	-----	-----	-----	-----	-----			-----	-----	-----	0.000		0.0
		-----	-----	-----	-----	-----			-----	-----	-----	0.000		0.0
		-----	-----	-----	-----	-----			-----	-----	-----	0.000		0.0
		-----	-----	-----	-----	-----			-----	-----	-----	0.000		0.0
TOTAL											8.0		TOTAL	3.5
													% Reduction Required	NONE

Notes:

See Help Page for further descriptions of variables and items in drop-down boxes.

The last land disturbing activity on each sheet must be 'End'. This is either 12 months from the start of construction or final stabilization.

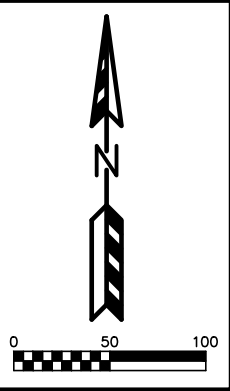
For periods of construction that exceed 12 months, please demonstrate that 5 tons/acre/year is not exceeded in any given 12 month period.

NOTE: THIS TOOL ONLY ADDRESSED SOIL EROSION DUE TO SHEET FLOW. MEASURES TO CONTROL CHANNEL EROSION MAY ALSO BE REQUIRED TO MEET SEDIMENT DISCHARGE REQUIREMENTS.

Recommended Permanent Seeding Dates:

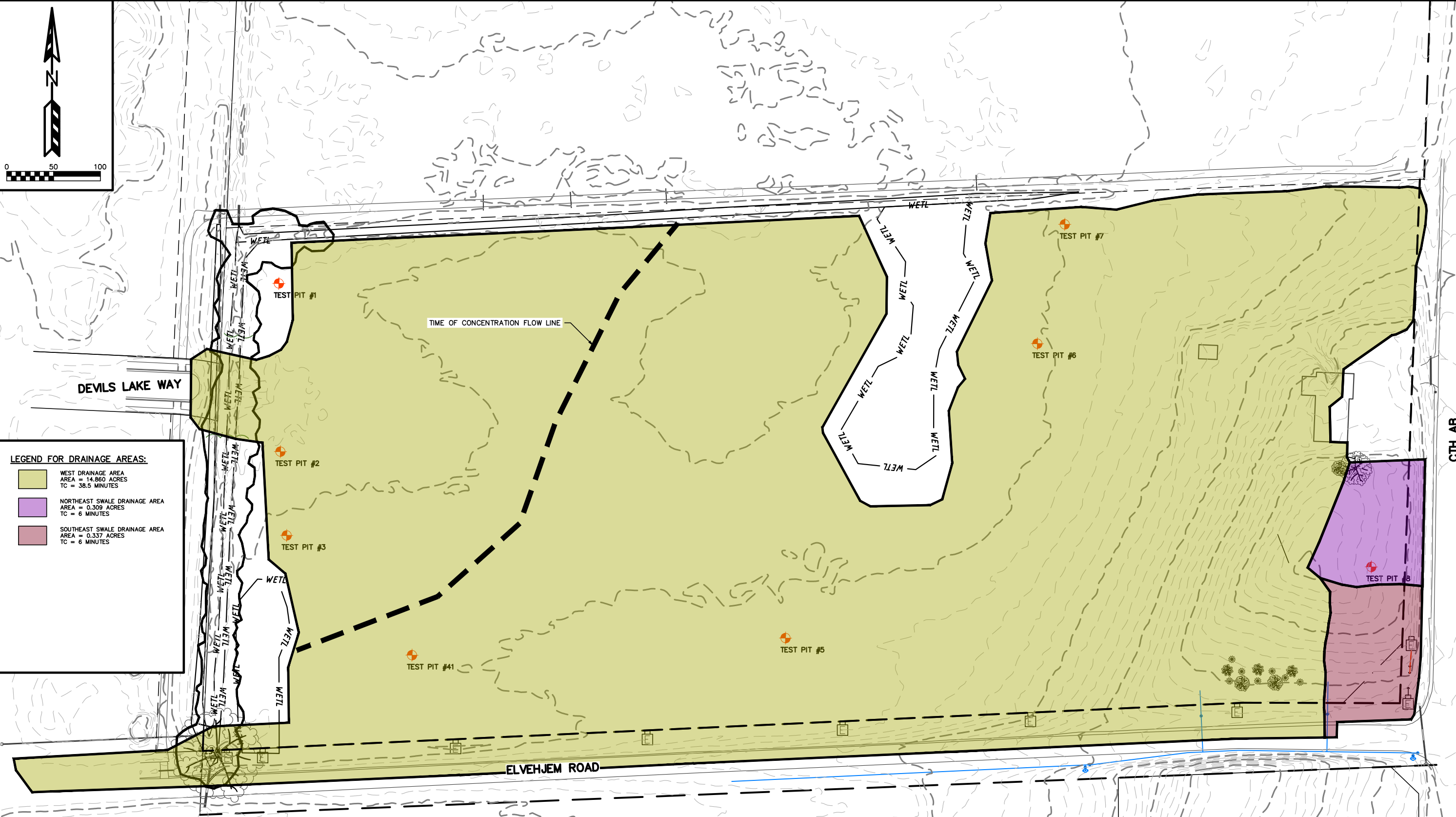
4/1-5/15 and 8/7-8/29 Turf, introduced grasses and legumes
Thaw-6/30 Native Grasses, forbs, and legumes

Designed By:	MAF
Date	4/8/2025



LEGEND FOR DRAINAGE AREAS:

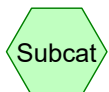
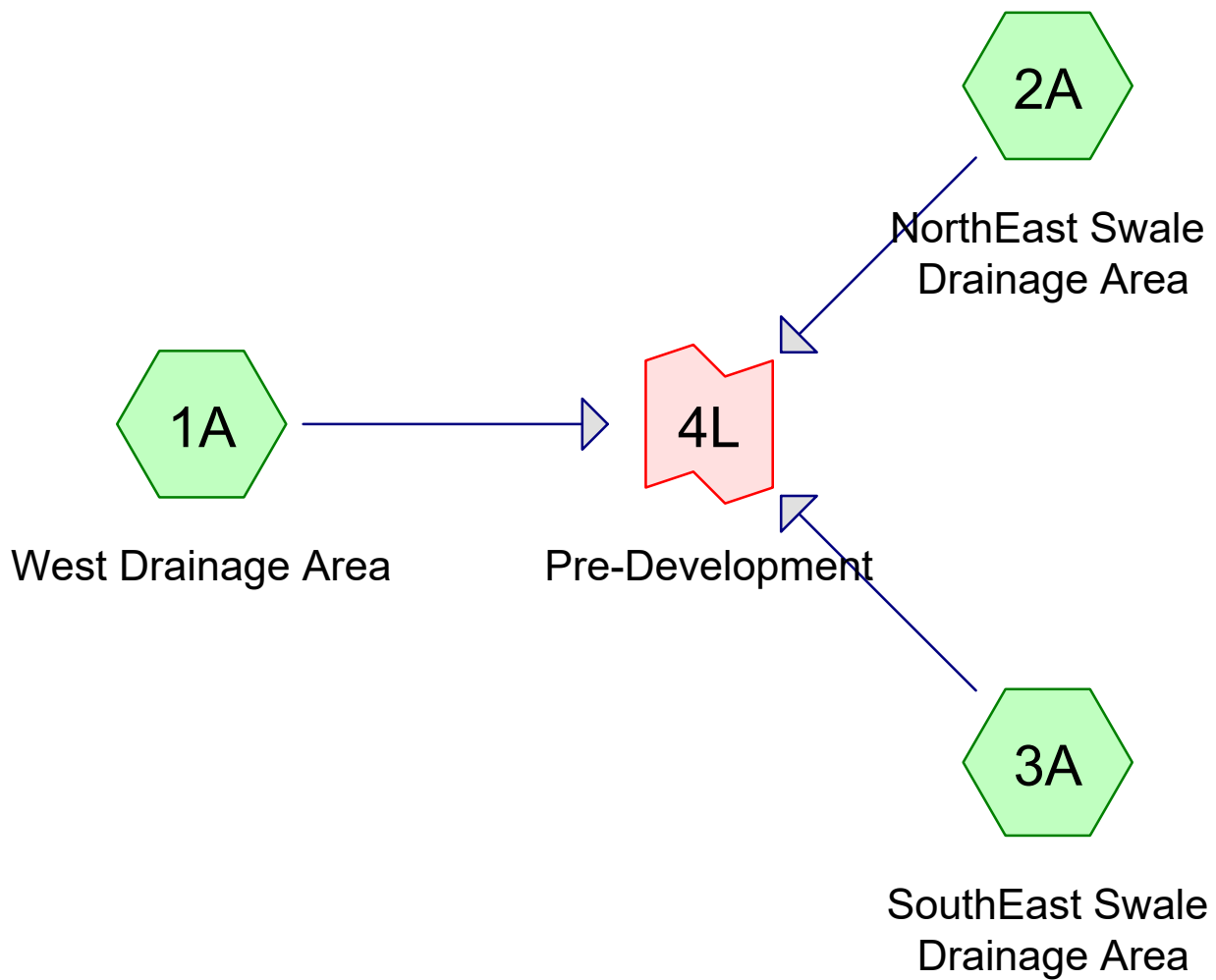
	WEST DRAINAGE AREA AREA = 14.860 ACRES TC = 38.5 MINUTES
	NORTHEAST SWALE DRAINAGE AREA AREA = 0.309 ACRES TC = 6 MINUTES
	SOUTHEAST SWALE DRAINAGE AREA AREA = 0.337 ACRES TC = 6 MINUTES



SPERLE CORNERS – VILLAGE OF MCFARLAND
EXISTING DRAINAGE PLAN
EXHIBIT: #3
DATED: APRIL 8, 2025

QUAM ENGINEERING, LLC
Residential and Commercial Site Design Consultants

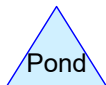
www.quamengineering.com
4604 Siggelkow Road, Suite A – McFarland, Wisconsin 53558
Phone (608) 838-7750; Fax (608) 838-7752



Subcat



Reach



Pond



Link

Routing Diagram for PreDevelopment

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
13.324	68	Ag, HSG B (1A, 2A, 3A)
0.060	61	Grass, HSG B (2A, 3A)
1.527	61	Offsite Grass, HSG B (1A, 2A, 3A)
0.043	98	Offsite Roof (1A)
0.044	98	Offsite Sidewalk (1A)
0.406	98	Offsite Street (1A)
0.102	55	Woods, HSG B (1A)
15.506	68	TOTAL AREA

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MSE 24-hr 4 1-Year Rainfall=2.49"

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Page 3

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: West Drainage Area Runoff Area=14.860 ac 3.32% Impervious Runoff Depth=0.43"
Flow Length=600' Slope=0.0020 '/' Tc=42.6 min CN=WQ Runoff=3.06 cfs 0.528 af

Subcatchment 2A: NorthEast Swale Runoff Area=0.309 ac 0.00% Impervious Runoff Depth=0.34"
Tc=6.0 min CN=WQ Runoff=0.12 cfs 0.009 af

Subcatchment 3A: SouthEast Swale Runoff Area=0.337 ac 0.00% Impervious Runoff Depth=0.30"
Tc=6.0 min CN=WQ Runoff=0.11 cfs 0.009 af

Link 4L: Pre-Development

Inflow=3.11 cfs 0.545 af
Primary=3.11 cfs 0.545 af

Total Runoff Area = 15.506 ac Runoff Volume = 0.545 af Average Runoff Depth = 0.42"
96.82% Pervious = 15.013 ac 3.18% Impervious = 0.493 ac

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MSE 24-hr 4 1-Year Rainfall=2.49"

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Summary for Subcatchment 1A: West Drainage Area

Runoff = 3.06 cfs @ 12.69 hrs, Volume= 0.528 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

Area (ac)	CN	Description
* 0.102	55	Woods, HSG B
* 12.897	68	Ag, HSG B
* 0.043	98	Offsite Roof
* 0.597	61	Offsite Grass, HSG B
* 0.406	98	Offsite Street
* 0.044	98	Offsite Sidewalk
* 0.771	61	Offsite Grass, HSG B
14.860		Weighted Average
14.367		96.68% Pervious Area
0.493		3.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	300	0.0020	0.17		Sheet Flow, Cultivated: Residue<=20% n= 0.060 P2= 2.84"
12.4	300	0.0020	0.40		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
42.6	600	Total			

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MSE 24-hr 4 1-Year Rainfall=2.49"

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Summary for Subcatchment 2A: NorthEast Swale Drainage Area

Runoff = 0.12 cfs @ 12.15 hrs, Volume= 0.009 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

Area (ac)	CN	Description
* 0.021	61	Grass, HSG B
* 0.232	68	Ag, HSG B
* 0.056	61	Offsite Grass, HSG B
0.309		Weighted Average
0.309		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 1-Year Rainfall=2.49"

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Summary for Subcatchment 3A: SouthEast Swale Drainage Area

Runoff = 0.11 cfs @ 12.16 hrs, Volume= 0.009 af, Depth= 0.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

Area (ac)	CN	Description
* 0.039	61	Grass, HSG B
* 0.195	68	Ag, HSG B
* 0.103	61	Offsite Grass, HSG B
0.337		Weighted Average
0.337		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 1-Year Rainfall=2.49"

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Summary for Link 4L: Pre-Development

Inflow Area = 15.506 ac, 3.18% Impervious, Inflow Depth = 0.42" for 1-Year event
Inflow = 3.11 cfs @ 12.69 hrs, Volume= 0.545 af
Primary = 3.11 cfs @ 12.69 hrs, Volume= 0.545 af, Atten= 0%, Lag= 0.0 min

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

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: West Drainage Area Runoff Area=14.860 ac 3.32% Impervious Runoff Depth=0.59"
Flow Length=600' Slope=0.0020 '/' Tc=42.6 min CN=WQ Runoff=4.61 cfs 0.730 af

Subcatchment 2A: NorthEast Swale Runoff Area=0.309 ac 0.00% Impervious Runoff Depth=0.49"
Tc=6.0 min CN=WQ Runoff=0.20 cfs 0.013 af

Subcatchment 3A: SouthEast Swale Runoff Area=0.337 ac 0.00% Impervious Runoff Depth=0.45"
Tc=6.0 min CN=WQ Runoff=0.19 cfs 0.012 af

Link 4L: Pre-Development

Inflow=4.68 cfs 0.755 af
Primary=4.68 cfs 0.755 af

Total Runoff Area = 15.506 ac Runoff Volume = 0.755 af Average Runoff Depth = 0.58"
96.82% Pervious = 15.013 ac 3.18% Impervious = 0.493 ac

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Subcatchment 1A: West Drainage Area

Runoff = 4.61 cfs @ 12.67 hrs, Volume= 0.730 af, Depth= 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

Area (ac)	CN	Description
* 0.102	55	Woods, HSG B
* 12.897	68	Ag, HSG B
* 0.043	98	Offsite Roof
* 0.597	61	Offsite Grass, HSG B
* 0.406	98	Offsite Street
* 0.044	98	Offsite Sidewalk
* 0.771	61	Offsite Grass, HSG B
14.860		Weighted Average
14.367		96.68% Pervious Area
0.493		3.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	300	0.0020	0.17		Sheet Flow, Cultivated: Residue<=20% n= 0.060 P2= 2.84"
12.4	300	0.0020	0.40		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
42.6	600	Total			

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Summary for Subcatchment 2A: NorthEast Swale Drainage Area

Runoff = 0.20 cfs @ 12.15 hrs, Volume= 0.013 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

MSE 24-hr 4 2-Year Rainfall=2.84"

Area (ac)	CN	Description
* 0.021	61	Grass, HSG B
* 0.232	68	Ag, HSG B
* 0.056	61	Offsite Grass, HSG B
0.309		Weighted Average
0.309		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Subcatchment 3A: SouthEast Swale Drainage Area

Runoff = 0.19 cfs @ 12.15 hrs, Volume= 0.012 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

Area (ac)	CN	Description
* 0.039	61	Grass, HSG B
* 0.195	68	Ag, HSG B
* 0.103	61	Offsite Grass, HSG B
0.337		Weighted Average
0.337		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Link 4L: Pre-Development

Inflow Area = 15.506 ac, 3.18% Impervious, Inflow Depth = 0.58" for 2-Year event
Inflow = 4.68 cfs @ 12.67 hrs, Volume= 0.755 af
Primary = 4.68 cfs @ 12.67 hrs, Volume= 0.755 af, Atten= 0%, Lag= 0.0 min

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

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MSE 24-hr 4 10-Year Rainfall=4.09"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: West Drainage Area Runoff Area=14.860 ac 3.32% Impervious Runoff Depth=1.31"
Flow Length=600' Slope=0.0020 '/' Tc=42.6 min CN=WQ Runoff=11.72 cfs 1.618 af

Subcatchment 2A: NorthEast Swale Runoff Area=0.309 ac 0.00% Impervious Runoff Depth=1.16"
Tc=6.0 min CN=WQ Runoff=0.54 cfs 0.030 af

Subcatchment 3A: SouthEast Swale Runoff Area=0.337 ac 0.00% Impervious Runoff Depth=1.09"
Tc=6.0 min CN=WQ Runoff=0.55 cfs 0.031 af

Link 4L: Pre-Development

Inflow=11.89 cfs 1.678 af
Primary=11.89 cfs 1.678 af

Total Runoff Area = 15.506 ac Runoff Volume = 1.678 af Average Runoff Depth = 1.30"
96.82% Pervious = 15.013 ac 3.18% Impervious = 0.493 ac

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MSE 24-hr 4 10-Year Rainfall=4.09"

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Summary for Subcatchment 1A: West Drainage Area

Runoff = 11.72 cfs @ 12.63 hrs, Volume= 1.618 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

Area (ac)	CN	Description
* 0.102	55	Woods, HSG B
* 12.897	68	Ag, HSG B
* 0.043	98	Offsite Roof
* 0.597	61	Offsite Grass, HSG B
* 0.406	98	Offsite Street
* 0.044	98	Offsite Sidewalk
* 0.771	61	Offsite Grass, HSG B
14.860		Weighted Average
14.367		96.68% Pervious Area
0.493		3.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	300	0.0020	0.17		Sheet Flow, Cultivated: Residue<=20% n= 0.060 P2= 2.84"
12.4	300	0.0020	0.40		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
42.6	600	Total			

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MSE 24-hr 4 10-Year Rainfall=4.09"

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Summary for Subcatchment 2A: NorthEast Swale Drainage Area

Runoff = 0.54 cfs @ 12.14 hrs, Volume= 0.030 af, Depth= 1.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

Area (ac)	CN	Description
* 0.021	61	Grass, HSG B
* 0.232	68	Ag, HSG B
* 0.056	61	Offsite Grass, HSG B
0.309		Weighted Average
0.309		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 10-Year Rainfall=4.09"

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Summary for Subcatchment 3A: SouthEast Swale Drainage Area

Runoff = 0.55 cfs @ 12.14 hrs, Volume= 0.031 af, Depth= 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

Area (ac)	CN	Description
* 0.039	61	Grass, HSG B
* 0.195	68	Ag, HSG B
* 0.103	61	Offsite Grass, HSG B
0.337		Weighted Average
0.337		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 10-Year Rainfall=4.09"

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Summary for Link 4L: Pre-Development

Inflow Area = 15.506 ac, 3.18% Impervious, Inflow Depth = 1.30" for 10-Year event
Inflow = 11.89 cfs @ 12.63 hrs, Volume= 1.678 af
Primary = 11.89 cfs @ 12.63 hrs, Volume= 1.678 af, Atten= 0%, Lag= 0.0 min

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

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MSE 24-hr 4 100-Year Rainfall=6.66"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: West Drainage Area Runoff Area=14.860 ac 3.32% Impervious Runoff Depth=3.18"
Flow Length=600' Slope=0.0020 '/' Tc=42.6 min CN=WQ Runoff=30.36 cfs 3.932 af

Subcatchment 2A: NorthEast Swale Runoff Area=0.309 ac 0.00% Impervious Runoff Depth=2.97"
Tc=6.0 min CN=WQ Runoff=1.44 cfs 0.076 af

Subcatchment 3A: SouthEast Swale Runoff Area=0.337 ac 0.00% Impervious Runoff Depth=2.85"
Tc=6.0 min CN=WQ Runoff=1.50 cfs 0.080 af

Link 4L: Pre-Development

Inflow=30.78 cfs 4.089 af
Primary=30.78 cfs 4.089 af

Total Runoff Area = 15.506 ac Runoff Volume = 4.089 af Average Runoff Depth = 3.16"
96.82% Pervious = 15.013 ac 3.18% Impervious = 0.493 ac

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MSE 24-hr 4 100-Year Rainfall=6.66"

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Summary for Subcatchment 1A: West Drainage Area

Runoff = 30.36 cfs @ 12.60 hrs, Volume= 3.932 af, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

Area (ac)	CN	Description
* 0.102	55	Woods, HSG B
* 12.897	68	Ag, HSG B
* 0.043	98	Offsite Roof
* 0.597	61	Offsite Grass, HSG B
* 0.406	98	Offsite Street
* 0.044	98	Offsite Sidewalk
* 0.771	61	Offsite Grass, HSG B
14.860		Weighted Average
14.367		96.68% Pervious Area
0.493		3.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	300	0.0020	0.17		Sheet Flow, Cultivated: Residue<=20% n= 0.060 P2= 2.84"
12.4	300	0.0020	0.40		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
42.6	600	Total			

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MSE 24-hr 4 100-Year Rainfall=6.66"

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Summary for Subcatchment 2A: NorthEast Swale Drainage Area

Runoff = 1.44 cfs @ 12.13 hrs, Volume= 0.076 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

Area (ac)	CN	Description
* 0.021	61	Grass, HSG B
* 0.232	68	Ag, HSG B
* 0.056	61	Offsite Grass, HSG B
0.309		Weighted Average
0.309		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

PreDevelopment

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MSE 24-hr 4 100-Year Rainfall=6.66"

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Summary for Subcatchment 3A: SouthEast Swale Drainage Area

Runoff = 1.50 cfs @ 12.14 hrs, Volume= 0.080 af, Depth= 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

Area (ac)	CN	Description
* 0.039	61	Grass, HSG B
* 0.195	68	Ag, HSG B
* 0.103	61	Offsite Grass, HSG B
0.337		Weighted Average
0.337		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 100-Year Rainfall=6.66"

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Summary for Link 4L: Pre-Development

Inflow Area = 15.506 ac, 3.18% Impervious, Inflow Depth = 3.16" for 100-Year event
Inflow = 30.78 cfs @ 12.60 hrs, Volume= 4.089 af
Primary = 30.78 cfs @ 12.60 hrs, Volume= 4.089 af, Atten= 0%, Lag= 0.0 min

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

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MSE 24-hr 4 200-Year Rainfall=7.53"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: West Drainage Area Runoff Area=14.860 ac 3.32% Impervious Runoff Depth=3.88"
Flow Length=600' Slope=0.0020 '/' Tc=42.6 min CN=WQ Runoff=37.32 cfs 4.804 af

Subcatchment 2A: NorthEast Swale Runoff Area=0.309 ac 0.00% Impervious Runoff Depth=3.66"
Tc=6.0 min CN=WQ Runoff=1.77 cfs 0.094 af

Subcatchment 3A: SouthEast Swale Runoff Area=0.337 ac 0.00% Impervious Runoff Depth=3.53"
Tc=6.0 min CN=WQ Runoff=1.86 cfs 0.099 af

Link 4L: Pre-Development

Inflow=37.82 cfs 4.997 af
Primary=37.82 cfs 4.997 af

Total Runoff Area = 15.506 ac Runoff Volume = 4.997 af Average Runoff Depth = 3.87"
96.82% Pervious = 15.013 ac 3.18% Impervious = 0.493 ac

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MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Subcatchment 1A: West Drainage Area

Runoff = 37.32 cfs @ 12.60 hrs, Volume= 4.804 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description
* 0.102	55	Woods, HSG B
* 12.897	68	Ag, HSG B
* 0.043	98	Offsite Roof
* 0.597	61	Offsite Grass, HSG B
* 0.406	98	Offsite Street
* 0.044	98	Offsite Sidewalk
* 0.771	61	Offsite Grass, HSG B
14.860		Weighted Average
14.367		96.68% Pervious Area
0.493		3.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.2	300	0.0020	0.17		Sheet Flow, Cultivated: Residue<=20% n= 0.060 P2= 2.84"
12.4	300	0.0020	0.40		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
42.6	600	Total			

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MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Subcatchment 2A: NorthEast Swale Drainage Area

Runoff = 1.77 cfs @ 12.13 hrs, Volume= 0.094 af, Depth= 3.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description
* 0.021	61	Grass, HSG B
* 0.232	68	Ag, HSG B
* 0.056	61	Offsite Grass, HSG B
0.309		Weighted Average
0.309		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Subcatchment 3A: SouthEast Swale Drainage Area

Runoff = 1.86 cfs @ 12.13 hrs, Volume= 0.099 af, Depth= 3.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description
* 0.039	61	Grass, HSG B
* 0.195	68	Ag, HSG B
* 0.103	61	Offsite Grass, HSG B
0.337		Weighted Average
0.337		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 200-Year Rainfall=7.53"

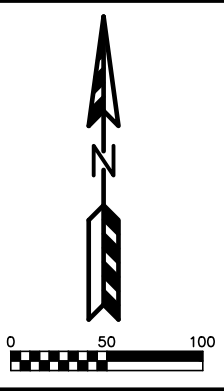
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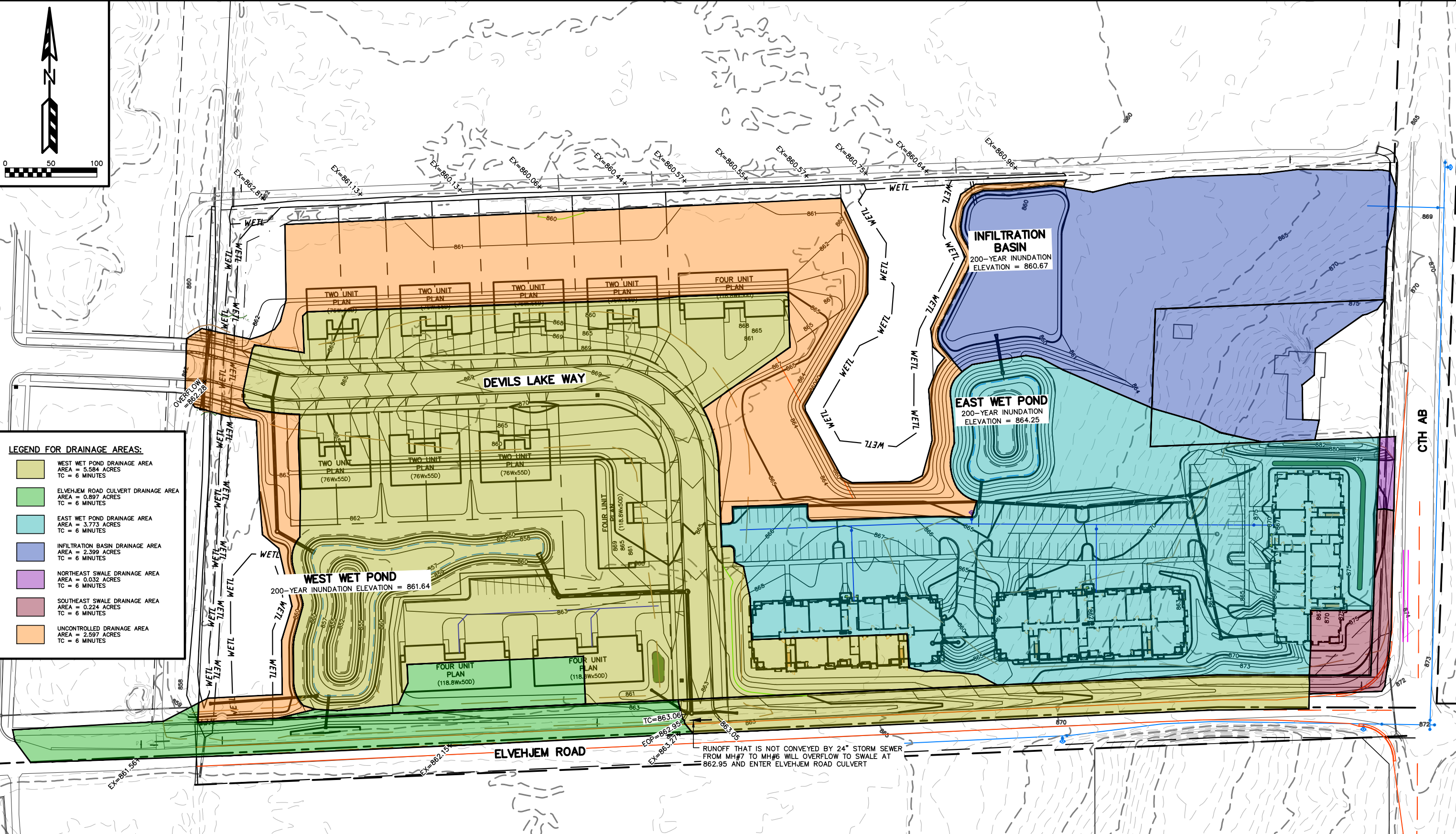
Summary for Link 4L: Pre-Development

Inflow Area = 15.506 ac, 3.18% Impervious, Inflow Depth = 3.87" for 200-Year event
Inflow = 37.82 cfs @ 12.59 hrs, Volume= 4.997 af
Primary = 37.82 cfs @ 12.59 hrs, Volume= 4.997 af, Atten= 0%, Lag= 0.0 min

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

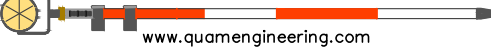


LEGEND FOR DRAINAGE AREAS:	
	WEST WET POND DRAINAGE AREA AREA = 5.584 ACRES TC = 6 MINUTES
	ELVEHJEM ROAD CULVERT DRAINAGE AREA AREA = 0.897 ACRES TC = 6 MINUTES
	EAST WET POND DRAINAGE AREA AREA = 3.773 ACRES TC = 6 MINUTES
	INFILTRATION BASIN DRAINAGE AREA AREA = 2.399 ACRES TC = 6 MINUTES
	NORTHEAST SWALE DRAINAGE AREA AREA = 0.032 ACRES TC = 6 MINUTES
	SOUTHEAST SWALE DRAINAGE AREA AREA = 0.224 ACRES TC = 6 MINUTES
	UNCONTROLLED DRAINAGE AREA AREA = 2.597 ACRES TC = 6 MINUTES



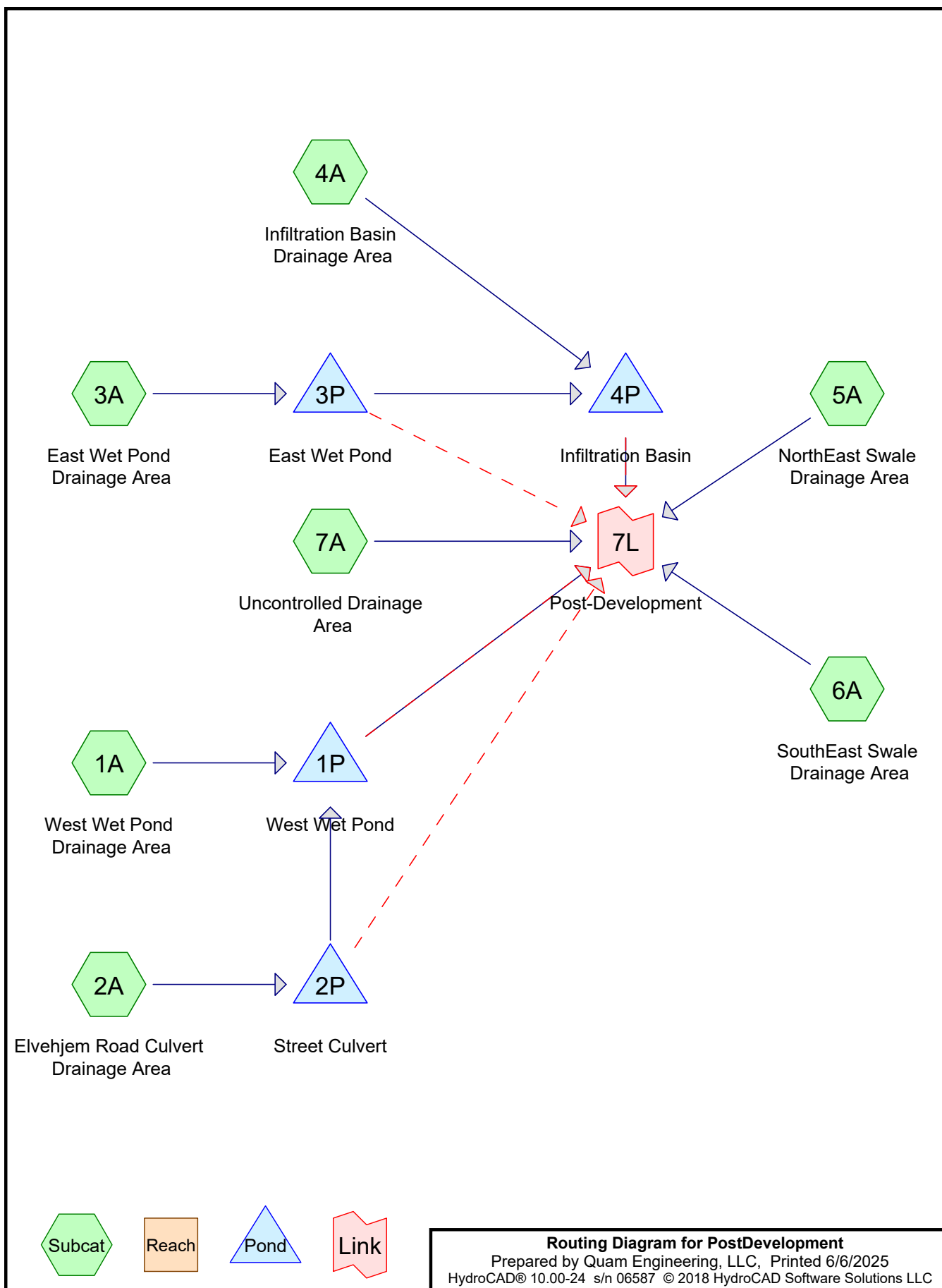
SPERLE CORNERS - VILLAGE OF MCFARLAND
PROPOSED DRAINAGE PLAN
EXHIBIT: #5
DATED: JUNE 6, 2025

QUAM ENGINEERING, LLC
Residential and Commercial Site Design Consultants



4604 Siggelkow Road, Suite A - McFarland, Wisconsin 53558
Phone (608) 838-7750; Fax (608) 838-7752

INUNDATION EVENT WAS MODELED ASSUMING
THAT ALL WATER REACHED THE POND AS
DESIGNED BUT ONLY LEFT THE POND THROUGH
THE OVERFLOW WEIR.



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.549	74	>75% Grass cover, Good, HSG C (1A, 2A, 3A, 4A, 6A, 7A)
1.000	61	Deep Tilled HSG C Soils (7A)
0.973	61	Offsite Grass, HSG B (2A, 3A, 4A, 5A, 6A)
0.044	98	Offsite Roof (4A)
0.329	98	Offsite Sidewalk (1A, 2A, 5A, 6A)
0.429	98	Offsite Street (1A, 2A)
1.632	98	Proposed Pavement (1A, 3A)
2.488	98	Proposed Roof (1A, 2A, 3A, 6A, 7A)
0.312	98	Proposed Sidewalk (1A, 2A, 3A, 7A)
0.545	98	Proposed Street (1A, 7A)
1.522	61	Undisturbed Grass, HSG B (3A, 4A)
0.683	100	Water/Infiltration Area (1A, 3A, 4A)
15.506	81	TOTAL AREA

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: West Wet Pond

Runoff Area=5.584 ac 57.65% Impervious Runoff Depth=1.57"

Tc=6.0 min CN=WQ Runoff=12.03 cfs 0.731 af

Pond 1P: West Wet Pond

Peak Elev=859.21' Storage=26,781 cf Inflow=13.37 cfs 0.834 af

Primary=0.30 cfs 0.794 af Secondary=0.00 cfs 0.000 af Outflow=0.30 cfs 0.794 af

Subcatchment 2A: Elvehjem Road Culvert

Runoff Area=0.897 ac 54.29% Impervious Runoff Depth=1.37"

Tc=6.0 min CN=WQ Runoff=1.63 cfs 0.102 af

Pond 2P: Street Culvert

Peak Elev=860.24' Storage=221 cf Inflow=1.63 cfs 0.102 af

Primary=1.42 cfs 0.102 af Secondary=0.00 cfs 0.000 af Outflow=1.42 cfs 0.102 af

Subcatchment 3A: East Wet Pond Drainage

Runoff Area=3.773 ac 55.23% Impervious Runoff Depth=1.49"

Tc=6.0 min CN=WQ Runoff=7.66 cfs 0.469 af

Pond 3P: East Wet Pond

Peak Elev=861.45' Storage=13,059 cf Inflow=7.66 cfs 0.469 af

Primary=0.32 cfs 0.464 af Secondary=0.00 cfs 0.000 af Outflow=0.32 cfs 0.464 af

Subcatchment 4A: Infiltration Basin

Runoff Area=2.399 ac 10.46% Impervious Runoff Depth=0.49"

Tc=6.0 min CN=WQ Runoff=1.26 cfs 0.098 af

Pond 4P: Infiltration Basin

Peak Elev=859.63' Storage=5,623 cf Inflow=1.51 cfs 0.562 af

Discarded=0.02 cfs 0.126 af Primary=0.31 cfs 0.433 af Secondary=0.00 cfs 0.000 af Outflow=0.33 cfs 0.559 af

Subcatchment 5A: NorthEast Swale

Runoff Area=0.032 ac 53.13% Impervious Runoff Depth=1.29"

Tc=6.0 min CN=WQ Runoff=0.05 cfs 0.003 af

Subcatchment 6A: SouthEast Swale

Runoff Area=0.224 ac 36.16% Impervious Runoff Depth=1.08"

Tc=6.0 min CN=WQ Runoff=0.32 cfs 0.020 af

Subcatchment 7A: Uncontrolled Drainage

Runoff Area=2.597 ac 12.44% Impervious Runoff Depth=0.65"

Tc=6.0 min CN=WQ Runoff=2.20 cfs 0.141 af

Link 7L: Post-Development

Inflow=2.80 cfs 1.391 af

Primary=2.80 cfs 1.391 af

Total Runoff Area = 15.506 ac Runoff Volume = 1.565 af Average Runoff Depth = 1.21"

58.33% Pervious = 9.044 ac 41.67% Impervious = 6.462 ac

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MSE 24-hr 4 1-Year Rainfall=2.49"

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Summary for Subcatchment 1A: West Wet Pond Drainage Area

Runoff = 12.03 cfs @ 12.13 hrs, Volume= 0.731 af, Depth= 1.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

MSE 24-hr 4 1-Year Rainfall=2.49"

Area (ac)	CN	Description
* 1.128	98	Proposed Roof
* 0.759	98	Proposed Pavement
* 0.143	98	Proposed Sidewalk
* 0.529	98	Proposed Street
* 2.120	74	>75% Grass cover, Good, HSG C
* 0.315	100	Water/Infiltration Area
* 0.120	98	Offsite Sidewalk
* 0.225	98	Offsite Street
0.245	74	>75% Grass cover, Good, HSG C
5.584		Weighted Average
2.365		42.35% Pervious Area
3.219		57.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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Summary for Pond 1P: West Wet Pond

Inflow Area = 6.481 ac, 57.18% Impervious, Inflow Depth = 1.54" for 1-Year event
Inflow = 13.37 cfs @ 12.13 hrs, Volume= 0.834 af
Outflow = 0.30 cfs @ 15.20 hrs, Volume= 0.794 af, Atten= 98%, Lag= 183.9 min
Primary = 0.30 cfs @ 15.20 hrs, Volume= 0.794 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 859.21' @ 15.20 hrs Surf.Area= 17,672 sf Storage= 26,781 cf

Plug-Flow detention time= 1,082.4 min calculated for 0.793 af (95% of inflow)
Center-of-Mass det. time= 1,057.9 min (1,830.4 - 772.5)

Volume	Invert	Avail.Storage	Storage Description
#1	857.50'	73,600 cf	Surface (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
857.50	13,700	0	0
858.00	14,900	7,150	7,150
859.00	17,200	16,050	23,200
860.00	19,500	18,350	41,550
861.00	22,000	20,750	62,300
861.50	23,200	11,300	73,600

Device	Routing	Invert	Outlet Devices
#1	Primary	857.50'	18.0" Round Outlet Culvert L= 117.0' Ke= 0.500 Inlet / Outlet Invert= 857.50' / 857.15' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	857.50'	3.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 857.50' / 857.50' S= 0.0000 '/' Cc= 0.900 n= 0.010, Flow Area= 0.05 sf
#3	Device 1	859.50'	36.0" Horiz. Standpipe C= 0.600 Limited to weir flow at low heads
#4	Secondary	861.00'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.30 cfs @ 15.20 hrs HW=859.21' TW=0.00' (Dynamic Tailwater)

↑ **1=Outlet Culvert** (Passes 0.30 cfs of 6.39 cfs potential flow)

↑ **2=Culvert** (Inlet Controls 0.30 cfs @ 6.05 fps)

↑ **3=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=857.50' TW=0.00' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Summary for Subcatchment 2A: Elvehjem Road Culvert Drainage Area

Runoff = 1.63 cfs @ 12.13 hrs, Volume= 0.102 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

MSE 24-hr 4 1-Year Rainfall=2.49"

Area (ac)	CN	Description
* 0.124	98	Proposed Roof
* 0.014	98	Proposed Sidewalk
0.116	74	>75% Grass cover, Good, HSG C
* 0.145	98	Offsite Sidewalk
* 0.204	98	Offsite Street
* 0.294	61	Offsite Grass, HSG B
0.897		Weighted Average
0.410		45.71% Pervious Area
0.487		54.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 1-Year Rainfall=2.49"

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Summary for Pond 2P: Street Culvert

Inflow Area = 0.897 ac, 54.29% Impervious, Inflow Depth = 1.37" for 1-Year event
 Inflow = 1.63 cfs @ 12.13 hrs, Volume= 0.102 af
 Outflow = 1.42 cfs @ 12.17 hrs, Volume= 0.102 af, Atten= 13%, Lag= 2.2 min
 Primary = 1.42 cfs @ 12.17 hrs, Volume= 0.102 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 860.24' @ 12.17 hrs Surf.Area= 1,057 sf Storage= 221 cf

Plug-Flow detention time= 3.5 min calculated for 0.102 af (100% of inflow)

Center-of-Mass det. time= 3.6 min (775.7 - 772.2)

Volume	Invert	Avail.Storage	Storage Description
#1	859.70'	11,210 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.70	100	0	0
860.00	300	60	60
861.00	3,500	1,900	1,960
862.00	15,000	9,250	11,210

Device	Routing	Invert	Outlet Devices
#1	Primary	859.70'	18.0" Round Culvert L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 859.70' / 857.65' S= 0.0641 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Secondary	861.30'	100.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.38 cfs @ 12.17 hrs HW=860.23' TW=858.58' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 1.38 cfs @ 2.48 fps)**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=859.70' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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MSE 24-hr 4 1-Year Rainfall=2.49"

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Summary for Subcatchment 3A: East Wet Pond Drainage Area

Runoff = 7.66 cfs @ 12.13 hrs, Volume= 0.469 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

Area (ac)	CN	Description
* 0.942	98	Proposed Roof
* 0.873	98	Proposed Pavement
* 0.108	98	Proposed Sidewalk
0.277	61	Undisturbed Grass, HSG B
1.356	74	>75% Grass cover, Good, HSG C
* 0.161	100	Water/Infiltration Area
* 0.056	61	Offsite Grass, HSG B
3.773		Weighted Average
1.689		44.77% Pervious Area
2.084		55.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 1-Year Rainfall=2.49"

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Summary for Pond 3P: East Wet Pond

Inflow Area = 3.773 ac, 55.23% Impervious, Inflow Depth = 1.49" for 1-Year event
Inflow = 7.66 cfs @ 12.13 hrs, Volume= 0.469 af
Outflow = 0.32 cfs @ 13.64 hrs, Volume= 0.464 af, Atten= 96%, Lag= 90.3 min
Primary = 0.32 cfs @ 13.64 hrs, Volume= 0.464 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 861.45' @ 13.64 hrs Surf.Area= 7,820 sf Storage= 13,059 cf

Plug-Flow detention time= 534.8 min calculated for 0.464 af (99% of inflow)
Center-of-Mass det. time= 529.5 min (1,302.3 - 772.8)

Volume	Invert	Avail.Storage	Storage Description
#1	859.50'	37,100 cf	Surface (Prismatic) Listed below (Recalc) x 0.8

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.50	7,000	0	0
860.00	7,700	3,675	3,675
861.00	9,100	8,400	12,075
862.00	10,600	9,850	21,925
863.00	12,200	11,400	33,325
864.00	13,900	13,050	46,375

Device	Routing	Invert	Outlet Devices
#1	Primary	859.50'	15.0" Round Outlet Culvert L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 859.50' / 859.37' S= 0.0031 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	859.50'	3.0" Round Culvert L= 6.0' Ke= 0.500 Inlet / Outlet Invert= 859.50' / 859.50' S= 0.0000 '/' Cc= 0.900 n= 0.010, Flow Area= 0.05 sf
#3	Device 1	862.00'	36.0" Horiz. Standpipe C= 0.600 Limited to weir flow at low heads
#4	Secondary	863.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.32 cfs @ 13.64 hrs HW=861.45' TW=859.55' (Dynamic Tailwater)

↑ **1=Outlet Culvert** (Passes 0.32 cfs of 5.70 cfs potential flow)

↑ **2=Culvert** (Inlet Controls 0.32 cfs @ 6.50 fps)

↑ **3=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=859.50' TW=0.00' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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MSE 24-hr 4 1-Year Rainfall=2.49"

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Summary for Subcatchment 4A: Infiltration Basin Drainage Area

Runoff = 1.26 cfs @ 12.14 hrs, Volume= 0.098 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

Area (ac)	CN	Description			
* 1.245	61	Undisturbed Grass, HSG B			
0.363	74	>75% Grass cover, Good, HSG C			
* 0.207	100	Water/Infiltration Area			
* 0.044	98	Offsite Roof			
* 0.540	61	Offsite Grass, HSG B			
2.399		Weighted Average			
2.148		89.54% Pervious Area			
0.251		10.46% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 1-Year Rainfall=2.49"

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Summary for Pond 4P: Infiltration Basin

Inflow Area = 6.172 ac, 37.83% Impervious, Inflow Depth > 1.09" for 1-Year event
Inflow = 1.51 cfs @ 12.14 hrs, Volume= 0.562 af
Outflow = 0.33 cfs @ 18.35 hrs, Volume= 0.559 af, Atten= 78%, Lag= 372.3 min
Discarded = 0.02 cfs @ 10.20 hrs, Volume= 0.126 af
Primary = 0.31 cfs @ 18.35 hrs, Volume= 0.433 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 859.63' @ 18.35 hrs Surf.Area= 15,524 sf Storage= 5,623 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 396.6 min (1,613.2 - 1,216.6)

Volume	Invert	Avail.Storage	Storage Description
#1	859.25'	29,625 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.25	14,000	0	0
860.00	17,000	11,625	11,625
861.00	19,000	18,000	29,625
Device	Routing	Invert	Outlet Devices
#1	Primary	859.35'	6.0" Round Culvert X 2.00 L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 859.35' / 859.25' S= 0.0040 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#2	Secondary	860.50'	100.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Discarded	859.25'	0.070 in/hr Exfiltration over Surface area from 859.24' - 859.26' Excluded Surface area = 0 sf

Discarded OutFlow Max=0.02 cfs @ 10.20 hrs HW=859.27' (Free Discharge)

↑**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.31 cfs @ 18.35 hrs HW=859.63' TW=0.00' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 0.31 cfs @ 1.96 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=859.25' TW=0.00' (Dynamic Tailwater)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Summary for Subcatchment 5A: NorthEast Swale Drainage Area

Runoff = 0.05 cfs @ 12.13 hrs, Volume= 0.003 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

Area (ac)	CN	Description
* 0.017	98	Offsite Sidewalk
* 0.015	61	Offsite Grass, HSG B
0.032		Weighted Average
0.015		46.87% Pervious Area
0.017		53.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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Summary for Subcatchment 6A: SouthEast Swale Drainage Area

Runoff = 0.32 cfs @ 12.13 hrs, Volume= 0.020 af, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

Area (ac)	CN	Description
* 0.034	98	Proposed Roof
0.075	74	>75% Grass cover, Good, HSG C
* 0.047	98	Offsite Sidewalk
* 0.068	61	Offsite Grass, HSG B
0.224		Weighted Average
0.143		63.84% Pervious Area
0.081		36.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 1-Year Rainfall=2.49"

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Summary for Subcatchment 7A: Uncontrolled Drainage Area

Runoff = 2.20 cfs @ 12.14 hrs, Volume= 0.141 af, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

Area (ac)	CN	Description
* 0.260	98	Proposed Roof
* 0.047	98	Proposed Sidewalk
* 0.016	98	Proposed Street
* 1.000	61	Deep Tilled HSG C Soils
1.274	74	>75% Grass cover, Good, HSG C
2.597		Weighted Average
2.274		87.56% Pervious Area
0.323		12.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 1-Year Rainfall=2.49"

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Summary for Link 7L: Post-Development

Inflow Area = 15.506 ac, 41.67% Impervious, Inflow Depth > 1.08" for 1-Year event
Inflow = 2.80 cfs @ 12.14 hrs, Volume= 1.391 af
Primary = 2.80 cfs @ 12.14 hrs, Volume= 1.391 af, Atten= 0%, Lag= 0.0 min

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

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: West Wet Pond

Runoff Area=5.584 ac 57.65% Impervious Runoff Depth=1.86"

Tc=6.0 min CN=WQ Runoff=14.27 cfs 0.865 af

Pond 1P: West Wet Pond

Peak Elev=859.49' Storage=31,995 cf Inflow=15.83 cfs 0.986 af

Primary=0.32 cfs 0.939 af Secondary=0.00 cfs 0.000 af Outflow=0.32 cfs 0.939 af

Subcatchment 2A: Elvehjem Road Culvert

Runoff Area=0.897 ac 54.29% Impervious Runoff Depth=1.62"

Tc=6.0 min CN=WQ Runoff=1.94 cfs 0.121 af

Pond 2P: Street Culvert

Peak Elev=860.28' Storage=275 cf Inflow=1.94 cfs 0.121 af

Primary=1.66 cfs 0.121 af Secondary=0.00 cfs 0.000 af Outflow=1.66 cfs 0.121 af

Subcatchment 3A: East Wet Pond Drainage

Runoff Area=3.773 ac 55.23% Impervious Runoff Depth=1.77"

Tc=6.0 min CN=WQ Runoff=9.11 cfs 0.556 af

Pond 3P: East Wet Pond

Peak Elev=861.77' Storage=15,638 cf Inflow=9.11 cfs 0.556 af

Primary=0.35 cfs 0.551 af Secondary=0.00 cfs 0.000 af Outflow=0.35 cfs 0.551 af

Subcatchment 4A: Infiltration Basin

Runoff Area=2.399 ac 10.46% Impervious Runoff Depth=0.64"

Tc=6.0 min CN=WQ Runoff=1.82 cfs 0.129 af

Pond 4P: Infiltration Basin

Peak Elev=859.66' Storage=6,042 cf Inflow=2.09 cfs 0.679 af

Discarded=0.02 cfs 0.127 af Primary=0.36 cfs 0.544 af Secondary=0.00 cfs 0.000 af Outflow=0.38 cfs 0.672 af

Subcatchment 5A: NorthEast Swale

Runoff Area=0.032 ac 53.13% Impervious Runoff Depth=1.53"

Tc=6.0 min CN=WQ Runoff=0.06 cfs 0.004 af

Subcatchment 6A: SouthEast Swale

Runoff Area=0.224 ac 36.16% Impervious Runoff Depth=1.31"

Tc=6.0 min CN=WQ Runoff=0.39 cfs 0.024 af

Subcatchment 7A: Uncontrolled Drainage

Runoff Area=2.597 ac 12.44% Impervious Runoff Depth=0.84"

Tc=6.0 min CN=WQ Runoff=2.96 cfs 0.182 af

Link 7L: Post-Development

Inflow=3.68 cfs 1.693 af

Primary=3.68 cfs 1.693 af

Total Runoff Area = 15.506 ac Runoff Volume = 1.881 af Average Runoff Depth = 1.46"

58.33% Pervious = 9.044 ac 41.67% Impervious = 6.462 ac

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Subcatchment 1A: West Wet Pond Drainage Area

Runoff = 14.27 cfs @ 12.13 hrs, Volume= 0.865 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

MSE 24-hr 4 2-Year Rainfall=2.84"

Area (ac)	CN	Description
* 1.128	98	Proposed Roof
* 0.759	98	Proposed Pavement
* 0.143	98	Proposed Sidewalk
* 0.529	98	Proposed Street
* 2.120	74	>75% Grass cover, Good, HSG C
* 0.315	100	Water/Infiltration Area
* 0.120	98	Offsite Sidewalk
* 0.225	98	Offsite Street
0.245	74	>75% Grass cover, Good, HSG C
5.584		Weighted Average
2.365		42.35% Pervious Area
3.219		57.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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Summary for Pond 1P: West Wet Pond

Inflow Area = 6.481 ac, 57.18% Impervious, Inflow Depth = 1.83" for 2-Year event
Inflow = 15.83 cfs @ 12.13 hrs, Volume= 0.986 af
Outflow = 0.32 cfs @ 15.69 hrs, Volume= 0.939 af, Atten= 98%, Lag= 213.5 min
Primary = 0.32 cfs @ 15.69 hrs, Volume= 0.939 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 859.49' @ 15.69 hrs Surf.Area= 18,338 sf Storage= 31,995 cf

Plug-Flow detention time= 1,161.1 min calculated for 0.938 af (95% of inflow)
Center-of-Mass det. time= 1,136.3 min (1,907.6 - 771.3)

Volume	Invert	Avail.Storage	Storage Description
#1	857.50'	73,600 cf	Surface (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
857.50	13,700	0	0
858.00	14,900	7,150	7,150
859.00	17,200	16,050	23,200
860.00	19,500	18,350	41,550
861.00	22,000	20,750	62,300
861.50	23,200	11,300	73,600

Device	Routing	Invert	Outlet Devices
#1	Primary	857.50'	18.0" Round Outlet Culvert L= 117.0' Ke= 0.500 Inlet / Outlet Invert= 857.50' / 857.15' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	857.50'	3.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 857.50' / 857.50' S= 0.0000 '/' Cc= 0.900 n= 0.010, Flow Area= 0.05 sf
#3	Device 1	859.50'	36.0" Horiz. Standpipe C= 0.600 Limited to weir flow at low heads
#4	Secondary	861.00'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.32 cfs @ 15.69 hrs HW=859.49' TW=0.00' (Dynamic Tailwater)

↑ **1=Outlet Culvert** (Passes 0.32 cfs of 6.93 cfs potential flow)

↑ **2=Culvert** (Inlet Controls 0.32 cfs @ 6.58 fps)

↑ **3=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=857.50' TW=0.00' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Subcatchment 2A: Elvehjem Road Culvert Drainage Area

Runoff = 1.94 cfs @ 12.13 hrs, Volume= 0.121 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

MSE 24-hr 4 2-Year Rainfall=2.84"

Area (ac)	CN	Description
* 0.124	98	Proposed Roof
* 0.014	98	Proposed Sidewalk
0.116	74	>75% Grass cover, Good, HSG C
* 0.145	98	Offsite Sidewalk
* 0.204	98	Offsite Street
* 0.294	61	Offsite Grass, HSG B
0.897		Weighted Average
0.410		45.71% Pervious Area
0.487		54.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Pond 2P: Street Culvert

Inflow Area = 0.897 ac, 54.29% Impervious, Inflow Depth = 1.62" for 2-Year event
Inflow = 1.94 cfs @ 12.13 hrs, Volume= 0.121 af
Outflow = 1.66 cfs @ 12.17 hrs, Volume= 0.121 af, Atten= 14%, Lag= 2.3 min
Primary = 1.66 cfs @ 12.17 hrs, Volume= 0.121 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 860.28' @ 12.17 hrs Surf.Area= 1,211 sf Storage= 275 cf

Plug-Flow detention time= 4.5 min calculated for 0.121 af (100% of inflow)

Center-of-Mass det. time= 3.6 min (774.9 - 771.4)

Volume	Invert	Avail.Storage	Storage Description
#1	859.70'	11,210 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.70	100	0	0
860.00	300	60	60
861.00	3,500	1,900	1,960
862.00	15,000	9,250	11,210

Device	Routing	Invert	Outlet Devices
#1	Primary	859.70'	18.0" Round Culvert L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 859.70' / 857.65' S= 0.0641 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Secondary	861.30'	100.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.62 cfs @ 12.17 hrs HW=860.28' TW=858.77' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 1.62 cfs @ 2.59 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=859.70' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Subcatchment 3A: East Wet Pond Drainage Area

Runoff = 9.11 cfs @ 12.13 hrs, Volume= 0.556 af, Depth= 1.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

Area (ac)	CN	Description
* 0.942	98	Proposed Roof
* 0.873	98	Proposed Pavement
* 0.108	98	Proposed Sidewalk
0.277	61	Undisturbed Grass, HSG B
1.356	74	>75% Grass cover, Good, HSG C
* 0.161	100	Water/Infiltration Area
* 0.056	61	Offsite Grass, HSG B
3.773		Weighted Average
1.689		44.77% Pervious Area
2.084		55.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Pond 3P: East Wet Pond

Inflow Area = 3.773 ac, 55.23% Impervious, Inflow Depth = 1.77" for 2-Year event
Inflow = 9.11 cfs @ 12.13 hrs, Volume= 0.556 af
Outflow = 0.35 cfs @ 13.72 hrs, Volume= 0.551 af, Atten= 96%, Lag= 95.6 min
Primary = 0.35 cfs @ 13.72 hrs, Volume= 0.551 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 861.77' @ 13.72 hrs Surf.Area= 8,206 sf Storage= 15,638 cf

Plug-Flow detention time= 579.6 min calculated for 0.551 af (99% of inflow)
Center-of-Mass det. time= 573.4 min (1,345.2 - 771.7)

Volume	Invert	Avail.Storage	Storage Description
#1	859.50'	37,100 cf	Surface (Prismatic) Listed below (Recalc) x 0.8

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.50	7,000	0	0
860.00	7,700	3,675	3,675
861.00	9,100	8,400	12,075
862.00	10,600	9,850	21,925
863.00	12,200	11,400	33,325
864.00	13,900	13,050	46,375

Device	Routing	Invert	Outlet Devices
#1	Primary	859.50'	15.0" Round Outlet Culvert L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 859.50' / 859.37' S= 0.0031 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	859.50'	3.0" Round Culvert L= 6.0' Ke= 0.500 Inlet / Outlet Invert= 859.50' / 859.50' S= 0.0000 '/' Cc= 0.900 n= 0.010, Flow Area= 0.05 sf
#3	Device 1	862.00'	36.0" Horiz. Standpipe C= 0.600 Limited to weir flow at low heads
#4	Secondary	863.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.35 cfs @ 13.72 hrs HW=861.77' TW=859.61' (Dynamic Tailwater)

↑ **1=Outlet Culvert** (Passes 0.35 cfs of 6.71 cfs potential flow)

↑ **2=Culvert** (Inlet Controls 0.35 cfs @ 7.06 fps)

↑ **3=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=859.50' TW=0.00' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Subcatchment 4A: Infiltration Basin Drainage Area

Runoff = 1.82 cfs @ 12.14 hrs, Volume= 0.129 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

Area (ac)	CN	Description
* 1.245	61	Undisturbed Grass, HSG B
0.363	74	>75% Grass cover, Good, HSG C
* 0.207	100	Water/Infiltration Area
* 0.044	98	Offsite Roof
* 0.540	61	Offsite Grass, HSG B
2.399		Weighted Average
2.148		89.54% Pervious Area
0.251		10.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Pond 4P: Infiltration Basin

Inflow Area = 6.172 ac, 37.83% Impervious, Inflow Depth > 1.32" for 2-Year event
Inflow = 2.09 cfs @ 12.15 hrs, Volume= 0.679 af
Outflow = 0.38 cfs @ 17.30 hrs, Volume= 0.672 af, Atten= 82%, Lag= 309.5 min
Discarded = 0.02 cfs @ 9.65 hrs, Volume= 0.127 af
Primary = 0.36 cfs @ 17.30 hrs, Volume= 0.544 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 859.66' @ 17.30 hrs Surf.Area= 15,631 sf Storage= 6,042 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 349.1 min (1,593.9 - 1,244.7)

Volume	Invert	Avail.Storage	Storage Description
#1	859.25'	29,625 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.25	14,000	0	0
860.00	17,000	11,625	11,625
861.00	19,000	18,000	29,625
Device	Routing	Invert	Outlet Devices
#1	Primary	859.35'	6.0" Round Culvert X 2.00 L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 859.35' / 859.25' S= 0.0040 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#2	Secondary	860.50'	100.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Discarded	859.25'	0.070 in/hr Exfiltration over Surface area from 859.24' - 859.26' Excluded Surface area = 0 sf

Discarded OutFlow Max=0.02 cfs @ 9.65 hrs HW=859.27' (Free Discharge)

↑**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.36 cfs @ 17.30 hrs HW=859.66' TW=0.00' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 0.36 cfs @ 2.03 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=859.25' TW=0.00' (Dynamic Tailwater)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Subcatchment 5A: NorthEast Swale Drainage Area

Runoff = 0.06 cfs @ 12.13 hrs, Volume= 0.004 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

Area (ac)	CN	Description
* 0.017	98	Offsite Sidewalk
* 0.015	61	Offsite Grass, HSG B
0.032		Weighted Average
0.015		46.87% Pervious Area
0.017		53.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Subcatchment 6A: SouthEast Swale Drainage Area

Runoff = 0.39 cfs @ 12.13 hrs, Volume= 0.024 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

MSE 24-hr 4 2-Year Rainfall=2.84"

Area (ac)	CN	Description
* 0.034	98	Proposed Roof
0.075	74	>75% Grass cover, Good, HSG C
* 0.047	98	Offsite Sidewalk
* 0.068	61	Offsite Grass, HSG B
0.224		Weighted Average
0.143		63.84% Pervious Area
0.081		36.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Subcatchment 7A: Uncontrolled Drainage Area

Runoff = 2.96 cfs @ 12.14 hrs, Volume= 0.182 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

MSE 24-hr 4 2-Year Rainfall=2.84"

Area (ac)	CN	Description
* 0.260	98	Proposed Roof
* 0.047	98	Proposed Sidewalk
* 0.016	98	Proposed Street
* 1.000	61	Deep Tilled HSG C Soils
1.274	74	>75% Grass cover, Good, HSG C
2.597		Weighted Average
2.274		87.56% Pervious Area
0.323		12.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 2-Year Rainfall=2.84"

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Summary for Link 7L: Post-Development

Inflow Area = 15.506 ac, 41.67% Impervious, Inflow Depth > 1.31" for 2-Year event
Inflow = 3.68 cfs @ 12.14 hrs, Volume= 1.693 af
Primary = 3.68 cfs @ 12.14 hrs, Volume= 1.693 af, Atten= 0%, Lag= 0.0 min

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

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MSE 24-hr 4 10-Year Rainfall=4.09"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: West Wet Pond

Runoff Area=5.584 ac 57.65% Impervious Runoff Depth=2.94"

Tc=6.0 min CN=WQ Runoff=22.67 cfs 1.368 af

Pond 1P: West Wet Pond

Peak Elev=859.80' Storage=37,664 cf Inflow=25.08 cfs 1.561 af

Primary=5.37 cfs 1.510 af Secondary=0.00 cfs 0.000 af Outflow=5.37 cfs 1.510 af

Subcatchment 2A: Elvehjem Road Culvert

Runoff Area=0.897 ac 54.29% Impervious Runoff Depth=2.59"

Tc=6.0 min CN=WQ Runoff=3.15 cfs 0.194 af

Pond 2P: Street Culvert

Peak Elev=860.45' Storage=516 cf Inflow=3.15 cfs 0.194 af

Primary=2.59 cfs 0.194 af Secondary=0.00 cfs 0.000 af Outflow=2.59 cfs 0.194 af

Subcatchment 3A: East Wet Pond Drainage

Runoff Area=3.773 ac 55.23% Impervious Runoff Depth=2.81"

Tc=6.0 min CN=WQ Runoff=14.62 cfs 0.884 af

Pond 3P: East Wet Pond

Peak Elev=862.23' Storage=19,534 cf Inflow=14.62 cfs 0.884 af

Primary=3.79 cfs 0.878 af Secondary=0.00 cfs 0.000 af Outflow=3.79 cfs 0.878 af

Subcatchment 4A: Infiltration Basin

Runoff Area=2.399 ac 10.46% Impervious Runoff Depth=1.31"

Tc=6.0 min CN=WQ Runoff=4.39 cfs 0.263 af

Pond 4P: Infiltration Basin

Peak Elev=860.12' Storage=13,745 cf Inflow=5.19 cfs 1.141 af

Discarded=0.02 cfs 0.130 af Primary=1.18 cfs 0.998 af Secondary=0.00 cfs 0.000 af Outflow=1.20 cfs 1.128 af

Subcatchment 5A: NorthEast Swale

Runoff Area=0.032 ac 53.13% Impervious Runoff Depth=2.45"

Tc=6.0 min CN=WQ Runoff=0.11 cfs 0.007 af

Subcatchment 6A: SouthEast Swale

Runoff Area=0.224 ac 36.16% Impervious Runoff Depth=2.21"

Tc=6.0 min CN=WQ Runoff=0.69 cfs 0.041 af

Subcatchment 7A: Uncontrolled Drainage

Runoff Area=2.597 ac 12.44% Impervious Runoff Depth=1.63"

Tc=6.0 min CN=WQ Runoff=6.17 cfs 0.352 af

Link 7L: Post-Development

Inflow=7.80 cfs 2.908 af

Primary=7.80 cfs 2.908 af

Total Runoff Area = 15.506 ac Runoff Volume = 3.108 af Average Runoff Depth = 2.41"

58.33% Pervious = 9.044 ac 41.67% Impervious = 6.462 ac

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Summary for Subcatchment 1A: West Wet Pond Drainage Area

Runoff = 22.67 cfs @ 12.13 hrs, Volume= 1.368 af, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

Area (ac)	CN	Description
* 1.128	98	Proposed Roof
* 0.759	98	Proposed Pavement
* 0.143	98	Proposed Sidewalk
* 0.529	98	Proposed Street
* 2.120	74	>75% Grass cover, Good, HSG C
* 0.315	100	Water/Infiltration Area
* 0.120	98	Offsite Sidewalk
* 0.225	98	Offsite Street
0.245	74	>75% Grass cover, Good, HSG C
5.584		Weighted Average
2.365		42.35% Pervious Area
3.219		57.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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Summary for Pond 1P: West Wet Pond

Inflow Area = 6.481 ac, 57.18% Impervious, Inflow Depth = 2.89" for 10-Year event
Inflow = 25.08 cfs @ 12.13 hrs, Volume= 1.561 af
Outflow = 5.37 cfs @ 12.44 hrs, Volume= 1.510 af, Atten= 79%, Lag= 18.7 min
Primary = 5.37 cfs @ 12.44 hrs, Volume= 1.510 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 859.80' @ 12.44 hrs Surf.Area= 19,036 sf Storage= 37,664 cf

Plug-Flow detention time= 797.7 min calculated for 1.509 af (97% of inflow)
Center-of-Mass det. time= 780.4 min (1,548.3 - 767.9)

Volume	Invert	Avail.Storage	Storage Description
#1	857.50'	73,600 cf	Surface (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
857.50	13,700	0	0
858.00	14,900	7,150	7,150
859.00	17,200	16,050	23,200
860.00	19,500	18,350	41,550
861.00	22,000	20,750	62,300
861.50	23,200	11,300	73,600

Device	Routing	Invert	Outlet Devices
#1	Primary	857.50'	18.0" Round Outlet Culvert L= 117.0' Ke= 0.500 Inlet / Outlet Invert= 857.50' / 857.15' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	857.50'	3.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 857.50' / 857.50' S= 0.0000 '/' Cc= 0.900 n= 0.010, Flow Area= 0.05 sf
#3	Device 1	859.50'	36.0" Horiz. Standpipe C= 0.600 Limited to weir flow at low heads
#4	Secondary	861.00'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=5.36 cfs @ 12.44 hrs HW=859.80' TW=0.00' (Dynamic Tailwater)

↑ **1=Outlet Culvert** (Passes 5.36 cfs of 7.96 cfs potential flow)

↑ **2=Culvert** (Inlet Controls 0.35 cfs @ 7.10 fps)

↑ **3=Standpipe** (Weir Controls 5.01 cfs @ 1.78 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=857.50' TW=0.00' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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MSE 24-hr 4 10-Year Rainfall=4.09"

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Summary for Subcatchment 2A: Elvehjem Road Culvert Drainage Area

Runoff = 3.15 cfs @ 12.13 hrs, Volume= 0.194 af, Depth= 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

Area (ac)	CN	Description
* 0.124	98	Proposed Roof
* 0.014	98	Proposed Sidewalk
0.116	74	>75% Grass cover, Good, HSG C
* 0.145	98	Offsite Sidewalk
* 0.204	98	Offsite Street
* 0.294	61	Offsite Grass, HSG B
0.897		Weighted Average
0.410		45.71% Pervious Area
0.487		54.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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Summary for Pond 2P: Street Culvert

Inflow Area = 0.897 ac, 54.29% Impervious, Inflow Depth = 2.59" for 10-Year event
 Inflow = 3.15 cfs @ 12.13 hrs, Volume= 0.194 af
 Outflow = 2.59 cfs @ 12.18 hrs, Volume= 0.194 af, Atten= 18%, Lag= 2.7 min
 Primary = 2.59 cfs @ 12.18 hrs, Volume= 0.194 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 860.45' @ 12.18 hrs Surf.Area= 1,735 sf Storage= 516 cf

Plug-Flow detention time= 4.4 min calculated for 0.194 af (100% of inflow)

Center-of-Mass det. time= 3.5 min (772.5 - 769.0)

Volume	Invert	Avail.Storage	Storage Description
#1	859.70'	11,210 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.70	100	0	0
860.00	300	60	60
861.00	3,500	1,900	1,960
862.00	15,000	9,250	11,210

Device	Routing	Invert	Outlet Devices
#1	Primary	859.70'	18.0" Round Culvert L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 859.70' / 857.65' S= 0.0641 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Secondary	861.30'	100.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.54 cfs @ 12.18 hrs HW=860.44' TW=859.46' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 2.54 cfs @ 2.93 fps)**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=859.70' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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MSE 24-hr 4 10-Year Rainfall=4.09"

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Summary for Subcatchment 3A: East Wet Pond Drainage Area

Runoff = 14.62 cfs @ 12.13 hrs, Volume= 0.884 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

Area (ac)	CN	Description
* 0.942	98	Proposed Roof
* 0.873	98	Proposed Pavement
* 0.108	98	Proposed Sidewalk
0.277	61	Undisturbed Grass, HSG B
1.356	74	>75% Grass cover, Good, HSG C
* 0.161	100	Water/Infiltration Area
* 0.056	61	Offsite Grass, HSG B
3.773		Weighted Average
1.689		44.77% Pervious Area
2.084		55.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 10-Year Rainfall=4.09"

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Summary for Pond 3P: East Wet Pond

Inflow Area = 3.773 ac, 55.23% Impervious, Inflow Depth = 2.81" for 10-Year event
Inflow = 14.62 cfs @ 12.13 hrs, Volume= 0.884 af
Outflow = 3.79 cfs @ 12.37 hrs, Volume= 0.878 af, Atten= 74%, Lag= 14.4 min
Primary = 3.79 cfs @ 12.37 hrs, Volume= 0.878 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 862.23' @ 12.37 hrs Surf.Area= 8,776 sf Storage= 19,534 cf

Plug-Flow detention time= 485.7 min calculated for 0.878 af (99% of inflow)
Center-of-Mass det. time= 481.4 min (1,250.0 - 768.5)

Volume	Invert	Avail.Storage	Storage Description
#1	859.50'	37,100 cf	Surface (Prismatic) Listed below (Recalc) x 0.8

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.50	7,000	0	0
860.00	7,700	3,675	3,675
861.00	9,100	8,400	12,075
862.00	10,600	9,850	21,925
863.00	12,200	11,400	33,325
864.00	13,900	13,050	46,375

Device	Routing	Invert	Outlet Devices
#1	Primary	859.50'	15.0" Round Outlet Culvert L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 859.50' / 859.37' S= 0.0031 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	859.50'	3.0" Round Culvert L= 6.0' Ke= 0.500 Inlet / Outlet Invert= 859.50' / 859.50' S= 0.0000 '/' Cc= 0.900 n= 0.010, Flow Area= 0.05 sf
#3	Device 1	862.00'	36.0" Horiz. Standpipe C= 0.600 Limited to weir flow at low heads
#4	Secondary	863.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.74 cfs @ 12.37 hrs HW=862.23' TW=859.79' (Dynamic Tailwater)

↑ **1=Outlet Culvert** (Passes 3.74 cfs of 7.93 cfs potential flow)

↑ **2=Culvert** (Inlet Controls 0.37 cfs @ 7.52 fps)

↑ **3=Standpipe** (Weir Controls 3.38 cfs @ 1.56 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=859.50' TW=0.00' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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MSE 24-hr 4 10-Year Rainfall=4.09"

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Summary for Subcatchment 4A: Infiltration Basin Drainage Area

Runoff = 4.39 cfs @ 12.14 hrs, Volume= 0.263 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

Area (ac)	CN	Description
* 1.245	61	Undisturbed Grass, HSG B
0.363	74	>75% Grass cover, Good, HSG C
* 0.207	100	Water/Infiltration Area
* 0.044	98	Offsite Roof
* 0.540	61	Offsite Grass, HSG B
2.399		Weighted Average
2.148		89.54% Pervious Area
0.251		10.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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Summary for Pond 4P: Infiltration Basin

Inflow Area = 6.172 ac, 37.83% Impervious, Inflow Depth > 2.22" for 10-Year event
Inflow = 5.19 cfs @ 12.34 hrs, Volume= 1.141 af
Outflow = 1.20 cfs @ 13.57 hrs, Volume= 1.128 af, Atten= 77%, Lag= 73.6 min
Discarded = 0.02 cfs @ 7.95 hrs, Volume= 0.130 af
Primary = 1.18 cfs @ 13.57 hrs, Volume= 0.998 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 860.12' @ 13.57 hrs Surf.Area= 17,248 sf Storage= 13,745 cf

Plug-Flow detention time= 285.3 min calculated for 1.128 af (99% of inflow)

Center-of-Mass det. time= 261.3 min (1,411.1 - 1,149.9)

Volume	Invert	Avail.Storage	Storage Description
#1	859.25'	29,625 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.25	14,000	0	0
860.00	17,000	11,625	11,625
861.00	19,000	18,000	29,625

Device	Routing	Invert	Outlet Devices
#1	Primary	859.35'	6.0" Round Culvert X 2.00 L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 859.35' / 859.25' S= 0.0040 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#2	Secondary	860.50'	100.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Discarded	859.25'	0.070 in/hr Exfiltration over Surface area from 859.24' - 859.26' Excluded Surface area = 0 sf

Discarded OutFlow Max=0.02 cfs @ 7.95 hrs HW=859.27' (Free Discharge)

↑**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.18 cfs @ 13.57 hrs HW=860.12' TW=0.00' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 1.18 cfs @ 3.00 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=859.25' TW=0.00' (Dynamic Tailwater)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Summary for Subcatchment 5A: NorthEast Swale Drainage Area

Runoff = 0.11 cfs @ 12.13 hrs, Volume= 0.007 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

Area (ac)	CN	Description
* 0.017	98	Offsite Sidewalk
* 0.015	61	Offsite Grass, HSG B
0.032		Weighted Average
0.015		46.87% Pervious Area
0.017		53.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 10-Year Rainfall=4.09"

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Summary for Subcatchment 6A: SouthEast Swale Drainage Area

Runoff = 0.69 cfs @ 12.13 hrs, Volume= 0.041 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

Area (ac)	CN	Description
* 0.034	98	Proposed Roof
0.075	74	>75% Grass cover, Good, HSG C
* 0.047	98	Offsite Sidewalk
* 0.068	61	Offsite Grass, HSG B
0.224		Weighted Average
0.143		63.84% Pervious Area
0.081		36.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

PostDevelopment

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MSE 24-hr 4 10-Year Rainfall=4.09"

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Summary for Subcatchment 7A: Uncontrolled Drainage Area

Runoff = 6.17 cfs @ 12.14 hrs, Volume= 0.352 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

Area (ac)	CN	Description
* 0.260	98	Proposed Roof
* 0.047	98	Proposed Sidewalk
* 0.016	98	Proposed Street
* 1.000	61	Deep Tilled HSG C Soils
1.274	74	>75% Grass cover, Good, HSG C
2.597		Weighted Average
2.274		87.56% Pervious Area
0.323		12.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 10-Year Rainfall=4.09"

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Summary for Link 7L: Post-Development

Inflow Area = 15.506 ac, 41.67% Impervious, Inflow Depth > 2.25" for 10-Year event
Inflow = 7.80 cfs @ 12.41 hrs, Volume= 2.908 af
Primary = 7.80 cfs @ 12.41 hrs, Volume= 2.908 af, Atten= 0%, Lag= 0.0 min

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

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MSE 24-hr 4 100-Year Rainfall=6.66"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: West Wet Pond

Runoff Area=5.584 ac 57.65% Impervious Runoff Depth=5.30"

Tc=6.0 min CN=WQ Runoff=40.83 cfs 2.467 af

Pond 1P: West Wet Pond

Peak Elev=860.86' Storage=59,151 cf Inflow=44.19 cfs 2.824 af

Primary=11.04 cfs 2.770 af Secondary=0.00 cfs 0.000 af Outflow=11.04 cfs 2.770 af

Subcatchment 2A: Elvehjem Road Culvert

Runoff Area=0.897 ac 54.29% Impervious Runoff Depth=4.78"

Tc=6.0 min CN=WQ Runoff=5.89 cfs 0.357 af

Pond 2P: Street Culvert

Peak Elev=860.92' Storage=1,689 cf Inflow=5.89 cfs 0.357 af

Primary=3.38 cfs 0.357 af Secondary=0.00 cfs 0.000 af Outflow=3.38 cfs 0.357 af

Subcatchment 3A: East Wet Pond Drainage

Runoff Area=3.773 ac 55.23% Impervious Runoff Depth=5.12"

Tc=6.0 min CN=WQ Runoff=26.68 cfs 1.610 af

Pond 3P: East Wet Pond

Peak Elev=863.23' Storage=28,965 cf Inflow=26.68 cfs 1.610 af

Primary=9.86 cfs 1.604 af Secondary=0.00 cfs 0.000 af Outflow=9.86 cfs 1.604 af

Subcatchment 4A: Infiltration Basin

Runoff Area=2.399 ac 10.46% Impervious Runoff Depth=3.09"

Tc=6.0 min CN=WQ Runoff=11.06 cfs 0.618 af

Pond 4P: Infiltration Basin

Peak Elev=860.62' Storage=22,616 cf Inflow=20.43 cfs 2.221 af

Discarded=0.02 cfs 0.132 af Primary=1.80 cfs 1.513 af Secondary=10.57 cfs 0.559 af Outflow=12.39 cfs 2.204 af

Subcatchment 5A: NorthEast Swale

Runoff Area=0.032 ac 53.13% Impervious Runoff Depth=4.56"

Tc=6.0 min CN=WQ Runoff=0.20 cfs 0.012 af

Subcatchment 6A: SouthEast Swale

Runoff Area=0.224 ac 36.16% Impervious Runoff Depth=4.32"

Tc=6.0 min CN=WQ Runoff=1.38 cfs 0.081 af

Subcatchment 7A: Uncontrolled Drainage

Runoff Area=2.597 ac 12.44% Impervious Runoff Depth=3.58"

Tc=6.0 min CN=WQ Runoff=13.96 cfs 0.776 af

Link 7L: Post-Development

Inflow=27.74 cfs 5.711 af

Primary=27.74 cfs 5.711 af

Total Runoff Area = 15.506 ac Runoff Volume = 5.920 af Average Runoff Depth = 4.58"

58.33% Pervious = 9.044 ac 41.67% Impervious = 6.462 ac

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Summary for Subcatchment 1A: West Wet Pond Drainage Area

Runoff = 40.83 cfs @ 12.13 hrs, Volume= 2.467 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

MSE 24-hr 4 100-Year Rainfall=6.66"

Area (ac)	CN	Description
* 1.128	98	Proposed Roof
* 0.759	98	Proposed Pavement
* 0.143	98	Proposed Sidewalk
* 0.529	98	Proposed Street
* 2.120	74	>75% Grass cover, Good, HSG C
* 0.315	100	Water/Infiltration Area
* 0.120	98	Offsite Sidewalk
* 0.225	98	Offsite Street
0.245	74	>75% Grass cover, Good, HSG C
5.584		Weighted Average
2.365		42.35% Pervious Area
3.219		57.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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Summary for Pond 1P: West Wet Pond

Inflow Area = 6.481 ac, 57.18% Impervious, Inflow Depth = 5.23" for 100-Year event
Inflow = 44.19 cfs @ 12.13 hrs, Volume= 2.824 af
Outflow = 11.04 cfs @ 12.39 hrs, Volume= 2.770 af, Atten= 75%, Lag= 15.7 min
Primary = 11.04 cfs @ 12.39 hrs, Volume= 2.770 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 860.86' @ 12.39 hrs Surf.Area= 21,639 sf Storage= 59,151 cf

Plug-Flow detention time= 481.6 min calculated for 2.770 af (98% of inflow)
Center-of-Mass det. time= 470.0 min (1,233.3 - 763.3)

Volume	Invert	Avail.Storage	Storage Description
#1	857.50'	73,600 cf	Surface (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
857.50	13,700	0	0
858.00	14,900	7,150	7,150
859.00	17,200	16,050	23,200
860.00	19,500	18,350	41,550
861.00	22,000	20,750	62,300
861.50	23,200	11,300	73,600

Device	Routing	Invert	Outlet Devices
#1	Primary	857.50'	18.0" Round Outlet Culvert L= 117.0' Ke= 0.500 Inlet / Outlet Invert= 857.50' / 857.15' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	857.50'	3.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 857.50' / 857.50' S= 0.0000 '/' Cc= 0.900 n= 0.010, Flow Area= 0.05 sf
#3	Device 1	859.50'	36.0" Horiz. Standpipe C= 0.600 Limited to weir flow at low heads
#4	Secondary	861.00'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=11.04 cfs @ 12.39 hrs HW=860.85' TW=0.00' (Dynamic Tailwater)

↑ **1=Outlet Culvert** (Barrel Controls 11.04 cfs @ 6.25 fps)

↑ **2=Culvert** (Passes < 0.42 cfs potential flow)

↑ **3=Standpipe** (Passes < 39.61 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=857.50' TW=0.00' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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MSE 24-hr 4 100-Year Rainfall=6.66"

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Summary for Subcatchment 2A: Elvehjem Road Culvert Drainage Area

Runoff = 5.89 cfs @ 12.13 hrs, Volume= 0.357 af, Depth= 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

Area (ac)	CN	Description
* 0.124	98	Proposed Roof
* 0.014	98	Proposed Sidewalk
0.116	74	>75% Grass cover, Good, HSG C
* 0.145	98	Offsite Sidewalk
* 0.204	98	Offsite Street
* 0.294	61	Offsite Grass, HSG B
0.897		Weighted Average
0.410		45.71% Pervious Area
0.487		54.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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Summary for Pond 2P: Street Culvert

Inflow Area = 0.897 ac, 54.29% Impervious, Inflow Depth = 4.78" for 100-Year event
 Inflow = 5.89 cfs @ 12.13 hrs, Volume= 0.357 af
 Outflow = 3.38 cfs @ 12.14 hrs, Volume= 0.357 af, Atten= 43%, Lag= 0.9 min
 Primary = 3.38 cfs @ 12.14 hrs, Volume= 0.357 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
 Peak Elev= 860.92' @ 12.31 hrs Surf.Area= 3,243 sf Storage= 1,689 cf

Plug-Flow detention time= 7.0 min calculated for 0.357 af (100% of inflow)
 Center-of-Mass det. time= 7.0 min (772.3 - 765.3)

Volume	Invert	Avail.Storage	Storage Description
#1	859.70'	11,210 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.70	100	0	0
860.00	300	60	60
861.00	3,500	1,900	1,960
862.00	15,000	9,250	11,210

Device	Routing	Invert	Outlet Devices
#1	Primary	859.70'	18.0" Round Culvert L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 859.70' / 857.65' S= 0.0641 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Secondary	861.30'	100.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=3.37 cfs @ 12.14 hrs HW=860.78' TW=860.40' (Dynamic Tailwater)
 ↑1=Culvert (Outlet Controls 3.37 cfs @ 3.46 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=859.70' TW=0.00' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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MSE 24-hr 4 100-Year Rainfall=6.66"

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Summary for Subcatchment 3A: East Wet Pond Drainage Area

Runoff = 26.68 cfs @ 12.13 hrs, Volume= 1.610 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

Area (ac)	CN	Description
* 0.942	98	Proposed Roof
* 0.873	98	Proposed Pavement
* 0.108	98	Proposed Sidewalk
0.277	61	Undisturbed Grass, HSG B
1.356	74	>75% Grass cover, Good, HSG C
* 0.161	100	Water/Infiltration Area
* 0.056	61	Offsite Grass, HSG B
3.773		Weighted Average
1.689		44.77% Pervious Area
2.084		55.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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Summary for Pond 3P: East Wet Pond

Inflow Area = 3.773 ac, 55.23% Impervious, Inflow Depth = 5.12" for 100-Year event
Inflow = 26.68 cfs @ 12.13 hrs, Volume= 1.610 af
Outflow = 9.86 cfs @ 12.21 hrs, Volume= 1.604 af, Atten= 63%, Lag= 5.0 min
Primary = 9.86 cfs @ 12.21 hrs, Volume= 1.604 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 863.23' @ 12.28 hrs Surf.Area= 10,076 sf Storage= 28,965 cf

Plug-Flow detention time= 320.4 min calculated for 1.603 af (100% of inflow)
Center-of-Mass det. time= 319.5 min (1,083.2 - 763.7)

Volume	Invert	Avail.Storage	Storage Description
#1	859.50'	37,100 cf	Surface (Prismatic) Listed below (Recalc) x 0.8

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.50	7,000	0	0
860.00	7,700	3,675	3,675
861.00	9,100	8,400	12,075
862.00	10,600	9,850	21,925
863.00	12,200	11,400	33,325
864.00	13,900	13,050	46,375

Device	Routing	Invert	Outlet Devices
#1	Primary	859.50'	15.0" Round Outlet Culvert L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 859.50' / 859.37' S= 0.0031 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	859.50'	3.0" Round Culvert L= 6.0' Ke= 0.500 Inlet / Outlet Invert= 859.50' / 859.50' S= 0.0000 '/' Cc= 0.900 n= 0.010, Flow Area= 0.05 sf
#3	Device 1	862.00'	36.0" Horiz. Standpipe C= 0.600 Limited to weir flow at low heads
#4	Secondary	863.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=9.82 cfs @ 12.21 hrs HW=863.16' TW=860.40' (Dynamic Tailwater)

↑ **1=Outlet Culvert** (Inlet Controls 9.82 cfs @ 8.00 fps)

↑ **2=Culvert** (Passes < 0.39 cfs potential flow)

↑ **3=Standpipe** (Passes < 36.71 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=859.50' TW=0.00' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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MSE 24-hr 4 100-Year Rainfall=6.66"

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Summary for Subcatchment 4A: Infiltration Basin Drainage Area

Runoff = 11.06 cfs @ 12.13 hrs, Volume= 0.618 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

Area (ac)	CN	Description
* 1.245	61	Undisturbed Grass, HSG B
0.363	74	>75% Grass cover, Good, HSG C
* 0.207	100	Water/Infiltration Area
* 0.044	98	Offsite Roof
* 0.540	61	Offsite Grass, HSG B
2.399		Weighted Average
2.148		89.54% Pervious Area
0.251		10.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 100-Year Rainfall=6.66"

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Summary for Pond 4P: Infiltration Basin

Inflow Area = 6.172 ac, 37.83% Impervious, Inflow Depth = 4.32" for 100-Year event
Inflow = 20.43 cfs @ 12.14 hrs, Volume= 2.221 af
Outflow = 12.39 cfs @ 12.40 hrs, Volume= 2.204 af, Atten= 39%, Lag= 15.3 min
Discarded = 0.02 cfs @ 5.95 hrs, Volume= 0.132 af
Primary = 1.80 cfs @ 12.40 hrs, Volume= 1.513 af
Secondary = 10.57 cfs @ 12.40 hrs, Volume= 0.559 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 860.62' @ 12.40 hrs Surf.Area= 18,247 sf Storage= 22,616 cf

Plug-Flow detention time= 190.4 min calculated for 2.203 af (99% of inflow)
Center-of-Mass det. time= 174.4 min (1,180.9 - 1,006.6)

Volume	Invert	Avail.Storage	Storage Description
#1	859.25'	29,625 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.25	14,000	0	0
860.00	17,000	11,625	11,625
861.00	19,000	18,000	29,625

Device	Routing	Invert	Outlet Devices
#1	Primary	859.35'	6.0" Round Culvert X 2.00 L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 859.35' / 859.25' S= 0.0040 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#2	Secondary	860.50'	100.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Discarded	859.25'	0.070 in/hr Exfiltration over Surface area from 859.24' - 859.26' Excluded Surface area = 0 sf

Discarded OutFlow Max=0.02 cfs @ 5.95 hrs HW=859.27' (Free Discharge)
↑**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.80 cfs @ 12.40 hrs HW=860.62' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 1.80 cfs @ 4.59 fps)

Secondary OutFlow Max=10.55 cfs @ 12.40 hrs HW=860.62' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 10.55 cfs @ 0.85 fps)

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MSE 24-hr 4 100-Year Rainfall=6.66"

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Summary for Subcatchment 5A: NorthEast Swale Drainage Area

Runoff = 0.20 cfs @ 12.13 hrs, Volume= 0.012 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

Area (ac)	CN	Description
* 0.017	98	Offsite Sidewalk
* 0.015	61	Offsite Grass, HSG B
0.032		Weighted Average
0.015		46.87% Pervious Area
0.017		53.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 100-Year Rainfall=6.66"

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Summary for Subcatchment 6A: SouthEast Swale Drainage Area

Runoff = 1.38 cfs @ 12.13 hrs, Volume= 0.081 af, Depth= 4.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

Area (ac)	CN	Description
* 0.034	98	Proposed Roof
0.075	74	>75% Grass cover, Good, HSG C
* 0.047	98	Offsite Sidewalk
* 0.068	61	Offsite Grass, HSG B
0.224		Weighted Average
0.143		63.84% Pervious Area
0.081		36.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 100-Year Rainfall=6.66"

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Summary for Subcatchment 7A: Uncontrolled Drainage Area

Runoff = 13.96 cfs @ 12.13 hrs, Volume= 0.776 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

Area (ac)	CN	Description
* 0.260	98	Proposed Roof
* 0.047	98	Proposed Sidewalk
* 0.016	98	Proposed Street
* 1.000	61	Deep Tilled HSG C Soils
1.274	74	>75% Grass cover, Good, HSG C
2.597		Weighted Average
2.274		87.56% Pervious Area
0.323		12.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

PostDevelopment

MSE 24-hr 4 100-Year Rainfall=6.66"

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Summary for Link 7L: Post-Development

Inflow Area = 15.506 ac, 41.67% Impervious, Inflow Depth > 4.42" for 100-Year event
Inflow = 27.74 cfs @ 12.37 hrs, Volume= 5.711 af
Primary = 27.74 cfs @ 12.37 hrs, Volume= 5.711 af, Atten= 0%, Lag= 0.0 min

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

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MSE 24-hr 4 200-Year Rainfall=7.53"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: West Wet Pond

Runoff Area=5.584 ac 57.65% Impervious Runoff Depth=6.13"

Tc=6.0 min CN=WQ Runoff=47.09 cfs 2.850 af

Pond 1P: West Wet Pond

Peak Elev=861.17' Storage=66,070 cf Inflow=50.36 cfs 3.265 af

Primary=11.80 cfs 3.171 af Secondary=1.74 cfs 0.040 af Outflow=13.54 cfs 3.211 af

Subcatchment 2A: Elvehjem Road Culvert

Runoff Area=0.897 ac 54.29% Impervious Runoff Depth=5.55"

Tc=6.0 min CN=WQ Runoff=6.85 cfs 0.415 af

Pond 2P: Street Culvert

Peak Elev=861.21' Storage=2,927 cf Inflow=6.85 cfs 0.415 af

Primary=3.24 cfs 0.415 af Secondary=0.00 cfs 0.000 af Outflow=3.24 cfs 0.415 af

Subcatchment 3A: East Wet Pond Drainage

Runoff Area=3.773 ac 55.23% Impervious Runoff Depth=5.93"

Tc=6.0 min CN=WQ Runoff=30.87 cfs 1.864 af

Pond 3P: East Wet Pond

Peak Elev=863.61' Storage=32,857 cf Inflow=30.87 cfs 1.864 af

Primary=10.17 cfs 1.849 af Secondary=0.89 cfs 0.010 af Outflow=11.06 cfs 1.858 af

Subcatchment 4A: Infiltration Basin

Runoff Area=2.399 ac 10.46% Impervious Runoff Depth=3.77"

Tc=6.0 min CN=WQ Runoff=13.55 cfs 0.753 af

Pond 4P: Infiltration Basin

Peak Elev=860.65' Storage=23,058 cf Inflow=23.33 cfs 2.601 af

Discarded=0.02 cfs 0.133 af Primary=1.83 cfs 1.611 af Secondary=14.65 cfs 0.840 af Outflow=16.50 cfs 2.583 af

Subcatchment 5A: NorthEast Swale

Runoff Area=0.032 ac 53.13% Impervious Runoff Depth=5.32"

Tc=6.0 min CN=WQ Runoff=0.23 cfs 0.014 af

Subcatchment 6A: SouthEast Swale

Runoff Area=0.224 ac 36.16% Impervious Runoff Depth=5.08"

Tc=6.0 min CN=WQ Runoff=1.62 cfs 0.095 af

Subcatchment 7A: Uncontrolled Drainage

Runoff Area=2.597 ac 12.44% Impervious Runoff Depth=4.31"

Tc=6.0 min CN=WQ Runoff=16.79 cfs 0.932 af

Link 7L: Post-Development

Inflow=37.46 cfs 6.713 af

Primary=37.46 cfs 6.713 af

Total Runoff Area = 15.506 ac Runoff Volume = 6.924 af Average Runoff Depth = 5.36"

58.33% Pervious = 9.044 ac 41.67% Impervious = 6.462 ac

PostDevelopment

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MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Subcatchment 1A: West Wet Pond Drainage Area

Runoff = 47.09 cfs @ 12.13 hrs, Volume= 2.850 af, Depth= 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description
* 1.128	98	Proposed Roof
* 0.759	98	Proposed Pavement
* 0.143	98	Proposed Sidewalk
* 0.529	98	Proposed Street
* 2.120	74	>75% Grass cover, Good, HSG C
* 0.315	100	Water/Infiltration Area
* 0.120	98	Offsite Sidewalk
* 0.225	98	Offsite Street
0.245	74	>75% Grass cover, Good, HSG C
5.584		Weighted Average
2.365		42.35% Pervious Area
3.219		57.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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Summary for Pond 1P: West Wet Pond

Inflow Area = 6.481 ac, 57.18% Impervious, Inflow Depth = 6.05" for 200-Year event
Inflow = 50.36 cfs @ 12.13 hrs, Volume= 3.265 af
Outflow = 13.54 cfs @ 12.37 hrs, Volume= 3.211 af, Atten= 73%, Lag= 14.2 min
Primary = 11.80 cfs @ 12.37 hrs, Volume= 3.171 af
Secondary = 1.74 cfs @ 12.37 hrs, Volume= 0.040 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 861.17' @ 12.37 hrs Surf.Area= 22,407 sf Storage= 66,070 cf

Plug-Flow detention time= 428.0 min calculated for 3.211 af (98% of inflow)
Center-of-Mass det. time= 417.7 min (1,180.0 - 762.3)

Volume	Invert	Avail.Storage	Storage Description
#1	857.50'	73,600 cf	Surface (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
857.50	13,700	0	0
858.00	14,900	7,150	7,150
859.00	17,200	16,050	23,200
860.00	19,500	18,350	41,550
861.00	22,000	20,750	62,300
861.50	23,200	11,300	73,600

Device	Routing	Invert	Outlet Devices
#1	Primary	857.50'	18.0" Round Outlet Culvert L= 117.0' Ke= 0.500 Inlet / Outlet Invert= 857.50' / 857.15' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	857.50'	3.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 857.50' / 857.50' S= 0.0000 '/' Cc= 0.900 n= 0.010, Flow Area= 0.05 sf
#3	Device 1	859.50'	36.0" Horiz. Standpipe C= 0.600 Limited to weir flow at low heads
#4	Secondary	861.00'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=11.79 cfs @ 12.37 hrs HW=861.17' TW=0.00' (Dynamic Tailwater)

↑ **1=Outlet Culvert** (Barrel Controls 11.79 cfs @ 6.67 fps)

↑ **2=Culvert** (Passes < 0.44 cfs potential flow)

↑ **3=Standpipe** (Passes < 43.95 cfs potential flow)

Secondary OutFlow Max=1.71 cfs @ 12.37 hrs HW=861.17' TW=0.00' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Weir Controls 1.71 cfs @ 1.02 fps)

PostDevelopment

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MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Subcatchment 2A: Elvehjem Road Culvert Drainage Area

Runoff = 6.85 cfs @ 12.13 hrs, Volume= 0.415 af, Depth= 5.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description
* 0.124	98	Proposed Roof
* 0.014	98	Proposed Sidewalk
0.116	74	>75% Grass cover, Good, HSG C
* 0.145	98	Offsite Sidewalk
* 0.204	98	Offsite Street
* 0.294	61	Offsite Grass, HSG B
0.897		Weighted Average
0.410		45.71% Pervious Area
0.487		54.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

PostDevelopment

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Summary for Pond 2P: Street Culvert

Inflow Area = 0.897 ac, 54.29% Impervious, Inflow Depth = 5.55" for 200-Year event
 Inflow = 6.85 cfs @ 12.13 hrs, Volume= 0.415 af
 Outflow = 3.24 cfs @ 12.12 hrs, Volume= 0.415 af, Atten= 53%, Lag= 0.0 min
 Primary = 3.24 cfs @ 12.12 hrs, Volume= 0.415 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
 Peak Elev= 861.21' @ 12.39 hrs Surf.Area= 5,874 sf Storage= 2,927 cf

Plug-Flow detention time= 10.9 min calculated for 0.415 af (100% of inflow)
 Center-of-Mass det. time= 9.9 min (774.2 - 764.3)

Volume	Invert	Avail.Storage	Storage Description
#1	859.70'	11,210 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.70	100	0	0
860.00	300	60	60
861.00	3,500	1,900	1,960
862.00	15,000	9,250	11,210

Device	Routing	Invert	Outlet Devices
#1	Primary	859.70'	18.0" Round Culvert L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 859.70' / 857.65' S= 0.0641 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Secondary	861.30'	100.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=3.25 cfs @ 12.12 hrs HW=860.86' TW=860.57' (Dynamic Tailwater)
 ↑1=Culvert (Outlet Controls 3.25 cfs @ 3.05 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=859.70' TW=0.00' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Subcatchment 3A: East Wet Pond Drainage Area

Runoff = 30.87 cfs @ 12.13 hrs, Volume= 1.864 af, Depth= 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description
* 0.942	98	Proposed Roof
* 0.873	98	Proposed Pavement
* 0.108	98	Proposed Sidewalk
0.277	61	Undisturbed Grass, HSG B
1.356	74	>75% Grass cover, Good, HSG C
* 0.161	100	Water/Infiltration Area
* 0.056	61	Offsite Grass, HSG B
3.773		Weighted Average
1.689		44.77% Pervious Area
2.084		55.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Pond 3P: East Wet Pond

Inflow Area = 3.773 ac, 55.23% Impervious, Inflow Depth = 5.93" for 200-Year event
Inflow = 30.87 cfs @ 12.13 hrs, Volume= 1.864 af
Outflow = 11.06 cfs @ 12.29 hrs, Volume= 1.858 af, Atten= 64%, Lag= 9.6 min
Primary = 10.17 cfs @ 12.29 hrs, Volume= 1.849 af
Secondary = 0.89 cfs @ 12.29 hrs, Volume= 0.010 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 863.61' @ 12.29 hrs Surf.Area= 10,588 sf Storage= 32,857 cf

Plug-Flow detention time= 290.3 min calculated for 1.858 af (100% of inflow)
Center-of-Mass det. time= 288.0 min (1,050.4 - 762.4)

Volume	Invert	Avail.Storage	Storage Description
#1	859.50'	37,100 cf	Surface (Prismatic) Listed below (Recalc) x 0.8

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.50	7,000	0	0
860.00	7,700	3,675	3,675
861.00	9,100	8,400	12,075
862.00	10,600	9,850	21,925
863.00	12,200	11,400	33,325
864.00	13,900	13,050	46,375

Device	Routing	Invert	Outlet Devices
#1	Primary	859.50'	15.0" Round Outlet Culvert L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 859.50' / 859.37' S= 0.0031 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	859.50'	3.0" Round Culvert L= 6.0' Ke= 0.500 Inlet / Outlet Invert= 859.50' / 859.50' S= 0.0000 '/' Cc= 0.900 n= 0.010, Flow Area= 0.05 sf
#3	Device 1	862.00'	36.0" Horiz. Standpipe C= 0.600 Limited to weir flow at low heads
#4	Secondary	863.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=10.16 cfs @ 12.29 hrs HW=863.61' TW=860.65' (Dynamic Tailwater)

↑ **1=Outlet Culvert** (Inlet Controls 10.16 cfs @ 8.28 fps)

↑ **2=Culvert** (Passes < 0.41 cfs potential flow)

↑ **3=Standpipe** (Passes < 43.13 cfs potential flow)

Secondary OutFlow Max=0.85 cfs @ 12.29 hrs HW=863.61' TW=0.00' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Weir Controls 0.85 cfs @ 0.81 fps)

PostDevelopment

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Summary for Subcatchment 4A: Infiltration Basin Drainage Area

Runoff = 13.55 cfs @ 12.13 hrs, Volume= 0.753 af, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description
* 1.245	61	Undisturbed Grass, HSG B
0.363	74	>75% Grass cover, Good, HSG C
* 0.207	100	Water/Infiltration Area
* 0.044	98	Offsite Roof
* 0.540	61	Offsite Grass, HSG B
2.399		Weighted Average
2.148		89.54% Pervious Area
0.251		10.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Pond 4P: Infiltration Basin

Inflow Area = 6.172 ac, 37.83% Impervious, Inflow Depth = 5.06" for 200-Year event
Inflow = 23.33 cfs @ 12.14 hrs, Volume= 2.601 af
Outflow = 16.50 cfs @ 12.27 hrs, Volume= 2.583 af, Atten= 29%, Lag= 8.2 min
Discarded = 0.02 cfs @ 5.55 hrs, Volume= 0.133 af
Primary = 1.83 cfs @ 12.25 hrs, Volume= 1.611 af
Secondary = 14.65 cfs @ 12.27 hrs, Volume= 0.840 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 860.65' @ 12.25 hrs Surf.Area= 18,296 sf Storage= 23,058 cf

Plug-Flow detention time= 170.8 min calculated for 2.583 af (99% of inflow)
Center-of-Mass det. time= 155.5 min (1,136.0 - 980.5)

Volume	Invert	Avail.Storage	Storage Description
#1	859.25'	29,625 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.25	14,000	0	0
860.00	17,000	11,625	11,625
861.00	19,000	18,000	29,625

Device	Routing	Invert	Outlet Devices
#1	Primary	859.35'	6.0" Round Culvert X 2.00 L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 859.35' / 859.25' S= 0.0040 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#2	Secondary	860.50'	100.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Discarded	859.25'	0.070 in/hr Exfiltration over Surface area from 859.24' - 859.26' Excluded Surface area = 0 sf

Discarded OutFlow Max=0.02 cfs @ 5.55 hrs HW=859.27' (Free Discharge)
↑**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.83 cfs @ 12.25 hrs HW=860.65' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 1.83 cfs @ 4.65 fps)

Secondary OutFlow Max=13.79 cfs @ 12.27 hrs HW=860.65' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 13.79 cfs @ 0.93 fps)

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MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Subcatchment 5A: NorthEast Swale Drainage Area

Runoff = 0.23 cfs @ 12.13 hrs, Volume= 0.014 af, Depth= 5.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description
* 0.017	98	Offsite Sidewalk
* 0.015	61	Offsite Grass, HSG B
0.032		Weighted Average
0.015		46.87% Pervious Area
0.017		53.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

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Summary for Subcatchment 6A: SouthEast Swale Drainage Area

Runoff = 1.62 cfs @ 12.13 hrs, Volume= 0.095 af, Depth= 5.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description
* 0.034	98	Proposed Roof
0.075	74	>75% Grass cover, Good, HSG C
* 0.047	98	Offsite Sidewalk
* 0.068	61	Offsite Grass, HSG B
0.224		Weighted Average
0.143		63.84% Pervious Area
0.081		36.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

PostDevelopment

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MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Subcatchment 7A: Uncontrolled Drainage Area

Runoff = 16.79 cfs @ 12.13 hrs, Volume= 0.932 af, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description
* 0.260	98	Proposed Roof
* 0.047	98	Proposed Sidewalk
* 0.016	98	Proposed Street
* 1.000	61	Deep Tilled HSG C Soils
1.274	74	>75% Grass cover, Good, HSG C
2.597		Weighted Average
2.274		87.56% Pervious Area
0.323		12.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

PostDevelopment

MSE 24-hr 4 200-Year Rainfall=7.53"

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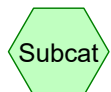
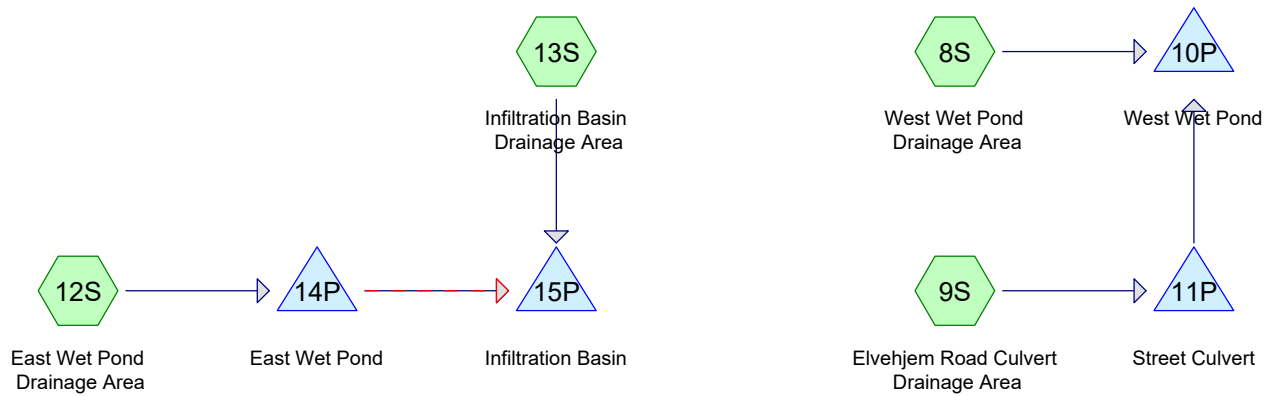
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Summary for Link 7L: Post-Development

Inflow Area = 15.506 ac, 41.67% Impervious, Inflow Depth > 5.19" for 200-Year event
Inflow = 37.46 cfs @ 12.27 hrs, Volume= 6.713 af
Primary = 37.46 cfs @ 12.27 hrs, Volume= 6.713 af, Atten= 0%, Lag= 0.0 min

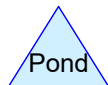
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Subcat



Reach



Pond



Link

Routing Diagram for Innudation

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Innudation

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.200	74	>75% Grass cover, Good, HSG C (8S, 9S, 12S, 13S)
0.890	61	Offsite Grass, HSG B (9S, 12S, 13S)
0.044	98	Offsite Roof (13S)
0.265	98	Offsite Sidewalk (8S, 9S)
0.429	98	Offsite Street (8S, 9S)
1.632	98	Proposed Pavement (8S, 12S)
2.194	98	Proposed Roof (8S, 9S, 12S)
0.265	98	Proposed Sidewalk (8S, 9S, 12S)
0.529	98	Proposed Street (8S)
1.522	61	Undisturbed Grass, HSG B (12S, 13S)
0.683	100	Water/Infiltration Area (8S, 12S, 13S)
12.653	83	TOTAL AREA

Inundation

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment8S: West Wet Pond

Runoff Area=5.584 ac 57.65% Impervious Runoff Depth=6.13"
Tc=6.0 min CN=WQ Runoff=47.09 cfs 2.850 af

Subcatchment9S: Elvehjem Road Culvert

Runoff Area=0.897 ac 54.29% Impervious Runoff Depth=5.55"
Tc=6.0 min CN=WQ Runoff=6.85 cfs 0.415 af

Pond 10P: West Wet Pond

Peak Elev=861.64' Storage=76,784 cf Inflow=50.54 cfs 3.152 af
Outflow=13.70 cfs 1.722 af

Pond 11P: Street Culvert

Peak Elev=861.36' Storage=3,947 cf Inflow=6.85 cfs 0.415 af
Primary=3.86 cfs 0.302 af Secondary=3.61 cfs 0.095 af Outflow=3.61 cfs 0.370 af

Subcatchment12S: East Wet Pond

Runoff Area=3.773 ac 55.23% Impervious Runoff Depth=5.93"
Tc=6.0 min CN=WQ Runoff=30.87 cfs 1.864 af

Subcatchment13S: Infiltration Basin

Runoff Area=2.399 ac 10.46% Impervious Runoff Depth=3.77"
Tc=6.0 min CN=WQ Runoff=13.55 cfs 0.753 af

Pond 14P: East Wet Pond

Peak Elev=864.25' Storage=39,951 cf Inflow=30.87 cfs 1.864 af
Outflow=17.50 cfs 1.136 af

Pond 15P: Infiltration Basin

Peak Elev=860.67' Storage=23,515 cf Inflow=25.94 cfs 1.889 af
Discarded=0.02 cfs 0.132 af Secondary=17.45 cfs 1.375 af Outflow=17.47 cfs 1.507 af

Total Runoff Area = 12.653 ac Runoff Volume = 5.883 af Average Runoff Depth = 5.58"
52.26% Pervious = 6.612 ac 47.74% Impervious = 6.041 ac

Innudation

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MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Subcatchment 8S: West Wet Pond Drainage Area

Runoff = 47.09 cfs @ 12.13 hrs, Volume= 2.850 af, Depth= 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description
* 1.128	98	Proposed Roof
* 0.759	98	Proposed Pavement
* 0.143	98	Proposed Sidewalk
* 0.529	98	Proposed Street
* 2.120	74	>75% Grass cover, Good, HSG C
* 0.315	100	Water/Infiltration Area
* 0.120	98	Offsite Sidewalk
* 0.225	98	Offsite Street
0.245	74	>75% Grass cover, Good, HSG C
5.584		Weighted Average
2.365		42.35% Pervious Area
3.219		57.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Innudation

MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Subcatchment 9S: Elvehjem Road Culvert Drainage Area

Runoff = 6.85 cfs @ 12.13 hrs, Volume= 0.415 af, Depth= 5.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description
* 0.124	98	Proposed Roof
* 0.014	98	Proposed Sidewalk
0.116	74	>75% Grass cover, Good, HSG C
* 0.145	98	Offsite Sidewalk
* 0.204	98	Offsite Street
* 0.294	61	Offsite Grass, HSG B
0.897		Weighted Average
0.410		45.71% Pervious Area
0.487		54.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Innudation

MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Pond 10P: West Wet Pond

Inflow Area = 6.481 ac, 57.18% Impervious, Inflow Depth = 5.84" for 200-Year event
 Inflow = 50.54 cfs @ 12.13 hrs, Volume= 3.152 af
 Outflow = 13.70 cfs @ 12.33 hrs, Volume= 1.722 af, Atten= 73%, Lag= 11.8 min
 Secondary = 13.70 cfs @ 12.33 hrs, Volume= 1.722 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
 Peak Elev= 861.64' @ 12.33 hrs Surf.Area= 23,419 sf Storage= 76,784 cf

Plug-Flow detention time= 243.7 min calculated for 1.722 af (55% of inflow)
 Center-of-Mass det. time= 135.1 min (900.1 - 765.0)

Volume	Invert	Avail.Storage	Storage Description
#1	857.50'	85,400 cf	Surface (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
857.50	13,700	0	0
858.00	14,900	7,150	7,150
859.00	17,200	16,050	23,200
860.00	19,500	18,350	41,550
861.00	22,000	20,750	62,300
861.50	23,200	11,300	73,600
862.00	24,000	11,800	85,400

Device	Routing	Invert	Outlet Devices
#1	Secondary	861.00'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Secondary OutFlow Max=13.64 cfs @ 12.33 hrs HW=861.63' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 13.64 cfs @ 2.15 fps)

Innudation

MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Pond 11P: Street Culvert

Inflow Area = 0.897 ac, 54.29% Impervious, Inflow Depth = 5.55" for 200-Year event
 Inflow = 6.85 cfs @ 12.13 hrs, Volume= 0.415 af
 Outflow = 3.61 cfs @ 12.26 hrs, Volume= 0.370 af, Atten= 47%, Lag= 8.1 min
 Primary = 3.86 cfs @ 12.16 hrs, Volume= 0.302 af
 Secondary = 3.61 cfs @ 12.26 hrs, Volume= 0.095 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
 Peak Elev= 861.36' @ 12.27 hrs Surf.Area= 7,613 sf Storage= 3,947 cf

Plug-Flow detention time= 84.4 min calculated for 0.370 af (89% of inflow)
 Center-of-Mass det. time= 34.6 min (798.9 - 764.3)

Volume	Invert	Avail.Storage	Storage Description
#1	859.70'	11,210 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.70	100	0	0
860.00	300	60	60
861.00	3,500	1,900	1,960
862.00	15,000	9,250	11,210

Device	Routing	Invert	Outlet Devices
#1	Primary	859.70'	18.0" Round Culvert L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 859.70' / 857.65' S= 0.0641 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Secondary	861.30'	100.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 12.16 hrs HW=861.17' TW=861.23' (Dynamic Tailwater)
 ↑1=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=3.19 cfs @ 12.26 hrs HW=861.35' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 3.19 cfs @ 0.61 fps)

Innudation

MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Subcatchment 12S: East Wet Pond Drainage Area

Runoff = 30.87 cfs @ 12.13 hrs, Volume= 1.864 af, Depth= 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description
* 0.942	98	Proposed Roof
* 0.873	98	Proposed Pavement
* 0.108	98	Proposed Sidewalk
0.277	61	Undisturbed Grass, HSG B
1.356	74	>75% Grass cover, Good, HSG C
* 0.161	100	Water/Infiltration Area
* 0.056	61	Offsite Grass, HSG B
3.773		Weighted Average
1.689		44.77% Pervious Area
2.084		55.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Innudation

MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Subcatchment 13S: Infiltration Basin Drainage Area

Runoff = 13.55 cfs @ 12.13 hrs, Volume= 0.753 af, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

Area (ac)	CN	Description			
* 1.245	61	Undisturbed Grass, HSG B			
0.363	74	>75% Grass cover, Good, HSG C			
* 0.207	100	Water/Infiltration Area			
* 0.044	98	Offsite Roof			
* 0.540	61	Offsite Grass, HSG B			
2.399		Weighted Average			
2.148		89.54% Pervious Area			
0.251		10.46% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Innudation

MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Pond 14P: East Wet Pond

Inflow Area = 3.773 ac, 55.23% Impervious, Inflow Depth = 5.93" for 200-Year event
 Inflow = 30.87 cfs @ 12.13 hrs, Volume= 1.864 af
 Outflow = 17.50 cfs @ 12.22 hrs, Volume= 1.136 af, Atten= 43%, Lag= 5.7 min
 Secondary = 17.50 cfs @ 12.22 hrs, Volume= 1.136 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
 Peak Elev= 864.25' @ 12.22 hrs Surf.Area= 11,562 sf Storage= 39,951 cf

Plug-Flow detention time= 194.2 min calculated for 1.136 af (61% of inflow)
 Center-of-Mass det. time= 99.3 min (861.7 - 762.4)

Volume	Invert	Avail.Storage	Storage Description
#1	859.50'	42,880 cf	Surface (Prismatic) Listed below (Recalc) x 0.8
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.50	7,000	0	0
860.00	7,700	3,675	3,675
861.00	9,100	8,400	12,075
862.00	10,600	9,850	21,925
863.00	12,200	11,400	33,325
864.00	13,900	13,050	46,375
864.50	15,000	7,225	53,600

Device	Routing	Invert	Outlet Devices
#1	Secondary	863.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Secondary OutFlow Max=16.79 cfs @ 12.22 hrs HW=864.23' TW=860.41' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 16.79 cfs @ 2.30 fps)

Innutation

MSE 24-hr 4 200-Year Rainfall=7.53"

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Summary for Pond 15P: Infiltration Basin

Inflow Area = 6.172 ac, 37.83% Impervious, Inflow Depth = 3.67" for 200-Year event
 Inflow = 25.94 cfs @ 12.19 hrs, Volume= 1.889 af
 Outflow = 17.47 cfs @ 12.35 hrs, Volume= 1.507 af, Atten= 33%, Lag= 9.5 min
 Discarded = 0.02 cfs @ 9.30 hrs, Volume= 0.132 af
 Secondary = 17.45 cfs @ 12.35 hrs, Volume= 1.375 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
 Peak Elev= 860.67' @ 12.35 hrs Surf.Area= 18,346 sf Storage= 23,515 cf

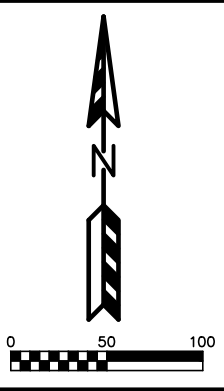
Plug-Flow detention time= 241.4 min calculated for 1.507 af (80% of inflow)
 Center-of-Mass det. time= 163.6 min (1,002.7 - 839.1)

Volume	Invert	Avail.Storage	Storage Description
#1	859.25'	29,625 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
859.25	14,000	0	0
860.00	17,000	11,625	11,625
861.00	19,000	18,000	29,625

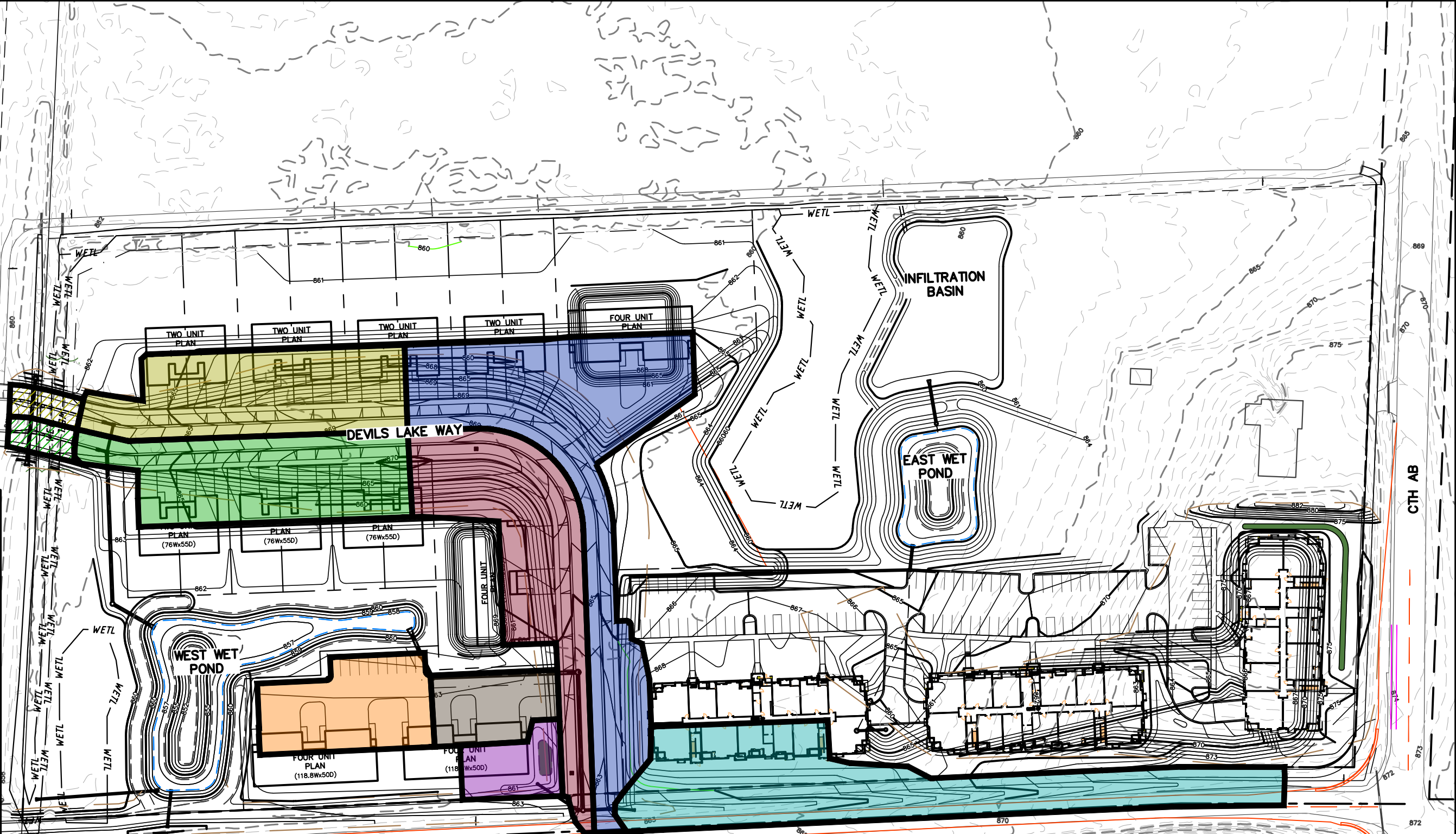
Device	Routing	Invert	Outlet Devices
#1	Secondary	860.50'	100.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Discarded	859.25'	0.070 in/hr Exfiltration over Surface area from 859.24' - 859.26' Excluded Surface area = 0 sf

Discarded OutFlow Max=0.02 cfs @ 9.30 hrs HW=859.27' (Free Discharge)
 ↑**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Secondary OutFlow Max=17.39 cfs @ 12.35 hrs HW=860.67' (Free Discharge)
 ↑**1=Broad-Crested Rectangular Weir** (Weir Controls 17.39 cfs @ 1.01 fps)



LEGEND FOR DRAINAGE AREAS:	
	DOUBLE INLET #3.1 & #3.3 AREA = 0.533 ACRES
	DOUBLE INLET #3 & 3.2 AREA = 0.537 ACRES
	INLET #8.1 AREA = 0.050 ACRES
	INLET #8 AREA = 0.050 ACRES
	INFALL AREA = 0.835 ACRES
	INLET #7.1 AREA = 0.921 ACRES
	CATCH BASIN #7.3 AREA = 0.130 ACRES
	INLET #7.2 AREA = 0.618 ACRES
	CATCH BASIN #5 AREA = 0.176 ACRES
	CATCH BASIN #4 AREA = 0.309 ACRES



SPERLE CORNERS – VILLAGE OF MCFARLAND

PHASE 1 STORM SEWER DRAINAGE PLAN

EXHIBIT: #7

DATED: JUNE 6, 2025

QUAM ENGINEERING, LLC

Residential and Commercial Site Design Consultants

www.quamengineering.com

4604 Siggelkow Road, Suite A – McFarland, Wisconsin 53558

Phone (608) 838-7750; Fax (608) 838-7752

Phase 1 Rational Method Worksheet - Storm Sewer Sizing

PROJECT: Sperle Corners - Village of McFarland

Computed by: BLB

DATE: 6/6/2025

LOCATION		BASIN		RAINFALL - RUNOFF					SEWER			
Upstream Structure	Downstream Structure	Runoff Coefficient C	Area (acres) A	Design Storm (Yr)	Rain Intensity (in/hr) I	Direct Runoff (cfs) $Q=C*I*A$	Other Runoff (cfs)	Design Runoff (cfs)	Sewer Size (in)	Min Slope of Sewer (%)	Manning's Number n	Capacity Flowing Full (cfs)
Dbl Inlet #3.1/3	Dbl Inlet #3/3.2	0.66	0.533	100	10.92	3.84	----	3.84	15	1.30%	0.013	7.37
Dbl Inlet #3/3.2	MH #2	0.66	0.537	100	10.92	3.87	3.84	7.71	24	0.40%	0.013	14.31
MH #2	West Wet Pond	----	----	100	10.92	----	7.71	7.71	24	0.60%	0.013	17.52
Infall	Inlet #7.1	0.66	0.835	100	10.92	6.02	----	6.02	12	7.70%	0.013	9.89
Inlet #7.1	MH #7	0.66	0.921	100	10.92	6.64	6.02	12.66	18	1.50%	0.013	12.87
CB #7.3	Inlet #7.2	0.66	0.130	100	10.92	0.94	----	0.94	12	0.30%	0.013	1.95
Inlet #7.2	MH #7	0.66	0.618	100	10.92	4.45	0.94	5.39	12	10.00%	0.013	11.27
MH #7	MH #6	----	----	100	10.92	----	18.05	18.05	24	0.20%	0.013	10.12
MH #6	CB #5	----	----	100	10.92	----	18.05	18.05	30	0.20%	0.013	18.34
CB #5	CB #4	0.95	0.176	100	10.92	1.83	18.05	19.88	30	0.30%	0.013	22.47
CB #4	West Wet Pond	0.95	0.309	100	10.92	3.21	19.88	23.09	30	0.35%	0.013	24.27
$C_{100}=0.66$; High Density Residential with HSG C soils and slopes greater than 6% from FDM Procedure 13-10-5, Figure 2												
$C_{100}=0.95$; Impervious from FDM Procedure 13-10-5, Figure 2												
I_{100} = rainfall intensity in Dane County for a time of concentration of 5 minutes from FDM Procedure 13-10, Attachment 5.4												
Capacity Flowing Full was determined using Manning's Equation												

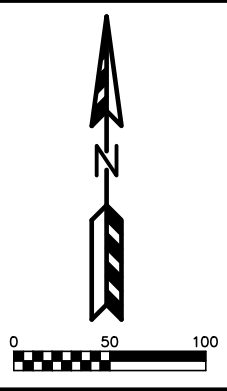
Rational Method Worksheet - Overland and Pipe Flow

PROJECT: Sperle Corners _Village of McFarland

Computed by: MAF

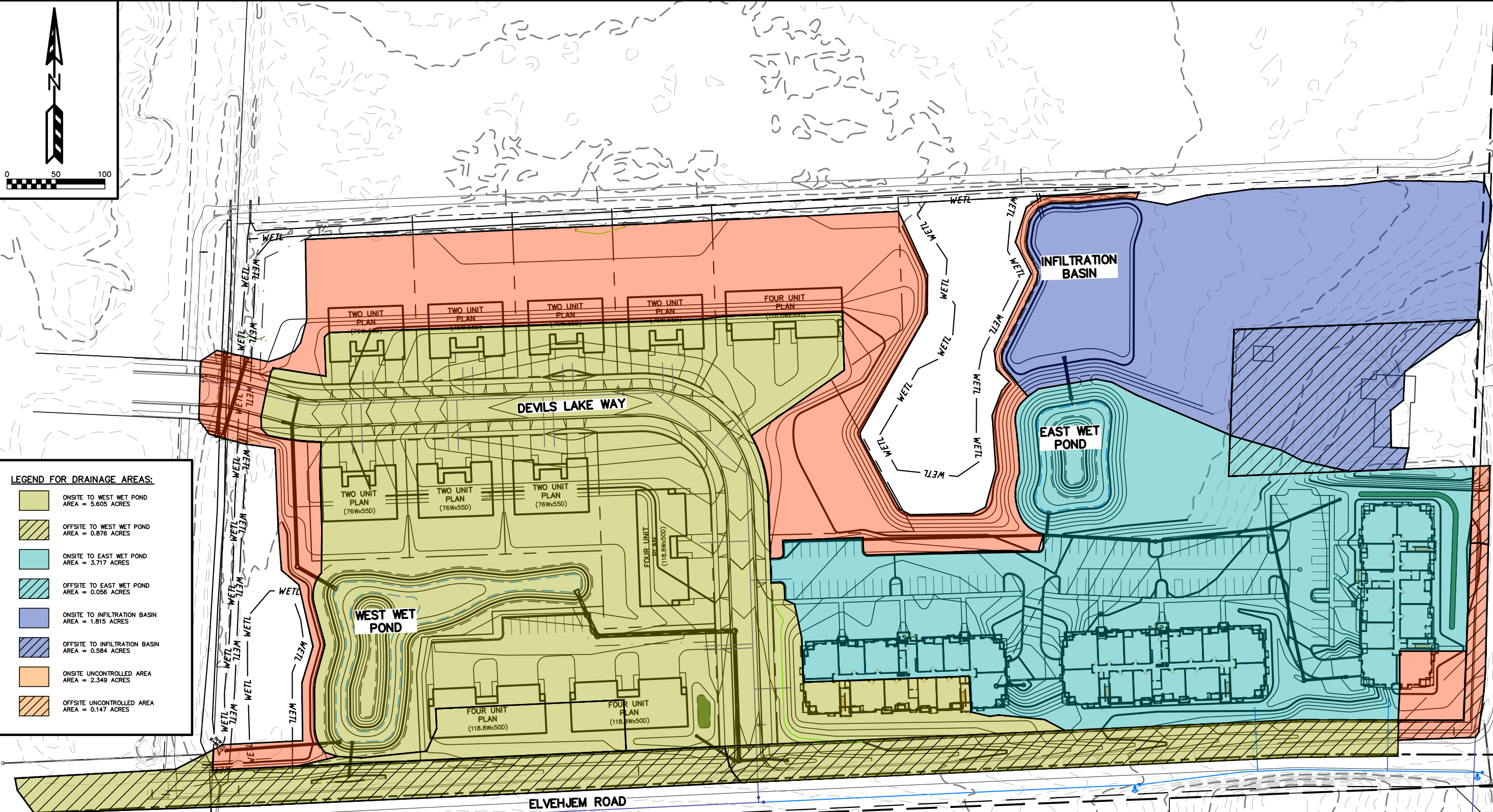
DATE: 6/6/2025

LOCATION	DIRECT BASIN INFORMATION				OVERLAND FLOW								
Structure	Weighted Runoff Coefficient (C)	Rain Intensity (in/hr)	Area (acres)	Direct Runoff (cfs)	Other Overland Runoff	Total Overland Runoff	Cross Slope of Road (%)	Road Slope (%)	Spread across road (ft)	Depth at gutter (in)	Inlet Capacity to Pipe Flow (cfs)	Overland Flow Bypass (cfs)	Overland Flow Goes Toward
	C	I	A	$Q_D = C * I * A$	Q_O	Q_T	S_x	S_L	T	d	Q	Q_b	
Inlet #3.1 & #3.3	0.66	10.92	0.533	3.84	0.00	3.84	2.5%	4.0%	7.44	2.2	1.89	1.95	Inlet # 5.1
Inlet #8.1	0.66	10.92	0.050	0.36	1.95	2.31	2.5%	N/A	-	1.5	2.35	N/A	N/A -Sag
Inlet #3 & #3.2	0.66	10.92	0.537	3.87	0.00	3.87	2.5%	4.0%	7.46	2.2	1.90	1.97	Inlet #5
Inlet #8	0.66	10.92	0.050	0.36	1.97	2.33	2.5%	N/A	-	1.5	2.35	N/A	N/A -Sag
Inlet #7.1	0.66	10.92	0.921	6.64	0.00	6.64	2.5%	0.6%	13.04	3.9	2.81	3.83	Opening
Inlet #7.2	0.66	10.92	0.618	4.45	0.00	4.45	2.5%	0.6%	11.22	3.4	2.11	2.34	Opening
$C_{100}=0.66$; High Density Residential with HSG C soils and slopes greater than 6% from FDM Procedure 13-10-5, Figure 2													
$I_{100} = 10.92$; rainfall intensity in Dane County for a time of concentration of 5 minutes from FDM Procedure 13-10, Attachment 5.4													
Calculations assume SAG Combination inlet clogging of 65%													



LEGEND FOR DRAINAGE AREAS:

	ONSITE TO WEST WET POND AREA = 5.605 ACRES
	OFFSITE TO WEST WET POND AREA = 0.876 ACRES
	ONSITE TO EAST WET POND AREA = 3.717 ACRES
	OFFSITE TO EAST WET POND AREA = 0.056 ACRES
	ONSITE TO INFILTRATION BASIN AREA = 1.815 ACRES
	OFFSITE TO INFILTRATION BASIN AREA = 0.584 ACRES
	ONSITE UNCONTROLLED AREA AREA = 2.349 ACRES
	OFFSITE UNCONTROLLED AREA AREA = 0.147 ACRES



CTH AB

SPERLE CORNERS – VILLAGE OF MCFARLAND
WINSLAMM DRAINAGE PLAN
EXHIBIT: #9
DATED: APRIL 8, 2025

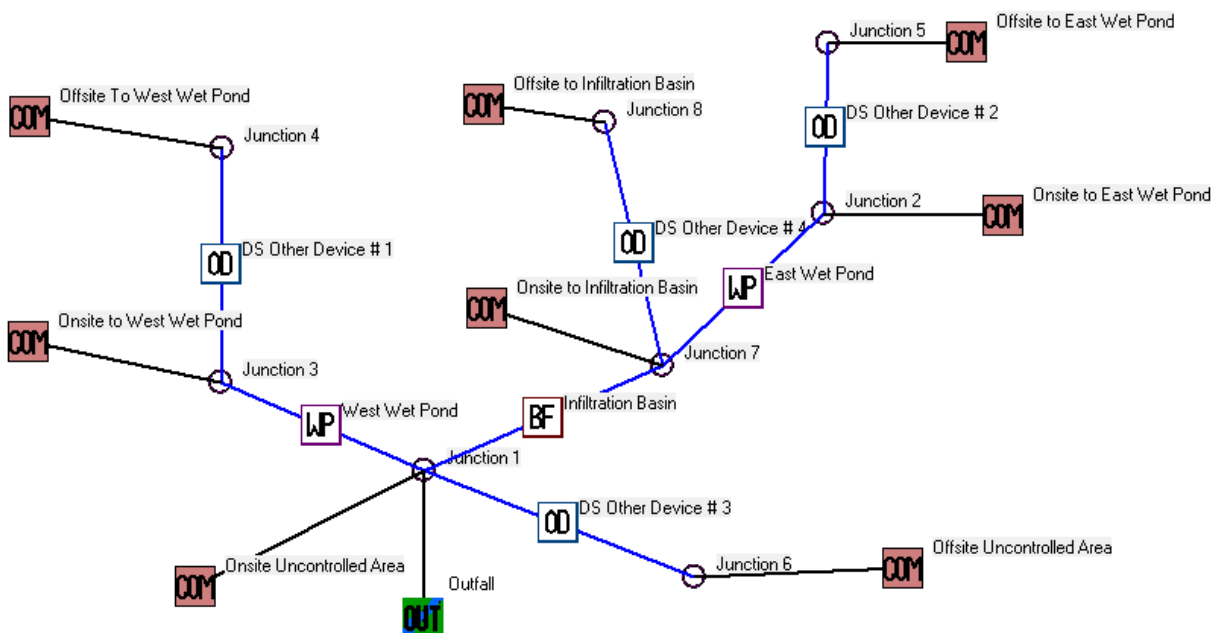
QUAM ENGINEERING, LLC
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4604 Siggelkow Road, Suite A – McFarland, Wisconsin 53558
Phone (608) 838-7750; Fax (608) 838-7752

SEDIMENT CONTROL CALCULATIONS

The following calculations using the WinSLAMM output indicates that the proposed development will remove 80% of total suspended solids (TSS). 0.357 acres of the off-site street area was substituted from the off-site area to the West Wet Pond to the Onsite Area to West Wet pond as a substitution for not treating 0.357 acres of uncontrolled roof, street and sidewalk around the northwest side of the site. This area is included as source area 38 in "Onsite to West Wet Pond."

WinSLAMM Model Summary:



Land Use:					
Onsite to East Wet Pond					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
1	Roofs 1	0.942	Entered	--	--
	Parking	0.873			
13	Paved Parking 1	0.873	Entered	--	--
	Driveways/Sidewalks	0.108			
31	Sidewalks 1	0.108	Entered	--	--
	Streets	0.000			
	Landscaped Areas	1.633			
45	Large Landscaped Areas 1	0.277	Entered	--	--
46	Large Landscaped Areas 2	1.356	Entered	--	--
	Other Areas	0.161			
70	Water Body Areas	0.161	Entered	--	--

Land Use:					
Onsite to West Wet Pond					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
1	Roofs 1	1.252	Entered	--	--
	Parking	0.759			
13	Paved Parking 1	0.759	Entered	--	--
	Driveways/Sidewalks	0.157			
31	Sidewalks 1	0.157	Entered	--	--
	Streets	0.886			
37	Streets 1	0.529	Entered	--	--
38	Street Swapped for Uncontr	0.357	Entered	--	--
	Landscaped Areas	2.236			
45	Large Landscaped Areas 1	2.236	Entered	--	--
	Other Areas	0.315			
70	Water Body Areas	0.315	Entered	--	--

SEDIMENT CONTROL CALCULATIONS

Land Use:					
Offsite To West Wet Pond					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
	Roofs	0.000			
	Parking	0.000			
	Driveways/Sidewalks	0.265			
31	Sidewalks 1	0.265	Entered	-- ▼	-- ▼
	Streets	0.072			
37	Streets 1	0.072	Entered	-- ▼	-- ▼
	Landscaped Areas	0.539			
45	Large Landscaped Areas 1	0.539	Entered	-- ▼	-- ▼
	Other Areas	0.000			

Land Use:					
Offsite to East Wet Pond					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
	Roofs	0.000			
	Parking	0.000			
	Driveways/Sidewalks	0.000			
	Streets	0.000			
	Landscaped Areas	0.056			
45	Large Landscaped Areas 1	0.056	Entered	-- ▼	-- ▼
	Other Areas	0.000			

Land Use:					
Onsite Uncontrolled Area					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
	Roofs	0.000			
	Parking	0.000			
	Driveways/Sidewalks	0.000			
	Streets	0.000			
	Landscaped Areas	2.349			
45	Large Landscaped Areas 1	1.000	Entered	-- ▼	-- ▼
46	Large Landscaped Areas 2	1.349	Entered	-- ▼	-- ▼
	Other Areas	0.000			

Land Use:					
Offsite Uncontrolled Area					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
	Roofs	0.000			
	Parking	0.000			
	Driveways/Sidewalks	0.064			
31	Sidewalks 1	0.064	Entered	-- ▼	-- ▼
	Streets	0.000			
	Landscaped Areas	0.083			
45	Large Landscaped Areas 1	0.083	Entered	-- ▼	-- ▼
	Other Areas	0.000			

Land Use:					
Onsite to Infiltration Basin					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
	Roofs	0.000			
	Parking	0.000			
	Driveways/Sidewalks	0.000			
	Streets	0.000			
	Landscaped Areas	1.494			
45	Large Landscaped Areas 1	1.245	Entered	-- ▼	-- ▼
46	Large Landscaped Areas 2	0.249	Entered	-- ▼	-- ▼
	Other Areas	0.321			
70	Water Body Areas	0.321	Entered	--	--

Land Use:					
Offsite to Infiltration Basin					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
	Roofs	0.044			
1	Roofs 1	0.044	Entered	-- ▼	-- ▼
	Parking	0.000			
	Driveways/Sidewalks	0.000			
	Streets	0.000			
	Landscaped Areas	0.540			
45	Large Landscaped Areas 1	0.540	Entered	-- ▼	-- ▼
	Other Areas	0.000			

SEDIMENT CONTROL CALCULATIONS

West Wet Pond

Wet Detention Control Device

Pond Number 2

Drainage System Control Practice

Initial Stage Elevation (ft): 6.00

Maximum Inflow into Pond (cfs)
Enter 0 or leave blank for no limit:

Copy Pond Data

Paste Pond Data

Create Pond
Stage-Area Values

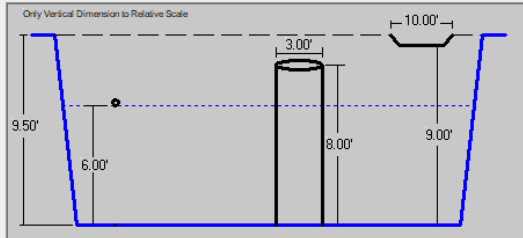
Refresh
Schematic

Enter fraction (greater
than 0) that you want to
modify all pond areas by
and then select 'Modify
Pond Areas' button

0.00

Modify Pond
Areas

Recalculate Cumulative Volume



Delete Pond

Cancel

Continue

Press 'F1' for Help

Control Practice #: 2 CP Index #: 2

Stage (ft)	Area (acres)	Cumulative Volume (ac-ft)
0	0.00	0.000
1	0.01	0.0160
2	0.50	0.0250
3	1.50	0.0410
4	2.50	0.0570
5	3.50	0.0760
6	4.50	0.0960
7	5.50	0.1300
8	6.00	0.2750
9	6.50	0.3080
10	7.50	0.3760
11	8.50	0.4480
12	9.50	0.5210
13		
14		
15		
16		
17		

Add Sharp Crested Weir

Weir Length (ft)
Height from datum to
bottom of weir opening (ft)

Add V-Notch Weir

Weir Angle (<180 degrees)
Height from datum to
bottom of weir opening (ft)
Number of V-Notch weirs

Remove Orifice Set 1

Orifice Diameter (ft) 0.25
Invert elevation above datum (ft) 6.00
Number of orifices in set 1

Add Orifice Set 2

Orifice Diameter (ft)
Invert elevation above datum (ft)
Number of orifices in set

Add Orifice Set 3

Orifice Diameter (ft)
Invert elevation above datum (ft)
Number of orifices in set

Add Stone Weeper

Width at bottom of weeper (ft)
Weeper side slope (H:1V)
Upstream side slope (H:1V)
Downstream side slope (H:1V)
Horizontal flow path length
at top of weeper (ft)
Average rock diameter (ft)
Distance from bottom to top
of weeper (ft)
Height from datum to
bottom of weeper (ft)

Remove Vertical Stand Pipe

Pipe diameter (ft) 3.00
Height above datum (ft) 8.00

Month	Evaporation (in/day)	Water Withdraw Rate (ac-ft/day)
Jan	0.00	0.000
Feb	0.00	0.000
Mar	0.00	0.000
Apr	0.00	0.000
May	0.00	0.000
Jun	0.00	0.000
Jul	0.00	0.000
Aug	0.00	0.000
Sep	0.00	0.000
Oct	0.00	0.000
Nov	0.00	0.000
Dec	0.00	0.000

Stage (ft)	Natural Seepage Rate (in/hr)	Other Outflow Rate (cfs)
0.00	0.00	0.000
0.01	0.00	0.000
0.50	0.00	0.000
1.50	0.00	0.000
2.50	0.00	0.000
3.50	0.00	0.000
4.50	0.00	0.000

Remove Broad Crested Weir (Required)

Weir crest length (ft) 10.00
Weir crest width (ft) 3.00
Height from datum to
bottom of weir opening (ft) 9.00

Add Seepage Basin

Infiltration rate (in/hr)
Width of device (ft)
Length of device (ft)
Invert elevation of seepage
basin inlet above datum (ft)

Add Pump

East Wet Pond

Wet Detention Control Device

Pond Number 1

Drainage System Control Practice

Initial Stage Elevation (ft): 6.00

Maximum Inflow into Pond (cfs)
Enter 0 or leave blank for no limit:

Copy Pond Data

Paste Pond Data

Create Pond
Stage-Area Values

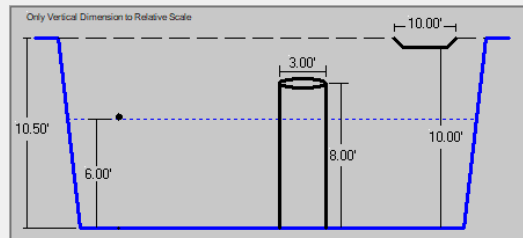
Refresh
Schematic

Enter fraction (greater
than 0) that you want to
modify all pond areas by
and then select 'Modify
Pond Areas' button

0.00

Modify Pond
Areas

Recalculate Cumulative Volume



Delete Pond

Cancel

Continue

Press 'F1' for Help

Control Practice #: 1 CP Index #: 1

Stage (ft)	Area (acres)	Cumulative Volume (ac-ft)
0	0.00	0.000
1	0.01	0.0180
2	0.50	0.0230
3	1.50	0.0340
4	2.50	0.0460
5	3.50	0.0570
6	4.50	0.0730
7	5.50	0.1190
8	6.00	0.1610
9	6.50	0.1770
10	7.50	0.2090
11	8.50	0.2430
12	9.50	0.2800
13	10.50	0.3190
14		
15		
16		
17		

Add Sharp Crested Weir

Weir Length (ft)
Height from datum to
bottom of weir opening (ft)

Add V-Notch Weir

Weir Angle (<180 degrees)
Height from datum to
bottom of weir opening (ft)
Number of V-Notch weirs

Remove Orifice Set 1

Orifice Diameter (ft) 0.25
Invert elevation above datum (ft) 6.00
Number of orifices in set 1

Add Orifice Set 2

Orifice Diameter (ft)
Invert elevation above datum (ft)
Number of orifices in set

Add Orifice Set 3

Orifice Diameter (ft)
Invert elevation above datum (ft)
Number of orifices in set

Add Stone Weeper

Width at bottom of weeper (ft)
Weeper side slope (H:1V)
Upstream side slope (H:1V)
Downstream side slope (H:1V)
Horizontal flow path length
at top of weeper (ft)
Average rock diameter (ft)
Distance from bottom to top
of weeper (ft)
Height from datum to
bottom of weeper (ft)

Remove Vertical Stand Pipe

Pipe diameter (ft) 3.00
Height above datum (ft) 8.00

Month	Evaporation (in/day)	Water Withdraw Rate (ac-ft/day)
Jan	0.00	0.000
Feb	0.00	0.000
Mar	0.00	0.000
Apr	0.00	0.000
May	0.00	0.000
Jun	0.00	0.000
Jul	0.00	0.000
Aug	0.00	0.000
Sep	0.00	0.000
Oct	0.00	0.000
Nov	0.00	0.000
Dec	0.00	0.000

Stage (ft)	Natural Seepage Rate (in/hr)	Other Outflow Rate (cfs)
0.00	0.00	0.000
0.01	0.00	0.000
0.50	0.00	0.000
1.50	0.00	0.000
2.50	0.00	0.000
3.50	0.00	0.000
4.50	0.00	0.000

Remove Broad Crested Weir (Required)

Weir crest length (ft) 10.00
Weir crest width (ft) 10.00
Height from datum to
bottom of weir opening (ft) 10.00

Add Seepage Basin

Infiltration rate (in/hr)
Width of device (ft)
Length of device (ft)
Invert elevation of seepage
basin inlet above datum (ft)

Add Pump

SEDIMENT CONTROL CALCULATIONS

Infiltration Basin

Biofiltration Control Device

Drainage System Control Practice

Device Properties **Biofilter Number 1**

Top Area (sf)	19000
Bottom Area (sf)	14000
Total Depth (ft)	1.75
Typical Width (ft) (Cost est. only)	10.00
Native Soil Infiltration Rate (in/hr)	0.070
Native Soil Infiltration Rate COV	N/A
Infil. Rate Fraction-Bottom (0.001-1)	1.000
Infil. Rate Fraction-Sides (0.001-1)	0.001
Rock Filled Depth (ft)	0.00
Rock Fill Porosity (0-1)	0.00
Engineered Media Type	Media Data
Engineered Media Infiltration Rate	0.00
Engineered Media Infiltration Rate COV	N/A
Engineered Media Depth (ft)	0.00
Engineered Media Porosity (0-1)	0.00
Percent solids reduction due to Engineered Media (0-100)	N/A
Inflow Hydrograph Peak to Average Flow Ratio	3.80
Number of Devices in Source Area or Upstream Drainage System	1

☐ Activate Pipe or Box Storage ☐ Pipe ☐ Box

Diameter (ft)	
Length (ft)	
Within Biofilter (check if Yes)	☐
Perforated (check if Yes)	☐
Bottom Elevation (ft above datum)	
Discharge Orifice Diameter (ft)	

Select Native Soil Infiltration Rate

☐ Sand - 8 in/hr	☐ Clay loam - 0.1 in/hr
☐ Loamy sand - 2.5 in/hr	☐ Silty clay loam - 0.05 in/hr
☐ Sandy loam - 1.0 in/hr	☐ Sandy clay - 0.05 in/hr
☐ Loam - 0.5 in/hr	☐ Silty clay - 0.04 in/hr
☐ Silt loam - 0.3 in/hr	☐ Clay - 0.02 in/hr
☐ Sandy silt loam - 0.2 in/hr	☐ Rain Barrel/Cistern - 0.00 in/hr

Use Random Number Generation to Account for Infiltration Rate Uncertainty

Add Sharp Crested Weir

Weir Length (ft)	
Height from datum to bottom of weir opening (ft)	

Remove Broad Crested Weir-Reqd

Weir crest length (ft)	100.00
Weir crest width (ft)	5.00
Height from datum to bottom of weir opening (ft)	1.25

Add Vertical Stand Pipe

Pipe diameter (ft)	
Height above datum (ft)	

Remove Surface Discharge Pipe

Pipe Diameter (ft)	0.50
Invert elevation above datum (ft)	0.10
Number of pipes at invert elev.	1

Add Drain Tile/Underdrain

Pipe Diameter (ft)	
Invert elevation above datum (ft)	
Number of pipes at invert elev.	

Add Other Outlet

Stage Number	Stage (ft)	Other Outflow Rate (cfs)
1		
2		
3		
4		
5		

Add Evapotranspiration

Soil porosity (saturation moisture content, 0-1)	
Soil field moisture capacity (0-1)	
Permanent wilting point (0-1)	
Supplemental irrigation used?	☐
Fraction of available capacity when irrigation starts (0-1)	
Fraction of available capacity when irrigation stops (0-1)	

Evaporation

Month	Evapotranspiration (in/day)	Evaporation (in/day)
Jan		
Feb		
Mar		
Apr		
May		
Jun		
Jul		
Aug		
Sep		
Oct		
Nov		
Dec		

Plant Types

1	2	3	4

Biofilter Geometry Schematic

Estimated Surface Drain Time = 17.14 hrs.

Control Practice #: 6 CP Index #: 6

SEDIMENT CONTROL CALCULATIONS

WinSLAMM Output Summary:

File Name:

Outfall Output Summary

	Runoff Volume (cu. ft.)	Percent Runoff Reduction	Runoff Coefficient (Rv)	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of All Land Uses without Controls	611289		0.35	100.1 (1)	3821 (1)	
Outfall Total with Controls	506497	17.14 %	0.29	22.95	725.6	81.01 %
Current File Output: Annualized Total After Outfall Controls	507889					
Years in Model Run:			1.00		727.5	

(1) Values reduced to remove off-site loadings due to setting Other Control Device Concentration Reduction values to 1.

Print Output Summary to .csv File

Print Output Summary to Text File

Print Output Summary to Printer

Total Area Modeled (ac)

15.149

Total Control Practice Costs

Capital Cost	N/A
Land Cost	N/A
Annual Maintenance Cost	N/A
Present Value of All Costs	N/A
Annualized Value of All Costs	N/A

Receiving Water Impacts Due To Stormwater Runoff

(CWP Impervious Cover Model)

	Calculated Rv	Approximate Urban Stream Classification
Without Controls	0.35	Poor
With Controls	0.29	Poor

Perform Outfall
Flow Duration
Curve Calculations

SEDIMENT CONTROL CALCULATIONS

WinSLAMM Input Data:

Data file name: Q:\Projects\LS-03-19\ECSWM-McFarland\WinSLAMM.mdb

WinSLAMM Version 10.4.1

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:

If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations

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: 04-07-2025 Time: 11:31:38

Site information:

LU# 1 - Commercial: Onsite to East Wet Pond Total area (ac): 3.717

1 - Roofs 1: 0.942 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

13 - Paved Parking 1: 0.873 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

31 - Sidewalks 1: 0.108 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

45 - Large Landscaped Areas 1: 0.277 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

46 - Large Landscaped Areas 2: 1.356 ac. Normal Clayey Low Density Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

70 - Water Body Areas: 0.161 ac. Source Area PSD File:

LU# 2 - Commercial: Onsite to West Wet Pond Total area (ac): 5.605

1 - Roofs 1: 1.252 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

13 - Paved Parking 1: 0.759 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

31 - Sidewalks 1: 0.157 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

37 - Streets 1: 0.529 ac. Intermediate Street Length = 0.29 curb-mi Street Width (assuming two curb-mi per street mile) = 30.09828 ft

Default St. Dirt Accum. Annual Winter Load = 2500 lbs Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

38 - Street Swapped for Uncontrolled Roof: 0.357 ac. Intermediate Street Length = 0.196 curb-mi Street Width (assuming two curb-mi per street mile) = 30.05357 ft

Default St. Dirt Accum. Annual Winter Load = 2500 lbs Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

SEDIMENT CONTROL CALCULATIONS

45 - Large Landscaped Areas 1: 2.236 ac. Normal Clayey Low Density Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

70 - Water Body Areas: 0.315 ac. Source Area PSD File:

LU# 3 - Commercial: Offsite To West Wet Pond Total area (ac): 0.876

31 - Sidewalks 1: 0.265 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

37 - Streets 1: 0.072 ac. Intermediate Street Length = 0.236 curb-mi Street Width (assuming two curb-mi per street mile) = 5.033898 ft

Default St. Dirt Accum. Annual Winter Load = 2500 lbs Source Area PSD File:

C:\WinSLAMM Files\NURP.cpz

45 - Large Landscaped Areas 1: 0.539 ac. Normal Clayey Low Density Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 4 - Commercial: Offsite to East Wet Pond Total area (ac): 0.056

45 - Large Landscaped Areas 1: 0.056 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 5 - Commercial: Onsite Uncontrolled Area Total area (ac): 2.349

45 - Large Landscaped Areas 1: 1.000 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

46 - Large Landscaped Areas 2: 1.349 ac. Normal Clayey Low Density Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 6 - Commercial: Offsite Uncontrolled Area Total area (ac): 0.147

31 - Sidewalks 1: 0.064 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

45 - Large Landscaped Areas 1: 0.083 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 7 - Commercial: Onsite to Infiltration Basin Total area (ac): 1.815

45 - Large Landscaped Areas 1: 1.245 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

46 - Large Landscaped Areas 2: 0.249 ac. Normal Clayey Low Density Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

70 - Water Body Areas: 0.321 ac. Source Area PSD File:

LU# 8 - Commercial: Offsite to Infiltration Basin Total area (ac): 0.584

1 - Roofs 1: 0.044 ac. Pitched Disconnected Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

45 - Large Landscaped Areas 1: 0.540 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Wet Detention Pond CP# 1 (DS) - East Wet Pond

Particle Size Distribution file name: Not needed - calculated by program

Initial stage elevation (ft): 6

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

SEDIMENT CONTROL CALCULATIONS

3. Invert elevation above datum (ft): 6

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 10

2. Weir crest width (ft): 10

3. Height from datum to bottom of weir opening: 10

Outlet type: Vertical Stand Pipe

1. Stand pipe diameter (ft): 3

2. Stand pipe height above datum (ft): 8

Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.0180	0.00	0.00
2	0.50	0.0230	0.00	0.00
3	1.50	0.0340	0.00	0.00
4	2.50	0.0460	0.00	0.00
5	3.50	0.0570	0.00	0.00
6	4.50	0.0730	0.00	0.00
7	5.50	0.1190	0.00	0.00
8	6.00	0.1610	0.00	0.00
9	6.50	0.1770	0.00	0.00
10	7.50	0.2090	0.00	0.00
11	8.50	0.2430	0.00	0.00
12	9.50	0.2800	0.00	0.00
13	10.50	0.3190	0.00	0.00

Control Practice 2: Wet Detention Pond CP# 2 (DS) - West Wet Pond

Particle Size Distribution file name: Not needed - calculated by program

Initial stage elevation (ft): 6

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): 6

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 10

2. Weir crest width (ft): 3

3. Height from datum to bottom of weir opening: 9

Outlet type: Vertical Stand Pipe

1. Stand pipe diameter (ft): 3

2. Stand pipe height above datum (ft): 8

Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.0160	0.00	0.00
2	0.50	0.0250	0.00	0.00
3	1.50	0.0410	0.00	0.00
4	2.50	0.0570	0.00	0.00

SEDIMENT CONTROL CALCULATIONS

5	3.50	0.0760	0.00	0.00
6	4.50	0.0960	0.00	0.00
7	5.50	0.1930	0.00	0.00
8	6.00	0.2750	0.00	0.00
9	6.50	0.3080	0.00	0.00
10	7.50	0.3760	0.00	0.00
11	8.50	0.4480	0.00	0.00
12	9.50	0.5210	0.00	0.00

Control Practice 3: Other Device CP# 1 (DS) - DS Other Device # 1

Fraction of drainage area served by device (ac) = 1.00

Particulate Concentration reduction fraction = 1.00

Filterable Concentration reduction fraction = 1.00

Runoff volume reduction fraction = 0

Control Practice 4: Other Device CP# 2 (DS) - DS Other Device # 2

Fraction of drainage area served by device (ac) = 1.00

Particulate Concentration reduction fraction = 1.00

Filterable Concentration reduction fraction = 1.00

Runoff volume reduction fraction = 0

Control Practice 5: Other Device CP# 3 (DS) - DS Other Device # 3

Fraction of drainage area served by device (ac) = 1.00

Particulate Concentration reduction fraction = 1.00

Filterable Concentration reduction fraction = 1.00

Runoff volume reduction fraction = 0

Control Practice 6: Biofilter CP# 1 (DS) - Infiltration Basin

1. Top area (square feet) = 19000
 2. Bottom area (square feet) = 14000
 3. Depth (ft): 1.75
 4. Biofilter width (ft) - for Cost Purposes Only: 10
 5. Infiltration rate (in/hr) = 0.07
 6. Random infiltration rate generation? No
 7. Infiltration rate fraction (side): 0.001
 8. Infiltration rate fraction (bottom): 1
 9. Depth of biofilter that is rock filled (ft) 0
 10. Porosity of rock filled volume = 0
 11. Engineered soil infiltration rate: 0
 12. Engineered soil depth (ft) = 0
 13. Engineered soil porosity = 0
 14. Percent solids reduction due to flow through engineered soil = 0
 15. Biofilter peak to average flow ratio = 3.8
 16. Number of biofiltration control devices = 1
 17. Particle size distribution file: Not needed - calculated by program
 18. Initial water surface elevation (ft): 0
- Soil Data Soil Type Fraction in Eng. Soil
- Biofilter Outlet/Discharge Characteristics:
- Outlet type: Broad Crested Weir
1. Weir crest length (ft): 100
 2. Weir crest width (ft): 5

SEDIMENT CONTROL CALCULATIONS

3. Height of datum to bottom of weir opening: 1.25

Outlet type: Surface Discharge Pipe

1. Surface discharge pipe outlet diameter (ft): 0.5

2. Pipe invert elevation above datum (ft): 0.1

3. Number of surface pipe outlets: 1

Control Practice 7: Other Device CP# 4 (DS) - DS Other Device # 4

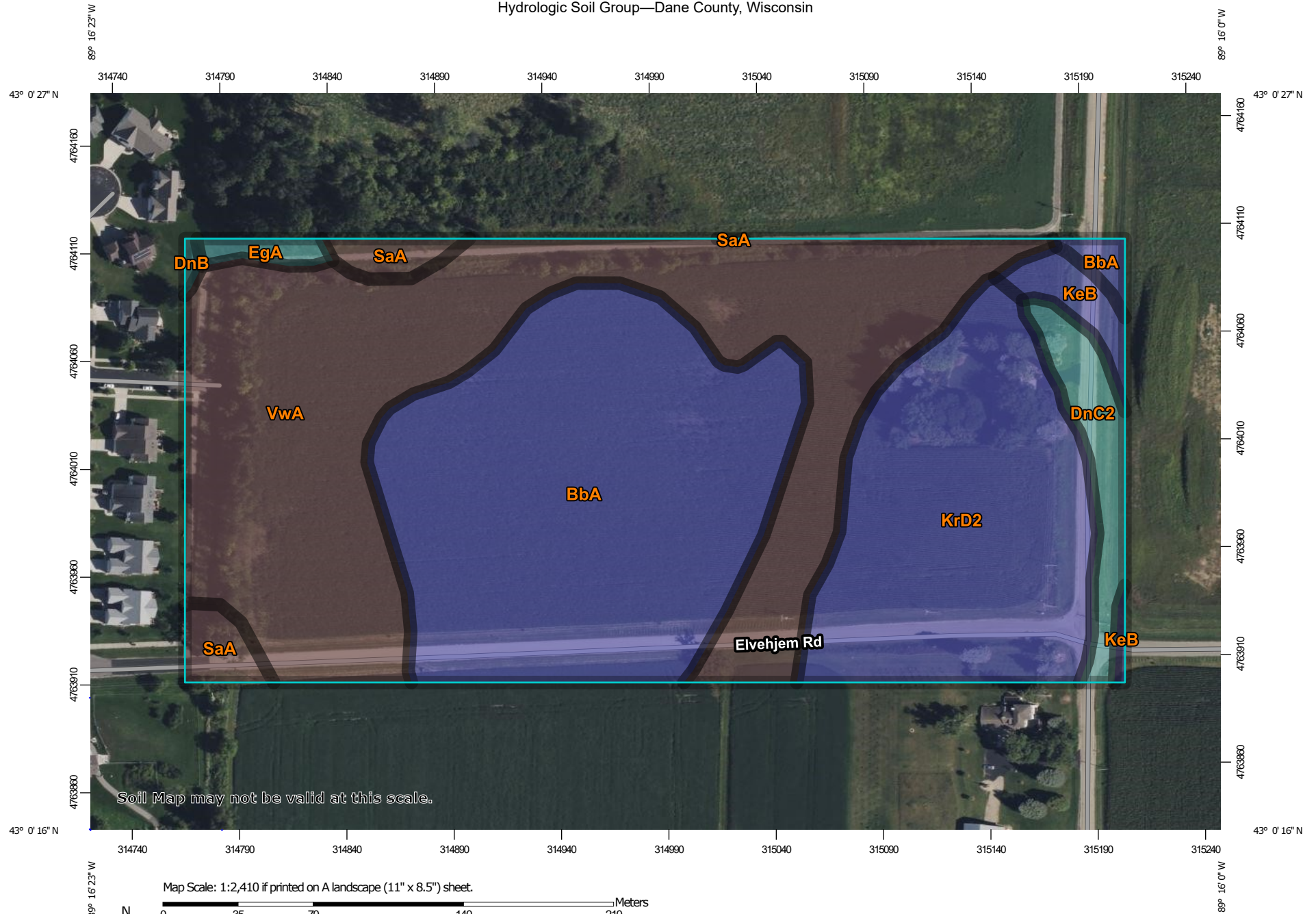
Fraction of drainage area served by device (ac) = 1.00

Particulate Concentration reduction fraction = 1.00

Filterable Concentration reduction fraction = 1.00

Runoff volume reduction fraction = 0

Hydrologic Soil Group—Dane County, Wisconsin



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

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: Dane County, Wisconsin
 Survey Area Data: Version 23, Sep 3, 2024

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BbA	Batavia silt loam, gravelly substratum, 0 to 2 percent slopes	B	7.1	31.7%
DnB	Dodge silt loam, 2 to 6 percent slopes	C	0.0	0.2%
DnC2	Dodge silt loam, 6 to 12 percent slopes, eroded	C	0.8	3.6%
EgA	Elburn silt loam, gravelly substratum, 0 to 3 percent slopes	C	0.2	0.8%
KeB	Kegonsa silt loam, 2 to 6 percent slopes	B	0.4	1.8%
KrD2	Kidder soils, 10 to 20 percent slopes, eroded	B	4.6	20.6%
SaA	Sable silty clay loam, 0 to 2 percent slopes	B/D	0.5	2.3%
VwA	Virgil silt loam, gravelly substratum, 0 to 3 percent slopes	B/D	8.7	39.1%
Totals for Area of Interest			22.4	100.0%

Description

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.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Attachment 2:

1002-CPS-23
Division of Industry Services
P. O. Box 2658
Madison, Wisconsin 53701
Scott Walker, Governor
Laura Gutierrez, Secretary

SOIL AND SITE EVALUATION – STORM

In accordance with SPS 382.365, 385, Wis. Adm. Code, and WDNR Standard 1002

Page 1 of 3

Attach a complete site plan on paper not less than 8 1/2 x 11 inches in size. Plan must include, but 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

Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m)]

County <u>Dane</u>	
Parcel I.D. <u>0610-024-9691-1</u>	
Reviewed by: _____ Date: _____	
Property Owner <u>Lakestone Properties</u>	Property Location Govt Lot <u>SE 1/4 SE 1/4</u> S <u>7</u> T <u>6</u> N R <u>10</u> (E or) W
Property Owner Mail Address _____	Lot # _____ Block # _____ Subd. Name or CSM # _____
City _____ State _____ Zip Code _____ Phone Number _____	☐ City ☒ Village ☐ Town Nearest Road <u>McFarland Elvehjem Rd</u>
Drainage area _____ ☐ sq ft ☐ acres Test site suitable for (check all that apply): ☐ Site not suitable; ☐ Bioretention; ☐ Subsurface Dispersal System; ☐ Reuse; ☐ Irrigation; ☐ Other _____	Hydraulic Application Test Method ☒ Morphological Evaluation ☐ Double Ring Infiltrometer ☐ Other: (specify) _____ Soil Moisture Date of soil borings: <u>1-29-25</u> USDA-NRCS WETS Value: ☐ Dry = 1; ☒ Normal = 2; ☐ Wet = 3.

#OBS. ☒ Pit ☐ Boring Ground surface elevation: 860.96 ft. Elevation of limiting factor 859.96 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
1	0-12	10YR 3/2	—	sil	2mgr	mfr	cs	5	—	.13
2	12-60	10YR 4/2	C2d 7.5YR 5/8 10YR 7/2	sic	1fshk	mfr	gw	5	—	.07
3	60-108	10YR 5/4	"	s	0sg	ml	—	5	—	3.6

Comments: Water observed @ 60"

#OBS. ☒ Pit ☐ Boring Ground surface elevation: 860.99 ft. Elevation of limiting factor 859.99 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
1	0-12	10YR 3/2	—	sil	2mgr	mfr	cs	5	—	.13
2	12-67	10YR 4/2	C2d 7.5YR 5/8 10YR 7/2	sic	1fshk	mfr	gw	5	—	.07
3	67-170	10YR 5/4	"	s	0sg	ml	—	5	—	3.6

Comments: Water observed @ 70"

Name (Please Print) <u>Jeffrey T. Levake</u>	Signature <u>[Signature]</u>	Credential Number <u>CST #223322</u>
Address <u>P.O. Box 568 Lake Mills, WI 53551</u>	Date Evaluation Conducted <u>1-29-25</u>	Telephone Number <u>920-968-7567</u>
		SBD-10793 (R01/17)

WDNR
September 2017

TP3 #OBS. ☒ Pit ☐ Boring Ground surface elevation 859.99 ft. Elevation of limiting factor 858.99 ft. Page 2 of 3

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frgs.	% Fines	Hydraulic App Rate Inches/Hr
1	0-12	10YR 3/2	~	s.l	2mgr	mfr	cs	5	-	.13
2	12-60	10YR 4/2	C2d 7.5YR 5/8 10YR 7/2	sic	1fshk	mfr	cs	5	-	.07
3	60-96	10YR 4/2	" "	scl	1fshk	mfr	gw	5	-	.11
4	96-120	10YR 5/4	" "	s	Osg	ml	-	5	-	3.6

Comments: Water observed @ 60"

TP4 #OBS. ☒ Pit ☐ Boring Ground surface elevation 859.87 ft. Elevation of limiting factor 858.87 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frgs.	% Fines	Hydraulic App Rate Inches/Hr
1	0-12	10YR 3/2	~	s.l	2mgr	mfr	cs	5	-	.13
2	12-50	10YR 4/2	C2d 7.5YR 5/8 10YR 7/2	sic	1fshk	mfr	gw	5	-	.07
3	50-108	10YR 5/4	" "	s	Osg	ml	-	5	-	3.6

Comments: Water observed @ 50"

TP5 #OBS. ☒ Pit ☐ Boring Ground surface elevation 860.27 ft. Elevation of limiting factor 859.27 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frgs.	% Fines	Hydraulic App Rate Inches/Hr
1	0-12	10YR 3/2	~	s.l	2mgr	mfr	cs	5	-	.13
2	12-55	10YR 4/2	C2d 7.5YR 5/8 10YR 7/2	sic	1fshk	mfr	gw	5	-	.07
3	55-120	10YR 5/4	" "	s	Osg	ml	-	5	-	3.6

Comments: Water observed @ 55"

TP6 #OBS. ☒ Pit ☐ Boring Ground surface elevation 860 ft. Elevation of limiting factor 858.4 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frgs.	% Fines	Hydraulic App Rate Inches/Hr
1	0-20	10YR 3/2	~	s.l	2mgr	mfr	cs	5	-	.13
2	20-103	10YR 4/2	C2d 7.5YR 5/8 10YR 7/2	sic	1fshk	mfr	gw	5	-	.07
3	103-120	10YR 5/4	" "	s	Osg	ml	-	5	-	3.6

Comments: Water observed @ 103"

SBD-10793 (R 7/17)

Overall Site Comments:

WDNR
September 2017

TPT #OBS. ☒ Pit ☐ Boring Ground surface elevation. 860.77 ft. Elevation of limiting factor 859.47 ft. Page 3 of 3

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
1	0-10	10YR 3/2	~	sil	2mgr	mfr	cs	5	-	.13
2	10-65	10YR 4/2	C2d 7.5YR 5/8 10YR 7/2	sil	1fsbk	mfr	gw	5	-	.07
3	65-108	10YR 5/4	" "	s	0sg	ml	-	5	-	3.6

Comments: Water observed @ 65"

1P8 #OBS. ☒ Pit ☐ Boring Ground surface elevation. 881.8 ft. Elevation of limiting factor 869.8 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
1	0-6	10YR 3/2	~	sil	2mgr	mfr	cs	5	-	.13
2	6-42	7.5YR 4/6	~	sil	1msbk	mfr	gw	5	-	.11
3	42-144	10YR 5/4	~	sl	1fpl	mfr	-	15	-	.5

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:

SBD-10793 (R 7/17)

Overall Site Comments:

WDNR
September 2017

STORM WATER MANAGEMENT SYSTEM MAINTENANCE AGREEMENT

THIS AGREEMENT ("Agreement"), entered into this _____ day of _____, 2022, by and between Ezra Properties (the "Owner"), and Village of McFarland, a Wisconsin Municipal Corporation (the "Village"), collectively, the "Parties".

RECITALS

A. The Owner is developing certain real property located in the Village of McFarland legally described in paragraph 2 herein (the "Property").

B. The Parties desire to set forth their obligations for the maintenance of certain storm water management improvements on the Property.

NOW THEREFORE, in consideration of the mutual covenants herein set forth and other good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows.

Recording area (Dane Co. Register of
Deeds)

Send To: Village of McFarland
5915 Milwaukee Street
McFarland, WI 53558
608-838-3151

0610-024-9691-1

Parcel Identification Numbers

1. Sole Agreement. This agreement is the sole applicable agreement pertaining to storm water management for the described Property.

2. Site Legal Description. The Property subject to this agreement is legally described as follows: SEC 2-6-10 S 19 A SE1/4 SE1/4 EXC LOT 1 CSM 1455, Village of McFarland Dane County, WI

3. Responsible Party.

a. **CONSTRUCTION PHASE MAINTENANCE**. The Owner is responsible for satisfying the provisions of this agreement throughout the Property for the duration of the construction and warranty period.

b. **POST-CONSTRUCTION PERPETUAL MAINTENANCE**. The Owner is responsible for maintaining the storm water management system in perpetuity upon completion of all construction phases and expiration of the warranty period.

4. Permanent Components Of The Storm Water Management System.

a. The storm water management system for the property consists of the following management practices, their components, and the drainage conveyance as referenced in Section 4b:

- + Two (2) Wet Retention Pond
- + One (1) Infiltration Basin
- + One (1) Infiltration Swale
- + Three (3) Sorbent Inlet Filters

b. The drainage areas served by the storm water management practices include portions of the property referenced in Section 2 and some off-site run-on from the Elvehjem Road Right-of-Way, as shown on the Proposed Drainage Plan.

5. Inspection And Maintenance Schedule.

- a. All components of the storm water management system shall be inspected by the Responsible Party:
- at least semi-annually in early Spring and early Autumn; and
 - within 72 hours following any major storm or flood event of sufficient intensity or duration to pose significant risk of damage to the system.
- b. The following components shall be inspected by the Responsible Party more frequently as follows:

Wet Pond

- Annually inspect all components of the wet pond, including inlets, outlets, riprap, and safety shelf, and sediment depth.
- Keep embankments clear of woody vegetation.
- Mowing in buffer areas around stormwater ponds should be minimized. If occasional mowing is necessary, mow no shorter than 6 inches.
- Application of fertilizer, herbicide, pesticide or other chemicals is discouraged.
- Remove sediment from permanent pool once average depth is 3.5 feet or less. Protect liner from damage during sediment removal, if present.
- Excavation is prohibited below the original design depth unless approved by Dane County Water Resources Engineering Department.

Infiltration Basin

- Inspect quarterly to ensure proper function and check for any potential problems. Inspect overflow spillway for indication of failure and make note of vegetation condition. If standing water is observed over 50% of the basin floor 3 days after rainfall, the basin is clogged and must be restored.
- Remove trash and other debris regularly.
- Mowing or burning shall be used to maintain the vegetation.
- Mow newly planted seed once it reaches a height of 10 to 12 inches down to a height of 5 to 6 inches. After establishment, if burning cannot be accommodated, mowing shall occur once in the spring (prior to April 15) or in the fall (after November 1) to a height of 5 to 6 inches.
- Burning may begin the second year, in the early spring (prior to May 1st) or in the late fall (after November 1st). Burning shall be done two consecutive years, then up to three years passing before the next burning. Under no circumstances shall burning occur every other year.
- Restoration includes removing the top 2 to 3 inches, chisel plowing, then adding topsoil and compost before seeding. If deep tilling is used, the basin shall be drained and the soils dried to a depth of 8 inches. If the basin was planted in turf grass and clogging again occurs after these restoration procedures have been used, the owner /operator shall replant with prairie style vegetation using the soil preparation method recommended by the native nursery in the area.
- During winter months, all draw down devices in the pond shall be opened to discourage infiltration of runoff water containing high levels of chlorides.

Sorbent Inlet Filters

- Maintain Flexstorm PCP Inlet Filter, or equal, according to the manufacturer's guidelines.
- Inspect inlet filters quarterly. Repair when the performance of a filter is compromised.

- c. The Responsible Party shall make the appropriate repairs whenever the performance of a storm water management practice or component is compromised due to sediment or debris.

6. Regulations.

- a. Mowing in buffer areas, pond banks and drainage ways shall be minimized to the greatest extent possible in order to maximize filtration of runoff. If occasional mowing is necessary, the mowing height shall be no shorter than six inches.
- b. Applications of fertilizers, herbicides, pesticide or other chemical applications are prohibited in buffer areas, on pond banks and along drainage ways, unless specifically authorized by the Village Engineer on an individual event basis, and provided that the application is performed by professional personnel certified for that purpose.
- c. Snow shall not be dumped directly onto conditioned planting beds designed for infiltration or for bioretention, or on sites designated as buffer areas.

7. Maintenance Of Inspection Records.

a. The Owner shall maintain records of the results of all site inspections and any enforcement actions, correction actions or other documented contacts and any follow-up actions taken by or at the direction of Owner or Responsible Party for seven years after such action.

b. The Village Engineer shall maintain public records of the results of all Village inspections of the site, shall inform the Owner of the inspection results, and shall indicate any specific corrective actions required to bring the storm water management practice or component into accordance with this Agreement.

8. Default by Responsible Party. In the event that the Village determines that Responsible Party has failed to comply with any of the responsibilities as set forth in this Agreement, the Village shall give written notice to Owner identifying any said default and requiring compliance within five working days of receipt of the notice or such longer period of time as specified by the Village in the notice. In the event Owner fails to complete any actions required to remedy the default within said five day period, unless extended by the Village in writing, Owner consents that Village may enter the property on which private storm water management systems and practices are located, correct the default and charge the cost of such corrective action to Owner. If Owner fails to pay for said costs of corrective action then Village shall be entitled to place the cost of the corrective action on the tax roll for the Owner's property as a special charge pursuant to Wis. Stats. § 66.0627.

9. Severability. All provisions of this Agreement are severable, and if any one or more provision is deemed unenforceable for any reason, the remaining provisions shall remain in full force and effect.

10. Binding Agreement. All provisions of this Agreement, including the benefits and burdens hereunder, run with the property and are binding upon and inure to the benefit of the parties hereto and their successors and assigns.

11. Amendment; Termination. This Agreement may be amended or terminated by a document signed by the Owner and the Village.

12. Requirement to Record. This Agreement and any subsequent amendments thereto shall be recorded at the Dane County Register of Deeds.

13. Governing Law. This Agreement at all times shall be enforced in accordance with the laws of the State of Wisconsin.

14. Assignment. A Responsible Party's obligations may not be assigned to another party without the prior written consent of Village except that such consent is not required when a Responsible Party as property owner transfers fee simple title to a buyer who will assume the maintenance responsibilities of the owner / responsible party.

15. Notices. All notices to be given under the terms of this Agreement shall be in writing and signed by the person serving the notice and shall be sent registered or certified mail, return receipt requested, postage prepaid, or hand delivered to the addresses of the parties listed below:

FOR THE VILLAGE:

Village of McFarland
5915 Milwaukee Street
McFarland, WI 53558
608-838-3151

FOR THE OWNER:

Lakestone Properties and Management, LLC
5910 Main Street, Suite 1
McFarland, WI 53558

FOR THE OWNER:

By: _____

Name: _____

Title: _____

Date: _____

STATE OF WISCONSIN)
) ss.
COUNTY OF _____)

Personally came before me this _____ day of _____, 20____, the above-named _____, to me known to be the person who executed the foregoing and acknowledged the same.

Notary Public, State of Wisconsin
My Commission: _____

VILLAGE OF MCFARLAND

By: _____

By: _____

Name: _____

Name:_____

Title: Village President

Title: Village Clerk

Date: _____

Date: _____

Lakestone Properties Development

Residential Development, Village of McFarland, Wisconsin

Traffic Impact Analysis

Final Report

Lakestone Properties



Prepared by:



Date: June 2025

SRF No. 18939.00

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Executive Summary

The Lakestone Properties Residential Development traffic impact analysis (TIA) evaluates the potential traffic impacts of a proposed residential development on 17.92 acres of agricultural land west of County Highway (County) AB and north of Elvehjem Road in McFarland, Wisconsin. The proposed development includes 147 residential units, consisting of 14 duplex units, 16 townhome units, and 117 apartment units. The project plans to extend Devils Lake Way, which currently runs along the west side of the site, realigning it north-south through the development and terminating at its new intersection with Elvehjem Road. This study estimates vehicle trips generated by the development, anticipated to complete construction in 2030, and distributes them throughout the surrounding roadway network. SRF evaluated traffic impacts at the identified study area intersections and provided recommendations based on these findings.

This study reviews five (5) analysis scenarios:

- Existing (2025) Conditions
- Opening Year (2030) Conditions without Development (background growth)
- Opening Year (2030) Conditions with Development (background growth + site traffic)
- Horizon Year (2040) Conditions without Development (background growth)
- Horizon Year (2040) Conditions with Development (background growth + site traffic)

The Lakestone Properties Development TIA was conducted in coordination with Dane County and the Village of McFarland, WI as well as in accordance with and in a manner consistent with the City of Middleton's *Traffic Impact Analysis Guidelines* (March 2005). This TIA documents the methodologies, impact assessment, and recommended mitigation strategies to facilitate acceptable traffic levels of service (LOS) at key intersections in the analysis area during the analysis periods. The SRF project team summarized study intersections and identified any LOS deficiencies per Middleton TIA Guidelines (see Table 1 and Figure 1).

Table 1: Intersections with Operational Deficiencies by Scenario

Analysis ID and Intersection Name	Existing Year (2025)	Opening Year without Development (2030)	Opening Year with Development (2030)	Horizon Year without Development (2040)	Horizon Year with Development (2040)
100: Creamery Road and Country Walk	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B
110: Elvehjem Road and Hidden Farm Road	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B
120: Elvehjem Road and Holscher Road	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B
130: Elvehjem Road and Perrot Place	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B
135: Elvehjem Road and Devils Lake Way (Proposed)	N/A	N/A	All Movements ≥ LOS B	N/A	All Movements ≥ LOS B
140: Elvehjem Road and County AB	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B
150: County AB and Tuscobia Trail	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B
160: County AB and County MN	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B	All Movements ≥ LOS B

Introduction

STUDY PURPOSE

This report documents the study results for the proposed Lakestone Properties Residential Development situated on the northwest quadrant of the intersection of County AB and Elvehjem Road in McFarland, Wisconsin. The purpose of this TIA is to identify transportation system impacts due to site development traffic. SRF made transportation system recommendations as applicable to accommodate traffic increases related to the proposed site as well as anticipated background growth within the study limits.

STUDY AREA

The TIA study area (see Figure 1) includes an analysis of the following intersections (intersection ID number shown for reference originates within the traffic model):

- 100: Creamery Road and Country Walk*
- 110: Elvehjem Road and Hidden Farm Road
- 120: Elvehjem Road and Holscher Road
- 130: Elvehjem Road and Perrot Place
- 135: Elvehjem Road and Devils Lake Way (Proposed Intersection)
- 140: Elvehjem Road and County AB
- 150: County AB and Tuscobia Trail
- 160: County AB and County MN*

*Intersection falls outside study limits described for a small development as defined by Middleton's Traffic Impact Analysis Guidelines but was added to the study as requested by Village of McFarland and/or Dane County.

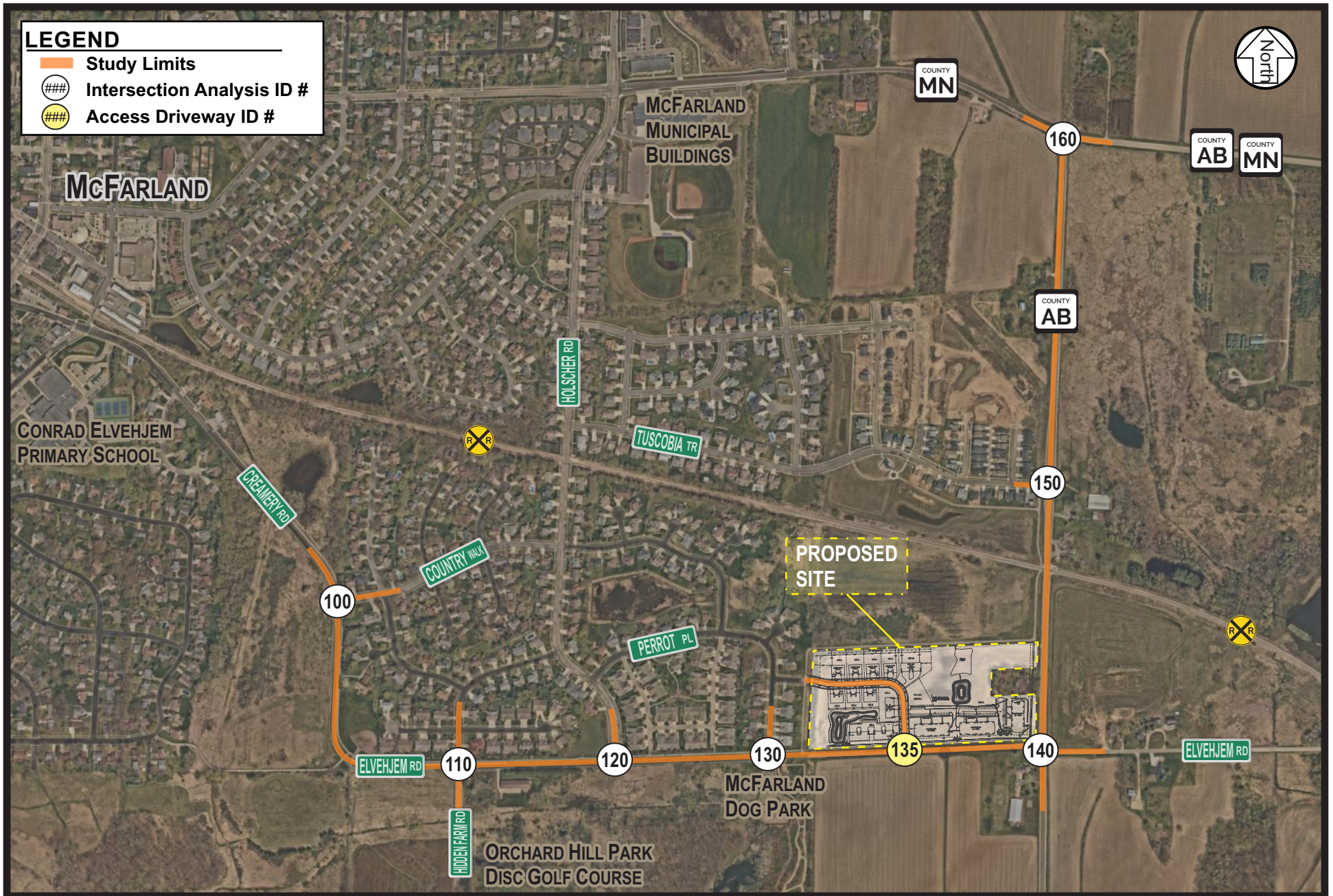
SRF considered the following two (2) intersections for study; however, they fall outside of the recommended study limits for a small and medium TIA type as defined by the Middleton TIA Guidelines. Village of McFarland staff also made it known that these two (2) intersections were previously a part of an Intersection Control Evaluation (ICE) in 2023. Therefore, the study team omitted these intersections from this study.

- Creamery Road and Johnson Street
- Bashford Street and Exchange Street

STUDY APPROACH

The Village of McFarland does not have an adopted policy requiring a TIA based on predetermined minimum units or estimated peak hour trip generation nor does the Dane County Highway Department generally require a TIA for developments introducing less than 100 peak hour trips, which this development categorizes as.

Given the public's interest in a study of this nature, Lakestone Properties agreed to complete a TIA, and coordination between the Village of McFarland, Dane County, Lakestone Properties, and SRF resulted in the completion of this study using methodologies consistent with Middleton's *Traffic Impact Analysis Guidelines* (March 2005), including industry accepted publications such as the Institute of Transportation Engineers (ITE) *Trip Generation Manual 11th edition*.



Study Area Limits

Lakestone Properties Development
Village of McFarland, WI

Figure 1

Proposed Development Description and Site Plan

The proposed development consists of 14 total buildings. Eleven (11) of those buildings, four (4) designated for townhomes and seven (7) designated for duplex units, propose individual-attached garage parking for tenants. The three (3) apartment buildings provide a connected surface parking lot as well as covered parking within each building (see Appendix A: Development Site Plans).

A detailed site plan for the proposed residential development (see Figure 2), describes adjacent transportation elements such as Annual Average Daily Traffic (AADT), access spacing, and parking.

SITE LOCATION

The proposed Lakestone Properties Residential Development is located north of Elvehjem Road and west of County AB. The site is currently undeveloped agricultural land. The study area is generally bounded by Country Road to the west, County MN to the north, County AB to the east, and Elvehjem Road to the south.

SIGHT DISTANCE EVALUATION

Per *City of Middleton TIA Guidelines*¹, sight distance evaluation should be performed for proposed connections with the existing roadway and internal site intersections. Therefore, SRF evaluated the following internal driveways and adjacent roadway connections potentially affected by the site's construction for sight distance compliance per Wisconsin Department of Transportation (WisDOT) FDM 11-10² (see Figure 3).

- Townhome Access Lot and Devils Lake Way (design speed: 30 mph)
- Apartment Buildings Access Lot and Devils Lake Way (design speed: 30 mph)
- Devils Lake Way and Elvehjem Road (design speed: 50 mph)
- Elvehjem Road and County AB (design speed: 60 mph)

Per WisDOT FDM 11-10, SRF used minor road decision point locations 14.5 feet from the furthest outside edge of non-shoulder mainline for the evaluation. Design speeds were assumed to be five (5) mph greater than the posted speed limit for the adjacent major roadway. Developers should be mindful to avoid placing obstructions (not limited to parking stalls, trees, bushes, bike racks, buildings, etc.) in these sight lines.

UNDEVELOPED OPEN LAND

The proposed Lakestone Properties Residential Development proposes to occupy a single, 18-acre parcel (parcel number - 154/0610-024-9691-1), which nearly completes a regular rectangle shape, however, a one-acre residential lot (2921 County Highway AB, parcel number - 028/0610-024-9910-0) cuts into what would be a complete rectangle for the 18-acre lot. In total, the proposed zoning allows for 196 dwelling units on the 18-acre site (49 low density units, 147 medium density units). The Lakestone Properties Residential Development proposes 30 dwelling units for low density and 117 dwelling units for medium density residential zoning. The rezoning of the adjacent one-acre site would likely increase the total dwelling unit occupation in the medium density residential mapped area to 157 dwelling units. To provide a conservative analysis that considers the potential for additional development constructing prior to horizon year 2040, SRF incorporated additional dwelling density, beyond what's proposed in the current Lakestone Properties Residential Development site plan (see Figure 2), into the analysis of this TIA.

¹ <https://www.cityofmiddleton.us/DocumentCenter/View/293>

² <https://wisconsindot.gov/rdwy/fdm/fd-11-10.pdf>



SRF **Proposed Development Site Plan**
 Lakestone Properties Development
 Village of McFarland, WI

Figure 2

Existing Area Conditions

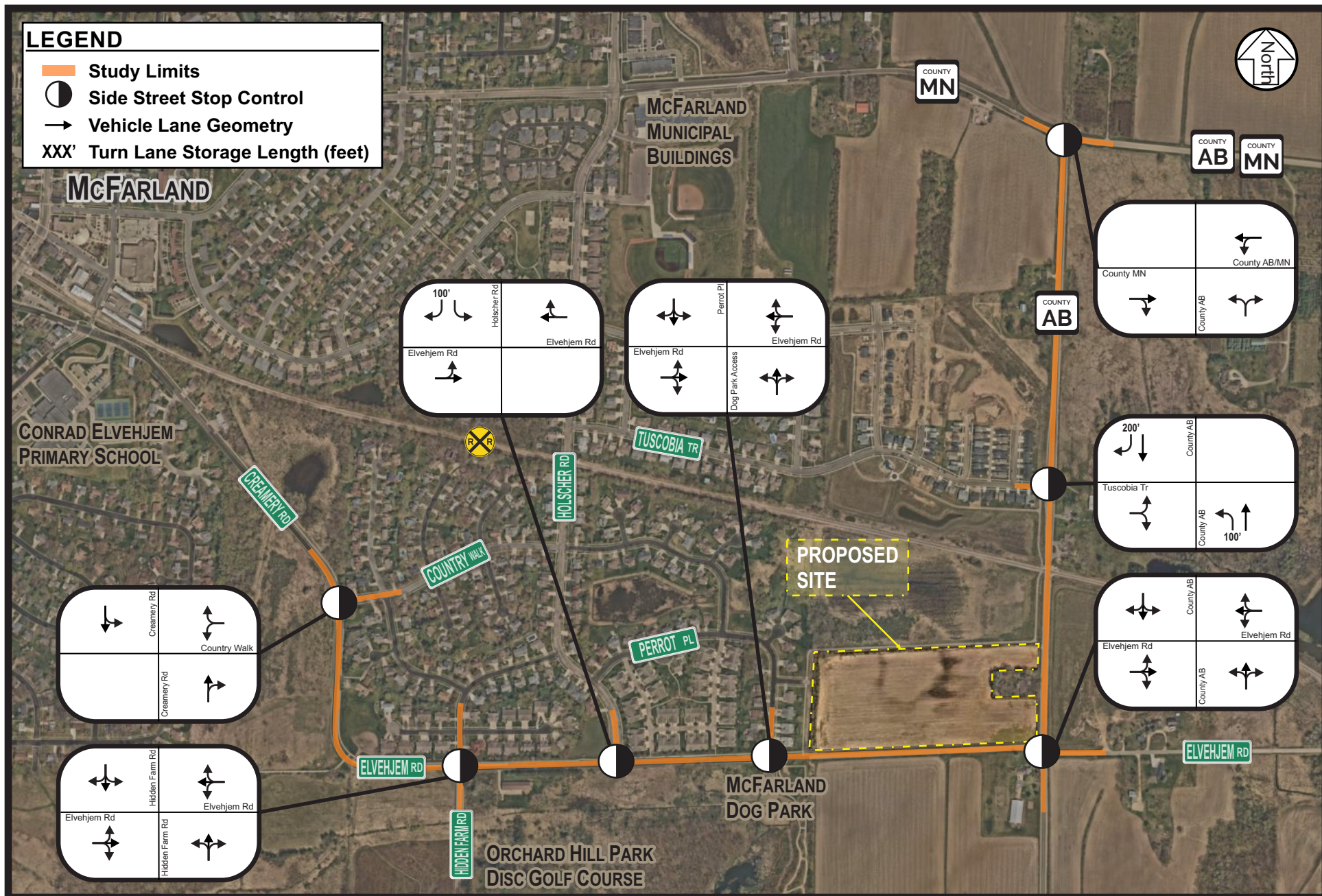
ROADWAY AND TRANSPORTATION SYSTEM

The study area consists of ten (10) nearby roadways. Roadway classification, number of lanes, posted speed limit, bicycle and pedestrian facilities, and on-street parking were all elements considered when reviewing these roadways (see Table 2 and Figure 4).

Roadway classification identifies and organizes roadways in groups based on their transportation purpose, ranging from interstates and freeways, which provide high mobility and low accessibility to local streets, which provide low mobility and high accessibility.

Table 2: Roadway Characteristics

Roadway	Roadway Classification	Lanes	Posted Speed (mph)	Sidewalks	Crosswalks	Bike Lanes	On-Street Parking	Off-Street Path
County MN	Major Collector	2	55	-	-	-	-	-
County AB	Major Rural Collector	2	55	-	-	-	-	-
Elvehjem Road	Urban Collector	2	25-45	✓	-	-	-	✓
Creamery Road	Urban Collector	2	25	✓	-	-	-	✓
Holscher Road	Urban Collector	2	25	✓	✓	✓	✓	-
Tuscobia Trail	Local Road	2	25	✓	✓	-	✓	-
Hidden Farm Road	Local Road	2	25	✓	✓	-	✓	-
Perrot Place	Local Road	2	25	✓	✓	-	✓	-
Devils Lake Way	Local Road	2	25	✓	✓	-	✓	-
Country Walk	Local Road	2	25	✓	✓	-	✓	-



Study Area Intersection Geometric Configurations

Lakestone Properties Development
Village of McFarland, WI

Figure 4

BICYCLE AND PEDESTRIAN FACILITY REVIEW

While the Middleton TIA Guidelines present guidance on bicycle and pedestrian LOS analysis, these analysis guidelines are generally only applicable at signalized intersection locations. The locations deemed necessary for study as part of this TIA are unsignalized intersection locations, therefore, the bike/ped LOS analysis methods outlined in the Middleton TIA Guidelines may not be appropriate to use as-is for this study. Therefore, SRF considered the parameters that define successful bicycle and pedestrian infrastructure and how the study intersections currently accommodate cyclists and pedestrians.

Elvehjem Road and Perrot Place / Dog Park Access

In the six (6) hours of count data collected on March 18, 2025, 6:00 – 9:00 am and 3:00 – 6:00 pm, this intersection serviced 52 pedestrians and 27 bicyclists. A majority of these non-motorized users crossed the north leg of the intersection; however, a notable number of pedestrians crossed the east leg of the intersection, traveling to/from the McFarland Dog Park. The north leg currently provides curb ramps on both sides of Perrot Place with a marked crosswalk. The east leg provides curb ramps and detectable warning fields but does not provide a marked crosswalk on Elvehjem Road. The pedestrian crossing distances for the north and east leg are approximately 35 feet and 40 feet, respectively. The curb radius is approximately 20-25 feet for each intersection quadrant.

Lower Yahara River Trail

The off-street shared use path, designated as the 'Lower Yahara River Trail' currently resides on the north side of Elvehjem Road, running east-west before terminating at the southwest corner of the proposed site.

AREA LAND USES

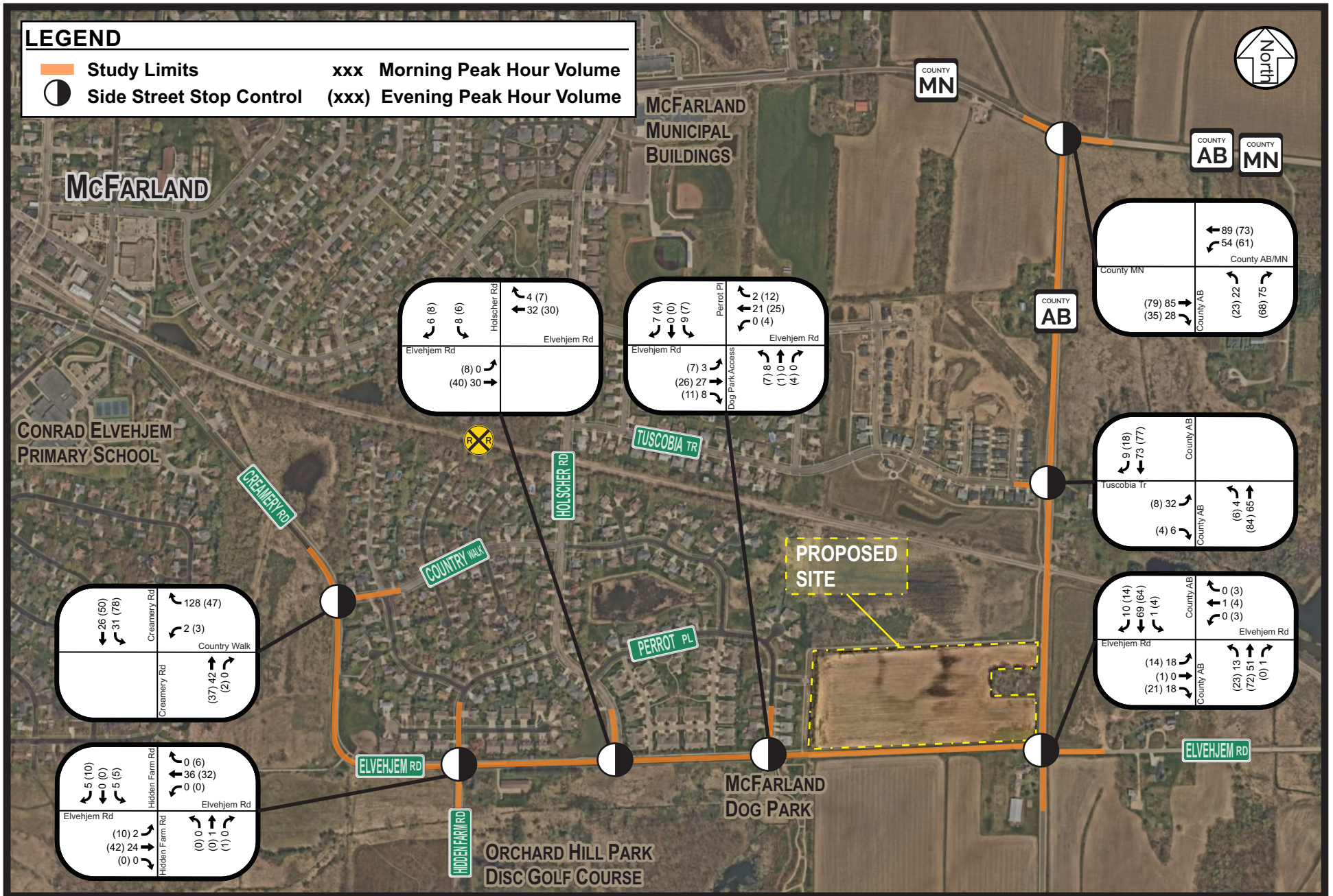
The land proposed to undergo development is currently agricultural land. Land adjacent to the development site consists of additional agricultural land to the north, south and east, wetland areas to the north, and single and two-family residential to the west³.

DATA COLLECTION PLAN

The SRF project team's data collection efforts focused on gathering and organizing a variety of information related to the study area. SRF completed a field review on March 27, 2025, to gather intersection and roadway geometrics, proposed site conditions, and surrounding land uses.

SRF collected vehicle, bicycle, and pedestrian turning movement counts on March 18, 2025, to understand traffic operations during peak traffic periods within the study area (see Figure 5). SRF collected three (3) hours of turning movement count data in the morning, 6:00 – 9:00 am, and three (3) hours of turning movement count data in the evening, 3:00 – 6:00 pm, for all study area intersections (see Appendix B: Intersection Turning Movement Counts). SRF reviewed these turning movement counts and determined the overall study area morning and evening peak hour to be 7:15 – 8:15 am and 4:30 – 5:30 pm, respectively.

³ <https://mcfarland.maps.arcgis.com/apps/webappviewer/index.html>



Peak Hour Turning Movement Volumes - Existing (2025) Traffic Conditions

Lakestone Properties Development
Village of McFarland, WI

Figure 5

SITE ACCESS

The development site proposes extending Devils Lake Way, which is an existing roadway along the west side of the proposed site. It is currently proposed that this extension of Devils Lake Way continues through the site, realigning north-south and terminating at its proposed intersection with Elvehjem Road. A network of parking lots and driveways will connect directly to this proposed Devils Lake Way extension, providing connectivity for site-generated traffic (see Figure 6).

INTERNAL SITE CIRCULATION

The proposed development includes designated driveways for each duplex dwelling unit with the exception of the four-unit townhome buildings, which provide a variation of shared driveway(s). The two (2) townhome buildings on Lot one (1) provide designated individual garage spaces for each dwelling unit, with an additional ten (10) surface parking stalls. These garage spaces are connected via a shared access lot, which has one (1) driveway connection with the proposed Devils Lake Way extension. The proposed development connects the three (3) apartment buildings via a single shared parking lot, which houses 98 ground-level parking stalls, six (6) of which are Americans with Disabilities Act (ADA)-compliant based on the minimum number of accessible parking spaces permitted for a lot of this size (76-100 stalls) being four (4) based on 2010 ADA Standards for Accessible Design⁴. This parking lot offers one (1) driveway connection to the Devils Lake Way extension, approximately 200 feet north of Elvehjem Road.

As proposed, the development does not have any designated service vehicle routes or parking stalls. Delivery and moving trucks will likely temporarily utilize street parking on Devils Lake Way to service the duplex units and the shared access/parking lot areas to service the townhome and apartment buildings. Refuse collection vehicles will likely perform on-street collection for the duplex buildings. For the townhome and apartment buildings, refuse collection will take place at communal location(s). The communal refuse collection area for the apartment buildings is located within each building's covered parking lot, therefore, refuse collection vehicles will likely pull up to the covered parking lot driveway (not entering the lot), park, and empty the refuse receptacles into the truck, then proceed to back out of the driveway.

⁴ <https://www.ada.gov/law-and-regs/design-standards/2010-stds#parking-spaces>

Development Traffic

TRIP DISTRIBUTION AND GENERATION

Trip distribution determines where trips desire to go. SRF developed trip distribution patterns for the proposed Lakestone Properties development using a combination of previous adjacent study information, recent annual average daily traffic (AADT) data, and 2025 turning movement counts. Using the existing available count data for the study area intersections, SRF reviewed how traffic flowed in and out of the study area at the external study area intersections. These external study area intersections are:

- 100: Creamery Road and Country Walk
 - Facilitates entering (SBT) and exiting (NBT) traffic.
- 120: Elvehjem Road and Holscher Road.
 - Facilitates entering (SBL) and exiting (WBR) traffic.
- 140: Elvehjem Road and County AB
 - Facilitates entering (NBL) and exiting (EBR) traffic.
- 160: County AB and County MN
 - Facilitates entering (WBL/EBR) and exiting (NBL/NBR) traffic.

Based on existing distribution patterns throughout the study area, SRF used traffic volume data at these intersections to determine trip distributions for proposed Lakestone Properties site-generated traffic (see Table 3 and Figure 7).

Table 3: Regional Trip Distribution Determination

External Study Area Intersection (Node ID: Description)	Morning Peak Hour		Evening Peak Hour		Daily Weighted Average
	% Exiting Study Area	% Entering Study Area	% Exiting Study Area	% Entering Study Area	
100: Creamery Road & Country Walk	20%	26%	29%	24%	25%
120: Elvehjem Road & Holscher Road	6%	2%	3%	4%	4%
140: Elvehjem Road & County AB	10%	11%	13%	13%	12%
160: County AB & County MN	East	42%	47%	35%	44%
	West	22%	14%	20%	15%
TOTAL	100%	100%	100%	100%	100%

The number of trips the proposed site traffic produces was based on the trip generation rates from the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition*. ITE assisted in the development of weekday morning peak hour, weekday evening peak hour, and daily trip generation estimates for the proposed site (see Figure 8). Trip generation estimations represent site-generated traffic after the site's complete construction and full occupancy. The site is currently planned to be completely constructed and 100% occupied in the opening year 2030. This specific trip generation effort also incorporates potentially additional development in the form of approximately 40 additional apartment dwelling units based on maximum allowable density thresholds for the open land within the site.

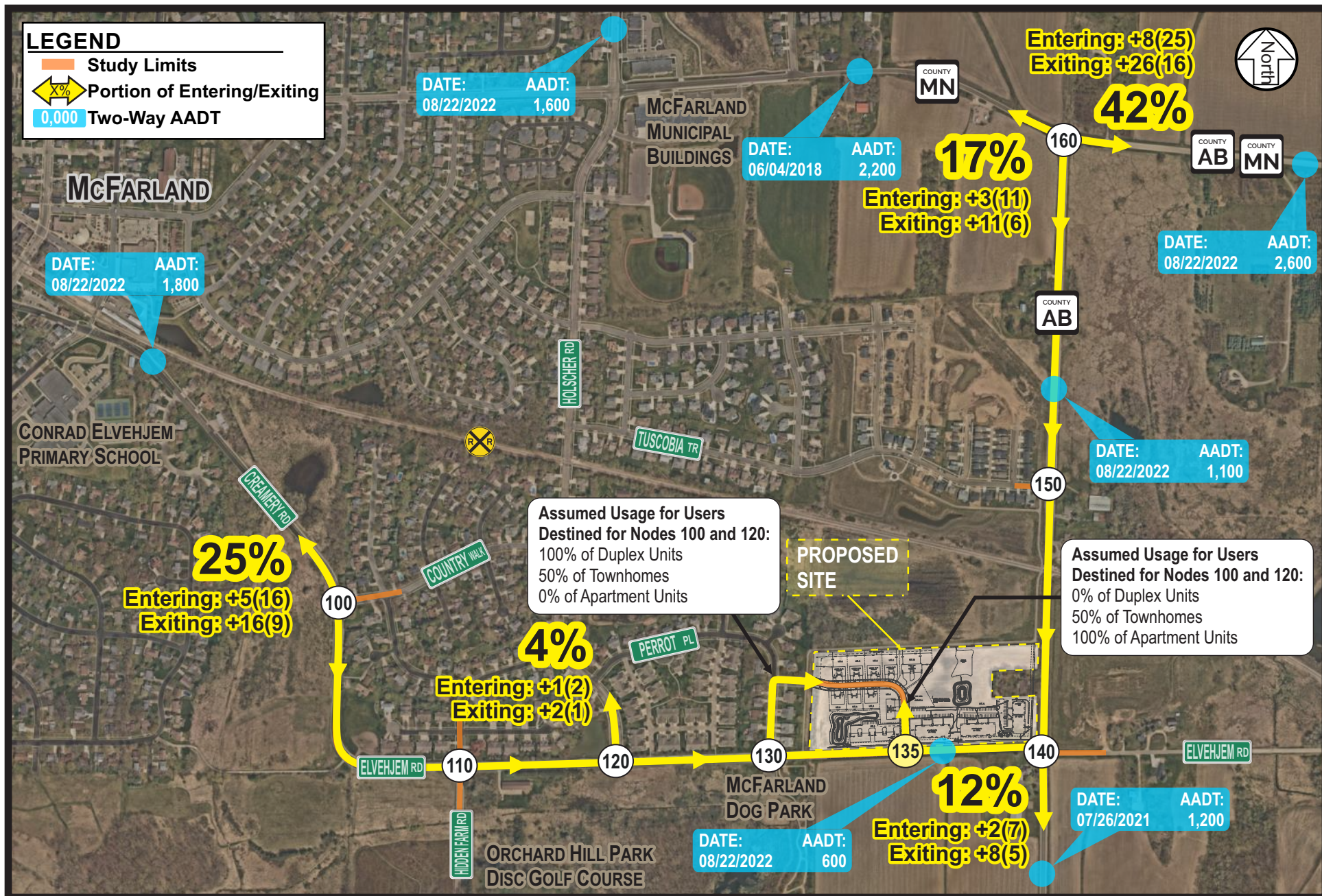
MODE SPLIT

Mode reduction applies in scenarios where adjacent public infrastructure promotes the use of other forms of transportation beyond the use of a personal vehicle.

This site provides pedestrian and bicycle accommodations and anticipates providing access to/from the existing shared use path located along the west and north sides of the site. While this shared use path provides local connectivity for non-motorized users, its reach beyond the nearby area is limited. The site does not reside adjacent to any public transit routes either, therefore, SRF omitted from applying any mode reduction for this proposed development.

ASSIGNMENT

The process of assigning site-generated traffic to all feasible routes to/from the proposed site within the study area is referred to as trip assignment. This process considers the previously identified trip distribution patterns and routes all site-generated traffic, determined through the trip generation process, through the study area intersections. Trip assignment values are critical to the development of total traffic scenarios where the development is assumed to be fully constructed. Trip assignment values are added to background traffic analysis scenarios to create the total traffic analysis scenarios.



Trip Distribution

Lakestone Properties Development
Village of McFarland, WI

Figure 7

ITE Land Use Code	Land Use Description	Unit	Size	Linked Trips (%)	Passy-by Trips (%)	Weekday Trips	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
							Entry (% of Total)	Exit (% of Total)	Entry (% of Total)	Exit (% of Total)
215	Single-Family Attached Housing Duplex Units	Dwelling Units	14	0.0%	0.0%	56	1 20%	4 80%	3 75%	1 25%
							One Hour Between 7 and 9 a.m.		One Hour Between 4 and 6 p.m.	
215	Single-Family Attached Housing Townhomes	Dwelling Units	16	0.0%	0.0%	71	1 20%	4 80%	3 50%	3 50%
							One Hour Between 7 and 9 a.m.		One Hour Between 4 and 6 p.m.	
220	Multi-Family Housing (Low-Rise) Apartment Units	Dwelling Units	157*	0.0%	0.0%	1,082	17 24%	55 76%	55 63%	33 38%
							One Hour Between 7 and 9 a.m.		One Hour Between 4 and 6 p.m.	
*Includes 40 units of foreseeable off-site development										
TOTAL TRIPS						1,209	19	63	61	37
LINKED TRIPS		For a conservative analysis, this study does not include any linked trips				0	0	0	0	0
DRIVEWAY TRIPS						1,209	19	63	61	37
PASS-BY TRIPS		For a conservative analysis, this study does not include any pass-by trips				0	0	0	0	0
TOTAL NEW TRIPS						1,209	19	63	61	37



Trip Generation Estimate Summary

Lakestone Properties Development
Village of McFarland, WI

Figure 8

Future Traffic

BACKGROUND TRAFFIC GROWTH

Background traffic trips are not affiliated with the development; instead, they travel through the study area to reach their destination. Background traffic contributes to the typical increase of traffic over time as the surrounding population also increases. SRF utilized nearby Annual Average Daily Traffic (AADT) data and information available from previous studies located near the proposed development site to determine background growth and subsequent opening year and horizon year background volumes based on existing turning movement counts and linear growth assumptions.

SRF found that available traffic forecast data at the County MN and County AB intersection, generated by Greater Madison Metropolitan Planning Organization (MPO), estimates annual background growth of approximately 3.0% during the morning peak hour and approximately 2.0% during the evening peak hour. This available traffic forecast data represents predicted traffic growth as land adjacent to the study area develops as part of the Village of McFarland's East Side Plan⁵. Available historical AADT data within the study area shows annual increases of 1.0% – 4.4%. Considering both data sources, SRF elected to use an annual background traffic growth rate of 3.0% in the morning peak hour and 2.0% in the evening peak hour across all feasible turning movements.

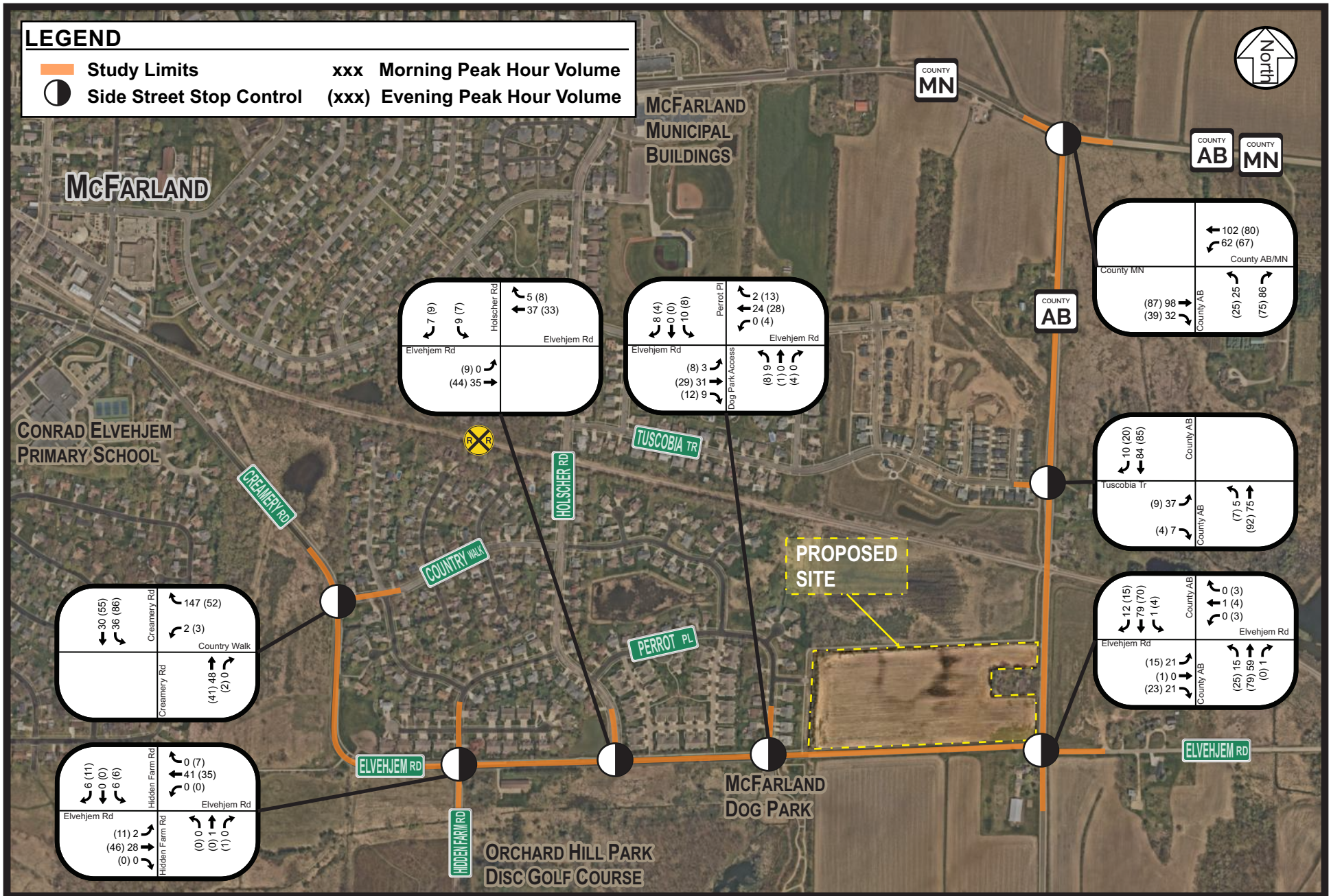
BACKGROUND TRAFFIC

Background traffic scenarios, also known as scenarios without the presence of the Lakestone Properties development, consist solely of future background traffic. SRF generated opening year 2030 and horizon year 2040 traffic conditions, both without development traffic (existing year traffic + background growth) turning movement volumes (see Figure 9 and Figure 10).

TOTAL TRAFFIC

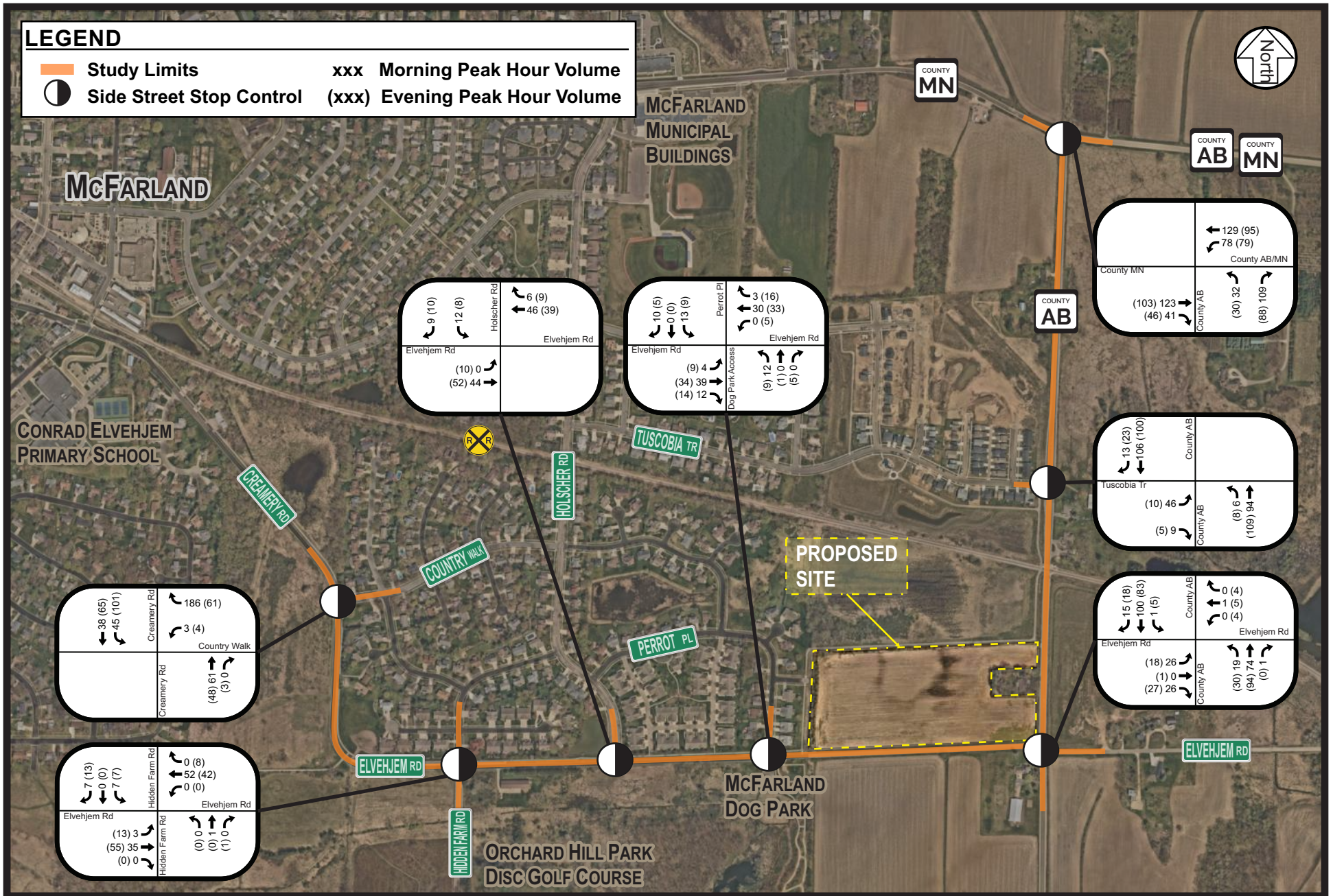
Total traffic scenarios, also known as the scenarios with the complete buildout of the Lakestone Properties development, consist of future background traffic as well as Lakestone Properties development generated traffic. The SRF project team generated opening year 2030 and horizon year 2040 traffic conditions, both with Lakestone Properties development traffic (existing year traffic + site traffic + background growth) turning movement volumes (see Figure 11 and Figure 12).

⁵ https://www.mcfarland.wi.us/180/Community-Development-Plans#tab48a6bad2-fb05-4b16-8090-99344057e5ad_4



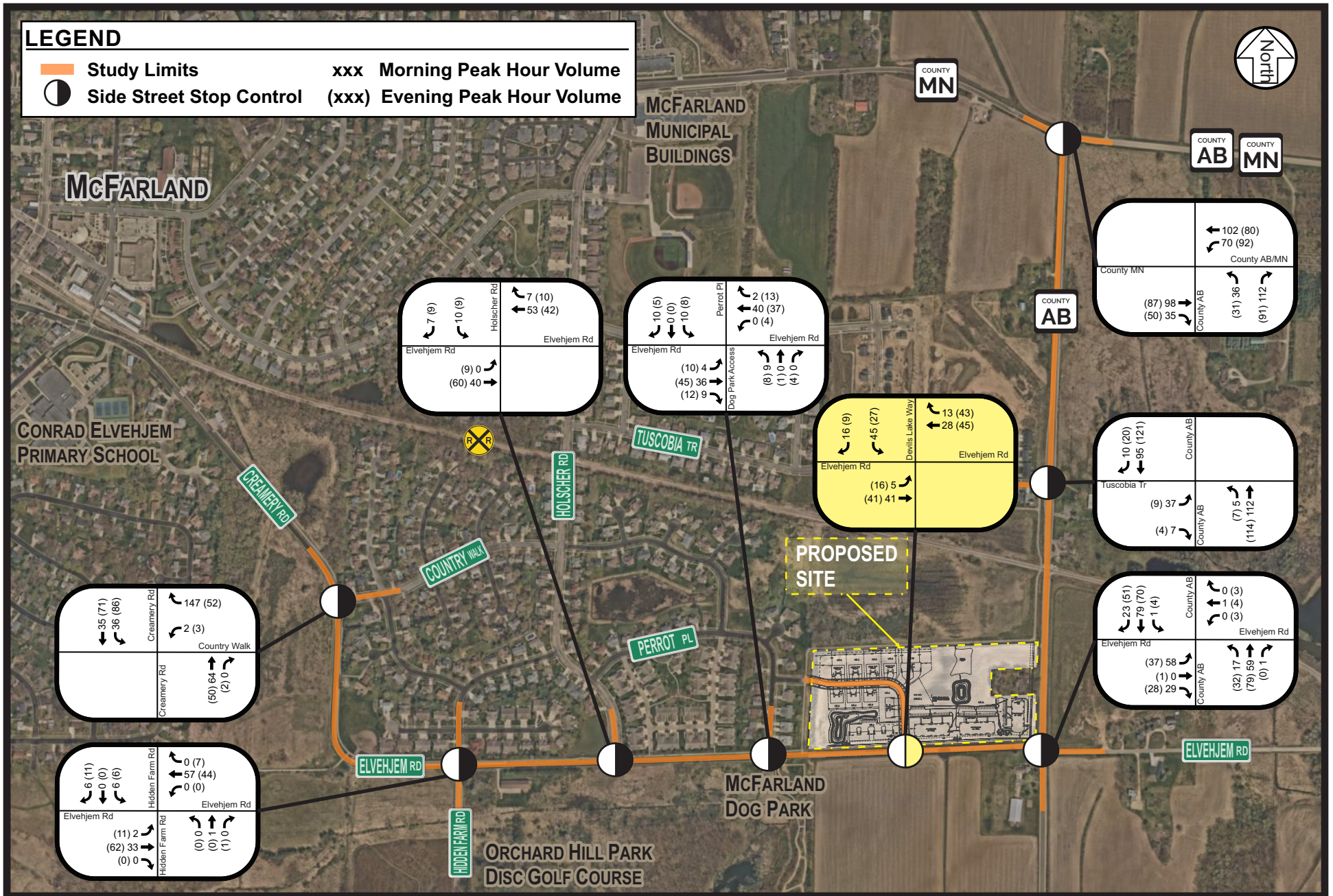
Peak Hour Turning Movement Volumes - Opening Year (2030) Traffic Conditions without Development
 Lakestone Properties Development
 Village of McFarland, WI

Figure 9



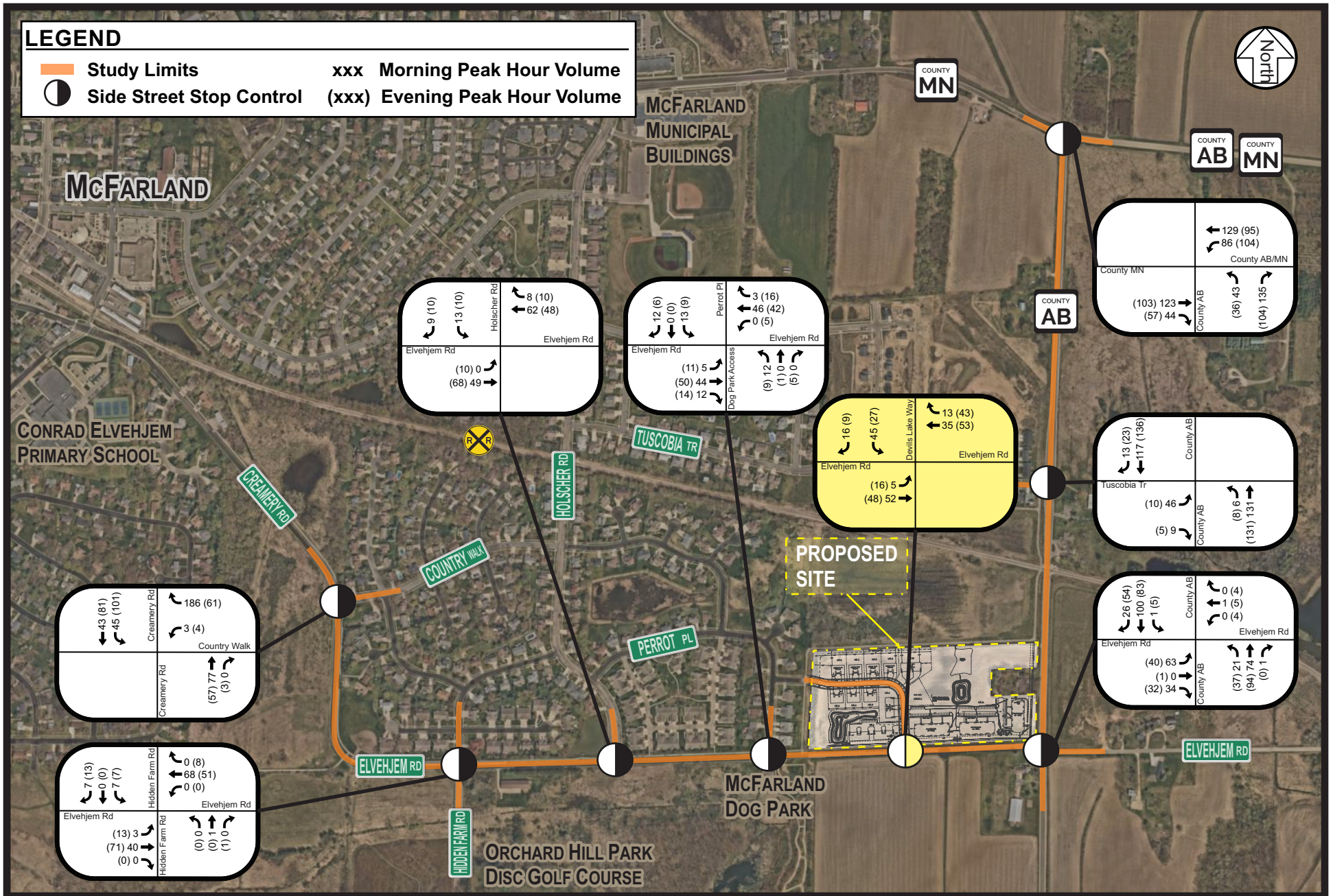
Peak Hour Turning Movement Volumes - Horizon Year (2040) Traffic Conditions without Development
 Lakestone Properties Development
 Village of McFarland, WI

Figure 10



Peak Hour Turning Movement Volumes - Opening Year (2030) Traffic Conditions with Development
 Lakestone Properties Development
 Village of McFarland, WI

Figure 11



Peak Hour Turning Movement Volumes - Horizon Year (2040) Traffic Conditions with Development
 Lakestone Properties Development
 Village of McFarland, WI

Figure 12

Traffic Operations Analysis

LEVEL OF SERVICE CRITERIA

To determine how traffic operates under current and future conditions, SRF conducted an operational analysis using methodologies published in the Highway Capacity Manual (HCM) 7th Edition. The HCM module in the traffic analysis software package Synchro (version 12.2) was used to document the results of the peak hour traffic operations analysis. Operational analysis results identify a level of service (LOS), which is intended to depict the quality of traffic flow through an intersection. Unsignalized intersections are ranked from LOS A through LOS F as a function of the average control delay (see Table 4). Average control delay quantifies the average time a vehicle will be delayed due to the presence of traffic control devices (traffic signal, roundabout, stop sign, etc.).

Table 4: Level of Service (LOS) Criteria, Unsignalized Intersections

LOS Designation	Average Vehicle Control Delay/Vehicle [seconds]	Description
A	≤ 10.0	No delays at intersections with continuous flow of traffic. Uncongested operations: high frequency of long gaps available for all left and right turning traffic. No observable queues.
B	10.1 to 15.0	
C	15.1 to 25.0	Moderate delays at intersections with satisfactory to good traffic flow. Light congestion; infrequent backups on critical approaches.
D	25.1 to 35.0	Increased probability of delays along every approach. Significant congestion on critical approaches, but intersection is functional. Limited stable traffic flow.
E	35.1 to 50.0	Heavy traffic flow condition. Heavy delays probable. No available gaps for cross-street traffic or main street turning traffic. Limited stable traffic flow.
F	> 50.0	Unstable traffic flow. Heavy congestion. Traffic moves in forced flow condition. Average delays greater than one minute highly probably. Total breakdown.

SOURCE: *Highway Capacity Manual, HCM 6*, Transportation Research Board, 2016.

The Middleton TIA Guidelines state that the City's goal is for its transportation system is to operate at a minimum of LOS C; however, the desirable intersection operation for major arterial system is LOS C with LOS D being the minimal level of acceptability due to economic restrictions. This TIA evaluates study intersection traffic operations with the same approach, understanding that LOS D is the minimum level of acceptability with LOS C being the desirable minimum.

The TIA guidelines acknowledge that intersections may currently, or in the future, operate below LOS D even without development traffic. Under this condition, TIA guidelines state that a proposed development is responsible for maintaining the LOS that currently exists at an intersection if the existing LOS falls below desirable LOS thresholds. SRF elected to further review intersections operating with operational deficiencies (any movement worse than LOS D) and present the reasoning behind these deficiencies as improvements may be necessary.

An operational analysis was conducted for the weekday morning and evening peak hours at the study intersections. SRF compiled measure of effectiveness (MOE) tables displaying traffic volumes, level of service, delay, and queueing results for each turning movement at the study intersections (see Appendix C: Measure of Effectiveness Tables) as well as complementary traffic operations output files (see Appendix D: Traffic Operations Analysis) for the following analysis scenarios.

- Existing (2025) Conditions
- Opening Year (2030) Conditions without Development
- Horizon Year (2040) Conditions without Development
- Opening Year (2030) Conditions with Development
- Horizon Year (2040) Conditions with Development

ASSUMPTIONS

To achieve satisfactory modeling conditions within Synchro12, SRF implemented the following assumptions:

- Utilized a minimum heavy vehicle composition of 1.0% for all feasible turning movements.
 - Heavy vehicles are defined as trucks and buses with an average length of 45 feet.
- Set all feasible turning movements with an observed peak hour volume of zero (0) to one (1).

EXISTING (2025) TRAFFIC CONDITIONS

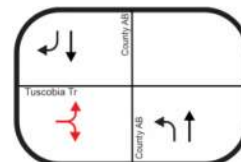
This analysis scenario considers intersection geometry and traffic volumes based on the existing conditions. Under this scenario, zero (0) intersections result in operational deficiencies (by-movement LOS<D).

OPENING YEAR (2030) TRAFFIC CONDITIONS WITHOUT DEVELOPMENT

This analysis scenario considers intersection geometry based on existing conditions and analyzes traffic volumes based on 2030 background traffic volumes. Under this scenario, zero (0) intersections result in operational deficiencies (by-movement LOS<D); however, the following intersection experiences minor operational changes compared to the previous analysis scenario due to the increase in background traffic.

COUNTY AB AND TUSCOBIA TRAIL

The morning peak hour background traffic growth between 2025 and 2030 degrades the LOS for the eastbound left/right movement from LOS A to LOS B. This movement still operates well above desirable LOS conditions, therefore, there are no concerns with this change in LOS.

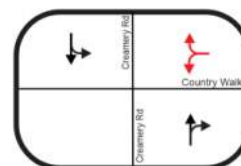


HORIZON YEAR (2040) TRAFFIC CONDITIONS WITHOUT DEVELOPMENT

This analysis scenario considers intersection geometry based on existing conditions and analyzes traffic volumes based on 2040 background traffic volumes. Under this scenario, zero (0) intersections result in operational deficiencies (by-movement LOS<D); however, the following intersections experience minor operational changes compared to the previous analysis scenario due to the increase in background traffic.

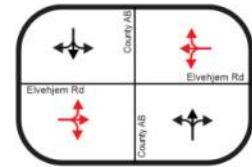
CREAMERY ROAD AND COUNTRY WALK

The morning peak hour background traffic growth between 2030 and 2040 degrades the LOS for the westbound left/right movement from LOS A to LOS B. This movement still operates well above desirable LOS conditions, therefore, there are no concerns with this change in LOS.



ELVEHJEM ROAD AND COUNTY AB

The morning peak hour background traffic growth between 2030 and 2040 degrades the LOS for the eastbound and westbound approaches from LOS A to LOS B. The eastbound approach degrades from LOS A to LOS B in the evening peak hour as well. These approaches still operate well above desirable LOS conditions, therefore, there are no concerns with this change in LOS.

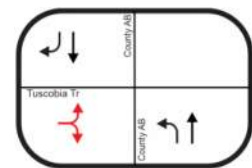


OPENING YEAR (2030) TRAFFIC CONDITIONS WITH DEVELOPMENT

This analysis scenario considers intersection geometry based on fully constructed development conditions and analyzes traffic volumes based on 2030 background traffic volumes with the addition of site generated traffic. Under this analysis scenario, zero (0) intersections result in operational deficiencies (by-movement LOS<D); however, the following intersection experiences minor operational changes compared to the previous analysis scenario due to the increase in background traffic.

COUNTY AB AND TUSCOBIA TRAIL

In addition to the previously identified eastbound left/thru movement change in LOS during the morning peak hour, the site generated traffic at this intersection results in the eastbound left/right movement degrading from LOS A to LOS B in the evening peak hour. This movement still operates well above desirable LOS conditions, therefore, there are no concerns with this change in LOS.



HORIZON YEAR (2040) TRAFFIC CONDITIONS WITH DEVELOPMENT

This analysis scenario considers intersection geometry based on fully constructed development conditions and analyzes traffic volumes based on 2040 background traffic volumes with the addition of site generated traffic. Under this scenario, zero (0) intersections result in operational deficiencies (by-movement LOS<D), and the previously identified intersections do not experience additional operational changes.

Findings and Recommendations

The findings and recommendations for the Lakestone Properties Residential Development are based on a review of the site plan and the results of operational and safety analysis for the following analysis scenarios.

- Existing (2025) Conditions
- Opening Year (2030) Conditions without Development
- Horizon Year (2040) Conditions without Development
- Opening Year (2030) Conditions with Development
- Horizon Year (2040) Conditions with Development

OPERATIONAL CONSIDERATIONS

The operational analysis found **no LOS or queueing deficiencies at any study intersection** and determined **all study intersections currently and will continue to operate acceptably with their current traffic control** as no study intersections satisfy signal warrants, even with development-generated traffic.

When warranted, a capacity analysis would be performed on recommended improvement mitigations at the study intersections; however, because there were no LOS deficiencies (LOS <D) to warrant specific operational improvement mitigations, instead SRF identified operational characteristics of the study area for potential improvement consideration.

DEVILS LAKE WAY PROPOSED EXTENSION

Given the proposed in the site plan (see Figure 2), SRF recommends that Devils Lake Way be constructed through the development site with the following physical characteristics (see Figure 13):

- One (1) 11-foot travel lane in each direction (22 feet total)
- One (1) 6-foot shoulder, providing space for on-street parking in one direction (6 feet total)
- Adequate space for curb and gutter in each direction (approximately 1-2 feet total)

Due to the horizontal curvature of the proposed Devils Lake Way extension and necessity to preserve sight distances for shared parking lot driveways, SRF recommends that 'no parking' be enforced along the south/west side of Devils Lake Way through the development site. This still allows for on-street parking along the north/east side of the proposed roadway (see Figure 14).

Based on the operational analysis conducted for all analysis scenarios at the intersection of Devils Lake Way and Elvehjem Road, SRF recommends that the proposed Devils Lake Way extension includes a shared left/right lane for southbound traffic (see Figure 14). SRF recommends that shared lane markings⁶ be included along Devils Lake Way, designating that bicyclists can use the whole vehicle travel lane. SRF also recommends the consideration of pedestrian curb ramp bump outs (or curb extensions) as a traffic calming measure for traffic entering and exiting the proposed site via Elvehjem Road and Devils Lake Way, similar to the north leg of the Main Street and Anthony Street intersection in downtown McFarland. WisDOT FDM 11-46-10.6.1 highlights additional qualities of these bump outs, as they provide increased sight distance for pedestrians and motorists while reducing pedestrian crossing distances⁷.

⁶ https://mutcd.fhwa.dot.gov/htm/2009/part9/fig9c_09_longdesc.htm

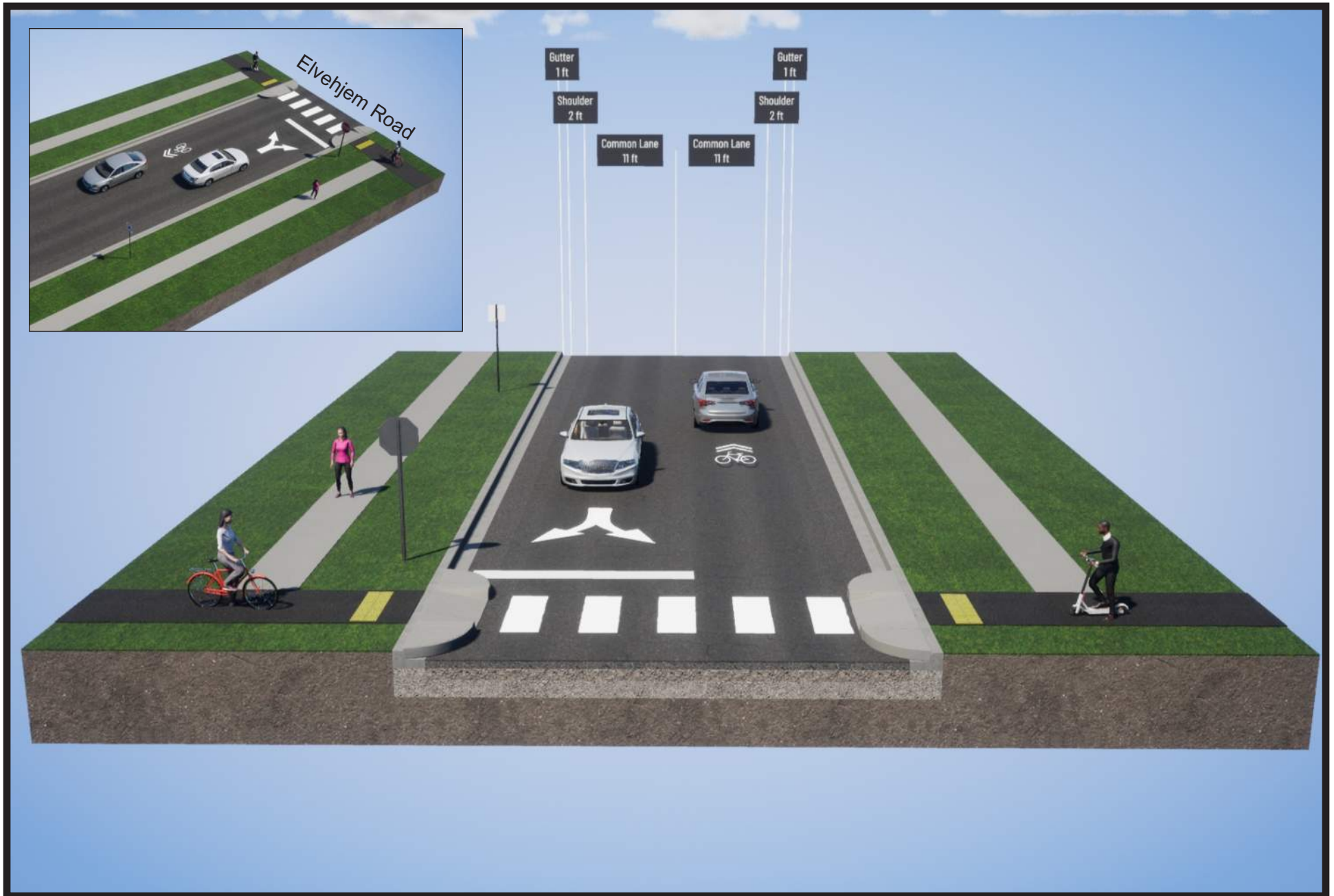
⁷ <https://wisconsindot.gov/rdwy/fdm/fd-11-46.pdf>



Proposed Devils Lake Way Typical Section

Lakestone Properties Development
Village of McFarland, WI

Figure 13



Proposed Devils Lake Way Southbound Approach Configuration

Lakestone Properties Development
Village of McFarland, WI

Figure 14

SAFETY CONSIDERATIONS

Upon reviewing the site and surrounding area study intersections, SRF identified the following safety elements for consideration.

PARK AREA MID-BLOCK CROSSING

SRF recommends the consideration of a mid-block crossing on Devils Lake Way, including appropriate signage and marked crosswalk, to designate an area for residents to access the park area from the west side of Devils Lake Way (see Figure 15). The nearest intersection crossing location would be Elvehjem Road and Devils Lake Way, approximately 225 feet to the south. Pedestrians will unlikely use this intersection to cross Devils Lake Way going to and from the park area and instead they will simply just cross Devils Lake Way at any convenient location. The implementation of a designated mid-block crossing would create a single location where both motorists and pedestrians can expect park users to cross Devils Lake Way. This mid-block crossing should be located along a linear segment of roadway with an unobstructed sightline for vehicles traveling along Devils Lake Way.

DEVILS LAKE WAY POSTED SPEED LIMIT



SRF recommends the implementation of a 20-mph posted speed limit on Devils Lake Way between Perrot Place and Elvehjem Road upon its completed construction as part of the proposed development buildout. As shown in the proposed development site plan, the vehicle site distance for the townhome parking lot driveway and apartment parking lot driveway along Devils Lake Way do not satisfy intersection sight distance requirements for vehicles exiting the driveways (see Figure 3). Reducing the posted speed limit improves sight distance for vehicles exiting these driveways compared to the initially proposed conditions (see Figure 16), although there is still a mild sight distance blockage for vehicles exiting the apartment parking lot driveway.

In addition to the sight distance needs, the proposed horizontal curve of Devils Lake Way, multi-family driveway density, and presence of a park area and bike path all contribute to the need for a speed limit reduction from 25 mph to 20 mph. This reduction in speed limit would echo the City of Madison's 20 is Plenty program, a program centered on the idea that a speed limit of 20 mph is appropriate for local, residential streets⁸. The village of McFarland may lower the speed limit to 20 mph under the approval authority listed in Wisconsin statutes without WisDOT approval. Per section 35-97 of the McFarland Municipal Code of Ordinances, the village board has previously designated several streets within the village limits with 15 mph posted speed limits.

⁸ <https://www.cityofmadison.com/transportation/initiatives/vision-zero/vision-zero-projects/20-is-plenty>

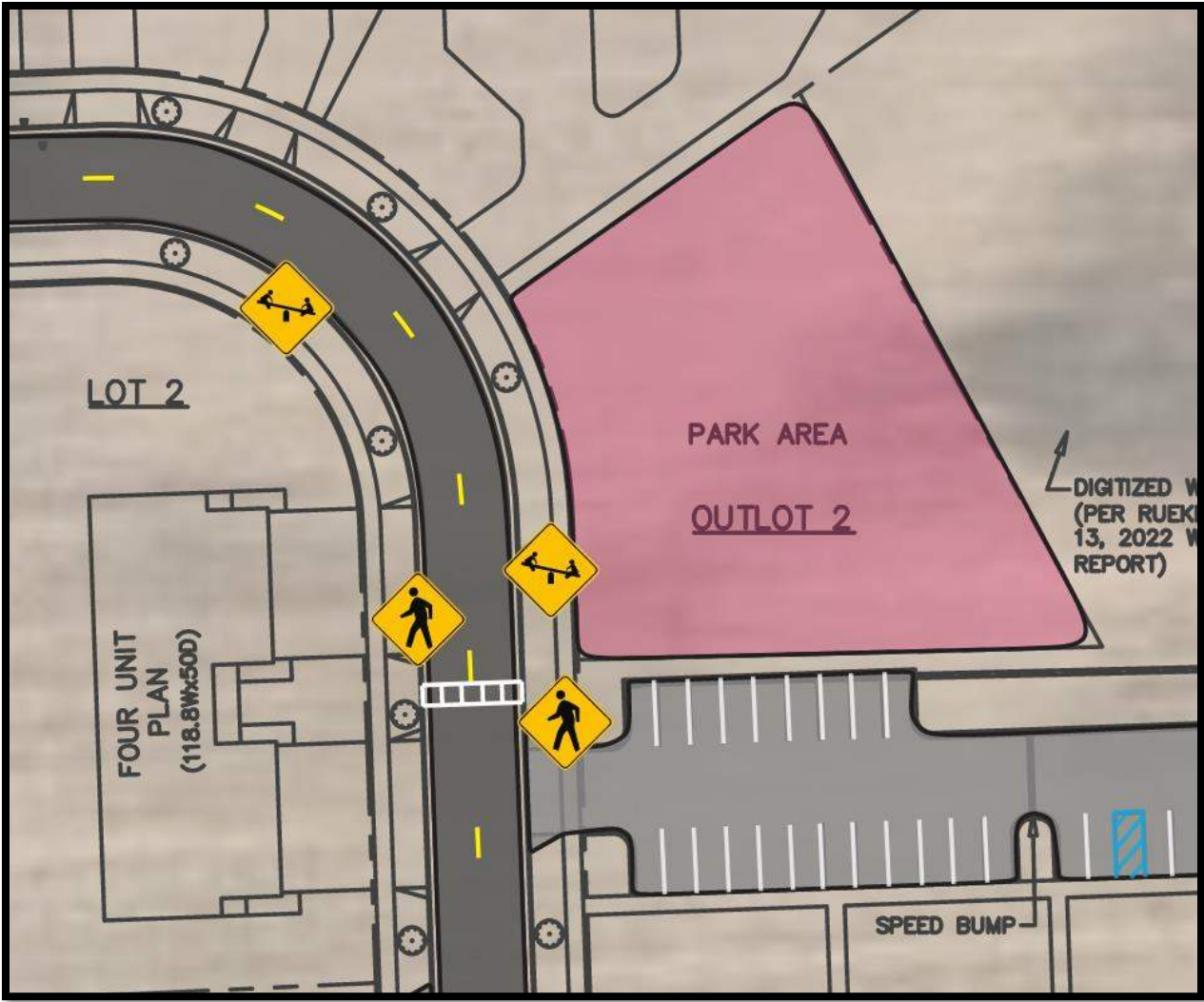
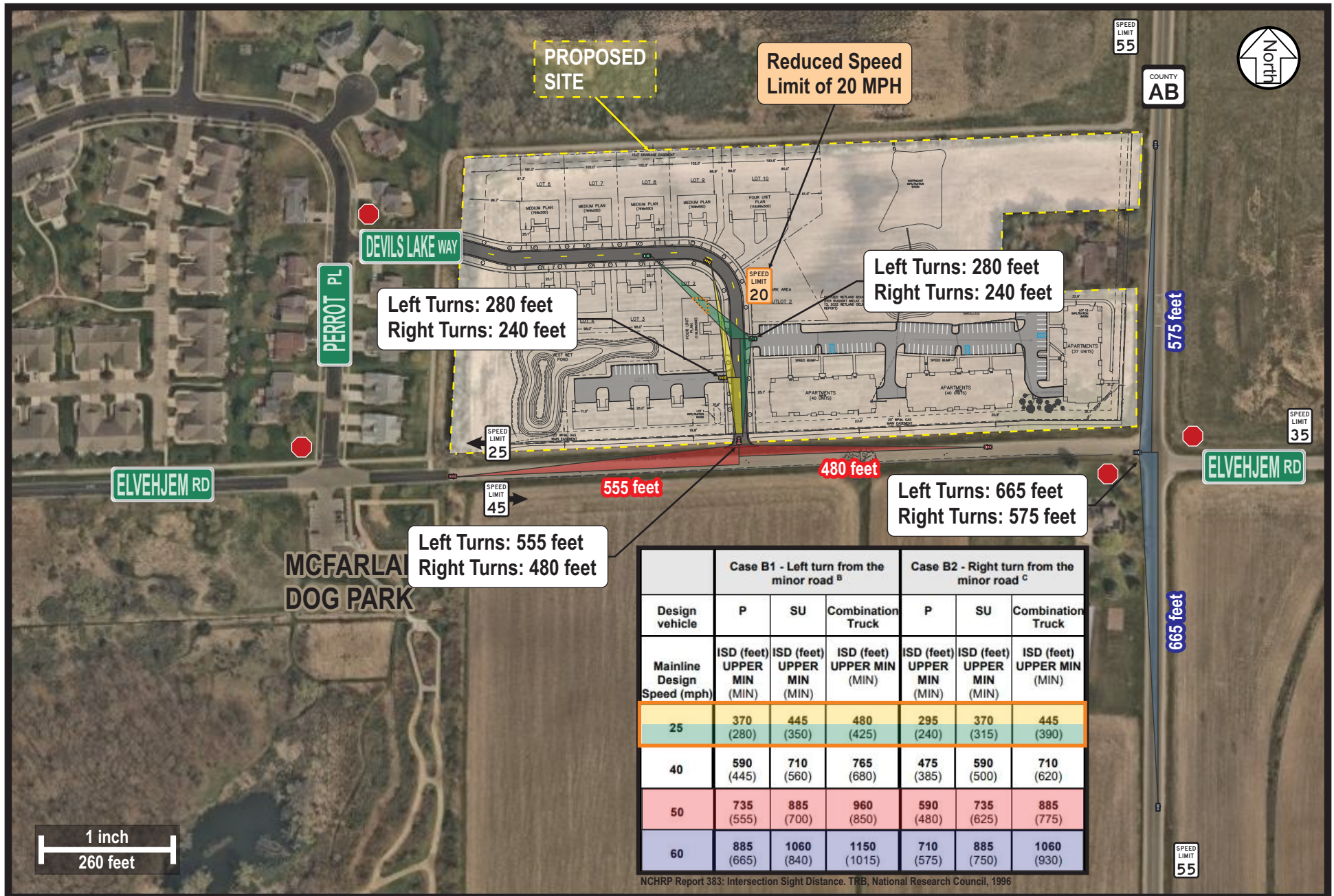


Figure 15: Proposed Mid-Block Crossing for Park Area Users



Sight Distance Evaluation - Recommended Conditions

Lakestone Properties Development
Village of McFarland, WI

Figure 16

PARKING CONSIDERATIONS

Upon reviewing the site and surrounding area study intersections, SRF identified the following parking infrastructure considerations.

ACCESSIBLE PARKING SPACES

SRF recommends that each shared parking facility (lot or garage) satisfy the minimum number of accessible parking spaces permitted as required by the 2010 ADA Standards for Accessible Design (see Table 5).

Table 5: Required Number of Accessible Spaces

Total Number of Parking Spaces Provided in a Parking Lot or Facility	Minimum Number of Accessible Parking Spaces Permitted
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1,000	2 percent of total
1,001 and over	20, plus 1 for each 100, or fraction thereof, over 1,000

*At least one of every six spaces must be van accessible.

SURFACE PARKING LOT LAYOUT

SRF recommends that all marked parking stalls within the shared lots or garages follow WisDOT Standard Detail Drawing (SDD) 15C36 Parking Stall Marking⁹. This includes providing adequate stall depth, width, and clear zone behind each parking stall. The developer should also consider the implementation of concrete parking stop blocks at all parking stall locations directly adjacent to a sidewalk, specifically within the apartment buildings' shared lot. The installation of parking stop blocks ensures that vehicle overhang does not impede the sidewalk for non-motorized users.

SRF also recommends the consideration of installing additional signage within the apartment buildings' shared surface lot, specifically a 10-mph posted speed limit sign at the entrance of the parking lot and a yield sign at the T-intersections within the lot (see Figure 17). This additional signing will provide enhanced safety and driver expectations as vehicles travel through the parking lot.

⁹ <https://wisconsindot.gov/rdwy/sdd/sd-15c36.pdf>

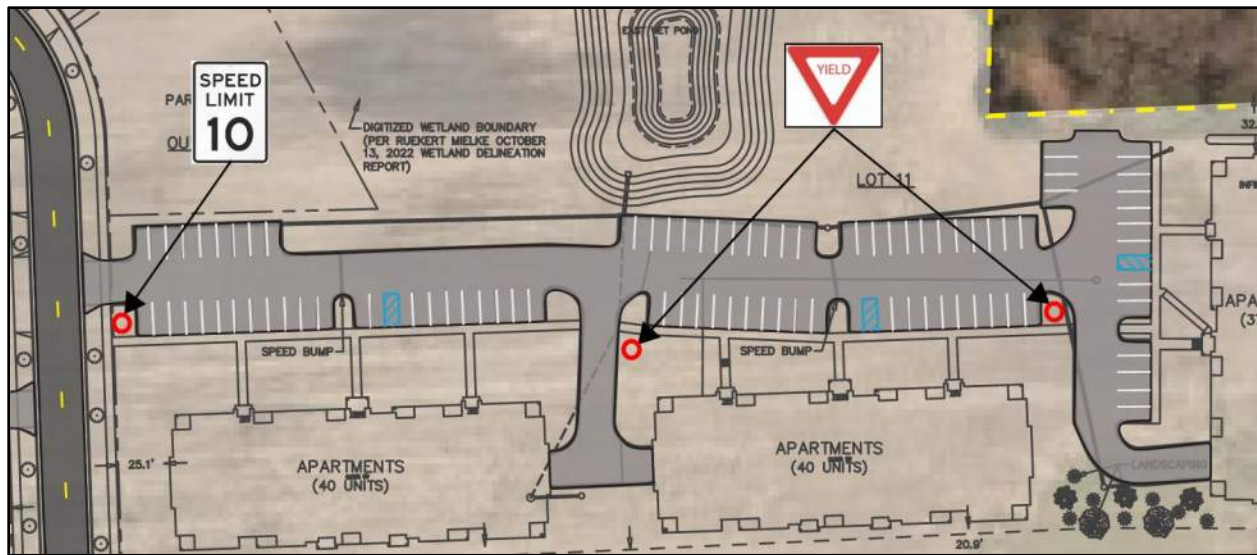


Figure 17: Apartment Buildings' Shared Lot Proposed Signage

ADDITIONAL CONSIDERATIONS

Beyond the considerations and recommendations introduced as a direct consequence of the proposed Lakestone Properties Residential Development, SRF provided additional considerations for future consideration as the land surrounding this development site continues to develop.

ELVEHJEM ROAD POSTED SPEED LIMIT REVIEW

SRF found that Elvehjem Road may benefit from a review of the posted speed limits. Currently, Elvehjem Road has a 25-mph posted speed between its merger with Creamery Road and just east of Perrot Place. Beyond this 25-mph posted speed zone to the east, Elvehjem Road boasts a posted 45 mph speed limit to its intersection with County AB. Elvehjem Road then transitions to a 35-mph posted speed zone east of County AB until its termination. The 25-mph posted speed extends west along Creamery Road, into McFarland. The 45-mph section is only present for approximately 1,300 feet before the 35-mph section continues for the remainder of the roadway's designation (see Figure 18).

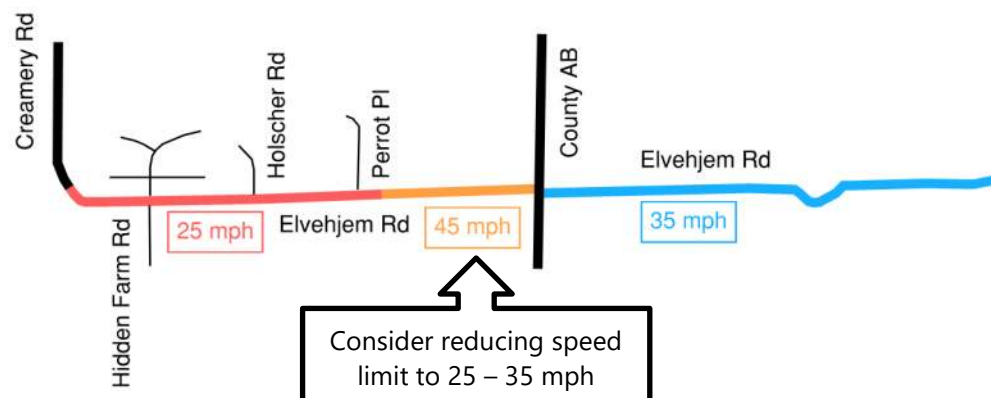


Figure 18: Elvehjem Road Posted Speed Limits

This variation in posted speed, particularly the short 1300-foot 45-mph section, results in inconsistent driver expectations as motorists traverse Elvehjem Road. With such a short 45-mph section, motorists are likely to travel through the adjacent 25-mph section at speeds greater than 25 mph.

Crash Modification Factors (CMF) Clearinghouse provides data directly associating increased safety and speed limit reductions. A study supported by CMF Clearinghouse with CMF ID: 10983 shows a 30% reduction in all crash types when the posted speed limit reduces by 5 mph¹⁰. Further reducing the posted speed limit, as suggested along Elvehjem Road, would likely further improve safety conditions of the roadway.

ELVEHJEM ROAD APPROACH LEG DEFLECTION

WisDOT FDM 11-10¹¹ indicates that roadway reference lines should be the centerline of normal two-way facilities. If the reference line between opposing intersection legs is not continuous and shifts between legs, the angle at which these two centerlines intersect at their respective stop bars is referred to as the 'deflection angle' (see Figure 19). The east and west legs of the Elvehjem Road and County AB intersection currently provide a deflection angle of approximately 18 degrees, substantially beyond desirable deflection for a roadway of this type.

SRF recommends this intersection be improved to address this abnormal lane shift between the east and west legs of Elvehjem Road. Future improvements at this intersection should provide a continuous, unshifted travel path for motorists. A future roadway or significant future development plan that would affect operations at this intersection could tie this improvement into the project. Based on the findings of this TIA, the proposed Lakestone Properties Development does not significantly impact this intersection.

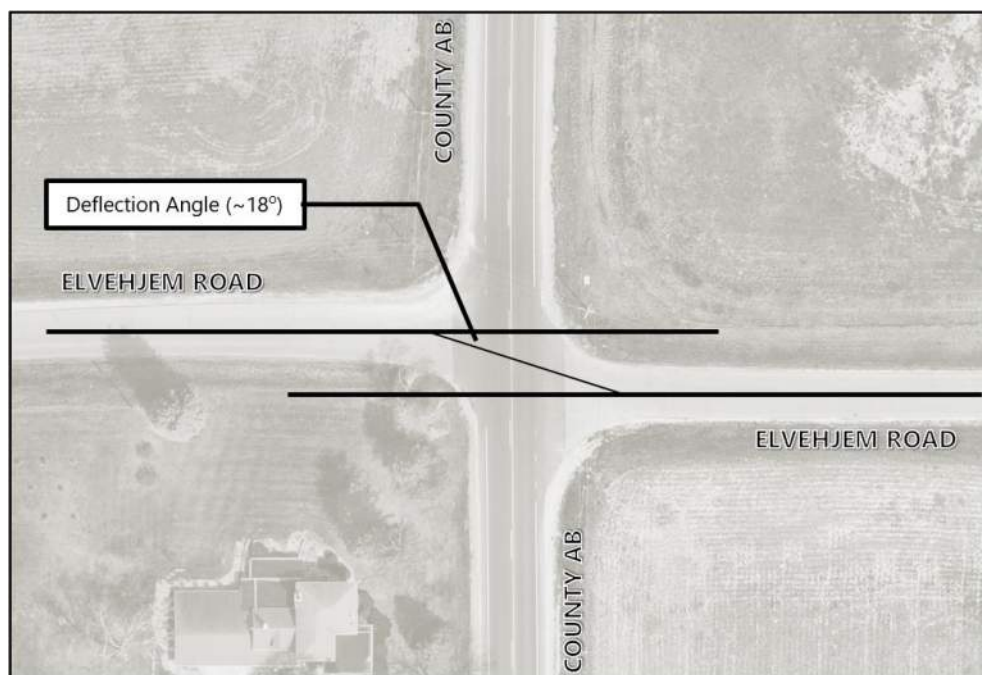


Figure 19: Lane Shift Along Elvehjem Road

¹⁰ <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=10983>

¹¹ <https://wisconsindot.gov/rdwy/fdm/fd-11-10.pdf>

BIKE/PED SAFETY: ELVEHJEM ROAD AND MCFARLAND DOG PARK

The proposed development will likely increase bicycle and pedestrian activity at this intersection, specifically to and from the McFarland Dog Park as all proposed dwelling units are pet friendly. Therefore, SRF recommends the developer and village work together (as this crosswalk falls outside of the immediate Lakestone Properties site location) to install a high-visibility crosswalk pattern (i.e., bar pairs, continental, ladder) across the east leg of the intersection, providing a designated crossing area to and from McFarland Dog Park. SRF also recommends the installation of additional signage to identify this crossing on the east leg of Elvehjem Road. Signs R1-6 or W11-2 as defined in the Wisconsin Manual on Uniform Traffic Control Devices (MUTCD) may be appropriate for this pedestrian crossing to aid in creating a high-visibility crosswalk as Federal Highway Administration (FHWA) cites that High-visibility crosswalks can reduce pedestrian injury crashes up to 40%¹².



COUNTY AB DECELERATION LANES AT ELVEHJEM ROAD

Based on SRF's March 2025 site review, guidance provided in WisDOT FDM 11-25-1.3, and review of SDD 09A01¹³, SRF recommends the future consideration of northbound and southbound right turn lanes for on County AB at its intersection with Elvehjem Road. This intersection qualifies as a type "B2" intersection based on AADT values on Elvehjem Road and County AB, meaning that a 200-foot right turn lane with a 12.5:1 taper should be provided along the north and south legs of the intersection (see Figure 20).

While this improvement is not necessitated by the construction of the proposed Lakestone Properties Residential Development, the Village of McFarland and Dane County should continue coordination throughout the lifecycle of this development project.

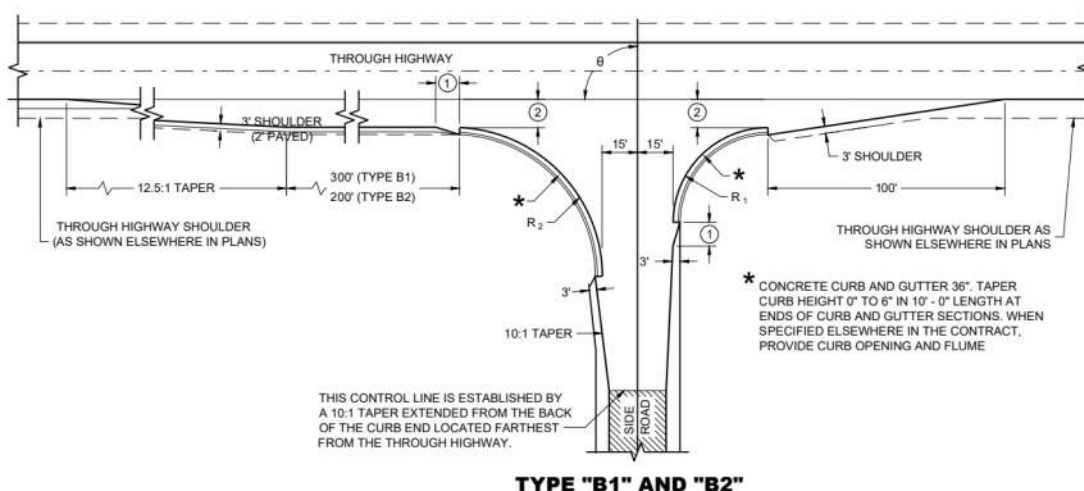


Figure 20: Standard Detail Drawing 09A01-14a – Type "B1" and "B2" Intersection

¹² https://highways.dot.gov/sites/fhwa.dot.gov/files/Crosswalk%20Visibility%20Enhancements_508_1.pdf

¹³ <https://wisconsindot.gov/rdwy/sdd/sd-09A01.pdf#sd9A1-a>

ELVEHJEM ROAD AND COUNTY AB INTERSECTION SIGHT DISTANCE

SRF identified two (2) physical characteristics of the Elvehjem Road and County AB intersection that notably impact sight distance from the west leg of the intersection. The parcel on the southwest quadrant of the intersection (parcel number - 028/0610-111-8010-0) has various trees on the property/right-of-way that impede the sight distance along the south leg of the intersection for vehicles departing the west leg (see Figure 21). As this parcel is not part of the proposed development, SRF elected to only document this recommendation for future consideration. The northwest quadrant of the intersection includes ground elevation that interrupts the sight distance along the north leg of the intersection for eastbound vehicles (see Figure 22). SRF recommends that the northwest corner of the intersection be graded out during site construction, providing sufficient sight distance for vehicles departing the west leg of the intersection.



Figure 21: Elvehjem Road and County AB Southwest Quadrant



Figure 22: Elvehjem Road and County AB Northwest Quadrant

Technical Appendix

APPENDIX A: DEVELOPMENT SITE PLANS

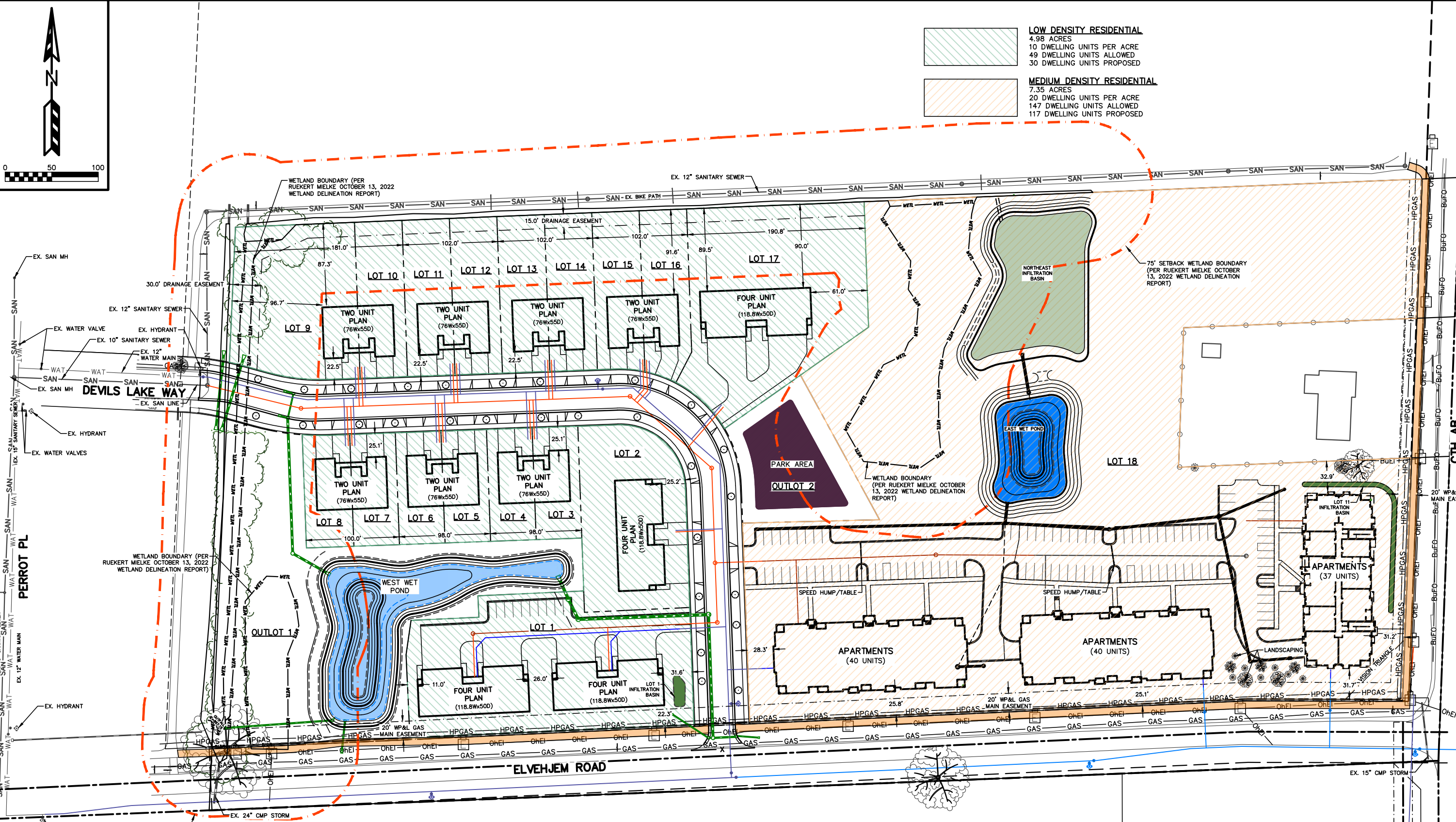
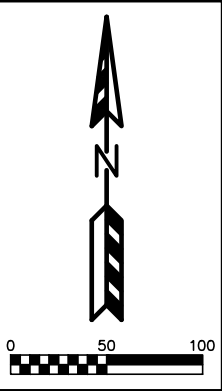
APPENDIX B: INTERSECTION TURNING MOVEMENT COUNTS

APPENDIX C: MEASURE OF EFFECTIVENESS TABLES

APPENDIX D: TRAFFIC OPERATIONS ANALYSIS

- Existing Year 2025 Conditions
- Opening Year 2030 Traffic Conditions without Development
- Horizon Year 2040 Traffic Conditions without Development
- Opening Year 2030 Traffic Conditions with Development
- Horizon Year 2040 Traffic Conditions with Development

Appendix A – Development Site Plans



Lot #	Lot Area (sq.ft.)	Proposed Impervious Area	Percent Impervious	Units	Parking Stalls
1	41008	24502	59.75	8	26
2	21509	8047	37.41	4	8
3	5896	2525	42.83	1	2
4	5885	2515	42.74	1	2
5	5885	2514	42.72	1	2
6	5885	2515	42.74	1	2
7	5885	2514	42.72	1	2
8	6140	2517	40.99	1	2
9	21653	2465	11.38	1	2
10	8551	2464	28.82	1	2
11	8562	2465	28.79	1	2

Lot #	Lot Area (sq.ft.)	Proposed Impervious Area	Percent Impervious	Units	Parking Stalls
12	8574	2466	28.76	1	2
13	8585	2464	28.70	1	2
14	8597	2465	28.67	1	2
15	8647	2465	28.51	1	2
16	8944	2680	29.96	1	2
17	36864	10935	29.83	4	8
18	319806	86694	27.11	117	214
Outlot 1	66857	0	0.00	0	0
Outlot 2	15782	0	0.00	0	0
Street ROW	50005	38570	77.13	0	0
TOTALS	669520	203842	30.45	147	284

Avg. #Parking Stalls per Unit

1.93

SPERLE CORNERS - VILLAGE OF MCFARLAND

GENERAL DEVELOPMENT PLAN

EXHIBIT: 1 OF 1

DATED: MAY 14, 2025

QUAM ENGINEERING, LLC

Residential and Commercial Site Design Consultants

www.quamengineering.com

4604 Siggekow Road, Suite A - McFarland, Wisconsin 53558

Phone (608) 838-7750; Fax (608) 838-7752

Appendix B – Intersection Turning Movement Counts

INT 100: Creamery Road and Country Walk												
Period: AM Peak (7:15 - 8:15 AM)												
Description	Creamery Road			Country Walk			Creamery Road			N/A		
	Southbound			Westbound			Northbound			Eastbound		
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
Existing Conditions												
Counted Existing Traffic (March 2025)	31	26		2		128		42	0			
Opening Year (2030) without Development	36	30		2		147		48	0			
Horizon Year (2040) without Development	45	38		3		186		61	0			
Development Buildout Conditions												
Site-Generated Traffic		+5						+16				
Opening Year (2030) with Development	36	35		2		147		64	0			
Horizon Year (2040) with Development	45	43		3		186		77	0			
Additional Volume Information												
Truck Percentage	6.5%	3.8%		0.0%		1.6%		4.8%	0.0%			
Bicyclists	1	0		0		1		2	0			
Pedestrians (Crossing Approach Leg)	0			6			0			0		
INT 110: Elvehjem Road and Hidden Farm Road												
Period: AM Peak (7:15 - 8:15 AM)												
Intersection PHF: 0.76												
Description	Hidden Farm Road			Elvehjem Road			Hidden Farm Road			Elvehjem Road		
	Southbound			Westbound			Northbound			Eastbound		
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
Existing Conditions												
Counted Existing Traffic (March 2025)	5	0	5	0	36	0	0	1	0	2	24	0
Opening Year (2030) without Development	6	0	6	0	41	0	0	1	0	2	28	0
Horizon Year (2040) without Development	7	0	7	0	52	0	0	1	0	3	35	0
Development Buildout Conditions												
Site-Generated Traffic					+16						+5	
Opening Year (2030) with Development	6	0	6	0	57	0	0	1	0	2	33	0
Horizon Year (2040) with Development	7	0	7	0	68	0	0	1	0	3	40	0
Additional Volume Information												
Truck Percentage	0.0%	0.0%	0.0%	0.0%	5.6%	0.0%	0.0%	0.0%	0.0%	0.0%	4.2%	0.0%
Bicyclists	0	0	0	0	2	0	0	0	0	0	0	0
Pedestrians (Crossing Approach Leg)	4			0			0			2		
INT 120: Elvehjem Road and Holscher Road												
Period: AM Peak (7:15 - 8:15 AM)												
Intersection PHF: 0.77												
Description	Holscher Road			Elvehjem Road			N/A			Elvehjem Road		
	Southbound			Westbound			Northbound			Eastbound		
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
Existing Conditions												
Counted Existing Traffic (March 2025)	8		6		32	4				0	30	
Opening Year (2030) without Development	9		7		37	5				0	35	
Horizon Year (2040) without Development	12		9		46	6				0	44	
Development Buildout Conditions												
Site-Generated Traffic	+1				+16	+2					+5	
Opening Year (2030) with Development	10		7		53	7				0	40	
Horizon Year (2040) with Development	13		9		62	8				0	49	
Additional Volume Information												
Truck Percentage	12.5%		0.0%		6.3%	25.0%				0.0%	3.3%	
Bicyclists	0		1		1	0				0	0	
Pedestrians (Crossing Approach Leg)	5			0			0			0		
INT 130: Elvehjem Road and Perrot Place / Dog Park Access												
Period: AM Peak (7:15 - 8:15 AM)												
Intersection PHF: 0.66												
Description	Perrot Place			Elvehjem Road			Dog Park Access			Elvehjem Road		
	Southbound			Westbound			Northbound			Eastbound		
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
Existing Conditions												
Counted Existing Traffic (March 2025)	9	0	7	0	21	2	8	0	0	3	27	8
Opening Year (2030) without Development	10	0	8	0	24	2	9	0	0	3	31	9
Horizon Year (2040) without Development	13	0	10	0	30	3	12	0	0	4	39	12
Development Buildout Conditions												
Site-Generated Traffic			+2		+16					+1	+5	
Opening Year (2030) with Development	10	0	10	0	40	2	9	0	0	4	36	9
Horizon Year (2040) with Development	13	0	12	0	46	3	12	0	0	5	44	12
Additional Volume Information												
Truck Percentage	0.0%	0.0%	14.3%	0.0%	0.0%	100.0%	12.5%	0.0%	0.0%	0.0%	3.7%	12.5%
Bicyclists	0	0	0	0	1	0	0	0	0	0	0	0
Pedestrians (Crossing Approach Leg)	4			0			0			0		

INT 135: Elvehjem Road and Devils Lake Way (Proposed)															
Period: AM Peak (7:15 - 8:15 AM)													Intersection PHF: 0.73		
Description	Devils Lake Way			Elvehjem Road			N/A			Elvehjem Road					
	Southbound			Westbound			Northbound			Eastbound					
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR			
Existing Conditions															
Counted Existing Traffic (March 2025)				24						36					
Opening Year (2030) without Development				28						41					
Horizon Year (2040) without Development				35						52					
Development Buildout Conditions															
Site-Generated Traffic	+45		+16		+13				+5						
Opening Year (2030) with Development	45		16		28	13				5	41				
Horizon Year (2040) with Development	45		16		35	13				5	52				
Additional Volume Information															
Truck Percentage				10.0%						3.7%					
Bicyclists				0						0					
Pedestrians (Crossing Approach Leg)	0			0			0			0					

INT 140: Elvehjem Road and County AB															
Period: AM Peak (7:15 - 8:15 AM)													Intersection PHF: 0.77		
Description	County AB			Elvehjem Road			County AB			Elvehjem Road					
	Southbound			Westbound			Northbound			Eastbound					
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR			
Existing Conditions															
Counted Existing Traffic (March 2025)	1	69	10	0	1	0	13	51	1	18	0	18			
Opening Year (2030) without Development	1	79	12	0	1	0	15	59	1	21	0	21			
Horizon Year (2040) without Development	1	100	15	0	1	0	19	74	1	26	0	26			
Development Buildout Conditions															
Site-Generated Traffic			+11				+2			+37		+8			
Opening Year (2030) with Development	1	79	23	0	1	0	17	59	1	58	0	29			
Horizon Year (2040) with Development	1	100	26	0	1	0	21	74	1	63	0	34			
Additional Volume Information															
Truck Percentage	0.0%	5.8%	20.0%	0.0%	0.0%	0.0%	0.0%	9.8%	0.0%	5.6%	0.0%	0.0%			
Bicyclists	0	0	0	0	0	0	1	1	0	0	0	0			
Pedestrians (Crossing Approach Leg)	0			0			0			0					

INT 150: County AB and Tuscobia Trail															
Period: AM Peak (7:15 - 8:15 AM)													Intersection PHF: 0.80		
Description	County AB			N/A			County AB			Tuscobia Trail					
	Southbound			Westbound			Northbound			Eastbound					
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR			
Existing Conditions															
Counted Existing Traffic (March 2025)		73	9				4	65		32		6			
Opening Year (2030) without Development		84	10				5	75		37		7			
Horizon Year (2040) without Development		106	13				6	94		46		9			
Development Buildout Conditions															
Site-Generated Traffic		+11						+37							
Opening Year (2030) with Development		95	10				5	112		37		7			
Horizon Year (2040) with Development		117	13				6	131		46		9			
Additional Volume Information															
Truck Percentage		5.5%	22.2%				75.0%	6.2%		6.3%		33.3%			
Bicyclists		0	0				0	1		0		0			
Pedestrians (Crossing Approach Leg)	0			0			0			2					

INT 160: County AB and County MN															
Period: AM Peak (7:15 - 8:15 AM)													Intersection PHF: 0.82		
Description	County AB			County MN			County AB			County MN					
	Southbound			Westbound			Northbound			Eastbound					
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR			
Existing Conditions															
Counted Existing Traffic (March 2025)				54	89		22		75		85	28			
Opening Year (2030) without Development				62	102		25		86		98	32			
Horizon Year (2040) without Development				78	129		32		109		123	41			
Development Buildout Conditions															
Site-Generated Traffic				+8			+11		+26			+3			
Opening Year (2030) with Development				70	102		36		112		98	35			
Horizon Year (2040) with Development				86	129		43		135		123	44			
Additional Volume Information															
Truck Percentage				9.3%	7.9%		0.0%		4.0%		16.5%	3.6%			
Bicyclists				0	0		1		0		0	0			
Pedestrians (Crossing Approach Leg)	0			0			0			0					

INT 100: Creamery Road and Country Walk												↓		←		↑		→	
Period: PM Peak (4:30 - 5:30 PM)												Intersection PHF: 0.92							
Description	Creamery Road			Country Walk			Creamery Road			N/A									
	Southbound			Westbound			Northbound			Eastbound									
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR							
Existing Conditions																			
Counted Existing Traffic (March 2025)	78	50		3		47		37	2										
Opening Year (2030) without Development	86	55		3		52		41	2										
Horizon Year (2040) without Development	101	65		4		61		48	3										
Development Buildout Conditions																			
Site-Generated Traffic		+16						+9											
Opening Year (2030) with Development	86	71		3		52		50	2										
Horizon Year (2040) with Development	101	81		4		61		57	3										
Additional Volume Information																			
Truck Percentage	1.3%	2.0%		0.0%		2.1%		2.8%	0.0%										
Bicyclists	2	3		0		2		2	0										
Pedestrians (Crossing Approach Leg)	0			24			0			0									

INT 110: Elvehjem Road and Hidden Farm Road												↓		←		↑		→	
Period: PM Peak (4:30 - 5:30 PM)												Intersection PHF: 0.76							
Description	Hidden Farm Road			Elvehjem Road			Hidden Farm Road			Elvehjem Road									
	Southbound			Westbound			Northbound			Eastbound									
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR							
Existing Conditions																			
Counted Existing Traffic (March 2025)	5	0	10	0	32	6	0	0	1	10	42	0							
Opening Year (2030) without Development	6	0	11	0	35	7	0	0	1	11	46	0							
Horizon Year (2040) without Development	7	0	13	0	42	8	0	0	1	13	55	0							
Development Buildout Conditions																			
Site-Generated Traffic					+9						+16								
Opening Year (2030) with Development	6	0	11	0	44	7	0	0	1	11	62	0							
Horizon Year (2040) with Development	7	0	13	0	51	8	0	0	1	13	71	0							
Additional Volume Information																			
Truck Percentage	0.0%	0.0%	0.0%	0.0%	3.1%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%							
Bicyclists	0	0	0	0	2	0	0	0	0	0	4	0							
Pedestrians (Crossing Approach Leg)	29			2			2			8									

INT 120: Elvehjem Road and Holscher Road												↓		←		↑		→	
Period: PM Peak (4:30 - 5:30 PM)												Intersection PHF: 0.77							
Description	Holscher Road			Elvehjem Road			N/A			Elvehjem Road									
	Southbound			Westbound			Northbound			Eastbound									
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR							
Existing Conditions																			
Counted Existing Traffic (March 2025)	6		8		30	7				8	40								
Opening Year (2030) without Development	7		9		33	8				9	44								
Horizon Year (2040) without Development	8		10		39	9				10	52								
Development Buildout Conditions																			
Site-Generated Traffic	+2				+9	+1					+16								
Opening Year (2030) with Development	9		9		42	9				9	60								
Horizon Year (2040) with Development	10		10		48	10				10	68								
Additional Volume Information																			
Truck Percentage	16.7%		0.0%		3.3%	0.0%				0.0%	2.5%								
Bicyclists	0		0		3	1				0	3								
Pedestrians (Crossing Approach Leg)	24			0			0			0									

INT 130: Elvehjem Road and Perrot Place / Dog Park Access												↓		←		↑		→	
Period: PM Peak (4:30 - 5:30 PM)												Intersection PHF: 0.77							
Description	Perrot Place			Elvehjem Road			Dog Park Access			Elvehjem Road									
	Southbound			Westbound			Northbound			Eastbound									
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR							
Existing Conditions																			
Counted Existing Traffic (March 2025)	7	0	4	4	25	12	7	1	4	7	26	11							
Opening Year (2030) without Development	8	0	4	4	28	13	8	1	4	8	29	12							
Horizon Year (2040) without Development	9	0	5	5	33	16	9	1	5	9	34	14							
Development Buildout Conditions																			
Site-Generated Traffic			+1		+9					+2	+16								
Opening Year (2030) with Development	8	0	5	4	37	13	8	1	4	10	45	12							
Horizon Year (2040) with Development	9	0	6	5	42	16	9	1	5	11	50	14							
Additional Volume Information																			
Truck Percentage	0.0%	0.0%	0.0%	0.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.7%	0.0%							
Bicyclists	0	0	1	0	2	0	0	0	0	0	3	0							
Pedestrians (Crossing Approach Leg)	19			8			0			0									

INT 135: Elvehjem Road and Devils Lake Way (Proposed)													↓		←		↑		→			
Period: PM Peak (4:30 - 5:30 PM)													Intersection PHF: 0.78									
Description	Devils Lake Way			Elvehjem Road			N/A			Elvehjem Road												
	Southbound			Westbound			Northbound			Eastbound												
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR										
Existing Conditions																						
Counted Existing Traffic (March 2025)				41									37									
Opening Year (2030) without Development				45									41									
Horizon Year (2040) without Development				53									48									
Development Buildout Conditions																						
Site-Generated Traffic	+27		+9		+43				+16													
Opening Year (2030) with Development	27		9		45	43				16	41											
Horizon Year (2040) with Development	27		9		53	43				16	48											
Additional Volume Information																						
Truck Percentage				0.0%						7.7%												
Bicyclists				2						0												
Pedestrians (Crossing Approach Leg)	0			0			0			0												

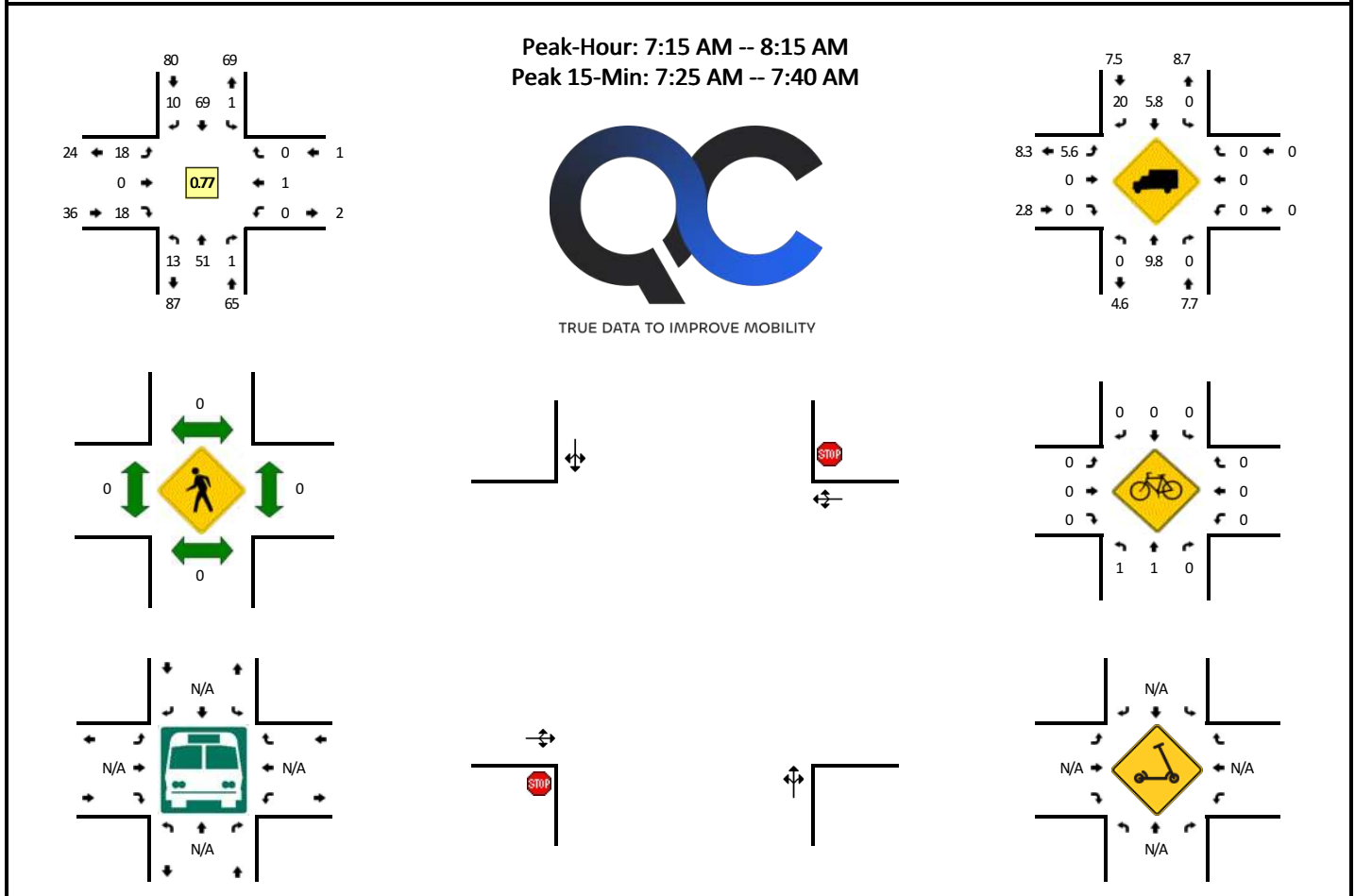
INT 140: Elvehjem Road and County AB													↓		←		↑		→			
Period: PM Peak (4:30 - 5:30 PM)													Intersection PHF: 0.79									
Description	County AB			Elvehjem Road			County AB			Elvehjem Road												
	Southbound			Westbound			Northbound			Eastbound												
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR										
Existing Conditions																						
Counted Existing Traffic (March 2025)	4	64	14	3	4	3	23	72	0	14	1	21										
Opening Year (2030) without Development	4	70	15	3	4	3	25	79	0	15	1	23										
Horizon Year (2040) without Development	5	83	18	4	5	4	30	94	0	18	1	27										
Development Buildout Conditions																						
Site-Generated Traffic			+36				+7			+22		+5										
Opening Year (2030) with Development	4	70	51	3	4	3	32	79	0	37	1	28										
Horizon Year (2040) with Development	5	83	54	4	5	4	37	94	0	40	1	32										
Additional Volume Information																						
Truck Percentage	25.0%	4.7%	0.0%	0.0%	25.0%	0.0%	0.0%	2.8%	0.0%	0.0%	100.0%	4.8%										
Bicyclists	0	1	0	0	0	0	1	0	0	0	0	4										
Pedestrians (Crossing Approach Leg)	0			0			0			0												

INT 150: County AB and Tuscobia Trail													↓		←		↑		→			
Period: PM Peak (4:30 - 5:30 PM)													Intersection PHF: 0.82									
Description	County AB			N/A			County AB			Tuscobia Trail												
	Southbound			Westbound			Northbound			Eastbound												
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR										
Existing Conditions																						
Counted Existing Traffic (March 2025)		77	18				6	84		8		4										
Opening Year (2030) without Development		85	20				7	92		9		4										
Horizon Year (2040) without Development		100	23				8	109		10		5										
Development Buildout Conditions																						
Site-Generated Traffic		+36						+22														
Opening Year (2030) with Development		121	20				7	114		9		4										
Horizon Year (2040) with Development		136	23				8	131		10		5										
Additional Volume Information																						
Truck Percentage		5.2%	0.0%				0.0%	4.8%		0.0%		0.0%										
Bicyclists		1	0				0	0		0		0										
Pedestrians (Crossing Approach Leg)	0			0			0			2												

INT 160: County AB and County MN													↓		←		↑		→			
Period: PM Peak (4:30 - 5:30 PM)													Intersection PHF: 0.85									
Description	County AB			County MN			County AB			County MN												
	Southbound			Westbound			Northbound			Eastbound												
	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR										
Existing Conditions																						
Counted Existing Traffic (March 2025)				61	73		23		68		79	35										
Opening Year (2030) without Development				67	80		25		75		87	39										
Horizon Year (2040) without Development				79	95		30		88		103	46										
Development Buildout Conditions																						
Site-Generated Traffic				+25			+6		+16			+11										
Opening Year (2030) with Development				92	80		31		91		87	50										
Horizon Year (2040) with Development				104	95		36		104		103	57										
Additional Volume Information																						
Truck Percentage				4.9%	0.0%		0.0%		4.4%		0.0%	0.0%										
Bicyclists				1	0		0		0		1	0										
Pedestrians (Crossing Approach Leg)	0			0			0			0												

LOCATION: Co Rd Ab -- Elvehjem Rd
CITY/STATE: McFarland, WI

QC JOB #: 16968801
DATE: Tue, Mar 18 2025



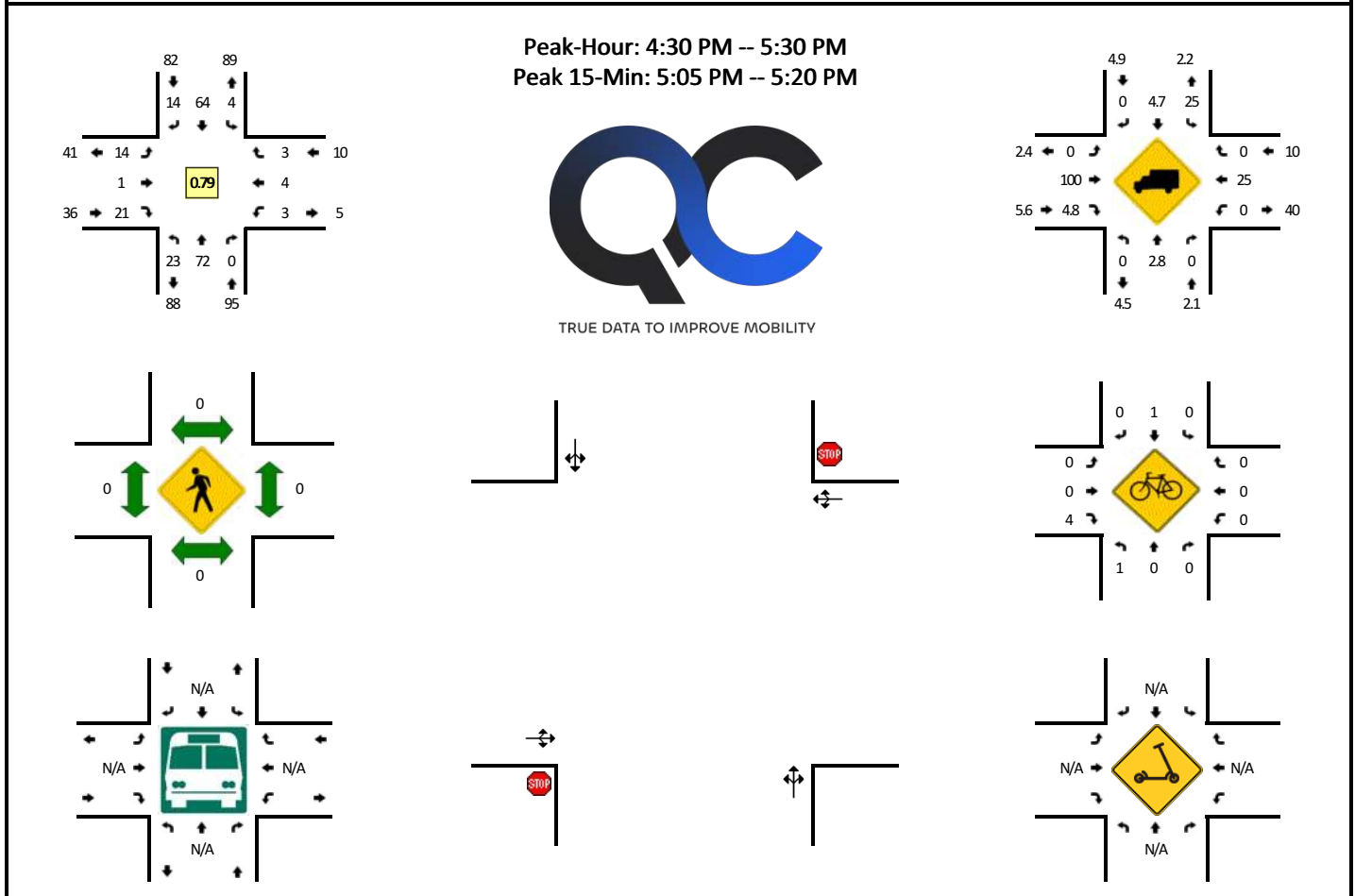
5-Min Count Period Beginning At	Co Rd Ab (Northbound)				Co Rd Ab (Southbound)				Elvehjem Rd (Eastbound)				Elvehjem Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	3	0	0	0	2	0	0	1	0	0	0	0	0	0	0	6	
6:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:10 AM	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	3	
6:15 AM	1	2	0	0	0	4	0	0	1	0	0	0	0	1	0	0	9	
6:20 AM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	
6:25 AM	1	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	4	
6:30 AM	0	4	0	0	0	1	1	0	0	0	0	0	0	0	0	0	6	
6:35 AM	0	4	0	0	0	3	0	0	0	0	0	0	0	0	1	0	8	
6:40 AM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5	
6:45 AM	0	4	0	0	0	2	2	0	1	0	0	0	0	0	0	0	9	
6:50 AM	0	3	0	0	0	6	0	0	0	0	0	0	0	0	0	0	9	
6:55 AM	0	3	0	0	0	3	1	0	0	0	0	0	0	0	0	0	7	71
7:00 AM	0	2	0	0	0	3	1	0	1	0	0	0	0	0	0	0	7	72
7:05 AM	0	0	0	0	0	5	0	0	1	0	1	0	0	0	0	0	7	79
7:10 AM	2	2	0	0	0	4	0	0	0	0	1	0	0	0	0	0	9	85
7:15 AM	1	6	0	0	0	6	1	0	0	0	0	0	0	0	0	0	14	90
7:20 AM	0	7	0	0	0	1	0	0	0	0	0	0	0	0	0	0	8	93
7:25 AM	0	7	0	0	0	4	2	0	2	0	3	0	0	0	0	0	18	107
7:30 AM	3	4	0	0	0	10	0	0	3	0	0	0	0	0	0	0	20	121
7:35 AM	2	7	0	0	0	6	2	0	2	0	2	0	0	0	0	0	21	134
7:40 AM	0	3	0	0	0	6	1	0	1	0	3	0	0	0	0	0	14	143
7:45 AM	1	3	0	0	0	10	2	0	2	0	3	0	0	0	0	0	21	155
7:50 AM	3	6	0	0	0	4	0	0	1	0	0	0	0	0	0	0	14	160
7:55 AM	2	3	0	0	1	5	2	0	4	0	2	0	0	0	0	0	19	172
8:00 AM	0	2	0	0	0	6	0	0	2	0	2	0	0	0	0	0	12	177
8:05 AM	1	2	1	0	0	8	0	0	0	0	2	0	0	0	0	0	14	184
8:10 AM	0	1	0	0	0	3	0	0	1	0	1	0	0	1	0	0	7	182
8:15 AM	2	1	0	0	0	3	1	0	0	0	1	0	0	0	0	0	8	176
8:20 AM	1	2	0	0	0	3	0	0	1	0	2	0	0	0	0	0	9	177
8:25 AM	0	3	0	0	0	4	0	0	1	0	1	0	0	1	0	0	10	169
8:30 AM	3	3	0	0	0	3	1	0	2	0	1	0	0	0	0	0	13	162
8:35 AM	0	4	0	0	0	2	1	0	1	0	0	0	0	1	0	0	9	150
8:40 AM	0	1	0	0	0	5	0	0	1	0	0	0	0	0	0	0	7	143
8:45 AM	0	2	0	0	0	3	1	0	1	0	1	0	0	0	0	0	8	130
8:50 AM	0	2	0	0	1	1	1	0	1	1	0	0	0	1	0	0	8	124
8:55 AM	0	3	0	0	0	1	0	0	0	1	2	0	0	0	0	0	7	112

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	20	72	0	0	0	80	16	0	28	0	20	0	0	0	0	0	236
Heavy Trucks	0	12	0		0	0	0		0	0	0		0	0	0		12
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	4	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

LOCATION: Co Rd Ab -- Elvehjem Rd
CITY/STATE: McFarland, WI

QC JOB #: 16968802
DATE: Tue, Mar 18 2025

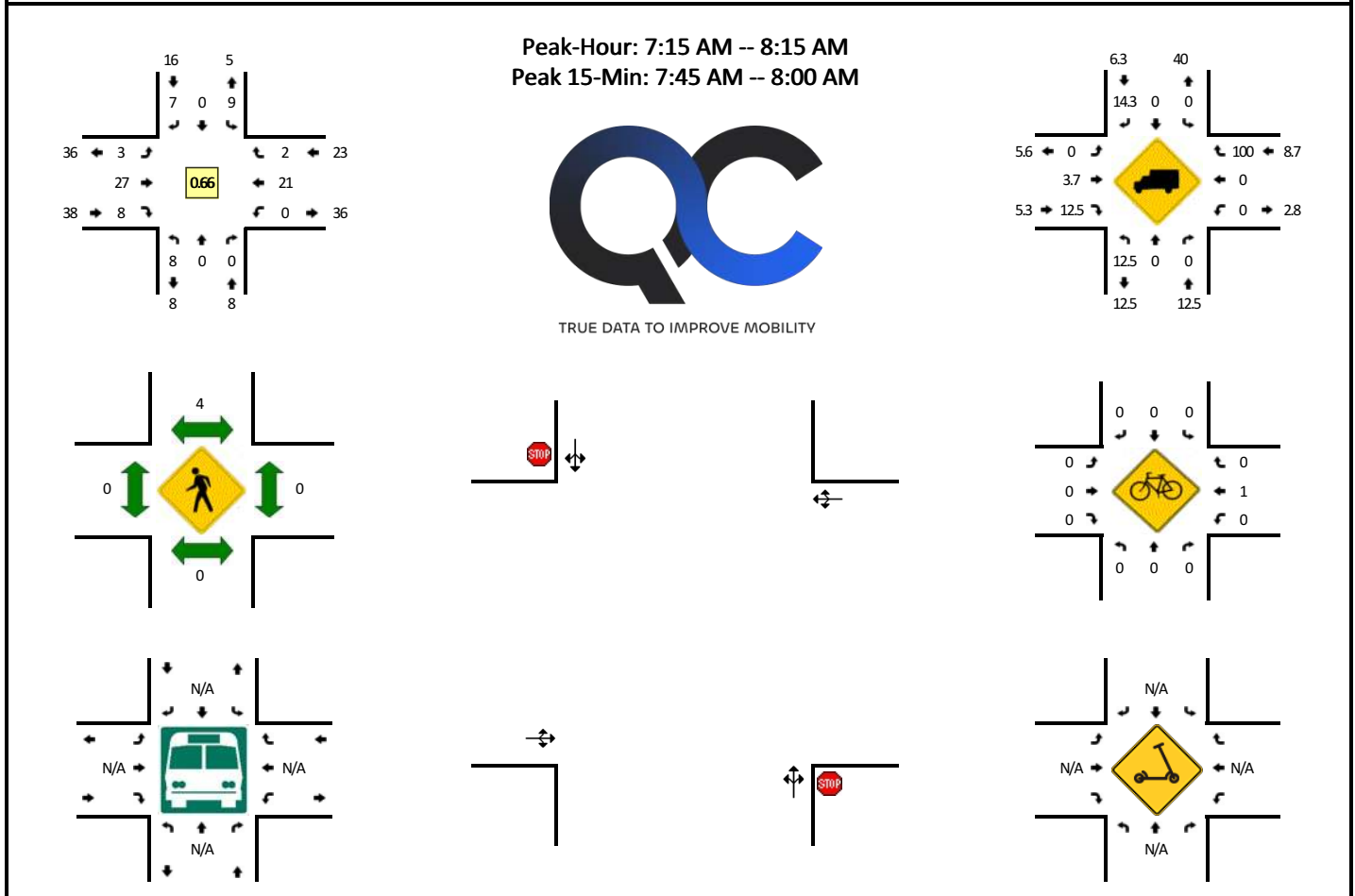


5-Min Count Period Beginning At	Co Rd Ab (Northbound)				Co Rd Ab (Southbound)				Elvehjem Rd (Eastbound)				Elvehjem Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	3	0	0	0	3	1	0	2	0	0	0	0	0	0	0	9	
3:05 PM	2	3	0	0	0	4	1	0	0	0	3	0	0	0	0	0	13	
3:10 PM	3	6	0	0	0	5	1	0	0	0	2	0	0	0	1	0	18	
3:15 PM	2	3	0	0	0	5	0	0	0	0	3	0	0	0	0	0	13	
3:20 PM	0	2	0	0	0	1	1	0	1	0	0	0	0	0	0	0	5	
3:25 PM	0	2	0	0	1	3	0	0	0	0	3	0	0	0	0	0	9	
3:30 PM	1	5	0	0	1	7	0	0	0	0	2	0	1	0	0	0	17	
3:35 PM	3	3	0	0	0	7	2	0	0	0	2	0	1	0	1	0	19	
3:40 PM	1	4	1	0	1	7	1	0	0	1	5	0	0	0	0	0	21	
3:45 PM	1	6	0	0	0	3	0	0	0	0	1	0	1	0	2	0	14	
3:50 PM	1	2	0	0	0	8	1	0	1	0	4	0	0	0	0	0	17	
3:55 PM	1	4	1	0	1	5	1	0	1	0	0	0	0	0	0	0	14	169
4:00 PM	0	8	0	0	1	7	1	0	0	0	1	0	0	0	0	0	18	178
4:05 PM	1	5	0	0	0	3	0	0	2	0	0	0	0	1	0	0	12	177
4:10 PM	2	2	0	0	0	2	1	0	0	0	3	0	0	1	0	0	11	170
4:15 PM	3	6	0	0	0	7	2	0	0	0	0	0	0	0	1	0	19	176
4:20 PM	5	4	0	0	1	5	3	0	2	1	2	0	0	0	0	0	23	194
4:25 PM	1	6	0	0	0	8	2	0	2	0	1	0	0	1	1	0	22	207
4:30 PM	3	6	0	0	0	6	1	0	1	0	3	0	0	0	0	0	20	210
4:35 PM	2	8	0	0	1	6	1	0	0	0	1	0	0	0	1	0	20	211
4:40 PM	5	7	0	0	0	2	2	0	1	1	1	0	0	0	0	0	19	209
4:45 PM	1	5	0	0	0	6	2	0	2	0	2	0	0	1	0	0	19	214
4:50 PM	0	5	0	0	0	2	2	0	0	0	1	0	0	2	0	0	12	209
4:55 PM	1	3	0	0	1	3	0	0	1	0	1	0	0	0	0	0	10	205
5:00 PM	1	5	0	0	0	3	0	0	0	0	3	0	0	1	0	0	13	200
5:05 PM	2	7	0	0	0	10	2	0	2	0	4	0	1	0	0	0	28	216
5:10 PM	3	6	0	0	0	9	0	0	2	0	1	0	0	0	1	0	22	227
5:15 PM	2	8	0	0	1	2	1	0	2	0	3	0	1	0	1	0	21	229
5:20 PM	0	4	0	0	1	8	1	0	1	0	1	0	0	0	0	0	16	222
5:25 PM	3	8	0	0	0	7	2	0	2	0	0	0	1	0	0	0	23	223
5:30 PM	3	9	0	0	0	1	1	0	2	0	1	0	0	0	1	0	18	221
5:35 PM	4	4	0	0	0	10	1	0	2	0	0	0	0	1	0	0	22	223
5:40 PM	1	5	2	0	0	5	1	0	0	0	2	0	0	0	0	0	16	220
5:45 PM	3	2	0	0	0	4	1	0	0	0	0	0	0	2	1	0	13	214
5:50 PM	3	3	0	0	0	2	0	0	0	0	1	0	0	1	0	0	10	212
5:55 PM	0	5	0	0	0	7	1	0	1	0	2	0	0	0	0	0	16	218

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	84	0	0	4	84	12	0	24	0	32	0	8	0	8	0	284
Heavy Trucks	0	8	0		0	0	0		0	0	4		0	0	0		12
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	
<i>Comments:</i>																	

LOCATION: Perrot Pl -- Elvehjem Rd
CITY/STATE: McFarland, WI

QC JOB #: 16968803
DATE: Tue, Mar 18 2025



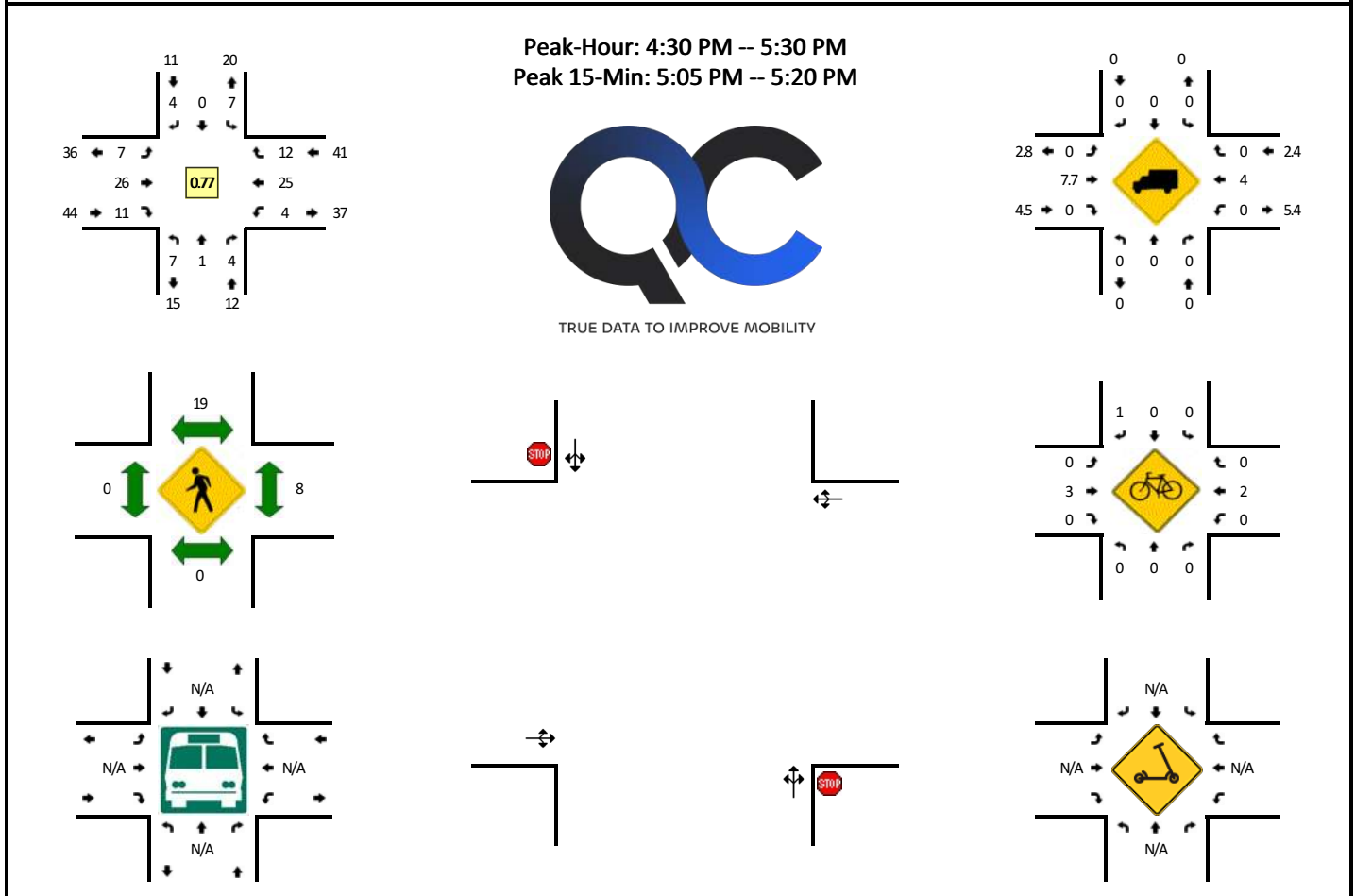
5-Min Count Period Beginning At	Perrot Pl (Northbound)				Perrot Pl (Southbound)				Elvehjem Rd (Eastbound)				Elvehjem Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	
6:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:10 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	3	
6:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	4	
6:20 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	
6:25 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
6:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:40 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
6:50 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	
6:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	18
7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	3	20
7:05 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2	22
7:10 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	4	23
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	21
7:20 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	3	22
7:25 AM	0	0	0	0	2	0	0	0	1	4	1	0	0	1	0	0	9	29
7:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5	33
7:35 AM	0	0	0	0	1	0	0	0	0	3	0	0	0	4	0	0	8	41
7:40 AM	1	0	0	0	0	0	1	0	0	5	0	0	0	2	0	0	9	49
7:45 AM	1	0	0	0	0	0	1	0	1	4	1	0	0	2	1	0	11	59
7:50 AM	2	0	0	0	1	0	1	0	0	1	1	0	0	2	0	0	8	65
7:55 AM	1	0	0	0	3	0	2	0	0	3	0	0	0	4	0	0	13	77
8:00 AM	1	0	0	0	1	0	0	0	0	2	0	0	0	1	0	0	5	79
8:05 AM	0	0	0	0	0	0	0	0	1	2	1	0	0	1	0	0	5	82
8:10 AM	2	0	0	0	1	0	1	0	0	1	2	0	0	0	0	0	7	85
8:15 AM	0	0	0	0	0	0	2	0	0	1	1	0	0	2	2	0	8	91
8:20 AM	0	0	0	0	1	0	0	0	0	2	4	0	0	0	0	0	7	95
8:25 AM	1	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	5	91
8:30 AM	0	0	0	0	1	0	0	0	1	2	0	0	0	3	1	0	8	94
8:35 AM	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3	89
8:40 AM	1	0	0	0	1	0	3	0	0	1	0	0	0	0	0	0	6	86
8:45 AM	1	0	0	0	0	0	0	0	0	1	2	0	0	1	0	0	5	80
8:50 AM	2	0	0	0	0	0	0	0	0	3	0	0	1	1	0	0	7	79
8:55 AM	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	69

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	0	0	0	16	0	16	0	4	32	8	0	0	32	4	0	128
Heavy Trucks	0	0	0		0	0	4		0	0	0		0	0	4		8
Buses																	
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scooters																	

Comments:

LOCATION: Perrot Pl -- Elvehjem Rd
CITY/STATE: McFarland, WI

QC JOB #: 16968804
DATE: Tue, Mar 18 2025

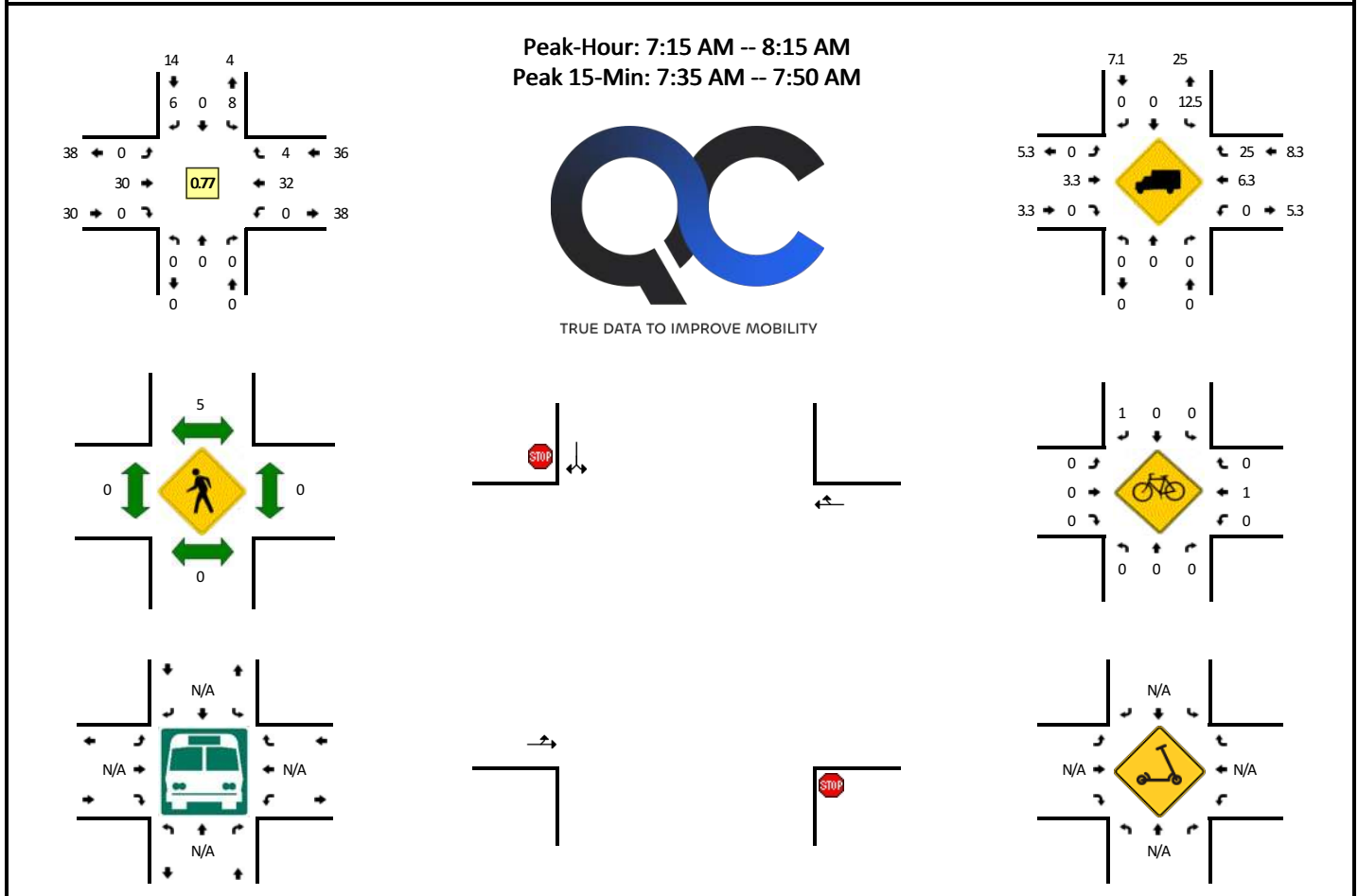


5-Min Count Period Beginning At	Perrot Pl (Northbound)				Perrot Pl (Southbound)				Elvehjem Rd (Eastbound)				Elvehjem Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	1	0	0	0	0	0	0	0	0	3	3	0	0	1	0	0	8	
3:05 PM	0	0	0	0	1	0	0	0	0	2	0	0	0	1	2	0	6	
3:10 PM	1	1	0	0	0	0	0	0	0	2	0	0	0	1	2	0	7	
3:15 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	1	2	0	5	
3:20 PM	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	3	
3:25 PM	2	0	1	0	0	1	0	0	0	3	0	0	0	0	0	0	7	
3:30 PM	1	0	0	0	0	0	4	0	1	1	0	0	0	0	0	0	7	
3:35 PM	1	0	1	0	0	0	0	0	0	1	0	0	0	2	2	1	8	
3:40 PM	1	0	1	0	1	0	0	0	2	4	0	0	0	0	1	2	12	
3:45 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	3	
3:50 PM	0	0	0	0	1	0	0	0	0	4	0	0	0	0	1	1	7	
3:55 PM	0	0	0	0	0	0	0	0	1	2	1	0	0	0	2	0	6	79
4:00 PM	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3	74
4:05 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	1	5	73
4:10 PM	0	0	0	0	0	0	0	0	0	3	1	0	0	0	2	2	8	74
4:15 PM	0	0	0	0	0	0	0	0	2	0	1	0	0	1	2	1	7	76
4:20 PM	0	0	0	0	0	0	0	0	0	5	1	0	0	1	7	1	15	88
4:25 PM	1	0	0	0	0	0	1	0	2	3	0	0	0	0	3	1	11	92
4:30 PM	1	0	0	0	0	0	0	0	1	5	0	0	0	1	3	0	11	96
4:35 PM	1	0	0	0	0	0	0	0	0	0	2	0	0	0	1	2	6	94
4:40 PM	0	1	0	0	0	0	0	0	0	3	1	0	0	0	4	2	11	93
4:45 PM	0	0	1	0	0	0	0	0	0	3	0	0	0	1	3	0	8	98
4:50 PM	0	0	1	0	0	0	0	0	0	0	1	0	0	1	2	1	6	97
4:55 PM	0	0	0	0	1	0	1	0	1	1	0	0	0	0	1	0	5	96
5:00 PM	1	0	0	0	2	0	0	0	0	2	1	0	0	0	2	1	9	102
5:05 PM	1	0	1	0	1	0	1	0	0	5	2	0	0	0	1	3	15	112
5:10 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	5	109
5:15 PM	1	0	0	0	2	0	1	0	3	3	2	0	0	0	2	1	15	117
5:20 PM	0	0	1	0	0	0	1	0	1	2	2	0	0	0	1	0	8	110
5:25 PM	1	0	0	0	0	0	0	0	1	2	0	0	0	1	2	2	9	108
5:30 PM	1	0	0	0	0	0	0	0	1	2	2	0	0	0	3	1	10	107
5:35 PM	2	0	1	0	0	0	0	0	1	1	2	0	0	1	3	1	12	113
5:40 PM	3	0	0	0	0	0	1	0	0	2	0	0	0	1	2	0	9	111
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	6	0	7	110
5:50 PM	0	0	0	0	1	0	0	0	0	2	0	0	0	0	3	1	7	111
5:55 PM	2	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	4	110

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	0	4	0	16	0	8	0	12	32	16	0	0	24	16	0	140
Heavy Trucks	0	0	0		0	0	0		0	4	0		0	0	0		4
Buses																	
Pedestrians		0				28				0				12			40
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scooters																	
<i>Comments:</i>																	

LOCATION: Holscher Rd -- Elvehjem Rd
CITY/STATE: McFarland, WI

QC JOB #: 16968805
DATE: Tue, Mar 18 2025



5-Min Count Period Beginning At	Holscher Rd (Northbound)				Holscher Rd (Southbound)				Elvehjem Rd (Eastbound)				Elvehjem Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
6:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:10 AM	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	3	
6:15 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	4	
6:20 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	
6:25 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
6:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:50 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2	
6:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	16
7:05 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	17
7:10 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0	4	18
7:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	16
7:20 AM	0	0	0	0	0	0	3	0	0	1	0	0	0	2	0	0	6	20
7:25 AM	0	0	0	0	1	0	2	0	0	6	0	0	0	1	0	0	10	28
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	4	31
7:35 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7	38
7:40 AM	0	0	0	0	2	0	0	0	0	4	0	0	0	4	0	0	10	48
7:45 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	0	9	57
7:50 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	4	1	0	7	62
7:55 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	7	0	0	10	72
8:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	4	74
8:05 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	0	1	0	6	79
8:10 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	3	0	0	5	80
8:15 AM	0	0	0	0	1	0	0	0	0	2	0	0	0	3	1	0	7	85
8:20 AM	0	0	0	0	3	0	0	0	0	2	0	0	0	0	0	0	5	84
8:25 AM	0	0	0	0	1	0	0	0	1	2	0	0	0	2	1	0	7	81
8:30 AM	0	0	0	0	0	0	1	0	0	2	0	0	0	3	0	0	6	83
8:35 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	3	79
8:40 AM	0	0	0	0	1	0	1	0	1	0	0	0	0	4	0	0	7	76
8:45 AM	0	0	0	0	1	0	0	0	0	2	0	0	0	2	0	0	5	72
8:50 AM	0	0	0	0	0	0	0	0	1	3	0	0	0	1	2	0	7	72
8:55 AM	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	3	65

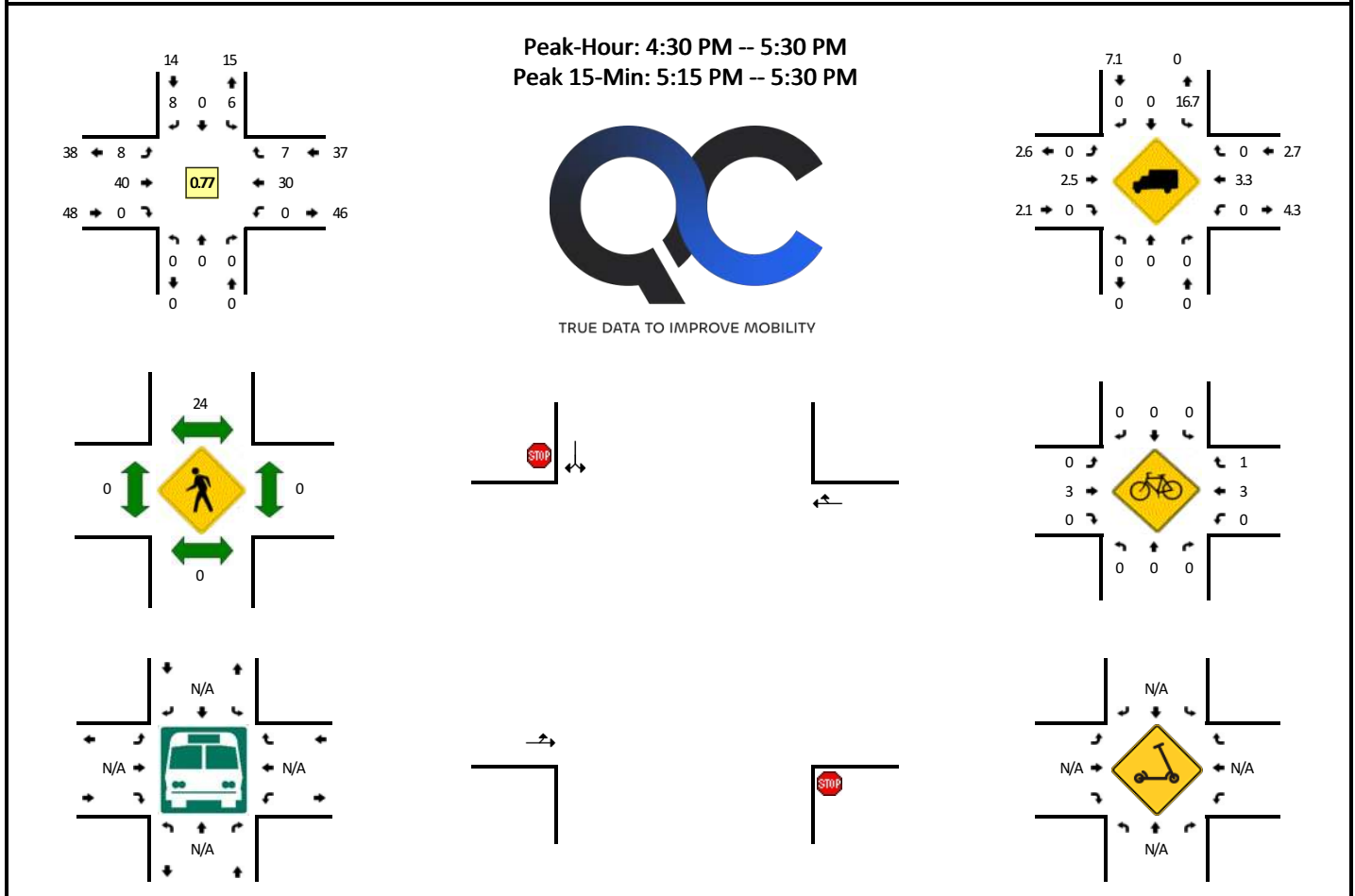
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	8	0	0	0	0	48	0	0	0	48	0	0	104
Heavy Trucks	0	0	0		4	0	0		0	0	0		0	4	0		8
Buses																	
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	
<i>Comments:</i>																	

Report generated on 3/27/2025 2:12 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

LOCATION: Holscher Rd -- Elvehjem Rd
CITY/STATE: McFarland, WI

QC JOB #: 16968806
DATE: Tue, Mar 18 2025

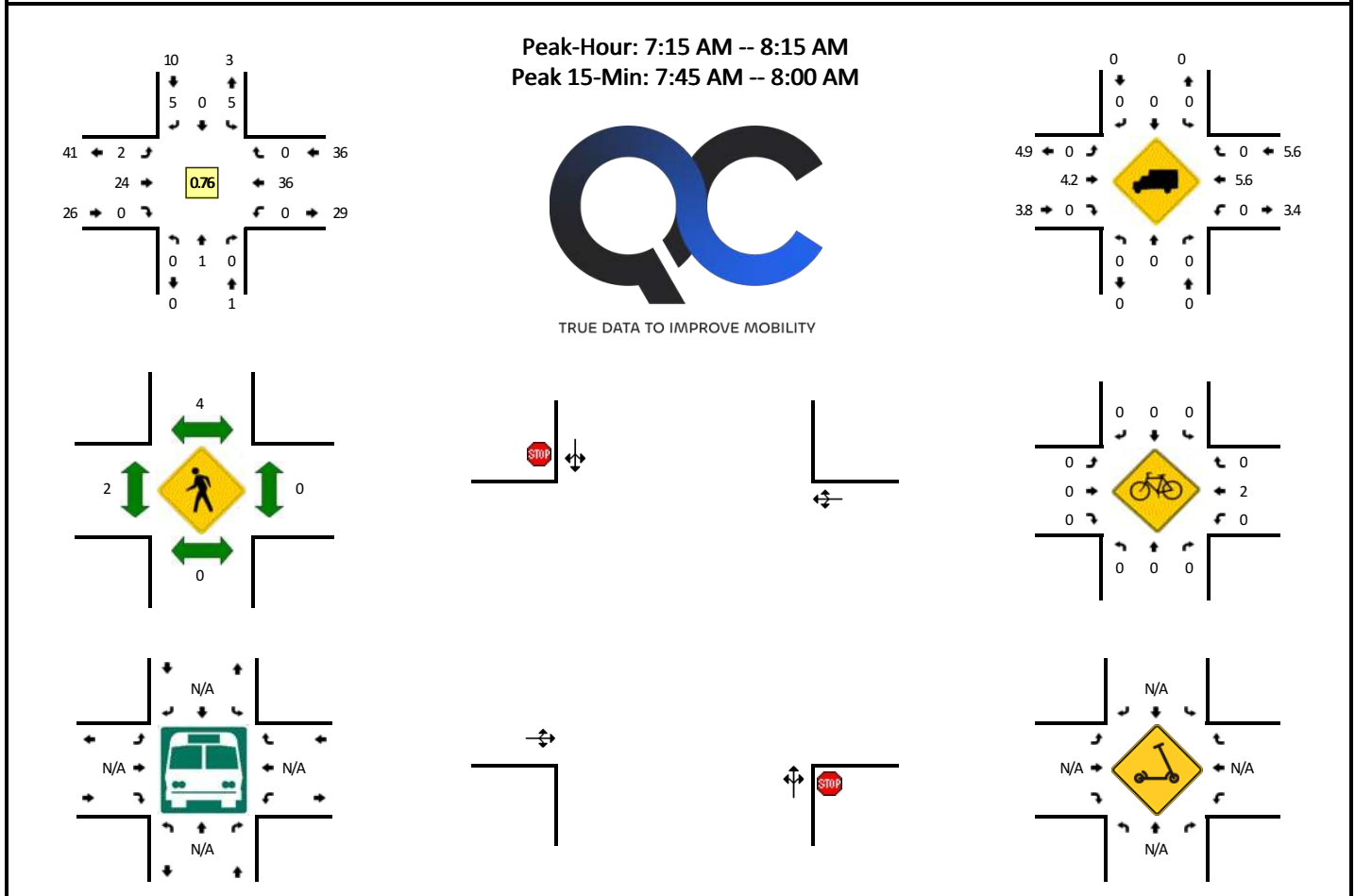


5-Min Count Period Beginning At	Holscher Rd (Northbound)				Holscher Rd (Southbound)				Elvehjem Rd (Eastbound)				Elvehjem Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	0	0	1	0	0	0	0	4	0	0	0	2	0	0	7	
3:05 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	3	
3:10 PM	0	0	0	0	0	0	1	0	0	2	0	0	0	2	1	0	6	
3:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3	
3:20 PM	0	0	0	0	0	0	0	0	1	2	0	0	0	1	0	0	4	
3:25 PM	0	0	0	0	1	0	0	0	0	3	0	0	0	2	0	0	6	
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	
3:35 PM	0	0	0	0	1	0	0	0	2	0	0	0	0	2	1	0	6	
3:40 PM	0	0	0	0	1	0	0	0	0	6	0	0	0	1	0	0	8	
3:45 PM	0	0	0	0	0	0	2	0	1	2	0	0	0	4	0	0	9	
3:50 PM	0	0	0	0	1	0	0	0	1	2	0	0	0	1	0	0	5	
3:55 PM	0	0	0	0	0	0	0	0	1	4	0	0	0	0	2	0	7	69
4:00 PM	0	0	0	0	1	0	0	0	1	0	0	0	0	1	1	0	4	66
4:05 PM	0	0	0	0	0	0	1	0	0	2	0	0	0	1	1	0	5	68
4:10 PM	0	0	0	0	2	0	0	0	0	2	0	0	0	1	1	0	6	68
4:15 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	5	70
4:20 PM	0	0	0	0	0	0	1	0	1	6	0	0	0	5	2	0	15	81
4:25 PM	0	0	0	0	0	0	0	0	0	5	0	0	0	4	1	0	10	85
4:30 PM	0	0	0	0	0	0	1	0	0	6	0	0	0	4	0	0	11	91
4:35 PM	0	0	0	0	2	0	1	0	1	1	0	0	0	1	1	0	7	92
4:40 PM	0	0	0	0	0	0	2	0	1	4	0	0	0	2	1	0	10	94
4:45 PM	0	0	0	0	0	0	2	0	1	2	0	0	0	3	0	0	8	93
4:50 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	4	92
4:55 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	6	91
5:00 PM	0	0	0	0	1	0	0	0	1	2	0	0	0	1	1	0	6	93
5:05 PM	0	0	0	0	0	0	1	0	0	6	0	0	0	2	2	0	11	99
5:10 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	2	1	0	4	97
5:15 PM	0	0	0	0	2	0	0	0	1	7	0	0	0	4	1	0	15	107
5:20 PM	0	0	0	0	1	0	0	0	1	4	0	0	0	1	0	0	7	99
5:25 PM	0	0	0	0	0	0	0	0	1	4	0	0	0	5	0	0	10	99
5:30 PM	0	0	0	0	0	0	1	0	0	4	0	0	0	3	1	0	9	97
5:35 PM	0	0	0	0	2	0	0	0	1	2	0	0	0	4	1	0	10	100
5:40 PM	0	0	0	0	0	0	1	0	0	2	0	0	0	5	1	0	9	99
5:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	3	2	0	7	98
5:50 PM	0	0	0	0	1	0	1	0	1	1	0	0	0	3	1	0	8	102
5:55 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3	99

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	12	0	0	0	12	60	0	0	0	40	4	0	128
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				48				0				0			48
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	
<i>Comments:</i>																	

LOCATION: Hidden Farm Rd -- Elvehjem Rd
CITY/STATE: McFarland, WI

QC JOB #: 16968807
DATE: Tue, Mar 18 2025



5-Min Count Period Beginning At	Hidden Farm Rd (Northbound)				Hidden Farm Rd (Southbound)				Elvehjem Rd (Eastbound)				Elvehjem Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:05 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	
6:10 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
6:15 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	3	0	5	
6:20 AM	0	0	0	0	1	0	2	0	1	0	0	0	0	1	0	0	5	
6:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
6:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	
6:35 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	
6:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	
6:50 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2	
6:55 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	22
7:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	3	25
7:05 AM	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	3	26
7:10 AM	0	0	0	0	0	0	1	0	1	1	0	0	0	2	0	0	5	30
7:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	3	28
7:20 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7	30
7:25 AM	0	0	0	0	2	0	0	0	1	3	0	0	0	2	0	0	8	37
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	0	6	42
7:35 AM	0	0	0	0	1	0	0	0	0	2	0	0	0	3	0	0	6	47
7:40 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	3	0	0	5	52
7:45 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	0	7	58
7:50 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	4	0	0	6	62
7:55 AM	0	0	0	0	0	0	1	0	0	2	0	0	0	8	0	0	11	70
8:00 AM	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	3	70
8:05 AM	0	0	0	0	1	0	2	0	0	4	0	0	0	0	0	0	7	74
8:10 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	0	4	73
8:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4	74
8:20 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4	71
8:25 AM	0	0	0	0	0	0	1	0	0	3	0	0	0	2	0	0	6	69
8:30 AM	0	0	0	0	0	0	0	0	1	2	0	0	0	4	0	0	7	70
8:35 AM	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	3	67
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	67
8:45 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0	4	64
8:50 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0	5	63
8:55 AM	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	3	55

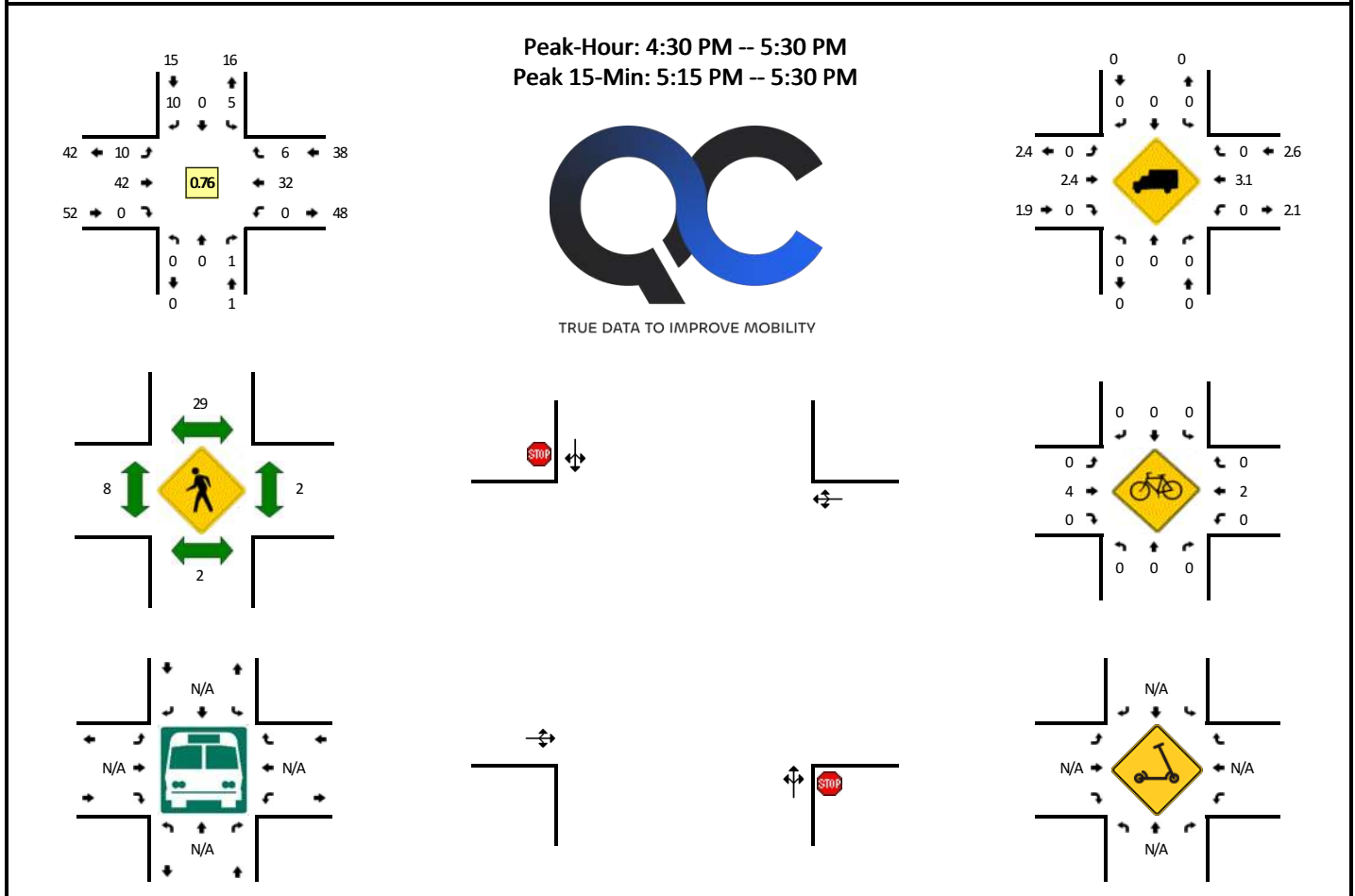
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	4	0	0	0	0	4	0	0	28	0	0	0	60	0	0	96
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	4	0		4
Buses																	
Pedestrians		0				4				4				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scooters																	
<i>Comments:</i>																	

Report generated on 3/27/2025 2:12 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

LOCATION: Hidden Farm Rd -- Elvehjem Rd
CITY/STATE: McFarland, WI

QC JOB #: 16968808
DATE: Tue, Mar 18 2025

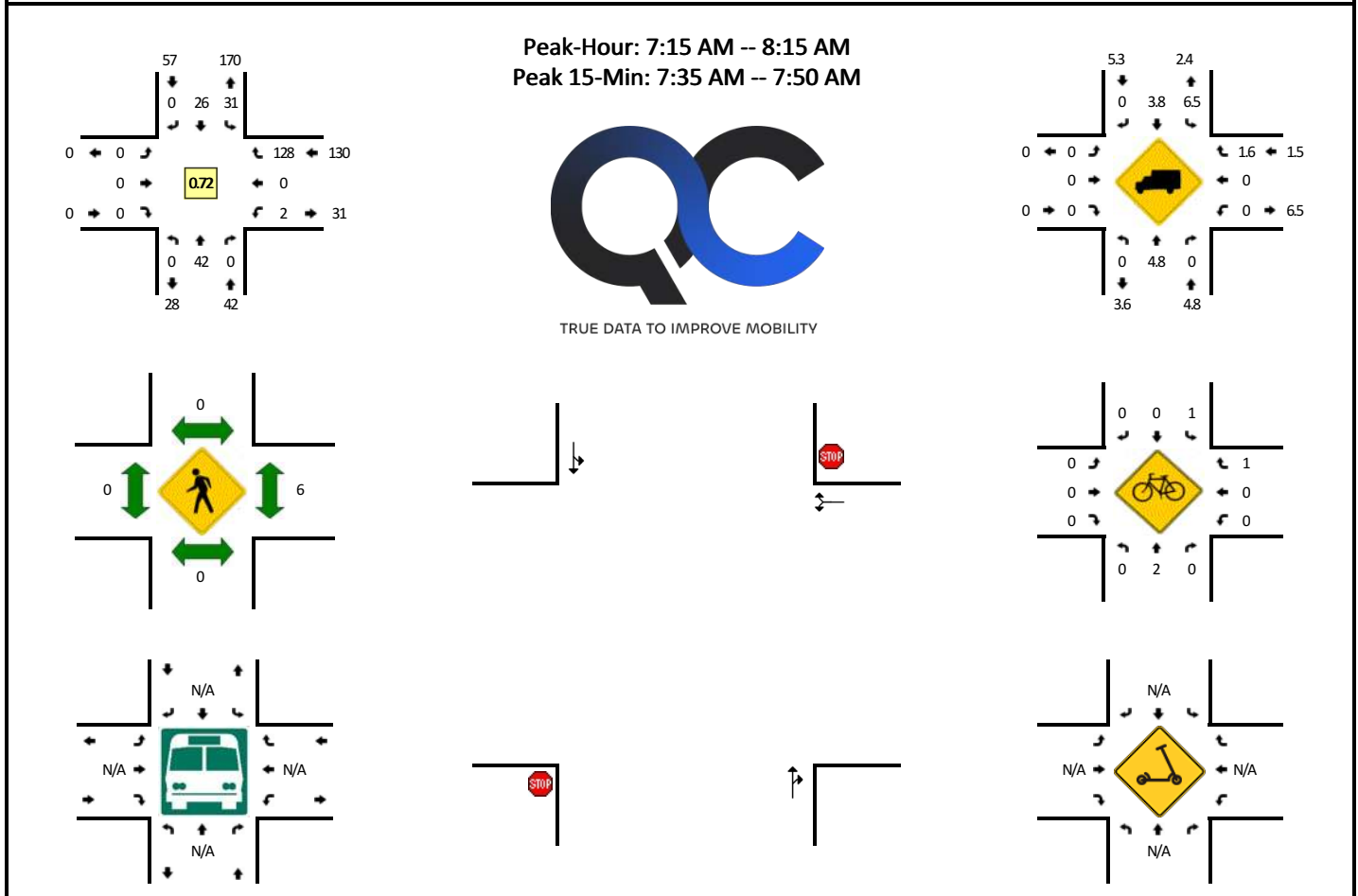


5-Min Count Period Beginning At	Hidden Farm Rd (Northbound)				Hidden Farm Rd (Southbound)				Elvehjem Rd (Eastbound)				Elvehjem Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	0	0	1	0	1	0	1	2	0	0	0	2	0	0	7	
3:05 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	
3:10 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	6	
3:15 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	2	0	0	4	
3:20 PM	0	0	0	0	0	1	0	0	2	3	0	0	1	0	0	0	7	
3:25 PM	0	0	0	0	1	0	1	0	1	2	0	0	0	2	0	0	7	
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	
3:35 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	3	0	0	7	
3:40 PM	0	0	0	0	0	0	0	0	1	6	0	0	0	0	1	0	8	
3:45 PM	0	0	0	0	0	0	0	0	2	4	0	0	0	4	0	0	10	
3:50 PM	0	0	0	0	0	1	1	0	4	3	1	0	0	2	1	0	13	
3:55 PM	0	0	0	0	1	0	0	0	0	4	0	0	0	0	0	0	5	80
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	75
4:05 PM	0	0	0	0	1	0	1	0	2	1	0	0	0	1	0	0	6	79
4:10 PM	1	0	0	0	0	0	0	0	1	2	0	0	0	2	0	0	6	79
4:15 PM	0	1	0	0	0	0	0	0	2	3	0	0	0	0	0	0	6	81
4:20 PM	0	1	1	0	1	0	1	0	0	5	0	0	3	3	0	0	15	89
4:25 PM	1	1	0	0	0	0	1	0	1	5	0	0	0	3	0	0	12	94
4:30 PM	0	0	0	0	1	0	0	0	3	5	0	0	0	6	0	0	15	105
4:35 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	101
4:40 PM	0	0	0	0	1	0	2	0	1	4	0	0	0	5	0	0	13	106
4:45 PM	0	0	0	0	0	0	1	0	1	3	0	0	0	3	2	0	10	106
4:50 PM	0	0	0	0	0	0	1	0	0	2	0	0	0	1	1	0	5	98
4:55 PM	0	0	1	0	2	0	0	0	0	1	0	0	0	3	0	0	7	100
5:00 PM	0	0	0	0	0	0	1	0	0	3	0	0	0	1	0	0	5	103
5:05 PM	0	0	0	0	1	0	0	0	0	4	0	0	0	3	0	0	8	105
5:10 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	1	0	5	104
5:15 PM	0	0	0	0	0	0	1	0	1	8	0	0	0	3	1	0	14	112
5:20 PM	0	0	0	0	0	0	2	0	3	4	0	0	0	1	0	0	10	107
5:25 PM	0	0	0	0	0	0	2	0	0	5	0	0	0	3	1	0	11	106
5:30 PM	0	0	0	0	1	0	0	0	0	3	0	0	1	4	0	0	9	100
5:35 PM	0	0	0	0	0	0	1	0	0	4	1	0	0	2	1	0	9	106
5:40 PM	0	0	0	0	1	0	0	0	1	1	1	0	0	7	0	0	11	104
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4	98
5:50 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6	99
5:55 PM	1	0	0	0	0	0	2	0	1	2	0	0	0	2	0	0	8	100

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	20	0	16	68	0	0	0	28	8	0	140
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				52				0				8			60
Bicycles	0	0	0		0	0	0		0	4	0		0	0	0		4
Scooters																	
<i>Comments:</i>																	

LOCATION: Creamery Rd -- Country Walk
CITY/STATE: McFarland, WI

QC JOB #: 16968809
DATE: Tue, Mar 18 2025



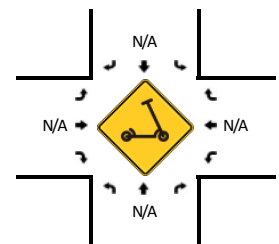
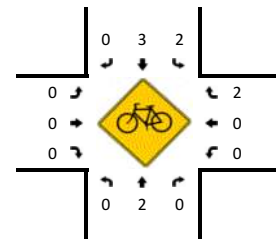
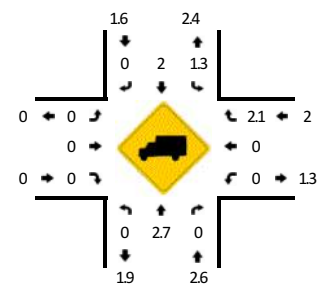
5-Min Count Period Beginning At	Creamery Rd (Northbound)				Creamery Rd (Southbound)				Country Walk (Eastbound)				Country Walk (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	
6:05 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	4	
6:10 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	3	0	5	
6:15 AM	0	3	1	0	0	1	0	0	0	0	0	0	0	0	2	0	7	
6:20 AM	0	3	0	0	1	1	0	0	0	0	0	0	0	0	3	0	8	
6:25 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	
6:30 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	4	0	6	
6:35 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	
6:40 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	6	0	7	
6:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	6	0	7	
6:50 AM	0	2	0	0	3	0	0	0	0	0	0	0	0	0	4	0	9	
6:55 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	6	0	9	68
7:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	70
7:05 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	5	0	6	72
7:10 AM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	4	0	9	76
7:15 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	6	0	9	78
7:20 AM	0	4	0	0	0	3	0	0	0	0	0	0	1	0	8	0	16	86
7:25 AM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	9	0	14	98
7:30 AM	0	5	0	0	4	1	0	0	0	0	0	0	0	0	9	0	19	111
7:35 AM	0	4	0	0	3	2	0	0	0	0	0	0	0	0	22	0	31	140
7:40 AM	0	3	0	0	10	1	0	0	0	0	0	0	0	0	14	0	28	161
7:45 AM	0	2	0	0	4	5	0	0	0	0	0	0	0	0	10	0	21	175
7:50 AM	0	4	0	0	1	1	0	0	0	0	0	0	0	0	6	0	12	178
7:55 AM	0	9	0	0	0	2	0	0	0	0	0	0	0	0	6	0	17	186
8:00 AM	0	2	0	0	3	1	0	0	0	0	0	0	1	0	14	0	21	203
8:05 AM	0	2	0	0	4	4	0	0	0	0	0	0	0	0	8	0	18	215
8:10 AM	0	3	0	0	2	2	0	0	0	0	0	0	0	0	16	0	23	229
8:15 AM	0	2	0	0	3	3	0	0	0	0	0	0	0	0	7	0	15	235
8:20 AM	0	2	0	0	4	1	0	0	0	0	0	0	0	0	3	0	10	229
8:25 AM	0	2	0	0	2	2	0	0	0	0	0	0	0	0	3	0	9	224
8:30 AM	0	4	0	0	3	3	0	0	0	0	0	0	0	0	3	0	13	218
8:35 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	1	0	4	191
8:40 AM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	5	0	10	173
8:45 AM	0	2	0	0	2	1	0	0	0	0	0	0	0	0	3	0	8	160
8:50 AM	0	2	0	0	3	4	0	0	0	0	0	0	0	0	1	0	10	158
8:55 AM	0	1	0	0	1	1	0	0	0	0	0	0	0	0	3	0	6	147

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	36	0	0	68	32	0	0	0	0	0	0	0	0	184	0	320
Heavy Trucks	0	0	0		4	0	0		0	0	0		0	0	0		4
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	
<i>Comments:</i>																	

Report generated on 3/27/2025 2:12 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

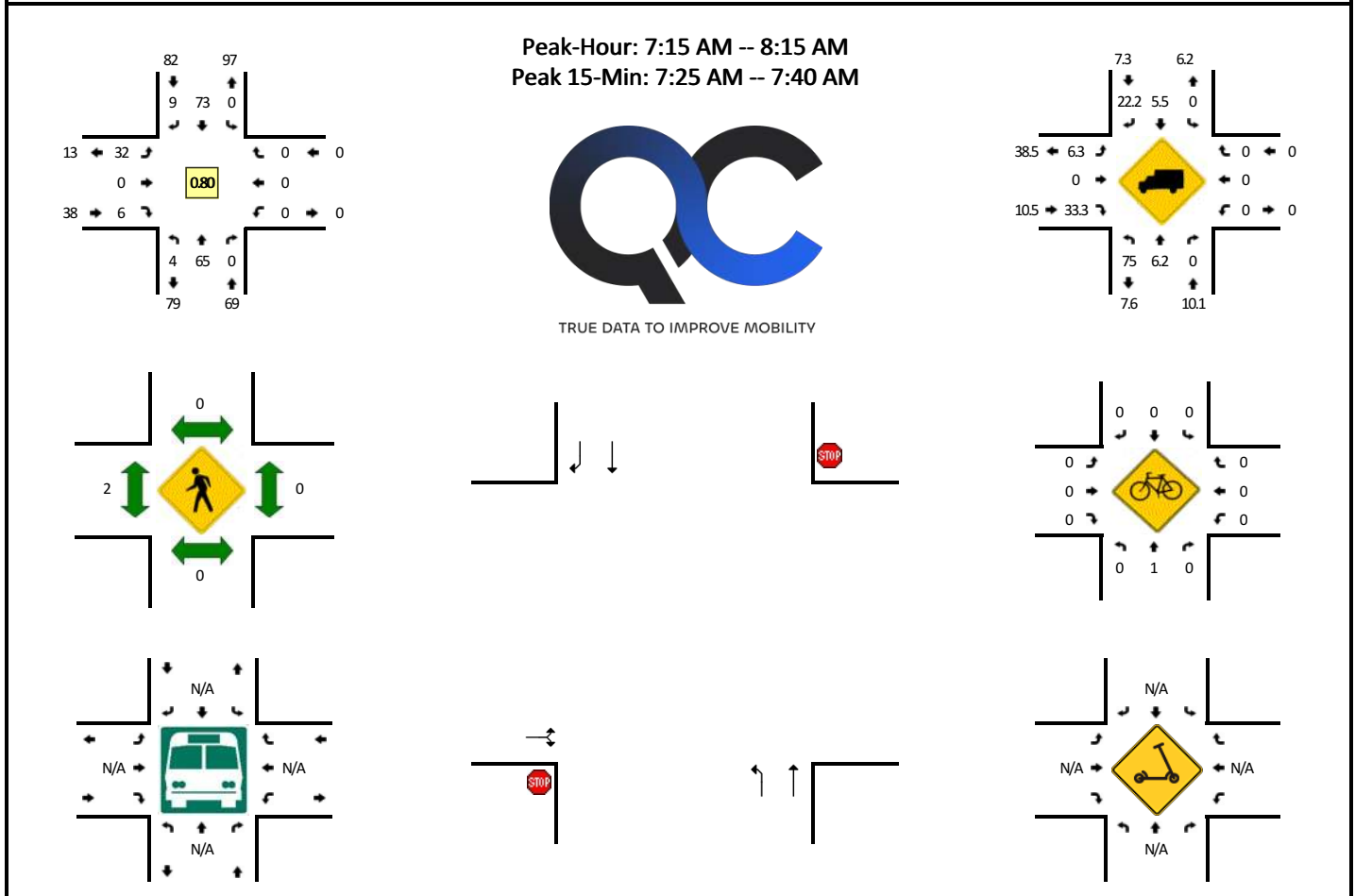
QC JOB #: 16968810
DATE: Tue, Mar 18 2025

Page 286 of 426

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	44	8	0	72	52	0	0	0	0	0	0	8	0	52	0	236
Heavy Trucks	0	0	0		0	4	0		0	0	0		0	0	4		8
Buses																	
Pedestrians		0				0				0				16			16
Bicycles	0	4	0		0	8	0		0	0	0		0	0	0		12
Scooters																	
<i>Comments:</i>																	

LOCATION: Co Rd Ab -- Tuscobia Trail
CITY/STATE: McFarland, WI

QC JOB #: 16968811
DATE: Tue, Mar 18 2025

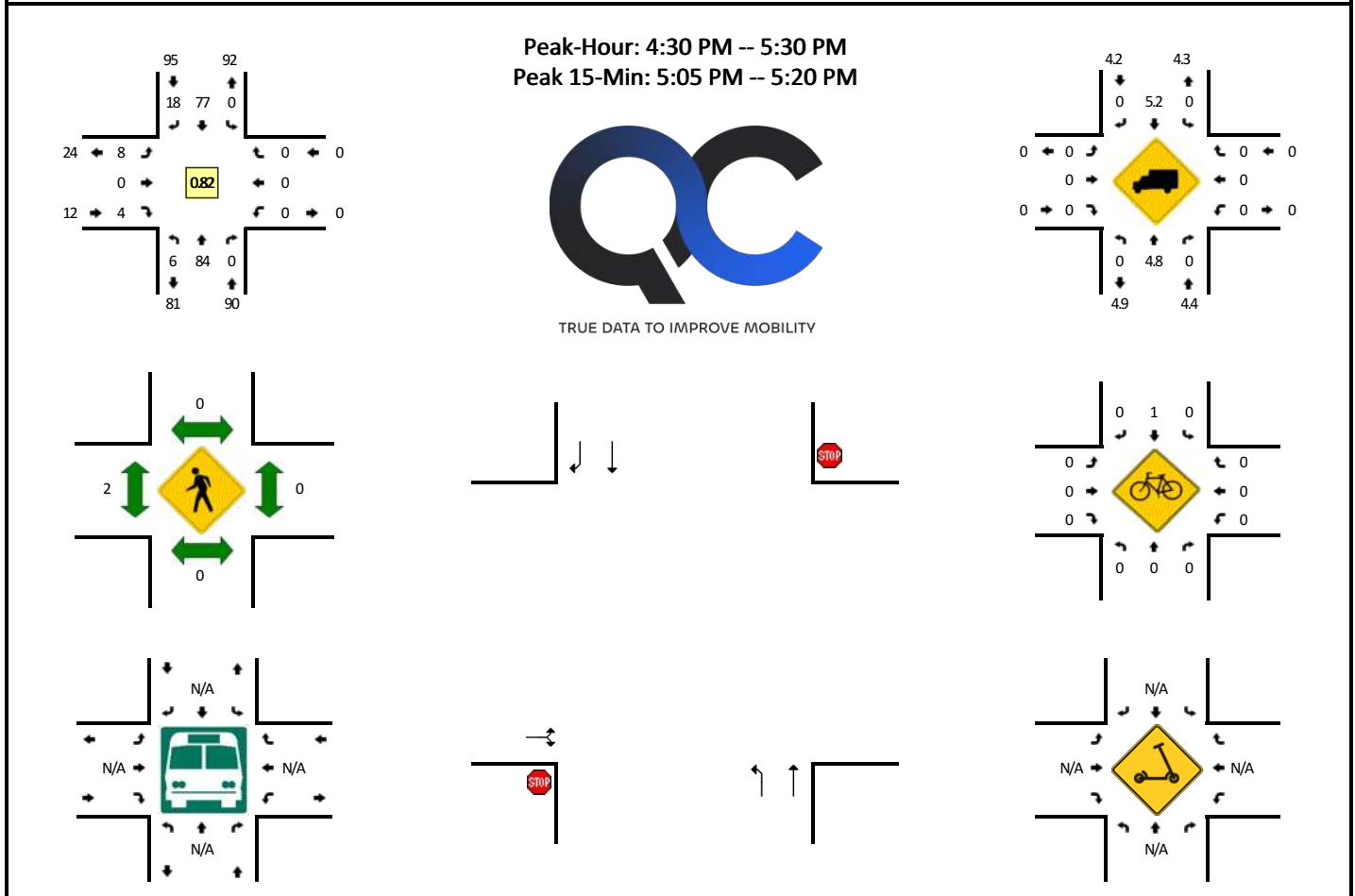


5-Min Count Period Beginning At	Co Rd Ab (Northbound)				Co Rd Ab (Southbound)				Tuscobia Trail (Eastbound)				Tuscobia Trail (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	3	0	0	0	2	1	0	1	0	0	0	0	0	0	0	7	
6:05 AM	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	
6:10 AM	0	2	0	0	0	1	0	0	0	0	1	0	0	0	0	0	4	
6:15 AM	0	4	0	0	0	5	2	0	1	0	0	0	0	0	0	0	12	
6:20 AM	0	3	0	0	0	0	1	0	1	0	1	0	0	0	0	0	6	
6:25 AM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	
6:30 AM	0	2	0	0	0	2	0	0	2	0	0	0	0	0	0	0	6	
6:35 AM	0	6	0	0	0	0	0	0	1	0	3	0	0	0	0	0	10	
6:40 AM	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6	
6:45 AM	0	5	0	0	0	4	0	0	1	0	0	0	0	0	0	0	10	
6:50 AM	0	3	0	0	0	6	2	0	2	0	0	0	0	0	0	0	13	
6:55 AM	0	3	0	0	0	5	0	0	2	0	0	0	0	0	0	0	10	90
7:00 AM	0	3	0	0	0	3	1	0	4	0	0	0	0	0	0	0	11	94
7:05 AM	0	1	0	0	0	2	0	0	3	0	3	0	0	0	0	0	9	101
7:10 AM	0	2	0	0	0	4	1	0	2	0	0	0	0	0	0	0	9	106
7:15 AM	1	5	0	0	0	7	1	0	5	0	0	0	0	0	0	0	19	113
7:20 AM	0	7	0	0	0	2	2	0	5	0	0	0	0	0	0	0	16	123
7:25 AM	0	8	0	0	0	5	0	0	4	0	0	0	0	0	0	0	17	136
7:30 AM	1	6	0	0	0	10	1	0	0	0	0	0	0	0	0	0	18	148
7:35 AM	1	9	0	0	0	8	0	0	4	0	2	0	0	0	0	0	24	162
7:40 AM	0	3	0	0	0	5	1	0	4	0	0	0	0	0	0	0	13	169
7:45 AM	1	4	0	0	0	9	2	0	1	0	2	0	0	0	0	0	19	178
7:50 AM	0	8	0	0	0	4	0	0	0	0	0	0	0	0	0	0	12	177
7:55 AM	0	6	0	0	0	6	0	0	2	0	2	0	0	0	0	0	16	183
8:00 AM	0	5	0	0	0	9	0	0	1	0	0	0	0	0	0	0	15	187
8:05 AM	0	2	0	0	0	5	2	0	3	0	0	0	0	0	0	0	12	190
8:10 AM	0	2	0	0	0	3	0	0	3	0	0	0	0	0	0	0	8	189
8:15 AM	0	1	0	0	0	4	1	0	0	0	1	0	0	0	0	0	7	177
8:20 AM	2	1	0	0	0	2	1	0	0	0	0	0	0	0	0	0	6	167
8:25 AM	0	3	0	0	0	4	1	1	1	0	0	0	0	0	0	0	10	160
8:30 AM	0	4	0	0	0	4	1	0	0	0	0	0	0	0	0	0	9	151
8:35 AM	0	8	0	0	0	4	2	0	2	0	1	0	0	0	0	0	17	144
8:40 AM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5	136
8:45 AM	0	2	0	0	0	5	1	0	2	0	0	0	0	0	0	0	10	127
8:50 AM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5	120
8:55 AM	0	3	0	0	0	3	0	0	2	0	0	0	0	0	0	0	8	112

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	92	0	0	0	92	4	0	32	0	8	0	0	0	0	0	236
Heavy Trucks	8	8	0		0	4	0		0	0	0		0	0	0		20
Buses																	
Pedestrians		0				0				4				0			4
Bicycles	0	4	0		0	0	0		0	0	0		0	0	0		4
Scooters																	
<i>Comments:</i>																	

LOCATION: Co Rd Ab -- Tuscobia Trail
CITY/STATE: McFarland, WI

QC JOB #: 16968812
DATE: Tue, Mar 18 2025

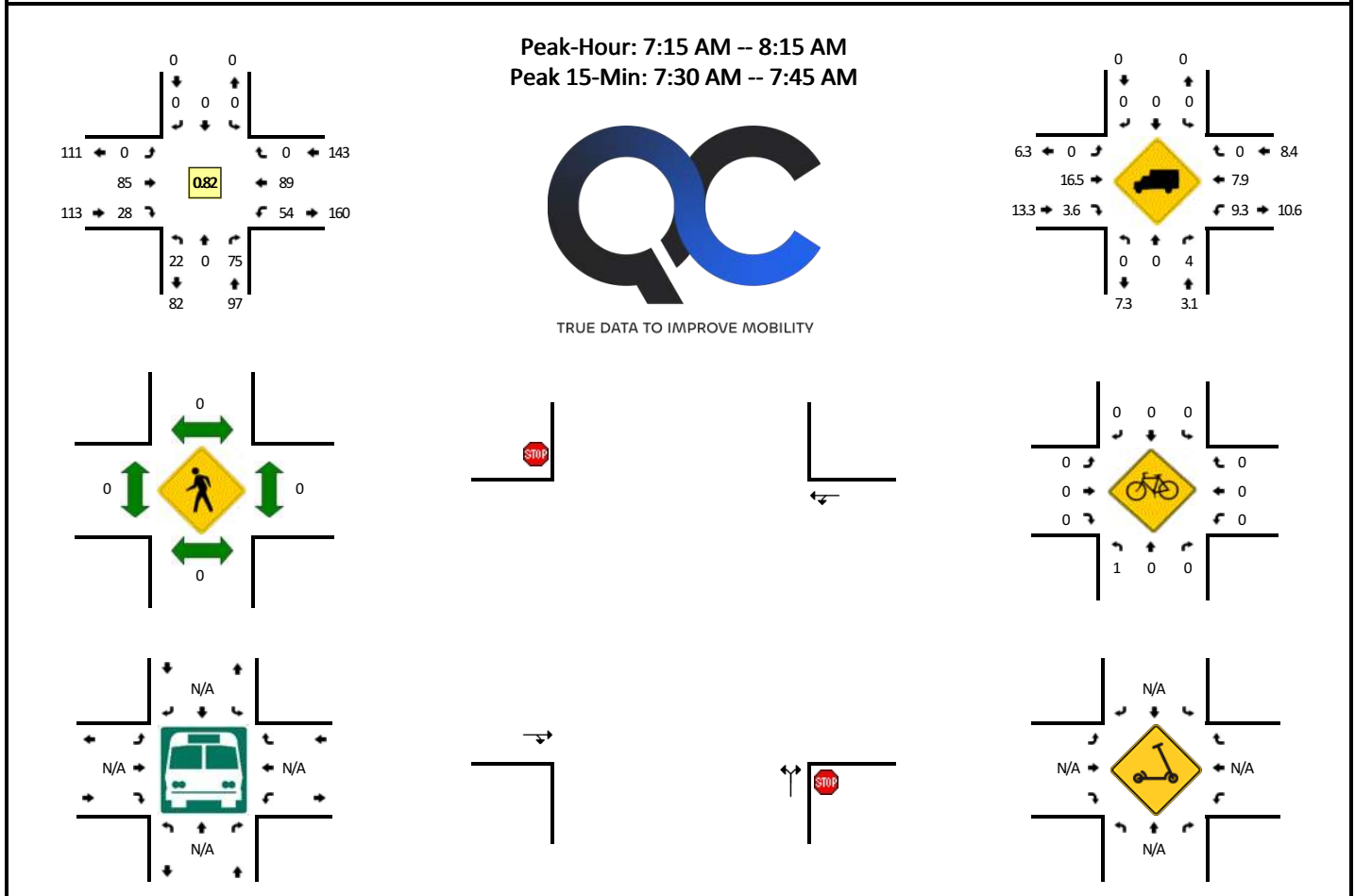


5-Min Count Period Beginning At	Co Rd Ab (Northbound)				Co Rd Ab (Southbound)				Tuscobia Trail (Eastbound)				Tuscobia Trail (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	7	0	0	0	2	1	0	0	0	1	0	0	0	0	0	11	
3:05 PM	1	2	0	0	0	7	1	0	0	0	0	0	0	0	0	0	11	
3:10 PM	0	5	0	0	0	4	0	0	0	1	0	0	0	0	0	0	10	
3:15 PM	0	2	0	0	0	4	3	0	0	3	0	0	0	0	0	0	12	
3:20 PM	0	4	0	0	0	2	1	0	0	1	0	0	0	0	0	0	8	
3:25 PM	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	5	
3:30 PM	0	6	0	0	0	7	0	0	0	1	0	0	0	0	0	0	14	
3:35 PM	0	4	0	0	0	8	4	0	0	0	0	1	0	0	0	0	17	
3:40 PM	0	4	0	0	0	8	0	0	0	1	0	2	0	0	0	0	15	
3:45 PM	0	8	0	0	0	2	1	0	0	0	0	0	0	0	0	0	11	
3:50 PM	0	2	0	0	0	9	2	0	0	2	0	0	0	0	0	0	15	
3:55 PM	0	6	0	0	0	7	1	0	0	0	0	2	0	0	0	0	16	145
4:00 PM	3	5	0	0	0	7	2	0	0	1	0	0	0	0	0	0	18	152
4:05 PM	1	6	0	0	0	3	1	0	0	1	0	0	0	0	0	0	12	153
4:10 PM	0	2	0	0	0	4	1	0	0	0	0	0	0	0	0	0	7	150
4:15 PM	1	6	0	0	0	5	2	0	0	1	0	2	0	0	0	0	17	155
4:20 PM	0	4	0	0	0	9	0	0	0	1	0	0	0	0	0	0	14	161
4:25 PM	0	6	0	0	0	8	3	0	0	0	0	2	0	0	0	0	19	175
4:30 PM	2	8	0	0	0	7	1	0	0	0	0	0	0	0	0	0	18	179
4:35 PM	1	6	0	0	0	8	1	0	0	0	0	0	0	0	0	0	16	178
4:40 PM	2	7	0	0	0	5	1	0	0	1	0	0	0	0	0	0	16	179
4:45 PM	0	8	0	0	0	7	0	0	0	1	0	0	0	0	0	0	16	184
4:50 PM	0	5	0	0	0	3	0	0	0	1	0	1	0	0	0	0	10	179
4:55 PM	0	4	0	0	0	4	3	0	0	0	0	0	0	0	0	0	11	174
5:00 PM	0	4	0	0	0	3	1	0	0	1	0	1	0	0	0	0	10	166
5:05 PM	0	9	0	0	0	12	1	0	0	0	0	0	0	0	0	0	22	176
5:10 PM	0	9	0	0	0	7	3	0	0	2	0	1	0	0	0	0	22	191
5:15 PM	0	11	0	0	0	5	0	0	0	0	0	0	0	0	0	0	16	190
5:20 PM	0	4	0	0	0	9	2	0	0	0	0	0	0	0	0	0	15	191
5:25 PM	1	9	0	0	0	7	5	0	0	2	0	1	0	0	0	0	25	197
5:30 PM	1	12	0	0	0	2	4	0	0	1	0	0	0	0	0	0	20	199
5:35 PM	1	4	0	0	0	8	2	0	0	0	0	3	0	0	0	0	18	201
5:40 PM	1	4	0	0	0	4	3	0	0	1	0	1	0	0	0	0	14	199
5:45 PM	1	3	0	0	0	5	0	0	0	1	0	0	0	0	0	0	10	193
5:50 PM	1	2	0	0	0	2	1	0	0	2	0	0	0	0	0	0	8	191
5:55 PM	0	6	0	0	0	7	2	0	0	1	0	0	0	0	0	0	16	196

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	116	0	0	0	96	16	0	8	0	4	0	0	0	0	0	240
Heavy Trucks	0	8	0		0	4	0		0	0	0		0	0	0		12
Buses																	
Pedestrians		0				0				8				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	
<i>Comments:</i>																	

LOCATION: Co Rd Ab -- Co Rd Mn
CITY/STATE: McFarland, WI

QC JOB #: 16968813
DATE: Tue, Mar 18 2025

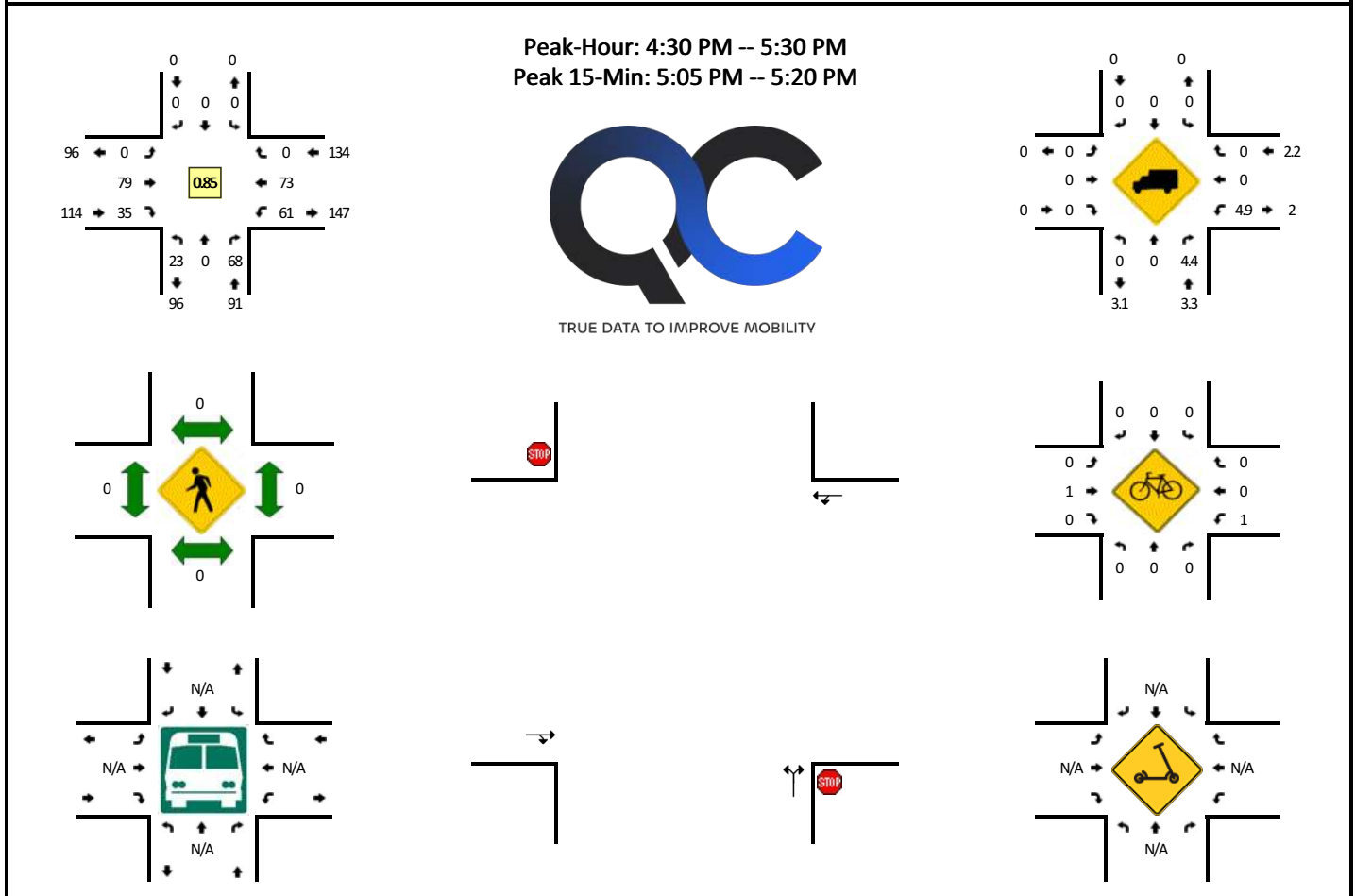


5-Min Count Period Beginning At	Co Rd Ab (Northbound)				Co Rd Ab (Southbound)				Co Rd Mn (Eastbound)				Co Rd Mn (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	1	0	0	0	0	0	0	2	1	0	1	1	0	0	6	
6:05 AM	1	0	5	0	0	0	0	0	0	2	0	0	0	1	0	0	9	
6:10 AM	0	0	2	0	0	0	0	0	0	2	2	0	1	0	0	0	7	
6:15 AM	0	0	3	0	0	0	0	0	0	1	1	0	4	2	0	0	11	
6:20 AM	0	0	5	0	0	0	0	0	0	2	0	0	1	2	0	0	10	
6:25 AM	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	5	
6:30 AM	1	0	2	0	0	0	0	0	0	3	0	0	2	3	0	0	11	
6:35 AM	2	0	6	0	0	0	0	0	0	3	0	0	0	1	0	0	12	
6:40 AM	1	0	3	0	0	0	0	0	0	5	0	0	3	3	0	0	15	
6:45 AM	1	0	5	0	0	0	0	0	0	6	1	0	2	3	0	0	18	
6:50 AM	0	0	3	0	0	0	0	0	0	8	1	0	8	5	0	0	25	
6:55 AM	1	0	3	0	0	0	0	0	0	7	1	0	3	2	0	0	17	146
7:00 AM	2	0	8	0	0	0	0	0	0	3	2	0	2	2	0	0	19	159
7:05 AM	0	0	4	0	0	0	0	0	0	3	2	0	0	3	0	0	12	162
7:10 AM	2	0	2	0	0	0	0	0	0	6	3	0	3	7	0	0	23	178
7:15 AM	1	0	7	0	0	0	0	0	0	4	4	0	3	5	0	0	24	191
7:20 AM	5	0	6	0	0	0	0	0	0	5	1	0	3	8	0	0	28	209
7:25 AM	5	0	9	0	0	0	0	0	0	6	1	0	4	9	0	0	34	238
7:30 AM	1	0	5	0	0	0	0	0	0	9	5	0	7	12	0	0	39	266
7:35 AM	2	0	9	0	0	0	0	0	0	5	4	0	3	5	0	0	28	282
7:40 AM	2	0	6	0	0	0	0	0	0	15	1	0	5	11	0	0	40	307
7:45 AM	0	0	7	0	0	0	0	0	0	8	6	0	6	10	0	0	37	326
7:50 AM	0	0	7	0	0	0	0	0	0	6	2	0	4	5	0	0	24	325
7:55 AM	2	0	6	0	0	0	0	0	0	7	0	0	4	6	0	0	25	333
8:00 AM	2	0	5	0	0	0	0	0	0	6	3	0	5	7	0	0	28	342
8:05 AM	0	0	5	0	0	0	0	0	0	7	1	0	6	8	0	0	27	357
8:10 AM	2	0	3	0	0	0	0	0	0	7	0	0	4	3	0	0	19	353
8:15 AM	1	0	0	0	0	0	0	0	0	7	0	0	4	6	0	0	18	347
8:20 AM	0	0	1	0	0	0	0	0	0	5	1	0	2	6	0	0	15	334
8:25 AM	2	0	3	0	0	0	0	0	0	8	4	0	2	3	0	0	22	322
8:30 AM	2	0	2	0	0	0	0	0	0	5	2	0	4	1	0	0	16	299
8:35 AM	3	0	7	0	0	0	0	0	0	6	0	0	6	7	0	0	29	300
8:40 AM	0	0	2	0	0	0	0	0	0	3	1	0	1	0	0	0	7	267
8:45 AM	2	0	2	0	0	0	0	0	0	1	1	0	6	5	0	0	17	247
8:50 AM	3	0	0	0	0	0	0	0	0	1	0	0	1	5	0	0	10	233
8:55 AM	1	0	4	0	0	0	0	0	0	2	2	0	1	9	0	0	19	227

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	20	0	80	0	0	0	0	0	0	116	40	0	60	112	0	0	428
Heavy Trucks	0	0	8		0	0	0		0	16	4		0	0	0		28
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	
<i>Comments:</i>																	

LOCATION: Co Rd Ab -- Co Rd Mn
CITY/STATE: McFarland, WI

QC JOB #: 16968814
DATE: Tue, Mar 18 2025



5-Min Count Period Beginning At	Co Rd Ab (Northbound)				Co Rd Ab (Southbound)				Co Rd Mn (Eastbound)				Co Rd Mn (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	1	0	7	0	0	0	0	0	0	6	1	0	2	9	0	0	26	
3:05 PM	0	0	3	0	0	0	0	0	0	7	3	0	5	5	0	0	23	
3:10 PM	2	0	3	0	0	0	0	0	0	4	2	0	2	3	0	0	16	
3:15 PM	1	0	5	0	0	0	0	0	0	10	3	0	4	4	0	0	27	
3:20 PM	1	0	2	0	0	0	0	0	0	5	1	0	2	8	0	0	19	
3:25 PM	0	0	3	0	0	0	0	0	0	5	2	0	3	4	0	0	17	
3:30 PM	3	0	4	0	0	0	0	0	0	4	3	0	6	6	0	0	26	
3:35 PM	1	0	3	0	0	0	0	0	0	11	3	0	7	4	0	0	29	
3:40 PM	2	0	2	0	0	0	0	0	0	9	3	0	4	5	0	0	25	
3:45 PM	4	0	3	0	0	0	0	0	0	5	1	0	2	9	0	0	24	
3:50 PM	1	0	4	0	0	0	0	0	0	4	3	0	8	2	0	0	22	
3:55 PM	3	0	2	0	0	0	0	0	0	7	5	0	2	4	0	0	23	277
4:00 PM	3	0	3	0	0	0	0	0	0	5	4	0	6	8	0	0	29	280
4:05 PM	2	0	5	0	0	0	0	0	0	7	0	0	3	4	0	0	21	278
4:10 PM	1	0	2	0	0	0	0	0	0	11	0	0	6	10	0	0	30	292
4:15 PM	5	0	2	0	0	0	0	0	0	6	0	0	6	7	0	0	26	291
4:20 PM	1	0	3	0	0	0	0	0	0	7	1	0	8	5	0	0	25	297
4:25 PM	1	0	4	0	0	0	0	0	0	12	2	0	9	5	0	0	33	313
4:30 PM	1	0	8	0	0	0	0	0	0	5	3	0	5	6	0	0	28	315
4:35 PM	3	0	4	0	0	0	0	0	0	5	2	0	7	6	0	0	27	313
4:40 PM	1	0	7	0	0	0	0	0	0	8	1	0	5	4	0	0	26	314
4:45 PM	3	0	5	0	0	0	0	0	0	7	4	0	3	5	0	0	27	317
4:50 PM	3	0	4	0	0	0	0	0	0	7	1	0	2	5	0	0	22	317
4:55 PM	1	0	2	0	0	0	0	0	0	4	4	0	3	9	0	0	23	317
5:00 PM	0	0	6	0	0	0	0	0	0	5	4	0	1	6	0	0	22	310
5:05 PM	2	0	5	0	0	0	0	0	0	3	5	0	9	7	0	0	31	320
5:10 PM	5	0	4	0	0	0	0	0	0	14	4	0	6	10	0	0	43	333
5:15 PM	2	0	11	0	0	0	0	0	0	6	0	0	4	3	0	0	26	333
5:20 PM	0	0	3	0	0	0	0	0	0	7	5	0	6	9	0	0	30	338
5:25 PM	2	0	9	0	0	0	0	0	0	8	2	0	10	3	0	0	34	339
5:30 PM	3	0	10	0	0	0	0	0	0	7	2	0	6	8	0	0	36	347
5:35 PM	1	0	4	0	0	0	0	0	0	4	0	0	8	5	0	0	22	342
5:40 PM	3	0	1	0	0	0	0	0	0	8	3	0	4	6	0	0	25	341
5:45 PM	2	0	4	0	0	0	0	0	0	2	1	0	4	7	0	0	20	334
5:50 PM	1	0	3	0	0	0	0	0	0	6	1	0	2	7	0	0	20	332
5:55 PM	5	0	2	0	0	0	0	0	0	6	3	0	7	4	0	0	27	336

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	0	80	0	0	0	0	0	0	92	36	0	76	80	0	0	400
Heavy Trucks	0	0	8		0	0	0		0	0	0		0	0	0		8
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	
<i>Comments:</i>																	

Appendix C – Measure of Effectiveness Tables



March 2025
SRF Project No. 18939.00

Lakestone Properties Development Traffic Impact Analysis (TIA)
Measure of Effectiveness Tables

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	-	-	1>	-	0	-	1>	0	0	<1	-
Volume	-	-	-	2	-	128	-	42	1	31	26	-
Delay (s)	-	-	-	9.5	-	-	-	-	-	7.5	0.0	-
Level of Service	-	-	-	A	-	-	-	-	-	A	A	-
V/C Ratio	-	-	-	0.18	-	-	-	-	-	0.03	-	-
95% Queue (ft)	-	-	-	20	-	-	-	-	-	5	-	-
Overall Intersection Delay (s)	6.3	Control Type		Existing Conditions: AM Peak						Intersection Description		
Overall Intersection LOS	A	Two-Way Stop		Year 2025						100: Elvehjem Rd/Creamery Rd & County Walk		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	-	-	1>	-	0	-	1>	0	0	<1	-
Volume	-	-	-	2	-	147	-	48	1	36	30	-
Delay (s)	-	-	-	9.7	-	-	-	-	-	7.5	0.0	-
Level of Service	-	-	-	A	-	-	-	-	-	A	A	-
V/C Ratio	-	-	-	0.21	-	-	-	-	-	0.03	-	-
95% Queue (ft)	-	-	-	20	-	-	-	-	-	5	-	-
Overall Intersection Delay (s)	6.5	Control Type		Opening Background Conditions: AM Peak						Intersection Description		
Overall Intersection LOS	A	Two-Way Stop		Year 2030						100: Elvehjem Rd/Creamery Rd & County Walk		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	-	-	1>	-	0	-	1>	0	0	<1	-
Volume	-	-	-	3	-	186	-	61	1	45	38	-
Delay (s)	-	-	-	10.2	-	-	-	-	-	7.6	0.0	-
Level of Service	-	-	-	B	-	-	-	-	-	A	A	-
V/C Ratio	-	-	-	0.28	-	-	-	-	-	0.04	-	-
95% Queue (ft)	-	-	-	30	-	-	-	-	-	5	-	-
Overall Intersection Delay (s)	6.8	Control Type		Horizon Background Conditions: AM Peak						Intersection Description		
Overall Intersection LOS	A	Two-Way Stop		Year 2040						100: Elvehjem Rd/Creamery Rd & County Walk		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	-	-	1>	-	0	-	1>	0	0	<1	-
Volume	-	-	-	2	-	147	-	64	1	36	35	-
Delay (s)	-	-	-	9.8	-	-	-	-	-	7.6	0.0	-
Level of Service	-	-	-	A	-	-	-	-	-	A	A	-
V/C Ratio	-	-	-	0.22	-	-	-	-	-	0.03	-	-
95% Queue (ft)	-	-	-	20	-	-	-	-	-	5	-	-
Overall Intersection Delay (s)	6.1	Control Type		Opening Build Conditions: AM Peak						Intersection Description		
Overall Intersection LOS	A	Two-Way Stop		Year 2030						100: Elvehjem Rd/Creamery Rd & County Walk		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	-	-	1>	-	0	-	1>	0	0	<1	-
Volume	-	-	-	3	-	186	-	77	1	45	43	-
Delay (s)	-	-	-	10.4	-	-	-	-	-	7.6	0.0	-
Level of Service	-	-	-	B	-	-	-	-	-	A	A	-
V/C Ratio	-	-	-	0.28	-	-	-	-	-	0.04	-	-
95% Queue (ft)	-	-	-	30	-	-	-	-	-	5	-	-
Overall Intersection Delay (s)	6.5	Control Type		Horizon Build Conditions: AM Peak						Intersection Description		
Overall Intersection LOS	A	Two-Way Stop		Year 2040						100: Elvehjem Rd/Creamery Rd & County Walk		



March 2025
SRF Project No. 18939.00

Lakestone Properties Development Traffic Impact Analysis (TIA)
Measure of Effectiveness Tables

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	2	24	1	1	36	1	1	1	1	5	1	5
Delay (s)	7.3	0.0	-	7.3	0.0	-	-	9.0	-	-	8.9	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.00	-	-	0.00	-	-	-	0.00	-	-	0.02	-
95% Queue (ft)	0	-	-	0	-	-	-	0	-	-	0	-
Overall Intersection Delay (s)	1.9	Control Type		Existing Conditions: AM Peak						Intersection Description		
Overall Intersection LOS	A	Two-Way Stop		Year 2025						110: Hidden Farm Rd & Elvehjem Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	2	28	1	1	41	1	1	1	1	6	1	6
Delay (s)	7.3	0.0	-	7.3	0.0	-	-	9.1	-	-	9.0	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.00	-	-	0.00	-	-	-	0.00	-	-	0.02	-
95% Queue (ft)	0	-	-	0	-	-	-	0	-	-	5	-
Overall Intersection Delay (s)	1.8	Control Type		Opening Background Conditions: AM Peak						Intersection Description		
Overall Intersection LOS	A	Two-Way Stop		Year 2030						110: Hidden Farm Rd & Elvehjem Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	3	35	1	1	52	1	1	1	1	7	1	7
Delay (s)	7.4	0.0	-	7.3	0.0	-	-	9.2	-	-	9.1	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.00	-	-	0.00	-	-	-	0.01	-	-	0.02	-
95% Queue (ft)	0	-	-	0	-	-	-	0	-	-	5	-
Overall Intersection Delay (s)	1.7	Control Type		Horizon Background Conditions: AM Peak						Intersection Description		
Overall Intersection LOS	A	Two-Way Stop		Year 2040						110: Hidden Farm Rd & Elvehjem Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	2	33	1	1	57	1	1	1	1	6	1	6
Delay (s)	7.4	0.0	-	7.3	0.0	-	-	9.2	-	-	9.1	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.00	-	-	0.00	-	-	-	0.01	-	-	0.02	-
95% Queue (ft)	0	-	-	0	-	-	-	0	-	-	5	-
Overall Intersection Delay (s)	1.5	Control Type		Opening Build Conditions: AM Peak						Intersection Description		
Overall Intersection LOS	A	Two-Way Stop		Year 2030						110: Hidden Farm Rd & Elvehjem Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	3	40	1	1	68	1	1	1	1	7	1	7
Delay (s)	7.4	0.0	-	7.3	0.0	-	-	9.3	-	-	9.3	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.00	-	-	0.00	-	-	-	0.01	-	-	0.02	-
95% Queue (ft)	0	-	-	0	-	-	-	0	-	-	5	-
Overall Intersection Delay (s)	1.5	Control Type		Horizon Build Conditions: AM Peak						Intersection Description		
Overall Intersection LOS	A	Two-Way Stop		Year 2040						110: Hidden Farm Rd & Elvehjem Rd		



March 2025
SRF Project No. 18939.00

Lakestone Properties Development Traffic Impact Analysis (TIA)
Measure of Effectiveness Tables

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1	-	1
Volume	1	30	-	-	32	4	-	-	-	8	-	6
Delay (s)	7.3	0.0	-	-	-	-	-	-	-	9.2	-	8.6
Level of Service	A	A	-	-	-	-	-	-	-	A	-	A
V/C Ratio	0.00	-	-	-	-	-	-	-	-	0.01	-	0.01
95% Queue (ft)	0	-	-	-	-	-	-	-	-	0	-	0
Overall Intersection Delay (s)	1.6	Control Type			Existing Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2025					120: Elvehjem Rd & Holscher Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1	-	1
Volume	1	35	-	-	37	5	-	-	-	9	-	7
Delay (s)	7.3	0.0	-	-	-	-	-	-	-	9.3	-	8.6
Level of Service	A	A	-	-	-	-	-	-	-	A	-	A
V/C Ratio	0.00	-	-	-	-	-	-	-	-	0.01	-	0.01
95% Queue (ft)	0	-	-	-	-	-	-	-	-	0	-	0
Overall Intersection Delay (s)	1.6	Control Type			Opening Background Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					120: Elvehjem Rd & Holscher Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1	-	1
Volume	1	44	-	-	46	6	-	-	-	12	-	9
Delay (s)	7.4	0.0	-	-	-	-	-	-	-	9.4	-	8.7
Level of Service	A	A	-	-	-	-	-	-	-	A	-	A
V/C Ratio	0.00	-	-	-	-	-	-	-	-	0.02	-	0.01
95% Queue (ft)	0	-	-	-	-	-	-	-	-	5	-	0
Overall Intersection Delay (s)	1.7	Control Type			Horizon Background Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					120: Elvehjem Rd & Holscher Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1	-	1
Volume	1	40	-	-	53	7	-	-	-	10	-	7
Delay (s)	7.4	0.0	-	-	-	-	-	-	-	9.4	-	8.7
Level of Service	A	A	-	-	-	-	-	-	-	A	-	A
V/C Ratio	0.00	-	-	-	-	-	-	-	-	0.02	-	0.01
95% Queue (ft)	0	-	-	-	-	-	-	-	-	0	-	0
Overall Intersection Delay (s)	1.4	Control Type			Opening Build Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					120: Elvehjem Rd & Holscher Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1	-	1
Volume	1	49	-	-	62	8	-	-	-	13	-	9
Delay (s)	7.4	0.0	-	-	-	-	-	-	-	9.6	-	8.8
Level of Service	A	A	-	-	-	-	-	-	-	A	-	A
V/C Ratio	0.00	-	-	-	-	-	-	-	-	0.02	-	0.01
95% Queue (ft)	0	-	-	-	-	-	-	-	-	5	-	0
Overall Intersection Delay (s)	1.5	Control Type			Horizon Build Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					120: Elvehjem Rd & Holscher Rd		



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Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	3	27	8	1	21	2	8	1	1	9	1	7
Delay (s)	7.3	0.0	-	7.3	0.0	-	-	9.3	-	-	9.0	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.00	-	-	0.00	-	-	-	0.02	-	-	0.03	-
95% Queue (ft)	0	-	-	0	-	-	-	5	-	-	5	-
Overall Intersection Delay (s)	3.1	Control Type			Existing Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2025					130: Dog Park Access/Perrot Pl & Elvehjem Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	3	31	9	1	24	2	9	1	1	10	1	8
Delay (s)	7.3	0.0	-	7.3	0.0	-	-	9.4	-	-	9.1	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.00	-	-	0.00	-	-	-	0.02	-	-	0.03	-
95% Queue (ft)	0	-	-	0	-	-	-	5	-	-	5	-
Overall Intersection Delay (s)	3.0	Control Type			Opening Background Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					130: Dog Park Access/Perrot Pl & Elvehjem Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	4	39	12	1	30	3	12	1	1	13	1	10
Delay (s)	7.3	0.0	-	7.4	0.0	-	-	9.6	-	-	9.2	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.00	-	-	0.00	-	-	-	0.03	-	-	0.04	-
95% Queue (ft)	0	-	-	0	-	-	-	5	-	-	5	-
Overall Intersection Delay (s)	3.1	Control Type			Horizon Background Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					130: Dog Park Access/Perrot Pl & Elvehjem Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	4	36	9	1	40	2	9	1	1	10	1	10
Delay (s)	7.4	0.0	-	7.3	0.0	-	-	9.6	-	-	9.2	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.00	-	-	0.00	-	-	-	0.02	-	-	0.04	-
95% Queue (ft)	0	-	-	0	-	-	-	5	-	-	5	-
Overall Intersection Delay (s)	2.7	Control Type			Opening Build Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					130: Dog Park Access/Perrot Pl & Elvehjem Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	5	44	12	1	46	3	12	1	1	13	1	12
Delay (s)	7.4	0.0	-	7.4	0.0	-	-	9.8	-	-	9.4	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.01	-	-	0.00	-	-	-	0.03	-	-	0.05	-
95% Queue (ft)	0	-	-	0	-	-	-	5	-	-	5	-
Overall Intersection Delay (s)	2.8	Control Type			Horizon Build Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					130: Dog Park Access/Perrot Pl & Elvehjem Rd		



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Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1>	-	0
Volume	5	41	-	-	28	13	-	-	-	45	-	16
Delay (s)	7.3	0.0	-	-	-	-	-	-	-	9.4	-	-
Level of Service	A	A	-	-	-	-	-	-	-	A	-	-
V/C Ratio	0.00	-	-	-	-	-	-	-	-	0.09	-	-
95% Queue (ft)	0	-	-	-	-	-	-	-	-	10	-	-
Overall Intersection Delay (s)	4.1	Control Type			Opening Build Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					135: Elvehjem Rd & Devils Lake Way		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1>	-	0
Volume	5	52	-	-	35	13	-	-	-	45	-	16
Delay (s)	7.4	0.0	-	-	-	-	-	-	-	9.5	-	-
Level of Service	A	A	-	-	-	-	-	-	-	A	-	-
V/C Ratio	0.00	-	-	-	-	-	-	-	-	0.09	-	-
95% Queue (ft)	0	-	-	-	-	-	-	-	-	10	-	-
Overall Intersection Delay (s)	3.7	Control Type			Horizon Build Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					135: Elvehjem Rd & Devils Lake Way		



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	18	1	18	1	1	1	13	51	1	1	69	10
Delay (s)	-	9.6	-	-	9.6	-	7.4	0.0	-	7.3	0.0	-
Level of Service	-	A	-	-	A	-	A	A	-	A	A	-
V/C Ratio	-	0.06	-	-	0.01	-	0.01	-	-	0.00	-	-
95% Queue (ft)	-	5	-	-	0	-	0	-	-	0	-	-
Overall Intersection Delay (s)	2.6	Control Type			Existing Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2025					140: County AB & Elvehjem Rd/Elvehjem Road		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	21	1	21	1	1	1	15	59	1	1	79	12
Delay (s)	-	9.8	-	-	9.8	-	7.5	0.0	-	7.4	0.0	-
Level of Service	-	A	-	-	A	-	A	A	-	A	A	-
V/C Ratio	-	0.07	-	-	0.01	-	0.01	-	-	0.00	-	-
95% Queue (ft)	-	5	-	-	0	-	0	-	-	0	-	-
Overall Intersection Delay (s)	2.7	Control Type			Opening Background Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					140: County AB & Elvehjem Rd/Elvehjem Road		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	26	1	26	1	1	1	19	74	1	1	100	15
Delay (s)	-	10.3	-	-	10.1	-	7.5	0.0	-	7.4	0.0	-
Level of Service	-	B	-	-	B	-	A	A	-	A	A	-
V/C Ratio	-	0.09	-	-	0.01	-	0.02	-	-	0.00	-	-
95% Queue (ft)	-	10	-	-	0	-	5	-	-	0	-	-
Overall Intersection Delay (s)	2.7	Control Type			Horizon Background Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					140: County AB & Elvehjem Rd/Elvehjem Road		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	58	1	28	1	1	1	17	59	1	1	79	23
Delay (s)	-	10.6	-	-	9.9	-	7.5	0.0	-	7.4	0.0	-
Level of Service	-	B	-	-	A	-	A	A	-	A	A	-
V/C Ratio	-	0.15	-	-	0.01	-	0.02	-	-	0.00	-	-
95% Queue (ft)	-	15	-	-	0	-	0	-	-	0	-	-
Overall Intersection Delay (s)	4.0	Control Type			Opening Build Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					140: County AB & Elvehjem Rd/Elvehjem Road		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	63	1	34	1	1	1	21	74	1	1	100	26
Delay (s)	-	11.3	-	-	10.2	-	7.6	0.0	-	7.4	0.0	-
Level of Service	-	B	-	-	B	-	A	A	-	A	A	-
V/C Ratio	-	0.18	-	-	0.01	-	0.02	-	-	0.00	-	-
95% Queue (ft)	-	20	-	-	0	-	5	-	-	0	-	-
Overall Intersection Delay (s)	4.0	Control Type			Horizon Build Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					140: County AB & Elvehjem Rd/Elvehjem Road		



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	1>	-	0	-	-	-	1	1	-	-	1	1
Volume	32	-	6	-	-	-	4	65	-	-	73	9
Delay (s)	9.8	-	-	-	-	-	8.2	-	-	-	-	-
Level of Service	A	-	-	-	-	-	A	-	-	-	-	-
V/C Ratio	0.06	-	-	-	-	-	0.00	-	-	-	-	-
95% Queue (ft)	5	-	-	-	-	-	0	-	-	-	-	-
Overall Intersection Delay (s)	2.1	Control Type			Existing Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2025					150: County AB & Tuscobia Trail		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	1>	-	0	-	-	-	1	1	-	-	1	1
Volume	37	-	7	-	-	-	5	75	-	-	84	10
Delay (s)	10.0	-	-	-	-	-	8.2	-	-	-	-	-
Level of Service	B	-	-	-	-	-	A	-	-	-	-	-
V/C Ratio	0.07	-	-	-	-	-	0.01	-	-	-	-	-
95% Queue (ft)	5	-	-	-	-	-	0	-	-	-	-	-
Overall Intersection Delay (s)	2.2	Control Type			Opening Background Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					150: County AB & Tuscobia Trail		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	1>	-	0	-	-	-	1	1	-	-	1	1
Volume	46	-	9	-	-	-	6	94	-	-	106	13
Delay (s)	10.5	-	-	-	-	-	8.3	-	-	-	-	-
Level of Service	B	-	-	-	-	-	A	-	-	-	-	-
V/C Ratio	0.10	-	-	-	-	-	0.01	-	-	-	-	-
95% Queue (ft)	10	-	-	-	-	-	0	-	-	-	-	-
Overall Intersection Delay (s)	2.3	Control Type			Horizon Background Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					150: County AB & Tuscobia Trail		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	1>	-	0	-	-	-	1	1	-	-	1	1
Volume	37	-	7	-	-	-	5	112	-	-	95	10
Delay (s)	10.4	-	-	-	-	-	8.3	-	-	-	-	-
Level of Service	B	-	-	-	-	-	A	-	-	-	-	-
V/C Ratio	0.08	-	-	-	-	-	0.01	-	-	-	-	-
95% Queue (ft)	5	-	-	-	-	-	0	-	-	-	-	-
Overall Intersection Delay (s)	1.9	Control Type			Opening Build Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					150: County AB & Tuscobia Trail		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	1>	-	0	-	-	-	1	1	-	-	1	1
Volume	46	-	9	-	-	-	6	131	-	-	117	13
Delay (s)	10.9	-	-	-	-	-	8.4	-	-	-	-	-
Level of Service	B	-	-	-	-	-	A	-	-	-	-	-
V/C Ratio	0.10	-	-	-	-	-	0.01	-	-	-	-	-
95% Queue (ft)	10	-	-	-	-	-	0	-	-	-	-	-
Overall Intersection Delay (s)	2.0	Control Type			Horizon Build Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					150: County AB & Tuscobia Trail		



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Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	1>	0	0	<1	-	1>	-	0	-	-	-
Volume	-	85	28	54	89	-	22	-	75	-	-	-
Delay (s)	-	-	-	7.7	0.0	-	10.1	-	-	-	-	-
Level of Service	-	-	-	A	A	-	B	-	-	-	-	-
V/C Ratio	-	-	-	0.05	-	-	0.14	-	-	-	-	-
95% Queue (ft)	-	-	-	5	-	-	15	-	-	-	-	-
Overall Intersection Delay (s)	3.9	Control Type			Existing Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2025					160: County AB & County MN		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	1>	0	0	<1	-	1>	-	0	-	-	-
Volume	-	98	32	62	102	-	25	-	86	-	-	-
Delay (s)	-	-	-	7.8	0.0	-	10.5	-	-	-	-	-
Level of Service	-	-	-	A	A	-	B	-	-	-	-	-
V/C Ratio	-	-	-	0.06	-	-	0.17	-	-	-	-	-
95% Queue (ft)	-	-	-	5	-	-	15	-	-	-	-	-
Overall Intersection Delay (s)	4.1	Control Type			Opening Background Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					160: County AB & County MN		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	1>	0	0	<1	-	1>	-	0	-	-	-
Volume	-	123	41	78	129	-	32	-	109	-	-	-
Delay (s)	-	-	-	7.9	0.0	-	11.5	-	-	-	-	-
Level of Service	-	-	-	A	A	-	B	-	-	-	-	-
V/C Ratio	-	-	-	0.07	-	-	0.24	-	-	-	-	-
95% Queue (ft)	-	-	-	5	-	-	25	-	-	-	-	-
Overall Intersection Delay (s)	4.4	Control Type			Horizon Background Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					160: County AB & County MN		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	1>	0	0	<1	-	1>	-	0	-	-	-
Volume	-	98	35	70	102	-	36	-	112	-	-	-
Delay (s)	-	-	-	7.8	0.0	-	11.0	-	-	-	-	-
Level of Service	-	-	-	A	A	-	B	-	-	-	-	-
V/C Ratio	-	-	-	0.06	-	-	0.23	-	-	-	-	-
95% Queue (ft)	-	-	-	5	-	-	25	-	-	-	-	-
Overall Intersection Delay (s)	4.8	Control Type			Opening Build Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					160: County AB & County MN		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	1>	0	0	<1	-	1>	-	0	-	-	-
Volume	-	123	44	86	129	-	43	-	135	-	-	-
Delay (s)	-	-	-	7.9	0.0	-	12.3	-	-	-	-	-
Level of Service	-	-	-	A	A	-	B	-	-	-	-	-
V/C Ratio	-	-	-	0.08	-	-	0.31	-	-	-	-	-
95% Queue (ft)	-	-	-	10	-	-	35	-	-	-	-	-
Overall Intersection Delay (s)	5.1	Control Type			Horizon Build Conditions: AM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					160: County AB & County MN		



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Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	-	-	1>	-	0	-	1>	0	0	<1	-
Volume	-	-	-	3	-	47	-	37	2	78	50	-
Delay (s)	-	-	-	9.0	-	-	-	-	-	7.5	0.0	-
Level of Service	-	-	-	A	-	-	-	-	-	A	A	-
V/C Ratio	-	-	-	0.06	-	-	-	-	-	0.06	-	-
95% Queue (ft)	-	-	-	5	-	-	-	-	-	5	-	-
Overall Intersection Delay (s)	4.8	Control Type			Existing Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2025					100: Elvehjem Rd/Creamery Rd & County Walk		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	-	-	1>	-	0	-	1>	0	0	<1	-
Volume	-	-	-	3	-	52	-	41	2	86	55	-
Delay (s)	-	-	-	9.1	-	-	-	-	-	7.6	0.0	-
Level of Service	-	-	-	A	-	-	-	-	-	A	A	-
V/C Ratio	-	-	-	0.06	-	-	-	-	-	0.06	-	-
95% Queue (ft)	-	-	-	5	-	-	-	-	-	5	-	-
Overall Intersection Delay (s)	4.8	Control Type			Opening Background Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					100: Elvehjem Rd/Creamery Rd & County Walk		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	-	-	1>	-	0	-	1>	0	0	<1	-
Volume	-	-	-	4	-	61	-	48	3	101	65	-
Delay (s)	-	-	-	9.2	-	-	-	-	-	7.6	0.0	-
Level of Service	-	-	-	A	-	-	-	-	-	A	A	-
V/C Ratio	-	-	-	0.08	-	-	-	-	-	0.07	-	-
95% Queue (ft)	-	-	-	5	-	-	-	-	-	5	-	-
Overall Intersection Delay (s)	4.9	Control Type			Horizon Background Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					100: Elvehjem Rd/Creamery Rd & County Walk		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	-	-	1>	-	0	-	1>	0	0	<1	-
Volume	-	-	-	3	-	52	-	50	2	86	71	-
Delay (s)	-	-	-	9.1	-	-	-	-	-	7.6	0.0	-
Level of Service	-	-	-	A	-	-	-	-	-	A	A	-
V/C Ratio	-	-	-	0.06	-	-	-	-	-	0.06	-	-
95% Queue (ft)	-	-	-	5	-	-	-	-	-	5	-	-
Overall Intersection Delay (s)	4.4	Control Type			Opening Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					100: Elvehjem Rd/Creamery Rd & County Walk		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	-	-	1>	-	0	-	1>	0	0	<1	-
Volume	-	-	-	4	-	61	-	57	3	101	81	-
Delay (s)	-	-	-	9.3	-	-	-	-	-	7.6	0.0	-
Level of Service	-	-	-	A	-	-	-	-	-	A	A	-
V/C Ratio	-	-	-	0.08	-	-	-	-	-	0.07	-	-
95% Queue (ft)	-	-	-	10	-	-	-	-	-	5	-	-
Overall Intersection Delay (s)	4.5	Control Type			Horizon Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					100: Elvehjem Rd/Creamery Rd & County Walk		



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Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	10	42	1	1	32	6	1	1	1	5	1	10
Delay (s)	7.4	0.0	-	7.3	0.0	-	-	9.4	-	-	9.3	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.01	-	-	0.00	-	-	-	0.01	-	-	0.02	-
95% Queue (ft)	0	-	-	0	-	-	-	0	-	-	5	-
Overall Intersection Delay (s)	2.3	Control Type			Existing Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2025					110: Hidden Farm Rd & Elvehjem Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	11	46	1	1	35	7	1	1	1	6	1	11
Delay (s)	7.5	0.0	-	7.3	0.0	-	-	9.5	-	-	9.3	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.01	-	-	0.00	-	-	-	0.01	-	-	0.03	-
95% Queue (ft)	0	-	-	0	-	-	-	0	-	-	5	-
Overall Intersection Delay (s)	2.3	Control Type			Opening Background Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					110: Hidden Farm Rd & Elvehjem Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	13	55	1	1	42	8	1	1	1	7	1	13
Delay (s)	7.5	0.0	-	7.4	0.0	-	-	9.6	-	-	9.5	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.01	-	-	0.00	-	-	-	0.01	-	-	0.03	-
95% Queue (ft)	0	-	-	0	-	-	-	0	-	-	5	-
Overall Intersection Delay (s)	2.3	Control Type			Horizon Background Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					110: Hidden Farm Rd & Elvehjem Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	11	62	1	1	44	7	1	1	1	6	1	11
Delay (s)	7.5	0.0	-	7.4	0.0	-	-	9.7	-	-	9.5	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.01	-	-	0.00	-	-	-	0.01	-	-	0.03	-
95% Queue (ft)	0	-	-	0	-	-	-	0	-	-	5	-
Overall Intersection Delay (s)	2.0	Control Type			Opening Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					110: Hidden Farm Rd & Elvehjem Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	13	71	1	1	51	8	1	1	1	7	1	13
Delay (s)	7.5	0.0	-	7.4	0.0	-	-	9.8	-	-	9.6	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.01	-	-	0.00	-	-	-	0.01	-	-	0.03	-
95% Queue (ft)	0	-	-	0	-	-	-	0	-	-	5	-
Overall Intersection Delay (s)	2.0	Control Type			Horizon Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					110: Hidden Farm Rd & Elvehjem Rd		



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Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1	-	1
Volume	8	40	-	-	30	7	-	-	-	6	-	8
Delay (s)	7.4	0.0	-	-	-	-	-	-	-	9.7	-	8.7
Level of Service	A	A	-	-	-	-	-	-	-	A	-	A
V/C Ratio	0.01	-	-	-	-	-	-	-	-	0.01	-	0.01
95% Queue (ft)	0	-	-	-	-	-	-	-	-	0	-	0
Overall Intersection Delay (s)	1.9	Control Type			Existing Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2025					120: Elvehjem Rd & Holscher Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1	-	1
Volume	9	44	-	-	33	8	-	-	-	7	-	9
Delay (s)	7.4	0.0	-	-	-	-	-	-	-	9.8	-	8.8
Level of Service	A	A	-	-	-	-	-	-	-	A	-	A
V/C Ratio	0.01	-	-	-	-	-	-	-	-	0.01	-	0.01
95% Queue (ft)	0	-	-	-	-	-	-	-	-	0	-	0
Overall Intersection Delay (s)	1.9	Control Type			Opening Background Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					120: Elvehjem Rd & Holscher Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1	-	1
Volume	10	52	-	-	39	9	-	-	-	8	-	10
Delay (s)	7.5	0.0	-	-	-	-	-	-	-	9.9	-	8.8
Level of Service	A	A	-	-	-	-	-	-	-	A	-	A
V/C Ratio	0.01	-	-	-	-	-	-	-	-	0.01	-	0.01
95% Queue (ft)	0	-	-	-	-	-	-	-	-	0	-	0
Overall Intersection Delay (s)	1.9	Control Type			Horizon Background Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					120: Elvehjem Rd & Holscher Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1	-	1
Volume	9	60	-	-	42	10	-	-	-	9	-	9
Delay (s)	7.5	0.0	-	-	-	-	-	-	-	10.0	-	8.8
Level of Service	A	A	-	-	-	-	-	-	-	B	-	A
V/C Ratio	0.01	-	-	-	-	-	-	-	-	0.02	-	0.01
95% Queue (ft)	0	-	-	-	-	-	-	-	-	0	-	0
Overall Intersection Delay (s)	1.7	Control Type			Opening Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					120: Elvehjem Rd & Holscher Rd		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1	-	1
Volume	10	68	-	-	48	10	-	-	-	10	-	10
Delay (s)	7.5	0.0	-	-	-	-	-	-	-	10.2	-	8.9
Level of Service	A	A	-	-	-	-	-	-	-	B	-	A
V/C Ratio	0.01	-	-	-	-	-	-	-	-	0.02	-	0.01
95% Queue (ft)	0	-	-	-	-	-	-	-	-	5	-	0
Overall Intersection Delay (s)	1.7	Control Type			Horizon Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					120: Elvehjem Rd & Holscher Rd		



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Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	7	26	11	4	25	12	7	1	4	7	1	4
Delay (s)	7.4	0.0	-	7.3	0.0	-	-	9.1	-	-	9.3	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.01	-	-	0.00	-	-	-	0.02	-	-	0.02	-
95% Queue (ft)	0	-	-	0	-	-	-	5	-	-	5	-
Overall Intersection Delay (s)	2.8	Control Type			Existing Conditions: PM Peak			Intersection Description				
Overall Intersection LOS	A	Two-Way Stop			Year 2025			130: Dog Park Access/Perrot Pl & Elvehjem Rd				
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	8	29	12	4	28	13	8	1	4	8	1	4
Delay (s)	7.4	0.0	-	7.3	0.0	-	-	9.2	-	-	9.4	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.01	-	-	0.00	-	-	-	0.02	-	-	0.02	-
95% Queue (ft)	0	-	-	0	-	-	-	5	-	-	5	-
Overall Intersection Delay (s)	2.7	Control Type			Opening Background Conditions: PM Peak			Intersection Description				
Overall Intersection LOS	A	Two-Way Stop			Year 2030			130: Dog Park Access/Perrot Pl & Elvehjem Rd				
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	9	34	14	5	33	16	9	1	5	9	1	5
Delay (s)	7.4	0.0	-	7.3	0.0	-	-	9.3	-	-	9.5	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.01	-	-	0.00	-	-	-	0.02	-	-	0.02	-
95% Queue (ft)	0	-	-	0	-	-	-	5	-	-	5	-
Overall Intersection Delay (s)	2.7	Control Type			Horizon Background Conditions: PM Peak			Intersection Description				
Overall Intersection LOS	A	Two-Way Stop			Year 2040			130: Dog Park Access/Perrot Pl & Elvehjem Rd				
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	10	45	12	4	37	13	8	1	4	8	1	5
Delay (s)	7.4	0.0	-	7.4	0.0	-	-	9.4	-	-	9.5	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.01	-	-	0.00	-	-	-	0.02	-	-	0.02	-
95% Queue (ft)	0	-	-	0	-	-	-	5	-	-	5	-
Overall Intersection Delay (s)	2.4	Control Type			Opening Build Conditions: PM Peak			Intersection Description				
Overall Intersection LOS	A	Two-Way Stop			Year 2030			130: Dog Park Access/Perrot Pl & Elvehjem Rd				
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	11	50	14	5	42	16	9	1	5	9	1	6
Delay (s)	7.5	0.0	-	7.4	0.0	-	-	9.5	-	-	9.7	-
Level of Service	A	A	-	A	A	-	-	A	-	-	A	-
V/C Ratio	0.01	-	-	0.00	-	-	-	0.02	-	-	0.03	-
95% Queue (ft)	0	-	-	0	-	-	-	5	-	-	5	-
Overall Intersection Delay (s)	2.5	Control Type			Horizon Build Conditions: PM Peak			Intersection Description				
Overall Intersection LOS	A	Two-Way Stop			Year 2040			130: Dog Park Access/Perrot Pl & Elvehjem Rd				



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Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1>	-	0
Volume	16	41	-	-	45	43	-	-	-	27	-	9
Delay (s)	7.5	0.0	-	-	-	-	-	-	-	9.6	-	-
Level of Service	A	A	-	-	-	-	-	-	-	A	-	-
V/C Ratio	0.01	-	-	-	-	-	-	-	-	0.06	-	-
95% Queue (ft)	0	-	-	-	-	-	-	-	-	5	-	-
Overall Intersection Delay (s)	2.6	Control Type			Opening Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					135: Elvehjem Rd & Devils Lake Way		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1	-	-	1>	0	-	-	-	1>	-	0
Volume	16	48	-	-	53	43	-	-	-	27	-	9
Delay (s)	7.5	0.0	-	-	-	-	-	-	-	9.7	-	-
Level of Service	A	A	-	-	-	-	-	-	-	A	-	-
V/C Ratio	0.01	-	-	-	-	-	-	-	-	0.06	-	-
95% Queue (ft)	0	-	-	-	-	-	-	-	-	5	-	-
Overall Intersection Delay (s)	2.4	Control Type			Horizon Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					135: Elvehjem Rd & Devils Lake Way		



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Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	14	1	21	3	4	3	23	72	1	4	64	14
Delay (s)	-	9.7	-	-	10.2	-	7.4	0.0	-	7.6	0.0	-
Level of Service	-	A	-	-	B	-	A	A	-	A	A	-
V/C Ratio	-	0.06	-	-	0.02	-	0.02	-	-	0.00	-	-
95% Queue (ft)	-	5	-	-	5	-	5	-	-	0	-	-
Overall Intersection Delay (s)	2.9	Control Type			Existing Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2025					140: County AB & Elvehjem Rd/Elvehjem Road		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	15	1	23	3	4	3	25	79	1	4	70	15
Delay (s)	-	9.8	-	-	10.4	-	7.5	0.0	-	7.7	0.0	-
Level of Service	-	A	-	-	B	-	A	A	-	A	A	-
V/C Ratio	-	0.06	-	-	0.02	-	0.02	-	-	0.00	-	-
95% Queue (ft)	-	5	-	-	5	-	5	-	-	0	-	-
Overall Intersection Delay (s)	2.9	Control Type			Opening Background Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					140: County AB & Elvehjem Rd/Elvehjem Road		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	18	1	27	4	5	4	30	94	1	5	83	18
Delay (s)	-	10.2	-	-	10.8	-	7.5	0.0	-	7.7	0.0	-
Level of Service	-	B	-	-	B	-	A	A	-	A	A	-
V/C Ratio	-	0.08	-	-	0.03	-	0.03	-	-	0.01	-	-
95% Queue (ft)	-	10	-	-	5	-	5	-	-	0	-	-
Overall Intersection Delay (s)	3.0	Control Type			Horizon Background Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					140: County AB & Elvehjem Rd/Elvehjem Road		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	37	1	28	3	4	3	32	79	1	4	70	51
Delay (s)	-	10.8	-	-	10.7	-	7.6	0.0	-	7.7	0.0	-
Level of Service	-	B	-	-	B	-	A	A	-	A	A	-
V/C Ratio	-	0.12	-	-	0.02	-	0.03	-	-	0.00	-	-
95% Queue (ft)	-	10	-	-	5	-	5	-	-	0	-	-
Overall Intersection Delay (s)	3.5	Control Type			Opening Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					140: County AB & Elvehjem Rd/Elvehjem Road		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume	40	1	32	4	5	4	37	94	1	5	83	54
Delay (s)	-	11.3	-	-	11.2	-	7.6	0.0	-	7.7	0.0	-
Level of Service	-	B	-	-	B	-	A	A	-	A	A	-
V/C Ratio	-	0.14	-	-	0.03	-	0.03	-	-	0.01	-	-
95% Queue (ft)	-	15	-	-	5	-	5	-	-	0	-	-
Overall Intersection Delay (s)	3.6	Control Type			Horizon Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					140: County AB & Elvehjem Rd/Elvehjem Road		



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Lakestone Properties Development Traffic Impact Analysis (TIA)
Measure of Effectiveness Tables

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	1>	-	0	-	-	-	1	1	-	-	1	1
Volume	8	-	4	-	-	-	6	84	-	-	77	18
Delay (s)	9.4	-	-	-	-	-	7.5	-	-	-	-	-
Level of Service	A	-	-	-	-	-	A	-	-	-	-	-
V/C Ratio	0.02	-	-	-	-	-	0.01	-	-	-	-	-
95% Queue (ft)	5	-	-	-	-	-	0	-	-	-	-	-
Overall Intersection Delay (s)	0.8	Control Type			Existing Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2025					150: County AB & Tuscobia Trail		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	1>	-	0	-	-	-	1	1	-	-	1	1
Volume	9	-	4	-	-	-	7	92	-	-	85	20
Delay (s)	9.6	-	-	-	-	-	7.5	-	-	-	-	-
Level of Service	A	-	-	-	-	-	A	-	-	-	-	-
V/C Ratio	0.02	-	-	-	-	-	0.01	-	-	-	-	-
95% Queue (ft)	5	-	-	-	-	-	0	-	-	-	-	-
Overall Intersection Delay (s)	0.8	Control Type			Opening Background Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					150: County AB & Tuscobia Trail		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	1>	-	0	-	-	-	1	1	-	-	1	1
Volume	10	-	5	-	-	-	8	109	-	-	100	23
Delay (s)	9.8	-	-	-	-	-	7.5	-	-	-	-	-
Level of Service	A	-	-	-	-	-	A	-	-	-	-	-
V/C Ratio	0.02	-	-	-	-	-	0.01	-	-	-	-	-
95% Queue (ft)	5	-	-	-	-	-	0	-	-	-	-	-
Overall Intersection Delay (s)	0.8	Control Type			Horizon Background Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					150: County AB & Tuscobia Trail		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	1>	-	0	-	-	-	1	1	-	-	1	1
Volume	9	-	4	-	-	-	7	114	-	-	121	20
Delay (s)	10.0	-	-	-	-	-	7.6	-	-	-	-	-
Level of Service	B	-	-	-	-	-	A	-	-	-	-	-
V/C Ratio	0.02	-	-	-	-	-	0.01	-	-	-	-	-
95% Queue (ft)	5	-	-	-	-	-	0	-	-	-	-	-
Overall Intersection Delay (s)	0.7	Control Type			Opening Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					150: County AB & Tuscobia Trail		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	1>	-	0	-	-	-	1	1	-	-	1	1
Volume	10	-	5	-	-	-	8	131	-	-	136	23
Delay (s)	10.2	-	-	-	-	-	7.6	-	-	-	-	-
Level of Service	B	-	-	-	-	-	A	-	-	-	-	-
V/C Ratio	0.03	-	-	-	-	-	0.01	-	-	-	-	-
95% Queue (ft)	5	-	-	-	-	-	0	-	-	-	-	-
Overall Intersection Delay (s)	0.7	Control Type			Horizon Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					150: County AB & Tuscobia Trail		



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	1>	0	0	<1	-	1>	-	0	-	-	-
Volume	-	79	35	61	73	-	23	-	68	-	-	-
Delay (s)	-	-	-	7.6	0.0	-	10.0	-	-	-	-	-
Level of Service	-	-	-	A	A	-	B	-	-	-	-	-
V/C Ratio	-	-	-	0.05	-	-	0.13	-	-	-	-	-
95% Queue (ft)	-	-	-	5	-	-	10	-	-	-	-	-
Overall Intersection Delay (s)	4.1	Control Type			Existing Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2025					160: County AB & County MN		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	1>	0	0	<1	-	1>	-	0	-	-	-
Volume	-	87	39	67	80	-	25	-	75	-	-	-
Delay (s)	-	-	-	7.7	0.0	-	10.2	-	-	-	-	-
Level of Service	-	-	-	A	A	-	B	-	-	-	-	-
V/C Ratio	-	-	-	0.06	-	-	0.15	-	-	-	-	-
95% Queue (ft)	-	-	-	5	-	-	15	-	-	-	-	-
Overall Intersection Delay (s)	4.1	Control Type			Opening Background Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					160: County AB & County MN		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	1>	0	0	<1	-	1>	-	0	-	-	-
Volume	-	103	46	79	95	-	30	-	88	-	-	-
Delay (s)	-	-	-	7.8	0.0	-	10.8	-	-	-	-	-
Level of Service	-	-	-	A	A	-	B	-	-	-	-	-
V/C Ratio	-	-	-	0.07	-	-	0.18	-	-	-	-	-
95% Queue (ft)	-	-	-	5	-	-	20	-	-	-	-	-
Overall Intersection Delay (s)	4.3	Control Type			Horizon Background Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					160: County AB & County MN		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	1>	0	0	<1	-	1>	-	0	-	-	-
Volume	-	87	50	92	80	-	31	-	91	-	-	-
Delay (s)	-	-	-	7.8	0.0	-	10.7	-	-	-	-	-
Level of Service	-	-	-	A	A	-	B	-	-	-	-	-
V/C Ratio	-	-	-	0.08	-	-	0.19	-	-	-	-	-
95% Queue (ft)	-	-	-	10	-	-	20	-	-	-	-	-
Overall Intersection Delay (s)	4.7	Control Type			Opening Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2030					160: County AB & County MN		
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	-	1>	0	0	<1	-	1>	-	0	-	-	-
Volume	-	103	57	104	95	-	36	-	104	-	-	-
Delay (s)	-	-	-	7.9	0.0	-	11.4	-	-	-	-	-
Level of Service	-	-	-	A	A	-	B	-	-	-	-	-
V/C Ratio	-	-	-	0.09	-	-	0.23	-	-	-	-	-
95% Queue (ft)	-	-	-	10	-	-	25	-	-	-	-	-
Overall Intersection Delay (s)	4.9	Control Type			Horizon Build Conditions: PM Peak					Intersection Description		
Overall Intersection LOS	A	Two-Way Stop			Year 2040					160: County AB & County MN		

Appendix D – Traffic Operations Analysis

Intersection						
Int Delay, s/veh	6.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T		T	T
Traffic Vol, veh/h	2	128	42	1	31	26
Future Vol, veh/h	2	128	42	1	31	26
Conflicting Peds, #/hr	0	0	0	6	6	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	72	72	72	72	72	72
Heavy Vehicles, %	1	2	5	1	7	4
Mvmt Flow	3	178	58	1	43	36

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	187	65	0	0	66	0
Stage 1	65	-	-	-	-	-
Stage 2	122	-	-	-	-	-
Critical Hdwy	6.41	6.22	-	-	4.17	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.318	-	-	2.263	-
Pot Cap-1 Maneuver	804	999	-	-	1505	-
Stage 1	960	-	-	-	-	-
Stage 2	906	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	776	993	-	-	1496	-
Mov Cap-2 Maneuver	776	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	879	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.45	0	4.07
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	989	979
HCM Lane V/C Ratio	-	-	0.183	0.029
HCM Ctrl Dly (s/v)	-	-	9.5	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	24	1	1	36	1	1	1	1	5	1	5
Future Vol, veh/h	2	24	1	1	36	1	1	1	1	5	1	5
Conflicting Peds, #/hr	4	0	0	0	0	4	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	1	4	1	1	6	1	1	1	1	1	1	1
Mvmt Flow	3	32	1	1	47	1	1	1	1	7	1	7
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	53	0	0	33	0	0	90	93	32	92	93	54
Stage 1	-	-	-	-	-	-	37	37	-	55	55	-
Stage 2	-	-	-	-	-	-	53	55	-	37	38	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
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	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1560	-	-	1586	-	-	897	799	1044	894	799	1016
Stage 1	-	-	-	-	-	-	980	866	-	960	851	-
Stage 2	-	-	-	-	-	-	963	851	-	980	865	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1554	-	-	1586	-	-	886	794	1044	886	794	1010
Mov Cap-2 Maneuver	-	-	-	-	-	-	886	794	-	886	794	-
Stage 1	-	-	-	-	-	-	979	864	-	956	847	-
Stage 2	-	-	-	-	-	-	952	847	-	976	864	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.54			0.19			9.03			8.94		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	897	132	-	-	47	-	-	928				
HCM Lane V/C Ratio	0.004	0.002	-	-	0.001	-	-	0.016				
HCM Ctrl Dly (s/v)	9	7.3	0	-	7.3	0	-	8.9				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0				

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	30	32	4	8	6
Future Vol, veh/h	1	30	32	4	8	6
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	1	3	6	25	13	1
Mvmt Flow	1	39	42	5	10	8
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	52	0	-	0	91	49
Stage 1	-	-	-	-	49	-
Stage 2	-	-	-	-	42	-
Critical Hdwy	4.11	-	-	-	6.53	6.21
Critical Hdwy Stg 1	-	-	-	-	5.53	-
Critical Hdwy Stg 2	-	-	-	-	5.53	-
Follow-up Hdwy	2.209	-	-	-	3.617	3.309
Pot Cap-1 Maneuver	1561	-	-	-	883	1022
Stage 1	-	-	-	-	946	-
Stage 2	-	-	-	-	953	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1553	-	-	-	874	1017
Mov Cap-2 Maneuver	-	-	-	-	874	-
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	949	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.24	0		8.91		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	58	-	-	-	874	1017
HCM Lane V/C Ratio	0.001	-	-	-	0.012	0.008
HCM Ctrl Dly (s/v)	7.3	0	-	-	9.2	8.6
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	27	8	1	21	2	8	1	1	9	1	7
Future Vol, veh/h	3	27	8	1	21	2	8	1	1	9	1	7
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	66	66	66	66	66	66	66	66	66	66	66	66
Heavy Vehicles, %	1	4	13	1	1	100	13	1	1	1	1	14
Mvmt Flow	5	41	12	2	32	3	12	2	2	14	2	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	39	0	0	53	0	0	92	98	47	91	102	37
Stage 1	-	-	-	-	-	-	56	56	-	40	40	-
Stage 2	-	-	-	-	-	-	36	42	-	51	62	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.23	6.51	6.21	7.11	6.51	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.617	4.009	3.309	3.509	4.009	3.426
Pot Cap-1 Maneuver	1578	-	-	1559	-	-	867	794	1025	896	789	1002
Stage 1	-	-	-	-	-	-	929	850	-	977	863	-
Stage 2	-	-	-	-	-	-	953	862	-	965	845	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1572	-	-	1559	-	-	852	788	1025	886	783	998
Mov Cap-2 Maneuver	-	-	-	-	-	-	852	788	-	886	783	-
Stage 1	-	-	-	-	-	-	926	848	-	972	859	-
Stage 2	-	-	-	-	-	-	940	858	-	959	843	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.58			0.3			9.26			9.02		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	860	136	-	-	74	-	-	921
HCM Lane V/C Ratio	0.018	0.003	-	-	0.001	-	-	0.028
HCM Ctrl Dly (s/v)	9.3	7.3	0	-	7.3	0	-	9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	1	18	1	1	1	13	51	1	1	69	10
Future Vol, veh/h	18	1	18	1	1	1	13	51	1	1	69	10
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	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	6	1	1	1	1	1	1	10	1	1	6	20
Mvmt Flow	23	1	23	1	1	1	17	66	1	1	90	13

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	199	200	96	194	206	67	103	0	0	68	0	0
Stage 1	99	99	-	101	101	-	-	-	-	-	-	-
Stage 2	101	101	-	93	105	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.16	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	751	698	963	768	693	999	1496	-	-	1540	-	-
Stage 1	898	815	-	908	814	-	-	-	-	-	-	-
Stage 2	896	813	-	917	810	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	739	689	963	739	684	999	1496	-	-	1540	-	-
Mov Cap-2 Maneuver	739	689	-	739	684	-	-	-	-	-	-	-
Stage 1	897	815	-	897	804	-	-	-	-	-	-	-
Stage 2	883	804	-	892	809	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.6		9.6		1.49		0.09	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	359	-	-	831	786	22	-	-
HCM Lane V/C Ratio	0.011	-	-	0.058	0.005	0.001	-	-
HCM Ctrl Dly (s/v)	7.4	0	-	9.6	9.6	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	-	-

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	32	6	4	65	73	9
Future Vol, veh/h	32	6	4	65	73	9
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	6	33	75	6	6	22
Mvmt Flow	40	8	5	81	91	11

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	185	93	105	0	-	0
Stage 1	93	-	-	-	-	-
Stage 2	91	-	-	-	-	-
Critical Hdwy	6.46	6.53	4.85	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.597	2.875	-	-	-
Pot Cap-1 Maneuver	796	885	1134	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	922	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	789	883	1132	-	-	-
Mov Cap-2 Maneuver	789	-	-	-	-	-
Stage 1	915	-	-	-	-	-
Stage 2	921	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.77	0.48	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1132	-	803	-	-
HCM Lane V/C Ratio	0.004	-	0.059	-	-
HCM Ctrl Dly (s/v)	8.2	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	3.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	85	28	54	89	22	75
Future Vol, veh/h	85	28	54	89	22	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	17	4	9	8	1	4
Mvmt Flow	104	34	66	109	27	91
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	138	0	361	121
Stage 1	-	-	-	-	121	-
Stage 2	-	-	-	-	240	-
Critical Hdwy	-	-	4.19	-	6.41	6.24
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.281	-	3.509	3.336
Pot Cap-1 Maneuver	-	-	1404	-	640	925
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	802	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1404	-	608	925
Mov Cap-2 Maneuver	-	-	-	-	608	-
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	762	-
Approach	EB	WB		NB		
HCM Ctrl Dly, s/v	0	2.9		10.08		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	827	-	-	680	-	
HCM Lane V/C Ratio	0.143	-	-	0.047	-	
HCM Ctrl Dly (s/v)	10.1	-	-	7.7	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-	

Intersection						
Int Delay, s/veh	4.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	47	37	2	78	50
Future Vol, veh/h	3	47	37	2	78	50
Conflicting Peds, #/hr	0	0	0	24	24	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	92	92	92	92	92	92
Heavy Vehicles, %	1	2	3	1	1	2
Mvmt Flow	3	51	40	2	85	54
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	289	65	0	0	66	0
Stage 1	65	-	-	-	-	-
Stage 2	224	-	-	-	-	-
Critical Hdwy	6.41	6.22	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.318	-	-	2.209	-
Pot Cap-1 Maneuver	703	999	-	-	1542	-
Stage 1	960	-	-	-	-	-
Stage 2	816	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	648	976	-	-	1506	-
Mov Cap-2 Maneuver	648	-	-	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	9.03	0		4.59		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 947		1097	-	
HCM Lane V/C Ratio	-	- 0.057		0.056	-	
HCM Ctrl Dly (s/v)	-	- 9		7.5	0	
HCM Lane LOS	-	- A		A	A	
HCM 95th %tile Q(veh)	-	- 0.2		0.2	-	

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	42	1	1	32	6	1	1	1	5	1	10
Future Vol, veh/h	10	42	1	1	32	6	1	1	1	5	1	10
Conflicting Peds, #/hr	29	0	2	2	0	29	8	0	2	2	0	8
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	1	2	1	1	3	1	1	1	1	1	1	1
Mvmt Flow	13	55	1	1	42	8	1	1	1	7	1	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	79	0	0	59	0	0	138	166	60	162	163	83
Stage 1	-	-	-	-	-	-	84	84	-	78	78	-
Stage 2	-	-	-	-	-	-	53	82	-	84	85	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
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	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1526	-	-	1552	-	-	835	729	1008	805	732	979
Stage 1	-	-	-	-	-	-	926	827	-	934	832	-
Stage 2	-	-	-	-	-	-	962	829	-	926	826	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1483	-	-	1549	-	-	806	700	1005	771	703	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	806	700	-	771	703	-
Stage 1	-	-	-	-	-	-	916	818	-	907	809	-
Stage 2	-	-	-	-	-	-	939	805	-	913	817	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	1.41			0.19			9.42			9.26		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	819	338	-	-	45	-	-	865
HCM Lane V/C Ratio	0.005	0.009	-	-	0.001	-	-	0.024
HCM Ctrl Dly (s/v)	9.4	7.4	0	-	7.3	0	-	9.3
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	40	30	7	6	8
Future Vol, veh/h	8	40	30	7	6	8
Conflicting Peds, #/hr	24	0	0	24	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	1	3	3	1	17	1
Mvmt Flow	10	52	39	9	8	10

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	72	0	0	140	68
Stage 1	-	-	-	68	-
Stage 2	-	-	-	73	-
Critical Hdwy	4.11	-	-	6.57	6.21
Critical Hdwy Stg 1	-	-	-	5.57	-
Critical Hdwy Stg 2	-	-	-	5.57	-
Follow-up Hdwy	2.209	-	-	3.653	3.309
Pot Cap-1 Maneuver	1534	-	-	819	999
Stage 1	-	-	-	919	-
Stage 2	-	-	-	914	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1499	-	-	776	976
Mov Cap-2 Maneuver	-	-	-	776	-
Stage 1	-	-	-	891	-
Stage 2	-	-	-	893	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1.24	0	9.14
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	300	-	-	-	776	976
HCM Lane V/C Ratio	0.007	-	-	-	0.01	0.011
HCM Ctrl Dly (s/v)	7.4	0	-	-	9.7	8.7
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	26	11	4	25	12	7	1	4	7	1	4
Future Vol, veh/h	7	26	11	4	25	12	7	1	4	7	1	4
Conflicting Peds, #/hr	19	0	0	0	0	19	0	0	8	8	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	1	8	1	1	4	1	1	1	1	1	1	1
Mvmt Flow	9	34	14	5	32	16	9	1	5	9	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	67	0	0	48	0	0	103	137	49	130	136	59
Stage 1	-	-	-	-	-	-	59	59	-	70	70	-
Stage 2	-	-	-	-	-	-	44	77	-	61	66	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
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	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1541	-	-	1566	-	-	880	756	1023	845	757	1009
Stage 1	-	-	-	-	-	-	955	848	-	943	839	-
Stage 2	-	-	-	-	-	-	973	832	-	953	842	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1513	-	-	1566	-	-	866	735	1015	810	736	991
Mov Cap-2 Maneuver	-	-	-	-	-	-	866	735	-	810	736	-
Stage 1	-	-	-	-	-	-	949	842	-	923	821	-
Stage 2	-	-	-	-	-	-	963	815	-	934	836	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	1.18			0.71			9.09			9.29		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	896	270	-	-	165	-	-	855
HCM Lane V/C Ratio	0.017	0.006	-	-	0.003	-	-	0.018
HCM Ctrl Dly (s/v)	9.1	7.4	0	-	7.3	0	-	9.3
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	1	21	3	4	3	23	72	1	4	64	14
Future Vol, veh/h	14	1	21	3	4	3	23	72	1	4	64	14
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	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	1	100	5	1	25	1	1	3	1	25	5	1
Mvmt Flow	18	1	27	4	5	4	29	91	1	5	81	18

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	252	251	90	242	259	92	99	0	0	92	0	0
Stage 1	100	100	-	150	150	-	-	-	-	-	-	-
Stage 2	152	151	-	92	109	-	-	-	-	-	-	-
Critical Hdwy	7.11	7.5	6.25	7.11	6.75	6.21	4.11	-	-	4.35	-	-
Critical Hdwy Stg 1	6.11	6.5	-	6.11	5.75	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	6.5	-	6.11	5.75	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.9	3.345	3.509	4.225	3.309	2.209	-	-	2.425	-	-
Pot Cap-1 Maneuver	704	514	960	714	608	968	1501	-	-	1369	-	-
Stage 1	909	656	-	855	731	-	-	-	-	-	-	-
Stage 2	853	619	-	918	763	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	678	502	960	676	593	968	1501	-	-	1369	-	-
Mov Cap-2 Maneuver	678	502	-	676	593	-	-	-	-	-	-	-
Stage 1	905	653	-	837	716	-	-	-	-	-	-	-
Stage 2	826	606	-	887	760	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.72		10.23		1.78		0.37	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	430	-	-	809	700	85	-
HCM Lane V/C Ratio	0.019	-	-	0.056	0.018	0.004	-
HCM Ctrl Dly (s/v)	7.4	0	-	9.7	10.2	7.6	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	-

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	4	6	84	77	18
Future Vol, veh/h	8	4	6	84	77	18
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	5	5	1
Mvmt Flow	10	5	7	102	94	22

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	213	96	118
Stage 1	96	-	-
Stage 2	117	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	778	963	1477
Stage 1	930	-	-
Stage 2	910	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	771	961	1474
Mov Cap-2 Maneuver	771	-	-
Stage 1	924	-	-
Stage 2	909	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.44	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1474	-	825	-	-
HCM Lane V/C Ratio	0.005	-	0.018	-	-
HCM Ctrl Dly (s/v)	7.5	-	9.4	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	4.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	79	35	61	73	23	68
Future Vol, veh/h	79	35	61	73	23	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	1	1	5	1	1	4
Mvmt Flow	93	41	72	86	27	80
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	134	0	343	114
Stage 1	-	-	-	-	114	-
Stage 2	-	-	-	-	229	-
Critical Hdwy	-	-	4.15	-	6.41	6.24
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.245	-	3.509	3.336
Pot Cap-1 Maneuver	-	-	1432	-	655	934
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	811	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1432	-	621	934
Mov Cap-2 Maneuver	-	-	-	-	621	-
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	768	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		3.48		9.99	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	828	-	-	819	-	
HCM Lane V/C Ratio	0.129	-	-	0.05	-	
HCM Ctrl Dly (s/v)	10	-	-	7.6	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.4	-	-	0.2	-	

Intersection						
Int Delay, s/veh	6.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	147	48	1	36	30
Future Vol, veh/h	2	147	48	1	36	30
Conflicting Peds, #/hr	0	0	0	6	6	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	72	72	72	72	72	72
Heavy Vehicles, %	1	2	5	1	7	4
Mvmt Flow	3	204	67	1	50	42

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	215	73	0	0	74
Stage 1	73	-	-	-	-
Stage 2	142	-	-	-	-
Critical Hdwy	6.41	6.22	-	-	4.17
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.318	-	-	2.263
Pot Cap-1 Maneuver	775	989	-	-	1494
Stage 1	952	-	-	-	-
Stage 2	888	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	744	983	-	-	1486
Mov Cap-2 Maneuver	744	-	-	-	-
Stage 1	947	-	-	-	-
Stage 2	857	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.66	0	4.09
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	979	982
HCM Lane V/C Ratio	-	-	0.211	0.034
HCM Ctrl Dly (s/v)	-	-	9.7	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.1

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	28	1	1	41	1	1	1	1	6	1	6
Future Vol, veh/h	2	28	1	1	41	1	1	1	1	6	1	6
Conflicting Peds, #/hr	4	0	0	0	0	4	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	1	4	1	1	6	1	1	1	1	1	1	1
Mvmt Flow	3	37	1	1	54	1	1	1	1	8	1	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	59	0	0	38	0	0	102	105	38	104	105	61
Stage 1	-	-	-	-	-	-	43	43	-	61	61	-
Stage 2	-	-	-	-	-	-	59	62	-	43	43	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
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	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1551	-	-	1579	-	-	881	787	1037	878	787	1007
Stage 1	-	-	-	-	-	-	974	861	-	953	846	-
Stage 2	-	-	-	-	-	-	955	845	-	974	861	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1545	-	-	1579	-	-	869	782	1037	870	782	1002
Mov Cap-2 Maneuver	-	-	-	-	-	-	869	782	-	870	782	-
Stage 1	-	-	-	-	-	-	972	860	-	948	842	-
Stage 2	-	-	-	-	-	-	943	841	-	970	859	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.47	0.17	9.09	9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	884	115	-	-	42	-	-	918
HCM Lane V/C Ratio	0.004	0.002	-	-	0.001	-	-	0.019
HCM Ctrl Dly (s/v)	9.1	7.3	0	-	7.3	0	-	9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	35	37	5	9	7
Future Vol, veh/h	1	35	37	5	9	7
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	1	3	6	25	13	1
Mvmt Flow	1	45	48	6	12	9

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	60	0	0 104 56
Stage 1	-	-	- 56 -
Stage 2	-	-	- 48 -
Critical Hdwy	4.11	-	- 6.53 6.21
Critical Hdwy Stg 1	-	-	- 5.53 -
Critical Hdwy Stg 2	-	-	- 5.53 -
Follow-up Hdwy	2.209	-	- 3.617 3.309
Pot Cap-1 Maneuver	1551	-	- 868 1013
Stage 1	-	-	- 939 -
Stage 2	-	-	- 947 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1543	-	- 859 1008
Mov Cap-2 Maneuver	-	-	- 859 -
Stage 1	-	-	- 934 -
Stage 2	-	-	- 942 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.2	0	8.97
HCM LOS	A		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	50	-	-	-	859	1008
HCM Lane V/C Ratio	0.001	-	-	-	0.014	0.009
HCM Ctrl Dly (s/v)	7.3	0	-	-	9.3	8.6
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	31	9	1	24	2	9	1	1	10	1	8
Future Vol, veh/h	3	31	9	1	24	2	9	1	1	10	1	8
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	66	66	66	66	66	66	66	66	66	66	66	66
Heavy Vehicles, %	1	4	13	1	1	100	13	1	1	1	1	14
Mvmt Flow	5	47	14	2	36	3	14	2	2	15	2	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	43	0	0	61	0	0	103	109	54	102	115	42
Stage 1	-	-	-	-	-	-	63	63	-	45	45	-
Stage 2	-	-	-	-	-	-	40	46	-	57	70	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.23	6.51	6.21	7.11	6.51	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.617	4.009	3.309	3.509	4.009	3.426
Pot Cap-1 Maneuver	1572	-	-	1549	-	-	852	783	1016	881	777	996
Stage 1	-	-	-	-	-	-	921	844	-	972	859	-
Stage 2	-	-	-	-	-	-	947	858	-	958	839	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1566	-	-	1549	-	-	836	777	1016	872	771	992
Mov Cap-2 Maneuver	-	-	-	-	-	-	836	777	-	872	771	-
Stage 1	-	-	-	-	-	-	918	842	-	967	855	-
Stage 2	-	-	-	-	-	-	933	854	-	952	836	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.51			0.27			9.35			9.08		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	844	120	-	-	66	-	-	912
HCM Lane V/C Ratio	0.02	0.003	-	-	0.001	-	-	0.032
HCM Ctrl Dly (s/v)	9.4	7.3	0	-	7.3	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	1	21	1	1	1	15	59	1	1	79	12
Future Vol, veh/h	21	1	21	1	1	1	15	59	1	1	79	12
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	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	6	1	1	1	1	1	1	10	1	1	6	20
Mvmt Flow	27	1	27	1	1	1	19	77	1	1	103	16

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	229	230	110	222	237	77	118	0	0	78	0	0
Stage 1	113	113	-	116	116	-	-	-	-	-	-	-
Stage 2	116	117	-	106	121	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.16	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	717	672	946	736	666	986	1476	-	-	1527	-	-
Stage 1	882	804	-	891	801	-	-	-	-	-	-	-
Stage 2	879	801	-	902	798	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	705	662	946	703	656	986	1476	-	-	1527	-	-
Mov Cap-2 Maneuver	705	662	-	703	656	-	-	-	-	-	-	-
Stage 1	881	803	-	879	790	-	-	-	-	-	-	-
Stage 2	864	790	-	874	797	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.82	9.78	1.49	0.08
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	359	-	-	803	757	19	-
HCM Lane V/C Ratio	0.013	-	-	0.07	0.005	0.001	-
HCM Ctrl Dly (s/v)	7.5	0	-	9.8	9.8	7.4	0
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	-

Intersection						
Int Delay, s/veh	2.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	7	5	75	84	10
Future Vol, veh/h	37	7	5	75	84	10
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	6	33	75	6	6	22
Mvmt Flow	46	9	6	94	105	13

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	213	107	120	0	-	0
Stage 1	107	-	-	-	-	-
Stage 2	106	-	-	-	-	-
Critical Hdwy	6.46	6.53	4.85	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.597	2.875	-	-	-
Pot Cap-1 Maneuver	766	869	1118	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	908	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	759	867	1116	-	-	-
Mov Cap-2 Maneuver	759	-	-	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	906	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10	0.52	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1116	- 774	-	-
HCM Lane V/C Ratio	0.006	- 0.071	-	-
HCM Ctrl Dly (s/v)	8.2	- 10	-	-
HCM Lane LOS	A	- B	-	-
HCM 95th %tile Q(veh)	0	- 0.2	-	-

Intersection						
Int Delay, s/veh	4.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	98	32	62	102	25	86
Future Vol, veh/h	98	32	62	102	25	86
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	17	4	9	8	1	4
Mvmt Flow	120	39	76	124	30	105
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	159	0	415	139
Stage 1	-	-	-	-	139	-
Stage 2	-	-	-	-	276	-
Critical Hdwy	-	-	4.19	-	6.41	6.24
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.281	-	3.509	3.336
Pot Cap-1 Maneuver	-	-	1379	-	596	904
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	773	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1379	-	561	904
Mov Cap-2 Maneuver	-	-	-	-	561	-
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	728	-
Approach	EB	WB		NB		
HCM Ctrl Dly, s/v	0	2.93		10.46		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	794	-	-	680	-	
HCM Lane V/C Ratio	0.17	-	-	0.055	-	
HCM Ctrl Dly (s/v)	10.5	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.6	-	-	0.2	-	

Intersection						
Int Delay, s/veh	4.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	52	41	2	86	55
Future Vol, veh/h	3	52	41	2	86	55
Conflicting Peds, #/hr	0	0	0	24	24	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	92	92	92	92	92	92
Heavy Vehicles, %	1	2	3	1	1	2
Mvmt Flow	3	57	45	2	93	60
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	316	70	0	0	71	0
Stage 1	70	-	-	-	-	-
Stage 2	247	-	-	-	-	-
Critical Hdwy	6.41	6.22	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.318	-	-	2.209	-
Pot Cap-1 Maneuver	679	993	-	-	1536	-
Stage 1	956	-	-	-	-	-
Stage 2	797	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	621	970	-	-	1501	-
Mov Cap-2 Maneuver	621	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	745	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	9.08	0		4.61		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 942		1098	-	
HCM Lane V/C Ratio	-	- 0.063		0.062	-	
HCM Ctrl Dly (s/v)	-	- 9.1		7.6	0	
HCM Lane LOS	-	- A		A	A	
HCM 95th %tile Q(veh)	-	- 0.2		0.2	-	

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	46	1	1	35	7	1	1	1	6	1	11
Future Vol, veh/h	11	46	1	1	35	7	1	1	1	6	1	11
Conflicting Peds, #/hr	29	0	2	2	0	29	8	0	2	2	0	8
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	2	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	14	61	1	1	46	9	1	1	1	8	1	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	84	0	0	64	0	0	149	179	65	174	175	88
Stage 1	-	-	-	-	-	-	92	92	-	82	82	-
Stage 2	-	-	-	-	-	-	57	87	-	92	93	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1525	-	-	1551	-	-	823	718	1004	793	722	976
Stage 1	-	-	-	-	-	-	920	823	-	931	831	-
Stage 2	-	-	-	-	-	-	960	827	-	920	822	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1483	-	-	1549	-	-	792	690	1001	759	693	942
Mov Cap-2 Maneuver	-	-	-	-	-	-	792	690	-	759	693	-
Stage 1	-	-	-	-	-	-	909	813	-	904	807	-
Stage 2	-	-	-	-	-	-	935	803	-	906	812	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.41	0.17	9.48	9.33
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	808	340	-	-	41	-	-	856
HCM Lane V/C Ratio	0.005	0.01	-	-	0.001	-	-	0.028
HCM Ctrl Dly (s/v)	9.5	7.5	0	-	7.3	0	-	9.3
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	44	33	8	7	9
Future Vol, veh/h	9	44	33	8	7	9
Conflicting Peds, #/hr	24	0	0	24	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	1	3	3	1	17	1
Mvmt Flow	12	57	43	10	9	12

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	77	0	0	153	72
Stage 1	-	-	-	72	-
Stage 2	-	-	-	81	-
Critical Hdwy	4.11	-	-	6.57	6.21
Critical Hdwy Stg 1	-	-	-	5.57	-
Critical Hdwy Stg 2	-	-	-	5.57	-
Follow-up Hdwy	2.209	-	-	3.653	3.309
Pot Cap-1 Maneuver	1528	-	-	805	993
Stage 1	-	-	-	914	-
Stage 2	-	-	-	906	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1493	-	-	763	970
Mov Cap-2 Maneuver	-	-	-	763	-
Stage 1	-	-	-	886	-
Stage 2	-	-	-	885	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1.26	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	306	-	-	-	763	970
HCM Lane V/C Ratio	0.008	-	-	-	0.012	0.012
HCM Ctrl Dly (s/v)	7.4	0	-	-	9.8	8.8
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	29	12	4	28	13	8	1	4	8	1	4
Future Vol, veh/h	8	29	12	4	28	13	8	1	4	8	1	4
Conflicting Peds, #/hr	19	0	0	0	0	19	0	0	8	8	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	1	8	1	1	4	1	1	1	1	1	1	1
Mvmt Flow	10	38	16	5	36	17	10	1	5	10	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	72	0	0	53	0	0	114	149	53	141	148	64
Stage 1	-	-	-	-	-	-	66	66	-	74	74	-
Stage 2	-	-	-	-	-	-	47	83	-	67	74	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
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	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1534	-	-	1559	-	-	866	744	1017	831	745	1003
Stage 1	-	-	-	-	-	-	947	842	-	938	835	-
Stage 2	-	-	-	-	-	-	969	828	-	946	835	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1506	-	-	1559	-	-	851	723	1009	795	724	985
Mov Cap-2 Maneuver	-	-	-	-	-	-	851	723	-	795	724	-
Stage 1	-	-	-	-	-	-	940	836	-	918	817	-
Stage 2	-	-	-	-	-	-	959	810	-	926	829	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.21	0.65	9.16	9.38
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	881	278	-	-	150	-	-	839
HCM Lane V/C Ratio	0.019	0.007	-	-	0.003	-	-	0.02
HCM Ctrl Dly (s/v)	9.2	7.4	0	-	7.3	0	-	9.4
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	1	23	3	4	3	25	79	1	4	70	15
Future Vol, veh/h	15	1	23	3	4	3	25	79	1	4	70	15
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	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	1	100	5	1	25	1	1	3	1	25	5	1
Mvmt Flow	19	1	29	4	5	4	32	100	1	5	89	19

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	274	273	98	263	282	101	108	0	0	101	0	0
Stage 1	108	108	-	164	164	-	-	-	-	-	-	-
Stage 2	166	165	-	99	118	-	-	-	-	-	-	-
Critical Hdwy	7.11	7.5	6.25	7.11	6.75	6.21	4.11	-	-	4.35	-	-
Critical Hdwy Stg 1	6.11	6.5	-	6.11	5.75	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	6.5	-	6.11	5.75	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.9	3.345	3.509	4.225	3.309	2.209	-	-	2.425	-	-
Pot Cap-1 Maneuver	680	498	950	692	590	958	1489	-	-	1359	-	-
Stage 1	900	650	-	840	721	-	-	-	-	-	-	-
Stage 2	839	609	-	909	756	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	654	485	950	651	575	958	1489	-	-	1359	-	-
Mov Cap-2 Maneuver	654	485	-	651	575	-	-	-	-	-	-	-
Stage 1	896	647	-	822	705	-	-	-	-	-	-	-
Stage 2	811	596	-	876	753	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.84		10.39		1.78		0.34	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	428	-	-	793	680	78	-
HCM Lane V/C Ratio	0.021	-	-	0.062	0.019	0.004	-
HCM Ctrl Dly (s/v)	7.5	0	-	9.8	10.4	7.7	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	-

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	4	7	92	85	20
Future Vol, veh/h	9	4	7	92	85	20
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	5	5	1
Mvmt Flow	11	5	9	112	104	24

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	235	106	130	0	-	0
Stage 1	106	-	-	-	-	-
Stage 2	129	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	755	951	1462	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	899	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	748	950	1459	-	-	-
Mov Cap-2 Maneuver	748	-	-	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	897	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.59	0.53	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1459	-	800	-	-
HCM Lane V/C Ratio	0.006	-	0.02	-	-
HCM Ctrl Dly (s/v)	7.5	-	9.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	4.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	87	39	67	80	25	75
Future Vol, veh/h	87	39	67	80	25	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	1	1	5	1	1	4
Mvmt Flow	102	46	79	94	29	88
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	148	0	377	125
Stage 1	-	-	-	-	125	-
Stage 2	-	-	-	-	252	-
Critical Hdwy	-	-	4.15	-	6.41	6.24
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.245	-	3.509	3.336
Pot Cap-1 Maneuver	-	-	1415	-	626	920
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	793	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1415	-	590	920
Mov Cap-2 Maneuver	-	-	-	-	590	-
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	746	-
Approach	EB	WB		NB		
HCM Ctrl Dly, s/v	0	3.51		10.22		
HCM LOS				B		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	807	-	-	820	-	
HCM Lane V/C Ratio	0.146	-	-	0.056	-	
HCM Ctrl Dly (s/v)	10.2	-	-	7.7	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-	

Intersection						
Int Delay, s/veh	6.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	186	61	1	45	38
Future Vol, veh/h	3	186	61	1	45	38
Conflicting Peds, #/hr	0	0	0	6	6	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	72	72	72	72	72	72
Heavy Vehicles, %	1	2	5	1	7	4
Mvmt Flow	4	258	85	1	63	53

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	269	91	0
Stage 1	91	-	-
Stage 2	178	-	-
Critical Hdwy	6.41	6.22	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.318	-
Pot Cap-1 Maneuver	722	966	-
Stage 1	935	-	-
Stage 2	855	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	687	961	-
Mov Cap-2 Maneuver	687	-	-
Stage 1	929	-	-
Stage 2	818	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10.2	0	4.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	954	976
HCM Lane V/C Ratio	-	-	0.275	0.043
HCM Ctrl Dly (s/v)	-	-	10.2	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.1	0.1

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	35	1	1	52	1	1	1	1	7	1	7
Future Vol, veh/h	3	35	1	1	52	1	1	1	1	7	1	7
Conflicting Peds, #/hr	4	0	0	0	0	4	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	1	4	1	1	6	1	1	1	1	1	1	1
Mvmt Flow	4	46	1	1	68	1	1	1	1	9	1	9
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	74	0	0	47	0	0	128	131	47	130	131	75
Stage 1	-	-	-	-	-	-	55	55	-	76	76	-
Stage 2	-	-	-	-	-	-	74	76	-	55	55	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
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	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1532	-	-	1566	-	-	847	762	1025	845	762	989
Stage 1	-	-	-	-	-	-	960	851	-	936	834	-
Stage 2	-	-	-	-	-	-	938	833	-	960	851	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1526	-	-	1566	-	-	833	756	1025	836	756	983
Mov Cap-2 Maneuver	-	-	-	-	-	-	833	756	-	836	756	-
Stage 1	-	-	-	-	-	-	958	849	-	932	830	-
Stage 2	-	-	-	-	-	-	925	829	-	955	849	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.57			0.14			9.22			9.13		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	858	138	-	-	33	-	-	892				
HCM Lane V/C Ratio	0.005	0.003	-	-	0.001	-	-	0.022				
HCM Ctrl Dly (s/v)	9.2	7.4	0	-	7.3	0	-	9.1				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1				

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	44	46	6	12	9
Future Vol, veh/h	1	44	46	6	12	9
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	1	3	6	25	13	1
Mvmt Flow	1	57	60	8	16	12
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	73	0	-	0	128	69
Stage 1	-	-	-	-	69	-
Stage 2	-	-	-	-	60	-
Critical Hdwy	4.11	-	-	-	6.53	6.21
Critical Hdwy Stg 1	-	-	-	-	5.53	-
Critical Hdwy Stg 2	-	-	-	-	5.53	-
Follow-up Hdwy	2.209	-	-	-	3.617	3.309
Pot Cap-1 Maneuver	1534	-	-	-	840	997
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	936	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1527	-	-	-	832	993
Mov Cap-2 Maneuver	-	-	-	-	832	-
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	931	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.16	0		9.09		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	40	-	-	-	832	993
HCM Lane V/C Ratio	0.001	-	-	-	0.019	0.012
HCM Ctrl Dly (s/v)	7.4	0	-	-	9.4	8.7
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	39	12	1	30	3	12	1	1	13	1	10
Future Vol, veh/h	4	39	12	1	30	3	12	1	1	13	1	10
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	66	66	66	66	66	66	66	66	66	66	66	66
Heavy Vehicles, %	1	4	13	1	1	100	13	1	1	1	1	14
Mvmt Flow	6	59	18	2	45	5	18	2	2	20	2	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	77	0	0	130	137	68	127	144	52
Stage 1	-	-	-	-	-	-	80	80	-	55	55	-
Stage 2	-	-	-	-	-	-	49	57	-	72	89	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.23	6.51	6.21	7.11	6.51	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.617	4.009	3.309	3.509	4.009	3.426
Pot Cap-1 Maneuver	1558	-	-	1528	-	-	818	755	998	849	749	983
Stage 1	-	-	-	-	-	-	902	830	-	960	851	-
Stage 2	-	-	-	-	-	-	937	849	-	940	823	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1552	-	-	1528	-	-	800	749	998	839	742	979
Mov Cap-2 Maneuver	-	-	-	-	-	-	800	749	-	839	742	-
Stage 1	-	-	-	-	-	-	898	827	-	955	847	-
Stage 2	-	-	-	-	-	-	920	845	-	933	819	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.53			0.22			9.58			9.23		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	807	125	-	-	52	-	-	887
HCM Lane V/C Ratio	0.026	0.004	-	-	0.001	-	-	0.041
HCM Ctrl Dly (s/v)	9.6	7.3	0	-	7.4	0	-	9.2
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	1	26	1	1	1	19	74	1	1	100	15
Future Vol, veh/h	26	1	26	1	1	1	19	74	1	1	100	15
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	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	6	1	1	1	1	1	1	10	1	1	6	20
Mvmt Flow	34	1	34	1	1	1	25	96	1	1	130	19

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	288	289	140	279	298	97	149	0	0	97	0	0
Stage 1	142	142	-	146	146	-	-	-	-	-	-	-
Stage 2	146	147	-	133	152	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.16	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	656	623	911	675	616	962	1438	-	-	1502	-	-
Stage 1	851	781	-	859	778	-	-	-	-	-	-	-
Stage 2	847	778	-	873	774	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	641	611	911	636	604	962	1438	-	-	1502	-	-
Mov Cap-2 Maneuver	641	611	-	636	604	-	-	-	-	-	-	-
Stage 1	850	780	-	843	764	-	-	-	-	-	-	-
Stage 2	829	763	-	838	773	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	10.29		10.15		1.53		0.06	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	363	-	-	749	703	15	-
HCM Lane V/C Ratio	0.017	-	-	0.092	0.006	0.001	-
HCM Ctrl Dly (s/v)	7.5	0	-	10.3	10.1	7.4	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0	0	-

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	46	9	6	94	106	13
Future Vol, veh/h	46	9	6	94	106	13
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	6	33	75	6	6	22
Mvmt Flow	58	11	8	118	133	16

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	267	135	151
Stage 1	135	-	-
Stage 2	133	-	-
Critical Hdwy	6.46	6.53	4.85
Critical Hdwy Stg 1	5.46	-	-
Critical Hdwy Stg 2	5.46	-	-
Follow-up Hdwy	3.554	3.597	2.875
Pot Cap-1 Maneuver	714	838	1085
Stage 1	882	-	-
Stage 2	884	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	706	836	1083
Mov Cap-2 Maneuver	706	-	-
Stage 1	874	-	-
Stage 2	882	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.49	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1083	-	725	-	-
HCM Lane V/C Ratio	0.007	-	0.095	-	-
HCM Ctrl Dly (s/v)	8.3	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection						
Int Delay, s/veh	4.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	123	41	78	129	32	109
Future Vol, veh/h	123	41	78	129	32	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	17	4	9	8	1	4
Mvmt Flow	150	50	95	157	39	133
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	200	0	523	175
Stage 1	-	-	-	-	175	-
Stage 2	-	-	-	-	348	-
Critical Hdwy	-	-	4.19	-	6.41	6.24
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.281	-	3.509	3.336
Pot Cap-1 Maneuver	-	-	1331	-	516	863
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	717	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1331	-	476	863
Mov Cap-2 Maneuver	-	-	-	-	476	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	661	-
Approach	EB	WB		NB		
HCM Ctrl Dly, s/v	0	2.98		11.46		
HCM LOS				B		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	729	-	-	678	-	
HCM Lane V/C Ratio	0.236	-	-	0.071	-	
HCM Ctrl Dly (s/v)	11.5	-	-	7.9	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.9	-	-	0.2	-	

Intersection						
Int Delay, s/veh	6.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	186	61	1	45	38
Future Vol, veh/h	3	186	61	1	45	38
Conflicting Peds, #/hr	0	0	0	6	6	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	72	72	72	72	72	72
Heavy Vehicles, %	1	2	5	1	7	4
Mvmt Flow	4	258	85	1	63	53

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	269	91	0	0	92
Stage 1	91	-	-	-	-
Stage 2	178	-	-	-	-
Critical Hdwy	6.41	6.22	-	-	4.17
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.318	-	-	2.263
Pot Cap-1 Maneuver	722	966	-	-	1472
Stage 1	935	-	-	-	-
Stage 2	855	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	687	961	-	-	1463
Mov Cap-2 Maneuver	687	-	-	-	-
Stage 1	929	-	-	-	-
Stage 2	818	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10.2	0	4.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	954	976
HCM Lane V/C Ratio	-	-	0.275	0.043
HCM Ctrl Dly (s/v)	-	-	10.2	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.1	0.1

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	35	1	1	52	1	1	1	1	7	1	7
Future Vol, veh/h	3	35	1	1	52	1	1	1	1	7	1	7
Conflicting Peds, #/hr	4	0	0	0	0	4	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	1	4	1	1	6	1	1	1	1	1	1	1
Mvmt Flow	4	46	1	1	68	1	1	1	1	9	1	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	74	0	0	47	0	0	128	131	47	130	131	75
Stage 1	-	-	-	-	-	-	55	55	-	76	76	-
Stage 2	-	-	-	-	-	-	74	76	-	55	55	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
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	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1532	-	-	1566	-	-	847	762	1025	845	762	989
Stage 1	-	-	-	-	-	-	960	851	-	936	834	-
Stage 2	-	-	-	-	-	-	938	833	-	960	851	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1526	-	-	1566	-	-	833	756	1025	836	756	983
Mov Cap-2 Maneuver	-	-	-	-	-	-	833	756	-	836	756	-
Stage 1	-	-	-	-	-	-	958	849	-	932	830	-
Stage 2	-	-	-	-	-	-	925	829	-	955	849	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.57	0.14	9.22	9.13
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	858	138	-	-	33	-	-	892
HCM Lane V/C Ratio	0.005	0.003	-	-	0.001	-	-	0.022
HCM Ctrl Dly (s/v)	9.2	7.4	0	-	7.3	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	44	46	6	12	9
Future Vol, veh/h	1	44	46	6	12	9
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	1	3	6	25	13	1
Mvmt Flow	1	57	60	8	16	12
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	73	0	-	0	128	69
Stage 1	-	-	-	-	69	-
Stage 2	-	-	-	-	60	-
Critical Hdwy	4.11	-	-	-	6.53	6.21
Critical Hdwy Stg 1	-	-	-	-	5.53	-
Critical Hdwy Stg 2	-	-	-	-	5.53	-
Follow-up Hdwy	2.209	-	-	-	3.617	3.309
Pot Cap-1 Maneuver	1534	-	-	-	840	997
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	936	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1527	-	-	-	832	993
Mov Cap-2 Maneuver	-	-	-	-	832	-
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	931	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.16	0		9.09		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	40	-	-	-	832	993
HCM Lane V/C Ratio	0.001	-	-	-	0.019	0.012
HCM Ctrl Dly (s/v)	7.4	0	-	-	9.4	8.7
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	39	12	1	30	3	12	1	1	13	1	10
Future Vol, veh/h	4	39	12	1	30	3	12	1	1	13	1	10
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	66	66	66	66	66	66	66	66	66	66	66	66
Heavy Vehicles, %	1	4	13	1	1	100	13	1	1	1	1	14
Mvmt Flow	6	59	18	2	45	5	18	2	2	20	2	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	77	0	0	130	137	68	127	144	52
Stage 1	-	-	-	-	-	-	80	80	-	55	55	-
Stage 2	-	-	-	-	-	-	49	57	-	72	89	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.23	6.51	6.21	7.11	6.51	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.617	4.009	3.309	3.509	4.009	3.426
Pot Cap-1 Maneuver	1558	-	-	1528	-	-	818	755	998	849	749	983
Stage 1	-	-	-	-	-	-	902	830	-	960	851	-
Stage 2	-	-	-	-	-	-	937	849	-	940	823	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1552	-	-	1528	-	-	800	749	998	839	742	979
Mov Cap-2 Maneuver	-	-	-	-	-	-	800	749	-	839	742	-
Stage 1	-	-	-	-	-	-	898	827	-	955	847	-
Stage 2	-	-	-	-	-	-	920	845	-	933	819	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.53			0.22			9.58			9.23		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	807	125	-	-	52	-	-	887
HCM Lane V/C Ratio	0.026	0.004	-	-	0.001	-	-	0.041
HCM Ctrl Dly (s/v)	9.6	7.3	0	-	7.4	0	-	9.2
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	1	26	1	1	1	19	74	1	1	100	15
Future Vol, veh/h	26	1	26	1	1	1	19	74	1	1	100	15
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	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	6	1	1	1	1	1	1	10	1	1	6	20
Mvmt Flow	34	1	34	1	1	1	25	96	1	1	130	19

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	288	289	140	279	298	97	149	0	0	97	0	0
Stage 1	142	142	-	146	146	-	-	-	-	-	-	-
Stage 2	146	147	-	133	152	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.16	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	656	623	911	675	616	962	1438	-	-	1502	-	-
Stage 1	851	781	-	859	778	-	-	-	-	-	-	-
Stage 2	847	778	-	873	774	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	641	611	911	636	604	962	1438	-	-	1502	-	-
Mov Cap-2 Maneuver	641	611	-	636	604	-	-	-	-	-	-	-
Stage 1	850	780	-	843	764	-	-	-	-	-	-	-
Stage 2	829	763	-	838	773	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	10.29		10.15		1.53		0.06	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	363	-	-	749	703	15	-
HCM Lane V/C Ratio	0.017	-	-	0.092	0.006	0.001	-
HCM Ctrl Dly (s/v)	7.5	0	-	10.3	10.1	7.4	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0	0	-

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	46	9	6	94	106	13
Future Vol, veh/h	46	9	6	94	106	13
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	6	33	75	6	6	22
Mvmt Flow	58	11	8	118	133	16

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	267	135	151	0	-	0
Stage 1	135	-	-	-	-	-
Stage 2	133	-	-	-	-	-
Critical Hdwy	6.46	6.53	4.85	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.597	2.875	-	-	-
Pot Cap-1 Maneuver	714	838	1085	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	884	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	706	836	1083	-	-	-
Mov Cap-2 Maneuver	706	-	-	-	-	-
Stage 1	874	-	-	-	-	-
Stage 2	882	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.49	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1083	-	725	-	-
HCM Lane V/C Ratio	0.007	-	0.095	-	-
HCM Ctrl Dly (s/v)	8.3	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection						
Int Delay, s/veh	4.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	123	41	78	129	32	109
Future Vol, veh/h	123	41	78	129	32	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	17	4	9	8	1	4
Mvmt Flow	150	50	95	157	39	133
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	200	0	523	175
Stage 1	-	-	-	-	175	-
Stage 2	-	-	-	-	348	-
Critical Hdwy	-	-	4.19	-	6.41	6.24
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.281	-	3.509	3.336
Pot Cap-1 Maneuver	-	-	1331	-	516	863
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	717	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1331	-	476	863
Mov Cap-2 Maneuver	-	-	-	-	476	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	661	-
Approach	EB	WB		NB		
HCM Ctrl Dly, s/v	0	2.98		11.46		
HCM LOS				B		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	729	-	-	678	-	
HCM Lane V/C Ratio	0.236	-	-	0.071	-	
HCM Ctrl Dly (s/v)	11.5	-	-	7.9	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.9	-	-	0.2	-	

Intersection						
Int Delay, s/veh	6.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	147	64	1	36	35
Future Vol, veh/h	2	147	64	1	36	35
Conflicting Peds, #/hr	0	0	0	6	6	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	72	72	72	72	72	72
Heavy Vehicles, %	1	2	5	1	7	4
Mvmt Flow	3	204	89	1	50	49

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	244	96	0
Stage 1	96	-	-
Stage 2	149	-	-
Critical Hdwy	6.41	6.22	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.318	-
Pot Cap-1 Maneuver	746	961	-
Stage 1	931	-	-
Stage 2	881	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	716	955	-
Mov Cap-2 Maneuver	716	-	-
Stage 1	925	-	-
Stage 2	850	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.83	0	3.83
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	951	913
HCM Lane V/C Ratio	-	-	0.218	0.034
HCM Ctrl Dly (s/v)	-	-	9.8	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.1

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	33	1	1	57	1	1	1	1	6	1	6
Future Vol, veh/h	2	33	1	1	57	1	1	1	1	6	1	6
Conflicting Peds, #/hr	4	0	0	0	0	4	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	1	4	1	1	6	1	1	1	1	1	1	1
Mvmt Flow	3	43	1	1	75	1	1	1	1	8	1	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	80	0	0	45	0	0	130	132	44	132	132	82
Stage 1	-	-	-	-	-	-	49	49	-	82	82	-
Stage 2	-	-	-	-	-	-	80	83	-	49	50	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
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	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1524	-	-	1570	-	-	845	760	1029	843	760	981
Stage 1	-	-	-	-	-	-	966	856	-	928	829	-
Stage 2	-	-	-	-	-	-	931	828	-	966	855	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1518	-	-	1570	-	-	833	755	1029	835	755	975
Mov Cap-2 Maneuver	-	-	-	-	-	-	833	755	-	835	755	-
Stage 1	-	-	-	-	-	-	965	854	-	924	825	-
Stage 2	-	-	-	-	-	-	919	824	-	962	854	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.41	0.12	9.21	9.14
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	858	99	-	-	30	-	-	887
HCM Lane V/C Ratio	0.005	0.002	-	-	0.001	-	-	0.019
HCM Ctrl Dly (s/v)	9.2	7.4	0	-	7.3	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	40	53	7	10	7
Future Vol, veh/h	1	40	53	7	10	7
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	1	3	6	25	13	1
Mvmt Flow	1	52	69	9	13	9
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	83	0	-	0	133	78
Stage 1	-	-	-	-	78	-
Stage 2	-	-	-	-	55	-
Critical Hdwy	4.11	-	-	-	6.53	6.21
Critical Hdwy Stg 1	-	-	-	-	5.53	-
Critical Hdwy Stg 2	-	-	-	-	5.53	-
Follow-up Hdwy	2.209	-	-	-	3.617	3.309
Pot Cap-1 Maneuver	1521	-	-	-	835	985
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	941	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1513	-	-	-	827	980
Mov Cap-2 Maneuver	-	-	-	-	827	-
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	936	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.18	0		9.13		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	44	-	-	-	827	980
HCM Lane V/C Ratio	0.001	-	-	-	0.016	0.009
HCM Ctrl Dly (s/v)	7.4	0	-	-	9.4	8.7
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	36	9	1	40	2	9	1	1	10	1	10
Future Vol, veh/h	4	36	9	1	40	2	9	1	1	10	1	10
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	66	66	66	66	66	66	66	66	66	66	66	66
Heavy Vehicles, %	1	4	13	1	1	100	13	1	1	1	1	14
Mvmt Flow	6	55	14	2	61	3	14	2	2	15	2	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	68	0	0	68	0	0	138	144	61	137	149	66
Stage 1	-	-	-	-	-	-	73	73	-	69	69	-
Stage 2	-	-	-	-	-	-	64	71	-	67	80	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.23	6.51	6.21	7.11	6.51	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.617	4.009	3.309	3.509	4.009	3.426
Pot Cap-1 Maneuver	1540	-	-	1539	-	-	808	749	1007	837	744	965
Stage 1	-	-	-	-	-	-	909	836	-	943	839	-
Stage 2	-	-	-	-	-	-	919	838	-	945	830	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1534	-	-	1539	-	-	790	742	1007	826	737	961
Mov Cap-2 Maneuver	-	-	-	-	-	-	790	742	-	826	737	-
Stage 1	-	-	-	-	-	-	905	832	-	939	835	-
Stage 2	-	-	-	-	-	-	902	834	-	938	827	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.6	0.17	9.59	9.24
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	801	141	-	-	41	-	-	880
HCM Lane V/C Ratio	0.021	0.004	-	-	0.001	-	-	0.036
HCM Ctrl Dly (s/v)	9.6	7.4	0	-	7.3	0	-	9.2
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection						
Int Delay, s/veh	4.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	41	28	13	45	16
Future Vol, veh/h	5	41	28	13	45	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	73	73	73	73	73	73
Heavy Vehicles, %	2	4	10	2	2	2
Mvmt Flow	7	56	38	18	62	22

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	56	0	0 117 47
Stage 1	-	-	- 47 -
Stage 2	-	-	- 70 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1549	-	- 879 1022
Stage 1	-	-	- 975 -
Stage 2	-	-	- 953 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1549	-	- 875 1022
Mov Cap-2 Maneuver	-	-	- 875 -
Stage 1	-	-	- 971 -
Stage 2	-	-	- 953 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.8	0	9.36
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	196	-	-	-	909
HCM Lane V/C Ratio	0.004	-	-	-	0.092
HCM Ctrl Dly (s/v)	7.3	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	58	1	28	1	1	1	17	59	1	1	79	23
Future Vol, veh/h	58	1	28	1	1	1	17	59	1	1	79	23
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	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	6	1	1	1	1	1	1	10	1	1	6	20
Mvmt Flow	75	1	36	1	1	1	22	77	1	1	103	30

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	242	242	118	227	256	77	132	0	0	78	0	0
Stage 1	120	120	-	121	121	-	-	-	-	-	-	-
Stage 2	121	122	-	106	135	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.16	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	704	661	937	730	649	986	1459	-	-	1527	-	-
Stage 1	875	798	-	885	797	-	-	-	-	-	-	-
Stage 2	873	797	-	902	787	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	690	650	937	689	638	986	1459	-	-	1527	-	-
Mov Cap-2 Maneuver	690	650	-	689	638	-	-	-	-	-	-	-
Stage 1	874	798	-	871	785	-	-	-	-	-	-	-
Stage 2	857	784	-	865	786	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	10.62		9.86		1.66		0.07	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	396	-	-	754	744	17	-
HCM Lane V/C Ratio	0.015	-	-	0.15	0.005	0.001	-
HCM Ctrl Dly (s/v)	7.5	0	-	10.6	9.9	7.4	0
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0	0	-

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	7	5	112	95	10
Future Vol, veh/h	37	7	5	112	95	10
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	6	33	75	6	6	22
Mvmt Flow	46	9	6	140	119	13

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	273	121	133	0	-	0
Stage 1	121	-	-	-	-	-
Stage 2	153	-	-	-	-	-
Critical Hdwy	6.46	6.53	4.85	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.597	2.875	-	-	-
Pot Cap-1 Maneuver	708	853	1103	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	701	852	1101	-	-	-
Mov Cap-2 Maneuver	701	-	-	-	-	-
Stage 1	888	-	-	-	-	-
Stage 2	864	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.4	0.35	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1101	-	721	-	-
HCM Lane V/C Ratio	0.006	-	0.076	-	-
HCM Ctrl Dly (s/v)	8.3	-	10.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	4.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	98	35	70	102	36	112
Future Vol, veh/h	98	35	70	102	36	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	17	4	9	8	1	4
Mvmt Flow	120	43	85	124	44	137

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	162
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.19
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.281
Pot Cap-1 Maneuver	-	-	1375
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1375
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	3.17	11.04
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	776	-	-	733	-
HCM Lane V/C Ratio	0.233	-	-	0.062	-
HCM Ctrl Dly (s/v)	11	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.2	-

Intersection						
Int Delay, s/veh	4.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	52	50	2	86	71
Future Vol, veh/h	3	52	50	2	86	71
Conflicting Peds, #/hr	0	0	0	24	24	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	92	92	92	92	92	92
Heavy Vehicles, %	1	2	3	1	1	2
Mvmt Flow	3	57	54	2	93	77
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	344	79	0	0	81	0
Stage 1	79	-	-	-	-	-
Stage 2	264	-	-	-	-	-
Critical Hdwy	6.41	6.22	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.318	-	-	2.209	-
Pot Cap-1 Maneuver	655	981	-	-	1524	-
Stage 1	946	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	598	958	-	-	1489	-
Mov Cap-2 Maneuver	598	-	-	-	-	-
Stage 1	925	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	9.15	0		4.15		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 928		986	-	
HCM Lane V/C Ratio	-	- 0.064		0.063	-	
HCM Ctrl Dly (s/v)	-	- 9.1		7.6	0	
HCM Lane LOS	-	- A		A	A	
HCM 95th %tile Q(veh)	-	- 0.2		0.2	-	

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	62	1	1	44	7	1	1	1	6	1	11
Future Vol, veh/h	11	62	1	1	44	7	1	1	1	6	1	11
Conflicting Peds, #/hr	29	0	2	2	0	29	8	0	2	2	0	8
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	1	2	1	1	3	1	1	1	1	1	1	1
Mvmt Flow	14	82	1	1	58	9	1	1	1	8	1	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	96	0	0	85	0	0	182	212	86	207	208	100
Stage 1	-	-	-	-	-	-	113	113	-	94	94	-
Stage 2	-	-	-	-	-	-	69	99	-	113	114	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
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	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1504	-	-	1518	-	-	781	687	975	752	691	959
Stage 1	-	-	-	-	-	-	894	804	-	915	819	-
Stage 2	-	-	-	-	-	-	943	815	-	894	803	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1462	-	-	1515	-	-	752	659	972	720	663	925
Mov Cap-2 Maneuver	-	-	-	-	-	-	752	659	-	720	663	-
Stage 1	-	-	-	-	-	-	883	794	-	889	796	-
Stage 2	-	-	-	-	-	-	919	792	-	881	793	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.11	0.14	9.68	9.47
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	774	267	-	-	34	-	-	828
HCM Lane V/C Ratio	0.005	0.01	-	-	0.001	-	-	0.029
HCM Ctrl Dly (s/v)	9.7	7.5	0	-	7.4	0	-	9.5
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	60	42	10	9	9
Future Vol, veh/h	9	60	42	10	9	9
Conflicting Peds, #/hr	24	0	0	24	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	1	3	3	1	17	1
Mvmt Flow	12	78	55	13	12	12

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	92	0	0	186	85
Stage 1	-	-	-	85	-
Stage 2	-	-	-	101	-
Critical Hdwy	4.11	-	-	6.57	6.21
Critical Hdwy Stg 1	-	-	-	5.57	-
Critical Hdwy Stg 2	-	-	-	5.57	-
Follow-up Hdwy	2.209	-	-	3.653	3.309
Pot Cap-1 Maneuver	1510	-	-	770	977
Stage 1	-	-	-	902	-
Stage 2	-	-	-	887	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1475	-	-	729	954
Mov Cap-2 Maneuver	-	-	-	729	-
Stage 1	-	-	-	874	-
Stage 2	-	-	-	866	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.97	0	9.42
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	235	-	-	-	729	954
HCM Lane V/C Ratio	0.008	-	-	-	0.016	0.012
HCM Ctrl Dly (s/v)	7.5	0	-	-	10	8.8
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	45	12	4	37	13	8	1	4	8	1	5
Future Vol, veh/h	10	45	12	4	37	13	8	1	4	8	1	5
Conflicting Peds, #/hr	19	0	0	0	0	19	0	0	8	8	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	1	8	1	1	4	1	1	1	1	1	1	1
Mvmt Flow	13	58	16	5	48	17	10	1	5	10	1	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	84	0	0	74	0	0	151	187	74	179	186	75
Stage 1	-	-	-	-	-	-	92	92	-	86	86	-
Stage 2	-	-	-	-	-	-	59	94	-	93	100	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
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	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1519	-	-	1532	-	-	818	710	990	785	710	989
Stage 1	-	-	-	-	-	-	917	821	-	924	826	-
Stage 2	-	-	-	-	-	-	955	819	-	916	814	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1492	-	-	1532	-	-	801	688	983	750	689	971
Mov Cap-2 Maneuver	-	-	-	-	-	-	801	688	-	750	689	-
Stage 1	-	-	-	-	-	-	909	813	-	904	808	-
Stage 2	-	-	-	-	-	-	944	801	-	895	807	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	1.11			0.55			9.38			9.54		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	838	258	-	-	127	-	-	811
HCM Lane V/C Ratio	0.02	0.009	-	-	0.003	-	-	0.022
HCM Ctrl Dly (s/v)	9.4	7.4	0	-	7.4	0	-	9.5
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	41	45	43	27	9
Future Vol, veh/h	16	41	45	43	27	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	1	8	2	2	2
Mvmt Flow	21	53	58	55	35	12

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	113	0	0 179 85
Stage 1	-	-	- 85 -
Stage 2	-	-	- 94 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1477	-	- 811 974
Stage 1	-	-	- 938 -
Stage 2	-	-	- 930 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1477	-	- 799 974
Mov Cap-2 Maneuver	-	-	- 799 -
Stage 1	-	-	- 925 -
Stage 2	-	-	- 930 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.1	0	9.55
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	505	-	-	-	837
HCM Lane V/C Ratio	0.014	-	-	-	0.055
HCM Ctrl Dly (s/v)	7.5	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	37	1	28	3	4	3	32	79	1	4	70	51
Future Vol, veh/h	37	1	28	3	4	3	32	79	1	4	70	51
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	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	1	100	5	1	25	1	1	3	1	25	5	1
Mvmt Flow	47	1	35	4	5	4	41	100	1	5	89	65

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	315	313	121	281	345	101	153	0	0	101	0	0
Stage 1	131	131	-	182	182	-	-	-	-	-	-	-
Stage 2	184	182	-	99	163	-	-	-	-	-	-	-
Critical Hdwy	7.11	7.5	6.25	7.11	6.75	6.21	4.11	-	-	4.35	-	-
Critical Hdwy Stg 1	6.11	6.5	-	6.11	5.75	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	6.5	-	6.11	5.75	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.9	3.345	3.509	4.225	3.309	2.209	-	-	2.425	-	-
Pot Cap-1 Maneuver	640	470	922	673	543	958	1434	-	-	1359	-	-
Stage 1	875	633	-	822	708	-	-	-	-	-	-	-
Stage 2	821	597	-	909	721	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	610	454	922	624	524	958	1434	-	-	1359	-	-
Mov Cap-2 Maneuver	610	454	-	624	524	-	-	-	-	-	-	-
Stage 1	871	631	-	798	687	-	-	-	-	-	-	-
Stage 2	787	579	-	869	718	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	10.76		10.72		2.17		0.25	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	513	-	-	708	642	53	-
HCM Lane V/C Ratio	0.028	-	-	0.118	0.02	0.004	-
HCM Ctrl Dly (s/v)	7.6	0	-	10.8	10.7	7.7	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.1	0	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	4	7	114	121	20
Future Vol, veh/h	9	4	7	114	121	20
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	5	5	1
Mvmt Flow	11	5	9	139	148	24
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	306	150	174	0	-	0
Stage 1	150	-	-	-	-	-
Stage 2	156	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	688	900	1409	-	-	-
Stage 1	881	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	682	898	1406	-	-	-
Mov Cap-2 Maneuver	682	-	-	-	-	-
Stage 1	874	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	10	0.44		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1406	-	736	-	-	
HCM Lane V/C Ratio	0.006	-	0.022	-	-	
HCM Ctrl Dly (s/v)	7.6	-	10	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Intersection						
Int Delay, s/veh	4.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	87	50	92	80	31	91
Future Vol, veh/h	87	50	92	80	31	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	1	1	5	1	1	4
Mvmt Flow	102	59	108	94	36	107

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	161	0	442	132
Stage 1	-	-	-	-	132	-
Stage 2	-	-	-	-	311	-
Critical Hdwy	-	-	4.15	-	6.41	6.24
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.245	-	3.509	3.336
Pot Cap-1 Maneuver	-	-	1400	-	575	912
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	746	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1400	-	528	912
Mov Cap-2 Maneuver	-	-	-	-	528	-
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	685	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	4.17	10.75
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	770	-	-	963	-
HCM Lane V/C Ratio	0.186	-	-	0.077	-
HCM Ctrl Dly (s/v)	10.7	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0.3	-

Intersection						
Int Delay, s/veh	6.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	186	77	1	45	43
Future Vol, veh/h	3	186	77	1	45	43
Conflicting Peds, #/hr	0	0	0	6	6	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	72	72	72	72	72	72
Heavy Vehicles, %	1	2	5	1	7	4
Mvmt Flow	4	258	107	1	63	60

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	298	114	0	0	114
Stage 1	114	-	-	-	-
Stage 2	185	-	-	-	-
Critical Hdwy	6.41	6.22	-	-	4.17
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.318	-	-	2.263
Pot Cap-1 Maneuver	695	939	-	-	1444
Stage 1	914	-	-	-	-
Stage 2	849	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	660	934	-	-	1436
Mov Cap-2 Maneuver	660	-	-	-	-
Stage 1	908	-	-	-	-
Stage 2	811	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10.41	0	3.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	928	920
HCM Lane V/C Ratio	-	-	0.283	0.044
HCM Ctrl Dly (s/v)	-	-	10.4	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.2	0.1

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	40	1	1	68	1	1	1	1	7	1	7
Future Vol, veh/h	3	40	1	1	68	1	1	1	1	7	1	7
Conflicting Peds, #/hr	4	0	0	0	0	4	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	1	4	1	1	6	1	1	1	1	1	1	1
Mvmt Flow	4	53	1	1	89	1	1	1	1	9	1	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	95	0	0	54	0	0	156	159	53	158	159	96
Stage 1	-	-	-	-	-	-	61	61	-	97	97	-
Stage 2	-	-	-	-	-	-	95	97	-	61	62	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
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	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1505	-	-	1558	-	-	813	735	1017	810	735	963
Stage 1	-	-	-	-	-	-	953	846	-	912	817	-
Stage 2	-	-	-	-	-	-	914	816	-	953	845	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1500	-	-	1558	-	-	799	730	1017	802	730	958
Mov Cap-2 Maneuver	-	-	-	-	-	-	799	730	-	802	730	-
Stage 1	-	-	-	-	-	-	950	844	-	908	813	-
Stage 2	-	-	-	-	-	-	902	812	-	947	843	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.51			0.1			9.35			9.28		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	832	122	-	-	26	-	-	862
HCM Lane V/C Ratio	0.005	0.003	-	-	0.001	-	-	0.023
HCM Ctrl Dly (s/v)	9.3	7.4	0	-	7.3	0	-	9.3
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	49	62	8	13	9
Future Vol, veh/h	1	49	62	8	13	9
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	1	3	6	25	13	1
Mvmt Flow	1	64	81	10	17	12
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	96	0	-	0	157	91
Stage 1	-	-	-	-	91	-
Stage 2	-	-	-	-	66	-
Critical Hdwy	4.11	-	-	-	6.53	6.21
Critical Hdwy Stg 1	-	-	-	-	5.53	-
Critical Hdwy Stg 2	-	-	-	-	5.53	-
Follow-up Hdwy	2.209	-	-	-	3.617	3.309
Pot Cap-1 Maneuver	1504	-	-	-	809	970
Stage 1	-	-	-	-	906	-
Stage 2	-	-	-	-	929	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1497	-	-	-	801	965
Mov Cap-2 Maneuver	-	-	-	-	801	-
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	925	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.15	0		9.26		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	36	-	-	-	801	965
HCM Lane V/C Ratio	0.001	-	-	-	0.021	0.012
HCM Ctrl Dly (s/v)	7.4	0	-	-	9.6	8.8
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	44	12	1	46	3	12	1	1	13	1	12
Future Vol, veh/h	5	44	12	1	46	3	12	1	1	13	1	12
Conflicting Peds, #/hr	4	0	0	0	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	66	66	66	66	66	66	66	66	66	66	66	66
Heavy Vehicles, %	1	4	13	1	1	100	13	1	1	1	1	14
Mvmt Flow	8	67	18	2	70	5	18	2	2	20	2	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	78	0	0	85	0	0	164	172	76	162	179	76
Stage 1	-	-	-	-	-	-	91	91	-	79	79	-
Stage 2	-	-	-	-	-	-	73	81	-	83	100	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.23	6.51	6.21	7.11	6.51	6.34
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.617	4.009	3.309	3.509	4.009	3.426
Pot Cap-1 Maneuver	1526	-	-	1518	-	-	776	723	988	806	717	953
Stage 1	-	-	-	-	-	-	890	822	-	932	831	-
Stage 2	-	-	-	-	-	-	909	829	-	928	814	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1521	-	-	1518	-	-	755	716	988	795	709	949
Mov Cap-2 Maneuver	-	-	-	-	-	-	755	716	-	795	709	-
Stage 1	-	-	-	-	-	-	885	817	-	928	827	-
Stage 2	-	-	-	-	-	-	889	825	-	920	810	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.6	0.15	9.84	9.41
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	765	141	-	-	36	-	-	855
HCM Lane V/C Ratio	0.028	0.005	-	-	0.001	-	-	0.046
HCM Ctrl Dly (s/v)	9.8	7.4	0	-	7.4	0	-	9.4
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	52	35	13	45	16
Future Vol, veh/h	5	52	35	13	45	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	73	73	73	73	73	73
Heavy Vehicles, %	2	4	10	2	2	2
Mvmt Flow	7	71	48	18	62	22

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	66	0	0	142	57
Stage 1	-	-	-	57	-
Stage 2	-	-	-	85	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1536	-	-	851	1009
Stage 1	-	-	-	966	-
Stage 2	-	-	-	938	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1536	-	-	847	1009
Mov Cap-2 Maneuver	-	-	-	847	-
Stage 1	-	-	-	961	-
Stage 2	-	-	-	938	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.65	0	9.49
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	158	-	-	-	884
HCM Lane V/C Ratio	0.004	-	-	-	0.094
HCM Ctrl Dly (s/v)	7.4	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	63	1	34	1	1	1	21	74	1	1	100	26
Future Vol, veh/h	63	1	34	1	1	1	21	74	1	1	100	26
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	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	6	1	1	1	1	1	1	10	1	1	6	20
Mvmt Flow	82	1	44	1	1	1	27	96	1	1	130	34

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	301	301	147	284	318	97	164	0	0	97	0	0
Stage 1	149	149	-	151	151	-	-	-	-	-	-	-
Stage 2	151	152	-	133	166	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.16	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	644	613	903	670	600	962	1421	-	-	1502	-	-
Stage 1	844	776	-	854	774	-	-	-	-	-	-	-
Stage 2	842	774	-	873	763	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	628	600	903	622	588	962	1421	-	-	1502	-	-
Mov Cap-2 Maneuver	628	600	-	622	588	-	-	-	-	-	-	-
Stage 1	843	775	-	836	758	-	-	-	-	-	-	-
Stage 2	822	758	-	828	762	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	11.26		10.25		1.66		0.06	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	393	-	-	702	690	14	-
HCM Lane V/C Ratio	0.019	-	-	0.181	0.006	0.001	-
HCM Ctrl Dly (s/v)	7.6	0	-	11.3	10.2	7.4	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0	0	-

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	46	9	6	131	117	13
Future Vol, veh/h	46	9	6	131	117	13
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	6	33	75	6	6	22
Mvmt Flow	58	11	8	164	146	16

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	327	148	165	0	-	0
Stage 1	148	-	-	-	-	-
Stage 2	179	-	-	-	-	-
Critical Hdwy	6.46	6.53	4.85	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.597	2.875	-	-	-
Pot Cap-1 Maneuver	659	823	1071	-	-	-
Stage 1	870	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	652	821	1069	-	-	-
Mov Cap-2 Maneuver	652	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	841	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.94	0.37	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1069	-	675	-	-
HCM Lane V/C Ratio	0.007	-	0.102	-	-
HCM Ctrl Dly (s/v)	8.4	-	10.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection						
Int Delay, s/veh	5.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	123	44	86	129	43	135
Future Vol, veh/h	123	44	86	129	43	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	17	4	9	8	1	4
Mvmt Flow	150	54	105	157	52	165
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	204	0	544	177
Stage 1	-	-	-	-	177	-
Stage 2	-	-	-	-	367	-
Critical Hdwy	-	-	4.19	-	6.41	6.24
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.281	-	3.509	3.336
Pot Cap-1 Maneuver	-	-	1327	-	502	861
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	703	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1327	-	458	861
Mov Cap-2 Maneuver	-	-	-	-	458	-
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	642	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		3.18		12.28	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1		EBT	EBR	WBL	WBT
Capacity (veh/h)	710		-	-	720	-
HCM Lane V/C Ratio	0.306		-	-	0.079	-
HCM Ctrl Dly (s/v)	12.3		-	-	7.9	0
HCM Lane LOS	B		-	-	A	A
HCM 95th %tile Q(veh)	1.3		-	-	0.3	-

Intersection						
Int Delay, s/veh	4.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	61	57	3	101	81
Future Vol, veh/h	4	61	57	3	101	81
Conflicting Peds, #/hr	0	0	0	24	24	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	92	92	92	92	92	92
Heavy Vehicles, %	1	2	3	1	1	2
Mvmt Flow	4	66	62	3	110	88

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	395	88	0
Stage 1	88	-	-
Stage 2	308	-	-
Critical Hdwy	6.41	6.22	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.318	-
Pot Cap-1 Maneuver	612	971	-
Stage 1	938	-	-
Stage 2	748	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	551	949	-
Mov Cap-2 Maneuver	551	-	-
Stage 1	917	-	-
Stage 2	689	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.3	0	4.23
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	908	999
HCM Lane V/C Ratio	-	-	0.078	0.074
HCM Ctrl Dly (s/v)	-	-	9.3	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	71	1	1	51	8	1	1	1	7	1	13
Future Vol, veh/h	13	71	1	1	51	8	1	1	1	7	1	13
Conflicting Peds, #/hr	29	0	2	2	0	29	8	0	2	2	0	8
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	1	2	1	1	3	1	1	1	1	1	1	1
Mvmt Flow	17	93	1	1	67	11	1	1	1	9	1	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	107	0	0	97	0	0	209	240	98	234	235	109
Stage 1	-	-	-	-	-	-	130	130	-	104	104	-
Stage 2	-	-	-	-	-	-	78	109	-	130	131	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
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	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1491	-	-	1503	-	-	751	663	961	722	667	947
Stage 1	-	-	-	-	-	-	876	790	-	904	811	-
Stage 2	-	-	-	-	-	-	933	807	-	876	790	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1449	-	-	1500	-	-	719	635	957	689	639	914
Mov Cap-2 Maneuver	-	-	-	-	-	-	719	635	-	689	639	-
Stage 1	-	-	-	-	-	-	863	779	-	878	788	-
Stage 2	-	-	-	-	-	-	906	784	-	861	778	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.15	0.12	9.84	9.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	748	275	-	-	29	-	-	809
HCM Lane V/C Ratio	0.005	0.012	-	-	0.001	-	-	0.034
HCM Ctrl Dly (s/v)	9.8	7.5	0	-	7.4	0	-	9.6
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	68	48	10	10	10
Future Vol, veh/h	10	68	48	10	10	10
Conflicting Peds, #/hr	24	0	0	24	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	1	3	3	1	17	1
Mvmt Flow	13	88	62	13	13	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	99	0	0 207 93
Stage 1	-	-	- 93 -
Stage 2	-	-	- 114 -
Critical Hdwy	4.11	-	- 6.57 6.21
Critical Hdwy Stg 1	-	-	- 5.57 -
Critical Hdwy Stg 2	-	-	- 5.57 -
Follow-up Hdwy	2.209	-	- 3.653 3.309
Pot Cap-1 Maneuver	1500	-	- 749 967
Stage 1	-	-	- 894 -
Stage 2	-	-	- 875 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1465	-	- 708 945
Mov Cap-2 Maneuver	-	-	- 708 -
Stage 1	-	-	- 866 -
Stage 2	-	-	- 855 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.96	0	9.52
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	231	-	-	-	708	945
HCM Lane V/C Ratio	0.009	-	-	-	0.018	0.014
HCM Ctrl Dly (s/v)	7.5	0	-	-	10.2	8.9
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	50	14	5	42	16	9	1	5	9	1	6
Future Vol, veh/h	11	50	14	5	42	16	9	1	5	9	1	6
Conflicting Peds, #/hr	19	0	0	0	0	19	0	0	8	8	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	1	8	1	1	4	1	1	1	1	1	1	1
Mvmt Flow	14	65	18	6	55	21	12	1	6	12	1	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	94	0	0	83	0	0	171	210	82	199	209	84
Stage 1	-	-	-	-	-	-	103	103	-	97	97	-
Stage 2	-	-	-	-	-	-	68	107	-	102	112	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
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	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1506	-	-	1520	-	-	795	689	980	762	690	978
Stage 1	-	-	-	-	-	-	906	812	-	912	817	-
Stage 2	-	-	-	-	-	-	945	808	-	906	805	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1479	-	-	1520	-	-	775	667	973	725	668	960
Mov Cap-2 Maneuver	-	-	-	-	-	-	775	667	-	725	668	-
Stage 1	-	-	-	-	-	-	897	804	-	892	798	-
Stage 2	-	-	-	-	-	-	931	790	-	883	797	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	1.09			0.59			9.49			9.66		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	822	253	-	-	135	-	-	794
HCM Lane V/C Ratio	0.024	0.01	-	-	0.004	-	-	0.026
HCM Ctrl Dly (s/v)	9.5	7.5	0	-	7.4	0	-	9.7
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	48	53	43	27	9
Future Vol, veh/h	16	48	53	43	27	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	8	1	2	2	2
Mvmt Flow	21	62	68	55	35	12
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	123	0	-	0	198	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	103	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1464	-	-	-	791	961
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	922	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1464	-	-	-	779	961
Mov Cap-2 Maneuver	-	-	-	-	779	-
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	922	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	1.87	0		9.67		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	450	-	-	-	818	
HCM Lane V/C Ratio	0.014	-	-	-	0.056	
HCM Ctrl Dly (s/v)	7.5	0	-	-	9.7	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	40	1	32	4	5	4	37	94	1	5	83	54
Future Vol, veh/h	40	1	32	4	5	4	37	94	1	5	83	54
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	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	1	100	5	1	25	1	1	3	1	25	5	1
Mvmt Flow	51	1	41	5	6	5	47	119	1	6	105	68

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	368	366	139	332	399	120	173	0	0	120	0	0
Stage 1	152	152	-	213	213	-	-	-	-	-	-	-
Stage 2	216	214	-	118	186	-	-	-	-	-	-	-
Critical Hdwy	7.11	7.5	6.25	7.11	6.75	6.21	4.11	-	-	4.35	-	-
Critical Hdwy Stg 1	6.11	6.5	-	6.11	5.75	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	6.5	-	6.11	5.75	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.9	3.345	3.509	4.225	3.309	2.209	-	-	2.425	-	-
Pot Cap-1 Maneuver	591	435	901	624	505	935	1409	-	-	1336	-	-
Stage 1	853	618	-	791	685	-	-	-	-	-	-	-
Stage 2	789	576	-	889	705	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	556	418	901	570	484	935	1409	-	-	1336	-	-
Mov Cap-2 Maneuver	556	418	-	570	484	-	-	-	-	-	-	-
Stage 1	848	615	-	763	661	-	-	-	-	-	-	-
Stage 2	749	555	-	842	701	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	11.29		11.16		2.14		0.27	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	503	-	-	665	601	59	-
HCM Lane V/C Ratio	0.033	-	-	0.139	0.027	0.005	-
HCM Ctrl Dly (s/v)	7.6	0	-	11.3	11.2	7.7	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.1	0	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	5	8	131	136	23
Future Vol, veh/h	10	5	8	131	136	23
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	5	5	1
Mvmt Flow	12	6	10	160	166	28
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	347	168	196	0	-	0
Stage 1	168	-	-	-	-	-
Stage 2	179	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	652	879	1383	-	-	-
Stage 1	864	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	645	877	1380	-	-	-
Mov Cap-2 Maneuver	645	-	-	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	852	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	10.23	0.44		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1380	-	707	-	-	
HCM Lane V/C Ratio	0.007	-	0.026	-	-	
HCM Ctrl Dly (s/v)	7.6	-	10.2	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Intersection						
Int Delay, s/veh	4.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	103	57	104	95	36	104
Future Vol, veh/h	103	57	104	95	36	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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, %	1	1	5	1	1	4
Mvmt Flow	121	67	122	112	42	122
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	188	0	511	155
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	356	-
Critical Hdwy	-	-	4.15	-	6.41	6.24
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.245	-	3.509	3.336
Pot Cap-1 Maneuver	-	-	1368	-	524	886
Stage 1	-	-	-	-	876	-
Stage 2	-	-	-	-	711	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1368	-	474	886
Mov Cap-2 Maneuver	-	-	-	-	474	-
Stage 1	-	-	-	-	876	-
Stage 2	-	-	-	-	643	-
Approach	EB	WB		NB		
HCM Ctrl Dly, s/v	0	4.12		11.43		
HCM LOS				B		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	724	-	-	941	-	
HCM Lane V/C Ratio	0.227	-	-	0.089	-	
HCM Ctrl Dly (s/v)	11.4	-	-	7.9	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.9	-	-	0.3	-	

Project name:
Lakestone Properties TIA review**Project ref:**
60740855**From:** Lee Gibbs, PE, PTOE**Date:**
June 9, 2025**To:** Andrew Bremer
Community & Economic Development Director**CC:**

DRAFT Memorandum

The following memorandum summarizes the results of a traffic impact analysis (TIA) review for the proposed Lakestone Properties residential development in McFarland, Wisconsin. A preliminary TIA report was submitted to the Village on May 1, 2025. The purpose of this TIA review was to investigate and confirm the methodology, findings, and recommendations of the TIA as well as evaluate traffic impacts from this proposed development on the intersection of Farwell Street and Exchange Street.

TIA Development Characteristics

The approximately 18-acre property is located in the northwest quadrant of the County AB and Elvehjem Road intersection and is proposed to include 147 residential units, mainly consisting of apartments and duplex/townhome elements. Access for the site is proposed via the extension of Devils Lake Way from its current terminus, through the proposed site, to Elvehjem Road.

The TIA evaluated five analysis scenarios: Year 2025 (existing-year), Year 2030 (with and without site traffic), and Year 2040 (with and without site traffic). The TIA reviewed key intersections in the study area, including those along County AB and Elvehjem Road. In addition to site traffic, the TIA forecasted background traffic growth via annual growth rates to account for traffic increases that are not currently known.

TIA Findings and Recommendations

The TIA concluded that the addition of proposed site traffic would not significantly impact the studied intersections and no intersection improvements were warranted. The TIA identified safety considerations along the proposed Devils Lake Way extension, such as reduced speed limit, mid-block crossings, and curb bump-outs.

TIA Review Comments

The following outlines review comments regarding the TIA:

1. Findings and recommendations made in the May 2025 TIA regarding external improvements to accommodate site traffic are generally valid and are concurred.
2. Page 8: please provide the results of the sight distance evaluation as they were not provided in the text.
3. The document frequently referenced the City of Middleton's TIA guidelines to develop the TIA; please provide rationale as to why it was used.
4. The document does not provide a figure or exhibit illustrating site traffic only; this is helpful in understanding, graphically, where site traffic is anticipated to travel.

Sensitivity Analysis

The TIA anticipates that traffic generated by the proposed site will use Creamery Road for travel in the area. Creamery Road indirectly connects to the Farwell Street and Exchange Street intersection, which has garnered attention to monitor traffic safety and traffic operations due to its location to existing schools and an active railroad crossing as well as its use by vehicular and non-vehicular traffic. A sensitivity analysis was performed for the Farwell Street and Exchange Street intersection to investigate whether traffic from the proposed site will impact safety and operations at this location.

Figure 8 of the TIA estimated that the proposed neighborhood will produce approximately 80 weekday AM peak hour trips, 100 PM peak hour trips, and 1,260 daily trips. Figure 7 of the TIA assumed that 25 percent of all site trips would use Creamery Road for travel to and from the proposed site. This equates to approximately 20 AM peak hour trips, 25 PM peak hour trips, and 415 daily trips. For this sensitivity analysis, it was assumed that all Creamery Road trips would pass through the Farwell Street and Exchange Street intersection to evaluate a worst-case condition. Using this assumption, traffic volumes at this intersection would increase an average of one vehicle every two to three minutes during the weekday AM and PM peak hours due to traffic generated by the proposed site. This rate of increase is not anticipated to impact traffic safety or traffic operations at the Farwell Street and Exchange Street intersection. Furthermore, a Year 2023 intersection control evaluation (ICE) study of the intersection assumed larger forecasted growth rates as part of its operations analysis than what this site would generate at the intersection; in other words, the ICE report already assumed more traffic growth through the intersection than what this proposed site would produce. Therefore, no significant impacts to traffic safety or traffic operations are anticipated at the Farwell Street and Exchange Street intersection due to the addition of the proposed site.

June 12, 2025

Re: Design Review of Lakestone Properties Sperle Corners Proposed Development

We completed our review of exhibit 1 and exhibit fire lane of the Lakestone Properties Sperle Corners Proposed Development dated 6/6/2025.

An important item to note when comparing review comments to plans is comparison of comments to the correct dated plan. Items such as lot numbers have been revised during the revisions of plans and the lot numbers referenced as based on plans noted above.

We recognize that the project is still developing, and not all items are fully designed and documented. Below is a list of items that we noted that aren't displaying compliance with applicable codes or should be considered during the design of the project.

- Sheet 16 of 17 from the plan set dated 4/8/2025 indicates a typical roadway cross-section of 32' F-F (inclusive of curb) and plans show 24' roadway exclusive of curb and 28' F-F (inclusive of curb). 24' roadways would eliminate on street parking. Note aerial fire apparatus roads (buildings exceeding 30' in height) or within 20' of a fire hydrant location require 26' roadway exclusive of curbs. The engineer's response is indicating that the roadway will be reduced to 24' exclusive of curbs, which will restrict street parking.
- Any curb area within 20' of fire hydrant will be required to be signed as no parking. The curb shall be painted to produce a 20-foot stripe extending ten feet to each side of the hydrant. Areas without curbs shall have a four-inch-wide yellow stripe placed on the pavement.
- The buildings on Lot 18 (Lot 11 on 4/8 plans) may require aerial access if the eave is 30' above the ground plane. If aerial access is required, the fire department access will need to be increased to 26'

- The traffic calming devices (speed bumps) are required to be approved by the fire code official and will be required to be submitted. Speed bumps will not be accepted, and any traffic calming must comply with the following:
 - Maintain angle of approach or departure for fire apparatus to be 8 degrees or less. (NFPA 1901 12.3.2.2)
 - Height less than 8" (NFPA 1901 12.3.2.2)
- When considering the Lot 18 (Lot 11 on 4/8 plans) units as a multi-family development the IFC requires (2) separate access roads unless all buildings are equipped with approved automatic fire sprinkler systems. It would be preferable to add a second access road to Elvehjem between the (37) unit and (40) unit apartment buildings. If not added, any building on the lot will require approved automatic fire sprinklers including a shed or an accessory building that is constructed in the future.
- The required turning radius for fire department access roads is 28' for turns greater than 60 degrees and 26' for turns of 60 degrees and less (Based on IFC figure D103.1) with a 20' access roadway exclusive of curbs. The fire lane exhibit utilizes curbs to obtain the required turning radius and is not in compliance.
- The fire department access road indicated for Lot 1 exceeds 150' and would require an approved turnaround. Additionally, the access road appears to narrow to 18' after the eastern garage driveways on the east four-unit building. It does appear the access road could be reduced to a length of 125' and widen to 20' EXCLUSIVE of curbs and comply without a turn around.
- Any building with 3 units or more will require an automatic fire sprinkler system and Knox key box. It is encouraged to provide Knox key boxes on all buildings and especially any buildings that are rented. The plans have not included floor plans for buildings, and it is understood that the floorplans more than likely haven't been developed. It should be noted though that any building with a fire sprinkler will require a riser room that is accessible without entering a private dwelling.

- The buildings will need to comply with IFC section 510 for emergency responder radio coverage.

Code sections for reference:

SPS 362.0903 (5)(a) Except as provided in pars. (b) to (cm), an automatic sprinkler system installed in accordance with IBC section 903.3 shall be provided throughout all buildings with a Group R fire area.

IBC 509.1 Fire protection equipment shall be identified in an approved manner. Rooms containing controls for air-conditioning systems, sprinkler risers and valves, or other fire detection, suppression or control elements shall be identified for the use of the fire department. Approved signs required to identify fire protection equipment and equipment location shall be constructed of durable materials, permanently installed and readily visible.

IBC 916.1 Emergency responder radio coverage shall be provided in all new buildings in accordance with Section 510 of the International Fire Code.

IFC 503.1.1 Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.

IFC 503.2.1 Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm).

IFC 503.2.4 The required turning radius of a fire apparatus access road shall be determined by the fire code official.

IFC 503.3 Where required by the fire code official, approved signs or other approved notices or markings that include the words NO PARKING—FIRE LANE shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. The means by which fire lanes are designated shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.

IFC 503.4.1. Traffic calming devices shall be prohibited unless approved by the fire code official.

IFC 504.1 Exterior doors and openings required by this code or the International Building Code shall be maintained readily accessible for emergency access by the fire department. An approved access walkway leading from fire apparatus access roads to exterior openings shall be provided when required by the fire code official.

IFC 507.5.1 Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400 feet (122 m) from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the fire code official.

Exceptions:

1. For Group R-3 and Group U occupancies, the distance requirement shall be 600 feet (183 m).

2. For buildings equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the distance requirement shall be 600 feet (183 m).

IFC D103.4 Dead-end fire apparatus access roads in excess of 150 feet (45 720 mm) shall be provided with width and turnaround provisions in accordance with Table D103.4.

IFC D105.1 Where the vertical distance between the grade plane and the highest roof surface exceeds 30 feet (9144 mm), approved aerial fire apparatus access roads shall be provided. For purposes of this section, the highest roof surface

shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is greater.

IFC D105.2 Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet (7925 mm), exclusive of shoulders, in the immediate vicinity of the building or portion thereof.

IFC D105.3 At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet (4572 mm) and a maximum of 30 feet (9144 mm) from the building and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial fire apparatus access road is positioned shall be approved by the fire code official.

IFC D106.1 Multiple-family residential projects having more than 100 dwelling units shall be equipped throughout with two separate and approved fire apparatus access roads. Exception: Projects having up to 200 dwelling units may have a single approved fire apparatus access road when all buildings, including nonresidential occupancies, are equipped throughout with approved automatic sprinkler systems installed in accordance with Section 903.3.1.1 or 903.3.1.2.

VOM 26-146 (a) Required. Newly constructed commercial buildings and residential buildings containing three or more dwelling units, or when access to or within a structure or an area is unduly difficult because of secured openings or where immediate access is necessary for lifesaving or firefighting purposes, the Fire/EMS Chief may require that a key box be installed in an accessible location. The key box shall be a type approved by the Fire and Emergency Medical Services Department and shall contain those keys found to be necessary to provide emergency access.

VOM 26-176 Where the Village water system is available, and any portion of a commercial or industrial building containing 7,000 square feet or more of gross interior area, or a residential building containing more than two dwelling units and containing 7,000 square feet or more of gross interior area, is set back more than 300 feet from the centerline of the nearest abutting public right-of-way, the

owner shall install approved fire hydrants at such owner's expense. The set back distances shall be determined by measuring the travel distance from a municipal hydrant along the centerline of a municipal street or private road suitable for travel by fire apparatus.

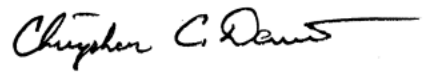
VOM 26-177 (a) One hydrant shall be located at the main entryway to such building or complex. Additional hydrants shall be provided around the perimeter of the building or complex so that no hydrant is more than 400 feet from any other approved hydrant as described in Section 26-176.

VOM 26-181 Fire hydrants shall be marked with the curb painted yellow. The curb shall be painted to produce a 20-foot stripe extending ten feet to each side of the hydrant. Areas without curbs shall have a four inch wide yellow stripe placed on the pavement.

The following items should be noted to assist in the project being completed smoothly and in a timely fashion:

- Village of McFarland is a delegated agent for the State of Wisconsin to perform fire protection and fire alarm systems reviews.
- Before the installation of any fire protection system a work permit is required to be issued by McFarland Fire & Rescue.
- Fire protection and fire alarm system reviews require the submission of architectural plans and would the owner to submit on behalf of the sprinkler and fire alarm contractors.
- Any privately owned piping including underground mains and laterals that are associated with or supply fire sprinkler systems require to be reviewed and inspected by McFarland Fire & Rescue before being concealed by building finishes or ground.
- Approval of the fire sprinkler system will require a flow test witnessed by McFarland Fire & Rescue within 1 year prior to the submission of plans for approval.
- The display of addresses for Lots 1, 10 and 11 may require additional signage at Devil's Lake Way. We would recommend reviewing with building inspection and McFarland Fire & Rescue Department before requesting occupancy inspections.

Sincerely,

A handwritten signature in black ink, reading "Christopher C. Dennis". The signature is fluid and cursive, with a long horizontal stroke extending from the end.

Christopher C. Dennis, Chief
Fire & Rescue Department
Village of McFarland

CC:
McFarland Fire & Rescue Department Prevention

May 12, 2025

Re: Design Review of Lakestone Properties Sperle Corners Proposed Development

We completed our review of the site/design plan of the Lakestone Properties Sperle Corners Proposed Development dated 4/8/2025. We recognize that the project is still developing and not all items are fully designed and documented. Below is a list of items that we noted that aren't displaying compliance with applicable codes or should be considered during the design of the project.

- Sheet 16 of 17 indicates a typical roadway cross-section of 32' F-F (inclusive of curb) and plans show 24' roadway exclusive of curb. 24' roadways would eliminate on street parking. Note aerial fire apparatus roads (buildings exceeding 30' in height) or within 20' of a fire hydrant location require 26' roadway exclusive of curbs. **30' tall buildings along Devils Lake Way are not anticipated. The typical roadway cross section on sheet 16 has been modified to indicate 28' face of curb to face of curb dimension.**
- Any curb area within 20' of fire hydrant will be required to be signed as no parking. The curb shall be painted to produce a 20-foot stripe extending ten feet to each side of the hydrant. Areas without curbs shall have a four-inch-wide yellow stripe placed on the pavement. **Understood.**
- The buildings on Lot 44**18** may require aerial access if the eave is 30' above the ground plane. If aerial access is required, the fire department access will need to be increased to 26'. **Understood. This detail will be reviewed during the phase 1 apartments detailed submittal.**
- The traffic calming devices (speed bumps) are required to be approved by the fire code official and will be required to be submitted. Speed bumps will not be accepted, and any traffic calming must comply with the following:
 - o Maintain angle of approach or departure for fire apparatus to be 8 degrees or less. (NFPA 1901 12.3.2.2)
 - o Height less than 8" (NFPA 1901 12.3.2.2)

Understood. This detail will be reviewed during the phase 1 apartments detailed submittal.

- The four-unit building on Lot 40~~17~~¹⁸ will be required to be provided with an automatic fire sprinkler system. The riser will need to be readily accessible and not located within an individual unit. Additionally, the current access to the building doesn't comply with the 150' hose pull requirement of the IFC. **The water service to the four unit lots have been revised to be 6" to accommodate fire sprinkler systems.**
- While reviewing the buildings on Lots 1 and 44~~18~~¹⁸ we are assuming access for the 150' hose pull will be available from Elvehjem Road and County Highway AB. The percentage of grade of the east of Lot 9 appears to be significant and may not support access to the building. **The Fire Lane Plan has been prepared and includes fire lanes and hose lengths.**
- When considering the Lot 44~~18~~¹⁸ units as a multi-family development the IFC requires (2) separate access roads unless all buildings are equipped with approved automatic fire sprinkler systems. It would be preferable to add a second access road to Elvehjem between the (37) unit and (40) unit apartment buildings. If not added, any building on the lot will require approved automatic fire sprinklers including a shed or an accessory building that is constructed in the future. **The buildings will be designed with automatic fire sprinklers.**
- Lot 44~~18~~¹⁸ will require an additional fire hydrant to comply with the Village of McFarland ordinance. The preferred location of the hydrant would be on the north side where no stalls are indicated and east of Outlot 2. To avoid a dead-end hydrant, we would recommend providing water from the additional main to one or two of the apartment buildings. **An additional hydrant and private water main has been added to Lot 18 as shown on the revised General Development Plan.**
- The required turning radius for fire department access roads is 28' for turns greater than 60 degrees and 26' for turns of 60 degrees and less (Based on IFC figure D103.1). The entrances to Lot 1 and Lot 44~~18~~¹⁸ don't appear to meet the requirement. **The entrances have been revised and the Fire Lane Plan includes fire lanes with 28' turning radius.**
- The fire department access road for Lot 1 appears to exceed 150' and if it exceeds 150' it will require an approved turnaround. **The Fire Lane Plan includes fire lanes and 150' hose lengths.**
- Any buildings with 3 units or more will require a Knox key box. It is encouraged to provide Knox key boxes on all buildings and especially any buildings that are rented. **Understood.**

- The buildings will need to comply with IFC section 510 for emergency responder radio coverage. **Understood.**

Code sections for reference:

SPS 362.0903 (5)(a) Except as provided in pars. (b) to (cm), an automatic sprinkler system installed in accordance with IBC section 903.3 shall be provided throughout all buildings with a Group R fire area.

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IFC 503.2.1 Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm).

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Exceptions:

1. For Group R-3 and Group U occupancies, the distance requirement shall be 600 feet (183 m).

2. For buildings equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the distance requirement shall be 600 feet (183 m).

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shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is greater.

IFC D105.2 Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet (7925 mm), exclusive of shoulders, in the immediate vicinity of the building or portion thereof.

IFC D105.3 At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet (4572 mm) and a maximum of 30 feet (9144 mm) from the building and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial fire apparatus access road is positioned shall be approved by the fire code official.

IFC D106.1 Multiple-family residential projects having more than 100 dwelling units shall be equipped throughout with two separate and approved fire apparatus access roads. Exception: Projects having up to 200 dwelling units may have a single approved fire apparatus access road when all buildings, including nonresidential occupancies, are equipped throughout with approved automatic sprinkler systems installed in accordance with Section 903.3.1.1 or 903.3.1.2.

VOM 26-146 (a) Required. Newly constructed commercial buildings and residential buildings containing three or more dwelling units, or when access to or within a structure or an area is unduly difficult because of secured openings or where immediate access is necessary for lifesaving or firefighting purposes, the Fire/EMS Chief may require that a key box be installed in an accessible location. The key box shall be a type approved by the Fire and Emergency Medical Services Department and shall contain those keys found to be necessary to provide emergency access.

VOM 26-176 Where the Village water system is available, and any portion of a commercial or industrial building containing 7,000 square feet or more of gross interior area, or a residential building containing more than two dwelling units and containing 7,000 square feet or more of gross interior area, is set back more than 300 feet from the centerline of the nearest abutting public right-of-way, the

owner shall install approved fire hydrants at such owner's expense. The set back distances shall be determined by measuring the travel distance from a municipal hydrant along the centerline of a municipal street or private road suitable for travel by fire apparatus.

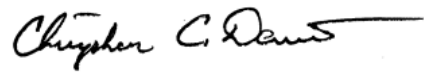
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The following items should be noted to assist in the project being completed smoothly and in a timely fashion:

- Village of McFarland is a delegated agent for the State of Wisconsin to perform fire protection and fire alarm systems reviews.
- Before the installation of any fire protection system a work permit is required to be issued by McFarland Fire & Rescue.
- Fire protection and fire alarm system reviews require the submission of architectural plans and would the owner to submit on behalf of the sprinkler and fire alarm contractors.
- Any privately owned piping including underground mains and laterals that are associated with or supply fire sprinkler systems require to be reviewed and inspected by McFarland Fire & Rescue before being concealed by building finishes or ground.
- Approval of the fire sprinkler system will require a flow test witnessed by McFarland Fire & Rescue within 1 year prior to the submission of plans for approval.
- The display of addresses for Lots 1, 4017 and 4418 may require additional signage at Devil's Lake Way. We would recommend reviewing with building inspection and McFarland Fire & Rescue Department before requesting occupancy inspections.

Sincerely,

A handwritten signature in black ink, reading "Christopher C. Dennis". The signature is fluid and cursive, with a long horizontal stroke extending from the end.

Christopher C. Dennis, Chief
Fire & Rescue Department
Village of McFarland

CC:

McFarland Fire & Rescue Department Prevention

June 12, 2025

Mr. Andrew Bremer, AICP
Community & Economic Development Director
Village of McFarland
5915 Milwaukee Street
P.O. Box 110
McFarland, WI 53558

Subject: Sperle Corners Development – General Development Plan Submittal Review

Dear Andrew:

We have received the proposed General Development Plan submittal dated June 6, 2025 for Sperle Corners, a proposed new residential development north of Elvehjem Road and west of CTH AB, south of an existing multi-use trail, and east of some existing residential areas on Perrot Place. The preliminary plat, plans, and stormwater management report have been reviewed from a public works perspective. Our comments are shown below, organized by the appropriate document and/or drawing sheet number.

Preliminary Engineering Plans

All Sheets

- Village standard bury depth for water main is 7 feet of cover.

Sheet 6

- It appears that the eastern wetland/ditch is now isolated. We suggest either adjusting grading to allow it to flow south or adding a short piece of storm sewer and connecting it to Inlet #8.

Sheet 16

- The proposed street cross-section and plan sheets now show a consistent 28-foot width. There are some concerns that even with one-sided parking that fire apparatus may not be able to maneuver through the layout. We recommend either providing a 32-foot width, or an exhibit showing the turning movements with parked cars which can be reviewed by the Fire Department and Public Works Department and approved by the Village.

Preliminary Plat

We recommend that common utility and stormwater easements be provided along all side and rear lot lines as part of the final plat (not necessary for the preliminary plat).

Preliminary Stormwater Management Plan

The stormwater management design as proposed will meet the Village, County, and State performance standards, however there are several important items that will be needed prior to recommending Village approval:

- An plan view of the site showing the extent of overland water flow during a 200-year storm (assuming all inlets are plugged) must be provided to ensure water does not enter private properties.
- All surface flows on grass areas should be at least 0.75% slope, and/or be provided with a structural bottom (concrete, open pavers, etc.).

Please feel free to contact us with any questions or comments regarding this review.

Very truly yours,
TOWN & COUNTRY ENGINEERING, INC.



Brian R. Berquist, P.E.
President

cc: Mr. Lee Igl, Director of Public Works, Village of McFarland (*via email*)

Mr. Matthew Schuenke, Administrator, Village of McFarland (*via email*)

Mr. Ryan Quam, Quam Engineering (*via email*)

BRB:sai

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May 14, 2025

Mr. Andrew Bremer, AICP
Community & Economic Development Director
Village of McFarland
5915 Milwaukee Street
P.O. Box 110
McFarland, WI 53558

Subject: Sperle Corners Development – Preliminary Plat Submittal Review

Dear Andrew:

We have received the proposed plans included in the April 8, 2025 Preliminary Plat Submittal for Sperle Corners, a proposed new residential development north of Elvehjem Road and west of CTH AB, south of an existing multi-use trail, and east of some existing residential areas on Perrot Place. The preliminary plat, plans, and stormwater management report have been reviewed from a public works perspective. Our comments are shown below, organized by the appropriate document and/or drawing sheet number.

Many of these comments can be conditions of approval and addressed at future stages of the project, but we thought it important to identify them now.

General Items

The project will connect to existing water mains along Devil's Lake Way and Elvehjem Road. Sanitary sewer service will be provided by the existing sewer along Elvehjem Road. Supplemental sanitary sewer service is also available via stubs of pipe constructed in 2020 just north of the subject property. We do recommend that these utilities also be extended to the edges of the project to accommodate future developments (as has been Village practice).

We are also recommending that the main along Elvehjem Road be upsized to continue that trunk line of the Village system to the east and CTH AB.

Preliminary Engineering Plans

Sheet 5

The 200-year water level should be shown and labeled on the pond cross section. **The cross section has been updated.**

Sheet 6

Combining the two culverts under the roadway should be explored to reduce future maintenance and replacement costs. **The east culvert has been removed.**

Sheet 7

The two buildings shown on Lot 1 should share a private water line lateral to correspond with the private sewer line already shown. Both should be labelled as “private.” The label has been changed to “Private --- Main”

Sheet 8

All storm sewers that will be dedicated to the Village should be reinforced concrete pipe. The storm sewers have been relabeled to be “RCP”.

Sheet 12

The proposed sidewalk or path along CTH AB should be shown extending north to the edge of the plat. The proposed path has been extended. It is labeled on the Sheet C-11 as “Future 8’ Asphalt Path (Design & Construction by others)”.

An additional fire hydrant will be needed for Lot 11 to provide adequate fire protection for those buildings. The additional private hydrant has been added and is shown on the General Development Plan. The hydrant details will be included on the future Site Plan submittal for the phase 1 apartments building.

Sheet 16

The proposed street cross-section shows a 32-foot width, matching Village standard. This does not match the 28-foot width shown on the plan sheets. This would eliminate the ability for parking along both sides, and should be reviewed by the Fire Department and Public Works Department and approved by the Village. The proposed street cross section has been revised to indicate 28-foot width face to face to be consistent with the initial meeting discussion with Village staff.

Preliminary Plat

We recommend that common utility and stormwater easements be provided along all side and rear lot lines. Common Utility and Stormwater easements can be provided and are typically shown on the Final Plat which will be recorded. Note that a 40’ radius has been added at the southeast corner of the plat to accommodate a future CTH AB southbound right turn lane, Type County D.O.T. B-2 intersection, and bike path radius. The plat boundary radius and future bike path are shown on the Overall Grading and Stormwater Management Plan.

The additional dedication of 2 feet of right-of-way along CTH AB and Elvehjem is noted. This matches the other recent plats to the west and north, Rosewood Field to the north and Park View Estates to the south. We concur an eventual 70-foot total right-of-way is appropriate. Note that there is an additional dedication of 7 feet of right-of-way along CTH AB and 2 feet of right-of-way along Elvehjem.

Preliminary Stormwater Management Plan

The stormwater management design as proposed will meet the Village, County, and State performance standards, however there are several important items that will be needed prior to recommending Village approval:

Inlet sizing/spacing calculations must be provided to ensure the street surface is not inundated. An inlet spacing worksheet has been prepared.

An exhibit showing the extent of overland water flow during a 100-year storm with all storm sewers plugged must be provided to ensure water does not enter private properties. The proposed drainage plan includes more information about the overflow paths of runoff.

Calculations must be provided for the final pond designs to demonstrate that the water levels in the 100-year storm are at least 2 feet below all existing and future building openings. The 100-year in the west pond is 860.83. Minimum Lowest

Opening (MLO) elevations have been added to the Overall Grading and Storm Water Management Plan to be over 2' above the 100 year flood elevation and/or 0.42' above the Devils Lake Way Overflow.

All surface flows on grass areas should be at least 0.75% slope, and/or be provided with a structural bottom (concrete, open pavers, etc.). The phase 1 temporary ditch along Elvehjem Road is designed to be as shallow as 0.62% as required to accommodate a ditch along a very flat road and with limited right-of-way space.

Please feel free to contact us with any questions or comments regarding this review.

Very truly yours,
TOWN & COUNTRY ENGINEERING, INC.



Brian R. Berquist, P.E.
President

cc: Mr. Lee Igl, Director of Public Works, Village of McFarland (via email)

Mr. Matthew Schuenke, Administrator, Village of McFarland (via email)

Mr. Ryan Quam, Quam Engineering (via email)

BRB:sai

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From: [Jackie Hammond](#)
To: [Andrew Bremer](#)
Cc: [Stephanie Brassington](#)
Subject: Lakestone Development AB/Elv
Date: Monday, May 19, 2025 3:31:44 PM

Good afternoon-

I am sending you this email in regards to the Plan Commission meeting tomorrow, 5/20 @7pm. I was able to review the new Lakestone Development proposal for this intersection. Brett was out when I called last week, but I did leave a message for him with Brooke to let him know I would forward comments in support.

If my comments regarding this item can be read-in during the planning commission meeting simply by emailing you and having one of you read it, either as the Village Planner or Chair, I would appreciate it. Otherwise I can log-in tomorrow before the meeting and type it in the form. Please just let me know.

Jackie Hammond, 6060 Perrot Place

I am registering in support of Lakestone Properties latest proposal for the parcel located at the corner of Hwy AB and Elvehjem Road. As someone who has given feedback on this parcel in the past, I appreciate Brett and Brian for listening to our concerns. This improved design includes more condos or other options for ownership to build equity, which is the kind of change we were hoping for in the plan.

We appreciate Lakestone for hearing our concerns, and look forward to further conversations. Thank you!

Again, please just let me know if you need me to copy it into the form tomorrow.
Thank you & Stay safe! Best, Jackie

Sent from my iPhone

Members of The Village of McFarland Planning Commission,

I am writing to you today in support of Lakestone Properties rezone and preliminary plat request for the proposed Sperle Corners development located along Elvehjem Road and County Hwy Ab.

The Sperle family has owned this land since May of 1883. The 18 acres under consideration is a small portion of our original farm. For the past 142 years we have cared for this land, actively farming and maintaining it to the best of our abilities. In 2005 my Grandfather, Richard Sperle, a man who lived his entire life on this farm, had the parcel in question annexed into the Village of McFarland. It was his wish that this parcel be sold and someday developed as part of the McFarland Eastside Development Plan.

Neither my Grandfather, my Mother, or my Aunt have actively listed this property since it was first annexed. Various developers have approached our family regarding purchasing/developing this parcel, however in many cases we felt they were either not serious or we didn't get a good feeling about the direction they intended to go. For one reason or another we chose to walk away from these parties. Lakestone Properties, specifically Brian Spanos and Brett Rieman, couldn't be more different. We began considering a serious offer from Lakestone Properties shortly before the COVID 19 pandemic. Lakestone Properties felt it wouldn't be prudent to proceed given the economic conditions at that particular time. Our conversations with Lakestone Properties continued on and off for the next few years, and they were always honest and considerate. From the very start they valued our opinions and took our concerns to heart. It means a great deal to us that their business is based here in McFarland. It is also very important to our family that whatever is built on this site be properly maintained and cared for in the years to come. The fact that all Lakestone Properties are designed, developed, built, owned, and managed by Brian and Brett gives us great peace of mind. In our opinion they have continued their due diligence by completing both a storm water management plan and traffic study so very early on in the planning process.

My three daughters are the sixth generation of our family to occupy the farmhouse at the corner of Elvehjem Road and County Hwy Ab. We are situated directly across from what will become Sperle Corners. Our outbuildings are filled with the relics of generations past. The fields that family and friends have worked countless times greet us daily. It is the kind of grounded belonging that most people in today's modern society will never fully grasp. To say that we are attached to this place and very protective of what we have is a gross understatement.

We trust Lakestone Properties to care for this parcel not only today but in the years to come. If we didn't fully believe in that statement we wouldn't have agreed to this sale.

Respectfully submitted,

Nate Kirch
C/o Sperle Farms
2891 County Hwy Ab
McFarland, WI 53558
(608) 354.8486
kirch.nate@gmail.com



Cc: Andrew Bremer - Community & Economic Development Director, Village of McFarland
Cc: Mary Teppo - Trustee, Sperle Family Trust
Cc: Diana Sperle - Trustee, Sperle Family Trust

VILLAGE OF
McFarland
SUMMARY SHEET

MEETING DATE: Tuesday, June 17, 2025

SECTION: Business

DEPARTMENT: Community Development

CONTACT: Andrew Bremer, Comm & Eco Dev Director, Kong Thao, Associate Planner

AGENDA ITEM: Discussion and action to make a recommendation to the Village Board regarding Sperle Corners, a preliminary plat submitted by Lakestone Properties for a proposed 147-unit residential subdivision at the northwest intersection of Elvehjem Road and CTH AB, parcel #061002496911.

PREVIOUS ACTION:

January 21, 2025 - Plan Commission preapplication meeting #1

February 19, 2025 - Plan Commission preapplication meeting #2

February 26, 2025 - Lakestone Properties held their own neighborhood meeting at the Municipal Center

March 18, 2025 - Plan Commission preapplication meeting #3

May 20, 2025 - Plan Commission held public hearing on request for rezone and preliminary plat review.

ISSUE SUMMARY:

Lakestone Properties are requesting approval of a Preliminary Plat at the northwest intersection of Elvehjem Road and County Hwy AB, to be named Sperle Corners, for a proposed 147-unit residential subdivision. The preliminary plat divides the single 17.9 acre property into eighteen proposed residential lots and two outlots. Refer to agenda item 4.a for additional background information on the request for rezone and proposed Planned Development - General Plan.

Sec. 56-37 Review Procedures for Preliminary Plat Applications

The division of property into five or more lots is called a subdivision and requires approval of a Preliminary Plan and a Final Plat. The requirements for review and approval of plats are defined within [Chapter 56](#) of the Municipal Code. Similar to approvals of Planned Development zoning, plats are approved in a two-stage process, progressing from general to more detailed information within each stage. The Preliminary Plat includes a survey of the property, including existing utilities and topography and the location and dimensions of proposed lots, outlots, and public right-of-way. Once a Preliminary Plat is submitted to the Village, the Plan Commission is required to hold a public hearing on the Preliminary Plat and provide a recommendation to the Village Board. Under state law, the Plan Commission is required to provide a recommendation within 60 days of submittal of the Preliminary Plat (by June 7), unless the time is extended by agreement with the subdivider. The Plan Commission held a public hearing for the Preliminary Plat at the May 20th meeting. A recommendation by the Plan Commission is expected at the



June 17th regular Plan Commission meeting. Lakestone has agreed to extend the 60-day review period through June 17th. Under state law, the Village Board is required to consider approval of the Preliminary Plat within 90 days of submittal (by July 7). Assuming the Plan Commission provides a recommendation at the June 17th meeting, the Village Board will consider approval at their June 24th meeting, unless the time is extended by agreement with the subdivider. Under state law, failure of the Village Board to act within 90 days or extension thereof shall constitute an approval of the Preliminary Plat, unless other authorized agencies object to the plat.

Objecting Agencies include state or county agencies that have authority to object to plats consistent with their review authority. In the case of the Sperle Corners Preliminary Plat, this includes the Wisconsin Department of Administration, which reviews the plats for compliance with the statutory surveying and layout requirements, and Dane County, which has the plat abut a Dane County highway. The Objecting Agencies do not have the authority to approve the plat, only the Village is the Approving Authority; however the Objecting Authorities have 20 days from when they receive the Preliminary Plat to provide the subdivider and any agency having authority to object of any objections to the Preliminary Plat based on failure to comply with a specific statute or rule which its examination is authorized to cover. If the Preliminary Plat is approved by the Village Board, the subdivider has 24 months from the date of approval of the Preliminary Plat to submit the Final Plat for approval.

Sec. 56-69 Technical Requirements For Preliminary Plats

The Applicant's submittal includes a request for a rezone and a preliminary plat. Staff's review of the standards within this section of the Municipal Code for a Preliminary Plat have been satisfied. Further standards within Sec. 56-70 will need to be satisfied for the Final Plat when the project progresses further. Additional accuracy and recording of the plat's detail are required for a Final Plat.

Department Head Comments

Refer to staff comments within agenda Item 4.a.

Public Comments

The Department did not receive any written comments or concerns prior to the publication of this packet in addition to those previously provided at the May 20th public hearing.

Next Steps

The Plan Commission held the public hearing on the agenda item at the May 20, 2025 regular meeting to discuss the requested rezone for PD General Development Plan and Preliminary Plat for both applications. The Plan Commission is to consider a recommendation for Village Board consideration at their June 24th meeting. Assuming the project progresses further, the following additional official zoning applications will be required. There is no specific timeline for submittal of official applications at this time.

- PD Detailed Plan Approval (similar to a Site Design Review Permit). Requires a public hearing and approval by the Plan Commission.
- Final Plat. The division of land into five or more lots requires approval of a Preliminary and Final Plat. A preliminary plat was submitted and a Final plat is still required. If the preliminary plan is approved, the final plat requires Plan Commission recommendation



and Village Board approval. The Final Plat does not require a public hearing by the Plan Commission.

- Development Agreement. To be included as part of the Final Plat approval process.

FINANCIAL/BUDGET IMPACT:

The developer would be responsible for all project costs, including payment of applicable building permit and impact fees. Refer to agenda Item 4.a for more information.

VILLAGE PLAN REFERENCE:

Refer to agenda Item 4.a for more information.

ORDINANCE REFERENCE:

Chapter 56. Subdivisions

BOARD, COMMISSION OR COMMITTEE RECOMMENDATION:

Recommended motion:

Motion, and second, to make a recommendation to the Village Board to approve Sperle Corners, a preliminary plat submitted by Lakestone Properties for a proposed 147-unit residential subdivision at the northwest intersection of Elvehjem Road and CTH AB, parcel #061002496911, conditioned on the following:

- 1. Lakestone to include a note on the Final Plat noting the grading and development restrictions in the 75' wetland setback area.*
- 2. Lakestone shall have 24 months after the date of approval of the Preliminary Plat to file the Final Plat for review and approval by the Village Board, otherwise the Preliminary Plat will be considered void unless an extension is requested in writing and granted by the Village prior to the 24 month termination date.*
- 3. The applicant to address the Village Fire Chief's comments included in the letter dated June 12, 2025 as part of the Planned Development Detailed Plan or Final Plat as applicable.*
- 4. The applicant to address the Village Engineer's comments included in the letter dated June 12, 2025 as part of the Planned Development Detailed Plan or Final Plat as applicable.*
- 5. Concurrent with the Final Plat, review and approval of a development agreement between Lakestone and the Village.*

ATTACHMENTS:

1. 5.20.25 - Preliminary plat - Sperle Corners - Lakestone
2. Sperle Corners - Preliminary Plat_06-06-25
3. Sperle Corners GDP - Village Engineer Letter of Review_06.12.2025
4. Sperle Corners GDP - Fire Chief Letter of Review_06.12.2025

Please publish in the
Leader Independent on
May 1, 2025 and May 8, 2025

**VILLAGE OF MCFARLAND
NOTICE OF PUBLIC HEARING
BEFORE THE PLAN COMMISSION**

NOTICE IS HEREBY GIVEN that there will be a Public Hearing before the Plan Commission on Tuesday May 20, 2025, at 7:00 p.m. in the Community Room of the Municipal Center, 5915 Milwaukee St., McFarland, Wisconsin, at which time interested parties and citizens shall have an opportunity to be heard concerning the following:

A request by Lakestone Properties and Management LLC regarding a Preliminary Plat for Sperle Corners Subdivision, lands located at the northwest corner of Elvehjem Road and County Highway AB, Parcel #154/0610-024-9691-1, Village of McFarland, WI.

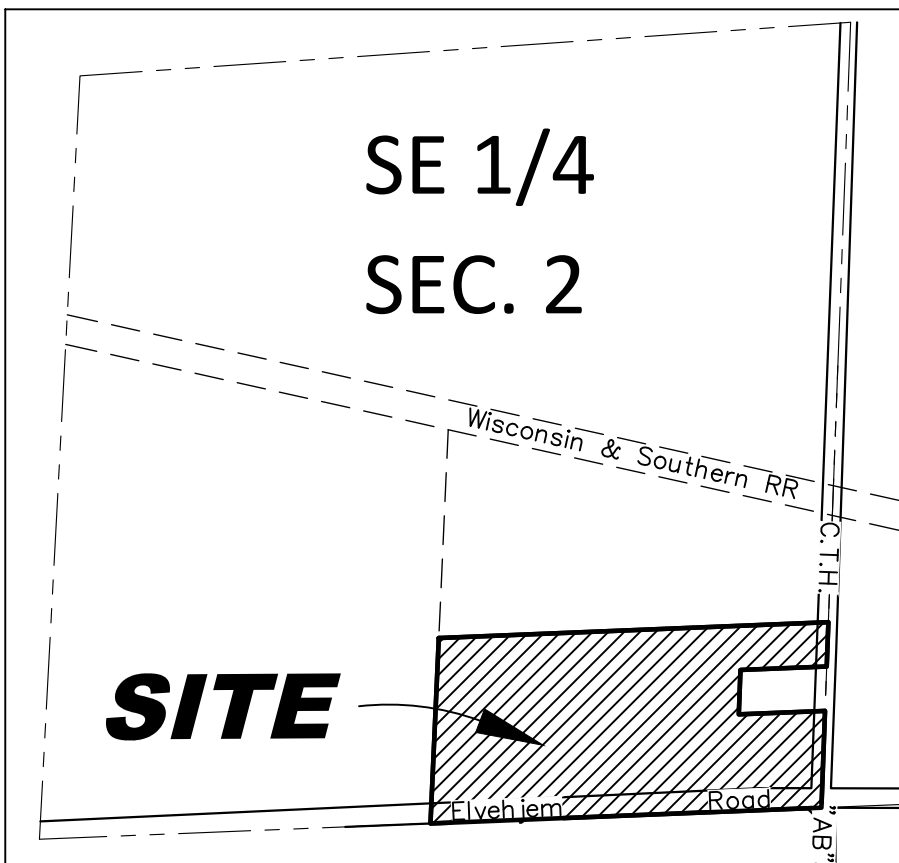
A complete copy of the applicant's application is available for review online at www.mcfarland.wi.us/pendingrequests or at the Village of McFarland Municipal Center, Community & Economic Development Department, 5915 Milwaukee Street, McFarland, WI 53558 (Monday-Friday, 8:00 a.m. to 4:30 p.m.).

Residents wishing to attend the meeting can do so in-person at the Municipal Center or via Zoom by visiting <https://us02web.zoom.us/j/85755749643> or Telephone: Dial (for higher quality, dial a number based on your current location): US: +1 (312) 626-6799 Webinar ID: 857 5574 9643. Please Note: Virtual attendance is offered as a convenience, but technical difficulties beyond the Village's control may prevent or limit its availability at any meeting. The public is encouraged to attend the meeting in person to assure full access to the proceedings.

If you cannot attend the meeting, you may submit your written comments to the Plan Commission by email to community.development@mcfarland.wi.us or by mail to Community Development Department, Village of McFarland, P.O. Box 110, McFarland, WI 53558-0110. Submission must be received no later than the Wednesday prior to the meeting date to be included in the packet.

SPERLE CORNERS

Part of the SE 1/4 of the SE 1/4 of Section 2, Township 6 North, Range 10 East, Village of McFarland, Dane County, Wisconsin
PRELIMINARY PLAT



Vicinity Map

Not to Scale

Legal Description:

A part of the Southeast one-quarter of the Southeast one-quarter of Section 2, Township 6 North, Range 10 East, Village of McFarland, Dane County, Wisconsin, being more particularly described as follows:

BEGINNING at the Southeast Corner of said Section 2; thence, along the South line of said Southeast 1/4, South 87°41'38" West, 1321.53 feet to the Southwest corner of said Southeast 1/4 of the Southeast 1/4, said point also being the Southeast corner of the plat of Park View Estates, recorded in Volume 57 of Plats on Pages 782 through 785 as Document No. 3459436; thence, along the East line of said plat, North 02°34'49" East, 626.90 feet to the Southwest corner of Lot 3 of Certified Survey Map (CSM) No. 15493, recorded in Volume 111 of CSMs on Pages 284 through 286 as Document No. 5637506;

thence, along the South line of said CSM and its Easterly extension, North 87°40'27" East, 1316.58 feet to the Southeast corner of said CSM, lying on the East line of aforesaid Southeast one-quarter;

thence, along said East line, South 02°07'34" East, 149.72 feet to the Northeast corner of Lot 1 of CSM No. 1455, recorded in Volume 6 of CSMs on Page 144 as Document No. 1400799;

thence, along the North line of last said CSM, South 87°41'15" West, 291.58 feet to the Northwest corner of said Lot 1;

thence, along the West line of said Lot 1, South 02°07'34" West, 150.00 feet to the Southwest corner of said Lot 1;

thence, along the South line of said Lot 1, North 87°41'15" East, 291.58 feet to the Southeast corner of said Lot 1, lying on said East line of the Southeast one-quarter;

thence, along said East line, South 02°07'34" East, 327.23 feet to the **POINT OF BEGINNING**.

The above-described parcel contains 780,586 sq. feet or 17.9198 acres, more or less, and is **SUBJECT TO** easements for Public road right-of-way purposes for Elvehjem Road and County Trunk Highway "AB" and is **ALSO SUBJECT TO** all other matters of record and/or fact.

NOTES:

- See engineering plans and reports submitted concurrently herewith for details of existing and proposed streets, sidewalks, sanitary sewer, water, storm sewer and stormwater management facilities.
- Outlot 1 will be dedicated to the Public for wetland preservation and stormwater management purposes to be owned & maintained by the the Village of McFarland.
- Outlot 2 will be dedicated to the Public for park and recreational purposes to be owned & maintained by the the Village of McFarland.
- All streets will be dedicated to the Public to be owned & maintained by the Village of McFarland.
- Current zoning of the property within this plat is A-1 Agricultural Transition, with portions also being in the Dane County Wetland District (inland & Shoreland) 75' buffer and Shoreland District (Secondary) 1000' buffer.
- Proposed zoning for Lots 1-18 and Outlots 1 and 2 is PD - Planned Development.
- Wetlands shown were digitized from the October 13, 2022 Wetland Delineation Report by Ruekert-Mielke.
- Date of boundary field survey: February 6, 2025.
- See Sheet 2 for Boundary and Lot Survey Details.
- See Sheet 3 for Topographic Survey Details.
- Monuments will be set in accordance with the Final Plat.

SURVEYOR'S CERTIFICATE:

I hereby certify, to the best of my knowledge and belief, that I have surveyed the property shown hereon; that this map represents an accurate survey of said property and that I have complied with the applicable requirements of Wisconsin Administrative Code Chapter A-E 7 and Chapter 56 of the Village of McFarland Subdivision Ordinance.

Dated this 6th day of June, 2025.

C: ____Matt\Matt Sign

By: Matthew E. Hoglund
P.L.S. S-1910



VILLAGE APPROVAL CERTIFICATE:

I hereby certify that this Preliminary Plat of "Sperle Corners" is approved by the Village of McFarland.

Date: _____ By: _____

ENGINEER/SURVEYOR:

Ryan Quam, P.E.
Matthew E. Hoglund, P.L.S.
Quam Engineering, LLC
4604 Siggelkow Road - Suite A
McFarland, WI 53558
Ph: (608) 838-7750

OWNER:

Diana Sperle & Mary Teppo
6027 Canyon Parkway
McFarland, WI 53558

SUBDIVIDER:

Lakestone Properties & Management, LLC
c/o Brian Spanos
5910 Main Street, Suite 1
McFarland, WI 53558
Ph: (608) 838-1800

SHEET 1 OF 3

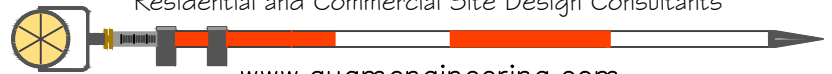
REVISIONS

- 5/13/25 - Added additional zero lot line duplex lots - addressed misc. Village comments.
- 6/6/25 - Added radius to R/W intersection of CTH AB and Elvehjem Road and revised lot dimensions and areas for Lot 18 and Outlot 2 accordingly.

PRELIMINARY PLAT SPERLE CORNERS

PROJECT NO. LS-03-19

QUAM ENGINEERING, LLC
Residential and Commercial Site Design Consultants



www.quamengineering.com

4604 Siggelkow Road, Suite A - McFarland, Wisconsin 53558
Phone (608) 838-7750; Fax (608) 838-7752

There are no objections to this plat with respect to Secs. 236.15, 236.16, 236.20 and 236.21(1) and (2), Wis. Stats. as provided by s. 236.12, Wis. Stats.

Certified _____, 20____

Department of Administration



Part of the SE 1/4 of the SE 1/4 of Section 2, Township 6 North, Range 10 East, Village of McFarland, Dane County, Wisconsin

PRELIMINARY PLAT

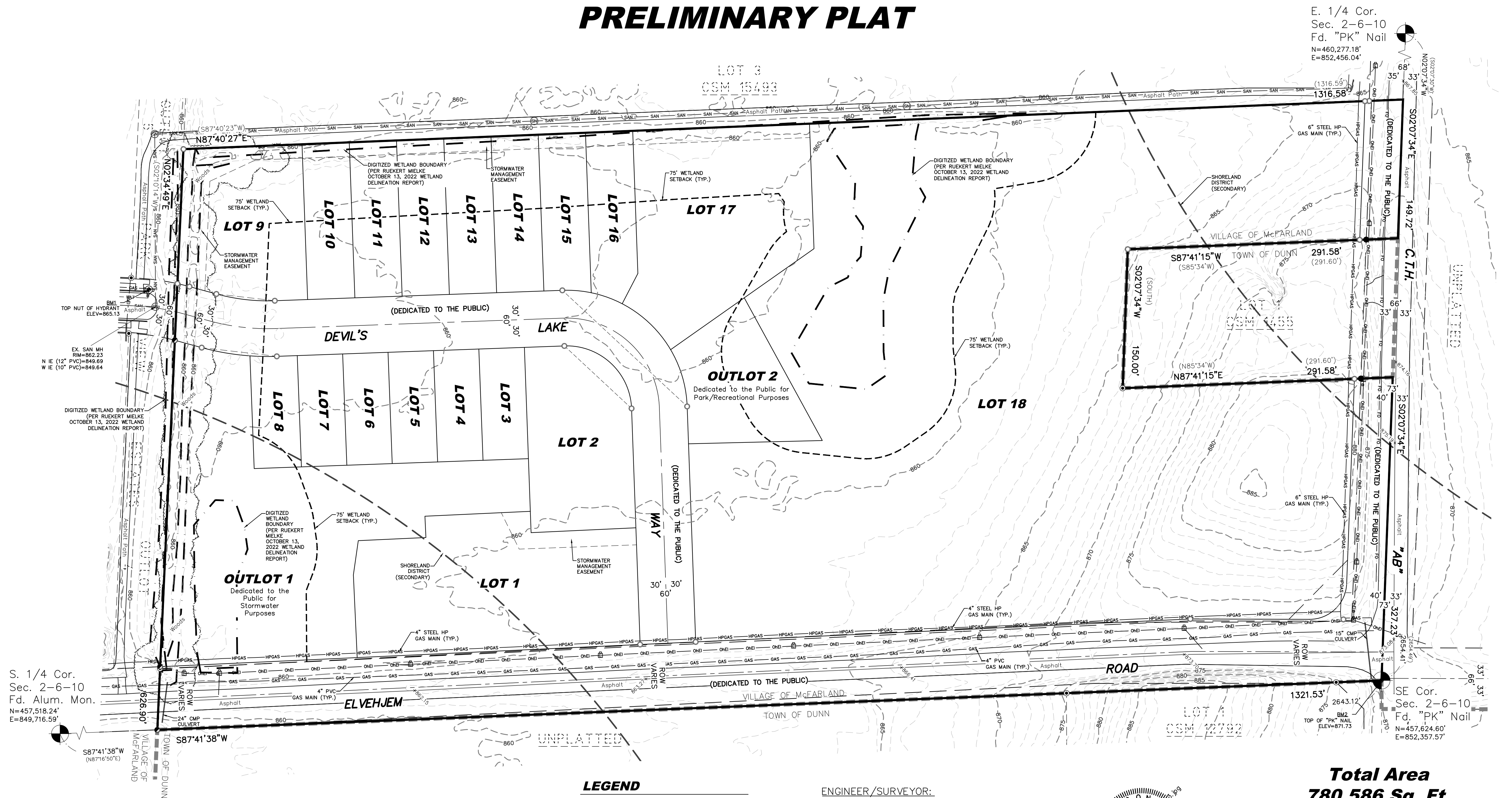
E. 1/4 Cor.
Sec. 2-6-10



SPERLE CORNERS

Part of the SE 1/4 of the SE 1/4 of Section 2, Township 6 North, Range 10 East, Village of McFarland, Dane County, Wisconsin

PRELIMINARY PLAT



LEGEND

- 3/4" Rebar Found
- 1-1/4" Iron Rebar Found
- 1" Iron Pipe Found (unless noted)
- 1-1/4" by 18" Iron Rebar Set Weighing 4.30 lbs./ft.
- All other Lot and Outlot Corners are Set 3/4" by 18" Iron Rebar Weighing 1.50 lbs./ft.
- (43.12') Record Dimensions (if different)
- Boundary Lines per this Survey
- Deed/Survey Line of Record
- Existing R/W Line
- Sectional Subdivision Line
- Existing Easement Line
- Wetland Line
- 75' Wetland Buffer
- Lot or R/W Line
- Centerline
- 20' Wide Public Stormwater Management Easement Line Dedicated Hereon
- Storm Sewer/Stormwater Management Easement Line Dedicated Hereon
- Municipal Boundary

ENGINEER/SURVEYOR:

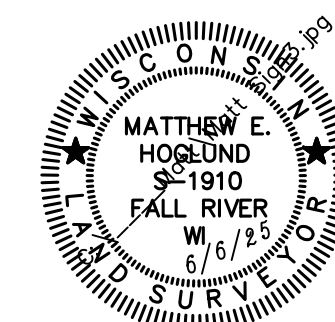
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4604 Siggekow Road - Suite A
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OWNER:

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McFarland, WI 53558

SUBDIVIDER:

Lakestone Properties & Management, LLC
c/o Brian Spanos
5910 Main Street, Suite 1
McFarland, WI 53558
Ph: (608) 838-1800



SEE SHEET 1 FOR NOTES:

There are no objections to this plat with respect to
Secs. 236.15, 236.16, 236.20 and 236.21(1) and (2),
Wis. Stats. as provided by s. 236.12, Wis. Stats.

Certified _____, 20__

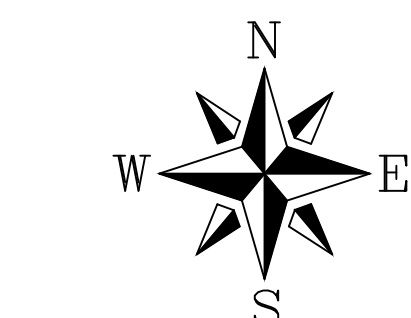
Department of Administration

Total Area
780,586 Sq. Ft.
17.9198 Acres±

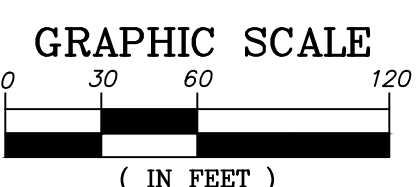
TOPOGRAPHIC
SURVEY DETAILS SHEET 3 OF 3

PRELIMINARY PLAT
SPERLE CORNERS
PROJECT NO. LS-03-19
QUAM ENGINEERING, LLC
Residential and Commercial Site Design Consultants

 www.quamengineering.com
4604 Siggekow Road, Suite A - McFarland, Wisconsin 53558
Phone (608) 838-7750; Fax (608) 838-7752



Bearings are referenced to the
South line of the Southeast
1/4 of Section 2, which bears
S87°41'38"W on the Dane
County Coordinate System -
NAD'83 (2011)



June 12, 2025

Mr. Andrew Bremer, AICP
Community & Economic Development Director
Village of McFarland
5915 Milwaukee Street
P.O. Box 110
McFarland, WI 53558

Subject: Sperle Corners Development – General Development Plan Submittal Review

Dear Andrew:

We have received the proposed General Development Plan submittal dated June 6, 2025 for Sperle Corners, a proposed new residential development north of Elvehjem Road and west of CTH AB, south of an existing multi-use trail, and east of some existing residential areas on Perrot Place. The preliminary plat, plans, and stormwater management report have been reviewed from a public works perspective. Our comments are shown below, organized by the appropriate document and/or drawing sheet number.

Preliminary Engineering Plans

All Sheets

- Village standard bury depth for water main is 7 feet of cover.

Sheet 6

- It appears that the eastern wetland/ditch is now isolated. We suggest either adjusting grading to allow it to flow south or adding a short piece of storm sewer and connecting it to Inlet #8.

Sheet 16

- The proposed street cross-section and plan sheets now show a consistent 28-foot width. There are some concerns that even with one-sided parking that fire apparatus may not be able to maneuver through the layout. We recommend either providing a 32-foot width, or an exhibit showing the turning movements with parked cars which can be reviewed by the Fire Department and Public Works Department and approved by the Village.

Preliminary Plat

We recommend that common utility and stormwater easements be provided along all side and rear lot lines as part of the final plat (not necessary for the preliminary plat).

Preliminary Stormwater Management Plan

The stormwater management design as proposed will meet the Village, County, and State performance standards, however there are several important items that will be needed prior to recommending Village approval:

- An plan view of the site showing the extent of overland water flow during a 200-year storm (assuming all inlets are plugged) must be provided to ensure water does not enter private properties.
- All surface flows on grass areas should be at least 0.75% slope, and/or be provided with a structural bottom (concrete, open pavers, etc.).

Please feel free to contact us with any questions or comments regarding this review.

Very truly yours,
TOWN & COUNTRY ENGINEERING, INC.



Brian R. Berquist, P.E.
President

cc: Mr. Lee Igl, Director of Public Works, Village of McFarland (*via email*)

Mr. Matthew Schuenke, Administrator, Village of McFarland (*via email*)

Mr. Ryan Quam, Quam Engineering (*via email*)

BRB:sai

J:\JOB#S\McFarland\MC-236-M6 Teppo-Sperle Property Review\1. Admin and PM\Review Letter 2.docx

June 12, 2025

Re: Design Review of Lakestone Properties Sperle Corners Proposed Development

We completed our review of exhibit 1 and exhibit fire lane of the Lakestone Properties Sperle Corners Proposed Development dated 6/6/2025.

An important item to note when comparing review comments to plans is comparison of comments to the correct dated plan. Items such as lot numbers have been revised during the revisions of plans and the lot numbers referenced as based on plans noted above.

We recognize that the project is still developing, and not all items are fully designed and documented. Below is a list of items that we noted that aren't displaying compliance with applicable codes or should be considered during the design of the project.

- Sheet 16 of 17 from the plan set dated 4/8/2025 indicates a typical roadway cross-section of 32' F-F (inclusive of curb) and plans show 24' roadway exclusive of curb and 28' F-F (inclusive of curb). 24' roadways would eliminate on street parking. Note aerial fire apparatus roads (buildings exceeding 30' in height) or within 20' of a fire hydrant location require 26' roadway exclusive of curbs. The engineer's response is indicating that the roadway will be reduced to 24' exclusive of curbs, which will restrict street parking.
- Any curb area within 20' of fire hydrant will be required to be signed as no parking. The curb shall be painted to produce a 20-foot stripe extending ten feet to each side of the hydrant. Areas without curbs shall have a four-inch-wide yellow stripe placed on the pavement.
- The buildings on Lot 18 (Lot 11 on 4/8 plans) may require aerial access if the eave is 30' above the ground plane. If aerial access is required, the fire department access will need to be increased to 26'

- The traffic calming devices (speed bumps) are required to be approved by the fire code official and will be required to be submitted. Speed bumps will not be accepted, and any traffic calming must comply with the following:
 - Maintain angle of approach or departure for fire apparatus to be 8 degrees or less. (NFPA 1901 12.3.2.2)
 - Height less than 8" (NFPA 1901 12.3.2.2)
- When considering the Lot 18 (Lot 11 on 4/8 plans) units as a multi-family development the IFC requires (2) separate access roads unless all buildings are equipped with approved automatic fire sprinkler systems. It would be preferable to add a second access road to Elvehjem between the (37) unit and (40) unit apartment buildings. If not added, any building on the lot will require approved automatic fire sprinklers including a shed or an accessory building that is constructed in the future.
- The required turning radius for fire department access roads is 28' for turns greater than 60 degrees and 26' for turns of 60 degrees and less (Based on IFC figure D103.1) with a 20' access roadway exclusive of curbs. The fire lane exhibit utilizes curbs to obtain the required turning radius and is not in compliance.
- The fire department access road indicated for Lot 1 exceeds 150' and would require an approved turnaround. Additionally, the access road appears to narrow to 18' after the eastern garage driveways on the east four-unit building. It does appear the access road could be reduced to a length of 125' and widen to 20' EXCLUSIVE of curbs and comply without a turn around.
- Any building with 3 units or more will require an automatic fire sprinkler system and Knox key box. It is encouraged to provide Knox key boxes on all buildings and especially any buildings that are rented. The plans have not included floor plans for buildings, and it is understood that the floorplans more than likely haven't been developed. It should be noted though that any building with a fire sprinkler will require a riser room that is accessible without entering a private dwelling.

- The buildings will need to comply with IFC section 510 for emergency responder radio coverage.

Code sections for reference:

SPS 362.0903 (5)(a) Except as provided in pars. (b) to (cm), an automatic sprinkler system installed in accordance with IBC section 903.3 shall be provided throughout all buildings with a Group R fire area.

IBC 509.1 Fire protection equipment shall be identified in an approved manner. Rooms containing controls for air-conditioning systems, sprinkler risers and valves, or other fire detection, suppression or control elements shall be identified for the use of the fire department. Approved signs required to identify fire protection equipment and equipment location shall be constructed of durable materials, permanently installed and readily visible.

IBC 916.1 Emergency responder radio coverage shall be provided in all new buildings in accordance with Section 510 of the International Fire Code.

IFC 503.1.1 Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.

IFC 503.2.1 Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm).

IFC 503.2.4 The required turning radius of a fire apparatus access road shall be determined by the fire code official.

IFC 503.3 Where required by the fire code official, approved signs or other approved notices or markings that include the words NO PARKING—FIRE LANE shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. The means by which fire lanes are designated shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.

IFC 503.4.1. Traffic calming devices shall be prohibited unless approved by the fire code official.

IFC 504.1 Exterior doors and openings required by this code or the International Building Code shall be maintained readily accessible for emergency access by the fire department. An approved access walkway leading from fire apparatus access roads to exterior openings shall be provided when required by the fire code official.

IFC 507.5.1 Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400 feet (122 m) from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the fire code official.

Exceptions:

1. For Group R-3 and Group U occupancies, the distance requirement shall be 600 feet (183 m).

2. For buildings equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the distance requirement shall be 600 feet (183 m).

IFC D103.4 Dead-end fire apparatus access roads in excess of 150 feet (45 720 mm) shall be provided with width and turnaround provisions in accordance with Table D103.4.

IFC D105.1 Where the vertical distance between the grade plane and the highest roof surface exceeds 30 feet (9144 mm), approved aerial fire apparatus access roads shall be provided. For purposes of this section, the highest roof surface

shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is greater.

IFC D105.2 Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet (7925 mm), exclusive of shoulders, in the immediate vicinity of the building or portion thereof.

IFC D105.3 At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet (4572 mm) and a maximum of 30 feet (9144 mm) from the building and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial fire apparatus access road is positioned shall be approved by the fire code official.

IFC D106.1 Multiple-family residential projects having more than 100 dwelling units shall be equipped throughout with two separate and approved fire apparatus access roads. Exception: Projects having up to 200 dwelling units may have a single approved fire apparatus access road when all buildings, including nonresidential occupancies, are equipped throughout with approved automatic sprinkler systems installed in accordance with Section 903.3.1.1 or 903.3.1.2.

VOM 26-146 (a) Required. Newly constructed commercial buildings and residential buildings containing three or more dwelling units, or when access to or within a structure or an area is unduly difficult because of secured openings or where immediate access is necessary for lifesaving or firefighting purposes, the Fire/EMS Chief may require that a key box be installed in an accessible location. The key box shall be a type approved by the Fire and Emergency Medical Services Department and shall contain those keys found to be necessary to provide emergency access.

VOM 26-176 Where the Village water system is available, and any portion of a commercial or industrial building containing 7,000 square feet or more of gross interior area, or a residential building containing more than two dwelling units and containing 7,000 square feet or more of gross interior area, is set back more than 300 feet from the centerline of the nearest abutting public right-of-way, the

owner shall install approved fire hydrants at such owner's expense. The set back distances shall be determined by measuring the travel distance from a municipal hydrant along the centerline of a municipal street or private road suitable for travel by fire apparatus.

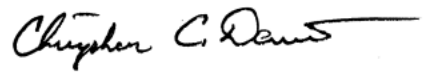
VOM 26-177 (a) One hydrant shall be located at the main entryway to such building or complex. Additional hydrants shall be provided around the perimeter of the building or complex so that no hydrant is more than 400 feet from any other approved hydrant as described in Section 26-176.

VOM 26-181 Fire hydrants shall be marked with the curb painted yellow. The curb shall be painted to produce a 20-foot stripe extending ten feet to each side of the hydrant. Areas without curbs shall have a four inch wide yellow stripe placed on the pavement.

The following items should be noted to assist in the project being completed smoothly and in a timely fashion:

- Village of McFarland is a delegated agent for the State of Wisconsin to perform fire protection and fire alarm systems reviews.
- Before the installation of any fire protection system a work permit is required to be issued by McFarland Fire & Rescue.
- Fire protection and fire alarm system reviews require the submission of architectural plans and would the owner to submit on behalf of the sprinkler and fire alarm contractors.
- Any privately owned piping including underground mains and laterals that are associated with or supply fire sprinkler systems require to be reviewed and inspected by McFarland Fire & Rescue before being concealed by building finishes or ground.
- Approval of the fire sprinkler system will require a flow test witnessed by McFarland Fire & Rescue within 1 year prior to the submission of plans for approval.
- The display of addresses for Lots 1, 10 and 11 may require additional signage at Devil's Lake Way. We would recommend reviewing with building inspection and McFarland Fire & Rescue Department before requesting occupancy inspections.

Sincerely,

A handwritten signature in black ink, reading "Christopher C. Dennis". The signature is fluid and cursive, with a long horizontal stroke extending from the end.

Christopher C. Dennis, Chief
Fire & Rescue Department
Village of McFarland

CC:
McFarland Fire & Rescue Department Prevention