AGENDA

Rogers Planning Commission

June 1, 2026 - 7:00 PM

1. CALL TO ORDER AND PLEDGE OF ALLEGIANCE

2. APPROVE AGENDA

Council members may add items to the agenda for discussion purposes or staff direction only. The Council will not normally take official action on items added to the agenda.

3. CONSENT AGENDA

These items are considered to be routine and will be enacted by one motion. There will be no separate discussion of these items unless a Councilmember so requests, in which event the item will be removed from the Consent Agenda and placed elsewhere on the agenda.

3.1 Approve Minutes from May 4th, 2026 Planning Commission Meeting

4. OTHER BUSINESS

5. PUBLIC HEARINGS

5.1 Consideration of a Zoning Code Text Amendment Request by Sunshare, LLC to Allow for Community Solar Gardens

6. NEW BUSINESS

6.1 Consideration of a Site Plan Application for the Expansion of the Building at 20615 Commerce Boulevard (Twin City Hose)

7. CORRESPONDENCE AND REPORTS

7.1 Past Planning Commission Items Report

8. ADJOURN

STAFF REPORT

ROGERS PLANNING COMMISSION

Meeting Date: June 1, 2026

Agenda Item: 3.1

Subject: Approve Minutes from May 4th, 2026 Planning Commission Meeting
Prepared By: Alec Henderson, City Planner

Overview / Background / Analysis
Approve Minutes from May 4th, 2026 Planning Commission Meeting

Staff Recommendation
Approve Minutes from May 4th, 2026 Planning Commission Meeting

Financial Impact: NA **Source Fund**: NA

Budgeted? N/A

Supporting Documentation
A. May 4 2026 Planning Commission Meeting_Minutes

1. CALL TO ORDER AND PLEDGE OF ALLEGIANCE

The regular meeting of the Planning Commission of the City of Rogers was called to order by Chair Lohr on Monday, May 4, 2026, at 7:00 PM at Rogers Community Room, 21201 Memorial Drive, Rogers, MN, 55374 and online in theTeams application.

Commissioners present: Clark Lohr, Peter Mullin, Aaron Sattersten, Adam Hunt, Sarah Larson, Sean McDermid, Patrick Ruppe
Commissioners absent: Nick Auman

Staff present: Brett Angell, Community Development Director; Alec Henderson, City Planner

Council Liason: Amy Enga

Also Present (Joint Session): Shannon Klick, Kevin Julie, Amy Enga, Todd Kussman

2. APPROVE AGENDA

Commission Member Mullin moved, Commission Member Larson seconded a motion to approve the agenda. Motion carried 7-0.

3. CONSENT AGENDA

The following item was considered on the Consent Agenda:

- Approve Minutes from April 6, 2026 Planning Commission Meeting

3.1 Approve Minutes from April 6, 2026 Planning Commission Meeting

Commission Member Mullin moved, Commission Member Larson seconded a motion to approve the consent agenda. Motion carried 7-0.

4. JOINT PLANNING COMMISSION - CITY COUNCIL DISCUSSION

4.1 2050 Comprehensive Plan Update Kick-Off

Community Development Director Angell introduced Lance Bernard of TC2 (Transportation Collaborative), the lead consultant selected to assist with the City's 2050 Comprehensive Plan update. The City entered into an agreement with TC2, SRF, and Landform following a request for proposals process earlier in 2026.
Bernard provided an overview of the comprehensive plan update process. He explained that the comprehensive plan is a long-range policy and vision document required by state law on a decennial basis, and that Rogers must also meet Metropolitan Council

requirements under the Imagine 2050 system statements. The City of Rogers is currently guided by its 2040 Comprehensive Plan, adopted in mid-2020. Population projections indicate growth from approximately 13,925 residents (2020 census) to 21,300 by 2040 and 25,200 by 2050. The update process is anticipated to take approximately 18–24 months, with adoption by the City Council targeted for early 2028. Key Metropolitan Council requirements for the 2050 Plan include housing density measures, affordable housing goals, pedestrian connectivity, climate action, and natural systems and water supply planning. Bernard summarized the community engagement plan, which includes three phases of engagement: Phase 1 (April–August 2026) focused on identifying issues and opportunities; Phase 2 (August–December 2026) focused on strengthening the plan; and Phase 3 (January–April 2027) focused on finalizing the plan. Engagement tools include Planning Commission/City Council workshops, community pop-ups, focus groups, an open house, a project website, and online surveys.

Discussion topics and commissioner/council member input included:

- Commissioner Larson raised the importance of pedestrian infrastructure and traffic safety, particularly as the city grows and connections between neighborhoods must remain safe.
- Commissioner Lohr expressed that broad changes in land use have recently encountered community resistance.
- Commissioner Hunt emphasized the need to educate residents on how the comprehensive plan guides growth and addresses capacity concerns.
- Commissioner McDermid noted the importance of maintaining connections between the city's existing more rural areas and newer, denser development as Rogers continues to evolve.
- Commissioner Mullin identified the need to address commercial land uses and the future of underutilized or vacant commercial space.
- Commissioner Hunt raised concerns about the long-term tax and cost implications of growth, emphasizing the importance of fiscally responsible planning for future generations.
- Commissioner Lohr asked how emergency services would be engaged in the comp plan process. Angell noted that while emergency services is not a required chapter, staff intends to engage those stakeholders.
- Commissioner Mullin asked whether incentives for commercial and industrial uses would be addressed. Angell noted that business incentives are addressed through the City's strategic plan, and that a business subsidy policy also exists.
- Commissioner Lohr asked how watershed districts would be incorporated. Bernard confirmed that the plan will need to align with watershed district plans and those entities will have a review role.
- Council Member Kevin asked about the transportation chapter, specifically whether the city relies on county modeling. Bernard confirmed the use of Hennepin County traffic data and noted that the transportation chapter is integrated with other plan elements.
- Commissioner Lohr asked about transit. Bernard noted there is no anticipated

investment in new fixed transit routes, but micro-transit and dial-a-ride options will be explored.
- Commissioner Mullin suggested the plan consider opportunities for improved pedestrian crossings over Interstate 94.
- Bernard identified the primary challenges as interpreting new Met Council requirements and maintaining a robust public engagement process throughout the planning timeline.

Following the joint discussion, Chair Lohr closed the joint Planning Commission and City Council session and called the regular Planning Commission meeting to order.

5. PUBLIC HEARINGS

5.1 Consideration of a Site Plan and Variance Request for a Retail Center at 21355 136th Ave (Lot Adjacent to Maynards) by Cloutier Properties

Community Development Director Angell presented the item. In 2025, the City entered into a purchase agreement with Cloutier Properties for the sale of a city-owned 1.31-acre parcel at 21355 136th Avenue, located adjacent to Maynard's Restaurant. The parcel is zoned Regional Employment Center (RC) and was originally acquired by the City in the early 2000s.
The applicant, Theilen and Green and Cloutier Properties, proposed an approximately 9,100 square-foot multi-tenant commercial building with four tenant spaces for quick-service restaurants, take-out, and retail uses. The site plan includes two access points (from the Frontage Road and 136th Avenue), 93 shared parking stalls, a small patio on the north side, and landscaping consisting of trees and shrubs on a site currently devoid of vegetation. The proposed architecture utilizes brick, EIFS, trim, and windows, meeting the city's architectural requirements. A drive-through aisle is included in the design. The building meets all required building setbacks.

Variance Request:
The applicant requested a variance from City Code Section 125-57, which requires a 20-foot parking setback. The proposed variance would allow a 10-foot parking setback on the north and south sides of the property and a 0-foot parking setback at the minimum point on the east side. The variance is supported by the irregular shape of the parcel, its multiple street frontages, and the existing right-of-way surrounding the property, which provides a greater effective setback from adjacent travel lanes. Staff noted that the proposed parking distances align with many nearby properties, which also have parking setbacks under 10 feet.

Commissioner Discussion:
Commissioners raised questions regarding traffic flow and sight lines, parking adequacy, pedestrian and trail connections to the east side of Rogers Drive, and stormwater. In response to questions from Commissioners Lohr and Mullin regarding a trail connection, Angell noted that the applicant would be required to connect to the

existing crosswalk or provide a connection to the trail on the east side of Rogers Drive as a condition of approval. Commissioner Lohr asked whether stormwater credits would be required for the MnDOT storm pond. Angell confirmed that no credits are needed, noting that the area was included in a 2013 regional stormwater study that accounted for 85% impervious surface buildout of the district.

Public Hearing:
Chair Lohr opened the public hearing at 7:55 PM. No members of the public were present to speak. Chair Lohr closed the public hearing at 7:56 PM.

Commission Member Hunt moved, None seconded a motion to recommend approval of Resolution 2026-49, approving the site plan and variance request for a multi-tenant retail center at 21355 136th Avenue by Cloutier Properties, subject to the conditions set forth in the resolution. Motion carried 7-0.

6. NEW BUSINESS

No new business.

7. CORRESPONDENCE AND REPORTS

7.1 Past Planning Commission Items Report

Community Development Director Angell reviewed the status of recent City Council actions on items previously considered by the Planning Commission:

- Northview Preserve 2nd Addition Preliminary Plat – Approved by the City Council.
- Zoning Code Amendments (Section 125-42 Variances; Sections 125-54, 125-55, 125-84 Accessory Structures and Fences) – Approved by the City Council.
- Main Street Master Plan – Approved by the City Council.
- Cannabis Business Buffer Amendments (City Code Chapter 22-XIV) – Approved by the City Council.
- Hawkins Drive Senior Living Facility Concept Plan (Oasis Group) – Reviewed by the City Council.
- Little Caesars – Project is no longer moving forward.
- Ray J’s Development – Continuing to progress.
- Northdale Light Industrial – Entering preconstruction meetings; construction anticipated to begin soon. Developer has made commitments related to landscaping and reduced lighting to address concerns of neighboring residents.

8. ADJOURN

Commission Member Mullin moved, Commission Member Hunt seconded a motion to adjourn at 8:01 PM. Motion carried 7-0.

Respectfully Submitted,

Alec Henderson, City Planner

STAFF REPORT

ROGERS PLANNING COMMISSION

Meeting Date: June 1, 2026

Agenda Item: 5.1

Subject: Consideration of a Zoning Code Text Amendment Request by Sunshare, LLC to Allow for Community Solar Gardens
Prepared By: Brett Angell, Community Development Director

Overview / Background / Analysis
Sunshare, LLC (the "Applicant") has submitted a zoning text amendment application for the city to consider amendments to certain sections of the Rogers City Code to allow for the future installation of community solar gardens within the city. The proposed text amendment request comes in advance of future approvals that would be required for a community solar garden. As community solar gardens are not currently permitted, a text amendment is required in advance of any approvals for a specific solar garden. To note, amendments to the city code would apply to all properties under the specific zoning designation, if an amendment is approved.

Currently, city code allows for solar energy systems as an accessory use only within all zoning districts except for the SB- Service Business district. As an accessory use, there are size restrictions and property requirements that are not conducive to community solar gardens.

A draft ordinance is attached for review and consideration. An overview/highlights of the ordinance can be found below:

- Amending City Code Section 125-102 to add a definition for Community Solar Garden;
- Amending City Code Section 125-50 Table 4 to add Community Solar Garden as an interim use within the R1-Rural Residential zoning district only.
- Amending City Code Section 125-93(a) to clarify the section is for accessory solar and fix some existing codification efforts in the code.
- Adding City Code Section 125-93(b) corresponding to Community Solar Gardens as an interim use.

The proposed addition to 125-93(b) sets the anticipated standards community solar gardens. The proposed code would restrict an IUP to up 30 years, set a maximum size of 5 mW (approximately 20-30 acres), define the setbacks, placement and landscaping requirements, and define the decommissioning process/sureties.

Generally speaking, high-growth cities across the extended Twin Cities metropolitan

area are pretty split on whether community solar gardens are a use that is permitted (whether via IUP or outright) or not. Of the cities that do allow for community solar gardens, most are permitted through an IUP and specific to the more agricultural or rural areas of the city.

Public Hearing Requirement
Per state statute, amendments to a city's zoning code require a public hearing. A public hearing notice was published within the Crow River news and public hearing notices were sent to nearby properties for the Applicant's desired future location, if the amendment is approved. Dependent on if the amendment is approved and how it is structured, additional public hearings specific to each community solar garden would be required.

Potential Options for the City
Zoning and subdivision ordinances are one of the areas in which the city has the most discretion. Zoning ordinances should follow the provisions of the comprehensive plan. Potential options for this zoning code text amendment include the following:

1. Recommend approval of the draft ordinance as written;
2. Recommend approval of the draft ordinance with changes as deemed appropriate by the Planning Commission; or
3. Recommend denial of the zoning code text amendment request and keep the current code structuring.

Staff Recommendation
Staff recommend the Planning Commission hold a public hearing on this item and provide a recommendation to the City Council on the proposed zoning text amendment request to allow for community solar gardens.

Financial Impact: Not applicable. **Source Fund**: Not applicable.

Budgeted? N/A

Supporting Documentation
A. Draft Ordinance for Community Solar Gardens
B. Applicant Narrative
C. Concept Site Plan

CITY OF ROGERS
ORDINANCE NO. 2026-XX

AN ORDINANCE AMENDING THE CITY OF ROGERS CITY CODE SECTION 125-102, 125-50 AND 125-93 RELATED TO COMMUNITY SOLAR GARDENS

THE CITY COUNCIL OF THE CITY OF ROGERS, MINNESOTA, HEREBY ORDAINS:

SECTION 1. Section 125-102 of the City Code is hereby amended by adding the following definitions in their appropriate place in alphabetical order. The ~~strikethrough~~ text indicates removal of text and the underlined text indicates added text:

> *Community Solar Garden* means a community solar energy system that generates electricity by means of a ground mounted or building-integrated solar energy system and that provides retail electric power (or a financial proxy for retail power) to multiple households or businesses residing or located off-site from the location of the solar energy system in accordance with the requirements of Minnesota Statutes 216B.1641 or successor statute. A community solar garden may be either a principal or accessory use.

SECTION 2. Section 125-50 of the City Code is hereby amended by adding the underlined language to Table 4 as follows:

	AG	R1	R2	R3	R4	R5	OP	LC	RC	DT	ND	GI	SB
Special Approval Required													
Home Occupations, Type I	P	P	P	P	P						P		
Home Occupations, Type II	P	P	I										
Home Occupations, Type III	I	I	I										
Outdoor Display, Retail								C	C			C	C
Outdoor Storage, Materials								C	C			A	A
Outdoor Storage, Storage Tanks								C	C			A	A
Outdoor Storage, Trucks & Trailers								C	C			A	A
Self-Service Car Wash, with gas station or convenience store								C	C		C		
Community Solar Garden		I											

SECTION 3. Section 125-93- Alternative Energy Systems Performance Standards of the City Code is hereby amended. The ~~strikethrough~~ text indicates removal of text, and the underlined text indicates added text:

(a) *Solar, accessory use.*

(1) *In general.* Solar energy systems shall be permitted accessory use in all zoning districts, subject to the standards of this Article. Solar collector surfaces and all mounting devices shall comply with the minimum yard requirements of the district in which they are located. Screening of solar collector surfaces shall not be required.

a. Notwithstanding any other provision of this section, a solar energy system that meets the definition of community solar garden in section 125-102 shall not be considered an accessory solar energy system and shall not be permitted under this subsection (a). This exclusion applies only to ground-mounted solar energy systems and shall not apply to building-mounted or building-integrated solar energy systems, which remain subject to the standards of subsection (a)(2). Community Solar Gardens are subject to the requirements of subsection (b) and the permitted use provision of section 125-50.

(2) *Building-mounted solar energy systems.*

a. Notwithstanding the height limitations of the zoning district, building mounted solar energy systems shall not extend higher than three feet above the ridge level of a roof on a structure with a gable, hip, or gambrel roof and shall not extend higher than 10 feet above the surface of the roof when installed on flat or shed roof.

b. The solar collector surface and mounting devices for building- mounted solar energy systems shall be set back not less than one foot from the exterior perimeter of a roof for every one foot that the system extends above the parapet wall or roof surface, if no parapet wall exists, on which the system is mounted. Solar energy systems that extend less than three feet above the roof surface shall be exempt from this provision.

c. All solar energy systems using a reflector to enhance solar production shall minimize glare from the reflector that affects adjacent or nearby properties. Measures to minimize nuisance glare include selective placement of the system, screening on the north side of the solar array, modifying the orientation of the system, reducing use of the reflector system, or other remedies that limit glare.

(3) *Freestanding solar energy systems.*

a. Freestanding solar energy systems, measured to the highest point of the system, shall not exceed the height of the principal structure or 20 feet, whichever is less. Freestanding solar energy systems up to 16 feet in height shall be subject to the minimum yard requirements of an accessory structure. Freestanding solar energy systems greater than 16 feet in height shall be subject to the minimum yard requirements of a principal structure. The required yard shall be measured from the property line to the closest part of the structure at minimum design tilt.

b. In all the districts except AG, the area of the solar collector surface of freestanding solar energy systems as an accessory use shall not exceed five percent of the lot area. Notwithstanding any other provision to the contrary, the maximum area of solar energy

systems shall be calculated independently of the floor area of all other accessory structures on the ~~zoning~~ lot.

c. The supporting framework for freestanding solar energy systems shall not include unfinished lumber.

d. All abandoned or unused freestanding solar energy systems shall be removed within 12 months of the cessation of operations.

e. All solar energy systems using a reflector to enhance solar production shall minimize glare from the reflector that affects adjacent or nearby properties. Measures to minimize nuisance glare include selective placement of the system, screening on the north side of the solar array, modifying the orientation of the system, reducing use of the reflector system, or other remedies that limit glare.

(4) *Administrative review process.*

a. *In general.* The Zoning Administrator shall have up to 15 working days following the submittal of a complete application to approve or deny such application. The Zoning Administrator may impose such conditions and require such guarantees deemed reasonable and necessary to protect the public interest and to ensure compliance with the standards and purposes of this zoning ordinance and policies of the Comprehensive Plan in addition to building permit review.

b. *Submittal requirements.* An application for a solar energy system shall be filed on a form approved by the Zoning Administrator. In addition, the applicant shall submit the following: (1) Written evidence that the electric utility service provider that serves the proposed site has been informed of the applicant's intent to install a solar energy system, a narrative of the proposed project, and site plan.

(b) *Community Solar Garden.*

(1) *In general.* Community Solar Gardens may be allowed as an interim use within the R1- Rural Residential Zoning District, in accordance with the procedures and regulations set forth in City Code Section 125-25 provided that the proposed Community Solar Garden meets the requirements as listed in this section.

(2) *Duration.* The maximum duration of the Interim Use is thirty (30) years. Dormant, or abandoned facilities will be subject to 125-25(b)(4) abonnement provision requiring removal of the Community Solar Garden

(3) *Size*. The maximum size of a Community Solar Garden system, or group of systems, is 5 mW (megawatts).

(4) *Setbacks*. All above-ground equipment or structures must meet minimum principal building setbacks as measured from the closest point at the maximum orientation and must be setback a minimum of 100 feet from an existing residential structure. Interior lot line setbacks may be waived at the City's sole discretion if a Community Solar Garden is proposed over multiple properties.

(5) *Height.* Community Solar Gardens may not exceed fifteen (15) feet in height at maximum design tilt.

(6) *Proximity*. A Community Solar Garden shall not be located closer than 1,320 feet (1/4 mile) to any other Community Solar Garden, measured by property lines.

(7) *Glare.* All solar panels shall be designed and located to prevent reflective glare toward any inhabited buildings on adjacent properties, as well as adjacent public roadways or public properties.

(8) *Landscaping*. Vegetative landscape screening shall be provided around the entire perimeter of the Community Solar Garden, except where topography, existing vegetation, or other factors provide sufficient screening to adjacent properties as determined solely by the City. A landscaping plan shall be provided with the application for an Interim Use Permit defining the planting locations, plant and tree varieties being installed, and maintenance plans. The owner shall maintain the landscaping in a neat and orderly manner and the owner shall ensure the survivability of all landscaping and replace any dead landscaping until the termination of the Interim Use Permit.

(9) *Stormwater*. Community Solar Gardens must comply with Chapter 117 of the City Code. Topsoil shall not be removed during the development, unless part of a remediation effort. Soils shall be planted with and maintained in perennial vegetation to prevent erosion, manage run off and build soil. Seeds shall include a mix of grasses and wildflowers native to the region and project site. Storm water management review and approval may be required by the Elm Creek Watershed Management Commission.

(10) *Utilities.* All power and/or communication lines not existing at the time of submitting an application, whether constructed on the property or extending beyond the property as necessary to service the Community Solar Garden or connect to the distribution utility, shall be buried underground unless otherwise approved by the City.

(11) *Storage.* There shall be no outdoor storage of any parts, supplies, or unused equipment.

(12) *Security and Access*. The Community Solar Garden shall be properly secured, and emergency access shall be provided in the event of an emergency. The Community Solar Garden shall include a minimum of ten (10) foot improved access roads throughout the site.

(13) *Easement Dedications*. The property owner may be required to dedicate to the City certain permanent road, drainage and utility, and trail easements as deemed necessary by the City and which are consistent with the City's Comprehensive Plan and other plans that may be adopted or amended from time to time.

(14) *Utility Notification*. No building permit shall be issued, or any installation or site work started, for a Community Solar Garden until evidence has been submitted that establishes, as determined by the City, that the owner or applicant has received approval from the utility distribution company.

(15) *Decommissioning*. A decommissioning plan shall be required at the time of application to ensure that all equipment, including panels, poles, racking systems, and underground structures are properly removed in the event they are not in use for twelve consecutive months or by the end of the Interim Use Permit. The plan shall include provisions for removal of all structures, foundations, and utilities, restoration of soil and vegetation, and a financial plan showing how the applicant will finance said removal. A minimum $5,000 cash escrow in addition to a letter of credit consistent with City policy in an amount determined by the City Council necessary to ensure proper decommissioning shall be filed with the City.

(16) *Submittals*. In addition to all other submittal requirements, the application shall include specifications and plans for all major planned equipment, including panels, poles, and racking systems.

SECTION 4. This Ordinance shall take effect and be in force immediately after its passage and publication in accordance with applicable law.

Dated the 14th day of June, 2026.

_____
Mayor

ATTEST:

_____
City Clerk

SunShare
COMMUNITY SOLAR

Rogers Community Solar Garden
Zoning Text Amendment

About Sunshare

Founded in 2011, SunShare is a full-service, end-to-end developer, owner, and operator of community solar gardens. As the nation's oldest community solar company, SunShare's mission is to give everyone access to renewable energy solutions.

We are a pioneer of community solar policy and program development, and we serve our communities by leasing or buying land from local farmers and landowners, on which we build community solar gardens. These gardens serve thousands of subscribers who can't or don't want to put solar panels on their roof by allowing them to subscribe to a portion of the energy produced by the solar garden.

SunShare builds, owns, and manages these solar gardens, delivering reliability and long-term value to our subscribers and partners.

With over a decade of experience and dozens of community solar projects in the state of Minnesota, our Team is dedicated to projects supporting dual use concepts while additionally supporting low to moderate-income households through the bill credits these projects generate under the Minnesota Department of Commerce's LMI program.

Rogers Community Solar Project

Sunshare LLC intends to propose a community solar garden project in the City of Rogers, MN. The project is proposed on the west side of the City south of County Road 203/Tucker Road, and west of Park Drive. The site would occupy approximately the northern one-third of the property, 11315 PARK DR ROGERS MN 55374 (PID 31-120-23-11-0006). The parcel is 69.57 acres in size and is currently farmed on the northern half with a homestead on the parcel fronting Park Drive.

Initial site plans envision a project capable of generating 4.975 MW AC/5.92 DC within a fenced in area of 19.43 acres. Sunshare is working to establish two local to Minnesota partnerships as part of this project:

1. **Heliene USA, based in Rogers** would provide several rows of panels they are testing which have not yet come to market. The site would serve as a test site for these solar panels' performance in real world conditions. Heliene would gather data from these panels over a 5+ year period at which point they would swap them out with the next generation of solar panel technology they are testing. The plan intends to include panel-level monitoring and a dedicated inverter for Heliene to gather data.
2. **Cannon Valley Graziers, based in Northfield** would tend sheep and manage pollinator-friendly habitat on the site. Cannon Valley Graziers does rotational sheep grazing and vegetation management at all but one of Sunshare's operating sites.

Request for Zoning Text Amendment

Reason for the Request

Currently Solar Energy Systems are only permitted as Accessory Structure to all zoning districts in the City of Rogers. Solar Energy Systems are defined in Section 125-102 as:

> a device or structural design feature intended to provide for collection, storage, and distribution of solar energy for heating or cooling, electricity generating, or water heating.
>
> Solar energy system, *free standing* means a solar energy system with a supporting framework that is placed on, or anchored in, the ground and that is independent of any building or other structure. Garages, carports or similar structures that incorporate building-integrated or building-mounted solar energy systems shall not be classified as freestanding solar energy systems and shall instead be subject to regulations governing accessory structures.

This section further defines Accessory Structures as:

> *Accessory structure or facility* means any building or improvement subordinate to a principal use. Examples include: swimming pools, saunas, detached garages, and storage sheds.
>
> *Accessory use* means a use incidental or subordinate to the principal use of the same land.

Under the current language of the ordinance, solar energy systems are only permitted as accessory uses incidental or subordinate to the principal use of the same land. Community solar garden projects given their scale and energy production are often classified as primary uses that do not generate energy for the property and are therefore not typically (though not exclusively) considered accessory uses. **The purpose of this request is to expand solar energy systems as a primary use permitted through an Interim Use Permit in the R1 district.**

Request Detail

We request that:

1. The definition of Solar Energy Systems include an additional definition defining *Solar Farms* as a Solar Energy System use that is not incidental or subordinate to the principal use of the same land.
2. Solar Energy Systems be included as an Interim Use under Section 125-50 (h) Table 4C. Public Institutional & Civic; Utilities in the R1 – Rural Residential district comparable to Wind Power Generation.
3. Solar Energy Systems Solar Farms have dedicated performance standards under Section 125-93a in a new subsection (4) *Solar Farms* – this would shift *Administrative Review Process* to become subsection (5).

Request Justification and Analysis

Comprehensive Plan Alignment

The City of Rogers' 2040 Comprehensive Plan identifies the project parcel's future land use as Rural Residential within a Diversified Rural area. Within this designation, one of the key characteristics is that "This designation allows for the development of single-family households within the Diversified Rural area, as long as the development is done in a manner that does not prohibit future urbanization." The use does not conflict with the Comprehensive Plan's goals for redevelopment in the 2040 horizon as the project is not identified for redevelopment opportunities (Figure 4.9), is not within any of the utility service extension areas (Figure 4.10), and is not a parcel identified in any of the stages of development staging

(Figure 4.11). As a proposed Interim Use, a solar energy system is a use that can be time-limited for the duration of the energy production lease. Typically, energy utilities and developers prepare leases for energy production of at least 25 years. At the end of a project lease, solar energy systems can be easily decommissioned with materials such as panels, racking, and fencing being recycled.

The Comprehensive Plan also outlines a renewable energy objective to build resilience for its long-term future through "increasing electricity usage that is generated from renewables [to] decrease emissions and help insulated the City against potential economic shocks" (Chapter 10, Page 168). The Comprehensive Plan identifies that there are many opportunities to promote solar buildup and develop solar potential in rural Rogers. Figure 10.1 identifies the project parcel with a high gross solar potential. **Although the Comprehensive Plan indicates that solar energy systems are a permitted use in all Rogers zoning districts as described in this request, the current language of the City's ordinance defines this use only as an Accessory use.**

Conflict Analysis

Adjacent Land Uses

The proposed use on the property does not pose conflicts with adjacent properties. The project is surrounded to the south and east by other R1 districts, to the north by an OP district. To the west the project borders the City of Hanover with properties zoned Agriculture, southwest of the property there are properties in the City of Hanover zoned Rural Residential. Solar Energy Systems are regularly developed in agricultural, rural residential, and low-density residential areas and can be designed to fit aesthetically within the landscape with screening vegetation.

The project is adjacent to the Crow-Hassen Park Reserve, an area of the City identified for "natural resource protection or buffer areas, stormwater drainage areas, and preservation of unaltered land in its natural state for environmental or aesthetic purposes" (Chapter 4, Page 41). The development of a solar energy system adjacent to this park reserve provides additional natural resource protection, buffering, stormwater management, and restoration of lands to a more naturalized state through the planting of native vegetation and low-impact agricultural best management practices. Research has demonstrated planting native groundcover species underneath solar panels provides multiple benefits including

reductions in soil erosion, carbon sequestration, habitat, and over many years improved soil health through the recycling of organic materials from these native groundcover[1][2].

Odor, Fumes, Dust, Noise, Vibrations, and Lighting

Solar panels do not emit odor, fumes, dust, or vibration. If conditions are dry during construction, appropriate measures will be taken to minimize dust (i.e. spraying down access roads). Inverters are located centrally on the site to minimize the sound they generate – standing next to the inverter when operating they produce approximately 73dbA at 3-feet (comparable to a vacuum cleaner), while at a distance of 130-feet from the inverter (a typical distance from the inverter to the fenceline) a person would experience approximately 40dbA (comparable to a library). There is no lighting for the project.

Traffic

The proposed use does not pose traffic conflicts within the district. Solar Energy Systems require minimal site servicing by vehicles during and post construction. During the construction period (approximately 4 months), approximately 5 to 30 workers and 3 to 4 delivery trucks would be on-site to construct the project. A dedicated lay-down and parking area is provided as part of the construction staging plan. Post-construction operations and maintenance of the site require minimal visits - we typically expect 1 to 2 site visits per month during the operational period for routine site maintenance, including vegetation management.

Examples of Zoning Codes

Sherburne County

The County identifies Solar Energy Systems as an Interim Use Agricultural (Section 7) and General Rural (Section 8) districts. The ordinance establishes performance standards for Solar Energy Systems outlined in Chapter 17 Subsection 17. Language from the ordinance is available in the Sherburne County Code of Ordinance 002.

[1] Great Plains Institute, 2023. Best Practices: Photovoltaic Stormwater Management Research and Testing (PV-SMaRT). https://betterenergy.org/wp-content/uploads/2023/01/PV-SMaRT-Best-Practice.pdf

[2] Center for Rural Affairs, 2025. Soil Health in Solar Development. https://www.cfra.org/sites/default/files/publications/Soil%20Health%20in%20Solar%20Development%20WEB.pdf

Wright County

The County identifies Solar Energy Systems as an Interim Use in Agricultural A/R [155.047] and AG [155.048], Commercial B-1 [115.053] and B-2 [115.054], and Industrial I-1 [155.055] districts. The ordinance establishes performance standards for Solar Energy Systems outlined in Chapter 155.108. Language from the ordinance is available in the Wright County Code of Ordinance Title XV Chapter 155.

Stearns County

The County identifies Solar Energy Systems as an Interim Use in all its Agricultural Districts (A-160 [Section 9.1], A-80 [Section 9.2], and A-40 [Section 9.3]) and in its lower density Residential Districts (R-20 [Section 9.5] and R-10 [Section 9.6]). The ordinance establishes performance standards for Solar Energy Systems outlined in Section 6.54. Language from the ordinance is available in the Stearns County Land Use and Zoning Ordinance No. 439.

Zoning Language

The following draft proposed language is provided for City of Rogers staff to consider based on the above "Request Detail". Sunshare is open to discussions to refine this language in collaboration with City staff.

Section 125-50 (h) Table 4C.

	AG	R1	R2	R3	R4	R5	OP	LC	RC	DT	ND	GI	SB
C. PUBLIC, INSTITUTIONAL & CIVIC													
Solar Energy System		I											

Section 125-55a.

No proposed changes to the standards in this section are proposed related to Solar Energy Systems, however Sunshare welcomes discussion with the City if there are additional standards the City wishes to consider applicable to the use.

Section 125-61.

No proposed changes to the standards in this section are proposed related to Solar Energy Systems, however Sunshare welcomes discussion with the City if there are additional standards the City wishes to consider applicable to the use.

Section 125-93.

No specific performance standards are proposed by Sunshare at this time, however examples from the Zoning Codes from Wright, Sherburne, and Stearns counties provide examples of performance standards commonly applied in nearby jurisdictions for community solar projects.

Sec. 125-102.

Solar energy system*, solar farm* means a solar energy system with a supporting framework that is placed on, or anchored in, the ground and that is independent of any building or other structure which is not directly connected to or designed to serve the energy needs of the primary use but rather for the primary purpose of wholesale sales of generated electricity. Solar farms include but are not limited to community solar gardens which are defined as a solar-electric (photovoltaic) array that provides retail electric power (or a financial proxy for retail power) to multiple community members or businesses residing or located off-site from the location of the solar energy system, consistent with Minn. Statutes 216B.1641. A community solar system may be either an accessory or a principal use.

Attachments

- **MN Rogers – Conceptual Site Plan**

PERIMETER FENCE (YELLOW)
8' TALL, WILDLIFE FRIENDLY
20' DISTANCE BETWEEN
FENCE AND ARRAY

ACCESS GATE
SITE ACCESS
ROAD: 20' WIDTH

POINT OF INTERCONNECTION
NEW TERMINAL POLE ON
EXISTING FEEDER
45.166872, -93.625534

UTILITY OWNED POLE:
OVERHEAD UTILITY RECLOSER

POINT OF COMMON COUPLING
UTILITY OWNED POLE:
OVERHEAD UTILITY METER

CUSTOMER OWNED POLE:
GOAB SWITCH (UTILITY AC DISCONNECT)

CUSTOMER OWNED POLE:
RISER POLE WITH RECLOSER

CUSTOMER OWNED
UNDERGROUND MV WIRE

EQUIPMENT PAD, TYPICAL OF 2:
(1) MV TRANSFORMER,
(1) GROUNDING TRANSFORMER,
(1) AC SWITCHGEAR
LV PV AC DISCONNECT,
DATA ACQUISITION SYSTEM

EAST INVERTER RACK
(10) 225 KW-AC INVERTERS

WEST INVERTER RACK
(9) 225 KW-AC INVERTERS
(2) 125 KW-AC INVERTERS

HELIENE TEST ROWS
(4) TEST ROWS OF 3 STRINGS EACH
12 TOTAL STRINGS OF 22 MODULES EACH
(264) 645W MODULES (156HC-M10-NTYP-SL-BF 645)
170.28 KW-DC / 125 KW-AC --> 1.36 DC/AC RATIO

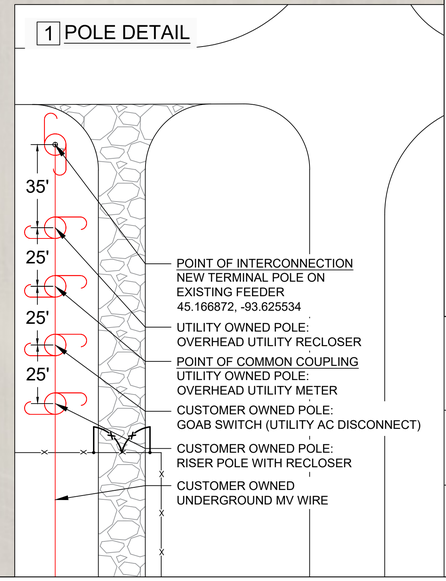
PARCEL BOUNDARY
(DASHED BLACK)

N

0 25' 50' 100' 200'

SYSTEM DETAILS	
Project Size (DC)	5393.16 kW
AC Size	4525 KW / 5050 KVA
Module Type	(8424) CANADIAN SOLAR 620 (CS6.2-66HB-620H) + (264) HELIENE 645W (156HC-M10-NTYP-SL-BF 645)
Module Output	620W & 645W
Inverters	(19) SOLECTRIA XGI 1500-225-600 + (2) SOLECTRIA XGI 1500-125/150-UL
Inverter Size	225 KW / 250 KVA 125 KW / 150 KVA
Intercon. Voltage	34.5kV
DC/AC Ratio	1.19
Pitch	20'
Tracker	NEXTRACKER HORIZON
Modules/row	96, 72, 48 (CANADIAN 620) 66 (HELIENE 645)
Acres in Fence	19.43
Area under Panels, sq ft	252840

1 POLE DETAIL



NOT FOR CONSTRUCTION

DATE
4/23/2026

REVISION HISTORY

#	BY	DESC.	DATE
0	BW	INITIAL - INT	2/6/2026
1	BW	TEST ROWS	4/23/2026

PROJECT NAME
MN ROGERS LLC
(VERSION 1)

PROJECT LOCATION
45.166872, -93.625534
11315 PARK DR
ROGERS, MN 55374

SunShare LLC
1724 Gilpin Street, Denver, CO 80218
(800)793-0786

SHEET NAME
SITE PLAN

SHEET NUMBER
PV-1

SHEET SIZE
24"x36"

STAFF REPORT

ROGERS PLANNING COMMISSION

Meeting Date: June 1, 2026

Agenda Item: 6.1

Subject: Consideration of a Site Plan Application for the Expansion of the Building at 20615 Commerce Boulevard (Twin City Hose)
Prepared By: Eric Burtness, Community Development Specialist

Overview / Background / Analysis

Twin City Hose, LLC (the Applicant), represented by Brian J. Field, P.E. of Anderson Engineering of Minnesota, LLC, has submitted a Site Plan Amendment application for the expansion of its existing industrial facility located at 20615 Commerce Blvd, Rogers, MN 55374 (PID: 2412023230009). The property is legally described as Lot 1, Block 2, Rogers Industrial Park, Hennepin County, Minnesota.

Twin City Hose has been a Rogers business since 1977 and is a manufacturer of metal hose assemblies, seismic expansion joints, rubber expansion joints, metal expansion joints, and custom piping weldments. The company serves the HVAC, OEM, Industrial, LPG/NH3, and Cryogenic industries and holds UL classification and NFPA certifications on several product lines.

Project Description

The Applicant proposes a 9,648 square foot addition to the existing 24,388 square foot building, resulting in a total building area of 34,036 square feet. The addition is proposed on the east side of the existing building and will be used as warehouse space. The existing building program includes approximately 22,117 square feet of factory space, 2,204 square feet of office space, and related shipping and receiving areas. The intended use of the property will remain consistent with the existing use for light manufacturing, warehouse storage, and related business functions.

The building addition is designed to match the existing facility in materials and construction, utilizing textured and painted precast concrete wall panels, structural steel framing, and slab-on-grade construction. The building is classified as Construction Type IIB Noncombustible and will be fully sprinkled per NFPA 13.

Zoning and Land Use Consistency

The property is zoned RC - Regional Employment Center District. The existing and proposed use of light manufacturing is consistent with the RC zoning district. The proposed project is consistent with the City's 2040 Comprehensive Plan, which guides this area for employment and industrial uses. All building setbacks meet or exceeded

municipal code setback expectations.

Site Improvements

In addition to the building expansion, the site plan includes the following improvements:

- Parking: The existing 39-stall parking lot will be expanded by 14 stalls for a total of 53 stalls, including 3 ADA-accessible stalls. The City's parking requirement for manufacturing uses is 1 stall per 1,500 square feet of building area, resulting in a minimum of 23 stalls required. The proposed 53 stalls exceed this minimum. All stalls are proposed at the standard 9-foot by 18-foot dimension with a minimum 24-foot drive aisle.
- Access: A new vehicular access point is proposed onto Commerce Boulevard to improve site circulation, traffic flow, and overall site functionality. A turning radius exhibit has been provided demonstrating adequate truck circulation for both loading dock positions.
- Stormwater Management: The existing regional stormwater pond is proposed to be expanded, and a new filtration forebay/filter bench treatment feature will be added to meet current watershed and City stormwater management requirements. No wetlands are located on or adjacent to the site. The Applicant will be required to update the existing stormwater maintenance agreement between the adjacent property owner and the City of Rogers.
- Landscaping: The landscape plan proposes installation of 2 Summertime Maackia (overstory), 1 Boulevard American Linden (overstory), 10 Taunton Japanese Yew (deciduous shrubs), 5 Annabelle Hydrangea (deciduous shrubs), and 5 Paradigm Hosta (perennials), along with upland and wet detention seed mixes and irrigated turf areas. Landscaping is consistent with City code requirements.
- Lighting: Four new wall-mounted LED area lights are proposed (205 watts each, mounted at 21 feet). The photometric plan demonstrates adequate parking lot illumination with an average of 2.60 footcandles. Light levels at property lines are at or near 0.0 footcandles, indicating no off-site light spillover.
- Impervious Surface: Existing impervious coverage is 50,596 square feet (1.16 acres). Proposed impervious coverage is 65,814 square feet (1.51 acres), representing a total lot coverage of 50.30%.

Department Review Comments

The application was circulated to City departments for review. The following comments have been received:

Fire Department**:** Due to limited fire operations access on the south side of the addition created by site topography, a fire department access door is required on the north side of the addition facing the parking lot. All other aspects of the submitted plans are acceptable to the Fire Department. Staff recommends this requirement be addressed

as a condition of approval.

Engineering and other department comments are pending and will be addressed as conditions of approval. The Applicant shall comply with all City Engineering, Community Development, and Fire review comments prior to issuance of any permits.

Staff Recommendation

Staff recommends approval of the Site Plan Amendment for the Twin City Hose building addition at 20615 Commerce Blvd, subject to the conditions listed below.

Conditions of Approval:

- The Applicant shall address and comply with all Engineering, Community Development, and Fire review comments to the satisfaction of the City prior to issuance of any permits.
- A fire department access door shall be added on the north side of the building in addition to facing the parking lot, as required by the Rogers Fire Department.
- All stormwater management, grading, and related civil engineering plans shall be reviewed and approved by the City Engineering Department prior to issuance of permits.
- The Applicant shall obtain any required approvals from the Elm Creek Watershed Management Commission (ECWMC) prior to commencement of site work.
- The Applicant shall update the existing stormwater pond maintenance agreement between the adjacent property owner and the City of Rogers prior to issuance of permits.
- The Applicant shall obtain an NPDES Construction Permit from the Minnesota Pollution Control Agency (MPCA) prior to commencement of grading or construction activities.
- Any proposed new signage or modifications to existing signage shall require separate review and approval in accordance with the Rogers City Code.
- The Applicant shall comply with all applicable provisions of the Rogers Zoning Code and other City, County, and State regulations not specifically modified by this approval.

Financial Impact: Not applicable. **Source Fund**: Not applicable.

Budgeted? N/A

Supporting Documentation

A. Resolution 2026-56 Twin City Hose Site Plan Amendment
B. TCH_Project Narrative_04-28-2026
C. TCH_Site Plan Set_04-28-2026

D. TCH_SWMP_04-28-2026
E. TCH_Turning Radius Exhibit_04-28-2026

RESOLUTION NO. 2026-56

A RESOLUTION GRANTING APPROVAL OF A SITE PLAN AMENDMENT FOR TWIN CITY HOSE (20615 COMMERCE BLVD)

WHEREAS, Twin City Hose, LLC (the "Applicant"), represented by Anderson Engineering of Minnesota, LLC, submitted an application to the City of Rogers ("City") requesting approval of a Site Plan Amendment for the property located at 20615 Commerce Blvd, with PID 2412023230009, legally described as Lot 1, Block 2, Rogers Industrial Park, Hennepin County, Minnesota (the "Subject Property"); and,

WHEREAS, the Subject Property is approximately 3.0 acres, is zoned RC – Regional Employment Center District, and is guided for Employment uses in the 2040 Comprehensive Plan; and,

WHEREAS, the Applicant is proposing a 9,648 square foot addition to the existing 24,388 square foot industrial building, resulting in a total building area of 34,036 square feet, for continued use as light manufacturing and warehouse storage; and,

WHEREAS, the site plan includes parking lot modifications, a new vehicular access point onto Commerce Boulevard, stormwater management improvements, landscaping, and site lighting upgrades; and,

WHEREAS, the proposed Site Plan Amendment is consistent with the 2040 Comprehensive Plan and current zoning regulations for the City of Rogers.

NOW THEREFORE, BE IT RESOLVED, BY THE CITY COUNCIL OF THE CITY OF ROGERS, MINNESOTA, that the Site Plan Amendment for Twin City Hose at 20615 Commerce Blvd is hereby approved as proposed, conditioned upon the Applicant addressing and complying with all comments from the City Engineer, Fire Marshal, and Community Development staff to the satisfaction of the City prior to issuance of any permits.

BE IT FURTHER RESOLVED, the Applicant shall obtain any required approvals from the applicable watershed management organization and an NPDES Construction Stormwater Permit from the Minnesota Pollution Control Agency (MPCA) prior to commencement of any grading or land-disturbing activities.

BE IT FURTHER RESOLVED, the Applicant shall update the existing stormwater pond maintenance agreement between the adjacent property owner and the City of Rogers prior to issuance of any permits.

Moved by Councilmember _____, seconded by Councilmember _____

The following voted in favor of said resolution:

The following voted against the same:

The following abstained:

Whereupon said resolution was declared duly passed and adopted, and was signed by the Mayor, and attested by the Clerk dated this 9th day of June, 2026.

_____
Shannon Klick, Mayor

ATTEST:

_____

Stacie Brown, City Clerk

ANDERSON

Twin City Hose – Building Addition

Project Narrative

20615 Commerce Blvd, Rogers, MN 55374

Anderson Project Number: 18438

Twin City Hose is requesting Site Plan Amendment approval for improvements to its existing industrial property in Rogers. The proposed project includes a 9,648 square foot addition to the existing 24,388 square foot building, resulting in a proposed total building area of 34,036 square feet. The addition and site improvements are intended to support the continued growth and operational needs of the business.

The building addition is anticipated to utilize materials and construction methods matching the existing facility, including textured and painted precast concrete wall panels, structural steel framing, slab-on-grade construction, and related warehouse/industrial building systems. The intended use of the property will remain consistent with the current use of the site for manufacturing, warehouse storage, and related business functions.

In addition to the building expansion, the site plan includes parking lot modifications, utility coordination, landscaping restoration, and stormwater infrastructure upgrades. A new vehicular access point is proposed onto Commerce Boulevard to improve site circulation, traffic flow, and overall functionality. We are adding 14 parking stalls to the existing 39 stalls for a total of 53 stalls, including 3 accessible stalls; to satisfy new job growth needs. This stall count exceeds the minimum number of stalls required (34,036 sq ft x 1/1500 = 23 stalls). The existing regional stormwater pond is also planned to be expanded, along with the addition of a filter bench treatment feature, in order to meet current watershed and City stormwater management requirements. These improvements will help ensure the site complies with modern development standards while supporting future operational needs.

The proposed improvements are compatible with surrounding land uses and consistent with the character of the existing commercial and industrial area. The project is an expansion of an established business within an already developed corridor and will maximize the use of existing infrastructure while minimizing impacts to adjacent properties. Building and site improvements will maintain a high-quality appearance, provide safe access and circulation, and enhance the long-term usability of the property.

The City should consider and approve this request because the project represents continued reinvestment in an existing Rogers business, supports local employment and economic growth, and improves the site in a manner consistent with the City's planning and development goals. Approval of the amendment will allow the property to remain a productive, modernized, and well-maintained asset within the community.

Brian J. Field P.E. (MN)
Senior Civil Engineer

SITE PLAN REVIEW DOCUMENTS

FOR

TWIN CITY HOSE - NEW ADDITION

ROGERS, MN

OWNER

TWIN CITY HOSE, LLC
20615 COMMERCE BLVD
ROGERS, MN 55374

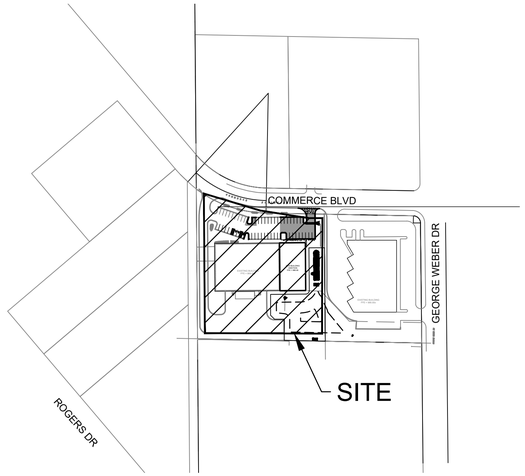
ARCHITECT

EDWARD FARR ARCHITECTS, INC.
7710 GOLDEN TRIANGLE DRIVE
EDEN PRAIRIE, MN 55344

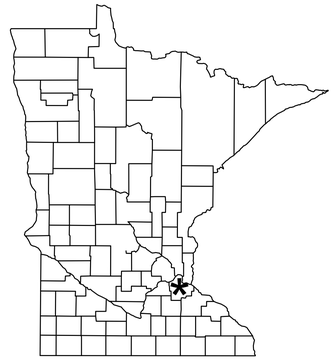
SURVEY / ENGINEER

ANDERSON ENGINEERING OF MN, LLC
13605 1ST AVENUE NORTH, SUITE 100
PLYMOUTH, MN 55441

1 SITE LOCATION MAP
NTS



2 VICINITY MAP
NTS



PERMITS & TEST REPORTS

1. OWNER WILL SECURE ALL CITY ENTITLEMENTS PRIOR TO CONSTRUCTION
2. CONTRACTOR RESPONSIBLE TO SECURE ALL FEDERAL, STATE, COUNTY AND CITY PERMITS NECESSARY FOR CONSTRUCTION INCLUDING (BUT NOT LIMITED TO) THE FOLLOWING:
   A. CITY PERMITS
   B. DEMOLITION PERMITS
   C. ROW PERMITS
   D. MNDOT PERMITS
   E. NPDES PERMIT
   F. MINNESOTA DEPARTMENT OF HEALTH PERMITS
3. ALL TEST RESULTS ARE TO BE SENT TO THE OWNER AND ENGINEER DIRECTLY FROM THE INDEPENDENT TESTING LABORATORY.
4. RE-TESTING DUE TO FIELD TEST FAILURE ARE AT NO ADDITIONAL COST TO THE OWNER.
5. GEOTECHNICAL/CONCRETE TESTING MUST BE COMPLETED BY THE OWNER'S GEOTECHNICALENGINEER/INDEPENDENT TESTING LABORATORY. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL REQUIRED GEOTECHNICAL TESTS AND INSPECTIONS WITH THE GEOTECHNICAL ENGINEER/INDEPENDENT TESTING LABORATORY.

APPLICABLE SPECIFICATIONS

1. CITY OF ROSEMOUNT (CITY) STANDARD SPECIFICATIONS AND REQUIREMENTS.
2. MINNESOTA DEPARTMENT OF TRANSPORTATION (MN/DOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION LATEST EDITION AND SUPPLEMENTS.
3. CITY ENGINEERS ASSOCIATION OF MINNESOTA (CEAM) STANDARD SPECIFICATIONS FOR UTILITIES LATEST EDITION.
4. APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES

CONSTRUCTION OBSERVATIONS

1. NOTIFY OWNER, ENGINEER, AND CITY IN WRITING A MINIMUM OF 5 BUSINESS DAYS IN ADVANCE OF THE FOLLOWING ACTIVITIES:
   A. PRE-CONSTRUCTION MEETING
   B. UNDERGROUND PIPING AND UTILITIES INSTALLATION
   C. UTILITY TESTING
   D. STRUCTURES INSTALLATION
   E. SUBGRADE PREPARATION AND TESTING
   F. BASE INSTALLATION
   G. CURB INSTALLATION
   H. PAVEMENT INSTALLATION

GENERAL NOTES

1. UNTIL THE REVISION BLOCK INDICATES "ISSUED FOR CONSTRUCTION," THE PLAN SET IS NOT CERTIFIED FOR CONSTRUCTION, AND THE CONTRACTOR ASSUMES ALL RISKS ASSOCIATED WITH BUILDING.
2. BASED ON AN EXISTING CONDITIONS SURVEY CONDUCTED BY ANDERSON ENGINEERING IN NOVEMBER 2025, THE EXISTING CONDITIONS PRESENTED ARE SUBJECT TO VARIATION. THE CONTRACTOR MUST VERIFY SITE CONDITIONS AND PROMPTLY COMMUNICATE ANY DISPARITIES IN WRITING TO THE ENGINEER.
3. UTILITY QUALITY LEVEL C IS APPLIED TO THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN, DETERMINED ACCORDING TO CI/ASCE 38-2 GUIDELINES. THE PRECISE LOCATION AND DEPTH OF SUBSURFACE UTILITIES, INCLUDING GAS, TELEPHONE, FIBER OPTIC, SEWER, WATER, PIPELINES, ELECTRICAL, AND CABLE TV, ARE UNKNOWN, AND THE INFORMATION SHOULD NOT BE RELIED UPON AS EXACT OR COMPLETE.
4. PRIOR TO STARTING WORK, THE CONTRACTOR MUST CONTACT GOPHER STATE ONE CALL (1-800-252-1166) AT LEAST 48 HOURS IN ADVANCE (EXCLUDING HOLIDAYS AND WEEKENDS) TO DETERMINE THE LOCATIONS OF UNDERGROUND UTILITIES.
5. PRIVATE UTILITY CONFLICTS SHOULD BE ANTICIPATED BY THE CONTRACTOR IN PROJECT SUBCUT AND TRENCH AREAS. THE CONTRACTOR MUST COORDINATE WITH UTILITY OWNERS FOR RELOCATION OR PROTECTION OF EXISTING UTILITIES, OR INSTALLATION OF NEW UTILITIES, WITH ALL ASSOCIATED COSTS BEING THE CONTRACTOR'S RESPONSIBILITY AND INCURRED WITH NO ADDITIONAL COST TO THE OWNER.
6. QUANTITIES ARE APPROXIMATE AND MAY VARY TO ENSURE SUCCESSFUL COMPLETION OF THE WORK.
7. COMPLIANCE WITH CITY, COUNTY, STATE, AND FEDERAL (INCLUDING OSHA) REGULATIONS AND CODES IS MANDATORY FOR ALL WORK AND MATERIALS.
8. COORDINATION OF WORK WITH OTHER CONTRACTORS OPERATING AT OR NEAR THE SITE IS THE RESPONSIBILITY OF THE CONTRACTOR.
9. THROUGHOUT CONSTRUCTION, THE CONTRACTOR MUST COORDINATE AND MAINTAIN ACCESS TO ADJACENT PROPERTIES.
10. THE CONTRACTOR IS TASKED WITH COORDINATING AND MAINTAINING MAIL, GARBAGE, AND RECYCLING SERVICES TO PROPERTIES DURING CONSTRUCTION.
11. RESPONSIBILITY FOR COORDINATING AND MAINTAINING STORMWATER DRAINAGE CONVEYANCE THROUGHOUT CONSTRUCTION, BOTH PIPED AND OVERLAND FLOW, LIES WITH THE CONTRACTOR.
12. COORDINATION AND MAINTENANCE OF WATER AND SANITARY FLOW TO AND FROM PROPERTIES ARE THE CONTRACTOR'S RESPONSIBILITY.
13. THE CONTRACTOR MUST COORDINATE AND MAINTAIN UTILITY SERVICES TO ADJACENT PROPERTIES AT ALL TIMES. UTILITY SERVICE INTERRUPTION IS PERMITTED ONLY WITH APPROVAL FROM THE OWNER, CITY, AND ADJACENT PROPERTIES.
14. COORDINATION WITH UTILITY SERVICES FOR SMALL UTILITY INSTALLATION FALLS UNDER THE CONTRACTOR'S RESPONSIBILITIES.
15. UNLESS SHOWN OR NOTED OTHERWISE, CONSTRUCTION LIMITS EXTEND TO THE PROPERTY LINE. CONSTRUCTION ACTIVITIES MUST BE RESTRICTED TO DESIGNATED AREAS AS INDICATED ON THE PLANS.
16. PRESERVATION AND PROTECTION OF EXISTING PAVEMENT, SITE FEATURES, UTILITIES, TREES, ETC., IS THE CONTRACTOR'S RESPONSIBILITY UNLESS OTHERWISE INDICATED.
17. THE CONTRACTOR MUST DOCUMENT EXISTING CONDITIONS THROUGH PHOTOS OR VIDEOS BEFORE CONSTRUCTION BEGINS. THIS INCLUDES ITEMS DESIGNATED TO REMAIN THAT MIGHT BE MISCONSTRUED AS DAMAGE CAUSED BY CONSTRUCTION OPERATIONS. ADEQUATELY DETAILED PHOTOGRAPHS OR VIDEO RECORDINGS, ALONG WITH PLANS AND NOTATIONS, MUST BE SUBMITTED TO THE ENGINEER AND OWNER BEFORE CONSTRUCTION BEGINS. ANY DAMAGE TO EXISTING PAVEMENT, CURBING, STRIPING, OR OTHER SITE FEATURES MUST BE REPLACED BY THE CONTRACTOR TO THE OWNER'S SATISFACTION, AT NO ADDITIONAL COST TO THE OWNER.
18. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR TAKING ALL NECESSARY PRECAUTIONS TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION.
19. BEFORE COMMENCING WORK, THE CONTRACTOR MUST NOTIFY THE OWNER AND ENGINEER IN WRITING OF ANY DISCREPANCIES OR CONFLICTS IN THE CONTRACT DOCUMENTS. NO FIELD CHANGES OR DEVIATIONS ARE PERMITTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER. FAILURE TO NOTIFY THE OWNER AND ENGINEER OF IDENTIFIABLE CONFLICTS BEFORE INSTALLATION RELIEVES THE OWNER AND ENGINEER OF ANY OBLIGATION TO PAY FOR A RELATED CHANGE ORDER.
20. ONE COPY OF EACH REQUIRED CONSTRUCTION PERMIT AND THE MOST CURRENT AND COMPLETE SET OF CONSTRUCTION DOCUMENTS, INCLUDING PLANS, SPECIFICATIONS, GEOTECHNICAL REPORT, SPECIAL CONDITIONS AND PROVISIONS, ETC., MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
21. FULLY IMPLEMENTING AND ENFORCING SAFE WORK PRACTICES, INCLUDING BUT NOT LIMITED TO PERSONNEL MONITORING, USE OF TRENCHING, SHEETING, AND SHORING, SCAFFOLDING, MATERIALS HANDLING AND DRILLING, OPERATION OF EQUIPMENT, AND ENSURING PUBLIC SAFETY DURING WORK PROGRESS, IS THE CONTRACTOR'S RESPONSIBILITY.
22. PLANNING FOR AND ENSURING PERSONNEL COMPLY WITH OSHA SAFETY AND HEALTH STANDARDS (29 CFR 1910) AND GENERAL CONSTRUCTION STANDARDS (29 CFR 1926) IS PART OF THE CONTRACTOR'S RESPONSIBILITIES.
23. INITIATING, MAINTAINING, AND SUPERVISING SAFETY PRECAUTIONS AND PROGRAMS THROUGHOUT THE WORK PROJECT IS THE CONTRACTOR'S RESPONSIBILITY. ENSURING THE SAFETY OF EMPLOYEES ON THE PROJECT SITE AND OTHER AFFECTED PERSONS AND ORGANIZATIONS IS CRITICAL FOR THE CONTRACTOR. SAFETY DUTIES AND RESPONSIBILITIES EXTEND UNTIL ALL WORK IS COMPLETE, AND THE ENGINEER ISSUES NOTICE THAT THE WORK IS FINISHED.
24. HAZARDOUS MATERIALS, SUCH AS OIL, GASOLINE, PAINT, AND OTHER HAZARDOUS SUBSTANCES, MUST BE PROPERLY STORED BY THE CONTRACTOR. THIS INCLUDES SECONDARY CONTAINMENTS TO PREVENT SPILLS, LEAKS, OR OTHER DISCHARGES. ACCESS TO STORAGE AREAS MUST BE RESTRICTED TO PREVENT VANDALISM. HAZARDOUS WASTE STORAGE AND DISPOSAL MUST COMPLY WITH MPCA REGULATIONS. IMMEDIATE REMOVAL OF SPILLS OF FUELS, OILS, OR OTHER CHEMICALS UPON DETECTION IS THE CONTRACTOR'S RESPONSIBILITY.

Sheet List Table

ANDERSON
13605 1st Avenue N. #100
Plymouth, MN 55441 | ae-mn.com
P 763.412.4000 | F 763.412.4090
Anderson Engineering of Minnesota, LLC

TWIN CITY HOSE
BUILDING
ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR
ARCHITECTS, INC.

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.

PRINT NAME: BRIAN J. FIELD, PE

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 57224

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

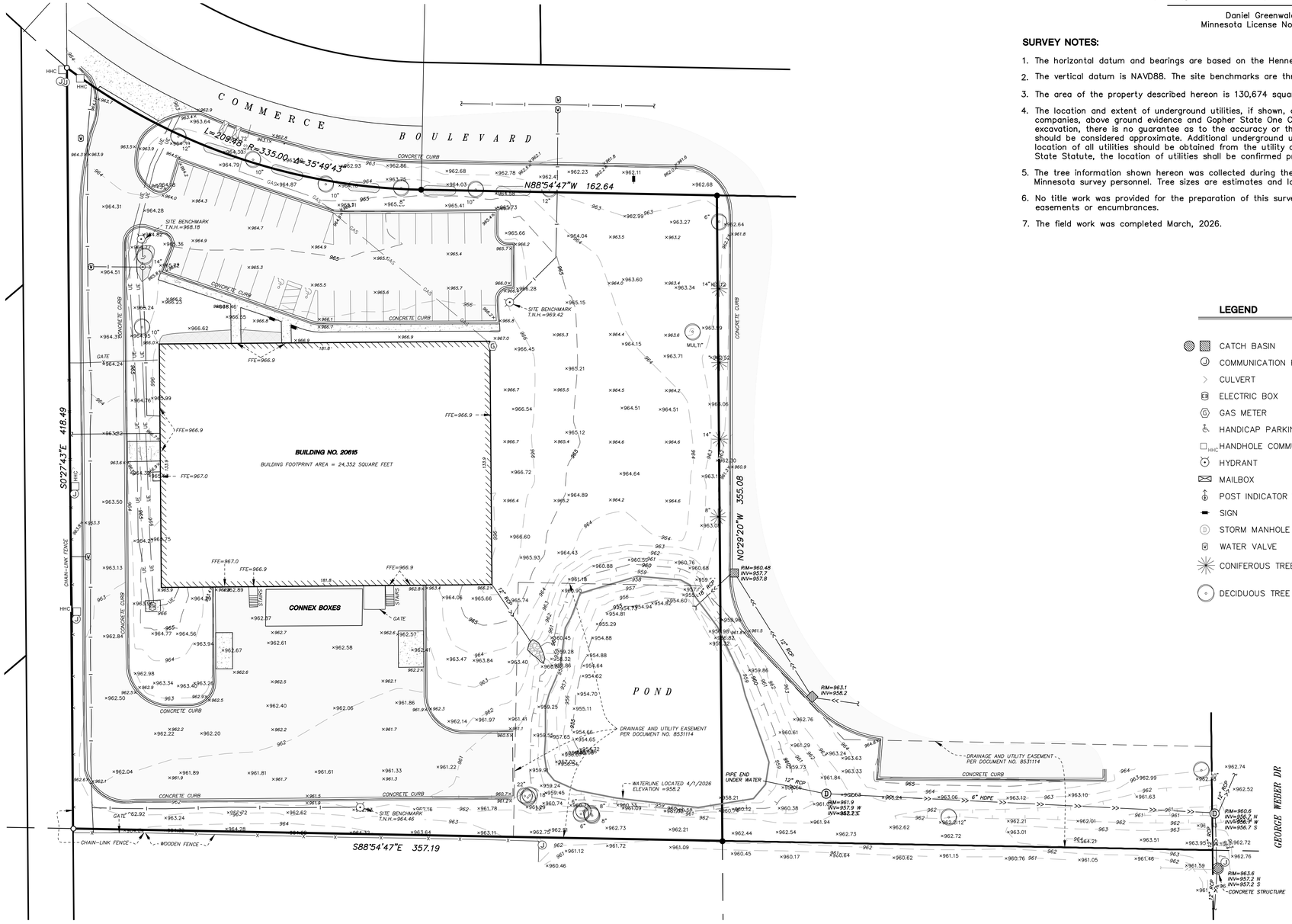
DRAWING TITLE

COVER SHEET

DRAWING NO.

C0

PLOTTED:	COMM. NO.
----	18438



EXISTING CONDITIONS SURVEY

ADDRESS:

20615 Commerce Blvd, Rogers, MN 55374

LEGAL DESCRIPTION:

Lot 1, Block 2, Rogers Industrial Park, Hennepin County, Minnesota.

CERTIFICATION:

I hereby certify that this survey 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.

Dated: April 3, 2026

Anderson Engineering of Minnesota, LLC

by: Daniel Greenwald

Daniel Greenwald
Minnesota License No. 52134

SURVEY NOTES:

1. The horizontal datum and bearings are based on the Hennepin County Coordinate System NAD83(2011).
2. The vertical datum is NAVD88. The site benchmarks are three top–nut–hydrants depicted hereon.
3. The area of the property described hereon is 130,674 square feet or 2.9998 acres.
4. The location and extent of underground utilities, if shown, are based upon existing drawings provided by the utility companies, above ground evidence and Gopher State One Call markings per ticket number 260840044. Exclusive of excavation, there is no guarantee as to the accuracy or the completeness of this information. The size and location should be considered approximate. Additional underground utilities may be present. Verification of the existence and location of all utilities should be obtained from the utility owners prior to any planning or design. In accordance with State Statute, the location of utilities shall be confirmed prior to any demolition or construction.
5. The tree information shown hereon was collected during the field survey by non–forestry trained Anderson Engineering of Minnesota survey personnel. Tree sizes are estimates and locations are accurate to plus or minus three feet.
6. No title work was provided for the preparation of this survey to verify the legal description or the existence of any easements or encumbrances.
7. The field work was completed March, 2026.

LEGEND

- CATCH BASIN
- COMMUNICATION PEDESTAL
- CULVERT
- ELECTRIC BOX
- GAS METER
- HANDICAP PARKING
- HHC HANDHOLE COMMUNICATIONS
- HYDRANT
- MAILBOX
- POST INDICATOR VALVE
- SIGN
- STORM MANHOLE
- WATER VALVE
- CONIFEROUS TREE
- DECIDUOUS TREE
- FENCE
- GAS GAS MAIN
- SANITARY SEWER
- STORM SEWER
- UE UNDERGROUND ELECTRIC
- WATER MAIN
- BITUMINOUS SURFACE
- CONCRETE SURFACE
- LANDSCAPE
- RIP–RAP
- DEPRESSION CONTOUR
- STORM SEWER PER PLAN
- FOUND IRON MONUMENT
- SET 1/2"x14" IRON PIPE MARKED L.S. NO. 52134

N W E S

0 30 60
SCALE IN FEET

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Anderson Engineering of Minnesota, LLC

TWIN CITY HOSE BUILDING ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR
ARCHITECTS, INC.

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

EXISTING CONDITIONS SURVEY

DRAWING NO.

C1

PLOTTED:	COMM. NO.
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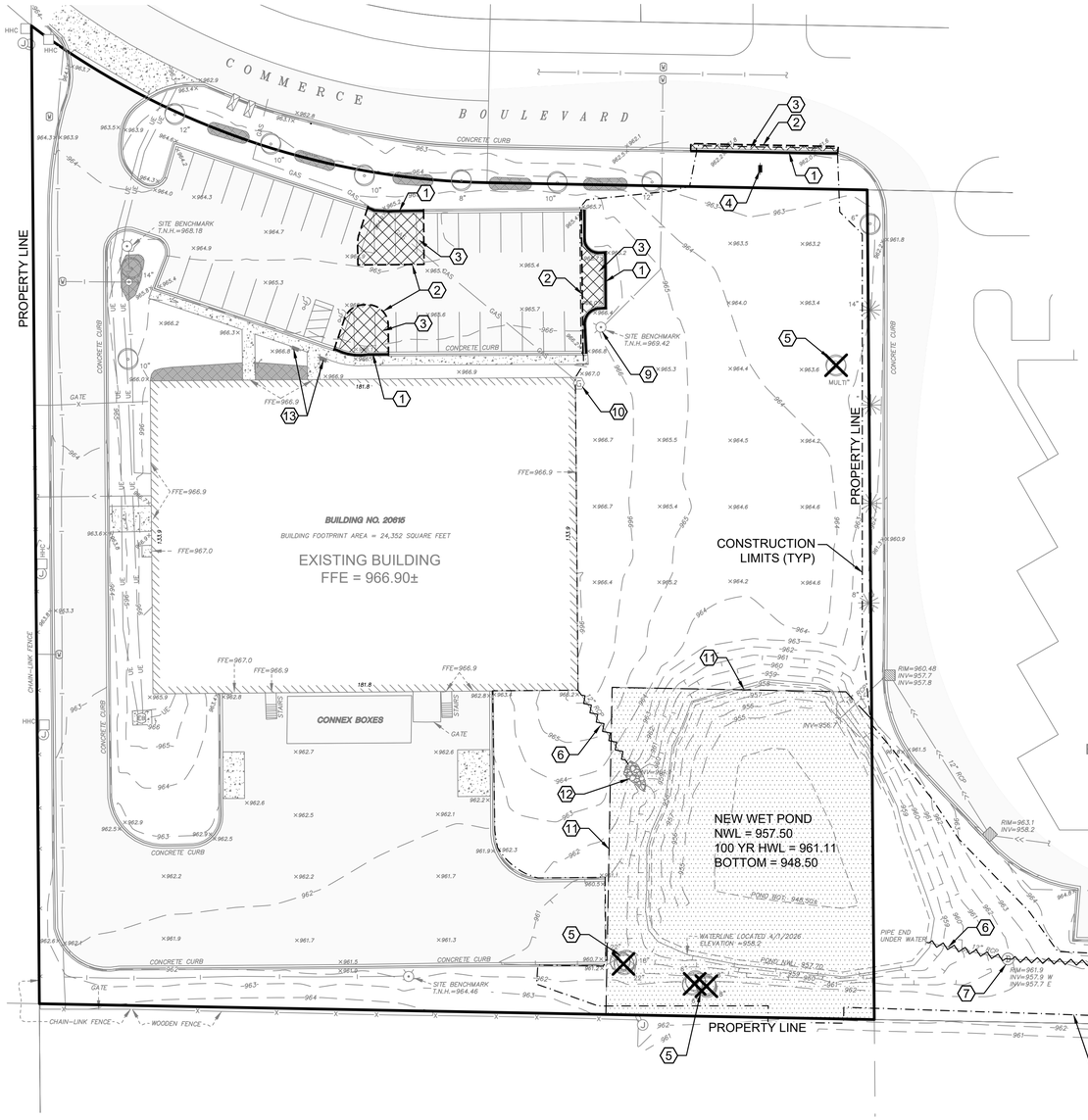

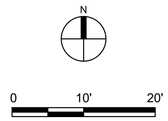

KEY NOTES

1. REMOVE EXISTING CONCRETE CURB AND GUTTER
2. FULL DEPTH SAWCUT LINE AT REMOVAL LIMITS
3. REMOVE EXISTING BITUMINOUS PAVEMENT. MINIMUM OF 2' IN WIDTH WITHIN COMMERCE BLVD.
4. REMOVE AND REINSTALL EXISTING NO PARKING SIGN
5. REMOVE EXISTING TREE
6. REMOVE EXISTING 12" RCP STORM PIPE
7. REMOVE EXISTING OUTLET CONTROL STRUCTURE
8. REMOVE EXISTING 6" STORM DRAIN
9. PROTECT EXISTING HYDRANT IN PLACE
10. RELOCATE EXISTING GAS METER. COORDINATE WITH UTILITY OWNER FOR LOCATION.
11. EXISTING DRAINAGE & UTILITY EASEMENT TO BE MODIFIED.
12. REMOVE EXISTING RIP-RAP AT POND OUTLET
13. REMOVE EXISTING HANDICAP SIGN

LEGEND

- PROPERTY LINE
- CONSTRUCTION LIMITS
- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING STRM INLET
- EXISTING SAN/STRM MANHOLE
- EXISTING HYDRANT
- REMOVE UTILITY
- EXISTING CONCRETE
- REMOVE EXISTING BITUMINOUS PAVEMENT
- REMOVE CONCRETE C&G
- EXISTING FENCE
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND GAS
- FULL DEPTH SAWCUT
- REMOVE TREE
- EXISTING D&U EASEMENT

DEMOLITION NOTES

1. THE CONTRACTOR SHALL SALVAGE AND REINSTALL STREET AND TRAFFIC SIGNS IN CONFLICT WITH CONSTRUCTION ACTIVITIES AS INDICATED OR DIRECTED BY THE ENGINEER. ANY DAMAGE TO SIGNS DURING CONSTRUCTION REQUIRES THE CONTRACTOR TO PROVIDE NEW SIGNS AT NO ADDITIONAL COST TO THE OWNER.
2. COORDINATION OF UTILITY REMOVAL WORK MUST BE CARRIED OUT BY THE CONTRACTOR IN CONSULTATION WITH THE APPROPRIATE UTILITY OWNER.
3. THE CONTRACTOR IS TO SAWCUT FULL DEPTH AT PAVEMENT REMOVAL LIMITS AND AS REQUIRED TO ENSURE A SMOOTH FIT/TRANSITION ALONG MATCHING PAVEMENT AREAS.
4. CLEARING AND GRUBBING OPERATIONS MUST ADHERE TO THE FOLLOWING GUIDELINES:
   - A. PROTECT ALL TREES AND PLANTS NOT DESIGNATED FOR REMOVAL.
   - B. CONDUCT OPERATIONS TO AVOID DAMAGE TO PROTECTED TREES AND VEGETATION.
   - C. CUT, REMOVE, AND DISPOSE OF TREES, BRUSH, SHRUBS, WINDFALLS, LOGS, STUMPS, ROOTS, FALLEN TIMBER, AND OTHER VEGETATION.
   - D. DISPOSE OF DEBRIS ACCORDING TO APPLICABLE REGULATIONS.
   - E. NO BURYING OF CLEARED AND GRUBBED WASTE WITHIN THE CONSTRUCTION LIMITS.
5. UNLESS OTHERWISE STATED, THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DEMOLITION WITHIN ALL AREAS OF PROPOSED IMPROVEMENTS. REMOVAL LIMITS AS INDICATED ON THE DRAWINGS IN ANTICIPATED LOCATIONS. THE CONTRACTOR IS RESPONSIBLE FOR REMOVALS NECESSARY TO CONSTRUCT NEW IMPROVEMENTS AND MEET DESIGN REQUIREMENTS. ALL FACILITIES TO BE REMOVED MUST BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE FILL MATERIAL, AS PER THE SPECIFICATIONS AND ENGINEER'S DIRECTIVES.
6. THE CONTRACTOR MUST REVIEW FEATURES NOT SPECIFICALLY IDENTIFIED ON THE PLAN TO DETERMINE SALVAGE OR REMOVAL THAT MAY CONFLICT WITH CONSTRUCTION, IN CONSULTATION WITH THE ENGINEER.
7. THE CONTRACTOR IS REQUIRED TO OBTAIN PERMITS NECESSARY FOR DEMOLITION, REMOVAL, AND DISPOSAL.
8. MATERIALS REMOVED OR DEMOLISHED BY THE CONTRACTOR BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE STATED. THE CONTRACTOR IS RESPONSIBLE FOR LOADING, HAULING, AND PROPERLY DISPOSING OF MATERIALS IN COMPLIANCE WITH APPLICABLE REGULATIONS. THE SITE MUST BE LEFT IN A CONDITION SATISFACTORY TO THE OWNER AND ENGINEER.
9. THE CONTRACTOR MUST DOCUMENT EXISTING CONDITIONS THROUGH PHOTOS OR VIDEOS BEFORE CONSTRUCTION BEGINS. THIS INCLUDES ITEMS DESIGNATED TO REMAIN THAT MIGHT BE MISCONSTRUED AS DAMAGE CAUSED BY CONSTRUCTION OPERATIONS. ADEQUATELY DETAILED PHOTOGRAPHS OR VIDEO RECORDINGS, ALONG WITH PLANS AND NOTATIONS, MUST BE SUBMITTED TO THE ENGINEER AND OWNER BEFORE CONSTRUCTION BEGINS. ANY DAMAGE TO EXISTING PAVEMENT, CURBING, STRIPING, OR OTHER SITE FEATURES MUST BE REPLACED BY THE CONTRACTOR TO THE OWNER'S SATISFACTION, AT NO ADDITIONAL COST TO THE OWNER.

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TWIN CITY HOSE BUILDING ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR
ARCHITECTS, INC.

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.

PRINT NAME: BRIAN J. FIELD, PE

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 57224

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

DEMOLITION PLAN

DRAWING NO.

C2

PLOTTED:	COMM. NO.
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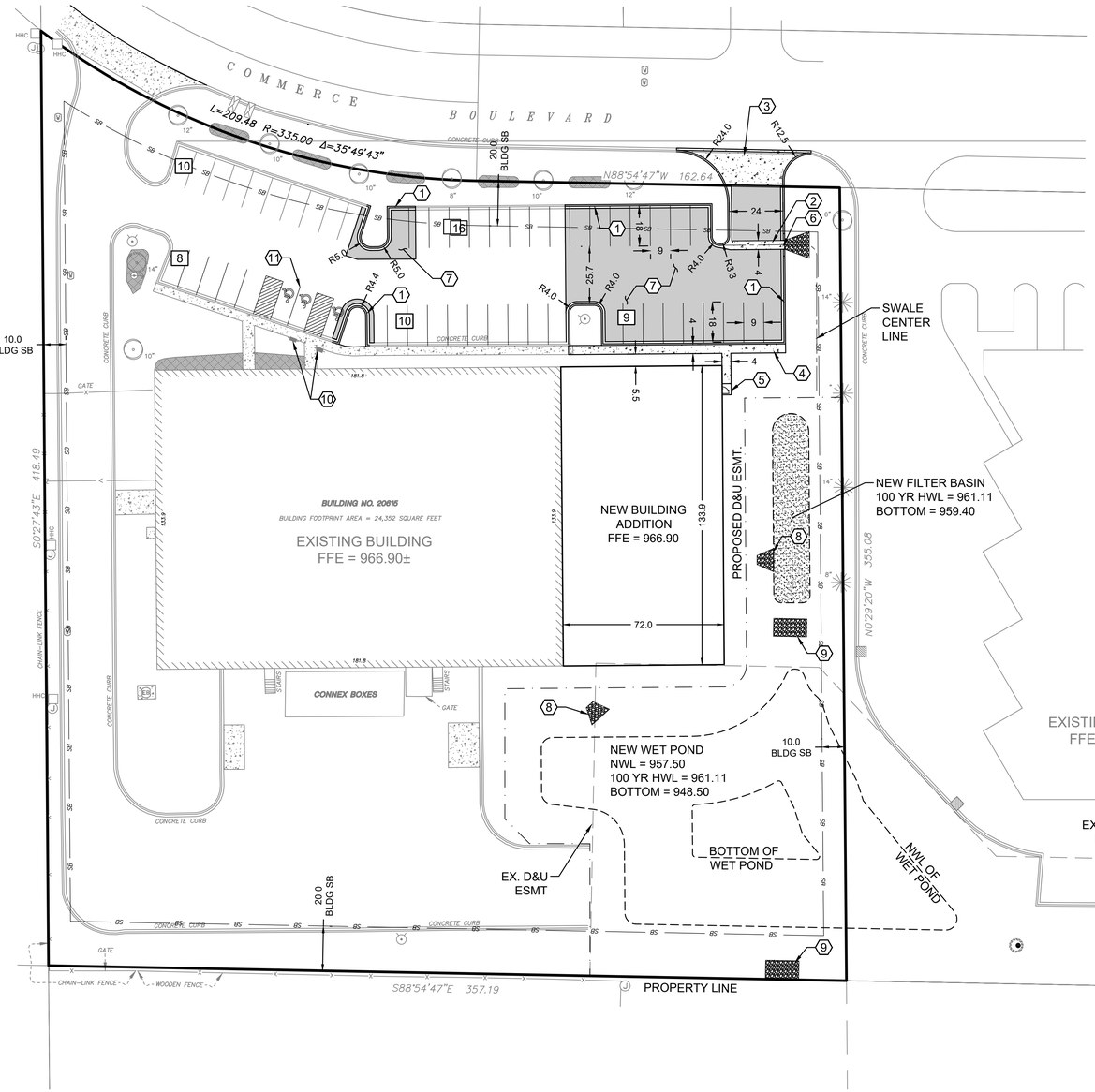
SITE NOTES

1. THE CONTRACTOR, RESPONSIBLE FOR THE WORK'S COMPLETION, MUST COORDINATE CONSTRUCTION STAGING, WHETHER ON OR OFFSITE. IN THE EVENT OF AN OFFSITE STAGING AREA REQUIREMENT, THE CONTRACTOR MUST IDENTIFY, SECURE, AND COVER THE COST OF SAID AREA, WITH NO ADDITIONAL EXPENSE TO THE OWNER. PRIOR TO INITIATING WORK, SUBMIT A STAGING PLAN FOR REVIEW BY THE ENGINEER.
2. BEFORE CONSTRUCTION, BOTH THE CONTRACTOR AND SURVEYOR MUST FIELD-VERIFY THE BUILDING FOOTPRINT/OUTLINE AND OUTERMOST EXTRUSIONS TO EXAMINE POTENTIAL CONFLICTS WITH ADJACENT WORK, EXISTING SITE FEATURES, PROPERTY LINES, SETBACKS, ETC.
3. REFER TO ARCHITECTURAL, STRUCTURAL, LANDSCAPE, AND MEP PLANS FOR PRECISE DETAILS ON THE LOCATIONS AND DIMENSIONS OF BUILDINGS, VESTIBULES, STOOPS, OVERHANGS, COLUMNS, RAMPS, SIDEWALKS, TRASH ENCLOSURES, TRAFFIC GATES, MONUMENT SIGNS, LANDSCAPING, PLANTINGS, TREES, SITE LIGHTING, EXTERIOR ELECTRICAL ELEMENTS, BACKFLOW PREVENTERS, AND BUILDING UTILITY ENTRANCE LOCATIONS.
4. DIMENSIONS ARE REFERENCED TO THE FACE OF THE CURB UNLESS OTHERWISE SPECIFIED.
5. THE PAVEMENT SURFACE IS TO BE CLEANED AS DIRECTED BY THE CITY, COUNTY, MN/DOT, OR ENGINEER JUST BEFORE THE APPLICATION OF PAVEMENT MARKINGS. CLEANING SHOULD INVOLVE BRUSHING WITH A NON-METALLIC ROTARY BROOM OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTED BY THE CITY, COUNTY, MN/DOT, OR ENGINEER (INCIDENTAL).
6. IMMEDIATELY FOLLOWING PAVEMENT CLEANING, APPLY PAVEMENT MARKINGS.
7. PAVEMENT MARKING EDGE LINES SHOULD ONLY BE BROKEN AT INTERSECTIONS WITH PUBLIC ROADS AND PRIVATE ENTRANCES CONTROLLED BY A YIELD SIGN, STOP SIGN, OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE INTERSECTION'S RADIUS OR AT MARKED STOP LINES.
8. WHEN CONNECTING TO EXISTING ROADWAYS/PAVEMENT SECTIONS AT THE TERMINI OF PROPOSED NEW CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE IN-PLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1V:20H TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
9. THE CONTRACTOR MUST HAVE A MINIMUM OF TWO INDIVIDUALS WITH CURRENT ACI CONCRETE FLATWORK TECHNICIAN OR FLATWORK FINISHER CERTIFICATION, AND AT LEAST ONE OF THEM MUST BE PRESENT ONSITE FOR ALL CONCRETE POURS.
10. TAKE MEASURES TO PROTECT CONCRETE PAVING FROM DAMAGE, EXCLUDING TRAFFIC FROM PAVING FOR A MINIMUM OF 14 DAYS AFTER PLACEMENT. REPAIR OR REPLACE STAINED CONCRETE TO THE SATISFACTION OF THE OWNER AT NO COST TO THE OWNER.
11. CONSTRUCTION AND MATERIALS WITHIN THE PUBLIC RIGHT-OF-WAY MUST ADHERE TO CITY, COUNTY, AND MN/DOT SPECIFICATIONS AND STANDARDS. MN/DOT SPFIICATIONS AND STANDARDS APPLY IF NOT COVERED BY LOCAL OR COUNTY REGULATIONS. PAVING, PAVEMENT MARKINGS, AND SIGNAGE WITHIN THE SITE MUST MEET SPECIFIC REQUIREMENTS.
    A. SITE BITUMINOUS SHALL MEET MNDOT SPEC 2360 AND IN ACCORDANCE WITH DRAWING SPECIFICATIONS. MAXIMUM ALLOWABLE BITUMINOUS LIFT THICKNESS SHALL NOT BE GREATER THAN 3 INCHES. PLACE TACK COAT BETWEEN EACH LIFT AT A RATE SPECIFIED ON DRAWING DETAILS.
    B. CONCRETE WALKS TO CONFORM TO MNDOT SPEC 2461
    C. CONCRETE CURB AND GUTTER TO CONFORM TO MNDOT SPEC 2461
    D. COCRETE ISOLATION/EXPANSION JOINT MATERIAL: MNDOT SPEC 3702, TYPE D-1 OR TYPE D-2. PROVIDE CAULKING/JOINT SEALANT AND BACKER ROD AS RECOMMENDED BY JOINT MANUFACTURER.
    E. CONCRETE CURING MATERIAL TO CONFORM TO MNDOT SPEC 3754. CONCRETE SEALER TO BE SILOXA-TIK 8500, ARMOR SX5000, OR APPROVED EQUAL AND TO BE APPLIED PER MANUFACTURER INSTRUCTIONS.
    F. CONCRETE PLACING, FINISHING, CURING, AND PROTECTION TO CONFORM TO MNDOT SPEC 2461, 2521, AND 2531 AND APPLICABLE ACI STANDARDS.
    G. AGGREGATE BASE TO CONFROM TO MNDOT SPEC 3138, CLASS 5 AGGREGATE BASE, 100% GRUSHED VIRGIN AGGREGATE OR APPROVED EQUAL.
    H. PAVEMENT MARKINGS TO CONFORM TO MNDOT SPEC 2582. ALLOW NEW PAVEMENT TO CURE FOR A MINIMUM OF 14 DAYS MINIMUM PRIOR TO APPLYING PAVEMENT MARKINGS.
10. IMPLEMENT FIELD QUALITY CONTROL MEASURES.
    A. TEST THE CONCRETE AIR CONTENT (ASTM C231), CONCRETE SLUMP (ASTM C143), AIR AND CONCRETE TEMPERATURE, AND 7- AND 28-DAY COMPRESSIVE STRENGTH (ASTM C31, C39, AND C172). WHERE APPLICABLE, CONDUCT TESTS IN ACCORDANCE WITH THE MN/DOT SCHEDULE OF MATERIALS CONTROL.
    B. ENSURE THAT ALL BITUMINOUS PAVEMENT DENSITY ADHERES TO MN/DOT SPEC 2360.3.D.2 USING THE ORDINARY COMPACTION METHOD. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING A ROLL PATTERN FOR EACH COURSE OF PAVING DAILY.
    C. CONDUCT A TEST ROLL OF THE SUBGRADE AND AGGREGATE BASE FOLLOWING MN/DOT SPECS 2211 FOR AGGREGATE BASE AND 2111 FOR TESTING ROLLING. THE TEST ROLL MUST BE WITNESSED BY THE ENGINEER OR GEOTECHNICAL ENGINEER.
11. TOLERANCES:
    A. ENSURE THAT BITUMINOUS PAVEMENT LINE, GRADE, AND THICKNESS CONFORM TO MN/DOT SPEC 2360.3.E
    B. CONCRETE PAVEMENT TO CONFORM TO MNDOT SPEC 2521.3.D.3
    C. CONCRETE CURB AND GUTTER TO CONFORM TO MNDOT SPEC 2531.3
    D. PAVEMENT MARKINGS TO CONFORM TO MNDOT SPEC 2582.3.C
12. CONTRACTOR SHALL PROVIDED CONCRETE JOINTS TO MATCH EXISTING ADJACENT WORK AND AS FOLLOWS:
    A. CONTROL JOINTS - MAINTAIN AN ASPECT RATIO (LENGTH TO WIDTH) OF CONTROL JOINTS AS CLOSE TO 1:1 AS FEASIBLE, AVOIDING AN ASPECT RATIO GREATER THAN 1.5:1. MATCH THE EXISTING PATTERN WHERE APPLICABLE. THE MAXIMUM SPACING FOR CONTROL JOINTS SHOULD BE 24 TIMES THE SLAB THICKNESS, UP TO A MAXIMUM OF 12 FEET ADDITIONALLY, JOINT INTERSECTION ANGLES LESS THAN 60 DEGREES ARE NOT ALLOWED, AND PANEL WIDTHS LESS THAN 6 INCHES AT ANY POINT ARE PROHIBITED. JOINTING MUST ACCOMMODATE IN-PAVEMENT STRUCTURES THROUGH JOINTING AND BOXOUTS. THE CONTRACTOR IS REQUIRED TO SUBMIT A JOINTING PLAN FOR ENGINEER ACCEPTANCE.
    B. EXPANSION JOINTS - EXPANSION/ISOLATION JOINTS MUST BE PROVIDED AT VARIOUS LOCATIONS, INCLUDING THOSE WHERE ABRUPT CHANGES IN DIRECTION OCCUR, WHERE CHANGES IN WIDTH TAKE PLACE, WHERE ADJOINING EXISTING CONCRETE IS PRESENT, AT LOCATIONS ABUTTING THE BUILDING AND OTHER SITE FEATURES SUCH AS RAMPS, STAIRS, LANDINGS, CONCRETE APRONS, ARCHITECTURAL AND LANDSCAPE FEATURES, ETC., AND AT LOCATIONS WITH CHANGES IN DEPTH, INCLUDING PAVEMENT ADJACENT TO THE CURB.
13. INSTALL A MINIMUM 6-INCH CLASS 5 AGGREGATE BASE UNDER CURB AND GUTTER AS DETAILED.



KEY NOTES

1. INSTALL NEW B612 CONCRETE CURB & GUTTER
2. NEW CONCRETE VALLEY GUTTER
3. NEW CONCRETE ACCESS APRON
4. NEW CONCRETE SIDE WALK
5. NEW CONCRETE STOOP. SEE ARCHITECTURE FOR MORE INFORMATION.
6. 4' CURB CUT WITH NEW RIP-RAP
7. NEW BITUMINOUS PAVEMENT
8. NEW RIP-RAP AT PIPE OUTLET
9. NEW RIP-RAP AT OVERFLOW LOCATIONS
10. NEW HANDICAP SIGN
11. NEW HANDICAP STRIPING

N

0 30' 60'

LEGEND

- PROPERTY LIMITS
- PROPOSED D&U EASEMENT
- PROPOSED BITUMINOUS PVMT
- PROPOSED CONCRETE PVMT
- PROPOSED B612 CONCRETE C&G
- SB — BUILDING SETBACK LINE
- EXISTING DRAINAGE & UTILITY ESMT.
- 9 — PARKING COUNT

SITE DATA

ADDRESS:	20615 COMMERCE BLVD, ROGERS, MN 55374
PID:	2412023230009
LEGAL DESCRIPTION:	LOT 1, BLOCK 2, ROGERS INDUSTRIAL PARK HENNEPIN COUNTY, MINNESOTA
EXISTING ZONE:	RC - REGIONAL EMPLOYMENT CENTER
PROPOSED ZONE:	RC - REGIONAL EMPLOYMENT CENTER

PROPERTY SIZE: 130,673 SF (3.00 Ac)
TOTAL DISTURBED AREA: 56,355 SF (1.29 Ac)

BUILDING SETBACKS

FRONT:	20'
REAR:	20'
SIDE:	10'

PARKING REQUIREMENTS

TYPICAL STALL SIZE = 9' X 18'
MINIMUM DRIVE AISLE = 24'

SEE ARCHITECTURE FOR PARKING CALCS

PARKING SHOWN: 56 SPACES

LOT AREA SUMMARY

EXISTING IMPERVIOUS	=	50,596 SF (1.16 AC)
PROPOSED IMPERVIOUS	=	65,814 SF (1.51 AC)
TOTAL LOT COVERAGE	=	50.30 %

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TWIN CITY HOSE BUILDING ADDITION

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EDWARD FARR ARCHITECTS, INC.

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.

PRINT NAME: BRIAN J. FIELD, PE

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 57224

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

CIVIL SITE PLAN

DRAWING NO.

C3

PLOTTED:	COMM. NO.
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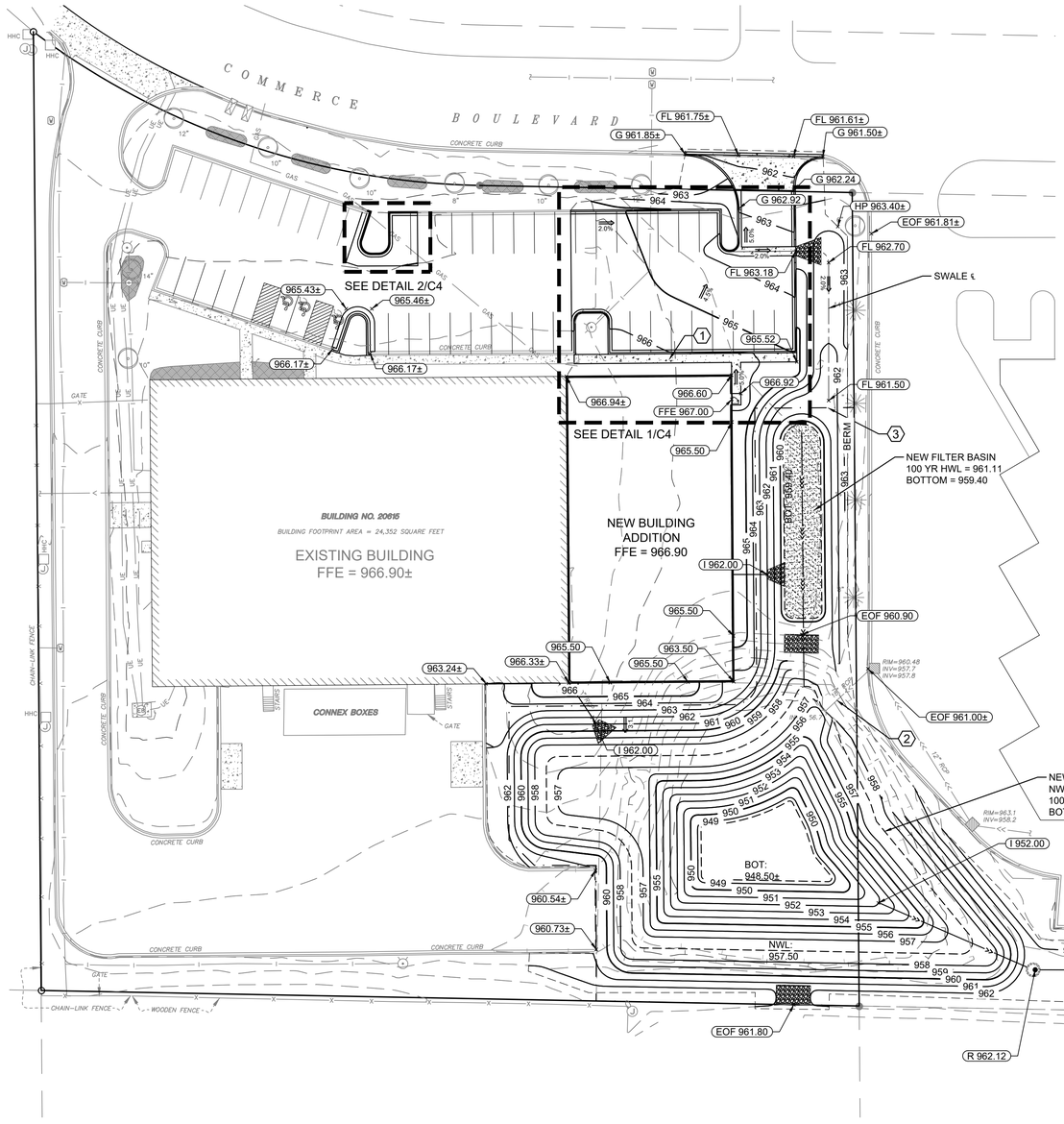
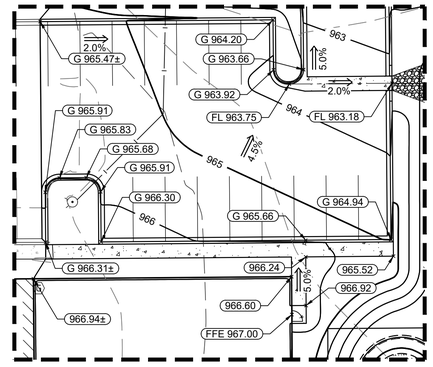
GRADING NOTES

1. THE CONTRACTOR MUST CONSTRUCT/GRADE SIDEWALKS AND ACCESSIBLE ROUTES, INCLUDING CROSSING DRIVEWAYS, IN ACCORDANCE WITH CURRENT ADA STATE AND NATIONAL STANDARDS. IMMEDIATE WRITTEN NOTIFICATION TO THE ENGINEER IS REQUIRED IF ADA CRITERIA CANNOT BE MET AT ANY LOCATION.
2. IMPORTED SUITABLE FILL MATERIAL NEEDED MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER BEFORE BRINGING IT ON THE SITE.
3. THE CONTRACTOR MUST COORDINATE REQUIRED SOIL TESTS AND INSPECTIONS WITH THE GEOTECHNICAL ENGINEER.
4. THE CONTRACTOR IS RESPONSIBLE FOR EXCAVATING AND DISPOSING OF UNSUITABLE OR CONTAMINATED SOILS DISCOVERED ONSITE IN ACCORDANCE WITH APPLICABLE REGULATIONS AND AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
5. EXISTING TOPSOIL ON-SITE VARIES IN DEPTH. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING SURFACE VEGETATION, TOPSOIL, AND OTHER UNSUITABLE MATERIAL FROM IMPERVIOUS AREAS AND OTHER DESIGNATED AREAS BEFORE PLACING SUITABLE FILL MATERIAL, AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
6. EXCAVATE, COMPACT EMBANKMENT/SUITABLE FILL, AND BACKFILL IN ACCORDANCE WITH MN/DOT SPEC 2106 SPECIFIED DENSITY METHOD. THE CONTRACTOR MUST MEET MOISTURE CONTENT/CONTROL REQUIREMENTS IN ACCORDANCE WITH MN/DOT 2106 AND SITE TESTING REQUIREMENTS.
7. ONSITE EMBANKMENT MATERIAL FREE OF ORGANIC SOIL AND DEBRIS MAY BE CONSIDERED FOR REUSE AS SUITABLE FILL MATERIAL IN PERVIOUS AREAS BUT MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER.
8. THE CONTRACTOR SHOULD PROMPTLY BACKFILL SUBGRADE AND TRENCH EXCAVATIONS AFTER EXCAVATION.
9. THE CONTRACTOR IS RESPONSIBLE FOR QUANTIFYING SOIL IMPORT OR EXPORT AND CONDUCTING THEIR OWN QUANTITY TAKEOFFS FROM THE DRAWINGS. ADDITIONAL ON-SITE EXCAVATION OR OFF-SITE IMPORT MAY BE NECESSARY TO ACHIEVE FINAL GRADES, AND THE CONTRACTOR MUST COORDINATE THESE ACTIONS WITH THE OWNER AND ENGINEER. THE SUITABILITY OF OFFSITE IMPORT MATERIAL MUST BE VERIFIED BY THE GEOTECHNICAL ENGINEER. ANY EXCESS MATERIAL, UNLESS NOTED OTHERWISE, BELONGS TO THE CONTRACTOR AND SHOULD BE MOVED AND DISPOSED OF OFFSITE IN ACCORDANCE WITH APPLICABLE LAWS.
10. GRADING DISCREPANCIES IN EXISTING OR PROPOSED GRADES MUST BE REPORTED IN WRITING TO THE ENGINEER BEFORE PLACING PAVEMENT. THE CONTRACTOR SHOULD OBSERVE PAVEMENT AREAS FOR EVIDENCE OF PONDING BEFORE PLACEMENT TO ENSURE ADEQUATE DRAINAGE.
11. EXISTING SPOT ELEVATIONS AT MATCH POINTS ARE BASED ON SITE SURVEY DATA. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING CONNECTION POINTS BEFORE INSTALLATION OF IMPROVEMENTS AND MUST NOTIFY THE ENGINEER IN WRITING OF ANY FIELD DISCREPANCIES. THE CONTRACTOR IS RESPONSIBLE FOR REWORK OF ANY DISCREPANCIES THAT ARE NOT COMMUNICATED TO THE ENGINEER IN WRITING AT NO ADDITIONAL COST TO THE OWNER.
12. THE PROPOSED CONTOURS PERTAIN TO THE FINISHED SURFACE GRADE, UNLESS OTHERWISE INDICATED.
13. THE CONTRACTOR IS RESPONSIBLE FOR MEETING GRADING/COMPACTION REQUIREMENTS OUTLINED IN THE GEOTECHNICAL REPORT AND SPECIFICATIONS FOR THE PROJECT.
14. IMPORTED SUITABLE FILL MATERIAL MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER BEFORE BRINGING IT ON THE SITE.
15. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING DEWATERING MEASURES AS REQUIRED OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
16. COMPACTION TESTING SHALL FOLLOW THE FREQUENCY OUTLINED IN THE GEOTECHNICAL REPORT OR MNDOT SCHEDULE OF MATERIALS CONTROL. WHERE NO FREQUENCY IS PROVIDED, CONSULT THE ENGINEER FOR MINIMUM REQUIREMENTS.
17. GRADING ELEVATIONS SHALL CONFORM TO MNDOT SPEC 2106.3.I.

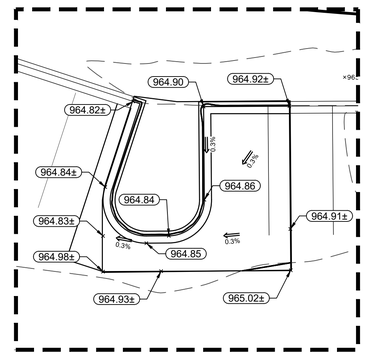
FILTRATION BASIN NOTES

1. CONSTRUCTION STAGING SHOULD BE EXECUTED THOUGHTFULLY TO MINIMIZE SOIL COMPACTION WITHIN THE FILTRATION AREA. FINAL GRADING OF THE BASIN SYSTEM MUST BE CONDUCTED USING LOW-IMPACT (WIDE-TRACKED) EARTHMOVING EQUIPMENT TO PREVENT COMPACTION.
2. FINAL GRADING OF THE BASIN SHOULD BE CARRIED OUT TO PREVENT COMPACTION. EXCAVATION, IF NECESSARY WITHIN THE FILTRATION FOOTPRINT, SHOULD ONLY BE PERFORMED USING LOW GROUND PRESSURE TRACKED EQUIPMENT. RUBBER TIRE EQUIPMENT IS PROHIBITED WITHIN THE FILTRATION AREA.
3. CONSTRUCTION STAGING AND THE INSTALLATION OF EROSION CONTROL MEASURES ARE CRUCIAL TO PREVENT SEDIMENT AND TOPSOIL FROM ENTERING THE INFILTRATION AREA. IN THE EVENT OF SEDIMENT INTRODUCTION, THE CONTRACTOR MUST PROMPTLY REMOVE THE MATERIAL BEFORE PROCEEDING WITH CONSTRUCTION.
4. THE CONTRACTOR IS REQUIRED TO MANAGE CONSTRUCTION ACTIVITIES AND IMPLEMENT NECESSARY EROSION CONTROL MEASURES TO PREVENT SEDIMENT FROM WASHING INTO THE FILTRATION BASIN.
5. THE CONTRACTOR MUST PREVENT CONTAMINATION OF FILTRATION BASIN SOILS WITH SEDIMENT, IN-SITU, OR TOPSOIL DURING AND AFTER INSTALLATION. MATERIALS MUST BE SEGREGATED, AND INSTALLATION UNDER DRY SOIL CONDITIONS IS CRUCIAL TO PREVENT SMEARING AND COMPACTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING FILTRATION SYSTEMS OFFLINE BY RESTRICTING STORMWATER INFLOW TO THE BASIN AS NECESSARY UNTIL VEGETATION IS ESTABLISHED IN THE CELL(S), AND UP-GRADIENT AREAS ARE FULLY STABILIZED, WITH IMPERVIOUS SURFACES CLEARED OF CONSTRUCTION SEDIMENT.
7. UPON THE FINAL COMPLETION OF CONSTRUCTION, THE CONTRACTOR MUST ENSURE THAT THE FILTRATION BASIN IS FREE AND CLEAR OF SEDIMENT.
8. EXCAVATION OF THE INFILTRATION BASIN IS NOT ALLOWED UNTIL CONTRIBUTING DRAINAGE AREAS WITH EXPOSED SOIL ARE STABILIZED, AND BITUMINOUS BASE COURSE IS INSTALLED ON CONTRIBUTING PAVEMENT AREAS. UPLAND DRAINAGE AREAS MUST BE DIVERTED TO PREVENT RUNOFF FROM ENTERING THE EXCAVATED CELL, AND THE FILTRATION CELL SHOULD NOT BE USED AS TEMPORARY SEDIMENT BASINS.





1 C4 PARKING ADDITION GRADING ENLARGEMENT
SCALE: 1" = 20'



2 C4 ISLAND GRADING ENLARGEMENT
SCALE: 1" = 10'

N

0 30' 60'

LEGEND

	PROPERTY LIMITS
	CONSTRUCTION LIMITS
958	EXISTING MINOR CONTOUR
960	EXISTING MAJOR CONTOUR
958	PROPOSED MINOR CONTOUR
960	PROPOSED MAJOR CONTOUR
× 954.2	EXISTING SPOT ELEVATION
	DRAINAGE ARROW
	PROPOSED CONCRETE C&G

SPOT ELEVATION KEY

±	EXISTING GRADE
G	GUTTER FLOW LINE
TC	TOP OF CURB
HP	HIGH POINT ELEVATION
R	RIM ELEVATION
EOF	EMERGENCY OVERFLOW ELEVATION
FFE	FINISHED FLOOR ELEVATION
FL	FLOW LINE

KEY NOTES

1. TIP SIDEWALK AWAY FROM BUILDING 2% MIN.
2. INVERT OF EXISTING 18" RCP TO REMAIN IN PLACE
3. NEW DRAINAGE AND UTILITY EASEMENT

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13605 1st Avenue N. #100
Plymouth, MN 55441 | ae-mn.com
P 763.412.4000 | F 763.412.4090
Anderson Engineering of Minnesota, LLC

TWIN CITY HOSE BUILDING ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR ARCHITECTS, INC.

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.

PRINT NAME: BRIAN J. FIELD, PE

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 57224

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

GRADING & DRAINAGE PLAN

DRAWING NO.

C4

PLOTTED:	COMM. NO.
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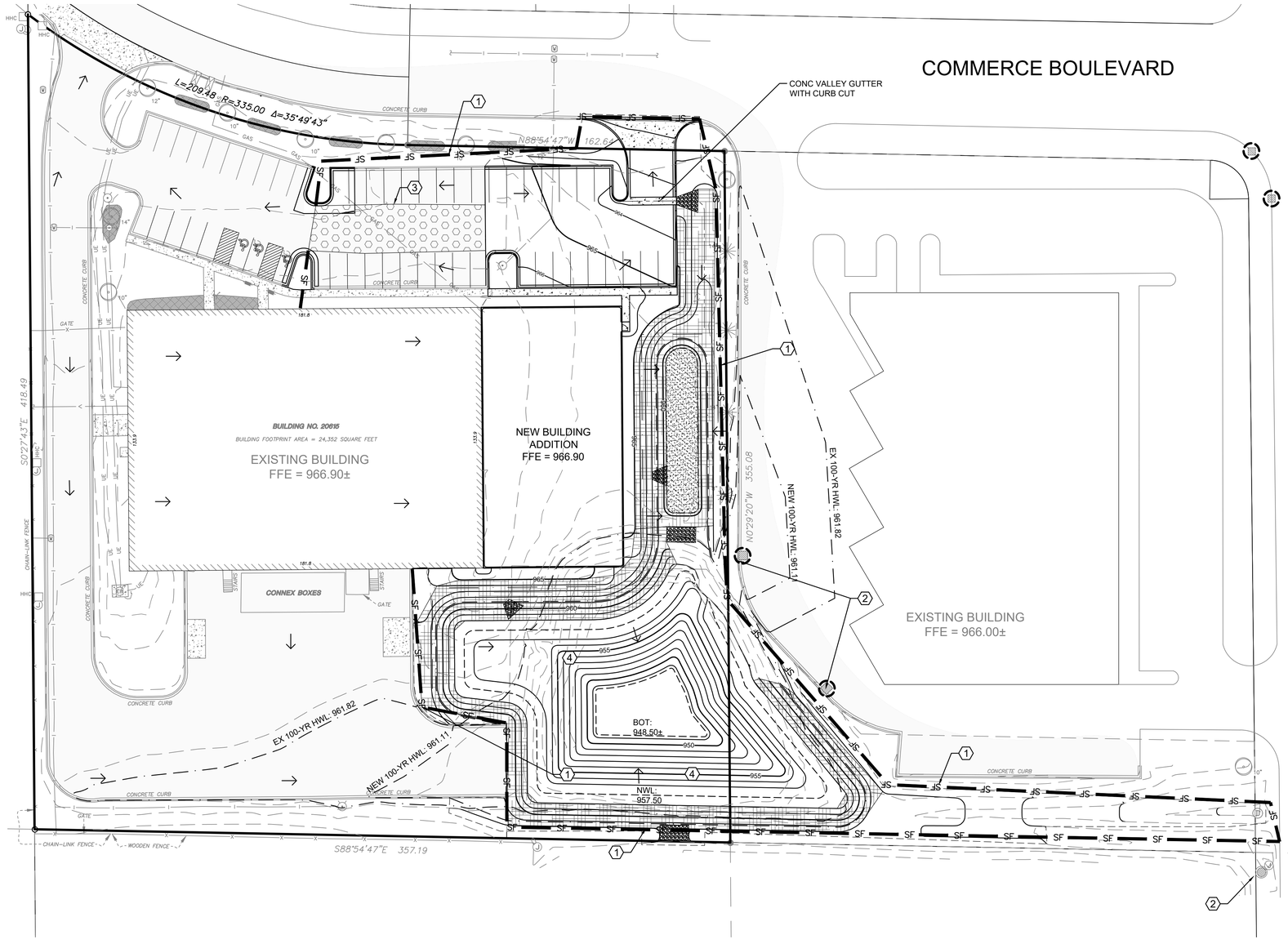

LEGEND

- PROPERTY LIMITS
- CONSTRUCTION LIMITS
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- × 954.2 EXISTING SPOT ELEVATION
- DRAINAGE ARROW
- SF SILT FENCE
- INLET PROTECTION
- CONSTRUCTION ENTRANCE
- BIO ROLL
- EROSION CONTROL BLANKET

N

0 30' 60'

KEY NOTES

1. INSTALL AND MAINTAIN SILTFENCE PERIMETER SEDIMENT PROTECTION IN TURF AREAS.
   USE BIO-ROLLS AS NEED IN PAVED AREA PER MNDOT SPEC 3885.
2. INSTALL AND MAINTAIN INLET SEDIMENT PROTECTION.
3. INSTALL TEMP ROCK ENTRANCE OR HARD SURFACE ASPHALT/CONCRETE AT CONSTRUCTION INGRESS & EGRESS LOCATION PRIOR TO EXCAVATION. MAINTAIN THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS.
4. AREAS WITH SLOPES STEEPER THAN 4:1 TO HAVE EROSION CONTROL BLANKET AND SEED INSTALLED. EROSION CONTROL BLANKET TO BE CATEGORY 3 OR 3N PER MNDOT SPEC 3885.

EROSION CONTROL NOTES

1. GRADING CONTRACTORS SHALL VERIFY LOCATIONS AND ELEVATIONS OF ALL UNDERGROUND UTILITIES WITH THE RESPECTIVE UTILITY COMPANIES PRIOR TO CONSTRUCTION.
2. ALL EROSION CONTROL MEASURES CALLED FOR ON THESE PLANS AND SPECIFICATIONS, WHICH MAY INCLUDE SILT FENCE, SEDIMENTATION BASINS OR TEMPORARY SEDIMENT TRAPS, SHALL BE CONSTRUCTED AND SERVICEABLE IN THE FOLLOWING ORDER:
   A. ROCK CONSTRUCTION ENTRANCES A MINIMUM OF 50 FEET
   B. SILT FENCE
   C. TEMPORARY CULVERTS
   D. TEMPORARY SEDIMENTATION BASINS AND OUTFALL FACILITIES
   E. STORMWATER POND CONSTRUCTION
   F. COMMION EXCAVATION AND EMBANKMENT (GRADING)
   G. SEED AND MULCH OR SOD
   H. BIO-ROLL BARRIERS IN FINISHED GRADED AREAS
   I. INLET AND OUTLET FACILITIES SUBSEQUENT TO STORM SEWER WORK
3. GRADING CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH CITY AND NPDES PHASE II PERMITTING REQUIREMENTS AS WELL AS EROSION CONTROL MEASURES AS MAY BE SHOWN ON THESE PLANS OR SPECIFICATIONS. GRADING CONTRACTOR SHALL IMPLEMENT ANY ADDITIONAL EROSION CONTROL MEASURES AS MAY BE REQUIRED TO PROTECT ADJACENT PROPERTY.
4. ALL EROSION CONTROL FACILITIES SHALL BE MAINTAINED BY THE CONTRACTOR DURING GRADING OPERATIONS. ANY TEMPORARY FACILITIES WHICH ARE TO BE REMOVED AS CALLED FOR ON THESE PLANS AND SPECIFICATIONS SHALL BE REMOVED BY THE GRADING CONTRACTOR WHEN DIRECTED BY THE ENGINEER. THE GRADING CONTRACTOR SHALL RESTORE THE SUBSEQUENTLY DISTURBED AREA IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS.
5. THE GRADING CONTRACTOR SHALL SCHEDULE THE SOILS ENGINEER SO THAT CERTIFICATION OF ALL CONTROLLED FILLS WILL BE FURNISHED TO THE OWNER DURING AND UPON COMPLETION OF THE PROJECT.
6. ALL DISTURBED AREAS, EXCEPT AREAS TO BE PAVED AND/OR SPECIFICALLY DESIGNED BY A LANDSCAPE PLAN, SHALL BE COVERED WITH A MINIMUM 6" OF TOP SOIL OR AS INDICATED IN SPECIFICATIONS OR LANDSCAPING PLAN. ALL DISTURBED AREAS SHALL BE SEEDED & MULCHED AT THE PRESCRIBED RATES WITHIN 72 HOURS OF FINAL GRADING UNLESS OTHERWISE NOTED.

   SEED MIX: MNDOT - MESIC INSLOPE 55# / ACRE
   MULCH: TYPE 1 2 TONS / ACRE (DISK ANCHORED)
   FERTILIZER: TYPE 3 22-5-10 350# / ACRE

   ALL EXPOSED SOIL AREAS WITH A CONTINUOUS POSITIVE SLOPE WITHIN 200 LINEAL FEET OF ANY SURFACE WATER, MUST HAVE TEMPORARY EROSION PROTECTION OR PERMANENT COVER FOR THE EXPOSED SOIL AREAS YEAR ROUND, ACCORDING TO THE FOLLOWING TABLE OF SLOPES AND TIME FRAMES:

TYPE OF SLOPE	TIME (Maximum time an area can remain open when the area is not actively being worked)
STEEPER THAN 3:1	7 DAYS
10:1 TO 3:1	4 DAYS
FLATTER THAN 10:1	7 DAYS

7. THE EXISTING TOPOGRAPHY AND CONTOUR ELEVATIONS SHOWN ON THE PLAN WERE TAKEN FROM A PLAN FURNISHED BY OWNER.
8. CONTRACTORS GRADING AND EROSION CONTROL OPERATIONS SHALL TAKE PLACE WITHIN THE CONSTRUCTION LIMITS.
9. IT IS REQUIRED THAT SOILS TRACKED FROM THE SITE BY MOTOR VEHICLES BE CLEANED DAILY FROM PAVED ROADWAY SURFACES THROUGHOUT THE DURATION OF CONSTRUCTION.
10. PROVIDE TEMPORARY SEDIMENTATION BASINS AS DIRECTED BY THE ENGINEER.
11. ALL REQUIREMENTS OF THE LOCAL WATERSHED DISTRICT SHALL BE SATISFIED PER THE APPROVED PERMIT.
12. ALL EROSION & SEDIMENT CONTROL MEASURES SHOWN ON THIS PLAN AND IMPLEMENTED IN THE FIELD AS DIRECTED BY THE ENGINEER SHALL CONFORM TO THE MPCA'S "PROTECTING WATER QUALITY IN URBAN AREAS: BEST MANAGEMENT PRACTICES FOR MINNESOTA".
13. DEWATERING AND / OR BASIN DRAINING DISCHARGE SHALL BE DIRECTED TO SEDIMENTATION BASINS WHEREVER POSSIBLE. ALL DISCHARGE POINTS SHALL BE ADEQUATELY PROTECTED FROM EROSION & SCOUR THROUGH USE OF APPROVED ENERGY DISSIPATION DEVICES.
14. ALL SOLID WASTE / CONSTRUCTION DEBRIS SHALL BE DISPOSED OF IN ACCORDANCE WITH MPCA REQUIREMENTS. HAZARDOUS MATERIALS SHALL BE STORED / DISPOSED OF IN COMPLIANCE WITH MPCA REGULATIONS.
15. CONTRACTOR SHALL USE RAPID STABILIZATION METHODS PER MNDOT 2575 AS NEEDED DURING THE COURSE OF THE WORK TO MAINTAIN CONFORMANCE WITH THE CITY AND NPDES II PERMIT REQUIREMENTS. THIS WORK SHALL CONSIST OF OPERATIONS NECESSARY TO RAPIDLY STABILIZE SMALL CRITICAL AREA, TO PREVENT OFF SITE SEDIMENTATION AND / OR TO COMPLY WITH PERMIT REQUIREMENTS. THE WORK MAY BE PERFORMED AT ANY TIME DURING THE CONTRACT AND DURING NORMAL WORKING HOURS. THIS WORK WILL BE CONDUCTED ON SMALL AREAS THAT MAY OR MAY NOT BE ACCESSIBLE WITH NORMAL EQUIPMENT. THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE MNDOT STANDARDS SPECIFICATIONS, THE DETAILS SHOWN IN THE PLANS, AND THE FOLLOWING:

    THERE ARE FIVE STABILIZATION METHODS APPROVED FOR THESE OPERATIONS. THESE METHODS MAY BE CONDUCTED INDEPENDENTLY OR IN COMBINATION.

METHOD	RAPID STABILIZATION
1	TYPE 1 MULCH WITH DISC ANCHORING
2	TYPE 3 MULCH WITH TYPE HYDRAULIC MULCH
3	TYPE HYDRAULIC MULCH WITH SEED MIXTURE 22-11
4	CATEGORY 3 EROSION CONTROL BLANKET WITH SEED MIXTURE
5	RIPRAP CLASS II WITH GEOTEXTILE TYPE III

    THESE EFFORTS WILL BE INCIDENTAL TO THE EROSION CONTROL BID ITEM.
16. CHANGE OF COVERAGE: FOR STORM WATER DISCHARGES FROM CONSTRUCTION PROJECTS WHERE THE OWNER OR OPERATOR CHANGES, (E.G., AN ORIGINAL DEVELOPER SELLS PORTIONS OF THE PROPERTY TO VARIOUS BUILDERS) THE NEW OWNER OR OPERATOR MUST SUBMIT A SUBDIVISION REGISTRATION WITHIN 7 DAYS OF ASSUMING TRANSFERS, SALE OR CLOSING ON THE PROPERTY.
17. INDIVIDUAL SITE BUILDERS SHALL BE RESPONSIBLE FOR PROVIDING ANY AND ALL NECESSARY EROSION CONTROL MEASURES AS MAY BE REQUIRED. REQUIRED ECM'S SHALL CONSIST OF BUT NOT BE LIMITED TOT HE FOLLOWING:
    A. STAKED FIBER LOG ROLLS AT BACK OF ALL CURB EXCEPT AT CONSTRUCTION / DRIVEWAY ENTRANCE.
    B. SILT FENCE ON ALL DOWN GRADIENT SLOPES FROM CONSTRUCTION AREA. SILT FENCE SHALL HAVE THE BOTTOM DUG IN WITH SOIL FIRMLY COMPACTED.
    C. ROCK CONSTRUCTION ENTRANCE HAVING 1" TO 2" CLEAR ROCK OVER GEOTEXTILE FABRIC.
    D. STREET CLEANING AS MAY BE REQUIRED SHOULD VEHICLE TRACKING OCCUR.

    INDIVIDUAL SITE BUILDERS ARE REQUIRED TO MAINTAIN EROSION CONTROL MEASURES UNTIL SUCH TIME AS INDIVIDUAL YARDS/VEGETATION ARE ESTABLISHED.
18. CONTRACTOR SHALL PROVIDE A TEMPORARY LINED SEDIMENTATION BASIN ON SITE FOR CONSTRUCTION WASH OUT USE. TEMPORARY BASIN SHALL BE LOCATED AS TO PROVIDE EASY ACCESS FOR CONSTRUCTION VEHICLES AND CONCRETE TRUCKS AS NECESSARY.
19. INLET SEDIMENTATION CONTROL IS TO BE PROVIDED TO ALL STORM SEWER CATCH BASIN THROUGHOUT CONSTRUCTION . MEASURES APPLIED SHALL COMPLY WITH BEST MANAGEMENT PRACTICES FOR MINNESOTA AND APPLICATION OF NPDES PHASE II AS APPROPRIATE FOR PHASE OF CONSTRUCTION.
20. CONTRACTOR SHALL PREVENT SOIL LOSS DURING CONSTRUCTION DUE TO WIND EROSION THROUGHOUT CONSTRUCTION. DUST SHALL BE SUPPRESSED THOUGH THE APPLICATIONS OF WATER, AS DEEMED NECESSARY BY THE CONTRACTOR, OR THROUGH EQUIVALENT BMP'S AS APPROVED BY THE ENGINEER.
21. IF LEED ACCREDITATION IS APPLICABLE, CONTRACTOR SHALL DOCUMENT THE IMPLEMENTATION OF THE EROSION AND SEDIMENTATION CONTROL PLAN THROUGH DATE-STAMPED PHOTOS AND INSPECTION LOGS / REPORTS. REPORTS SHALL INCLUDE AT A MINIMUM DESCRIPTION OF ALL EMPLOYED BMP'S (INCLUDING BOTH MEASURES TO PREVENT SOIL LOSS DUE TO RUNOFF AND SOIL LOSS DUE TO WIND EROSION), BMP'S DEEMED UNNECESSARY DUE TO SITE CONDITIONS, CORRECTIVE ACTIONS TAKEN IN RESPONSE TO PROBLEMS, AND ANY ADDITIONAL INFORMATION RELEVANT TO THE CONDITION OF THE EROSION AND SEDIMENT CONTROL PLAN AS IT WAS ESTABLISHED AT THE TIME OF CONSTRUCTION.

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P 763.412.4000 | F 763.412.4090
Anderson Engineering of Minnesota, LLC

TWIN CITY HOSE BUILDING ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR
ARCHITECTS, INC.

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.

PRINT NAME: BRIAN J. FIELD, PE

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 57224

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

EROSION & SEDIMENT CONTROL PLAN

DRAWING NO.

C5

PLOTTED:	COMM. NO.
----	18438

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STORM WATER POLLUTION PREVENTION PLAN NARRATIVE - PAGE 1 OF 2

PROJECT DESCRIPTION/LOCATION

TWIN CITY HOSE IS CONSTRUCTING A NEW BUILDING ADDITION IN THE CITY OF ROGERS IN HENNEPIN COUNTY, BOUNDED BY COMMERCE BLVD AND EXISTING DEVELOPMENTS BY OTHERS. THE PROPERTY EXTENDS 393.0 FT FROM EAST TO WEST AND 415.5 FT FROM SOUTH TO NORTH, LOCATED IN SPRING CREEK WATERSHED. THE PROPOSED SITE ENCOMPASSES 2.78 ACRES.

THE PLANNED SCOPE OF THE PROJECT INCLUDES:

- THE INSTALLATION OF EROSION CONTROL MEASURES AS REQUIRED FOR THE MASS GRADING OF THE SITE FOR THE CONSTRUCTION OF THE ACCESS ROAD AND DEVELOPMENT SITE.
- GRADING AS REQUIRED FOR THE INSTALLATION OF THE STRUCTURES AND PARKING.
- INSTALLATION OF STORM SEWER AND STORM MANAGEMENT STRUCTURES.
- PLACEMENT OF CONCRETE AS REQUIRED TO ESTABLISH CURB, GUTTER, AND SIDEWALKS THROUGHOUT THE SITE.
- CONSTRUCTION OF BUILDING ADDITION.

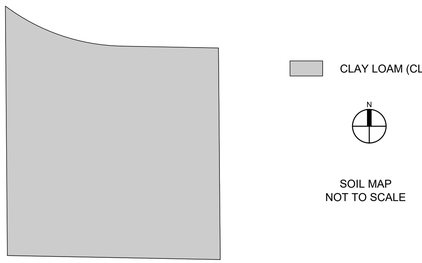
RECEIVING WATERS

THESE WATERS ARE LOCATED WITHIN ONE MILE (AERIAL RADIUS) OF THE PROJECT LIMITS AND RECEIVE RUNOFF FROM THE PROJECT SITE. DUE TO THE PROXIMITY OF THE RECEIVING WATERS, THE BMPS DESCRIBED IN APPENDIX A OF THE NPDES PERMIT MAY APPLY TO ALL AREAS OF THE SITE.

WATERS WITHIN 1 MILE RADIUS					
NAME OF WATER BODY	TYPE (LAKE, RIVER, WETLAND, DITCH, ETC)	APPENDIX A SPECIAL WATER (YES OR NO)	IMPAIRED WATER WITHIN 1 MILE OF PROJECT SITE (YES OR NO)	APPROVED TMDL	RECEIVING WATERS (YES OR NO)
GRASS LAKE	LAKE	NO	NO	NO	NO

SOIL TYPES

SOIL TYPES TYPICALLY FOUND ON THIS PROJECT ARE LEAN CLAY PER SOILS REPORT BY KILO ENGINEERING COMPLETED ON APRIL 24TH, 2026.



PROJECT PERSONNEL AND TRAINING

THIS SWPPP WAS PREPARED BY PERSONNEL THAT ARE VERIFIED IN THE DESIGN OF CONSTRUCTION SWPPP. COPIES OF THE CERTIFICATIONS ARE ON FILE WITH THE ENGINEER. PROVIDE A CERTIFIED EROSION CONTROL SUPERVISOR IN GOOD STANDING WHO IS KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES. THE EROSION CONTROL SUPERVISOR WILL WORK WITH THE PROJECT ENGINEER / SWPPP DESIGNER TO OVERSEE THE IMPLEMENTATION OF THE SWPPP AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE, DURING, AND AFTER CONSTRUCTION UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA. PROVIDE PROOF OF CERTIFICATION AT THE RECONSTRUCTION MEETING. WORK WILL NOT BE ALLOWED TO COMMENCE UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED TO THE PROJECT ENGINEER.

PROVIDE AT LEAST ONE CERTIFIED INSTALLER FOR EACH CONTRACTOR OR SUBCONTRACTOR THAT INSTALLS THE PRODUCTS LISTED IN SPECIFICATION SECTION 2573.3.A.2 CERTIFIED INSTALLERS. PROVIDE PROOF OF CERTIFICATION AT THE RECONSTRUCTION MEETING. WORK WILL NOT BE ALLOWED TO COMMENCE UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED TO THE PROJECT ENGINEER.

DESIGN OF CONSTRUCTION SWPPP

UNIVERSITY OF MINNESOTA

Douglas Van Cura

Design of Construction SWPPP (May 31 2028)

CONSTRUCTION SITE MANAGMENT

INSERT CERTIFICATION

CONSTRUCTION INSTALLER

INSERT CERTIFICATION

INSERT CERTIFICATION

CHAIN OF RESPONSIBILITY

THE OWNER AND CONTRACTOR ARE CO-PERMITTEES FOR THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUCTION PERMIT. THE CONTRACTOR IS RESPONSIBLE TO COMPLY WITH ALL ASPECTS OF THE NPDES CONSTRUCTION PERMIT AT ALL TIMES UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA THE CONTRACTOR WILL DEVELOP A CHAIN OF COMMAND WITH ALL OPERATORS ON THE SITE TO ENSURE THAT THE SWPPP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION PROJECT IS COMPLETE, THE ENTIRE SITE HAS UNDERGONE FINAL STABILIZATION, AND A NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA.

PROJECT CONTACTS

THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION OF THE SWPPP AND INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE, DURING, AND AFTER CONSTRUCTION UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED.

CONTACT INFORMATION		
ORGANIZATION	CONTACT NAME	PHONE
TWIN CITY HOSE (OWNER)		
ANDERSON ENGINEERING (SWPPP DESIGN)	DOUGLAS VANCURA*	763-412-4000
(CONTRACTOR)		

*CERTIFIED FOR DESIGN OF CONSTRUCTION SWPPP BY UNIVERSITY OF MINNESOTA, EXPIRES 5/31/28

MPCA DUTY OFFICER 24 HOUR EMERGENCY NOTIFICATION:
651-649-5451 OR 800-422-0798

SITE INSPECTION AND MAINTENANCE

CONTRACTOR SHALL PROVIDE NAME, CONTACT INFO, AND TRAINING DOCUMENTATION FOR THE PERSON RESPONSIBLE FOR SWPPP IMPLEMENTATION AND INSPECTION/MAINTENANCE OF BMPS.

INSPECT THE ENTIRE CONSTRUCTION SITE A MINIMUM OF ONCE EVERY SEVEN DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES WITHIN A 24 HOUR TIME FRAME. INSPECT ALL TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT, EROSION PREVENTION AND SEDIMENT CONTROL BMPS UNTIL THE SITE HAS UNDERGONE FINAL STABILIZATION AND THE N.O.T. HAS BEEN SUBMITTED. INSPECT SURFACE WATER INCLUDING DRAINAGE DITCHES FOR SIGNS OF EROSION AND SEDIMENT DEPOSITION. INSPECT CONSTRUCTION SITE VEHICLE EXIT LOCATIONS FOR EVIDENCE OF TRACKING ONTO PAVED SURFACES. INSPECT SURROUNDING PROPERTIES FOR EVIDENCE OF OFF SITE SEDIMENT ACCUMULATION.

RAINFALL AMOUNTS MUST BE OBTAINED BY A PROPERLY MAINTAINED RAIN GAUGE INSTALLED ONSITE, OR BY A WEATHER STATION THAT IS WITHIN ONE MILE OR BY A WEATHER REPORTING SYSTEM. A RAIN GAUGE IS PREFERRED FOR THIS PROJECT.

RECORD ALL INSPECTIONS AND MAINTENANCE ACTIVITIES IN WRITING WITHIN 24 HOURS. SUBMIT INSPECTION REPORTS IN A FORMAT THAT IS ACCEPTABLE TO THE PROJECT ENGINEER.

FOR PROJECTS THAT DISCHARGE TO PROHIBITED WATERS, CONDUCT ROUTINE SITE INSPECTIONS AT A MINIMUM OF ONCE EVERY 72 HOURS (3 DAYS).

INCLUDE THE FOLLOWING IN THE RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY:

A. DATE AND TIME OF INSPECTIONS
B. NAME OF PERSONS CONDUCTING INSPECTIONS
C. FINDINGS OF INSPECTIONS, INCLUDING RECOMMENDATIONS FOR CORRECTIVE ACTIONS
D. CORRECTIVE ACTION TAKEN, INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES
E. DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCH IN 24 HOURS
F. DOCUMENTS AND CHANGES MADE TO THE SWPPP
G. MAKE NOTE OF ANY OBSERVATIONS OF DISCHARGE THAT MAY BE OCCURRING DURING THE INSPECTION. THIS SHOULD BE DESCRIBED IN DETAIL AND PHOTOGRAPHED.

REPLACE, REPAIR OR SUPPLEMENT ALL NONFUNCTIONAL BMPS BY IN THE TIME PROVIDED BELOW:

A. REPAIR, REPLACE, OR SUPPLEMENT PERIMETER CONTROL DEVICES WHEN IT BECOMES NONFUNCTIONAL OR SEDIMENT REACHES ½ THE HEIGHT OF THE DEVICE. COMPLETE REPAIRS BY
B. THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY.
C. REPAIR OR REPLACE INLET PROTECTION DEVICES WHEN THEY BECOME NONFUNCTIONAL OR SEDIMENT REACHES ½ THE HEIGHT AND/OR DEPTH OF THE DEVICE. COMPLETE REPAIRS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVER.
D. DRAIN AND REMOVE SEDIMENT FROM TEMPORARY AND PERMANENT SEDIMENT BASINS ONCE THE SEDIMENT HAS REACHED ½ THE STORAGE VOLUME.
E. REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATER INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS. RESTABILIZED ANY AREAS THAT ARE DISTURBED BY SEDIMENT REMOVAL OPERATION. SEDIMENT REMOVAL AND STABILIZATION MUST BE COMPLETED WITHIN 7 DAYS OF DISCOVERY. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR WORKING IN SURFACE WATERS.
F. REMOVE TRACKED SEDIMENT FROM PAVED SURFACES BOTH ON AND OFF SITE WITHIN 24 HOURS OF DISCOVERY. STREET SWEEPING MAY HAVE TO OCCUR MORE OFTEN TO MINIMIZE OFF SITE IMPACTS. LIGHTLY WET THE PAVEMENT PRIOR TO SWEEPING
G. MAINTAIN ALL BMPS UNTIL WORK HAS BEEN COMPLETED, SITE HAS GONE UNDER FINAL STABILIZATION, AND THE NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA.

AREA SUMMARY

ACREAGE SUMMARY	
AREA	ACRES
PROPERTY AREA	3.00
DISTURBED	1.29
IMP. PRE-CONSTRUCTION	1.52
PROPOSED IMP.	1.87
PROPOSED PERVIOUS	1.13

SPECIAL SITE NOTES

IF SITE REQUIRES PERMANENT STORMWATER MANAGEMENT HYDROLOGIC AND WATER QUALITY MODELING DATA IS AVAILABLE UPON REQUEST.

THE SWPPP COORDINATOR MUST BE AVAILABLE FOR AN ONSITE INSPECTION WITHIN 72 HOURS UPON REQUEST BY THE MPCA AND SHALL BE RESPONSIBLE FOR THE FOLLOWING:

- SUBMIT THE NPDES PERMIT APPLICATION AND COMPLY WITH ALL REQUIREMENTS
- IMPLEMENT THE SWPPP.
- OVERSEE INSTALLATION AND MAINTENANCE PRACTICES AND REPAIRS IDENTIFIED IN THE SWPPP.
- IMPLEMENT AND OVERSEE EMPLOYEE TRAINING AND RECORD IN OR WITH THE SWPPP.
- CONDUCT OR PROVIDE FOR INSPECTION AND MONITORING ACTIVITIES AND MAINTAIN LOGS AS PERMIT REQUIRES.
- IDENTIFY OTHER POTENTIAL POLLUTANT SOURCES NOT LISTED IN THE SWPPP AND ADD THEM.
- IDENTIFY ANY DEFICIENCIES IN THE SWPPP AND CORRECT THEM.
- ENSURE THAT CHANGES TO CONSTRUCTION PLANS ARE ADDRESSED IN THE SWPPP.
- FILE THE NOTICE OF TERMINATION UPON PROJECT COMPLETION.

AFTER THE NOTICE OF TERMINATION HAS BEEN FILED, THE OWNER SHALL BE RESPONSIBLE FOR ASSIGNING RESPONSIBILITY FOR PERMANENT MAINTENANCE MEASURES.

PERMITS

THE FOLLOWING PERMITS APPLY TO THIS PROJECT:

AGENCY	TYPE OF PERMIT	PERMIT # AND DATES
MINNESOTA POLLUTION CONTROL AGENCY (MPCA)	NPDES CONSTRUCTION PERMIT	
CITY OF ROGERS	GRADING PERMIT	
CITY OF ROGERS	BUILDING PERMIT	

NOTE: NO WETLANDS ARE IN THE VICINITY OF THE DEVELOPMENT SO ADDITIONAL PERMITS WILL NOT BE REQUIRED.

LOCATION OF SWPPP REQUIREMENTS

THE REQUIRED SWPPP ELEMENTS MAY BE LOCATED IN MANY PLACES WITHIN THE PLAN SET. PLAN VIEW OF THE EROSION CONTROL MEASURES CAN BE FOUND ON SHEET C5 - EROSION & SEDIMENT CONTROL PLAN, OF THE PLANS.

BUFFER REQUIREMENTS

NO WETLANDS ARE IN THE THE VICINITY OF THE DEVELOPMENT SO BUFFERS WILL NOT BE REQUIRED.

SWPPP AMENDMENTS

A QUALIFIED INDIVIDUAL MUST COMPLETE ALL SWPPP CHANGES. CHANGES INVOLVING THE USE OF A LESS STRINGENT BMP MUST INCLUDE A JUSTIFICATION DESCRIBING HOW THE REPLACEMENT BMP IS EFFECTIVE FOR THE SITE CHARACTERISTICS.

PERMITTEES MUST AMEND THE SWPPP TO INCLUDE ADDITIONAL OR MODIFIED BMPS AS NECESSARY TO CORRECT PROBLEMS IDENTIFIED OF ADDRESS SITUATIONS WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION OPERATION, MAINTENANCE, WEATHER, OR SEASONAL CONDITIONS HAVING A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO SURFACE WATERS OR GROUNDWATER.

PERMITTEES MUST AMEND THE SWPPP TO INCLUDE ADDITIONAL OR MODIFIED BMPS AS NECESSARY TO CORRECT PROBLEMS IDENTIFIED OR ADDRESS SITUATIONS WHENEVER INSPECTIONS OR INVESTIGATIONS BY THE SITE OWNER OR OPERATOR, USEPA OR MPCA OFFICIALS INDICATE THE SWPPP IS NOT EFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING THE DISCHARGE OF POLLUTANTS TO SURFACE WATERS OR GROUNDWATER OR THE DISCHARGES ARE CAUSING WATER QUALITY STANDARD EXCEEDANCE OR THE SWPPP IS NOT CONSISTENT WITH THE OBJECTIVES OF A USEPA APPROVED TMDL.

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ARCHITECTS, INC.

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.

PRINT NAME: JESSICA A FELDKAMP, PLA

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 57324

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

STORMWATER POLUTION PREVENTION PLAN

DRAWING NO.

C6

PLOTTED:	COMM. NO.
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STORM WATER POLLUTION PREVENTION PLAN NARRATIVE - PAGE 2 OR 2

STABILIZATION TIME FRAMES

ALL AREAS DISTURBED BY CONSTRUCTION WILL RECEIVE SEED OR SOD ACCORDING TO THE PLANS AND SPECIFICATIONS AND WITHIN THE SPECIFIED VEGETATIVE TIME SCHEDULE. FINAL STABILIZATION WILL OCCUR WHEN THE SITE HAS A UNIFORM VEGETATIVE COVER WITH A DENSITY OF 70% OVER THE ENTIRE DISTURBED AREA COMPARED TO EXISTING CONDITIONS. ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPS MUST BE REMOVED AS PART OF THE SITE FINAL STABILIZATION. ALL SEDIMENT MUST BE CLEANED OUT OF CONVEYANCES AND TEMPORARY SEDIMENTATION BASINS IF APPLICABLE. STABILIZATION TIME FRAMES CAN BE SEEN ON THE FOLLOWING TABLE AND THE FOLLOWING SHEET OF THE SWPPP NARRATIVE.

AREA	TIME FRAME	NOTES
LAST 200 LINEAL FEET OF DRAINAGE DITCH OR SWALE	WITHIN 24 HOURS OF CONNECTION TO SURFACE WATER OR PROPERTY EDGE	1, 2, 3
REMAINING PORTIONS OF DRAINAGE DITCH OR SWALE	14 DAYS	1, 3
PIPE AND CULVERT OUTLETS	24 HOURS	
STOCKPILES	14 DAYS	1
PERMANENT COVER METHODS FOR EXPOSED SOILS	14 DAYS	6

1. INITIATE INLET STABILIZATION IMMEDIATELY WHEN CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY CEASED ON ANY PORTION OF THE SITE. COMPLETE STABILIZATION WITHIN THE TIME FRAME LISTED. IN MANY INSTANCES THIS WILL REQUIRE STABILIZATION TO OCCUR MORE THAN ONCE DURING THE COURSE OF THE PROJECT. TEMPORARY SOIL STOCKPILES WITHOUT SIGNIFICANT CLAY OR SILT AND STOCKPILED AND CONSTRUCTED ROAD BASE ARE NOT APPROPRIATE AND THEREFORE EXEMPT FROM THE STABILIZATION REQUIREMENT.
2. APPLICATION OF MULCH, HYDROMULCH, TACKIFIER AND POLYACRYLAMIDE ARE NOT ACCEPTABLE STABILIZATION METHODS IN THESE AREAS.
3. STABILIZE ALL AREAS OF THE SITE PRIOR TO THE ONSET OF WINTER, ANY WORK STILL BEING PERFORMED WILL BE SNOW MULCHED, SEEDED, AND BLANKETED WITHIN THE TIME FRAMES IN THE NPDES PERMIT.
4. TOPSOIL BERMS MUST BE STABILIZED IN ORDER TO BE CONSIDERED PERIMETER CONTROL BMPS. USE RAPID STABILIZATION METHOD 2, 3, OR 4 AS DIRECTED BY THE ENGINEER. THE SEED MIX USED IN THE RAPID STABILIZATION MAY BE SUBSTITUTED AS FOLLOWS:
   A. SINGLE YEAR CONSTRUCTION BETWEEN MAY 1 - AUGUST 1, SEED WITH SEED MIXTURE 21.111
   B. SINGLE YEAR CONSTRUCTION BETWEEN AUGUST 1 AND OCTOBER 31, SEED WITH SEED MIXTURE 21-112
   C. MULTI YEAR CONSTRUCTION 22-111
5. KEEP DITCHES AND EXPOSED SOILS IN AN EVEN ROUGH GRADED CONDITION IN ORDER TO BE ABLE TO APPLY EROSION CONTROL MULCHES, HYDROMULCHES AND BLANKETS.
6. AREAS THAT HAVE SLOPES LESS THAN 3:1 TO RECEIVE HYDROMULCH APPLICATION. AREAS WITHIN LAST 200 LINEAL FEET OF DRAINAGE DITCH OR SWALE & AREAS WITH SLOPES GRATER THAN 3:1, TO RECEIVE A COVER OF EROSION CONTROL BLANKET.
7. TEMPORARY OR PERMANENT DITCHES OR SWALES THAT ARE BEING USED AS A SEDIMENT CONTAINMENT SYSTEM DURING CONSTRUCTION MUST BE STABILIZED WITHIN 24 HOURS AFTER NO LONGER BEING USED AS A SEDIMENT CONTAINMENT SYSTEM.
8. SEED SHALL BE APPLIED AT A RATE AS SPECIFIED PER MNDOT SEEDING MANUAL. WITH 2 TONS SHREDDED AND PUNCHED IN PLACE STRAW PER ACRE. HYDROSEEDING PER MNDOT SPEC SECTION 3884 & MULCHING IS AN ACCEPTABLE ALTERNATE FOR COVER.

GENERAL SWPPP NOTES FOR CONSTRUCTION ACTIVITY

1. CONTRACTOR SHALL AMEND THE SWPPP AND DOCUMENT ANY AND ALL CHANGES TO THE SWPPP AND ASSOCIATED PLAN SHEETS WITHIN 7 DAYS UPON IMPLEMENTATION. STORE THE SWPPP AND ALL AMENDMENTS ON SITE AT ALL TIMES.
2. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR THE ENGINEER'S ACCEPTANCE FOR CONCRETE MANAGEMENT, CONCRETE SLURRY APPLICATION AREAS, WORK IN AND NEAR AREAS OF ENVIRONMENTAL SENSITIVITY, AREAS IDENTIFIED IN THE PLANS AS "SITE MANAGEMENT PLAN AREA", ANY WORK THAT WILL REQUIRE DEWATERING, AND AS REQUESTED BY THE ENGINEER. SUBMIT ALL SITE MANAGEMENT PLANS TO THE ENGINEER IN WRITING. ALLOW ALL MINIMUM OF 7 DAYS FOR THE ENGINEER TO REVIEW AND ACCEPT SITE MANAGEMENT PLAN SUBMITTALS. WORK WILL NOT BE ALLOWED TO COMMENCE IF A SITE MANAGEMENT PLAN IS REQUIRED UNTIL ACCEPTANCE HAS BEEN GRANTED BY THE ENGINEER. THERE WILL BE NO EXTRA TIME ADDED TO THE CONTRACT DUE TO THE UNTIMELY SUBMITTAL.
3. IT IS THE DESIGNER'S INTENT THAT THE CONTRACTOR BUILD PONDS AND INSTALL EROSION CONTROL BMPS BEFORE PUTTING THEM INTO ACTIVE SERVICE TO THE MAXIMUM EXTENT PRACTICABLE.
4. BURNING OF ANY MATERIAL IS NOT ALLOWED WITHIN PROJECT BOUNDARY.
5. DO NOT DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS. DELINEATE AREAS NOT TO BE DISTURBED PRIOR TO STARTING GROUND DISTURBING ACTIVITIES. IF IT BECOMES NECESSARY TO DISTURBED AREAS OUTSIDE OF THE CONSTRUCTION LIMITS OBTAIN WRITTEN PERMISSION FROM THE PROJECT ENGINEER PRIOR TO PROCEEDING. PRESERVE ALL NATURAL BUFFERS SHOWN ON THE PLANS.
6. ROUT STORMWATER AROUND UNSTABILIZED AREAS OF THE SITE WHENEVER FEASIBLE. PROVIDE EROSION CONTROL AND VELOCITY DISSIPATION DEVICES AS NEEDED TO KEEP CHANNELS FROM ERODING AND TO PREVENT NUISANCE CONDITIONS AT THE OUTLET.
7. DIRECT DISCHARGES FROM BMPS TO VEGETATED AREA WHENEVER FEASIBLE. PROVIDE VELOCITY DISSIPATION DEVICES AS NEEDED TO PREVENT EROSION.
8. THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS SHALL BE PLACED AS NECESSARY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND TO CAPTURE SEDIMENT ON SITE. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCEMENT OF ANY REMOVAL WORK AND/OR GROUND DISTURBING ACTIVITIES COMMENCE.
9. ESTABLISH SEDIMENT CONTROL DEVICES ON ALL DOWN GRADIENT PERIMETERS AND UP GRADIENT OF ANY BUFFER ZONES BEFORE AND UP GRADIENT LAND DISTURBING ACTIVITIES BEGIN. MAINTAIN SEDIMENT CONTROL DEVICES UNTIL CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
10. LOCATE PERIMETER CONTROL ON THE CONTOUR TO CAPTURE OVERLAND, LOW-VELOCITY SHEET FLOWS DOWN GRADIENT OF ALL EXPOSED SOILS AND PRIOR TO DISCHARGING TO SURFACE WATERS. PLACE J-HOOKS AT A MAXIMUM OF 100 FOOT INTERVALS.
11. PROVIDE PERIMETER CONTROL AROUND ALL STOCKPILES. PLACE BMP A MINIMUM 5 FEET FROM THE TOE OF SLOPE WHERE FEASIBLE. DO NOT PLACE STOCKPILES IN NATURAL BUFFER AREAS, SURFACE WATERS OR STORMWATER CONVEYANCES.
12. FLOATING SILT CURTAIN IS ALLOWED AS PERIMETER CONTROL FOR IN WATER WORK ONLY. INSTALL THE FLOATING SILT CURTAIN AS CLOSE TO SHORE AS POSSIBLE. PLACE PERIMETER CONTROL BMP ON LAND IMMEDIATELY AFTER THE IN WATER WORK IS COMPLETED.
13. DITCH CHECKS WILL BE PLACED AS INDICATED ON THE PLANS DURING ALL PHASES OF CONSTRUCTION.
14. PLACE CONSTRUCTION EXITS, AS NECESSARY, TO PREVENT TRACKING OF SEDIMENT ONTO PAVED SURFACES BOTH ON AND OFF THE PROJECT SITE. PROVIDE CONSTRUCTION EXITS OF SUFFICIENT SIZE TO PREVENT TRACK OUT. MAINTAIN CONSTRUCTION EXITS WHEN EVIDENCE OF TRACKING IS DISCOVERED. REGULAR STREET SWEEPING IS NOT AN ACCEPTABLE ALTERNATIVE TO PROPER CONSTRUCTION EXIT INSTALLATION AND MAINTENANCE. CONSTRICTION EXITS ARE INCIDENTAL.
15. DISCHARGE TURBID OR SEDIMENT LADEN WATER TO TEMPORARY SEDIMENT BASINS WHENEVER FEASIBLE. IN THE EVENT THAT IT IS NOT FEASIBLE TO DISCHARGE THE SEDIMENT LADEN WATER TO A TEMPORARY SEDIMENT BASIN, THE WATER MUST BE TREATED SO THAT IT DOES NOT CAUSE A NUISANCE CONDITION IN THE RECEIVING WATERS OR TO DOWNSTREAM LANDOWNERS. CLEAN OUT ALL PERMANENT STORMWATER BASINS REGARDLESS OF WHETHER USED AS TEMPORARY SEDIMENT BASINS OR TEMPORARY SEDIMENT TRAPS TO THE DESIGN CAPACITY AFTER ALL UP GRADIENT LAND DISTURBING ACTIVITY IS COMPLETED.
16. PROVIDE SCOUR PROTECTION AT ANY OUTFALL OF DEWATERING ACTIVITIES.
17. PROVIDE STABILIZATION IN ANY TRENCHES CUT FOR DEWATERING OR SITE DRAINING PURPOSES.

POLLUTION PREVENTION

1. PROVIDE A SPILL KIT AT EACH WORK LOCATION ON THE SITE.
2. STORE ALL BUILDING MATERIALS THAT HAVE THE POTENTIAL TO LEACH POLLUTANTS, PESTICIDES, HERBICIDES, INSECTICIDES. FERTILIZERS, TREATMENT CHEMICALS, AND LANDSCAPE MATERIALS UNDER COVER WITH SECONDARY CONTAINMENT.
3. PROVIDE A SECURE STORAGE AREA WITH RESTRICTED ACCESS FOR ALL HAZARDOUS MATERIALS AND TOXIC WASTE. RETURN ALL HAZARDOUS MATERIALS AND TOXIC WASTE TO THE DESIGNATED STORAGE AREA AT THE END OF THE BUSINESS DAY UNLESS INFEASIBLE. STORE ALL HAZARDOUS MATERIALS AND TOXIC WASTE (INCLUDING BUT NOT LIMITED TO OIL, DIESEL FUEL, GASOLINE, HYDRAULIC FLUIDS, PAINT, PETROLEUM BASED PRODUCTS, WOOD PRESERVATIVES, ADDITIVES, CURING COMPOUNDS, AND ACIDS) IN SEALED CONTAINERS WITH SECONDARY CONTAINMENT. CLEAN UP SPILLS IMMEDIATELY.
4. STORE, COLLECT AND DISPOSE OF ALL SOLID WASTE.
5. POSITION ALL PORTABLE TOILETS SO THAT THEY ARE SECURE AND CANNOT BE TIPPED OR KNOCKED OVER. PROPERLY DISPOSE OF ALL SANITARY WASTE.
6. FUEL AND MAINTAIN VEHICLES IN A DESIGNATED CONTAINED AREA WHENEVER FEASIBLE. USE DRIP PANS OR ABSORBENT MATERIALS TO PREVENT SPILLS OR LEAKED CHEMICALS FORM DISCHARGING TO SURFACE WATER OR STORMWATER CONVEYANCES. PROVIDE A SPILL KIT AT EACH LOCATION THAT VEHICLES AND EQUIPMENT ARE FUELED OR MAINTAINED AT.
7. LIMIT VEHICLE AND EQUIPMENT WASHING TO A DEFINED AREA OF THE SITE. CONTAIN RUNOFF FROM THE WASHING AREA TO A TEMPORARY SEDIMENT BASIN OR OTHER EFFECTIVE CONTROL. PROPERLY DISPOSE OF ALL WASTE GENERATED BY VEHICLE AND EQUIPMENT WASHING. ENGINE DEGREASING IS NOT ALLOWED ON THE SITE.
8. PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS. LIQUID AND SOLID WASHOUT WASTES MUST NOT CONTACT THE GROUND. DESIGN THE CONTAINMENT SO THAT IT DOES NOT RESULT IN RUNOFF FROM THE WASHOUT OPERATIONS OR CONTAINMENT AREA.
9. CREATE AND FOLLOW A WRITTEN DISPOSAL PLAN FOR ALL WASTE MATERIALS. INCLUDE IN THE PLAN HOW THE MATERIAL WILL BE DISPOSED OF AND THE LOCATION OF THE DISPOSAL SITE. SUBMIT PLAN TO THE ENGINEER.
10. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT DISCHARGE OR PLACEMENT OF BITUMINOUS GRINDINGS, CUTTING, MILLINGS, AND OTHER BITUMINOUS WASTES FROM AREAS OF EXISTING OR FUTURE VEGETATED SOILS AND FROM ALL WATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES.
11. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT CONCRETE DUST, PARTICLES, CONCRETE WASH OUT, AND OTHER CONCRETE WASTES FROM LEAVING SITE, DEPOSITING IN EXISTING OR FUTURE VEGETATED AREAS, AND FROM ENTERING STORMWATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT SAW CUT SLURRY AND PLANING WASTE FROM LEAVING SITE AND FROM ENTERING STORMWATER CONVEYANCE SYSTEMS INCLUDING DITCHES AND CULVERTS.

RECORD RETENTION

THE SWPPP, ALL CHANGES TO IT AND INSPECTION AND MAINTENANCE RECORDS MUST BE KEPT ON-SITE DURING CONSTRUCTION. THE OWNER MUST RETAIN A COPY OF THE SWPPP ALONG WITH THE FOLLOWING RECORDS FOR THREE (3) YEARS AFTER SUBMITTAL OF THE NOTICE OF TERMINATION (NOT).

1. ANY OTHER PERMITS REQUIRED FOR THE PROJECT.
2. RECORDS OF ALL INSPECTION AND MAINTENANCE CONDUCTED DURING CONSTRUCTION
3. ALL PERMANENT OPERATIONS AND MAINTENANCE AGREEMENT THAT HAVE BEEN IMPLEMENTED INCLUDING ALL RIGHT OF WAY, CONTRACTS, COVENANTS AND OTHER BINDING REQUIREMENTS REGARDING PERPETUAL MAINTENANCE; AND
4. ALL REQUIRED CALCULATIONS FOR DESIGN OF THE TEMPORARY AND PERMANENT STORMWATER MANAGEMENT SYSTEMS.

SWPPP SCHEDULE OF INSTALLATION & MAINTENANCE

ITEM	INSTALLATION	INSPECTION & MAINTENANCE	REMOVAL
SILT FENCE	PRIOR TO COMMENCEMENT OF EARTHWORK OPERATIONS.	INSPECT & MAINT. AFTER EACH RUN-OFF EVENT. REMOVE SEDIMENTS AS REQUIRED.	AFTER TRIBUTARY DRAINAGE AREA IS RESTORED.
ROCK CONST. ENTRANCE	PRIOR TO COMMENCEMENT OF EARTHWORK OPERATIONS.	INSPECT REGULARLY. MAINTAIN AS NEEDED.	PRIOR TO PAVING.
OUTLET SKIMMER STRUCTURE	AFTER POND GRADING IS COMPLETED.	INSPECT REGULARLY. MAINTAIN AS NEEDED.	PERMANENT.
RIP-RAP & FILTER	UPON COMPLETION OF POND GRADING, CONC. SWALE CONST. AND OUTLET INSTALLATION.	INSPECT & MAINTAIN AT LEAST ANNUALLY AND AFTER HEAVY RAINFALL EVENT.	PERMANENT.
DETENTION POND	DURING EARTHWORK OPERATIONS.	AFTER HEAVY RAINFALL EVENTS. REMOVE SEDIMENTS AS NEEDED.	PERMANENT.
SEED & MULCH	AFTER POND GRADING IS COMPLETED.	INSPECT & MAINTAIN AFTER HEAVY RAINS. REPLACE WASH-OUT AREAS IMMEDIATELY	NO REMOVAL NECESSARY.
INLET PROTECTION	UPON INLET CONSTRUCTING	WHEN 1/3 CAPACITY OF BMP IS REACHED	AFTER TRIBUTARY AREAS ARE FULLY RESTORED

SITE ASSESSMENTS FOR GROUNDWATER OR SOIL CONTAMINATION

THE LAND WAS PREVIOUSLY DEVELOPED BY THE CURRENT OWNER. THEREFORE, THERE IS NO PROBABLE CAUSE OF SOIL CONTAMINATION ON SITE

SITE CONSTRAINTS

THE EXISTING CLAYEY SOILS MAY COLLECT WATER DURING TIMES OF INCLEMENT WEATHER OR SNOW MELT. WATER SHOULD BE REMOVED FROM WITHIN EXCAVATION DURING CONSTRUCTION. THE ON-SITE SOILS ARE CONSIDERED POTENTIALLY CORROSIVE. BURIED METALLIC UTILITIES SHOULD BE COATED OR PROTECTED.

LONG TERM MAINTENANCE & OPERATION OF PERMANENT STORMWATER MANAGEMENT

TWIN CITY HOSE IS AND THE ADJACENT PROPERTY OWNER TO THE EAST ARE RESPONSIBLE FOR THE LONG TERM OPERATION & MAINTENANCE OF THE WET POND LOCATED WITHIN THE PROPERTY. TWIN CITY HOSE WILL UPDATE THE EXISTING MAINTENANCE AGREEMENT BETWEEN THE ADJACENT PROPERTY OWNER AND THE CITY OF ROGERS THAT IDENTIFIES THAT BOTH OWNERS ARE RESPONSIBLE FOR ONGOING MAINTENANCE, AND HOW RESPONSIBILITY WILL BE TRANSFERRED TO OTHER AGENTS.

MINIMIZE SOIL COMPACTION & PRESERVE TOPSOIL

THE FOLLOWING ACTIONS CAN BE MADE TO MINIMIZE / PREVENT SOIL COMPACTION DURING CONSTRUCTION ACTIVITIES:

1. REDUCE CONTACT AREA PRESSURE TO PROTECT TOPSOIL BY INCREASING THE CONTACT AREA OF THE WHEEL, USE WIDE TIRES OR FLOTATION TIRES, USE TIRE INFLATION PRESSURE CONTROL SYSTEM, USE CRAWLER TRACKS ON SENSITIVE SITES.
2. REDUCE WHEEL LOAD
3. REDUCE WHEEL SLIP
4. REDUCE THE NUMBER ON PASSES

SOIL RIPPING / SUBSOILING NOTES

1. SOIL RIPPING CAN BE CONDUCTED PRIOR TO OR AFTER TOPSOIL PLACEMENT
2. SOIL SHOULD BE RIPPED TO A TARGET DEPTH OF 20 INCHES WITH AN EFFECTIVE DEPTH OF 15-18 INCHES
3. SPACING OF THE SHANKS SHOULD BE 30 INCHES
4. CALL FOR LOCATES PRIOR TO DEEP SOUL RIPPING.
5. SOIL RIPPING IS TO BE USED WHERE TOP SOIL HAS BECOME OVER COMPACTED AND WITHIN INFILTRATION/FILTRATION AREAS.

DESIGN OF TEMPORARY EROSION PREVENTION & SEDIMENT CONTROL BMPS

1. THE EXPECTED FREQUENCY OF RAINFALL IS A 1-YEAR EVENT WITH AN INTENSITY OF 2.5 IN/HR FOR A 24 HOUR DURATION.
2. EXPECTED FLOW FROM IMPERVIOUS SURFACE IS APPROXIMATELY 3.0 CFS AT IT'S PEAK WITH A VOLUME OF 0.15 ACRE FEET.
3. RUNOFF WILL BE CAPTURED VIA STORM SEWER AND ROUTED TO THE EXISTING FILTRATION BASIN NORTH OF THE PROJECT SITE.
4. PEAK DISCHARGE RATES WITHIN SWALES AND AT FLARED END SECTIONS ARE TO BE BELOW 5.0 FEET PER SECOND TO PREVENT SCOURING.
5. SOIL PARTICLE SIZES EXPECTED TO BE PRESENT ON SITE ARE CLAY SILT OR SMALLER.

PERMANENT STORMWATER MANAGEMENT

NURP RETENTION POND:

THIS SITE IS PART OF THE UPTOWN ROGERS 3RD ADDITION DEVELOPMENT. THE STORM MANAGEMENT PLAN HAS AN EXISTING INFILTRATION POND. THE POND WAS ORIGINALLY DESIGNED AS A WET POND AS PART OF UPTOWN ROGERS ADDITION DEVELOPMENT. THE POND IN ITS CURRENT STATE DOES NOT HOLD WATER DUE TO HIGH INFILTRATING UNDERLYING SOILS. THE POND IS LABELED AS 1P IN THE UPTOWN ROGERS STORM WATER MANAGEMENT PLAN FROM 2006.

THE NEW DESIGN CALLS FOR RAISING THE POND BOTTOM TO 899.40 TO ALLOW FOR THE 48HR DRAWDOWN TIME. ADDITIONALLY THE OUTLET STRUCTURE WILL BE REDESIGNED TO ENSURE THE POND DOES NOT FLOW OVER THE EMERGENCY OVERFLOW DURING THE 100-YR STORM EVENT.

STORMWATER SYSTEM DESIGN:

ALL STORM SEWER HAS BEEN DESIGNED USING 10-YR RETURN FREQUENCY STORM INTENSITIES USED FOR DESIGN HAVE BEEN PULLED FROM THE IDF TABLES DEVELOPED BY MNDOT FOR THE HENNEPIN COUNTY REGION. THE EXISTING STORMWATER POND WAS DESIGNED TO CONTAIN THE 100-YR EVENT WITH CRESTED WEIR SPILLWAYS PROVIDING AN EMERGENCY OVERFLOW FOR LARGER EVENTS. DESIGN CALCULATIONS WERE COMPLETED BY OTHERS FOR THE FULLY DEVELOPED AREA IN THE UPTOWN ROGERS STORM WATER MANAGEMENT PLAN FROM 2006. THIS DEVELOPMENT WAS DESIGNED TO ALLOW 4.28 ACRES OF IMPERVIOUS SURFACE. THE PROPOSED FUTURE SITE BUILD OUT WILL INCLUDE 3.29 ACRES OF IMPERVIOUS SURFACE ACROSS THE DEVELOPMENT, ALLOWING THE FINAL UNDEVELOPED LOT TO USE 0.99 ACRES OF IMPERVIOUS SURFACE AND STILL MEET THE PREVIOUS DESIGN REQUIREMENTS.

TOTAL SUSPENDED SOLIDS (TSS) REMOVAL:

THE STORMWATER MANAGEMENT FOR THIS SITE WAS DESIGNED FOR TSS REMOVAL USING MIDS. THE PROPOSED RUNOFF WILL HAVE LESS SUSPENDED SOLIDS THAN THE PRE DEVELOPED LOT. SEE STORMWATER MANAGEMENT PLAN FOR MIDS CALCULATIONS.

ENVIRONMENTAL IMPACTS

WETLANDS:
WETLANDS WILL NOT BE IMPACTED WITH THIS PROJECT.

ENDANGERED SPECIES:
ENDANGERED SPECIES WILL NOT BE IMPACTED WITH THIS PROJECT.

ARCHAEOLOGICAL REVIEW:
THE SITE IS NOT ANTICIPATED TO BE AN ARCHAEOLOGICAL SITE.

NOTICE OF TERMINATION NOTES

1. PRIOR TO SUBMITTING A NOTICE OF TERMINATION TO THE MPCA, THE PERMANENT STORMWATER TREATMENT SYSTEM HAS BEEN CONSTRUCTED, INSPECTED, AND IS OPERATING AS DESIGNED.
2. SUBMIT NOTICE OF TERMINATION TO THE MPCA ONCE PERMIT TERMINATION CONDITION ARE MET.
3. TRANSFER OF THE SWPPP AND SUBDIVISION COVERAGE REGISTRATION WILL NEED TO BE COMPLETED WITH THE RESIDENTIAL UNIT CONSTRUCTION.

ESTIMATED BMPS QUANTITIES

BMP	ORIGINAL ESTIMATE	MODIFICATION	DATE
ENERGY DISSIPATER			
TEMP SEEDING			
PERMANENT SEEDING	38,356 SF		
PERMANENT SODDING			
MULCHES (SPECIFY TYPES)			
CAT 3 EROSION CONTROL BLANKET	11,938 SF		
SILT FENCING	1,417 LF		
EROSION BIO ROLLS			
STORM DRAIN INLET PROTECTION	4 EA		
TEMPORARY OR PERMANENT SEDIMENTATION BASINS			
CONSTRUCTION ENTRANCE	1 EA		
DEWATERING (TREATMENT LOCATION, SCHEMATIC, & SAMPLING PLAN REQUIRED			
CONCRETE TRUCK WASHOUT	1 EA		

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TWIN CITY HOSE BUILDING ADDITION

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EDWARD FARR ARCHITECTS, INC.

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.

PRINT NAME: JESSICA A FELDKAMP, PLA

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 65224

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

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STORMWATER POLUTION PREVENTION PLAN

DRAWING NO.

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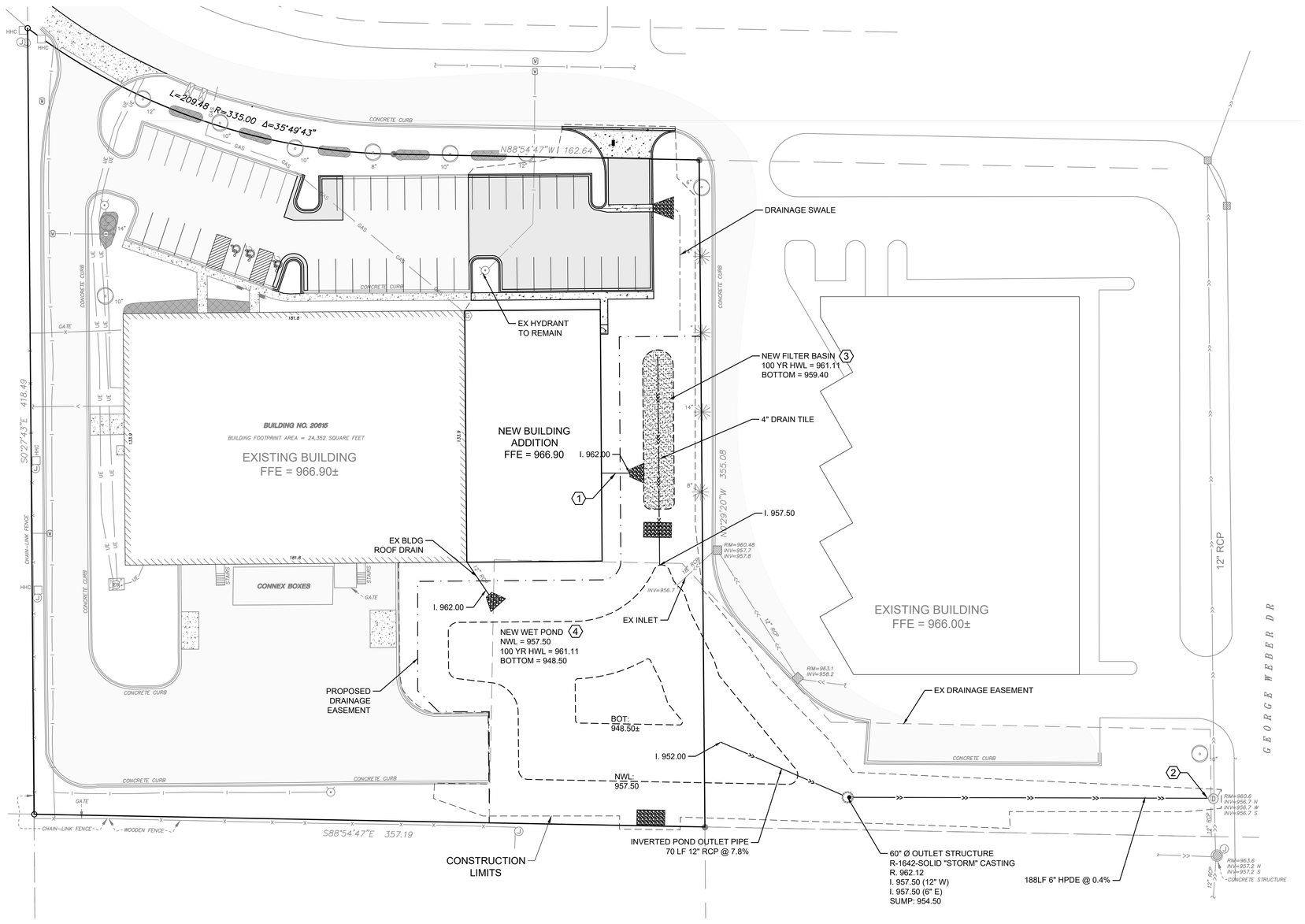
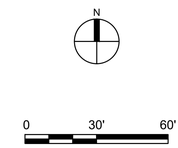
UTILITY NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER AND PER THE GEOTECHNICAL REPORT UNLESS DIRECTED OTHERWISE.
2. ALL CONSTRUCTION SHALL COMPLY WITH THE 2022 EDITION OF MNDOT SPECIFICATIONS, UNLESS DIRECTED OTHERWISE.
3. THE CONTRACTOR IS REQUIRED TO ADHERE TO THE SPECIFICATIONS AND REGULATIONS SET FORTH BY THE CITY/UTILITY PROVIDER, CEAM, AND MINNESOTA PLUMBING CODE (MINNESOTA RULES CHAPTER 4714) CONCERNING THE MATERIALS, INSTALLATION, AND TESTING OF WATER AND SANITARY UTILITIES. VERIFY RECEIPT OF ALL REQUIRED PERMITS PRIOR TO CONSTRUCTION.
4. EXISTING TOPOGRAPHIC AND UTILITY INFORMATION PREPARED BY ANDERSON ENGINEERING. BE ADVISED THAT THE LOCATION AND TYPE OF EXISTING UTILITIES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE INFORMATION IS NOT WARRANTED TO BE ACCURATE OR COMPLETE. THE CONTRACTOR, IN COOPERATION WITH THE APPROPRIATE UTILITY COMPANY OR MUNICIPALITY, IS RESPONSIBLE FOR VERIFYING THE LOCATION, SIZE, AND DEPTH OF ALL UNDERGROUND UTILITIES.
5. ALL JOINTS AND CONNECTIONS IN THE STORM SEWER SYSTEM SHALL BE WATER TIGHT. APPROVED RESILIENT RUBBER JOINTS MUST BE USED MEETING ASTM F2510 TO MAKE WATER TIGHT CONNECTIONS TO MANHOLES AND CATCH BASINS. DO NOT GROUT OVER FLEXIBLE CONNECTIONS TO MANHOLES.
6. STORM SEWER MAINS, SERVICE PIPES, FITTINGS, AND STRUCTURES TO MEET THE FOLLOWING REQUIREMENTS:
   A. SITE PIPING 12 INCH DIA. AND LARGER TO BE REINFORCED CONCRETE PIPE CLASS PER ACPA LRFD FILL HEIGHT TABLES OR HDPE WATER TIGHT PIPE PER AASHTO M294, ASTM F2306, ASTM D3212, AND ASTM F477 AS NOTED ON PLAN DRAWINGS.
   B. B.SITE PIPING 6 INCH DIA. AND SMALLER TO BE PVC SCH 40 PER ASTM D1785 AND ASTM D2665 OR AS INDICATED ON PLAN DRAWINGS.
7. 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, CHAPTER 4714, SECTION 1109.0.

MN DOLI NOTES

1. ALL PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH THE 2020 MINNESOTA PLUMBING CODE, CHAPTER 4714. ALL PIPE, PIPE FITTINGS, TRAPS, FIXTURES, MATERIAL, AND DEVICES IN THE PLUMBING SYSTEM SHALL MEET THEIR RELEVANT CODE SECTION REQUIREMENTS INCLUDING:
   1.1. BE LISTED OR LABELED (THIRD PARTY CERTIFIED) BY A LISTING AGENCY.
   1.2. COMPLY WITH THE APPROVED RECOGNIZED STANDARDS REFERENCED IN THE 2020 MINNESOTA PLUMBING CODE.
   1.3. BE FREE OF DEFECTS.
2. POLYETHYLENE STORM SEWER MUST MEET ASTM F714 OR ASTM F894 (SECTION 1101.4.5 AND TABLE 701.2).
   2.1. HDPE PIPE MUST NOT BE INSTALLED WITHIN 10 FEET OF A BUILDING.
   2.2. PIPES MUST BE INSTALLED WITHIN MINIMUM 10-FEE SEPARATION FROM WATER PIPING AND MAY NOT CROSS ABOVE OR LESS THAN 12 INCHES BELOW WATER SERVICE LINES (SECTION 720.1).
   2.3. CHANGES IN DIRECTION MUST OCCUR AT STRUCTURES OR COMPLIANT TRANSITIONS TO OTHER MATERIALS.
   2.4. JOINTS MUST BE HEAT FUSED PER SECTION 705.5.1.
   2.5. CONNECTION TO A DIFFERENT MATERIAL MUST USE AN APPROVED APPLICATION SPECIFIC TRANSITION COUPLING MEETING ASTM C1173 OR ASTM C1461.
   2.6. WATER-TITGHT RESILIENT JOINTS MUST BE USED AT ALL CONNECTIONS, INCLUDING STRUCTURES.
3. PVC STORM SEWERS MUST MEET ASTM D1785, D2665, D2729, D3034, F794, F891, F1488, OR F1760 WITH APPROVED FITTINGS (TABLE 701.2). ONLY ASTM D1785, D2665, F891, F1488, OR F1760 PVC MAY CROSS ABOVE OR LESS THAN 12 INCHES BELOW POTABLE WATER LINES (SECTION 720.1). SOLVENT WELDED JOINTS MUST USE ASTM F656 PURPLE PRIMER AND ASTM D2564 CEMENT. THE SEWER MUST BE INSTALLED BY OPEN TRENCH ON A CONTINUOUS GRANULAR BED PER SECTION 314.4.1.





LEGEND

- PROPERTY LIMITS
- CONSTRUCTION LIMITS
- EXISTING WATERMAIN (PUBLIC)
- EXISTING SANITARY SEWER (PUBLIC)
- EXISTING STORM SEWER (PRIVATE)
- PROPOSED WATERMAIN (PUBLIC)
- PROPOSED SANITARY SEWER (PUBLIC)
- PROPOSED STORM SEWER (PRIVATE)
- PROPOSED EASEMENT
- EXISTING STORM INLETS
- PROPOSED STORM MANHOLE
- PROPOSED BITUMINOUS PVMT
- PROPOSED CONCRETE PVMT

KEY NOTES

1. INSTALL ROOF DRAIN. SEE PLUMBING AND MECHANICAL FOR EXACT LOCATION.
2. INSTALL NEW 6" HDPE INTO EXISTING MANHOLE AT USING EXISTING KNOCKOUT LOCATION OF PREVIOUSLY REMOVED PIPE. INSTALL AT ELEVATION I. 956.70± MATCHING PIPE TO SOUTH.
3. SEE DETAIL XX/C9 FOR FILTRATION FOREBAY SECTION.
4. SEE DETAIL XX/C9 FOR WET POND SECTION.

WATER QUALITY LEVEL (WQL) - MPCA

AREA DRAINING TO POND = 4.48 AC x 1,800 CF = **8,064 CF**

FLOOD POOL VOLUME (1" IMPERVIOUS) = 135,787 SF x $\frac{1}{12}$ FT = **11,316 CF**

TOTAL WATER QUALITY VOLUME REQUIRED = **19,380 CF**

STORAGE PROVIDED AT ELEVATION 958.80 = **19,579 CF**

NOTE:

NO NEW STORM SEWER TO BE INSTALLED BELOW THE ELEVATION OF 958.80

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TWIN CITY HOSE BUILDING ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR
ARCHITECTS, INC.

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.

PRINT NAME: BRIAN J. FIELD, PE

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 57224

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

UTILITY PLAN

DRAWING NO.

C8

PLOTTED:	COMM. NO.
----	18438

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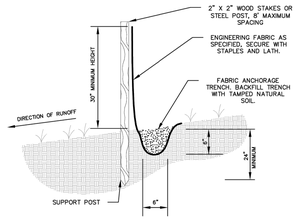
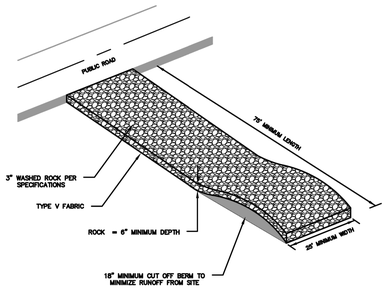


DOUBLE SILT FENCE TO BE REQUIRED NEAR WETLANDS

CITY OF ROGERS	STANDARD SILT FENCE	Standard Details	
		Date: SEPTEMBER, 2020	1
		Revised:	



NOTE:
TYPE V FILTER FABRIC SHALL BE PLACED UNDER ROCK TO STOP MUD MIGRATION THROUGH MATERIAL.

THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.

WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

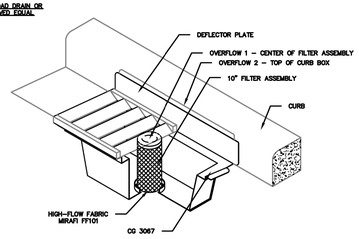
WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

WHERE RUNOFF CONTAINING SEDIMENT LADEN WATER IS LEAVING THE SITE VIA THE CONSTRUCTION ENTRANCE, OTHER MEASURES SHALL BE IMPLEMENTED TO DIVERT RUNOFF THROUGH AN APPROVED FILTERING SYSTEM

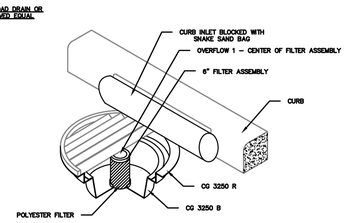
IN AREAS WITH CONCRETE, WALK THERE SHALL BE 6" OF SAND PLACED OVERTOP THE SIDEWALK PRIOR TO PLACEMENT OF THE 3" WASHED ROCK.

CITY OF ROGERS	CONSTRUCTION ROCK ENTRANCE	Standard Details	
		Date: SEPTEMBER, 2020	2
		Revised:	

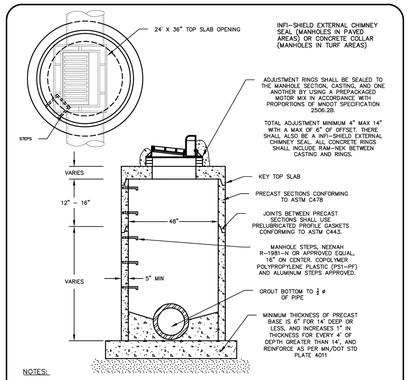
WIMCO ROAD DRAIN OR APPROVED EQUAL



WIMCO ROAD DRAIN OR APPROVED EQUAL



CITY OF ROGERS	CURB INLET PROTECTION	Standard Details	
		Date: SEPTEMBER, 2020	3
		Revised:	



NOTES:
FRAME AND GRATE FOR BULKHEAD STYLE CURB SHALL BE A NEENAH R-3067-V OR NEENAH R-3067-VB

FRAME AND GRATE FOR SURMOUNTABLE STYLE CURB OR DRIVEWAYS SHALL BE A NEENAH R-3501-TR OR R-3501-TL LOW POINTS 3501-TB

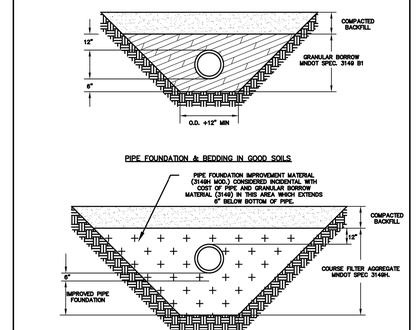
FRAME AND GRATE FOR OFF ROAD LOCATION (DITCH GRATE, STOOL TYPE) R-4342

ALL MANHOLES WITH FRAME AND LID IN A PAVED AREA SHALL USE A NEENAH R-1642 WITH SOLID B LID WITH 2 CONCEALED PICK HOLES OR APPROVED EQUAL. LID SHALL BE LETTERED "STORM SEWER" WITH 2" RAISED LETTERS

DOG HOUSES SHALL BE GROUTED ON BOTH THE OUTSIDE AND INSIDE OF THE STRUCTURE

DRAINTILE OPENING MUST BE CORE-DRILLED OR PRECAST AND GROUTED INSIDE AND OUTSIDE OF THE STRUCTURE.

CITY OF ROGERS	STORM SEWER MANHOLE	Standard Details	
		Date: SEPTEMBER, 2020	4
		Revised:	



CITY OF ROGERS	PIPE BEDDING METHODS FOR PVC	Standard Details	
		Date: SEPTEMBER, 2020	5
		Revised:	

NOTES:
"DIA" DENOTES OUTSIDE DIAMETER OF PIPE

CITY OF ROGERS	PIPE BEDDING METHODS FOR RCP OR DIP	Standard Details	
		Date: SEPTEMBER, 2020	6
		Revised:	

NOTES:
PIPE SHALL BE CENTERED UNDER INSULATION UNLESS OTHERWISE SPECIFIED

COVER OVER PIPE = "A"	WIDTH OF INSULATION BOARD = "B"
2'	12'
3'	15'
4'	18'

2" OF INSULATION = 2' OF COVER

CITY OF ROGERS	INSULATION DETAIL	Standard Details	
		Date: SEPTEMBER, 2020	7
		Revised:	

CLASS III RIPRAP REQUIREMENTS FOR ROUND PIPE

PIPE DIA.	RIPRAP QUANTITY
12" TO 24"	6 CUBIC YARDS
27" TO 33"	12 CUBIC YARDS
36" TO 48"	18 CUBIC YARDS
54" AND UP	24 CUBIC YARDS

CLASS III RIPRAP REQUIREMENTS FOR ARCH PIPE

PIPE SPAN	RIPRAP QUANTITY
22"	6 CUBIC YARDS
28"	8 CUBIC YARDS
36"	11 CUBIC YARDS
43"	14 CUBIC YARDS
51"	16 CUBIC YARDS
58"	19 CUBIC YARDS

NOTE: ONE CUBIC YARD IS APPROXIMATELY 2,800 LBS

* CLASS III RIPRAP, D50= 9 IN. (MNDOT SPEC 3601)

CITY OF ROGERS	CLASS III RIPRAP AT OUTLETS	Standard Details	
		Date: JANUARY, 2014	8
		Revised:	

SEE CITY PLATE NO. STO-9 FOR RIPRAP PLACEMENT

ISOMETRIC

SHEET PILING IS REQUIRED FOR PIPE 30" AND GREATER IN DIAMETER (SEE STO-10)

TRASH GUARD SIZING

PIPE SIZE	BARS	"H"	BOLTS
12"–18"	⅜" DIA	4"	⅜"
21"–42"	1" DIA	6"	¾"
48"–72"	1–1/4" DIA	12"	1"

CITY OF ROGERS	FLARED END SECTION AND TRASH GUARD	Standard Details	
		Date: JANUARY, 2014	9
		Revised:	

CITY OF ROGERS	COMMERCIAL DRIVEWAY	Standard Details	
		Date: JANUARY, 2014	10
		Revised:	

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TWIN CITY HOSE BUILDING ADDITION

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CIVIL DETAILS 1

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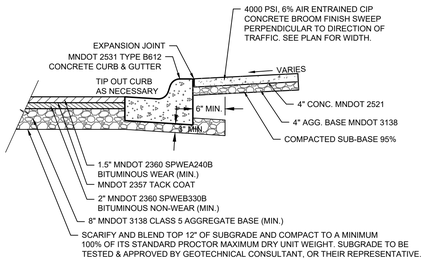
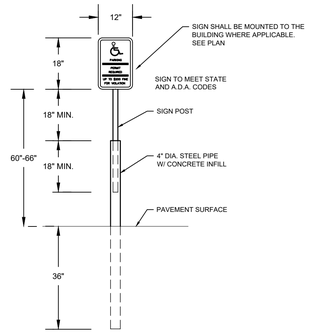


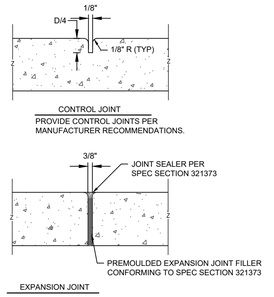
NOTE: VERIFY PAVEMENT SECTION DESIGN AND SUBGRADE REQUIREMENTS WITH GEOTECHNICAL REPORT AND RECOMMENDATIONS PRIOR TO CONSTRUCTION.

1 BITUNIMOUS & CONCRETE WALK SECTION
NTS



NOTES:
SEE ARCHITECTURAL PLANS FOR MORE INFORMATION.

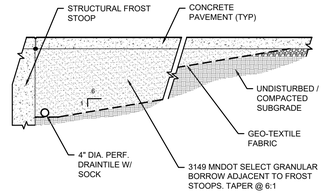
2 HANDICAP SIGN DETAIL
NTS



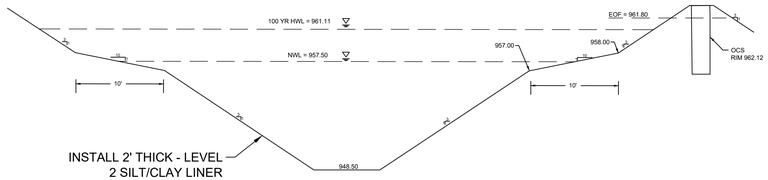
PROVIDE EXPANSION JOINTS AT BUILDING AND CONCRETE STOOP INTERFACE, AS WELL AS EVERY 24 FEET OF CONTINUOUS SIDEWALK AND AT SIDEWALK INTERSECTIONS.

NOTE: JOINTS CAN BE SAW CUT.

3 CONCRETE JOINTING DETAIL
NTS



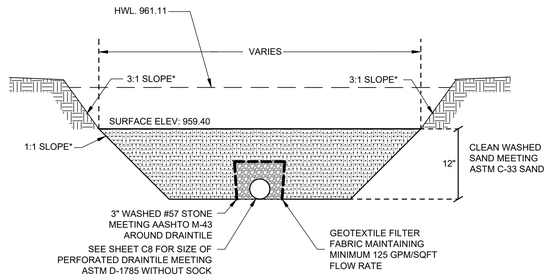
4 FROST STOOP SECTION DETAIL
NTS



LINER NOTES:

SILT/CLAY LINER CRITERIA:
- 50 PERCENT FINES (200 SIEVE), OR 20 PERCENT FINES AND A PI OF 7
- AN IN-PLACE HYDRAULIC CONDUCTIVITY OF 1X10^-5 CENTIMETERS PER SECOND OR LESS
- SOIL COMPACTION AND DOCUMENTATION AS SPECIFIED IN NRCS WISCONSIN CONSTRUCTION SPECIFICATIONS 204, EARTHFILL FOR WASTE STORAGE FACILITIES
- MINIMUM THICKNESS OF TWO FEET

5 WET POND SECTION DETAIL
NTS



NOTES:

1. EXISTING SOIL UNDER FILTRATION BASIN TO BE SCARIFIED TO A DEPTH OF 8–12".

6 OUTLET CONTROL DETAIL
NTS

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TWIN CITY HOSE BUILDING ADDITION

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EDWARD FARR
ARCHITECTS, INC.

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PRINT NAME: BRIAN J. FIELD, PE

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 57224

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CIVIL DETAILS 2

DRAWING NO.

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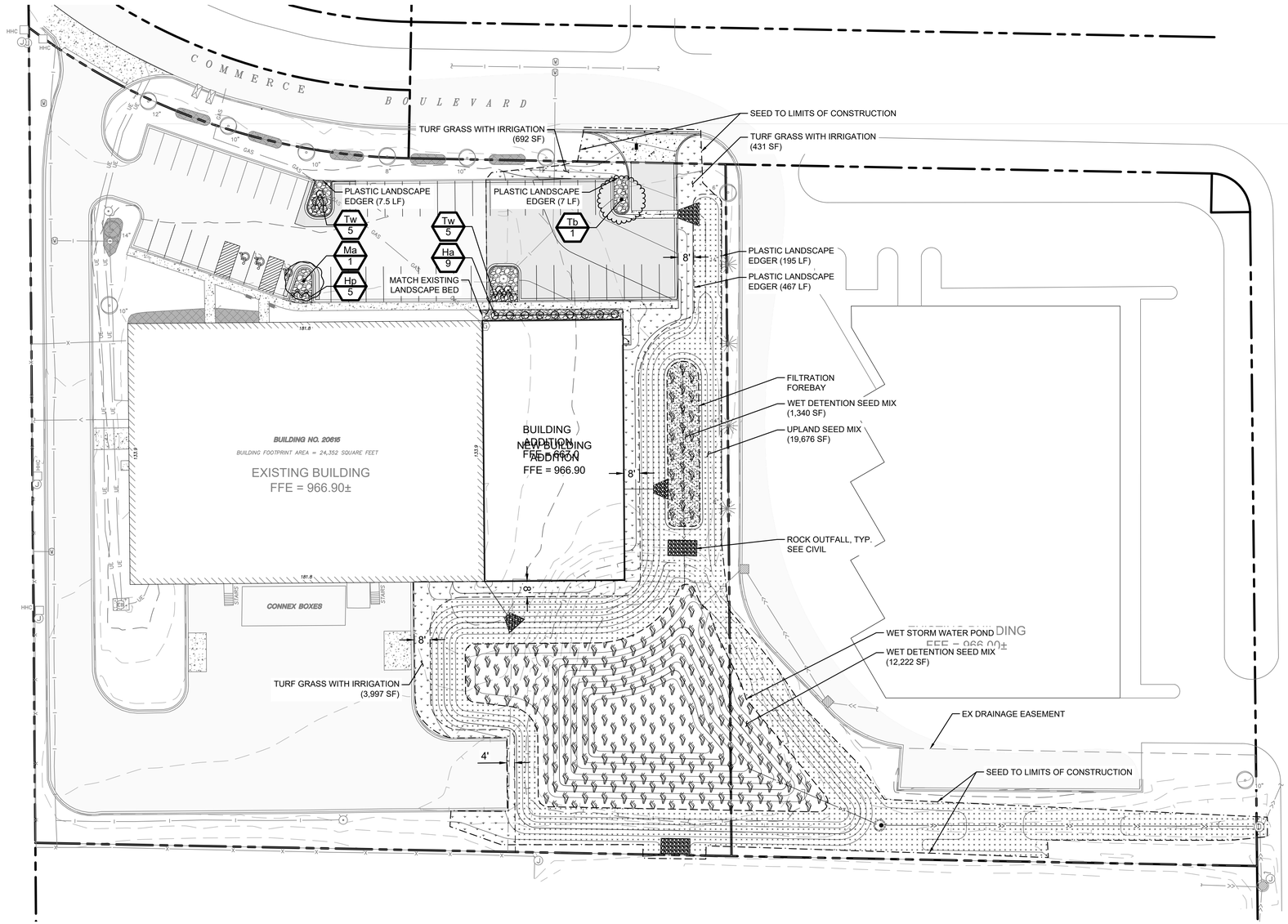
PLANT SCHEDULE

SYMBOL	CODE	QTY	COMMON / BOTANICAL NAME	CONT.	SIZE
TREES					
	Ma	2	SUMMERTIME MAACKIA MAACKIA AMURENSIS 'SUMMERTIME'	B&B	1 - 1/2" CAL.
DECIDUOUS TREES					
	Tb	1	BOULEVARD AMERICAN LINDEN TILIA AMERICANA 'BOULEVARD'	B&B	1 - 1/2" CAL.

SYMBOL	CODE	QTY	COMMON / BOTANICAL NAME	CONT	SIZE
DECIDUOUS SHRUBS					
	Ha	9	ANNABELLE HYDRANGEA HYDRANGEA ARBORESCENS 'ANNABELLE'	CONT.	5 GAL.
EVERGREEN SHRUBS					
	Tw	10	TAUNTON JAPANESE YEW TAXUS X MEDIA 'TAUNTON'	CONT.	5 GAL.
PERENNIALS					
	Hp	5	PARADIGM HOSTA HOSTA X 'PARADIGM'	CONT.	1 GAL.



0 30' 60'

N

LEGEND

- PROPERTY LIMITS
- CONSTRUCTION LIMITS
- 958 EXISTING MINOR CONTOUR
- 960 EXISTING MAJOR CONTOUR
- 958 NEW MINOR CONTOUR
- 960 NEW MAJOR CONTOUR
- TURF GRASS WITH IRRIGATION
- UPLAND SEED MIX
- WET DETENTION SEED MIX
- 3" DEEP ROCK MULCH WITH LANDSCAPE FABRIC
- PLASTIC LANDSCAPE EDGER

SHEET NOTES

1. IF A DISCREPANCY IS FOUND, THE PLANTING PLAN SHALL OVERRIDE THE PLANT SCHEDULE.
2. ALL PLANTINGS SHALL RECEIVE IRRIGATION (SEE L2 FOR IRRIGATION NOTES)
3. REFER TO PLAN SHEET L2 FOR PLANTING,PLANT ESTABLISHMENT, AND TOPSOIL NOTES. REFER TO PLAN SHEET L3 FOR PLANTING DETAILS.
4. SEE CIVIL FOR EROSION CONTROLS

LANDSCAPE CODE REQUIREMENTS

THE FRONT, SIDE AND REAR YARDS OF EACH SITE NOT UTILIZED FOR BUILDING, PARKING (WHERE PERMITTED) OR OTHER IMPROVEMENTS SHALL BE LANDSCAPED UTILIZING AN EFFECTIVE COMBINATION OF STREET TREES, GRASS, GROUND COVER AND SHRUBBERY. UNDEVELOPED AREAS IN THE INTERIOR OF THE SITE SHALL BE SEEDED WITH APPROPRIATE GRASSES AND MAINTAINED NEAT AND ORDERLY SO AS TO CONTROL DUST ON SITES

ALL OPEN AREAS OF DEVELOPED LOTS WHICH ARE NOT DEVOTED TO BUILDINGS, PATIOS, OFF-STREET PARKING, LOADING AND DRIVING AREAS SHALL BE IRRIGATED AND LANDSCAPED WITH GRASS GROUND COVER, TREES, SHRUBS OR OTHER ORNAMENTAL LANDSCAPE MATERIAL EXCEPT THAT NATURAL GRASSES AND VEGETATION FOR UNDEVELOPED PORTIONS OF THE LOT RESERVED FOR FUTURE EXPANSION IS ALLOWED PROVIDING THE PORTIONS OF LOT ARE KEPT FREE OF LITTER, DEBRIS, AND NOXIOUS OR UNSIGHTLY WEEDS.

OFF-STREET PARKING (LANDSCAPE) REQUIREMENTS:

- FOR EVERY 17 PARKING SPACES IN A ROW, A LANDSCAPE ISLAND SHALL BE PROVIDED, EXCEPT WHERE THE LOT IS 2 ACRES OR LESS.
- EACH REQUIRED LANDSCAPE ISLAND IS TO CONTAIN AT LEAST ONE TREE; AND IS REQUIRED TO BE A MINIMUM SIZE OF 9 FEET BY 18 FEET. ADDITIONAL LANDSCAPING MAY BE PROVIDED IN THE FORM OF SHRUBS, GRASSES AND OTHER ORNAMENTAL PLANTS.
- NO INTERFERENCE BETWEEN ON-SITE UTILITIES AND LANDSCAPING IS PERMITTED, INCLUDING, BUT NOT BE LIMITED TO, FIRE EQUIPMENT OR ONSITE LIGHTING.

TREE TYPE MINIMUM SIZE

- SHADE TREES (OVERSTORY): 2.5-INCH CALIPER
- ORNAMENTAL TREES (UNDERSTORY): 1.5-INCH CALIPER
- EVERGREEN TREES (OVERSTORY): 4-6 FT
- TALL SHRUBS AND HEDGE MATERIAL (DECIDUOUS OR CONIFEROUS): 3-4 FT
- LOW SHRUBS (DECIDUOUS): 5 GALLON

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PRINT NAME: JESSICA A. FAHRENKAMP, PLA

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 65321

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NO.	DATE	DESCRIPTION OF REVISIONS

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APRIL 28, 2026

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BF	ER	BF

DRAWING TITLE

PLANTING PLAN

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GENERAL NOTES

1. LANDSCAPE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO BECOME COMPLETELY FAMILIAR WITH SITE CONDITIONS.
2. ALL ROUGH AND FINISH GRADING TO BE DONE BY OTHERS.
3. NO PLANTING SHALL BE INSTALLED UNTIL ALL GRADING, BUILDING, CONSTRUCTION, UTILITY WORK & IRRIGATION (IF APPLICABLE) HAS BEEN COMPLETED IN THE AREAS TO BE PLANTED.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY ALL UNDERGROUND CABLES, CONDUITS, WIRES, ETC., ON THE PROPERTY.
5. IF THERE IS A DISCREPANCY BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLAN AND THE NUMBER OF PLANTS SHOWN IN THE PLANT LIST, THE NUMBER OF PLANTS SHOWN ON THE PLAN WILL TAKE PRECEDENCE.
6. ALL PROPOSED PLANT MATERIAL SHALL BE LOCATED CAREFULLY AS SHOWN ON THE PLAN. IF THE CONTRACTOR BELIEVES AN ERROR HAS BEEN MADE REGARDING SPACING OR LOCATION OF THE PLANT MATERIAL INDICATED ON THE PLAN, NOTIFY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
7. THE CONTRACTOR IS RESPONSIBLE FOR COMPLETE MAINTENANCE OF THE PLANT MATERIAL (WATERING, SPRAYING, FERTILIZING, MOWING, ETC.) UNTIL THE WORK HAS BEEN ACCEPTED, BY THE OWNER.
8. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS TO PROPERTY DAMAGE FROM PLANTING OPERATIONS AT NO COST TO THE OWNER.
9. ALL NEWLY PLANTED PLANT MATERIAL SHALL BE GUARANTEED THROUGH ONE CALENDAR YEAR STARTING FROM THE DATE OF ACCEPTANCE ESTABLISHED BY THE OWNER.
10. THE CONTRACTOR SHALL MEET WITH THE OWNER OR OWNERS REPRESENTATIVE ON SITE WHEN THEY FEEL THE PROJECT IS COMPLETE ACCORDING TO THE CONTRACT DOCUMENTS. IF ALL WORK IS SATISFACTORY AND COMPLETE ACCORDING TO THE CONDITIONS OF THE CONTRACT DOCUMENTS, THEN THE OWNER MUST DECLARE THE PROJECT COMPLETE. THIS DECLARATION WILL CONSTITUTE AS THE BEGINNING OF THE ONE (1) YEAR WARRANTEE PERIOD FOR ALL PLANT MATERIAL. THE OWNER SHALL PROVIDE A LETTER WITH SIGNATURE STATING THE DATE OF ACCEPTANCE.
11. WIND BURN OR OTHERWISE DAMAGED PLANT MATERIAL WILL NOT BE ACCEPTED.
12. THE PRACTICE OF STAKING SHOULD NOT ALLOW NAILS, SCREWS, WIRES, ETC. TO PENETRATE THE OUTER SURFACE OF THE TREES.
13. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ALL TREE STAKES, GUYS, STRAPS AND TRUNK PROTECTION MEASURES FOLLOWING THE COMPLETION OF THE WARRANTEE PERIOD OR AS DIRECTED BY THE OWNER.
14. LANDSCAPE CONTRACTOR IS REQUIRED TO PROVIDE THE OWNER WITH MAINTENANCE INFORMATION DURING THE GUARANTEE PERIOD RELATING TO WATERING, FERTILIZING, PRUNING, PEST CONTROL, AND RELATED ITEMS. THIS WILL BE PREPARED AND DELIVERED TO THE OWNER AFTER PROVISIONAL INSPECTION APPROVAL HAS BEEN GIVEN BY THE OWNER AND/OR LANDSCAPE ARCHITECT.
15. INSTALL CORRUGATED PLASTIC TREE GUARDS, WHITE IN COLOR, WITH THE SIZE OF TUBE 1" DIA. (MIN.) LARGER THAN THE CALIPER OF THE TREE TO BE PROTECTED.
16. CONTRACTOR TO FURNISH & STALL PLASTIC EDGING AS SHOWN ON THE PLANS & DETAILS. PLASTIC EDGING SHALL BE MEDIUM DENSITY POLYETHYLENE WITH U.V. INHIBITOR, BLACK IN COLOR, WITH A TOTAL DEPTH OF 5" (1" DIA. TOP AND 4" SHAFT WITH 1.5" V EVERY 3-1/2 FEET OF EDGING.
17. LANDSCAPE FABRIC (FILTER MAT) TO HAVE A COMBINED WEIGHT OF 4.5-5.5 OZ. PER S.Y. FABRIC SHOULD BE U.V. STABILIZED AND HAVE A FIVE YEAR MINIMUM WEATHERABILITY FACTOR IN FULL SUNLIGHT. FABRIC TO BE PHILLIPS DUON R OR EQUIVALENT. SAMPLE REQUIRED FOR APPROVAL.
18. 3" DEPTH 1"TO 1-1/2" WASHED RIVER ROCK SHALL BE INSTALLED OVER LANDSCAPED FABRIC AS INDICATED ON THE PANS & DETAILS.
19. CALIPER OF TREES UP TO AND INCLUDING 4" SHALL BE MEASURED AT 6" ABOVE GROUND LEVEL, AND 12" ABOVE GROUND LEVEL FOR LARGER SIZES.
20. FOR BALLED & BURLAP PLANT MATERIAL, REMOVE THE TOP HALF OF THE BURLAP FROM THE ROOT BALL. WIRE CAGES, STRAPS, ETC. SHALL BE REMOVED FROM THE TOP HALF OF THE ROOTBALL BEFORE INSTALLATION.
21. ALL CONTAINER MATERIAL SHALL HAVE BEEN GROWN IN CONTAINER FOR A MINIMUM OF 6 MONTHS PRIOR TO INSTALLATION.
22. SHRUBS AND GROUNDCOVER SHALL BE PLANTED A MINIMUM OF ONE HALF THEIR ON-CENTER SPACING FROM PAVING EDGE UNLESS OTHERWISE NOTED.
23. DECIDUOUS SHRUBS SHALL HAVE MINIMUM OF FIVE (5) CANES AT SPECIFIED HEIGHT UNLESS OTHERWISE NOTED IN PLANT SCHEDULE.
24. ALL PERENNIAL BEDS TO RECEIVE ROCK MULCH SHALL HAVE LANDSCAPE FABRIC INSTALLED WITH HOLES FOR PLANTS CUT 2.5 TIMES THE DIAMETER OF THE CONTAINER.
25. LANDSCAPE CONTRACTOR SHALL PROVIDE AND INSTALL NURSERY GROWN PLANT MATERIAL CONFORMING TO THE REQUIREMENTS AND RECOMMENDATIONS OF THE LATEST EDITION OF ANSI Z60.1 STANDARDS UNLESS OTHERWISE NOTED IN THE PLANS OR SPECIFICATIONS.

SEEDING & TOPSOIL NOTES

1. ALL NEWLY INSTALLED PLANT MATERIAL SHALL BE PLANTED IN WELL-DRAINED AREAS. NOTIFY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION IF ANY PLANT MATERIAL IS LOCATED IN DRAINAGE SWALES OR WET & POORLY DRAINED AREAS.
2. ALL PLANTINGS SHALL RECEIVE FERTILIZER AS FOLLOWS:
   - 2.1. SUMMER AND FALL PLANTING: 0-20-20 GRANULAR (IN SAUCER AROUND PLANT AT THE RATE OF 12 OZ. PER 2-3" CAL. TREE & 6 OZ. PER SHRUB).
   - 2.2. SPRING PLANTING: 10-10-10 GRANULAR (APPLY ABOVE REFERENCED FERTILIZER AT A RATE OF 12 OZ. PER 1-1/2" CAL. TREE OR LARGER & 6 OZ. PER SHRUB & PERENNIAL.
3. ALL PLANTINGS SHALL RECEIVE AN AMENDED SOIL MIX CONSISTING OF THREE (3) PARTS:
   - 3.1. 45% APPROVED TOPSOIL (ONE SITE PREFERRED)
   - 3.2. 45% ORGANIC MATTER (TYPE 1 SPHAGNUM PEAT MOSS FINELY DIVIDED WITH A PH OF 3.1 - 5.0.)
   - 3.3. 10% SAND (FINE CLEAN MASONRY SAND)
4. AREAS CONFINED TO A MASS PLANTING AREA (PLANTING BED) SHALL RECEIVE THE AMENDED SOIL MIX AT MIN. 12" DEPTH THROUGHOUT THE PLANTING AREA. AMENDED SOIL MIX SHALL BE MIXED THOROUGHLY AND INSTALLED IN 6" LIFTS.
5. AREAS TO RECEIVE SEED SHALL HAVE A 6" MINIMUM DEPTH OF TOPSOIL. TOPSOIL SHALL PROVIDE FERTILE, FRIABLE, NATURAL LOAM, SURFACE SOIL, REASONABLY FREE OF SUBSOIL, CLAY CLUMPS, BRUSH WEEDS AND OTHER LITTER, AND FREE OF ROOTS, STUMPS, STONE LARGER THAN 1" IN ANY DIMENSION, AND OTHER EXTRANEOUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH.
6. ALL AREAS SPECIFIED AS 'TURF SEED' TO BE SEEDED WITH PREMIUM SUNNY SEED MIX INCLUDING:
   - 6.1. 20% RAVEN STAR KENTUCKY BLUEGRASS 10% MIDNIGHT STAR KENTUCKY BLUEGRASS 15% WASHINGTON KENTUCKY BLUEGRASS 5% THERMAL BLUE BLUEGRASS 35% SPLENDID PERENNIAL RYEGRASS 15% ZODIAC CHEWINGS FESCUE (SEED MIX AVAILABLE AT GERTENS 1-651-450-1501). SEED SHALL BE APPLIED AT A RATE OF 150 LBS./AC. WITH 2 TONS SHREDDED AND PUNCHED IN PLACE STRAW PER ACRE. HYDROSEEDING & MULCHING IS AND ACCEPTABLE ALTERNATE.
7. ALL AREAS SPECIFIED AS 'UPLAND MIX' TO BE SEEDED WITH MNDOT MIX '2575.608 SOUTHERN TALLGRASS ROADSIDE'. BROAD CAST, DRILL AND/OR HYDROSEED AT A RATE OF 26 LBS./AC. WITH 2 TONS SHREDDED AND PUNCHED IN PLACE STRAW PER ACRE. SEED MIX SHALL BE ABLE TO WITHSTAND PERIODIC FLOODING.
8. ALL AREAS SPECIFIED AS 'WET DETENTION MIX' TO BE SEEDED WITH MNDOT MIX '2575.608 SEED WET DITCH'. BROAD CAST, DRILL AND/OR HYDROSEED AT A RATE OF 20 LBS./AC. WITH 2 TONS SHREDDED AND PUNCHED IN PLACE STRAW PER ACRE. SEED MIX SHALL BE ABLE TO WITHSTAND PERIODIC FLOODING.

IRRIGATION NOTES

1. PRIOR TO CONSTRUCTION, VERIFY WITH THE GENERAL CONTRACTOR AND ALL LOCAL UTILITY COMPANIES TO LOCATE EXACT LOCATIONS OF UNDERGROUND UTILITIES.
2. THE IRRIGATION SHALL BE A DESIGN/BUILD SYSTEM BY THE CONTRACTOR. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AN IRRIGATION LAYOUT PLAN AND SPECIFICATIONS AS PART OF THE SCOPE OF WORK WHEN BIDDING. THESE SHALL BE APPROVED BY THE OWNER PRIOR TO ORDER AND/OR INSTALLATION.
3. VALVE AND CIRCUITS SHALL BE SEPARATED BASED ON WATER USE, SO THAT TURF AREAS ARE WATERED SEPARATELY FROM SHRUB AND GROUND COVER AREAS. IRRIGATION HEADS IN TURF AREAS SHALL BE VALVED SPEARATELY FROM SHRUB AND GROUND COVER AREAS. IT IS RECOMMENDED THAT FULL SUN AND SHADY AREAS TO BE VALVED SEPARATELY AS WELL AS HIGH RUN-OFF AND LOW RUN-OFF AREAS TO BE VALVED SEPARATELY.
4. CONFIRM LIMITS OF IRRIGATION, EXISTING AND FUTURE HARDSCAPE AND BUILDING LOCATIONS PRIOR TO THE DESIGN OF THE IRRIGATION SYSTEM.
5. CONTRACTOR SHALL VERIFY WATER SOURCE LOCATION AND PRESSURE AND SUPPLY A SYSTEM THAT PROVIDES FULL AND COMPLETE COVERAGE TO ALL AREAS TO BE IRRIGATED.
6. SYSTEM SHOULD BE DESIGNED TO OPERATE AT UP TO 300 GPM @ 90 PSI TO COMPLETE WATER SCHEDULES WITHIN 12-HOURS MAXIMUM.
7. RAIN SENSORS AND OTHER WATER SAVING TECHNOLOGIES SHALL BE INCLUDED WITHIN THE IRRIGATION DESIGN.
8. PROVIDE THE OWNER WITH AN OPERATING SCHEDULE THAT WORKS WITH THE APPROVED LAYOUT PLAN AND IDENTIFY ANY FIELD ADJUSTMENTS PRIOR TO PROJECT COMPLETION.
9. AVOID OVER-SPRAY ONTO ROADS, SIDEWALKS, SIGNS AND PARKING AREAS. SPRINKLER ARCS SHALL BE DETERMINED ON SITE BY THE IRRIGATION INSTALLER TO PROVIDE THE MAXIMUM COVERAGE POSSIBLE. CAREFULLY ADJUST THE ARCS AND RADIUS OF EACH SPRINKLER TO PROVIDE HEAD-TO-HEAD COVERAGE.
10. WITHIN EXTREME SLOPED AREAS:
    - 10.1. INSTALL STATIONS SEPARATELY FOR TOP AND BOTTOM OF SLOPED AREAS
    - 10.2. INSTALL LATERAL PIPES PARALLEL TO SLOPE
    - 10.3. IF SLOPE IS TOO EXTREME FOR MACHINERY, INSTALL LATERAL PIPES SAFELY AND TEE-FEED INDIVIDUAL SPRINKLERS VIA DOWNHILL PIPING PERPENDICULAR TO FEED LINE
11. LOCATE VALVE BOXES AWAY FROM ROAD/CURB SO THEY ARE LESS VISUAL WHERE APPLICABLE.
12. DO NOT TRENCH THROUGH THE ROOT BALLS OF NEW PLANTINGS.
13. MAINLINE PIPING BENEATH TRAFFIC AREAS SHALL BE INSTALLED WITH A MINIMUM EARTH COVER OF 30-INCHES FROM BOTTOM OF ROAD SUB-GRADE AND CONTAIN SLEEVES NOT LESS THAN TWO NOMINAL DIMENSIONS GREATER THAT THE PIPE PASSING THROUGH.
14. IRRIGATION INSTALLER SHALL FURNISH AND INSTALL SLEEVE MATERIAL UNDER ALL ROADWAYS, WALKS AND DRIVEWAYS WHERE NECESSARY.
15. TOP OF MAINLINES SHALL BE AT LEAST 30-INCHES BELOW GRADE IN TURF AREAS.
16. TOP OF LATERAL LINES SHALL BE AT LEAST 18-INCHES BELOW GRADE.
17. MAINLINE PRESSURE PIPE FITTINGS 3-INCHES AND LARGER SHALL BE PUSH ON GASKET JOINED AND SHALL HAVE MECHANICAL JOINT RESTRAINTS. MAINLINE PRESSURE PIPE FITTINGS 2.5-INCHES AND SMALLER SHALL BE GLUED AND SHALL HAVE CONCRETE THRUST BLOCKS AT FITTINGS THAT COMPRISE CHANGE IN DIRECTION.
18. OTHERS SHALL FURNISH, INSTALL AND BRING 24-INCHES ABOVE GRADE A MUNICIPAL POTABLE STUB FOR IRRIGATION, COORDINATE WITH GENERAL CONTRACTOR.
19. INSTALLER IS RESPONSIBLE FOR FURNISHING AND INSTALLING THE BACKFLOW PREVENTOR, WATER METER AND BOOSTER PUMP, IF APPLICABLE.
20. IRRIGATION CONTROL WIRE SHALL BE DIGITAL TWO-WIRE, UL LISTED FOR DIRECT BURIAL.
21. CONNECT ALL ELECTRICAL WIRING IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL ELECTRIC UTILITY CODES INCLUDING:
    - 21.1. ALL LOW VOLTAGE IRRIGATION CONTROL WIRE SHALL BE INSTALLED WITH THE MAINLINE PIPE WHERE POSSIBLE
    - 21.2. DO NOT LOOP THE LOW VOLTAGE IRRIGATION CONTROL WIRE PATH.
    - 21.3. SNAKE WIRE AT BOTTOM OF TRENCH BENEATH MAINLINE.
    - 21.4. PROVIDE 18-INCH OF SLACK CONTROL WIRE AT ALL CHANGES IN DIRECTION.
    - 21.5. PROVIDE 24-INCH OF SLACK CONTROL WIRE AT EACH REMOTE CONTROL VALVE COILED INSIDE VALVE BOX.
    - 21.6. ALL WIRE SPLICES SHALL BE WATERTIGHT CONNECTORS AND CONTAINED IN VALVE BOX.
    - 21.7. ALL WIRING BENEATH HARDSCAPES SHALL BE CONTAINED IN SLEEVING, SEPARATE FROM PIPING. ELECTRICAL SLEEVES ARE TO BE SIZED APPROPRIATELY FOR EASE OF WIRE INSTALLATION AND REPAIR.
    - 21.8. ALL WIRING SHALL BE IDENTIFIED AT EACH END TO PROVIDE INDICATION AS TO WHICH LOCATION THE WIRE IS CONNECTED.
    - 21.9. GROUNDING PER MANUFACTURER'S RECOMMENDATION OR LOCAL ELECTRICAL CODE.
22. SCHEDULE AND PROGRAM CONTROLLER AND VALVES FOR APPROPRIATE LANDSCAPE WATER REQUIREMENTS.

PLANT ESTABLISHMENT NOTES

1. THE REQUIRED WORK SHALL CONSIST OF CONTINUOUSLY CONDUCTING OPERATIONS AND MAINTENANCE FOR A WARRANTY PERIOD ESTABLISHED FOR 1 YEAR AFTER THE INSTALLATION HAS BEEN ACCEPTANCE BY THE OWNER. THE WORK INCLUDES:
   - 1.1. ESTABLISHMENT OF BALLED AND BURLAPPED AND CONTAINER PLANT MATERIAL AND SEEDED AREAS
     - 1.1.1. INCLUDING PEST CONTROL, FERTILIZING AND FUNGICIDAL TREATMENTS
   - 1.2. REGULAR WATERING SCHEDULINGS FOR ALL PLANT MATERIAL, SOD AND SEEDING
   - 1.3. IRRIGATION SYSTEM OPERATION AND MAINTENANCE
   - 1.4. REMOVAL OF ALL WEEDS WITHIN THE PROJECT AREA BY METHODS AGREED BY THE OWNER (POST/PRE HERBICIDE TREATMENT, HAND OR MECHANICAL REMOVAL)
   - 1.5. MAINTENANCE OF MISCELLANEOUS ITEMS (EROSION CONTROL PRODUCTS, REPAIRS FROM EROSION)
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ON-SITE REVIEW MEETINGS WITH THE OWNER DURING THE PLANT ESTABLISHMENT PERIOD TO IDENTIFY OPERATIONS AND MAINTENANCE TO BE EXECUTED MONTHLY.
3. PLANT MATERIAL DEEMED TO BE REPLACED AT THE END OF PLANT ESTABLISHMENT PERIOD SHALL BE EXECUTED WITHIN 2 WEEKS (14 DAYS) PRESENTING LESS THE FOLLOWING SURVIVORSHIP:
   - 3.1. BALLED AND BURLAPPED AND CONTAINER PLANT MATERIAL: 75%
   - 3.2. SEEDED AREAS: 90% (<10% BARE SOIL)
4. REPLACEMENT PLANTS, SEED SHALL BE OF THE SAME SPECIES AND SIZE AS ORIGINALLY SPECIFIED ON THE DRAWINGS, UNLESS THE OWNER DETERMINES THAT SUBSTITUTIONS OF ANOTHER SPECIES OR SIZE SHALL BE MADE.

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Anderson Engineering of Minnesota, LLC

TWIN CITY HOSE BUILDING ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR
ARCHITECTS, INC.

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 LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: JESSICA A. FAHRENKAMP, PLA

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 65321

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

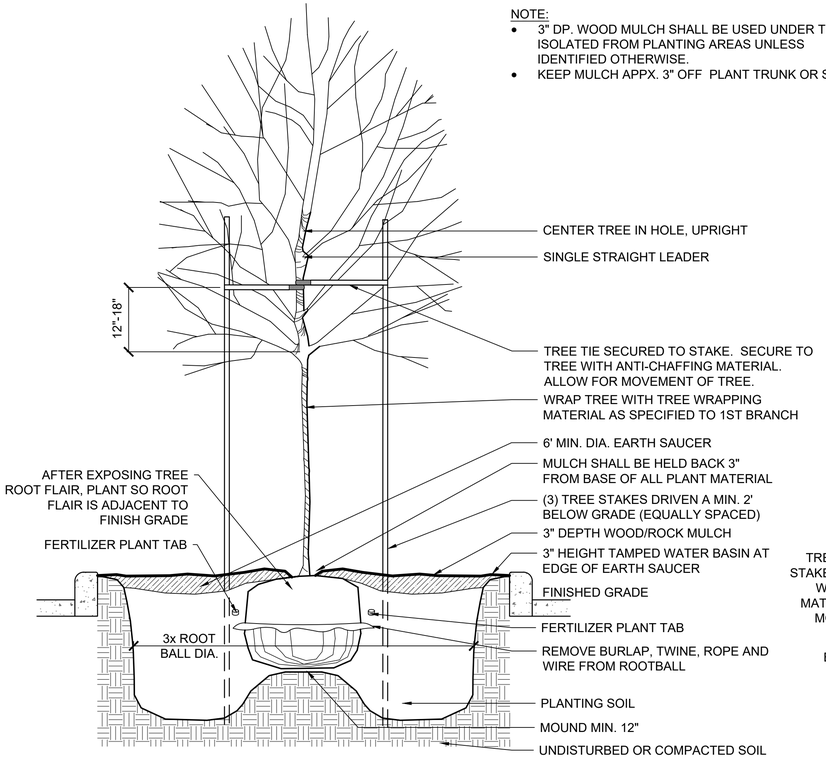
PLANTING DETAILS 1

DRAWING NO.

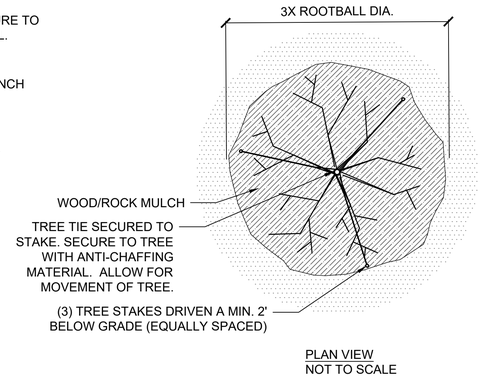
L2

PLOTTED:	COMM. NO.
---	18438

NOTE:
- 3" DP. WOOD MULCH SHALL BE USED UNDER TREES ISOLATED FROM PLANTING AREAS UNLESS IDENTIFIED OTHERWISE.
- KEEP MULCH APPX. 3" OFF PLANT TRUNK OR STEM

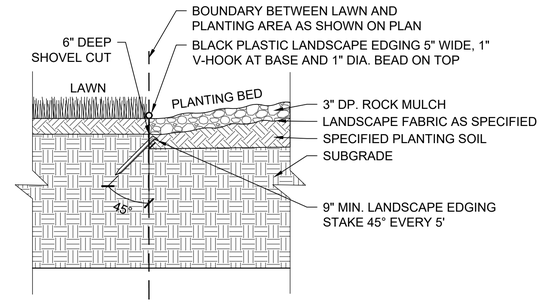


1 DECIDUOUS TREE PLANTING DETAIL
NTS



PLAN VIEW
NOT TO SCALE

NOTE:
- FOR MULTIPLE PIECES OF EDGING, CONNECT WITH 6" MIN. PLUG. STAKE EACH SIDE OF THE EDGING 12" MAX FROM THE POINT OF CONNECTION.



2 PLASTIC LANDSCAPE EDGING DETAIL
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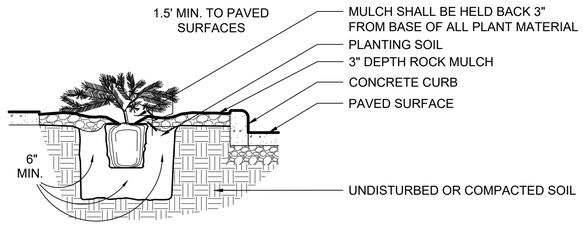

3 EVERGREEN SHRUB PLANTING DETAIL
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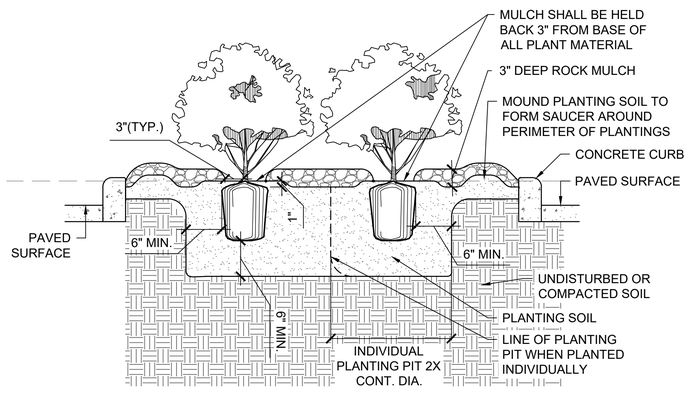

4 DECIDUOUS SHRUB/PERENNIAL PLANTING DETAIL
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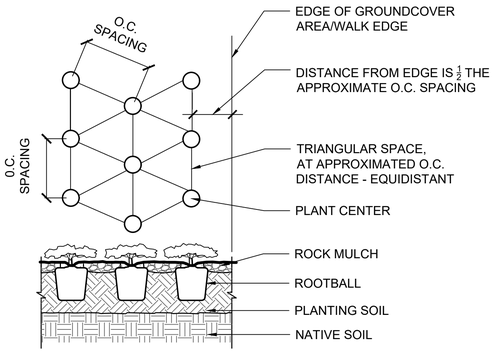

NOTE:
- KEEP ROCK MULCH APPX. 3" OFF PLANT TRUNK OR STEM
- SEE PLANTING PLAN FOR APPROPRIATE O.C. SPACING

5 SHRUB/PERENNIAL PLANT SPACING DETAIL
NTS

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TWIN CITY HOSE BUILDING ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR ARCHITECTS, INC.

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PRINT NAME: JESSICA A. FAHRENKAMP, PLA

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SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

PLANTING DETAILS 2

DRAWING NO.

L3

PLOTTED:	COMM. NO.
----	18438

ZONING INFORMATION:

ZONING: RC - REGIONAL EMPLOYMENT CENTER DISTRICT

SITE AREA: 3 ACRES

USE: LIGHT MANUFACTURING

BUILDING AREA: EXISTING: 24,321 SF
PROPOSED: 9,715 SF
TOTAL: 34,036 SF

PARKING CALCULATIONS:

MANUFACTURING - 1/1500 = 34,036 x 1/1500 = 23 STALLS REQUIRED
53 STALLS PROVIDED

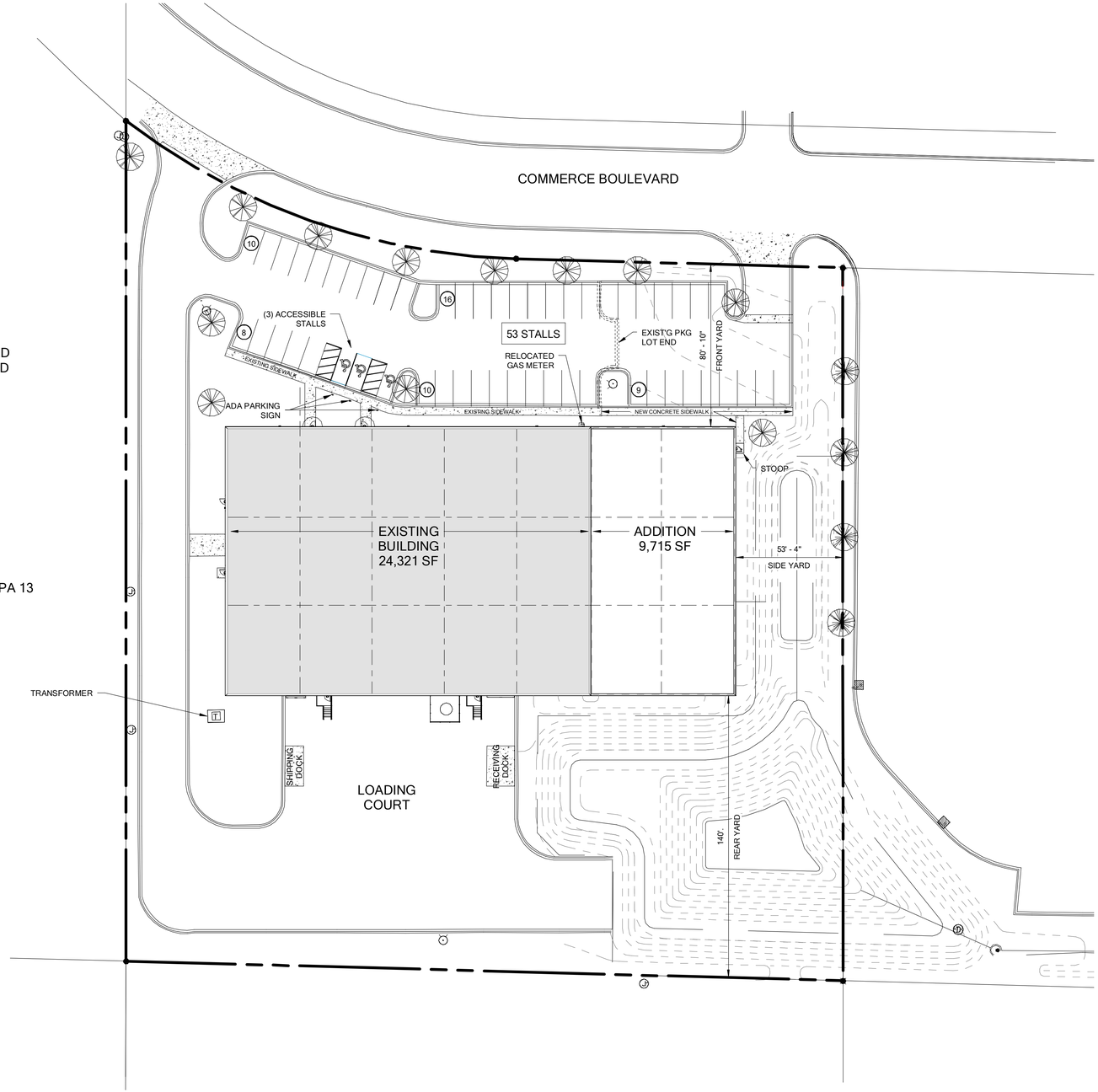
BUILDING SETBACKS:

FRONT YARD: 20' REQUIRED / 81' PROVIDED
SIDE YARD: 10' REQUIRED / 53' PROVIDED
REAR YARD: 20' REQUIRED / 140' PROVIDED

CODE INFORMATION:

OCCUPANCY GROUPS: B (OFFICE)
F-1 (MODERATE HAZARD FACTORY)
S-1 (MODERATE HAZARD STORAGE)

CONSTRUCTION TYPE: IIB NONCOMBUSTIBLE, FULLY SPRINKLED NFPA 13



1 A1.0 SITE PLAN
SCALE: 1" = 30'-0"

I hereby certified that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the laws of the State of Minnesota

Edward A. Farr
Date 4/28/2026 Reg. No. 16362
Project Manager
EAF

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Client
TCH TWIN CITY HOSE, INC.

Project
Twin City Hose Adddition

Location
20615 Commerce Bvld
Rogers, MN 55374

Issued For	*Date*
ZONING REVIEW	04/28/2026

Sheet Title
ARCHITECTURAL SITE PLAN

Project Number 23.047
Sheet Number A1.0

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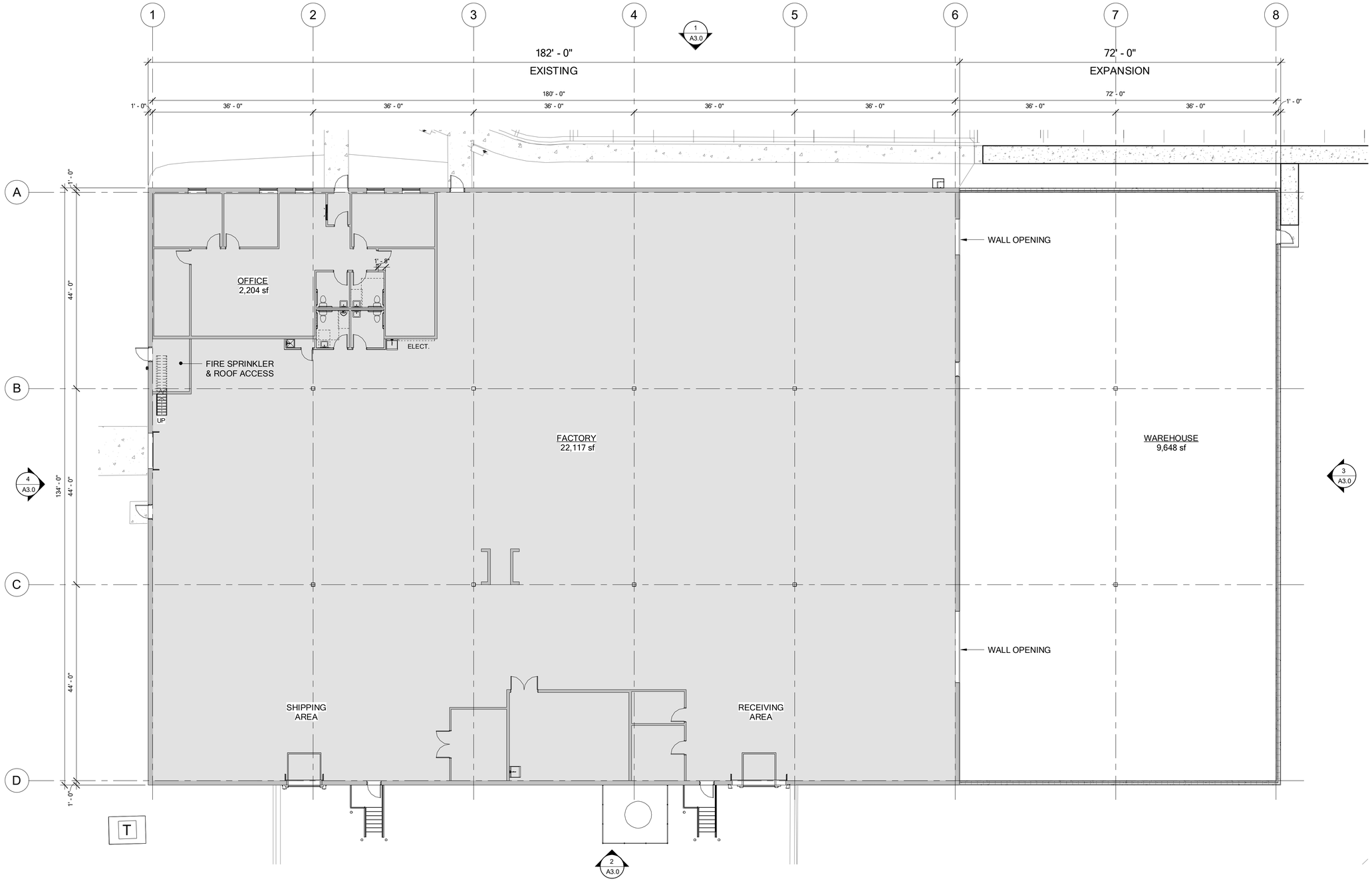

1 A2.0 FLOOR PLAN
SCALE: 3/32" = 1'-0"

N

0 4' 8' 16'

4/28/2026 3:24:43 PM

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Edward A. Farr
Date 4/28/2026 Reg. No. 16362
Project Manager

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Location
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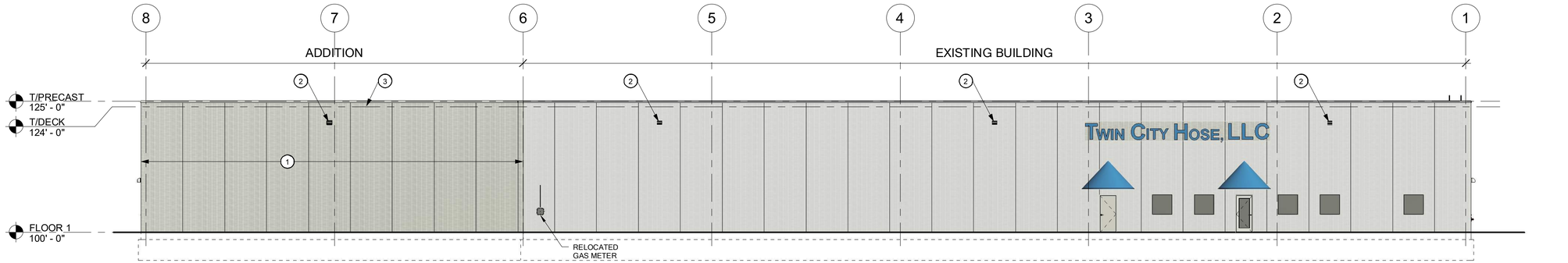
Rogers, MN 55374

Issued For	*Date*
ZONING REVIEW	04/28/2026

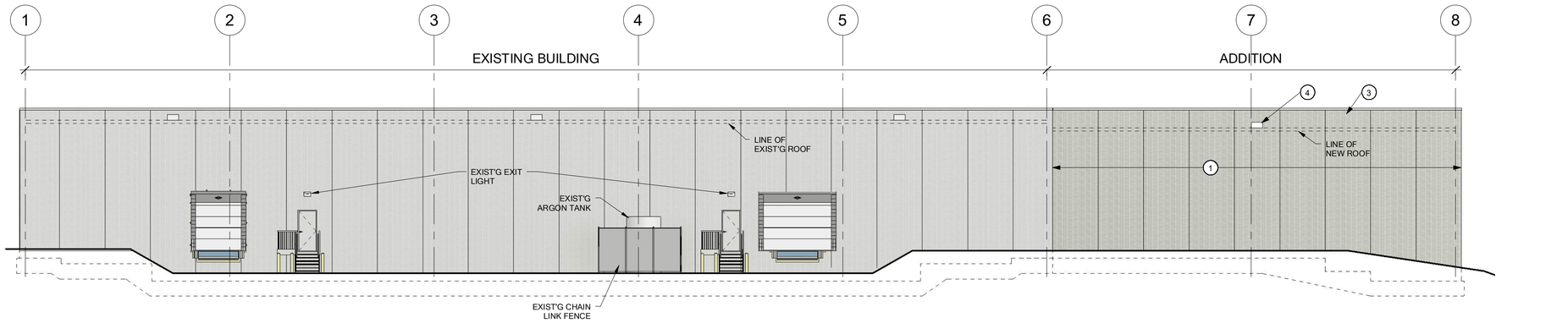
Sheet Title
FLOORL PLAN

Project Number	*Sheet Number*
23.047	A2.0



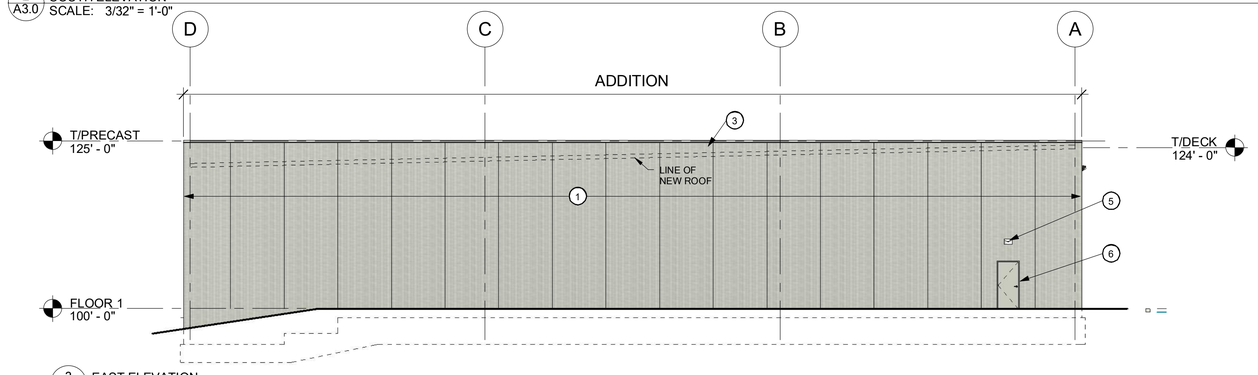
1 A3.0 NORTH ELEVATION
SCALE: 3/32" = 1'-0"

0 4' 8' 16'



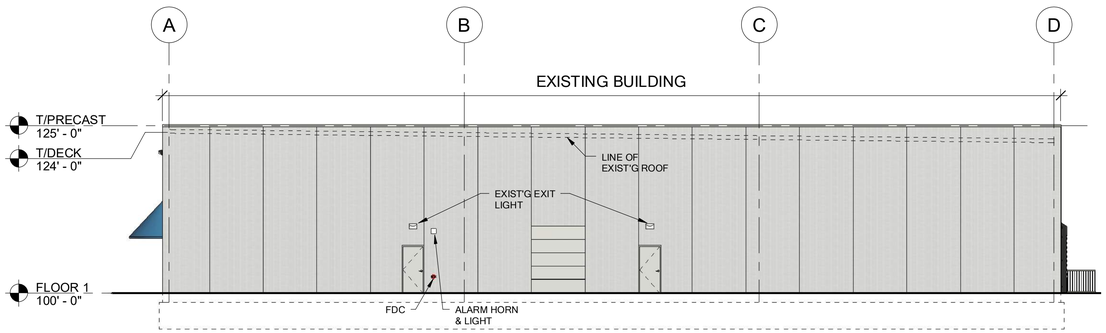
2 A3.0 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"

0 4' 8' 16'



3 A3.0 EAST ELEVATION
SCALE: 3/32" = 1'-0"

0 4' 8' 16'



4 A3.0 WEST ELEVATION
SCALE: 3/32" = 1'-0"

0 4' 8' 16'

ELEVATION NOTES	
1	NEW RAKED AND PAINTED PRECAST PANELS
2	NEW AREA LIGHT
3	PREFINISHED MTL COPING
4	THRU-WALL SCUPPER
5	NEW EXIT LIGHT
6	NEW HOLLOW MTL DOOR

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Edward A. Farr
Date 4/28/2026 Reg. No. 16362

Project Manager
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Issued For	*Date*
ZONING REVIEW	04/28/2026

Sheet Title
EXTERIOR ELEVATIONS

Project Number 23.047
Sheet Number A3.0

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NORTHWEST CORNER VIEW

I hereby certified that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the laws of the State of Minnesota

Edward A. Farr

Date 4/28/2026 Reg. No. 16362

Project Manager

EAF

EDWARD FARR ARCHITECTS INC
7710 Golden Triangle Drive
Eden Prairie, Minnesota 55344
Tel: 952.943.9660
www.edfarrarch.com

Client

TWIN CITY HOSE, INC.

Project

Twin City Hose Adddition

Location

20615 Commerce Bvld
Rogers, MN 55374

Issued For	*Date*
ZONING REVIEW	04/28/2026

Sheet Title

RENDERING VIEW

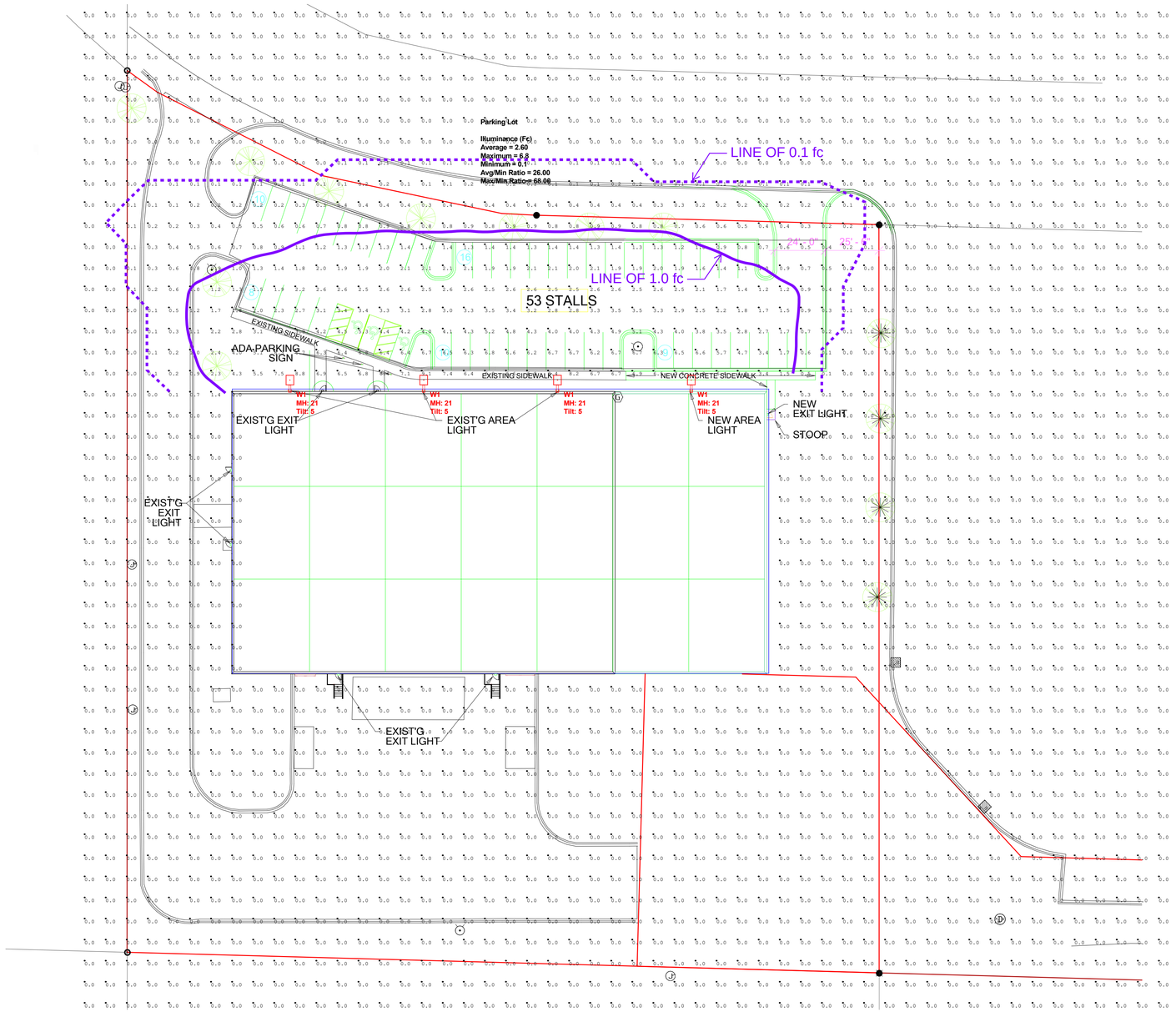
Project Number	*Sheet Number*
23.047	A4.0

4/28/2026 3:24:46 PM

Luminaire Schedule								
Symbol	Qty	Type	Mounting Height	Lum. Watts	Luminaire Lumens	LLF	Description	[MANUFAC]
	4	W1	21	205	26035	0.900	NV-1-T4-64L-1-50K-UNV WALL MOUNT	NLS Lighing LLC

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Overall Site	Fc	0.33	9.1	0.0	N.A.	N.A.
Parking Lot	Fc	2.60	6.8	0.1	26.00	68.00

FIXTURE W1 IS WALL MOUNTED NOT POLE MOUNTED



DISCLAIMER: Based on the information provided, all dimensions and luminaire locations shown represent recommended positions. Actual performance of any manufacturer's luminaires may vary due to changes in electrical voltage, tolerance in LEDs and other variable field conditions. Calculations do not include obstructions such as buildings, curbs, landscaping or any other architectural elements unless noted.

Fixture nomenclature to be finalized by engineer and/or architect. This drawings is for photometric evaluation purposes only and should not be used as a construction document or as a final document for ordering product.

Illuminated Design Service

PULSE never ordinary

Designed By: K. Tomczak
Checked By: Jack Lalim
Date:4/27/2026
Scale: 1" = 30'

Twin City Hose

ANDERSON

Storm Water Management Plan

Calculations & Summaries

Twin City Hose Bldg Addition
Rogers, MN

Project No. 18438

April 28, 2026

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.

Brian J. Field, P.E. Reg. No. 57224

Prepared By:
Anderson Engineering of MN, LLC
13605 1st Avenue North, Suite 100
Plymouth, MN 55441
Ph: 763.412.4000
Fax: 763.412.4090

Prepared For:
Twin City Hose
20615 Commerce Blvd
Rogers, MN 55374

Table of Contents

Appendix – Exhibits and Calculations

Project Overview

Twin City Hose is Proposing to expanded their footprint on their developed lot at 20615 Commerce Blvd in Rogers, MN. The Site is bounded by Commerce Blvd to the north, commercial properties to the west, a multi-tenant office building to the east, and an RV and trailer storage to the south. The proposed construction will include a 9,715 SF building addition and an expanded parking lot. The new parking area will have a new driveway access to Commerce Blvd. The original building project anticipated this future building and parking expansion.

Existing Site Conditions

Twin City Hose's property sits on a 3 acre lot. The existing building has a finished floor elevation of 967.0 feet. An existing parking lot is to the north of the building which drain north to Commerce Blvd. Along the west side of the building is an access drive that leads to the loading dock area in the south. These areas and the existing building drain southeast to a wet detention pond. This pond has a NWL of 957.7 controlled by an outlet control structure with a 6" outlet routed to the George Weber Dr storm sewer. The multi-tenant office building to the east along drains to this same pond making the total drainage area to the pond 4.36 acres. The RV and trailer storage to the south has its own pond but connects to the same storm sewer manhole in George Weber Dr as this pond.

Proposed Site Conditions

9,715 SF building addition to the east and an expanded parking lot located north of this addition. The new parking area will have a new driveway access to Commerce Blvd in the north east corner. This new building and parking area will be captured by a new filtration pond forebay before entering the wet detention pond. The filtration pond forebay is sized to filter the first 1" of rainfall. The wet detention pond will be reconfigured to fit the new addition while lowering the HWL. With these changes, the total area draining to the pond will increase to 4.48 acres. The proposed drainage pattern can be seen in **Exhibit B: Proposed Drainage Map** within the appendices of this report.

Soils

A geotechnical soil testing report was completed on by Kilo Engineering April 24th, 2026. 4 borings were conducted in the proposed building and parking lot locations. The soils on site were found to be primarily lean clay (CL) which are in Hydrological soil group D. This soil is poorly draining and is considered unsuitable for infiltration practices with an infiltration rate of 0.06 in/hr per the Minnesota Stormwater Manual. As such, infiltration practices are not feasible, and a filtration method will be utilized. Grandwater was not encountered down to an elevation of 950. The existing wet detention pond has a bottom elevation of 948.50 per previous as-builts. See **Exhibit F** – Geotechnical Report for more information.

Methodology

HydroCAD

The Hydrologic characteristics of the site were modeled using HydroCAD software. TR55/TR20 methods were utilized. Pre-development and proposed drainage areas were determined via review of the previous HydroCAD model, as-built data, current land survey data, and aerial photos.

The 2, 10, & 100-year frequency events were analyzed for peak runoff rate control in the existing and proposed conditions. The MSE-3 24-hr distribution was used in analysis. Depths for the 2, 10, & 100-year storms were found to be 2.86", 4.26", and 7.32" respectively.

Runoff from pervious and impervious surfaces were calculated together in order to simplify the model for the runoff volume from the site surfaces. Time of Concentrations have been calculated using the HydroCAD program individually for each sub-catchment. Results of this analysis are summarized below, and a report can be seen in **Exhibit C: HydroCAD Report**.

Elm Creek Watershed District and City of Rogers Rules

In addition to the rules described below, the proposed design and report will utilize those definitions and procedural requirements as described in Rule's A & B of the Elm Creek Watershed District Rules. The construction and stormwater management plans have also been designed to meet general standards described within Rule's C and J. **Table 1** below summarizes the watershed rules that are **not** applicable to this site and reasoning for exclusion:

Table 1: Non-Applicable Watershed Rules		
Rule F	Floodplain Alteration	Floodplain not located within construction site.
Rule G	Wetland Alteration	Wetland not located within construction site.
Rule H	Bridge and Culvert Crossing	Not Applicable.
Rule I	Buffer Strips	Wetland not located within construction site.
Rule K	Variances	Not applicable

Additionally, the City of Rogers Municipal Code chapter 117 has rules on stormwater and section 117-7h specifically has detention pond design standards. Below is a summary of other applicable watershed rules and regulations have been met for this project:

Rule D – Stormwater Management

3.b – Runoff Rate (City 117-7.b.1.g)

Both the watershed and city require the 2-yr, 10-yr, and 100-yr proposed peak discharge rates be less than the existing rate. Rate control was analyzed for the 2, 10, and 100-year storm event. The site was modeled to existing conditions to get a baseline of runoff rate to be met by proposed conditions. The rates were compared for the pond outlets and the whole drainage area.

A full summary of the existing and proposed HydroCAD results can be found within **Exhibit C: HydroCAD Report** in the appendices of this report. Tabulations of peak runoff rates can be found in **Table 2** below:

Table 2: Rate Control				
Storm Event	Existing Pond (1P)	Proposed Pond (10P)	Existing Street (1R)	Proposed Street (10R)
2-year	0.65	0.56	2.38	2.08
10-year	0.79	0.70	3.71	3.17
100-year	1.00	0.91	6.52	5.46

3.b.i.3 – Low Floor Elevation

Per the Elm Creek Watershed District Rules and regulations, the HWL of the storage ponds are required to be at least 2' below the finished floor of the new building. The existing and proposed low floor elevation of the building is 967.0. The existing adjacent property building has a low floor elevation of 966.00. The proposed 100-year HWL meets this requirement at elevation 961.16. However, adjacent pavement for the loading dock area is at 960.53 and the neighbor's loading dock has a low catch basin with a rim of 960.48. Both areas are below the 100-year HWL. The filtration Forebay will be above the wet detention pond but will be protected from flooding the adjacent docking area by a berm extending past the forebay overflow. The critical storm water levels can be found in table 3 showing the problem is already existing and by reconfiguring the pond, the proposed improves the issue.

Table 3: High Water Levels

Storm Event	Existing Pond (1P)	Proposed Pond (10P)	Filtration Forebay (40P)
NWL	970.70	970.50	N/A
2-year	959.17	958.70	960.91
10-year	960.12	959.54	961.00
100-year	961.82	961.11	961.11

3.c.3.i – Runoff Volume (City 117-3.1.b.g)

The Watershed requires a treatment volume of 1.1" over the total new impervious surfaces of the project. The city also has a requirement for the first ½" of runoff which is less than the Watershed requirement. 15,898 SF of new impervious surface is proposed for the site. The required treatment volume is therefore:

$$Total\ New\ Impervious\ Area\ (SF) = 15{,}898\ (\mathrm{SF})$$

$$Required\ Abstraction\ (CF) = 15{,}898\ (\mathrm{SF}) \times \frac{1.1(in)}{12(in)} = \mathbf{1{,}457}\ (\boldsymbol{CF})$$

Proposed:

Infiltration of the treatment volume of 1.1" over the impervious area is not feasible for this site due to the type D soils. Instead, a filtration basin will be installed upstream of the wet detention pond to act as a filtration forebay for the wet pond. the The primary release of stormwater from the pond will be via filtration through a media layer while the excess volume will overtop a weir and flow into the wet pond. See **Table 4** below summarizes the 40P's storage volumes.

Table 4: Filtration Pond (40P) Storage Summary

Lowest Outlet	Required Volume Abstraction	Filtration Pond Volume Abstraction
959.40	1457	2654

3.b.i.3 – Overflow Spillway

A broad crested rip rap emergency spill way will be located on the south side of the wet pond (40P). This spill way will flow into the neighbor to the south's pond as the adjacent streets are too far away from the pond and too high.The spill way will be 15 feet long by 6 feet wide and 0.7 foot in height. The basin has a peak discharge rate of 0.92 CFS.

The Horton Equation for broad-crested weirs was used with a spillway coefficient of 2.63 to determine the capacity of the proposed rip rap spillway. The flowing equation shows that the spillway is designed to handle more than the peak inflow rate for the basin:

$Q = C_s bH^{3/2} = 2.63*15*0.7^{3/2} =$ **23.1 CFS** >0.92 CFS

Where:

Q = flowrate (CFS)

C_s = spillway coefficient

b = Crest Length

H = Crest Height

Drawdown Time

Criteria: Design BMP's to have a drawdown time of 48 hours or less

The proposed filtration basin (40P) has been sized to allow a drawdown time of less than 48 hours. The filter media will have an infiltration rate of 6.3 in/hr and will be discharged by a 4" perforated pipe.

Draw Down Time = Captured Volume / (Infiltration Rate x Drainage Surface Area)

$$Draw\ Down\ (hr) = 2{,}654\ (\mathrm{CF}) \div \left[\frac{1.63\ (in)}{(hr)} \times \frac{1(ft)}{12\ (in)} \times 1339\ (SF)\right] = \mathbf{14.6}\ (\boldsymbol{hr})$$

3.e.i – Water Quality

The proposed site met the pollution load reduction requirement through the filtration basin and wet pond practices. Total Phosphorus (TP) and Total Suspended Solids (TSS) were compared for the Existing and Proposed Conditions. Per Watershed and City Rules, there shall be no net increase of TP or TSS. A full summary of the existing and proposed MIDS Calculator results can be found in **Exhibit D: MIDS Calculations** and a tabulation of pollutant loads can be found in **Table 5** below.

Pollutant	Proposed Conditions (lbs)		Existing Conditions (lbs)		Net Difference (lbs)
	Total Load	**Post Treatment**	Total Load	Post Treatment	
TSS	1209.80	**282.50**	1129.4	533.3	**-250.80**
Dissolved Phosphorus	2.997	**2.698**	2.798	2.798	**-0.100**
Particulate Phosphorus	3.663	**0.856**	3.419	1.614	**-0.758**
Total Phosphorus	6.660	**3.554**	6.217	4.412	**-0.858**

Wet Pond Design Requirements (City 117-7h, MPCA Stormwater Manual)

The existing wet detention pond was designed as a wet pond during the construction of multi-tenant office building to the east. Existing pavement and structures limit the amount of area the pond could be expanded. The wet pond requirements were met to the maximum extent technically feasible. Below is a summary of the city and MPCA level 2 wet detention pond requirements.

Dead Storage (City 117-7.h.1)

Criteria: 1800 CF per acre draining to pond

Total area draining to pond = 4.48 Acres x 1800 CF/Ac = 8,064 CF dead storage required

Existing Dead Storage = 62,856 CF; Proposed Dead Storage = **47,103 CF** > 8,064 CF required

Pond Depth (City 117-7.h.2)

Criteria: 4' Minimum, 10' Maximum

Existing Depth = 9.5', Proposed Depth = 9.5'

Pond Length to Width Ratio (City 117-7.h.3)

Criteria: MPCA Length to Width Ratio 1:1 – 3:1 (Level 2); City Length to Width Ratio Greater than 3:1

Existing Ratio: 120'/100' = 1.20; Proposed Ratio: 114'/84' = 1.36

The city requirement could not be reached due to existing features restricting pond expansion. However, the ratios are met for the MPCA level 2 pond standards.

Protected Shelf (City 117-7.h.4)

Criteria: Minimum width extending 10' into the permanent pool with a slope of 10:1.

Existing: Not provided; Proposed: 10' shelf Provided

Protected Buffer Strip (City 117-7.h.5)

Criteria: Minimum 25' of vegetative buffer strip surrounding the permanent pool.

Existing: 15' Min. Buffer Provided; Proposed: 16' Min. Buffer Provided

The city requirement could not be met due to the existing dock area and inlet pipe to the east and the existing truck turn in the south west corner.

Forebay (City 117-7.h.8)

Criteria: All facilities must have a forebay to remove particles prior to discharge into storage basin.

Existing: Not provided; Proposed: Provided for new impervious area

Flood Pool Volume

Criteria: Flood Pool Volume of 1" of impervious area

Total impervious draining to pond = 135,787 SF

$$Required\ Volume\ (CF) = 135{,}787\ (\text{SF}) \times \frac{1(in)}{12(in)} = \mathbf{11{,}316}\ (\boldsymbol{CF})$$

Existing Flood Volume = 63,943 CF; Proposed Flood Volume = **87,433 CF** > 11,316 CF required

Discharge Rate

Criteria: Discharge not to exceed 5.66 cfs per arce of the full surface area of the pond

$$Maximum\ Discharge\ cfs = 32{,}632\ (\text{SF}) \times \frac{1(Ac)}{43560(SF)} \times \frac{5.66(cfs)}{1\ (Ac)} = \mathbf{4.24}\ (\boldsymbol{cfs})$$

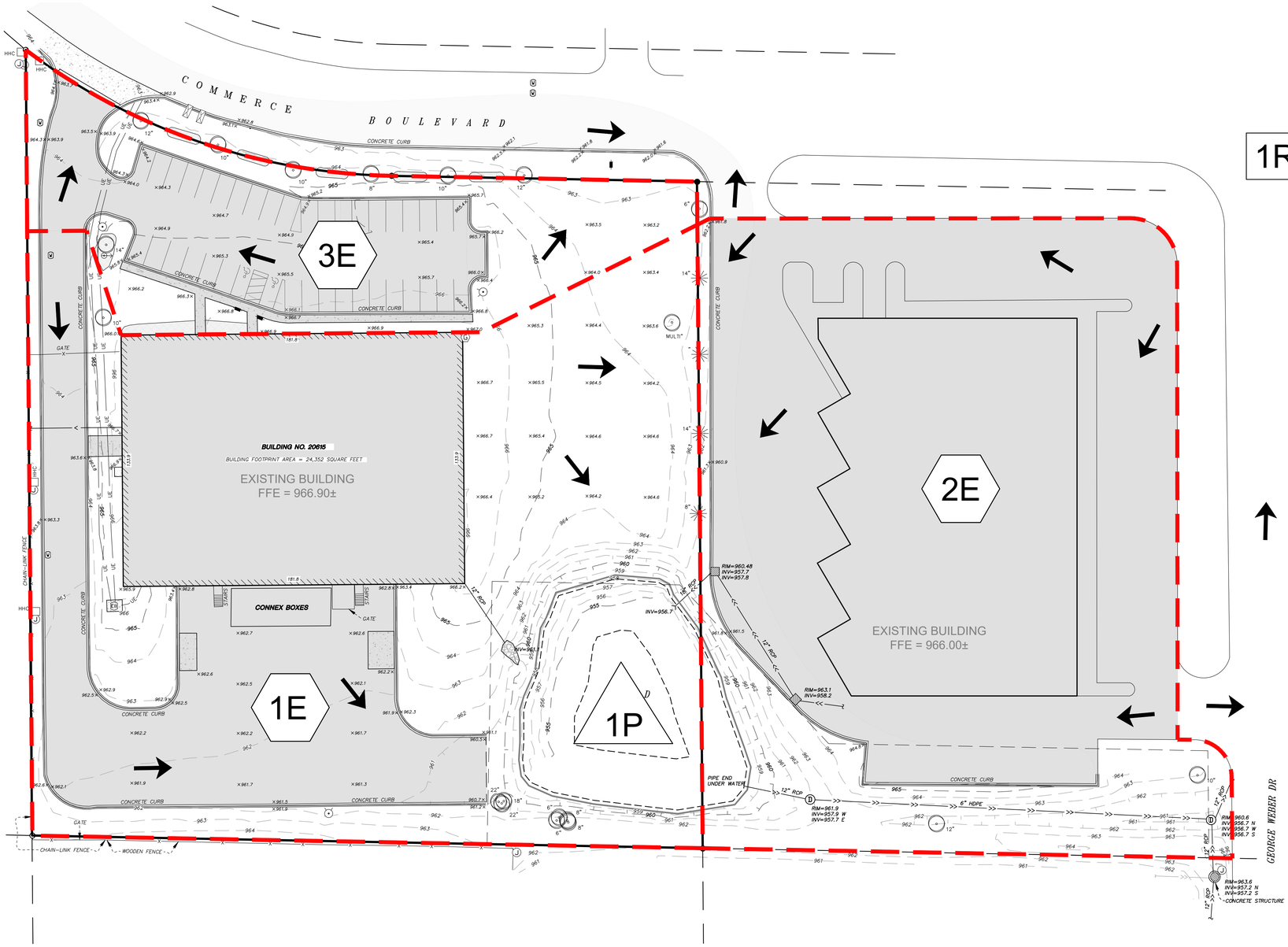
Existing: 1.0 cfs; Proposed: 0.92 cfs < 4.24 cfs maximum

Rule E – Erosion and Sediment Control

Anderson Engineering will obtain a permit from the District that incorporates and approves an erosion and sediment control plan for the project before the start of the project. Disturbance will equal greater that 1.0 acre in area and therefore a Stormwater Pollution Prevention Plan (SWPPP) has been developed and included within the plan set. It is the responsibility of the contractor to implement and modify the SWPPP as construction proceeds. An MPCA General Construction Stormwater Permit will be applied for with conjunction of the SWPPP by the general contractor and will be provided to the City/Watershed when available.

Summary

Overall, the proposed condition will be an improvement to the existing condition for storm water management. The site layout and final grading is designed to take advantage of the existing terrain and impervious areas for to drain to existing stormwater features. Within the project boundary, some changes to the existing drainage patterns are expected due to the proposed structures and other site improvements. The project design does not propose to make major changes to drainage divides.



ANDERSON

13605 1st Avenue N. #100
Plymouth, MN 55441 | ae-mn.com
P 763.412.4000 | F 763.412.4090
Anderson Engineering of Minnesota, LLC

TWIN CITY HOSE BUILDING ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR
ARCHITECTS, INC.

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.

PRINT NAME: JESSICA A. HEATHERENKAMP, PLA

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 58324

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

EXISTING DRAINAGE MAP

DRAWING NO.

EX A

PLOTTED:	COMM. NO.
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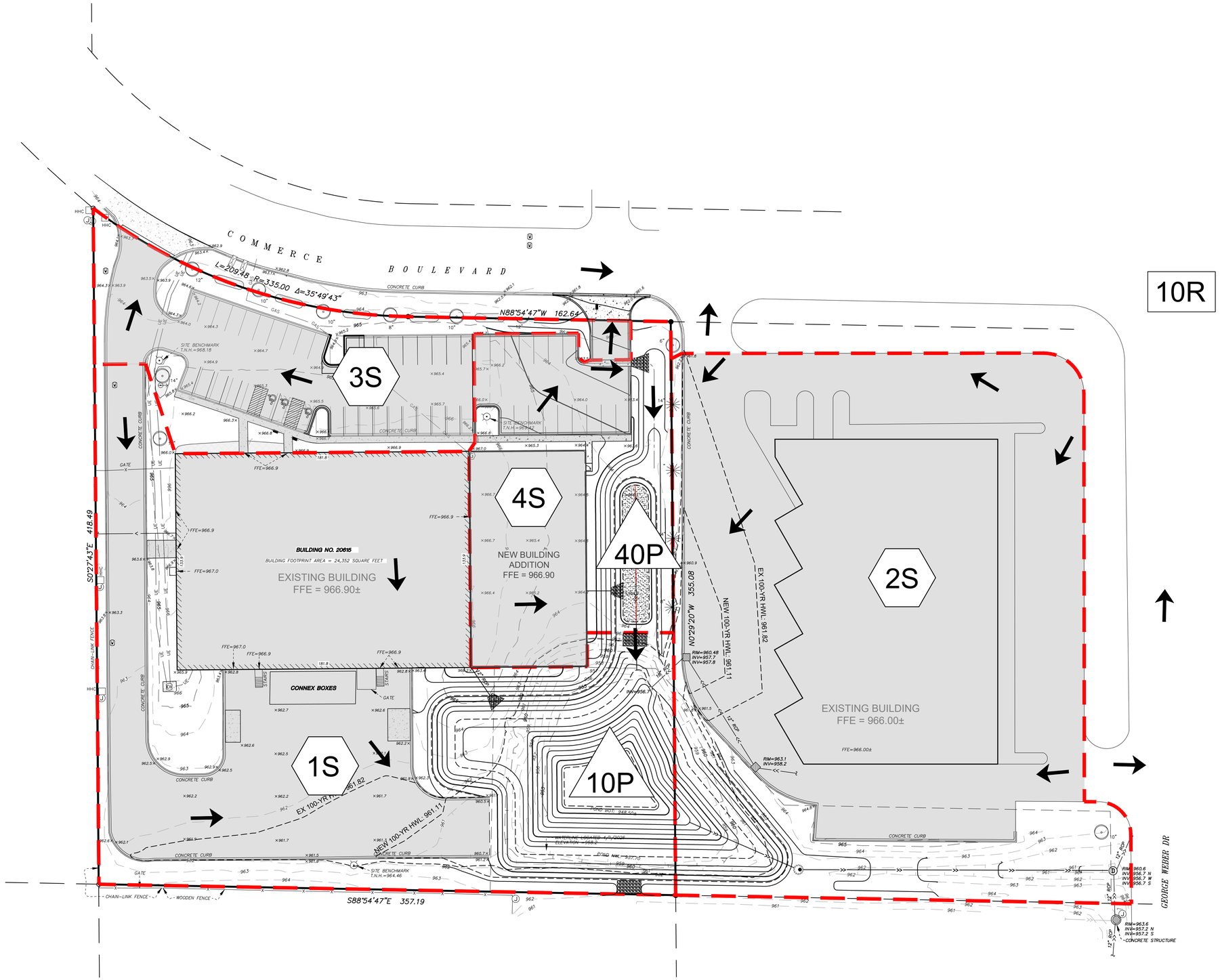

ANDERSON

13605 1st Avenue N. #100
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Anderson Engineering of Minnesota, LLC

TWIN CITY HOSE BUILDING ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR
ARCHITECTS, INC.

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.

PRINT NAME: JESSICA A. FELDHAUSEN, PLA

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 57224

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

PROPOSED DRAINAGE MAP

DRAWING NO.

EX B

PLOTTED:	COMM. NO.
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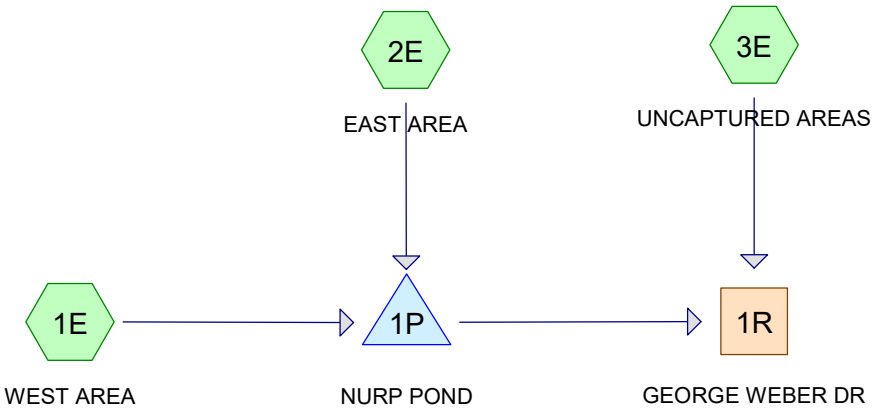

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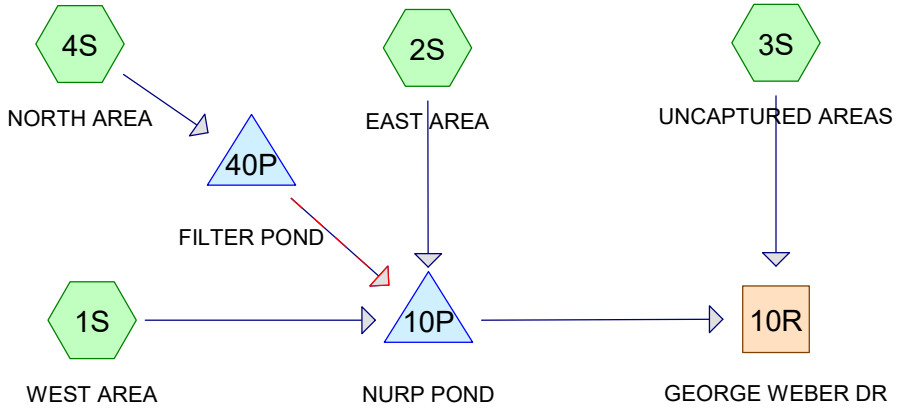
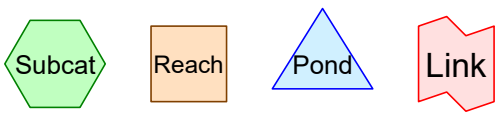


Proposed Conditions



Routing Diagram for 18438_TwinCityHose
Prepared by Anderson Engineering Of MN, LLC, Printed 4/28/2026
HydroCAD® 10.20-7a s/n 00837 © 2025 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.881	80	>75% Grass cover, Good, HSG D (1E, 2E, 3E)
3.127	98	Paved parking, HSG D (1E, 2E, 3E)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
5.008	HSG D	1E, 2E, 3E
0.000	Other	

Ground Covers (selected 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	1.881	0.000	1.881	>75% Grass cover, Good	1E, 2E, 3E
0.000	0.000	0.000	3.127	0.000	3.127	Paved parking	1E, 2E, 3E

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	1P	957.70	956.70	211.0	0.0047	0.010	0.0	6.0	0.0	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1E: WEST AREA Runoff Area=102,238 sf 49.49% Impervious Runoff Depth=1.77"
Tc=10.0 min CN=89 Runoff=6.34 cfs 0.347 af

Subcatchment 2E: EAST AREA Runoff Area=87,479 sf 79.99% Impervious Runoff Depth=2.21"
Tc=10.0 min CN=94 Runoff=6.49 cfs 0.371 af

Subcatchment 3E: UNCAPTURED AREAS Runoff Area=28,417 sf 55.02% Impervious Runoff Depth=1.86"
Tc=10.0 min CN=90 Runoff=1.83 cfs 0.101 af

Reach 1R: GEORGE WEBER DR Inflow=2.38 cfs 0.806 af
Outflow=2.38 cfs 0.806 af

Pond 1P: NURP POND Peak Elev=959.17' Storage=18,129 cf Inflow=12.83 cfs 0.718 af
Outflow=0.65 cfs 0.705 af

Summary for Subcatchment 1E: WEST AREA

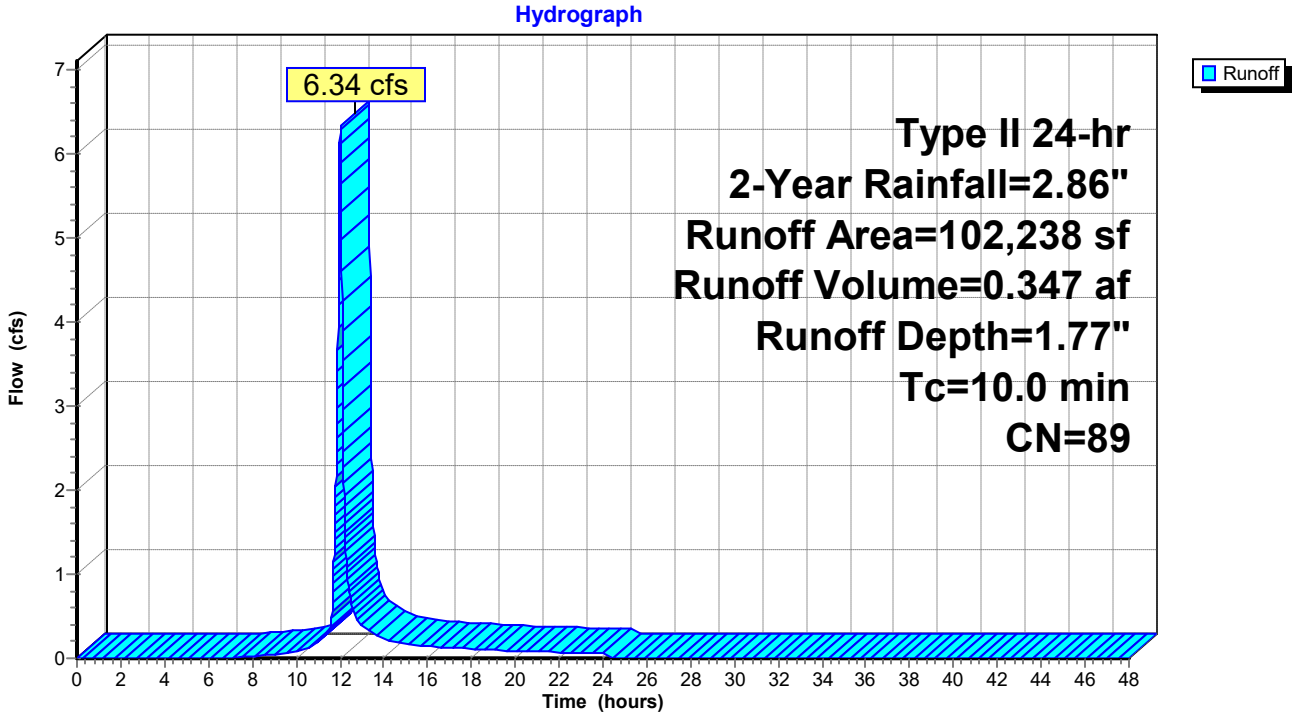
Runoff = 6.34 cfs @ 12.01 hrs, Volume= 0.347 af, Depth= 1.77"
Routed to Pond 1P : NURP POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.86"

Area (sf)	CN	Description
50,596	98	Paved parking, HSG D
51,642	80	>75% Grass cover, Good, HSG D
102,238	89	Weighted Average
51,642		50.51% Pervious Area
50,596		49.49% Impervious Area

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

Subcatchment 1E: WEST AREA



Summary for Subcatchment 2E: EAST AREA

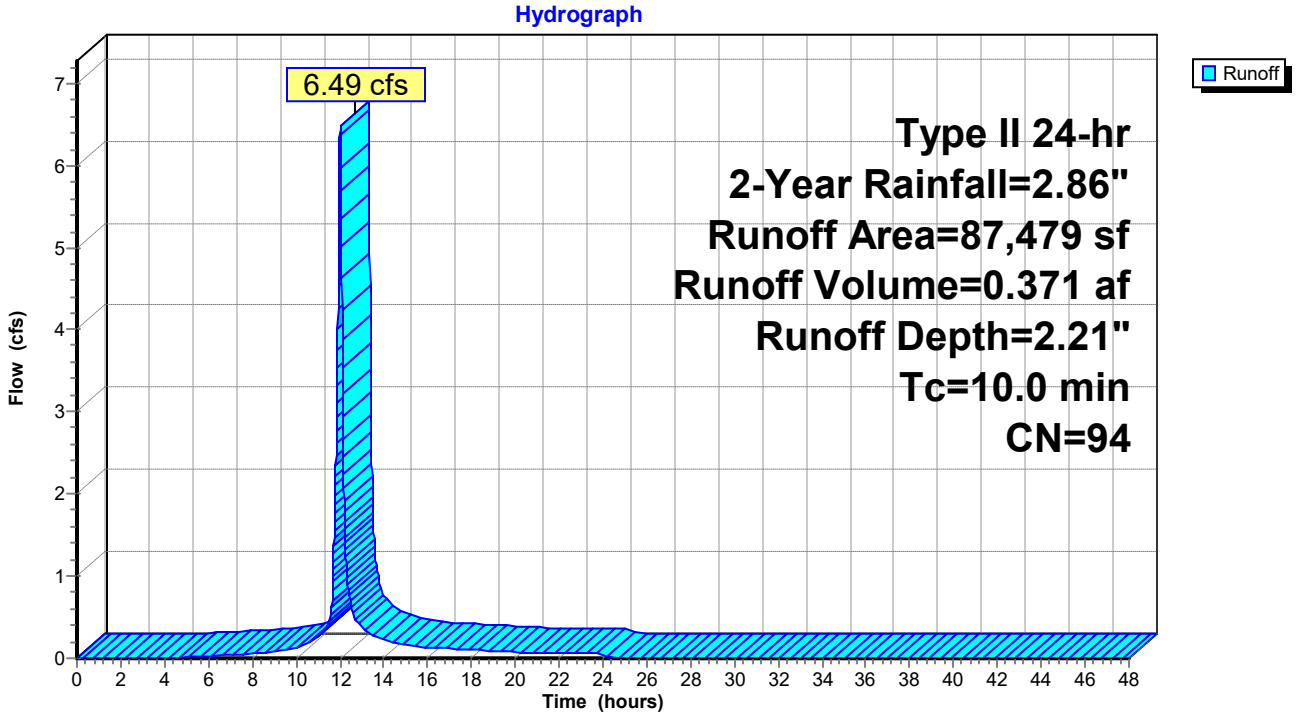
Runoff = 6.49 cfs @ 12.01 hrs, Volume= 0.371 af, Depth= 2.21"
Routed to Pond 1P : NURP POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.86"

Area (sf)	CN	Description
69,973	98	Paved parking, HSG D
17,506	80	>75% Grass cover, Good, HSG D
87,479	94	Weighted Average
17,506		20.01% Pervious Area
69,973		79.99% Impervious Area

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

Subcatchment 2E: EAST AREA



Summary for Subcatchment 3E: UNCAPTURED AREAS

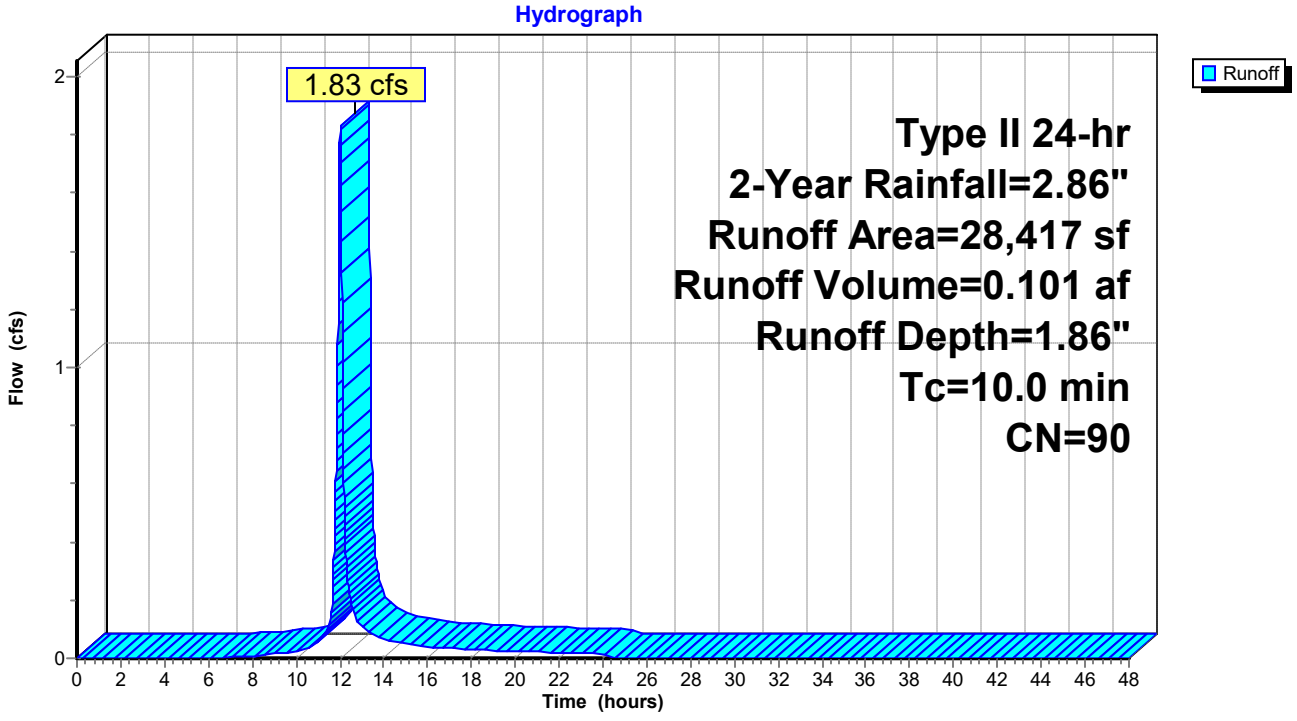
Runoff = 1.83 cfs @ 12.01 hrs, Volume= 0.101 af, Depth= 1.86"
Routed to Reach 1R : GEORGE WEBER DR

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.86"

Area (sf)	CN	Description
15,635	98	Paved parking, HSG D
12,782	80	>75% Grass cover, Good, HSG D
28,417	90	Weighted Average
12,782		44.98% Pervious Area
15,635		55.02% Impervious Area

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

Subcatchment 3E: UNCAPTURED AREAS

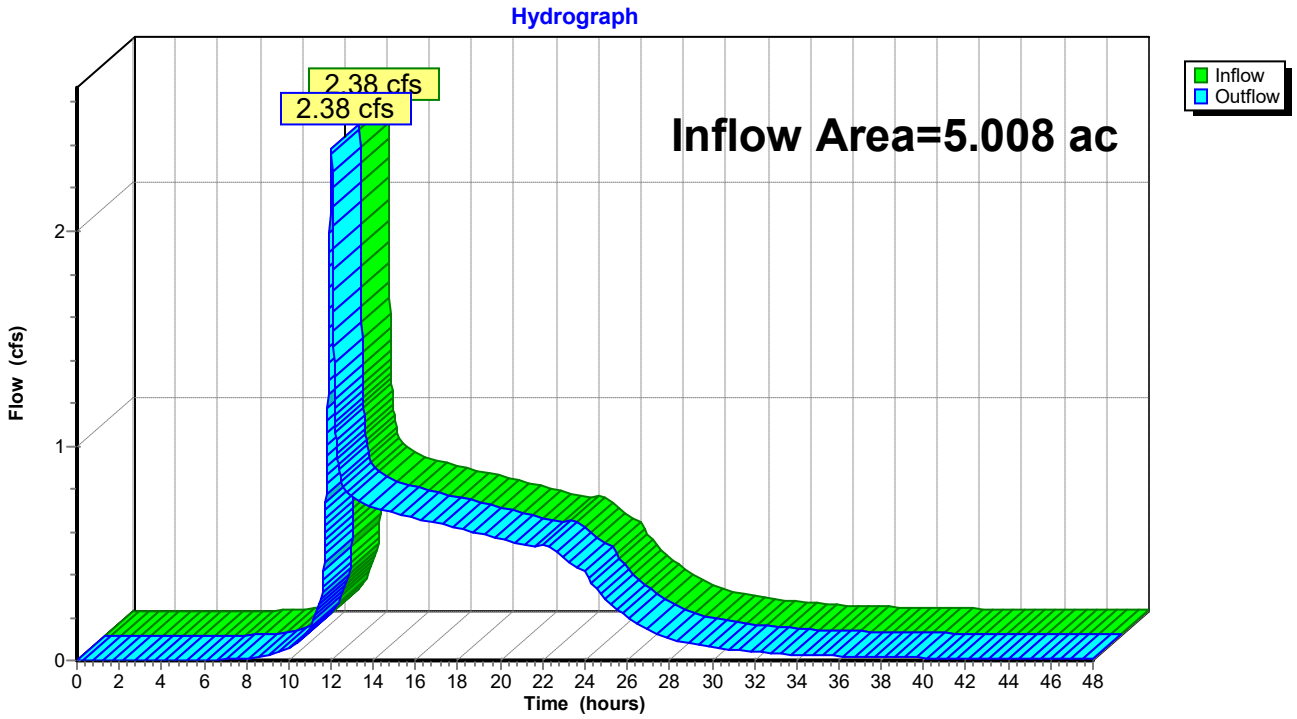


Summary for Reach 1R: GEORGE WEBER DR

Inflow Area = 5.008 ac, 62.44% Impervious, Inflow Depth > 1.93" for 2-Year event
Inflow = 2.38 cfs @ 12.02 hrs, Volume= 0.806 af
Outflow = 2.38 cfs @ 12.02 hrs, Volume= 0.806 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 1R: GEORGE WEBER DR



Summary for Pond 1P: NURP POND

Inflow Area = 4.355 ac, 63.55% Impervious, Inflow Depth = 1.98" for 2-Year event
Inflow = 12.83 cfs @ 12.01 hrs, Volume= 0.718 af
Outflow = 0.65 cfs @ 13.27 hrs, Volume= 0.705 af, Atten= 95%, Lag= 75.6 min
Primary = 0.65 cfs @ 13.27 hrs, Volume= 0.705 af
Routed to Reach 1R : GEORGE WEBER DR

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 959.17' @ 13.27 hrs Surf.Area= 13,525 sf Storage= 18,129 cf

Plug-Flow detention time= 355.4 min calculated for 0.705 af (98% of inflow)
Center-of-Mass det. time= 344.2 min (1,147.6 - 803.4)

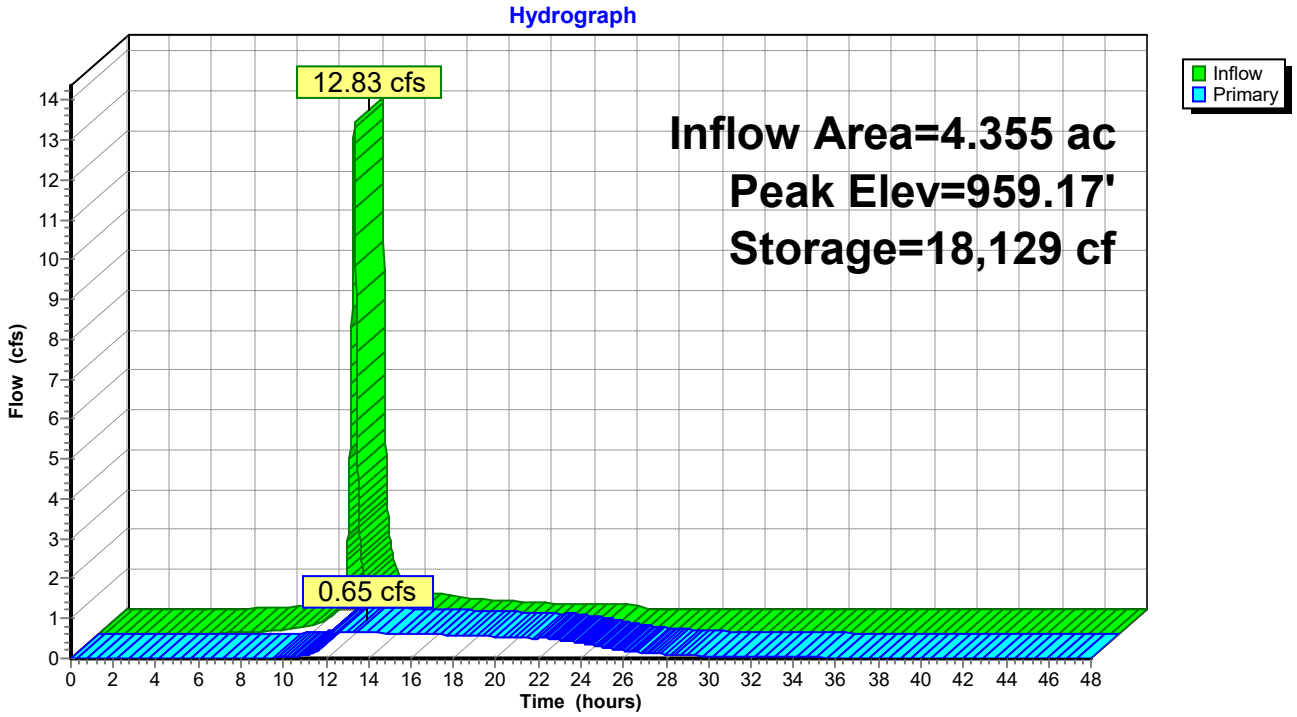
Volume	Invert	Avail.Storage	Storage Description
#1	957.70'	69,345 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
957.70	11,168	0	0
960.00	14,860	29,932	29,932
961.00	17,976	16,418	46,350
962.00	28,013	22,995	69,345

Device	Routing	Invert	Outlet Devices
#1	Primary	957.70'	**6.0" Round 6" HDPE** L= 211.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 957.70' / 956.70' S= 0.0047 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	957.70'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	961.38'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.65 cfs @ 13.27 hrs HW=959.17' TW=0.00' (Dynamic Tailwater)
└─**1=6" HDPE** (Barrel Controls 0.65 cfs @ 3.31 fps)
  ├─**2=Orifice/Grate** (Passes 0.65 cfs of 1.04 cfs potential flow)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: NURP POND



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1E: WEST AREA Runoff Area=102,238 sf 49.49% Impervious Runoff Depth=3.07"
Tc=10.0 min CN=89 Runoff=10.71 cfs 0.600 af

Subcatchment 2E: EAST AREA Runoff Area=87,479 sf 79.99% Impervious Runoff Depth=3.58"
Tc=10.0 min CN=94 Runoff=10.19 cfs 0.599 af

Subcatchment 3E: UNCAPTURED AREAS Runoff Area=28,417 sf 55.02% Impervious Runoff Depth=3.17"
Tc=10.0 min CN=90 Runoff=3.05 cfs 0.172 af

Reach 1R: GEORGE WEBER DR Inflow=3.71 cfs 1.354 af
Outflow=3.71 cfs 1.354 af

Pond 1P: NURP POND Peak Elev=960.12' Storage=31,809 cf Inflow=20.89 cfs 1.199 af
Outflow=0.79 cfs 1.182 af

Summary for Subcatchment 1E: WEST AREA

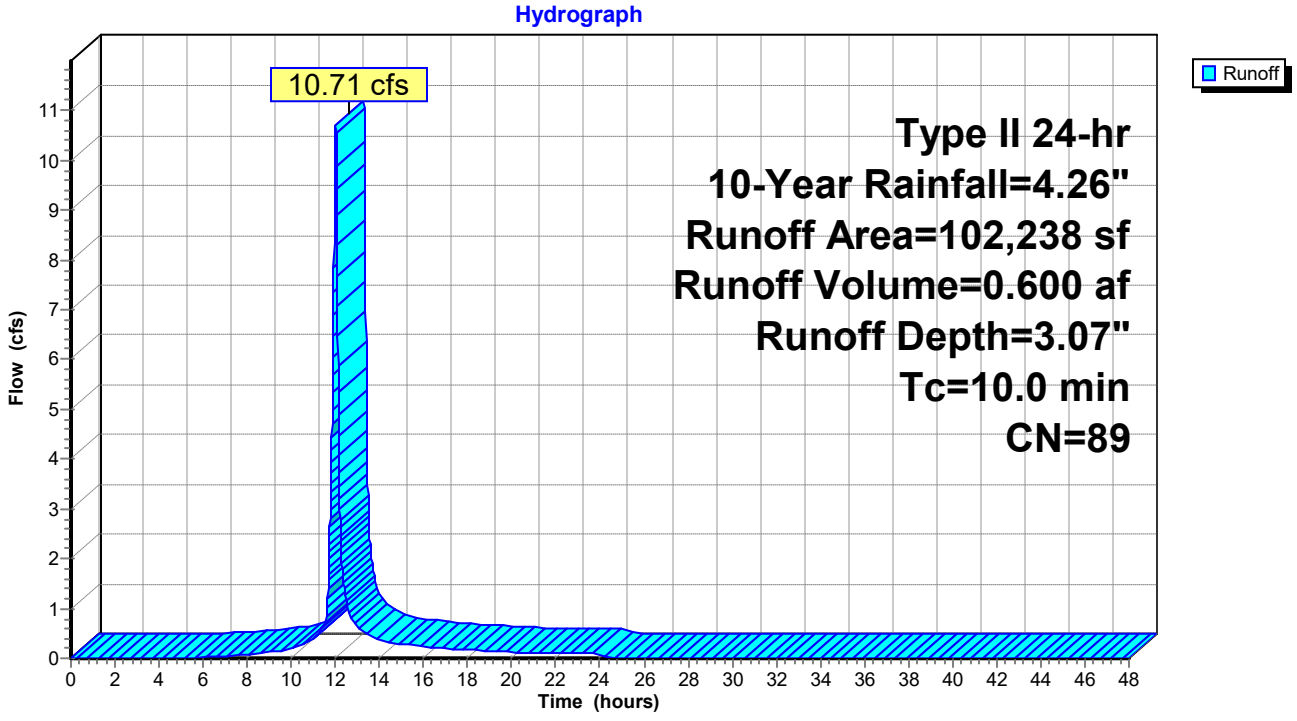
Runoff = 10.71 cfs @ 12.01 hrs, Volume= 0.600 af, Depth= 3.07"
Routed to Pond 1P : NURP POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=4.26"

Area (sf)	CN	Description
50,596	98	Paved parking, HSG D
51,642	80	>75% Grass cover, Good, HSG D
102,238	89	Weighted Average
51,642		50.51% Pervious Area
50,596		49.49% Impervious Area

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

Subcatchment 1E: WEST AREA



Summary for Subcatchment 2E: EAST AREA

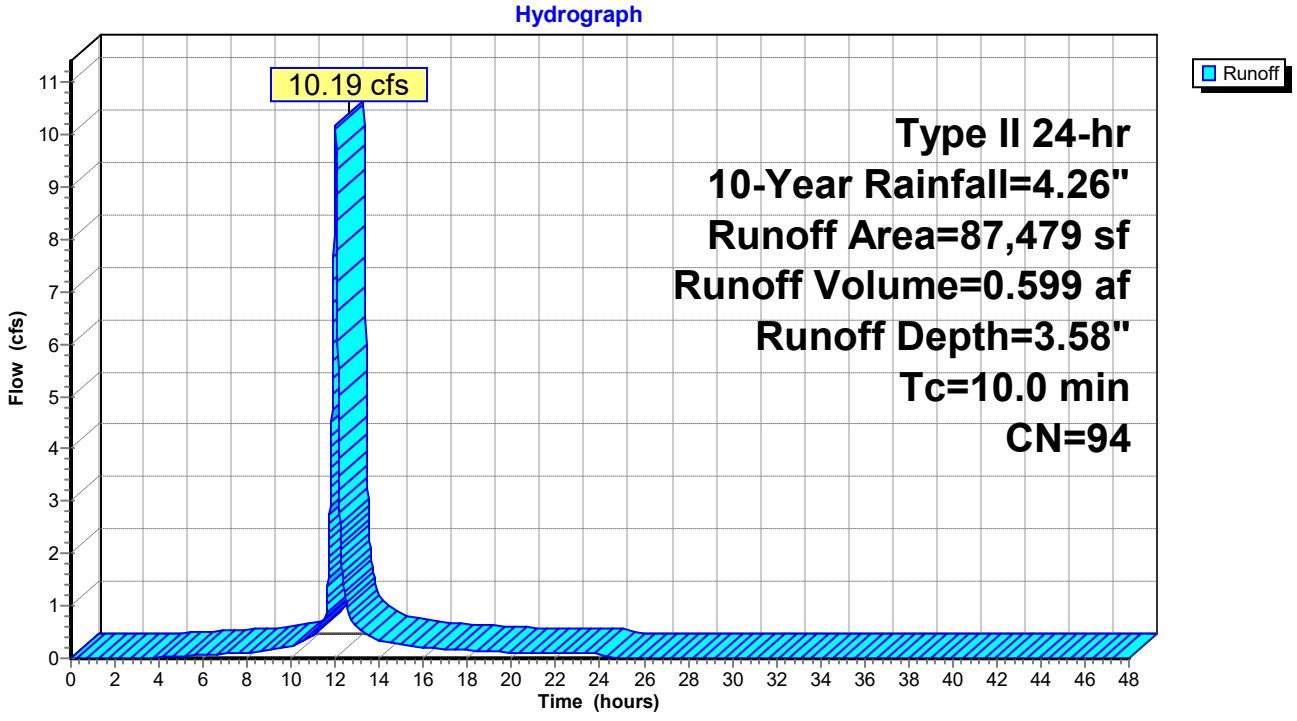
Runoff = 10.19 cfs @ 12.01 hrs, Volume= 0.599 af, Depth= 3.58"
Routed to Pond 1P : NURP POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=4.26"

Area (sf)	CN	Description
69,973	98	Paved parking, HSG D
17,506	80	>75% Grass cover, Good, HSG D
87,479	94	Weighted Average
17,506		20.01% Pervious Area
69,973		79.99% Impervious Area

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

Subcatchment 2E: EAST AREA



Summary for Subcatchment 3E: UNCAPTURED AREAS

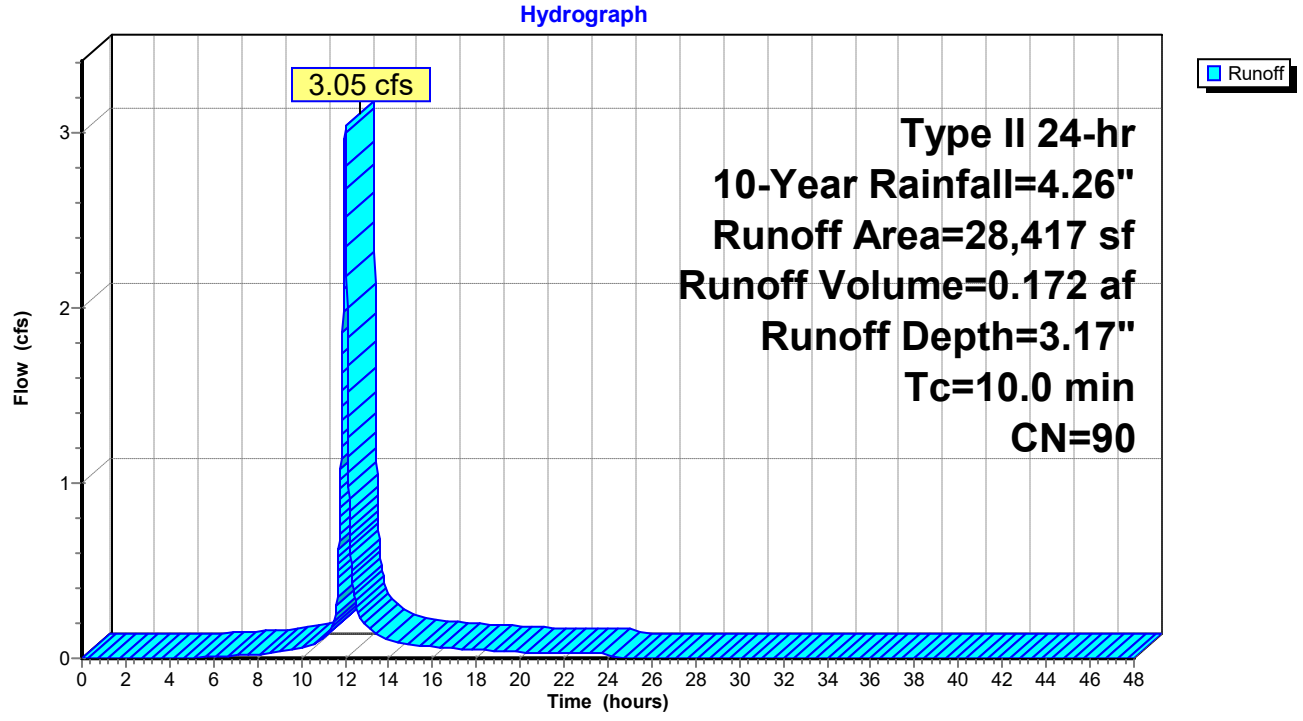
Runoff = 3.05 cfs @ 12.01 hrs, Volume= 0.172 af, Depth= 3.17"
Routed to Reach 1R : GEORGE WEBER DR

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=4.26"

Area (sf)	CN	Description
15,635	98	Paved parking, HSG D
12,782	80	>75% Grass cover, Good, HSG D
28,417	90	Weighted Average
12,782		44.98% Pervious Area
15,635		55.02% Impervious Area

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

Subcatchment 3E: UNCAPTURED AREAS

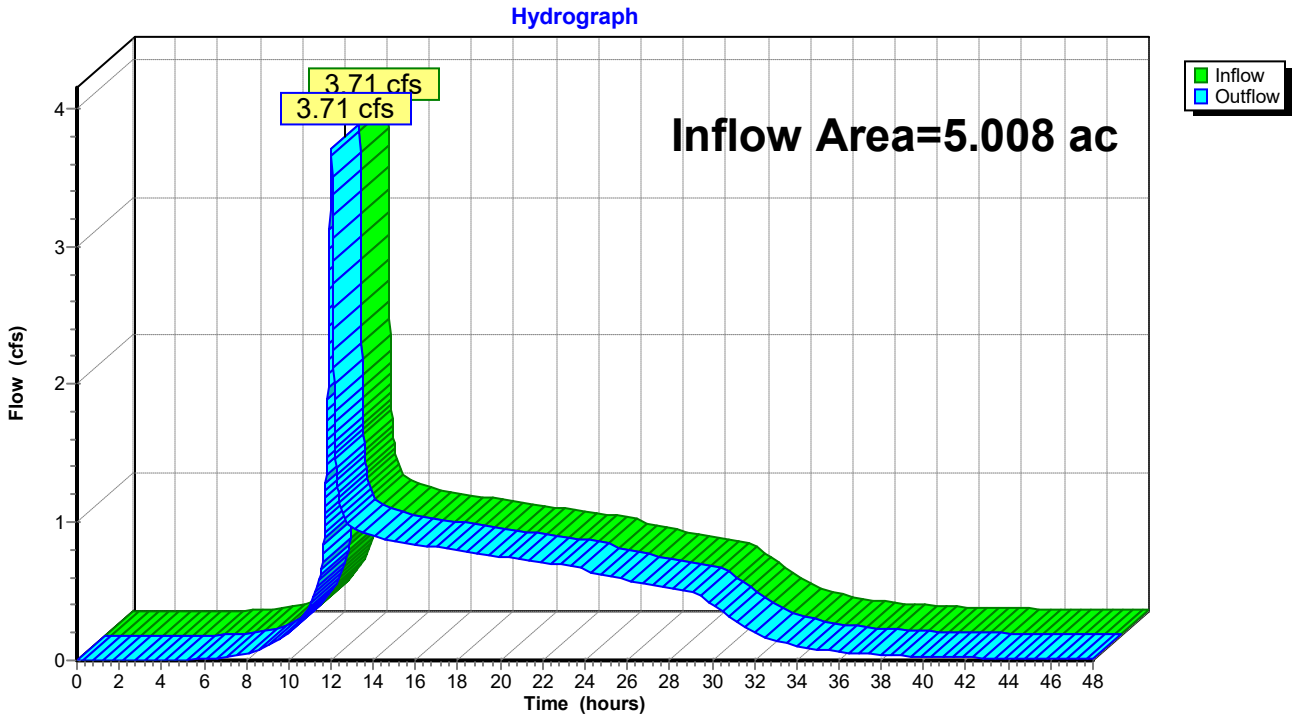


Summary for Reach 1R: GEORGE WEBER DR

Inflow Area = 5.008 ac, 62.44% Impervious, Inflow Depth > 3.25" for 10-Year event
Inflow = 3.71 cfs @ 12.01 hrs, Volume= 1.354 af
Outflow = 3.71 cfs @ 12.01 hrs, Volume= 1.354 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 1R: GEORGE WEBER DR



Summary for Pond 1P: NURP POND

Inflow Area = 4.355 ac, 63.55% Impervious, Inflow Depth = 3.30" for 10-Year event
Inflow = 20.89 cfs @ 12.01 hrs, Volume= 1.199 af
Outflow = 0.79 cfs @ 13.77 hrs, Volume= 1.182 af, Atten= 96%, Lag= 105.4 min
Primary = 0.79 cfs @ 13.77 hrs, Volume= 1.182 af
Routed to Reach 1R : GEORGE WEBER DR

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 960.12' @ 13.77 hrs Surf.Area= 15,248 sf Storage= 31,809 cf

Plug-Flow detention time= 479.8 min calculated for 1.182 af (99% of inflow)
Center-of-Mass det. time= 471.1 min (1,260.7 - 789.6)

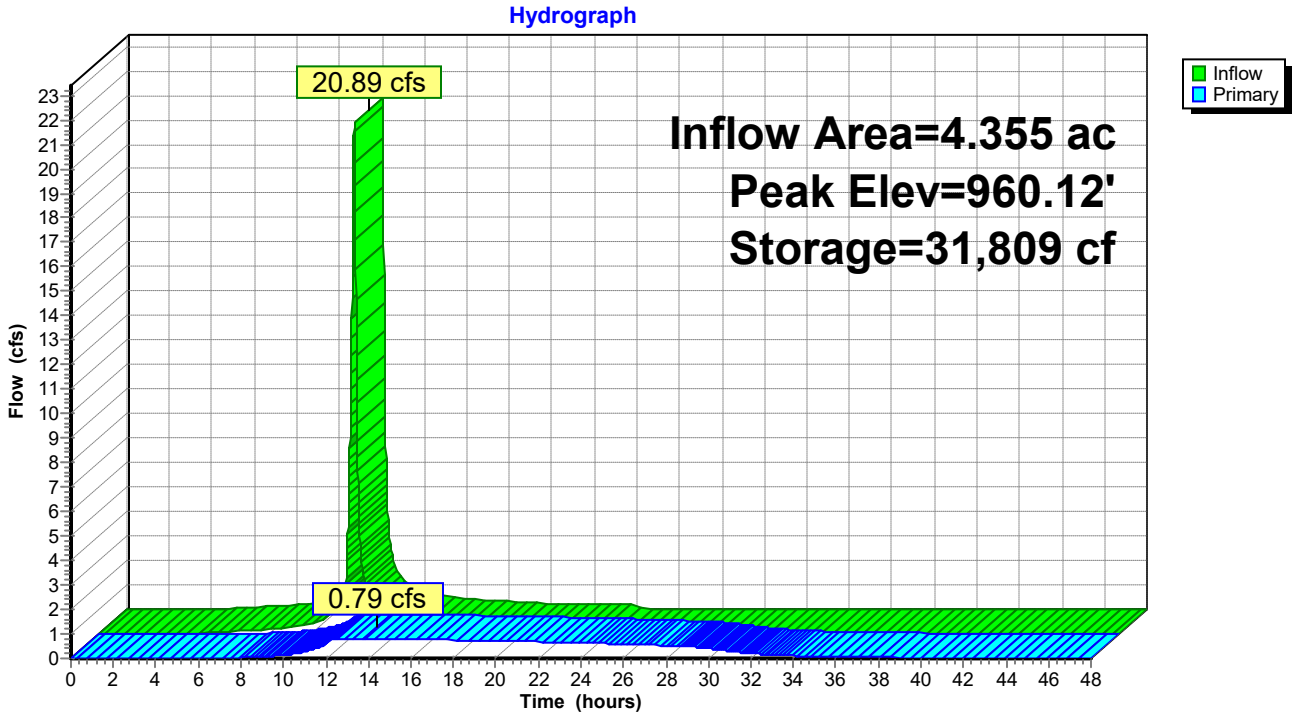
Volume	Invert	Avail.Storage	Storage Description
#1	957.70'	69,345 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
957.70	11,168	0	0
960.00	14,860	29,932	29,932
961.00	17,976	16,418	46,350
962.00	28,013	22,995	69,345

Device	Routing	Invert	Outlet Devices
#1	Primary	957.70'	**6.0" Round 6" HDPE** L= 211.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 957.70' / 956.70' S= 0.0047 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	957.70'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	961.38'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.79 cfs @ 13.77 hrs HW=960.12' TW=0.00' (Dynamic Tailwater)
└─**1=6" HDPE** (Barrel Controls 0.79 cfs @ 4.03 fps)
  ├─**2=Orifice/Grate** (Passes 0.79 cfs of 1.39 cfs potential flow)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: NURP POND



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1E: WEST AREA Runoff Area=102,238 sf 49.49% Impervious Runoff Depth=6.02"
Tc=10.0 min CN=89 Runoff=20.20 cfs 1.178 af

Subcatchment 2E: EAST AREA Runoff Area=87,479 sf 79.99% Impervious Runoff Depth=6.61"
Tc=10.0 min CN=94 Runoff=18.13 cfs 1.106 af

Subcatchment 3E: UNCAPTURED AREAS Runoff Area=28,417 sf 55.02% Impervious Runoff Depth=6.14"
Tc=10.0 min CN=90 Runoff=5.68 cfs 0.334 af

Reach 1R: GEORGE WEBER DR Inflow=6.52 cfs 2.578 af
Outflow=6.52 cfs 2.578 af

Pond 1P: NURP POND Peak Elev=961.82' Storage=64,398 cf Inflow=38.33 cfs 2.283 af
Outflow=1.00 cfs 2.244 af

Summary for Subcatchment 1E: WEST AREA

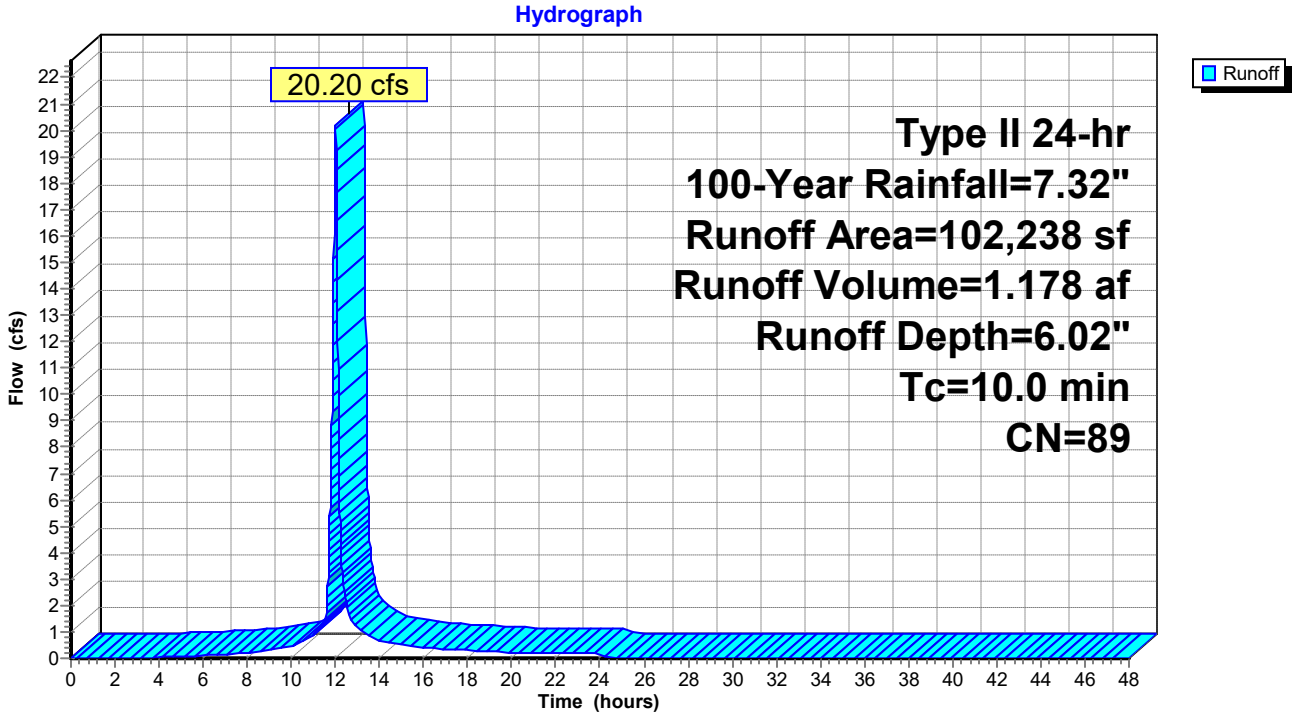
Runoff = 20.20 cfs @ 12.01 hrs, Volume= 1.178 af, Depth= 6.02"
Routed to Pond 1P : NURP POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=7.32"

Area (sf)	CN	Description
50,596	98	Paved parking, HSG D
51,642	80	>75% Grass cover, Good, HSG D
102,238	89	Weighted Average
51,642		50.51% Pervious Area
50,596		49.49% Impervious Area

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

Subcatchment 1E: WEST AREA



Summary for Subcatchment 2E: EAST AREA

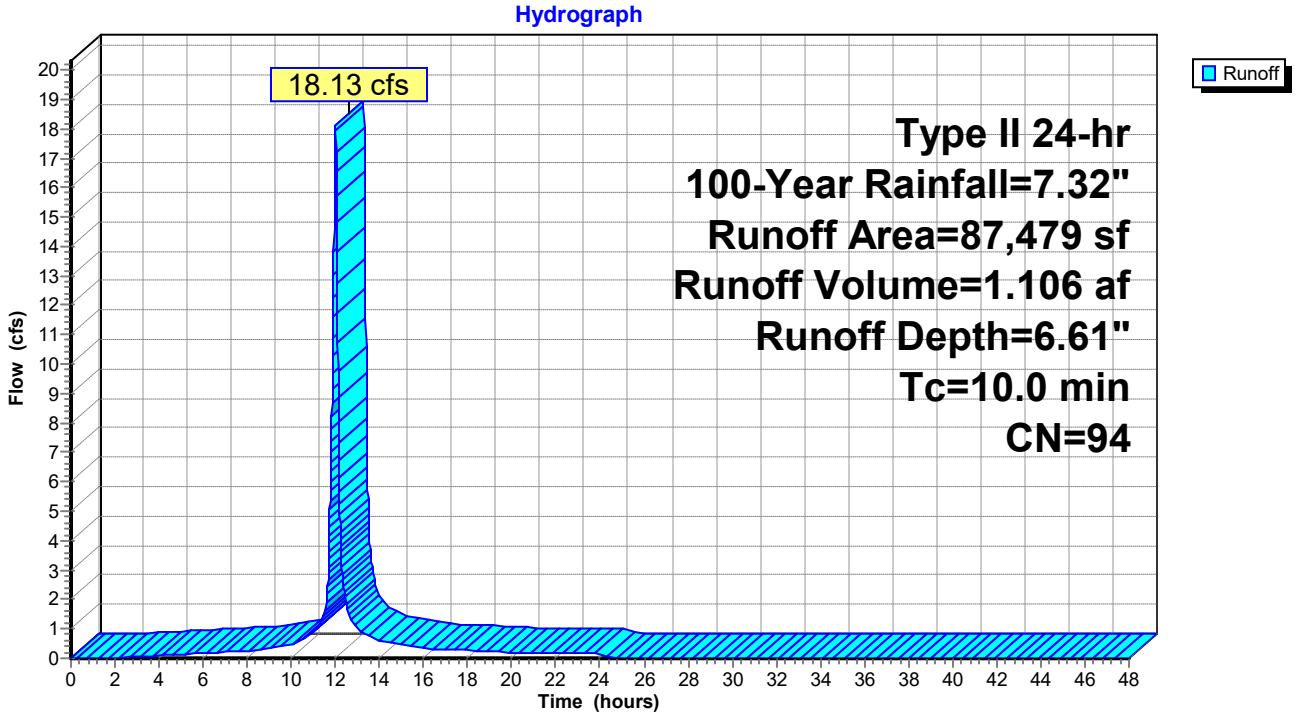
Runoff = 18.13 cfs @ 12.01 hrs, Volume= 1.106 af, Depth= 6.61"
Routed to Pond 1P : NURP POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=7.32"

Area (sf)	CN	Description
69,973	98	Paved parking, HSG D
17,506	80	>75% Grass cover, Good, HSG D
87,479	94	Weighted Average
17,506		20.01% Pervious Area
69,973		79.99% Impervious Area

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

Subcatchment 2E: EAST AREA



Summary for Subcatchment 3E: UNCAPTURED AREAS

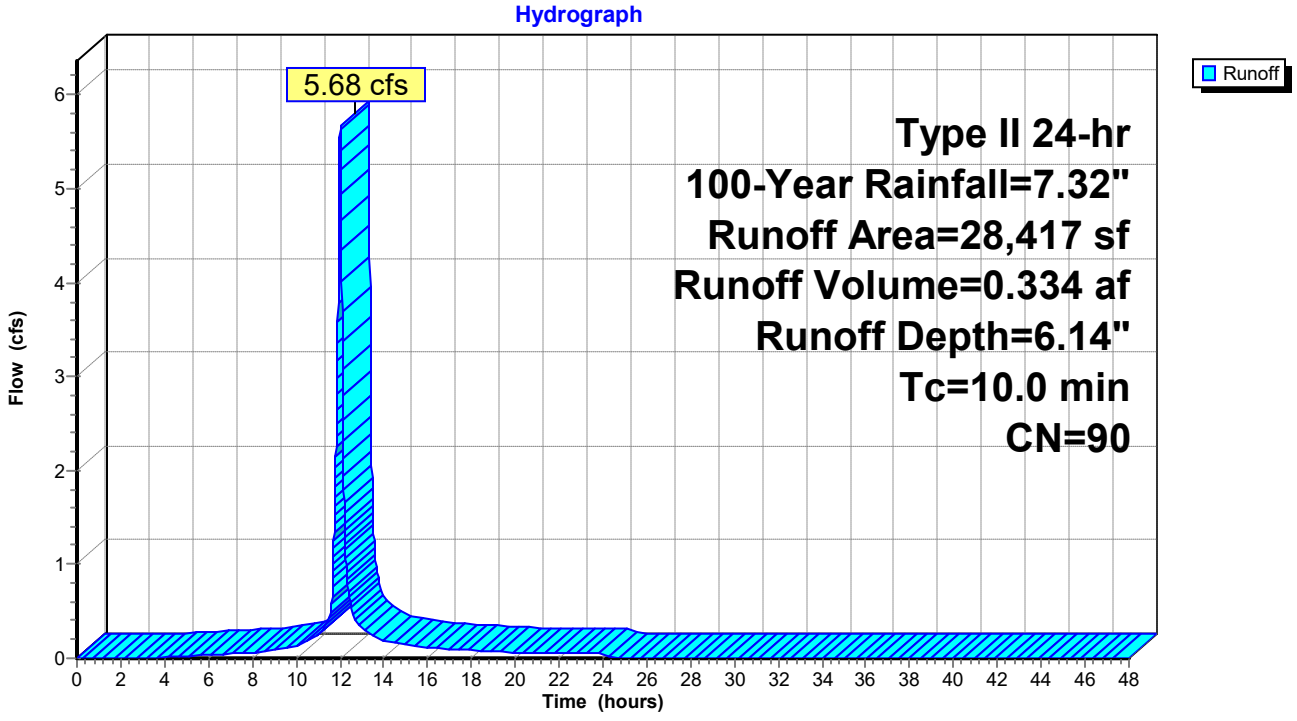
Runoff = 5.68 cfs @ 12.01 hrs, Volume= 0.334 af, Depth= 6.14"
Routed to Reach 1R : GEORGE WEBER DR

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=7.32"

Area (sf)	CN	Description
15,635	98	Paved parking, HSG D
12,782	80	>75% Grass cover, Good, HSG D
28,417	90	Weighted Average
12,782		44.98% Pervious Area
15,635		55.02% Impervious Area

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

Subcatchment 3E: UNCAPTURED AREAS

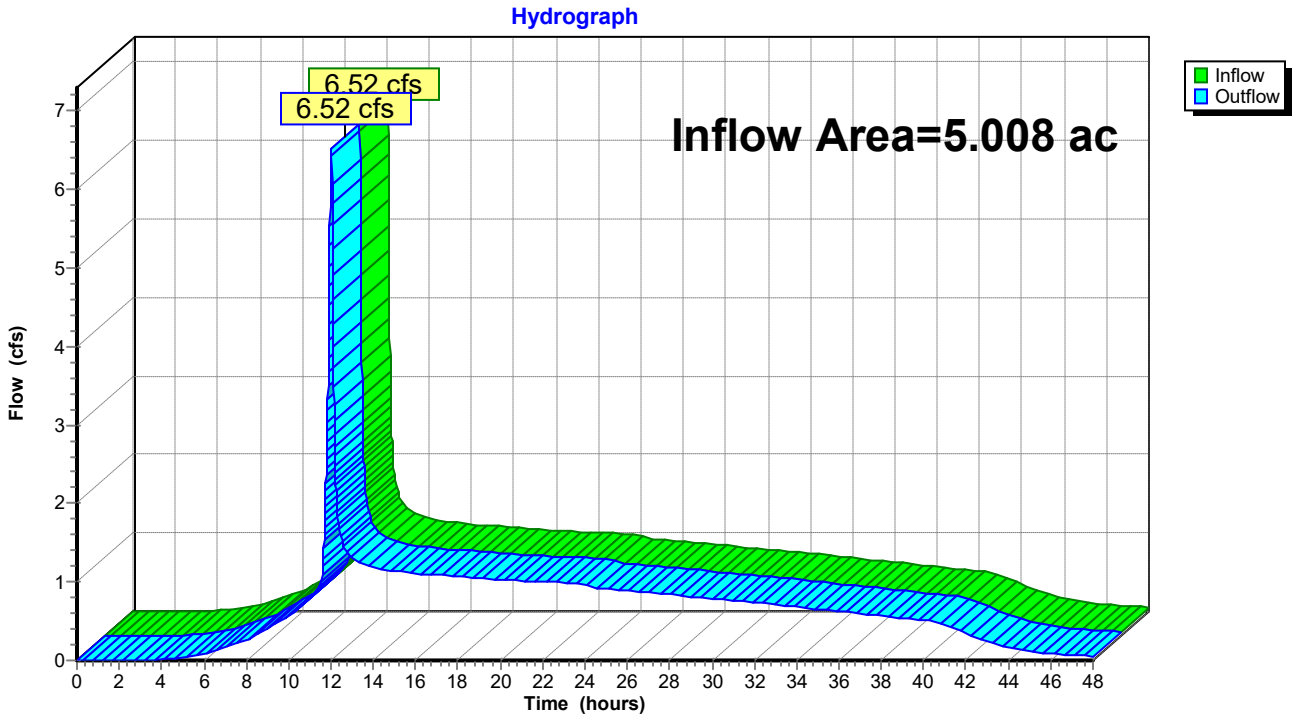


Summary for Reach 1R: GEORGE WEBER DR

Inflow Area = 5.008 ac, 62.44% Impervious, Inflow Depth > 6.18" for 100-Year event
Inflow = 6.52 cfs @ 12.01 hrs, Volume= 2.578 af
Outflow = 6.52 cfs @ 12.01 hrs, Volume= 2.578 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 1R: GEORGE WEBER DR



Summary for Pond 1P: NURP POND

Inflow Area = 4.355 ac, 63.55% Impervious, Inflow Depth = 6.29" for 100-Year event
Inflow = 38.33 cfs @ 12.01 hrs, Volume= 2.283 af
Outflow = 1.00 cfs @ 14.93 hrs, Volume= 2.244 af, Atten= 97%, Lag= 175.0 min
Primary = 1.00 cfs @ 14.93 hrs, Volume= 2.244 af
Routed to Reach 1R : GEORGE WEBER DR

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 961.82' @ 14.93 hrs Surf.Area= 26,181 sf Storage= 64,398 cf

Plug-Flow detention time= 718.5 min calculated for 2.244 af (98% of inflow)
Center-of-Mass det. time= 707.7 min (1,480.8 - 773.1)

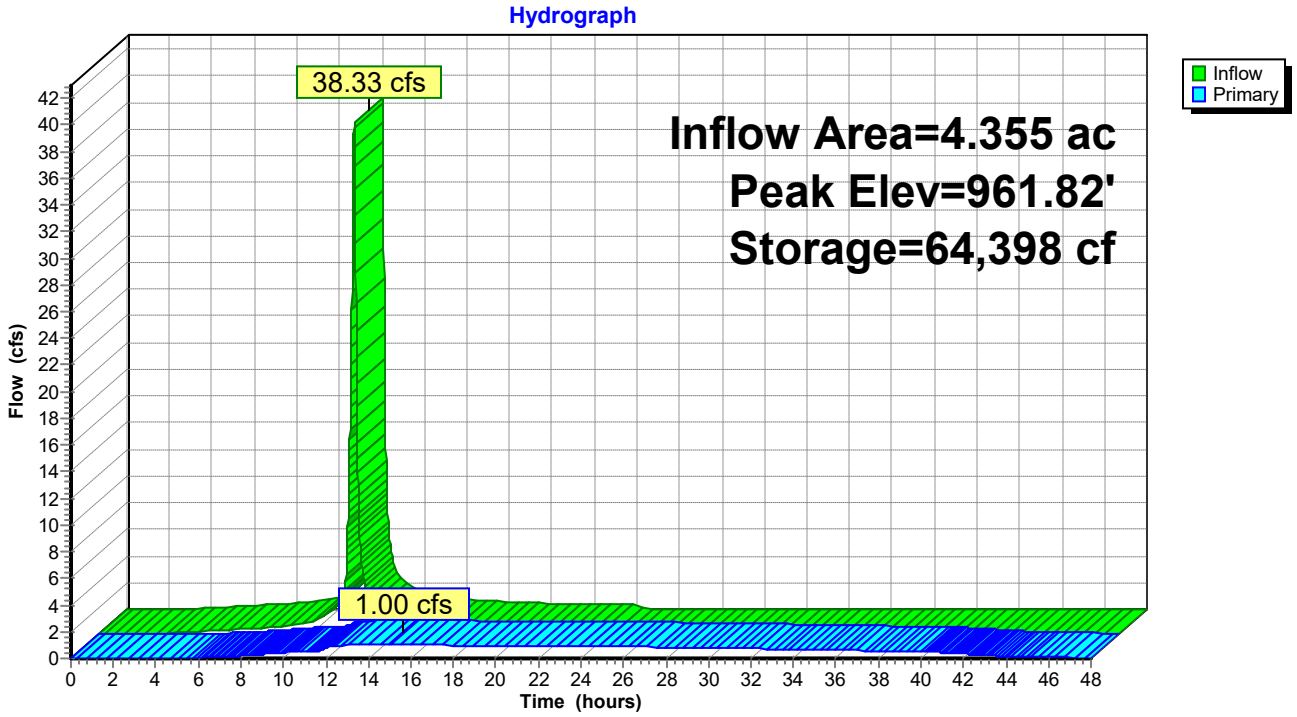
Volume	Invert	Avail.Storage	Storage Description
#1	957.70'	69,345 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
957.70	11,168	0	0
960.00	14,860	29,932	29,932
961.00	17,976	16,418	46,350
962.00	28,013	22,995	69,345

Device	Routing	Invert	Outlet Devices
#1	Primary	957.70'	**6.0" Round 6" HDPE** L= 211.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 957.70' / 956.70' S= 0.0047 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	957.70'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	961.38'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.00 cfs @ 14.93 hrs HW=961.82' TW=0.00' (Dynamic Tailwater)
└─**1=6" HDPE** (Barrel Controls 1.00 cfs @ 5.07 fps)
  ├─**2=Orifice/Grate** (Passes < 1.86 cfs potential flow)
  └─**3=Sharp-Crested Rectangular Weir** (Passes < 3.70 cfs potential flow)

Pond 1P: NURP POND



Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.532	80	>75% Grass cover, Good, HSG D (1S, 2S, 3S, 4S)
3.476	98	Paved parking, HSG D (1S, 2S, 3S, 4S)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
5.008	HSG D	1S, 2S, 3S, 4S
0.000	Other	

Ground Covers (selected 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	1.532	0.000	1.532	>75% Grass cover, Good	1S, 2S, 3S, 4S
0.000	0.000	0.000	3.476	0.000	3.476	Paved parking	1S, 2S, 3S, 4S

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	10P	957.50	956.70	218.0	0.0037	0.010	0.0	6.0	0.0	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: WEST AREA Runoff Area=83,292 sf 60.75% Impervious Runoff Depth=1.94"
Tc=10.0 min CN=91 Runoff=5.58 cfs 0.309 af

Subcatchment 2S: EAST AREA Runoff Area=87,479 sf 79.99% Impervious Runoff Depth=2.21"
Tc=10.0 min CN=94 Runoff=6.49 cfs 0.371 af

Subcatchment 3S: UNCAPTURED AREAS Runoff Area=23,169 sf 67.44% Impervious Runoff Depth=2.03"
Tc=10.0 min CN=92 Runoff=1.61 cfs 0.090 af

Subcatchment 4S: NORTH AREA Runoff Area=24,198 sf 62.88% Impervious Runoff Depth=1.94"
Tc=10.0 min CN=91 Runoff=1.62 cfs 0.090 af

Reach 10R: GEORGE WEBER DR Inflow=2.08 cfs 0.780 af
Outflow=2.08 cfs 0.780 af

Pond 10P: NURP POND Peak Elev=958.70' Storage=65,070 cf Inflow=12.08 cfs 0.709 af
6.0" Round Culvert n=0.010 L=218.0' S=0.0037 '/' Outflow=0.56 cfs 0.690 af

Pond 40P: FILTER POND Peak Elev=960.91' Storage=2,683 cf Inflow=1.62 cfs 0.090 af
Outflow=0.08 cfs 0.029 af

Summary for Subcatchment 1S: WEST AREA

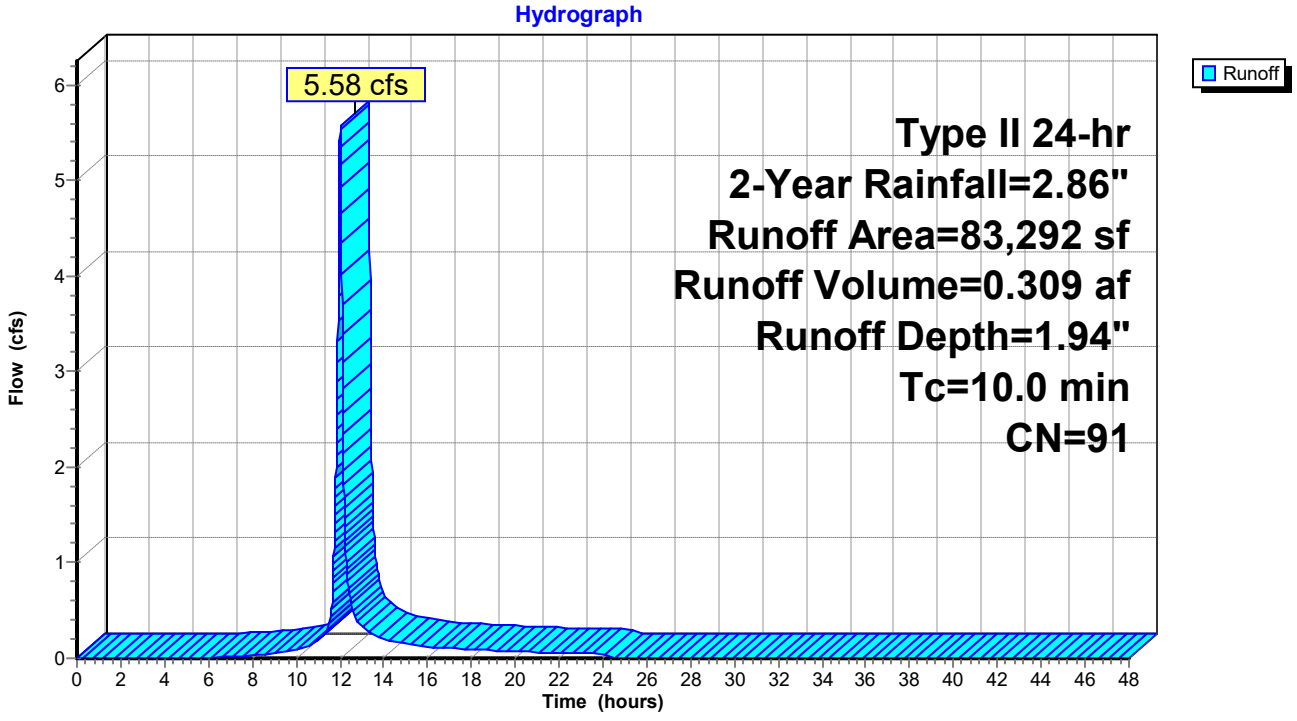
Runoff = 5.58 cfs @ 12.01 hrs, Volume= 0.309 af, Depth= 1.94"
Routed to Pond 10P : NURP POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.86"

Area (sf)	CN	Description
50,598	98	Paved parking, HSG D
32,694	80	>75% Grass cover, Good, HSG D
83,292	91	Weighted Average
32,694		39.25% Pervious Area
50,598		60.75% Impervious Area

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

Subcatchment 1S: WEST AREA



Summary for Subcatchment 2S: EAST AREA

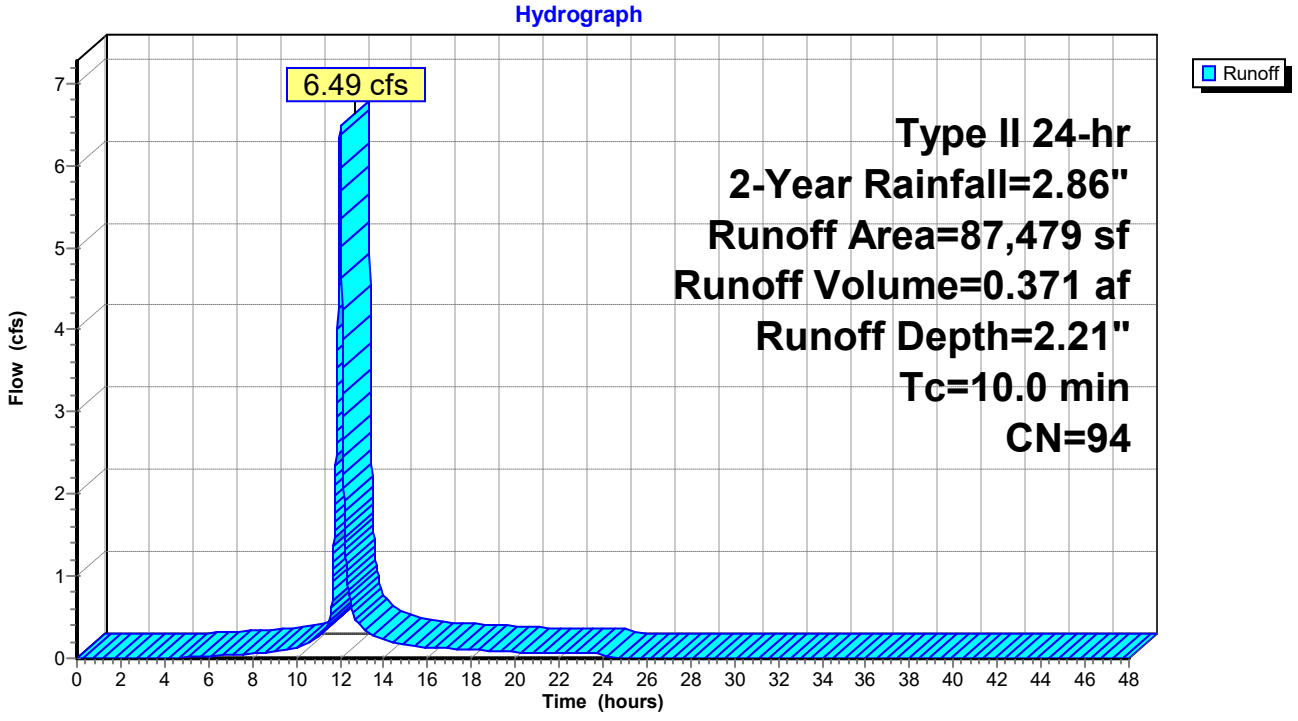
Runoff = 6.49 cfs @ 12.01 hrs, Volume= 0.371 af, Depth= 2.21"
Routed to Pond 10P : NURP POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.86"

Area (sf)	CN	Description
69,973	98	Paved parking, HSG D
17,506	80	>75% Grass cover, Good, HSG D
87,479	94	Weighted Average
17,506		20.01% Pervious Area
69,973		79.99% Impervious Area

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

Subcatchment 2S: EAST AREA



Summary for Subcatchment 3S: UNCAPTURED AREAS

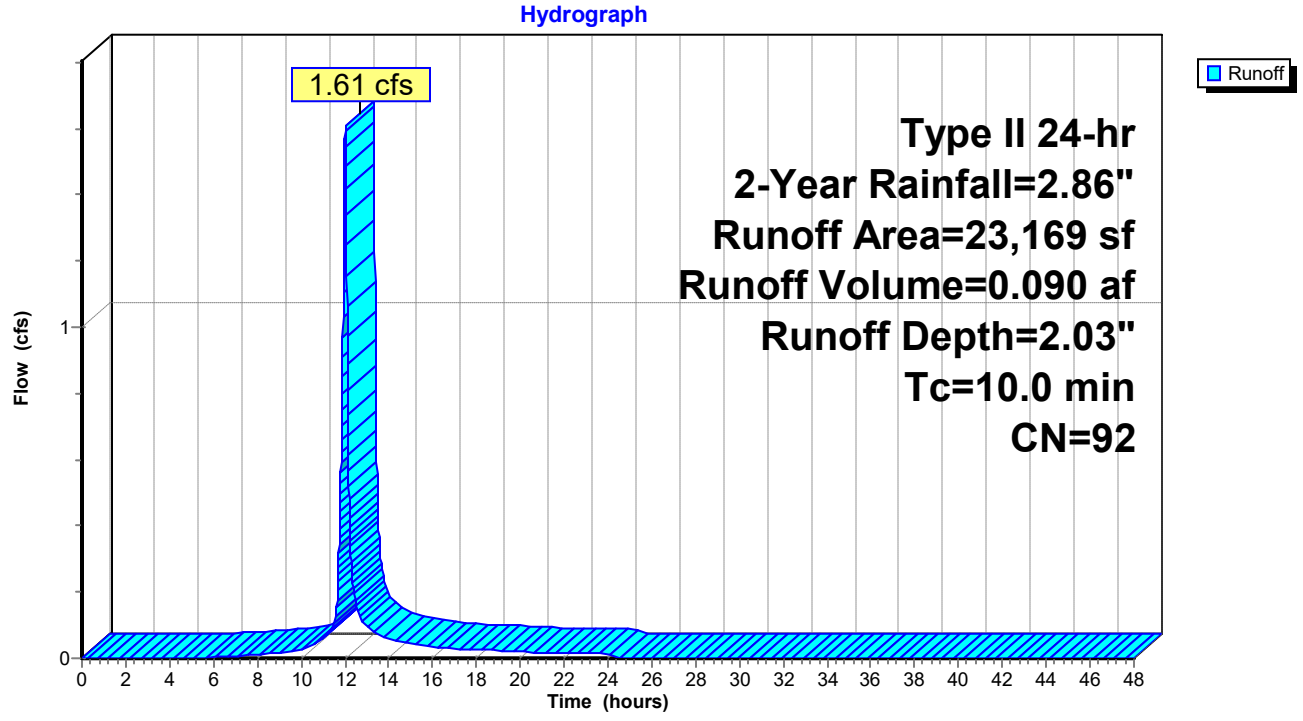
Runoff = 1.61 cfs @ 12.01 hrs, Volume= 0.090 af, Depth= 2.03"
Routed to Reach 10R : GEORGE WEBER DR

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.86"

Area (sf)	CN	Description
15,626	98	Paved parking, HSG D
7,543	80	>75% Grass cover, Good, HSG D
23,169	92	Weighted Average
7,543		32.56% Pervious Area
15,626		67.44% Impervious Area

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

Subcatchment 3S: UNCAPTURED AREAS



Summary for Subcatchment 4S: NORTH AREA

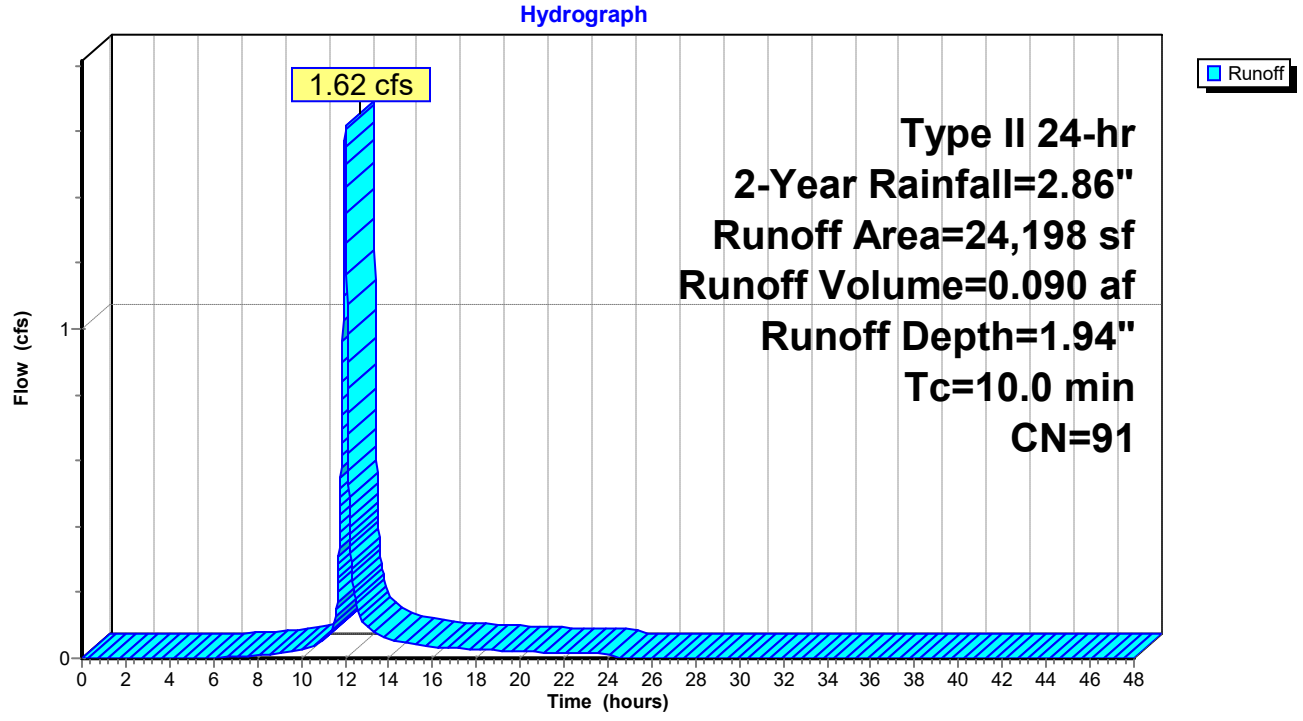
Runoff = 1.62 cfs @ 12.01 hrs, Volume= 0.090 af, Depth= 1.94"
Routed to Pond 40P : FILTER POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.86"

Area (sf)	CN	Description
15,216	98	Paved parking, HSG D
8,982	80	>75% Grass cover, Good, HSG D
24,198	91	Weighted Average
8,982		37.12% Pervious Area
15,216		62.88% Impervious Area

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

Subcatchment 4S: NORTH AREA

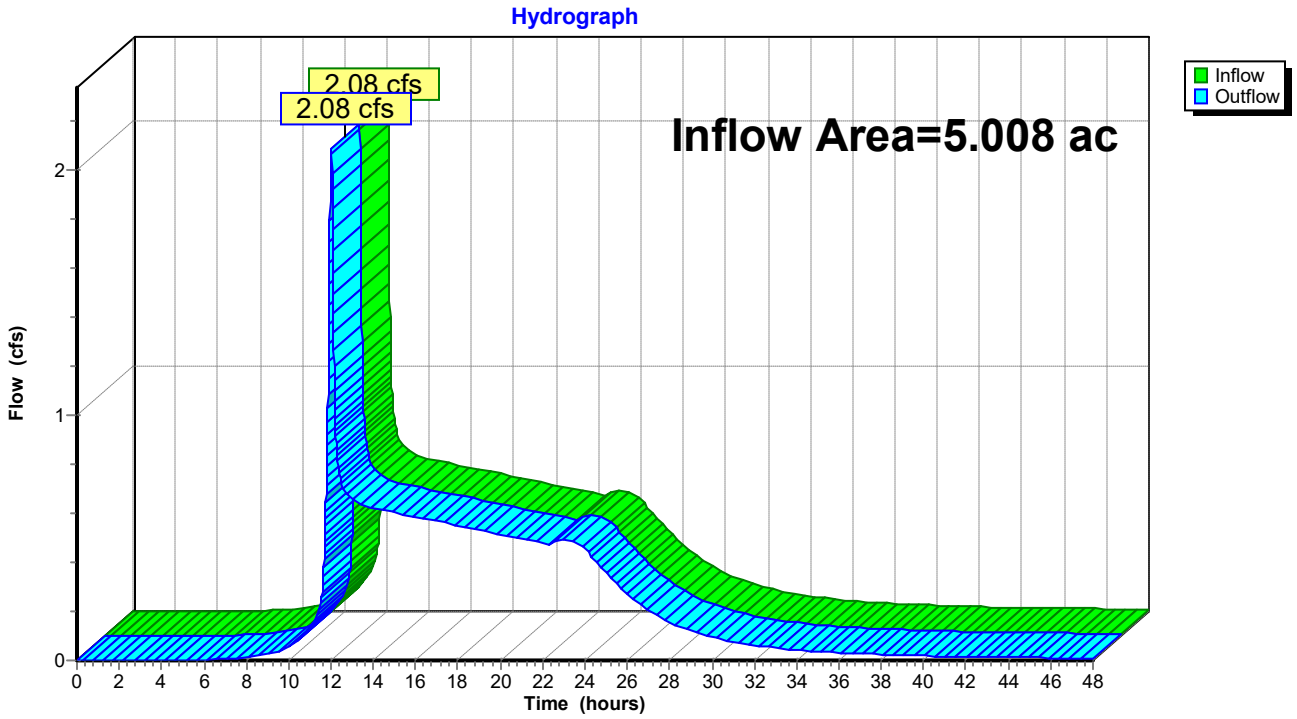


Summary for Reach 10R: GEORGE WEBER DR

Inflow Area = 5.008 ac, 69.41% Impervious, Inflow Depth > 1.87" for 2-Year event
Inflow = 2.08 cfs @ 12.02 hrs, Volume= 0.780 af
Outflow = 2.08 cfs @ 12.02 hrs, Volume= 0.780 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 10R: GEORGE WEBER DR



Summary for Pond 10P: NURP POND

Inflow Area = 4.476 ac, 69.65% Impervious, Inflow Depth = 1.90" for 2-Year event
Inflow = 12.08 cfs @ 12.01 hrs, Volume= 0.709 af
Outflow = 0.56 cfs @ 13.65 hrs, Volume= 0.690 af, Atten= 95%, Lag= 98.2 min
Primary = 0.56 cfs @ 13.65 hrs, Volume= 0.690 af
Routed to Reach 10R : GEORGE WEBER DR

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 957.50' Surf.Area= 12,320 sf Storage= 47,129 cf
Peak Elev= 958.70' @ 13.65 hrs Surf.Area= 16,778 sf Storage= 65,070 cf (17,941 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 397.0 min (1,204.9 - 808.0)

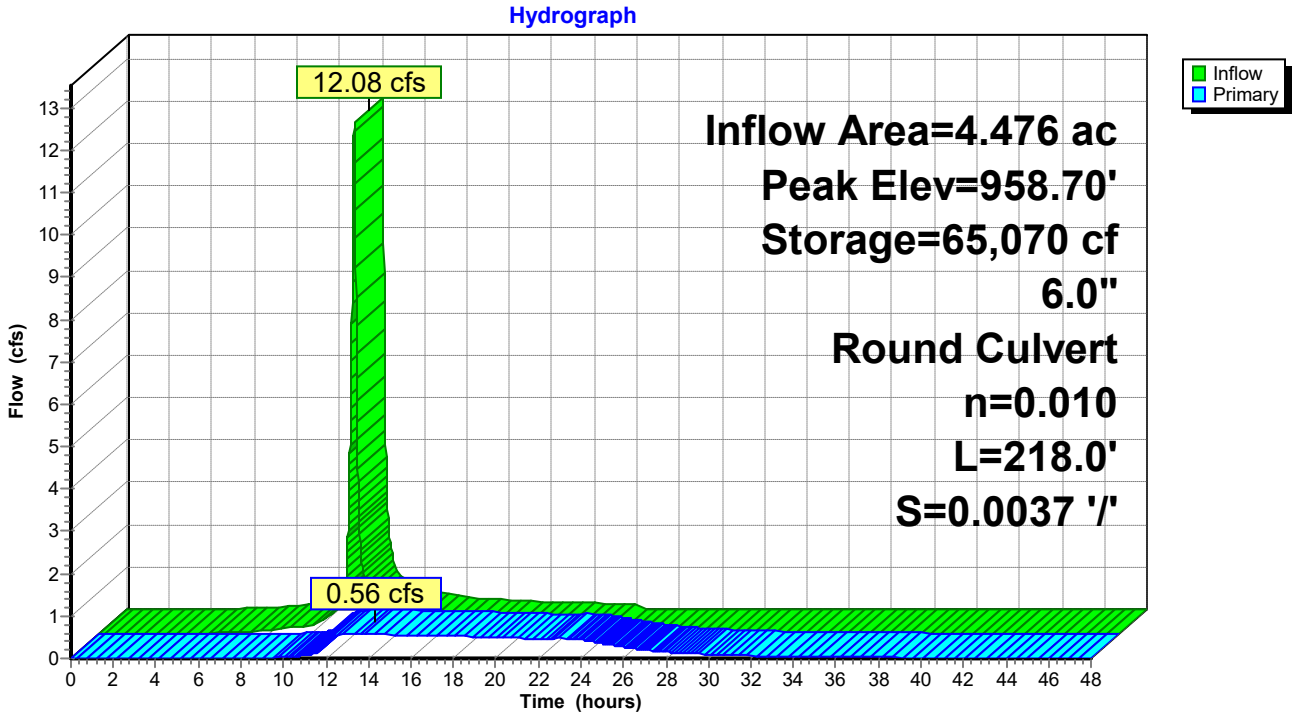
Volume	Invert	Avail.Storage	Storage Description
#1	948.50'	140,789 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
948.50	1,381	0	0
955.00	6,444	25,431	25,431
957.00	9,739	16,183	41,614
958.00	14,900	12,320	53,934
959.50	18,906	25,355	79,288
960.00	20,098	9,751	89,039
961.00	24,349	22,224	111,263
962.00	34,703	29,526	140,789

Device	Routing	Invert	Outlet Devices
#1	Primary	957.50'	**6.0" Round OUTLET** L= 218.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 957.50' / 956.70' S= 0.0037 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.56 cfs @ 13.65 hrs HW=958.70' TW=0.00' (Dynamic Tailwater)
1=OUTLET (Barrel Controls 0.56 cfs @ 2.88 fps)

Pond 10P: NURP POND



Summary for Pond 40P: FILTER POND

Inflow Area = 0.556 ac, 62.88% Impervious, Inflow Depth = 1.94" for 2-Year event
Inflow = 1.62 cfs @ 12.01 hrs, Volume= 0.090 af
Outflow = 0.08 cfs @ 13.23 hrs, Volume= 0.029 af, Atten= 95%, Lag= 73.2 min
Primary = 0.08 cfs @ 13.23 hrs, Volume= 0.029 af
Routed to Pond 10P : NURP POND

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 960.91' @ 13.23 hrs Surf.Area= 2,562 sf Storage= 2,683 cf

Plug-Flow detention time= 349.3 min calculated for 0.029 af (32% of inflow)
Center-of-Mass det. time= 219.7 min (1,027.0 - 807.4)

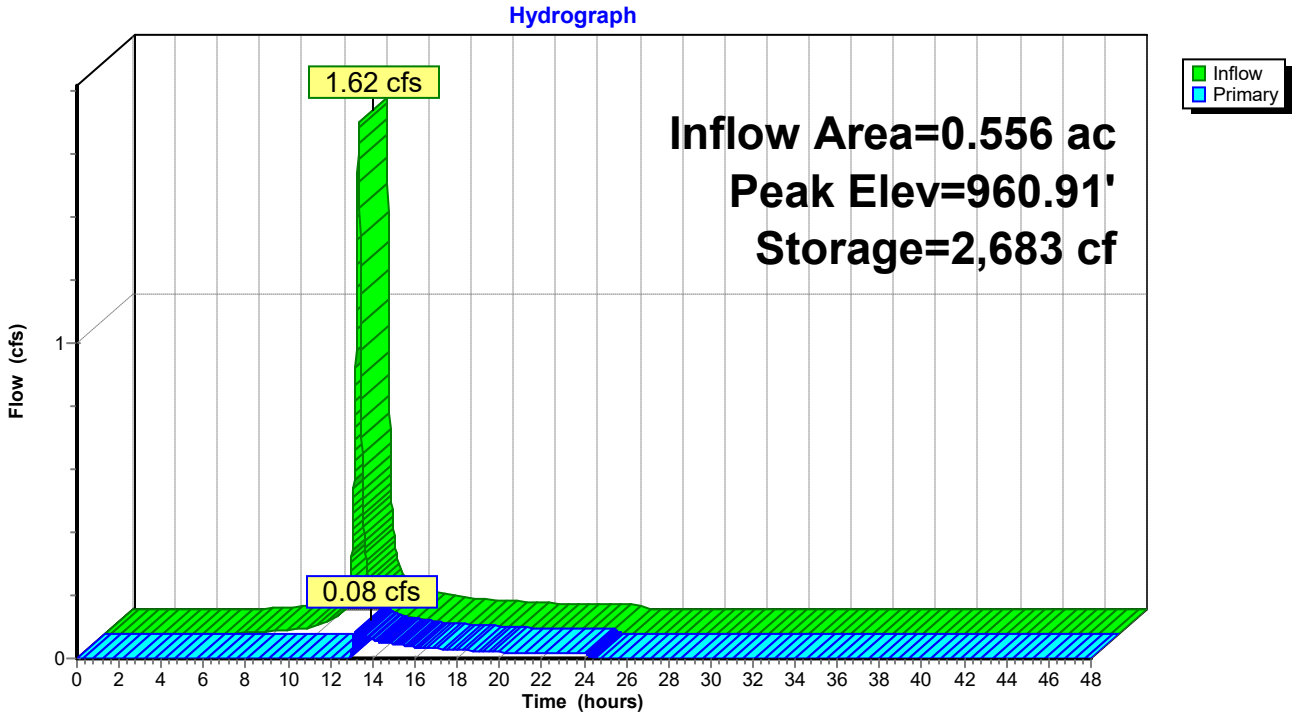
Volume	Invert	Avail.Storage	Storage Description
#1	959.40'	22,951 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
959.40	1,339	0	0
960.90	2,200	2,654	2,654
962.00	34,703	20,297	22,951

Device	Routing	Invert	Outlet Devices
#1	Primary	960.90'	**25.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.08 cfs @ 13.23 hrs HW=960.91' TW=958.70' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 0.08 cfs @ 0.28 fps)

Pond 40P: FILTER POND



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: WEST AREA Runoff Area=83,292 sf 60.75% Impervious Runoff Depth=3.27"
Tc=10.0 min CN=91 Runoff=9.14 cfs 0.521 af

Subcatchment 2S: EAST AREA Runoff Area=87,479 sf 79.99% Impervious Runoff Depth=3.58"
Tc=10.0 min CN=94 Runoff=10.19 cfs 0.599 af

Subcatchment 3S: UNCAPTURED AREAS Runoff Area=23,169 sf 67.44% Impervious Runoff Depth=3.37"
Tc=10.0 min CN=92 Runoff=2.60 cfs 0.149 af

Subcatchment 4S: NORTH AREA Runoff Area=24,198 sf 62.88% Impervious Runoff Depth=3.27"
Tc=10.0 min CN=91 Runoff=2.66 cfs 0.151 af

Reach 10R: GEORGE WEBER DR Inflow=3.17 cfs 1.333 af
Outflow=3.17 cfs 1.333 af

Pond 10P: NURP POND Peak Elev=959.54' Storage=80,011 cf Inflow=19.82 cfs 1.210 af
6.0" Round Culvert n=0.010 L=218.0' S=0.0037 '/' Outflow=0.70 cfs 1.184 af

Pond 40P: FILTER POND Peak Elev=961.00' Storage=3,000 cf Inflow=2.66 cfs 0.151 af
Outflow=1.84 cfs 0.090 af

Summary for Subcatchment 1S: WEST AREA

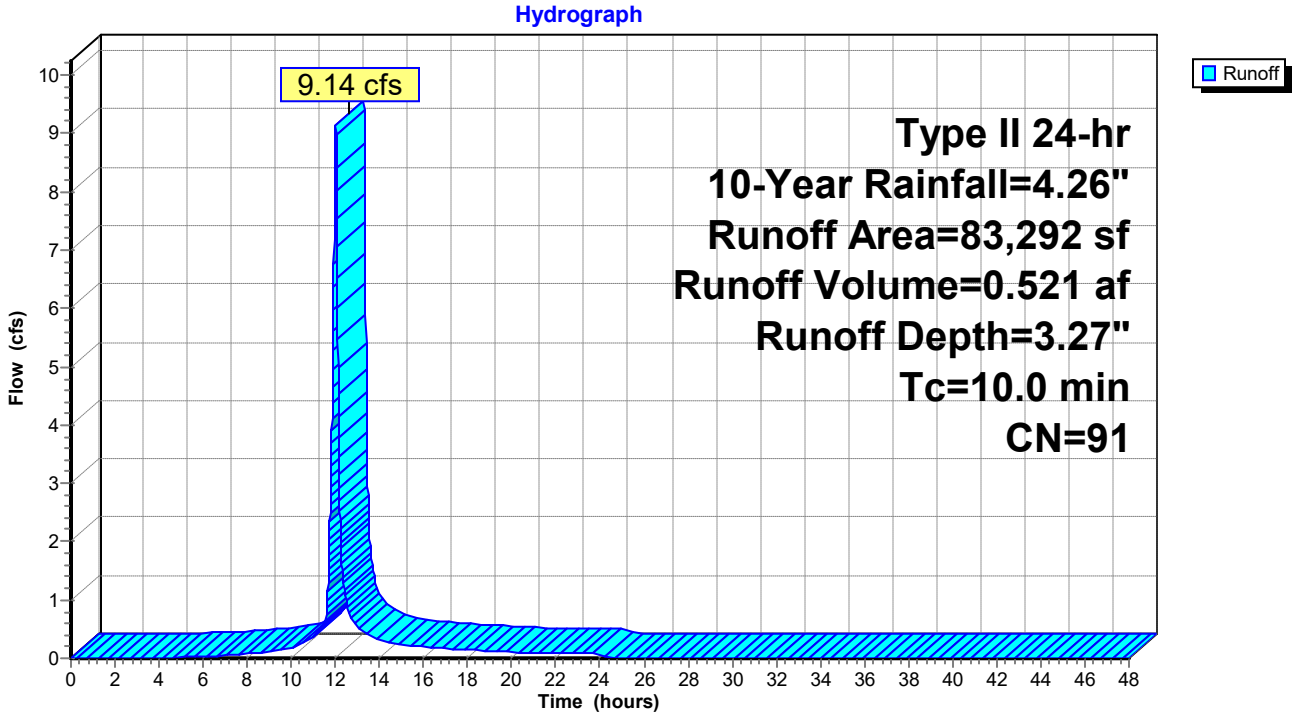
Runoff = 9.14 cfs @ 12.01 hrs, Volume= 0.521 af, Depth= 3.27"
Routed to Pond 10P : NURP POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=4.26"

Area (sf)	CN	Description
50,598	98	Paved parking, HSG D
32,694	80	>75% Grass cover, Good, HSG D
83,292	91	Weighted Average
32,694		39.25% Pervious Area
50,598		60.75% Impervious Area

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

Subcatchment 1S: WEST AREA



Summary for Subcatchment 2S: EAST AREA

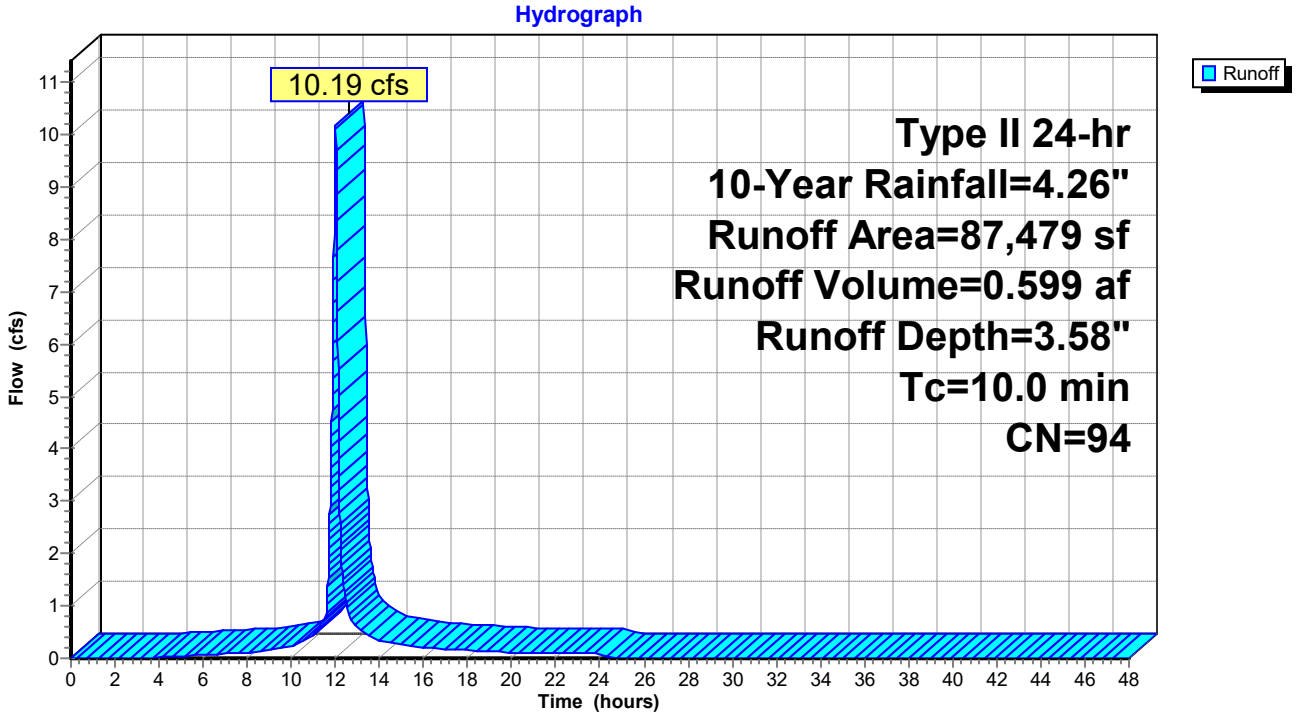
Runoff = 10.19 cfs @ 12.01 hrs, Volume= 0.599 af, Depth= 3.58"
Routed to Pond 10P : NURP POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=4.26"

Area (sf)	CN	Description
69,973	98	Paved parking, HSG D
17,506	80	>75% Grass cover, Good, HSG D
87,479	94	Weighted Average
17,506		20.01% Pervious Area
69,973		79.99% Impervious Area

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

Subcatchment 2S: EAST AREA



Summary for Subcatchment 3S: UNCAPTURED AREAS

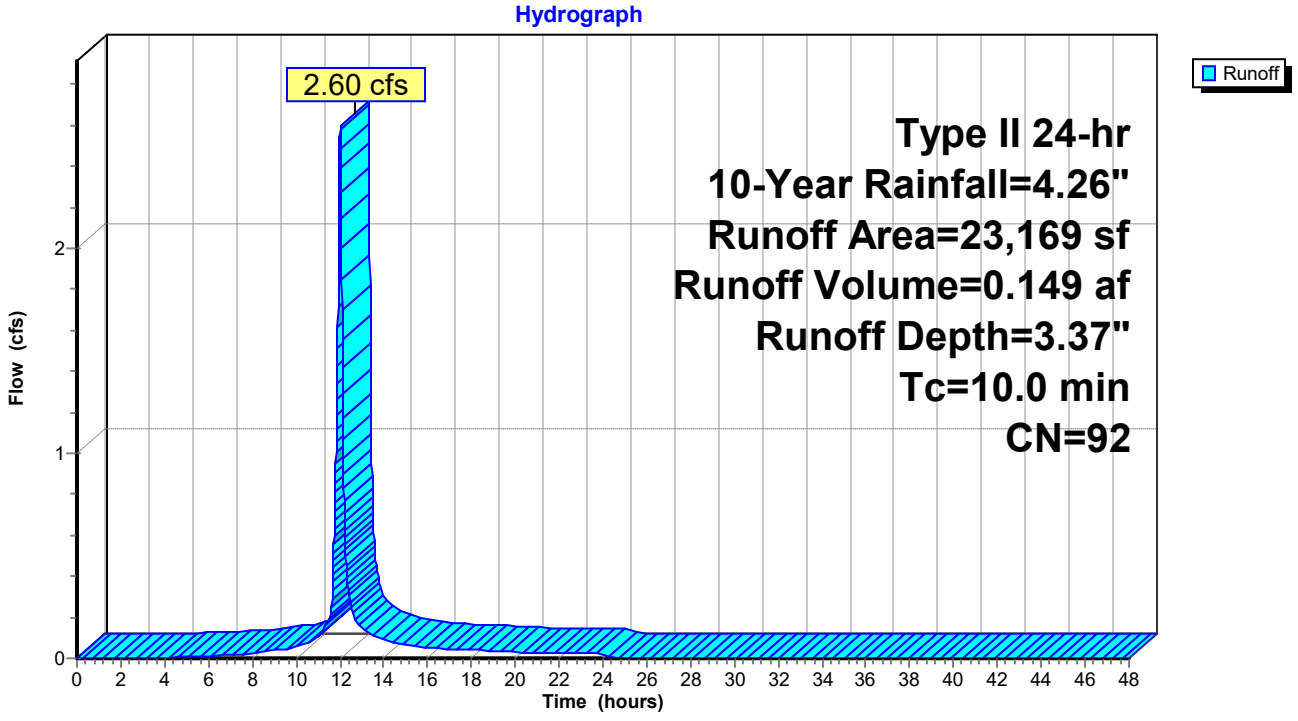
Runoff = 2.60 cfs @ 12.01 hrs, Volume= 0.149 af, Depth= 3.37"
Routed to Reach 10R : GEORGE WEBER DR

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=4.26"

Area (sf)	CN	Description
15,626	98	Paved parking, HSG D
7,543	80	>75% Grass cover, Good, HSG D
23,169	92	Weighted Average
7,543		32.56% Pervious Area
15,626		67.44% Impervious Area

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

Subcatchment 3S: UNCAPTURED AREAS



Summary for Subcatchment 4S: NORTH AREA

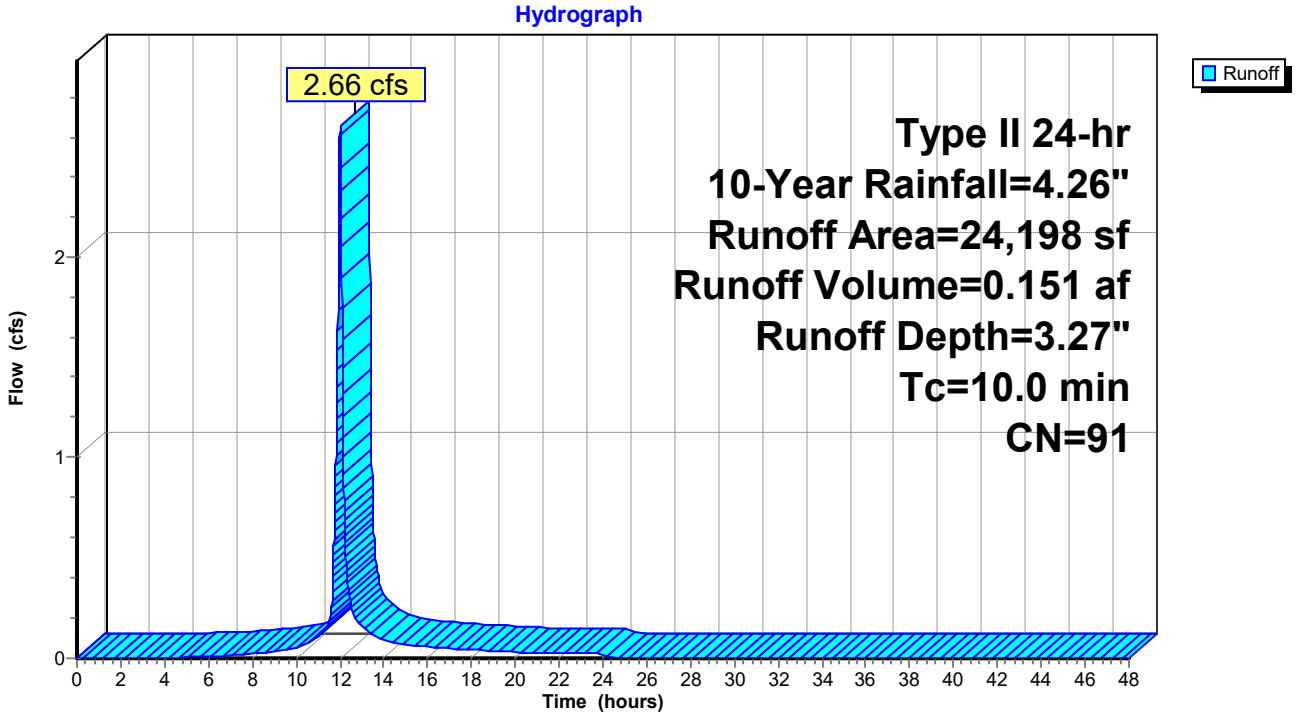
Runoff = 2.66 cfs @ 12.01 hrs, Volume= 0.151 af, Depth= 3.27"
Routed to Pond 40P : FILTER POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=4.26"

Area (sf)	CN	Description
15,216	98	Paved parking, HSG D
8,982	80	>75% Grass cover, Good, HSG D
24,198	91	Weighted Average
8,982		37.12% Pervious Area
15,216		62.88% Impervious Area

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

Subcatchment 4S: NORTH AREA

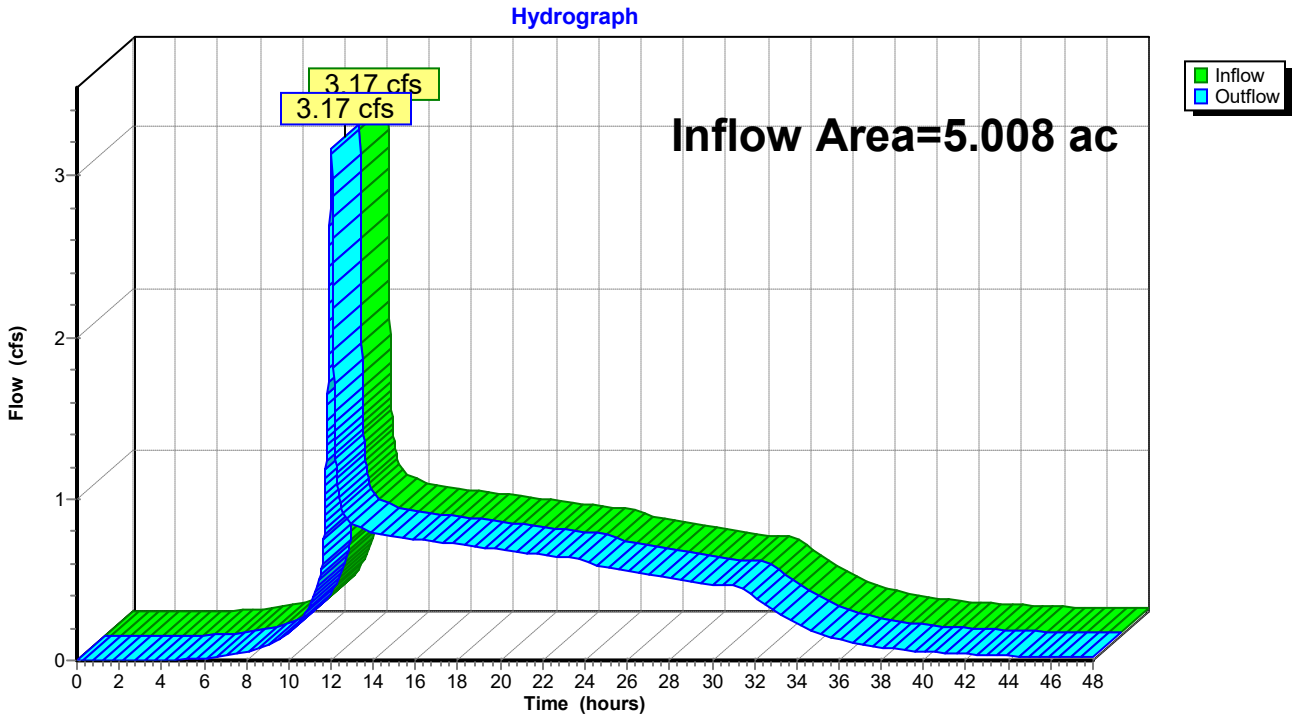


Summary for Reach 10R: GEORGE WEBER DR

Inflow Area = 5.008 ac, 69.41% Impervious, Inflow Depth > 3.19" for 10-Year event
Inflow = 3.17 cfs @ 12.01 hrs, Volume= 1.333 af
Outflow = 3.17 cfs @ 12.01 hrs, Volume= 1.333 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 10R: GEORGE WEBER DR



Summary for Pond 10P: NURP POND

Inflow Area = 4.476 ac, 69.65% Impervious, Inflow Depth = 3.24" for 10-Year event
Inflow = 19.82 cfs @ 12.03 hrs, Volume= 1.210 af
Outflow = 0.70 cfs @ 14.11 hrs, Volume= 1.184 af, Atten= 96%, Lag= 124.7 min
Primary = 0.70 cfs @ 14.11 hrs, Volume= 1.184 af
Routed to Reach 10R : GEORGE WEBER DR

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 957.50' Surf.Area= 12,320 sf Storage= 47,129 cf
Peak Elev= 959.54' @ 14.11 hrs Surf.Area= 18,997 sf Storage= 80,011 cf (32,882 cf above start)

Plug-Flow detention time= 1,712.7 min calculated for 0.102 af (8% of inflow)
Center-of-Mass det. time= 547.3 min (1,339.6 - 792.3)

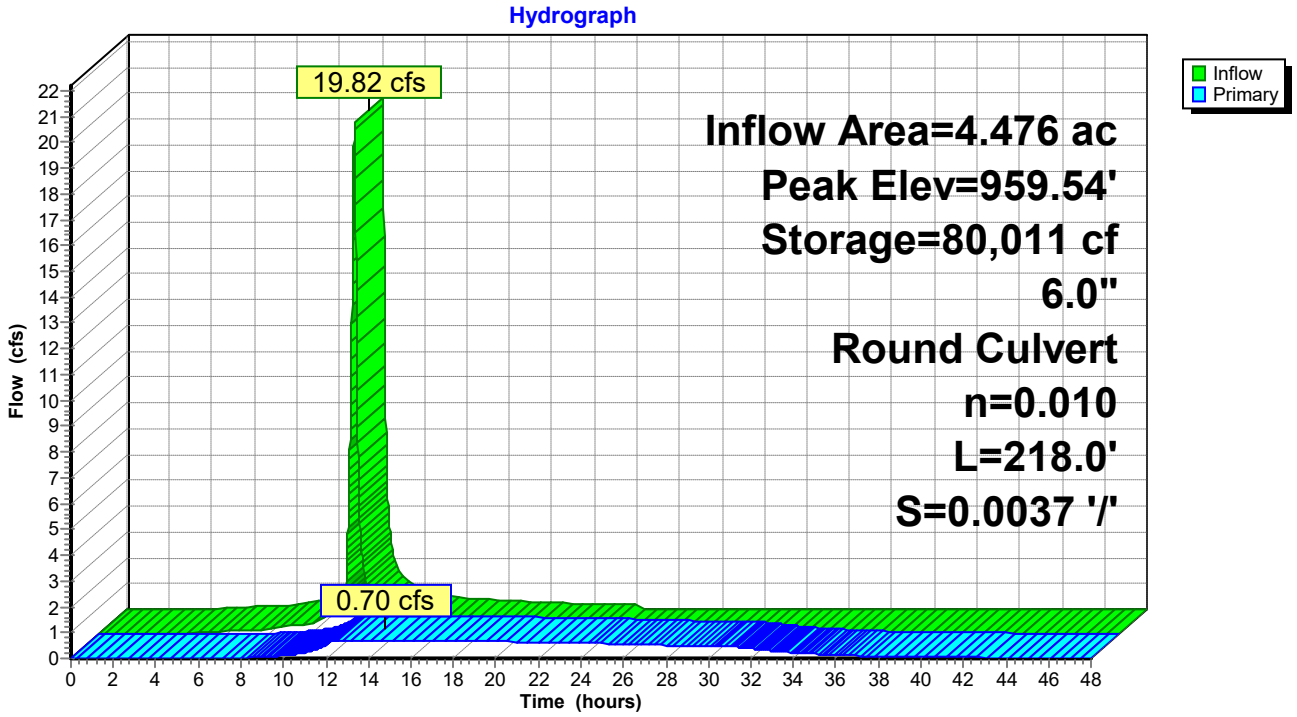
Volume	Invert	Avail.Storage	Storage Description
#1	948.50'	140,789 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
948.50	1,381	0	0
955.00	6,444	25,431	25,431
957.00	9,739	16,183	41,614
958.00	14,900	12,320	53,934
959.50	18,906	25,355	79,288
960.00	20,098	9,751	89,039
961.00	24,349	22,224	111,263
962.00	34,703	29,526	140,789

Device	Routing	Invert	Outlet Devices
#1	Primary	957.50'	**6.0" Round OUTLET** L= 218.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 957.50' / 956.70' S= 0.0037 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.70 cfs @ 14.11 hrs HW=959.54' TW=0.00' (Dynamic Tailwater)
1=OUTLET (Barrel Controls 0.70 cfs @ 3.59 fps)

Pond 10P: NURP POND



Summary for Pond 40P: FILTER POND

Inflow Area = 0.556 ac, 62.88% Impervious, Inflow Depth = 3.27" for 10-Year event
Inflow = 2.66 cfs @ 12.01 hrs, Volume= 0.151 af
Outflow = 1.84 cfs @ 12.09 hrs, Volume= 0.090 af, Atten= 31%, Lag= 4.9 min
Primary = 1.84 cfs @ 12.09 hrs, Volume= 0.090 af
Routed to Pond 10P : NURP POND

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 961.00' @ 12.09 hrs Surf.Area= 5,025 sf Storage= 3,000 cf

Plug-Flow detention time= 194.3 min calculated for 0.090 af (60% of inflow)
Center-of-Mass det. time= 88.8 min (881.5 - 792.7)

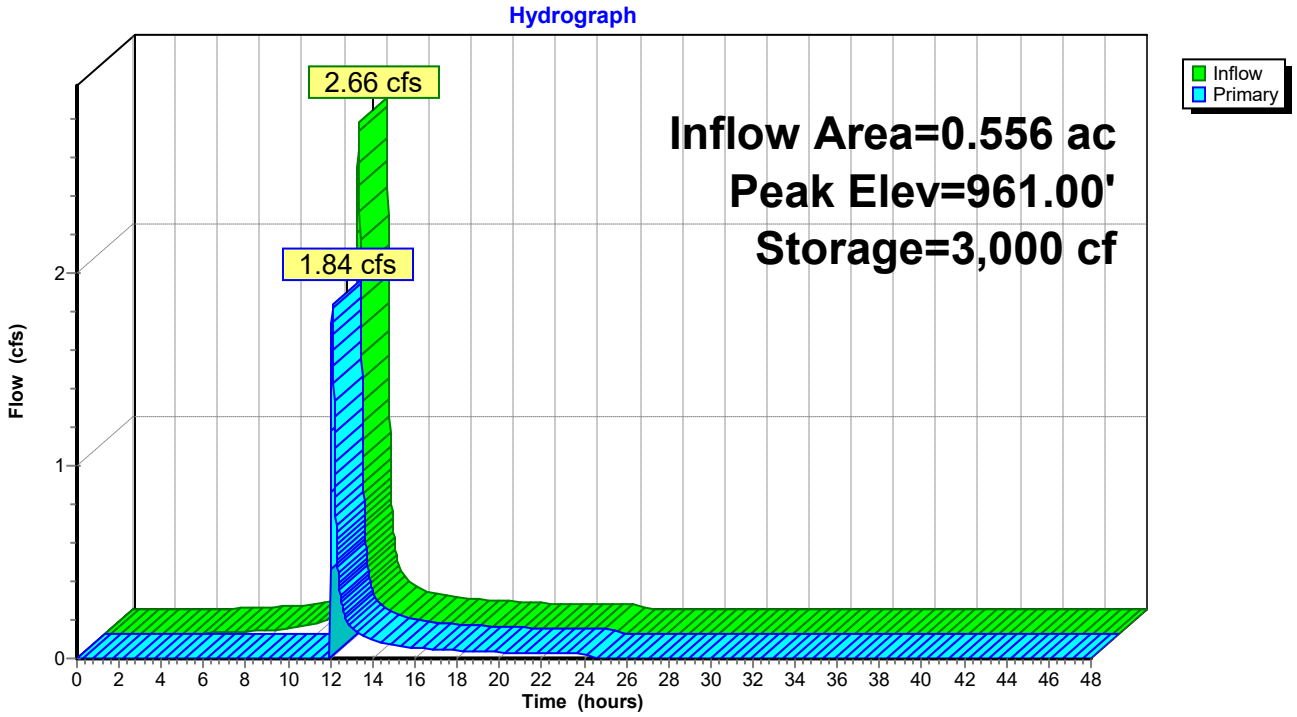
Volume	Invert	Avail.Storage	Storage Description
#1	959.40'	22,951 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
959.40	1,339	0	0
960.90	2,200	2,654	2,654
962.00	34,703	20,297	22,951

Device	Routing	Invert	Outlet Devices
#1	Primary	960.90'	**25.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.84 cfs @ 12.09 hrs HW=961.00' TW=959.03' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 1.84 cfs @ 0.77 fps)

Pond 40P: FILTER POND



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: WEST AREA Runoff Area=83,292 sf 60.75% Impervious Runoff Depth=6.25"
Tc=10.0 min CN=91 Runoff=16.82 cfs 0.996 af

Subcatchment 2S: EAST AREA Runoff Area=87,479 sf 79.99% Impervious Runoff Depth=6.61"
Tc=10.0 min CN=94 Runoff=18.13 cfs 1.106 af

Subcatchment 3S: UNCAPTURED AREAS Runoff Area=23,169 sf 67.44% Impervious Runoff Depth=6.37"
Tc=10.0 min CN=92 Runoff=4.72 cfs 0.282 af

Subcatchment 4S: NORTH AREA Runoff Area=24,198 sf 62.88% Impervious Runoff Depth=6.25"
Tc=10.0 min CN=91 Runoff=4.89 cfs 0.290 af

Reach 10R: GEORGE WEBER DR Inflow=5.47 cfs 2.521 af
Outflow=5.47 cfs 2.521 af

Pond 10P: NURP POND Peak Elev=961.11' Storage=113,979 cf Inflow=39.19 cfs 2.331 af
6.0" Round Culvert n=0.010 L=218.0' S=0.0037 '/' Outflow=0.91 cfs 2.239 af

Pond 40P: FILTER POND Peak Elev=961.11' Storage=3,760 cf Inflow=4.89 cfs 0.290 af
Outflow=4.49 cfs 0.229 af

Summary for Subcatchment 1S: WEST AREA

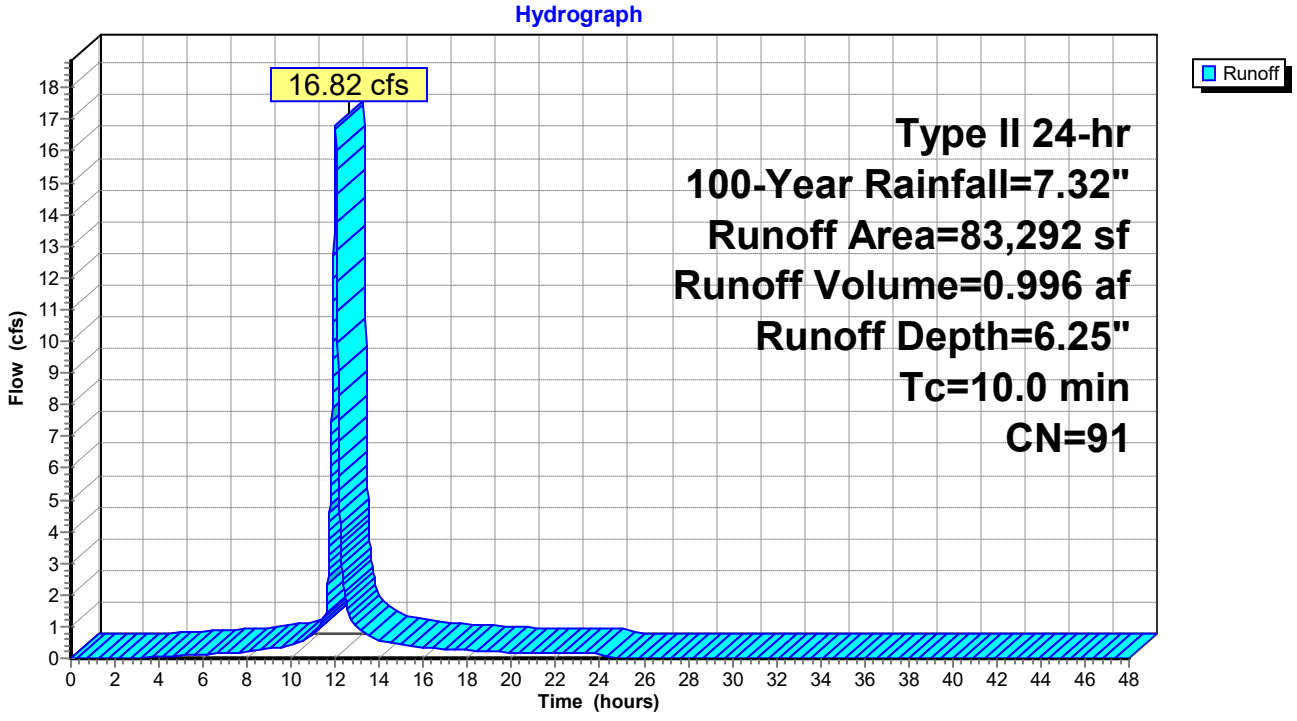
Runoff = 16.82 cfs @ 12.01 hrs, Volume= 0.996 af, Depth= 6.25"
Routed to Pond 10P : NURP POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=7.32"

Area (sf)	CN	Description
50,598	98	Paved parking, HSG D
32,694	80	>75% Grass cover, Good, HSG D
83,292	91	Weighted Average
32,694		39.25% Pervious Area
50,598		60.75% Impervious Area

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

Subcatchment 1S: WEST AREA



Summary for Subcatchment 2S: EAST AREA

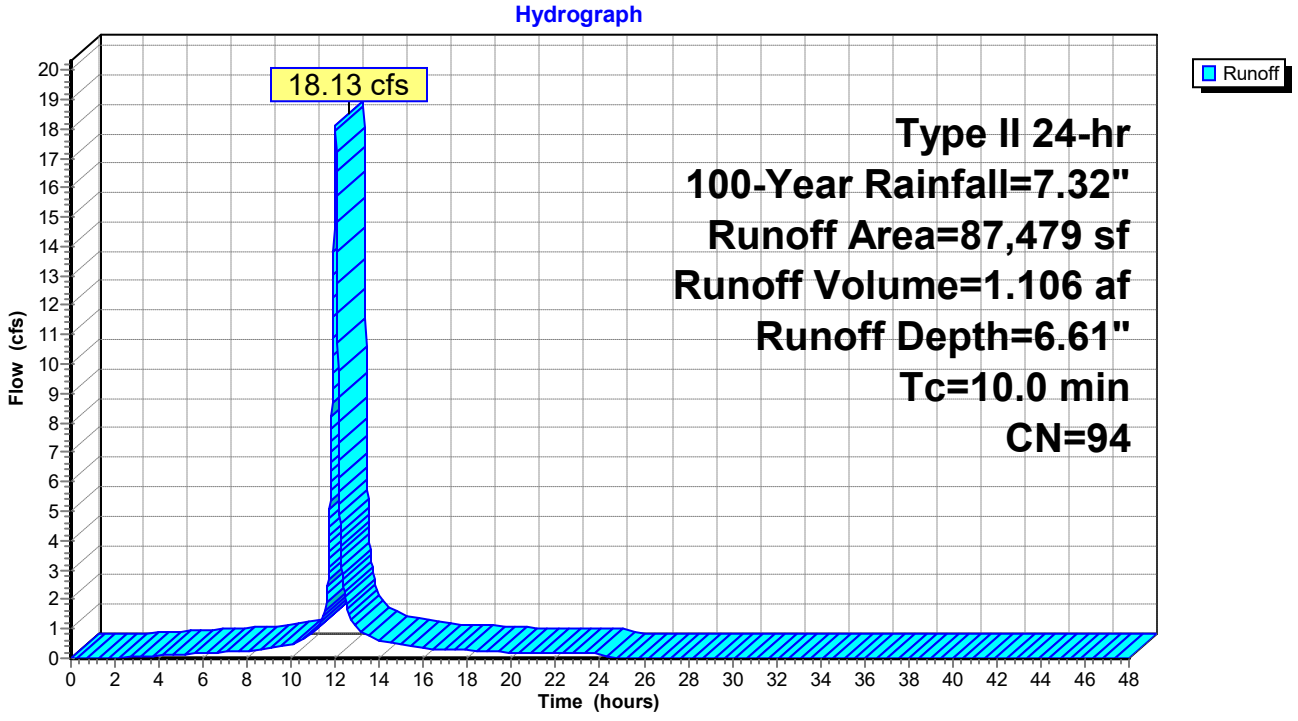
Runoff = 18.13 cfs @ 12.01 hrs, Volume= 1.106 af, Depth= 6.61"
Routed to Pond 10P : NURP POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=7.32"

Area (sf)	CN	Description
69,973	98	Paved parking, HSG D
17,506	80	>75% Grass cover, Good, HSG D
87,479	94	Weighted Average
17,506		20.01% Pervious Area
69,973		79.99% Impervious Area

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

Subcatchment 2S: EAST AREA



Summary for Subcatchment 3S: UNCAPTURED AREAS

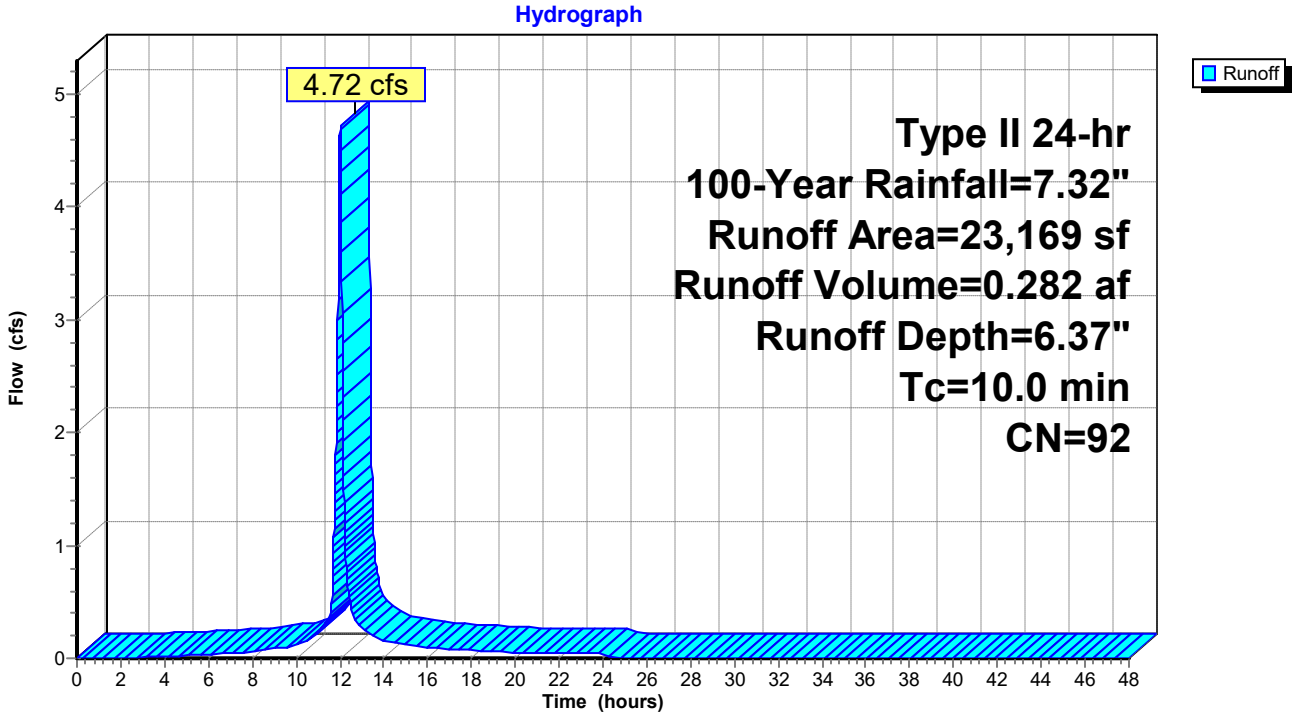
Runoff = 4.72 cfs @ 12.01 hrs, Volume= 0.282 af, Depth= 6.37"
Routed to Reach 10R : GEORGE WEBER DR

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=7.32"

Area (sf)	CN	Description
15,626	98	Paved parking, HSG D
7,543	80	>75% Grass cover, Good, HSG D
23,169	92	Weighted Average
7,543		32.56% Pervious Area
15,626		67.44% Impervious Area

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

Subcatchment 3S: UNCAPTURED AREAS



Summary for Subcatchment 4S: NORTH AREA

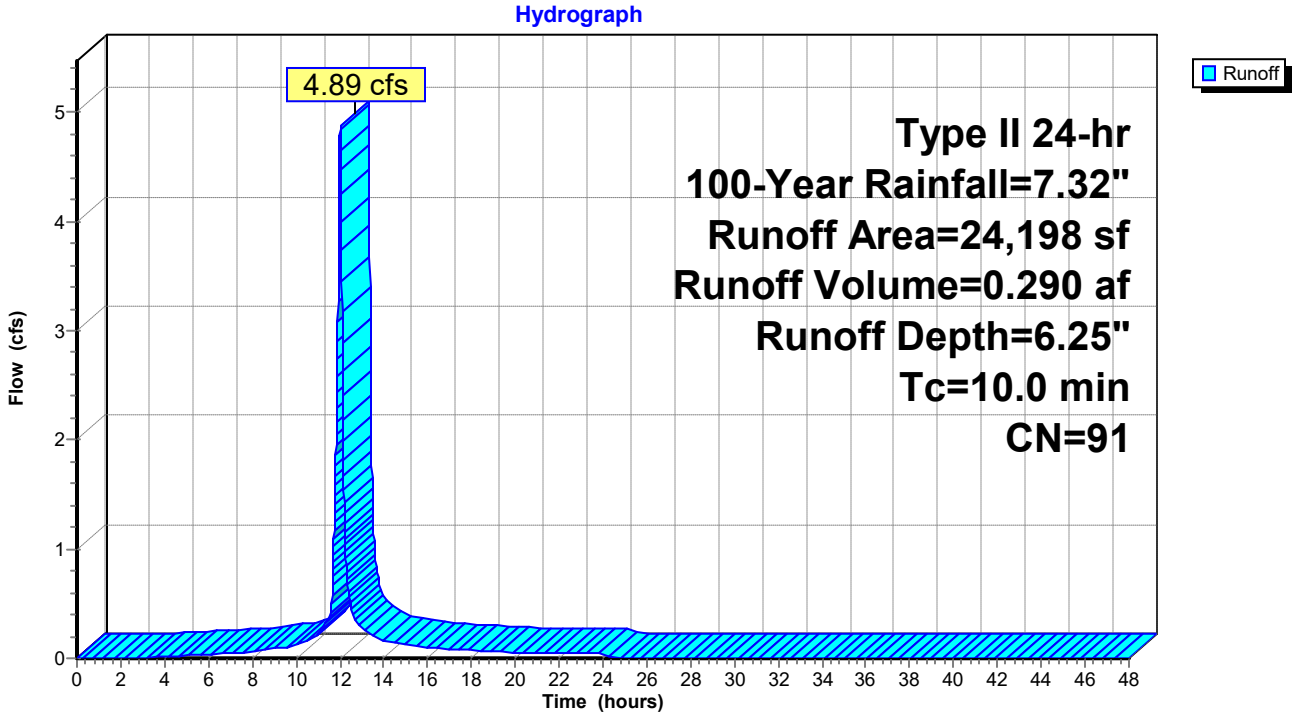
Runoff = 4.89 cfs @ 12.01 hrs, Volume= 0.290 af, Depth= 6.25"
Routed to Pond 40P : FILTER POND

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=7.32"

Area (sf)	CN	Description
15,216	98	Paved parking, HSG D
8,982	80	>75% Grass cover, Good, HSG D
24,198	91	Weighted Average
8,982		37.12% Pervious Area
15,216		62.88% Impervious Area

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

Subcatchment 4S: NORTH AREA

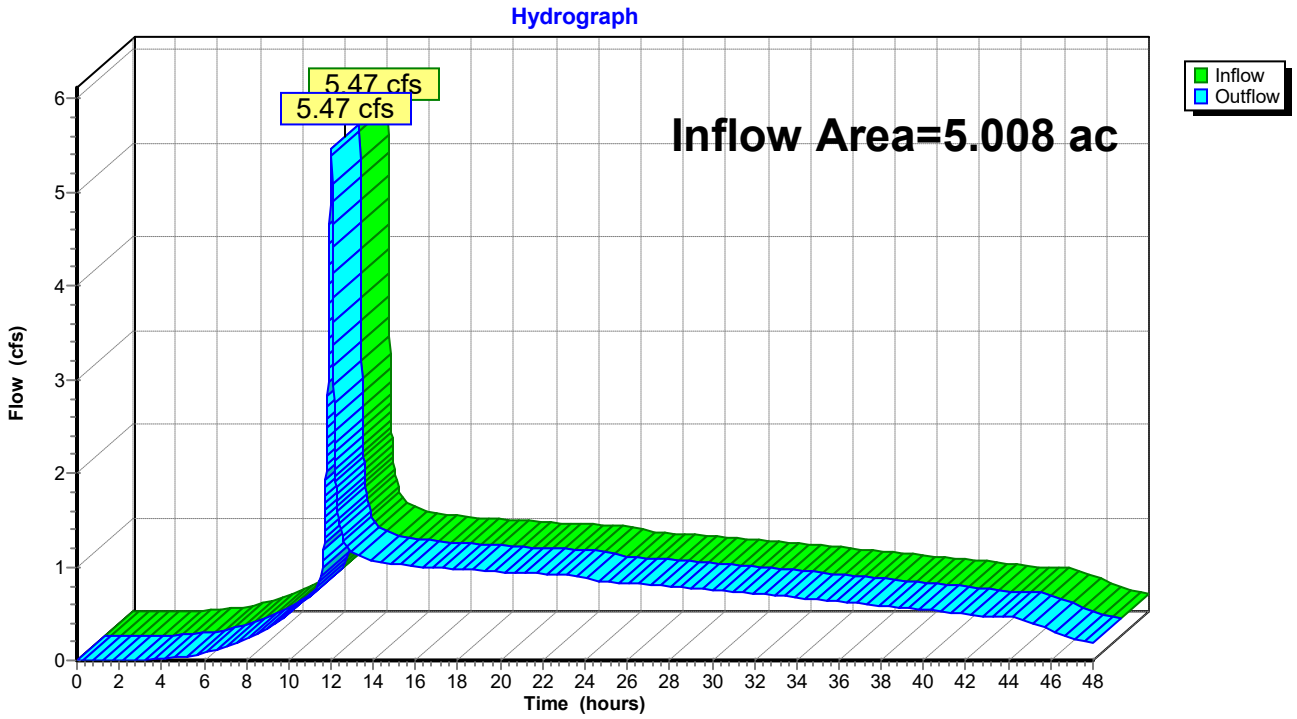


Summary for Reach 10R: GEORGE WEBER DR

Inflow Area = 5.008 ac, 69.41% Impervious, Inflow Depth > 6.04" for 100-Year event
Inflow = 5.47 cfs @ 12.01 hrs, Volume= 2.521 af
Outflow = 5.47 cfs @ 12.01 hrs, Volume= 2.521 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 10R: GEORGE WEBER DR



Summary for Pond 10P: NURP POND

Inflow Area = 4.476 ac, 69.65% Impervious, Inflow Depth = 6.25" for 100-Year event
Inflow = 39.19 cfs @ 12.01 hrs, Volume= 2.331 af
Outflow = 0.91 cfs @ 15.44 hrs, Volume= 2.239 af, Atten= 98%, Lag= 205.7 min
Primary = 0.91 cfs @ 15.44 hrs, Volume= 2.239 af
Routed to Reach 10R : GEORGE WEBER DR

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 957.50' Surf.Area= 12,320 sf Storage= 47,129 cf
Peak Elev= 961.11' @ 15.44 hrs Surf.Area= 25,478 sf Storage= 113,979 cf (66,851 cf above start)

Plug-Flow detention time= 1,417.5 min calculated for 1.157 af (50% of inflow)
Center-of-Mass det. time= 792.4 min (1,570.8 - 778.4)

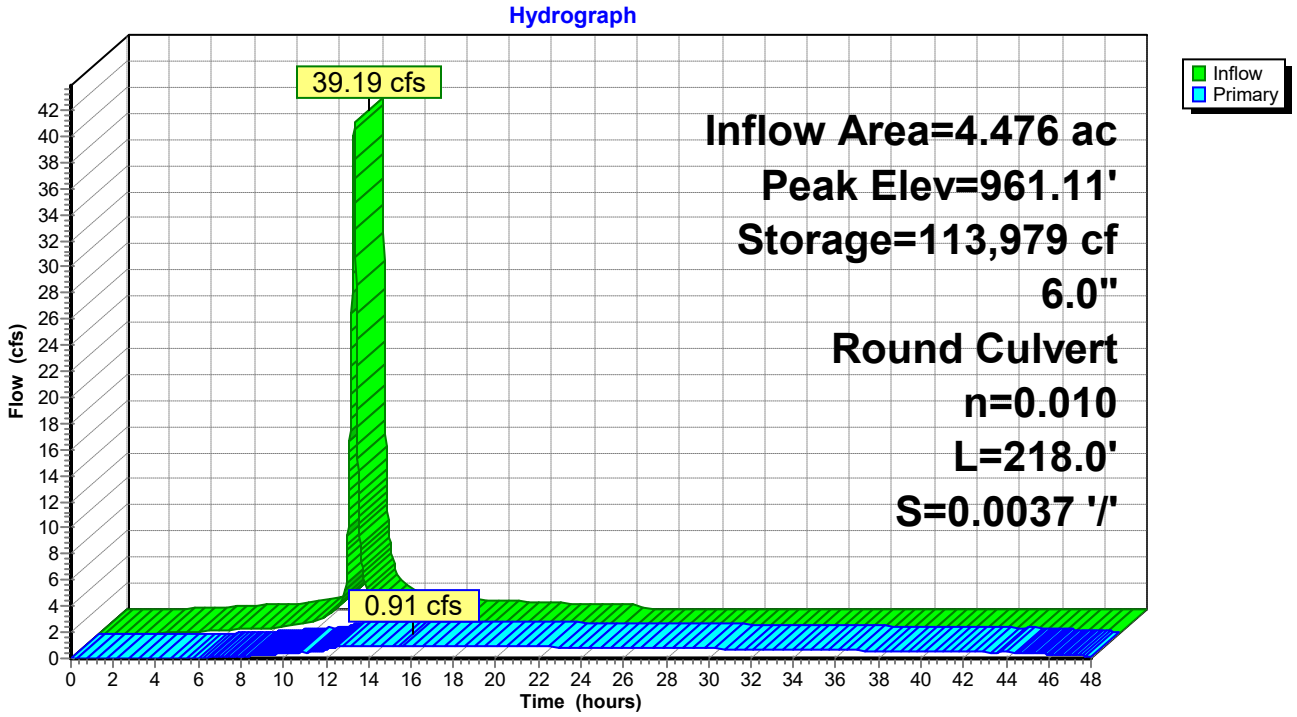
Volume	Invert	Avail.Storage	Storage Description
#1	948.50'	140,789 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
948.50	1,381	0	0
955.00	6,444	25,431	25,431
957.00	9,739	16,183	41,614
958.00	14,900	12,320	53,934
959.50	18,906	25,355	79,288
960.00	20,098	9,751	89,039
961.00	24,349	22,224	111,263
962.00	34,703	29,526	140,789

Device	Routing	Invert	Outlet Devices
#1	Primary	957.50'	**6.0" Round OUTLET** L= 218.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 957.50' / 956.70' S= 0.0037 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.91 cfs @ 15.44 hrs HW=961.11' TW=0.00' (Dynamic Tailwater)
1=OUTLET (Barrel Controls 0.91 cfs @ 4.64 fps)

Pond 10P: NURP POND



Summary for Pond 40P: FILTER POND

Inflow Area = 0.556 ac, 62.88% Impervious, Inflow Depth = 6.25" for 100-Year event
Inflow = 4.89 cfs @ 12.01 hrs, Volume= 0.290 af
Outflow = 4.49 cfs @ 12.05 hrs, Volume= 0.229 af, Atten= 8%, Lag= 2.3 min
Primary = 4.49 cfs @ 12.05 hrs, Volume= 0.229 af
Routed to Pond 10P : NURP POND

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 961.11' @ 15.45 hrs Surf.Area= 8,377 sf Storage= 3,760 cf

Plug-Flow detention time= 170.1 min calculated for 0.229 af (79% of inflow)
Center-of-Mass det. time= 88.3 min (863.7 - 775.3)

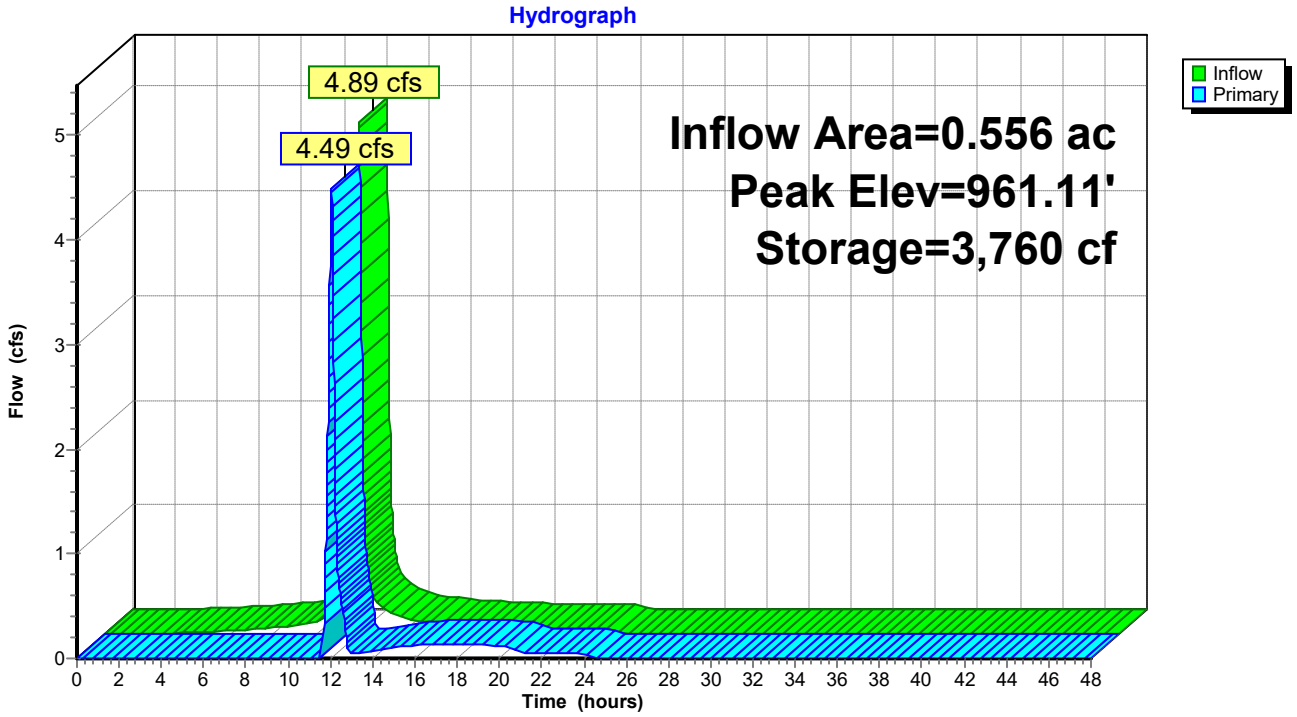
Volume	Invert	Avail.Storage	Storage Description
#1	959.40'	22,951 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
959.40	1,339	0	0
960.90	2,200	2,654	2,654
962.00	34,703	20,297	22,951

Device	Routing	Invert	Outlet Devices
#1	Primary	960.90'	**25.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=4.48 cfs @ 12.05 hrs HW=961.07' TW=960.05' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 4.48 cfs @ 1.04 fps)

Pond 40P: FILTER POND



Project Information

Calculator Version:	Version 4: July 2020
Project Name:	Twin City Hose Addition
User Name / Company Name:	Anderson Engineering
Date:	4/30/2026
Project Description:	Building Addition and expanded parking lot. Adding filtration bay and 10' bench to existing wet detention pond.
Construction Permit?:	Yes

Site Information

Retention Requirement (inches):	1.1
Site's Zip Code:	55374
Annual Rainfall (inches):	29.5
Phosphorus EMC (mg/l):	0.3
TSS EMC (mg/l):	54.5

Total Site Area

Land Cover	A Soils (acres)	B Soils (acres)	C Soils (acres)	D Soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land					0
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed				1.53	1.53
			Impervious Area (acres)		3.48
				Total Area (acres)	5.01

Site Areas Routed to BMPs

Land Cover	A Soils (acres)	B Soils (acres)	C Soils (acres)	D Soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land					0
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed				1.36	1.36
			Impervious Area (acres)		3.12
				Total Area (acres)	4.48

Summary Information

Performance Goal Requirement

Performance goal volume retention requirement:	13896	ft3
Volume removed by BMPs towards performance goal:	435	ft^3
Percent volume removed towards performance goal	**3**	**%**

Annual Volume and Pollutant Load Reductions

Post development annual runoff volume	8.1608	acre-ft
Annual runoff volume removed by BMPs:	0.1824	acre-ft
Percent annual runoff volume removed:	**2**	**%**
Post development annual particulate P load:	3.6626	lbs
Annual particulate P removed by BMPs:	2.807	lbs
Post development annual dissolved P load:	2.997	lbs
Annual dissolved P removed by BMPs:	0.299	lbs
Total P removed by BMPs	3.106	lbs
Percent annual total phosphorus removed:	**47**	**%**
Post development annual TSS load:	1209.8	lbs
Annual TSS removed by BMPs:	927.3	lbs
Percent annual TSS removed:	**77**	**%**

BMP Summary

Performance Goal Summary

BMP Name	BMP Volume Capacity (ft3)	Volume Recieved (ft3)	Volume Retained (ft3)	Volume Outflow (ft3)	Percent Retained (%)
Filtration Forebay	435	1398	435	962	31
Wet Detention Pond	0	12023	0	12023	0

Annual Volume Summary

BMP Name	Volume From Direct Watershed (acre-ft)	Volume From Upstream BMPs (acre-ft)	Volume Retained (acre-ft)	Volume outflow (acre-ft)	Percent Retained (%)
Filtration Forebay	0.8518	0	0.1823	0.6695	21
Wet Detention Pond	6.4583	0.6695	0	7.1278	0

Particulate Phosphorus Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
Filtration Forebay	0.3823	0	0.3222	0.0601	84
Wet Detention Pond	2.8985	0.0601	2.4852	0.4734	84

Dissolved Phosphorus Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
Filtration Forebay	0.3128	0	0.0915	0.2213	29
Wet Detention Pond	2.3715	0.2213	0.2074	2.3854	8

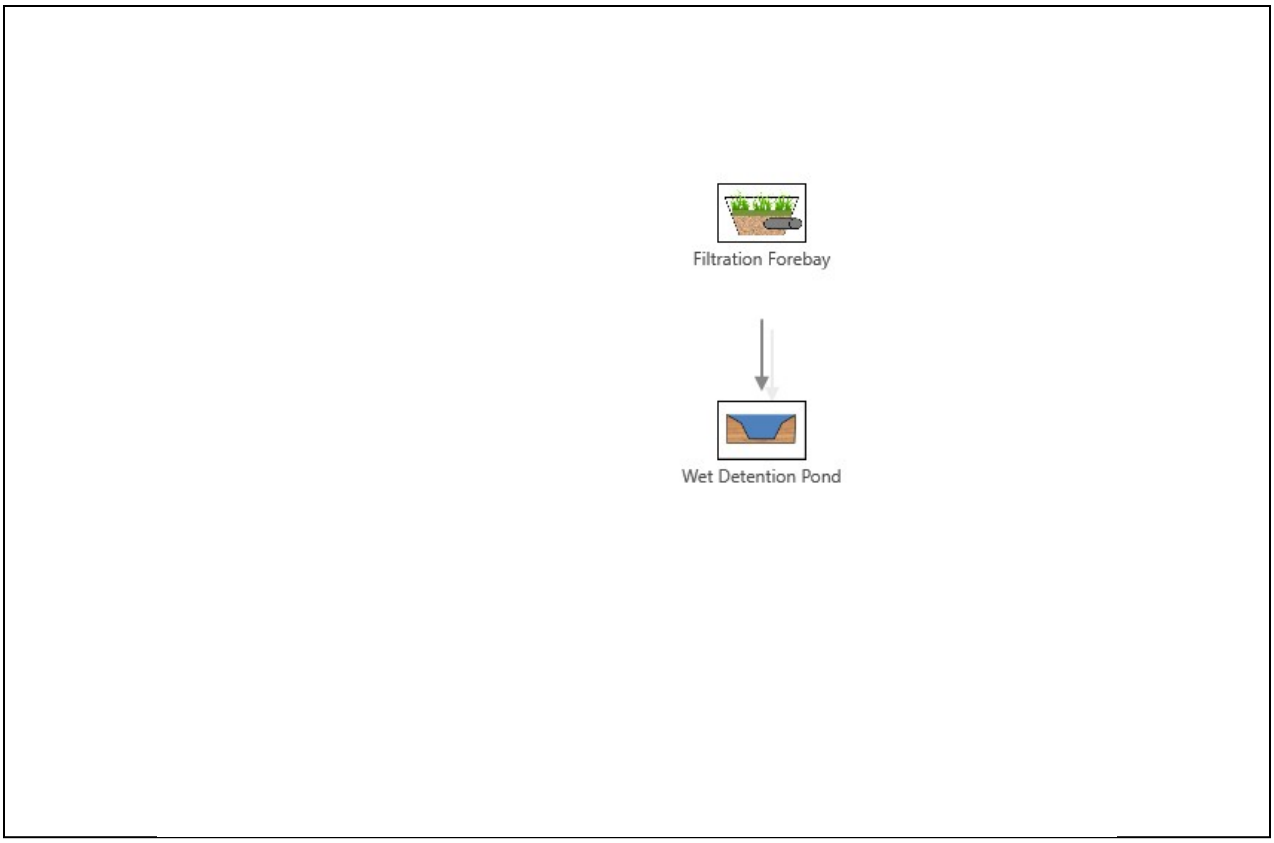
Total Phosphorus Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
Filtration Forebay	0.6951	0	0.4137	0.2814	56
Wet Detention Pond	5.27	0.2814	2.6926	2.8588	46

TSS Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
Filtration Forebay	126.27	0	106.42	19.85	84
Wet Detention Pond	957.38	19.85	820.87	156.36	84

BMP Schematic


Filtration Forebay
Wet Detention Pond

Project Information

Calculator Version:	Version 4: July 2020
Project Name:	Twin City Hose Building Addition
User Name / Company Name:	Anderson Engineering
Date:	4/30/2026
Project Description:	Existing Condition
Construction Permit?:	Yes

Site Information

Retention Requirement (inches):	1.1
Site's Zip Code:	55374
Annual Rainfall (inches):	29.5
Phosphorus EMC (mg/l):	0.3
TSS EMC (mg/l):	54.5

Total Site Area

Land Cover	A Soils (acres)	B Soils (acres)	C Soils (acres)	D Soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land					0
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed				1.88	1.88
				Impervious Area (acres)	3.13
				Total Area (acres)	5.01

Site Areas Routed to BMPs

Land Cover	A Soils (acres)	B Soils (acres)	C Soils (acres)	D Soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land					0
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed				1.59	1.59
				Impervious Area (acres)	2.77
				Total Area (acres)	4.36

Summary Information

Performance Goal Requirement

Performance goal volume retention requirement:	12498	ft3
Volume removed by BMPs towards performance goal:		ft^3
Percent volume removed towards performance goal		**%**

Annual Volume and Pollutant Load Reductions

Post development annual runoff volume	7.6187	acre-ft
Annual runoff volume removed by BMPs:	0	acre-ft
Percent annual runoff volume removed:	**0**	**%**
Post development annual particulate P load:	3.4193	lbs
Annual particulate P removed by BMPs:	1.805	lbs
Post development annual dissolved P load:	2.798	lbs
Annual dissolved P removed by BMPs:	0	lbs
Total P removed by BMPs	1.805	lbs
Percent annual total phosphorus removed:	**29**	**%**
Post development annual TSS load:	1129.4	lbs
Annual TSS removed by BMPs:	596.1	lbs
Percent annual TSS removed:	**53**	**%**

BMP Summary

Performance Goal Summary

BMP Name	BMP Volume Capacity (ft3)	Volume Recieved (ft3)	Volume Retained (ft3)	Volume Outflow (ft3)	Percent Retained (%)
Wet Detention Pond	0	11061	0	11061	0

Annual Volume Summary

BMP Name	Volume From Direct Watershed (acre-ft)	Volume From Upstream BMPs (acre-ft)	Volume Retained (acre-ft)	Volume outflow (acre-ft)	Percent Retained (%)
Wet Detention Pond	6.7017	0	0	6.7017	0

Particulate Phosphorus Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
Wet Detention Pond	3.0077	0	1.8046	1.2031	60

Dissolved Phosphorus Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
Wet Detention Pond	2.4609	0	0	2.4609	0

Total Phosphorus Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
Wet Detention Pond	5.4686	0	1.8046	3.664	30

TSS Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
Wet Detention Pond	993.45	0	596.07	397.38	60

BMP Schematic

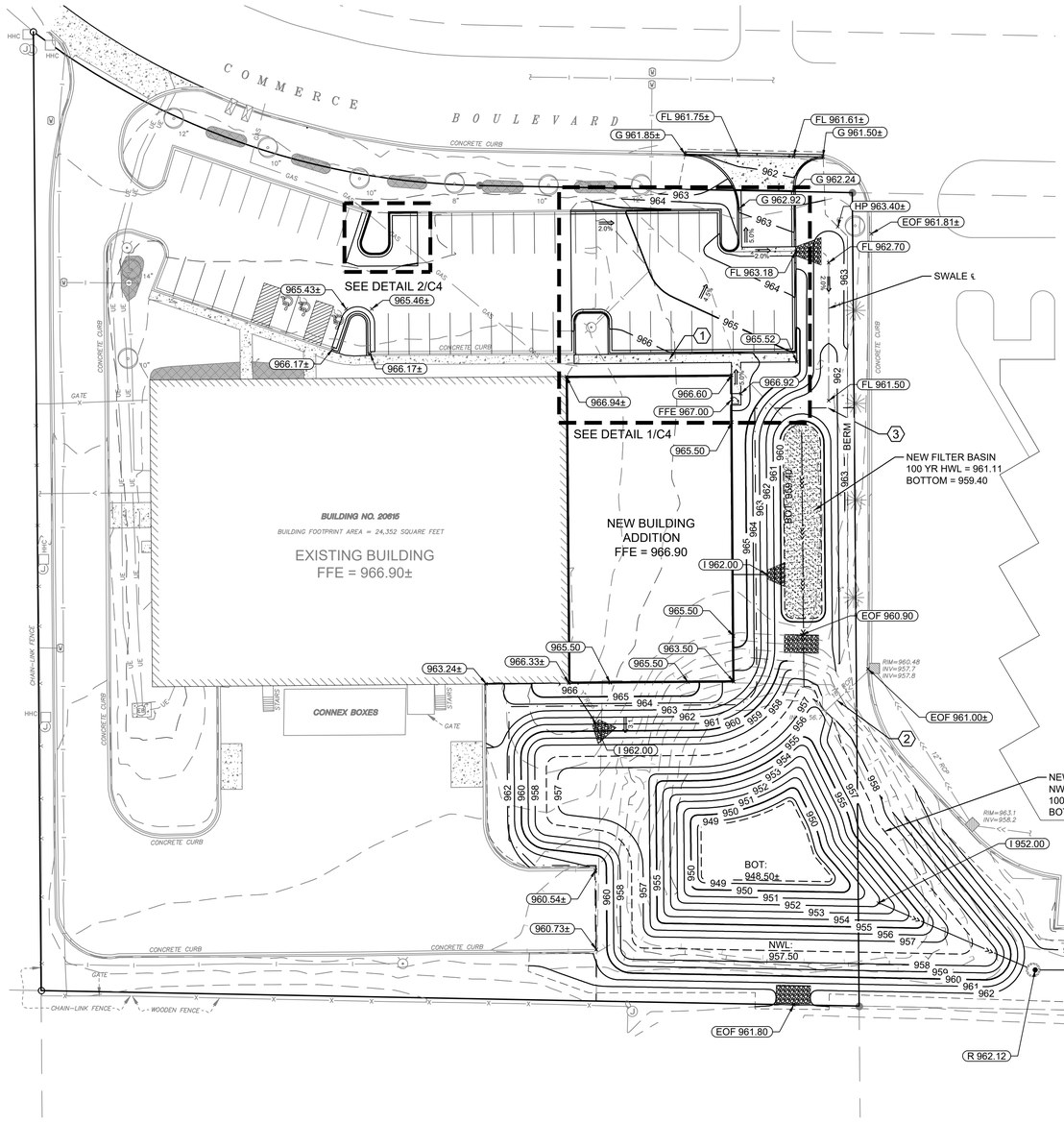
Wet Detention Pond

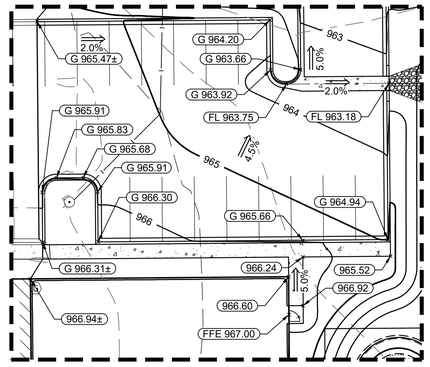
GRADING NOTES

1. THE CONTRACTOR MUST CONSTRUCT/GRADE SIDEWALKS AND ACCESSIBLE ROUTES, INCLUDING CROSSING DRIVEWAYS, IN ACCORDANCE WITH CURRENT ADA STATE AND NATIONAL STANDARDS. IMMEDIATE WRITTEN NOTIFICATION TO THE ENGINEER IS REQUIRED IF ADA CRITERIA CANNOT BE MET AT ANY LOCATION.
2. IMPORTED SUITABLE FILL MATERIAL NEEDED MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER BEFORE BRINGING IT ON THE SITE.
3. THE CONTRACTOR MUST COORDINATE REQUIRED SOIL TESTS AND INSPECTIONS WITH THE GEOTECHNICAL ENGINEER.
4. THE CONTRACTOR IS RESPONSIBLE FOR EXCAVATING AND DISPOSING OF UNSUITABLE OR CONTAMINATED SOILS DISCOVERED ONSITE IN ACCORDANCE WITH APPLICABLE REGULATIONS AND AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
5. EXISTING TOPSOIL ON-SITE VARIES IN DEPTH. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING SURFACE VEGETATION, TOPSOIL, AND OTHER UNSUITABLE MATERIAL FROM IMPERVIOUS AREAS AND OTHER DESIGNATED AREAS BEFORE PLACING SUITABLE FILL MATERIAL, AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
6. EXCAVATE, COMPACT EMBANKMENT/SUITABLE FILL, AND BACKFILL IN ACCORDANCE WITH MN/DOT SPEC 2106 SPECIFIED DENSITY METHOD. THE CONTRACTOR MUST MEET MOISTURE CONTENT/CONTROL REQUIREMENTS IN ACCORDANCE WITH MN/DOT 2106 AND SITE TESTING REQUIREMENTS.
7. ONSITE EMBANKMENT MATERIAL FREE OF ORGANIC SOIL AND DEBRIS MAY BE CONSIDERED FOR REUSE AS SUITABLE FILL MATERIAL IN PERVIOUS AREAS BUT MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER.
8. THE CONTRACTOR SHOULD PROMPTLY BACKFILL SUBGRADE AND TRENCH EXCAVATIONS AFTER EXCAVATION.
9. THE CONTRACTOR IS RESPONSIBLE FOR QUANTIFYING SOIL IMPORT OR EXPORT AND CONDUCTING THEIR OWN QUANTITY TAKEOFFS FROM THE DRAWINGS. ADDITIONAL ON-SITE EXCAVATION OR OFF-SITE IMPORT MAY BE NECESSARY TO ACHIEVE FINAL GRADES, AND THE CONTRACTOR MUST COORDINATE THESE ACTIONS WITH THE OWNER AND ENGINEER. THE SUITABILITY OF OFFSITE IMPORT MATERIAL MUST BE VERIFIED BY THE GEOTECHNICAL ENGINEER. ANY EXCESS MATERIAL, UNLESS NOTED OTHERWISE, BELONGS TO THE CONTRACTOR AND SHOULD BE MOVED AND DISPOSED OF OFFSITE IN ACCORDANCE WITH APPLICABLE LAWS.
10. GRADING DISCREPANCIES IN EXISTING OR PROPOSED GRADES MUST BE REPORTED IN WRITING TO THE ENGINEER BEFORE PLACING PAVEMENT. THE CONTRACTOR SHOULD OBSERVE PAVEMENT AREAS FOR EVIDENCE OF PONDING BEFORE PLACEMENT TO ENSURE ADEQUATE DRAINAGE.
11. EXISTING SPOT ELEVATIONS AT MATCH POINTS ARE BASED ON SITE SURVEY DATA. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING CONNECTION POINTS BEFORE INSTALLATION OF IMPROVEMENTS AND MUST NOTIFY THE ENGINEER IN WRITING OF ANY FIELD DISCREPANCIES. THE CONTRACTOR IS RESPONSIBLE FOR REWORK OF ANY DISCREPANCIES THAT ARE NOT COMMUNICATED TO THE ENGINEER IN WRITING AT NO ADDITIONAL COST TO THE OWNER.
12. THE PROPOSED CONTOURS PERTAIN TO THE FINISHED SURFACE GRADE, UNLESS OTHERWISE INDICATED.
13. THE CONTRACTOR IS RESPONSIBLE FOR MEETING GRADING/COMPACTION REQUIREMENTS OUTLINED IN THE GEOTECHNICAL REPORT AND SPECIFICATIONS FOR THE PROJECT.
14. IMPORTED SUITABLE FILL MATERIAL MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER BEFORE BRINGING IT ON THE SITE.
15. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING DEWATERING MEASURES AS REQUIRED OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
16. COMPACTION TESTING SHALL FOLLOW THE FREQUENCY OUTLINED IN THE GEOTECHNICAL REPORT OR MNDOT SCHEDULE OF MATERIALS CONTROL. WHERE NO FREQUENCY IS PROVIDED, CONSULT THE ENGINEER FOR MINIMUM REQUIREMENTS.
17. GRADING ELEVATIONS SHALL CONFORM TO MNDOT SPEC 2106.3.I.

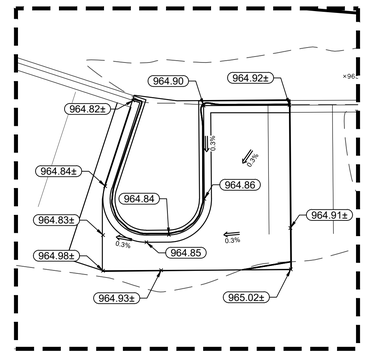
FILTRATION BASIN NOTES

1. CONSTRUCTION STAGING SHOULD BE EXECUTED THOUGHTFULLY TO MINIMIZE SOIL COMPACTION WITHIN THE FILTRATION AREA. FINAL GRADING OF THE BASIN SYSTEM MUST BE CONDUCTED USING LOW-IMPACT (WIDE-TRACKED) EARTHMOVING EQUIPMENT TO PREVENT COMPACTION.
2. FINAL GRADING OF THE BASIN SHOULD BE CARRIED OUT TO PREVENT COMPACTION. EXCAVATION, IF NECESSARY WITHIN THE FILTRATION FOOTPRINT, SHOULD ONLY BE PERFORMED USING LOW GROUND PRESSURE TRACKED EQUIPMENT. RUBBER TIRE EQUIPMENT IS PROHIBITED WITHIN THE FILTRATION AREA.
3. CONSTRUCTION STAGING AND THE INSTALLATION OF EROSION CONTROL MEASURES ARE CRUCIAL TO PREVENT SEDIMENT AND TOPSOIL FROM ENTERING THE INFILTRATION AREA. IN THE EVENT OF SEDIMENT INTRODUCTION, THE CONTRACTOR MUST PROMPTLY REMOVE THE MATERIAL BEFORE PROCEEDING WITH CONSTRUCTION.
4. THE CONTRACTOR IS REQUIRED TO MANAGE CONSTRUCTION ACTIVITIES AND IMPLEMENT NECESSARY EROSION CONTROL MEASURES TO PREVENT SEDIMENT FROM WASHING INTO THE FILTRATION BASIN.
5. THE CONTRACTOR MUST PREVENT CONTAMINATION OF FILTRATION BASIN SOILS WITH SEDIMENT, IN-SITU, OR TOPSOIL DURING AND AFTER INSTALLATION. MATERIALS MUST BE SEGREGATED, AND INSTALLATION UNDER DRY SOIL CONDITIONS IS CRUCIAL TO PREVENT SMEARING AND COMPACTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING FILTRATION SYSTEMS OFFLINE BY RESTRICTING STORMWATER INFLOW TO THE BASIN AS NECESSARY UNTIL VEGETATION IS ESTABLISHED IN THE CELL(S), AND UP-GRADIENT AREAS ARE FULLY STABILIZED, WITH IMPERVIOUS SURFACES CLEARED OF CONSTRUCTION SEDIMENT.
7. UPON THE FINAL COMPLETION OF CONSTRUCTION, THE CONTRACTOR MUST ENSURE THAT THE FILTRATION BASIN IS FREE AND CLEAR OF SEDIMENT.
8. EXCAVATION OF THE INFILTRATION BASIN IS NOT ALLOWED UNTIL CONTRIBUTING DRAINAGE AREAS WITH EXPOSED SOIL ARE STABILIZED, AND BITUMINOUS BASE COURSE IS INSTALLED ON CONTRIBUTING PAVEMENT AREAS. UPLAND DRAINAGE AREAS MUST BE DIVERTED TO PREVENT RUNOFF FROM ENTERING THE EXCAVATED CELL, AND THE FILTRATION CELL SHOULD NOT BE USED AS TEMPORARY SEDIMENT BASINS.





1 C4 PARKING ADDITION GRADING ENLARGEMENT
SCALE: 1" = 20'



2 C4 ISLAND GRADING ENLARGEMENT
SCALE: 1" = 10'

N

0 30' 60'

LEGEND

	PROPERTY LIMITS
	CONSTRUCTION LIMITS
958	EXISTING MINOR CONTOUR
960	EXISTING MAJOR CONTOUR
958	PROPOSED MINOR CONTOUR
960	PROPOSED MAJOR CONTOUR
× 954.2	EXISTING SPOT ELEVATION
	DRAINAGE ARROW
	PROPOSED CONCRETE C&G

SPOT ELEVATION KEY

±	EXISTING GRADE
G	GUTTER FLOW LINE
TC	TOP OF CURB
HP	HIGH POINT ELEVATION
R	RIM ELEVATION
EOF	EMERGENCY OVERFLOW ELEVATION
FFE	FINISHED FLOOR ELEVATION
FL	FLOW LINE

KEY NOTES

1. TIP SIDEWALK AWAY FROM BUILDING 2% MIN.
2. INVERT OF EXISTING 18" RCP TO REMAIN IN PLACE
3. NEW DRAINAGE AND UTILITY EASEMENT

ANDERSON
13605 1st Avenue N. #100
Plymouth, MN 55441 | ae-mn.com
P 763.412.4000 | F 763.412.4090
Anderson Engineering of Minnesota, LLC

TWIN CITY HOSE BUILDING ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR
ARCHITECTS, INC.

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.

PRINT NAME: BRIAN J. FIELD, PE

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 57224

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

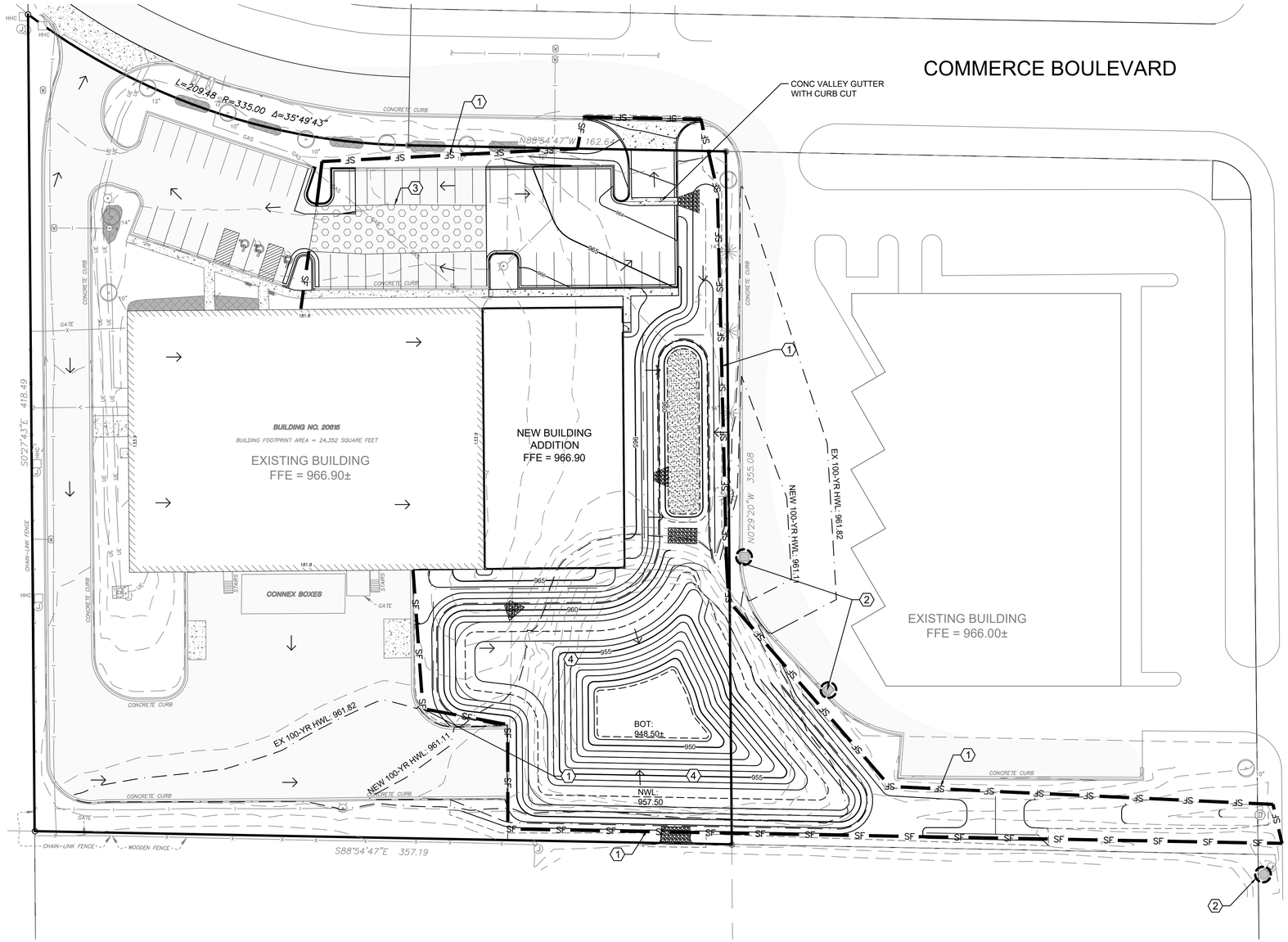
DRAWING TITLE

GRADING & DRAINAGE PLAN

DRAWING NO.

C4

PLOTTED:	COMM. NO.
---	18438



LEGEND

- PROPERTY LIMITS
- CONSTRUCTION LIMITS
- EXISTING MINOR CONTOUR (959)
- EXISTING MAJOR CONTOUR (960)
- PROPOSED MINOR CONTOUR (959)
- PROPOSED MAJOR CONTOUR (960)
- × 954.2 EXISTING SPOT ELEVATION
- DRAINAGE ARROW
- SF SILT FENCE
- INLET PROTECTION
- CONSTRUCTION ENTRANCE
- BIO ROLL
- EROSION CONTROL BLANKET

N

0 30' 60'

KEY NOTES

1. INSTALL AND MAINTAIN SILTFENCE PERIMETER SEDIMENT PROTECTION IN TURF AREAS.
   USE BIO-ROLLS AS NEED IN PAVED AREA PER MNDOT SPEC 3885.
2. INSTALL AND MAINTAIN INLET SEDIMENT PROTECTION.
3. INSTALL TEMP ROCK ENTRANCE OR HARD SURFACE ASPHALT/CONCRETE AT CONSTRUCTION INGRESS & EGRESS LOCATION PRIOR TO EXCAVATION. MAINTAIN THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS.
4. AREAS WITH SLOPES STEEPER THAN 4:1 TO HAVE EROSION CONTROL BLANKET AND SEED INSTALLED. EROSION CONTROL BLANKET TO BE CATEGORY 3 OR 3N PER MNDOT SPEC 3885.

EROSION CONTROL NOTES

1. GRADING CONTRACTORS SHALL VERIFY LOCATIONS AND ELEVATIONS OF ALL UNDERGROUND UTILITIES WITH THE RESPECTIVE UTILITY COMPANIES PRIOR TO CONSTRUCTION.
2. ALL EROSION CONTROL MEASURES CALLED FOR ON THESE PLANS AND SPECIFICATIONS, WHICH MAY INCLUDE SILT FENCE, SEDIMENTATION BASINS OR TEMPORARY SEDIMENT TRAPS, SHALL BE CONSTRUCTED AND SERVICEABLE IN THE FOLLOWING ORDER:
   A. ROCK CONSTRUCTION ENTRANCES A MINIMUM OF 50 FEET
   B. SILT FENCE
   C. TEMPORARY CULVERTS
   D. TEMPORARY SEDIMENTATION BASINS AND OUTFALL FACILITIES
   E. STORMWATER POND CONSTRUCTION
   F. COMMION EXCAVATION AND EMBANKMENT (GRADING)
   G. SEED AND MULCH OR SOD
   H. BIO-ROLL BARRIERS IN FINISHED GRADED AREAS
   I. INLET AND OUTLET FACILITIES SUBSEQUENT TO STORM SEWER WORK
3. GRADING CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH CITY AND NPDES PHASE II PERMITTING REQUIREMENTS AS WELL AS EROSION CONTROL MEASURES AS MAY BE SHOWN ON THESE PLANS OR SPECIFICATIONS. GRADING CONTRACTOR SHALL IMPLEMENT ANY ADDITIONAL EROSION CONTROL MEASURES AS MAY BE REQUIRED TO PROTECT ADJACENT PROPERTY.
4. ALL EROSION CONTROL FACILITIES SHALL BE MAINTAINED BY THE CONTRACTOR DURING GRADING OPERATIONS. ANY TEMPORARY FACILITIES WHICH ARE TO BE REMOVED AS CALLED FOR ON THESE PLANS AND SPECIFICATIONS SHALL BE REMOVED BY THE GRADING CONTRACTOR WHEN DIRECTED BY THE ENGINEER. THE GRADING CONTRACTOR SHALL RESTORE THE SUBSEQUENTLY DISTURBED AREA IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS.
5. THE GRADING CONTRACTOR SHALL SCHEDULE THE SOILS ENGINEER SO THAT CERTIFICATION OF ALL CONTROLLED FILLS WILL BE FURNISHED TO THE OWNER DURING AND UPON COMPLETION OF THE PROJECT.
6. ALL DISTURBED AREAS, EXCEPT AREAS TO BE PAVED AND/OR SPECIFICALLY DESIGNED BY A LANDSCAPE PLAN, SHALL BE COVERED WITH A MINIMUM 6" OF TOP SOIL OR AS INDICATED IN SPECIFICATIONS OR LANDSCAPING PLAN. ALL DISTURBED AREAS SHALL BE SEEDED & MULCHED AT THE PRESCRIBED RATES WITHIN 72 HOURS OF FINAL GRADING UNLESS OTHERWISE NOTED.

   SEED MIX: MNDOT - MESIC INSLOPE 55# / ACRE
   MULCH: TYPE 1 2 TONS / ACRE (DISK ANCHORED)
   FERTILIZER: TYPE 3 22-5-10 350# / ACRE

   ALL EXPOSED SOIL AREAS WITH A CONTINUOUS POSITIVE SLOPE WITHIN 200 LINEAL FEET OF ANY SURFACE WATER, MUST HAVE TEMPORARY EROSION PROTECTION OR PERMANENT COVER FOR THE EXPOSED SOIL AREAS YEAR ROUND, ACCORDING TO THE FOLLOWING TABLE OF SLOPES AND TIME FRAMES:

TYPE OF SLOPE	TIME (Maximum time an area can remain open when the area is not actively being worked)
STEEPER THAN 3:1	7 DAYS
10:1 TO 3:1	4 DAYS
FLATTER THAN 10:1	7 DAYS

7. THE EXISTING TOPOGRAPHY AND CONTOUR ELEVATIONS SHOWN ON THE PLAN WERE TAKEN FROM A PLAN FURNISHED BY OWNER.
8. CONTRACTORS GRADING AND EROSION CONTROL OPERATIONS SHALL TAKE PLACE WITHIN THE CONSTRUCTION LIMITS.
9. IT IS REQUIRED THAT SOILS TRACKED FROM THE SITE BY MOTOR VEHICLES BE CLEANED DAILY FROM PAVED ROADWAY SURFACES THROUGHOUT THE DURATION OF CONSTRUCTION.
10. PROVIDE TEMPORARY SEDIMENTATION BASINS AS DIRECTED BY THE ENGINEER.
11. ALL REQUIREMENTS OF THE LOCAL WATERSHED DISTRICT SHALL BE SATISFIED PER THE APPROVED PERMIT.
12. ALL EROSION & SEDIMENT CONTROL MEASURES SHOWN ON THIS PLAN AND IMPLEMENTED IN THE FIELD AS DIRECTED BY THE ENGINEER SHALL CONFORM TO THE MPCA'S "PROTECTING WATER QUALITY IN URBAN AREAS: BEST MANAGEMENT PRACTICES FOR MINNESOTA".
13. DEWATERING AND / OR BASIN DRAINING DISCHARGE SHALL BE DIRECTED TO SEDIMENTATION BASINS WHEREVER POSSIBLE. ALL DISCHARGE POINTS SHALL BE ADEQUATELY PROTECTED FROM EROSION & SCOUR THROUGH USE OF APPROVED ENERGY DISSIPATION DEVICES.
14. ALL SOLID WASTE / CONSTRUCTION DEBRIS SHALL BE DISPOSED OF IN ACCORDANCE WITH MPCA REQUIREMENTS. HAZARDOUS MATERIALS SHALL BE STORED / DISPOSED OF IN COMPLIANCE WITH MPCA REGULATIONS.
15. CONTRACTOR SHALL USE RAPID STABILIZATION METHODS PER MNDOT 2575 AS NEEDED DURING THE COURSE OF THE WORK TO MAINTAIN CONFORMANCE WITH THE CITY AND NPDES II PERMIT REQUIREMENTS. THIS WORK SHALL CONSIST OF OPERATIONS NECESSARY TO RAPIDLY STABILIZE SMALL CRITICAL AREA, TO PREVENT OFF SITE SEDIMENTATION AND / OR TO COMPLY WITH PERMIT REQUIREMENTS. THE WORK MAY BE PERFORMED AT ANY TIME DURING THE CONTRACT AND DURING NORMAL WORKING HOURS. THIS WORK WILL BE CONDUCTED ON SMALL AREAS THAT MAY OR MAY NOT BE ACCESSIBLE WITH NORMAL EQUIPMENT. THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE MNDOT STANDARDS SPECIFICATIONS, THE DETAILS SHOWN IN THE PLANS, AND THE FOLLOWING:

    THERE ARE FIVE STABILIZATION METHODS APPROVED FOR THESE OPERATIONS. THESE METHODS MAY BE CONDUCTED INDEPENDENTLY OR IN COMBINATION.

METHOD	RAPID STABILIZATION
1	TYPE 1 MULCH WITH DISC ANCHORING
2	TYPE 3 MULCH WITH TYPE HYDRAULIC MULCH
3	TYPE HYDRAULIC MULCH WITH SEED MIXTURE 22-11
4	CATEGORY 3 EROSION CONTROL BLANKET WITH SEED MIXTURE
5	RIPRAP CLASS II WITH GEOTEXTILE TYPE III

    THESE EFFORTS WILL BE INCIDENTAL TO THE EROSION CONTROL BID ITEM.
16. CHANGE OF COVERAGE: FOR STORM WATER DISCHARGES FROM CONSTRUCTION PROJECTS WHERE THE OWNER OR OPERATOR CHANGES, (E.G., AN ORIGINAL DEVELOPER SELLS PORTIONS OF THE PROPERTY TO VARIOUS BUILDERS) THE NEW OWNER OR OPERATOR MUST SUBMIT A SUBDIVISION REGISTRATION WITHIN 7 DAYS OF ASSUMING TRANSFERS, SALE OR CLOSING ON THE PROPERTY.
17. INDIVIDUAL SITE BUILDERS SHALL BE RESPONSIBLE FOR PROVIDING ANY AND ALL NECESSARY EROSION CONTROL MEASURES AS MAY BE REQUIRED. REQUIRED ECM'S SHALL CONSIST OF BUT NOT BE LIMITED TOT HE FOLLOWING:
    A. STAKED FIBER LOG ROLLS AT BACK OF ALL CURB EXCEPT AT CONSTRUCTION / DRIVEWAY ENTRANCE.
    B. SILT FENCE ON ALL DOWN GRADIENT SLOPES FROM CONSTRUCTION AREA. SILT FENCE SHALL HAVE THE BOTTOM DUG IN WITH SOIL FIRMLY COMPACTED.
    C. ROCK CONSTRUCTION ENTRANCE HAVING 1" TO 2" CLEAR ROCK OVER GEOTEXTILE FABRIC.
    D. STREET CLEANING AS MAY BE REQUIRED SHOULD VEHICLE TRACKING OCCUR.

    INDIVIDUAL SITE BUILDERS ARE REQUIRED TO MAINTAIN EROSION CONTROL MEASURES UNTIL SUCH TIME AS INDIVIDUAL YARDS/VEGETATION ARE ESTABLISHED.
18. CONTRACTOR SHALL PROVIDE A TEMPORARY LINED SEDIMENTATION BASIN ON SITE FOR CONSTRUCTION WASH OUT USE. TEMPORARY BASIN SHALL BE LOCATED AS TO PROVIDE EASY ACCESS FOR CONSTRUCTION VEHICLES AND CONCRETE TRUCKS AS NECESSARY.
19. INLET SEDIMENTATION CONTROL IS TO BE PROVIDED TO ALL STORM SEWER CATCH BASIN THROUGHOUT CONSTRUCTION . MEASURES APPLIED SHALL COMPLY WITH BEST MANAGEMENT PRACTICES FOR MINNESOTA AND APPLICATION OF NPDES PHASE II AS APPROPRIATE FOR PHASE OF CONSTRUCTION.
20. CONTRACTOR SHALL PREVENT SOIL LOSS DURING CONSTRUCTION DUE TO WIND EROSION THROUGHOUT CONSTRUCTION. DUST SHALL BE SUPPRESSED THOUGH THE APPLICATIONS OF WATER, AS DEEMED NECESSARY BY THE CONTRACTOR, OR THROUGH EQUIVALENT BMP'S AS APPROVED BY THE ENGINEER.
21. IF LEED ACCREDITATION IS APPLICABLE, CONTRACTOR SHALL DOCUMENT THE IMPLEMENTATION OF THE EROSION AND SEDIMENTATION CONTROL PLAN THROUGH DATE-STAMPED PHOTOS AND INSPECTION LOGS / REPORTS. REPORTS SHALL INCLUDE AT A MINIMUM DESCRIPTION OF ALL EMPLOYED BMPS (INCLUDING BOTH MEASURES TO PREVENT SOIL LOSS DUE TO RUNOFF AND SOIL LOSS DUE TO WIND EROSION), BMPS DEEMED UNNECESSARY DUE TO SITE CONDITIONS, CORRECTIVE ACTIONS TAKEN IN RESPONSE TO PROBLEMS, AND ANY ADDITIONAL INFORMATION RELEVANT TO THE CONDITION OF THE EROSION AND SEDIMENT CONTROL PLAN AS IT WAS ESTABLISHED AT THE TIME OF CONSTRUCTION.

ANDERSON
13605 1st Avenue N. #100
Plymouth, MN 55441 | ae-mn.com
P 763.412.4000 | F 763.412.4090
Anderson Engineering of Minnesota, LLC

TWIN CITY HOSE BUILDING ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR
ARCHITECTS, INC.

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.

PRINT NAME: BRIAN J. FIELD, PE

SIGNATURE: NOT FOR CONSTRUCTION

DATE: 04/28/2026 LICENSE NO. 57224

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

EROSION & SEDIMENT CONTROL PLAN

DRAWING NO.

C5

PLOTTED:	COMM. NO.
----	18438

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Xref Filename: \ 18438_ s_ base_ CIVIL_ COPY \ 18438_ C_ BASE \ 24x36 TCH Title Block!

Kilo Engineering, LLC
Marine on Saint Croix, Minnesota
763-412-1965
www.kiloengineering.com

April 24, 2026

Mr. Jay Donaldson
Twin Cities Hose
20615 Commerce Boulevard
Rogers, Minnesota 55063

RE: Geotechnical Engineering Services Report
Proposed Commercial Addition
20615 Commerce Boulevard
Rogers, Minnesota
Kilo Project No.: 26-2130

Dear Mr. Donaldson:

Kilo Engineering, LLC (Kilo) is pleased to transmit this Geotechnical Engineering Services Report for the proposed Dollar General retail development to be located at approximately 20615 Commerce Boulevard in Rogers, Minnesota. This report includes the results of field and laboratory testing, recommendations for foundations, pavement section design, and general site development.

Kilo appreciates the opportunity to perform this Geotechnical Study and looks forward to continuing our participation during the design phases of this project. If you have questions pertaining to this report, or if Kilo may be of further service, please contact us.

Respectfully submitted,
KILO ENGINEERING

Joseph M. Rozmiarek, P.E.
President and Chief Engineer

Zack Pilz, E.I.T.
Staff Engineer

LICENSEE STATEMENT

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.

Signature:

Name: Joseph M. Rozmiarek, P.E.

MN P.E. # 52629 Date: April 24, 2026

Table of Contents

EXECUTIVE SUMMARY

Kilo Engineering, LLC (Kilo) completed a geotechnical exploration for the proposed commercial addition in Rogers, Minnesota. Based on the findings of the field and laboratory work, the following geotechnical hazards will likely impact the design and construction of the project.

Surficial Organic Soils

A deposit of surficial organic soil was encountered within the building and pavement areas extending to depths of 1-½± feet below existing site grades. These materials will not be suitable for the support of foundations, slabs, pavements, or newly placed engineered fill due to the deleterious nature of the organics. These soils should be removed as part of mass grading and replaced with suitable engineered fill soils. Organic soil depths and consistencies should be anticipated to vary across the site. This stratum may have been previously disturbed due to previous site development.

Undocumented Fill Soils

Some of the near-surface soils have likely been disturbed as part of the construction of the adjacent commercial property to the west of the site, and from the detention feature that once appeared to the north of the site. Existing utilities (if present) that are not planned to be part of the proposed development should be properly sealed and removed from the site. "Undocumented Fills" are soils that have been previously disturbed by man-made activities and have an unknown or undocumented history of compaction as part of the previous site disturbance. **Undocumented fill soils were observed up to 4± feet below existing site grades in two of the building borings and up to 5± feet in the pavement boring.** These materials can be highly variable in material composition and compaction quality. Due to this unknown condition, these soils should be either removed and replaced with engineered fill as described in the "Subgrade Preparation" section of this report or may be stabilized in place under proposed pavement areas, depending on the condition of the materials at the time of construction. Undocumented fill soils below foundation elements should be removed and replaced by engineered fill prior to foundation construction. The materials should be evaluated by a qualified special inspections firm at the time of construction.

Shallow Groundwater

Shallow groundwater was observed in each of the borings completed on site at depths ranging from 8± to 10± feet below existing site grades. These depths are generally anticipated to be below the zone of construction for the structure, but may impact the installation of site utilities and other deeper excavations on site. If limited groundwater is observed above the static groundwater level, it can likely be controlled using conventional sumping techniques. If excavations are planned below the static groundwater level, more intensive dewatering techniques, such as well points, may be required. The need for dewatering will be dependent on the climatic conditions at the time of construction, including precipitation, runoff, and temporary grading during construction.

Kilo has provided this executive summary for the convenience of the client, and this information should not be relied upon in lieu a full review of the contents of this report. Should variance in recommendations be present, the recommendations in the body of this report shall govern over those in this executive summary.

PROJECT INFORMATION

Project Authorization and Provided Documentation

The following Table summarizes, in chronological order, the Project Authorization History for the services performed and represented in this report by Kilo Engineering, LLC. No construction plans were provided at the time of this report.

DOCUMENT AND REFERENCE NUMBER	DATE	REPRESENTATIVE & COMPANY
Email Request for Proposal	4/6/2026	Mr. Jay Donaldson Twin Cities Hose
Kilo Proposal 26e-2536	4/6/2026	Mr. Joseph Rozmiarek Kilo Engineering, LLC
Notice to Proceed:	4/6/2026	Mr. Jay Donaldson Twin Cities Hose

Project Description

Kilo understands that the project includes the design and construction of a new addition to the existing commercial building with associated pavements. The project site is located at 20615 Commerce Boulevard in Rogers, Minnesota. The site is currently developed with an existing commercial property that is planning a building addition.

The proposed addition will consist of light-gauge steel framing for one to two stories above grade and has an approximate footprint of 9,650 square feet. The proposed finished floor elevation for the new building has not been reported to Kilo at the time of this report. The boring elevations during the field exploration range from 95± to 96± feet relative to the temporary benchmark (TBM) utilized by the drillers in the field, the top of nut on the fire hydrant on the northwest corner of the site, just northeast of the existing commercial building. This benchmark has an estimated elevation of 970± feet MSL according to publicly available elevation data but cannot be confirmed with survey data at the time of this report. This report is based on the finished floor of the new building being set at 96± feet TBM, based on the average of the observed grades in the proposed building and grading the site to drain. **Should these elevations be incorrect, Kilo should be contacted to amend this report with proper elevations and modified recommendations, as appropriate.**

The elevation differences between the borings completed for the project are on the order of 1± feet within the building footprint and across the site. Based upon these elevations and observed unsuitable soil depths, cuts on the order of 1-½± to 4± feet will be required to remove surficial organic materials and fills on the order of 3± to 5± feet will be required to reach final grades in the proposed building pad. Kilo's recommendations for the pavements are based on cuts on the order of up 5± feet to remove surficial organic soils and undocumented fill soils and fills on the order of up to 5± feet to achieve design site grades. The table below provides information regarding the proposed development.

PROPOSED DEVELOPMENT		
PROPERTY	**DESCRIPTION**	**SOURCE**
STRUCTURES		
Number of Buildings	One Addition, East Portion of Site	Site Plan
Stories Above Grade	1 to 2	RFP
Stories Below Grade	0	RFP
Construction Type	Light-Gauge Steel Framing	Not Provided
Maximum Wall Load	5.0 kips per lineal foot (klf)	Not Provided
Maximum Column Load	150 kips	Not Provided
Maximum Floor Slab Load	200 pounds per square foot (psf)	Not Provided
Load Source		Not Provided
Proposed FFE	96± feet TBM	Not Provided
PAVEMENTS AND STORMWATER MANAGEMENT		
Pavement Types	Light-Duty Automobile Parking Heavy-Duty Auto and Truck Drive Lanes	Site Plan
Pavement Traffic Loads	Light-Duty – 100,000 ESALs Heavy-Duty – 250,000 ESALs	Not Provided
Pavement Locations	North of the Extension	Site Plan
Pavement Access	Commerce Boulevard, North of Site	Site Plan
Stormwater Features	Existing Pond, South of Site	Not Provided
Stormwater Location	-	Not Provided
PROPOSED GRADE CHANGES		
Unsuitable Soil Depth	1-½± feet of surficial organic soils; Up to 4± feet of undocumented fill in proposed building area; Up to 5± feet of undocumented fill in the proposed pavement area	Boring Logs
Grade Changes – Borings	1± feet in building and across the site	Field Survey

Not Provided – Information not provided to Kilo. This report is based on Kilo's experience with similar developments in lieu of client-provided information. This information should be verified by the client.
RFP – Information provided by the client in the project Request for Proposal

The geotechnical recommendations presented in this report are based on the available project information, building location, and the subsurface materials described in this report. If the noted information is incorrect, please inform Kilo in writing so that we may amend the recommendations presented in this report as appropriate and if desired by the client. Kilo will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

Purpose and Scope of Services

The purpose of this study was to explore the subsurface conditions at the site and develop geotechnical design criteria regarding foundations, floor slabs, and pavements and construction recommendations for the proposed project. Kilo's scope of services included drilling a total of four (4) soil test borings, select

laboratory testing, and preparation of this Geotechnical Report.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, groundwater, or air on or below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes. Kilo is not nor does it advertise to be an environmental professional firm. In the event that the geotechnical recommendations in this report and environmental recommendations by others vary, the more stringent recommendation should be followed, or the relevant design professionals be contacted for clarification. An asbestos survey and lead-based paint survey was completed by a Kilo subcontractor under a separate cover.

SITE AND SUBSURFACE CONDITIONS

Site Location and Description

The site is located at 20615 Commerce Boulevard in Rogers, Minnesota. The site is bounded to the north by Commerce Boulevard with commercial properties beyond; to the east by a commercial property with George Weber Road beyond; to the south a pond with commercial properties beyond; and to the west by commercial properties beyond. The site is currently developed with an existing commercial property that is planning a building addition.

Publicly available historical aerial photographs were used to explore the site history and historical aerial photographs were observed dating to 1957 from the Minnesota Historical Aerial Photograph Online (MHAPO) library from the University of Minnesota, and dating to 1991 in Google Earth. In the 1957 and 1964 photos, the site appears as an undeveloped lot in use for row-crop agriculture. The next available photograph appears in 1991 through google earth, where the site is undeveloped, but a pond appears in the northern section of the site. Sometime between 1991 and 2003, the commercial building to the west was constructed and the pond to the north of the site was removed. The existing commercial building was constructed in 1998 according to Hennepin County property tax records. Then sometime in 2004, the stormwater feature appears on the south side of the site. From 2004 to 2025, the site has remained relatively unchanged, with evidence of the commercial building to the west in all of the aerial photographs viewed. The site Latitude and Longitude coordinates are approximately 45.1913°N and 93.5412°W, respectively. The site is generally flat, with elevation differences of 1± feet between the borings.

Potential Flood Impacts

As part of the due diligence for the site, Kilo reviewed the publicly available flood zone maps produced by the Federal Emergency Management Agency (FEMA), which includes several designations related to flood potential. Zone A (blue shaded) designates the base floodplain, or an area subject to inundation by the 1% annual (100-year) chance flood event. Zone AE designates the same as Zone A, but indicates an area that has a reported base flood elevation. Zone AO designates river or stream flood hazard areas with a 1% or greater chance of shallow flooding each year. Zone B (orange shaded, where mapped) designates an area of moderate flood hazard, the area between the limits of the 100-year and 500-year flood levels. Zone C and Zone X (unshaded) designates an area of minimal flood

hazard, outside the mapped 100-year or 500-year flood level, as appropriate. Zone D designates an area with possible but undetermined flood hazards that have not been mapped. Some areas have been mapped but have not been digitized (dot shading). An image pulled from the relevant FEMA flood map is shown in the figure below.

Based on the data in the site map above, the site is Zone X and is outside the 100-year and 500-yr floodplain. The nearest area of Zone A and Zone AE are in the floodplains of Diamond Lake approximately 1.32 miles to the northeast. There is no reported base flood elevation of the lake, but the normal water elevation of the lake is approximately 900± feet MSL, which is approximately 62± to 63± feet below existing site grades according to site elevations in Google Earth. Given the Zone X designation and distance to the Zone A and Zone AE areas, the risk of large-scale flood potential is considered to be low.

Field Exploration Summary

The following locations were sampled with soil borings to explore the subsurface conditions at the site:

Boring	Boring Type	Location	Surface Elevation (ft TBM)	Depth of Boring (ft)
B-1	Building	North Side	95±	15
B-2	Building	South Side	95±	15
B-3	Building	Center	96±	15
B-4	Pavement	North Entrance Lane	95±	15

The borings were located in the field utilizing handheld GPS technology. Prior to mobilization to the site, the boring location plan was georeferenced and the boring coordinates plotted for field location. The horizontal accuracy of GPS unit is estimated to be 10± feet in open areas and 20± feet in wooded areas.

Boring elevations were determined by the drilling crew while on site using conventional leveling techniques. The top of nut on the fire hydrant on the northwest corner of the site, just northeast of the existing commercial building, was used as the temporary benchmark and assigned the arbitrary elevation of 100 feet. This benchmark is estimated to be near elevation 970± feet MSL, but cannot be confirmed with survey data at the time of this report. If the mean sea level elevation of this temporary benchmark can be provided to Kilo, this report can be updated to include MSL elevations. The vertical accuracy of the boring locations is estimated to be 1± feet.

Soil borings for the site were performed and completed by Kilo Engineering on April 9, 2026. Hollow-stem augers were used to advance the borings. Samples were taken at half-flight intervals to a depth of 10 feet below existing site grades, and every five feet thereafter. Samples were recovered using split-spoon sampling techniques in general accordance with ASTM D1586. Field data, including boring number, sample depth, soil classification, and SPT N-value were recorded in the field and a representative soil sample was placed in a glass jar to minimize moisture loss.

The soil samples were delivered to Kilo's soil engineering laboratory for a limited number of engineering property tests. These tests included:

- USCS Soil Classification (ASTM D2487 and D2488)
- Moisture Content (ASTM D2216)
- Percent Passing the #200 Sieve (ASTM D1140)
- Particle Size Analysis of Soils (ASTM D422)

The soil stratigraphy encountered in the field exploration is generalized in the table below:

Soil (USCS)	Soil Description	Soil Color	Depth Range (ft)	Moisture Content Range (%)	SPT N-value Range (bpf)*
OL	Surficial Organic Soil	Black	0± to 1 ½± feet	-	-
FILL	Clay Fill	Black	2± to 5± feet	24% to 34%	7 to 18
CL-ML	Silty Lean Clay	Light Brown, Brown, Gray	2± to 7± feet	21% to 30%	5 to 19
CL	Sandy Lean Clay	Black, Brown, Dark Gray	2± to 15± feet (Termination Depth)	18% to 31%	6 to 13

*BPF – blows per foot

The shallow site soils encountered in the field exploration were compared to the mapped Web Soil Survey prepared by the Natural Resources Conservation Service. This service has mapped soil properties for 95% of the United States. At this location, there are a couple mapped soils that consist of the Le Sueur loam, and the Cordova loam. The table below represents the sand and clay particles in the upper soil profile, and the NRCS descriptions for reclamation and small commercial buildings. It should be noted that the underlying soil sampling for this database was primarily for agricultural purposes, and only covers the approximate upper eighty inches of the soil profile.

Soil Type (WebSoil)	Boring Encompassing Area	Percent Sand	Percent Clay	Suitability for Reclamation	Suitability for small commercial Building
Le Sueur	B-1, B-2, B-3	33 to 39	24 to 30	Fair	Somewhat Limited
Cordova	B-1, B-4	35 to 42	21 to 32	Fair	Very Limited

Soils are not homogenous and may change both vertically and laterally between the boring locations. Clear separation between strata may not be observed in the field, with gradual transitions between soil types encountered. The general soil description above is generalized for convenience. Full details regarding the soils encountered during this exploration are included in the boring logs in the appendix of this report, including soil descriptions, penetration resistances, moisture contents, and completed laboratory testing to define soil engineering properties. Water level observations are only valid for the time and locations sampled and may vary substantially with time. The samples not altered by laboratory testing will be stored for 30 days from the date of this report and then disposed of unless retention is requested by the client. Storage fees for soils retained beyond 30 days may apply.

Groundwater Observations

Shallow groundwater was encountered during and at the completion of drilling activities in all four of the completed borings on site. This groundwater was encountered at depths ranging from 8± to 10± feet below existing site grades (elevations 85± to 87± feet TBM). Based on the observed moisture contents, changes in colorization, and the soil types encountered, the static groundwater is anticipated to be below the zone of planned construction. If groundwater seepage is encountered during construction, it is anticipated that it can be controlled using conventional sumping techniques. If larger or uncontrollable amounts of seepage are encountered, Kilo should be contacted for additional recommendations. Perched groundwater conditions may be encountered due to the low permeability of the upper site soils. Kilo recommends that the contractor determine the actual groundwater level on site at the time of construction.

The groundwater observations noted on the boring logs represent the groundwater conditions at the test boring locations at the time of sampling. It should be expected that the groundwater levels will fluctuate at least several feet seasonally and depending on climatic conditions and precipitation. The possibility of groundwater level fluctuation should be considered when developing the design and construction plans for the project. Short-term dewatering may be required to facilitate foundation construction, depending on climatic conditions at the time of construction.

GEOTECHNICAL HAZARDS RECOMMENDATIONS

Geotechnical Hazard Identification

The following table summarizes the potential geotechnical hazards observed on site with a limited description of the potential remedial actions included. Full descriptions of the remedial actions are included below the table.

GEOTECHNICAL HAZARD	PRESENT?	REMEDIATION METHOD
Surficial Organic Soil	Yes	1-½± feet of cut to remove surficial organic soils
Organic Soils at Depth	No	
Undocumented Fill	Yes	Possible fill from the removal of the stormwater feature on the north side of the site from the observed historical aerial photos
Previous Site Disturbance	Yes	Site has an existing commercial building adjacent to where borings were tested
Previous Site Structures	No	
Loose Granular Soils	No	
Soft Cohesive Soils	No	
Moisture-Sensitive Soils	Yes	Moisture condition or replace
Limited Reuse of Site Soils	No	
Mass Grading	Yes	Raise grades to FFE
Shallow Bedrock	No	
Shallow Groundwater	Yes	Groundwater observed in all of the borings at depths of 8± to 10± feet below existing site grades
Perched Groundwater	No	
Flood Risk	No	
Environmental Concerns	No	
Unsuitable Soils at Foundation Level	No	
Wet Soils at Foundation Level	No	
Buried Obstructions	No	
Building Additions	Yes	Building addition foundations should be structurally connected to existing foundations; slabs separate
Deep Foundations Recommended	No	
High Settlement Potential	No	
Swell, Shrinkage, or Collapse	No	
Karst or Subsidence	No	
Pavement Drainage Concerns	Yes	Localized low-permeability soils present near anticipated pavement subgrade elevation
Infiltration Limitations	Yes	On-site cohesive soils have low permeability
Seismic Concerns	No	
Liquefaction Concerns	No	
Earth Retention Concerns	No	
Slope Stability Concerns	No	

Geotechnical Hazard Remediation

A deposit of surficial organic soil was encountered within the building and pavement areas extending to depths of 1-½± feet below existing site grades. Organic soil depths and consistencies should be anticipated to vary across the site. The term “surficial organic soil” is used here in lieu of the word “topsoil” since the material was not tested for suitability for landscaping or agricultural purposes. The surficial organic soil generally consisted of silty sand or sandy silt soils with roots and organic material.

The surficial organic soil is not suitable for support of foundations or foundation supporting fill in its current condition due to the presence of roots and organics. Soils containing more than 3% organics by mass should be used in green areas or disposed of offsite. The depth and extent required for unsuitable soil removal should be determined by a representative of a qualified special inspections firm at the time of construction.

Some of the near-surface soils have likely been disturbed as part of the construction of the adjacent commercial property to the west of the site, and from the detention feature that once appeared to the north of the site. Existing utilities (if present) that are not planned to be part of the proposed development should be properly sealed and removed from the site. "Undocumented Fills" are soils that have been previously disturbed by man-made activities and have an unknown or undocumented history of compaction as part of the previous site disturbance. **Undocumented fill soils were observed up to 4± feet below existing site grades in two of the building borings and up to 5± feet in the pavement boring.** These materials can be highly variable in material composition and compaction quality. Due to this unknown condition, these soils should be either removed and replaced with engineered fill as described in the "Subgrade Preparation" section of this report or may be stabilized in place under proposed pavement areas, depending on the condition of the materials at the time of construction. Undocumented fill soils below foundation elements should be removed and replaced by engineered fill prior to foundation construction. The materials should be evaluated by a qualified special inspections firm at the time of construction.

The silty lean clay and sandy lean clay soils will be highly moisture susceptible and will quickly lose strength if they are allowed to become saturated and become disturbed by construction activities. Therefore, the subgrade soils should be protected from the entry of moisture once exposed. Soil subgrades should be surface-compacted at the end of each workday to minimize any potential precipitation infiltration. Whenever possible, maintaining a 2% grade to allow for surface runoff of the subgrade is recommended, with areas to collect runoff until permanent stormwater features can be constructed. Soils that become excessively wet should be allowed to dry and may be recompacted in place. Soils that cannot be dried to within their compactible limits should be removed and replaced with engineered fill as noted in the "Subgrade Preparation" section of this report.

Kilo has not been provided a proposed grading plan for the site. This report is based on the cuts of 1-½± to 4± feet to remove the surficial organic soils and undocumented fill soils and fills on the order of 3± to 5± feet in the building area to achieve a design finished floor elevation of 96± feet TBM. Cuts and fills on the order of 5± feet are planned to achieve design site grades in the pavement areas. Anticipated grading quantities are provided in the table below. Deeper localized cuts to match foundation elements may be required at the interface between the addition and existing foundations.

Boring	Building Location	Surface Elevation	Depth of Soil to Remove (ft)	Bottom of Cut Elevation	Fill Required to 96±TBM (ft)
B-1	North Side	95±	1 ½± (topsoil) 2 ½± (undocumented fill)	91±	5±
B-2	South Side	95±	1 ½± (topsoil)	93±	3±
B-3	Center	96±	1 ½± (topsoil) 2 ½± (undocumented fill)	92±	4±

Shallow groundwater was observed in each of the borings completed on site at depths ranging from 8± to 10± feet below existing site grades. These depths are generally anticipated to be below the zone of construction for the structure, but may impact the installation of site utilities and other deeper excavations on site. If limited groundwater is observed above the static groundwater level, it can likely be controlled using conventional sumping techniques. If excavations are planned below the static groundwater level, more intensive dewatering techniques, such as well points, may be required. The need for dewatering will be dependent on the climatic conditions at the time of construction, including precipitation, runoff, and temporary grading during construction.

The proposed building addition should plan on foundation bearing elevations matching that of the foundations for the existing structure on site. In the event that these elevations are unequal, the surcharge load from the new foundations will impart a horizontal force on the existing foundations. The foundation depths may step up to standard frost depths away from the existing foundations at a rate of not more than 2H:1V. The foundations for the new addition should be structurally connected to that of the existing structure, but the floor slab and foundation wall elements should be allowed to move independently of the existing structure. Some differential settlement, on the order of 1/4 inch, should be anticipated between the existing structure and the addition, since settlement is likely complete in the existing structure. While this amount of settlement is generally tolerable, consideration of settlement tolerances at door openings and other features at the interface between the addition and existing structure should be reviewed as part of the construction planning process.

The site hydrology will be modified by the development of the site. Precipitation that previously would infiltrate into the soil will instead generate runoff when an impervious surface, such as a building, slab, or pavement, is encountered. This additional peak runoff may require temporary site storage and treatment, depending on local regulations. Moisture should not be allowed to collect near the building foundations, and the site should be sloped to drain. It may be possible to grade the site to drain to stormwater features directly, or a private storm sewer system with catchments and pipelines to the stormwater feature may be necessary. The on-site soils have a low permeability, and detention is recommended for stormwater management.

The sandy lean clay and silty lean clay soils encountered near the surface on this site have a relatively low permeability and will only absorb nominal amounts of moisture applied to the surface. For the stormwater features, lean clay soils may be used to create at-grade detention features as described in the “Stormwater Management” section of this report. The majority of the precipitation on the site should be planned to be controlled as surface runoff due to the limited infiltration capacity of the on-site soils over the majority of the site. Site grading should be completed in a manner to slope pavements and green areas away from the proposed building and towards the proposed stormwater features or a storm sewer collection system, as appropriate. The proposed pavements should daylight into green areas, the stormwater features, or a storm sewer collection system.

The following geotechnical related recommendations have been developed in order to minimize the risk of the hazards identified above and to accommodate the proposed construction as described in this report. These recommendations are based on the owner and their design team incorporating these recommendations into the project plans and specifications and that appropriate construction quality control is utilized and verified with independent construction material testing under the direction of a licensed professional engineer in the state of Minnesota. If changes in the planned

construction occur, Kilo should review the scope and magnitude of the proposed changes with revised recommendations as appropriate.

CONSTRUCTION RECOMMENDATIONS

Subgrade Preparation

Preparation of the subgrade is an important prerequisite to foundation, slab, and pavement performance. The subgrade preparation generally consists of four major components as described below:

- Removal of unsuitable soils
- Scarification, moisture-conditioning, and compaction of the final cut subgrade
- Placement, compaction, and testing of new engineered fill to achieve site grades
- Protection of the subgrade from moisture, ruts, and loosening prior to final surface cover

Prior to the placement of new fill or preparation of the construction area subgrade, Kilo recommends that the surficial vegetation, soils containing organic material, trees including root bulbs, encountered debris greater than three inches in diameter, and frozen soils (where present during construction) be removed from within and a minimum of 10 feet beyond the proposed building and pavement areas. Soils containing organic material will be unsuitable for reuse on site due to their deleterious nature and unfavorable settlement characteristics. Soils containing organics should be disposed of offsite or used in landscaped areas. Unsuitable soils that do not contain organics, such as wet, soft, or loose mineral soils encountered should be selectively undercut and/or stabilized in place. Undocumented fill soils (where encountered) should be removed entirely from below building foundations, but may remain in place under the building floor slab and pavements provided these materials pass proofroll operations as noted below. A representative of a qualified special inspections firm working under the direction of a qualified geotechnical engineer should determine the need for and means of stabilization at the time of construction.

After stripping and excavating the unsuitable soils described above, the subgrade should be compacted to a minimum of 95% relative compaction (to the standard proctor, ASTM D698) or to more stringent requirements as described in the table below. The compaction of the exposed subgrade should be tested prior to the placement of engineered fill, foundations, or final surface cover. One means of testing large areas such as the slab on grade and pavement areas is a proofroll test. Proofrolling should be performed with a steel drummed vibratory roller where granular soils are present at subgrade elevations, or a fully loaded tandem axle dump truck or rubber-tired vehicle with a minimum axle load of 18 kips where cohesive soils are encountered. Soils that are observed to rut in excess of one inch under the moving load or have elastic deformations in excess of one-half inch should be remediated prior to placement of engineered fill. Remediation may consist of either moisture conditioning, scarification and recompaction, or placement of new engineered fill. Cut material generated by these operations may be moisture conditioned and compacted as a source of engineered fill, used in landscape areas, or disposed of offsite.

The compaction, proofrolling, and undercutting activities should be witnessed by a representative of the special inspections firm under the direction of a qualified geotechnical engineer licensed in the state of Minnesota. Kilo provides construction observation and special inspections services, and can

provide a scope of work for this service. Proofrolling should be performed following a warm and dry period, which may limit the need for surface repairs to localized areas. If subgrade preparation, compaction, or fill placement activities occur during wet periods or during cool weather, additional remedial actions to repair the proofrolled surface should be anticipated.

Newly placed engineered fill required to establish site grades should be free of organics, frozen soils, ice, debris in excess of three inches, and other deleterious materials. Predominantly silt soils are not recommended for use as engineered fill due to concerns with moisture control and material workability. Due to the underlying cohesive soils, sand soils are not recommended for fill due to the risk of ponding water in these sand soils above the low-permeability native soil materials. Imported fill should consist of lean clay soils with a maximum liquid limit of 45 and a minimum plasticity index of 12 or a clayey sand with a minimum of 30% of the material passing the #200 sieve. A limited volume of clean sand soils will be required for the building floor slab subgrade. The material excavated for the below-grade detention feature that classifies as lean clay may be used as a source of engineered fill for mass grading. A qualified special inspections firm or accredited soil engineering laboratory should test the proposed import soils for gradation or plasticity characteristics as appropriate prior to import. Approved soil imports should be tested for optimum moisture content and maximum laboratory dry density in accordance with the Standard Proctor, ASTM D698. Depending on the proposed use of the newly placed engineered fill, the soils should be compacted to the relative densities noted in the table below.

Material Tested	Min % Dry Density (D698)	Moisture Content Range	Frequency of Testing
Pavement Subgrade - Top 3 feet	100%	-2 to +2%	1 per 200 cy of fill placed or 1 per 5,000 square feet minimum of three tests per lift
Fill under Foundation Elements Lateral Oversize under Foundation Elements	98%	-2 to +2%	1 per 200 cy of fill placed or 1 per 2,500 square feet minimum of three tests per lift
Mass Grading Fill not covered above Utility Trench Backfill Below-Grade Wall Backfill Floor Slab Subgrade Pavement Subgrade Deeper than 3’	95%	-3 to +3 %	1 per 200 cy of fill placed or 1 per 5,000 square feet minimum of three tests per lift
Random Fill (non-load bearing/Green Space)	92%	-3 to +3 %	1 per 3,000 cy of fill placed or 1 per 10,000 square feet minimum 1 test per lift

To achieve the design relative compaction values noted in the table above, the compaction equipment should be matched to the proposed material and proposed use. Granular soils subject to full-size, smooth-drum compaction equipment (minimum ten tons) may be placed in 12-inch loose lifts prior to compaction. Cohesive soils subject to full-size, sheepsfoot compaction equipment (minimum ten tons) should be placed in 8-inch loose lifts prior to compaction. Material subject to lightweight compaction equipment, including walk-behind compactors, jumping jacks, or plate compactors should be placed in 6-inch loose lifts prior to compaction. All newly placed engineered fill should be placed in horizontal lifts, not parallel to existing slopes. Moisture control should be exercised during material placement to maintain moisture contents within the ranges of the optimum moisture content noted above. If soils are not within the recommended moisture contents, these soils should be spread thinly and allowed to dry or water should be added

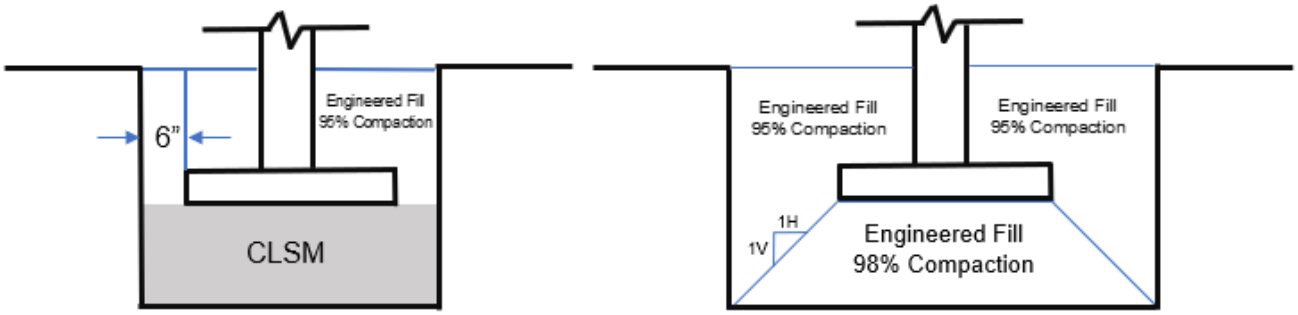
uniformly through the material by disking or scarifying. Compaction tests should be performed by a qualified special inspections firm on every lift of new engineered fill at the frequencies noted in the table above. Newly placed engineered fill should extend a minimum of 10 feet beyond the edges of proposed building areas and a minimum of 5 feet beyond the edges of pavement areas.

Conventional Shallow Foundation Recommendations

Kilo has based this report on the proposed finished floor elevation of 96± feet relative to the temporary benchmark, cuts of 1-½± to 4± feet to remove surficial organic soils and existing fill soils, and fills on the order of 3± to 5± feet are anticipated within the building area. If the proposed building elevation varies from this elevation, Kilo should be contacted in writing to verify the validity of the recommendations provided in this report. **The foundations for the new addition should bear at the same elevation as the foundations for the existing construction for all continuous wall foundations.** Based on this proposed finished floor elevation, the associated bottom of footing elevations accounting for local frost depth requirements are estimated to be 92± feet relative to the temporary benchmark. The soils at this elevation are anticipated to consist of the existing native silty lean clay soils, undocumented fill soils, or newly placed engineered fill after the removal of existing unsuitable soils as noted in this report.

Based on the reported structural loads, the soils observed in the field exploration, and the engineering properties noted in the laboratory testing, the proposed building can be supported by conventional continuous shallow foundations at the proposed walls and columns. Kilo recommends foundations be designed to bear upon either the existing granular soils or newly placed engineered fill that has been placed and compacted as recommended in this report. Prior to any new engineered fill placement, the soils at the base of excavations should be observed and tested by a qualified special inspections firm prior to engineered fill placement. Suitable bearing soils were observed at depths of 2± to 5± feet below existing site grades but may vary between boring locations.

If unsuitable soils are encountered at a foundation excavation, a soil correction will be required. This excavation should be extended to competent soils that meet field strength testing requirements. The resulting overexcavation can be backfilled with controlled low-strength material (CLSM), sometimes referred to as lean fill, that extends six inches beyond the face of the proposed foundation element in each direction. Alternatively, the overexcavation can be backfilled with engineered fill as defined in this report extending at a minimum one horizontal to one horizontal (1H:1V) ratio beyond the face of the foundation element. This new engineered fill should be compacted to a minimum of 98% relative compaction as noted in the “Subgrade Preparation” section of this report. This will require widening and deepening the area to be corrected with engineered fill from conventional foundation excavations. Alternatively, foundations can bear at the bottom of excavation with additional structural materials (foundation walls or column bearing piers) to proposed surface grades.



The proposed building can be supported on conventional shallow foundations with allowable bearing pressures as noted in the table below. These bearing capacities are based on the soil materials at proposed bearing elevations above with appropriate testing of the subgrade, newly placed engineered fill, and overexcavations as noted. Excavations should extend to the depths noted for adequate frost protection in accordance with local frost depths. The minimum foundation size for column foundations of 30 inches square and wall foundations of 18 inches wide should be followed to minimize the risk of punching shear failures. This minimum foundation size should be utilized even if narrower foundations would be allowable given the allowable bearing pressures noted below.

Foundation Type	Depth Below Adjacent Grades (in)	Proposed Maximum Load	Maximum Allowable Bearing Capacity (psf)
Interior Column Foundations	24	150 kips	2,000 after correction
Exterior Column Foundations	42	150 kips	2,000 after correction
Continuous Wall Foundations	42	5.0 kips/foot	2,500 after correction

The depth of code-required frost penetration design is dependent on whether the structure is designed to be heated or unheated. Exterior footings in heated areas, such as permanently climate-controlled buildings, should be located at a depth of at least 42 inches below the final exterior grades as required by the State of Minnesota for sites in the southern half of the state, including Hennepin County where the site is located. **The continuous wall foundations should bear at the same elevation as the existing wall foundations at the interface between the existing and new construction.** Isolated unheated foundations for unheated structures, signage, canopies, and exposed vestibules should be located at least 60 inches below the final exterior grades. If the foundation soils will be exposed to freezing temperatures during or after foundation construction, then the footings and concrete should be adequately protected from freezing. Soils should be allowed to thaw prior to the placement of additional foundations or slabs. Otherwise, interior footings can be located on the native soils or newly placed engineered fill at shallower depths below the floor slab, compatible with architectural and structural considerations.

Foundation excavations should be tested prior to concrete placement to verify the field conditions are consistent with those recommended in this report. One means of testing native, undisturbed soils is the use of the dynamic cone penetrometer in accordance with ASTM Special Technical Publication (STP) 399, “Dynamic Cone for Shallow Penetration Testing” by George F. Sowers. This test method correlates the results of a specific dynamic cone penetrometer testing apparatus to SPT N-values and associated allowable bearing capacities. Testing should be completed at spacing no greater than every 25 feet

along continuous foundations and a minimum of one test per every isolated column foundation. Based on the allowable bearing pressures noted in the table above, the penetrometer values should be consistent with a SPT N-value of 6 or 7 blows per foot or greater at each test location.

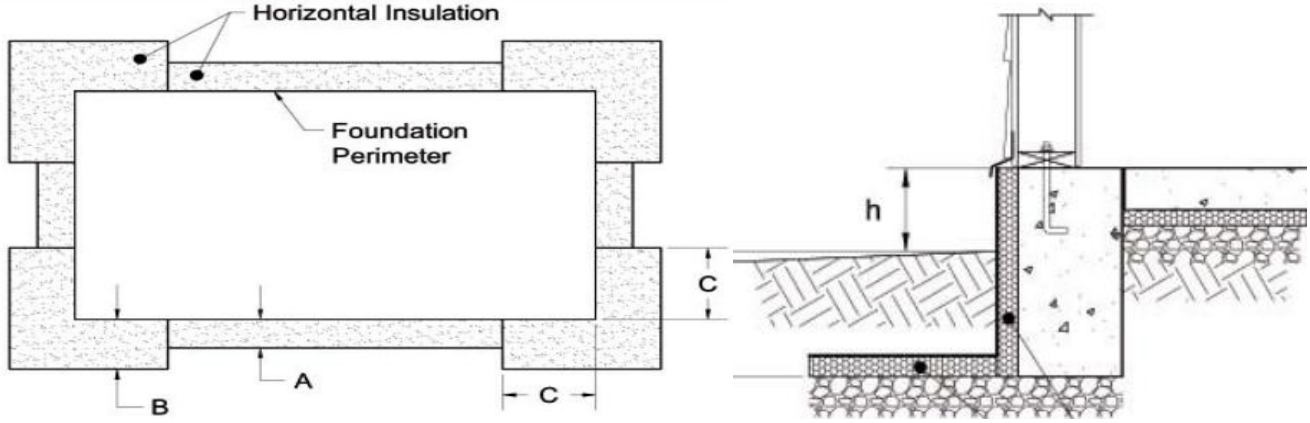
During excavations, soils should be protected from changes in moisture content. The addition of water into soil subgrades can negatively impact the shear strength of the soil and material workability. Subgrade soils should be protected from site runoff by maintaining proper site drainage from prepared site subgrades to non-structural areas of the site. Wet soils should be properly moisture conditioned prior to the placement of new engineered fill soils. Foundation, slab, and pavement concrete should be placed as quickly as possible to minimize degradation of the subgrade surface due to wetting and drying.

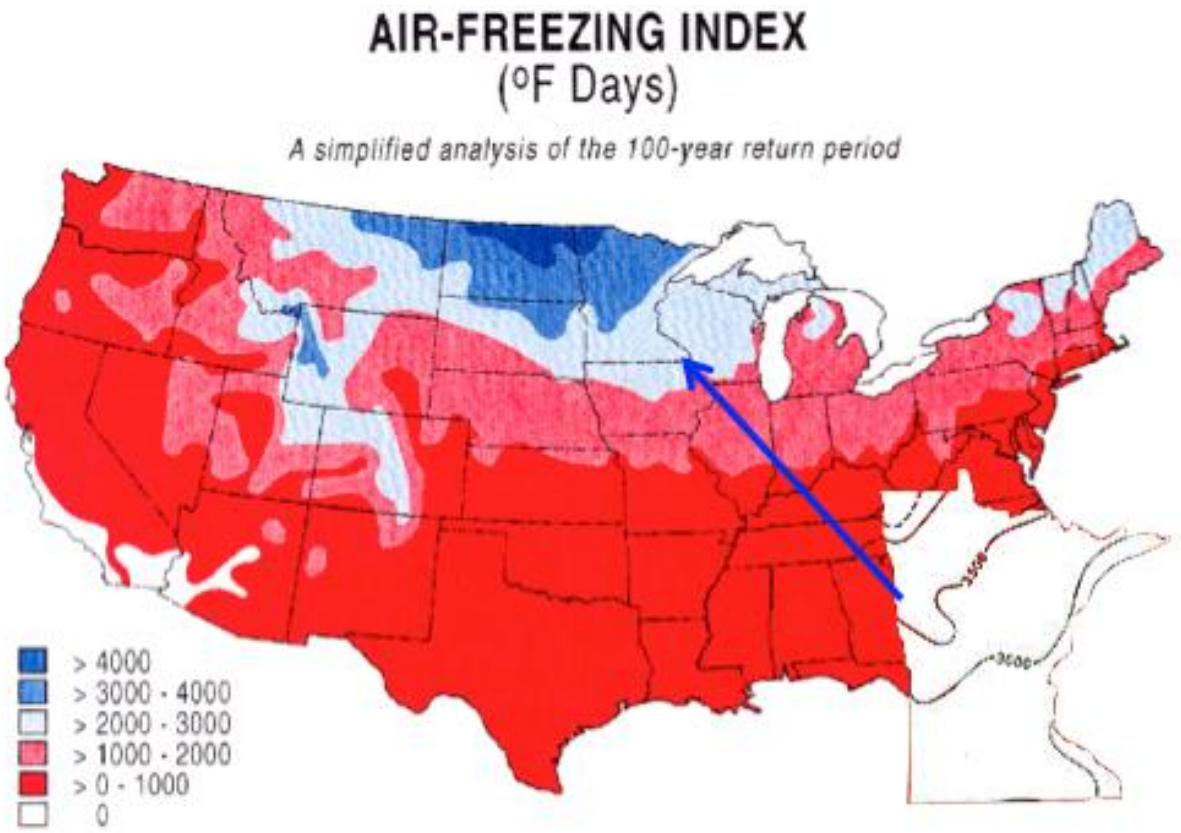
The proposed foundation system has been evaluated for settlement potential based on the soil properties described in this report. Kilo estimates that the total foundation settlement for the foundation system is one inch. Differential settlement between adjacent column foundations or between 30-foot spans of continuous is estimated to be one-half inch. This settlement estimate is based on the subgrade materials being prepared as noted in the "Subgrade Preparation" of this report, including the minimum compaction requirements and the use of settlement plated in areas of deeper fill placement for site grading. Generally, this level of differential settlement is tolerable but should be verified by the structural engineer of record. Sensitive materials such as masonry walls should be designed to minimize cosmetic damage from differential settlement with properly placed control joints.

Frost-Protected Shallow Foundation Recommendations

As an alternative to conventional shallow foundations, Kilo understands that the lightly-loaded structures are frequently designed as frost-protected shallow foundations (FPSF) utilizing a thickened slab at the perimeter of the building to support the wall loads, with the majority of the structure bearing on column foundations at both interior and exterior locations. Based on the soil conditions observed in this exploration, this structural system may be utilized given the parameters noted below.

The site is located in south-central Minnesota, with an estimated air-freezing index of 2,500°F-days based on the map below. This air-freezing index dictates the required insulation R-value, depth of thickened slab bearing, and dimensions of the installed insulation for the FPSF system.



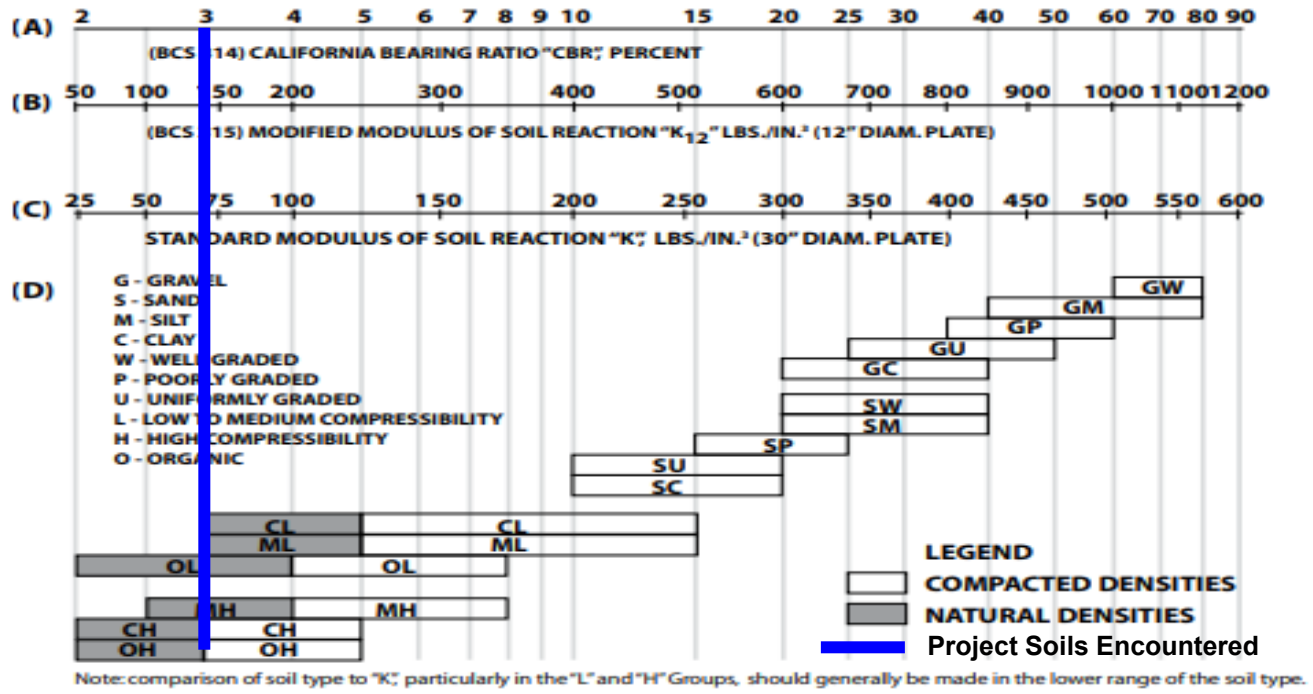


The values recommended below are based on ASCE 32-01, "Design and Construction of Frost-Protected Shallow Foundations". The insulation should be placed on properly compacted, unfrozen ground, and protected during installation from damage. Backfill should be placed using light equipment above the horizontal insulation. The values listed in the table below are minimum values for design. The area should be graded for proper drainage away from the foundation. The foundation should be embedded a minimum of 18 inches below the exterior grades, and the horizontal insulation should have a minimum cover depth of 12 inches below exterior grades. No more than 12 inches of vertical insulation should be exposed above exterior grades. Exposed insulation should be adequately adhered to the foundation and protected from environmental damage. This foundation system will still require the significant mass grading noted in this report. **The foundations at the interface between the existing and new construction shall bear at the same elevation as noted in this report.**

Design Parameter	Value	Unit
Minimum Vertical Insulation R-Value	6.7	UL
Minimum Horizontal Insulation R-Value Along Walls	1.7	UL
Minimum Horizontal Insulation R-Value at Corners	4.9	UL
Horizontal Dimension A	12	Inches
Horizontal Dimension B	24	Inches
Horizontal Dimension C	40	Inches
Minimum Foundation Depth	16	Inches
Allowable Bearing Pressure	1,200	Psf

Floor Slab Recommendations

The building floor slab is anticipated to be supported upon either properly compacted native soils or newly placed engineered fill. Both the subgrade and fill soils should be tested as noted in the "Construction Recommendations" section of this report. The chart below is an excerpt from "Slab Thickness Design for Industrial Concrete Floors on Grade" by Robert G. Packard (1976) with the Portland Cement Association, a commonly referenced chart in the Civil Engineering Body of Knowledge that correlates soil types to a range of subgrade modulus and California Bearing Ratio (CBR) values.



Utilizing this chart, Kilo recommends the following values be used for floor slab design.

Design Parameter	Value	Unit
Subgrade Modulus k_{12}, 12-inch square plate load test	140	lb/in^3
Subgrade Modulus k_{30}, 30-inch circular plate load test	70	lb/in^3
California Bearing Ratio (CBR)	3	Percent
Select Granular Fill Minimum Thickness Below Slab	6	Inches
On-site soils suitable for reuse as Select Granular Fill	No	

Kilo recommends that select granular fill be placed below the floor slab with the minimum thickness noted in the table above. Select granular fill should be a free-draining material with a maximum of 5% of the material retained on the #200 sieve and a minimum of 50% of the material retained on the #40 sieve by mass. These soils are not likely to be encountered on site, and will have to be imported. Floor slabs should have a vapor retarder in accordance with ACI 302 "Guide to Concrete Floor and Slab Construction". This guidance document recommends polyethylene sheeting placed directly under the floor slab to minimize moisture penetration from the soil subgrade below if sensitive floor finishes are

present and that the vapor retarder is below the select granular fill if slab curling or deformation is a concern. Properly spaced control joints should be utilized to minimize random cracking of the slab due to shrinkage, curing, and curling forces.

The existing native surficial organic soils and native lean clay soils have a moderate to high susceptibility to frost heave if not removed from the subgrade. The slabs placed in unheated areas, such as sidewalks, should be designed to resist frost heave, or the subgrade should be replaced with non-frost susceptible soil to minimize the potential differential movement of the slab. The subgrade should be overexcavated 12 inches below the planned bottom of slab elevation and replaced with select granular fill, consisting of sand soils with less than 50% of the material passing the #40 sieve by weight and less than 5% of the material passing the #200 sieve by weight. The newly placed fill should be compacted to a minimum of 95% of the maximum dry density as determined by the Standard Proctor test (ASTM D698).

Seismic Design Recommendations

Although the site is in a region with low seismicity, the site is in a municipality that employs the 2021 International Building Code (IBC). The 2021 International Building Code (IBC) requires that a site class be determined based on soil type for the calculation of earthquake design forces in structures. Based on the observed depth to rock and the estimated shear strength of the soil at the boring locations, Site Class "D" is recommended. If shallower rock or stiffer soils are encountered deeper than the depth of Kilo's borings, Kilo should be notified in writing in order to make appropriate modifications to the seismic design recommendations contained in this report. The USGS-NEHRP probabilistic ground motion values interpolated between the nearest four grid points from latitude 45.1913°N and longitude 93.5412°W are as follows:

Period (S)	2% Probability of Event in 50 Years	Site Coefficient	Maximum Spectral Design Acceleration	Spectral Design Acceleration Parameters	
0.2 (S_s)	5.4	F_a = 1.6	S_{ms} = 7.4	S_{Ds} = 4.9	T_0 = 0.20
1.0 (S_1)	3.2	F_v = 2.4	S_{m1} = 7.5	S_{D1} = 5.0	T_s = 1.02

Sms = FaSs SDs = ⅔*Sms T0= 0.2*SD1/SDs
Sm1 = FvS1 SD1 = ⅔*Sm1 Ts= SD1/SDs

The seismic parameters for this report were accessed via SeismicMaps.org, which is based on USGS seismic data for the contiguous United States. The site coefficients, maximum spectral accelerations, and design parameters are based solely on this source and the underlying USGS data. The risk category utilized is based on occupied, non-essential structures but should be verified with the architect, structural engineer, or building official as appropriate. This determination is beyond Kilo's scope of services.

Pavement Recommendations

Kilo has provided recommendations for pavement construction based on the existing unsuitable soils being removed from the surface, properly compacted subgrades, and properly compacted engineered fill to achieve design site grades. If the existing site soils are not prepared in this manner, undesirable performance of the pavements may result. Any observed soft or loose locations should be selectively

subcut and replaced with suitable engineered fill, or stabilized in place using engineered fill, aggregate base, or open-graded clean crushed stone.

Kilo has based the pavement sections in the table below on the traffic loadings noted in this report and the soil conditions noted in this report. If traffic loadings vary from those stated, modifications to the pavement sections may be required. The site soils are anticipated to be fair to good materials with a minimum CBR value of 3. If higher quality materials are used for engineered fill that exceed this value, Kilo should be contacted to value-engineer the pavement sections if appropriate. These pavements have been designed only for the anticipated garbage and delivery truck service. The following pavement sections have been recommended based on ATHIRDTO 1993 methodologies and the following design parameters:

- Design Life: - 20 years
- Initial Serviceability - 4.2
- Terminal Serviceability: - 2.0
- Reliability: - 85%
- Standard Deviation: - 0.45
- Drainage Factor – 0.9

If during the final design phase these values are determined to be incorrect, Kilo must be contacted to provide revised pavement recommendations. Based upon the soil borings, laboratory data and provided the subgrade soils are prepared as outlined in this report, the following flexible and rigid pavement section thicknesses are recommended for parking lot and drive areas in general accordance with AASHTO 1993 methodologies.

Pavement Type	Wear Course Thickness (in)	Base Course Thickness (in)	Aggregate Base Thickness (in)
Light-Duty Asphalt (100,000 ESALs)	1-1/2	2	8
Heavy-Duty Asphalt (250,000 ESALs)	2	2	10
Concrete (250,000 ESALs)	6		6

The pavement sections noted above are based on the traffic loadings noted in this report, which account for typical parking lot traffic from light-duty automobiles, retail deliveries, and garbage surface. Sites in northern climates can see significant truck traffic from snowplowing activities depending on the types of equipment used. If pickup-mounted snowplows are used, the effect may be minor, but heavy-duty trucks or front-end loaders used for snow clearing activities would increase the traffic loads on the pavements. If heavy-duty trucks or front-end loaders are planned for snow clearing activities, it may be advisable to add an additional half-inch of wear-course asphalt to the design section.

The granular base course should consist of well-graded crushed stone meeting the requirements from Section 3138 the State of Minnesota DOT Standard Specifications for Construction. The granular base course material should be placed and compacted to a minimum of 100% of maximum density as determined by the standard Proctor (ASTM D698). Also, a representative of a qualified special inspections firm working under the direction of a licensed professional engineer in the state of Minnesota should test and document the base course material for gradation prior to and during placement.

Asphaltic binder and surface courses should meet the gradation requirements from Section 3139 the State of Minnesota DOT Standard Specifications for Construction. Asphaltic courses should be placed and compacted to the minimum required density contained within Section 2360 of the State of Minnesota DOT Standard Specifications for Construction. An adequate number of in-place density tests should be performed during construction to document the placement compaction as recommended in the requirements of Section 2360.

The pavements should be sloped to provide positive surface drainage. Otherwise, a storm sewer system may be appropriate to carry away storm run-off water. Water should not be allowed to pond on or adjacent to the pavement as this could saturate the subgrade and cause premature pavement deterioration. The granular base course should be protected from water inflow along drainage paths. Additionally, the granular base course should extend beyond the edges of the pavement in low areas to allow any water that enters the base course stone a path for exit. Construction of the subgrade and pavements should be in accordance with the project specifications and the recommendations of this report.

A flexible pavement system is not recommended in dumpster pad areas and areas where heavy trucks will turn frequently or will be parked due to concerns about plastic deformations of the surface course. Based upon the anticipated traffic volumes, Kilo recommends a concrete pavement section consisting of 6 inches of crushed aggregate base course and 6 inches of Portland cement concrete as a rigid pavement replacement. The concrete should have a minimum compressive strength of 4,000 psi at 28 days and should be properly air entrained. The concrete must be properly reinforced and must have appropriately spaced control joints.

Stormwater Management Recommendations

As sites are developed, the construction of man-made impervious features such as pavements and building roofs reduce the capacity of a site to infiltrate stormwater into the subgrade and increases the peak runoff generated by a given land area in a given storm. As a result of the increase in impervious area, more of the stormwater volume becomes runoff instead of infiltrating into the ground. With this increase in impervious area, contaminants such as salts, sediment, and debris can be carried by the runoff and eventually pollute lakes, streams, and rivers.

In order to reduce the risks of this problem, the Minnesota Pollution Control Agency requires on-site storage, infiltration, and treatment of stormwater as part of the Stormwater Permit prior to discharge off-site. This is typically through the use of stormwater management ponds, below-grade storage, or as part of a capture and beneficial reuse process. No planned stormwater management areas are shown on the provided plans. This report is based on the soil types generally encountered on site, and additional exploration may be necessary once stormwater feature locations are available.

Hydrologic Soil Group	Design Infiltration Rate (in/hr)	Soil Textures (USDA)	Uscs Soil Types
A	1.63	Gravel Sandy Gravel	GW – Well-Graded Gravel GP - Poorly-Graded Gravel
	1.63	Silty Gravel Gravelly Sands Sand	GM – Silty Gravel SW – Well-graded Gravelly Sands SW – Uniformly Graded Sands
	0.8	Sand Loamy Sand Sandy Loam	SP – Gap-graded or poorly graded Sands
B	0.45		SM – Silty Sands, Silty Gravelly Sands
	0.3	Loam Silt Loam	MH – Micaceous Silts
C	0.2	Sandy Clay Loam	ML – Silts, Very Fine Sands, Silty or Clayey Fine Sands
D	**0.06**	Clay Loam Silty Clay Loam **Sandy Clay** **Silty Clay** Clay	GC – Clayey Gravel, Clayey Sandy Gravel SC – Clayey Sands, Clayey Gravelly Sands **CL – Low-Plasticity Clays, Sandy or Silty Clays** OL – Organic Silts and Clays of Low Plasticity CH – High-Plasticity Clays OH – Organic Silts and Clays of High Plasticity

*These values can be replaced by site-specific test values if infiltration testing is completed on site

The soil types encountered in this exploration are highlighted in the table above for reference. For this site, detention is generally a preferred option for newly constructed stormwater management features given the predominantly low-permeability sandy and silty lean clay soils on site. It may be feasible to utilize below-grade stormwater storage and infiltration below the pavement areas on site if additional storage volumes are required. Once stormwater feature locations are identified, it may be advisable to explore the area with additional shallow borings or test pits to verify that the soils encountered in this area are consistent with the design detention capacity.

Groundwater was observed in all of the borings at a depths of 8± to 10± feet, and no changes in soil colorization representative of seasonal high groundwater levels were observed above this depth. Given these observations, the groundwater observed at 8± to 10± feet would be considered a "confining layer". The bottom of feature will have to be within 5± feet of the existing site grades to maintain code-required separation above confining layers.

In order to create an at-grade detention feature, the bottom of feature needs to have a low-permeability base, such as a 24-inch-thick compacted clay liner with a permeability of 10^{-6} cm/s or lower or a geosynthetic clay liner to minimize infiltration at the base of the feature. Low-plasticity clays with a minimum of 75% of the material being classified as clay from hydrometer test, a maximum liquid limit of 45, and a minimum plasticity index of 12 can be used to create this liner if compacted in three 8-inch-thick lifts to 95% relative compaction at 0% to 4% above optimum moisture content. These materials were encountered on site but will require testing prior to the planned use since feature

locations are not known at the time of this report. Import materials or reused on-site soils should be tested for gradation, plasticity characteristics, and optimum moisture content prior to use as clay pond liners.

Regarding allowable slopes, slopes with a ratio of three horizontal to one vertical (3H:1V) are generally stable but may be difficult to construct and maintain. For this reason, maximum slopes of 4H:1V are recommended to allow for mowing and other maintenance equipment to operate on the side slopes. This reduced slope also reduces the runoff velocity and scour potential near the stormwater feature. The detention system is generally designed to reduce peak flows into municipal sewer systems from highly impervious developed sites. The system should be designed to account for the estimated runoff from a design storm by others. It should be noted that the authorized scope of work did not include infiltration testing to determine infiltration rates above those specified in the Minnesota Stormwater Design Manual. The scope of services did not include HydroCAD modeling of the site to determine runoff volumes. This should be completed by others after the proposed site plan has been completed for impervious area calculations.

Erosion Control Recommendations

Two main methods are utilized to control erosion both during construction and during the operations phases of a project – velocity dissipation and surficial armoring. These methods can be utilized separately or in tandem and may require stabilization measures along multiple points along existing slopes, including outside the bounds of this project. Without erosion control measures, surficial runoff can range from sheet flow to rills, gullies, and gulches, creating channelized flow for larger erosion events over time.

Velocity dissipation of stormwater runoff becomes important as flow rates increase from development. Prior to development, many surfaces absorb portions of precipitation through infiltration and have shallower slopes, reducing runoff velocity. As sites are developed, new impervious surfaces are introduced that do not infiltrate precipitation and also reduce the time to peak runoff flows. As a result, higher total runoff volumes and faster flow rates generate higher erosion potential of the subgrade downstream of developed areas. To mitigate this risk, velocity control measures such as silt fences, settling ponds, berms, rip-rap outlets, and other controls can be utilized to slow the flow of runoff leaving developed areas and reduce the erosion caused by such runoff. The intent of velocity dissipation is to reduce peak flow velocities and reduce the erosion potential of a given runoff volume.

In addition to velocity dissipation, surficial armoring can be used in high-flow or high-velocity areas to reduce the erosion of a soil subgrade. Surficial armoring is utilizing surface features to “cover” the soils from being eroded, and can consist of new or increased vegetation density, erosion control blankets, turf mats, and other surface cover features. Another alternative is using V-shaped concrete or rip-rap channels at planned stormwater outlets or along existing slopes to create channelized flow and minimize the surficial sheet flows. In order to utilize these armored channels, civil planning, including stormwater flow rates, collection systems, and dissipation systems have to be evaluated to locate and size the channel structures.

Providing site-specific, design-level erosion control details was beyond the authorized scope of Kilo’s services. The recommendations noted above are not intended to be an exhaustive list, and the specific

site conditions and erosion potential should be evaluated by the site civil engineer for the project.

RISK MANAGEMENT CONSIDERATIONS

Special Inspections During Construction

A qualified special inspections firm under the supervision of a professional engineer licensed in the state of Minnesota should be retained to provide observation and testing of construction activities involved in the foundation, earthwork, and related activities of this project. Kilo does not provide these services but can advise the client regarding firms who can perform these services. Kilo will not accept responsibility for conditions that deviated from those described in this report, nor for the performance of the foundation or pavement if a qualified special inspections firm is not engaged to also provide construction observation and testing for this project in accordance with the recommended testing frequencies in this report.

Moisture Sensitive Soils/Weather Related Concerns

Protection of the subgrade from changes in moisture content will be necessary for the subgrade to perform as designed. Increases in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. To minimize this risk, the exposed surface should be compacted prior to anticipated precipitation events and should be sloped to drain away from building and pavement areas until final surface wear courses (pavements and floor slab) are in place. Failure to maintain surface drainage may slow the progress of earthwork activities. Water should not be allowed to pond in excavations or upon prepared soil surfaces. Wet soils should be scarified, allowed to dry, and recompacted, or should be replaced by properly placed engineered fill. It will be advantageous to perform earthwork during dry weather to minimize moisture-related impacts on soil subgrades and associated strength loss.

Excavation Safety

This report was written to address the technical hazards anticipated for the site and the proposed project conditions. During the execution of the work, excavation work involving utility trenches, foundation excavations, and other below-grade penetrations. It is mandated that excavations be constructed in accordance with current Occupational Safety and Health Administration (OSHA) guidelines to protect workers and others during construction. Kilo recommends that these regulations be strictly enforced; otherwise, workers could be in danger and the owner(s) and the contractor(s) could be liable for substantial penalties. Kilo is providing this information solely as a service to our client. Kilo does not assume responsibility for construction site safety or the contractor's or other parties' compliance with local, state, and federal safety or other regulations.

Given that Kilo is not involved with the means and methods of construction, the contractor is solely responsible for designing and constructing stable, temporary excavations for the protection of workers and the general public. These responsibilities may include shoring, sloping, or benching the sides of the excavations as required to maintain stability of both the excavation sides and bottom. All soils should be considered "Type C" soils requiring the maximum protection requirements unless dictated otherwise by the contractor's "Competent Person" as defined in OSHA regulations for excavation

safety. The contractor's “Competent Person" should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

Utilities Trenching

Backfill for utility trenches is as important as the original subgrade preparation or engineered fill placed to support either a foundation or slab. Utility trench excavations have the potential to degrade the properties of the adjacent fill materials. Utility trench walls that are allowed to move laterally can lead to reduced bearing capacity and increased settlement of adjacent structural elements and overlying slabs and pavements. Therefore, it is imperative that the backfill for utility trenches be placed to meet the project specifications for the engineered fill of this project. Due to the narrow nature of utility trenches, larger compaction equipment cannot typically be used. Unless otherwise specified, the backfill for the utility trenches should be placed in 4 to 6 inch loose lifts and compacted to a minimum of 95 percent of the maximum dry density and within 2 percent of the optimum moisture content achieved by the standard Proctor test (ASTM D698). It may be advisable to utilize granular fill in utility trenches to allow for compaction with the lighter equipment typically utilized. Up to 4 inches of bedding material placed directly under the pipes or conduits placed in the utility trench can be compacted to 90 percent relative compaction with respect to the standard Proctor. Compaction testing should be completed at the minimum rates noted in the “Subgrade Preparation” section of this report, including testing each lift placed.

REPORT LIMITATIONS

The concept of risk is an important aspect of the geotechnical evaluation. Soils are non-homogenous and material properties may change across the project site and between locations sampled in the field exploration. Geotechnical engineers use a variety of analyses that include theoretical, mathematical, and empirical models to estimate the performance of a given set of soils under a given set of loads. Given the nature of the materials, these analyses do not always comprise an exact science. The analyses must be combined with engineering judgment and experience when developing recommendations. Due to potential variations in material properties on site at and away from Kilo’s field exploration, this geotechnical evaluation should not be considered risk-free. The interaction between the soils and the proposed structure may not perform as planned. The engineering recommendations presented in this report constitute Kilo’s professional estimate of those measures that are necessary for the proposed structure to perform according to the proposed design based on the information generated and referenced during this evaluation, and Kilo’s experience in working with similar conditions.

The recommendations submitted are based on the project information provided by the client, the subsurface information acquired during the field exploration, and Kilo’s engineering experience with similar projects. If project details were to change, including the type of construction, building loads, or location of features, Kilo should be contacted to verify the validity of their recommendations. If changes do not occur without Kilo having the opportunity to review the changes and revise their recommendations accordingly, Kilo accepts no responsibility for the impact of the changes on the project.

The geotechnical engineer has endeavored to adhere to generally accepted professional geotechnical engineering practices in the local area with the findings, recommendations, specifications, or professional advice contained in this report. No other warranties are implied or expressed. This report is based on the recommendations contained herein being incorporated into the project plans and specifications, adequate construction quality control measures are utilized, and that third-party special inspections or construction material testing is completed as noted in this report and as required by section 1705 of the International Building Code (IBC).

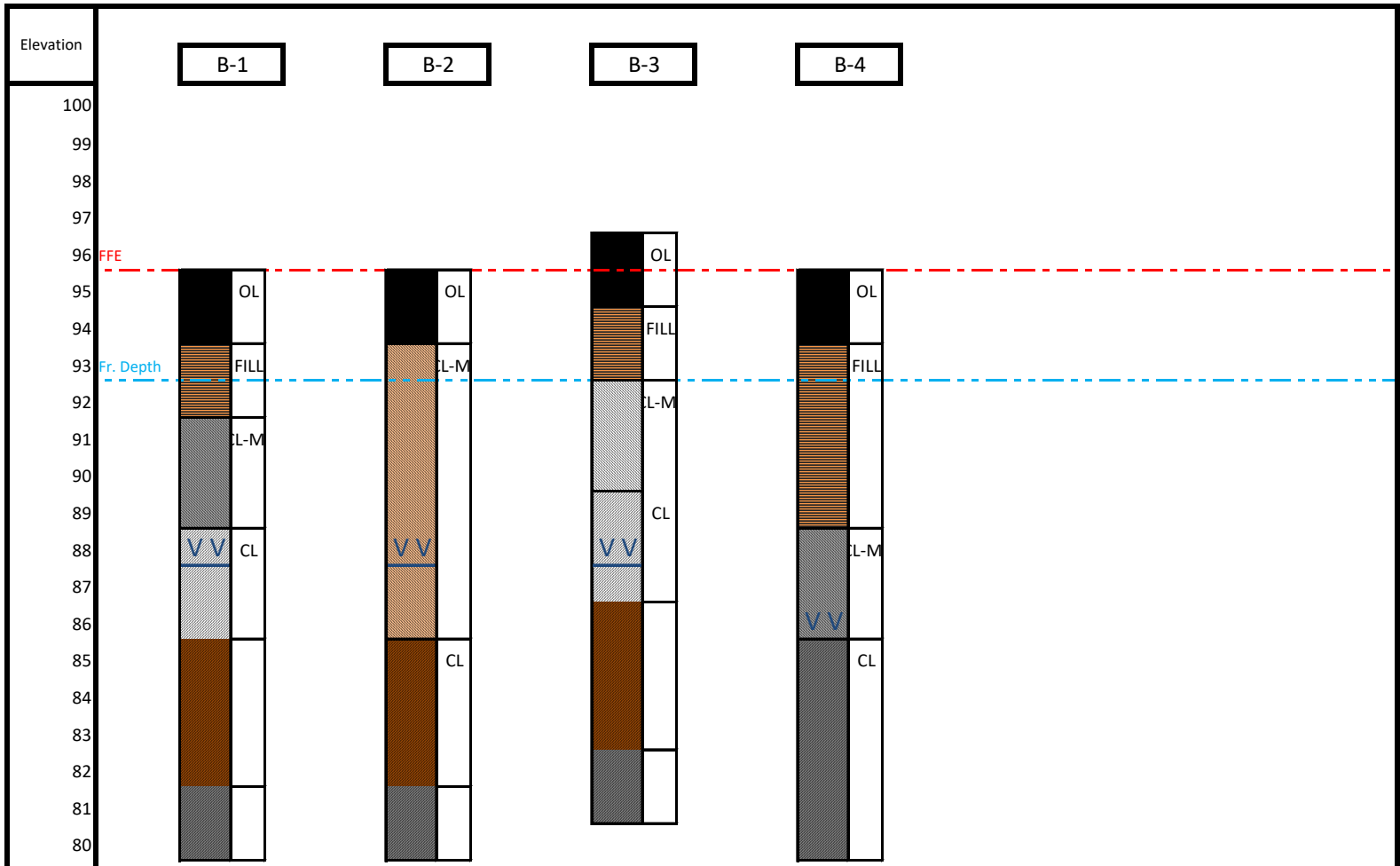
This report may be used only by the client, their design team, and only for the purposes stated, within three years from its issuance. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Kilo of such intended use. Based on the intended use of the report, Kilo may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kilo from any liability resulting from the use of this report by any unauthorized party.

LIST OF APPENDICES

Site Vicinity Plan
Boring Location Plan
Boring Logs
Geotechnical General Notes

Project Name:	Twin Cities Hose Addition	Proposed Site Vicinity Plan
Project Address:	20615 Commerce Boulevard	
City, State:	Rogers, Minnesota	
Project Number:	26-2130	

Project Name:	Twin Cities Hose Addition	Proposed Boring Location Plan
Project Address:	20615 Commerce Boulevard	
City, State:	Rogers, Minnesota	
Project Number:	26-2130	



Fence Diagram

Boring	1
thru	4

Twin Cities Hose Add.
20615 Commerce Blvd
Rogers, Minnesota
26-2130

Elevation Reference

Temporary Benchmark

Finished Floor Elevation

96 feet

Frost Depth Elevation

93 feet

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Minnesota

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Marine on Saint Croix, MN

Boring B-1

Drilling Crew:	Kilo	Boring Depth:	15 ft		Page 1 of 1
Drilling Rig:	Simco	Elevation:	95 ft TBM	Project Name:	Twin Cities Hose Add.
Drilling Date:	4/9/2026	GW During Drilling:	8 ft	Project Address:	20615 Commerce Blvd
Drilling Method:	H.S.A.	GW At Completion:	Not Observed	City, State:	Rogers, Minnesota
Sampling Type:	Split Spoon	GW At Delay:	--	Project Number:	26-2130
Drilling Foreman:	K. Elleson	Latitude:	45.19143°N	Boring Location:	Proposed Building
Logged By:	H. Giebel	Longitude:	93.54123°W		North Side

Depth	Sample	Recovery (in)	Symbol	Soil or Rock Description:	N-value	MC	PL	LL	PI	P200
0	GB		OL	Surficial Organic Soil (16" thick)		18				
2	SS	14	FILL	FILL, Sandy LEAN CLAY, trace Organics, Black, Moist, Stiff	1-3-7 N=10	24				
5	SS	10	CL-ML	Silty LEAN CLAY with Sand, Gray, Moist, Medium Stiff	1-2-3 N=5	30				
7	SS	18	CL	Sandy LEAN CLAY, Brown, Moist, Stiff	1-3-6 N=9	22				
10	SS	18	CL	Sandy LEAN CLAY, Brown, Wet, Stiff	1-3-10 N=13	21				
15	SS	18	CL	Sandy LEAN CLAY, Dark Gray, Wet, Stiff	2-2-6 N=8	19				

End of Boring at 15 feet - Boring backfilled with auger cuttings

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Marine on Saint Croix, MN

Boring B-2

Drilling Crew:	Kilo	Boring Depth:	15 ft		Page 1 of 1
Drilling Rig:	Simco	Elevation:	95 ft TBM	Project Name:	Twin Cities Hose Add.
Drilling Date:	4/9/2026	GW During Drilling:	8 ft	Project Address:	20615 Commerce Blvd
Drilling Method:	H.S.A.	GW At Completion:	Not Observed	City, State:	Rogers, Minnesota
Sampling Type:	Split Spoon	GW At Delay:	--	Project Number:	26-2130
Drilling Foreman:	K. Elleson	Latitude:	45.19116°N	Boring Location:	Proposed Building
Logged By:	H. Giebel	Longitude:	93.54122°W		South Side

Depth	Sample	Soil Profile	Recovery (in)	Symbol	Soil or Rock Description:	N-value	MC	PL	LL	PI	P200
0	GB			OL	Surficial Organic Soil (16" thick)		22				
2	SS		10	CL-ML	Silty LEAN CLAY with Sand, Light Brown, Moist, Very Stiff	2-8-11 N=19	21				
5	SS		8	CL-ML	Silty LEAN CLAY with Sand, Light Brown, Moist, Medium Stiff	woh-3-4 N=7	23				
7	SS	V	10	CL-ML	Silty LEAN CLAY, Light Brown, Moist, Stiff	2-3-6 N=9	22				
10	SS		18	CL	Sandy LEAN CLAY, Brown, Wet, Stiff	woh-2-7 N=9	23				
15	SS		12	CL	Sandy LEAN CLAY, Dark Gray, Wet, Medium Stiff	1-1-5 N=6	21				

End of Boring at 15 feet - Boring backfilled with auger cuttings

Kilo Engineering
Marine on Saint Croix, MN

Boring B-3

Drilling Crew:	Kilo	Boring Depth:	15 ft		Page 1 of 1
Drilling Rig:	Simco	Elevation:	96 ft TBM	Project Name:	Twin Cities Hose Add.
Drilling Date:	4/9/2026	GW During Drilling:	9 ft	Project Address:	20615 Commerce Blvd
Drilling Method:	H.S.A.	GW At Completion:	Not Observed	City, State:	Rogers, Minnesota
Sampling Type:	Split Spoon	GW At Delay:	--	Project Number:	26-2130
Drilling Foreman:	K. Elleson	Latitude:	45.19128°N	Boring Location:	Proposed Building
Logged By:	H. Giebel	Longitude:	93.54134°W		Center

Depth	Sample	Recovery (in)	Symbol	Soil or Rock Description:	N-value	MC	PL	LL	PI	P200
0	GB		OL	Surficial Organic Soil (16" thick)		20				
2	SS	12	FILL	FILL, Sandy LEAN CLAY with Sand, trace Organics, Black, Moist, Very Stiff	2-6-11 N=17	25				
5	SS	14	CL-ML	Silty LEAN CLAY with Sand, Brown, Moist, Medium Stiff	1-2-5 N=7	25				
7	SS	12	CL	Sandy LEAN CLAY, Brown, Moist, Stiff	2-3-8 N=11	31				
10	SS	18	CL	Sandy LEAN CLAY, Brown, Wet, Medium Stiff	1-1-6 N=7	24				
15	SS	18	CL	Sandy LEAN CLAY, Dark Gray, Moist, Stiff	2-5-8 N=13	18				

End of Boring at 15 feet - Boring backfilled with auger cuttings

Kilo Engineering
Marine on Saint Croix, MN

Boring B-4

Drilling Crew:	Kilo	Boring Depth:	15 ft		Page 1 of 1
Drilling Rig:	Simco	Elevation:	95 ft TBM	Project Name:	Twin Cities Hose Add.
Drilling Date:	4/9/2026	GW During Drilling:	10 ft	Project Address:	20615 Commerce Blvd
Drilling Method:	H.S.A.	GW At Completion:	Not Observed	City, State:	Rogers, Minnesota
Sampling Type:	Split Spoon	GW At Delay:	--	Project Number:	26-2130
Drilling Foreman:	K. Elleson	Latitude:	45.19151°N	Boring Location:	Proposed Pavement
Logged By:	H. Giebel	Longitude:	93.5413°W		North End

Depth	Sample	Recovery (in)	Symbol	Soil or Rock Description:	N-value	MC	PL	LL	PI	P200
0	GB		OL	Surficial Organic Soil (18" thick)		18				
2	SS	14	FILL	FILL, Sandy LEAN CLAY, trace Organics, Black, Moist, Very Stiff	2-8-10 N=18	34				
5	SS	5	FILL	FILL, Sandy LEAN CLAY, trace Organics, Black, Moist, Medium Stiff	1-2-5 N=7	33				
7	SS	8	CL-ML	Silty LEAN CLAY, Gray, Moist, Stiff	1-3-6 N=9	30				
10	SS	10	CL	Sandy LEAN CLAY, Dark Gray, Moist, Stiff	1-2-6 N=8	22				
15	SS	18	CL	Sandy LEAN CLAY, Dark Gray, Moist, Stiff	1-2-7 N=9	19				

End of Boring at 15 feet - Boring backfilled with auger cuttings

GENERAL NOTES

DRILLING & SAMPLING SYMBOLS:

SS:	Split Spoon - 1-3/8" I.D., 2" O.D., unless otherwise noted	HS:	Hollow Stem Auger
ST:	Thin-Walled Tube – 2" O.D., 3" O.D., unless otherwise noted	PA:	Power Auger (Solid Stem)
RS:	Ring Sampler - 2.42" I.D., 3" O.D., unless otherwise noted	HA:	Hand Auger
DB:	Diamond Bit Coring - 4", N, B	RB:	Rock Bit
BS:	Bulk Sample or Auger Sample	WB	Wash Boring or Mud Rotary

The number of blows required to advance a standard 2-inch O.D. split-spoon sampler (SS) the last 12 inches of the total 18-inch penetration with a 140-pound hammer falling 30 inches is considered the "Standard Penetration" or "N-value".

WATER LEVEL MEASUREMENT SYMBOLS:

WL:	Water Level	WS:	While Sampling	BCR:	Before Casing Removal
WCI:	Wet Cave in	WD:	While Drilling	ACR:	After Casing Removal
DCI:	Dry Cave in	AB:	After Boring	N/E:	Not Encountered

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. Groundwater levels at other times and other locations across the site could vary. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels may not be possible with only short-term observations.

DESCRIPTIVE SOIL CLASSIFICATION: Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

CONSISTENCY OF FINE-GRAINED SOILS

Unconfined Compressive Strength, Qu, psf	Standard Penetration or N-value (SS) Blows/Ft.	Consistency
< 500	0 - 1	Very Soft
500 – 1,000	2 - 4	Soft
1,000 – 2,000	4 - 8	Medium Stiff
2,000 – 4,000	8 - 15	Stiff
4,000 – 8,000	15 - 30	Very Stiff
8,000+	> 30	Hard

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Standard Penetration or N-value (SS) Blows/Ft.	Relative Density
0 – 3	Very Loose
4 – 9	Loose
10 – 29	Medium Dense
30 – 50	Dense
> 50	Very Dense

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 – 29
Modifier	≥ 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75mm)
Sand	#4 to #200 sieve (4.75 to 0.075mm)
Silt or Clay	Passing #200 Sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 – 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1-10
Medium	11-30
High	> 30

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]					Soil Classification	
					Group Symbol	Group Name[B]
Coarse Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines[C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$[E]		GW	Well-graded gravel[F]
			$Cu < 4$ and/or $1 > Cc > 3$[E]		GP	Poorly graded gravel[F]
		Gravels with Fines More than 12% fines[C]	Fines classify as ML or MH		GM	Silty gravel[F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel[F,G,H]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines[D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$[E]		SW	Well-graded sand[I]
			$Cu < 6$ and/or $1 > Cc > 3$[E]		SP	Poorly graded sand[I]
		Sands with Fines More than 12% fines[D]	Fines classify as ML or MH		SM	Silty sand[G,H,I]
			Fines Classify as CL or CH		SC	Clayey sand[G,H,I]
Fine-Grained Soils 50% or more passes the No. 200 sieve	Silts and Clays Liquid limit less than 50	inorganic	PI > 7 and plots on or above "A" line[J]		CL	Lean clay[K,L,M]
			PI < 4 or plots below "A" line[J]		ML	Silt[K,L,M]
		organic	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OL	Organic clay[K,L,M,N] / Organic silt[K,L,M,O]
	Silts and Clays Liquid limit 50 or more	inorganic	PI plots on or above "A" line		CH	Fat clay[K,L,M]
			PI plots below "A" line		MH	Elastic Silt[K,L,M]
		organic	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OH	Organic clay[K,L,M,P] / Organic silt[K,L,M,Q]
Highly organic soils	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-in. (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

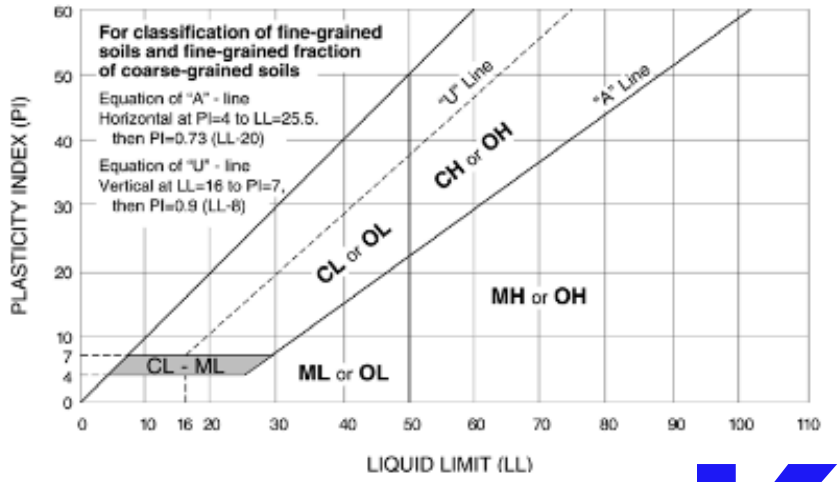
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

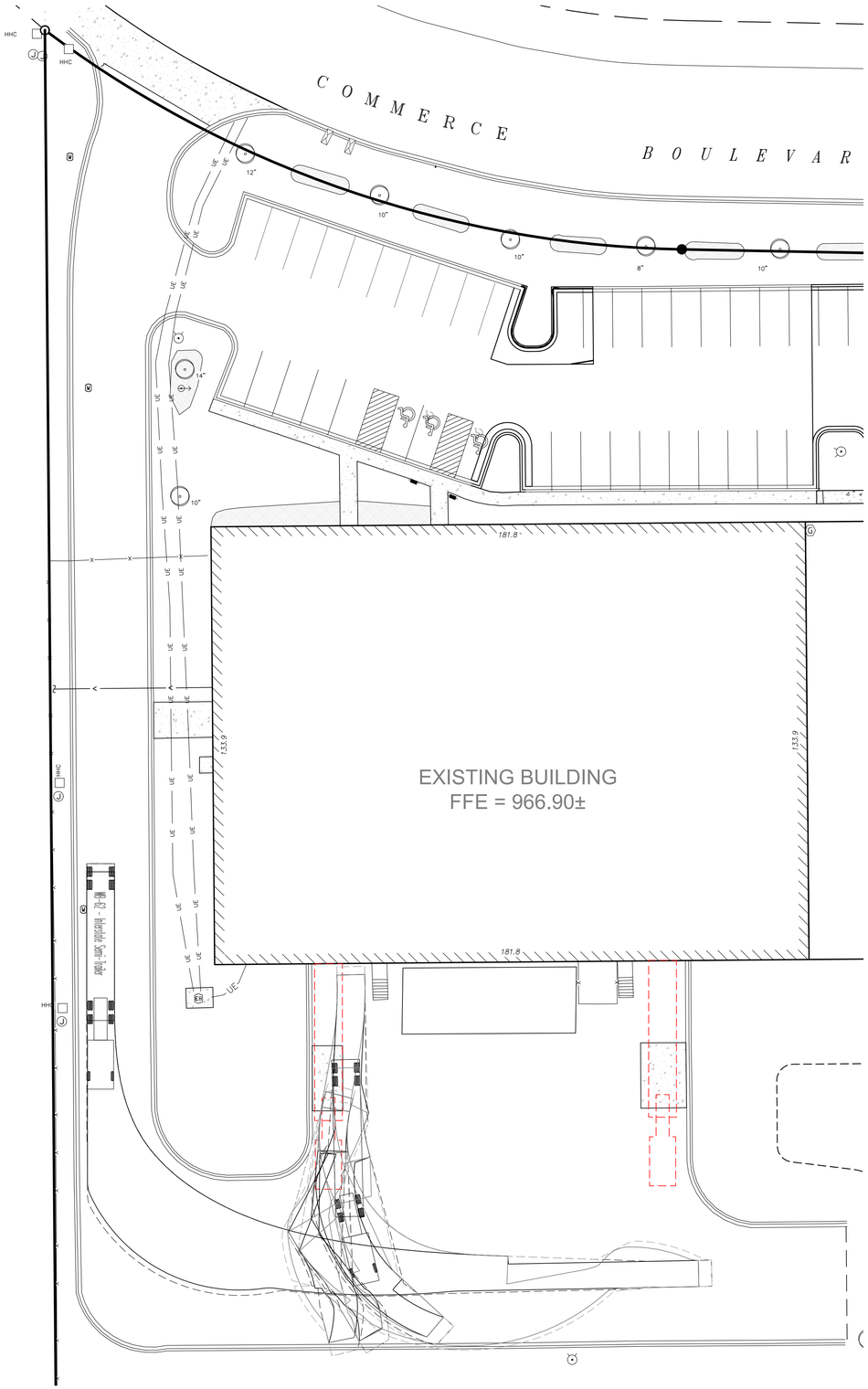
[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.





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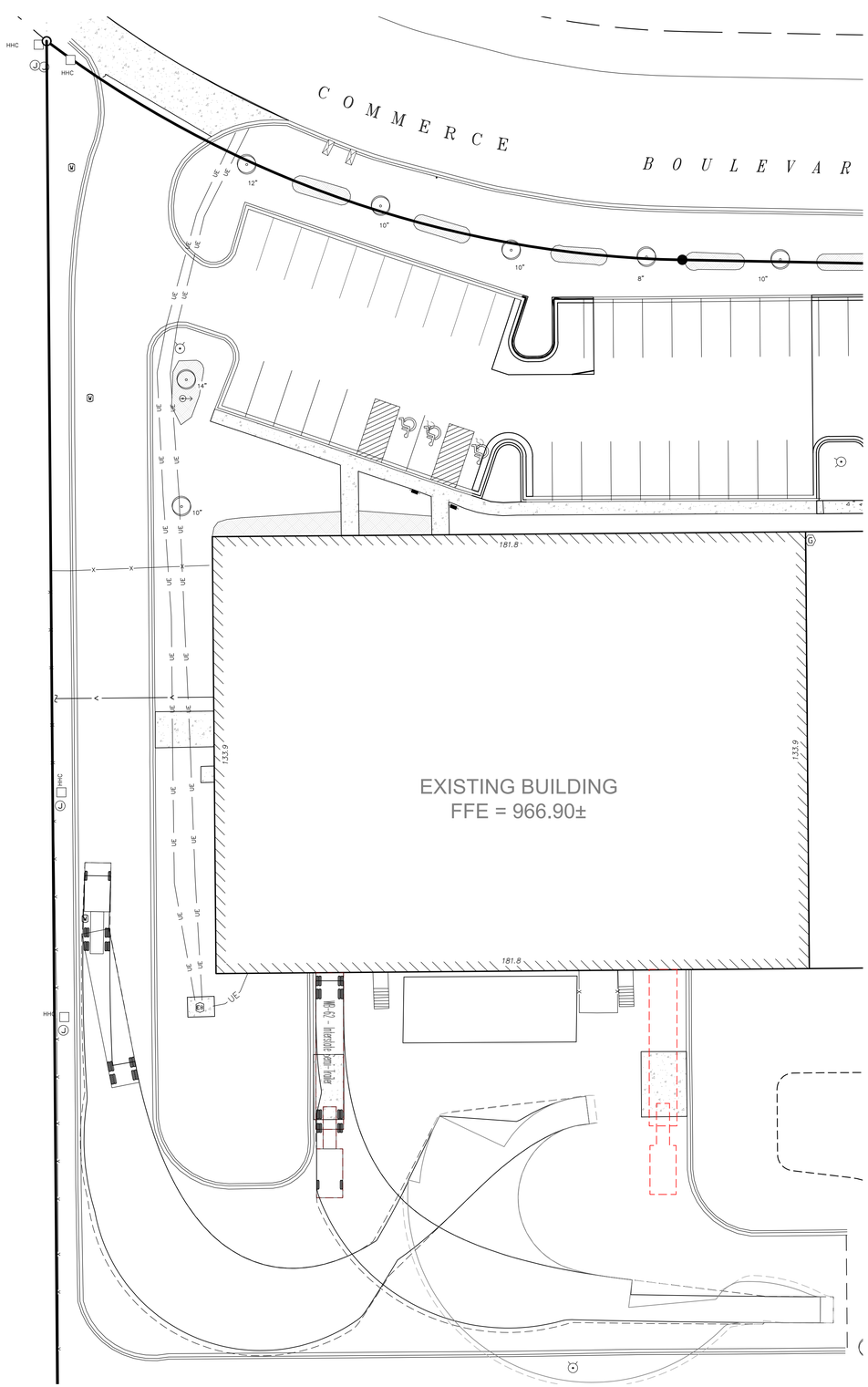

1 EX 1 DOCK 1 EXITING
SCALE: 1" = 20'

ANDERSON
13605 1st Avenue N. #100
Plymouth, MN 55441 | ae-mn.com
P 763.412.4000 | F 763.412.4090
Anderson Engineering of Minnesota, LLC

TWIN CITY HOSE BUILDING ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR
ARCHITECTS, INC.

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

TURNING EXHIBIT DOCK 1

DRAWING NO.

EX 1

PLOTTED:	COMM. NO.
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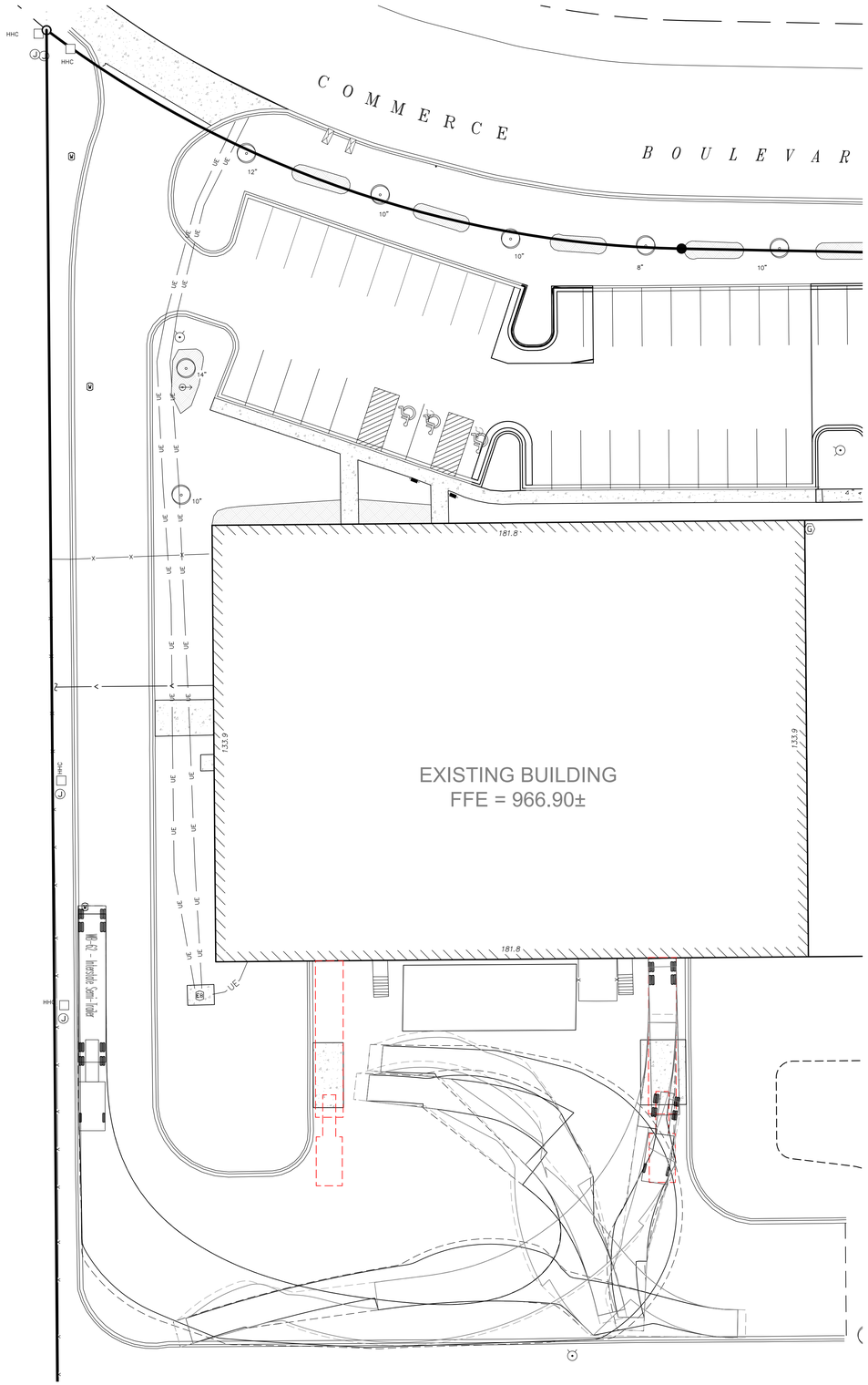
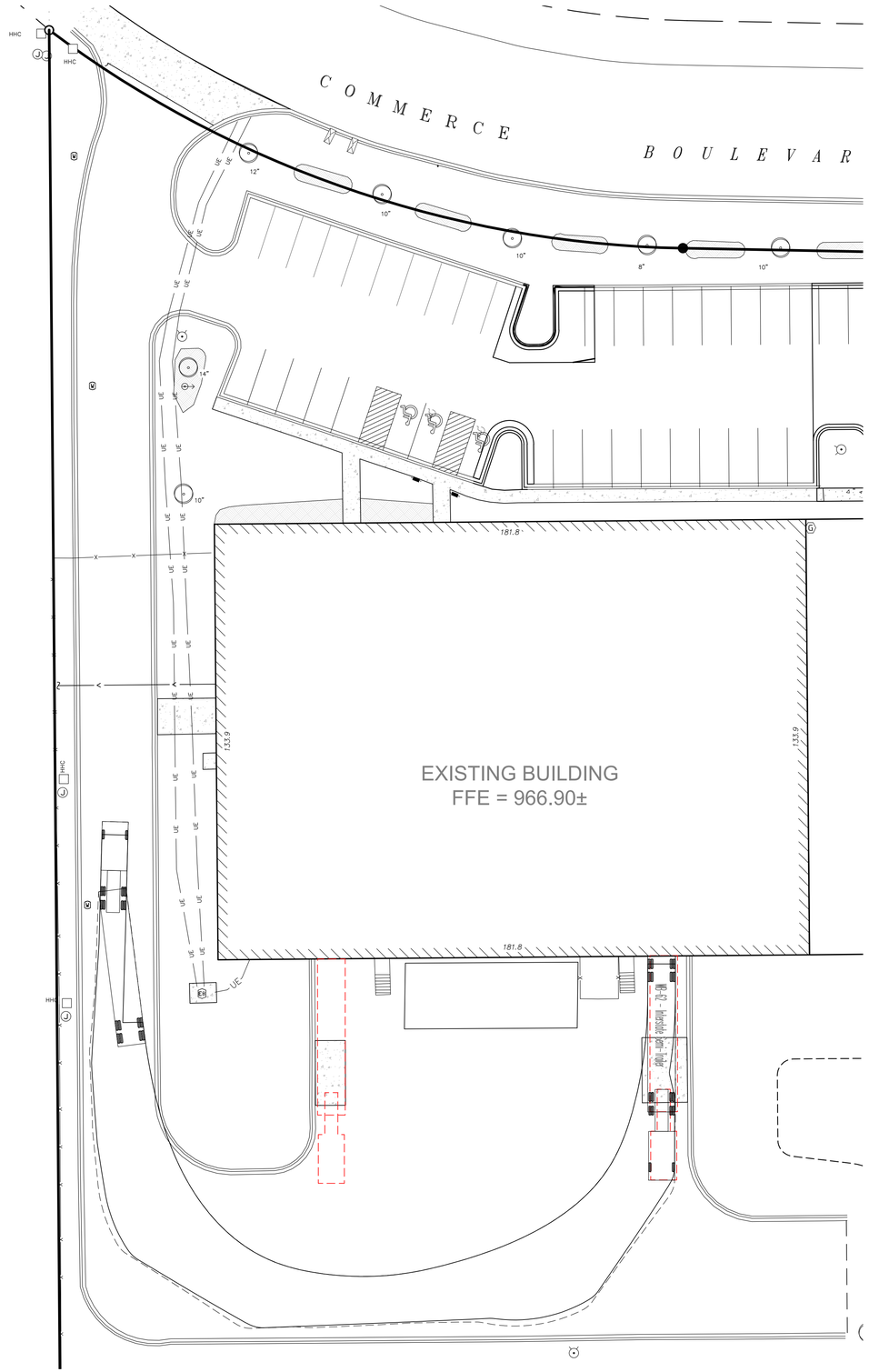


1 EX 2 DOCK 2 ENTERING
SCALE: 1" = 20'



2 EX 2 DOCK 2 EXITING
SCALE: 1" = 20'

ANDERSON
13605 1st Avenue N. #100
Plymouth, MN 55441 | ae-mn.com
P 763.412.4000 | F 763.412.4090
Anderson Engineering of Minnesota, LLC

TWIN CITY HOSE BUILDING ADDITION

20615 COMMERCE BLVD
ROGERS MN, 55374

EDWARD FARR
ARCHITECTS, INC.

REVISION LOG

NO.	DATE	DESCRIPTION OF REVISIONS

SITE PLAN REVIEW
APRIL 28, 2026

DESIGNED:	DRAWN:	CHECKED BY:
BF	ER	BF

DRAWING TITLE

TURNING EXHIBIT DOCK 2

DRAWING NO.

EX 2

PLOTTED:	COMM. NO.
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STAFF REPORT

ROGERS PLANNING COMMISSION

Meeting Date: June 1, 2026

Agenda Item: 7.1

Subject: Past Planning Commission Items Report
Prepared By: Brett Angell, Community Development Director

Overview / Background / Analysis
The Planning Commission last met on Monday, May 4th with a few items that were discussed at the meeting. The items below highlight the discussion and current status of each item.

2050 Comprehensive Plan Kick-Off
The Planning Commission and City Council heard a presentation from the city's consultant, TC2, related to the upcoming 2050 Comprehensive Plan process. The discussion corresponded to sharing the anticipated process, community engagement expectations, and common themes and goals for the update. This discussion was a kick-off to a process that will take over a year to complete. A project website and community engagement is anticipated to begin in June. Community engagement will be active throughout the summer with both in-person and virtual opportunities for individuals to provide feedback.

136th Ave Retail Center (lot adjacent to Maynards)
The Planning Commission reviewed a site plan and variance request related to a 9,100 square foot multi-tenant commercial building at 21355 136th Avenue. The primary discussion related to pedestrian connectivity to the site and the broader area. This item was reviewed at the May 12th City Council meeting which also had an extensive conversation on pedestrian access. The City Council ultimately unanimously approved the site plan and variance request and provided a request that the city further evaluate the area's pedestrian access early in the comprehensive plan update process and for the future roadway projects happening in the area.

Other Items of Note
Fletcher Bypass
Work is well underway for the new Fletcher Bypass (County Rd 116). It is still anticipated the construction will be completed by the end of 2026.

City Facilities
The second sheet of ice, located in between the existing ice arena and turf facility, is anticipated to start construction in mid-June. The second sheet of ice will connect the two existing facilities. Bid package #1 for the civic campus, which includes demolition of the former Boyer Trucks, grading, utilities, and a few other items, has been awarded

and work is anticipated to begin shortly on site. Bid package #2, the primary bid package, is currently anticipated to be released in June.

Staff Recommendation
No action required. This item is for informational purposes.

Financial Impact: Not applicable. **Source Fund**: Not applicable.

Budgeted? N/A

Supporting Documentation
None