

AGENDA
CASCADE CHARTER TOWNSHIP PLANNING COMMISSION
MONDAY, May 18, 2026
6:00PM
2870 JACKSMITH AVE SE

Public may access the meeting via video conference software Zoom

Webinar ID: 893 0165 3349

<https://us02web.zoom.us/j/89301653349>

- ARTICLE 1. **Call the meeting to order. Record the attendance.**
- ARTICLE 2. **Pledge of Allegiance to the Flag**
- ARTICLE 3. **Approve the current Agenda**
- ARTICLE 4. **Disclose any Conflict of Interest**
- ARTICLE 5. **Approve the Minutes of the May 4, 2026, meeting.**
- ARTICLE 6. **Acknowledge visitors and those wishing to speak.**
(Comments are limited to five minutes per speaker)
- ARTICLE 7. **Case #26-3921**
Applicants: Tyler Bartis, [REDACTED]
Owner Christina Keller, [REDACTED]
Property Address: 4950 37th Street SE
Parcel Number: 41-19-19-100-033
Requested Action: Site Plan Review for a building addition.
- ARTICLE 8. **Acknowledge visitors and those wishing to speak.**
(Comments are limited to five minutes per speaker)
- ARTICLE 9. **Other Business**
- ARTICLE 10. **Adjourn**

CASCADE CHARTER TOWNSHIP

PLANNING COMMISSION

MONDAY, May 18, 2026

6:00 PM

ARTICLE 5.

Approve the Minutes of the May 4, 2026 meeting.

MINUTES
CASCADE CHARTER TOWNSHIP PLANNING COMMISSION
MONDAY, May 4, 2026
6:00 pm
2870 JACKSMITH AVE SE

ARTICLE 1. Chair Rowland called the meeting to order at 6:00 pm.

Members Present: Korstange, Kraemer, Rowland, Cribbs, Madiol, Kaiser, Lauer

Members Absent: None

Others Present: Building Official Brian Wilson, Interim Planer Kevin Garcia, Mallory Reader of Foster Swift, Planning Administrative Assistant Nick Govan, and others listed on the sign-in sheet.

ARTICLE 2. Pledge of Allegiance to the Flag

ARTICLE 3. Approve the current Agenda

Motion was made by Vice Chair Kraemer to approve the current agenda. Supported by Commissioner Madiol. Motion carried unanimously.

ARTICLE 4. Disclose any Conflict of Interest

There were no conflicts of interest disclosed.

ARTICLE 5. Approve the Minutes of the March 16, 2026, meeting.

Motion was made by Commissioner Cribbs to approve the minutes of the March 16, 2026 meeting. Supported by Vice Chair Kraemer. Motion carried unanimously.

ARTICLE 6. Acknowledge visitors and those wishing to speak.

There was no one wishing to speak.

ARTICLE 7. Case #25-3903 – Public Hearing (CANCELED)

Applicant: Mason Leffew

Property Address: 7269 Thomcrest Drive SE

Parcel Number: 41-19-15-152-001

Requested Action: No Action Required.

Chair Rowland noted that Case #25-3903 had been canceled. He initiated a discussion regarding the Commission's authority to place time limits on special use permit approvals, expressing concern that approvals could be conveyed with a property sale even if a project had not been initiated.

Interim Planner Kevin Garcia explained that the current zoning ordinance does not contain a provision allowing a time limit to be placed on special use permits. He noted that a letter issued in 2022 had included a time limit, but after review of the Planning Commission meeting record from that time, no discussion of placing a time limit was found. He indicated that

staff appeared to have added the language administratively and that, after late 2022, such language was no longer included in special use permit letters, likely because staff recognized the ordinance did not authorize it. He noted that the current zoning ordinance does contain a one-year time limit for site plan approvals, requiring building permits to be pulled within one year, but no comparable provision exists for special use permits.

Treasurer Korstange noted that she had understood a time limit existed under the current ordinance and observed that, absent such a limitation, a special use permit would run with the land and not necessarily with the applicant. She questioned whether the newer zoning ordinance contained such a provision.

Garcia confirmed that special use permits generally run with the land, meaning a subsequent property owner could exercise an approved permit for the same use. He also confirmed that the new zoning ordinance, currently in limbo due to a referendum, does contain a time limit provision.

Legal Counsel Mallory Reader, appearing on behalf of Foster Swift, concurred that special use permits generally run with the land. She indicated that requiring commencement of construction or initiation of the approved use within a specified period is a standard condition used by other municipalities and could be implemented either as a condition of approval or through an amendment to the zoning ordinance.

Chair Rowland raised the question of whether the Commission could place a condition on special use permit approvals specifying that the permit would not transfer with a property sale if the approved use had not yet been initiated, and that the permit would expire within one year if construction had not commenced. Garcia indicated he believed such a condition would be defensible, though he deferred to legal counsel. Legal Counsel Reader confirmed it would be appropriate and consistent with practices used by other clients.

Chair Rowland directed staff to consult with the Township's legal counsel to confirm the Commission's authority to impose time limits as conditions on future special use permit approvals and requested that consideration be given to incorporating such language into the zoning ordinance.

ARTICLE 8.

Case #26-3915 – Public Hearing

Applicants: Livingston Homes LLC, Candice Patterson, Joe & Marie Parzych

Property Address: 3758 Cherry Lane SE

Parcel Number: 41-19-23-200-030

Requested Action: Request for approval of a Type I Special Use Permit to allow an accessory building over 832 sf located in the front yard.

Garcia presented the case and explained that the subject site is an approximately 18.5-acre parcel located on the east side of Cherry Lane, part of a larger tract of farmland subdivided into three large lots in 2022 and

sold to separate buyers. The applicant is currently constructing a home on the site on behalf of the property owners, who were present at the meeting. The request was for a Type I Special Use Permit to construct a 1,200 square foot accessory building.

Garcia presented the site plan and noted the proposed accessory building would be located with an approximate 250-foot front yard setback from Cherry Lane, approximately 300-foot setbacks on both the north and south side yards, and at least 1,000 feet from the rear yard. He explained that the property owners intended to use the building primarily for storing landscaping and gardening equipment and as a potting shed, with secondary use as a garage for passenger vehicles.

Garcia explained that because the accessory building is technically located in the front yard, the Planning Commission was required to evaluate the application against two sets of criteria: one for detached private garages larger than 832 square feet under Section 17.03.1.a, and one for accessory buildings located in front yards under Section 17.03.1.b. He clarified that all criteria under Section 17.03.1.a need not be met, but the Commission should consider all eight criteria, and that under Section 17.03.1.b, only one of the three listed criteria is required to be satisfied.

Garcia reported that staff found the application meets seven of the eight criteria under Section 17.03.1.a, with seven criteria weighing in favor of granting approval. Under Section 17.03.1.b, he noted the first two criteria were not applicable to this application, but that the third criterion was met, as the proposed accessory building is set back a minimum of 200 feet from the right-of-way, with the proposed building at 250 feet. He confirmed that no comments had been received from neighboring property owners as of the time of the report or as of the meeting date. Staff recommended approval with conditions that construction be in general conformance with the attached site plan, that the accessory building not be used for a home occupation or accessory dwelling unit, and that outdoor lighting adhere to Cascade Township standards, requiring shielded or downcast fixtures that do not create glare for neighboring properties.

Commissioner Lauer questioned why the accessory building was proposed for the front yard rather than being situated in the rear yard, noting that ordinance exceptions are typically warranted by specific site conditions such as topography or the presence of a septic field. Garcia indicated he was not aware of the specific reasoning for the front yard placement versus the rear yard.

Commissioner Lauer further noted that the topography of the site sloped and that the adjacent lot to the south had recently sold, meaning the new owner may not have received notification of the public hearing. Garcia acknowledged that the lot had recently changed ownership and noted that notification letters are sent to the property owner of record at the time of mailing.

Commissioner Lauer also raised the concern that while the accessory building would not obstruct the view of the adjacent property to the south

given the current absence of a home there, a future home on that parcel, situated similarly to this property's home, could potentially have its view obstructed by the accessory building given the topography.

Treasurer Korstange inquired about the configuration of the neighboring lot to the south, noting from prior observation that it appeared to be a flag lot with the buildable area set back from Cherry Lane. Staff confirmed it was believed to be a flag lot, with the principal structure likely situated further back on the property. Treasurer Korstange observed that, given the flag lot configuration, the neighboring property owners would likely not be looking directly at the proposed accessory building from their principal structure.

Vice Chair Kraemer asked for clarification on staff's finding that the proposed accessory building's construction and architectural character matched that of the principal dwelling, noting that the packet did not include side-by-side comparison materials. Garcia acknowledged that he had intended to include a more complete site plan for comparison but had not done so, and apologized for the omission. He confirmed that he had reviewed the site plan for the home under construction and compared it to the accessory building design before reaching that conclusion. Treasurer Korstange noted that the home was nearly complete and that the building's design was consistent with the house she had observed driving by the property.

Chair Rowland sought clarification on how the front yard was defined in relation to the property, noting that the house appeared to be oriented at an angle within the parcel. Garcia clarified that the front lot line is established along Cherry Lane, and that the front yard is defined as the area between the front lot line and the nearest point of the main building. He confirmed that even with a significant setback, the accessory building would still be technically located within the front yard.

Chair Rowland confirmed with staff that the lot is over 18 acres, the accessory building is 1,200 square feet, the ordinance requires a minimum 200-foot setback from the right-of-way, and the proposed building meets that standard at 250 feet on the front yard setback and approximately 300 feet on both side yard setbacks.

The property owners, Marie Parzych and Joe Parzych (3758 Cherry Lane SE), presented their request. Marie Parzych explained that when the property was purchased, there was no driveway and the site required significant effort to establish access. She described an established garden in the front portion of the property, including fruit trees, strawberry beds, raspberries, and asparagus, which had been developed in that location because it was accessible and received adequate sunlight. She noted the proposed accessory building, which she described as a pole barn, would primarily serve the gardening operation and general lawn equipment storage, and was intended to be located in proximity to the existing garden area.

Marie Parzych explained that the house was designed and oriented at an angle of approximately 25 to 30 degrees from the south to maximize

passive solar heating in winter and provide view corridors to both sunrise and sunset. She noted that with the house sited at the high point of the property and the accessory building positioned adjacent to the garage, the view from the house's porches and deck would not be impaired by the accessory building, and the property would retain a wide, unobstructed view.

Joe Parzych added that the topography of the site played a role in the front yard placement, as the land falls off toward the rear of the property, making it impractical to extend the driveway further back. He confirmed the house is situated at the highest point on the parcel.

Treasurer Korstange observed that, given the topography and the configuration of the neighboring property to the south, the proposed accessory building would likely not be visible from the front of the neighbor's principal structure. Marie Parzych confirmed that the neighboring property's house faces Cherry Lane and the garage faces their shared property line, and that the neighbors are aware of the proposed building and have no objection. She noted the neighboring owners had previously been granted access across the Parzych property during excavation of their driveway, describing them as wonderful neighbors.

Commissioner Kaiser asked about the property boundaries, noting the parcel was approximately 18 acres and from the aerial presented and that it looked as if the property ran further to the north. Marie Parzych explained that the parcel runs approximately three acres wide but extends approximately nine acres in depth, with the rear portion consisting of swampy forested area.

**Motion was made by Treasurer Korstange to open public hearing.
Supported by Commissioner Cribbs.
Motion carried unanimously.**

Scot VanSolkema (2570 Orange Court) addressed the Commission in support of the application. He characterized the case as representative of what he described as excessive regulatory burden under the current ordinance, noting that under the newly adopted zoning ordinance, the property owner could construct an accessory building up to 3,000 square feet without requiring this level of review. He expressed concern that the 832 square foot threshold and other provisions of the current ordinance create barriers for responsible homeowners and impose costs that are disproportionate to actual community impacts. He encouraged the Commission to move forward with implementation of the new zoning ordinance and expressed the view that the delay caused by organized opposition had prolonged the types of hearings the new ordinance was designed to eliminate.

**Motion was made by Chair Rowland to close public hearing.
Supported by Treasurer Korstange.
Motion carried unanimously.**

Following the close of public hearing, the Commission discussed the

application. Chair Rowland stated he did not see a significant problem with the proposal, noting the building is 1,200 square feet, set back 250 feet from the road, and situated on a nearly 20-acre parcel.

Commissioner Lauer commented that while the front yard placement was a matter of preference rather than strict necessity, the applicant's explanation of the topography, specifically the impracticality of navigating toward a downhill pole barn in winter conditions, provided helpful context that informed her understanding of the site constraints.

Vice Chair Kraemer stated he had no objection to the application. He noted the property is large and the proposed accessory building is modest in scale relative to the parcel size. He referenced the Township's historical data on similar applications, observing that a prior approval for a comparable use had involved a structure representing 945 percent of the primary dwelling unit on a 160-acre parcel. Treasurer Korstange noted this type of disproportionality was one of the issues the new zoning ordinance sought to address by scaling accessory building allowances to property size.

Commissioner Madiol noted that there are larger accessory buildings already present in the Cherry Lane area, and the proposed 1,200 square foot building was smaller than others that had been approved in the vicinity.

Motion was made by Treasurer Korstange to Approve Case Number 26-3915 for a Type I Special Use Permit for an accessory building greater than 832 sf located in the front yard at 3758 Cherry Lane SE for the following reasons:

- 1. Seven of the eight criteria used to evaluate accessory garages weigh in favor of granting approval.**
- 2. The proposed accessory building is set back more than 200 feet from the right-of-way.**

And with the following conditions:

- 1. Construction must be in general conformance with the attached site plan.**
- 2. The accessory building shall not be used for a home occupation or accessory dwelling unit.**
- 3. Outdoor lighting must adhere to the Cascade Township standards; shielded or downcast, not creating glare for neighbors.**
- 4. The approval expires on May 4, 2027, if construction has not commenced by that date.**
- 5. The approval to construct the accessory building is non-transferable and shall not run with the land if the property is conveyed prior to the commencement of construction.**

Supported by Vice Chair Kraemer.

Motion carried unanimously.

ARTICLE 9. Acknowledge visitors and those wishing to speak.

There was no one wishing to speak.

ARTICLE 10. Other Business

There was no other business.

ARTICLE 11. Adjourn

The meeting adjourned at 6:55 pm.

Respectfully submitted,

Commissioner David Madiol, Planning Commission Secretary

DRAFT

CASCADE CHARTER TOWNSHIP

PLANNING COMMISSION

**MONDAY, May 18, 2026
6:00 PM**

ARTICLE 7.

Case #26-3921

Applicants: Tyler Bartis, [REDACTED]

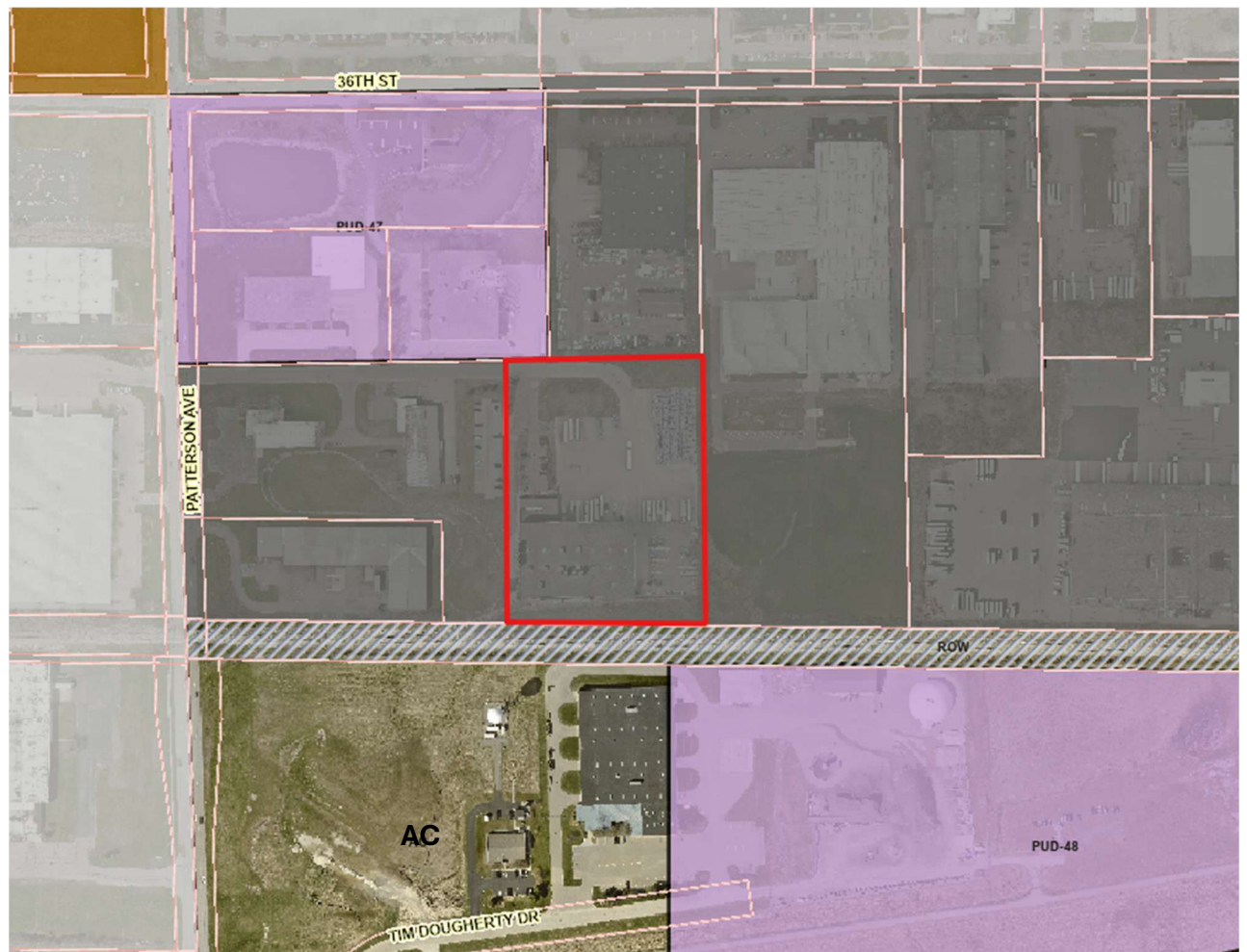
Owner Christina Keller, [REDACTED]

Property Address: 4950 37th Street SE

Parcel Number: 41-19-19-100-033

Requested Action: Site Plan Review for a building addition.

Parcel & Zoning Map





CASCADE CHARTER TOWNSHIP

5920 Tahoe Drive SE Grand Rapids, Michigan 49546-7140

PLANNING COMMISSION STAFF REPORT

STAFF REPORT: Case #26-3921
REPORT DATE: May 13, 2026
PREPARED FOR: Cascade Charter Township Planning Commission
MEETING DATE: May 18, 2026
PREPARED BY: Kevin Garcia, AICP, Interim Planner, McKenna
James McManus, AICP, McKenna
Paige Brodeur, McKenna

APPLICANT:
*Christina Keller 7141
Driftwood Drive Ada,
Michigan 49301*

STATUS OF APPLICANT: Christina Keller is the property owner and partner of Industrial Spaces LLC

REQUESTED ACTION: Site Plan Review for a building addition.

REQUIREMENTS: Cascade Charter Township Zoning Ordinance:
Section 4.34 Outdoor Lighting
Section 19.13 Access, Parking, And Loading Development Standards
Section 21.03 Site Plan Review

EXISTING ZONING OF SUBJECT PARCEL(S): I Industrial District

PROPERTY ADDRESS: 4950 37th Street SE

PARCEL NUMBER: 41-19-19-100-033

GENERAL LOCATION: The subject property is on 37th Street SE at the end of a private road.

PARCEL SIZE: Approximately 7.31 acres

EXISTING LAND USE: Manufacturing

ADJACENT PROPERTIES: N: I Industrial – Industrial Spaces LLC
PUD-47 – Industrial Spaces LLC
W: I Industrial – Vierson Industries
S: PUD-48 – Airport Terminal and Field,
AC Airport Commerce – Airport Terminal and Field
E: I Industrial – Kawasaki Motors Corp

SUMMARY

The proposed project is an expansion of the existing Cascade Engineering Buursma Plan. The existing building is 57,488 square feet. The plan proposes 61,580 additional square feet of building area, totaling 119,028 square feet. The addition will be used for industrial and manufacturing processes including additional truck docks.

The subject property is presented to the Planning Commission today for site plan review.

Site Plan Review is subject to approval by the Planning Commission.

OVERVIEW

The applicant is requesting an addition to the existing building on the subject property. This is a 1-story building to house a manufacturing business. The existing building is 57,488 square feet. The plan proposes 61,580 additional square feet of building area, totaling 119,028 square feet. The building will have a single access drive with a parking lot in front the building. The plan proposes a fire lane wrapping around the north and west sides of the new addition with a truck turnaround at the end of the fire lane.

CASCADE CHARTER TOWNSHIP ZONING ORDINANCE STANDARDS:

SECTION 21.0 CRITERIA FOR SITE PLAN APPROVAL

The Planning Commission shall use the following criteria in evaluating a site plan submittal:

1. Whether the required information has been furnished in sufficiently complete and understandable form to allow an accurate description of the proposed use(s) and structure(s) in terms of density, location, area, height, bulk, placement, setbacks, performance characteristics, parking, and traffic circulation.
2. Whether there are ways in which the configuration of uses and structures can be changed which would improve the impact of the development on adjoining and nearby properties, persons, and activities, and on the community, while allowing reasonable use of the property within the scope of district regulations and other regulations of this Ordinance that are applicable to the property and proposed use and structures.
3. The extent to which natural features and characteristics of the large trees, natural groves, watercourses, and similar will be preserved; the regard given to existing natural features that would add attractiveness to the property and environs if they were preserved; the preservation of natural drainage systems the dedication and/or provision, where appropriate, of scenic easements, natural buffering, and other techniques for preservation and enhancement of the physical environment.

Additional design standards, as applicable:

a) Floodplain

The subject site does not appear to be located within the Federal Emergency Management Agency (FEMA) floodplain map area.

b) Setbacks

Section 18, Table 18-C: Height, Lot Area, and Building Placement Standards

Industrial

Maximum Stories:	2
Maximum Structure Height (feet):	45 feet
Min. Bldg. Front Yard Setback:	100 feet
Min. Bldg. Side Yard Setback:	25 feet
Min. Bldg. Rear Yard Setback:	50 feet.

The proposed building has a front yard setback of 10.7 feet. On May 12, 2026, the Zoning Board of Appeals granted a variance to allow this lesser setback. All other setbacks comply with the requirements. The height of the building, measured to the midpoint of the roof, is 43.75 feet. The height complies with the requirements.

c) Off-Street Parking, Access, Loading

Section 19.13 Development Standards. All developments which require site plan review under the terms of this ordinance shall meet the following standards.

Safety Considerations: Pedestrians are separated from bicycles and vehicles to the extent feasible.

Cutcurbs and Ramps: Curbs and ramps are located on the north side of the existing concrete sidewalk.

Site Amenities: There is an existing bicycle rack is outlined on the site plan to enhance safety and convenience and promote walking or bicycling.

Bicycle Facilities: There is an existing bicycle rack is outlined on the site plan.

Walkways: The pedestrian access is located on the north side of the existing building near the proposed parking area as well as on the west side of the existing building.

Parking Lots:

The applicant has provided the following calculations based on the existing and proposed use of the subject site:

PARKING CALCULATIONS

<u>INTERIOR AREAS:</u>	
<u>OFFICE</u>	5456 SF
<u>USABLE MANUFACTURING/WAREHOUSE</u>	
MANUFACTURING:	20,000 SF (EST)
WAREHOUSE:	28,175 SF (EST)
TOTAL:	48,175 SF
<u>PARKING SPACES</u>	
MANUFACTURING: 20,000sf @ 1.5/1000 = 30 SPACES	
WAREHOUSE: 28,175 sf @ 0.67/1000 = 19 SPACES	
OFFICE: 5456 sf @ 3/1000 = 16 SPACES	
TOTAL REQUIRED: 65 SPACES	
TOTAL PROVIDED: 70 SPACES	

The manufacturing process involves the use of several presses that consume a large amount of floor area. It is more reasonable to utilize usable floor area to calculate the required parking for the site. Based on usable floor area, 65 parking spaces are required for the proposed expansion; the applicant proposes a total parking space count of 70, exceeding the minimum required.

Table 19-C regulates the standard for parking space size and aisle measurements. The following apply to the subject property with 90 degree parking angles:

Parallel Parking

Maneuvering Lane Width, 2-way:	24 feet
Parking Space Width:	9 feet
Parking Space Length:	18 feet

The 2-way maneuvering lane is indicated as 26 feet. The maneuvering lane width is compliant with the standard. Parking spaces are shown to be 9 feet wide, with a depth of 18 feet, meeting the standards of the ordinance.

d) Lighting

Section 4.34.3. Nonhorizontal Surface Lighting - For the lighting of predominantly nonhorizontal surfaces, such as, but not limited to, facades, landscaping, signs, fountains, displays, and statuary, lighting fixtures shall be fully shielded and shall be installed and aimed downcast so as to not project their output into the windows of neighboring residences, adjacent uses, past the object being illuminated, or onto a public roadway. Ground mounted lighting may be uplit for structures not taller than five feet. Lighting fixtures with an aggregate rated lamp lumen output per fixture that does not exceed 1,000 lumens are exempt from the requirements of this paragraph.

Proposed lighting exceeds 1,000 lumens and therefore are not exempt from the requirements. The proposed light fixtures are in compliance with the standards, based on the details provided within the application material.

Section 19.19.2 Required Lighting - All parking and loading facilities utilized during nighttime hours shall be artificially illuminated to a minimum level of 0.5 foot candles and a maximum level of five (5) foot candles, with one (1) foot candle being the desired level of average illumination.

The applicant is proposing ten (10) wall-mounted LED Luminaires on the new building addition that adhere to the design standards of the Zoning Ordinance. Photometric plans, included in the site plan, indicate the maximum foot candle being 1.5, with an average of 0.4 foot candles around the access and parking.

The average foot candle for outdoor lighting is too low and does not meet these standards; slight modification to the outdoor lighting is needed.

e) Signage

Section 6.03 of the Sign Ordinance – Signs As provided in the Cascade Charter Township Sign Ordinance.

The site plan does not indicate any sign additions. The applicant is encouraged to provide information regarding any proposed signage in relation to the building expansion project.

f) Landscaping

Section 20, Table 20-A – Adjacent Land Use: Buffer-yard Requirements

The subject site is zoned I, Industrial, with adjacent land uses being I, Industrial, PUD, Planned Unit Development, and AC, Airport Commerce. The table stipulates “C” buffer yard requirements, based on the proposed land use and adjacent land uses.

Proposed Land Use	ARC	FP	R1	R2	B1	B2	O	ES	AC	I	TI	Arterial/Collector	Highway
ARC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
R1	N/A	N/A	N/A	N/A	A	B	A	B	B	B	B	A	B
R2	N/A	N/A	N/A	N/A	A	B	A	B	B	B	B	A	B
B1	E	N/A	F	F	C	C	D	C	D	C	C	C	B
B2	F	N/A	G	G	C	D	D	D	D	D	D	C	C
O	E	N/A	F	F	D	D	D	D	C	C	C	C	D
ES	E	N/A	G	G	C	D	D	D	C	D	D	C	C
AC	E	N/A	F	F	D	D	D	D	C	B	B	C	C
I	F	N/A	G	G	E	D	E	D	D	C	C	C	C
TI	F	N/A	G	G	E	D	D	D	D	C	C	C	C

N/A = Not Applicable

Bufferyard Plant Type	A	B	C	D	E	F	G
Minimum Width of Bufferyard (ft)	10	10	20	25	30	35	40
Canopy Tree	1	2	2	3	4	5	6
Understory Tree	2	4	4	6	6	4	4
Shrubs	N/A	N/A	6	9	12	18	24
Evergreen/Conifer	N/A	2	N/A	N/A	2	7	10

N/A = Not Applicable

The minimum width of the buffer yard for the “C” category is 20 feet. The landscaping plan provided does not dimension the size (width) of the buffer yard; the applicant shall provide this information. Staff notes that Section 18.15 – Buffer yards – paragraph 2, that *“buffer yards shall be required to run the entire length of the property line or street frontage except that portion of a buffer yard shall not be required in areas providing necessary ingress and egress or if a parking lot adjoins an adjacent parking lot at the same grade and no restrictions are placed on the movement of traffic from one parking lot to another”*. If the applicant seeks to claim that the drive, located on the eastern edge of the property is for ingress/egress, then the Planning Commission should accept the proposed landscaping as shown, taking into account Section 18.15 of the Township’s Zoning Ordinance.

A majority of south portion of the parcel is concrete, with a rail line traversing the entire rear of the subject property. New trees are proposed along the east and north sides, with the west side proposing existing vegetation to remain.

Along the north side, for 225 feet of improvements, five (5) canopy trees, nine (9) understory trees, and 14 shrubs are required. The plan proposes six (6) canopy trees, nine (9) understory trees, and 16 shrubs plus six (6) existing trees. Along the east side, for 651.62 feet of improvements, 13 canopy trees, 26 understory trees, and 39 shrubs are required. The plan proposes 13 canopy trees, 26 understory trees, and 40 shrubs.

Proposed Planting Totals

Canopy Trees: 19

Understory Trees: 35

Shrubs: 56

The buffer yard for the east and south sides of the site are not met. The buffer yard standards for the subject site are not in compliance with the buffer yard and landscaping standards. None of the proposed trees are ‘undesirable’, in accordance with Table 20-E. A Landscape Bond of \$5,000 shall be submitted prior to construction. This is a condition of approval.

All plant materials in the buffer yard shall be maintained in a good condition so as to represent healthy, neat and orderly appearance. The owner, tenant, or agent shall ensure that:

“All plant growth in landscaped areas be controlled by pruning, trimming, or other suitable methods so that plant materials do not interfere with public utilities, restrict pedestrian or vehicular access, or otherwise constitute a traffic hazard; b. All planted areas be maintained in a relatively weed-free condition and clear of undergrowth; and c. All plantings be fertilized and irrigated at such intervals as are necessary to promote optimum growth.” (Section 20.05)

g) Site Circulation

Section 19.14 - Access Drives: The driveway is required to be a minimum of ten (10) feet in width. The proposed access drive on the site plan is 26 feet. The access drive width is compliant with this standard. The site plan proposes a 24-inch concrete curb and gutter.

h) Outside Storage

Section 13.02 states that all outdoor storage facilities “located less than one hundred (100) feet from any other district shall be enclosed by a solid fence or wall, not less than eight (8) feet in height.” The existing dumpster enclosure is eight (8) feet tall, made of concrete. No other outdoor storage facilities are proposed at this time. The site plan is in compliance with these standards.

i) Drainage

Section 19.17 Drainage and the Stormwater Ordinance apply to this property. The Township Engineer will review the proposed project for compliance with applicable Township regulations. The applicant shall provide a Stormwater Maintenance Agreement for a long-term maintenance plan.

j) Utilities and Infrastructure

The property is on municipal water and sewer.

STAFF RECOMMENDATION

Staff recommends APPROVAL of the proposed 61,580 square foot building addition, with the following conditions:

1. A \$5,000 Landscape Bond is submitted prior to construction.
2. A Stormwater Maintenance Agreement is submitted and registered with the county prior to construction.
3. Proof of shared parking agreement with property to the west.
4. Any other agency review stipulations, such as Fire, Engineering, etc. are satisfied; such compliance to be submitted to Township staff for record retention.

ATTACHMENTS

1. Application
2. Site Plan
3. Engineer’s Report



CASCADE CHARTER TOWNSHIP

5920 Tahoe Drive SE • Grand Rapids, MI 49546

Planning Department

Site Plan Review Application

A. Property Information

Address: 4950 37th Street SE Zoning: Industrial
 Parcel Number: 41-19-19-100-033 Acres: 7.31 Acres New Construction: Yes No
 Current Use: Manufacturing Proposed Use: Manufacturing

B. Applicant Information

1. Applicant

Identify the person or organization requesting the Site Plan Review:

Name: Christina Keller Title: [REDACTED]
 Organization: [REDACTED] Cell Phone: [REDACTED]
 Mailing Address: [REDACTED] Business Phone: _____
 City: [REDACTED] State: MI Zip: 49301
 E-Mail: [REDACTED]

2. Applicant Interest

The applicant must have a legal interest in the subject property:

- Property Owner Purchaser by Option or Purchase Agreement
 Purchaser by Land Contract Lessee/Tenant

3. Property Owner (if different from the applicant)

Identify the person or organization that owns the subject property:

Name: same as applicant Title: _____
 Organization: _____ Cell Phone: _____
 Mailing Address: _____ City: _____ State: _____ Zip: _____
 E-Mail: _____

4. Agent

Identify the person representing the property owner or applicant in this matter:

Name: Tyler Bartis Title: [REDACTED]
 Mailing Address: [REDACTED] City: Grand Rapids State: MI Zip: 49507
 E-Mail: [REDACTED]

Received

APR 3 2026



Planning Department Site Plan Review Application

C. Supplementary Documents

- Site Plan Set
- Lighting Plan
- Landscaping Plan

- Description of Project* (see D. for details)
- Property Interest Documentation
- Floor Plan

D. Description of Project*

Written description of the proposed use, the site and/or building layout, building and structure design information, parking calculations, current environmental conditions, hours of operation, number of employees, time schedules for phasing bonds or other surety devices, and other information pertinent to the request. Additional documentation may be required (per section 21.05.4).

See attached narrative.

Would you like the Planning Department to Schedule a Pre-Application Conference: Yes No

E. Additional Information

Is your property currently serviced by:

- City Water Well None
- Municipal Sewer Septic None

Is your property within an HOA, Planned Unit Development, Property Owner Association, or other legal entities responsible for control over required common areas and facilities? Yes No

Does your project require additional curb cuts or construction within the public right of way? Yes No

Are there wetlands located on your property? Yes No

F. Submission Requirements and Fee

Submit one (1) hard copy to Township Hall or one (1) digital copy:

See Township [Fee Schedule](#)

Payment Method:

- Cash: In person at Township Hall
 - Check: In person at Township Hall or by mail
- Checks Payable to: Cascade Charter Township*

Mail to:
 Cascade Charter Township
 Planning Department
5920 Tahoe Dr. SE
Grand Rapids, MI 49546



Planning Department
Site Plan Review Application

G. Signatures

The applicant must read the following statement carefully and sign below:

The undersigned requests that Cascade Charter Township review this application and related required documents and site plans as provided in Section 21 of the Cascade Charter Township Zoning Ordinance. The applicant further affirms and acknowledges the following:

- That the applicant has a legal interest in the property described in this application.
- That the answers and statements contained in this application and enclosures are in all respects true and correct to the best of their knowledge.
- That the approval of this application does not relieve the undersigned from compliance with all other provisions of the Zoning Ordinance or other codes or statues, and does not constitute the granting of a variance.
- That the applicant will comply with any and all conditions imposed in granting an approval of this application.
- If also the owner, the applicant grants Cascade Charter Township staff the right to access the subject property for the sole purpose of evaluating the application.
- I (we) the undersigned certify that the information contained on this application form and the required documents attached hereto are to the best of my (our) knowledge true and accurate. I (we) also agree to reimburse the Cascade Charter Township for all costs, including consultant costs, to review this request in a timely manner. I (we) understand that these costs may also include administrative reviews which may occur after the Township has taken action on my (our) request.*
- I (we) the undersigned also acknowledge that the proposed project does not violate any known property restrictions (i.e. plat restrictions, deed restrictions, covenants, etc.)***

Christina Keller

Applicant Name (printed)

Applicant Signature

March 23, 2026

Date



**Planning Department
Site Plan Review Application**

If the applicant is not the property owner, the property owner must read and sign below:

The undersigned affirms and acknowledges that he, she or they are the owner(s) of the property described in this application, and:

N/A

- Is/are aware of the contents of this application and related enclosures.
- Authorizes the applicant to submit this application and represent the undersigned in the matter being reviewed the Cascade Charter Township.
- Grants the Cascade Charter Township staff the right to access the subject property for the sole purpose of evaluating the application.

Property Owner Name (printed)

Property Owner Signature

Date

Office Use Only

Case #: _____ Date Received: _____

Fee: _____ Date Approved: _____ Date Denied: _____

Approved by: _____

CASCADE ENGINEERING BUURSMA PLANT ADDITION

SITE PLAN REVIEW SUBMITTAL CASCADE TOWNSHIP

Project Overview

Located at 4950 37th Street SE, the proposed project is an expansion of the existing Cascade Engineering Buursma Plant. The site is zoned industrial, in addition to the surrounding properties.

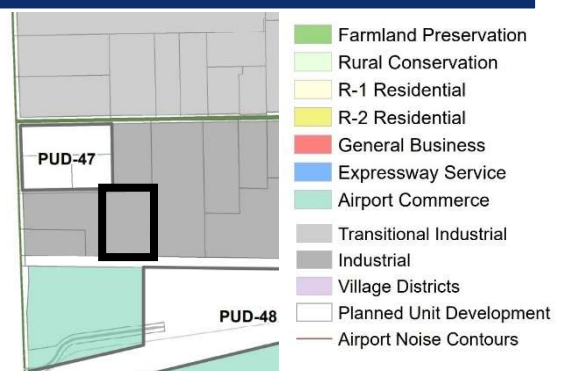
The existing building area measures 57,448 square feet. The proposed expansion will add 61,580 square feet of building area, for a total of 119,028 square feet. An existing office area of 5,538 square feet will remain in use, with the remaining 113,447 square feet being used for industrial and manufacturing processes. Additional truck docks will be added along the north face of the existing building. Truck trailer parking is proposed in the north area of the existing truck loading area. A fire lane is proposed to allow fire access around the new building addition. The fire lane measures 26 feet wide at fire hydrant locations, and additional width is provided at the ninety-degree turn to allow for future equipment delivery. A modified fire truck turnaround is proposed at the end of the fire lane. This layout is not a standard IFC detail but provides adequate turnaround space for a fire truck. A total of 25 parking spaces are provided on site, and an additional 47 parking spaces are provided in a parking lot on a neighboring property for a total of 70 spaces. This parking is covered by an existing parking agreement with the neighboring property owner. The manufacturing process involves the use of several large presses that consume a large amount of floor area. It is more reasonable to utilize usable floor area to calculate the required parking for the site. Based on usable floor area, 65 parking spaces are required for the proposed expansion. A drawing showing the proposed equipment layout is attached.

Currently zoned in the Industrial District (I), the applicant is seeking site plan approval. The site is in an industrial area, and north of the Kent County Road Commission South Complex. The proposed expansion is expected to fit well within the broader context of uses and zoning.

Variances

The site plan requires the approval of a variance for the Front Yard Building Setback. A separate application for a variance has been made to Cascade Township.

CASCADE TOWNSHIP ZONING MAP, 2026



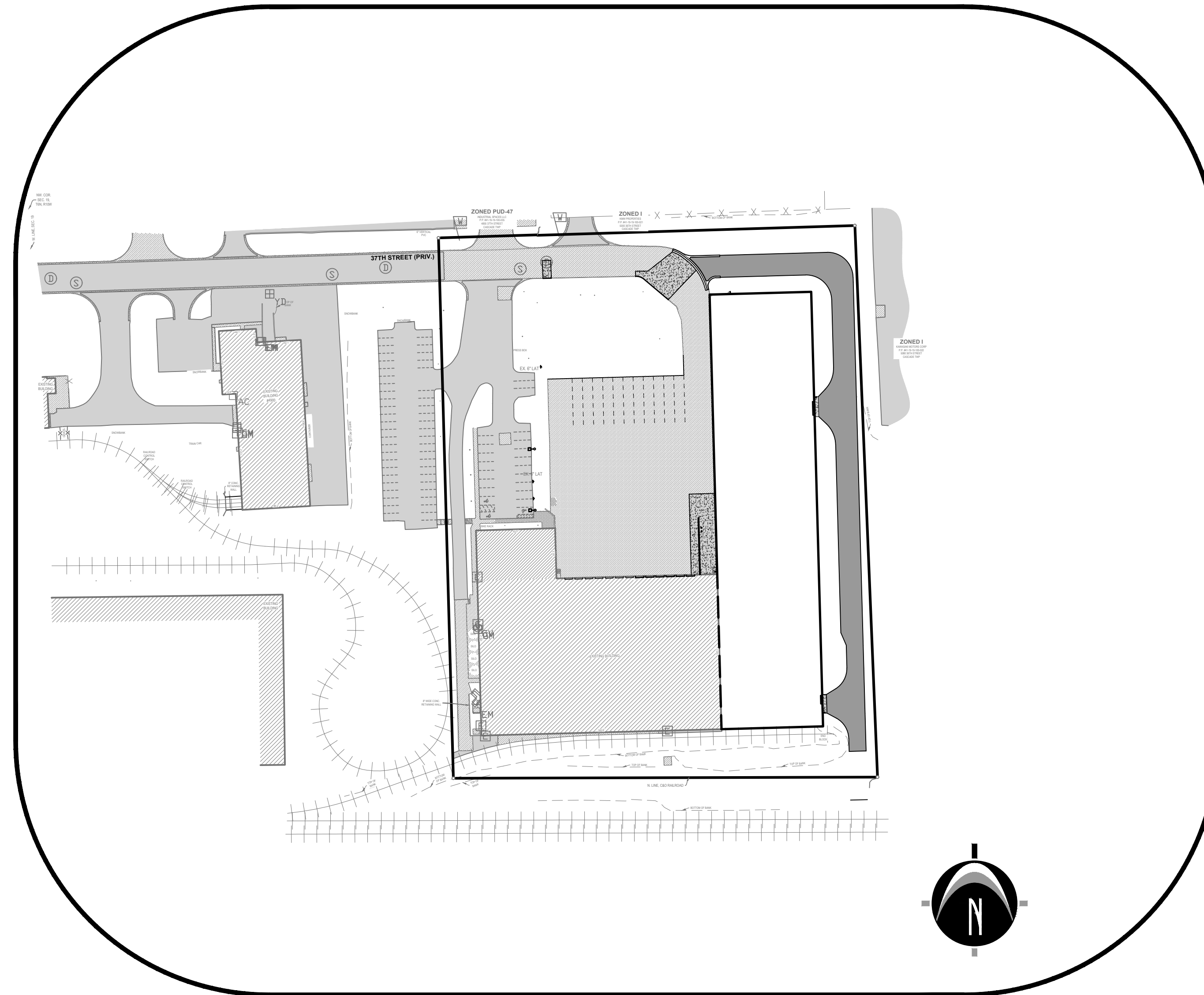
CASCADE ENGINEERING

BUURSMA PLANT ADDITION

TOWNSHIP OF CASCADE, KENT COUNTY, MICHIGAN

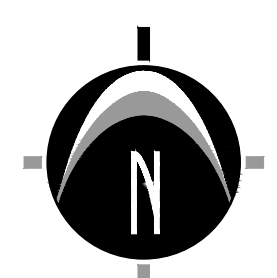


SITE PLAN



SHEET INDEX

Cover Sheet	C-100
Existing Site Conditions Plan	C-201
Demolition Plan	C-203
Site Layout Plan	C-205
Vehicle Navigation Plan	C-206
S.E.S.C. & Grading Plan	C-300
Fire Lane Grading Plan & Profile	C-301
Parking Lot Grading Detail Plan	C-302
Utility Plan	C-400
Fire Service Plan & Profile	C-401
Utility Plan - Fire Hydrant Exhibit	C-402
Details and Specifications	C-500



BENCHMARKS

- BENCHMARK #3000 ELEV. = 765.79 (NAVD88)**
Top of flange bolt under "E" in E/JW on hydrant located 25± North of the centerline of 37th Street and 120± East of Building #4855
- BENCHMARK #3005 ELEV. = 781.22 (NAVD88)**
Set mag nail in Southwest side of light pole, located 23± North of and 70± East of the Northwest corner of Existing Building
- BENCHMARK #3310 ELEV. = 764.72 (NAVD88)**
Railroad spike on power pole, located 17± West of and 105± North of the Northeast corner of Existing Building #4900
- BENCHMARK #4517 ELEV. = 778.63 (NAVD88)**
Top of northwesterly flange bolt on hydrant, located 31± West of and 50± South of the Northwesterly corner of Existing Building

LEGAL DESCRIPTION

Land situated in the Township of Cascade, Kent County, Michigan:

That part of the Northwest 1/4 of Section 19, Town 6 North, Range 10 West, described as: Commencing at the Northwest corner of Section 19; thence South 2 degrees 46 minutes 29 seconds East 661.92 feet along the West line of said Northwest 1/4; thence North 88 degrees 14 minutes 11 seconds East 804.96 feet parallel with the North line of said Northwest 1/4 to the Place of Beginning of this description; thence North 88 degrees 14 minutes 11 seconds East 116.87 feet; thence South 2 degrees 21 minutes 25 seconds East 0.55 feet; thence North 88 degrees 14 minutes 11 seconds East 375.00 feet along a line which is parallel with and 662.40 feet South of the North line of said Northwest 1/4; thence South 2 degrees 21 minutes 25 seconds East 651.62 feet; thence South 89 degrees 50 minutes 31 seconds West 500.95 feet along the North line of the C&O Railroad Right of Way (100 feet wide); thence North 1 degree 34 minutes 20 seconds West 638.10 feet to the Place of Beginning.

Subject to and together with an easement for ingress and egress described as: 33 feet on either side of a line described as: That part of the Northwest 1/4 of Section 19, Town 6 North, Range 10 West, described as: Commencing at the Northwest corner of Section 19; thence South 2 degrees 46 minutes 29 seconds East 661.92 feet along the West line of said Northwest 1/4 to a point which is North 2 degrees 46 minutes 29 seconds West 583.00 feet from the North line of the C & O Railroad Right of Way (100 feet wide); thence North 88 degrees 14 minutes 11 seconds East 50.01 feet parallel to the North line of said Northwest 1/4 to a point on the East line of Patterson Avenue (100 feet wide) and the Place of Beginning of the centerline of a 66.00 foot wide strip of land; thence North 88 degrees 14 minutes 11 seconds East 1246.58 feet to the Place of Ending of the centerline of said 66.00 foot wide strip of land.

PREPARED FOR:

REVISIONS:

Title: Site Plan Review
Drawn: CM Checked: Date: 2026.03.24

CASCADE ENGINEERING
BUURSMA PLANT ADDITION

Cover Sheet

4950 37th Street SE
PART OF THE NORTHWEST 1/4 OF SECTION 19, T6N, R10W,
TOWNSHIP OF CASCADE, KENT COUNTY, MICHIGAN

SEAL:



PROJECT NO:
26400118

SHEET NO:

C-100



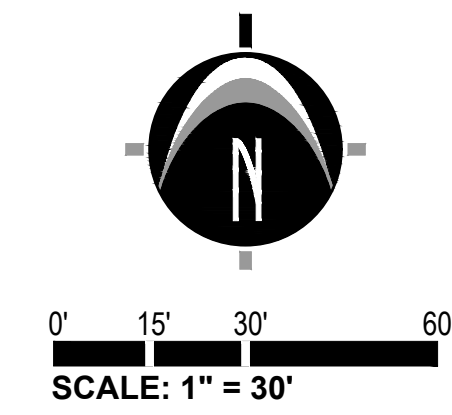
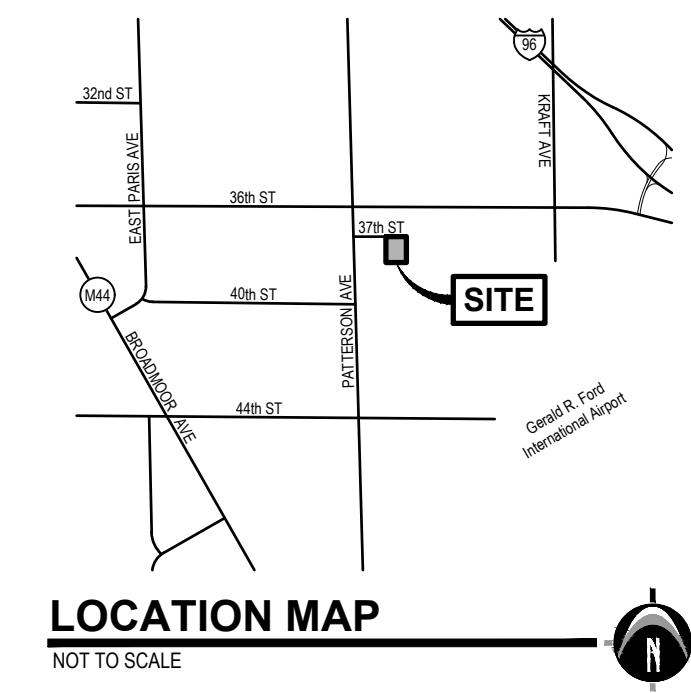
UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

NOTE:
EXISTING UTILITIES AND SERVICE LINES IDENTIFIED AS "PLANS" WERE OBTAINED FROM AVAILABLE AS-BUILT RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH AND STATUS OF ALL UTILITIES AND SERVICE LINES PRIOR TO NEW CONNECTIONS.

PREPARED FOR:

REVISIONS:

REVISIONS:
 Title: Site Plan Review
 Drawn: CM Checked: Date: 2026.03.24



CASCADE ENGINEERING
BUURSMA PLANT ADDITION
 Site Layout Plan
 4950 37th Street SE
 PART OF THE NORTHWEST 1/4 OF SECTION 19, T6N, R10W,
 TOWNSHIP OF CASCADE, KENT COUNTY, MICHIGAN

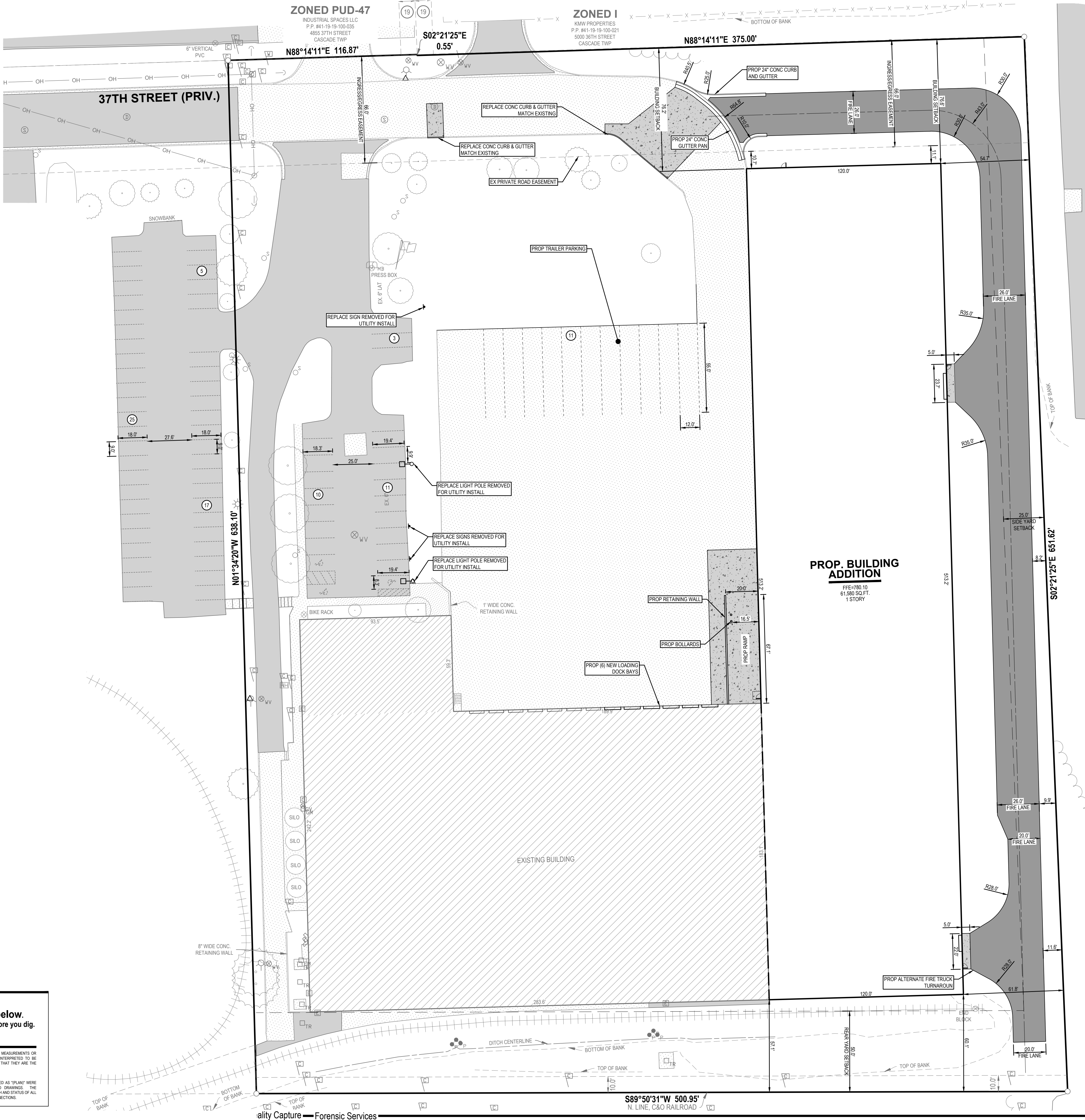


PROJECT NO:
26400118

SHEET NO:
C-205

Christopher Miller

26400118-CP-ENG CM 3/30/2026 08:51
 Cascade Charter Township May 18, 2026 Planning Commission Packet Page 26 of 66



ZONED I
 KAWASAKI MOTORS CORP
 P.P. #41-19-19-100-022
 5880 37TH STREET
 CASCADE TWP

LEGEND

- EXISTING BITUMINOUS
- EXISTING CONCRETE
- PROPOSED BITUMINOUS (STANDARD DUTY)
- PROPOSED BITUMINOUS (HEAVY DUTY)
- PROPOSED CONCRETE (STANDARD DUTY)
- PROPOSED CONCRETE (HEAVY DUTY)

GENERAL NOTES

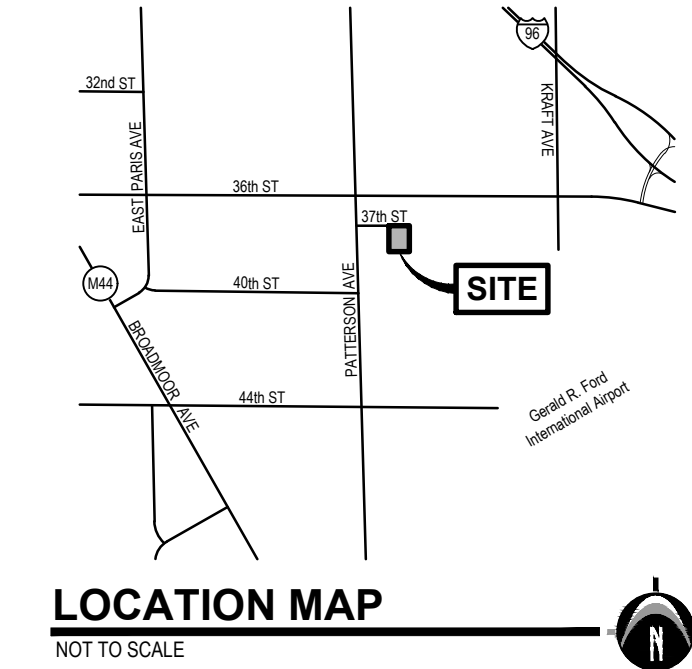
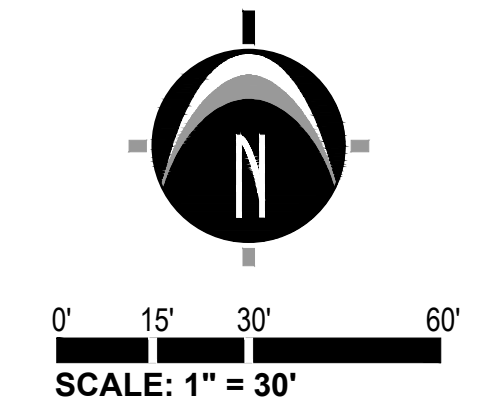
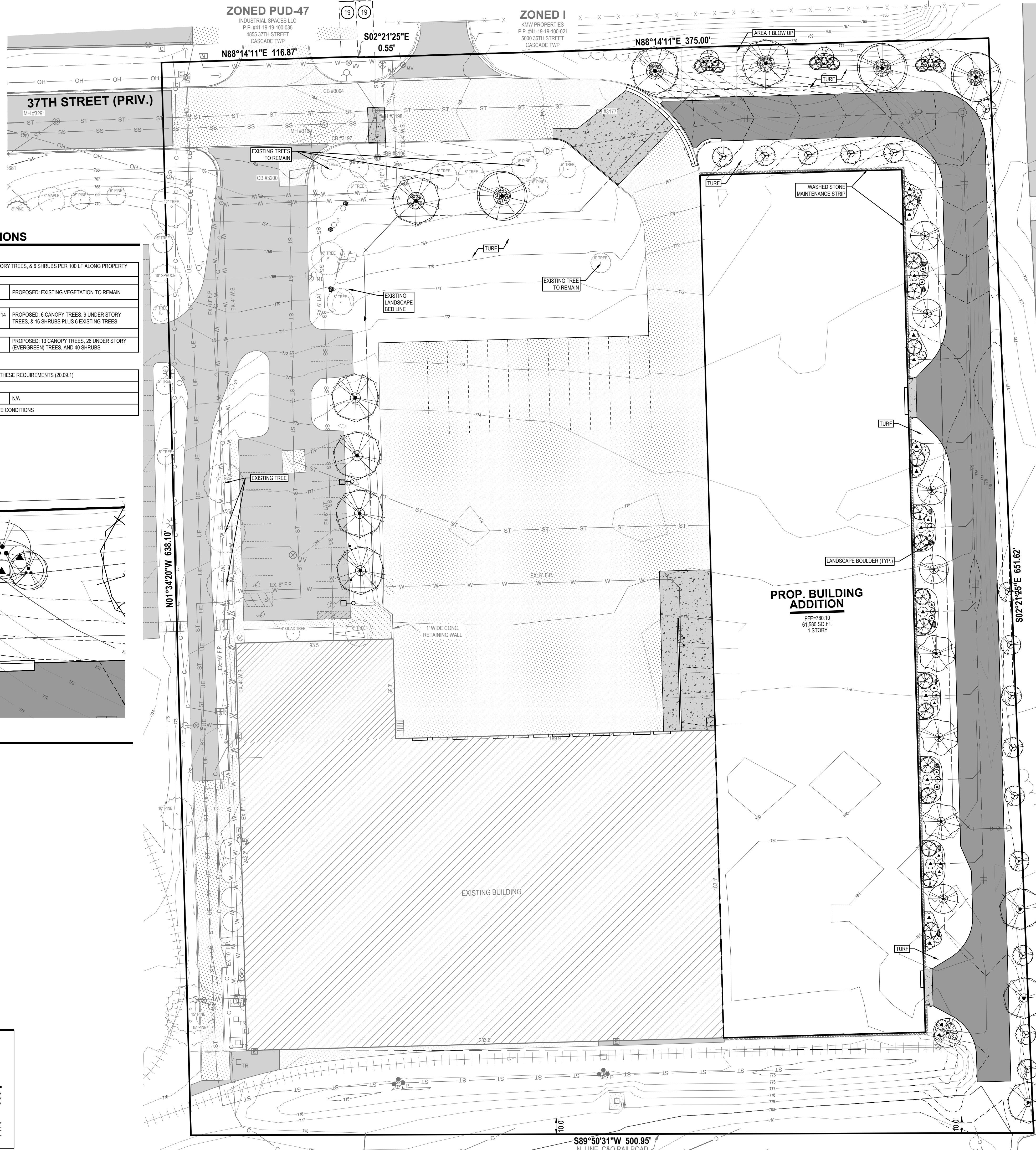
- ZONING OF PROPERTY: I-INDUSTRIAL
- ZONING REQUIREMENTS:
 - A) MINIMUM LOT AREA = 87,120 SQ. FT.
 - B) MINIMUM LOT WIDTH = 200 FT.
 - C) MAXIMUM BUILDING HEIGHT = 45 FT OR 2 STORIES
 - D) MAXIMUM LOT COVERAGE = 30%
 - E) MAXIMUM LOT COVERAGE (TOTAL IMPERVIOUS) = 50%
- SETBACKS:
 - A) FRONT YARD = 100 FT.
 - B) SIDE YARD = 25 FT.
 - C) REAR YARD = 50 FT.
- SUMMARY OF LAND USE:
 - A) TOTAL ACREAGE = 7.31 ACRES (318,424 SQ. FT.) (EXCLUDING R.O.W.)
 - B) AREA OF PROPOSED BUILDING = 119,028 SQ. FT. (TOTAL BUILDING AREA)
 - C) BUILDING HEIGHT = APPROX. 43.75 FT.
 - D) LOT COVERAGE = 37.4%
 - E) LOT COVERAGE (TOTAL IMPERVIOUS) = 72.7%
 - F) ZONING OF PARCELS TO SOUTH AND WEST = I
 - ZONING OF PARCELS TO NORTH AND EAST = I
- PARKING REQUIREMENTS:

A) MINIMUM REQUIRED SPACE PER TOWNSHIP = 9x18' (24' AISLE)	
B) TYPICAL PARKING SPACE PROVIDED = 9x18' (24' AISLE)	
C) TYPICAL VAN ACCESSIBLE PARKING SPACE = 11x18' WITH 5' AISLE	
D) TYPICAL CAR ACCESSIBLE PARKING SPACE = 9x18' WITH 5' AISLE	
E) NUMBER OF SPACES REQUIRED = 65 (BASED ON TOWNSHIP REQUIREMENT, USABLE FLOOR AREA)	
OFFICE SPACE	3 PER 1,000 SQ. FT.
MANUFACTURING	1.5 PER 1,000 SQ. FT.
WAREHOUSE	0.67 PER 1,000 SQ. FT.
OFFICE SPACE	5,456 SQ. FT. 16 SPACES
MANUFACTURING	20,000 SQ. FT. 30 SPACES
WAREHOUSE	28,175 SQ. FT. 19 SPACES
TOTAL	65 SPACES
- NUMBER OF PARKING SPACES PROVIDED = 70
- THIS PROJECT IS NOT LOCATED IN THE 100 YEAR FLOOD PLAIN, BASED ON THE NATIONAL FLOOD INSURANCE PROGRAM RATE MAPS.
- BEST MANAGEMENT PRACTICES WILL BE UTILIZED DURING AND AFTER CONSTRUCTION OF THE PROJECT. MEASURES WILL INCLUDE THE USE OF SEEDING AND MULCHING, SEDIMENT INLET FILTERS, COMPACTION AND PAVING. THE OWNER OF THE SUBJECT PARCEL SHALL HAVE THE RESPONSIBILITY TO MAINTAIN THE PERMANENT SOIL EROSION PROTECTION MEASURES.
- UTILITIES SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.
- CONTRACTOR TO FIELD VERIFY ALL INVERTS.
- ALL LIGHTING SHALL BE SHIELDED FROM ALL ADJACENT PROPERTIES. PROPOSED LIGHTING SHALL CONSIST OF WALL-MOUNTED LIGHTS AND LIGHT POLES, BOTH FITTED WITH DOWN CAST TYPE FIXTURES TO BE SPECIFIED BY LIGHTING CONSULTANT.
- THE PERMANENT PARCEL NUMBER FOR THE SITE IS 41-19-19-100-033. THE ADDRESS OF THE PROPERTY IS 4950 37TH STREET SOUTHEAST.
- NO FENCES OR WALLS OTHER THAN WHAT IS SHOWN ON THE SITE PLAN ARE PROPOSED AT THIS TIME.

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

UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

NOTE: EXISTING UTILITIES AND SERVICE LINES IDENTIFIED AS "PLANS" WERE OBTAINED FROM AVAILABLE AS-BUILT RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH AND STATUS OF ALL UTILITIES AND SERVICE LINES PRIOR TO NEW CONNECTIONS.



LANDSCAPE CALCULATIONS

BUFFER YARDS: SEC. 20.04

TYPE C: 20 FT MIN. WIDTH; 2 CANOPY TREE, 4 UNDER STORY TREES, & 6 SHRUBS PER 100 LF ALONG PROPERTY LINE ADJACENT TO INDUSTRIAL ZONING

WESTERN PROPERTY LINE (638.10)

REQUIRED: 638.10' = 13 TREES, 26 UNDER STORY TREES, AND 38 SHRUBS	PROPOSED: EXISTING VEGETATION TO REMAIN AND 38 SHRUBS
---	---

NORTHERN PROPERTY LINE (225.0' OF IMPROVEMENTS)

REQUIRED: 5 CANOPY TREES, 9 UNDER STORY TREES, & 14 SHRUBS	PROPOSED: 6 CANOPY TREES, 9 UNDER STORY TREES, & 16 SHRUBS PLUS 6 EXISTING TREES
--	--

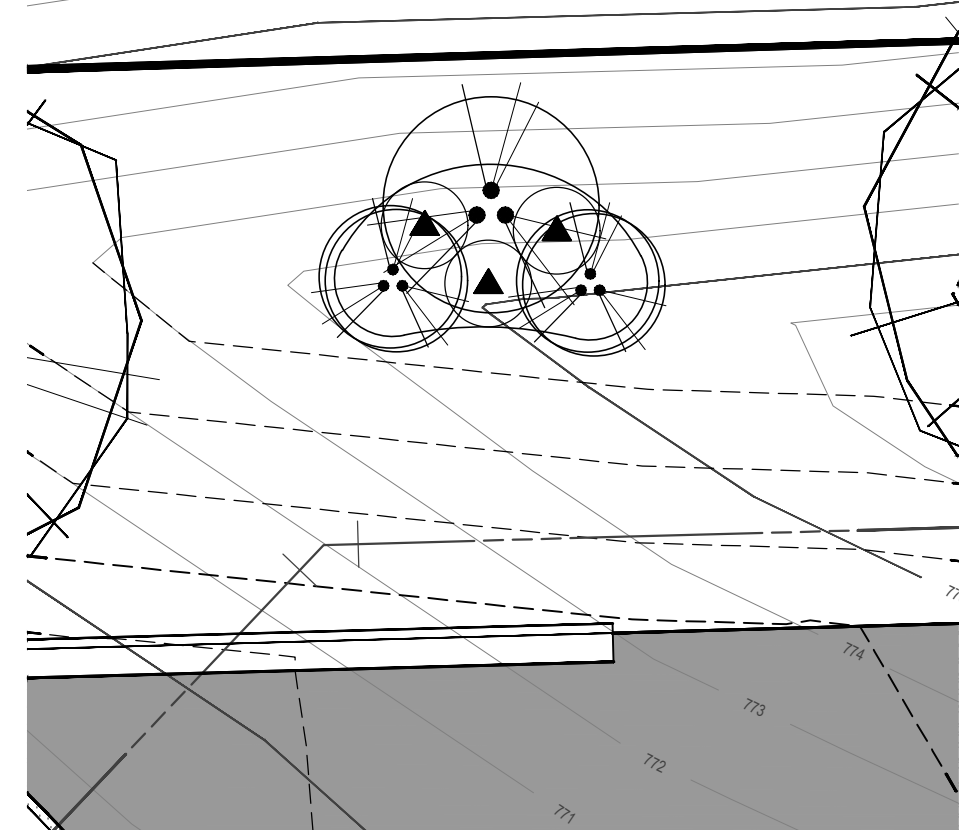
EASTERN PROPERTY LINE (651.62')

REQUIRED: 13 CANOPY TREES, 26 UNDER STORY TREES, AND 39 SHRUBS	PROPOSED: 13 CANOPY TREES, 26 UNDER STORY (EVERGREEN) TREES, AND 40 SHRUBS
--	--

PARKING LOT CANOPY TREES: SEC. 20.09

N/A - NEW INDUSTRIAL DEVELOPMENT IS EXEMPT FROM THESE REQUIREMENTS (20.09.1)
N/A
N/A

* A LESSER NUMBER IS PROPOSED DUE TO EXISTING SITE CONDITIONS



LANDSCAPE SCHEDULE

SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	QTY		
TREES							
	Aa2	Abies concolor 'Conica'	Conical White Fir	6'-10' Range	9		
	As	Amenchier laevis 'JFS-Art'	Spring Flurry® Allegheny Serviceberry	2.5' Cal.	15		
	Ame yix	Amenchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	8'110' #25	6		
	Gym ken	Gymnocladus dioica	Kentucky Coffeetree	2.5' cal.	3		
	Liq wo3	Liquidambar styraciflua 'Worpleston'	Worpleston Sweet Gum	3.0' Cal.	3		
	Lt	Liriodendron tulipifera	Tulip Poplar	2.5' Cal.	7		
	Mag nor	Magnolia virginiana 'Northern Belle'	Northern Belle Sweetbay Magnolia	7'8' Clump	3		
	Nys kdp	Nyssa sylvatica 'David Odor'	Alterburner® Tupelo	3.0' Cal.	6		
	Pic wei	Picea mariana 'Wellspire'	Wellspire Black Spruce	6'-10' Range	7		
	Qa	Quercus macrocarpa 'JFS-KW14'	Cobblestone® Oak	2.5' Cal.	3		
	SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	O.C. SPACING	QTY
SHRUBS							
	Cie tom	Clethra alnifolia 'Tom's Compact'	Tom's Compact Summersweet	#7	42" O.C.	9	
	Cor all	Cornus sericea 'Alleman's Compact'	Dwarf Red Twig Dogwood	#5	48" O.C.	18	
	Hb	Hydrangea paniculata 'L'VOBO'	Bobo® Panicle Hydrangea	#5	48" O.C.	3	
	Hw	Hydrangea quercifolia 'Pee Wee'	Pee Wee Oakleaf Hydrangea	#5	38" O.C.	4	
	Jx	Juniperus x 'Grey Owl'	Grey Owl Juniper	#5	72" O.C.	6	
	Mp	Myrica pensylvanica	Northern Bayberry	#7	72" O.C.	16	
PERENNIALS							
	Si	Sorghastrum nutans 'MNYG318153'	Golden Sunset® Indian Grass	#3	38" O.C.	38	



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PREPARED FOR:

[Redacted]

REVISIONS:

Title: Site Plan Review
Drawn: CM Checked: Date: 2026.03.24

CASCADE ENGINEERING
BUURSMA PLANT ADDITION

Landscape Plan

4850 37th Street SE
PART OF THE NORTHWEST 1/4 OF SECTION 19, T6N, R10W,
TOWNSHIP OF CASCADE, KENT COUNTY, MICHIGAN

SEAL:

Evan Gill

PROJECT NO:
26400118

SHEET NO:
L-100

BUILDING CODE INFORMATION

2021 MICHIGAN BUILDING CODE

Use Group MIXED USE B / F1 / S1
 Construction Type IIB
 Risk Category (Table 1604.5) II
 Building is fully sprinkled

CHAPTER 5: AREA / HEIGHT CALCULATIONS

OVERALL BUILDING IS TWO BUILDINGS SEPARATED BY A 3 HOUR FIRE WALL

BUILDING A (EXISTING BUILDING WITH ADDITION):
 PERIMETER: 1293.75'
 OPEN PERIMETER (35' OPEN) = 1293.75 - 120 = 1173.75
 PERCENTAGE WITH 35' OPEN = 0.91
 FROM TABLE 506.3.3.1; If = 1.00
 ALLOWABLE AREA = At + (NS x If) = 62,000 + (15,500 x 1.0) = 77,500 SF

AREA OF BUILDING WITH PROPOSED ADDITION : 77,380

BUILDING B (NEW BUILDING):
 PERIMETER: 900
 OPEN PERIMETER (50' OPEN) = 900 - 120 = 780
 PERCENTAGE WITH 50' OPEN = 0.87
 FROM TABLE 506.3.3.1; If = 1.38
 ALLOWABLE AREA = At + (NS x If) = 62,000 + (15,500 x 1.38) = 83,390 SF

AREA OF BUILDING: 39,600

ALLOWABLE BUILDING HEIGHT (Table 504.3) 75 ft
 (Table 504.4) 3 Story
 ACTUAL BUILDING HEIGHT 45 ft / 1 STORY

CHAPTER 6: TYPES OF CONSTRUCTION

Table 601 Fire-Resistance Rating Requirements for Building Elements

Structural Frame	0 hr
Bearing Walls, Ext. & Int.	0 hr
Nonbearing Walls, Ext. & Int.	0 hr
Floor Construction	0 hr
Roof Construction	0 hr

CHAPTER 9: FIRE PROTECTION SYSTEMS

BUILDING IS EQUIPPED WITH AN AUTOMATIC SPRINKLER SYSTEM

CHAPTER 10: MEANS OF EGRESS

OCCUPANT LOADS PER MBC Table 1004.1.2

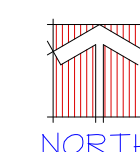
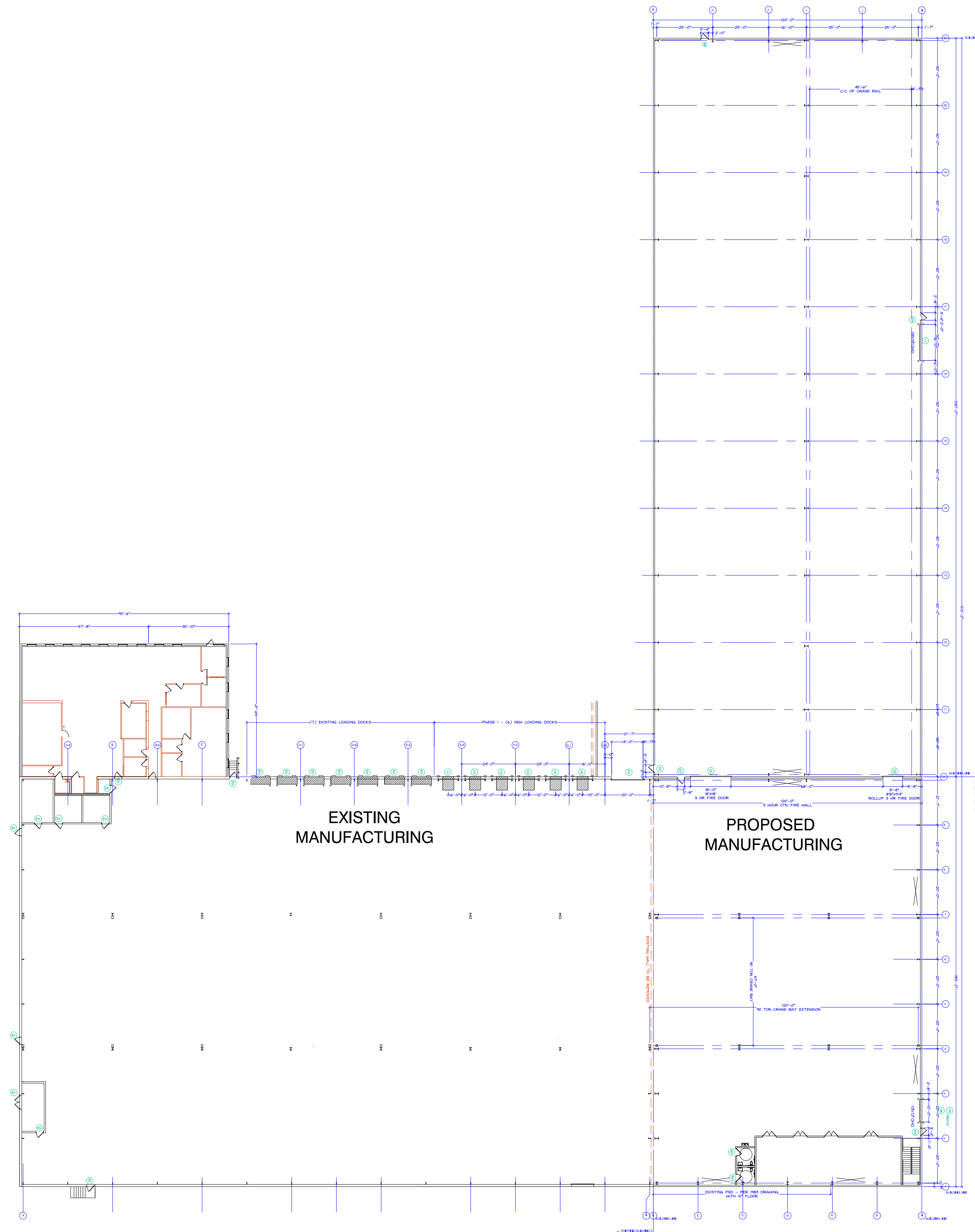
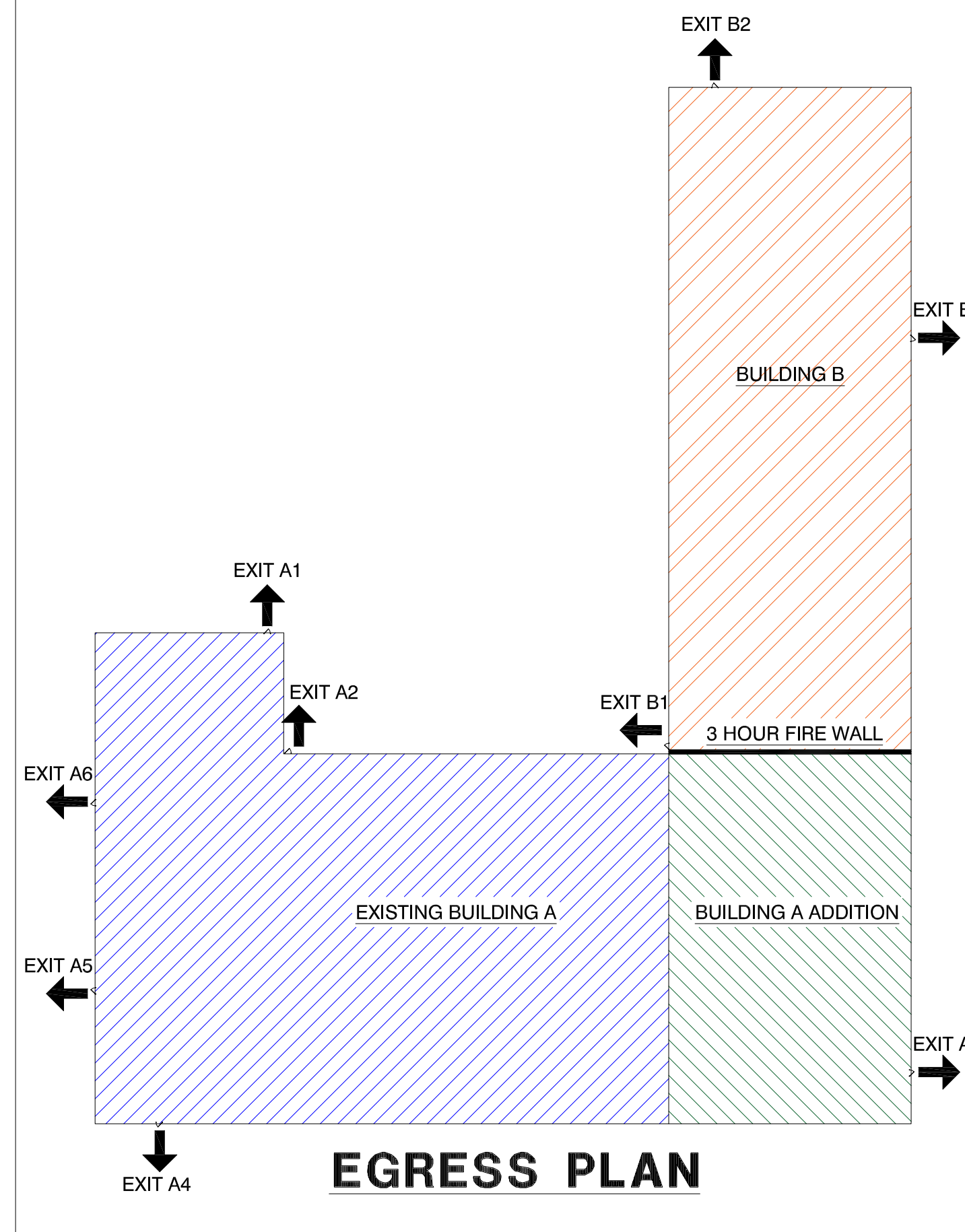
USE	AREA	AREA/OCCUPANT	OCCUPANT
WAREHOUSE	28,175 SF (USABLE)	500 SF	57 OCCUPANTS
INDUSTRIAL	20,000 SF (USABLE)	100 SF	200 OCCUPANTS
BUSINESS	5,456	150 SF	37 OCCUPANTS
TOTAL			294 OCCUPANTS

Minimum Number of Exits (MBC 1006.3.3) 2 Exit

Number of Exits Provided
 BUILDING A 6 EXITS
 BUILDING B 3 EXITS

Exit Access Doorway Configuration Meets MBC Section 1007.1.2

Exit Access Travel Distance Less than 250 feet per MBC Table 1017.2

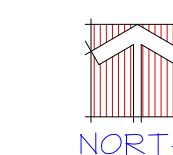
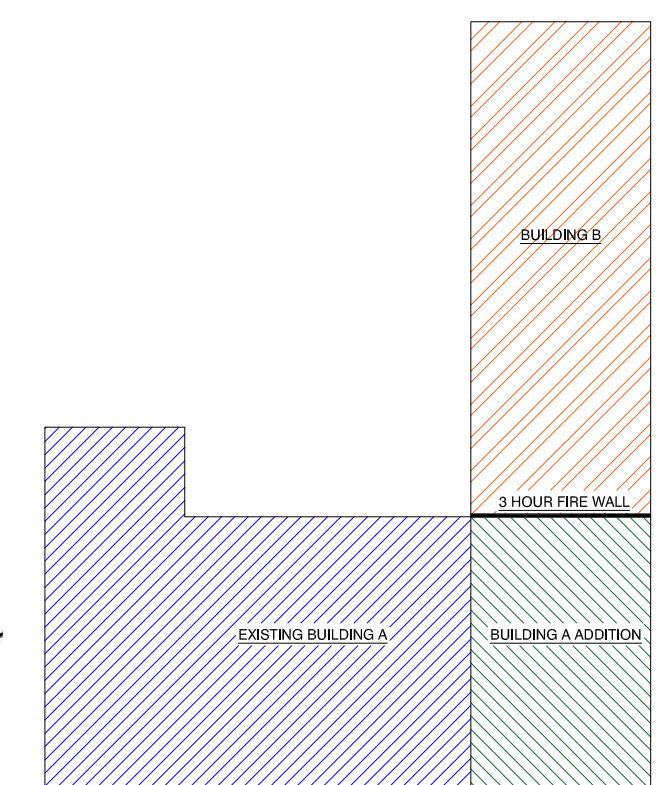


OVERALL FLOOR PLAN

SCALE 1/32" = 1'



04.01.26



KEY PLAN

SCALE 1/128" = 1'

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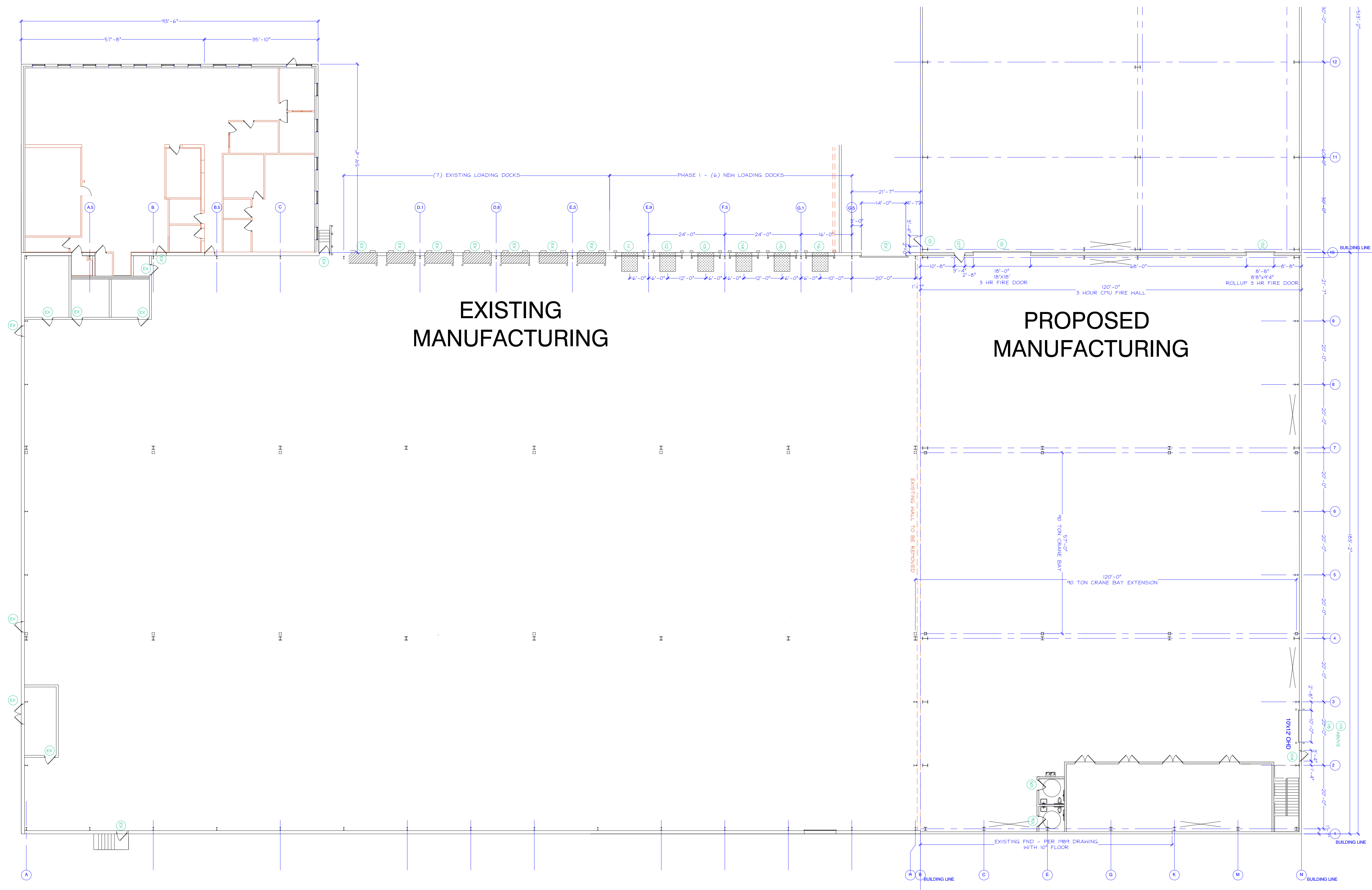
DATE	ISSUED FOR:	BY
01.08.26	PRELIMINARY	MWB
03.02.26	PRELIMINARY	
03.18.26	PRELIMINARY	
03.30.26	PRELIMINARY	
04.01.26	SITE PLAN REVIEW	

OVERALL FLOOR PLAN
CASCADE ENGINEERING
 BUURSMAN PLANT ADDITION
 4950 37th STREET
 CASCADE TOWNSHIP, MI

DRAWN BY: MWB
 JOB NUMBER: 0025-1212
 CADD REFERENCE: xxx
 PLOTTED: 04.01.26

SHEET #

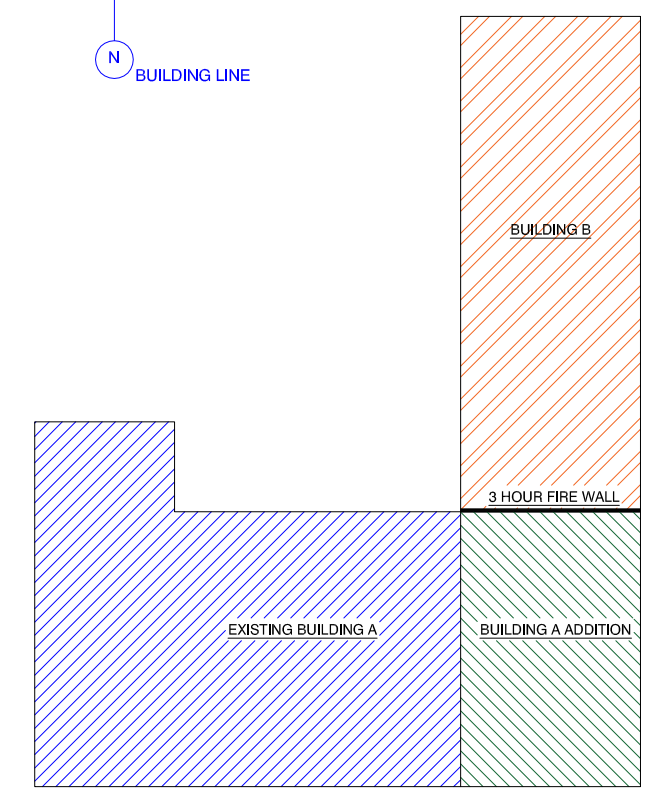
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**EXISTING
MANUFACTURING**

**PROPOSED
MANUFACTURING**

BUILDING A - FLOOR PLAN
SCALE 1/16" = 1'-0"
NORTH

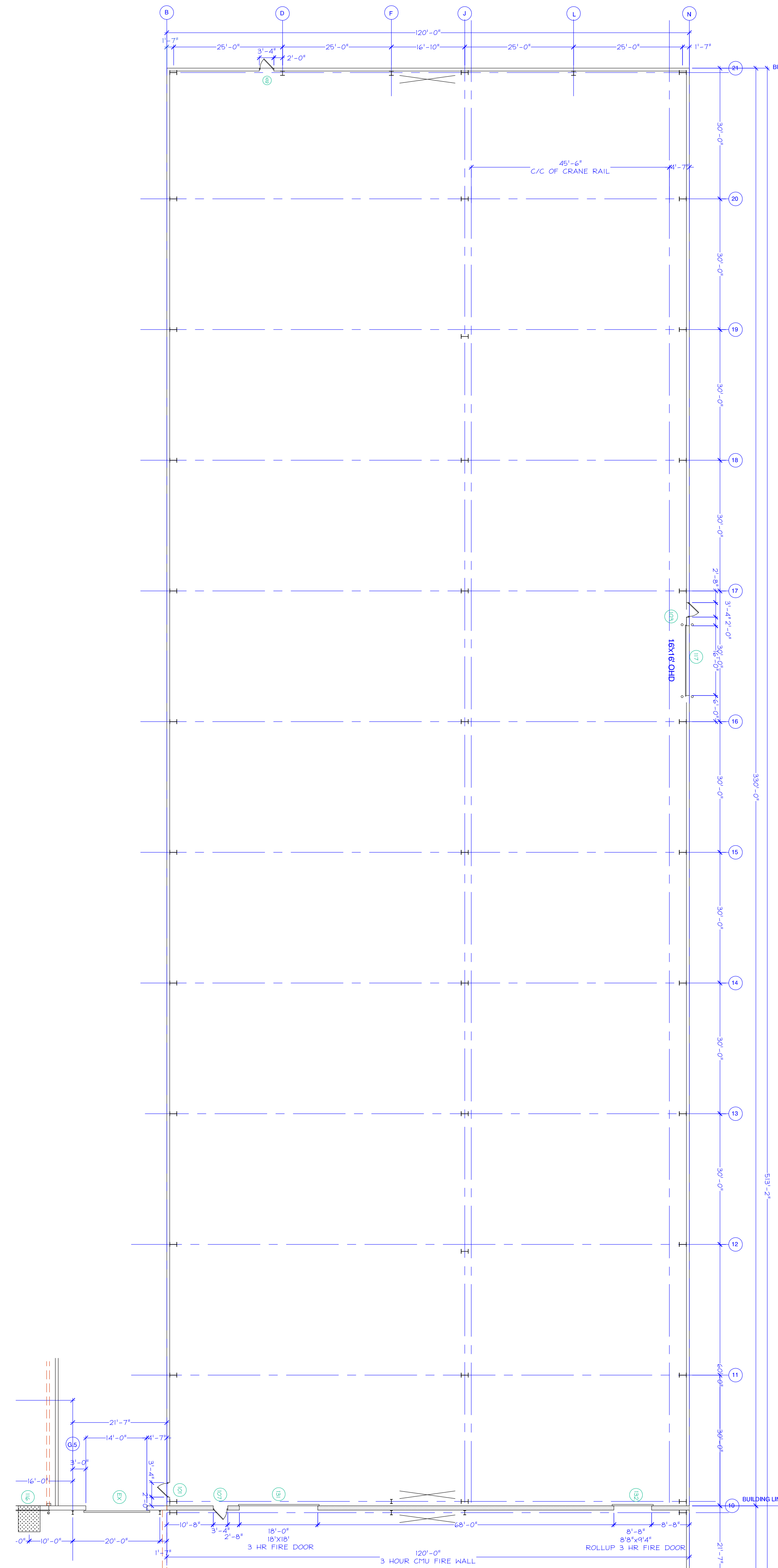


KEY PLAN
SCALE 1/128" = 1'
NORTH



04.01.26

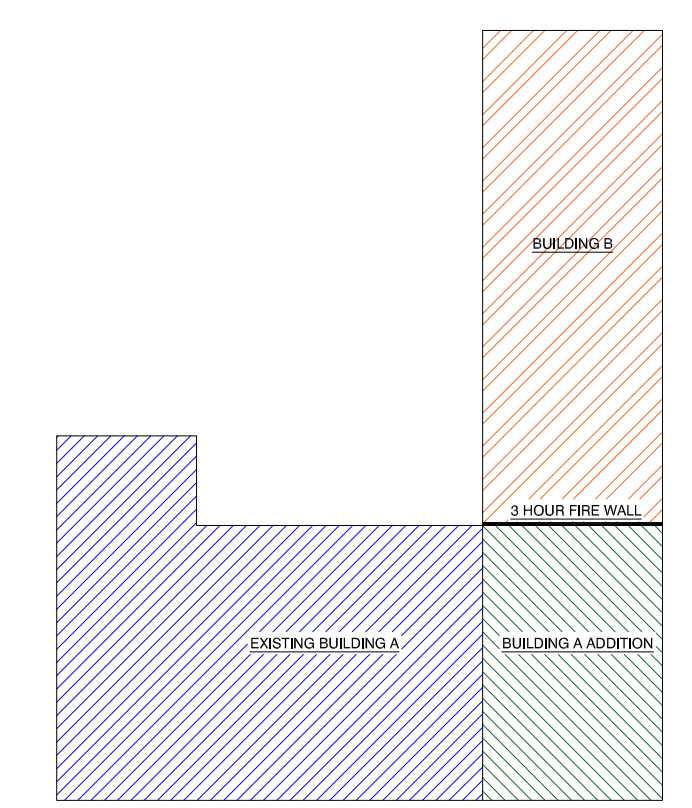
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DATE	ISSUED FOR:	BY:
01.08.26	PRELIMINARY	MMB
03.02.26	PRELIMINARY	
03.18.26	PRELIMINARY	
03.30.26	PRELIMINARY	
04.01.26	SITE PLAN REVIEW	
<p>BUILDING A - PLAN CASCADE ENGINEERING BUURSA PLANT ADDITION 4950 37th STREET CASCADE TOWNSHIP, MI</p>		
DRAWN BY: MMB		
JOB NUMBER: 0025-1212		
CADD REFERENCE: xxx		
PLOTTED: 03.30.26		
SHEET #		
A1.1		



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04.01.26



KEY PLAN
SCALE 1/128" = 1'

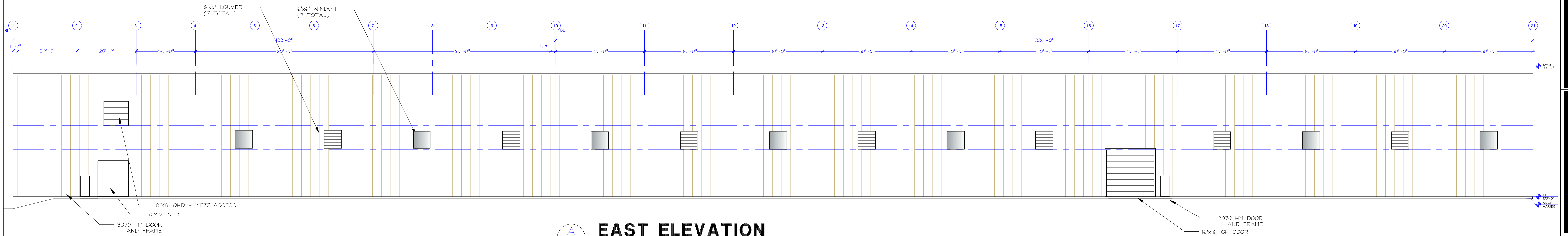
BUILDING B - ENLARGED FLOOR PLAN
SCALE 1/16" = 1'

BUILDING B - ENLARGED PLAN
CASCADE ENGINEERING
BUURSMAN PLANT ADDITION
4950 37th STREET
CASCADE TOWNSHIP, MI

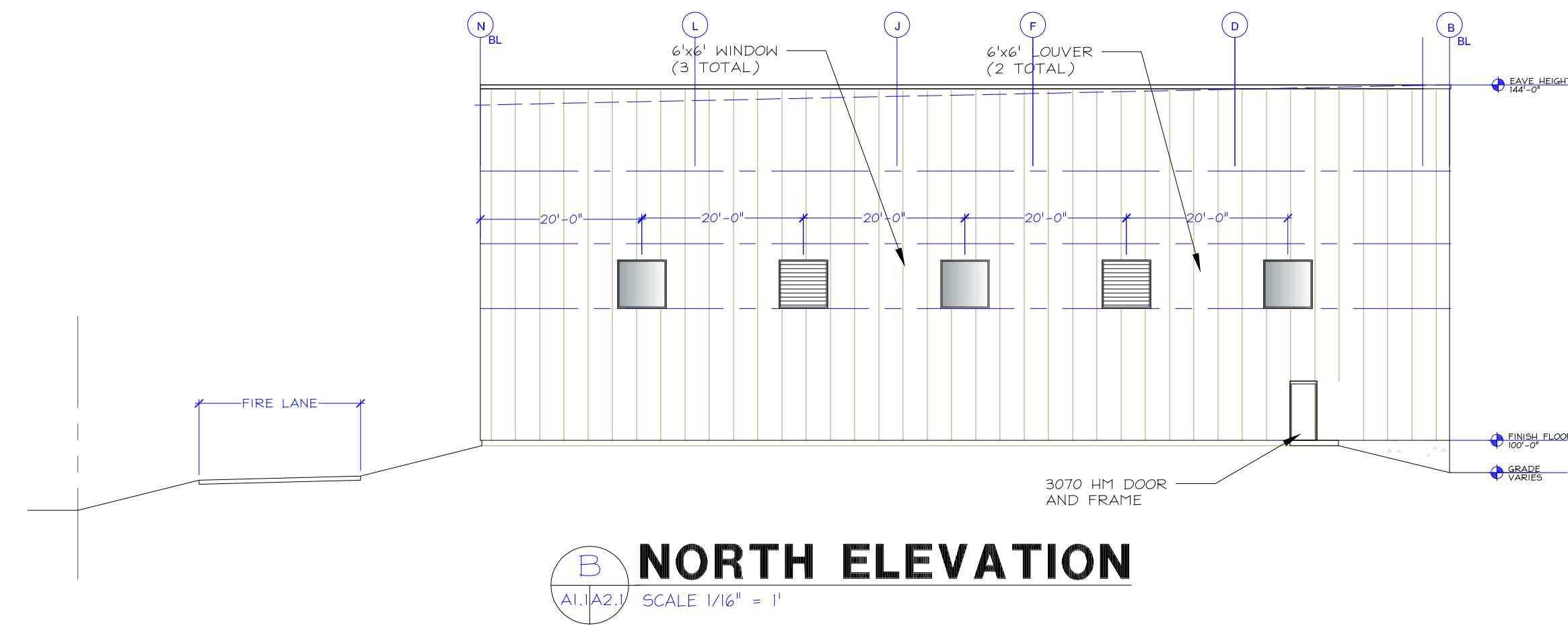
DATE	ISSUED FOR:	BY
01.08.26	PRELIMINARY	MMB
01.09.26	PRELIMINARY	
03.30.26	PRELIMINARY	

DRAWN BY: MMB
JOB NUMBER: 0025-1212
CADD REFERENCE: xxx
PLOTTED: 03.30.26
SHEET # **A1.3**

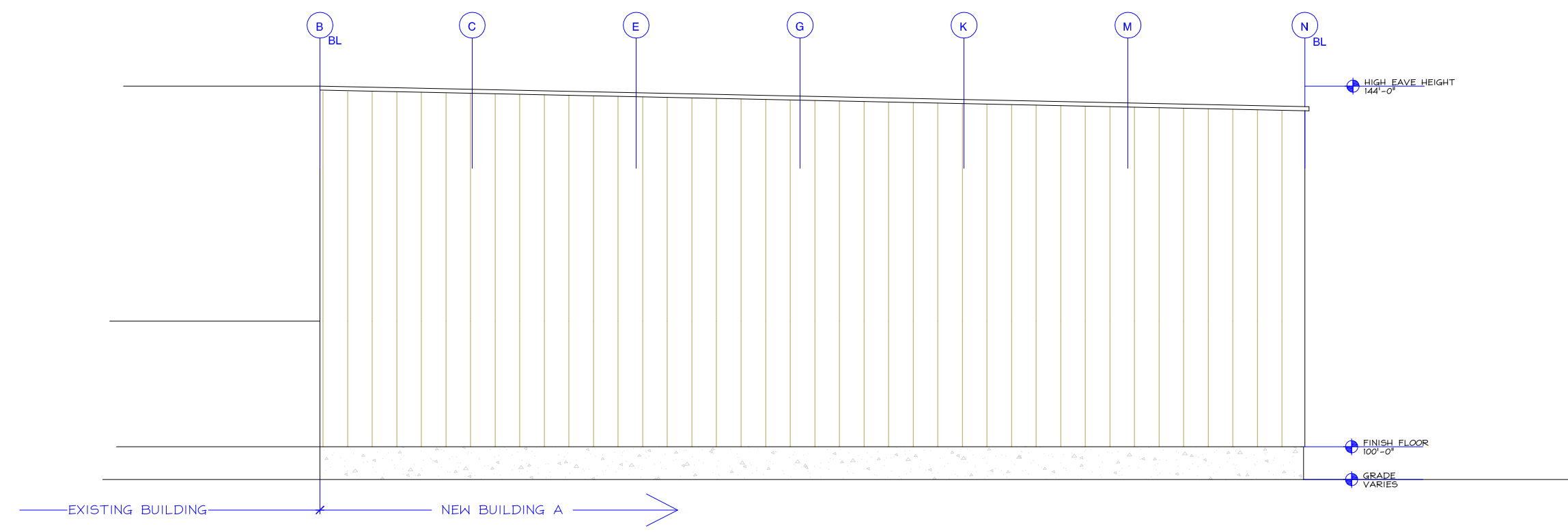
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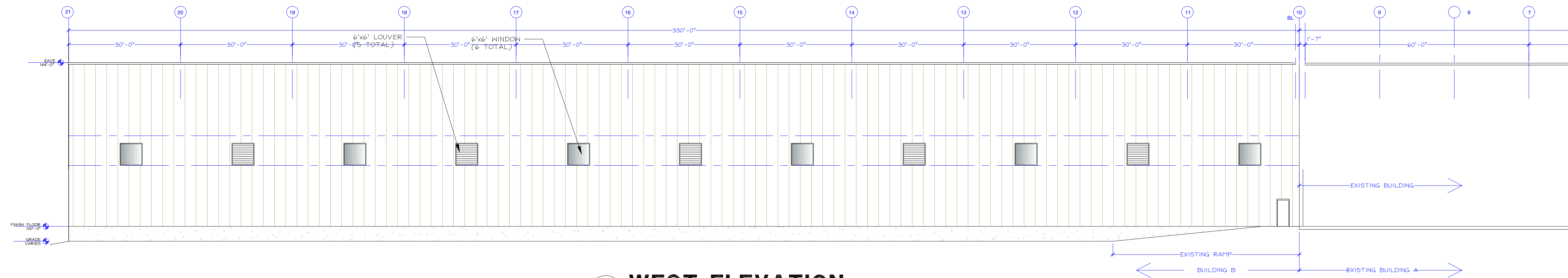
A EAST ELEVATION
 A1-A2 SCALE 1/16" = 1'



B NORTH ELEVATION
 A1-A2 SCALE 1/16" = 1'



C SOUTH ELEVATION
 A1-A2 SCALE 1/16" = 1'



A WEST ELEVATION
 A1-A2 SCALE 1/16" = 1'



04.01.26

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DATE	ISSUED FOR:	BY
01.08.26	PRELIMINARY	MMB
01.09.26	PRELIMINARY	
02.13.26	PRELIMINARY	
02.17.26	PRELIMINARY	
04.01.26	SITE PLAN APPROVAL	

PHASE 1 - ELEVATIONS
CASCADE ENGINEERING
BUURMA PLANT ADDITION
4950 37th STREET
CASCADE TOWNSHIP, MI

DRAWN BY: MMB
 JOB NUMBER: 0025-1212
 CADD REFERENCE: xxx
 PLOTTED: 04.01.26

SHEET #
A2.1

**STORMWATER MANAGEMENT
CALCULATIONS**

for

**CASCADE ENGINEERING – BUURSMA PLANT
4950 37th Street
Grand Rapids, MI**

March 23, 2026



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Stormwater Management Calculations

Storm Sewer Design

- Pipe Network Design

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NARRATIVE SUMMARY

The proposed project is located at 4950 37th Street in Cascade Township. The site is located within an area that is intensively developed for industrial uses. Current improvements to the site include a 57,437 square foot building, vehicle parking lot, truck parking lot and turnaround area, and an outdoor storage yard. Regional stormwater detention is provided by two detention basins located near the intersection of 36th Street and Patterson Avenue. The existing detention basin design was reviewed in 2010. The total drainage area to the basins is approximately 141 acres with a curve number of 90.

The proposed construction will include a 61,580 square feet expansion of the existing building, construction of a new fire lane, and expansion of the semi-truck parking area. A majority of the proposed improvements will be constructed in areas that were already occupied by impervious surfaces. An additional area of existing pavement will be removed as part of the proposed construction. The result is a net reduction in impervious surface of 118 square feet. As there is no increase in 2-year runoff volume, channel protection treatment is not required for the site. The existing detention basin will provide flood control detention. Since the development is not increasing the amount of impervious surface, the existing detention basin will continue to function as originally designed. Water quality treatment will be provided for the redeveloped portion of the site with a stormwater quality unit. The proposed design will provide improved stormwater treatment and sediment removal, and no increase in stormwater runoff.

Runoff will be conveyed to the existing storm sewer in 37th Street, where it will then be routed to the existing detention basin. The existing storm sewer pipe discharging from the site was not installed correctly during the original construction, and will need to be removed and replaced at the correct slope to provide adequate capacity. Storm sewer upstream of structure 101 was sized to convey a 100-year storm event as the site grading did not allow for adequate overland flow ways.

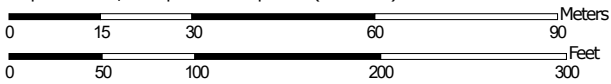
Soil Map

Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:1,240 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Hydrologic Soil Group and Surface Runoff

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

Report—Hydrologic Soil Group and Surface Runoff

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

Hydrologic Soil Group and Surface Runoff—Kent County, Michigan			
Map symbol and soil name	Pct. of map unit	Surface Runoff	Hydrologic Soil Group
19B—Blount loam, 2 to 6 percent slopes			
Blount	91	Medium	C

Stormwater Management Calculations

Project:	Cascade Engineering
Project #:	26400118
Date:	2026.03.18

Information For Determining Spillway Requirements

C-EXISTING, Overall

A. Impervious Area (C=0.9)	Length (ft)	Width (ft)	Area (s.f.)	Quantity	Total Area		
					(s.f.)	Area (Ac)	
Pavement			174,634	1	174,634	4.01	
Buildings			57,437	1	57,437	1.32	
Total							5.33
B. Detention Area (C=1.00)			0		0.00		
C. 'Green' Area			C= 0.22				
Total site area					7.31		
Total impervious area					5.33		
Change in impervious area					5.33		
Total 'Green' area					1.98		
D. Calculate C-dev =					$(.9(\text{area}.9)+0.22(\text{area}0.22)+1.0(\text{area}1.0))/\text{total area}$		C-dev = 0.72

C-DEVELOPED, Overall

A. Impervious Area (C=0.9)	Length (ft)	Width (ft)	Area (s.f.)	Quantity	Total Area		
					(s.f.)	Area (Ac)	
Existing Pavement			92,148	1	92,148	2.12	
Existing Building			57,437	1	57,437	1.32	
Proposed Pavement			20,788	1	20,788	0.48	
Proposed Building			61,580	1	61,580	1.41	
Total							5.32
B. Detention Area (C=1.00)			0		0.00		
C. 'Green' Area			C= 0.22				
Total site area					7.31		
Total impervious area					5.32		
Change in impervious area					5.32		
Total 'Green' area					1.99		
D. Calculate C-dev =					$(.9(\text{area}.9)+0.22(\text{area}0.22)+1.0(\text{area}1.0))/\text{total area}$		C-dev = 0.72

Existing Impervious Area = 232,071 sq.ft.
Proposed Impervious Area = 231,953 sq.ft.
Change in Impervious Area = -118.00 sq.ft.

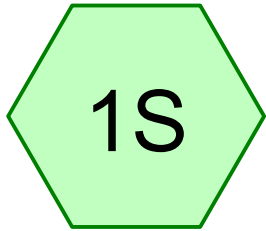
Detention Basin Calculations

Project:	Cascade Engineering
Project #:	26400118
Date:	2026.03.18

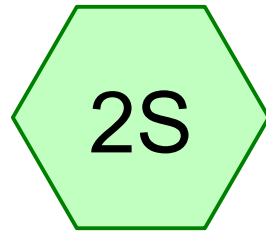
Redevelopment Area Runoff Comparison

Area = 2.70 acres
 Existing Impervious = 1.80 acres
 Proposed Impervious = 1.80 acres

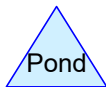
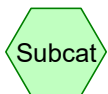
	2-year		10-year		25-year		100-year	
	Runoff Rate (cfs)	Runoff Volume (cf)	Runoff Rate (cfs)	Runoff Volume (cf)	Runoff Rate (cfs)	Runoff Volume (cf)	Runoff Rate (cfs)	Runoff Volume (cf)
Existing Site	15.97	43,908.48	26.54	74,705.40	34.35	98,140.68	48.23	140,829.48
Proposed Site	15.97	43,908.48	26.54	74,705.40	34.35	98,140.68	48.23	140,829.48
Net Change	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



Existing Site



Proposed Site



Routing Diagram for 26400118



Summary for Subcatchment 1S: Existing Site

Runoff = 15.97 cfs @ 12.17 hrs, Volume= 1.008 af, Depth> 1.65"

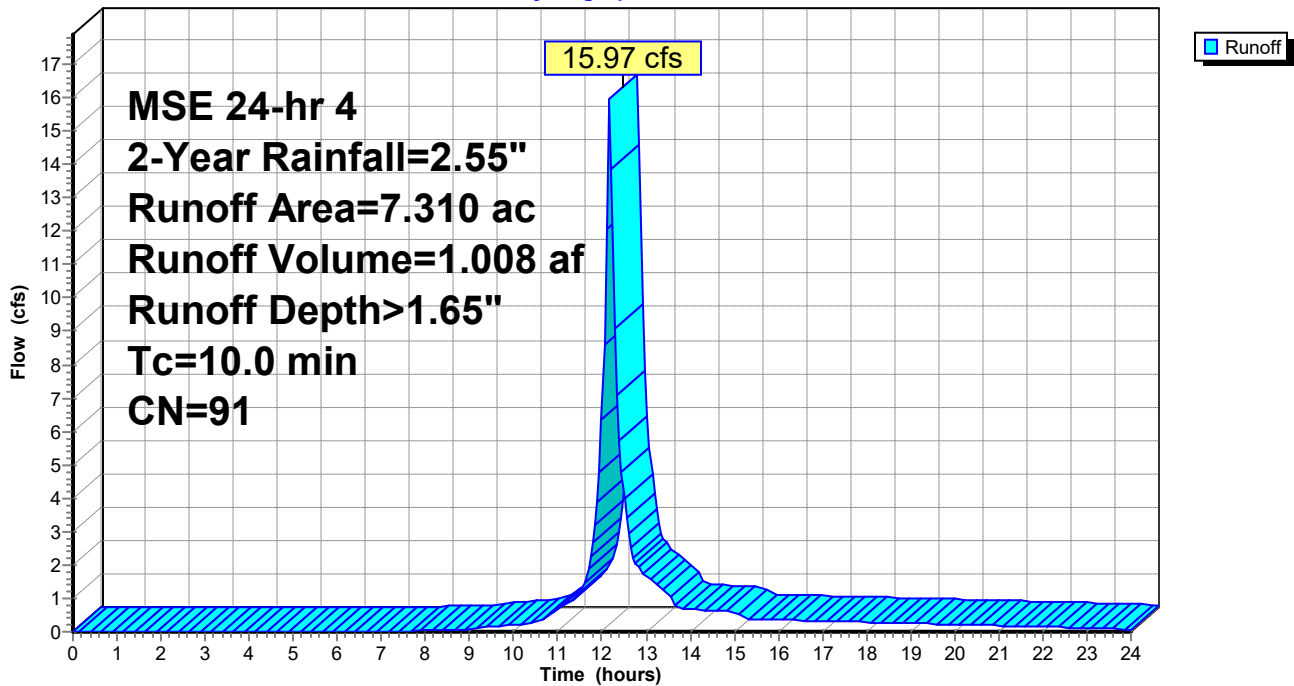
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.55"

Area (ac)	CN	Description
5.330	98	Paved parking, HSG C
1.980	74	>75% Grass cover, Good, HSG C
7.310	91	Weighted Average
1.980		27.09% Pervious Area
5.330		72.91% Impervious Area

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

Subcatchment 1S: Existing Site

Hydrograph



Summary for Subcatchment 2S: Proposed Site

Runoff = 15.97 cfs @ 12.17 hrs, Volume= 1.008 af, Depth> 1.65"

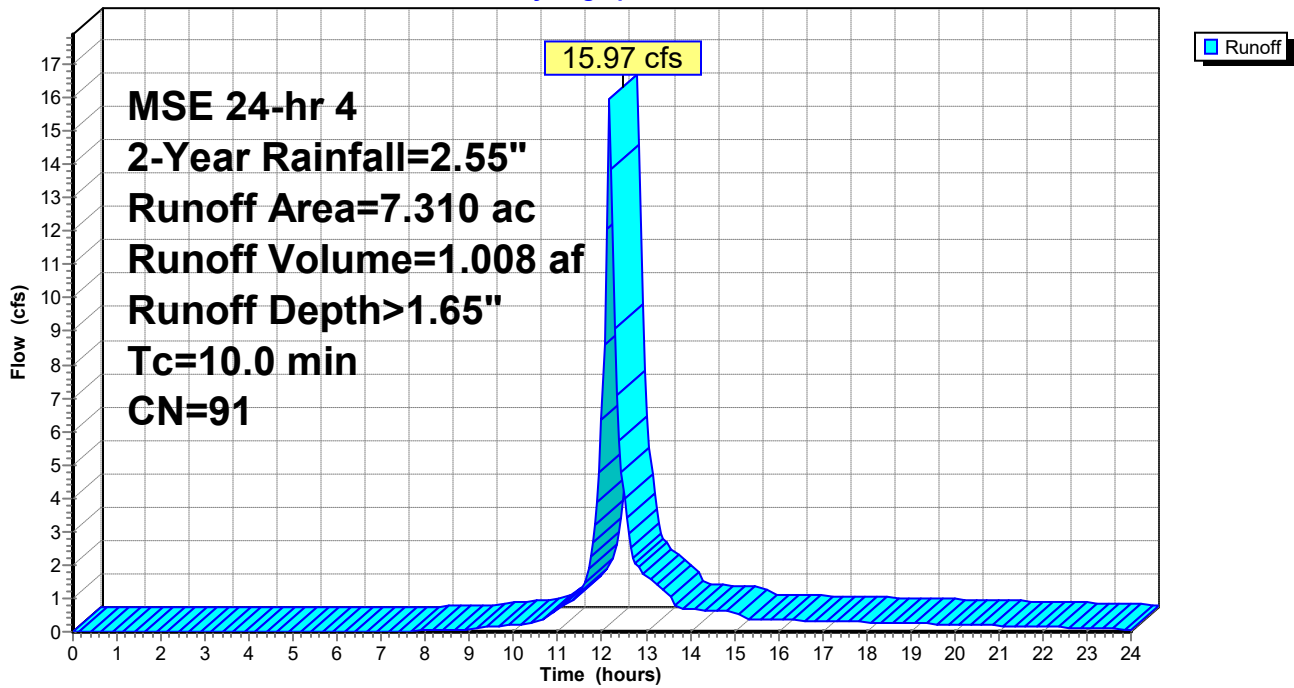
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.55"

Area (ac)	CN	Description
5.320	98	Paved parking, HSG C
1.990	74	>75% Grass cover, Good, HSG C
7.310	91	Weighted Average
1.990		27.22% Pervious Area
5.320		72.78% Impervious Area

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

Subcatchment 2S: Proposed Site

Hydrograph



Summary for Subcatchment 1S: Existing Site

Runoff = 26.54 cfs @ 12.17 hrs, Volume= 1.715 af, Depth> 2.81"

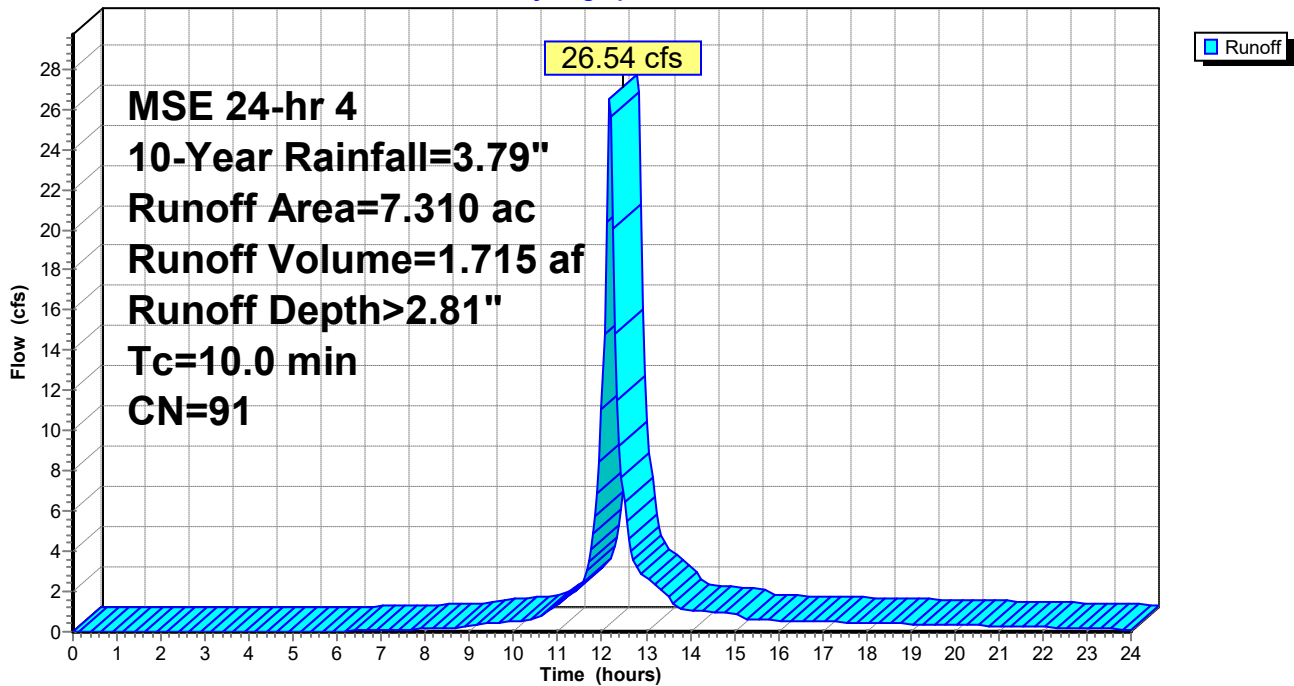
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=3.79"

Area (ac)	CN	Description
5.330	98	Paved parking, HSG C
1.980	74	>75% Grass cover, Good, HSG C
7.310	91	Weighted Average
1.980		27.09% Pervious Area
5.330		72.91% Impervious Area

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

Subcatchment 1S: Existing Site

Hydrograph



Summary for Subcatchment 2S: Proposed Site

Runoff = 26.54 cfs @ 12.17 hrs, Volume= 1.715 af, Depth> 2.81"

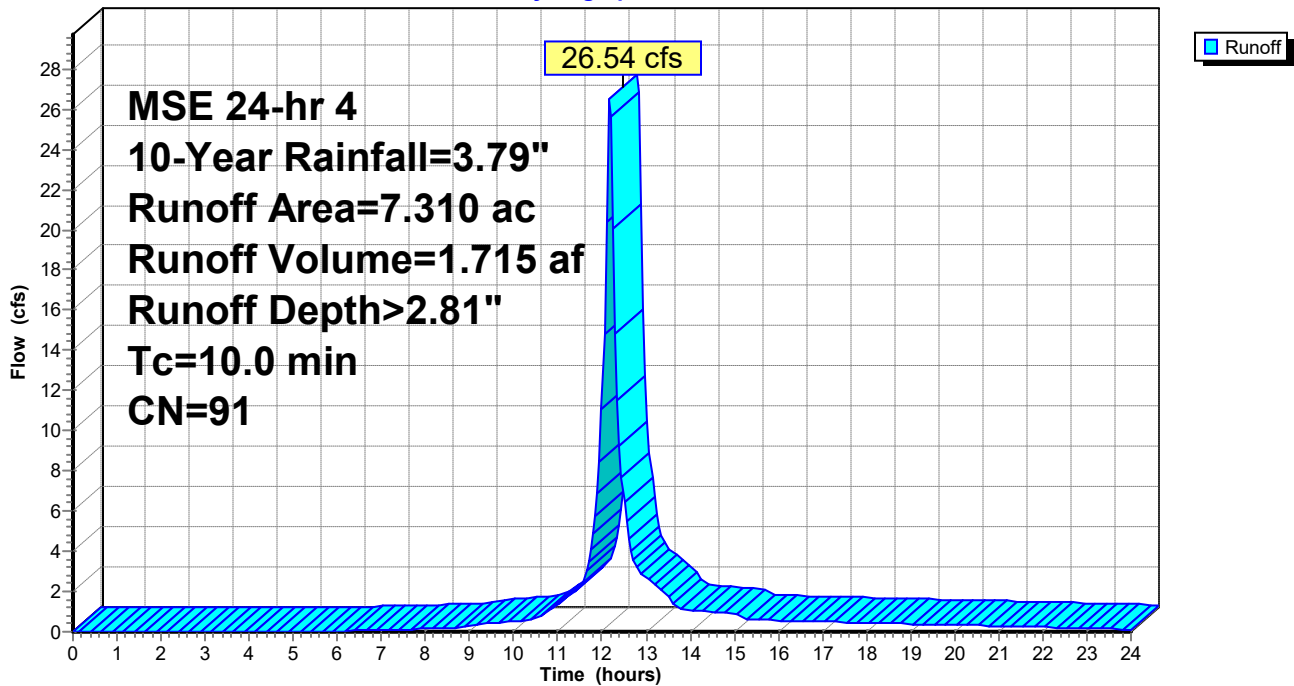
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=3.79"

Area (ac)	CN	Description
5.320	98	Paved parking, HSG C
1.990	74	>75% Grass cover, Good, HSG C
7.310	91	Weighted Average
1.990		27.22% Pervious Area
5.320		72.78% Impervious Area

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

Subcatchment 2S: Proposed Site

Hydrograph



Summary for Subcatchment 1S: Existing Site

Runoff = 34.35 cfs @ 12.17 hrs, Volume= 2.253 af, Depth> 3.70"

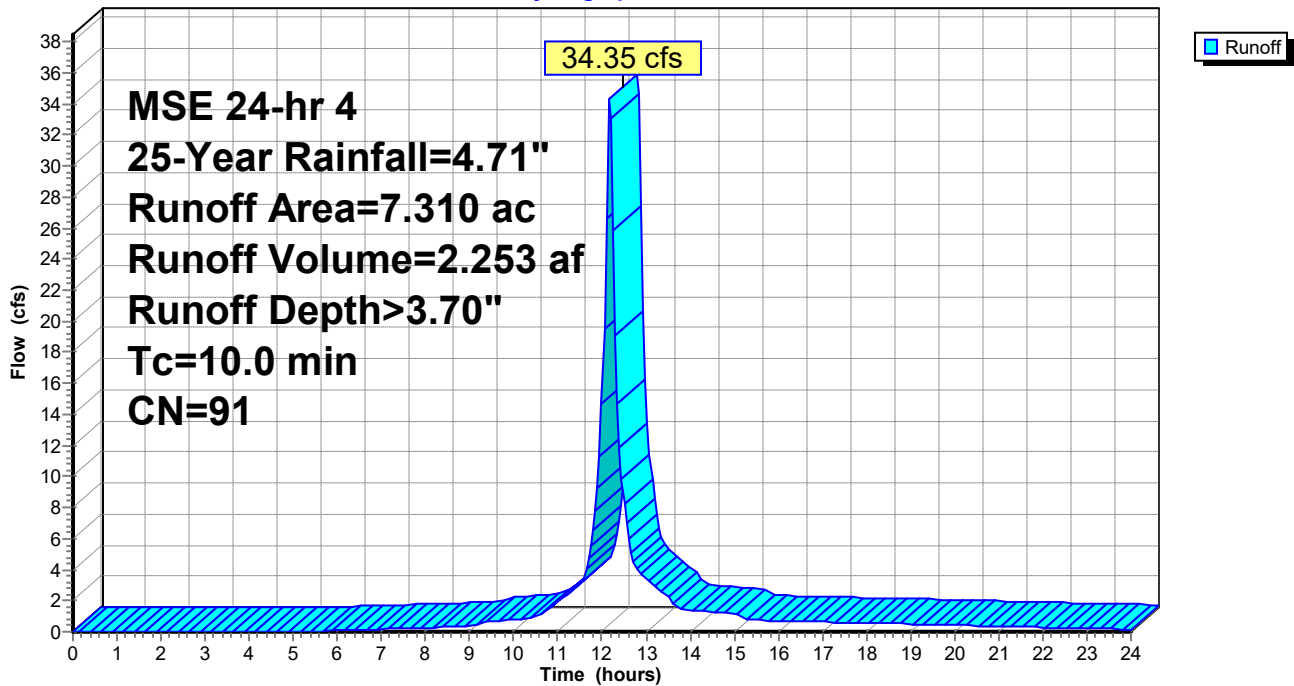
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 25-Year Rainfall=4.71"

Area (ac)	CN	Description
5.330	98	Paved parking, HSG C
1.980	74	>75% Grass cover, Good, HSG C
7.310	91	Weighted Average
1.980		27.09% Pervious Area
5.330		72.91% Impervious Area

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

Subcatchment 1S: Existing Site

Hydrograph



Summary for Subcatchment 2S: Proposed Site

Runoff = 34.35 cfs @ 12.17 hrs, Volume= 2.253 af, Depth> 3.70"

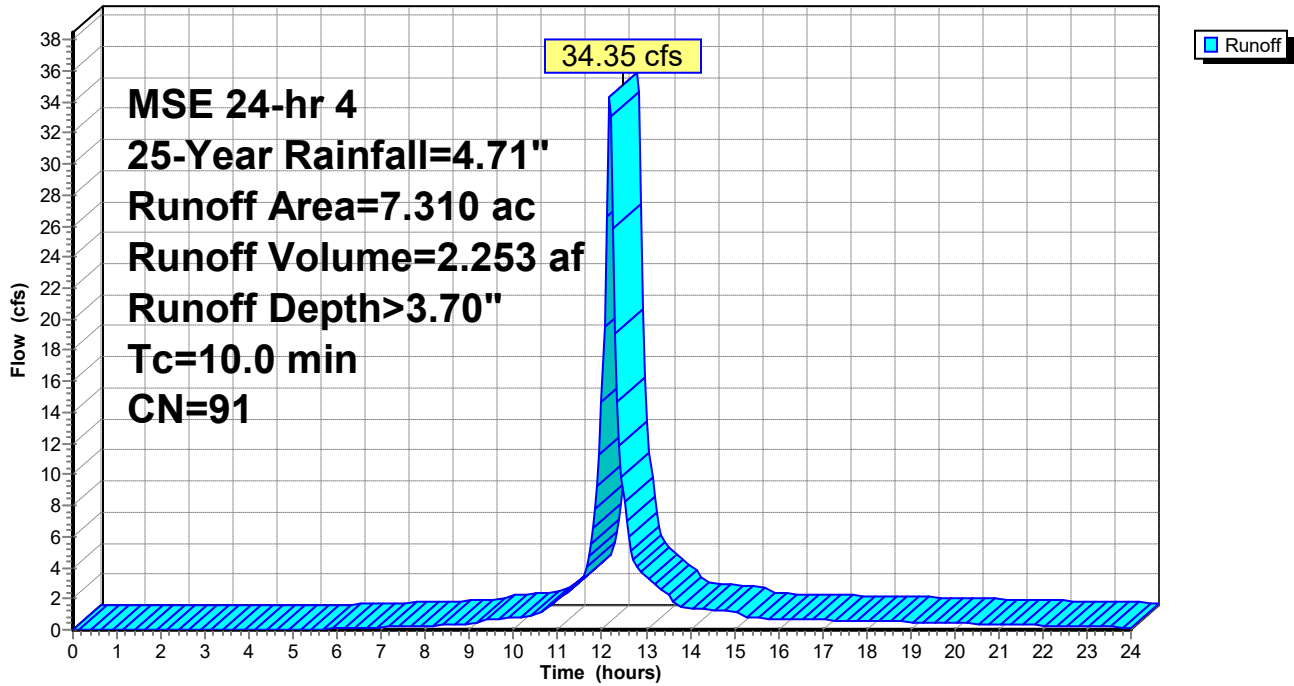
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 25-Year Rainfall=4.71"

Area (ac)	CN	Description
5.320	98	Paved parking, HSG C
1.990	74	>75% Grass cover, Good, HSG C
7.310	91	Weighted Average
1.990		27.22% Pervious Area
5.320		72.78% Impervious Area

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

Subcatchment 2S: Proposed Site

Hydrograph



Summary for Subcatchment 1S: Existing Site

Runoff = 48.23 cfs @ 12.17 hrs, Volume= 3.233 af, Depth> 5.31"

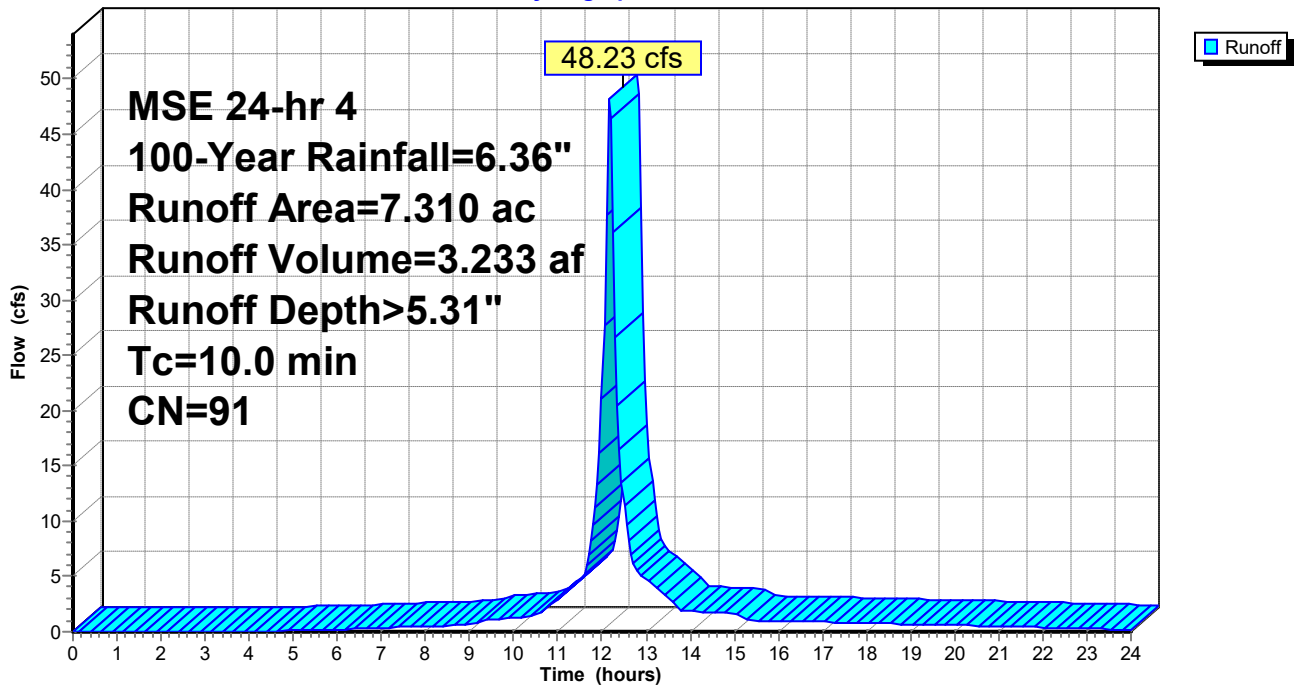
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.36"

Area (ac)	CN	Description
5.330	98	Paved parking, HSG C
1.980	74	>75% Grass cover, Good, HSG C
7.310	91	Weighted Average
1.980		27.09% Pervious Area
5.330		72.91% Impervious Area

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

Subcatchment 1S: Existing Site

Hydrograph



Summary for Subcatchment 2S: Proposed Site

Runoff = 48.23 cfs @ 12.17 hrs, Volume= 3.233 af, Depth> 5.31"

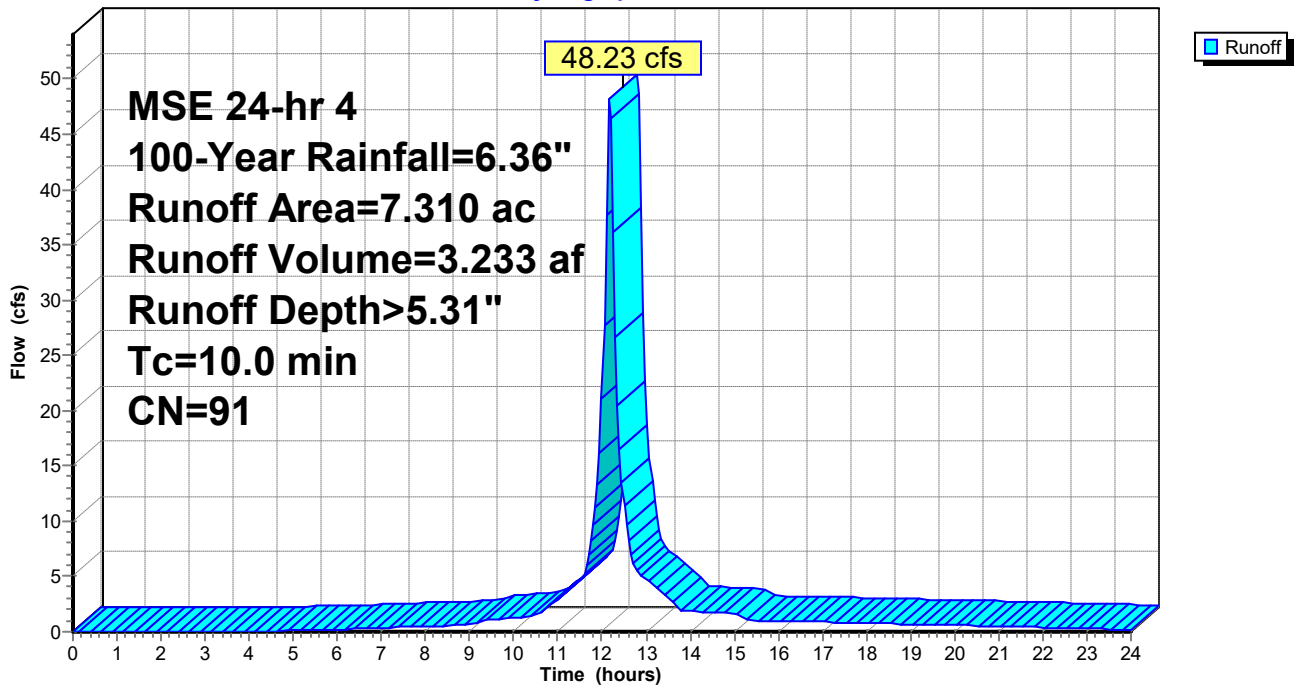
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.36"

Area (ac)	CN	Description
5.320	98	Paved parking, HSG C
1.990	74	>75% Grass cover, Good, HSG C
7.310	91	Weighted Average
1.990		27.22% Pervious Area
5.320		72.78% Impervious Area

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

Subcatchment 2S: Proposed Site

Hydrograph



Project:	Cascade Engineering
Project #:	26400118
Date:	2026.03.18

Storm Sewer Design: 10 Year Storm

MODEL OF DEVELOPED AREAS

From	To	C	Factored C, overall area	Time (min)	Time Inc. (min)	Area Increment	Total Area (acres)	I (in/hr)	Q (cfs)	L (ft)	Pipe Size (in)	Type of Pipe	Full Flow Capacity (cfs)	Full Flow HGL (%)	Actual Pipe Grade (%)	Full Flow Velocity (ft/s)	Head loss in structures (ft)	Head loss in pipe (ft)	Crown of pipe elev. (ft)	Invert Elevation upstream (ft)	Invert Elevation Downstream (ft)	Rim Elevation (Upstream)
3200	3196	0.90	0.81	12.6	0.13	0.153	3.623	4.06	11.91	53	18	C	13.62	1.29	1.68	6.74	0.50	0.68	761.72	760.22	759.33	764.61
105	104	0.90	0.90	10.0	1.66	0.337	0.337	4.56	1.38	176	12	P	2.73	0.13	0.50	1.76	0.50	0.23	774.01	773.01	772.13	778.00
104	103	0.90	0.90	11.7	1.03	0.901	1.238	4.24	4.72	238	15	P	7.98	0.45	1.30	3.85	0.50	1.08	773.38	772.13	769.03	777.80
103	102	0.90	0.90	12.7	0.12	0.857	2.095	4.04	7.62	43	15	P	13.64	1.19	3.80	6.21	0.50	0.51	770.28	769.03	767.40	775.25
102	101	0.90	0.90	12.8	0.35	0.000	2.095	4.03	7.59	130	15	P	13.64	1.18	3.80	6.19	0.50	1.53	768.65	767.40	762.46	774.54
101	100	0.90	0.90	13.2	0.43	0.186	2.281	3.98	8.17	118	18	C	13.29	0.60	1.60	4.62	0.50	0.71	763.43	761.93	760.04	769.65
100	3196	0.82	0.90	13.6	0.37	0.000	2.281	3.92	8.05	101	18	C	8.79	0.59	0.70	4.56	0.50	0.59	761.54	760.04	759.33	766.46
3177	3198	0.82	0.82	10.0	1.53	0.291	0.291	4.56	1.09	127	12	C	6.07	0.09	2.90	1.38	0.50	0.12	763.77	762.77	759.09	766.50
3196	3198	0.82	0.84	14.0	0.07	0.859	6.763	3.87	22.00	28	24	C	24.26	0.95	1.15	7.00	0.50	0.26	761.33	759.33	759.01	762.83
3198																						

Project:	Cascade Engineering
Project #:	26400118
Date:	2026.03.18

Storm Sewer Design: 100 Year Storm

MODEL OF DEVELOPED AREAS

From	To	C	Factored C, overall area	Time (min)	Time Inc. (min)	Area Increment	Total Area (acres)	I (in/hr)	Q (cfs)	L (ft)	Pipe Size (in)	Type of Pipe	Full Flow Capacity (cfs)	Full Flow HGL (%)	Actual Pipe Grade (%)	Full Flow Velocity (ft/s)	Head loss in structures (ft)	Head loss in pipe (ft)	Crown of pipe elev. (ft)	Invert Elevation upstream (ft)	Invert Elevation Downstream (ft)	Rim Elevation (Upstream)
3200	3196	0.90	0.81	11.6	0.08	0.153	3.623	6.81	19.97	53	18	C	13.62	3.61	1.68	11.30	0.50	1.92	761.72	760.22	759.33	764.61
105	104	0.90	0.90	10.0	1.04	0.337	0.337	7.32	2.22	176	12	P	2.73	0.33	0.50	2.83	0.50	0.58	774.01	773.01	772.13	778.00
104	103	0.90	0.90	11.0	0.62	0.901	1.238	6.99	7.79	238	15	P	7.98	1.24	1.30	6.35	0.50	2.95	773.38	772.13	769.03	777.80
103	102	0.90	0.90	11.7	0.07	0.857	2.095	6.78	12.78	43	15	P	13.64	3.34	3.80	10.42	0.50	1.43	770.28	769.03	767.40	775.25
102	101	0.90	0.90	11.7	0.21	0.000	2.095	6.76	12.75	130	15	P	13.64	3.32	3.80	10.39	0.50	4.32	768.65	767.40	762.46	774.54
101	100	0.90	0.90	11.9	0.25	0.186	2.281	6.70	13.75	118	18	C	13.29	1.71	1.60	7.78	0.50	2.02	763.43	761.93	760.04	769.65
100	3196	0.82	0.90	12.2	0.22	0.000	2.281	6.60	13.55	101	18	C	8.79	1.66	0.70	7.67	0.50	1.68	761.54	760.04	759.33	766.46
3177	3198	0.82	0.82	10.0	0.95	0.291	0.291	7.32	1.75	127	12	C	6.07	0.24	2.90	2.22	0.50	0.30	763.77	762.77	759.09	766.50
3196	3198	0.82	0.84	12.4	0.04	0.859	6.763	6.53	37.16	28	24	C	24.26	2.70	1.15	11.83	0.50	0.76	761.33	759.33	759.01	762.83
3198																						



APPROVED BY:

SIGNED _____

DATE _____

COMPANY: _____

PHONE & EMAIL _____

4950 37th Street

Grand Rapids, MI

CONTRACTOR PROVIDED DELIVERY SCHEDULE & SITE INFORMATION:

SCHEDULING INFORMATION									
SYSTEM DESIGNATION / SIZE									
SYSTEM DELIVERY DATE									

*ACTUAL DATE REQUIRED, ASAP IS NOT ACCEPTABLE AND A MINIMUM OF 4 WEEKS MUST BE PROVIDED UNLESS OTHERWISE DISCUSSED WITH A SALES REPRESENTATIVE.

DELIVERY INFORMATION			
JOB SITE STREET ADDRESS		CITY	
CONTACT		CONTACT PHONE	
ALTERNATE CONTACT		ALTERNATE PHONE	

DIRECTIONS TO JOB SITE FROM NEAREST INTERSTATE:
(PLEASE NO MAPS)

Project Name: 4950 37th Street
Location: Grand Rapids, MI

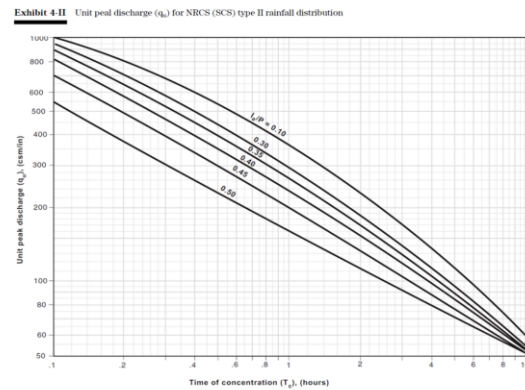
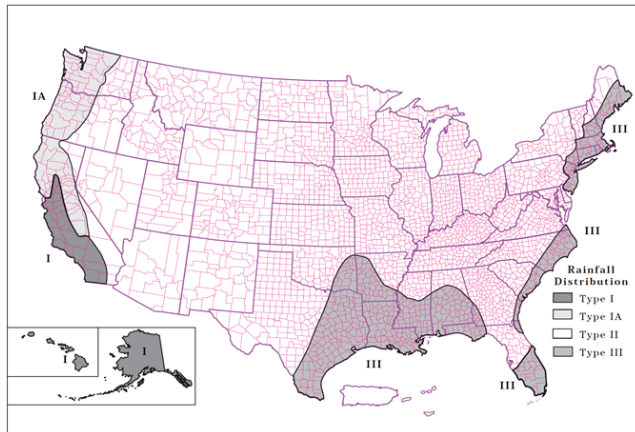
Water Quality Volume Calculations:
Urban Hydrology for Small Watersheds (SCS TR-55)

Site Conditions:

Annual Rainfall Depth, P	= 1	inch
Total Area, A	= 2.28	acres
Impervious Area	= 1.82	acres
Time of Concentration	= 0.16	hr
Percent Impervious, I	= 79.82	%
Runoff Coefficient, Rv	= 0.768421053	
Runoff Volume, Qa	= 0.77	in
Qa = P x Rv		
Water Quality Volume, WQv	= 6359.76	ft ³
$WQv = \left[\frac{P}{12} \times Rv \times A \right] 43,560$		
CN (Curve Number)	= 97.75	
Initial Abstraction Ratio, Ia/P	= 0.1	
Unit Peak Discharge, qu	= 875	cfs/mi ² /in

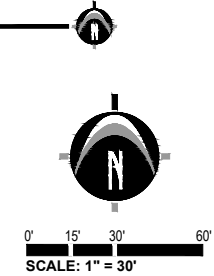
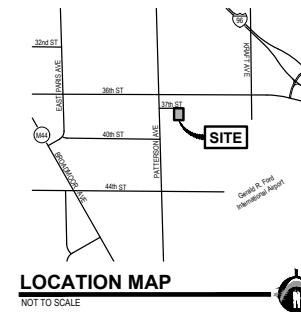
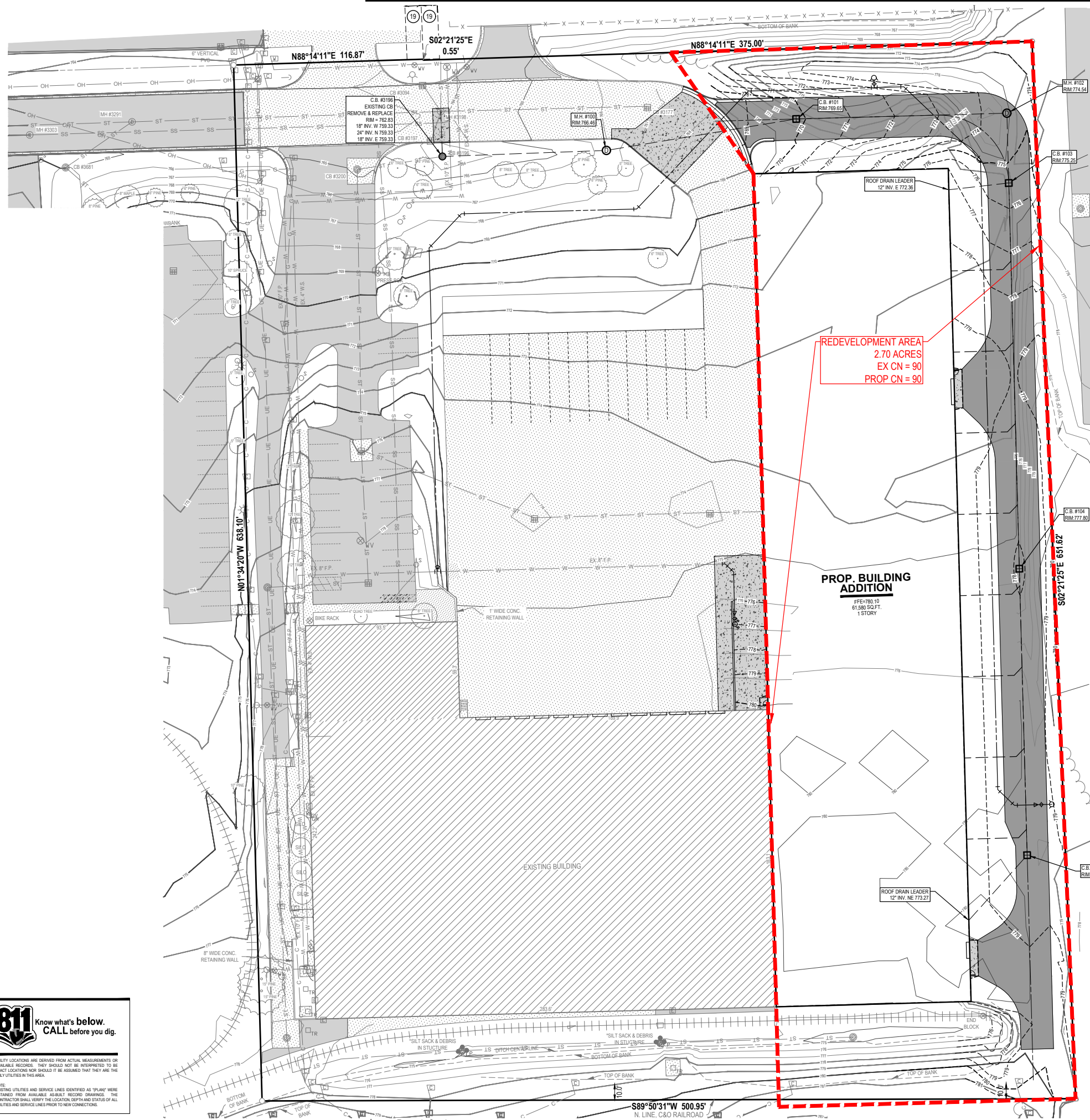
based on Type II Rainfall Distribution chart

Water Quality Flow Rate, Qp	= 2.4 cfs
Qp = Qa x A x qu	



Attachment A – Existing Drainage Map

Attachment B – Proposed Drainage Map



LEGEND

- EX GRADE CONTOUR
- PROP. GRADE CONTOUR
- PROP. GRADE ELEV. (BLACKTOP)
- PROP. GRADE ELEV. (CONCRETE)
- PROP. GRADE ELEV. (GUTTER)
- PROP. GRADE ELEV. (EDGE OF METAL)
- PROP. GRADE ELEV. (HIGH POINT)
- EX. BITUMINOUS
- EX. CONCRETE
- PROPOSED BITUMINOUS (STANDARD DUTY)
- PROPOSED BITUMINOUS (HEAVY DUTY)
- PROPOSED CONCRETE (STANDARD DUTY)
- PROPOSED CONCRETE (HEAVY DUTY)
- PROP. STORM SEWER
- PROP. SANITARY SEWER
- PROP. WATERMAN
- SPILL CURB
- FLOW DIRECTION
- EMERGENCY OVERFLOW STORMWATER FLOW ROUTE
- PROP. LIMITS OF GRADING
- SILT FENCE

RUNOFF SUMMARY

EXISTING SITE IMPERVIOUS AREA	5.33 ACRES
CN	91
PROPOSED SITE IMPERVIOUS AREA	5.32 ACRES
CN	92
INCREASE IN IMPERVIOUS	3,738 SQ.FT.

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

UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

NOTE: EXISTING UTILITIES AND SERVICE LINES IDENTIFIED AS "PLANS" WERE OBTAINED FROM AVAILABLE AS-BUILT RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH AND STATUS OF ALL UTILITIES AND SERVICE LINES PRIOR TO NEW CONNECTIONS.

PREPARED FOR:

[Redacted]

REVISIONS:

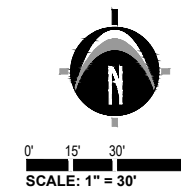
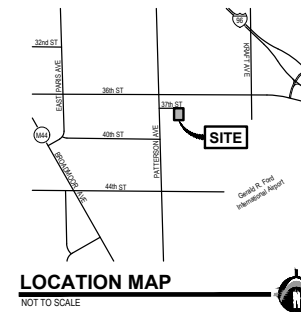
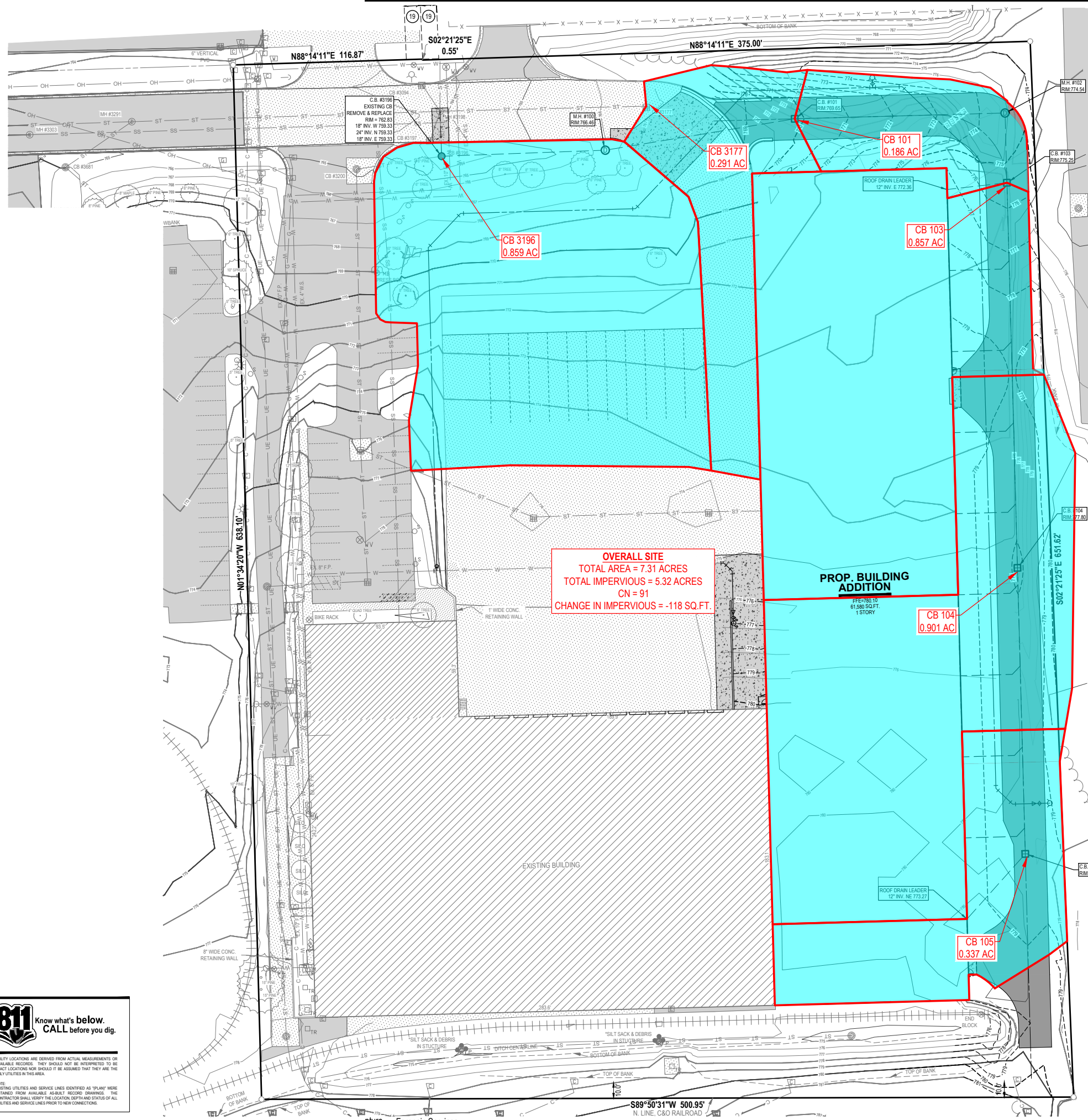
Title	Drawn	Checked	Date

CASCADE ENGINEERING
BUURSMMA PLANT ADDITION
Proposed Redevelopment Area
 4950 37th Street SE
 PART OF THE NORTHWEST 1/4 OF SECTION 19, T8N, R10W,
 TOWNSHIP OF CASCADE, KENT COUNTY, MICHIGAN

SEAL:

PROJECT NO:
26400118

SHEET NO:
C-901



LEGEND

- EX. GRADE CONTOUR
- PROP. GRADE CONTOUR
- PROP. GRADE ELEV. (BLACKTOP)
- PROP. GRADE ELEV. (CONCRETE)
- PROP. GRADE ELEV. (GUTTER)
- PROP. GRADE ELEV. (EDGE OF METAL)
- PROP. GRADE ELEV. (HIGH POINT)
- EX. BITUMINOUS
- EX. CONCRETE
- PROPOSED BITUMINOUS (STANDARD DUTY)
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- PROPOSED CONCRETE (STANDARD DUTY)
- PROPOSED CONCRETE (HEAVY DUTY)
- PROP. STORM SEWER
- PROP. SANITARY SEWER
- PROP. WATERMAN
- SPILL CURB
- FLOW DIRECTION
- EMERGENCY OVERFLOW STORMWATER FLOW ROUTE
- PROP. LIMITS OF GRADING
- SILT FENCE

OVERALL SITE
 TOTAL AREA = 7.31 ACRES
 TOTAL IMPERVIOUS = 5.32 ACRES
 CN = 91
 CHANGE IN IMPERVIOUS = -118 SQ.FT.

RUNOFF SUMMARY

EXISTING SITE IMPERVIOUS AREA	5.33 ACRES
CN	91
PROPOSED SITE IMPERVIOUS AREA	5.32 ACRES
CN	91
INCREASE IN IMPERVIOUS	-118 SQ.FT.

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

UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

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PREPARED FOR:

[Redacted]

REVISIONS:

Title	Drawn	Checked	Date

CASCADE ENGINEERING
BUURSMMA PLANT ADDITION

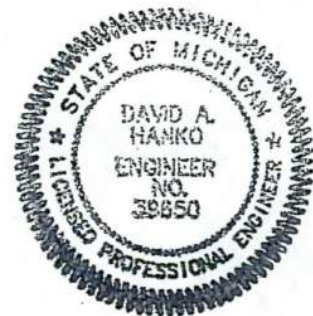
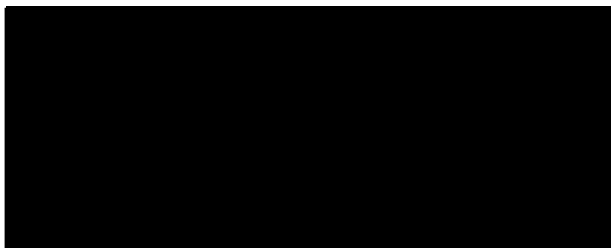
Proposed Drainage Map
 4950 37th Street SE
 PART OF THE NORTHWEST 1/4 OF SECTION 19, T8N, R10W,
 TOWNSHIP OF CASCADE, KENT COUNTY, MICHIGAN

SEAL:

PROJECT NO:
26400118

SHEET NO:
C-902

Attachment C – Previous Stormwater Study and Site Plan



July 8, 2015

RE: 4880 36th Street storm water detention design.
Omega Architects project no. 14033

Proposed Development

Due to a change in tenants at 4880 36th Street office building, there is a need for additional parking. Additional parking is proposed along each side of the shared driveway between two regional detention ponds. Each parking area will include construction of a retaining wall. The additional impervious area is 5,538 sf as shown on the drainage map.

Background Information

In 2010, Exxel Engineering did a detailed analysis of the regional detention ponds and reached the following conclusions:

1. The basins do not meet the current Storm Water Ordinance standards for Zone A or B, but does meet the requirements of Zone C.
2. There appears to be no problems with the existing conditions.
3. The detention basins provide excellent sediment controls which are the requirement of Zone C of the Cascade Township Storm Water Ordinance.

Analysis of Proposed Parking Expansion

For the 100 year storm (6.15 inches in 24 hours), the additional impervious area will contribute an additional 2,838 cf of water to the detention ponds. This will increase the water level by no more than 0.02 feet. This minor increase falls within the margin of error for the stormwater model done by Exxel.

The proposed parking and retaining wall on the west side of the drive is above the 100 year high water level for the Patterson Basin. The parking area on the east side of the drive is below the 100 year high water level and removes approximately 1050 cf of storage. This will result in raising the water level of the Upper Basin during a 100 year storm event by 0.02 feet. This minor increase also falls within the margin of error for the stormwater model done by Exxel.

Patterson Basin	100 year high water level	754.35 ft
	Base of retaining wall	759.0 ft
Upper Basin	25 year high water level	757.23 ft
	100 year high water level	759.46 ft
	Base of retaining wall	756.5 ft
	Volume remove from pond	1050 cf

Conclusion

The proposed parking lot expansion will have an insignificant effect on the existing regional detention basins.





VWV - Patterson

3676 Patterson Avenue
101541E
October 19, 2010

Background

There are two regional detention basins within easements granted to Charter Township of Cascade between 36th St. and 37th St., East of Patterson Ave. There are no available design calculations. Areas researched include: Cascade Township, FTCH, Moore and Bruggink, KCRC, and KCDC. The only information helpful is included in Appendix A. There is an *Engineering Report on the South Plaster Creek 36th Street Patterson Area Storm Water Retention Project* that indicates the basins were proposed around 1983. Initial design estimated that the "maximum discharge from the storm water retention basins will be approximately 40 cfs". There is also a *Special Assessment District Map for the Little Plaster Creek No. 1 Watershed*. There are 141.11 Acres of drainage area shown on the map. The engineering report states that the purpose of the regional detention is "to preserve and promote additional industrial expansion within Cascade Township". 3676 Patterson Avenue falls within the assessed drainage area. The site is developed, but not to the extent that the majority of the drainage area is developed.

Proposed Development

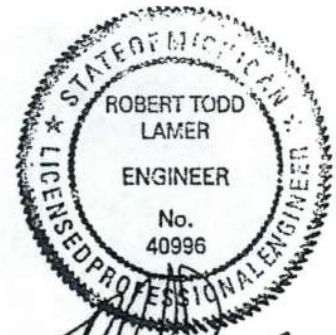
3676 Patterson Avenue consists of 3.62 Acres, a 23,325 sf building and a parking lot. A 15,750 sf building addition is proposed and future additions and parking are planned. The proposed and future development will result in about one additional acre of impervious area. The drainage area to the regional detention basins will not change.

Design Analysis

Model the regional detention basins using the research information available, REGIS mapping, and Exxel Engineering, Inc. topography information of the outlet structures. Calculate peak flows and high water levels for various storm events for the existing conditions and future conditions. Compare these peak flows and high water levels with each condition and the current storm water ordinance requirement.

Analysis Summary

Haestad's PondPack software was used to model the regional detention. See Appendix B for the Existing Condition analysis and Appendix C for the Developed Condition analysis. The entire drainage area is industrial. It is difficult to understand the drainage area limits because most of the area is collected in private storm sewers. It was assumed that the assessed area is the current drainage area. It was also assumed that there is no additional detention in the drainage area. The following table is a summary of the models' results and a comparison to the current Storm Water Ordinance.



Robert Lamer
10-19-2010



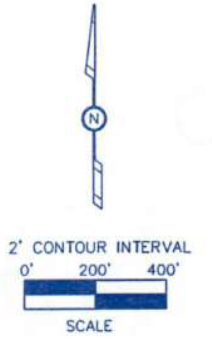
Regional Detention Basins

	Upper Basin		Patterson Basin	
	Existing Conditions	Developed Conditions	Existing Conditions	Developed Conditions
Direct Drainage Area	110.51 Ac	110.51 Ac	30.60 Ac	30.60 Ac
Total Drainage Area	110.51 Ac	110.51 Ac	141.11 Ac	141.11 Ac
Direct Curve Number	94.91	94.91	89.31	90.09
Peak Flow In				
1-Year	132.83 cfs	132.83 cfs	33.44 cfs	35.75 cfs
2-Year	168.27 cfs	168.27 cfs	45.65 cfs	48.16 cfs
10-Year	264.54 cfs	264.54 cfs	80.28 cfs	83.01 cfs
25-Year	341.99 cfs	341.99 cfs	108.65 cfs	111.38 cfs
100-Year	482.26 cfs	482.26 cfs	160.36 cfs	162.95 cfs
Peak Flow Out				
1-Year	106.60 cfs	106.60 cfs	20.53 cfs	22.08 cfs
2-Year	146.12 cfs	145.78 cfs	66.48 cfs	68.38 cfs
10-Year	150.29 cfs	149.30 cfs	140.08 cfs	140.82 cfs
25-Year	152.94 cfs	152.62 cfs	155.83 cfs	156.20 cfs
100-Year	168.29 cfs	168.02 cfs	175.23 cfs	175.60 cfs
Allowable Flow (Zone A and B)				
2-Year (0.05 cfs/Ac)	5.53 cfs	5.53 cfs	7.06 cfs	7.06 cfs
25-Year (0.13 cfs/Ac)	14.37 cfs	14.37 cfs	18.34 cfs	18.34 cfs
Actual Flow Rate				
2-Year (0.05 cfs/Ac)	1.32 cfs/Ac	1.32 cfs/Ac	0.47 cfs/Ac	0.48 cfs/Ac
25-Year (0.13 cfs/Ac)	1.38 cfs/Ac	1.38 cfs/Ac	1.10 cfs/Ac	1.11 cfs/Ac
Sediment Removal (Zone C)				
Basin Surface Area, A	64904 sf	64904 sf	57935 sf	57935 sf
Particle Velocity, V	0.03 ft/s	0.03 ft/s	0.03 ft/s	0.03 ft/s
Sediment Cells, N	1	1	1	1
Required Efficiency	75 %	75 %	75 %	75 %
Efficiency (AV/(NQ ₁₀₀))	404 %	404 %	1084 %	1067 %
High Water Level				
1-Year	754.30 ft	754.30 ft	751.51 ft	751.54 ft
2-Year	754.43 ft	754.43 ft	752.00 ft	752.02 ft
10-Year	755.99 ft	756.00 ft	752.52 ft	752.53 ft
25-Year	757.22 ft	757.23 ft	753.04 ft	753.06 ft
100-Year	759.45 ft	759.46 ft	754.32 ft	754.35 ft

Conclusion

The additional impervious area for 3676 Patterson Avenue would not significantly increase the peak flow or high water level of the regional basins. The regional basins do not meet the current Storm Water Ordinance standards for Zone A or B, but does meet the requirements of Zone C. Many design standards have changed since the early 1980's. The rainfall in a storm event has increased. The allowable discharge has increased. The method of designing and modeling a detention basin has changed. There appears to be no problems with the existing conditions. No complaints have been made according those contacted at the KCDC, KCRC, FTCH, Moore and Bruggink and Cascade Township. The water level does not increase more than 0.03 feet for a 100-Year Event using today's standards. This minor increase falls within the margin of error for the model, even FEMA floodplains round to the nearest 0.1 feet. The regional detention basins provide excellent sediment controls which is the requirement of Zone C of the Cascade Township Storm Water Ordinance. The regional detention basins are able to accept the additional impervious acre and meet the Storm Water Ordinance for Zone C.





3676 PATTERSON AVENUE
DRAINAGE MAP

