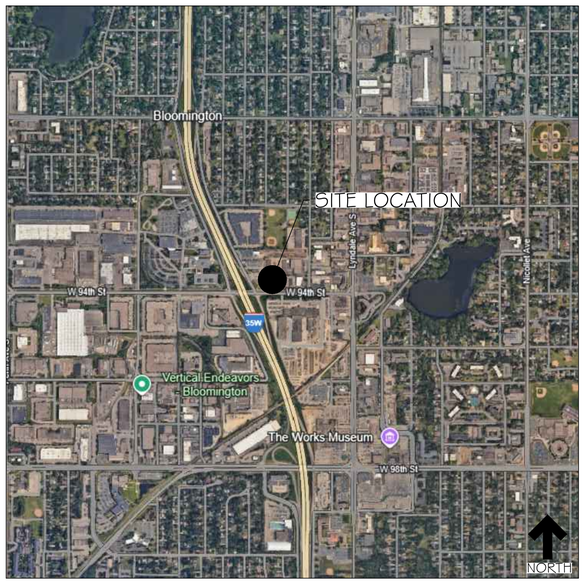
# SITE IMPROVEMENT PLANS FOR:

## KWIK TRIP #1794
## BLOOMINGTON, MN

### SITE LOCATION MAP:




### SITE AERIAL MAP:

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OWNER:
KWIK TRIP INC.
1626 OAK STREET
LA CROSSE, WI 54602
EMILY HELWIG
608-791-7443

SITE PLANNER:
INSITES SITE PLANNING
3131 FERNBROOK LN N, SUITE 260
PLYMOUTH, MN 55447
BOB MUELLER
763-383-8400
Bob@InsitesInc.net

CIVIL ENGINEER:
SUNDE ENGINEERING
10830 NESBITT AVE SOUTH
BLOOMINGTON, MN 55437
952-881-3344

ARCHITECT:
VANTAGE ARCHITECTS
750 3RD ST N, SUITE F
LA CROSSE, WI 54601
608-784-2729

SURVEYOR:
SUNDE LAND SURVEYING
9001 EAST BLOOMINGTON FREEWAY
BLOOMINGTON, MN 55420
952-881-2455


KWIK TRIP

KWIK STAR


KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LACROSSE, WI 54602-2107
PH. (608) 781-8988
FAX (608) 781-8960


**TITLE SHEET**

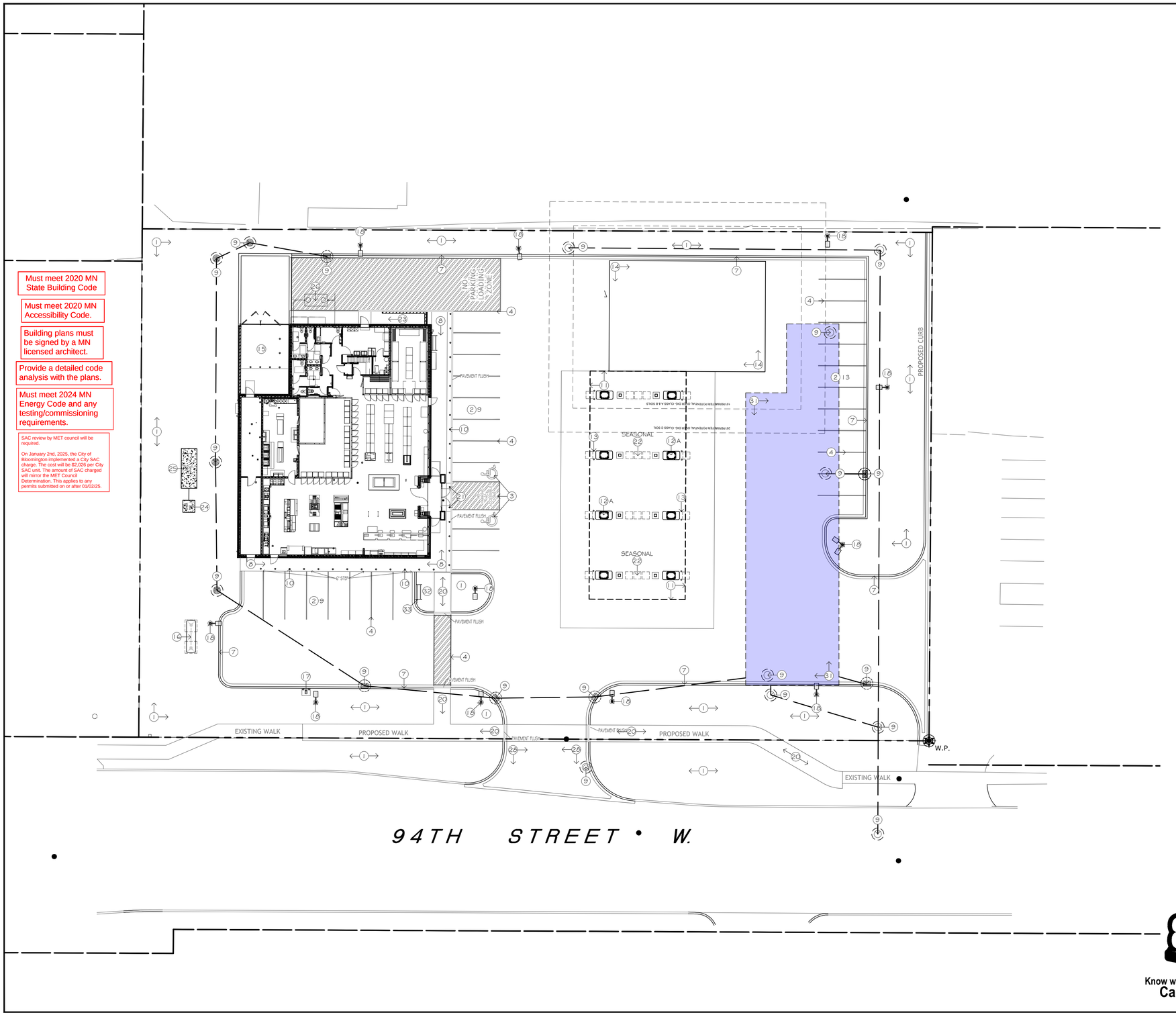
**CONVENIENCE STORE 1794**

**-- BLOOMINGTON, MINNESOTA**

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/25 | INTERNAL REVIEW |
| - | 11/12/25 | CITY SUBMITTAL |

DRAWN BY
SCALE GRAPHIC
PROJ. NO. 25-1794
DATE 09/16/2025
SHEET **C001**

INSITES 25-020 PM EH




Must meet 2020 MN State Building Code

Must meet 2020 MN Accessibility Code.

Building plans must be signed by a MN licensed architect.

Provide a detailed code analysis with the plans.

Must meet 2024 MN Energy Code and any testing/commissioning requirements.

SAC review by MET council will be required.

On January 2nd, 2025, the City of Bloomington implemented a City SAC charge. The cost will be $2,026 per City SAC unit. The amount of SAC charged will mirror the MET Council Determination. This applies to any permits submitted on or after 01/02/25.

SITE PLAN KEYNOTES

1. LANDSCAPE AREA. SEE SHEET C700.
2. OFF-STREET PARKING STALLS
   STRIPING - 4" WIDE STALL LINES, USE HIGH VISIBILITY WHITE PAINT.
   SPACES PROVIDED
   (16) SERVICE POINTS
   (2) DIESEL POINTS
   (38) 9'-0"x 20'-0"(MIN.) GENERAL PARKING
   (3) 8'-0"x 20'-0" (MIN) ACCISSIBLE PARKING W/
   (2) 9'-0"x 20'-0" (MIN) LOADING ZONE
   (2) 11'-0"x 20'-0" VACUUM STALLS
3. A.D.A. ACCESSIBLE PARKING SPACE WITH LOADING ZONE. PROVIDE APPROPRIATE STRIPING AND PAVEMENT MARKINGS.
4. 4" WIDE, HIGH VISIBILITY, PAVEMENT STRIPING, LANE MARKINGS AND TEXT. COLOR: HC MARKINGS- BLUE, ALL OTHERS- YELLOW.
5. 6" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #3 REBAR, 3' O.C. CONCRETE SEALER: TK-2GUV
6. 8" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #4 REBAR, 3' O.C. CONCRETE SEALER: TK-2GUV
7. BG-12 CONCRETE CURB AND GUTTER PER DETAIL 11/C500.
8. 6" INTEGRAL CONCRETE WALK/CURB. SEE DETAIL 7/C500 FOR NON-FLUSH SECTIONS. CONCRETE SEALER: TK-2GUV
9. STORM STRUCTURE. SEE SHEETS C200-401, C501 FOR FURTHER STORM SEWER INFORMATION.
10. 30" HT., 6" DIA. CONCRETE FILLED PIPE BOLLARD PER DETAIL 9/C500.
11. 40'-0"x 120'-0" DISPENSER ISLAND CANOPY. VERIFY SIZE, PLACEMENT, COLUMN AND FOOTING SIZE WITH CANOPY AND STRUCTURAL PLANS. CANOPY GRAPHICS PER OWNER.
12. CONCRETE ISLANDS W/ 6" EXPOSURE WITH FUEL DISPENSERS. DISPENSER PER OWNER.
    A. 3'-6"x 7'-0"
13. 36" HT., 6" DIA. CONCRETE FILLED PIPE BOLLARD PER DETAIL 8/C500.
14. UNDERGROUND FUEL STORAGE TANKS PER OWNER. PROVIDE PIPING AND VENTING PER OWNERS SPECIFICATIONS.
15. EXTERNAL TRASH ENCLOSURE TO MATCH BUILDING. SEE ARCHITECTURAL DETAILS.
16. KWIK TRIP TRADEMARK SIGN (VERIFY LOCATION WITH SIGN PERMIT)
17. 'FREE AIR' COMPRESSOR. PROVIDE SIGNAGE PER OWNER.
18. SITE AREA LIGHT WITH CONCRETE BASE PER DETAIL 12/C500
19. (NOT USED UNTIL CD) PVC IRRIGATION SLEEVE UNDER PAVEMENT. VERIFY W/ IRRIGATION PLAN FOR EXACT SIZE AND LOCATION BEFORE INSTALLATION.
20. 4" DEPTH CONCRETE WALK PER DETAIL 3/C500
21. HC PVC BOLLARD SLEEVE PER OWNER. VAN ACCESS SIGNAGE AT 48" HT. STALL PARKING AT 60" HT.
22. OUTDOOR MERCHANDISING AREA
23. EXTERIOR DELIVERY 'TOTE' STORAGE WITH SCREEN WALL
24. ELECTRICAL TRANSFORMER
25. ELECTRICAL DISCONNECT
26. GREASE INTERCEPTOR
27. VACUUM PER MANUFACTURE'S SPECIFICATIONS. SEE DETAIL 2/C500.
28. APPROACH PER DETAIL 10/C500
29. REJECT GUTTER- TIP GUTTER AWAY FROM FACE OF CURB FOR SHEET FLOW
30. PAINT TAPERING EDGE FOR HIGH VISIBILITY
31. UNDERGROUND WET VAULT
32. CONCRETE CURB ISLAND
33. 8 STALL BIKE RACK WITH 4" CONCRETE PAD
    (BRP 300 TRADITIONAL BIKE RACK-SINGLE SIDE PORTABLE/ SURFACE MOUNT ENDS
    FUSION COATINGS - A DIVISION OF RTM INC.
    TO BE PROVIDED BY OWNER)

Know what's below. Call before you dig.

NORTH
SCALE: 1" = 20'

20 10 0 20 40

PLOTTING NOTE: PLANS PLOTTED TO 11x17 SHEET SIZE ARE ½ SCALE- 1"=40'

KWIK TRIP
KWIK STAR

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4205 Lancaster Lane North Suite 113
Plymouth, Minnesota 55441
763.383.8400
insitesinc.net mail@insitesinc.net

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

Date 11-2025 License No. 19306

Signed Robert J. Mueller

# SITE KEYNOTE PLAN

## CONVENIENCE STORE 1794

-- BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/25 | INTERNAL REVIEW |
| | 11/12/25 | CITY SUBMITTAL |

DRAWN BY
SCALE GRAPHIC
PROJ. NO. 25-1794
DATE 09/16/2025
SHEET C100

INSITES 25-020 PM EH

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

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20 10 0 20 40

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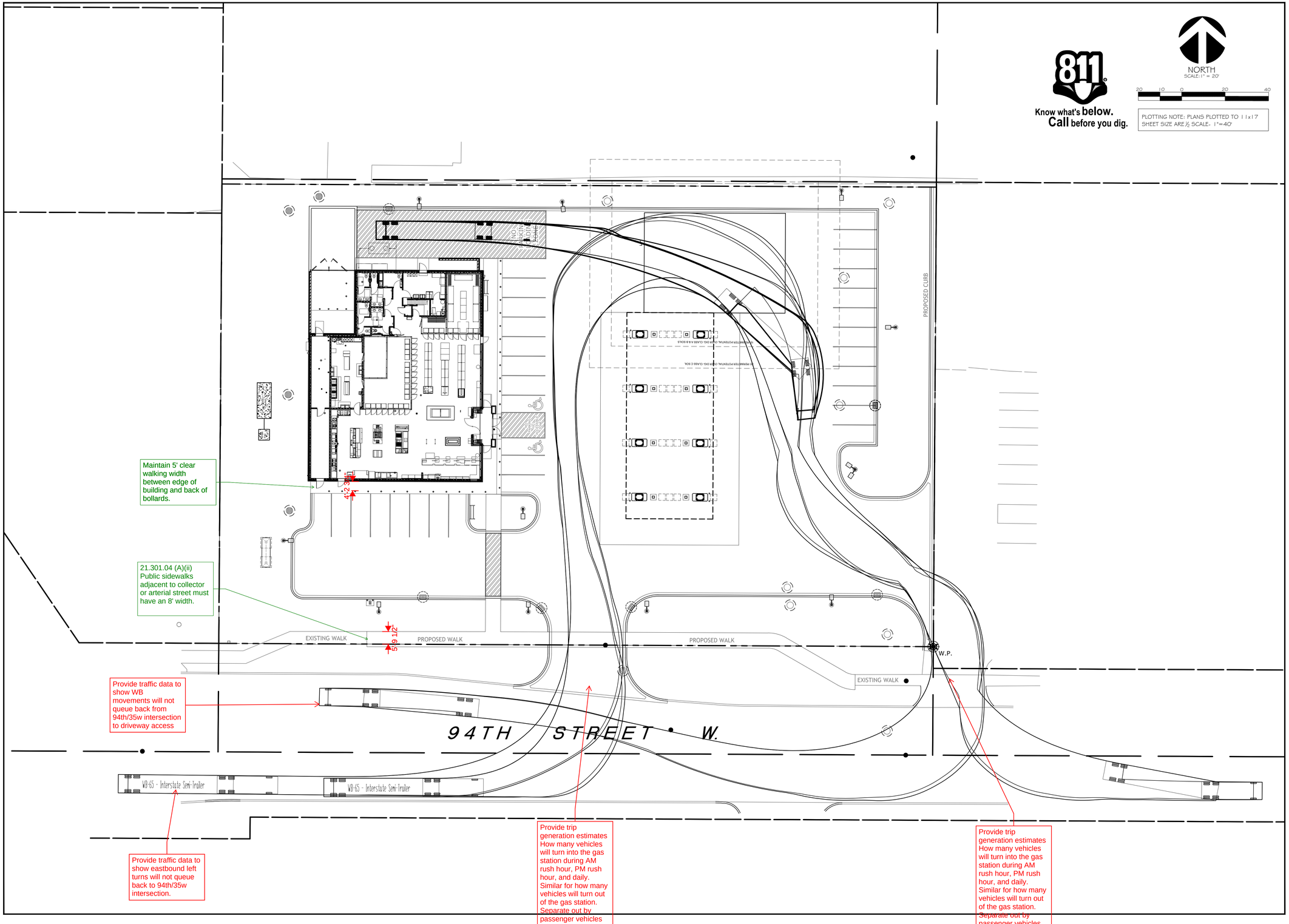


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# SITE CIRCULATION PLAN

## CONVENIENCE STORE 1794

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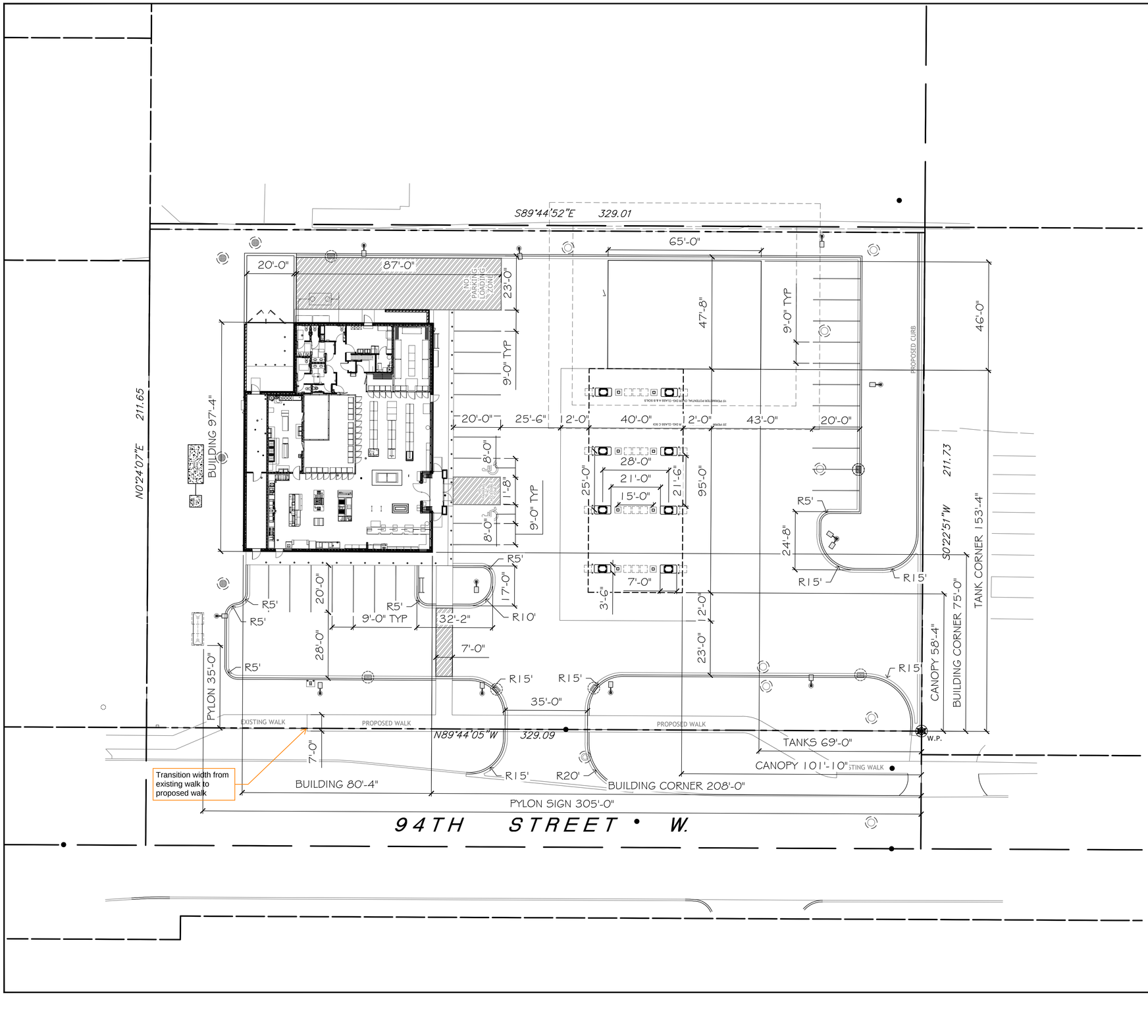
PROJ. NO. 25-1794

DATE 09/16/2025

SHEET C180

INSITES 25-020 PM EH




CONSTRUCTION NOTE:

CONSTRUCTION FENCING TO BE INSTALLED AROUND ENTIRE CONSTRUCTION SITE. COORDINATE WITH OWNER FOR FENCING AND GATE LOCATIONS AND APPROPRIATE SIGNAGE INSTALLATION.

LAYOUT NOTES:

1. PLAN PREPARED FROM AN ALTA/ACSM LAND TITLE SURVEY BY:

   SUNDE LAND SURVEYING
   9001 EAST BLOOMINGTON FREEWAY, SUITE 118
   BLOOMINGTON, MN 55420
   952-881-2455

2. CURBS ARE DIMENSIONED TO FACE OF CURB.

3. CONVENIENCE STORE AND ISLAND COMPLEXES ARE LOCATED FROM THE NORTHWEST PROPERTY CORNER AND ALIGNED PARALLEL/ PERPENDICULAR TO THE WEST PROPERTY LINE UNLESS OTHERWISE INDICATED ON THIS PLAN.

4. UNLESS SHOWN OTHERWISE ON THIS DRAWING, CONTRACTOR SHALL PROVIDE CONTROL JOINTS, CONSTRUCTION JOINTS, AND EXPANSION JOINTS IN SLAB ON GRADE, SIDEWALKS AND DRIVES.
   CONTROL JOINT MAXIMUM DISTANCE: WALKS- 8' O.C., ALL OTHERS- 10' O.C. SAW CUT CONTROL JOINTS MINIMUM ONE-QUARTER CONCRETE THICKNESS.
   EXPANSION JOINT MAXIMUM DISTANCE: WALKS- 24' O.C., ALL OTHERS- 40' O.C. DOWEL ALL EXPANSION JOINTS- MAXIMUM 24" O.C.

5. CONCRETE IN ISLAND COMPLEX SHALL BE SMOOTH BROOM FINISHED.

6. EXTERIOR CONCRETE SURFACES TO BE SEALED. CONCRETE SEALER:
   APR 15- OCT 31 USE: TK-2GUV
   NOV 1- DEC 31 USE: TK-290

7. EXPANSION JOINTS SHALL BE DECK-O-FOAMED AND CAULKED WITH SL1

SITE DATA:

| | |
|---|---|
| ZONING DISTRICT: | I-3 |
| TOTAL SITE AREA: | 69,657 SF |
| EX. IMPERVIOUS: | 52,631 SF |
| EX. PERVIOUS: | 17,026 SF |
| PARKING REQUIREMENTS | |
| PARKING REQUIRED | 6,770 SF / 300 = 23 |
| PARKING PROVIDED | 30 STALLS + 16 SRV. PNTS + DIESEL |
| BUILDING HEIGHTS | |
| CONVENIENCE STORE | 24.5' |
| CANOPY | 20.0' |
| BUILDING SETBACKS | |
| FRONT | 30' |
| REAR | 25' |
| SIDE | 10' |
| PROPOSED GREEN AREA: | 18,234 SF |
| PROPOSED HARD COVER: | 51,221 SF |
| PAVED AREA: | 43,871 SF |
| BUILDING AREA: | 7,350 SF |

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

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20 10 0 20 40

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# SITE DIMENSION PLAN

## CONVENIENCE STORE 1794

## BLOOMINGTON, MINNESOTA

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| | 11/12/25 | CITY SUBMITTAL |

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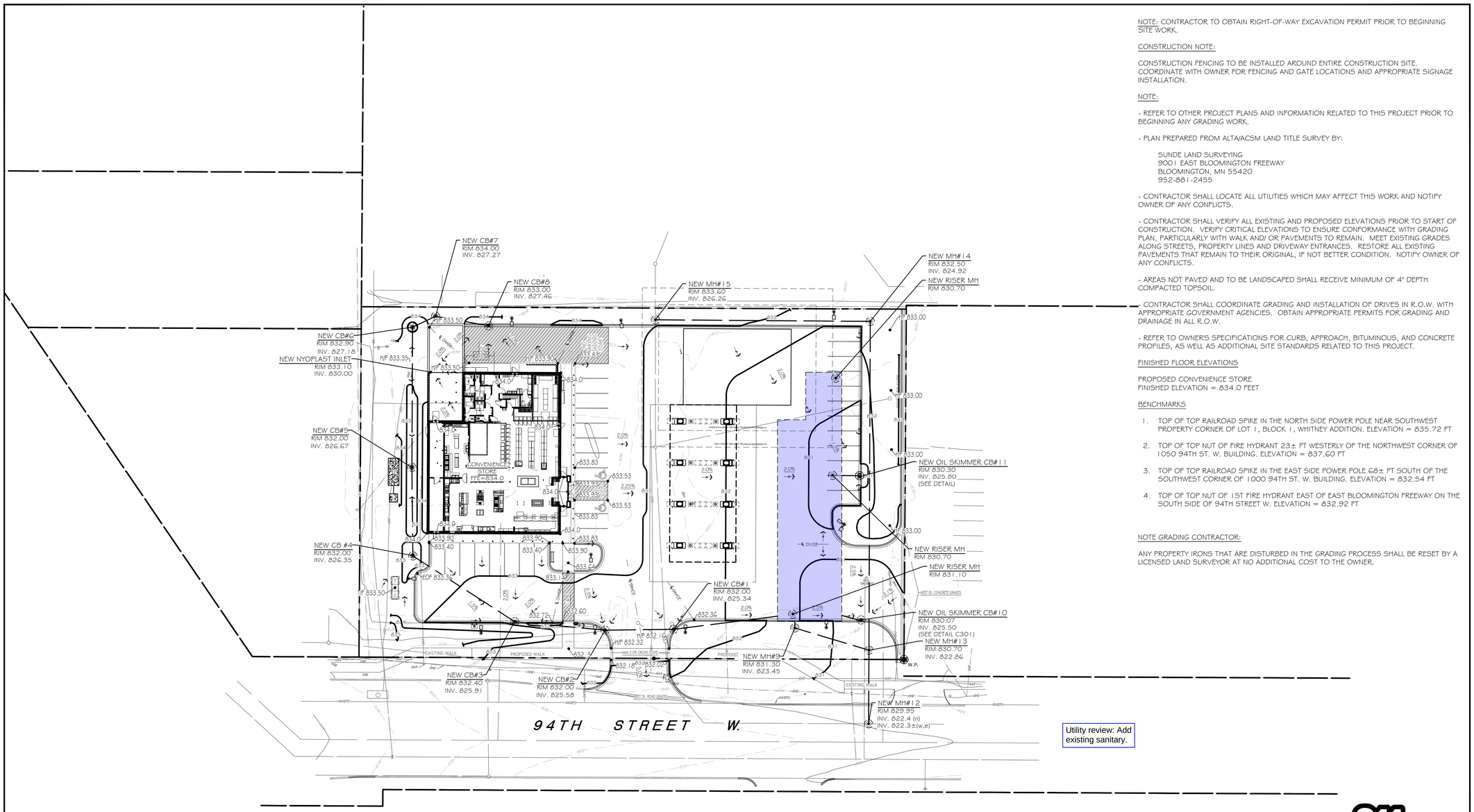
SCALE GRAPHIC
PROJ. NO. 25-1794
DATE 09/16/2025
SHEET **C181**

INSITES 25-020 PM EH




Utility review: Add existing sanitary.

NOTE: CONTRACTOR TO OBTAIN RIGHT-OF-WAY EXCAVATION PERMIT PRIOR TO BEGINNING SITE WORK.

CONSTRUCTION NOTE:

CONSTRUCTION FENCING TO BE INSTALLED AROUND ENTIRE CONSTRUCTION SITE. COORDINATE WITH OWNER FOR FENCING AND GATE LOCATIONS AND APPROPRIATE SIGNAGE INSTALLATION.

NOTE:

- REFER TO OTHER PROJECT PLANS AND INFORMATION RELATED TO THIS PROJECT PRIOR TO BEGINNING ANY GRADING WORK.

- PLAN PREPARED FROM ALTA/ACSM LAND TITLE SURVEY BY:

SUNDE LAND SURVEYING
9001 EAST BLOOMINGTON FREEWAY
BLOOMINGTON, MN 55420
952-881-2455

- CONTRACTOR SHALL LOCATE ALL UTILITIES WHICH MAY AFFECT THIS WORK AND NOTIFY OWNER OF ANY CONFLICTS.

- CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED ELEVATIONS PRIOR TO START OF CONSTRUCTION. VERIFY CRITICAL ELEVATIONS TO ENSURE CONFORMANCE WITH GRADING PLAN, PARTICULARLY WITH WALK AND/ OR PAVEMENTS TO REMAIN. MEET EXISTING GRADES ALONG STREETS, PROPERTY LINES AND DRIVEWAY ENTRANCES. RESTORE ALL EXISTING PAVEMENTS THAT REMAIN TO THEIR ORIGINAL, IF NOT BETTER CONDITION. NOTIFY OWNER OF ANY CONFLICTS.

- AREAS NOT PAVED AND TO BE LANDSCAPED SHALL RECEIVE MINIMUM OF 4" DEPTH COMPACTED TOPSOIL.

- CONTRACTOR SHALL COORDINATE GRADING AND INSTALLATION OF DRIVES IN R.O.W. WITH APPROPRIATE GOVERNMENT AGENCIES. OBTAIN APPROPRIATE PERMITS FOR GRADING AND DRAINAGE IN ALL R.O.W.

- REFER TO OWNER'S SPECIFICATIONS FOR CURB, APPROACH, BITUMINOUS, AND CONCRETE PROFILES, AS WELL AS ADDITIONAL SITE STANDARDS RELATED TO THIS PROJECT.

FINISHED FLOOR ELEVATIONS

PROPOSED CONVENIENCE STORE
FINISHED ELEVATION = 834.0 FEET

BENCHMARKS

1. TOP OF TOP RAILROAD SPIKE IN THE NORTH SIDE POWER POLE NEAR SOUTHWEST PROPERTY CORNER OF LOT 1, BLOCK 1, WHITNEY ADDITION. ELEVATION = 835.72 FT
2. TOP OF TOP NUT OF FIRE HYDRANT 23± FT WESTERLY OF THE NORTHWEST CORNER OF 1050 94TH ST. W. BUILDING. ELEVATION = 837.60 FT
3. TOP OF TOP RAILROAD SPIKE IN THE EAST SIDE POWER POLE 68± FT SOUTH OF THE SOUTHWEST CORNER OF 1000 94TH ST. W. BUILDING. ELEVATION = 832.54 FT
4. TOP OF TOP NUT OF 1ST FIRE HYDRANT EAST OF EAST BLOOMINGTON FREEWAY ON THE SOUTH SIDE OF 94TH STREET W. ELEVATION = 832.92 FT

NOTE GRADING CONTRACTOR:

ANY PROPERTY IRONS THAT ARE DISTURBED IN THE GRADING PROCESS SHALL BE RESET BY A LICENSED LAND SURVEYOR AT NO ADDITIONAL COST TO THE OWNER.

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

NORTH
SCALE: 1" = 30'

30 15 0 30 60

PLOTTING NOTE: PLANS PLOTTED TO 11x17 SHEET SIZE ARE ½ SCALE- 1"=60'

KWIK TRIP

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# GRADE PLAN

## CONVENIENCE STORE 1794

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SCALE GRAPHIC
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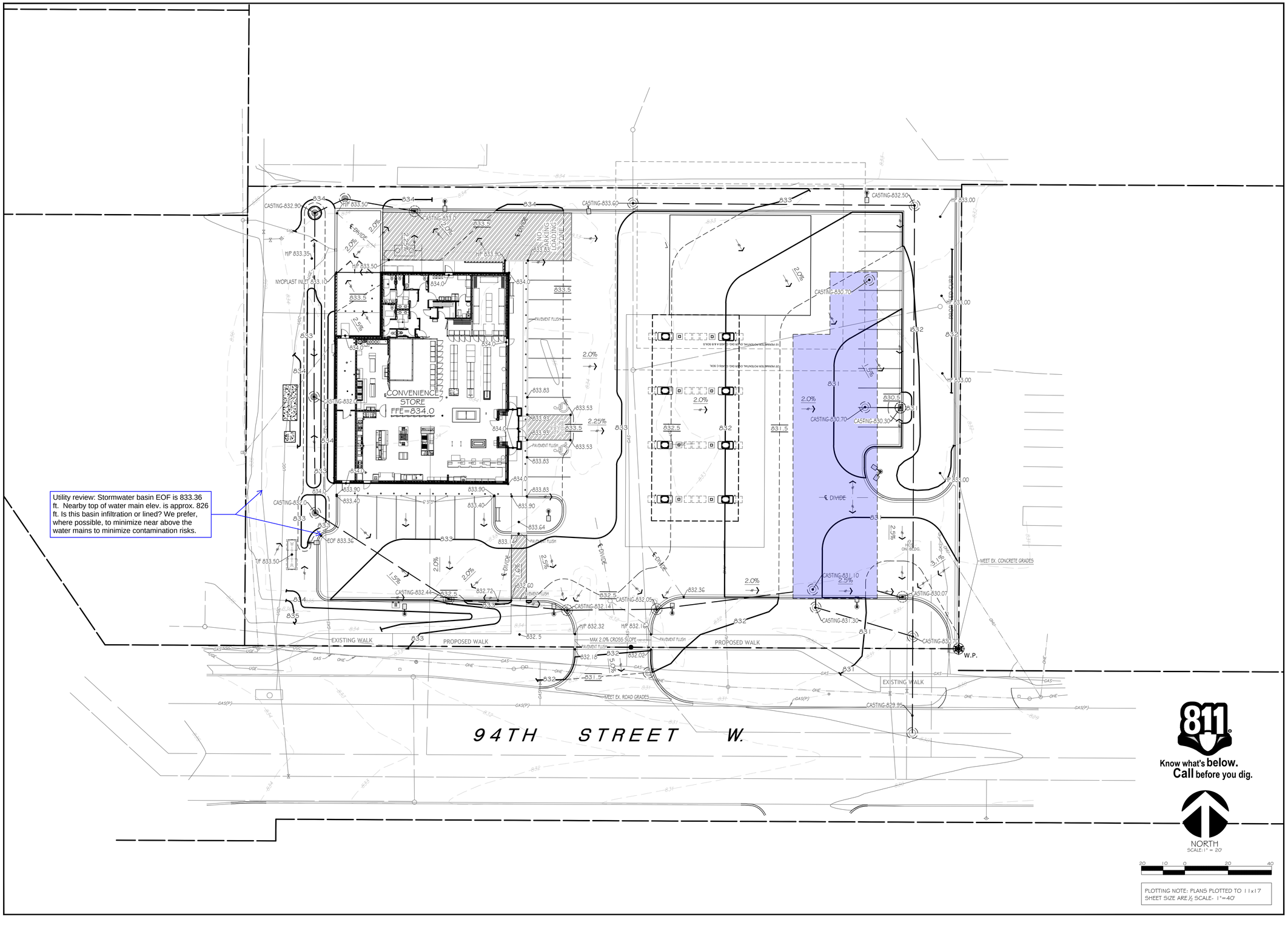
DATE 09/16/2025
SHEET **C200**

INSITES 25-020 PM EH

Utility review: Stormwater basin EOF is 833.36 ft. Nearby top of water main elev. is approx. 826 ft. Is this basin infiltration or lined? We prefer, where possible, to minimize near above the water mains to minimize contamination risks.

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20 10 0 20 40

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DATE 09/16/2025

SHEET C201

INSITES 25-020 PM EH

**GOPHER STATE ONE CALL**

*WWW.GOPHERSTATEONECALL.ORG*
*(800) 252-1166 TOLL FREE*
*(651) 454-0002 LOCAL*

The subsurface utility information shown on this plan is utility Quality Level D. This quality level was determined according to the guidelines of CI/ASCE 38-02, entitled "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data."

KEYNOTES:

(1) – Minnesota Rules Section 310.5: All storm sewer inlets to the storm water management system must have inverts at or above the Water Quality level of the system as determined by the applicable City or Watershed District design requirements.

Utility review:
- Must maintain a minimum of 8 ft cover from top of water main and any water services to ground surface - including from the side slop of the proposed basin.
- Make sure there is a plan sheet with all utilities and ex and prop grading, so it's easier to review the design.
- Stormwater basin EOF is 833.36 ft on previous page with basin min. 832.0 ft. Nearby top of ex water main elev. is approx. 826 ft. Is this infiltration or a lined basin? We prefer, where possible, to minimize infiltration above the water mains to minimize contamination risks. Additionally, this can be a maintenance headache if the water service needs to be dug up for some reason.

NEW CB#7
RIM 834.00
INV. 827.27

32LF 12" H.D.P.E. @ 0.60%

15LF 12" H.D.P.E. @ 0.60%

NEW CB#8
RIM 833.00
INV. 827.46

NEW MH#15
RIM 833.60
INV. 826.26

129LF 12" H.D.P.E @ 1.04%

LOCATE PRIVATE STORM PIPE(S) OUTSIDE OF PUBLIC DRAINAGE & UTILITY EASEMENT(S). PIPE LOCATION RELATIVE TO EASEMENTS IS UNCLEAR.

NEW MH#14
RIM 832.50
INV. 824.92

NEW RISER MH
RIM 830.70

UNDERGROUND WET VAULT 6'-0"
INSIDE BOTTOM OF VAULT = 820.50
INSIDE TOP OF VAULT = 826.50
NWL = 823.50
WQE (1.1") = 824.6
PIPE INVERT = 825.0
100-YR HWL = 825.96

BM #2
TNH=837.80 FT.

STA #3102

12 LF 10" PVC @ 1.05%
(48" BURY OR INSULATE PIPE)

57 LF 6" PVC @ 1.05%
(48" BURY OR INSULATE PIPE)

INSTALL SHORING SYSTEM ALONG STORM SEWER FOR UNDERGROUND STORAGE TANK EXCAVATION (SHORING DESIGN BY OTHERS)

NEW CB#6
RIM 832.90
INV. 827.18

NEW NYLOPLAST INLET
RIM 833.10
INV. 830.00

85LF 12" PVC SCH 40 @ 0.60%

6 LF 8" PVC @ 1.05%
(48" BURY OR INSULATE PIPE)

33 LF 8" PVC @ 1.05%
(48" BURY OR INSULATE PIPE)

5 LF 6" PVC @ 1.05%
(48" BURY OR INSULATE PIPE)

8 LF 6" PVC @ 1.05%
(48" BURY OR INSULATE PIPE)

REMOVE PORTION OF EXISTING STORM SEWER

CLARIFY THAT THESE COLLECT DRAINAGE FROM CANOPY ROOF, NOT PAVEMENT. IF THESE COLLECT DRAINAGE FROM FUELING AREA PAVEMENT, PROVIDE ADEQUATE PRETREATMENT.

13 LF 4" PVC @ 1.05% (TYP)
(48" BURY OR INSULATE PIPE)

36 LF 6" PVC @ 1.05%
(48" BURY OR INSULATE PIPE)

REMOVE EXISTING CB AND STORM SEWER

INSTALL CONCRETE SPLASH BLOCK AT DISCHARGE OF EACH DOWNSPOUT

NEW CB#5
RIM 832.00
INV. 826.67

CONVENIENCE STORE
FFE=834.0

11LF 12" H.D.P.E. @ 7.27%

NEW OIL SKIMMER CB#11
RIM 830.30
INV. 825.80
(SEE DETAIL)

198LF 12" H.D.P.E @ 1.04%

53LF 12" HDPE @ 0.60%

INSTALL CONCRETE SPLASH BLOCK AT DISCHARGE OF EACH DOWNSPOUT

NEW CB #4
RIM 832.00
INV. 826.35

REMOVE EXISTING CB

REMOVE EXISTING STORM SEWER

36 LF 6" PVC @ 1.05%
(48" BURY OR INSULATE PIPE)

CONFIRM THESE ARE THE ONLY CBs THAT RECEIVE DRAINAGE FROM FUELING AREA, AND THAT ALL CBs THAT CAPTURE FUELING RUNOFF HAVE ADEQUATE PRETREATMENT

NEW RISER MH
RIM 830.70

NEW RISER MH
RIM 831.10

5 LF 12" H.D.P.E. @ 1.19%

12 LF 12" HDPE @ 4.17%

NEW OIL SKIMMER CB#10
RIM 830.07
INV. 825.50
(SEE DETAIL C301)

NEW MH#13
RIM 830.70
INV. 822.86

44 LF 18" RCP@ 1.04%

STA #3101

BM #1
RAILROAD SPIKE
IN PP/LP
ELEV.=835.72 FT.

59 LF 6" PVC @ 1.05%
(48" BURY OR INSULATE PIPE)

REMOVE EXISTING CATCHBASINS AND STORM SEWER

NEW CB#
RIM 8
INV. 825.34

PROVIDE PRETREATMENT FOR THIS INLET TO THE STORAGE CHAMBER SYSTEM TO REMOVE SEDIMENT/GRIT

63LF 18" HDPE @ 0.54%

NEW MH#9
RIM 831.30
INV. 823.45

46LF 12" H.D.P.E. @ 1.28%

NEW MH#12
RIM 829.95
INV. 822.4 (n)
INV. 822.3±(w,e)

NEW CB#3
RIM 832.40
INV. 825.91

NEW CB#2
RIM 832.00
INV. 825.58

55LF 15" HDPE @ 0.60%

41LF 15" HDPE @ 0.60%

73LF 12" HDPE @ 0.60%

CONSIDER HOW THIS INLET LOCATION IMMEDIATELY ADJACENT TO THE OUTLET MAY RESULT IN SHORT-CIRCUITING OF FLOW AND REDUCTION IN WATER QUALITY BENEFIT COMPARED TO INTENT.

ADDITIONALLY, WITHOUT PRETREATMENT, SEDIMENT IS EXPECTED TO ACCUMULATE AT THIS LOCATION WHICH MAY IMPAIR DRAINAGE FUNCTION OF OUTLET.

BULKHEAD NORTH INVERT. EXISTING FLOW THROUGH THE WEST AND SOUTHEAST INVERTS TO REMAIN.

REMOVE EXISTING STORM SEWER

FIELD VERIFY LOCATION OF THE EXISTING STORM MH. SUPPLY MH FRAME AND COVER. RAISE TOP TO THE NEW GRADE.

FIELD VERIFY LOCATION OF THE EXISTING STORM SEWER. SUPPLY NEW MH AND BASE. DOGHOUSE CONNECT THE EXISTING STORM SEWER.

BM #4
TNH=832.92 FT.

94TH STREET W.

Contractor shall obtain a Public Works permit for obstructions and Public Works driveway permit concrete work within the right-of-way. Permit is required prior to removals or installation. Contact Abdi Abdulle (952-563-4555, aabdulle@BloomingtonMN.gov) for permit information.

SEE SHEET C402 FOR BLOOMINGTON SPECIFIC CONSTRUCTION NOTES

COORDINATE ALL OPEN CUT WORK ON 94TH STREET WITH THE CITY AND MNDOT ROAD CONSTRUCTION PROJECTS

The City of Bloomington's Standard Specifications for Street and Utility Construction shall govern for all improvements within the public right-of-way or drainage and utility easement.

BENCHMARKS (BM)
(NAVD 88)

1. Top of top railroad spike in the north side power pole near southwest property corner of Lot 1, Block 1, Whitney Addition. Elevation = 835.72 feet
2. Top of top nut of fire hydrant 23½ feet westerly of the northwest corner of 1050 94th St. W. building. Elevation = 837.60 feet
3. Top of top railroad spike in the east side power pole 68½ feet south of the southwest corner of 1000 94th St. W. building. Elevation = 832.54 feet
4. Top of top nut of 1st fire hydrant east of East Bloomington Freeway on the south side of 94th Street W. Elevation = 832.92 feet

NORTH

20 10 0 20 40

KWIK TRIP
KWIK STAR


KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LACROSSE, WI 54602-2107
PH. (608) 781-8988
FAX (608) 781-8960

Sunde Engineering, PLLC.
SUNDE ENGINEERING, PLLC.
10800 NESBITT AVENUE SOUTH
BLOOMINGTON, MINNESOTA 55437
(952) 881-3344 TELEPHONE
(952) 881-1913 FAX
www.sundeeng.com


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

Brian H. Munderstock

Brian H. Munderstock
DATE: 11/12/25 REG. NO.: 23468

# STORM SEWER PLAN
## CONVENIENCE STORE 1739
## - BLOOMINGTON, MINNESOTA

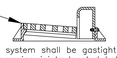
| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/2025 | INTERNAL REVIEW |
| - | 11/12/2025 | CITY SUBMITTAL |

| | |
|---|---|
| DRAWN BY | MW |
| SCALE | GRAPHIC |
| PROJ. NO. | 25-1794 |
| DATE | OCTOBER 3, 2025 |
| SHEET | C300 |

KWIK TRIP P.M. E.H.

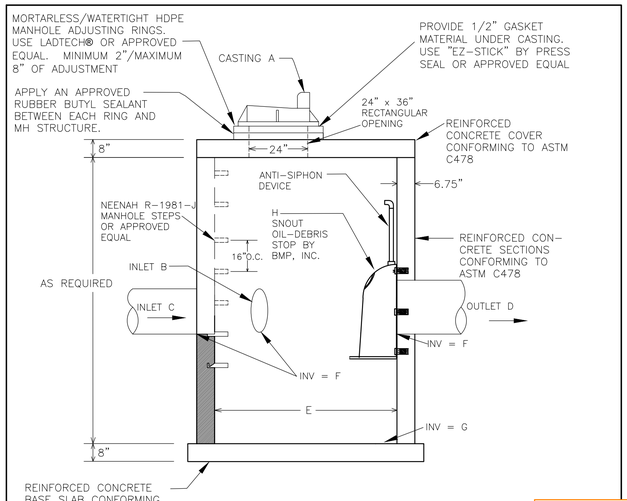
STORM DRAINAGE:

1. Secure all permits and pay all fees prior to the start of construction. Obtain permits from the City for work in the public right-of-way.
2. Submit shop drawings for all structures to the Owner and Engineer for review and comment prior to ordering/purchasing and installation.
3. Unless otherwise indicated, use reinforced, precast, concrete maintenance holes and catchbasins conforming to ASTM C478, furnished with water stop rubber gaskets and precast bases. Joints for all precast maintenance hole sections shall have confined, rubber "O"-ring gaskets in accordance with ASTM C443. These joints are normally used in sewers to hold infiltration and exfiltration to a practical minimum and are adequate for hydrostatic heads up to 30'. The inside barrel diameter shall not be less than 48 inches.
4. Install catchbasin castings with specified top elevation at the front rim.




5. All joints and connections in the sewer system shall be gastight or watertight. Inlet and outlet connections to sewer manholes must use flexible compression joints located between 12 and 36 inches from the manhole in accordance with Minnesota Rules part 4714.719.6. Where permitted by the administrative authority as an alternate installation method, approved resilient rubber joints or waterstop gaskets may be used in order to make watertight connections to manholes and other structures (see Minnesota Rules part 4714.301.2). Use Fernco "Concrete Manhole Adaptors" or "Large Diameter Waterstops", Press-Seal "Waterstop Grouting Rings", or approved equal. Cement mortar joints are permitted only for repairs or connections to existing lines having such joints.
6. The building sewer starts 2 feet outside of the building. See Minnesota Rules part 4714.715.1. Material installed within 2 feet of the building must be of materials approved for use inside of or within the building.
7. The exterior storm water piping must comply with the following requirements: (A) Double wyes may not be used for drainage fittings in the horizontal position (see Minnesota Rules, Chapter 4714, Section 310.5), because proper pipe slope cannot be maintained on both of the lateral branches. (B) Changes in direction in drainage piping must be made by appropriate use of wyes and bends (see Minnesota Rules part 4714.706). When connecting any vertical drop to a horizontal run, use a wye and a 1/8 bend (45 deg), or a sanitary combo. A sanitary combo is a combination wye and a 1/8 bend combined in a single fitting. The reason is to form a long radius bend in order to insure that the waste is directed in the downstream direction as it enters the horizontal run. Tees are not allowed where the direction of flow changes from either vertical to horizontal or horizontal to horizontal.
8. PVC Pipe (Outside of the Building): Use solid-core, Schedule 40 Polyvinyl Chloride (PVC) Plastic Pipe for all designated PVC storm sewer services outside of the building. The PVC pipe shall meet or exceed the industry standards and requirements as set forth by the American Society for Testing and Materials (ASTM) D1785 and D2665. Fittings must comply with ASTM D1866, D2665, or F794. Joints must be approved mechanical or push-on utilizing an elastomeric seal. Use of solvent cement joints is allowed for building services. Solvent cement joints in PVC pipe must include use of ASTM F656 purple primer and cement in accordance with Minnesota Rules part 4714.605.2.2. Pipe with solvent cement joints shall be joined with PVC cement conforming to ASTM D2564. The installation must comply with ASTM D2321, which requires open-trench installation on a continuous granular bed.
9. Cleanouts: Install cleanouts on all roof drains. Cleanouts shall be installed at every wye, sweep, and bend. Install cleanouts on all storm sewer services in accordance with Minnesota Rules part 4717.719 and 4714.1101.13. The distance between cleanouts in horizontal piping shall not exceed 100 feet for pipes 4-inch and over in size. Cleanouts shall be of the same nominal size as the pipes they serve. Include frost sleeves and concrete frame and pipe support. Install a meter box frame and solid lid (Neenah R-1914-A, or approved equal) over all cleanouts. Provide cleanouts at the base of the roof leader connections at the gas island pump stations.
10. Fittings: Provide directional fittings for the storm piping serving the gas island pump stations. All changes in direction of flow in drain piping shall be made by the appropriate use of 45 degree wyes, long or short sweep quarter bends, sixth, eighth, or sixteenth bends, or by a combination of these or other equivalent fittings.
11. RCP: Reinforced concrete pipe (RCP) and fittings shall conform to ASTM C76, Design C, with circular reinforcing for the class of pipe specified. Use Class IV RCP for pipes 21" and larger. Use Class V RCP for pipes 18" and smaller. Joints shall be made up of concrete surfaces with a groove on the spigot for an O-ring rubber gasket (also referred to as a confined O-ring type joint) in accordance with ASTM C361. These joints are normally used in gravity sewers where exceptional tightness is required. This type of joint provides excellent inherent water tightness in both the straight and deflected position and meets all the joint requirements of ASTM C443.
12. RC Aprons: Install a reinforced concrete apron on the free end of all daylighted RCP storm sewer pipes. Tie the last three sections (including apron) of all daylighted RCP storm sewer with a minimum of two tie bolt fasteners per joint. This requirement applies to both upstream and downstream pipe inlets and outlets. For concrete culverts, tie all joints. Ties to be used only to hold the pipe sections together, not for pulling the sections tight. Nuts and washers are not required on inside of 675 mm (27 inch) or less diameter pipes.
13. Grates on horizontal pipes: Install safety-trash grates on all horizontal inlets/outlets greater than 6 inches in diameter. The grates shall be placed so that the rods or bars are not more than 3 inches downstream of the inlet/outlet. Rods or bars shall be spaced so that the openings do not permit the passage of a 6-inch sphere.
14. Testing: Test all portions of storm sewer that are within 10 feet of buildings, within 10 feet of buried water, lines, within 50 feet of water wells, or that pass through soil or water identified as being contaminated in accordance with the Minnesota Rules part 4714.1107. Building storm sewers shall be tested in accordance with Minnesota Rules part 4714.712 or the Hydrostatic Test Method from the City Engineers Association of Minnesota. The Hydrostatic Test Method, provisions E2 and E3, as specified in Standard Utilities Specifications for Watermain and Service Line Installation and Sanitary Sewer and Storm Sewer Installation, written and published by the City Engineers Association of Minnesota, 2018 edition, is incorporated by reference. Test all flexible storm sewer lines for deflection after the sewer line has been installed and backfill has been in place for at least 30 days. No pipe shall exceed a deflection of 5%. If the test fails, make necessary repairs and retest.
15. Drainitle: In accordance with Minnesota Rules part 4714.1101.4.6, use perforated polyvinyl chloride PVC (ASTM D2729) or corrugated polyethylene PE (ASTM F667) on all drainitle. Install drainitle with high permittivity circular knit polymeric filament filter sock per ASTM D6707-01. MnDot 3733 Type I sewn seam non-woven fabric shall not be used. Drainitle pipe directly connected to the storm sewer is classified as storm sewer. Drainitle inlet elevations to the catch basins must be above the storm sewer outlet elevations.
16. Use Neenah R-3067 casting with curb box and Type R grate, or approved equal, on CB 1, 2, 3, 9, 10 and 11. Casting shall include the "DUMP NO WASTE. DRAINS TO FRESH WATER," environmental notice.
17. Use a Neenah R-1733 with Type "C" radial grate and frame, on CB 4, CB 5, CB 6 and CB 8.
18. Use Neenah Foundry Co. R-1642 casting with self-sealing, solid, type B lid, or approved equal, on all storm sewer maintenance holes. Covers shall bear the "Storm Sewer" label.
19. Trace Wire: Install locating wires on all conductive and non-conductive storm sewer, sanitary sewer, and water lines in accordance with the Minnesota Rural Water Association (MRWA) Trace Wire Specification Guide and Details (www.mrwa.com/PDF/TracerWireSpecGuideFinalweb9.pdf). Use #12 HDPE-insulated copper-clad steel wire rated for underground service. The color of the insulating jacket shall be as follows: ground=red, storm sewer=green, sanitary sewer=green, and water lines=blue. Install the wire on the bottom side of the pipe below the spring line. Fasten the wire to the pipe with tape or plastic ties at 5' intervals. Do not wrap the trace wire around the corresponding utility. Do not connect the trace wire to existing conductive utilities. Use Copperhead Dryconn 3-Way or Locking Snake Bite connectors rated for underground direct bury applications or approved equal at all crossings or service connections. Twist on connectors are not allowed. Trace wire must be properly grounded at all dead ends and services. Install grade-level/in-ground trace wire access boxes and drive-in magnesium grounding anodes at all dead ends, services, and fire hydrants. Trace wire access boxes shall be color coded as follows: storm sewer=green, sanitary sewer=green, and water lines=blue.
20. Detectable Warning Tape: Install detectable underground warning tape directly above all underground utilities at a depth of 457 mm (18 inches) below finished grade, unless otherwise indicated. Underground warning tape shall be 3-inches wide with a minimum 5.0 mil overall thickness. Tape shall be manufactured using a 0.8 mil clear virgin polypropylene film, reverse printed and laminated to a 0.35 mil solid aluminum foil core, and then laminated to a 3.75 mil clear virgin polyethylene film. The aluminum backing makes underground assets easy to find using a non-ferrous locator. Tape shall be printed using a diagonally striped design for maximum visibility and meet the APWA Color-Code standard for identification of buried utilities. Use Pro-Line Safety Products (www.prolinesafety.com) detectable marking tape or approved equal.
21. In no case shall water from roofs be allowed to flow upon the public sidewalk (see Minnesota Rules part 4714.1101.2). This shall include the discharge from all rainwater conductors, including overflow roof drains.
22. The minimum depth of cover for building and canopy roof drain leaders without insulation is 5 feet. Insulate roof drain leaders at locations where the depth of cover is less than 5 feet. Provide a minimum insulation thickness of 2 inches. The insulation must be at least 4 feet wide and centered on the pipe. Install the insulation boards 6 inches above the tops of the pipes on mechanically compacted and leveled pipe bedding material. Use high density, closed cell, rigid board material equivalent to DOW Styrofoam HI-40 plastic foam insulation.
23. Install all pipe with the ASTM identification numbers on the top for inspection. Commence pipe laying at the lowest point in the proposed sewer line. Field verify that there is positive drainage at the outfall location. Lay the pipe with the bell end or receiving groove end of the pipe pointing upgrade. When connecting to an existing pipe, uncover the existing pipe in order to allow any adjustments in the proposed line and grade before laying any pipe. Do not lay pipes in water or when the trench conditions are unsuitable for such work.
24. Line ponds with 2' thick impervious clay liner per detail.
25. Clean sediment and debris from sewers, sumps and stormwater basins prior to final owner acceptance.
26. Televise all existing lines prior to connection.
27. Install finger drains at each and every proposed catchbasin (see detail). Finger drains around catch basin inlets shall not be installed below the crown of the storm drain piping.
28. Provide a final storm water management report that will serve to verify that the intent of the approved storm water management design has been met. The report shall include record drawings, measurements, and photographic evidence of the as-built storm water management system. The report shall substantiate that all aspects of the original design have been adequately provided for by the construction of the project.

The City of Bloomington's Standard Specifications for Street and Utility Construction shall govern for all improvements within the public right-of-way or drainage and utility easement.

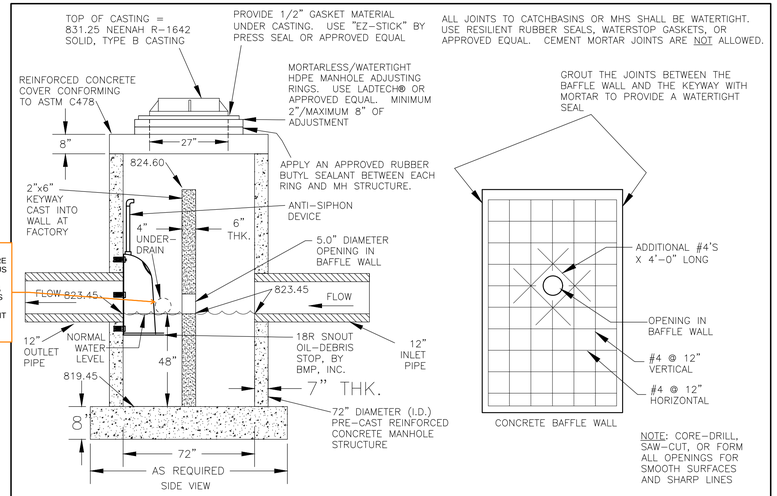



CLARIFY WHAT THIS 4" UNDERDRAIN IS AND WHERE IT IS LOCATED ON PREVIOUS SHEET. IT IS SHOWN ON CHAMBER DETAIL BELOW, BUT UNCLEAR IF IT WRAPS AROUND ALL SIDES OF CHAMBERS AND HOW FAR IT IS SPACED FROM CHAMBERS.

ALL JOINTS TO CATCHBASINS OR MHS SHALL BE WATERTIGHT. USE RESILIENT RUBBER SEALS, WATERSTOP GASKETS, OR APPROVED EQUAL. CEMENT MORTAR JOINTS ARE NOT ALLOWED.

| STRUCTURE # | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| CB#10 | NEENAH R-3067 | – | – | 12" HDPE | 5' DIA. | 825.50 | 821.50 | 18R |
| CB#11 | NEENAH R-3067 | – | – | 12" HDPE | 5' DIA. | 825.80 | 821.80 | 18R |

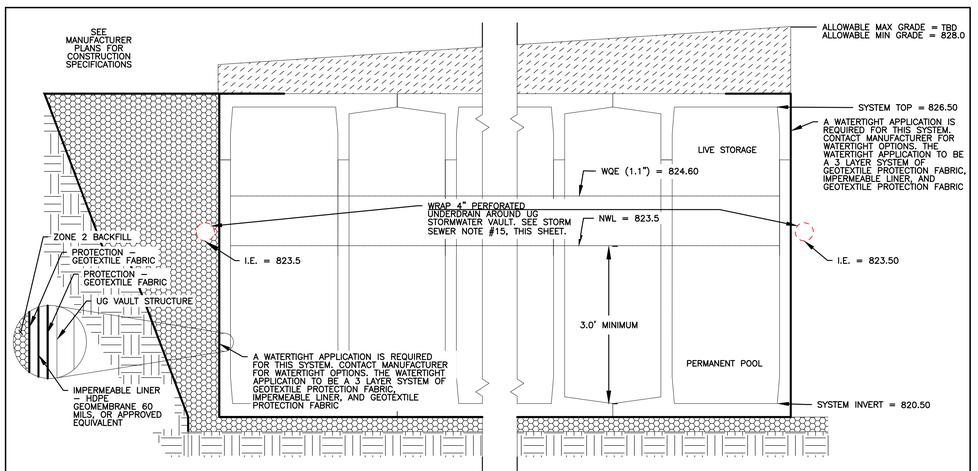
OIL SKIMMER STRUCTURE DETAIL SCHEDULE




OUTLET CONTROL/SKIMMER STRUCTURE MH #9 WITH BAFFLE WEIR

HDPE REQUIREMENTS:

1. Install dual-wall, smooth interior, corrugated high-density polyethylene (HDPE) pipe at locations indicated on the plan. High-density polyethylene (HDPE) storm sewers must meet ASTM F714 (see Minnesota Rules, Chapter 4714 and Installation Standard 1).
2. Dual-wall, smooth interior, corrugated high-density polyethylene (HDPE) pipe shall conform to the requirements of AASHTO M252 for pipe sizes 4-inch to 10-inch diameter. Dual-wall, smooth interior, corrugated high-density polyethylene (HDPE) pipe shall conform to the requirements of ASTM F2306 (virgin PE material) for pipe sizes 12-inch to 60-inch diameter.
3. All fittings must comply with ASTM Standard D3212.
4. Water-tight joints must be used at all connections including structures in conformance with ASTM F2510.
5. HDPE pipes must be listed and labeled.
6. HDPE pipes must be installed with a minimum 10-feet separation from water piping and may not cross above water service lines (see UPC Section 720.1).
7. HDPE pipes must not be installed within 10 feet of building. The connection between HDPE and a different pipe material must be made by means of an approved transition coupling for the specific application.
8. HDPE pipe connections into all concrete structures must be made with water tight materials utilizing Nyoplast "Manhole Adaptors" along with Press-Seal or Kor-N-Seal "Watertight Connector", Cast-A-Seal "Precast Watertight Connector", or approved equals. Where the alignment precludes the use of the above approved watertight methods, Conseal 231 WaterStop sealant, or approved equal will only be allowed as approved by the Administrative Authority.
9. HDPE pipe installation must be open-trench on a continuous granular bed per ASTM D2321 and manufacturer's installation instructions. All sections of the corrugated HDPE pipe shall be coupled in order to provide water tight joints.
10. Perform deflection tests on all HDPE pipe after the sewer lines have been installed and backfill has been in place for at least 30 days. No pipe shall exceed a deflection of 5%. If the test fails, make necessary repairs and perform the test again until acceptable. Supply the mandrel for deflection testing. If the deflection test is to be run using a rigid ball or mandrel, it shall have a diameter equal to 95% of the inside diameter of the pipe. The ball or mandrel shall be clearly stamped with the diameter. Perform the tests without mechanical pulling devices.




6'-0" UNDERGROUND STORMWATER WET VAULT

ALL JOINTS TO CATCHBASINS OR MHS SHALL BE WATERTIGHT. USE RESILIENT RUBBER SEALS, WATERSTOP GASKETS, OR APPROVED EQUAL. CEMENT MORTAR JOINTS ARE NOT ALLOWED.

KWIK TRIP

KWIK STAR


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

Brian H. Munderloh

Brian H. Munderloh

DATE: 11/12/25 REG. NO. 23468

# STORM SEWER NOTES AND DETAILS

# CONVENIENCE STORE 1739

# - BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/2025 | INTERNAL REVIEW |
| - | 11/1/2025 | CITY SUBMITTAL |

| | |
|---|---|
| DRAWN BY | MW |
| SCALE | GRAPHIC |
| PROJ. NO. | 25-1794 |
| DATE | OCTOBER 3, 2025 |
| SHEET | C301 |

KWIK TRIP P/N: E.H.

## GOPHER STATE ONE CALL

WWW.GOPHERSTATEONECALL.ORG
(800) 252-1166 TOLL FREE
(651) 454-0002 LOCAL

The subsurface utility information shown on this plan is utility Quality Level D. This quality level was determined according to the guidelines of CI/ASCE 38-02, entitled "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data."

**Building/property shall be adequately signed for emergency response.**

Entire space(s) shall have fully complying sprinkler protection.

**Hydrant coverage shall be provided within 50' of the FDC and within 150' of all portions of the structure.**

Ensure landscaping doesn't interfere with access to the building, hydrants and/or FDC.

Relocate hydrant to island on SE corner of the building.

Relocate FDC SE corner of the building.

Type I hood exhaust with kitchen suppression system connected to the building sprinkler system required for operations creating grease laden vapors.

A looped water supply feeding a single, combined water service is required for the domestic and sprinkler system water demand.

Provide adequate turning radius for all emergency vehicle access lanes.

Utility review: Per Fire review, hydrant should be located on the island near the SE corner of the building and there should be a looped water supply with a single fire-domestic service for fire protection. For revised hydrant location, make sure there is 10 ft horizontal and 18 inch vertical separation for any sewer crossings.

GREASE TRAP. REFER TO PLUMBING PLANS.

INSTALL FULL-SIZED BI-DIRECTIONAL CLEANOUTS FOR GREASE TRAP ON BOTH INLET AND OUTLET SIDES

REMOVE 6" FIRE HYDRANT LEAD, FIRE HYDRANT AND VALVE AND CAP AT MAIN PER CITY STANDARDS.

CUT AND CAP THE UNUSED WATER SERVICE AT THE MAIN

PRESSURE TAP CONNECT TO EX. 8" WATER. 8"x6" SLEEVE, 6" GATE VALVE, AND 6" D.I.P. W.

Utility review:
- Per Fire review, water service to the building must be a fire-domestic service for fire protection.
- Contact City for water main tap.

TRANSFORMER AND DISCONNECT PAD LOCATION

COORDINATE NEW UG ELECTRIC SERVICE WITH UTILITY COMPANY

TELEPHONE SERVICE LOCATION

Utility review:
- Must maintain a minimum of 8 ft cover from top of water main and any water services to ground surface - including from the side slop of the proposed basin.
- Make sure there is a plan sheet with all utilities and ex and prop grading, so it's easier to review the design.
- Stormwater basin EOF is 833.36 ft on previous page with basin min. 832.0 ft. Nearby top of ex water main elev. is approx. 826 ft. Is this infiltration or a lined basin? We prefer, where possible, to minimize infiltration above the water mains to minimize contamination risks. Additionally, this can be a maintenance headache if the water service needs to be dug up for some reason.

FDC LOCATION

FIELD VERIFY LOCATION OF EXISTING WATERMAIN

FIRE HYDRANT

PRESSURE TAP CONNECT TO EX. 8" WATER. 8"x6" SLEEVE, 6" GATE VALVE, AND 6" D.I.P. W.

Utility review: May need insulation between storm and sanitary sewer if there is insufficient coverage to prevent sanitary service freezing.

COORDINATE NEW UG TELEPHONE SERVICE WITH UTILITY COMPANY

STANDARD SHORT CONE INSPECTION MH (NO STEPS ALLOWED).

REMOVE AND REPLACE EXISTING SANITARY SEWER SERVICE

63LF 6" SCH-40 PVC @ 2.10%

Contractor shall obtain a Public Works permit for obstructions and Public Works driveway permit concrete work within the right-of-way. Permit is required prior to removals or installation. Contact Abdi Abdulle (952-563-4555, aabdulle@BloomingtonMN.gov) for permit information.

6" FIRE AND DOMESTIC WATER SERVICE AND METER LOCATION

ELECTRIC SERVICE AND METER LOCATION

GAS SERVICE AND METER LOCATION

CONVENIENCE STORE FFE=834.0

3LF 6" SCH-40 PVC @ 2.10%

6" PVC SAN. S. INV. @ BLDG = 824.32

SAN. S. CLEANOUT INV. = 824.26

59LF 6" SCH-40 PVC @ 2.10%

| A | SAN. S. MH |
|---|---|
| TOP | = 834.00 |
| INV. | = 823.02 |

WYE CONNECT TO EX. 9" SAN. S. AT INV. ELEV. = 821.7±. FIELD VERIFY SIZE, ELEVATION, AND LOCATION PRIOR TO START OF CONSTRUCTION.

EXTEND SAWCUT TO THE SOUTH CURB LINE. PATCH STREET TO MATCH EXISTING PAVEMENT SECTION AND GRADE.

CUT AND CAP THE EXISTING 4" CIP SAN. S. AT THE MAIN

Utility review:
- The City is okay with open cut for the sanitary service on W 94th St on the condition that the construction scheduling is coordinated with the City and MnDOT (City can help with this) since there are other major projects in the next few years that will impact the traffic control management of the W 94th St bridge crossing. Ideally, the open cut for your proposed work would occur in 2026 before the other projects begin construction in 2027.
- Bloomington Utilities is okay with connecting at the 9" sanitary sewer. A service manhole (like the existing) will also still be required.
- Instead of capping the ex sanitary service at the main, recommend reconnecting at the same location, so service is 90 degrees from main rather than a 45 degree bend shortly before the connection.

Utility review: Note if you'll remove or abandon this water service between the capped location and the removed curb stop.

SEE SHEET C402 FOR BLOOMINGTON SPECIFIC CONSTRUCTION NOTES

COORDINATE ALL OPEN CUT WORK ON 94TH STREET WITH THE CITY AND MNDOT ROAD CONSTRUCTION PROJECTS

CUT AND CAP THE UNUSED WATER SERVICES AT THE MAIN

EXTEND SAWCUT TO THE SOUTH CURB LINE. PATCH STREET TO MATCH EXISTING PAVEMENT SECTION AND GRADE.

REMOVE EXISTING SANITARY SEWER SERVICE

REMOVE EXISTING WATER VALVES AND CURB BOXES

REMOVE EXISTING MH

REMOVE EXISTING SANITARY SEWER SERVICE

BULKHEAD NORTH INVERT

The City of Bloomington's Standard Specifications for Street and Utility Construction shall govern for all improvements within the public right-of-way or drainage and utility easement.

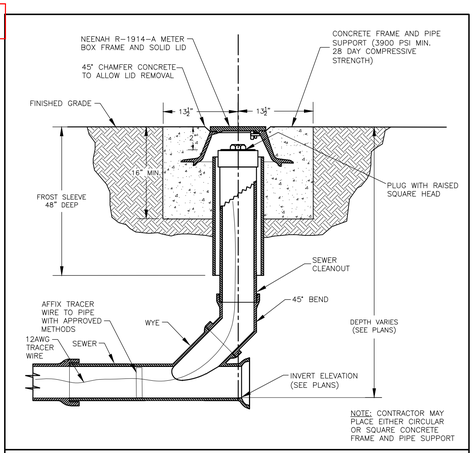
BM #1 RAILROAD SPIKE IN PP,LP ELEV.=835.72 FT.

BM #2 TNH=837.60 FT.

BM #3 RAILROAD SPIKE IN PP ELEV.=832.54 FT.

BM #4 TNH=832.92 FT.

94TH STREET W.




SEWER CLEANOUT

KEYNOTES:

1. LOWER WATERMAIN AT CROSSING IN ACCORDANCE WITH STD. DETAIL PLATE NO. 316. SEE SHEET C402. SEWER PIPE WITHIN 10 FEET OF THE CROSSING MUST BE CONSTRUCTED OF MATERIALS APPROVED FOR USE WITHIN A BUILDING IN ACCORDANCE WITH MN RULES 4714. WATER SERVICE SHALL NOT CONTAIN ANY JOINTS OR CONNECTIONS WITHIN 10 FEET OF CROSSING. TEST ALL PORTIONS OF THE STORM SEWER SYSTEM WITHIN 10 FEET OF THE CROSSING IN ACCORDANCE WITH MN RULES 4714.1109.

BENCHMARKS (BM)
(NAVD 88)

1. Top of top railroad spike in the north side power pole near southwest property corner of Lot 1, Block 1, Whitney Addition. Elevation = 835.72 feet
2. Top of top nut of fire hydrant 23½ feet westerly of the northwest corner of 1050 94th St. W. building. Elevation = 837.60 feet
3. Top of top railroad spike in the east side power pole 68½ feet south of the southwest corner of 1000 94th St. W. building. Elevation = 832.54 feet
4. Top of top nut of 1st fire hydrant east of East Bloomington Freeway on the south side of 94th Street W. Elevation = 832.92 feet

NORTH

20 10 0 20 40

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

Brian H. Mundstock

Brian H. Mundstock
DATE: 11/12/25 REG. NO. 23468

# UTILITY PLAN - CONVENIENCE STORE 1739 - BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/2025 | INTERNAL REVIEW |
| - | 11/12/2025 | CITY SUBMITTAL |

| | |
|---|---|
| DRAWN BY | MW |
| SCALE | GRAPHIC |
| PROJ. NO. | 25-1794 |
| DATE | OCTOBER 3, 2025 |
| SHEET | C400 |

KWIK TRIP PM E.H.

## GENERAL:

1. Existing boundary, location, topographic, and utility information shown on this plan is from a field survey by Sunde Land Surveying inc. dated 1/10/25. The Engineer is not responsible for inaccuracies related to the survey information.

2. Perform all construction work in accordance with State and Local requirements.

3. Perform all construction activity in accordance with the Minnesota Pollution Control Agency GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY issued August 1, 2023 and all subsequent amendments thereto.

4. Comply with all applicable local, state, and federal safety regulations. Comply with the work safety practices specified by the Occupational Safety and Health Administration (OSHA). OSHA prohibits entry into "confined spaces," such as manholes and inlets (see 29 CFR Section 1910.146), without undertaking certain specific practices and procedures. Perform excavations in accordance with the requirements of O.S.H.A. 29 CFR, Part 1926, Subpart P, Excavations. Trenching standards require protective systems on trenches deeper than 5 feet. Bench or slope sidewalls in order to provide safe working conditions and stability for the placement of engineered fill. Do not expose workers to the dangers of being struck by material and equipment. Keep soil and other materials at least 2 feet from the edge of any trenches. Trenches must be inspected by a competent individual, be free of standing water and atmospheric hazards, and have a safe means of entering and exiting before allowing a worker to enter. The Contractor is responsible for naming the "Competent Individual" in accordance with CFR 1926.6. Sloping or benching for excavations greater than 20 feet deep must be approved by a registered professional engineer (www.osha.gov).

5. Safety is solely the responsibility of the Contractor, who is also solely responsible for the construction means, methods, techniques, sequences or procedures, and for safety precautions and programs in connection with the Work.

6. The Engineer shall not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work. The Engineer's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures.

7. Examine all local conditions at the site, and assume responsibility as to the grades, contours, and the character of the earth, existing conditions, and other items that may be encountered during excavation work above or below the existing grades. Review the drawings, specifications, and geotechnical report covering this work and become familiar with the anticipated site conditions.

8. Refer to the architectural plans for building and stoop dimensions, site layout and dimensions, pavement sections and details, striping, and other site features.

9. A licensed surveyor shall perform construction staking. The Contractor shall provide and be responsible for the staking. Verify all plan and detail dimensions prior to construction staking. Stake the limits of walkways and curbing prior to valvebox, maintenance hole, and catchbasin installation. Adjust valvebox and maintenance hole locations in order to avoid conflicts with curb and gutter. Adjust catchbasin locations in order to align properly with curb and gutter.

10. Provide temporary fences, barricades, coverings, and other protections in order to preserve existing items to remain, and to prevent injury or damage to person or property.

11. Provide all traffic control required in order to construct the proposed improvements. Traffic control design and associated government approvals are the responsibility of the Contractor. Comply with local authorities and the latest version of the Minnesota Manual on Uniform Traffic Control Devices (MMUTCD), including the Field Manual for Temporary Traffic Control Zone Layouts. If the temporary traffic control zone affects the movement of pedestrians, provide adequate temporary pedestrian access and walkways. If the temporary traffic control zone affects an accessible and detectable pedestrian facility, maintain accessibility and detectability along the alternate pedestrian route in accordance with the provisions for pedestrian and worker safety contained in Part 6 of the MMUTCD.

12. Connect to existing sanitary sewer MH's by coredrilling. Connect to existing storm sewer MH's by either sawcutting or coredrilling. Use saws or drills that provide water to the blade. Meet all City standards and specifications for the the connection. Reconstruct inverts after installation. Use water stop gaskets in order to provide watertight seals when penetrating a structure wall with a pipe. Take measurements before beginning construction to ensure that service connections do not cut into maintenance access structure joints or pipe barrel joints.

13. Completely remove existing concrete and masonry structures that are located within the proposed building and future building expansion areas. All other existing sewer and watermain pipes that are to be abandoned shall either be removed, or completely filled with sand or controlled low strength material (CLSM) also known as flowable concrete fill. Bulkhead ends of the pipe segment to be decommissioned with concrete. All other existing sanitary sewer and storm sewer structures that are to be abandoned in place shall be abandoned as follows: (1) remove castings, rings, and top sections, (2) bulkhead any pipe openings, (3) break two 4-inch diameter holes in the barrel at the bottom of the structures for drainage and cover the holes with geotextile filter fabric, and (4) fill the structures with sand or CLSM.

14. Testing and Inspections: All plumbing installations, including water and sewer services, must be tested and inspected in accordance with the requirements of the Minnesota Plumbing Code (Minnesota Rules Chapter 4714). Coordinate testing and inspection with the State Health Department and the City Public Works Department. No drainage or plumbing work may be covered prior to completing the required tests and inspections.

15. Coordinate building utility connection locations at 2 ft. out from the proposed building with the interior Plumbing Contractor prior to construction. Verify water and sewer service locations, sizes, and elevations with the Mechanical Engineer prior to construction. Coordinate construction and connections with the Mechanical Contractor.

16. The subsurface utility information shown on this plan is utility Quality Level D. This quality level was determined according to the guidelines of CI/ASCE 38-02, entitled "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data" by the FHA.

17. The locations of existing utilities shown on this plan are from record information. The Engineer does not guarantee that all existing utilities are shown or, if shown, exist in the locations indicated on the plan. It is the Contractor's responsibility to ascertain the final vertical and horizontal location of all existing utilities (including water and sewer lines and appurtenances). Notify the Engineer of any discrepancies.

18. The Contractor is solely responsible for all utility locates. Contact utility companies for locations of all public and private utilities within the work area prior to beginning construction. Contact GOPHER STATE ONE CALL at (651) 454-0002 in the Minneapolis/St. Paul metro area, or 1-800-252-1166 elsewhere in Minnesota for exact locations of existing utilities at least 48 working hours (not including weekends and holidays) before beginning any construction in accordance with Minnesota Statute 216D. Obtain ticket number and meet with representatives of the various utilities at the site. Provide the Owner with the ticket number information. Gopher State One Call is a free service that locates municipal and utility company lines, but does not locate private utility lines. Use an independent locator service or other means in order to obtain locations of private utility lines including, but not limited to, underground electric cables, telephone, TV, and lawn sprinkler lines.

19. Pothole to verify the positions of existing underground facilities at a sufficient number of locations in order to assure that no conflict with the proposed work exists and that sufficient clearance is available.

20. Where existing gas, electric, cable, or telephone utilities conflict with the Work, coordinate the abandonment, relocation, offset, or support of the existing utilities with the appropriate local utility companies. Coordinate new gas meter and gas line installation, electric meter and electric service installation, cable service, and telephone service installation with the local utility companies.

21. When working near existing telephone or electric poles, brace the poles for support. When working around existing underground utilities that become exposed, provide sufficient support in order to prevent excessive stress on the existing piping. The location and preservation of existing underground utilities is solely the responsibility of the Contractor.

22. Temporary support systems are the responsibility of the Contractor, who is also solely responsible for the construction means, methods, techniques, sequences or procedures, and for safety precautions and programs in connection with the temporary support systems. Temporary support systems include, but are not limited to, shoring, sheeting, bracing, anchorages, excavation support walls, directional boring, auger jacking, soil stabilization, and other methods of protecting existing improvements.

23. Arrange for and secure suitable disposal areas off-site. Dispose of all excess soil, waste material, debris, and all materials not designated for salvage. Waste material and debris includes trees, stumps, pipe, concrete, asphaltic concrete, cans, or other waste material from the construction operations. Obtain the rights to any waste area for disposal of unsuitable or surplus material either shown or not shown on the plans. All work in disposing of such material shall be considered incidental to the work. All disposal must conform to applicable solid waste disposal permit regulations. Obtain all necessary permits at no cost to the Owner.

24. Store and protect existing site features that need to be removed and replaced in connection with the Work. Replace damaged or stolen site features at no additional cost to the Owner.

25. Straight line saw-cut existing bituminous or concrete surfacing at the perimeter of pavement removal areas. Use saws that provide water to the blade. Do not allow the slurry produced by this process to be tracked outside of the immediate work area or discharged into the sewer system. Tack and match all connections to existing bituminous pavement.

26. Relocate overhead power, telephone, and cable lines as required. Seal and report any existing unused on-site wells and septic systems in accordance with Minnesota Department of Health (MDH) requirements. Provide the MDH with a Well and Boring Sealing Record, or certify in writing that there are no unused wells on the property.

27. All materials required for this work shall be new material conforming to the requirements for class, kind, grade, size, quality, and other details specified herein or as shown on the Plans. Do not use recycled or salvaged aggregate, asphaltic pavement, crushed concrete, or scrap shingles. Unless otherwise indicated, the Contractor shall furnish all required materials and labor in order to perform the construction in accordance with the construction documents, specifications, and regulatory agencies.

28. Reconstruct driveways and patch street to match existing pavement section and grade. Sod right-of-way. Restore the public right-of-way at temporary construction entrance locations. Replace any concrete curb and gutter, bituminous pavement, sidewalk, or vegetative cover damaged by the construction activity. Restore damaged turf with sod within the public right-of-way. The work area shown is general and may need to be adjusted in the field.

29. Cut turf edges in order to allow for a uniform straight edge at locations where new sod meets existing turf. No jagged or uneven edges are allowed. Remove topsoil as required at joints between existing and new turf in order to allow the surface of the new sod to be flush with the existing.

30. Document existing conditions (photographs, video, field survey, etc.) in order to enable restoration to match existing conditions and in order to ensure that restored areas have positive drainage similar to existing conditions.

31. Provide positive drainage away from buildings at all times. Provide and maintain temporary drainage throughout construction until the permanent drainage system and structures are in place and operational. Install temporary ditches, piping, pumps, or other means as necessary in order to insure proper drainage at all times. Provide low points at building pads or roadways with positive outfalls. Do not block drainage from or direct excess drainage to adjacent property.

32. Protect all structures and landscaping not labeled for demolition from damage during construction. Provide protective coverings and enclosures as necessary to prevent damage to existing work that is to remain. Existing work to remain may include items such as trees, shrubs, lawns, sidewalks, drives, curbs, utilities, buildings and/or other structures on or adjacent to the site. Provide temporary fences and barricades as required for the safe and proper execution of the work and the protection of persons and property. Provide building surveys and seismic monitoring in locations where demolition, excavation, underpinning, pile driving, compacting, or similar work is to be performed adjacent to or in the vicinity of existing structures. Return any on-site or off-site areas disturbed directly or indirectly due to construction to a condition equal to or better than the existing condition.

33. Protect sub grades from damage by surface water runoff.

34. Full design strength is not available in bituminous pavement areas until the final lift of asphalt is compacted into place. Protect pavement areas from overloading by delivery trucks, construction equipment, and other vehicles.

35. When sawing or drilling concrete or masonry, use saws that provide water to the blade. Do not allow the slurry produced by this process to be tracked outside of the immediate work area or discharged into the sewer system.

36. Adjust all public and private structures including curb stops, valve boxes, maintenance hole castings, catchbasin castings, cleanout covers, and similar items to finished grade. Comply with the requirements of each structure's owner. Structures being reset in paved areas must meet the owner's requirements for traffic loading.

37. Grading for all sidewalks and accessible routes, including driveway crossings, shall conform to current State and Federal Americans with Disabilities Act (ADA) requirements. In accordance with ADA Section 403.3, slopes shall not exceed except 2% cross slope or 5% in the direction of travel. Sidewalk access to external building doors shall be ADA compliant. Accessible parking stalls shall not exceed 2% slope in any direction.

38. Curb ramps on accessible routes shall comply with sections 405 and 406 of the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

39. Accessible parking spaces shall include the International Symbol of Accessibility complying with ADA Section 703.7.2.1 painted in the center of the parking space, 4-ft. high. Hatch handicapped access aisles with white 4-inch wide painted stripes 18-inches on center and at 45 degree angles to the stalls.

40. Accessible parking spaces shall be provided in accordance with Minnesota Rules 1341.0502 A117.1 Section 502.

41. Install all pipe with the ASTM identification numbers on the top for inspection. Commence pipe laying at the lowest point in the proposed sewer line. Field verify that there is positive drainage at the outfall location. Lay the pipe with the bell end or receiving groove end of the pipe pointing upgrade. When connecting to an existing pipe, uncover the existing pipe in order to allow any adjustments in the proposed line and grade before laying any pipe. Do not lay pipes in water or when the trench conditions are unsuitable for such work.

42. Obtain and pay for all permits, tests, inspections, etc. required by agencies that have jurisdiction over the project including the NPDES permit from the State. The Contractor is responsible for all bonds, letters of credit, or cash sureties related to the work. Execute and inspect work in accordance with all local and state codes, rules, ordinances, or regulations pertaining to the particular type of work involved.

43. Measure pipe lengths from center-of-structure to center-of-structure, or to the end of aprons.

44. Obtain permits from the City for work in the public right-of-way.

45. Refer to the geotechnical report by the Soils Engineer for dewatering requirements.

46. Test boring data shown on the plans were accumulated for designing and estimating purposes. Their appearance on the plan does not constitute a guarantee that conditions other than those indicated will not be encountered.

47. The minimum depth of cover for building and canopy roof drain leaders without insulation is 5 feet. Insulate roof drain leaders at locations where the depth of cover is less than 5 feet. Provide a minimum insulation thickness of 2 inches. The insulation must be at least 4 feet wide and centered on the pipe. Install the insulation boards 6 inches above the tops of the pipes on mechanically compacted and leveled pipe bedding material. Use high density, closed cell, rigid board material equivalent to DOW Styrofoam Highload 40 Polystyrene Insulation. Individual insulation board dimensions typically measure 4' wide by 8' long by 2" thk.

48. Insulate utility lines at locations indicated on the plans. Provide a minimum insulation thickness of 4 inches. The insulation must be at least 4 feet wide and centered on the pipe. Install the insulation boards 6 inches above the tops of the pipes on mechanically compacted and leveled pipe bedding material. Use high density, closed cell, rigid board material equivalent to DOW Styrofoam HI-40 plastic foam insulation.

49. Construct PUBLIC sanitary sewer, watermain, and storm sewer utilities in accordance with the City Engineer's Association of Minnesota Standard Specifications sections 2600, 2611, and 2621 dated 2023, or the latest revised edition.

50. Construct PRIVATE sanitary sewer, watermain, and storm sewer utilities located within the property line in accordance with the Minnesota Plumbing Code, Minnesota Rules, Chapter 4714, or the latest revised edition.

51. These plans, prepared by Sunde Engineering, PLLC., do not extend to or include systems pertaining to the safety of the construction contractor or its employees, agents, or representatives in the performance of the work. The seal of Sunde Engineering's registered professional engineer hereon does not extend to any such safety systems that may nor or hereafter be incorporated into these plans. The construction contractor shall prepare or obtain the appropriate safety systems which may be required by U.S. Occupational Safety and Health Administration (OSHA) and/or local regulations.

52. Existing utilities shown on this plan are located as accurately as possible. However, the Engineer does not guarantee that all utilities are shown, or if shown are in the exact locations indicated on the plan. It is the Contractor's responsibility to ascertain the final vertical and horizontal location of all existing utilities (including municipal water and sewer lines and appurtenances) and to notify the owners of the utilities a minimum of 48 working hours before starting construction in a given area, requesting location in the field, as exact as possible, of all utilities which may be affected by the construction.

53. Trace Wire: Install locating wires on all conductive and non-conductive storm sewer, sanitary sewer, and water lines in accordance with the Minnesota Rural Water Association (MRWA) Trace Wire Specification Guide and Details (www.mrwa.com/PDF/TracerWireSpecGuideFinalweb9.pdf). Use #12 HDPE-insulated copper-clad steel wire rated for underground service. The color of the insulating jacket shall be as follows: ground=red, storm sewer=green, sanitary sewer=green, and water lines=blue. Install the wire on the bottom side of the pipe below the spring line. Fasten the wire to the pipe with tape or plastic ties at 5' intervals. Do not wrap the trace wire around the corresponding utility. Do not connect the trace wire to existing conductive utilities. Use Copperhead Dryconn 3-Way or Locking Snake Bite connectors rated for underground direct bury applications or approved equal at all crossings or service connections. Twist on connectors are not allowed. Trace wire must be properly grounded at all dead ends and services. Install grade-level/in-ground trace wire access boxes and drive-in magnesium grounding anodes at all dead ends, services, and fire hydrants. Trace wire access boxes shall be color coded as follows: storm sewer=green, sanitary sewer=green, and water lines=blue.

54. Detectable Warning Tape: Install detectable underground warning tape directly above all underground utilities at a depth of 457 mm (18 inches) below finished grade, unless otherwise indicated. Underground warning tape shall be 3-inches wide with a minimum 5.0 mil overall thickness. Tape shall be manufactured using a 0.8 mil clear virgin polypropylene film, reverse printed and laminated to a 0.35 mil solid aluminum foil core, and then laminated to a 3.75 mil clear virgin polyethylene film. The aluminum backing makes underground assets easy to find using a non-ferrous locator. Tape shall be printed using a diagonally striped design for maximum visibility and meet the APWA Color-Code standard for identification of buried utilities. Use Pro-Line Safety Products (www.prolinesafety.com) detectable marking tape or approved equal.

55. See architectural for building waterproofing and foundation drainage.

56. Place #3 rebar at 3' on center in all 6" thick concrete pavement locations. Place #4 rebar at 4' on center in all 8" thick concrete pavement locations.

57. Place #4 x 2'-0" tie bar at 3' on center in all concrete curb and gutter.

58. Provide as-builts in accordance with City and Watershed District requirements. Record as-built information as construction progresses or at appropriate construction intervals. Secure and deliver to the Owner as-built information showing locations, top, and invert elevations of maintenance holes, catchbasins, cleanouts, inlet and outlet pipes, valves, hydrants, and related structures. Location ties shall be to permanent landmarks or buildings.

59. In order to document and verify acceptance for adequate storm water treatment, provide a post-construction as-built survey in accordance with City and Watershed District requirements for all storm water infrastructure. This as-built survey shall include, but is not limited to, locations, top, and invert elevations of maintenance holes, catchbasins, cleanouts; all basin/swale grades; pipe inlets, outlet pipes and structures; emergency overflows, orifices, weirs; pipe sizes; draintile elevations and sizes; ponds, tanks, infiltration or filtration basins; and any associated storm water infrastructure.

60. Test reports required for project close-out include, but are not limited to: density test reports, bacteriological tests on the water system, pressure tests on the water system, leak tests on the sewer system, deflection tests on all HDPE pipe.

61. Property Corners: Take care during construction and excavation in order to protect survey markers, monuments, and/or property irons.

## WATER DISTRIBUTION SYSTEM:

1. All plumbing located within the property lines, outside of a municipal easement included in a final recorded plat, must be constructed in accordance with the Minnesota Plumbing Code, Minnesota Rules, Chapter 4714.

2. Secure all permits and pay all fees prior to the start of construction. Obtain permits from the City for work in the public right-of-way.

3. Bring all site utilities to 2' outside of the building line with the exception of the water service. Extend water service into the building and up to the flange for the water meter. Do not install PVC water service pipe under or within any building, structure, or part thereof.

4. Separation of Water and Sewer: Construct sewer and water services in accordance with Minnesota Rules part 4714.720 and 4714.721. Provide a minimum horizontal separation of 10 feet between all water and sewer lines, including manholes, catch basins, storm sewer, sanitary sewer, draintile, or other potential sources for contamination in accordance with Minnesota Rules part 4714.609.6. Measure the separation distance from the outer edge of the pipe to the outer edge of the contamination source (outer edge of structures, piping, etc.) At water and sewer crossings, the bottom of the water pipe located within ten feet of the point of crossing must be at least 12-inches above the top of the sewer. When this is not feasible, the sewer pipe material must be approved for use inside of or within a building in accordance with the requirements of Minnesota Rules part 4714.701. Only ASTM D1785, D2665, F891, or F1488 Schedule 40 PVC may cross above or less than 12 inches below potable water lines (see Minnesota Rules part 4714.720.1). No joints or connections are allowed on the water line within 10-feet of the crossing.

5. Watermain Depth: Maintain 8-feet of cover over the top of the water lines to the finished grade. Verify elevation of proposed and existing water lines at all utility crossings. Install the water lines at greater depths in order to clear storm sewers, sanitary sewers, or other utilities as required. Include costs to lower water lines in the base bid.

6. Disinfection: Disinfect all completed watermains in accordance with AWWA Standard C651. If the tablet or continuous feed methods are used, disinfect the completed watermain with water that contains at least 50 ppm of available chlorine in accordance with Minnesota Rules part 4714.609.9. Do not use the tablet method on solvent-welded plastic or on screwed-joint steel pipe because of the danger of fire or explosion from the reaction of the joint compounds with the calcium hypochlorite. Retain the treated water in the pipeline for at least 24 hours. Measure the chlorine residual at the end of the 24 hour period. The free chlorine residual must be at least 10 mg/l measured at any point in the line. Measurement of the chlorine concentration at regular intervals shall be in accordance with Standard Methods, AWWA M-12, or using appropriate chlorine test kits.

7. Testing: Pressure test and perform bacteriological tests on all water lines under the supervision of the City Public Works Department. Notify the City at least 24 working hours prior to any testing. Pressure test the water system in accordance with Minnesota Rules part 4714.609.4. Pressurize the waterline to a water pressure of 1034-kPa (150-psi) gauge pressure (measured at the point of lowest elevation) by means of a pump connected to the pipe in a satisfactory manner. Do not add water to the watermain in order to maintain the required pressure during the water main pressure testing. Minnesota Department of Labor and Industry: The test section of pipe shall withstand the test without leaking for a period of not less than 15 minutes. Minnesota Department of Health: The watermain shall be pressure tested at 150-psi for at least two hours with not more than a 2-psi pressure drop during the last hour of the test.

8. All water supply piping connected to municipal water main must have a 150 psi minimum pressure rating.

9. Copper tube for water services must comply with ASTM B88 and shall have a weight not less than Type L (in accordance with Minnesota Rules part 4714.604.2).

10. Polyvinyl Chloride (PVC) Building Water Services must comply with ASTM D1785, ASTM D2241, or AWWA C900; pressure rated for water (See Minnesota Rules part 4714.604). Do not install PVC water service pipe under or within any building, structure, or part thereof.

11. Polyethylene (PE) Building Water Services must comply with the requirements of AWWA Standard C901; pressure rated for water (See Minnesota Rules part 4714.604). Do not install PE water service pipe under or within any building, structure, or part thereof. PE pipe ranges in nominal size from 3/4 in. (19 mm) through 3 in. (76 mm) and conforms to the outside-diameter (OD) dimensions of iron pipe size (IPS). PE tubing ranges in size from 3/4 in. (19 mm) through 2 in. (51 mm) and conforms to the OD dimensions of copper tube size (CTS).

12. Ductile iron pipe (DIP) water services must comply with AWWA C151/ANSI A21.51 or AWWA C115/ANSI A21.15 (See Minnesota Rules part 4714.604). Use Thickness Class 52 DIP with push-on joints. Use petroleum resistant gaskets, Nitrile (NBR), or approved equal. Use only ANSI 316 stainless steel bolts and nuts on all watermain fittings, valves, and hydrants.

13. Polyethylene Sheet Or Tubes For Corrosion Protection Of Buried Ductile Iron: Polyethylene encasement is required on all buried ductile iron pipe, fittings, valves, and other appurtenances. Polyethylene encasement must comply with AWWA C105/ANSI A21.5. Use V-Bio Enhanced Polyethylene Encasement (www.mcwaneductile.com) or approved equal.

14. Polyvinyl Chloride (PVC) Watermain: Use AWWA C900 for all PVC watermain furnished with integral elastomeric bell and spigot joints; minimum pressure Class 150; dimension ratio not greater than 18; laying length 20 feet. Use EBAA Iron, Inc., "Series 2000 PV Megalug," or approved equal for restraint on C900 PVC watermain. Use only ANSI 316 stainless steel bolts and nuts on all watermain fittings, valves, and hydrants.

15. Use mechanical joint restraint devices for joint restraint on all watermain bends having a vertical or horizontal deflection of 22-1/2 degrees or greater, all valves, stubs, extensions, tees, crosses, plugs, all hydrant valves, and all hydrants in accordance with City requirements. Use "Series 1100 Megalug" manufactured by EBAA Iron Inc., Eastland, Texas, or approved equal, installed in accordance with manufacturer's recommendations for restraint on Ductile Iron Pipe. Restraining devices are to have epoxy coating or approved equivalent. Restraining device hardware shall be ANSI 316 stainless steel, or approved equivalent.

16. Watermain Valves: At all valve locations which require a 12" or smaller valve, install gate valves which are of the compression resilient seated (CRS) type. Use American Flow Control's Series 2500 Ductile Iron Resilient Wedge Gate Valve, or approved equal. Gate valves shall conform to AWWA C509. Install cast iron valve boxes conforming to ASTM A48 at each valve location. Valve boxes shall be the three-piece type with 5-1/4" shafts. Use Tyler 6860-G with No. 6 base, or equivalent. Valve boxes shall have at least 6" of adjustment above and below finished grade. Drop covers on valve boxes shall be round and bear the word "WATER" cast on the top. Use Tyler 6860-G "Stayput" covers with extended skirt, or equivalent. All valve hardware shall be ANSI 316 stainless steel, or approved equivalent.

17. Curb Valves and Boxes: Use Mueller H-10334 extension type curb box with Minneapolis pattern base, or approved equal, at all 1" through 2" curb stop locations. Stationary rod is required on all curb stops. Use Mueller Company Mark II Oriseal No. H-15154N curb stop, or approved equal, and stainless steel stem rod.

18. Fire hydrants shall be in accordance with the requirements of the local municipality. Do not connect hydrant drains to sanitary sewers or storm sewers. Do not locate hydrants within 10 feet of sanitary sewers or storm sewers. When placing fire hydrants in locations where the groundwater table is less than 8 feet below the ground surface, plug the hydrant drain holes and equip the hydrants with a tag stating the need for pumping after use. Maintain a 3-foot clear space around the circumference of all fire hydrants. All hydrant hardware shall be ANSI 316 stainless steel, or approved equivalent.

19. Do not connect new watermain to existing until the new water main is pressure tested and disinfected.

20. Threaded hose connections including hose bibbs and hydrants must include a back flow prevention device in accordance with Minnesota Rules, part 4714.0603 and UPC part 603.0. Wall hydrants must meet ASSE Standard 1019 (see Table 603.2). Where permitted by the administrative authority, wall hydrants may utilize non-removable ASSE 1052 backflow preventers or non-removable ASSE 1011 vacuum breakers and provision is made to protect from freezing (see Minnesota Rules, Chapter 4714, Sections 603.5.7, 312.6, and 301.1.2).

21. Lead Content: All newly installed or replacement pipes, pipe fittings, plumbing fittings and fixtures, including backflow preventers, that are installed on potable water systems or systems that are designed to distribute water for potable use, are required to meet the Reduction of Lead in Drinking Water Act, which establishes a maximum lead content of 0.25 percent by weighted average of the wetted surfaces. See Minnesota Rules part 4714.604.2. Solder and flux for potable water systems shall contain less than 0.2 percent lead. Joints must include non-corrosive non-toxic paste-type flux complying with ASTM B813 (see Minnesota Rules, Chapter 4714, Section 605.1.4).

22. Do not exceed the manufacturer's specifications for curvature of pipe and deflection at pipe joints. Securely close all open ends of pipe and fittings with watertight plugs when work is not in progress. Keep the interior of all pipes clean and remove any dirt or debris from joint surfaces after the pipes have been lowered into the trench. Install all valves plumb and located according to the plans.

23. Insulate the watermain at locations indicated on the plans. Provide a minimum insulation thickness of 4 inches. The insulation must be at least 4 feet wide and centered on the pipe. Install the insulation boards 6 inches above the tops of the pipes on mechanically compacted and leveled pipe bedding material. Use high density, closed cell, rigid board material equivalent to DOW Styrofoam Highload 40 Polystyrene Insulation. Individual insulation board dimensions typically measure 4' wide by 8' long by 2" thk.

The City of Bloomington's Standard Specifications for Street and Utility Construction shall govern for all improvements within the public right-of-way or drainage and utility easement.

## SANITARY SEWER:

1. Secure all permits and pay all fees prior to the start of construction. Obtain permits from the City for work in the public right-of-way.

2. Submit shop drawings for all structures to the Owner and Engineer for review and comment prior to ordering/purchasing and installation.

3. Unless otherwise indicated, use reinforced, precast, concrete maintenance holes conforming to ASTM C478, furnished with precast bases. Sanitary sewer maintenance holes shall be supplied with pre-formed inverts and flexible neoprene sleeve connections for all lateral lines 375 mm (15 inches) in diameter or less, unless otherwise indicated. Joints for all precast maintenance hole sections shall have confined, rubber "O"-ring gaskets in accordance with ASTM C443. These joints are normally used in sewers to hold infiltration and exfiltration to a practical minimum and are adequate for hydrostatic heads up to 30'. The inside barrel diameter shall not be less than 48 inches.

4. All joints and connections in the sewer system shall be gastight or watertight. Inlet and outlet connections to sewer manholes must use flexible compression joints located between 12 and 36 inches from the manhole in accordance with Minnesota Rules part 4714.719.6. Where permitted by the administrative authority as an alternate installation method, approved resilient rubber joints or waterstop gaskets may be used in order to make watertight connections to manholes and other structures (see Minnesota Rules part 4714.301.2). Use Fernco "Concrete Manhole Adaptors" or "Large Diameter Waterstops", Press-Seal "Waterstop Grouting Rings", or approved equal. Cement mortar joints are permitted only for repairs or connections to existing lines having such joints.

5. The building sewer starts 2 feet outside of the building. See Minnesota Rules part 4714.715.1. Material installed within 2 feet of the building must be of materials approved for use inside of or within the building.

6. The exterior sanitary sewer piping must comply with the following requirements: (A) Double wyes may not be used for drainage fittings in the horizontal position (see Minnesota Rules, Chapter 4714, Section 310.5) because proper pipe slope cannot be maintained on both of the lateral branches. (B) Changes in direction in drainage piping must be made by appropriate use of wyes and bends (see Minnesota Rules, Chapter 4714, Section 706.0). When connecting any vertical drop to a horizontal run, use a wye and a 1/8 bend (45 deg), or a sanitary combo. A sanitary combo is a combination wye and a 1/8 bend combined in a single fitting. The reason is to form a long radius bend in order to insure that the waste is directed in the downstream direction as it enters the horizontal run. Tees are not allowed where the direction of flow changes from either vertical to horizontal or horizontal to horizontal.

7. Pipe: Use solid-core, Schedule 40 Polyvinyl Chloride (PVC) Plastic Pipe for all designated PVC sanitary sewer services outside of the building. The PVC pipe shall meet or exceed the industry standards and requirements as set forth by the American Society for Testing and Materials (ASTM) D1785 and D2665. Fittings must comply with ASTM D1866, D2665, or F794. Joints must be approved mechanical or push-on utilizing an elastomeric seal. Use of solvent cement joints is allowed for building services. Solvent cement joints in PVC pipe must use ASTM F656 purple primer and ASTM D2564 cement in accordance with Minnesota Rules part 4714.605.2.2. The installation must comply with ASTM D2321, which requires open-trench installation on a continuous granular bed.

8. Cleanouts: Install cleanouts on all sanitary sewer services in accordance with Minnesota Rules part 4714.719. Install cleanouts for pipes 4-inch and over in size at intervals not to exceed 100 feet in straight runs and for each aggregate horizontal change in direction exceeding 135 degrees. Cleanouts shall be of the same nominal size as the pipes they serve. Include frost sleeves and concrete frame and pipe support. Install a meter box frame and solid lid (Neenah R-1914-A, or approved equal) over all cleanouts.

9. Testing: Pressure test all sanitary sewer in accordance with the Minnesota Rules Sections 4714.712 and 4714.723. Concrete manholes and sewer lines shall be tested by negative pressure in accordance with ASTM C1214-19, ASTM C1244-17, or the Hydrostatic Test Method in section 4714.723(b). Test all flexible sanitary sewer lines for deflection after the sewer line has been installed and backfill has been in place for at least 30 days. No pipe shall exceed a deflection of 5%. If the test fails, make necessary repairs and retest.

10. Install flexible watertight frame/chimney seals on all sanitary sewer maintenance holes in order to seal the outside of the chimney from the cast iron frame down to the cone. The seal shall be a continuous seamless band made of high quality EPDM (Ethylene Propylene Diene Monomer) rubber with a minimum thickness of 65 mils. Use Internal/External Adapter Seal as manufactured by Adaptor, Inc. (www.adaptorinc.com/wp-content/uploads/2019/04/ADAP_IEManholeSeal.pdf), Infi-Shield Uni-band one piece molded sealing system as manufactured bySealing Systems, Inc. (www.ssisealingsystems.com), or approved equal.

11. Use Neenah Foundry Co. R-1642 casting with self-sealing, solid, type B lid, or approved equal, on all sanitary sewer maintenance holes. Covers shall bear the "Sanitary Sewer" label.

12. Grease Interceptor: The grease interceptor shall be readily accessible. Manhole risers for grease interceptor tanks shall be provided with a substantial, fitted, gas-tight cover of concrete, steel, cast iron or other approved material. Manhole covers shall terminate at or above grade and shall have an approved locking device. A minimum 4x6-inch permanent label shall be affixed to the manhole cover, identifying the interceptor tank with the words GREASE INTERCEPTOR.

13. The minimum depth of cover for sanitary sewer without insulation is 5 feet. Insulate sanitary sewer services at locations where the depth of cover is less than 5 feet. Provide a minimum insulation thickness of 4 inches. The insulation must be at least 4 feet wide and centered on the pipe. Install the insulation boards 6 inches above the tops of the pipes on mechanically compacted and leveled pipe bedding material. Use high density, closed cell, rigid board material equivalent to DOW Styrofoam Highload 40 Polystyrene Insulation. Individual insulation board dimensions typically measure 4' wide by 8' long by 2" thk.

14. Install all pipe with the ASTM identification numbers on the top for inspection. Commence pipe laying at the lowest point in the proposed sewer line. Field verify that there is positive drainage at the outfall location. Lay the pipe with the bell end or receiving groove end of the pipe pointing upgrade. When connecting to an existing pipe, uncover the existing pipe in order to allow any adjustments in the proposed line and grade before laying any pipe. Do not lay pipes in water or when the trench conditions are unsuitable for such work.

15. All saddle tee or wye fittings must provide an integrally molded pipe stop in the branch for positive protection against service pipe insertion beyond the inside of the sewer main pipe wall.

16. Terminate all new sewer stubs with a water-tight gasketed cap properly braced in order to withstand the infiltration-exfiltration test. Install grade-level/in-ground trace wire access boxes and drive-in magnesium grounding anodes at the end of all stubs.

17. Televise all existing lines prior to connection.


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

Brian H. Mundstock

DATE: 11/12/25 REG. NO.: 23468

# UTILITY NOTES

# CONVENIENCE STORE 1739 - BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/2025 | INTERNAL REVIEW |
| - | 11/12/2025 | CITY SUBMITTAL |

| | |
|---|---|
| DRAWN BY | MW |
| SCALE | GRAPHIC |
| PROJ. NO. | 25-1794 |
| DATE | OCTOBER 3, 2025 |
| SHEET | C401 |

KWIK TRIP PM: E.H.

The City of Bloomington's Standard Specifications for Street and Utility Construction shall govern for all improvements within the public right-of-way or drainage and utility easement.

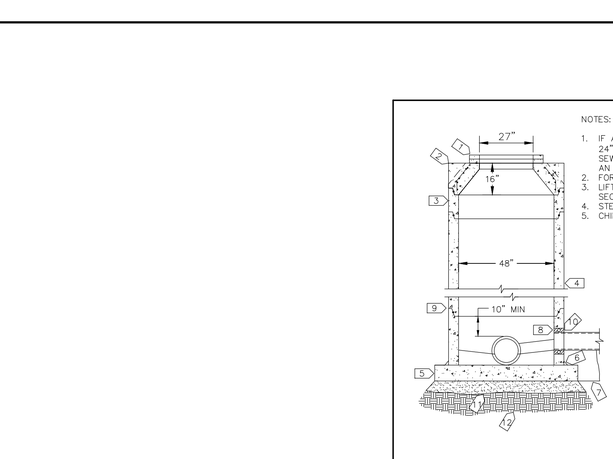
## CITY OF BLOOMINGTON STANDARD NOTES:

1. NO PARKING ON PUBLIC STREETS, CIRCULATION DRIVES, OR FIRE LANES. ALL CONSTRUCTION AND POST-CONSTRUCTION PARKING AND STORAGE OF EQUIPMENT AND MATERIAL MUST BE ON-SITE. USE OF PUBLIC STREETS FOR PRIVATE CONSTRUCTION PARKING, LOADING/UNLOADING, AND STORAGE IS NOT ALLOWED. PREPARE ON-SITE CONSTRUCTION MANAGEMENT SPACE FOR EMPLOYEE PARKING, MATERIALS, EQUIPMENT, FIELD SHACK, AND OTHER CONSTRUCTION RELATED ITEMS. STORAGE OF MATERIALS OR EQUIPMENT SHALL NOT BE ALLOWED ON PUBLIC STREETS OR WITHIN PUBLIC RIGHT-OF-WAY. ALL CONSTRUCTION RELATED LOADING, UNLOADING, AND STOCKPILING TO OCCUR ON-SITE AND OFF OF PUBLIC STREETS. OBSTRUCTION OF PUBLIC SIDEWALKS IS NOT PERMITTED.
2. A noise source shall not exceed an L10 noise level of 60 dBA in the daytime (7:00 am to 10:00 pm) and an L10 noise level of 50 dBA in the nighttime (10:00 pm to 7:00 am) as measured on the property line of the source.
3. Prior to the issuance of the Certificate of Occupancy, developer/contractor must submit electronic utility as-builts to the Public Works Department.
4. The Contractor shall obtain a Public Works Permit for obstructions and concrete work within the right-of-way. Permit is required prior to removals or installation. Contact Paul Jarvis (952) 563-4548 or pjarvis@BloomingtonMN.gov) for permit information.
5. The Contractor shall obtain a Public Works Permit for underground work within the right-of-way. Permit is required prior to removals or installation. Contact Utilities (952-563-4568) for permit information.
6. The Contractor shall obtain a Utility Permits for connections to the public storm, sanitary, and water system. Contact Utilities (952-563-8777) for permit information.
7. Properly abandon all unused water services at the main. Properly abandon all unused sanitary sewer services at the property line.
8. A minimum 10-foot horizontal clearance and 18-inch vertical separation is required between all watermain and sewers.
9. Provide valves for system isolation (longest interval cannot exceed 400 feet) and for building isolation without shutting down supply to fire hydrants.
10. Install hydrants to provide fire protection for the entire building. Hydrant coverage shall be provided within 50 feet of the fire department connection and within 150 feet of the structure. Each hydrant covers 150-foot radius.
11. Water Main Depth: Provide a minimum of 8.0-feet and a maximum of 10-feet of cover over the top of the water lines, valves, services, etc. to the finished grade. Verify elevation of proposed and existing water lines at all utility crossings. Lower water lines in order to clear storm sewers, sanitary sewers, or other utilities as required. Include costs to lower water lines in the base bid.
12. Use Class 52 DIP for water main 12-inches in diameter and smaller. A minimum 8 mil polyethylene encasement is required on all ductile iron pipe.
13. An inspection MH is required on all commercial sewer services.
14. Use standard short cone MHs. See Bloomington Standard Detail Plate No. 400.
15. Install interior chimney seals on all sanitary sewer manholes.
16. Coordinate pressure taps to water main with the City of Bloomington Public Works Department. Taps of live water to be made by City Forces paid for and coordinated by the Contractor.
17. Utility and mechanical contractors shall coordinate installation of water service pipes, fittings and valves all the way into the building (i.e. up to meters and/or fire service equipment) to accomodate City inspection and testing.
18. Sanitary sewer main line, cleanouts, MHs, and services must be designed with adequate depth of cover or install high-density polystyrene insulation to prevent freezing.
19. Sanitary Sewer Depth: The minimum depth of cover over the top of the sanitary sewer without insulation is 8.0 feet. Insulate sanitary sewer at locations where the depth of cover is less than 8.0 feet. Provide a minimum insulation thickness of 2 inches. The insulation must be at least 4 feet wide and centered on the pipe. Install the insulation boards 6 inches above the tops of the pipes on mechanically compacted and leveled pipe bedding material. Use high density, closed cell, rigid board material equivalent to DOW Styrofoam HI-40 (MNDOT 3760) plastic foam insulation.
20. Use Schedule 40, SDR-26, or better for PVC sewer services.
21. Terminate fire riser and domestic riser with a thread-on flange, or a mechanical joint to flange adapter.
22. Install valves on both fire and domestic water services inside building before testing. Locate the water meter within 10 feet of where the water service enters the building.
23. All components of the water system, up to the water meter or fire service equipment, (i.e. mainline pipes, services larger than 2", valves, fittings, caps, etc.) shall utilize protective internal coatings meeting current ANSI/AWWA Standards for cement mortar lining or special coatings. The use of unlined or uncoated (cast-iron, gray-iron, steel, galvanized, etc.) pipe is not allowed.
24. A National Pollutant Discharge Elimination System (NPDES) construction site permit and Storm Water Pollution Prevention Plan (SWPPP) must be provided.
25. An erosion control bond is required.
26. HDPE Pipe connections into all concrete structures shall be made with water tight materials, utilizing an A-Lok or WaterStop gasket or boot, cast-in-place rubber boot, or approved equal. Where the alignment precludes the use of the above approved watertight methods, Conseal 231 waterstop sealant, or approved equal will only be allowed as approved by the Engineer.
27. Contact Bruce Bunker (952-563-4546 or bbunker@bloomingtonmn.gov) for addressing.
28. All parking stall striping must be painted white. Designate all approved parking stalls with 4-inch wide surface markings. Hatch handicapped access aisles with white 4 inch wide painted stripes 18 inches on center and at 45 degree angles to the stalls.
29. Parking islands must be 3-feet shorter than the parking stalls and a minimum of 8-feet wide.
30. Parking lot and exterior security lighting must meet Section 21.301.07. A minimum of 1.0 foot-candle is required on the parking surface (which may be reduced to 0.5 foot-candles for the outer perimeter of the parking lot.
31. Retaining walls higher than 4 feet in height must be designed by a MN Licensed Civil Engineer.
32. Install "sack" type inlet protection, or approved equal, at each catch basin.
33. Temporary street signs, lighting and addresses shall be provided during construction.
34. No lift holes are allowed in maintenance holes less than 60" (1524 mm) in diameter.
35. Utility service additions/removals to be at the Developer's expense.
36. Contractor shall submit to the City, a Traffic Control Plan utilizing layout(s) from the Temporary Traffic Control Zone Layouts Field Manual, latest version, prior to any work affecting traffic on Public Streets.
37. Restore City street by complying with the City Street Improvement Policy; contact Utilities at 952-563-8777 for the requirements.
38. The public sidewalk shall be a 6 foot wide, 4" thick concrete walkway on a 4" thick sand cushion. Increase the concrete thickness to 6 inches at driveway areas. Construct walkway 1 foot inside easement.
39. A Bloomington standard non-residential driveway apron is required on all accesses to public streets. Refer to the City Standard Detail for installation of non-residential driveway entrance.
40. The sidewalk grades must be carried across the driveways. No pedestrian curb ramps.
41. Any proposed new, or substantial remodel of an existing food service facility must show and adequately designed exterior grease interceptor that receives only kitchen waste, on the plans as prepared and submitted by the design professional. Design of grease interceptor shall conform to "Standard for Pre-Treatment of Sanitary Waste Effluent Containing Fats, Oil, and Grease," as published by the City of Bloomington Utilities Division.
42. Maintenance Schedule/Plan for Grease Interceptor BMP signed by property owner must be filed with the Utilities Division prior to issuance of permit to connect with sanitary sewer system. A copy of the signed agreement, the Grease Interceptor manufacturer's operation and maintenance manual, and continuous maintenance records for the previous twelve (12) months shall be kept on site and available to City of Bloomington staff for review. [Sec. 11.31 (7)]

Utility review: Add City detail for fire domestic combined service.



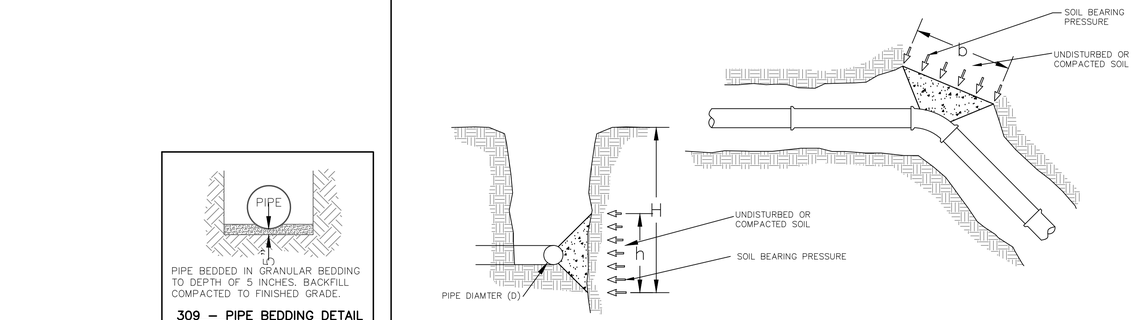

309 – PIPE BEDDING DETAIL
309 – Pipe Bedding.dwg 6/2015




NOTES:
1. IF A SEWER MAIN IS CONNECTED MORE THAN 24" ABOVE THE INVERT OF THE OUTGOING SEWER, CONNECTION SHALL BE BY MEANS OF AN OUTSIDE DROP. SEE DETAIL THIS SHEET.
2. FORM GROUT TO SLOPE TO CENTER TROUGH.
3. LIFTING HOLES WHICH PENETRATE THROUGH SECTION WALLS ARE NOT PERMITTED.
4. STEPS ARE NOT PERMITTED IN MANHOLES.
5. CHIMNEY SEAL REQUIRED. SEE DETAIL 404.

KEY NOTES:
1. MN/DOT S.P.4010 2" ADJUSTING RINGS AS NEEDED [6" MIN. TO 12" MAX.]. SET EACH RING IN FULL BED OF MORTAR.
2. 16" SHORT CONE OR FLAT TOP ARE ACCEPTABLE. A CENTER HOLE ACCESS IS REQUIRED.
3. 12" TOP SECTION REQUIRED.
4. USE ONLY PRECAST SECTIONS. NO BRICK OR BLOCK
5. 8" CAST IN-PLACE CONCRETE OR 6" PRECAST REINFORCED CONCRETE (64" MINIMUM OD)
6. CEMENT MORTAR ALL AROUND
7. LEAN CONCRETE TO BEAR AGAINST FIRM UNDISTURBED SOIL
8. PROVIDE WATER TIGHT PIPE CONNECTIONS SEE DETAIL THIS SHEET
9. O-RING GASKET
10. FOR CONNECTION TO EXISTING MH'S, CORE DRILL OPENING AND PROVIDE TYPE B WATER TIGHT CONNECTOR
11. 6" SAND OR FOUNDATION MATERIAL
12. UNDISTURBED SOIL OR COMPACTED SUBGRADE

400 – STD. SANITARY SEWER MH
400 – Std San MH.dwg 6/2015




NOTES:
1. THRUST BLOCKS ARE REQUIRED ON WATERMAIN LESS THAN 12" DIA., REGARDLESS OF ANY OTHER RESTRAINT METHODS
2. THRUST BLOCKS ARE TO BE USED FOR ALL FITTINGS, INCLUDING: PLUGS, CAPS, TEES, HYDRANTS, AND BENDS OVER 22-1/2°.
3. RESTRAINT METHODS ON WATERMAIN 12" AND LARGER SHALL BE MEGALUGS, LOCKING GASKETS OR APPROVED EQUAL. THE LENGTH OF RESTRAINT SHALL BE AS COMPUTED BY THE MOST CURRENT VERSION OF THE DIPRA STANDARDS.
4. FITTINGS MUST BE COVERED WITH V-BIO POLY (8MIL) PRIOR TO POURING CONCRETE.
5. TESTING OF LINES SHALL NOT PROCEED UNTIL CONCRETE THRUST BLOCKS HAVE HAD SUFFICIENT TIME TO ATTAIN DESIGN STRENGTH. HIGH EARLY STRENGTH CONCRETE MAY BE USED. THE MINIMUM COMPRESSIVE STRENGTH SHALL BE 4000 PSI.
6. FOR 4"-10" PIPE, THE USE OF COMPOSITE BLOCKING WILL ONLY BE PERMISSIBLE WITH PRIOR AUTHORIZATION FORM THE ENGINEER.
7. ALL BLOCKING SHALL BE PLACED AGAINST UNDISTURBED SOIL. WHERE IT IS NOT POSSIBLE, THE FILL BETWEEN THE BEARING SURFACE AND UNDISTURBED SOIL MUST BE COMPACTED TO 100% OF STANDARD PROCTOR DENSITY.
8. BLOCK HEIGHT (h) SHOULD BE EQUAL TO OR LESS THAN ONE-HALF THE TOTAL DEPTH TO THE BOTTOM OF THE BLOCK, (H), BUT NOT LESS THAN THE PIPE DIAMETER (D).
9. BLOCK HEIGHT (h) SHOULD BE CHOSEN SUCH THAT THE CALCULATED BLOCK WIDTH (b) VARIES BETWEEN ONE AND TWO TIMES THE HEIGHT (h).
10. UNLESS OTHERWISE SPECIFIED, THRUST BLOCKING AND THE MATERIALS REQUIRED WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION

MINIMUM THRUST BLOCK BEARING SURFACE AREA (h x b) in (sf)

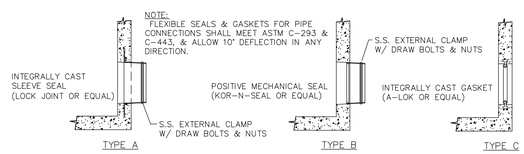
| HYDROSTATIC TESTING AT 150 PSI AND SAFETY FACTOR OF 1.5 | | | |
|---|---|---|---|
| | IN SOFT CLAY SOIL (1000 psf) | | |
| PIPE DIA. (INCHES) | BENDS (DEGRESS) | | TEE AND STUBS |
| | 22-1/2 | 45 | 90 |
| 6 | 4 | 7 | 12 | 9 |
| | IN SANDY SILT SOIL (3000 psf) | | |
| PIPE DIA. (INCHES) | BENDS (DEGRESS) | | TEE AND STUBS |
| | 22-1/2 | 45 | 90 |
| 6 | 2 | 3 | 4 | 3 |
| | IN SANDY SOIL (4000 psf) | | |
| PIPE DIA. (INCHES) | BENDS (DEGRESS) | | TEE AND STUBS |
| | 22-1/2 | 45 | 90 |
| 6 | 2 | 2 | 3 | 3 |

310 – THRUST BLOCKING
310 – Thrust Blk (Std).dwg 6/2015



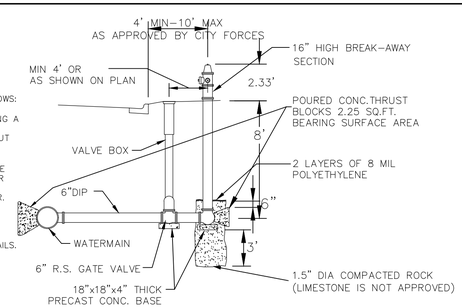

1. ALL JOINTS SHALL BE RESTRAINED WITH EBAA IRON MEGALUG, STAR D-SLDE, SIGMA ONE-LOK SLDE OR APPROVED EQUAL.
2. NO WATERMAIN SHALL BE RODDED UNDER ANY CIRCUMSTANCE.
3. ALL EXPOSED WATERMAIN SHALL BE WRAPPED WITH POLYETHYLENE IN ACCORDANCE WITH AWWA C-105.
4. INSULATION AND FOUNDATION MATERIAL SHALL EXTEND IN BOTH DIRECTIONS A MIN. OF 3' BEYOND THE STORM SEWER & WATERMAIN.
5. MECHANICAL JOINT OFFSET MAY BE USED IF AMOUNT OF OFFSET IS 18" OR LESS.
6. CONDUCTIVITY ACROSS JOINTS IS REQUIRED.
7. INSTALL INSULATION WITH OVERLAPPING JOINTS.
8. LENGTH OF JOINT RESTRAINT TO CONFORM TO DIPRA REQUIREMENTS CONCRETE ANCHOR BLOCKS MAY BE REQUIRED AT VERTICAL BENDS.

316 – WM ALTERATION 1
316 – WM ALTERATION 1.DWG 5/2017




409 – WATER TIGHT PIPE CONNECTIONS
409 – MH Pipe Connect.dwg 6/2015

- HYDRANT TO BE:
  - WATEROUS PACER CLASSIC.
  - MUELLER SUPERCENTURION 250 MODEL A-423.
  - OR APPROVED EQUAL.
- EQUIP WITH THREE HOSE NOZZLES/CONNECTIONS AS FOLLOWS:
  - ONE – FACTORY INSTALLED 5 INCH STORZ-TYPE, QUARTER TURN PUMPER NOZZLE/CONNECTOR, INCLUDING A MANUFACTURER SUPPLIED AND INSTALLED ANODIZED ALUMINUM NOZZLE CAP WITH A 1.5 INCH PENTAGON NUT AND NO ROCKER LUG.
  - TWO – 2.5 INCH HOSE NOZZLES/CONNECTIONS (WITH NATIONAL STANDARD THREADS) AND STANDARD NOZZLE CAPS WITH 1.5 INCH PENTAGON NUTS, AND NO ROCKER LUGS.
- USE SS NUTS AND BOLTS AS APPROVED BY THE ENGINEER.
- ALL EXPOSED WATERMAIN SHALL BE WRAPPED WITH POLYETHYLENE IN ACCORDANCE WITH AWWA C-105.
- BARREL TO BE BRIGHT RED.
- ALL VALVES TO OPEN COUNTER-CLOCKWISE.
- SEE TYPICAL VALVE INSTALLATION DETAIL FOR VALVE DETAILS.
- WATEROUS PACER CLASSIC HYDRANTS SHALL INCLUDE INSTALLATION OF THE MANUFACTURERS MOST CURRENT ANTI-CHATTER BRASS UPPER VALVE WASHER.




300 – TYPICAL HYDRANT INSTALLATION
300 – Hyd Install.dwg 6/2015

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KWIK STAR

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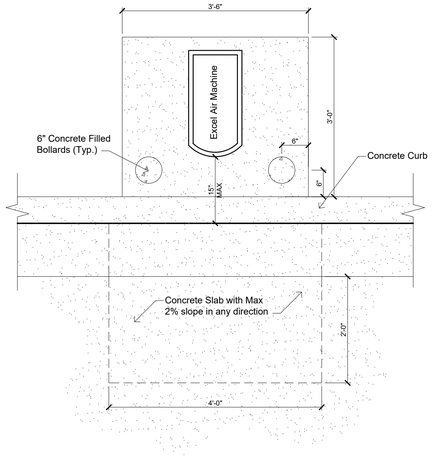
Brian H. Mundstock
DATE: 11/12/25 REG. NO.: 23468

# BLOOMINGTON NOTES & DETAILS
# CONVENIENCE STORE 1739
# - BLOOMINGTON, MINNESOTA

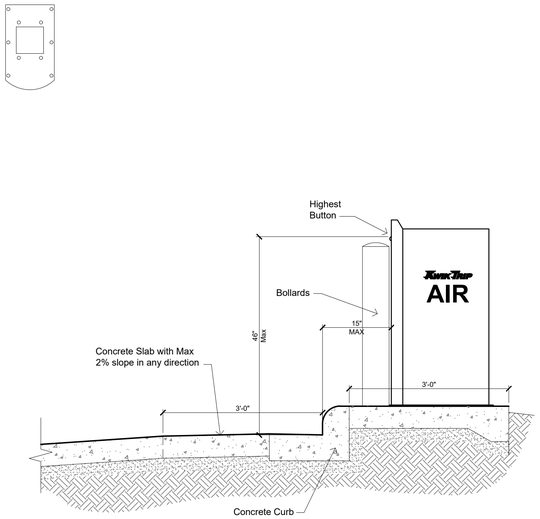
| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 09/29/2025 | INTERNAL REVIEW |
| - | 11/12/2025 | CITY SUBMITTAL |

| | |
|---|---|
| DRAWN BY | MW |
| SCALE | GRAPHIC |
| PROJ. NO. | 25-1794 |
| DATE | OCTOBER 3, 2025 |
| SHEET | C402 |

KWIK TRIP P.N. E.H.

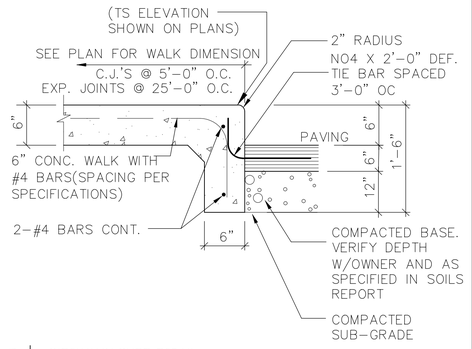



Plan View Detail
NTS



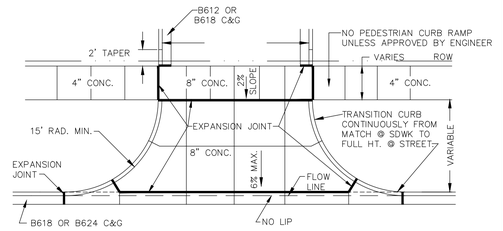

Side View Detail
NTS

2 | C500 AIR COMPRESSOR DETAIL
NOT TO SCALE

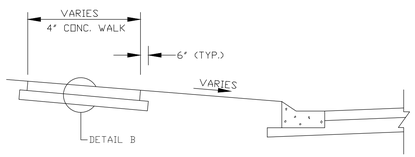


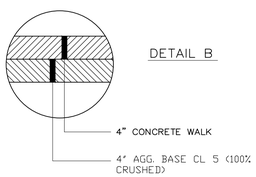

7 | C500 SIDEWALK/ CURB DETAIL
NOT TO SCALE

NOTE:
- EACH DRIVEWAY PANEL NOT TO EXCEED 100 SF.
- REINFORCEMENT BARS OR WELDED WIRE FABRIC (STEEL MESH) ARE NOT ALLOWED IN THE RIGHT-OF-WAY
- CLASS 5 AGGREGATE BASE REQUIRED UNDER CURB AND GUTTER.
- IF PRESENT, STREET LIGHT, SIGNAL AND INTERCONNECT CONDUIT OR DIRECT BURIED STREET LIGHT WIRING MUST BE EXPOSED FOR INSPECTION PRIOR TO POUR




10 | C500 CONCRETE APPROACH DETAIL
NOT TO SCALE

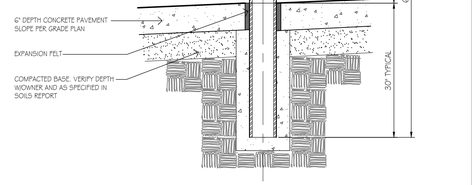



NOTES:
1. 8" THICK CONCRETE SIDEWALK AT ALL DRIVEWAYS
2. PLACE PEDESTRIAN CURB RAMPS AT ALL INTERSECTIONS.
3. PROVIDE EXPANSION JOINT MATERIAL AT MAX. 60 FOOT SPACING.
4. PROVIDE EXPANSION JOINT MATERIAL ALONG BOTH EDGES OF WALK, WHERE WALK IS CONTAINED BETWEEN FIXED OBJECTS.

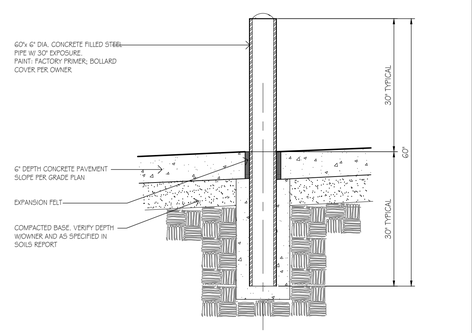
3 | C500 CONCRETE WALK/ PAD DETAIL
NOT TO SCALE

NOTE: SEE ARCHITECTURAL PLANS FOR REMOVABLE BOLLARD LOCATION AND DETAIL

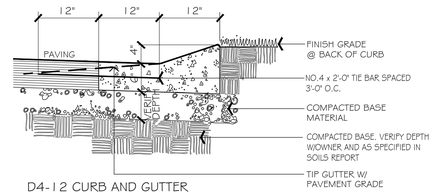



8 | C500 36" HEIGHT PIPE BOLLARD
SCALE - 3/8" = 1'-0"

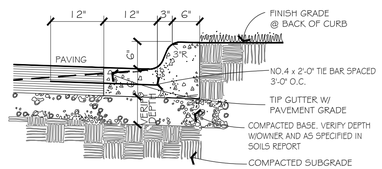
NOTE: SEE ARCHITECTURAL PLANS FOR REMOVABLE BOLLARD LOCATION AND DETAIL




9 | C500 30" HEIGHT PIPE BOLLARD
SCALE - 3/8" = 1'-0"

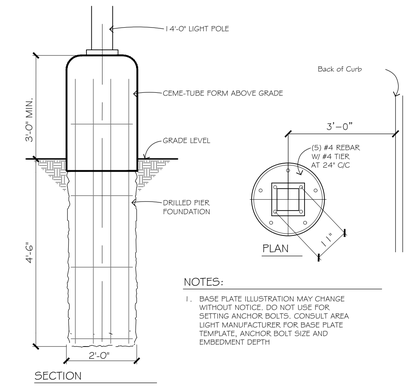



D4-12 CURB AND GUTTER




B6-12 CURB AND GUTTER

11 | C500 CONCRETE CURB DETAIL
SCALE - 3/4" = 1'-0"




NOTES:
1. BASE PLATE ILLUSTRATION MAY CHANGE WITHOUT NOTICE. DO NOT USE FOR SETTING ANCHOR BOLTS. CONSULT AREA LIGHT MANUFACTURER FOR BASE PLATE TEMPLATE, ANCHOR BOLT SIZE AND EMBEDMENT DEPTH

12 | C500 ROUND AREALIGHT FOUNDATION
SCALE - 1/2"= 1'-0"

KWIK TRIP
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4205 Lancaster Lane North Suite 113
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763.383.8400
insitesinc.net mail@insitesinc.net

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

Date 11-2025 License No. 19306

Signed Robert J. Mueller

# SITE PLAN DETAILS

CONVENIENCE STORE 1794

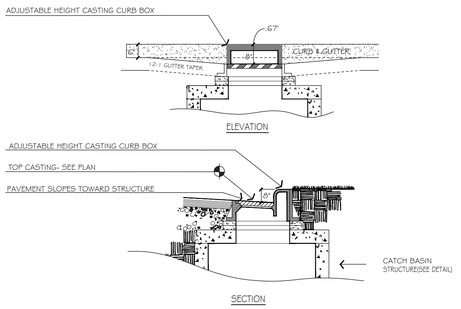
-- BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/25 | INTERNAL REVIEW |
| - | 11/12/25 | CITY SUBMITTAL |

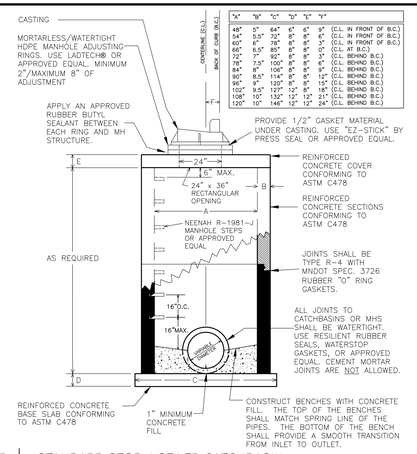
DRAWN BY
SCALE GRAPHIC
PROJ. NO. 25-1794
DATE 09/16/2025
SHEET C500

INSITES 25-020 PM ET

NOTE: THIS CURB CONSTRUCTION DETAIL IS TO BE USED AT LOW POINTS WHEN INDICATED ON PLAN. SEE GRADE PLAN FOR SPECIFIC CURB ELEVATIONS THAT REFLECT 8" DIFFERENCE FROM TOP OF CURB TO CASTING (SEE ACTUAL CB DETAILS FOR STRUCTURE INFO.)

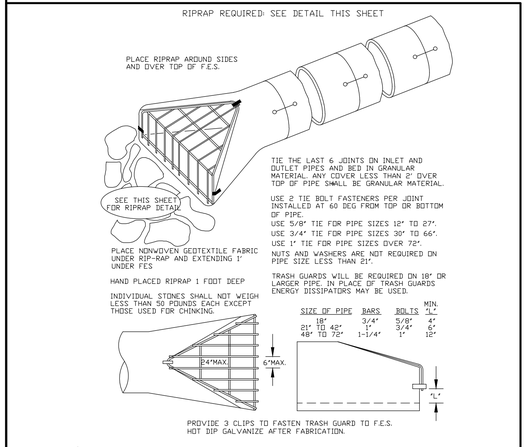



4 | C501 — CURBLINE DETAIL AT CATCHBASIN CURB/PAVEMENT LOW POINTS (SPECIFIC LOCATIONS)
NOT TO SCALE



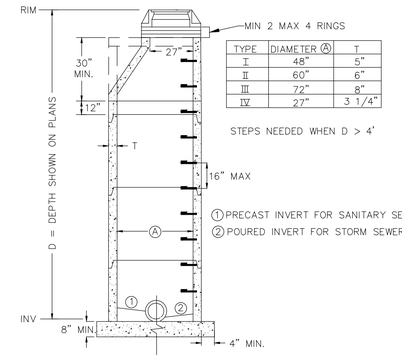

| "A" | "B" | "C" | "D" | "E" | "F" | |
|---|---|---|---|---|---|---|
| 48" | 5" | 64" | 6" | 6" | 9" | (C.L. IN FRONT OF B.C.) |
| 54" | 5.5" | 72" | 8" | 8" | 6" | (C.L. IN FRONT OF B.C.) |
| 60" | 6" | 78" | 8" | 8" | 3" | (C.L. IN FRONT OF B.C.) |
| 66" | 6.5" | 85" | 8" | 8" | 0" | (C.L. AT B.C.) |
| 72" | 7" | 92" | 8" | 8" | 3" | (C.L. BEHIND B.C.) |
| 78" | 7.5" | 99" | 8" | 8" | 6" | (C.L. BEHIND B.C.) |
| 84" | 8" | 106" | 8" | 8" | 9" | (C.L. BEHIND B.C.) |
| 90" | 8.5" | 114" | 8" | 8" | 12" | (C.L. BEHIND B.C.) |
| 96" | 9" | 120" | 8" | 8" | 15" | (C.L. BEHIND B.C.) |
| 102" | 9.5" | 127" | 12" | 8" | 18" | (C.L. BEHIND B.C.) |
| 108" | 10" | 132" | 12" | 12" | 21" | (C.L. BEHIND B.C.) |
| 120" | 10" | 146" | 12" | 12" | 24" | (C.L. BEHIND B.C.) |

7 | C501 — STANDARD STORM SEWER CATCHBASIN
NOT TO SCALE



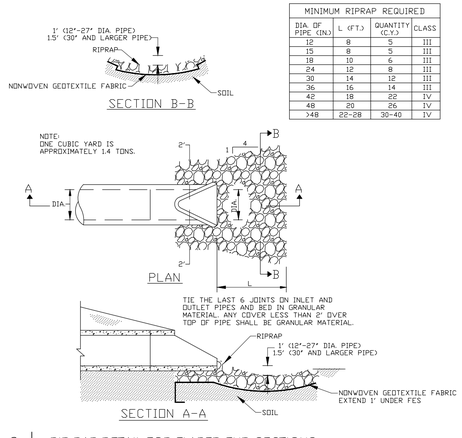

| SIZE OF PIPE | BARS | BOLTS | MIN. "L" |
|---|---|---|---|
| 18" | 3/4" | 5/8" | 4" |
| 21" TO 42" | 1" | 3/4" | 6" |
| 48" TO 72" | 1-1/4" | 1" | 12" |

2 | C501 — FLARED END SECTION WITH TRASH GUARD
NOT TO SCALE



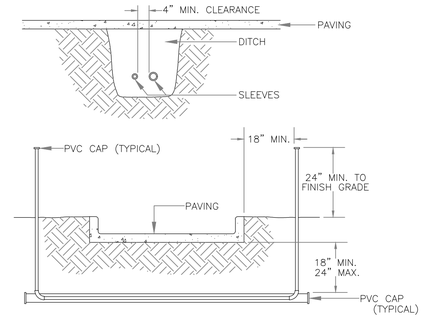

| TYPE | DIAMETER Ⓐ | T |
|---|---|---|
| I | 48" | 5" |
| II | 60" | 6" |
| III | 72" | 8" |
| IV | 27" | 3 1/4" |

8 | C501 — PRECAST REINFORCE CONC. MANHOLE
NOT TO SCALE




| MINIMUM RIPRAP REQUIRED | | | |
|---|---|---|---|
| DIA. OF PIPE (IN.) | L (FT.) | QUANTITY (C.Y.) | CLASS |
| 12 | 8 | 5 | III |
| 15 | 8 | 5 | III |
| 18 | 10 | 6 | III |
| 24 | 12 | 8 | III |
| 30 | 14 | 12 | III |
| 36 | 16 | 14 | III |
| 42 | 18 | 22 | IV |
| 48 | 20 | 26 | IV |
| >48 | 22-28 | 30-40 | IV |

3 | C501 — RIP RAP DETAIL FOR FLARED END SECTIONS
NOT TO SCALE




NOTES:
1. ALL PVC IRRIGATION SLEEVES TO BE SCH 40 PVC PIPE.
2. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
3. WHERE THERE IS MORE THAN ONE SLEEVE, EXTEND THE SMALLER SLEEVE TO 24-INCHES MINIMUM ABOVE FINISH GRADE.
4. MECHANICALLY TAMP TO 95% PROCTOR.

9 | C501 — TYPICAL SLEEVING
NOT TO SCALE

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insites
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Plymouth, Minnesota 55441
763.383.8400
insitesinc.net mail@insitesinc.net


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

Date 11-2025 Reg. No. 19306

Signed Robert J. Mueller

# SITE PLAN DETAILS

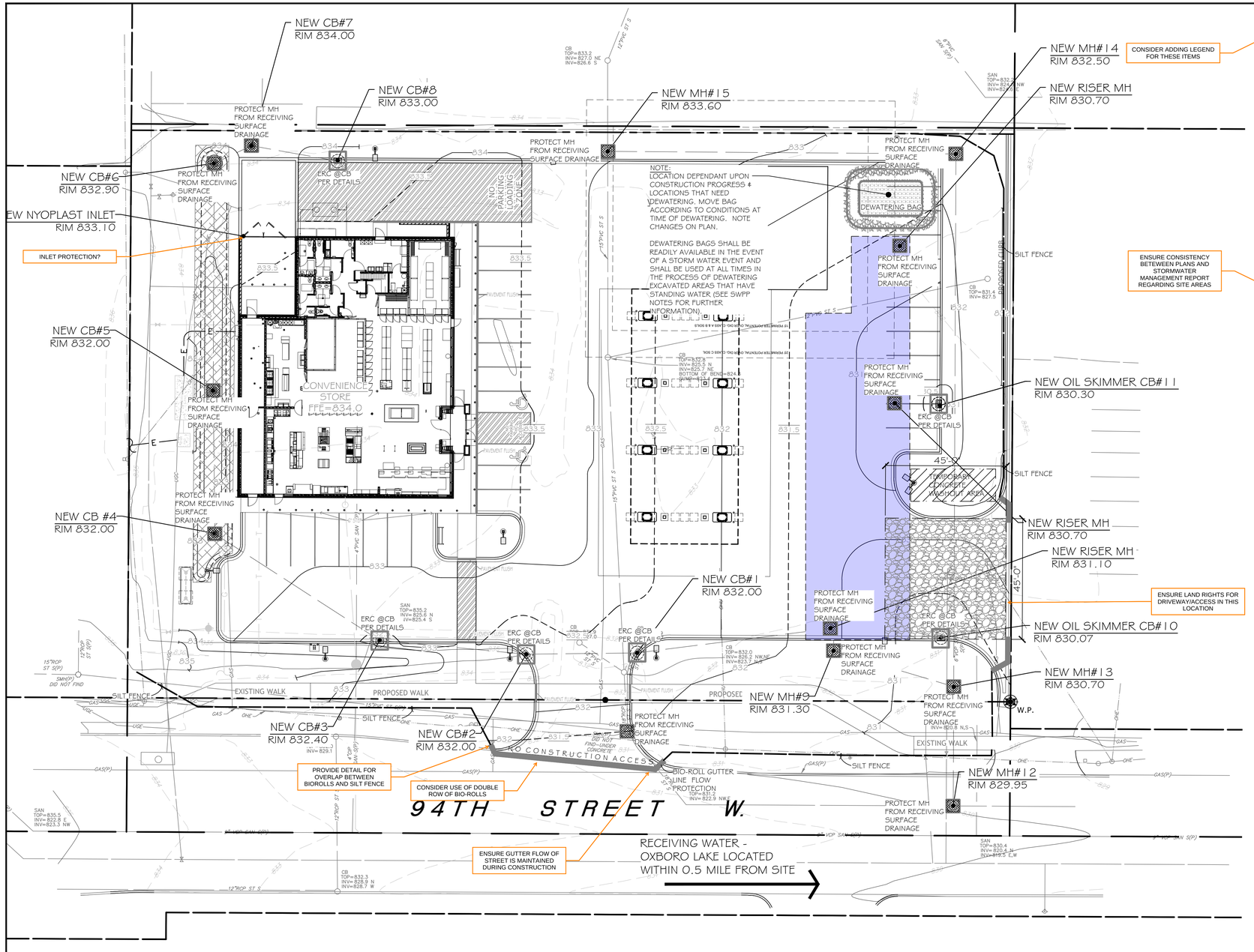
## CONVENIENCE STORE 1794

-- BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/25 | INTERNAL REVIEW |
| | 11/12/25 | CITY SUBMITTAL |

DRAWN BY
SCALE GRAPHIC
PROJ. NO. 25-1794
DATE 09/16/2025
SHEET **C501**

INSITES 25-020 PM EH




## Estimated Preliminary Erosion Control Quantities

(actual quantities subject to change)

| Item | Quantity | |
|---|---|---|
| Rock Construction Entrance | 2,025 | SQ. YD. |
| Silt Sack | 18 | TOTAL STRUCTURES |
| Erosion Control Blanket (basin) | 246 | SQ. YD. |
| Rip Rap | XXX | CU. YD. |
| Silt Fence | 457 | L. FT. |
| Rock Filtration Dikes | XXX | L. FT. |
| Bio Roll/Erosion Log | 100 | L. FT. |

Note: for maintenance purposes contractor shall all sufficient quantities for repair and replacement of erosion control devices throughout all phases of the projects construction.

PROJECT DATA

| | |
|---|---|
| PROJECT START DATE | MARCH 2026 |
| PROJECT COMPLETION DATE | OCTOBER 2026 |
| SITE AREA DATA | |
| TOTAL SITE AREA | 69,657 SF |
| PRE-CONSTRUCTION IMPERVIOUS AREA | 52,631 SF |
| POST-CONSTRUCTION IMPERVIOUS AREA | 51,322 SF |
| APPROX. AREA OF LAND DISTURBANCE | 100% |
| SITE RUNOFF COEFFICIENT (CN) | |
| PRE-CONSTRUCTION | 89 |
| POST-CONSTRUCTION | 88 |
| SOIL DATA | |
| SURFACE SOIL | Silty sand, poorly graded sand; HSG B |
| SUB-SURFACE SOIL | -- |
| DEPTH OF GROUND WATER | --FT |
| DOWN-STREAM TRIBUTARY | OXBORO LAKE |

ALL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AND CONSTRUCTED IN ACCORDANCE TO STATE AND DNR TECHNICAL STANDARDS

-ALL SILT FENCE MUST BE INSTALLED BY THE CONTRACTOR AND INSPECTED BY THE CITY PRIOR TO ANY SITE WORK.

-SITE EROSION CONTROL MEASURES MUST BE IN PLACE AT ALL TIMES. SHOULD DEVICES BE REMOVED FOR WORK ACCESS, THEY SHALL BE REINSTALLED AT THE END OF EACH WORK DAY UNTIL PAVEMENTS HAVE BEEN INSTALLED AND ALL LANDSCAPE AREAS HAVE BEEN MULCHED AND SODDED. SEEDED AREAS MUST EXHIBIT MINIMUM OF 70% SOIL COVERAGE.

-REFER TO THE SWPPP PLAN NOTES AND DETAIL SHEETS C601-603 FOR MORE INFORMATION.


CONTACT EMILY HELWIG
KWIK TRIP INC
1626 OAK STREET
LA CROSSE, WI 54602
608-791-7443


EROSION CONTROL BLANKET ON SIDE SLOPES OF 3:1 OR GREATER DOUBLE NETTED LIGHT DUTY

MINNESOTA

| SWPPP DESIGN CERTIFICATION | SWPPP INSTALLER CERTIFICATION | SWPPP INSPECTOR CERTIFICATION |
|---|---|---|
| I, ROBERT MUELLER, HEREBY CERTIFY THAT I HAVE COMPLETED DESIGNER SWPP-EROSION AND STORMWATER MANAGEMENT CERTIFICATION PROGRAM<br><br>MY CERTIFICATION EXPIRES MAY 2026 | I HEREBY CERTIFY THAT I HAVE COMPLETED INSTALLER SWPP- EROSION AND STORMWATER MANAGEMENT CERTIFICATION PROGRAM<br><br>SIGNED<br>EXPIRATION | I HEREBY CERTIFY THAT I HAVE COMPLETED INSTALLER SWPP- EROSION AND STORMWATER MANAGEMENT CERTIFICATION PROGRAM<br><br>SIGNED<br>EXPIRATION |

Know what's below. Call before you dig.

NORTH
SCALE: 1" = 20'

20 10 0 20 40

PLOTTING NOTE: PLANS PLOTTED TO 11x17 SHEET SIZE ARE ½ SCALE- 1"=40'

KWIK TRIP
KWIK STAR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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly licensed Landscape Architect under the laws of the State of Minnesota.

Date 11-2025 License No. 19306

Signed Robert J. Mueller

# EROSION CONTROL PLAN

## CONVENIENCE STORE 1794

## -- BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | - | - |
| - | 10/20/25 | INTERNAL REVIEW |
| | 11/12/25 | CITY SUBMITTAL |
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| | | |
| | | |
| | | |

DRAWN BY
SCALE GRAPHIC
PROJ. NO. 25-1794
DATE 09/16/2025
SHEET C600

INSITES 25-020 PM EH

## GENERAL STORMWATER POLLUTION PREVENTION:

Apply for and obtain the General Storm Water Permit for Construction Activity from the Minnesota Pollution Control Agency.

Storm Water Pollution Prevention Plan (SWPPP): The SWPPP includes this narrative, Plan Sheets C500-501 and C600, and the Storm water Management Calculations. Keep a copy of the SWPPP, all changes to it, and inspections and maintenance records at the site during the construction. During the construction process the SWPPP will have to be amended to the changes performed by the contractor. the owner shall be aware of the amendments prior to changes made in the SWPPP. All notes, photographs, recorded dates, sketches, references, and diagrams will have to be recorded and made available as part of the SWPPP permit.

Individual(s) preparing the SWPPP for the project, overseeing implementation of the SWPPP, revising and amending the SWPPP, and at least one individual on the project performing installation, inspection, maintenance, and repairs of BMPs must be trained. The training must be done by a local, state, federal agencies; professional organization; or other entities with expertise in erosion prevention, sediment control, or permanent Storm water management. Training information and those certified must be noted in the SWPPP. Documentation of this information must be included in the SWPPP or made available within 72 hours. All trained individuals must be identified, including DESIGNER, INSTALLER and INSPECTOR.

Responsible Parties: The contractor must designate a person knowledgeable and experienced in the application of erosion prevention and sediment control BMPs who will oversee the implementation of the SWPPP, and the installation, inspection, and maintenance of the erosion prevention and sediment control BMPs before and during construction.

CONTACT EMILY HELWIG
KWIK TRIP INC
1626 OAK STREET
LA CROSSE, WI 54602
608-791-7443

The owner is responsible for identifying who will have responsibility for the long term operation and maintenance of the permanent storm water management systems.

## SITE INVESTIGATION, INSTALLATION, IMPLEMENTATION :

Contractor shall ensure a trained person will oversee the installation of all devices. Name and certification of individual(s) responsible for installation shall be in the SWPPP. those individuals include those overseeing implementation and/or performing or supervising the installation.

1. Prior to any work, contractor shall visit the site, document existing conditions as necessary(photos, notes, etc) and note existing drainage patterns on and off site that are related to the project. Installer and inspector of the SWPPP shall determine on site if there are additional ways to create buffer zones and or phasing of the project construction to limit the extent of exposed soils. If this is determined to be helpful, the SWPPP shall be amended accordingly. These notes and changes shall be part of the SWPPP.

2. Install all temporary erosion and sediment control measures including silt fence, rock construction entrance(s), erosion control berms, rock filters, silt sacks, rock /earth berms, and sedimentation basins. Protect all receiving waters, catch basins, ditches, inlets etc. in and around the site. All protective and preventative measures must be in place and inspected prior to beginning site clearing, grading, or other land-disturbing activity.

3. Prior to beginning site clearing and grading, protect all storm sewer inlets that receive runoff from disturbed areas. In order to prevent sediment from leaving the site and entering the downstream storm sewer system, seal all storm sewer inlets that are not needed for site drainage during construction. Protect all other storm sewer inlets by installing sediment control devices, such as silt sacks, or rocked filtration logs/weirs. Straw bales or fabric under the grates are not acceptable forms of inlet protection. Protect new storm sewer inlets as they are completed. Maintain storm sewer inlet protection in place until all sources with potential for discharging to the inlets are stabilized.

4. Before beginning construction, install a TEMPORARY ROCK CONSTRUCTION ENTRANCE at each point where vehicles exit the construction site When at all possible contractor shall designate only one access point for vehicles entering and exiting the site. The rock on the entrance will have to be inspected daily and replaced or rock supplemented by the contractor when over 50% of the voids in the rock are filled. A cleaning station should be made available to drivers and visibly signed to see. Provide shovels, brooms and/or hose with a wash out area so soils can be removed from vehicles on site.

5. Avoid entire removal of trees and surface vegetation all at once whenever possible as this limits the amount of site susceptible to erosion. Schedule construction zones and note this on the SWPPP in order to expose the smallest practical area of soil at any given time. Utilize vegetation removed by on site grinding and mulching and using this material to protect the soil from erosion.

6. Areas That Discharge to Special or Impaired Waters: As a general rule for areas draining less than 10 acres, additional or alternative measures shall take place which include but are not limited to installing multiple lines of silt fence, constructing small basins/sediment collection ditches, vegetative strips, tarps, mulching or forms of temporary vegetation. Following initial soil disturbance or re-disturbance, complete permanent or temporary stabilization against erosion due to rain, wind, and running water within 7 calendar days on all disturbed or graded areas. This requirement does not apply to those areas that are currently being used for material storage on a daily basis or for those areas on which grading, site building, or other construction activities are actively underway. Provide temporary cover on all stacked topsoil piles, and other areas of stockpiled excavated material in order to prevent soil erosion and rapid runoff during the construction period. Stockpiles can be mulched,covered with poly or fabric, and or seeded during prolonged exposure. Prolonged periods of open, bare earth without grass cover will not be permitted. Stabilize all disturbed green-space areas with a minimum of 4" topsoil immediately after final sub-grade completion. Seed and mulch, or sod and protect these areas within 48 hours after completion of final grading work (weather permitting). Stabilize all disturbed areas to be paved using early application of gravel base. Stabilize the normal wetted perimeter of any temporary or permanent drainage ditch that conveys water from the construction site, or diverts water around the construction site, within 200 lineal feet from the property edge, or within 200 feet from the point of discharge to any surface water. Stabilize temporary or permanent drainage ditches within 24 hours of connecting to a surface water. Protect outfalls minimum of 200feet down stream and to the side of the discharge point. Additional settling "pots" achieved by filter logs or filtered stick bales staked in the channel will dissipate the water energy. Provide pipe outlets with temporary or permanent energy dissipation within 24 hours of connection to a surface water.

7. Receiving Waters - It is the contractors responsibility to inspect the site discharge point as well as downstream to the receiving body of water(pond, lake, stream, etc.) on a regular basis including after each storm event and document if any differences or changes in normal in discharge and if material is leaving the construction site. If so it shall be documented and removed immediately. Contractor shall be aware of DNR "water restrictions" during specified fish spawning time frames and all exposed soil areas that are within 200 feet of the waters edge, and drain to these waters must complete the stabilization activities within 24 hours of the restriction period.

NOTE: ALL EROSION AND SEDIMENT CONTROL DEVICES WILL BE CHECKED BY THE CONTRACTOR AFTER EACH STORM EVENT AND BE MAINTAINED, OR IMPROVED UPON AFTER EVERY STORM EVENT TO ENSURE ADEQUATE PERFORMANCE.

## POLLUTION CONTROL:

1. Designate a Concrete Wash-out and truck wash area:
   Make it visible in the field to vehicle operators and note this on the SWPPP.

   a. When washouts occur on the site, concrete washout water must be contained in a leak-proof containment facility or impermeable liner. Liquid and solid wastes may not touch the ground and there must not be runoff from the concrete washout operations or areas.

   b. Limit external washing of trucks and other construction vehicles to a defined area preferably before the construction access/exit point. Wash vehicles only on an area stabilized with stone that drains into an approved sediment trapping device. Contain runoff and properly dispose of waste. Engine degreasing is prohibited.

2. Solid Waste: Properly dispose of collected sediment, asphalt and concrete millings, floating debris, paper, plastic, fabric, construction and demolition debris, and other wastes in compliance with Minnesota Pollution Control Agency requirements.

3. Hazardous Materials: Properly dispose of all waste and unused building materials (including garbage debris, cleaning wastes, oil, gasoline, paint, wastewater, toxic materials, and hazardous materials) off-site. Do not allow waste and unused building materials to be carried by runoff into a receiving channel or storm sewer system. Properly store oil, gasoline, paint, and other hazardous materials in order to prevent spills, leaks, or other discharge. Include secondary containment. Restrict access to storage areas in order to prevent vandalism. Storage and disposal of hazardous materials must be in compliance with MPCA regulations.

4. Machinery: and mechanized equipment that leaks waste shall have a protective barrer or containment under the device adequate to contain the waste. Properly dispose of the waste.

5. Emergency spill station: Contractor shall locate and sign an emergency spill station that has necessary containment or cleanup devices for all workers to access.

## EROSION CONTROL :

Apply necessary moisture to the construction area and haul roads to prevent the spread of dust.

Contractor shall utilize coarsely ground wood and tree mulches to cover exposed soils. Mulches shall be stored on site to supplement and use in problem areas during all phases of the construction project.

Contractor shall uses star tack or other organic substances in situations to prevent soil from eroding away by wind or rain.

Whenever possible contractor shall grade areas of soil to limit potential of erosion, to include tracking perpendicular to fall line of grades as well as diverting water flows from problematic areas on the site.

Seeding, fiber blankets, poly/tarps or cover mulches, disked mulches and compost can be used to cover temporarily exposed areas from wind and rain. Other methods by the contractor shall be documented in the SWPPP.

## SEDIMENT CONTROL:

Inlet Sediment Control Protection Devices:
The following area approved Inlet Sediment Control Devices:

a. Road Drain Top Slab Model RD 23 (fits rough opening for 2'x3' inlet), Road Drain Top Slab Model RD 27 (fits rough opening for 27" inlet), or Road Drain Top Slab Model CG 3067 (fits Neenah Casting with 35-1/4"x17-3/4" dimensions) manufactured by:
WIMCO
799 Theis Drive
Shakopee, MN, 55379
Phone (952) 233-3055
*or approved equal*

b. Silt Sack manufactured by:
ACF ENVIRONMENTAL
2831 Cardwell Road
Richmond, VA, 23234
Phone (800) 448-3636
*or approved equal*

c. InfraSafe Sediment Control Barrier. Install geotextile sock on the outside of the barrier in order to trap additional fines. Standard frames are available to fit 24" to 30" diameter and 2'x3' openings.
Distributed by:
ROYAL ENTERPRISES AMERICA
30622 Forest Boulevard
Stacy, MN, 55079
Phone (651) 462-2130
*or approved equal*

d. Ridge Bag Rock Log. Use rock logs only for curb inlets after pavement is in place.
Manufactured by RED BARN RIDGE, 3135
County Road 136, Saint Cloud, MN, 35301
Phone (320) 253-3744
*or approved equal*

e. Inflatable drain plugs by Interstate Products www.interstateproducts.com or approved equal

Riprap:
Place a 450 mm (18 inch) thick layer of MNDOT 3601 Class III riprap onto a 225 mm (9 inch) thick layer of MNDOT 3601.2.B granular filter material at locations indicated on the plan in accordance with MNDOT 2511. Install two layers of MNDOT 3733 Type IV Geotextile fabric beneath the granular filter material. At pipe outfalls configure the installation as shown on MNDOT Standard Plate No. 3133C for the size of pipe indicated and extend the geotextile fabric under the culvert apron a minimum of 3 feet. For pipe sizes smaller than 300 mm (12 inch) diameter, the minimum quantity of riprap and filter blanket shall be no less than that required for 300 mm (12 inch) diameter pipes.

Silt Fence:
Install silt fence along the contour (on a level horizontal plane) with the ends turned up (J-hooks) in order to help pond water behind the fence. Install the silt fence on the uphill side of the support posts. Provide a post spacing of 1.2 m (4 feet) or less. Drive posts at least 0.6 m (2 feet) into the ground. Anchor the silt fence fabric in a trench at least 152 mm (6 inches) deep and 152 mm (6 inches) wide dug on the up-slope side of the support posts. Lay the fabric in the trench and then backfill and compact with a vibratory plate compactor. Make any splices in the fabric at a fence post. At splices, overlap the fabric at least 152 mm (6 inches), fold it over, and securely fasten it to the fence post. Silt fence supporting posts shall be 51 mm (2 inch) square or larger hardwood, pine, or standard T- or U-section steel posts. T- or U-section steel posts shall weigh not less than 1.8602 kg per meter (1.25 lb per lineal foot). Posts shall have a minimum length of 1524 mm (5 feet). Posts shall have projections to facilitate fastening the fabric and prevent slippage. Geo-textile fabric shall meet the requirements of MNDOT Standard Specification 3886 for pre-assembled silt fence, furnished in a continuous roll in order to avoid splices. Geo-textile fabric shall be uniform in texture and appearance and have no defects, flaws, or tears. The fabric shall contain sufficient ultraviolet (UV) ray inhibitor and stabilizers to provide a minimum two-year service life outdoors. Fabric color shall be international orange. In high traffic areas contractor shall reinforce silt fence with wire fencing and metal posts. extreme circumstances will require temporary concrete median sections to support material backing of stock piled soil or filled earth.

Install silt-fence, or other effective sediment controls, around all temporary soil stockpiles. Locate soil or dirt stockpiles containing more than 10 cubic yards of material such that the down-slope drainage length is no less than 8 m (25 feet) from the toe of the pile to a roadway or drainage channel. If remaining for more than seven days, stabilize the stockpiles by mulching, vegetative cover, tarps, or other means. Control erosion from all stockpiles by placing silt fence barriers around the piles. During street repair, cover construction soil or dirt stockpiles located closer than 8 m (25 feet) to a roadway or drainage channel with tarps, and protect storm sewer inlets with silt sacks or staked silt-fence. Do not stock pile soil or material near catch basins or drainage ways.

Temporary Rock Construction Entrance:
Use 25 mm (1 inch) to 50 mm (2 inch) diameter rock, MNDOT Standard Specification 3137 CA-1, CA-2, CA-3, or equal Coarse Aggregate. Place the aggregate in a layer at least 152 mm (6 inches) thick across the entire width of the entrance. Extend the rock entrance at least 15 m (50 feet) into the construction zone. Use a MNDOT Standard Specification 3733 Type V permeable geo-textile fabric material beneath the aggregate in order to prevent migration of soil into the rock from below. Maintain the entrance in a condition that will prevent tracking or flowing of sediment onto paved roadways. Provide periodic top dressing with additional stone as required. Close entrances not protected by temporary rock construction entrances to all construction traffic.

Temporary Sediment Basins
In the construction process or if noted on the plan the contractor shall construct temporary sediment basin(s). the basin shall be constructed before other construction starts. As per general rule the sediment basin shall be sized appropriately to a capacity related to the drainage area on a ratio of 3,600 cubic feet of sediment storage per acre of drainage zone entering the basin. Sediment basins shall be fenced if side slope exceed 4:1. Basins shall be inspected after every rainfall even. Sediment shall be removed at time of 1/2 the wetted volume/depth if filled. Sediment material shall be removed and stabilized. If changes to the basin are made, document and amend the SWPPP.

## DEWATERING:

If de-watering is required and sump pumps are used, all pumped water must be discharged through an erosion control facility (temporary sedimentation basin, grit chamber, sand filter, up-flow chamber, hydro-cyclone, swirl concentrator, de-watering bag-not less than 100NTU's or other appropriate facility). Contractor shall allow silt and sediment to settle out in sediment basin prior to discharge and leaving the construction site. Proper energy dissipation must be provided at the outlet of the pump system. Discharge clear water only to vegetated areas, and must be discharged in a manner that does not cause nuisance conditions such as erosion in receiving channels or down slope properties. To achieve better separation of the material suspended in the water where soils are high in clay content, a biodegradable not toxic flocculent agent may be required.

If the contractor determines that de-watering will be necessary, a de-watering plan may have to be submitted to the watershed and/or DNR by the contractor for approval. A trench permit may also have to be submitted and will be the responsibility of the contractor. Water pumped from the site shall be pumped and treated for water quality per watershed and/or DNR.

Wet Basin gravity fed draw down shall be performed with a floating head intake "Faircloth skimmer" or similar device to remove clear un-silted water column in the ponds or temporary basins or excavated areas. Should areas need to be pumped contractor shall use a "Hale floating pump" to drawn down areas below gravity fed inverts.

For more information and materials on de-watering go to by Interstate Products www.interstateproducts.com
www.haleproducts.com and www.fairclothskimmer.com

## INSPECTIONS-MAINTENANCE-DAILY RECORD-AMEND THE SWPP PLAN

Contractor must ensure that a trained person will oversee and inspect the construction site at least once every 7 days during active construction and within 24 hours after rainfall events greater that 0.5 inches in 24 hours.. Following an inspection that occurs within 24 hours after a rainfall event, the next inspection must be conducted within 7 days after the rainfall event. Note date and time in the SWPPP documents and name of person doing the inspections. Any changes made as the result of the inspection must be documented in the SWPPP.

1. Inspect all erosion and sediment control devices, stabilized areas, and infiltration areas on a daily basis until land-disturbing activity has ceased. Thereafter, inspect at least on a weekly basis until vegetative cover is established. Inspect all erosion and sediment control devices, stabilized areas, and infiltration areas within 24 hours after a rainfall event greater than 0.5 inches in 24 hours. Remove accumulated sediment deposits from behind erosion and sediment control devices as needed. Do not allow sediment to accumulate to a depth of more than one-third of the height of the erosion and sediment control devices. Immediately replace deteriorated, damaged, rotted, or missing erosion control devices. Document inspections and dates of rainfall events. Maintain a written log of all inspection, maintenance, and repair activities related to erosion and sediment control facilities. All nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs within 24 hours after discovery, or as soon as field conditions allow access.

2. All inspections and maintenance activities must be recorded in writing DAILY in a detailed record(notes, photographs, sketches, etc, and kept with the SWPPP.

3. Remove all soils and sediments tracked or otherwise deposited onto adjacent property, pavement areas, sidewalks, streets, and alleys. Removal shall be on a daily basis throughout the duration of the construction. Clean paved roadways by shoveling or wet-sweeping. Do not dry sweep. If necessary, scrape paved surfaces in order to loosen compacted sediment material prior to sweeping. Haul sediment material to a suitable disposal area. Street washing is allowed only after sediment has been removed by shoveling or sweeping.

4. All soil hauled from the site shall be accounted for and documented in the SWPP. Its final destination and how the soil has been stored and stabilized.

5. Maintain all temporary erosion and sediment control devices in place until the contributing drainage area has been stabilized (hard-surfaced areas paved and vegetation established in green-space). Repair any rilling, gully formation, or washouts. After final establishment of permanent stabilization, remove all temporary synthetic, structural, and non-biodegradable erosion and sediment control devices and any accumulated sediments. Dispose-of off site. Restore permanent sedimentation basins to their design condition immediately following stabilization of the site.

6. Clean sedimentation basins, storm sewer catch basins, ditches, and other drainage facilities as required in order to maintain their effectiveness. Temporary and permanent sedimentation basins must be drained and the sediment removed when the depth of sediment collected in the basin reaches 1/2 of the storage volume. Drainage and removal must be completed within 72 hours, or as soon as field conditions allow access.

7. Inspect infiltration areas to ensure that no sediment from ongoing construction activities is accumulating. Remove sediment immediately ensuring sub-soils are not compacted by machinery.

8. Every vehicle shall not track material off-site. Clean the wheels of construction vehicles in order to remove soils before the vehicles leave the construction site. Wash vehicles only on an area stabilized with stone that drains into an approved sediment trapping device.

9. Reinforce erosion control facilities in areas where concentrated flows occur (such as swales, ditches, and areas in front of culverts and catch basins) by backing them with snow fence, wire mesh, or stiff plastic mesh reinforcement until paving and turf establishment operations have been completed. Posts for the reinforcing fence shall be 100 mm (4 inch) diameter wood posts, or standard steel fence posts weighing not less than 0.59 kg (1.3 lbs) per lineal foot, with a minimum length of 762 mm (30 inches) plus burial depth. Space posts for the reinforcing fence at intervals of 3 m (10 feet) or less. Drive posts for the reinforcing fence at least 0.6 m (2 feet) into the ground.

## GENERAL SOIL STABILIZATION:
(SEE LANDSCAPE PLAN FOR MORE INFORMATION)

Establishment of lawn, prairie/wildflower and/or plant bed areas will be noted on the landscape plan to ensure stabilization of soils, re-staking of sod where applicable, proper watering and mulch maintenance will be required. Inspect seeded or sodded areas on a timely day-to-day basis. In the event of a seeding failure, reseed and re-mulch the areas where the original seed has failed to grow and perform additional watering as necessary at no additional cost to the Owner. Special maintenance provisions for wild and prairie grass seeded areas as noted in the landscape plan. Promptly replace all sod that dries out to the point where it is presumed dead and all sod that has been damaged, displaced, weakened, or heavily infested with weeds at no additional cost to the Owner.

In areas to be temporarily seeded, use seed mixture equivalent to MNDOT No. 21-113 (Soil Building Cover Crop). Apply seed mixture at a rate of 110 lb per acre in accordance with MNDOT Standard Spec. 3876-1. For permanent turf stabilization (not sodded) use seed mixture equivalent to MNDOT No. 25-131(Low Maintenance Turf). Apply seed mixture at a rate of 220 lb per acre in accordance with MNDOT Standard Spec. 3876-1. For permanent installations incorporate a fertilizer (slow release type with 10 week residual) consisting of 23-0-30 (%N-P-K) into the soil at an application rate of 200 lbs per acre by disking prior to seeding. In problematic areas it may be necessary to us a low phosphorus organic fertilizer in cases where seeds may not germinate. If this is the case, seed and fertilizer shall be disked into the surface and mulched properly to ensure germination and uptake of the Phosphorus by the seed.

For additional reference see MNDOT Standard Spec. Table 3876-1 for season of planting introduced seed mixtures. To ensure adequate germination of the seed the work will be performed as follows:
Spring- from April 1 through May 15.
Fall- from August 15 to September 20.
After September 20, wait until October 30 to perform dormant seeding. Dormant seeding will only be allowed if the maximum soil temperature at a depth of 25 mm (1 inch) does not exceed 4.44 degrees C (40 degrees F) in order to prevent germination.

In seeded areas with slopes steeper than 3:1 and lengths less than 15 meters (50 feet), install biodegradable erosion control blankets uniformly over the soil surface by hand within 24 hours after seeding in accordance with manufacturers recommendations. Use MNDOT Standard Spec. 3885 Straw 1S, or Wood Fiber 1S type blanket.

NOTE: THE PROJECT'S LANDSCAPE PLAN IS PART OF THE SWPP FOR SOIL STABILIZATION. REFERENCES SHALL BE MADE TO THE APPROVED LANDSCAPE PLAN. AMENDMENTS TO THE LANDSCAPE PLAN SHALL BE APPROVED BY THE OWNER AND DOCUMENTED AS PART OF THE SWPP

| SWPPP DESIGN CERTIFICATION | SWPPP INSTALLER CERTIFICATION | SWPPP INSPECTOR CERTIFICATION |
|---|---|---|
| I, Robert Mueller, hereby certify that I have completed designer SWPP-Erosion and Stormwater Management Certification Program<br>My certification expires May 2023 | I hereby certify that I have completed Installer SWPP- Erosion and Stormwater Management Certification Program<br>signed<br>expiration | I hereby certify that I have completed Inspector SWPP- Erosion and Stormwater Management Certification Program<br>signed<br>expiration |

KWIK TRIP

KWIK STAR


**KWIK TRIP, Inc.**
**P.O. BOX 2107**
**1626 OAK STREET**
**LACROSSE, WI 54602-2107**
**PH. (608) 781-8988**
**FAX (608) 781-8960**

insites
SITE PLANNING LANDSCAPE ARCHITECTURE
4205 Lancaster Lane North Suite 113
Plymouth, Minnesota 55441
763.383.8400
insitesinc.net mail@insitesinc.net


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

Date 11-2025 License No. 19306

Signed Robert J. Mueller

# EROSION CONTROL NOTES

## CONVENIENCE STORE 1794

## -- BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | - | - |
| - | 10/20/25 | INTERNAL REVIEW |
| | 11/12/25 | CITY SUBMITTAL |
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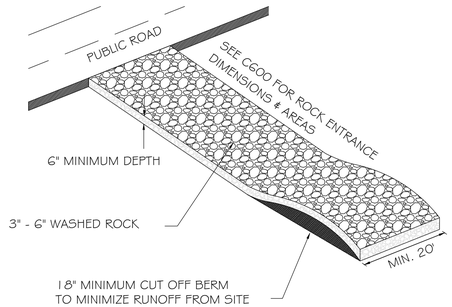
DRAWN BY

| | |
|---|---|
| SCALE | GRAPHIC |
| PROJ. NO. | 25-1794 |
| DATE | 09/16/2025 |
| SHEET | C601 |

INSITES 25-020 PM BH

NOTE- ROCK ENTRANCE DIMENSIONS MAY VARY AND MUST MEET MUNICIPAL REQS.




1 8" MINIMUM CUT OFF BERM TO MINIMIZE RUNOFF FROM SITE

FILTER FABRIC SHALL BE PLACED UNDER ROCK TO STOP MUD MIGRATION THROUGH ROCK.

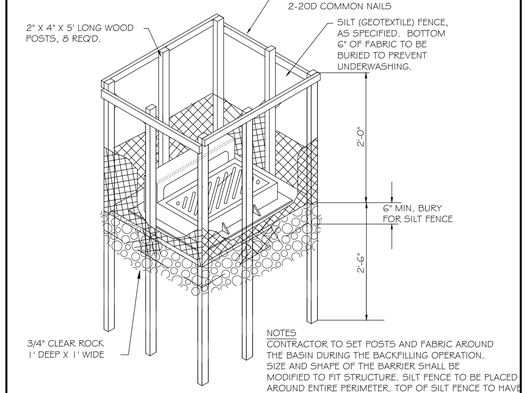
1 | ROCK CONSTRUCTION ENTRANCE
C602

WOODEN LATHE SHALL BE NAILED SECURELY TO THE POST MEMBER TO SECURE FILTER FABRIC.

2" X 4" HORIZONTAL MEMBERS CONTINUOUS AROUND TOP, FASTENED TO EACH POST USING 2-20D COMMON NAILS

2" X 4" X 5' LONG WOOD POSTS, 8 REQ'D.

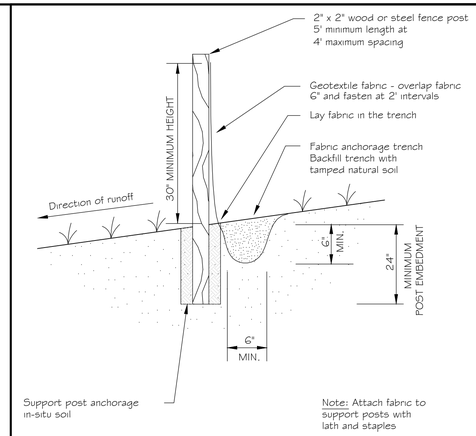
SILT (GEOTEXTILE) FENCE, AS SPECIFIED. BOTTOM 6" OF FABRIC TO BE BURIED TO PREVENT UNDERWASHING.



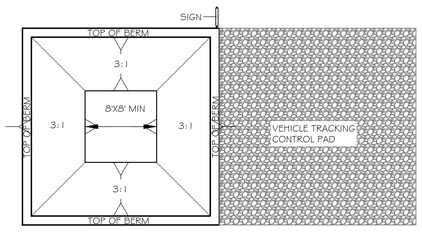

3/4" CLEAR ROCK 1' DEEP X 1' WIDE

NOTES
CONTRACTOR TO SET POSTS AND FABRIC AROUND THE BASIN DURING THE BACKFILLING OPERATION. SIZE AND SHAPE OF THE BARRIER SHALL BE MODIFIED TO FIT STRUCTURE. SILT FENCE TO BE PLACED AROUND ENTIRE PERIMETER. TOP OF SILT FENCE TO HAVE 12" MIN. CLEARENCE TO EXISTING GRADE.

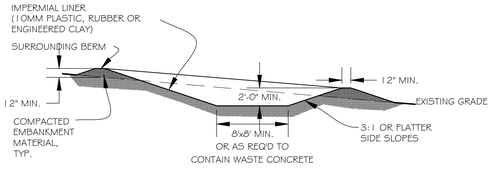
2 | EROSION CONTROL AROUND CATCH BASIN
C602




4 | SILT FENCE
C602




PLAN
1/8"= 1'-0"




TYPICAL SECTION
1/8"= 1'-0"

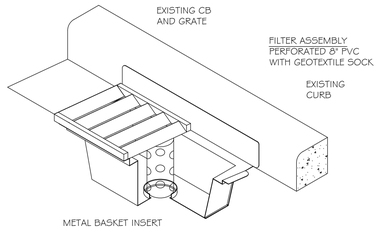
CONCRETE WASHOUT AREA INSTALLATION NOTES

1. SEE EROSION CONTROL PLAN FOR LOCATIONS OF CONCRETE WASHOUT AREA(S). TO BE PLACED A MIN. OF 50' FROM DRAINAGEWAYS, BODIES OF WATER, AND INLETS.)
2. THE CONCRETE WASHOUT AREA(S) SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
3. VEHICLE TRACKING CONTROL PAD IS REQ'D AT THE ACCESS POINT(S).
4. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA(S), AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREAS TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. EXCAVATED MATERIAL SHALL BE UTILIZED IN PERIMETER BERM CONSTRUCTION.

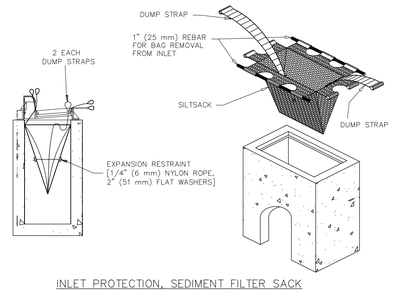
CONCRETE WASHOUT AREA MAINTENANCE NOTES

6. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE
7. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
8. WHEN CONCRETE WASHOUT AREA(S) IS REMOVED, THE DISTURBED AREA SHALL BE STABILIZED PER SITE EROSION CONTROL MEASURES.
9. INSPECT WEEKLY AND DURING AND AFTER ALL STORM EVENTS. CLEAN-OUT OR COVER WASHOUT AREA PRIOR TO PREDICTED STORM EVENTS TO PREVENT OVER-FLOW.

5 | CONCRETE WASHOUT AREA
C602



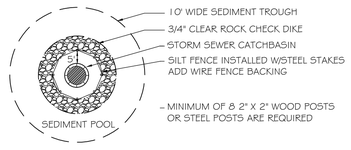

INLET PROTECTION, METAL BASKET TYPE




INLET PROTECTION, SEDIMENT FILTER SACK

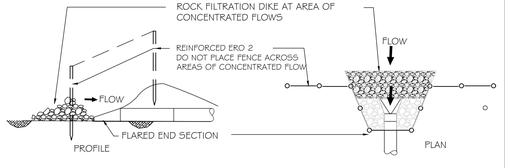
6 | INLET PROTECTION AT CATCH BASIN
C602

A. EROSION CONTROL AROUND BEEHIVE BASINS

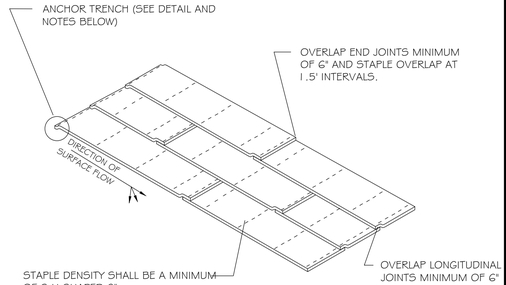



PLAN

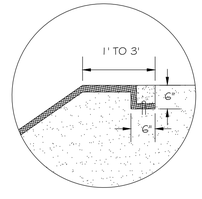
B. EROSION CONTROL AT FLARED END SECTION
TOP OF SILT FENCE TO BE LOWER THAN LOWEST ADJACENT OVERFLOW




7 | EROSION CONTROL FOR OPEN SPACE CATCH BASINS AND FLARED-END SECTIONS
C602




ANCHOR TRENCH
1. DIG 6" X 6" TRENCH
2. LAY BLANKET IN TRENCH
3. STAPLE AT 1.5' INTERVALS
4. BACKFILL WITH NATURAL SOIL AND COMPACT
5. BLANKET LENGTH SHALL NOT EXCEED 100' WITHOUT AN ANCHOR TRENCH




8 | EROSION CONTROL BLANKET INSTALLATION
C602

KWIK TRIP
KWIK STAR


KWIK TRIP, Inc.
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SITE PLANNING LANDSCAPE ARCHITECTURE
4205 Lancaster Lane North Suite 113
Plymouth, Minnesota 55441
763.383.8400
insitesinc.net mail@insitesinc.net


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

Date 11-2025 License No. 19306

Signed Robert J. Mueller

# EROSION CONTROL NOTES

## CONVENIENCE STORE 1794

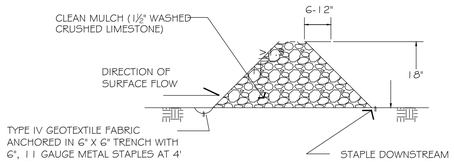
-- BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/25 | INTERNAL REVIEW |
| | 11/12/25 | CITY SUBMITTAL |

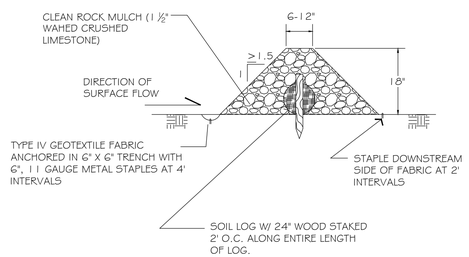
DRAWN BY
SCALE GRAPHIC
PROJ. NO. 25-1794
DATE 09/16/2025
SHEET C602

INSITES 25-020 PM: EH

I. ROCK WEEPER @ MINIMAL WATER FLOWS



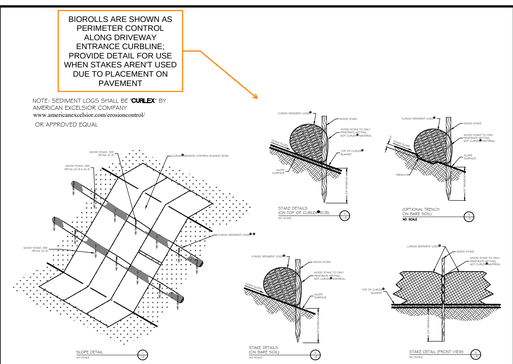

II. BIO WEEPER @ CONCETRATED FLOWS



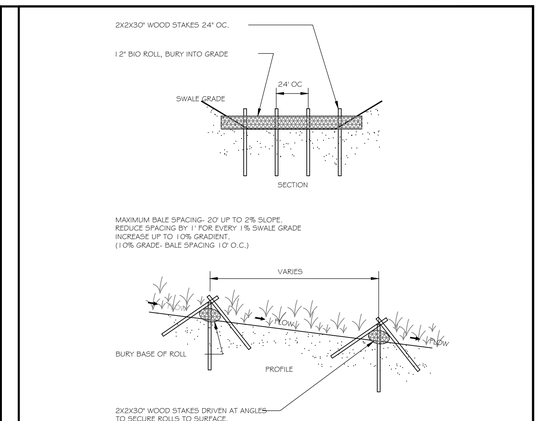

1 | C603 | DITCH CHECKS, ROCK WEEPERS, & ROCK BIO WEEPERS
EROSION CONTROL

BIOROLLS ARE SHOWN AS PERIMETER CONTROL ALONG DRIVEWAY ENTRANCE CURBLINE; PROVIDE DETAIL FOR USE WHEN STAKES AREN'T USED DUE TO PLACEMENT ON PAVEMENT

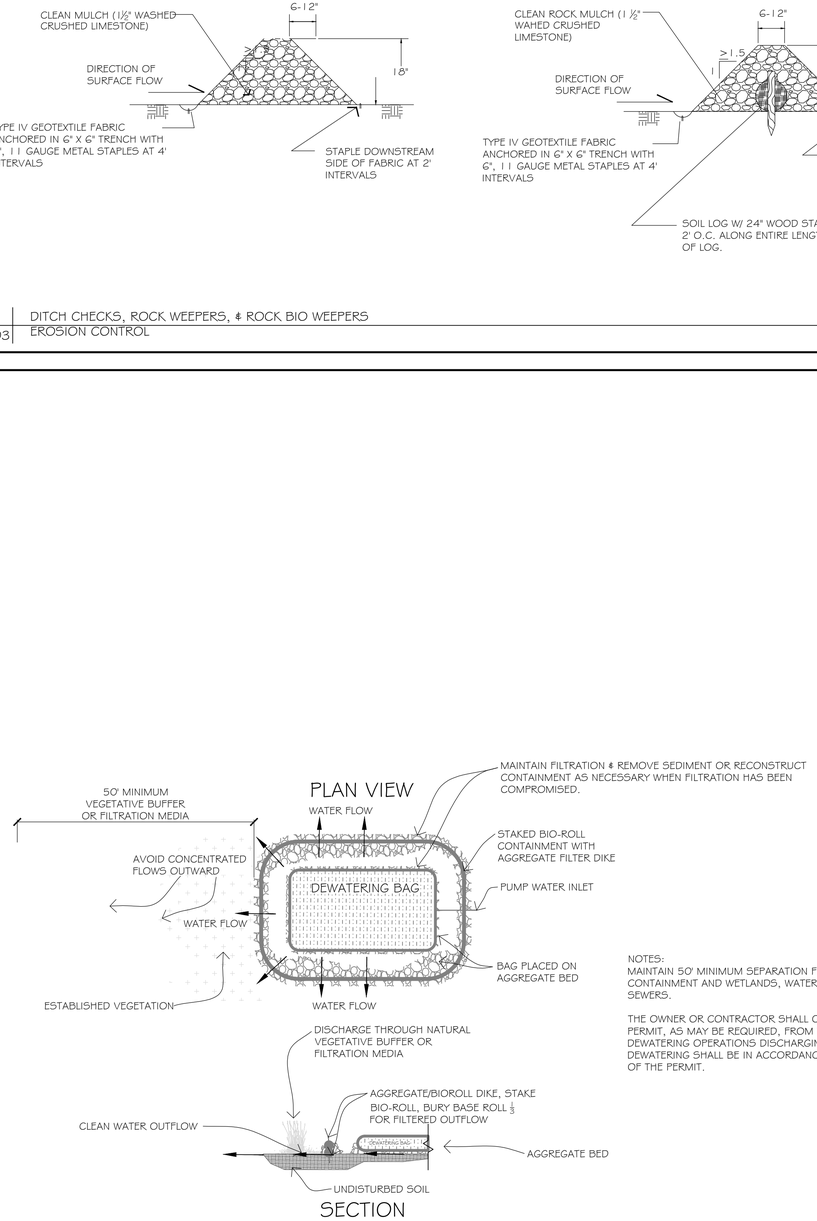
NOTE: SEDIMENT LOGS SHALL BE **CURLEX** BY AMERICAN EXCELSIOR COMPANY www.americanexcelsior.com/erosioncontrol/ OR APPROVED EQUAL



2 | C603 | BIO ROLL INSTALLATION



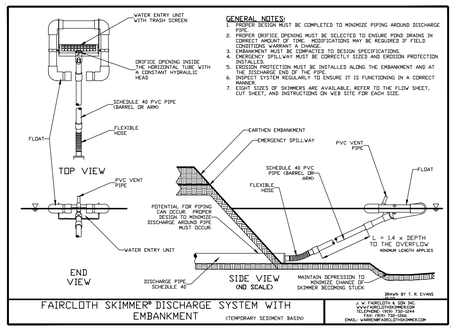

3 | C603 | DITCH CHECKS FOR DRAINAGE SWALES



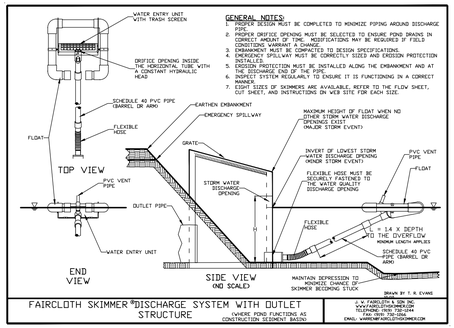

NOTES:
MAINTAIN 50' MINIMUM SEPARATION FROM DISCHARGE CONTAINMENT AND WETLANDS, WATER BODIES, OR STORM SEWERS.

THE OWNER OR CONTRACTOR SHALL OBTAIN DEWATERING PERMIT, AS MAY BE REQUIRED, FROM THE STATE PRIOR TO ANY DEWATERING OPERATIONS DISCHARGING FROM THE SITE. ALL DEWATERING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE PERMIT.

4 | C603 | DEWATERING BAG INSTALLATION, FOR DISCHARGING ERODED, SUSPENDED PARTICLES IN WATER
NOT TO SCALE




GENERAL NOTES:
1. PROPER DESIGN MUST BE COMPLETED TO MINIMIZE PIPING AROUND DISCHARGE PIPE.
2. PROPER ORIFICE OPENING MUST BE SELECTED TO ENSURE POND DRAINS IN CORRECT AMOUNT OF TIME. MODIFICATIONS MAY BE REQUIRED IF FIELD CONDITIONS WARRANT A CHANGE.
3. EMBANKMENT MUST BE COMPACTED TO DESIGN SPECIFICATIONS.
4. EMERGENCY SPILLWAY MUST BE CORRECTLY SIZED AND EROSION PROTECTION INSTALLED.
5. EROSION PROTECTION MUST BE INSTALLED ALONG THE EMBANKMENT AND AT THE DISCHARGE END OF THE PIPE.
6. INSPECT SYSTEM REGULARLY TO ENSURE IT IS FUNCTIONING IN A CORRECT MANNER.
7. EIGHT SIZES OF SKIMMERS ARE AVAILABLE, REFER TO THE FLOW SHEET, CUT SHEET, AND INSTRUCTIONS ON WEB SITE FOR EACH SIZE.

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7. EIGHT SIZES OF SKIMMERS ARE AVAILABLE, REFER TO THE FLOW SHEET, CUT SHEET, AND INSTRUCTIONS ON WEB SITE FOR EACH SIZE.

NOTE: USE ONLY IF NEEDED. WHEN CONSTRUCTION IS FINISHED, SEDIMENT IS TO BE REMOVED FROM POND. ONCE THE POND IS STABILIZED THE FAIRCLOTH SKIMMER CAN BE REMOVED AND THE INLET PIPE TO THE OUTLET STRUCTURE BE MADE FUNCTIONAL PER DETAIL SHEET SP3

5 | C603 | FAIRCLOTH SKIMMER DISCHARGE SYSTEM(OR APPROVED EQUAL BY OWNER)
SEDIMENT CONTROL

KWIK TRIP
KWIK STAR


**KWIK TRIP, Inc.**
**P.O. BOX 2107**
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insitesinc.net mail@insitesinc.net


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

Date 11-2025 License No. 19306

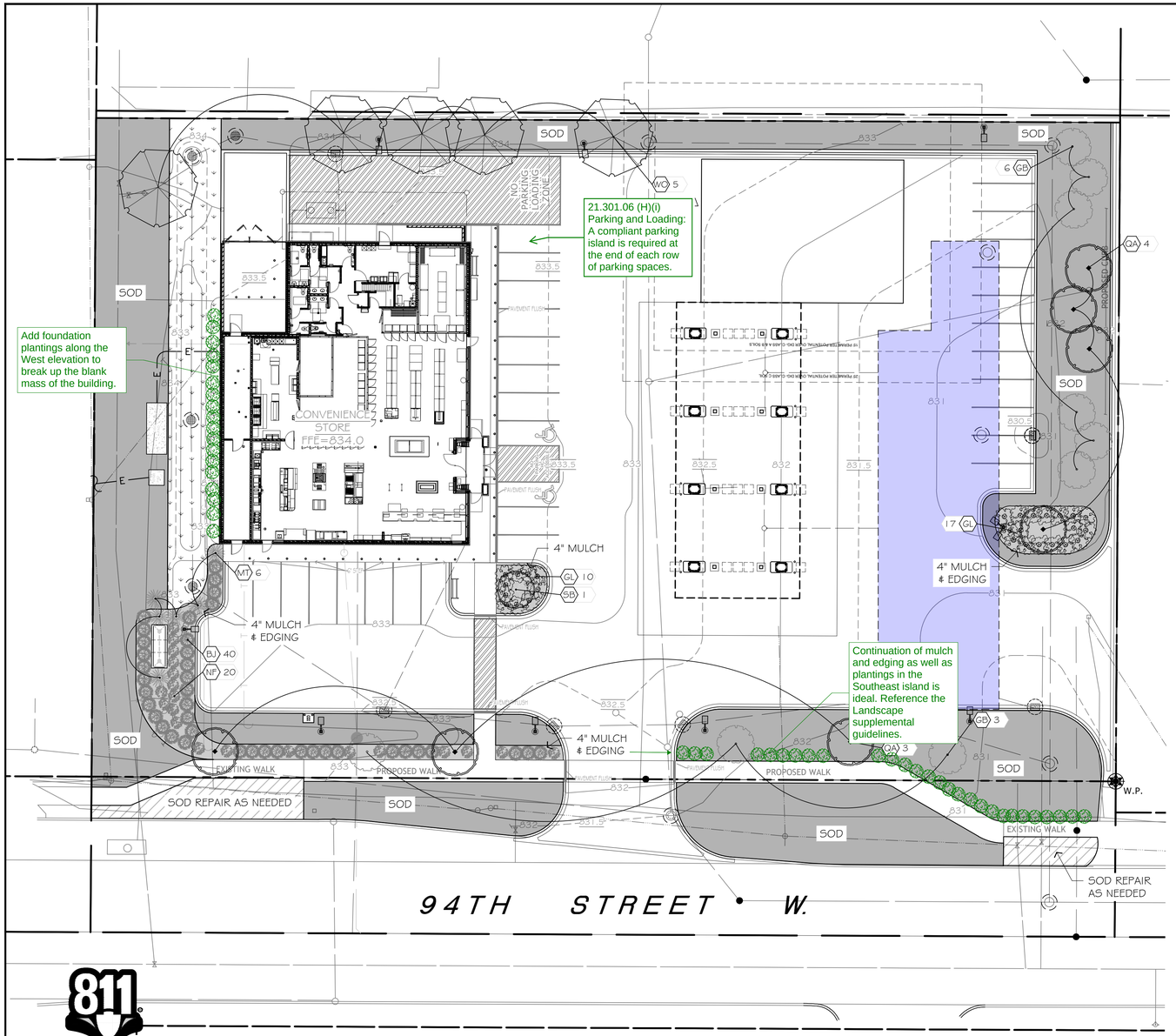
Signed
Robert J. Mueller

**EROSION CONTROL NOTES**
**CONVENIENCE STORE 1794**
**-- BLOOMINGTON, MINNESOTA**

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/25 | INTERNAL REVIEW |
| - | 11/12/25 | CITY SUBMITTAL |

DRAWN BY
SCALE GRAPHIC
PROJ. NO. 25-1794
DATE 09/16/2025
SHEET **C603**

INSITES 25-020 PM EH




811 Know what's **below.** **Call** before you dig.

NORTH
SCALE: 1" = 20'

20 10 0 20 40

PLOTTING NOTE: PLANS PLOTTED TO 11x17 SHEET SIZE ARE ½ SCALE- 1"=40'

LANDSCAPE REQUIREMENTS:

- 69,657 SF OF DEVELOPABLE LANDSCAPING AREA

  69,657 SF / 2,500 SF = 28 TREES REQ.
  28 TREES PROVIDED

  69,657 SF / 1,000 SF = 70 SHRUBS REQ.
  87 SHRUBS PROVIDED

- PARKING LOT SCREENING

- EXTERIOR STORAGE SCREENING

NOTES:

- CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR PLANTING IN ALL R.O.W.
- LANDSCAPE CONTRACTOR SHALL VERIFY ALL UTILITIES WHICH MAY EFFECT HIS WORK.
- LANDSCAPE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHERS AT SITE AND COMPLETE HIS WORK PER OWNERS CONSTRUCTION SCHEDULE.
- ALL PLANT MATERIALS SHALL BE GUARANTEED ONE (1) FULL YEAR UPON TOTAL COMPLETION AND ACCEPTANCE BY OWNER, WITH ONE TIME REPLACEMENT AT APPROPRIATE TIME OR UPON REQUEST OF OWNER.
- REPLACEMENT TOPSOIL SHALL BE CLEAN, FREE OF STONES, WEEDS, AND OTHER UNDESIRABLE DEBRIS.
- PLANTING SOIL MIX (INCIDENTAL COST ITEM)
  1. MIX 1 LB. 5-20-20 COMMERCIAL FERTILIZER PER CU. YD. TOPSOIL
  2. THOROUGHLY MIX 1-PART SAND AND 1-PART PEAT MOSS WITH 5-PARTS FERTILIZER AND TOP SOIL.
- USE PLANTING SOIL AT ALL LOCATIONS PER DETAILS THIS SHEET.
- LANDSCAPE CONTRACTOR SHALL VERIFY TOPSOIL DEPTH AND NOTIFY OWNER OF ANY DEFICIENCY.
- SOD SHALL BE CULTURED WITH PREDOMINATELY KENTUCKY BLUEGRASS SEED OF RECENT DISEASE RESISTANT INTRODUCTIONS. NO GUARANTEE ON SOD EXCEPT ANY SOD NOT SATISFACTORY AT TIME OF COMPLETION INSPECTION SHALL BE PROMPTLY REPLACED PRIOR TO COMPLETION OF JOB. STAKE SOD ON SLOPES 3:1 AND GREATER.
- WHERE EXISTING CONCRETE/ ASPHALT AREAS ARE TO BE REPLACED WITH LANDSCAPING, PROVISIONS SHOULD BE TAKEN TO COORDINATE EXCAVATION OF SUBSOIL TO A DEPTH OF 2' WITH GRADING CONTRACTOR. REPLACE WITH COMPACTED TOPSOIL. ALL AREAS TO BE LANDSCAPED AND SODDED SHALL BE GRADED SMOOTH AND EVEN.
- LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR SODDING ALL AREAS WHICH ARE DISTURBED BY CONSTRUCTION INCLUDING ALL R.O.W. AND ADJACENT PROPERTIES.
- LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR PROVIDING BLANKET ON ALL SEEDED AREAS THAT ARE SLOPED. MULCH APPLICATION FOR ALL OTHER SEEDED AREAS SHALL BE EITHER HYDROMULCH OR DISKED STRAW DEPENDING ON SEED TYPE, APPLICATION, AND OWNER REQUEST.
- LANDSCAPE CONTRACTOR TO INSTALL 'VALLEY VIEW, "BLACK DIAMOND" EDGING AROUND ALL PLANTING BEDS AS SHOWN ON THIS PLAN.
- ALL MULCH TO BE FINELY SHREDDED HARDWOOD ORGANIC BARK MULCH. NO DYED MULCHES. INSTALL 4" DEPTH. NO FILTER FABRIC BENEATH ORGANIC MULCHES. NO EDGING AROUND ALL TREES OUTSIDE SHRUB BEDS.
- IF SPECIFIED; ALL GRAVEL MULCH SHALL BE 1"+ DIA. WASHED "RIVER ROCK". INSTALL 4" DEPTH WITH APPROVED WEED FABRIC BARRIER IF INDICATED PLAN.
- LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR IRRIGATION SYSTEM INSTALLATION PER IRRIGATION PLAN. DESIGN SHALL BE APPROVED BY OWNER PRIOR TO INSTALLATION. IRRIGATION DESIGN SHOULD ENCOMPASS ALL LANDSCAPE AREAS WITH SOD AND/ OR PLANTINGS, FROM CURB TO CURB. R.O.W. SHOULD BE IRRIGATED FROM SPRINKLER HEADS LOCATED WITHIN PROPERTY BOUNDARY. CARE SHOULD BE TAKEN IN VICINITY OF ALL WALKS AND DRIVES TO MINIMIZE OVER SPRAY. COORDINATE INSTALLATION OF ALL PVC SLEEVE UNDER DRIVE AREAS WITH GENERAL CONTRACTOR.
- LANDSCAPE CONTRACTOR SHALL CLEAN ALL PAVEMENT AREAS AFTER ALL LANDSCAPE INSTALLATION IS COMPLETE AND ACCEPTED BY OWNER AND DAILY AS DEEMED NECESSARY BY THE CITY.
- GENERAL CONTRACTOR TO SWEEP PAVEMENT AREAS PRIOR TO TURN OVER TO OWNER.

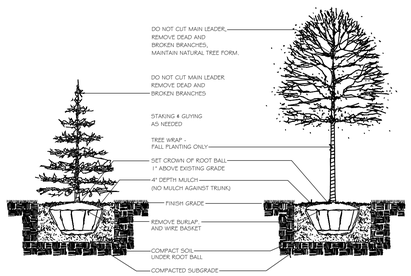
## PLANT MATERIAL

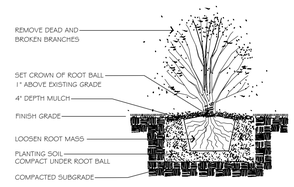
| | QUANTITY | SIZE | ROOT TYPE | COMMON NAME / BOTANICAL NAME | HEIGHT' X WIDTH' |
|---|---|---|---|---|---|
| OVERSTORY TREES | | | | | |
| WO | 5 | 2.5" CAL | B&B | WHITE OAK<br>*Quercus alba* | 50' x 50' |
| QA | 7 | 10' HT | B&B | QUAKING ASPEN<br>*Populus tremuloides* | 50' x 25' |
| UNDERSTORY TREES | | | | | |
| GB | 9 | 2.5" CAL. | B&B | DAWYCK GOLD BEECH<br>*Fagus sylvatica 'Dawyck Gold'* | 45' x 15' |
| SB | 1 | 1.5" CAL. | B&B | AUTUMN BRILLIANCE SERVICEBERRY<br>*Amelanchier x grandiflora 'Autumn Brilliance'* | 20' x 15' |
| EVERGREEN TREES | | | | | |
| MT | 6 | 36" HT. | pot | MUGO TANNENBAUM<br>*Pinus mugo 'Tannenbaum'* | 12' x 6' |
| SHRUBS | | | | | |
| NF | 20 | #3 CONT | pot | NEON FLASH SPIREA<br>*Spiraea japponica 'Neon Flash'* | 3' x 4' |
| BJ | 40 | #3 CONT | pot | BROADMOOR JUNIPER<br>*Juniperus sabina 'Broadmoor'* | 2' x 8' |
| GL | 27 | #3 CONT | pot | GRO-LOW FRAGRANT SUMAC<br>*Rhus aromatica 'Gro-Low'* | 2' x 7' |

SEED SPEC: FALL SEEDING IS PREFERABLE (AUG. 20 TO OCT. 20). SPRING SEEDING SHOULD BE BETWEEN MARCH 15- MAY 15. NO SUMMER SEEDING.

| | | |
|---|---|---|
| | 290 SY | STORM BASIN SLOPES: UPLAND MIX, MNDOT TALL ROADSIDE MIX (OR APPROVED EQUAL). PROVIDE EROSION CONTROL BLANKET ON SIDE SLOPES.<br>- MIX #36-241 / 36-411 SEED NORTHWEST TALLGRASS ROADSIDE<br>- MIX #36-241 / 36-211 SEED SOUTHERN TALLGRASS ROADSIDE |

EDGING - 181 LF
MULCH - 31 CY
SOD - 1,508 SY
SEED REPAIR - 485 SY

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Date 11-2025 License No. 19306

Signed Robert J. Mueller

# LANDSCAPE PLAN

## CONVENIENCE STORE 1794

-- BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/25 | INTERNAL REVIEW |
| - | 11/12/25 | CITY SUBMITTAL |
| | | |
| | | |
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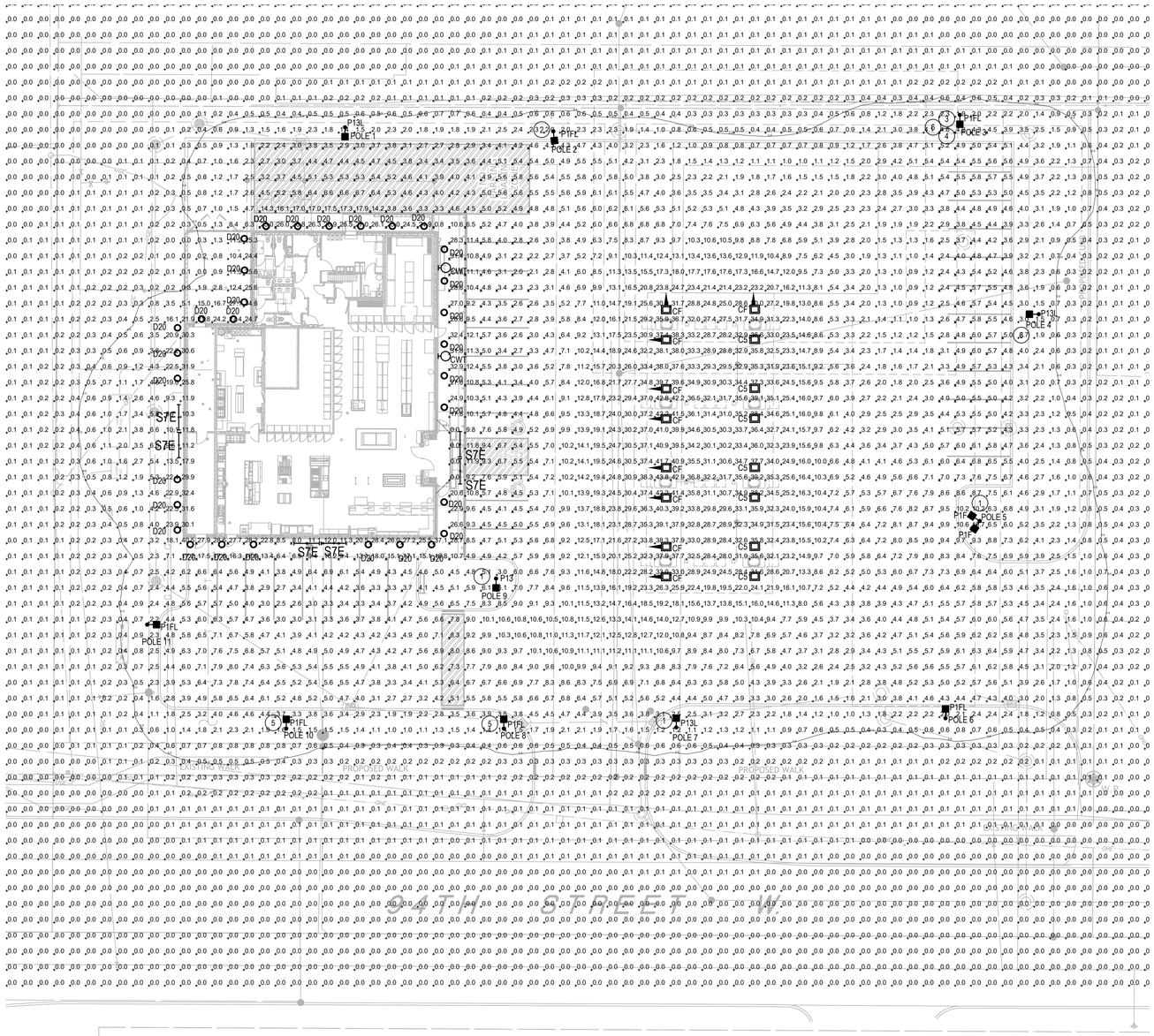
SCALE GRAPHIC
PROJ. NO. 25-1794
DATE 09/16/2025
SHEET **C700**

INSITES 25-020 PM EH




## PHOTOMETRIC SITE PLAN - AT 0.81 LIGHT LOSS FACTOR (LLF)

SCALE: 1" = 20-0"

| CALCULATION STATS: | | | |
|---|---|---|---|
| Description | Avg | Max | Min |
| Crosswalk | 6.7 fc | 10.7 fc | 3.5 fc |
| East Parking | 4.9 fc | 7.6 fc | 2.4 fc |
| East Store Parking | 4.5 fc | 9.4 fc | 2.0 fc |
| Front of Store North of main door - Pedestrian | 19.1 fc | 32.9 fc | 6.5 fc |
| Front of Store South of main door - Pedestrian | 24.7 fc | 28.7 fc | 20.6 fc |
| Loading Zone | 5.4 fc | 17.9 fc | 2.2 fc |
| Loading Zone - Pedestrian | 23.6 fc | 27.0 fc | 0.8 fc |
| South Store Parking | 6.1 fc | 18.0 fc | 2.5 fc |
| Southside of store - Pedestrian | 21.9 fc | 37.1 fc | 8.0 fc |

## FIXTURE QUANTITIES

D20 - 31
S7E - 6
CF - 9
CS - 7
CWT - 2
P13 - 1
P13L - 3
P1F - 2
P1FL - 6

PROVIDE (11) 16' POLES.

## GENERAL NOTES:

1. FOOTCANDLE LEVELS SHOWN ON THIS PLAN ARE CALCULATED AT GRADE LEVEL.
2. ALL POLES SHALL BE INSTALLED A MINIMUM OF 3'-0" FROM BACK OF CURB TO EDGE OF POLE BASE UNLESS NOTED.
3. POLES THAT ARE LOCATED AT CORNER OF ISLAND SHALL BE A MINIMUM OF 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE. POLES THAT MUST BE INSTALLED LESS THAN 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE SHALL HAVE PROTECTIVE BOLLARDS INSTALLED AROUND THE POLE BASE. COORDINATE WITH KWIK TRIP PRIOR TO INSTALLATION.
4. **ALL FIXTURES SHOWN ARE CALCULATED WITH A LIGHT LOSS FACTOR OF 0.81 PER CITY CODE.**

## KEYED NOTES:

1. CONTRACTOR SHALL INSTALL POLE MOUNT FIXTURE 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE.
2. CONTRACTOR SHALL INSTALL POLE MOUNT FIXTURE 12'-0" FROM THE OVER DIG OF UNDERGROUND FUEL TANK TO EDGE OF POLE BASE.
3. CONTRACTOR SHALL POLE MOUNT FIXTURE AT THE EDGE OF OVER DIG OF UNDERGROUND FUEL TANK.
4. CONTRACTOR SHALL INSTALL POLE MOUNT FIXTURE 2'-0" FROM THE UNDERGROUND FUEL TANK TO EDGE OF POLE BASE TO AVOID UNDERGROUND UTILITIES.
5. CONTRACTOR SHALL INSTALL POLE MOUNT FIXTURE 3'-0" FROM BACK OF CURB TO EDGE OF POLE BASE AND AT THE EDGE OF SIDEWALK.
6. CONTRACTOR SHALL INSTALL POLE MOUNT FIXTURE 8'-0" FROM BACK OF CURB TO EDGE OF POLE BASE TO AVOID UNDERGROUND STORM LINES.

## FIXTURE SYMBOLS:

- LED LIGHT MOUNTED UNDER FUEL CANOPIES
- LED STRIP LIGHT MOUNTED IN GABLE
- RECESSED LED DOWNLIGHT
- WALL MOUNTED LED FIXTURE
- POLE MOUNTED LED FIXTURE

## FIXTURE TYPES:

D20 - RECESSED LED DOWNLIGHT
GOTHAM EVO-35/30-8AR-WD-120-TRW

S7E - LED STRIP LIGHT MOUNTED IN GABLE LITHONIA
TZL1N-L96-10000LM-FST-MVOLT

CF - LSI LIGHTING: SCV-LED-23L-SCFT-UNV-DIM-50-WHT MOUNTED UNDER GAS CANOPY MOUNT FIXTURES WITH FORWARD THROW OPTIC AIMING IN DIRECTION OF ARROW.

CS - LSI LIGHTING: SCV-LED-15L-SC-UNV-DIM-50-WHT MOUNTED UNDER GAS CANOPY.

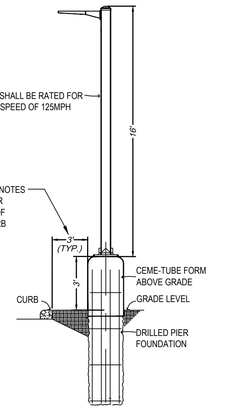
CWT - LED WALL PACK LSI LIGHTING: XPWS3-FT-LED-48-350-CW-UE-BLK FOOTCANDLES CALCULATED AT MOUNTING HEIGHT OF 8'-6" AFG.

P13 - LSI LIGHTING: MRS-LED-18L-SIL-3-UNV-50-70CRI-WHT

P13L - LSI LIGHTING: MRS-LED-18L-SIL-3-UNV-50-70CRI-WHT-IL

P1F - LSI LIGHTING: MRS-LED-18L-SIL-FT-UNV-50-70CRI-WHT

P1FL - LSI LIGHTING: MRS-LED-18L-SIL-FT-UNV-50-70CRI-WHT-IL




## LOT LIGHT ELEVATION DETAIL

NOT TO SCALE

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.

Alan Czarnecki Reg. No. 14540

Date: 11-12-25

2025-0195.23

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Milwaukee, WI 53203
414 / 259 1500
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PHOTOMETRIC SITE PLAN - AT 0.81 LIGHT LOSS FACTOR (LLF)

CONVENIENCE STORE 1794

-- BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
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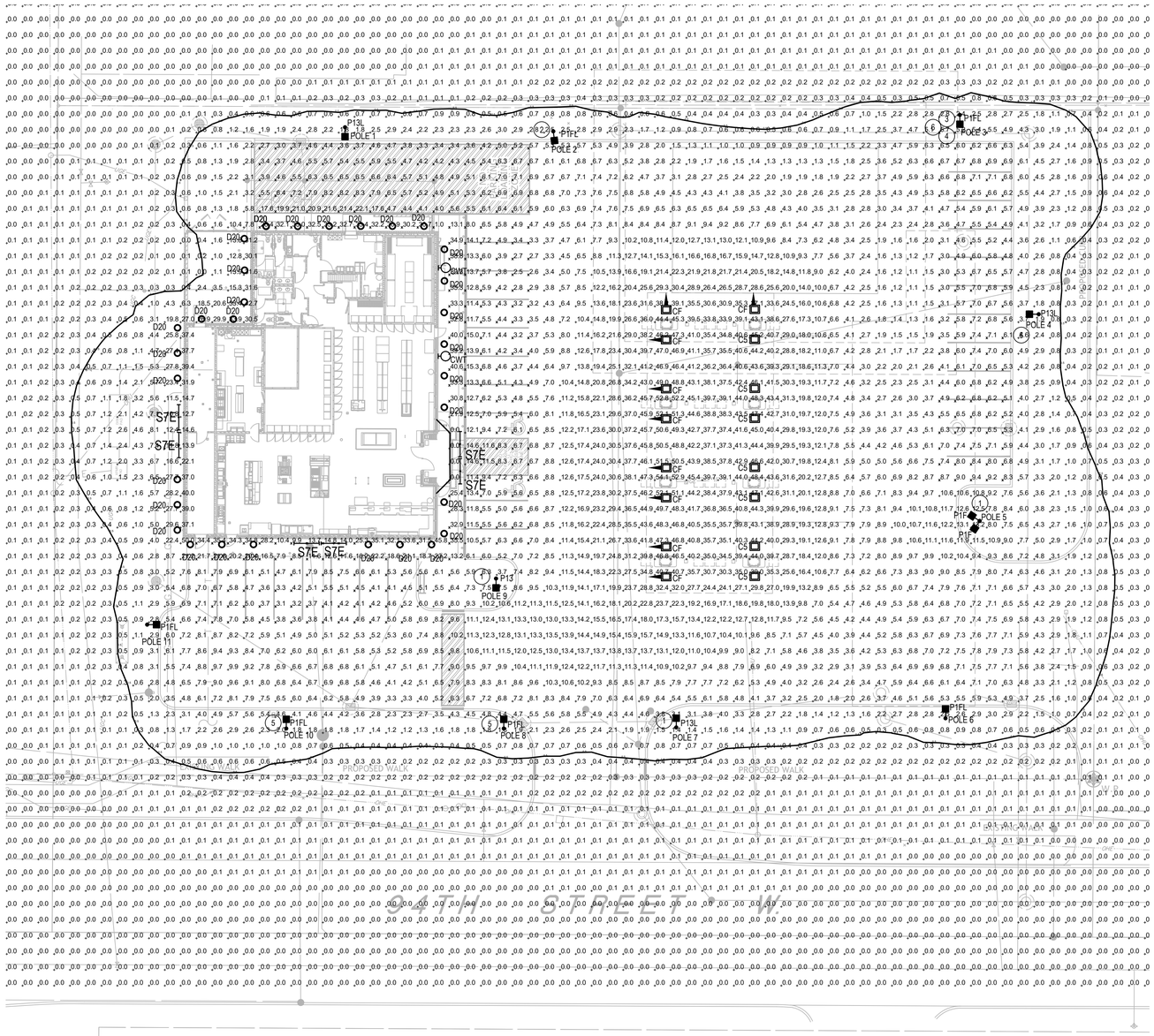
| - | 11/12/25 | CITY SUBMITTAL |

| | |
|---|---|
| DRAWN BY | DLC |
| SCALE | GRAPHIC |
| PROJ. NO. | 25-1794 |
| DATE | 09/16/2025 |
| SHEET | C800 |

INSITES 25-020 PM EH




## PHOTOMETRIC SITE PLAN - AT 1.00 LIGHT LOSS FACTOR (LLF)

SCALE: 1" = 20'-0"

| CALCULATION STATS: | | | |
|---|---|---|---|
| Description | Avg | Max | Min |
| Crosswalk | 8.2 fc | 13.2 fc | 4.3 fc |
| East Parking | 6.1 fc | 9.4 fc | 3.0 fc |
| East Store Parking | 5.5 fc | 11.6 fc | 2.5 fc |
| Front of Store North of main door - Pedestrian | 23.6 fc | 40.6 fc | 8.0 fc |
| Front of Store South of main door - Pedestrian | 30.5 fc | 35.5 fc | 25.4 fc |
| Loading Zone | 6.7 fc | 22.1 fc | 2.7 fc |
| Loading Zone - Pedestrian | 29.2 fc | 33.4 fc | 1.0 fc |
| South Store Parking | 7.6 fc | 22.2 fc | 3.1 fc |
| Southside of store - Pedestrian | 27.1 fc | 45.8 fc | 9.9 fc |

## FIXTURE QUANTITIES

D20 - 31
S7E - 6
CF - 9
C5 - 7
CWT - 2
P13 - 1
P13L - 3
P1F - 2
P1FL - 6

PROVIDE (11) 16' POLES.

## GENERAL NOTES:

1. FOOTCANDLE LEVELS SHOWN ON THIS PLAN ARE CALCULATED AT GRADE LEVEL.
2. ALL POLES SHALL BE INSTALLED A MINIMUM OF 3'-0" FROM BACK OF CURB TO EDGE OF POLE BASE UNLESS NOTED.
3. POLES THAT ARE LOCATED AT CORNER OF ISLAND SHALL BE A MINIMUM OF 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE. POLES THAT MUST BE INSTALLED LESS THAN 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE SHALL HAVE PROTECTIVE BOLLARDS INSTALLED AROUND THE POLE BASE. COORDINATE WITH KWIK TRIP PRIOR TO INSTALLATION.
4. **ALL FIXTURES SHOWN ARE CALCULATED WITH A LIGHT LOSS FACTOR OF 1.00 PER CITY CODE.**

## KEYED NOTES:

1. CONTRACTOR SHALL INSTALL POLE MOUNT FIXTURE 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE.
2. CONTRACTOR SHALL INSTALL POLE MOUNT FIXTURE 12'-0" FROM THE OVER DIG OF UNDERGROUND FUEL TANK TO EDGE OF POLE BASE.
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CWT - LED WALL PACK LSI LIGHTING: XPWS3-FT-LED-48-350-CW-UE-BLK FOOTCANDLES CALCULATED AT MOUNTING HEIGHT OF 8'-6" AFG.

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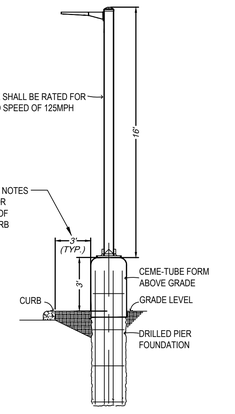
P13L - LSI LIGHTING: MRS-LED-18L-SIL-3-UNV-50-70CRI-WHT-IL

P1F - LSI LIGHTING: MRS-LED-18L-SIL-FT-UNV-50-70CRI-WHT

P1FL - LSI LIGHTING: MRS-LED-18L-SIL-FT-UNV-50-70CRI-WHT-IL




## LOT LIGHT ELEVATION DETAIL

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# PHOTOMETRIC SITE PLAN - AT 1.00 LIGHT LOSS FACTOR (LLF)

CONVENIENCE STORE 1794

-- BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
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| - | 10/20/25 | INTERNAL REVIEW |
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| | |
|---|---|
| DRAWN BY | DLC |
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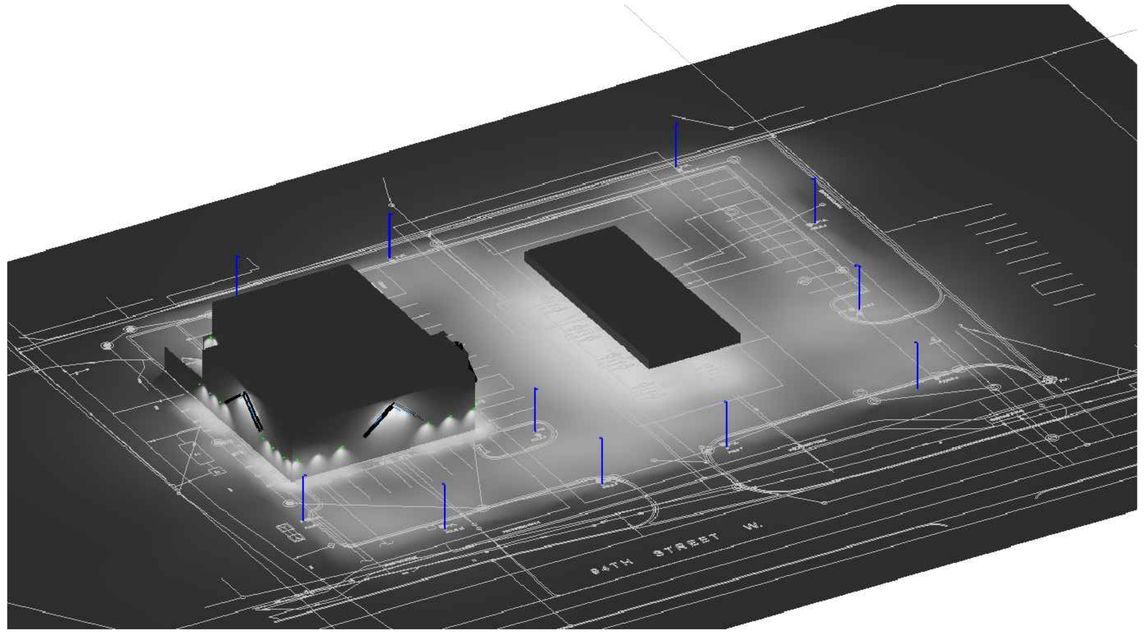
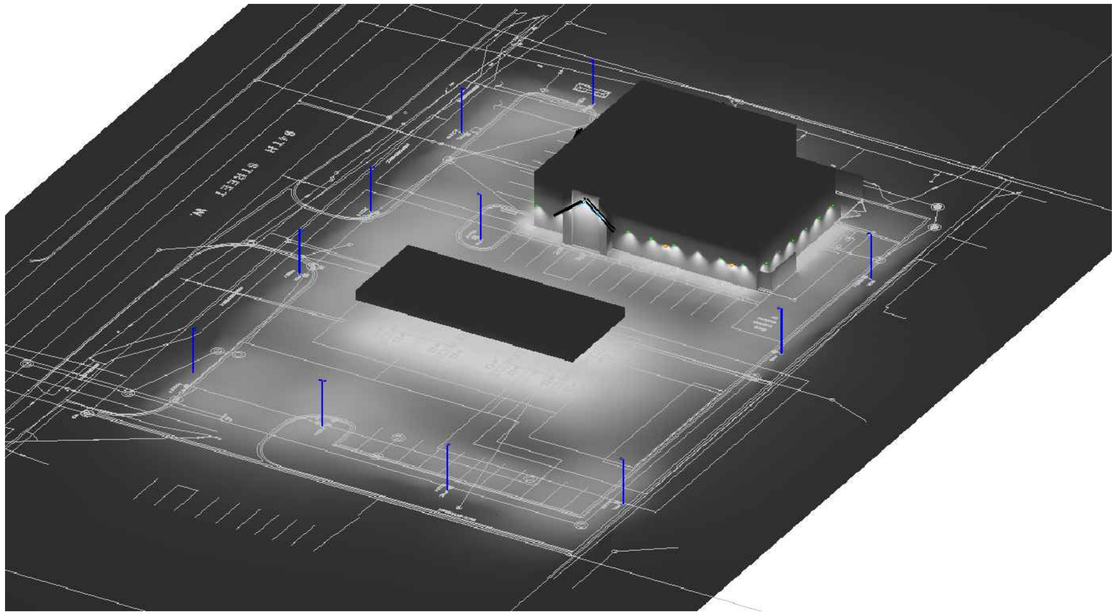
| PROJ. NO. | 25-1794 |
| DATE | 09/16/2025 |
| SHEET | C801 |

INSITES 25-0620 PM EH




PHOTOMETRIC RENDERING PLAN
NOT TO SCALE




PHOTOMETRIC RENDERING PLAN
NOT TO SCALE

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.

Alan Czarnecki Reg. No. 14540

Date: 11-12-25

2025-0195.23

GRAEF
275 West Wisconsin Avenue, Suite 300
Milwaukee, WI 53203
414 / 259 1500
414 / 259 0037 fax

KWIK TRIP

KWIK STAR

KWIK TRIP, Inc.
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1626 OAK STREET
LACROSSE, WI 54602-2107
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SITE PLANNING LANDSCAPE ARCHITECTURE
4205 Lancaster Lane North Suite 113
Plymouth, Minnesota 55441
763 . 383 . 8400
insitesinc.net mail@insitesinc.net

# PHOTOMETRIC RENDERING PLANS - AT 0.81 LIGHT LOSS FACTOR (LLF)

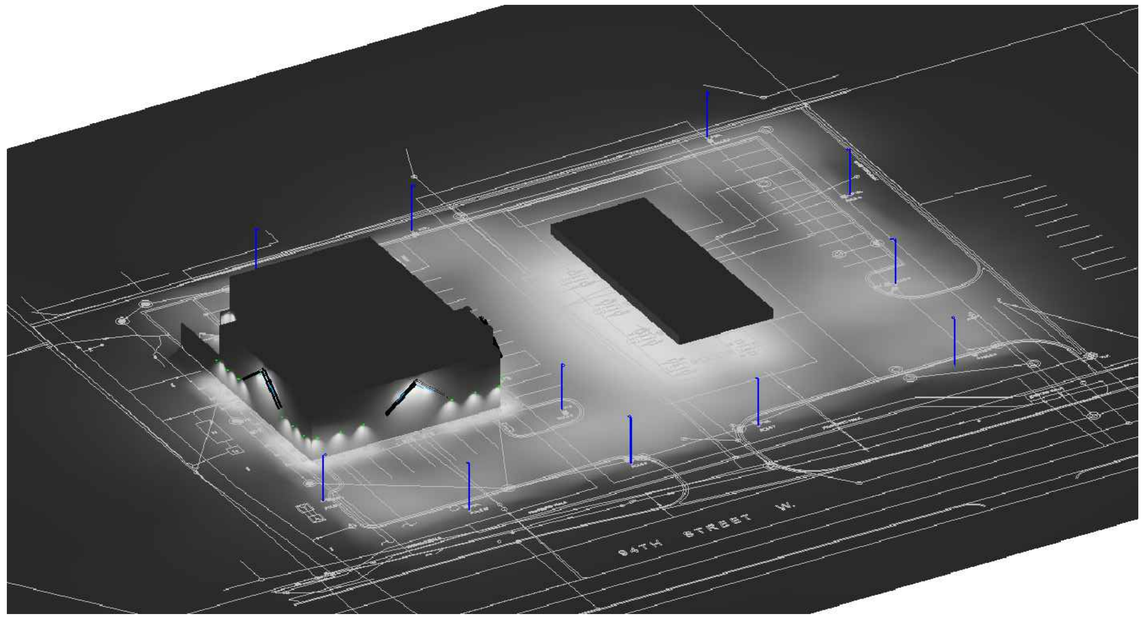
CONVENIENCE STORE 1794

--
BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/25 | INTERNAL REVIEW |
| - | 11/12/25 | CITY SUBMITTAL |
| | | |
| | | |
| | | |

| | |
|---|---|
| DRAWN BY | DLC |
| SCALE | GRAPHIC |
| PROJ. NO. | 25-1794 |
| DATE | 09/16/2025 |
| SHEET | C802 |

INSITES 25-020 PM EH

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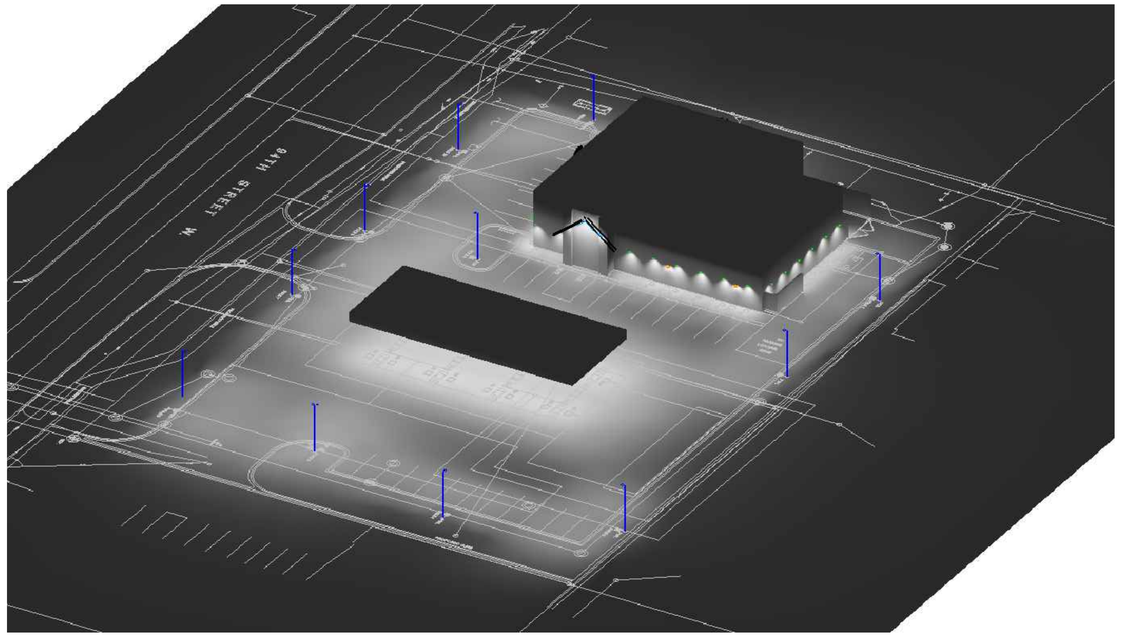


PHOTOMETRIC RENDERING PLAN
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# PHOTOMETRIC RENDERING PLANS - AT 1.00 LIGHT LOSS FACTOR (LLF)

CONVENIENCE STORE 1794

-- BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/25 | INTERNAL REVIEW |
| - | 11/12/25 | CITY SUBMITTAL |
| | | |
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| | | |

| | |
|---|---|
| DRAWN BY | DLC |
| SCALE | GRAPHIC |
| PROJ. NO. | 25-1794 |
| DATE | 09/16/2025 |
| SHEET | C803 |

INSITES 25-020 PM EH

Catalog # : _____ Project : _____

Prepared By : _____ Date : _____

# Mirada Small Area (MRS)

## Outdoor LED Area Light

FIXTURE TYPE "P13": MRS-LED-18L-SIL-3-UNV-50-70CRI-WHT
FIXTURE TYPE "P13L": MRS-LED-18L-SIL-3-UNV-50-70CRI-WHT-IL
FIXTURE TYPE "P1F": MRS-LED-18L-SIL-FT-UNV-50-70CRI-WHT
FIXTURE TYPE "P1FL": MRS-LED-18L-SIL-FT-UNV-50-70CRI-WHT-IL

IP66 IK08

| OVERVIEW | |
|---|---|
| Lumen Package | 6,000 - 30,000 |
| Wattage Range | 39 - 209 |
| Efficacy Range (LPW) | 112 - 163 |
| Weight lbs(kg) | 20 (9.1) |
| Control Options | IMSBT, ALB, ALS, 7-Pin, PC1 |

### QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

### FEATURES & SPECIFICATIONS

**Construction**
- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 27 lbs in carton.

**Optical System**
- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated seal.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in distribution types 2, 3, 4, SW, FT, and LC/RC.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93-95%.
- Zero uplight.
- Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377
- Minimum CRI of 70.
- Integral louver (IL) and integral half louver (IH) options available for enhanced backlight control.

**Electrical**
- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 VAC) Input 50/60 Hz or optional High Voltage (347-480 VAC).
- L70 Calculated Life: >60k Hours
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 30L lumen packages rated to +40°C.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Driver is fully encased in potting material for moisture resistance and complies with FCC standards. Driver and key electronic components can easily be accessed.

**Controls**
- Optional integral passive infrared Bluetooth™ motion and photocell sensor. Fixtures operate independently and can be commissioned via iOS or Android configuration app.
- LSI's AirLink™ wireless control system options reduce energy and maintenance costs while optimizing light quality 24/7.

**Installation**
- Designed to mount to square or round poles.
- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block accepts up to 12 ga. wire.
- Utilizes LSI's traditional B3 drill pattern.

**Warranty**
- LSI luminaires carry a 5-year limited warranty. Refer to https://www.lsicorp.com/resources/terms-conditions-warranty/ for more information.

**Listings**
- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet locations.
- IP66 rated Luminaire per IEC 60598-1.
- 3G rated for ANSI C136.31 high vibration applications are qualified.
- IK08 rated luminaire per IEC 66262 me-chanical impact code
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.



# Mirada Small Area Light (MRS)

Have questions? Call us at (800) 436-7800

FIXTURE TYPE "P13": MRS-LED-18L-SIL-3-UNV-50-70CRI-WHT
FIXTURE TYPE "P13L": MRS-LED-18L-SIL-3-UNV-50-70CRI-WHT-IL
FIXTURE TYPE "P1F": MRS-LED-18L-SIL-FT-UNV-50-70CRI-WHT
FIXTURE TYPE "P1FL": MRS-LED-18L-SIL-FT-UNV-50-70CRI-WHT-IL

Type: _____

### ORDERING GUIDE

Back to Quick Links

**TYPICAL ORDER EXAMPLE: MRS LED 18L SIL FT UNV DIM 40 70CRI ALBCS1 BLK IH**

| Prefix | Light Source | Lumen Package | Lens | Distribution | Orientation[2] | Voltage | Driver |
|---|---|---|---|---|---|---|---|
| **MRS** - Mirada Small Area Light | **LED** | **6L** - 6,000 lms, 39W<br>**9L** - 9,000 lms, 65W<br>**12L** - 12,000 lms, 86W<br>**15L** - 15,000 lms, 113W<br>**18L** - 18,000 lms, 135W<br>**23L** - 23,000 lms, 165W<br>**24L** - 24,000 lms, 196W<br>**30L** - 30,000 lms, 209W<br>(Custom Lumen Packages) | **SIL** - Silicone | **2** - Type 2<br>**3** - Type 3<br>**4** - Type 4<br>**SW** - Type 5 Wide<br>**FT** - Forward Throw<br>**LC** - Left Corner<br>**RC** - Right Corner | **(blank)** - standard<br>**L** - Optics rotated left 90°<br>**R** - Optics rotated right 90° | **UNV** - Universal Voltage (120-277V)<br>**HV** - High Voltage (347-480V) | **DIM** - 0-10V Dimming (0-10V) |

ALL P1 FIXTURES

| Color Temp | Color Rendering | Controls (Choose One) | Finish | Options |
|---|---|---|---|---|
| **50** - 5,000 CCT<br>**40** - 4,000 CCT<br>**30** - 3,000 CCT | **70CRI** - 70 CRI | **(Blank)** - None<br>**Wireless Controls Sensors**<br>**ALSC** - AirLink Synapse Control System<br>**ALSCS1** - AirLink Synapse Control System with 12-20' Mtr Motion Sensor<br>**ALSCS2** - AirLink Synapse Control System with 20-40' Mtr Motion Sensor<br>**ALBCS1** - AirLink Blue Wireless Motion & Photo Sensor Controller (8-24' Mtg)[3]<br>**ALBCS2** - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' Mtg)[3]<br>**Stand-Alone Controls**<br>**EXT** - 0-10v Dimming leads extended to housing exterior<br>**CKTP** - 7 Pin Control Receptacle ANSI C136.41[4]<br>**IMSBT1** - Integral Bluetooth® Motion and Photocell Sensor (8-24' Mtg)[3]<br>**IMSBT2** - Integral Bluetooth® Motion and Photocell Sensor (25-40' Mtg)[3] | **BLK** - Black<br>**BSE** - Dark Bronze<br>**GMG** - Gun Metal Gray<br>**GPT** - Graphite<br>**MSV** - Metallic Silver<br>**PLP** - Platinum Plus<br>**SNG** - Satin Verde Green<br>**WHT** - White | **(Blank)** - None<br>**IH** - Integral Half Louver (Moderate Spill Light Cutoff)[5]<br>**IL** - Integral Louver (Sharp Spill Light Cutoff)[5] |

Need more information? click here for our glossary

Have additional questions? Call us at (800) 436-7800

### Accessory Ordering Information[1]

| CONTROLS ACCESSORIES | |
|---|---|
| Description | Order Number |
| Twist Lock Photocell (120V) for use with CKTP | 132514 |
| Twist Lock Photocell (208-277) for use with CKTP | 132515 |
| Twist Lock Photocell (347V) for use with CKTP | 132516 |
| Twist Lock Photocell (480V) for use with CKTP | 132518 |
| AirLink 5 Pin Twist Lock Controller | 603409 |
| AirLink 7 Pin Twist Lock Controller | 603410 |
| Shorting Cap for use with CKTP | 140528 |

| FUSING OPTIONS[7] | |
|---|---|
| Description | Order Number |
| Single Fusing (120V) | See Fusing Accessory Guide |
| Single Fusing (277V) | |
| Double Fusing (208V, 240V) | |
| Double Fusing (480V) | |
| Double Fusing (347V) | |

| SHIELDING OPTIONS | |
|---|---|
| Description | Order Number |
| Mirada Small | See Shielding Guide |
| Mirada Medium | |
| Mirada Large | |
| Zone Medium | |
| Zone Large | |
| Slice Medium | |

1. Custom lumen and wattage packages available; consult factory. Values are within industry standard tolerances but not DLC listed.
2. Not available on "Type SW" distribution.
3. Control device or shorting cap must be ordered separately. See Accessory Ordering Information.
4. Motion sensors are field configurable via the LSI app that can be downloaded from your smartphone's native app store.
5. Accessories are shipped separately and field installed.
6. "CLR" denotes finish. See Finish options.
7. Fusing must be located on hand hole of pole. See Fusing Accessory Guide for compatability.



gotham® | E V O®

Multiple Layers of Light

Luminaire Type: D20

Catalog Number: EVO8-35/30-8AR-WD-120-TF

# General Illumination Round Downlight 8"

MIRAM360

### Feature Set

- Bounding Ray™ optical design
- Unitized optics mechanically attach the light engine to the lower reflector for complete optical alignment.
- 45° cutoff to source and source image
- Fully serviceable and upgradeable lensed LED light engine
- 70% lumen maintenance at 60,000 hours
- 2.5 SDCM; 85 CRI typical, 90+ CRI optional
- Fixtures are wet location, covered ceiling
- Available with 10% dimming, 1% dimming, or dim to dark
- Batwing distribution with feathered edges provides even illumination on horizontal and vertical surfaces

### Distribution

very narrow 0.5 S/MH | narrow 0.7 S/MH | medium 0.9 S/MH | medium wide 1.0 S/MH | wide 1.2 S/MH

### Superior Perfomance

| Nominal Lumens | 2000 | 2500 | 3000 |
|---|---|---|---|
| Delivered Lumens | 2,287 | 2,964 | 3,398 |
| Wattage | 31.6 | 41.1 | 47.1 |
| Efficacy | 72.5 | 72 | 72.2 |

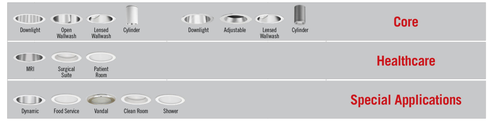
COMPLIMENTARY PRODUCTS

### Coordinated Apertures I Multiple Layers of Light

General Illumination Layer I EVO

High Center Beam Layer I Incito

EVO + Incito — Multiple Layers of Light



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# 8" General Illumination Round Downlight

A+ Capable options indicated by this color background.

DesignLights Quick Ship Programs: Options in green text qualify for Design Elite — 5 business days from order entry to ship. Refer to Design Elite Brochure for complete program details. Maximum Order Quantity: 500 units/ID for Chicago Plenum.

Luminaire Type: D20

Catalog Number: EVO8-35/30-8AR-WD-120-TF

ORDERING INFORMATION

EXAMPLE: EVO8 35/30 AR MWD LSS 277 EZ1

| Series | Color Temperature | Nominal Lumen Values | Reflector & Flange Color | Trim Style | Distribution | Finish | Voltage |
|---|---|---|---|---|---|---|---|
| **EVO8** | **27/** 2700 K<br>**30/** 3000 K<br>**35/** 3500 K<br>**40/** 4000 K<br>**50/** 5000 K | **20** 2000 lumens<br>**25** 2500 lumens<br>**30** 3000 lumens | **AR** Clear<br>**PR** Pewter<br>**WTR** Wheat<br>**GR** Gold<br>**WH** White<br>**BR**[1] Black<br>**WRAMF**[1] White Anti-microbial | (blank) Self-flanged | **VND** Very Narrow (0.5 s/mh)<br>**ND** Narrow (0.7 s/mh)<br>**MD** Medium (0.9 s/mh)<br>**MWD** Medium wide (1.0 s/mh)<br>**WD** Wide (1.2 s/ mh) | **LSS** Semi-specular<br>**LD** Matte-diffuse<br>**LS** Specular | **120** 120V<br>**277** 277V<br>**347**[2,3] 347V |

| Driver[4] | Control Interface | Options |
|---|---|---|
| **GZ10** 0-10V driver dims to 10%<br>**GZ1** 0-10V driver dims to 1%<br>**EZ10** eldoLED 0-10V ECOdrive. Linear dimming to 10% min.<br>**EZ1** eldoLED 0-10V ECOdrive. Linear dimming to 1% min.<br>**EZB** eldoLED 0-10V SOLOdrive. Logarithmic dimming to <1%.<br>**EDAB**[5] eldoLED SOLOdrive DALI. Logarithmic dimming to <1%.<br>**EDXB**[5] eldoLED POWERdrive DMX with RDM (remote device management). Square Law dimming to <1%. Includes termination resistor.<br>**ECOS2**[6] Lutron® Hi-Lume® 2-wire forward-phase driver. 120V only Minimum dimming level 1%.<br>**ECOD**[7] Lutron Ecosystem digital Hi-Lume 1% soft-on, fade to black. Maximum 2500 lumens. | **NLT**[8] nLight® dimming pack controls<br>**NLTER**[8,9,10] nLight® dimming pack controls emergency circuit<br>**NLTAIR2**[11,12] nLight® Air enabled nLight® AIR Dimming Pack Wireless Controls. Controls fixtures on emergency circuit<br>**EXA1** XPoint Wireless, eldoLED 0-10V ECOdrive. Linear dimming to 1%. Refer to XPoint tech sheet.<br>**EXAB** XPoint Wireless, eldoLED 0-10V SOLOdrive. Logarithmic dimming to <1%. Refer to XPoint tech sheet. | **SF** Single fuse. Specify 120V or 277V.<br>**FRW**[1] White painted flange<br>**FRBL**[1] Black painted flange<br>**EL** Emergency battery pack, 1.0W, with integral test switch<br>**ELR** Emergency battery pack, 1.0W, with remote test switch<br>**ELSD** Emergency battery pack, 1.0W, with self-diagnostics, integral test switch<br>**ELRSD** Emergency battery pack, 1.0W, with self-diagnostics, remote test switch<br>**E10WCP** Emergency battery pack, 1.0W Constant Power, CA Title 20 compliant with integral test switch<br>**E10WCPR** Emergency battery pack, 1.0W Constant Power, CA Title 20 compliant with remote test switch[13]<br>**NBD**[14] nLight® Lumen Compensation<br>**BGTD** Bodine generator transfer device. Specify 120V or 277V.<br>**HCRI** High CRI (90+)<br>**CP**[15] Chicago Plenum. Specify 120V or 277V.<br>**RRL__** RELOC®-ready Luminaire connectors enable a simple and consistent factory installed option across all ABL luminaire brands. Available only with RRLA, RRLB, RRLAC, and RRLC12S. Refer to RRL spec sheet on www.acuitybrands.com for RELOC product specifications. Above ceiling access required. |

### ACCESSORIES — order as separate catalog numbers (shipped separately)

**SCA4** Sloped ceiling adapter. Degree of slope must be specified (5/0, 10/0, 15/0, 20/0, 25/0, 30/0). Ex: SCA8 10/0. Refer to TECH-190.
**CTA4-8 YK** Ceiling thickness adapter (extends mounting plate to accommodate ceiling thickness up to 5"). Adds ~4" to fixture height.
**GVRT** Vandal-resistant trim accessory. Refer to TECH-200.
**ISD BC** 0-10V wallbox dimmer. Refer to ISD-BC.

### ORDERING NOTES

1. Not available with finishes.
2. Not available with GZ10, GZ1, EL or ELR options.
3. Supplied with factory installed step down transformer.
4. Refer to TECH-240 for compatible dimmers.
5. Not available with nLight® and XPoint options.
6. Must specify voltage 120V or 277V.
7. For use with different reflector finish only (i.e. AR, PR, WTR, GR options). Not available with WR (white reflector).
8. For use with different reflector finish only (i.e. AR, PR, WTR, GR options). Not available with BR (black reflector).
9. For dimensional changes, refer to TECH-140. Not available with 347V.
10. For use with generator supply EM power. Will require an emergency hot feed and normal hot feed.
11. Fixture begins at 80% light level. Must be specified with eldoLED drivers and NLT or NLTER.
12. Not available with ELR, EXA1 or EXAB.
13. Not available DALI or DMX drivers. Not available with CP or NBO options. Not recommended for metal ceiling installations.



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gotham®

LITHONIA LIGHTING®

| Catalog Number | TZL1N-L96-10000LM-FST-MVOLT |
|---|---|
| Notes | |
| Type | S7E |

LED Striplight

# ZL1N

24", 48" and 96" Lengths

### FEATURES & SPECIFICATIONS

**INTENDED USE** — Built on the compact, low-profile Z strip channel, this LED strip offers long maintenance-free life, several color temperatures, lumen outputs and lengths. Ideal for new construction and retrofit applications in T5 and T8 lengths. Ideal for uplight and downlight in commercial, retail, manufacturing, warehouse, cove and display applications. **Certain airborne contaminants can diminish the integrity of acrylic and/or polycarbonate. Click here for Acrylic-Polycarbonate Compatibility table for suitable uses.**

**CONSTRUCTION** — Compact-design channel and cover are formed from code-gauge cold-rolled steel. Easy to install row aligner included for continuous row mounting.

Finish: Paint options include high-gloss, baked white enamel (WH), galvanized (GALV), matte black (MB) and smoke gray (SKGY). After fabrication, five-stage iron phosphate pre-treatment ensures superior paint adhesion and rust resistance.

**OPTICS** — Standard diffuse snap on/snap off lens eliminates pixels, improves uniformity and minimizes glare. L/LENS option available.

**ELECTRICAL** — L70=60,000hours. Utilizes high-output LEDs integrated on a two-layer circuit board, ensuring cool-running operation. Optional internal pluggable wiring harness for reduced labor cost on row mounting applications. (See PLR_ entering information on page 3.) Electronic LED driver is rated for 75 input watts maximum (see Operational Data on page two for actual wattage consumption); **multi-volt input and 0-10V dimming standard.** This fixture is designed to withstand a maximum line surge of 2.5kV at 0.25kA combination wave for indoor locations, for applications requiring higher level of protection additional surge protection must be provided.

LEDs provide nominal 80 CRI at 3000 K, 3500 K, 4000 K, or 5000 K.

Lumen output up to 2,000 lumens per foot. In 86°F (30°C) ambient environments. Luminaire should be installed in applications where ambient temperatures do not exceed 86°F (30°C).

**INSTALLATION** — Tool-less channel cover for easy installation.

Fixture may be surface mounted (with or without ZSPRG hanger), pendant or stem mounted with appropriate mounting options. Three-point aligner locks in place for easy continuous row mounting.

**LISTINGS** — CSA certified to US and Canadian safety standards. For use in damp locations between -40°F (-40°C) and 86°F (30°C).

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

**WARRANTY** — 5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/support/customer-support/terms-and-conditions

**Note:** Actual performance may differ as a result of end-user environment and application.

All values are design or typical values, measured under laboratory conditions at 25 °C.

Specifications subject to change without notice.

**Capable Luminaire**

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning.
- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is part of an A+ Certified solution for nLight® or XPoint™ Wireless control networks marked by a shaded background*

To learn more about A+, visit www.acuitybrands.com/aplus.

*See ordering tree for details



## ZL1N LED Striplight

TZL1N-L96-10000LM-FST-MVOLT

A+ Capable options indicated by this color background.

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative. **Example:** ZL1N L48 3000LM FST MVOLT 40K 80CRI WH

| Series | Length | Reflectors[1] | Nominal lumens[1] | Diffuser | Voltage |
|---|---|---|---|---|---|
| ZL1N LED stripLight | L24 24"[1] | (Blank) Less reflector<br>SMR Symmetric | 1500LM 1,500 lumens<br>2500LM 2,500 lumens<br>3500LM 3,500 lumens | FST Snap on frosted, diffuse<br>L/LENS No diffuser<br>SBL FST Straight blade louver with snap on frosted, diffuse | MVOLT 120-277V<br>120 120V<br>208 208V<br>240 240V<br>277 277V<br>347 347V[4]<br>480 480V[4] |
| | L46 46"<br>L48 48" | (Blank) Less reflector<br>ASR Asymmetric (L48 only)<br>SMR Symmetric | 3000LM 3,000 lumens<br>5000LM 5,000 lumens<br>7000LM 7,000 lumens | | |
| ZL1N LED stripLight | L92 92"<br>L96 96" | (Blank) Less reflector<br>SMR Symmetric | 6000LM 6,000 lumens<br>10000LM 10,000 lumens<br>14000LM 14,000 lumens | | |

| Color temperature | Color rendering index | Options | | Paint finish |
|---|---|---|---|---|
| 30K 3000 K<br>35K 3500 K<br>40K 4000 K<br>50K 5000 K | 80CRI 80 CRI<br>90CRI 90 CRI | PLR___ Plug-in wiring[2,3]<br>PLR1EVG Plug-in wiring-low voltage[2,3]<br>E7W Emergency battery pack, 7W CA Title 20 Noncompliant[3]<br>2E7W Two Emergency battery packs, 7W CA Title 20 Noncompliant[2,3]<br>E10WLCP Emergency battery pack, 10W Linear Constant Power, Certified in CA Title 20 MAEDBS[3]<br>2E10WLCP Two Emergency battery packs, 10W Linear Constant Power, Certified in CA Title 20 MAEDBS[2,3]<br>E15WLCP Emergency battery pack, 15W Linear Constant Power, Certified in CA Title 20 MAEDBS[3]<br>OUTEND Cord set to exit endplate of fixture<br>**Wireless Controls**[5]<br>NLTAIR2 RLSXR10 nLight Air Generation 2 Fixture mount, LSXR sensor low mount 360'<br>NLTAIR2 RLSXR10EM nLight Air Generation 2 Fixture mount, LSXR sensor low mount 360', UL924 Emergency operation[6] | **Individual Controls**[5]<br>LBD2U 360° low mount motion sensor, pre-wired[7]<br>LBH05ZU 360° low mount motion sensor with dimming, pre-wired[7]<br>LBP2U 360° low mount motion sensor with photocell, pre-wired[7]<br>LBM05ZU 360° low mount motion sensor, dimming & switching photocell, pre-wired[7]<br>**Cord sets**[8]<br>CS1W Straight plug, 120V<br>CS2W Twist-lock, 120V<br>CS7W Straight plug, 277V<br>CS8W Twist-lock, 277V<br>CS3W Twist-lock, 347V<br>CS9W Twist-lock, 480V<br>CS93W 600V SEOOW white cord, no plug (no voltage required) | WH White<br>GALV Galvanized<br>MB Matte black<br>SKGY Smoke gray |

**Accessories:** *Order as separate catalog number.*

| | | | |
|---|---|---|---|
| HC36 | Hanger chain, 36" | ZL1R L24 SYM WH | 24" symmetric reflector, white finish |
| ZACVH | Aircraft cable 10' (one pair) | ZL1R L46 SYM UPL WH | 46" symmetric reflector with uplight, white finish |
| ZLANGBKT | Lumia 60°° angle bracket for shelf or ledge mounting only | ZL1R L46 SYM WH | 46" symmetric reflector, white finish |
| SQ | Stem kit, 2" increments up to 48" | ZL1R L48 RSY WH | 48" asymmetric reflector, white finish |
| WPP3D | nLight® switching/dimming module | ZL1R L48 SYM UPL WH | 48" symmetric reflector with uplight, white finish |
| PP20D | nLight® Air switching/dimming module | ZL1R L48 SYM WH | 48" symmetric reflector, white finish |
| LSXR | Sensor Switch® LSXR occupancy sensor[9] | ZL1R L92 SYM UPL WH | 92" symmetric reflector with uplight, white finish |
| ZSPRG | For 15/16" T-grid only | ZL1R L92 SYM WH | 92" symmetric reflector, white finish |
| WGZ24 | 24" wiregaurd, white[10] | ZL1R L96 SYM UPL WH | 96" symmetric reflector with uplight, white finish |
| WGZ48 | 48" wiregaurd, white[10,11] | ZL1R L96 SYM WH | 96" symmetric reflector, white finish |
| ZL1R L24 SYM UPL WH | 24" symmetric reflector with uplight, white finish | UNIVERSAL REFL ALIGNER | Universal reflector aligners, quantity 1 |

**Notes**
1. Not available with 347V, 480V or Batteries
2. Optional. Reflectors ship separately.
3. See Operational Data on page 2 for actual lumens.
4. Utilizes step down transformer.
5. See ordering information on pages 4 and 5 and nLIGHT specification sheet for more configurations. Where choosing Sensor and PLR the same fixture, consult the factory.
6. Not available with cord sets.
7. MVOLT only. Not available with cord sets with plugs. Battery Spec sheet linked for more information.
8. Only available with 10,000LM and 14,000LM packages.
9. MVOLT only.
10. Available with MVOLT, 347V and 480V only. This sensor configuration is suitable for minimum ambient temperature of 14°F (-10°C). See page 6 for low temperature option providing -4°F (-20°C) minimum ambient. Sensors come prewired, they must be snapped into place at time of installation.
11. Corders exit back of fixture unless OUTEND option is specified. Most specific voltage test required when ordering CSXSW).
12. Not compatible with reflector
13. Order 2 for tandem double length fixtures (TZL1N).




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LIGHTING CUTSHEETS
CONVENIENCE STORE 1794
-- BLOOMINGTON, MINNESOTA

| NO. | DATE | DESCRIPTION |
|---|---|---|
| - | 10/20/25 | INTERNAL REVIEW |
| - | 11/12/25 | CITY SUBMITTAL |
| | | |
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DRAWN BY DLC
SCALE GRAPHIC
PROJ. NO. 25-1794
DATE 09/16/2025
SHEET C804

INSITES 25-020 PM EH

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.

Alan Czarnecki Reg. No. 14540

Date: 11-12-25

2025-0195.23


GRAEF
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Catalog #: XPWS3-FT-LED-48-350-CW-UE-BLK Project:

Prepared By: Date: Type: CWT

# Patriot Wall Sconce (XPWS3)

## Outdoor Wall Sconce

IP65

| OVERVIEW | |
|---|---|
| Lumen Package | 3,000 - 6,000 |
| Wattage Range | 34 - 72 |
| Efficacy Range (LPW) | 79 - 95 |
| Weight lbs (kg) | 30 (13.6) |

**QUICK LINKS**

Ordering Guide | Performance | Photometrics | Dimensions

## FEATURES & SPECIFICATIONS

### Construction

- One-piece die-cast aluminum housing is smoothly contoured rectangular shape.
- Mounting hardware is stainless steel or electro-zinc plated.
- Housing and optical unit are sealed with extruded silicone gasket; supply conductors with moldaid EPDM bushing.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 30 lbs in carton.

### Optical System

- Clear tempered optical-grade flat glass lens sealed to the aluminum optic housing creates an IP65 rated optical assembly.
- Pressure stabilizing breather allows super-tight protection while preventing cycling from building up internal pressures and vacuums that can stress optical unit seals.
- Three distribution choices: Wide Throw (WT), Forward Throw (FT) and Wall Wash (WW).
- Zero uplight.
- Available in 5000K and 4000K color temperatures per ANSI C78.377.
- Minimum CRI of 70.

### Electrical

- Driver is fully encased in potting material for IP65 moisture and complies with IEC and FCC standards. Driver can be easily accessed.
- Drivers feature integral sensor which reduces drive current, when ambient temperatures exceed rated temperature.
- Available with universal voltage power supply 120-277VAC (50/60Hz input) or 347-480VAC.
- Operating temperature: -40°C to +50°C (-40°F to +122°F).
- Two-stage surge protection (including separate surge protection built into electronic driver) meets IEEE C62.41.2-2002, Location Category C.
- Prewired leads extended out the back of the unit through a rubber grommet eliminating the need to open the fixture to make wiring connections.
- Optional integral emergency battery-backup options are available. BB option operates in 0°C to 60°C ambient temperature and CWBB operates in -20°C to 60°C ambient temperature. When primary AC power failure occurs, both options operate 10 LEDs for minimum of 90 minutes.

### Controls

- DIM- 0-10 volt dimming enabled with controls by others.

### Installation

- Galvanized-steel universal wall mounting plate easily mounts directly to 4" octagonal or square junction box.
- EPDM gasket is supplied to be installed between mounting plate and junction box, sealing junction box from entrance of water.
- Universal plate permits fixture to be mounted in uplighting (indoor only) or downlighting position.
- XPMA (for square) or XPMAR (for round) allows mounting to poles in single and D180 configurations. Use LSI B3 drilling pattern.

### Warranty

- LSI luminaires carry a 5-year limited warranty. Refer to https://www.lsicorp.com/resources/terms-conditions-warranty/ for more information.

### Listings

- Listings
- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- Suitable for wet locations (down position only).
- IP65 rated luminaire
- Optional Class 1 Division 2 (groups A, B, C &D) hazardous location rating is available (select HL option)



Type:

# Patriot Wall Sconce

## ORDERING GUIDE

Back to Quick Links

TYPICAL ORDER EXAMPLE: **XPWS3 FT LED 48 450 CW UE WHT BB**

| Prefix | Distribution | Technology | Output | Color Temp | Voltage | Finish | Controls | Options |
|---|---|---|---|---|---|---|---|---|
| **XPWS3** - Patriot Wall Sconce | **FT** - Forward Throw<br>**WT** - Wide Throw<br>**WW** - Wall Wash | **LED** | **26 -350** - 26 LEDs & 350mA (3,000 lms)<br>**28-450** - 28 LEDs & 450mA (4,000 lms)<br>**40-350** - 40 LEDs & 350mA (5,000 lms)<br>**48-450** - 48 LEDs & 450mA (6,000 lms) | **CW** - 5,000K (CT - 70 CRI)<br>**NW** - 4,000K (CT - 70 CRI) | **UE** - Universal voltage (120-277V)<br>**347-480** - High Voltage | **BLK** - Black<br>**BRZ** - Bronze<br>**GMG** - Gun Metal Gray<br>**GPT** - Graphite<br>**MSV** - Metallic Silver<br>**PLP** - Platinum Plus<br>**SVG** - Satin Verde Green<br>**WHT** - White | **DIM** - 0-10v Dimming leads extended to housing exterior [1]<br>**BB** - Battery Backup (EVG) [2]<br>**PC1120** - 120V Button-Type Photocell [3]<br>**PC208** - 208V Button-Type Photocell [3]<br>**PC2240** - 240V Button-Type Photocell [3]<br>**PC277** - 277V Button-Type Photocell [3]<br>**PC347** - 347V Button-Type Photocell [3]<br>**(BLANK)** - None | **(Blank)** - None<br>**BB** - Battery Backup (EVG) [2]<br>**CWBB** - Cold Weather Battery Backup (-20°C) [2]<br>**HL** - Class 1, Division 2 Hazardous Location Rating, ETL Listed to UL1604 [4]<br>**XPMA** - Pole Mounting Adaptor w/ Fixture Back Plate for Use with Square Poles [5]<br>**XPMAR4** - Pole Mounting Adaptor w/ Fixture Back Plate for Use with 4" O.D. Round Poles [5]<br>**XPMAR5** - Pole Mounting Adaptor w/ Fixture Back Plate for Use with 5" O.D. Round Poles [5] |

### Accessory Ordering Information

| Description | Order Number |
|---|---|
| XPWS3 Polycarbonate Shield | 244637 |
| XPWS3 SW BLK - Surface Wiring Box (Available in black only) | 356955BLK |
| FIC120 - Single Fusing | FIC120 [7] |
| FIC277 - Single Fusing | FIC277 [7] |
| FIC208, 240 - Double Fusing | FIC208,240 [7] |
| FIA480 - Double Fusing | FIA480 [7] |
| FIC42 - Single Fusing | FIC42 [7] |

**FOOTNOTES:**

1 - DIM and WC options are not compatible.
2 - Not compatible with EMC or HL option.
3 - Available with UE voltage only. Not compatible with HL option.
4 - Not available with battery back-up or photocell options.
5 - Designed for 3" reduced drilling pattern. For 5 or D180 mounting configuration only.
6 - Accessories are field installed.
7 - Fusing to be installed in a compatible junction box supplied by contractor.



Catalog # : Project :

Prepared By : Date :

FIXTURE TYPE "CF" :SCV-LED-23L-SCFT-UNV-DIM-50-WHT
FIXTURE TYPE "CS" :SCV-LED-15L-SC-UNV-DIM-50-WHT

# Scottsdale Vertex™ (SCV)

## Petroleum Canopy LED Luminaire

| OVERVIEW | |
|---|---|
| Lumen Package | 9,000 - 24,000 |
| Wattage Range | 66 - 192 |
| Efficacy Range (LPW) | 119 - 156 |
| Weight lbs(kg) | 15 (6.8) |

**QUICK LINKS**

Ordering Guide | Performance | Photometrics | Dimensions

## FEATURES & SPECIFICATIONS

### Construction

- Rugged low-profile die-cast aluminum housing, optical unit, and driver cover.
- Below canopy access to optical chamber and driver housing for serviceability.
- IP66 rated optical unit protects integral components from dust and water.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling.
- A single fastener secures access door to driver and key components and provides quick & easy access to the electrical compartment for servicing.
- Shipping weight: 15 lbs in carton.

### Optical System

- Proprietary silicone refractor optics provide exceptional coverage and uniformity in Symmetrical or Combination Forward Throw distributions.
- State-of-the-art silicone optics deliver industry leading optical control with an integrated gasket to provide an IP66 rated sealed optical chamber in one component.
- Silicone optical material does not yellow or crack with age and provides a minimum light transmittance of 93%.
- Available in 5000K and 4000K (+/- 275K) color temperatures.
- Minimum CRI of 70.

### Electrical

- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance on Page 2)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F) when mounted to Steel/Aluminum surfaces for 10L, 13L, & 15L Lumen Packages, +45°C for 20L Lumen Package, and +40°C for 23L Lumen Package. If mounted to a non-metallic surface, reduce ambient by 5°C.
- Power factor: >0.90
- Field replaceable surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs are mounted to (4) circuit boards to maximize heat dissipation
- Driver components are fully encased in potting material for moisture resistance. Driver complies with FCC standards.

### Hazardous Locaiton

- Designed for lighter than air fuel applications. Product is suitable for Class 1 Division 2 with all lumen packages and distributions only when properly installed per LSI installation instructions. Models with optional controls are not approved for Class 1, Division 2 applications.

  **T5 Temperature Classification** – The surface temperature of this product will not rise above 100°C., within a 40°C ambient.

  **Gas Groups A,B,C, and D** – Group A: Acetylene / Group B: Hydrogen / Group C: Propane and Ethylene / Group D: Benzene, Butane, Methane & Propane.

### Installation

- Installs in a 12" or 16" deck pan.
- Four fasteners are provided with the fixture for using deck, metallic canopy substrates only when classified as suitable for use by installing professional otherwise suitable fasteners should be provided by others.
- Unit is designed to quickly retrofit into existing Scottsdale (4") hole.
- Aluminum locking collar and gasket are included and required for complete seal and support of canopy deck.
- Retrofit panels are available for existing Encores, Richmond, 2x2 Universal, and more.

### Warranty

- LSI LED Fixtures carry a 5-year warranty or 10-year warranty with registration for petroleum applications only (contact your LSI representative for details).

### Listings

- Listed to UL 1598 and UL 8750.
- RoHS Compliant.
- Meets Buy American Act requirements.
- State of California Title 24 Compliant with IMSBT or ALSC/ALSCS option.
- IP66 Rated Optical Unit per IEC 60598.
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.



# Scottsdale Vertex SCV Petroleum

## ORDERING GUIDE

FIXTURE TYPE "CF" :SCV-LED-23L-SCFT-UNV-DIM-50-WHT
FIXTURE TYPE "CS" :SCV-LED-15L-SC-UNV-DIM-50-WHT

Back to Quick Links

TYPICAL ORDER EXAMPLE: **SCV LED 13L SC UNV DIM 50 WHT IMSBT2**

| Family / Size | LED Gen | Lumen Package | Distribution | Voltage | Driver | Color Temperature | Finish | Controls |
|---|---|---|---|---|---|---|---|---|
| **SCV** - Petroleum Canopy Luminaire | **LED** | **10L** - 10000 Lumens<br>**13L** - 13000 Lumens<br>FIXTURE "CS" **15L** - 15000 Lumens<br>**20L** - 20000 Lumens<br>**23L** - 23000 Lumens<br>FIXTURE "CF" **23L** - 25000 Lumens | **SC** - Standard Symmetric<br>**SCFT** - Combination Standard Symmetric and Forward Throw | **UNV** - 120-277V<br>**HV** - 347-480V | **DIM** - Dims to 10% (0 to 10V dimming) | **40** - 4000K<br>**50** - 5000K | **WHT** - White<br>**BLK** - Black<br>**BRZ** - Bronze | **Blank** - NONE<br>**ALSC** - AirLink Synapse Wireless Control System [1]<br>**ALSCS** - AirLink Synapse Wireless Control System with Sensor [1]<br>**ALBCS1** - AirLink Blue Wireless Motion & Photo Sensor Controller (8-24' mounting height)[2]<br>**ALBCS2** - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' mounting height)[2]<br>**IMSBT1** - Integral Bluetooth™ Motion and Photocell Sensor 8 - 24' mounting height [3,5]<br>**IMSBT2** - Integral Bluetooth™ Motion and Photocell Sensor 25 - 40' mounting height [3,5] |

### Accessory Ordering Information

| Description | Order Number |
|---|---|
| Retrofit Panel Kit - EC / ECTA / SCF to SCV, for 16" Deck Panel with larger openings[2] | 675425 |
| Retrofit Panel Kit - EC / ECTA / SCF to SCV, for 12" Deck Panel[2] | 678011 |
| Retrofit Panel Kit - RECU Richmond to SCV | 673426 |
| Retrofit Panel Kit - UNV Universal 2x2 to SCV | 673427 |
| Retrofit 2x2 Cover Panel Blank (no holes) | 357392 |
| Retrofit RIC Cover Panel Blank (no holes) | 354702 |
| 26" X 26" Beauty Plate Kit (with 4" Center hole) | 557193WHT |
| 26" X 33" Beauty Plate Kit (with 4" Center hole) | 564160WHT |
| Junction Box | 687401 |
| Kit - Hole Plugs and Sealant (enough for 25 retrofits) | 1320540 |
| Rectangular Top Plate Kit (includes top plate and sealant) | 676291WHT |
| Surface Mount Box | 673433 |
| Retrofit Kit - ORI/CRUS to SCV | 687462 |

FOOTNOTES:
1 - Consult factory for HV with AirLink Synapse Wireless Control System.
2 - IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store.
3 - Ideal for 9" to 12" openings.
4 - Ideal for 9" openings.
5 - Not available in HV.

## PERFORMANCE

Back to Quick Links

**DELIVERED LUMENS**

| Drive Current | 3000K CCT | | | 4000K CCT | | | 5000K CCT | | | Wattage |
|---|---|---|---|---|---|---|---|---|---|---|
| | Delivered Lumens | Efficiency | BUG Ratings | Delivered Lumens | Efficiency | BUG Ratings | Delivered Lumens | Efficiency | BUG Ratings | |
| 10L | 8723 | 132 | B3-U0-G1 | 10218 | 156 | B3-U0-G1 | 10306 | 156 | B3-U0-G1 | 66 |
| 13L | 10621 | 130 | B3-U0-G1 | 12793 | 153 | B3-U0-G1 | 12933 | 153 | B3-U0-G1 | 84 |
| 15L | 12594 | 125 | B3-U0-G1 | 15209 | 150 | B3-U0-G1 | 15411 | 150 | B3-U0-G1 | 103 |
| 20L | 17145 | 132 | B3-U0-G1 | 20083 | 153 | B4-U0-G2 | 20141 | 155 | B4-U0-G2 | 130 |
| 23L | 19038 | 126 | B4-U0-G2 | 22652 | 149 | B4-U0-G2 | 23150 | 152 | B4-U0-G2 | 153 |
| 23L (SCFT) | 22778 | 119 | B3-U0-G3 | 24581 | 128 | B4-U0-G3 | 24361 | 127 | B3-U0-G3 | 192 |

*LEDs are frequently updated therefore values are nominal.

**ELECTRICAL DATA***

| Lumen Level | 120V | 208V | 240V | 277V | 347V | 480V |
|---|---|---|---|---|---|---|
| 10L | 0.55 | 0.32 | 0.28 | 0.24 | 0.19 | 0.14 |
| 13L | 0.70 | 0.41 | 0.35 | 0.30 | 0.24 | 0.18 |
| 15L | 0.86 | 0.50 | 0.43 | 0.37 | 0.30 | 0.21 |
| 20L | 1.09 | 0.63 | 0.54 | 0.47 | 0.38 | 0.27 |
| 23L (SC) | 1.27 | 0.73 | 0.64 | 0.55 | 0.44 | 0.32 |
| 23L (SCFT) | 1.60 | 0.92 | 0.80 | 0.69 | 0.55 | 0.40 |

*Electrical data at 25°C (77°F)

**SC DISTRIBUTION RECOMMENDED LUMEN MAINTENANCE[1]**

| Ambient Temperature C | Lumen Multiplier | | | | |
|---|---|---|---|---|---|
| | 0 hrs.[2] | 25K hrs.[2] | 50K hrs.[2] | 75K hrs.[2] | 100K hrs.[2] |
| 25 | 1.00 | 0.96 | 0.92 | 0.88 | 0.84 |
| 30 | 1.00 | 0.96 | 0.91 | 0.87 | 0.83 |
| 35 | 1.00 | 0.96 | 0.91 | 0.87 | 0.83 |
| 40 | 1.00 | 0.96 | 0.91 | 0.87 | 0.83 |
| 45 | 1.00 | 0.96 | 0.91 | 0.87 | 0.82 |

**SCFT DISTRIBUTION RECOMMENDED LUMEN MAINTENANCE[1]**

| Ambient Temperature C | Lumen Multiplier | | | | |
|---|---|---|---|---|---|
| | 0 hrs.[2] | 25K hrs.[2] | 50K hrs.[2] | 75K hrs.[2] | 100K hrs.[2] |
| 25 | 1.00 | 1.00 | 1.00 | 0.99 | 0.99 |
| 30 | 1.00 | 1.00 | 0.99 | 0.99 | 0.99 |
| 35 | 1.00 | 1.00 | 0.99 | 0.99 | 0.99 |
| 40 | 1.00 | 1.00 | 0.99 | 0.99 | 0.99 |

1. Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing.
2. In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (CDUT) i.e. the packaged LED chip).
3. In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times NA LM-80-08 total test duration (in hours) for the device under testing (CDUT) i.e. the packaged LED chip).




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LIGHTING CUTSHEETS

CONVENIENCE STORE 1794

-- BLOOMINGTON, MINNESOTA

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.

Alan Czarnecki Reg. No. 14540

Date: 11-12-25

2025-0195.23


GRAEF
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414 / 259 0037 fax


| NO. | DATE | DESCRIPTION |
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INSITES 25-020 PM EH