



AGENDA
REGULAR MEETING OF THE
WINDSOR HEIGHTS
PLANNING AND ZONING COMMISSION
Wednesday, February 28, 2024 - 5:30 PM
WINDSOR HEIGHTS COUNCIL CHAMBERS - 1133 66th ST
ZOOM: <https://us02web.zoom.us/j/7832856334>
Meeting ID: 783 285 6334

1. **Call to Order**
2. **Approval of Agenda**
3. **Approval of the Minutes:**
 - A. Consideration of the Planning and Zoning Commission Meeting Minutes on November 1st, 2023
4. **Public Hearing to Review a New Building Site Plan at 6961 University Ave**
 - A. Staff Presentation
 - B. Site Plan & Supporting Documents
5. **Consideration of a New Building Site Plan at 6961 University Ave**
6. **Consideration of an Updated Zoning Map**
 - A. Updated Zoning Map
7. **Adjourn**

*It is possible that members, including a quorum of members of the City Council and other committees may be present. No City business will be discussed outside of this agenda.

City of Windsor Heights Planning and Zoning Commission Meeting Minutes
Wednesday, November 1, 2023 - 5:30 PM
WINDSOR HEIGHTS COUNCIL CHAMBERS - 1133 66th ST

1. Call to Order/Roll Call

Chair Geoffrey Wood called the meeting to order at 5:30 PM. Present: Bob Bishop, David Ferree, Geoffrey Wood, Georgie Libbie, Donna Mueller, Diane Foss, and Tyler Holtorf. Staff present: City Clerk Adam Strait, Deputy City Clerk Nate Leuthold, City Planner Trey Rouse from Bolton & Menk, and City Planner Jane Kansier from Bolton & Menk

2. Approval of Agenda

Motion by Georgie Libbie to approve. Seconded by Donna Mueller. Motion passed 7-0.

3. Approval of the Minutes:

Motion by Diane Foss to approve. Seconded by Dave Ferree. Motion passed 7-0.

- A. Consideration of the Planning and Zoning Commission Meeting Minutes on October 25, 2023

4. Public Hearing for a Zoning Ordinance Amendment for Chapters 165-177

Motion by Donna Mueller to open the Public Hearing at 5:32 PM. Seconded by Diane Foss. Motion passed 7-0. Jane Kansier presented the staff report on proposed updates made after the Planning and Zoning workshop at the October 25th meeting. Trey Rouse also presented. Topics included architectural materials, parkland dedication, UC district buffers and lot width, and parking standards. Matt Haugie with the Polk County Housing Trust Fund spoke regarding accessory dwelling units (ADUs). Motion by Diane Foss to close the Public Hearing at 6:23 PM. Seconded by Tyler Holtorf. Motion passed 7-0.

- A. Staff Presentation

- B. Redlined Draft of Code Chapters 165-177

5. Consideration of Zoning Ordinance Amendment for Chapters 165-177

Motion by Diane Foss to approve architectural materials changes presented tonight. Seconded by Bob Bishop. Motion passed 7-0. Motion by Diane Foss to approve parkland dedication option 2 as presented tonight. Seconded by Tyler Holtorf. Passed 7-0. Motion by Bob Bishop to approve the changes to parking regulations presented tonight. Seconded by Diane Foss. Passed 7-0. Motion by Bob Bishop to approve setbacks with Council's changes (10-foot front yard setbacks). Seconded by Donna Mueller. Motion failed 0-6, with Bob Bishop abstaining. Motion by Tyler Holtorf to approve original setback policy (0-foot front yard setbacks). Seconded by Diane Foss. Roll call vote: aye - Geoffrey Wood, David Ferree, Diane Foss, Georgie Libbie, Tyler Holtorf, Donna Mueller; nay - Bob Bishop. Motion passed 6-1. Motion by Dave Ferree to submit the recommendations to the City Council. Seconded by Donna Mueller. Approved 7-0.

6. Adjourn

Motion by Diane Foss to adjourn at 6:50 PM. Seconded by Georgie Libbie. Approved 7-0.

STAFF REPORT

Date: February 28, 2024
To: Windsor Heights Planning and Zoning Commission
From: Trey Rouse
Subject: Site Plan: 6961 University Avenue (Casey's)

General Information

Applicant: Casey's Marketing Company
One SE Convenience Boulevard
Ankeny, IA 50021
Property Owner: Charles I & Ruth Colby National Development Trust
Proposed Use: Auto Services (Gas Station)
Zoning: UC (Urban Center District)
Location: 6961 University Avenue

Summary

The applicant, Casey's Marketing Company, is requesting to develop a Casey's Gas Station in the UC District (Urban Center District) for the use of the property listed at 6961 University Avenue. The UC District (Urban Center District) allows for the Auto Services use to be approved conditionally. Staff has completed a review of the conditional use permit application. The submitted application materials are attached to this report.

Description of Property Use from Applicant

Demolition of underperforming office infrastructure and construction of 4,238 sq. ft. Casey's Convenience Store and Gas Station. The redevelopment effort constitutes \$3-\$5 million in building and development costs and will produce significant property tax benefits to the city. The sale of motor fuel, prepared foods, and other goods will generate significant local options sales tax benefits. Between 25 & 35 full & part-time jobs are created with construction of the each new Casey's store.

Existing Conditions

The 1.29-acre lot is in the UC – Urban Center Zoning District. The lot currently has a 16,700 sq. ft. retail and office space building as the primary structure with two parking lots located on the south and north sides of the building connected through the east side of the property. This property has three access points through driveways located on University Avenue and two access driveways located along 70th Street. Currently there are no active businesses within the structures.



Legal Description

EX BEG SE COR LT 41 W 199.95F N 299.46F E 4F S 269.44F E 10F S 20F E 185.94F S 10F
TO POB- LTS 40, 41 & 42 MOTT PLACE

Site Plan for Development



Background of Parcel/Lot

This parcel has been commercial space for the past 3 decades on record with the Polk County Assessor and Recorder. This multi-office and space building has been the location for several different types of businesses such as hair salons, social work business, insurance agencies, marketing agencies, and much more. These businesses, however, have had a high amount of turnover and change within the building and as of late most of the building spaces are vacant.

Adjacent Land Use

Direction	Zoning	Use
North	Single Family Residential District – Low Density (R-1)	Single Family Residential

South	Urban Center District (UC)	Commercial
East	Urban Center District (UC)	Single Family Residential
West	Urban Center District (UC)	Commercial

Zoning Bulk Regulations

Category	UC
Lot Area	5,000 sq.ft.
Lot Width	25 ft
Front Yard Setback	0 ft
Side Yard Setback	0 ft
Rear Yard Setback	10 ft (When abutting Residential Zoning District, must have fully landscaped or visual buffer)

Traffic Study

At the request of the City, the applicant completed a traffic study on the University Avenue and 70th Street corridor and determined the project's contribution to the current traffic in the corridor. The traffic study was completed in December 2023 and reviewed by City Staff. The traffic study shows that the traffic created by the Casey's project would not create further issues with the current congestion noticed by the University Avenue and 70th Street corridor.

Comprehensive Plan Review

The Windsor Heights Comprehensive Plan has been reviewed by City Staff to make sure that this project aligns with the goals and ideals of the Comprehensive Plan. The proposed Casey's project meets several of the goals identified and outlined within the Comprehensive Plan and addresses the following goals as determined by the City Staff. The Comprehensive Plan supports the proposed project as it is presented.

Economic Development Goals:

1. Attract new businesses to Windsor Heights.
2. Support strategic redevelopment along key corridors, including University Avenue, Hickman Road, 73rd Street, and 63rd Street.

Transportation Goal:

1. Create a connected sidewalk network, especially along arterial roads, schools, parks, trails, and retail.

Future Land Use Map

The future land use map should be used as guidance for areas throughout the City. The map identifies this location as mixed use, which is defined on page 40 of the 2017 Comprehensive Plan. “Commercial. Commercial and office uses that are typically more auto oriented.”

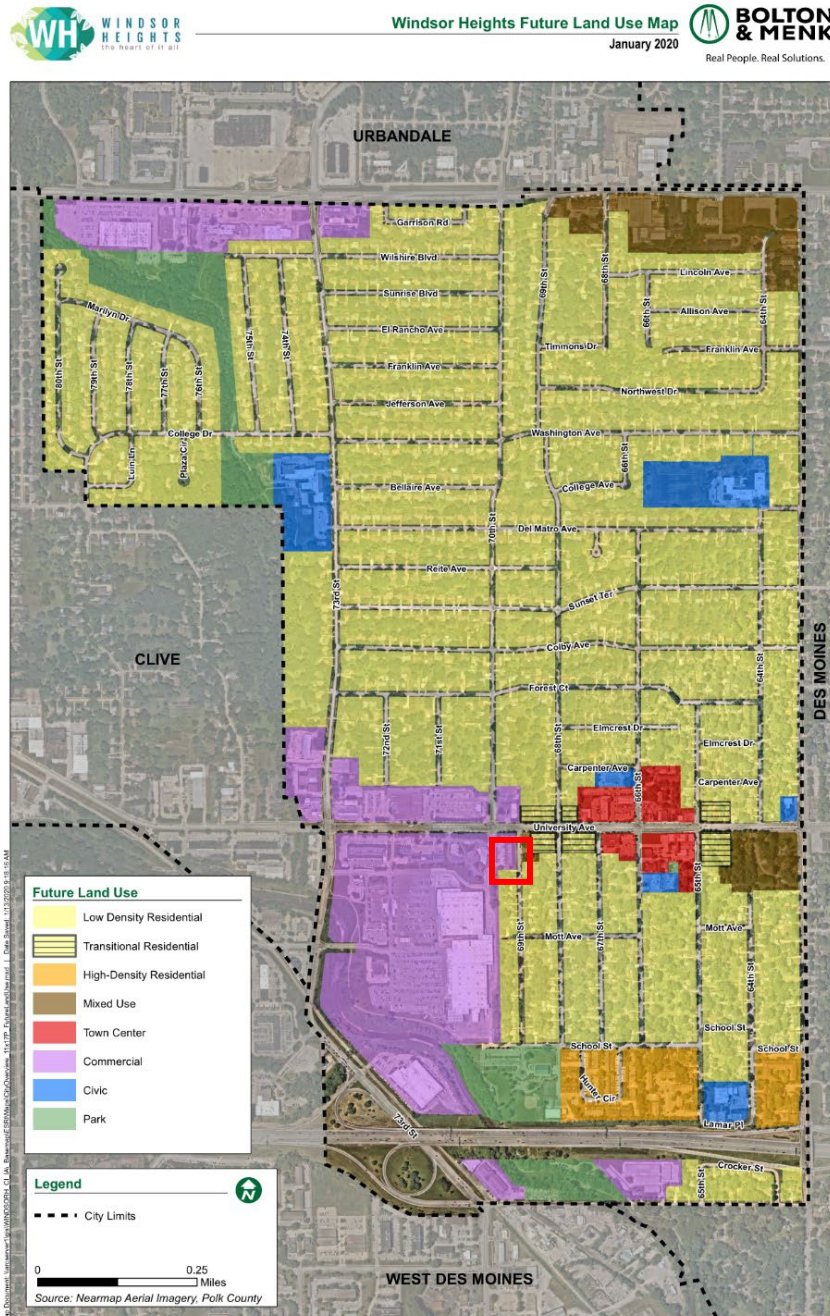


Figure 1: Current Future Land Use Map



Figure 2: Windsor Heights' 2017 Comprehensive Plan's
Future Land Use Map

Zoning Map

The parcels are currently zoned for Urban Center District which is defined in [Table 168-1 Purposes of Zoning Districts](#) as “This district recognizes the mixed-use character primarily along the University Avenue corridor, which is the principal route through central Windsor Heights. This district contains a combination of residential, commercial, and office uses and is known for its walkability and main street feel.”

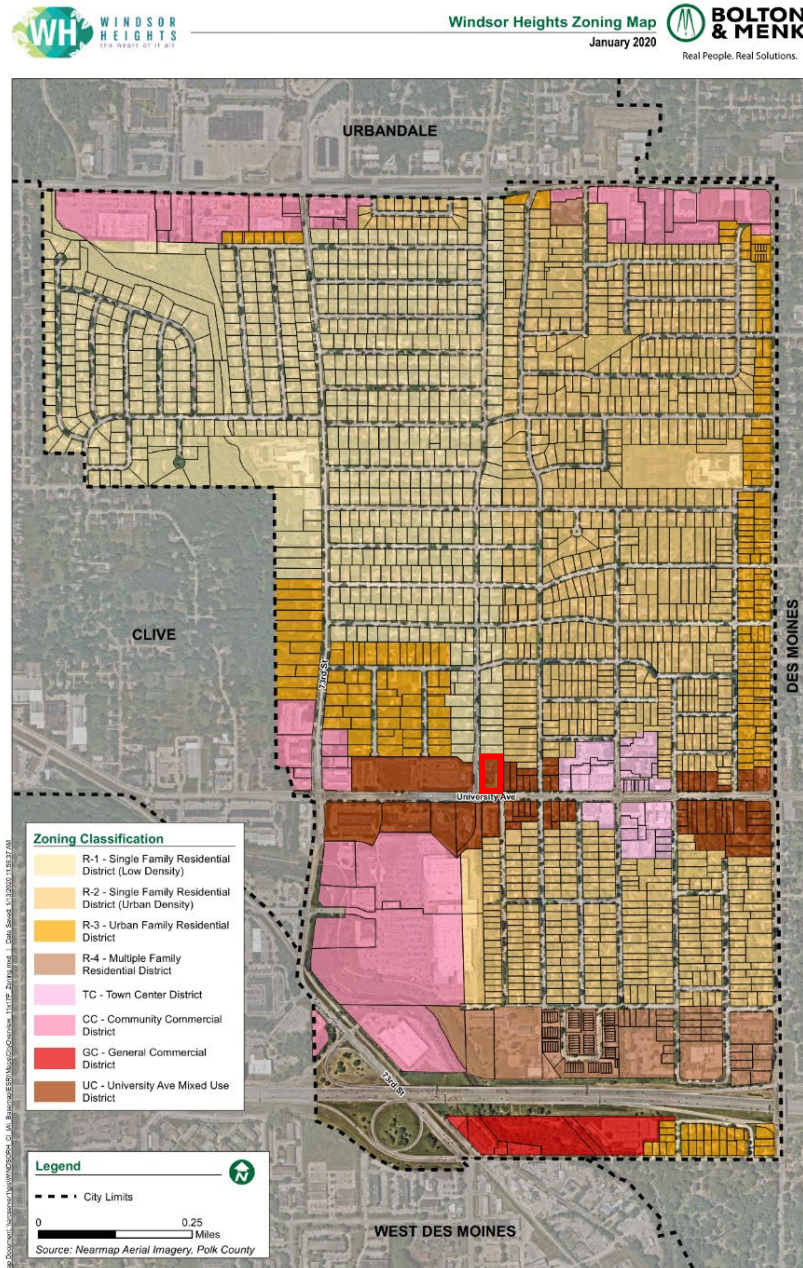


Figure 3: Current Zoning Map

Public Comments Received

The City of Windsor Heights received public comment on the proposed project of the Casey's (Gas Station) at this property. Adam Plagge received a call from a Windsor Heights resident expressing concern about the traffic the Casey's project would generate and the lack of need of another gas station.

No other comments were received.

Recommendation

All proposed lots meet the minimum requirements of the zoning ordinance. **The staff recommends approval of the site plan with the following conditions.**

Conditions:

1. All of the following conditions will be met, reviewed by the city department assigned, and deemed complete before approval of the site plan and before any development can take place.
 - a. General
 - i. Signature of Engineer and Surveyor on Final Plans.
 - ii. All comments listed below are addressed.
 - iii. Concurrent approval of the Board of Adjustments approved conditional use permit.
 - iv. Approval of signs and utility from Safe Building.
 - v. Approval of streets and access from IDOT.
 - vi. Revision of site plan application in accordance with the comment letter.
 - vii. City Council approval of site plan.
 - b. Engineering Department
 - i. General Engineering Comments
 1. Obtain Windsor Heights work within the Right-of-way Permit.
 2. Obtain a Construction Site Erosion & Sediment Control Ordinance Permit or COSESCO Permit from City.
 3. Provide Drainage and Utility Easement along the north property line that covers the entire drainage swale and Sidewalk Easements along 70th Street for approval prior to recording.
 4. Complete Stormwater Maintenance Agreement and submit per instructions.
 5. Sheet C-201: Cross slopes on the sidewalk along University Avenue appear to be over 2.0%. Target 1.5% cross slope for these sidewalks.

6. Sheet C-201: The running slope on the far east sidewalk along University Avenue is at 8.0%. Remove more sidewalk to the east to get that under 5.0%.
7.
 - ii. Stormwater Comments
 1. Please report the orifice diameter as 3 inches in Table 10 and match the reported 1-year proposed release rate to match the model output. If it is above allowable, include a statement that the minimum orifice diameter recommended by ISWMM is the reason for exceeding the allowable release rate. Provide updated report.
 - c. Planning Department
 - i. Obtain Conditional Use Permit for Auto Services Use within the Urban Center District from the Windsor Heights Zoning Board of Adjustments.
 - d. Des Moines Water Works
 - i. Copper Water Service will be required as it falls within a DNR

Attachments

1. Application Materials (as submitted)



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430 E Grand Avenue
Suite 101
Des Moines, IA 50309

Ph: (515) 259-9190
Fax: (515) 233-4430
Bolton-Menk.com

MEMORANDUM

Date: February 27, 2024
To: Adam Plagge
City Manager, City of Windsor Heights, IA
From: Jennifer McCoy, PE, PTOE
Subject: Caseys 70th & University Traffic Impact Study Review
Windsor Heights, IA

Introduction

The Traffic Impact Study for the new Casey's General Store at 6961 University dated December 8, 2023, prepared by Pelds Design Services was reviewed to determine how this development impacts the traveling public. Overall, the study assumptions and calculations seem reasonable.

Trip Generation

The study assumed that construction of a 4,319 SF building and gas canopy covering 5 fuel pumps with 10 fueling positions on the northeast corner of the University Avenue and 70th Street signal. ITE Land Use Code 945 was utilized for 10 vehicle fueling positions. A 76% reduction for AM pass-by trips and a 75% reduction for PM pass-by trips was used. This equates to 24%-25% of the trips generated being new to the area. These percentages were based on the ITE Trip Generation Manual 11th Edition average pass-by rates for a gas station with 10 fueling positions. This approach seems clear and reasonable.

Driveway Access

The new Casey's would access 70th Street north of University Avenue utilizing a full access driveway. Another driveway on University Avenue, east of 70th Street, will be right-in, right-out for traffic coming from the east and continuing westbound.

The Hy-Vee access drive on 70th Street is 175' from University Avenue. A review of the City Code shows that specific driveway spacing requirements are not provided, therefore, the Statewide Urban Design and Specifications (SUDAS) Road Design Manual was reviewed as a resource for preferred driveway spacing. Per the Iowa DOT the functional classification for 70th Street is Major Collector and University Avenue is a Minor Arterial. SUDAS Chapter 5 provides access location and spacing guidance for distances between driveways and intersecting streets. The minimum distance in SUDAS for a full access driveway to a city street is 100' for a collector roadway like 70th Street. The location of the Hy-Vee access on 70th Street, which the new Casey's driveway will align with, meets and exceeds this minimum driveway spacing.

The minimum distance in SUDAS for a full access driveway to a city street is 170' for an arterial roadway like University Avenue. The proposed right-in, right-out driveway on University Avenue is 100' from 70th Street. This does not meet the minimum driveway spacing for a full access driveway, therefore, this driveway is proposed as a limited access driveway which would be right-in, right-out. Limiting the driveway access to partial access helps to address any concerns related to the close spacing of this driveway to the existing 70th Street intersection.

Operations and Queuing

The report prepared by Pelds Design Services focused on 95th percentile queues at the study intersections.

- *Per the Highway Capacity Manual Guide "The 95th-percentile queue is defined to be the queue length that has only a 5-percent probability of being exceeded in the analysis time period. It is a useful parameter for determining the appropriate length of turn pockets, but it is not typical of what an average driver would experience."*

70th/Hy-Vee/New Caseys Driveway

95th percentile queues will increase for Southbound 70th Street and Westbound University Avenue by one car length and eastbound queues will increase by 4 car lengths in the PM peak with the Casey's. The 95th percentile queue in the PM peak will be up to 225' for the southbound approach on 70th Street (today it's 200').

The Hy-Vee access drive is 175' from University Avenue. Southbound queues could extend back and block the Hy-Vee access driveway on 70th Street at some times in the PM peak. On average, the queues are 75-140' for the southbound movements. The study report stated that the intersection of 70th/Hy-Vee/Casey's is operating well, which shows that vehicles are still able to exit the driveways onto 70th Street in the PM peak, even with the southbound queuing occurring at the University Avenue intersection.

70th/University

The queueing analysis in the study report states that the westbound queue on University Avenue will extend beyond the Casey's new right-in, right-out access in the AM and PM peaks by one to two car lengths.

Operations at 70th and University are failing today in the PM peak, the addition of the Casey's creates additional delay at this intersection, however per the report, 95th percentile queues are not expected to extend back and block the Hy-Vee signal on University Avenue.

TRAFFIC IMPACT STUDY

FOR

Casey's General Store
6961 University Avenue
Windsor Heights, IA 50324

By:

Pelds Design Services
Elara Jondle, PE
2323 Dixon Street
Des Moines, IA 50316

Submitted to:

Bolton & Menk, Inc – Attn: Jennifer McCoy, PE, PTOE
430 E Grand Avenue, Suite 101
Des Moines, IA 50309

December 8, 2023

Pelds Project No. 22-201



Casey's General Store 6961 University Ave Report Summary Windsor Heights, IA

February 28, 2024

Jennifer McCoy, P.E., PTOE



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LOCATION



DAILY TRAFFIC VOLUMES

vpd

4,840

70th and
University



10,600 vpd

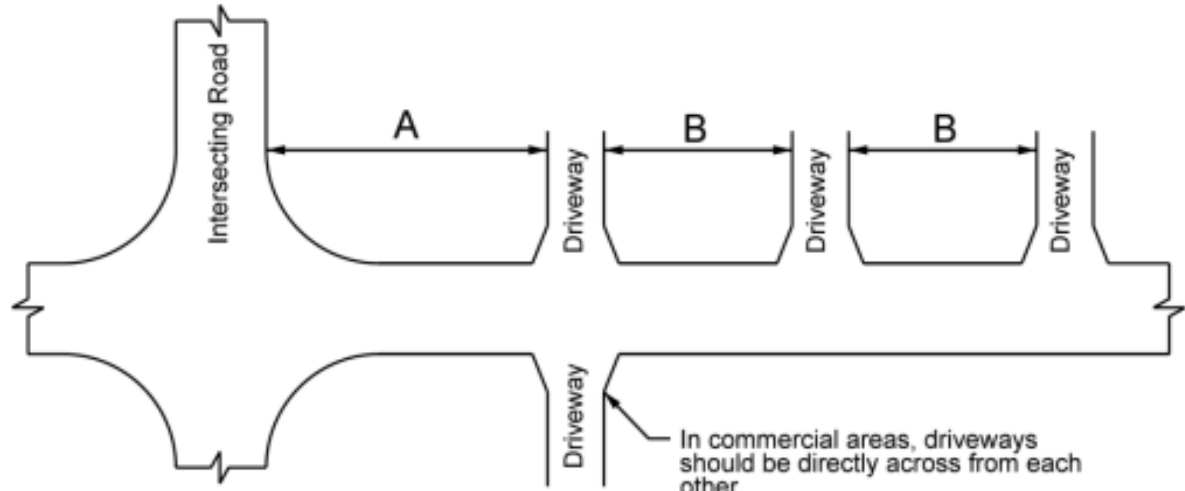


SUDAS

CHAPTER 5

ROADWAY DESIGN

Table 5L-3.05: Minimum Distance between Driveways or from Intersecting Streets



	Minor Arterial			Collector			Local		
	<i>Res. Area</i>	<i>C/I Area</i>	<i>Ag Area</i>	<i>Res. Area³</i>	<i>C/I Area</i>	<i>Ag Area</i>	<i>Res. Area³</i>	<i>C/I Area</i>	<i>Ag Area</i>
A. Minimum intersection clearance ¹	145'	170'	300'	100'	100'	300'	75'	75'	150'
B. Minimum driveway spacing ²	100'	200'	300'	75'	100'	300'	--- ⁴	--- ⁴	150'

Res = Residential, C/I = Commercial/Industrial

¹ Values are measured from the back of the curb, intersecting road to the adjacent driveway near edge. Distance may be adjusted due to lot dimension or zoning code.

² Values are measured between driveway edges.

³ One access drive allowed per lot. Depending on lot size, an additional drive may be allowed upon approval of the Jurisdiction.

⁴ See Jurisdictional Engineer for local requirements.

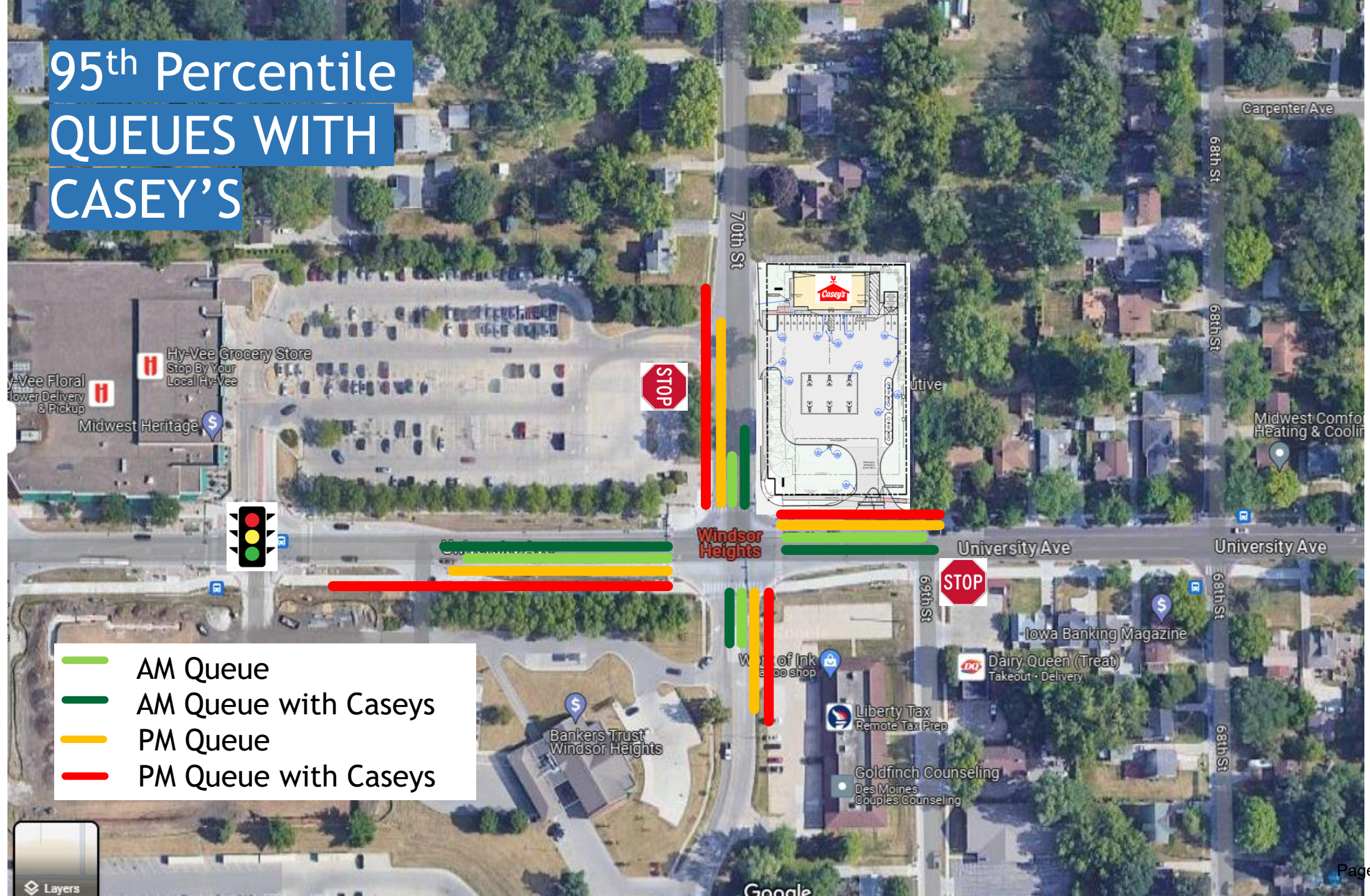
ACCESS SPACING WITH CASEY'S



EXISTING 95th Percentile QUEUES



95th Percentile QUEUES WITH CASEY'S



Summary

- Per the report, queues will increase for Southbound 70th Street and Westbound University by one car length and Eastbound queues will increase by 4 car lengths in the PM peak.
- The 95th percentile queue in the PM peak will be up to 225' for the southbound approach on 70th Street (today its 200'). The Hy-Vee access drive is 175' from University.
- Queues could extend back and block the Hy-Vee access driveway on 70th Street at some times in the PM peak. On average the queues are 75-140' for the southbound approach.
- The report shows that the intersection of 70th/Hy-Vee/Casey's is operating well, so the analysis shows that vehicles are still able to exit the driveways onto 70th Street in the PM peak, even with the queueing occurring at the University Avenue intersection.
- The queuing analysis in the report shows that the queue on westbound on University will extend beyond the Casey's new Ri-Ro access in the AM and PM peaks by one to two car lengths.
- Operations at 70th and University are failing today in the PM peak, the addition of the Casey's creates additional delay at this intersection, however per the report, queues are not expected to extend back and block the Hy-Vee signal on University

Questions / Discussion



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SITE ADDRESS
6961 UNIVERSITY AVE
WINDSOR HEIGHTS, IA 50324

SITE AREA
1.29 ACRES (56,374 SQ.FT.)

ZONING
EXISTING: UC
ADJACENT ZONING:
N: R1 E: UC S: UC W: UC

SETBACKS
FRONT SETBACK: 25
STREET SIDE SETBACK: 25
INTERIOR SIDE SETBACK: 0
REAR SETBACK: 10

BUILDINGS
EXISTING: 9,926 SQ. FT.
PROPOSED: ~ 42'-10" x 100'-10" - 4,569 SQ.FT.

BUILDING USES
RETAIL STORE

BUILDING HEIGHT
MAX BUILDING HEIGHT: 45'
PROPOSED HEIGHT: 25

MAX FLOOR AREA RATIO
1.00

PAVING
APPROACHES: 8" THICK NON REINFORCED P.C.C. WITH MINIMUM 6" CRUSHED ROCK SUBBASE***
PARKING LOT: 6" THICK NON REINFORCED P.C.C. WITH MINIMUM 6" CRUSHED ROCK SUBBASE**
CURB: 6" TALL STANDARD CURB
SIDEWALK: 6" THICK P.C.C.
UGST: 8" THICK REINFORCED P.C.C. WITH MINIMUM 6" CRUSHED ROCK SUBBASE***

***6" CRUSHED ROCK SUBBASE THAT COMPLIES WITH AASHTO M147 GRADE C OR GRADE D AND SUBGRADE THAT IS COMPACTED TO 95% STANDARD PROCTOR DENSITY. VERIFY SUBBASE DEPTH WITH ENGINEER PRIOR TO CONSTRUCTION.

MAXIMUM JOINT SPACING = PAVEMENT THICKNESS * 1.5 = 6' * 1.5 = 9 FT

OPEN SPACE
EXISTING: 24% (13.3 SQ.FT.)
PROPOSED: 30% (17,133 SQ.FT.)
REQUIRED: 20% (11,275 SQ. FT.)

IMPERVIOUS SPACE
EXISTING: 78% (42,844 SQ.FT.)
PROPOSED: 70% (39,241 SQ.FT.)

PARKING
REQUIRED:
10 SPACES (4,569 SQ.FT. BLDG. => 4,569 / 500 = 10)

PROPOSED:
15 SPACES (INCLUDING 1 HANDICAP PARKING STALL)
1 LOADING SPACE (12X52')

SIGNS
PROPOSED CASEY'S 2-PRODUCT PYLON - NORTH OF WEST ENTRANCE
PROPOSED CASEY'S 2-PRODUCT PYLON - WEST OF SOUTH ENTRANCE

DISTURBED AREAS
ESTIMATED: 60,612 SQ.FT.
ALL DISTURBED AREAS SHALL BE SEEDED OR SODDED.
THE DISTURBED AREA FOR THIS SITE IS MORE THAN 1 ACRE, THEREFORE A NPDES PERMIT IS REQUIRED.

GEOTECHNICAL REPORT
REFERENCE REPORT #232040CWH COMPLETED 4/18/2023 BY CONSTRUCTION MATERIALS TESTING (CMT)

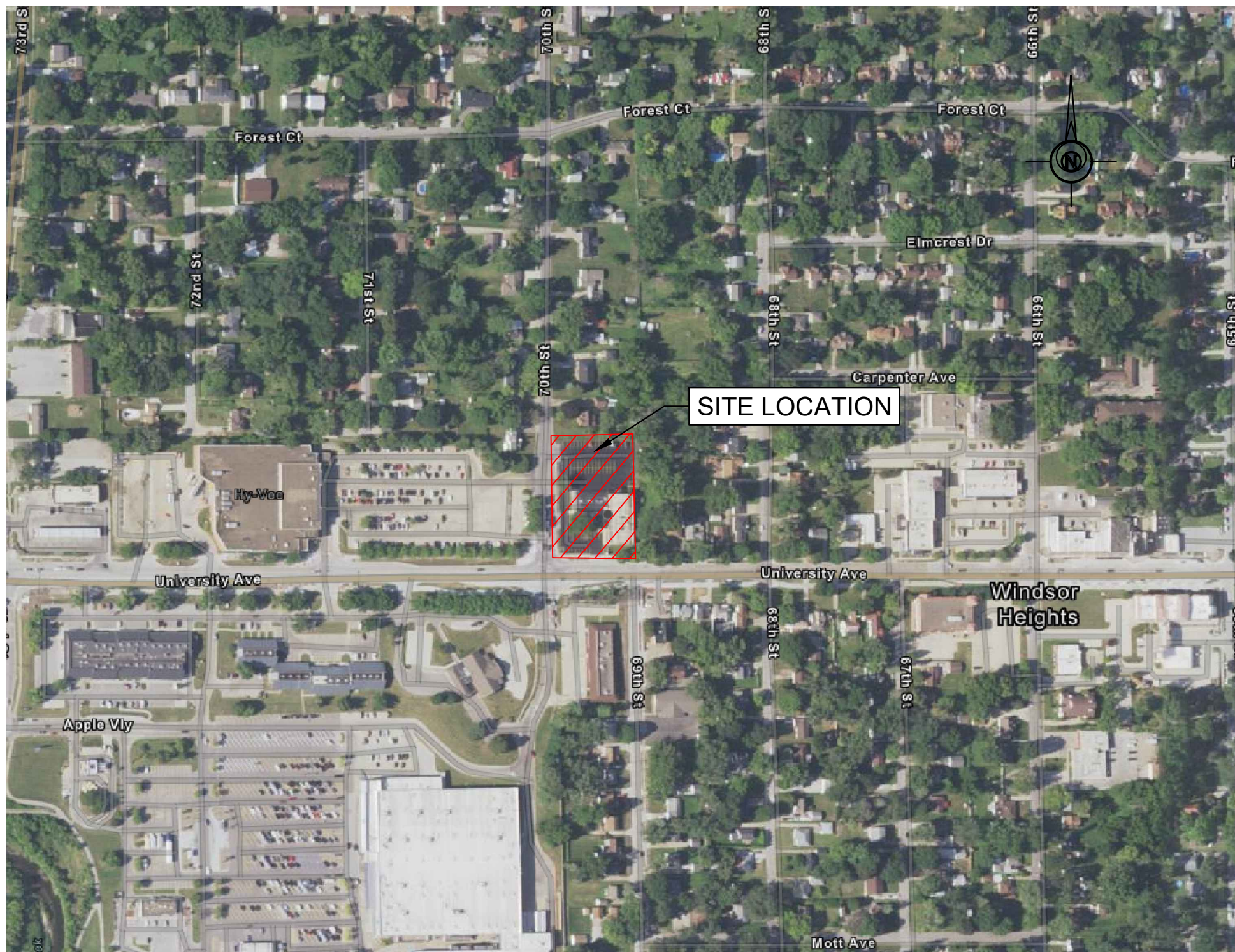
LEAKING UNDERGROUND STORAGE TANKS
THIS SITE IS NOT A LUST SITE

FLOODPLAIN
PER FEMA MAP #19153C0327F, THE SITE IS LOCATED IN ZONE X, AREA OF MINIMAL HAZARD

FAA
PER FAA NOTICE CRITERIA TOOL, SITE DOES NOT EXCEED NOTICE CRITERIA UP TO 100 FT HEIGHT (FOR POSSIBLE CRANE HEIGHT) AND THEREFORE FILING WITH THE FAA IS NOT REQUIRED

SITE IMPROVEMENTS FOR CASEY'S STORE #4372 6961 UNIVERSITY AVE WINDSOR HEIGHTS, IA

VICINITY MAP



SHEET INDEX

- | | |
|-------------------------|-------------------------------|
| C-001 - COVER SHEET | C-401 - EROSION CONTROL SHEET |
| C-002 - NOTE SHEET | C-501 - TRAFFIC CONTROL SHEET |
| C-003 - TOPO SHEET | C-601 - DETAIL SHEET |
| C-100 - DEMO SHEET | C-602 - DETAIL SHEET |
| C-101 - LAYOUT SHEET | C-603 - DETAIL SHEET |
| C-103 - DIMENSION SHEET | C-604 - DETAIL SHEET |
| C-201 - GRADING SHEET | C-701 - LANDSCAPING SHEET |
| C-301 - UTILITY SHEET | |

IOWA ONECALL CONTACT LIST:

(M52G) MIDAMER-GAS
Contact Name: Jaime Neer
Contact Phone: 5152526972
Contact Email: MECDSDesignLocates@midamerican.com

(CTLIA01) CENTURYLINK
Contact Name: Sadie Hull
Contact Phone: 9185470147
Contact Email: sadie.hull@lumen.com

(DWW) DES MOINES WATER WORKS
Contact Name: Ed Clark
Contact Phone: 5153236244
Contact Email: onecallmaps@dmww.com

(ENV) CONSOLIDATED COMMUNICATIONS
Contact Name: Justin Grev
Contact Phone: 5073863606
Contact Email: Justin.grev@consolidated.com

(ICN) IOWA COMMUNICATIONS NETWORK
Contact Name: Shannon Marlow
Contact Phone: 8005723940
Contact Email: icnoutsideplantowonecall@iowa.gov

(INS) AUREON NETWORK SERVICES
Contact Name: Jeff Klocko
Contact Phone: 5158300445
Contact Email: jeff.klocko@areon.com

(M52E) MIDAMER-ELEC
Contact Name: Jaime Neer
Contact Phone: 5152526972
Contact Email: MECDSDesignLocates@midamerican.com

(MC1) VERIZON
Contact Name: John Bachelder
Contact Phone: 9727297000
Contact Email: asg.investigationsteam@asginc.us

(POLKIA1) MEDIACOM
Contact Name: KEVIN COLLINS
Contact Phone: 5152466688
Contact Email: KCOLLINS1@MEDIACOMCC.COM

(UPN) UNITE PRIVATE NETWORKS, LLC
Contact Name: Joe Kilzer
Contact Phone: 8164253556
Contact Email: upngis@upnfiber.com

(VER01) VERIZON WIRELESS
Contact Name: Ryan Schaffer
Contact Phone: 5152015382
Contact Email: ryan.schaffer@verizonwireless.com

(WHC) WINDSOR HEIGHTS, CITY OF
Contact Name: Dalton Jacobus
Contact Phone: 5156456825
Contact Email: djacobus@windsorheights.org

(WINIA) WINDSTREAM COMMUNICATIONS
Contact Name: Locate Desk
Contact Phone: 8002891901
Contact Email: LOCATE.DESK@WINDSTREAM.COM

(ZAY) ZAYO GROUP LLC
Contact Name: John Ferraresi
Contact Phone: 3122160450
Contact Email: john.ferraresi@zayo.com

(CLV) CLIVE, CITY OF
Contact Name: Jared Acheson
Contact Phone: 5152526291
Contact Email: rowpermits@cityofclive.com

(MET) METRO FIBERNET, LLC
Contact Name: Korie Nellis
Contact Phone: 8122131050
Contact Email: 811design@metronet.com

LEGEND:

F.F.	FINISHED FLOOR
+/-	MORE OR LESS
123.45G	GUTTER ELEVATION
123.45TC	TOP OF CURB ELEVATION
123.45 / 123.45	EXISTING/ PROPOSED ELEVATION
FL	FLOWLINE ELEVATION
⊙	CONTROL POINT
○	CALCULATED CORNER
●	FOUND CORNER

△	CALCULATED SECTION CORNER
▲	FOUND SECTION CORNER
□	PARKING SPACE
⊙	SIGN
⊙	STREET LIGHT
⊙	POWER POLE
⊙	LIGHT POLE
⊙	AREA LIGHT
⊙	ELEC. TRANSFORMER
⊙	ELEC. METER
⊙	ELEC. BOX

⊙	ELEC. MANHOLE
⊙	ELEC. VAULT
⊙	GUY ANCHOR
⊙	UTILITY PEDESTAL
⊙	CABLE TV JUNCTION BOX
⊙	GAS VALVE
⊙	GAS METER
⊙	SANITARY SEWER MANHOLE
⊙	STORM SEWER MANHOLE
⊙	CLEANOUT
⊙	DOWNSPOUT

⊙	SINGLE INTAKE
⊙	AREA INTAKE
⊙	THROAT INTAKE
⊙	FLARED END SECTION
⊙	VALVE
⊙	FIRE HYDRANT
⊙	WATER METER
⊙	WATER VALVE
⊙	WATER TEE
— P XX —	PROPOSED UTILITY LINE
— E XX —	EXISTING UTILITY LINE

— CATV —	CABLE TELEVISION
— FO —	FIBER OPTIC
— G —	GAS LINE
— OHE —	OVERHEAD ELEC.
— OHT —	OVERHEAD TEL.
— SAN —	SANITARY SEWER
— ST —	STORM SEWER
— UGE —	UNDERGROUND ELEC.
— UGT —	UNDERGROUND TEL.
— W —	WATER
— F —	FENCE LINE

LEGAL DESCRIPTION:

LOTS 40, 41, AND 42 OF MOTTS PLACE, AN OFFICAL PLAT, NOW INCLUDED IN AND FORMING A PART OF THE CITY OF WINDSOR HEIGHTS, POLK COUNTY, IOWA, EXCEPT THAT PART DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF LOT 41 OF SAID MOTT PLACE; THENCE ALONG THE SOUTH LINE OF SAID LOTS 41 AND 41 HAVING AN ASSUMED BEARING OF NORTH 90°00'00" WEST, A DISTANCE OF ONE HUNDRED NINETY FOUR AND NINETY FIVE HUNDRETHS (194.95) FEET; THENCE NORTH 00°13'53" WEST, A DISTANCE OF TWENTY (20.00) FEET; THENCE NORTH 90°00'00" WEST, A DISTANCE OF FIVE (5.00) FEET TO A POINT ON THE WEST LINE OF SAID LOT 40; THENCE NORTH 00°13'53" WEST, A DISTANCE OF TWO HUNDRED SIXTY NINE AND FORTY FOUR HUNDRETHS (269.44) FEET; THENCE NORTH 90°00'00" EAST, A DISTANCE OF TEN (10.00) FEET; THENCE SOUTH 00°13'53" EAST, A DISTANCE OF TWENTY (20.00) FEET; THENCE NORTH 90°00'00" EAST, A DISTANCE OF ONE HUNDRED EIGHTY FIVE AND NENTY FOUR (185.94) FEET TO A POINT ON THE EAST LINE OF SAID LOT 41; THENCE SOUTH 00°13'53" EAST, A DISTANCE OF TEN (10.00) FEET TO THE POINT OF BEGINNING.

ITEM	QUANTITY INFORMATION*	UNITS
6" CONCRETE PAVEMENT	ON-SITE: 27,163 - OFF-SITE: NONE	SQ. FT.
8" REINFORCED CONCRETE PAVEMENT	1,353	SQ. FT.
8" CONCRETE PAVEMENT	ON-SITE/APPROACHES: 4,553 - OFF-SITE: NONE	SQ. FT.
CONCRETE CURB	912	LIN. FT.
SIDEWALK, NOT ADJACENT TO STORE	1,747	SQ. FT.
DETENTION SYSTEM	ADS UNDERGROUND - 13,438	CU. FT.
SEWER SERVICE	DIRECT BURY: 120 - BORE: NONE	LIN. FT.
WATER SERVICE	DIRECT BURY: 56 - BORE: NONE	LIN. FT.
8" HDPE STORM SERVICE	195	LIN. FT.
10" HDPE STORM SERVICE	157	LIN. FT.
12" HDPE STORM SERVICE	65	LIN. FT.
15" RCP STORM SERVICE	26	LIN. FT.
STRUCTURES - SW-512	1	EACH
STRUCTURES - NYLOPLAST BASIN WITH INTAKE	1	EACH
STRUCTURES - NYLOPLAST BASIN	1	EACH
STRUCTURES - STORM CLEANOUT	3	EACH
STRUCTURES - SANITARY CLEANOUT	1	EACH
STRUCTURES - WATER VALVE	1	EACH
EARTHWORK CUT & HAUL	1,077	CU. YD.
EARTHWORK CUT & RESPAWD	174	CU. YD.
TOPSOIL REQUIRED	327	CU. YD.
FENCING	180 - 6" OPAQUE	LIN. FT.
SOD AREA	17,702	SQ. FT.
ASPHALT PAVEMENT DEMOLITION	29,577	SQ. FT.
CONCRETE PAVEMENT DEMOLITION	4,019	SQ. FT.
BUILDING DEMOLITION	DEMO BY PREVIOUS OWNER	SQ. FT.
TREE DEMOLITION	4	EACH
RETAINING WALL	270	VERT. SQ. FT.

IN THE EVENT OF A DISCREPANCY BETWEEN THE QUANTITY ESTIMATES AND THE DETAILED PLANS, THE DETAILED PLANS SHALL GOVERN

CONTRACTOR TO PROVIDE A COMPLETE PROJECT PER THE CONSTRUCTION DOCUMENTS, QUANTITIES PROVIDED AS PART OF THIS SUMMARY ARE FOR REFERENCE PURPOSES ONLY AND ARE NOT A BASIS FOR CHANGE ORDER IF ADDITIONAL QUANTITY IS INSTALLED AS PART OF THE ORIGINAL BID DOCUMENTS

CASEY'S SDM

CASEYS MARKETING COMPANY
ONE SE CONVENIENCE BLVD
ANKENY, IOWA 50021
PROJECT CONTACT: ERIK NIKKEL
PHONE: (515) 381-5722
EMAIL: ERIK.NIKKEL@CASEYS.COM

SITE OWNER

CHARLES I & RUBY COLBY NATL DEV TRUST
6961 UNIVERSITY AVE
WINDSOR HEIGHTS, IOWA 50324

CITY ENGINEER

BOLTON & MENK, INC.
430 E GRAND AVE, STE 101
DES MOINES, IOWA 50309
CITY ENGINEER: JUSTIN ERNST
PROJECT CONTACT: TREY ROUSE
PHONE: (515) 259-9190
EMAIL: TREY.ROUSE@BOLTON-MENK.COM

CITY CONTACT

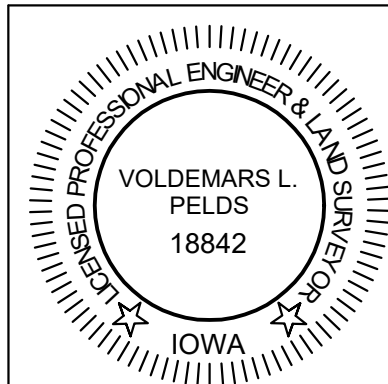
CITY OF WINDSOR HEIGHTS
1145 66TH ST SUITE 1
WINDSOR HEIGHTS, IOWA 50324
PROJECT CONTACT: TRAVIS COOKE
PHONE: 515-645-6810
EMAIL: TCCOOKE@WINDSORHEIGHTS.ORG

ENGINEER/ LAND SURVEYOR

PELDS DESIGN SERVICES
2323 DIXON ST
DES MOINES, IOWA 50316
PROJECT CONTACT: ELARA JONDLE
PHONE: (515) 265-8196
EMAIL: ELARA@PELDS.COM

ARCHITECT

PELDS DESIGN SERVICES
2323 DIXON ST
DES MOINES, IOWA 50316
PROJECT CONTACT: DANIEL WILLRICH
PHONE: (515) 265-8196
EMAIL: DANIEL@PELDS.COM



I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

VOLDDEMARS L. PELDS, P.E. IA, LIC. NO. 18842 DATE

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2025

ADDITIONAL PAGES OR SHEETS COVERED BY THIS SEAL (NONE UNLESS INDICATED HERE): C-001 - C-701

PELDS Design Services

Architecture | Engineering | Surveying

2323 Dixon Street, Des Moines, Iowa 50316 | PO Box 4626, Des Moines, Iowa 50305 | Ph: 515 265 8196

TITLE: CASEY'S STORE #4372 6961 UNIVERSITY AVE WINDSOR HEIGHTS, IA			
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C-001 - COVER SHEET			

GENERAL NOTES

- THE CITY OF WINDSOR HEIGHTS MUST BE NOTIFIED BY ALL CONTRACTORS 48 HOURS PRIOR TO COMMENCING WORK.
- ALL PROPOSED MATERIALS AND STRUCTURES SHALL BE APPROVED BY THE CITY OF WINDSOR HEIGHTS AND BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT O.S.H.A. CODES AND STANDARDS. NOTHING INDICATED ON THESE PLANS SHALL RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE APPROPRIATE SAFETY REGULATIONS.
- ALL NECESSARY CONSTRUCTION SIGNS, BARRICADES AND OTHER TRAFFIC CONTROL DEVICES REQUIRED DURING CONSTRUCTION WILL BE FURNISHED BY THE CONTRACTOR. SIGNS, BARRICADES, AND OTHER TRAFFIC CONTROL DEVICES MUST BE IN CONFORMANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS."
- PELDS DESIGN SERVICES SHALL NOT BE LIABLE FOR ANY INJURIES THAT HAPPEN ON SITE. THIS SHALL INCLUDE BUT NOT BE LIMITED TO TRENCH COLLAPSES FROM VARYING SOIL CONDITIONS OR INJURIES CAUSED BY UNDERGROUND UTILITIES INCLUDING UTILITIES THAT ARE NOT SHOWN ON PLAN.
- THE CONTRACTOR IS LIABLE FOR ALL DAMAGES TO PUBLIC OR PRIVATE PROPERTY CAUSED BY THEIR ACTION OR INACTION IN PROVIDING FOR STORM WATER FLOW DURING CONSTRUCTION. DO NOT RESTRICT FLOWS IN EXISTING DRAINAGE CHANNELS, STORM SEWER, OR FACILITIES.
- IF A PRE-CONSTRUCTION MEETING IS REQUIRED PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THIS MEETING.
- LABORATORY TESTS SHALL BE PERFORMED BY THE OWNER UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL PROVIDE SAMPLES OF MATERIAL REQUIRED FOR LABORATORY TESTS AND TESTING IN ACCORDANCE WITH THE URBAN STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS.
- THE CONTRACTOR SHALL PROTECT ALL STRUCTURES NOT SHOWN AS REMOVALS ON THE PLANS.
- THE CONTRACTOR SHALL OBTAIN ANY AND ALL NECESSARY PERMITS PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL WORK WITH OWNER OR OWNER'S REPRESENTATIVE ON ALL REQUIRED STORM WATER DISCHARGE PERMITS FROM THE IOWA DEPARTMENT OF NATURAL RESOURCES AND THE CITY OF WINDSOR HEIGHTS.
- THE CONTRACTOR SHALL PICK UP ANY DEBRIS SPILLED ONTO THE ADJACENT RIGHT OF WAY OR ABUTTING PROPERTIES AS THE RESULT OF CONSTRUCTION, AT THE END OF EACH WORK DAY.
- THE CONTRACTOR IS RESPONSIBLE FOR THE PROMPT REMOVAL OF ALL MUD THAT HAS BEEN TRACKED OR WASHED UNTO ADJACENT PROPERTY OR RIGHT OF WAY UNTIL SUCH TIME THAT PERMANENT VEGETATION HAS BEEN ESTABLISHED.
- DISPOSE OF ALL EXCESS MATERIALS AND TRASH IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS. PROVIDE WASTE AREAS OR DISPOSAL SITES OR EXCESS MATERIALS NOT DESIRABLE FOR INCORPORATION INTO THE PROJECT.
- ALL CONSTRUCTION WITHIN THE PUBLIC R.O.W/EASEMENTS, AND/OR ANY CONNECTION TO PUBLIC SEWERS AND STREETS SHALL COMPLY WITH THE CITY OF WINDSOR HEIGHTS.
- THE CONTRACTOR SHALL CONTACT THE CITY OF WINDSOR HEIGHTS TO SCHEDULE ANY REQUIRED INSPECTIONS AT LEAST ONE WEEK PRIOR TO ANY CONSTRUCTION WITHIN PUBLIC R.O.W/EASEMENTS, AND/OR ANY CONNECTION TO PUBLIC SEWERS AND STREETS
- IN THE EVENT OF ANY CONFLICTING NOTES BETWEEN THE COVER SHEET AND ALL OTHER SHEETS, THE NOTES ON THE COVER SHEET SHALL SUPERCEDE ALL OTHERS
- IN THE EVENT OF ANY CONFLICTING INFORMATION BETWEEN THE LABEL, ELECTRONIC CAD FILE, AND THE ELECTRONIC SURFACE, THE DESIGN ENGINEER SHALL BE CONTACTED FOR CLARIFICATION
- THE CITY OF WINDSOR HEIGHTS HAS NO SPECIFIC REQUIREMENTS FOR TANK BALLAST WATER

SURVEY NOTES

- SURVEY WORK WAS COMPLETED BY PELDS DESIGN SERVICES IN NOVEMBER 2022. SEE SITE SURVEY PROVIDED AS PART OF THIS SET OF PLANS FOR EXISTING SITE CONDITIONS AND BOUNDARY INFORMATION.

STAKING NOTES

- IT IS RECOMMENDED FOR THE CONTRACTOR TO HAVE ALL STAKING DONE UNDER THE SUPERVISION OF A LICENSED LAND SURVEYOR AND IN COORDINATION WITH THE PROJECT ENGINEER.
- IT IS RECOMMENDED FOR THE CONTRACTOR TO HAVE ALL STAKING DONE DIRECTLY UNDER THE GENERAL CONTRACTOR BY A SINGLE COMPANY.
- STAKING DOES NOT RELIEVE CONTRACTOR OF ULTIMATE RESPONSIBILITY TO CONSTRUCT THE PROJECT PER PLAN.

DEMO NOTES

- SAWCUT & REMOVE ALL PAVEMENT TO FULL DEPTH OF SLAB.
- PROTECT ALL TREES NOT CALLED OUT FOR REMOVAL WITH ORANGE CONSTRUCTION FENCE AT THE DRIP LINE.
- PAVEMENT STRIPING CALLED OUT FOR REMOVAL SHALL BE SANDBLASTED. NO GRINDING WILL BE ALLOWED.
- PROPERLY DISCONNECT ALL PUBLIC AND PRIVATE UTILITIES, AS NECESSARY.
- COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS TO REMOVE AND PROPERLY DISPOSE OF SIDEWALKS, STEPS, DRIVEWAYS, AND STRUCTURES (INCLUDING BOTH ABOVE GROUND AND BELOW GROUND ELEMENTS).
- COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS TO REMOVE FUEL TANKS, SEPTIC TANKS, CISTERNS, AND ANY OTHER UNDERGROUND FACILITIES; AND TO PROPERLY DISPOSE OF ANY LIQUIDS OR PRODUCTS CONTAINED WITHIN THESE ITEMS.
- PLACE BACKFILL MATERIAL IN HOLES AND DEPRESSIONS, GRADE THE SITE, AND ESTABLISH GROUND COVER.
- PROTECT EXISTING FIRE HYDRANTS, STREET LIGHTS, TRAFFIC SIGNALS, UTILITY POLES, FIRE ALARM BOXES, WIRE CABLES, UNDERGROUND UTILITIES, AND OTHER APPURTENANCES IN THE VICINITY OF THE DEMOLITION SITE
- COMPLY WITH NOISE POLLUTION REQUIREMENTS AND ANY WORKING HOUR RESTRICTIONS OF THE JURISDICTION.
- MAINTAIN OR RE-ESTABLISH ALL TILES, ROADWAY SUBDRAINS, CULVERTS, OR OTHER DRAINAGE FACILITIES NOT IDENTIFIED IN THE CONTRACT DOCUMENTS FOR REMOVAL.
- IMPLEMENT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN FOR EACH SITE PRIOR TO INITIATING DEMOLITION BY PLACING ALL REQUIRED DEVICES; INCLUDE MEASURES TO PREVENT TRACKING OF MUD ONTO ADJACENT STREETS OR ALLEYS.
- COMPLY WITH ALL APPLICABLE AIR POLLUTION REQUIREMENTS OF THE JURISDICTION. USE WATER OR APPROPRIATE CHEMICALS FOR CONTROL OF DUST IN THE DEMOLITION AREA, ON ADJACENT ROADWAYS, AND WHEN GRADING THE SITE.
- TAKE STEPS TO PREVENT THE GENERATION OF LITTER DURING DEMOLITION AND COLLECT ALL LITTER FROM THE DEMOLITION AREA AT THE END OF EACH WORKING DAY. LOAD TRUCKS TO PREVENT LEAKAGE OR BLOWING OF DEBRIS.
- REMOVE ALL CONCRETE, ASPHALT, OR MASONRY SLABS AND APPURTENANCES.
- REMOVE AND DISPOSE OF ALL BRUSH, SHRUBS, TREES, LOGS, DOWNED TIMBER, AND OTHER YARD WASTE ON THE SITE UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. DO NOT MIX WITH DEMOLITION MATERIAL. REMOVE STUMPS TO A MINIMUM OF 2 FEET BELOW FINISH GRADE. PROTECT ANY TREES OR OTHER VEGETATION NOT DESIGNATED FOR REMOVAL BY PLACING A FENCE AT THE DRIP LINE ENCOMPASSING THE ENTIRE TREE AND KEEPING ALL OPERATIONS OUTSIDE OF THE FENCED IN AREA, INCLUDING STORAGE OF EQUIPMENT OR MATERIALS. AT NO ADDITIONAL COST TO THE CONTRACTING AUTHORITY, REPLACE ANY TREES THAT ARE DESIGNATED FOR PROTECTION BUT ARE DAMAGED BEYOND TREATMENT. THE ENGINEER WILL DETERMINE SIZE AND SPECIES OF THE REPLACEMENT TREE.
- SAW-CUT ALL HARD SURFACING AT LOCATION OF REMOVAL LIMITS.
- WHERE SELECTIVE DEMOLITION IS SHOWN AT PAVED AREAS, DEMOLISH THE EXISTING PAVING BACK TO AN EXISTING CONTROL JOINT NEAR THE LOCATION SHOWN.

WETLAND NOTES

- PELDS DESIGN SERVICES DOES NOT PERFORM WETLAND STUDIES OR WETLAND MITIGATION. IT IS THE OWNER'S RESPONSIBILITY TO DETERMINE IF ANY WETLANDS ARE LOCATED ON THE PROJECT SITE AND PERFORM ANY NECESSARY MITIGATION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

DISCLAIMER

- THIS DRAWING IS BEING MADE AVAILABLE BY PELDS DESIGN SERVICES (P.D.S.) FOR USE ON THIS PROJECT IN ACCORDANCE WITH P.D.S.'S AGREEMENT FOR PROFESSIONAL SERVICES. P.D.S. ASSUMES NO RESPONSIBILITY OR LIABILITY (CONSEQUENTIAL OR OTHERWISE) FOR ANY USE OF THESE DRAWINGS (OR ANY PART THEREOF) EXCEPT IN ACCORDANCE WITH THE TERMS OF SAID AGREEMENT.
- P.D.S DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY FOR INFORMATION THAT DOES NOT BEAR THE ORIGINAL SEAL AND SIGNATURE OF THE PROFESSIONAL IN CHARGE.

CIVIL ENGINEERING NOTES
FOR
CASEY'S STORE #4372
6961 UNIVERSITY AVE
WINDSOR HEIGHTS, IA

UTILITY NOTES

- QUANTITY CALLOUTS ON PIPE LENGTHS ARE APPROXIMATE AND SHOULD BE USED FOR REFERENCE ONLY.
- PIPE LENGTHS CALLED OUT ON PLANS DO NOT INCLUDE FLARED END SECTION, WHERE APPLICABLE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL UTILITIES. ANY DAMAGE TO SAID UTILITIES SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER AT THE CONTRACTORS EXPENSE.
- THE CONTRACTOR SHALL RELOCATE EXISTING UTILITIES AS NECESSARY, SHOWN OR NOT SHOWN.
- THE CONTRACTOR SHALL COORDINATE WITH THE CITY ON ALL SIZE, DEPTHS, AND MATERIALS OF ALL PROPOSED UTILITIES.
- THE CONTRACTOR MUST PROVIDE AS-BUILTS OF ALL UTILITIES, INCLUDING DEPTH AND LOCATION OF ALL SERVICES IF REQUIRED BY CITY.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE APPROPRIATE UTILITY COMPANIES PRIOR TO CONNECTION OR DISCONNECTION OF A SERVICE LINE.
- CONTRACTOR IS TO COMPLY WITH THE LATEST SUDAS SPECIFICATIONS FOR MAINTENANCE, INSTALLATION, AND TESTING FOR CONSTRUCTION.
- THE CONTRACTOR SHALL COORDINATE THE ADJUSTMENT OF ANY AND ALL EXISTING AND PROPOSED UTILITIES TO PROPOSED GRADES. EXISTING UTILITIES SHALL BE RAISED OR LOWERED IN ACCORDANCE WITH THE UTILITY OWNER REQUIREMENTS. ANY NECESSARY ADJUSTMENTS SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.
- ACTIVE EXISTING FIELD TILES ENCOUNTERED DURING CONSTRUCTION SHALL BE REPAIRED, REROUTED, OR CONNECTED TO PUBLIC OR PRIVATE STORM SEWER TO REMAIN IN SERVICE. THE TILE SHOULD BE DIRECTED TO PUBLIC STORM SEWER IF POSSIBLE. THE CONTRACTOR SHALL RECORD THE ELEVATION AND LOCATION OF ALL TILES.
- ALL RIP RAP CALLED OUT ON PLANS SHALL BE UNDERLAIN WITH ENGINEERING FABRIC.
- ALL STRUCTURE SIZES CALLED OUT ON PLANS ARE MINIMUM INSIDE WALL DIMENSIONS.
- ALL PROPOSED UTILITIES SHALL BE PRIVATE, UNLESS NOTED OTHERWISE.
- ALL STRUCTURES CALLED OUT AS "MODIFIED" OR "SPECIAL" SHALL BE ENGINEERED BY THE PRECASTER TO ENSURE STRUCTURE STABILITY. MODIFICATIONS INCLUDE ADDITIONAL WALL LENGTH TO ACCOUNT FOR LARGE PIPE DIAMETERS AND ADDITIONAL WALL WIDTH & BASE DEPTH TO ACCOUNT FOR DEEPER STRUCTURES. ANY AND ALL MODIFICATIONS TO STANDARD STRUCTURES SHALL BE CONSIDERED INCIDENTAL TO BID

ELECTRICAL SERVICE NOTES

- ALL SITE LIGHTING SHALL NOT SPILL ONTO ADJACENT PROPERTIES OR RIGHT-OF-WAYS
- TRANSFORMER PAD IS SHOWN FOR REFERENCE ONLY AND MAY NOT BE DRAWN TO ACTUAL SIZE. PAD SHALL CONFORM TO ALL UTILITY COMPANY DESIGN STANDARDS AND SPECIFICATIONS.

SANITARY SERVICE NOTES

- SANITARY SEWER SERVICE CONNECTIONS SHALL BE PLACED AT A SLOPE OF NO LESS THAN 2% FOR A 4" PIPE AND 1% FOR A 6" PIPE. SERVICES SHALL MAINTAIN 18" OF VERTICAL SEPARATION FROM THE WATER MAIN WITH 18" OF COMPACTED LOW PERMEABILITY SOIL BETWEEN THE UTILITIES WITHIN 10' OF THE CROSSING.

STORM WATER SERVICE NOTES

- ALL STORM SEWER IN THE ROW SHALL BE RCP (CLASS III RCP), UNLESS OTHERWISE SPECIFIED.
- ALL PROPOSED RCP STORM SEWER PIPE JOINTS SHALL BE FABRIC WRAPPED AND THE LAST 3 PIPE SECTIONS ON THE APRON SHALL BE TIED WITH RF-14 TYPE II CONNECTORS. ALL APRONS SHALL HAVE A STANDARD FOOTING AND TRASH GUARD.
- ALL SUMP SERVICE LINES SHALL HAVE TRACE WIRE

WATER SERVICE NOTES

- WATER SERVICE SHALL BE TYPE K COPPER, DIP OR HDPE, DEPENDING ON SIZE AND JURISDICTIONAL REQUIREMENTS. IF CONTAMINATED OR "HOT" SOILS, ENSURE APPROPRIATE PIPE IS BEING UTILIZED. SIZE OF WATER MAIN AS SHOWN ON PLANS.
- TRACER WIRE SHALL BE ADDED TO ALL WATER MAIN, AND BROUGHT TO THE SURFACE AT EVERY HYDRANT.
- THRUST BLOCKS SHALL BE INSTALLED AS REQUIRED AND SHALL BE CONSIDERED INCIDENTAL TO WATER MAIN CONSTRUCTION.
- ANY AND ALL HYDRANT AND VALVE EXTENSIONS, TOGETHER WITH VERTICAL BENDS, SHALL BE CONSIDERED INCIDENTAL TO WATER MAIN CONSTRUCTION. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR INCIDENTAL ITEMS.
- ALL WATER LINES SHALL HAVE A MINIMUM OF 5.5 FEET OF COVER UNLESS NOTED OTHERWISE.

EXISTING UTILITIES NOTE

- THE LOCATIONS OF THE EXISTING UTILITIES SHOWN HEREON ARE APPROXIMATE. THEY HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND/OR RECORDS. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ANY EXISTING UTILITIES (SHOWN OR NOT SHOWN) ARE NOT DAMAGED DURING CONSTRUCTION: IOWA ONE-CALL (1-800-292-8989).

UTILITY CONFLICT NOTES

- UTILITY CONFLICTS MAY EXIST ACROSS THE SITE WITH NEW UTILITIES, GRADING, PAVING ETC. MOST UTILITY CONFLICTS HAVE BEEN CALLED OUT FOR CONTRACTOR CONVENIENCE.
- CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY CONFLICTS BETWEEN AN EXISTING UTILITY AND PROPOSED CONSTRUCTION THAT ARE EITHER CALLED OUT ON THE PLANS OR NOT CALLED OUT.
- CONTRACTOR SHALL COMPLY WITH ALL DNR REQUIREMENTS FOR PIPE MATERIAL, PIPE JOINTS, AND ANY OTHER APPLICABLE REQUIREMENTS ANY TIME A STORM SEWER OR SANITARY SEWER CROSSES OVER OR LESS THAN 18" BELOW A WATER MAIN.
- FOR ALL CRITICAL CROSSINGS WITH EXISTING UTILITIES, THE ELEVATION OF THE EXISTING UTILITY SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. NOTIFY PELDS DESIGN SERVICES PRIOR TO CONSTRUCTION IF A CONFLICT EXISTS.

SPECIFICATIONS NOTES

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST VERSION OF THE URBAN STANDARDS SPECIFICATIONS FOR PUBLIC IMPROVEMENTS ON THE DATE OF APPROVAL AND THE CITY OF WINDSOR HEIGHTS SUPPLEMENTAL SPECIFICATIONS.
- IN THE EVENT OF A DISCREPANCY BETWEEN THE PROJECT SPECIFICATIONS AND THE CITY OF WINDSOR HEIGHTS REQUIREMENTS AND SPECIFICATIONS, PLUMBING CODE, AND URBAN STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENT, THE CITY OF WINDSOR HEIGHTS STANDARD SPECIFICATIONS SHALL GOVERN.
- FOR ALL SPECIFICATION DISCREPANCIES, THE PROJECT ENGINEER SHALL BE CONTACTED PRIOR TO PROCEEDING WITH CONSTRUCTION. IF THE ENGINEER IS NOT CONTACTED, CONTRACTOR SHALL BE RESPONSIBLE FOR ANY PROBLEMS THAT RESULT FROM SAID DISCREPANCIES.

REQUIRED AS-BUILT NOTES

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COST OF AS-BUILT TOPO, IF REQUIRED BY CITY.
- CONTRACTOR SHALL CONTACT PELDS DESIGN SERVICES TO PERFORM SAID AS-BUILT SURVEYS.
- IF ANYTHING HAS BEEN CONSTRUCTED INCORRECTLY, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SUBSEQUENT AS-BUILT SURVEYS UNTIL ISSUES HAVE BEEN RECTIFIED.

PAVING NOTES

- THE PAVING/ GRADING CONTRACTOR SHALL BACKFILL THE PAVING SLAB AND FINE GRADE THE RIGHT OF WAY AS SOON AFTER THE PAVING AS POSSIBLE. ALL AREAS SHALL BE SODDED IN ACCORDANCE WITH CITY OF WINDSOR HEIGHTS SPECIFICATIONS AND THE LATEST VERSION OF SUDAS.
- SEE DETAILS FOR ALL PAVEMENT THICKNESS.
- DETECTABLE WARNING PANEL(S) CALLED OUT ON PLANS SHALL BE PER A.D.A. REGULATIONS. PANEL TYPE & COLOR SHALL BE PER CITY STANDARD.
- SIDEWALKS SHALL HAVE EXPANSION JOINTS AT 100 FOOT INTERVALS AS REQUIRED BY CITY CODE
- ALL WALKS, PARKING LOTS, HANDICAP PARKING, RAMPS, ETC. SHALL COMPLY WITH ALL A.D.A. AND CITY CODES. HANDICAP PARKING SIGNAGE IS REQUIRED FOR ALL HANDICAP STALLS AND SHALL BE CONSIDERED INCIDENTAL. IN EVENT OF A DISCREPANCY BETWEEN THE PLANS AND THE A.D.A./CITY CODES THE A.D.A./CITY CODES SHALL GOVERN. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING A.D.A. CODES ARE MET.

PAVEMENT SAWCUT NOTES

- CONTRACTOR TO PROVIDE SAWCUT JOINTING PLAN PRIOR TO ANY CONCRETE PAVEMENT INSTALLATION.
- PAVEMENT MAY BE REQUIRED TO BE REMOVED AND REPLACED IF PLACED WITHOUT AN APPROVED PLAN.
- LONGITUDINAL JOINTS IN DRIVE LANES & THE OUTER MOST JOINT OF ALL PARKING AREAS SHALL BE SUDAS TYPE 'L-1' OR 'L-2' JOINTS AND HAVE STEEL. INTERIOR PARKING LOT JOINTS, OTHER THAN THE OUTER MOST JOINT, DO NOT NEED STEEL AND SHALL BE SUDAS TYPE 'B' OR TYPE 'K' JOINTS. ALL TRANSVERSE JOINTS SHALL BE SUDAS TYPE 'C' OR TYPE 'DW' JOINTS WITH STEEL IN THE CASE OF A DAY'S WORK JOINT.

SOIL NOTES

- STRIP AND STOCKPILE THE TOP 8 INCHES OF SOIL ON ALL DISTURBED AREAS. GRADING CONTRACTOR SHALL STOCKPILE TOPSOIL FOR SHOULDERING.
- SOD REQUIREMENT PER SUDAS: IN AREAS WHERE TOPSOIL HAS BEEN STRIPPED, A SODBED SHOULD BE CONSTRUCTED BY SPREADING A MINIMUM OF 6 INCHES OF TOPSOIL PRIOR TO SODDING. DEEPER TOPSOIL DEPTHS (8 TO12 INCHES OR GREATER) ARE DESIRABLE AS THEY INCREASE THE ORGANIC MATTER AVAILABLE FOR USE BY THE PLANTS, ALLOW FOR DEEPER ROOT PENETRATION AND INCREASE THE MOISTURE HOLDING ABILITY OF THE SOIL.
- PERMANENT SEED REQUIREMENT PER SUDAS: IN ORDER TO PROVIDE AN ADEQUATE GROWING MEDIUM, A MINIMUM OF 8 INCHES OF TOPSOIL SHOULD BE PLACED OVER THE DISTURBED AREA PRIOR TO SEEDING. DEEPER TOPSOIL DEPTHS (8-12 INCHES OR GREATER) ARE DESIRABLE AS THEY INCREASE THE ORGANIC MATTER AVAILABLE FOR USE BY THE PLANTS, ALLOW FOR DEEPER ROOT PENETRATION AND INCREASE THE MOISTURE HOLDING ABILITY OF THE SOIL.
- TOPSOIL SHALL BE FREE OF ALL ROCK AND DEBRIS LARGER THAN 3/4" IN SIZE.
- TOPSOIL IS DEFINED AS: FERTILE, FRIABLE LOAM, CAPABLE OF SUSTAINING VIGOROUS PLANT GROWTH, FROM WELL DRAINED SITE FREE FROM FLOODING, NOT IN FROZEN OR MUDDY CONDITIONS; REASONABLE FREE FROM SUBSOIL, CLAY LUMPS, ROOTS, GRASS, WEEDS, STONES LARGER THAN 3/4 INCH IN DIAMETER, AND FOREIGN MATTER; ACIDITY RANGE (PH) OF 5.5 TO 7.5; CONTAINING MINIMUM 4 PERCENT AND MAXIMUM 20 PERCENT ORGANIC MATTER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING ALL TOPSOIL REQUIREMENTS OF NPDES GENERAL PERMIT NO. 2 ARE MET.
- REFERENCE GEOTECHNICAL REPORT FOR ADDITIONAL SOILS INFORMATION INCLUDING BUT NOT LIMITED TO SUBGRADE INFORMATION, FOOTING DESIGN, AND ANY POSSIBLE OVER EXCAVATION DUE TO POOR SOILS. PAVEMENT SECTIONS ON THE PLANS GOVERN OVER PAVEMENT THICKNESS IN THE SOILS REPORT.

GRADING NOTES

- AREAS TO RECEIVE STRUCTURAL FILL SHALL BE BENCHED. STRUCTURAL FILL SHALL BE COMPACTED TO A DENSITY THAT IS NOT LESS THAN 95% STANDARD PROCTOR.
- PREPARE BOTTOM OF BENCH FOR FILL BY DISKING TO A DEPTH OF 12 INCHES AND COMPACT. ANY LOCALIZED AREAS WHICH CANNOT BE SATISFACTORILY COMPACTED OR WHICH SHOW EVIDENCE OF PUMPING ACTION SHALL BE UNDERCUT AND RE-COMPACTED WITH ON-SITE FILL MATERIALS.
- ALL AREAS WHICH ARE TO RECEIVE PAVING SHALL HAVE THE TOP 12 INCHES DISKED AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
- MAINTAIN ALL CUT AND FILL AREAS TO ACCOMMODATE SURFACE DRAINAGE.
- FINISH GRADE ON ALL NON-PAVED AREAS SHALL BE WITHIN 0.20 FT, AND PAVED AREAS SHALL BE WITHIN 0.10 FT OF THE PROPOSED GRADES SHOWN ON THE PLAN
- MAXIMUM ALLOWABLE GRADE ON ALL PROPOSED SLOPES IS 3:1.
- THE MOISTURE CONTENT SHALL NOT DEVIATE FROM THE OPTIMUM BY MORE THAN 2% IN STRUCTURAL FILL.
- MAXIMUM 2% CROSS-SLOPE ON ALL SIDEWALKS.
- GRADING AND EROSION CONTROL SHALL BE DONE IN ACCORDANCE WITH THE APPROVED GRADING PLAN, SWPPP, NPDES DOCUMENTS, AND IOWA DEPARTMENT OF NATURAL RESOURCES REQUIREMENTS.

LANDSCAPING NOTES

- ALL SODDING & LANDSCAPE PLANTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE URBAN STANDARD SPECIFICATIONS, UNLESS SPECIFIED OTHERWISE.
- SEED OR SOD ALL DISTURBED AREAS WITHIN THE CONTRACT LIMITS, UNLESS NOTED OTHERWISE. SOD LIMITS SHOWN ON PLAN ARE FOR REFERENCE ONLY. FINAL LIMITS MAY CHANGE BASED ON CONSTRUCTION ACTIVITIES. SEED ALL DISTURBED AREAS OFF-SITE
- STAKE SOD ON ALL SLOPES 4:1 OR GREATER.
- PLANT QUANTITIES ARE FOR CONTRACTORS CONVENIENCE, THE DRAWING SHALL PREVAIL IF A CONFLICT OCCURS.
- ALL PLANT MATERIAL SHALL CONFORM TO THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1).
- CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE.
- CONTRACTOR SHALL PLACE SHREDDED HARDWOOD MULCH OR BRICK CHIPS OR WASHED STONE AROUND ALL TREES, SHRUBS AND GROUND COVER BEDS TO A DEPTH OF 4 INCHES, UNLESS NOTED.
- PROVIDE 6MIL MINIMUM PLASTIC BELOW ROCK/BRICK.
- THE LANDSCAPING CONTRACTOR SHALL HAVE ALL UTILITIES LOCATED BEFORE STARTING ANY SITE WORK OR PLANTING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES.
- CONTRACTOR SHALL BE RESPONSIBLE MAINTAINING APPROPRIATE LEVEL OF WATERING FOR ALL NEW PLANTS FOR A PERIOD OF 30 DAYS.
- CONTRACTOR SHALL DESIGN AND PROVIDE IRRIGATION SYSTEM. COORDINATION WITH ARCHITECT REQUIRED.
- ALL BEDS TO RECEIVE GRANULAR PRE-EMERGENT WEED CONTROL BEFORE AND AFTER MULCH IS INSTALLED.



PELDS Design Services

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TITLE:
**CASEY'S STORE #4372
6961 UNIVERSITY AVE
WINDSOR HEIGHTS, IA**

BENCHMARK:
DRAWN BY:
N. DAY

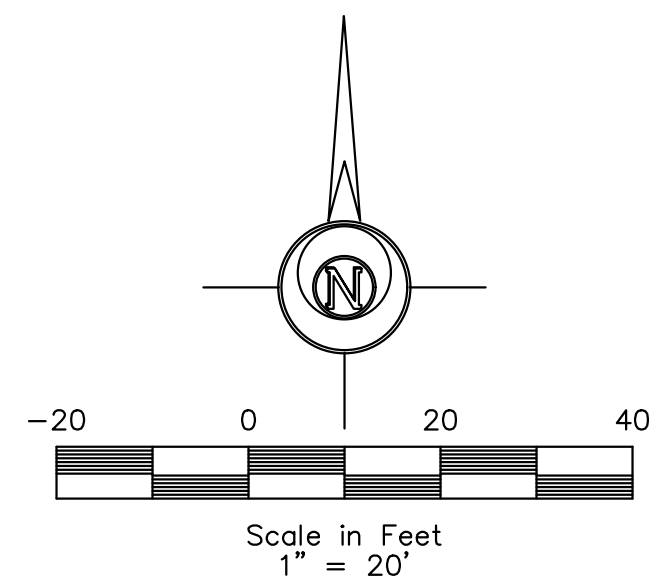
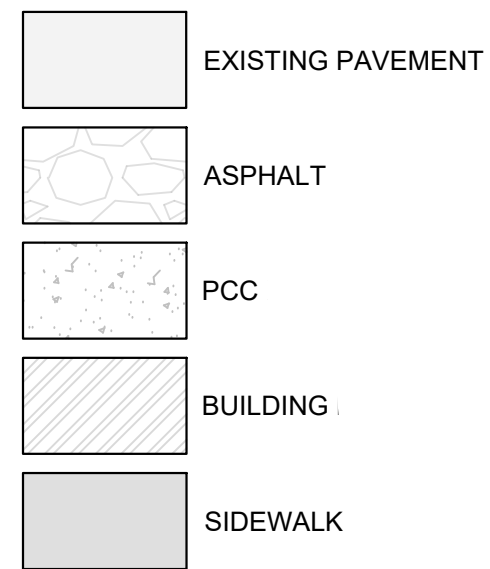
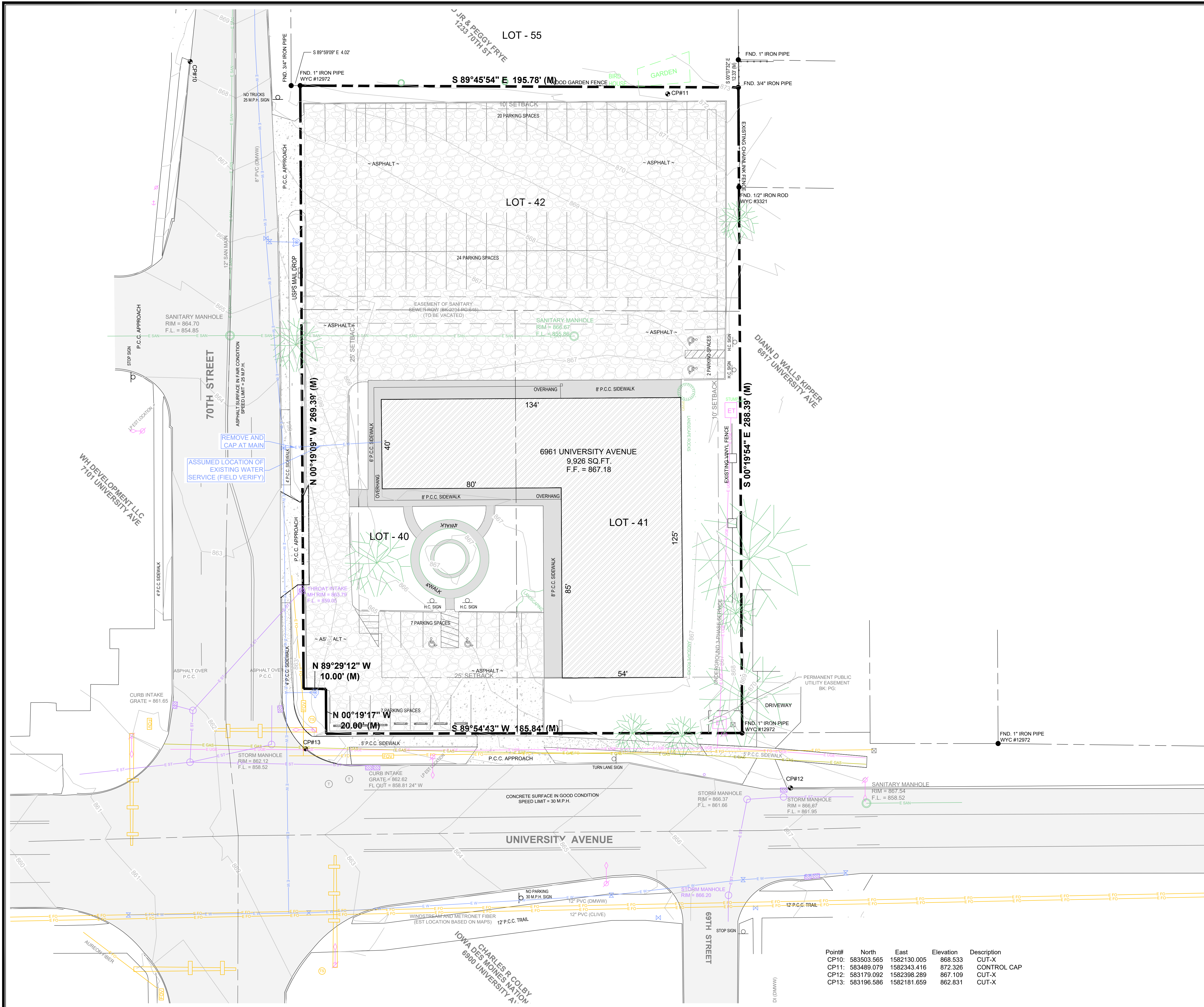
REVISION:
SCALE:
1-16-2024

PRELIMINARY
LATEST REVISION:
1-16-2024

DRAWING NO:
22-201

FILE PATH:
2022 Projects\22-201 CGS Windsor Heights\Engineering\Sheet Set

C-002 - NOTE SHEET



LEGEND:

+/-	MORE OR LESS	⊙	ELEC. MANHOLE
F.F.	FINISHED FLOOR	⊙	SANITARY SEWER MANHOLE
123.45G	GUTTER ELEVATION	⊙	STORM SEWER MANHOLE
123.45TC	TOP OF CURB ELEVATION	⊙	TRAFFIC MANHOLE
123.45/123.45	EXISTING/PROPOSED ELEVATION	⊙	CLEANOUT
FL	FLOWLINE ELEVATION	⊙	DOWNSPOUT
⊙	CONTROL POINT	⊙	AREA INTAKE
⊙	CALCULATED CORNER	⊙	SINGLE INTAKE
●	FOUND CORNER	⊙	THROAT INTAKE
●	CALCULATED SECTION CORNER	⊙	FLARED END SECTION
●	FOUND SECTION CORNER	⊙	GAS VALVE
▲	PARKING SPACE	⊙	FIRE HYDRANT
▲	SIGN	⊙	WATER VALVE
▲	STREET LIGHT	⊙	P XX PROPOSED UTILITY LINE
▲	POWER POLE	⊙	E XX EXISTING UTILITY LINE
▲	LIGHT POLE	⊙	CATV CABLE TELEVISION
▲	AREA LIGHT	⊙	FO FIBER OPTIC
▲	GUY ANCHOR	⊙	GAS GAS LINE
▲	UTILITY PEDESTAL	⊙	OHE OVERHEAD ELEC.
▲	ELEC. TRANSFORMER	⊙	OHT OVERHEAD TEL.
▲	ELEC. METER	⊙	SS SANITARY SEWER
▲	ELEC. BOX	⊙	ST STORM SEWER
▲	ELEC. VAULT	⊙	UGE UNDERGROUND ELEC.
▲	FIBER OPTIC VAULT	⊙	UGT UNDERGROUND TEL.
▲	GAS METER	⊙	W WATER
▲	CABLE TV JUNCTION BOX	⊙	— — — — — FENCE LINE
▲	WATER METER	⊙	



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TITLE:

CASEY'S STORE #4372

6961 UNIVERSITY AVE

WINDSOR HEIGHTS, IA

BENCHMARK:

DATE: 1-16-2024

DRAWN BY: N. DAY

SCALE: 1"=20'

LATEST REVISION:

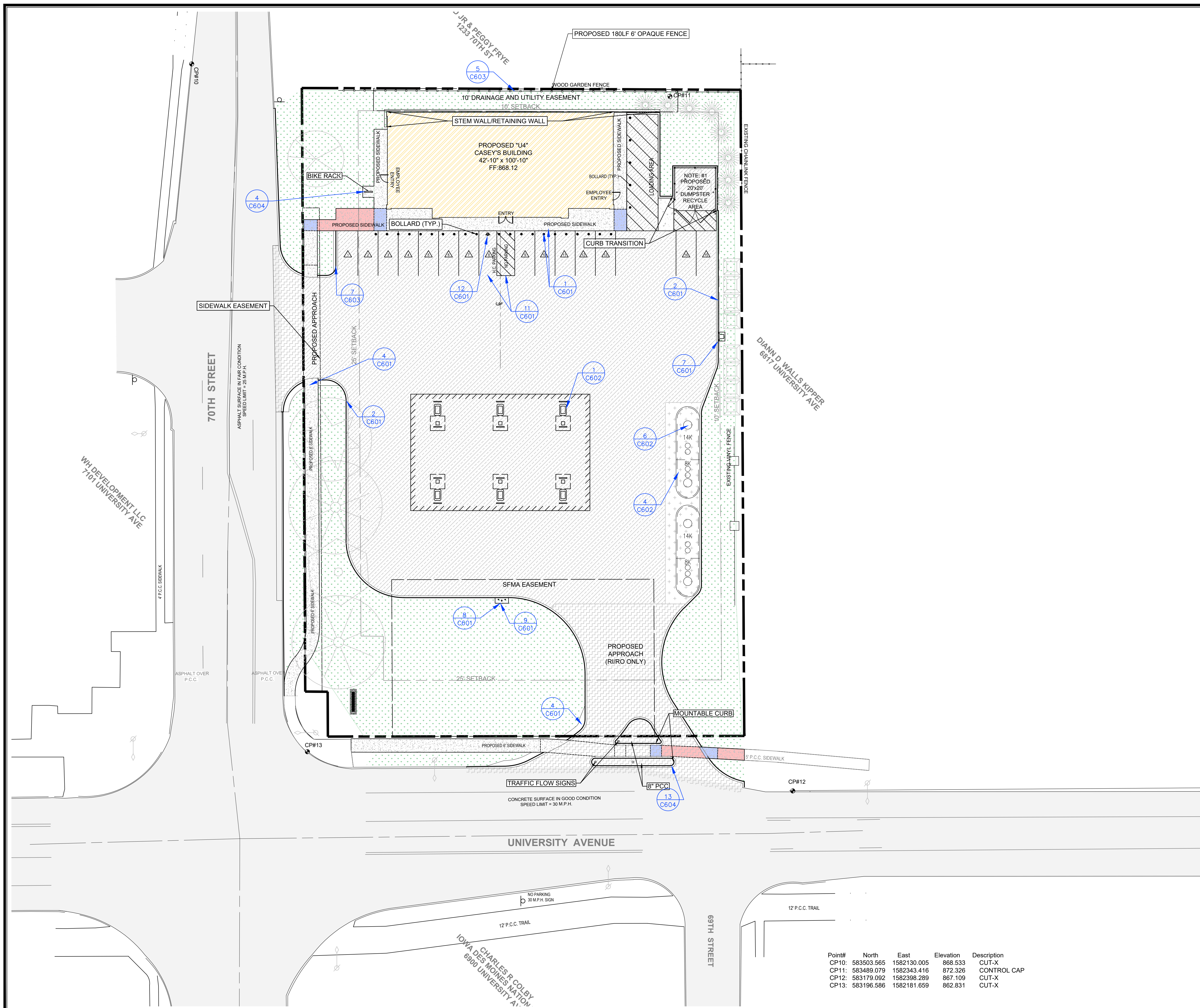
DRAWING NO: 22-201

FILE PATH: J:\2022 Projects\22-201 CGS Windsor Heights\Engineering\Sheet Set

C-003 - TOPO SHEET

PRELIMINARY

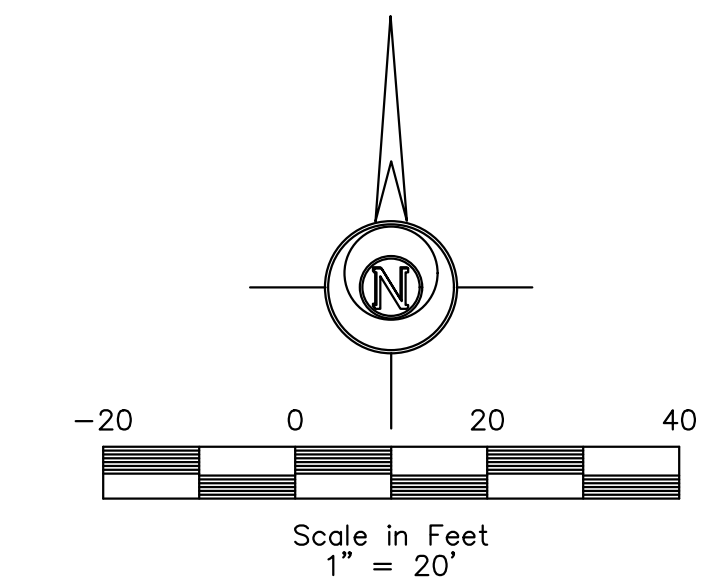
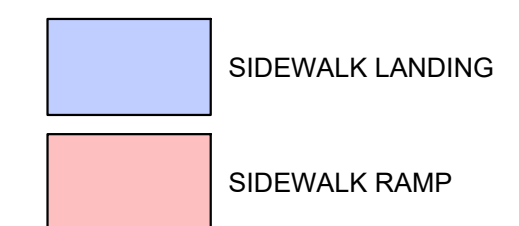
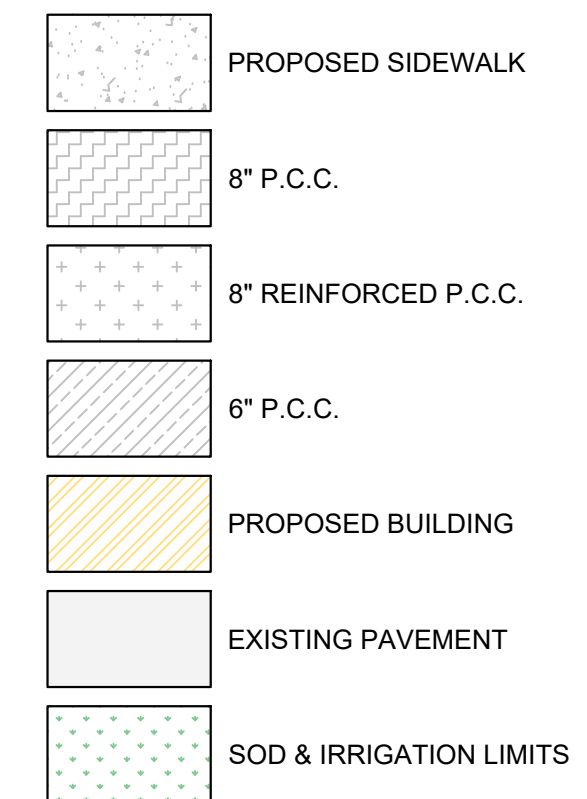
Point#	North	East	Elevation	Description
CP10:	583503.565	1582130.005	868.533	CUT-X
CP11:	583489.079	1582343.416	872.326	CONTROL CAP
CP12:	583179.092	1582398.289	867.109	CUT-X
CP13:	583196.586	1582181.659	862.831	CUT-X



NOTES:

ALL WORK IN/ON THE R.O.W. AREA IS SUBJECT TO THE CITY OF WINDSOR HEIGHTS
APPROVAL AND SPECIFICATIONS

CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALL OF IRRIGATION SYSTEM



LEGEND:

+/-	MORE OR LESS	⑥	ELEC. MANHOLE
F.F.	FINISHED FLOOR	⑦	SANITARY SEWER MANHOLE
123.45C	GUTTER ELEVATION	⑧	STORM SEWER MANHOLE
123.45TC	TOP OF CURB ELEVATION	⑨	TRAFFIC MANHOLE
123.45/123.45	EXISTING/ PROPOSED ELEVATION	⑩	CLEANOUT
FL	FLOWLINE ELEVATION	⑪	DOWNSPOUT
⊙	CONTROL POINT	⑫	AREA INTAKE
●	CALCULATED CORNER	⑬	SINGLE INTAKE
○	FOUND CORNER	⑭	THROAT INTAKE
△	CALCULATED SECTION CORNER	⑮	FLARED END SECTION
▲	FOUND SECTION CORNER	⑯	GAS VALVE
▷	PARKING SPACE	⑰	FIRE HYDRANT
▽	SIGN	⑱	WATER VALVE
⊙	STREET LIGHT	— P XX	PROPOSED UTILITY LINE
⊙	POWER POLE	— E XX	EXISTING UTILITY LINE
⊙	LIGHT POLE	— CATV	CABLE TELEVISION
⊙	AREA LIGHT	— FO	FIBER OPTIC
⊙	GUY ANCHOR	— GAS	GAS LINE
⊙	UTILITY PEDESTAL	— OHE	OVERHEAD ELEC.
ET	ELEC. TRANSFORMER	— OHT	OVERHEAD TEL.
EM	ELEC. METER	— SAN	SANITARY SEWER
EB	ELEC. BOX	— ST	STORM SEWER
EV	ELEC. VAULT	— UGE	UNDERGROUND ELEC.
FOV	FIBER OPTIC VAULT	— UGT	UNDERGROUND TEL.
GM	GAS METER	— W	WATER
TV	CABLE TV JUNCTION BOX	— — — — —	FENCE LINE
WM	WATER METER		



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FILE #	CASEY'S STORE #4372 6961 UNIVERSITY AVE WINDSOR HEIGHTS, IA
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BENCHMARK:	REVISIONS: PRELIMINARY
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FILE PATH:		C-101 - LAYOUT SHEET	
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Point#	North	East	Elevation	Description
CP10:	583503.565	1582130.005	868.533	CUT-X
CP11:	583489.079	1582343.416	872.326	CONTROL CAP
CUT2:	583179.092	1582398.289	867.109	CUT-X
CP13:	583196.586	1582181.659	862.831	CUT-X

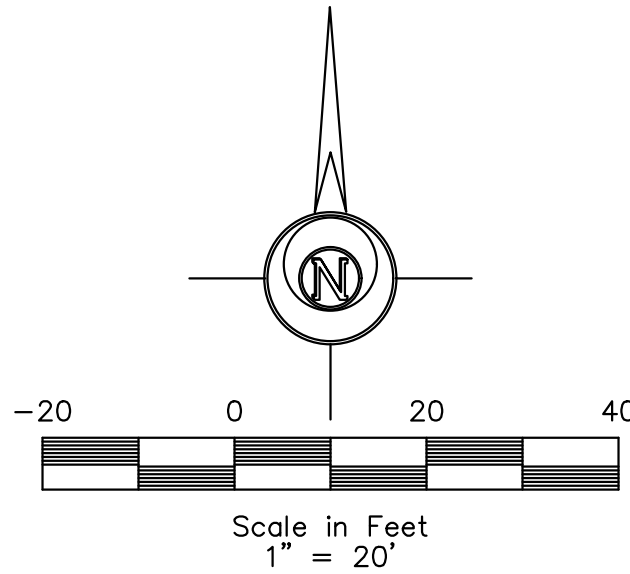
General Notes

- Note #1:
BRICK DUMPSTER ENCLOSURE 6' HEIGHT W/ METAL GATES
2-9' GATES AND 4' SERVICE GATE
- Note #2
2 PRODUCT MONUMENT PRICE SIGN - REFER TO SIGN PACKET
- Note #3
ALL FUEL DISPENSERS FALL WITHIN A 100 FOOT RADIUS OF THE EMERGENCY SHUT-OFF
SWITCH LOCATED INSIDE AT THE SALES COUNTER FOR THE CONVENIENCE STAFF. A
SECONDARY SHUT-OFF SHALL BE INSTALLED ON A POST AT THE CURB IF ALL FUEL
DISPENSERS **DO NOT** FALL WITHIN A 100 RADIUS.
- Note #4
AIR COMPRESSOR BOX, SEE SHEET C-601 SITE DETAILS.
110 VOLT-60HZ-5.5 AMP. #12 WIRE (20 AMP, SINGLE PHASE) WITH GROUND.
- Note #5
ALL WORK IN/ON THE R.O.W. AREA IS SUBJECT TO THE CITY OF WINDSOR HEIGHTS
APPROVAL AND SPECIFICATIONS

Keyed Construction Notes

- (A) PROPOSED 5' RADIUS
(B) PROPOSED 10' RADIUS
(C) PROPOSED 15' RADIUS
(D) PROPOSED 35' RADIUS
(E) TIE INTO AND MATCH EXISTING CURB & FLOW LINE.
(F) REMOVE EXISTING APPROACH
(G) REPLACE EXISTING SIDEWALK
(H) PROPOSED 25' RADIUS

EXISTING PAVEMENT



LEGEND:

- | | | | |
|---------------|------------------------------|---|------------------------------|
| +/- | MORE OR LESS | ⊙ | ELEC. MANHOLE |
| F.F. | FINISHED FLOOR | ⊙ | SANITARY SEWER MANHOLE |
| 123.45G | GUTTER ELEVATION | ⊙ | STORM SEWER MANHOLE |
| 123.45TC | TOP OF CURB ELEVATION | ⊙ | TRAFFIC MANHOLE |
| 123.45/123.45 | EXISTING/ PROPOSED ELEVATION | ⊙ | CLEANOUT |
| FL | FLOWLINE ELEVATION | ⊙ | DOWNSPOUT |
| ⊙ | CONTROL POINT | ⊙ | AREA INTAKE |
| ⊙ | CALCULATED CORNER | ⊙ | SINGLE INTAKE |
| ● | FOUND CORNER | ⊙ | THROAT INTAKE |
| ● | CALCULATED SECTION CORNER | ⊙ | FLARED END SECTION |
| ▲ | FOUND SECTION CORNER | ⊙ | GAS VALVE |
| ▲ | PARKING SPACE | ⊙ | FIRE HYDRANT |
| ⊙ | SIGN | ⊙ | WATER VALVE |
| ⊙ | STREET LIGHT | ⊙ | P XX — PROPOSED UTILITY LINE |
| ⊙ | POWER POLE | ⊙ | E XX — EXISTING UTILITY LINE |
| ⊙ | LIGHT POLE | ⊙ | CATV — CABLE TELEVISION |
| ⊙ | AREA LIGHT | ⊙ | FO — FIBER OPTIC |
| ⊙ | GUY ANCHOR | ⊙ | GAS — GAS LINE |
| ⊙ | TEL. JUNCTION BOX | ⊙ | OHE — OVERHEAD ELEC. |
| ⊙ | ELEC. TRANSFORMER | ⊙ | OHT — OVERHEAD TEL. |
| ⊙ | ELEC. METER | ⊙ | SAN — SANITARY SEWER |
| ⊙ | ELEC. BOX | ⊙ | ST — STORM SEWER |
| ⊙ | ELEC. VAULT | ⊙ | UGE — UNDERGROUND ELEC. |
| ⊙ | FIBER OPTIC VAULT | ⊙ | UGT — UNDERGROUND TEL. |
| ⊙ | GAS METER | ⊙ | W — WATER |
| ⊙ | CABLE TV JUNCTION BOX | ⊙ | — — — — — FENCE LINE |
| ⊙ | WATER METER | | |



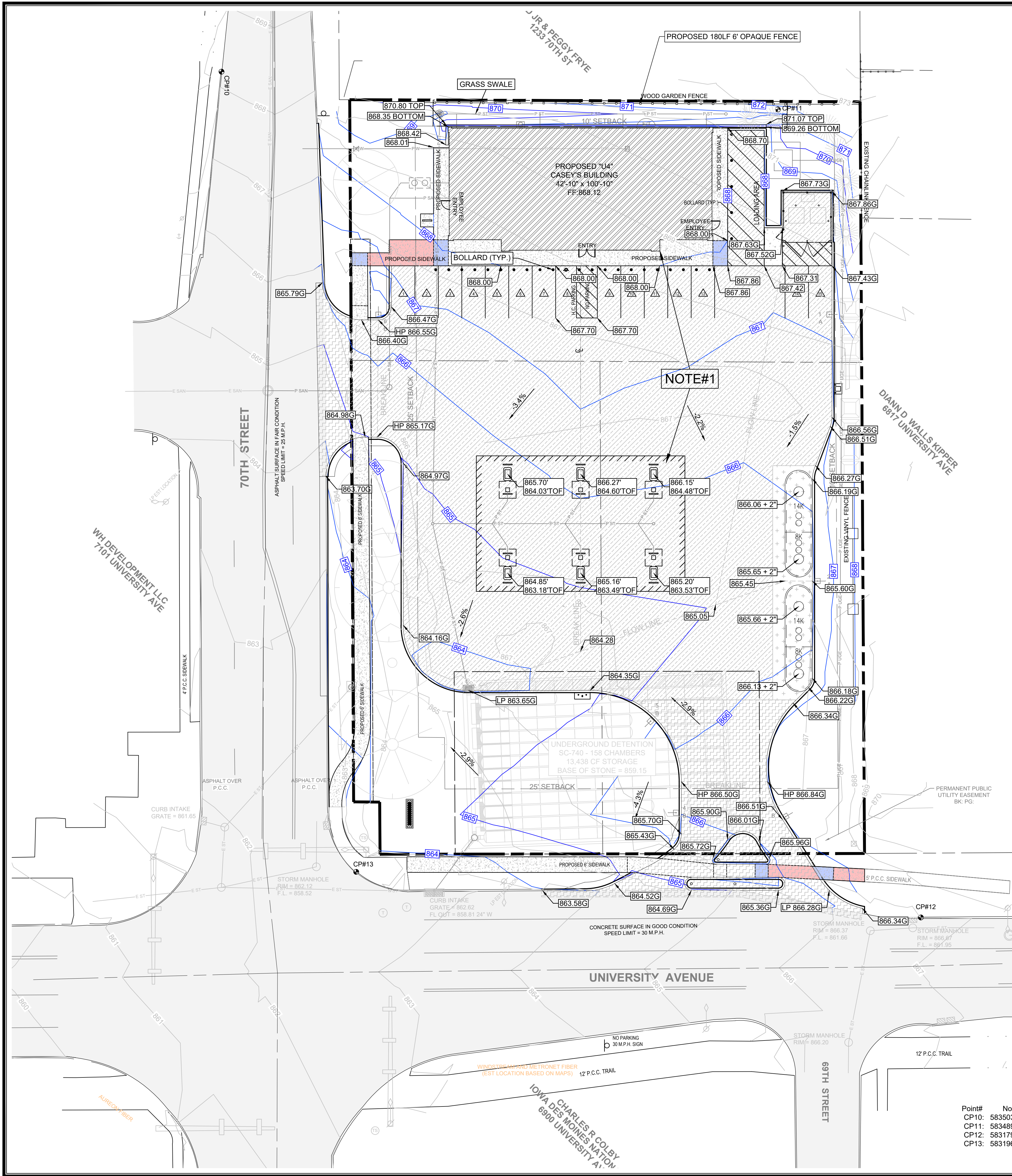
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CASEY'S STORE #4372
6961 UNIVERSITY AVE
WINDSOR HEIGHTS, IA

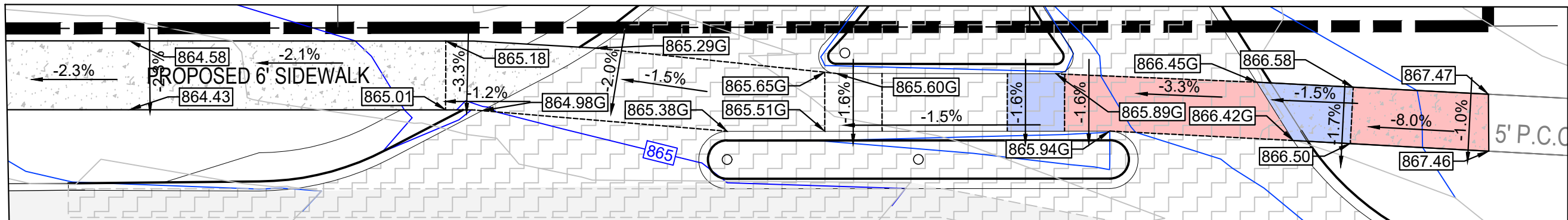
PRELIMINARY

Point#	North	East	Elevation	Description
CP10:	583503.565	1582130.005	868.533	CUT-X
CP11:	583489.079	1582343.416	872.326	CONTROL CAP
CP12:	583179.092	1582398.289	867.109	CUT-X
CP13:	583196.586	1582181.659	862.831	CUT-X

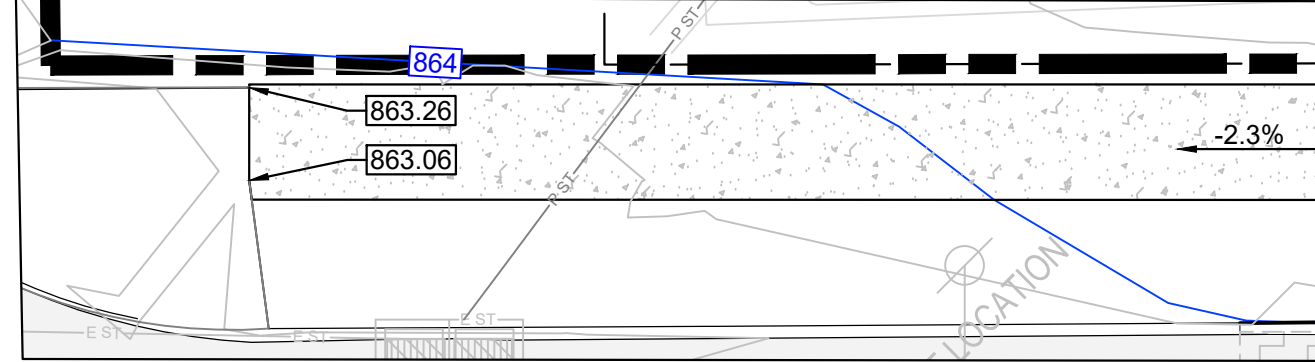
C-103 - DIMENSION SHEET



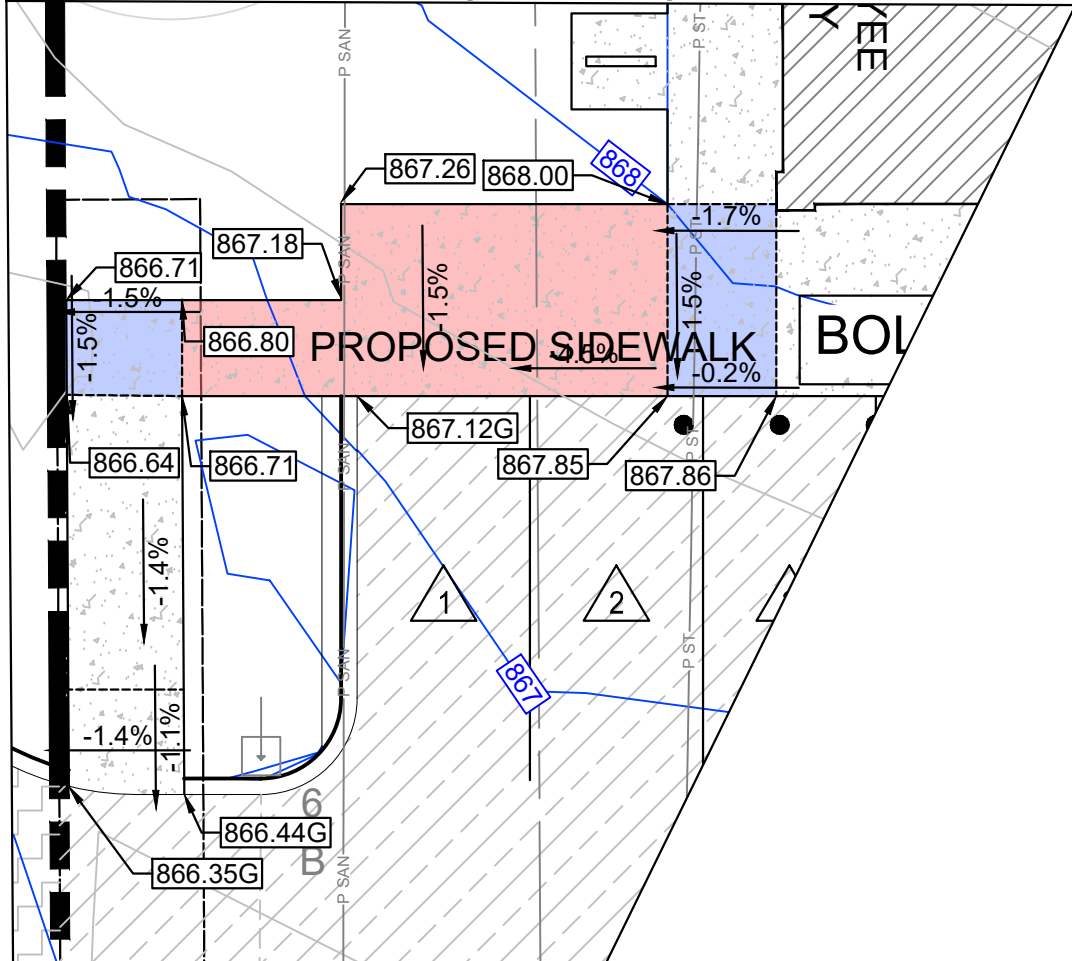
UNIVERSITY SIDEWALK (EAST)



UNIVERSITY SIDEWALK (WEST)

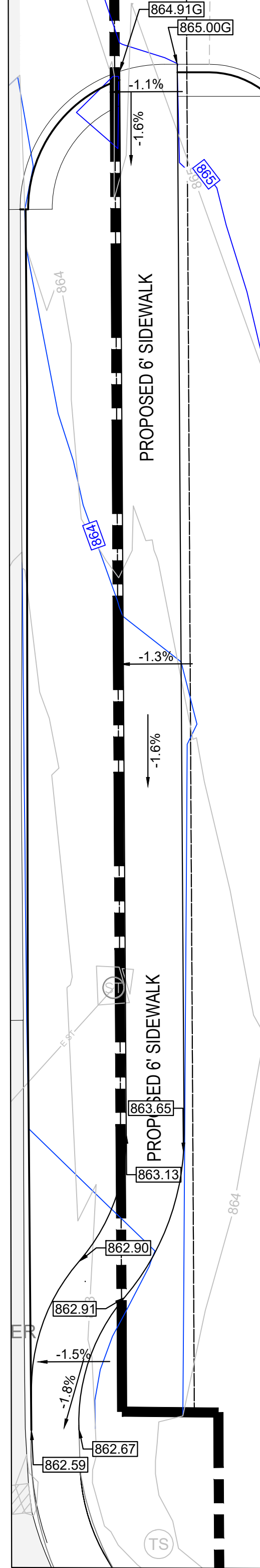


70TH SIDEWALK (NORTH)



NOTES:
#1: MAINTAIN A MINIMUM 2' SEPARATION BETWEEN BOTTOM OF FOOTINGS AND EXPANSIVE SOILS

70TH SIDEWALK (SOUTH)



- PROPOSED SIDEWALK
- 8" P.C.C.
- 8" REINFORCED P.C.C.
- 6" P.C.C.
- PROPOSED BUILDING
- EXISTING PAVEMENT
- SIDEWALK LANDING
- SIDEWALK RAMP

LEGEND:

- +/- MORE OR LESS
- F.F. FINISHED FLOOR
- 123.45G GUTTER ELEVATION
- 123.45TC TOP OF CURB ELEVATION
- 123.45/123.45 EXISTING/PROPOSED ELEVATION
- FL FLOWLINE ELEVATION
- CONTROL POINT
- CALCULATED CORNER
- FOUND CORNER
- CALCULATED SECTION CORNER
- FOUND SECTION CORNER
- PARKING SPACE
- SIGN
- STREET LIGHT
- POWER POLE
- LIGHT POLE
- AREA LIGHT
- GUY ANCHOR
- UTILITY PEDESTAL
- ELEC. TRANSFORMER
- ELEC. METER
- ELEC. BOX
- ELEC. VAULT
- FIBER OPTIC VAULT
- GAS METER
- CABLE TV JUNCTION BOX
- WATER METER
- ELEC. MANHOLE
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- TRAFFIC MANHOLE
- CLEANOUT
- DOWNSPOUT
- AREA INTAKE
- SINGLE INTAKE
- THROAT INTAKE
- FLARED END SECTION
- GAS VALVE
- FIRE HYDRANT
- WATER VALVE
- P XX PROPOSED UTILITY LINE
- E XX EXISTING UTILITY LINE
- CATV CABLE TELEVISION
- FO FIBER OPTIC
- GAS GAS LINE
- OHE OVERHEAD ELEC.
- OHT OVERHEAD TEL.
- SAN SANITARY SEWER
- ST STORM SEWER
- UGE UNDERGROUND ELEC.
- UGT UNDERGROUND TEL.
- W WATER
- FENCE LINE

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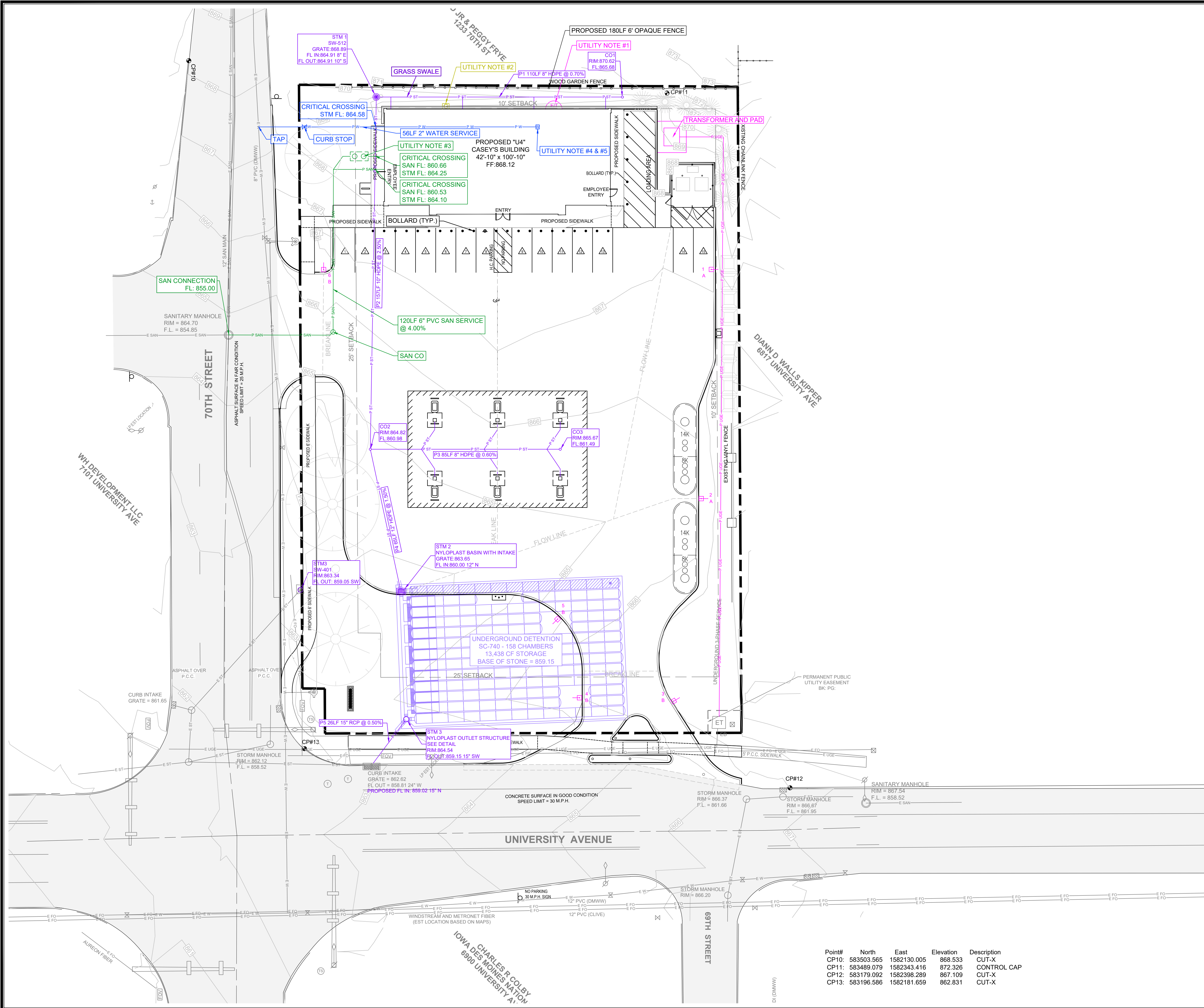
CASEY'S STORE #4372
6961 UNIVERSITY AVE
WINDSOR HEIGHTS, IA

PRELIMINARY

DATE: 1-16-2024
DRAWN BY: N. DAY
SCALE: 1"=20'
LATEST REVISION: 1-16-2024
DRAWING NO: 22-201

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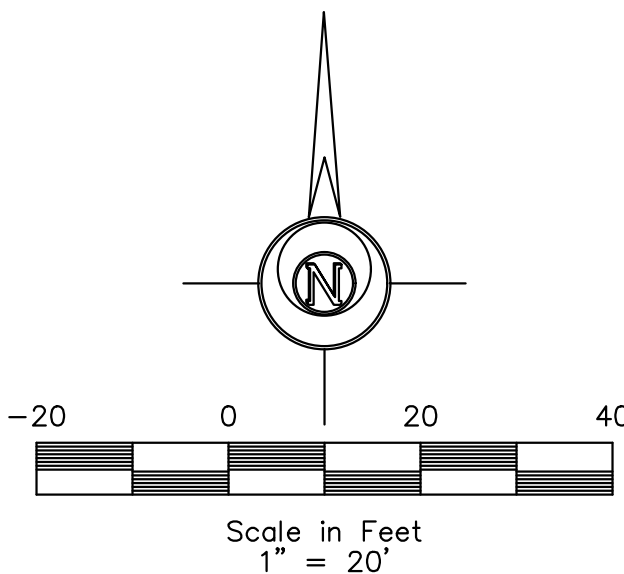
Point#	North	East	Elevation	Description
CP10:	583503.565	1582130.005	868.533	CUT-X
CP11:	583489.079	1582343.416	872.326	CONTROL CAP
CP12:	583179.092	1582398.289	867.109	CUT-X
CP13:	583196.586	1582181.659	862.831	CUT-X



Utility Notes

- UTILITY NOTE #1:** ELECTRICAL (C-STORE); ELECTRICAL SERVICE ENTRANCE.
-ELECTRIC 3 PHASE, 800 AMP., 208 VOLTS, 4 WIRE
-TELEPHONE 20 PAIR, 8 LINES
- UTILITY NOTE #2:** GAS (C-STORE); SERVICE ENTRANCE.
BLACK SCHEDULE 40 SCREWED PIPE (SIZED BY SERVICE PROVIDER)
CONNECTION LOAD IS 985 MBH. TOTAL CONNECTED LOAD IS 985,000 BTU
985 CU/FT. HR.
- UTILITY NOTE #3:** SANITARY SEWER (C-STORE); 6" SCHEDULE 40 PVC SANITARY SEWER
CONNECTION.
1,000 GALLON BELOW GRADE GREASE INTERCEPTOR WITH 2 MANHOLES
- UTILITY NOTE #4:** WATER (C-STORE); 2" CTS, HDPE, SDR9 C5-200 PSI WATER SERVICE
CONNECTION
- UTILITY NOTE #5:** IRRIGATION (C-STORE); IRRIGATION DESIGNED AND PROVIDED BY
DEVELOPER
- UTILITY NOTE #6:** ANY EXISTING SERVICES AND/OR STUBS WILL NEED TO BE REMOVED AT
THE MAIN
- UTILITY NOTE #7:** ALL NEWLY-INSTALLED CABLE, TRANSMISSION, OR OTHER UTILITY
SYSTEMS WILL BE INSTALLED UNDERGROUND
- UTILITY NOTE #8:** MAINTAIN A MINIMUM HORIZONTAL DISTANCE OF 10' BETWEEN SANITARY
AND WATER SERVICES

EXISTING PAVEMENT



LEGEND:

- | | | | |
|---------------|------------------------------|---|----------------------------|
| +/- | MORE OR LESS | ⊙ | ELEC. MANHOLE |
| F.F. | FINISHED FLOOR | ⊙ | SANITARY SEWER MANHOLE |
| 123.45G | GUTTER ELEVATION | ⊙ | STORM SEWER MANHOLE |
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| FL | FLOWLINE ELEVATION | ⊙ | DOWNSPOUT |
| ⊙ | CONTROL POINT | ⊙ | AREA INTAKE |
| ⊙ | CALCULATED CORNER | ⊙ | SINGLE INTAKE |
| ● | FOUND CORNER | ⊙ | THROAT INTAKE |
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| ⊙ | AREA LIGHT | ⊙ | FO FIBER OPTIC |
| ⊙ | GUY ANCHOR | ⊙ | GAS GAS LINE |
| ⊙ | UTILITY PEDESTAL | ⊙ | OHE OVERHEAD ELEC. |
| ⊙ | ELEC. TRANSFORMER | ⊙ | OHT OVERHEAD TEL. |
| ⊙ | ELEC. METER | ⊙ | SAN SANITARY SEWER |
| ⊙ | ELEC. BOX | ⊙ | ST STORM SEWER |
| ⊙ | ELEC. VAULT | ⊙ | UGE UNDERGROUND ELEC. |
| ⊙ | FIBER OPTIC VAULT | ⊙ | UGT UNDERGROUND TEL. |
| ⊙ | GAS METER | ⊙ | W WATER |
| ⊙ | CABLE TV JUNCTION BOX | ⊙ | ⊙-⊙-⊙-⊙ FENCE LINE |
| ⊙ | WATER METER | | |



ELDS DESIGN SERVICES

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TITLE:

CASEY'S STORE #4372
6961 UNIVERSITY AVE
WINDSOR HEIGHTS, IA

REVISIONS:

PRELIMINARY

COPYRIGHT DATE:

1-16-2024

DRAWN BY:

22-201

SCALE:

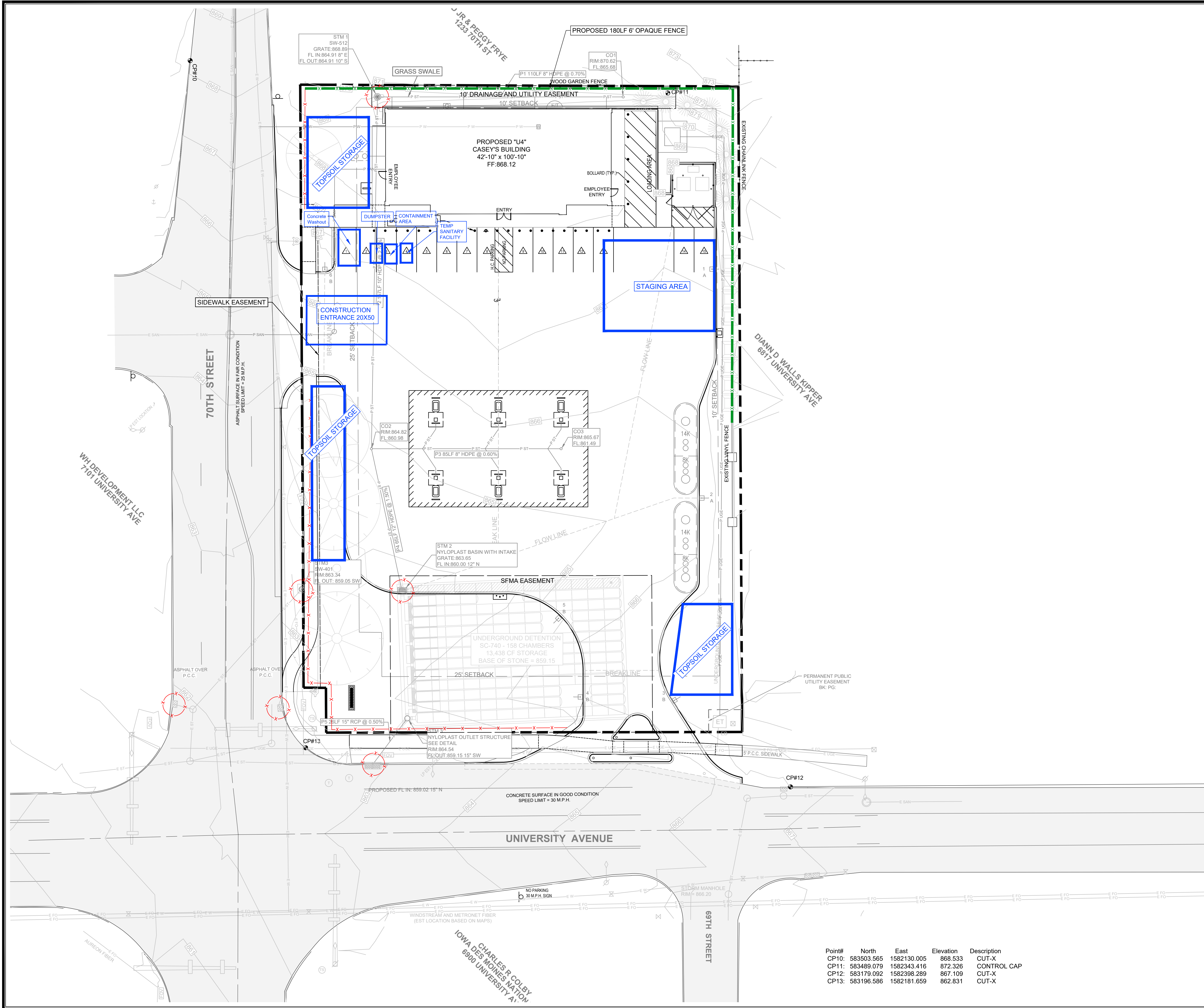
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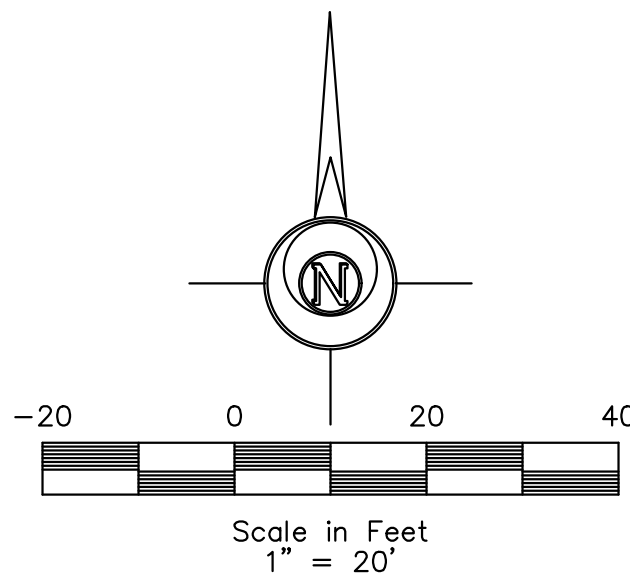
C-301 - UTILITY SHEET

Point#	North	East	Elevation	Description
CP10:	583503.565	1582130.005	868.533	CUT-X
CP11:	583489.079	1582343.416	872.326	CONTROL CAP
CP12:	583179.092	1582398.289	867.109	CUT-X
CP13:	583196.586	1582181.659	862.831	CUT-X



- SWPPP NOTES:**
1. LOCATION OF STAGING AREAS TO CONTAIN: JOB TRAILERS, FUELING LOCATION, TEMPORARY SANITARY FACILITIES, MATERIALS STORAGE, CONCRETE WASHOUT AREA, CONTROL RUNOFF WITH DIVERSION BERMS OR SILT FENCE AND DIRECT TO SEDIMENT BASIN WHERE POSSIBLE.
 2. ALL INTERIOR & PERIMETER SILT FENCE NOT SHOWN. SEE EROSION CONTROL PLAN.
 3. MULCH OR SOD ALL DISTURBED AREAS NOT PAVED OR DEVELOPED.
 4. ADDITIONAL CONTROLS MAY BE REQUIRED DEPENDING ON PHASING & SITE CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING, NOTING & IMPLEMENTING.
 5. A MINIMUM 6" LAYER OF TOPSOIL SHALL BE RESPREAD FROM THE STOCKPILE ONSITE TO SODDED PERVIOUS SURFACES THAT WERE DISTURBED DURING CONSTRUCTION. SEEDED AREAS TO RECEIVE A MINIMUM 8" OF TOPSOIL.
 6. ALL BARE AREAS THAT WILL REMAIN INACTIVE FOR 14 DAYS OR MORE REQUIRE IMMEDIATE STABILIZATION MEASURES (TEMPORARY SEEDING OR MULCHING)
 7. ALL SLOPES 4:1 OR GREATER REQUIRE SEEDING AND MATTING

— x — x — x — x — FILTER SOCK
— x — x — x — x — CONSTRUCTION FENCE



LEGEND:

+/-	MORE OR LESS	⊙	ELEC. MANHOLE
F.F.	FINISHED FLOOR	⊙	SANITARY SEWER MANHOLE
123.45G	GUTTER ELEVATION	⊙	STORM SEWER MANHOLE
123.45TC	TOP OF CURB ELEVATION	⊙	TRAFFIC MANHOLE
123.45/123.45	EXISTING/PROPOSED ELEVATION	⊙	CLEANOUT
FL	FLOWLINE ELEVATION	⊙	DOWNSPOUT
⊙	CONTROL POINT	⊙	AREA INTAKE
⊙	CALCULATED CORNER	⊙	SINGLE INTAKE
●	FOUND CORNER	⊙	THROAT INTAKE
●	CALCULATED SECTION CORNER	⊙	FLARED END SECTION
▲	FOUND SECTION CORNER	⊙	GAS VALVE
▲	PARKING SPACE	⊙	FIRE HYDRANT
▲	SIGN	⊙	WATER VALVE
▲	STREET LIGHT	⊙	P XX — PROPOSED UTILITY LINE
▲	POWER POLE	⊙	E XX — EXISTING UTILITY LINE
▲	LIGHT POLE	⊙	CATV — CABLE TELEVISION
▲	AREA LIGHT	⊙	FO — FIBER OPTIC
▲	GUY ANCHOR	⊙	GAS — GAS LINE
▲	UTILITY PEDESTAL	⊙	OHE — OVERHEAD ELEC.
▲	ELEC. TRANSFORMER	⊙	OHT — OVERHEAD TEL.
▲	ELEC. METER	⊙	SAN — SANITARY SEWER
▲	ELEC. BOX	⊙	ST — STORM SEWER
▲	ELEC. VAULT	⊙	UGE — UNDERGROUND ELEC.
▲	FIBER OPTIC VAULT	⊙	UGT — UNDERGROUND TEL.
▲	GAS METER	⊙	W — WATER
▲	CABLE TV JUNCTION BOX	⊙	— — — — — FENCE LINE
▲	WATER METER		

**ELDS DESIGN SERVICES**

Architecture | Engineering | Surveying
2323 Dixon Street, Des Moines, Iowa 50316 | PO Box 4626, Des Moines, Iowa 50305 | Ph: 515.265.8196

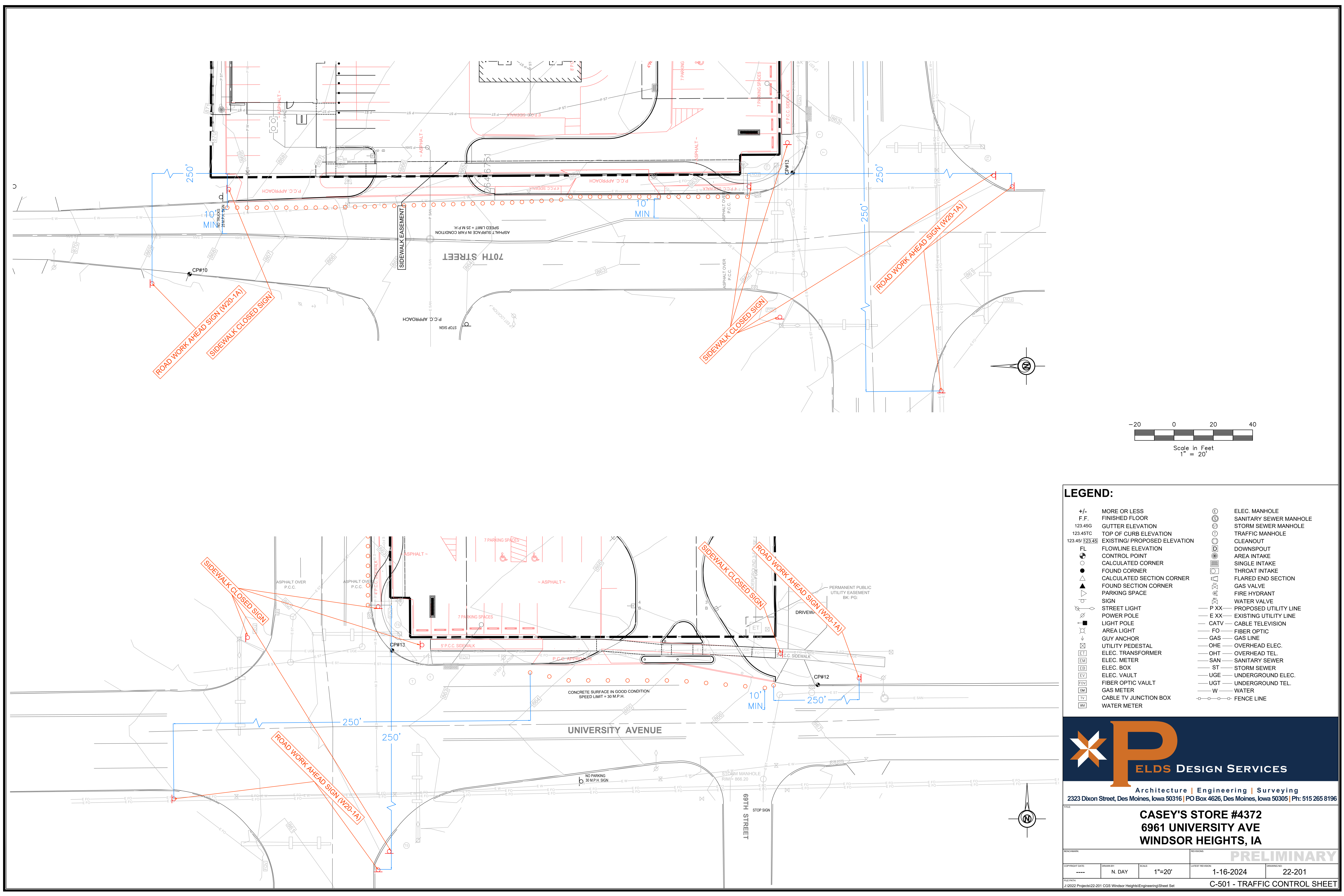
CASEY'S STORE #4372
6961 UNIVERSITY AVE
WINDSOR HEIGHTS, IA

PRELIMINARY

DATE:	1-16-2024	DRAWING NO:	22-201
COPYRIGHT DATE:	N. DAY	SCALE:	1"=20'
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C-401 - EROSION CONTROL SHEET

Point#	North	East	Elevation	Description
CP10:	583503.565	1582130.005	868.533	CUT-X
CP11:	583489.079	1582343.416	872.326	CONTROL CAP
CP12:	583179.092	1582398.289	867.109	CUT-X
CP13:	583196.586	1582181.659	862.831	CUT-X



LEGEND:

+/-	MORE OR LESS	⊙	ELEC. MANHOLE
F.F.	FINISHED FLOOR	⊙	SANITARY SEWER MANHOLE
123.45G	GUTTER ELEVATION	⊙	STORM SEWER MANHOLE
123.45TC	TOP OF CURB ELEVATION	⊙	TRAFFIC MANHOLE
123.45/123.45	EXISTING/ PROPOSED ELEVATION	⊙	CLEANOUT
FL	FLOWLINE ELEVATION	⊙	DOWNSPOUT
⊙	CONTROL POINT	⊙	AREA INTAKE
⊙	CALCULATED CORNER	⊙	SINGLE INTAKE
●	FOUND CORNER	⊙	THROAT INTAKE
⊙	CALCULATED SECTION CORNER	⊙	FLARED END SECTION
⊙	FOUND SECTION CORNER	⊙	GAS VALVE
⊙	PARKING SPACE	⊙	FIRE HYDRANT
⊙	SIGN	⊙	WATER VALVE
⊙	STREET LIGHT	⊙	P XX PROPOSED UTILITY LINE
⊙	POWER POLE	⊙	E XX EXISTING UTILITY LINE
⊙	LIGHT POLE	⊙	CATV CABLE TELEVISION
⊙	AREA LIGHT	⊙	FO FIBER OPTIC
⊙	GUY ANCHOR	⊙	GAS LINE
⊙	UTILITY PEDESTAL	⊙	OHE OVERHEAD ELEC.
⊙	ELEC. TRANSFORMER	⊙	OHT OVERHEAD TEL.
⊙	ELEC. METER	⊙	SAN SANITARY SEWER
⊙	ELEC. BOX	⊙	ST STORM SEWER
⊙	ELEC. VAULT	⊙	UGE UNDERGROUND ELEC.
⊙	FIBER OPTIC VAULT	⊙	UGT UNDERGROUND TEL.
⊙	GAS METER	⊙	W WATER
⊙	CABLE TV JUNCTION BOX	⊙	⊙-⊙-⊙ FENCE LINE
⊙	WATER METER		

ELDSDS Design Services
Architecture | Engineering | Surveying
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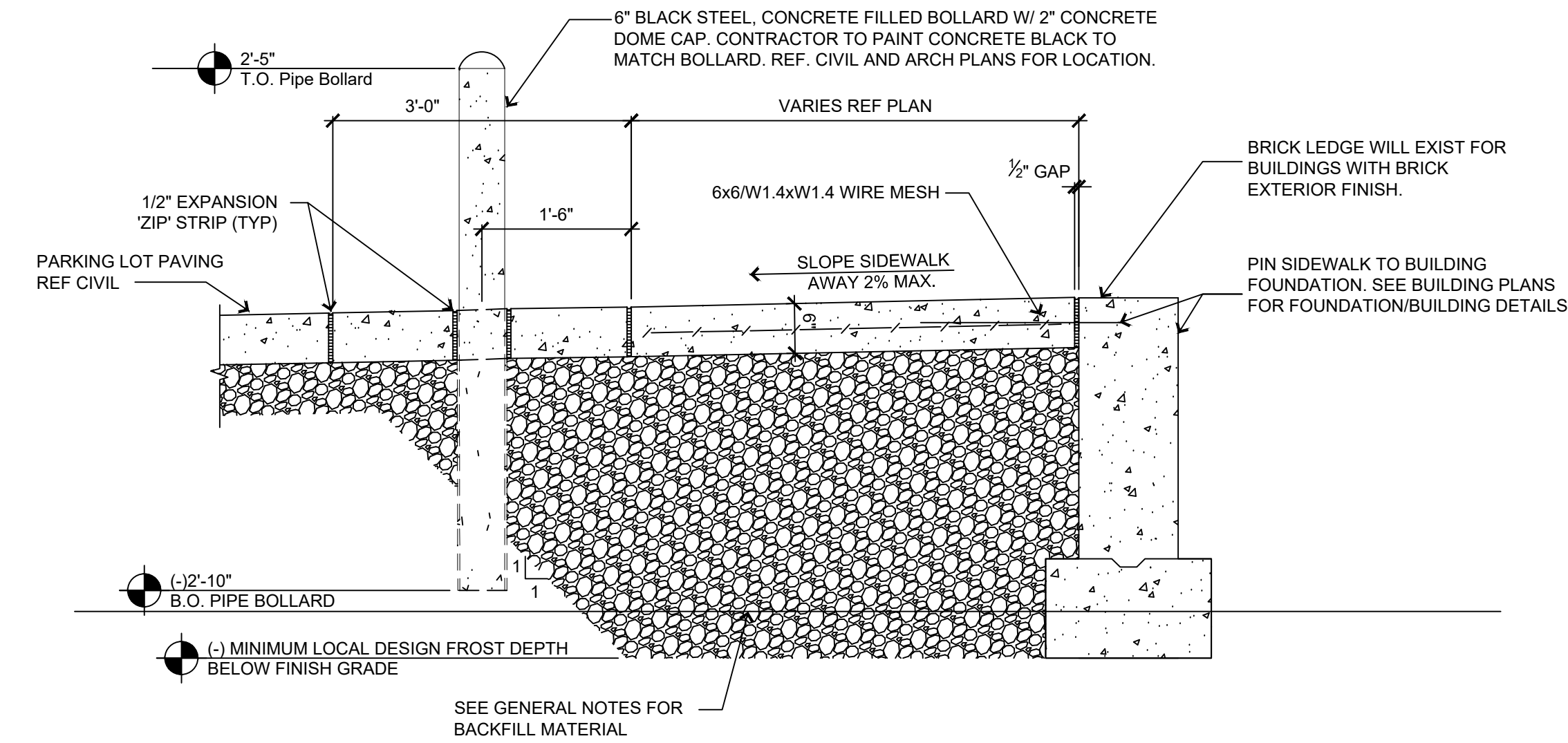
CASEY'S STORE #4372
6961 UNIVERSITY AVE
WINDSOR HEIGHTS, IA

PRELIMINARY

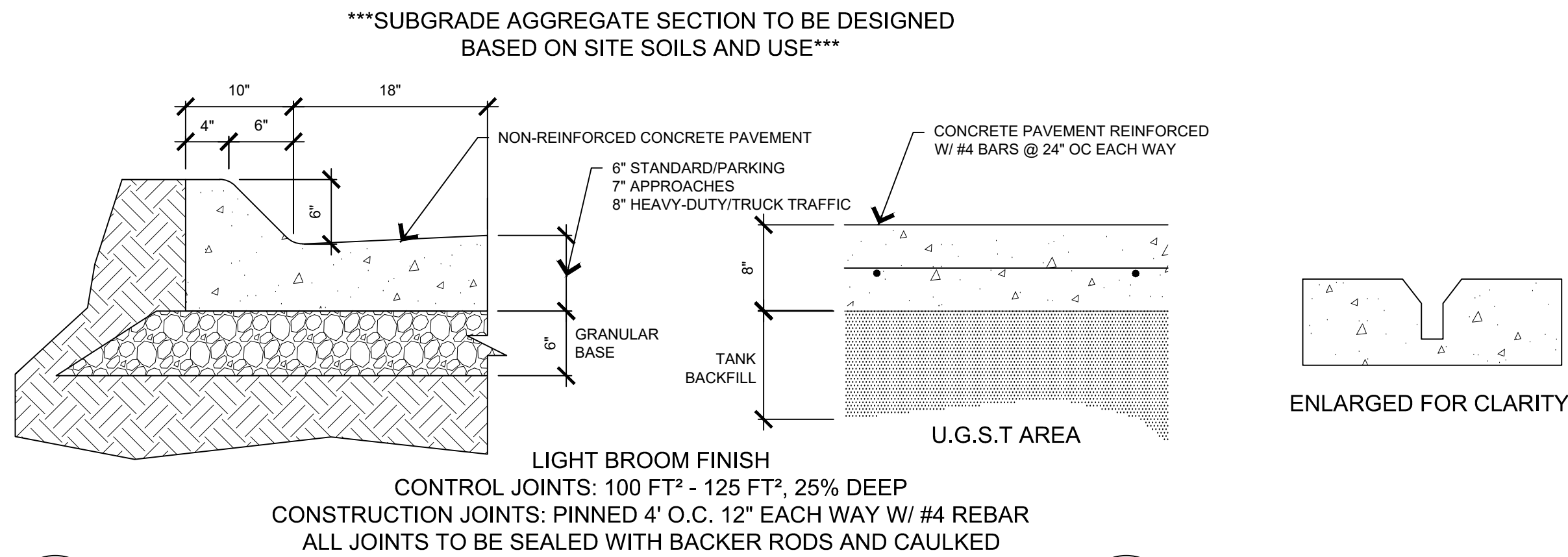
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C-501 - TRAFFIC CONTROL SHEET

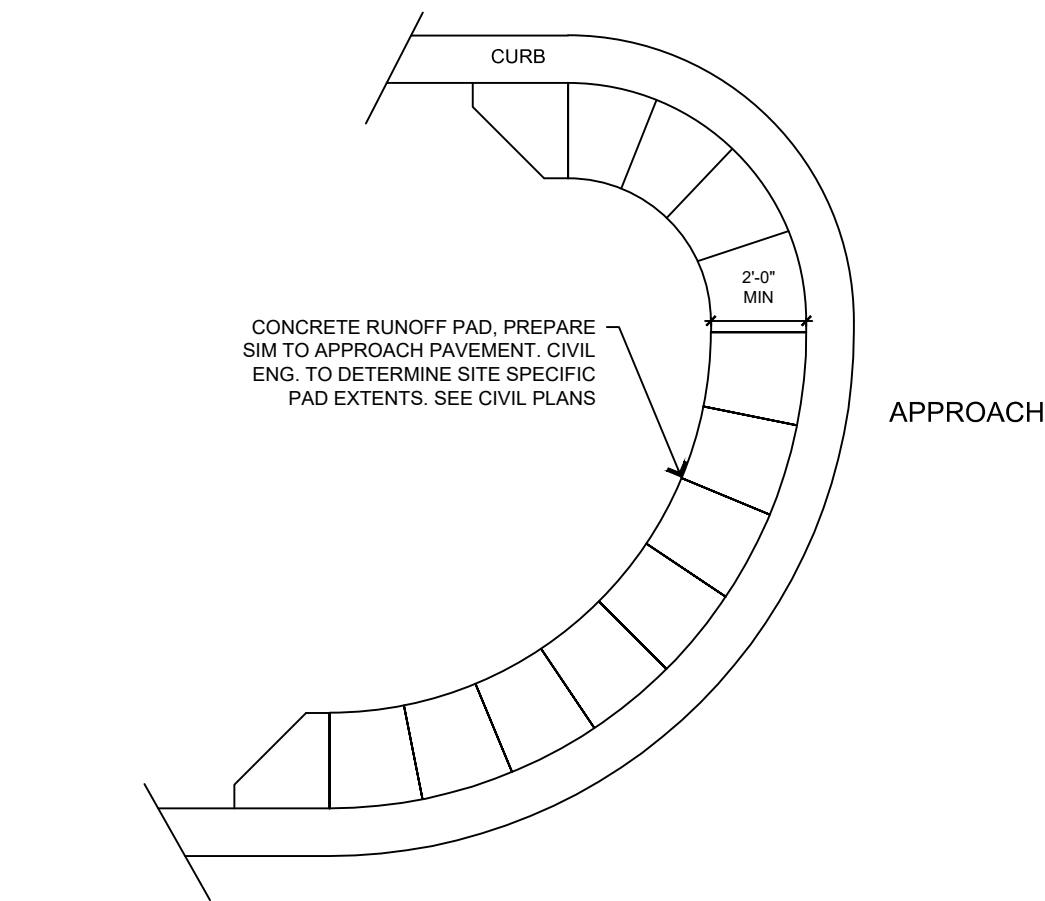


1 TYPICAL BUILDING SIDEWALK AND BOLLARD
3/4" = 1'-0"

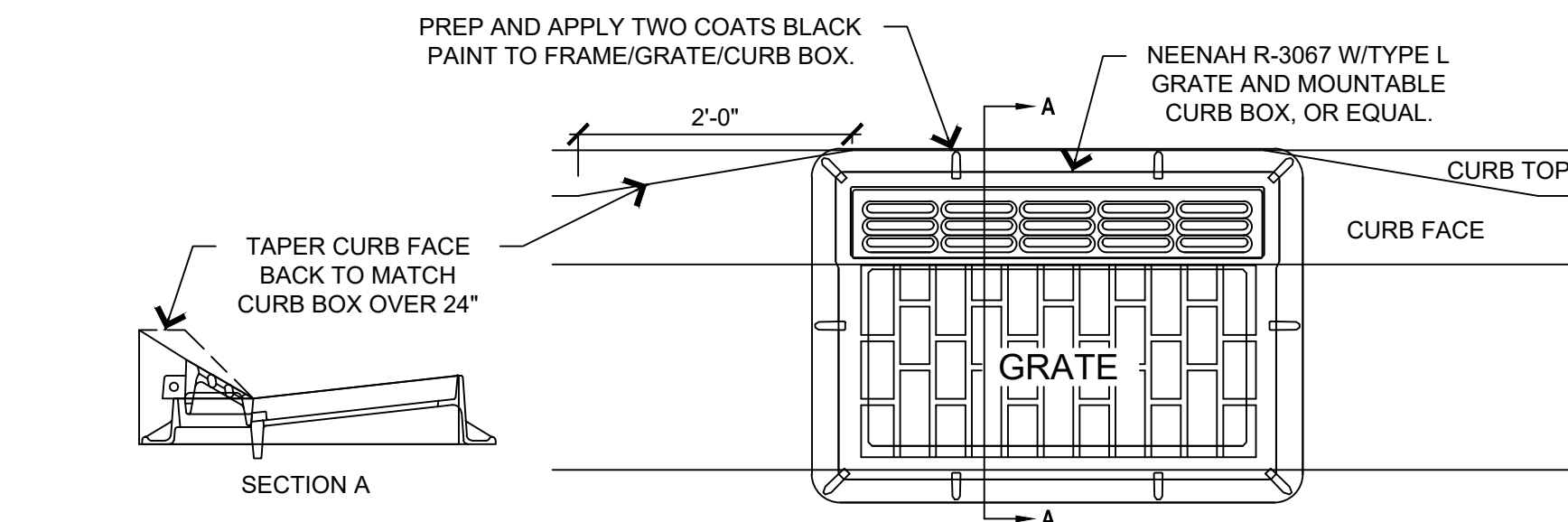


2 CONCRETE PAVING AND CURB
Not to Scale

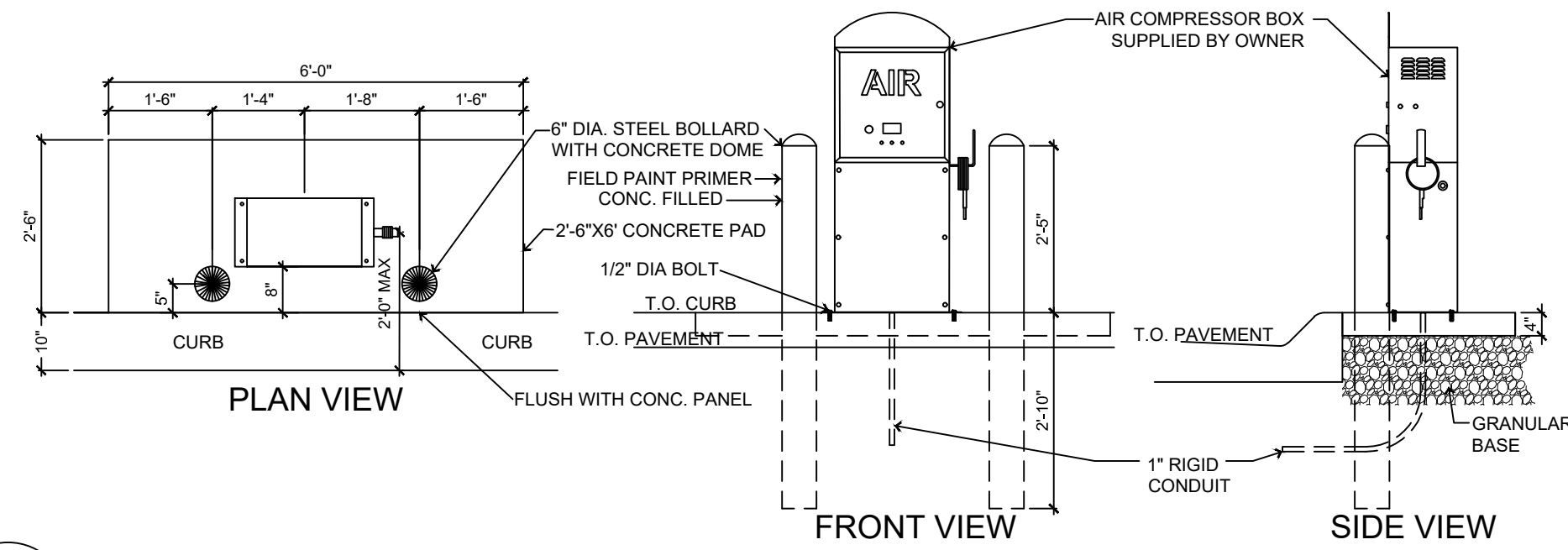
3 PAVING SAW-CUT
Not to Scale



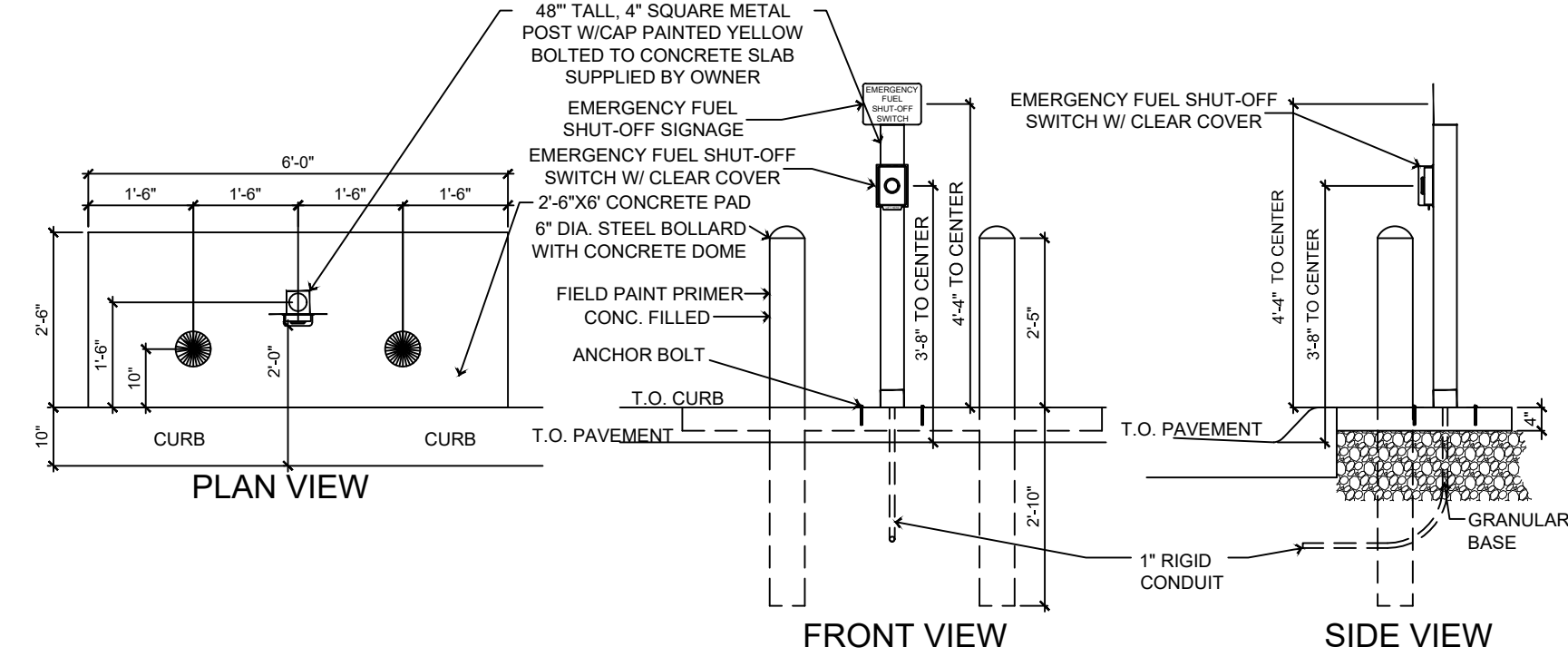
4 LANDSCAPE PROTECTOR
Not to Scale



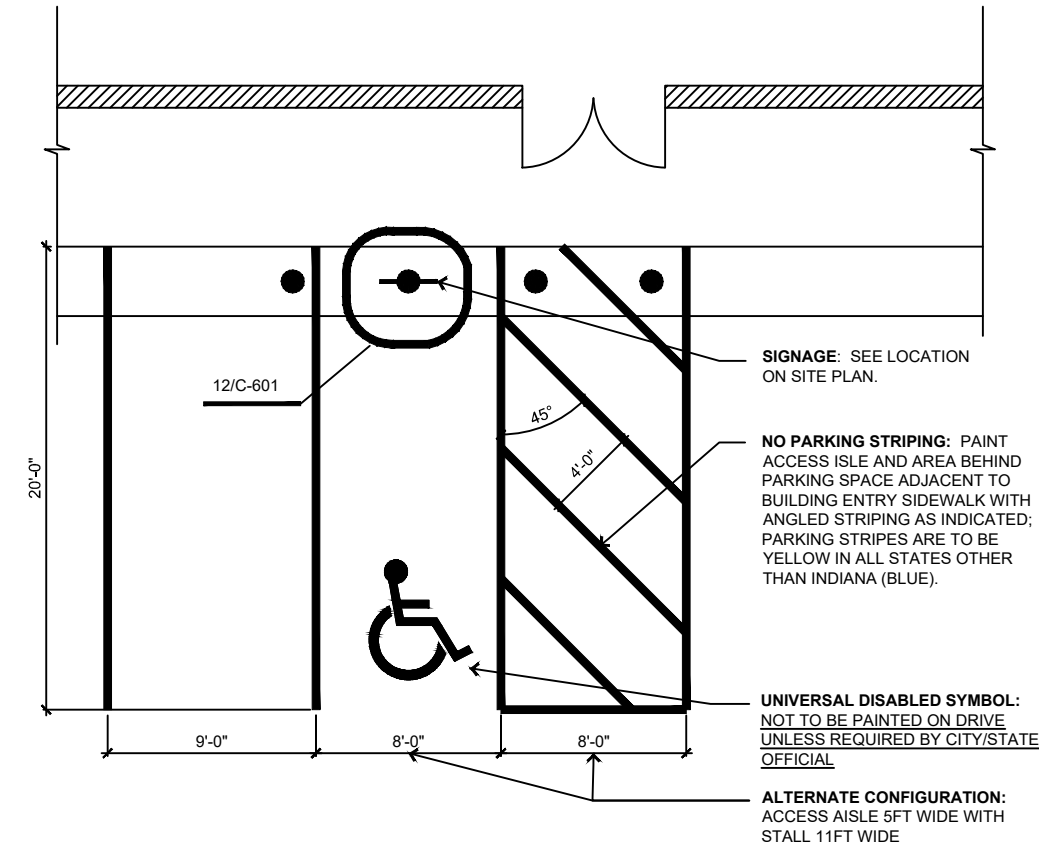
6 CURB INLET
Not to Scale



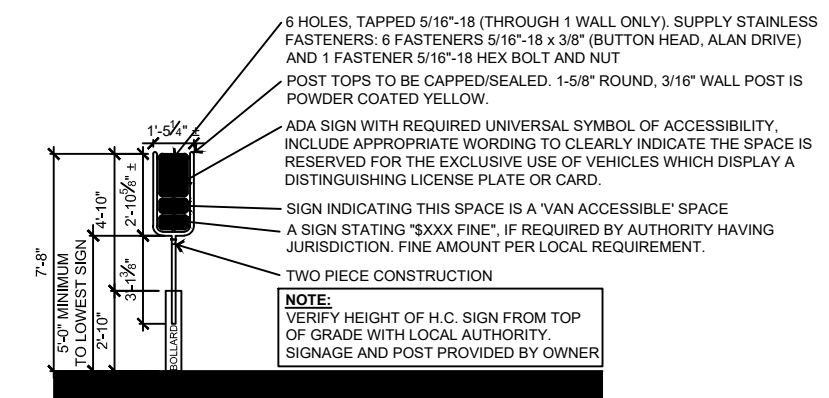
7 AIR COMPRESSOR
1/2" = 1'-0"



8 EMERGENCY STOP
1/2" = 1'-0"



11 ADA PARKING SPACES
3/16" = 1'-0"



12 ADA PARKING SIGN
1/4" = 1'-0"

General Notes

Concrete:

- All concrete and reinforcing work shall conform to the latest edition of the American Concrete Institute's "Standard Building Code Requirements for Reinforced Concrete," (ACI 318) and "Specifications for Structural Concrete for Buildings," (ACI 301).
- Concrete shall use type II cement. Concrete mix designs shall meet the following requirements:

	MINIMUM 28-DAY f _c	MAXIMUM W/C RATIO	SUMP 4" ± 1"	AIR ENTRAIN, 6% ± 1%
Exterior exposed concrete	4,000 psi	0.42		

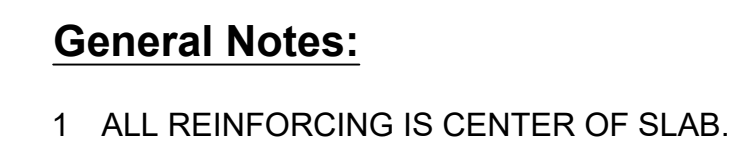
If Contractor desires to increase slump above allowable limits to facilitate placement or pumping, this shall be done utilizing a superplasticizer approved by the Ready Mix Designer at a dosage rate provided by Ready Mix Designer.

- The Contractor shall reject any concrete that exceeds the slump limits noted above (prior to adding superplasticizer) or concrete that can not be placed within ninety (90) minutes of batch time.
- No aluminum shall be placed in concrete.
- All concrete is reinforced unless specifically noted as Unreinforced. Reinforce all concrete not otherwise shown with the same reinforcing as in similar sections or areas.
- During hot weather (80 degrees F and above), the Contractor shall comply with the recommendations ACI-305 "Hot Weather Concrete". During cold weather (40 degrees and below), the Contractor shall comply with the recommendations of ACI-306 "Cold Weather Concreting".
- The concrete mix designs are to be submitted as a formal submittal to the Owner for acceptance PRIOR to concrete being delivered to the site.
- Verify with local authorities the required thickness of poured concrete for approaches and parking lot.

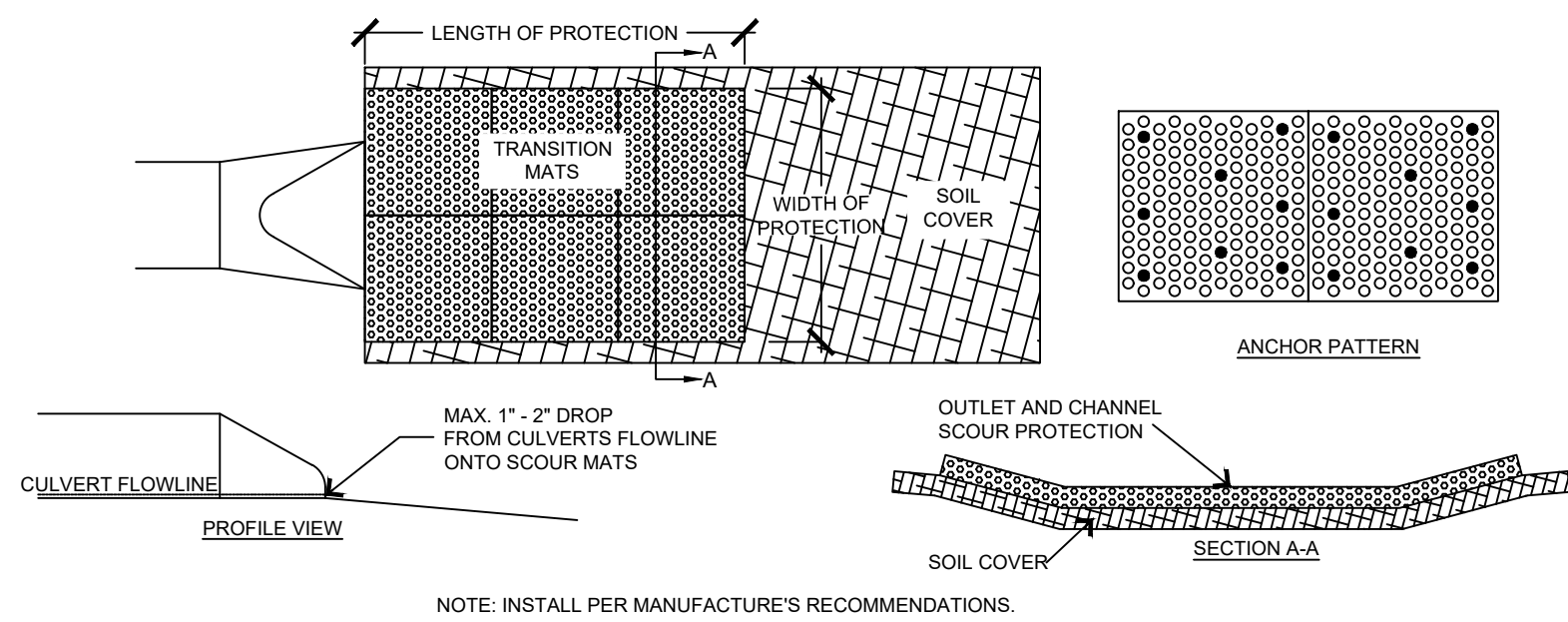
Sub-Base:

- Sub-base Course Under Exterior Concrete Paved Surfaces: Spread and compact sub-base in 6"-9" lifts compacted to 98% Standard Proctor.

CASEY'S CONSTRUCTION DIVISION One Convenience Blvd., Ankeny, IA. 50021 515-965-6100			
PROJECT: 2023 Civil Details	PUBLISHED: 01/10/23 03/08/23	DRAWING INFORMATION CIVIL DETAILS	
DRAWING INFORMATION CONSTRUCTION DIVISION	CHECKED BY: ARLON GOFORTH III	C-601	

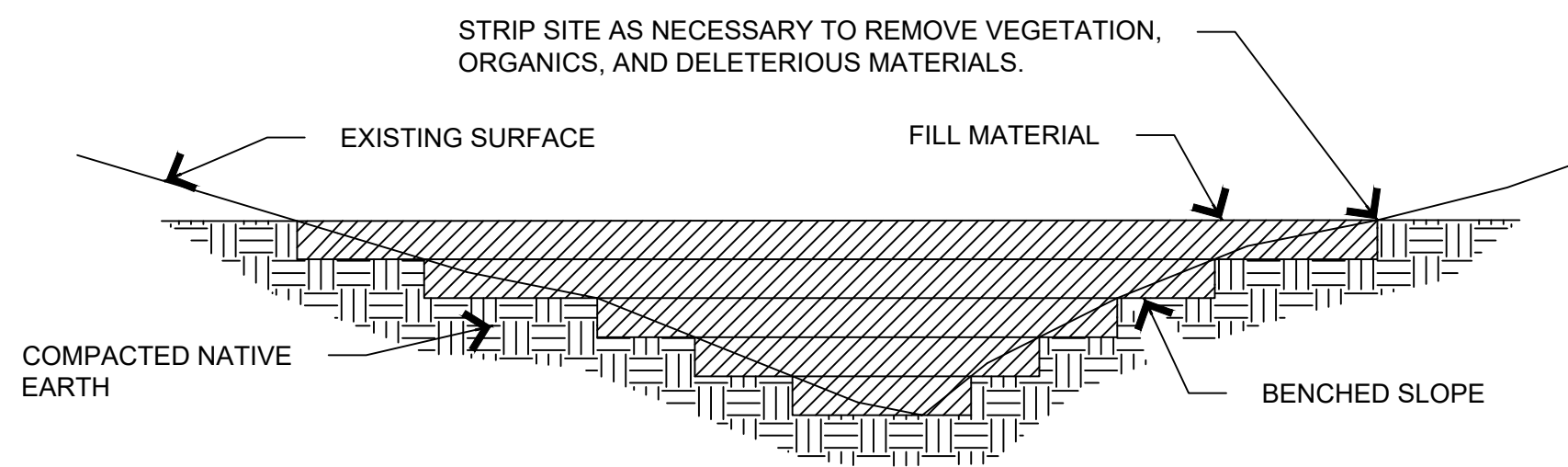


  Casey's	
CASEY'S CONSTRUCTION DIVISION One Convenience Blvd., Ankeny, IA. 50021 515-965-6100	
PROJECT:	PUBLISHED: 01/10/23 DRAWING INFORMATION:
2023 Civil Details	A 03/08/23
DRAWING INFORMATION:	CIVIL DETAILS C-602
CONSTRUCTION DIVISION	
DRAWN BY: ARLON GOFORTH III	
CHECKED BY:	



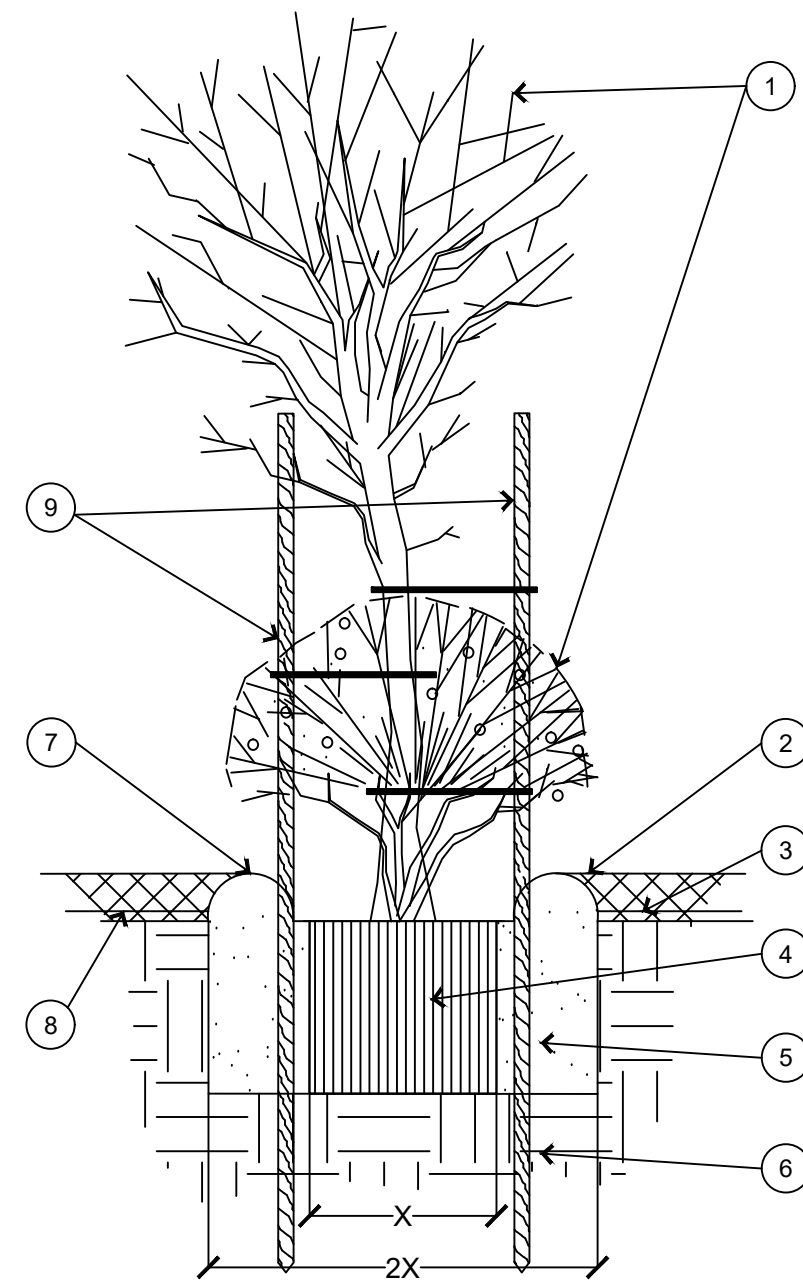
1 SCOUR STOP EROSION CONTROL

Not to Scale



NOTES:

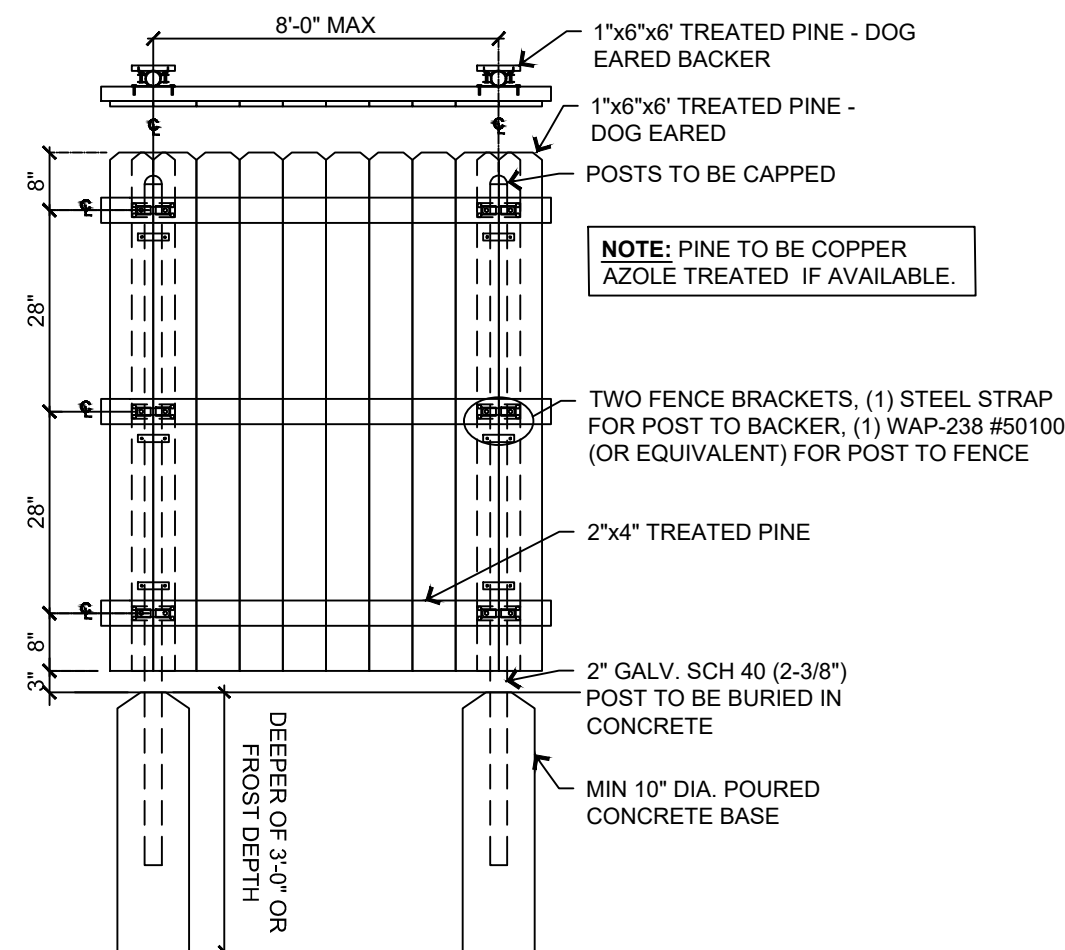
1. BENCH SLOPES TO MAINTAIN VERTICAL SIDE SLOPES AT FILL LIMITS +/- 3' VERTICAL TO +/- 8' HORIZONTAL.
2. COMPACTION SHALL BE IN 8" LIFTS TO 95% STANDARD PROCTOR OR OTHERWISE SPECIFIED IN GEOTECHNICAL REPORT.
3. SCARIFY ORIGINAL GROUND AND BLEND WITH FIRST LIFT ON EACH BENCH.
4. ALL FILL MATERIALS, INCLUDING FILL GENERATED ON-SITE, SHALL BE OF SUITABLE MATERIAL. UNSUITABLE FILL MATERIAL INCLUDES, BUT IS NOT LIMITED TO, SOIL THAT CONTAINS LARGE ROCKS, TREE AND PLANT ROOTS, CONCRETE, TRASH, ETC.



- 1 TREE/SHRUB, PERENNIAL, OR ORNAMENTAL GRASS.
- 2 GROUNDCOVER: 3" DEPTH OF 3/4" WASHED STONE OR WASHED BRICK CHIPS AS INDICATED IN LANDSCAPING PLAN.
- 3 FINISH GRADE.
- 4 ROOT BALL.
- 5 BACKFILL, AMEND AND FERTILIZE AS RECOMMENDED BY LOCAL SUPPLIER.
- 6 UNDISTURBED NATIVE SOIL.
- 7 3" HIGH EARTHEN WATERING BASIN.
- 8 HEAVY WEED FABRIC UNDER GROUNDCOVER.
- 9 FOR TREES, 2 STAKES/GUIDEPOSTS MIN; 3 REQ ON SLOPES WITH TIES

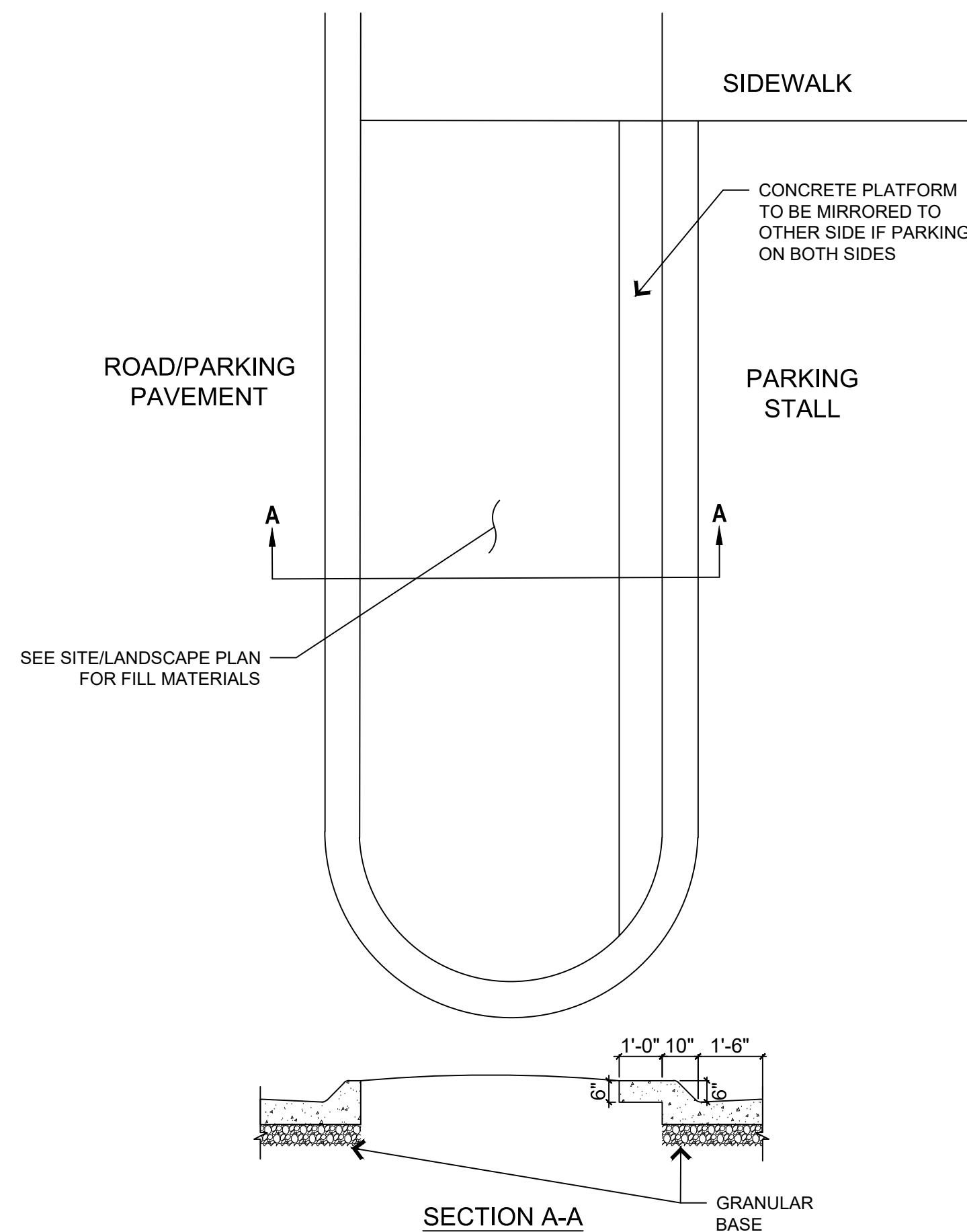
4 PLANT/TREE INSTALLATION

Not to Scale



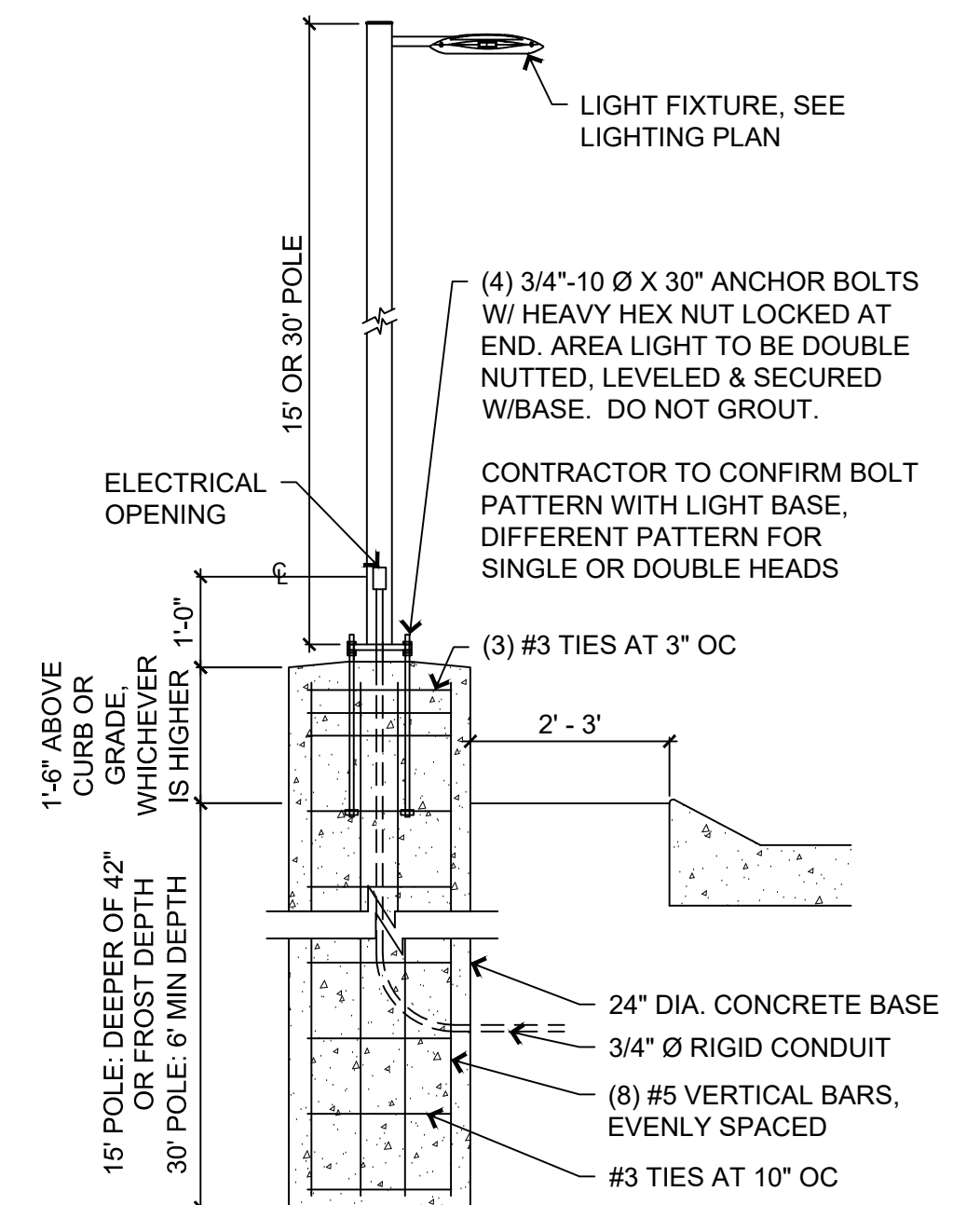
5 SCREEN/PRIVACY FENCE

Not to Scale



7 PARKING LANDSCAPE ISLAND DETAIL

3/8" = 1'-0"



8 AREA LIGHTING

1/2" = 1'-0"

CASEY'S CONSTRUCTION DIVISION One Convenience Blvd., Ankeny, IA. 50021 515-965-6100		
PROJECT: 2023 Civil Details	PUBLISHED: 01/10/23 REVISED BY: 03/08/23	DRAWING INFORMATION: CIVIL DETAILS
DRAWING INFORMATION: CONSTRUCTION DIVISION DRAWN BY: ARLON GOFORTH III		CHECKED BY: C-603

1. Installed by the customer at the customer's expense. Ongoing maintenance and repair to the pad are the responsibility of the customer.

2. Constructed in a manner satisfactory to the Company, in a mutually agreed upon location with hard surface access and unobstructed work space for large vehicles.

3. The installation of a screening or barrier structure may be required by your local governing authority. It is the customer's responsibility to determine if a barrier structure is required. If a barrier structure is required, or installed as an optional feature, the clearance limitations of notes 2 and 3 must be maintained.

4. A 3'-0" minimum clearance is to be maintained from pad sides and back, to the nearest structure or plantings. A level grade, 10'-0" minimum clearance is to be maintained from the front of the pad, to the nearest fixed structure or plantings. If a full length gate is installed, it shall be hunged and closed no closer than 3'-0" from pad front. Local governing authorities, codes, and building codes may require greater clearances. Transformer, utility avoidings or construction that interferes with Company's required maintenance access to its equipment, if a fence or barrier is to be installed, must be coordinated with the Company.

5. All conduits shall extend 5'-0" below the pad and screening structure (if used) and the locations of the ends of primary conduits shall be identified. Primary conduit shall be installed between 4'-2" and 4'-6" below final secondary conduit shall be installed between 3'-0" and 4'-2" below final grade.

6. When metallic conduit is utilized, customer shall install grounding bushings.

7. When necessary for traffic protection, set a 4" diameter concrete-filled galvanized steel post 3'-0" from pad post shall be 8' long with a 4" concrete embedment.

8. All Company transformers shall be located in mutually agreed upon location with hard surface access and unobstructed work space for large vehicles. If special equipment, such as a crane, is required for setting or replacing the transformer, the customer shall pay all expenses.

9. A trench 2'-0" deep and 3'-0" wide will be dug on all four sides.

10. The trench will be lined with self flowing fabric and filled with 3" screened river rock to final grade. Contact local engineering representative if design needs modification.

11. BUILDING WALL, BARRIER OR FENCE SHALL BE MAINTAINED. SEE NOTE 3.

12. 3" REVER ROCK

13. 3'-0" MIN.

14. PAD REINFORCEMENT

15. MOAT

16. SEE NOTE 9

17. GROUND ROD SLEEVE

18. 3'-0" MIN. SEE NOTE 4

19. 7'-4"

20. 6'-0"

21. PRIMARY

22. SECONDARY

23. 10'-0" MIN.

24. FRONT OF PAD

25. 1" METRIC CONDUIT MAY BE REQUIRED

26. CABLE CONDUIT BOX-OUTS

27. CONDUITS SHALL BE CENTERED ALONG THE BACK EDGE WITH BOX-OUTS

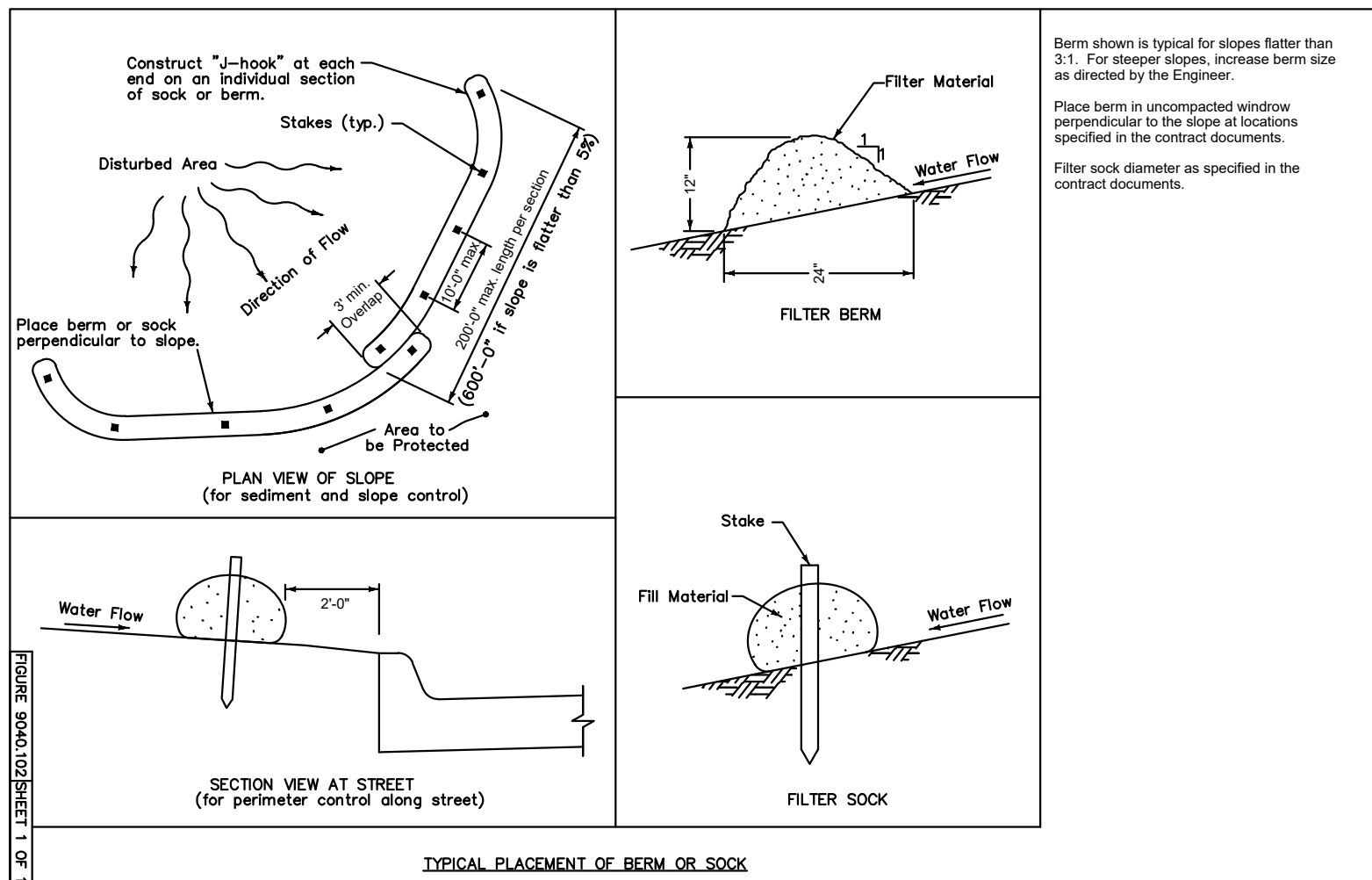
TYPE B WITH FLARES

DETAIL A (Residential/Industrial Only)

DETAIL B

TYPE B WITH RADII

- Driveway radius (R)
Residential: 10 foot minimum, 15 foot maximum.
Commercial and Industrial: As specified in the contract documents.
- Transition the curb height to 0 inches at end of taper/radius or at the front edge of sidewalk. Do not extend over curb crosswalk.
- Pavement thickness:
Residential: 6 inches minimum.
Commercial and Industrial: 7 inches minimum.
- Sidewalk thickness through driveway to match thickness of driveway.
- If longitudinal joint is located 48 inches or less from the back of curb, extend boxout to joint line. Full depth saw cut is still required.
- For flycraze, invert the pavement crown 2% toward the center of the alley.
- Target cross slope of 1.5% with a maximum cross slope of 2.0%. (If specified in the contract documents, the sidewalk must be finished to a drainage grade of 5 feet wide to serve as a passing surface.)
- If cross slope of adjacent sidewalk plane exceeds 2.0%, remove and replace to transition from existing sidewalk to new sidewalk through driveway. Elevation change requires a curb ramp comply with Figure 1020-210c, verify need for detectable warning panel with Engineer.



The image contains three technical drawings illustrating detectable warning systems:

- TYPICAL SECTION - CURB RAMP:** A cross-section diagram showing a curb ramp with various dimensions and materials.
 - Perpendicular Curb Ramp (length varies):** Shows a 6" min. curb height, a 12" wide expansion joint or KT-2, and a 18" wide detectable warning area.
 - Turning Space:** Shows a 6" min. curb height and a 4" min. detectable warning area.
 - Parallel Curb Ramp (if required):** Shows a 6" min. curb height and a 4" min. detectable warning area.
 - Standard Sidewalk:** Shows a 6" min. curb height and a 4" min. detectable warning area.
 - Materials:** Curb Ramp (light gray), Turning Space (dark gray), and Detectable Warning (hatched pattern).
 - Notes:**
 - Provide a minimum 2 foot width of detectable warning surface in the direction of pedestrian travel across the full width of the curb ramp or slope.
 - Provide a minimum of 6 inches of concrete below the detectable warning.
 - Minimum 4 feet by 4 feet. Target cross slope of 1:50 with a maximum cross slope of 2:100.
 - If normal sidewalk elevation cannot be achieved with the perpendicular ramp, provide a detectable warning of limited ramp length, provide a 1:50 slope to the detectable warning area. The difference between the landing and the standard sidewalk.
 - The length of the parallel ramp is not required to exceed 15 feet, regardless of the resulting slope. Do not exceed 8:32 slope for parallel ramps shorter than 15 feet.
 - If crossing slope conflicts with location of detectable warning or if pedestrian crossing rate is provided, place detectable warning in advance of the crossing.
 - Locate front edge of detectable warning panel 15 to 18 feet from centerline of maximum travel lane and slope parallel to the direction of pedestrian travel.
- SKewed CROSSING:** A plan view diagram showing a 24" wide (min.) detectable warning area across a skewed crossing. It includes a "Possible Crossing Arm (location varies)" and a "Sidewalk".
- PERPENDICULAR CROSSING:** A plan view diagram showing a 24" wide (min.) detectable warning area across a perpendicular crossing. It includes a "Sidewalk" and a "Possible Crossing Arm (location varies)".
- DETAIL A:** A cross-section diagram showing the "Back of Curb" and "Gutterline" with a "Level Line" and a "24" (max.) dimension.

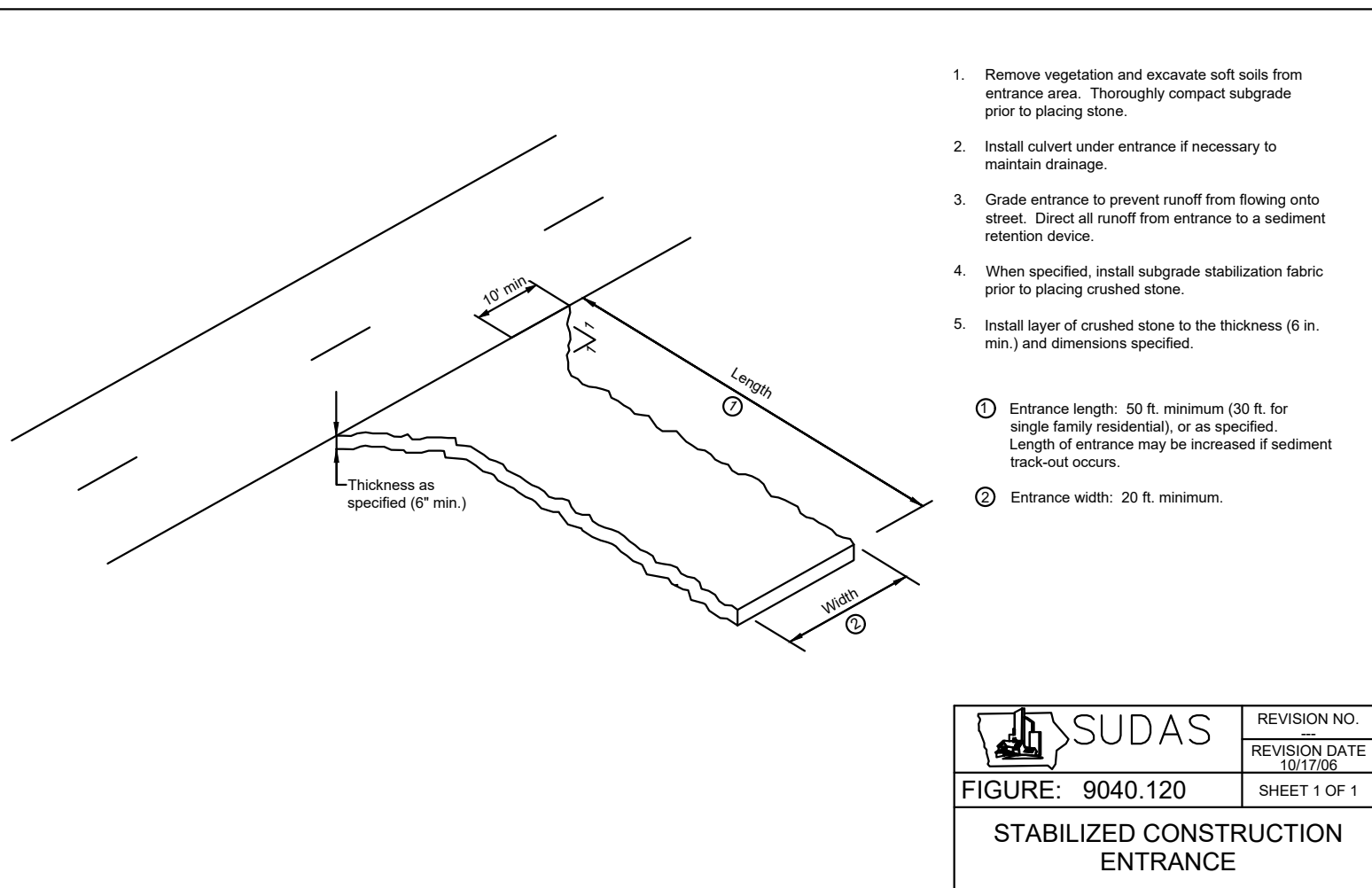
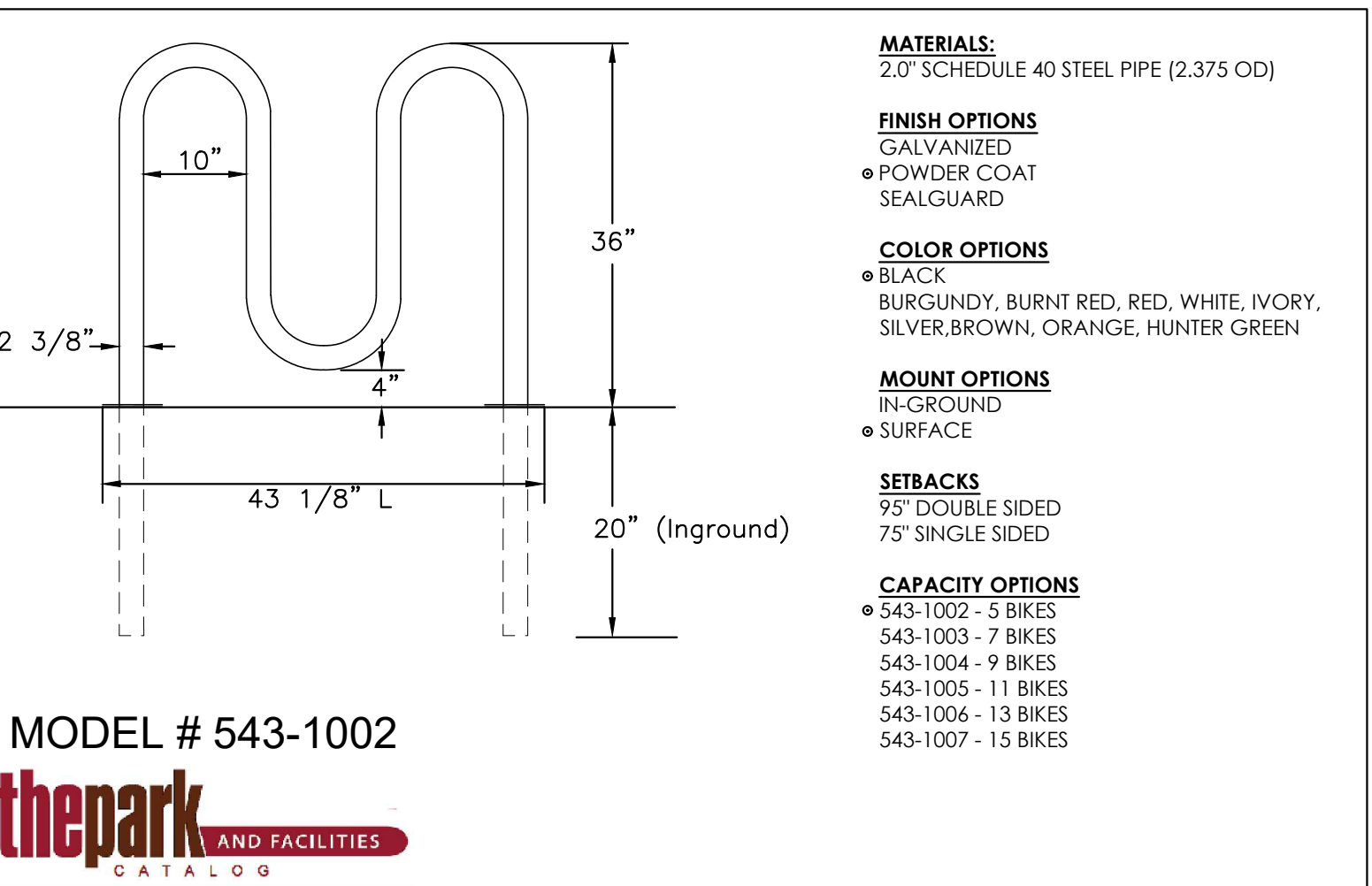
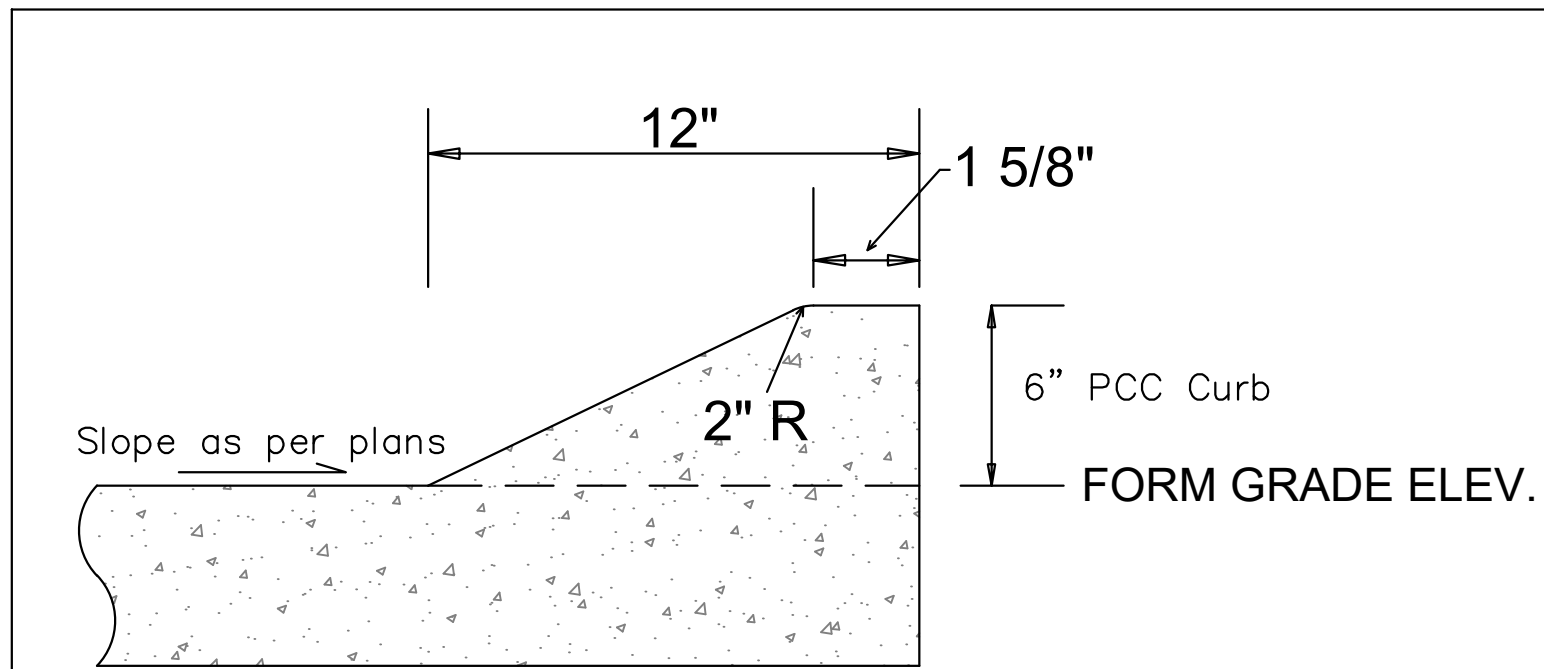


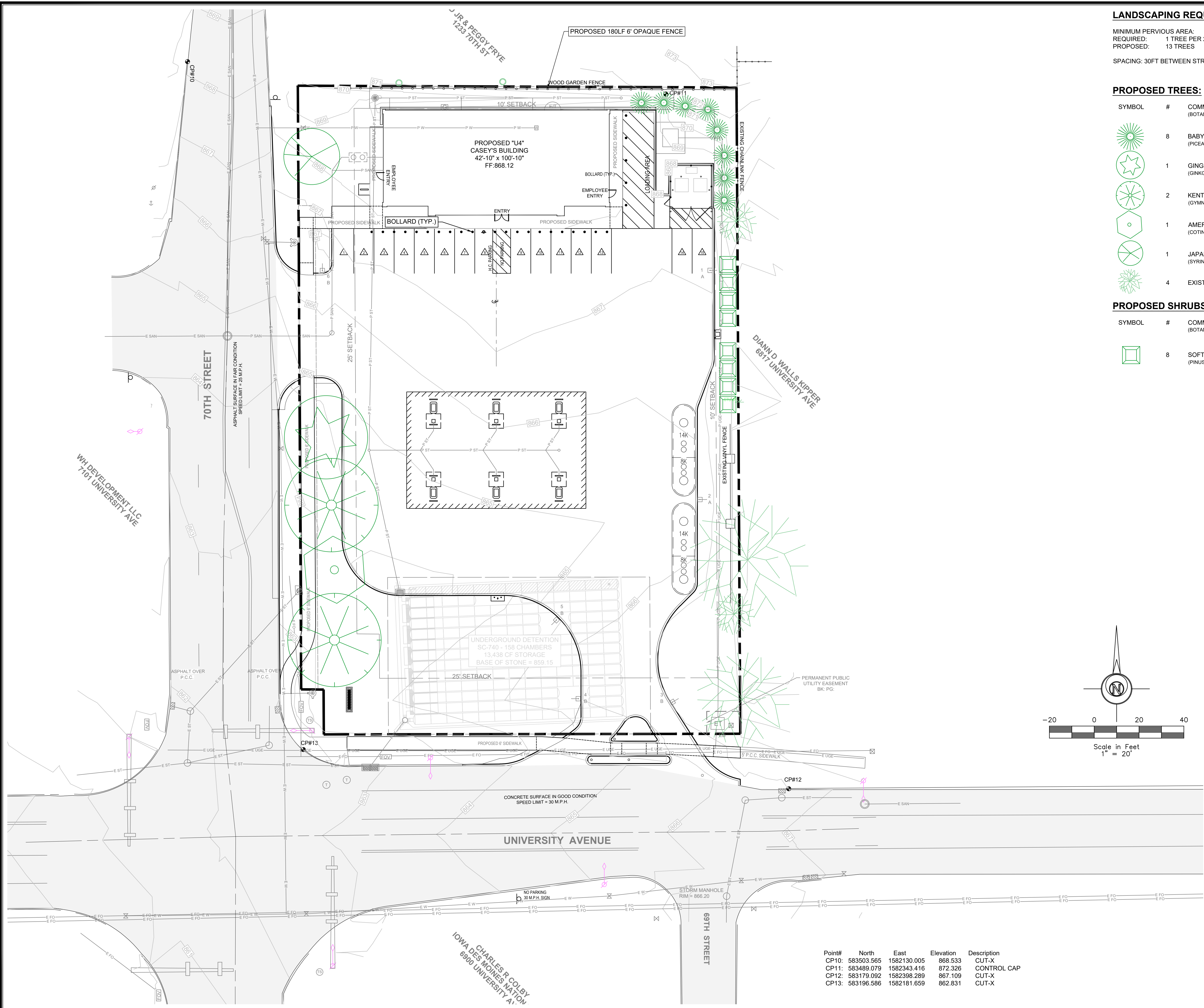
Diagram illustrating the cross-section of a concrete pavement structure, showing various layers and dimensions:

- Top Layer:** NON-REINFORCED CONCRETE PAVEMENT. Dimensions include a total width of 18" and a depth of 6".
- Approach Layers:**
 - 6" STANDARD/PARKING
 - 7" APPROACHES
 - 8" HEAVY-DUTY/TRUCK TRAFFIC
- Base Layer:** GRANULAR BASE, 12" thick.
- Subgrade:** 12" thick.
- Reinforcement:** Pinned 4' O.C. 12" EACH WAY W/ #4 REBAR.
- Finish:** LIGHT BROOM FINISH.
- Control Joints:** 100 FT² - 125 FT², 25% DEEP.
- Construction Joints:** PINNED 4' O.C. 12" EACH WAY W/ #4 REBAR.



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REVISED BY		NN-20	PROJECT NO./NAME	TITLE	
DATE		09-28-2003		TYPICAL DRAIN BASIN WITH OUTLET WEIR FOR STORMTREAT	
DRAWN SIZE		A	SCALE	1/16" SHEET	1 OF 1
			DRAWN NO.	7004-116-047	REV. G





LANDSCAPING REQUIREMENTS:

MINIMUM PERVIOUS AREA:
REQUIRED: 1 TREE PER 2,000 SQ.FT. PERVIOUS AREA - 19,711 SQ.FT. PERVIOUS AREA - 10 TREES
PROPOSED: 13 TREES

SPACING: 30FT BETWEEN STREET TREES

PROPOSED TREES:

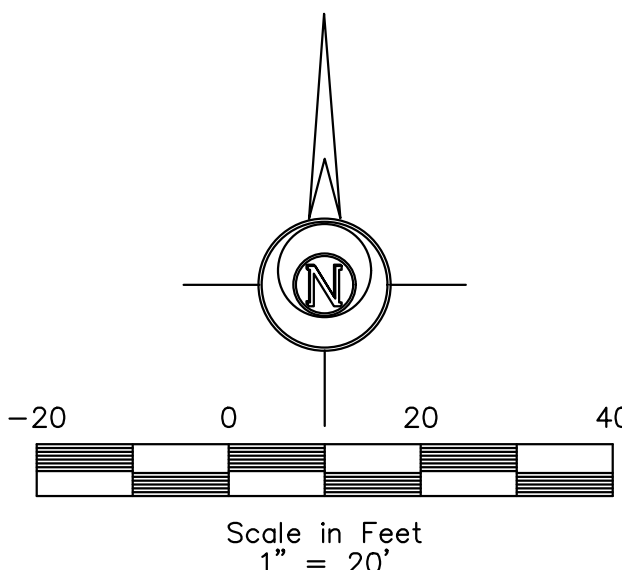
SYMBOL	#	COMMON NAME (BOTANICAL NAME)	PLANTING SIZE	MATURE SIZE (HEIGHT & SPREAD)
	8	BABY BLUE SPRUCE (PICEA PUNGENS 'BABY BLUE')	6" TALL	20' & 15'
	1	GINKGO (MALE ONLY) (GINKGO BILOBA 'AUTUMN GOLD')	2" CALIPER B&B	50' & 35'
	2	KENTUCKY COFFEETREE (GYMNOCLADUS DIOICA 'ESPRESSO')	2" CALIPER B&B	75' & 50'
	1	AMERICAN SMOKE TREE (COTINUS OBOVATUS)	2" CALIPER B&B	30' & 30'
	1	JAPANESE TREE LILAC (SYRINGA RETICULATA 'IVORY SILK')	2" CALIPER B&B	20' & 15'
	4	EXISTING TREES		

PROPOSED SHRUBS:

SYMBOL	#	COMMON NAME (BOTANICAL NAME)	PLANTING SIZE	MATURE SIZE (HEIGHT & SPREAD)
	8	SOFT SERVE FALSE CYPRESS (PINUS MUGO 'CARSTENS')	2 GALLON	6'-10' & 5'-6'

LEGEND:

+/-	MORE OR LESS		ELEC. MANHOLE
F.F.	FINISHED FLOOR		SANITARY SEWER MANHOLE
123.45G	GUTTER ELEVATION		STORM SEWER MANHOLE
123.45TC	TOP OF CURB ELEVATION		TRAFFIC MANHOLE
123.45/ 123.45	EXISTING/ PROPOSED ELEVATION		CLEANOUT
FL	FLOWLINE ELEVATION		DOWNSPOUT
	CONTROL POINT		AREA INTAKE
	CALCULATED CORNER		SINGLE INTAKE
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	CALCULATED SECTION CORNER		FLARED END SECTION
	FOUND SECTION CORNER		GAS VALVE
	PARKING SPACE		FIRE HYDRANT
	SIGN		WATER VALVE
	STREET LIGHT		P XX PROPOSED UTILITY LINE
	POWER POLE		E XX EXISTING UTILITY LINE
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	AREA LIGHT		FO FIBER OPTIC
	GUY ANCHOR		GAS GAS LINE
	UTILITY PEDESTAL		OHE OVERHEAD ELEC.
	ELEC. TRANSFORMER		OHT OVERHEAD TEL.
	ELEC. METER		SAN SANITARY SEWER
	ELEC. BOX		ST STORM SEWER
	ELEC. VAULT		UGE UNDERGROUND ELEC.
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	GAS METER		W WATER
	CABLE TV JUNCTION BOX		-o-o-o-o- FENCE LINE
	WATER METER		

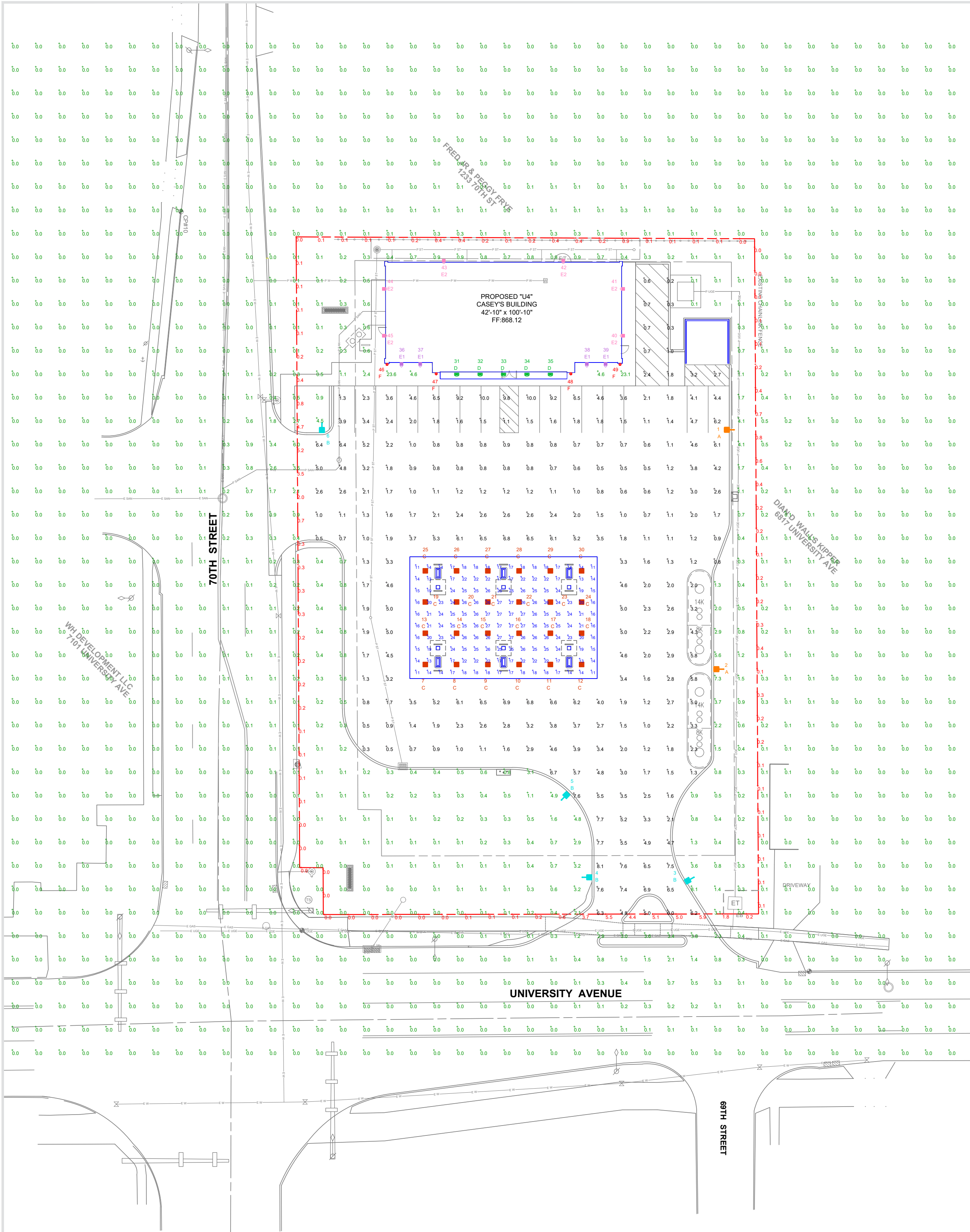


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Architecture | Engineering | Surveying
2323 Dixon Street, Des Moines, Iowa 50316 | PO Box 4626, Des Moines, Iowa 50305 | Ph: 515 265 8196

TITLE		CASEY'S STORE #4372 6961 UNIVERSITY AVE WINDSOR HEIGHTS, IA	
REVISIONS		PRELIMINARY	
COPYRIGHT DATE:	DRAWN BY:	SCALE:	LATEST REVISION:
-----	N. DAY	1"=20'	1-16-2024 22-201
FILE PATH:		C-701 - LANDSCAPING SHEET	
J:\2022 Projects\22-201 CGS Windsor Heights\Engineering\Sheet Set			



HORIZONTAL CALC POINTS AT PROPERTY LINE

LUMINAIRE LOCATION SUMMARY		
LUM NO.	LABEL	MTG. HT.
1	A	17
2	A	17
3	B	17
4	B	17
5	B	17
6	B	17
7	C	16.5
8	C	16.5
9	C	16.5
10	C	16.5
11	C	16.5
12	C	16.5
13	C	16.5
14	C	16.5
15	C	16.5
16	C	16.5
17	C	16.5
18	C	16.5
19	C	16.5
20	C	16.5
21	C	16.5
22	C	16.5
23	C	16.5
24	C	16.5
25	C	16.5
26	C	16.5
27	C	16.5
28	C	16.5
29	C	16.5
30	C	16.5
31	D	10
32	D	10
33	D	10
34	D	10
35	D	10
36	E1	13
37	E1	13
38	E1	13
39	E1	13
40	E2	13
41	E2	13
42	E2	13
43	E2	13
44	E2	13
45	E2	13
46	F	8.75
47	F	8.75
48	F	8.75
49	F	8.75

NOTES:
- ALL AREA LIGHTS ARE ON NEW 17 FT. POLES MOUNTED ON 2 FT. CONCRETE BASES.

- THIS SITE IS LOCATED IN A REGION WHERE LIGHTING IS REGULATED BY LOCAL ORDINANCES.

FOOTCANDLE LEVELS CALCULATED AT GRADE USING INITIAL LUMEN VALUES					
LABEL	AVG	MAX	MIN	AVG/MIN	MAX/MIN
01_UNDER CANOPY	20.84	27	11	1.89	2.45
02_PAVED AREA	2.98	10.0	0.2	14.90	50.00
03_PROPERTY LINE - HORIZ	0.66	5.9	0.0	N.A.	N.A.
04_UNDEFINED AREA	0.20	23.6	0.0	N.A.	N.A.

LUMINAIRE SCHEDULE										
SYMBOL	QTY	LABEL	ARRANGEMENT	LUMENS	LLF	BUG RATING	WATTS/LUMINAIRE	TOTAL WATTS	MANUFACTURER	CATALOG LOGIC
	2	A	SINGLE	8900	1.020	B2-U0-G2	84	168	CREE, INC.	OSQ-ML-C-DA-XX + OSQM-C-16L-30K7-3B-UL-NM-XX-Q6
	4	B	SINGLE	9225	1.020	B2-U0-G2	97	388	CREE, INC.	OSQ-ML-C-DA-XX + OSQM-C-16L-30K7-4B-UL-NM-XX-Q9
	24	C	SINGLE	4920	1.020	B2-U2-G1	33	792	CREE, INC.	CP5-8L-30K8-DF-UL-RC-XX-Q3 + CP5-BZ-SP-XX
	5	D	SINGLE	3058	1.030	B2-U0-G0	34	170	CREE, INC.	SFT-228-PS-RM-03-E-12-XX-350-30K (SPECIAL ORDER)
	4	E1	SINGLE	2790	1.030	B1-U0-G1	37	148	CREE, INC.	SEC-EDG-3M-WM-02-E-UL-XX-525-30K
	6	E2	SINGLE	1560	1.030	B0-U0-G1	25	150	CREE, INC.	SEC-EDG-2MB-WM-02-E-UL-XX-350-30K-DIM (BXSE92918) 180 DEGREE OPTICS
	4	F	SINGLE	1456	1.000	B2-U0-G0	53	212	FC LIGHTING, INC.	FCC600-18-WM-UNV-930-15L-XXX-15-LD

REDLEONARD ASSOCIATES

1340 Kemper Meadow Dr. Forest Park, OH 45404
513-574-9500 | redleonard.com

REV.	BY	DATE	DESCRIPTION
R1	RCF	12/20/2023	REVISED TO MEET CITY REQUIREMENTS.
R2	RCF	01/16/2023	REVISED TO MEET CITY REQUIREMENTS (CALCULATIONS).

DISCLAIMER

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SCALE: 1" = 30'

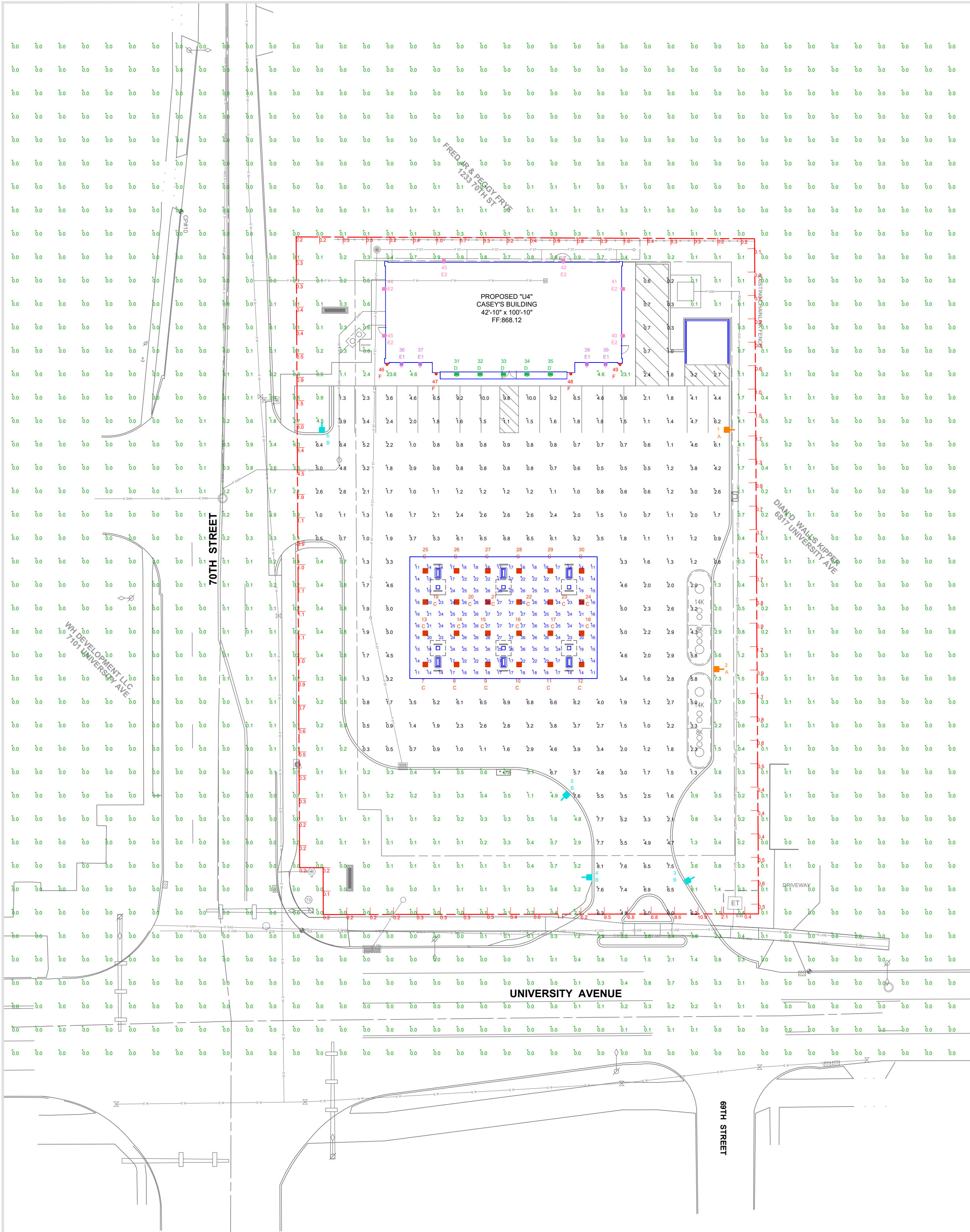
DWG SIZE: D

LAYOUT BY: RCF

DATE: 10/04/2023

PROJECT NAME:
CASEY'S
WINDSOR HEIGHTS, IA

DRAWING NUMBER:
RL-9171-S1-R2



VERTICAL CALC POINTS AT PROPERTY LINE

LUMINAIRE LOCATION SUMMARY		
LUM NO.	LABEL	MTG. HT.
1	A	17
2	A	17
3	B	17
4	B	17
5	B	17
6	B	17
7	C	16.5
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16	C	16.5
17	C	16.5
18	C	16.5
19	C	16.5
20	C	16.5
21	C	16.5
22	C	16.5
23	C	16.5
24	C	16.5
25	C	16.5
26	C	16.5
27	C	16.5
28	C	16.5
29	C	16.5
30	C	16.5
31	D	10
32	D	10
33	D	10
34	D	10
35	D	10
36	E1	13
37	E1	13
38	E1	13
39	E1	13
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43	E2	13
44	E2	13
45	E2	13
46	F	8.75
47	F	8.75
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FOOTCANDLE LEVELS CALCULATED AT GRADE USING INITIAL LUMEN VALUES					
LABEL	AVG	MAX	MIN	AVG/MIN	MAX/MIN
01_UNDER CANOPY	20.84	27	11	1.89	2.45
02_PAVED AREA	2.98	10.0	0.2	14.90	50.00
03_PROPERTY LINE @ 5FT	1.27	10.9	0.1	12.70	109.00
04_UNDEFINED AREA	0.20	23.6	0.0	N.A.	N.A.

LUMINAIRE SCHEDULE										
SYMBOL	QTY	LABEL	ARRANGEMENT	LUMENS	LLF	BUG RATING	WATTS/LUMINAIRE	TOTAL WATTS	MANUFACTURER	CATALOG LOGIC
	2	A	SINGLE	8900	1.020	B2-U0-G2	84	168	CREE, INC.	OSQ-ML-C-DA-XX + OSQM-C-16L-30K7-3B-UL-NM-XX-Q6
	4	B	SINGLE	9225	1.020	B2-U0-G2	97	388	CREE, INC.	OSQ-ML-C-DA-XX + OSQM-C-16L-30K7-4B-UL-NM-XX-Q9
	24	C	SINGLE	4920	1.020	B2-U2-G1	33	792	CREE, INC.	CP5-8L-30K8-DF-UL-RC-XX-Q3 + CP5-BZ-SP-XX
	5	D	SINGLE	3058	1.030	B2-U0-G0	34	170	CREE, INC.	SFT-228-PS-RM-03-E-12-XX-350-30K (SPECIAL ORDER)
	4	E1	SINGLE	2790	1.030	B1-U0-G1	37	148	CREE, INC.	SEC-EDG-3M-WM-02-E-UL-XX-525-30K
	6	E2	SINGLE	1560	1.030	B0-U0-G1	25	150	CREE, INC.	SEC-EDG-2MB-WM-02-E-UL-XX-350-30K-DIM (BXSE92918) 180 DEGREE OPTICS
	4	F	SINGLE	1456	1.000	B2-U0-G0	53	212	FC LIGHTING, INC.	FCC600-18-WM-UNV-930-15L-XXX-15-LD

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SCALE:
1" = 30'
DWG SIZE:
D

LAYOUT BY:
RCF
DATE:
10/04/2023

PROJECT NAME:
CASEY'S
WINDSOR HEIGHTS, IA
DRAWING NUMBER:
RL-9171-S1-R2



1340 Kemper Meadow Dr. Forest Park, OH 45404
513-574-9500 | redleonard.com

REV. R1 BY RCF DATE 12/20/2023
R2 RCF 01/16/2024

DESCRIPTION
REVISED TO MEET CITY REQUIREMENTS.
REVISED TO MEET CITY REQUIREMENTS (CALCULATIONS).

AREA



CANOPY



SOFFIT

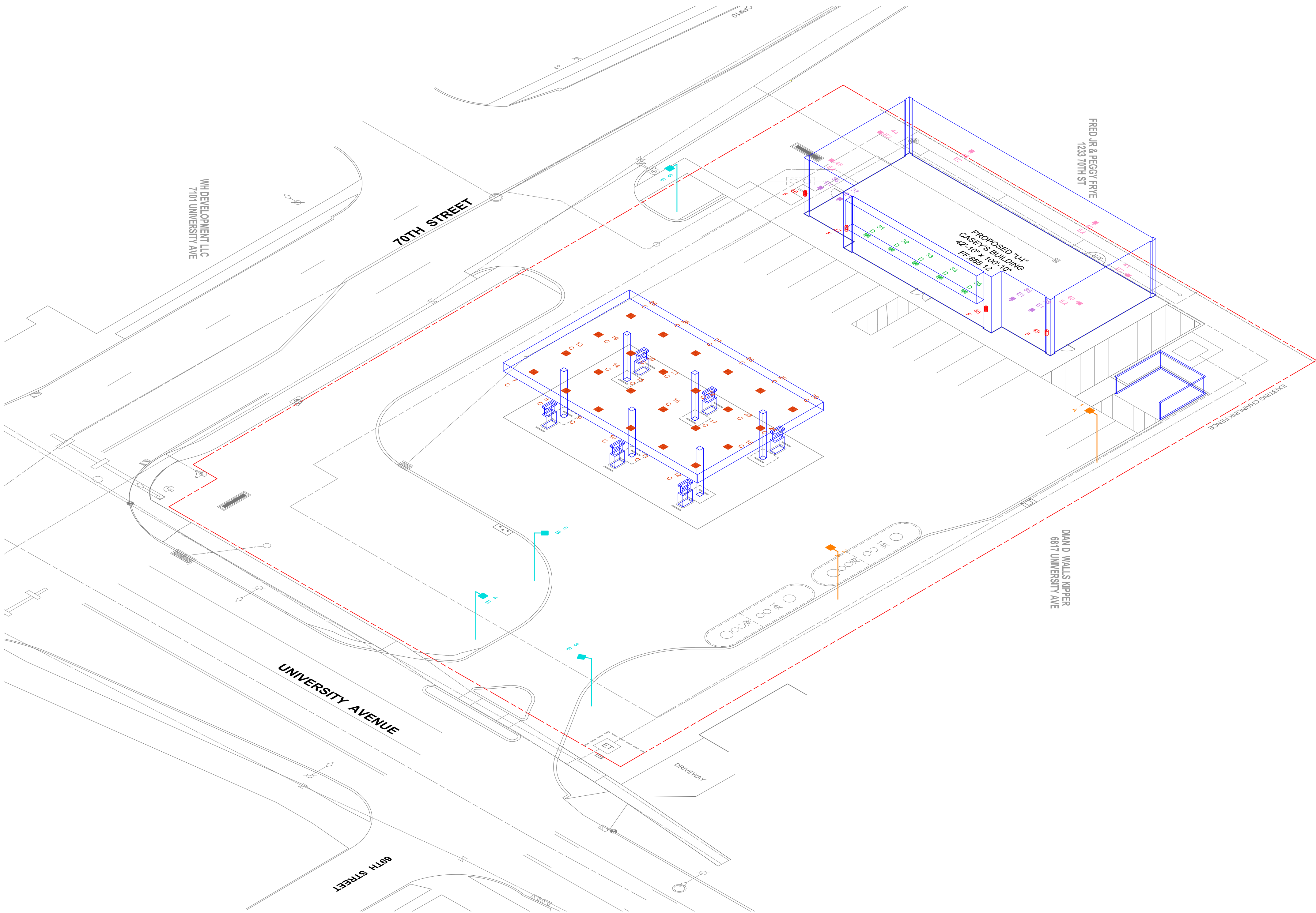


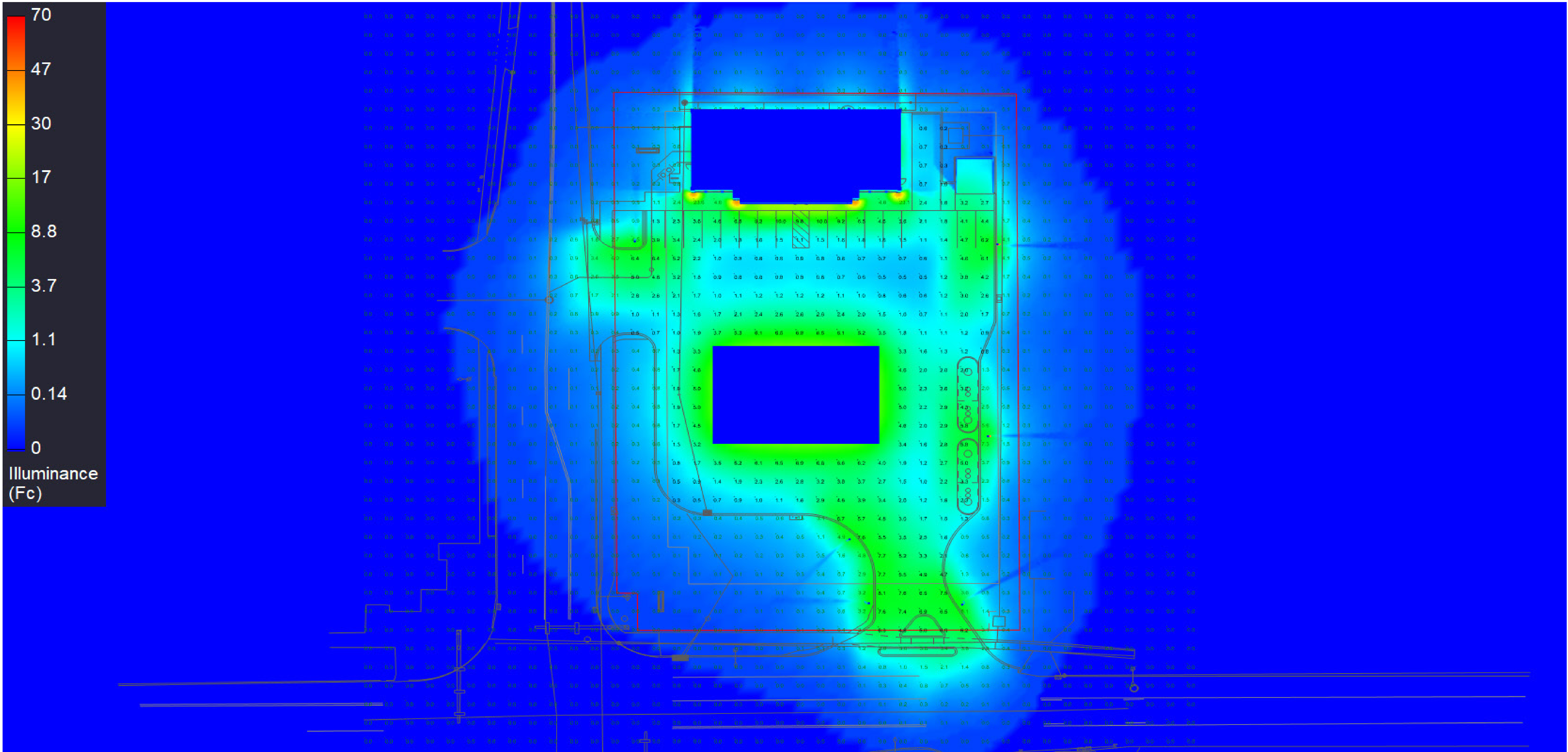
WALL MOUNTED

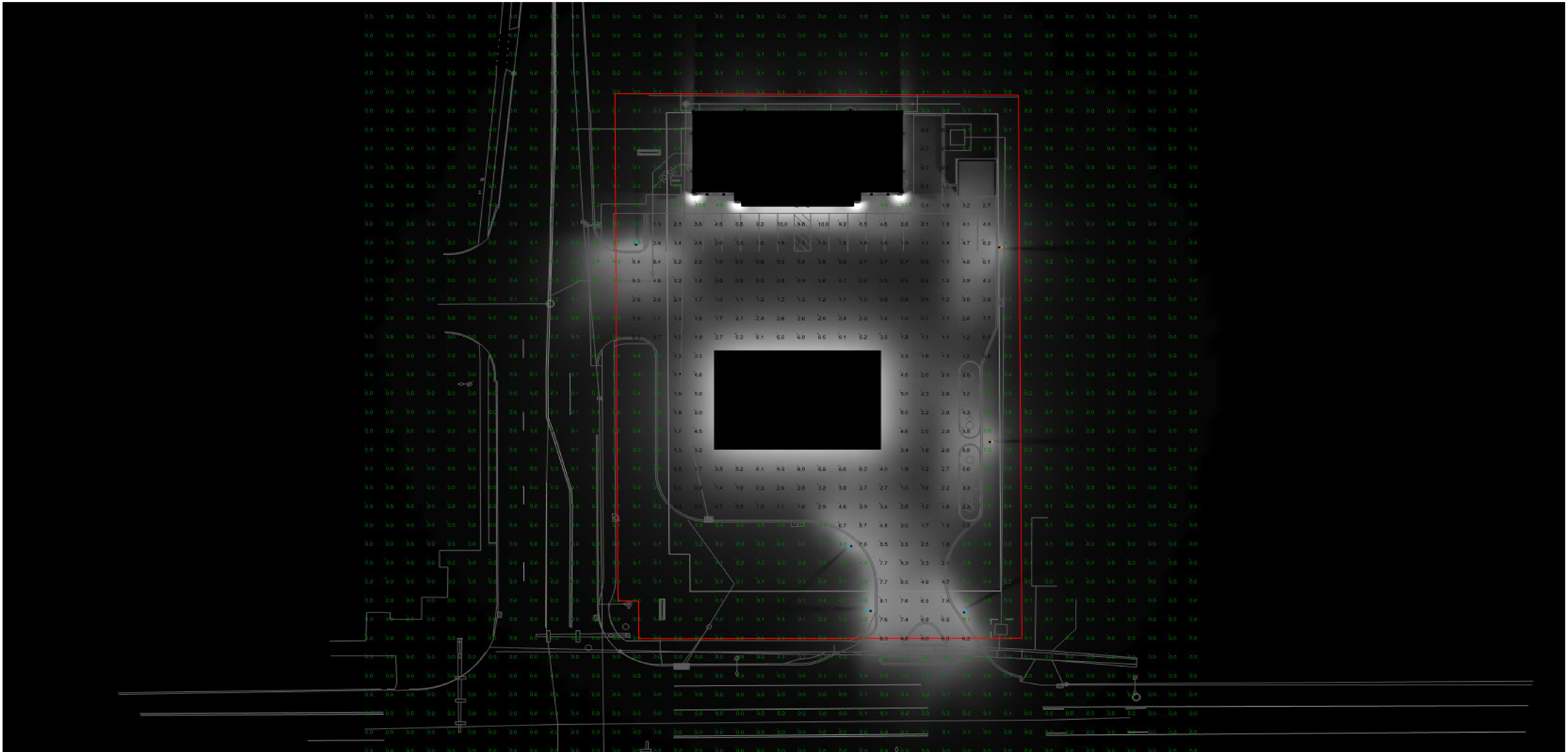


WALL MOUNTED



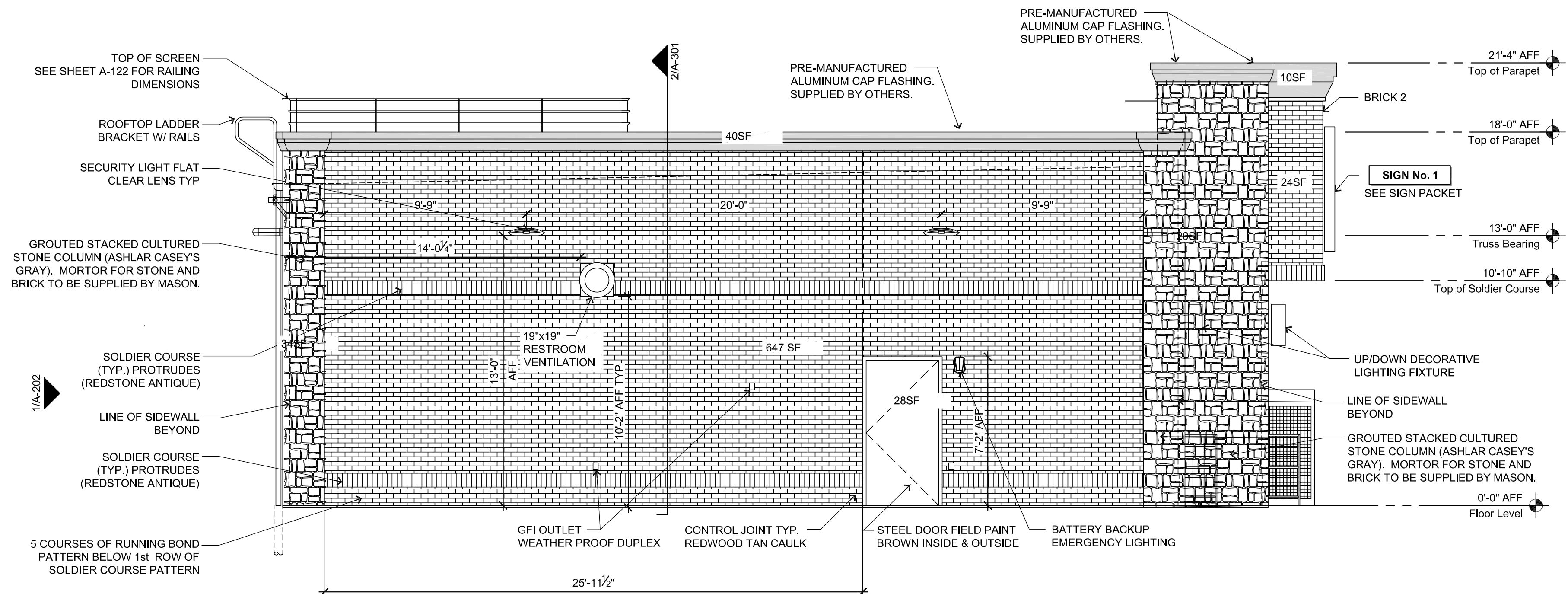




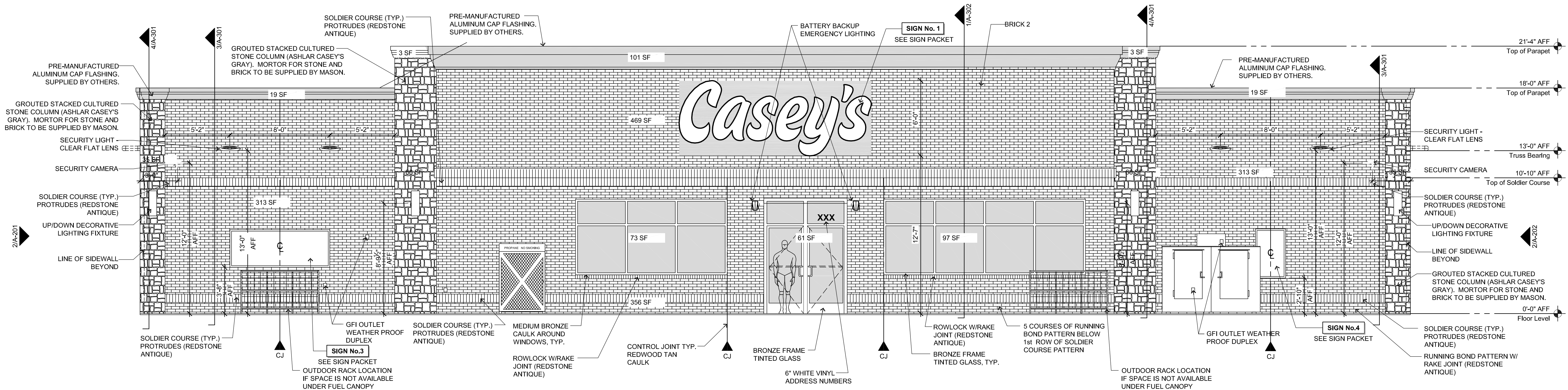


General Notes

1. REVIEW AND COORDINATE WITH ALL DETAIL PAGES REFERENCED ON THIS PLAN. NOTIFY ARCHITECT AND OWNER OF DISCREPANCIES
2. RELATED DRAWING SHEETS: REFER TO THE FOLLOWING:
AL-101: FOR BUILDING LOCATION ON SITE
AL-601: FOR INFORMATION RELATING TO SIGNAGE
A-101: PRIMARY FLOOR PLAN FOR CONSTRUCTION LAYOUT
A-121: ROOF PLAN/ROOF TOP EQUIPMENT
A-601: DOOR & WINDOW SCHEDULES AND NOTES
S-101: FOOTINGS AND FOUNDATIONS
S-102: ROOF TRUSSES
3. WORKING POINT: THE WORKING POINT (WP) INDICATED ON THE DRAWINGS IS RELATIVE TO THE FACE OF SHEATHING ON THE EXTERIOR WALL AND IS A COMMON POINT OF REFERENCE WHERE EVER USED IN THESE DRAWINGS
4. ALL VENT PENETRATIONS ON BACK OF BACKSIDE OF ROOF.



2 Exterior Elevation - Left Side of Building (Plan West)
1/4"=1'-0"



1 Exterior Elevation - Front of Building (Plan South)
1/4"=1'-0"

PRIMARY MATERIALS	FRONT		BACK		RIGHT		LEFT	
GLASS	231 SF							
STONE	206 SF	12%	44 SF	3%	154 SF	18%	154 SF	18%
BRICK 1	982 SF	54%	1098 SF	69%	647 SF	74%	647 SF	74%
BRICK 2 (THIN SET)	469 SF	26%			24 SF	3%	24 SF	3%
SECONDARY MATERIALS								
CONCRETE			379 SF	24%				
METAL FLASHING	145 SF	8%	60 SF	4%	50 SF	6%	50 SF	6%
ACM PANELS								
TOTAL AREA OF ELEVATION	2,033 SF		60 SF		50 SF		50 SF	
PERCENT TOTAL OF PRIMARY MATERIALS (EXCLUSIVE OF GLASS)	91.95%		95.64%		88.70%		88.70%	
PERCENT TOTAL OF SECONDARY MATERIALS (EXCLUSIVE OF GLASS)	8.05%		4.36%		11.30%		11.30%	

ELDS DESIGN SERVICES
Architecture | Engineering | Surveying
2323 Dixon Street, Des Moines, Iowa 50316 | P.O. Box 4626 Des Moines, Iowa 50305 | P: 515-265-8196 F: 515-266-2259
PELDS JOB NO. 22-201

CASEY'S CONSTRUCTION DIVISION
One Convenience Blvd., P.O. Box 3001, Ankeny, Ia. 50021 515-965-6100

PROJECT:
UNIVERSITY AVE. & 70TH ST.
WINDSOR HEIGHTS, IA

PUBLISHED:
03/15/23
REVISED ON:
09/15/23

DRAWING INFORMATION:
EXTERIOR
ELEVATIONS

PROTOTYPE AND VERSION:
2023 - U4 - V.01

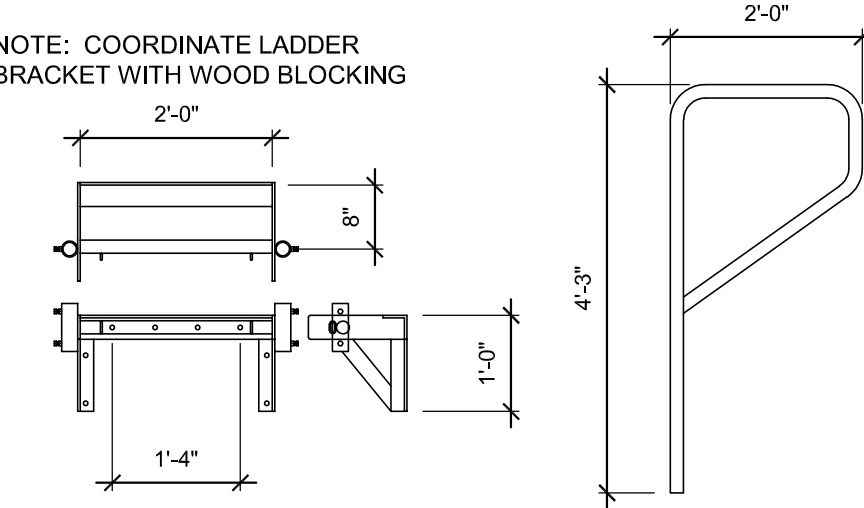
DRAWN BY:
Arion Goforth III

CHECKED BY:
D. WILLRICH

A-201

General Notes

- 1. REVIEW AND COORDINATE WITH ALL DETAIL PAGES REFERENCED ON THIS PLAN. NOTIFY ARCHITECT AND OWNER OF DISCREPANCIES
- 2. **RELATED DRAWING SHEETS:** REFER TO THE FOLLOWING:
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A-101: PRIMARY FLOOR PLAN FOR CONSTRUCTION LAYOUT
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A-601: DOOR & WINDOW SCHEDULES AND NOTES
S-101: FOOTINGS AND FOUNDATIONS
S-102: ROOF TRUSSES
- 3. **WORKING POINT:** THE WORKING POINT (WP) INDICATED ON THE DRAWINGS IS RELATIVE TO THE FACE OF SHEATHING ON THE EXTERIOR WALL AND IS A COMMON POINT OF REFERENCE WHERE EVER USED IN THESE DRAWINGS
- 4. ALL VENT PENETRATIONS ON BACK OF BACKSIDE OF ROOF.

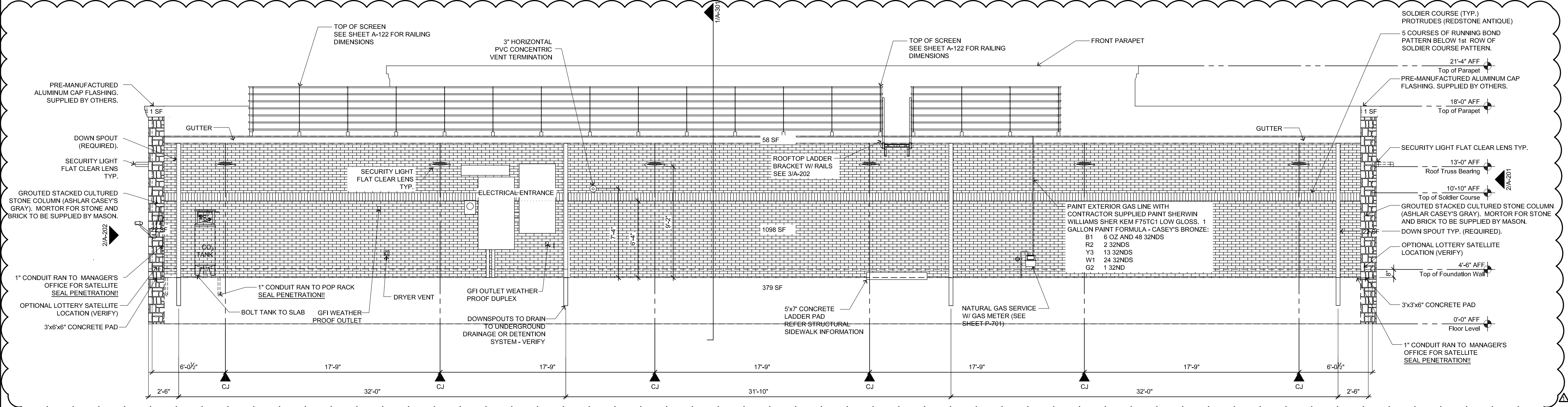


2 Exterior Elevation - Right Side of Building (Plan East)

1/4"=1'-0"

3 Ladder Bracket

1/2"=1'-0"



1 Exterior Elevation - Back of Building (Plan North)

1/4"=1'-0"

ELDS DESIGN SERVICES
Architecture | Engineering | Surveying
2323 Dixon Street, Des Moines, Iowa 50316 | P.O. Box 4626 Des Moines, Iowa 50305 | P: 515-265-8196 F: 515-266-2259
PELDS JOB NO. 22-201

CASEY'S CONSTRUCTION DIVISION
One Convenience Blvd., P.O. Box 3001, Ankeny, Ia. 50021 515-965-6100

PROJECT:	PUBLISHED: 03/15/23	DRAWING INFORMATION:
UNIVERSITY AVE. & 70TH ST. WINDSOR HEIGHTS, IA	REVISED: 09/15/23	EXTERIOR ELEVATIONS
PROTOTYPE AND VERSION: 2023 - U4 - V.01		
DRAWN BY: Arion Goforth III	CHECKED BY: D. WILLRICH	

A-202

1/16/2024

City of Windsor Heights – Bolten & Menk
Attn: Trey Rouse
430 Grand Ave Ste 101
Des Moines, IA 50309

RE: Casey's (70th St and University Ave) 4th Comment Letter

Dear Trey:

We are pleased to submit a revised site plan for the Windsor Heights Caseys Project. Below are the responses to the comments provided on 12/22/2023:

General Comments

1. All permits related to the project will be held and released concurrently at the approval of the following:
 - a. Approval of signs and utility from Safe Building.
 - b. Revision of site plan application in accordance with the comment letter and all corresponding comments from each City Department.
 - c. Professional Signatures on Final Site Plan.
 - d. City Council approval of site plan.

Acknowledged

Storm Water Comments

1. Provide performance security or bond per 161.11 of the City's Code.
2. Provide maintenance performance security or bond per 161.12 of the City's Code
3. Provide Maintenance and Repair Easement per 161.14 of the City's Code.
These shall be provided prior to construction.
4. Please report the orifice diameter as 3 inches in Table 10 and match the reported 1-year proposed release rate to match the model output. If it is above allowable, include a statement that the minimum orifice diameter recommended by ISWMM is the reason for exceeding the allowable release rate.
Page 7 has been updated to reflect these changes.

Police Comments

1. No comments received.

Fire Comments

1. No further comments.



Des Moines Water Works Comments

1. Hydrant to be relocated will require a new hydrant.

The hydrant is no longer being relocated.

2. Hydrant to maintain a minimum of 3' separation from curb line.

Acknowledged

3. Large Tap Application to be submitted for review & approval.

This will be submitted once a contractor has been selected and prior to construction.

4. Any service associated with this property will need to be cut at the main.

This note has been revised on the demo sheet

Urbandale Windsor Heights Sanitary District Comments

1. No further comments.

Des Moines Metropolitan Wastewater Reclamation Authority Comments

1. No comments received.

Building Comments

1. No further comments.

Traffic Comments

1. No further comments.

Engineering Comments

1. Obtain Windsor Heights work within the Right-of-way Permit.

This will be submitted prior to construction.

2. Obtain a Construction Site Erosion & Sediment Control Ordinance Permit or COSESCO Permit from City.

This will be submitted prior to construction.

3. Sheet C-100. Where is the water service? Show on plans.

Location of service is now shown.

4. Sheet C-100. Note #1, it's in the Urbandale Windsor Heights Sanitary Sewer District, not City of Urbandale/Windsor Heights Sanitary Sewer District.

This has been corrected.

5. Sheet C-301: Sanitary sewer service to be straight within the ROW, no bends.

This has been straightened and now enters at the manhole like the existing service.

6. Sheet C-301: Show the new location of the hydrant on 70th Street.

we are moving the sidewalk instead and not touching the hydrant anymore as agreed upon with DMWW. An easement for the sidewalk is shown on the plans and an exhibit will be provided prior to construction

7. Sheet C-301: Show location of water curb stop.

Curb Stop now shown on the plans.

8. Sheet C-301: Cannot see pipe information at swale location.

Moved label.

9. Sheet C-501: Scale doesn't seem accurate.

this has been corrected.

10. Sheet C-501: Cannot read leader notes.

These are not legible.

11. Provide more sidewalk information within the ROW. Include slopes and distances for landing and ramp conditions at a smaller scale.

These are now shown in detail at 10' scale on the grading sheet.



12. Provide lighting sheet and requirements per City Code.

A revised lighting plan is included in resubmittal.

13. Prepare a Drainage and Utility Easement along the north property line that covers the entire drainage swale.

The easement now extends to fully include the entire swale. This will be included in the SFMA and submitted prior to construction.

Planning Comments

1. Obtain Conditional Use Permit for Auto Services Use within the Urban Center District from the Windsor Heights Zoning Board of Adjustments.

This was submitted by Casey's on 1/2/24.

2. Note - The required landscape buffer between the Zoning District this development belongs to and the Residential District that is located north of the development property is only met per the updated (and not currently incorporated) code at a minimum 10-foot landscaped buffer, while the current code has a minimum 20-foot landscaped buffer.

Acknowledged

3. Lighting

a. The maximum average-maintained foot-candles for a parking lot within Windsor Heights should be 3 foot-candles. The Lighting Plan shows it at 3.31 foot-candles, please reduce this.

b. On the north side of the property line, there is an area that surpasses two (2) foot-candles while adjacent to a residential property. Please address and adjust to accommodate the 2-foot-candle maximum.

4. Landscaping

a. Minimum Spacing of Plant Materials: Minimum of one tree per 50 feet of perimeter along streets. Please address.

We are showing landscaping in excess of the updated code requirements.

If you have any questions, please e-mail or call.

Sincerely,
Pelds Design Services

Nick Day



TRAFFIC IMPACT STUDY

FOR

Casey's General Store
6961 University Avenue
Windsor Heights, IA 50324

By:

Pelds Design Services
Elara Jondle, PE
2323 Dixon Street
Des Moines, IA 50316

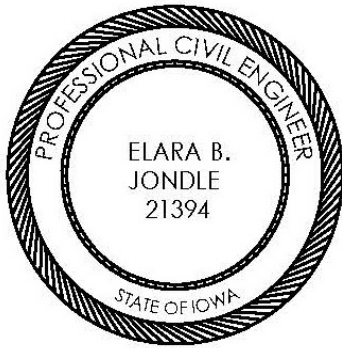
Submitted to:

Bolton & Menk, Inc – Attn: Jennifer McCoy, PE, PTOE
430 E Grand Avenue, Suite 101
Des Moines, IA 50309

December 8, 2023

Pelds Project No. 22-201

Certification Page



I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

ELARA B JONDLE, P.E. IA. LIC. NO. 21394 DATE

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2023
ADDITIONAL PAGES OR SHEETS COVERED BY THIS SEAL (NONE UNLESS INDICATED HERE): Report

Executive Summary

Proposed Development

Casey's General Stores plans to redevelop 6961 University Avenue in Windsor Heights, Iowa. The existing site is currently a multi-tenant office building property. The proposed site will have a new 4,319 SF building and gas canopy covering 5 fuel dispensers (10 pumps/fueling stations).

Site Location

The site is located at the northeast corner of the intersection of University Avenue and 70th Street in Windsor Heights. The study area includes the intersection of University Avenue and 70th Street, as well as the intersection of Hy-Vee and 70th Street.

Purpose of Analysis

The purpose of this traffic study is to determine the existing and anticipated traffic operations at the intersection of the study area associated with the proposed Casey's General Store development.

Principle Findings

The 2023 traffic data revealed that all left turning movements are currently experiencing delays ranging from regular to excessive in the AM and PM peak hours. Most through and right turning movements operate at acceptable levels of service during the AM and PM peak hours.

The 2023 Build analysis revealed that all left turning movements at University Avenue and 70th Street will continue to experience delays ranging from regular to excessive in the AM and PM peak hours. Most through and right turning movements will continue operating at acceptable levels of service during the AM and PM peak hours. Turning movements at Casey's/Hy-Vee and 70th Street as well as Casey's and University Avenue are expected to operate at acceptable levels during the AM and PM peak hours.

Conclusions and Recommendations

We would recommend that the areas' traffic levels be monitored for growth or a significant development. If either occurs in the area, an impact study would be warranted.

Introduction

This Traffic Impact Study (TIS) has been prepared for Casey's General Stores by Pelds Design Services (PDS) for a redevelopment project located at 6961 University Avenue in Windsor Heights, Iowa, hereon referred to as site. The site is located at the northeast corner of the intersection of University Avenue and 70th Street.

The existing site is currently a multi-tenant office building property. The proposed site will have a new 4,319 SF building and gas canopy covering 5 fuel dispensers (10 pumps/fueling stations). The site development includes paving for vehicle maneuvering and a stormwater management system.

The purpose of this traffic study is to determine the existing and anticipated traffic operations at the intersection of the study area associated with the proposed Casey's General Store development.

Existing Conditions

Existing Traffic Volumes 2023

The study area includes the intersection of University Avenue and 70th Street. The site is bounded by University Avenue along the south and 70th Street along the west and single family residential along the north and east. The study area is shown in **Figure 1**.

Anticipated traffic operations with the proposed development have been evaluated at the following intersections:

University Avenue and 70th Street **Hy-Vee Entrance and 70th Street**

University Avenue is a two-lane roadway with a two way left turn lane. Construction of this 3-lane project was completed by November 3, 2021. The posted speed limit in the area is 35 mph. At the intersection of 70th Street, there are right and left turn lanes along University Avenue. The westbound left-turn bay along University Avenue is 125 ft. The intersection is signal controlled.

70th Street is a two-lane roadway with designated left-turn lanes at University Avenue. The posted speed limit in the area is 25 mph. There is also a designated left-turn lane along 70th Street at the Hy-Vee Entrance and at University Avenue. The southbound left-turn bay is 80 ft.

Hy-Vee Entrance is one of two entrances to the customer parking lot. The staff parking, loading docks and drive-up orders are handled through other access onto University Avenue. The main entrance into Hy-Vee is located along University Avenue.

This analysis evaluates the following time periods:

- Existing 2023 AM and PM Peak hours
- Initial development opening year 2023 for the AM and PM Peak hours

Crash History

Crash data was provided by the Iowa Crash Analysis Tool (ICAT) website. Since November 3, 2021, there have been no crashes documented near the intersection of 70th Street and Hy-Vee Entrance. Eight crashes have been documented near the intersection of University Avenue and 70th Street. The crash severity was mostly property damage only with one possible/unknown injury. Causes include, ran traffic signal, failure to yield the right-of-way, followed too close and improper or erratic lane changing. The ICAT Quick Report can be found in Appendix D.

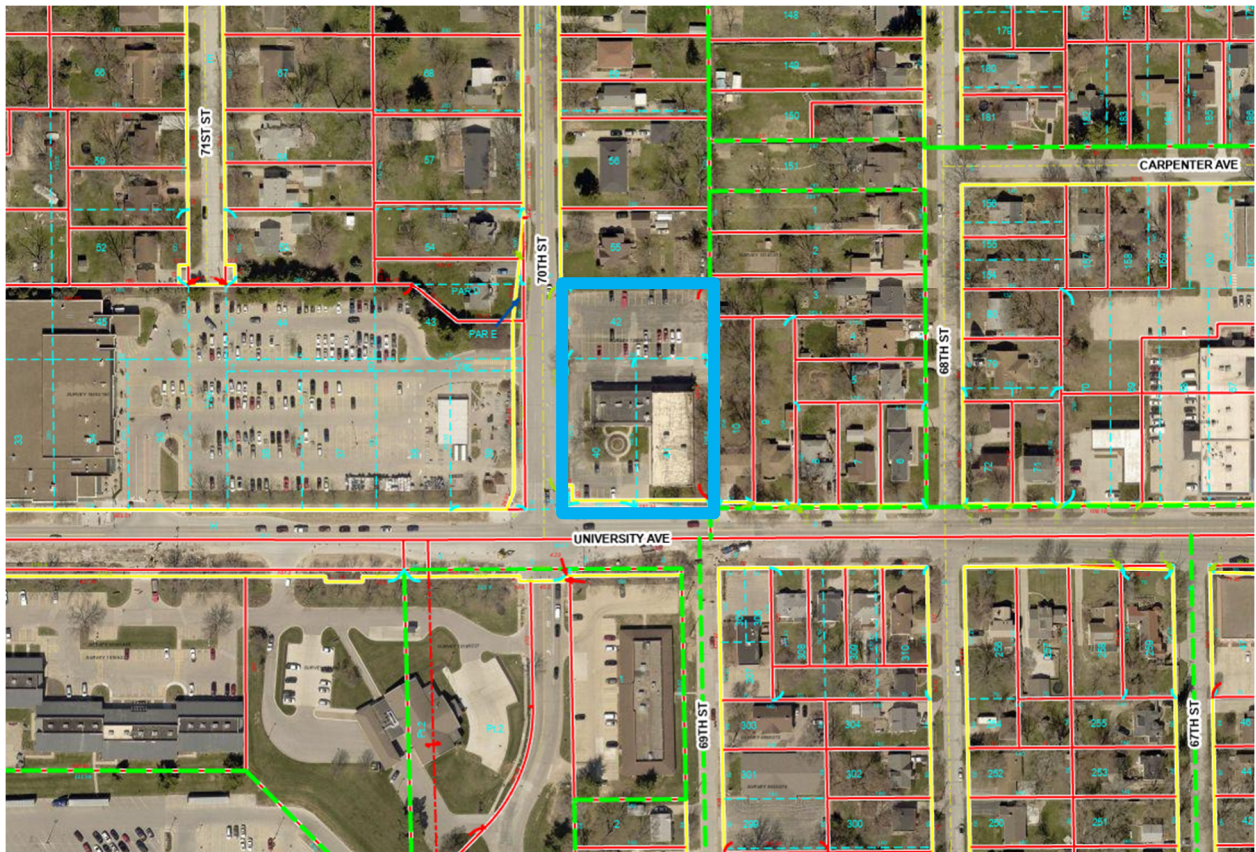


Figure 1. Vicinity Map

Turning movement counts for the intersections were obtained from manual traffic counts. PDS collected traffic data from 6 am – 7 pm on April 25th and 27th, 2023. The AM and PM Peak Hours and total entering volumes are shown below.

Table 1. Peak Hour Volumes

University & 70 th	AM Peak Hour	7:30 am – 8:30 am	930
	PM Peak Hour	4:30 pm – 5:30 pm	1595
Hy-Vee & 70 th	AM Peak Hour	8:00 am – 9:00 am	319
	PM Peak Hour	4:15 pm – 5:15 pm	696

Average Annual Daily Traffic (AADT) maps from the Iowa Department of Transportation (IDOT) were also reviewed. The AADT shows no clear trend in traffic counts. The Des Moines MPO projected little to no increase in traffic in the area, but Bolton & Menk assumed a 0.5% growth rate as a conservative estimate, based on AADT maps of other intersections in the corridor. For evaluation purposes, the same growth rate was used for this analysis. However, the traffic data available shows there is no net growth at this intersection in the past 20 years. This suggests that the neighborhood traffic growth has stabilized within this corridor. There is no known or proposed larger employer looking to relocate in the area. No other significant trip generator projects are proposed to impact the traffic counts.

Table 2. AADT Volumes of University Avenue & 70th Street

Year	North	East	South	West
2016	4840	-	-	10600
2012	6600	-	-	13200
2008	5800	19400	-	-
2000	5500	-	-	14600

The full Traffic Count Data can be found in Appendix A.

Capacity Analysis of Existing Conditions

Traffic operations were analyzed for the study intersections using SimTraffic 11 traffic simulation software.

A level of service (LOS) rating of the traffic operational condition was obtained from the analyses. Level of service is a qualitative assessment of traffic operational conditions within a traffic stream in terms of the average control delay per vehicle at a controlled intersection. Levels of service are described by a letter designation of either A, B, C, D, E or F, with LOS A representing free flow, and LOS F representing a complete breakdown of traffic flow with excessive congestion and delay. Unsignalized, or stop sign controlled, intersection capacity analyses produce LOS results for each movement which must yield to conflicting traffic at the intersection.

Table 3 summarizes LOS criteria for signalized and unsignalized intersections.

Tables 4 and 5 show existing conditions for the intersections, including delay per vehicle, level of service and 95th percentile queue. The SimTraffic 11 simulation reports for 2023 existing traffic conditions are included in Appendix B.

Table 3. LOS Criteria

Level of Service	Average Control Delay per Vehicle (sec/veh)		General Description
	Signalized Intersections	Stop Sign Controlled Intersections	
A	≤ 10	≤ 10	Free flow. Insignificant delays.
B	> 10 to 20	> 10 to 15	Stable flow. Slight delays.
C	>20 to 35	>15 to 25	Stable flow. Acceptable delays.
D	>35 to 55	>25 to 35	Approaching unstable flow. Regular delay. Occasionally waiting through more than one signal cycle before proceeding.
E	>55 to 80	>35 to 50	Unstable flow. Maximum capacity, extended delays. Volumes at or near capacity. Long queues form upstream from intersection.
F	> 80	> 50	Forced flow. Excessive delays. Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections.
Table information from HCM 2010, Exhibit 18-4 and 19-1			

Table 4. 2023 Existing – AM Peak Level of Service

	Movement	Eastbound Left	Eastbound Through	Eastbound Right	Westbound Left	Westbound Through	Westbound Right	Northbound Left	Northbound Through	Northbound Right	Southbound Left	Southbound Through	Southbound Right	Intersection Delay
University & 70 th	LOS	D	C	C	D	C	C	D	C	A	F	B	A	C
	Delay	54.2	29.6	24.4	48.2	34.0	23.8	45.0	20.4	-	92.1	14.3	-	34.5
	95 th Queue	55	232	-	72	136	86	-	40	40	80	60	59	
Hy-Vee & 70 th	LOS	B	A	A	B	A	A	A	A	A	A	A	A	A
	Delay	11.0	9.3	9.3	11.1	8.6	8.6	7.7	0.0	0.0	0.1	0.1	0.1	1.9
	95 th Queue	28	41	41	-	14	14	21	-	-	-	-	-	

Table 5. 2023 Existing – PM Peak Level of Service

	Movement	Eastbound Left	Eastbound Through	Eastbound Right	Westbound Left	Westbound Through	Westbound Right	Northbound Left	Northbound Through	Northbound Right	Southbound Left	Southbound Through	Southbound Right	Intersection Delay
University & 70 th	LOS	F	C	B	F	C	B	E	D	A	F	C	A	F
	Delay	211	29.7	16.4	93.9	24.6	17.5	62.2	45.3	-	529	25.5	-	80.2
	95 th Queue	188	248	63	99	134	98	32	148	148	117	193	98	
Hy-Vee & 70 th	LOS	C	B	B	C	A	A	A	A	A	A	A	A	A
	Delay	15.1	10.1	10.1	16.0	9.1	9.1	7.9	0.0	0.0	0.1	0.1	0.1	4.4
	95 th Queue	54	81	81	26	28	28	33	30	30	117	117	117	

The 2023 traffic data processed by SimTraffic 11 revealed that all left turning movements are currently experiencing delays ranging from regular to excessive in the AM and PM peak hours. Most through and right turning movements are operating at acceptable levels of service during the AM and PM peak hours.

The SimTraffic analysis also shows that southbound traffic along 70th Street currently experiences blocking as the left queue length exceeds the existing turning bay length. The 70th Street southbound right and through queues currently extend through the Hy-Vee approach. Westbound through and right queues on University Avenue extend beyond the existing site access.

Crash History

Crash data was provided by the Iowa Crash Analysis Tool (ICAT) website. Since November 3, 2021, there have been no crashes documented near the intersection of 70th Street and Hy-Vee Entrance. Eight crashes have been documented near the intersection of University Avenue and 70th Street. The crash severity was mostly property damage only with one possible/unknown injury. Causes include, ran traffic signal, failure to yield the right-of-way, followed too close and improper or erratic lane changing. The ICAT Quick Report can be found in Appendix D.

Proposed Development

Casey's is proposing to develop the site with a new 4,319 SF building and gas canopy covering 5 fuel dispensers (10 pumps/fueling stations). Access to the site will be provided by one right-in-right-out (RIRO) access and one full access.

A 35' wide RIRO access is located along University Avenue. The access will be located 148 feet east of 70th Street. The current access, which sits 87 feet from 70th Street, will be removed.

A full access is also proposed along 70th Street. The two existing access along 70th Street, located 80 ft and 248 ft from University Avenue, will be removed. A 35 ft wide access will be located 240 feet north of University Avenue and align with the existing Hy-Vee access.

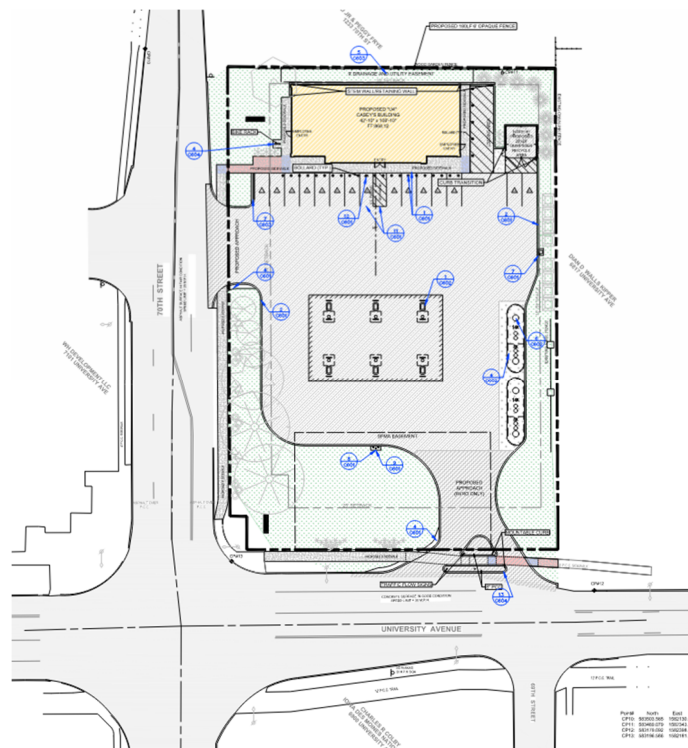


Figure 2. Site Plan

Future Conditions

Trip Generation

Trip generation was performed for this development based on ITE Trip Generation Manual 11th Edition. Land Use 945 (GFA 4-5.5k) was used, which determines trips based on vehicle fueling positions. There are 10 vehicle fueling positions and 4.319 thousand square feet. Both new trips and pass-by trips were estimated. The ITE Trip Generation Manual Appendices 2021, estimates 76% of the AM trips are pass-by and 75% of the PM trips are pass-by.

Table 4. Trip Generation

Time Period	Total Trips	Entering	Pass-By	New	Exiting
Weekday, AM Peak Hour	165	82	62	20	83
Weekday, PM Peak Hour	191	96	72	24	95

Trip Distribution

Trip distribution and assignment was performed based on the distribution of existing traffic through the intersection of University Avenue and 70th Street. The trips were distributed proportionally based on the existing traffic flows entering the intersection of University Avenue and 70th Street.

- 18% from the north, 48% from the east, 4% from the south and 30% from the west in the AM
- 13% from the north, 36% from the east, 9% from the south and 41% from the west in the PM

Assumptions made during trip generation:

- All northbound traffic generated by Casey's will continue straight on 70th Street through University Avenue and turn right into Casey's.
- All eastbound traffic generated by Casey's along University Avenue will turn left onto 70th Street before turning right into Casey's.
- 75% of the westbound traffic generated by Casey's will enter Casey's through the RIRO on University Avenue. The remaining 25% would continue west and turn right onto 70th Street before turning right into Casey's.
- All southbound traffic generated by Casey's will enter Casey's by turning left off of 70th Street.
- 75% of Casey's exiting traffic will leave Casey's through the full access onto 70th Street. The remaining 25% will exit through the RIRO onto University Avenue.

2023 Build Traffic Volumes

It is anticipated that Casey's development will be completed by the end of 2023. The trips generated by the site were added to the existing traffic volumes to develop the 2023 Build Traffic Volumes. Pass-by trips were routed through the site and subtracted from the through-movements adjacent to the entrances. Non-pass-by-trips were added to the accesses and routed through the adjacent intersections. **Tables 7 and 8** illustrate the anticipated LOS, Delay and 95th percentile Queue lengths at the study intersections.

The SimTraffic analysis revealed that all left turning movements at University Avenue and 70th Street will continue to experience delays ranging from regular to excessive in the AM and PM peak hours. Most through and right turning movements will continue operating at acceptable levels of service during the AM and PM peak hours. Turning movements at Casey's/Hy-Vee and 70th Street as well as Casey's and University Avenue are expected to operate at acceptable levels during the AM and PM peak hours.

The SimTraffic analysis revealed that queuing distances will increase slightly for the southbound left turning movements along 70th Street and the westbound left turning movements along University Avenue. Similarly, queuing lengths increase one additional car length for southbound and westbound through and right turning movements.

The southbound traffic along 70th Street will continue to experience blocking as the left 95th queue length exceeds the existing turning bay length. The 70th Street southbound right and through 95th queue length will continue to extend through the Hy-Vee approach. Westbound through and right 95th queue length on University Avenue extend beyond the Casey's RIRO access.

Table 7. 2023 Build – AM Peak Level of Service

	Movement	Eastbound Left	Eastbound Through	Eastbound Right	Westbound Left	Westbound Through	Westbound Right	Northbound Left	Northbound Through	Northbound Right	Southbound Left	Southbound Through	Southbound Right	Intersection Delay
University & 70 th	LOS	E	C	C	D	C	C	D	C	C	F	B	B	E
	Delay	55.2	25.8	21.6	48.2	33.8	22.8	45.0	28.5	28.5	285	16.7	16.7	56.3
	95 th Queue	60	225	-	66	165	116	17	42	42	105	106	59	
Casey's/Hy-Vee & 70 th	LOS	B	A	A	B	A	A	A	A	A	A	A	A	A
	Delay	11.4	9.3	9.3	12.7	8.7	8.7	7.7	0.0	0.0	0.7	0.7	0.7	3.7
	95 th Queue	34	40	40	57	32	32	21	-	-	15	15	15	

Casey's & University	LOS	-	A	-	-	A	A	-	-	-	-	-	B	A
	Delay	-	0.1	-	-	0.0	0.0	-	-	-	-	-	11.6	0.4
	95 th Queue	-	-	-	-	189	189	-	-	-	-	-	58	

Table 8. 2023 Build – PM Peak Level of Service

	Movement	Eastbound Left	Eastbound Through	Eastbound Right	Westbound Left	Westbound Through	Westbound Right	Northbound Left	Northbound Through	Northbound Right	Southbound Left	Southbound Through	Southbound Right	Intersection Delay
University & 70 th	LOS	F	C	B	F	C	B	E	D	A	F	C	A	F
	Delay	448	29.6	16.3	93.9	24.3	17.4	62.2	47.5	-	820	25.8	-	138
	95 th Queue	234	376	48	105	155	118	36	156	156	113	223	105	
Casey's/ Hy-Vee & 70 th	LOS	C	B	B	C	A	A	A	A	A	A	A	A	A
	Delay	16.1	10.1	10.1	22.3	9.2	9.2	7.9	0.0	0.0	0.6	0.6	0.6	6.2
	95 th Queue	85	140	140	141	59	59	39	-	-	183	183	183	
Casey's & University	LOS	-	A	-	-	A	A	-	-	-	-	-	B	A
	Delay	-	0.0	-	-	0.0	0.0	-	-	-	-	-	13.2	0.2
	95 th Queue	-	-	-	-	236	236	-	-	-	-	-	52	

Turn Lane Warrants

A turn lane warrant analysis was not performed at the intersection of University Avenue and 70th Street. This is an established intersection with existing left- and right-turn lanes.

Traffic Signal Warrant Study

A traffic signal warrant analysis was not performed at the intersection of University Avenue and 70th Street. This intersection has existing traffic signals and timings that were used in the study. Traffic signal timings were provided by the City's consultant.

2043 Future Traffic Volumes

Future traffic volumes were not analyzed at this time due to the existing conditions.

Conclusions and Recommendations

Conclusions

The purpose of this traffic study is to determine the existing and anticipated traffic operations at the intersection of the study area associated with the proposed Casey's

General Store development. Based on the results of this analysis, the following summarizes the key findings and recommendations of this study.

- The existing traffic data revealed that all left turning movements are currently experiencing delays ranging from regular to excessive in the AM and PM peak hours. Most through and right turning movements are operating at acceptable levels of service during the AM and PM peak hours.
- The analysis revealed that all left turning movements at University Avenue and 70th Street will continue to experience delays ranging from regular to excessive in the AM and PM peak hours. Most through and right turning movements will continue operating at acceptable levels of service during the AM and PM peak hours. Turning movements at Casey's/Hy-Vee and 70th Street as well as Casey's and University Avenue are expected to operate at acceptable levels during the AM and PM peak hours.
- The analysis revealed that queuing distances will increase slightly for the southbound left turning movements along 70th Street and the westbound left turning movements along University Avenue. Similarly, queuing lengths increase one additional car length for southbound and westbound through and right turning movements.

Recommendations

- We would recommend that the areas' traffic levels be monitored for growth or a significant development. If either occurs in the area, an impact study would be warranted. At that time, we would also recommend consideration of re-timing of the signals along the corridor as the area develops.

Appendix A – Traffic Count Data

PELDS DESIGN SERVICES2323 Dixon Street
Des Moines, IA 50316

22-201

Intersection of:

University & 70th

Counted 04-25-2023 by AB

File Name : alex b 4-25-23

Site Code : 00000001

Start Date : 4/25/2023

Page No : 1

Groups Printed- Vehicles

	From North					From East					From South					From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	15	7	11	0	33	15	63	5	0	83	2	3	1	0	6	0	31	5	4	40	162
07:15 AM	21	5	11	0	37	11	51	3	3	68	4	3	0	2	9	1	42	2	2	47	161
07:30 AM	19	5	10	0	34	8	66	7	1	82	4	2	0	0	6	0	48	4	1	53	175
07:45 AM	18	7	9	0	34	14	93	8	2	117	2	0	0	1	3	0	49	10	2	61	215
Total	73	24	41	0	138	48	273	23	6	350	12	8	1	3	24	1	170	21	9	201	713
08:00 AM	9	9	18	1	37	12	70	8	2	92	2	2	1	0	5	0	61	9	2	72	206
08:15 AM	9	5	18	0	32	9	73	7	2	91	5	1	0	1	7	1	40	12	2	55	185
08:30 AM	10	8	14	0	32	8	61	15	2	86	11	3	1	0	15	0	47	4	2	53	186
08:45 AM	6	6	17	0	29	14	67	12	2	95	7	3	0	0	10	1	51	6	4	62	196
Total	34	28	67	1	130	43	271	42	8	364	25	9	2	1	37	2	199	31	10	242	773
09:00 AM	6	7	7	0	20	14	70	15	3	102	6	0	4	1	11	1	70	5	5	81	214
09:15 AM	5	7	19	0	31	8	64	14	5	91	11	4	2	0	17	1	61	7	2	71	210
09:30 AM	12	10	10	0	32	17	62	7	4	90	6	2	0	1	9	1	45	6	2	54	185
09:45 AM	10	17	17	0	44	15	63	22	0	100	12	3	1	0	16	0	59	8	2	69	229
Total	33	41	53	0	127	54	259	58	12	383	35	9	7	2	53	3	235	26	11	275	838
10:00 AM	10	7	21	0	38	15	59	28	2	104	13	5	4	0	22	3	58	13	3	77	241
10:15 AM	10	10	12	0	32	11	62	18	5	96	10	5	1	0	16	2	63	12	3	80	224
10:30 AM	16	10	11	0	37	15	75	23	0	113	18	5	7	0	30	0	71	16	1	88	268
10:45 AM	10	10	13	0	33	17	68	15	0	100	18	7	0	0	25	4	80	10	4	98	256
Total	46	37	57	0	140	58	264	84	7	413	59	22	12	0	93	9	272	51	11	343	989
11:00 AM	10	12	18	0	40	21	76	17	1	115	14	3	0	2	19	0	81	10	3	94	268
11:15 AM	12	10	16	0	38	11	67	8	4	90	11	5	1	0	17	2	86	11	1	100	245
11:30 AM	8	13	18	0	39	18	81	17	0	116	10	6	1	1	18	3	93	6	1	103	276
11:45 AM	10	11	14	0	35	22	62	23	1	108	11	7	3	0	21	1	70	12	2	85	249
Total	40	46	66	0	152	72	286	65	6	429	46	21	5	3	75	6	330	39	7	382	1038
12:00 PM	18	4	19	0	41	18	50	22	1	91	17	7	3	0	27	1	90	13	1	105	264
12:15 PM	11	7	21	0	39	19	58	18	3	98	16	7	1	0	24	0	80	5	1	86	247
12:30 PM	12	9	28	0	49	17	65	12	2	96	12	11	2	0	25	0	110	11	2	123	293
12:45 PM	11	17	17	1	46	21	72	11	0	104	11	8	1	0	20	0	77	15	2	94	264
Total	52	37	85	1	175	75	245	63	6	389	56	33	7	0	96	1	357	44	6	408	1068
*** BREAK ***																					
02:30 PM	16	11	24	1	52	22	80	18	0	120	12	7	1	0	20	3	76	7	2	88	280
02:45 PM	11	5	23	0	39	27	75	18	2	122	9	7	2	1	19	2	105	11	1	119	299
Total	27	16	47	1	91	49	155	36	2	242	21	14	3	1	39	5	181	18	3	207	579
03:00 PM	12	13	16	0	41	23	86	20	3	132	15	11	1	0	27	1	92	13	3	109	309
03:15 PM	16	15	23	0	54	26	73	20	2	121	19	12	4	0	35	2	116	21	2	141	351
03:30 PM	18	11	29	0	58	21	94	22	1	138	11	8	0	0	19	5	97	30	2	134	349
03:45 PM	16	5	23	1	45	34	87	22	5	148	19	7	1	0	27	1	100	15	1	117	337
Total	62	44	91	1	198	104	340	84	11	539	64	38	6	0	108	9	405	79	8	501	1346
04:00 PM	25	9	32	0	66	30	97	19	4	150	13	7	2	0	22	0	113	19	0	132	370
04:15 PM	21	10	26	0	57	19	68	10	3	100	22	7	3	0	32	0	97	22	2	121	310
04:30 PM	17	11	37	0	65	22	78	27	4	131	22	9	4	0	35	2	110	20	1	133	364
04:45 PM	17	13	32	0	62	26	71	17	0	114	12	9	3	0	24	2	88	25	1	116	316
Total	80	43	127	0	250	97	314	73	11	495	69	32	12	0	113	4	408	86	4	502	1360
05:00 PM	14	6	37	0	57	27	76	14	0	117	17	8	2	0	27	1	108	23	2	134	335
05:15 PM	18	7	34	0	59	29	94	14	2	139	29	13	1	0	43	1	139	17	0	157	398
05:30 PM	16	3	27	0	46	21	85	11	0	117	12	9	0	0	21	1	99	14	2	116	300
05:45 PM	18	11	31	0	60	14	64	25	1	104	10	7	2	0	19	0	86	7	1	94	277
Total	66	27	129	0	222	91	319	64	3	477	68	37	5	0	110	3	432	61	5	501	1310

PELDS DESIGN SERVICES

2323 Dixon Street
Des Moines, IA 50316

22-201

Intersection of:

University & 70th

Counted 04-25-2023 by AB

File Name : alex b 4-25-23

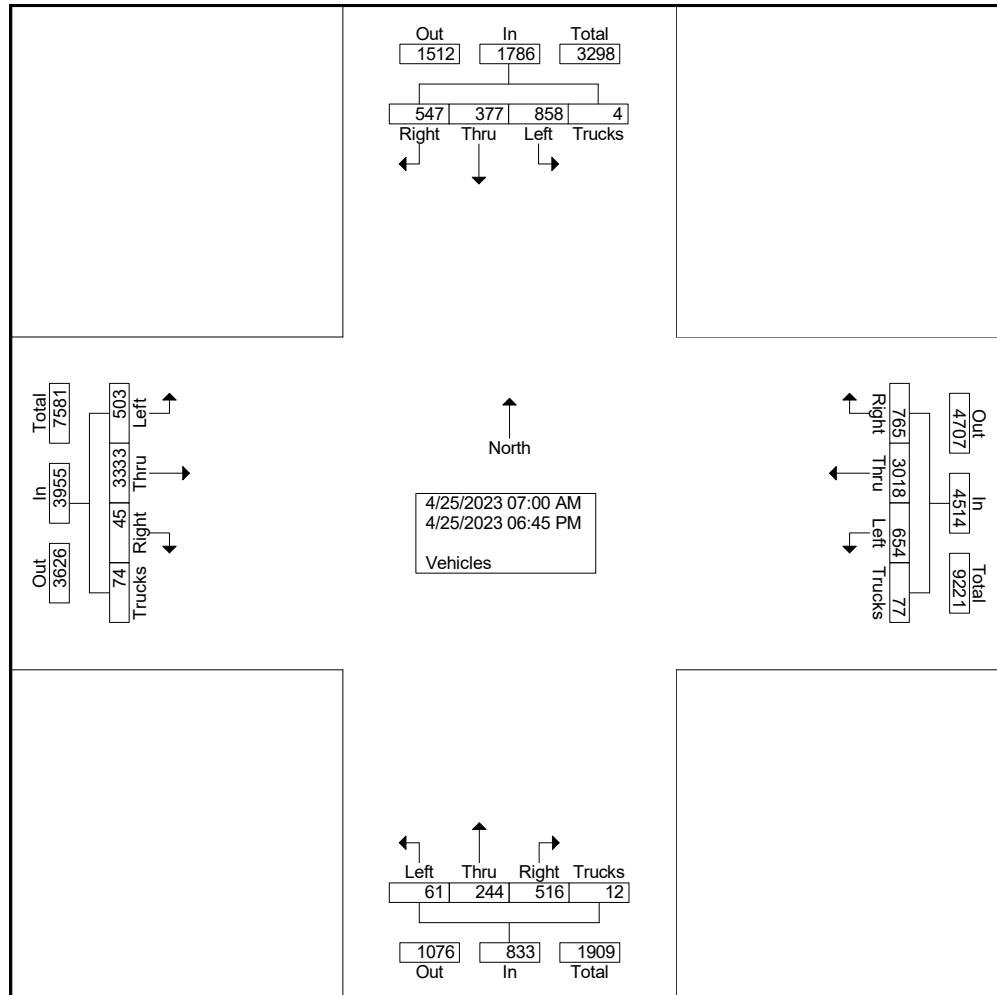
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Page No : 2

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	From North					From East					From South					From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
06:00 PM	10	15	20	0	45	17	83	27	2	129	13	3	1	0	17	0	87	10	0	97	288
06:15 PM	10	5	28	0	43	19	63	14	2	98	17	5	0	1	23	2	93	18	0	113	277
06:30 PM	7	9	22	0	38	16	68	9	1	94	18	8	0	0	26	0	64	10	0	74	232
06:45 PM	7	5	25	0	37	22	78	12	0	112	13	5	0	1	19	0	100	9	0	109	277
Total	34	34	95	0	163	74	292	62	5	433	61	21	1	2	85	2	344	47	0	393	1074
Grand Total	547	377	858	4	1786	765	3018	654	77	4514	516	244	61	12	833	45	3333	503	74	3955	11088
Apprch %	30.6	21.1	48	0.2		16.9	66.9	14.5	1.7		61.9	29.3	7.3	1.4		1.1	84.3	12.7	1.9		
Total %	4.9	3.4	7.7	0	16.1	6.9	27.2	5.9	0.7	40.7	4.7	2.2	0.6	0.1	7.5	0.4	30.1	4.5	0.7	35.7	

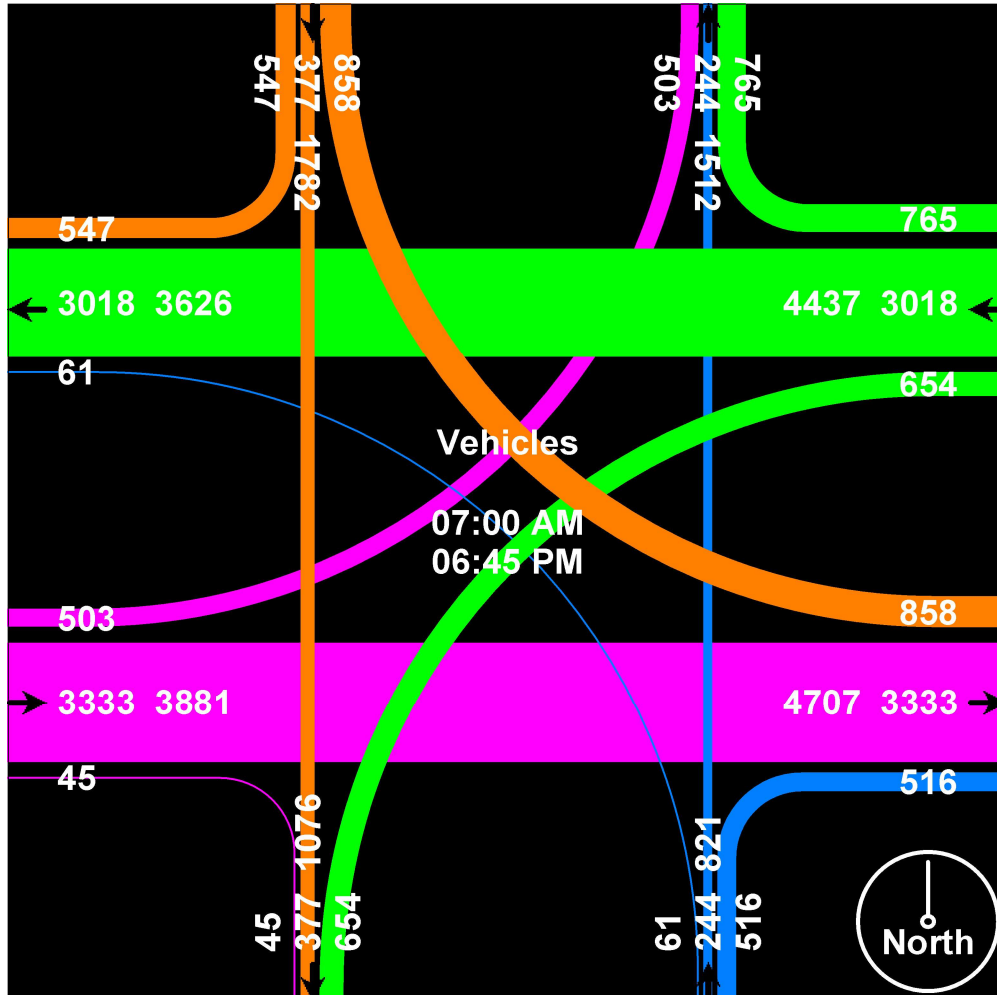


PELDS DESIGN SERVICES

2323 Dixon Street
Des Moines, IA 50316

22-201
Intersection of:
University & 70th
Counted 04-25-2023 by AB

File Name : alex b 4-25-23
Site Code : 00000001
Start Date : 4/25/2023
Page No : 3



PELDS DESIGN SERVICES

2323 Dixon Street
Des Moines, IA 50316

22-201
Intersection of:
University & 70th
Counted 04-27-2023 by AB

File Name : Alex B 4-27-23
Site Code : 00000000
Start Date : 4/27/2023
Page No : 1

Groups Printed- Vehicles

	From North					From East					From South					From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
06:00 AM	3	1	3	0	7	4	25	2	0	31	2	0	0	0	2	0	13	2	2	17	57
06:15 AM	8	2	5	0	15	5	24	2	1	32	1	0	0	2	3	0	14	2	1	17	67
06:30 AM	3	3	4	0	10	2	33	6	2	43	0	1	2	1	4	0	20	2	1	23	80
06:45 AM	11	6	8	0	25	8	42	3	0	53	1	1	1	0	3	0	20	1	1	22	103
Total	25	12	20	0	57	19	124	13	3	159	4	2	3	3	12	0	67	7	5	79	307
07:00 AM	10	5	7	0	22	8	58	5	4	75	2	3	0	0	5	1	27	4	1	33	135
07:15 AM	20	0	3	0	23	14	67	2	1	84	2	2	1	0	5	0	35	6	2	43	155
07:30 AM	15	6	19	0	40	13	85	7	3	108	6	4	1	0	11	0	51	7	1	59	218
07:45 AM	27	10	11	0	48	11	84	13	1	109	7	2	0	0	9	0	64	11	1	76	242
Total	72	21	40	0	133	46	294	27	9	376	17	11	2	0	30	1	177	28	5	211	750
08:00 AM	25	11	12	1	49	19	96	11	2	128	6	1	0	0	7	1	68	3	2	74	258
08:15 AM	7	8	18	0	33	13	76	8	2	99	8	3	1	0	12	0	60	6	2	68	212
08:30 AM	8	9	24	0	41	11	52	8	1	72	9	3	0	0	12	0	48	6	1	55	180
08:45 AM	13	7	14	0	34	19	65	12	2	98	4	3	0	0	7	0	44	7	3	54	193
Total	53	35	68	1	157	62	289	39	7	397	27	10	1	0	38	1	220	22	8	251	843
09:00 AM	1	0	2	0	3	2	15	3	0	20	1	0	0	0	1	0	4	0	0	4	28
09:15 AM	9	7	13	0	29	16	64	6	1	87	11	5	1	1	18	1	65	4	0	70	204
09:30 AM	15	10	13	0	38	11	72	14	4	101	3	7	0	0	10	1	61	8	1	71	220
09:45 AM	18	10	12	1	41	12	90	18	1	121	11	3	1	1	16	4	79	3	1	87	265
Total	43	27	40	1	111	41	241	41	6	329	26	15	2	2	45	6	209	15	2	232	717
10:00 AM	4	8	15	1	28	15	68	21	1	105	10	3	0	1	14	0	59	10	3	72	219
10:15 AM	11	8	19	0	38	14	48	20	1	83	15	4	1	2	22	2	70	10	2	84	227
10:30 AM	11	8	14	0	33	15	74	20	3	112	19	5	3	1	28	2	74	14	0	90	263
10:45 AM	15	14	15	0	44	17	83	22	1	123	13	4	3	0	20	0	101	12	1	114	301
Total	41	38	63	1	143	61	273	83	6	423	57	16	7	4	84	4	304	46	6	360	1010
11:00 AM	9	11	15	0	35	16	60	16	1	93	15	10	1	0	26	1	70	15	3	89	243
11:15 AM	6	13	18	1	38	15	76	13	4	108	10	3	1	0	14	2	83	11	2	98	258
11:30 AM	13	13	24	0	50	15	85	17	3	120	14	9	1	0	24	1	92	8	3	104	298
11:45 AM	17	6	18	0	41	24	100	18	1	143	16	4	6	1	27	0	120	15	2	137	348
Total	45	43	75	1	164	70	321	64	9	464	55	26	9	1	91	4	365	49	10	428	1147
12:00 PM	17	15	25	1	58	22	60	25	1	108	12	6	0	1	19	1	82	12	1	96	281
12:15 PM	11	16	28	1	56	14	75	23	1	113	13	10	4	0	27	2	93	5	0	100	296
12:30 PM	14	11	20	0	45	14	93	11	0	118	13	14	3	0	30	2	91	21	0	114	307
12:45 PM	13	14	19	0	46	22	93	14	0	129	19	10	6	0	35	3	85	7	1	96	306
Total	55	56	92	2	205	72	321	73	2	468	57	40	13	1	111	8	351	45	2	406	1190
01:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
01:15 PM	5	6	3	0	14	6	21	7	0	34	4	3	1	0	8	1	21	2	1	25	81
01:30 PM	14	12	24	0	50	18	60	13	0	91	7	11	2	0	20	2	79	13	1	95	256
01:45 PM	13	12	20	0	45	16	101	25	2	144	12	8	3	0	23	0	90	16	2	108	320
Total	32	30	47	0	109	40	183	45	2	270	23	22	6	0	51	3	191	31	4	229	659
02:00 PM	17	16	19	0	52	20	97	13	1	131	19	11	2	1	33	3	130	19	2	154	370
02:15 PM	4	14	29	0	47	18	88	12	1	119	15	9	2	0	26	3	102	10	2	117	309
02:30 PM	11	11	30	0	52	25	78	11	1	115	23	14	5	0	42	1	97	8	1	107	316
02:45 PM	13	13	19	1	46	34	103	20	1	158	19	6	2	0	27	3	107	17	1	128	359
Total	45	54	97	1	197	97	366	56	4	523	76	40	11	1	128	10	436	54	6	506	1354
03:00 PM	4	13	28	0	45	23	87	9	2	121	18	7	2	0	27	1	101	13	0	115	308
03:15 PM	12	7	23	1	43	28	90	15	3	136	16	7	1	0	24	0	85	23	0	108	311
*** BREAK ***																					
03:45 PM	12	11	19	0	42	28	103	19	2	152	32	7	5	0	44	2	122	9	1	134	372
Total	28	31	70	1	130	79	280	43	7	409	66	21	8	0	95	3	308	45	1	357	991

PELDS DESIGN SERVICES

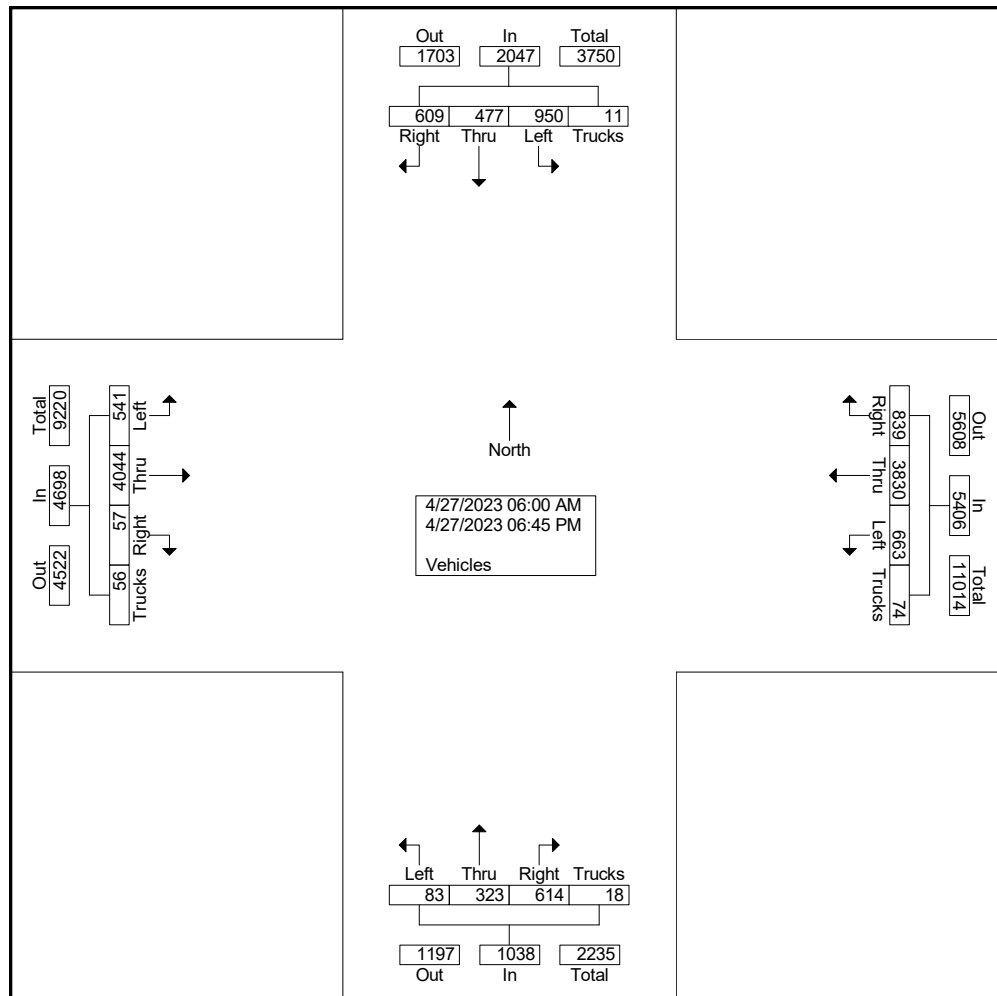
2323 Dixon Street
Des Moines, IA 50316

22-201
Intersection of:
University & 70th
Counted 04-27-2023 by AB

File Name : Alex B 4-27-23
Site Code : 00000000
Start Date : 4/27/2023
Page No : 2

Groups Printed- Vehicles

	From North					From East					From South					From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
04:00 PM	23	15	39	1	78	33	104	18	3	158	19	8	1	0	28	0	135	20	1	156	420
04:15 PM	19	13	40	0	72	26	92	15	3	136	26	9	0	2	37	4	105	35	1	145	390
04:30 PM	30	13	26	0	69	24	97	14	2	137	16	14	3	1	34	1	121	23	1	146	386
04:45 PM	9	14	24	0	47	14	96	16	1	127	21	7	3	0	31	5	143	21	1	170	375
Total	81	55	129	1	266	97	389	63	9	558	82	38	7	3	130	10	504	99	4	617	1571
05:00 PM	12	8	22	0	42	17	100	9	4	130	24	16	3	1	44	0	135	20	0	155	371
05:15 PM	8	11	24	0	43	24	150	16	1	191	19	16	1	0	36	1	175	17	0	193	463
05:30 PM	20	13	28	0	61	23	72	9	0	104	9	12	3	0	24	0	115	10	1	126	315
05:45 PM	13	13	34	0	60	22	79	14	1	116	22	8	2	0	32	1	108	13	1	123	331
Total	53	45	108	0	206	86	401	48	6	541	74	52	9	1	136	2	533	60	2	597	1480
06:00 PM	4	6	27	1	38	14	79	14	1	108	7	8	0	1	16	1	99	6	0	106	268
06:15 PM	9	8	25	0	42	22	96	9	1	128	13	8	1	1	23	2	111	12	0	125	318
06:30 PM	11	7	23	0	41	15	73	24	1	113	16	8	2	0	26	0	81	11	1	93	273
06:45 PM	12	9	26	1	48	18	100	21	1	140	14	6	2	0	22	2	88	11	0	101	311
Total	36	30	101	2	169	69	348	68	4	489	50	30	5	2	87	5	379	40	1	425	1170
Grand Total	609	477	950	11	2047	839	3830	663	74	5406	614	323	83	18	1038	57	4044	541	56	4698	13189
Apprch %	29.8	23.3	46.4	0.5		15.5	70.8	12.3	1.4		59.2	31.1	8	1.7		1.2	86.1	11.5	1.2		
Total %	4.6	3.6	7.2	0.1	15.5	6.4	29	5	0.6	41	4.7	2.4	0.6	0.1	7.9	0.4	30.7	4.1	0.4	35.6	

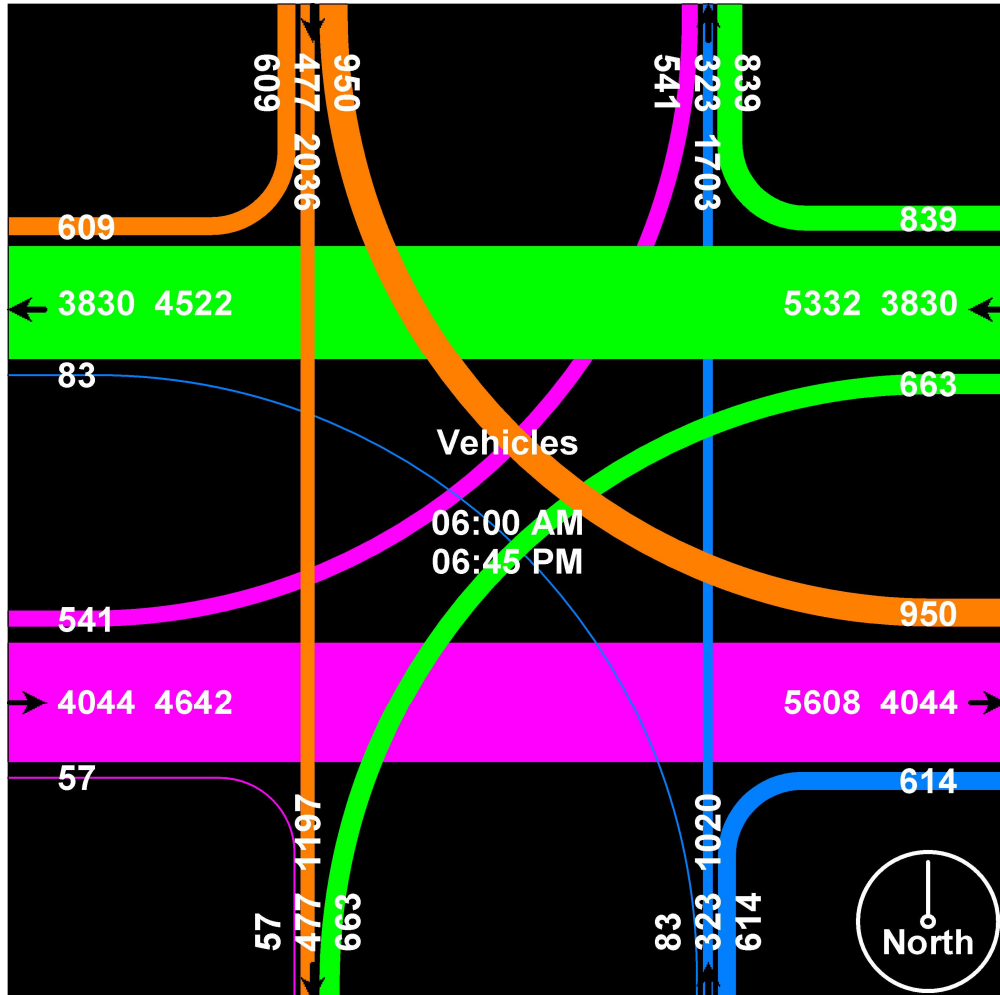


PELDS DESIGN SERVICES

2323 Dixon Street
Des Moines, IA 50316

22-201
Intersection of:
University & 70th
Counted 04-27-2023 by AB

File Name : Alex B 4-27-23
Site Code : 00000000
Start Date : 4/27/2023
Page No : 3



PELDS DESIGN SERVICES

2323 Dixon Street
Des Moines, IA 50316

22-201

Intersection of:

HyVee & 70th St

Counted 04-25-23 by AP

File Name : Aleks P 4-25-23

Site Code : 00001001

Start Date : 4/25/2023

Page No : 1

Groups Printed- Vehicles

	From North					From East					From South					From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
06:45 AM	0	12	0	0	12	0	0	1	0	1	0	10	2	0	12	2	0	0	0	2	27
Total	0	12	0	0	12	0	0	1	0	1	0	10	2	0	12	2	0	0	0	2	27
07:00 AM	2	10	0	0	12	0	0	0	0	0	0	3	2	0	5	2	0	1	0	3	20
07:15 AM	5	14	0	0	19	0	0	0	0	0	0	5	4	0	9	3	1	2	0	6	34
07:30 AM	0	27	0	0	27	0	0	1	0	1	0	11	13	0	24	7	0	0	0	7	59
07:45 AM	2	36	0	0	38	0	0	0	0	0	0	12	4	0	16	3	0	1	0	4	58
Total	9	87	0	0	96	0	0	1	0	1	0	31	23	0	54	15	1	4	0	20	171
08:00 AM	2	37	0	0	39	0	0	0	0	0	0	12	3	0	15	5	0	5	0	10	64
08:15 AM	3	39	0	0	42	0	0	0	0	0	0	15	9	0	24	1	0	1	0	2	68
08:30 AM	3	27	1	0	31	0	0	1	0	1	0	17	9	0	26	9	0	5	0	14	72
08:45 AM	7	26	1	0	34	0	0	0	0	0	0	19	6	0	25	9	0	3	0	12	71
Total	15	129	2	0	146	0	0	1	0	1	0	63	27	0	90	24	0	14	0	38	275
09:00 AM	7	27	0	0	34	0	0	0	0	0	0	11	7	0	18	10	0	6	0	16	68
09:15 AM	5	24	0	0	29	0	0	2	0	2	0	18	10	0	28	13	0	5	0	18	77
09:30 AM	8	20	0	0	28	0	0	0	0	0	0	14	7	0	21	10	0	4	0	14	63
09:45 AM	10	14	0	0	24	1	0	0	0	1	0	17	9	0	26	4	0	7	0	11	62
Total	30	85	0	0	115	1	0	2	0	3	0	60	33	0	93	37	0	22	0	59	270
10:00 AM	3	22	3	0	28	1	0	1	0	2	0	5	2	0	7	5	0	9	0	14	51
10:15 AM	10	28	0	0	38	1	0	3	0	4	1	19	12	0	32	2	0	4	0	6	80
10:30 AM	10	18	2	0	30	0	0	0	0	0	1	22	8	0	31	10	0	8	0	18	79
10:45 AM	6	22	0	0	28	0	0	0	0	0	0	18	8	0	26	14	0	9	0	23	77
Total	29	90	5	0	124	2	0	4	0	6	2	64	30	0	96	31	0	30	0	61	287
11:00 AM	6	25	0	0	31	0	0	1	0	1	0	15	8	0	23	10	0	6	0	16	71
11:15 AM	7	25	0	0	32	0	0	1	0	1	0	23	14	0	37	13	1	4	0	18	88
11:30 AM	5	30	0	0	35	1	0	1	0	2	0	19	12	0	31	13	1	10	0	24	92
11:45 AM	7	29	0	0	36	0	0	0	0	0	0	20	10	0	30	14	0	8	0	22	88
Total	25	109	0	0	134	1	0	3	0	4	0	77	44	0	121	50	2	28	0	80	339
12:00 PM	7	18	1	0	26	0	0	2	0	2	0	21	13	0	34	16	0	11	0	27	89
12:15 PM	15	22	2	0	39	0	0	1	0	1	1	31	20	0	52	15	0	13	0	28	120
12:30 PM	6	24	1	0	31	0	0	2	0	2	0	35	13	0	48	18	0	10	0	28	109
12:45 PM	10	28	0	0	38	0	0	1	0	1	0	23	19	0	42	15	0	15	0	30	111
Total	38	92	4	0	134	0	0	6	0	6	1	110	65	0	176	64	0	49	0	113	429
01:00 PM	8	23	2	0	33	0	0	0	0	0	0	31	14	0	45	29	0	17	0	46	124
01:15 PM	6	30	2	0	38	2	0	2	0	4	2	28	17	0	47	15	0	12	0	27	116
01:30 PM	9	26	3	0	38	2	0	2	0	4	0	29	10	0	39	13	0	16	0	29	110
01:45 PM	13	30	0	0	43	2	0	3	0	5	2	23	10	0	35	19	0	13	0	32	115
Total	36	109	7	0	152	6	0	7	0	13	4	111	51	0	166	76	0	58	0	134	465
02:00 PM	8	40	1	0	49	2	0	0	0	2	0	27	16	0	43	18	0	9	0	27	121
02:15 PM	8	23	1	0	32	0	0	1	0	1	1	18	11	0	30	12	0	6	0	18	81
*** BREAK ***																					
02:45 PM	6	16	0	0	22	0	0	0	0	0	0	23	10	0	33	16	0	7	0	23	78
Total	22	79	2	0	103	2	0	1	0	3	1	68	37	0	106	46	0	22	0	68	280
03:00 PM	2	28	0	0	30	0	0	2	0	2	0	16	20	0	36	24	0	15	0	39	107
03:15 PM	8	24	0	0	32	1	0	1	0	2	0	33	15	0	48	18	0	15	0	33	115
03:30 PM	8	31	1	0	40	0	0	2	0	2	0	43	6	0	49	11	0	12	0	23	114
03:45 PM	4	52	0	0	56	1	0	3	0	4	0	50	17	0	67	18	0	15	0	33	160
Total	22	135	1	0	158	2	0	8	0	10	0	142	58	0	200	71	0	57	0	128	496
04:00 PM	14	46	0	0	60	1	0	1	0	2	2	48	12	0	62	22	0	21	0	43	167
04:15 PM	13	30	0	0	43	0	0	3	0	3	0	39	20	0	59	16	0	15	0	31	136
04:30 PM	10	39	0	0	49	0	1	2	0	3	0	42	24	0	66	29	0	17	0	46	164

PELDS DESIGN SERVICES

2323 Dixon Street
Des Moines, IA 50316

22-201

Intersection of:

HyVee & 70th St

Counted 04-25-23 by AP

File Name : Aleks P 4-25-23

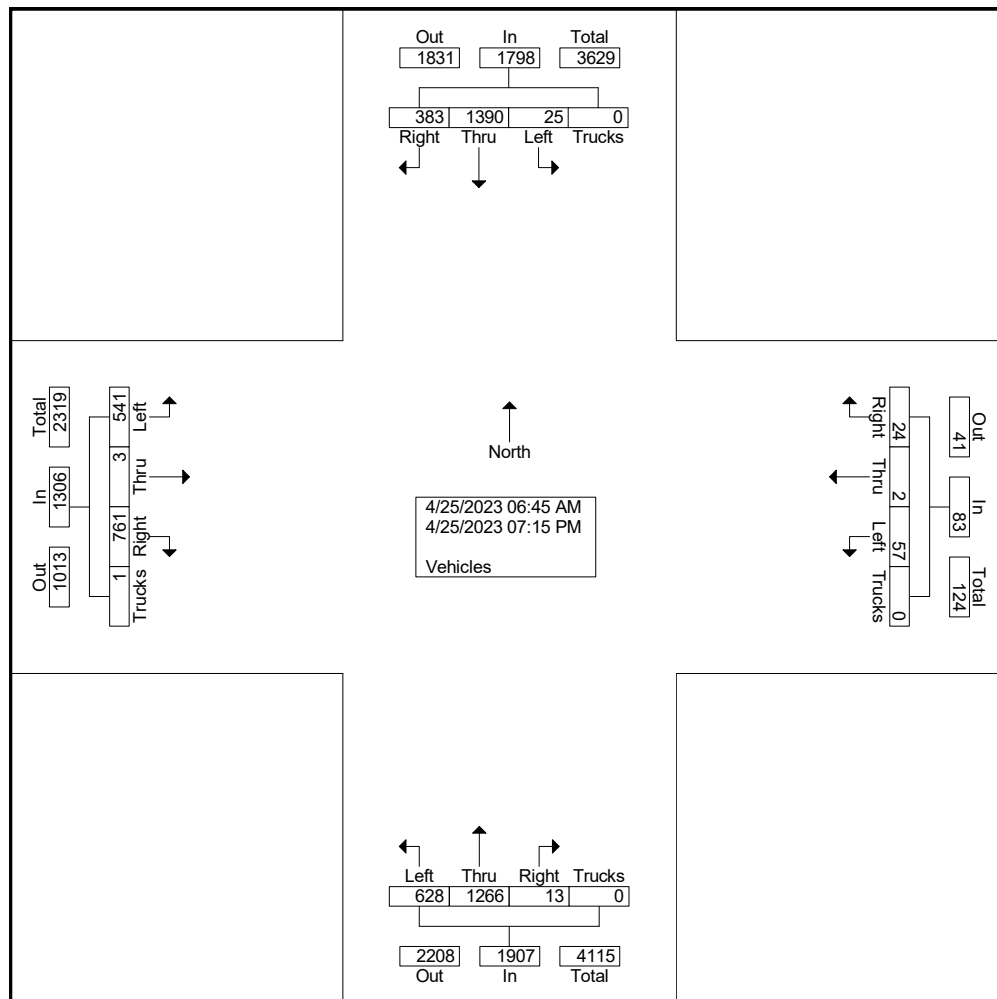
Site Code : 00001001

Start Date : 4/25/2023

Page No : 2

Groups Printed- Vehicles

	From North					From East					From South					From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
04:45 PM	15	38	1	0	54	0	1	4	0	5	0	42	21	0	63	29	0	22	0	51	173
Total	52	153	1	0	206	1	2	10	0	13	2	171	77	0	250	96	0	75	0	171	640
05:00 PM	12	35	0	0	47	0	0	1	0	1	0	46	20	0	66	37	0	21	0	58	172
05:15 PM	18	40	0	0	58	2	0	4	0	6	1	49	22	0	72	26	0	12	1	39	175
05:30 PM	18	39	1	0	58	2	0	3	0	5	2	38	21	0	61	31	0	29	0	60	184
05:45 PM	11	26	0	0	37	0	0	1	0	1	0	41	22	0	63	31	0	25	0	56	157
Total	59	140	1	0	200	4	0	9	0	13	3	174	85	0	262	125	0	87	1	213	688
06:00 PM	9	35	1	0	45	2	0	1	0	3	0	43	17	0	60	22	0	18	0	40	148
06:15 PM	5	35	0	0	40	0	0	0	0	0	0	23	17	0	40	26	0	14	0	40	120
06:30 PM	8	35	1	0	44	2	0	1	0	3	0	25	16	0	41	17	0	17	0	34	122
06:45 PM	11	26	0	0	37	1	0	1	0	2	0	38	22	0	60	24	0	15	0	39	138
Total	33	131	2	0	166	5	0	3	0	8	0	129	72	0	201	89	0	64	0	153	528
07:00 PM	6	16	0	0	22	0	0	0	0	0	0	31	11	0	42	24	0	17	0	41	105
07:15 PM	7	23	0	0	30	0	0	1	0	1	0	25	13	0	38	11	0	14	0	25	94
Grand Total	383	1390	25	0	1798	24	2	57	0	83	13	1266	628	0	1907	761	3	541	1	1306	5094
Apprch %	21.3	77.3	1.4	0		28.9	2.4	68.7	0		0.7	66.4	32.9	0		58.3	0.2	41.4	0.1		
Total %	7.5	27.3	0.5	0	35.3	0.5	0	1.1	0	1.6	0.3	24.9	12.3	0	37.4	14.9	0.1	10.6	0	25.6	

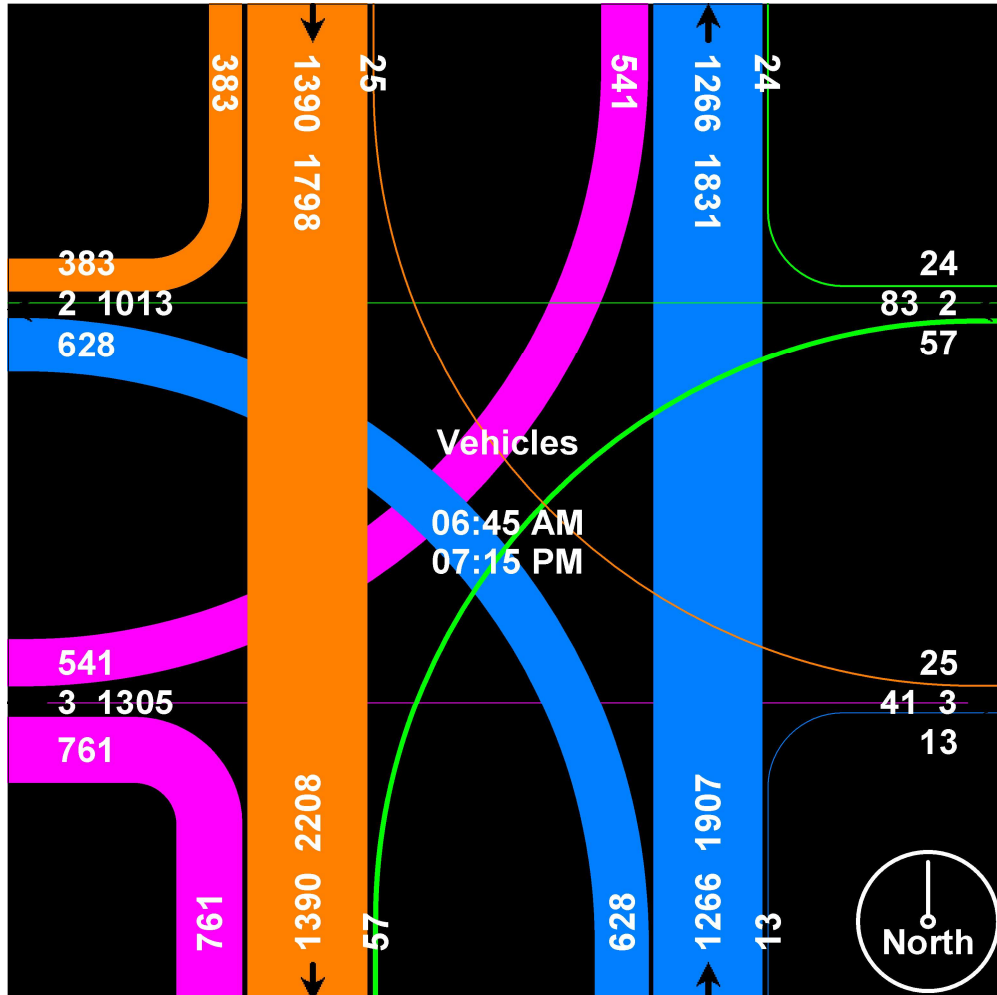


PELDS DESIGN SERVICES

2323 Dixon Street
Des Moines, IA 50316

22-201
Intersection of:
HyVee & 70th St
Counted 04-25-23 by AP

File Name : Aleks P 4-25-23
Site Code : 00001001
Start Date : 4/25/2023
Page No : 3



PELDS DESIGN SERVICES

2323 Dixon Street
Des Moines, IA 50316

22-201

Intersection of:

Hy-Vee & 70th St

Counted 04-27-23 by AP

File Name : Aleks P 4-27-23

Site Code : 00001002

Start Date : 4/27/2023

Page No : 1

Groups Printed- Vehicles

Start Time	From North					From East					From South					From West					Int. Total
	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	
06:30 AM	0	9	0	0	9	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	14
06:45 AM	1	12	0	0	13	0	0	0	0	0	0	5	2	0	7	2	0	2	0	4	24
Total	1	21	0	0	22	0	0	0	0	0	0	8	4	0	12	2	0	2	0	4	38
07:00 AM	3	9	0	0	12	0	0	0	0	0	0	5	0	0	5	4	0	1	0	5	22
07:15 AM	4	24	0	0	28	0	0	0	0	0	0	4	7	0	11	1	1	0	0	2	41
07:30 AM	3	17	0	0	20	0	0	1	0	1	0	9	4	0	13	3	0	1	0	4	38
07:45 AM	4	23	0	0	27	1	0	0	0	1	0	13	12	0	25	1	0	2	0	3	56
Total	14	73	0	0	87	1	0	1	0	2	0	31	23	0	54	9	1	4	0	14	157
08:00 AM	2	38	0	0	40	1	0	0	0	1	0	20	6	0	26	8	0	5	0	13	80
08:15 AM	5	47	1	0	53	0	0	1	0	1	0	19	5	0	24	3	0	1	0	4	82
08:30 AM	4	44	0	0	48	0	0	0	0	0	0	14	10	0	24	3	0	5	0	8	80
08:45 AM	11	31	1	0	43	1	0	0	0	1	1	14	9	0	24	5	0	4	0	9	77
Total	22	160	2	0	184	2	0	1	0	3	1	67	30	0	98	19	0	15	0	34	319
09:00 AM	8	26	0	0	34	0	0	1	0	1	0	19	7	0	26	9	0	3	0	12	73
09:15 AM	10	31	0	0	41	1	0	1	0	2	0	15	16	0	31	4	0	6	0	10	84
09:30 AM	8	26	2	0	36	1	0	0	0	1	2	17	7	0	26	6	0	8	0	14	77
09:45 AM	3	30	0	0	33	0	0	1	0	1	0	14	12	0	26	8	0	9	0	17	77
Total	29	113	2	0	144	2	0	3	0	5	2	65	42	0	109	27	0	26	0	53	311
10:00 AM	9	24	1	0	34	2	1	1	0	4	0	16	14	0	30	10	0	7	0	17	85
10:15 AM	5	24	1	0	30	1	0	1	0	2	0	12	8	0	20	13	1	8	0	22	74
10:30 AM	7	28	0	0	35	1	0	3	0	4	0	19	12	0	31	8	1	8	0	17	87
10:45 AM	7	31	0	0	38	1	0	2	0	3	1	21	10	0	32	9	0	7	0	16	89
Total	28	107	2	0	137	5	1	7	0	13	1	68	44	0	113	40	2	30	0	72	335
11:00 AM	8	20	0	0	28	1	0	1	0	2	0	29	7	0	36	11	0	11	0	22	88
11:15 AM	1	9	0	0	10	3	0	0	0	3	0	4	3	0	7	7	0	3	0	10	30
11:30 AM	7	25	0	0	32	1	0	0	0	1	2	26	15	0	43	12	0	13	0	25	101
11:45 AM	5	29	0	0	34	2	0	3	0	5	0	18	14	0	32	12	0	9	0	21	92
Total	21	83	0	0	104	7	0	4	0	11	2	77	39	0	118	42	0	36	0	78	311
12:00 PM	11	30	0	0	41	2	0	0	0	2	1	31	8	0	40	22	0	9	0	31	114
12:15 PM	12	33	1	0	46	0	0	0	0	0	0	24	20	0	44	17	0	18	0	35	125
12:30 PM	5	39	1	0	45	0	0	0	0	0	0	35	17	0	52	26	0	20	0	46	143
12:45 PM	6	33	0	0	39	2	0	2	0	4	0	27	8	0	35	17	0	9	0	26	104
Total	34	135	2	0	171	4	0	2	0	6	1	117	53	0	171	82	0	56	0	138	486
01:00 PM	7	31	0	0	38	0	0	1	0	1	0	37	19	0	56	10	0	12	0	22	117
01:15 PM	4	34	0	0	38	2	0	1	0	3	0	26	15	0	41	20	0	11	0	31	113
01:30 PM	13	29	1	0	43	0	1	0	0	1	0	24	11	0	35	11	0	10	0	21	100
01:45 PM	8	30	2	0	40	0	0	1	0	1	0	34	16	0	50	16	0	12	0	28	119
Total	32	124	3	0	159	2	1	3	0	6	0	121	61	0	182	57	0	45	0	102	449
02:00 PM	8	39	1	0	48	2	0	3	0	5	1	35	12	0	48	15	0	11	0	26	127
02:15 PM	9	25	0	0	34	0	0	0	0	0	0	26	20	0	46	16	0	16	0	32	112
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	2
02:45 PM	0	28	15	0	43	24	0	7	0	31	8	24	0	0	32	1	1	3	0	5	111
Total	17	92	16	0	125	26	0	10	0	36	9	85	32	0	126	33	1	31	0	65	352
03:00 PM	1	29	13	0	43	18	0	11	0	29	7	28	1	0	36	2	0	4	0	6	114
03:15 PM	4	27	0	0	31	0	0	2	0	2	0	30	28	0	58	19	0	17	0	36	127
03:30 PM	5	29	1	0	35	2	0	4	0	6	0	32	11	0	43	20	0	8	0	28	112
03:45 PM	12	32	2	0	46	3	0	2	0	5	1	46	20	0	67	18	0	18	0	36	154
Total	22	117	16	0	155	23	0	19	0	42	8	136	60	0	204	59	0	47	0	106	507
04:00 PM	11	33	1	0	45	0	0	4	0	4	0	45	14	0	59	16	0	15	0	31	139
04:15 PM	7	40	0	0	47	2	0	3	0	5	0	41	18	0	59	13	0	16	0	29	140

PELDS DESIGN SERVICES

2323 Dixon Street
Des Moines, IA 50316

22-201

Intersection of:

Hy-Vee & 70th St

Counted 04-27-23 by AP

File Name : Aleks P 4-27-23

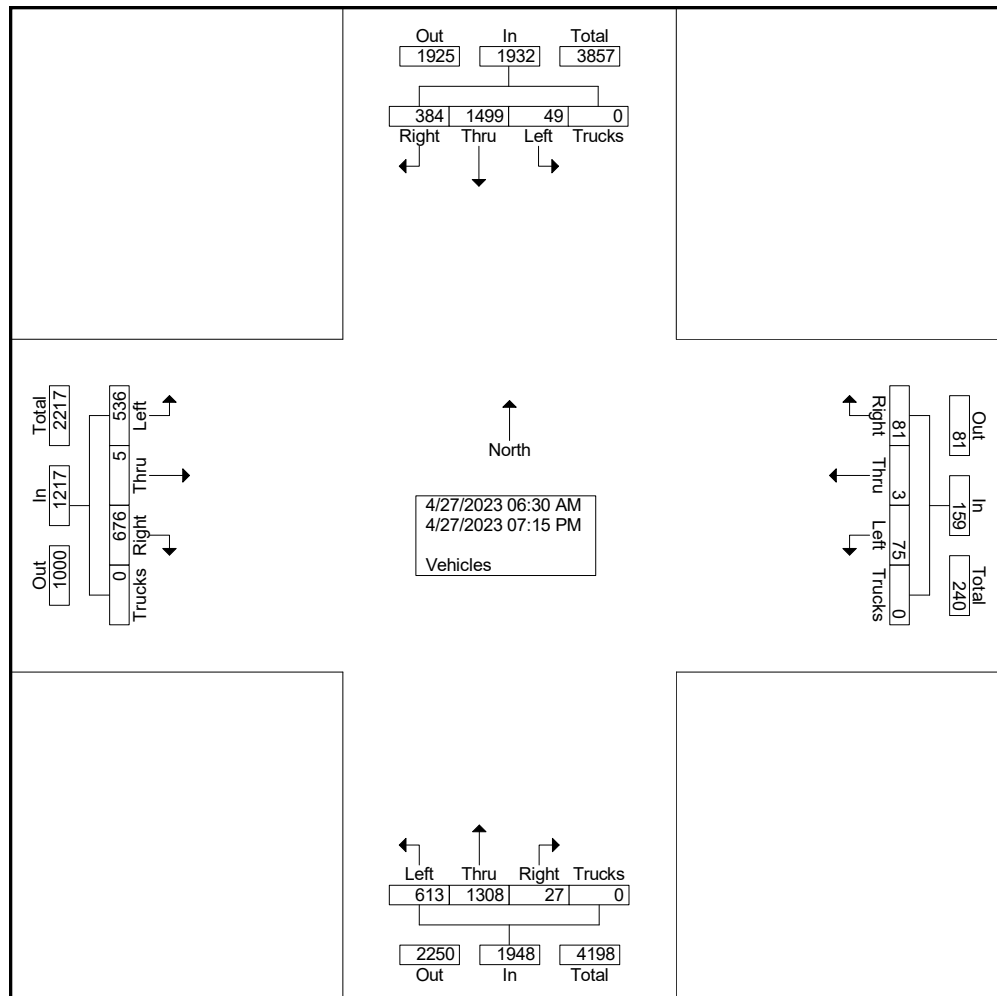
Site Code : 00001002

Start Date : 4/27/2023

Page No : 2

Groups Printed- Vehicles

	From North					From East					From South					From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
04:30 PM	23	51	2	0	76	0	0	3	0	3	1	53	23	0	77	26	0	18	0	44	200
04:45 PM	12	45	0	0	57	1	0	1	0	2	0	49	23	0	72	32	0	20	0	52	183
Total	53	169	3	0	225	3	0	11	0	14	1	188	78	0	267	87	0	69	0	156	662
05:00 PM	12	45	1	0	58	2	0	1	0	3	0	54	12	0	66	22	0	24	0	46	173
05:15 PM	14	24	0	0	38	1	1	1	0	3	0	40	12	0	52	22	0	20	0	42	135
05:30 PM	11	34	0	0	45	0	0	1	0	1	0	40	14	0	54	18	0	15	0	33	133
05:45 PM	16	34	0	0	50	1	0	1	0	2	0	45	24	0	69	21	0	24	0	45	166
Total	53	137	1	0	191	4	1	4	0	9	0	179	62	0	241	83	0	83	0	166	607
06:00 PM	8	43	1	0	52	0	0	3	0	3	0	43	11	0	54	26	0	16	0	42	151
06:15 PM	11	29	0	0	40	1	0	0	0	1	1	31	18	0	50	21	1	19	0	41	132
06:30 PM	9	28	0	0	37	0	0	1	0	1	0	24	13	0	37	23	0	18	0	41	116
06:45 PM	9	27	1	0	37	0	0	2	0	2	0	23	20	0	43	21	0	16	0	37	119
Total	37	127	2	0	166	1	0	6	0	7	1	121	62	0	184	91	1	69	0	161	518
07:00 PM	12	17	0	0	29	0	0	3	0	3	0	23	7	0	30	20	0	15	0	35	97
07:15 PM	9	24	0	0	33	1	0	1	0	2	1	22	16	0	39	25	0	8	0	33	107
Grand Total	384	1499	49	0	1932	81	3	75	0	159	27	1308	613	0	1948	676	5	536	0	1217	5256
Apprch %	19.9	77.6	2.5	0		50.9	1.9	47.2	0		1.4	67.1	31.5	0		55.5	0.4	44	0		
Total %	7.3	28.5	0.9	0	36.8	1.5	0.1	1.4	0	3	0.5	24.9	11.7	0	37.1	12.9	0.1	10.2	0	23.2	

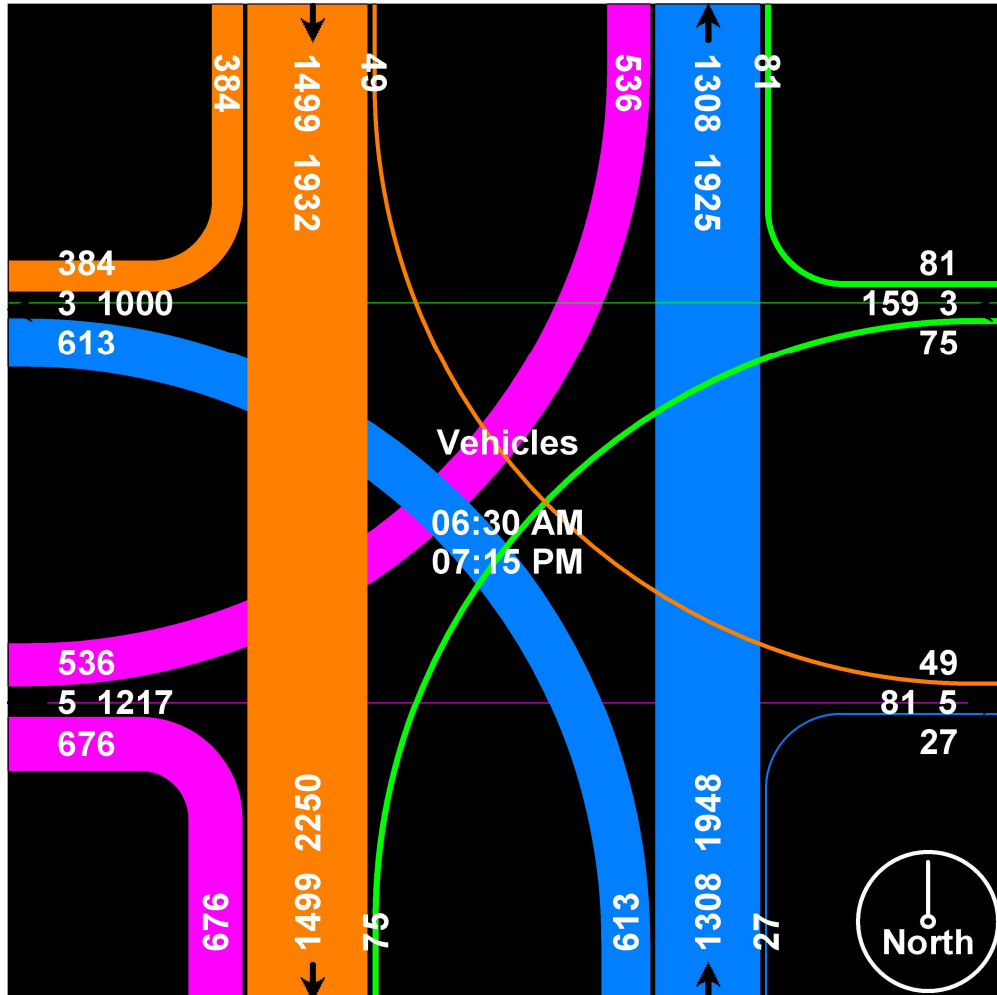


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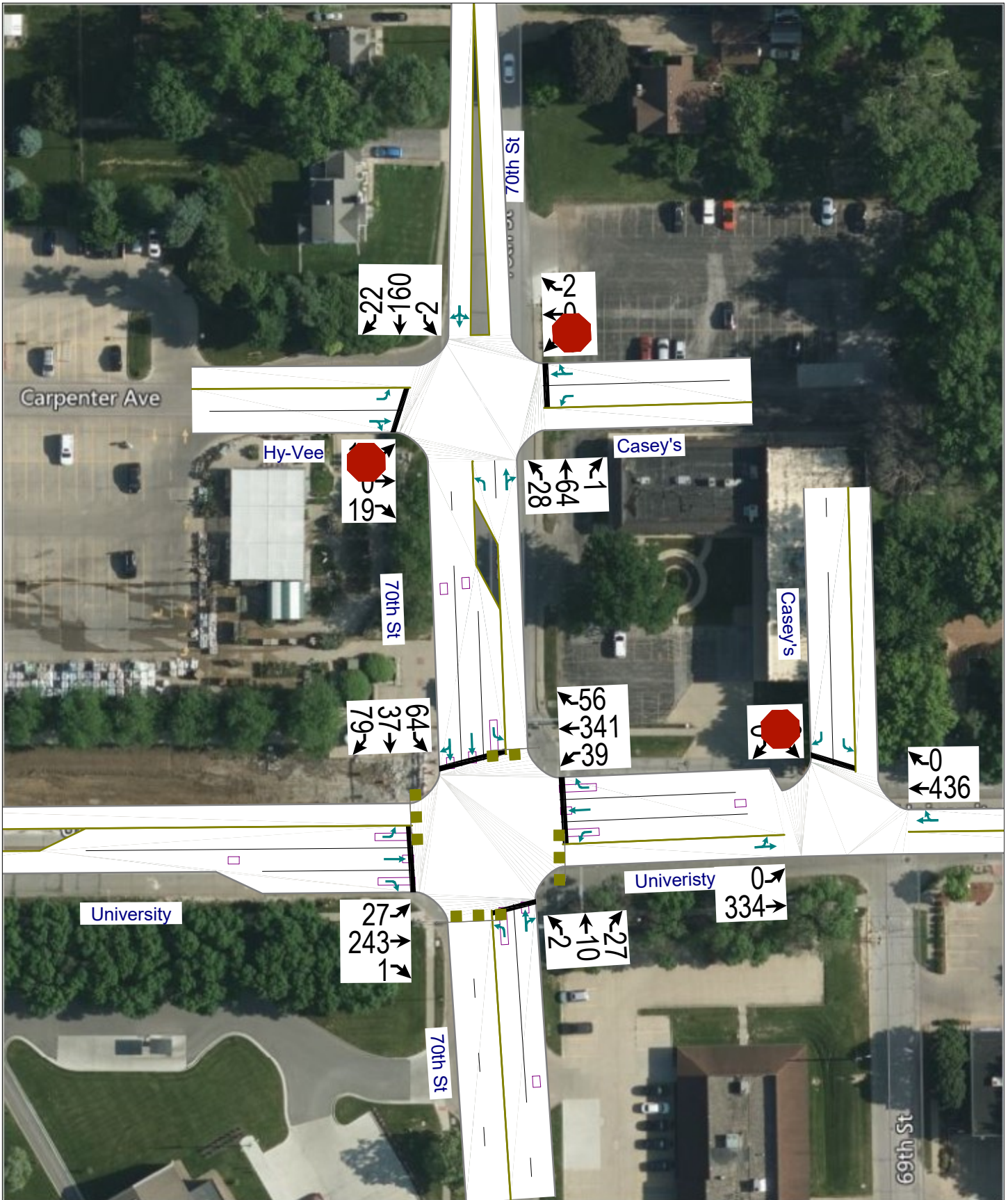
2323 Dixon Street
Des Moines, IA 50316

22-201
Intersection of:
Hy-Vee & 70th St
Counted 04-27-23 by AP

File Name : Aleks P 4-27-23
Site Code : 00001002
Start Date : 4/27/2023
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Appendix B – Syncro Report and Maps



HCM Signalized Intersection Capacity Analysis

1: 70th St & University/Univeristy

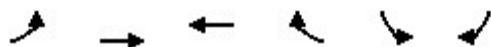
05/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	243	1	39	341	56	2	10	27	64	37	79
Future Volume (vph)	27	243	1	39	341	56	2	10	27	64	37	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.89		1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1660		1770	3177	
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.35	1.00	
Satd. Flow (perm)	1863	1863	1583	1863	1863	1583	1863	1660		648	3177	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	264	1	42	371	61	2	11	29	70	40	86
RTOR Reduction (vph)	0	0	1	0	0	44	0	19	0	0	48	0
Lane Group Flow (vph)	29	264	0	42	371	17	2	21	0	70	78	0
Turn Type	custom	NA	Perm	custom	NA	Perm	custom	NA		custom	NA	
Protected Phases		4			8			2			6	
Permitted Phases	7		4	3		8	5			1		
Actuated Green, G (s)	2.6	23.7	23.7	3.9	25.0	25.0	1.3	29.9		11.5	40.1	
Effective Green, g (s)	2.6	23.7	23.7	3.9	25.0	25.0	1.3	29.9		11.5	40.1	
Actuated g/C Ratio	0.03	0.26	0.26	0.04	0.28	0.28	0.01	0.33		0.13	0.45	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	53	490	416	80	517	439	26	551		82	1415	
v/s Ratio Prot		0.14			c0.20			0.01			c0.02	
v/s Ratio Perm	0.02		0.00	c0.02		0.01	0.00			c0.11		
v/c Ratio	0.55	0.54	0.00	0.53	0.72	0.04	0.08	0.04		0.85	0.06	
Uniform Delay, d1	43.1	28.5	24.4	42.1	29.3	23.7	43.8	20.3		38.4	14.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.1	1.1	0.0	6.1	4.7	0.0	1.3	0.1		53.6	0.1	
Delay (s)	54.2	29.6	24.4	48.2	34.0	23.8	45.0	20.4		92.1	14.3	
Level of Service	D	C	C	D	C	C	D	C		F	B	
Approach Delay (s)		32.0			34.0			21.6			42.0	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			34.5									
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			46.9%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Univeristy/University & Casey's

05/05/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	334	436	0	0	0
Future Volume (Veh/h)	0	334	436	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	363	474	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)		188				
pX, platoon unblocked					0.85	
vC, conflicting volume	474				837	474
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	474				722	474
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1088				335	590
Direction, Lane #	EB 1	WB 1	SB 1	SB 2		
Volume Total	363	474	0	0		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	1088	1700	1700	1700		
Volume to Capacity	0.00	0.28	0.00	0.00		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS			A	A		
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			26.3%		ICU Level of Service	
Analysis Period (min)			15			
			A			

HCM Unsignalized Intersection Capacity Analysis

6: 70th St & Hy-Vee/Casey's

05/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	19	1	0	2	28	64	1	2	160	22
Future Volume (Veh/h)	15	0	19	1	0	2	28	64	1	2	160	22
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	0	21	1	0	2	30	70	1	2	174	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	322	321	186	342	332	70	198				71	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	322	321	186	342	332	70	198				71	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	97	100	98	100	100	100	98				100	
cM capacity (veh/h)	619	582	856	587	574	992	1375				1529	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1					
Volume Total	16	21	1	2	30	71	200					
Volume Left	16	0	1	0	30	0	2					
Volume Right	0	21	0	2	0	1	24					
cSH	619	856	587	992	1375	1700	1529					
Volume to Capacity	0.03	0.02	0.00	0.00	0.02	0.04	0.00					
Queue Length 95th (ft)	2	2	0	0	2	0	0					
Control Delay (s)	11.0	9.3	11.1	8.6	7.7	0.0	0.1					
Lane LOS	B	A	B	A	A		A					
Approach Delay (s)	10.0		9.5		2.3		0.1					
Approach LOS	B		A									
Intersection Summary												
Average Delay	1.9											
Intersection Capacity Utilization	30.8%			ICU Level of Service					A			
Analysis Period (min)	15											

Summary of All Intervals

Start Time	7:20
End Time	8:30
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	1004
Vehs Exited	1007
Starting Vehs	11
Ending Vehs	8
Travel Distance (mi)	135
Travel Time (hr)	12.9
Total Delay (hr)	7.4
Total Stops	742
Fuel Used (gal)	8.2

Interval #0 Information Seeding

Start Time	7:20
End Time	7:30
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:30
End Time	8:30
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	1004
Vehs Exited	1007
Starting Vehs	11
Ending Vehs	8
Travel Distance (mi)	135
Travel Time (hr)	12.9
Total Delay (hr)	7.4
Total Stops	742
Fuel Used (gal)	8.2

1: 70th St & University/Univeristy Performance by movement

2: Univeristy/University & Casey's Performance by movement

6: 70th St & Hy-Vee/Casey's Performance by movement

Total Network Performance

Intersection: 1: 70th St & University/Univeristy

Movement	EB	EB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	L	T	R	TR	L	T	TR
Maximum Queue (ft)	72	226	74	139	119	48	95	133	113
Average Queue (ft)	27	140	36	119	28	16	42	19	20
95th Queue (ft)	55	232	72	136	86	40	80	60	59
Link Distance (ft)		302	119	119		151		155	155
Upstream Blk Time (%)				21	0				
Queuing Penalty (veh)				45	0				
Storage Bay Dist (ft)	175				120		75		
Storage Blk Time (%)		20		21	0		3		
Queuing Penalty (veh)		6		11	0		1		

Intersection: 2: Univeristy/University & Casey's

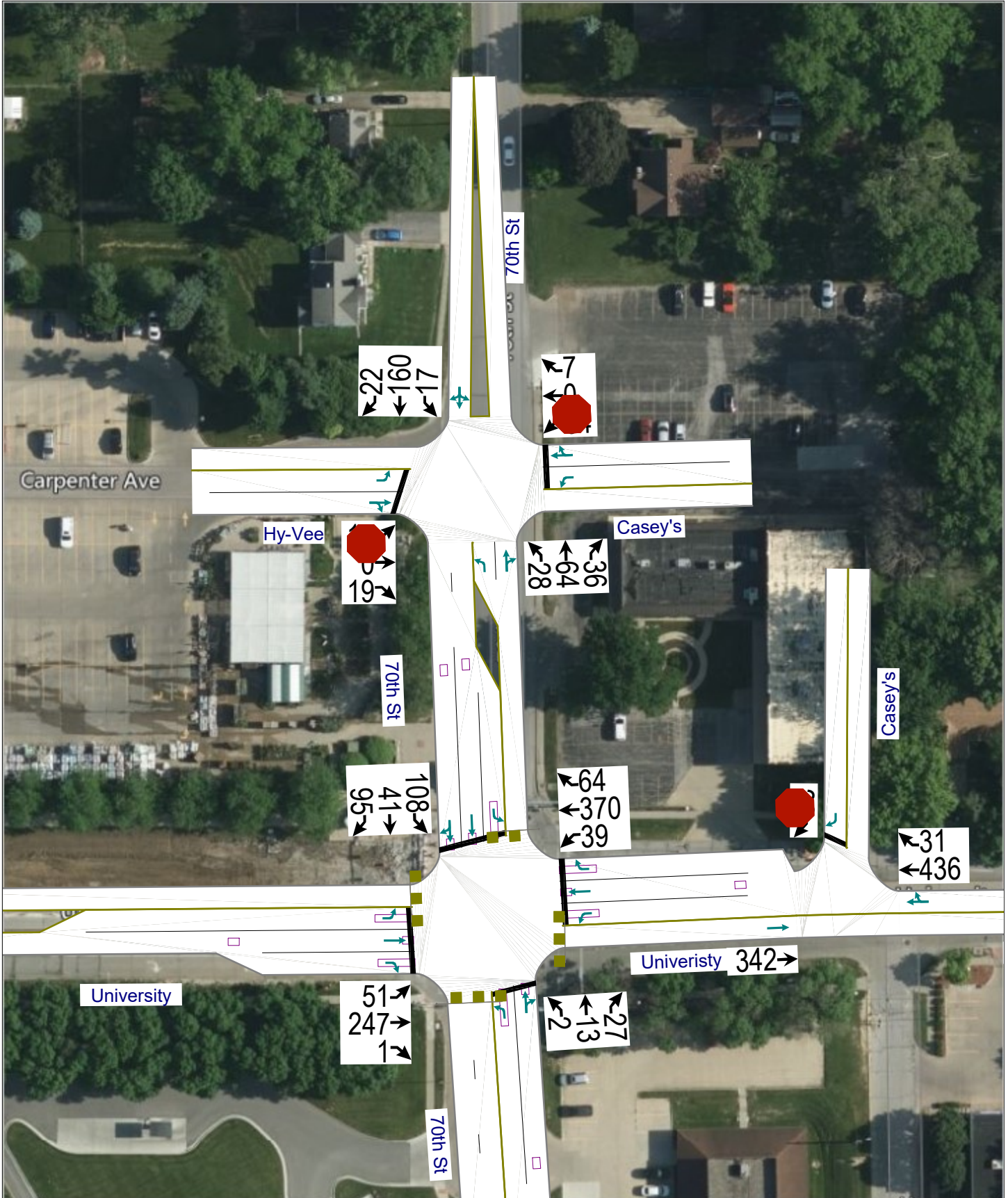
Movement	WB
Directions Served	TR
Maximum Queue (ft)	195
Average Queue (ft)	93
95th Queue (ft)	193
Link Distance (ft)	161
Upstream Blk Time (%)	4
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: 70th St & Hy-Vee/Casey's

Movement	EB	EB	WB	NB
Directions Served	L	TR	TR	L
Maximum Queue (ft)	25	29	30	31
Average Queue (ft)	9	18	2	4
95th Queue (ft)	28	41	14	21
Link Distance (ft)	109	109	111	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			20	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Network Summary

Network wide Queuing Penalty: 63



HCM Signalized Intersection Capacity Analysis

1: 70th St & University/Univeristy

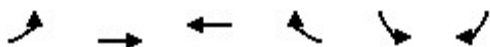
09/26/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	247	1	39	370	64	2	13	27	108	41	95
Future Volume (vph)	51	247	1	39	370	64	2	13	27	108	41	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1674		1770	3170	
Flt Permitted	0.77	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.22	1.00	
Satd. Flow (perm)	1433	1863	1583	1863	1863	1583	1863	1674		409	3170	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	268	1	42	402	70	2	14	29	117	45	103
RTOR Reduction (vph)	0	0	1	0	0	49	0	23	0	0	62	0
Lane Group Flow (vph)	55	268	0	42	402	21	2	20	0	117	86	0
Turn Type	custom	NA	Perm	custom	NA	Perm	custom	NA		custom	NA	
Protected Phases		4			8			2			6	
Permitted Phases	7		4	3		8	5			1		
Actuated Green, G (s)	5.2	27.7	27.7	3.9	26.4	26.4	1.3	19.2		18.2	36.1	
Effective Green, g (s)	5.2	27.7	27.7	3.9	26.4	26.4	1.3	19.2		18.2	36.1	
Actuated g/C Ratio	0.06	0.31	0.31	0.04	0.29	0.29	0.01	0.21		0.20	0.40	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	82	573	487	80	546	464	26	357		82	1271	
v/s Ratio Prot		0.14			c0.22			0.01			c0.03	
v/s Ratio Perm	c0.04		0.00	0.02		0.01	0.00			c0.29		
v/c Ratio	0.67	0.47	0.00	0.53	0.74	0.04	0.08	0.06		1.43	0.07	
Uniform Delay, d1	41.6	25.2	21.6	42.1	28.7	22.8	43.8	28.2		35.9	16.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.4	0.6	0.0	6.1	5.1	0.0	1.3	0.3		248.7	0.1	
Delay (s)	61.0	25.8	21.6	48.2	33.8	22.8	45.0	28.5		284.6	16.7	
Level of Service	E	C	C	D	C	C	D	C		F	B	
Approach Delay (s)		31.8			33.5			29.2			135.0	
Approach LOS		C			C			C			F	
Intersection Summary												
HCM 2000 Control Delay			56.3									
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			90.0							21.0		
Intersection Capacity Utilization			50.9%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Univeristy/University & Casey's

09/26/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Volume (veh/h)	0	342	436	31	0	29
Future Volume (Veh/h)	0	342	436	31	0	29
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	372	474	34	0	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		188				
pX, platoon unblocked					0.85	
vC, conflicting volume	508				863	491
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	508				746	491
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	94
cM capacity (veh/h)	1057				322	578
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	372	508	32			
Volume Left	0	0	0			
Volume Right	0	34	32			
cSH	1700	1700	578			
Volume to Capacity	0.22	0.30	0.06			
Queue Length 95th (ft)	0	0	4			
Control Delay (s)	0.0	0.0	11.6			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	11.6			
Approach LOS			B			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			34.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

6: 70th St & Hy-Vee/Casey's

09/26/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	19	64	0	7	28	64	36	17	160	22
Future Volume (Veh/h)	15	0	19	64	0	7	28	64	36	17	160	22
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	0	21	70	0	8	30	70	39	18	174	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	360	391	186	392	384	90	198				109	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	360	391	186	392	384	90	198				109	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	97	100	98	87	100	99	98				99	
cM capacity (veh/h)	575	526	856	539	531	968	1375				1481	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1					
Volume Total	16	21	70	8	30	109	216					
Volume Left	16	0	70	0	30	0	18					
Volume Right	0	21	0	8	0	39	24					
cSH	575	856	539	968	1375	1700	1481					
Volume to Capacity	0.03	0.02	0.13	0.01	0.02	0.06	0.01					
Queue Length 95th (ft)	2	2	11	1	2	0	1					
Control Delay (s)	11.4	9.3	12.7	8.7	7.7	0.0	0.7					
Lane LOS	B	A	B	A	A		A					
Approach Delay (s)	10.2		12.3		1.7		0.7					
Approach LOS	B		B									
Intersection Summary												
Average Delay				3.7								
Intersection Capacity Utilization				34.2%	ICU Level of Service				A			
Analysis Period (min)				15								

Summary of All Intervals

Start Time	7:20
End Time	8:30
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	1176
Vehs Exited	1176
Starting Vehs	13
Ending Vehs	13
Travel Distance (mi)	151
Travel Time (hr)	14.9
Total Delay (hr)	8.5
Total Stops	926
Fuel Used (gal)	9.3

Interval #0 Information Seeding

Start Time	7:20
End Time	7:30
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:30
End Time	8:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	1176
Vehs Exited	1176
Starting Vehs	13
Ending Vehs	13
Travel Distance (mi)	151
Travel Time (hr)	14.9
Total Delay (hr)	8.5
Total Stops	926
Fuel Used (gal)	9.3

1: 70th St & University/Univeristy Performance by movement

2: Univeristy/University & Casey's Performance by movement

6: 70th St & Hy-Vee/Casey's Performance by movement

Total Network Performance

Intersection: 1: 70th St & University/Univeristy

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	T	R	L	TR	L	T	TR
Maximum Queue (ft)	52	302	74	142	125	45	64	99	163	65
Average Queue (ft)	28	118	31	128	41	2	16	74	27	27
95th Queue (ft)	60	225	66	165	116	17	42	105	106	56
Link Distance (ft)		302	126	126		151	151		155	155
Upstream Blk Time (%)		0		19	0				1	
Queuing Penalty (veh)		0		44	0				1	
Storage Bay Dist (ft)	175				120			75		
Storage Blk Time (%)		18		22	0			14	0	
Queuing Penalty (veh)		9		14	1			3	0	

Intersection: 2: Univeristy/University & Casey's

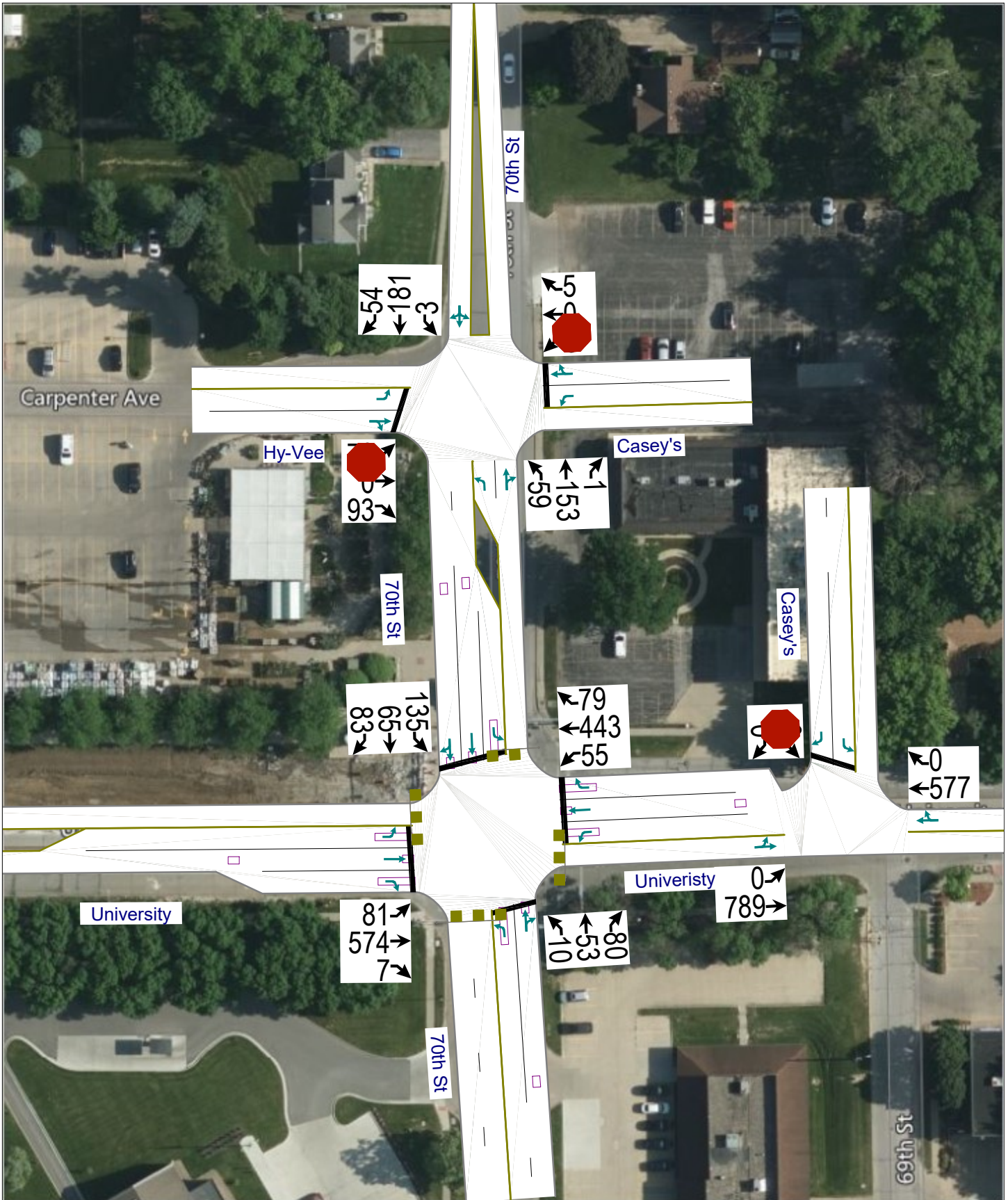
Movement	WB	SB
Directions Served	TR	R
Maximum Queue (ft)	182	72
Average Queue (ft)	85	26
95th Queue (ft)	189	59
Link Distance (ft)	166	145
Upstream Blk Time (%)	3	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: 70th St & Hy-Vee/Casey's

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	L	LTR
Maximum Queue (ft)	45	29	76	30	30	31
Average Queue (ft)	11	17	35	9	4	2
95th Queue (ft)	34	40	57	32	21	15
Link Distance (ft)	109	109	111	111		183
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					20	
Storage Blk Time (%)					0	
Queuing Penalty (veh)					0	

Network Summary

Network wide Queuing Penalty: 72



HCM Signalized Intersection Capacity Analysis

1: 70th St & University/Univeristy

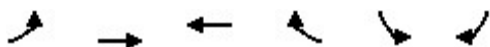
05/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	574	7	55	443	79	10	53	80	135	65	83
Future Volume (vph)	81	574	7	55	443	79	10	53	80	135	65	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1695		1770	3242	
Flt Permitted	0.66	1.00	1.00	0.82	1.00	1.00	1.00	1.00		0.22	1.00	
Satd. Flow (perm)	1221	1863	1583	1521	1863	1583	1863	1695		409	3242	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	624	8	60	482	86	11	58	87	147	71	90
RTOR Reduction (vph)	0	0	5	0	0	50	0	55	0	0	63	0
Lane Group Flow (vph)	88	624	3	60	482	36	11	90	0	147	98	0
Turn Type	custom	NA	Perm	custom	NA	Perm	custom	NA		custom	NA	
Protected Phases		4			8			2			6	
Permitted Phases	7		4	3		8	5			1		
Actuated Green, G (s)	6.1	42.8	42.8	4.9	41.6	41.6	1.3	13.1		18.2	30.0	
Effective Green, g (s)	6.1	42.8	42.8	4.9	41.6	41.6	1.3	13.1		18.2	30.0	
Actuated g/C Ratio	0.06	0.43	0.43	0.05	0.42	0.42	0.01	0.13		0.18	0.30	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	74	797	677	74	775	658	24	222		74	972	
v/s Ratio Prot		c0.33			0.26			c0.05			0.03	
v/s Ratio Perm	c0.07		0.00	0.04		0.02	0.01			c0.36		
v/c Ratio	1.19	0.78	0.01	0.81	0.62	0.05	0.46	0.41		1.99	0.10	
Uniform Delay, d1	47.0	24.6	16.4	47.1	23.0	17.4	49.0	39.9		40.9	25.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	164.3	5.1	0.0	46.8	1.6	0.0	13.2	5.4		488.4	0.2	
Delay (s)	211.3	29.7	16.4	93.9	24.6	17.5	62.2	45.3		529.3	25.5	
Level of Service	F	C	B	F	C	B	E	D		F	C	
Approach Delay (s)		51.7			30.2			46.5			266.0	
Approach LOS		D			C			D			F	
Intersection Summary												
HCM 2000 Control Delay	80.2			HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio	1.04											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			21.0					
Intersection Capacity Utilization	70.2%			ICU Level of Service			C					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Univeristy/University & Casey's

05/05/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	789	577	0	0	0
Future Volume (Veh/h)	0	789	577	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	858	627	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)		188				
pX, platoon unblocked					0.63	
vC, conflicting volume	627				1485	627
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	627				1476	627
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	955				88	484
Direction, Lane #	EB 1	WB 1	SB 1	SB 2		
Volume Total	858	627	0	0		
Volume Left	0	0	0	0		
Volume Right	0	0	0	0		
cSH	955	1700	1700	1700		
Volume to Capacity	0.00	0.37	0.01	0.06		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS			A	A		
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			44.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

6: 70th St & Hy-Vee/Casey's

05/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	0	93	8	0	5	59	153	1	3	181	54
Future Volume (Veh/h)	78	0	93	8	0	5	59	153	1	3	181	54
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	85	0	101	9	0	5	64	166	1	3	197	59
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage veh												
Upstream signal (ft)	236											
pX, platoon unblocked	0.98	0.98		0.98	0.98	0.98				0.98		
vC, conflicting volume	532	528	226	628	556	166	256			167		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	515	511	226	613	540	144	256			144		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	81	100	88	97	100	99	95			100		
cM capacity (veh/h)	442	435	813	335	418	889	1309			1414		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1					
Volume Total	85	101	9	5	64	167	259					
Volume Left	85	0	9	0	64	0	3					
Volume Right	0	101	0	5	0	1	59					
cSH	442	813	335	889	1309	1700	1414					
Volume to Capacity	0.19	0.12	0.03	0.01	0.05	0.10	0.00					
Queue Length 95th (ft)	18	11	2	0	4	0	0					
Control Delay (s)	15.1	10.1	16.0	9.1	7.9	0.0	0.1					
Lane LOS	C	B	C	A	A		A					
Approach Delay (s)	12.4		13.6		2.2		0.1					
Approach LOS	B		B									
Intersection Summary												
Average Delay	4.4											
Intersection Capacity Utilization	42.1%			ICU Level of Service			A					
Analysis Period (min)	15											

Summary of All Intervals

Start Time	4:20
End Time	5:30
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	1880
Vehs Exited	1888
Starting Vehs	35
Ending Vehs	27
Travel Distance (mi)	245
Travel Time (hr)	26.6
Total Delay (hr)	16.2
Total Stops	1429
Fuel Used (gal)	15.8

Interval #0 Information Seeding

Start Time	4:20
End Time	4:30
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	1880
Vehs Exited	1888
Starting Vehs	35
Ending Vehs	27
Travel Distance (mi)	245
Travel Time (hr)	26.6
Total Delay (hr)	16.2
Total Stops	1429
Fuel Used (gal)	15.8

1: 70th St & University/Univeristy Performance by movement

2: Univeristy/University & Casey's Performance by movement

6: 70th St & Hy-Vee/Casey's Performance by movement

Total Network Performance

Intersection: 1: 70th St & University/Univeristy

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	T	TR
Maximum Queue (ft)	200	317	105	118	135	118	45	166	100	177	131
Average Queue (ft)	75	253	13	51	118	34	8	68	90	76	44
95th Queue (ft)	188	348	63	99	134	98	32	148	117	193	98
Link Distance (ft)		302		119	119		151	151		155	155
Upstream Blk Time (%)		6		1	19	0		2		10	
Queuing Penalty (veh)		0		3	56	0		0		15	
Storage Bay Dist (ft)	175		80			120			75		
Storage Blk Time (%)		39	0		19	0			45		
Queuing Penalty (veh)		35	0		15	1			14		

Intersection: 2: Univeristy/University & Casey's

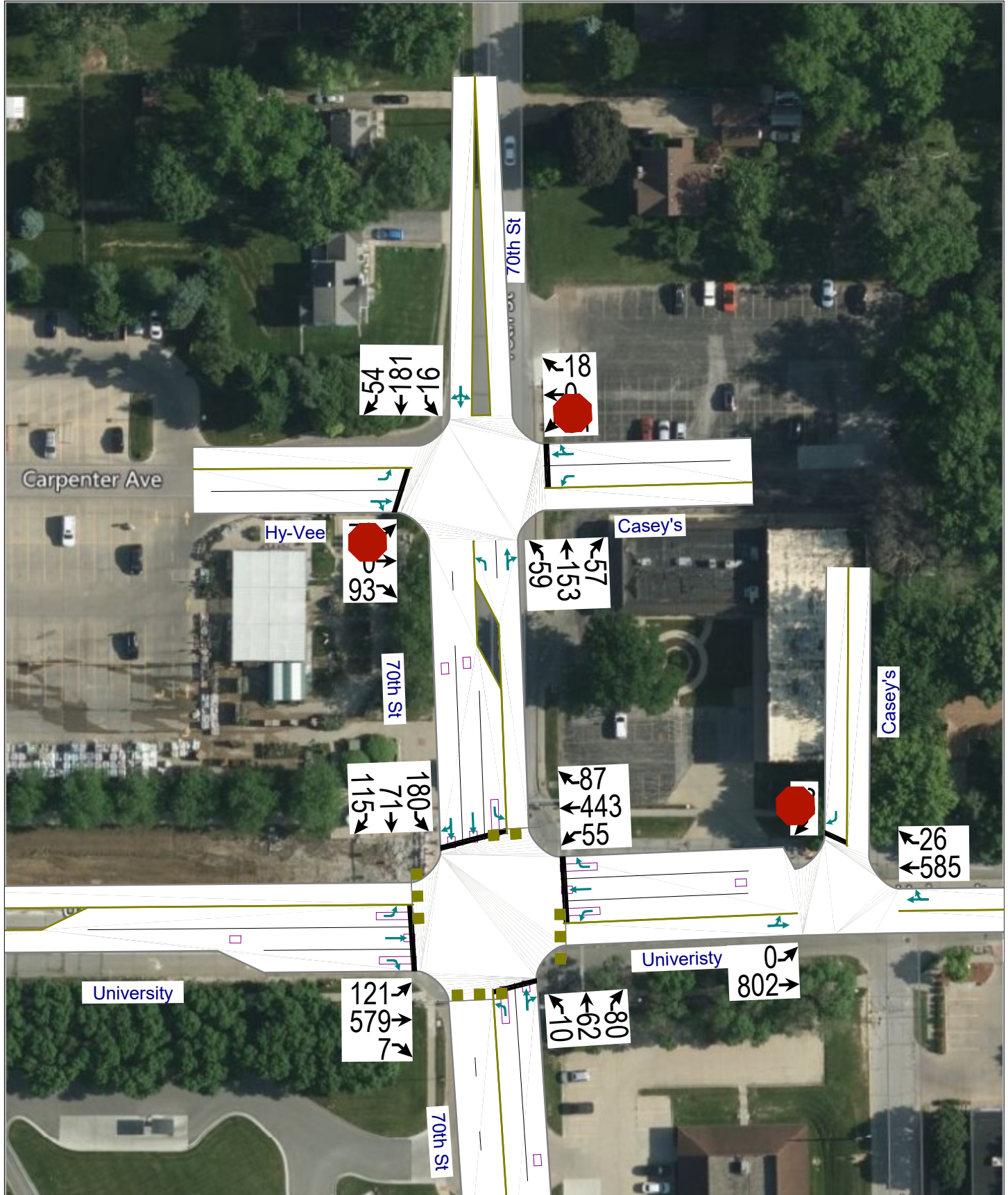
Movement	WB
Directions Served	TR
Maximum Queue (ft)	176
Average Queue (ft)	123
95th Queue (ft)	224
Link Distance (ft)	161
Upstream Blk Time (%)	8
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: 70th St & Hy-Vee/Casey's

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	TR	LTR
Maximum Queue (ft)	50	117	30	30	44	71	198
Average Queue (ft)	30	43	7	7	9	4	24
95th Queue (ft)	54	81	26	28	33	30	117
Link Distance (ft)	109	109	111	111		155	183
Upstream Blk Time (%)		0					1
Queuing Penalty (veh)		0					0
Storage Bay Dist (ft)					20		
Storage Blk Time (%)					1		
Queuing Penalty (veh)					2		

Network Summary

Network wide Queuing Penalty: 141



HCM Signalized Intersection Capacity Analysis

1: 70th St & University/Univeristy

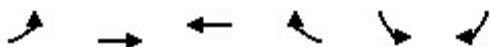
09/26/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	579	7	55	443	87	10	62	80	180	71	115
Future Volume (vph)	121	579	7	55	443	87	10	62	80	180	71	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1705		1770	3211	
Flt Permitted	0.66	1.00	1.00	0.82	1.00	1.00	1.00	1.00		0.22	1.00	
Satd. Flow (perm)	1221	1863	1583	1521	1863	1583	1863	1705		414	3211	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	629	8	60	482	95	11	67	87	196	77	125
RTOR Reduction (vph)	0	0	5	0	0	55	0	47	0	0	88	0
Lane Group Flow (vph)	132	629	3	60	482	40	11	107	0	196	114	0
Turn Type	custom	NA	Perm	custom	NA	Perm	custom	NA		custom	NA	
Protected Phases		4			8			2			6	
Permitted Phases	7		4	3		8	5			1		
Actuated Green, G (s)	6.1	43.0	43.0	4.9	41.8	41.8	1.3	13.1		18.0	29.8	
Effective Green, g (s)	6.1	43.0	43.0	4.9	41.8	41.8	1.3	13.1		18.0	29.8	
Actuated g/C Ratio	0.06	0.43	0.43	0.05	0.42	0.42	0.01	0.13		0.18	0.30	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	74	801	680	74	778	661	24	223		74	956	
v/s Ratio Prot		c0.34			0.26			c0.06			0.04	
v/s Ratio Perm	c0.11		0.00	0.04		0.03	0.01			c0.47		
v/c Ratio	1.78	0.79	0.01	0.81	0.62	0.06	0.46	0.48		2.65	0.12	
Uniform Delay, d1	47.0	24.5	16.3	47.1	22.9	17.4	49.0	40.3		41.0	25.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	401.4	5.1	0.0	46.8	1.5	0.0	13.2	7.2		779.1	0.3	
Delay (s)	448.3	29.6	16.3	93.9	24.3	17.4	62.2	47.5		820.1	25.8	
Level of Service	F	C	B	F	C	B	E	D		F	C	
Approach Delay (s)		101.3			29.9			48.5			417.0	
Approach LOS		F			C			D			F	
Intersection Summary												
HCM 2000 Control Delay			137.6									
HCM 2000 Volume to Capacity ratio			1.24									
Actuated Cycle Length (s)			100.0									
Intersection Capacity Utilization			72.9%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Univeristy/University & Casey's

09/26/2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰			↰
Traffic Volume (veh/h)	0	802	585	26	0	26
Future Volume (Veh/h)	0	802	585	26	0	26
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	872	636	28	0	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		188				
pX, platoon unblocked					0.61	
vC, conflicting volume	664				1522	650
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	664				1536	650
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	94
cM capacity (veh/h)	925				78	469
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	872	664	28			
Volume Left	0	0	0			
Volume Right	0	28	28			
cSH	925	1700	469			
Volume to Capacity	0.00	0.39	0.06			
Queue Length 95th (ft)	0	0	5			
Control Delay (s)	0.0	0.0	13.2			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	13.2			
Approach LOS			B			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			45.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

6: 70th St & Hy-Vee/Casey's

09/26/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	0	93	91	0	18	59	153	57	16	181	54
Future Volume (Veh/h)	78	0	93	91	0	18	59	153	57	16	181	54
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	85	0	101	99	0	20	64	166	62	17	197	59
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	236											
pX, platoon unblocked	0.95	0.95		0.95	0.95	0.95				0.95		
vC, conflicting volume	574	616	226	686	615	197	256			228		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	525	570	226	643	568	128	256			160		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	79	100	88	68	100	98	95			99		
cM capacity (veh/h)	410	385	813	306	386	876	1309			1347		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1					
Volume Total	85	101	99	20	64	228	273					
Volume Left	85	0	99	0	64	0	17					
Volume Right	0	101	0	20	0	62	59					
cSH	410	813	306	876	1309	1700	1347					
Volume to Capacity	0.21	0.12	0.32	0.02	0.05	0.13	0.01					
Queue Length 95th (ft)	19	11	34	2	4	0	1					
Control Delay (s)	16.1	10.1	22.3	9.2	7.9	0.0	0.6					
Lane LOS	C	B	C	A	A		A					
Approach Delay (s)	12.8		20.1		1.7		0.6					
Approach LOS	B		C									
Intersection Summary												
Average Delay				6.2								
Intersection Capacity Utilization				44.7%	ICU Level of Service				A			
Analysis Period (min)				15								

Summary of All Intervals

Start Time	4:20
End Time	5:30
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2143
Vehs Exited	2141
Starting Vehs	45
Ending Vehs	47
Travel Distance (mi)	269
Travel Time (hr)	63.8
Total Delay (hr)	52.1
Total Stops	1750
Fuel Used (gal)	25.5

Interval #0 Information Seeding

Start Time	4:20
End Time	4:30
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2143
Vehs Exited	2141
Starting Vehs	45
Ending Vehs	47
Travel Distance (mi)	269
Travel Time (hr)	63.8
Total Delay (hr)	52.1
Total Stops	1750
Fuel Used (gal)	25.5

1: 70th St & University/Univeristy Performance by movement

2: Univeristy/University & Casey's Performance by movement

6: 70th St & Hy-Vee/Casey's Performance by movement

Total Network Performance

Intersection: 1: 70th St & University/Univeristy

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	TR	L	T	TR
Maximum Queue (ft)	200	341	101	132	144	125	47	166	100	178	152
Average Queue (ft)	178	298	7	46	136	42	11	89	94	141	54
95th Queue (ft)	234	376	48	105	155	118	36	156	113	223	105
Link Distance (ft)		302		126	126		151	151		155	155
Upstream Blk Time (%)		49		1	24	0		3		45	0
Queuing Penalty (veh)		0		3	72	0		0		83	0
Storage Bay Dist (ft)	175		80			120			75		
Storage Blk Time (%)	37	40	0		27	0			72	0	
Queuing Penalty (veh)	217	52	0		23	1			25	0	

Intersection: 2: Univeristy/University & Casey's

Movement	WB	SB
Directions Served	TR	R
Maximum Queue (ft)	201	52
Average Queue (ft)	132	23
95th Queue (ft)	236	52
Link Distance (ft)	166	145
Upstream Blk Time (%)	9	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: 70th St & Hy-Vee/Casey's

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	L	LTR
Maximum Queue (ft)	124	124	145	126	31	180
Average Queue (ft)	42	74	70	16	14	50
95th Queue (ft)	85	140	141	59	39	129
Link Distance (ft)	109	109	111	111		183
Upstream Blk Time (%)	0	25	20	1		0
Queuing Penalty (veh)	0	0	0	0		0
Storage Bay Dist (ft)					20	
Storage Blk Time (%)					2	
Queuing Penalty (veh)					3	

Network Summary

Network wide Queuing Penalty: 480

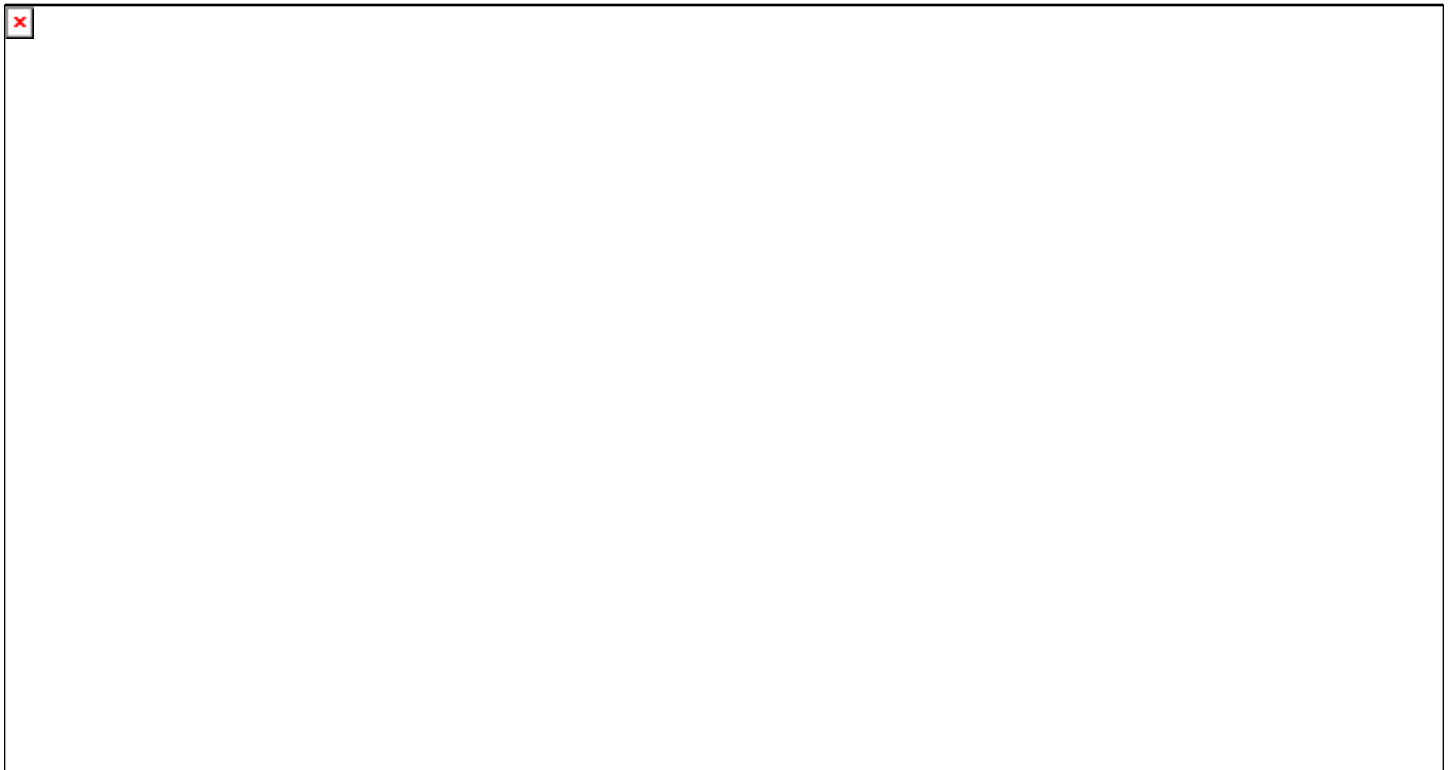
Appendix C – Iowa Crash Analysis Tool



Iowa Crash Analysis Tool
Quick Report
11/03/2021 - 12/04/2023

Crash Severity	8	Injury Status Summary	1
Fatal Crash	0	Fatalities	0
Suspected Serious Injury Crash	0	Suspected serious/incapacitating	0
Suspected Minor Injury Crash	0	Suspected minor/non-incapacitating	0
Possible/Unknown Injury Crash	1	Possible (complaint of pain/injury)	1
Property Damage Only	7	Uninjured	0
		Unknown	0
		Not Reported	0

Property/Vehicles/Occupants		Average Severity	
Property Damage Total (dollars):	47,200.00	Fatalities/Fatal Crash:	0.00
Average (per crash dollars):	5,900.00	Fatalities/Crash:	0.00
Total Vehicles:	17.00	Injuries/Crash:	0.13
Average (per crash):	2.13	Major Injuries/Crash:	0.00
Total Occupants:	21.00	Minor Injuries/Crash:	0.00
Average (per crash):	2.63	Possible/Unknown Injuries/Crash:	0.13





Iowa Crash Analysis Tool
Quick Report
11/03/2021 - 12/04/2023

Major Cause		8
Animal	0	2
Ran stop sign	0	0
FTYROW: At uncontrolled intersection	0	1
FTYROW: From stop sign	1	0
FTYROW: Making left turn	0	0
FTYROW: From parked position	0	0
FTYROW: Other	0	0
Disregarded RR Signal	0	0
Crossed median (divided)	0	0
Aggressive driving/road rage	0	0
Exceeded authorized speed	0	1
Operating vehicle in an reckless, erratic, ca...	0	1
Passing: On wrong side	0	0
Passing: With insufficient distance/inadequa...	0	0
Passing: Other passing	0	0
Driver Distraction: Manual operation of an e...	0	0
Driver Distraction: Talking on a hands free ...	0	0
Driver Distraction: Other electronic device ...	0	0
Driver Distraction: Unrestrained animal	0	0
Driver Distraction: Inattentive/lost in thou...	0	0
Driver Distraction: Exterior distraction	0	0
Ran off road - straight	0	0
Lost control	0	0
Over correcting/over steering	0	1
Failure to signal intentions	0	0
Vehicle stopped on railroad tracks	0	0
Other: Improper operation	0	0
Other: Disregarded signs/road markings	0	0
Downhill runaway	0	0
Towing improperly	0	0
Equipment failure	0	0
Other: Getting off/out of vehicle	0	0
Improper backing	0	0
Illegally parked/unattended	0	0
Operator inexperience	0	1
Unknown	0	0
Other: No improper action	0	



**Iowa Crash Analysis Tool
Quick Report
11/03/2021 - 12/04/2023**

Time of Day/Day of Week														
Day of Week	12 AM to 2 AM	2 AM to 4 AM	4 AM to 6 AM	6 AM to 8 AM	8 AM to 10 AM	10 AM to Noon	Noon to 2 PM	2 PM to 4 PM	4 PM to 6 PM	6 PM to 8 PM	8 PM to 10 PM	10 PM to 12 AM	Not reported	Total
Sunday	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Monday	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Tuesday	0	0	0	0	0	1	0	1	0	0	0	0	0	2
Wednesday	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Thursday	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Friday	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Saturday	0	0	0	0	0	1	1	0	1	0	0	0	0	3
Total	0	0	0	0	0	3	1	2	2	0	0	0	0	8

Manner of Crash Collision	8	Surface Conditions	8
Non-collision (single vehicle)	0	Dry	7
Head-on (front to front)	0	Wet	1
Rear-end (front to rear)	2	Ice/frost	0
Angle, oncoming left turn	0	Snow	0
Broadside (front to side)	2	Slush	0
Sideswipe, same direction	4	Mud, dirt	0
Sideswipe, opposite direction	0	Water (standing or moving)	0
Rear to rear	0	Sand	0
Rear to side	0	Oil	0
Not reported	0	Gravel	0
Other	0	Not reported	0
Unknown	0	Other	0
		Unknown	0

Fixed Object Struck	17
Bridge overhead structure	0
Bridge/bridge rail parapet	0
Ditch	0
Ground	0
Guardrail - face	0
Concrete traffic barrier (median or right sid...	0
Cable barrier	0
Utility pole/light support	0
Traffic signal support	0
Fire hydrant	0
Tree	0
Snow bank	0
Wall	0
Other fixed object	0
Bridge pier or support	0
Curb/island/raised median	0
Embankment	0
Culvert/pipe opening	0
Guardrail - end	0
Other traffic barrier	0
Impact attenuator/crash cushion	0
Traffic sign support	0
Other post/pole/support	0
Mailbox	0
Landscape/shrubbery	0
Fence	0
Building	0
None (no fixed object struck)	17



Iowa Crash Analysis Tool
Quick Report
11/03/2021 - 12/04/2023

Driver Age/Driver Gender					
Driver Age - 5 year Bins	Female	Male	Not reported	Unknown	Total
< 14	0	0	0	0	0
= 14	0	0	0	0	0
= 15	1	0	0	0	1
= 16	1	0	0	0	1
= 17	0	0	0	0	0
= 18	1	0	0	0	1
= 19	0	0	0	0	0
= 20	0	0	0	0	0
>= 21 and <= 24	0	0	0	0	0
>= 25 and <= 29	0	0	0	0	0
>= 30 and <= 34	0	1	0	0	1
>= 35 and <= 39	0	0	0	0	0
>= 40 and <= 44	1	1	0	0	2
>= 45 and <= 49	0	1	0	0	1
>= 50 and <= 54	0	1	0	0	1
>= 55 and <= 59	2	2	0	0	4
>= 60 and <= 64	2	0	0	0	2
>= 65 and <= 69	0	0	0	0	0
>= 70 and <= 74	1	0	0	0	1
>= 75 and <= 79	0	1	0	0	1
>= 80 and <= 84	0	1	0	0	1
>= 85 and <= 89	0	0	0	0	0
>= 90 and <= 94	0	0	0	0	0
>= 95	0	0	0	0	0
Not reported	0	0	0	0	0
Unknown	0	0	0	0	0
Total	9	8	0	0	17

Alcohol Test Given	17
None	17
Blood	0
Urine	0
Breath	0
Vitreous	0
Refused	0
Not reported	0

Drug Test Given	17
None	17
Blood	0
Urine	0
Breath	0
Vitreous	0
Refused	0
Not reported	0

Drug Test Result	17
Negative	0
Cannabis	0
Central Nervous System depressants	0
Central Nervous System stimulants	0
Hallucinogens	0
Inhalants	0
Narcotic Analgesics	0
Dissociative Anesthetic (PCP)	0
Prescription Drug	0
Not reported	17
Other	0

Drug/Alcohol Related	8
Drug	0
Alcohol (< Statutory)	0
Alcohol (Statutory)	0
Drug and Alcohol (< Statutory)	0
Drug and Alcohol (Statutory)	0
Refused	0
Under Influence of Alcohol/Drugs/Medications	0
None Indicated	8

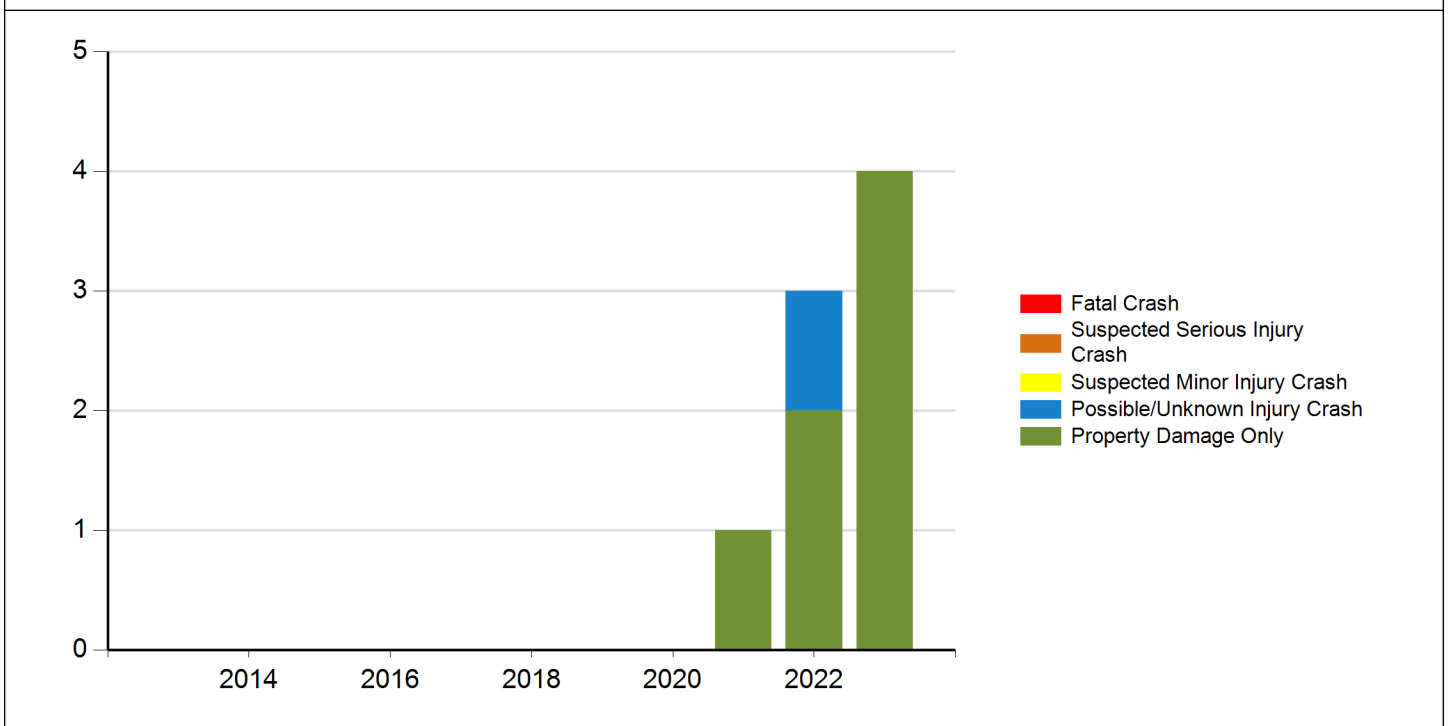


Iowa Crash Analysis Tool
Quick Report
11/03/2021 - 12/04/2023

Crash Severity - Annual

Crash Year	Fatal Crash	Suspected Serious Injury Crash	Suspected Minor Injury Crash	Possible/Unknown Injury Crash	Property Damage Only	Total
2013	0	0	0	0	0	0
2014	0	0	0	0	0	0
2015	0	0	0	0	0	0
2016	0	0	0	0	0	0
2017	0	0	0	0	0	0
2018	0	0	0	0	0	0
2019	0	0	0	0	0	0
2020	0	0	0	0	0	0
2021	0	0	0	0	1	1
2022	0	0	0	1	2	3
2023	0	0	0	0	4	4
Total	0	0	0	1	7	8

Severity/Year



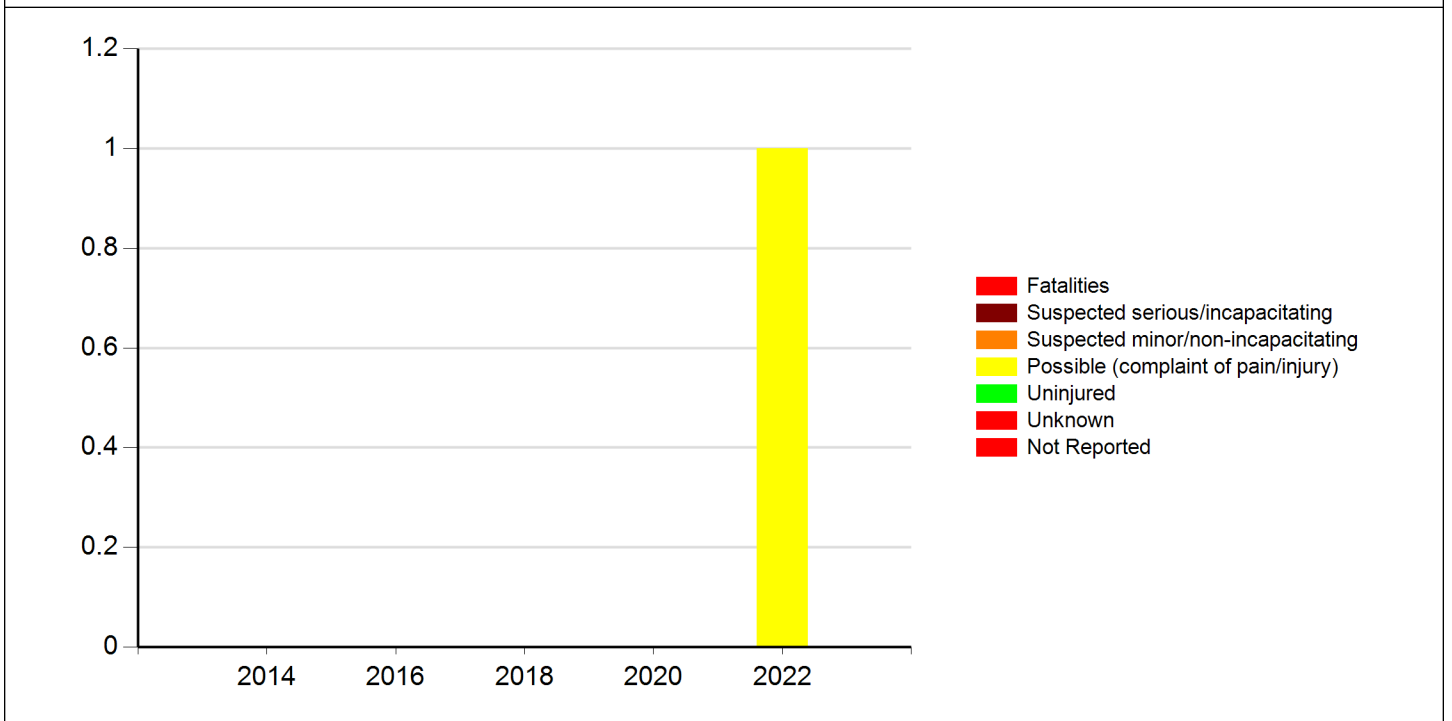


Iowa Crash Analysis Tool
Quick Report
11/03/2021 - 12/04/2023

Injury Status - Annual

Crash Year	Fatalities	Suspected serious/incapacitating	Suspected minor/non-incapacitating	Possible (complaint of pain/injury)	Uninjured	Unknown	Not Reported	Total
2013	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0
2022	0	0	0	1	0	0	0	1
2023	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	0	1

Injury Status/Year





Meeting the following criteria
Jurisdiction: Statewide Year: 2021, 2022, 2023 Map Selection: Yes Filter: Date (11/03/2021 - 12/04/2023)

Analyst Information

Trip Generation: Below is a table indicating the amount of traffic that will be added to the surrounding road network based on proposed uses of the property. The numbers are estimated using trip generation data formulated by the Institute of Transportation Engineers (ITE) Trip Generation Manual. University Avenue is an arterial roadway carrying between 10,600 and 12,600 annual average daily trips through Windsor Heights. A convenience store at the subject property is expected to experience 82 vehicles entering the site during AM peak hour. Of those 82 trips, 62 trips are generated by pass-by traffic, or traffic that is already on the road network enroute to another destination, and 20 trips are new users added to the road network. The PM peak hour sees similar numbers with 96 vehicles entering the site, 72 of which are generated by pass-by traffic and 24 being new users added to the road network. New users during AM and PM peak hours are highlighted in the table below. The number of new users generated by a convenience store can be compared and contrasted with other potential land uses allowed in the UC district. The column at far left lists uses permitted both by-right and those allowed by conditional use permit. The table shows a convenience store use will add less traffic to the surrounding road network than nearly all other uses shown in the table.

Use	AM/PM	Total Trips	Entering	Pass-by	New	Exiting
Drinking Place (p) (3,000 s.f.)	AM	0	0	0	0	0
	PM	62	42	25	17	20
Vet Clinic (p) (3,000 s.f.)	AM	11	6	0	6	5
	PM	11	6	0	6	5
Liquor Store (p) (6,000 s.f.)	AM	31	16	7	9	15
	PM	106	53	24	29	53
C-Store (c) (From Traffic Study)	AM	165	82	62	20	83
	PM	191	96	72	24	95
Strip Retail (p) (16,000 s.f. Current Cond)	AM	122	61	37	24	61
	PM	212	114	68	46	98
Restaurant (p) (5,000 s.f.)	AM	82	47	20	27	35
	PM	98	50	22	28	48
Daycare (p) (4,000 s.f.)	AM	59	31	0	31	28
	PM	59	28	0	28	31
Gen Office (p) (10,000 s.f.)	AM	36	32	0	32	4
	PM	38	6	0	38	32
Fast Food W/D Thru (c) (3,000 s.f.)	AM	152	79	40	39	73
	PM	153	78	39	39	75
Discount Store (p) (10,000 s.f.)	AM	96	49	10	39	47
	PM	111	56	11	45	55

*C - Conditional Use

*P - Permitted by-right

