City of Gem Lake

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City Council Meeting

November 17, 2026
7:00 p.m.
Heritage Hall

I. Call to Order of City Council Meeting

By Mayor Artig-Swomley at 7:00 p.m.

II. Call of Roll

Artig - Swomley_____ Cacioppo _____ Johnson_____ Lindner _____ Patrick_____

III. Approve Agenda and Minutes

A. Approval of the Agenda for November 17, 2026, City Council meeting

B. Approval of the Minutes of October 20, 2026, City Council meeting

C. Approval of the Minutes of the November 9, 2026, Canvassing Board Meeting.

IV. Special Presentations/Public Hearings

V. Consent Agenda

A. Financials.

B. Claims.

C. Resolution No. 2026-31; Resolution Approving the 2027 SCORE Grant from Ramsey County.

D. Resolution No. 2026-32; Resolution Approving the Renewal of a Cannabis Microbusiness License for The Lakes Dispensary, 1599 County Road E East.

VI. Planning Commission Reports

A. Tabled from the October 20, 2026 City Council meeting.
3651 Highway 61 1491 County Road E East, 1485 County Road E East, and 0 County Road E East - Planning Case Z2026-006; Zoning Text Amendment to Amend Language in the Building Use Type 15a for Automotive Dealerships; Planning Case Z2026-004; Minor Subdivision; Planning Case Z2026-003; Zoning Compliance Permit

~~a. Ordinance 2026-03; Zoning Text Amendment~~

b. Resolution No. 2026-29; Resolution for a Minor Subdivision

c. Resolution No. 2026-30; Resolution for a Zoning Compliance Permit

VII. Old Business

A. Newsletter Updates / Topics / Suggestions

VIII. New Business

A. Contractor License

IX. Community Outreach to Other Cities and Government Bodies

X. Presentations from the Public, 2 minutes maximum

XI. Open Items for Council Members to Bring Up

XII. Future Council Meetings

- Next Planning Commission Meeting, Tuesday, December 1, 2026
- Next City Council Workshop, Monday, December 14, 2026
- Next City Council Meeting, Tuesday, December 15, 2026 - Attendance Inquiry

XIII. Adjournment

City of Gem Lake

City Council Meeting
October 20, 2026
Meeting Minutes

I. Call to Order

Mayor Gretchen Artig-Swomley called the meeting to order at 7:00 p.m.

II. Call of Roll

Mayor Gretchen Artig-Swomley, Councilmembers Len Cacioppo, Ben Johnson, Jim Lindner and Joshua Patrick were present. Also present: City Attorney Chad Lemmons, City Treasurer Tom Kelly, City Clerk Barb Suciu, City Planner Andrew Boucher, City Engineer, Justin Gese, Watermain Project Manager Dustin Chefsky, and Funding Manager Alex Smith.

III. Approve of Agenda and Minutes

A. Approve the Agenda for October 20, 2026, City Council meeting.
A motion was introduced by Councilmember Cacioppo to accept the October 20, 2026, agenda, seconded by Councilmember Johnson. Motion carried 5-0.

B. Approve the Minutes of September 15, 2026, City Council meeting.
A motion was introduced by Councilmember Cacioppo to approve the September 15, 2026, City Council minutes, seconded by Councilmember Patrick. Motion carried 4-0-1 Abstain (Lindner).

C. Accept the Minutes of October 6, 2026, Planning Commission meeting.
A motion was introduced by Councilmember Lindner to accept the October 6, 2026, Planning Commission minutes, seconded by Councilmember Cacioppo. Motion carried 5-0.

IV. Special Presentations/Public Hearings

A. Gem Lake Municipal Water Project

Dustin Cesafsky, Municipal Water Project Manager, SEH, provided an update on the scope and timeline of the Municipal Watermain Project. He stated that the focus of the presentation was to outline where the main and services will be installed, anticipated resident impacts, service connection and meter requirements, water use and well-sealing obligations, project costs and funding, and the planned schedule leading to 2027 construction.

Project Manager Cesafsky reported that the proposed watermain is approximately 1.9 miles in length with a total project cost of $3.144 million, which includes the roadway crossing and resident service components. He noted that Gem Lake residents will not be assessed for this project. Construction is anticipated to begin in April 2027 and continue through September 2027.

He summarized the project segments as follows:

- Labore Road: 1,600 LF – $510,000
- Goose Lake Road: 3,200 LF – $866,000
- Hunter's Run: 700 LF – $125,000
- Tessier, Haven, Little Fox, and Big Fox Road North: 2,900 LF – $747,600
- Big Fox Road South: 1,700 LF – $419,700

These segments total 10,100 linear feet with a combined cost of $2,668,300.

Project Manager Cesafsky explained that water service will be installed within the roadway and then extended to the right-of-way line. Property owners will be responsible for the private connection from the right-of-way into the home. Current assumptions and requirements include:

- Directional drilling estimated at $55 per linear foot;
- Interior plumbing connection estimated at $2,500;
- Well-sealing funding assistance of up to $5,000 available;
- Dwellings must connect within two years to qualify for well-sealing funding;
- Installation of a water meter compatible with the City of Vadnais Heights system;
- Compliance with Department of Natural Resources irrigation regulations under the City of Vadnais Heights water appropriation;
- Well-sealing required by the Minnesota Department of Health, with SEH coordinating work; additional fees may apply.

Project Manager Cesafsky described project funding and assembly. The Gem Lake watermain portion totals $2,668,300, the Vadnais Heights railroad utility crossing totals $446,700, and the Hunters Run residential service portion totals $29,200, for a combined project cost of $3,144,200.

Total funding and cost participation includes:

- Gem Lake match: $2,462,108
- Remaining balance: $97,442

Project Manager Cesafsky outlined the project timeline:

- November 17 – City Council approval of plans and authorization to bid
- December 17 – Bid opening
- December 21 – Project award
- April 2027 – Anticipated start of construction

Alex Smith, Funding Manager, SEH, reported that the City of Gem Lake received a $240,000 state grant for well sealing associated with the Municipal Water Project. The grant requires a 10 percent local match of $24,000, for a total program budget of $264,000.

The grant funding will be used for public outreach, project development, and landowner coordination. There are 52 private wells in the project area that will need to be sealed. Funds will be distributed on a first-come, first-served basis, with a reimbursement of up to $5,000 per well. The grant expires on December 31, 2029. SEH will assist in preparing documentation and processing reimbursement requests. The objective of the program is to permanently eliminate contamination pathways to the aquifer and to complete all well-sealing work within approximately three years.

Funding Manager Smith explained SEH's role in supporting the City's administration of the grant, including coordinating with landowners, ensuring program compliance, and fulfilling grant reporting requirements. He outlined the process as follows:

- City and SEH will work with landowners to complete application and reimbursement agreement.
- The City will contract with a Minnesota-licensed well contractor who will remove

debris or obstructions, seal wells using grout in accordance with Minnesota Department of Health standards and submit sealing records.

- The City will retain well-sealing documentation and invoices for reimbursement processing, which may take up to 60 days.

Funding Manager Smith stated that SEH will serve as the lead for grant compliance, financial documentation, and reporting. Responsibilities include maintaining BWSR eLINK data, preparing progress reports and reimbursement requests, tracking expenditures, retaining audit records, and coordinating communication between the City, BWSR, engineers, and project partners. SEH will also support grant performance reporting and project closeout.

Funding Manager Smith concluded by noting that City Council action scheduled for the evening includes: Approving the agreement with SEH for grant administration and project development services and Authorizing execution of the agreement and initiating coordination with landowners and BWSR.

A motion was introduced by Councilmember Lindner, seconded by Councilmember Cacioppo to Authorize the Well Sealing Agreement with SEH for up to $24,000. Motion carried 5-0.

V. Consent Agenda

A. Monthly Financial Reports

B. Claims

C. Resolution No. 2026-24; Resolution Certifying Special Assessments for Delinquent Public Utility Service Accounts to the Ramsey County Property Tax Rolls – Utility Billing.

D. Resolution No. 2026-24; Resolution Certifying Special Assessments for Delinquent Public Utility Service Accounts to the Ramsey County Property Tax Rolls – 2062 Annual Septic Maintenance Inspections.

E. Resolution No. 2026-26; Resolution Approving the Renewal of Election Services Agreement with Ramsey County for a Six-Year Term beginning January 1, 2027 through December 31, 2032.

A motion was introduced by Councilmember Lindner, seconded by Councilmember Cacioppo to approve the Consent Agenda. Motion carried 5-0.

VI. Planning Commission Reports

A. 3 Daniels Farm Road - Conditional Use Permit to Allow an Accessory Structure Exceeding 1,000 square feet (Planning Case Z2026-007) and Variances to Allow the Accessory Structure to Exceed the Maximum Height of 15 feet and a Reduced Front Yard Setback from the Road Right-of-Way (Planning Case Z2026-008).

   a. Resolution No. 2026-27; Resolution to Approve a Conditional Use Permit to Allow an Accessory Structure to Exceed 1,000 Square Feet for 3 Daniels Farm Road (Parcel ID 273022310003) Planning Case Z2026007.

   b. Resolution No. 2026-28; Resolution Approving Variances for to Allow the Accessory Structure to Exceed the Maximum Height of 15 feet and a Reduced Front Setback from the Road Right-of-Way for 3 Daniels Farm Road (Parcel ID 273022310003) Planning Case Z2026-008.

City Planner Andrew Boucher, TKDA, introduced Planning Cases 2026-007 and 2026-008. He explained that the applicant is requesting a Conditional Use Permit (CUP) for an accessory structure

exceeding 1,000 square feet, a variance to allow an accessory structure height to exceed the 15-foot maximum, and a variance to allow an accessory structure to be located within the required front yard setback of less than one-half the distance between the principal structure and the road right-of-way.

The applications were submitted by S&P Construction of St. Paul, Inc. on behalf of Tom and Laura Rasmussen, property owners of 3 Daniels Farm Road. City Planner Boucher noted that the applicant initially applied for a single variance, but additional review determined that a second variance was required.

City Planner Boucher stated that the CUP and variance requests are processed in accordance with Ord. No. 131, Consolidated Land Use Ordinance: Section 17; Administration and Enforcement, which requires a public hearing before the Planning Commission and final action by the City Council. All requested approvals must be granted for the applicant to construct the proposed detached garage in its current configuration.

The applications were deemed complete on September 16, 2026. Public notices were mailed the same day to nine property owners within 350 feet of the project site, and a notice was also published in the White Bear Press on September 16, 2026.

The Planning Commission considered the requests at its meeting on October 6, 2026, at which time the Commission issued positive recommendations for the CUP and both variances.

City Planner Boucher described the property as being located within the Single-Family Executive Residential (RX) District and the Shoreland Management Overlay District near the southern boundary of Gem Lake, with proximity to Gem Lake and County Road E. The lot contains a single-family dwelling constructed in 1948 and an existing detached garage. Surrounding land uses include other RX and RE residential properties to the west, a Minnesota Land Trust easement to the north and east, and property adjacent to 0 County Road E within various Gateway District subzones.

City Planner Boucher summarized the findings required for approval of CUPs and variances under Section 17. He stated the proposed accessory structure, which exceeds 1,000 sq ft and 15 feet in height and encroaches into the required setback, represents a reasonable use not otherwise permitted by the zoning ordinance. The project design is influenced by topographic constraints and includes a lower storage level that follows the natural grade. The height increase is primarily due to the building width and traditional roof geometry designed to complement the existing residence, including roof pitches of 5:12 and 6:12 and hand-split cedar shake roofing. Reducing the roof pitch solely to meet the 15-foot limit would compromise architectural integrity and compatibility with the property.

The placement of the structure was influenced by site conditions. Relocating the building to meet required setbacks would require additional driveway length, introduce drainage issues, and necessitate greater disturbance to slopes, soils, and trees. These characteristics are unique to the property and not created by the landowner. The requested variances would not alter the essential character of the locality. Similar accessory structures with non-conforming setbacks exist at 3646 Labore Road and 5 Daniels Farm Road. Economic considerations alone do not justify the variances, and none were cited. Solar energy considerations are not applicable to this request.

City Planner Boucher stated the variance requests include a height variance allowing an accessory structure height of 16 feet, 10 inches, exceeding the allowed maximum by 1 foot, 10 inches and front yard setback variance allowing a minimum front yard setback of 91 feet, 6 inches from the

road right-of-way, less than one-half of the distance from the principal structure to the right-of-way.

He presented options for each request: approval (with or without conditions), denial (with findings), or tabling for further review.

The CUP request is to permit an accessory structure up to 2,910 square feet, exceeding the 1,000-square-foot maximum.

City Planner Boucher indicated that the Planning Commission forwarded positive recommendations to the City Council for approval of the CUP and both variances, subject to the following conditions:

1. The accessory structure shall be constructed in accordance with the plans received by the City on September 21, 2026.
2. The applicant shall obtain all necessary local permits prior to construction.
3. The applicant shall comply with all applicable local, state, and federal regulations.
4. The applicant shall pay all fees and escrows associated with the requests.

Mayor asked if there was any questions regarding these applications.

A motion was made for Resolution No. 2026-27; Resolution to Approve a Conditional Use Permit to Allow an Accessory Structure to Exceed 1,000 Square Feet for 3 Daniels Farm Road with the Conditions Outlined in the Resolution(Parcel ID 273022310003) (Planning Case Z2026007) by Councilmember Lindner, seconded by Councilmember Cacioppo. Motion carried 5-0.

A motion was made to for Resolution No. 2026-28; Resolution Approving Variances for to Allow the Accessory Structure to Exceed the Maximum Height of 15 feet and a Reduced Front Setback from the Road Right-of-Way for 3 Daniels Farm Road with the Conditions Outlined in the Resolution (Parcel ID 273022310003) Planning Case Z2026-008 by Councilmember Lindner, seconded by Councilmember Cacioppo. Motion carried 5-0.

B. 3651 Highway 61, 1491 County Road E East, 1485 County Road E East, and 0 County Road E East - Planning Case Z2026-006; Zoning Text Amendment to Amend Language in the Building Use Type 15a for Automotive Dealerships; Planning Case Z2026-004; Minor Subdivision; Planning Case Z2026-003; Zoning Compliance Permit.
    a. Ordinance 2026-03; Zoning Text Amendment
    b. Resolution No. 2026-29; Resolution for a Minor Subdivision
    c. Resolution No. 2026-30; Resolution for a Zoning Compliance Permit

City Planner Boucher presented Planning Cases 2026-003 and 2026-004 submitted by White Bear Lake Auto Real Estate, LLC for property located at 0, 1485, and 1491 County Road E East, and 3651 Highway 61. The requests include a Zoning Text Amendment, Minor Subdivision, and Zoning Compliance Permit for redevelopment of the Apple Ford White Bear Lake dealership.

Chris Gulbrandson, President of Apple Autos, is proposing to adjust the lot line of Parcel 4 and combining it with commonly owned Parcels 2 and 3. The subdivision would create a 22.94-acre parcel for dealership redevelopment, and a 10.65-acre parcel to remain vacant. White Bear Lake Auto Real Estate, LLC, will be required to consolidate the new dealership parcel with 3651 Highway 61 at a future date. These parcels are located in the Gateway District and per the ordinance requires a Zoning Compliance Permit.

The applicant applied for a Zoning Text Amendment to Building Type 15a (Automotive Dealerships) by adding Modification/Exclusion (18) to allow the City Council to exempt automotive dealerships from Tree Preservation/Reforestation standards where strict compliance would prohibit reasonable development.

The applications were deemed complete on August 10, 2026 for the Minor Subdivision & Zoning Compliance Permit and September 16, 2026 for the Zoning Text Amendment. Public hearing notices were mailed August 13 and September 16 and the notices were published in the White Bear Press on August 19 and September 22. Because the original application was closing in the 60-day review period, it was extended to December 8, 2026.

The applications were reviewed by SEH, MnDOT, Ramsey County, the City of Vadnais Heights, and several outside agencies. Resident comments primarily focused on tree preservation, light and noise buffering, lighting shut-off or dimming and outdoor paging system noise.

The Planning Commission at their October 6, 2026 made the following recommendations:

- Zoning Text Amendment: No recommendation (5-0)
- Minor Subdivision: Recommend approval (4-1)
- Zoning Compliance Permit: Recommend denial (3-2)

City Planner Boucher is recommending denial of all three applications unless additional information is provided. The proposed Zoning Text Amendment is inconsistent with Land Use Goal #1, Land Use Goal #9 and Policy #11, and therefore does not meet the requirements for amendment under Section 17.

The properties lie within the Gateway (G) District, the Shoreland Management Overlay, and include multiple subzones (Neighborhood Center, Mixed Use, General, and Edge). Subzone boundaries do not follow parcel lines. The site includes nine existing structures and 88,580 sq. ft. of building area. Redevelopment includes a larger auto dealership, a car wash, and a Starbucks (no drive-through) open to the public.

The subzone alignment and proposed consistency were outlined, with the 5.2-acre Neighborhood Edge vegetation area being preserved. The Neighborhood Edge, Neighborhood General and Neighborhood Center are consistent with their subzone definitions. The parking lot is complimentary to the intent of the Neighborhood Mixed-Use subzone.

In Ordinance 131, Section 9.2.1, Relationship to City Ordinances is reads “The requirements of this section may conflict with or duplicate some portions of this Ordinance. Any such conflict, when it relates to the use of land in the Gateway District, shall be resolved in favor of the language in this Section. All other Gem Lake ordinances which relate to the construction of buildings and use of land included in the Consolidated Land Use Ordinance and other land use Ordinances apply within the Gateway District.”

City Planner Boucher reviewed Ordinance 131, including the process for Zoning Text Amendments and the five conditions under which such text amendments may be considered. The applicant claims to meet Condition #3 (clear public need). Staff noted that although redevelopment improves aesthetics, stormwater, lighting, and reduces impervious surface, the proposed text amendment does not apply uniformly to other dealerships and does not adequately support Comprehensive Plan environmental goals.

City Planner Boucher summarized impacts related to adjacent uses (additional noise, light, and loss of buffer), Air and water quality (loss of trees reduces air filtration and infiltration benefits), Traffic (increases expected but Line of Sight (LOS) remains acceptable), Aesthetics (improved building design), Economic impact (positive) and Comprehensive Plan consistency (mixed; some goals supported, others not).

The 2040 Comprehensive Plan guides physical growth and development and is used to evaluate private development proposals against overall goals of this plan and is regarded as the general guide to the legal regulation of land development controlled by Ordinance 131. The existing commercial/business land uses in the City of Gem Lake are concentrated in and around Highway 61/County Road E intersection. There is approximately 41 acres in this category. A portion of the approximately 18-acre parcel on County Road E is currently used for macro-agriculture, though zoned for mixed use/residential per the Gateway District zoning rules.

A one-acre buffer continues east of Daniels Farm Road to the point where it ends against the land designated as open space under the conservation easement. Between the buffer, County Road E and the point where the Neighborhood Center subzone begins, exist the Neighborhood General and Neighborhood Mixed Use subzones totaling approximately 12 acres.

A Traffic Impact Study was prepared and the key findings include the crash rates at County Road E & Highway 61 exceed comparable intersections; All intersections currently operate at LOS D or better during the typical weekday; Proposed development increases square footage by 60% with part of the project being a 1,115 square foot coffee shop; Traffic forecasts were developed for year 2030 with no building and build conditions, which included a half-percent annual background growth and trip generation from the proposed development.

Key takeaways from the future 2030 capacity analysis include all study intersections are expected to operate at an acceptable LOS D or better during the typical weekday a.m. and p.m. peak hours with and without the proposed development. Area queueing will remain relatively similar to the existing conditions; peak queues at the proposed site access locations are expected to range from two (2) to three (3) vehicles and no mitigation is needed.

The City Council should consider conditions of approval with the site redevelopment including signage and landscape placement to protect sightlines, truck maneuverability and preserving space for future sidewalk/trail along County Road E.

The applicant submitted a tree inventory and landscape plan but stated compliance with Section 27 is not feasible; over 1,500 replacement trees would be required. The applicant proposes replacing the maximum number of trees that are feasible to promote healthy growth, cleaning existing tree stands, removing invasive species, and a voluntary parkland dedication payment.

The lighting requirements in Ordinance 131 limits height and requires shielding. The proposed lighting would be 24-foot poles with 3-foot base, downward-directed fixtures, and building lights would be located 16 feet up. Staff noted that Barnett Kia's approval required dimming to 15% after 10 p.m. and suggested the City Council impose a similar condition.

Section 18.10 of Ordinance 131 addresses Off-Street Loading Requirements. A condition of approval would be the loading areas must meet placement and noise restrictions relative to residential zones.

The application was routed to other agencies for review including the Fire Inspector, Building Official, City Engineer, MnDOT, Ramsey County DNR, VLAWMO, City of Vadnais Heights, and the

Gem Lake City Attorney. All comments have been incorporated into the presentation, and the applicant has been informed of all comments.

City Planner Boucher stated the action options for the City Council tonight for each of the three applications are to:

1. Approve (with or without conditions)
2. Deny (with findings)
3. Table for further review

He added if new information is submitted during the meeting, staff recommends tabling to the November City Council meeting. Otherwise, staff and Planning Commission recommendations stand.

Councilmember Lindner complimented City Planner Boucher for the detailed explanation of the proposed applications.

Mayor Artig- Swomley stated the proposal plan is beautiful and agreed it is time for an update. She indicated there are many complex issues including tree preservation and buffering for the neighbors. She indicated she has problems amending an ordinance one type of business.

Councilmember Lindner stated that when the Gateway District ordinance was written, the committee tried to anticipate dealerships of the future. The committee anticipated the inventory at the dealership would be a lot smaller. This proposal has the inventory being larger.

Chair Cumming stated that the proposal is complex and wished to clarify several points. He noted that the Planning Commission is enthusiastic about the redevelopment itself; however, the configuration of the project has created significant concerns.

He explained that the key issues involve the subdivision, the application of the Tree Preservation Ordinance, and the shifting of the proposed dealership into areas of the Gateway District Neighborhood Center. He stated that this shift triggers additional tree removal and therefore invokes the Tree Preservation Ordinance.

Chair Cumming further clarified that a Planned Unit Development (PUD) is exempt from the Building Template requirements for automotive dealerships. Although this exemption may appear unusual, the Planning Commission intended it to create a predictable and streamlined redevelopment process for qualifying sites, particularly the KIA and AutoNation properties. A PUD would have provided the City with comprehensive tools to address screening, berms, lighting, and other design elements. However, the absence of a PUD does not exempt the project from Tree Preservation requirements, stormwater regulations, subdivision review, or other applicable standards, nor does it authorize dealership uses in other Gateway District subzones.

He emphasized that without the PUD option, the City must rely on all remaining ordinance provisions to guide the project. Removing or weakening the Tree Preservation Ordinance would eliminate a critical tool under these circumstances. He acknowledged that without the PUD provisions can be confusing but stressed that they were crafted with the intent of supporting streamlined redevelopment within the Gateway Neighborhood Center.

Chair Cummings stated that as the proposed development extends west of the intended Gateway Neighborhood Center boundaries, additional issues arise. If the dealership can be configured within the Gateway Neighborhood Center template, the project fits the intended framework; if not, it extends beyond the language and intent of the Building Template adopted in September 2024.

He noted that these complexities contributed to the Planning Commission's recommendation, which was not unanimous due to the variety of issues under consideration. He added that changes affecting the Comprehensive Plan, zoning districts, or district boundaries must be carefully weighed, particularly in light of input from surrounding residents. Chair Cumming concluded by stating that while there is substantial community interest in the project, neighbors did not anticipate a car dealership being located within areas designated for other subzones in the Comprehensive Plan.

City Planner Boucher stated that the Gateway subzone boundaries do not follow property lines or tax parcels. As a result, it is difficult to identify precisely where each subzone begins and ends, and a degree of subjectivity is involved in interpreting those boundaries. City Attorney Lemmons stated that is correct. The boundary lines cross three separate parcels and stated that, under state statutes, such boundary placement should not have occurred. However, he acknowledged that this is the configuration currently in place.

City Planner Boucher stated that the ordinance contains disclaimer language indicating that the subzones do not follow lot lines or tax parcels. Because of this, it is difficult for staff, the City Council, or the developer to determine with certainty where the subzone boundaries begin and end. He commented that the primary issue is not the development itself, but rather the process required to reach an appropriate configuration. Planner Boucher then asked that the discussion be turned over to the developer for further explanation.

Mr. Gulbrandson stated that the project contains many moving parts and technical details but emphasized that Apple Auto's primary goal is to construct a development that benefits the City of Gem Lake, neighboring residents, and customers. He noted that the existing buildings on the site are outdated, inefficient, and visually deteriorated.

Mr. Gulbrandson explained that Apple Auto intends to redevelop the dealership into a flagship facility for Minnesota, similar to its historic status under Tousley Ford. To achieve this, the dealership requires additional space, which is the reason for acquiring the lot to the west; this parcel is an important component of the overall redevelopment plan.

He reported that the proposal includes a large service department to meet significant demand in the region. The facility is anticipated to be approximately 144,000 square feet, representing an investment of nearly $50 million. Mr. Gulbrandson stated that this is a substantial long-term investment in Gem Lake that will significantly improve the property and strengthen the City's commercial tax base. He further noted that the project team has listened to concerns from neighboring residents and has incorporated changes throughout the planning process to improve the development for all parties. Some of these changes are the permanent conservation easement on the north side, saving as many of the existing trees as possible, planting approximately 384 new trees and shrubs, adjust the landscaping specifically designed to provide screening. Installing a privacy fence along the back of the dealership for the neighbor to the north, preserving the existing lilac along Daniels Farm Road, installing roofing top solar panels to generate as much of the facilities electricity as possible, installing a more efficient car wash, replacing the lighting with new modern energy-efficient ones, improve the stormwater management conditions on the site and the outdoor paging will be eliminated. The project will be a significantly improve the environmental performance, increase in Gem Lake's tax base and transform the aging site into one of the nicest Ford dealerships in the country.

Zeke Peters, Landform Professional Services stated that the project represents an exciting redevelopment opportunity, noting that several existing buildings on the site are over 80 years old and largely untouched. He emphasized that the property predates many surrounding highways and that there is a clear need and desire to modernize the site.

Mr. Peters explained that the development process began in January when the applicant-initiated discussions with MnDOT due to concerns related to traffic, roadway improvements, and stormwater management. The proposal has since been refined to the three applications before the Council: a zoning text amendment, a minor subdivision (lot line adjustment), and a zoning compliance permit. He noted that both the minor subdivision and zoning compliance permit are dependent upon approval of the zoning text amendment.

He stated that the zoning text amendment is the most critical component. The proposed language pertains specifically to Building Type 15a in the Gateway District and would allow the City Council to exempt automotive dealerships from Tree Preservation and Reforestation requirements when strict compliance would prohibit reasonable development. He emphasized that the language does not provide an automatic exemption; rather, it creates a mechanism for City Council negotiation. After consultation with the City Attorney, this approach was selected because existing ordinance provisions do not provide a practical mechanism for flexibility beyond requiring the applicant to plant the number of trees shown in the current standards. The text amendment is intended to allow case-specific solutions, which could include alternative planting locations or financial contributions to a City tree fund.

Mr. Peters reviewed relevant Comprehensive Plan provisions cited by the City Planner. Regarding Goal 1 (protection and enhancement of the natural environment), he noted that many trees on the property are dead, unhealthy, or unstable, and invasive undergrowth is prevalent. He stated that stormwater conditions at the site are currently inadequate, with runoff flowing toward Gem Lake, and that redevelopment would bring the site into compliance with modern environmental standards.

With respect to Goal 9 (buffering between commercial and residential uses), Mr. Peters emphasized that substantial existing buffering already exceeds City standards. He stated that the nearest home lies approximately 575 feet from the corner of the conservation easement area. Additional fencing and plantings are proposed to further address neighbor concerns. He noted that the buffering being discussed primarily affects the boundary between the dealership property and a vacant 10-acre parcel, not directly between the dealership and residential homes.

Referencing Comprehensive Plan Policy 11 (preservation of natural vegetation), Mr. Peters acknowledged that the tree buffer proposed for removal is more than 80 years old but has been poorly maintained, contains invasive species, and includes many trees that are dead or unstable. He stated that the developer is not requesting a full exemption from Tree Preservation requirements and is willing to work with the City to establish conditions related to tree types, locations, and mitigation strategies, including potential financial contributions. He also noted the opportunity to establish a permanent conservation easement and plant new, long-lasting vegetation.

Regarding the minor subdivision, Mr. Peters stated that the applicant views the lot line adjustment as straightforward and believes it falls under State Statute 462.358, which exempts lot line adjustments from subdivision requirements when no new lots are created. He requested that the Council table, rather than deny the minor subdivision application to allow continued discussion on this issue.

Mr. Peters stated that the zoning compliance permit meets all applicable standards except the tree preservation requirement, which is why approval of the zoning text amendment is essential to moving the project forward.

Mr. Peters concluded by requesting that the City Council consider tabling the applications rather than denying them, allowing the applicant to continue working with the City Council to resolve outstanding issues.

Councilmember Lindner stated that the concern about dead and declining trees is not related to strict enforcement of the Tree Preservation Ordinance, but rather to the fact that the existing trees are planted too closely together and include numerous dead and partially dead specimens. He described the area as “a mess” and noted that, under the current ordinance, there is no practical mechanism to address this condition. He added that the applicant’s proposed approach may offer a means to move the process forward.

Mr. Peters stated there has been a landscaping architect on-site and all the new trees and shrubs would be tied to current planting standards. Specifically addressing the closeness of planting, and the condition of the soil.

City Planner Boucher added if the tree preservation strict application of the requirements was implemented, that would be same exact conditions that would be created, it they were held to the strictest application root planting requirements.

Mr. Peters stated planting 1,500 trees would take up 75 percent of the remaining 10-acre parcel if they were planted by today’s standards. There are ways to plant more of a cluster, but it becomes a long maintenance process for the person maintaining them.

Councilmember Lindner stated when the tree preservation ordinance was created, the City Council was trying to foresee the best way to manage full grown trees in a way that is going to allow someone to mix it up a bit. It was not intended to don’t touch the trees.

Councilmember Lindner inquired about the Starbucks. He stated that he hasn’t seen a commercial business inside a commercial business. Mr. Gulbrandson stated there is a Starbuck’s in a Ford dealership in Los Angeles, but it is the same concept of Starbuck’s in a Target.

He asked if the applicant has a purchase agreement with the current owner of the vacant parcel to buy part of the land. Mr. Gulbrandson indicated they were buying the whole parcel.

Councilmember Lindner indicated when the city was talking about the sign ordinance, the concern was the windmill. Is it going to stay or go? He indicated the windmill is a historical site depending on how long you have lived in Gem Lake. Mr. Gulbrandson stated there has been some discussion ab out the windmill.

Mayor Artig-Swomley asked what other discussion items the City Council have.

City Attorney Lemmons stated that the existing Tree Preservation Ordinance permits removal of up to 25 percent of trees; if a property owner exceeds that amount, the ordinance already allows for negotiation between the City Council and the owner. Based on his interpretation, there is flexibility built into the current ordinance.

Councilmember Johnson then asked whether the proposed zoning text amendment would also provide negotiation authority. City Attorney Lemmons responded that the proposed language includes the phrase “may exempt,” which provides the City Council with discretion and flexibility in its application.

City Planner Boucher stated a part of this is how modification and exclusions have been dealt with in the Gateway District through the building type. That is what staff and the applicant led to the zoning text amendment. The variance process would have procedural difficulties. The precedent of how properties in the Gateway District previously, the zoning text amendment seemed the appropriate vehicle to accommodate the request.

Councilmember Johnson expressed concerns regarding the permissive nature of the proposed "shall" language in the zoning text amendment. He stated that while he appreciates the applicant's willingness to negotiate and continue refining the proposal, he is seeking greater finality and clarity. He emphasized that the purpose of the Tree Preservation Ordinance is to preserve mature trees, noting that the existing tree stand provides significant buffering and privacy for the adjacent 17-acre undeveloped parcel. He added that once leaves fall, the evergreens are the only remaining screening between the residences and the back of the 80-year-old building.

City Attorney Lemmons provided clarification on the current ordinance. He stated that, upon reviewing the Tree Preservation Ordinance, the removal threshold within the Gateway District is up to 25 percent. Any removal beyond that amount must be replaced, and the replacement requirements are subject to negotiation with the City Council. He noted that the ordinance is not as flexible as he previously believed, as it mandates replacement for removal beyond the 25 percent threshold.

Councilmember Cacioppo addressed the applicant's comments regarding negotiation and the condition of the trees. He stated that although Mr. Peters expressed a willingness to negotiate, the City Council has only just met him, and therefore meaningful negotiation cannot occur at this point. He asked that this be kept in mind as discussions continue.

He noted that a resident had raised concerns about the removal of approximately 750 trees and asked whether anyone, beyond that resident, had evaluated the potential for soil destabilization following removal. He explained that once tree roots decay and lose their structural integrity, the surrounding soil may loosen, which could in turn mobilize toxins present in the ground.

Mr. Peters stated that the issue had been considered and that the Minnesota Pollution Control Agency (MPCA) will work closely with the development team regarding ground soils. He noted that the existing site lacks stormwater management, and the proposed redevelopment will significantly improve those systems.

He clarified that the developer does not intend to simply cut trees and pave over the stumps. All grading and erosion control activities will be performed in compliance with state policies designed to prevent soil destabilization, particularly on properties with long-standing prior uses. He explained that mitigation and inspection requirements are mandated by the state, and these obligations cannot be ignored by the developer.

Mr. Peters cautioned against assuming that historical land use will automatically result in long-term soil contamination concerns. He emphasized that there is no evidence that removing tree roots will release toxins into the soil and reiterated that state environmental regulations apply fully to the project. The developer is not exempt from any required testing or mitigation.

City Planner Boucher asked for direction from the City Council for specific items the developer can address.

Mayor Artig-Swomley stated that if the redevelopment remained within the boundaries of the current Apple Ford site, it would not present an issue. The concern arises when a large number of

trees are proposed for removal without replanting an equivalent number. She noted that the development itself is well designed, but the number of replacement trees proposed is insufficient. She stated that a possible solution is to table the matter for further discussion in order to protect the natural beauty of Gem Lake.

City Attorney Lemmons asked the City Council to provide some direction to the developer of what they are looking for.

Councilmember Cacioppo stated that he does not have concerns with the development itself or with the business. His primary concern relates to the trees. He noted that this is not an objection to relocating trees elsewhere within the development, and he is open to exploring that possibility. His concern focuses specifically on the single line of trees located along the property edge and the impact their removal would have. He added that the developer would then be responsible for creating its own buffer in that area.

Councilmember Lindner asked for a better rendering showing what can be done for the trees. Mr. Peters stated what is shown on the rendering is what can be done with current planting standards.

Councilmember Cacioppo stated replacing the mature trees with saplings is a concern. He noted that young trees do not provide the same level of buffering or environmental benefit as the mature trees currently on the site. Mr. Peters responded that, if this is a priority for the City Council, the development team is will to evaluate options. He added that the common underlying issue relates to the site's expansion and whether preserving additional trees would require shifting portions of the development further into the lot, and whether such an adjustment would be permissible.

City Planner Boucher stated it is difficult to say with the subzones, but he would say yes, it would be permitted. City Lemmons stated in all his years he has never seen a property this size be subject to three subzones.

Councilmember Lindner asked if the building could be shifted to the east. Mr. Peters responded that the building placement was shifted to allow the business to continue operating during construction. He explained that the development team analyzed the configuration in relation to the Neighborhood Center Mixed Use designation and noted that the Comprehensive Plan provides flexibility for shifting zones in this area.

Mr. Peters further stated that within the Gateway District, a minimum 200-foot buffer is specifically required along the district's edge. This requirement is the basis for the proposed conservation easement. The developer's intention is to maintain the 200-foot buffer and additional space beyond it. He added that this understanding guided their interpretation of the Neighborhood Center Mixed Use provisions.

Chair Cummings stated that it may be helpful for the City Council to consider the distinction between the letter of the reforestation requirements and the spirit of those requirements. He noted that in a recent development to the west, numerous trees were planted on City property to screen the new development from existing homes. This created a precedent for required screening between residential properties.

He suggested that, by comparison, screening between residential and commercial uses should warrant at least an equivalent level of buffering. While not necessarily requiring a one-to-one replacement of trees under the reforestation ordinance, this precedent may provide guidance for determining an appropriate minimum level of screening in the current proposal.

Mayor Artig-Swomley asked for a quick break so the students in attendance could have their civic class papers signed and leave.

Mayor Artig-Swomley talked about a temporary committee for additional ideas, but we are pushing a deadline.

City Planner Boucher asked the City Council what would like to see in November from the developer.

Mayor Artig-Swomley stated more trees, and preservation of the existing trees. She would also like to hear from the neighbors that are here tonight.

City Attorney Lemmons stated the public hearing was conducted at the Planning Commission but if the City Council was open to having public comment tonight there would need to be a motion to allow public comment.

A motion to open the item for public comment at 9:08 p.m. by Councilmember Lindner, seconded by Councilmember Cacioppo. Motion approved 5-0.

Beth Tschida, 5 Daniels Farm Road, stated that she has reviewed the condition of the trees on the site and requested that attention also be given to the trees on the northern portion of the property. She noted that if the zoning were to change to Neighborhood Center, the required buffer would increase from 200 feet to 450 feet. She expressed concern about the impact on root structures when trees are removed and stated that certain measures, such as the use of scaffolding, could help minimize root disturbance. Ms. Tschida offered her assistance in reviewing and addressing these issues.

Tony Scornavacco, 7 Daniels Farm Road, expressed his concerns about the removal of trees and stated that he is seeking a compromise. He noted that the project represents a $50 million investment and suggested that allocating an additional $500,000 toward taller, more mature replacement trees would help address neighborhood concerns. He stated that he has invested significantly in trees on his own 22-acre property and believes that planting larger trees would allow properties to the north to continue feeling like a “fabulous island.”

A motion to close the item for comments at 9:10 p.m. by Councilmember Lindner, seconded by Councilmember Cacioppo. Motion approved 5-0.

Mr. Peters stated that the development team has discussed preserving more trees, including those near 5 Daniels Farm Road. He noted that if additional preservation is required in this area, the developer may need to explore shifting parking areas along the property line. If such adjustments create a roadblock to the project, the developer would consider the possibility of expanding further into the existing parcel to accommodate both the development needs and additional tree preservation.

City Engineer Justin Gese asked what the size of the trees are being planted. Mr. Peters stated all trees would meet the minimum standard 2 ½ inch caliber depending on the species and six to eight feet in height. This is what is on the landscape detailed sheets.

Planning Commission Chair Cummings suggested that, from a Planning Commission standpoint, it would be helpful for City Planner Boucher to gather and compile the proposals so that the Planning Commission is not “flying by the seat of their pants.” City Planner Boucher responded that, given the current timeline, that matter would most likely not return to the Planning Commission for further review.

Councilmember Johnson asked for clarification regarding the 10-acre parcel, noting that no action was begin taken on it as part of this proposal. He also referenced the Villas development, stating that the elevation there was higher than originally understood, and asked whether additional screening could be added along the 10-acre parcel.

Mr. Peters responded that screening will be provided along the northern boundary through the proposed conservation easement. Regarding the 10-acre parcel, he stated his understanding that no development or action can occur on that property at this time.

City Engineer Gese asked what the finished floor today versus the new finished floor. In other words, what are the neighbors going to see with the new development.

Mr. Peters stated the building is taller than current buildings, if you look towards the farm field, the back of the parcel goes already up and drops back down.

Councilmember Johnson stated lighting has changed since they have moved in. There was no lighting issue in the neighborhood. The lighting was changed and now parts of the neighborhood is more impacted. City Attorney Lemmons stated this is where the development agreement and ordinance can come into play.

Councilmember Johnson commented on the challenges with the Tree Preservation Ordinance. He stated that the ordinance has been a recurring point of contention with the current property owner. He noted that a significant number of trees were removed from the site prior to the ordinance taking effect. Councilmember Johnson added that he does not oppose the proposed additional parking and suggested exploring whether more trees could be preserved on the northern portion of the site rather than the southern portion.

A motion was made to table for Ordinance 2026-03; Zoning Text Amendment to the November 17, 2026 City Council meeting by Councilmember Lindner, seconded by Councilmember Cacioppo. Motion carried 5-0

A motion was made to table Resolution No. 2026-29; Resolution for a Minor Subdivision to the November 17, 2026 City Council meeting by Councilmember Lindner, seconded by Councilmember Cacioppo. Motion carried 5-0.

A motion was made to table Resolution No. 2026-30; Resolution for a Zoning Compliance Permit to the November 17, 2026 City Council meeting by Councilmember Patrick, seconded by Councilmember Cacioppo. Motion carried 5-0.

VII. Old Business

A. Newsletter Updates/Topics/Suggestions

Mayor Artig-Swomley indicated the following suggestions an article on the preliminary budget, election results, winter parking rules, and the fire exercise that took place in September, survey and open house for the comp plan, hunting permits, and Goose Lake Road construction project.

Councilmember Johnson indicated the County Road E Corridor received a $50,000 grant for use on the multi-city corridor project.

VIII. New Business

A. Amendment to CAD and Mobile Data Agreement Among Ramsey County and Members

Mayor Artig-Swomley stated this amendment is to change the length of the agreement from 10 years to 12 years.

A motion was made to allow the Mayor and City Clerk to adopt the amendment to CAD and Mobile Data Agreement among Ramsey County and Members by Councilmember Lindner, seconded by Councilmember Cacioppo. Motion carried 5-0.

B. Archery Deer Hunting Applications

a. 5 Daniels Farm Road

b. 1270 Goose Lake Road

c. 7 & 11 Daniels Farm Road

A motion was made to approve the archery deer hunting applications by Councilmember Lindner, seconded by Councilmember Cacioppo. Motion carried 5-0.

C. Proposal from Kraft Contracting & Mechanical

A motion was made to approve the proposal from Kraft Contracting and Mechanical by Councilmember Lindner, seconded by Councilmember Cacioppo. Motion carried 5-0.

IX. Community Outreach to Other Cities and Governmental Bodies

Councilmember Johnson stated he will be meeting with the City of Vadnais Heights and White Bear Lake to see what can be done with the $50K for the work on the County E Corridor Project. Maybe some very nice signs along the corridor.

Mayor signed water agreement with the City of Vadnais Heights.

X. Presentations from the Public, 2 minutes maximum

White Bear Police Chief Erik Johnson wanted to check in to see how the City Council is doing. He added that if there is anything he can do for Gem Lake, just let him know.

Councilmember Patrick stated he was able to do a ride-along with Officer Dillan and his community policing was phenomenal.

XI. Open Items for Council Member to Bring Up

XII. Future Council Meetings

- Next Planning Commission Meeting, Wednesday, November 4, 2026
- City Council Canvassing Board Meeting, Monday, November 9, 2026 at 7:00 p.m.
- Next City Council Meeting, Tuesday, November 17, 2026

XIII. Adjournment

There being no further business, following a motion from Councilmember Cacioppo, seconded by Councilmember Johnson, the meeting adjourned at 9:35 p.m.

Respectfully submitted, Barbara Suciu

City of Gem Lake

Canvassing Board Meeting
November 9, 2026
Meeting Minutes

I. Call to Order

Mayor Gretchen Artig-Swomley called the meeting to order at 7:00 p.m.

II. Call of Roll

Mayor Gretchen Artig-Swomley, Councilmembers Len Cacioppo, Jim Lindner and Joshua Patrick were present. Councilmember Ben Johnson was excused. Also present: City Clerk Barb Suciu.

III. Approve of Agenda and Minutes

A. Approve the Agenda for November 9, 2026, Canvassing Board meeting.

A motion was introduced by Councilmember Lindner to accept the November 9, 2026, agenda, seconded by Councilmember Cacioppo. Motion carried 4-0.

IV. New Business

A. Approval of the Abstract of Votes Cast in the City of Gem Lake November 3, 2026 Election

Mayor Artig-Swomley stated there were 343 votes cast in total with Jim Tschida receiving 222 votes and Len Cacioppo receiving 195 votes. Additionally, there were 9 write in votes. Overall, there was an 80% turnout of voters.

A motion was made to approve the abstract of votes cast in the City of Gem Lake November 3, 202 Election by Councilmember Lindner, seconded by Councilmember Patrick. Motion carried 4-0.

V. Adjournment

There being no further business, following a motion from Councilmember Cacioppo, seconded by Councilmember Johnson, the meeting adjourned at 7:01 p.m.

Respectfully submitted, Barbara Suciu

City of Gem Lake

State of Minnesota
County of Ramsey
Resolution No. 2026-31

RESOLUTION APPROVING THE 2027 SCORE GRANT FROM RAMSEY COUNTY

WHEREAS, The City of Gem Lake currently operates a Municipal Curbside Recycling Program for all single-family residences within the city; and

WHEREAS, the City Council realizes that increased public awareness, education and participation in this program is in the best interests of all citizens and wishes to expand the current program within the administrative guidelines established for current City staff; and

WHEREAS, the Ramsey County Public Health Department, Solid Waste Division, is providing a SCORE grant base funding in the amount of $11,266.00 and an incentive funding in the amount of $10,145.00, for a total grant funding possible of $21,411.00 to the City of Gem Lake for the year 2027; and

WHEREAS, the City of Gem Lake has completed the grant application which provides a breakdown of how the City of Gem Lake will allocate their grant monies; and

NOW, THEREFORE, BE IT RESOLVED, that the City Council of Gem Lake accepts the grant monies provided by SCORE funds and will administer the monies as provided by in the 2027 SCORE Funding Grant Application.

The motion for adoption of the foregoing Resolution was duly introduced by Councilmember _____ and supported by Councilmember _____, and upon vote being taken thereon, the resolution passed with a vote of __ in favor and __ against.

ATTEST

I, Barbara Suciu, the duly qualified City Clerk of the City of Gem Lake, County of Ramsey, State of Minnesota, do hereby certify that the foregoing Resolution is a true and accurate representation of action taken by the City Council of the City of Gem Lake on the date first written.

Barbara Suciu City Clerk	*November 17, 2026* Date

CITY OF GEM LAKE

STATE OF MINNESOTA
COUNTY OF RAMSEY
RESOLUTION NO. 2026-030

RESOLUTION APPROVING THE RENEWAL OF A RETAIL ONLY CANNABIS MICROBUSINESS LICENSE FOR THE LAKES DISPENSARY

WHEREAS, in November 2025, the City Council approved a retail only cannabis microbusiness license for The Lakes Dispensary located at 1599 County Road E East; and

WHEREAS, the license was ultimately approved by the State of Minnesota; and

WHEREAS, the current license is due for by December 18, 2026; and

WHEREAS, the business has passed the required inspection and their 2026 Compliance check that was conducted by White Bear Police Department.

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF GEM LAKE, RAMSEY COUNTY, MINNESOTA, that it should and hereby does approve the renewal of a retail only cannabis microbusiness license for "The Lakes Dispensary".

Adopted by the City Council of Gem Lake, Ramsey County, Minnesota, on this 17th day of November 2026.

The motion for adoption of the foregoing Resolution was duly introduced by Councilmember _____ and supported by Councilmember _____, and upon vote being taken thereon, the resolution passed with a vote of __ in favor and __ against.

ATTEST

I, Barbara Suciu, the duly qualified City Clerk of the City of Gem Lake, County of Ramsey, State of Minnesota, do hereby certify that the foregoing Resolution is a true and accurate representation of action taken by the City Council of the City of Gem Lake on the date first written.

	November 17, 2026
Barbara Suciu City Clerk	Date

Memorandum

To:	City of Gem Lake City Council	**Project Reference:**	Apple Ford Redevelopment Request – Minor Subdivision and Zoning Compliance
Copies To:	Chris Gulbrandson, Apple Auto and WBL Auto Real Estate, LLC		
		TKDA Project No.:	23763.000
From:	Andrew Boucher, Planner	**Client No.:**	
	CJ Sycks, Planner		
Date:	November 13, 2026		

SUBJECT: Apple Autos Redevelopment Request – Minor Subdivision, Zoning Compliance Certificate, and Zoning Text Amendment

MEETING DATE: November 17, 2026

LOCATION: 3651 Highway 61 (PID 273022340010), 1491 County Road E E (PID 273022340009), 1485 County Road E E (PID 273022340006), and 0 County Road E E (PID 273022340007).

APPLICANT: Chris Gulbrandson, Apple Autos

OWNER: WBL Auto Real Estate, LLC.

ZONING: Gateway (G) District: Neighborhood Center (NC), Neighborhood Mixed Use (NMU), and Neighborhood General (NG), and Neighborhood Edge (NE) sub-zones. Shoreland Overlay District.

REVIEW PERIOD: 60-day period ends 10/9/2026; 120-day period ends 12/8/2026

ITEMS REVIEWED: Application and plans received on 7/30/2026 and 8/7/2026; additional information received on 9/15/2026; 9/28/2026; 10/12/2026; 11/6/2026

DESCRIPTION OF THE REQUEST

Chris Gulbrandson, President at Apple Autos, requests a Minor Subdivision to adjust the lot line for Parcel 4 and combine that portion of Parcel 4 along with commonly owned Parcel 2 and 3 into two parcels. This will result in one 27.60-acre lot for the Apple Ford White Bear Lake Dealership redevelopment and one vacant 9.01-acre lot. WBL Auto Real Estate, LLC will consolidate the new dealership parcel with the existing 3651 Highway 61 parcel at a future date. This future lot consolidation will be included as a condition of approval, prior to building permits being issued. The four existing parcels are identified from east to west and referred to as:

- Parcel 1 (3651 Highway 61): 273022340010
- Parcel 2 (1491 County Road E E): 273022340009
- Parcel 3 (1485 County Road E E): 273022340006
- Parcel 4 (0 County Road E E): 273022340007

All redevelopment in the Gateway District requires a zoning compliance permit per Ordinance No. 131, Section 9. Gateway (2.2.2). With the pending subdivision request, the City will evaluate and issue the compliance permit following action by the City Council.

After the September Planning Commission, the applicant submitted a Zoning Text Amendment application proposing to amend the Building Use Type 15a for Automotive Dealerships to add a Modification/Exclusion (18) that may allow the City Council to exempt Automotive Dealerships from the Tree Preservation/Reforestation standards.

This request will follow Building Type 15a in the City's Consolidated Land Use Ordinance (Ordinance No. 131). The applicant presented updates to their plans dated September 14, 2026 at the October 6, 2026 Planning Commission meeting. The updated plans and October 12, 2026 exhibits show an increased number of trees including an additional 30 coniferous trees, 6 deciduous trees, and 128 shrubs along the west of the proposed building and throughout the site to serve as a buffer. Also shown is a proposed privacy fence and potential conservation easement area adjacent to the dealership parking lot.

The Planning Commission (5-0) gave no recommendation at their October 6, 2026 meeting to the proposed zoning text amendment, amending Building Type 15a to add Modification/Exclusion (18), based on the findings of fact that the amendment is inconsistent with Land Use Goals #1 & 9 as well as Policy #11. The Planning Commission gave a (4-1) vote to positively recommend approval at their October 6, 2026 meeting of the minor subdivision of 1491, 1485, and 0 County Road E East, and 3651 Highway 61 resulting in two lots. The Planning Commission (3-2) recommended denial a zoning compliance certificate to allow for redevelopment of a car dealership at their October 6, 2026 with the findings that the application does not comply with the requirements of Section 27 Tree Preservation.

Following the October 20, 2026 City Council meeting, the applicant made additional revisions to their plans and provided two options for the City Council to consider:

1) The original plans and applications submitted to City Council on October 20, 2026 including the Zoning Text Amendment to Building Type 15a providing the ability to negotiate Tree Preservation and Reforestation requirements, minor subdivision, and zoning compliance permit.
2) Revised plans submitted November 6, 2026 with the minor subdivision reconfigured with Parcel 4 to take a portion and combine with Parcels 2 and 3 with Parcel 4 accommodating the shifted parking lot, and zoning compliance permit.

This alternative configuration complies with the Tree Preservation ordinance without triggering reforestation requirements. The applicant proposes preserving 643 existing trees and providing 262 new trees for a total of 905 trees total on site. 122 trees are proposed for removal below the removal maximum for both shoreland and non-shoreland areas.

The proposed building location has not changed with the parking lot area extending approximately 200 feet further west into Parcel 4, and all stormwater facilities redesigned to accommodate the shifted parking area behind the preserved tree line with enhanced screening and fencing beyond along this new parking lot and the north side of the existing dealership parcels.

PROPERTY INFORMATION

Description: The subject parcels are located north of County Road E East and west of US Highway 61. The parcels are east of Daniels Farm Road (private).

Parcels 1, 2, and 3 are commonly owned and fully located within the Neighborhood Center (NC) Sub-Zone of the Gateway District. There are currently nine existing structures, including one canopy structure. Most of the parcel areas are occupied by paved parking spaces for customers and merchandise. The total existing building area is 88,580 square feet. There are two access points to the property: one on Highway 61 near the northeast corner of the lot and one on County Road E East on Parcel 2.

Parcel 4 is vacant and is located within three of the Gateway District Sub-Zones: Neighborhood Center (NC), Neighborhood Mixed Use (NMU), and Neighborhood General (NG), and Neighborhood Edge (NE). These subzones do not follow property lines; see **Figure 3** for the zoning map.

Land Use: Car Dealership (Commercial) and Vacant (Agriculture)

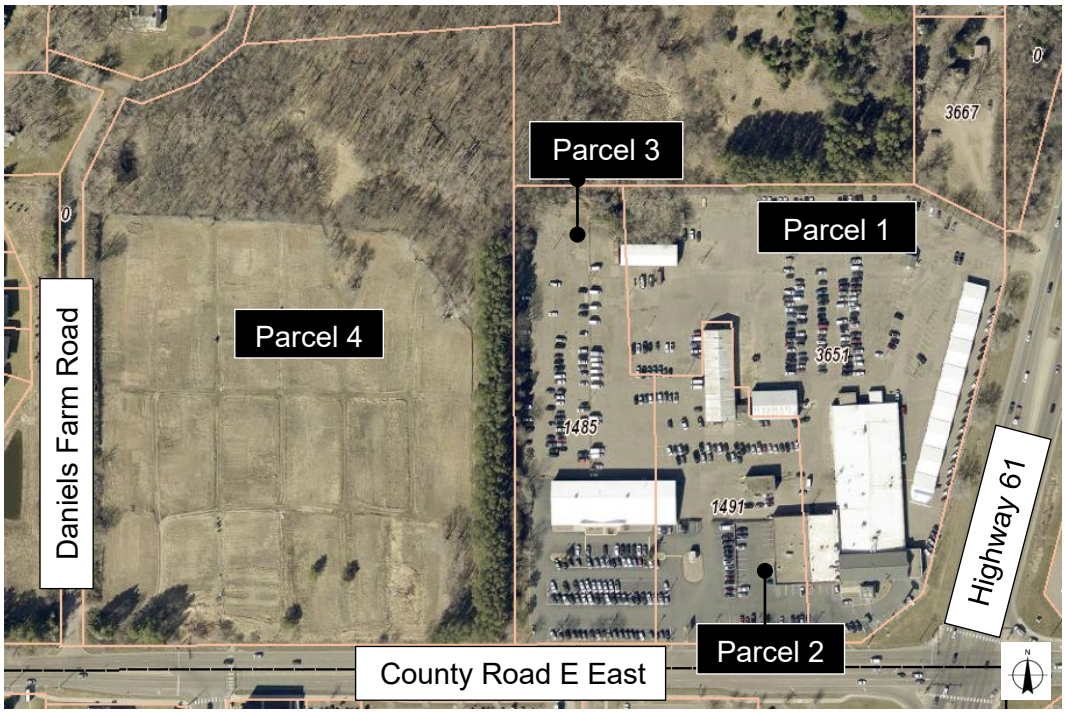


Figure 1: Ramsey County GIS Aerial Image of Parcels 1, 2, 3, and 4.

EVALUAION OF REQUEST – ORDINANCE NO. 131

Section 9. Gateway "G" District
The intent of the Gem Lake Gateway District ("Gateway" or "G") is to allow for development and redevelopment of the real property associated with Hoffman Corner and points westward along Ramsey County Road E extending northward to the border with the zoning districts identified in Sections 5 and 6 of this Ordinance. This area has been the subject of a visioning study and includes both commercial and residential opportunities as described in the City of Gem Lake Comprehensive Plan and other city documents. As introduced by the visioning plan and articulated in the Comprehensive Plan, the Gateway will emphasize commercial development and/or redevelopment in the Hoffman Corner intersection which traditionally has been the location of the Gem Lake commercial district. As one moves westward along County Road E, the intent of the Gateway is to transition into more residential type neighborhoods, becoming less dense until it transitions to either the Estate Residential district or the Executive Residential district.

The Gateway District's regulatory focus is first upon the form of each building and its relation to the surrounding environment. This section regulates the use of space within buildings, except to the extent that any structure or land use existed as a legally nonconforming use prior to the adoption of this Section, as a matter secondary to the built form. The use of land in the District is regulated by the Building Type Templates and is directly related to the building form.

This application includes land within all four sub-zones. This area is at the intersection of County Road E and U.S. Highway 61 where major transportation nodes and high sewer capacity are available. Subsequent development that is planned for "Mixed-Use" under the 2040 Comprehensive Plan - Future Land Use Map will be developed in a tiered fashion, to minimize the visual feel of the existing single-family neighborhoods and preserve the value of existing homes. See **Figure 3.**

Neighborhood Edge: The lowest-intensity subzone, intended to provide a transition from mixed-use areas to nearby single-family residential neighborhoods. It primarily supports lower-density housing, larger lots, clustering options, buffers, and public open space where appropriate.

> The mapped Neighborhood Edge area encompasses approximately 5.9 acres of existing vegetation along the northern boundary of Proposed Parcel 1. The area will be preserved within a conservation easement and will provide permanent open space and a vegetated transition between the proposed development and the lower-density residential properties to the north. The proposed preservation of this area is consistent with the transitional, buffering, and open-space purposes of the Neighborhood Edge subzone.

Neighborhood General: A transition subzone between lower-density residential areas and more active mixed-use development. It allows a range of residential building types and limited lower-impact office or retail uses that complement the surrounding neighborhood.

> The mapped Neighborhood General area primarily encompasses the northern portion of Proposed Parcel 2 and extends into a portion of the preserved vegetated area within Proposed Parcel 1. Proposed Parcel 2 is not included in the current dealership development, and the portion within Proposed Parcel 1 will remain preserved as open space. These conditions maintain a lower-intensity transition between the Neighborhood Edge area and the more actively developed portions of the Gateway District and are consistent with the intent of the Neighborhood General subzone.

Neighborhood Mixed Use: A more active subzone intended for mixed-use buildings, denser residential options, and smaller-scale commercial or office uses. This subzone will accommodate a variety of activities and services within easy walking distance from homes throughout the District, supporting daily convenience shopping and personal service needs, and also providing opportunities for public gathering and social contact. It is intended to support walkable access to daily services, convenience retail, and neighborhood gathering spaces.

> The mapped Neighborhood Mixed Use area encompasses the southern portion of Proposed Parcel 2 and extends into the western portion of Proposed Parcel 1, including a limited portion of the dealership parking area. Proposed Parcel 2 is not included in the current dealership development. Within Proposed Parcel 1, parking is an accessory component of the dealership and provides a transition between the undeveloped land to the west and the more intensive dealership building and commercial activity to the east. Although surface parking does not independently advance the subzone's mixed-use and pedestrian-oriented objectives, its limited placement in this area is generally compatible with the transitional function of the Neighborhood Mixed Use subzone.

Neighborhood Center: Intended for the most urban conditions within all of the shown mixed-use areas. The mixture of land uses emphasizes ground-floor retail with offices and residential/rental above (as market acceptance matures) and structures providing commercial space for medium and large-sized retailers. Street frontages throughout this subzone should be pedestrian-oriented, and the public space should be defined by placing building facades at the edge of the sidewalk. Neighborhood Center land that abuts other subzones on the north and west sides will be carefully planned to ensure lower-density buildings. Transitions to adjacent lower-density areas should be carefully planned.

> The mapped Neighborhood Center area encompasses most of the developed portion of Proposed Parcel 1, including the proposed 144,310-square-foot automotive dealership, accessory coffee shop, primary customer parking areas, vehicle inventory areas, site access, landscaping, and stormwater features. The proposed automotive sales and service use constitutes a large-scale commercial activity consistent with the Neighborhood Center subzone's intended concentration of commercial uses. The building's placement, landscaping, pedestrian connections, and treatment of the County Road E East and Highway 61 frontages should be evaluated against the subzone's pedestrian-orientation and streetscape objectives.

2040 Comprehensive Plan

The City's 2040 Comprehensive Plan is the guide to physical growth and development in the City. The plan is used by the City to help evaluate private development proposals against the overall goals of this plan and is regarded as the general guide to the legal regulation of land development controlled by Ordinance 131, the Consolidated Land Use Ordinance.

The existing commercial/business land uses in the City of Gem Lake are concentrated in and around the U.S. Highway 61/County Road E intersection. This includes two large car dealerships, other auto/motorcycle-oriented businesses, and a marine sales retailer. A small neighborhood bar, a coffee shop, and a floral retail establishment also exist in this area. There are approximately 41 acres in this category. A portion of the approximately 18-acre parcel on County Rd E is currently used for macro-agriculture, though zoned for mixed use/residential per the Gateway District zoning rules. Upgrading of the existing structures in the commercial area along the east side of Scheueneman Road between County Road E and U.S. Highway 61 is encouraged.

The western-most portion of the Gateway District, located along County Road E (west of the private Daniels Farm Road) will consist of single family residential in the one-acre buffer between Gateway land and existing residential areas. The one-acre buffer continues east of Daniels Farm Road to the point where it ends against the land designated as open space under the conservation easement. Between the buffer, County Road E and the point where the Neighborhood Center sub-zone begins, exists the Neighborhood General and Neighborhood Mixed Use subzones totaling approximately 12 acres. This will provide for possible redevelopment in portions of the Neighborhood Center sub-zone that may provide opportunities for multi-story multi-family housing and an active retail/commercial area, making Gem Lake a destination for shopping, dining, and entertainment.

As a designated suburban city, the city will encourage Gateway district development that will promote a town center that will make Gem Lake a destination for shopping, dining, and entertainment, particularly if anticipated bus rapid transit will extend along the Highway 61 corridor.

Section 9.2.1 Relationship to other portions of this ordinance and other City Ordinances.
The requirements of this Section may conflict with or duplicate some portions of this Ordinance. Any such conflict, when it relates to the use of land in the Gateway District, shall be resolved in favor of the language in this Section. All other Gem Lake ordinances which relate to the construction of buildings and use of land included in the Consolidated Land Use Ordinance and other land use Ordinances apply within the Gateway District.

Starbucks
The applicant also proposes to include a Starbucks Coffee business within the building and access to Starbucks available through an outside entrance open to the public and through the dealership. Starbucks will not include a drive-through. There are general and accessible parking stalls along the building near the external entrance to the proposed coffee shop. The intent of the Neighborhood Center Subzone is to promote dense, mixed-use, commercial development. This proposed collaboration meets that intent.

Section 9.6. Building Type Standards & Figure 15a
The proposed use follows the Commercial, Automotive Dealership building type: Figure 15a. This application includes amendments to the building type to exempt Automotive Dealerships from the requirements of the tree preservation ordinance. Below is a review of the proposed use.

Definition: The use aligns with the definition.

Lot Size and Placement: The lot size and placement is appropriate. The frontage street in Figure 15a states "*Access may be from Highway 61 and a secondary street*." Due to the orientation of the property, the proximity to the intersection, and comments from MnDOT, access will be obtained from County Road E East. A secondary access will be available on Highway 61 in the same location as the existing access.

Parking: Customer parking requires "*one space per 1,000 SF rounded up, plus one space for each service or cleanup stall. Outside inventory and service vehicles is not counted toward the parking requirements."* The applicant is proposing 1,156 stalls with 6 accessible stalls (121,451 square feet / 1,000 square feet + 67 service stalls = 188.5 (189 rounded) stalls required).

Impervious Surface Coverage: "*Maximum 80% of the lot*". The applicant is proposing Parcel 1 (dealership) to have a total of 45.9% impervious surface coverage and Parcel 2 (vacant) to have a total of 0.0% coverage.

Height: The maximum height permitted is two stories or 36' total. The dealership proposed to construct the building no taller than 28 feet and no shorter than 18 feet. Height varies by building area, for example the showroom area is 28 feet tall, whereas the car wash/detailing space is 18 feet tall. See **Figure 2.**

Building Disposition: The footprint requirement of 1-2 stories with minimum 20,000 square feet is met. Parking setbacks of 20 feet from the County Road ROW, 10 feet from the Highway 61 ROW, and 10 feet from interior lot lines, are met. Building setbacks of 30 feet from any lot line are met. The orientation of the building is appropriate.



Figure 2: Page A-4.6, Exterior Elevations 7-23-26 submittal, Exterior Perspective 2.

Section 9.7
*"**Sub-Zone Uses.** Permitted Primary Uses in the Gateway District Subzones are determined by building Type as determined by this Ordinance. See Figures 16 & 17 for the allowable uses in each sub-zone, by building use."*

Figure 17 in Ordinance 131 permits Automotive Dealerships through a zoning compliance review. Accessory uses such as sheds, supplemental repair, showrooms and outdoor storage require zoning compliance review.

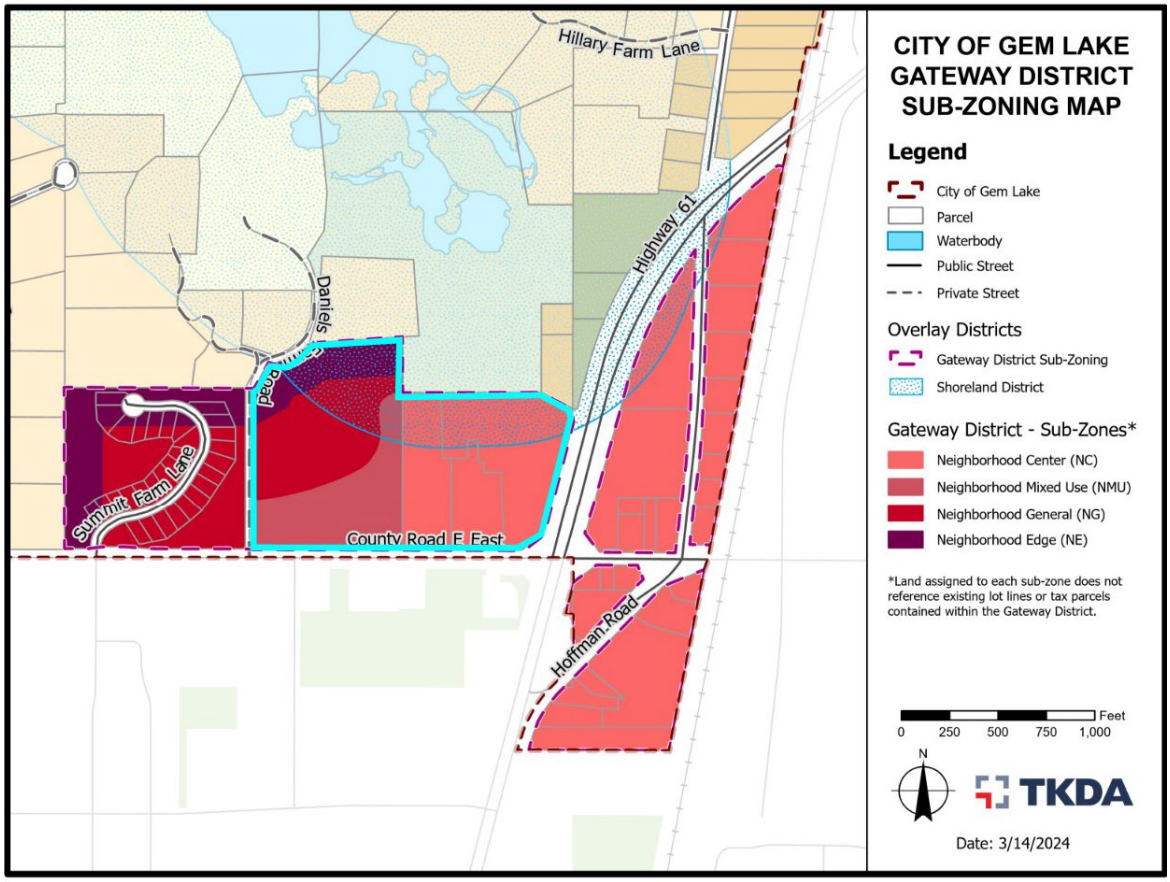


Figure 3: City Gateway District Sub-Zone Map with Subject Properties outlined in blue.

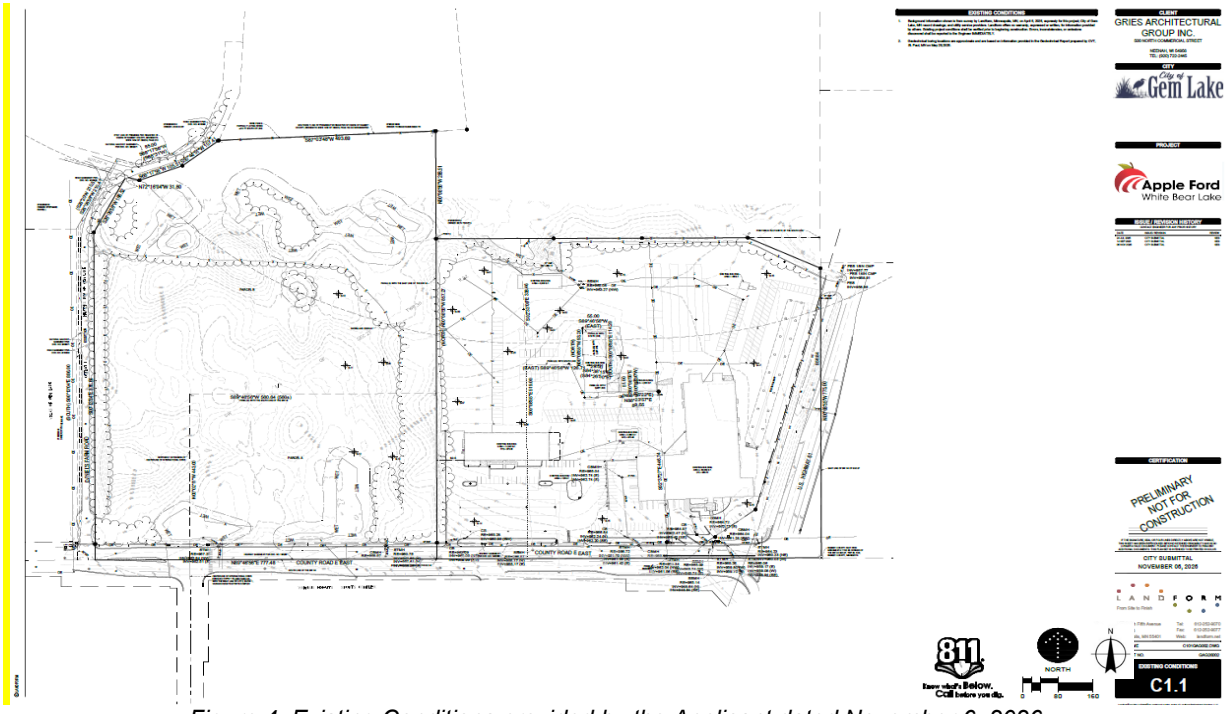


Figure 4: Existing Conditions provided by the Applicant dated November 6, 2026.

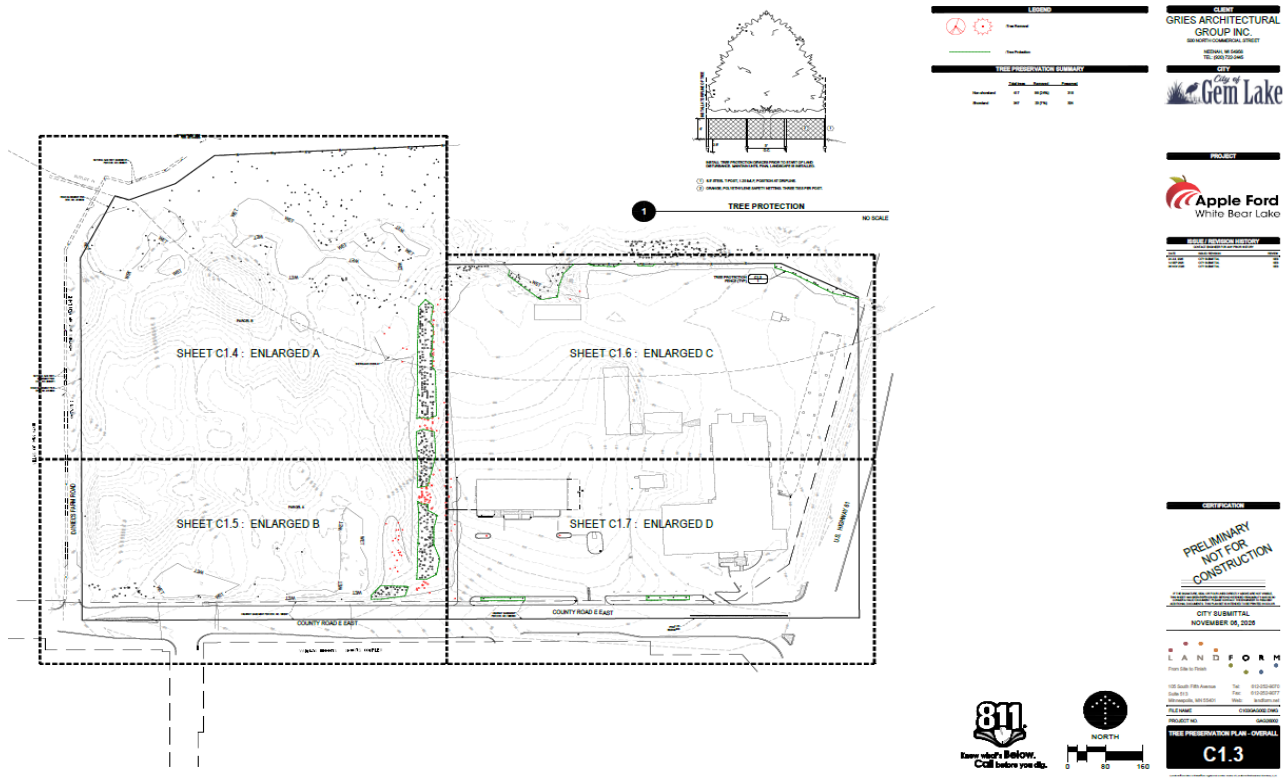


Figure 5: Proposed Tree Preservation Plan provided by the Applicant dated November 6, 2026 meeting removal thresholds.



Figure 6: Illustrative Site Plan provided by the Applicant dated November 6, 2026



Figure 7: Proposed Site Plan provided by the Applicant dated November 6, 2026

Section 18.4 Refuse. *"All waste shall be kept in an enclosed building or property contained in a closed container designed for such purposes." "In all non-residential districts, all commercial refuse containers shall be enclosed in a building or properly fenced or screened to prevent any refuse from spilling beyond the fenced or screened area and to prevent access by children or other unauthorized persons."*

Section 18.8 Lighting
Lighting must be arranged to deflect light from adjoining properties and streets. The height cannot exceed the maximum principal structure height (36 feet). Lighting to illuminate all sales lots shall not exceed 120-foot candles at 36 inches off the ground.

Proposed lighting will be directed downward. Lighting will be placed throughout the parking areas and against the building. Lighting poles will be 24 feet tall with a 3-foot base (27 feet total). Lighting placed on the building will be located 16 feet up. See **Figure 6** for the proposed lighting style.

The redevelopment of the Barnett Kia dealership in the Gateway District was approved in 2024. The Commission at that time discussed the intensity of the lighting at night. A condition of approval was: "*The applicant must dim sales lot and parking lot lighting to 15% illuminance between the hours of 10:00 P.M. and 6:00 A.M. Said lighting shall be able to be motion-activated to 100% illuminance for security purposes.*" Limitations on the hours of lighting operation may be imposed by the City Council. The Council should discuss whether this requirement should be applied to Apple Ford.

The Automotive Dealership Building Type is subject to Section 18.8.4 (Lighting Used to Illuminate Sales Lot). Lighting used to illuminate sales lots for new or used cars shall be arranged and designed so as to comply with the following limitations:

1. Maximum maintained lighting level at any point within the boundaries of the lot, measured 36 inches above grade, shall not exceed one-hundred twenty (120) foot candles.
2. Maximum maintained vertical illumination, measured thirty (30') feet out from the property line with the meter directed toward the lot, shall be five (5) foot candles.
3. The maximum point brightness, measured with a brightness meter from a point thirty (30') feet out from the property line, shall be no greater than six-hundred (600) foot Lamberts.

After completion of any outdoor lighting system the property owner may be required to submit an affidavit, by a registered lighting engineer, that the completed project does not exceed the requirements of this section.



Figure 8. Lighting styles from the submitted 7-23-26 Lighting Proposal

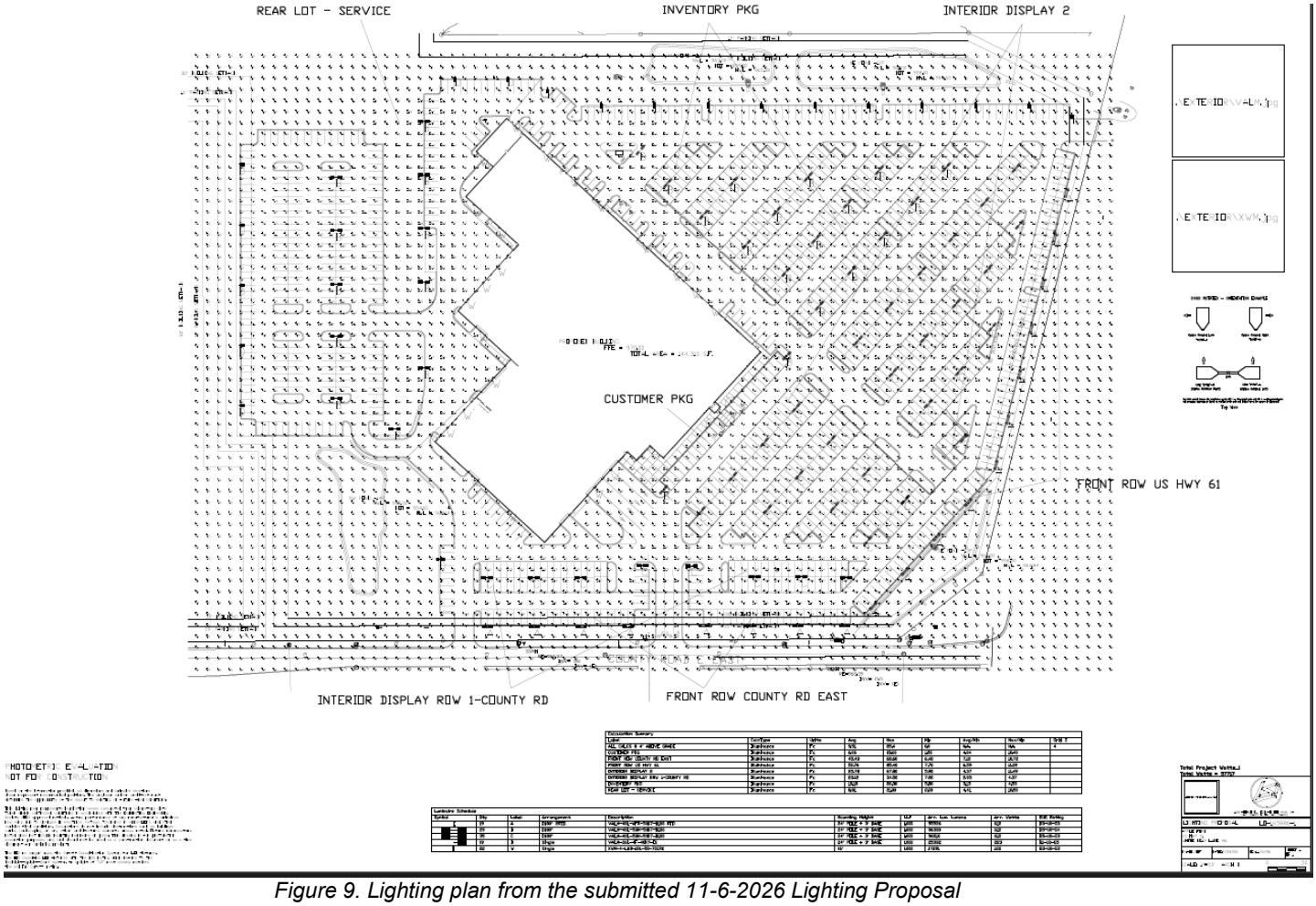


Figure 9. Lighting plan from the submitted 11-6-2026 Lighting Proposal

Section 18.10 Off-Street Loading

In connection with any structure which is to be erected or substantially altered, and which requires the receipt or distribution of materials or merchandise by trucks or similar vehicles, there shall be provided off-street loading space on the basis of adequate space for loading and unloading all vehicles used incidental to the operation of the use. The following requirements are included as ongoing conditions of approval.

1. No loading berth of vehicles over two-tons capacity shall be closer than one-hundred (100') feet to any residence district unless completely enclosed by building walls not less than eight (8') feet in height.
2. Where noise from loading or unloading activity is audile in a residential district, the activity shall terminate between the hours of 7:00 p.m. and 7:00 a.m.

Minor Subdivision

It is the purpose of this section to make certain regulations and requirements for platting within the City of Gem Lake, pursuant to the authority contained in Minnesota Statutes, which regulations the City Council deems necessary for the health, safety and general welfare of this community.

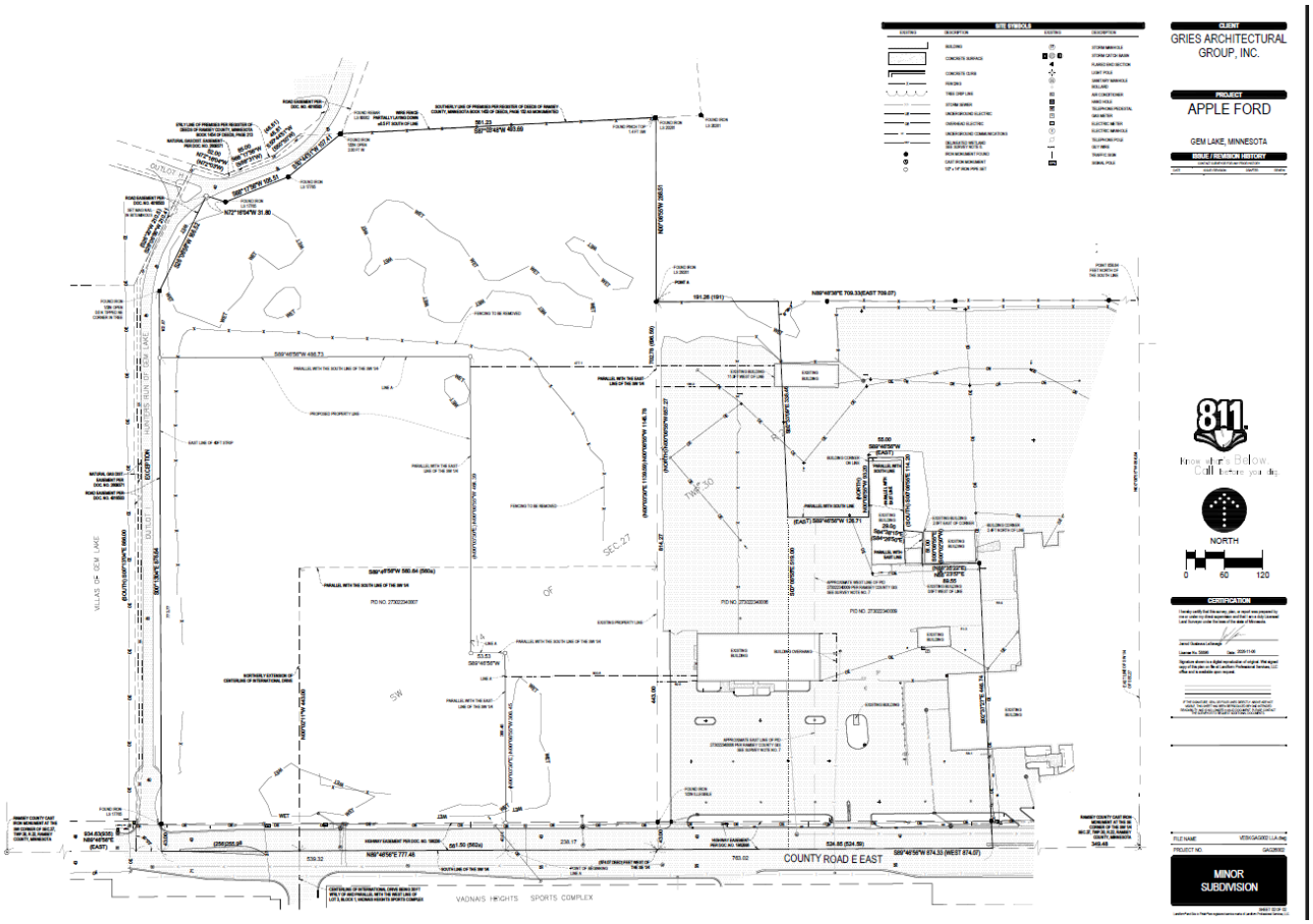


Figure 10. Proposed Minor Subdivision dated 11/6/2026

The Minor Subdivision created by these proceedings shall be recorded with the County Register of Deeds within one (1) year after the date of approval by the City Council as a condition of approval. If not recorded within this time period, the approval of this subdivision by the City shall be considered void.

Traffic

A Traffic Impact Study (TIS), *prepared by Transportation Collaborative and Consultants, LLC (TC2)*, dated 6/7/2026 and updated on 9/25/2026 incorporating comments from the City and MnDOT regarding the changes to the Highway 61 access and expanded land uses.

Table 2 Trip Generation Summary

Land Use Type	Size	AM Peak Hour		PM Peak Hour		Daily
		In	Out	In	Out	
Existing Dealership *(Actual Counts)*	88,580 SF	54	30	27	60	1,150
Proposed Development Dealership *(+62%)*	143,195 SF	87	48	44	97	1,860
Coffee-Shop *(ITE - 937)*	1,115 SF	49	47	22	22	674
Subtotal		**136**	**95**	**66**	**119**	**2,534**
Multi-use Reduction (Coffee Only – 20%)		*(-10)*	*(-9)*	*(-4)*	*(-4)*	*(-134)*
Total Proposed Development Site Trips		**126**	**86**	**62**	**115**	**2,400**
Pass-by / Diverted-Link Reduction (Coffee Only – 85%)		*(-32)*	*(-32)*	*(-15)*	*(-15)*	*(-450)*
Net New System Proposed Development Trips		***94***	***54***	***47***	***100***	***1,950***
Change in Trips from Existing		***+40***	***+24***	***+20***	***+40***	***+800***

Figure 11. Existing and Proposed Trip Generation from Traffic Impact Study prepared by Transportation Collaborative and Consultants, LLC (TC2) dated 9/25/2026

The (TIS) also provided conclusions based on the analysis of MnDOT data including:

1. *The number of crashes at the County Road E and Highway 61 intersection is significantly higher than locations with similar characteristics from a crash rate perspective (i.e., a critical index over 1.0); all other study intersections had crash and severity rates within the normal range.*
2. *All study intersections currently operate at an acceptable overall LOS D or better during the typical weekday a.m. and p.m. peak hours; existing queues are generally maintained within the current roadway geometry except westbound queues along County Road E at Highway 61, which occasionally extend beyond the adjacent left- and right-turn lanes during the p.m. peak hour.*
3. *The proposed development is a 144,310 square foot auto dealership, which is about 60% larger than the total current building area. As part of the project, a 1,115 square foot coffee shop is planned to be incorporated within the facility to serve dealership patrons as well as the general public.*
4. *Traffic forecasts were developed for year 2030 no build and build conditions, which included a one-half (0.5) percent annual background growth and trip generation from the proposed development.*
    a. *The proposed development is estimated to generate 212 a.m. peak hour (126 in / 86 out), 177 p.m. peak hour (62 in / 115 out), and 2,400 daily (1,200 in / 1,200 out) trips.*
    b. *When compared to the existing dealership, the change in net new system trips associated with the proposed development is 64 a.m. peak hour (40 in / 24 out), 60 p.m. peak hour (20 in / 40 out), and 800 daily (400 in / 400 out) trips.*
5. *Key takeaways from the future year 2030 capacity analysis, include:*
    a. *All study intersections are expected to operate at an acceptable LOS D or better during the typical weekday a.m. and p.m. peak hours with and without the proposed development.*
    b. *Area queueing will remain relatively similar to the existing conditions; peak queues at the proposed site access locations are expected to range from two (2) to three (3) vehicles.*
    c. *No mitigation is needed*

The City received a formal review letter from MnDOT dated October 6, 2026 attached to the packet with no concerns apart from permitting, data, plans and model submissions, which are included as conditions of approval. The (TIS) identified considerations that the City Council should consider as conditions of approval with the site redevelopment including: locating signage and landscaping to avoid sight distance issues, review truck

maneuverability to limit potential internal circulation conflicts, and preserve the ability to accommodate a future multimodal facility (i.e., sidewalk or trail) along the north side of County Road E within the project site limits.

Section 27. Tree Preservation.
The applicant submitted a tree inventory, a landscaping plan, and a narrative description of their tree preservation plan in accordance with City Ordinance.

The applicant included a description of their approach in the submittal. In summary, the applicant is proposing to replace the maximum feasible number of trees to promote healthy growth, will clean up the existing tree stands, remove invasive species and unhealthy plants, and preserve 643 existing trees and plant 262 new trees. See **Figure 5** for planting locations and **Figure 6** shows the total number of trees being preserved and removed in the shoreland and non-shoreland areas as well as the replacement factors as required by ordinance.

The applicant presented updates to their plans dated September 14, 2026 at the October 6, 2026 Planning Commission meeting. The updated plans and October 12, 2026 exhibits show an increased number of trees including an additional 30 coniferous trees, 6 deciduous trees, and 128 shrubs along the west of the proposed building and throughout the site to serve as a buffer. The October 12, 2026 exhibit also shows a proposed privacy fence and potential conservation easement area to the north of the dealership parking lot. The November 6, 2026 updated plans show an alternative configuration that complies with the Tree Preservation ordinance without triggering reforestation requirements. The applicant proposes preserving 643 existing trees and providing 262 new trees for a total of 905 trees total on site. 122 trees are proposed for removal below the removal maximum for both shoreland and non-shoreland areas.

Zoning Compliance
Section 9.2.2.2 states *"All new construction, remodeling, or expansion… within the Gateway District requires a Zoning Compliance Permit. The Zoning Compliance Permit is indefinite in duration and the entitlements stated on the permit shall run with the land. A Zoning Compliance Permit is granted after determination that the proposal complies with all applicable standards set forth within this Section (Thoroughfare Standards, Civic Space Standards, Building Type Standards, Parking, and Design Standards)."*

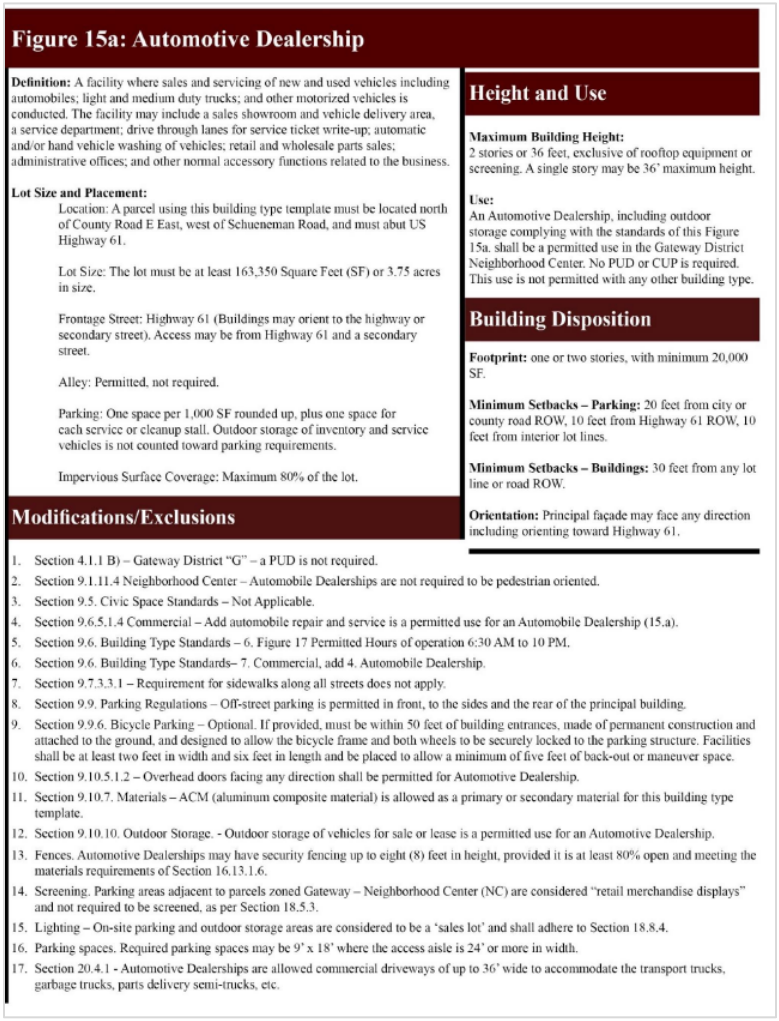


Figure 15a: Automotive Dealership

Definition: A facility where sales and servicing of new and used vehicles including automobiles; light and medium duty trucks; and other motorized vehicles is conducted. The facility may include a sales showroom and vehicle delivery area, a service department; drive through lanes for service ticket write-up; automatic and/or hand vehicle washing of vehicles; retail and wholesale parts sales; administrative offices; and other normal accessory functions related to the business.

Lot Size and Placement:

Location: A parcel using this building type template must be located north of County Road E East, west of Schueneman Road, and must abut US Highway 61.

Lot Size: The lot must be at least 163,350 Square Feet (SF) or 3.75 acres in size.

Frontage Street: Highway 61 (Buildings may orient to the highway or secondary street). Access may be from Highway 61 and a secondary street.

Alley: Permitted, not required.

Parking: One space per 1,000 SF rounded up, plus one space for each service or cleanup stall. Outdoor storage of inventory and service vehicles is not counted toward parking requirements.

Impervious Surface Coverage: Maximum 80% of the lot.

Height and Use

Maximum Building Height:
2 stories or 36 feet, exclusive of rooftop equipment or screening. A single story may be 36' maximum height.

Use:
An Automotive Dealership, including outdoor storage complying with the standards of this Figure 15a. shall be a permitted use in the Gateway District Neighborhood Center. No PUD or CUP is required. This use is not permitted with any other building type.

Building Disposition

Footprint: one or two stories, with minimum 20,000 SF.

Minimum Setbacks – Parking: 20 feet from city or county road ROW, 10 feet from Highway 61 ROW, 10 feet from interior lot lines.

Minimum Setbacks – Buildings: 30 feet from any lot line or road ROW.

Orientation: Principal façade may face any direction including orienting toward Highway 61.

Modifications/Exclusions

1. Section 4.1.1 B) – Gateway District "G" – a PUD is not required.
2. Section 9.1.11.4 Neighborhood Center – Automobile Dealerships are not required to be pedestrian oriented.
3. Section 9.5. Civic Space Standards – Not Applicable.
4. Section 9.6.5.1.4 Commercial – Add automobile repair and service is a permitted use for an Automobile Dealership (15.a).
5. Section 9.6. Building Type Standards – 6. Figure 17 Permitted Hours of operation 6:30 AM to 10 PM.
6. Section 9.6. Building Type Standards– 7. Commercial, add 4. Automobile Dealership.
7. Section 9.7.3.3.1 – Requirement for sidewalks along all streets does not apply.
8. Section 9.9. Parking Regulations – Off-street parking is permitted in front, to the sides and the rear of the principal building.
9. Section 9.9.6. Bicycle Parking – Optional. If provided, must be within 50 feet of building entrances, made of permanent construction and attached to the ground, and designed to allow the bicycle frame and both wheels to be securely locked to the parking structure. Facilities shall be at least two feet in width and six feet in length and be placed to allow a minimum of five feet of back-out or maneuver space.
10. Section 9.10.5.1.2 – Overhead doors facing any direction shall be permitted for Automotive Dealership.
11. Section 9.10.7. Materials – ACM (aluminum composite material) is allowed as a primary or secondary material for this building type template.
12. Section 9.10.10. Outdoor Storage. - Outdoor storage of vehicles for sale or lease is a permitted use for an Automotive Dealership.
13. Fences. Automotive Dealerships may have security fencing up to eight (8) feet in height, provided it is at least 80% open and meeting the materials requirements of Section 16.13.1.6.
14. Screening. Parking areas adjacent to parcels zoned Gateway – Neighborhood Center (NC) are considered "retail merchandise displays" and not required to be screened, as per Section 18.5.3.
15. Lighting – On-site parking and outdoor storage areas are considered to be a 'sales lot' and shall adhere to Section 18.8.4.
16. Parking spaces. Required parking spaces may be 9' x 18' where the access aisle is 24' or more in width.
17. Section 20.4.1 - Automotive Dealerships are allowed commercial driveways of up to 36' wide to accommodate the transport trucks, garbage trucks, parts delivery semi-trucks, etc.

Figure 12. Building Type 15a: Automotive Dealership

Section 9.2.2.6 states *"All applicants seeking a Zoning Compliance Permit must submit a development plan with their application."* Requirements for a development plan are found in Section 9. 7.2.

Section 9.8 outlines the plans for re-development of a single lot. This process requires administrative approval, pending approval of the lot line adjustment.

All requirements are met in conjunction with the proposed subdivision/lot line adjustments. The Zoning compliance permit will be administratively approved contingent on an approved subdivision. If the subdivision is not approved, the zoning compliance permit will be reevaluated administratively for compliance.

Public Comments

The following public comments were received including a letter from the Daniels Farm Road Homeowners Association:

- Rob and Debbie Bredsten: 47 Summit Farm Lane are concerned about the potential tree removal shown in the previous plans and increased traffic along County Road E and Highway 61.
- Debra Suhadolnik: 46 Summit Farm Lane has concerns about the lack of a buffer on the west end of Parcel 4 to protect properties from noise and commercial light from the business. The property owner is also concerned about the removal of the line of mature conifers violating tree preservation requirements as these serve as a natural barrier. Additional comments include examining the traffic flow and lighting impacts on the neighboring properties.
    - Correspondence dated 11/10/2026 also received with comments on natural barriers and lighting height.
- Patti and Barry Kostyk: 44 Summit Farm Lane are opposed to the expansion due to safety when existing Summit Farm Lane onto County Road E, particularly if crossing east, and noise and light concerns with the expansion being closer to Gem Lake Villas.
- John Kuduk: 43 Summit Farm Lane is not in support of the Zoning Text Amendment and concerned with the car dealership is moving too far west from Highway 61. Primary concerns include exterior lighting for the parking lot impacting residential properties, traffic and safety related to larger car-carrier delivery

trucks, noise pollution including public address system and mechanical work, and the value the tree canopy provides as a natural buffer.

- Sue Hicks: 29 Summit Farm Lane has questions about how the proposed expansion benefits the City and its residents with interest in understanding the potential tax revenue compared to a residential development. The property owner is interested in opportunities to expand the existing trail and prairie areas and light pollution including operating hours.
- The Daniels Farm Road Owners Association stated that their primary concern is the removal of hundreds of mature trees, many over 80 years old, which provide a natural buffer, visually and acoustically, between the existing dealership, Highway 61, County Road E, and nearby homes. The Association requests that the project complies with the City's tree preservation ordinance or propose reasonable alternatives that preserve and mitigate the removal of the existing trees. Other comments include the desire to preserve the field, wetland areas, and watershed functions in as natural a condition as possible through a conservation easement. The Association also commented on the need for effective protections and screenings along the north and west of the property to protect against noise and light pollution. Examples include a well-designed wall or fence to block headlights, downward and shielded lighting, automatic dimming or shutoff during overnight hours, and reasonable controls on construction and operating noise.
    - Alan and Beverly Bergstrom: 17 Daniels Farm Road support this letter.
    - Anthony Scornavacco and Michael Garrett: 7 Daniels Farm Road support this letter.
    - John L. Kuny: 9 Daniels Farm Road supports this letter.
    - Sherri and Ben Johnson: 11 Daniels Farm Road supports this letter.
    - Stephanie Farrell: 21 Daniels Farm Road supports this letter.
    - Tom and Laura Rasmussen: 3 Daniels Farm Road supports this letter.
    - Beth and Jim Tschida: 5 Daniels Farm Road support this letter.
        - Beth and Jim Tschida had additional comments and concerns. The owners are not in support of the Zoning Text Amendment to exempt Building Type 15a – Automotive Dealership from the requirements of the Tree Preservation ordinance with comments on how the proposed ordinance amendment meets the intent of the conditions in Section 17.6.4.1 of Ordinance 131. The owners also have questions about the impervious surface coverage and how the open space can be maintained as a condition of approval as a conservation easement. The owners also have concerns about whether Section 18.10 Performance Standards applies and addresses a potential conflict with Section 18.17 where loading berths for trucks over two tons within 100 feet of a residence district are to be enclosed and require loading audible in a residential district to stop between 7 p.m. and 7 a.m. The owners had questions about how the measurements of the tree inventory were prepared as 383 of the 406 red pines carry the identical entry of 14 inches and 70 feet with the desire to see the methodology and sample included on the tree preservation plan. The Planning Commission should consider addressing transport-truck deliveries, car wash and service-bay doors on the west side, and outdoor paging or public address systems on the hours of use as well as conditioning the outdoor speakers. The Planning Commission should also consider adding a dimming requirement and a post-completion affidavit from a registered lighting engineer confirming the lighting has a 3000K maximum color temperature.

Staff Comments

The project plans were forwarded to staff and other agencies for comments. The City Attorney and City Engineer are reviewing the draft development agreement and stormwater operations and maintenance agreements and will provide comments. The following comments were received:

- Minnesota Department of Transportation (MnDOT) reviewed the applications and provided a formal review letter dated October 6, 2026 with no concerns apart from permitting, data, plans and model submissions, which are included as conditions of approval.
- Minnesota Department of Natural Resources (MN DNR) reviewed the application and does not have comments.
- Ramsey County is reviewing the application and provided final comments on 10/12/2026, which are included as conditions of approval.
- Vadnais Heights Watershed Management Organization (VLAWMO) has no comments. Wetland delineation was approved on 7/14/2026.
- City of Vadnais Heights provided a memo dated 8/7/2026 identifying comments to be incorporated into conditions of approval.
    - *The applicant provided a letter included in the packet from the current carwash with the total usage on site and compared to the proposed plan for overall usage. While number of washes is expected to go up, the new system will have a percentage of water reuse that will lead to an overall reduction in water usage for the new carwash. The existing carwash on site has no water reusage in place today, and the proposed system will. Included in the submittal are letters from Broadway confirming these numbers on the existing and proposed systems. The overall reduction is expected to be roughly 61.1% in yearly water usage. The following table provides a comparison of existing usage and washes compared to the expected for the car wash:*

	Wash/Day	Gallons/Wash	Gallons/Day	Gallons/Year
Existing Carwash	120	54	6,482	2,021,760
Proposed Carwash	140	18	2,520	786,240
Difference	+20	-36	-3,960	-1,235,520

Figure 11: Existing and Proposed Car Wash – Number of Washes per day, Gallons per wash, day, and year.

- Fire Department (City of White Bear Lake) comments were addressed through the applicant exhibits dated on 9/18/2026 in a turning exhibit and utility detail included in the packet.
- Building Official has no comments.
- City Engineer reviewed the applications and provided a memo updated on 9/25/2026 to reflect the remaining items still outstanding and will be incorporated as a condition of approval.
- City Attorney is reviewing the application and will provide comments.

ACTION

The City Council has the three applications with each requiring a separate motion of the following options for each of the separate applications:

1. Approve the request, with or without conditions.
2. Deny the request, with findings for denial.
3. Table the request for further review/study.

RECOMMENDATION

The Planning Commission gave a (5-0) vote of no recommendation at their October 6, 2026 meeting on the proposed zoning text amendment, amending Building Type 15a to add Modification/Exclusion (18), based on the findings of fact that the amendment is inconsistent with Land Use Goals #1 & 9 as well as Policy #11.

The Planning Commission gave a (4-1) vote to positively recommend approval at their October 6, 2026 meeting of the minor subdivision of 1491, 1485, and 0 County Road E East, and 3651 Highway 61 resulting in two lots. .

The Planning Commission (3-2) recommended denial a zoning compliance certificate to allow for redevelopment of a car dealership at their October 6, 2026 with the findings that the application does not comply with the requirements of Section 27 Tree Preservation.

Since staff received updated plans on November 6, 2026 and the applicant intends to withdraw the Zoning Text Amendment, the proposed minor subdivision and zoning compliance certificate for redevelopment of Apple Auto meets the requirements of Ordinance 131, the Consolidated Land Use Ordinance.

1) **Minor Subdivision.** Staff recommends approval of the minor subdivision. As proposed and with conditions, the minor subdivision of 1491, 1485, and 0 County Road E East, and 3651 Highway 61 complies with the requirements of the subdivision ordinance resulting in two lots with the following conditions:
    a. The proposed minor subdivision between 1491, 1485, and 0 County Road E East, and 3651 Highway 61 resulting in two lots, shall adhere to the dimensions as proposed in the plans submitted to the City on 11/6/26 and reviewed with this request. WBL Auto Real Estate, LLC will consolidate the new dealership parcel with the existing 3651 Highway 61 parcel at a future date. <u>This future lot consolidation will be included as a condition of approval, prior to building permits being issued.</u>
    b. The proposed lot line adjustment shall include new legal descriptions for each parcel.
    c. The applicant shall record the minor subdivision with Ramsey County within one year of the date when the request was approved by City Council.
    d. The applicant shall adhere to all applicable local, State, or Federal regulations.
    e. The applicant shall acquire any other applicable local, State, or Federal permits for this request.
        i. MnDOT requires an access permit for work on access to US 61 and for any other use of, or work within or affecting. A MnDOT drainage permit is required before development occurs. The permit applicant shall demonstrate that the off-site runoff entering MnDOT drainage system(s) and/or right of way will not increase. The following information must be submitted with the drainage permit application: Grading plans, drainage plans, and hydraulic calculations demonstrating that proposed flows to MnDOT right of way remain the same as existing conditions or are reduced. Existing and proposed drainage area maps with flow arrows and labeling that corresponds with the submitted calculations. Hydro CAD model and PDF of output for the 2, 10, and 100-year Atlas 14 storm events. Once a drainage permit application is submitted, a thorough review will be completed, and additional information may be requested.
        ii. Ramsey County has the following comments to be included as conditions of approval. Revise proposed plan details to show valley gutters reinstalled per the appropriate County detail. At the easterly entrance that is being removed, remove and replace the existing valley gutter, with curb and gutter to match the adjacent curb and gutter on CR E. Permits are needed for closure of existing accesses, new commercial accesses, stormwater connections, once approved, sanitary connection, and City water connection. Sheet C7.2, detail 10, revise to show the contraction joints perpendicular to the mainline curb and gutter.
        iii. The City of Vadnais Heights requires plumbing permits and inspections for the proposed public water connection with separate meters required for domestic, irrigation, fire protection and car wash uses for billing purposes. Ramsey County may require right-of-way permits, and copies must be submitted with the plumbing permit applications. Please

submit any revised plans prepared for final approval so the City of Vadnais Heights can review and comment on them.

f. The applicant and City shall finalize a Development Agreement and a Stormwater Operations and Maintenance Agreement prior to obtaining any building permits and recording with Ramsey County.

g. The applicant shall pay all fees and escrows associated with this request.

2) **Zoning Compliance Permit**. Staff recommends approval of the zoning compliance certificate to allow for redevelopment of a car dealership with the findings that the application complies with the requirements of Ordinance 131, the Consolidated Land Use Ordinance. After the October 20, 2026 City Council meeting and with the revised plans submitted, approval of the zoning compliance certificate is subject to the following conditions:

a. The applicant shall construct the proposed building and sales lot as per the plans submitted to the City on 11/06/2026 and revise the plans to address comments from the City Engineer dated September 25, 2026 and the Traffic Impact Study dated September 25, 2026:

i. Locate signage and landscaping to avoid creating any sight distance issues.

ii. Review truck maneuverability to limit potential internal circulation conflicts.

iii. Preserve the ability to accommodate a future multimodal facility (i.e., sidewalk or trail) along the north side of County Road E within the project site limits.

b. A Development Agreement shall be entered into with the City and recorded with Ramsey County against the property as well as a Stormwater Maintenance and Operations Agreement.

c. The applicant may construct the proposed fencing shown on the site plan, with said fencing meeting the requirements of Section 16.13. and Building Type Template 15a.

i. No loading berth of vehicles over two-tons capacity shall be closer than one-hundred (100') feet to any residence district unless completely enclosed by building walls not less than eight (8') feet in height.

ii. Where noise from loading or unloading activity is audile in a residential district, the activity shall terminate between the hours of 7:00 p.m. and 7:00 a.m.

d. The applicant must dim sales lot and parking lot lighting to 15% illuminance between the hours of 10:00 p.m. and 6:00 a.m. Said lighting shall be able to be motion-activated to 100% illuminance for security purposes.

i. After completion of any outdoor lighting system the property owner may be required to submit an affidavit, by a registered lighting engineer, that the completed project does not exceed the requirements of this section.

e. The applicant shall adhere to all applicable local, State, or Federal regulations.

f. The applicant shall acquire any other applicable local, State, or Federal permits for this request.

i. MnDOT requires an access permit for work on access to US 61 and for any other use of, or work within or affecting. A MnDOT drainage permit is required before development occurs. The permit applicant shall demonstrate that the off-site runoff entering MnDOT drainage system(s) and/or right of way will not increase. The following information must be submitted with the drainage permit application: Grading plans, drainage plans, and hydraulic calculations demonstrating that proposed flows to MnDOT right of way remain the same as existing conditions or are reduced. Existing and proposed drainage area maps with flow arrows and labeling that corresponds with the submitted calculations. Hydro CAD model and PDF of output for the 2, 10, and 100-year Atlas 14 storm events. Once a drainage permit application is submitted, a thorough review will be completed and additional information may be requested.

ii. Ramsey County has the following comments to be included as conditions of approval. Revise proposed plan details to show valley gutters reinstalled per the appropriate County detail. At the easterly entrance that is being removed, remove and replace the

existing valley gutter, with curb and gutter to match the adjacent curb and gutter on CR E. Permits are needed for closure of existing accesses, new commercial accesses, stormwater connections, once approved, sanitary connection, and City water connection. Sheet C7.2, detail 10, revise to show the contraction joints perpendicular to the mainline curb and gutter.

iii. The City of Vadnais Heights requires plumbing permits and inspections for the proposed public water connection with separate meters required for domestic, irrigation, fire protection and car wash uses for billing purposes. Ramsey County may require right-of-way permits, and copies must be submitted with the plumbing permit applications. Please submit any revised plans prepared for final approval so the City of Vadnais Heights can review and comment on them.

g. The applicant shall pay all fees and escrows associated with this request.

Attachments:

Resolution No. 2026-29 (Minor Subdivision Approval)
Resolution No. 2026-30 (Zoning Compliance Certificate Approval)
Project Narrative
Apple Ford Response to Comments dated 9/14/2026
Apple Ford Response to Comments dated 9/28/2026
Minor Subdivision Application
Zoning Compliance Certificate Application
Existing and Proposed Legal Descriptions
Existing and Proposed Conditions
Technical Evaluation Panel Form dated 6/24/2026
Notice of Decision (VLAWMO) dated 7/14/2026
Photometric Plan dated 11/6/2026
Tree Inventory dated 7/24/2026
Minor Subdivision dated 11/6/2026
Civil Plan Set (Grading, Utility, Landscape, etc.) dated 11/6/2026
Stormwater Management Plan dated 11/6/2026
Fire Truck Turning Exhibit dated 11/6/2026
Traffic Impact Study dated 9/25/2026
Current and Proposed Water Usage
Illustrative Site Plan dated 10/12/2026
Landscape Comparison Exhibit dated 10/12/2026
Public Hearing Notice – Newspaper
Public Hearing Notice – Neighborhood
Mailing List
City Engineer Memo dated 8/25/2026
City Engineer Memo dated 9/25/2026
Ramsey County Comments dated 10/1/2026
MnDOT Review S25-047 Apple Auto Group dated 1/12/2026
MnDOT Review S25-047A Apple Auto Group dated 10/6/2026
City of Vadnais Heights – Apple Ford Review Memo dated 08/7/2026
Minnesota Land Trust letter dated 10/6/2026
Written Comment from Daniels Farm Road Homeowners Association
Written Comment from Alan and Beverly Bergstrom - 17 Daniel Farm Road
Written Comment from Anthony Scornavacco - Michael Garrett 7 Daniels Farm Road
Written Comment from Beth and Jim Tschida - 5 Daniels Farm Road
Written Comment from Beth and Jim Tschida – 5 Daniels Farm Road dated 10/5/2026 and 10/6/2026
Written Comment from Rob and Debbie Bredsten – 47 Summit Farm Lane dated 11/10/2026
Written Comment from Debra Suhadolnik - 46 Summit Farm Lane dated 9/21/2026 and 11/10/2026

Written Comment from Patti and Barry Kostyk – 44 Summit Farm Lane dated 11/10/2026
Written Comment from John Kuduk - 43 Summit Farm Lane
Written Comment from John L. Kuny - 9 Daniels Farm Road
Written Comment from Sherri & Ben Johnson - 11 Daniels Farm Road
Written Comment from Stephanie Farrell - 21 Daniels Farm Road
Written Comment from Sue Hicks - 29 Summit Farm Lane
Written Comment from Tom & Laura Rasmussen 3 Daniels Farm Road

CIS:ATB

CITY OF GEM LAKE, MINNESOTA
RESOLUTION NO. 2026-29

APPROVING A MINOR SUBDIVISION FOR A LOT LINE ADJUSTMENT FOR 0 COUNTY ROAD E E (PID 273022340007) AND CONSOLIDATE THAT PARCEL AS WELL AS COMMONLY OWNED PROPERTY 1491 COUNTY ROAD E E (PID 273022340009) AND 1485 COUNTY ROAD E E (PID 273022340006) CONSOLIDATING INTO TWO PARCELS,

WHEREAS, Chris Gulbrandson of Apple Autos on behalf of, WBL Auto Real Estate LLC, the owner of three parcels, made an application to request a minor subdivision for a lot line adjustment and consolidate the commonly owned parcels into one parcel between the properties listed above; and

WHEREAS, the applicant has provided current legal descriptions of the properties and proposed legal descriptions as Exhibit A and B, respectively:

0 County Road E E (PID 273022340007)

1491 County Road E E (PID 273022340009) and 1485 County Road E E (PID 273022340006)

WHEREAS, the Planning Commission reviewed the request at a duly noticed public hearing on October 6, 2026, and a duly noticed meeting on October 20, 2026, and determined that the proposed request meets the criteria for a minor subdivision, and voted to recommend approval of the request with conditions; and

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF GEM LAKE, RAMSEY COUNTY, MINNESOTA, that it should and hereby does approve a minor subdivision request for a lot line adjustment for 0 County Road E E and to consolidate the portion of 0 County Road E E with commonly owned properties at 1491 County Road E E and 1485 County Road E E into two separate parcels, based on the following findings:

1. The proposed subdivision will result in three (3) or fewer fully conforming lots in an area where conditions are well defined. Only once shall a subdivision of 3 lots or less be allowed in any one (1) parcel of property. All lots proposed shall have frontage on a street as required by this Ordinance.
2. In the case of a request to divide an existing lot, where the division is to permit the adding of a parcel of land to an abutting lot, or to create two (2) lots, and the newly created property line will not cause the other remaining portion of the lot or any structure to be in violation with this Ordinance.

3. The request would not create any new lots. The lot line adjustment would result in both parcels being compliant with the requirements of Ordinance 131, and the request would be consistent with the City's 2040 Comprehensive Plan.

FURTHER BE IT RESOLVED that the following condition of approval shall be met:

1) The proposed minor subdivision between 1491, 1485, and 0 County Road E East, and 3651 Highway 61 resulting in two lots, shall adhere to the dimensions as proposed in the plans submitted to the City on 8/7/26 and reviewed with this request. WBL Auto Real Estate, LLC will consolidate the new dealership parcel with the existing 3651 Highway 61 parcel at a future date. This future lot consolidation will be included as a condition of approval, prior to building permits being issued.
2) The proposed lot line adjustment shall include new legal descriptions for each parcel.
3) The applicant shall record the minor subdivision with Ramsey County within one year of the date when the request was approved by City Council.
4) The applicant shall adhere to all applicable local, State, or Federal regulations.
5) The applicant shall acquire any other applicable local, State, or Federal permits for this request.
6) MnDOT requires an access permit for work on access to US 61 and for any other use of, or work within or affecting. A MnDOT drainage permit is required before development occurs. The permit applicant shall demonstrate that the off-site runoff entering MnDOT drainage system(s) and/or right of way will not increase. The following information must be submitted with the drainage permit application: Grading plans, drainage plans, and hydraulic calculations demonstrating that proposed flows to MnDOT right of way remain the same as existing conditions or are reduced. Existing and proposed drainage area maps with flow arrows and labeling that corresponds with the submitted calculations. Hydro CAD model and PDF of output for the 2, 10, and 100-year Atlas 14 storm events. Once a drainage permit application is submitted, a thorough review will be completed and additional information may be requested.
7) Ramsey County has the following comments to be included as conditions of approval. Revise proposed plan details to show valley gutters reinstalled per the appropriate County detail. At the easterly entrance that is being removed, remove and replace the existing valley gutter, with curb and gutter to match the adjacent curb and gutter on CR E. Permits are needed for closure of existing accesses, new commercial accesses, stormwater connections, once approved, sanitary connection, and City water connection. Maintenance Engineer stated that the contraction joints shown on C7.2, Detail 10 shall be perpendicular to the mainline curb and gutter.
8) The City of Vadnais Heights requires plumbing permits and inspections for the proposed public water connection with separate meters required for domestic, irrigation, fire protection and car wash uses for billing purposes. Ramsey County may require right-of-way permits, and copies must be submitted with the plumbing permit applications. Please submit any revised plans prepared for final approval so the City of Vadnais Heights can review and comment on them.
9) The applicant and City shall finalize a Development Agreement as well as a Stormwater Operations and Maintenance Agreement prior to obtaining any building permits and recording with Ramsey County.

10) The applicant shall pay all fees and escrows associated with this request.

Adopted by the City Council of Gem Lake, Ramsey County, Minnesota, on this 17th day of November, 2026.

_____	_____
Gretchen Artig-Swomley, Mayor	Barbara Suciu, City Clerk

Attachment A

EXISTING LEGAL DESCRIPTION

0 County Road E E (PID 273022340007) – 19.561 ACRES GROSS AREA

That part of the Southwest Quarter of Section 27, Township 30, Range 22, Ramsey County, Minnesota, described as follows: Beginning at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence North 00 degrees 03 seconds 30 seconds East a distance of 443.00 feet; thence west, parallel with said South line of the Southwest Quarter, for a distance of 560 feet, more or less, to the northerly extension of the center line of International Drive (being a line lying 30 feet westerly of, and parallel with, the West line of Lot 3, Block 1, VADNAIS HEIGHTS SPORTS COMPLEX, according to the recorded plat thereof); thence southerly along said extended center line for a distance of 443 feet to said South line of the Southwest Quarter; thence east along said South line for a distance of 562 feet, more or less, to the point of beginning.

AND

That part of the Southwest Quarter of Section 27, Township 30, Range 22, Ramsey County, Minnesota, described as follows: Commencing at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence North 00 degrees 03 minutes 30 seconds East a distance of 443.00 feet to the point of beginning of that parcel of land to be described: thence continuing North 00 degrees 03 minutes, 30 seconds East a distance of 696.59 feet more or less to the Southerly line of premises described in deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota in Book “1453” of Deeds, Page 152, thence Westerly along the Southerly line of premises described in Book “1453” of Deeds, Page 152, and said line extended to the Easterly line of premises described in Deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota, in Book “1454” of Deeds, Page 213; thence South 50 degrees 50 minutes West, a distance of 46.61 feet; thence South 68 degrees 31 minutes West, a distance of 85 feet; thence North 72 degrees 03 minutes West, a distance of 52 feet; thence South 26 degrees 20 minutes West a distance of 210.5 feet; thence South at right angles to the South line of said Southwest Quarter a distance of 886 feet to the South line of said Southwest Quarter, thence East along the South line of said Southwest Quarter a distance of 256 feet more or less, to the northerly extension of the center line of International Drive (being a line lying 30 feet westerly of, and parallel with the West line of Lot 3, Block 1, VADNAIS HEIGHTS SPORTS COMPLEX, according to the recorded plat thereof); thence northerly along said extended center line for a distance of 443.00 feet; thence east, parallel with said South line of the Southwest Quarter, for a distance of 560 feet, more or less, to the point of beginning. Excepting therefrom a 40 foot strip of land, the Westerly and Northerly line of which is described as follows: beginning at a point on the South line of said Southwest Quarter of said Section 27 distant 935 feet East of the Southwest Corner of said Section 27; thence North at right angles to said South line 886 feet; thence North 26 degrees 20 minutes East 210.5 feet; thence South 72 degrees 03 minutes East 52 feet; thence North 68 degrees 31 minutes East, 85 feet; thence North 50 degrees 50 minutes East to the extended South line of premises

described in said Book "1453" Deeds, Page 152. Together with an easement for road purposes, in common with others, over and across the last above described 40 foot strip of land.

Abstract Property

1491 County Road E E (PID 273022340009) and 1485 County Road E E (PID 273022340006) – 7.614 ACRES GROSS AREA

That part of the Southwest Quarter of Section 27, Township 30 North, Range 22 West, Ramsey County, Minnesota, described as follows:

Beginning at a point on the South line of said Southwest Quarter, distant 349.48 feet West of the Southeast corner thereof; thence continue West on the South line of said Southwest Quarter a distance of 524.59 feet; thence North parallel with the East line of said Southwest Quarter a distance of 857.27 feet to a point hereinafter known as Point "A"; thence East a distance of 191 feet on a line which passes through a point 709.07 feet Easterly of aforesaid Point "A" and 856.84 feet North of the South line of said Southwest Quarter as measured along the East line thereof; thence deflect to the right on an angle of 87 degrees 38 minutes 13 seconds and to a point distant 519 feet North of the South line of said Southwest Quarter as measured along the East line thereof; thence East parallel with the South line of said Southwest Quarter a distance of 126.71 feet; thence North parallel with the East line of said Southwest Quarter a distance of 93.20 feet; thence East parallel with the South line of said Southwest Quarter a distance of 55 feet; thence South parallel with the East line of said Southwest Quarter a distance of 114.20 feet; thence South 84 degrees 26 minutes 50 seconds East a distance of 29 feet; thence South 0 degrees 2 minutes 30 seconds West (assumed bearing) parallel with the East line of said Southwest Quarter a distance of 51 feet; thence North 88 degrees 35 minutes 22 seconds East a distance of 89.55 feet; thence Southerly to the point of beginning.

Abstract Property

Attachment B

PROPOSED LEGAL DESCRIPTIONS

1491 County Road E E (PID 273022340009) and 1485 County Road E E (PID 273022340006) – 18.169 ACRES GROSS AREA

PARCEL A:

That part of the Southwest Quarter of Section 27, Township 30, Range 22, Ramsey County, Minnesota, described as follows: Beginning at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence North 00 degrees 03 seconds 30 seconds East, parallel with the east line of the Southwest Quarter a distance of 1139.59 feet more or less to the Southerly line of premises described in deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota in Book "1453" of Deeds, Page 152, thence Westerly along the Southerly line of premises described in Book "1453" of Deeds, Page 152, and said line extended to the Easterly line of premises described in Deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota, in Book "1454" of Deeds, Page 213; thence South 50 degrees 50 minutes West, a distance of 46.61 feet; thence South 68 degrees 31 minutes West, a distance of 85 feet; thence North 72 degrees 03 minutes West, a distance of 52 feet; thence South 26 degrees 20 minutes West a distance of 210.5 feet; thence South at right angles to the South line of said Southwest Quarter a distance of 886 feet to the South line of said Southwest Quarter, thence East along the South line of said Southwest Quarter a distance of 817.48 feet to the point of beginning. Excepting therefrom a 40 foot strip of land, the Westerly and Northerly line of which is described as follows: beginning at a point on the South line of said Southwest Quarter of said Section 27 distant 935 feet East of the Southwest Corner of said Section 27; thence North at right angles to said South line 886 feet; thence North 26 degrees 20 minutes East 210.5 feet; thence South 72 degrees 03 minutes East 52 feet; thence North 68 degrees 31 minutes East, 85 feet; thence North 50 degrees 50 minutes East to the extended South line of premises described in said Book "1453" Deeds, Page 152.

All lying easterly and northerly of Line A described as follows:

Commencing at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence westerly 238.17 feet along said south line to the point of beginning of said Line A to be described; thence North 00 degrees 03 minutes 30 seconds East, parallel with the East line of said Southwest Quarter, a distance of 308.45 feet; thence west, parallel with said south line of the Southwest Quarter a distance of 53.53 feet, thence North 00 degrees 03 minutes 30 seconds East, parallel with the East line of said Southwest Quarter, a distance of 464.39 feet; thence west, parallel with said south line of the Southwest Quarter a distance of 486.73 feet, more or less, to the east line of said 40 foot strip thereof and said Line A there terminating.

Together with an easement for road purposes, in common with others, over and across the last above described 40 foot strip of land.

AND

That part of the Southwest Quarter of Section 27, Township 30 North, Range 22 West, Ramsey County, Minnesota, described as follows:

Beginning at a point on the South line of said Southwest Quarter, distant 349.48 feet West of the Southeast corner thereof; thence continue West on the South line of said Southwest Quarter a distance of 524.59 feet; thence North parallel with the East line of said Southwest Quarter a distance of 857.27 feet to a point hereinafter known as Point "A"; thence East a distance of 191 feet on a line which passes through a point 709.07 feet Easterly of aforesaid Point "A" and 856.84 feet North of the South line of said Southwest Quarter as measured along the East line thereof; thence deflect to the right on an angle of 87 degrees 38 minutes 13 seconds and to a point distant 519 feet North of the South line of said Southwest Quarter as measured along the East line thereof; thence East parallel with the South line of said Southwest Quarter a distance of 126.71 feet; thence North parallel with the East line of said Southwest Quarter a distance of 93.20 feet; thence East parallel with the South line of said Southwest Quarter a distance of 55 feet; thence South parallel with the East line of said Southwest Quarter a distance of 114.20 feet; thence South 84 degrees 26 minutes 50 seconds East a distance of 29 feet; thence South 0 degrees 2 minutes 30 seconds West (assumed bearing) parallel with the East line of said Southwest Quarter a distance of 51 feet; thence North 88 degrees 35 minutes 22 seconds East a distance of 89.55 feet; thence Southerly to the point of beginning.

0 County Road E E (PID 273022340007) – 9.006 ACRES GROSS AREA
PARCEL B:

That part of the Southwest Quarter of Section 27, Township 30, Range 22, Ramsey County, Minnesota, described as follows: Beginning at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence North 00 degrees 03 seconds 30 seconds East, parallel with the east line of the Southwest Quarter a distance of 1139.59 feet more or less to the Southerly line of premises described in deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota in Book "1453" of Deeds, Page 152, thence Westerly along the Southerly line of premises described in Book "1453" of Deeds, Page 152, and said line extended to the Easterly line of premises described in Deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota, in Book "1454" of Deeds, Page 213; thence South 50 degrees 50 minutes West, a distance of 46.61 feet; thence South 68 degrees 31 minutes West, a distance of 85 feet; thence North 72 degrees 03 minutes West, a distance of 52 feet; thence South 26 degrees 20 minutes West a distance of 210.5 feet; thence South at right angles to the South line of said Southwest Quarter a distance of 886 feet to the South line of said Southwest Quarter, thence East along the South line of said Southwest Quarter a distance of 817.48 feet to the point of beginning. Excepting therefrom a 40 foot strip of land, the Westerly and Northerly line of which is described as follows: beginning at a point on the South line of said Southwest Quarter of said Section 27 distant 935 feet East of the Southwest Corner of said Section 27; thence North at right angles to said South line 886 feet; thence North 26 degrees 20 minutes East 210.5 feet; thence South 72 degrees 03 minutes East 52 feet; thence North 68 degrees 31 minutes East, 85 feet; thence North 50 degrees 50 minutes East to the extended South line of premises described in said Book "1453" Deeds, Page 152.

All lying westerly and southerly of Line A described as follows:

Commencing at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence westerly 238.17 feet along said south line to the point of beginning of said Line A to be described; thence North 00 degrees 03 minutes 30 seconds East, parallel with the East line of said Southwest Quarter, a distance of 308.45 feet; thence west, parallel with said south line of the Southwest Quarter a distance of 53.53 feet, thence North 00 degrees 03 minutes 30 seconds East, parallel with the East line of said Southwest Quarter, a distance of 464.39 feet; thence west, parallel with said south line of the Southwest Quarter a distance of 486.73 feet, more or less, to the east line of said 40 foot strip thereof and said Line A there terminating.

Together with an easement for road purposes, in common with others, over and across the last above described 40 foot strip of land.

CITY OF GEM LAKE, MINNESOTA
RESOLUTION NO. 2026-30

APPROVING A ZONING COMPLIANCE PERMIT FOR 3651 HIGHWAY 61, PID 273022340010

WHEREAS, Chris Gulbrandson of Apple Autos on behalf of, WBL Auto Real Estate, LLC, the owner of the parcel, made an application to request a zoning compliance permit to allow for a redevelopment project located at the property listed above; and

WHEREAS, the Planning Commission reviewed the request at a duly noticed public hearing on October 6, 2026, and determined that the proposed request does not meets the criteria approval, and voted to recommend against approval of the request with conditions; and

WHEREAS, the City Council reviewed the request on October 20, 2026, and recommended changes to the plan, which the applicant incorporated with their revised plans dated November 6, 2026, meeting the code requirements of Ordinance 131, the Consolidated Land Use Ordinance ; and

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF GEM LAKE, RAMSEY COUNTY, MINNESOTA, that it should and hereby does direct staff to approve and issue a zoning compliance permit to allow for a redevelopment project located at the property addressed as 3651 Highway 61.

FURTHER BE IT RESOLVED that the following conditions of approval shall be met:

1. The applicant shall construct the proposed building and sales lot as per the plans submitted to the City on 11/06/2026 and revise the plans to address comments from the City Engineer dated September 25, 2026 and the Traffic Impact Study dated September 25, 2026:
    a. Locate signage and landscaping to avoid creating any sight distance issues.
    b. Review truck maneuverability to limit potential internal circulation conflicts.
    c. Preserve the ability to accommodate a future multimodal facility (i.e., sidewalk or trail) along the north side of County Road E within the project site limits.
2. The applicant may construct the proposed fencing shown on the site plan, with said fencing meeting the requirements of Section 16.13. and Building Type Template 15a.

   a. No loading berth of vehicles over two-tons capacity shall be closer than one-hundred (100') feet to any residence district unless completely enclosed by building walls not less than eight (8') feet in height.
   b. Where noise from loading or unloading activity is audile in a residential district, the activity shall terminate between the hours of 7:00 p.m. and 7:00 a.m.
3. The applicant must dim sales lot and parking lot lighting to 15% illuminance between the hours of 10pm and 6am. Said lighting shall be able to be motion-activated to 100% illuminance for security purposes.
   a. After completion of any outdoor lighting system the property owner may be required to submit an affidavit, by a registered lighting engineer, that the completed project does not exceed the requirements of this section.
4. The applicant shall adhere to all applicable local, State, or Federal regulations.
5. The applicant shall acquire any other applicable local, State, or Federal permits for this request.
   a. MnDOT requires an access permit for work on access to US 61 and for any other use of, or work within or affecting. A MnDOT drainage permit is required before development occurs. The permit applicant shall demonstrate that the off-site runoff entering MnDOT drainage system(s) and/or right of way will not increase. The following information must be submitted with the drainage permit application: Grading plans, drainage plans, and hydraulic calculations demonstrating that proposed flows to MnDOT right of way remain the same as existing conditions or are reduced. Existing and proposed drainage area maps with flow arrows and labeling that corresponds with the submitted calculations. Hydro CAD model and PDF of output for the 2, 10, and 100-year Atlas 14 storm events. Once a drainage permit application is submitted, a thorough review will be completed and additional information may be requested.
   b. Ramsey County has the following comments to be included as conditions of approval. Revise proposed plan details to show valley gutters reinstalled per the appropriate County detail. At the easterly entrance that is being removed, remove and replace the existing valley gutter, with curb and gutter to match the adjacent curb and gutter on CR E. Permits are needed for closure of existing accesses, new commercial accesses, stormwater connections, once approved, sanitary connection, and City water connection. Maintenance Engineer stated that the contraction joints shown on C7.2, Detail 10 shall be perpendicular to the mainline curb and gutter.
   c. The City of Vadnais Heights requires plumbing permits and inspections for the proposed public water connection with separate meters required for domestic, irrigation, fire protection and car wash uses for billing purposes. Ramsey County may require right-of-way permits, and copies must be submitted with the plumbing permit applications. Please submit any revised plans prepared for final approval so the City of Vadnais Heights can review and comment on them.

6. The applicant and City shall finalize a Development Agreement as well as a Stormwater Operations and Maintenance Agreement prior to obtaining any building permits and recording with Ramsey County.
7. The applicant shall pay all fees and escrows associated with this request.

Adopted by the City Council of Gem Lake, Ramsey County, Minnesota, on this 17th day of November, 2026.

_____	_____
Gretchen Artig-Swomley, Mayor	Barbara Suciu, City Clerk

LANDFORM
From Site to Finish

Narrative

Alternative Plan for a Minor Subdivision and Zoning Compliance Permit for Apple Ford White Bear Lake

Prepared for:

Apple Autos

Apple Autos

November 6, 2026



SUBMITTED TO
City of Gem Lake
4200 Otter Lake Road
Gem Lake, MN 55110

PREPARED BY
Landform Professional Services, LLC
105 5th Ave S, Suite 513
Minneapolis, MN 55401

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Introduction

On behalf of Apple Autos, Landform is pleased to submit this alternative application for minor subdivision and zoning compliance permit approval to allow demolition and reconstruction of the Apple Ford White Bear Lake Dealership at 1493 County Road E. The site includes four parcels that are used by the existing dealership on site. Our redevelopment plan includes consolidating four existing parcels into two parcels, building a new dealership on the corner of Highway 61 and County Road E and removing the existing facilities once completed. We are excited about the improvements proposed for this site.

This alternative application package includes a new site plan that would eliminate the need for a Zoning Text Amendment and would fully comply with all applicable City requirements.

The project site is four parcels identified with the following PIDs:

- Parcel 1: 273022340010
- Parcel 2: 273022340009
- Parcel 3: 273022340006
- Parcel 4: 273022340007

Option 1: Original Applications

The plans that were presented to the City Council on October 20, 2026, included an application for the following:

1. Zoning Text Amendment that would allow Building Type 15a the ability to negotiate Tree Preservation Reforestation requirements with the City Council when approved.

2. Minor Subdivision of Parcel 4 to take a portion of Parcel 1 and combine with Parcels 2 and 3.
    a. While Section 25.6 of Gem Lake Ordinance 131 describes this process as a Minor Subdivision, this is not a subdivision as defined in MN Statutes Section 463.352, Subd. 12, which lists it as exempted under Subd. 12(3).

3. Zoning Compliance Permit for a redevelopment within the Gateway District.

We are leaving this application active to give the City Council the opportunity to evaluate our new submission against this existing option. The existing narrative, staff reports, and City Council presentation still stand with this original plan. We have not made any changes to the design and plan since the previous City Council Meeting.

Option 2: Compliant Site Plan

We are pleased to submit an alternative set of plans that would fully comply with all requirements of the Gem Lake City Code. This set of plans would now only require the following applications:

1. Minor Subdivision of Parcel 4 to take a portion and combine with Parcels 2 and 3.
    a. A larger portion of Parcel 4 will now be included to accommodate the shifted parking lot.
    b. While Section 25.6 of Gem Lake Ordinance 131 describes this process as a Minor Subdivision, this is not a subdivision as defined in MN Statutes Section 463.352, Subd. 12, which lists it as exempted under Subd. 12(3).

2. Zoning Compliance Permit for a redevelopment within the Gateway District.
    a. According to The Gem Lake Code, Ordinance 131 Section 9-8 (Plans for Re-development of Single Lot or Small Subdivisions), this application would qualify for administrative review by the Zoning Administrator since it meets all the following requirements:
        i. The proposed action is not an addition or expansion to an existing building.
        ii. The land is developed at the time of our application.
        iii. No new streets are required.
        iv. The application is eligible for a minor subdivision.

This new application now complies with Tree Preservation and does not trigger any reforestation. The plan complies with all other requirements including but not limited to:

- Lighting
- Landscaping
- Screening
- Dimensional Requirements

This alternative plan will preserve 643 trees and provide 262 new trees for a total of 905 trees total on site. The plans show removal of only 122 trees. This fall well below the removal maximum for both shoreland and non-shoreland areas as found on the Tree Preservation and Protection plan. The proposed building location has not changed, and all stormwater facilities have been redesigned to accommodate the satellite parking area behind the now preserved tree line. Finally, this site plan still provides enhanced screening and fencing beyond what is required by City Code along this new parking lot and the north side of the existing dealership parcels.

This is presented as an option since we want to work with the City Council and staff to determine which plan is the best overall for the site and community.

Summary

We respectfully request the City Council approve one of the options for our site redevelopment. This project through either option would allow demolition and reconstruction of the Apple Ford White Bear Lake Dealership at 1493 County Road E. Option 1 was presented previously and remains as a choice for the City to work with our development team on flexibility in Tree Preservation in exchange for added benefits not required by the City Code. Alternatively, Option 2 is presented as a fully compliant plan that meets all requirements as is. We are prepared to proceed with either alternative and are excited to work with the City of Gem Lake on this redevelopment opportunity.

Contact Information

This document was prepared by:

Zeke Peters, AICP
Landform
105 South Fifth Avenue, Suite 513
Minneapolis, MN 55401

Any additional questions regarding this application can be directed to Steve Sabraski at ssabraski@landform.net or 612.638.0243.

MEMO

LANDFORM
From Site to Finish

105 South Fifth Avenue
Suite 513
Minneapolis, MN 55401

Tel: 612-252-9070
Web: landform.net

DATE	September 14, 2026
TO	Andrew Boucher – City of Gem Lake Community Planner
CC	Justin Gese, PE City of Gem Lake Engineer
FROM	Steve Sabraski, PE
RE	Apple Ford White Bear Lake – Development Submittal 8/10/26 Review Comments SEH No. GEMLK 171858 14.00

Mr. Boucher,

Below is a list of compiled comments from the 07/24/2026 submittal for the Apple Ford Redevelopment Project. Responses to the comments can be found below in *italics*.

I. City of Gem Lake

General Site comments

1. Provide water service connection after the hydrant tee near County Rd. E with 10"x8" reducer. Install a new gate valve near the right of way.

Landform Response: Water connection has been updated to match request

2. Call out tip out curb throughout grading plan.

Landform Response: Tip out curbing added to plan

3. Provide paving section information throughout the site along with GE values.

Landform Response: Paving sections are referenced in the notes on sheet C3.1 and are based on recommendations from geotechnical engineer. Refer to geotech report for recommendations.

4. Provide review acceptance letter from MnDOT, Ramsey County, Vadnais Heights, Fire Department, and MN Dept. of Health.

Landform Response: Will be provided once received.

Stormwater comments

5. Coverage under the MPCA's Construction Stormwater (CSW) General Permit must be obtained prior to any land disturbing activities.

Landform Response: Permit to be applied for

CREATING MEMORABLE PLACES 30 YEARS

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6. Provide documentation from Ramsey Washington Metro Watershed District that the project is not within their jurisdiction given that that the project is located right on the boundary and some drainage appears to flow south, outside of the VLAWMO area.

Landform Response: RWMWD has provided written response to the City indicating that this project falls outside their jurisdiction.

7. Prepare an Erosion and Sediment Control Plan and SWPPP Consistent with the MPCA's CSW Permit and Gem Lake City Code Section 22

Landform Response: SWPPP has been added to the plan set

8. Include tabulated data in the Stormwater Plan identifying the following (in acres):
    a. Disturbed Area
    b. New Impervious Area
    c. Fully Reconstructed Impervious Area
    d. Required Water Quality Volume

Landform Response: Values added to the stormwater report.

9. Ensure all pipes have adequate capacity for 10-year runoff.

Landform Response: Calculations provided are designed for 10-yr storm intensities

10. Describe pre-treatment. Note that per Gem Lake City Code Section 22.2.3.6 all permanent stormwater management facilities with discharge points to wetlands must include pre-treatment.

Landform Response: Sump manholes have now been indicated on the plan for pretreatment.

11. Describe energy dissipation at outfalls to ponding areas and discharge points.

Landform Response: Rip-rap added to all above ground stormwater discharge points

12. HydroCAD reports and Pond Design Worksheet have inconsistent drainage areas. Revise as appropriate.

Landform Response: Areas have been revised and checked to now match and be consistent.

13. Provide additional narrative, plan information, and details on the underground stormwater chamber system. The stormwater plan refers to this as 'underground detention basin with filtration'. As presently shown, it does not appear to meet the minimum depth requirements for detention as listed in the CSW Permit and it is unclear why the Pond Design Worksheet does not show the discharge rate for water quality volume. The 'underground ponding system' detail does not seem to support filtration through the entire section.

Landform Response: The underground system is CMP detention that outlets to a Manufactured Treatment Device (MTD) that will filter the stormwater discharge. A weir at the outlet will control the volume sent to the MTD which will be set at the required elevation to treat the minimum required stormwater as required by Gem Lake stormwater rules (1.1" over the impervious surface). Stormwater narrative has been updated to describe the water volume being treated by the MTD.

14. Submit information consistent with the requirements of per Gem Lake City Code Section 22.2.5.

Landform Response: Maintenance Agreement will be provided at a later date.

15. Submit entire WCA Notice of Decision (including attachments) so compliance can be verified.

Landform Response: WCA notice of decision will be provided with all attachments.

II. City of Vadnais Heights

1. The City of Vadnais Heights requires plumbing permits and inspections for the proposed public water connection.

Landform Response: Permits will be applied to Vadnais Heights for public water connection. Note added to Utility plan for inspections.

2. Ramsey County may require right-of-way permits, and copies must be submitted with the plumbing permit applications.

Landform Response: Right of Way Permit to be acquired at a later date.

3. Public water connections must include separate meters for billing purposes. These connections may include separate metering for domestic, irrigation, fire protection and car wash uses.

Landform Response: Note added to plan that separate metering will be required.

4. Because of the ongoing White Bear Lake water level litigation, the proposed car wash facility must include a water-recycling system. Please provide details on the recycling rate for further review and comment.

Landform Response: Details on water recycling system to be provided at a later date.

5. Final plans should include the required DIP reducer and DIP sleeve at the planned connection to the City's watermain.

Landform Response: Plan updated to show this at connection.

6. Please submit any revised plans prepared for final approval so the City of Vadnais Heights can review and comment on them.

Landform Response: Noted.

III. Ramsey County

1. Provide more detail on the connection to the County drainage systems at STM Connection 700. As proposed the invert is higher than the existing conditions and will obstruct drainage from the County CB to the east.

Landform Response: The inlet #700 into the existing manhole is coming in at a 960.06 and does not impact any existing inlets or the outlet that are going into the structure. There will be no impact to the existing catch basin to the east as it will sit higher than that existing inlet.

2. Conflict between the HydroCAD results and HWL shown on plans - which is correct and where does the EOF discharge? To the US 61 ditch or Co Rd E drainage system?

Landform Response: Conflict resolved and data now matches the models. The EOF as shown on sheet C3.1 is at a 963.84 and will be discharged to the US HWY 61 ditch and run North. The 100-yr HWL of the pond is below the EOF.

Sincerely,



Steve Sabraski, P.E.

MEMO

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Minneapolis, MN 55401

Tel: 612-252-9070
Web: landform.net

DATE	September 28, 2026
TO	Andrew Boucher – City of Gem Lake Community Planner
CC	Justin Gese, PE City of Gem Lake Engineer
FROM	Steve Sabraski, PE
RE	Apple Ford White Bear Lake – Additional Comment Reponses

Following the Planning Commission meeting on September 1, 2026, and the new application for a Zoning Ordinance Text Amendment, we are providing two updates on items that are still outstanding overall.

I. Traffic Impact Study

The Traffic Impact Study (TIS) has been updated to reflect the current building and site design, including the coffee shop use. This report is included in this submittal and addresses the comments regarding the access changes, building footprint, and inclusion of the coffee shop. Outside of these changes, no major operational effect or recommendations are made for the study beyond what was contained in the original report.

II. City of Vadnais Heights - Carwash

The City of Vadnais Heights has requested additional information regarding the carwash planned on site due to the ongoing issues related to water use in the area. Included in this submittal are some items that demonstrate an overall reduction in water usage for the proposed carwash when compared to the existing one found on the site today.

The email from the consultant City Planner of Gem Lake, Andrew Boucher, dated September 22, 2026, stated the following:

The City of Vadnais Heights is still looking for an estimate on the number of car wash cycles planned to be washed annually, so they can have a basis to judge the 18 gallons per car water usage against. They stated that they can't really gauge that unless there is additional information provided with an analysis based on current water usage and projected water usage requested.

We are providing a letter from the current carwash that shows the total usage on site today and comparing it to the proposed plan for overall usage. While number of washes is expected to go up, the new system will have a percentage of water reuse that will lead to an overall reduction in water usage for the new carwash. The existing carwash on site has no water reusage in place today, and the proposed system will. Included in the submittal are letters from Broadway confirming these numbers on the existing and proposed systems. The overall reduction is expected to be roughly 61.1% in yearly water usage.

The following table provides a comparison of existing usage and washes compared to the expected for the car wash:

	Wash/Day	Gallons/Wash	Gallons/Day	Gallons/Year
Existing Carwash	120	54	6,482	2,021,760
Proposed Carwash	140	18	2,520	786,240
Difference	**+20**	**-36**	**-3,960**	**-1,235,520**

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Summary

We are excited to continue working with the City of Gem Lake and applicable agencies on this plan as it is developed. We look forward to the continued Public Hearing at the Planning Commission and for an opportunity to discuss and explore the proposed Zoning Ordinance Text Amendments on October 6, 2026.

ENCL: Broadway Letters
Updated TIS Report

Z-2026-004

City of Gem Lake
Heritage Hall
4200 Otter Lake Road | Gem Lake, MN 55110
651-747-2790/92 | 651-747-2795 (fax)
E-mail city@gemlakemn.org

Subdivision of Land Application

Applicant Information

Applicant: Chris Gulbrandson, Apple Autos

Address: 7200 West 150th Street

City: Apple Valley State: MN Zip: 55124

Home Phone: _____ Cell Phone: 952.985.2438

Email: CGulbrandson@appleautos.com

Property Information

Property Owner: WBL Auto Real Estate, LLC

Address: Same

City: - State: - Zip: -

Legal Description or PIN #: 273022340010, 273022340009, 273022340006, 273022340007 Property Size: Acres 32.39 Square feet 1,410,908.4

Current Zoning: Gateway - all subdistricts Current Use: Auto Dealership and Small-scale Agriculture

Proposed Future Use: Auto Dealership and Small-scale Agriculture

Type of Request

☒ Minor Subdivision (2-3 lots) ☐ Major Subdivision (4 plus lots) ☐ Lot Combination or Lot Line Adjustment

The applicant will be required to submit a plat prepared by a registered land surveyor showing the original lot and the proposed subdivision. The newly created parcels also shall meet all requirements of the Zoning Ordinance. A preliminary site plan for the proposed subdivided area showing building sites, driveway access points, drainage plans, and utility easements shall also be included.

It is the policy of The City of Gem Lake that all identifiable costs associated with Minor Subdivisions within the City shall be the sole responsibility of the owner of said property. The costs shall include but are not limited to the following: City planning review costs (reports, meetings, site review); engineering review costs; legal costs (preparation of hearing notices, legal research, certification costs); publication costs (notice of hearing); reappointment of assessments (engineers report); mailings and Ownership Reports (ownership/encumbrance).

Prior to the final hearing or determination by the City Council, all City expenses shall be paid by the owner. Subsequent expenses not paid at the time of final hearing or determination by the City (due to billings by consultants, etc.) shall be paid within 30 days upon receipt of a billing from the City. The application will be considered incomplete until all costs are paid to the city.

Data Practices Advisory (Tennessen Warning)

I understand that some of the information provided on this form will be public data. Public data is available to anyone who makes a request for such information. Under the Minnesota Data Practices Act, your address, email and/or telephone number are private data. You may choose not to provide some or all of this private data, but it may cause your Conditional Use Permit request to be denied. By completing this information, you are consenting to allow the City of Gem Lake staff to share this information in order to administer Gem Lake Ordinances regarding Conditional Use Permitting. Please sign below to affirm that you have read this notice.

Applicant Signature: _____ Date: 7/24/26

☒ Preliminary sketch of planned use of property.

☒ Five (5) copies of registered surveyors plat showing original land(s) and subdivision as proposed.

☒ Registered list of all adjacent property owners within 350 feet of the property obtained from Ramsey County Property Taxation.

☒ Drainage plans, utility easements, access points.

☒ Certification from Ramsey County Property Taxation that all property taxes and assessments have been paid.

☒ Other: Please see included transmittal

Office Use Only

Approval	Acting Body	Date
☐ Yes ☐ No	City Planner	/ /
☐ Yes ☐ No	City Engineer	/ /
☐ Yes ☐ No	Chief Building Official	/ /
☐ Yes ☐ No	VLAWMO	/ /
☐ Yes ☐ No	RWMWD	/ /
☐ Yes ☐ No		/ /

Approval	Acting Body	Date
☐ Yes ☐ No	City Clerk	/ /
☐ Yes ☐ No	Planning Commission	/ /
☐ Yes ☐ No	City Council	/ /
☐ Yes ☐ No	City Attorney	/ /
☐ Yes ☐ No	Ramsey County Taxation	/ /
☐ Yes ☐ No	Public Hearing	/ /

☐ Minor Subdivision (2-3 lots)	Fee: _____	Processing Fee: _____	Total Fee: _____		
☐ Subdivision of Property (4 plus lots)	Fee: _____	Processing Fee: _____	Total Fee: _____		
☐ Lot Combination or Lot Line Adjustment	Fee: _____	Processing Fee: _____	Total Fee: _____		
☐ Escrow	Fee: _____	Processing Fee: _____	Total Fee: _____		

Application Fee Payment Check No.: _____ Card Last 4: _____ Receipt No.: _____

Escrow Fee Payment Check No.: _____ Card Last 4: _____ Receipt No.: _____

Additional Fees	**Fee**	**Total Fee**
City Planning Review Costs		
Reports		
Meetings		
Site Review		
Engineering Review Costs		
Legal Costs		
Preparation of Hearing Notices		
Legal Research		
Certification		
Publication Costs		
Notice of Hearing		
Reapportionment of Assessments		
Engineers Report		
Mailing and Ownership Reports		
Postage		
Ownership/Encumbrance		
Other:		
Grand Total		

City of Gem Lake
Heritage Hall
4200 Otter Lake Road | Gem Lake, MN 55110
651-747-2790/92 | 651-747-2795 (fax)
E-mail city@gemlakemn.org

Zoning Compliance Request Application

Applicant: ■ Owner ☐ Contractor

Applicant Information

Applicant: Apple Autos, WBL Auto Real Estate, LLC

Address: 7200 West 150th Street

City: Apple Valley State: MN Zip: 55124

Contact Person: Chris Gulbrandson Business Phone: 952.985.2438

Cell Phone: _____ Email: CGulbrandson@appleautos.com

is hereby requesting a Zoning Compliance Permit to allow operation of the following activity**:
Redevelopment in the Gateway Zoning District as required by Section 9-8 for a new auto dealership.
Please refer to the attached narrative for more information regarding application and included properties.

at property located at

Address: 0, 1485, and 1491 County Road E & 3651 Highway 61 Gem Lake, Minnesota.

Applicant Signature: _____ Date: 7/21/26

** Applicant must submit complete description of requested activity and copies of plans for City Planner approval.
*** Additional information may be requested by the City Planner and/or City of Gem Lake.

Office Use Only $1800.

Permit No. 2026-003

☐ $200.00 fee paid ☐ ~~$1,500~~ deposit paid (escrow)

City Planner Approval:

☐ Yes Signature: _____ Date: _____

☐ No Signature: _____ Date: _____

Comments:

Date Application Complete: _____
(60-day rule compliance)

EXISTING PID NO. 273022340007 – 19.561 ACRES GROSS AREA

That part of the Southwest Quarter of Section 27, Township 30, Range 22, Ramsey County, Minnesota, described as follows: Beginning at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence North 00 degrees 03 seconds 30 seconds East a distance of 443.00 feet; thence west, parallel with said South line of the Southwest Quarter, for a distance of 560 feet, more or less, to the northerly extension of the center line of International Drive (being a line lying 30 feet westerly of, and parallel with, the West line of Lot 3, Block 1, VADNAIS HEIGHTS SPORTS COMPLEX, according to the recorded plat thereof); thence southerly along said extended center line for a distance of 443 feet to said South line of the Southwest Quarter; thence east along said South line for a distance of 562 feet, more or less, to the point of beginning.

AND

That part of the Southwest Quarter of Section 27, Township 30, Range 22, Ramsey County, Minnesota, described as follows: Commencing at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence North 00 degrees 03 minutes 30 seconds East a distance of 443.00 feet to the point of beginning of that parcel of land to be described: thence continuing North 00 degrees 03 minutes, 30 seconds East a distance of 696.59 feet more or less to the Southerly line of premises described in deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota in Book “1453” of Deeds, Page 152, thence Westerly along the Southerly line of premises described in Book “1453” of Deeds, Page 152, and said line extended to the Easterly line of premises described in Deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota, in Book “1454” of Deeds, Page 213; thence South 50 degrees 50 minutes West, a distance of 46.61 feet; thence South 68 degrees 31 minutes West, a distance of 85 feet; thence North 72 degrees 03 minutes West, a distance of 52 feet; thence South 26 degrees 20 minutes West a distance of 210.5 feet; thence South at right angles to the South line of said Southwest Quarter a distance of 886 feet to the South line of said Southwest Quarter, thence East along the South line of said Southwest Quarter a distance of 256 feet more or less, to the northerly extension of the center line of International Drive (being a line lying 30 feet westerly of, and parallel with the West line of Lot 3, Block 1, VADNAIS HEIGHTS SPORTS COMPLEX, according to the recorded plat thereof); thence northerly along said extended center line for a distance of 443.00 feet; thence east, parallel with said South line of the Southwest Quarter, for a distance of 560 feet, more or less, to the point of beginning. Excepting therefrom a 40 foot strip of land, the Westerly and Northerly line of which is described as follows: beginning at a point on the South line of said Southwest Quarter of said Section 27 distant 935 feet East of the Southwest Corner of said Section 27; thence North at right angles to said South line 886 feet; thence North 26 degrees 20 minutes East 210.5 feet; thence South 72 degrees 03 minutes East 52 feet; thence North 68 degrees 31 minutes East, 85 feet; thence North 50 degrees 50 minutes East to the extended South line of premises described in said Book “1453” Deeds, Page 152. Together with an easement for road purposes, in common with others, over and across the last above described 40 foot strip of land.

Abstract Property

EXISTING PID NO. 273022340006 AND 273022340009 – 7.614 ACRES GROSS AREA

That part of the Southwest Quarter of Section 27, Township 30 North, Range 22 West, Ramsey County, Minnesota, described as follows:

Beginning at a point on the South line of said Southwest Quarter, distant 349.48 feet West of the Southeast corner thereof; thence continue West on the South line of said Southwest Quarter a distance of 524.59 feet; thence North parallel with the East line of said Southwest Quarter a distance of 857.27 feet to a point hereinafter known as Point "A"; thence East a distance of 191 feet on a line which passes through a point 709.07 feet Easterly of aforesaid Point "A" and 856.84 feet North of the South line of said Southwest Quarter as measured along the East line thereof; thence deflect to the right on an angle of 87 degrees 38 minutes 13 seconds and to a point distant 519 feet North of the South line of said Southwest Quarter as measured along the East line thereof; thence East parallel with the South line of said Southwest Quarter a distance of 126.71 feet; thence North parallel with the East line of said Southwest Quarter a distance of 93.20 feet; thence East parallel with the South line of said Southwest Quarter a distance of 55 feet; thence South parallel with the East line of said Southwest Quarter a distance of 114.20 feet; thence South 84 degrees 26 minutes 50 seconds East a distance of 29 feet; thence South 0 degrees 2 minutes 30 seconds West (assumed bearing) parallel with the East line of said Southwest Quarter a distance of 51 feet; thence North 88 degrees 35 minutes 22 seconds East a distance of 89.55 feet; thence Southerly to the point of beginning.

Abstract Property

PROPOSED PID NO. 273022340007 – 9.006 ACRES GROSS AREA

That part of the Southwest Quarter of Section 27, Township 30, Range 22, Ramsey County, Minnesota, described as follows: Beginning at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence North 00 degrees 03 seconds 30 seconds East, parallel with the east line of the Southwest Quarter a distance of 1139.59 feet more or less to the Southerly line of premises described in deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota in Book "1453" of Deeds, Page 152, thence Westerly along the Southerly line of premises described in Book "1453" of Deeds, Page 152, and said line extended to the Easterly line of premises described in Deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota, in Book "1454" of Deeds, Page 213; thence South 50 degrees 50 minutes West, a distance of 46.61 feet; thence South 68 degrees 31 minutes West, a distance of 85 feet; thence North 72 degrees 03 minutes West, a distance of 52 feet; thence South 26 degrees 20 minutes West a distance of 210.5 feet; thence South at right angles to the South line of said Southwest Quarter a distance of 886 feet to the South line of said Southwest Quarter, thence East along the South line of said Southwest Quarter a distance of 817.48 feet to the point of beginning. Excepting therefrom a 40 foot strip of land, the Westerly and Northerly line of which is described as follows: beginning at a point on the South line of said Southwest Quarter of said Section 27 distant 935 feet East of the Southwest Corner of said Section 27; thence North at right angles to said South line 886 feet; thence North 26 degrees 20 minutes East 210.5 feet; thence South 72 degrees 03 minutes East 52 feet; thence North 68 degrees 31 minutes East, 85 feet; thence North 50 degrees 50 minutes East to the extended South line of premises described in said Book "1453" Deeds, Page 152.

All lying westerly and southerly of Line A described as follows:

Commencing at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence westerly 238.17 feet along said south line to the point of beginning of said Line A to be described; thence North 00 degrees 03 minutes 30 seconds East, parallel with the East line of said Southwest Quarter, a distance of 308.45 feet; thence west, parallel with said south line of the Southwest Quarter a distance of 53.53 feet, thence North 00 degrees 03 minutes 30 seconds East, parallel with the East line of said Southwest Quarter, a distance of 464.39 feet; thence west, parallel with said south line of the Southwest Quarter a distance of 486.73 feet, more or less, to the east line of said 40 foot strip thereof and said Line A there terminating.

Together with an easement for road purposes, in common with others, over and across the last above described 40 foot strip of land.

PROPOSED PID NO. 273022340006 AND 273022340009 – 18.169 ACRES GROSS AREA

That part of the Southwest Quarter of Section 27, Township 30, Range 22, Ramsey County, Minnesota, described as follows: Beginning at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence North 00 degrees 03 seconds 30 seconds East, parallel with the east line of the Southwest Quarter a distance of 1139.59 feet more or less to the Southerly line of premises described in deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota in Book "1453" of Deeds, Page 152, thence Westerly along the Southerly line of premises described in Book "1453" of Deeds, Page 152, and said line extended to the Easterly line of premises described in Deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota, in Book "1454" of Deeds, Page 213; thence South 50 degrees 50 minutes West, a distance of 46.61 feet; thence South 68 degrees 31 minutes West, a distance of 85 feet; thence North 72 degrees 03 minutes West, a distance of 52 feet; thence South 26 degrees 20 minutes West a distance of 210.5 feet; thence South at right angles to the South line of said Southwest Quarter a distance of 886 feet to the South line of said Southwest Quarter, thence East along the South line of said Southwest Quarter a distance of 817.48 feet to the point of beginning. Excepting therefrom a 40 foot strip of land, the Westerly and Northerly line of which is described as follows: beginning at a point on the South line of said Southwest Quarter of said Section 27 distant 935 feet East of the Southwest Corner of said Section 27; thence North at right angles to said South line 886 feet; thence North 26 degrees 20 minutes East 210.5 feet; thence South 72 degrees 03 minutes East 52 feet; thence North 68 degrees 31 minutes East, 85 feet; thence North 50 degrees 50 minutes East to the extended South line of premises described in said Book "1453" Deeds, Page 152.

All lying easterly and northerly of Line A described as follows:

Commencing at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence westerly 238.17 feet along said south line to the point of beginning of said Line A to be described; thence North 00 degrees 03 minutes 30 seconds East, parallel with the East line of said Southwest Quarter, a distance of 308.45 feet; thence west, parallel with said south line of the Southwest Quarter a distance of 53.53 feet, thence North 00 degrees 03 minutes 30 seconds East, parallel with the East line of said Southwest Quarter, a distance of 464.39 feet; thence west, parallel with said south line of the Southwest Quarter a distance of 486.73 feet, more or less, to the east line of said 40 foot strip thereof and said Line A there terminating.

Together with an easement for road purposes, in common with others, over and across the last above described 40 foot strip of land.

AND

That part of the Southwest Quarter of Section 27, Township 30 North, Range 22 West, Ramsey County, Minnesota, described as follows:

Beginning at a point on the South line of said Southwest Quarter, distant 349.48 feet West of the Southeast corner thereof; thence continue West on the South line of said Southwest Quarter a distance of 524.59 feet; thence North parallel with the East line of said Southwest Quarter a distance of 857.27 feet to a point

hereinafter known as Point “A”; thence East a distance of 191 feet on a line which passes through a point 709.07 feet Easterly of aforesaid Point “A” and 856.84 feet North of the South line of said Southwest Quarter as measured along the East line thereof; thence deflect to the right on an angle of 87 degrees 38 minutes 13 seconds and to a point distant 519 feet North of the South line of said Southwest Quarter as measured along the East line thereof; thence East parallel with the South line of said Southwest Quarter a distance of 126.71 feet; thence North parallel with the East line of said Southwest Quarter a distance of 93.20 feet; thence East parallel with the South line of said Southwest Quarter a distance of 55 feet; thence South parallel with the East line of said Southwest Quarter a distance of 114.20 feet; thence South 84 degrees 26 minutes 50 seconds East a distance of 29 feet; thence South 0 degrees 2 minutes 30 seconds West (assumed bearing) parallel with the East line of said Southwest Quarter a distance of 51 feet; thence North 88 degrees 35 minutes 22 seconds East a distance of 89.55 feet; thence Southerly to the point of beginning.

EXISTING PID NO. 273022340007 - 19.561 ACRES GROSS AREA

That part of the Southwest Quarter of Section 27, Township 30, Range 22, Ramsey County, Minnesota, described as follows: Beginning at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence North 00 degrees 03 seconds 30 seconds East a distance of 443.00 feet; thence west, parallel with said South line of the Southwest Quarter, for a distance of 560 feet, more or less, to the northerly extension of the center line of International Drive (being a line lying 30 feet westerly of, and parallel with, the West line of Lot 3, Block 1, VADNAIS HEIGHTS SPORTS COMPLEX, according to the recorded plat thereof); thence southerly along said extended center line for a distance of 443 feet to said South line of the Southwest Quarter; thence east along said South line for a distance of 562 feet, more or less, to the point of beginning.

AND

That part of the Southwest Quarter of Section 27, Township 30, Range 22, Ramsey County, Minnesota, described as follows: Commencing at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence North 00 degrees 03 minutes 30 seconds East a distance of 443.00 feet to the point of beginning of that parcel of land to be described: thence continuing North 00 degrees 03 minutes, 30 seconds East a distance of 696.59 feet more or less to the Southerly line of premises described in deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota in Book "1453" of Deeds, Page 152, thence Westerly along the Southerly line of premises described in Book "1453" of Deeds, Page 152, and said line extended to the Easterly line of premises described in Deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota, in Book "1454" of Deeds, Page 213; thence South 50 degrees 50 minutes West, a distance of 46.61 feet; thence South 68 degrees 31 minutes West, a distance of 85 feet; thence North 72 degrees 03 minutes West, a distance of 52 feet; thence South 26 degrees 20 minutes West a distance of 210.5 feet; thence South at right angles to the South line of said Southwest Quarter a distance of 886 feet to the South line of said Southwest Quarter, thence East along the South line of said Southwest Quarter a distance of 256 feet more or less, to the northerly extension of the center line of International Drive (being a line lying 30 feet westerly of, and parallel with the West line of Lot 3, Block 1, VADNAIS HEIGHTS SPORTS COMPLEX, according to the recorded plat thereof); thence northerly along said extended center line for a distance of 443.00 feet; thence east, parallel with said South line of the Southwest Quarter, for a distance of 560 feet, more or less, to the point of beginning. Excepting therefrom a 40 foot strip of land, the Westerly and Northerly line of which is described as follows: beginning at a point on the South line of said Southwest Quarter of said Section 27 distant 935 feet East of the Southwest Corner of said Section 27; thence North at right angles to said South line 886 feet; thence North 26 degrees 20 minutes East 210.5 feet; thence South 72 degrees 03 minutes East 52 feet; thence North 68 degrees 31 minutes East, 85 feet; thence North 50 degrees 50 minutes East to the extended South line of premises described in said Book "1453" Deeds, Page 152. Together with an easement for road purposes, in common with others, over and across the last above described 40 foot strip of land.

Abstract Property

PROPOSED PID NO. 273022340007 - 9.006 ACRES GROSS AREA

That part of the Southwest Quarter of Section 27, Township 30, Range 22, Ramsey County, Minnesota, described as follows: Beginning at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence North 00 degrees 03 seconds 30 seconds East, parallel with the east line of the Southwest Quarter a distance of 1139.59 feet more or less to the Southerly line of premises described in deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota in Book "1453" of Deeds, Page 152, thence Westerly along the Southerly line of premises described in Book "1453" of Deeds, Page 152, and said line extended to the Easterly line of premises described in Deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota, in Book "1454" of Deeds, Page 213; thence South 50 degrees 50 minutes West, a distance of 46.61 feet; thence South 68 degrees 31 minutes West, a distance of 85 feet; thence North 72 degrees 03 minutes West, a distance of 52 feet; thence South 26 degrees 20 minutes West a distance of 210.5 feet; thence South at right angles to the South line of said Southwest Quarter a distance of 886 feet to the South line of said Southwest Quarter, thence East along the South line of said Southwest Quarter a distance of 817.48 feet to the point of beginning. Excepting therefrom a 40 foot strip of land, the Westerly and Northerly line of which is described as follows: beginning at a point on the South line of said Southwest Quarter of said Section 27 distant 935 feet East of the Southwest Corner of said Section 27; thence North at right angles to said South line 886 feet; thence North 26 degrees 20 minutes East 210.5 feet; thence South 72 degrees 03 minutes East 52 feet; thence North 68 degrees 31 minutes East, 85 feet; thence North 50 degrees 50 minutes East to the extended South line of premises described in said Book "1453" Deeds, Page 152.

All lying westerly and southerly of Line A described as follows:

Commencing at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence westerly 238.17 feet along said south line to the point of beginning of said Line A to be described; thence North 00 degrees 03 minutes 30 seconds East, parallel with the East line of said Southwest Quarter, a distance of 308.45 feet; thence west, parallel with said south line of the Southwest Quarter a distance of 53.53 feet, thence North 00 degrees 03 minutes 30 seconds East, parallel with the East line of said Southwest Quarter, a distance of 464.39 feet; thence west, parallel with said south line of the Southwest Quarter a distance of 486.73 feet, more or less, to the east line of said 40 foot strip thereof and said Line A there terminating.

Together with an easement for road purposes, in common with others, over and across the last above described 40 foot strip of land.

EXISTING PID NO. 273022340006 AND 273022340009 - 7.614 ACRES GROSS AREA

That part of the Southwest Quarter of Section 27, Township 30 North, Range 22 West, Ramsey County, Minnesota, described as follows:

Beginning at a point on the South line of said Southwest Quarter, distant 349.48 feet West of the Southeast corner thereof; thence continue West on the South line of said Southwest Quarter a distance of 524.59 feet; thence North parallel with the East line of said Southwest Quarter a distance of 857.27 feet to a point hereinafter known as Point "A"; thence East a distance of 191 feet on a line which passes through a point 709.07 feet Easterly of aforesaid Point "A" and 856.84 feet North of the South line of said Southwest Quarter as measured along the East line thereof; thence deflect to the right on an angle of 87 degrees 38 minutes 13 seconds and to a point distant 519 feet North of the South line of said Southwest Quarter as measured along the East line thereof; thence East parallel with the South line of said Southwest Quarter a distance of 126.71 feet; thence North parallel with the East line of said Southwest Quarter a distance of 93.20 feet; thence East parallel with the South line of said Southwest Quarter a distance of 55 feet; thence South parallel with the East line of said Southwest Quarter a distance of 114.20 feet; thence South 84 degrees 26 minutes 50 seconds East a distance of 29 feet; thence South 0 degrees 2 minutes 30 seconds West (assumed bearing) parallel with the East line of said Southwest Quarter a distance of 51 feet; thence North 88 degrees 35 minutes 22 seconds East a distance of 89.55 feet; thence Southerly to the point of beginning.

Abstract Property

PROPOSED PID NO. 273022340006 AND 273022340009 - 15.904 ACRES GROSS AREA

That part of the Southwest Quarter of Section 27, Township 30, Range 22, Ramsey County, Minnesota, described as follows: Beginning at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence North 00 degrees 03 seconds 30 seconds East, parallel with the east line of the Southwest Quarter a distance of 1139.59 feet more or less to the Southerly line of premises described in deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota in Book "1453" of Deeds, Page 152, thence Westerly along the Southerly line of premises described in Book "1453" of Deeds, Page 152, and said line extended to the Easterly line of premises described in Deed recorded in the office of the Register of Deeds of Ramsey County, Minnesota, in Book "1454" of Deeds, Page 213; thence South 50 degrees 50 minutes West, a distance of 46.61 feet; thence South 68 degrees 31 minutes West, a distance of 85 feet; thence North 72 degrees 03 minutes West, a distance of 52 feet; thence South 26 degrees 20 minutes West a distance of 210.5 feet; thence South at right angles to the South line of said Southwest Quarter a distance of 886 feet to the South line of said Southwest Quarter, thence East along the South line of said Southwest Quarter a distance of 817.48 feet to the point of beginning. Excepting therefrom a 40 foot strip of land, the Westerly and Northerly line of which is described as follows: beginning at a point on the South line of said Southwest Quarter of said Section 27 distant 935 feet East of the Southwest Corner of said Section 27; thence North at right angles to said South line 886 feet; thence North 26 degrees 20 minutes East 210.5 feet; thence South 72 degrees 03 minutes East 52 feet; thence North 68 degrees 31 minutes East, 85 feet; thence North 50 degrees 50 minutes East to the extended South line of premises described in said Book "1453" Deeds, Page 152.

All lying easterly and northerly of Line A described as follows:

Commencing at a point on the South line of said Southwest Quarter, distant 874.07 feet west of the Southeast corner of said Southwest Quarter; thence westerly 238.17 feet along said south line to the point of beginning of said Line A to be described; thence North 00 degrees 03 minutes 30 seconds East, parallel with the East line of said Southwest Quarter, a distance of 308.45 feet; thence west, parallel with said south line of the Southwest Quarter a distance of 53.53 feet, thence North 00 degrees 03 minutes 30 seconds East, parallel with the East line of said Southwest Quarter, a distance of 464.39 feet; thence west, parallel with said south line of the Southwest Quarter a distance of 486.73 feet, more or less, to the east line of said 40 foot strip thereof and said Line A there terminating.

Together with an easement for road purposes, in common with others, over and across the last above described 40 foot strip of land.

AND

That part of the Southwest Quarter of Section 27, Township 30 North, Range 22 West, Ramsey County, Minnesota, described as follows:

Beginning at a point on the South line of said Southwest Quarter, distant 349.48 feet West of the Southeast corner thereof; thence continue West on the South line of said Southwest Quarter a distance of 524.59 feet; thence North parallel with the East line of said Southwest Quarter a distance of 857.27 feet to a point hereinafter known as Point "A"; thence East a distance of 191 feet on a line which passes through a point 709.07 feet Easterly of aforesaid Point "A" and 856.84 feet North of the South line of said Southwest Quarter as measured along the East line thereof; thence deflect to the right on an angle of 87 degrees 38 minutes 13 seconds and to a point distant 519 feet North of the South line of said Southwest Quarter as measured along the East line thereof; thence East parallel with the South line of said Southwest Quarter a distance of 126.71 feet; thence North parallel with the East line of said Southwest Quarter a distance of 93.20 feet; thence East parallel with the South line of said Southwest Quarter a distance of 55 feet; thence South parallel with the East line of said Southwest Quarter a distance of 114.20 feet; thence South 84 degrees 26 minutes 50 seconds East a distance of 29 feet; thence South 0 degrees 2 minutes 30 seconds West (assumed bearing) parallel with the East line of said Southwest Quarter a distance of 51 feet; thence North 88 degrees 35 minutes 22 seconds East a distance of 89.55 feet; thence Southerly to the point of beginning.

SURVEY NOTES

1. Background information shown per field work performed by Landform on 2026-04-20 expressly for this project.
2. For the purposes of this survey, the bearing system is based on the Ramsey County coordinate system.
3. The surveyor does not guarantee, in writing or assumed, that the utilities as shown are in the exact location. No excavation was performed to locate the underground utilities.
4. Document Number 2609371 has multiple typos and cannot be accurately mapped. The mapped route shown is the Surveyor's interpretation of the intent of the gas easement route. Utility markings were not observed for gas in the area while conducting field work. The mapped route shown is in agreement with its depiction as shown on the plat of HUNTERS RUN OF GEM LAKE.
5. The legal descriptions for PID NO. 273022340007 do not directly call out a basis of bearing. The boundary shown assumes the East line of the Subject Property runs parallel with the East line of the Southwest Quarter of Section 27. This interpretation coincides with the adjoining description to the East and the found monumentation.
6. Delineated Wetlands shown per Preliminary Wetland Delineation preformed by Kjolhaug Environmental on 2026-04-28, job KES 2026-045.
7. Per Owner's Policy of Title Insurance No. 67964 by Guaranty Commercial Title, Inc., PIDs 273022340006 and 273022340009 are described in one legal description and may have been separated for tax purposes. The line dividing them appears to be undefined in documents provided by and obtained by the surveyor. The PIDs are treated as one parcel for the purposes of this survey.

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CLIENT

GRIES ARCHITECTURAL GROUP, INC.

PROJECT

APPLE FORD

GEM LAKE, MINNESOTA

ISSUE / REVISION HISTORY

CONTACT SURVEYOR FOR ANY PRIOR HISTORY

DATE	ISSUE / REVISION	DRAFTER	REVIEW

CERTIFICATION

I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the state of Minnesota.

Jerrod Gustavus LeSavage

License No. 58896 Date: 2026-11-06

Signature shown is a digital reproduction of original. Wet signed copy of this plan on file at Landform Professional Services, LLC office and is available upon request.

IF THE SIGNATURE, SEAL OR FOUR LINES DIRECTLY ABOVE ARE NOT VISIBLE, THIS SHEET HAS BEEN REPRODUCED BEYOND INTENDED READABILITY AND IS NO LONGER A VALID DOCUMENT. PLEASE CONTACT THE SURVEYOR TO REQUEST ADDITIONAL DOCUMENTS.

FILE NAME	VEBKGAG002 LLA.dwg
PROJECT NO.	GAG26002

MINOR SUBDIVISION

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LANDFORM
From Site to Finish

105 South Fifth Avenue
Suite 513
Minneapolis, MN 55401

Tel: 612-252-9070
Web: landform.net

Apple Autos Tree Iventory

DATE	7/24/26
PROJECT NAME	Apple Ford White Bear Lake
PROJECT NUMBER	GAG26002
PROJECT LOCATION	Gem Lake, MN
PREPARED BY	Landform

Summary Table

Shoreland							
Class	**Preserved (In)**	**Removed (In)**	**Total DBH (In)**	**Allowable Removed (In)**	**Excess Removed (In)**	**Replacement Factor**	**Replacement Quantitiy (In)**
A	1,265.00	1,781.00	3,046.00	304.60	1,476.40	75%	1,107.30
B	667.00	279.00	946.00	94.60	184.40	100%	184.40
C	1,369.00	107.00	1,476.00	147.60	(40.60)	125%	(50.75)
TOTALS	3,301.00	2,167.00	5,468.00	546.80			1,291.70
						TOTAL REQUIRED TREES	**517**

Non-Shoreland							
Class	**Preserved (In)**	**Removed (In)**	**Total DBH (In)**	**Allowable Removed (In)**	**Excess Removed (In)**	**Replacement Factor**	**Replacement Quantitiy (In)**
A	624.00	4,515.00	5,139.00	1,284.75	3,230.25	75%	2,422.69
B	222.00	386.00	608.00	152.00	234.00	100%	234.00
C	28.00	19.00	47.00	11.75	7.25	125%	9.06
TOTALS	874.00	4,920.00	5,794.00	1,448.50			2,656.69
						TOTAL REQUIRED TREES	**1,063**

Tree #	Species	Height	DBH	City classification	Required replacement inches	Survey code	Location	Preserve
1	Maple		10	B	10	TRMP 10IN	Shoreland	Remove
2	Maple		22	B	22	TRMP 22IN HALF DEAD	Shoreland	Remove
3	Maple		18	B	18	TRMP 18IN	Shoreland	Remove
4	Maple		26	B	26	TRMP 26IN	Shoreland	Remove
5	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
6	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
7	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
8	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
9	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
10	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
11	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
12	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
13	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
14	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
15	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
16	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
17	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
18	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
19	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
20	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
21	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
22	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
23	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
24	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
25	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
26	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
27	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
28	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
29	Red Pine	40 ft	12	A	9	TRPR 40FT	Shoreland	Remove
30	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
31	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
32	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
33	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
34	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
35	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
36	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
37	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
38	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
39	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
40	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
41	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
42	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
43	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
44	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
45	Red Pine	70 ft	14	A	10.5	TRPR 70FT 2 STEM	Shoreland	Remove
46	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
47	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
48	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
49	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
50	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
51	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
52	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
53	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
54	Red Pine	70 ft	14	A	10.5	TRPR 70FT 2 STEM	Shoreland	Remove
55	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
56	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
57	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
58	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
59	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
60	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
61	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
62	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
63	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
64	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
65	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
66	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
67	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
68	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
69	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
70	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
71	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
72	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
73	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
74	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
75	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
76	Red Pine	70 ft	8	A	6	TRPR 70FT	Shoreland	Remove
77	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
78	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
78	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Shoreland	Remove
79	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
79	Siberian Elm		9	B	9	TREM 9IN	Shoreland	Remove
80	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
80	Siberian Elm		28	B	28	TREM 28IN	Shoreland	Remove
81	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
81	Boxelder		8	A	6	TRBO 8IN 2 STEM	Shoreland	Remove
82	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
82	Silver Maple		24	B	24	TRSM 24IN	Shoreland	Remove
83	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
83	Siberian Elm		8	B	8	TREM 8IN	Shoreland	Remove
84	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove

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Tree #	Species	Height	DBH	City classification	Required replacement inches	Survey code	Location	Preserve
84	Poplar		10	A	7.5	TRPO 10IN	Shoreland	Remove
85	Oak		22	C	27.5	TROA 22IN	Shoreland	Remove
86	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
86	Siberian Elm		20	B	20	TREM 20IN	Shoreland	Remove
87	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
87	Siberian Elm		12	B	12	TREM 12IN	Shoreland	Remove
88	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
88	Boxelder		10	A	7.5	TRBO 10IN	Shoreland	Remove
89	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
89	Poplar		10	A	7.5	TRPO 10IN	Shoreland	Remove
90	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
90	Poplar		10	A	7.5	TRPO 10IN	Shoreland	Remove
91	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
91	Poplar		8	A	6	TRPO 8IN	Shoreland	Remove
92	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
92	Boxelder		10	A	7.5	TRBO 10IN	Shoreland	Remove
93	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
93	Boxelder		12	A	9	TRBO 12IN	Shoreland	Remove
94	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
94	Boxelder		12	A	9	TRBO 12IN	Shoreland	Remove
95	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
95	Cedar	25 ft	6	A	4.5	TRCR 25FT	Shoreland	Remove
96	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
96	Red Pine	40 ft	12	A	9	TRPR 40FT	Shoreland	Remove
97	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
97	Red Pine	60 ft	13	A	9.75	TRPR 60FT	Shoreland	Remove
98	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
98	Cedar	15 ft	5	A	3.75	TRCR 15FT	Shoreland	Remove
99	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
99	Red Pine	60 ft	13	A	9.75	TRPR 60FT	Shoreland	Remove
100	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
100	Red Pine	60 ft	13	A	9.75	TRPR 60FT	Shoreland	Remove
101	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
101	Siberian Elm		24	B	24	TREM 24IN 2 STEM	Shoreland	Remove
102	Red Pine	70 ft	14	A	10.5	TRPR 70FT 2 STEM	Non-Shoreland	Remove
102	Boxelder		14	A	10.5	TRBO 14IN	Shoreland	Remove
103	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
103	Boxelder		12	A	9	TRBO 12IN	Shoreland	Remove
104	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
104	Silver Maple		16	B	16	TRSM 16IN	Shoreland	Remove
105	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
105	Silver Maple		16	B	16	TRSM 16IN	Shoreland	Remove
106	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
106	Boxelder		10	A	7.5	TRBO 10IN	Shoreland	Remove
107	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
107	Red Pine	40 ft	11	A	8.25	TRPR 40FT	Shoreland	Remove
108	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
108	Red Pine	60 ft	13	A	9.75	TRPR 60FT	Shoreland	Remove
109	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
109	Cedar	20 ft	8	A	6	TRCR 20FT	Shoreland	Remove
110	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
110	Cedar	20 ft	8	A	6	TRCR 20FT	Shoreland	Remove
111	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
111	Boxelder		9	A	6.75	TRBO 9IN HALFDEAD	Shoreland	Remove
112	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
112	Pine	60 ft	13	A	9.75	TRPN 60FT	Shoreland	Remove
113	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
113	Cedar	20 ft	8	A	6	TRCR 20FT	Shoreland	Remove
114	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
114	Cedar	25 ft	8	A	6	TRCR 25FT	Shoreland	Remove
115	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
115	Cedar	25 ft	8	A	6	TRCR 25FT	Shoreland	Remove
116	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
116	Cedar	20 ft	8	A	6	TRCR 20FT	Shoreland	Remove
117	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
117	Siberian Elm		15	A	11.25	TREM 15IN	Shoreland	Remove
118	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
118	Siberian Elm		36	A	27	TREM 36IN 5 STEM	Shoreland	Remove
119	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
119	Oak		10	C	12.5	TROA 10IN	Shoreland	Remove
120	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
120	Oak		14	C	17.5	TROA 14IN	Shoreland	Remove
121	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
121	Oak		15	C	18.75	TROA 15IN	Shoreland	Remove
122	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
122	Oak		18	C	22.5	TROA 18IN	Shoreland	Remove
123	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
123	Silver Maple		20	B	20	TRSM 20IN	Shoreland	Remove
124	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
125	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
126	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
127	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
128	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
129	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
130	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
131	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
132	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
133	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
134	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
135	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
136	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
137	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
138	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
139	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
140	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
141	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
142	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
143	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
144	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
145	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
146	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
147	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
148	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
149	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
150	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
151	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
152	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
153	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
154	Boxelder		8	A	6	TRBO 8IN	Non-Shoreland	Remove
155	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
156	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
157	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
158	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
159	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
160	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
161	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
162	Red Pine	25 ft	9	A	6.75	TRPR 25FT HALF DEAD	Non-Shoreland	Remove
163	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
164	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
165	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
166	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
167	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
168	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
169	Red Oak		10	C	12.5	TRRO 10IN	Non-Shoreland	Remove
170	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
171	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
172	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
173	Red Oak		9	C	11.25	TRRO 9IN	Non-Shoreland	Remove
174	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove

Tree #	Species	Height	DBH	City classification	Required replacement inches	Survey code	Location	Preserve
175	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
176	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
177	Red Pine	15 ft	5	A	3.75	TRPR 15FT	Non-Shoreland	Remove
178	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
179	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
180	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
181	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
182	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
183	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
184	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
185	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
186	Red Pine	15 ft	5	A	3.75	TRPR 15FT	Non-Shoreland	Remove
187	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
188	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
189	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
190	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
191	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
192	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
193	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
194	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
195	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
196	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
197	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
198	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
199	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
200	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
201	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
202	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
203	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
204	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
205	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
206	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
207	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
208	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
209	Red Pine	70 ft	14	A	10.5	TRPR 70	Non-Shoreland	Remove
210	Siberian Elm		12	B	12	TREM 12IN	Non-Shoreland	Remove
211	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
212	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
213	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
214	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
215	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
216	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
217	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
218	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
219	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
220	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
221	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
222	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
223	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
224	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
225	Red Pine	70 ft	14	A	10.5	TRPR 40FT	Non-Shoreland	Remove
226	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
227	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
228	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
229	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
230	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
231	Red Pine	70 ft	14	A	10.5	TRPR 40FT	Non-Shoreland	Remove
232	Red Pine	70 ft	14	A	10.5	TRPR 20FT	Non-Shoreland	Remove
233	Red Pine	70 ft	14	A	10.5	TRPR 60FT	Non-Shoreland	Remove
234	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
235	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
236	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
237	Red Pine	70 ft	14	A	10.5	TRPR 50FT	Non-Shoreland	Remove
238	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
239	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
240	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
241	Boxelder		14	A	10.5	TRBO 14IN 2 STEM	Non-Shoreland	Remove
242	Poplar		22	A	16.5	TRPO 22IN	Non-Shoreland	Remove
243	Siberian Elm		18	B	18	TREM 18IN 2 STEM	Non-Shoreland	Remove
244	Siberian Elm		13	B	13	TREM 13IN 2 STEM	Non-Shoreland	Remove
245	Siberian Elm		12	B	12	TREM 12IN	Non-Shoreland	Remove
246	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
247	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
248	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
249	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
250	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
251	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
252	Red Pine	70 ft	14	A	10.5	TRPR 30FT	Non-Shoreland	Remove
253	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
254	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
255	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
256	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
257	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
258	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
259	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
260	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
261	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
262	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
263	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
264	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
265	Red Pine	70 ft	14	A	10.5	TRPR 70FT 2 STEM	Non-Shoreland	Remove
266	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
267	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
268	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
269	Red Pine	60 ft	13	A	9.75	TRPR 60FT 2 STEM	Non-Shoreland	Remove
270	Red Pine	60 ft	13	A	9.75	TRPR 60FT	Non-Shoreland	Remove
271	Red Pine	60 ft	13	A	9.75	TRPR 60FT	Non-Shoreland	Remove
272	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
273	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
274	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
275	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
276	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
277	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
278	Siberian Elm		12	B	12	TREM 12IN	Non-Shoreland	Remove
279	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
280	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
281	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
282	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
283	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
284	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
285	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
286	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
287	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
288	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
289	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
290	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
291	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
292	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
293	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
294	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
295	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
296	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
297	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
298	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
299	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
300	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
301	River Birch		12	B	12	TRBI 12IN 2 STEM	Non-Shoreland	Remove
302	Poplar		14	A	10.5	TRPO 14IN	Non-Shoreland	Remove
303	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
304	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
305	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
306	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
307	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
308	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
309	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
310	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
311	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
312	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove

Tree #	Species	Height	DBH	City classification	Required replacement inches	Survey code	Location	Preserve
313	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
314	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
315	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
316	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
317	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
318	Boxelder		24	A	18	TRBO 24IN	Non-Shoreland	Remove
319	Boxelder		24	A	18	TRBO 24IN	Non-Shoreland	Remove
320	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
321	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
322	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
323	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
324	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
325	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
326	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
327	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
328	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
329	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
330	Red Pine	50 ft	14	A	10.5	TRPR 50FT	Non-Shoreland	Remove
331	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
332	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
333	Red Pine	50 ft	12	A	9	TRPR 50FT	Non-Shoreland	Remove
334	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
335	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
336	Red Pine	50 ft	12	A	9	TRPR 50FT	Non-Shoreland	Remove
337	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
338	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
339	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
340	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
341	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
342	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
343	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
344	Siberian Elm		14		14	TREM 14IN	Non-Shoreland	Remove
345	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
346	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
347	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
348	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
349	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
350	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
351	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
352	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
353	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
354	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
355	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
356	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
357	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
358	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
359	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
360	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
361	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
362	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
363	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
364	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
365	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
366	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
367	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
368	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
369	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
370	Red Pine	70 ft	14	A	10.5	TRPR 70FT 2 STEM	Non-Shoreland	Remove
371	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
372	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
373	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
374	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
375	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
376	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
377	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
378	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
379	Red Pine	70 ft	14	A	10.5	TRSP 70FT	Non-Shoreland	Remove
380	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
381	Red Pine	50 ft	12	A	9	TRPR 50FT	Non-Shoreland	Remove
382	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
383	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
384	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
385	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
386	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
387	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
388	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
389	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
390	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
391	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
392	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
393	Red Pine	30 ft	10	A	7.5	TRPR 30FT	Non-Shoreland	Remove
394	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
395	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
396	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
397	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
398	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
399	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
400	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
401	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
402	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
403	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Remove
404	Red Pine	40 ft	12	A	9	TRPR 70FT	Non-Shoreland	Remove
405	Spruce	50 ft	12	A	9	TRSP 50FT	Non-Shoreland	Preserve
406	Boxelder		8	A	6	TRBO 8IN	Non-Shoreland	Remove
407	Boxelder		12	A	9	TRBO 12IN 2 STEM	Non-Shoreland	Preserve
408	Siberian Elm		8	B	8	TREM 8IN	Non-Shoreland	Remove
409	Siberian Elm		12	B	12	TREM 12IN	Non-Shoreland	Remove
410	Siberian Elm		12	B	12	TREM 12IN	Non-Shoreland	Remove
411	Siberian Elm		14	B	14	TREM 14IN	Non-Shoreland	Remove
412	Siberian Elm		11	B	11	TREM 11IN	Non-Shoreland	Remove
413	Siberian Elm		14	B	14	TREM 14IN	Non-Shoreland	Remove
414	Siberian Elm		10	B	10	TREM 10IN	Non-Shoreland	Remove
415	Siberian Elm		11	B	11	TREM 11IN	Non-Shoreland	Remove
416	Siberian Elm		8	B	8	TREM 8IN	Non-Shoreland	Remove
417	Siberian Elm		8	B	8	TREM 8IN	Non-Shoreland	Remove
418	Siberian Elm		8	B	8	TREM 8IN	Non-Shoreland	Remove
419	Siberian Elm		14	B	14	TREM 14IN	Non-Shoreland	Remove
420	Siberian Elm		14	B	14	TREM 14IN	Non-Shoreland	Remove
421	Siberian Elm		16	B	16	TREM 16IN	Non-Shoreland	Remove
422	Siberian Elm		8	B	8	TREM 8IN	Non-Shoreland	Remove
423	Siberian Elm		16	B	16	TREM 16IN	Non-Shoreland	Remove
424	Siberian Elm		14	B	14	TREM 14IN	Non-Shoreland	Remove
425	Siberian Elm		12	B	12	TREM 12IN	Non-Shoreland	Remove
426	Siberian Elm		14	B	14	TREM 14IN	Non-Shoreland	Remove
427	Siberian Elm		24	B	24	TREM 24IN	Non-Shoreland	Remove
428	Siberian Elm		8	B	8	TREM 8IN	Non-Shoreland	Remove
433	Black Cherry		12	B	12	TRBC 12IN	Shoreland	Remove
434	Boxelder		24	A	18	TRBO 24IN	Shoreland	Preserve
435	Boxelder		12	A	9	TRBO 12IN	Shoreland	Remove
447	Boxelder		12	A	9	TRBO 12IN	Shoreland	Preserve
448	Red Oak		12	C	15	TRRO 12IN	Shoreland	Preserve
449	Oak		14	C	17.5	TROA 14IN	Shoreland	Preserve
450	Oak		12	C	15	TROA 12IN	Shoreland	Preserve
451	Oak		24	C	30	TROA 24IN	Shoreland	Preserve
452	Boxelder		10	A	7.5	TRBO 10IN	Shoreland	Preserve
453	Oak		24	C	30	TROA 24IN HALF DEAD	Shoreland	Preserve
454	Oak		9	C	11.25	TROA 9IN	Shoreland	Preserve
455	Oak		12	C	15	TROA 12IN	Shoreland	Preserve
456	Oak		24	C	30	TROA 24IN	Shoreland	Preserve
457	Oak		16	C	20	TROA 16IN	Shoreland	Preserve
458	Oak		12	C	15	TROA 12IN	Shoreland	Preserve
459	Oak		33	C	41.25	TROA 33IN	Shoreland	Preserve
460	Oak		33	C	41.25	TROA 33IN	Shoreland	Preserve
461	Boxelder		14	C	17.5	TRBO 14IN	Shoreland	Preserve
462	Oak		47	C	58.75	TROA 47IN	Shoreland	Preserve
463	Oak		18	C	22.5	TROA 18IN	Shoreland	Preserve
464	Oak		9	C	11.25	TROA 9IN	Shoreland	Preserve
465	Poplar		8	A	6	TRPO 8IN	Shoreland	Preserve
466	Poplar		8	A	6	TRPO 8IN	Shoreland	Preserve
467	Oak		12	C	15	TROA 12IN	Shoreland	Preserve
468	Oak		16	C	20	TROA 16IN	Shoreland	Preserve
469	Oak		24	C	30	TROA 24IN	Shoreland	Preserve
470	Oak		20	C	25	TROA 20IN	Shoreland	Preserve
471	Boxelder		10	A	7.5	TRBO 10IN 2 STEM	Shoreland	Preserve
472	Poplar		14	A	10.5	TRPO 14IN	Shoreland	Preserve
473	Poplar		14	A	10.5	TRPO 14IN	Shoreland	Preserve
474	Poplar		14	A	10.5	TRPO 14IN	Shoreland	Preserve
475	Poplar		12	A	9	TRPO 12IN	Shoreland	Preserve
476	Poplar		14	A	10.5	TRPO 14IN 2 STEM	Shoreland	Preserve
477	Poplar		15	A	11.25	TRPO 15IN	Shoreland	Preserve

Tree #	Species	Height	DBH	City classification	Required replacement inches	Survey code	Location	Preserve
478	Poplar		10	A	7.5	TRPO 10IN	Shoreland	Preserve
479	Poplar		14	A	10.5	TRPO 14IN	Shoreland	Preserve
480	Siberian Elm		14	A	10.5	TREM 14IN	Shoreland	Preserve
481	Maple		14	B	14	TRMP 14IN	Shoreland	Preserve
482	Oak		15	C	18.75	TROA 15IN	Shoreland	Preserve
483	Oak		13	C	16.25	TROA 13IN	Shoreland	Preserve
484	Oak		14	C	17.5	TROA 14IN	Shoreland	Preserve
485	Oak		15	C	18.75	TROA 15IN	Shoreland	Preserve
486	Oak		12	C	15	TROA 12IN	Shoreland	Preserve
487	Poplar		36	A	27	TRPO 36IN	Shoreland	Preserve
488	Oak		22	C	27.5	TROA 22IN	Shoreland	Preserve
489	Siberian Elm		10	A	7.5	TREM 10IN	Shoreland	Preserve
490	Cottonwood		42	A	31.5	TRCW 42IN	Shoreland	Preserve
491	Cottonwood		28	A	21	TRCW 28IN	Shoreland	Preserve
492	Cottonwood		28	A	21	TRCW 28IN	Shoreland	Preserve
493	Cottonwood		28	A	21	TRCW 28IN	Shoreland	Preserve
494	Cottonwood		15	A	11.25	TRCW 15IN HALF DEAD	Shoreland	Preserve
495	Poplar		14	A	10.5	TRPO 14IN	Shoreland	Preserve
496	Poplar		24	A	18	TRPO 24IN	Shoreland	Preserve
497	Poplar		22	A	16.5	TRPO 22IN	Shoreland	Preserve
498	Poplar		16	A	12	TRPO 16IN	Shoreland	Preserve
499	Poplar		36	A	27	TRPO 36IN	Shoreland	Preserve
500	Poplar		33	A	24.75	TRPO 33IN	Shoreland	Preserve
501	Cottonwood		30	A	22.5	TRCW 30IN	Shoreland	Preserve
502	Boxelder		12	A	9	TRBO 12IN	Shoreland	Preserve
503	Boxelder		9	A	6.75	TRBO 9IN	Shoreland	Preserve
504	Siberian Elm		8	A	6	TREM 8IN	Shoreland	Preserve
530	Cedar	20	8	A	6	TRCR 20FT 2 STEM	Shoreland	Preserve
531	Boxelder		8	A	6	TRBO 8IN 2 STEM	Shoreland	Preserve
532	Cedar	15	7	A	5.25	TRCR 15FT 2 STEM	Shoreland	Preserve
533	Boxelder		8	A	6	TRBO 8IN	Shoreland	Preserve
534	Cedar	20	8	A	6	TRCR 20FT	Shoreland	Preserve
535	Boxelder		9	A	6.75	TRBO 9IN	Shoreland	Preserve
536	Siberian Elm		8	A	6	TREM 8IN	Shoreland	Preserve
537	Siberian Elm		14	A	10.5	TREM 14IN	Shoreland	Preserve
538	Cedar	18	10	A	7.5	TRCR 18FT	Shoreland	Remove
539	Red Pine	25	10	A	7.5	TRPR 25FT	Shoreland	Remove
540	Siberian Elm		12	A	9	TREM 12IN	Shoreland	Preserve
541	Cedar	30	9	A	6.75	TRCR 30FT	Shoreland	Remove
542	Cedar	25	10	A	7.5	TRCR 25FT	Shoreland	Preserve
543	Siberian Elm		14	A	10.5	TREM 14IN	Shoreland	Preserve
544	Siberian Elm		15	A	11.25	TREM 15IN	Shoreland	Preserve
545	Boxelder		12	A	12	TRBO 12IN	Shoreland	Preserve
546	Boxelder		8	A	8	TRBO 8IN	Shoreland	Remove
547	Boxelder		15	A	11.25	TRBO 15IN	Shoreland	Remove
548	Boxelder		13	A	13	TRBO 13IN 3 STEM	Shoreland	Remove
549	Siberian Elm		8	A	8	TREM 8IN	Shoreland	Remove
550	Boxelder		9	A	6.75	TRBO 9IN	Shoreland	Remove
551	Cottonwood		26	A	26	TRCW 26IN	Shoreland	Preserve
552	Boxelder		14	B	14	TRBO 14IN	Shoreland	Remove
553	Oak		28	C	35	TROA 28IN	Shoreland	Remove
554	Oak		36	C	45	TROA 36IN	Shoreland	Preserve
555	Red Oak		42	C	52.5	TRRO 42IN	Shoreland	Preserve
556	Cottonwood		28	A	21	TRCW 28IN	Shoreland	Preserve
557	Siberian Elm		15	A	11.25	TREM 15IN	Shoreland	Preserve
558	Siberian Elm		8	A	6	TREM 8IN	Shoreland	Preserve
559	Siberian Elm		8	A	6	TREM 8IN	Shoreland	Preserve
560	Siberian Elm		9	A	6.75	TREM 9IN	Shoreland	Preserve
561	Cottonwood		22	A	16.5	TRCW 22IN	Shoreland	Preserve
562	Siberian Elm		8	A	6	TREM 8IN	Shoreland	Remove
563	Boxelder		9	A	6.75	TRBO 9IN	Shoreland	Preserve
567	Boxelder		10	A	7.5	TRBO 10IN	Shoreland	Remove
568	Boxelder		8	A	6	TRBO 8IN	Shoreland	Remove
569	Boxelder		9	A	6.75	TRBO 9IN	Shoreland	Remove
570	Boxelder		11	A	8.25	TRBO 11IN	Shoreland	Remove
571	Boxelder		13	A	9.75	TRBO 13IN	Shoreland	Remove
608	Boxelder		28	A	21	TRBO 28IN	Shoreland	Preserve
690	Siberian Elm		18	A	13.5	TREM 18IN	Shoreland	Remove
691	Siberian Elm		18	A	13.5	TREM 18IN	Shoreland	Remove
693	Siberian Elm		15	A	11.25	TREM 15IN	Shoreland	Remove
694	Boxelder		20	A	15	TRBO 20IN	Shoreland	Remove
695	Siberian Elm		15	A	11.25	TREM 15IN	Shoreland	Remove
696	Siberian Elm		15	A	11.25	TREM 15IN	Shoreland	Remove
697	Boxelder		20	A	15	TRBO 20IN	Shoreland	Remove
698	Boxelder		18	A	13.5	TRBO 18IN	Shoreland	Remove
699	Boxelder		12	A	9	TRBO 12IN	Shoreland	Remove
700	Boxelder		12	A	9	TRBO 12IN 3 STEM	Shoreland	Remove
701	Boxelder		15	A	11.25	TRBO 15IN	Shoreland	Remove
702	Boxelder		16	A	12	TRBO 16IN	Shoreland	Remove
703	Boxelder		12	A	9	TRBO 12IN	Shoreland	Remove
704	Siberian Elm		15	A	11.25	TREM 15IN	Shoreland	Remove
705	Siberian Elm		36	A	27	TREM 36IN	Shoreland	Remove
706	Boxelder		10	A	7.5	TRBO 10IN	Shoreland	Remove
709	Locust		15	B	15	TRLT 15IN	Non-Shoreland	Preserve
710	Locust		13	B	13	TRLT 13IN	Non-Shoreland	Preserve
711	Locust		13	B	13	TRLT 13IN	Non-Shoreland	Preserve
712	Locust		16	B	16	TRLT 16IN	Non-Shoreland	Preserve
713	Locust		16	B	16	TRLT 16IN	Non-Shoreland	Preserve
714	Locust		15	B	15	TRLT 15IN	Non-Shoreland	Preserve
715	Locust		15	B	15	TRLT 15IN	Non-Shoreland	Preserve
716	Locust		15	B	15	TRLT 15IN	Non-Shoreland	Remove
717	Spruce	25 ft	10	A	7.5	TRSP 25FT	Non-Shoreland	Remove
718	Spruce	30 ft	11	A	8.25	TRSP 30FT	Non-Shoreland	Remove
719	Cottonwood	20 ft	9	A	6.75	TRCW 20FT	Non-Shoreland	Remove
720	Siberian Elm	20 in	9	B	9	TREM 20IN	Non-Shoreland	Remove
721	Red Pine	50 ft	12	A	9	TRPR 50FT	Non-Shoreland	Remove
722	Red Pine	60 ft	13	A	9.75	TRPR 60FT	Non-Shoreland	Remove
723	Siberian Elm		13		13	TREM 13IN	Non-Shoreland	Remove
724	Poplar		9	A	6.75	TRPO 9IN	Non-Shoreland	Remove
725	Siberian Elm		13	A	9.75	TREM 13IN	Non-Shoreland	Remove
726	Siberian Elm		8	A	6	TREM 8IN HALF DEAD	Non-Shoreland	Remove
734	Red Pine	25 FT	6	A	4.5	TRPR 25FT	Non-Shoreland	Preserve
735	Red Pine	20 FT	14	A	10.5	TRPR 20FT 3 STEM	Non-Shoreland	Preserve
736	Boxelder		12	A	9	TRBO 12IN	Non-Shoreland	Preserve
737	Red Pine	22 ft	6	A	4.5	TRPR 22FT	Non-Shoreland	Preserve
738	Boxelder		12	A	9	TRBO 12IN	Non-Shoreland	Preserve
739	Boxelder		24	A	18	TRBO 24IN 3 STEM	Non-Shoreland	Preserve
740	Boxelder		14	A	10.5	TRBO 14IN 3 STEM	Non-Shoreland	Preserve
741	Boxelder		14	A	10.5	TRBO 14IN 3 STEM	Non-Shoreland	Preserve
742	Boxelder		12	A	9	TRBO 12IN 5 STEM	Non-Shoreland	Preserve
743	Boxelder		8	A	6	TRBO 8IN	Non-Shoreland	Preserve
744	Spruce	50	12	A	9	TRSP 50FT	Non-Shoreland	Preserve
745	Boxelder		9	A	6.75	TRBO 9IN	Non-Shoreland	Preserve
746	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Preserve
747	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Preserve
748	Boxelder		8	A	6	TRBO 8IN	Non-Shoreland	Preserve
749	Boxelder		10	A	7.5	TRBO 10IN	Non-Shoreland	Preserve
750	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Preserve
751	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Preserve
752	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Preserve
753	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Preserve
754	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Preserve
755	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Preserve
756	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Preserve
757	Boxelder		12	A	9	TRBO 12IN	Non-Shoreland	Preserve
758	Boxelder		13	A	9.75	TRBO 13IN	Non-Shoreland	Preserve
759	Red Pine	70 ft	14	A	10.5	TRSP 70FT	Non-Shoreland	Preserve
760	Boxelder		12	A	9	TRBO 12IN	Non-Shoreland	Preserve
761	Spruce	70 ft	14	A	10.5	TRSP 70FT	Non-Shoreland	Preserve
762	Spruce	65 ft	14	A	10.5	TRSP 65FT	Non-Shoreland	Preserve
763	Red Pine	70 ft	14	A	10.5	TRPR 70FT	Non-Shoreland	Preserve
764	Red Pine	60 ft	13	A	9.75	TRSP 60FT	Non-Shoreland	Preserve
765	Spruce	75 ft	15	A	11.25	TRSP 75FT	Non-Shoreland	Preserve
766	Spruce	80 ft	16	A	12	TRSP 80FT	Non-Shoreland	Preserve
767	Boxelder		24	A	18	TRBO 24IN	Non-Shoreland	Preserve
768	Siberian Elm		18	A	13.5	TREM 18IN	Non-Shoreland	Preserve
769	Oak		13	C	16.25	TROA 13IN	Shoreland	Preserve
770	Oak		36	C	45	TROA 36IN 2 STEM	Shoreland	Preserve
772	Oak		20	C	25	TROA 20IN	Shoreland	Preserve
773	Oak		16	C	20	TROA 16IN	Shoreland	Preserve
774	Oak		14	C	17.5	TROA 14IN	Shoreland	Preserve
775	Oak		24	C	30	TROA 24IN	Shoreland	Preserve

Tree #	Species	Height	DBH	City classification	Required replacement inches	Survey code	Location	Preserve
776	Oak		14	C	17.5	TROA 14IN	Shoreland	Preserve
777	Black Cherry		20	B	20	TRBC 20IN	Shoreland	Preserve
778	Oak		20	C	25	TROA 20IN	Shoreland	Preserve
779	Oak		28	C	35	TROA 28IN	Shoreland	Preserve
780	Oak		24	C	30	TROA 24IN	Shoreland	Preserve
781	Oak		14	C	17.5	TROA 14IN 2 STEM	Shoreland	Preserve
782	Oak		14	C	17.5	TROA 14IN	Shoreland	Preserve
783	Oak		14	C	17.5	TROA 14IN	Shoreland	Preserve
784	Cottonwood		14	A	10.5	TRCW 14IN	Shoreland	Preserve
785	Oak		12	C	15	TROA 12IN	Shoreland	Preserve
786	Oak		15	C	18.75	TROA 15IN	Shoreland	Preserve
787	Oak		12	C	15	TROA 12IN	Shoreland	Preserve
788	Oak		10	C	12.5	TROA 10IN	Shoreland	Preserve
789	Oak		14	C	17.5	TROA 14IN	Shoreland	Preserve
790	Oak		14	C	17.5	TROA 14IN	Shoreland	Preserve
791	Oak		50	C	62.5	TROA 50IN	Shoreland	Preserve
792	Boxelder		14	A	10.5	TRBO 14IN	Shoreland	Preserve
793	Oak		10	C	12.5	TROA 10IN	Shoreland	Preserve
794	Oak		18	C	22.5	TROA 18IN 2 STEM	Shoreland	Preserve
795	Oak		20	C	25	TROA 20IN	Shoreland	Preserve
796	Oak		12	C	15	TROA 12IN	Shoreland	Preserve
797	Oak		16	C	20	TROA 16IN	Shoreland	Preserve
798	Oak		12	C	15	TROA 12IN	Shoreland	Preserve
799	Oak		8	C	10	TROA 8IN	Shoreland	Preserve
800	Oak		26	C	32.5	TROA 26IN	Shoreland	Preserve
801	Oak		24	C	30	TROA 24IN	Shoreland	Preserve
802	Oak		13	C	16.25	TROA 13IN	Shoreland	Preserve
803	Oak		28	C	35	TROA 28IN	Shoreland	Preserve
804	Oak		13	C	16.25	TROA 13IN	Shoreland	Preserve
805	Oak		13	C	16.25	TROA 14IN	Shoreland	Preserve
806	Oak		30	C	37.5	TROA 30IN HALF DEAD	Shoreland	Preserve
807	Black Cherry		13	B	13	TRBC 13IN	Shoreland	Preserve
808	Poplar		13	A	9.75	TRPO 10IN	Shoreland	Preserve
809	Poplar		10	A	7.5	TRPO 15IN	Shoreland	Preserve
810	Poplar		18	A	13.5	TRPO 18IN	Shoreland	Preserve
811	Boxelder		14	A	10.5	TRBO 14IN	Shoreland	Preserve
812	Oak		14	C	17.5	TROA 14IN	Shoreland	Preserve
813	Oak		12	C	15	TROA 12IN	Shoreland	Preserve
814	Oak		15	C	18.75	TROA 15IN	Shoreland	Preserve
815	Oak		18	C	22.5	TROA 18IN	Shoreland	Preserve
816	Oak		10	C	12.5	TROA 10IN	Shoreland	Preserve
817	Boxelder		12	A	9	TRBO 12IN 3 STEM	Shoreland	Preserve
818	Oak		13	C	16.25	TROA 13IN	Shoreland	Preserve
819	Cottonwood		10	A	7.5	TRCW 10IN	Shoreland	Preserve
820	Maple		12	B	12	TRMP 12IN	Shoreland	Preserve
821	Maple		14	B	14	TRMP 14IN	Shoreland	Preserve
822	Maple		15	B	15	TRMP 15IN	Shoreland	Preserve
823	Maple		12	B	12	TRMP 12IN	Shoreland	Preserve
824	Black Cherry		15	B	15	TRBC 15IN 2 STEM	Shoreland	Preserve
825	Maple		11	B	11	TRMP 11IN	Shoreland	Preserve
826	Maple		12	B	12	TRMP 12IN	Shoreland	Preserve
827	Maple		16	B	16	TRMP 16IN	Shoreland	Preserve
828	Maple		12	B	12	TRMP 12IN	Shoreland	Preserve
829	Maple		13	B	13	TRMP 13IN	Shoreland	Preserve
830	Maple		14	B	14	TRMP 14IN	Shoreland	Preserve
831	Maple		15	B	15	TRMP 15IN	Shoreland	Preserve
832	Maple		13	B	13	TRMP 13IN	Shoreland	Preserve
833	Maple		15	B	15	TRMP 15IN	Shoreland	Preserve
834	Oak		18	C	22.5	TROA 18IN	Shoreland	Preserve
835	Oak		14	C	17.5	TROA 14IN HALF DEAD	Shoreland	Preserve
836	Maple		17	B	17	TRMP 17IN	Shoreland	Preserve
837	Maple		12	B	12	TRMP 12IN	Shoreland	Preserve
839	Maple		12	B	12	TRMP 12IN	Shoreland	Preserve
840	Maple		12	B	12	TRMP 12IN	Shoreland	Preserve
841	Maple		14	B	14	TRMP 14IN	Shoreland	Preserve
842	Maple		13	B	13	TRMP 13IN	Shoreland	Preserve
843	Maple		14	B	14	TRMP 14IN	Shoreland	Preserve
844	Maple		16	B	16	TRMP 16IN HALF DEAD	Shoreland	Preserve
845	Maple		18	B	18	TRMP 18IN	Shoreland	Preserve
846	Maple		18	B	18	TRMP 18IN	Shoreland	Preserve
847	Maple		15	B	15	TRMP 15IN	Shoreland	Preserve
848	Maple		14	B	14	TRMP 14IN	Shoreland	Preserve
849	Cottonwood		50	A	37.5	TRCW 50IN 3 STEM	Shoreland	Preserve
850	Maple		26	B	26	TRMP 26IN 2 STEM	Shoreland	Preserve
851	Maple		18	B	18	TRMP 18IN	Shoreland	Preserve
852	Oak		36	C	45	TROA 36IN	Shoreland	Preserve
853	Maple		16	B	16	TRMP 16IN	Shoreland	Preserve
854	Maple		40	B	40	TRMP 40IN	Shoreland	Preserve
855	Crabapple		11	B	11	TRCA 11IN	Shoreland	Preserve
856	Maple		8	B	8	TRMP 8IN	Shoreland	Preserve
857	Maple		12	B	12	TRMP 12IN	Shoreland	Preserve
858	Maple		16	B	16	TRMP 16IN	Shoreland	Preserve
859	Maple		24	B	24	TRMP 24IN	Shoreland	Preserve
860	Cottonwood		50	A	37.5	TRCW 50IN	Shoreland	Preserve
861	Cottonwood		48	A	36	TRCW 48IN	Shoreland	Preserve
862	Maple		22	B	22	TRMP 22IN	Shoreland	Preserve
863	Boxelder		10	A	7.5	TRBO 10IN	Non-Shoreland	Preserve
864	Maple		16	A	12	TRMP 16IN	Non-Shoreland	Preserve
865	Boxelder		16	A	12	TRBO 16IN	Non-Shoreland	Preserve
866	Silver Maple		42	C	42	TRSM 2 STEM 42IN	Non-Shoreland	Preserve
867	Boxelder		32	B	32	TRBO 32IN 3 STEM	Non-Shoreland	Preserve
868	Maple		20	A	15	TRMP 20IN HALF DEAD	Non-Shoreland	Preserve
869	Boxelder		8	B	8	TRBO 8IN	Non-Shoreland	Preserve
871	Boxelder		13	A	9.75	TRBO 13IN	Non-Shoreland	Preserve
872	Maple		28	C	35	TRMP 28IN 2 STEM	Non-Shoreland	Preserve
873	Oak		12	B	12	TROA 12IN	Non-Shoreland	Preserve
874	Maple		25	B	25	TRMP 25IN	Non-Shoreland	Preserve
875	Oak		12	A	9	TROA 12IN	Non-Shoreland	Preserve
876	Oak		36	A	27	TROA 36IN	Non-Shoreland	Preserve
877	Boxelder		11	A	8.25	TRBO 11IN	Non-Shoreland	Preserve
878	Boxelder		14	A	10.5	TRBO 14IN	Shoreland	Preserve
879	Boxelder		20	A	15	TRBO 20IN STEM	Shoreland	Preserve
880	Maple		24	B	24	TRMP 24IN	Shoreland	Preserve
881	Oak		28	C	35	TROA 28IN	Shoreland	Preserve
882	Poplar		10	A	7.5	TRPO 10IN	Shoreland	Preserve
883	Poplar		11	A	8.25	TRPO 11IN	Shoreland	Preserve
884	Poplar		12	A	9	TRPO 12IN	Shoreland	Preserve
885	Poplar		11	A	8.25	TRPO 11IN	Shoreland	Preserve
886	Poplar		8	A	6	TRPO 8IN	Shoreland	Preserve
887	Boxelder		32	A	24	TRBO 32IN 3 STEM	Shoreland	Preserve
888	Black Cherry		12	B	12	TRBC IN	Shoreland	Preserve
889	Maple		15	B	15	TRMP 15IN	Shoreland	Preserve
890	Plum		12	B	12	TRD PLUM 12IN 2 STEM	Shoreland	Preserve
891	Oak		16	C	20	TROA 16IN	Shoreland	Preserve
892	Maple		24	A	18	TRMP 24IN	Shoreland	Preserve

REPORT

To: Chris Gulbrandson, President
Apple Ford White Bear Lake

From: Matt Pacyna, PE, Principal
Transportation Collaborative & Consultants, LLC

Date: September 25, 2026

Subject: Apple Ford White Bear Lake Traffic Study

INTRODUCTION

TC2 completed a traffic study for the proposed Apple Ford White Bear Lake development in the City of Gem Lake. The proposed development, shown in Figure 1, is generally in the northwest quadrant of the Highway 61 and County Road E intersection. The main objectives of the study are to quantify existing traffic operations within the study area, evaluate potential impacts of the proposed development and access changes, and recommend improvements, if necessary, to ensure safe and efficient operations for all users. The following study assumptions, methodology, and findings are offered for consideration.

Figure 1 Subject Site



EXISTING CONDITIONS

Existing conditions were reviewed within the study area to establish current traffic conditions to help determine impacts associated with the proposed development. The evaluation of existing conditions included collecting traffic volumes, observing transportation characteristics, and analyzing crash history and intersection capacity, which are described in the following sections.

Traffic Volumes

Vehicular intersection turning movement and pedestrian / bicyclist counts were collected at the following locations on Thursday, March 19, 2026. The data was generally collected from 6 a.m. to 7 p.m., which coincides with the peak activity of the proposed development.

- Highway 61 and Apple Ford Access (*Employee Only)*
- Highway 61 and County Road E
- County Road E and International Drive
- County Road E and West Apple Ford Access / Commercial Access
- County Road E and Central Apple Ford Access
- County Road E and East Apple Ford Access

Average daily traffic (ADT) volumes were provided by MnDOT or estimated based on the data collected.

Transportation Characteristics

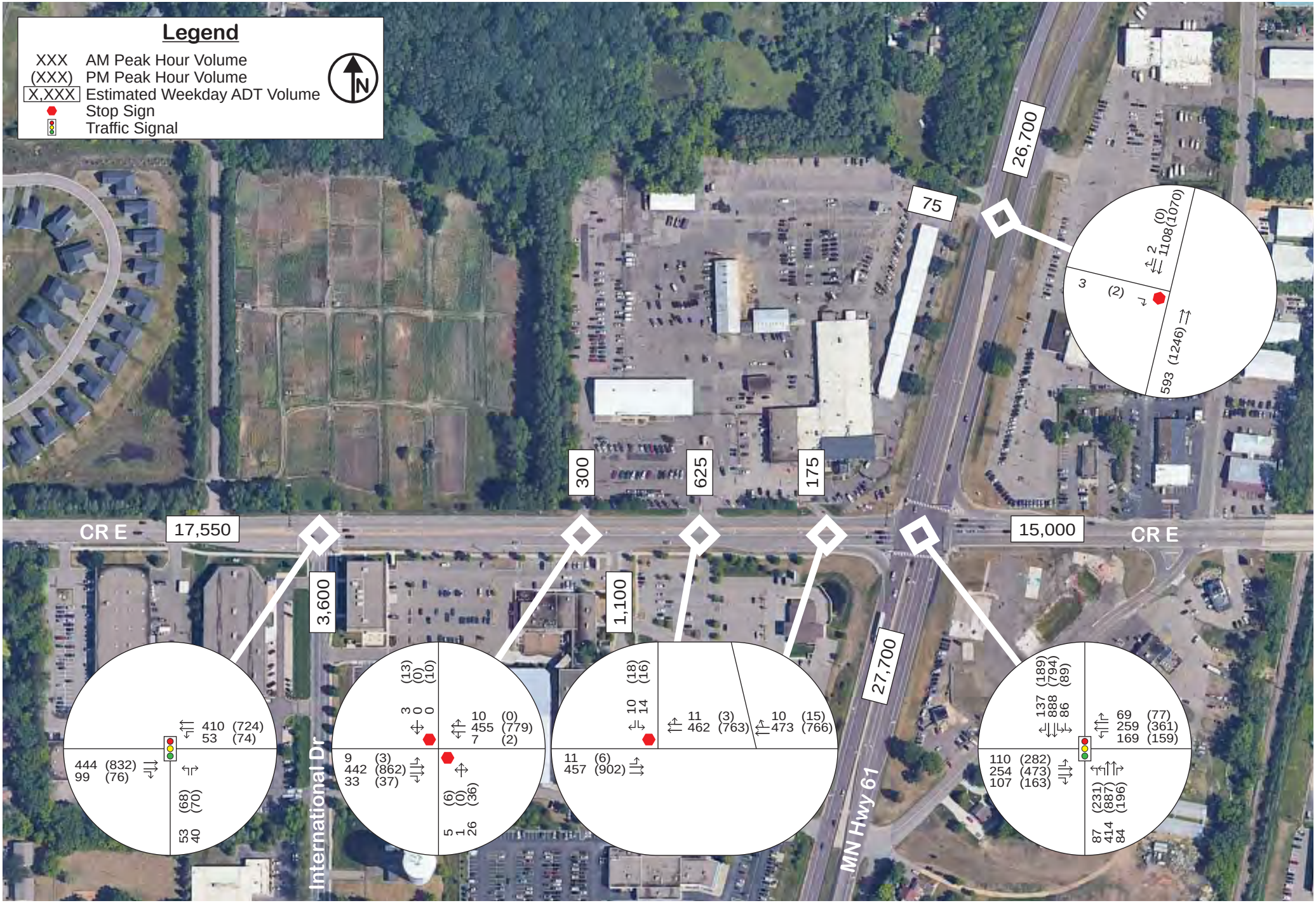
Observations were conducted within the study area to identify various transportation characteristics such as roadway geometry, traffic controls, speed limits, and multimodal facilities. A general overview of key roadways within the study area is as follows:

- ***Highway 61*** – a 4-lane minor arterial roadway with left- and right-turn lanes at key intersections and access locations. There are no multimodal facilities (i.e., sidewalk or trail) along the roadway and the speed limit is 50-mph.
- ***County Road E*** – a 4-lane minor arterial roadway with periodic left- and / or right-turn lanes at key intersections and access locations. There are multimodal facilities (i.e., sidewalk or trail) along the south and north sides of the roadway to the west and east of Highway 61, respectively. The speed limit is 45-mph.

All other study area roadways are local 2-lane facilities with 30-mph speed limits. The County Road E intersections with International Drive and Highway 61 are signalized, while all other study intersections have side-street stop control. Existing geometrics, traffic controls, and volumes are shown in Figure 2.

Crash History

Five (5) years of crash history was reviewed from 2021 through 2025 using MnDOT's Crash Mapping Analysis Tool (MnCMAT), which identified a total of 84 intersection-related crashes in the study area. Four (4) crashes occurred at the Count Road E and International Drive intersection, one (1) crash at the County Road E and South Commercial Access intersection, and 79 crashes at the County Road E and Highway 61 intersection (including one pedestrian-related crash); there were no crashes at any of the existing Apple Ford driveways during the review period. Note that the number of crashes at the County Road E and Highway 61 intersection is significantly higher than locations with similar characteristics from a crash rate perspective (i.e., a critical index over 1.0); all other study intersections had crash and severity rates within the normal range. Further analysis of crashes is outside the scope of this study.



Existing Conditions

Apple Ford White Bear Lake Traffic Study

Figure 2

Intersection Capacity

Intersection capacity was evaluated using Synchro / SimTraffic Software (version 12), which uses methods outlined in the *Highway Capacity Manual, 7th Edition*. The software is used to develop calibrated models that simulate observed traffic operations, account for peaking characteristics, and identify key metrics such as intersection Level of Service (LOS) and queues. These models incorporate collected traffic, pedestrian, and bicyclist volumes, traffic controls, heavy commercial vehicle activity (i.e., buses and trucks), and driver behavior factors. Existing signal timing was obtained from MnDOT.

Level of Service (LOS) quantifies how an intersection is operating. Intersections are graded from LOS A to LOS F, which corresponds to the average delay per vehicle values shown. An overall intersection LOS A though LOS D is generally considered acceptable in the study area. LOS A indicates the best traffic operation, while LOS F indicates an intersection where demand exceeds capacity.

Level of Service	Average Delay / Vehicles	
	Unsignalized Intersections	Signalized Intersections
A	< 10 seconds	< 10 seconds
B	10 to 15 seconds	10 to 20 seconds
C	15 to 25 seconds	20 to 35 seconds
D	25 to 35 seconds	35 to 55 seconds
E	35 to 50 seconds	55 to 80 seconds
F	> 50 seconds	> 80 seconds

For side-street stop (SSS) controlled intersections, special emphasis is given to providing an estimate for the level of service of the side-street approach. Traffic operations at an unsignalized intersection with side-street stop control can be described in two ways. First, consideration is given to the overall intersection level of service, which takes into account the total number of vehicles entering the intersection and the capability of the intersection to support the volumes. Second, it is important to consider the delay on the minor approach. Since the mainline does not have to stop, most delay is attributed to the side-street approaches. It is typical of intersections with higher mainline traffic volumes to experience high-levels of delay (i.e., poor levels of service) on the side-street approaches, but an acceptable overall intersection level of service during peak hour conditions.

The existing intersection capacity analysis results, summarized in Table 1, indicate that all study intersections currently operate at an acceptable overall LOS D or better during the typical weekday a.m. and p.m. peak hours. Existing queues are generally maintained within the current roadway geometry except westbound queues along County Road E at Highway 61, which occasionally extend beyond the adjacent left- and right-turn lanes during the p.m. peak hour. Peak queues at the existing site access locations range from one (1) to three (3) vehicles during the peak hours. Thus, there are no significant existing issues from a roadway capacity perspective.

Table 1 Existing Intersection Capacity

Intersection	Traffic Control	Level of Service (delay in seconds)	
		AM Peak Hour	PM Peak Hour
CR E and International Drive	Signal	A (4)	A (5)
CR E and Apple Ford West Access / Commercial Access	SSS*	A / A (5)	A / C (16)
CR E and Apple Ford Central Access	SSS*	A / B (10)	A / C (18)
Hwy 61 and Apple Ford North Access	SSS*	A / A (6)	A / A (4)
Hwy 61 and County Road E	Signal	C (30)	D (41)

*SSS – Side Street Stop *Overall LOS shown followed by the worst approach LOS; delay shown is for the worst approach*

PROPOSED DEVELOPMENT

The proposed development, shown in Figure 3, is in the northwest quadrant of the Highway 61 and County Road E intersection. The project represents a modernization of the current Apple Ford facility, which totals about 88,580 square feet between several buildings. Once completed, the proposed development would be approximately 144,310 square feet, which is about 60% larger than the total current building area. As part of the project, a 1,115 square foot coffee shop is planned to be incorporated within the facility to serve dealership patrons as well as the general public.

Access to the site will be provided in three (3) locations, with the current right-in only access along County Road E planned to be closed. The remaining driveways, that are currently in use, will continue to be utilized after reconstruction; the current Highway 61 access will no longer be restricted to employees-only. Construction was assumed to be completed by the year 2029.

Figure 3 Proposed Site Plan



TRAFFIC FORECASTS

Traffic forecasts were developed for year 2030 no build and build conditions, which represents one year after opening. The traffic forecasts account for general background growth and trip generation from the proposed development. The following information summarizes the traffic forecast development process.

Background Growth

To account for general background growth in the study area, an annual growth rate of one-half (0.5) percent was applied to the existing traffic volumes to develop year 2030 background traffic forecasts. This growth rate was developed based on a combination of historical traffic volume patterns and traffic forecasts within the *City of White Bear Lake Comprehensive Plan*.

Proposed Development Trip Generation

A trip generation estimate for the proposed development was created using the actual counts collected as part of this study and applying a 62% growth factor, which is equivalent to the increase in dealership size expected. Given the proposed development represents a modernization of the current business, this approach is expected to most accurately represent the future trip generation of the site. A separate trip generation estimate for the coffee shop use within the development was also included.

Results of the trip generation estimate, shown in Table 2, indicate that the proposed development is estimated to generate 212 a.m. peak hour (126 in / 86 out), 177 p.m. peak hour (62 in / 115 out), and 2,400 daily (1,200 in / 1,200 out) trips, which includes a 20% multi-use reduction applied to the Coffee shop trips to account for the interaction between coffee shop and dealership users. Note that an 85% pass-by / diverted-link reduction was applied to the coffee shop trips to account for users already traveling along either County Road E and / or Highway 61. Thus, when compared to the existing dealership, the change in net new system trips associated with the proposed development is 64 a.m. peak hour (40 in / 24 out), 60 p.m. peak hour (20 in / 40 out), and 800 daily (400 in / 400 out) trips.

Table 2 Trip Generation Summary

Land Use Type	Size	AM Peak Hour		PM Peak Hour		Daily
		In	Out	In	Out	
Existing Dealership *(Actual Counts)*	88,580 SF	54	30	27	60	1,150
Proposed Development Dealership *(+62%)*	143,195 SF	87	48	44	97	1,860
Coffee-Shop *(ITE - 937)*	1,115 SF	49	47	22	22	674
Subtotal		**136**	**95**	**66**	**119**	**2,534**
Multi-use Reduction (Coffee Only – 20%)		*(-10)*	*(-9)*	*(-4)*	*(-4)*	*(-134)*
Total Proposed Development Site Trips		**126**	**86**	**62**	**115**	**2,400**
Pass-by / Diverted-Link Reduction (Coffee Only – 85%)		*(-32)*	*(-32)*	*(-15)*	*(-15)*	*(-450)*
Net New System Proposed Development Trips		***94***	***54***	***47***	***100***	***1,950***
Change in Trips from Existing		***+40***	***+24***	***+20***	***+40***	***+800***

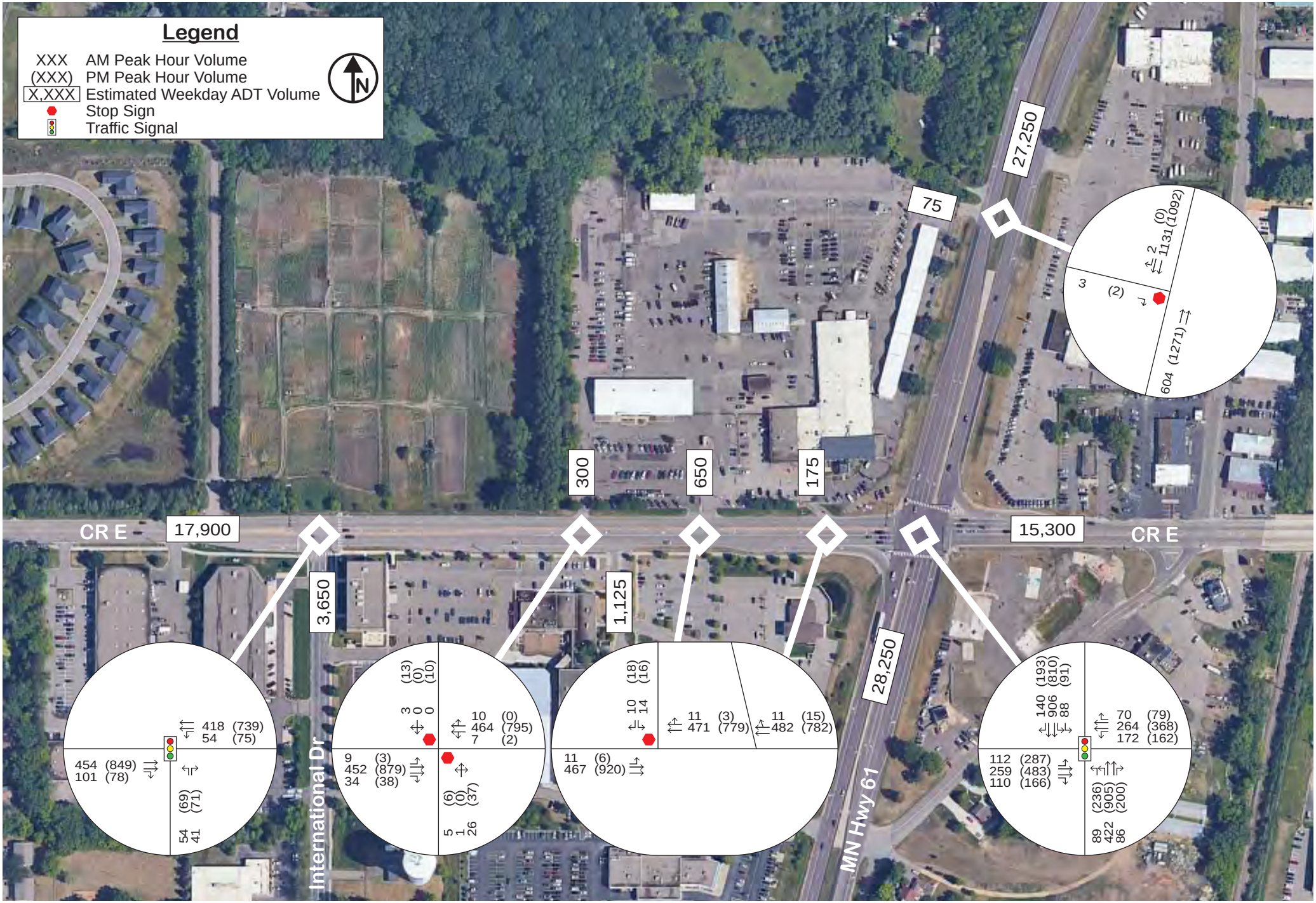
Site generated trips were distributed throughout the study area using the directional distribution shown in Figure 4, which is based on a combination of existing area travel patterns, the proposed access locations, and engineering judgment. The resultant year 2030 no build and build condition traffic forecasts are illustrated in Figure 5 and Figure 6, respectively. Note that the no build condition includes only the general background growth and existing site trips, while the build condition includes the proposed development trips.



Site Generated Trips

Apple Ford White Bear Lake Traffic Study

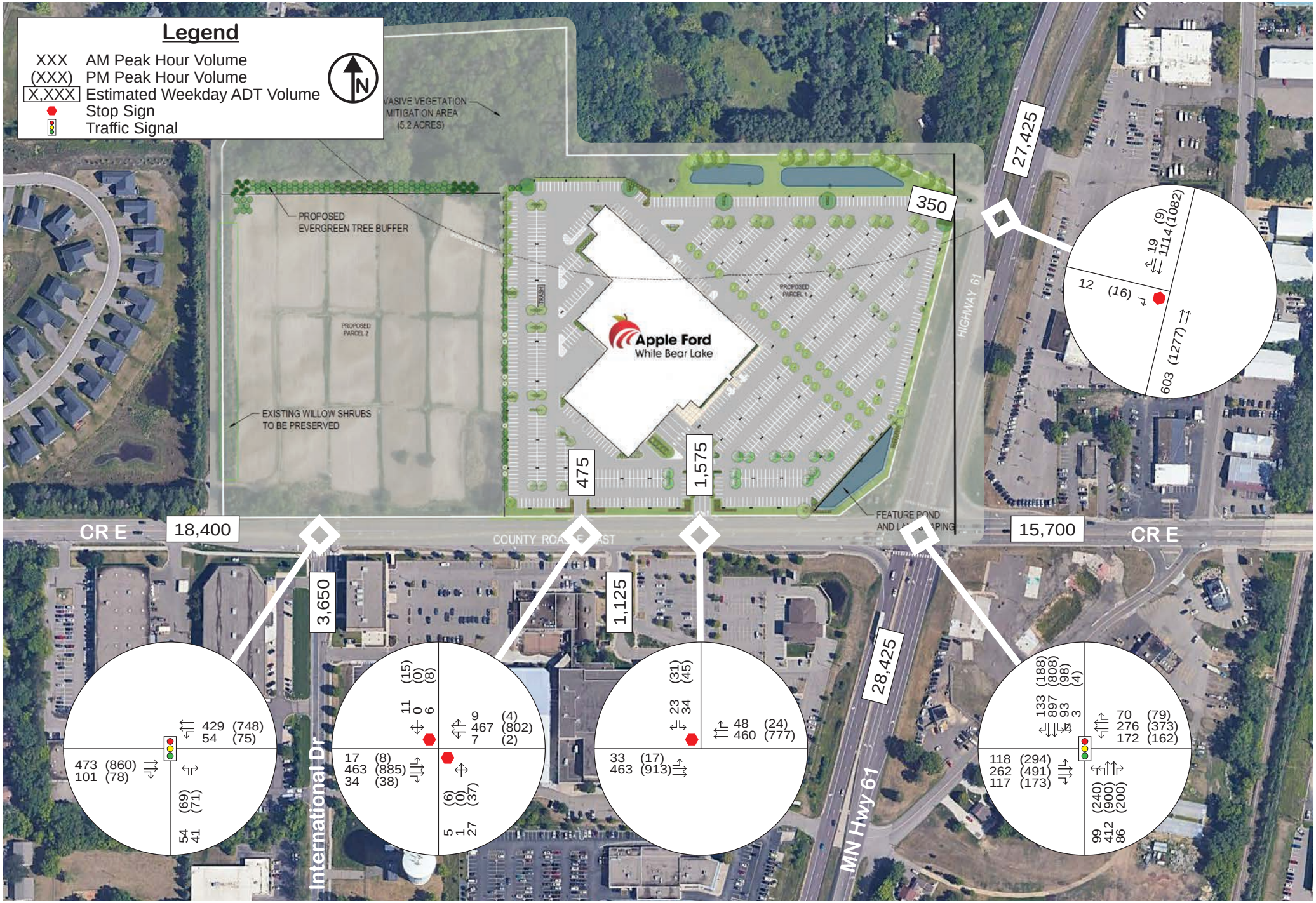
Figure 4



Year 2030 No Build Conditions

Apple Ford White Bear Lake Traffic Study

Figure 5



Year 2030 Build Conditions

Apple Ford White Bear Lake Traffic Study

Figure 6

YEAR 2030 CONDITIONS

To understand impacts associated with the proposed development, an intersection capacity analysis was completed for year 2030 conditions, which is summarized in Table 3. Results of the year 2030 intersection capacity analysis indicate that all study intersections are expected to continue to operate at an acceptable LOS D or better during the typical weekday a.m. and p.m. peak hours with and without the proposed development. In addition, area queueing will remain relatively similar to the existing conditions; peak queues at the proposed site access locations are expected to range from two (2) to three (3) vehicles. Thus, no mitigation is needed to accommodate the proposed development from an intersection capacity perspective.

Table 3 Year 2030 Intersection Capacity Summary

Intersection	Level of Service (delay in seconds)			
	AM Peak Hour		PM Peak Hour	
	No Build	Build	No Build	Build
CR E and International Drive	A (4)	A (4)	A (5)	A (5)
CR E and Apple Ford West Access / Commercial Access*	A / A (5)	A / A (7)	A / C (17)	A / C (17)
CR E and Apple Ford Central Access*	A / B (10)	A / B (10)	A / C (17)	A / C (24)
Hwy 61 and Apple Ford North Access*	A / B (10)	A / B (10)	A / A (8)	A / A (9)
Hwy 61 and County Road E	C (30)	C (30)	D (41)	D (42)

**Overall LOS shown followed by the worst approach LOS; delay shown is for the worst approach*

Other Considerations

Although not needed from an intersection capacity perspective, the following infrastructure considerations are offered to improve operations and / or safety. Further discussion with the project team and area agencies should occur to determine which, if any, of these items are implemented.

- Consider a westbound right-turn lane along County Road E at the Central site access to minimize potential conflict between vehicles; preliminary review of this potential turn lane indicates significant utility conflicts and the resultant benefit of this turn lane does not appear to justify the cost of the utility relocation.
- Locate signage and landscaping to avoid creating any sight distance issues.
- Review truck maneuverability to limit potential internal circulation conflicts.
- Preserve the ability to accommodate a future multimodal facility (i.e., sidewalk or trail) along the north side of County Road E within the project site limits.
- Implement minor signal timing adjustments at the Highway 61 and County Road E intersection to manage the existing westbound queuing noted earlier; note that the proposed development does not significantly impact these queues.

CONCLUSIONS

Based on the findings of the study, the following conclusions are offered for consideration.

1) The number of crashes at the County Road E and Highway 61 intersection is significantly higher than locations with similar characteristics from a crash rate perspective (i.e., a critical index over 1.0); all other study intersections had crash and severity rates within the normal range.
2) All study intersections currently operate at an acceptable overall LOS D or better during the typical weekday a.m. and p.m. peak hours; existing queues are generally maintained within the current roadway geometry except westbound queues along County Road E at Highway 61, which occasionally extend beyond the adjacent left- and right-turn lanes during the p.m. peak hour.
3) The proposed development is a 144,310 square foot auto dealership, which is about 60% larger than the total current building area. As part of the project, a 1,115 square foot coffee shop is planned to be incorporated within the facility to serve dealership patrons as well as the general public.
4) Traffic forecasts were developed for year 2030 no build and build conditions, which included a one-half (0.5) percent annual background growth and trip generation from the proposed development.
    a. The proposed development is estimated to generate 212 a.m. peak hour (126 in / 86 out), 177 p.m. peak hour (62 in / 115 out), and 2,400 daily (1,200 in / 1,200 out) trips.
    b. When compared to the existing dealership, the change in net new system trips associated with the proposed development is 64 a.m. peak hour (40 in / 24 out), 60 p.m. peak hour (20 in / 40 out), and 800 daily (400 in / 400 out) trips.
5) Key takeaways from the future year 2030 capacity analysis, include:
    a. All study intersections are expected to operate at an acceptable LOS D or better during the typical weekday a.m. and p.m. peak hours with and without the proposed development.
    b. Area queueing will remain relatively similar to the existing conditions; peak queues at the proposed site access locations are expected to range from two (2) to three (3) vehicles.
    c. No mitigation is needed to accommodate the proposed development from an intersection capacity perspective.
6) The following items are offered for consideration between area agencies and the project team.
    a. Consider a westbound right-turn lane along County Road E at the Central site access to minimize potential conflict between vehicles; preliminary review of this potential turn lane indicates significant utility conflicts and the resultant benefit of this turn lane does not appear to justify the cost of the utility relocation.
    b. Locate signage and landscaping to avoid creating any sight distance issues.
    c. Review truck maneuverability to limit potential internal circulation conflicts.
    d. Preserve the ability to accommodate a future multimodal facility (i.e., sidewalk or trail) along the north side of County Road E within the project site limits.
    e. Implement minor signal timing adjustments at the Highway 61 and County Road E intersection to manage the existing westbound queuing noted earlier; note that the proposed development does not significantly impact these queues.

Broadway Equipment Company

4701 Humboldt Ave N

Minneapolis, Minnesota 55430

800-328-7434

RE: Broadway Automatic Car Wash Water Usage on Fresh Water with Spot Free Rinse

The Broadway automatic car wash system uses approximately 36 gallons per car to wash a vehicle (1.5 minute cycle with 24 gpm demand).

The car is rinsed with approximately 6 gallons of city water, followed up by a RO Rinse that also uses 6 gallons.

TOTAL WATER USAGE

	City Water
Car Wash	36 gpc
City Water Rinse	6 gpc
Spot Free Water Rinse	6 gpc
Spot Free Reject Water	6 gpc
TOTAL USAGE PER CAR	54 gpc

Total fresh water usage per car is 54 gallons. The average car wash cycle is approximately 2 minutes long.

BROADWAY EQUIPMENT COMPANY
Subsidiary of Auto Butler, Inc.

Broadway Equipment Company
4701 Humboldt Ave N
Minneapolis, Minnesota 55430
800-328-7434

RE: Broadway Automatic Car Wash Water Usage on Reclaim Water with Spot Free Rinse

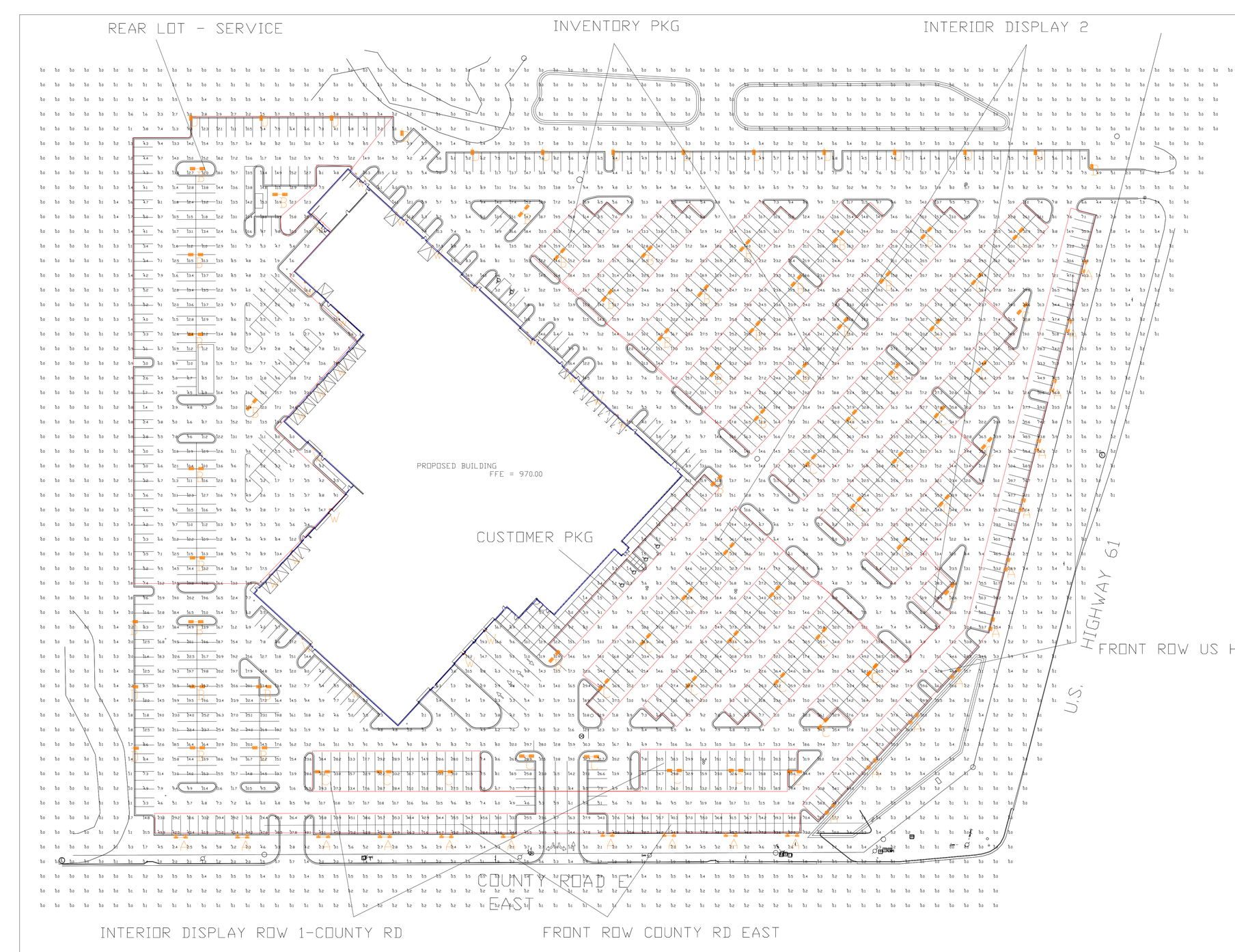
The Broadway automatic car wash system uses approximately 36 gallons per car to wash a vehicle (1.5 minute cycle with 24 gpm demand). This water is provided by the water recycling system. Net water usage is 0.

The car is rinsed with approximately 6 gallons of city water, and then approximately 6 gallons of spot free water. The RO system will create 6 gallons of reject water.

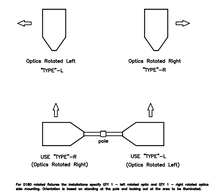
Total fresh water usage per car is 18 gallons. The car wash will discharge 18 gallons of water down the drain per car wash.

	City Water	Recycled Water
Car Wash	0 gpc	36 gpc (gallons per car)
City Water Rinse	6 gpc	0 gpc
Spot Free Rinse	6 gpc	0 gpc
Spot Free Reject Water	6 gpc	0 gpc
TOTAL USAGE PER CAR	18 gpc	36 gpc

** all water usage numbers are approximated due to supply fluctuation, water pressure differences, nozzle wear and equipment adjustments.



D180 ROTATED – ORIENTATION EXAMPLE



For D180 rotated fixtures the installations specify QTY 1 – left rotated optic and QTY 1 – right rotated optic side mounting. Orientation is based on standing at the pole and looking out at the area to be illuminated.

Top View





Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	Grid Z
ALL CALCS @ 4' ABOVE GRADE	Illuminance	Fc	10.70	79.2	0.0	N.A.	N.A.	4
CUSTOMER PKG	Illuminance	Fc	6.01	15.10	1.20	5.01	12.58	
FRONT ROW COUNTY RD EAST	Illuminance	Fc	42.47	78.40	4.10	10.36	19.12	
FRONT ROW US HWY 61	Illuminance	Fc	49.51	79.20	7.10	6.97	11.15	
INTERIOR DISPLAY 2	Illuminance	Fc	25.63	68.10	6.20	4.13	10.98	
INTERIOR DISPLAY ROW 1-COUNTY RD	Illuminance	Fc	23.08	34.00	7.80	2.96	4.36	
INVENTORY PKG	Illuminance	Fc	18.27	26.00	6.30	2.90	4.13	
REAR LOT - SERVICE	Illuminance	Fc	9.27	24.60	1.20	7.73	20.50	

Luminaire Schedule								
Symbol	Qty	Label	Arrangement	Description	Mounting Height	LLF	Arr. Lum. Lumens	Arr. Watts	BUG Rating
	21	A	D180° 2RTD	VALM-48L-AFR-50K7	24' POLE + 3' BASE	1.000	95526	612	B3-U0-G3
	30	B	D180°	VALM-48L-SQM-50K7	24' POLE + 3' BASE	1.000	96380	612	B5-U0-G4
	35	C	D180°	VALM-48L-SQN-50K7	24' POLE + 3' BASE	1.000	96816	612	B5-U0-G3
	17	D	Single	VALM-36L-4F-40K7-IS	24' POLE + 3' BASE	1.000	25382	223	B1-U0-G5
	22	W	Single	XWM-4-LED-18L-50-70CRI	16'	1.000	17291	122	B3-U0-G3

PHOTOMETRIC EVALUATION
NOT FOR CONSTRUCTION

Based on the information provided, all dimensions and luminaire locations shown represent recommended positions. The engineer and/or architect must determine the applicability of the layout to existing or future field conditions.

This lighting plan represents illumination levels calculated from laboratory data taken under controlled conditions in accordance with The Illuminating Engineering Society (IES) approved methods. Actual performance of any manufacturer's luminaires may vary due to changes in electrical voltage, tolerance in lamps/LED's and other variable field conditions. Calculations do not include obstructions such as buildings, curbs, landscaping, or any other architectural elements unless noted. Fixture nomenclature noted does not include mounting hardware or poles. This drawing is for photometric evaluation purposes only and should not be used as a construction document or as a final document for ordering product.

The IES no longer uses the Cutoff Classification System for LED fixtures. The IES classifies LED fixtures with the BUG rating which refers to the Backlight-Uplight-Glare system. An Uplight of "U0" most closely matches the old Full Cutoff rating.

Total Project Watts_1
Total Watts = 59107

10000 ALLIANCE RD. CINCINNATI, OHIO 45242 USA
(513) 793-3200 • FAX (513) 793-6603

LIGHTING PROPOSAL LO-165886

APPLE FORD
US HWY 61
WHITE BEAR LAKE, MN

BY:AHK	DATE:7/23/26	REV:	SHEET 1 OF 1

SCALE: 1"=50' ARCH D 0 50

Minnesota Wetland Conservation Act
Technical Evaluation Panel Form

Local Government Unit:	**Vadnais Lake Area WMO**
County:	**Ramsey**
Landowner/Applicant Name:	**Landform Professional Services**
Project Location/Name:	**1491 County Rd E / 5.2026**
Meeting Type (check all that apply):	☐ In-Person, not onsite. Specify Date(s): ☒ Onsite Review. Specify Date(s): **6/24/2026** ☐ Electronic Exchanges (email, zoom, teams, etc.) ☐ Other. Specify: **[insert]**
Purpose:	☐ Pre-Application Review ☒ Application Review (related to WCA decision) ☐ Local Government Road Wetland Replacement Program Eligibility ☐ Other. Specify: **[insert]**
Findings and Recommendations:	**TEP met onsite with delineator to review 7 wetlands, 3 areas showing wet signature and 1 suspicious area (SP2-2up) within the 33.57 acre project site. TEP determined the 3 wet signature areas were Non-Wetland per decision matrix and onsite review. TEP agreed suspicious area (SP2-2up) was non wetland due to lack of vegetation indicators. TEP had no changes to wetlands 1, 3, 4, and 5. TEP requested that the southwest portion of wetland 2's boundary be pulled out to include area of hydric vegetation and to include a data sheet for that area. TEP also requested that the lower southwest side of wetland 2 be pulled out to more closely follow the 964 contour line. TEP requested the northern portion of wetland 6's boundary be moved out to follow hydric vegetation line. TEP requested the lower west portion of wetland 7 be extended if not determined to be incidental through aerial review. Delineator will make these requested changes and send a revised delineation.**
Attachments (if applicable):	**[insert]**
Public Waters/Shoreland (check all that apply):	☐ Project/Activity may affect Public Waters ☐ Project/Activity may occur within a shoreland protection zone

Signatures

LGU TEP Member: Name: **Brian Corcoran** Date signed: **6/29/2026** Signature: Brian Corcoran	☒ I agree with Findings and Recommendations ☐ I disagree with Findings and Recommendations Comments (optional): **[insert]**
SWCD TEP Member: Name: **Phoebe Brown** Date signed: 6/29/2026 Signature: Phoebe Brown	☐ Not applicable, SWCD and LGU TEP member are the same ☑ I agree with Findings and Recommendations ☐ I disagree with Findings and Recommendations Comments (optional): **[insert]**

BWSR TEP Member: Name: **Ben Meyer** Date signed: 6/29/26 Signature: Benjamin L. Meyer	☑ I agree with Findings and Recommendations ☐ I disagree with Findings and Recommendations Comments (optional): **[insert]**
DNR TEP Member: Name: **[insert]** Date signed: **[insert]** Signature: **[insert]**	☐ I agree with Findings and Recommendations ☐ I disagree with Findings and Recommendations Comments (optional): **[insert]**

Minnesota Wetland Conservation Act
NOTICE OF DECISION

Date this Notice was sent:	**7/14/26**
Local Government Unit:	**Vadnais Lake Area WMO**
County:	**Ramsey**
Applicant and (if applicable) Applicant's Representative:	**Mary Clare McAleer - Kjolhaug**
Project Name/Number:	**1491 County Rd E / 5.2026**
Type of Decision (check all that apply): **Note:** Boundary/type, sequencing, replacement plan, and bank plan decisions require an associated notice of application prior to the decision being made.	☒ Boundary/Type ☐ Sequencing (submitted separately from a replacement plan) ☐ Replacement Plan ☐ Bank Plan ☒ Exemption Identify which exemption by Rule or Statute Citation: **[8420.0415 – (A) incidental]** ☐ No-Loss Identify which provision by Rule or Statute Citation: **[]**
Decision: **Note:** All replacement plan approvals are conditional upon confirmation from BWSR of withdrawal of specified credits and/or financial assurance received for project-specific replacement.	☐ Denied ☒ Approved. Valid for ☒ 5 yrs (default); ☐ Other. Specify: **[insert]** ☐ Approved with Conditions List Conditions: **[insert]** Valid for ☐ 5 yrs (default); ☐ Other. Specify: **[insert]**
LGU Representative Name & Signature:	**Brian Corcoran** Brian Corcoran

Decision Timeline

An LGU must approve or deny a request within 60 days of receiving a complete application per MINN. STAT. § 15.99.

Date Complete Application Received:	**5/29/26**
Date of Decision:	**7/14/26**
If applicable, date of *written extension* to 60-day decision timeline & number of days extended: **Reason for Extension (check one):**	**[insert]** ☐ Other process or decision required to occur before WCA decision. Describe: **[insert]** ☐ Additional information and/or revision to application submitted. ☐ Applicant request. ☐ Other. Describe: **[insert]**

Date & number of days extended for any *additional written extensions* agreed to by the applicant:	**[insert]**

Decision Summary

Technical Evaluation Panel Recommendation (check one):	☐ No recommendation ☒ Approval or approval with conditions (TEP FOF attached) ☐ Denial (attach recommendation)
LGU Findings (check all that apply):	☒ Findings attached ☒ Findings: **[Summary: Approved 7 wetland boundaries and types after revisions from 6/24/2026 on site TEP meeting. 3 areas showing wet signature and 1 suspicious area (SP2-2up) were determined to be non wetland. The southwest portion of wetland 7 was determined to be incidental wetland created in upland and was verified through aerial photos from the 1990's showing healthy pines planted through the road ditch/incidental portion of wetland 7. Revised delineation attached.** ☒ Other attachments. Specify: **revised delineation**
For Replacement Plan Decisions *Only*:	Total wetland impacts requiring replacement (acres): **[insert]** Type of wetland replacement (check all that apply): ☐ Project-Specific. Number of Credits: **[insert]** ☐ Banking. Number of Credits by Bank Account #: **[insert]**

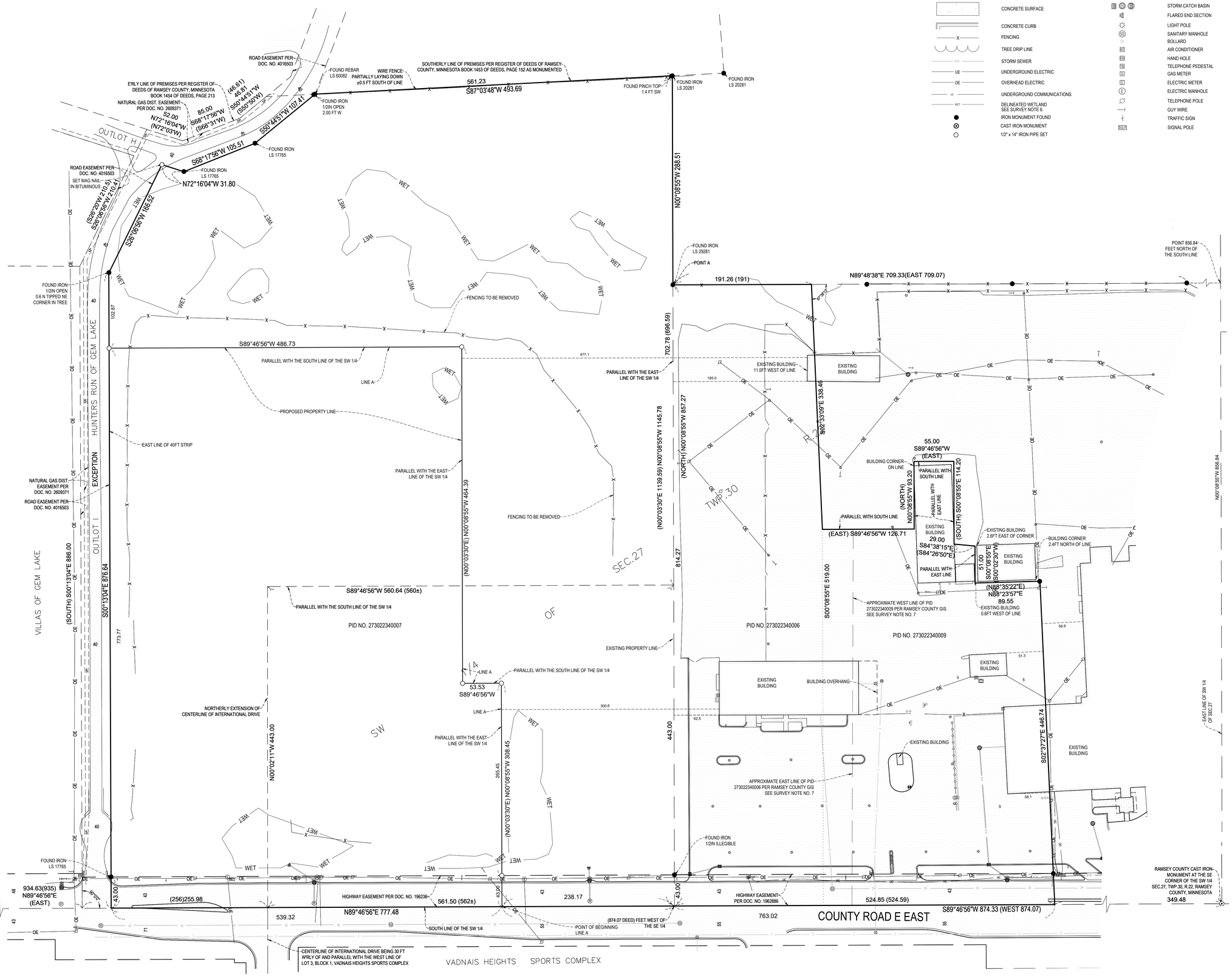
Notice Distribution

Notice Recipients (check all that apply):	☒ SWCD TEP Member (if different from LGU): **Phoebe Brown** ☒ BWSR TEP Member: **Ben Meyer** ☒ DNR Representative: **Dan Scollan** ☐ Watershed District or WMO (if applicable): **[insert]** ☐ bank.administrator.bwsr@state.mn.us (Bank Plan Decisions Only) ☐ Applicant: ☒ Applicant's Representative (if applicable): **Mary Clare McAleer** ☐ Members of the Public Requesting Notices (if applicable): **[insert]** ☐ Others: **[insert]**

Appeal Process

Appeal Process (check one):	☐ Local Appeal Process (if established). Specify How to Appeal: **[insert]** ☒ Board of Water & Soil Resources (see instructions below)
If there is no established Local Appeal Process indicated above, an appeal of this decision may be made to BWSR per the instructions to the right.	Mail or email written request to appeal sent to BWSR within 30 days of date this notice was sent. Include copy of this notice, name and contact information of appellant(s) and their representative(s) (if applicable), a statement clarifying intent to appeal, and supporting information as to why the decision is in error. Mail check payable to MN Board of Water & Soil Resources for $500. Send to:

Note: Decisions are not final until the 30-day appeal window ends.	Appeals & Regulatory Compliance Coordinator Minnesota Board of Water & Soil Resources 520 Lafayette Road North St. Paul, MN 55155 travis.germundson@state.mn.us.



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CLIENT

GRIES ARCHITECTURAL GROUP, INC.

PROJECT

APPLE FORD

GEM LAKE, MINNESOTA

ISSUE / REVISION HISTORY

CONTACT SURVEYOR FOR ANY PRIOR HISTORY

DATE	ISSUE / REVISION	DRAFTER	REVIEW

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

CERTIFICATION

I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the state of Minnesota.

Jerrod Gustavus LeSavage

License No. 58896 Date: 2026-11-06

Signature shown is a digital reproduction of original. Wet signed copy of this plan on file at Landform Professional Services, LLC office and is available upon request.

IF THE SIGNATURE, SEAL OR FOUR LINES DIRECTLY ABOVE ARE NOT VISIBLE, THIS SHEET HAS BEEN REPRODUCED BEYOND INTENDED READABILITY AND IS NO LONGER A VALID DOCUMENT. PLEASE CONTACT THE SURVEYOR TO REQUEST ADDITIONAL DOCUMENTS.

FILE NAME	VEBKGAG002 LLA.dwg
PROJECT NO.	GAG26002

MINOR SUBDIVISION

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Fire Truck Turning Exhibit

APPLE FORD • Gem Lake, MN

11.06.2026

GAG26002



Gem Lake Fire Truck	
Overall Length	42.000ft
Overall Width	10.000ft
Overall Body Height	1.209ft
Min Body Ground Clearance	1.209ft
Track Width	6.910ft
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	36.580ft

LANDFORM
From Site to Finish

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27302231001O
OWNER: BETH TSCHIDA

PROPOSED HYDRANT
PROPOSED HYDRANT
PROPOSED HYDRANT
PROPOSED HYDRANT
PROPOSED HYDRANT
EXISTING HYDRANT

PROPOSED BUILDING
FFE = 970.00
TOTAL AREA = 144,310 S.F.

PROPOSED
PARCEL 1

10' PARKING SETBACK
30' BUILDING SETBACK
30' BUILDING SETBACK
10' PARKING SETBACK
30' BUILDING SETBACK
20' PARKING SETBACK
30' BUILDING SETBACK
20' PARKING SETBACK

WET
WET
WET
WET
WET
WET
WET

U.S. HIGHWAY 61

COUNTY ROAD E EAST
COUNTY ROAD E EAST

VADNAIS HEIGHTS SPORTS COMPLEX

AREA LOCATION MAP



Apple Ford White Bear Lake

1493 County Road E, Gem Lake, Minnesota 55110

ABBREVIATIONS

D	Angle	LB.	Pound
&	And	LGU	Local Government Unit
@	At	LB.	Pound
100 YR.	100 Year Flood Elevation	LB.	Longitudinal
A.B.	Anchor Bolt	LT.	Light / Lighting
A.D.	Area Drain	MAINT.	Maintenance
A/C	Air Conditioning Unit	MAS.	Masonry
ADD.	Addendum	MATL.	Material
ADDL.	Additional	MAX.	Maximum
ADJ.	Adjacent / Adjust	MECH	Mechanical
AHU	Air Handling Unit	MED.	Medium
ALT.	Alternate	MFR.	Manufacturer
ALUM.	Aluminum	MH	Manhole
ANOD.	Anodized	MIN.	Minimum / Minute
APPROX.	Approximate	MISC.	Miscellaneous
ARCH	Architect / Architectural	MNDOT	Minnesota Department Of Transportation
AUTO.	Automatic	MOD.	Module / Modular
AVG.	Average	MUL.	Mullion
B.C.	Back of Curb	N.	North
B/W	Bottom of Wall	N.I.C.	Not In Contract
BFE	Basement Floor Elevation	NO. OR #	Number
BIT	Bituminous (Asphaltic)	NOM	Nominal
BLDG	Building	NTS	Not to Scale
BM	Benchmark	NWE	Normal Water Elevation
BSMT.	Basement	NWL	Normal Water Level
C.F.	Cubic Feet	O.F.	On Center
C.F.S.	Cubic Feet Per Second	O.G.	Outside Dimension
C.G.	Corner Guard	O.H.	Overhead Electric
C.J.	Control Joint	OH.	Overhead
C.L.	Centerline	OHWL	Ordinary High Water Level
C.M.U.	Concrete Masonry Unit	OPNG.	Opening
C.O.	Cleanout	ORIG.	Original
C.O.E.	U.S. Army Corps Of Engineers	P.C.	Point of Curvature
C.Y.	Cubic Yards	P.I.	Point of Intersection
CB	Catch Basin	PIV	Post Indicator Valve
CBMH	Catch Basin Manhole	P.L. OR P/L	Property Line
CEM.	Cement	P.O.B.	Point of Beginning
CIP	Cast Iron Pipe	P.S.F.	Pounds Per Square Foot
CMP	Corrugated Metal Pipe	P.S.I.	Pounds Per Square Inch
CONC.	Concrete (Portland)	P.T.	Point of Tangency
CONN.	Connection	P.V.C.	Point of Vertical Curvature
CONST.	Construction	P.V.I.	Point of Vertical Intersection
CONT.	Continuous	P.V.T.	Point of Vertical Tangency
CONTR.	Contractor	PE.	Polyethylene
COP.	Copper	PED.	Pedestal / Pedestrian
CU.	Cubic	PERF.	Perforated
D.S.	Down Spout	PREP.	Preparation
DEG.	Degree	PROJ.	Project
DEMO.	Demolition / Demolish	PROP.	Proposed
DEPT.	Department	PVC	Poly-Vinyl-Chloride (Piping)
DET.	Detail	PVMT.	Pavement
DIA.	Diameter	QTR.	Quarter
DIAG.	Diagonal	QTY.	Quantity
DIM.	Dimension	R	Radius
DIP	Ductile Iron Pipe	RAD.	Radius
DN	Down	RE	Rim Elevation (Casting)
DWG.	Drawing	R.D.	Roof Drain
E.	East	R.E.	Remove Existing
E.J.	Expansion Joint	R.O.	Rough Opening
E.O.	Emergency Overflow	R.P.	Radius Point
E.O.S.	Emergency Overflow Swale	RC	Reinforced Concrete Pipe
E.W.	Each Way	R.S.	Rough Slab
EA.	Each EL. Elevation	RSD	Roof Storm Drain
ELEC.	Electrical	RE.	Regarding
ELEV.	Elevation	REINF.	Reinforced
EMER.	Emergency	REQ'D	Required
ENGR.	Engineer	REV.	Revision / Revised
ENTR.	Entrance	RGU	Regulatory Government Unit
EQ.	Equal	ROW OR R/W	Right of Way
EQUIP.	Equipment	S.	South
EQUIV.	Equivalent	S.F.	Square Feet
EXIST.	Existing	SAN.	Sanitary Sewer
EXP.	Expansion	SECT.	Section
F & I	Furnish and Install	SE	Split Entry /Side Exit
F.B.O.	Furnished by Others	SEWO	Split Entry Walk Out /Side Exit Walk Out
F.C.	Face of Curb	SHT.	Sheet
F.D.	Floor Drain	SIM.	Similar
F.D.C.	Fire Department Connection	SLNT.	Sealant
F.V.	Field Verify	SPEC.	Specification
FB	Full Basement	SQ.	Square
FBWO	Full Basement Walk Out	SSD	Subsurface drain
FBLO	Full Basement Look Out	STMH	Storm Sewer Manhole
FDN.	Foundation	STD.	Standard
FES	Flared End Section	STRUCT.	Structural
FFE	Finished Floor Elevation	SYM.	Symmetrical
FLR.	Floor	T	Thickness
FT. OR (')	Foot	T/R	Top of Rim
FUT.	Future	T/W	Top of Wall
G.B.	Grade Break	TEMP.	Temporary
G.C.	General Contractor	THK.	Thick / Thickness
GAL.	Gallon	T.J.	Tooled Joint
GALV.	Galvanized	TNH	Top Nut Hydrant
GFE	Garage Floor Elevation	TYP.	Typical
GL.	Glass	U.N.O.	Unless Noted Otherwise
GR.	Grade	V.B.	Vapor Barrier
H.	Height	V.C.	Vertical Curve
H.P.	High Point	V.I.F.	Verify In Field
HDPEP	High Density Polyethylene Pipe	VER.	Verify
HGT.	Height	VER.	Vertical
HORIZ.	Horizontal	VEST.	Vestibule
HVAC	Heating, Ventilation, Air Conditioning	W	Width
HYD	Hydrant	W.PT.	Working Point
I.D.	Inside Dimension OR Identification	W.W.F.	Welded Wire Fabric
I.E. or IE	Invert Elevation	W/	With
IN. OR (")	Inches	W/O	Without
INFO.	Information	WO	Walk Out
INL.	Inlet Elevation	VER.	Wetland
INSUL.	Insulation	WP	Waterproof
INV.	Invert Elevation	WETL.	Weight
JT.	Joint	YD.	Yard
L.F.	Linear Feet	YR.	Year
L.P.	Low Point / Liquid Petroleum		

SYMBOLS

EXISTING	DESCRIPTION	EXISTING	DESCRIPTION	NEW	DESCRIPTION
	BUILDING		CONIFEROUS TREE	120	MAJOR CONTOUR
	CONCRETE SURFACE		DECIDUOUS TREE	123	MINOR CONTOUR
	BITUMINOUS SURFACE	TREE	TREE TAG	123.45	SPOT ELEVATION
	GRAVEL SURFACE		PERCOLATION TEST		BUILDING
	PAVING BLOCK / STAMPED CONCRETE	LS	LIFT STATION MANHOLE		CANOPY / OVERHANG
	CONCRETE CURB	SCB	SIGNAL CONTROL BOX		UNDERGROUND STRUCTURE
X	FENCING	SIGN	SIGNAL POLE		CONCRETE
	GUARD RAIL	IRRG	IRRIGATION BOX		CONCRETE CURB
	TREE DRIP LINE	RRS	RAILROAD SWITCH	BIT. EDGE HEIGHT, TYPE	EDGE OF PAVEMENT
STS	STORM SEWER	ATM	AUTOMATED TELLER MACHINE		FENCING
	SANITARY SEWER	C	COMMUNICATIONS MANHOLE		GUARD RAIL
G	UNDERGROUND GAS		TEST PIT		CONCRETE RETAINING WALL
UE	UNDERGROUND ELECTRIC	GEN	ELECTRIC GENERATOR		MODULAR RETAINING WALL
OE	OVERHEAD ELECTRIC	?	UNKNOWN MANHOLE		FIELDSTONE RETAINING WALL
	UNDERGROUND COMMUNICATIONS	AR	AIR RELEASE MANHOLE		EXIT LOCATION
FO	UNDERGROUND FIBER OPTIC		FIRE DEPARTMENT CONNECTION		LIGHT STANDARD
	RESTRICTED ACCESS		METAL COVER		POWER POLE
	DRAINAGE AND UTILITY EASEMENT PER PLAT OF _____		DISC GOLF	1.00%	SLOPE DIRECTION
	BUILDING SETBACK LINE		BASKETBALL HOOP		CATCH BASIN
	1/2" x 14" IRON PIPE SET		MONITORING WELL		MANHOLE
	IRON MONUMENT FOUND		ABOVE GROUND PIPE		BOLLARD
1	TITLE ITEM NUMBER		GAS VALVE	FES RIPRAP	STORM SEWER
	CAST IRON MONUMENT		CABLE BOX		SANITARY SEWER-WASTE
X	SET LATH		HEADSTONE		FORCE MAIN
	RIGHT OF WAY MONUMENT		GROUND LIGHT		ROOF DRAIN SYSTEM
	SET SPIKE		FLAG POLE	GATE VALVE / HYD	WATERMAIN
	JUDICIAL LANDMARK		GUY POLE	FIRE	FIRE LINE (IF SEPARATE)
	STONE MONUMENT		GAS MANHOLE	BLDG.	FIRE DEPT. CONNECTION
X 962.3	EXISTING SPOT ELEVATION		ELECTRONIC CARD READER	C.O.	SOIL SUBDRAIN
962	EXISTING MAJOR CONTOUR		FIBER OPTIC BOX	GAS	GAS LINE-UNDERGROUND
962	EXISTING MINOR CONTOUR		DRIVE THRU TELLER	ELEC	ELECTRIC-UNDERGROUND
	DRAINAGE DIRECTION		ELECTRIC VALVE	TELE	TELEPHONE-UNDERGROUND
	SOIL BORING		ELECTRIC OUTLET	CATV	UNDERGROUND CABLE/TV
ST	STORM MANHOLE			LSS	LAWN SPRINKLER SLEEVE
	STORM CATCH BASIN				
	FLARED END SECTION				
	OVERFLOW CONTROL STRUCTURE				
	ROOF DRAIN				
	FIRE HYDRANT				
	CURB STOP				
	WATER VALVE				
	WELL				
	LIGHT POLE				
SS	SANITARY MANHOLE				
	CLEANOUT				
	BOLLARD				
MB	MAILBOX				
AC	AIR CONDITIONER				
HH	HAND HOLE				
EM	ELECTRIC BOX				
CB	CABLE BOX				
TP	TELEPHONE PEDESTAL				
CMX	COMMUNICATIONS BOX				
G	GAS METER				
E	ELECTRIC METER				
E	ELECTRIC MANHOLE				
T	TELEPHONE MANHOLE				
	TELEPHONE POLE				
	GUY WIRE				
	TRAFFIC SIGN				

EROSION CONTROL SYMBOLS

SYMBOL	DESCRIPTION
	SILT FENCE
	COMPOST/BIO LOG
	INLET PROTECTION
	EROSION CONTROL BLANKET

DRAWING SYMBOLS

SYMBOL	DESCRIPTION
3	NOTE REFERENCE
12	PARKING STALL COUNT
C7.3 / 1	LARGE SHEET DETAIL
C21	COORDINATE POINT
2	REVISION - ADDENDUM, BULLETIN, ETC.
	REVISED AREA (THIS ISSUE)

LEGAL DESCRIPTION

APPLE FORD, GEM LAKE, RAMSEY COUNTY, MINNESOTA.

BENCHMARK

Project Benchmark:
MNDOT GSID Station #24768
Station Name: 6222 G
Location: IN GEM LAKE, AT THE JUNCTION OF TRUNK HIGHWAY 61 AND COUNTY ROAD E (COUNTY ROAD 15), 69.7 FEET EAST OF NORTHBOUND TRUNK HIGHWAY 61, AT TRUNK HIGHWAY 61 MILEPOINT 144.5, 124.0 FEET NORTH OF EASTBOUND COUNTY ROAD E (COUNTY ROAD 15), 34.1 FEET NORTHWEST OF THE NORTHWEST CORNER OF A CABLE JUNCTION BOX, 32.2 FEET NORTHWEST OF A POWER POLE, 6.0 FEET EAST OF THE EAST EDGE OF THE BARNETT CAR DEALERSHIP, 3.0 FEET WEST OF A WITNESS POST.

Elevation = 962.81 (NAVD 88)

RELEVANT SPECIFICATIONS AND ORDER OF PRECEDENCE

If there is a conflict between or among any of the terms or provisions of the Contract Documents, the Contract Documents shall be generally construed as being complementary with one another with the intent of providing the highest quality to the CLIENT. However, if a conflict cannot be reconciled the ENGINEER shall be consulted and their written directions shall be followed. In general, unless otherwise directed in writing by the ENGINEER the following order of precedence shall apply from highest precedence ("1") to lowest ("7").

1. Agreement between OWNER and CONTRACTOR
2. City Standard Specifications and Detail Plates
3. MnDOT Specifications for Construction
4. City Engineers Association of Minnesota (CEAM) Specifications
5. Conditions of the Contract
6. Plans
7. Digital Model
8. Bid Proposal

OWNER

APPLE FORD
1493 COUNTY RD E E
WHITE BEAR LAKE, MN 55110
TEL 651-371-1233

PROJECT CONTACTS

CIVIL ENGINEER
LANDFORM
105 SOUTH FIFTH AVENUE, SUITE 513
MINNEAPOLIS, MN 55401
TEL 612-252-9070
CONTACT: STEVE SABRASKI

SURVEYOR
LANDFORM
105 SOUTH FIFTH AVENUE, SUITE 513
MINNEAPOLIS, MN 55401
TEL 612-252-9070
CONTACT: GUS LeSAVAGE

LANDSCAPE ARCHITECT
LANDFORM
105 SOUTH FIFTH AVENUE, SUITE 513
MINNEAPOLIS, MN 55401
TEL 612-252-9070
CONTACT: JOSH POPEHN

ARCHITECT
GRIES ARCHITECTURAL GROUP INC.
500 NORTH COMMERCIAL STREET
NEENAH, WI 54956
TEL 920-722-2445
CONTACT: BRANNIN GRIES

CIVIL / LANDSCAPE SHEET INDEX & REVISION MATRIX

SHEET NO.	DESCRIPTION	SHEETS ISSUED BY DATE 07.24.26	09.14.26	11.06.26
C0.1	CIVIL & LANDSCAPE TITLE SHEET	X	X	X
C1.1	EXISTING CONDITIONS	X	X	X
C1.2	DEMOLITION	X	X	X
C1.3	TREE PRESERVATION PLAN - OVERALL	X	X	X
C1.4	TREE PRESERVATION PLAN - ENLARGED A	X	X	X
C1.5	TREE PRESERVATION PLAN - ENLARGED B	X	X	X
C1.6	TREE PRESERVATION PLAN - ENLARGED C	X	X	X
C1.7	TREE PRESERVATION PLAN - ENLARGED D	X	X	X
C2.1	OVERALL SITE PLAN	X	X	X
C2.2	SITE PLAN	X	X	X
C3.1	GRADING, DRAINAGE, PAVING & EROSION CONTROL	X	X	X
C3.2	SWPPP		X	X
C4.1	UTILITIES	X	X	X
C7.1	CIVIL CONSTRUCTION DETAILS	X	X	X
C7.2	CIVIL CONSTRUCTION DETAILS	X	X	X
L2.1	OVERALL LANDSCAPE PLAN	X	X	X
L2.2	PLANTING PLAN	X	X	X
L2.3	TURF AND MULCH PLAN	X	X	X
L2.4	ENLARGED LANDSCAPE PLAN	X	X	X
L7.1	LANDSCAPE DETAILS	X	X	X

CERTIFICATIONS

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

STEVE SABRASKI, P.E.

LICENSE NUMBER: 47165 DATE:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

JOSH POPEHN, RLA

LICENSE NUMBER: 44803 DATE:

Know what's Below. Call before you dig.

CLIENT

GRIES ARCHITECTURAL GROUP INC.
500 NORTH COMMERCIAL STREET

NEENAH, WI 54956
TEL: (920) 722-2445

CITY

City of Gem Lake

PROJECT

Apple Ford White Bear Lake

ISSUE / REVISION HISTORY

CONTACT ENGINEER FOR ANY PRIOR HISTORY

DATE	ISSUE / REVISION	REVIEW
24 JUL 2026	CITY SUBMITTAL	SES
14 SEP 2026	CITY SUBMITTAL	SES
06 NOV 2026	CITY SUBMITTAL	SES

CERTIFICATION

PRELIMINARY NOT FOR CONSTRUCTION

IF THE SIGNATURE, SEAL OR FOUR LINES DIRECTLY ABOVE ARE NOT VISIBLE, THIS SHEET HAS BEEN REPRODUCED BEYOND INTENDED READABILITY AND IS NO LONGER A VALID DOCUMENT. PLEASE CONTACT THE ENGINEER TO REQUEST ADDITIONAL DOCUMENTS. THIS PLAN SET IS INTENDED TO BE PRINTED IN COLOR.

CITY SUBMITTAL
NOVEMBER 06, 2026

LANDFORM
From Site to Finish
105 South Fifth Avenue Tel: 612-252-9070
Suite 513 Fax: 612-252-9077
Minneapolis, MN 55401 Web: landform.net

FILE NAME C001GAG002.DWG

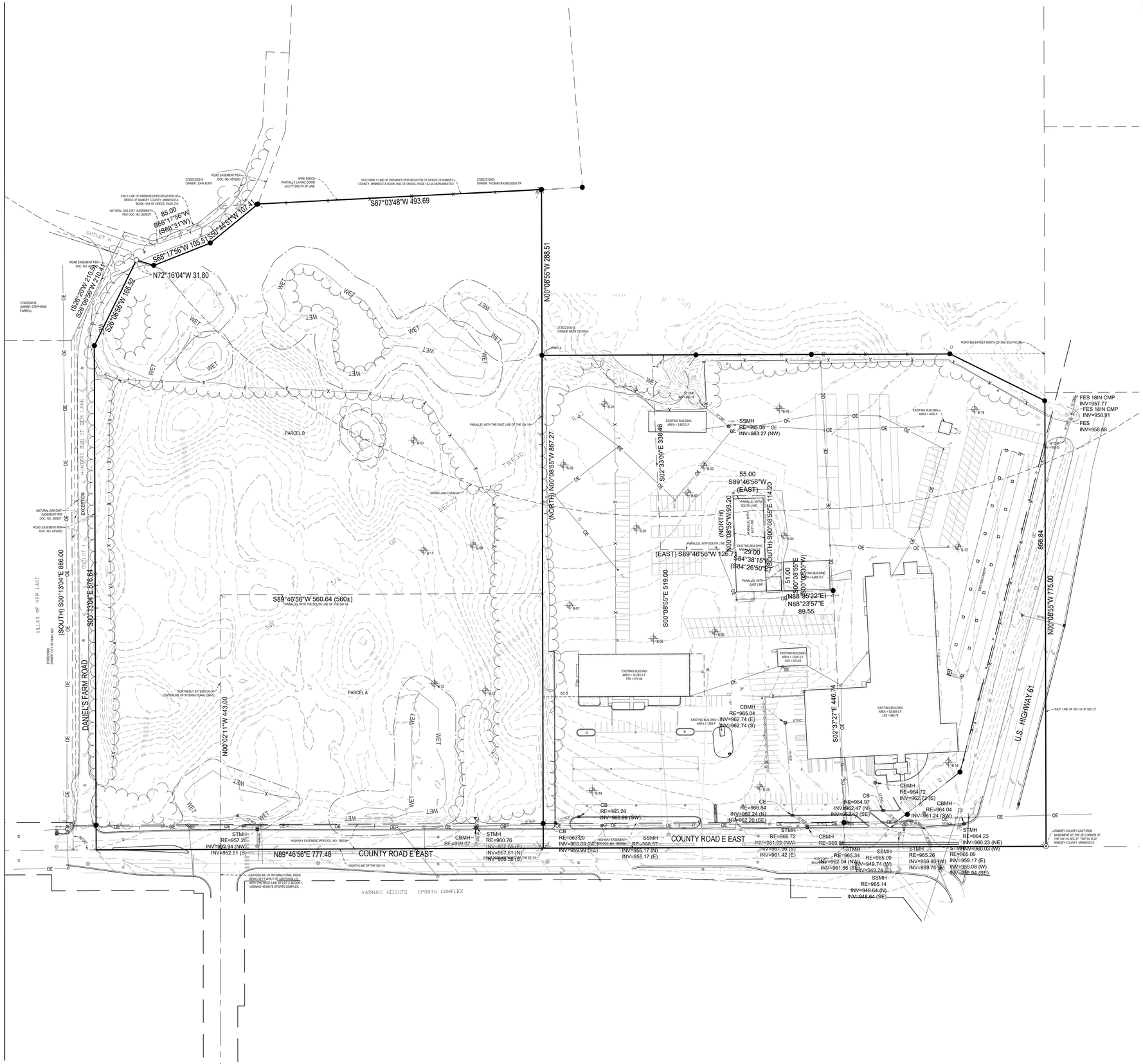
PROJECT NO. GAG26002

CIVIL & LANDSCAPE TITLE SHEET

C0.1

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EXISTING CONDITIONS

1. Background information shown is from survey by Landform, Minneapolis, MN, on April 6, 2026, expressly for this project; City of Gem Lake, MN record drawings; and utility service providers. Landform offers no warranty, expressed or written, for information provided by others. Existing project conditions shall be verified prior to beginning construction. Errors, inconsistencies, or omissions discovered shall be reported to the Engineer IMMEDIATELY.
2. Geotechnical boring locations are approximate and are based on information provided in the Geotechnical Report prepared by CVT, St. Paul, MN on May 28,2026.

CLIENT

GRIES ARCHITECTURAL GROUP INC.
500 NORTH COMMERCIAL STREET

NEENAH, WI 54956
TEL: (920) 722-2445

CITY

City of Gem Lake

PROJECT

Apple Ford White Bear Lake

ISSUE / REVISION HISTORY

CONTACT ENGINEER FOR ANY PRIOR HISTORY

DATE	ISSUE / REVISION	REVIEW
24 JUL 2026	CITY SUBMITTAL	SES
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06 NOV 2026	CITY SUBMITTAL	SES

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CITY SUBMITTAL
NOVEMBER 06, 2026

LANDFORM
From Site to Finish

105 South Fifth Avenue
Suite 513
Minneapolis, MN 55401

Tel: 612-252-9070
Fax: 612-252-9077
Web: landform.net

FILE NAME	C101GAG002.DWG
PROJECT NO.	GAG26002

EXISTING CONDITIONS

C1.1

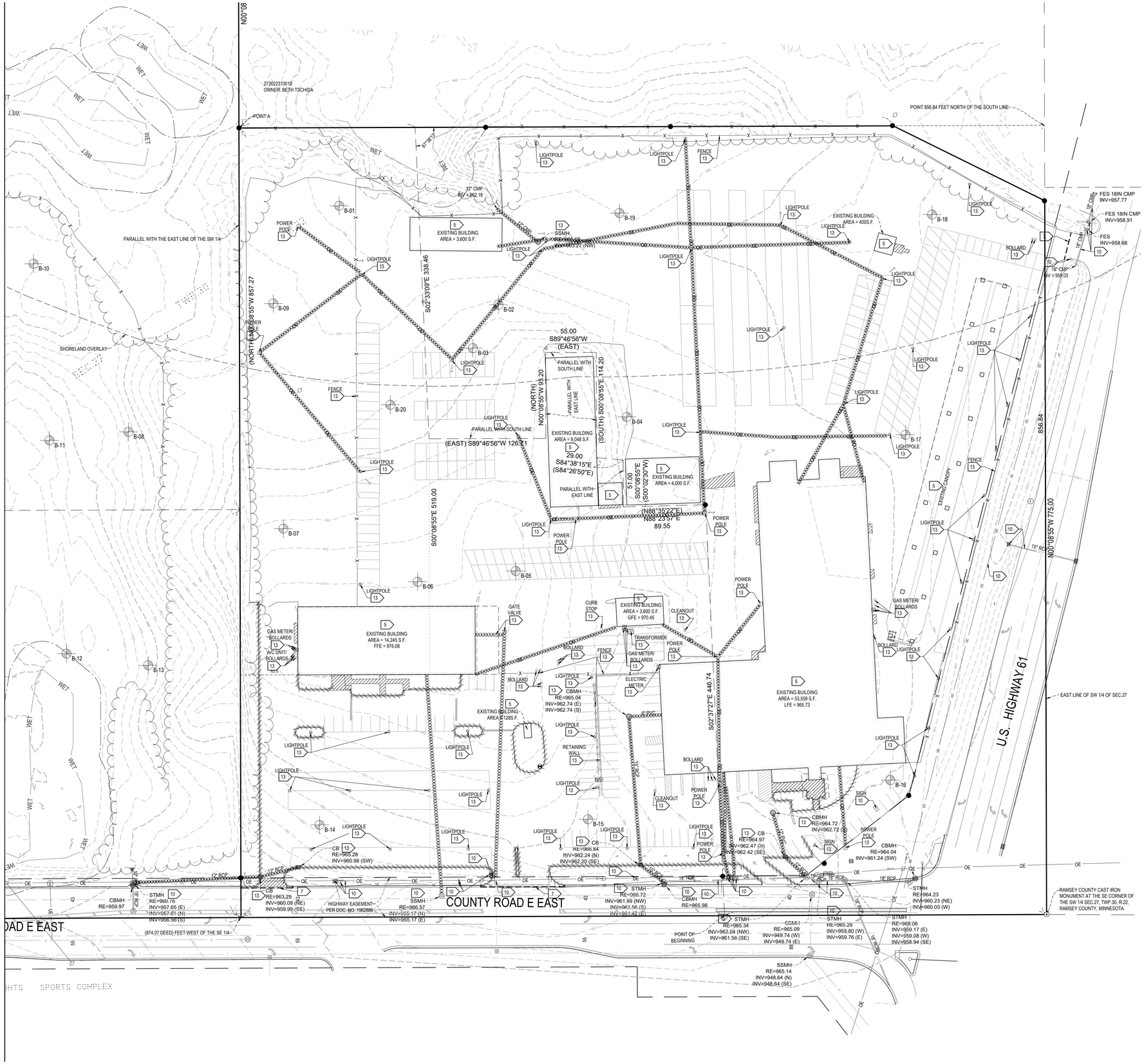
Know what's Below. Call before you dig.

NORTH

0 80 160

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GENERAL NOTES

1. For construction staking and surveying services contact Landform at 612.252.9070.

DEMOLITION AND CLEARING NOTES

2. Obtain permits for demolition, clearing, and disposal prior to beginning.
3. Contact utility service providers for field location of services 72 hours prior to beginning demolition and clearing.
4. See Sheet C3.1 for erosion prevention and sediment control measures that must be in place prior to disturbances to site.
5. Building demolition: verify with owner that building has been cleared of regulated materials requiring special handling or disposal. Remove structure, columns, canopies, footings, foundations, and any associated construction in its entirety. Refer to Architectural and Structural for removal limits.
6. Dimensions shown for removal are approximate. Coordinate with new construction to ensure appropriate removal of existing facilities.
7. Pavement sawcut. Remove concrete walks and curbing to the nearest existing joint beyond construction limits.
8. Complete demolition with minimal disruption of traffic. Coordinate lane closures with the regulatory authority and provide advance notification to affected emergency response providers.
9. Provide barricades, lights, signs, traffic control, and other measures necessary for protection and safety of the public and maintain throughout construction.
10. Protect structures, utilities, trees, plant material, sod, and adjacent property from damage during construction unless noted for removal. Damage shall be repaired to equal or better condition at no additional cost.
11. Abandon wells and remove on site sewage facilities prior to any other demolition in accordance with requirements of regulatory authorities.
12. Refer to tree preservation plan for additional information.
13. Remove existing site features including, but not limited to, underground utilities, paving, curbing, walkways, fencing, retaining walls, aprons, lighting, related foundations, signage, bollards, and landscaping within the construction limits unless noted otherwise.
14. Coordinate removal, relocation, termination, and re-use of existing private utility services and appurtenances with the utility companies. Restore electric handholes, pullboxes, powerpoles, guylines, and structures disturbed by construction in accordance with utility owner requirements.
15. Existing piping and conduits may be abandoned in-place if filled with sand and if not in location of proposed building or in conflict with proposed utilities or structures. Terminate existing services at the supply side in conformance with provider's standards.
16. Haul demolition debris off-site to a facility approved by regulatory authorities for the handling of demolition debris, unless noted otherwise.

LEGEND

:Concrete Removal

B-X :Soil Boring

:Curb Removal

XXXXXXXXXXXXXXXXX :Utility Line Removal

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City of Gem Lake

PROJECT

Apple Ford White Bear Lake

ISSUE / REVISION HISTORY

CONTACT ENGINEER FOR ANY PRIOR HISTORY

DATE	ISSUE / REVISION	REVIEW
24 JUL 2026	CITY SUBMITTAL	SES
14 SEP 2026	CITY SUBMITTAL	SES
06 NOV 2026	CITY SUBMITTAL	SES

CERTIFICATION

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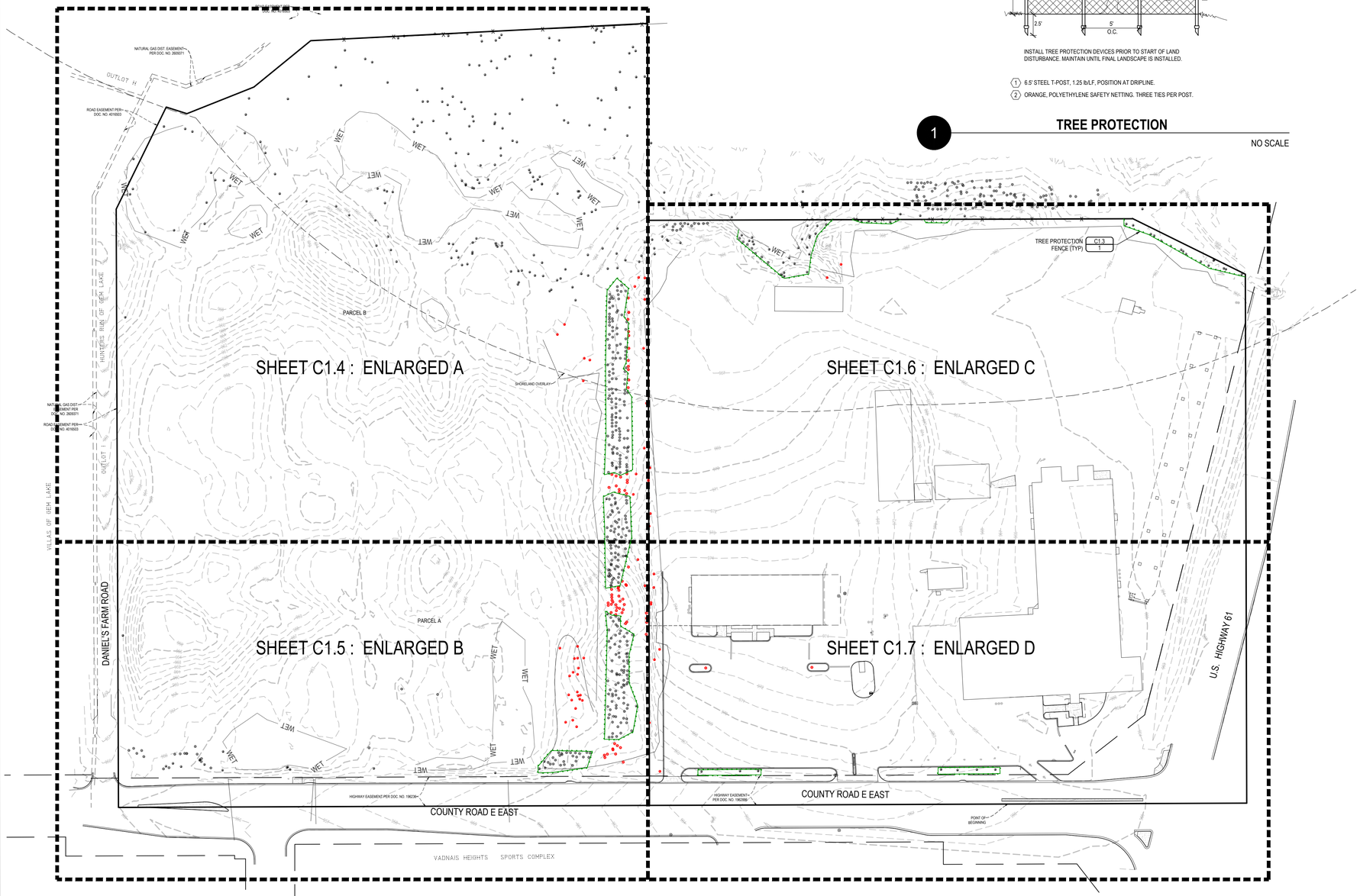
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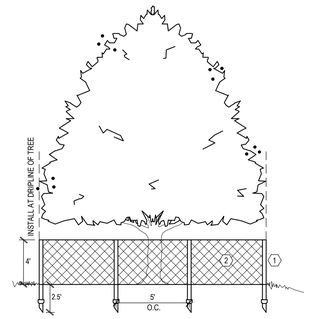
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DEMOLITION PLAN

C1.2

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INSTALL TREE PROTECTION DEVICES PRIOR TO START OF LAND DISTURBANCE. MAINTAIN UNTIL FINAL LANDSCAPE IS INSTALLED.

(1) 6.5' STEEL T-POST, 1.25 lb/LF, POSITION AT DRIPLINE.

(2) ORANGE, POLYETHYLENE SAFETY NETTING. THREE TIES PER POST.

1 TREE PROTECTION

NO SCALE

LEGEND

:Tree Removal

:Tree Protection

TREE PRESERVATION SUMMARY

	Total trees	Removed	Preserved
Non-shoreland	417	99 (24%)	318
Shoreland	347	23 (7%)	324

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TREE PRESERVATION PLAN - OVERALL

C1.3

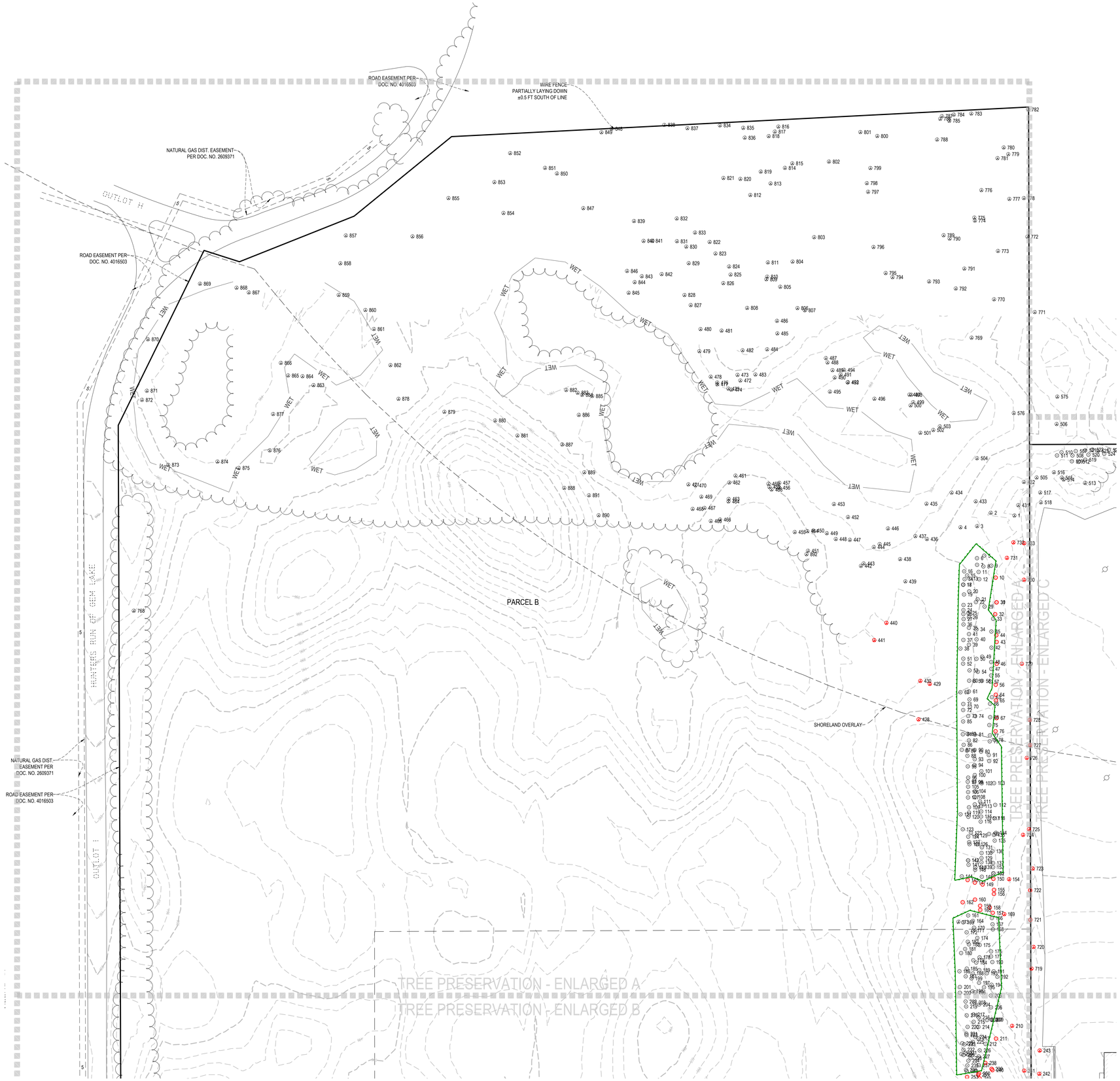
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LEGEND

:Tree Removal

:Tree Protection

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TREE PRESERVATION - ENLARGED A

C1.4

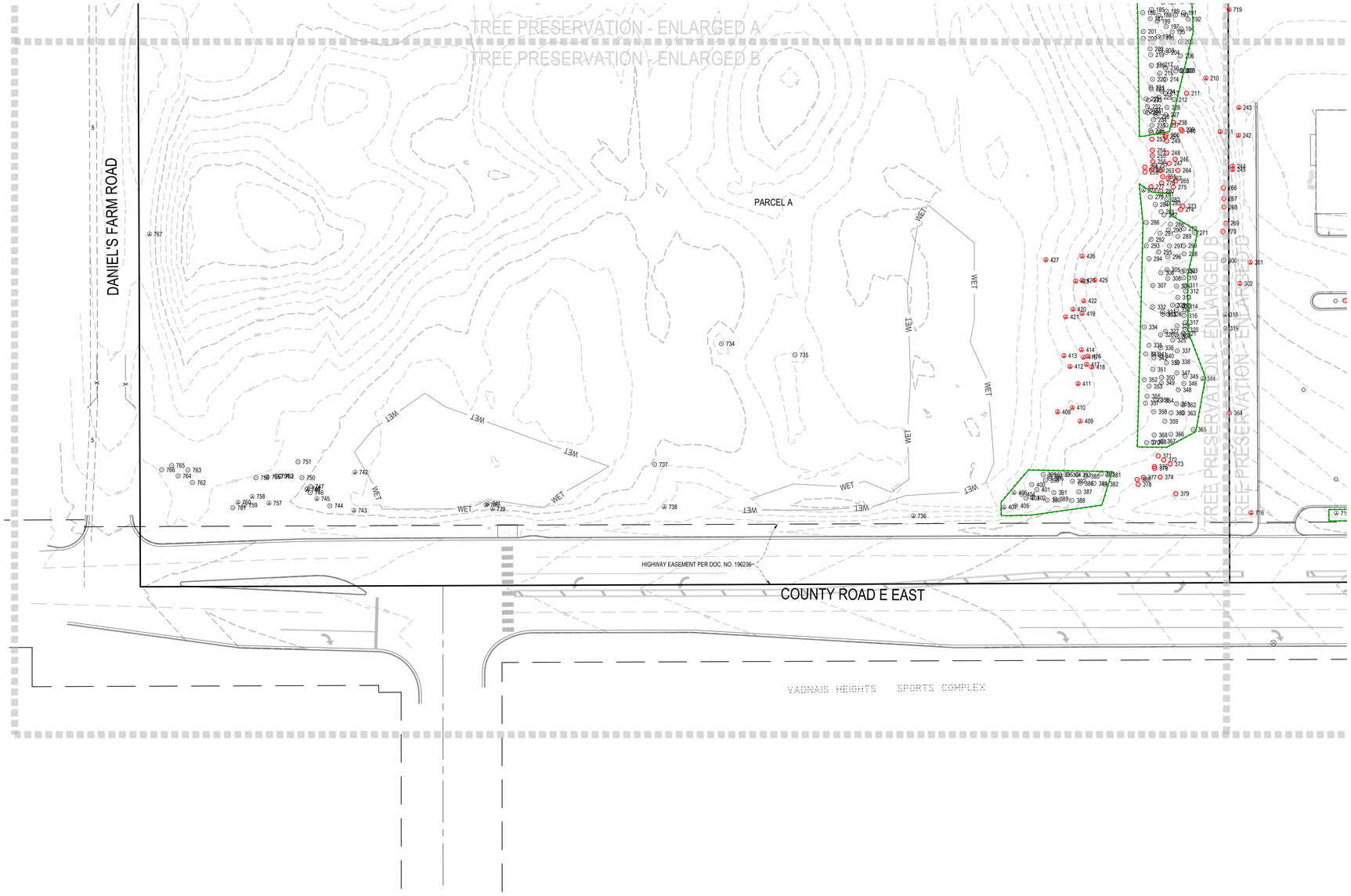
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LEGEND

:Tree Removal

:Tree Protection

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TREE PRESERVATION - ENLARGED B

C1.5

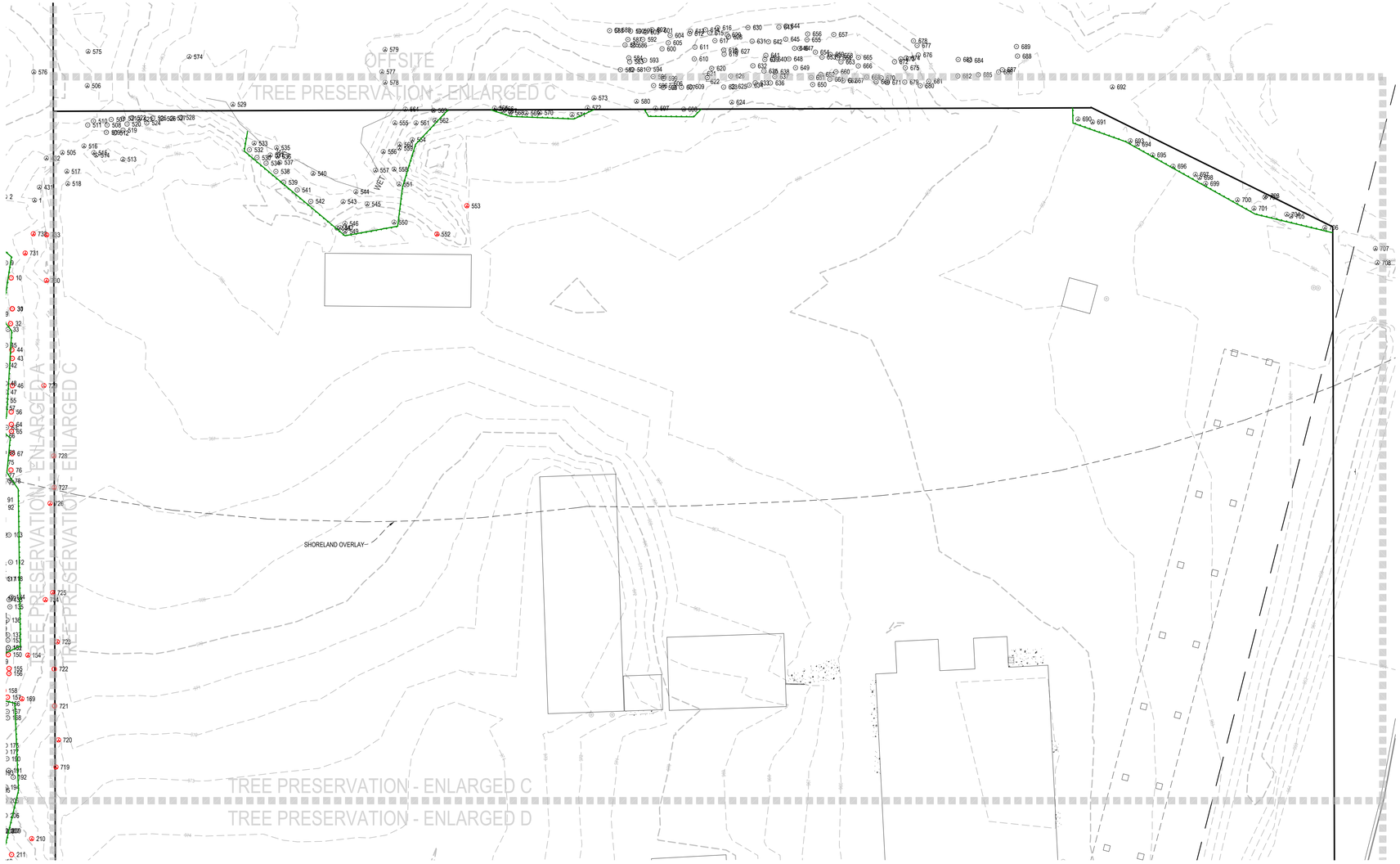
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LEGEND

:Tree Removal

:Tree Protection

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TREE PRESERVATION - ENLARGED C

C1.6

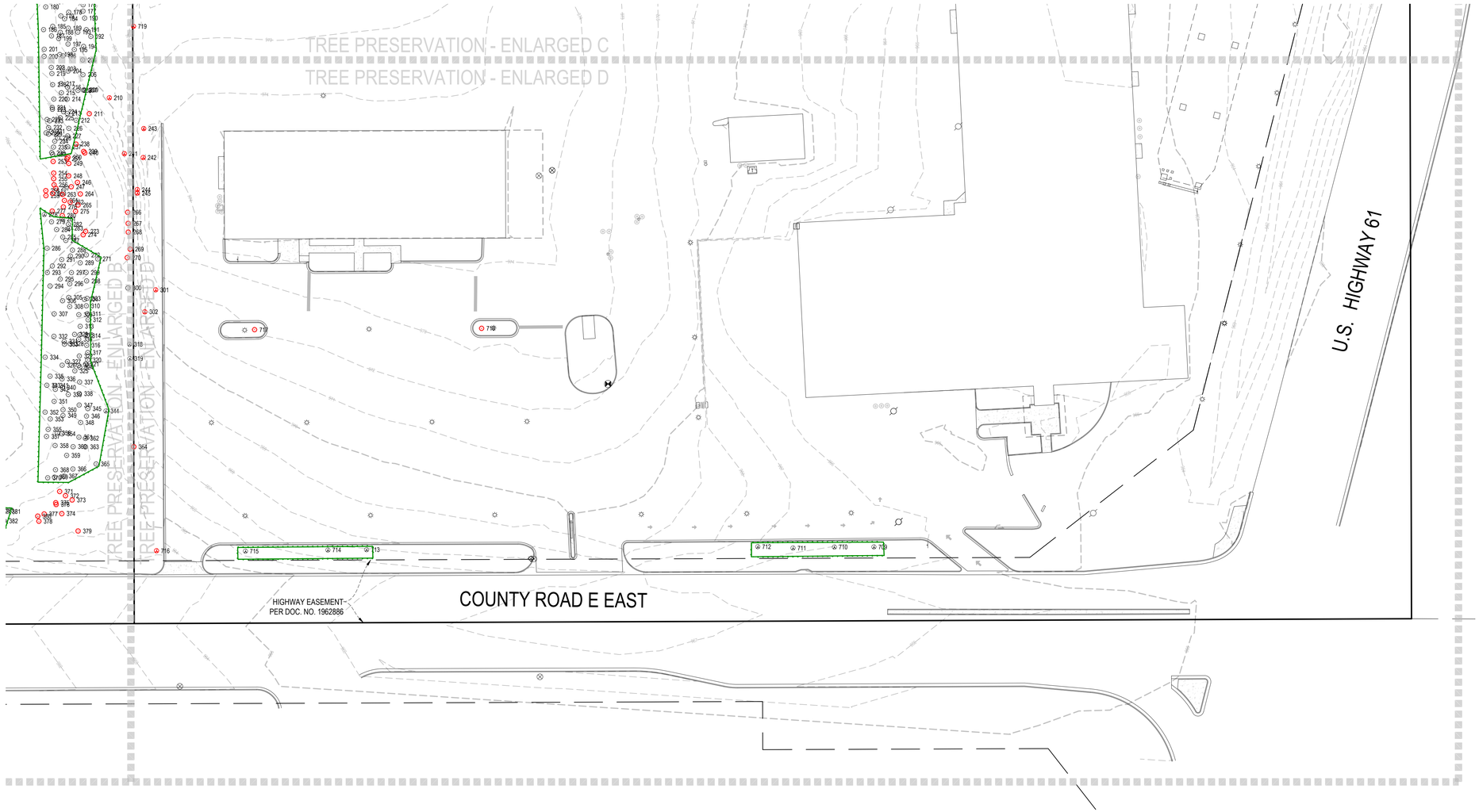
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LEGEND

:Tree Removal

:Tree Protection

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TREE PRESERVATION - ENLARGED D

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GENERAL NOTES

1. For construction staking and surveying services contact Landform at 612.252.9070.

SITE PLAN NOTES

2. Obtain all necessary permits for construction within, or use of, public right-of-way.
3. The digital file, which can be obtained from the Engineer, shall be used for staking. Discrepancies between the drawings and the digital file shall be reported to the Engineer. The building footprint, as shown on these drawings, and the digital file, shall be compared to the structural drawings prior to staking.
4. Building layout angles are parallel with or perpendicular to the property line at the location indicated.
5. Dimensions shown are to face of curb and exterior face of building unless noted otherwise.
6. Delineate parking stalls with a 4-inch wide white painted stripe. Delineate access aisles with 4-inch wide white painted stripes 18 inches on center and at 45 degree angle to direction of travel.
7. Trash / Recycling areas: See Architectural drawings.
8. Fuel Pump: See Architectural drawings.

ZONING AND SETBACK SUMMARY

The Property is Zoned NC - Neighborhood Center
Building Setback Information is as follows:
Front Yard = 30 ft.
Rear = 30 ft.
Side (Street) = 30 ft.
Side (Interior) = 30 ft.

Parking Setback Information is as follows:
County Road E = 20 ft.
Highway 61 = 10 ft.
Rear = 10 ft.
Side (Interior) = 10 ft.

AREA SUMMARY

PROPOSED PARCEL 1 (Dealership Property):

Existing:

Pervious	508,230	s.f.	11.67	ac.	46.5%
Impervious	585,598	s.f.	13.44	ac.	53.5%
Total	1,202,384	s.f.	27.60	ac.	100.0%

Proposed:

Pervious	492,898	s.f.	11.32	ac.	45.1%
Impervious	600,971	s.f.	13.79	ac.	45.9%
Right-of-Way	108,515	s.f.	2.49	ac.	9.0%
Total	1,202,384	s.f	27.60	ac.	100.0%

PROPOSED PARCEL 2:

Existing:

Pervious	369,122	s.f.	8.48	ac.	100.0%
Impervious	0	s.f.	0.00	ac.	0.0%
Total	392,314	s.f.	9.01	ac.	100.0%

Proposed:

Pervious	369,122	s.f.	8.48	ac.	94.1%
Impervious	0	s.f.	0.00	ac.	0.0%
Right-of-Way	23,192	s.f.	0.53	ac.	5.9%
Total	392,314	s.f	9.01	ac.	100.0%

PARKING SUMMARY

Required Parking:

1 space per 1,000 sq. ft. rounded up plus one space for each service or cleanup stall.
121,451 s.f. Total
121,451 s.f. / 1,000 s.f. + 67 service stalls = 188.5 Stalls

Total Parking Stalls Required	189 ea.

Provided Parking:

Standard Stalls	(9x20)	1,150 ea.
Accessible Stalls	(9x20)	6 ea.
Total Parking Stalls Provided		1,156 ea.

LEGEND

- Green Space (Landscape Area)
- Right-of-Way

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PROJECT

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FILE NAME	C201GAG0021.DWG
PROJECT NO.	GAG26002

OVERALL SITE PLAN

C2.1

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GENERAL NOTES

1. For construction staking and surveying services contact Landform at 612.252.9070.

SITE PLAN NOTES

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Right-of-Way	108,515	s.f.	2.49	ac.	9.0%
Total	1,202,384	s.f	27.60	ac.	100.0%

PROPOSED PARCEL 2:

Existing:

Pervious	369,122	s.f.	8.48	ac.	100.0%
Impervious	0	s.f.	0.00	ac.	0.0%
Total	392,314	s.f.	9.01	ac.	100.0%

Proposed:

Pervious	369,122	s.f.	8.48	ac.	94.1%
Impervious	0	s.f.	0.00	ac.	0.0%
Right-of-Way	23,192	s.f.	0.53	ac.	5.9%
Total	392,314	s.f	9.01	ac.	100.0%

PARKING SUMMARY

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121,451 s.f. Total
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Total Parking Stalls Required		189 ea.

Provided Parking:

Standard Stalls	(9x20)	1,150 ea.
Accessible Stalls	(9x20)	6 ea.
Total Parking Stalls Provided		1,156 ea.

LEGEND

Green Space (Landscape Area)

Right-of-Way

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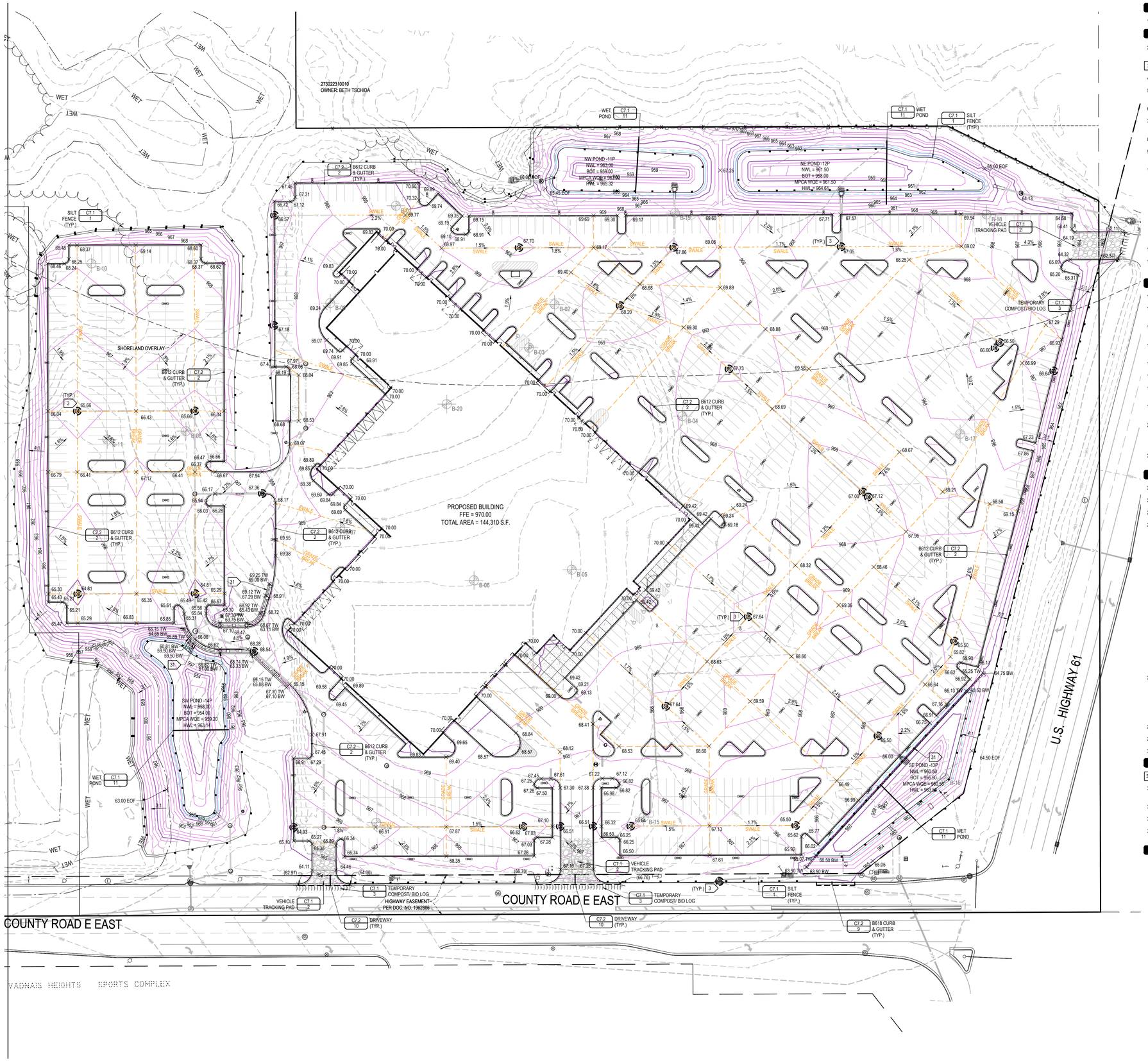
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SITE PLAN
C2.2

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GENERAL NOTES

1. For construction staking and surveying services contact Landform at 612.252.9070.

EROSION PREVENTION AND SEDIMENT CONTROL NOTES

2. Install perimeter sediment controls prior to beginning work and maintain for duration of construction. Remove controls after areas contributing runoff are permanently stabilized and dispose of off site.
3. Install inlet protection: Wimco RD or CG models as appropriate, or approved equal. Maintain protection until project is stabilized.
4. Limit soil disturbance to the grading limits shown. Schedule operations to minimize length of exposure of disturbed areas.
5. Management practices shown are the minimum requirement. Install and maintain additional controls as work proceeds to prevent erosion and control sediment carried by wind or water.
6. Refer to SWPPP Notes on Sheet C3.2 for additional requirements.
7. Excavate ponds early in the construction sequence. Remove sediment from ponds periodically and after areas contributing runoff are permanently stabilized.
8. Contractor shall prevent sediment laden water from entering the filtration system until the site is completely stabilized.
9. Stabilization must be started immediately to limit soil erosion when the construction activity in that portion of the site has temporarily or permanently ceased and will not resume for 14 calendar days.
10. Seed, Sod, Mulch, Erosion Control Blanket, and Fertilizer shall meet the following Specifications, as modified. Seeded areas without erosion control blanket shall be disc mulched.

Item	Specification Number
Sod	MNDOT 3878
Seed	MNDOT 3876
MN Type O @ 100 lb./ac. - Temporary Erosion Control - Temporary Erosion Control, May 1 - Jul 31	
MN Type WW @ 100 lb./ac. - Temporary Erosion Control - Temporary Erosion Control, Aug 1 - Oct 31	
Mulch	MNDOT 3882
(MNDOT Type 1 @ 2 ton/ac., Disc Anchored)	
Erosion Control Blanket	MNDOT 3885
Fertilizer	MNDOT 3881
General Placement	MNDOT 2575

11. See Landscape Sheets for permanent turf and landscape establishment.
12. Scrape adjacent streets clean daily and sweep clean weekly.

GRADING NOTES

12. Contact utility service providers for field location of services 72 hours prior to beginning grading.
13. Refer to the Geotechnical Report prepared by CVT, Dated 05/28/2026, for additional information on backfill material and groundwater conditions.
14. Remove topsoil from grading areas and stockpile sufficient quantity for reuse. Materials may be mined from landscape areas for use on site and replaced with excess organic material with prior Owner approval.
15. Remove surface and ground water from excavations. Provide initial lifts of stable foundation material if exposed soils are wet and unstable.
16. Rough grade Building Pad to 12 Inches below Finished Floor Elevation (FFE).
17. Refer to Structural Specifications for earthwork requirements for building pads.
18. An Independent Testing Firm shall verify the removal of organic and unsuitable soils, soil correction, and compaction and provide periodic reports to the Owner.
19. Place and compact fill using lift thicknesses matched to soil type and compaction equipment to obtain specified compaction throughout the lift.
20. Compact cohesive soils in paved areas to 95% of maximum dry density, Standard Proctor (ASTM D698) except the top 3 feet which shall be compacted to 100%. Compact to 98% density where fill depth exceeds 10 feet. The soils shall be within 3% of optimum moisture content. In granular soils all portions of the embankment shall be compacted to not less than 95% of Modified Proctor Density (ASTM D1557).
21. Coordinate with Architectural for building stoop locations. Slopes shown on adjacent walks and pavements should continue over stoops.

PAVING NOTES

23. Spot Elevations at curblines indicate flowlines unless noted otherwise. See Sheet C4.1 for rim elevations of catch basins.
24. Grades between proposed spot elevations shall be continuous and nonvariable. Spot Elevations shall govern over contour lines.
25. Meet and Match existing curb. Transition as needed.
26. Paving Sections (Refer to Geotechnical Report by CVT, Dated 05/28/2026)
    a. Bituminous Paving (Light Duty)
       1.5-inch Bituminous Wear (MNDOT 2360, SPWEA240B)
       Tack Coat (MNDOT 2357)
       1.5-inch Bituminous Base (MNDOT 2360, SPNWB230B)
       6-inch Aggregate Base (MNDOT 3138, Class 5)
       Compacted Subsoil

    b. Bituminous Paving (Heavy Duty)
       2-inch Bituminous Wear (MNDOT 2360, SPWEA240B)
       Tack Coat (MNDOT 2357)
       2-inch Bituminous Base (MNDOT 2360, SPNWB230B)
       8-inch Aggregate Base (MNDOT 3138, Class 5)
       Compacted Subsoil

    c. Concrete Walkways
       4-inch Concrete Walk, 4000 PSI, 5%-8% Air Entrained, Max. 4" Slump (MNDOT 2301)
       4-inch Aggregate Base (MNDOT 3138, CLASS 5)
       Compacted Subsoil

    d. Concrete Drives, Aprons, and Exterior Slabs
       8-inch Concrete, 4000 PSI, 5%-8% Air Entrained, Max. 4" Slump (MNDOT 2301)
       8-inch Aggregate Base (MNDOT 3138, CLASS 5)
       Compacted Subsoil
27. Concrete Joints
    Install joints as shown and align across sidewalks, curbs, and pavement, paying attention to spacing of expansion joints. Joint spacing shall be as follows:
    a. Tooled joints: Divide panels into nominally equal areas unless shown otherwise.
    b. Expansion Joints: Sidewalks - 40 feet max.; Curbs - 60 feet max.; Pavement: 80 feet max.; Adjacent to building foundations and stoops.
    c. Contraction Joints: Sidewalks - 8 to 10 feet; Curbs and Aprons - 12 to 15 feet.
28. Accessible Parking Stalls and adjacent access aisles shall not exceed a 2.00% slope in any direction.
29. Accessible Routes shall have a maximum cross slope of 2.00% and a maximum running slope of 5.00%.
30. Adjust all structure rims to match pavement elevations.

RETAINING WALL NOTES

31. Rock Segmental Retaining Wall.
32. Provide structural design of retaining walls, following MNDOT Retaining Wall specifications for minimum design and performance. Provide construction of walls in accordance with approved design.
33. Confirm architectural requirements for wall units with owner.
34. Submit design to City for approval prior to Building Permit issuance.
35. Provide coordination and assurance that related work constructed within the reinforced earth zone; including fences, underground utilities, guard rails, etc.; is in accordance with approved design and does no damage to reinforcing elements of the retaining wall.

LEGEND

SYMBOL	DESCRIPTION	ESTIMATED QUANTITY
	:Inlet Protection	29 ea.
	:Silt Fence	6,482 ft.
	:Compost or Bio Log	206 ft.
	:Vehicle Tracking Pad	3 ea.
	:Pavement Sawcut	
	:Tip Out Curb	

Know what's Below. Call before you dig.

NORTH

0 50 100

CLIENT

GRIES ARCHITECTURAL GROUP INC.
500 NORTH COMMERCIAL STREET
NEENAH, WI 54956
TEL: (920) 722-2445

CITY

City of Gem Lake

PROJECT

Apple Ford White Bear Lake

ISSUE / REVISION HISTORY

CONTACT ENGINEER FOR ANY PRIOR HISTORY

DATE	ISSUE / REVISION	REVIEW
24 JUL 2026	CITY SUBMITTAL	SES
14 SEP 2026	CITY SUBMITTAL	SES
06 NOV 2026	CITY SUBMITTAL	SES

CERTIFICATION

PRELIMINARY NOT FOR CONSTRUCTION

IF THE SIGNATURE, SEAL OR FOUR LINES DIRECTLY ABOVE ARE NOT VISIBLE, THIS SHEET HAS BEEN REPRODUCED BEYOND INTENDED READABILITY AND IS NO LONGER A VALID DOCUMENT. PLEASE CONTACT THE ENGINEER TO REQUEST ADDITIONAL DOCUMENTS. THIS PLAN SET IS INTENDED TO BE PRINTED IN COLOR.

CITY SUBMITTAL
NOVEMBER 06, 2026

LANDFORM
From Site to Finish

105 South Fifth Avenue
Suite 513
Minneapolis, MN 55401

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Web: landform.net

FILE NAME C301GAG002.DWG
PROJECT NO. GAG26002

GRADING, PAVING AND EROSION CONTROL PLAN
C3.1

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NPDES PERMIT AND SWPPP COMPONENTS

1. ***The current Minnesota Construction Stormwater General Permit (Permit) dated August 1, 2018 is referenced in this document as the Permit.***

   The SWPPP includes the following components:
   - Construction Documents prepared by Landform
   - Stormwater Management Plan prepared by Landform
   - Maintenance Plan for permanent stormwater BMPs
   - Geotechnical Report prepared by CVT

   All components must be kept onsite, or electronically available onsite, by the Operator during regular work hours. The Operator shall contact Civil Engineer if they do not have all of the above documents.

SITE INFORMATION

Site location: Latitude: 45.05126, Longitude: -93.03741
Disturbed area = 17.8 ac.
Pre-construction impervious area within disturbed area = 13.6 ac.
Post-construction impervious area within disturbed area = 13.8 ac.
Net change in impervious area within disturbed area = 0.2 ac.

Type of stormwater management:
- Wet sedimentation

Erosion prevention and sediment control quantities are on sheets C3.1

SITE EVALUATION / ASSESSMENT / PLANNING

1. The Operator shall have primary responsibility and significant authority for the development, implementation, maintenance, inspection and amendments to the approved SWPPP. Duties include but are not limited to:
   - Ensuring full compliance with the SWPPP and the Permit
   - Implementing all elements of the SWPPP, including but not limited to:
     - Implementing prompt and effective erosion and sediment control measures
     - Implementing all non-storm water management, and good housekeeping BMPs ensuring that no materials other than Storm water are discharged in quantities, which will have an adverse effect on receiving waters or storm drain systems, etc.
   - Conducting routine inspections and maintenance
   - Ensuring elimination of all unauthorized discharges
   - Coordinating to ensure all of the necessary corrections / repairs are made immediately, and that the project complies with the SWPPP, the Permit, and approved plans at all times.

STORMWATER POLLUTION PREVENTION MANAGEMENT MEASURES

1. ***Operator must develop pollution prevention management measures, implement good housekeeping BMPs, must follow all applicable federal, state, and local building codes, Occupational Safety and Health Act (OSHA), and the general conditions and general requirements of the construction contract.***
2. The Operator shall minimize the exposure to stormwater of any of the products, material, or wastes stored on site that may wash downstream or contaminate stormwater.
3. Building products that have the potential to leach pollutants must be under cover.
4. Chemicals and landscape materials shall be under cover to prevent the discharge of pollutants.
5. Operator to track progress of the following items on site maps: portable toilets, material storage areas, vehicle and equipment fueling and maintenance areas, concrete washouts, paint and stucco washouts, dumpsters or other trash and debris containers, spill kits, stockpiles, any other non-structural non-storm water management BMPs, any temporarily removed structural BMPs, any changes to the structural BMPs.
6. Solid waste: collected sediment, asphalt and concrete millings, floating debris, paper, plastic, fabric, construction and demolition debris and other wastes must be disposed of properly and must comply with MPCA disposal requirements.
7. Hazardous waste: oil, gasoline, paint and any hazardous substances must be properly stored in sealed containers to prevent spills, leaks or other discharge. Restricted access to storage areas must be provided to prevent vandalism. Storage and disposal of hazardous waste or materials must be in compliance with Minn. R. Ch. 7045 including secondary containment as applicable.
8. Portable toilets must be positioned so that they are secure and will not be tipped or knocked over.
9. Concrete and other washout waste: operator must provide effective containment for all liquid and solid wastes generated by washout operations. The liquid and solid wastes must not contact the ground, and the containment must be designed so that it does not result in runoff from the washout operations or areas. Liquid and solid wastes must be disposed of properly and in compliance with MPCA rules. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes.
10. External vehicle washing: external washing of trucks and other construction vehicles must be limited to a defined area of the site. Runoff must be contained and waste properly disposed of. No engine degreasing is allowed on site.
11. Operator shall take reasonable steps to prevent the discharge of spilled or leaked chemicals, including fuel, from any area where they will be loaded or unloaded as detailed in the Permit.

SWPPP CONTACT AND TRAINING INFORMATION

1. Owner:
   Apple Autos
   attn: Chris Gulbrandson
   7200 W 150t St
   Apple Valley, MN 55124
   952-985-2438
   CGulbrandson@appleautos.com
2. Operator:
   To Be Determined. Contact Owner until Contractor Is Selected.
3. Long Term Maintenance And Operation:
   To Be Determined. Contact Owner until Contractor Is Selected.
4. SWPPP Designer:
   Steve Sabraski, P.E.
   Landform Professional Services
   105 South Fifth Avenue, Suite 513
   Minneapolis, MN 55401
   612-252-9070
   ssabraski@landform.net
   Certification: U of MN, Design of Construction SWPPP, Exp. May 31, 2027
5. SWPPP Inspector / Manager:
   To Be Determined. Contact Owner until Contractor And SWPPP Inspector / Manager is selected.
6. BMP Installation And Repair:
   To Be Determined. Contact Owner until BMP Installer And Maintainer is selected.

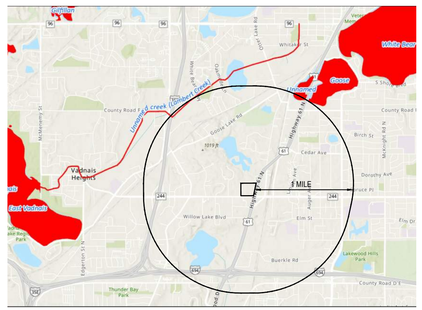
DESCRIPTION OF CONSTRUCTION ACTIVITY

1. Construction activity includes erosion and sediment control BMPs installation, clearing and grubbing, site grading, utility installation, building construction, paving, and landscaping.

SCHEDULE OF BMP INSTALLATION AND CONSTRUCTION ACTIVITY

1. Install perimeter sediment control BMPs prior to start of other site work. Refer to Grading, Drainage, Paving and Erosion Control sheet(s) for initial locations of BMPs.
2. Reserved.
3. Construct temporary / permanent sedimentation basins prior to upland disturbance. Install perimeter sediment control BMPs around normal water levels within 48-hours of completion of basin grading.
4. Stabilize outlets from temporary / permanent sedimentation basins within 24-hours of outlet construction.
5. Perform work in phases to minimize disturbed area at any one time. Operator to develop phasing plan prior to start of work. Open work areas should be limited to those that can be managed and inspected within required time frames.
6. Strip topsoil from areas to be disturbed and stockpile with perimeter sediment control BMPs. Provide stabilization if stockpile is left longer than 14 days.
7. Rough grade site.
8. Install utilities.
9. Install small utilities (gas, electric, communications).
10. Final grade pavement areas and compact subgrade.
11. Lay down pavement aggregate and compact.
12. Install curb and gutter. Backfill after a minimum of three days and provide a minimum of two rolls of sod at the back of curb.
13. Construct building / addition and site features.
14. Construct site walks and patios.
15. Provide final stabilization.
16. Connect filtration practices to storm sewer inlets.
17. Remove temporary BMPs and dispose of properly.

WATERS WITHIN ONE MILE OF SITE



MN SPECIAL (PROHIBITED, RESTRICTED, OTHER) & IMPAIRED WATERS

1. A. Lambert Creek is impaired based on the current USEPA 303(d) clean water act list; is within 1 mile of this site; and does not discharge to it.
   B. Goose Lake is impaired based on the current USEPA 303(d) clean water act list; is within 1 mile of this site; and does not discharge to it.

DRINKING WATER SUPPLY MANAGEMENT AREA

1. The site is within a Drinking Water Supply Management Area (DWSMA).
   A. The DWSMA encompassing the site exhibits moderate vulnerability.

EROSION PREVENTION AND SEDIMENT CONTROL

1. See Grading, Drainage, Paving and Erosion Control sheets for the location and type of temporary erosion prevention and sediment control BMPs. See Grading and Drainage, Utility, and Landscape sheets for the location and type of permanent erosion prevention and sediment control BMPs.
2. **Minimize Disturbed Areas and Protect Natural Features and Soil**

   Appropriate construction practices (e.g. construction phasing, vegetative buffer strips, horizontal slope grading) shall be used to minimize erosion.

   Areas not to be disturbed (buffers, infiltration basins, etc.) shall be protected with construction or silt fence before work begins.

   Operator shall develop methods to minimize soil compaction outside of building pads, pavement areas and utility trenches and shall use tracked equipment wherever practicable.

   Topsoil shall be salvaged and reused to the extent practicable.
3. **Phase Construction Activity**

   Operator must not disturb more land than can be effectively inspected and maintained.

   Sediment control practices shall be established on all down gradient perimeters before any upgradient land disturbing activities begin. These practices shall remain in place until final stabilization has been established in accordance with the Permit.

   The timing of the installation of sediment control practices may be adjusted to accommodate short-term activities such as clearing or grubbing, or passage of vehicles. Any short-term activity must be completed as quickly as possible and the sediment control practices shall be installed immediately after the activity is completed. However, sediment control practices shall be installed before the next precipitation event even if the activity is not complete.
4. **Control Stormwater Flowing onto and Through the Project**

   The normal wetted perimeter of any temporary or permanent drainage ditch or swale that drains water from any portion of the construction site, or diverts water around the site, shall be stabilized within 200 lineal feet from the property edge, or from the point of discharge into any surface water.

   Stabilization of the last 200 lineal feet shall be completed within 24 hours after connecting to a surface water.

   Stabilization of the remaining portions of any temporary or permanent ditches or swales shall be complete within 14 days after connecting to a surface water and construction in that portion of the ditch has temporarily or permanently ceased.

   Temporary or permanent ditches or swales that are being used as a sediment containment system (with properly designed rock ditch checks, bio rolls, silt dikes etc.) do not need to be stabilized. These areas shall be stabilized within 24 hours after no longer being used as a sediment containment system.
5. **Stabilize Soils**

   All exposed soil areas, including stockpiles, must be stabilized.

   Stabilization must be started immediately to limit soil erosion when the construction activity in that portion of the site has temporarily or permanently ceased and will not resume for 14 calendar days. Stabilization must be complete within 14 days of cessation of construction activity.

   Temporary soil stockpiles shall have silt fence or other effective sediment controls, and cannot be placed in surface waters, including storm water conveyances such as curb and gutter systems, or conduits and ditches unless there is a bypass in place for the storm water.

   Temporary stockpiles without significant silt, clay or organic components (e.g. clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) and the constructed base components of roads, parking lots and similar surfaces, are exempt from this requirement.

   Perimeter sediment control measures must be in place prior to the placement of any stockpiles.

   Any erosion control netting shall be "wildlife friendly" and of a natural type that can decompose and shall have non-welded moveable joints.

   Any sediment control device made of soil must be stabilized within 24 hours.
6. **Protect Slopes**

   Operator shall avoid work on slopes with a grade of 3:1 or greater when practicable. Grading on slopes with a grade of 3:1 or steeper will require techniques such as phasing and stabilization practices designed for steep slopes(e.g. slope draining and terracing).
7. **Protect Storm Drain Inlets**

   All storm drain inlets shall be protected by appropriate BMPs during construction until all sources with potential for discharging to the inlet have been stabilized. Inlet protection may be temporarily removed if a specific safety concern has been identified.
8. **Provide Energy Dissipation at all Pipe Outlets within 24 Hours**

   After connection to a surface water or permanent stormwater treatment system.
9. **Establish Perimeter Controls and Sediment Barriers**

   Prior to disturbing soils on a project site, establish sediment control BMPs on all down-gradient perimeters and where site discharges to public waters.
10. **Retain Sediment On-site and Control Dewatering Practices**

    Discharge shall not cause nuisance conditions, erosion in receiving channels, adversely affect receiving water or impact wetlands, or downstream properties. Discharge points shall be adequately protected from erosion and scour by accepted energy dissipation measures.

    Discharge water containing oil or grease shall be treated to remove oil or grease prior to discharge to surface waters.

    Refer to Permit requirements for temporary or permanent sediment basins.

    Discharge shall be photographed at the beginning of discharge and at least every 24 hours afterward, while discharge is occurring.

    If nuisance conditions result from dewatering, dewatering shall be stopped until nuisance condition can be remedied.
11. **Establish Stabilized Construction Exits**

    Vehicle tracking pads shall be established as shown on the Grading, Drainage, Paving and Erosion Control sheet(s) to minimize tracking of sediment from the construction site onto adjacent streets.
12. **Infiltration Basin Protection**

    Operator must not excavate infiltration systems to final grade or within three (3) feet of final grade until the contributing drainage area has been constructed and fully stabilized unless rigorous erosion prevention and sediment controls have been installed.

    When excavating an infiltration system to within three (3) feet of final grade, operator shall mark off and protect the area from heavy construction equipment to prevent compaction of soils.
13. **Dewatering and Basin Draining**

    Permittees must discharge turbid or sediment-laden waters related to dewatering or basin draining to a temporary or permanent sediment basin. Discharges must not cause erosion or scour near the discharge points.
14. **Remove Sediment from Surface Waters**

    All sediment deposits and deltas must be removed from surface waters, including drainage ways, catch basins, and other drainage systems, and the removal areas restabilized within seven (7) days.

TEMPORARY SEDIMENTATION BASIN(S)

1. This project does not have more than ten (10) disturbed acres draining to a common location and therefore a temporary sediment basin is not required.
2. Temporary sediment basins shall provide treatment to runoff before it leaves the construction site or enters surface waters. The contractor shall comply with the following requirements:
   A. Sedimentation basins must provide live storage of runoff resulting from the 2-year 24-hour rainfall event from each acre drained to the basin, with a minimum of 1,800 c.f./acre live storage volume. (Where no calculation has been performed, each basin shall provide at least 3,600 c.f./acre live storage.) Sedimentation basins must include a stabilized emergency overflow outlet to prevent basin integrity failure.
   B. Discharge from temporary sedimentation basins will be withdrawn from the surface in order to minimize the discharge of pollutants.
3. Discharge from basin draining shall not adversely affect the receiving water or downstream properties. Contractor will visually check to ensure adequate treatment has been obtained and that nuisance conditions will not result from the discharge.
4. Any discharge observed to be occurring during the inspection shall be recorded, described, and photographed.
5. If any proposed temporary BMPs are not working as intended refer to the "Stormwater Compliance Assistance Toolkit for Small Construction Operators", MPCA, 2017 for additional information. Operator shall contact the SWPPP Designer for additional requirements and information.

POST CONSTRUCTION / PERMANENT BMPS

1. See Grading and Drainage, Utility, and Landscape sheets for post construction and permanent stormwater BMPs.

INSPECTIONS AND MAINTENANCE

1. Permittees must ensure that a trained person will inspect the entire construction site at least once every seven (7) days during active construction and within 24 hours after a rainfall event greater than 0.5-inches in 24 hours.
2. Records of inspections shall include all maintenance activities and must be recorded within 24 hours of the inspection and retained with the SWPPP.
3. Inspections shall include stabilized areas, erosion prevention and sediment control BMPs, and filtration areas. Additionally, areas adjacent to the project shall be inspected.
4. Surface waters on or adjacent to the site must be inspected for evidence of erosion or sediment deposition.
5. Permittees must record all inspection and maintenance activities within 24 hours of being conducted as detailed in the Permit.

   Inspection Records content shall include:
   A. Date and time of inspections;
   B. Name of persons conduction inspections;
   C. Findings of inspections, including specific locations where corrective actions are needed;
   D. Corrective actions taken including dates, times, and the party taking the corrective action;
   E. Dates of all rainfall events greater than 1/2 inch in 24 hours (refer to Permit for measurement requirements);
   F. Any discovered discharge must be recorded, including photographs, descriptions of discharge (color, odor, settled or suspended solids, oil sheen, or other obvious indicators of pollution), and specific location of discharge location;
   G. Any amendments to the Permit as a result of inspections must be documented within seven calendar days as described in the Permit
   H. All photographs of dewatering activities and documentation of nuisance conditions resulting from dewatering.
6. BMP Maintenance:
   A. Nonfunctional BMPs must be repaired or replaced by the end of the next business day after discovery unless a different time frame is indicated.
   B. Follow the designer's or manufacturer's recommended maintenance procedures for all BMPs.
   C. Remove sediment from BMPs when the depth of sediment has reached 1/2 the height of the BMP and properly dispose of sediment into controlled areas to prevent soil from returning to the BMP during subsequent rain events.
   D. Remove sediment from paved roadways **within one calendar day of discovery**.
   E. Remove sediment from around BMPs protecting storm drain inlets.
   F. Surface waters with evidence of sediment deposition must be stabilized and sediment removed **within seven calendar days of discovery, or as stated by the Permit**.
   G. Ensure that construction support activities, including borrow areas, waste areas, contractor work areas, and material storage areas and dedicated concrete and asphalt batch plants are cleaned and maintained.
   H. Replace damaged BMPs that no longer operate effectively.
7. Add BMPs as needed during construction to minimize erosion and prevent sediment from leaving the site.
   Any basin that has the water quality volume reduced by half shall be drained and have the sediment removed within 72 hours of discovery.
8. Any temporaty or permanent sediment basin that has the water quality volume reduced by half shall be drained and have the sediment removed within 72 hours of discovery.

RECORD KEEPING / RECORD RETENTION

1. The SWPPP (original or copies), including all changes to it, and inspections and maintenance records, shall be kept at the site during construction by the Owner / Operator who has operational control of that portion of the site. The SWPPP can be kept in either the field office or in an on site vehicle during normal working hours.
2. All Owners(s) must keep the SWPPP, along with the following additional records, on file for three (3) years after submittal of the Notice of Termination (NOT). This does not include any records after submittal of the NOT.
3. The following is a list of records that shall be kept at the project site available for inspectors to review:
   - Copy of the SWPPP, with any modifications;
   - Inspection and maintenance records;
   - Permanent operation and maintenance agreements;
   - Calculations for the design of temporary and permanent stormwater management systems;
   - Any other permits required for the project;
   - Records of all inspection and maintenance conducted during construction; and
   - All permanent operation and maintenance agreements that have been implemented, including all right-of-way, contracts, covenants and other binding requirements regarding perpetual maintenance

LOG OF CHANGES TO THE SWPPP / AMENDMENTS

1. ***The Owner / Operator(s) must amend the SWPPP within seven (7) days to include additional requirements, such as additional or modified BMPs, designs to correct problems identified during inspections, or address situations as detailed in the Permit.***

FINAL STABILIZATION

1. ***The Owner / Operator(s) must ensure final stabilization of the site. Final stabilization includes:***
   A. Ensuring all areas have permanent cover.
   B. Vegetative areas must have perennial cover with a density of 70% of expected final growth.

TERMINATION OF COVERAGE

1. ***Owner / Operator(s) wishing to terminate coverage under the Permit must submit a Notice of Termination (NOT) to the MPCA. Compliance with the Permit is required until a NOT is submitted. Refer to the Permit for details. Conditions for submitting a NOT include:***
   A. Site must have achieved final stabilization (refer to section above).
   B. The permanent stormwater treatment and conveyance systems must be clean and all accumulated sediment removed.
   C. All temporary synthetic erosion prevention and sediment control BMPs must be removed from the site and disposed of properly.

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

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CLIENT

GRIES ARCHITECTURAL GROUP INC.
500 NORTH COMMERCIAL STREET
NEENAH, WI 54956
TEL: (920) 722-2445

CITY

City of Gem Lake

PROJECT

Apple Ford
White Bear Lake

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CONTACT ENGINEER FOR ANY PRIOR HISTORY

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CITY SUBMITTAL
NOVEMBER 06, 2026

LANDFORM
From Site to Finish

105 South Fifth Avenue
Suite 513
Minneapolis, MN 55401

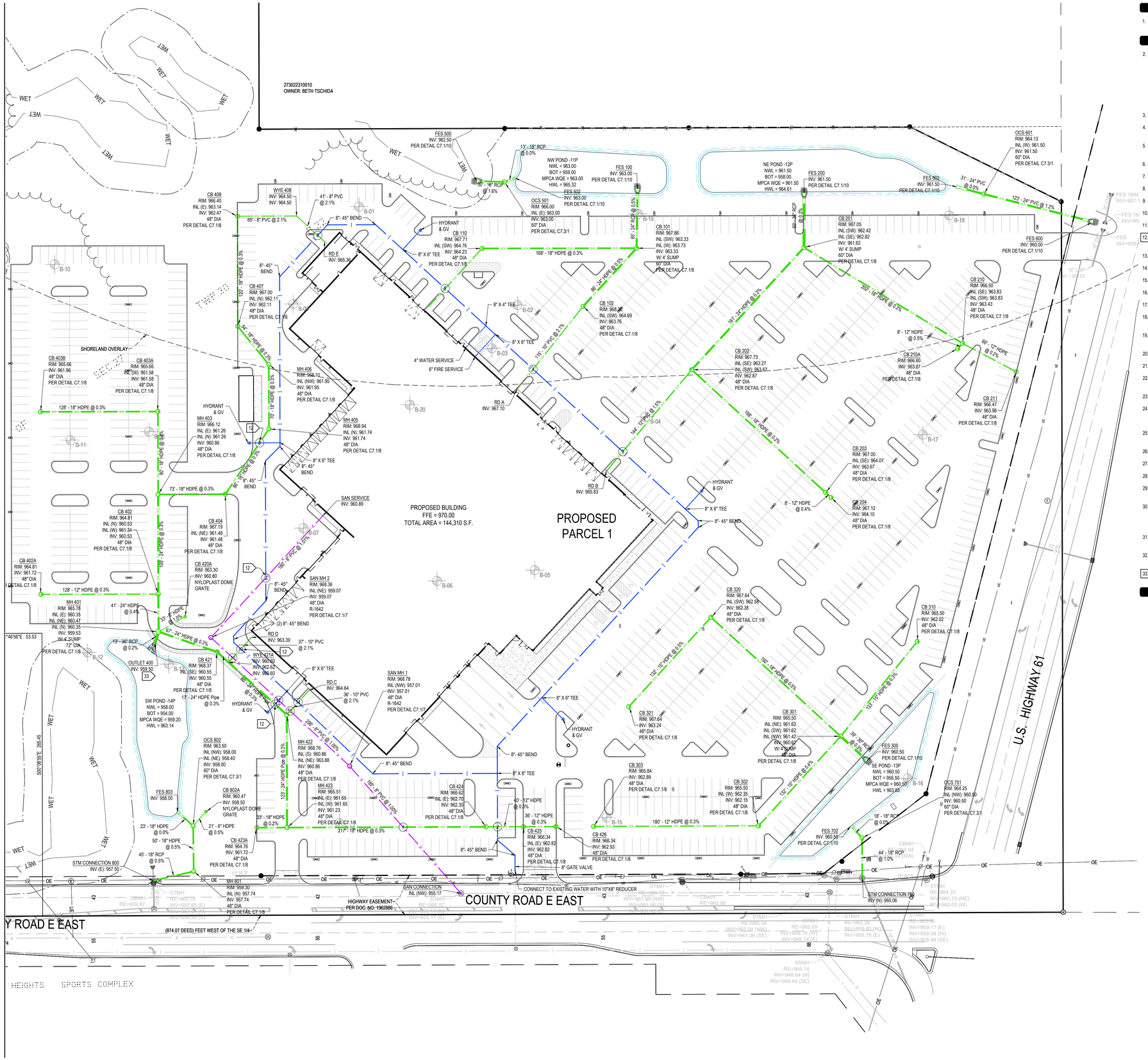
Tel: 612-252-9070
Fax: 612-252-9077
Web: landform.net

FILE NAME C302GAG002.DWG
PROJECT NO. GAG26002

SWPPP

C3.2

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GENERAL NOTES

1. For construction staking and surveying services contact Landform at 612.252.9070.

UTILITY NOTES

2. Pipe Materials

Watermain	DIP Class 52 (ANSI A21.51/AWWA C151)
Water Service	Copper Type K (ASTM B88)
Private Sanitary Sewer	PVC Schedule 40 (ASTM: D1785, D2665, F891, F1488 & F1760)
Storm Sewer	PVC Schedule 40 (ASTM: D1785, D2665, F891, F1488 & F1760)
	RCP 12"-18" Class 5 (ASTM C76)
	RCP 24"-48" Class 3 (ASTM C76)
	HDPE - Corrugated, Smooth Interior, Water Tight (ASTM D3350, ASTM D4976, ASTM F2306, AASHTO M252)

3. Contact utility service providers for field location of services 72 hours prior to beginning.
4. Contractor to field verify location and elevation of all utility points of connection prior to construction of any proposed utilities. Contractor to notify Engineer immediately if there is any discrepancy.
5. Contractor to pothole all utility crossings prior to construction of new utilities to verify depths of existing lines. Contact Engineer immediately if any conflicts are discovered.
6. Provide means and measures to protect adjacent property from damage during utility installation.
7. Pipe lengths shown are from center of structure to center of structure or end of end section.
8. Install tracer wire with all non-conductive utilities in accordance with City of Gem Lake Standards.
9. Connect to City utilities in accordance with City of Gem Lake and Vadnais Heights Standards.
10. Contact City of Vadnais Heights for wet tap inspection.
11. Maintain 7.5 feet of cover on water.
12. Deflect water to maintain 18-inch minimum outside separation at sewer crossings. Center pipe lengths to provide greatest separation between joints.
13. Contact City of Gem Lake and Vadnais Heights for flushing and pressure test inspections.
14. The water distribution system shall be disinfected per Minnesota Rules, Part 4714.
15. The sanitary sewer system shall be tested per Minnesota Rules, Chapter 4714, Section 712.0.
16. Provide 4-inch rigid foam (ASTM D1621) insulation on sanitary sewer less than 6 feet deep.
17. Reserved.
18. All portions of the storm sewer system, located within 10 feet of the building or water service line must be tested in accordance with Minnesota Rules, Part 4714.
19. All joints and connections in the storm sewer system shall be gastight or water tight. Approved resilient rubber joints must be used to make watertight connections to manholes, catch basins, and other structures.
20. Catch basins in curb and gutter are sumped 2 inches below the gutter grade. Refer to Detail 1 on Sheet C7.2.
21. Reserved.
22. Irrigation sleeve to be 4 inch Schedule 80 PVC buried 24" below grade. Extend sleeves 3-feet beyond the edge of pavement. Mark each end of sleeve with 3/4-inch rebar 12 inches below finish grade. (Coordinate with irrigation contractor.)
23. Coordinate with Private Utilities to provide electric, natural gas, and communications services to building.
24. The primary electric feed, transformer, and meter are provided and installed by Xcel Energy. The transformer pad design is provided by the Utility and construction is by the Contractor. Contact Utility for pad detail. The secondary electric and conduits shall be installed by the Electrical Contractor.
25. See site lighting plan for additional information.
26. Xcel Energy will furnish and install gas service piping from the mainline to the meter and the meter. Gas service from the meter shall be installed by the Mechanical Contractor.
27. Provide two - 4" PVC conduits with pull-string from existing telephone service to building.
28. Provide conduits for cable television and other electronic communication.
29. Coordinate with Mechanical, Plumbing, and Electrical Drawings for locations of service connections and continuation of services within building.
30. Compact cohesive soils in paved areas to 95% of maximum dry density, Standard Proctor (ASTM D698) except the top 3 feet which shall be compacted to 100%. compact to 98% density where fill depth exceeds 10 feet. The soils shall be within 3% of optimum moisture content. In granular soils all portions of the embankment shall be compacted to not less than 95% of Modified Proctor Density (ASTM D1557).
31. Adjust structures to final grade where disturbed. Comply with requirements of Utility. Meet requirements for traffic loading in paved areas.
32. Public water connection must include separate meters for domestic, irrigation, fire protection, and car wash uses per City of Vadnais Heights standards.
33. Coordinate retaining wall penetrations with retaining wall designer.

UTILITY CROSSINGS

CROSSING #	UPPER PIPE BOTTOM ELEVATION	LOWER PIPE TOP ELEVATION	DISTANCE OF SEPARATION
1	Storm Sewer = 961.97	Sanitary Sewer = 956.82	5.15
2	Storm Sewer = 962.69	Water = 959.69	3.00
3	Storm Sewer = 965.40	Water = 961.88	3.52
4	Storm Sewer = 966.50	Water = 962.04	4.46
5	Storm Sewer = 965.98	Water = 961.84	4.14
6	Storm Sewer = 965.13	Water = 961.67	3.46
8	Storm Sewer = 961.62	Water = 962.19	-0.57
9	Water = 961.54	Sanitary Sewer = 960.65	0.88
10	Storm Sewer = 963.01	Water = 961.59	1.42
11	Storm Sewer = 962.74	Sanitary Sewer = 959.44	3.30
12	Water = 960.90	Sanitary Sewer = 958.76	2.14
13	Storm Sewer = 960.73	Water = 961.33	-0.60
14	Storm Sewer = 964.24	Water = 961.84	2.40
15	Storm Sewer = 963.97	Sanitary Sewer = 958.58	5.39

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CITY

City of Gem Lake

PROJECT

Apple Ford White Bear Lake

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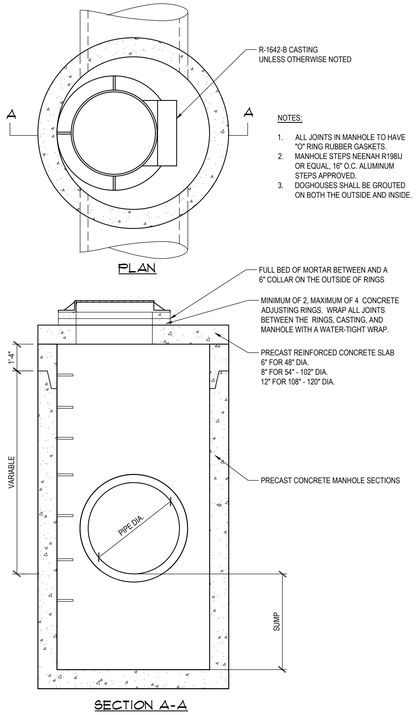
PROJECT NO. GAG26002

UTILITIES

C4.1

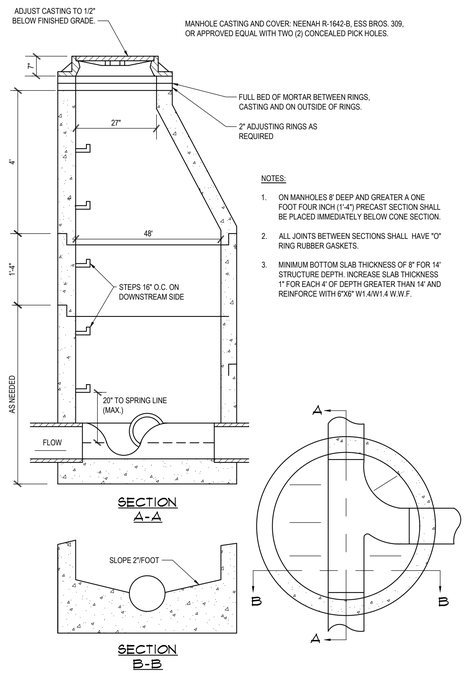
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9 SUMP STORM SEWER CATCH BASIN MANHOLE

NO SCALE

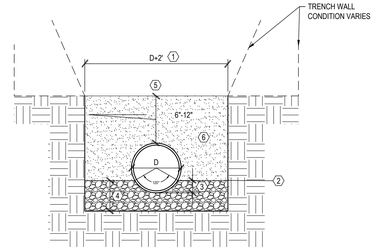


NOTES:

1. ON MANHOLES 8' DEEP AND GREATER A ONE FOOT FOUR INCH (1'-4") PRECAST SECTION SHALL BE PLACED IMMEDIATELY BELOW CONE SECTION.
2. ALL JOINTS BETWEEN SECTIONS SHALL HAVE "O" RING RUBBER GASKETS.
3. MINIMUM BOTTOM SLAB THICKNESS OF 8" FOR 14' STRUCTURE DEPTH. INCREASE SLAB THICKNESS 1" FOR EACH 4' OF DEPTH GREATER THAN 14' AND REINFORCE WITH 6"X6" W1.4/W1.4 W.W.F.

7 SANITARY SEWER MANHOLE

NO SCALE



① 2' FOR PIPE 4" OR LESS.

② MACHINE EXCAVATION LIMIT FOR RIGID PIPE.

③ HAND SHAPE BOTTOM FOR SUPPORT OF RIGID PIPE.

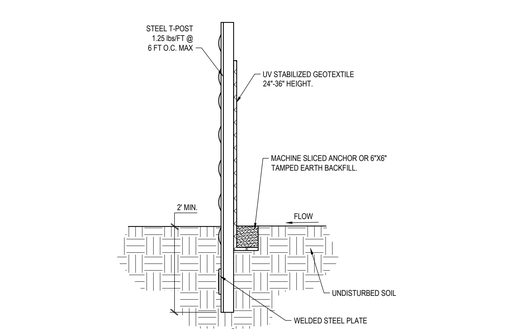
④ MACHINE EXCAVATION LIMIT FOR FLEXIBLE PIPE. GRANULAR FOUNDATION (IF REQUIRED), OR BEDDING REQUIRED FOR LOCAL CONDITIONS. DEPTH VARIES.

⑤ PROVIDE LOCATING/MARKING TAPE MEETING LOCAL REQUIREMENTS.

⑥ SEE DETAIL FOR BEDDING AND ENCASEMENT

4 UTILITY TRENCHING

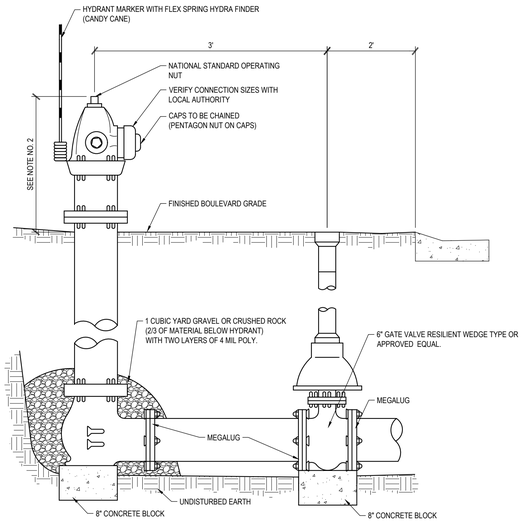
NO SCALE



NOTES:
1. DIG A 6" TRENCH ALONG THE INTENDED FENCE LINE OR USE MACHINE SLICED ANCHOR.
2. INSTALL ON CONTOUR AT CONSTANT ELEVATION.
3. DRIVE ALL POSTS INTO THE GROUND AT THE BACK SIDE OF THE TRENCH.
4. LAYOUT WIRE MESH AND SILT FENCE ON THE UPHILL SIDE ALONG THE FENCE LINE, AND BACK FILL.

1 SILT FENCE

NO SCALE

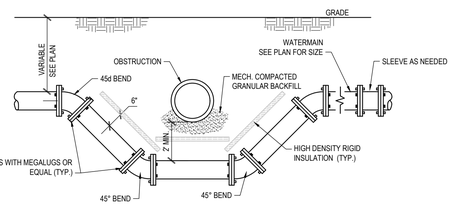


NOTES:

1. FIRE HYDRANTS SHALL BE PAINTED RED AT THE FACTORY.
2. TOP OF FIRE HYDRANT - DESIGN ELEVATION SHALL BE 2.5' ABOVE FINISHED BOULEVARD GRADE.
3. THRUST BLOCKING MAY ALSO BE REQUIRED ON DEAD END LINES.
4. COVER ON WATERMAIN PER PLAN.
5. VERIFY BRAND AND MODEL OF HYDRANT WITH LOCAL AUTHORITY.

5 HYDRANT AND GATE VALVE WITH BOX

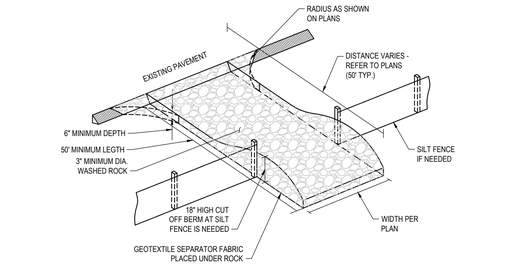
NO SCALE



1. USE MEGALUG THRUST RESTRAINTS ON ALL FITTINGS.
2. ON NEW CONSTRUCTION: RESTRAIN A MINIMUM OF TWO PIPE JOINTS (40 LF) LEFT AND RIGHT OF THE LOWERING.
3. ANTI CORROSIVE COATING REQUIRED ON ALL BOLT AND RESTRAINT ASSEMBLIES.
4. INSTALL POLYETHELENE FILM WRAP AROUND ALL PIPE INCLUDED IN THE LOWERING.
5. INSULATION SHALL BE OF 1" OR 2" THICK BOARDS OF EXTRUDED OR EXPANDING POLYSTYRENE PLASTIC FOAM SPECIFICALLY DESIGNED FOR USE IN UNDERGROUND CONSTRUCTION AND HAVING A MINIMUM COMPRESSIVE STRENGTH OF 35 PSI. SPECIAL NOTE IS TO BE TAKEN THAT THIS TYPE IS DIFFERENT THAN THE TYPE USED IN ORDINARY BUILDING CONSTRUCTION. THE INSULATION BOARD SHALL COMPLY WITH ATSM-D 1621.

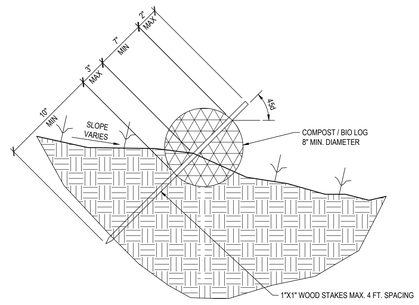
6 WATERMAIN LOWERING WITH INSULATION

NO SCALE



2 VEHICLE TRACKING PAD

NO SCALE



MAINTAIN BY REMOVING SEDIMENT AND REPLACING DAMAGED LOGS UNTIL TURF IS ESTABLISHED. REMOVE AFTER PERMANENT STABILIZATION IS COMPLETE.

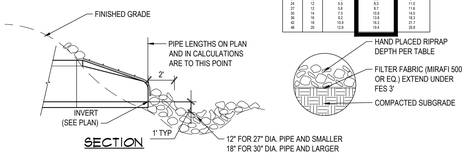
3 TEMPORARY COMPOST/BIO LOG

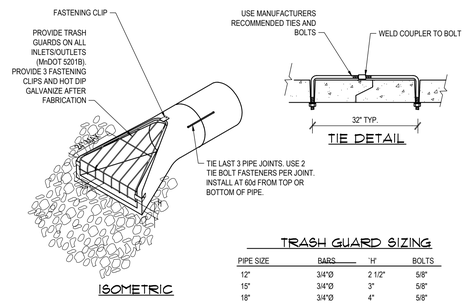
NO SCALE

TABLE OF QUANTITIES

RIPRAP AT RCP OUTLETS

DIA. OF RCP PIPE (IN.)	LENGTH (FT.)	CLASS 'I' d50=6" 12" DEPTH RIPRAP (CU YDS.)	CLASS III d50=9" 18" DEPTH RIPRAP (CU YDS.)	CLASS IV d50=12" 24" DEPTH RIPRAP (CU YDS.)
12	8	2.6	4.1	5.5
15	8	2.9	4.4	5.8
18	10	3.9	5.9	7.8
21	10	4.2	6.3	8.4
24	12	5.5	8.3	11.0
30	14	7.2	10.8	14.5
36	16	9.2	13.8	18.3
42	18	11.5	17.3	23.0
48	20	12.9	19.4	25.8



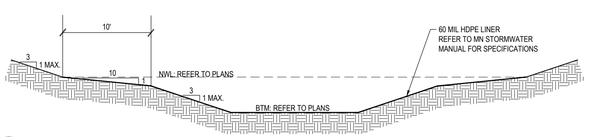


TRASH GUARD SIZING

PIPE SIZE	BARS	"H"	BOLTS
12"	3/4"Ø	2 1/2"	5/8"
15"	3/4"Ø	3"	5/8"
18"	3/4"Ø	4"	5/8"
21"24"	1"Ø	4"	3/4"
27"-36"	1"Ø	5"	3/4"
42"	1"Ø	6"	3/4"
48"-54"	1 1/4"Ø	6"	1"
60"-72"	1 1/4"Ø	7"	1"
78"-90"	1 1/4"Ø	8"	1"

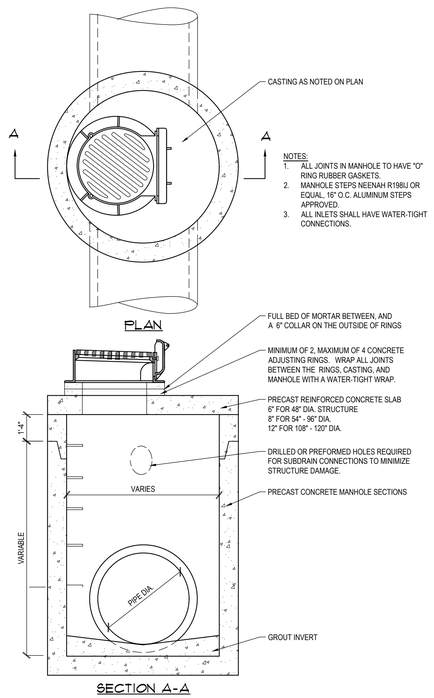
10 FLARED END SECTION AND TRASH GUARD WITH RIP RAP

NO SCALE



11 WET POND

NO SCALE



8 STORM SEWER CATCH BASIN MANHOLE

NO SCALE

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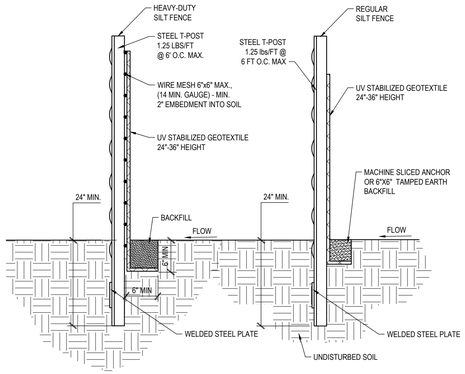
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PROJECT NO.	GAG26002

CIVIL CONSTRUCTION DETAILS

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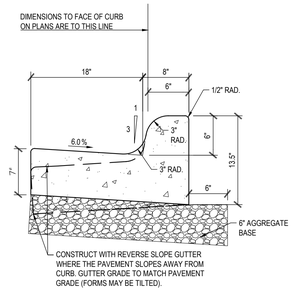
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2. WIRE MESH MUST BE EMBEDDED A MINIMUM OF 2" INTO THE GROUND AND NO MORE THAN 36" ABOVE THE GROUND SURFACE.
3. DRIVE ALL POSTS INTO THE GROUND AT THE BACK SIDE OF THE TRENCH.
4. LAYOUT WIRE MESH AND SILT FENCE ON THE UPHILL SIDE ALONG THE FENCE LINE, AND BACK FILL.

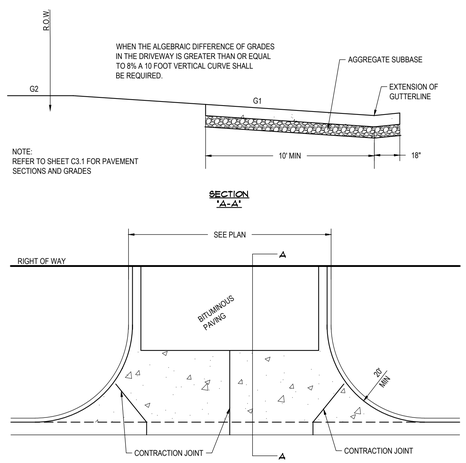
8 DOUBLE SILT FENCE

NO SCALE



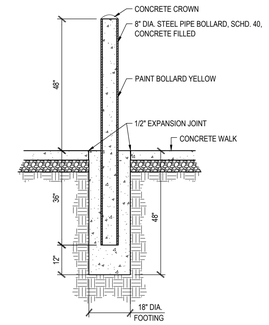
9 B618 CONCRETE CURB & GUTTER

NO SCALE



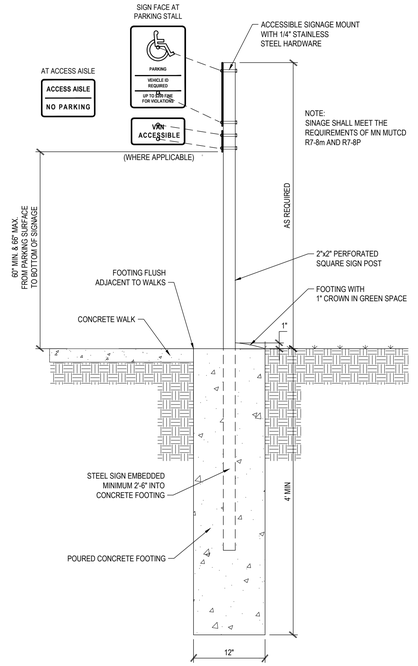
10 COMMERCIAL DRIVE APRON

NO SCALE



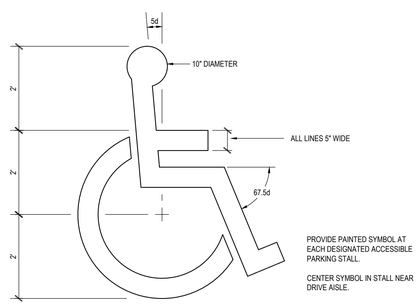
4 ROUND PIPE BOLLARD

NO SCALE



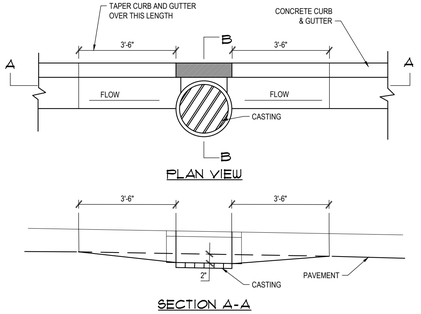
5 STEEL SIGN POST W/ ACCESSIBLE SIGNAGE - MN

NO SCALE



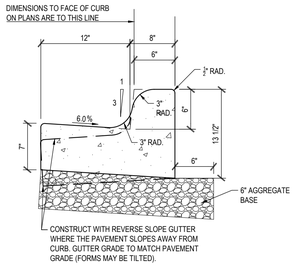
6 INTERNATIONAL SYMBOL OF ACCESS

NO SCALE



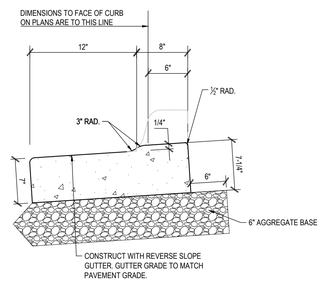
1 CATCH BASIN CASTING SUMP AT CONCRETE CURB AND GUTTER

NO SCALE



2 B612 CONCRETE CURB AND GUTTER

NO SCALE



3 12" CONCRETE RIBBON CURB

NO SCALE

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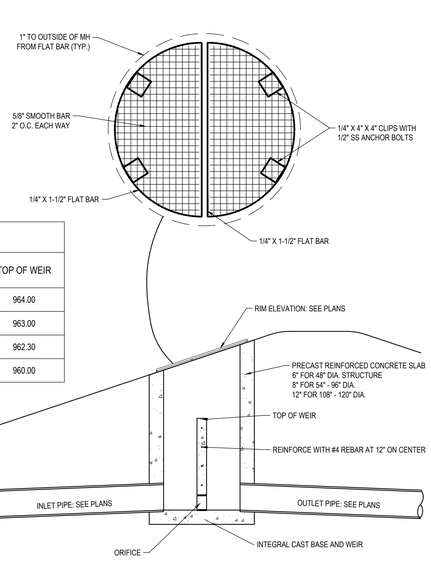
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OCS SCHEDULE			
STRUCTURE NUMBER	ORIFICE INVERT	ORIFICE SIZE	TOP OF WEIR
501	963.00	6"	964.00
601	961.50	6"	963.00
701	960.50	6"	962.30
802	958.00	6"	960.00

1 **OUTLET CONTROL STRUCTURE**

NO SCALE

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LEGEND

- Sod area
- Rock mulch / Shredded hardwood mulch
- Buffer seed mix. Low Diversity Buffer General (BWSR 32-243) Seed at rate of 39.35 lbs/acre. With erosion control blanket.
- Low mainteance turf seed mix. MNDOT Southern Boulevard (SB) Seed at rate of 160.0 lbs/acre. With erosion control blanket.
- Pond edge seed mix. Stormwater South & West (BWSR 33-261) Seed at rate of 35.0 lbs/acre. With erosion control blanket.

OVERALL PLANT SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	MATURE SIZE	PLANTING SIZE	ROOT CONDITION
CONIFEROUS TREES						
	ABCO	4	Abies concolor / White Fir	40`H x 20`W	6` HT.	B & B
	JUVI	5	Juniperus virginiana / Eastern Red Cedar	45`H x 20`W	6` Ht.	B & B
	PIAB	23	Picea abies / Norway Spruce	50`H x 30`W	8` HT.	B & B
	PIRE	61	Pinus resinosa / Red Pine	80'H x 20'W	8` HT.	B&B
	PIST	16	Pinus strobus / Eastern White Pine	65`H x 30`W	8` HT.	B & B
DECIDUOUS TREES						
	ACRU	28	Acer rubrum `Autumn Spire` / Autumn Spire Maple	50`H x 25`W	2.5" Cal.	B & B
	ACFR	12	Acer x freemanii `Jeffsred` / Autumn Blaze Maple	50`H x 40`W	2.5" Cal.	B & B
	BENI	3	Betula nigra / River Birch	60`H x 50`W	2.5"Cal	B & B
	CEOC	4	Celtis occidentalis `Ulzam` / Common Hackberry	50`H x 50`W	2.5"Cal	B & B
	GBPS	25	Ginkgo biloba `Princeton Sentry` / Princeton Sentry Ginkgo	40`H x 30`W	2.5"Cal	B & B
	GTIM	14	Gleditsia triacanthos `Impcole` TM / Impcole Honeylocust	30`H x 35`W	2.5"Cal	B & B
	QUBI	12	Quercus bicolor / Swamp White Oak	55`H x 55`W	2.5"Cal	B & B
	TABL	11	Tilia americana `Boulevard` / Boulevard Linden	60`H x 30`W	2.0" Cal.	B & B
	ULMO	7	Ulmus x `Morton Accolade` TM / American Elm `Accolade`	60`H x 40`W	2"Cal	B & B
ORNAMENTAL TREES						
	MASP	37	Malus x `Spring Snow` / Spring Snow Crab Apple	25`H x 20`W	1.5"Cal	POT
SHRUBS						
	PHMS	181	Philadelphus x `Miniature Snowflake` / Miniature Snowflake Mockorange	3`H x 3`W	2` HT.	POT
	PIAE	6	Picea abies `Elegans` / Dwarf Norway Spruce	3`H x 4`W	3` HT.	POT
	RHOM	10	Rhododendron x `Ramapo` / Ramapo Rhododendron	2`H x 3`W	2` HT.	POT
	RAGL	251	Rhus aromatica `Gro-Low` / Gro-Low Fragrant Sumac	2`H x 7`W	2 GAL.	POT
	VINA	33	Viburnum opulus `Nanum` / Dwarf European Viburnum	2`H x 3`W	2` HT.	POT
GRASSES						
	MIYA	14	Miscanthus sinensis `Yaku Jima` / Yaku Jima Dwarf Maiden Grass	4`H x 4`W	3" HT.	POT
PERENNIALS						
	HEMS	42	Hemerocallis x `Stella de Oro` / Stella de Oro Daylily	1`H x 1`W	1 GAL.	POT
	NEPP	186	Nepeta racemosa `Walker's Low` / Walker's Low Catmint	2`H x 2`W	#2 Cont.	POT
	SALV	49	Salvia nemorosa `May Night` / May Night Meadow Sage	2`H x 2`W	2 GAL.	POT



GENERAL NOTES

1. For construction Staking and Surveying services contact Landform at 612.252.9070.

LANDSCAPE NOTES

2. Contact Utility Service providers for field location of services 72 hours prior to beginning.
3. Coordinate installation with Contractors performing related work.
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6. Follow MNDOT Seeding Manual for planting instructions for establishment of native seed and provide coordination for required erosion prevention and sediment control.
7. Spread topsoil to a minimum depth of (4) inches over all proposed seed and sod areas. Coordinate with grading contractor to ensure final design grades are met.
8. Repair any and all areas disturbed beyond the project area. Repair with sod if existing area is manicured turf. Repair with seed if existing area is unmowed or unmanicured grass. Rake area to be repaired and add topsoil as defined in Note 7 prior to final sod or seed repair.
9. Planting soil shall consist of 4 parts topsoil to 1 part peat humus, with 3 pounds of commercial fertilizer added per cubic yard. See planting details for depth of planting soil.
10. Place plants according to layout with proper nominal spacing. Plants shown on Plant Schedule are total quantities for design. For discrepancy between the number of plants on the Schedule and the number shown on the Drawing, the Drawing shall govern.
11. Plant material shall conform to the American Association of Nurserymen Standards and be of hardy stock, free from disease, infestation, damage, and disfiguration. The Landscape Architect or designated representative reserves the right to reject any/all plant material not meeting these standards at the Contractor's cost.
12. Any substitutions of plant genus, species and/or variety, or planting size shall be approved by Landscape Architect of record prior to purchase and installation.
13. Edge planting beds with 5-inch, 3/16" thick, black, commercial grade steel edging (Sur-Loc or approved equal) except where adjacent to curbing, walks or buildings.
14. Install 4 inch depth of triple-shredded hardwood mulch in Shrub Bed Areas.
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16. Install a 4-foot diameter triple-shredded hardwood mulch dish around trees not placed within a Shrub or Perennial Planting Bed. Edging is not required.
17. Install 2 to 3 inch (nominal size) grey trap rock to a depth of 4 inches in all planting beds unless noted otherwise. Landscape fabric shall be installed under all areas of rock mulch. Secure all edges and seams of fabric with 6-inch landscape staples.
18. Erosion control blanket. MNDOT Category 3N, straw 2S erosion control mat. Install on slopes 3:1 or greater and as noted on plan.
19. All existing deciduous/coniferous trees are to be trimmed of dead wood and pruned to a natural uniform shape.
20. Irrigation is required. Irrigation shall be designed by irrigation contractor. Contractor shall submit design plan and all shop drawings and system components to Landscape Architect for review, prior to purchase and installation. Contractor shall follow all applicable codes and obtain all necessary permits from local jurisdiction.
21. All plant material shall have a 1-year warranty. The warranty shall begin after the last plant has been installed and the Landscape Architect has approved the installation. Landscape contractor is responsible for replacing any and all plant material that dies during the warranty period. Landscape contractor shall assume all costs to any replacements. All replacements shall be same species and sizes and equal or better vigor as original installation.

CITY OF GEM LAKE REQUIREMENTS

Site landscape requirements (shurbs) (1) shrub per 300 s.f. of total building area 144,310 s.f. building	Required 481	Proposed 481
Site landscape requirements (trees) (1) tree per 1,000 s.f. of total building area 144,310 s.f. building	Required 144	Proposed 643 (existing trees preserved) 128 (proposed new trees) 771 trees
Parking lot landscape requirements (trees) (1) tree per 15 provided parking stalls 1,156 stalls	Required 77	Proposed 97 (overstory) 37 (ornamental) 134 trees
	221 trees	905 trees provided (preserved trees and new trees)

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NEENAH, WI 54956
TEL: (920) 722-2445

CITY

City of Gem Lake

PROJECT

Apple Ford White Bear Lake

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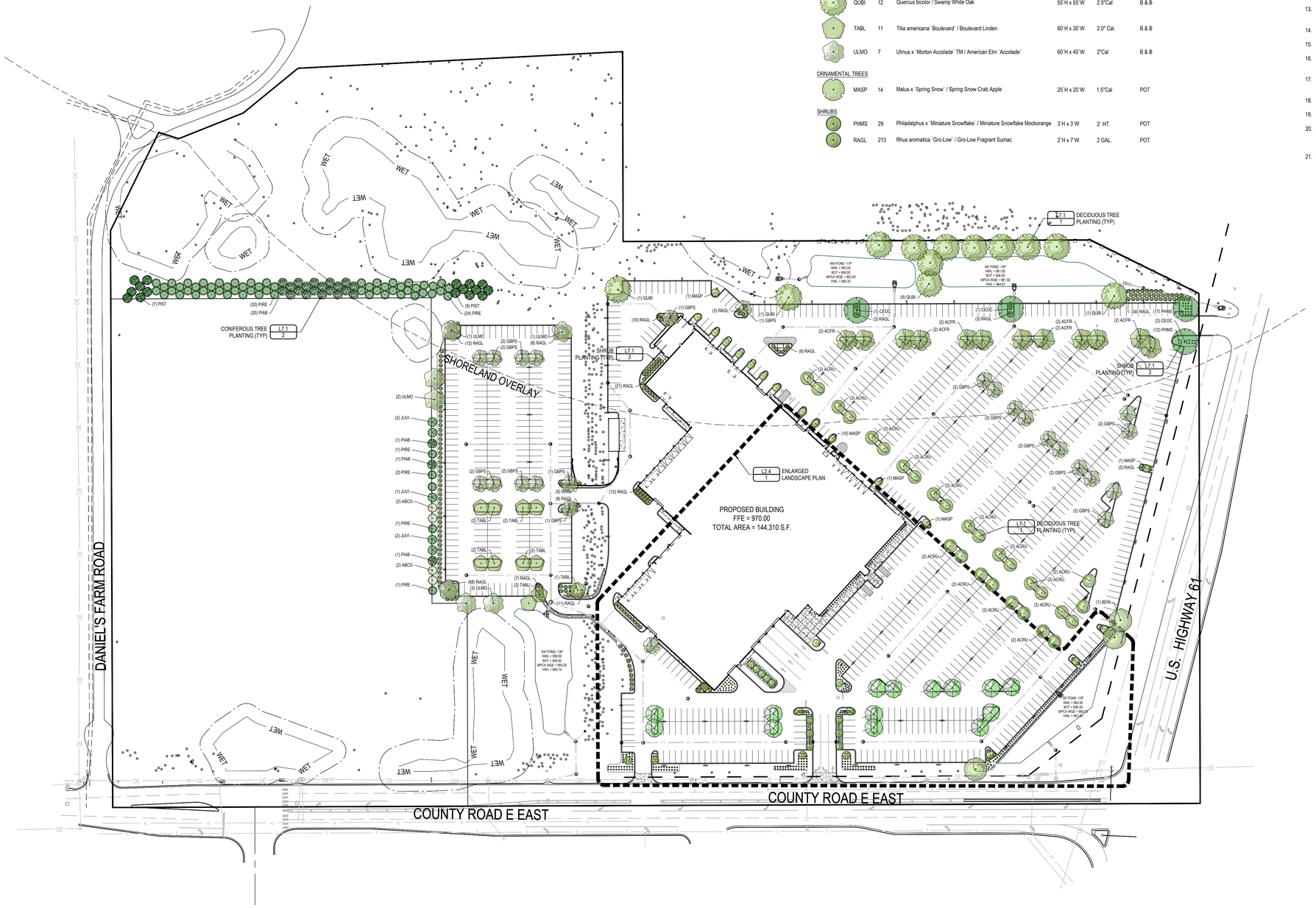
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PROJECT NO. GAG26002

OVERALL LANDSCAPE PLAN

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TREE PLAN PLANT SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	MATURE SIZE	PLANTING SIZE	ROOT CONDITION
CONIFEROUS TREES						
	ABCO	4	Abies concolor / White Fir	40`H x 20`W	6` HT.	B & B
	JUVI	5	Juniperus virginiana / Eastern Red Cedar	45`H x 20`W	6` Ht.	B & B
	PIAB	23	Picea abies / Norway Spruce	50`H x 30`W	8` HT.	B & B
	PIRE	61	Pinus resinosa / Red Pine	80'H x 20'W	8` HT.	B&B
	PIST	16	Pinus strobus / Eastern White Pine	65`H x 30`W	8` HT.	B & B
DECIDUOUS TREES						
	ACRU	28	Acer rubrum `Autumn Spire` / Autumn Spire Maple	50`H x 25`W	2.5" Cal.	B & B
	ACFR	12	Acer x freemanii `Jeffsred` / Autumn Blaze Maple	50`H x 40`W	2.5" Cal.	B & B
	BENI	1	Betula nigra / River Birch	60`H x 50`W	2.5"Cal	B & B
	CEOC	4	Celtis occidentalis `Ulzam` / Common Hackberry	50`H x 50`W	2.5"Cal	B & B
	GBPS	24	Ginkgo biloba `Princeton Sentry` / Princeton Sentry Ginkgo	40`H x 30`W	2.5"Cal	B & B
	QUBI	12	Quercus bicolor / Swamp White Oak	55`H x 55`W	2.5"Cal	B & B
	TABL	11	Tilia americana `Boulevard` / Boulevard Linden	60`H x 30`W	2.0" Cal.	B & B
	ULMO	7	Ulmus x `Morton Accolade` TM / American Elm `Accolade`	60`H x 40`W	2"Cal	B & B
ORNAMENTAL TREES						
	MASP	14	Malus x `Spring Snow` / Spring Snow Crab Apple	25`H x 20`W	1.5"Cal	POT
SHRUBS						
	PHMS	29	Philadelphus x `Miniature Snowflake` / Miniature Snowflake Mockorange	3`H x 3`W	2` HT.	POT
	RAGL	213	Rhus aromatica `Gro-Low` / Gro-Low Fragrant Sumac	2`H x 7`W	2 GAL.	POT

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PROJECT

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FILE NAME	L222GAG002.DWG
PROJECT NO.	GAG26002

PLANTING PLAN

L2.2

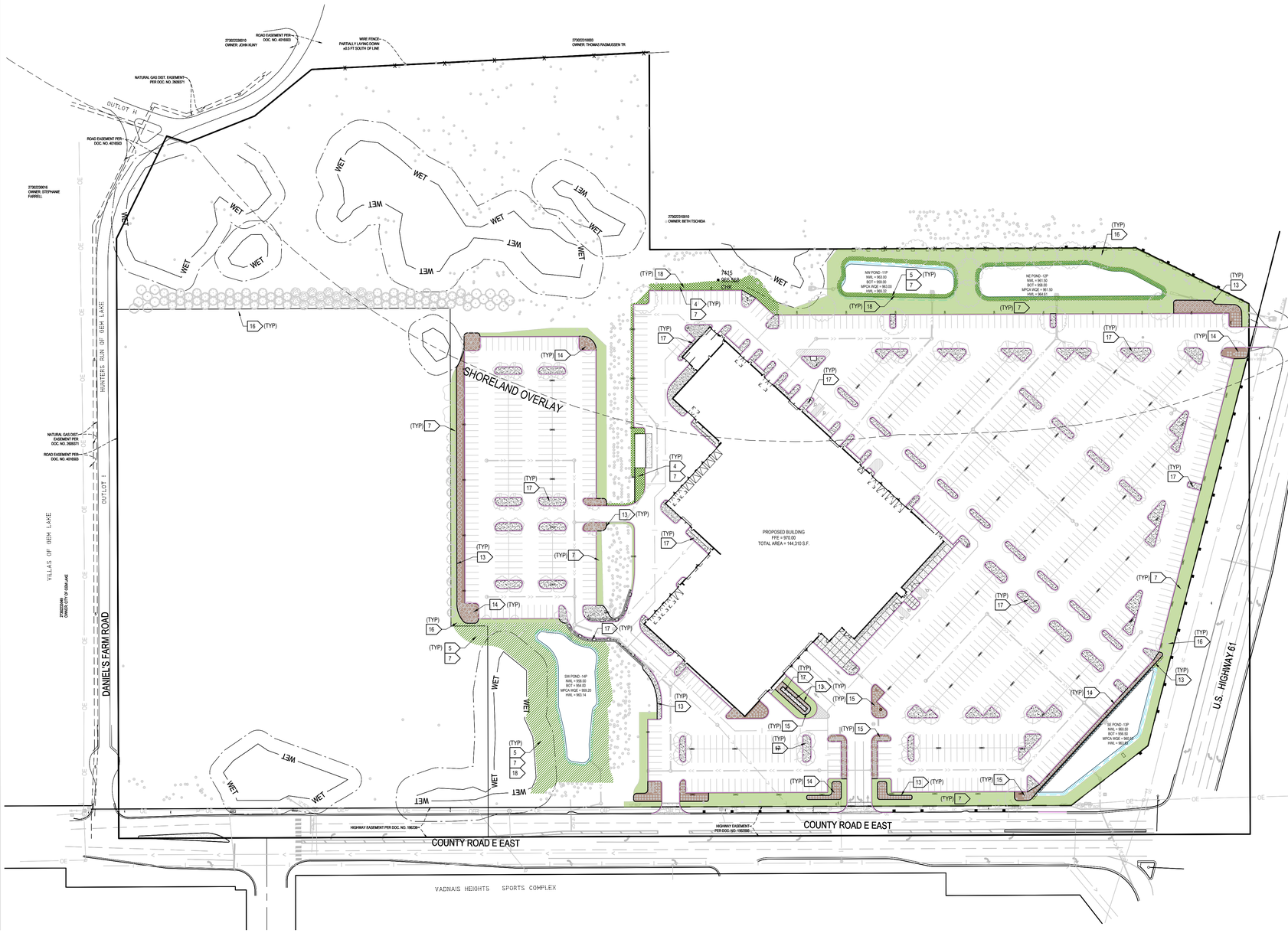
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LEGEND

- Sod area
- Buffer seed mix. Low Diversity Buffer General (BWSR 32-243) Seed at rate of 39.35 lbs/acre. With erosion control blanket.
- Low maintenance turf seed mix. MNDOT Southern Boulevard (SB) Seed at rate of 160.0 lbs/acre. With erosion control blanket.
- Pond edge seed mix. Stormwater South & West (BWSR 33-261) Seed at rate of 35.0 lbs/acre. With erosion control blanket.
- Rock mulch
- Shredded hardwood mulch

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PROJECT NO. GAG26002

TURF AND MULCH PLAN

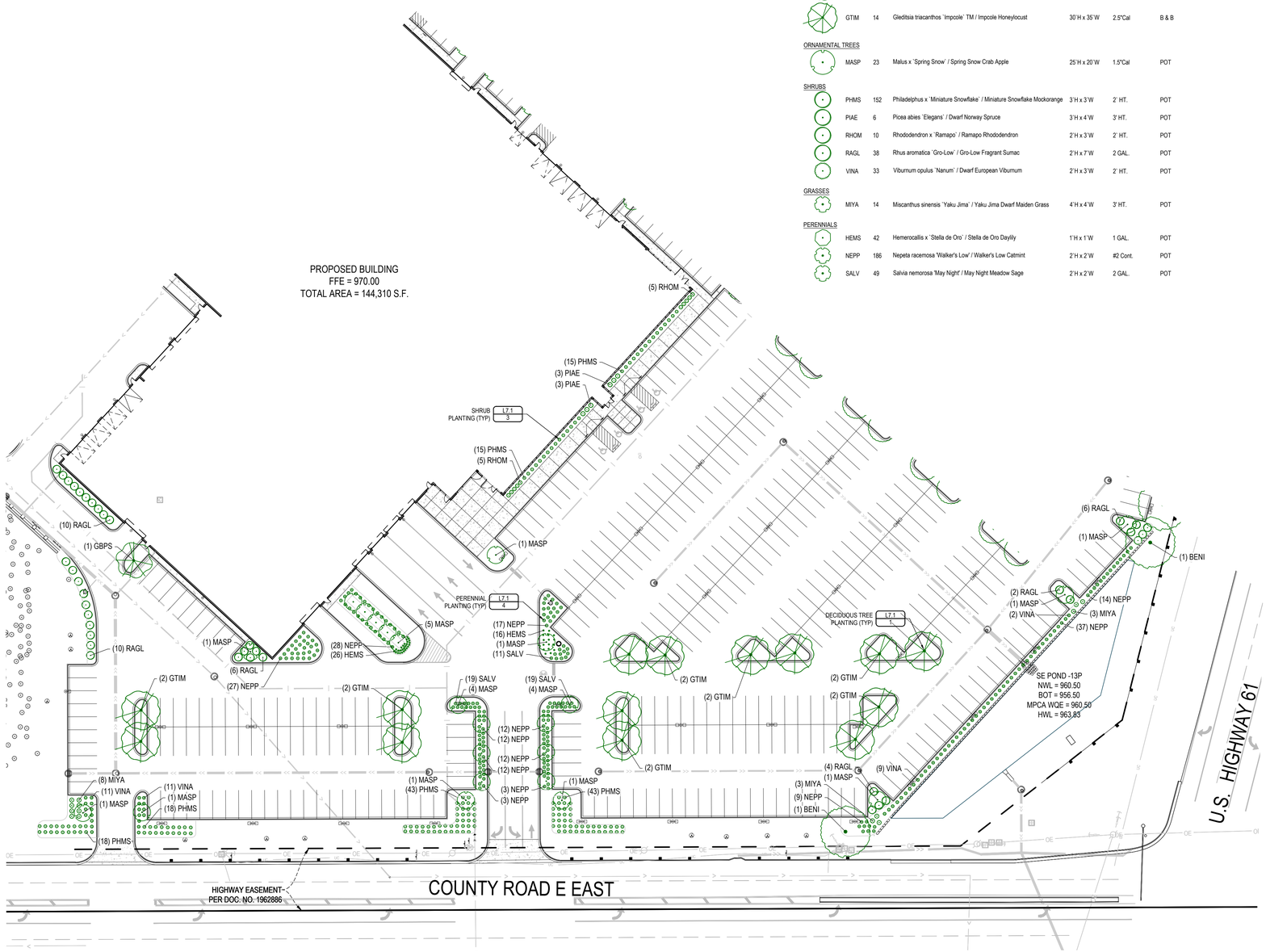
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ENLARGED PLAN PLANT SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	MATURE SIZE	PLANTING SIZE	ROOT CONDITION
DECIDUOUS TREES						
	BENI	2	Betula nigra / River Birch	60`H x 50`W	2.5"Cal	B & B
	GBPS	1	Ginkgo biloba `Princeton Sentry` / Princeton Sentry Ginkgo	40`H x 30`W	2.5"Cal	B & B
	GTIM	14	Gleditsia triacanthos `Impcole` TM / Impcole Honeylocust	30`H x 35`W	2.5"Cal	B & B
ORNAMENTAL TREES						
	MASP	23	Malus x `Spring Snow` / Spring Snow Crab Apple	25`H x 20`W	1.5"Cal	POT
SHRUBS						
	PHMS	152	Philadelphus x `Miniature Snowflake` / Miniature Snowflake Mockorange	3`H x 3`W	2` HT.	POT
	PIAE	6	Picea abies `Elegans` / Dwarf Norway Spruce	3`H x 4`W	3` HT.	POT
	RHOM	10	Rhododendron x `Ramapo` / Ramapo Rhododendron	2`H x 3`W	2` HT.	POT
	RAGL	38	Rhus aromatica `Gro-Low` / Gro-Low Fragrant Sumac	2`H x 7`W	2 GAL.	POT
	VINA	33	Viburnum opulus `Nanum` / Dwarf European Viburnum	2`H x 3`W	2` HT.	POT
GRASSES						
	MIYA	14	Miscanthus sinensis `Yaku Jima` / Yaku Jima Dwarf Maiden Grass	4`H x 4`W	3` HT.	POT
PERENNIALS						
	HEMS	42	Hemerocallis x `Stella de Oro` / Stella de Oro Daylily	1`H x 1`W	1 GAL.	POT
	NEPP	186	Nepeta racemosa 'Walker's Low' / Walker's Low Catmint	2`H x 2`W	#2 Cont.	POT
	SALV	49	Salvia nemorosa 'May Night' / May Night Meadow Sage	2`H x 2`W	2 GAL.	POT



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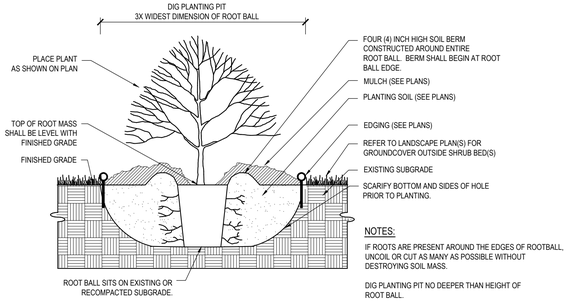
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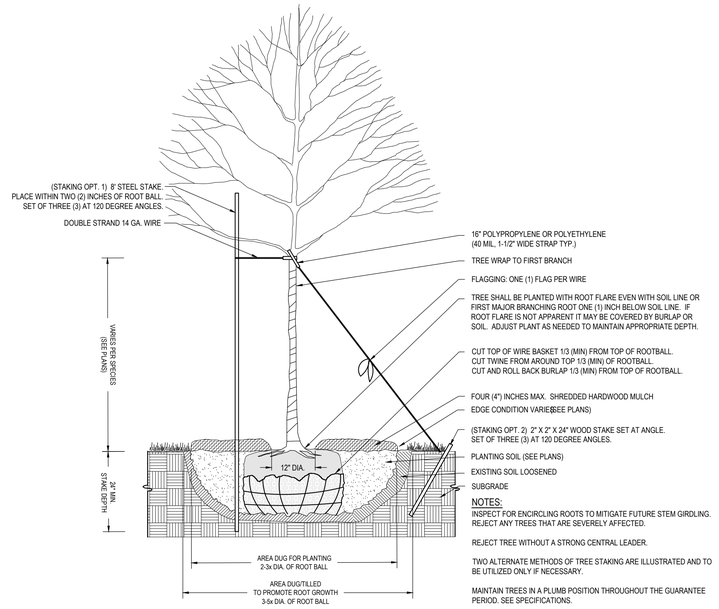
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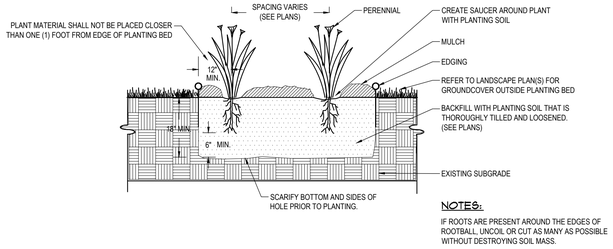
3 **SHRUB PLANTING**

NO SCALE



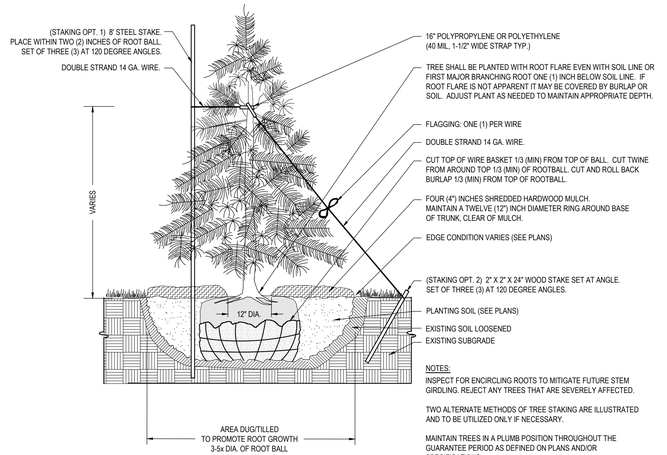
1 **DECIDUOUS TREE PLANTING**

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GRIES ARCHITECTURAL GROUP INC.
500 NORTH COMMERCIAL STREET

NEENAH, WI 54956
TEL: (920) 722-2445

CITY

City of Gem Lake

PROJECT

Apple Ford White Bear Lake

ISSUE / REVISION HISTORY

CONTACT ENGINEER FOR ANY PRIOR HISTORY

DATE	ISSUE / REVISION	REVIEW
24 JUL 2026	CITY SUBMITTAL	SES
14 SEP 2026	CITY SUBMITTAL	SES
06 NOV 2026	CITY SUBMITTAL	SES

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PROJECT NO. GAG26002

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Stormwater Management Plan

Prepared for:

Apple Ford – Gem Lake, MN

November 6, 2026

PREPARED FOR
Gries Architectural Group
500 North Commercial Street
Neenah, WI 54956

CREATING MEMORABLE PLACES 30 YEARS

PREPARED BY
Landform Professional Services, LLC
105 5th Ave S, Suite 513
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PRELIMINARY 11/06/2026

Steven Sabraski Date

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INTRODUCTION

The proposed redevelopment will consist of a new commercial building containing 121,000 s.f, of vehicle sales, and vehicle service encompassing 33.6 acres located at **1493 COUNTY ROAD E** in the City of Gem Lake, Minnesota. There will also be new private concrete walks, a parking lot, driveways, utilities, and underground and above ground stormwater detention systems.

JURISDICTIONAL BODIES AND REQUIREMENTS

The City of Gem Lake and Minnesota Pollution Control Agency (MPCA) have review jurisdiction over storm water runoff from the proposed re/development at this site.

City of Gem Lake

The city requires that the peak discharge rate from the 2-year, 10-year, and 100-year, 24-hour rainfall events be at or below the existing rates. The site must also abstract 1.1-inch of runoff from the newly added and fully reconstructed impervious surfaces. Water quality requirements must comply with MPCA requirements. Storm sewers must be designed to carry the runoff from a 10-year, 24-hour storm.

MPCA

The state National Pollutant Discharge Elimination System (NPDES) / State Disposal System Program and the Construction Stormwater General Permit requires retention on site of 1-inch of runoff from all new impervious surfaces where they replace one (1) of more acres of vegetation or pervious surface.

EXISTING SITE CONDITIONS AND DRAINAGE PATTERNS

The parcel is occupied by an auto dealership building. The topography of the site is primarily gently sloping terrain from with one third sloping south and the rest sloping to the north and east with elevations ranging from 975 to 955. The site is covered by farmyard and commercial buildings and pavement.

Soils are SCS Types D per the National Resource Conservation Service maps. Geotechnical borings show mostly clayey sand (SC).

Most of the site surface drains North into the wetland, where the remaining portion of the site drains south into storm sewer located in County Road E

Refer to Appendix A for additional information.

PROPOSED ON-SITE STORM WATER MANAGEMENT

The design goal of the proposed drainage plan is to follow the existing drainage patterns to the extent possible and to meet the City of Gem Lake and the MPCA's stormwater requirements.

Table 1 – Overall Site Data

Disturbed Area (acres)	17.8
New Impervious Area (acres)	0.2
Fully Reconstructed Impervious Area (acres)	13.8
Required Water Quality Volume (c.f.)	55,103

Rate Control

The detention ponds and outlet control structures will combined provide rate control. Table 2-4 compares the existing and proposed peak discharge rates for the three storms at the three main discharge points. In all cases the proposed rates are lower than the existing rates. Refer to Appendix C for the stormwater modeling.

Table 2 - Peak Discharge Rates – North 5R

Event	Existing Runoff Rate (cfs)	Proposed Runoff Rate (cfs)
2-year (2.79")	51.68	7.78
10-year (4.17")	80.27	25.85
100-year (7.30")	144.42	54.62

Table 3 - Peak Discharge Rates – Southeast 6R

Event	Existing Runoff Rate (cfs)	Proposed Runoff Rate (cfs)
`2-year (2.79")	5.35	1.32
10-year (4.17")	8.20	7.10
100-year (7.30")	14.61	14.17

Table 4 - Peak Discharge Rates – Southwest 7R

Event	Existing Runoff Rate (cfs)	Proposed Runoff Rate (cfs)
2-year (2.79")	22.39	20.85
10-year (4.17")	39.18	38.58
100-year (7.30")	77.55	68.97

Abstraction

We are not proposing infiltration due to the clay soils on site. Refer to Appendix A for geotechnical borings depicting the clay soils throughout the site.

In place of abstracting due to the clay sold prohibiting infiltration, stormwater treatment will be provided through use of wet detention surface. These basins shall follow design requirements as set forth in the MPCA's Construction Stormwater Permit and Minnesota Stormwater Manuel. Refer to Appendix D for the design requirements and provided values of all the proposed basins.

To minimize erosion and sedimentation, silt fence, inlet protection, street sweeping, and stabilized rock construction entrances will be implemented as part of the temporary erosion and sediment control plan.

CONCLUSION

Our design meets and exceeds the MPCA's and the City's requirements for rate control, volume control, and water quality treatment.

CONTACT INFORMATION

This document was prepared by:

Landform
105 South Fifth Avenue
Suite 513
Minneapolis, MN 55401

Please direct any questions regarding this stormwater narrative to Steve Sabraski at ssabraski@landform.net or 612-252-9070.

APPENDIX A: GEOTECHNICAL REPORT

Chosen Valley Testing, Inc.

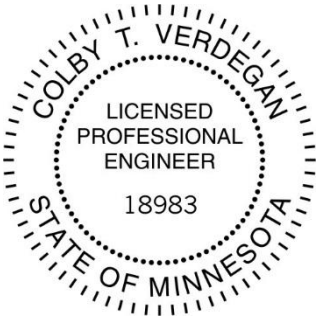
Design Phase Geotechnical Report:

Proposed Facility for Apple Ford
1493 Country Road E East
Gem Lake, Minnesota
CVT# 27718.26.MNT

Prepared for:

Chris Gulbrandson
Apple Ford White Bear Lake

Certification:



I hereby certify that this report was prepared by me or under my direct supervision, and that I am a duly licensed engineer under the laws of the State of Minnesota.

Colby T. Verdegan, PE
Geotechnical Engineer
Registration Number 18983
Date: May 28, 2026

Chosen Valley Testing, Inc.

Geotechnical Engineering and Testing, 245 Roselawn Ave. E., Suite #29, St. Paul, MN 55117 · (651) 756-7384 · stpaul@cvtesting.com

Chris Gulbrandsen, President
Apple Ford White Bear Lake
P.O. Box 240299
Apple Valley, MN 55124

May 28, 2026

c/o: Dan Burnam
Gries Architects
400 2nd Street South
Hudson, Wisconsin 54016
Phone: 715-808-1555
Email: dburnam@gries.design

Re: Draft Design Phase Geotechnical Evaluation
Proposed Apple Ford
1493 County Road E East
Gem Lake, Minnesota
CVT Project 27718.26.MNT

Dear Mr. Burnam,

As authorized, we have completed the geotechnical evaluation for the proposed project in Gem Lake, Minnesota. This letter briefly summarizes the findings in the attached report.

Summary of Boring Results

Five of the borings were drilled in the existing field west of the existing facility and encountered topsoil at the surface. The topsoil was typically followed by dark, relatively inorganic B-Horizon soils to depths of about 4 to 6 ½ feet. The deeper soils were primarily by clayey and/or silty glacial deposits before terminating in rather clean sands.

Most of the borings were drilled in paved areas. The paving materials were typically underlain by clayey fill or possible fill to depths ranging from about 6 ½ to 18 feet below the surface. The uppermost materials tended were more readily identifiable as fill and tended to have a mixed appearance and or had underlying dark soils zones which might be fill or might be natural, low organic B-Horizon. The dark B-Horizon type soils were also met just below the paving materials at a few locations and were suspected to be fill materials in those areas, but not conclusively.

The fill appeared to be potentially 18 feet deep in two borings. One of those was in an area where a historical photo indicates a pond was present. At the other locations, woody matter was present in the 15-foot sample which could be a positive indication of fill but might also possibly have been from a deep tree root.

Water was noticed at 12 feet in two of the borings taken in the field west of the existing facility, at depths corresponding to about elevations 944 and 947 feet. Those elevations are below the depths explored by

most of the borings. Based on this and comparative moisture contents expected for the various soil types encountered elsewhere on the site, the static water level at the site is believed to be in the vicinity of 947 or lower across the site.

Summary of Analysis and Recommendations

Based on the borings, the general conditions at the site appear to consist of topsoil or pavement over moderate to deep amounts of fill or possible fill which are primarily underlain by glacial soils. In the absence of record attesting to proper preparation before placing the fill, confirming the overall suitability of the fill and lack of deleterious materials, and compaction, its behavior is less predictable and construction on such material entails a higher-than-normal risk of foundation settlement. The most common practice to eliminate those concerns is to remove the undocumented fill and replace it with documented "engineered" fill (Total Removal Option).

The deeper fill and possible fill typically evidenced N-values of 10 or more, which suggest those fills likely received some degree of compactive effort. Considering this and the lack of observed unsuitable materials within or below the fill, we are of the opinion that the owner can reasonably consider floating the proposed structure on the existing fill. If this approach is used, the report includes recommendations intended to reduce the risk of unusual settlement but will not completely eliminate that risk. If the owner is not willing to accept the risks associated with the partial removal option, total removal or other support options must be pursued. In that event, aggregate piers are suspected to be a more economical option for reducing the risk to typical levels.

Remarks

CVT appreciates the opportunity to provide geotechnical services on this project. If there are any questions about our report, please feel free to contact us.

Sincerely,
Chosen Valley Testing, Inc.

Hannah Fischer
Graduate Engineer

Colby T. Verdegan, PE
Sr. Geotechnical/Materials Engineer

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Design Phase Geotechnical Evaluation
Proposed Facility for Apple Ford
1493 County Road E East
Gem Lake, Minnesota

Project Number: 27718.26.MNT
May 28, 2026

A. Introduction

The intent of this report is to present our findings to the client in the same logical sequence that led us to arrive at the opinions and recommendations expressed. Since our services often must be completed before the design is finished, assumptions are often needed to prepare a proper scope and to analyze the data. A complete and thorough review of the entire document, including its assumptions and its appendices, should be undertaken immediately upon receipt.

A.1. Purpose

This geotechnical report was prepared to aid in the design and construction of the proposed facility for Apple Ford in Gem Lake, Minnesota. Our services were authorized by Mr. Dan Burnam from Gries Architects.

A.2. Scope

To obtain data for analysis, a total of twenty (20) penetration test borings were authorized. Ten (10) building borings were drilled to depths of about 20 feet. The remaining ten (10) borings were drilled to depths of about 15 feet. Our engineering scope consisted of providing this report summarizing our exploration procedures and findings and providing geotechnical recommendations for the proposed facility.

A.3. Boring Locations and Elevations

The proposed boring locations were suggested for approval by Chosen Valley Testing (CVT) based on a site plan provided by the client. The Boring Location Sketch in the Appendix shows the approximate locations as drilled. The sketch was based on superposing the boring locations and the site plan onto aerial imagery of the site, using Google Earth Software.

Ground surface elevations at the borings were estimated to the nearest ½-foot from LiDAR topographic data available by the Minnesota Department of Natural Resources using their online software "MnTOPO".

A.4. Geologic Background

A geotechnical report is based on subsurface data collected for the specific structure or problem. Available geologic data from the region can help interpretation of the data and is briefly summarized in this section.

The site is located within a developed area. Geologic maps indicate the dominant soils in the area are sandy glacial till deposits. Bedrock is commonly more than 150 feet below the surface and consists of Prairie du Chien Group.

Aerial photographs from an associated environmental study indicate the site was farmland until at least 1953, with the only developed part of the site being a farmstead situated in the southwest quarter of the existing facility. The photos indicate multiple expansions of building and paved areas on the east half of the presently facility until at least 1972. The area north of the farmstead was no longer planted by that time but had other signs of disturbance, including a small pond near the planned northwest corner of the new building (essentially at planned Boring B-09). By 1991, the area of entire existing facility appears to have been paved and most of the existing buildings appear to have been constructed. We are not aware of any geotechnical records of the development.

B. Subsurface Data

Procedures: The borings were performed using penetration test procedures (Method of Test D1586 of the American Society for Testing and Materials). This procedure allows for the extraction of intact soil specimens from deep in the ground. With this method, a hollow-stem auger is drilled to the desired sampling depth. A 2-inch OD sampling tube is then screwed onto the end of a sampling rod, inserted through the hole in the auger's tip, and then driven into the soil with a 140-pound hammer dropped repeatedly from a height of 30 inches above the sampling rod. The sampler is driven 18 inches into the soil unless the material is too hard. The samples are generally taken at 2½ to 5-foot intervals. The core of soil obtained was classified and logged by the driller on site and a representative portion was then sealed and delivered to the geotechnical engineer for further review.

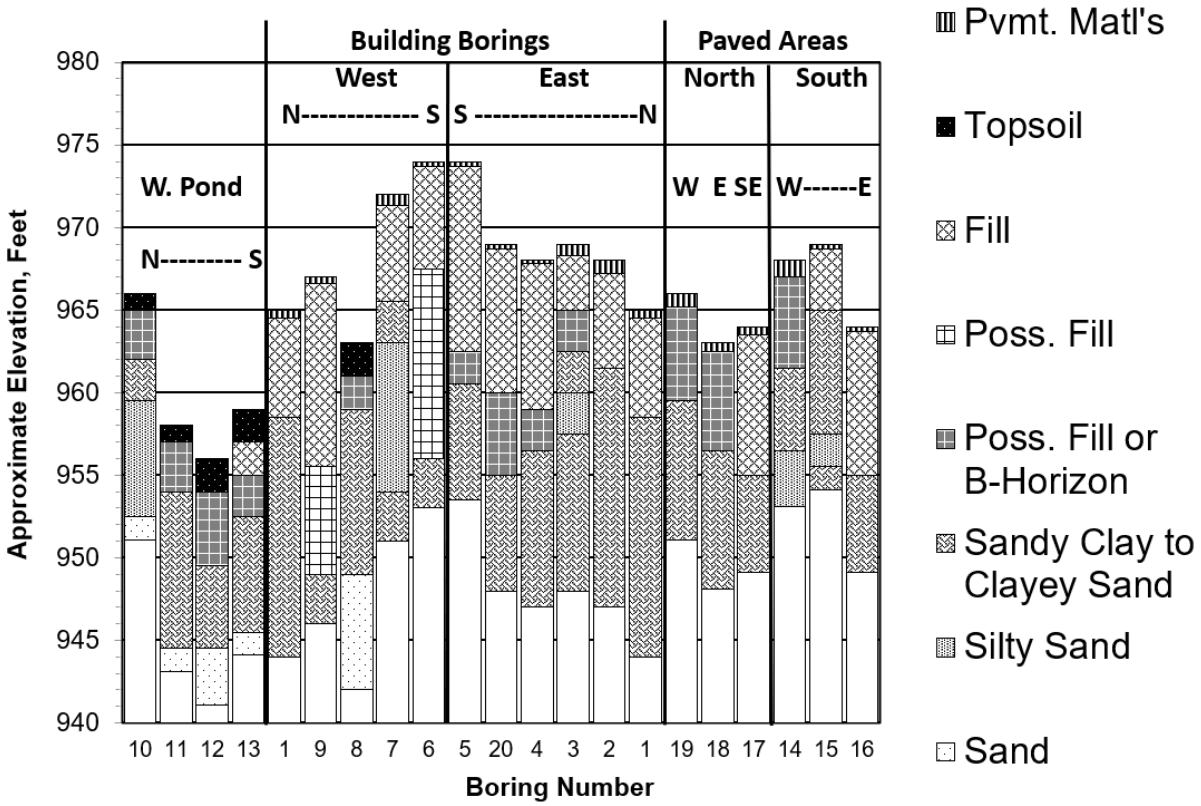
B.1. Stratification

Five of the borings were drilled in the existing field west of the existing facility and encountered topsoil at the surface. The topsoil was typically followed by dark, relatively inorganic B-Horizon soils to depths of about 4 to 6 ½ feet. The deeper soils were primarily by clayey and/or silty glacial deposits before terminating in rather clean sands.

Most of the borings were drilled in paved areas at the existing facility and initially encountered 2 to 4 inches of asphalt over 3 to 6 inches of aggregate base. The paving materials were typically underlain by clayey fill or possible fill to depths ranging from about 6 ½ to 18 feet below the surface. The uppermost materials tended were more readily identifiable as fill and tended to have a mixed appearance and or had underlying dark soils zones which might be fill or might be natural, low organic B-Horizon. The dark B-Horizon type soils were also met just below the paving materials at a few locations and were suspected to be fill materials in those areas, but not conclusively.

The fill appeared to be potentially 18 feet deep in the boring drilled at the northwest building corner (Boring B-09) and the south corner (Boring B-06). As mentioned in Section A.4, the historical photo indicates a pond was present at the location of B-9. Due to poor sample quality, the deepest materials at that location are indicated as being "possible fill." The B-06 location appears to be just outside of the original farmstead at the site. Determination of the deep soils as possible fill at this location was due to woody matter in the 15-foot sample which could be a positive indication of fill but might also possibly have been from a deep tree root.

The boring data has been summarized in the cross-section following this paragraph. Please refer to the individual Log of Boring sheets in the Appendix for more detailed information.



B.2. Penetration Test and Laboratory Test Results

The number of blows needed for the hammer to advance the penetration test sampler is an indicator of soil characteristics. The results tend to be more meaningful for natural mineral soils than for fill soils. In fill soils, compaction tests are more meaningful.

Penetration resistance values ("N" Value) in the fill and possible fill soils ranged from 4 BPF (Blows per Foot) to 50 blows over 1 inch and averaged about 12 BPF. The vast majority of the samples below 5 feet had values of 10 BPF or higher.

Values in the natural sands and silty to clayey sands ranged from 6 to 61 BPF, indicating those soils were loose to very dense but mostly medium dense. The natural clay recorded values of 9 to 28 BPF, indicating it was rather stiff to very stiff, but mostly stiff.

A key to descriptors used to qualify the relative density of soil (such as *soft, stiff, loose*, and *dense*) can be found on the Legend to Soil Description in the Appendix.

B.3. Groundwater Data

During drilling, the drillers may note the presence of moisture on the sampler, in the cuttings, or in the borehole itself. These findings are reported on the boring logs. Because water levels vary with weather, time of year, and other factors, the presence or lack of water during exploration is subject to interpretation and is not always conclusive.

Free water was not observed in most of the borings and most of the samples retrieved were not overly wet. Water was observed at 2 feet during drilling the boring near the southeast corner of the property and is

believed to be associated with near surface drainage. Water was also noticed at 12 feet in two of the borings taken in the field west of the existing facility, at depths corresponding to about elevations 944 and 947 feet. Those elevations are below the depths explored by most of the borings. Based on this and comparative moisture contents expected for the various soil types encountered elsewhere on the site, the static water level at the site is believed to be in the vicinity of 947 or lower across the site. Groundwater levels on site would be expected to fluctuate seasonally, similar to levels in nearby ponds and lakes, along with local weather patterns.

C. Design Data

Because each structure has a different loading configuration and intensity, different grades, and different structural or performance tolerances, the results of a geotechnical exploration will mean different things for different facilities. If the facility changes, Chosen Valley Testing should be contacted to discuss possible implications of the changes. Without a chance to review such changes, the recommendations of the soils engineer may no longer be valid or appropriate.

The proposed facilty is assumed to be a single-story slab on grade structure with high roof areas for tall storage, hoists, etc. Maximum foundation loads are assumed to be on the order of 150 kips or less per column and strip footing loads are assumed to be 6 kips per linear foot or less. The finished floor elevation is assumed to be near an elevation at 971 feet.

The paved areas are assumed to carry primarily auto traffic or be for auto parking but are assumed to also have heavier traffic areas. We have also assumed that a storm pond would likely be placed in the field west of the building.

D. Analysis

Based on the borings, the general conditions at the site appear to consist of topsoil or pavement over moderate to deep amounts of fill or possible fill which are primarily underlain by glacial soils. In the absence of record attesting to proper preparation before placing the fill, confirming the overall suitability of the fill and lack of deleterious materials, and compaction, its behavior is less predictable and construction on such material entails a higher-than-normal risk of foundation settlement. The most common practice to eliminate those concerns is to remove the undocumented fill and replace it with documented “engineered” fill (Total Removal Option).

As noted earlier, the deeper fill and possible fill typically evidenced N-values of 10 or more, which suggest those fills likely received some degree of compactive effort. Considering this and the lack of observed unsuitable materials within or below the fill, we are of the opinion that the owner can reasonably consider floating the proposed structure on the existing fill. If this approach is used, we would strongly recommend at least partially removing the fill from below the footings and slabs and replacing that material with engineered fill. Faced with this circumstance on similar sites, a typical approach would consist of:

- removing the existing fill to a depth of 4 feet below footings and slabs,
- screening out any obvious unsuitable materials from the excavated fill (large pieces of debris, any compressible or highly organic materials, other extremely weak or extremely dissimilar soils)
- then replacing the improved material in a compacted fashion below the foundations and slabs.

Implementation of the partial corrections option described is intended to reduce the risk of unusual settlement but will not completely eliminate that risk.

If the owner is not willing to accept the risks associated with the partial removal option, the total removal or other support options must be pursued. In that event, aggregate piers are suspected to be a more economical option for reducing the risk to typical levels. Sections E. of this report provides general recommendations applicable to the total and particular removal options. Section F. provides general recommendation for the aggregate pier option. Specific recommendations are not provided for the aggregate pier option as these are proprietary installations and must be designed by the design-build contractor and coordinated with the requirements of the structural engineer.

The remainder of this report provides further details of our recommendations.

E. Building Grading Recommendations

E.1. Excavation - Total Fill Removal Option

With this approach, we recommend removing all existing pavements, topsoil and fill from below the building, along with any existing pavements, utilities, foundations, or otherwise unsuitable materials that may be encountered during construction. For planning purposes, we recommend assuming that the possible fill must also be removed. The apparent depths of these materials at the locations explored in the building area are summarized in table following this paragraph.

Boring ID	Approx. Ground Surface Elev. (feet)	Apparent Depth of Unsuitable Soils (feet)	Approx. Elevation at Bottom of Unsuitable Soils (feet)
B-01	965	6 ½	958 ½
B-02	968	6 ½	961 ½
B-03	969	6 ½	962 ½
B-04	968	11 ½	956 ½
B-05	974	14	960
B-06	974	18	956
B-07	972	6 ½	965 ½
B-08	963	4	959
B-09	967	18	949
B-20	969	14	955

E.2. Partial Fill Removal Option Recommendations

With this approach, we recommend removing the existing fill to a depth of at least 4 feet below all foundations and the proposed slab. Large pieces of concrete, debris, organics or other unsuitable materials in the excavated soils should be separated out from any fill intended to be placed back into the excavation. Any high permeability fill excavated during this process (such as the clean poorly graded sands and gravels) should be separated from the lower permeability soils and discarded or only used as interior foundation

wall backfill. The fill should be closely reviewed and probed at that time for signs of unsuitable materials that would warrant additional correction.

E.3. Geotechnical Review of Bearing Subgrade

It is recommended that geotechnical personnel from Chosen Valley Testing be retained to evaluate the soils when they are better exposed during construction. Subject to the results of those evaluations, additional soil corrections or revised recommendations may be warranted.

E.4. Oversizing

Soil correction excavations should be oversized at least 1-foot beyond the edge of foundations for each foot of fill needed below footing grade. This oversizing can be reduced by up to 50% if rather precise staking is present during grading, although some additional oversizing provides the owner some protection against stakes getting moved or knocked down or slight repositioning of the building after soil corrections are performed.

E.5. Surface Compaction for Partial Removal Option

With particular regard to the partial removal options, the soils at the base of the excavation should be surface compacted by a large, self-propelled vibratory compactor before placing subsequent fill. This is intended to deepen the zone of overall soil improvement and seal off the surface -- limiting potential infiltration of water into untreated fill soils at depth.

E.6. Filling and Compaction

Based on the assumed grades, fill will likely be needed to attain final grades for the proposed building. Presuming that is the case, for ease in compaction, we would suggest importing clean sand or gravel having less than 12% particles passing a number 200 sieve for use in the building area. These are also the preferred subgrade materials for slab subgrades having concentrations of utilities, drains, etc. For slabs receiving covering or coatings that are less permeable than concrete, we recommend placing at least 4 to 6 inches of cleaner free draining sand or gravel having less than 5% particles passing a #200 sieve directly below slabs. Both of these materials would also have to be imported.

Because of its low permeability, the existing clayey fill and possible fill are the preferred bulk fill materials below foundations with the partial removal option, provided it is screened of organic materials, debris laden or otherwise unsuitable material. This would have to be reviewed in greater detail during construction. If these materials are used, we suggest using clean sand in the upper 2 feet of the interior slab areas, as an aid to utilities installations and slab subgrade preparation. The dirty existing fill is preferred as exterior backfilling against foundation walls.

All materials below the building, in the oversized areas, and used as backfill for walls should be compacted to a minimum of 95% of its maximum standard Proctor density (ASTM D 698). The fill should be placed in lifts adjusted to the compactor being used and the material being compacted. We recommend limiting lifts to no more than 1-foot. This assumes large, self-propelled or tow-behind compactors are used. Thinner lifts should be used for lighter compaction equipment.

Meaningful compaction testing may not be feasible on the mixed existing fill materials, because of difficulty in obtaining representative Proctor samples of variable materials. In that event "ordinary compaction" would likely be necessary. This would consist of having geotechnical personnel document proper grading procedures (proper material use and moisture conditioning as well as fill lift thickness and compactive effort relative to the material and compaction equipment).

F. Rammed Aggregate Option

F.1. Stripping and Excavation

With this approach, we recommend completely removing all topsoil, foundations, or any other unsuitable materials that may be discovered during construction that cannot be improved by the rammed aggregate piers. At the locations explored, about 1 to 2 feet of surficial removal would be expected.

F.2. Filling and Compaction

With this approach, any fill needed to attain final grades is normally required to be placed before the piers are installed. Depending on the amount of fill, the designers might require a waiting period between fill placement and pier installation. This might be required at the at the west corner of the building where slab grades are expected to be on the order of 5 feet above existing grades. Based on the materials encountered, we suspect that such a waiting period might be as little as a week or two.

All materials below the building, in the oversized areas, or used as backfill for walls should be compacted to a minimum of 95% of its maximum standard Proctor density (ASTM D 698). The existing fill can likely be used for this purpose and this would have to be determined by the aggregate pier contractor. Otherwise, as mentioned earlier, clean sands or gravels are considered to be the preferred materials below the interior slab areas due to utilities and general slab placement. This material would have to be imported.

F.3. Aggregate Pier Installation and Post Installation Observations

Independent observation of the pier installation may be required. Regardless of that, once the piers are installed, additional inspections should be performed to reasonably confirm correct pier locations relative to the supported foundations and slabs and to also confirm that the soils at the top of the piers are compacted and protected in advance of placing concrete, in accordance with the design-build contractor's recommendations. The design-build contractor may have additional requirements or requirements that supersede those in this report.

G. Building Design

G.1. Foundation Depth

For frost protection, foundations should be placed at least 42 inches below the exposed ground surface for heated structures. Interior foundations in heated areas may be placed directly below slabs. Footings for unheated structures should be placed at least 60 inches below the exposed ground surface.

G.2 Bearing Capacity and Settlement

With the boring data, assumed foundation loads, assumed floor/footing elevations, and implementation of our earthwork recommendations, we are of the opinion that foundations may be designed to exert pressures of up to 3,000 psf. This allowable bearing pressure includes a safety factor of at least 3 against shear failure. Total settlements are expected to be less than 1 inch and differential movement is expected to be less than ½ inch.

With the total removal approach, total settlements are expected to be less than 1 inch and differential movement is expected to be less than ½ inch. The intent of the partial removal option is to limit total and differential settlements to that comparable to that expected with the total removal option, although there is a greater potential for larger settlements. Again, if the owner is not willing to accept this risk, the other options must be pursued.

If aggregate piers are used, bearing pressures on the order of 5,000 psf are normally feasible with projected settlements generally the same as the other approaches or even smaller.

G.3. Vapor Barrier

If the slab receives coverings that are less permeable than concrete, a vapor barrier should be placed below the slab. Some contractors prefer to place this barrier below a sand layer to limit the potential for curling.

G.4. Slab Design

The completed slab subgrade is expected to consist primarily of silty sand to clayey sand materials. We recommend using a modulus of subgrade reaction of no more than 150 pounds per cubic inch (pci).If clean sands are used, a value of 200 can be used.

G.5. Lateral Earth Pressures

Lateral earth parameters are provided for design of below-grade walls. Backfill should be compacted to at least 95% of its maximum standard Proctor density (ASTM D 698). Lateral resistance will depend on the materials used. We recommend using clean free-draining sands having less than 12% particles passing a number 200 sieve for a width of at least 2 feet against basement walls. The natural poorly graded sands and poorly graded sands with silt would be expected to meet this gradation. The following table includes support values for the recommended clean sand. These values do not include safety factors.

Poorly Graded Sands (SP) 95% standard Proctor density	
Internal Friction Angle (degrees)	34
Cohesion (psf)	0
Coefficient of Friction between Concrete and Soil	0.5
Moist Unit Weight (pcf)	120
Backslope Behind Wall (degrees)	0 (Flat)
At-Rest Coefficient (Ko)	0.44
Active Coefficient (Ka)	0.28
Passive Coefficient (Kp)	3.54
Equivalent At-Rest Fluid Earth Pressure (psf/ft of wall height)	55

The actual loads exerted on the structure will depend on the movement or flexure of the structure. For sand fill, horizontal movement or flexure of about 0.2% of the height of soil retained may be sufficient to mobilize frictional forces from the at-rest state to the active state. A draintile should be placed at the base of such walls to prevent hydrostatic build up.

H. Paved Area Recommendations

H.1. Stripping and Grading

We recommend stripping all existing topsoil and pavements from below the new pavements, along with any otherwise unsuitable materials that may be encountered during construction to a depth of at least 2 feet below the paving materials. At the locations explored, about ½ to 2 feet of removal would be expected. As a possible cost saving measure, the milled existing paving materials might also be reserved for reuse at the top of the subgrade.

The soils present after stripping are expected to consist primarily of clayey sands but will likely include areas of silty sands or other materials. To promote uniformity with the existing soils, we recommend using similar soils as fill where needed below the new pavements. Existing fills removed from the building areas could likely be used for that purpose.

To provide a higher quality subgrade, some designers and owners prefer to place a layer of clean sand at the top of the subgrade. In all cases, the surface receiving these materials should be sloped to drain water out from below the pavement, thereby reducing the potential for soft spots or frost boils.

Fill in the upper 3 feet of the subgrade should be compacted to 100% of its standard Proctor Density. Below that depth 95% is recommended. 90% is usually sufficient in green areas. The completed pavement subgrade should be able to pass a proof roll test using a loaded tandem axle truck. Areas not passing the proof roll test should be reworked and or otherwise stabilized as needed to pass the test roll.

H.2. Pavement Design

The soils present at subgrade elevation are expected to consist primarily of clayey sands but will likely include areas of silty sand or other materials. We recommend using an R-value of no more than 30 for pavement design. Provided the subgrade is stabilized and is able to pass a test roll, we recommend a light duty pavement section consisting of at least 3 inches of asphalt and 6 inches of class 5 aggregate base and a heavy-duty section consisting of least 4 inches of asphalt and 8 inches of aggregate base.

The above sections should be considered preliminary, subject to review by the project civil engineering consultant, their experience with pavement design and performance in the area of the project, and subject to the evaluation of the actual soils in proposed paved areas.

H.3. Pavement Maintenance

Routine maintenance is recommended for improved pavement performance and to increase pavement life.

Some thermal shrinkage cracks may develop over time; therefore, pavements should be sealed with a liquid bitumen sealer to mitigate water intrusion into the base course and subgrade sections. Localized patch failures may also develop, which should be cut out and repaired. Periodic seal coating would also help preserve and assure a longer pavement life.

I. Stormwater Infiltration Recommendations

Infiltration rates were estimated for the various materials encountered in the borings. The following table presents the recommended infiltration rate per soil type from the MPCA Minnesota Storm Water Manual. Please see the individual Log of Boring sheet in the Appendix for more detailed information in regard to soil types.

Unified Soil Classification System (USCS) Soil Type	Infiltration Rate (inches/hour)
Clayey Sand to Sandy Clay (SC, CLS)	0.06
Silty Sand (SM)	0.2 to 0.45
Poorly Graded Sand (SP, SP-SM)	0.8

Two rates are provided in the tables for silty sands and sandy silts, and we suggest using the lower rates based on our experience with the actual infiltration rates from double ring infiltrometer testing of these soils on other sites. Double-ring infiltrometer testing could be performed to provide site specific infiltration values, but was not part of our initial work scope and would need to be performed at the proposed infiltration surface elevation."

J. General Construction Recommendations

J.1. Earthwork

The excavations can likely be performed with a variety of equipment. Deep excavations should be performed using a backhoe with a smooth lipped bucket.

J.2. Sideslopes

The contractor will be required to slope or shore the excavations as needed to meet OSHA requirements for safety and to limit disturbance to surrounding structures. The site soils would be expected to primarily classify as Type C soils as defined by OSHA.

J.3. Cold Weather

If earthwork occurs during freezing temperatures, good winter construction practices should be used. No frozen fill should be used, and filling should not take place on frozen subgrades. Footing and slab areas should be completely thawed prior to placing concrete.

J.4. Construction Testing and Documentation

Grading and excavations should be evaluated and documented by qualified geotechnical personnel to assess the soil remaining at the bottom of excavations. Any fill placed below building areas should be evaluated for conformance to the project gradation recommendations and should be tested for compaction. If filling proceeds during periods of freezing weather, full-time testing should be considered to help confirm that imported fill is thawed prior to and during compaction, and that all snow has been removed before placement of the fill.

Although our firm offers testing services relating to civil and structural components of the structure (such as concrete testing, reinforcement observations, etc.), specification of such services is beyond our work scope, and the designer should be consulted as to such requirements.

K. Level of Care

The services provided for this project have been conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in this area, under similar budget and time constraints. This is our professional responsibility. No other warranty, expressed or implied, is made.

Appendix

Boring Location Sketch

Log of Boring # 1-20

Legend to Soil Description

Chosen Valley Testing, Inc.

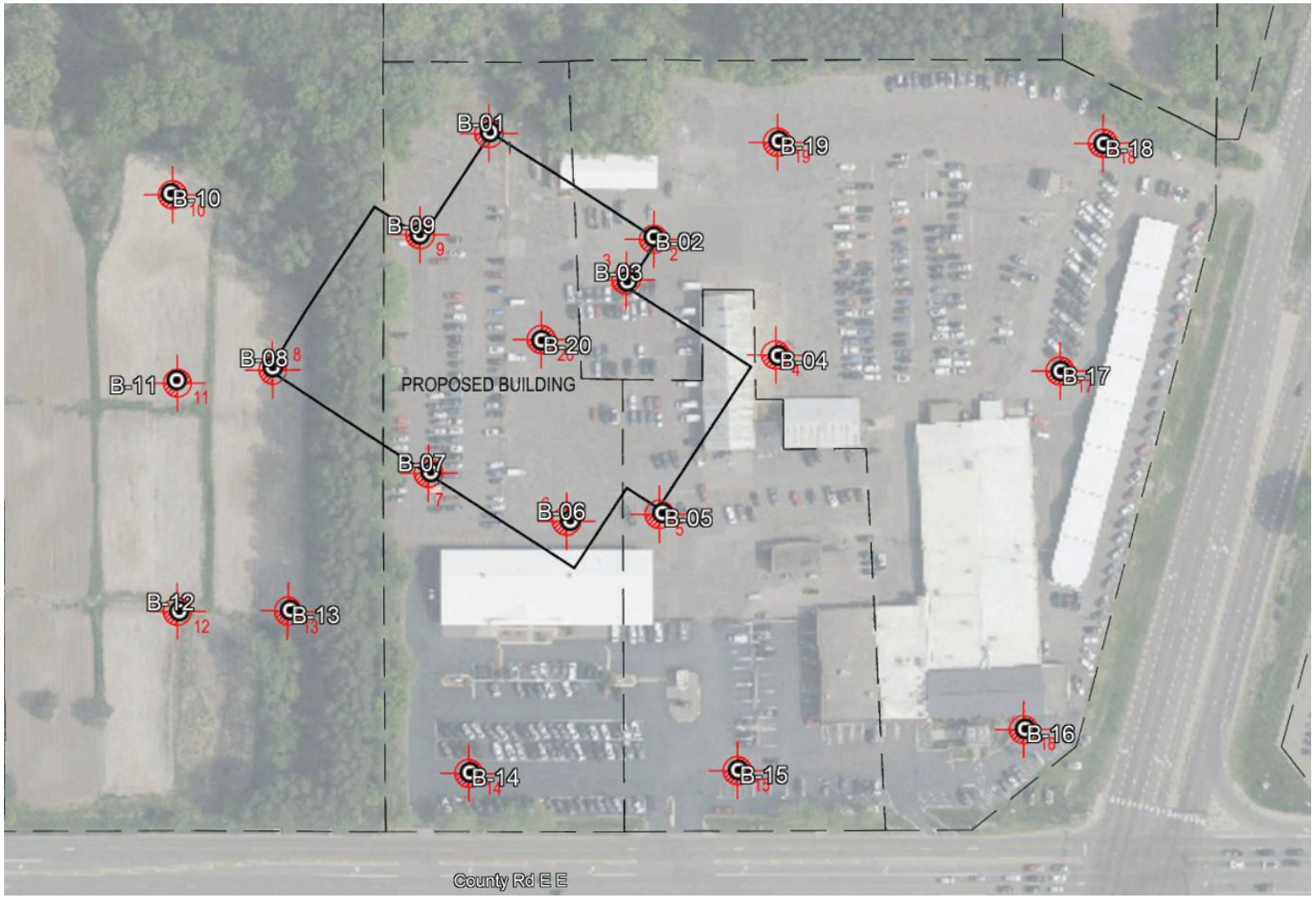
Legend

Boring Locations

N

Boring Location Sketch

Proposed Apple Ford
1493 County Road E East
Gem Lake, Minnesota
CVT Project: 27718.26.MNT



LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-01** LOCATION: See attached sketch. DATE: 5/4/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
965.0	0.0					
964.8	0.2		**2 INCHES BITUMINOUS**.			Elevations were estimated using the MnDNR's program MnTopo and should be considered approximate.
964.5	0.5	SM	**4 INCHES AGGREGATE BASE**.			
			FILL, Silty Sand, brown, moist.			
963.0	2.0	CL	**FILL**, Sandy Lean Clay, dark brown with gray and black mixing, wet.	8		
961.0	4.0	SC	**FILL**, Clayey Sand, fine-to-medium grained, trace Gravel, dark brown with gray and black mixing, moist.	9		MC=15.1%
958.5	6.5	SC	**CLAYEY SAND**, fine-to-medium grained, brown and gray mottled, moist, medium dense. (Glacial Till)	14		
956.0	9.0	SC SM	**SILTY CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense to very dense. (Glacial Till)	23		MC=12.2%
				24		
				47		MC=13.4%
944.0	21.0		At 20 feet, gray and brown mottled, trace Gravel.	54		MC=12.4%
			End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-02** LOCATION: See attached sketch. DATE: 5/4/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
968.0	0.0					
967.7	0.3		**3 INCHES BITUMINOUS**.			
967.2	0.8		**6 INCHES AGGREGATE BASE**.			
966.0	2.0	SP SM	**FILL**, Poorly Graded Sand with Silt, trace Gravel, brown, moist.			
		SC	**FILL**, Clayey Sand, fine-to-medium grained, brown and dark brown mixing, moist.	6		
				7		MC=18.8%
961.5	6.5	SC SM	**SILTY CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, loose. (Glacial Till)	8		
			At 10 feet, dark brown.	9		MC=15.1%
956.5	11.5	SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense to dense. (Glacial Till)	13		
				29		MC=13.7%
				33		MC=15.3%
947.0	21.0		End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-03** LOCATION: See attached sketch. DATE: 5/4/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
969.0	0.0					
968.8	0.2		**2 INCHES BITUMINOUS**.			
968.3	0.7	CL	**6 INCHES AGGREGATE BASE**. **FILL**, Sandy Lean Clay, gray and brown mixing, wet.	4		
965.0	4.0	CL	**SANDY LEAN CLAY**, gray and brown and black mixing, wet, medium. (Possible Fill/B-Horizon)	6		MC=20.7%
962.5	6.5	CL	**SANDY LEAN CLAY**, brown, wet, rather stiff. (Glacial Till)	10		
960.0	9.0	SM	**SILTY SAND**, fine-to-medium grained, trace Gravel, brown, moist, loose. (Glacial Till)	10		MC=12.9%
957.5	11.5	SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, stiff. (Glacial Till)	14		
				39		MC=15.4%
				46		MC=14.9%
948.0	21.0		End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-04** LOCATION: See attached sketch. DATE: 5/4/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
968.0	0.0					
967.8	0.2	SP SM	**2 INCHES BITUMINOUS**. **FILL**, Poorly Graded Sand with Silt and Gravel, brown, moist.			
966.0	2.0	SC	**FILL**, Clayey Sand, fine-to-medium grained, trace Gravel, dark brown and black mixing, moist.	8		
964.0	4.0	SC SM	**FILL**, Silty Clayey Sand, fine-to-medium grained, dark brown and gray mixing, moist.	6		MC=23.3%
961.5	6.5	CL	**FILL**, Sandy Lean Clay, brown, wet.	9		
959.0	9.0	CL	**SANDY LEAN CLAY**, brown and black mixing, wet, rather stiff. (Possible Fill/B-Horizon)	10		MC=20.3%
956.5	11.5	SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense to dense. (Glacial Till)	13		
				33		MC=14.4%
				41		MC=15.1%
947.0	21.0		End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-05** LOCATION: See attached sketch. DATE: 5/4/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
974.0	0.0					
973.7	0.3		**3 INCHES BITUMINOUS**.			
972.7	1.3	SP SM	**FILL**, Poorly Graded Sand with Silt and Gravel, brown, moist.			
972.0	2.0	SM	**FILL**, Silty Sand, brown, moist.			
		CL	**FILL**, Sandy Lean Clay, fine-to-medium grained, trace Gravel, brown and dark brown mixing, moist.	7		
				10		MC=21.1%
967.5	6.5					
		SC	**FILL**, Clayey Sand, fine-to-medium grained, brown, moist.	18		
				11		MC=15.1%
962.5	11.5					
		SC	**CLAYEY SAND**, fine-to-medium grained, brown and dark brown mixing, moist, medium dense. (Possible Fill/B-Horizon)	25		
960.0	14.0					
		SC	**CLAYEY SAND**, fine-to-medium grained, brown, moist, dense. (Glacial Till)	40		MC=15.2%
			At 20 feet, gray.	48		MC=15.6%
953.0	21.0					
			End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-06** LOCATION: See attached sketch. DATE: 5/4/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
974.0	0.0					
973.7	0.3	SP	**3 INCHES BITUMINOUS**.			
972.7	1.3	SM	**FILL**, Poorly Graded Sand with Silt and Gravel, brown, moist.			
972.0	2.0	SM	**FILL**, Silty Sand, trace Concrete Debris, brown, moist.			
		CL	**FILL**, Sandy Lean Clay, fine-to-medium grained, trace Gravel, brown and dark brown mixing, wet.	8		
				10		MC=22.7%
967.5	6.5	SC SM	**SILTY CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense. (Possible Fill)	13		
				15		MC=14.8%
962.5	11.5	SM	**SILTY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense. (Possible Fill)	17		
			At 15 feet, trace Wood Chips, gray and black mixing.	28		MC=14.1%
956.0	18.0	SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, gray, moist, dense. (Glacial Till)			
				43		MC=16.4%
953.0	21.0		End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-07** LOCATION: See attached sketch. DATE: 5/4/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
972.0	0.0					
971.8	0.2		**2 INCHES BITUMINOUS**.			
971.3	0.7		**6 INCHES AGGREGATE BASE**.			
		SM	**FILL**, Silty Sand, dark brown, moist.			
970.0	2.0					
		CL	**FILL**, Sandy Lean Clay, brown and dark brown mixing, wet.	6		
				8		MC=20.0%
965.5	6.5					
		SC SM	**SILTY CLAYEY SAND**, fine-to-medium grained, brown, moist, medium dense. (Glacial Till)	13		
963.0	9.0					
		SC SM	**SILTY SAND**, fine-to-medium grained, brown, moist, medium dense to dense. (Glacial Till)	20		MC=14.2%
				37		
				48		MC=12.6%
954.0	18.0					
		SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, gray, moist, dense. (Glacial Till)	46		MC=13.6%
951.0	21.0					
			End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-08** LOCATION: See attached sketch. DATE: 5/4/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
963.0	0.0	OL	**TOPSOIL**, Slightly Organic Silty Sand, dark brown, moist.			
961.0	2.0	SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown and dark brown mottled, moist, loose. (B-Horizon)	5		
959.0	4.0	SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, loose to very dense. (Glacial Till)	10		MC=18.9%
				12		
				39		MC=14.9%
				55		
949.0	14.0	SP	**POORLY GRADED SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense. (Glacial Till)	23		MC=3.4%
				28		MC=3.3%
942.0	21.0		End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-09** LOCATION: See attached sketch. DATE: 5/4/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
967.0	0.0					
966.8	0.2		**2 INCHES BITUMINOUS**.			
966.6	0.4	SM	**3 INCHES AGGREGATE BASE**.			
			FILL, Silty Sand, brown, moist.			
965.0	2.0					
		SC SM	**FILL**, Silty Clayey Sand, fine-to-medium grained, trace Gravel, brown, moist.	10		
963.0	4.0					
			Below 5 feet, brown.	8		MC=14.2%
				17		
		SC	**FILL**, Clayey Sand, fine-to-medium grained, trace Gravel, brown, moist.	22		MC=14.9%
955.5	11.5					
		SC SM	**SILTY CLAYEY SAND**, fine-to-medium grained, trace Gravel, dark gray and brown mixing, moist, very dense. (Possible Fill)	*		* 50 blows over 2 inches (set).
				*		* 50 blows over 1 inch (set).
949.0	18.0					
		SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, gray, moist, very dense. (Glacial Till)	61		MC=13.4%
946.0	21.0					
			End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-10** LOCATION: See attached sketch. DATE: 5/5/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
966.0	0.0					
965.0	1.0	OL	**TOPSOIL**, Slightly Organic Silty Sand, trace Roots, dark brown, moist.			
		SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, dark brown, moist, loose. (B-Horizon)	6		
962.0	4.0					
		SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense. (Glacial Till)	13		MC=14.7%
959.5	6.5					
		SC SM	**SILTY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense to dense. (Glacial Till)	10		
				36		MC=14.1%
				50		
952.5	13.5					
		SP	**POORLY GRADED SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense. (Glacial Till)	19		MC=4.5%
951.1	14.9					
			End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-11** LOCATION: See attached sketch. DATE: 5/5/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
958.0	0.0	OL	**TOPSOIL**, Slightly Organic Silty Sand, trace Roots, dark brown, moist.			
957.0	1.0	SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, dark brown, moist, loose. (B-Horizon)	6		
954.0	4.0	SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense. (Glacial Till)	14		MC=15.9%
949.0	9.0			11		
944.5	13.5	SC SM	**SILTY CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, dense to very dense. (Glacial Till)	38		MC=14.9%
			At 12 feet, gray and brown mottled.	57		
943.1	14.9	SP SM	**POORLY GRADED SAND WITH SILT**, fine grained, brown, water-bearing, medium dense. (Glacial Outwash)	20		MC=19.1%
			End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-12** LOCATION: See attached sketch. DATE: 5/5/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
956.0	0.0	OL	**TOPSOIL**, Slightly Organic Silty Sand, trace Roots, dark brown, moist.			
954.0	2.0	CL	**SANDY LEAN CLAY**, trace Gravel, dark brown, moist, medium. (B-Horizon)	6		
				6		MC=20.4%
949.5	6.5	CL	**SANDY LEAN CLAY**, trace Gravel, brown, wet, rather stiff to very stiff. (Glacial Till)	11		
				28		MC=22.1%
944.5	11.5	SP	**POORLY GRADED SAND**, fine-to-medium grained, trace Gravel, brown, water-bearing, loose. (Glacial Outwash)		▽	
				8		
941.1	14.9		End Boring. Water was encountered at 12 feet during drilling. Boring was sealed upon completion.	9		MC=8.7%

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-13** LOCATION: See attached sketch. DATE: 5/5/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
959.0	0.0	OL	**TOPSOIL**, Slightly Organic Silty Sand, trace Roots, dark brown, moist.			
957.0	2.0	SC	**FILL**, Clayey Sand, fine-to-medium grained, trace Gravel, dark brown and gray mixing, moist.	5		
955.0	4.0	SC	**CLAYEY SAND**, fine-to-medium grained, trace Roots, dark brown, moist, loose. (B-Horizon)	7		MC=18.5%
952.5	6.5	CL	**SANDY LEAN CLAY**, trace Gravel, brown, wet, rather stiff. (Glacial Till)	10		
950.0	9.0	SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense. (Glacial Till)	18		MC=16.7%
947.5	11.5	CL	**LEAN CLAY WITH SAND**, trace Gravel, gray and brown mottled, wet, rather stiff. (Glacial Till)	9	▽	
945.5	13.5	SP SM	**POORLY GRADED SAND WITH SILT**, fine-to-medium grained, brown, water-bearing, loose. (Glacial Outwash)	9		MC=16.2%
944.1	14.9		End Boring. Water was encountered at 12 feet during drilling. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-14** LOCATION: See attached sketch. DATE: 5/5/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
968.0	0.0					
967.7	0.3		**4 INCHES BITUMINOUS**.			
967.3	0.7	SP	**FILL**, Poorly Graded Sand with Silt, dark brown,			
967.0	1.0	SM	moist.			
		CL	**4 INCHES AGGREGATE BASE**.			
			SANDY LEAN CLAY, dark brown, wet, medium. (Possible Fill/B-Horizon)	6		
				8		MC=20.6%
961.5	6.5	SC	**CLAYEY SAND**, fine-to-medium grained, brown, moist, medium dense. (Glacial Till)	10		
				12		MC=18.7%
956.5	11.5	SM	**SILTY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense. (Glacial Till)	11		
				16		MC=17.1%
953.1	14.9		End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-15** LOCATION: See attached sketch. DATE: 5/5/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
969.0	0.0					
968.7	0.3		**3 INCHES BITUMINOUS**.			
968.1	0.9	SP SM	**FILL**, Poorly Graded Sand with Silt and Gravel, dark brown, moist.			
		SC	**FILL**, Clayey Sand, fine-to-medium grained, trace Gravel, brown and dark brown mixing, moist.	9		MC=15.0%
965.0	4.0	SC SM	**SILTY CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense. (Glacial Till)	10		MC=14.2%
				15		MC=13.4%
				13		
957.5	11.5	SM	**SILTY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense. (Glacial Till)	16		
955.5	13.5	SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense. (Glacial Till)	24		
954.1	14.9		End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-16** LOCATION: See attached sketch. DATE: 5/5/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
964.0	0.0					
963.7	0.3		**4 INCHES BITUMINOUS**.			
		SP SM	**FILL**, Poorly Graded Sand with Silt and Gravel, dark brown, moist.			
962.7	1.3					
962.0	2.0	SM	**FILL**, Silty Sand, dark brown, moist.		▽	
		CL	**FILL**, Sandy Lean Clay, trace Gravel, dark brown, wet.	8		
				8		MC=20.6%
			At 7 feet, gray and black mixing.	9		
955.0	9.0					
		SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, gray, moist, loose. (Glacial Till)	10		MC=16.6%
				9		
950.5	13.5					
		SC SM	**SILTY CLAYEY SAND**, fine-to-medium grained, trace Gravel, gray, moist, loose. (Glacial Till)	9		MC=14.9%
949.1	14.9					
			End Boring. Water was encountered at 2 feet during drilling. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-17** LOCATION: See attached sketch. DATE: 5/5/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
964.0	0.0					
963.7	0.3		**3 INCHES BITUMINOUS**.			
963.5	0.5	SC	**3 INCHES AGGREGATE BASE**.			
			FILL, Clayey Sand, fine-to-medium grained, trace Gravel, brown and dark brown mixing, moist.	7		
				15		MC=15.7%
			At 7 feet, dark gray and black mixing.	17		
955.0	9.0					
		SC SM	**SILTY CLAYEY SAND**, fine-to-medium grained, brown and gray mottled, moist. (Glacial Till)	14		MC=13.3%
				15		
				20		MC=14.3%
949.1	14.9					
			End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-18** LOCATION: See attached sketch. DATE: 5/4/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
963.0	0.0					
962.7	0.3		**3 INCHES BITUMINOUS**.			
962.5	0.5	SC	**3 INCHES AGGREGATE BASE**.			
			CLAYEY SAND, fine-to-medium grained, trace Gravel, dark brown, moist, loose. (Possible Fill/B-Horizon)	7		
				6		MC=18.5%
956.5	6.5					
		SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense. (Glacial Till)	16		
			Below 10 feet, Seams of Silty Sand.	16		MC=14.2%
				21		
949.5	13.5					
		SC SM	**SILTY CLAYEY SAND**, fine-to-medium grained, brown, moist, medium dense. (Glacial Till)	19		MC=13.8%
948.1	14.9					
			End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-19** LOCATION: See attached sketch. DATE: 5/4/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
966.0	0.0					
965.7	0.3		**3 INCHES BITUMINOUS**.			
965.2	0.8		**6 INCHES AGGREGATE BASE**.			
		SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, dark brown, moist, loose. (Possible Fill/B-Horizon)	6		
				7		MC=18.6%
959.5	6.5					
		SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, medium dense. (Glacial Till)	15		
			Below 10 feet, Seams of Silty Sand.	11		MC=10.4%
				18		
952.5	13.5					
		SC SM	**SILTY CLAYEY SAND**, fine-to-medium grained, brown, moist, medium dense. (Glacial Till)	16		MC=15.7%
951.1	14.9					
			End Boring. Water was not observed. Boring was sealed upon completion.			

CVT STANDARD 27718.26.MNT (GEM LAKE, APPLE FORD).GPJ LOG A GNNN06.GDT 5/28/26

LOG OF BORING

CHOSEN VALLEY TESTING CVT

PROJECT: 27718.26.MNT Design Phase Geotechnical Evaluation Apple Ford 1493 County Road E East Gem Lake, Minnesota	BORING: **B-20** LOCATION: See attached sketch. DATE: 5/4/2026 SCALE: 1" = 3'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
969.0	0.0					
968.7	0.3		**3 INCHES BITUMINOUS**.			
968.2	0.8	SP SM	**FILL**, Poorly Graded Sand with Silt and Gravel, brown, moist.			
		CL	**FILL**, Sandy Lean Clay, dark gray, wet.	6		
			At 5 feet, brown and gray mixing.	8		MC=20.9%
962.5	6.5	CL	**FILL**, Sandy Lean Clay, brown and dark brown mixing, wet.	11		
960.0	9.0	SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, dark brown, moist, medium dense. (Possible Fill/B-Horizon)	16		MC=15.9%
957.5	11.5	SC SM	**SILTY CLAYEY SAND**, fine-to-medium grained, trace Gravel, dark brown, moist, medium dense. (Possible Fill/B-Horizon)	20		
955.0	14.0	SC SM	**SILTY CLAYEY SAND**, fine-to-medium grained, trace Gravel, brown, moist, dense. (Glacial Till)	38		MC=13.9%
951.0	18.0	SC	**CLAYEY SAND**, fine-to-medium grained, trace Gravel, dark gray, moist, very dense. (Glacial Till)	55		MC=13.0%
948.0	21.0		End Boring. Water was not observed. Boring was sealed upon completion.			

UNIFIED SOIL CLASSIFICATION (ASTM D-2487/2488)

MATERIAL TYPES	CRITERIA FOR ASSIGNING SOIL GROUP NAMES			GROUP SYMBOL	SOIL GROUP NAMES & LEGEND
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE	GRAVELS >50% OF COARSE FRACTION RETAINED ON NO 4. SIEVE	CLEAN GRAVELS <5% FINES	Cu>4 AND 1<Cc<3	GW	WELL-GRADED GRAVEL
			Cu>4 AND 1>Cc>3	GP	POORLY-GRADED GRAVEL
		GRAVELS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR CL	GM	SILTY GRAVEL
			FINES CLASSIFY AS CL OR CH	GC	CLAYEY GRAVEL
	SANDS >50% OF COARSE FRACTION PASSES ON NO 4. SIEVE	CLEAN SANDS <5% FINES	Cu>6 AND 1<Cc<3	SW	WELL-GRADED SAND
			Cu>6 AND 1>Cc>3	SP	POORLY-GRADED SAND
		SANDS AND FINES >12% FINES	FINES CLASSIFY AS ML OR CL	SM	SILTY SAND
			FINES CLASSIFY AS CL OR CH	SC	CLAYEY SAND
FINE-GRAINED SOILS >50% PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT<50	INORGANIC	PI>7 AND PLOTS>"A" LINE	CL	LEAN CLAY
			PI>4 AND PLOTS<"A" LINE	ML	SILT
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OL	ORGANIC CLAY OR SILT
	SILTS AND CLAYS LIQUID LIMIT>50	INORGANIC	PI PLOTS >"A" LINE	CH	FAT CLAY
			PI PLOTS <"A" LINE	MH	ELASTIC SILT
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OH	ORGANIC CLAY OR SILT
HIGHLY ORGANIC SOILS		PRIMARILY ORGANIC MATTER, DARK IN COLOR, AND ORGANIC ODOR		PT	PEAT

Relative Proportions of Sand and Gravel

TERM	PERCENT
Trace	< 15
With	15 - 29
Modifier	> 30

Relative Proportions of Fines

TERM	PERCENT
Trace	< 5
With	5 - 12
Modifier	> 12

Grain Size Terminology

TERM	SIZE
Boulder	> 12 in.
Cobble	3 in. - 12 in.
Gravel	#4 sieve to 3 in.
Sand	#200 sieve to #4 sieve
Silt or Clay	Passing #200 sieve

SAMPLE TYPES

Hollow Stem

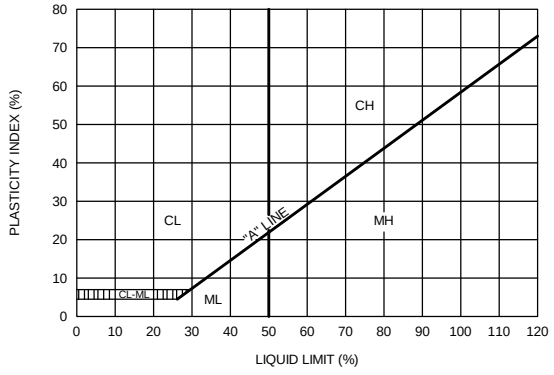
Standard Penetration Test

TEST SYMBOLS

MC	-	MOISTURE CONTENT	LL	-	LIQUID LIMIT
OC	-	ORGANIC CONTENT	PI	-	PLASTISITY INDEX
CN	-	CONSOLIDATION	SW	-	SWELL TEST
DD	-	DRY DENSITY	UU		Unconsolidated Undrained triaxial
PP	-	POCKET PENETROMETER			
RV	-	R-VALUE			
SA	-	SIEVE ANALYSIS			
P200	-	% PASSING #200 SIEVE			

- WATER LEVEL (WITH TIME OF) MEASUREMENT

PLASTICITY CHART



PENETRATION RESISTANCE
(RECORDED AS BLOWS / 0.5 FT)

SAND & GRAVEL		SILT & CLAY		
RELATIVE DENSITY	BLOWS/FOOT*	CONSISTENCY	BLOWS/FOOT*	COMPRESSIVE STRENGTH (TSF)
VERY LOOSE	0 - 4	VERY SOFT	0 - 1	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 3	0.25 - 0.50
MEDIUM DENSE	10 - 30	RATHER SOFT	4 - 5	0.50 - 1.0
DENSE	30 - 50	MEDIUM	6 - 8	
VERY DENSE	OVER 50	RATHER STIFF	9 - 12	1.0 - 2.0
		STIFF	13 - 16	
		VERY STIFF	17 - 30	2.0 - 4.0
		HARD	OVER 30	OVER 4.0

* NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTM-1586 STANDARD PENETRATION TEST).

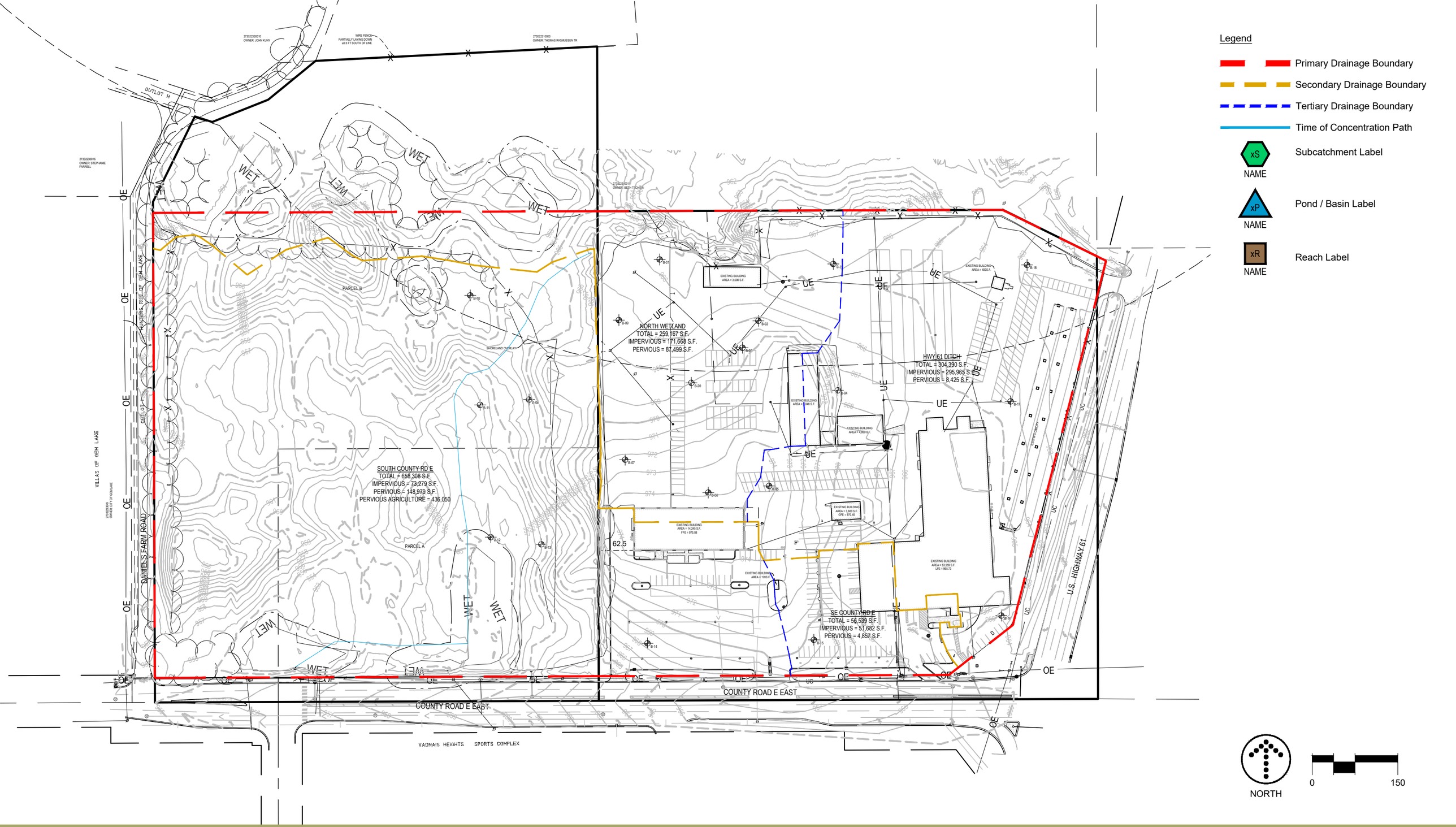
Chosen Valley Testing

Job No. 27718.26.MNT

LEGEND TO SOIL DESCRIPTIONS

CVT

APPENDIX B: EXISTING DRAINAGE MAP & HYDROCAD MODEL



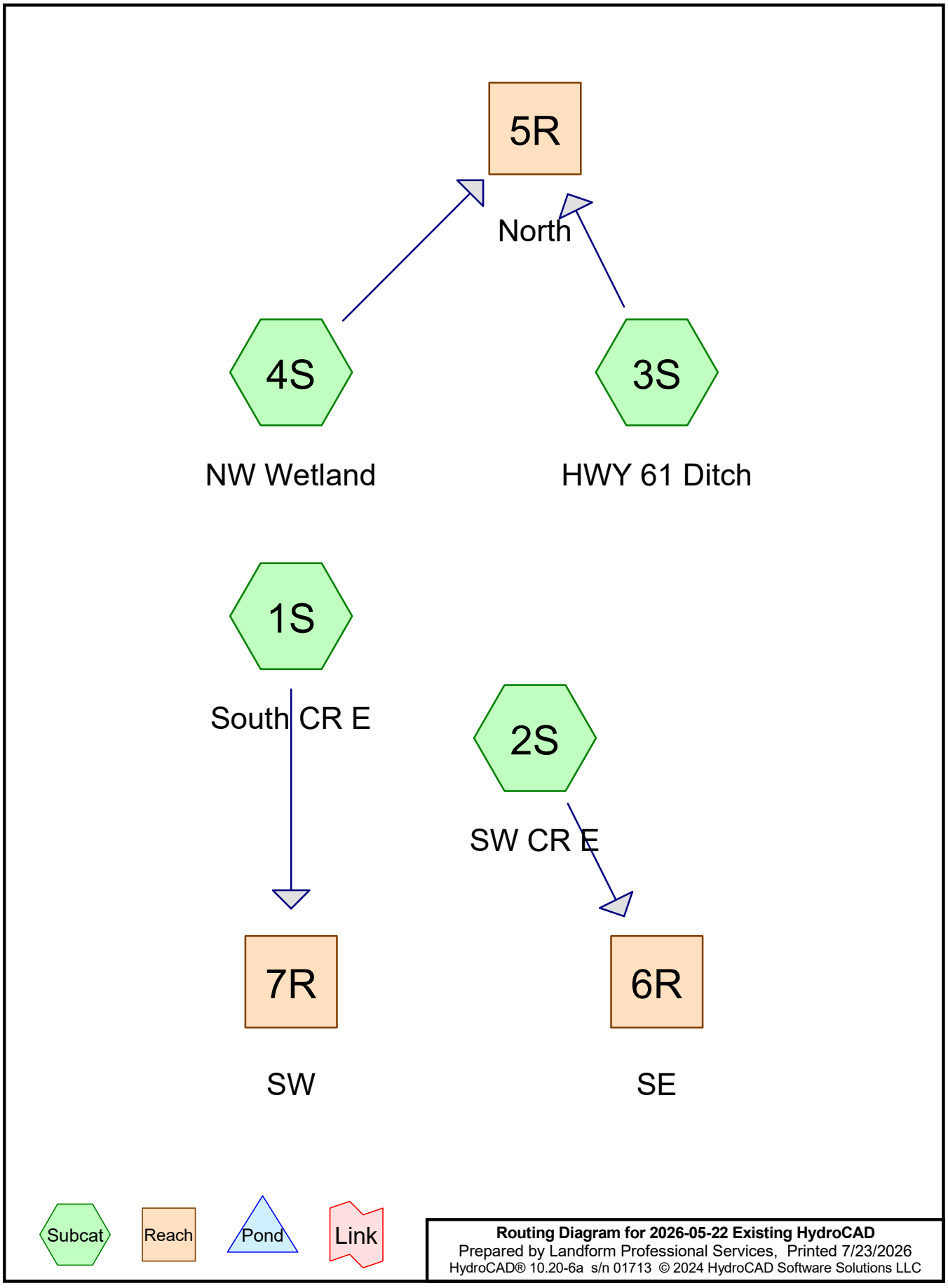
Existing Drainage Map

APPLE FORD • Gem Lake, MN

• 07.24.2026

LANDFORM
From Site to Finish

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Routing Diagram for 2026-05-22 Existing HydroCAD
Prepared by Landform Professional Services, Printed 7/23/2026
HydroCAD® 10.20-6a s/n 01713 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-year	MSE 24-hr	3	Default	24.00	1	2.79	2
2	10-year	MSE 24-hr	3	Default	24.00	1	4.17	2
3	100-year	MSE 24-hr	3	Default	24.00	1	7.30	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.734	80	>75% Grass cover, Good, HSG D (1S, 2S, 3S, 4S)
11.922	98	Paved parking, HSG D (2S, 3S, 4S)
10.010	89	Row crops, straight row, Good, HSG D (1S)
1.682	98	Water Surface, HSG D (1S)
29.348	**91**	**TOTAL AREA**

Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: South CR E Runoff Area=658,308 sf 11.13% Impervious Runoff Depth=1.63"
Flow Length=1,112' Tc=29.5 min CN=88 Runoff=22.39 cfs 2.056 af

Subcatchment 2S: SW CR E Runoff Area=56,539 sf 91.41% Impervious Runoff Depth=2.35"
Tc=5.0 min CN=96 Runoff=5.35 cfs 0.254 af

Subcatchment 3S: HWY 61 Ditch Runoff Area=304,390 sf 97.23% Impervious Runoff Depth=2.56"
Tc=5.0 min CN=98 Runoff=29.89 cfs 1.490 af

Subcatchment 4S: NW Wetland Runoff Area=259,167 sf 66.24% Impervious Runoff Depth=1.96"
Tc=5.0 min CN=92 Runoff=21.80 cfs 0.973 af

Reach 5R: North Inflow=51.68 cfs 2.464 af
Outflow=51.68 cfs 2.464 af

Reach 6R: SE Inflow=5.35 cfs 0.254 af
Outflow=5.35 cfs 0.254 af

Reach 7R: SW Inflow=22.39 cfs 2.056 af
Outflow=22.39 cfs 2.056 af

Total Runoff Area = 29.348 ac Runoff Volume = 4.774 af Average Runoff Depth = 1.95"
53.65% Pervious = 15.744 ac 46.35% Impervious = 13.604 ac

Summary for Subcatchment 1S: South CR E

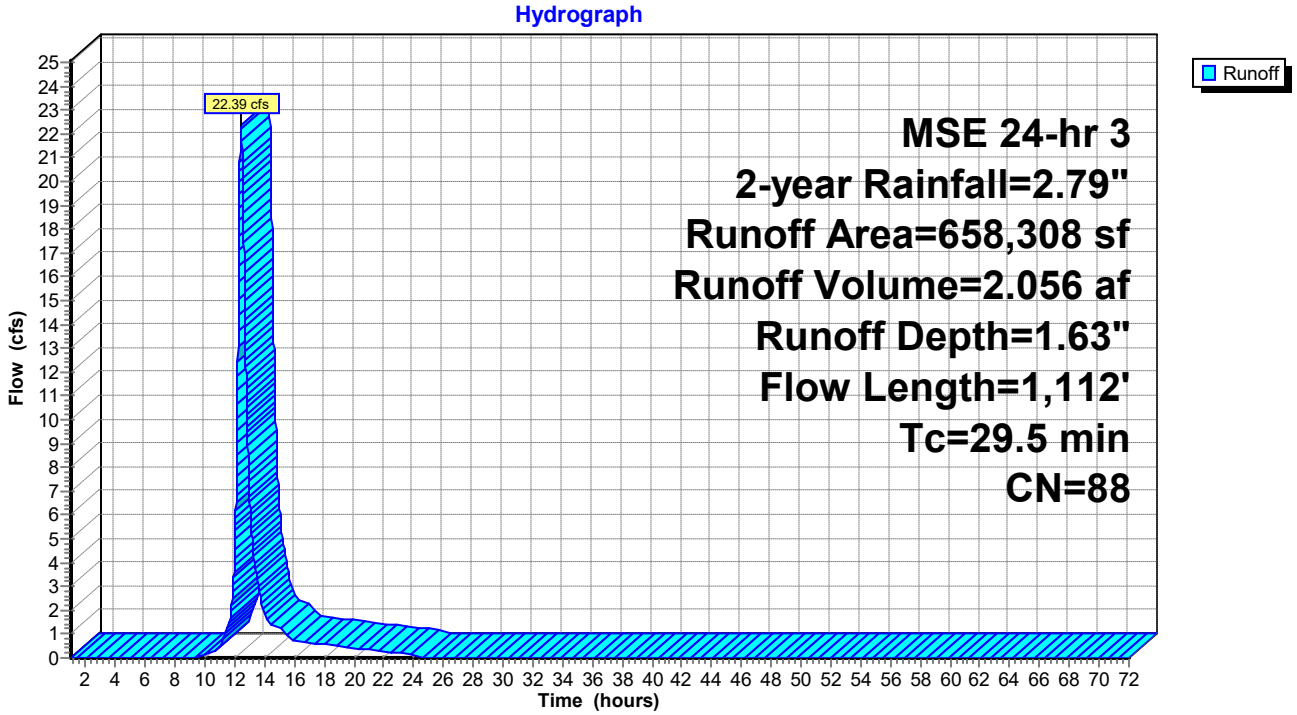
Runoff = 22.39 cfs @ 12.42 hrs, Volume= 2.056 af, Depth= 1.63"
Routed to Reach 7R : SW

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-year Rainfall=2.79"

Area (sf)	CN	Description
73,279	98	Water Surface, HSG D
436,050	89	Row crops, straight row, Good, HSG D
148,979	80	>75% Grass cover, Good, HSG D
658,308	88	Weighted Average
585,029		88.87% Pervious Area
73,279		11.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	358	0.0279	1.50		**Shallow Concentrated Flow, NE Steep** Cultivated Straight Rows Kv= 9.0 fps
25.5	754	0.0030	0.49		**Shallow Concentrated Flow, South Flat** Cultivated Straight Rows Kv= 9.0 fps
29.5	1,112	Total			

Subcatchment 1S: South CR E



Summary for Subcatchment 2S: SW CR E

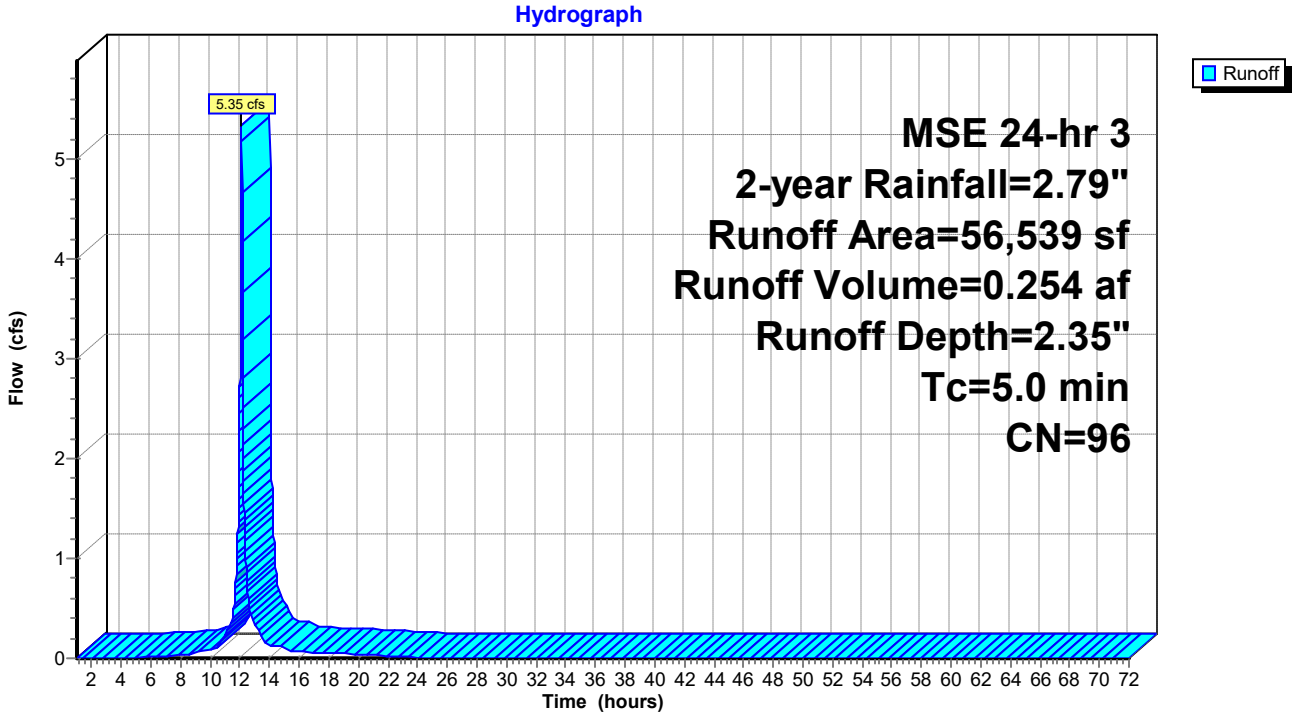
Runoff = 5.35 cfs @ 12.12 hrs, Volume= 0.254 af, Depth= 2.35"
Routed to Reach 6R : SE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-year Rainfall=2.79"

Area (sf)	CN	Description
51,682	98	Paved parking, HSG D
4,857	80	>75% Grass cover, Good, HSG D
56,539	96	Weighted Average
4,857		8.59% Pervious Area
51,682		91.41% Impervious Area

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

Subcatchment 2S: SW CR E



Summary for Subcatchment 3S: HWY 61 Ditch

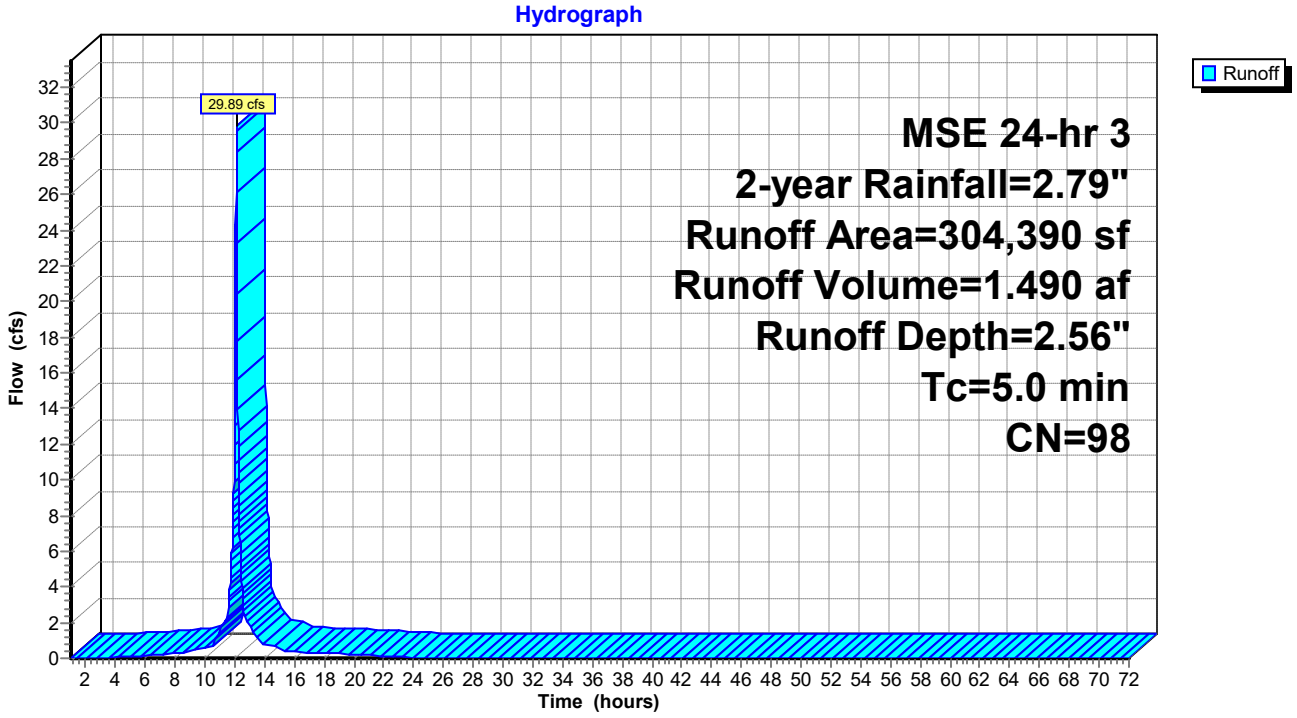
Runoff = 29.89 cfs @ 12.12 hrs, Volume= 1.490 af, Depth= 2.56"
Routed to Reach 5R : North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-year Rainfall=2.79"

Area (sf)	CN	Description
295,965	98	Paved parking, HSG D
8,425	80	>75% Grass cover, Good, HSG D
304,390	98	Weighted Average
8,425		2.77% Pervious Area
295,965		97.23% Impervious Area

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

Subcatchment 3S: HWY 61 Ditch



Summary for Subcatchment 4S: NW Wetland

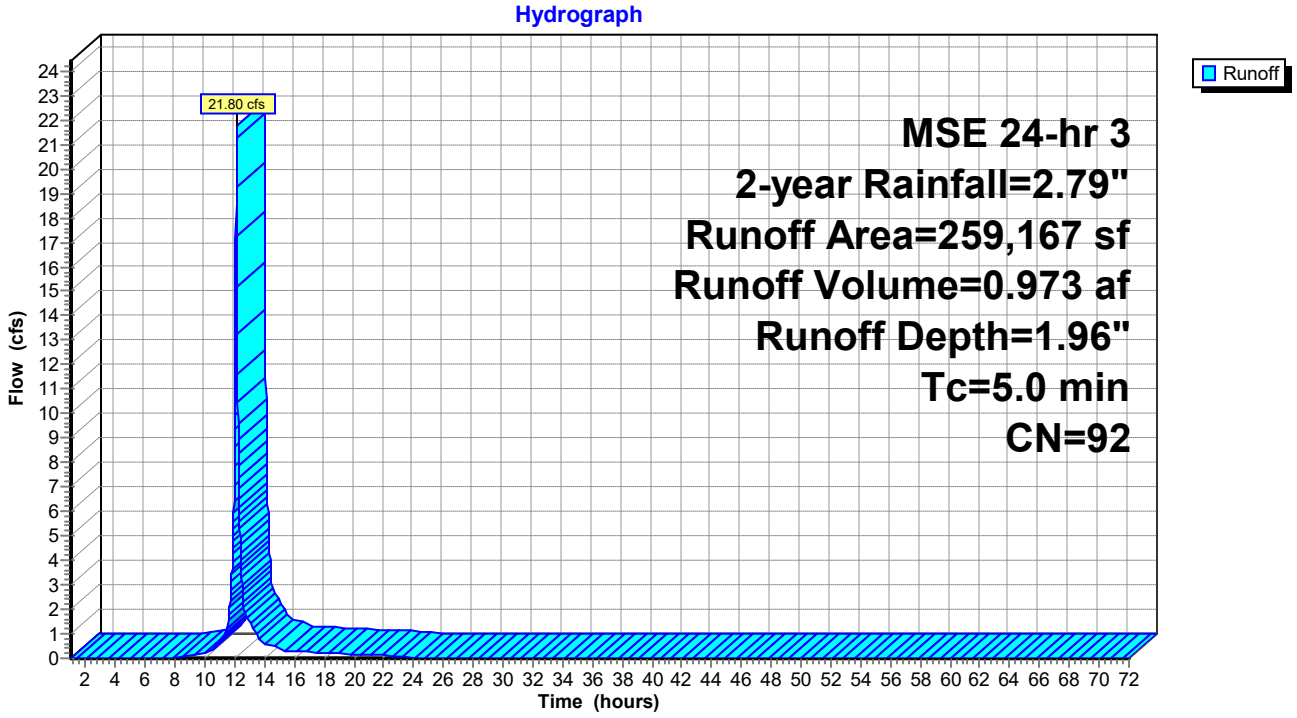
Runoff = 21.80 cfs @ 12.12 hrs, Volume= 0.973 af, Depth= 1.96"
Routed to Reach 5R : North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-year Rainfall=2.79"

Area (sf)	CN	Description
171,668	98	Paved parking, HSG D
87,499	80	>75% Grass cover, Good, HSG D
259,167	92	Weighted Average
87,499		33.76% Pervious Area
171,668		66.24% Impervious Area

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

Subcatchment 4S: NW Wetland

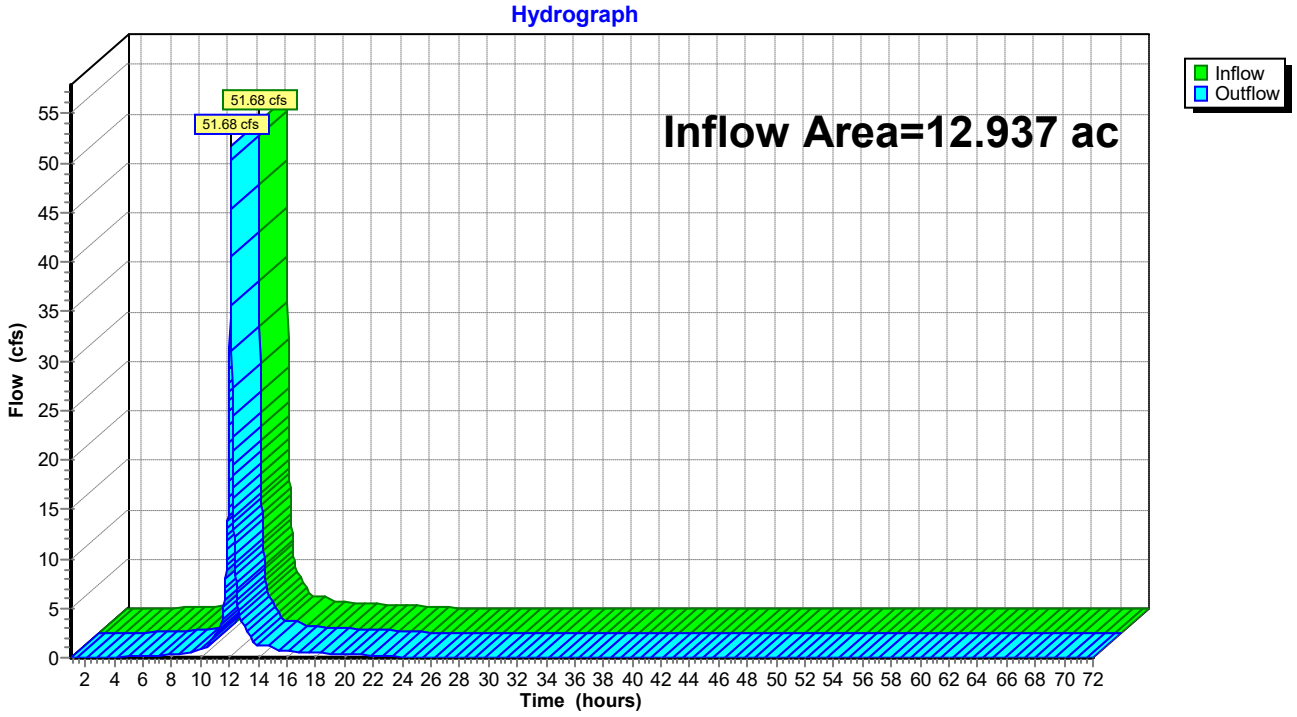


Summary for Reach 5R: North

Inflow Area = 12.937 ac, 82.98% Impervious, Inflow Depth = 2.29" for 2-year event
Inflow = 51.68 cfs @ 12.12 hrs, Volume= 2.464 af
Outflow = 51.68 cfs @ 12.12 hrs, Volume= 2.464 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 8R

Routing by Stor-Ind+Trans method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Reach 5R: North

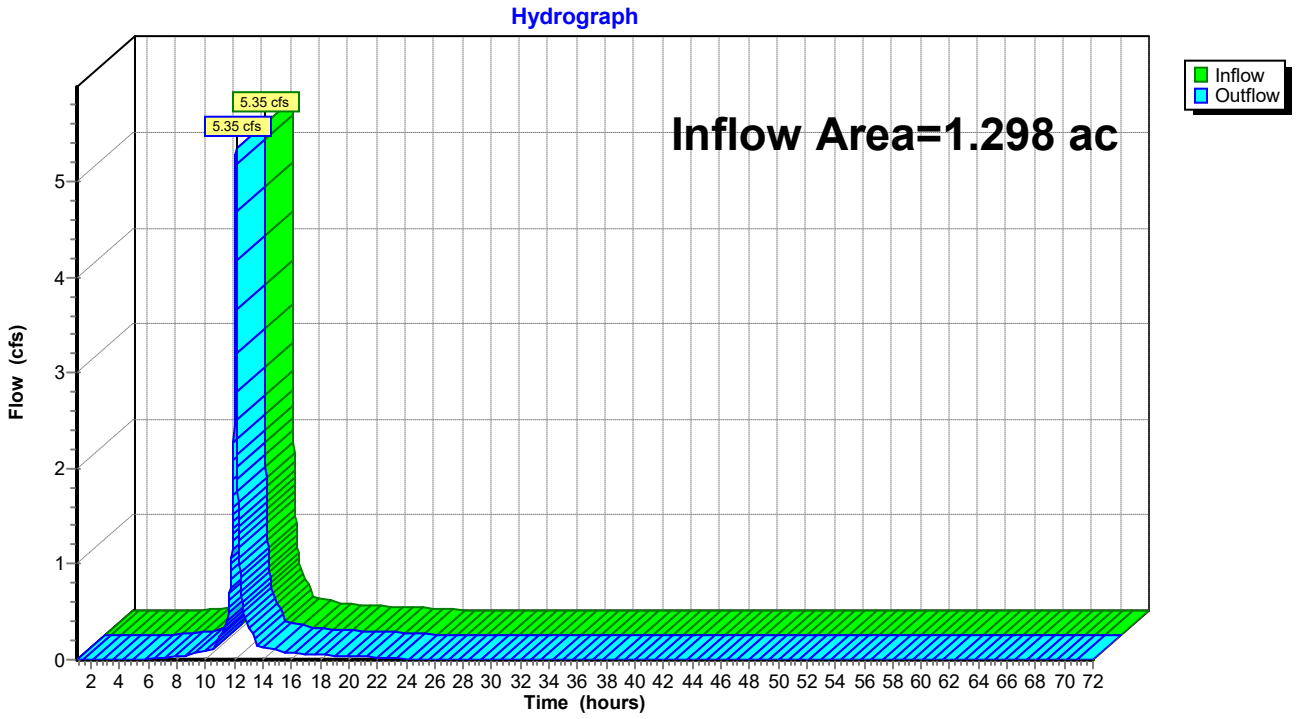


Summary for Reach 6R: SE

Inflow Area = 1.298 ac, 91.41% Impervious, Inflow Depth = 2.35" for 2-year event
Inflow = 5.35 cfs @ 12.12 hrs, Volume= 0.254 af
Outflow = 5.35 cfs @ 12.12 hrs, Volume= 0.254 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 8R

Routing by Stor-Ind+Trans method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Reach 6R: SE

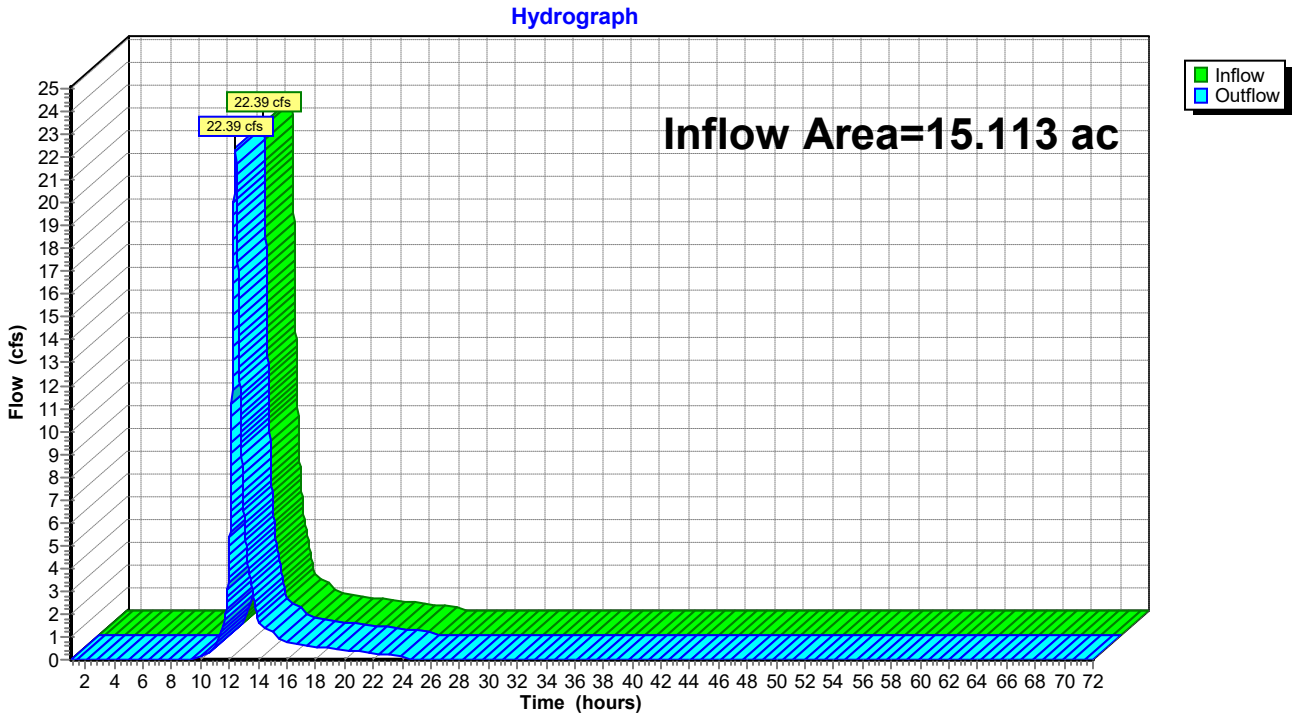


Summary for Reach 7R: SW

Inflow Area = 15.113 ac, 11.13% Impervious, Inflow Depth = 1.63" for 2-year event
Inflow = 22.39 cfs @ 12.42 hrs, Volume= 2.056 af
Outflow = 22.39 cfs @ 12.42 hrs, Volume= 2.056 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 8R

Routing by Stor-Ind+Trans method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Reach 7R: SW



Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: South CR E Runoff Area=658,308 sf 11.13% Impervious Runoff Depth=2.89"
Flow Length=1,112' Tc=29.5 min CN=88 Runoff=39.18 cfs 3.636 af

Subcatchment 2S: SW CR E Runoff Area=56,539 sf 91.41% Impervious Runoff Depth=3.71"
Tc=5.0 min CN=96 Runoff=8.20 cfs 0.401 af

Subcatchment 3S: HWY 61 Ditch Runoff Area=304,390 sf 97.23% Impervious Runoff Depth=3.93"
Tc=5.0 min CN=98 Runoff=45.04 cfs 2.291 af

Subcatchment 4S: NW Wetland Runoff Area=259,167 sf 66.24% Impervious Runoff Depth=3.28"
Tc=5.0 min CN=92 Runoff=35.24 cfs 1.627 af

Reach 5R: North Inflow=80.27 cfs 3.918 af
Outflow=80.27 cfs 3.918 af

Reach 6R: SE Inflow=8.20 cfs 0.401 af
Outflow=8.20 cfs 0.401 af

Reach 7R: SW Inflow=39.18 cfs 3.636 af
Outflow=39.18 cfs 3.636 af

Total Runoff Area = 29.348 ac Runoff Volume = 7.956 af Average Runoff Depth = 3.25"
53.65% Pervious = 15.744 ac 46.35% Impervious = 13.604 ac

Summary for Subcatchment 1S: South CR E

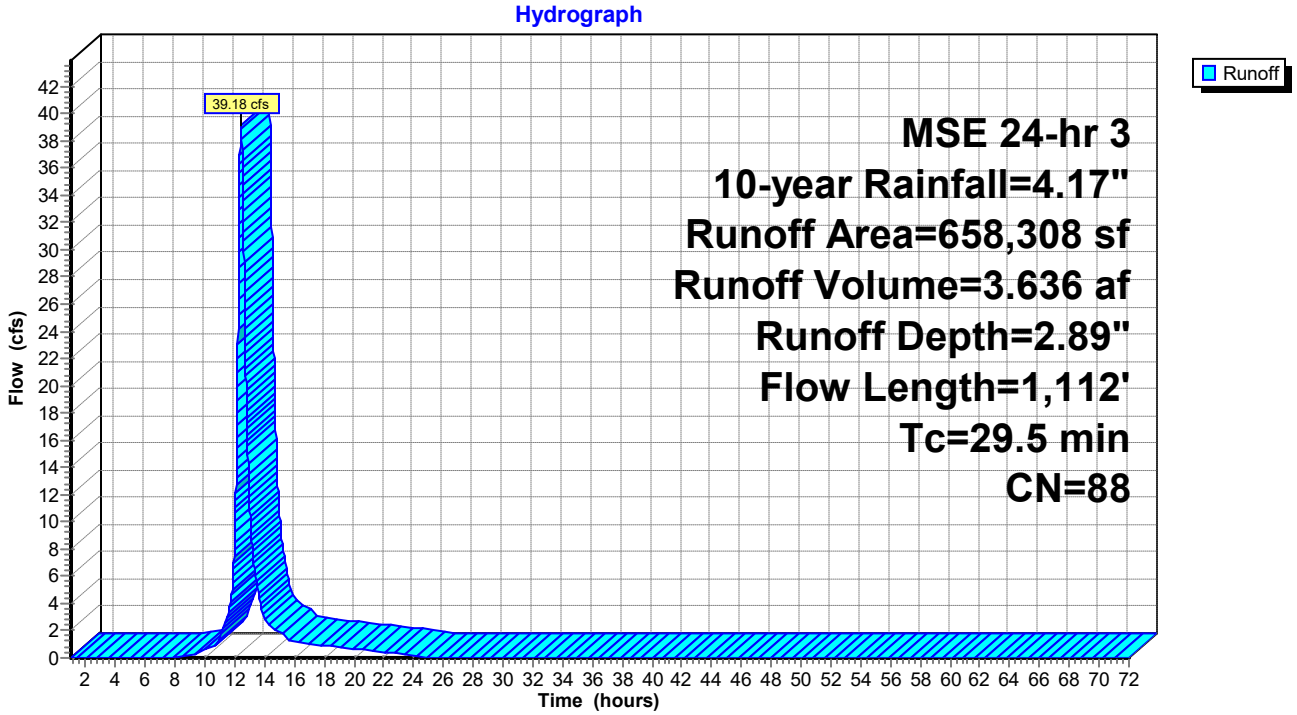
Runoff = 39.18 cfs @ 12.42 hrs, Volume= 3.636 af, Depth= 2.89"
Routed to Reach 7R : SW

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-year Rainfall=4.17"

Area (sf)	CN	Description
73,279	98	Water Surface, HSG D
436,050	89	Row crops, straight row, Good, HSG D
148,979	80	>75% Grass cover, Good, HSG D
658,308	88	Weighted Average
585,029		88.87% Pervious Area
73,279		11.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	358	0.0279	1.50		**Shallow Concentrated Flow, NE Steep** Cultivated Straight Rows Kv= 9.0 fps
25.5	754	0.0030	0.49		**Shallow Concentrated Flow, South Flat** Cultivated Straight Rows Kv= 9.0 fps
29.5	1,112	Total			

Subcatchment 1S: South CR E



Summary for Subcatchment 2S: SW CR E

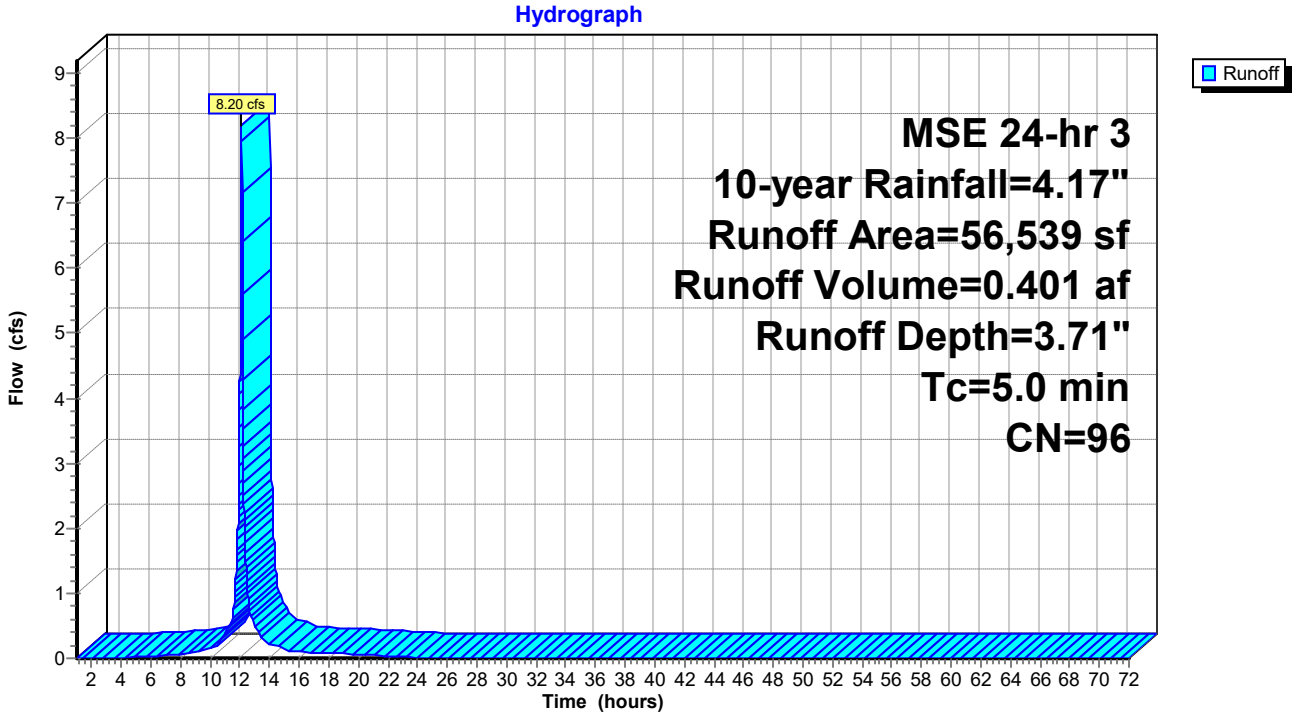
Runoff = 8.20 cfs @ 12.12 hrs, Volume= 0.401 af, Depth= 3.71"
Routed to Reach 6R : SE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-year Rainfall=4.17"

Area (sf)	CN	Description
51,682	98	Paved parking, HSG D
4,857	80	>75% Grass cover, Good, HSG D
56,539	96	Weighted Average
4,857		8.59% Pervious Area
51,682		91.41% Impervious Area

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

Subcatchment 2S: SW CR E



Summary for Subcatchment 3S: HWY 61 Ditch

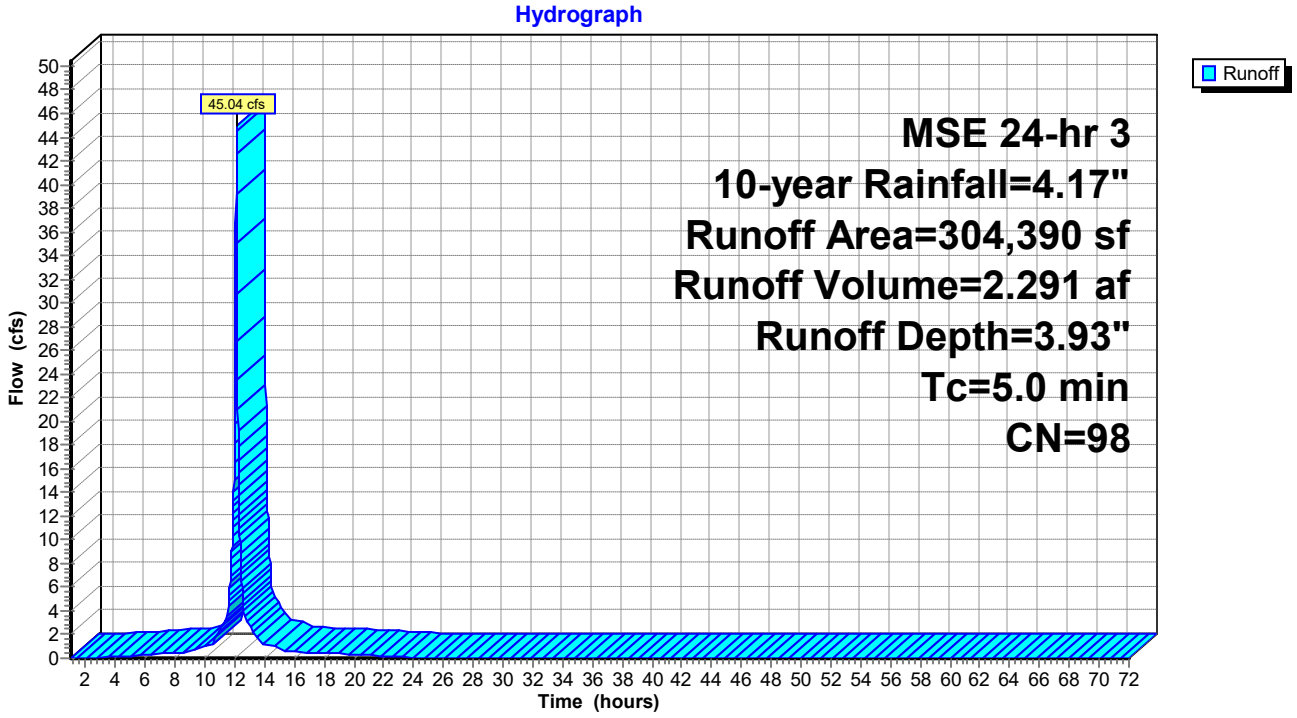
Runoff = 45.04 cfs @ 12.12 hrs, Volume= 2.291 af, Depth= 3.93"
Routed to Reach 5R : North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-year Rainfall=4.17"

Area (sf)	CN	Description
295,965	98	Paved parking, HSG D
8,425	80	>75% Grass cover, Good, HSG D
304,390	98	Weighted Average
8,425		2.77% Pervious Area
295,965		97.23% Impervious Area

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

Subcatchment 3S: HWY 61 Ditch



Summary for Subcatchment 4S: NW Wetland

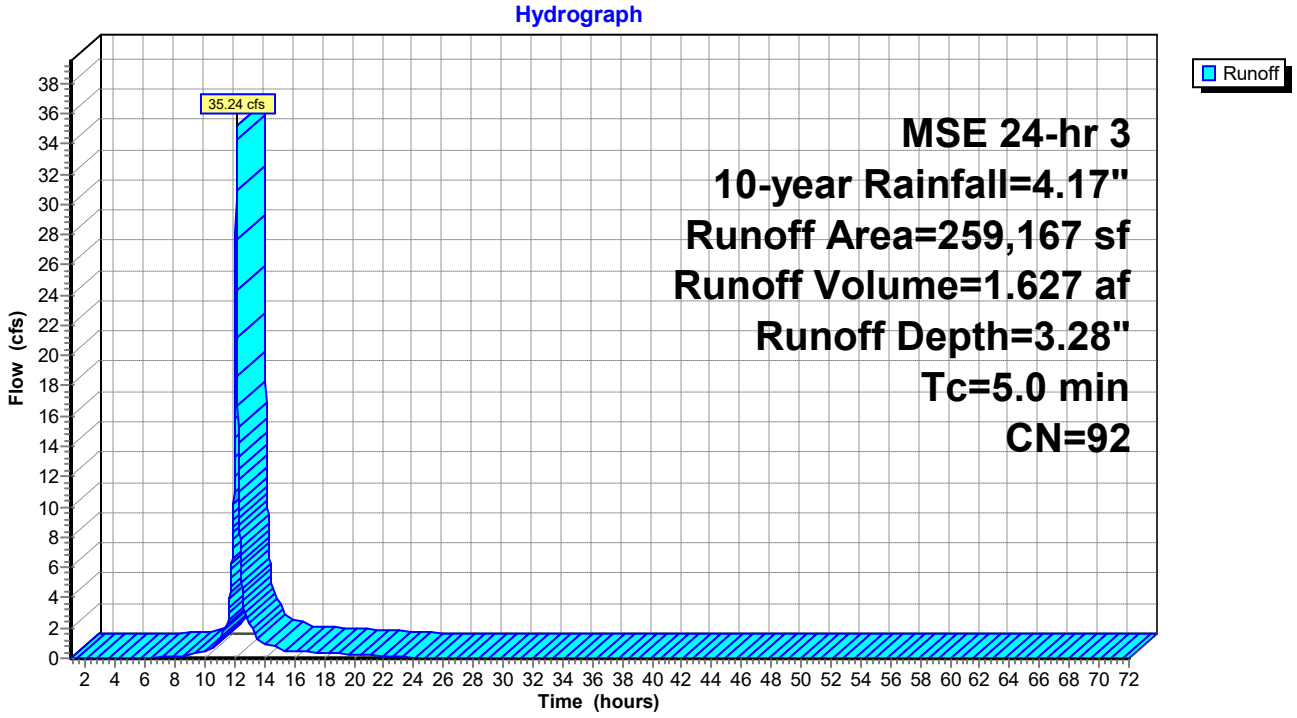
Runoff = 35.24 cfs @ 12.12 hrs, Volume= 1.627 af, Depth= 3.28"
Routed to Reach 5R : North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-year Rainfall=4.17"

Area (sf)	CN	Description
171,668	98	Paved parking, HSG D
87,499	80	>75% Grass cover, Good, HSG D
259,167	92	Weighted Average
87,499		33.76% Pervious Area
171,668		66.24% Impervious Area

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

Subcatchment 4S: NW Wetland

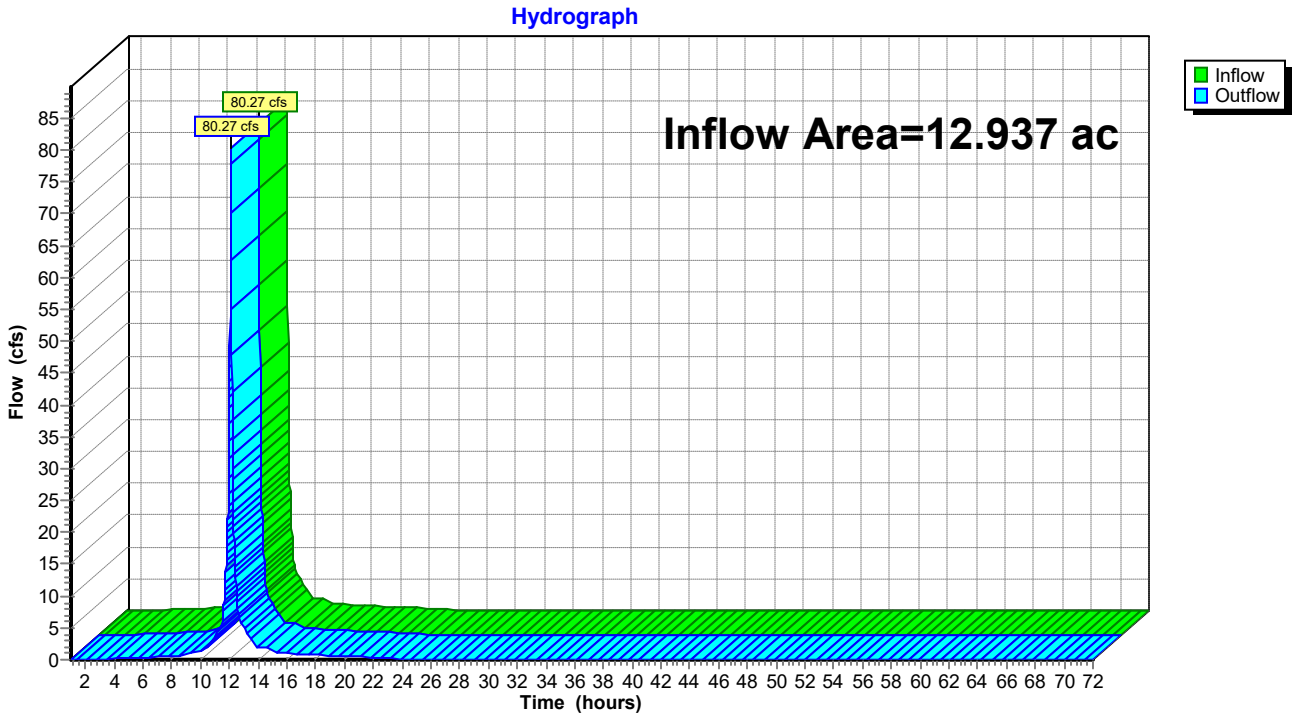


Summary for Reach 5R: North

Inflow Area = 12.937 ac, 82.98% Impervious, Inflow Depth = 3.63" for 10-year event
Inflow = 80.27 cfs @ 12.12 hrs, Volume= 3.918 af
Outflow = 80.27 cfs @ 12.12 hrs, Volume= 3.918 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 8R

Routing by Stor-Ind+Trans method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Reach 5R: North

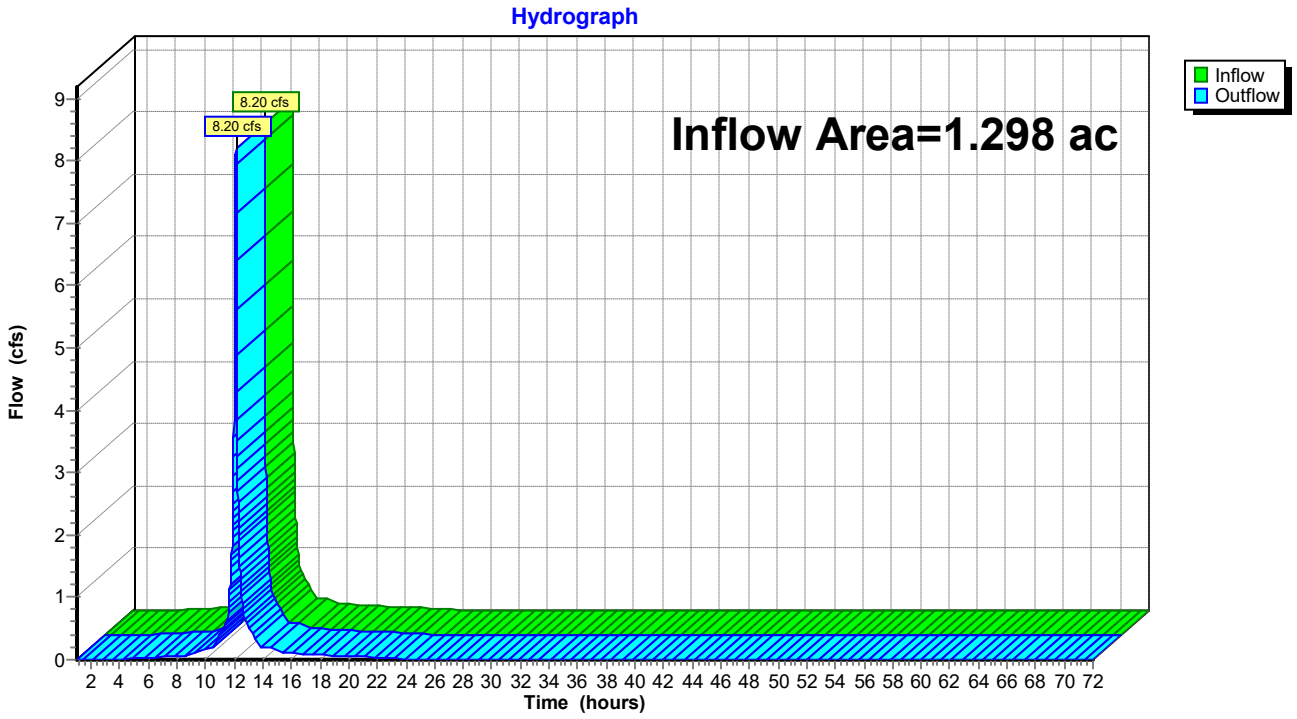


Summary for Reach 6R: SE

Inflow Area = 1.298 ac, 91.41% Impervious, Inflow Depth = 3.71" for 10-year event
Inflow = 8.20 cfs @ 12.12 hrs, Volume= 0.401 af
Outflow = 8.20 cfs @ 12.12 hrs, Volume= 0.401 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 8R

Routing by Stor-Ind+Trans method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Reach 6R: SE

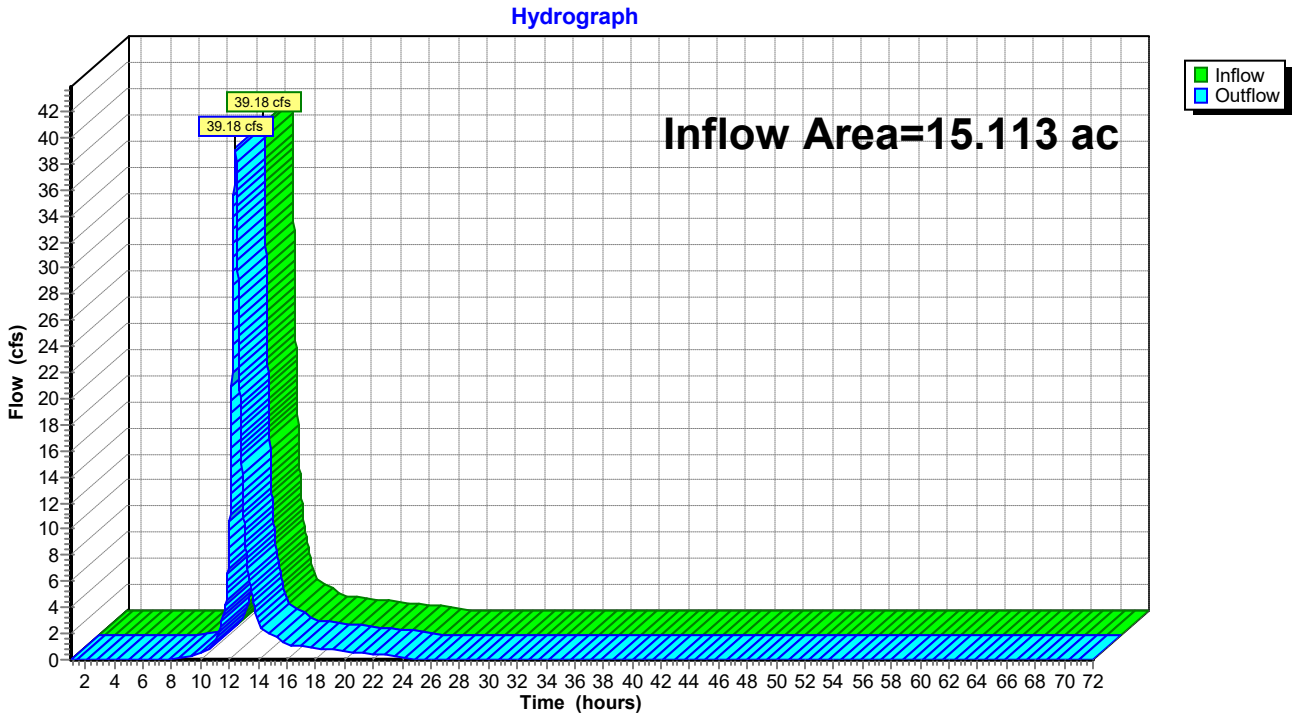


Summary for Reach 7R: SW

Inflow Area = 15.113 ac, 11.13% Impervious, Inflow Depth = 2.89" for 10-year event
Inflow = 39.18 cfs @ 12.42 hrs, Volume= 3.636 af
Outflow = 39.18 cfs @ 12.42 hrs, Volume= 3.636 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 8R

Routing by Stor-Ind+Trans method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Reach 7R: SW



Time span=1.00-72.00 hrs, dt=0.01 hrs, 7101 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: South CR E Runoff Area=658,308 sf 11.13% Impervious Runoff Depth=5.89"
Flow Length=1,112' Tc=29.5 min CN=88 Runoff=77.55 cfs 7.412 af

Subcatchment 2S: SW CR E Runoff Area=56,539 sf 91.41% Impervious Runoff Depth=6.82"
Tc=5.0 min CN=96 Runoff=14.61 cfs 0.738 af

Subcatchment 3S: HWY 61 Ditch Runoff Area=304,390 sf 97.23% Impervious Runoff Depth=7.06"
Tc=5.0 min CN=98 Runoff=79.22 cfs 4.112 af

Subcatchment 4S: NW Wetland Runoff Area=259,167 sf 66.24% Impervious Runoff Depth=6.35"
Tc=5.0 min CN=92 Runoff=65.21 cfs 3.149 af

Reach 5R: North Inflow=144.42 cfs 7.260 af
Outflow=144.42 cfs 7.260 af

Reach 6R: SE Inflow=14.61 cfs 0.738 af
Outflow=14.61 cfs 0.738 af

Reach 7R: SW Inflow=77.55 cfs 7.412 af
Outflow=77.55 cfs 7.412 af

Total Runoff Area = 29.348 ac Runoff Volume = 15.410 af Average Runoff Depth = 6.30"
53.65% Pervious = 15.744 ac 46.35% Impervious = 13.604 ac

Summary for Subcatchment 1S: South CR E

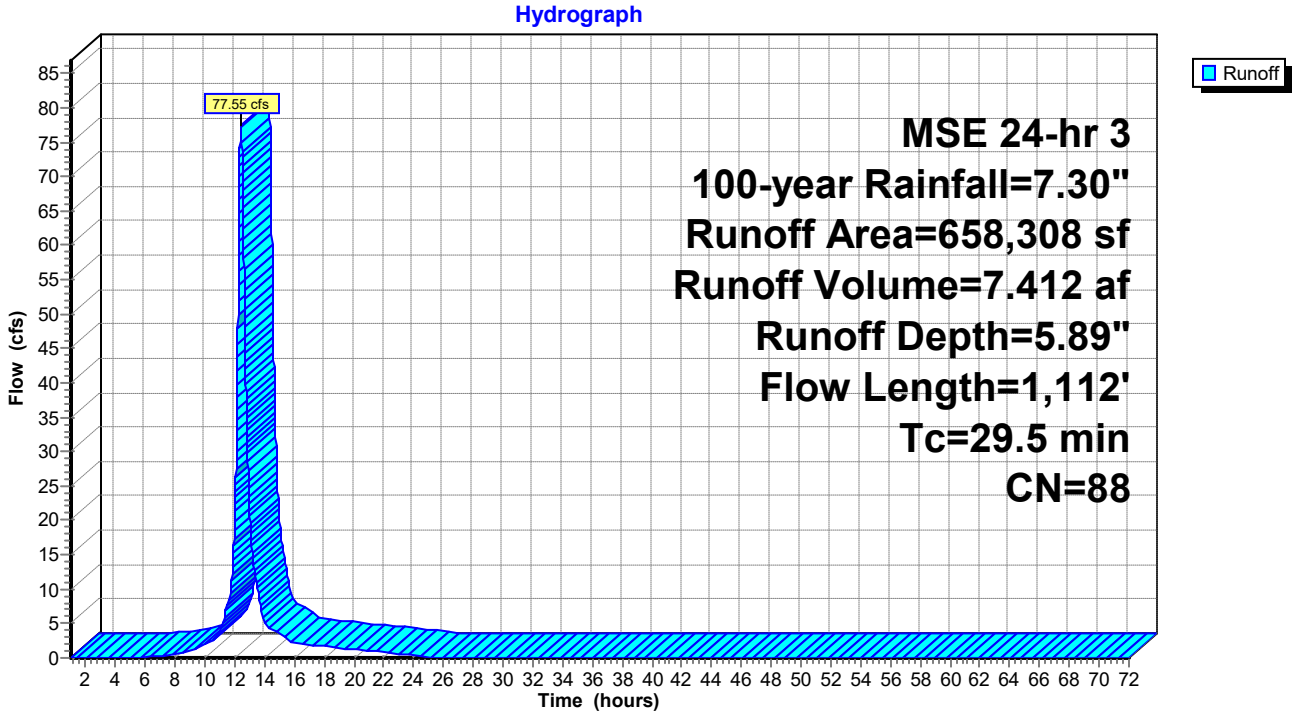
Runoff = 77.55 cfs @ 12.42 hrs, Volume= 7.412 af, Depth= 5.89"
Routed to Reach 7R : SW

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-year Rainfall=7.30"

Area (sf)	CN	Description
73,279	98	Water Surface, HSG D
436,050	89	Row crops, straight row, Good, HSG D
148,979	80	>75% Grass cover, Good, HSG D
658,308	88	Weighted Average
585,029		88.87% Pervious Area
73,279		11.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	358	0.0279	1.50		**Shallow Concentrated Flow, NE Steep** Cultivated Straight Rows Kv= 9.0 fps
25.5	754	0.0030	0.49		**Shallow Concentrated Flow, South Flat** Cultivated Straight Rows Kv= 9.0 fps
29.5	1,112	Total			

Subcatchment 1S: South CR E



Summary for Subcatchment 2S: SW CR E

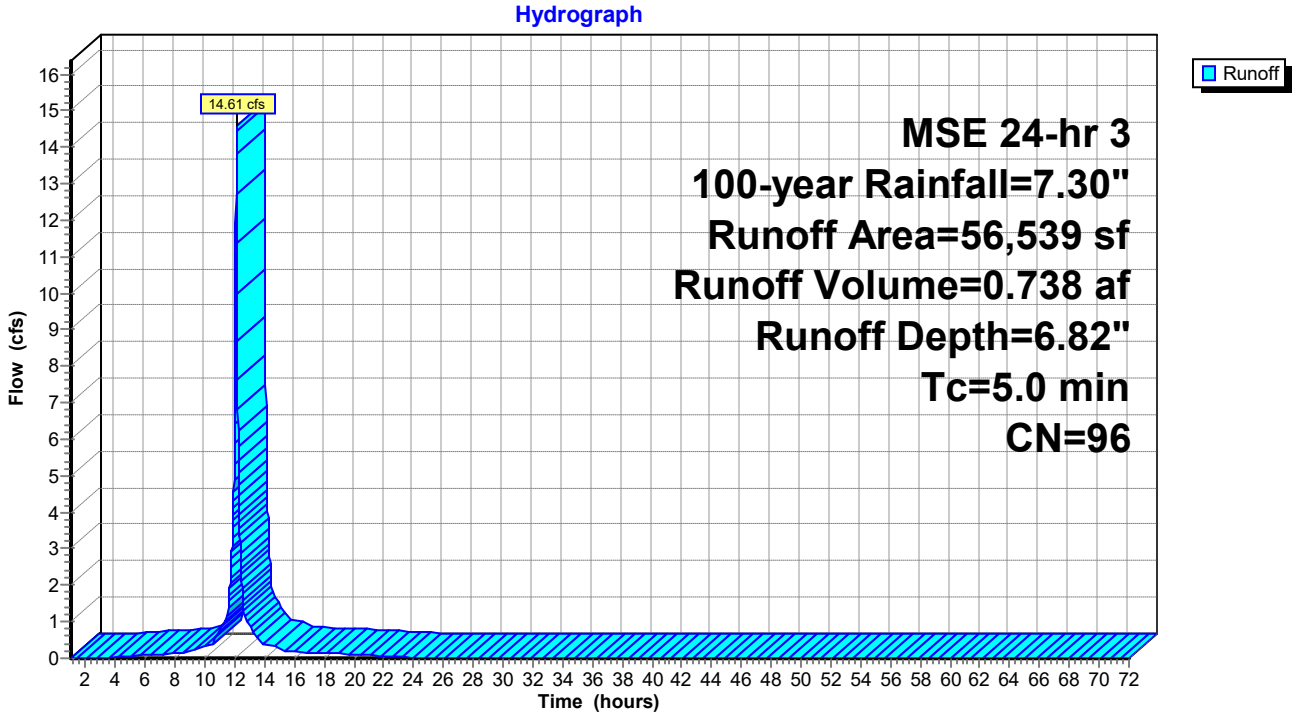
Runoff = 14.61 cfs @ 12.12 hrs, Volume= 0.738 af, Depth= 6.82"
Routed to Reach 6R : SE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-year Rainfall=7.30"

Area (sf)	CN	Description
51,682	98	Paved parking, HSG D
4,857	80	>75% Grass cover, Good, HSG D
56,539	96	Weighted Average
4,857		8.59% Pervious Area
51,682		91.41% Impervious Area

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

Subcatchment 2S: SW CR E



Summary for Subcatchment 3S: HWY 61 Ditch

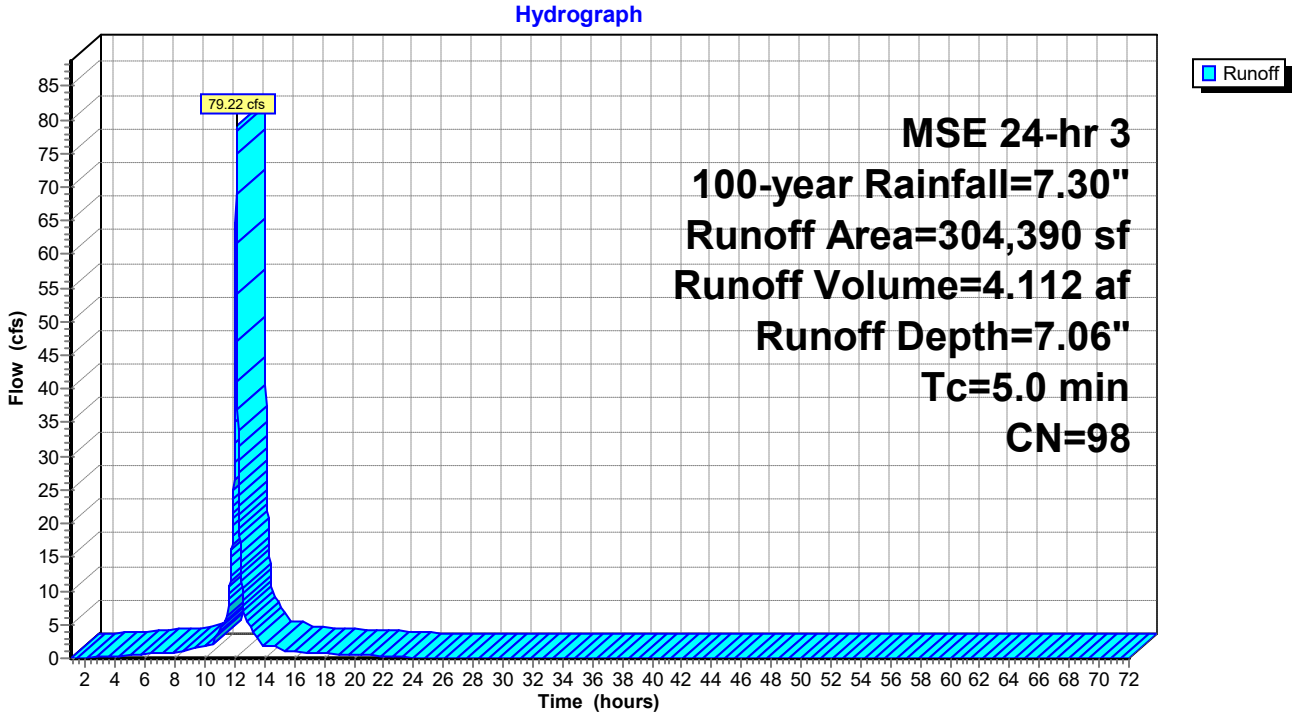
Runoff = 79.22 cfs @ 12.12 hrs, Volume= 4.112 af, Depth= 7.06"
Routed to Reach 5R : North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-year Rainfall=7.30"

Area (sf)	CN	Description
295,965	98	Paved parking, HSG D
8,425	80	>75% Grass cover, Good, HSG D
304,390	98	Weighted Average
8,425		2.77% Pervious Area
295,965		97.23% Impervious Area

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

Subcatchment 3S: HWY 61 Ditch



Summary for Subcatchment 4S: NW Wetland

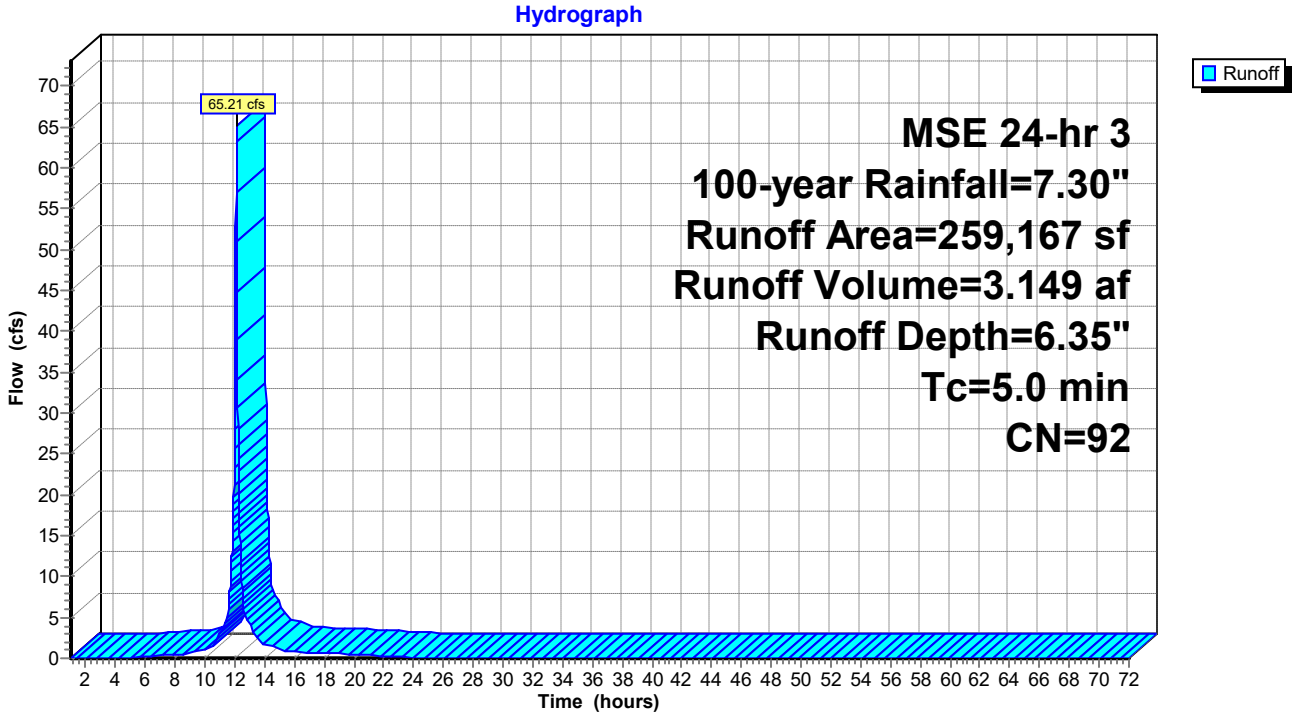
Runoff = 65.21 cfs @ 12.12 hrs, Volume= 3.149 af, Depth= 6.35"
Routed to Reach 5R : North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-year Rainfall=7.30"

Area (sf)	CN	Description
171,668	98	Paved parking, HSG D
87,499	80	>75% Grass cover, Good, HSG D
259,167	92	Weighted Average
87,499		33.76% Pervious Area
171,668		66.24% Impervious Area

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

Subcatchment 4S: NW Wetland

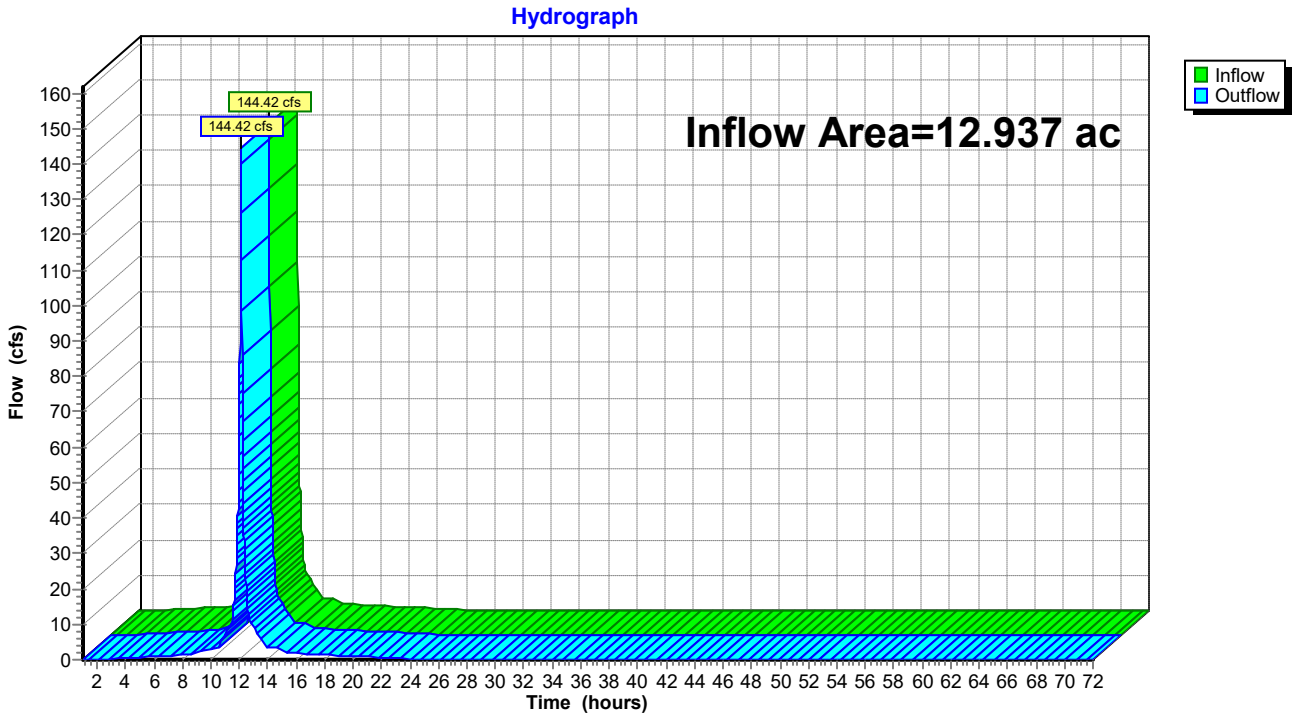


Summary for Reach 5R: North

Inflow Area = 12.937 ac, 82.98% Impervious, Inflow Depth = 6.73" for 100-year event
Inflow = 144.42 cfs @ 12.12 hrs, Volume= 7.260 af
Outflow = 144.42 cfs @ 12.12 hrs, Volume= 7.260 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 8R

Routing by Stor-Ind+Trans method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Reach 5R: North

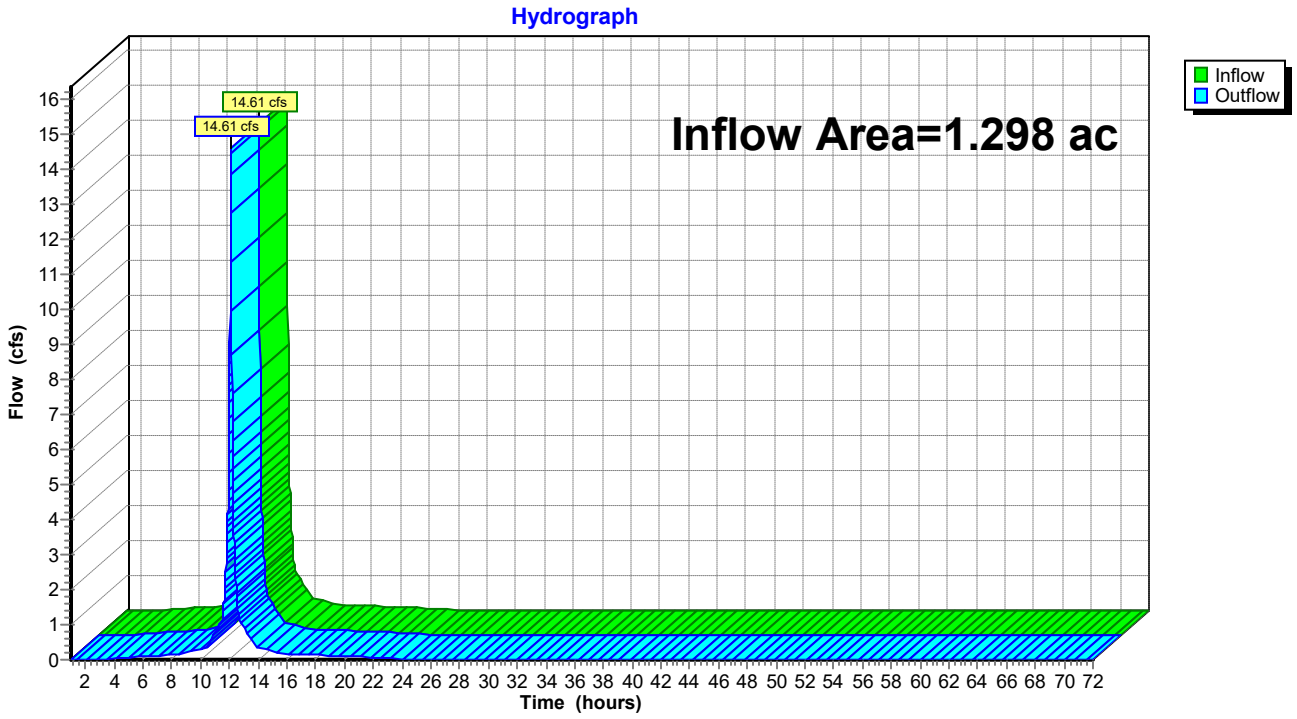


Summary for Reach 6R: SE

Inflow Area = 1.298 ac, 91.41% Impervious, Inflow Depth = 6.82" for 100-year event
Inflow = 14.61 cfs @ 12.12 hrs, Volume= 0.738 af
Outflow = 14.61 cfs @ 12.12 hrs, Volume= 0.738 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 8R

Routing by Stor-Ind+Trans method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Reach 6R: SE



Summary for Reach 7R: SW

Inflow Area = 15.113 ac, 11.13% Impervious, Inflow Depth = 5.89" for 100-year event
Inflow = 77.55 cfs @ 12.42 hrs, Volume= 7.412 af
Outflow = 77.55 cfs @ 12.42 hrs, Volume= 7.412 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 8R

Routing by Stor-Ind+Trans method, Time Span= 1.00-72.00 hrs, dt= 0.01 hrs

Reach 7R: SW

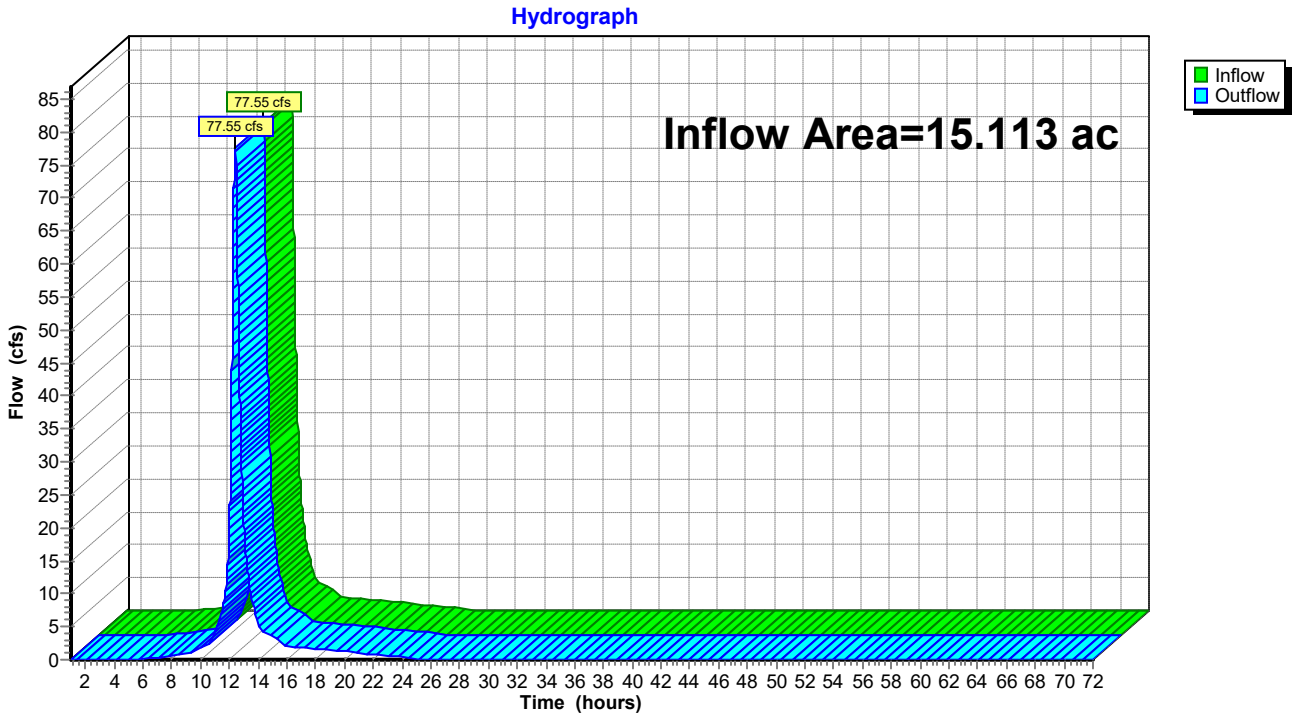


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APPENDIX C: PROPOSED DRAINAGE MAP & HYDROCAD MODEL



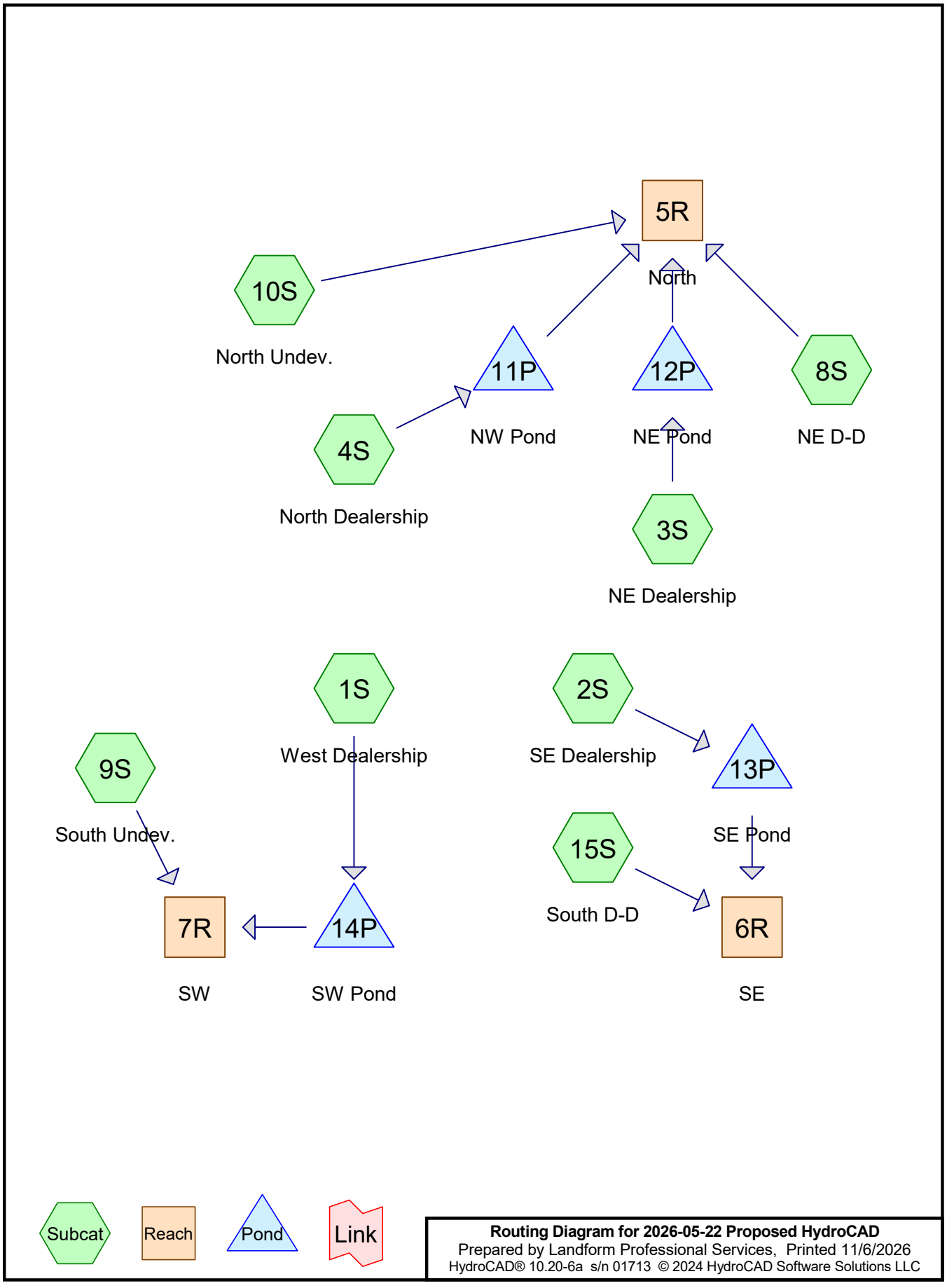
LANDFORM
From Site to Finish

Proposed Drainage Map

APPLE FORD • Gem Lake, MN

• 11.06.2026

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Routing Diagram for 2026-05-22 Proposed HydroCAD
Prepared by Landform Professional Services, Printed 11/6/2026
HydroCAD® 10.20-6a s/n 01713 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-year	MSE 24-hr	3	Default	24.00	1	2.79	2
2	10-year	MSE 24-hr	3	Default	24.00	1	4.17	2
3	100-year	MSE 24-hr	3	Default	24.00	1	7.30	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.100	89	<50% Grass cover, Poor, HSG D (15S)
4.754	80	>75% Grass cover, Good, HSG D (1S, 2S, 3S, 4S, 8S, 10S)
13.805	98	Paved parking, HSG D (1S, 2S, 3S, 4S, 8S, 9S)
9.909	89	Row crops, straight row, Good, HSG D (9S)
0.780	98	Water Surface, HSG D (1S, 2S, 3S, 4S)
29.348	**92**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
29.348	HSG D	1S, 2S, 3S, 4S, 8S, 9S, 10S, 15S
0.000	Other	
29.348		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.100	0.000	0.100	<50% Grass cover, Poor	15S
0.000	0.000	0.000	4.754	0.000	4.754	>75% Grass cover, Good	1S, 2S, 3S, 4S, 8S, 10S
0.000	0.000	0.000	13.805	0.000	13.805	Paved parking	1S, 2S, 3S, 4S, 8S, 9S
0.000	0.000	0.000	9.909	0.000	9.909	Row crops, straight row, Good	9S
0.000	0.000	0.000	0.780	0.000	0.780	Water Surface	1S, 2S, 3S, 4S
0.000	**0.000**	**0.000**	**29.348**	**0.000**	**29.348**	**TOTAL AREA**	

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: West Dealership Runoff Area=263,642 sf 83.80% Impervious Runoff Depth=2.24"
Tc=5.0 min CN=95 Runoff=24.31 cfs 1.132 af

Subcatchment 2S: SE Dealership Runoff Area=145,991 sf 87.76% Impervious Runoff Depth=2.35"
Tc=5.0 min CN=96 Runoff=13.80 cfs 0.655 af

Subcatchment 3S: NE Dealership Runoff Area=202,733 sf 89.15% Impervious Runoff Depth=2.35"
Tc=5.0 min CN=96 Runoff=19.17 cfs 0.910 af

Subcatchment 4S: North Dealership Runoff Area=108,940 sf 85.10% Impervious Runoff Depth=2.24"
Tc=5.0 min CN=95 Runoff=10.05 cfs 0.468 af

Subcatchment 8S: NE D-D Runoff Area=27,383 sf 43.27% Impervious Runoff Depth=1.63"
Tc=0.0 min CN=88 Runoff=2.22 cfs 0.086 af

Subcatchment 9S: South Undev. Runoff Area=432,604 sf 0.22% Impervious Runoff Depth=1.71"
Flow Length=959' Tc=27.6 min CN=89 Runoff=15.94 cfs 1.416 af

Subcatchment 10S: North Undev. Runoff Area=92,762 sf 0.00% Impervious Runoff Depth=1.09"
Tc=5.0 min CN=80 Runoff=4.58 cfs 0.194 af

Subcatchment 15S: South D-D Runoff Area=4,335 sf 0.00% Impervious Runoff Depth=1.71"
Tc=5.0 min CN=89 Runoff=0.33 cfs 0.014 af

Reach 5R: North Inflow=7.78 cfs 1.654 af
Outflow=7.78 cfs 1.654 af

Reach 6R: SE Inflow=1.32 cfs 0.669 af
Outflow=1.32 cfs 0.669 af

Reach 7R: SW Inflow=20.85 cfs 2.548 af
Outflow=20.85 cfs 2.548 af

Pond 11P: NW Pond Peak Elev=964.21' Storage=21,248 cf Inflow=10.05 cfs 0.468 af
Outflow=2.49 cfs 0.468 af

Pond 12P: NE Pond Peak Elev=963.25' Storage=36,759 cf Inflow=19.17 cfs 0.910 af
Outflow=3.26 cfs 0.906 af

Pond 13P: SE Pond Peak Elev=962.31' Storage=26,920 cf Inflow=13.80 cfs 0.655 af
Outflow=1.22 cfs 0.655 af

Pond 14P: SW Pond Peak Elev=960.36' Storage=40,689 cf Inflow=24.31 cfs 1.132 af
Outflow=4.94 cfs 1.132 af

Total Runoff Area = 29.348 ac Runoff Volume = 4.875 af Average Runoff Depth = 1.99"
50.30% Pervious = 14.763 ac 49.70% Impervious = 14.585 ac

Summary for Subcatchment 1S: West Dealership

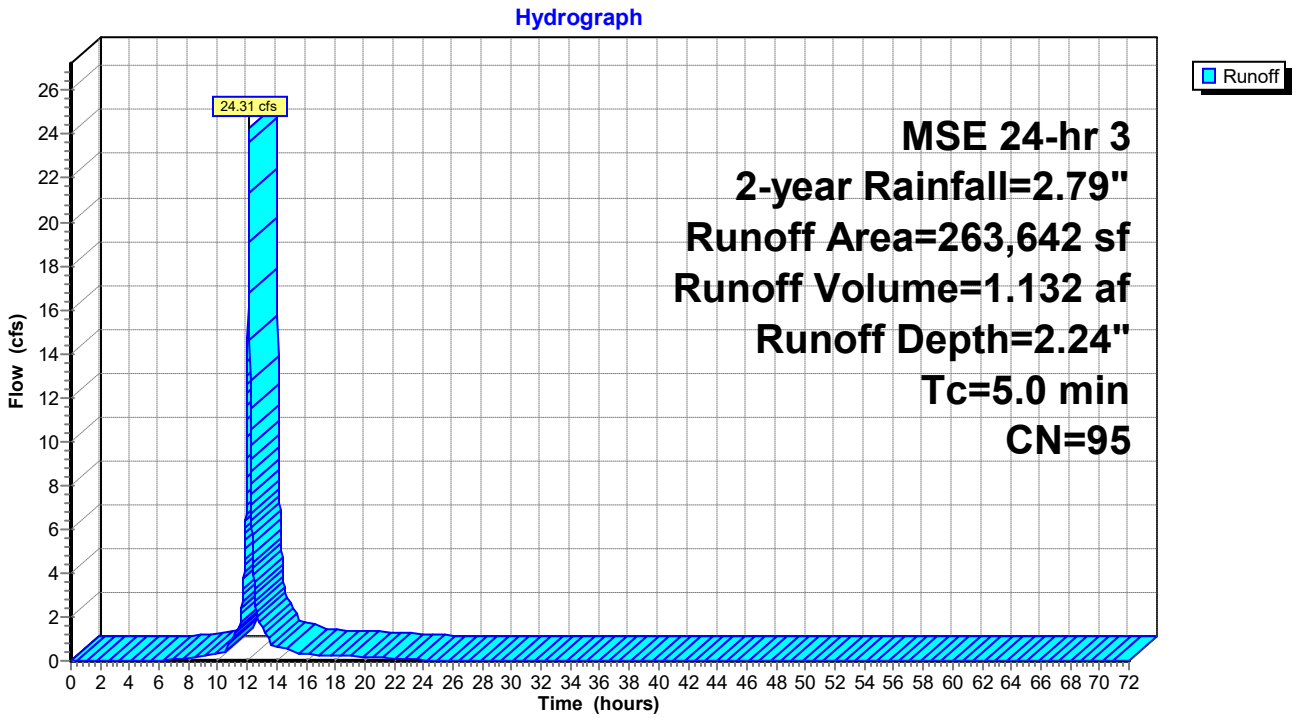
Runoff = 24.31 cfs @ 12.12 hrs, Volume= 1.132 af, Depth= 2.24"
Routed to Pond 14P : SW Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-year Rainfall=2.79"

Area (sf)	CN	Description
42,698	80	>75% Grass cover, Good, HSG D
212,064	98	Paved parking, HSG D
8,880	98	Water Surface, HSG D
263,642	95	Weighted Average
42,698		16.20% Pervious Area
220,944		83.80% Impervious Area

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

Subcatchment 1S: West Dealership



Summary for Subcatchment 2S: SE Dealership

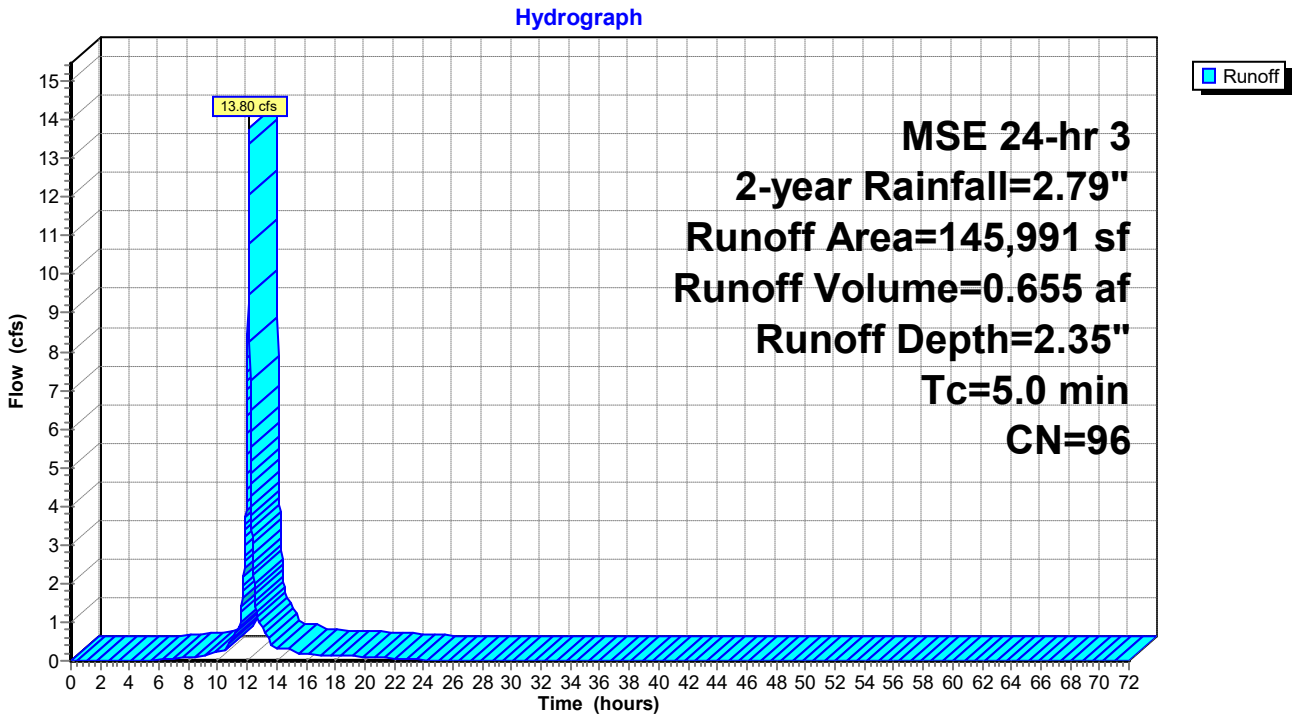
Runoff = 13.80 cfs @ 12.12 hrs, Volume= 0.655 af, Depth= 2.35"
Routed to Pond 13P : SE Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-year Rainfall=2.79"

Area (sf)	CN	Description
17,867	80	>75% Grass cover, Good, HSG D
120,372	98	Paved parking, HSG D
7,752	98	Water Surface, HSG D
145,991	96	Weighted Average
17,867		12.24% Pervious Area
128,124		87.76% Impervious Area

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

Subcatchment 2S: SE Dealership



Summary for Subcatchment 3S: NE Dealership

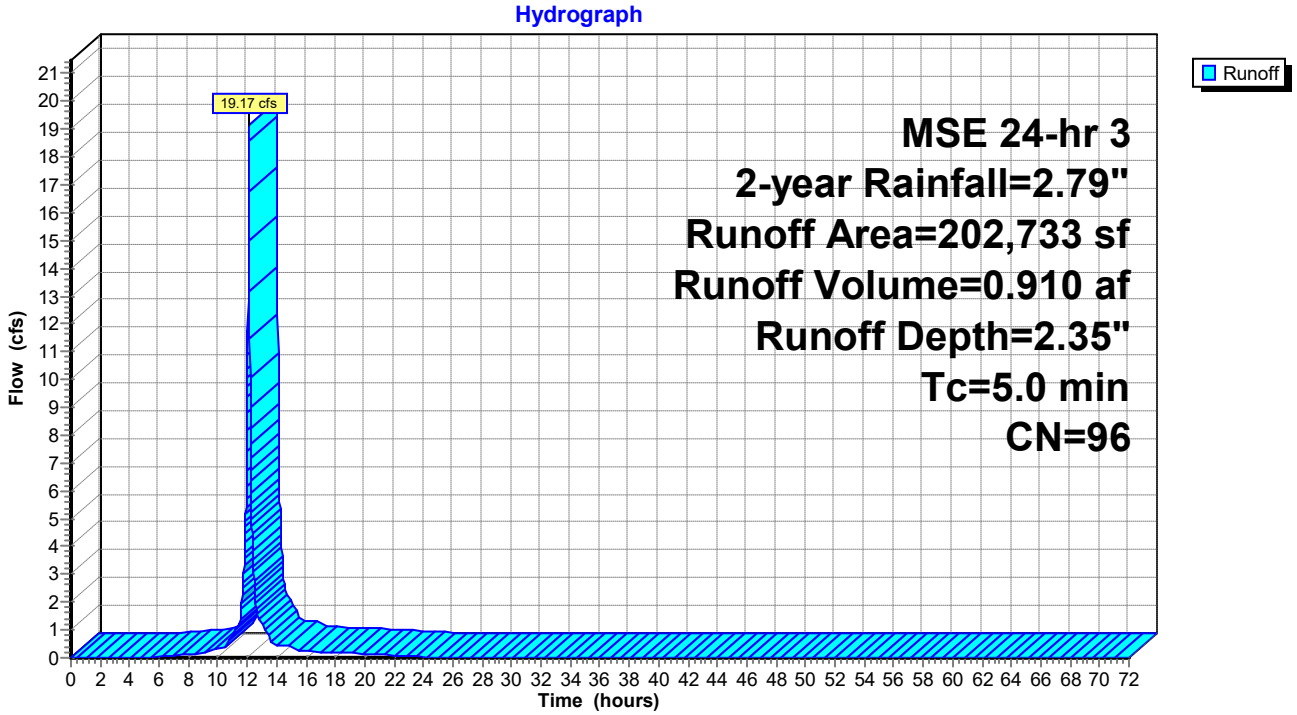
Runoff = 19.17 cfs @ 12.12 hrs, Volume= 0.910 af, Depth= 2.35"
Routed to Pond 12P : NE Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-year Rainfall=2.79"

Area (sf)	CN	Description
21,990	80	>75% Grass cover, Good, HSG D
170,370	98	Paved parking, HSG D
10,373	98	Water Surface, HSG D
202,733	96	Weighted Average
21,990		10.85% Pervious Area
180,743		89.15% Impervious Area

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

Subcatchment 3S: NE Dealership



Summary for Subcatchment 4S: North Dealership

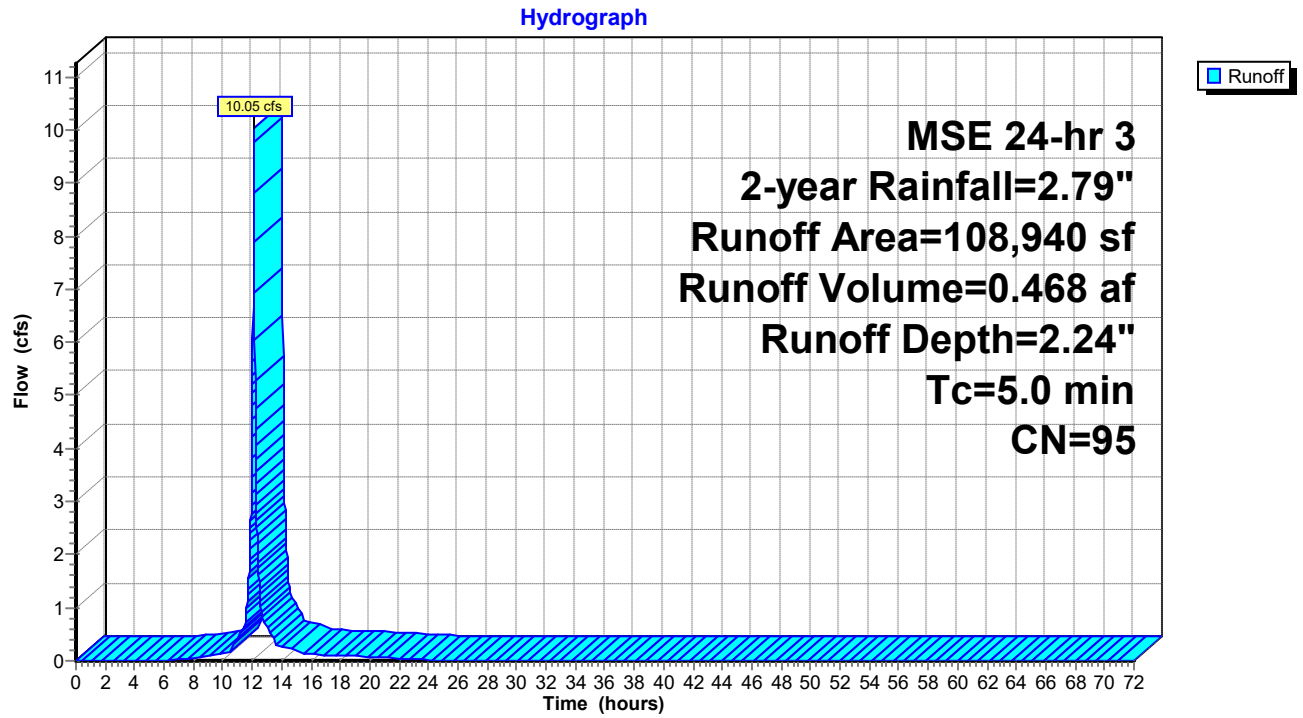
Runoff = 10.05 cfs @ 12.12 hrs, Volume= 0.468 af, Depth= 2.24"
Routed to Pond 11P : NW Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-year Rainfall=2.79"

Area (sf)	CN	Description
16,235	80	>75% Grass cover, Good, HSG D
85,715	98	Paved parking, HSG D
6,990	98	Water Surface, HSG D
108,940	95	Weighted Average
16,235		14.90% Pervious Area
92,705		85.10% Impervious Area

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

Subcatchment 4S: North Dealership



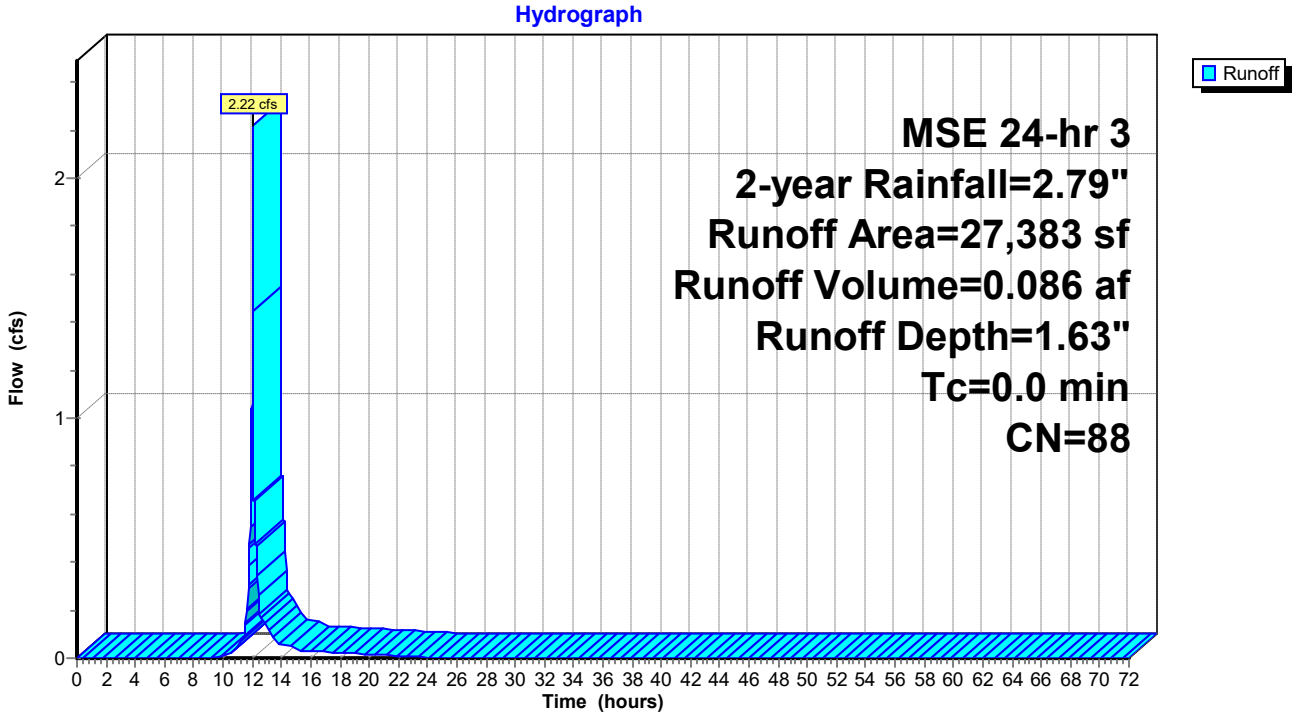
Summary for Subcatchment 8S: NE D-D

Runoff = 2.22 cfs @ 12.09 hrs, Volume= 0.086 af, Depth= 1.63"
Routed to Reach 5R : North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-year Rainfall=2.79"

Area (sf)	CN	Description
15,535	80	>75% Grass cover, Good, HSG D
11,848	98	Paved parking, HSG D
27,383	88	Weighted Average
15,535		56.73% Pervious Area
11,848		43.27% Impervious Area

Subcatchment 8S: NE D-D



Summary for Subcatchment 9S: South Undev.

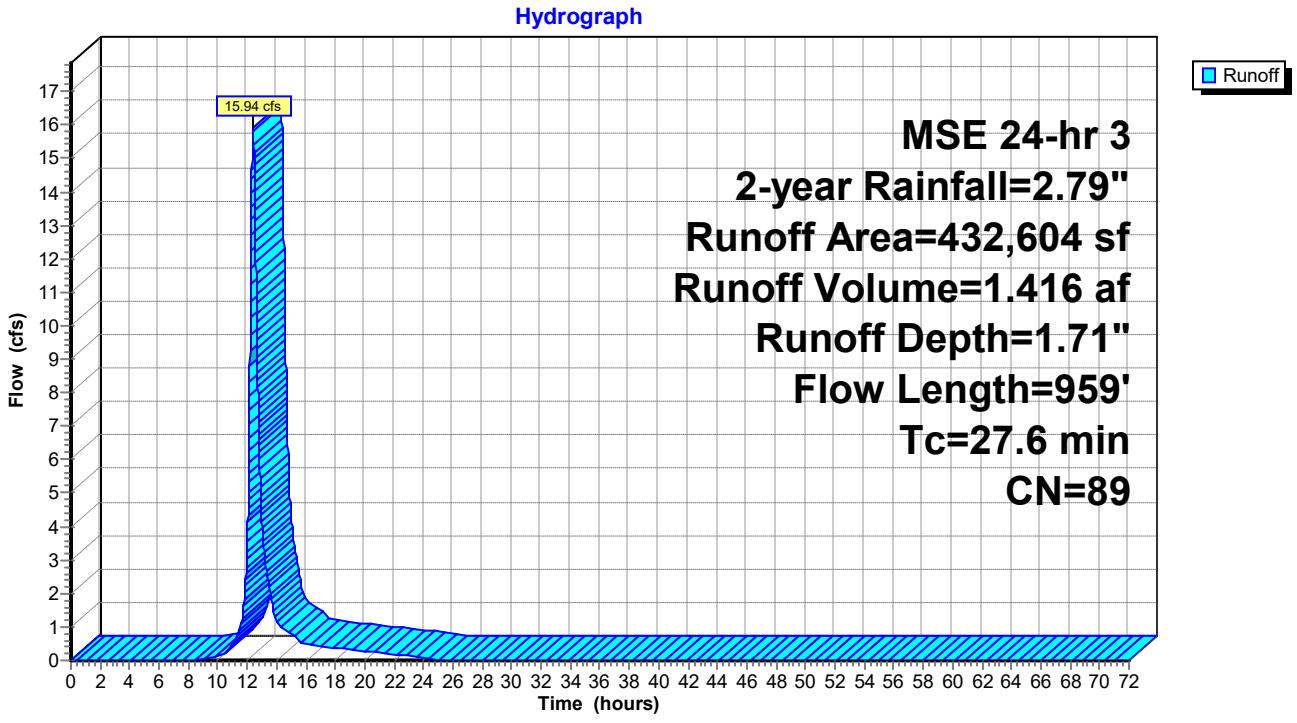
Runoff = 15.94 cfs @ 12.39 hrs, Volume= 1.416 af, Depth= 1.71"
Routed to Reach 7R : SW

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-year Rainfall=2.79"

Area (sf)	CN	Description
958	98	Paved parking, HSG D
431,646	89	Row crops, straight row, Good, HSG D
432,604	89	Weighted Average
431,646		99.78% Pervious Area
958		0.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	205	0.0341	1.66		**Shallow Concentrated Flow, Steep** Cultivated Straight Rows Kv= 9.0 fps
25.5	754	0.0030	0.49		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
27.6	959	Total			

Subcatchment 9S: South Undev.



Summary for Subcatchment 10S: North Undev.

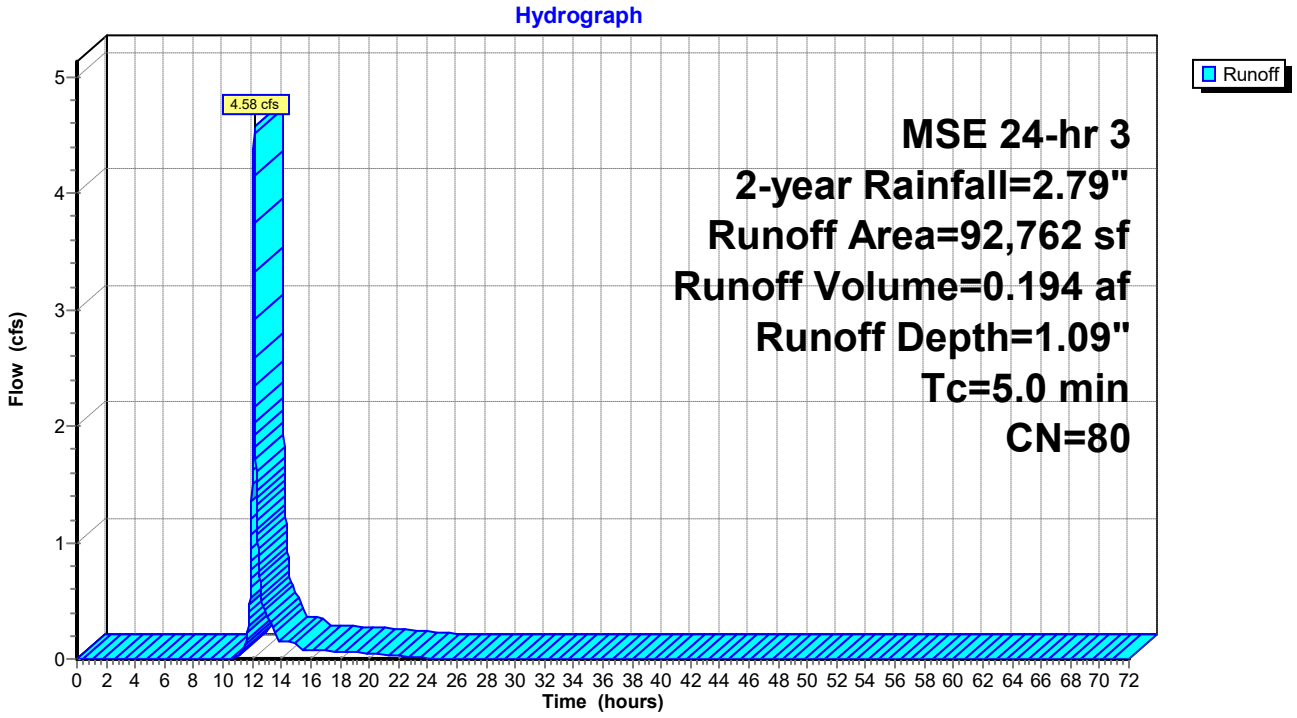
Runoff = 4.58 cfs @ 12.13 hrs, Volume= 0.194 af, Depth= 1.09"
Routed to Reach 5R : North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-year Rainfall=2.79"

Area (sf)	CN	Description
92,762	80	>75% Grass cover, Good, HSG D
92,762		100.00% Pervious Area

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

Subcatchment 10S: North Undev.



Summary for Subcatchment 15S: South D-D

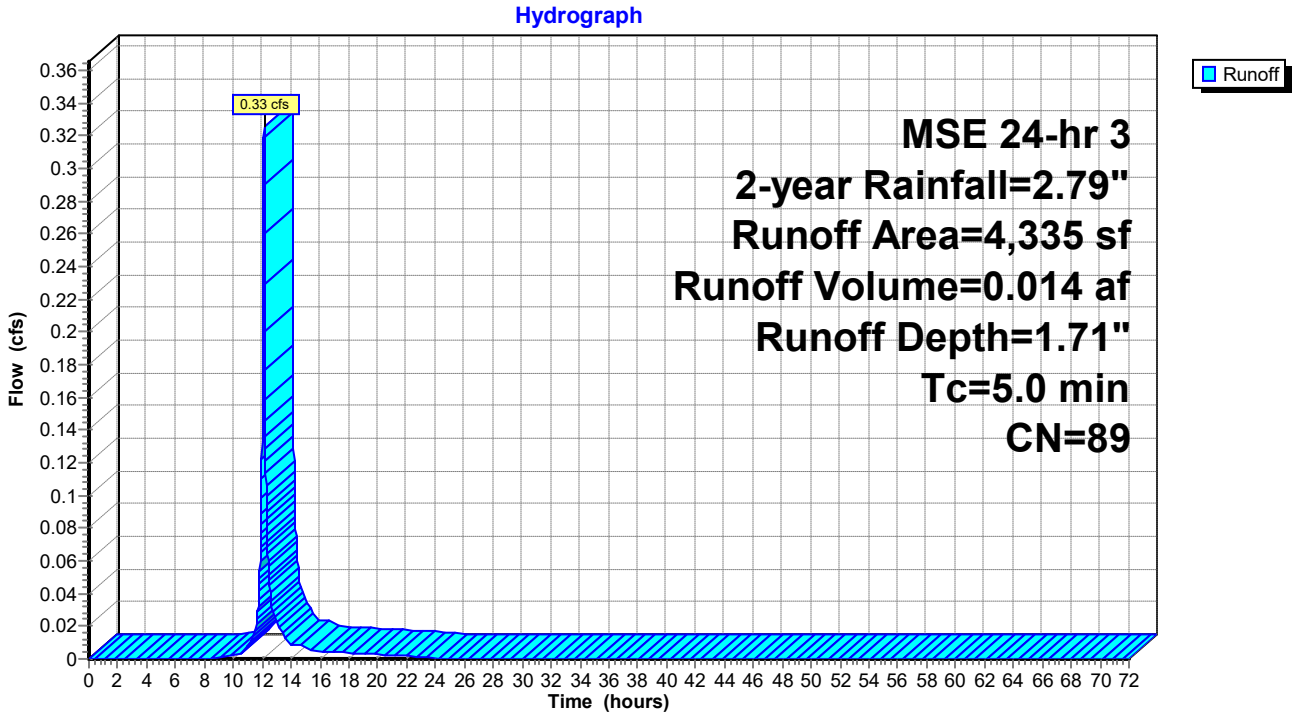
Runoff = 0.33 cfs @ 12.12 hrs, Volume= 0.014 af, Depth= 1.71"
Routed to Reach 6R : SE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-year Rainfall=2.79"

Area (sf)	CN	Description
4,335	89	<50% Grass cover, Poor, HSG D
4,335		100.00% Pervious Area

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

Subcatchment 15S: South D-D

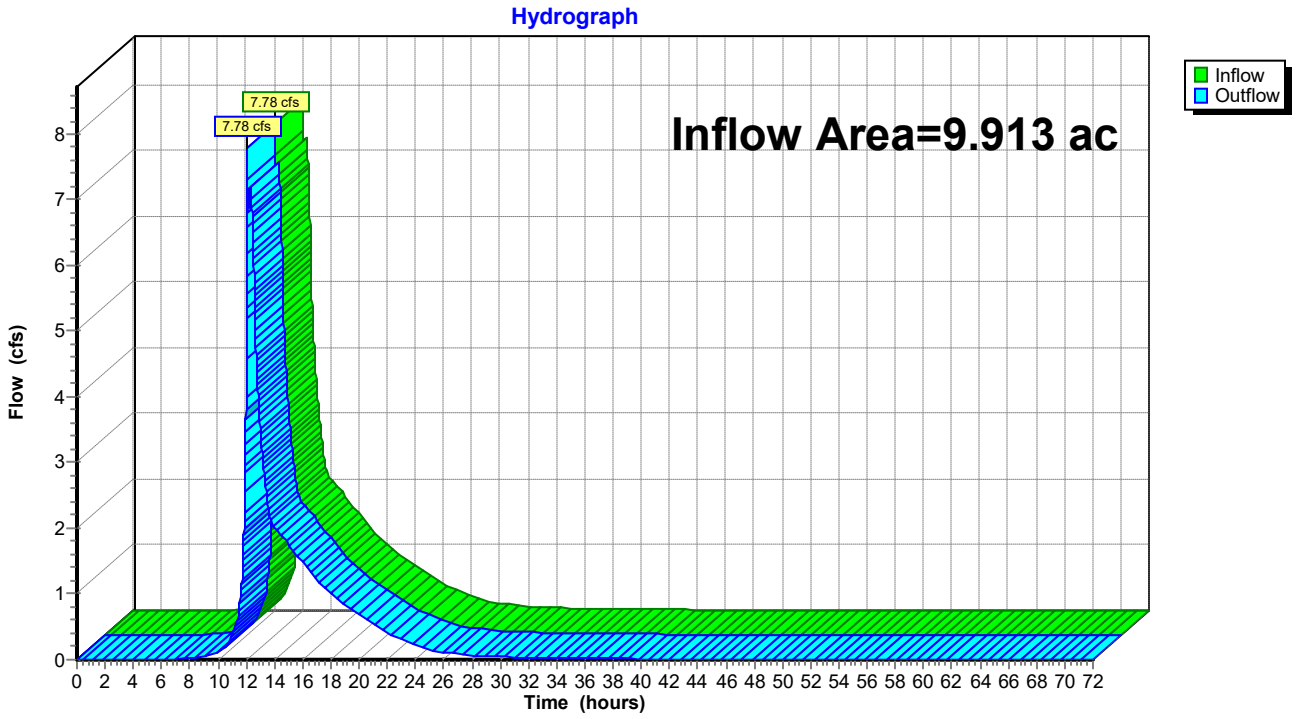


Summary for Reach 5R: North

Inflow Area = 9.913 ac, 66.07% Impervious, Inflow Depth > 2.00" for 2-year event
Inflow = 7.78 cfs @ 12.09 hrs, Volume= 1.654 af
Outflow = 7.78 cfs @ 12.09 hrs, Volume= 1.654 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 20R

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 5R: North

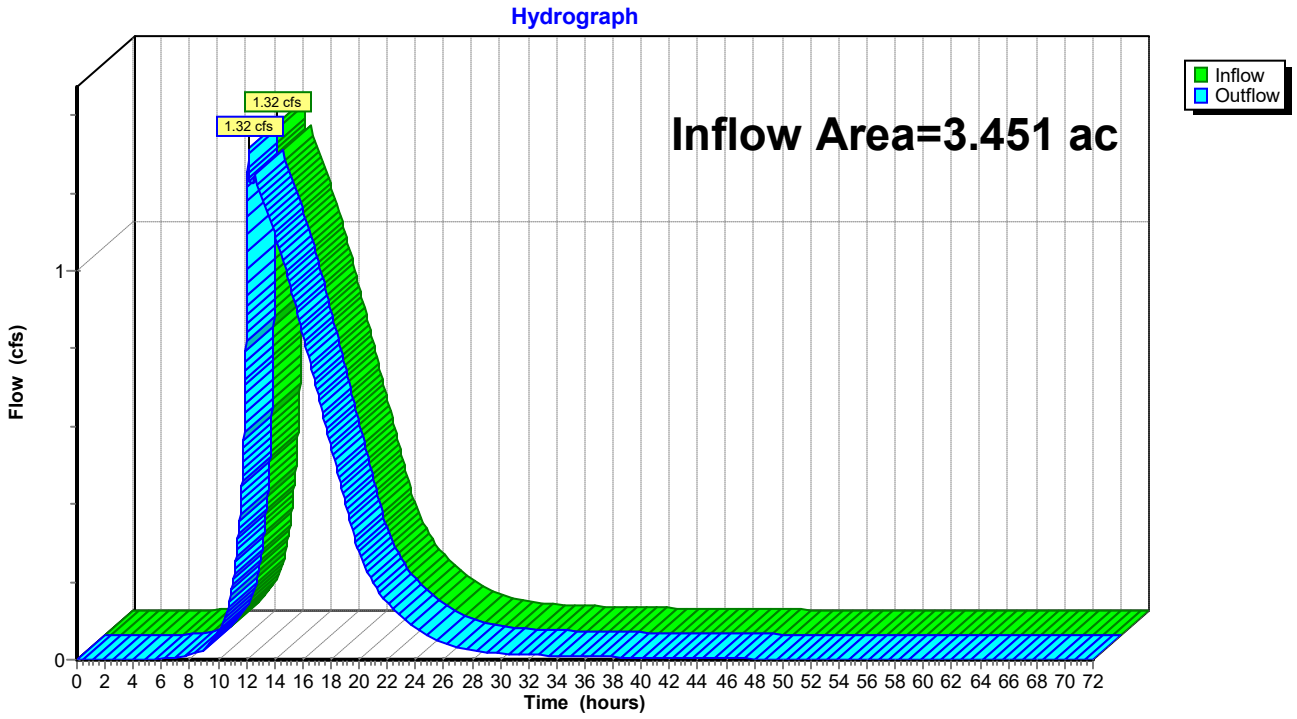


Summary for Reach 6R: SE

Inflow Area = 3.451 ac, 85.23% Impervious, Inflow Depth > 2.33" for 2-year event
Inflow = 1.32 cfs @ 12.14 hrs, Volume= 0.669 af
Outflow = 1.32 cfs @ 12.14 hrs, Volume= 0.669 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 20R

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 6R: SE

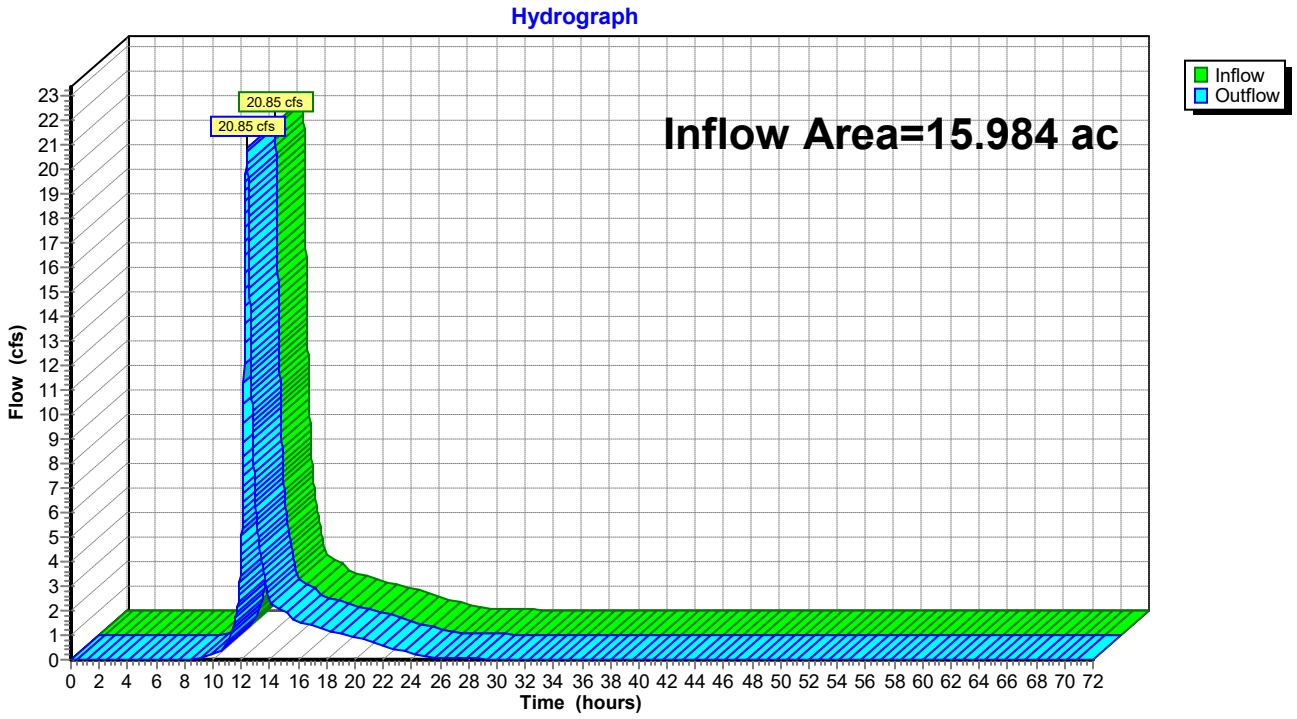


Summary for Reach 7R: SW

Inflow Area = 15.984 ac, 31.87% Impervious, Inflow Depth = 1.91" for 2-year event
Inflow = 20.85 cfs @ 12.39 hrs, Volume= 2.548 af
Outflow = 20.85 cfs @ 12.39 hrs, Volume= 2.548 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 20R

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 7R: SW



Summary for Pond 11P: NW Pond

Inflow Area = 2.501 ac, 85.10% Impervious, Inflow Depth = 2.24" for 2-year event
Inflow = 10.05 cfs @ 12.12 hrs, Volume= 0.468 af
Outflow = 2.49 cfs @ 12.31 hrs, Volume= 0.468 af, Atten= 75%, Lag= 11.1 min
Primary = 2.49 cfs @ 12.31 hrs, Volume= 0.468 af
Routed to Reach 5R : North

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Starting Elev= 963.00' Surf.Area= 6,990 sf Storage= 11,368 cf
Peak Elev= 964.21' @ 12.31 hrs Surf.Area= 9,374 sf Storage= 21,248 cf (9,881 cf above start)

Plug-Flow detention time= 442.0 min calculated for 0.207 af (44% of inflow)
Center-of-Mass det. time= 155.5 min (928.2 - 772.7)

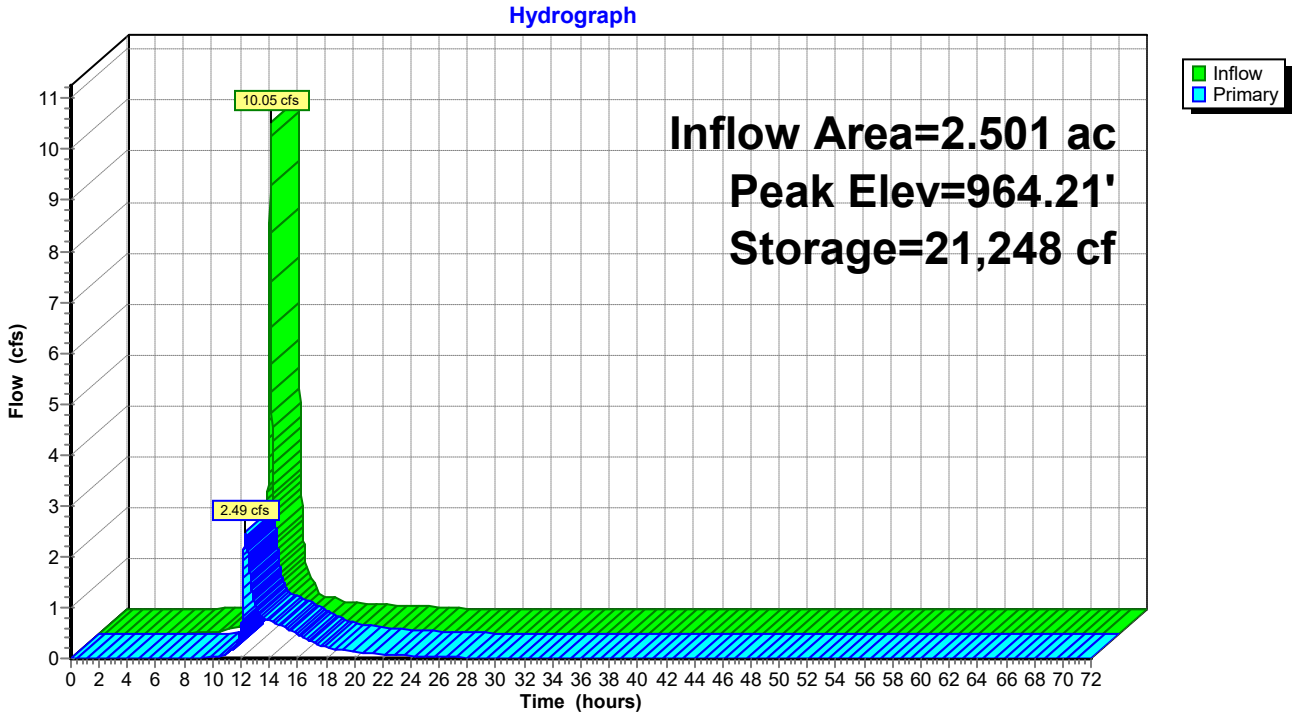
Volume	Invert	Avail.Storage	Storage Description
#1	959.00'	41,356 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
959.00	747	0	0
962.00	3,376	6,185	6,185
963.00	6,990	5,183	11,368
966.00	12,913	29,855	41,222
966.01	13,894	134	41,356

Device	Routing	Invert	Outlet Devices
#1	Primary	963.00'	**18.0" Round Culvert** L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 963.00' / 962.50' S= 0.0167 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 1.77 sf
#2	Device 1	963.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 3.00 Width (feet) 0.00 0.00 5.00 5.00
#3	Device 1	963.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.47 cfs @ 12.31 hrs HW=964.21' (Free Discharge)
└**1=Culvert** (Passes 2.47 cfs of 5.70 cfs potential flow)
  ├**2=Custom Weir/Orifice** (Weir Controls 1.55 cfs @ 1.49 fps)
  └**3=Orifice/Grate** (Orifice Controls 0.93 cfs @ 4.71 fps)

Pond 11P: NW Pond



Stage-Discharge for Pond 11P: NW Pond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
959.00	0.00	961.60	0.00	964.20	2.39
959.05	0.00	961.65	0.00	964.25	2.99
959.10	0.00	961.70	0.00	964.30	3.66
959.15	0.00	961.75	0.00	964.35	4.38
959.20	0.00	961.80	0.00	964.40	5.16
959.25	0.00	961.85	0.00	964.45	5.98
959.30	0.00	961.90	0.00	964.50	6.85
959.35	0.00	961.95	0.00	964.55	7.61
959.40	0.00	962.00	0.00	964.60	7.84
959.45	0.00	962.05	0.00	964.65	8.07
959.50	0.00	962.10	0.00	964.70	8.29
959.55	0.00	962.15	0.00	964.75	8.51
959.60	0.00	962.20	0.00	964.80	8.72
959.65	0.00	962.25	0.00	964.85	8.92
959.70	0.00	962.30	0.00	964.90	9.12
959.75	0.00	962.35	0.00	964.95	9.32
959.80	0.00	962.40	0.00	965.00	9.51
959.85	0.00	962.45	0.00	965.05	9.70
959.90	0.00	962.50	0.00	965.10	9.89
959.95	0.00	962.55	0.00	965.15	10.07
960.00	0.00	962.60	0.00	965.20	10.25
960.05	0.00	962.65	0.00	965.25	10.42
960.10	0.00	962.70	0.00	965.30	10.59
960.15	0.00	962.75	0.00	965.35	10.76
960.20	0.00	962.80	0.00	965.40	10.93
960.25	0.00	962.85	0.00	965.45	11.09
960.30	0.00	962.90	0.00	965.50	11.26
960.35	0.00	962.95	0.00	965.55	11.42
960.40	0.00	963.00	0.00	965.60	11.57
960.45	0.00	963.05	0.01	965.65	11.73
960.50	0.00	963.10	0.03	965.70	11.88
960.55	0.00	963.15	0.07	965.75	12.03
960.60	0.00	963.20	0.11	965.80	12.18
960.65	0.00	963.25	0.17	965.85	12.33
960.70	0.00	963.30	0.23	965.90	12.48
960.75	0.00	963.35	0.30	965.95	12.62
960.80	0.00	963.40	0.36	966.00	**12.76**
960.85	0.00	963.45	0.43		
960.90	0.00	963.50	0.47		
960.95	0.00	963.55	0.52		
961.00	0.00	963.60	0.56		
961.05	0.00	963.65	0.60		
961.10	0.00	963.70	0.63		
961.15	0.00	963.75	0.67		
961.20	0.00	963.80	0.70		
961.25	0.00	963.85	0.73		
961.30	0.00	963.90	0.76		
961.35	0.00	963.95	0.79		
961.40	0.00	964.00	0.82		
961.45	0.00	964.05	1.03		
961.50	0.00	964.10	1.39		
961.55	0.00	964.15	1.85		

Stage-Area-Storage for Pond 11P: NW Pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
959.00	747	0
959.10	835	79
959.20	922	167
959.30	1,010	264
959.40	1,098	369
959.50	1,185	483
959.60	1,273	606
959.70	1,360	738
959.80	1,448	878
959.90	1,536	1,027
960.00	1,623	1,185
960.10	1,711	1,352
960.20	1,799	1,527
960.30	1,886	1,712
960.40	1,974	1,905
960.50	2,062	2,106
960.60	2,149	2,317
960.70	2,237	2,536
960.80	2,324	2,764
960.90	2,412	3,001
961.00	2,500	3,247
961.10	2,587	3,501
961.20	2,675	3,764
961.30	2,763	4,036
961.40	2,850	4,317
961.50	2,938	4,606
961.60	3,025	4,904
961.70	3,113	5,211
961.80	3,201	5,527
961.90	3,288	5,851
962.00	3,376	6,185
962.10	3,737	6,540
962.20	4,099	6,932
962.30	4,460	7,360
962.40	4,822	7,824
962.50	5,183	8,324
962.60	5,544	8,861
962.70	5,906	9,433
962.80	6,267	10,042
962.90	6,629	10,687
963.00	6,990	11,368
963.10	7,187	12,076
963.20	7,385	12,805
963.30	7,582	13,553
963.40	7,780	14,321
963.50	7,977	15,109
963.60	8,175	15,917
963.70	8,372	16,744
963.80	8,569	17,591
963.90	8,767	18,458
964.00	8,964	19,345
964.10	9,162	20,251
964.20	9,359	21,177
964.30	9,557	22,123
964.40	9,754	23,088
964.50	9,952	24,074
964.60	10,149	25,079
964.70	10,346	26,103
964.80	10,544	27,148
964.90	10,741	28,212
965.00	10,939	29,296
965.10	11,136	30,400
965.20	11,334	31,523
965.30	11,531	32,667
965.40	11,728	33,830
965.50	11,926	35,012
965.60	12,123	36,215
965.70	12,321	37,437
965.80	12,518	38,679
965.90	12,716	39,941
966.00	**12,913**	**41,222**

Summary for Pond 12P: NE Pond

Inflow Area = 4.654 ac, 89.15% Impervious, Inflow Depth = 2.35" for 2-year event
Inflow = 19.17 cfs @ 12.12 hrs, Volume= 0.910 af
Outflow = 3.26 cfs @ 12.41 hrs, Volume= 0.906 af, Atten= 83%, Lag= 17.5 min
Primary = 3.26 cfs @ 12.41 hrs, Volume= 0.906 af
Routed to Reach 5R : North

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Starting Elev= 961.50' Surf.Area= 10,470 sf Storage= 15,263 cf
Peak Elev= 963.25' @ 12.41 hrs Surf.Area= 14,107 sf Storage= 36,759 cf (21,496 cf above start)

Plug-Flow detention time= 445.4 min calculated for 0.556 af (61% of inflow)
Center-of-Mass det. time= 223.4 min (990.8 - 767.4)

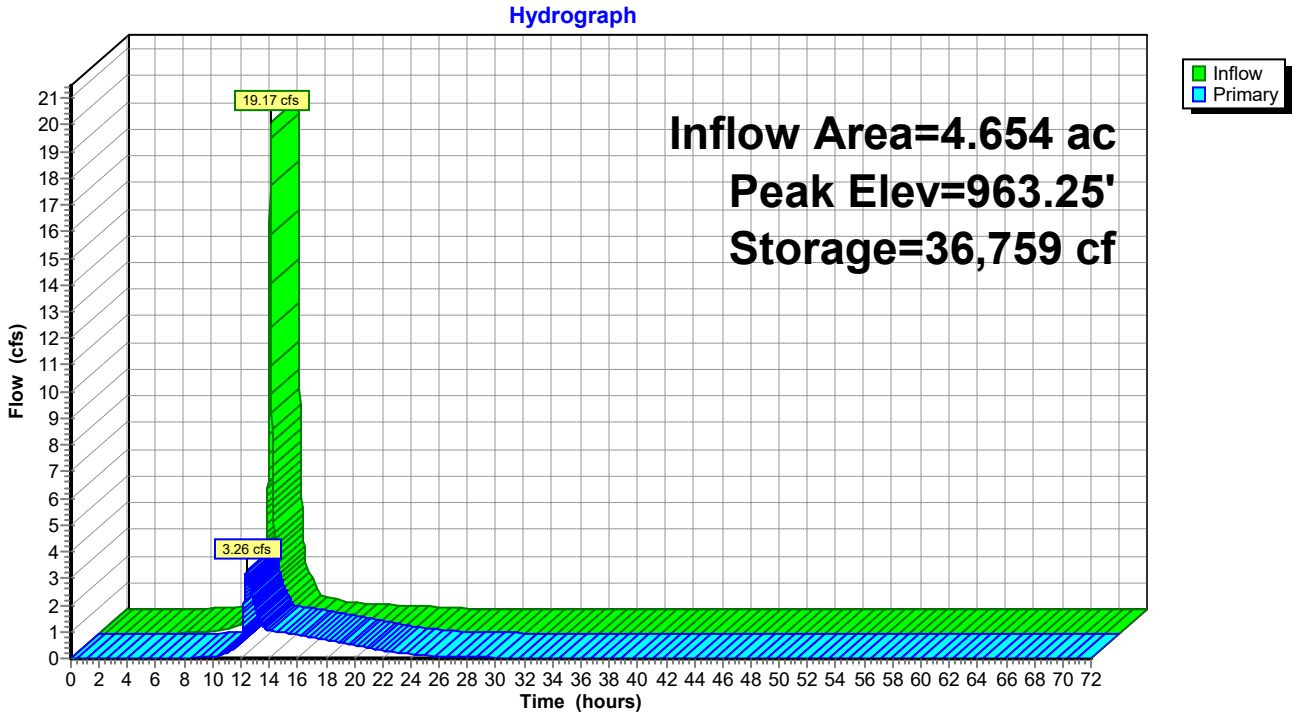
Volume	Invert	Avail.Storage	Storage Description
#1	958.00'	84,169 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	958	0	0
960.50	5,046	7,505	7,505
961.50	10,470	7,758	15,263
963.00	13,525	17,996	33,259
966.00	20,415	50,910	84,169

Device	Routing	Invert	Outlet Devices
#1	Primary	961.50'	**24.0" Round Culvert** L= 123.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 961.50' / 960.00' S= 0.0122 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	961.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 1.50 4.00 Width (feet) 0.00 0.00 5.00 5.00
#3	Primary	961.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.25 cfs @ 12.41 hrs HW=963.25' (Free Discharge)
- **1=Culvert** (Passes 2.09 cfs of 13.16 cfs potential flow)
  - **2=Custom Weir/Orifice** (Weir Controls 2.09 cfs @ 1.65 fps)
- **3=Orifice/Grate** (Orifice Controls 1.16 cfs @ 5.90 fps)

Pond 12P: NE Pond



Stage-Discharge for Pond 12P: NE Pond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
958.00	0.00	960.60	0.00	963.20	2.60	965.80	29.38
958.05	0.00	960.65	0.00	963.25	3.20	965.85	29.60
958.10	0.00	960.70	0.00	963.30	3.87	965.90	29.82
958.15	0.00	960.75	0.00	963.35	4.59	965.95	30.03
958.20	0.00	960.80	0.00	963.40	5.36	966.00	**30.25**
958.25	0.00	960.85	0.00	963.45	6.18		
958.30	0.00	960.90	0.00	963.50	7.04		
958.35	0.00	960.95	0.00	963.55	7.95		
958.40	0.00	961.00	0.00	963.60	8.90		
958.45	0.00	961.05	0.00	963.65	9.88		
958.50	0.00	961.10	0.00	963.70	10.91		
958.55	0.00	961.15	0.00	963.75	11.97		
958.60	0.00	961.20	0.00	963.80	13.07		
958.65	0.00	961.25	0.00	963.85	14.20		
958.70	0.00	961.30	0.00	963.90	15.37		
958.75	0.00	961.35	0.00	963.95	16.56		
958.80	0.00	961.40	0.00	964.00	17.79		
958.85	0.00	961.45	0.00	964.05	19.05		
958.90	0.00	961.50	0.00	964.10	20.34		
958.95	0.00	961.55	0.01	964.15	20.90		
959.00	0.00	961.60	0.03	964.20	21.20		
959.05	0.00	961.65	0.07	964.25	21.51		
959.10	0.00	961.70	0.11	964.30	21.80		
959.15	0.00	961.75	0.17	964.35	22.10		
959.20	0.00	961.80	0.23	964.40	22.39		
959.25	0.00	961.85	0.30	964.45	22.68		
959.30	0.00	961.90	0.36	964.50	22.96		
959.35	0.00	961.95	0.43	964.55	23.24		
959.40	0.00	962.00	0.47	964.60	23.52		
959.45	0.00	962.05	0.52	964.65	23.79		
959.50	0.00	962.10	0.56	964.70	24.06		
959.55	0.00	962.15	0.60	964.75	24.33		
959.60	0.00	962.20	0.63	964.80	24.59		
959.65	0.00	962.25	0.67	964.85	24.85		
959.70	0.00	962.30	0.70	964.90	25.11		
959.75	0.00	962.35	0.73	964.95	25.37		
959.80	0.00	962.40	0.76	965.00	25.62		
959.85	0.00	962.45	0.79	965.05	25.87		
959.90	0.00	962.50	0.82	965.10	26.12		
959.95	0.00	962.55	0.85	965.15	26.37		
960.00	0.00	962.60	0.87	965.20	26.61		
960.05	0.00	962.65	0.90	965.25	26.85		
960.10	0.00	962.70	0.92	965.30	27.09		
960.15	0.00	962.75	0.95	965.35	27.33		
960.20	0.00	962.80	0.97	965.40	27.57		
960.25	0.00	962.85	0.99	965.45	27.80		
960.30	0.00	962.90	1.01	965.50	28.03		
960.35	0.00	962.95	1.04	965.55	28.26		
960.40	0.00	963.00	1.06	965.60	28.49		
960.45	0.00	963.05	1.26	965.65	28.71		
960.50	0.00	963.10	1.62	965.70	28.94		
960.55	0.00	963.15	2.07	965.75	29.16		

Stage-Area-Storage for Pond 12P: NE Pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
958.00	958	0
958.10	1,122	104
958.20	1,285	224
958.30	1,449	361
958.40	1,612	514
958.50	1,776	683
958.60	1,939	869
958.70	2,103	1,071
958.80	2,266	1,290
958.90	2,430	1,524
959.00	2,593	1,776
959.10	2,757	2,043
959.20	2,920	2,327
959.30	3,084	2,627
959.40	3,247	2,944
959.50	3,411	3,277
959.60	3,574	3,626
959.70	3,738	3,991
959.80	3,901	4,373
959.90	4,065	4,772
960.00	4,228	5,186
960.10	4,392	5,617
960.20	4,555	6,065
960.30	4,719	6,529
960.40	4,882	7,009
960.50	5,046	7,505
960.60	5,588	8,037
960.70	6,131	8,623
960.80	6,673	9,263
960.90	7,216	9,957
961.00	7,758	10,706
961.10	8,300	11,509
961.20	8,843	12,366
961.30	9,385	13,277
961.40	9,928	14,243
961.50	10,470	15,263
961.60	10,674	16,320
961.70	10,877	17,398
961.80	11,081	18,496
961.90	11,285	19,614
962.00	11,488	20,753
962.10	11,692	21,912
962.20	11,896	23,091
962.30	12,099	24,291
962.40	12,303	25,511
962.50	12,507	26,751
962.60	12,710	28,012
962.70	12,914	29,293
962.80	13,118	30,595
962.90	13,321	31,917
963.00	13,525	33,259
963.10	13,755	34,623
963.20	13,984	36,010
963.30	14,214	37,420
963.40	14,444	38,853
963.50	14,673	40,309
963.60	14,903	41,788
963.70	15,133	43,289
963.80	15,362	44,814
963.90	15,592	46,362
964.00	15,822	47,933
964.10	16,051	49,526
964.20	16,281	51,143
964.30	16,511	52,782
964.40	16,740	54,445
964.50	16,970	56,131
964.60	17,200	57,839
964.70	17,429	59,570
964.80	17,659	61,325
964.90	17,889	63,102
965.00	18,118	64,903
965.10	18,348	66,726
965.20	18,578	68,572
965.30	18,807	70,441
965.40	19,037	72,334
965.50	19,267	74,249
965.60	19,496	76,187
965.70	19,726	78,148
965.80	19,956	80,132
965.90	20,185	82,139
966.00	**20,415**	**84,169**

Summary for Pond 13P: SE Pond

Inflow Area = 3.351 ac, 87.76% Impervious, Inflow Depth = 2.35" for 2-year event
Inflow = 13.80 cfs @ 12.12 hrs, Volume= 0.655 af
Outflow = 1.22 cfs @ 12.62 hrs, Volume= 0.655 af, Atten= 91%, Lag= 29.7 min
Primary = 1.22 cfs @ 12.62 hrs, Volume= 0.655 af
Routed to Reach 6R : SE

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Starting Elev= 960.50' Surf.Area= 7,752 sf Storage= 10,839 cf
Peak Elev= 962.31' @ 12.62 hrs Surf.Area= 10,017 sf Storage= 26,920 cf (16,082 cf above start)

Plug-Flow detention time= 399.9 min calculated for 0.406 af (62% of inflow)
Center-of-Mass det. time= 201.1 min (968.5 - 767.4)

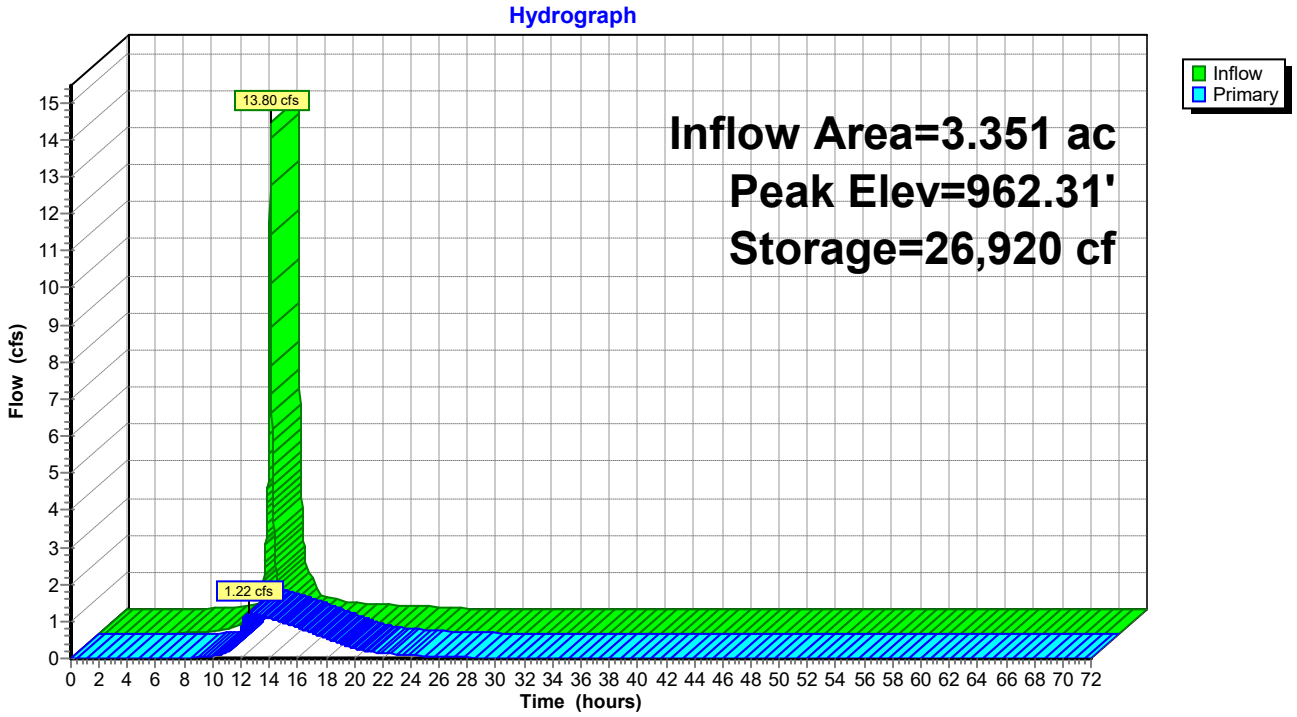
Volume	Invert	Avail.Storage	Storage Description
#1	956.50'	45,838 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
956.50	439	0	0
959.50	3,152	5,387	5,387
960.50	7,752	5,452	10,839
963.00	10,880	23,290	34,129
963.50	11,804	5,671	39,800
964.00	12,349	6,038	45,838

Device	Routing	Invert	Outlet Devices
#1	Primary	960.50'	**18.0" Round Culvert** L= 44.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 960.50' / 960.06' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 1.77 sf
#2	Device 1	960.50'	**Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.80 1.80 4.50 Width (feet) 0.00 0.00 5.00 5.00
#3	Device 1	960.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.20 cfs @ 12.62 hrs HW=962.31' (Free Discharge)
└**1=Culvert** (Passes 1.20 cfs of 8.72 cfs potential flow)
└**2=Weir** (Weir Controls 0.02 cfs @ 0.33 fps)
└**3=Orifice/Grate** (Orifice Controls 1.18 cfs @ 6.01 fps)

Pond 13P: SE Pond



Stage-Discharge for Pond 13P: SE Pond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
956.50	0.00	959.10	0.00	961.70	0.92	964.30	14.86
956.55	0.00	959.15	0.00	961.75	0.95	964.35	14.98
956.60	0.00	959.20	0.00	961.80	0.97	964.40	15.10
956.65	0.00	959.25	0.00	961.85	0.99	964.45	15.22
956.70	0.00	959.30	0.00	961.90	1.01	964.50	15.34
956.75	0.00	959.35	0.00	961.95	1.04	964.55	15.46
956.80	0.00	959.40	0.00	962.00	1.06	964.60	15.57
956.85	0.00	959.45	0.00	962.05	1.08	964.65	15.69
956.90	0.00	959.50	0.00	962.10	1.10	964.70	15.80
956.95	0.00	959.55	0.00	962.15	1.12	964.75	15.92
957.00	0.00	959.60	0.00	962.20	1.14	964.80	16.03
957.05	0.00	959.65	0.00	962.25	1.16	964.85	16.14
957.10	0.00	959.70	0.00	962.30	1.18	964.90	16.26
957.15	0.00	959.75	0.00	962.35	1.38	964.95	16.37
957.20	0.00	959.80	0.00	962.40	1.73	965.00	**16.48**
957.25	0.00	959.85	0.00	962.45	2.18		
957.30	0.00	959.90	0.00	962.50	2.72		
957.35	0.00	959.95	0.00	962.55	3.32		
957.40	0.00	960.00	0.00	962.60	3.98		
957.45	0.00	960.05	0.00	962.65	4.69		
957.50	0.00	960.10	0.00	962.70	5.46		
957.55	0.00	960.15	0.00	962.75	6.28		
957.60	0.00	960.20	0.00	962.80	7.14		
957.65	0.00	960.25	0.00	962.85	8.05		
957.70	0.00	960.30	0.00	962.90	9.00		
957.75	0.00	960.35	0.00	962.95	9.98		
957.80	0.00	960.40	0.00	963.00	11.01		
957.85	0.00	960.45	0.00	963.05	11.40		
957.90	0.00	960.50	0.00	963.10	11.57		
957.95	0.00	960.55	0.01	963.15	11.73		
958.00	0.00	960.60	0.03	963.20	11.88		
958.05	0.00	960.65	0.07	963.25	12.03		
958.10	0.00	960.70	0.11	963.30	12.18		
958.15	0.00	960.75	0.17	963.35	12.33		
958.20	0.00	960.80	0.23	963.40	12.48		
958.25	0.00	960.85	0.30	963.45	12.62		
958.30	0.00	960.90	0.36	963.50	12.76		
958.35	0.00	960.95	0.43	963.55	12.90		
958.40	0.00	961.00	0.47	963.60	13.04		
958.45	0.00	961.05	0.52	963.65	13.18		
958.50	0.00	961.10	0.56	963.70	13.32		
958.55	0.00	961.15	0.60	963.75	13.45		
958.60	0.00	961.20	0.63	963.80	13.59		
958.65	0.00	961.25	0.67	963.85	13.72		
958.70	0.00	961.30	0.70	963.90	13.85		
958.75	0.00	961.35	0.73	963.95	13.98		
958.80	0.00	961.40	0.76	964.00	14.11		
958.85	0.00	961.45	0.79	964.05	14.24		
958.90	0.00	961.50	0.82	964.10	14.36		
958.95	0.00	961.55	0.85	964.15	14.49		
959.00	0.00	961.60	0.87	964.20	14.61		
959.05	0.00	961.65	0.90	964.25	14.74		

Stage-Area-Storage for Pond 13P: SE Pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
956.50	439	0
956.60	529	48
956.70	620	106
956.80	710	172
956.90	801	248
957.00	891	333
957.10	982	426
957.20	1,072	529
957.30	1,162	641
957.40	1,253	761
957.50	1,343	891
957.60	1,434	1,030
957.70	1,524	1,178
957.80	1,615	1,335
957.90	1,705	1,501
958.00	1,796	1,676
958.10	1,886	1,860
958.20	1,976	2,053
958.30	2,067	2,255
958.40	2,157	2,466
958.50	2,248	2,687
958.60	2,338	2,916
958.70	2,429	3,154
958.80	2,519	3,402
958.90	2,609	3,658
959.00	2,700	3,924
959.10	2,790	4,198
959.20	2,881	4,482
959.30	2,971	4,774
959.40	3,062	5,076
959.50	3,152	5,387
959.60	3,612	5,725
959.70	4,072	6,109
959.80	4,532	6,539
959.90	4,992	7,015
960.00	5,452	7,538
960.10	5,912	8,106
960.20	6,372	8,720
960.30	6,832	9,380
960.40	7,292	10,086
960.50	7,752	10,839
960.60	7,877	11,620
960.70	8,002	12,414
960.80	8,127	13,220
960.90	8,252	14,039
961.00	8,378	14,871
961.10	8,503	15,715
961.20	8,628	16,571
961.30	8,753	17,440
961.40	8,878	18,322
961.50	9,003	19,216
961.60	9,128	20,123
961.70	9,253	21,042
961.80	9,379	21,973
961.90	9,504	22,917
962.00	9,629	23,874
962.10	9,754	24,843
962.20	9,879	25,825
962.30	10,004	26,819
962.40	10,129	27,826
962.50	10,254	28,845
962.60	10,380	29,877
962.70	10,505	30,921
962.80	10,630	31,978
962.90	10,755	33,047
963.00	10,880	34,129
963.10	11,065	35,226
963.20	11,250	36,341
963.30	11,434	37,476
963.40	11,619	38,628
963.50	11,804	39,800
963.60	11,913	40,985
963.70	12,022	42,182
963.80	12,131	43,390
963.90	12,240	44,608
964.00	**12,349**	**45,838**
964.10	12,349	45,838
964.20	12,349	45,838
964.30	12,349	45,838
964.40	12,349	45,838
964.50	12,349	45,838
964.60	12,349	45,838
964.70	12,349	45,838
964.80	12,349	45,838
964.90	12,349	45,838
965.00	12,349	45,838

Summary for Pond 14P: SW Pond

Inflow Area = 6.052 ac, 83.80% Impervious, Inflow Depth = 2.24" for 2-year event
Inflow = 24.31 cfs @ 12.12 hrs, Volume= 1.132 af
Outflow = 4.94 cfs @ 12.36 hrs, Volume= 1.132 af, Atten= 80%, Lag= 14.5 min
Primary = 4.94 cfs @ 12.36 hrs, Volume= 1.132 af
Routed to Reach 7R : SW

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Starting Elev= 958.00' Surf.Area= 8,880 sf Storage= 15,244 cf
Peak Elev= 960.36' @ 12.36 hrs Surf.Area= 12,680 sf Storage= 40,689 cf (25,445 cf above start)

Plug-Flow detention time= 374.8 min calculated for 0.782 af (69% of inflow)
Center-of-Mass det. time= 200.5 min (973.2 - 772.7)

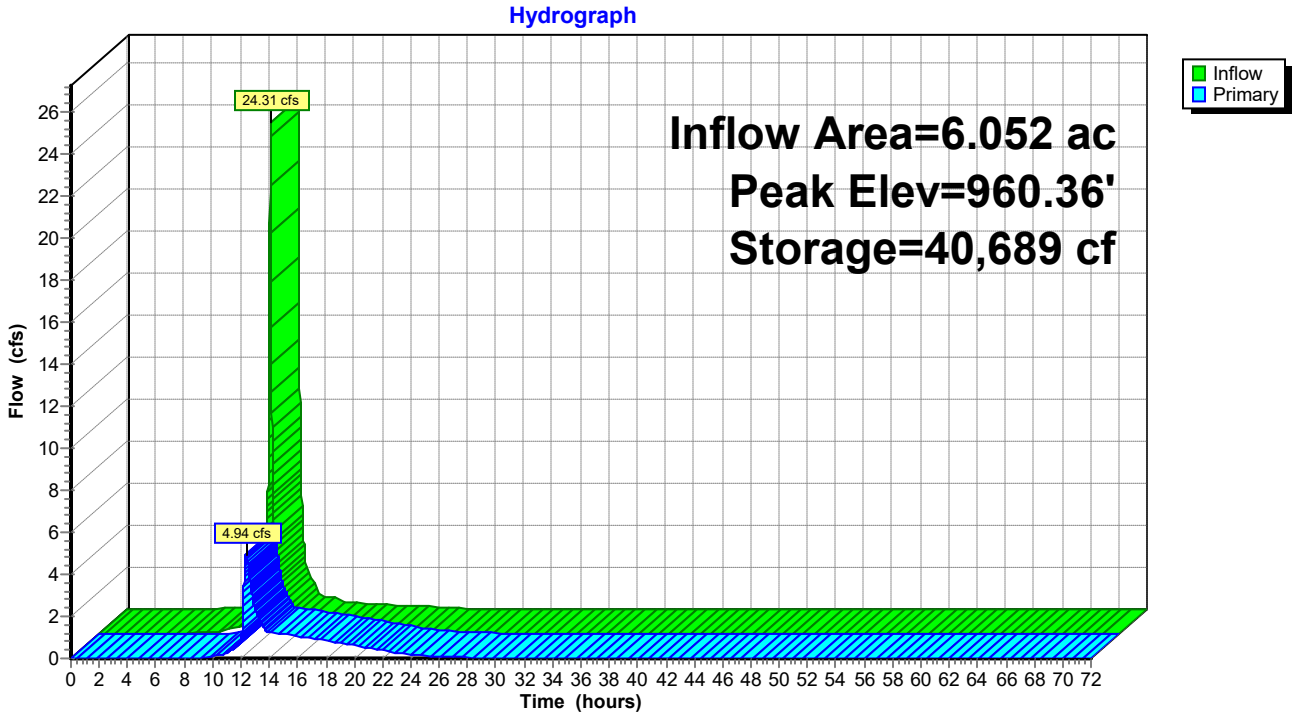
Volume	Invert	Avail.Storage	Storage Description
#1	954.00'	88,469 cf	**Above Ground (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
954.00	1,344	0	0
957.00	4,394	8,607	8,607
958.00	8,880	6,637	15,244
963.00	16,929	64,523	79,767
963.50	17,880	8,702	88,469

Device	Routing	Invert	Outlet Devices
#1	Primary	958.00'	**18.0" Round Culvert** L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 958.00' / 957.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 1.77 sf
#2	Device 1	958.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 2.00 6.00 Width (feet) 0.00 0.00 5.00 5.00
#3	Device 1	958.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.92 cfs @ 12.36 hrs HW=960.36' (Free Discharge)
└**1=Culvert** (Passes 4.92 cfs of 9.07 cfs potential flow)
  ├**2=Custom Weir/Orifice** (Weir Controls 3.54 cfs @ 1.97 fps)
  └**3=Orifice/Grate** (Orifice Controls 1.37 cfs @ 6.99 fps)

Pond 14P: SW Pond



Stage-Discharge for Pond 14P: SW Pond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
954.00	0.00	956.60	0.00	959.20	0.92	961.80	13.01
954.05	0.00	956.65	0.00	959.25	0.95	961.85	13.12
954.10	0.00	956.70	0.00	959.30	0.97	961.90	13.24
954.15	0.00	956.75	0.00	959.35	0.99	961.95	13.35
954.20	0.00	956.80	0.00	959.40	1.01	962.00	13.46
954.25	0.00	956.85	0.00	959.45	1.04	962.05	13.57
954.30	0.00	956.90	0.00	959.50	1.06	962.10	13.69
954.35	0.00	956.95	0.00	959.55	1.08	962.15	13.80
954.40	0.00	957.00	0.00	959.60	1.10	962.20	13.90
954.45	0.00	957.05	0.00	959.65	1.12	962.25	14.01
954.50	0.00	957.10	0.00	959.70	1.14	962.30	14.12
954.55	0.00	957.15	0.00	959.75	1.16	962.35	14.23
954.60	0.00	957.20	0.00	959.80	1.18	962.40	14.33
954.65	0.00	957.25	0.00	959.85	1.20	962.45	14.44
954.70	0.00	957.30	0.00	959.90	1.21	962.50	14.54
954.75	0.00	957.35	0.00	959.95	1.23	962.55	14.64
954.80	0.00	957.40	0.00	960.00	1.25	962.60	14.75
954.85	0.00	957.45	0.00	960.05	1.45	962.65	14.85
954.90	0.00	957.50	0.00	960.10	1.80	962.70	14.95
954.95	0.00	957.55	0.00	960.15	2.25	962.75	15.05
955.00	0.00	957.60	0.00	960.20	2.78	962.80	15.15
955.05	0.00	957.65	0.00	960.25	3.38	962.85	15.25
955.10	0.00	957.70	0.00	960.30	4.04	962.90	15.35
955.15	0.00	957.75	0.00	960.35	4.76	962.95	15.45
955.20	0.00	957.80	0.00	960.40	5.53	963.00	15.55
955.25	0.00	957.85	0.00	960.45	6.35	963.05	15.64
955.30	0.00	957.90	0.00	960.50	7.21	963.10	15.74
955.35	0.00	957.95	0.00	960.55	8.11	963.15	15.83
955.40	0.00	958.00	0.00	960.60	9.06	963.20	15.93
955.45	0.00	958.05	0.01	960.65	9.98	963.25	16.02
955.50	0.00	958.10	0.03	960.70	10.13	963.30	16.12
955.55	0.00	958.15	0.07	960.75	10.28	963.35	16.21
955.60	0.00	958.20	0.11	960.80	10.43	963.40	16.30
955.65	0.00	958.25	0.17	960.85	10.57	963.45	16.40
955.70	0.00	958.30	0.23	960.90	10.71	963.50	16.49
955.75	0.00	958.35	0.30	960.95	10.85	963.55	16.58
955.80	0.00	958.40	0.36	961.00	10.99	963.60	16.67
955.85	0.00	958.45	0.43	961.05	11.13	963.65	16.76
955.90	0.00	958.50	0.47	961.10	11.26	963.70	16.85
955.95	0.00	958.55	0.52	961.15	11.40	963.75	16.94
956.00	0.00	958.60	0.56	961.20	11.53	963.80	17.03
956.05	0.00	958.65	0.60	961.25	11.66	963.85	17.12
956.10	0.00	958.70	0.63	961.30	11.79	963.90	17.21
956.15	0.00	958.75	0.67	961.35	11.92	963.95	17.29
956.20	0.00	958.80	0.70	961.40	12.04	964.00	**17.38**
956.25	0.00	958.85	0.73	961.45	12.17		
956.30	0.00	958.90	0.76	961.50	12.29		
956.35	0.00	958.95	0.79	961.55	12.41		
956.40	0.00	959.00	0.82	961.60	12.53		
956.45	0.00	959.05	0.85	961.65	12.65		
956.50	0.00	959.10	0.87	961.70	12.77		
956.55	0.00	959.15	0.90	961.75	12.89		

Stage-Area-Storage for Pond 14P: SW Pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
954.00	1,344	0
954.10	1,446	139
954.20	1,547	289
954.30	1,649	449
954.40	1,751	619
954.50	1,852	799
954.60	1,954	989
954.70	2,056	1,190
954.80	2,157	1,401
954.90	2,259	1,621
955.00	2,361	1,852
955.10	2,462	2,093
955.20	2,564	2,345
955.30	2,666	2,606
955.40	2,767	2,878
955.50	2,869	3,160
955.60	2,971	3,452
955.70	3,072	3,754
955.80	3,174	4,066
955.90	3,276	4,389
956.00	3,377	4,721
956.10	3,479	5,064
956.20	3,581	5,417
956.30	3,682	5,780
956.40	3,784	6,154
956.50	3,886	6,537
956.60	3,987	6,931
956.70	4,089	7,335
956.80	4,191	7,749
956.90	4,292	8,173
957.00	4,394	8,607
957.10	4,843	9,069
957.20	5,291	9,576
957.30	5,740	10,127
957.40	6,188	10,723
957.50	6,637	11,365
957.60	7,086	12,051
957.70	7,534	12,782
957.80	7,983	13,558
957.90	8,431	14,378
958.00	8,880	15,244
958.10	9,041	16,140
958.20	9,202	17,052
958.30	9,363	17,980
958.40	9,524	18,925
958.50	9,685	19,885
958.60	9,846	20,862
958.70	10,007	21,854
958.80	10,168	22,863
958.90	10,329	23,888
959.00	10,490	24,929
959.10	10,651	25,986
959.20	10,812	27,059
959.30	10,973	28,148
959.40	11,134	29,254
959.50	11,295	30,375
959.60	11,456	31,513
959.70	11,617	32,666
959.80	11,778	33,836
959.90	11,939	35,022
960.00	12,100	36,224
960.10	12,261	37,442
960.20	12,422	38,676
960.30	12,583	39,926
960.40	12,744	41,192
960.50	12,905	42,475
960.60	13,065	43,773
960.70	13,226	45,088
960.80	13,387	46,418
960.90	13,548	47,765
961.00	13,709	49,128
961.10	13,870	50,507
961.20	14,031	51,902
961.30	14,192	53,313
961.40	14,353	54,741
961.50	14,514	56,184
961.60	14,675	57,644
961.70	14,836	59,119
961.80	14,997	60,611
961.90	15,158	62,119
962.00	15,319	63,642
962.10	15,480	65,182
962.20	15,641	66,738
962.30	15,802	68,311
962.40	15,963	69,899
962.50	16,124	71,503
962.60	16,285	73,124
962.70	16,446	74,760
962.80	16,607	76,413
962.90	16,768	78,082
963.00	16,929	79,767
963.10	17,119	81,469
963.20	17,309	83,190
963.30	17,500	84,931
963.40	17,690	86,690
963.50	**17,880**	**88,469**
963.60	17,880	88,469
963.70	17,880	88,469
963.80	17,880	88,469
963.90	17,880	88,469
964.00	17,880	88,469

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: West Dealership Runoff Area=263,642 sf 83.80% Impervious Runoff Depth=3.60"
Tc=5.0 min CN=95 Runoff=37.75 cfs 1.815 af

Subcatchment 2S: SE Dealership Runoff Area=145,991 sf 87.76% Impervious Runoff Depth=3.71"
Tc=5.0 min CN=96 Runoff=21.18 cfs 1.036 af

Subcatchment 3S: NE Dealership Runoff Area=202,733 sf 89.15% Impervious Runoff Depth=3.71"
Tc=5.0 min CN=96 Runoff=29.42 cfs 1.438 af

Subcatchment 4S: North Dealership Runoff Area=108,940 sf 85.10% Impervious Runoff Depth=3.60"
Tc=5.0 min CN=95 Runoff=15.60 cfs 0.750 af

Subcatchment 8S: NE D-D Runoff Area=27,383 sf 43.27% Impervious Runoff Depth=2.89"
Tc=0.0 min CN=88 Runoff=3.74 cfs 0.151 af

Subcatchment 9S: South Undev. Runoff Area=432,604 sf 0.22% Impervious Runoff Depth=2.98"
Flow Length=959' Tc=27.6 min CN=89 Runoff=27.43 cfs 2.469 af

Subcatchment 10S: North Undev. Runoff Area=92,762 sf 0.00% Impervious Runoff Depth=2.18"
Tc=5.0 min CN=80 Runoff=9.07 cfs 0.387 af

Subcatchment 15S: South D-D Runoff Area=4,335 sf 0.00% Impervious Runoff Depth=2.98"
Tc=5.0 min CN=89 Runoff=0.55 cfs 0.025 af

Reach 5R: North Inflow=25.85 cfs 2.723 af
Outflow=25.85 cfs 2.723 af

Reach 6R: SE Inflow=7.10 cfs 1.060 af
Outflow=7.10 cfs 1.060 af

Reach 7R: SW Inflow=38.58 cfs 4.284 af
Outflow=38.58 cfs 4.284 af

Pond 11P: NW Pond Peak Elev=964.55' Storage=24,585 cf Inflow=15.60 cfs 0.750 af
Outflow=7.60 cfs 0.750 af

Pond 12P: NE Pond Peak Elev=963.73' Storage=43,798 cf Inflow=29.42 cfs 1.438 af
Outflow=11.63 cfs 1.435 af

Pond 13P: SE Pond Peak Elev=962.79' Storage=31,835 cf Inflow=21.18 cfs 1.036 af
Outflow=6.91 cfs 1.036 af

Pond 14P: SW Pond Peak Elev=961.14' Storage=51,097 cf Inflow=37.75 cfs 1.815 af
Outflow=11.38 cfs 1.815 af

Total Runoff Area = 29.348 ac Runoff Volume = 8.071 af Average Runoff Depth = 3.30"
50.30% Pervious = 14.763 ac 49.70% Impervious = 14.585 ac

Summary for Subcatchment 1S: West Dealership

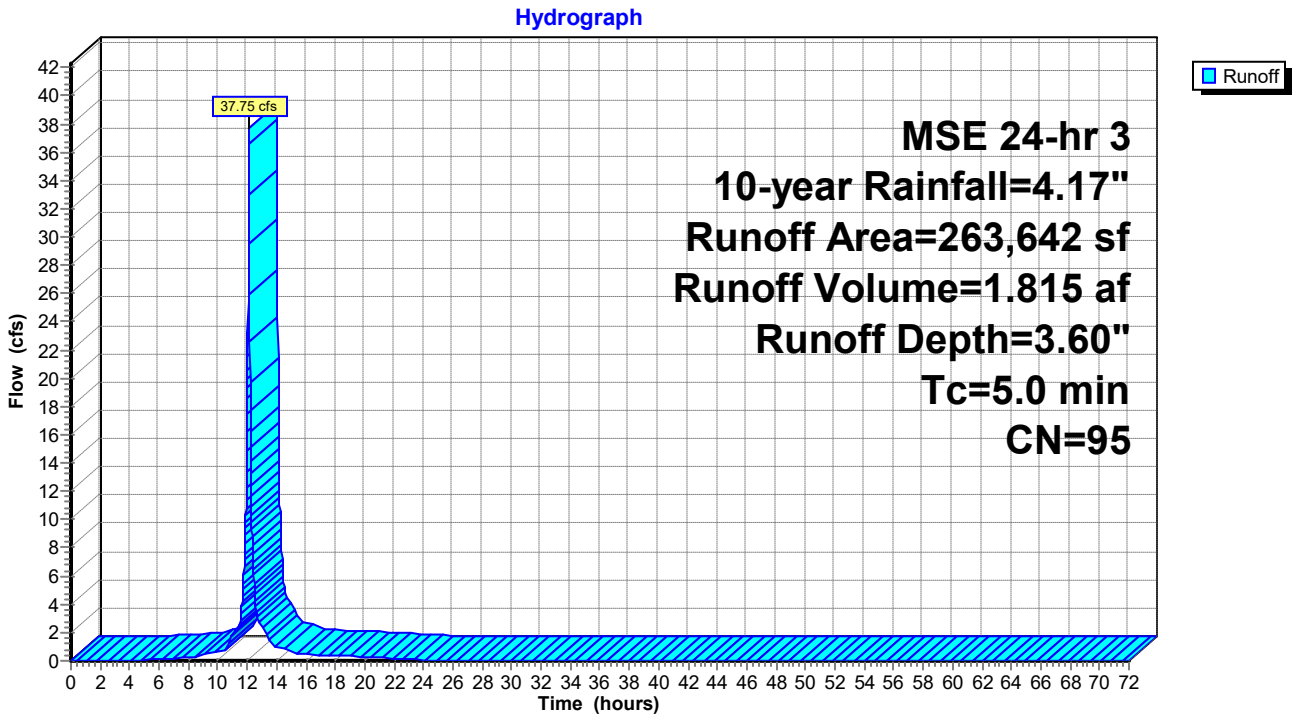
Runoff = 37.75 cfs @ 12.12 hrs, Volume= 1.815 af, Depth= 3.60"
Routed to Pond 14P : SW Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-year Rainfall=4.17"

Area (sf)	CN	Description
42,698	80	>75% Grass cover, Good, HSG D
212,064	98	Paved parking, HSG D
8,880	98	Water Surface, HSG D
263,642	95	Weighted Average
42,698		16.20% Pervious Area
220,944		83.80% Impervious Area

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

Subcatchment 1S: West Dealership



Summary for Subcatchment 2S: SE Dealership

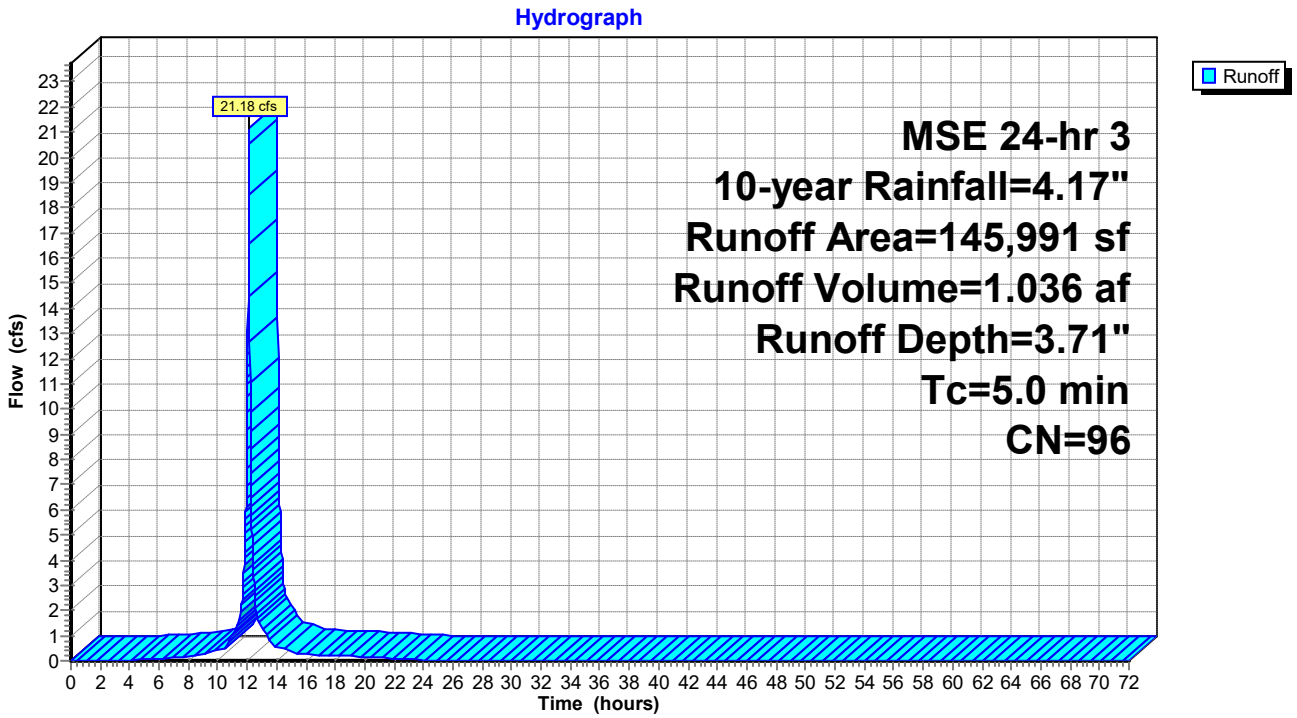
Runoff = 21.18 cfs @ 12.12 hrs, Volume= 1.036 af, Depth= 3.71"
Routed to Pond 13P : SE Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-year Rainfall=4.17"

Area (sf)	CN	Description
17,867	80	>75% Grass cover, Good, HSG D
120,372	98	Paved parking, HSG D
7,752	98	Water Surface, HSG D
145,991	96	Weighted Average
17,867		12.24% Pervious Area
128,124		87.76% Impervious Area

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

Subcatchment 2S: SE Dealership



Summary for Subcatchment 3S: NE Dealership

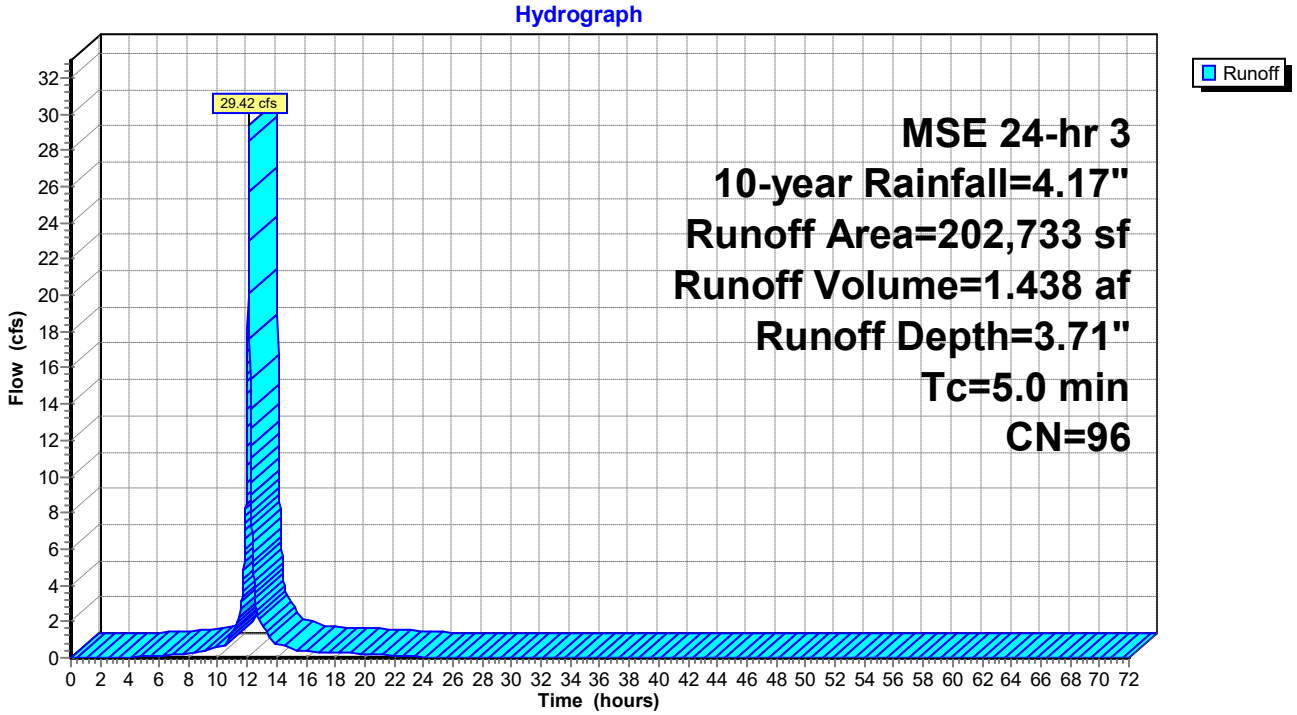
Runoff = 29.42 cfs @ 12.12 hrs, Volume= 1.438 af, Depth= 3.71"
Routed to Pond 12P : NE Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-year Rainfall=4.17"

Area (sf)	CN	Description
21,990	80	>75% Grass cover, Good, HSG D
170,370	98	Paved parking, HSG D
10,373	98	Water Surface, HSG D
202,733	96	Weighted Average
21,990		10.85% Pervious Area
180,743		89.15% Impervious Area

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

Subcatchment 3S: NE Dealership



Summary for Subcatchment 4S: North Dealership

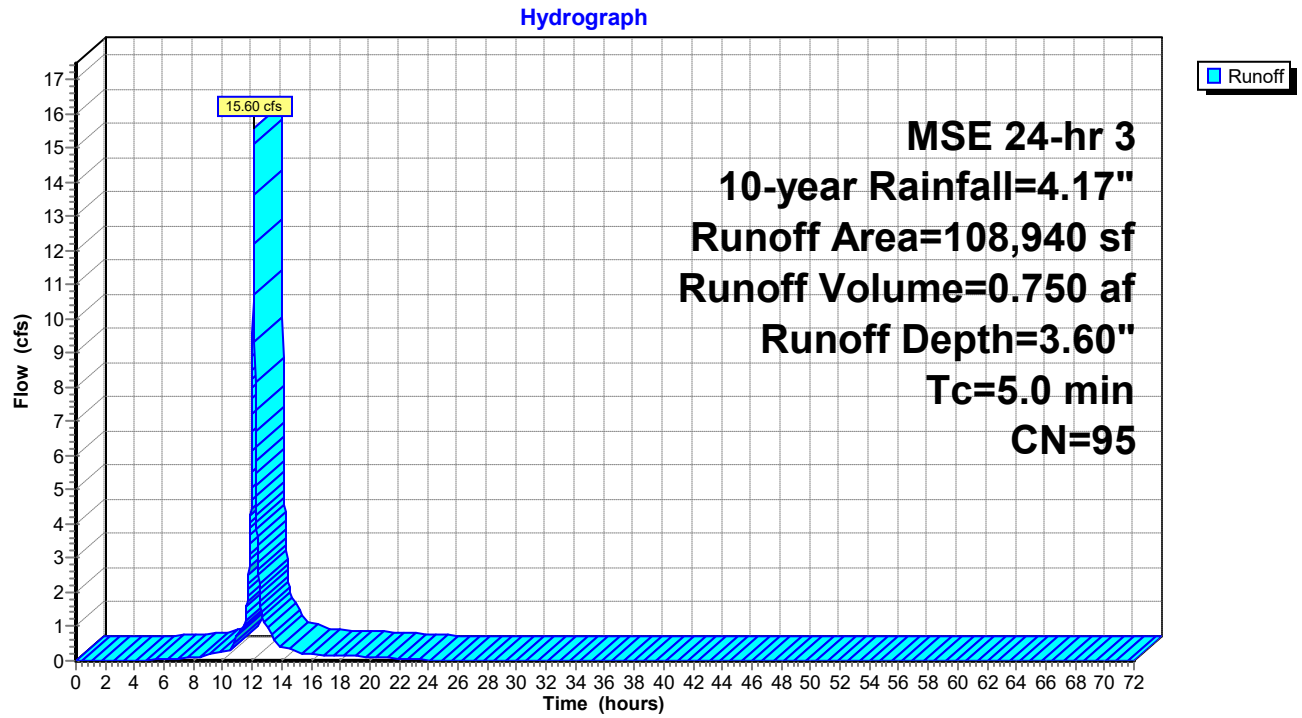
Runoff = 15.60 cfs @ 12.12 hrs, Volume= 0.750 af, Depth= 3.60"
Routed to Pond 11P : NW Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-year Rainfall=4.17"

Area (sf)	CN	Description
16,235	80	>75% Grass cover, Good, HSG D
85,715	98	Paved parking, HSG D
6,990	98	Water Surface, HSG D
108,940	95	Weighted Average
16,235		14.90% Pervious Area
92,705		85.10% Impervious Area

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

Subcatchment 4S: North Dealership



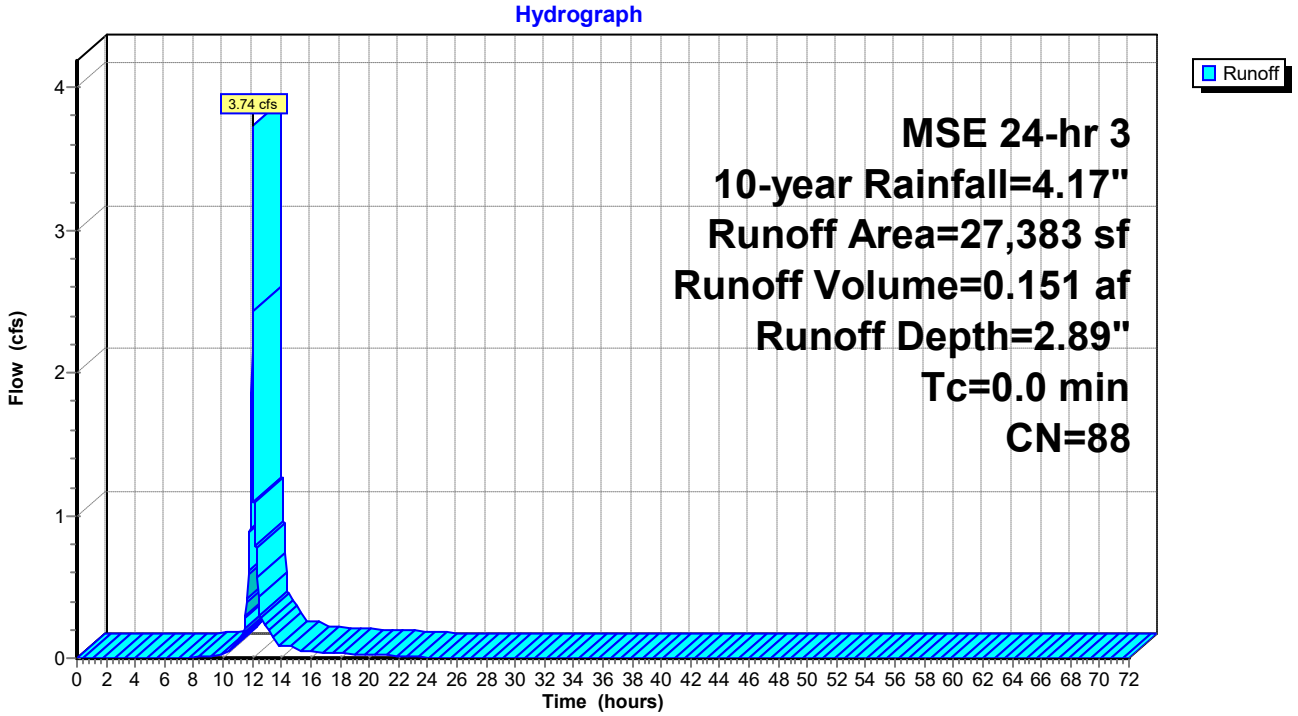
Summary for Subcatchment 8S: NE D-D

Runoff = 3.74 cfs @ 12.09 hrs, Volume= 0.151 af, Depth= 2.89"
Routed to Reach 5R : North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-year Rainfall=4.17"

Area (sf)	CN	Description
15,535	80	>75% Grass cover, Good, HSG D
11,848	98	Paved parking, HSG D
27,383	88	Weighted Average
15,535		56.73% Pervious Area
11,848		43.27% Impervious Area

Subcatchment 8S: NE D-D



Summary for Subcatchment 9S: South Undev.

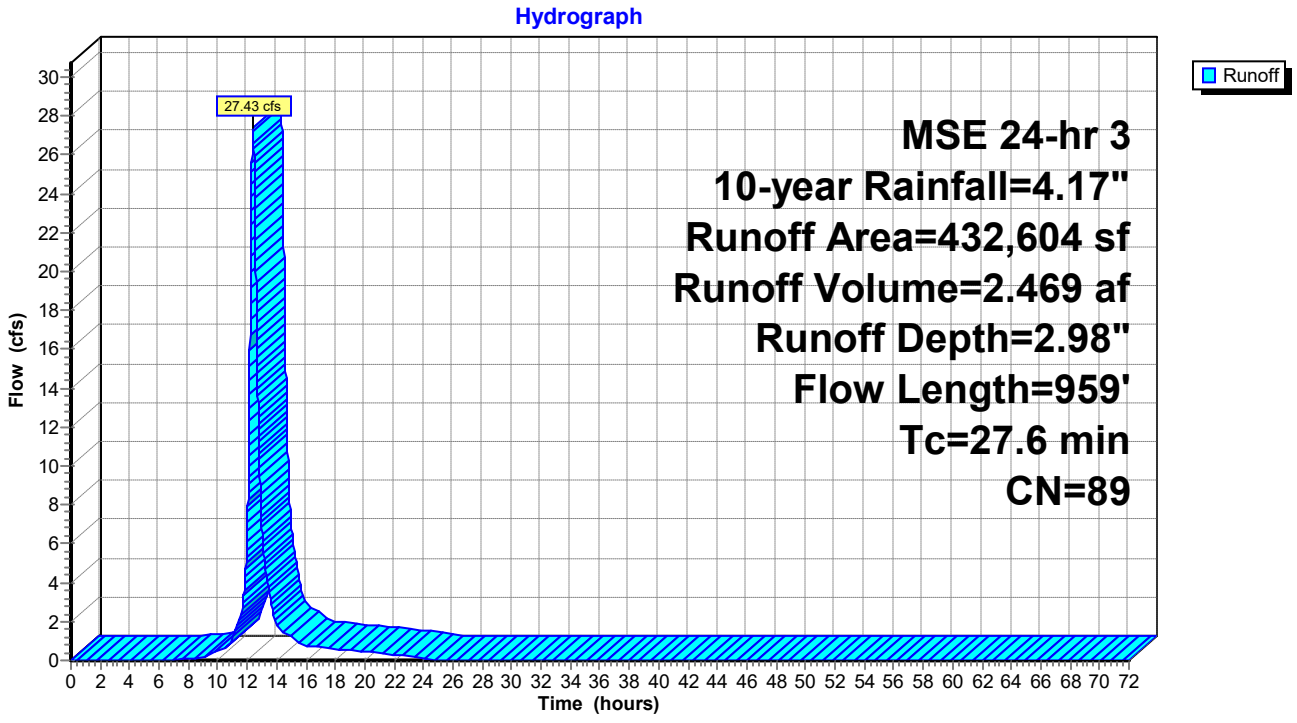
Runoff = 27.43 cfs @ 12.39 hrs, Volume= 2.469 af, Depth= 2.98"
Routed to Reach 7R : SW

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-year Rainfall=4.17"

Area (sf)	CN	Description
958	98	Paved parking, HSG D
431,646	89	Row crops, straight row, Good, HSG D
432,604	89	Weighted Average
431,646		99.78% Pervious Area
958		0.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	205	0.0341	1.66		**Shallow Concentrated Flow, Steep** Cultivated Straight Rows Kv= 9.0 fps
25.5	754	0.0030	0.49		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
27.6	959	Total			

Subcatchment 9S: South Undev.



Summary for Subcatchment 10S: North Undev.

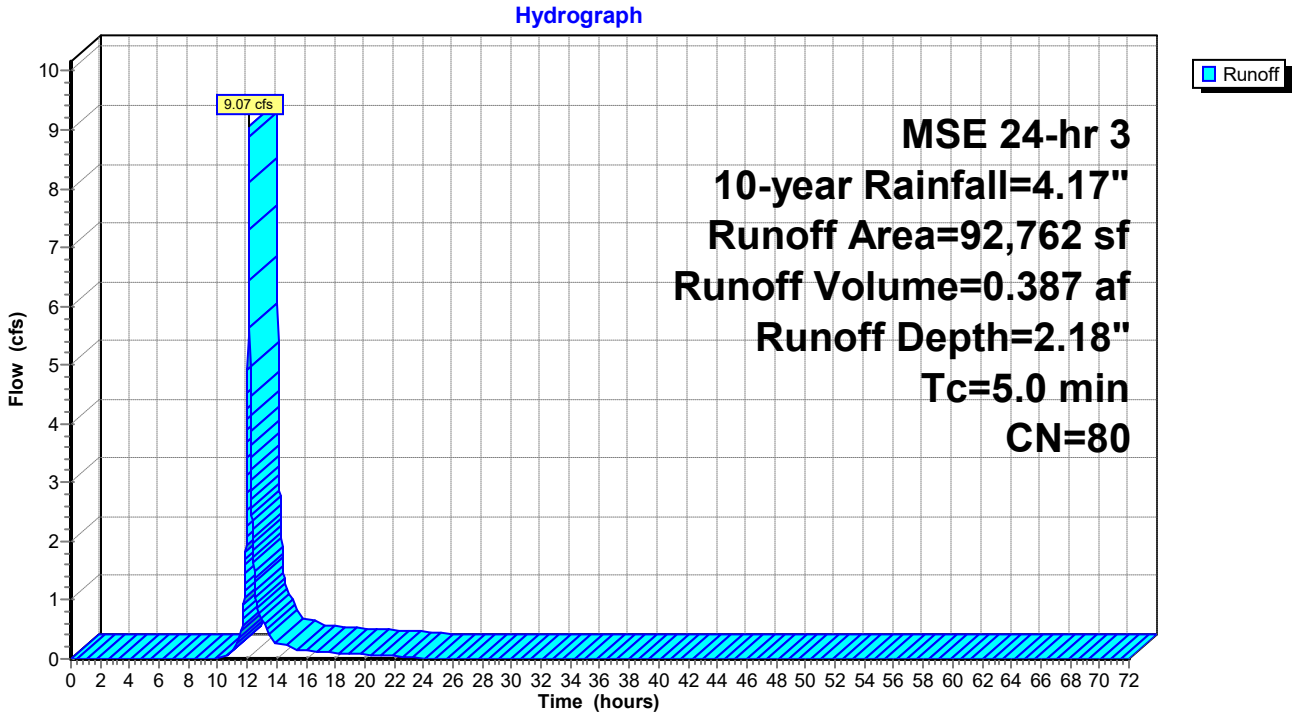
Runoff = 9.07 cfs @ 12.13 hrs, Volume= 0.387 af, Depth= 2.18"
Routed to Reach 5R : North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-year Rainfall=4.17"

Area (sf)	CN	Description
92,762	80	>75% Grass cover, Good, HSG D
92,762		100.00% Pervious Area

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

Subcatchment 10S: North Undev.



Summary for Subcatchment 15S: South D-D

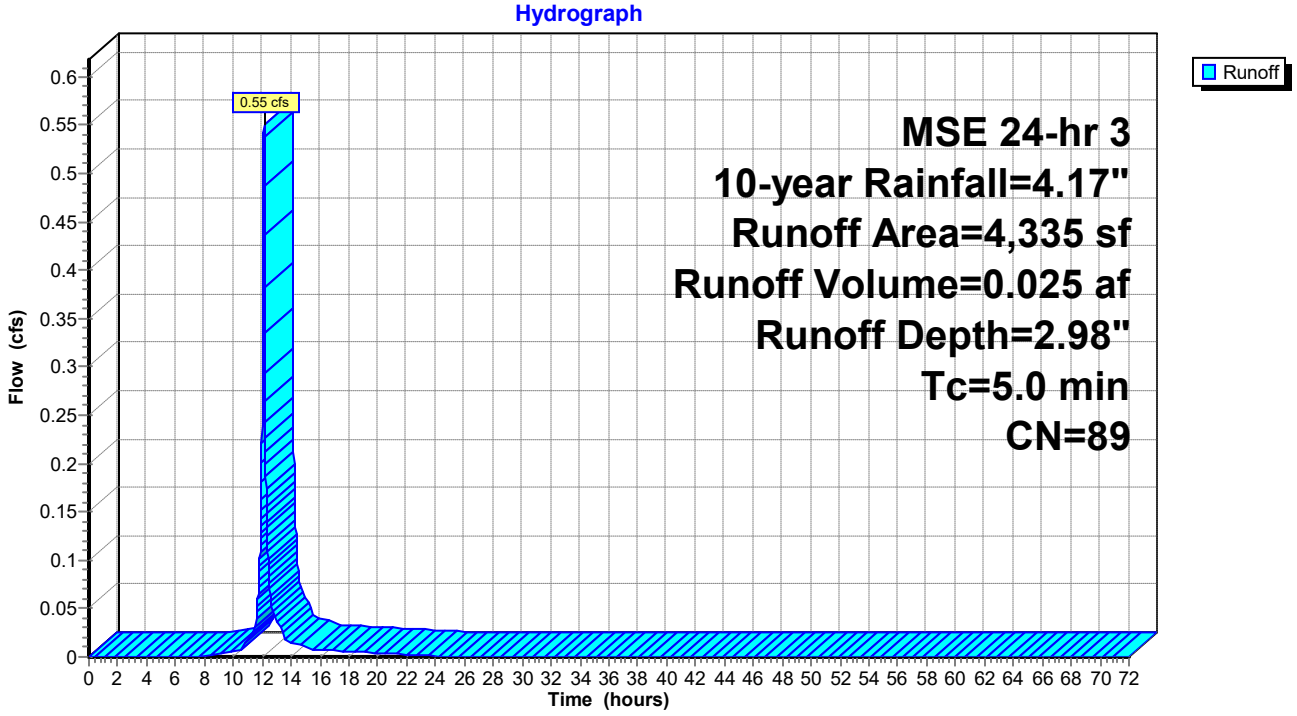
Runoff = 0.55 cfs @ 12.12 hrs, Volume= 0.025 af, Depth= 2.98"
Routed to Reach 6R : SE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-year Rainfall=4.17"

Area (sf)	CN	Description
4,335	89	<50% Grass cover, Poor, HSG D
4,335		100.00% Pervious Area

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

Subcatchment 15S: South D-D

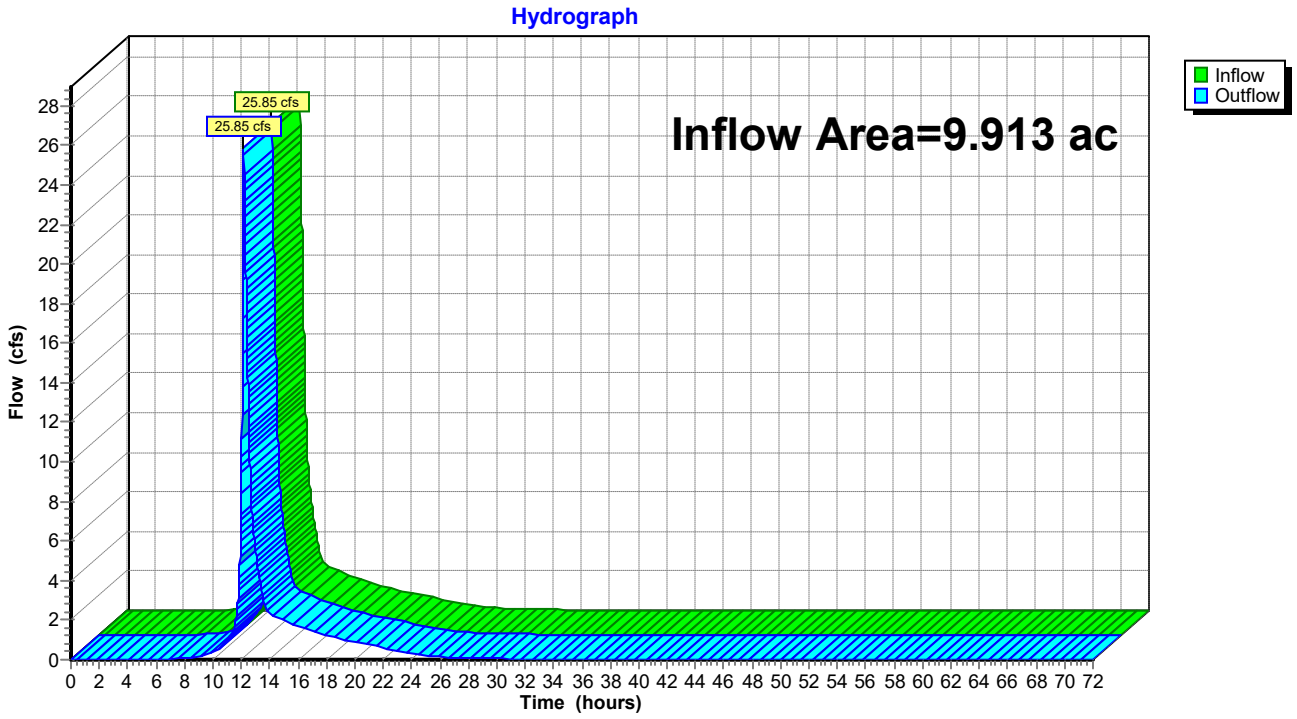


Summary for Reach 5R: North

Inflow Area = 9.913 ac, 66.07% Impervious, Inflow Depth = 3.30" for 10-year event
Inflow = 25.85 cfs @ 12.16 hrs, Volume= 2.723 af
Outflow = 25.85 cfs @ 12.16 hrs, Volume= 2.723 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 20R

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 5R: North

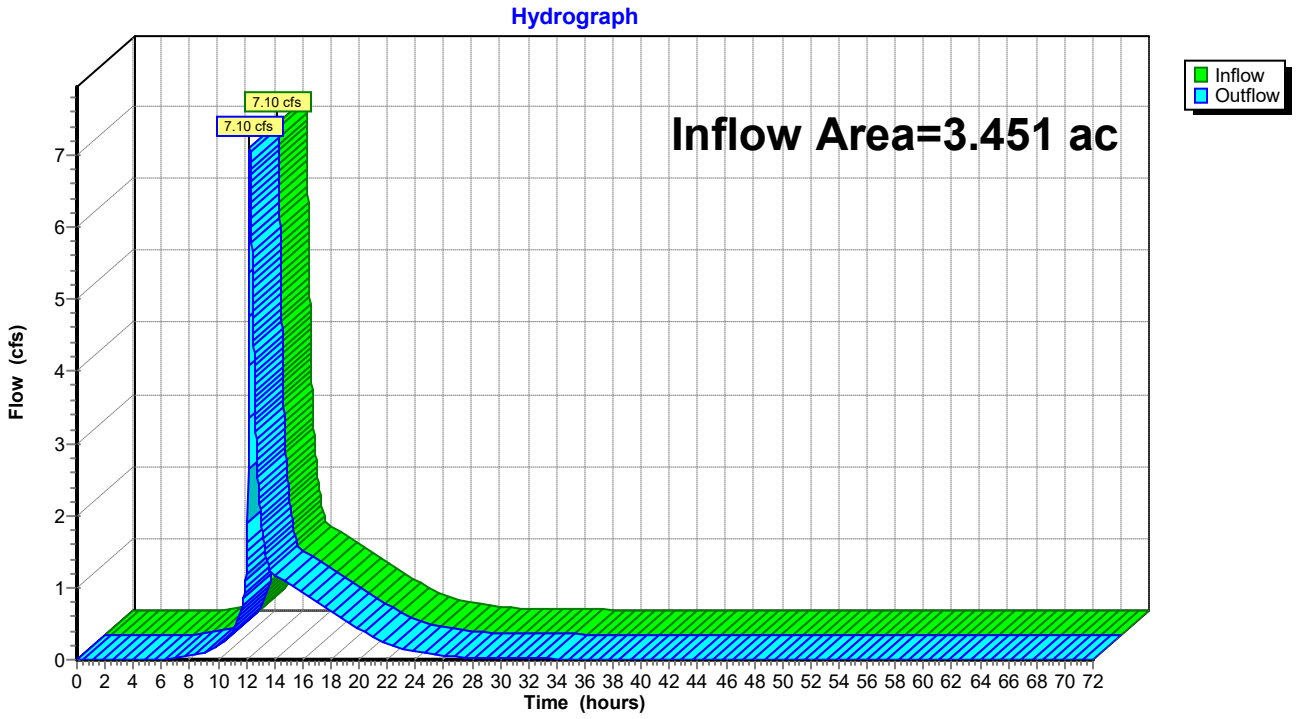


Summary for Reach 6R: SE

Inflow Area = 3.451 ac, 85.23% Impervious, Inflow Depth = 3.69" for 10-year event
Inflow = 7.10 cfs @ 12.25 hrs, Volume= 1.060 af
Outflow = 7.10 cfs @ 12.25 hrs, Volume= 1.060 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 20R

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 6R: SE

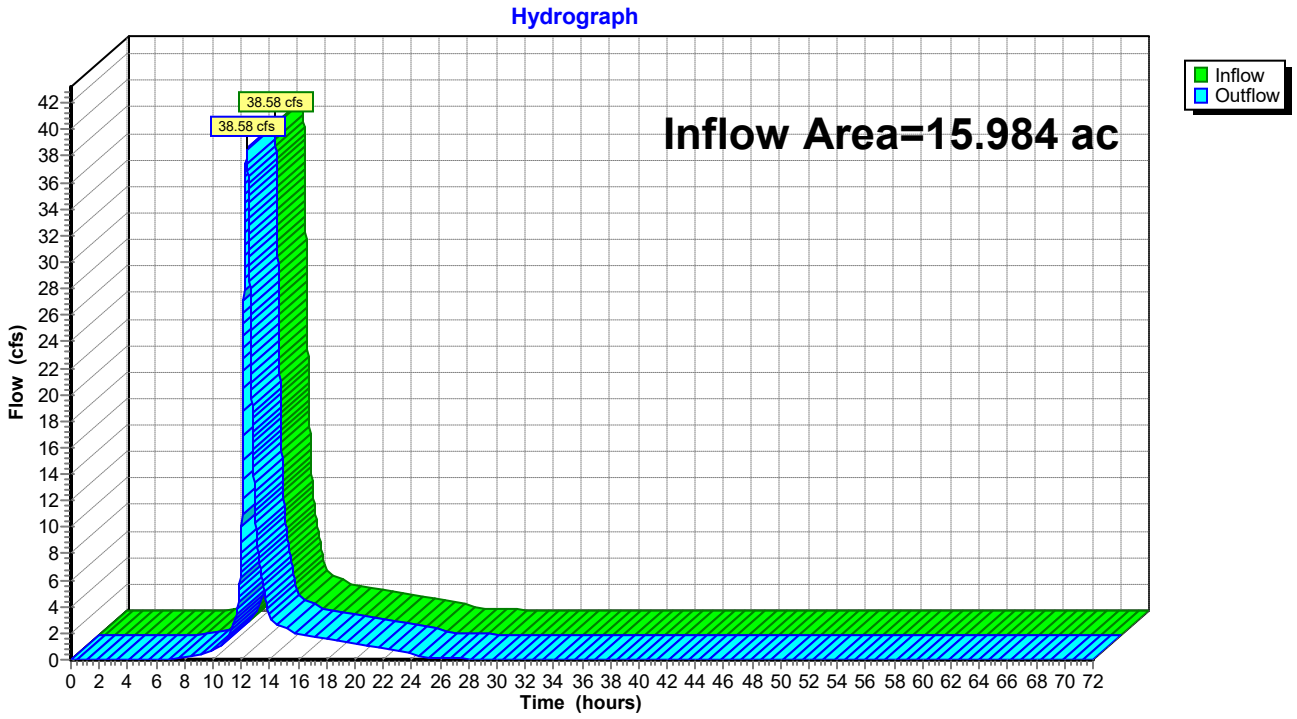


Summary for Reach 7R: SW

Inflow Area = 15.984 ac, 31.87% Impervious, Inflow Depth = 3.22" for 10-year event
Inflow = 38.58 cfs @ 12.38 hrs, Volume= 4.284 af
Outflow = 38.58 cfs @ 12.38 hrs, Volume= 4.284 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 20R

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 7R: SW



Summary for Pond 11P: NW Pond

Inflow Area = 2.501 ac, 85.10% Impervious, Inflow Depth = 3.60" for 10-year event
Inflow = 15.60 cfs @ 12.12 hrs, Volume= 0.750 af
Outflow = 7.60 cfs @ 12.20 hrs, Volume= 0.750 af, Atten= 51%, Lag= 4.6 min
Primary = 7.60 cfs @ 12.20 hrs, Volume= 0.750 af
Routed to Reach 5R : North

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Starting Elev= 963.00' Surf.Area= 6,990 sf Storage= 11,368 cf
Peak Elev= 964.55' @ 12.20 hrs Surf.Area= 10,052 sf Storage= 24,585 cf (13,217 cf above start)

Plug-Flow detention time= 280.4 min calculated for 0.489 af (65% of inflow)
Center-of-Mass det. time= 119.4 min (883.2 - 763.7)

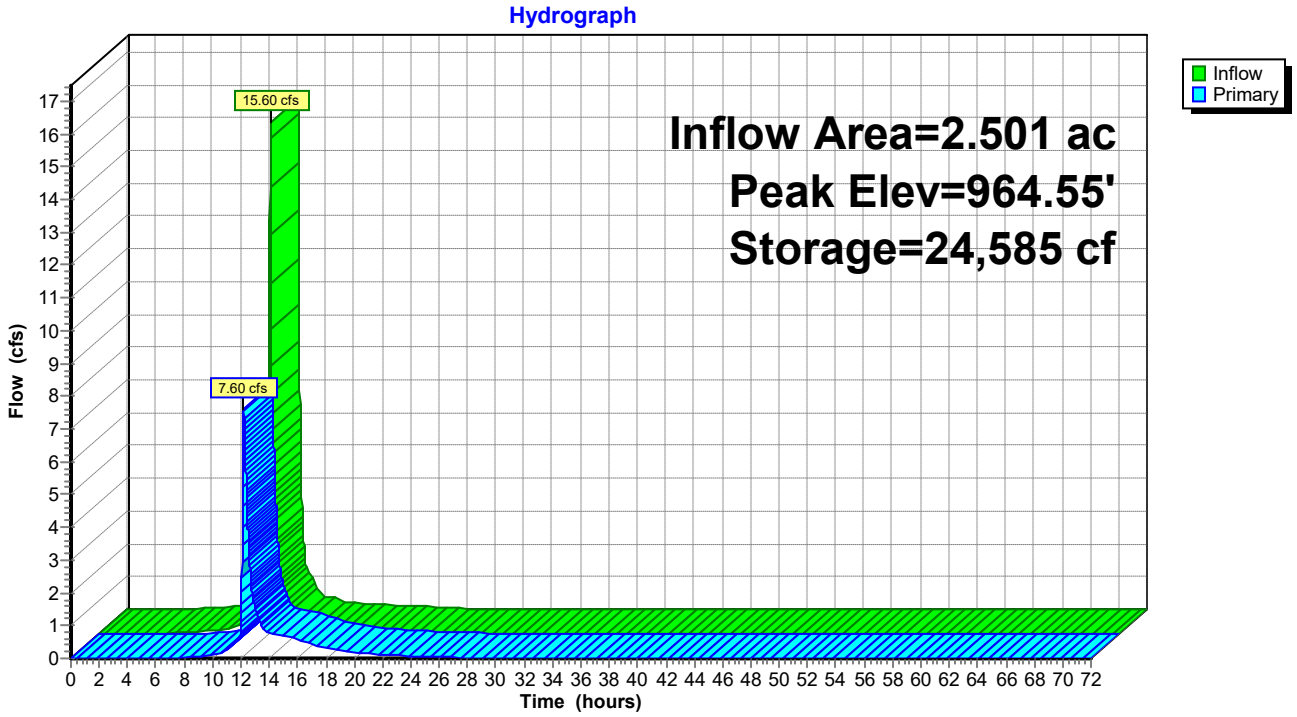
Volume	Invert	Avail.Storage	Storage Description
#1	959.00'	41,356 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
959.00	747	0	0
962.00	3,376	6,185	6,185
963.00	6,990	5,183	11,368
966.00	12,913	29,855	41,222
966.01	13,894	134	41,356

Device	Routing	Invert	Outlet Devices
#1	Primary	963.00'	**18.0" Round Culvert** L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 963.00' / 962.50' S= 0.0167 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 1.77 sf
#2	Device 1	963.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 3.00 Width (feet) 0.00 0.00 5.00 5.00
#3	Device 1	963.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.61 cfs @ 12.20 hrs HW=964.55' (Free Discharge)
└**1=Culvert** (Inlet Controls 7.61 cfs @ 4.31 fps)
  ├**2=Custom Weir/Orifice** (Passes < 6.69 cfs potential flow)
  └**3=Orifice/Grate** (Passes < 1.08 cfs potential flow)

Pond 11P: NW Pond



Stage-Discharge for Pond 11P: NW Pond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
959.00	0.00	961.60	0.00	964.20	2.39
959.05	0.00	961.65	0.00	964.25	2.99
959.10	0.00	961.70	0.00	964.30	3.66
959.15	0.00	961.75	0.00	964.35	4.38
959.20	0.00	961.80	0.00	964.40	5.16
959.25	0.00	961.85	0.00	964.45	5.98
959.30	0.00	961.90	0.00	964.50	6.85
959.35	0.00	961.95	0.00	964.55	7.61
959.40	0.00	962.00	0.00	964.60	7.84
959.45	0.00	962.05	0.00	964.65	8.07
959.50	0.00	962.10	0.00	964.70	8.29
959.55	0.00	962.15	0.00	964.75	8.51
959.60	0.00	962.20	0.00	964.80	8.72
959.65	0.00	962.25	0.00	964.85	8.92
959.70	0.00	962.30	0.00	964.90	9.12
959.75	0.00	962.35	0.00	964.95	9.32
959.80	0.00	962.40	0.00	965.00	9.51
959.85	0.00	962.45	0.00	965.05	9.70
959.90	0.00	962.50	0.00	965.10	9.89
959.95	0.00	962.55	0.00	965.15	10.07
960.00	0.00	962.60	0.00	965.20	10.25
960.05	0.00	962.65	0.00	965.25	10.42
960.10	0.00	962.70	0.00	965.30	10.59
960.15	0.00	962.75	0.00	965.35	10.76
960.20	0.00	962.80	0.00	965.40	10.93
960.25	0.00	962.85	0.00	965.45	11.09
960.30	0.00	962.90	0.00	965.50	11.26
960.35	0.00	962.95	0.00	965.55	11.42
960.40	0.00	963.00	0.00	965.60	11.57
960.45	0.00	963.05	0.01	965.65	11.73
960.50	0.00	963.10	0.03	965.70	11.88
960.55	0.00	963.15	0.07	965.75	12.03
960.60	0.00	963.20	0.11	965.80	12.18
960.65	0.00	963.25	0.17	965.85	12.33
960.70	0.00	963.30	0.23	965.90	12.48
960.75	0.00	963.35	0.30	965.95	12.62
960.80	0.00	963.40	0.36	966.00	**12.76**
960.85	0.00	963.45	0.43		
960.90	0.00	963.50	0.47		
960.95	0.00	963.55	0.52		
961.00	0.00	963.60	0.56		
961.05	0.00	963.65	0.60		
961.10	0.00	963.70	0.63		
961.15	0.00	963.75	0.67		
961.20	0.00	963.80	0.70		
961.25	0.00	963.85	0.73		
961.30	0.00	963.90	0.76		
961.35	0.00	963.95	0.79		
961.40	0.00	964.00	0.82		
961.45	0.00	964.05	1.03		
961.50	0.00	964.10	1.39		
961.55	0.00	964.15	1.85		

Stage-Area-Storage for Pond 11P: NW Pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
959.00	747	0
959.10	835	79
959.20	922	167
959.30	1,010	264
959.40	1,098	369
959.50	1,185	483
959.60	1,273	606
959.70	1,360	738
959.80	1,448	878
959.90	1,536	1,027
960.00	1,623	1,185
960.10	1,711	1,352
960.20	1,799	1,527
960.30	1,886	1,712
960.40	1,974	1,905
960.50	2,062	2,106
960.60	2,149	2,317
960.70	2,237	2,536
960.80	2,324	2,764
960.90	2,412	3,001
961.00	2,500	3,247
961.10	2,587	3,501
961.20	2,675	3,764
961.30	2,763	4,036
961.40	2,850	4,317
961.50	2,938	4,606
961.60	3,025	4,904
961.70	3,113	5,211
961.80	3,201	5,527
961.90	3,288	5,851
962.00	3,376	6,185
962.10	3,737	6,540
962.20	4,099	6,932
962.30	4,460	7,360
962.40	4,822	7,824
962.50	5,183	8,324
962.60	5,544	8,861
962.70	5,906	9,433
962.80	6,267	10,042
962.90	6,629	10,687
963.00	6,990	11,368
963.10	7,187	12,076
963.20	7,385	12,805
963.30	7,582	13,553
963.40	7,780	14,321
963.50	7,977	15,109
963.60	8,175	15,917
963.70	8,372	16,744
963.80	8,569	17,591
963.90	8,767	18,458
964.00	8,964	19,345
964.10	9,162	20,251
964.20	9,359	21,177
964.30	9,557	22,123
964.40	9,754	23,088
964.50	9,952	24,074
964.60	10,149	25,079
964.70	10,346	26,103
964.80	10,544	27,148
964.90	10,741	28,212
965.00	10,939	29,296
965.10	11,136	30,400
965.20	11,334	31,523
965.30	11,531	32,667
965.40	11,728	33,830
965.50	11,926	35,012
965.60	12,123	36,215
965.70	12,321	37,437
965.80	12,518	38,679
965.90	12,716	39,941
966.00	**12,913**	**41,222**

Summary for Pond 12P: NE Pond

Inflow Area = 4.654 ac, 89.15% Impervious, Inflow Depth = 3.71" for 10-year event
Inflow = 29.42 cfs @ 12.12 hrs, Volume= 1.438 af
Outflow = 11.63 cfs @ 12.22 hrs, Volume= 1.435 af, Atten= 60%, Lag= 6.1 min
Primary = 11.63 cfs @ 12.22 hrs, Volume= 1.435 af
Routed to Reach 5R : North

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Starting Elev= 961.50' Surf.Area= 10,470 sf Storage= 15,263 cf
Peak Elev= 963.73' @ 12.22 hrs Surf.Area= 15,210 sf Storage= 43,798 cf (28,535 cf above start)

Plug-Flow detention time= 307.8 min calculated for 1.084 af (75% of inflow)
Center-of-Mass det. time= 171.8 min (930.8 - 759.0)

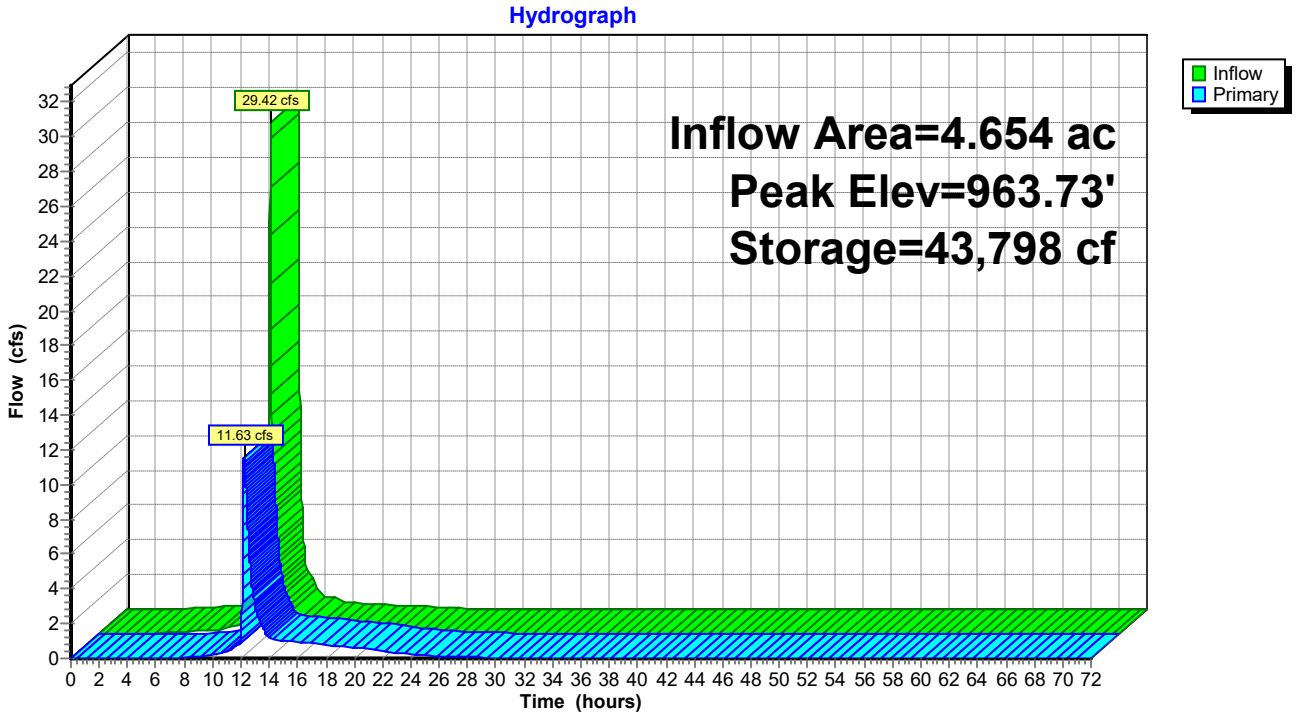
Volume	Invert	Avail.Storage	Storage Description
#1	958.00'	84,169 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	958	0	0
960.50	5,046	7,505	7,505
961.50	10,470	7,758	15,263
963.00	13,525	17,996	33,259
966.00	20,415	50,910	84,169

Device	Routing	Invert	Outlet Devices
#1	Primary	961.50'	**24.0" Round Culvert** L= 123.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 961.50' / 960.00' S= 0.0122 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	961.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 1.50 4.00 Width (feet) 0.00 0.00 5.00 5.00
#3	Primary	961.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=11.62 cfs @ 12.22 hrs HW=963.73' (Free Discharge)
- **1=Culvert** (Passes 10.28 cfs of 16.80 cfs potential flow)
  - **2=Custom Weir/Orifice** (Weir Controls 10.28 cfs @ 2.80 fps)
- **3=Orifice/Grate** (Orifice Controls 1.33 cfs @ 6.78 fps)

Pond 12P: NE Pond



Stage-Discharge for Pond 12P: NE Pond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
958.00	0.00	960.60	0.00	963.20	2.60	965.80	29.38
958.05	0.00	960.65	0.00	963.25	3.20	965.85	29.60
958.10	0.00	960.70	0.00	963.30	3.87	965.90	29.82
958.15	0.00	960.75	0.00	963.35	4.59	965.95	30.03
958.20	0.00	960.80	0.00	963.40	5.36	966.00	**30.25**
958.25	0.00	960.85	0.00	963.45	6.18		
958.30	0.00	960.90	0.00	963.50	7.04		
958.35	0.00	960.95	0.00	963.55	7.95		
958.40	0.00	961.00	0.00	963.60	8.90		
958.45	0.00	961.05	0.00	963.65	9.88		
958.50	0.00	961.10	0.00	963.70	10.91		
958.55	0.00	961.15	0.00	963.75	11.97		
958.60	0.00	961.20	0.00	963.80	13.07		
958.65	0.00	961.25	0.00	963.85	14.20		
958.70	0.00	961.30	0.00	963.90	15.37		
958.75	0.00	961.35	0.00	963.95	16.56		
958.80	0.00	961.40	0.00	964.00	17.79		
958.85	0.00	961.45	0.00	964.05	19.05		
958.90	0.00	961.50	0.00	964.10	20.34		
958.95	0.00	961.55	0.01	964.15	20.90		
959.00	0.00	961.60	0.03	964.20	21.20		
959.05	0.00	961.65	0.07	964.25	21.51		
959.10	0.00	961.70	0.11	964.30	21.80		
959.15	0.00	961.75	0.17	964.35	22.10		
959.20	0.00	961.80	0.23	964.40	22.39		
959.25	0.00	961.85	0.30	964.45	22.68		
959.30	0.00	961.90	0.36	964.50	22.96		
959.35	0.00	961.95	0.43	964.55	23.24		
959.40	0.00	962.00	0.47	964.60	23.52		
959.45	0.00	962.05	0.52	964.65	23.79		
959.50	0.00	962.10	0.56	964.70	24.06		
959.55	0.00	962.15	0.60	964.75	24.33		
959.60	0.00	962.20	0.63	964.80	24.59		
959.65	0.00	962.25	0.67	964.85	24.85		
959.70	0.00	962.30	0.70	964.90	25.11		
959.75	0.00	962.35	0.73	964.95	25.37		
959.80	0.00	962.40	0.76	965.00	25.62		
959.85	0.00	962.45	0.79	965.05	25.87		
959.90	0.00	962.50	0.82	965.10	26.12		
959.95	0.00	962.55	0.85	965.15	26.37		
960.00	0.00	962.60	0.87	965.20	26.61		
960.05	0.00	962.65	0.90	965.25	26.85		
960.10	0.00	962.70	0.92	965.30	27.09		
960.15	0.00	962.75	0.95	965.35	27.33		
960.20	0.00	962.80	0.97	965.40	27.57		
960.25	0.00	962.85	0.99	965.45	27.80		
960.30	0.00	962.90	1.01	965.50	28.03		
960.35	0.00	962.95	1.04	965.55	28.26		
960.40	0.00	963.00	1.06	965.60	28.49		
960.45	0.00	963.05	1.26	965.65	28.71		
960.50	0.00	963.10	1.62	965.70	28.94		
960.55	0.00	963.15	2.07	965.75	29.16		

Stage-Area-Storage for Pond 12P: NE Pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
958.00	958	0
958.10	1,122	104
958.20	1,285	224
958.30	1,449	361
958.40	1,612	514
958.50	1,776	683
958.60	1,939	869
958.70	2,103	1,071
958.80	2,266	1,290
958.90	2,430	1,524
959.00	2,593	1,776
959.10	2,757	2,043
959.20	2,920	2,327
959.30	3,084	2,627
959.40	3,247	2,944
959.50	3,411	3,277
959.60	3,574	3,626
959.70	3,738	3,991
959.80	3,901	4,373
959.90	4,065	4,772
960.00	4,228	5,186
960.10	4,392	5,617
960.20	4,555	6,065
960.30	4,719	6,529
960.40	4,882	7,009
960.50	5,046	7,505
960.60	5,588	8,037
960.70	6,131	8,623
960.80	6,673	9,263
960.90	7,216	9,957
961.00	7,758	10,706
961.10	8,300	11,509
961.20	8,843	12,366
961.30	9,385	13,277
961.40	9,928	14,243
961.50	10,470	15,263
961.60	10,674	16,320
961.70	10,877	17,398
961.80	11,081	18,496
961.90	11,285	19,614
962.00	11,488	20,753
962.10	11,692	21,912
962.20	11,896	23,091
962.30	12,099	24,291
962.40	12,303	25,511
962.50	12,507	26,751
962.60	12,710	28,012
962.70	12,914	29,293
962.80	13,118	30,595
962.90	13,321	31,917
963.00	13,525	33,259
963.10	13,755	34,623
963.20	13,984	36,010
963.30	14,214	37,420
963.40	14,444	38,853
963.50	14,673	40,309
963.60	14,903	41,788
963.70	15,133	43,289
963.80	15,362	44,814
963.90	15,592	46,362
964.00	15,822	47,933
964.10	16,051	49,526
964.20	16,281	51,143
964.30	16,511	52,782
964.40	16,740	54,445
964.50	16,970	56,131
964.60	17,200	57,839
964.70	17,429	59,570
964.80	17,659	61,325
964.90	17,889	63,102
965.00	18,118	64,903
965.10	18,348	66,726
965.20	18,578	68,572
965.30	18,807	70,441
965.40	19,037	72,334
965.50	19,267	74,249
965.60	19,496	76,187
965.70	19,726	78,148
965.80	19,956	80,132
965.90	20,185	82,139
966.00	**20,415**	**84,169**

Summary for Pond 13P: SE Pond

Inflow Area = 3.351 ac, 87.76% Impervious, Inflow Depth = 3.71" for 10-year event
Inflow = 21.18 cfs @ 12.12 hrs, Volume= 1.036 af
Outflow = 6.91 cfs @ 12.25 hrs, Volume= 1.036 af, Atten= 67%, Lag= 7.8 min
Primary = 6.91 cfs @ 12.25 hrs, Volume= 1.036 af
Routed to Reach 6R : SE

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Starting Elev= 960.50' Surf.Area= 7,752 sf Storage= 10,839 cf
Peak Elev= 962.79' @ 12.25 hrs Surf.Area= 10,613 sf Storage= 31,835 cf (20,997 cf above start)

Plug-Flow detention time= 289.7 min calculated for 0.787 af (76% of inflow)
Center-of-Mass det. time= 158.5 min (917.5 - 759.0)

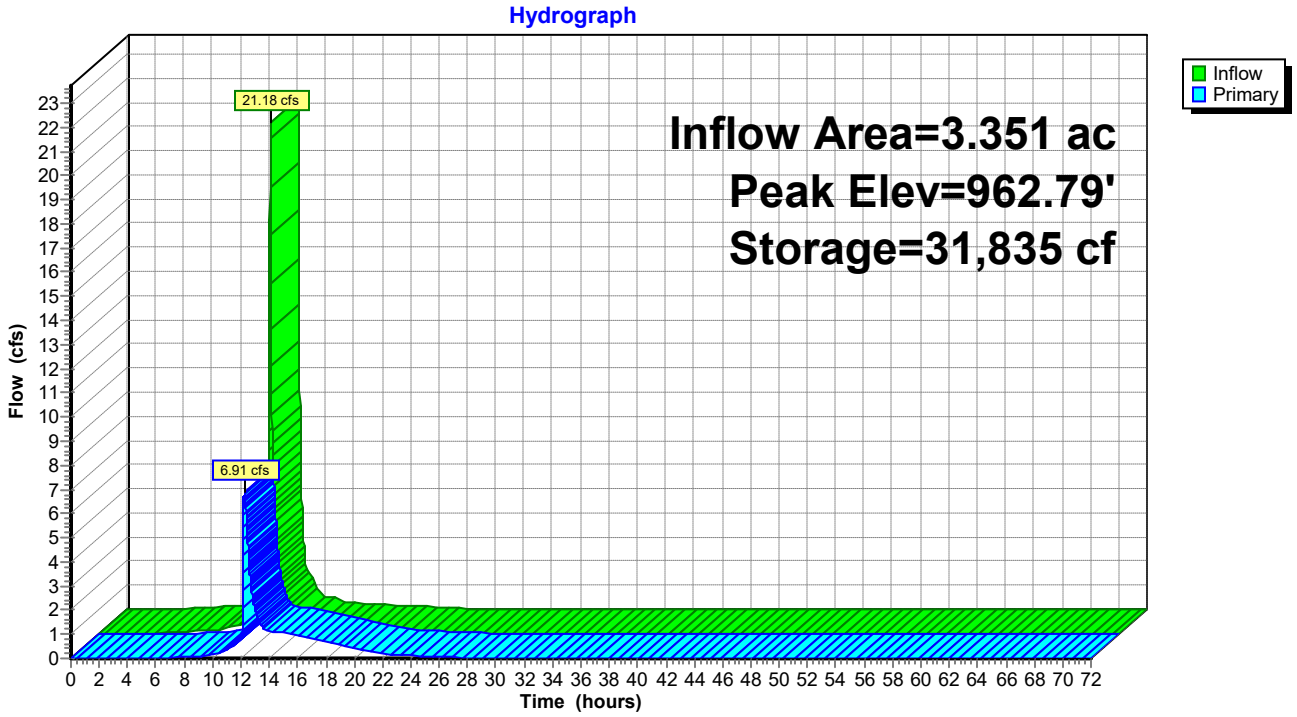
Volume	Invert	Avail.Storage	Storage Description
#1	956.50'	45,838 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
956.50	439	0	0
959.50	3,152	5,387	5,387
960.50	7,752	5,452	10,839
963.00	10,880	23,290	34,129
963.50	11,804	5,671	39,800
964.00	12,349	6,038	45,838

Device	Routing	Invert	Outlet Devices
#1	Primary	960.50'	**18.0" Round Culvert** L= 44.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 960.50' / 960.06' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 1.77 sf
#2	Device 1	960.50'	**Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.80 1.80 4.50 Width (feet) 0.00 0.00 5.00 5.00
#3	Device 1	960.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.91 cfs @ 12.25 hrs HW=962.79' (Free Discharge)
└**1=Culvert** (Passes 6.91 cfs of 10.35 cfs potential flow)
  └**2=Weir** (Weir Controls 5.56 cfs @ 2.28 fps)
  └**3=Orifice/Grate** (Orifice Controls 1.35 cfs @ 6.87 fps)

Pond 13P: SE Pond



Stage-Discharge for Pond 13P: SE Pond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
956.50	0.00	959.10	0.00	961.70	0.92	964.30	14.86
956.55	0.00	959.15	0.00	961.75	0.95	964.35	14.98
956.60	0.00	959.20	0.00	961.80	0.97	964.40	15.10
956.65	0.00	959.25	0.00	961.85	0.99	964.45	15.22
956.70	0.00	959.30	0.00	961.90	1.01	964.50	15.34
956.75	0.00	959.35	0.00	961.95	1.04	964.55	15.46
956.80	0.00	959.40	0.00	962.00	1.06	964.60	15.57
956.85	0.00	959.45	0.00	962.05	1.08	964.65	15.69
956.90	0.00	959.50	0.00	962.10	1.10	964.70	15.80
956.95	0.00	959.55	0.00	962.15	1.12	964.75	15.92
957.00	0.00	959.60	0.00	962.20	1.14	964.80	16.03
957.05	0.00	959.65	0.00	962.25	1.16	964.85	16.14
957.10	0.00	959.70	0.00	962.30	1.18	964.90	16.26
957.15	0.00	959.75	0.00	962.35	1.38	964.95	16.37
957.20	0.00	959.80	0.00	962.40	1.73	965.00	**16.48**
957.25	0.00	959.85	0.00	962.45	2.18		
957.30	0.00	959.90	0.00	962.50	2.72		
957.35	0.00	959.95	0.00	962.55	3.32		
957.40	0.00	960.00	0.00	962.60	3.98		
957.45	0.00	960.05	0.00	962.65	4.69		
957.50	0.00	960.10	0.00	962.70	5.46		
957.55	0.00	960.15	0.00	962.75	6.28		
957.60	0.00	960.20	0.00	962.80	7.14		
957.65	0.00	960.25	0.00	962.85	8.05		
957.70	0.00	960.30	0.00	962.90	9.00		
957.75	0.00	960.35	0.00	962.95	9.98		
957.80	0.00	960.40	0.00	963.00	11.01		
957.85	0.00	960.45	0.00	963.05	11.40		
957.90	0.00	960.50	0.00	963.10	11.57		
957.95	0.00	960.55	0.01	963.15	11.73		
958.00	0.00	960.60	0.03	963.20	11.88		
958.05	0.00	960.65	0.07	963.25	12.03		
958.10	0.00	960.70	0.11	963.30	12.18		
958.15	0.00	960.75	0.17	963.35	12.33		
958.20	0.00	960.80	0.23	963.40	12.48		
958.25	0.00	960.85	0.30	963.45	12.62		
958.30	0.00	960.90	0.36	963.50	12.76		
958.35	0.00	960.95	0.43	963.55	12.90		
958.40	0.00	961.00	0.47	963.60	13.04		
958.45	0.00	961.05	0.52	963.65	13.18		
958.50	0.00	961.10	0.56	963.70	13.32		
958.55	0.00	961.15	0.60	963.75	13.45		
958.60	0.00	961.20	0.63	963.80	13.59		
958.65	0.00	961.25	0.67	963.85	13.72		
958.70	0.00	961.30	0.70	963.90	13.85		
958.75	0.00	961.35	0.73	963.95	13.98		
958.80	0.00	961.40	0.76	964.00	14.11		
958.85	0.00	961.45	0.79	964.05	14.24		
958.90	0.00	961.50	0.82	964.10	14.36		
958.95	0.00	961.55	0.85	964.15	14.49		
959.00	0.00	961.60	0.87	964.20	14.61		
959.05	0.00	961.65	0.90	964.25	14.74		

Stage-Area-Storage for Pond 13P: SE Pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
956.50	439	0
956.60	529	48
956.70	620	106
956.80	710	172
956.90	801	248
957.00	891	333
957.10	982	426
957.20	1,072	529
957.30	1,162	641
957.40	1,253	761
957.50	1,343	891
957.60	1,434	1,030
957.70	1,524	1,178
957.80	1,615	1,335
957.90	1,705	1,501
958.00	1,796	1,676
958.10	1,886	1,860
958.20	1,976	2,053
958.30	2,067	2,255
958.40	2,157	2,466
958.50	2,248	2,687
958.60	2,338	2,916
958.70	2,429	3,154
958.80	2,519	3,402
958.90	2,609	3,658
959.00	2,700	3,924
959.10	2,790	4,198
959.20	2,881	4,482
959.30	2,971	4,774
959.40	3,062	5,076
959.50	3,152	5,387
959.60	3,612	5,725
959.70	4,072	6,109
959.80	4,532	6,539
959.90	4,992	7,015
960.00	5,452	7,538
960.10	5,912	8,106
960.20	6,372	8,720
960.30	6,832	9,380
960.40	7,292	10,086
960.50	7,752	10,839
960.60	7,877	11,620
960.70	8,002	12,414
960.80	8,127	13,220
960.90	8,252	14,039
961.00	8,378	14,871
961.10	8,503	15,715
961.20	8,628	16,571
961.30	8,753	17,440
961.40	8,878	18,322
961.50	9,003	19,216
961.60	9,128	20,123
961.70	9,253	21,042
961.80	9,379	21,973
961.90	9,504	22,917
962.00	9,629	23,874
962.10	9,754	24,843
962.20	9,879	25,825
962.30	10,004	26,819
962.40	10,129	27,826
962.50	10,254	28,845
962.60	10,380	29,877
962.70	10,505	30,921
962.80	10,630	31,978
962.90	10,755	33,047
963.00	10,880	34,129
963.10	11,065	35,226
963.20	11,250	36,341
963.30	11,434	37,476
963.40	11,619	38,628
963.50	11,804	39,800
963.60	11,913	40,985
963.70	12,022	42,182
963.80	12,131	43,390
963.90	12,240	44,608
964.00	**12,349**	**45,838**
964.10	12,349	45,838
964.20	12,349	45,838
964.30	12,349	45,838
964.40	12,349	45,838
964.50	12,349	45,838
964.60	12,349	45,838
964.70	12,349	45,838
964.80	12,349	45,838
964.90	12,349	45,838
965.00	12,349	45,838

Summary for Pond 14P: SW Pond

Inflow Area = 6.052 ac, 83.80% Impervious, Inflow Depth = 3.60" for 10-year event
Inflow = 37.75 cfs @ 12.12 hrs, Volume= 1.815 af
Outflow = 11.38 cfs @ 12.26 hrs, Volume= 1.815 af, Atten= 70%, Lag= 8.6 min
Primary = 11.38 cfs @ 12.26 hrs, Volume= 1.815 af
Routed to Reach 7R : SW

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Starting Elev= 958.00' Surf.Area= 8,880 sf Storage= 15,244 cf
Peak Elev= 961.14' @ 12.26 hrs Surf.Area= 13,939 sf Storage= 51,097 cf (35,853 cf above start)

Plug-Flow detention time= 266.3 min calculated for 1.465 af (81% of inflow)
Center-of-Mass det. time= 155.5 min (919.2 - 763.7)

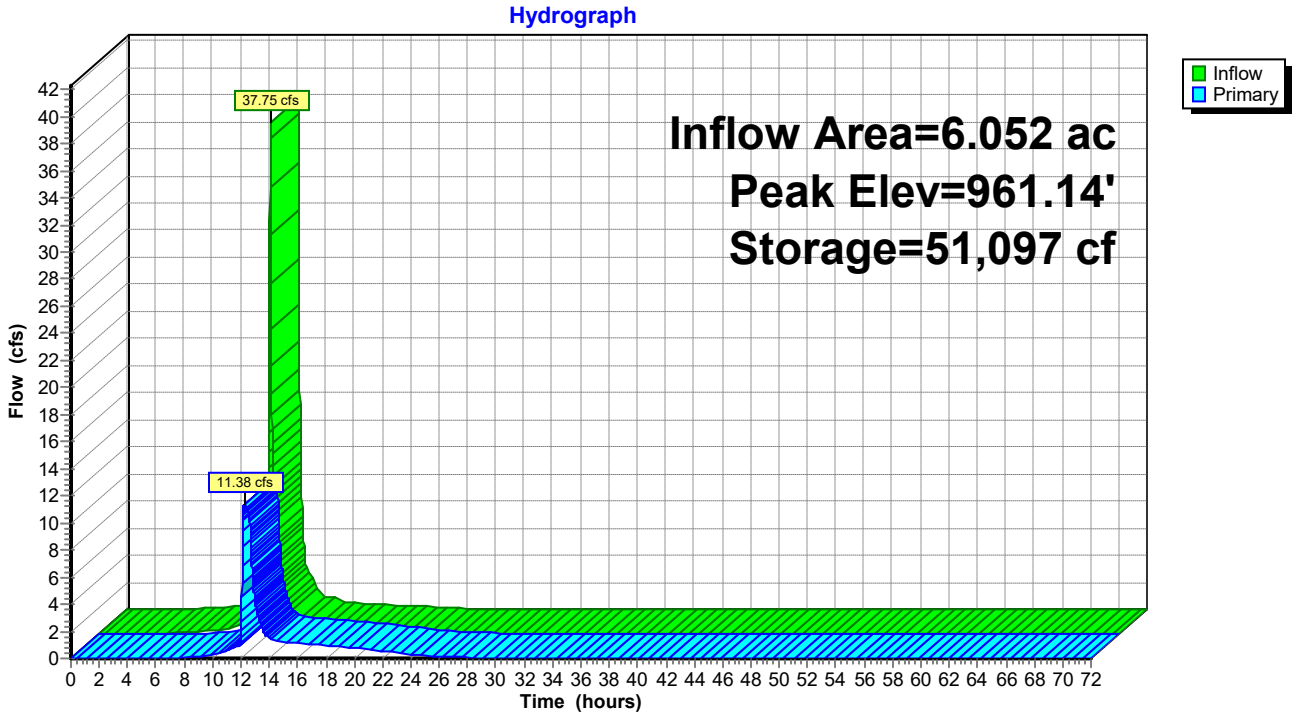
Volume	Invert	Avail.Storage	Storage Description
#1	954.00'	88,469 cf	**Above Ground (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
954.00	1,344	0	0
957.00	4,394	8,607	8,607
958.00	8,880	6,637	15,244
963.00	16,929	64,523	79,767
963.50	17,880	8,702	88,469

Device	Routing	Invert	Outlet Devices
#1	Primary	958.00'	**18.0" Round Culvert** L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 958.00' / 957.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 1.77 sf
#2	Device 1	958.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 2.00 6.00 Width (feet) 0.00 0.00 5.00 5.00
#3	Device 1	958.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=11.38 cfs @ 12.26 hrs HW=961.14' (Free Discharge)
└**1=Culvert** (Barrel Controls 11.38 cfs @ 6.44 fps)
└**2=Custom Weir/Orifice** (Passes < 19.99 cfs potential flow)
└**3=Orifice/Grate** (Passes < 1.61 cfs potential flow)

Pond 14P: SW Pond



Stage-Discharge for Pond 14P: SW Pond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
954.00	0.00	956.60	0.00	959.20	0.92	961.80	13.01
954.05	0.00	956.65	0.00	959.25	0.95	961.85	13.12
954.10	0.00	956.70	0.00	959.30	0.97	961.90	13.24
954.15	0.00	956.75	0.00	959.35	0.99	961.95	13.35
954.20	0.00	956.80	0.00	959.40	1.01	962.00	13.46
954.25	0.00	956.85	0.00	959.45	1.04	962.05	13.57
954.30	0.00	956.90	0.00	959.50	1.06	962.10	13.69
954.35	0.00	956.95	0.00	959.55	1.08	962.15	13.80
954.40	0.00	957.00	0.00	959.60	1.10	962.20	13.90
954.45	0.00	957.05	0.00	959.65	1.12	962.25	14.01
954.50	0.00	957.10	0.00	959.70	1.14	962.30	14.12
954.55	0.00	957.15	0.00	959.75	1.16	962.35	14.23
954.60	0.00	957.20	0.00	959.80	1.18	962.40	14.33
954.65	0.00	957.25	0.00	959.85	1.20	962.45	14.44
954.70	0.00	957.30	0.00	959.90	1.21	962.50	14.54
954.75	0.00	957.35	0.00	959.95	1.23	962.55	14.64
954.80	0.00	957.40	0.00	960.00	1.25	962.60	14.75
954.85	0.00	957.45	0.00	960.05	1.45	962.65	14.85
954.90	0.00	957.50	0.00	960.10	1.80	962.70	14.95
954.95	0.00	957.55	0.00	960.15	2.25	962.75	15.05
955.00	0.00	957.60	0.00	960.20	2.78	962.80	15.15
955.05	0.00	957.65	0.00	960.25	3.38	962.85	15.25
955.10	0.00	957.70	0.00	960.30	4.04	962.90	15.35
955.15	0.00	957.75	0.00	960.35	4.76	962.95	15.45
955.20	0.00	957.80	0.00	960.40	5.53	963.00	15.55
955.25	0.00	957.85	0.00	960.45	6.35	963.05	15.64
955.30	0.00	957.90	0.00	960.50	7.21	963.10	15.74
955.35	0.00	957.95	0.00	960.55	8.11	963.15	15.83
955.40	0.00	958.00	0.00	960.60	9.06	963.20	15.93
955.45	0.00	958.05	0.01	960.65	9.98	963.25	16.02
955.50	0.00	958.10	0.03	960.70	10.13	963.30	16.12
955.55	0.00	958.15	0.07	960.75	10.28	963.35	16.21
955.60	0.00	958.20	0.11	960.80	10.43	963.40	16.30
955.65	0.00	958.25	0.17	960.85	10.57	963.45	16.40
955.70	0.00	958.30	0.23	960.90	10.71	963.50	16.49
955.75	0.00	958.35	0.30	960.95	10.85	963.55	16.58
955.80	0.00	958.40	0.36	961.00	10.99	963.60	16.67
955.85	0.00	958.45	0.43	961.05	11.13	963.65	16.76
955.90	0.00	958.50	0.47	961.10	11.26	963.70	16.85
955.95	0.00	958.55	0.52	961.15	11.40	963.75	16.94
956.00	0.00	958.60	0.56	961.20	11.53	963.80	17.03
956.05	0.00	958.65	0.60	961.25	11.66	963.85	17.12
956.10	0.00	958.70	0.63	961.30	11.79	963.90	17.21
956.15	0.00	958.75	0.67	961.35	11.92	963.95	17.29
956.20	0.00	958.80	0.70	961.40	12.04	964.00	**17.38**
956.25	0.00	958.85	0.73	961.45	12.17		
956.30	0.00	958.90	0.76	961.50	12.29		
956.35	0.00	958.95	0.79	961.55	12.41		
956.40	0.00	959.00	0.82	961.60	12.53		
956.45	0.00	959.05	0.85	961.65	12.65		
956.50	0.00	959.10	0.87	961.70	12.77		
956.55	0.00	959.15	0.90	961.75	12.89		

Stage-Area-Storage for Pond 14P: SW Pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
954.00	1,344	0
954.10	1,446	139
954.20	1,547	289
954.30	1,649	449
954.40	1,751	619
954.50	1,852	799
954.60	1,954	989
954.70	2,056	1,190
954.80	2,157	1,401
954.90	2,259	1,621
955.00	2,361	1,852
955.10	2,462	2,093
955.20	2,564	2,345
955.30	2,666	2,606
955.40	2,767	2,878
955.50	2,869	3,160
955.60	2,971	3,452
955.70	3,072	3,754
955.80	3,174	4,066
955.90	3,276	4,389
956.00	3,377	4,721
956.10	3,479	5,064
956.20	3,581	5,417
956.30	3,682	5,780
956.40	3,784	6,154
956.50	3,886	6,537
956.60	3,987	6,931
956.70	4,089	7,335
956.80	4,191	7,749
956.90	4,292	8,173
957.00	4,394	8,607
957.10	4,843	9,069
957.20	5,291	9,576
957.30	5,740	10,127
957.40	6,188	10,723
957.50	6,637	11,365
957.60	7,086	12,051
957.70	7,534	12,782
957.80	7,983	13,558
957.90	8,431	14,378
958.00	8,880	15,244
958.10	9,041	16,140
958.20	9,202	17,052
958.30	9,363	17,980
958.40	9,524	18,925
958.50	9,685	19,885
958.60	9,846	20,862
958.70	10,007	21,854
958.80	10,168	22,863
958.90	10,329	23,888
959.00	10,490	24,929
959.10	10,651	25,986
959.20	10,812	27,059
959.30	10,973	28,148
959.40	11,134	29,254
959.50	11,295	30,375
959.60	11,456	31,513
959.70	11,617	32,666
959.80	11,778	33,836
959.90	11,939	35,022
960.00	12,100	36,224
960.10	12,261	37,442
960.20	12,422	38,676
960.30	12,583	39,926
960.40	12,744	41,192
960.50	12,905	42,475
960.60	13,065	43,773
960.70	13,226	45,088
960.80	13,387	46,418
960.90	13,548	47,765
961.00	13,709	49,128
961.10	13,870	50,507
961.20	14,031	51,902
961.30	14,192	53,313
961.40	14,353	54,741
961.50	14,514	56,184
961.60	14,675	57,644
961.70	14,836	59,119
961.80	14,997	60,611
961.90	15,158	62,119
962.00	15,319	63,642
962.10	15,480	65,182
962.20	15,641	66,738
962.30	15,802	68,311
962.40	15,963	69,899
962.50	16,124	71,503
962.60	16,285	73,124
962.70	16,446	74,760
962.80	16,607	76,413
962.90	16,768	78,082
963.00	16,929	79,767
963.10	17,119	81,469
963.20	17,309	83,190
963.30	17,500	84,931
963.40	17,690	86,690
963.50	**17,880**	**88,469**
963.60	17,880	88,469
963.70	17,880	88,469
963.80	17,880	88,469
963.90	17,880	88,469
964.00	17,880	88,469

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: West Dealership Runoff Area=263,642 sf 83.80% Impervious Runoff Depth=6.70"
Tc=5.0 min CN=95 Runoff=67.77 cfs 3.381 af

Subcatchment 2S: SE Dealership Runoff Area=145,991 sf 87.76% Impervious Runoff Depth=6.82"
Tc=5.0 min CN=96 Runoff=37.72 cfs 1.906 af

Subcatchment 3S: NE Dealership Runoff Area=202,733 sf 89.15% Impervious Runoff Depth=6.82"
Tc=5.0 min CN=96 Runoff=52.38 cfs 2.646 af

Subcatchment 4S: North Dealership Runoff Area=108,940 sf 85.10% Impervious Runoff Depth=6.70"
Tc=5.0 min CN=95 Runoff=28.00 cfs 1.397 af

Subcatchment 8S: NE D-D Runoff Area=27,383 sf 43.27% Impervious Runoff Depth=5.89"
Tc=0.0 min CN=88 Runoff=7.16 cfs 0.308 af

Subcatchment 9S: South Undev. Runoff Area=432,604 sf 0.22% Impervious Runoff Depth=6.00"
Flow Length=959' Tc=27.6 min CN=89 Runoff=53.49 cfs 4.967 af

Subcatchment 10S: North Undev. Runoff Area=92,762 sf 0.00% Impervious Runoff Depth=4.97"
Tc=5.0 min CN=80 Runoff=19.91 cfs 0.882 af

Subcatchment 15S: South D-D Runoff Area=4,335 sf 0.00% Impervious Runoff Depth=6.00"
Tc=5.0 min CN=89 Runoff=1.06 cfs 0.050 af

Reach 5R: North Inflow=54.62 cfs 5.230 af
Outflow=54.62 cfs 5.230 af

Reach 6R: SE Inflow=14.17 cfs 1.955 af
Outflow=14.17 cfs 1.955 af

Reach 7R: SW Inflow=68.97 cfs 8.348 af
Outflow=68.97 cfs 8.348 af

Pond 11P: NW Pond Peak Elev=965.32' Storage=32,933 cf Inflow=28.00 cfs 1.397 af
Outflow=10.67 cfs 1.397 af

Pond 12P: NE Pond Peak Elev=964.61' Storage=58,030 cf Inflow=52.38 cfs 2.646 af
Outflow=23.58 cfs 2.643 af

Pond 13P: SE Pond Peak Elev=963.83' Storage=43,797 cf Inflow=37.72 cfs 1.906 af
Outflow=13.68 cfs 1.905 af

Pond 14P: SW Pond Peak Elev=962.98' Storage=79,369 cf Inflow=67.77 cfs 3.381 af
Outflow=15.50 cfs 3.381 af

Total Runoff Area = 29.348 ac Runoff Volume = 15.537 af Average Runoff Depth = 6.35"
50.30% Pervious = 14.763 ac 49.70% Impervious = 14.585 ac

Summary for Subcatchment 1S: West Dealership

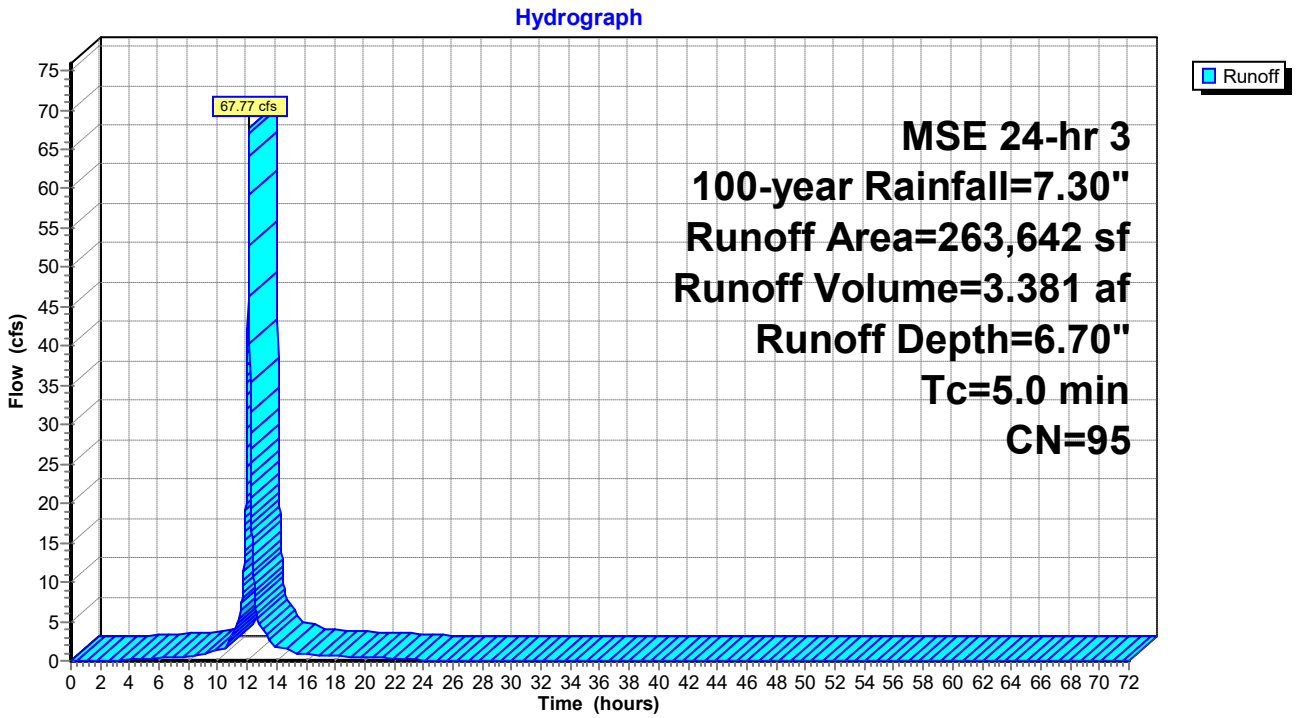
Runoff = 67.77 cfs @ 12.12 hrs, Volume= 3.381 af, Depth= 6.70"
Routed to Pond 14P : SW Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-year Rainfall=7.30"

Area (sf)	CN	Description
42,698	80	>75% Grass cover, Good, HSG D
212,064	98	Paved parking, HSG D
8,880	98	Water Surface, HSG D
263,642	95	Weighted Average
42,698		16.20% Pervious Area
220,944		83.80% Impervious Area

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

Subcatchment 1S: West Dealership



Summary for Subcatchment 2S: SE Dealership

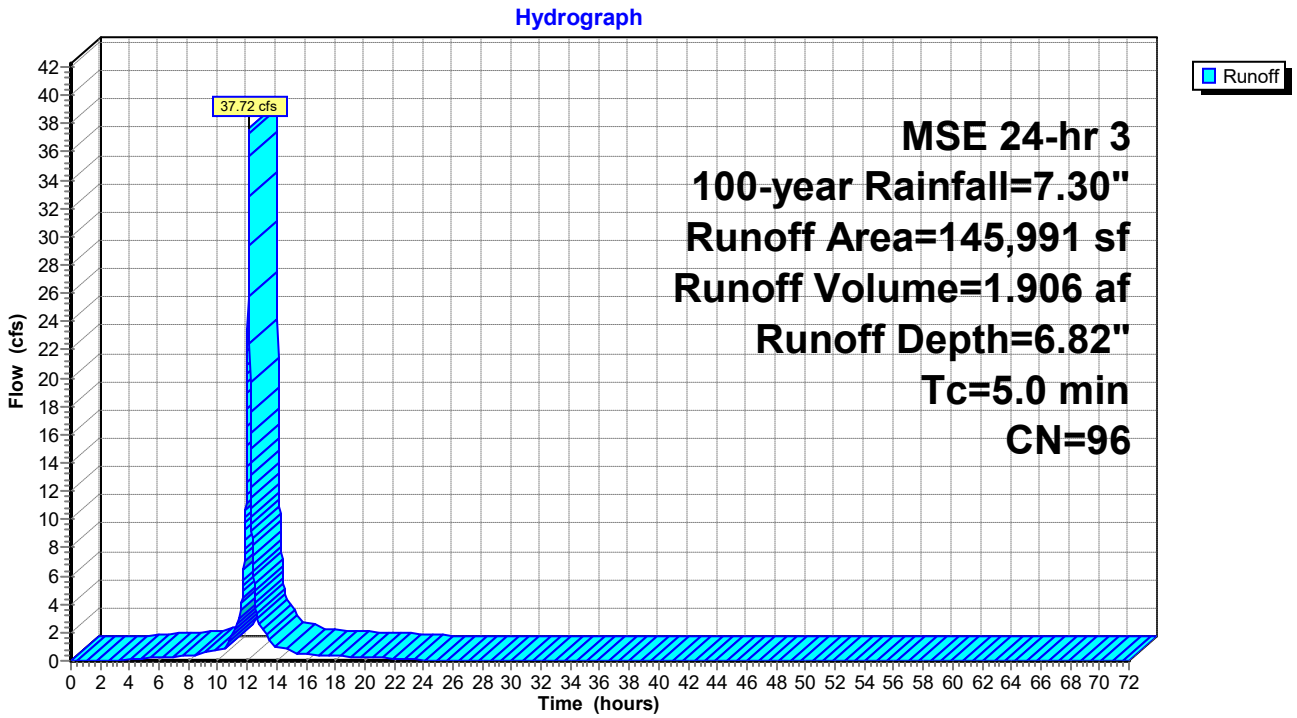
Runoff = 37.72 cfs @ 12.12 hrs, Volume= 1.906 af, Depth= 6.82"
Routed to Pond 13P : SE Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-year Rainfall=7.30"

Area (sf)	CN	Description
17,867	80	>75% Grass cover, Good, HSG D
120,372	98	Paved parking, HSG D
7,752	98	Water Surface, HSG D
145,991	96	Weighted Average
17,867		12.24% Pervious Area
128,124		87.76% Impervious Area

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

Subcatchment 2S: SE Dealership



Summary for Subcatchment 3S: NE Dealership

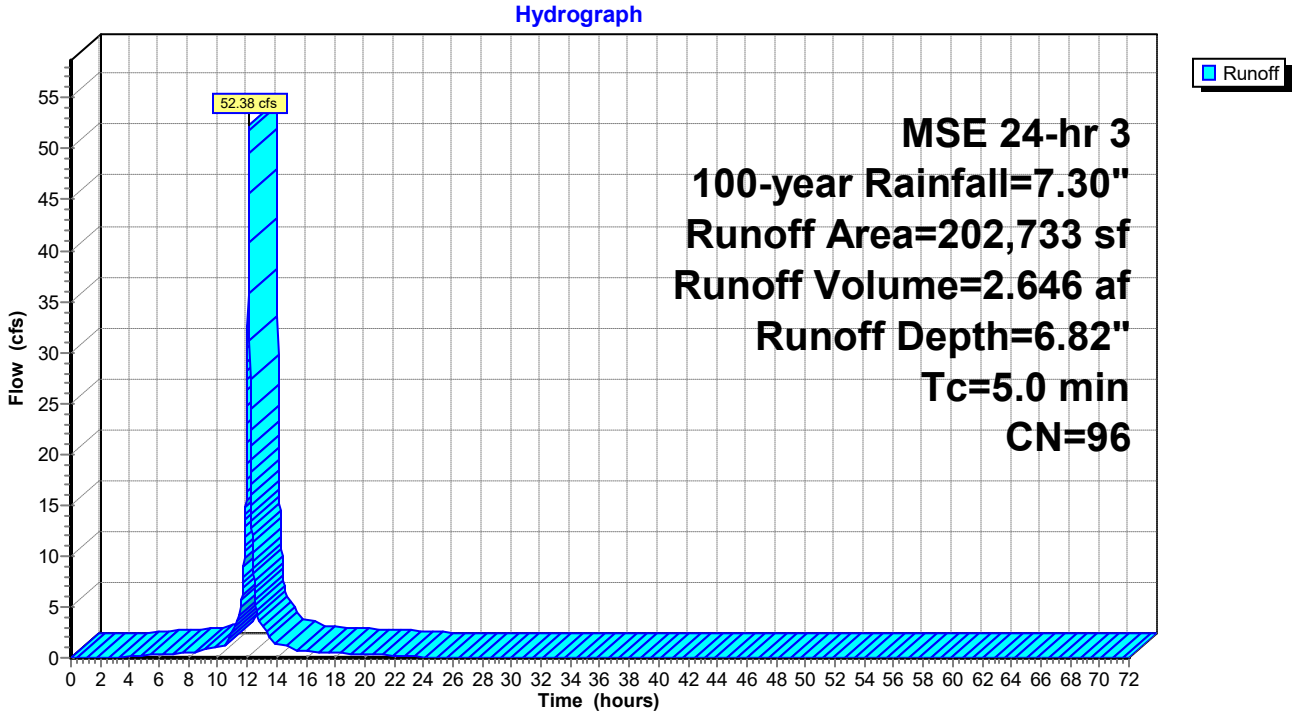
Runoff = 52.38 cfs @ 12.12 hrs, Volume= 2.646 af, Depth= 6.82"
Routed to Pond 12P : NE Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-year Rainfall=7.30"

Area (sf)	CN	Description
21,990	80	>75% Grass cover, Good, HSG D
170,370	98	Paved parking, HSG D
10,373	98	Water Surface, HSG D
202,733	96	Weighted Average
21,990		10.85% Pervious Area
180,743		89.15% Impervious Area

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

Subcatchment 3S: NE Dealership



Summary for Subcatchment 4S: North Dealership

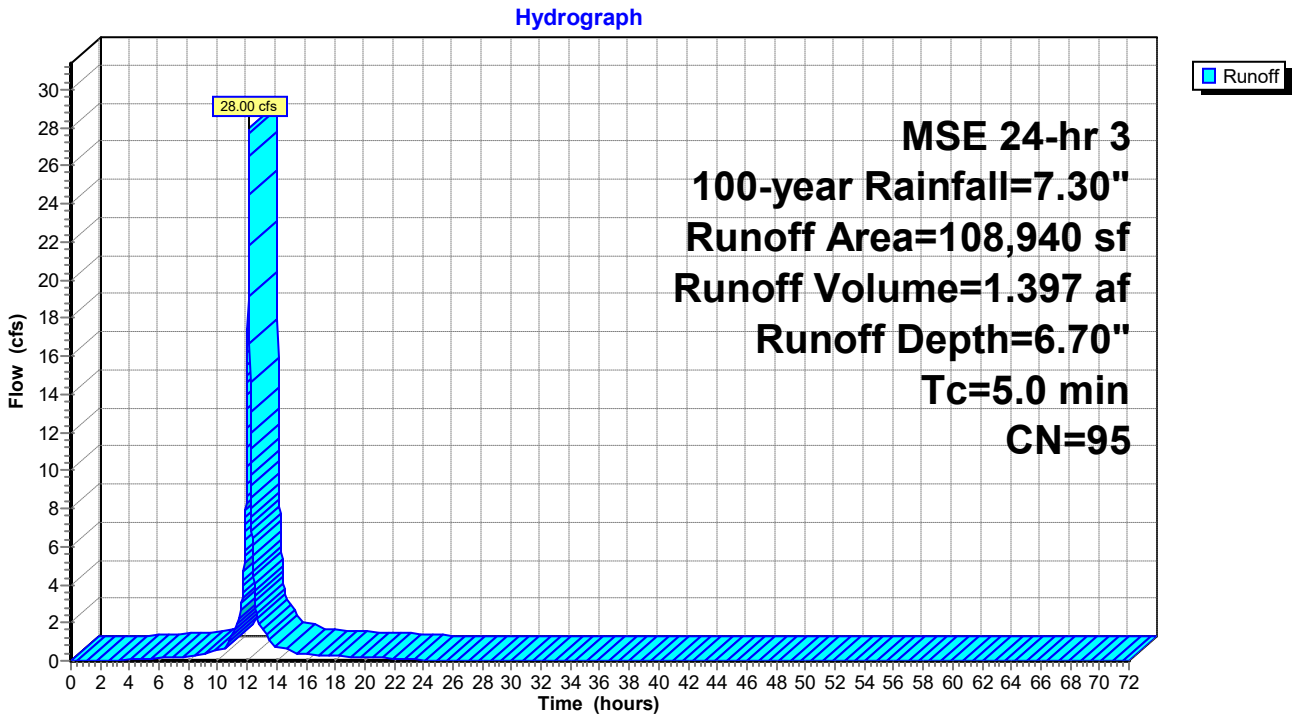
Runoff = 28.00 cfs @ 12.12 hrs, Volume= 1.397 af, Depth= 6.70"
Routed to Pond 11P : NW Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-year Rainfall=7.30"

Area (sf)	CN	Description
16,235	80	>75% Grass cover, Good, HSG D
85,715	98	Paved parking, HSG D
6,990	98	Water Surface, HSG D
108,940	95	Weighted Average
16,235		14.90% Pervious Area
92,705		85.10% Impervious Area

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

Subcatchment 4S: North Dealership



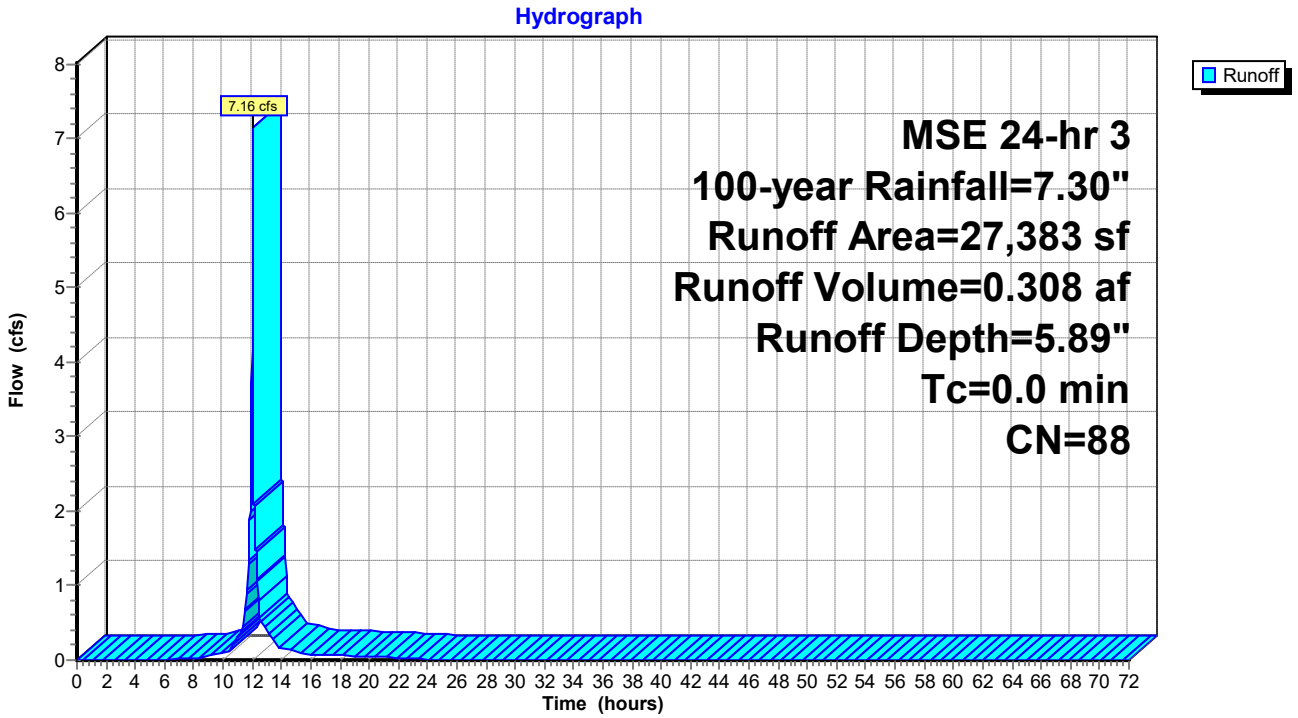
Summary for Subcatchment 8S: NE D-D

Runoff = 7.16 cfs @ 12.09 hrs, Volume= 0.308 af, Depth= 5.89"
Routed to Reach 5R : North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-year Rainfall=7.30"

Area (sf)	CN	Description
15,535	80	>75% Grass cover, Good, HSG D
11,848	98	Paved parking, HSG D
27,383	88	Weighted Average
15,535		56.73% Pervious Area
11,848		43.27% Impervious Area

Subcatchment 8S: NE D-D



Summary for Subcatchment 9S: South Undev.

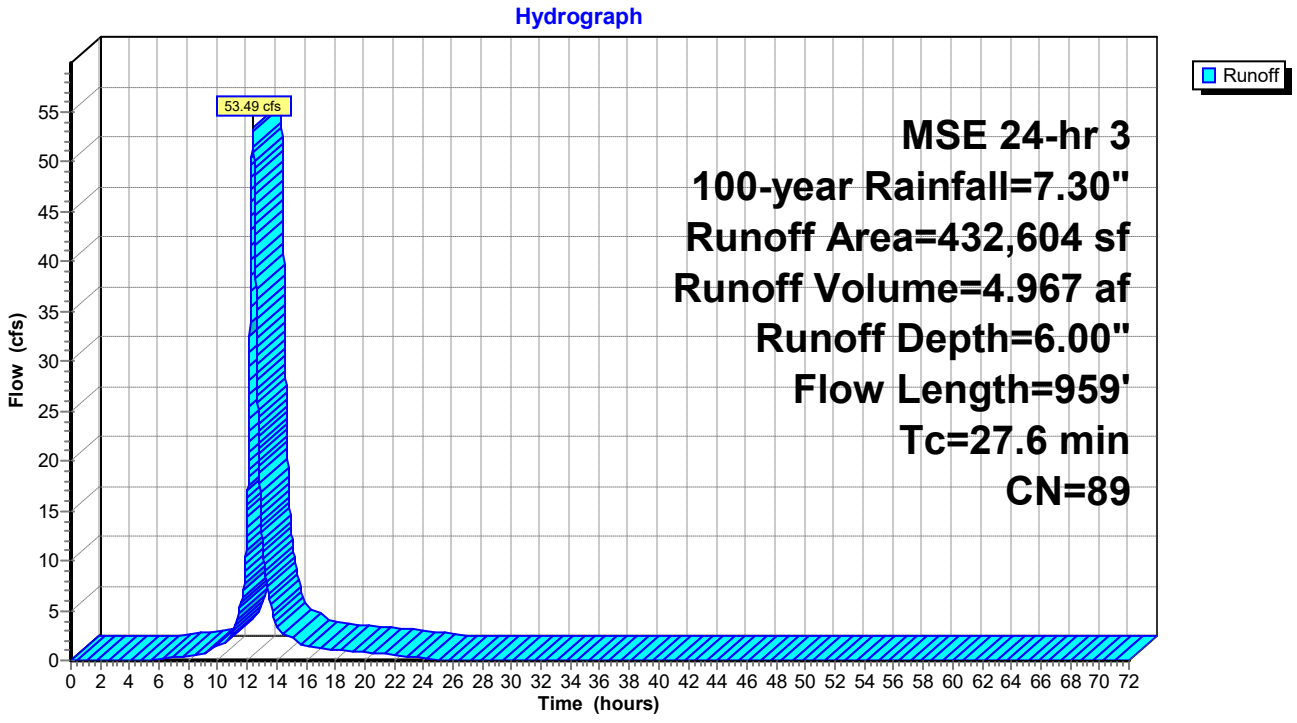
Runoff = 53.49 cfs @ 12.38 hrs, Volume= 4.967 af, Depth= 6.00"
Routed to Reach 7R : SW

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-year Rainfall=7.30"

Area (sf)	CN	Description
958	98	Paved parking, HSG D
431,646	89	Row crops, straight row, Good, HSG D
432,604	89	Weighted Average
431,646		99.78% Pervious Area
958		0.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	205	0.0341	1.66		**Shallow Concentrated Flow, Steep** Cultivated Straight Rows Kv= 9.0 fps
25.5	754	0.0030	0.49		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
27.6	959	Total			

Subcatchment 9S: South Undev.



Summary for Subcatchment 10S: North Undev.

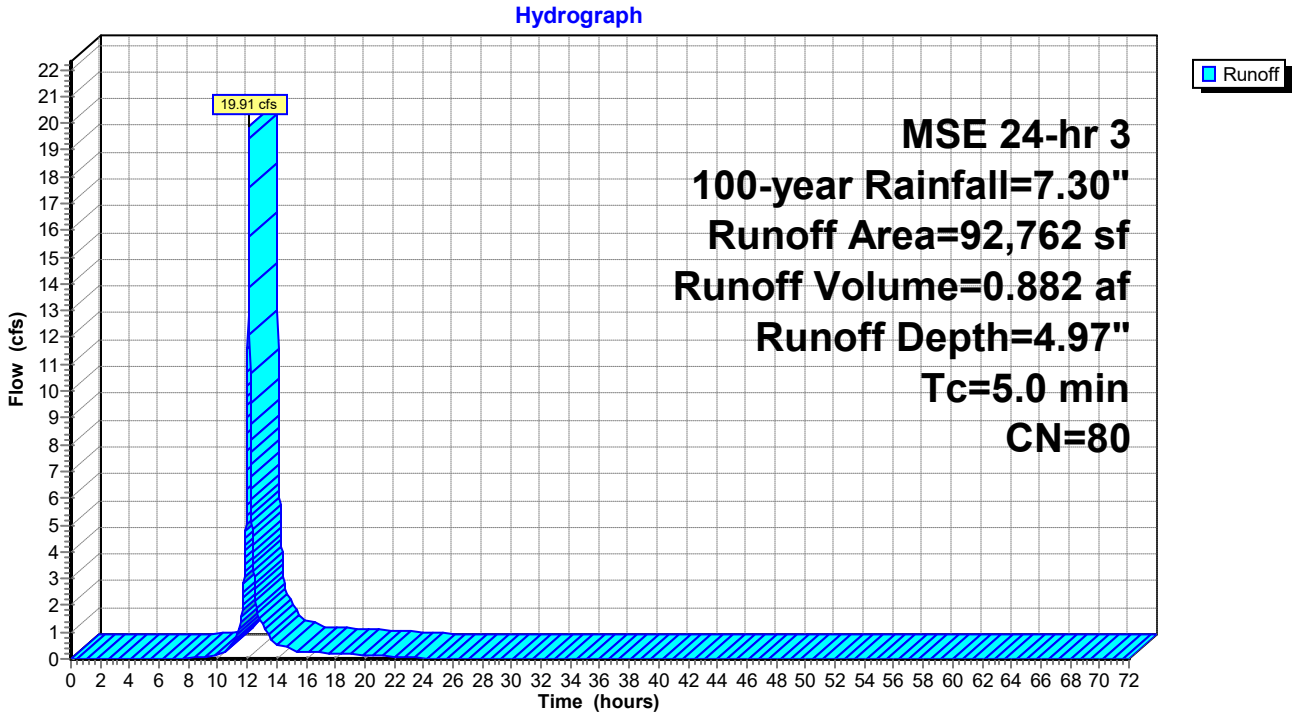
Runoff = 19.91 cfs @ 12.12 hrs, Volume= 0.882 af, Depth= 4.97"
Routed to Reach 5R : North

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-year Rainfall=7.30"

Area (sf)	CN	Description
92,762	80	>75% Grass cover, Good, HSG D
92,762		100.00% Pervious Area

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

Subcatchment 10S: North Undev.



Summary for Subcatchment 15S: South D-D

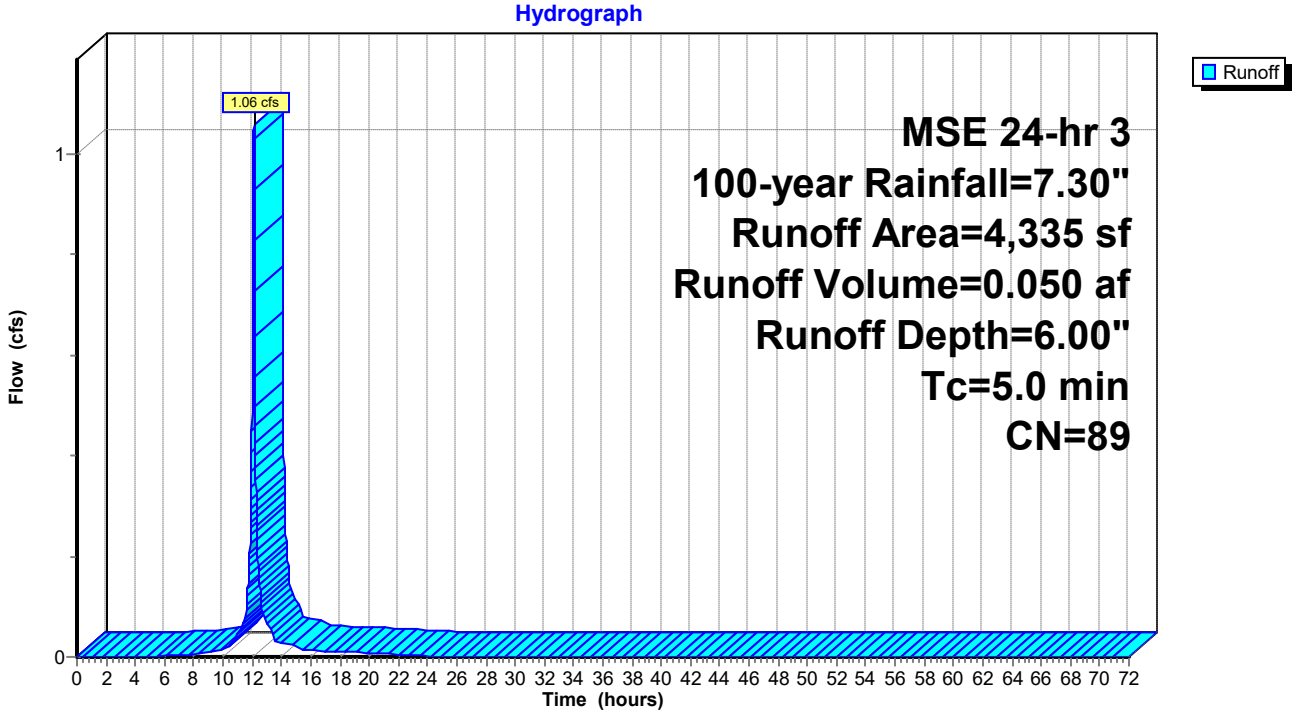
Runoff = 1.06 cfs @ 12.12 hrs, Volume= 0.050 af, Depth= 6.00"
Routed to Reach 6R : SE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-year Rainfall=7.30"

Area (sf)	CN	Description
4,335	89	<50% Grass cover, Poor, HSG D
4,335		100.00% Pervious Area

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

Subcatchment 15S: South D-D

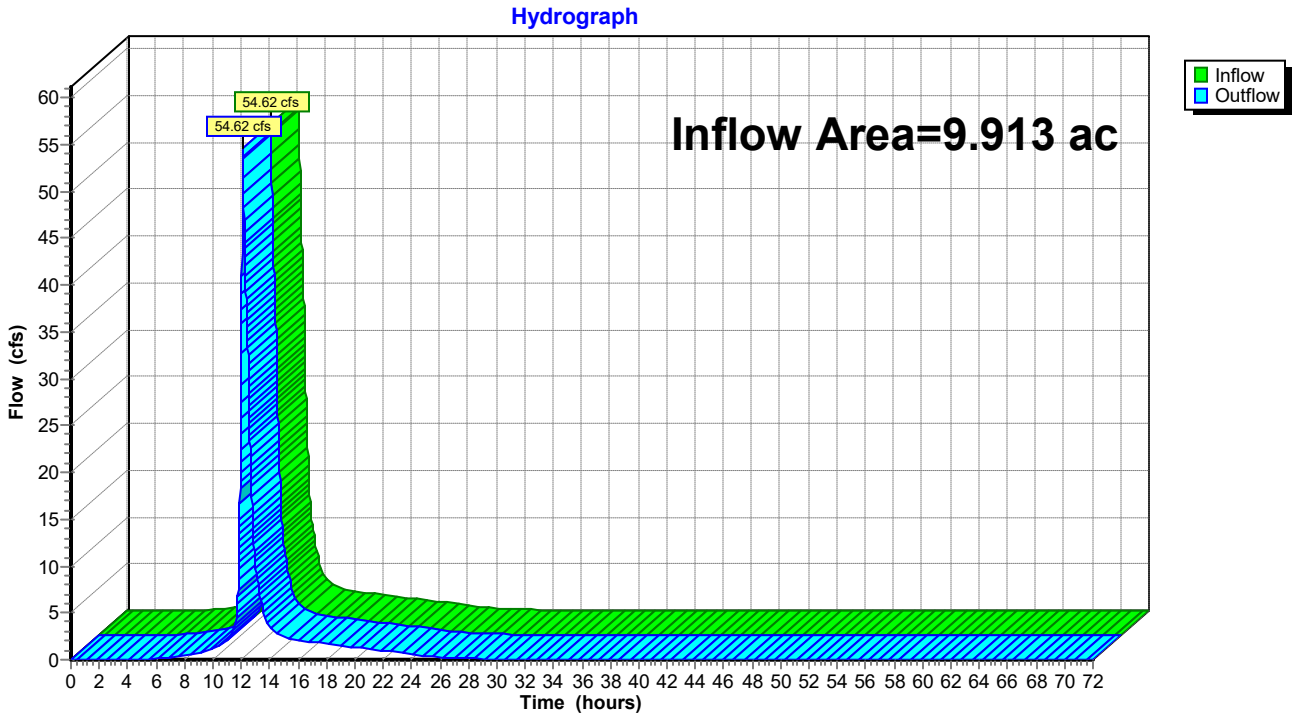


Summary for Reach 5R: North

Inflow Area = 9.913 ac, 66.07% Impervious, Inflow Depth = 6.33" for 100-year event
Inflow = 54.62 cfs @ 12.09 hrs, Volume= 5.230 af
Outflow = 54.62 cfs @ 12.09 hrs, Volume= 5.230 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 20R

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 5R: North

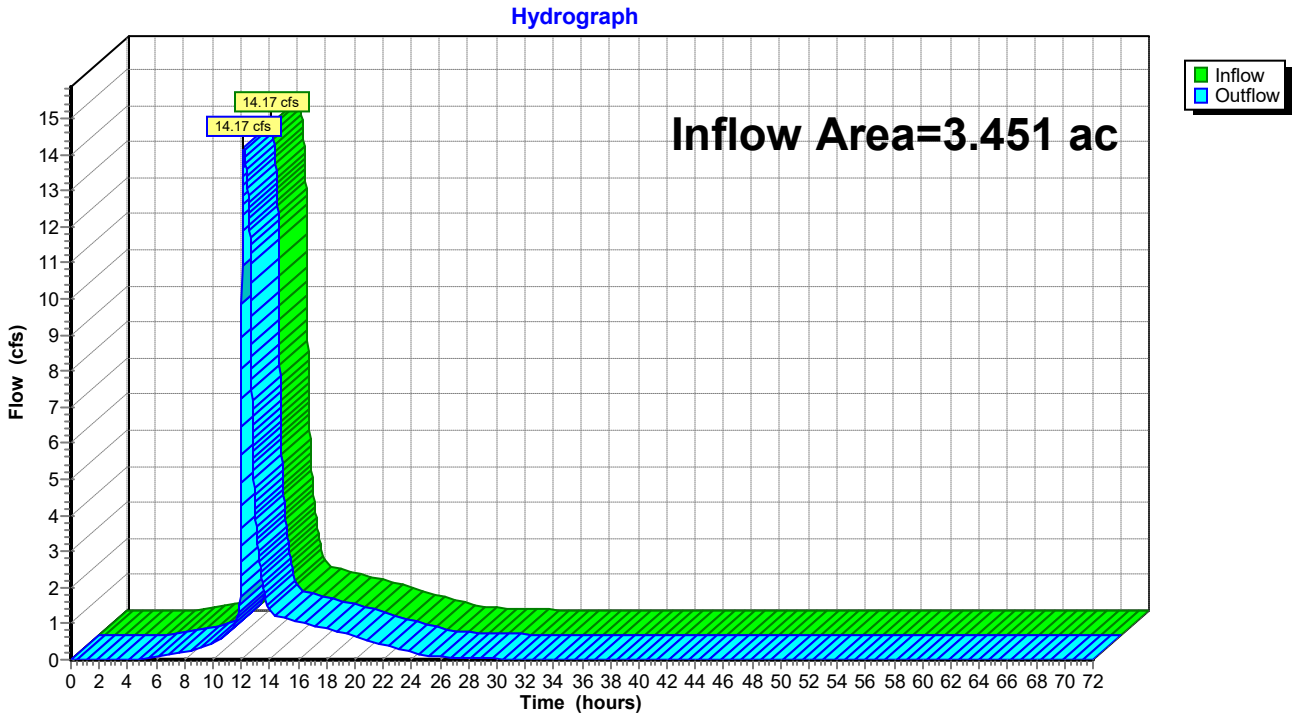


Summary for Reach 6R: SE

Inflow Area = 3.451 ac, 85.23% Impervious, Inflow Depth = 6.80" for 100-year event
Inflow = 14.17 cfs @ 12.17 hrs, Volume= 1.955 af
Outflow = 14.17 cfs @ 12.17 hrs, Volume= 1.955 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 20R

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 6R: SE

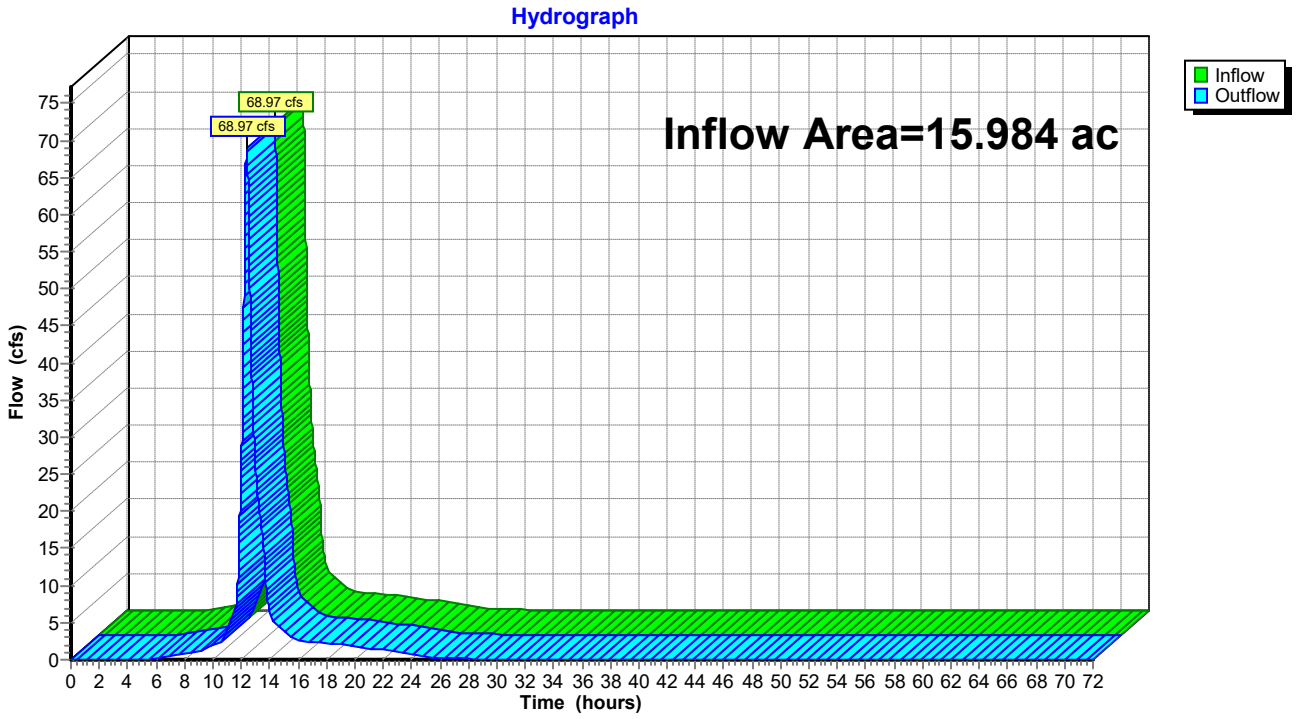


Summary for Reach 7R: SW

Inflow Area = 15.984 ac, 31.87% Impervious, Inflow Depth = 6.27" for 100-year event
Inflow = 68.97 cfs @ 12.38 hrs, Volume= 8.348 af
Outflow = 68.97 cfs @ 12.38 hrs, Volume= 8.348 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 20R

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 7R: SW



Summary for Pond 11P: NW Pond

Inflow Area = 2.501 ac, 85.10% Impervious, Inflow Depth = 6.70" for 100-year event
Inflow = 28.00 cfs @ 12.12 hrs, Volume= 1.397 af
Outflow = 10.67 cfs @ 12.23 hrs, Volume= 1.397 af, Atten= 62%, Lag= 6.4 min
Primary = 10.67 cfs @ 12.23 hrs, Volume= 1.397 af
Routed to Reach 5R : North

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Starting Elev= 963.00' Surf.Area= 6,990 sf Storage= 11,368 cf
Peak Elev= 965.32' @ 12.23 hrs Surf.Area= 11,576 sf Storage= 32,933 cf (21,565 cf above start)

Plug-Flow detention time= 188.9 min calculated for 1.136 af (81% of inflow)
Center-of-Mass det. time= 90.4 min (843.4 - 753.0)

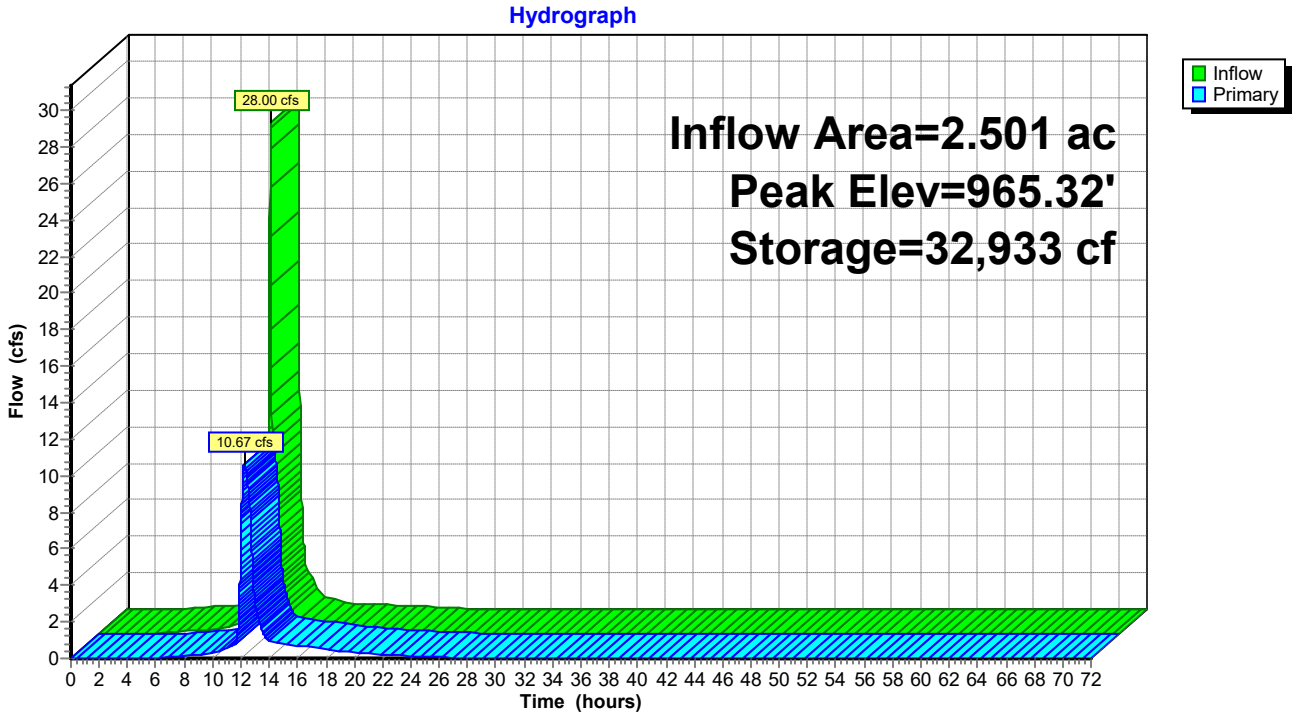
Volume	Invert	Avail.Storage	Storage Description
#1	959.00'	41,356 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
959.00	747	0	0
962.00	3,376	6,185	6,185
963.00	6,990	5,183	11,368
966.00	12,913	29,855	41,222
966.01	13,894	134	41,356

Device	Routing	Invert	Outlet Devices
#1	Primary	963.00'	**18.0" Round Culvert** L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 963.00' / 962.50' S= 0.0167 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 1.77 sf
#2	Device 1	963.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 3.00 Width (feet) 0.00 0.00 5.00 5.00
#3	Device 1	963.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=10.67 cfs @ 12.23 hrs HW=965.32' (Free Discharge)
└**1=Culvert** (Inlet Controls 10.67 cfs @ 6.04 fps)
  ├**2=Custom Weir/Orifice** (Passes < 24.91 cfs potential flow)
  └**3=Orifice/Grate** (Passes < 1.36 cfs potential flow)

Pond 11P: NW Pond



Stage-Discharge for Pond 11P: NW Pond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
959.00	0.00	961.60	0.00	964.20	2.39
959.05	0.00	961.65	0.00	964.25	2.99
959.10	0.00	961.70	0.00	964.30	3.66
959.15	0.00	961.75	0.00	964.35	4.38
959.20	0.00	961.80	0.00	964.40	5.16
959.25	0.00	961.85	0.00	964.45	5.98
959.30	0.00	961.90	0.00	964.50	6.85
959.35	0.00	961.95	0.00	964.55	7.61
959.40	0.00	962.00	0.00	964.60	7.84
959.45	0.00	962.05	0.00	964.65	8.07
959.50	0.00	962.10	0.00	964.70	8.29
959.55	0.00	962.15	0.00	964.75	8.51
959.60	0.00	962.20	0.00	964.80	8.72
959.65	0.00	962.25	0.00	964.85	8.92
959.70	0.00	962.30	0.00	964.90	9.12
959.75	0.00	962.35	0.00	964.95	9.32
959.80	0.00	962.40	0.00	965.00	9.51
959.85	0.00	962.45	0.00	965.05	9.70
959.90	0.00	962.50	0.00	965.10	9.89
959.95	0.00	962.55	0.00	965.15	10.07
960.00	0.00	962.60	0.00	965.20	10.25
960.05	0.00	962.65	0.00	965.25	10.42
960.10	0.00	962.70	0.00	965.30	10.59
960.15	0.00	962.75	0.00	965.35	10.76
960.20	0.00	962.80	0.00	965.40	10.93
960.25	0.00	962.85	0.00	965.45	11.09
960.30	0.00	962.90	0.00	965.50	11.26
960.35	0.00	962.95	0.00	965.55	11.42
960.40	0.00	963.00	0.00	965.60	11.57
960.45	0.00	963.05	0.01	965.65	11.73
960.50	0.00	963.10	0.03	965.70	11.88
960.55	0.00	963.15	0.07	965.75	12.03
960.60	0.00	963.20	0.11	965.80	12.18
960.65	0.00	963.25	0.17	965.85	12.33
960.70	0.00	963.30	0.23	965.90	12.48
960.75	0.00	963.35	0.30	965.95	12.62
960.80	0.00	963.40	0.36	966.00	**12.76**
960.85	0.00	963.45	0.43		
960.90	0.00	963.50	0.47		
960.95	0.00	963.55	0.52		
961.00	0.00	963.60	0.56		
961.05	0.00	963.65	0.60		
961.10	0.00	963.70	0.63		
961.15	0.00	963.75	0.67		
961.20	0.00	963.80	0.70		
961.25	0.00	963.85	0.73		
961.30	0.00	963.90	0.76		
961.35	0.00	963.95	0.79		
961.40	0.00	964.00	0.82		
961.45	0.00	964.05	1.03		
961.50	0.00	964.10	1.39		
961.55	0.00	964.15	1.85		

Stage-Area-Storage for Pond 11P: NW Pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
959.00	747	0
959.10	835	79
959.20	922	167
959.30	1,010	264
959.40	1,098	369
959.50	1,185	483
959.60	1,273	606
959.70	1,360	738
959.80	1,448	878
959.90	1,536	1,027
960.00	1,623	1,185
960.10	1,711	1,352
960.20	1,799	1,527
960.30	1,886	1,712
960.40	1,974	1,905
960.50	2,062	2,106
960.60	2,149	2,317
960.70	2,237	2,536
960.80	2,324	2,764
960.90	2,412	3,001
961.00	2,500	3,247
961.10	2,587	3,501
961.20	2,675	3,764
961.30	2,763	4,036
961.40	2,850	4,317
961.50	2,938	4,606
961.60	3,025	4,904
961.70	3,113	5,211
961.80	3,201	5,527
961.90	3,288	5,851
962.00	3,376	6,185
962.10	3,737	6,540
962.20	4,099	6,932
962.30	4,460	7,360
962.40	4,822	7,824
962.50	5,183	8,324
962.60	5,544	8,861
962.70	5,906	9,433
962.80	6,267	10,042
962.90	6,629	10,687
963.00	6,990	11,368
963.10	7,187	12,076
963.20	7,385	12,805
963.30	7,582	13,553
963.40	7,780	14,321
963.50	7,977	15,109
963.60	8,175	15,917
963.70	8,372	16,744
963.80	8,569	17,591
963.90	8,767	18,458
964.00	8,964	19,345
964.10	9,162	20,251
964.20	9,359	21,177
964.30	9,557	22,123
964.40	9,754	23,088
964.50	9,952	24,074
964.60	10,149	25,079
964.70	10,346	26,103
964.80	10,544	27,148
964.90	10,741	28,212
965.00	10,939	29,296
965.10	11,136	30,400
965.20	11,334	31,523
965.30	11,531	32,667
965.40	11,728	33,830
965.50	11,926	35,012
965.60	12,123	36,215
965.70	12,321	37,437
965.80	12,518	38,679
965.90	12,716	39,941
966.00	**12,913**	**41,222**

Summary for Pond 12P: NE Pond

Inflow Area = 4.654 ac, 89.15% Impervious, Inflow Depth = 6.82" for 100-year event
Inflow = 52.38 cfs @ 12.12 hrs, Volume= 2.646 af
Outflow = 23.58 cfs @ 12.20 hrs, Volume= 2.643 af, Atten= 55%, Lag= 5.0 min
Primary = 23.58 cfs @ 12.20 hrs, Volume= 2.643 af
Routed to Reach 5R : North

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Starting Elev= 961.50' Surf.Area= 10,470 sf Storage= 15,263 cf
Peak Elev= 964.61' @ 12.20 hrs Surf.Area= 17,225 sf Storage= 58,030 cf (42,767 cf above start)

Plug-Flow detention time= 211.0 min calculated for 2.292 af (87% of inflow)
Center-of-Mass det. time= 126.4 min (875.5 - 749.1)

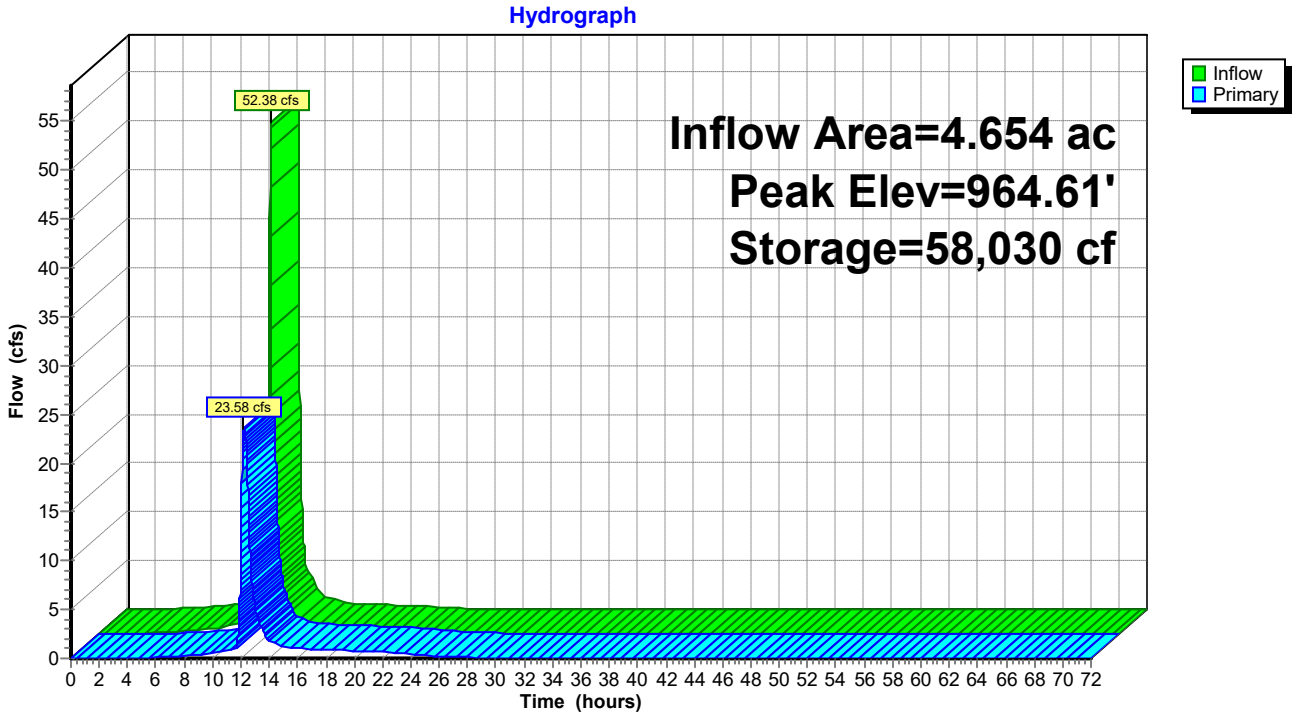
Volume	Invert	Avail.Storage	Storage Description
#1	958.00'	84,169 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	958	0	0
960.50	5,046	7,505	7,505
961.50	10,470	7,758	15,263
963.00	13,525	17,996	33,259
966.00	20,415	50,910	84,169

Device	Routing	Invert	Outlet Devices
#1	Primary	961.50'	**24.0" Round Culvert** L= 123.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 961.50' / 960.00' S= 0.0122 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	961.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 1.50 4.00 Width (feet) 0.00 0.00 5.00 5.00
#3	Primary	961.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=23.57 cfs @ 12.20 hrs HW=964.61' (Free Discharge)
└**1=Culvert** (Inlet Controls 21.98 cfs @ 6.99 fps)
└**2=Custom Weir/Orifice** (Passes 21.98 cfs of 33.47 cfs potential flow)
└**3=Orifice/Grate** (Orifice Controls 1.60 cfs @ 8.14 fps)

Pond 12P: NE Pond



Stage-Discharge for Pond 12P: NE Pond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
958.00	0.00	960.60	0.00	963.20	2.60	965.80	29.38
958.05	0.00	960.65	0.00	963.25	3.20	965.85	29.60
958.10	0.00	960.70	0.00	963.30	3.87	965.90	29.82
958.15	0.00	960.75	0.00	963.35	4.59	965.95	30.03
958.20	0.00	960.80	0.00	963.40	5.36	966.00	**30.25**
958.25	0.00	960.85	0.00	963.45	6.18		
958.30	0.00	960.90	0.00	963.50	7.04		
958.35	0.00	960.95	0.00	963.55	7.95		
958.40	0.00	961.00	0.00	963.60	8.90		
958.45	0.00	961.05	0.00	963.65	9.88		
958.50	0.00	961.10	0.00	963.70	10.91		
958.55	0.00	961.15	0.00	963.75	11.97		
958.60	0.00	961.20	0.00	963.80	13.07		
958.65	0.00	961.25	0.00	963.85	14.20		
958.70	0.00	961.30	0.00	963.90	15.37		
958.75	0.00	961.35	0.00	963.95	16.56		
958.80	0.00	961.40	0.00	964.00	17.79		
958.85	0.00	961.45	0.00	964.05	19.05		
958.90	0.00	961.50	0.00	964.10	20.34		
958.95	0.00	961.55	0.01	964.15	20.90		
959.00	0.00	961.60	0.03	964.20	21.20		
959.05	0.00	961.65	0.07	964.25	21.51		
959.10	0.00	961.70	0.11	964.30	21.80		
959.15	0.00	961.75	0.17	964.35	22.10		
959.20	0.00	961.80	0.23	964.40	22.39		
959.25	0.00	961.85	0.30	964.45	22.68		
959.30	0.00	961.90	0.36	964.50	22.96		
959.35	0.00	961.95	0.43	964.55	23.24		
959.40	0.00	962.00	0.47	964.60	23.52		
959.45	0.00	962.05	0.52	964.65	23.79		
959.50	0.00	962.10	0.56	964.70	24.06		
959.55	0.00	962.15	0.60	964.75	24.33		
959.60	0.00	962.20	0.63	964.80	24.59		
959.65	0.00	962.25	0.67	964.85	24.85		
959.70	0.00	962.30	0.70	964.90	25.11		
959.75	0.00	962.35	0.73	964.95	25.37		
959.80	0.00	962.40	0.76	965.00	25.62		
959.85	0.00	962.45	0.79	965.05	25.87		
959.90	0.00	962.50	0.82	965.10	26.12		
959.95	0.00	962.55	0.85	965.15	26.37		
960.00	0.00	962.60	0.87	965.20	26.61		
960.05	0.00	962.65	0.90	965.25	26.85		
960.10	0.00	962.70	0.92	965.30	27.09		
960.15	0.00	962.75	0.95	965.35	27.33		
960.20	0.00	962.80	0.97	965.40	27.57		
960.25	0.00	962.85	0.99	965.45	27.80		
960.30	0.00	962.90	1.01	965.50	28.03		
960.35	0.00	962.95	1.04	965.55	28.26		
960.40	0.00	963.00	1.06	965.60	28.49		
960.45	0.00	963.05	1.26	965.65	28.71		
960.50	0.00	963.10	1.62	965.70	28.94		
960.55	0.00	963.15	2.07	965.75	29.16		

Stage-Area-Storage for Pond 12P: NE Pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
958.00	958	0
958.10	1,122	104
958.20	1,285	224
958.30	1,449	361
958.40	1,612	514
958.50	1,776	683
958.60	1,939	869
958.70	2,103	1,071
958.80	2,266	1,290
958.90	2,430	1,524
959.00	2,593	1,776
959.10	2,757	2,043
959.20	2,920	2,327
959.30	3,084	2,627
959.40	3,247	2,944
959.50	3,411	3,277
959.60	3,574	3,626
959.70	3,738	3,991
959.80	3,901	4,373
959.90	4,065	4,772
960.00	4,228	5,186
960.10	4,392	5,617
960.20	4,555	6,065
960.30	4,719	6,529
960.40	4,882	7,009
960.50	5,046	7,505
960.60	5,588	8,037
960.70	6,131	8,623
960.80	6,673	9,263
960.90	7,216	9,957
961.00	7,758	10,706
961.10	8,300	11,509
961.20	8,843	12,366
961.30	9,385	13,277
961.40	9,928	14,243
961.50	10,470	15,263
961.60	10,674	16,320
961.70	10,877	17,398
961.80	11,081	18,496
961.90	11,285	19,614
962.00	11,488	20,753
962.10	11,692	21,912
962.20	11,896	23,091
962.30	12,099	24,291
962.40	12,303	25,511
962.50	12,507	26,751
962.60	12,710	28,012
962.70	12,914	29,293
962.80	13,118	30,595
962.90	13,321	31,917
963.00	13,525	33,259
963.10	13,755	34,623
963.20	13,984	36,010
963.30	14,214	37,420
963.40	14,444	38,853
963.50	14,673	40,309
963.60	14,903	41,788
963.70	15,133	43,289
963.80	15,362	44,814
963.90	15,592	46,362
964.00	15,822	47,933
964.10	16,051	49,526
964.20	16,281	51,143
964.30	16,511	52,782
964.40	16,740	54,445
964.50	16,970	56,131
964.60	17,200	57,839
964.70	17,429	59,570
964.80	17,659	61,325
964.90	17,889	63,102
965.00	18,118	64,903
965.10	18,348	66,726
965.20	18,578	68,572
965.30	18,807	70,441
965.40	19,037	72,334
965.50	19,267	74,249
965.60	19,496	76,187
965.70	19,726	78,148
965.80	19,956	80,132
965.90	20,185	82,139
966.00	**20,415**	**84,169**

Summary for Pond 13P: SE Pond

Inflow Area = 3.351 ac, 87.76% Impervious, Inflow Depth = 6.82" for 100-year event
Inflow = 37.72 cfs @ 12.12 hrs, Volume= 1.906 af
Outflow = 13.68 cfs @ 12.23 hrs, Volume= 1.905 af, Atten= 64%, Lag= 6.8 min
Primary = 13.68 cfs @ 12.23 hrs, Volume= 1.905 af
Routed to Reach 6R : SE

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Starting Elev= 960.50' Surf.Area= 7,752 sf Storage= 10,839 cf
Peak Elev= 963.83' @ 12.23 hrs Surf.Area= 12,168 sf Storage= 43,797 cf (32,959 cf above start)

Plug-Flow detention time= 202.2 min calculated for 1.657 af (87% of inflow)
Center-of-Mass det. time= 117.6 min (866.8 - 749.1)

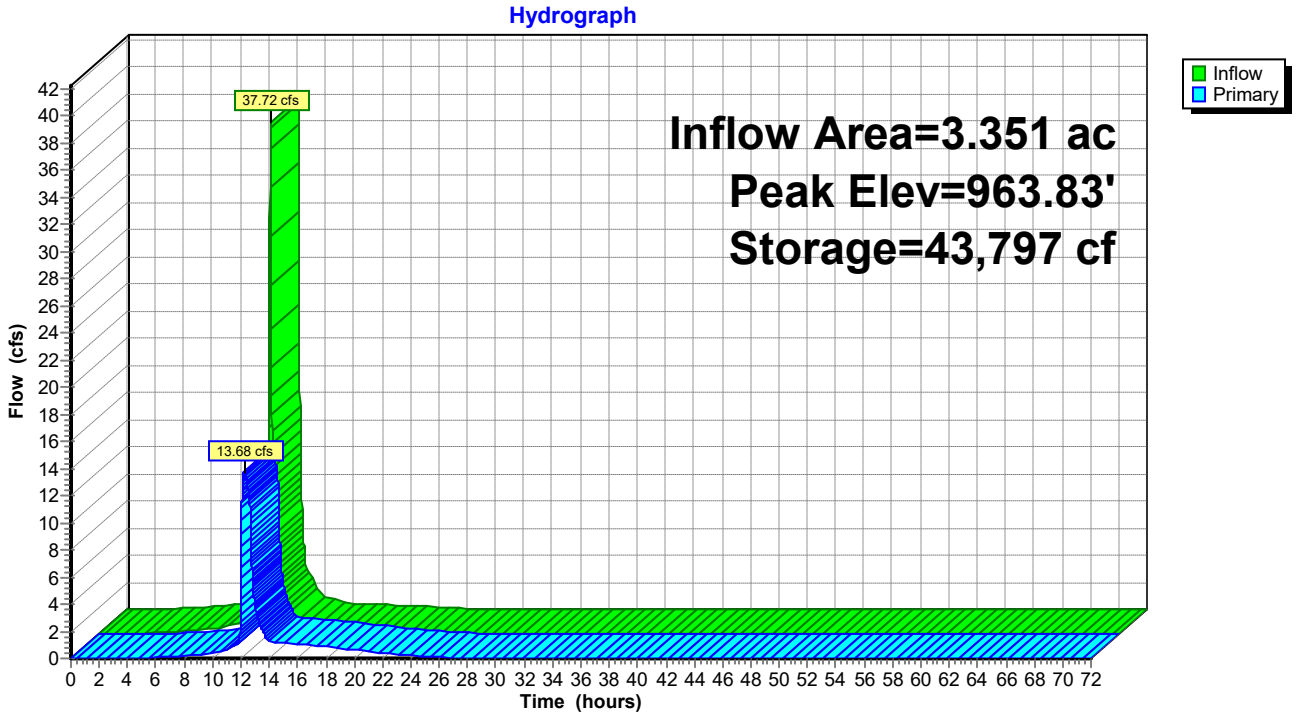
Volume	Invert	Avail.Storage	Storage Description
#1	956.50'	45,838 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
956.50	439	0	0
959.50	3,152	5,387	5,387
960.50	7,752	5,452	10,839
963.00	10,880	23,290	34,129
963.50	11,804	5,671	39,800
964.00	12,349	6,038	45,838

Device	Routing	Invert	Outlet Devices
#1	Primary	960.50'	**18.0" Round Culvert** L= 44.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 960.50' / 960.06' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 1.77 sf
#2	Device 1	960.50'	**Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.80 1.80 4.50 Width (feet) 0.00 0.00 5.00 5.00
#3	Device 1	960.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=13.68 cfs @ 12.23 hrs HW=963.83' (Free Discharge)
└**1=Culvert** (Inlet Controls 13.68 cfs @ 7.74 fps)
└**2=Weir** (Passes < 31.09 cfs potential flow)
└**3=Orifice/Grate** (Passes < 1.66 cfs potential flow)

Pond 13P: SE Pond



Stage-Discharge for Pond 13P: SE Pond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
956.50	0.00	959.10	0.00	961.70	0.92	964.30	14.86
956.55	0.00	959.15	0.00	961.75	0.95	964.35	14.98
956.60	0.00	959.20	0.00	961.80	0.97	964.40	15.10
956.65	0.00	959.25	0.00	961.85	0.99	964.45	15.22
956.70	0.00	959.30	0.00	961.90	1.01	964.50	15.34
956.75	0.00	959.35	0.00	961.95	1.04	964.55	15.46
956.80	0.00	959.40	0.00	962.00	1.06	964.60	15.57
956.85	0.00	959.45	0.00	962.05	1.08	964.65	15.69
956.90	0.00	959.50	0.00	962.10	1.10	964.70	15.80
956.95	0.00	959.55	0.00	962.15	1.12	964.75	15.92
957.00	0.00	959.60	0.00	962.20	1.14	964.80	16.03
957.05	0.00	959.65	0.00	962.25	1.16	964.85	16.14
957.10	0.00	959.70	0.00	962.30	1.18	964.90	16.26
957.15	0.00	959.75	0.00	962.35	1.38	964.95	16.37
957.20	0.00	959.80	0.00	962.40	1.73	965.00	**16.48**
957.25	0.00	959.85	0.00	962.45	2.18		
957.30	0.00	959.90	0.00	962.50	2.72		
957.35	0.00	959.95	0.00	962.55	3.32		
957.40	0.00	960.00	0.00	962.60	3.98		
957.45	0.00	960.05	0.00	962.65	4.69		
957.50	0.00	960.10	0.00	962.70	5.46		
957.55	0.00	960.15	0.00	962.75	6.28		
957.60	0.00	960.20	0.00	962.80	7.14		
957.65	0.00	960.25	0.00	962.85	8.05		
957.70	0.00	960.30	0.00	962.90	9.00		
957.75	0.00	960.35	0.00	962.95	9.98		
957.80	0.00	960.40	0.00	963.00	11.01		
957.85	0.00	960.45	0.00	963.05	11.40		
957.90	0.00	960.50	0.00	963.10	11.57		
957.95	0.00	960.55	0.01	963.15	11.73		
958.00	0.00	960.60	0.03	963.20	11.88		
958.05	0.00	960.65	0.07	963.25	12.03		
958.10	0.00	960.70	0.11	963.30	12.18		
958.15	0.00	960.75	0.17	963.35	12.33		
958.20	0.00	960.80	0.23	963.40	12.48		
958.25	0.00	960.85	0.30	963.45	12.62		
958.30	0.00	960.90	0.36	963.50	12.76		
958.35	0.00	960.95	0.43	963.55	12.90		
958.40	0.00	961.00	0.47	963.60	13.04		
958.45	0.00	961.05	0.52	963.65	13.18		
958.50	0.00	961.10	0.56	963.70	13.32		
958.55	0.00	961.15	0.60	963.75	13.45		
958.60	0.00	961.20	0.63	963.80	13.59		
958.65	0.00	961.25	0.67	963.85	13.72		
958.70	0.00	961.30	0.70	963.90	13.85		
958.75	0.00	961.35	0.73	963.95	13.98		
958.80	0.00	961.40	0.76	964.00	14.11		
958.85	0.00	961.45	0.79	964.05	14.24		
958.90	0.00	961.50	0.82	964.10	14.36		
958.95	0.00	961.55	0.85	964.15	14.49		
959.00	0.00	961.60	0.87	964.20	14.61		
959.05	0.00	961.65	0.90	964.25	14.74		

Stage-Area-Storage for Pond 13P: SE Pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
956.50	439	0
956.60	529	48
956.70	620	106
956.80	710	172
956.90	801	248
957.00	891	333
957.10	982	426
957.20	1,072	529
957.30	1,162	641
957.40	1,253	761
957.50	1,343	891
957.60	1,434	1,030
957.70	1,524	1,178
957.80	1,615	1,335
957.90	1,705	1,501
958.00	1,796	1,676
958.10	1,886	1,860
958.20	1,976	2,053
958.30	2,067	2,255
958.40	2,157	2,466
958.50	2,248	2,687
958.60	2,338	2,916
958.70	2,429	3,154
958.80	2,519	3,402
958.90	2,609	3,658
959.00	2,700	3,924
959.10	2,790	4,198
959.20	2,881	4,482
959.30	2,971	4,774
959.40	3,062	5,076
959.50	3,152	5,387
959.60	3,612	5,725
959.70	4,072	6,109
959.80	4,532	6,539
959.90	4,992	7,015
960.00	5,452	7,538
960.10	5,912	8,106
960.20	6,372	8,720
960.30	6,832	9,380
960.40	7,292	10,086
960.50	7,752	10,839
960.60	7,877	11,620
960.70	8,002	12,414
960.80	8,127	13,220
960.90	8,252	14,039
961.00	8,378	14,871
961.10	8,503	15,715
961.20	8,628	16,571
961.30	8,753	17,440
961.40	8,878	18,322
961.50	9,003	19,216
961.60	9,128	20,123
961.70	9,253	21,042
961.80	9,379	21,973
961.90	9,504	22,917
962.00	9,629	23,874
962.10	9,754	24,843
962.20	9,879	25,825
962.30	10,004	26,819
962.40	10,129	27,826
962.50	10,254	28,845
962.60	10,380	29,877
962.70	10,505	30,921
962.80	10,630	31,978
962.90	10,755	33,047
963.00	10,880	34,129
963.10	11,065	35,226
963.20	11,250	36,341
963.30	11,434	37,476
963.40	11,619	38,628
963.50	11,804	39,800
963.60	11,913	40,985
963.70	12,022	42,182
963.80	12,131	43,390
963.90	12,240	44,608
964.00	**12,349**	**45,838**
964.10	12,349	45,838
964.20	12,349	45,838
964.30	12,349	45,838
964.40	12,349	45,838
964.50	12,349	45,838
964.60	12,349	45,838
964.70	12,349	45,838
964.80	12,349	45,838
964.90	12,349	45,838
965.00	12,349	45,838

Summary for Pond 14P: SW Pond

Inflow Area = 6.052 ac, 83.80% Impervious, Inflow Depth = 6.70" for 100-year event
Inflow = 67.77 cfs @ 12.12 hrs, Volume= 3.381 af
Outflow = 15.50 cfs @ 12.33 hrs, Volume= 3.381 af, Atten= 77%, Lag= 12.5 min
Primary = 15.50 cfs @ 12.33 hrs, Volume= 3.381 af
Routed to Reach 7R : SW

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Starting Elev= 958.00' Surf.Area= 8,880 sf Storage= 15,244 cf
Peak Elev= 962.98' @ 12.33 hrs Surf.Area= 16,891 sf Storage= 79,369 cf (64,125 cf above start)

Plug-Flow detention time= 196.8 min calculated for 3.031 af (90% of inflow)
Center-of-Mass det. time= 125.1 min (878.1 - 753.0)

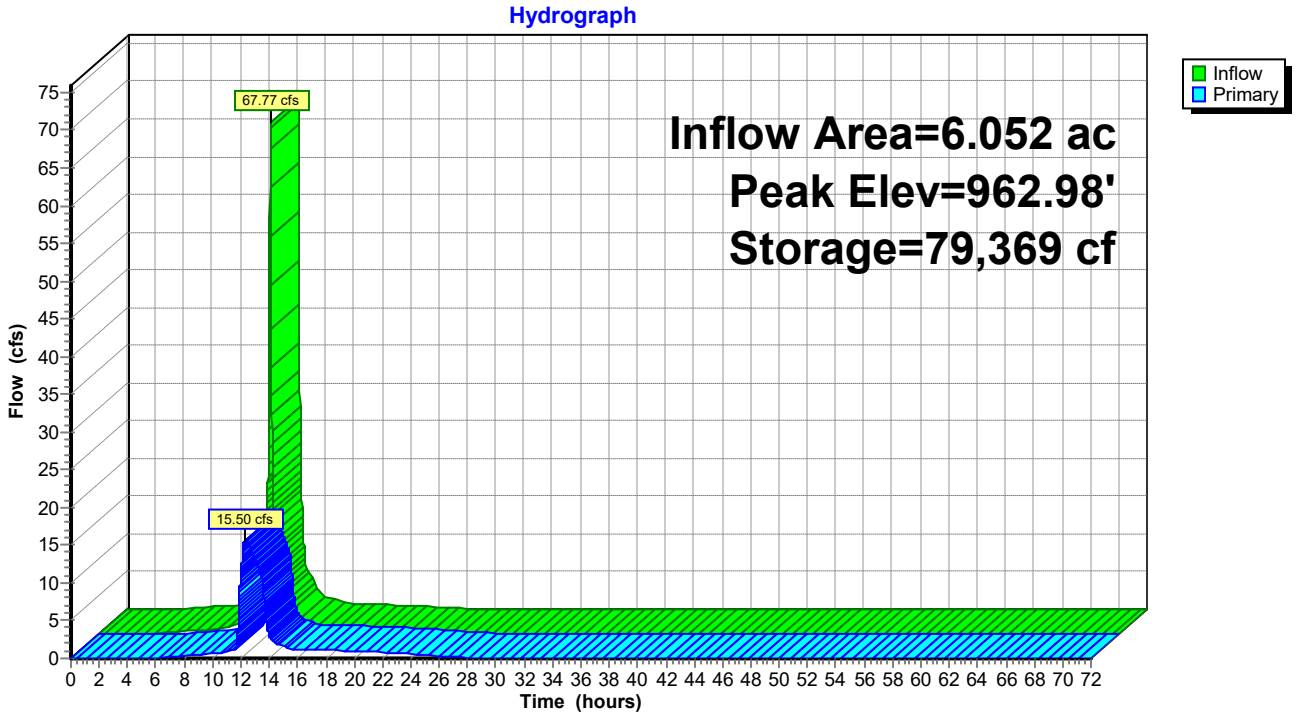
Volume	Invert	Avail.Storage	Storage Description
#1	954.00'	88,469 cf	**Above Ground (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
954.00	1,344	0	0
957.00	4,394	8,607	8,607
958.00	8,880	6,637	15,244
963.00	16,929	64,523	79,767
963.50	17,880	8,702	88,469

Device	Routing	Invert	Outlet Devices
#1	Primary	958.00'	**18.0" Round Culvert** L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 958.00' / 957.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 1.77 sf
#2	Device 1	958.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 2.00 2.00 6.00 Width (feet) 0.00 0.00 5.00 5.00
#3	Device 1	958.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=15.50 cfs @ 12.33 hrs HW=962.98' (Free Discharge)
└**1=Culvert** (Barrel Controls 15.50 cfs @ 8.77 fps)
└**2=Custom Weir/Orifice** (Passes < 84.09 cfs potential flow)
└**3=Orifice/Grate** (Passes < 2.06 cfs potential flow)

Pond 14P: SW Pond



Stage-Discharge for Pond 14P: SW Pond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
954.00	0.00	956.60	0.00	959.20	0.92	961.80	13.01
954.05	0.00	956.65	0.00	959.25	0.95	961.85	13.12
954.10	0.00	956.70	0.00	959.30	0.97	961.90	13.24
954.15	0.00	956.75	0.00	959.35	0.99	961.95	13.35
954.20	0.00	956.80	0.00	959.40	1.01	962.00	13.46
954.25	0.00	956.85	0.00	959.45	1.04	962.05	13.57
954.30	0.00	956.90	0.00	959.50	1.06	962.10	13.69
954.35	0.00	956.95	0.00	959.55	1.08	962.15	13.80
954.40	0.00	957.00	0.00	959.60	1.10	962.20	13.90
954.45	0.00	957.05	0.00	959.65	1.12	962.25	14.01
954.50	0.00	957.10	0.00	959.70	1.14	962.30	14.12
954.55	0.00	957.15	0.00	959.75	1.16	962.35	14.23
954.60	0.00	957.20	0.00	959.80	1.18	962.40	14.33
954.65	0.00	957.25	0.00	959.85	1.20	962.45	14.44
954.70	0.00	957.30	0.00	959.90	1.21	962.50	14.54
954.75	0.00	957.35	0.00	959.95	1.23	962.55	14.64
954.80	0.00	957.40	0.00	960.00	1.25	962.60	14.75
954.85	0.00	957.45	0.00	960.05	1.45	962.65	14.85
954.90	0.00	957.50	0.00	960.10	1.80	962.70	14.95
954.95	0.00	957.55	0.00	960.15	2.25	962.75	15.05
955.00	0.00	957.60	0.00	960.20	2.78	962.80	15.15
955.05	0.00	957.65	0.00	960.25	3.38	962.85	15.25
955.10	0.00	957.70	0.00	960.30	4.04	962.90	15.35
955.15	0.00	957.75	0.00	960.35	4.76	962.95	15.45
955.20	0.00	957.80	0.00	960.40	5.53	963.00	15.55
955.25	0.00	957.85	0.00	960.45	6.35	963.05	15.64
955.30	0.00	957.90	0.00	960.50	7.21	963.10	15.74
955.35	0.00	957.95	0.00	960.55	8.11	963.15	15.83
955.40	0.00	958.00	0.00	960.60	9.06	963.20	15.93
955.45	0.00	958.05	0.01	960.65	9.98	963.25	16.02
955.50	0.00	958.10	0.03	960.70	10.13	963.30	16.12
955.55	0.00	958.15	0.07	960.75	10.28	963.35	16.21
955.60	0.00	958.20	0.11	960.80	10.43	963.40	16.30
955.65	0.00	958.25	0.17	960.85	10.57	963.45	16.40
955.70	0.00	958.30	0.23	960.90	10.71	963.50	16.49
955.75	0.00	958.35	0.30	960.95	10.85	963.55	16.58
955.80	0.00	958.40	0.36	961.00	10.99	963.60	16.67
955.85	0.00	958.45	0.43	961.05	11.13	963.65	16.76
955.90	0.00	958.50	0.47	961.10	11.26	963.70	16.85
955.95	0.00	958.55	0.52	961.15	11.40	963.75	16.94
956.00	0.00	958.60	0.56	961.20	11.53	963.80	17.03
956.05	0.00	958.65	0.60	961.25	11.66	963.85	17.12
956.10	0.00	958.70	0.63	961.30	11.79	963.90	17.21
956.15	0.00	958.75	0.67	961.35	11.92	963.95	17.29
956.20	0.00	958.80	0.70	961.40	12.04	964.00	**17.38**
956.25	0.00	958.85	0.73	961.45	12.17		
956.30	0.00	958.90	0.76	961.50	12.29		
956.35	0.00	958.95	0.79	961.55	12.41		
956.40	0.00	959.00	0.82	961.60	12.53		
956.45	0.00	959.05	0.85	961.65	12.65		
956.50	0.00	959.10	0.87	961.70	12.77		
956.55	0.00	959.15	0.90	961.75	12.89		

Stage-Area-Storage for Pond 14P: SW Pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
954.00	1,344	0
954.10	1,446	139
954.20	1,547	289
954.30	1,649	449
954.40	1,751	619
954.50	1,852	799
954.60	1,954	989
954.70	2,056	1,190
954.80	2,157	1,401
954.90	2,259	1,621
955.00	2,361	1,852
955.10	2,462	2,093
955.20	2,564	2,345
955.30	2,666	2,606
955.40	2,767	2,878
955.50	2,869	3,160
955.60	2,971	3,452
955.70	3,072	3,754
955.80	3,174	4,066
955.90	3,276	4,389
956.00	3,377	4,721
956.10	3,479	5,064
956.20	3,581	5,417
956.30	3,682	5,780
956.40	3,784	6,154
956.50	3,886	6,537
956.60	3,987	6,931
956.70	4,089	7,335
956.80	4,191	7,749
956.90	4,292	8,173
957.00	4,394	8,607
957.10	4,843	9,069
957.20	5,291	9,576
957.30	5,740	10,127
957.40	6,188	10,723
957.50	6,637	11,365
957.60	7,086	12,051
957.70	7,534	12,782
957.80	7,983	13,558
957.90	8,431	14,378
958.00	8,880	15,244
958.10	9,041	16,140
958.20	9,202	17,052
958.30	9,363	17,980
958.40	9,524	18,925
958.50	9,685	19,885
958.60	9,846	20,862
958.70	10,007	21,854
958.80	10,168	22,863
958.90	10,329	23,888
959.00	10,490	24,929
959.10	10,651	25,986
959.20	10,812	27,059
959.30	10,973	28,148
959.40	11,134	29,254
959.50	11,295	30,375
959.60	11,456	31,513
959.70	11,617	32,666
959.80	11,778	33,836
959.90	11,939	35,022
960.00	12,100	36,224
960.10	12,261	37,442
960.20	12,422	38,676
960.30	12,583	39,926
960.40	12,744	41,192
960.50	12,905	42,475
960.60	13,065	43,773
960.70	13,226	45,088
960.80	13,387	46,418
960.90	13,548	47,765
961.00	13,709	49,128
961.10	13,870	50,507
961.20	14,031	51,902
961.30	14,192	53,313
961.40	14,353	54,741
961.50	14,514	56,184
961.60	14,675	57,644
961.70	14,836	59,119
961.80	14,997	60,611
961.90	15,158	62,119
962.00	15,319	63,642
962.10	15,480	65,182
962.20	15,641	66,738
962.30	15,802	68,311
962.40	15,963	69,899
962.50	16,124	71,503
962.60	16,285	73,124
962.70	16,446	74,760
962.80	16,607	76,413
962.90	16,768	78,082
963.00	16,929	79,767
963.10	17,119	81,469
963.20	17,309	83,190
963.30	17,500	84,931
963.40	17,690	86,690
963.50	**17,880**	**88,469**
963.60	17,880	88,469
963.70	17,880	88,469
963.80	17,880	88,469
963.90	17,880	88,469
964.00	17,880	88,469

APPENDIX D: OTHER PROPOSED HYDROLOGY CALCULATIONS

LANDFORM
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105 South Fifth Avenue
Suite 513
Minneapolis, MN 55401

Tel: 612-252-9070
Web: landform.net

POND DESIGN LEVEL Worksheet

DATE	11/6/2026
PROJECT NAME	Apple Ford
PROJECT NUMBER	GAG26002
PROJECT LOCATION	Gem Lake, MN
PREPARED BY	DBL

	Design Level 1 Data							Design Level 2 Data								
Pond I.D.	Impervious Tributary Area (ac)	New Impervious Tributary Area (ac)	Total Tributary Area (ac)	Dead Storage Req'd. (1800 cf / ac of Trib. Imp.) (cf)	Dead Storage Provided (cf)	Pond Depth (ft)	Pond Flow Path Length to Width Ratio (DL1 <= 10, DL2 = 1 to 3, DL3 = 3 to 10)	Gem Lake Minimum Water Quality Volume from 1.1-inch over Imp. Area (cf)	MPCA Minimum Water Quality Volume from 1.0-inch over NEW Imp. Area (cf)	MPCA Water Quality Elevation	Provided Water Quality Volume Elevation	Pond Surface Area (ac)	Allowed Max. WQV Disch. Rate (5.66 cfs/acre of pond surface) (cfs)	Provided Peak WQV Discharge Rate (cfs)	Wet Extended Detention or Multi-Cell	Resultant Pond Design Level
NW Pond	1.869	0.000	2.501	4,502	11,368	4.0	3.5	7,463	0	963.00	963.95	0.204	1.15	0.79	Wet Extended	2
NE Pond	4.183	0.000	4.639	8,350	15,263	3.5	4.2	16,703	0	961.50	962.82	0.302	1.71	0.98	Wet Extended	2
SE Pond	2.763	0.000	3.367	6,061	10,839	4.0	2.7	11,033	0	960.50	961.80	0.215	1.22	0.97	Wet Extended	2
SW Pond	4.872	3.186	6.053	10,895	15,244	4.0	3.3	19,454	11,565	959.20	959.88	0.273	1.55	1.21	Wet Extended	2

Pond Design Level Criteria:

Design Level 1 (TSS = 60%, DP = 0%, PP =60%, TP = 34%): Must meet all of the design requirements for Design Level 1 and does not meet all design requirements for Design Level 2

- Dead (or permanent) storage of at least 1800 cubic feet per acre (=1/2 inch of impervious area) that drains to the pond
- The pond's permanent storage volume must reach a minimum depth of at least 3 feet and must have no depth greater than 10 feet. The basin must be configured such that scour or resuspension of solids is minimized.
- Flow path length to pond width ratio less than 1:1 or greater than 10:1 (scouring occurs at ratios greater than 10:1)

Design Level 2 (TSS = 84%, DP = 0.08%, PP = 84%, TP = 50%): Meets all of the requirements for Design Levels 1 and 2 (except flow path) and does not meet all design requirements for Design Level 3

- Water quality volume (flood pool volume) >= 1 inch of impervious area
- Discharge rate of water quality volume does not exceed 5.66 cubic feet per second per acre of surface area of the pond
- Flow path length to pond width ratio = 1:1 to 3:1. A ratio of 3:1 is recommended.

Design Level 3 (TSS 90%, DP = 0.23%, PP = 90%, TP = 60%): Must meet all of the following design requirements

- Water quality volume (flood pool volume) > 1.5 inch of impervious area
- Discharge rate of water quality volume does not exceed 5.66 cubic feet per second per acre of surface area of the pond
- Wet extended detention or multi-cell system
- Sediment forebay at all major inflows
- Flow path length to pond width ratio 3:1 to 10:1

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APPENDIX E: STORM SEWER DRAINAGE MAP & CALCULATIONS



LANDFORM
From Site to Finish

Storm Sewer Drainage Map

APPLE FORD • Gem Lake, MN

• 11.06.2026

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MINNESOTA STORM SEWER DESIGN

DATE:	11/06/26
PROJECT NAME:	**Apple Ford - WBL**
PROJECT NUMBER:	GAG26002
PROJECT CITY:	Gem Lake
PROJECT COUNTY:	Ramsey
PROJECT ENGINEER:	SES

STORM FREQUENCY:	10 Years
CALCULATIONS BY:	DBL
MN ATLAS 14 REGION:	Ramsey

Segment		A - Trib. Areas		C - Coef.		Tc - Time of Conc.			I - Intensity		Q - Rate		Pipe								Upstream Structure						Downstream Structure						Comments
From	To	CB (Ac.)	Pipe (Ac.)	CB Indiv.	Pipe Avg.	CB (Min.)	Pipe (Min.)	Total (Min.)	CB (In/Hr)	Total (In/Hr)	CB (CFS)	Pipe (CFS)	Len. (Ft.)	Dia. (In.)	Grade (%)	Mat'l.	Man's. n	Vel. (Ft/S)	Cap. (CFS)	Excess Cap.	Structure	Top Rim	Invert	Build (Ft.)	Size (In.)	Casting	Structure	Top Rim	Inlet	Match	Drop (Ft.)	Build (Ft.)	
RD A	CB 102	0.53	0.53	0.95	0.95	5.0	0.3	5.3	7.58	7.58	3.8	3.8	115	10	2.10	PVC	0.010	7.6	4.1	0.3	RD A	970.00	967.10	2.90			CB 102	968.20	964.69	8/10ths		3.51	
CB 102	CB 101	0.50	1.02	0.91	0.93	5.0	0.2	5.5	7.58	7.58	3.4	7.2	86	24	0.50	HDPE	0.010	6.6	20.8	13.6	CB 102	968.20	963.76	4.45			CB 101	967.86	963.33	8/10ths		4.53	
CB 101	FES 100	0.22	2.23	0.88	0.92	5.0	0.2	6.1	7.58	6.99	1.5	14.3	65	24	0.50	RCP	0.013	5.1	16.0	1.7	CB 101	967.86	963.33	4.53			FES 100	963.00	963.00	Invert		0.00	
RD F	CB 110	0.52	0.52	0.95	0.95	5.0	0.2	5.2	7.58	7.58	3.8	3.8	86	10	2.10	PVC	0.010	7.6	4.1	0.4	RD F	970.00	966.57	3.43			CB 110	967.71	964.76	8/10ths		2.95	
CB 110	CB 101	0.47	0.99	0.88	0.92	5.0	0.7	5.9	7.58	7.58	3.1	6.9	168	18	0.30	HDPE	0.010	4.2	7.5	0.6	CB 110	967.71	964.23	3.48			CB 101	967.86	963.73	8/10ths		4.13	
RD B	CB 202	0.75	0.75	0.95	0.95	5.0	0.3	5.3	7.58	7.58	5.4	5.4	144	12	1.50	PVC	0.010	7.2	5.7	0.2	RD B	970.00	965.83	4.17			CB 202	967.73	963.67	8/10ths		4.06	
CB 202	CB 201	0.63	2.17	0.93	0.94	5.0	0.6	6.6	7.58	6.99	4.4	14.2	181	24	0.25	HDPE	0.010	4.7	14.7	0.5	CB 202	967.73	962.87	4.86			CB 201	967.05	962.42	8/10ths		4.63	
CB 201	FES 200	0.62	3.88	0.91	0.93	5.0	0.2	6.9	7.58	6.99	4.3	25.1	60	36	0.20	RCP	0.013	4.2	29.8	4.8	CB 201	967.05	961.62	5.43			FES 200	961.50	961.50	Invert		0.00	
CB 211	CB 210	0.25	0.25	0.91	0.91	5.0	0.4	5.4	7.58	7.58	1.7	1.7	66	12	0.20	HDPE	0.010	2.6	2.1	0.4	CB 211	966.47	963.96	2.51			CB 210	966.50	963.83	8/10ths		2.67	
CB 210	CB 201	0.42	1.09	0.91	0.91	5.0	0.8	6.2	7.58	6.99	2.9	6.9	202	18	0.30	HDPE	0.010	4.2	7.5	0.6	CB 210	966.50	963.43	3.07			CB 201	967.05	962.82	8/10ths		4.23	
CB 210A	CB 210	0.42	0.42	0.91	0.91	5.0	0.0	5.0	7.58	7.58	2.9	2.9	8	12	0.50	HDPE	0.010	4.2	3.3	0.4	CB 210A	966.60	963.87	2.73			CB 210	966.50	963.83	8/10ths		2.67	
CB 204	CB 203	0.40	0.40	0.93	0.93	5.0	0.0	5.0	7.58	7.58	2.8	2.8	8	12	0.40	HDPE	0.010	3.7	2.9	0.1	CB 204	967.20	964.10	3.10			CB 203	967.00	964.07	8/10ths		2.93	
CB 203	CB 202	0.40	0.79	0.93	0.93	5.0	1.0	6.0	7.58	7.58	2.8	5.6	198	18	0.20	HDPE	0.010	3.5	6.1	0.5	CB 203	967.00	963.67	3.33			CB 202	967.73	963.27	8/10ths		4.46	
CB 303	CB 302	0.35	0.35	0.84	0.84	5.0	0.9	5.9	7.58	7.58	2.2	2.2	180	12	0.30	HDPE	0.010	3.2	2.5	0.3	CB 303	965.84	962.89	2.96			CB 302	965.50	962.35	8/10ths		3.15	
CB 302	CB 301	0.42	0.77	0.90	0.87	5.0	0.5	6.4	7.58	6.99	2.9	4.7	132	15	0.40	HDPE	0.010	4.3	5.3	0.6	CB 302	965.50	962.15	3.36			CB 301	965.50	961.62	8/10ths		3.88	
CB 301	FES 300	0.53	2.98	0.90	0.90	5.0	0.1	6.6	7.58	6.99	3.6	18.6	39	30	0.30	RCP	0.013	4.6	22.5	3.8	CB 301	965.50	960.62	4.88			FES 300	960.50	960.50	Invert		0.00	
CB 310	CB 301	0.57	0.57	0.90	0.90	5.0	0.6	5.6	7.58	7.58	3.9	3.9	133	15	0.30	HDPE	0.010	3.7	4.6	0.7	CB 310	965.50	962.02	3.48			CB 301	965.50	961.62	8/10ths		3.88	
CB 321	CB 320	0.53	0.53	0.91	0.91	5.0	0.6	5.6	7.58	7.58	3.7	3.7	132	15	0.30	HDPE	0.010	3.7	4.6	0.9	CB 321	967.64	962.59	5.05			CB 320	967.64	962.19	8/10ths		5.45	
CB 320	CB 301	0.58	1.11	0.91	0.91	5.0	0.8	6.3	7.58	6.99	4.0	7.0	192	18	0.30	HDPE	0.010	4.2	7.5	0.4	CB 320	967.64	961.99	5.65			CB 301	965.50	961.42	8/10ths		4.08	
RD E	WYE 408	0.29	0.29	0.95	0.95	5.0	0.1	5.1	7.58	7.58	2.1	2.1	41	8	2.10	PVC	0.010	6.5	2.3	0.2	RD E	970.00	965.37	4.63			WYE 408	968.03	964.50	8/10ths		3.53	
WYE 408	CB 408	0.00	0.29	0.95	0.95	5.0	0.2	5.3	7.58	7.58	0.0	2.1	65	8	2.10	HDPE	0.010	6.5	2.3	0.2	WYE 408	968.03	964.50	3.53			CB 408	966.40	963.14	8/10ths		3.26	
CB 408	CB 407	0.37	0.67	0.89	0.92	5.0	0.5	5.7	7.58	7.58	2.5	4.6	120	18	0.30	HDPE	0.010	4.2	7.5	2.9	CB 408	966.40	962.47	3.93			CB 407	967.00	962.11	8/10ths		4.89	
CB 407	MH 406	0.29	0.95	0.92	0.92	5.0	0.2	6.0	7.58	7.58	2.0	6.6	54	18	0.30	HDPE	0.010	4.2	7.5	0.9	CB 407	967.00	962.11	4.89			MH 406	968.61	961.95	8/10ths		6.66	
MH 406	MH 405	0.00	0.95	0.95	0.92	5.0	0.3	6.2	7.58	6.99	0.0	6.1	70	18	0.30	HDPE	0.010	4.2	7.5	1.4	MH 406	968.61	961.95	6.66			MH 405	969.14	961.74	8/10ths		7.40	
MH 405	CB 404	0.00	0.95	0.95	0.92	5.0	0.3	6.6	7.58	6.99	0.0	6.1	86	18	0.30	HDPE	0.010	4.2	7.5	1.4	MH 405	969.14	961.74	7.40			CB 404	967.19	961.48	8/10ths		5.71	
CB 404	MH 403	0.19	1.14	0.90	0.91	5.0	0.3	6.9	7.58	6.99	1.3	7.3	73	18	0.30	HDPE	0.010	4.2	7.5	0.2	CB 404	967.19	961.48	5.71			MH 403	966.12	961.26	8/10ths		4.86	
MH 403	CB 402	0.00	2.44	0.95	0.85	5.0	0.4	7.2	7.58	6.52	0.0	13.5	109	24	0.30	HDPE	0.010	5.1	16.1	2.6	MH 403	966.12	960.86	5.26			CB 402	964.81	960.54	8/10ths		4.27	
CB 402	MH 401	0.74	3.53	0.76	0.84	5.0	0.1	7.3	7.58	6.52	4.3	19.3	41	24	0.45	HDPE	0.010	6.3	19.7	0.4	CB 402	964.81	960.54	4.27			MH 401	965.78	960.35	8/10ths		5.43	

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MINNESOTA STORM SEWER DESIGN

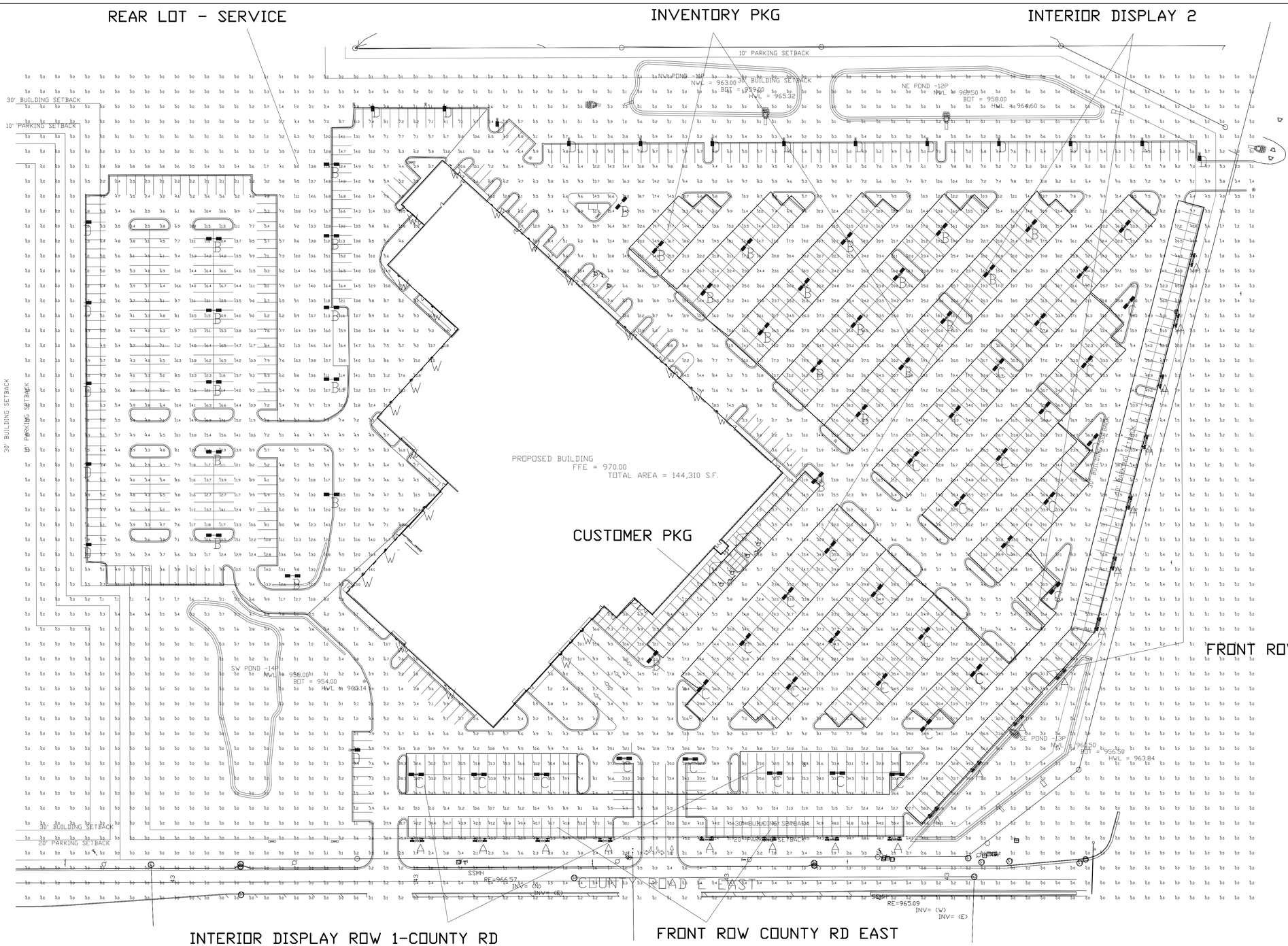
DATE:	11/06/26
PROJECT NAME:	**Apple Ford - WBL**
PROJECT NUMBER:	GAG26002
PROJECT CITY:	Gem Lake
PROJECT COUNTY:	Ramsey
PROJECT ENGINEER:	SES

STORM FREQUENCY:	10 Years
CALCULATIONS BY:	DBL
MN ATLAS 14 REGION:	Ramsey

Segment		A - Trib. Areas		C - Coef.		Tc - Time of Conc.			I - Intensity		Q - Rate		Pipe								Upstream Structure						Downstream Structure						Comments
From	To	CB (Ac.)	Pipe (Ac.)	CB Indiv.	Pipe Avg.	CB (Min.)	Pipe (Min.)	Total (Min.)	CB (In/Hr)	Total (In/Hr)	CB (CFS)	Pipe (CFS)	Len. (Ft.)	Dia. (In.)	Grade (%)	Mat'l.	Man's. n	Vel. (Ft/S)	Cap. (CFS)	Excess Cap.	Structure	Top Rim	Invert	Build (Ft.)	Size (In.)	Casting	Structure	Top Rim	Inlet	Match	Drop (Ft.)	Build (Ft.)	
MH 401	FES 400	0.00	5.54	0.95	0.86	5.0	0.1	7.4	7.58	6.52	0.0	31.1	24	36	0.22	RCP	0.013	4.4	31.3	0.2	MH 401	965.78	959.55	6.23			FES 400	959.20	959.50	Invert		(0.30)	
CB 402A	CB 402	0.36	0.36	0.91	0.91	5.0	0.7	5.7	7.58	7.58	2.5	2.5	128	12	0.30	HDPE	0.010	3.2	2.5	0.1	CB 402A	964.81	961.72	3.09			CB 402	964.81	961.34	8/10ths		3.47	
CB 403B	CB 403A	0.62	0.62	0.83	0.83	5.0	0.5	5.5	7.58	7.58	3.9	3.9	128	18	0.30	HDPE	0.010	4.2	7.5	3.6	CB 403B	965.66	961.98	3.68			CB 403A	965.66	961.60	8/10ths		4.06	
CB 403A	MH 403	0.69	1.30	0.76	0.80	5.0	0.3	5.9	7.58	7.58	4.0	7.9	96	18	0.35	HDPE	0.010	4.6	8.1	0.2	CB 403A	965.66	961.60	4.06			MH 403	966.12	961.26	8/10ths		4.86	
CB 426	CB 425	0.13	0.13	0.95	0.95	5.0	0.2	5.2	7.58	7.58	1.0	1.0	36	12	0.30	HDPE	0.010	3.2	2.5	1.6	CB 426	966.34	962.93	3.41			CB 425	966.34	962.82	8/10ths		3.52	
CB 425	CB 424	0.17	0.30	0.95	0.95	5.0	0.2	5.4	7.58	7.58	1.2	2.2	40	12	0.30	HDPE	0.010	3.2	2.5	0.4	CB 425	966.34	962.82	3.52			CB 424	966.62	962.70	8/10ths		3.92	
CB 424	MH 423	0.38	0.69	0.76	0.84	5.0	0.9	6.2	7.58	6.99	2.2	4.0	217	18	0.30	HDPE	0.010	4.2	7.5	3.4	CB 424	966.62	962.30	4.32			MH 423	965.51	961.65	8/10ths		3.86	
MH 423	MH 422	0.00	1.27	0.95	0.88	5.0	0.4	6.6	7.58	6.99	0.0	7.8	123	24	0.30	HDPE	0.010	5.1	16.1	8.3	MH 423	965.51	961.25	4.26			MH 422	968.77	960.88	8/10ths		7.89	
MH 422	WYE 421A	0.00	1.62	0.95	0.89	5.0	0.3	6.9	7.58	6.99	0.0	10.1	85	24	0.30	HDPE	0.010	5.1	16.1	6.0	MH 422	968.77	960.88	7.89			WYE 421A	968.80	960.62	8/10ths		8.18	
WYE 421A	CB 421	0.00	1.96	0.95	0.90	5.0	0.1	7.0	7.58	6.99	0.0	12.4	17	24	0.30	HDPE	0.010	5.1	16.1	3.7	WYE 421A	968.80	960.62	8.18			CB 421	968.37	960.57	8/10ths		7.80	
CB 421	MH 401	0.05	2.01	0.80	0.90	5.0	0.2	7.2	7.58	6.52	0.3	11.8	73	24	0.30	HDPE	0.010	5.1	16.1	4.3	CB 421	968.37	960.57	7.80			MH 401	965.78	960.35	8/10ths		5.43	
CB 423A	MH 423	0.58	0.58	0.92	0.92	5.0	0.2	5.2	7.58	7.58	4.1	4.1	33	18	0.20	HDPE	0.010	3.5	6.1	2.0	CB 423A	964.76	961.71	3.05			MH 423	965.51	961.65	8/10ths		3.86	
RD C	MH 422	0.35	0.35	0.95	0.95	5.0	0.1	5.1	7.58	7.58	2.5	2.5	36	10	2.10	PVC	0.010	7.6	4.1	1.6	RD C	970.00	964.63	5.37			MH 422	968.77	963.88	Drop	3.00	4.89	
RD D	WYE 421A	0.35	0.35	0.95	0.95	5.0	0.1	5.1	7.58	7.58	2.5	2.5	37	10	2.10	PVC	0.010	7.6	4.1	1.6	RD D	970.00	963.40	6.60			WYE 421A	968.80	962.62	Top		6.18	

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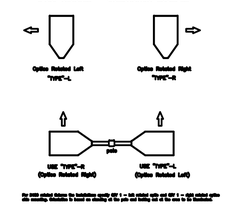
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.\EXTERIOR\VALM.jpg

.\EXTERIOR\XWM.jpg

D180 ROTATED - ORIENTATION EXAMPLE



For street arterial outdoor fixtures specify TYP 1 = non rotated optic and TYP 2 = right rotated optic when mounting. Orientation is based on standing out at the pole and looking out at the area to be illuminated.

Top View

PHOTOMETRIC EVALUATION
NOT FOR CONSTRUCTION

Based on the information provided, all dimensions and luminaire locations shown represent recommended positions. The engineer and/or architect must determine the applicability of the layout to existing or future field conditions.

This lighting plan represents illumination levels calculated from laboratory data taken under controlled conditions in accordance with The Illuminating Engineering Society (IES) approved methods. Actual performance of any manufacturer's luminaires may vary due to changes in electrical voltage, tolerance in lamps/LED's and other variable field conditions. Calculations do not include obstructions such as buildings, curbs, landscaping, or any other architectural elements unless noted. Fixture nomenclature noted does not include mounting hardware or poles. This drawing is for photometric evaluation purposes only and should not be used as a construction document or as a final document for ordering product.

The IES no longer uses the Cutoff Classification System for LED fixtures. The IES classifies LED fixtures with the BUG rating which refers to the Backlight-Uplight-Glare system. An Uplight of "U0" most closely matches the old Full Cutoff rating.

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	Grid Z
ALL CALCS @ 4' ABOVE GRADE	Illuminance	Fc	9.51	85.4	0.0	N.A.	N.A.	4
CUSTOMER PKG	Illuminance	Fc	6.06	15.60	1.50	4.04	10.40	
FRONT ROW COUNTY RD EAST	Illuminance	Fc	45.43	68.60	6.40	7.10	10.72	
FRONT ROW US HWY 61	Illuminance	Fc	50.76	85.40	7.70	6.59	11.09	
INTERIOR DISPLAY 2	Illuminance	Fc	25.78	67.80	5.90	4.37	11.49	
INTERIOR DISPLAY ROW 1-COUNTY RD	Illuminance	Fc	23.12	34.50	7.90	2.93	4.37	
INVENTORY PKG	Illuminance	Fc	18.18	26.30	5.80	3.13	4.53	
REAR LOT - SERVICE	Illuminance	Fc	8.81	21.00	2.00	4.41	10.50	

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description	Mounting Height	LLF	Arr. Lum. Lumens	Arr. Watts	BUG Rating
	19	A	D180° 2RTD	VALM-48L-AFR-50K7-D180 RTD	24' POLE + 3' BASE	1.000	95526	612	B3-U0-G3
	29	B	D180°	VALM-48L-SGN-50K7-D180	24' POLE + 3' BASE	1.000	96380	612	B5-U0-G4
	35	C	D180°	VALM-48L-SGN-50K7-D180	24' POLE + 3' BASE	1.000	96816	612	B5-U0-G3
	19	D	Single	VALM-36L-4F-40K7-IS	24' POLE + 3' BASE	1.000	25382	223	B1-U0-G5
	22	W	Single	XWM-4-LED-18L-50-70CRI	16'	1.000	17291	122	B3-U0-G3

Total Project Watts_1
Total Watts = 57717

10000 ALLIANCE RD · CINCINNATI, OHIO 45242 USA
(513) 793-3200 ▼ FAX (513) 793-6623

LIGHTING PROPOSAL LD-165886-1

APPLE FORD
US HWY 61
WHITE BEAR LAKE, MN

BY:AHK,SEF	DATE:7/23/26	REV:11/5/26	SHEET 1 OF 1

SCALE: 1"=50' ARCH D 0 50

Fire Truck Turning Exhibit

APPLE FORD • Gem Lake, MN

11.06.2026

GAG26002



Gem Lake Fire Truck	
Overall Length	42.000ft
Overall Width	10.000ft
Overall Body Height	1.209ft
Min Body Ground Clearance	1.209ft
Track Width	6.910ft
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	36.580ft

LANDFORM
From Site to Finish

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27302231001O
OWNER: BETH TSCHIDA

PROPOSED HYDRANT
PROPOSED HYDRANT
PROPOSED HYDRANT
PROPOSED HYDRANT
PROPOSED HYDRANT
EXISTING HYDRANT

PROPOSED BUILDING
FFE = 970.00
TOTAL AREA = 144,310 S.F.

PROPOSED
PARCEL 1

10' PARKING SETBACK
30' BUILDING SETBACK
30' BUILDING SETBACK
10' PARKING SETBACK
30' BUILDING SETBACK
20' PARKING SETBACK
30' BUILDING SETBACK
20' PARKING SETBACK

WET
WET
WET
WET
WET
WET
WET

U.S. HIGHWAY 61

COUNTY ROAD E EAST
COUNTY ROAD E EAST

VADNAIS HEIGHTS SPORTS COMPLEX

September 16, 2026

Chris Gulbrandson,
on behalf of property owner WBL Auto Real Estate, LLC
7200 West 150th Street
Apple Valley, MN 55124

RE: Application for a Zoning Text Amendment, Minor Subdivision and Zoning Compliance Permit for redevelopment of parcels 273022340010, 273022340009, 273022340006, and 273022340007 on County Road E in Gem Lake, Minnesota.

Mr. Gulbrandson,

The City initially received application materials on 7/24/26 and the signed applications and payment on 7/27/26 for a Minor Subdivision and Zoning Compliance Permit for redevelopment of four parcels on County Road E in Gem Lake, Minnesota. The minor subdivision will split off a portion of Parcel 4 into Parcel 3 and then combine Parcels 1, 2, and 3 into one parcel. The process will result in two parcels, one for the dealership and one vacant parcel.

- Parcel 1: 273022340010
- Parcel 2: 273022340009
- Parcel 3: 273022340006
- Parcel 4: 273022340007

The application was determined to be incomplete on 7/30/2026 as the City's Cost Sharing Agreement and the proposed subdivision exhibit and legal description were missing. On 8/7/2026, the City received the remaining missing items and the application can be deemed complete. On 9/15/2026, the City received an additional application for a Zoning Text Amendment.

The 60-day review period, under Minn. Stat. § 15.99, is set to expire on 10/9/2026. Due to the new application, the City is exercising its right, under Minn. Stat. § 15.99, to extend the review period an additional 60 days until 12/8.2026 to complete necessary reviews.

Minor subdivision and Zoning Text Amendments requests require a public hearing at a Planning Commission meeting, followed by review and final action by City Council. The public hearing for this request is set to be held on Tuesday, October 6, 2026, at approximately 7:00 pm, at Heritage Hall (4200 Otter Lake Rd, White Bear Township, MN 55110). The City Council will review the request at the October 20, 2026 meeting following a recommendation from the Planning Commission.

The zoning compliance permit procedure is done administratively, however, with the pending Minor Subdivision and Zoning Text Amendment requests, the City will issue the compliance permit following approval of the proposed lot line adjustments. If you have questions regarding this process, please reach out by email at andrew.boucher@tkda.com or by phone at (651) 295-2267.

Sincerely,



Andrew Boucher
Gem Lake City Planner

cc: Barbara Suciu, Administrative Assistant
Justin Gese, City Engineer
Mike Johnson, Building Inspector
CJ Sycks, Gem Lake City Planner

September 16, 2026

Dear Resident,

The City of Gem Lake, Minnesota, Planning Commission will be **holding a public hearing on Tuesday, October 6, 2026 at 7:00 pm.** The purpose of the hearing is to consider the following applications submitted by Bryan M. Hansen and Chris Gulbrandson of Apple Auto and WBL Auto Real Estate, LLC, applicant and owner, for a Zoning Text Amendment, Minor Subdivision to consolidate property at 3651 Highway 61 (PID: 273022340010), 1491 County Road E E (PID: 273022340009) and 1485 County Road E E (PID: 273022340006) into one parcel for the new Apple Auto Dealership and a separate vacant parcel. The Zoning Text Amendment would add language to Building Type 15a, Automotive Dealership, under Modifications/Exclusions, to exempt Auto Dealerships from the Tree Preservation/Reforestation standards. As part of the Minor Subdivision, a portion of 0 County Road E E (PID: 273022340007) is proposed to be added to the singular parcel for the Apple Auto Dealership. A Zoning Compliance Certificate to allow the redevelopment of the Apple Auto Dealership in the Gateway Zoning District for a new auto dealership.

The City's Consolidated Land Use Ordinance requires a public hearing for all Ordinance Amendment applications. The Zoning Compliance Certificate and Minor Subdivision are included as part of the request. You are being notified of this hearing because your property is within 350 feet of the applicants' property, 3651 Highway 61 (PID: 273022340010), 1491 County Road E E (PID: 273022340009), 1485 County Road E E (PID: 273022340006), or 0 County Road E E (PID: 273022340007).

You may attend the public hearing if you wish to provide comments or ask questions about the proposed request. **The meeting will be held at Heritage Hall (4200 Otter Lake Road).** You may also submit comments in writing (by letter or email) to Barbara Suciu, City Clerk, at 4200 Otter Lake Road, Gem Lake, MN 55110 or barbara.suciu@gemlakemn.org prior to noon on the day of the meeting. The Clerk will provide all comments received to the Planning Commission. A copy of the staff report and application materials will be available for review prior to the meeting. The meeting materials will be placed on the City of Gem Lake website (https://gemlakemn.org/).

Sincerely,



Andrew Boucher - Gem Lake City Planner

cc: Barbara Suciu, Administrative Assistant
Mike Johnson, Building Inspector
CJ Sycks, Gem Lake City Planner

CITY OF GEM LAKE
RAMSEY COUNTY, MINNESOTA
NOTICE OF PUBLIC HEARING
ON PROPOSED ZONING TEXT AMENDMENT, MINOR SUBDIVISION AND ZONING COMPLIANCE CERTIFICATE

September 17, 2026

NOTICE IS HEREBY GIVEN that the Planning Commission of Gem Lake, Ramsey County, Minnesota shall consider applications from Bryan M. Hansen and Chris Gulbrandson of Apple Auto and WBL Auto Real Estate, LLC, applicant and owner, for a Zoning Text Amendment and Minor Subdivision to consolidate property at 3651 Highway 61 (PID: 273022340010), 1491 County Road E E (PID: 273022340009) and 1485 County Road E E (PID: 273022340006) into one parcel for the new Apple Auto Dealership and a separate vacant parcel. The Zoning Text Amendment would add language to Section 9, Building Type 15a, Automotive Dealership, under Modifications/Exclusions, to exempt Auto Dealerships from the Tree Preservation/Reforestation standards. As part of the Minor Subdivision, a portion of 0 County Road E E (PID: 273022340007) is proposed to be added to the singular parcel for the Apple Auto Dealership. A Zoning Compliance Certificate to allow the redevelopment of the Apple Auto Dealership in the Gateway Zoning District for a new auto dealership. The hearing will take place at the Planning Commission meeting on October 6, 2026, at approximately 7:00 p.m. at the Gem Lake City Hall (4200 Otter Lake Road). A copy of the application, legal descriptions, and staff report will be available from the City Clerk approximately one week prior to the hearing.

Gretchen Artig-Swomley, Mayor

Published one time in the White Bear Press on September 23, 2026.

JOHN L KUNY
9 DANIELS FARM RD
WHITE BEAR LAKE MN 55110-5231

WBL AUTO REAL ESTATE LLC
4901 W 26TH ST
SIOUX FALLS SD 57116-3529

SHERRI L JOHNSON
11 DANIELS FARM RD
WHITE BEAR LAKE MN 55110-5231

CLU PROPERTIES LLC
4105 LEXINGTON AVE N UNIT 100
ARDEN HILLS MN 55126-3277

VADNAIS HEIGHTS DEVELOPMENT
1400 EAST COUNTY RD E
VADNAIS HEIGHTS MN 55110-5230

STEPHANIE M FARRELL
21 DANIELS FARM RD
GEM LAKE MN 55110-5231

SAKS PROPERTIES OF VADNAIS HEIGHTS LLC
1460 COUNTY ROAD E E
SAINT PAUL MN 55110-5230

DAVID R WOOD
39 SUMMIT FARM LN
GEM LAKE MN 55110-5229

RAMSEY COUNTY PARKS AND REC
2015 VAN DYKE ST N
SAINT PAUL MN 55109-3711

KATHY JAYNE VERBRUGGE REV TR
41 SUMMIT FARM LN
GEM LAKE MN 55110-5229

LYNN BEECHLER
50 SUMMIT FARM LN
GEM LAKE MN 55110-5229

FRANDSEN BANK AND TRUST
3585 HIGHWAY 61 N
SAINT PAUL MN 55110-5223

THOMAS R LANG TR
37 SUMMIT FARM LN
GEM LAKE MN 55110-5229

DEBRA SUHADOLNIK
46 SUMMIT FARM LN
GEM LAKE MN 55110-5229

LAURIE A KUDUK TR
43 SUMMIT FARM LN
SAINT PAUL MN 55110-5229

MICHAEL S PENNAZ TR
48 SUMMIT FARM LN
SAINT PAUL MN 55110-5229

JAMES J MILOSEVICH
36 SUMMIT FARM LN
GEM LAKE MN 55110-5229

BARRY W KOSTYK
44 SUMMIT FARN LN
GEM LAKE MN 55110-5229

HY VEE INC
5820 WESTOWN PKWY
WEST DES MOINES IA 50266-8223

JAMES P WILSON
42 SUMMIT FARM LN
SAINT PAUL MN 55110-5229

OAK KNOLL PROPERTY MANAGEMENT LLC
3521 COMMERCE BLVD
WHITE BEAR LAKE MN 55110-4689

JAMES KNUDSON
40 SUMMIT FARM LN
GEM LAKE MN 55110-5229

CAROL J JOHNSON TR
38 SUMMIT FARM LN
GEM LAKE MN 55110-5229

MICHAEL S LARKIN
34 SUMMIT FARM LN
GEM LAKE MN 55110-5229

SOUTH ROADOWNERS ASSOC GEM LK
21 DANIELS FARM RD
GEM LAKE MN 55110-5231

DIANE B VALERO
32 SUMMIT FARM LN
GEM LAKE MN 55110-5229

MICHAEL P GARRETT
7 DANIELS FARM RD
GEM LAKE MN 55110-5231

BETH TSCHIDA
5 DANIELS FARM RD
GEM LAKE MN 55110-5231

PINGREE 2000 RE HOLDINGS LLC
600 CORPORATE PARK DR
ST LOUIS MO 63105-4204

BARNETT 3610 LLC
3430 HIGHWAY 61 N
WHITE BEAR LAKE MN 55110-4132

BARNETT PROPERTIES
3610 HIGHWAY 61
GEM LAKE MN 55110-4164

ATA REAL ESTATE LLC
1577 COUNTY ROAD E E
GEM LAKE MN 55110-5261

THOMAS F RASMUSSEN TR
FIDUCIARY COUNSELLING INC
3 DANIELS FARM RD
GEM LAKE MN 55110-5231

TCD 265 MN PROPERTY INC
2 INTERNATIONAL PL
BOSTON MA 02210-4142

MICHAEL P GARRETT
7 DANIELS FARM RD
GEM LAKE MN 55110-5231

Building a Better World for All of Us®

MEMORANDUM

TO: Andrew Boucher, Community Planner

FROM: Justin Gese, PE City Engineer
Dustin Cesafsky, Engineering Specialist
Emily Jennings, PE Water Resources Engineer

DATE: August 25, 2026

RE: Apple Ford White Bear Lake – Development Submittal 8/10/26
Review Comments
SEH No. GEMLK 171858 14.00

Below are our initial review comments for the Apple Ford Development information that was submitted on 8/10/26. If you have any further questions, please arrange a follow-up meeting with the City, the Developer, and their engineer to address any questions you have pertaining to the comments.

Submittal Comments:

General Site comments

1. Provide water service connection after the hydrant tee near County Rd. E with 10”x8” reducer. Install a new gate valve near the right of way.
2. Call out tip out curb throughout grading plan.
3. Provide paving section information throughout the site along with GE values.
4. Provide review acceptance letter from MnDOT, Ramsey County, Vadnais Heights, Fire Department, and MN Dept. of Health.

Stormwater comments

5. Coverage under the MPCA’s Construction Stormwater (CSW) General Permit must be obtained prior to any land disturbing activities.
6. Provide documentation from Ramsey Washington Metro Watershed District that the project is not within their jurisdiction given that that the project is located right on the boundary and some drainage appears to flow south, outside of the VLAWMO area.
7. Prepare an Erosion and Sediment Control Plan and SWPPP Consistent with the MPCA’s CSW Permit and Gem Lake City Code Section 22
8. Include tabulated data in the Stormwater Plan identifying the following (in acres):
    a. Disturbed Area
    b. New Impervious Area
    c. Fully Reconstructed Impervious Area
    d. Required Water Quality Volume
9. Ensure all pipes have adequate capacity for 10-year runoff.
10. Describe pre-treatment. Note that per Gem Lake City Code Section 22.2.3.6 all permanent stormwater management facilities with discharge points to wetlands must include pre-treatment.
11. Describe energy dissipation at outfalls to ponding areas and discharge points.
12. HydroCAD reports and Pond Design Worksheet have inconsistent drainage areas. Revise as appropriate.

13. Provide additional narrative, plan information, and details on the underground stormwater chamber system. The stormwater plan refers to this as ‘underground detention basin with filtration’. As presently shown, it does not appear to meet the minimum depth requirements for detention as listed in the CSW Permit and it is unclear why the Pond Design Worksheet does not show the discharge rate for water quality volume. The ‘underground ponding system’ detail does not seem to support filtration through the entire section.
14. Submit information consistent with the requirements of per Gem Lake City Code Section 22.2.5.
15. Submit entire WCA Notice of Decision (including attachments) so compliance can be verified.

Attachments:
City of Vadnais Heights_Apple Ford Review Memo_08.07.26
- Fire Apparatus Turning Details
MnDOT Review S25-047 Apple Auto Group 1-12-26

DJC
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Building a Better World for All of Us®

MEMORANDUM

TO: Andrew Boucher, Community Planner

FROM: Justin Gese, PE City Engineer
Dustin Cesafsky, Engineering Specialist
Emily Jennings, PE Water Resources Engineer

DATE: September 25, 2026

RE: Apple Ford White Bear Lake – Development Submittal 9/17/26
Review Comments
SEH No. GEMLK 171858 14.00

Below are our initial review comments for the Apple Ford Development information that were submitted on 8/10/2026 and again on 9/17/26. If you have any further questions, please arrange a follow-up meeting with the City, the Developer, and their engineer to address any questions you have pertaining to the comments.

Submittal Comments:

General Site comments

1. ~~Provide water service connection after the hydrant tee near County Rd. E with 10"x8" reducer. Install a new gate valve near the right of way.~~
2. ~~Call out tip out curb throughout grading plan.~~
3. ~~Provide paving section information throughout the site along with GE values.~~
4. Provide review acceptance letter from MnDOT, Ramsey County, Vadnais Heights, Fire Department, and MN Dept. of Health.

Stormwater comments

5. Coverage under the MPCA's Construction Stormwater (CSW) General Permit must be obtained prior to any land disturbing activities. Comment will remain until coverage is obtained.
6. ~~Provide documentation from Ramsey Washington Metro Watershed District that the project is not within their jurisdiction given that that the project is located right on the boundary and some drainage appears to flow south, outside of the VLAWMO area.~~
7. ~~Prepare an Erosion and Sediment Control Plan and SWPPP Consistent with the MPCA's CSW Permit and Gem Lake City Code Section 22~~
8. ~~Include tabulated data in the Stormwater Plan identifying the following (in acres):~~
    a. ~~Disturbed Area~~
    b. ~~New Impervious Area~~
    c. ~~Fully Reconstructed Impervious Area~~
    d. ~~Required Water Quality Volume~~
9. Ensure all pipes have adequate capacity for 10-year runoff. This includes pipes directly connected to storm from roof drains (RD C and RD D).
10. ~~Describe pre-treatment. Note that per Gem Lake City Code Section 22.2.3.6 all permanent stormwater management facilities with discharge points to wetlands must include pre-treatment.~~
11. Describe energy dissipation at outfalls to ponding areas and discharge points. Include riprap class.

12. ~~HydroCAD reports and Pond Design Worksheet have inconsistent drainage areas. Revise as appropriate.~~
13. ~~Provide additional narrative, plan information, and details on the underground stormwater chamber system. The stormwater plan refers to this as 'underground detention basin with filtration'. As presently shown, it does not appear to meet the minimum depth requirements for detention as listed in the CSW Permit and it is unclear why the Pond Design Worksheet does not show the discharge rate for water quality volume. The 'underground ponding system' detail does not seem to support filtration through the entire section.~~ Provide additional narrative, plan information, and details on the underground stormwater chamber system. There is not sufficient information in the plans to verify the configuration, routing, or treatment quantity. The system should include access for adequate inspection and maintenance.
14. Submit information consistent with the requirements of per Gem Lake City Code Section 22.2.5. The owner will be responsible for the long-term maintenance and operation. Update SWPPP accordingly. Prepare a draft O&M agreement consistent with Gem Lake Ordinance No. 131, Section 22.2.5 for review and approval. Note to include sump structures within the O&M Plan.
15. ~~Submit entire WCA Notice of Decision (including attachments) so compliance can be verified.~~ Clarify if the wetland permitting included the temporary impact of having SF in the wetland? (Wetland 7)
16. Update estimated quantities or otherwise indicate locations of temporary stabilization. Note that MnDOT Type 3N blanket is superseded by new REPP categories.
17. Clarify if the wetland permitting included the temporary impact of having SF in the wetland? (Wetland 7)
18. Provide plan information and details for all outlet control structures. Include sufficient information to verify compatibility with how weirs are modelled in HydroCAD vs shown on plans.
19. Provide additional narrative, plan information, and details on the Manufactured Treatment Device. It is not clear how water is routed in and out of the device.
20. Provide additional narrative, plan information, and details on the underground stormwater chamber system. There is not sufficient information in the plans to verify the configuration, routing, or treatment quantity. The system should include access for adequate inspection and maintenance.

Attachments:
City of Vadnais Heights_Apple Ford Review Memo_08.07.26
- Fire Apparatus Turning Details
MnDOT Review S25-047 Apple Auto Group 1-12-26

DJC
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Metropolitan District
Waters Edge Building
1500 County Road B2 West
Roseville, MN 55113

January 12, 2026

Andrew Boucher
Community Planner
TKDA
3311 East Old Shakopee Road
Bloomington, MN 55425

Nate Herbst
H&R Construction Company
307 East 39th Street
South Sioux City, NE 68776

SUBJECT: MnDOT Review # **S25-047**
Apple Auto Group
NW Quad I-94/I-694 & US 169
Jem Lake, Ramsey County

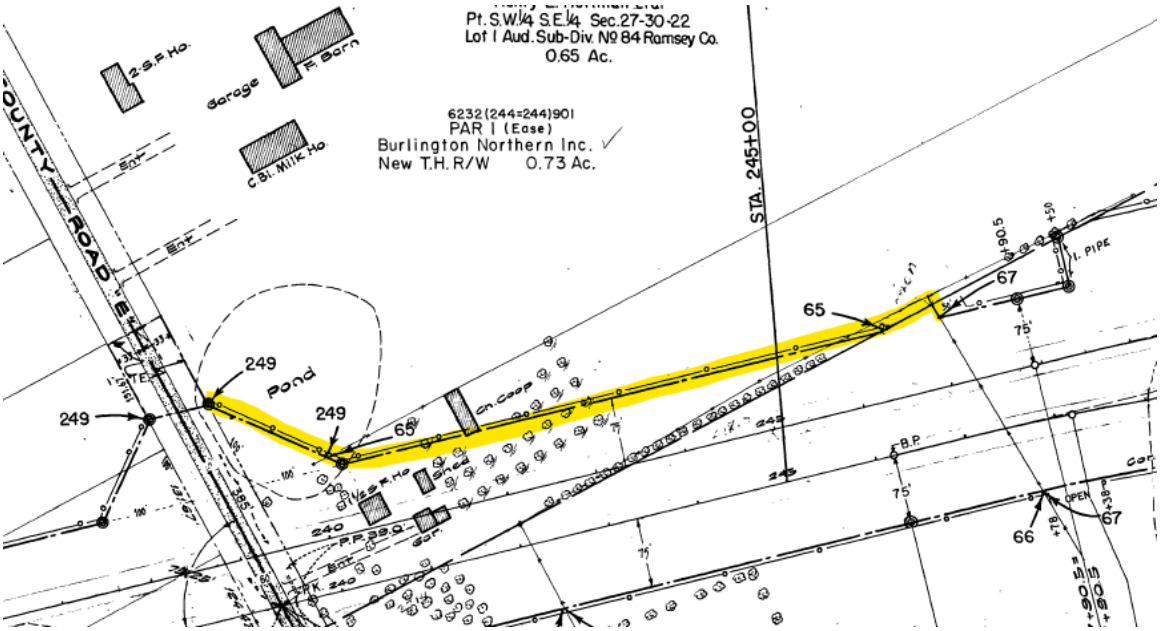
Dear Messrs. Boucher and Herbst:

Thank you for the opportunity to review the plans for **Apple Auto Group.** MnDOT has reviewed the documents and has the following comments:

Access:
MnDOT warrants for a Traffic Impact Study (TIS) will be met with the proposed expansion of the Apple Auto Group facility. It is recommended that the city require the TIS. The TIS should analyze the impacts of converting the current employee restricted access to US 61 to an unrestricted public access. More detailed information may be obtained at: Resources - Access Management - MnDOT. Chapter 8 gives guidance on the TIS process.

If you have any further questions, please contact Tod Sherman, Planning Director, at tod.sherman@state.mn.us.

Right-of-Way (ROW):
The site layout needs to clearly show the MnDOT ROW limits and access control. Please coordinate with MnDOT Surveys (Keith Jakober, 651-775-0970 or keith.jakober@state.mn.us) to obtain line work along US 61. (see illustration below).



Questions regarding this comment should be addressed to Chinou Vue, 651-234-7570 or chinou.vue@state.mn.us.

Permits:
MnDOT will require an access permit for work on access to US 61. Additionally, any other use of, or work within or affecting, MnDOT right of way will require a permit.

Permits can be applied for at this site: https://olpa.dot.state.mn.us/OLPA/. Please upload a copy of this letter when applying for any permits.

Please direct any permit questions to Jeff Dierberger, Metro Permits at 651-775-0404 or Jeffrey.dierberger@state.mn.us.

Review Submittal Options:
MnDOT's goal is to complete reviews within 30 calendar days. Review materials received electronically can be processed more rapidly. Do not submit files via a cloud service or SharePoint link. In order of preference, review materials may be submitted as:

1. Email documents and plans to metrodevreviews.dot@state.mn.us. Attachments may not exceed 20 MB (megabytes) per email. Documents can be zipped as well. If multiple emails are necessary, number each email.

2. Files over 20 MB can also be uploaded to MnDOT's Web Transfer Client site: https://mft.dot.state.mn.us. Contact metrodevreviews.dot@state.mn.us, and staff will create a shared folder in which files can be uploaded. Please send an accompanying email with a narrative for the development.

If you have any questions concerning this review, please contact me at (651) 234-7797 or Cameron.muhic@state.mn.us.

Cordially,



Cameron Muhic
Principal Planner

Copy sent via E-Mail:

Jeff Dierberger, Permits
Jason Swenson, Water Resources
Keith Jakober, Surveys
Chinou Vue, Right-of-Way
Molly McCormick, Multimodal
Joe Widing, Metropolitan Council
Heather Gardner, Design
Rabi Pariyar, Traffic
Matthew Parent, Area Engineer
Michael Kowski, Maintenance
Amrish Patel, Transit

Metropolitan District
Waters Edge Building
1500 County Road B2 West
Roseville, MN 55113

September 14, 2026

Andrew Boucher
Planner, AICP, ENV SP
3311 E Old Shakopee Rd, Suite 300
1 City Hall Plaza,
Bloomington, MN 55425

SUBJECT: MnDOT Review # **S25-047A**
Apple Auto Group
NW Quad I-94/I-694 &
US 169

Dear Andrew Boucher:

Thank you for the opportunity to review the plans for the **Apple Auto Group.** MnDOT has reviewed the documents and has the following comments:

Water Resources:
Since the ponds from the project site will discharge water onto MnDOT Right of Way (ROW), a drainage permit will be required. Any project adjacent to MnDOT (ROW) or connecting to MnDOT drainage facilities requires a MnDOT drainage permit to ensure that current drainage rates to MnDOT right-of-way will not be increased. The drainage permit application, including the information below, should be submitted online to: https://olpa.dot.state.mn.us/OLPA/

The following information must be submitted with the drainage permit application:

1) A grading plan showing existing and proposed contours.
2) Drainage area maps for the proposed project showing existing and proposed drainage areas. Any off-site areas that drain to the project area should also be included in the drainage area maps. The direction of flow for each drainage area must be indicated by arrows.
3) Drainage computations for pre and post construction conditions during the 2, 10, and 100 year rain events.
4) Time of concentration calculations.
5) An electronic copy of any computer modeling used for the drainage computations.
6) See also the attached Drainage Permits Checklist for more information.

Once a drainage permit application is submitted, a thorough review will be completed and additional information may be requested. MnDOT Water Resources Engineering will work with the applicant to ensure acceptable outlets to the ROW.

Please direct questions concerning drainage issues to Derek Beauduy (651-234-7534) or Derek.Beauduy@state.mn.us of MnDOT's Water Resources section.

Traffic:
MnDOT Traffic does not have issues with this proposal, but requests that a copy of the Traffic Modeling files be sent for Review/Record keeping. Please send these files to Rabindra Pariyar at Rabindra.Pariyar@state.mn.us and Michelle Manson at Michelle.Manson@state.mn.us.

MnDOT strongly advises that the project adhere to the 2030 Build Conditions as illustrated in the site plan shown on page 9 of the TC2 report (figure 6).

Permits:
As mentioned above, a drainage permit will be required. Additionally, any other use of, or work within or affecting, MnDOT right of way will require a permit. Permits can be applied for at this site: https://olpa.dot.state.mn.us/OLPA/. Please upload a copy of this letter when applying for any permits.

Please direct any permit questions to Jeff Dierberger, Metro Permits at 651-775-0404 or Jeffrey.dierberger@state.mn.us

Review Submittal Options
MnDOT's goal is to complete reviews within 30 calendar days. Review materials received electronically can be processed more rapidly. Do not submit files via a cloud service or SharePoint link. In order of preference, review materials may be submitted as:

1. Email documents and plans to metrodevreviews.dot@state.mn.us. Attachments may not exceed 20 MB (megabytes) per email. Documents can be zipped as well. If multiple emails are necessary, number each email.

2. Files over 20 MB can also be uploaded to MnDOT's Web Transfer Client site: https://mft.dot.state.mn.us. Contact metrodevreviews.dot@state.mn.us, and staff will create a shared folder in which files can be uploaded. Please send an accompanying email with a narrative for the development.

If you have any questions concerning this review, please contact me at: 612-227-8755

Sincerely,

Josh Storms

Josh Storms

MnDOT Metropolitan District, Waters Edge Building, 1500 County Road B2 West, Roseville, MN 55113

Intermediate Planner.

Copy sent via E-Mail:

Derek Beaudy: Water Resources
Katie Kowalczyk: Water Resources
Jeffery Dierberger: Permits
Chinou Vue: Engineering
Christian Norberg: Engineering
Matthew Parent: Engineering
John Chock: Design
Shane Rowbotham: Design
Michael Nelson: Surveys
Keith Jakober: Surveys
Amish Patel: Metro Transit
Natalie Rise: Project Documentation
Joseph Widing: Met Council
Rabindra Pariyar: Traffic
Michael Kowski: Engineering
Christina Perfetti: Safe Routes to School
Molly Joshi: Planning

Nolan W. Wall, AICP
Planning/Community Development Director

651.204.6027 *Phone*
651.204.6100 *Fax*
nolan.wall@cityvadnaisheights.com

The City of Vadnais Heights
800 East County Road E
Vadnais Heights, MN 55127

Memorandum:

TO: City of Gem Lake

FROM: Nolan Wall, Planning/Community Development Director

DATE: August 7, 2026

SUBJECT: Apple Ford Project
Public Utility Comments

City staff have reviewed the preliminary plans and have the following comments to be incorporated into the City of Gem Lake's conditions of approval for this project:

1. The City of Vadnais Heights requires plumbing permits and inspections for the proposed public water connection.
2. Ramsey County may require right-of-way permits, and copies must be submitted with the plumbing permit applications.
3. Public water connections must include separate meters for billing purposes. These connections may include separate metering for domestic, irrigation, fire protection and car wash uses.
4. Because of the ongoing White Bear Lake water level litigation, the proposed car wash facility must include a water-recycling system. Please provide details on the recycling rate for further review and comment.
5. Final plans should include the required DIP reducer and DIP sleeve at the planned connection to the City's watermain.
6. Please submit any revised plans prepared for final approval so the City of Vadnais Heights can review and comment on them.

cc/ec: Jim Hauth, Public Works Direction (jim.hauth@cityvadnaisheights.com)
Scott Haupt, Consulting City Engineer (shaupt@sehinc.com)
Nick Ousky, Senior Engineering Technician (nick.ousky@cityvadnaisheights.com)

Attachments:
- Record plans
- Standard watermain specifications

SANITARY SEWER IMPROVEMENT 69-I
GEM LAKE AS BUILTS

MILNER W. CARLEY & ASSOCIATES
CONSULTING CIVIL ENGINEERS LAND SURVEYORS
800 W. HWY. 96 ST. PAUL 26, MINN. 484-3345
18 4TH AVE. S.E. NEW BRIGHTON, MINN. 633-3564
214 OAK ST. ST. CLOUD, MINN. 251-7721

I hereby certify that this plan, specifications, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

SURVEY BY		REVISIONS	
DESIGNED BY			
DRAWN BY			
APPROVED BY			
SHEET OF SHEETS	Date	Reg. No.	COMM. NO.

SCALE 1" = 100'

SCHUNEMAN ROAD

CO. RD. E

HOFFMAN ROAD

S.T.H. 61

SCHUNEMAN RD.

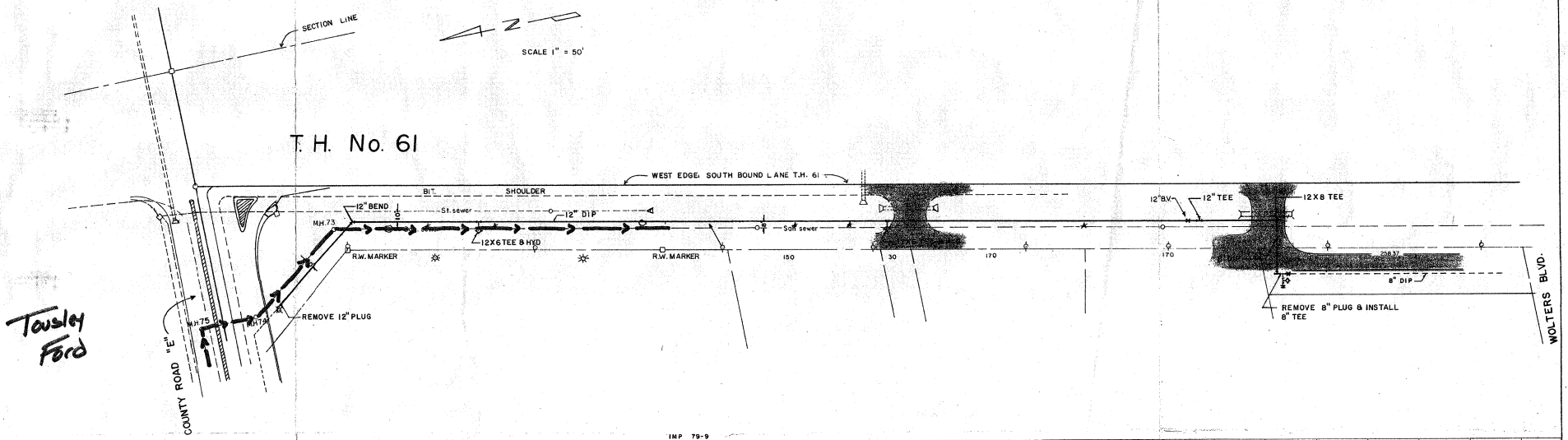
AMERICAN MOTORS

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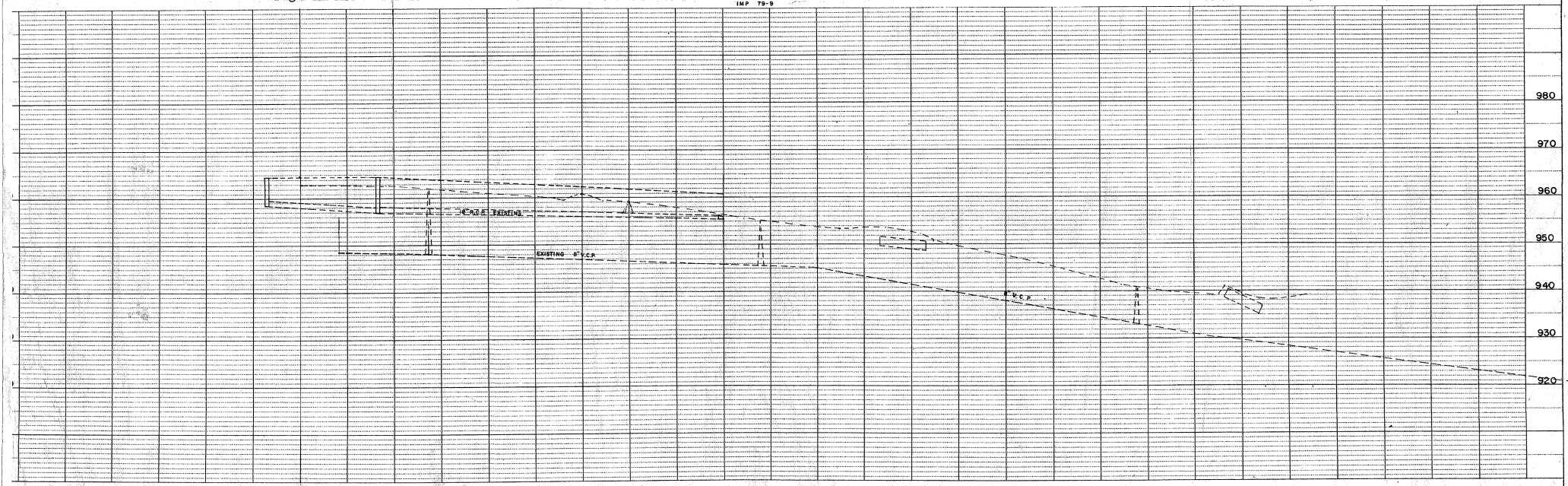
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E.L. 91 BELOW M.H. TOP

12' Deep



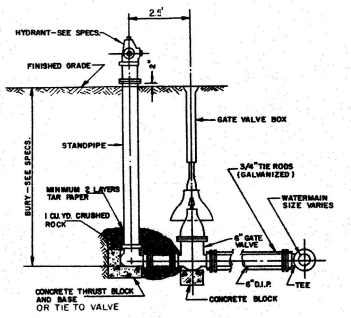
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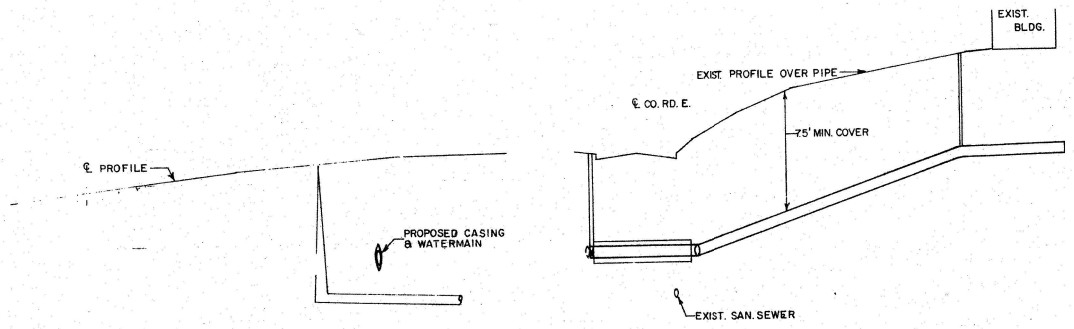
SINGLE PLAN AND PROFILE – DOTTED

State Proj. No.

Sheet No. 21 of 30 Sheets



HYDRANT & GATE VALVE INSTALLATION



NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota

Date 10-7-92 Reg No. 19574

ENGINEERS & ARCHITECTS & PLANNERS

GEM LAKE, MINNESOTA

TOUSLEY FORD WATERMAIN EXT.

FILE NO. 91289

DATE 10-7-92

1 / 1

SECTION 33 11 00

WATER DISTRIBUTION SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Water main pipe and fittings.
   2. Valves and boxes.
   3. Hydrants.
   4. Services.
   5. Insulation.
   6. Replace bolts and box on water main valve.
   7. Gate valve box replacement.
   8. Remove and replace hydrant and lead to main and add 6" gate valve & box.

B. Related Sections:
   1. Section 31 23 33 - Trench Excavation and Backfill

C. Method of Measurement:
   1. Water Main:
      a. Measure by distance in linear feet.
      b. Measure along pipe axis with no deduction for fittings or valves.
      c. Measure in the horizontal plane unless pipe grade exceeds 15 percent.
   2. Fittings:
      a. Measure by weight in pounds.
         1) Meet AWWA C153 requirements or approved equal by Engineer.
   3. Valves and Boxes: Measure valve and box of each size and type as a unit.
   4. Wet tap valve and Box:
      a. Measure valve box and tap of each size and type as a unit.
      b. Price includes all labor, materials, and necessary appurtenances to provide wet tap, valve and box.
   5. Hydrants:
      a. Measure hydrants of each size and type as a unit.
      b. Unit includes installation of hydrant, base, blocking, and crushed rock.
   6. Corporation Stops: Measure Corporation Stops of each size and type as a unit.
   7. Curb Stops and Boxes: Measure curb stops and boxes of each size and type as a unit.
   8. Service Pipe:
      a. Measure by distance in linear feet.
      b. Measure each size separately.
      c. Measure from center of water main to center of curb stop plus 1-foot for slack.
   9. Connect to existing water main:
      a. Measure each connection as a unit.
      b. Price includes all labor, fittings, materials and necessary appurtenances to connect to existing water main.
      c. Will not be paid at locations where wet taps are performed.
   10. Thrust and joint restraints are considered incidental and no compensation will be made.
   11. Insulation: Measure by area of specified thickness.
   12. Adjust Valve Box - Water:
      a. Measure each gate valve box to be adjusted as a unit.
      b. Price includes all labor, materials, base course patching, and necessary appurtenances to adjust gate valve box to finished elevation.
   13. Replace Bolts & Box on Water Main Valve:
      a. Measure each gate valve to be repaired as a unit.
      b. Price includes all labor, materials, excavation, backfill, removal of existing valve box, and necessary appurtenances to remove and replace MJ bolts on valve, remove and replace all

bonnet, and body gland bolts with stainless steel bolts, furnish and install geotextile fabric and drain rock, furnish and install a new gate valve box, and adjusting to finished elevations.

c. Replacement backfill will be measured separately and installed as directed by Engineer.

d. Complete bolt replacement on all specified gate valves prior to beginning any hydrant work on a particular street.

14. Gate Valve Box Replacement
    a. Measure each gate valve with existing stainless steel bolts where only the valve box is replaced as a unit.
        1) Excavate and field verify condition and material of bolts on all gate valves as shown in Plans or as directed by the Engineer.
        2) Only replace valve box at gate valves with existing stainless steel bolts, unless otherwise directed.
        3) Bolt and valve box replacement of existing gate valves without stainless steel bolts shall be paid under Replace Bolts & Box on Water Main Valve.
    b. Price includes all labor, materials, excavation, backfill, removal of existing valve box, and necessary appurtenances, removal and replacement of bonnet, furnish and install geotextile fabric and drain rock, furnish and install a new gate valve box, and adjusting to finished elevations.
    c. Replacement backfill will be measured separately and installed as directed by Engineer.
15. Remove and Replace Hydrant and Lead to Main & Add 6" Gate Valve & Box.
    a. Measure each hydrant, gate valve and box, and DIP water main lead as a unit.
    b. Price includes all labor, materials, excavation, backfill, and necessary appurtenances to salvage and deliver hydrant to City shop, removal of water main hydrant lead pipe to the water main tee, and furnishing and installing all necessary items for new hydrant, 6" gate valve and box, 6" DIP water main hydrant lead pipe, and all pipe ties, fittings, blocking, geotextile fabric, drain rock, and all other items included on the plan details.
    c. Replacement backfill will be measured separately and installed as directed by Engineer.
16. Operation of Valves
    a. Upon completion of water main work, Contractor is responsible for ensuring that all valves within the project area are fully operational, regardless of type of work performed at each valve.
    b. Engineer and/or City staff shall be present for operation of all valves.
    c. Operation of all valves within the project area shall be considered incidental and no direct payment will be made.
17. Zinc Anode Caps
    a. No measurement will be made for furnishing and installing zinc anode caps.

D. Basis of Payment:
    1. Payment for acceptable quantities of water main and appurtenances shall be at the Contract Unit Price as listed on the Bid Form. Zinc anode caps shall be furnished and installed on all water main fittings and shall be considered incidental. All associated Work items noted above or shown in the Plans shall be considered incidental.

1.02 REFERENCES

A. ASTM:
    1. A126 - Gray Iron Castings for Valves, Flanges, and Pipe Fittings
    2. A536 - Ductile Iron Castings
    3. B88 - Seamless Copper Water Tube
    4. B152 - Copper Sheet, Strip, Plate, Rolled Bar
    5. B418 - Cast and Wrought Galvanic Zinc Anodes
    6. D429 - Tests for Rubber Adhesion to Rigid Surfaces
    7. D2842 - Test for Water Absorption of Rigid Cellular Materials
    8. D1248 - Polyethylene Plastics Extrusion Materials for Wire and Cable
    9. F593 - Stainless Steel Bolts, Hex Cap Screws, and Studs
    10. F594 - Stainless Steel Nuts

B. AWWA:
    1. C105 - Polyethylene Encasement for Ductile -Iron Pipe Systems

2. C150 - Thickness Design of Ductile Iron Pipe
3. C151 - Ductile-Iron Pipe, Centrifugally Cast for Water or other Liquids
4. C153 - Ductile-Iron Compact Fittings for Water Service
5. C502 - Dry-Barrel Fire Hydrants
6. C504 - Rubber-Seated Butterfly Valves
7. C509 - Resilient-Seated Gate Valves for Water Supply Service
8. C515 - Reduced-Wall, Resilient-Seated Gate Valves, for Water Supply Service
9. C600 - Installation of Ductile Iron Water Mains and their Appurtenances
10. C800 - Underground Service Line Valve and Fittings

C. CEAM:
1. 2611 – Standard Specifications for Watermain and Service Line Installation

1.03 SUBMITTALS

A. Submit Certificate of Compliance for products listed under Article 1.04.

B. Submit proposed method of joint conductivity.

C. Submit plan for temporary water, if applicable.

1.04 QUALITY ASSURANCE

A. Provide Certificates of Compliance from the manufacturer certifying that the following products meet the respective requirements listed in Article 1.02:
1. Hydrants
2. Gate Valves
3. Ductile Iron Pipe
4. Ductile Iron Fittings
5. Water Service Pipe
6. Galvanic Zinc Anodes

1.05 DELIVERY, STORAGE, AND HANDLING

A. Inspection:
1. Inspect all pipe and products during the unloading process.
2. Notify Engineer of any cracked, flawed or otherwise defective products.
3. Remove all products found to be defective by the Engineer from the Site.

B. Handling and Storage: Handling and storage of products shall be in accordance with Section 2.2 of AWWA C600.

PART 2 PRODUCTS

2.01 WATER MAIN PIPE

A. Ductile Iron: AWWA C151.

B. Cement-Mortar Lining: AWWA C104.

C. Thickness Class: 52.

D. Joints: Push-On.

E. Joint Conductivity:
1. Conductive gaskets as manufactured by American Ductile Iron Pipe Co.
2. Field Application Methods:
a. Burndy - Thermoweld by Burndy Corp., Norwalk, Connecticut.
b. Cadweld by Erico Products Co., Cleveland, Ohio.

3. Copper Jumpers:
    a. Minimum 1/16-inch by 1/2-inch wide flat copper strip.
    b. Annealed round copper wire conforming to ASTM B152, Type DHP.
4. Nuts and Bolts: Silicon Bronze.

F. Polyethylene Encasement – see below

2.02 FITTINGS

A. Ductile Iron: AWWA C153.

B. Cement-Mortar Lining: AWWA C104.

C. Finish:
1. Protective coatings:
    a. Fusion-bonded epoxy coating:
        1) AWWA C116.
        2) Exterior and interior surfaces.
        3) Thickness: 6-8 mils.

D. Joints: Mechanical with ASTM F593 and F594 type 304 Stainless Steel bolts and nuts.

2.03 VALVES AND BOXES

A. Gate Valves:
1. Resilient Seated: AWWA C515.
2. Working Pressure: 200 psi.
3. Ends: Mechanical Joint with ASTM F593 and F594 type 304 Stainless Steel bolts and nuts.
4. Operating Stem: Non-Rising with O-ring Seals.
5. Operating Nut: 2-inch Square, Open Left.
6. Markings to be cast on the bonnet or body:
    a. Open indicating arrow.
    b. Manufacturer's name.
    c. Pressure rating.
    d. Year of manufacture.
    e. Size.
7. Disc:
    a. 316 stainless steel edge
    b. 3-inch thru 24-inch: ASTM A126 Class B Cast Iron
    c. 30-inch and larger: ASTM A536 Ductile Iron
8. Seat:
    a. 3-inch through 20-inch: Bond to body per ASTM D429, Method B.
    b. 24-inch and larger: Retain in body without use of metal retainers.
9. Operator:
    a. Traveling nut actuator
    b. Open left.
10. Markings to be cast on the body:
    a. Open indicating arrow.
    b. Manufacturer's name.
    c. Class.
    d. Year of manufacture.
    e. Size.

B. Boxes:
1. Cast Iron, 5-1/4-inch shaft.
2. Vertical, 3 piece, Buffalo type.
3. Box length to provide for 7.5 feet of pipe cover.
4. Adjustable to 6 inches up or down from standard box length.

5. All valves shall have a valve box adapter to keep the box centered on the valve. The adapter shall be as manufactured by "Adaptor, Inc.", West Allis, Wisconsin, or approved equal.

2.04 HYDRANTS

A. Dry Barrel: AWWA C502.

B. Waterous Pacer WB67.

C. Hose Connections: 2 each at 2-1/2-inch diameter.

D. Steamer Connection: 1 each at 4-1/2-inch diameter.

E. Threads: National Standard.

F. Operating Stem: Open Left with O-ring Seals.

G. Traffic flange: 16" minimum unless otherwise approved by the Engineer

H. Standpipe: 7-3/8" inside diameter.

I. Hub: 6-inch Mechanical Joint with ASTM F593 and F594 type 304 Stainless Steel bolts and nuts.

J. Main Valve Opening: 5-inch diameter.

K. Barrel Diameter: 5-inch.

L. Drain to operate only when hydrant is closed.

M. Bury Depth: 8 feet (ground to bottom of hub).

N. Cap Nuts: Pentagon.

O. Color: Red according to City of Vadnais Heights color designation.

P. Provide permanent markings which indicate:
   1. Manufacturer's name.
   2. Year of manufacture.
   3. Bury depth.

Q. Accessories:
   1. Hydrant marker 5' fiberglass with spring (Red and White).

2.05 SERVICE PIPE

A. Copper: ASTM B88.
   1. Type: K, Soft.

B. SIDR 7 Polyethylene Pipe: CEAM 2611.2.D.

C. Polyvinyl chloride pressure pipe: CEAM 2611.2.D.

2.06 CORPORATION STOPS

A. Type: Ford F600, A.Y. McDonald 4701B, or approved equal.
   1. Inlet: AWWA taper thread.
   2. Outlet: Copper flare straight connection.

2.07 CURB STOPS AND BOXES

A. Valve:
   1. Type: Ford B22-444M, A.Y. McDonald 6104, or approved equal.
      a. Inlet: Copper flare straight connection.
      b. Outlet: Copper flare straight connection.

B. Box:
   1. Type: Ford EM2-80-56-72R, A.Y. McDonald 5614 or approved equal.
   2. Minneapolis Pattern, Extension.
   3. Length: 8 feet.
   4. Adjustable to 6 inches up or down from specified length.
   5. Provide stationary rods for all sizes.

2.08 INSULATION

A. Rigid, extruded polystyrene board insulation.

B. Thermal Resistance (R): 5.0.

C. Thickness: 2-inch.

D. Board Size: 48-inch by 96-inch.

E. Compressive Strength: Minimum 25 psi.

F. Water Absorption in accordance with ASTM D2842: 0.1 percent by volume, maximum.

G. Edges: Square.

2.09 ENCASEMENT

A. Polyethylene Sheet: AWWA C105 Low Density

B. Thickness: 8 mil

2.10 GALVANIC ZINC ANODES

A. Corrosion inhibiting zinc anode caps in accordance with ASTM-B418-88.

PART 3 EXECUTION

3.01 CONSTRUCTION REQUIREMENTS

A. Connection to Existing System:
   1. Pressure Tap:
      a. Install tap in location shown on the Drawings.
      b. Use approved tapping machine designed specifically for tapping under pressure.
      c. Install tapping sleeve and gate valve as part of assembly.
      d. Install blocking as required.
   2. Cut-In Connection:
      a. Isolate segment of pipe to be cut and drain water from the line.
      b. Connect tee and sleeve assembly to pipe ends.
      c. Install blocking as required.
   3. Connect to In-place Fitting:
      a. Isolate segment of in-place pipe and remove blocking as required.
      b. Remove plug and drain water from the line.
      c. Install blocking as required.

B. Pipe Installation:
   1. Install pipe at the alignment and grade shown on the Drawings.
   2. Provide a minimum of 7.5 feet of cover over the pipe.
   3. Install appurtenances in the locations shown on the Drawings.
   4. Remove all dirt and foreign material from the pipe interior prior to installation.
   5. See Section 31 23 33 for pipe foundation and backfill procedures.
   6. See Section 31 23 33 in case of conflicts with existing pipes.

C. Valve and Box Installation:
   1. Verify that subgrade material is adequate to support valve assembly.
   2. Install valves with stems vertical and plumb.
   3. Install boxes plumb and centered over the valve nut.
   4. Verify that box remains plumb and centered during backfill.
   5. Adjust box cover to required grade.

D. Hydrant Installation:
   1. Verify that subgrade material is adequate to support hydrant.
   2. Place thrust block, crushed rock and tar paper in accordance with Drawing details.
   3. Install and maintain hydrant in a plumb position.
   4. Install hydrant such that breakoff flange is at the height specified in the Drawing details in relation to existing ground.

E. Joint Conductivity:
   1. Provide electrical bond across all joints between pipes and appurtenances.
   2. Install copper jumpers by either shop or field applications.
   3. Fasten multiple jumper strips with silicon bronze bolts and nuts.
   4. Welding:
      a. Grind surfaces to be welded to remove coating and oxide and to provide clean metal surface.
      b. Use metallic-arc process for stop applications.
      c. Use exothermic process for field applications.
      d. Refinish welded area with protective coating after connection is made.

F. Thrust Restraint:
   1. Install thrust restraints at all bends, tees and plugs.
   2. Concrete Blocking:
      a. Place between the fitting and undisturbed trench wall.
      b. Minimum thickness: 12 inches.
      c. Minimum area in square feet shall be in accordance with the following:

Pipe	Tee or Plug	1/4 Bend	1/32 and 1/8 Bend	1/16 Bend
6-inch	2.9	3.1	1.6	0.8
8-inch	3.7	5.3	2.9	1.4
10-inch	5.7	8.1	4.4	2.2
12-inch	8.1	13.4	6.6	3.2
16-inch	15.1	21.4	11.6	5.9
20-inch	23.2	30.2	18.1	9.3
24-inch	33.6	48.5	26.1	13.3

      d. Size blocking based on the larger main.
      e. Verify that bolts are accessible after concrete is poured.
   3. Timber Blocking:
      a. Use for temporary blocking only for maximum 8-inch mains.
      b. Minimum timber size: 4-inch by 4-inch.
   4. Restrained Joints:
      a. Install Megalug joint restraints at all bends, tees, crosses, and valves.
      b. Megalugs shall be used on all hydrant leads.

c. Install in accordance with “Thrust Restraint Design for Ductile Iron Pipe”.

G. Service Installation:
1. Corporation Stops:
a. Provide watertight connection with approved tapping machine.
b. Install under main pressure.
c. Place a double wrap of Teflon tape around the threads prior to installation.
2. Copper Service Pipe:
a. Install pipe between corporation stop and curb stop with no joints or unions.
b. Bury Depth: 7.5 feet.
c. Provide minimum 1-foot of slack in the pipe to allow for settlement and movement.
3. Curb Stop and Box:
a. Install at the location shown on the Drawings.
b. Verify that subgrade material is adequate to support the curb box assembly.
c. Install boxes plumb and centered over the tee head.
d. Verify that box remains plumb and properly aligned during backfill.
e. Adjust box cover to required grade.
f. Key all curb stops after backfill to ensure proper operation.
g. All proposed water service locations will be stamped in concrete curb and gutter with a “W” perpendicular to the curb stop and box.

H. Encasement:
1. Comply with AWWA C105.
2. Wrap all pipe and fittings in the location shown on the Drawings.
3. Clean all surfaces of pipe and appurtenances prior to wrapping.
4. Provide sufficient slack to prevent damage during backfill.
5. Provide minimum 6 inch overlap at joints.
6. Secure overlap and joints with compatible adhesive tape.
7. Repair damaged wrap with tape or polyethylene patch.

I. Water Interruption:
1. Provide a minimum of 48-hour notice to the Engineer, and City prior to any water service interruption.
a. City will notify homeowners via flyer delivery.
2. Contractor shall limit short-term water service interruption to a maximum of 8 hours or as allowed by Engineer.
3. Temporary water service shall be provided to affected properties for interruptions longer than 8 hours.

J. Replace Bolts on Water Main Valve:
1. Locate, excavate and expose all existing valve bolts.
2. Remove existing MJ valve bolts and replace with new stainless steel nuts and bolts.
3. Remove existing valve body gland and bonnet bolts and replace with stainless steel bolts.
4. Install gate valve box per detail in the plans.
5. Backfill and compact native material or install and compact replacement backfill as specified by Engineer. All backfill shall meet requirements in Section 31 23 33.

K. Replace Water Main Valve Box:
1. Locate, excavate and expose all existing valve bolts.
2. Verify all existing nuts and bolts are stainless steel.
3. Verify all existing valve body gland and bonnet bolts are stainless steel.
4. Install gate valve box per detail in the plans.
5. Backfill and compact native material or install and compact replacement backfill as specified by Engineer. All backfill shall meet requirements in Section 31 23 33.

L. Zinc Anode Caps
1. Furnish and install a minimum of four corrosion-inhibiting zinc anode caps at each gland used on each fitting.

3.02 FIELD QUALITY CONTROL

A. Perform the following tests upon completion of the system and prior to being placed into service:
   1. Pressure and Leakage Test:
      a. Perform pressure and leakage test in accordance with AWWA C600.
      b. Test Pressure: 150 psi.
      c. Test Duration: 2 hours.
      d. Gage Requirements:
         1) Size: 4-1/2-inch dial.
         2) Range: 0 to 200 psi.
         3) Gradation: 2 psi.
         4) Accuracy: 1/2 percent.
      e. Do not allow pressure to vary more than 5 psi during the test.
      f. Do not allow pressure to vary more than 2 psi during the last hour of the test.
      g. Allowable Leakage: One-half of the volume allowed by AWWA C600 in accordance with the following:

$$L = \frac{SD\sqrt{P}}{266{,}400}$$

L = Allowable Leakage in Gallons Per Hour

S = Length of Pipe Tested in Feet

D = Nominal Diameter of Pipe in Inches

P = Average Test Pressure During Test in Pounds/Square Inch (Gage)

   2. Testing Services:
      a. Perform separate pressure and leakage test on the services with the corporation stops open.
      b. Test Pressure: 100 psi.
      c. Allowable Leakage: None.
      d. At Contractor's option, service testing may be done concurrent with main testing.
   3. Electrical Conductivity Test:
      a. Perform electrical conductivity test to verify that electrical thawing of the system may be accomplished by Owner.
      b. Test Parameters:
         1) Perform test within 1 week after pressure testing.
         2) Perform test after back-filling is completed and while line is at normal operating pressure.
         3) Test Equipment: low frequency line tracing locator.
         4) Test Current: 512 Hz.
         5) Test between hydrants in segments of convenient length.
      c. Procedures:
         1) Furnish DC current source, cable and all required equipment of adequate capacity to accomplish the test.
         2) Clamp cables to hydrant flange bolts.
         3) Conduct test with hydrant in the open position and caps on.
         4) Measure current continuously throughout the test with a DC ammeter hooked on a cable lead.
         5) Start test at minimum current level and increase to test level.
         6) Drain hydrant and tighten caps after test.
      d. Failure and Correction:
         1) Failure of a segment shall be determined by current measurements that are insufficient, intermittent or unsteady.
         2) Isolate and correct defective contact points as indicated by failed tests.
         3) Retest failed segments after correction.

3.03 DISINFECTION

A. Disinfect all newly installed water mains, appurtenances and services in accordance with AWWA C651.
   1. Tablet or Continuous Feed Method:
      a. Hold chlorine solution in pipe for a minimum period of 24 hours.
         1) Initial dosage: 50 ppm minimum.
         2) Residual dosage after hold period: 10 ppm minimum.

B. Flush system within 24 hours after disinfection is completed.

C. Sampling and Testing:
   1. Sampling and Testing to be performed by an independent third party, and shall not be performed by Contractor's personnel.
   2. After final flushing, obtain 2 sets of samples taken a minimum of 24 hours apart.
   3. Each sample set shall include:
      a. One sample for every 1,200 feet of main.
      b. One sample at each dead-end.
      c. Ensure that 1 sample is obtained from each branch of main.
      d. Minimum sample required: 2
   4. Perform coliform tests on each sample.
   5. Rechlorinate if any sample tests positive for coliform.

END OF SECTION

Andrew Boucher

From: PW Plan Review <pwplanreview@RamseyCountyMN.gov>
Sent: Thursday, October 1, 2026 11:12 AM
To: Andrew Boucher
Subject: RE: City of Gem Lake: 1485 County Road E E & 0 County Road E E - Minor Subdivision and Zoning Certificate

CAUTION: This email originated from outside of TKDA. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Andrew,

Ramsey County has not completed its review of 1485 County Road E yet, but I can offer some preliminary comments in time for the Planning Commission meeting on October 6.

Maintenance: 1) Valley gutters are present at the existing entrances. The proposed plan details do not appear to show valley gutters going back in, but they should be reinstalled per the appropriate County detail. 2) At the easterly entrance that is being removed, remove and replace the existing valley gutter, with curb and gutter to match the adjacent curb and gutter on CR E.
Permitting: Permits needed 1)2x closure of existing accesses 2)2x new commercial accesses 3)2x stormwater connections, once approved) 4)Sanitary connection 5)City water connection

Thanks, final comments will be sent on October 12.

Kevin

Kevin Roggenbuck
(he, him)
Senior Transportation Planner
Public Works | *Economic Growth and Community Investment*
Office: 651-266-2798 Cell: 612-518-0138
15 West Kellogg Blvd., Suite 210, St. Paul, MN 55102

RAMSEY COUNTY

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From: Andrew Boucher <andrew.boucher@tkda.com>
Sent: Monday, September 28, 2026 2:10 PM
To: Roggenbuck, Kevin <kevin.roggenbuck@co.ramsey.mn.us>; metrodevreviews.dot <metrodevreviews.dot@state.mn.us>; PW Plan Review <pwplanreview@co.ramsey.mn.us>; jlindahl <jlindahl@whitebearlakemn.gov>; Scollan, Daniel (DNR) <daniel.scollan@state.mn.us>; Nolan Wall <nolan.wall@cityvadnaisheights.com>; Larry Poppler <larry.poppler@whitebeartownship.org>; brian.corcoran <brian.corcoran@vlawmo.org>; josh.storms <josh.storms@state.mn.us>; liz.powell <liz.powell@state.mn.us>; aimee.jefferson <aimee.jefferson@state.mn.us>
Cc: Mike Johnson <mike.johnson@whitebeartownship.org>; Josh Waylander <jwaylander@whitebearlakemn.gov>; Justin Gese <jgese@sehinc.com>; Norder, Martin - External Contact <mnorder@kellyandlemmons.com>
Subject: RE: City of Gem Lake: 1485 County Road E E & 0 County Road E E - Minor Subdivision and Zoning Certificate

September 15, 2026

Andrew Boucher, Planner
City of Gem Lake Planning Commission

Re: Apple Ford Redevelopment Request — Neighborhood Concerns and Conditional Support

Dear Mr. Boucher:

On behalf of the Daniels Farm Road Owners Association, we are writing regarding the proposed expansion and redevelopment of the Apple Ford dealership. We recognize the importance of responsible economic development and would like to see the project succeed. At the same time, the proposed expansion would significantly affect the neighborhoods west, northwest, and north of the dealership.

Our primary concern is the removal of hundreds of mature trees, many of which are more than 80 years old. These trees provide an important natural buffer – visual and acoustic - between the existing dealership, Highway 61, County Road E, and nearby homes. They help preserve the peace, privacy, and character of Daniels Farm Road. We respectfully request that the City and Apple Ford ensure that the project complies with the City's tree ordinance. For trees that cannot be preserved, Apple Ford should either provide the replacement required by the ordinance or propose a reasonable alternative that achieves the same objective of preserving and mitigating the value of the existing trees. Any alternative should be clearly defined, enforceable, and subject to City approval before the project proceeds.

We are also deeply concerned about the future of the field west of the dealership. This field currently provides a natural barrier and contributes to the peace and tranquility of the neighborhood. Although we understand that the property may be zoned for potential development, we respectfully ask that the field, wetland areas, and watershed functions be preserved in as natural a condition as possible. We do not support unnecessary clearing, aggressive removal of understory or fallen trees, or the use of goats as a vegetation-management method. If feasible, we encourage consideration of a conservation easement or land-trust arrangement for these natural areas.

The lilacs lining both sides of Daniels Farm Road are a valued and distinctive part of the neighborhood's character. Residents have invested thousands of dollars over several years maintaining them, despite not owning the plantings. It is important to the neighborhood that these lilacs remain preserved. We respectfully request that their preservation be addressed specifically in any future ownership, conservation, or land-use arrangement affecting the field and surrounding property. If ownership must change as part of the

transaction, the Association would welcome the opportunity to explore assuming ownership or stewardship, subject to legal and financial feasibility.

Finally, the project should include effective protections against noise and light pollution. These should include substantial screening along the north and west sides, a well-designed wall or fence to block headlights, downward-facing and shielded lighting, automatic dimming or shutoff during overnight hours, and reasonable controls on construction and operating noise.

We are willing to work constructively with the City and Apple Ford and would support the project if these concerns are addressed through specific, enforceable conditions. We respectfully ask that the application not be approved as currently proposed until tree preservation, natural-area protection, lilac preservation, screening, lighting, and noise mitigation have been resolved.

Thank you for your consideration.

Sincerely,

Daniels Farm Road Owners Association

cc: Gem Lake City Council Members

Andrew Boucher

From: Alan Bergstrom <abergstrom548@gmail.com>
Sent: Monday, September 21, 2026 2:14 PM
To: Andrew Boucher
Subject: Apple Ford Redevelopment

CAUTION: This email originated from outside of TKDA. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Andrew,

Sorry for the error, I hit the wrong button and sent too soon.

We live at 17 Daniels Farm Road, Gem Lake, MN and are writing in support of the letter you received from the Daniels Farm Road home association.

Thank you,

Alan and Beverly Bergstrom
17 Daniels Farm Road
Gem Lake, MN 55110
Sent from my iPad

Andrew Boucher

From: Anthony Scornavacco <ascornavacco@hotmail.com>
Sent: Monday, September 21, 2026 2:18 PM
To: Andrew Boucher
Subject: Re: Apple Ford Redevelopment - Neighborhood Concerns and Conditional Support

CAUTION: This email originated from outside of TKDA. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Anthony Scornavacco
Michael Garrett
7 Daniels Farm Road
Gem Lake, MN 55110
612-963-8121

From Anthony Scornavacco's iPhone.

> On Sep 21, 2026, at 10:00 AM, Andrew Boucher <andrew.boucher@tkda.com> wrote:
>
> Daniels Farm Road Owners Association,
>
> I wanted to touch base and confirm that I received the letter from your organization identifying neighborhood concerns and conditional support. I would just request an address included on the letter if there's a common address for the association or if individual owners would like to provide their addresses similar to how the public hearing comments were, please email me with your name and address so this letter and concerns can be included in the public record as part of the consideration.
>
> After reviewing the letter, it seems like the primary concerns are:
> 1. The removal of hundreds of mature trees that provide natural buffers from noise, light, and other land uses as well as Highway 61, the existing dealership, and County Road E, which is part of the character of Daniels Farm Road.
> 2. Apple Ford should either provide the replacement required by the ordinance or propose a reasonable alternative for mitigating and preserving the value of the existing trees.
> 3. Future of Parcel 4 development and the preservation of the field, wetland areas, and watershed functions be maintained in a natural condition with the consideration of a conservation easement or land-trust arrangement for these areas being preferred.
> 4. Lilacs lining both sides of Daniels Farm Road be preserved and maintained. The Association would welcome the opportunity to assume ownership or stewardship of these areas.
> 5. Protections against noise and light pollution with screening along the north and west sides to block headlights, downward-facing and shielded lighting with

automatic dimming or shutoff during overnight hours, and reasonable controls on construction/operating noise.

Let me know if you have any questions. Again, if you could include an address for either the Daniels Farm Road Owners Association or the individual owners, then I will make sure the developer's team are aware of these concerns and considerations.

Thanks,

Andrew

Andrew Boucher, AICP, ENV SP
Planner

P 651.292.4545 | C 651.295.2267
E andrew.boucher@tkda.com
3311 E Old Shakopee Rd, Suite 300, Bloomington, MN 55425

<image001.png>

<image002.png>

<DFROA Letter Regarding Apple Ford Redevelopment Request - Comments & Concerns (09.15.2026).pdf>

Andrew Boucher

From: Beth Tschida <bethtschida@gmail.com>
Sent: Sunday, September 27, 2026 8:17 PM
To: Andrew Boucher
Subject: Re: Apple Ford Application: Additional Considerations

Follow Up Flag: Follow up
Flag Status: Completed

CAUTION: This email originated from outside of TKDA. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Andrew,

I was out of town this past week, so I wanted to reply to your note.
Yes, I can find time to meet. The best day for me is Friday this week (after 11 am).

Before then, here are a few additional details for your consideration. Two things have come up since my September 22nd letter that I want you to have beforehand.

On question 2, the shoreland boundary: Section 21.1.1 measures the district from "the ordinary high water mark of a public water or public waters wetland," and Minn. Stat. 103G.005, subd. 14 defines that mark, which the DNR has set for Gem Lake at 946.8 ft. The DNR's Public Waters Inventory maps the marsh south of the open water as part of the Gem Lake basin (62003700), with a second public waters basin (62012800) in the southeast lobe near Highway 61. Measured from the basins as the DNR maps them, the line would fall well south of where the applicant's sheets show it, and the packet does not say what the line was measured from. Could the surveyor locate the 946.8 ft contour in the field, with its datum stated, and show the resulting district line, with its source noted, consistently on the survey, the site plan, the tree preservation plan and the impervious surface tables? The DNR pages are included below.

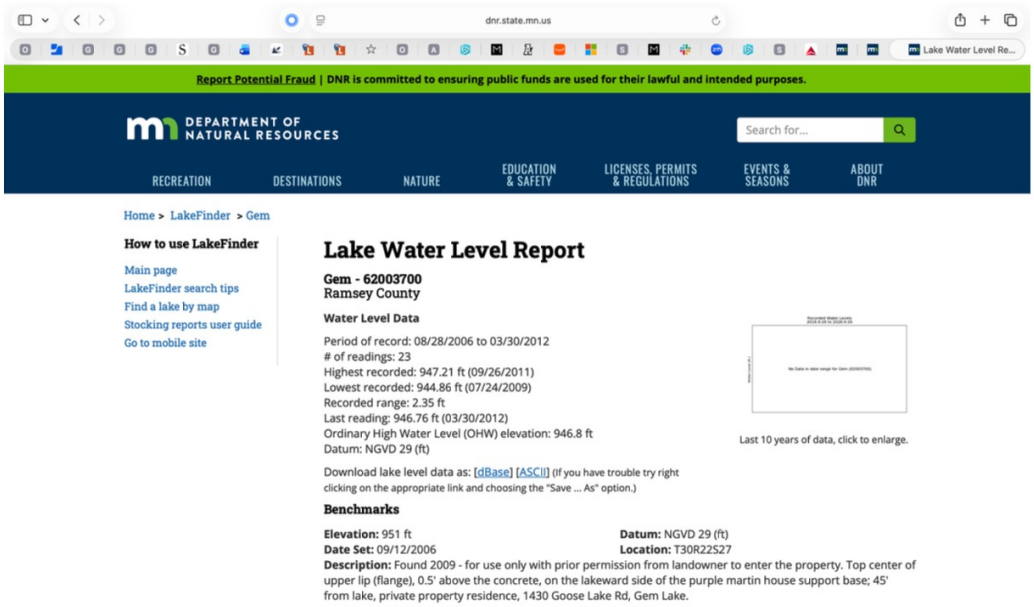
On the tree inventory: the sheets do not state how the inventory was taken. Section 27.7.3 calls for an inventory certified by a surveyor, landscape architect or forester "depicting the size, species, condition and location of each significant tree by species, diameter and condition." The inventory is certified, so I assume each tree was measured; I ask only because 383 of the 406 red pines carry the identical entry of 14 inches and 70 feet, and the replacement obligation that drives the amendment request rests on those figures. If the stand was sampled rather than measured tree by tree, that may be a reasonable shortcut for a uniform plantation, but the method and the sample should be stated on the sheet so the City can judge it.

Given these open items and the September 16 amendment request, would the City consider continuing this to the November meeting? Happy to discuss when we meet.

Thank you,

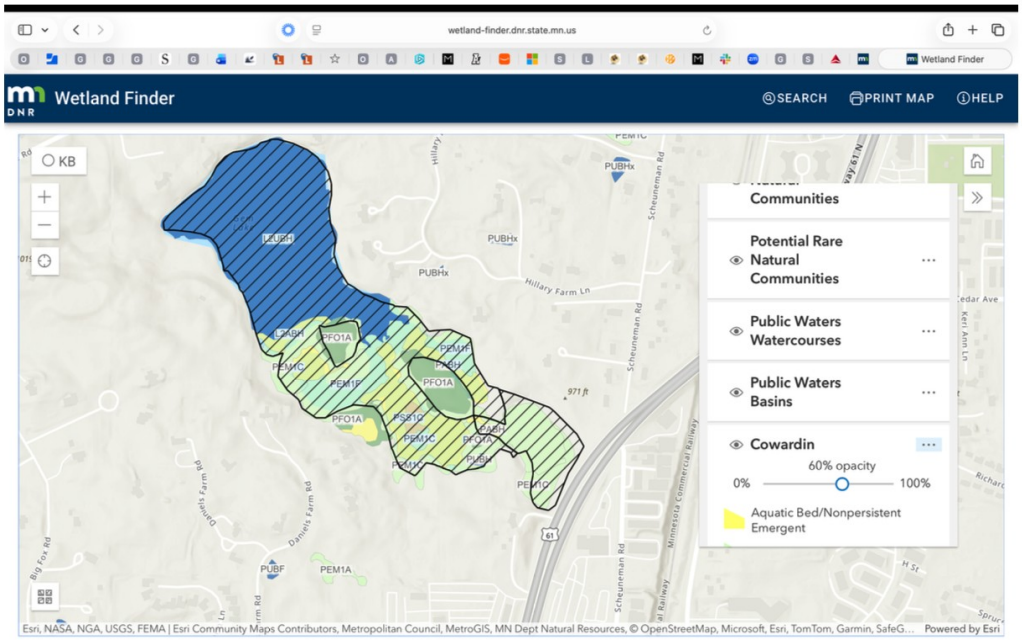
Beth Tschida
651-271-9035

Attachment 1. DNR LakeFinder, Lake Water Level Report, Gem (62003700), Ramsey County



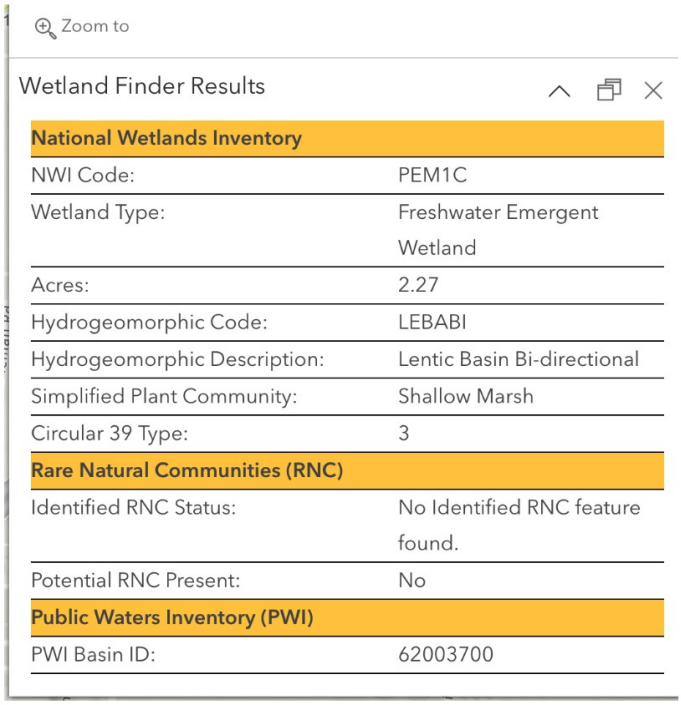
Ordinary High Water Level (OHW) elevation 946.8 ft, datum NGVD 29. Recorded range 944.86 to 947.21 ft, 2006 to 2012. Source: dnr.state.mn.us, captured September 26, 2026.

Attachment 2. DNR Wetland Finder, Public Waters Inventory basins (hatched), Gem Lake



The hatched Public Waters Inventory basin extends from the open water across the marsh complex to the south. All of it carries basin ID 62003700 except the southeast lobe near Highway 61, which is basin 62012800. Source: DNR Wetland Finder, captured September 26, 2026.

Attachment 3. DNR Wetland Finder record for the marsh south of the open water



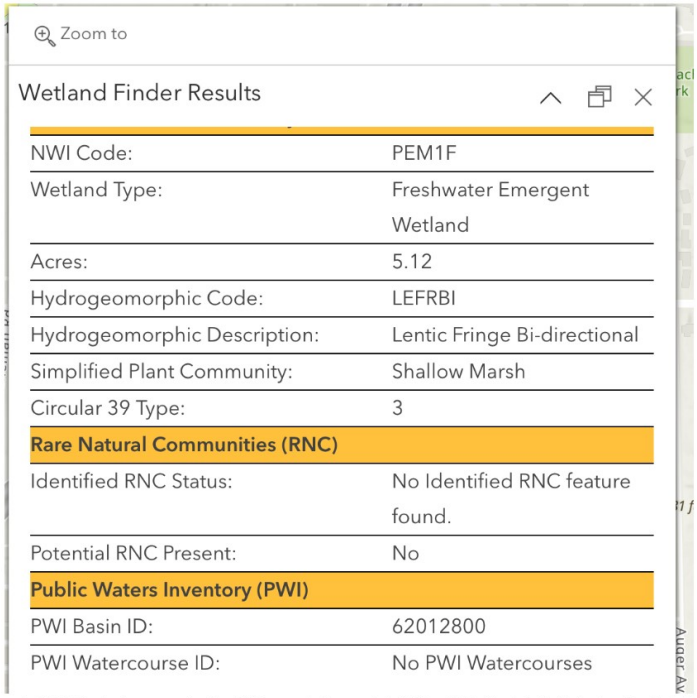
Zoom to

Wetland Finder Results

National Wetlands Inventory	
NWI Code:	PEM1C
Wetland Type:	Freshwater Emergent Wetland
Acres:	2.27
Hydrogeomorphic Code:	LEBABI
Hydrogeomorphic Description:	Lentic Basin Bi-directional
Simplified Plant Community:	Shallow Marsh
Circular 39 Type:	3
Rare Natural Communities (RNC)	
Identified RNC Status:	No Identified RNC feature found.
Potential RNC Present:	No
Public Waters Inventory (PWI)	
PWI Basin ID:	62003700

National Wetlands Inventory code PEM1C, freshwater emergent wetland, 2.27 acres, shallow marsh, lentic basin bi-directional. Public Waters Inventory Basin ID: 62003700, the same basin as Gem Lake. Source: DNR Wetland Finder, captured September 26, 2026.

Attachment 4. DNR Wetland Finder record for the southeast lobe near Highway 61



Zoom to

Wetland Finder Results

NWI Code:	PEM1F
Wetland Type:	Freshwater Emergent Wetland
Acres:	5.12
Hydrogeomorphic Code:	LEFRBI
Hydrogeomorphic Description:	Lentic Fringe Bi-directional
Simplified Plant Community:	Shallow Marsh
Circular 39 Type:	3
Rare Natural Communities (RNC)	
Identified RNC Status:	No Identified RNC feature found.
Potential RNC Present:	No
Public Waters Inventory (PWI)	
PWI Basin ID:	62012800
PWI Watercourse ID:	No PWI Watercourses

National Wetlands Inventory code PEM1F, freshwater emergent wetland, 5.12 acres, shallow marsh, lentic fringe bi-directional. Public Waters Inventory Basin ID: 62012800, a separate public waters basin whose southern tip lies on parcel 273022420018 near Highway 61. Under Section 21.1.1 the shoreland district is measured from any public water or public waters wetland, so the district is the combined 1,000 ft band from both basins. Source: DNR Wetland Finder, captured September 26, 2026.

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Hi Andrew,

Thank you for your note on the Association letter. My address is 5 Daniels Farm Road, Gem Lake, MN 55110, and I am one of the owners behind the September 15 letter; I would appreciate it being included in the record on that basis.

Attached is a separate letter from me with questions I hope the October 6 staff report can address. I will be out of the country for the hearing, so I am submitting in writing. Barb, would you please include this in the public record for the October 6 Planning Commission meeting?

Thank you both.

Beth Tschida
5 Daniels Farm Road

Andrew Boucher

From: Jim Tschida <jamestschida@gmail.com>
Sent: Monday, September 21, 2026 10:03 AM
To: Andrew Boucher
Subject: Re: Apple Ford Redevelopment - Neighborhood Concerns and Conditional Support

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Jim and Beth Tschida
5 Daniels Farm Rd
Gem Lake.

On Mon, Sep 21, 2026 at 9:59 AM Andrew Boucher <andrew.boucher@tkda.com> wrote:

> Daniels Farm Road Owners Association,
>
> I wanted to touch base and confirm that I received the letter from your organization identifying neighborhood concerns and conditional support. I would just request an address included on the letter if there's a common address for the association or if individual owners would like to provide their addresses similar to how the public hearing comments were, please email me with your name and address so this letter and concerns can be included in the public record as part of the consideration.
>
> After reviewing the letter, it seems like the primary concerns are:
>
> - The removal of hundreds of mature trees that provide natural buffers from noise, light, and other land uses as well as Highway 61, the existing dealership, and County Road E, which is part of the character of Daniels Farm Road.
> - Apple Ford should either provide the replacement required by the ordinance or propose a reasonable alternative for mitigating and preserving the value of the existing trees.
> - Future of Parcel 4 development and the preservation of the field, wetland areas, and watershed functions be maintained in a natural condition with the consideration of a conservation easement or land-trust arrangement for these areas being preferred.
> - Lilacs lining both sides of Daniels Farm Road be preserved and maintained. The Association would welcome the opportunity to assume ownership or stewardship of these areas.
> - Protections against noise and light pollution with screening along the north and west sides to block headlights, downward-facing and shielded lighting with automatic dimming or shutoff during overnight hours, and reasonable controls on construction/operating noise.

Let me know if you have any questions. Again, if you could include an address for either the Daniels Farm Road Owners Association or the individual owners, then I will make sure the developer's team are aware of these concerns and considerations.

Thanks,

Andrew

Andrew Boucher, AICP, ENV SP
Planner

P 651.292.4545 | C 651.295.2267

E andrew.boucher@tkda.com
3311 E Old Shakopee Rd, Suite 300, Bloomington, MN 55425



Andrew Boucher

Subject: FW: Apple ford development proposal

From: Debra Suhadolnik <dssuhadolnik@gmail.com>
Sent: Tuesday, November 10, 2026 9:20 AM
To: Barbara Suciu <barbara.suciu@gemlakemn.org>
Subject: Apple ford development proposal

This is Deb Suhadolnik at 46 Summit Farm Lane in Gem Lake. I have previously voiced and documented my concerns about the Apple Ford development proposal but am doing so again before the City Council vote at the urging of several people. Not sure if I have to, but better safe than sorry.
I am opposed to the following aspects of the Apple Ford development proposal:
1. Request for an exemption to the tree ordinance- that stand of conifers is important to the environment and provides a natural barrier between the commercial zoned area on 61 and the rest of the neighborhood.
2. Any aspect of the proposal that would require rezoning
3. Undetermined use of a large portion of parcel 4
4. Lack of a traffic impact study that considers an onsite coffee shop
5. Height of lighting fixtures- proposed lights are too high
6. Lack of a barrier zone on the western edge of parcel 4 to prevent/mitigate light, noise and visual aesthetics.

Andrew Boucher

From: Debra Suhadolnik <dssuhadolnik@gmail.com>
Sent: Tuesday, September 15, 2026 10:49 AM
To: Andrew Boucher
Subject: Apple ford renovation

Follow Up Flag: Follow up
Flag Status: Flagged

You don't often get email from dssuhadolnik@gmail.com. Learn why this is important

CAUTION: This email originated from outside of TKDA. Do not click links or open attachments unless you recognize the sender and know the content is safe.

At a recent Planning commission meeting you asked us to send you our comments in writing. So here goes.
This is Deb Suhadolnik at 46 Summit farm Lane in Gem Lake. My concerns/comments are:
1. Lack of a buffer zone on the west end of parcel 4 to protect the properties to the west of Daniel's Farm Road from noise and commercial light from the business and to protect the privacy of these neighbors.
2. Removal of the line of very mature conifers that I believe are on the east edge of parcel 4. Removing these conifers is an environmental setback and I believe violates tree preservation requirements. This line of conifers also provides a clear line of demarcation between the commercial and residential areas, and serves as a light, noise and privacy barrier.
3. Lack of plans for most of parcel 4. I am concerned about approving other parts of the proposal without a clear idea of how most of parcel 4 will be developed.
4. Lack of traffic impact study. No action should be taken until a traffic impact study is completed.
5. Traffic flow on the property should be examined to make sure that the planned redevelopment minimizes the impact (noise, headlights) on the neighboring community. Particularly the impact of the Starbucks, service bays and car wash.
6. Lighting Height - the property lights are listed as 27 feet tall, which seems excessively tall. Even downcasting lights that tall would shed light far out into the surrounding area.

September 28, 2026

Mr. Andrew Boucher – Gem Lake City Planner

4200 Gem Lake Road

Gem Lake, MN 55110

Dear Mr. Boucher:

My name is John Kuduk and my wife and I reside in the Gem Lake Villas at 43 Summit Farm Lane, Gem Lake, MN 55110. I'm writing today to share my concerns and opposition to Apple Ford plan to purchase the current farm plot land.

Apple Ford is seeking to secure a Zoning Compliance Certificat**e** to build their new redeveloped facility in the Gateway Zoning District. The dealership owner isn't just asking for a simple variance; they are asking to change the actual written rules of what is allowed in that zone. The problem is the car dealership is moving too far west from the Business Hwy 61. The major car dealership new west boundary would expand 1/3 of a mile away from Hwy 61. Substantially away from the business views and zoning of Hwy 61. It would be bordering a residential neighborhood which completely undermines the quiet, semi-rural, and residential charm that Gem Lake is historically known for.

The possible negatives for our residential community include the following:

- Light Pollution**:** Dealerships require massive, bright parking lot lights that stay on all night for security. This would shine directly into your villas.
- Traffic and Safety**:** Dealerships bring heavy vehicle traffic, including massive car-carrier delivery trucks that can block local roads and endanger residents.
- Noise Pollution: Loudspeaker pages, mechanics working.
- Environmental/Visual Aesthetics**.**

Thank you for this opportunity to voice my concerns.

Sincerely,

John Kuduk

651-271-6373

Andrew Boucher

From: John Kuny <jlkuny@gmail.com>
Sent: Wednesday, September 23, 2026 7:14 AM
To: Andrew Boucher
Subject: Re: Apple Ford Redevelopment - Neighborhood Concerns and Conditional Support

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Hello Andrew. My contact information. Thanks.

John L. Kuny
9 Daniels Farm Road
Gem Lake, MN 55110

JLKUNY@gmail.com
612-865-7478

On Tue, Sep 22, 2026 at 8:50 AM Andrew Boucher <andrew.boucher@tkda.com> wrote:

> Sherri,
>
> I wanted to touch base with you and confirm that I have received correspondence from everyone you identified except for the highlighted property owners. I will include the property owners that provide confirmation of their addresses or if they would prefer to put their name/address on the Association's letter, then that would also be sufficient.
>
> Let me know if you have any questions.
>
> Thanks,
>
> Andrew
>
> **Andrew Boucher, AICP, ENV SP**
> Planner
>
> P 651.292.4545 | C 651.295.2267

Andrew Boucher

From: Sherri Johnson <sherrisaatela@gmail.com>
Sent: Monday, September 21, 2026 8:06 PM
To: Alan Bergstrom
Cc: Tom Rasmussen; Andrew Boucher; Bev Bergstrom; Chrissy Cammack; huckcammack1@gmail.com; Courtland Farrell; Stephanie Farrell; Ben Johnson; Laura Rasmussen; Anthony Scornavacco; Beth Tschida; Jim Tschida; John Kuny; Barbara Suciu; Justin Gese
Subject: Re: Apple Ford Redevelopment - Neighborhood Concerns and Conditional Support

CAUTION: This email originated from outside of TKDA. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Andrew,

Thank you for confirming receipt of the Daniels Farm Road Owners Association's letter and for summarizing the neighborhood's concerns. Your summary accurately reflects the issues we would like considered as part of the City's review, including tree preservation and mitigation under the City's tree ordinance; preservation of the field, wetland areas, and watershed functions; protection of the lilacs along both sides of Daniels Farm Road; and effective screening, lighting, and noise controls.

Participating owners and addresses:

- 3 Daniels Farm Road — Tom & Laura Rasmussen
- 5 Daniels Farm Road — Beth & Jim Tschida
- 7 Daniels Farm Road — Tony Scornavacco & Michael Garrett (house)
- 9 Daniels Farm Road — John Kuny
- 11 Daniels Farm Road — Sherri & Ben Johnson
- [redacted]
- 17 Daniels Farm Road — Beverly & Alan Bergstrom
- 19 Daniels Farm Road — Tony Scornavacco & Michael Garrett (field)
- Stable — Tony Scornavacco & Michael Garrett (no separate address)
- 21 Daniels Farm Road — Court & Stephanie Farrell

Thank you for including our concerns in the public record and making sure the Apple Ford development team is aware of them. We appreciate the City's consideration and look forward to continuing to work constructively toward a project that addresses these neighborhood concerns.

Sincerely,

Daniels Farm Road Owners Association

On Mon, Sep 21, 2026 at 1:56 PM Alan Bergstrom <abergstrom548@gmail.com> wrote:

> Sent from my iPad

Andrew Boucher

From: Stephanie Farrell <stephaniemariefarrell12@gmail.com>
Sent: Tuesday, September 22, 2026 9:41 AM
To: Andrew Boucher
Subject: Re: Apple Ford Redevelopment - Neighborhood Concerns and Conditional Support

CAUTION: This email originated from outside of TKDA. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello,
Im confirming my address;

Stephanie Farrell
21 Daniels Farm Rd
Gem Lake, MN 55110

Thanks!
Steph

On Sep 22, 2026, at 8:50 AM, Andrew Boucher <andrew.boucher@tkda.com> wrote:

Sherri,

I wanted to touch base with you and confirm that I have received correspondence from everyone you identified except for the highlighted property owners. I will include the property owners that provide confirmation of their addresses or if they would prefer to put their name/address on the Association's letter, then that would also be sufficient.

Let me know if you have any questions.

Thanks,

Andrew

Andrew Boucher, AICP, ENV SP
Planner

P 651.292.4545 | C 651.295.2267
E andrew.boucher@tkda.com
3311 E Old Shakopee Rd, Suite 300, Bloomington, MN 55425

<image001.png>

<image002.png>

September 25, 2026

Dear Planning Commission Members,

I am a resident of the Villas of Gem Lake and am writing to share my thoughts regarding Apple Auto's proposed expansion onto the land along County Road E, directly adjacent to our neighborhood.

While I am not necessarily opposed to the proposal, I believe residents would benefit from more information about the scope of the project and what alternatives have been considered for the property, including potential uses by the City of Gem Lake.

One of my primary questions is how the proposed expansion would benefit the city and its residents. Property taxes in Gem Lake are significant, and I would appreciate an analysis comparing the potential tax revenue from an expanded Apple Auto dealership with what could be generated by a residential development similar to the Villas of Gem Lake. Understanding the projected tax impact of each option would help residents better evaluate the proposal.

I also wonder if there may be opportunities to expand the existing trail and prairie areas if the property were developed residentially. A similar housing development could potentially allow the trail system to extend northward and provide additional recreational opportunities for Gem Lake residents.

Another concern is light pollution. Our neighborhood already receives significant lighting from Highway 61, and adding a vehicle dealership and associated lighting closer to our homes could further affect the area. I would therefore appreciate more detail regarding the proposed dealership's size, layout, operating hours, lighting plan, and other potential impacts on nearby residents.

I would appreciate the Planning Commission's consideration of these questions and would welcome additional information about the proposal, the alternatives that have been evaluated, and the anticipated benefits and impacts to the City of Gem Lake and surrounding residents.

Thank you for your time and consideration.

Sincerely,
Sue Hicks 29 Summit Farm Lane
Resident, Villas of Gem Lake

Andrew Boucher

From: Tom Rasmussen <odyrestorations@aol.com>
Sent: Monday, September 21, 2026 10:26 AM
To: Andrew Boucher; abergstrom548@gmail.com; Bev Bergstrom; Chrissy Cammack; huckcammack1@gmail.com; Courtland Farrell; Stephanie Farrell; Sherri Saatela Johnson; Ben Johnson; Laura Rasmussen; Anthony Scornavacco; Beth Tschida; Jim Tschida; John Kuny
Cc: Barbara Suciu; Justin Gese
Subject: Re: Apple Ford Redevelopment - Neighborhood Concerns and Conditional Support

CAUTION: This email originated from outside of TKDA. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Thank you, Andrew

Tom & Laura Rasmussen
3 Daniels Farm Road
612-581-3791
Odyrestorations@aol.com

On Monday, September 21, 2026 at 09:59:20 AM CDT, Andrew Boucher <andrew.boucher@tkda.com> wrote:

> Daniels Farm Road Owners Association,
>
> I wanted to touch base and confirm that I received the letter from your organization identifying neighborhood concerns and conditional support. I would just request an address included on the letter if there's a common address for the association or if individual owners would like to provide their addresses similar to how the public hearing comments were, please email me with your name and address so this letter and concerns can be included in the public record as part of the consideration.
>
> After reviewing the letter, it seems like the primary concerns are:
>
> - The removal of hundreds of mature trees that provide natural buffers from noise, light, and other land uses as well as Highway 61, the existing dealership, and County Road E, which is part of the character of Daniels Farm Road.
> - Apple Ford should either provide the replacement required by the ordinance or propose a reasonable alternative for mitigating and preserving the value of the existing trees.
> - Future of Parcel 4 development and the preservation of the field, wetland areas, and watershed functions be maintained in a natural condition with the consideration of a conservation easement or land-trust arrangement for these areas being preferred.

- Lilacs lining both sides of Daniels Farm Road be preserved and maintained. The Association would welcome the opportunity to assume ownership or stewardship of these areas.
- Protections against noise and light pollution with screening along the north and west sides to block headlights, downward-facing and shielded lighting with automatic dimming or shutoff during overnight hours, and reasonable controls on construction/operating noise.

Let me know if you have any questions. Again, if you could include an address for either the Daniels Farm Road Owners Association or the individual owners, then I will make sure the developer's team are aware of these concerns and considerations.

Thanks,

Andrew

Andrew Boucher, AICP, ENV SP
Planner

P 651.292.4545 | C 651.295.2267

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3311 E Old Shakopee Rd, Suite 300, Bloomington, MN 55425

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Apple Ford at Gem Lake: the Hansen land

An alternate path forward

Comment for the record, October 6, 2026 Planning Commission. Beth Tschida, 5 Daniels Farm Road, Gem Lake.

I am writing to offer an alternate path forward for this application. My aim is to protect the lake, the wetlands and the character of this part of Gem Lake, as the City has done since 1959, while the dealership rebuilds. I have offered to discuss this with the applicant and remain available to do so. My separate letter to the Commission, dated October 5, 2026, covers how the dealership operates next to residential land and the line it shares with our parcel.

There is a way forward.

1. **Rebuild and grow.** The dealership rebuilds and grows, and Gem Lake keeps the lake, wetlands and woods its Comprehensive Plan commits to protect.
2. **Keep the north end open.** The new parking stays off the north end of the Hansen field, closest to the neighbors and the lake.
3. **Protect the woods.** The 5.2 acre woods go under a recorded conservation easement when the new lot is created.
4. **No exemption.** The tree ordinance already offers a path, so no exemption is needed, and I ask the City not to grant one.
5. **Meet the ordinance on the rest of the Hansen land.** The replacement trees the ordinance already requires are planted on the remaining Hansen land, and that land is protected permanently.

Each part uses a tool the City already has: the ordinance's distance rules (9.3.2) for the north end, a recorded easement for the woods, and Section 27.9.3.1, which lets the City direct replacement trees to another location. The rebuild goes forward, and I believe the City can approve it without changing the tree ordinance.

Each part is set out in detail below. Questions for the record are at the end.

Page numbers are PDF pages of the posted October 6, 2026 Planning Commission packet unless stated.

Each part in detail

Part 1. The dealership can be rebuilt and grow while Gem Lake protects the lake, wetlands and woods, as its Comprehensive Plan commits to do.

WHY

- The Comprehensive Plan (the Plan) commits the City to "preserve and maintain a 'small town' environment in a natural setting," including "preserving trees, water areas, grass lands, and wetlands" (4.2).
- The Plan says mixed-use land like the Hansen parcel "will be developed in a tiered fashion, to minimize the visual feel of the existing single family neighborhoods," and to preserve the value of existing parcels (5.5.5).

THE DETAILS

- *What is proposed*. The lot lines are redrawn (a minor subdivision). Parcels 1 to 3 and part of the Hansen parcel become one 22.94 ac dealership lot. The other 10.65 ac is left with no stated use (staff report p. 42).
- *Where it sits*. The Gateway district is meant to grow "less dense" as it moves west, until it meets the Estate and Executive residential districts (Section 9, quoted in the staff report, p. 44). The Hansen land is that edge: developed Estate and Executive parcels lie to its north and northwest.
- *Why the applicant needs the Hansen land*. The ordinance's standards for auto dealerships (Figure 15a) cap paving at 80% of a lot. The shoreland rules cap it at 25% in the shoreland district, land within 1,000 ft of the lake or its wetlands (21.1.1, 21.2.2). The applicant's own figures show the existing parcels over both caps, today and after the rebuild (July 24 narrative, Sept 1 packet p. 70). Adding the Hansen land brings the new lot under 80% (staff report p. 45).
- *What the Hansen land does not fix*. Even with it, the new lot's shoreland portion would still be over 25% (my estimate).

Part 2. The new parking stays off the north end of the Hansen field, closest to the neighbors and the lake.

WHY

- The City has already written down how close the most intense sub-zone may come to residential parcels: Section 9.3.2. The applicant agrees those minimums apply to its plan (Sept 1 packet p. 69).
- Most of the plan's parking is vehicle inventory, not required parking. The plan shows 1,179 stalls; the ordinance requires 189 for a building of this size (staff report p. 45). Figure 15a says outdoor inventory "is not counted toward parking requirements" (p. 48).

THE DETAILS

- Today the City's Gateway Sub-Zoning Map (March 14, 2024; packet p. 46) puts the Hansen land in three sub-zones: Edge along most of the north line (the woods), General in the middle and Mixed Use to the south. None of it is Center (see also staff report p. 44).
- Figure 15a allows an Automotive Dealership, "including outdoor storage," only in Neighborhood Center: "This use is not permitted with any other building type" (p. 48).

- The staff report's stated basis for parking on Mixed Use land is that it complements the intent of that sub-zone (p. 44).
- Put together: Figure 15a permits a dealership, including its outdoor inventory, only in Neighborhood Center, and the Hansen strip is mapped Mixed Use. Only the City Council draws the sub-zone map. In doing so it must place land within 200 ft of a developed Estate or Executive parcel in Edge, and keep land within 450 ft out of Center (9.3.2). The applicant relies on moving the strip up one level, which would make it Center (Plan 5.10.2), and agrees any such move must meet the 9.3.2 minimums (Sept 1 packet p. 69). Within 450 ft, that move would in effect put a Center use where 9.3.2 says the Council may not map Center. That is why **I ask that the parking stay off the north end.**
- No sheet shows these distances. Measured from county parcel lines, roughly the northern 360 ft of the proposed parking strip falls inside the 450 ft line (my estimate). **I ask that the 450 ft distance be drawn on the plan.**
- The north end is also inside shoreland on the applicant's own line (sheet C1.3, p. 97), where intensive clearing is prohibited (27.8.4) and removal is limited to what a structure needs (21.2.7.1). Keeping it unpaved keeps the red pines on that end, and it brings the lot closer to the 25% shoreland cap.

Part 3. The 5.2 acre woods are placed under a recorded conservation easement when the new lot is created.

WHY

- A recorded conservation easement is permanent. A development agreement can be amended.
- The City's map places the woods largely in Edge, the sub-zone meant as the transition next to existing neighborhoods. The staff report describes them as 5.2 acres of vegetation along the north line, to be "fully preserved" (p. 44). The Plan says Edge is the one designation that may not shift (Plan 5.10.2).

THE DETAILS

- The easement makes the "fully preserved" commitment permanent.
- The applicant proposes removing invasive species in the woods (quoted in the staff report, p. 54). The easement would allow invasive removal and restoration, not clearing, grading or ponds.
- Any tree the applicant commits to preserve that is damaged during construction must be replaced inch for inch (27.10).

Part 4. No exemption from the tree ordinance is needed, and I ask the City not to grant one.

WHY

- The tree ordinance is meant to be demanding. The Plan ties the City's character to its trees, which it says "depends on the continuance of natural vegetation within and along its borders" (5.9.2). It calls for "vigorous enforcement" of "tree preservation regulations" and says resistance from developers and others "must be met" (4.3.3).
- The staff report says the whole project depends on the exemption: "If the Zoning Text Amendment is denied, then the other applications must be denied" (p. 43). Staff recommends

tabling to allow "staff evaluation of the alternatives proposed" (p. 58), but as the applications are framed, the City's only choices are to waive the tree rule or deny the project.

- There is a third choice. The ordinance already lets the City direct replacement trees to another location (27.9.3.1), a section the report does not mention. On Sept 1 the City planner pointed toward this kind of path: an easement to allow additional tree replanting (Sept 1 minutes, Oct 6 packet p. 6). The minutes also record the applicant's planner saying: "Option 3 was presented to us. Restoring the wetland buffer and putting it in a permanent land conservation easement" (Oct 6 packet p. 7).

THE DETAILS

- The proposed text adds Modification 18 to Figure 15a: "The City Council may exempt Auto Dealerships from the Tree Preservation/Reforestation standards where strict compliance with the ordinance standards would prohibit reasonable development or redevelopment of the property" (staff report p. 48). The applicant's filed text (p. 62) is worded slightly differently.
- The Plan expected this pressure, and staff's own analysis shows what is at stake. Under 17.6.4.2, the ordinance's test for any amendment, staff's draft findings are mixed. They credit the project with a positive economic impact and improved water quality. Two weigh against it: the project "would impact the buffer between the applicant's properties and their neighbors," and "Air quality may be impacted with the amount of tree removal proposed" (pp. 49 to 50). Separately, the staff report lists Plan Goal 1 (natural environment), Goal 9 (buffers of berms and trees) and Policy 11 (preserve existing trees) as goals "not supported" by the amendment (p. 55).
- Of the five conditions under which an amendment should be considered (17.6.4.1), the applicant relies on "a clear public need … greater than any benefit or convenience of the property owners." The report says that criterion "may apply" (p. 49).
- The Sept 1 minutes record the applicant's planner saying it is willing to pursue a PUD, a planned unit development approved as a whole project with its own conditions (Oct 6 packet p. 7). The staff report does not evaluate that path. **I ask that the City staff and City Attorney analysis of the three pathways (PUD, variance, text amendment) be included in the November report.**
- If the City amends the ordinance at all, it can write a standard rather than an open-ended exemption: planting or restoration on the remaining Hansen land, allowed only under a recorded easement, with a funded plan and security (a bond, letter of credit, cash or escrow that guarantees the planting, 27.11).
- The staff report notes the applicant may make a voluntary park dedication payment, offered where it cannot meet the tree ordinance (p. 55). **I ask that any payment be in addition to the full replacement the ordinance requires, not in place of it.**

Part 5. The ordinance is met on the remaining Hansen land: it receives the replacement trees the ordinance already requires and is protected permanently.

WHY

- The replacement trees are owed under the ordinance either way, and the applicant's own narrative says the dealership lot does not have room for them (quoted in the staff report, p. 54). The rest of the Hansen land is the natural place for them, and the ordinance already lets the City direct them there.

- At the Sept 1 meeting, the applicant's planner described restoring the wetland buffer and putting it in a permanent conservation easement as an option on the table (Sept 1 minutes, Oct 6 packet p. 7). **I ask that the land receiving the replacement trees be protected the same way.**
- The Plan already expects a buffer here. Its one-acre buffer "continues east of Daniels Farm Road to the point where it ends against the land designated as open space under the conservation easement" (Plan 5.5.5, quoted in the staff report, p. 55). The Plan says the Edge sub-zone may hold "single-family dwellings on one acre lots or other appropriate buffers, such as open space" (5.10.2.1).
- It also answers the concerns of residents to the west, on Summit Farm Lane, who asked about the west buffer and the conifers (staff report p. 56). The remainder lies between the new parking and Daniels Farm Road, so protecting it keeps the land facing those parcels green, well beyond a planted buffer.

THE DETAILS

- The obligation is 3,948 replacement inches, adding the shoreland and non-shoreland totals in the applicant's own table (1,291.70 and 2,656.69; tree inventory p. 88). The same table counts 1,580 trees (517 and 1,063). Most of the inches owed are Class A trees (conifers and softwoods), which in this inventory are mostly the red pines.
- That total rests on the tree inventory. My earlier question on how it was measured (383 of 406 red pines are recorded at an identical 14 in and 70 ft; staff summary p. 56) has not yet been answered, and **I ask that the method be stated before the reforestation plan is set.**
- Replacement trees go on the remaining Hansen land, not in the woods, which stay as they are. They are to be of the same or similar species, planted at the frequency and density the City Forester sets (27.9.3.1).
- Whatever count the City Forester sets, the inches need land. **I ask that the reforestation plan show where the 3,948 inches will be planted and how much land that takes.** The ordinance already requires the plan to show the location and to be approved by the City Forester before final approval of the subdivision (27.9.1.1).
- Plant: the City may direct where replacement trees go (27.9.3.1). The City Forester approves the plan, and the City holds the applicant's security for at least one year after the last replacement tree is planted (27.9.1.1, 27.11, 27.15).
- Restore: a funded restoration plan for the remaining Hansen land could be an alternative, made permanent the same way. Section 27 is written in terms of planting replacement trees, so **I ask the City to say whether restoration in place of planting would need a PUD or a narrowly written standard.**
- Along the west edge of any new parking, **I ask that a planted buffer and berm be made permanent.** The Sept 1 minutes record the applicant's planner saying it will add buffering along the west (Oct 6 packet p. 8).
- The subdivision itself creates the 10.65 ac remainder (staff report p. 42). **I ask that the easement on the remaining Hansen land be a condition of the subdivision, recorded with it before any sale or transfer of that land, so that it binds whoever owns it.**
- The easement would be held by a qualified holder, such as a land trust or the City.
- The lilacs along Daniels Farm Road are part of the road's character, and residents have maintained them for years. The Daniels Farm Road association has asked that their preservation be addressed

in any ownership, conservation or land-use arrangement affecting the field, and has offered to explore ownership or stewardship (DFROA letter, pp. 337 to 338). The Sept 1 minutes record the applicant's planner saying "the lilacs are being left alone" (Oct 6 packet p. 8). **I ask that the easement on the remaining Hansen land protect the lilacs and allow the association a stewardship role.**

Questions for the record

1. By the applicant's own table, the tree ordinance requires 3,948 replacement inches (tree inventory p. 88), and the applicant says the dealership lot does not have room for them (quoted in the staff report, p. 54). How many acres will the City Forester's planting plan need at the frequency and density the Forester sets (27.9.3.1), and where on the remaining Hansen land will the trees go?
2. Figure 15a permits an Automotive Dealership, including outdoor storage, in Neighborhood Center only. Staff cites Figure 17 as permitting dealerships through zoning compliance review (p. 45). Which provision of Ordinance 131, including Figure 17, allows the outdoor storage of inventory on land mapped Mixed Use, and what City action would be needed to allow it?
3. The applicant's narrative says sub-zones may shift one level "as long as the minimums from Section 9-3-2 are met" and that no parking will violate them (Sept 1 packet p. 69). Would the applicant show the 450 ft distance from the developed Estate and Executive parcels on the plan, and would City staff confirm which stalls fall inside it?
4. Would full replacement planted on the remaining Hansen land, protected permanently, under 27.9.3.1 satisfy Section 27 without an amendment?
5. The applicant's Modification 18 refers to Section 27.9; the staff report describes an exemption from the Tree Preservation/Reforestation standards generally. Which text is before the Commission, and does it reach Section 27.8.3 ("Natural borders may not be removed or altered without the written permission of the City"), Section 27.8.4 (no intensive clearing in shoreland) or Section 21 (the shoreland rules)?
6. The 3,948 inches rest on the tree inventory, where 383 of 406 red pines carry the identical entry of 14 in and 70 ft (staff summary p. 56). How was the inventory measured, and will the method and a sample be shown on the tree preservation plan? (Also asked in my earlier comments.)

A note on what this is

I am not an attorney or a city planner. I am a neighbor who has read the packet closely and written down what I found, with the ordinance sections, page numbers and figures cited so anyone can check them. Where I have estimated, I say so. I defer to City staff, the City Attorney and the Commission on the proper reading of the ordinance and the Comprehensive Plan, and I would welcome correction of anything raised here.

The recommendations in this note are specific to the use of the Hansen land. Operating conditions such as lighting and noise, and matters along the Tschida property line, including screening and ponds, are distinct from it. They are covered in my separate letter of October 5, 2026, not here.

It is offered as one way forward, not the only one. If the applicant’s alternatives presented on October 6 reach these outcomes another way, I would welcome that.

Gem Lake from the air



Gem Lake (left) and the City of White Bear Lake (right), with Highway 61 running between them. The parcel lines show it most plainly: a few large lots to the west, hundreds of small ones to the east. The Comprehensive Plan names what makes the difference: "the character and natural environment of the City of Gem Lake depends on the continuance of natural vegetation within and along its borders" (5.9.2).

Aerial imagery and parcel lines: Ramsey County, MapRamsey (my screenshot). Labels are mine; city boundaries are not drawn.

Beth Tschida
5 Daniels Farm Road, Gem Lake, MN 55110

October 5, 2026

Gem Lake Planning Commission
c/o Barb Suciu, City Clerk
4200 Otter Lake Road
Gem Lake, MN 55110

Re: Apple Ford, Planning Cases Z2026-003, 004 and 006. Written comment for the October 6, 2026 record.

Dear Commission members,

I live at 5 Daniels Farm Road, on the north side of the Apple Ford property. This letter is my written comment for the record. It responds to the October 6 packet and builds on my September 22 letter. Page numbers are those of the posted October 6 packet. Ordinance sections are quoted from the versions posted on the City's website.

What I am asking, in short

1. Continue the public hearing to November 4, and ask that the applicant's written alternatives, revised plans and lighting and noise plan be posted by October 21.
2. No exemption from the tree ordinance. My separate note on the Hansen land offers a path that works under the ordinance as it stands.
3. Along our shared line: a strip with no grading or ponds, ponds moved south with no increase in runoff, evergreen screening or a low berm, lower and dimmed lighting, and protection for the trees on our side.
4. Loading and unloading that can be heard on residential land kept to 7 a.m. to 7 p.m., as Section 18.10 provides, with bay and car wash doors closed after 7 p.m. while equipment runs, and no outdoor paging.
5. A lighting and noise plan for the north and west edges, with the Kia dimming condition, a 3000K maximum and a lighting affidavit, evaluated in the November report.
6. Answers in the November report on stormwater, the shoreland rules and the City grading permit.

The details and ordinance sections follow.

The applicant has three requests before the Commission: an exemption from the tree ordinance, new lot lines that add part of the Hansen land to the dealership, and approval of the site plan. Staff recommends holding all three rather than voting on October 6 (page 58). Residents will hear the applicant's alternatives for the first time on October 6. The review period ends December 8 (page 42), and posting by October 21, as item 1 asks, gives residents two weeks to comment before November 4.

I want the dealership to rebuild, and I think the City's own ordinance, applied as written, points to a better plan than the one in the packet. My comments have three parts:

- **How the dealership grows.** My separate note, "Apple Ford at Gem Lake: the Hansen land, an alternate path forward," covers this part.
- **How the dealership operates next to residential land.**

- **The land that borders ours.** It is under a conservation easement held by the Minnesota Land Trust. As one of its owners, I have a responsibility to raise concerns about what happens along it.

This letter covers the second and third parts. I am putting this in writing now so City staff can evaluate it before November.

I want to thank Mr. Boucher for his September 30 reply. He wrote that he will "include language similar to the condition that was put in place for the Kia project as well as the post-construction affidavit as conditions of approval." He also wrote that he will correct the coverage tables.

A note on the record

- The packet summarizes my September 22 letter (pages 56 and 57) but does not print it, and it does not include Mr. Boucher's September 30 reply to that letter. The City has both. **I ask that both be added to the record in full.**
- The name is spelled Tschida. This letter and my September 22 letter are from me alone.

How the dealership operates next to residential land

This site adjoins residential land on the north and west, so conditions written for Barnett Kia are a starting point here, not the whole answer. The Comprehensive Plan's goal is buffers that "insulate the residential areas of the City from noise, light pollution, and traffic" (Plan 5.9.1). It also says "Adequate buffering should be an explicit objective of site plan review and approval" (Plan 9.3). I ask for:

- **Loading within Section 18.10.** Section 18.10 says that where loading or unloading can be heard in a residential district, it must stop by 7 p.m. and not resume before 7 a.m. Figure 15a, the ordinance's standards for dealerships, sets opening hours (item 5) but does not address loading. It was created in 2024 for the Barnett Kia project, whose lot, as I read the zoning map (Ordinance 131, Figure 1a), does not adjoin a residence district. This site does. A dealership can stay open until 10 p.m. and still finish loading by 7 p.m., so both rules can be met. Section 9.2.1 favors the Gateway rules only where a conflict "relates to the use of land," and it says "All other provisions of this Ordinance apply within the Gateway 'G' District." As I read it, loading hours govern how a site operates, not how the land is used. Could the November report confirm that Section 18.10 applies, show where car carriers will load and unload, and make on-site unloading within those hours a condition of approval? If the City reads any item in Figure 15a as overriding Section 18.10, could the report say which one?
- **Lighting conditions: the Barnett Kia dimming requirement, a 3000K maximum and a post-completion lighting affidavit.** Staff has asked the Commission to discuss the Kia dimming requirement, set out below (page 47). 3000K is a warmer, less blue light than the mostly 5000K fixtures proposed (page 87).
- **Light and glare readings on the final plan, at the north and west lines and 30 feet beyond them.** Section 18.8.4 limits both the light and the point brightness, a measure of glare, that reach 30 feet out from the property line. Glare is the real issue on our side: the lighting sheet rates the fixtures along our line G5, the highest glare rating on the lighting industry's backlight, uplight and glare (BUG) scale (page 87). The lighting sheet is a vendor's evaluation dated July 23, marked "not for construction." It predates the September 14 site plan and measures light only inside the lot (page 87). The existing lot's lighting is visible from Daniels Farm Road well after 10 p.m. today, which is why readings at the line and an affidavit after completion matter.
- **No outdoor paging or public address system.**
- **Service bay and car wash doors on the north and west sides closed after 7 p.m. while equipment is running.** Staff's summary of my September 22 letter lists the west doors as something the Commission should consider (page 56).

- **A lighting and noise plan for the north and west edges.** The applicant would prepare it, and the November report would evaluate it and propose conditions. The plan should show that outdoor light is not "directed onto adjoining property" (18.8.3), that loading audible in a residential district stops by 7 p.m. and does not resume before 7 a.m. (18.10), and that no noise or glare has "an objectionable effect upon adjacent or nearby property" (18.17).

The land that borders ours

Our land is a private residential parcel. Placing it under a conservation easement was a forward-looking choice to protect the land, not a change in its zoning or its ownership. The easement limits what we may do with the land; it does not change what the land is. The zoning map shades part of it "Minnesota Land Trust," which is not one of the zoning districts Section 4.1 lists. Could the November report describe our parcel by its zoning district rather than the conservation easement?

Our shared line with the existing dealership runs about 700 feet (my estimate). The residential parcel at 3667 Highway 61 also borders the dealership, at its northeast corner. Mr. Boucher's September 30 reply says voluntary demolition does not preserve grandfathered status, and the new building must meet current zoning. The plan shows about a dozen spaced deciduous trees along the line (sheet L2.2), grades to the property line, and places both stormwater ponds close to it (sheet C3.1). Both ponds and the north parking rows sit inside the shoreland line as drawn on the applicant's own plan (sheet C1.3, page 97), and most of the site drains north and east (page 117). I ask for these conditions of approval, each shown on the final plan sheets:

- **Protection for the trees on our side.** Section 27.10 requires the applicant to survey significant trees within 30 feet of the grading limit, and to replace any tree it commits to preserve that is damaged in construction. The plan labels the trees on our side offsite. I ask that they be listed as trees the applicant commits to preserve, so that Section 27.10 applies, with an arborist's condition survey before construction.
- **A strip at least 50 feet wide on the dealership side, measured from the line, with no grading or pond excavation,** or another width the City finds protects the root zones of the trees along the line, with tree protection fencing during construction. Appendix A sets the critical root zone, the ground where a tree's roots grow, at 1.5 feet of radius per inch of trunk width. Section 27.6.1.2 says grading, paving and excavation must not harm the root zone of trees in the preservation area; listing our trees as preserved would bring them within it.
- **Ponds moved south to clear that strip,** with outlets and emergency overflows shown on the plan, and no increase in the rate of runoff onto our land or the parcel at 3667 Highway 61. The applicant's own model shows peak rates at the north outlet well below today's (page 118). Could that result be a condition of approval, measured at our line, with the recorded maintenance agreement Section 22.2.5 requires for the ponds?
- **The screening the ordinance requires,** along our line and along the lot line the dealership shares with 3667 Highway 61: evergreens at least 7 feet tall at planting (the size Section 27.9.4.1 sets for replacement conifers), spaced to form a continuous screen, or a low berm with evergreens. Section 18.5.2 requires screening along a boundary with property developed for residential use, and Section 18.5.4 calls for a solid fence or wall at least five feet high, or planting approved by the Council. Section 9.10.11 calls for significant dense vegetative screening where the Gateway abuts land outside the Gateway District. Figure 15a waives screening only where parking adjoins Neighborhood Center parcels (item 14, page 48), so as I read it these sections still apply along our line.
- **Lighting near the line.** Within 200 feet of the line: poles at the lowest height that still meets the required light levels, with the applicant to show that height on the plan, as Section 18.8.3.1 calls for fixtures "mounted at the lowest possible level"; fixtures dimmed to 15 percent from 10 p.m. to 6 a.m.,

as the City required of Barnett Kia (page 47); and 3000K with house-side shields. The proposal already uses single, shielded 4000K fixtures (type D) along our line, a good start.

I also ask that the November report address these points:

- **Is a City grading and filling permit required for the ponds and the grading along this line?** Section 21.2.7.5 requires one for grading in shoreland that moves more than 50 cubic yards, and sets criteria for erosion, sediment and stable slopes. The plan set includes an erosion control plan for the state stormwater permit (page 67). If the City permit applies, could the November report confirm that its criteria will apply to the grading along our line?
- **Has the City Engineer been able to verify the stormwater treatment for water that drains north?** His September 25 memo says the underground system "does not appear to meet the minimum depth requirements for detention" and that "There is not sufficient information in the plans to verify the configuration, routing, or treatment quantity" (page 318). It also notes the City's pre-treatment requirement where stormwater discharges to wetlands (page 317). Could the November report confirm that the system meets the City's detention and pre-treatment requirements, and show how much runoff will reach our land north of the line today and after the project?
- **How do Sections 21.2.7.1 and 27.8.4 apply to the ponds and grading, and were other designs considered?** These sections limit vegetation removal in shoreland to what an approved structure needs and prohibit intensive clearing there. Could the north ponds move south, or use underground storage, so that less clearing is needed along the line?
- **Does the City confirm that the applicant's shoreland line follows the shoreland overlay on the City's zoning map?** The wetland review form leaves unchecked the boxes for a project that "may affect Public Waters" or "may occur within a shoreland protection zone" (page 82). Yet the applicant's own plan shows a shoreland line crossing the site (sheet C1.3, page 97). Could the November report reconcile the form with the plan? The DNR's section of that form is blank (page 83), and the City has said the DNR was provided with the shoreland figures and plans. Could the report also include what was sent to the DNR and its response, if any?
- **How does the 25 percent shoreland limit (Section 21.2.2) apply to the new lot, and does the lot meet it?**
- **A corrected zoning label on the site plan.** Sheet C2.1 says the whole 33.59 acre site is zoned Neighborhood Center; the City's sub-zone map shows the Hansen land as Mixed Use, General and Edge (page 46). Because an approval ties the project to its plan sheets, I ask that the label be corrected.

Put together, the approach is simple. The dealership builds to current standards. The woods stay protected under a recorded easement. The north end of the Hansen land stays open, and the replacement trees are planted on protected land instead of the requirement being waived. The edges get screening, a strip clear of grading and ponds, shielded lighting and loading within the ordinance's hours. That approach lets Apple Ford build a large, modern store, and it points to a plan the City can approve.

I support the Daniels Farm Road Owners Association letter. I would be glad to answer questions, meet with the applicant, or help with any of this, and I am grateful for the time the Commission and City staff are putting into a hard application.

Sincerely,

Beth Tschida
5 Daniels Farm Road, 651-271-9035

Andrew Boucher

Subject: FW: Apple Ford Expansion

From: Barry Kostyk <bwkostyk@comcast.net>
Sent: Tuesday, November 10, 2026 10:24 AM
To: Barbara Suciu <barbara.suciu@gemlakemn.org>
Cc: patti kostyk <pmkostyk@comcast.net>; Don Cummings <djc.msp@gmail.com>; Barry Kostyk <bwkostyk@comcast.net>
Subject: Apple Ford Expansion

You don't often get email from bwkostyk@comcast.net. Learn why this is important

My wife and I live at 44 Summit Farm Lane in the Gem Lake Villas.

This is to document my wife and my's concern about the proposed expansion of Apple Ford.

We are opposed to the expansion for a couple of reasons.
First and foremost is a safety concern. When exiting from Summit Farm Lane onto County Road E it is dangerous, particularly if needing to cross traffic to go East, due to the heavy traffic flow. The Apple Ford expansion plans would increase the traffic on County Road E - making the safety issue even worse.

Secondly, there is a noise concern. One of the reasons we purchased our home was because there was a farm next to the Villas. Expansion into the farm area would increase noise in our residential area.
Should the expansion go forward, we would request a 8-10 foot berm be placed with a dense planting of mature trees on top - to the east of Daniels Farm Road - to help address the noise concern.

Please keep us apprised of the result of the City Council meeting on this subject.

- Patti & Barry Kostyk

From: ROB BREDSTEN <rbredsten@comcast.net>
Sent: Tuesday, November 10, 2026 12:22 PM
To: Barbara Suciu <barbara.suciu@gemlakemn.org>
Cc: Deborah Bredsten <dbredsten@comcast.net>
Subject: Apple Ford Proposal

Hi Barb,

I wanted to express our thoughts on Apple Ford's proposed purchase/expansion of the land adjacent to the Villas of Gem Lake:

As a cautionary tale I will point out what could go wrong with this. Our daughter and her family live on Pine Hill Lane in White Bear Township. White Bear Township allowed the land just south of her neighborhood along Centerville Road near Co Road H2 to be sold to developers who built manufacturing businesses on the open space that was enjoyed by everyone who lived there. Most trees and native species were removed and the businesses and parking lots now abut that neighborhood.

Before work began on the land, neighbors approached White Bear Township city officials and felt they were ignored and dismissed. During construction, neighbors had to put up with noise and construction for a significant period of time. They were saddened to see most trees removed and the tranquility of the area change. Quite a few neighbors have subsequently sold their homes as a result. My daughter will likely move at some point as a result.

The second point of concern is expansion of the dealership will lead to increased traffic along County Rd. E and Hwy 61. Most car dealerships appear to be located near freeways or major highways and many are accessed through service roads parallel to the main thoroughfare. County Road E in particular does not have the capacity to accept more traffic. Couple this with the apartments being occupied soon along Labore Road will lead to increased traffic and safety concerns.

We appreciate that the Gem Lake Planning Commission, City Council & Mayor invite our thoughts and concerns for development that will have a lasting impact on our neighborhood. We are grateful to those who serve and want to thank them for all they do.

Rob & Debbie Bredsten

4200 Gem Lake Road
Gem Lake, MN 55110
(651) 747-2790
city@gemlakemn.org

To: Gem Lake City Council

From: Barb Suciu, City Clerk

ITEM DESCRIPTION:
Contractor Licensing

BACKGROUND:
Over the last several years there has been discussion at the Permit Technicians training of what Cities have contractor licenses and why. No one can answer why local municipalities are requiring contractor licenses for non-state licensed contractors.

The trend is that municipalities are moving away from Contractor Licensing. Effective January 1, 2025, City of White Bear Lake and White Bear Township stopped licensing contractors as of 2026. Additionally, in 2024 the City switched permitting software to BS&A which does not have a Contractor Licensing module.

Most contractors have a state license. The City cannot license a contactor that has a state license. We currently license the following contractor types: Blacktopping, Cement/Masonry, Commercial, demolition, Excavating/Grading, Fence, Mechanical, Outside Sewer and Water Installation, Sign, Specialty Contractor and Tree/Trimming Removal. The licensing of these contractors is more time-consuming than what is brought in with their fees. It also caused their permits to be placed on hold until they have a valid license.

In summary, I would ask that the City Council consider and remove contractor licenses effective January 1, 2027.

ACTION:
Motion to approve the removal of City Contractor's licenses.