**Purchasing Division, Finance Department**
218-730-5340 | purchasing@duluthmn.gov
Room 120 | 411 West First Street | Duluth, Minnesota 55802
www.duluthmn.gov

**Addendum 6**
**Solicitation 26-99362**
**Storm Damage Civil Sites Repairs**

This addendum serves to notify all bidders of the following changes to the solicitation documents:

**NOTICE**

- There will be a project near the Brewer Creek site that will be ongoing during this project, the awarded contractor is expected to coordinate work between these two projects. Project plans are attached to this addendum.
- The Workforce Certificate, Equal Pay Certificate and SWIFT: Workforce and Equal Pay Declaration Page language and requirement has changed. These documents will no longer be required with the bid, but will be required of the awarded bidder before a contract will be executed. These documents can still be uploaded to Bid Express in the Optional Documents section if the bidder chooses to upload them with their bid.

**CLARIFICATION**

- Attached to this addendum are clarifications and photos of the Mission Creek Trail Site 11a and 11b.

**QUESTIONS** – Questions were asked and have been answered in *italics* below.

1. With the water level so high at the zoo wall replacement, what will be allowed to divert water so the footing can be poured?
    a. Two options. This work will need to be accomplished when the water level comes back down or minimally invasive diversion around the footing outside of Trout window (expires June 30th), but not stopping creek flow or allowing stream to go dry.
2. Confirming PTBA certification/membership is not required if we have some experience building trails?
    a. The requirements sheet for PTBA equivalent is under Addendum 3 for the Specialty Trails only, not for Civil sites.
3. Is a professional land survey required for all sites? Or will plan markups with grade rod elevations be acceptable?
    a. Professional land survey is not required as long as the person running the equipment is qualified to use it, and plan markups must show elevations from datum transverse Mercator NAD83 which is the coordinate system the City uses for all projects. Which will require topographic survey equipment, not just site-specific rod elevations.
4. Will bio log be acceptable on trail restorations instead of silt fence?
    a. Bio logs can be used along access roads and trail edges, but assume silt fence is still required next to wetlands

5. Specs say silt fence will be required - are we OK to use bio log instead?
    a. Use whatever BMP you think will meet the intent of the stormwater permits.

6. Testing and as-builts - is a certified surveyor required for these as-builts at every site or will grade rod elevations and plan markups be acceptable?
    a. We will need survey grade measurements, inlets and outlets for all stormwater infrastructure installed. As for earthwork exercises, those can be plan markups.
7. Is it acceptable to substitute Douglas Fir deck material in place of SYP. After speaking with several wood manufacturers, DF is more available and hardy over long term than SYP.
    a. Yes, needs to meet rot resistant treatment specified.
8. What about chipping the woody debris at Hartley once we get it out of the creek… is that acceptable?
    a. *It can only be disposed of in an Upland location (non wetland) and no thicker than 4 inches so it doesn't kill anything underneath. City prefers slashing and pile burning onsite or full removal form property.*

Please acknowledge receipt of this Addendum by checking the acknowledgement box within the solicitation at www.bidexpress.com.

Posted: April 16, 2026

# Mission Creek Trail Site 11a,11b Construction Access Overview




## Key Notes:

- Construction access trail needs to maintain a 12-foot width to ensure construction equipment ingress/egress does not compromise its integrity. Repairs to Trail Slough locations shall be incidental to culvert replacement.
- Contractor should slash and cut trees along upland to retreat at trail slough areas.
- Woody debris may be placed in upland areas off trail. The tree's must be slashed no more than 18" off the ground.
- Contractor is required to have the finished trail surfacing to be gravel where repairs are made due to construction access

**Trail Slough 1:**



**Trail Slough 2:**




**Trail Slough 3:**



Docusign Envelope ID: 013ADD14-FA30-4010-9256-0ED3E29D20AF

**LEGEND:**

EXST'G ROW:
TEMPORARY EASEMENT:
PERMANENT EASEMENT:
FENCE:
ALIGNMENT STATIONS: 100+00 101+00
ALIGNMENT POINTS: P.C. P.T.
WATER LINE:
ABANDONED WATER LINE: AB-WTR
GAS LINE: GAS
ABANDONED GAS LINE: AB-GAS
SANITARY SEWER:
STORM SEWER:
UNDERGROUND ELECTRICAL LINE: E-BUR
OVERHEAD ELECTRICAL LINE: E-OH
UNDERGROUND FIBER OPTIC LINES: FO-BUR
UNDERGROUND CATV LINES: TV-BUR
UNDERGROUND TELEPHONE LINES: T-BUR
ABANDONED CATV LINES: AB-CATV
UNDERGROUND ELECTRIC LINES: E-BUR
SIGNAL LOOP LINES: ESL
CREEK:

LIGHT POLE:
LIGHT POLE W/ PARKING METER(S):
PARKING METER(S):
SIGNAL POLE:
SIGNAL CABINET: S
HAND HOLE: H.H.
ELECTRIC BOX: E
JUNCTION BOX: JB
ELECTRIC METER: EM
ELECTRIC MANHOLE:
TELE. MANHOLE (ABAND):
WATER VALVE: W
WATER SHUT OFF VALVE:
HYDRANT:
VALVE PIT: W
GAS VALVE: GV
SANITARY MANHOLE:
STORM MANHOLE: D
CATCH BASIN:
STEAM MANHOLE:
SIGNAL CABINET: S
ELEC. BOX: E
BOLLARD:
FLAG POLE:
VENT PIPE: VENT
MAILBOX: MAILBOX
TREE / SHRUB:
ENTRANCE OR DRIVE LOCATION:
SIGN:
SOIL BORING: ST-10
HORIZONTAL CONTROL POINT: CP100
BUILDING:

NOTE: REFER TO INDIVIDUAL PLAN SECTIONS FOR ADDITIONAL LEGEND INFORMATION.

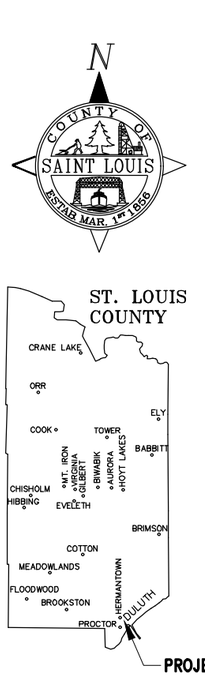
# CITY OF DULUTH

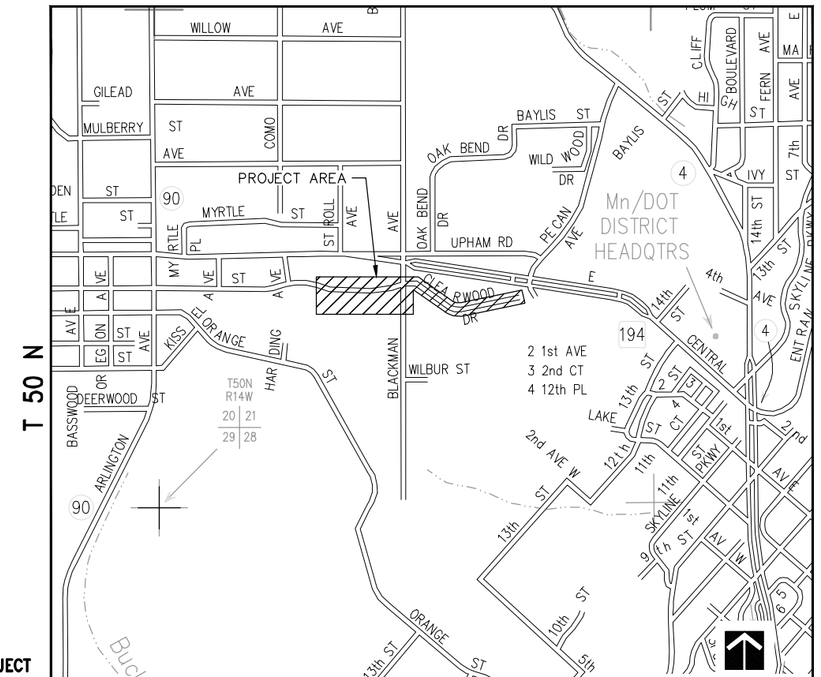
## DEPARTMENT OF PUBLIC WORKS AND UTILITIES
## ENGINEERING DIVISION

## CONSTRUCTION PLAN FOR PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

**PERMANENT STORMWATER TREATMENT, FLOOD MITIGATION, SMARTPOND TECHNOLOGY, STORM SEWER, GRADING, BITUMINOUS SURFACING, CONCRETE WALK, PERIMETER FENCING, AND RETAINING WALLS**

**CITY PROJECT NUMBER 2208**




## BASIS OF DATUM

1. HORIZONTAL DATUM IS SAINT LOUIS COUNTY TRANSVERSE MERCATOR 1996 (SLCTM_96).
2. VERTICAL DATUM IS NAVD 88.

## UTILITY NOTE

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ ASCE 38-22, ENTITLED "STANDARD GUIDELINES FOR INVESTIGATING AN DOCUMENTING EXISTING UTILITIES".

| SCALES | | |
|---|---|---|
| PLAN | 20 ft. | |
| PROFILE | 20 ft. HORIZ. | 5 ft. VERT. |
| INDEX MAP | 800 ft. | |

LHB
21 W. Superior St., Ste. 500
Duluth, MN 55802
218.727.8446

| PLAN REVISIONS | | |
|---|---|---|
| DATE | SHEET NO. | APPROVED BY |
| | | |
| | | |
| | | |

## GOVERNING SPECIFICATIONS

**THE 2025 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.**

**ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD, INCLUDING THE FIELD MANUAL DATED "LATEST EDITION" AVAILABELE AT: https: //www.dot.state.mn.us/trafficeng/publ/fieldmanual/fieldmanual.pdf**

**THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT ENGINEERING DIVISION 2019 EDITION STANDARD CONSTRUCTION SPECIFICATION SHALL APPLY.**

## INDEX OF SHEETS


| SHEET NO. | DESCRIPTION |
|---|---|
| 1 | TITLE SHEET |
| 2 | GENERAL LAYOUT |
| 3 | NOTES AND STANDARD PLATES |
| 4 | STATEMENT OF ESTIMATED QUANTITIES |
| 5–7 | CONSTRUCTION CHARTS |
| 8 | TYPICAL SECTIONS |
| 9–18 | CONSTRUCTION DETAILS |
| 19–21 | EXISTING CONDITIONS & REMOVALS |
| 22–25 | CONSTRUCTION PLAN & PROFILE |
| 26–31 | SWPPP |
| 32–33 | STORM PROFILES |
| 34–35 | STORM RUN D (POND BYPASS) PLAN & PROFILE |
| 36–41 | TRAFFIC CONTROL PLAN |
| 42–47 | CROSS SECTIONS |
| L01–L03 | LANDSCAPE PLANS |
| RW01–RW09 | RETAINING WALL PLANS |
| SC01–SC04 | SMART POND CONTROLS |


**– THIS PLAN CONTAINS 63 SHEETS –**

DESIGNERS M. GOPLIN, D. CAZANACLI, P. BARDEN, C. MILLER

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

PRINT NAME: MEGAN GOPLIN
SIGNATURE: Megan Goplin
DATE: 1/6/2026 LIC. #: 53018

**CITY APPROVALS**

Signed by:
Cindy Voigt
APPROVED: DULUTH CITY ENGINEER
DocuSigned by: 1ABC12A2864E8...
DATE: 1/12/2026 | 15:40:58

Cari Pedersen
APPROVED: DULUTH CHIEF ENGINEER OF TRANSPORTATION
DocuSigned by: 5A3C...
DATE: 1/12/2026 | 15:40:54

Howard D. Smith, P.E.
APPROVED: DULUTH CHIEF ENGINEER OF UTILITIES
DATE: 1/12/2026 | 15:28:26

**CITY OF DULUTH PROJECT: 2208**

T.H. 194 (CENTRAL ENTRANCE)

PID 010-0360-00520

PID 010-0360-00530
312 E CENTRAL ENT

PID 010-0360-00540
322 E CENTRAL ENT

PID 010-2710-05982
326 E CENTRAL ENT

PID 010-2710-05984
328 E CENTRAL ENT

PID 010-2710-05983
332 E CENTRAL ENT

PID 010-2710-05990
338 E CENTRAL ENT

CONTRACTOR
LAYDOWN AREA

POST

PID 010-0550-00130
418 E CENTRAL ENT

CONSTRUCTION LIMITS (TYP.)

BYPASS PIPE

SMART CONTROL STRUCTURE

DEWATERING PIPE

DEWATERING PIPE

PID 010-0550-00150
543 CLEARWOOD DR

TRU HOTEL

PID 010-0550-00170
603 CLEARWOOD DR

DEWATERING PIPE

PERMANENT UTILITY EASEMENT

100+00
101+00
102+00
103+00
104+00
105+00
106+00
107+00
108+00
109+00
110+00
111+00
111+20
22+00
23+00
24+00
25+00
26+00
27+00
28+00
28+98

PALM ST

POND
INLET PIPE

11+00
12+00
13+00
14+00
17+00
18+00
19+00
20+00

PALM STREET SMART
STORMWATER
MANAGEMENT SYSTEM

PID 010-0360-00600
306 E PALM ST

PID 010-0360-00570
330 E PALM ST

FOREBAY

PID 010-2604-00010
330 E PALM ST

P.E.

PID 010-0550-00435
PO BOX 176
COTTON MN 55724

CLEARWOOD DR

PID 010-0550-00420
PO BOX 176
COTTON MN 55724

PID 010-2710-05986
330 E PALM ST

POND OUTLET CULVERTS

PID 010-2710-06002
123 S BLACKMAN AVE

S BLACKMAN AVE

PID 010-0550-00440
122 S BLACKMAN AVE

PID 010-0550-00450
126 S BLACKMAN AVE

PERMANENT UTILITY EASEMENT

PID 010-0147-00010
201 S BLACKMAN AVE

PID 010-0147-00025
209 S BLACKMAN AVE

PID 010-0147-00030
215 S BLACKMAN AVE

PID 010-0147-00040
219 S BLACKMAN AVE

PID 010-0147-00050
303 S BLACKMAN AVE

PID 010-0147-00060
309 S BLACKMAN AVE

PID 010-0550-00460
204 S BLACKMAN AVE

PID 010-0550-00470
214 S BLACKMAN AVE

PID 010-0550-00480
218 S BLACKMAN AVE

PID 010-0550-00490

PID 010-0550-00500

BREWERY CREEK

PID 010-0435-00010
ISD 709
709 PORTIA JOHNSON DR

PID 010-0360-00660

PID 010-0147-00090

PID 010-0360-00720

PID 010-0360-00750

N

0 30' 60' 120'

PLOT DATE: 1/12/2026 3:20:18 PM FILE: O:\24Proj\240078\500 Drawings\Civil\240078 02.0 General Layout.dwg

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.

MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/12/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

GENERAL LAYOUT

SHEET NO. 2 OF 47 SHEETS

LHB PROJECT NO. 240078

## SEQ NOTES:

1) BASED ON 1.75 ACRES. CONTRACTOR SHALL PERFORM A FIELD REVIEW WITH ENGINEER PRIOR TO CLEARING AND GRUBBING. CONTRACTOR SHALL PROTECT TREES NOT DESIGNATED FOR REMOVAL.
2) QUANTITY IS CALCULATED USING 120 LB/SQ/IN.
3) INCLUDES REMOVAL OF ASSOCIATED APRONS.
4) FOR ALL PROPOSED CATCH BASINS AND FOR EXISTING CATCH BASINS DOWN GRADIENT OF PROPOSED CONSTRUCTION.
5) ASSUMES ONE 50' X 20' CONSTRUCTION EXIST.
6) ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE RESTORED PER THE LANDSCAPE PLAN AND SWPPP.
7) ALL TRAFFIC CONTROL SIGNING AND DEVICES SHALL CONFORM TO AND BE PLACED IN ACCORDANCE WITH THE LATEST EDITION OF THE MINNESOTA "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) INCLUDING PART VI, THE CURRENT FIELD MANUAL, THE MINNESOTA STANDARD SIGNS MANUAL PART I, II, III, AND APPROPRIATE MATERIAL SPECIFICATIONS, THE CONTRACTOR MUST PROVIDE TERMINI SIGNING AND ANY BARRICADES, BARRELS, OR DELINEATION DEVICES NECESSARY TO ENSURE PUBLIC SAFETY.
8) PROVIDE ROLLED EROSION PREVENTION CATEGORY 20 ON ALL DISTURBED ARES THAT ARE NOT SODDED OR ARMORED WITH BLOCK OR RIPRAP.
9) FOR STABILITY AND INTERLOCKING, EACH RIPRAP STONE SHALL EXHIBIT ANGULAR SURFACES AND SHALL HAVE ONE OR MORE FRACTURED SURFACES.
10) MnDOT STANDARD PLANS 5-297.405 SHALL APPLY FOR STORM DRAIN INLET PROTECTION, SILT FENCE, AND STABILIZED CONSTRUCTION EXIT.
11) INCLUDES EXCAVATION AND GRANULAR BEDDING IN ENCASEMENT ZONE AND BACKFILL WITH NATIVE MATERIAL FROM TOP OF ENCASEMENT ZONE TO FINISHED GRADE.
12) STRUCTURES INCLUDE EXCAVATION AND GRANULAR BACKFILL.
13) SHALL BE INSTALLED PRIOR TO ANY OPERATION THAT DISTURBS INPLACE VEGETATION.
14) INSULATION TO BE USED ALONG PIPE RUN A WHERE STORM IS OVER AND ADJACENT TO EXISTING SANITARY SEWER.
15) INCLUDES RELOCATION OF EXISTING HOOD OR SNOUT TO NEW OUTLET PIPE IN STRUCTURE SC0640009.
16) SINGLE 12 FT WIDE GATE, BLACK VINYL COATED.
17) INCLUDES PERPENDICULAR SAW-CUTTING AT REMOVAL LIMITS.
18) UNDISTRIBUTED QUANTITY FOR BACKFILLING PIPE TRENCHES UNDER ROADWAYS IF NATIVE MATERIAL IS NOT SUITABLE. ALL TRENCH BACKFILL OUTSIDE OF ROADWAY SHALL BE INCIDENTAL.
19) SUBSOILING AND SOIL BED PREPARATION FOR 0.95 ACRE SHALL BE CONSIDERED INCIDENTAL.
20) INCLUDES AREA TO TERMINATE BLOCK AS SHOWN IN DETAILS ON SHEET 9.

## GENERAL NOTES:

1) WHEREVER THE WORD "INCIDENTAL" IS USED IN THIS PLAN IT SHALL MEAN NO DIRECT PAYMENT WILL BE MADE FOR THAT ITEM.
2) ANY DAMAGE TO INPLACE SURFACING, UTILITIES, OR ANY ITEM NOT DESIGNED FOR REMOVAL SHALL BE REPAIRED TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE CITY.
3) ALL CONSTRUCTION DEWATERING SHALL BE CONSIDERED INCIDENTAL.
4) THE CONTRACTOR SHALL NOT STORE EXCAVATED MATERIAL OUTSIDE THE PLANNED CONSTRUCTION LIMITS UNLESS APPROVED BY THE ENGINEER.
5) THE CONTRACTOR SHALL OBTAIN THE REQUIRED CITY OF DULUTH PERMIT FOR WORK WITHIN THE RIGHT-OF-WAY.
6) EMBANKMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY STANDARD SPECIFICATIONS, MnDOT SPECIFICATION 2106, AND PROJECT SPECIAL PROVISIONS.
7) UNLESS A PAY ITEM IS PROVIDED, ABANDONED UTILITY ITEMS OR ANY OTHER INPLACE MATERIAL WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION SHALL BE DISPOSED OF BY THE CONTRACTOR AT AN APPROVED DISPOSAL SITE AND SUCH COSTS SHALL BE CONSIDERED INCLUDED FOR PAYMENT IN THE ASSOCIATED PAY ITEM FOR THE EXCAVATION.
8) REINFORCEMENT BARS SHALL BE PROVIDED AT ALL ADA LANDINGS PER THE STANDARD PLANS AND SHALL BE CONSIDERED INCIDENTAL
9) LOCATIONS OF EXISTING UTILITIES SHALL BE CONSIDERED APPROXIMATE UNLESS SPECIFICALLY INDICATED ON THESE PLANS. THE CONTRACTOR SHALL IDENTIFY THE EXACT LOCATIONS.
10) THE BOTTOM OF ALL EXCAVATIONS SHALL BE SHAPED AND COMPACTED WITH A MINIMUM OF FOUR PASSES OF AN APPROVED ROLLER.
11) WHERE CONNECTING TO EXISTING ROADWAYS AND CROSS STREETS AT THE TERMINI OF THE PROPOSED CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1:5 (V:H) SLOPE TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
12) AVERAGE INPLACE PAVEMENT THICKNESSES ARE PROVIDED ON THE TYPICAL SECTION BASED ON THE SOIL BORINGS. THE CONTRACTOR SHALL EXPECT INPLACE PAVEMENT DEPTHS AND COMPOSITION TO VARY. NO ADJUSTMENT IN UNIT PRICES SHALL BE ALLOWED BASED ON VARYING INPLACE PAVEMENT THICKNESS OR COMPOSITION.
13) ALL PIPE LENGTHS AND SLOPES ARE BASED ON THE DISTANCE FROM CENTER TO CENTER OF CATCH BASIN OR MANHOLE STRUCTURE ROUNDED TO THE NEAREST FOOT.
14) THE CONTRACTOR SHALL PRESERVE ALL LAND AND PROPERTY CORNERS, VERTICAL AND HORIZONTAL CONTROLS AND RIGHT OF WAY MONUMENTS.
15) PLACE ½" BIT FELT (FULL HEIGHT) AT ALL JOINTS WHERE PROPOSED CONCRETE DRIVEWAYS AND WALKS MEET EXISTING CONCRETE DRIVEWAYS, SIDEWALKS, OR RETAINING WALLS. (INCIDENTAL)
16) PROVIDE A SAWCUT WHERE PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT TO ENSURE A UNIFORM JOINT. PAID FOR AS SAWING BITUMINOUS PAVEMENT (FULL DEPTH) OR SAWING CONCRETE PAVEMENT (FULL DEPTH).
17) MNDOT STANDARD PLANS 5-297.250 SHALL APPLY TO ALL PEDESTRIAN CURB RAMPS.

## BASIS FOR PLANNED QUANTITIES

| | |
|---|---|
| BITUMINOUS MIXTURES | 120 LBS PER SQ YD PER INCH OF DEPTH |
| BITUMINOUS MATERIAL FOR TACK COAT (CSS-1 OR CSS-1H) (INCIDENTAL) | 0.06 GALLONS PER SQ YD (UNDILUTED) |
| RAPID STABILIZATION METHOD 3 | 6000 GALLONS PER ACRE |
| SEED WET DITCH (WD) | 20 LBS/ACRE |
| SEED NORTHEAST ROADSIDE (NER) | 26 LBS/ACRE |
| FERTILIZER TYPE 3 (SLOW RELEASE) (22-5-10) | 350 LBS/ACRE |
| | |

## KNOWN UTILITIES

| COMPANY | SERVICE | CONTACT NUMBER |
|---|---|---|
| CHARTER SPECTRUM | COMMUNICATION | (218) 529-8042 |
| CITY OF DULUTH | SEWER/GAS/WATER | (218) 730-5200 |
| LUMEN (CENTURY LINK) | COMMUNICATION | (218) 263-5328 |
| MN POWER | ELECTRICAL | (218) 213-7442 |
| | | |
| | | |

UTILITY RELOCATIONS AND ADJUSTMENTS ARE REQUIRED AND SHALL REQUIRE CONTRACTOR WORK AND COORDINATION.

## STANDARD PLATES

THE FOLLOWING STANDARD PLATES APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT.

| | |
|---|---|
| 3000M | REINFORCED CONCRETE PIPE (6 SHEETS) |
| 3006H | GASKET JOIN FOR R.C. PIPE (2 SHEETS) |
| 3014L | REINFORCED CONCRETE PIPE ARCH |
| 3100G | CONCRETE APRON FOR REINFORCED CONCRETE PIPE |
| 3110G | CONCRETE APRON FOR REINFORCED CONCRETE PIPE-ARCH |
| 3133D | RIPRAP AT RCP OUTLETS |
| | |
| 4005M | MANHOLE OR CATCH BASIN TYPE A & B CONE SECTIONS PRECAST - DESIGN F |
| 4006L | MANHOLE OR CATCH BASIN PRECAST - DESIGN G AND H |
| 4011E | PRECAST CONCRETE BASE |
| 4020J | MANHOLE OR CATCH BASIN (2 SHEETS) |
| 4143E | STOOL GRATE & CONCRETE FRAME (MEDIAN DRAIN) - CASTING NO. 731 |
| | |
| 7020K | CONCRETE CURB (DESIGN B) |
| 7038A | DETECTABLE WARNING SURFACE TRUNCATED DOMES |
| 7100H | CONCRETE CURB AND GUTTER (DESIGN B) |
| | |
| 8000K | TEMPORARY CHANNELIZERS |
| | |
| 9322K | CHAIN LINK FENCE |

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.

MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/23/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

REVISION
⚠ 01/23/26

NOTES AND STANDARD PLATES

SHEET NO. 3 OF 47 SHEETS

LHB PROJECT NO. 240078

PLOT DATE: 1/22/2026 11:16:13 AM FILE: Q:\24Proj\240078\500 Drawings\Civil\240078 03.0 SEQ & Notes.dwg

## STATEMENT OF ESTIMATED QUANTITIES

| NOTES | CHART | SHEET NO. | ITEM NO. | ITEM DESCRIPTION | UNIT | BASE BID QUANTITY |
|---|---|---|---|---|---|---|
| | | | 2021.501 | MOBILIZATION | LUMP SUM | 1 |
| | | | | | | |
| 1 | | | 2101.501 | CLEARING AND GRUBBING | LUMP SUM | 1 |
| | | | | | | |
| | B | 5 | 2104.502 | REMOVE DRAINAGE STRUCTURE | EACH | 8 |
| | A | 5 | 2104.502 | SALVAGE SIGN | EACH | 2 |
| | A | 5 | 2104.503 | SAWING BITUMINOUS PAVEMENT (FULL DEPTH) | LIN FT | 140 |
| 3 | B | 5 | 2104.503 | REMOVE PIPE CULVERTS | LIN FT | 160 |
| 3 | B | 5 | 2104.503 | REMOVE PIPE SEWERS | LIN FT | 332 |
| 17 | A | 5 | 2104.503 | REMOVE CURB AND GUTTER | LIN FT | 1 127 |
| 17 | A | 5 | 2104.504 | REMOVE CONCRETE WALK | SQ YD | 21 |
| | A | 5 | 2104.504 | REMOVE BITUMINOUS PAVEMENT | SQ YD | 2 639 |
| | A | 5 | 2104.504 | REMOVE BITUMINOUS WALK | SQ YD | 937 |
| | | | | | | |
| | I | 7 | 2106.507 | EXCAVATION – COMMON (P) | CU YD | 526 |
| | I | 7 | 2106.507 | EXCAVATION – MUCK | CU YD | 17 536 |
| | I | 7 | 2106.507 | GRANULAR EMBANKMENT (CV) (P) | CU YD | 88 |
| | I | 7 | 2106.507 | SELECT GRANULAR EMBANKMENT MOD 7% (CV) (P) | CU YD | 224 |
| | I | 7 | 2106.507 | COMMON EMBANKMENT (CV) | CU YD | 71 |
| | I | 7 | 2106.607 | HAUL & DISPOSE OF CONTAMINATED MATERIAL | CU YD | 4 384 |
| | | | | | | |
| | C | 5 | 2108.504 | GEOTEXTILE FABRIC TYPE 10 | SQ YD | 529 |
| | | | | | | |
| | I | 7 | 2118.507 | AGGREGATE SURFACING CLASS 5 (CV) | CU YD | 43 |
| | | | | | | |
| | I | 7 | 2211.507 | AGGREGATE BASE (CV) CLASS 5 (P) | CU YD | 341 |
| | | | | | | |
| 2 | C | 5 | 2360.509 | TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) | TON | 643 |
| 2 | C | 5 | 2360.509 | TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,C) | TON | 475 |
| | | | | | | |
| | RW | RW01 | 2402.508 | STRUCTURAL STEEL (3306) | POUND | 61 944 |
| | | | | | | |
| | RW | RW01 | 2411.602 | CONSTRUCT PIPE PENETRATION A | EACH | 2 |
| | RW | RW01 | 2411.602 | CONSTRUCT PIPE PENETRATION B | EACH | 4 |
| | | | | | | |
| 18 | | | 2451.507 | GRANULAR BACKFILL (CV) | CU YD | 200 |
| | | | | | | |
| | RW | RW01 | 2452.618 | STEEL SHEET PILING (PERMANENT) | SQ FT | 64 591 |
| | | | | | | |
| | E | 6 | 2501.502 | 15" RC PIPE APRON | EACH | 1 |
| | E | 6 | 2501.502 | 24" RC PIPE APRON | EACH | 2 |
| | E | 6 | 2501.502 | 48" RC PIPE APRON | EACH | 2 |
| | E | 6 | 2501.502 | 51" SPAN RC PIPE–ARCH APRON | EACH | 4 |
| 11 | E | 6 | 2501.503 | 51" SPAN RC PIPE–ARCH CULVERT CLASS IIIA | LIN FT | 164 |
| | | | | | | |
| | E | 6 | 2501.602 | TRASH GUARD FOR 15" RC PIPE APRON | EACH | 1 |
| | E | 6 | 2501.602 | TRASH GUARD FOR 30" RC PIPE APRON | EACH | 1 |
| | | | | | | |
| | C | 5 | 2502.503 | 4" PERFORATED TP PIPE DRAIN | LIN FT | 262 |
| | | | | | | |
| 11 | F | 6 | 2503.503 | 15" RC PIPE SEWER CLASS III | LIN FT | 614 |
| 11 | F | 6 | 2503.503 | 18" RC PIPE SEWER CLASS III | LIN FT | 370 |
| 11 | F | 6 | 2503.503 | 24" RC PIPE SEWER CLASS III | LIN FT | 308 ① |
| 11 | F | 6 | 2503.503 | 30" RC PIPE SEWER CLASS III | LIN FT | 31 |
| 11 | F | 6 | 2503.503 | 48" RC PIPE SEWER CLASS III | LIN FT | 115 |
| | F | 6 | 2503.602 | CONNECT TO EXISTING STORM SEWER | EACH | 3 |
| | F | 6 | 2503.603 | 24" HDPE PIPE SEWER–DIRECTIONAL DRILLED | LIN FT | 699 |
| | | | | | | |
| 14 | | 32 | 2504.604 | 3" POLYSTYRENE INSULATION | SQ YD | 35 |
| | | | | | | |
| | F | 6 | 2506.502 | CASTING ASSEMBLY | EACH | 17 |
| | | 22, 23 | 2506.502 | ADJUST FRAME & RING CASTING | EACH | 2 |

(P) DENOTES PLAN QUANTITY

## STATEMENT OF ESTIMATED QUANTITIES

| NOTES | CHART | SHEET NO. | ITEM NO. | ITEM DESCRIPTION | UNIT | BASE BID QUANTITY |
|---|---|---|---|---|---|---|
| 12 | F | 6 | 2506.503 | CONSTRUCT DRAINAGE STRUCTURE DESIGN F | LIN FT | 70.9 ① |
| 12 | F | 6 | 2506.503 | CONSTRUCT DRAINAGE STRUCTURE DESIGN H | LIN FT | 6.7 |
| 12 | F | 6 | 2506.503 | CONSTRUCT DRAINAGE STRUCTURE DESIGN 72–4020 | LIN FT | 21.3 |
| 12 | F | 6 | 2506.503 | CONSTRUCT DRAINAGE STRUCTURE DESIGN 48–4020 | LIN FT | 67.1 |
| 12 | F | 6 | 2506.602 | CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1 | EACH | 1 |
| 12 | F | 6 | 2506.602 | CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 2 | EACH | 1 |
| 12 | F | 6 | 2506.602 | CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 3 | EACH | 1 |
| | | SC01–SC04 | 2506.601 | SMART POND CONTROL SYSTEM | LUMP SUM | 1 |
| 15 | F | 6 | 2506.602 | CONNECT INTO EXISTING MH OR CB | EACH | 2 |
| | F | 6 | 2506.602 | CONCRETE ENCASED CASTING COLLAR | EACH | 3 |
| | | | | | | |
| 9 | E, RW | 6, RW01 | 2511.507 | RANDOM RIPRAP CLASS II | CU YD | 1 881 |
| 9 | E | 6 | 2511.507 | RANDOM RIPRAP CLASS III | CU YD | 52.2 |
| | E, G, RW | 6, 7, RW01 | 2511.504 | GEOTEXTILE FILTER TYPE 7 | SQ YD | 6 890 |
| | | | | | | |
| 20 | G | 7 | 2515.504 | ARTICULATED BLOCK MAT OPEN CELL TYPE A | SQ YD | 1 173 |
| | | | | | | |
| | C | 5 | 2521.518 | 4" CONCRETE WALK | SQ FT | 68 |
| | C | 5 | 2521.518 | 6" CONCRETE WALK | SQ FT | 225 |
| | | | | | | |
| | C | 5 | 2531.503 | CONCRETE CURB AND GUTTER DESIGN B624 | LIN FT | 1 126 |
| | C | 5 | 2531.504 | 8" CONCRETE DRIVEWAY PAVEMENT | SQ YD | 27 |
| | C | 5 | 2531.618 | TRUNCATED DOMES | SQ FT | 12 |
| | | | | | | |
| | D | 5 | 2540.602 | INFORMATION SIGN | EACH | 1 |
| | H | 7 | 2540.603 | LANDSCAPE EDGER | LIN FT | 910 |
| | | | | | | |
| | | | 2550.601 | ELECTRICAL SERVICE | LUMP SUM | 1 |
| | | | | | | |
| 16 | RW | RW01 | 2557.502 | VEHICULAR GATE DESIGN SPECIAL–SINGLE | EACH | 1 |
| | RW | RW01 | 2557.503 | WIRE FENCE DESIGN SPECIAL VINYL COATED | LIN FT | 1 802 |
| | | | | | | |
| 7 | | | 2563.601 | TRAFFIC CONTROL | LUMP SUM | 1 |
| | | | | | | |
| | D | 5 | 2564.502 | INSTALL SIGN | EACH | 2 |
| | | | | | | |
| | H | 7 | 2571.502 | DECIDUOUS TREE 2" CAL CONT | EACH | 41 |
| | H | 7 | 2571.502 | DECIDUOUS TREE 1.5" CAL CONT | EACH | 21 |
| | H | 7 | 2571.502 | DECIDUOUS SHRUB 2' HT CONT | EACH | 263 ② |
| | | | | | | |
| 5, 10 | | | 2573.501 | STABILIZED CONSTRUCTION EXIT | LUMP SUM | 1 |
| 4, 10, 13 | G | 7 | 2573.502 | STORM DRAIN INLET PROTECTION | EACH | 14 |
| | G | 7 | 2573.502 | CULVERT END CONTROLS | EACH | 4 |
| 10, 13 | G | 7 | 2573.503 | SILT FENCE, TYPE HI | LIN FT | 432 |
| | | | 2573.601 | TEMPORARY STREAM DIVERSION SYSTEM | LUMP SUM | 1 |
| | G | 7 | 2573.602 | ROCK DITCH CHECK | EACH | 2 |
| | | | | | | |
| 6 | H | 7 | 2574.507 | COMMON TOPSOIL BORROW | CU YD | 425 ② |
| 6 | H | 7 | 2574.508 | FERTILIZER TYPE 3 | POUND | 71 |
| | | | | | | |
| 8 | H | 7 | 2575.504 | ROLLED EROSION PREVENTION CATEGORY 20 | SQ YD | 3 672 ② |
| | H | 7 | 2575.523 | RAPID STABILIZATION METHOD 3 | MGAL | 4.62 |
| 6 | H | 7 | 2575.618 | RESTORATION PLANTING ZONE 1 – AQUATIC/TRANSITIONAL LEDGE | SQ FT | 9 966 |
| 6 | H | 7 | 2575.618 | RESTORATION PLANTING ZONE 2 – UPLAND | SQ FT | 13 876 |
| 6 | H | 7 | 2575.618 | RESTORATION PLANTING ZONE 3 – WILLOW STAKE/BUNDLES | SQ FT | 425 ② |
| 6 | H | 7 | 2575.618 | RESTORATION PLANTING ZONE 4 – TURF SOD | SQ FT | 5 353 |
| 6, 19 | H | 7 | 2575.505 | SEEDING | ACRE | 0.20 |
| 6 | H | 7 | 2575.608 | SEED NORTHEAST ROADSIDE | POUND | 0.73 |
| 6 | H | 7 | 2575.608 | SEED WET DITCH | POUND | 3.44 |
| | | | | | | |
| | D | 5 | 2582.503 | 4" DOUBLE SOLID LINE MULTI–COMPONENT GROUND IN (WR) | LIN FT | 865 |

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.

MEGAN GOPLIN
PRINTED NAME

Megan Goplin
SIGNATURE

01/12/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

REVISION
① 01/23/26
② 02/03/26

STATEMENT OF ESTIMATED QUANTITIES

SHEET NO. 4 OF 47 SHEETS

LHB PROJECT NO. 240078

PLOT DATE: 2/2/2026 5:01:54 PM FILE: Q:\24Proj\240078\500 Drawings\Civil\240078 03.0 SEQ & Notes.dwg

## REMOVALS – ROADWAY

A

| STATION | LT / RT | SALVAGE SIGN | SAWING BITUMINOUS PAVEMENT (FULL DEPTH) | REMOVE CURB AND GUTTER | REMOVE CONCRETE WALK | REMOVE BITUMINOUS PAVEMENT | REMOVE BITUMINOUS WALK | REMARKS |
|---|---|---|---|---|---|---|---|---|
| | | 2104 | 2104 | 2104 | 2104 | 2104 | 2104 | |
| | | EACH | LIN FT | LIN FT | SQ YD | SQ YD | SQ YD | |
| **PALM ST ALIGNMENT** | | | | | | | | |
| 100+42.38 TO 109+37.69 | LT / RT | 2 | 106 | 868 | 21 | 2 308 | 858 | |
| **BLACKMAN AVE ALIGNMENT** | | | | | | | | |
| 200+00.00 TO 201+67.00 | LT / RT | | 34 | 259 | | 331 | 79 | |
| **PROJECT TOTALS** | | **2** | **140** | **1 127** | **21** | **2 639** | **937** | |

## REMOVALS – DRAINAGE

B

| STATION | OFFSET | LT / RT | REMOVE DRAINAGE STRUCTURE | REMOVE PIPE CULVERTS | REMOVE PIPE SEWERS | REMARKS |
|---|---|---|---|---|---|---|
| | | | 2104 | 2104 | 2104 | |
| | | | EACH | LIN FT | LIN FT | |
| **DRAINAGE ALIGNMENT** | | | | | | |
| 10+88.74 | 0.46 | RT | | | 15 | |
| 10+96.18 | 29.28 | RT | | | 21 | |
| 17+34.18 | 51.7 | RT | | | 32 | |
| 18+66.73 | 1.58 | RT | | 16 | | |
| 18+66.74 | 6.35 | LT | | 16 | | |
| **PALM ST ALIGNMENT** | | | | | | |
| 102+27.07 | 37.94 | RT/LT | | | 77 | |
| 102+27.17 | 13.15 | RT/LT | 2 | | | |
| 105+83.88 | 41.91 | RT | | | 29 | |
| 105+84.36 | 13.44 | RT | 1 | | | |
| 108+71.67 | 13.08 | RT | 1 | | | |
| 108+72.32 | 32.91 | RT | | | 20 | |
| **BLACKMAN AVE ALIGNMENT** | | | | | | |
| 200+26.87 | 32.00 | RT/LT | | 64 | | |
| 200+37.92 | 32.00 | RT/LT | | 64 | | |
| 200+40.73 | 11.09 | RT | 1 | | 26 | |
| 200+69.53 | 11.81 | RT | 1 | | 29 | |
| 200+72.91 | 10.90 | LT | 1 | | 23 | |
| 200+99.00 | 0.71 | RT | 1 | | 32 | |
| 201+26.54 | 0.33 | LT | | | 28 | |
| **PROJECT TOTALS** | | | **8** | **160** | **332** | |

## SURFACE WORK

D

| STATION | LT / RT | INFORMATION SIGN | INSTALL SIGN | 4" DBLE SOLID LINE MULTI–COMP GR IN (WR) | REMARKS |
|---|---|---|---|---|---|
| | | | | YELLOW | |
| | | 2540 | 2564 | 2582 | |
| | | EACH | EACH | LIN FT | |
| **E PALM ST ALIGNMENT** | | | | | |
| 100+41.59 TO 109+35.55 | RT | 1 | 2 | 865 | |
| **PROJECT TOTALS** | | **1** | **2** | **865** | |

## BITUMINOUS AND CONCRETE WORK

C

| STATION | LT / RT | GEOTEXTILE FABRIC TYPE 10 | TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) | TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,C) | 4" PERFORATED TP PIPE DRAIN | 4" CONCRETE WALK | 6" CONCRETE WALK | CONCRETE CURB AND GUTTER DESIGN B624 | 8" CONCRETE DRIVEWAY PAVEMENT | TRUNCATED DOMES | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2108 | 2360 | 2360 | 2502 | 2521 | 2521 | 2531 | 2531 | 2531 | |
| | | SQ YD | TON | TON | LIN FT | SQ FT | SQ FT | LIN FT | SQ YD | SQ FT | |
| **PALM ST ALIGNMENT** | | | | | | | | | | | |
| 100+41.59 TO 109+35.55 | LT / RT | | 560 | 403 | | 68 | 225 | 885 | 14 | 12 | |
| **BLACKMAN AVE ALIGNMENT** | | | | | | | | | | | |
| 200+00.00 TO 201+67.00 | LT / RT | 529 | 83 | 72 | 262 | | | 241 | 13 | | |
| **PROJECT TOTALS** | | **529** | **643** | **475** | **262** | **68** | **225** | **1 126** | **27** | **12** | |

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.

MEGAN GOPLIN
PRINTED NAME

Megan Goplin
SIGNATURE

01/12/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

CONSTRUCTION CHARTS

SHEET NO. 5 OF 47 SHEETS

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# STORM SEWERS – PIPE CULVERTS AND APRONS

E

| PIPE NUMBER | STATION | LOCATION | BEGIN STRUCTURE | INVERT ELEVATION | TRASH GUARD FOR 15" RC PIPE APRON | TRASH GUARD FOR 30" RC PIPE APRON | 51" SPAN RC PIPE–ARCH CULVERT CLASS IIIA | RC PIPE APRON | | | SPAN RC PIPE–ARCH APRON | RANDOM RIPRAP CLASS II | RANDOM RIPRAP CLASS III (5) | GRANULAR FILTER (6) | GEOTEXTILE FILTER TYPE 7 (5) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2501 | 2501 | 2501 | 2501 | | | 2501 | 2511 | 2511 | 2511 | 2511 | |
| | | | | | | | | 15" | 24" | 48" | 51 | | | | | |
| | | | | | EACH | EACH | LIN FT | EACH | EACH | EACH | EACH | CU YD | CU YD | CU YD | SQ YD | |
| **DRAINAGE ALIGNMENT** | | | | | | | | | | | | | | | | |
| OUT–10 | 11+06.00 | 0.00 | FOREBAY | 1218.25 | | | | | | | | | | | | OUTLET (4) |
| AP–11 | 12+96.90 | 134.01 LT | PMH–102 | 1218.36 | | | | | | 1 | | | | | | INLET |
| AP–1 | 13+50.11 | 38.43 LT | POND | 1210.71 | | | | | | 1 | | 14.8 | | 1.5 | 61.1 | OUTLET |
| OUT–3 | 16+09.91 | 41.28 RT | POND | 1216.20 | | | | | | | | 3.2 | | 0.2 | 18.0 | OUTLET |
| OUT–4 | 17+26.03 | 21.37 RT | POND | 1216.38 | | | | | | | | 3.2 | | 0.2 | 18.0 | OUTLET (4) |
| AP–5 | 19+49.36 | 0.00 | SS–107 | 1209.50 | | 1 | | | | | | | | | | INLET (1) |
| AP–12 | 19+60.16 | 23.87 RT | TO AP–7 | 1215.25 | | | 82 | | | | 1 | | | | | INLET (2) |
| AP–13 | 19+54.22 | 27.58 RT | TO AP–8 | 1215.25 | | | 82 | | | | 1 | | | | | INLET (2) |
| AP–7 | 19+89.13 | 95.80 RT | CREEK | 1215.00 | | | | | | | 1 | | 16.9 | 1.7 | 57.5 | OUTLET |
| AP–8 | 21+56.79 | 184.21 RT | CREEK | 1215.00 | | | | | | | 1 | | 16.9 | 1.7 | 57.5 | OUTLET |
| AP–9 | 28+68.78 | 0.00 | CREEK | 1195.96 | | | | | 1 | | | | 9.2 | 0.8 | 33.4 | OUTLET |
| **POND BYPASS ALIGNMENT** | | | | | | | | | | | | | | | | |
| AP–2 | 0+09.05 | 0.00 | SS–199 | 1217.20 | 1 | | | 1 | | | | | | | | INLET (3) |
| AP–6 | 9+03.77 | 0.00 | CREEK | 1215.00 | | | | | 1 | | | | 9.2 | 0.8 | 33.4 | OUTLET |
| **PROJECT TOTALS** | | | | | **1** | **1** | **164** | **1** | **2** | **2** | **4** | **21.2** | **52.2** | **6.9** | **279** | |

KEYNOTES:

1. DEWATERING OUTLET
2. POND MAIN OUTLET
3. POND BYPASS OUTLET
4. OUTLET WITHOUT APRON
5. SEE OTHER CHARTS FOR ADDITIONAL QUANTITIES
6. INCIDENTAL
7. INCLUDES 2' SUMP
8. USE MNDOT STANDARD PLATE 4143

# STORM SEWERS – PIPES, MANHOLES, AND CATCH BASINS

F

| STRUCTURE NUMBER | STATION | LOCATION | RIM | UP–STREAM INVERT | PIPE NAME | CONSTRUCT DRAINAGE STRUCTURE DESIGN 2506 | | | | | | | CASTING ASSEMBLY 2506 | CONCRETE ENCASED CASTING COLLAR 2506 | STORM CASTING TYPE | 15" RC PIPE SEWER CLASS III 2503 | 18" RC PIPE SEWER CLASS III 2504 | 24" RC PIPE SEWER CLASS III 2503 | 30" RC PIPE SEWER CLASS III 2503 | 48" RC PIPE SEWER CLASS III 2503 | 24" HDPE PIPE SEWER–DIRECTIONAL DRILLED 2503 | CONNECT TO EXISTING STORM SEWER 2503 | CONNECT INTO EXISTING MH OR CB 2506 | DRAINS TO | DOWN–STREAM INVERT | GRADE | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 48–4020 | 72–4020 | F | H | SPECIAL 1 | SPECIAL 2 | SPECIAL 3 | | | | | | | | | | | | | | |
| | | | ELEV | ELEV | | LIN FT | LIN FT | LIN FT | LIN FT | EACH | EACH | EACH | EACH | EACH | | LIN FT | LIN FT | LIN FT | LIN FT | LIN FT | LIN FT | EACH | EACH | | ELEV | % | |
| **DRAINAGE ALIGNMENT** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PMH–100 | 10+95.55 | 0.00 | 1226.30 | 1218.40 | | | 7.90 | | | | | | | | | | | | | 11 | | | | OUT–10 | 1218.25 | 1.36% | |
| SC0640009 | 10+98.00 | 30.00 RT | 1226.19 | 1222.00 | | | | | | | | | | | | 30 | | | | | | | 1 | PMH–100 | 1221.50 | 1.67% | |
| AP–11 | 13+03.26 | 126.65 LT | | 1218.36 | | | | | | | | | | | | | | | | 78 | | | | PMH–102 | 1217.70 | 0.85% | |
| PMH–102 | 13+44.75 | 65.06 LT | 1224.40 | 1210.98 | | | 13.42 | | | | | | | | STRM–1 | | | | | 26 | | | | AP–1 | 1210.70 | 1.08% | |
| PCB–105 | 16+10.01 | 62.89 RT | 1219.53 | 1216.30 | | | | | 3.23 | | | | 1 | | M11 (8) | 7 | | | | | | | | OUT–3 | 1216.20 | 1.43% | |
| PMH–104 | 17+34.03 | 50.04 RT | 1222.39 | 1216.47 | | 5.92 | | | | | | | 1 | | STRM–1 | 9 | | | | | | 1 | | OUT–4 | 1216.38 | 1.00% | |
| AP–5 | 19+49.36 | 0.00 | | 1209.50 | | | | | | | | | | | | | | | 31 | | | | | SS–107 | 1209.20 | 0.97% | |
| SS–107 | 19+83.84 | 0.00 | 1220.70 | 1207.20 | | | | | | | | 1 | | | | | | | | | 155 | | | PMH–109 | 1203.92 | 2.11% | |
| PMH–109 | 21+39.29 | 0.00 | 1226.10 | 1203.92 | | | | 22.18 | | | | | 1 | | STRM–1 | | | | | | 285 | | | PMH–110 | 1200.84 | 1.08% | |
| PMH–110 | 24+24.31 | 0.00 | 1221.16 | 1200.84 | | | | 20.32 | | | | | 1 | | STRM–1 | | | | | | 259 | | | PMH–111 | 1198.04 | 1.08% | |
| PMH–111 | 26+83.35 | 0.00 | 1210.86 | 1198.04 | | | | 12.82 | | | | | 1 | | STRM–1 | | | 193 | | | | | | AP–9 | 1195.96 | 1.08% | |
| **POND BYPASS ALIGNMENT** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AP–2 | 0+09.05 | 0.00 | | 1217.20 | | | | | | | | | | | | 40 | | | | | | | | SS–199 | 1217.10 | 0.25% | |
| SS–199 | 0+48.72 | 0.00 | 1224.47 | 1217.10 | | | | | | | 1 | | | | STRM–1 | 18 | | | | | | | | PMH–200 | 1217.06 | 0.22% | |
| PCB–200B | 0+60.04 | 45.41 LT | 1224.42 | 1219.02 | | 5.40 | | | | | | | 1 | | STRM–3 | 26 | | | | | | | | PCB–200A | 1218.50 | 2.00% | |
| PCB–200A | 0+63.47 | 19.70 LT | 1224.44 | 1218.50 | | 7.94 | | | | | | | 1 | | STRM–3 | 22 | | | | | | | | PMH–200 | 1218.06 | 2.00% | |
| PMH–200 | 0+66.70 | 0.00 | 1225.14 | 1217.06 | | | | 8.08 | | | | | | | STRM–1 | 99 | | | | | | | | PMH–201 | 1216.81 | 0.25% | |
| PMH–201 | 1+65.66 | 0.00 | 1224.33 | 1216.81 | | | | 7.52 | | | | | 1 | | STRM–1 | 302 | | | | | | | | PMH–202 | 1216.06 | 0.25% | |
| CB0640040 | 4+65.37 | 42.32 LT | 1222.17 | 1216.25 | | | | | | | | | | | | | 26 | | | | | | 1 | PCB–103 | 1216.14 | 0.42% | |
| PCB–103 | 4+66.74 | 16.11 LT | 1222.27 | 1216.14 | | 8.13 (7) | | | | | | | 1 | | STRM–3 | | 16 | | | | | | | PMH–202 | 1216.06 | 0.50% | |
| PMH–202 | 4+67.47 | 0.00 | 1223.08 | 1216.06 | | 7.02 | | | | | | | 1 | | STRM–1 | | 290 | | | | | | | PMH–203 | 1215.33 | 0.25% | |
| PCB–203A | 7+47.22 | 45.71 LT | 1221.69 | 1217.00 | | 4.69 | | | | | | | 1 | | STRM–3 | 19 | | | | | | 1 | | PMH–203 | 1216.81 | 1.00% | |
| PMH–203 | 7+57.28 | 0.00 | 1222.02 | 1215.33 | | 8.69 | | | | | | | 1 | | STRM–1 | | 38 | | | | | | | PMH–204 | 1215.23 | 0.26% | |
| PMH–204 | 7+95.30 | 0.00 | 1221.09 | 1215.23 | | 5.86 | | | | | | | 1 | 1 | STRM–1 | | | 27 | | | | 1 | | WQ–VAULT | 1215.18 | 0.19% | |
| WQ–VAULT | 8+22.42 | 0.00 | 1220.27 | 1215.18 | | | | | | 1 | | | | 2 | STRM–1 | | | 27 | | | | | | PCB–205 | 1215.13 | 0.19% | |
| PCB–205 | 8+48.71 | 0.00 | 1219.97 | 1215.13 | | 4.84 | | | | | | | 1 | | STRM–3 | | | 26 | | | | | | PMH–206 | 1215.07 | 0.23% | |
| PCB–206 | 8+74.42 | 0.00 | 1220.11 | 1215.07 | | 5.04 | | | | | | | 1 | | STRM–3 | | | 35 | | | | | | AP–6 | 1215.00 | 0.20% | |
| PCB–205B | 8+23.86 | 17.85 RT | 1220.04 | 1216.62 | | | | | 3.42 | | | | 1 | | STRM–3 | 20 | | | | | | | | PMH–205A | 1216.40 | 1.10% | |
| PCB–205A | 8+48.71 | 21.86 RT | 1219.92 | 1216.40 | | 3.52 | | | | | | | 1 | | STRM–3 | 22 | | | | | | | | PMH–205 | 1216.17 | 1.05% | |
| **PROJECT TOTALS** | | | | | | **67.1** | **21.3** | **70.9** | **6.7** | **1** | **1** | **1** | **17** | **3** | | **614** | **370** | **308** | **31** | **115** | **699** | **3** | **2** | | | | |

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.

MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/27/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

REVISION
⚠ 01/23/26

CONSTRUCTION CHARTS

SHEET NO. 6 OF 47 SHEETS

PLOT DATE: 1/27/2026 3:01:29 PM FILE: Q:\24Proj\240078\500 Drawings\Civil\240078 04.0 Charts.dwg

LHB PROJECT NO. 240078

## EROSION CONTROL — G

| STATION | LT / RT | GEOTEXTILE FILTER TYPE 7 (1) | ARTICULATED BLOCK MAT OPEN CELL TYPE A | STORM DRAIN INLET PROTECTION | CULVERT END CONTROLS | SILT FENCE, TYPE HI | ROCK DITCH CHECK | REMARKS |
|---|---|---|---|---|---|---|---|---|
| | | 2511 | 2515 | 2573 | 2573 | 2573 | 2573 | |
| | | SQ YD | SQ YD | EACH | EACH | LIN FT | EACH | |
| **DRAINAGE ALIGNMENT** | | | | | | | | |
| 11+00.00 TO 28+85.93 | LT / RT | 941 | 1173 | 2 | 3 | 254 | | |
| **PALM ST ALIGNMENT** | | | | | | | | |
| 100+41.59 TO 109+35.55 | LT / RT | | | 9 | 1 | 62 | 2 | |
| **BLACKMAN AVE ALIGNMENT** | | | | | | | | |
| 200+00.00 TO 201+67.00 | LT / RT | | | 3 | | 116 | | |
| **PROJECT TOTALS** | | **941** | **1 173** | **14** | **4** | **432** | **2** | |

**KEYNOTES:**

1. SEE OTHER CHARTS FOR ADDITIONAL QUANTITIES.
2. ASSUMES 4" TOPSOIL IN ALL SEEDING AND PLANTING ZONES. VOLUME ACCOUNTS FOR VOID RATIO IN ARTICULATED BLOCK MAT AREAS.
3. FOR SEEDING AREAS ONLY. SEED, SEEDING AND FERTILIZER IN RESTORATION ZONES IS INCIDENTAL.
4. FOR ALL SEEDING AND RESTORATION AREAS WITH SLOPES 1:4 OR STEEPER. NOT REQUIRED IN AREAS WITH RIP RAP, ARTICULATED BLOCK OR SOD.

## TURF ESTABLISHMENT AND PLANTINGS — H

| STATION | LT / RT | LANDSCAPE EDGER | DECIDUOUS TREE 2" CAL. CONT | DECIDUOUS TREE 1.5" CAL. CONT | DECIDUOUS SHRUB 2' HT CONT | COMMON TOPSOIL BORROW (2) (1) | FERTILIZER TYPE 3 (3) | ROLLED EROSION PREVENTION CATEGORY 20 (4) | RAPID STABILIZATION METHOD 3 | RESTORATION PLANTING ZONE 1 – AQUATIC/TRANSITIONAL LEDGE (1) | RESTORATION PLANTING ZONE 2 – UPLAND (1) | RESTORATION PLANTING ZONE 3 – WILLOW STAKE/BUNDLES (1) | RESTORATION PLANTING ZONE 4 – TURF SOD (1) | SEEDING (3) (1) | SEED NORTHEAST ROADSIDE (3) (1) | SEED WET DITCH (3) (1) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2540 | 2571 | 2571 | 2571 | 2574 | 2574 | 2575 | 2575 | 2575 | 2575 | 2575 | 2575 | 2575 | 2575 | 2575 | |
| | | LIN FT | EACH | EACH | EACH | CU YD | POUND | SQ YD | MGAL | SQ FT | SQ FT | SQ FT | SQ FT | ACRE | POUND | POUND | |
| **DRAINAGE ALIGNMENT** | | | | | | | | | | | | | | | | | |
| 20+50.00 TO 28+98.00 | LT / RT | | | | | 31 | 11 | 617 | 0.60 | | | | 1 313 | 0.03 | 0.73 | | CLEARWOOD DR |
| **PALM ST ALIGNMENT** | | | | | | | | | | | | | | | | | |
| 100+42.38 TO 109+37.69 | LT / RT | 910 | 41 | 21 | 263 | 378 | 60 | 2 916 | 3.78 | 9 474 | 13 114 | 425 | 4 040 | 0.17 | | 3.44 | |
| **BLACKMAN AVE ALIGNMENT** | | | | | | | | | | | | | | | | | |
| 200+00.00 TO 201+41.61 | RT | | | | | 15 | | 139 | 0.24 | 492 | 762 | | | | | | |
| **PROJECT TOTALS** | | **910** | **41** | **21** | **263** | **425** | **71** | **3 672** | **4.62** | **9 966** | **13 876** | **425** | **5 353** | **0.20** | **0.73** | **3.44** | |

## EARTHWORK — I

| STATION | LT / RT | EXCAVATION – COMMON (P) | EXCAVATION – MUCK | GRANULAR EMBANKMENT (CV) (P) | SELECT GRANULAR EMBANKMENT MOD 7% (CV) (P) | COMMON EMBANKMENT (CV) | HAUL & DISPOSE OF CONTAMINATED MATERIAL | AGGREGATE SURFACING CLASS 5 (CV) | AGGREGATE BASE (CV) CLASS 5 (P) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2106 | 2106 | 2106 | 2106 | 2106 | 2106 | 2118 | 2211 | |
| | | CU YD | CU YD | CU YD | CU YD | CU YD | CU YD | CU YD | CU YD | |
| **DRAINAGE ALIGNMENT** | | | | | | | | | | |
| 10+42.54 TO 20+00.00 | LT / RT | 20 | 17 536 | 88 | | 71 | 4 384 | | | |
| 26+72.83 TO 28+34.66 | LT / RT | | | | | | | 43 | | |
| **PALM ST ALIGNMENT** | | | | | | | | | | |
| 101+70.00 TO 102+70.00 | LT / RT | 146 | | | 67 | | | | 48 | OVER PIPE TRENCHES A AND I |
| 100+46.35 TO 109+10.45 | LT | | | | | | | | 1 | |
| 100+46.35 TO 109+10.45 | RT | | | | | | | | 187 | |
| **BLACKMAN AVE ALIGNMENT** | | | | | | | | | | |
| 200+00.00 TO 201+67.00 | LT / RT | 360 | | | 157 | | | | 105 | |
| **PROJECT TOTALS** | | **526** | **17 536** | **88** | **224** | **71** | **4 384** | **43** | **341** | |

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.

MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/12/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

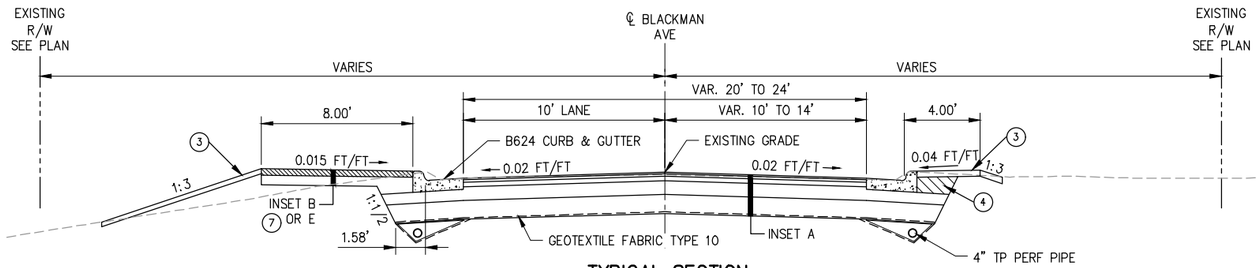
REVISION
△ 02/03/26

CONSTRUCTION CHARTS

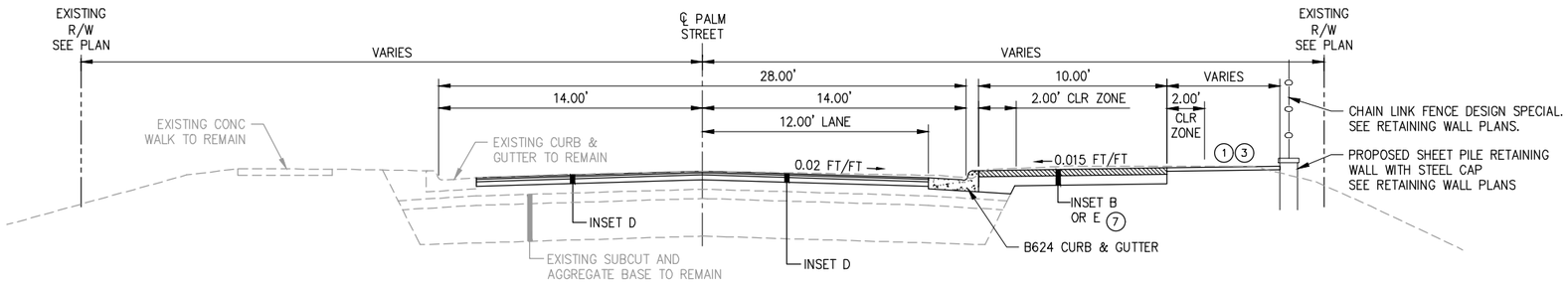
SHEET NO. 7 OF 47 SHEETS

LHB PROJECT NO. 240078

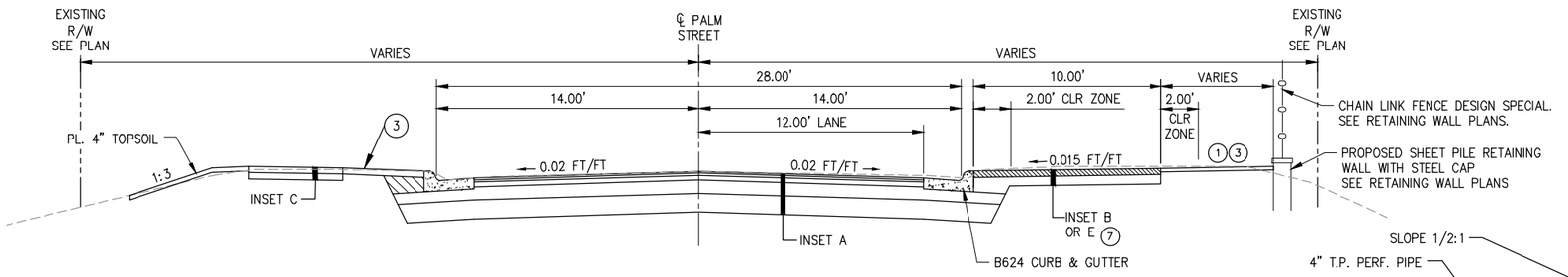
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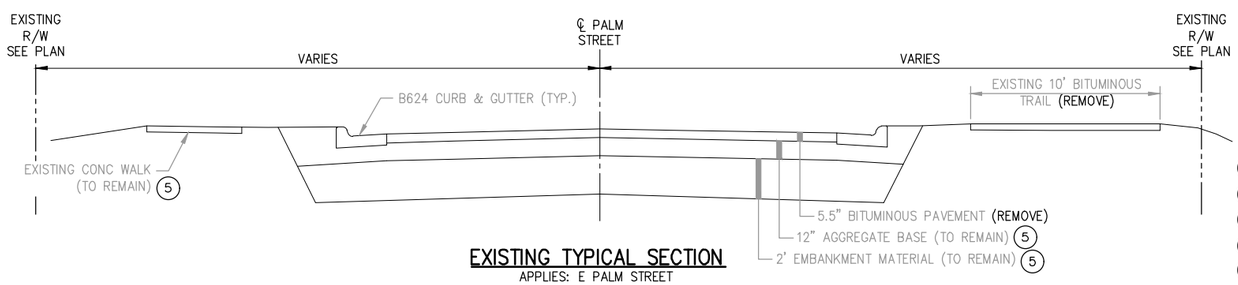

## TYPICAL SECTION
APPLIES: S BLACKMAN AVENUE



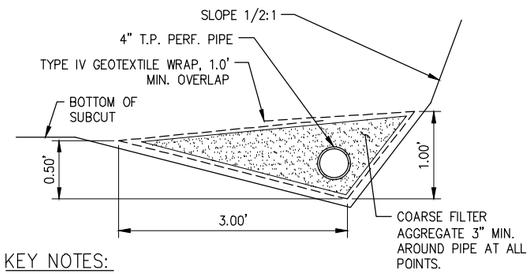

## TYPICAL SECTION
APPLIES: E PALM STREET
STA. 100+46.30 TO 102+17.15
STA. 102+37.15 TO 109+10.45




## TYPICAL SECTION AT PIPE TRENCH
APPLIES: E PALM STREET
STA. 102+17.15 TO 102+37.15

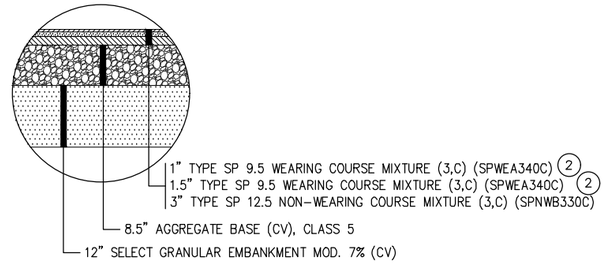



## EXISTING TYPICAL SECTION
APPLIES: E PALM STREET

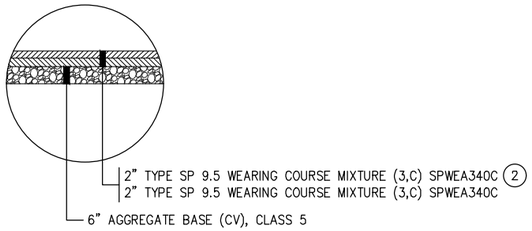



## KEY NOTES:

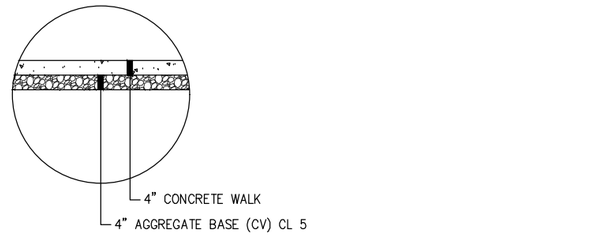
1. 1:6 MAX.
2. PLACE TACK COAT BETWEEN COURSES (INCIDENTAL)
3. 4" TOPSOIL BORROW
4. SELECT MATERIAL FROM EXCAVATION–COMMON (INCIDENTAL)
5. UNLESS NOTED OTHERWISE AT PIPE TRENCHES
7. HEAVY DUTY TRAIL SECTION (INSET E) APPLIES TO PALM STREET STA. 100+42.38 TO 102+33.97 AND BLACKMAN AVE STA. 200+19.93 TO 200+83.02



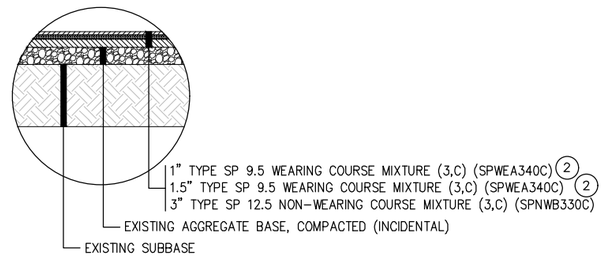

## INSET A



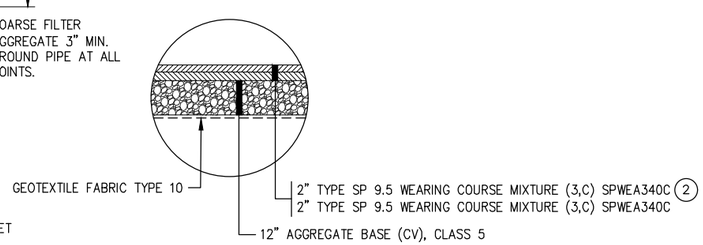

## INSET B
LIGHT DUTY TRAIL SECTION




## INSET C




## INSET D




## INSET E
HEAVY DUTY TRAIL SECTION

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.

MEGAN GOPLIN
PRINTED NAME

Megan Goplin
SIGNATURE

01/12/2026
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53018
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CITY PROJECT NO. 2208

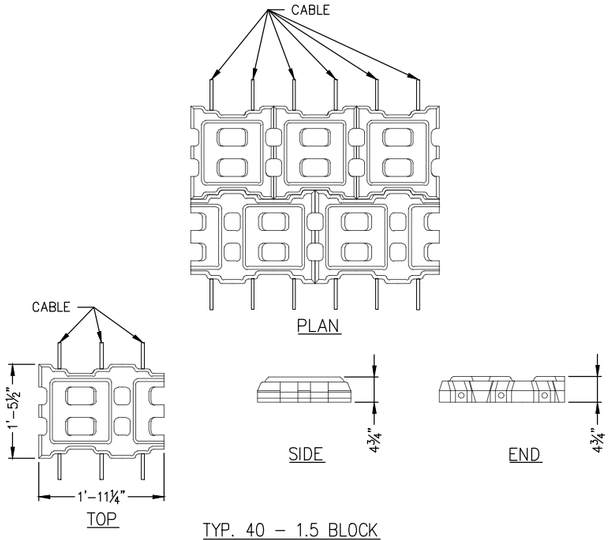
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

TYPICAL SECTIONS

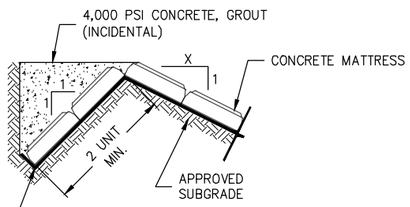
SHEET NO. 8 OF 47 SHEETS

LHB PROJECT NO. 240078

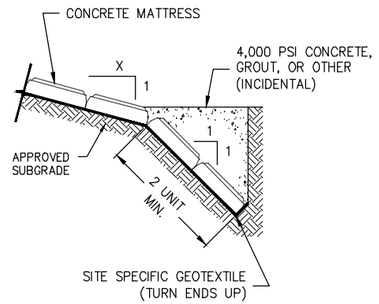
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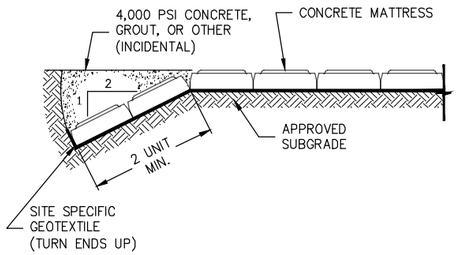

TYP. 40 – 1.5 BLOCK



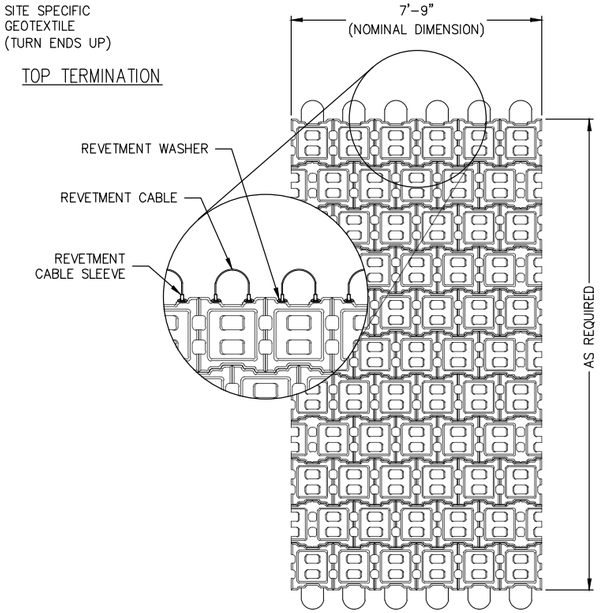

TOP TERMINATION




TOE TERMINATION



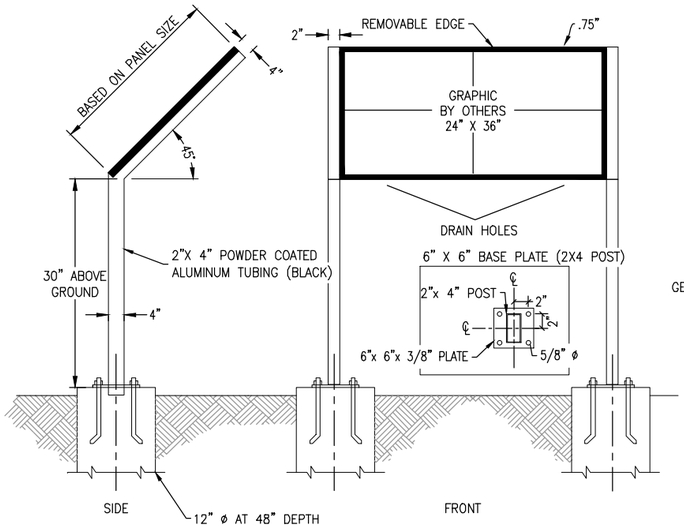

FLANK TERMINATION




ARTICULATED BLOCK MAT OPEN CELL TYPE A

BLOCK MAT INSTALLATION NOTES

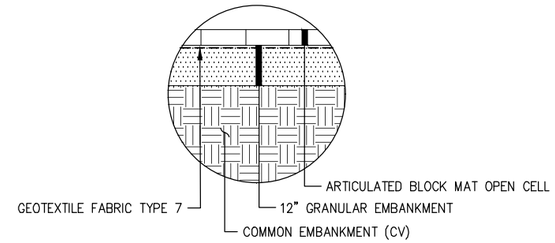
1. USE CABLE TO CONNECT CONCRETE BLOCKS FOR EASE OF INSTALLATION.
2. PLACE GEOTEXTILE FILTER TYPE 7 IN CONFORMANCE WITH MNDOT SPEC 2511 AND 3733 PRIOR TO PLACING ARTICULATED BLOCK MAT.
3. TERMINATE BLOCK MAT PER MANUFACTURER'S RECOMMENDATION (INCIDENTAL).
4. BLOCKS SHALL BE OPEN CELL AND CONFORM TO MNDOT 3604.



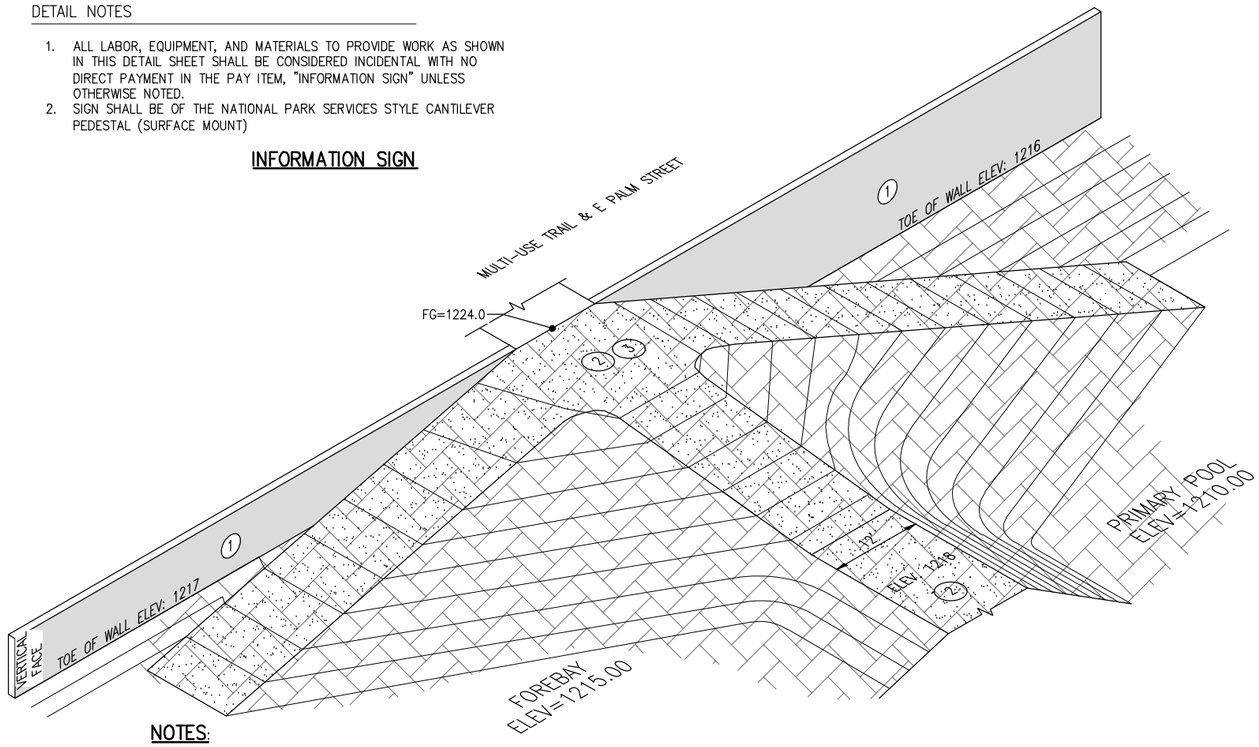

DETAIL NOTES

1. ALL LABOR, EQUIPMENT, AND MATERIALS TO PROVIDE WORK AS SHOWN IN THIS DETAIL SHEET SHALL BE CONSIDERED INCIDENTAL WITH NO DIRECT PAYMENT IN THE PAY ITEM, "INFORMATION SIGN" UNLESS OTHERWISE NOTED.
2. SIGN SHALL BE OF THE NATIONAL PARK SERVICES STYLE CANTILEVER PEDESTAL (SURFACE MOUNT)

INFORMATION SIGN




MAINTENANCE ACCESS TYPICAL SECTION




NOTES:

(1) SHEET PILE WALL. SEE RETAINING WALL PLANS.

(2) MAINTENANCE ACCESS ROAD SHALL BE CONSTRUCTED OF COMMON EMBANKMENT COMPACTED TO 95% PROCTOR AT A MAXIMUM OF 12-INCH LIFTS. SURFACE OF MAINTENANCE ACCESS ROAD SHALL BE ARTICULATED BLOCK MAT OPEN CELL TYPE A OVER GRANULAR EMBANKMENT AND GEOTEXTILE FABRIC. SEE TYPICAL SECTION ON THIS SHEET.

(3) MAINTAIN FLAT AREA (2% MAX.) AT TOP OF ACCESS RAMP.

MAINTENANCE ACCESS ROAD

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.

MEGAN GOPLIN
PRINTED NAME

Megan Goplin
SIGNATURE

01/12/2026
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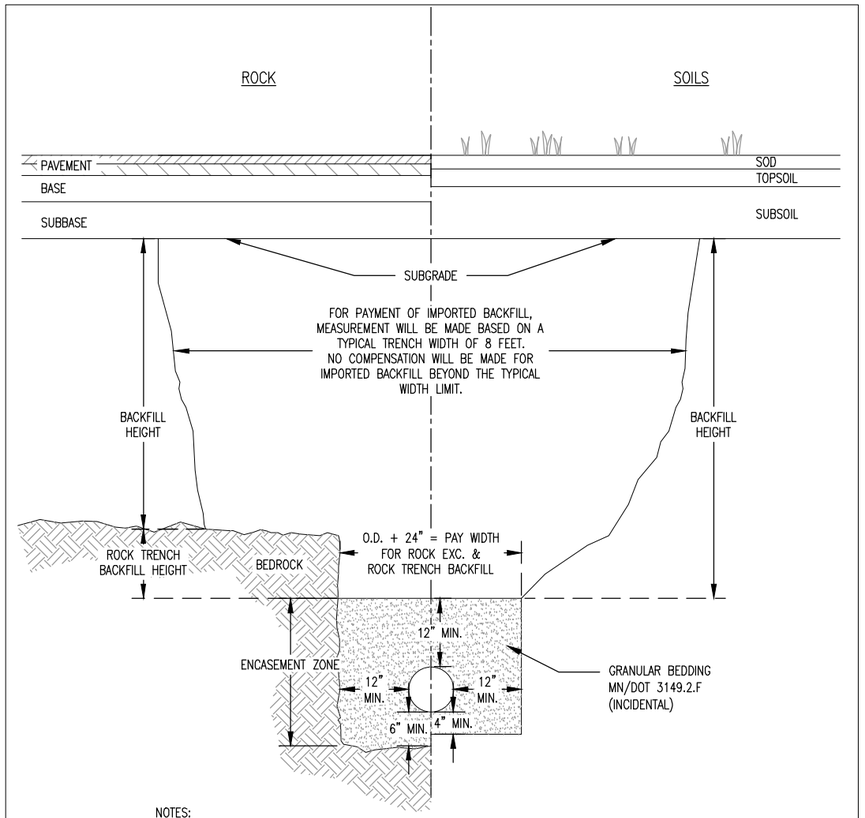
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

CONSTRUCTION DETAILS

SHEET NO. 9 OF 47 SHEETS

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LHB PROJECT NO. 240078

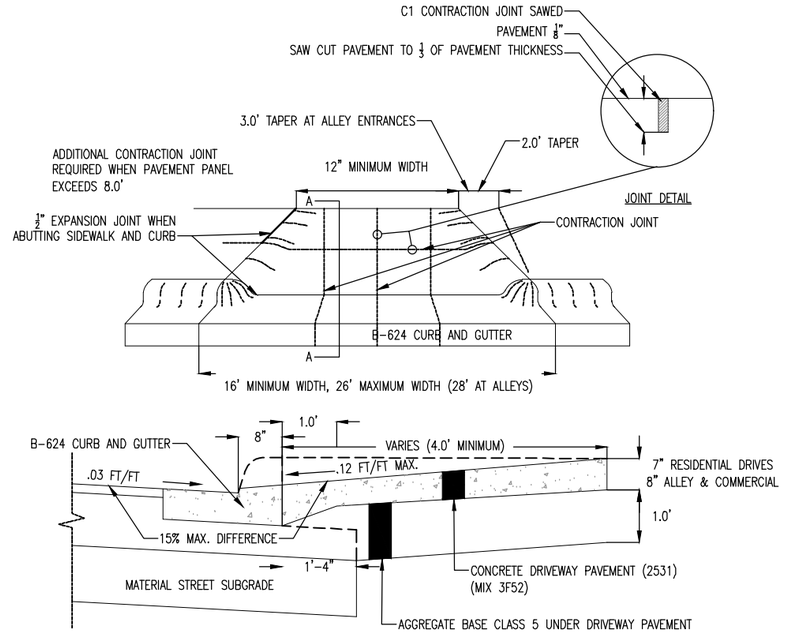



NOTES:

1. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
2. PAY WIDTH FOR ROCK EXCAVATION SHALL BE BASED ON OUTSIDE DIAMETER OF PIPE PLUS 24".
3. A MINIMUM OF 1 CUBIC YARD OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
4. TRENCH STABILIZATION BEDDING MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
5. ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.
6. BACKFILL SHALL BE SELECT GRADING MATERIAL FOUND ON-SITE WHEN DEEMED SUITABLE BY THE ENGINEER OR AS OTHERWISE DEFINED IN THE PROJECT SPECIAL PROVISIONS. WHEN ON-SITE MATERIAL IS NOT SUITABLE AND WHEN BACKFILL MATERIAL IS NOT SPECIFIED, IMPORTED MATERIAL MEETING MN/DOT 3149.2.D.1 GRANULAR BACKFILL SHALL BE PROVIDED. USE OF NATIVE ON-SITE MATERIAL IS INCIDENTAL.
7. COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.

| CONCRETE STORM SEWER BEDDING | | EX-4 |
|---|---|---|
| REVISED/APPROVED 04/05/2019 | CITY OF DULUTH STANDARD DETAIL<br>DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |

NOTE: FOR PIPE SEGMENTS AT OR NEAR POND NWL COARSE AGGREGATE BEDDING MNDOT SPEC. 3149.2 G.2 SHALL BE USED (INCIDENTAL). SEE DRAINAGE PROFILES.




SECTION A-A

NOTES:

1. WHERE THERE IS NO SIDEWALK OR THERE IS A GRASS BOULEVARD BETWEEN THE SIDEWALK AND THE BACK OF CURB THE CREST OF THE DRIVEWAY MUST BE AT LEAST 6" ABOVE GUTTER TO CONTAIN RUNOFF.
2. WHERE THERE IS SIDEWALK DIRECTLY BEHIND THE CURB, DRIVEWAY PROFILE SLOPE SHALL BE FLATTENED TO MEET ADA ACCESSIBLE ROUTE STANDARDS

| DRIVEWAY & ALLEY ENTRANCES | | STR-5 |
|---|---|---|
| REVISED/APPROVED 04/05/2019 | CITY OF DULUTH STANDARD DETAIL<br>DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |

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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

CONSTRUCTION DETAILS

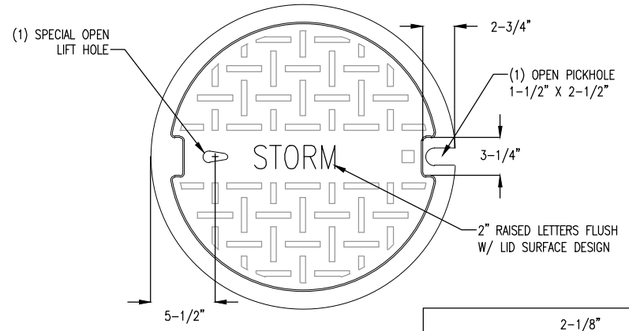
SHEET NO. 10 OF 47 SHEETS

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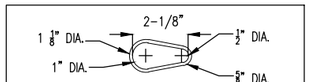
LHB PROJECT NO. 240078

| | | |
|---|---|---|
| WEIGHT 298 LBS | | MATL. GRAY IRON CLASS 35B |
| WEIGHT 122 LBS | TOTAL WEIGHT 420 LBS. | SPEC. ASTM A-48-74 |

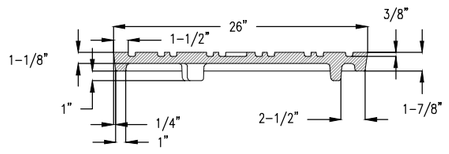
NOTE: SUITABLE FOR HS25 WHEEL LOADS

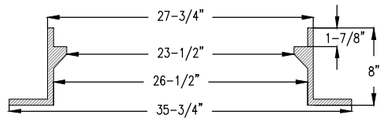



NOTE: T/CAST SHALL BE .03' BELOW FINISHED PAVEMENT SURFACE.

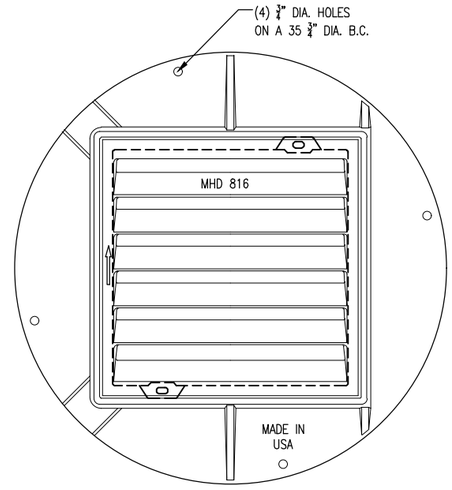


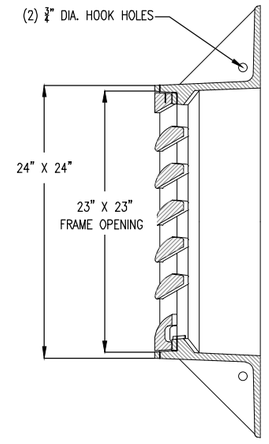

DETAIL OF SPECIAL LIFT HOLE

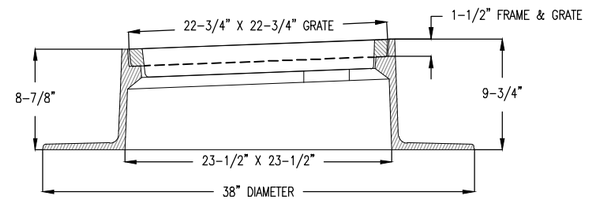



| | | |
|---|---|---|
| STORM MANHOLE CASTING | | STRM-1 |
| REVISED/APPROVED 02/01/2013 | CITY OF DULUTH STANDARD DETAIL<br>DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |




NOTES:
1. COMPONENT NO'S: FRAME 5005, GRATE 816 (STD PLATE 4154).
2. MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
3. WEIGHT: FRAME 262#; GRATE 131#
4. ALL GUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE" WITH A CITY SUPPLIED STAMP.

| | | |
|---|---|---|
| CATCH BASIN CASTINGS | | STRM-3 |
| REVISED/APPROVED 04/05/2019 | CITY OF DULUTH STANDARD DETAIL<br>DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |

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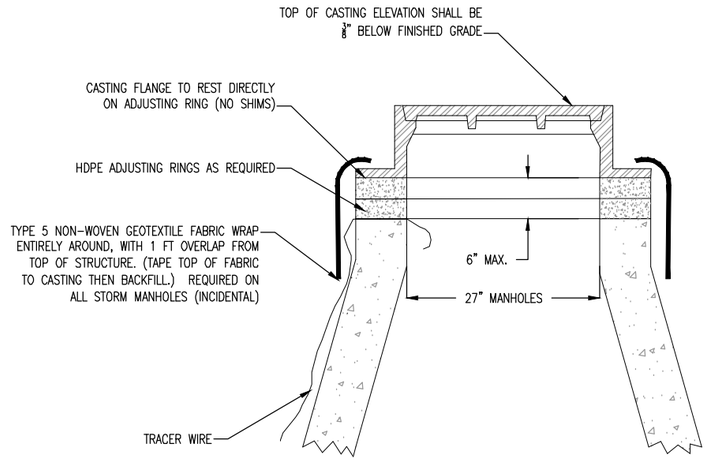
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

CONSTRUCTION DETAILS

SHEET NO. 11 OF 47 SHEETS

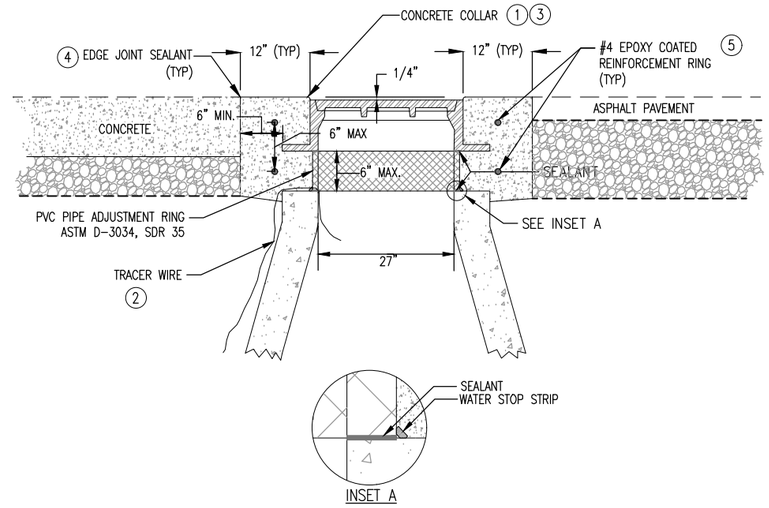
LHB PROJECT NO. 240078

PLOT DATE: 1/9/2026 9:43:46 AM FILE: Q:\24Proj\240078\500 Drawings\Civil\240078 06.0 Construction Details.dwg




NOTE:
TRACER WIRE REQUIRED ON ALL PLASTIC STORM SEWER PIPE

| STORM MANHOLE NON-PAVED AREAS | | STRM-5 |
|---|---|---|
| REVIEWED/APPROVED 04/05/2019 | CITY OF DULUTH STANDARD DETAIL<br>DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |




NOTES:
1. CONCRETE (MIX NO. 3G52) COLLAR TO ENCASE CASTING AND ADJUSTMENT RING.
2. TRACER WIRE, IF REQUIRED, FOR PLASTIC PIPE ON PROJECT
3. CONCRETE COLLAR SHALL BE CIRCULAR LAYOUT. PAVEMENT AND BASE SHALL BE CUT OUT WITH ROTATING CUTTING DEVICE
4. FINISH CONCRETE EDGE WITH 1/4" RADIUS. SEAL JOINT BETWEEN PAVEMENT AND COLLAR.
5. MAINTAIN 3.5" COVER ON REINFORCEMENT.

NOT TO SCALE

| CONCRETE ENCASED CASTING COLLAR FOR STORM MH IN ROADWAY, WALKS, & DRIVES | | STRM-5A |
|---|---|---|
| REVIEWED/APPROVED 04/05/2019 | CITY OF DULUTH STANDARD DETAIL<br>DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |

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MEGAN GOPLIN
PRINTED NAME

Megan Goplin
SIGNATURE

01/12/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

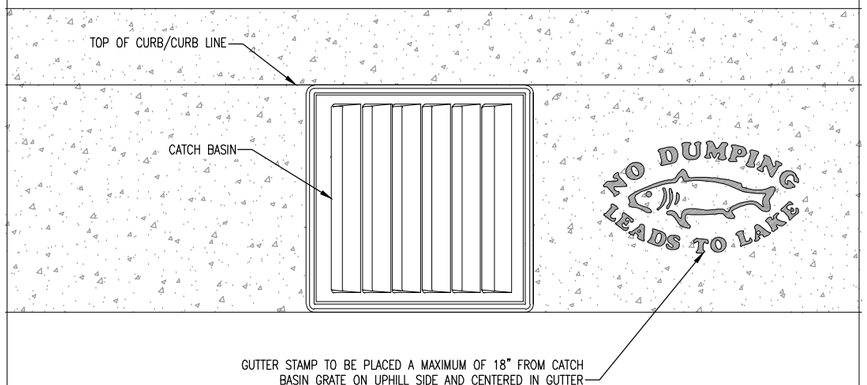
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

CONSTRUCTION DETAILS

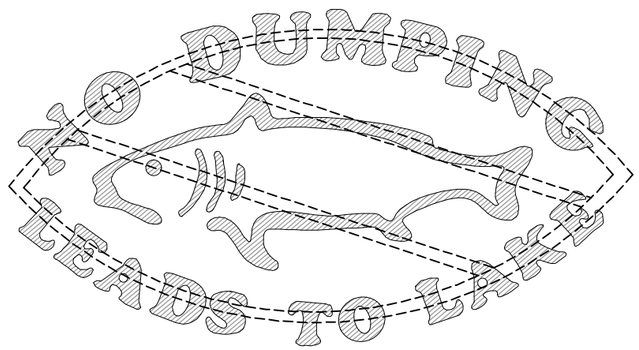
SHEET NO. 12 OF 47 SHEETS

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LHB PROJECT NO. 240078

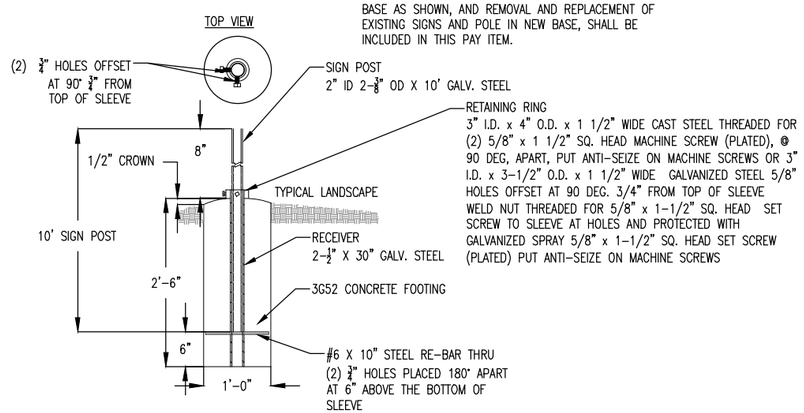



GUTTER STAMP TO BE OBTAINED FROM CITY OF DULUTH BY CONTRACTOR.




| GUTTER STAMP | | STRM-7 |
|---|---|---|
| REVIEWED/APPROVED 02/01/2013 | CITY OF DULUTH STANDARD DETAIL<br>DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |

ALL MATERIALS AND LABOR USED TO CONSTRUCT SIGN BASE AS SHOWN, AND REMOVAL AND REPLACEMENT OF EXISTING SIGNS AND POLE IN NEW BASE, SHALL BE INCLUDED IN THIS PAY ITEM.




SPEC. 2564.602, REMOVE AND REINSTALL SIGN, EACH

| STREET NAME SIGN FOOTING DETAIL | | T-3 |
|---|---|---|
| REVISED/APPROVED 01/20/2017 | CITY OF DULUTH STANDARD DETAIL<br>DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |

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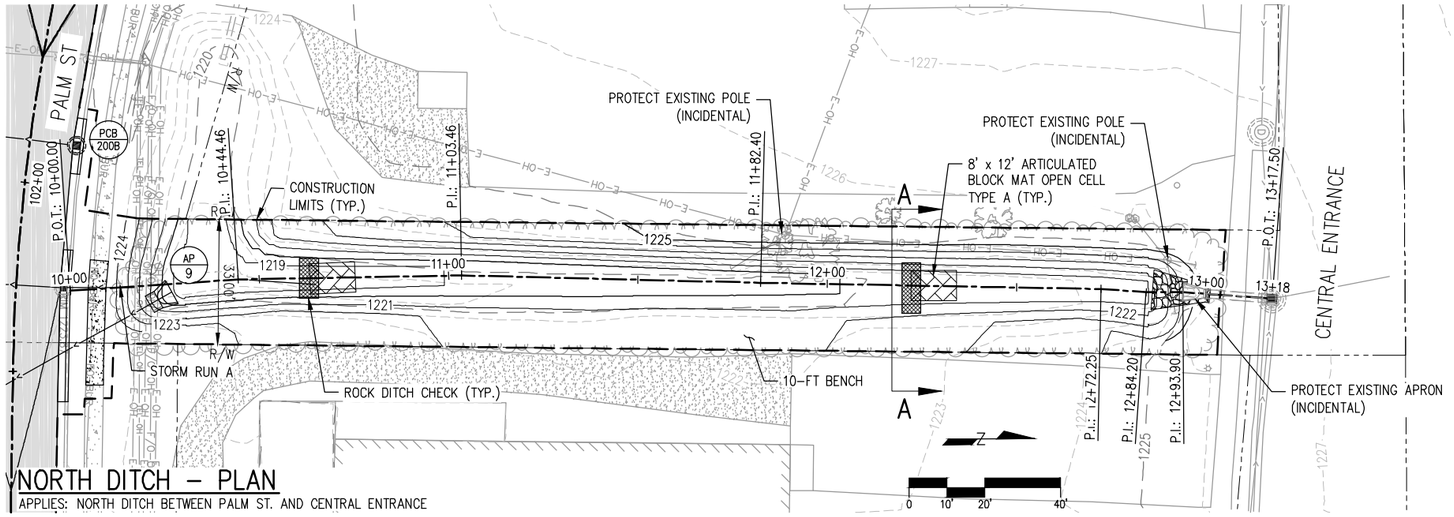
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

CONSTRUCTION DETAILS

SHEET NO. 13 OF 47 SHEETS

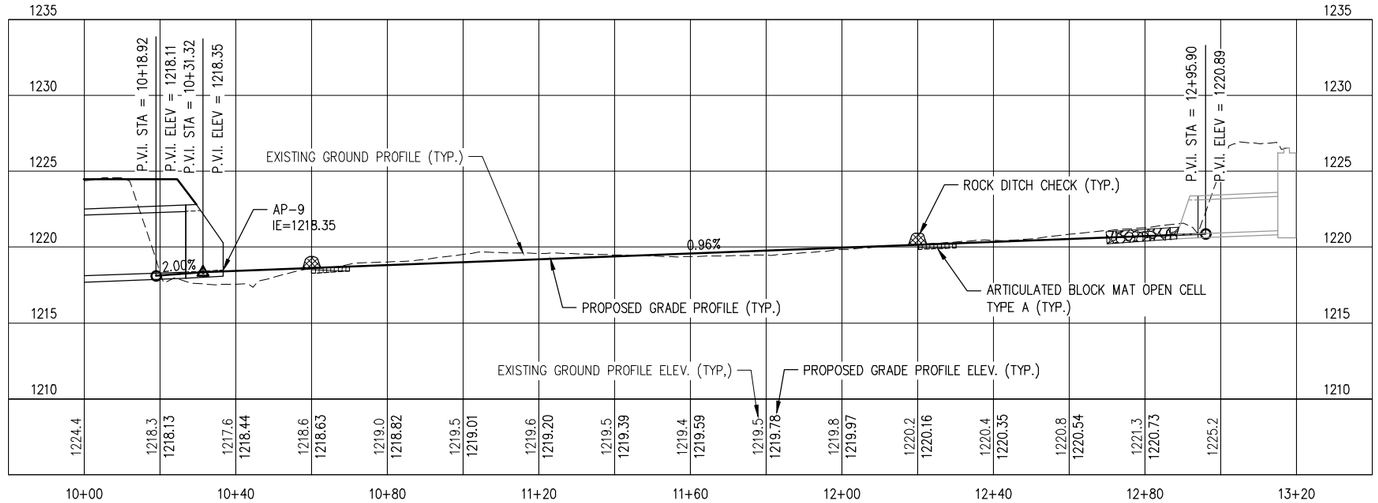
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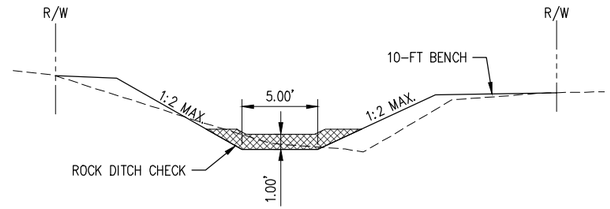

## NORTH DITCH – PLAN

APPLIES: NORTH DITCH BETWEEN PALM ST. AND CENTRAL ENTRANCE

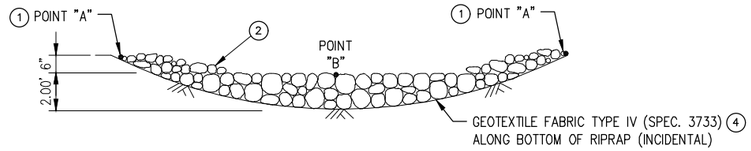



## NORTH DITCH – PROFILE

APPLIES: NORTH DITCH BETWEEN PALM ST. AND CENTRAL ENTRANCE




## SECTION A–A




## ROCK DITCH CHECK

FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) 3
(FOR USE ON ROUGH GRADED AREAS)

1. POINT "A" MUST BE A MINIMUM OF 6–INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
2. CLASS I – IV RIPRAP (SPEC. 3601) WITH GEOTEXTILE FABRIC TYPE IV (SPEC. 3733)
3. PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.
4. EXTEND FABRIC UNDER ARTICULATED BLOCK MAT UPSTREAM (INCIDENTAL)

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.

MEGAN GOPLIN
PRINTED NAME

Megan Goplin
SIGNATURE

01/12/2026
DATE

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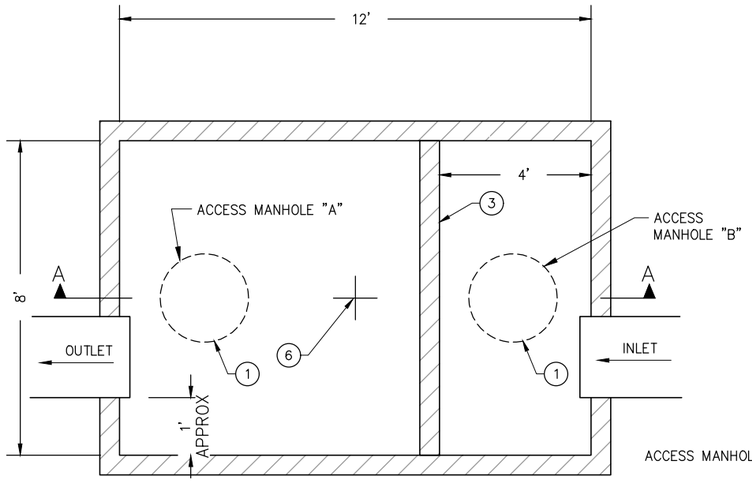
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

CONSTRUCTION DETAILS

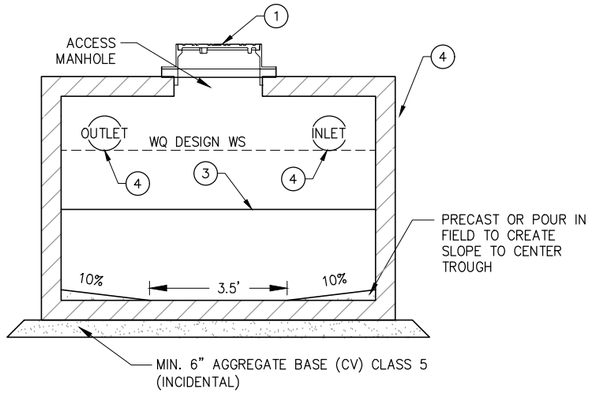
SHEET NO. 14 OF 47 SHEETS

LHB PROJECT NO. 240078

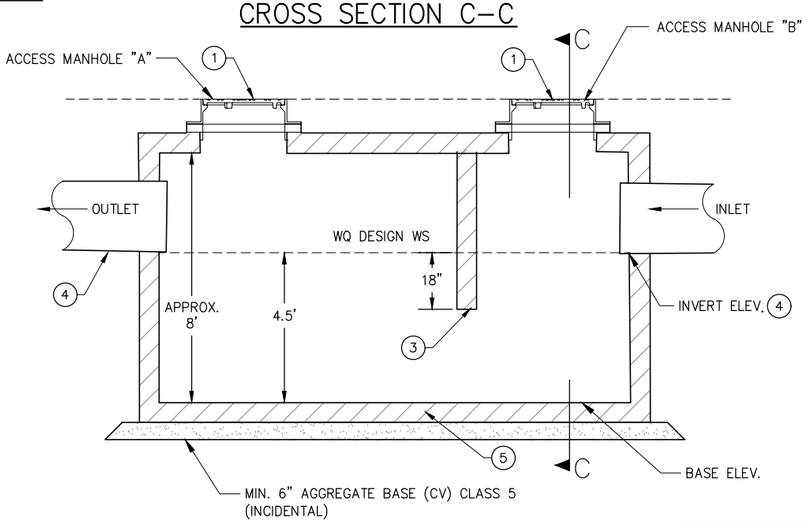
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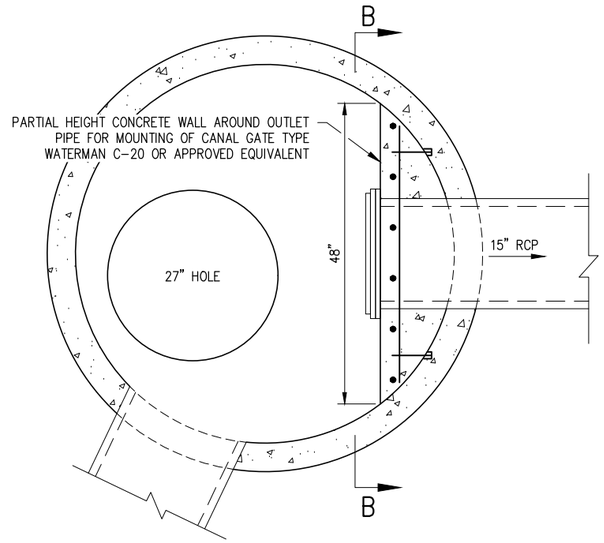

PLAN VIEW



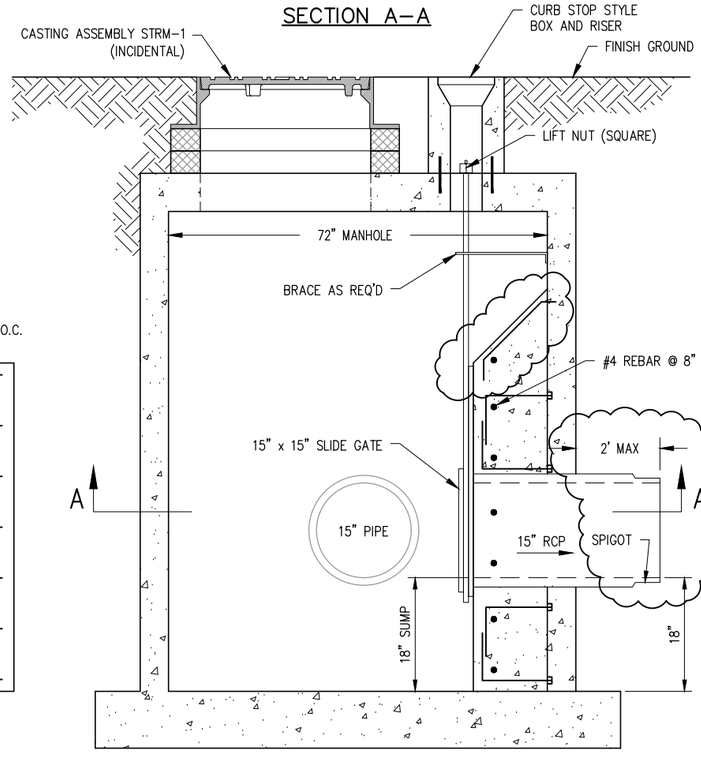

CROSS SECTION C–C




SECTION A–A




SECTION A–A




NOTES:

1. TOP SLAB THICKNESS AND REINFORCEMENT SHALL CONFORM TO MNDOT STANDARD PLATE 4020J.
2. ENTRY ACCESS HOLE SHALL BE ECCENTRIC OPPOSITE LOCATION OF SLIDE GATE.

SS–199 DRAINAGE STRUCTURE DESIGN SPECIAL 2 – FLOW CONTROL GATE

NOT TO SCALE

## KEY NOTES:

(1) CASTING ASSEMBLY STRM–1 (INCIDENTAL)

(2) PAID FOR AS DRAINAGE STRUCTURE DESIGN SPECIAL 1

(3) WEIR TO BE PRECAST IN STRUCTURE.

(4) INLET AND OUTLET INVERTS SHALL BE THE SAME, SEE PLAN FOR ELEVATION AND ACTUAL LOCATION.

(5) STRUCTURE TO BE SET LEVEL, SEE CHART THIS SHEET.

(6) CENTER OF STRUCTURE ALONG BLACKMAN AVENUE ALIGNMENT.

| WATER QUALITY BMP SUMMARY | | | | | | |
|---|---|---|---|---|---|---|
| STRUCTURE NO. | (6) | | RIM ELEVATION | | IE ELEV. | BASE ELEV. |
| | STATION | OFFSET | A | B | | |
| WQ VAULT | 201+02.74 | 5.53 RT | 1220.23 | 1220.42 | 1215.18 | 1210.68 |

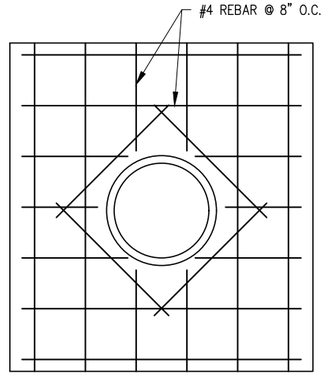
WATER QUALITY BMP

## NOTES:

1. STRUCTURE TO BE DESIGNED FOR HL–93 LOADING.
2. ALL TEMPORARY EXCAVATIONS SHORING, UTILITY SHORING, DEWATERING, AND COORDINATION WITH OVERHEAD POWER UTILITY COMPANY TO EXCAVATE AND PLACE STRUCTURE USING CRANES OR OTHER CONSTRUCTION EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE CONSIDERED INCIDENTAL.

WATER QUALITY VAULT (2)

(NOT TO SCALE)




SECTION B–B

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.

MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/27/2026
DATE

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LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

REVISION
⚠ 01/23/26

CONSTRUCTION DETAILS

SHEET NO. 15 OF 47 SHEETS

LHB PROJECT NO. 240078

PLOT DATE: 1/27/2026 2:53:27 PM FILE: Q:\24Proj\240078\500 Drawings\Civil\240078 06.1 Construction Details.dwg

# TEMPORARY STREAM DIVERSION SYSTEMS

## LEGEND

—PA— SILT FENCE, TYPE PREASSEMBLED

—HI— SILT FENCE, TYPE HAND INSTALLED

—SD— SILT FENCE, TYPE SUPER DUTY

## KEY NOTES:

(1) PUMP INTAKE SHALL UTILIZE A SUMP OR BE FITTED WITH SCREEN AND FLOATING HEAD (PREFERRED).

(2) STREAM TRANSFER PUMP SHALL BE SIZED FOR A MINIMUM 2 YEAR – 24 HOUR EVENT AT THIS CROSSING.

(3) DISCHARGE THROUGH FLOCCULENT SOCK.

(4) STREAM BLOCK. CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN AND CONSTRUCTION OF STREAM BLOCK AND ITS PERFORMANCE TO FULLY FUNCTION, NON–ERODIBLE, AND TO MEET A MINIMUM 2 YEAR – 24 HOUR EVENT AT THIS CROSSING. CONTRACTOR SHALL SUBMIT METHOD AND DETAILS TO ENGINEER PRIOR TO CONSTRUCTING.

(5) BY–PASS CULVERT TO BE TEMPORARY CULVERT PLACED IN ROAD CUT OR JACKED THROUGH PRIOR TO CUT. CULVERT SHALL BE SIZED FOR A MINIMUM 2 YEAR – 24 HOUR EVENT AT THIS CROSSING.

(6) BY–PASS CHANNEL TO BE CONSTRUCTED AS SHOWN ON THIS PAGE. CHANNEL SHALL BE SIZED FOR A MINIMUM 2 YEAR – 24 HOUR EVENT AT THIS CROSSING.

## GENERAL NOTES:

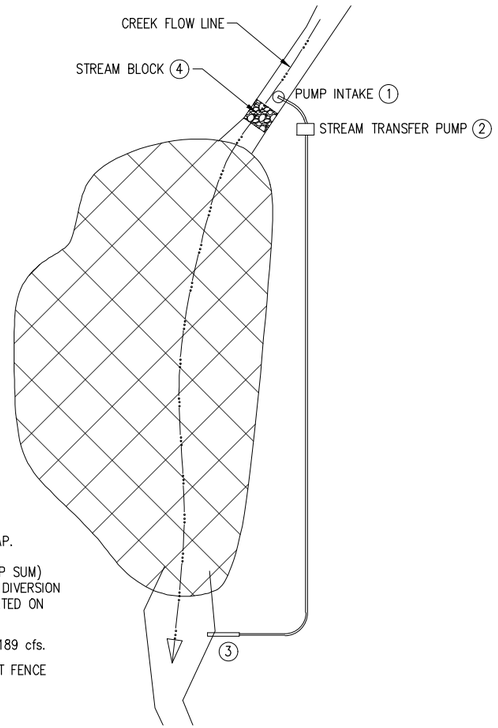
1.) ANY DEWATERING OF WORK AREA SHALL BE DISCHARGED TO TEMPORARY SEDIMENT TRAP.

2.) PAYMENT FOR ITEM NO. 2573.601 TEMPORARY STREAM DIVERSION SYSTEM (SINGLE LUMP SUM) SHALL INCLUDE ALL ITEMS NECESSARY TO CONSTRUCT FULLY FUNCTIONING, COMPLIANT DIVERSION SYSTEMS CONFORMING TO ONE OF THE ABOVE EXAMPLES AT ALL LOCATIONS AS INDICATED ON THE SITE PLAN SUBMITTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

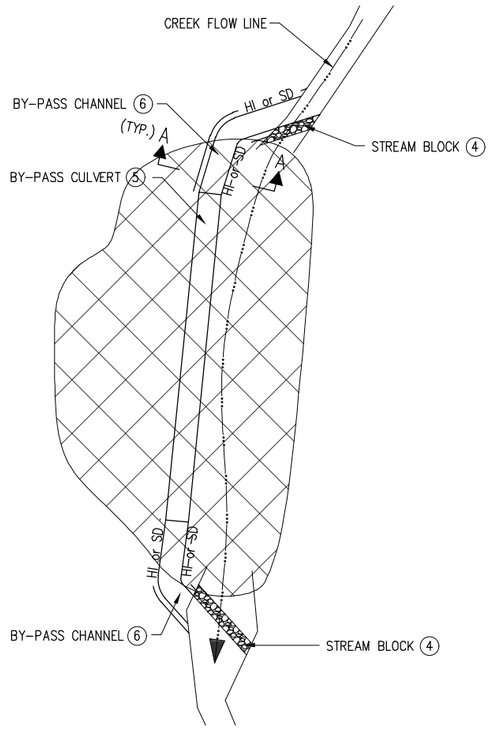
3.) 2 YEAR – 24 HOUR FLOW EVENT FOR PURPOSES OF DESIGN WAS CALCULATED TO BE 189 cfs.

4.) GEOTEXTILE FABRIC TYPE 5, POLYETHYLENE SHEETING, NON–ERODIBLE WEIGHTS AND SILT FENCE ARE INCLUDED IN THE PAY ITEM FOR TEMPORARY STREAM DIVERSION.

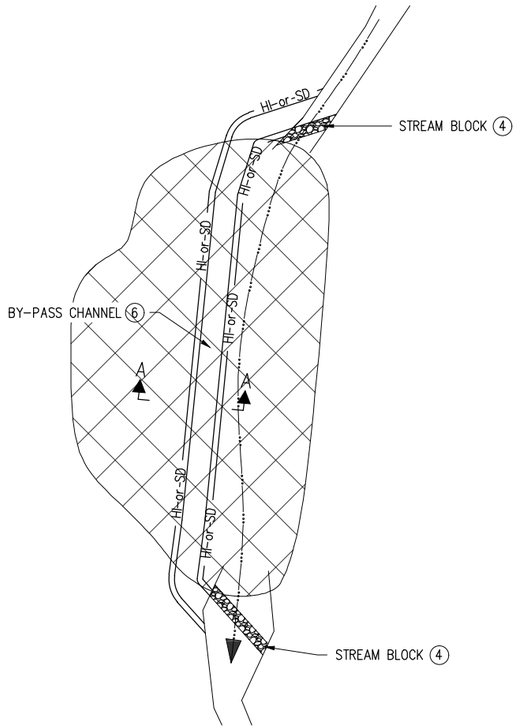
### TEMPORARY STREAM BLOCK

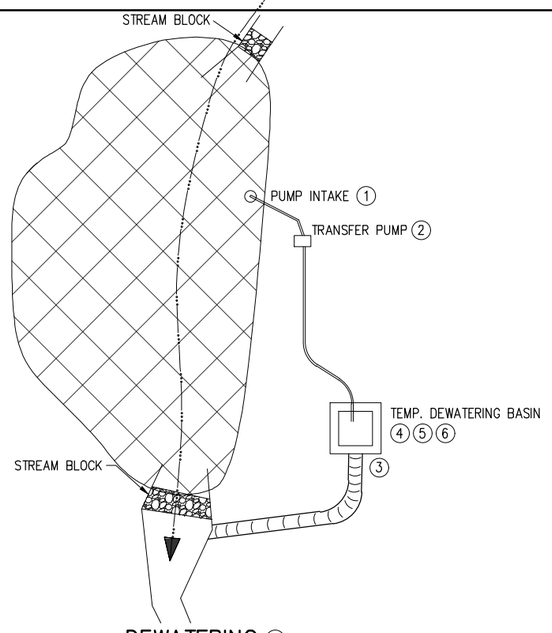



### CULVERT BY–PASS

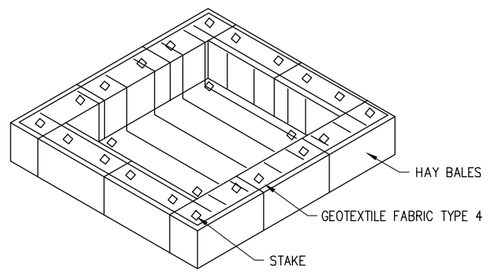



### STREAM DIVERSION




DEWATERING (7)




### TEMPORARY DEWATERING BASIN (4)(5)(6)

NOTE: CONTRACTOR TO PROVIDE DETAILED PLAN FOR DEWATERING OPTION PROPOSED.

## DEWATERING KEY NOTES:

(1) PUMP INTAKE SHALL UTILIZE A SUMP OR BE FITTED WITH SCREEN AND FLOATING HEAD (PREFERRED).

(2) TRANSFER PUMP SHALL BE SIZED TO ALLOW THE EXCAVATION TO BE DRY DURING CONSTRUCTION.

(3) SPILLWAY TO BE FORMED AT OUTLET OF DEWATERING BASIN AND WATER ROUTED TO THE STREAM THROUGH A PLASTIC AND/OR RIPRAP LINED SWALE.

(4) TEMPORARY DEWATERING BASIN TO BE CONSTRUCTED AS SHOWN. OTHER DESIGNS MAY BE UTILIZED WITH ENGINEER'S APPROVAL.

(5) ANY DEWATERING OF WORK AREA SHALL BE DISCHARGED TO TEMPORARY DEWATERING BASIN.

(6) BASIN IS SIZED FOR A PUMP WITH A 3" DISCHARGE HOSE: LARGER PUMPS WILL REQUIRE A LARGER BASIN. HAY BALES ARE TO MEET THE REQUIREMENTS OF BALE CHECK, SPEC. 2573 & 3882. THE REMOVAL OF SEDIMENT FROM THE BASIN IS CONSIDERED TO BE INCIDENTAL AND NO DIRECT PAYMENT WILL BE MADE. TYPE 4 GEOTEXTILE FABRIC (SPEC. 3733) IS TO BE DRAPED OVER THE BALES AND INTO THE BASIN. THE FABRIC SHALL BE STAKED TO THE GROUND AT THE FOUR INSIDE CORNERS OF THE BASIN. STAKES TO ANCHOR THE BALES SHALL BE PLACED AFTER THE FABRIC HAS BEEN PLACED, SO AS TO ANCHOR BOTH THE BALES AND THE FABRIC. THE USE OF FLOCCULANTS MAY BE REQUIRED TO ACCELERATE THE SETTLEMENT OF THE SEDIMENT. DIMENSIONS OF THE SEDIMENT BASIN ARE APPROXIMATELY 12'X12' BUT MAY NEED TO BE ENLARGED IN ORDER TO EFFECTIVELY FILTER THE SEDIMENT AND NO DIRECT PAYMENT WILL BE MADE.

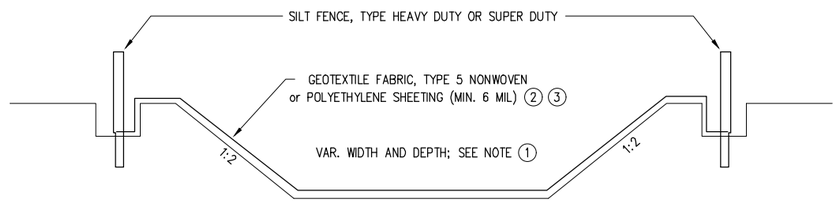
(7) THE ITEM "DEWATERING" ALLOWS FOR THE PLACEMENT OF CULVERTS IN THE DRY. ALL PUMPS, INTAKES, FLOCCULANTS, SWALES, RIPRAP, PLASTIC SHEETING, TEMPORARY DEWATERING BASINS AND ANY OTHER ITEMS NECESSARY TO EXPEL CLEAN WATER FROM THE PROJECT ARE INCIDENTAL AND NO DIRECT PAYMENT WILL BE MADE.

## SECTION A–A KEY NOTES:

(1) WIDTH AND DEPTH OF BY–PASS CHANNEL AND SIZING OF BY–PASS CULVERT WHERE USED ARE TO BE SUFFICIENT IN SIZE TO CARRY A 2 YEAR 24–HOUR STORM EVENT AT THIS CROSSING.

(2) LINER SHALL BE PLACED AS A SINGLE CONTINUOUS PIECE ANCHORED AT THE TOP OF THE SLOPES WITH A LINE OF SILT FENCE, TYPE HEAVY DUTY OR SUPER DUTY. AN UPSTREAM SECTION OF LINER SHALL OVERLAP A DOWNSTREAM SECTION A MINIMUM OF 18 INCHES.

(3) NON–ERODIBLE WEIGHTS, SUCH AS EROSION CONTROL STONE, SHALL BE USED TO SECURE CHANNEL LINER AT THE DOWNSTREAM AND UPSTREAM ENDS AND AS NECESSARY ALONG THE CHANNEL TO PREVENT DISPLACEMENT OF THE FABRIC. WOODEN STAKES SHALL NOT BE USED TO SECURE LINER. CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PREVENT ANY TEARING OF THE CHANNEL LINER. ANY TEARS SHALL BE REPAIRED TO THE ENGINEERS SATISFACTION IMMEDIATELY IN ORDER TO ELIMINATE EROSION POTENTIAL.




SECTION A–A
(TEMPORARY BYPASS CHANNEL)

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Megan Goplin
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01/12/2026
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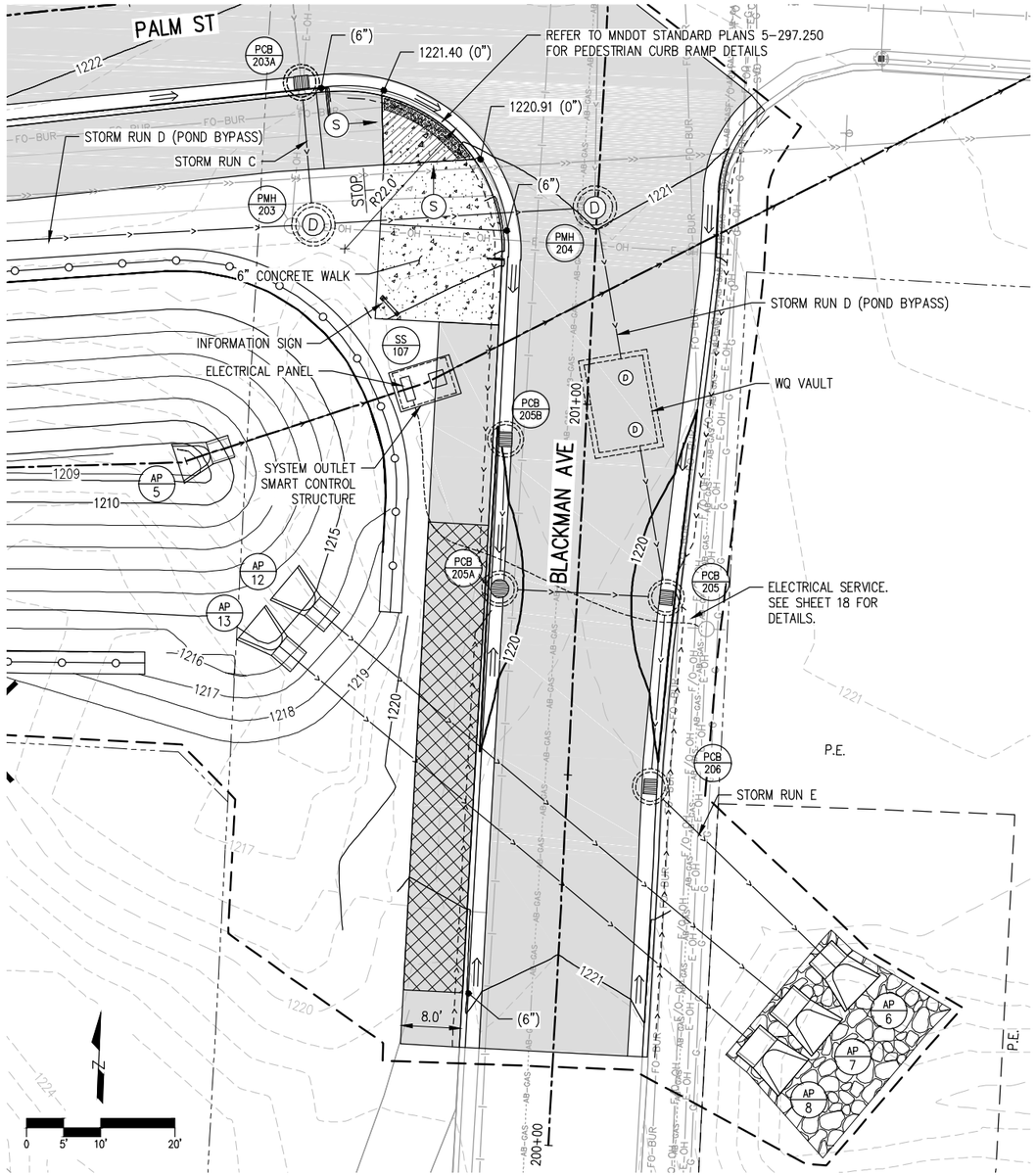
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

CONSTRUCTION DETAILS

SHEET NO. 16 OF 47 SHEETS

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LHB PROJECT NO. 240078

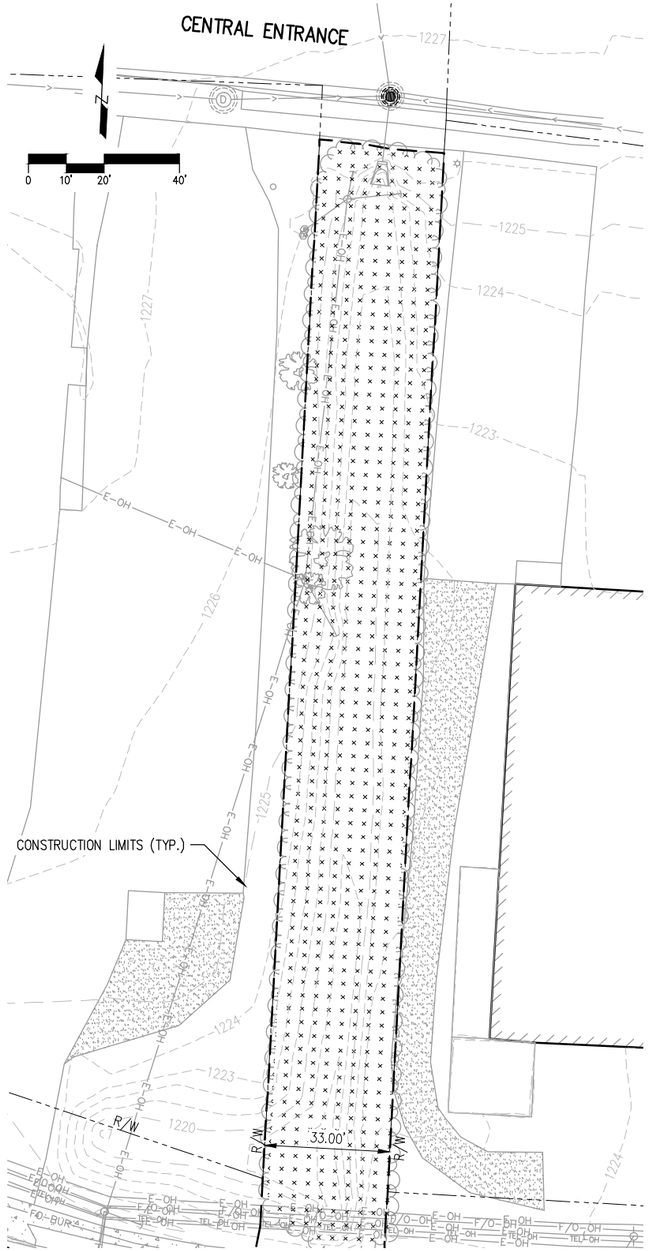



## ENLARGED PLAN

APPLIES: BLACKMAN AVE

### LEGEND

- (S) INDICATES PEDESTRIAN RAMP SLOPE BETWEEN 5.0% MIN. AND 8.3% MAX. IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- (F) INDICATES PEDESTRIAN RAMP SLOPE LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- 6" CONCRETE WALK
- BITUMINOUS PAVEMENT
- HEAVY DUTY TRAIL PAVEMENT
- LANDING AREA
- TRUNCATED DOMES
- XXXX.XX — SPOT ELEVATION (TO FLOW LINE)
- (X") — CURB HEIGHT
- SURFACE FLOW DIRECTION
- RIPRAP
- STORM PIPE
- STORM CATCH BASIN
- (D) STORM MANHOLE

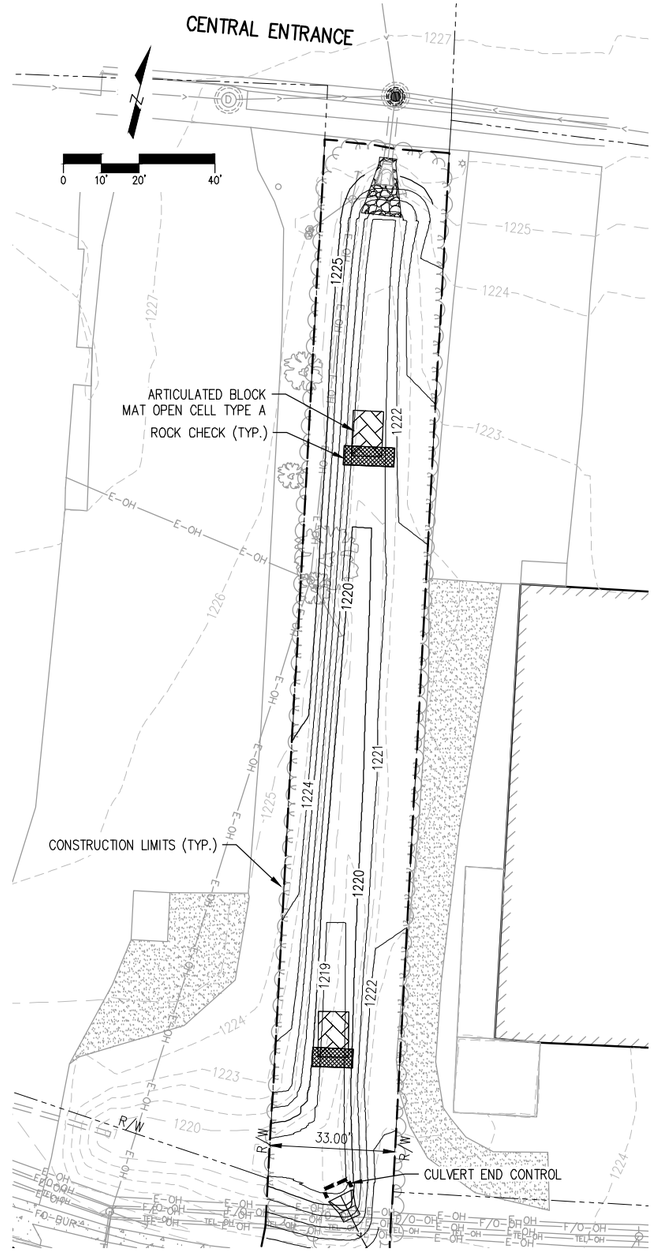



## NORTH DITCH – EXISTING CONDITIONS & REMOVALS

APPLIES: NORTH DITCH BETWEEN PALM ST. AND CENTRAL ENTRANCE

### LEGEND

- CONSTRUCTION LIMITS
- CLEARING & GRUBBING
- REMOVE TREE (INCLUDED IN CLEARING & GRUBBING)




## NORTH DITCH – EROSION CONTROL PLAN

APPLIES: NORTH DITCH BETWEEN PALM ST. AND CENTRAL ENTRANCE

### LEGEND

- CONSTRUCTION LIMITS
- ARTICULATED BLOCK MAT
- ROCK DITCH CHECK
- STORM SEWER / CULVERT
- STORM APRON

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PRINTED NAME

Megan Goplin
SIGNATURE

01/12/2026
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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

CONSTRUCTION DETAILS

SHEET NO. 17 OF 47 SHEETS

LHB PROJECT NO. 240078

PLOT DATE: 1/13/2026 8:38:10 AM FILE: Q:\24Proj\240078\500 Drawings\Civil\240078 06.2 Construction Details.dwg

## LEGEND

- UNDERGROUND CONDUIT
- HANDHOLE
- ELECTRICAL PANEL

## GENERAL NOTES

A. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF POWER WITH LOCAL UTILITY. EXISTING POWER POLE LOCATION SHOWN FOR REFERENCE ONLY. COORDINATE WITH LOCAL UTILITY.

B. CONDUIT ROUTING AND HANDHOLE LOCATIONS SHOWN FOR REFERENCE ONLY. COORDINATE EXACT LOCATIONS AND ROUTING WITH OTHER TRADES AND ON SITE CONDITIONS.

C. ALL CONDUITS SHALL BE SCHEDULE 80 NMC.

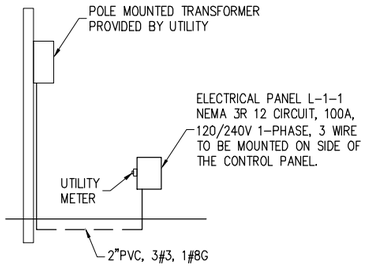
D. CABINET INCLUDED IN SMART POND CONTROL SYSTEM (LUMP SUM) BID ITEM. SEE SC SHEETS FOR DETAILS.

## ◇ KEYED NOTES

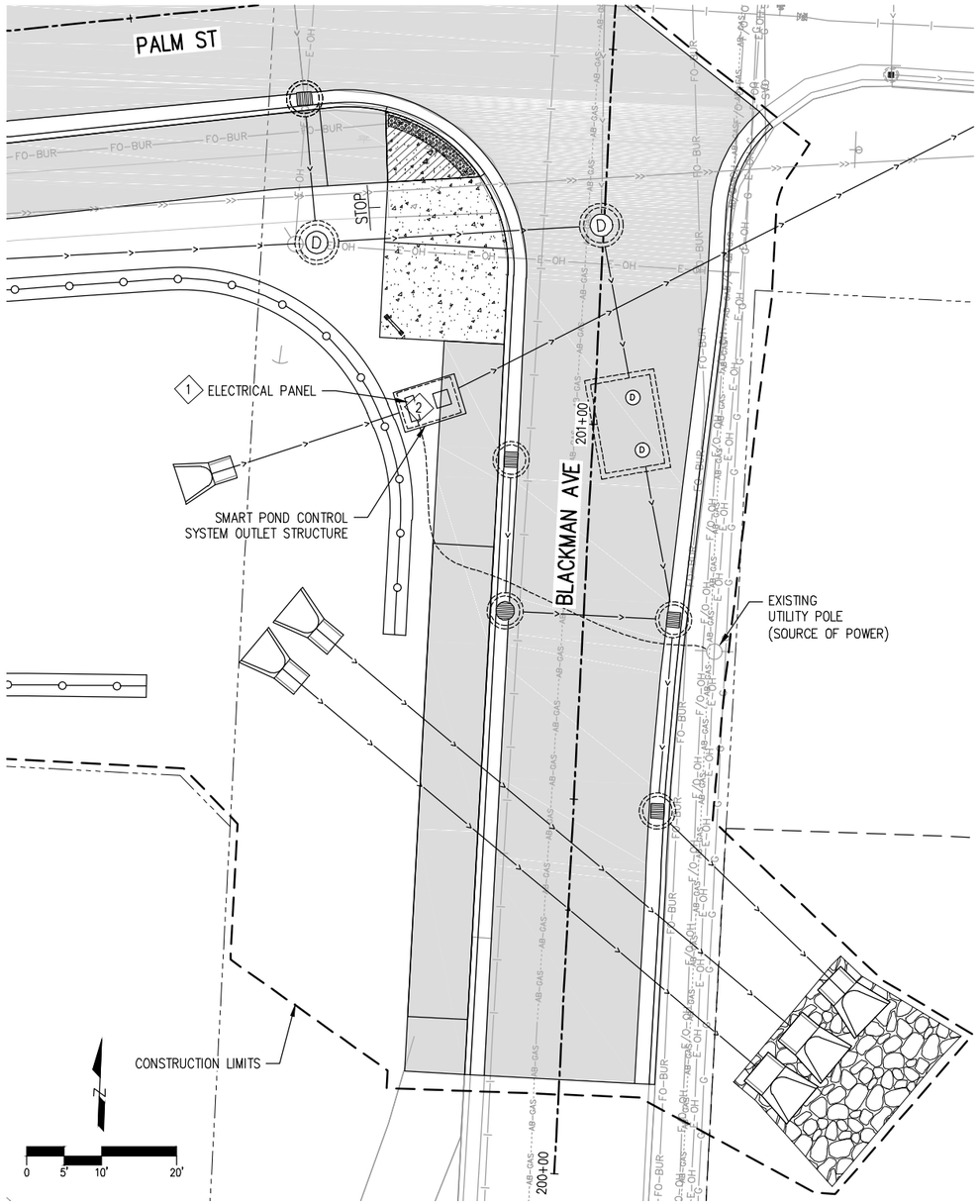
1. PROPOSED LOCATION OF NEW ELECTRICAL PANEL. COORDINATE EXACT LOCATION WITH ON SITE CONDITIONS. PROVIDE PANEL MOUNTED UTILITY METER. COORDINATE METERING REQUIREMENTS WITH LOCAL UTILITY. PANEL TO BE NEMA 3R, MOUNTED TO UNISTRUT, AND PROVIDED WITH LOCKABLE COVER. PROVIDE (6)1P–20A BREAKERS WITHIN NEW ELECTRICAL PANEL.

2. PROVIDE 2#12 CONDUCTORS AND 1#12G, IN 1/2"C FOR CONNECTION TO POND CONTROLLER. COORDINATE CONNECTION REQUIREMENTS WITH MANUFACTURER.

## ELECTRICAL RISER DIAGRAM




ALL CONDUIT, WIRING, AND HANDHOLE INCLUDED IN LUMP SUM ITEM ELECTRICAL SERVICE.




## ELECTRICAL PLAN

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.

JAKE MELBOSTAD
PRINTED NAME

SIGNATURE

01/19/2026
DATE

56200
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

CONSTRUCTION DETAILS

SHEET NO. 18 OF 47 SHEETS

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LHB PROJECT NO. 240078

**LEGEND**

- CONSTRUCTION LIMITS
- SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
- REMOVE PIPE SEWER/CULVERT
- REMOVE MANHOLE OR CATCH BASIN
- REMOVE BITUMINOUS PAVEMENT
- REMOVE BITUMINOUS WALK
- REMOVE CONCRETE WALK
- REMOVE CURB & GUTTER
- CLEARING & GRUBBING
- REMOVE TREE (INCLUDED IN CLEARING & GRUBBING)

SEE SHEET 15 FOR CONTINUATION OF NORTH DITCH

PID 010-0360-00540
322 E CENTRAL ENT

PID 010-2710-05982
326 E CENTRAL ENT

PID 010-2710-05984
328 E CENTRAL ENT

PID 010-2710-05983
332 E CENTRAL ENT

33.00'

R/W

CB0640030
RIM: 1226.24
IE S OUT: 1222.41

CB0640031
RIM: 1226.06
IE N IN: 1220.06
IE W IN: 1217.06
IE SE OUT: 1217.06

CB0640040
RIM: 1222.17
IE N IN: 1215.90
IE S OUT: 1216.25

24" RC PIPE

CONSTRUCTION LIMITS (TYP.)

REMOVE CURB & GUTTER

REMOVE PIPE SEWERS

REMOVE DRAINAGE STRUCTURE
CB0640038

PROTECT CURB (INCIDENTAL)

PALM ST. ALIGNMENT

PALM ST

REMOVE DRAINAGE STRUCTURE
CB0640041

SA0640006
RIM: 1226.72
IE NW IN: 1213.00
IE S IN: 1212.80
IE E OUT: 1212.80

REMOVE PIPE SEWERS

REMOVE PIPE SEWERS

REMOVE DRAINAGE STRUCTURE
CB0640039

REMOVE CURB AND GUTTER

RELOCATE OVERHEAD UTILITY POLE AND ANCHOR (BY OTHERS)

SA0640007
RIM: 1225.16
IE W IN: 1212.08
IE E OUT: 1212.08

BURIED FIBER TO BE RELOCATED BY OTHERS PRIOR TO CONSTRUCTION

REMOVE PIPE SEWERS

REMOVE BITUMINOUS WALK

REMOVE PIPE SEWERS

DRAINAGE ALIGNMENT

CONSTRUCTION LIMITS (TYP.)

PID 010-2710-05980

PID 010-0360-00570
330 E PALM ST

20.00' UTILITY EASEMENT

PID 010-2710-05986
330 E PALM ST

PROTECT EXISTING BLOCK WALLS (INCIDENTAL)

20.00' UTILITY EASEMENT

0 10' 20' 40'

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MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/23/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

REVISION
△ 01/23/26

EXISTING CONDITIONS & REMOVALS

SHEET NO. 19 OF 47 SHEETS

LHB PROJECT NO. 240078

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## LEGEND

- CONSTRUCTION LIMITS
- SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
- REMOVE PIPE SEWER/CULVERT
- REMOVE MANHOLE OR CATCH BASIN
- REMOVE BITUMINOUS PAVEMENT
- REMOVE BITUMINOUS WALK
- REMOVE CONCRETE WALK
- REMOVE CURB & GUTTER
- CLEARING & GRUBBING
- REMOVE TREE (INCLUDED IN CLEARING & GRUBBING)

PID 010-2710-05990
338 E CENTRAL ENT

PID 010-2710-05983
332 E CENTRAL ENT

CB0640040
RIM: 1222.17
IE N IN: 1215.90
IE S OUT: 1216.25

CONSTRUCTION LIMITS (TYP.)

24" RC PIPE

PALM ST. ALIGNMENT

PROTECT CURB (INCIDENTAL)

REMOVE DRAINAGE STRUCTURE
CB0640041

REMOVE DRAINAGE STRUCTURE
CB0640043

CB0640042
RIM: 1221.50
IE S OUT: 1217.45

12" RC PIPE

PALM ST

106+00
107+00
108+00
109+00

SA0640008
RIM: 1223.27
IE W IN: 1210.35
IE E OUT: 1210.35

REMOVE PIPE SEWERS

RELOCATE OVERHEAD UTILITY POLE AND ANCHOR (BY OTHERS)

REMOVE BITUMINOUS WALK

REMOVE CURB AND GUTTER

REMOVE PIPE SEWERS

REMOVE PIPE SEWERS

REMOVE DRAINAGE STRUCTURE
CB0640083

REMOVE PIPE SEWERS

REMOVE PIPE CULVERTS

REMOVE PIPE CULVERTS

DRAINAGE ALIGNMENT

CONSTRUCTION LIMITS (TYP.)

16+00
17+00
18+00
19+00

REMOVE PIPE SEWERS
15" CP PIPE

PID 010-2604-00010
330 E PALM ST

PID 010-2710-06002
123 S BLACKMAN AVE

UTILITY EASEMENT
30.00'

BLACKMAN AVE.

BLACKMAN AVE

ST0640054
RIM: 1222.51
IE S IN: 1216.68
IE E OUT: 1216.68

20+00
200+00
201+00
201+67

SA0640010
RIM: 224.61
IE W IN: 1210.41
IE N IN: 1210.41
IE S IN: 1210.41
IE E OUT: 1210.41

21+00
22+00

REMOVE CURB & GUTTER

REMOVE PIPE SEWERS

REMOVE DRAINAGE STRUCTURE
ST0640038

REMOVE PIPE SEWERS

REMOVE DRAINAGE STRUCTURE
CB0640084

BLACKMAN AVE. ALIGNMENT

REMOVE PIPE SEWERS

REMOVE DRAINAGE STRUCTURE
CB0640085

REMOVE PIPE SEWERS

CB06XXXX1
RIM: 1222.04
IE W IN: 1216.46
IE E OUT: 1216.34

111+00
111+20
CLEARWOOD DRIVE

PID 010-0550-00435
PO BOX 176
COTTON MN 55724

PID 010-0550-00420
PO BOX 176
COTTON MN 55724

UTILITY EASEMENT
10.00'

R/W

0 10' 20' 40'

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MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/23/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

REVISION
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EXISTING CONDITIONS & REMOVALS

SHEET NO. 20 OF 47 SHEETS

LHB PROJECT NO. 240078

PLOT DATE: 1/22/2026 9:07:15 AM FILE: O:\24Proj\240078\500 Drawings\Civil\240078 07.0 Existing Conditions & Removals.dwg

## LEGEND

- CONSTRUCTION LIMITS
- SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
- REMOVE PIPE SEWER/CULVERT
- REMOVE MANHOLE OR CATCH BASIN
- REMOVE BITUMINOUS PAVEMENT
- REMOVE BITUMINOUS WALK
- REMOVE CONCRETE WALK
- REMOVE CURB & GUTTER
- CLEARING & GRUBBING
- REMOVE TREE (INCLUDED IN CLEARING & GRUBBING)

PID 010-0550-00150
543 CLEARWOOD DR

PID 010-0550-00170
603 CLEARWOOD DR

R/W

22+00

111+00

111+20

CLEARWOOD DRIVE

66.00'

23+00

24+00

25+00

26+00

27+00

28+00

CB0640102
RIM: 1222.11
IE SW OUT: 1218.29

CB0640104
RIM: 1222.38
IE W IN: 1217.48
IE NE IN: 1217.48
IE S OUT: 1217.48

CONSTRUCTION LIMITS (TYP.)

DRAINAGE ALIGNMENT

12" RCP PIPE

CB0640101
RIM: 1222.73
IE E OUT: 1217.63

CB0640103
RIM: 1219.34
IE NE IN: 1215.36
IE S OUT: 1215.26

UTILITY EASEMENT

10.00'

UTILITY EASEMENT

PID 010-0550-00435
PO BOX 176
COTTON MN 55724

PID 010-0550-00420
PO BOX 176
COTTON MN 55724

EXISTING GRAVEL SURFACE

ABANDONED SANITARY

BREWERY CREEK

PID 010-0550-00440
122 S BLACKMAN AVE

8.88' DRAINAGE UTILITY EASEMENT

100.00' DRAINAGE UTILITY EASEMENT

PID 010-0435-00010
ISD 709
709 PORTIA JOHNSON DR

0 10' 20' 40'

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MEGAN GOPLIN
PRINTED NAME

Megan Goplin
SIGNATURE

01/12/2026
DATE

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CITY PROJECT NO. 2208

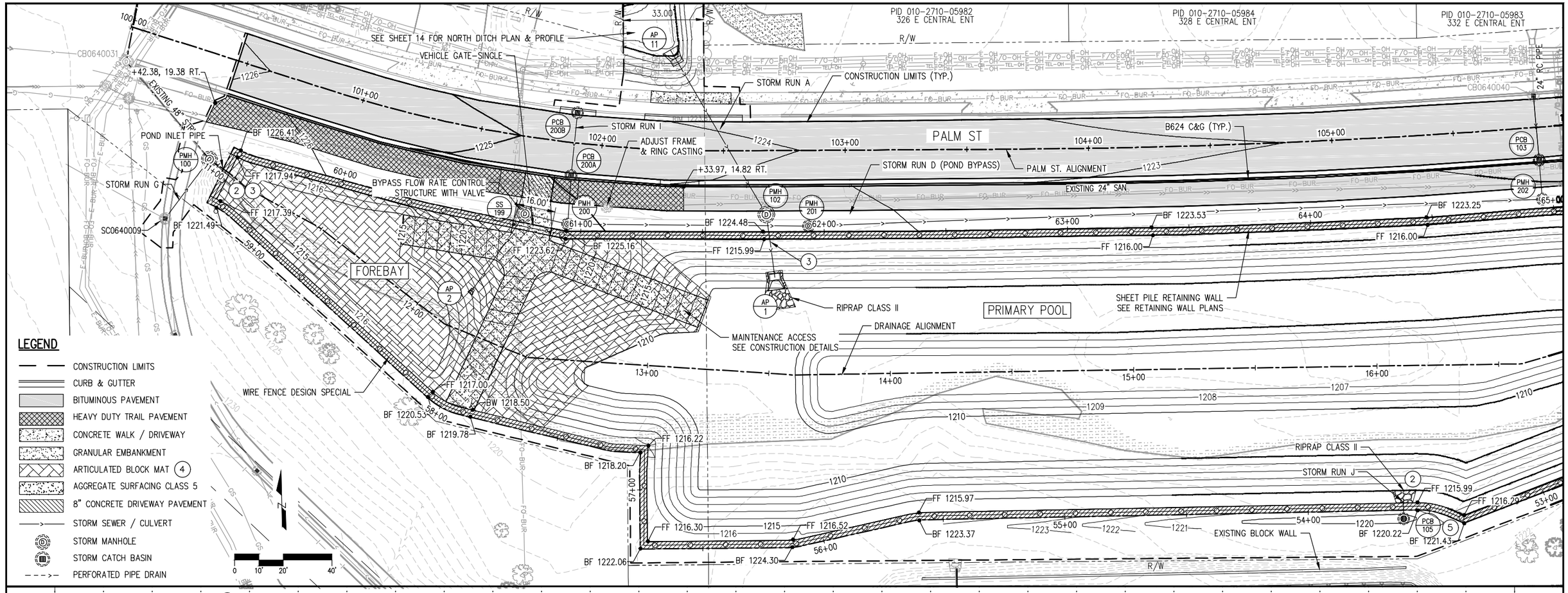
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

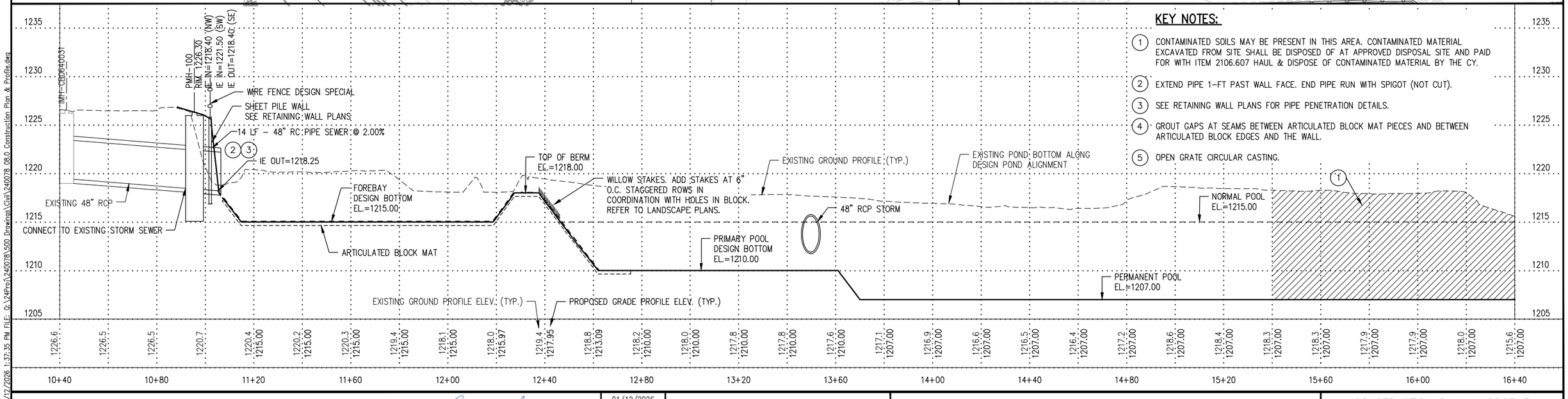
EXISTING CONDITIONS & REMOVALS

SHEET NO. 21 OF 47 SHEETS

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LHB PROJECT NO. 240078




## KEY NOTES:

1. CONTAMINATED SOILS MAY BE PRESENT IN THIS AREA. CONTAMINATED MATERIAL EXCAVATED FROM SITE SHALL BE DISPOSED OF AT APPROVED DISPOSAL SITE AND PAID FOR WITH ITEM 2106.607 HAUL & DISPOSE OF CONTAMINATED MATERIAL BY THE CY.
2. EXTEND PIPE 1-FT PAST WALL FACE. END PIPE RUN WITH SPIGOT (NOT CUT).
3. SEE RETAINING WALL PLANS FOR PIPE PENETRATION DETAILS.
4. GROUT GAPS AT SEAMS BETWEEN ARTICULATED BLOCK MAT PIECES AND BETWEEN ARTICULATED BLOCK EDGES AND THE WALL.
5. OPEN GRATE CIRCULAR CASTING.

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.

MEGAN GOPLIN
PRINTED NAME

Megan Goplin
SIGNATURE

01/12/2026
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LIC. NO.

CITY PROJECT NO. 2208

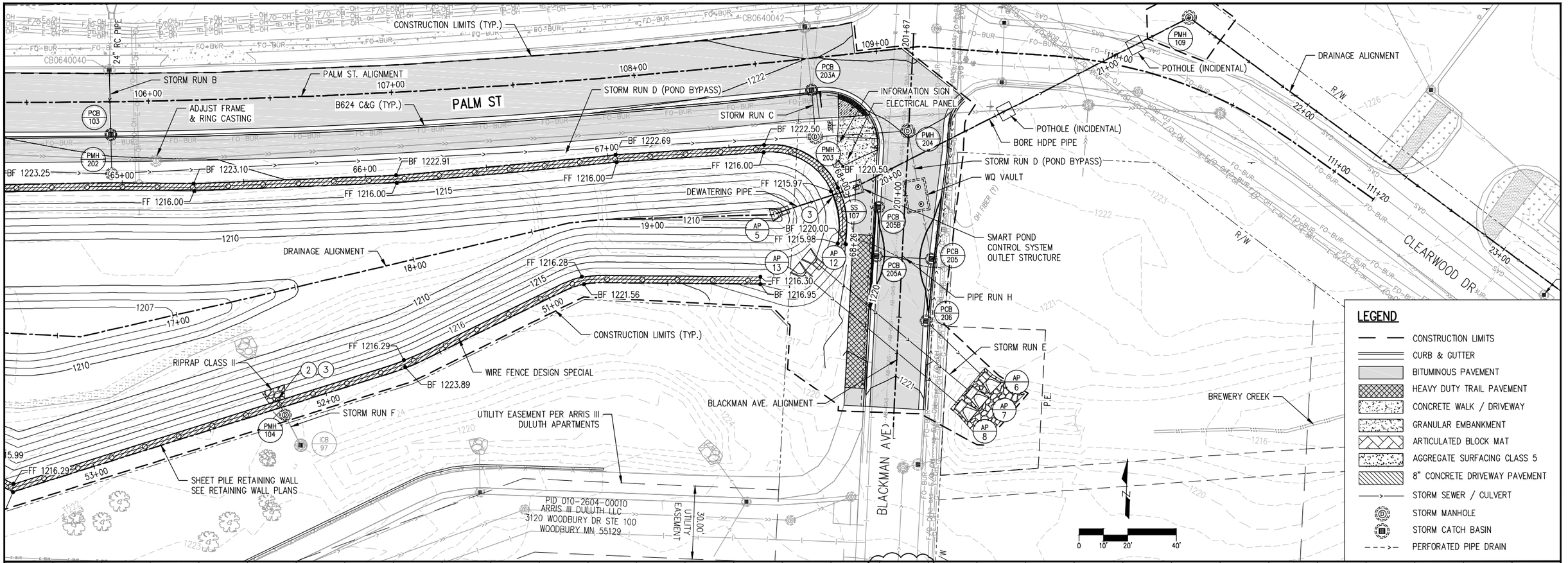
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

CONSTRUCTION PLAN & PROFILE

SHEET NO. 22 OF 47 SHEETS

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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

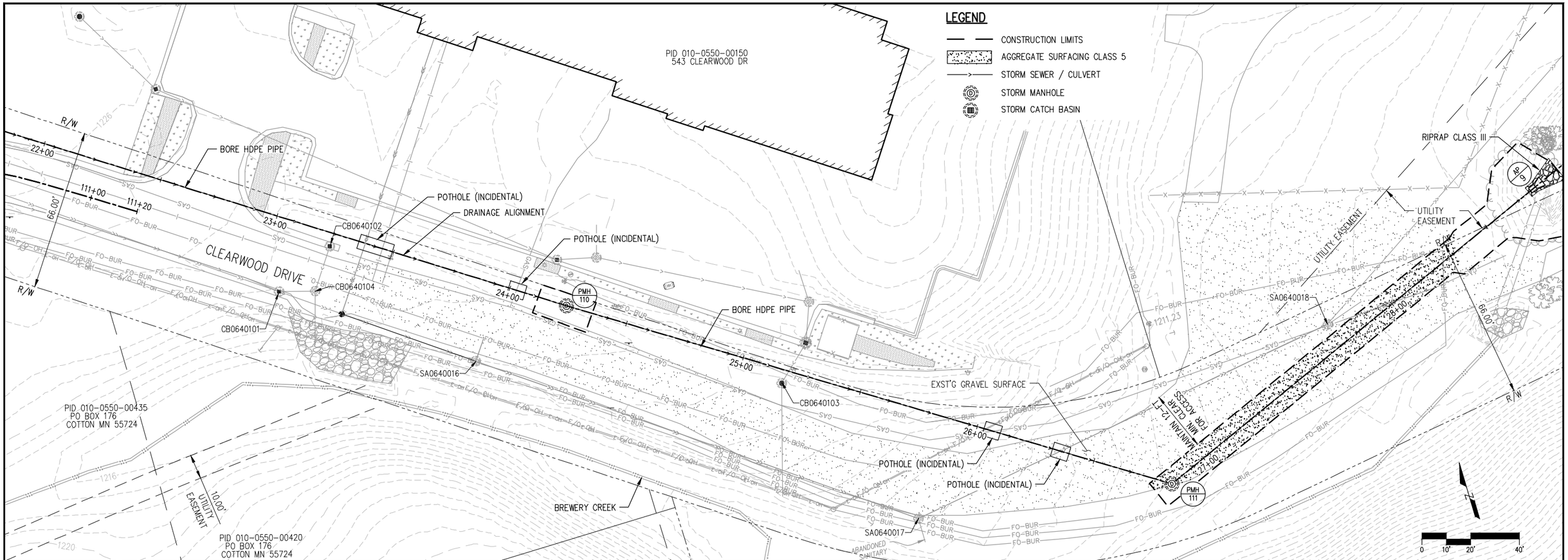
REVISION
⚠ 01/23/26

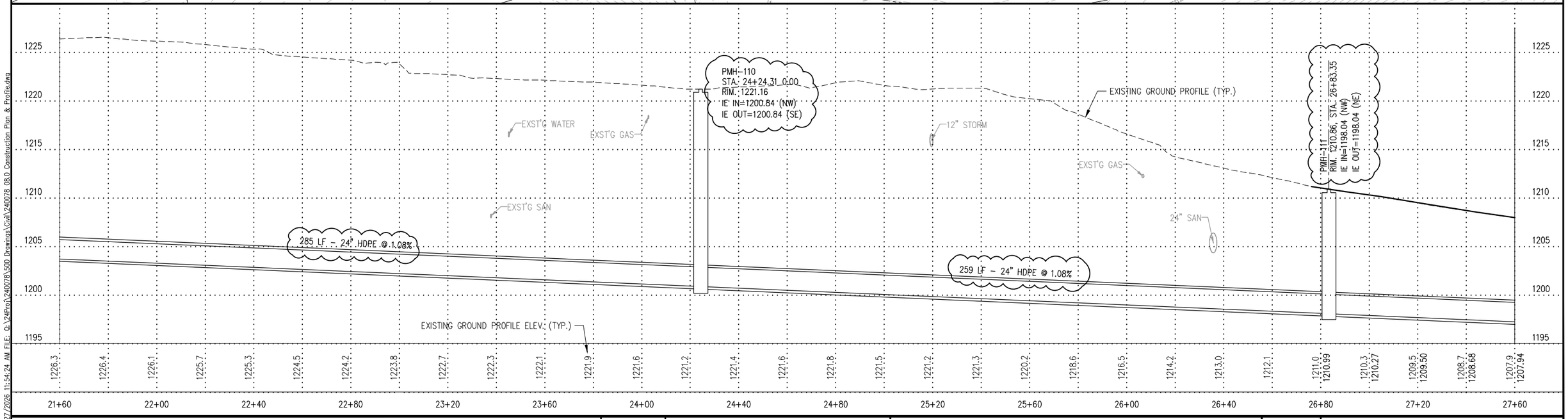
CONSTRUCTION PLAN & PROFILE

SHEET NO. 23 OF 47 SHEETS

LHB PROJECT NO. 240078

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MEGAN GOPLIN
PRINTED NAME

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LIC. NO.

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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

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PLAN & PROFILE

SHEET NO. 24 OF 47 SHEETS

LHB PROJECT NO. 240078

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CLEARWOOD DRIVE

CB0640193

SA0640017

POTHOLE (INCIDENTAL)

POTHOLE (INCIDENTAL)

25+00

EXST'G GRAVEL SURFACE

AGGREGATE SURFACING CLASS 5

MAINTAIN 12-FT MIN. CLEAR FOR ACCESS

UTILITY EASEMENT

UTILITY EASEMENT

SA0640018

R/W

AP 9

PMH 111

27+00

28+00

28+98

OPEN TRENCH INSTALLATION

CONSTRUCTION LIMITS (TYP.)

RIPRAP CLASS III

66.00'

R/W

N

0 10' 20' 40'

PID 010-0435-00010
709 PORTA JOHNSON

## LEGEND

- CONSTRUCTION LIMITS
- CURB & GUTTER
- BITUMINOUS PAVEMENT
- HEAVY DUTY TRAIL PAVEMENT
- CONCRETE WALK / DRIVEWAY
- GRANULAR EMBANKMENT
- ARTICULATED BLOCK MAT
- AGGREGATE SURFACING CLASS 5
- 8" CONCRETE DRIVEWAY PAVEMENT
- STORM SEWER / CULVERT
- STORM MANHOLE
- STORM CATCH BASIN
- PERFORATED PIPE DRAIN

PALM ST

PALM ST. ALIGNMENT

WALL ALIGNMENT

AP 5

AP 13

AP 12

DEWATERING PIPE

50+00

19+00

108+

CB0640042

PMH 203

STOP

PCB 203A

LIMIT OF FULL RECONSTRUCTION

+19.93, 12.63 LT

+83.02, 12.42 LT

68+26

SS 107

68+00

109+00

BLACKMAN AVE

200+00

PCB 205A

PCB 205B

201+00

201+67

PMH 204

PCB 206

PCB 205

WQ VAULT

DRAINAGE ALIGNMENT

AP 8

AP 7

AP 6

RIPRAP CLASS III

P.E.

110+00

PMH 109

EXISTING GROUND PROFILE (TYP.)

PMH-111
RIM. 1210.86, STA. 26+83.35
IE IN=1198.04 (NW)
IE OUT=1198.04 (NE)

PROPOSED GRADE PROFILE (TYP.)

FO-BUR

EXST'G GAS

24" SAN

EXST'G GAS

EXST'G FO

193 LF. - 24" RC PIPE SEWER @ 1.08%

AP-9
IE OUT=1195.96

TIE PIPES BETWEEN PMH-111 AND AP-9 OUTLET
WITH GALVANIZED STEEL RODS (INCIDENTAL)

EXISTING GROUND PROFILE ELEV. (TYP.)

PROPOSED GRADE PROFILE ELEV. (TYP.)

1220.2 1218.6 1216.5 1214.2 1213.0 1212.1 1211.0 1210.99 1210.3 1210.27 1209.5 1209.50 1208.7 1208.68 1207.9 1207.94 1207.3 1207.28 1207.0 1206.95 1206.7 1206.70 1206.4 1206.28 1204.7 1204.58 1196.1 1196.26

25+60 26+00 26+40 26+80 27+20 27+60 28+00 28+40 28+80 29+00

P.V.I. STA = 200+12.57
P.V.I. ELEV = 1221.50

LOW P.T. ELEV = 1220.15
LOW P.T. STA. = 200+74.58
P.V.I. STA. = 200+70
P.V.I. ELEV. = 1219.26
A.D. = 7.14%
K = 14.00
100.00' VC

PVC 260+20.09
ELEV-1221.21

EXISTING GROUND PROFILE (TYP.)

PROPOSED GRADE PROFILE (TYP.)

PVT 201+20.09
ELEV 1220.89
PMH-204
RIM. 1221.09, STA. ???
IE IN=1215.23 (W)
IE IN=1216.38 (N)
IE OUT=1215.23 (S)

3.25%

P.V.I. STA = 201+56.93
P.V.I. ELEV = 1222.08

15" STORM

51" SPAN PIPE-ARCH CULVERT

EXISTING GROUND PROFILE ELEV. (TYP.)

PROPOSED GRADE PROFILE ELEV. (TYP.)

1221.7 1221.2 1221.21 1220.4 1220.57 1220.2 1220.22 1220.2 1220.16 1220.5 1220.38 1220.9 1220.88 1221.5 1221.53 1222.2

199+80 200+00 200+40 200+80 201+20 201+60 202+00

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.

MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/27/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

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PLAN & PROFILE

SHEET NO. 25 OF 47 SHEETS

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LHB PROJECT NO. 240078

# STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE:

## CHAIN OF RESPONSIBILITY

THE CITY AND THE CONTRACTOR ARE CO-PERMITEES FOR THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUTION PERMIT. THE CONTRACTOR IS RESPONSIBLE TO COMPLY WITH ALL ASPECTS OF THE NPDES CONSTRUCTION PERMIT AT ALL TIMES UNTIL THE SITE HAS UNDERGONE FINAL STABILIZATION, AND A NOTICE OF TERMINATION (NOT) (PERMIT SECTIONS 4 AND 13) HAS BEEN SUBMITTED TO THE MPCA. THE CONTRACTOR WILL DEVELOP A CHAIN OF COMMAND WITH ALL OPERATORS ON THE SITE TO ENSURE THAT THE SWPPP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION PROJECT IS COMPLETE, AND THE (NOT) HAS BEEN FILED WITH THE MPCA. KEEP AND POST A COPY OF THE NOTIFICATION OF COVERAGE FROM THE MPCA AT THE SITE (PERMIT ITEM 3.6).

## EROSION PREVENTION PRACTICES (PERMIT SECTION 8)

1. DELINEATE LOCATIONS NOT TO BE DISTURBED BEFORE WORK BEGINS (PERMIT ITEM 8.2).
2. MINIMIZE DISTURBANCE OF STEEP SLOPES. USE TECHNIQUES SUCH AS PHASING, SLOPE DRAINS, TERRACING, AND OTHER STEEP SLOPE STABILIZATION BMP'S (PERMIT ITEM 8.3).
3. PROPERTY DESIGNED DITCH OR SWALES (WITH ROCK DITCH CHECKS, BIO ROLLS, ETC) USED FOR SEDIMENT CONTAINMENT SYSTEM DO NOT NEED STABILIZATION AND ONLY NEED APPROPRIATE SEDIMENT CONTROLS. STABILIZE WITHIN 24 HOUR AFTER USE (PERMIT ITEM 8.7 AND 9.4).
4. WHERE FEASIBLE ROUTE STORMWATER AROUND NON-STABILIZED AREAS.

## SEDIMENT CONTROL PRACTICES (PERMIT SECTION 9):

1. ESTABLISH SEDIMENT CONTROL BMPS ON ALL DOWNGRADIENT PERIMETERS THAT DRAIN TO ANY SURFACE WATER INCLUDING STORM CONVEYANCE SYSTEMS (PERMIT ITEM 9.2).
2. FLOATING SILT CURTAIN IS NOT A SEDIMENT CONTROL BMP EXCEPT WHEN WORKING ON THE SHORELINE OR BELOW WATERLINE (PERMIT ITEM 9.5)
3. SEDIMENT CONTROL BMP MAY BE REMOVED OR ADJUSTED FOR SHORT-TERM ACTIVITIES (SUCH AS CLEARING, GRUBBING, VEHICLE PASSAGE, ECT.) BUT MUST BE REINSTALLED (PERMIT ITEM 9.6):
   - 3.1. IMMEDIATELY AFTER SHORT-TERM ACTIVITY IS COMPLETED.
   - 3.2. BEFORE NEXT PRECIPITATION EVENT EVEN IF SHORT-TERM ACTIVITY IS NOT COMPLETE.
4. INLET PROTECTION MAY BE REMOVED FROM AN INLET IF A SPECIFIC SAFETY CONCERN IS IDENTIFIED. DOCUMENT THIS EVENT IN THE SWPPP (PERMIT ITEM 9.8)
5. PROVIDE EFFECTIVE SEDIMENT CONTROLS AT THE BASE OF STOCKPILES (PERMIT ITEM 9.9). LOCATE STOCKPILES OUTSIDE OF NATURAL BUFFERS, SURFACE WATERS, AND STORMWATER CONVEYANCES (PERMIT ITEM 9.10).
6. INSTALL TEMPORARY SEDIMENT BASINS AS REQUIRED IN PERMIT SECTION 14 (PERMIT ITEM 9.13).
7. RESTRICT VEHICLE AND EQUIPMENT USE ON AREAS WHERE VEGETATION WILL BE REESTABLISHED TO REDUCE SOIL COMPACTION. USE SUBSOILING (MNDOT SPEC 2574.3.A.4) TO RESTORE HAUL ROADS AND OTHER AREAS THAT WERE COMPACTED DURING CONSTRUCTION (PERMIT ITEM 9.14).
8. PRESERVE TOPSOIL ON SITE, UNLESS INFEASIBLE (PERMIT ITEM 9.15).
9. DISCHARGE BMPS TO VEGETATED AREAS UNLESS INFEASIBLE (PERMIT ITEM 9.16).
10. PRESERVE 50-FEET NATURAL BUFFER (100-FEET FOR SPECIAL WATERS) FROM SURFACE WATERS PERMIT (ITEMS 9.17 AND 23.11). WHERE INFEASIBLE PROVIDE REDUNDANT PERIMETER SEDIMENT CONTROLS (INSTALL AT LEAST 5 FEET APART).
11. STABILIZE ANY SEDIMENT CONTROL MADE OF SOIL WITHIN 24 HOURS (PERMIT ITEM 9.18).
12. USE ACCEPTED ENGINEERING PRACTICES WHEN USIGN POLYMERS, FLOCCULANTS, OR OTHER SEDIMENATION TREATMENT CHEMICALS. USE DOSING SPECIFICATIONS AND SEDIMENT REMOVAL DESIGN SPECIFICATION PROVIDED BY THE MANUFACTURER OR SUPPLIER. USE CONVENTIONAL EROSION AND SEDIMENT CONTROLS PRIOR TO CHEMICAL ADDITION AND DIRECT TREATED STORMWATER TO A SEDIMENT CONTROL SYSTEM FOR FILTRATION OR SETTLEMENT OF THE FLOC PRIOR TO DISCHARGE (PERMIT ITEM 9.19).

## DEWATERING AND BASIN DRAINING (PERMIT SECTION 10):

1. DURING DEWATERING DO NOT CAUSE NUISANCE CONDITIONS. CEASE DEWATERING IMMEDIATELY IF NUISANCE CONDITIONS OCCURE. NUISANCE CONDITIONS INCLUDE BUT ARE ON LIMITED TO (PERMIT ITEM 10.3):
   - 1.1. SEDIMENT PLUMES
   - 1.2. DISCHARGE APPEARS CLOUDY OR OPAQUE
   - 1.3. VISIBLE OIL FILM
   - 1.4. AQUATIC HABITAT DEGRADATION
2. DISCHARGE TURBID OR SEDIMENT-LADEN WATER TO SEDIMENT TRAP, SEDIMENT BASIN, FILTER BAG, OR OTHER SEDIMENT CONTROL. TO THE EXTENT FEASIBLE DISCHARGE TO WELL VEGETATED UPLAND AREA (PERMIT ITEM 10.2).
3. PERMITTEES ARE PROHIBITED FROM USING RECEIVING WATER AS PART OF THE TREATMENT AREA (PERMIT ITEM 10.2).
4. USE AN OIL-WATER SEPARATOR OR SUITABLE FILTRATION DEVICE FOR WATER CONTAINING OIL OR GREASE (PERMIT ITEM 10.4).
5. DISCHARGE WATER IN A MANNER THAT DOES NOT CAUSES EROSION OR SCOUR OR INUNDATION OF WETLANDS IN THE IMMEDIATE VICINITY OF DISCHARGE POINT (PERMIT ITEM 10.5).
6. IF FILTERS WITH BACKWASH WATER ARE USED, HAUL BACKWASH WATER AWAY FOR DISPOSAL, RETURN THE BACKWASH WATER TO THE BEGINNING OF THE TREATMENT PROCESS, OR INCORPORATE THE BACKWASH WATER INTO THE SITE IN A MANOR THAT DOES NOT CAUSE EROSION (PERMIT ITEM 10.6).

## POLLUTION PREVENTION MANAGEMENT MEASURE (PERMIT SECTION 12):

1. PLACE CONSTRUCTION MATERIALS THAT ARE A SOURCE CONTAMINATION UNDER COVER PROTECTING THEM FROM STORMWATER (PERMIT ITEM 12.2). THESE MATERIALS INCLUDE BUT ARE NOT LIMITED TO (PERMIT ITEMS 12.2 AND 12.3):
   - 1.1. PESTICIDES
   - 1.2. FERTILIZERS
   - 1.3. TREATMENT CHEMICALS
2. STORE HAZARDOUS MATERIALS AND WASTE IN SEALED CONTAINERS TO PREVENT SPILLS, LEAKS, AND OTHER DISCHARGE, INCLUDE SECONDARY CONTAINMENT AS APPLICABLE. TAKE REASONABLE STEPS TO PREVENT DISCHARGE AND SPILLS. THESE PRODUCES INCLUDING (PERMIT ITEMS 12.4, 12.5, AND 12.7):
   - 2.1. OIL
   - 2.2. DIESEL FUEL, GASOLINE, AND OTHER PETROLEUM PRODUCTS
   - 2.3. HYDRAULIC FLUIDS
   - 2.4. PAINTS AND SOLVENTS
   - 2.5. WOOD PRESERVATIVES
   - 2.6. CURING COMPOUNDS
   - 2.7. ACIDS
3. STORE COLLECT AND DISPOSE OF SOLID WASTE IN COMPLIANCE WITH MINN. R. CH. 7035 (PERMIT ITEM 12.5).
4. POSITION PORTABLE TOILETS AND SECURE TO PREVENT BEING KNOCKED OVER.
5. LIMIT VEHICLE EXTERIOR AND EQUIPMENT WASHING TO A DEFINED AREA. DISPOSE WASTE FROM WASHING PROPERLY (PERMIT ITEM 12.8).
6. PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OPERATIONS FROM (PERMIT ITEM 12.9).
   - 6.1. CONCRETE, STUCCO, AND GROUT
   - 6.2. PAINT
   - 6.3. FORM RELEASE OIL
   - 6.4. CURING COMPOUND
   - 6.5. ANY OTHER CONSTRUCTION MATERIALS
7. ENGINE DEGREASING PROHIBITED ONSITE

## SITE INSPECTION AND MAINTENANCE (PERMIT SECTION 11):

INSPECT THE ENTIRE CONSTRUCTION SITE AT A MINIMUM (PERMIT ITEM 11.2):

1. ONCE EVERY 7 DAYS
2. WITHIN 24 HOURS OF A RAINFALL GREATER THAN 0.5 INCH IN 24 HOURS
3. ONCE EVERY 24 HOUR FOR DEWATERING OPERATIONS (INCLUDES PHOTOGRAPH)

RECORD ALL INSPECTIONS AND MAINTENANCE IN WRITING AND SUBMIT TO THE CITY. INCLUDE THE FOLLOWING AT A MINIMUM (PERMIT ITEM 11.12):

1. DATE AND TIME OF INSPECTION
2. NAME OF INSPECTOR
3. REASON FOR INSPECTION
4. FINDINGS OF INSPECTION
5. CORRECTIVE ACTIONS NEEDED AND TAKEN, INCLUDING DATES, TIME, PERSON COMPLETING ACTION, DOCUMENT DISCHARGES
6. DOCUMENTED CHANGES TO THE SWPPP
7. PHOTOGRAPHS

INSPECT ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMPS AND STORMWATER TREATMENT. REPAIR, REPLACE, CLEAN, OR SUPPLEMENT NONFUNCTIONAL BMPS BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY UNLESS NOTED BELOW (PERMIT ITEM 11.3 AND 11.4).

1. SITE VEHICLE EXIT LOCATION, STREETS, AND CURB AND GUTTER SYSTEMS (PERMIT ITEM 11.6)
   - 1.1. REMOVE SEDIMENT FROM PAVED SURFACES WITHIN ONE CALENDAR DAY
   - 1.2. REMOVE SEDIMENT AS SOON AS POSSIBLE IF DEEMED A SAFETY HAZARD
2. PERIMETER CONTROL DEVICES (PERMIT ITEM 11.7)
   - 2.1. SUPPLEMENT, CLEAN, OR REPLACE WHEN THE DEPTH OF SEDIMENT REACHES HALF THE STORAGE VOLUME
3. TEMPORARY AND PERMANENT SEDIMENTATION BASINS (PERMIT ITEM 11.8)
   - 3.1. DRAIN AND REMOVE SEDIMENT WHEN DEPTH OF SEDIMENT REACHES 0.5 THE STORAGE VOLUME
4. DEWATERING OPERATIONS (PERMIT ITEM 10.2 AND 11.9)
   - 4.1. INSPECT AND PHOTOGRAPH AT LEAST AT THE BEGINNING OF OPERATION AND ONCE EVERY 24 HOURS DURING OPERATION

INSPECT AREAS ADJACENT TO THE PROJECT. IF SEDIMENT DEPOSITED ARE DISCOVERED REMOVE DEPOSITED WITHIN 7 DAYS AS REQUIRE IN PERMIT ITEM 11.5. AT A MINIMUM INSPECT:

1. SURFACE WATER
2. DRAINAGE DITCHES
3. CONVEYANCE SYSTEMS

INSPECTION SCHEDULE MAY BE ADJUSTED AS OUTLINED IN PERMIT ITEM 11.11 WHEN APPROVED BY CITY.

## AMENDMENT TO SWPPP (PERMIT SECTION 6):

1. THE SWPPP CAN ONLY BE AMENDED BY A QUALIFIED INDIVIDUAL. INDIVIDUAL'S NAME AND QUALIFICATION SHALL BE RECORDED IN THE SWPPP. DOCUMENT AMENDMENTS TO THE SWPPP AND KEEP ON SITE (PERMIT ITEM 6.2).
2. THE SWPPP MUST BE AMENDED, WITHIN 7 DAYS, WHEN:
   - 2.1. THERE IS A CHANGE THAT HAS A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO SURFACE OR GROUND WATERS CAUSED BY (PERMIT ITEM 6.3 AND 6.4):
     - 2.1.1. DESIGN
     - 2.1.2. CONSTRUCTION OPERATION AND MAINTENANCE
     - 2.1.3. WEATHER OR SEASONAL CONDITIONS
     - 2.1.4. BMP'S ARE NOT EFFECTIVE (PERMIT ITEM 9.3)
     - 2.1.5. SITE IS CAUSING NUISANCE CONDITIONS
     - 2.1.6. NOT MEETING THE OBJECTIVES OF AN APPROVED TMDL

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.

MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/12/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

SWPPP NARRATIVE

SHEET NO. 26 OF 47 SHEETS

PLOT DATE: 1/9/2026 10:31:09 AM FILE: Q:\24Proj\240078\500 Drawings\Civil\240078 09.0 SWPPP Narrative.dwg

LHB PROJECT NO. 240078

# STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CONTINUED):

## BMP INSTALLATION TIMING (PERMIT ITEM 5.4):

1. INITIATE STABILIZATION IMMEDIATELY WHEN CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY CEASED IN A PORTION OF THE PROJECT.
   - 1.1. COMPLETE STABILIZATION WITH IN 14 DAYS (7 OF SPECIAL OR IMPAIRED WATERS) (PERMIT ITEM 8.4)
   - 1.2. STABILIZE THE NORMAL WETTER PERIMETER OF THE LAST 200 LIN FT OF TEMPORARY OR PERMANENT DITCHES OR SWALES WITH 24 HOURS (PERMIT ITEM 8.6). DO NOT USE MULCH, HYDROMULCH, TACKIFIER, POLYACRYLAMIDE OR SIMILAR BMP ON DITCH SLOPES GREATER THEN 2% (PERMIT ITEM 8.7)
   - 1.3. PROVIDE TEMPORARY OF PERMANENT ENERGY DISSIPATION AT ALL PIPE OUTLETS WITH 24 HOUR (PERMIT ITEM 8.8).
2. STABILIZE ALL AREAS OF THE SITE PRIOR TO THE ONSET OF WINTER. ANY WORK STILL BEING PERFORMED WILL BE SNOW MULCHED, SEEDED, AND BLANKETED WITHIN THE TIME FRAMES IN THE NPDES PERMIT.
3. TEMPORARY SEED SHALL BE:
   - 3.1. SINGLE YEAR CONSTRUCTION BETWEEN MAY–1 – AUGUST 1, USE SEED MIX 21–111.
   - 3.2. SINGLE YEAR CONSTRUCTION BETWEEN AUGUST 1 – OCTOBER 31, USE SEED MIX 21–112
   - 3.3. MULTI YEAR CONSTRUCTION 22–111
4. TIMING FOR INSTALLATION OF EROSION & SEDIMENTATION BMPS AND PERMANENT STORWATER MANAGEMENT SYSTEMS, IN GENERAL SEQUENTIAL ORDER:
   - 4.1. INSTALL PRIOR TO CONSTRUCTION:
     - 4.1.1. INLET PROTECTION FOR EXISTING INLETS (PERMIT ITEM 9.7)
     - 4.1.2. SILT FENCE OR OTHER PERIMETER CONTROL BMPS (PERMIT ITEM 9.2)
     - 4.1.3. DELINEATION AREAS NOT TO BE DISTURBED (PERMIT ITEM 8.2)
     - 4.1.4. ROCK CONSTRUCTION ENTRANCE (PERMIT ITEM 9.11)
     - 4.1.5. FUELING AND OTHER HAZARDOUS MATERIALS CONTAINMENT AREA (PERMIT ITEM 12.4 AND 12.7)
   - 4.2. DURING CONSTRUCTION:
     - 4.2.1. SILT FENCE OR BIOROLL AROUND STOCKPILES (PERMIT ITEM 9.9)
     - 4.2.2. CONTAINMENT FOR LIQUID AND SOLID WASTES (PERMIT ITEM 12.9)
     - 4.2.3. TREATMENT SYSTEMS FOR DEWATERING OPERATIONS (PERMIT SECTION 10)
     - 4.2.4. INLET PROTECTION FOR NEW INLETS (PERMIT ITEM 9.7)
     - 4.2.5. STREET SWEEPING TO REMOVE TRACKING FROM PAVED SURFACES (PERMIT ITEM 9.12)
     - 4.2.6. USE RAPID STABILIZATION TYPE 3 WHEN NEEDED
   - 4.3. AFTER STABILIZATION (70% UNIFORM PERENNIAL VEGETATION) (PERMIT ITEM 13.2):
     - 4.3.1. CLEAN PERMANENT STORMWATER TREATMENT AND CONVEYANCE SYSTEMS (PERMIT ITEM 13.3 AND 13.4)
     - 4.3.2. REMOVE ALL SYNTHETIC TEMPORARY BMP'S (PERMIT ITEM 13.5)

## LAND FEATURE CHANGES (PERMIT ITEM 5.8):

| | |
|---|---|
| TOTAL DISTURBED AREA | 3.36 ACRES |
| TOTAL EXISTING IMPERVIOUS SURFACE AREA | 0.80 ACRES |
| TOTAL PROPOSED IMPERVIOUS SURFACE AREA | 0.83 ACRES |
| TOTAL PROPOSED NET CHANGE IN IMPERVIOUS SURFACE AREA | 0.03 ACRES |

## ENVIRONMENTAL REVIEW (PERMIT ITEM 5.16)

1. MITIGATION MEASURES DUE TO REVIEW: THERE ARE NO STORMWATER MITIGATION MEASURES REQUIRED AS A RESULT OF AN ENVIRONMENT, ARCHEOLOGICAL, OR AGENCY REVIEW.
2. WELL HEAD PROTECTION AREA: THIS PROJECT IS NOT LOCATED IN A WELL HEAD PROTECTION AREA.
3. DRINKING WATER SUPPLY MANAGEMENT AREA: THIS PROJECT IS NOT LOCATED IN A DRINKING WATER SUPPLY MANAGEMENT AREA (DWSMA).

## PROJECT DESCRIPTION/LOCATION:

1. PROJECT LOCATION: THE PROJECT IS LOCATED ON PALM STREET AND BLACKMAN AVE.
2. DESCRIPTION OF PROJECT: THE PROJECT CONSISTS OF PERMANENT STORM WATER TREATMENT, FLOOD MITIGATION, SMARTPOND TECHNOLOGY, STORM SEWER, GRADING, BITUMINOUS SURFACING, CONCRETE WALK, PERIMETER FENCING, AND RETAINING WALLS.
3. PLANNED SOIL DISTURBANCE ACTIVITIES: EXCAVATION, CONSTRUCTION OF EMBANKMENTS, STORM SEWER, RETAINING WALLS, CONCRETE WALK, AND GRADING.

## PERSON KNOWLEDGEABLE/TRAINED INDIVIDUALS (PERMIT ITEMS 5.20 & 21.2):

1. PERSON PREPARED THE SWPPP:

   NAME: ZACH JOHNSON

   TRAINING DATE/TRAINER: CERTIFICATION 01–16–2025 (EXPIRES 01–16–2028)/STORMWATER ONCE

   TRAINING CONTENT/HOURS: DESIGN OF CONSTRUCTION SWPPP/16 HOUR

2. CONTRACTOR OVERSEEING IMPLEMENTATION, INSPECTIONS, AND AMENDING THE SWPPP:

   NAME: _____

   TRAINING DATE/TRAINER _____

   TRAINING CONTENT/HOURS _____

3. CONTRACTOR CERTIFIED EROSION CONTROL INSTALLER:

   NAME: _____

   TRAINING DATE/TRAINER _____

   TRAINING CONTENT/HOURS _____

## LONG TERM MAINTENANCE AND OPERATION (PERMIT ITEM 5.23)

CONTACT INFORMATION: THE CITY OF DULUTH ENGINEERING DEPARTMENT WILL BE THE LONG TERM OWNER, OPERATOR, AND WILL MAINTAIN THE PERMANENT STORM WATER SYSTEM.

## SOIL TYPES AND STORM WATER RUNOFF

1. THE SOIL TYPICALLY FOUND ON THE PROJECT IS: SOIL TYPE: SM, SP–SM, SC, ML, GP, SP, & CL. SEE GEOTECH REPORT FOR MORE INFORMATION.
2. AREAS THAT DRAIN TO THE SITE: SEE SITE MAP ON PAGE 28.
3. STORM FREQUENCY AND INTENSITY: WHERE STREAM DIVERSION IS REQUIRED FOR STORM SEWER OR CULVERT REPLACEMENT, STORM FREQUENCY AND INTENSITY WILL BE SUMMARIZED ON THE PLAN SHEETS.

## INFEASIBLE REQUIREMENTS DETERMINATIONS (PERMIT ITEM 5.13):

1. TEMPORARY SEDIMENT BASINS (PERMIT SECTION 14): N/A
2. PERMANENT STORMWATER TREATMENT FOR LINEAR PROJECTS (PERMIT ITEM 15.9): N/A
3. BUFFER ZONES (PERMIT ITEM 9.17 AND 23.11): N/A
4. VOLUME REDUCTION REQUIREMENT (PERMIT ITEM 15.5): N/A

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MEGAN GOPLIN
PRINTED NAME

SIGNATURE

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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

SWPPP NARRATIVE

SHEET NO. 27 OF 47 SHEETS

PLOT DATE: 1/9/2026 10:31:23 AM FILE: Q:\24Proj\240078\500 Drawings\Civil\240078 09.0 SWPPP Narrative.dwg

LHB PROJECT NO. 240078

## STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CONTINUED):

### SUMMARY OF RECEIVING WATER WITHIN 1-MILE RADIUS OF PROJECT (PERMIT ITEM 5.19 & 23.7):

| | RECEIVING WATER | LOCATION DRAINED | SPECIAL WATER | IMPAIRED WATER | TMDL | TROUT |
|---|---|---|---|---|---|---|
| (1) | BREWERY CREEK | ENTIRE PROJECT | NO | NO | NO | NO |
| | | | | | | |
| | | | | | | |
| | | | | | | |

(A) CONSTRUCTION RELATED IMPAIRMENT, (B) NON-CONSTRUCTION RELATED IMPAIRMENT.

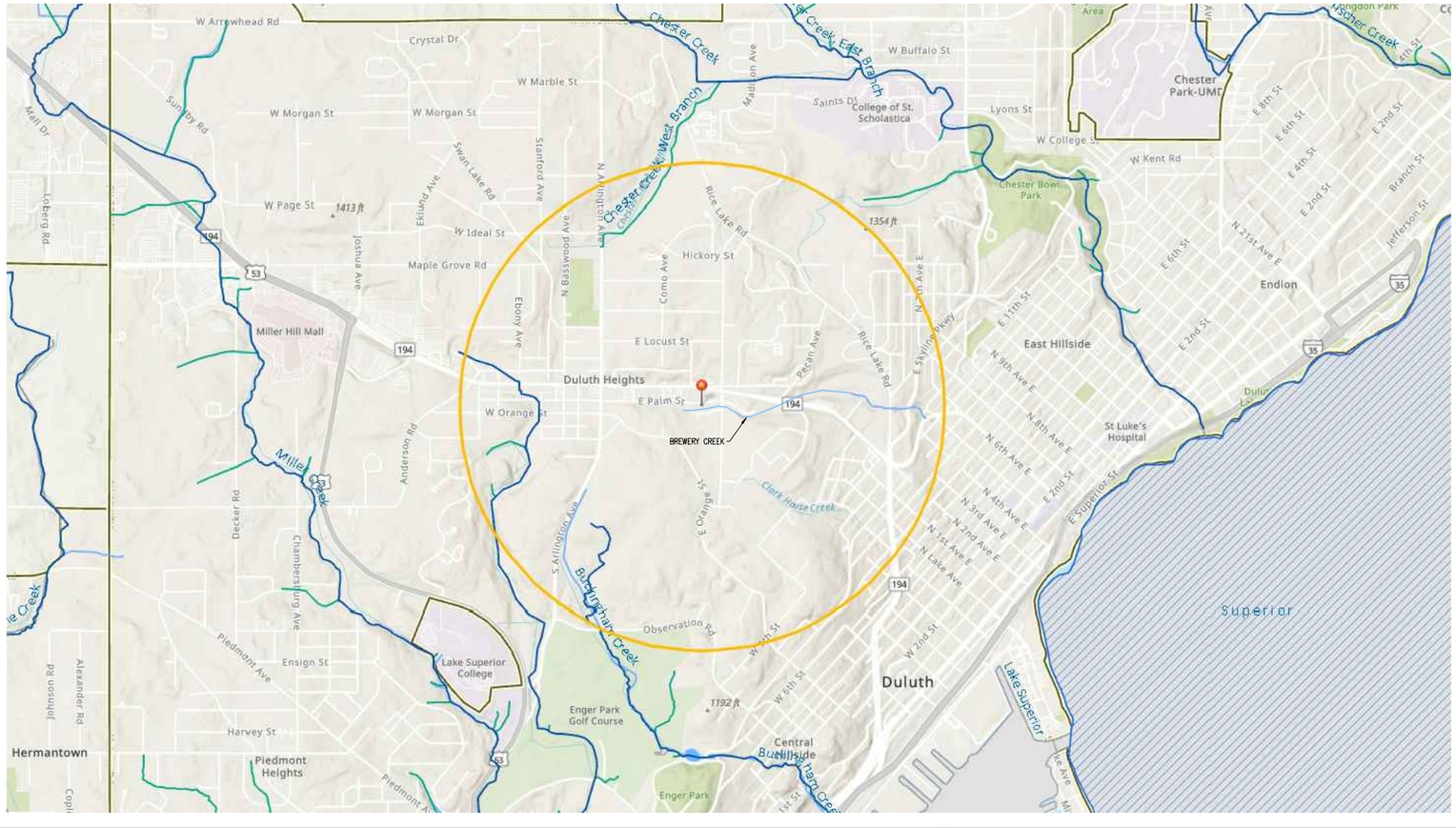
### LOCATION OF SWPPP REQUIRE IN PROJECT PLAN:

| DESCRIPTION | LOCATION |
|---|---|
| TEMPORARY AND PERMANENT BMPS (PERMIT ITEM 5.5) | SHEETS NO. 29-31 |
| EROSION AND SEDIMENT CONTROL DETAIL (PERMIT ITEM 5.5) | SHEETS NO. 29-31 |
| TABULATIONS (PERMIT ITEM 5.7) | SHEETS NO. 7 |
| EXISTING AND FINAL GRADES, FLOW ARROWS, AREAS OF STEEP SLOPES (PERMIT ITEM 5.9) | SHEETS NO. 29-31 |
| DRAINAGE AREAS, DISCHARGE POINTS, AREAS OF RUNOFF ENTERING SITE (PERMIT ITEM 5.9) | SHEETS NO. 26-31 |
| DNR "WORK IN WATER RESTRICTIONS", BUFFER ZONES (PERMIT ITEM 5.11, 5.12) | SHEETS NO. 26-31 |

### PROJECT CONTACTS

| ORGANIZATION | CONTACT NAME | PHONE |
|---|---|---|
| MPCA - EMERGENCY RELEASE NOTIFICATION | DUTY OFFICER | 651-649-5451 OR 800-422-0798 |
| DULUTH - COMPLIANCE INSPECTOR | DAVE COOK | 218-606-3884 |
| DULUTH - MS4 COORDINATOR | RYAN GRANLUND | 218-576-3289 |
| DULUTH - SWPPP COORDINATOR | RYAN GRANLUND | 218-576-3289 |
| MNDNR - AREA HYDROLOGIST | BRI SPELDRICH | 218-302-3246 |
| SWCD - WCA LGU | ANDY KASUN | 218-723-4867 |
| BWSR - WCA | DAVID DEMMER | 218-464-8289 |
| MPCA - COMPLIANCE INSPECTOR | JIM DEXTER | 218-302-6632 |

### MAP OF SURFACE WATERS, WETLANDS, EXISTING PONDS WITHIN ONE MILE OF PROJECT (PERMIT ITEM 5.10):




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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

SWPPP NARRATIVE

SHEET NO. 28 OF 47 SHEETS

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LHB PROJECT NO. 240078

## LEGEND

- STORM DRAIN INLET PROTECTION
- CULVERT END CONTROL
- SILT FENCE, TYPE HI
- TURF SOD (REFER TO LANDSCAPE PLANS FOR DETAILS AND ADDITIONAL PLANTING AREAS)
- RANDOM RIPRAP CLASS II
- SURFACE FLOW DIRECTION (EXISTING)
- SURFACE FLOW DIRECTION (PROPSED)
- NORTHEAST ROADSIDE SEED MIX
- ARTICULATED BLOCK MAT

GENERAL NOTE:
SEE LANDSCAPE PLANS FOR PLANTING ZONES.

REFER TO SHEET 17 FOR CONTINUATION OF DITCH

PALM ST

AP 11
AP 2
AP 1
PCB 200B
PCB 200A
PCB 103
PCB 105
PMH 100
PMH 200
PMH 102
PMH 201
PMH 202
SS 199
ICB S20640009

1220 1221 1219 1222 1224 1223 1225 1230 1218 1217 1215 1210 1207

N

0 10' 20' 40'

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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

SWPPP

SHEET NO. 29 OF 47 SHEETS

LHB PROJECT NO. 240078

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## LEGEND

- STORM DRAIN INLET PROTECTION
- CULVERT END CONTROL
- SILT FENCE, TYPE HI
- TURF SOD (REFER TO LANDSCAPE PLANS FOR DETAILS AND ADDITIONAL PLANTING AREAS)
- RANDOM RIPRAP CLASS II
- SURFACE FLOW DIRECTION (EXISTING)
- SURFACE FLOW DIRECTION (PROPSED)
- NORTHEAST ROADSIDE SEED MIX

PALM ST

CLEARWOOD DRIVE

BLACKMAN AVE

PCB 103
PMH 202
PCB 105
PMH 104
PCB 203A
PMH 203
PMH 204
SS 107
PMH 205B
PCB 205
PCB 205A
PCB 206
PMH 109
AP 5
AP 13
AP 12
AP 6
AP 7
AP 8

1222 1215 1210 1207 1220 1221 1223 1224

OH FIBER (1)

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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

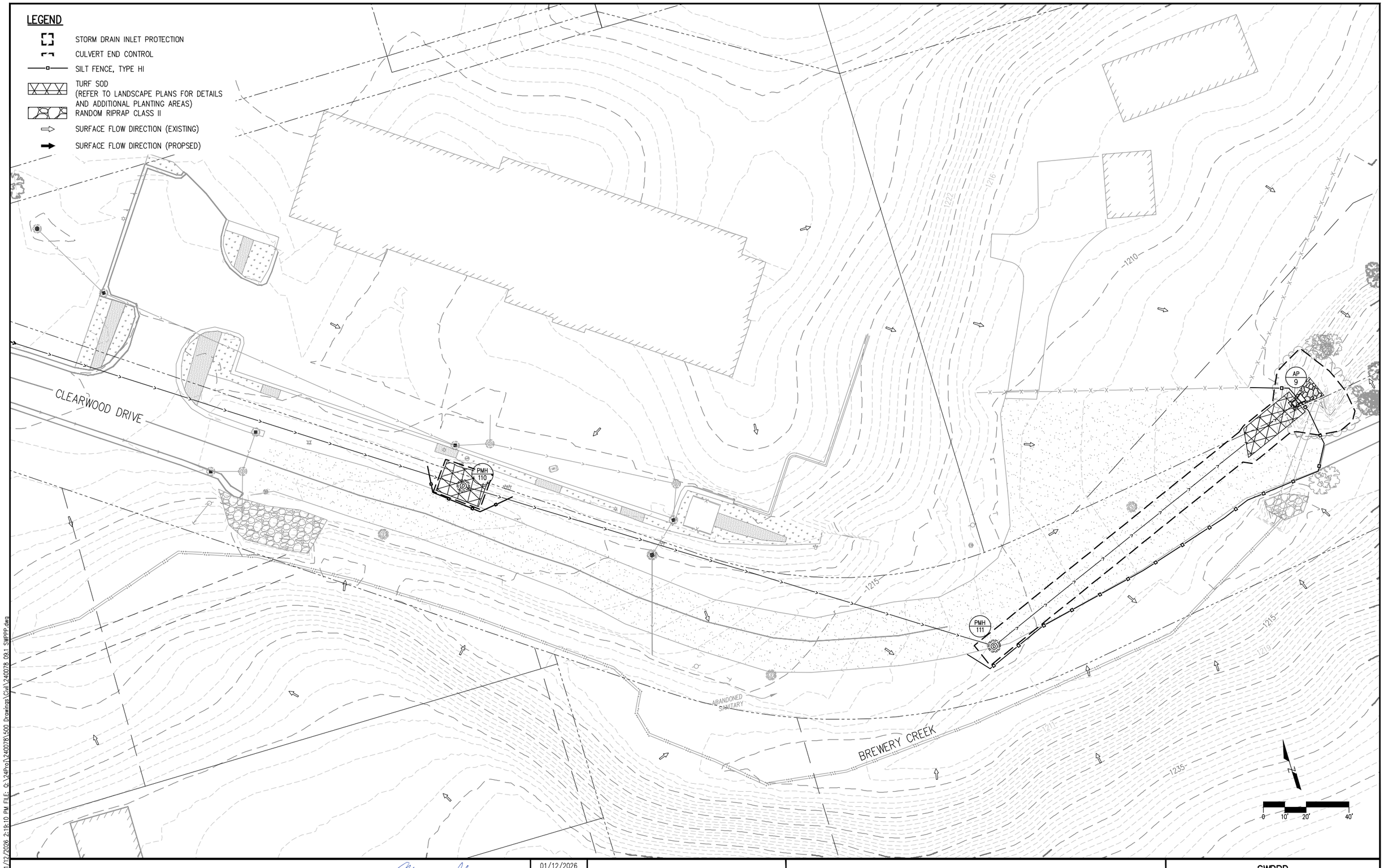
SWPPP

SHEET NO. 30 OF 47 SHEETS

LHB PROJECT NO. 240078

## LEGEND

- STORM DRAIN INLET PROTECTION
- CULVERT END CONTROL
- SILT FENCE, TYPE HI
- TURF SOD (REFER TO LANDSCAPE PLANS FOR DETAILS AND ADDITIONAL PLANTING AREAS)
- RANDOM RIPRAP CLASS II
- SURFACE FLOW DIRECTION (EXISTING)
- SURFACE FLOW DIRECTION (PROPSED)




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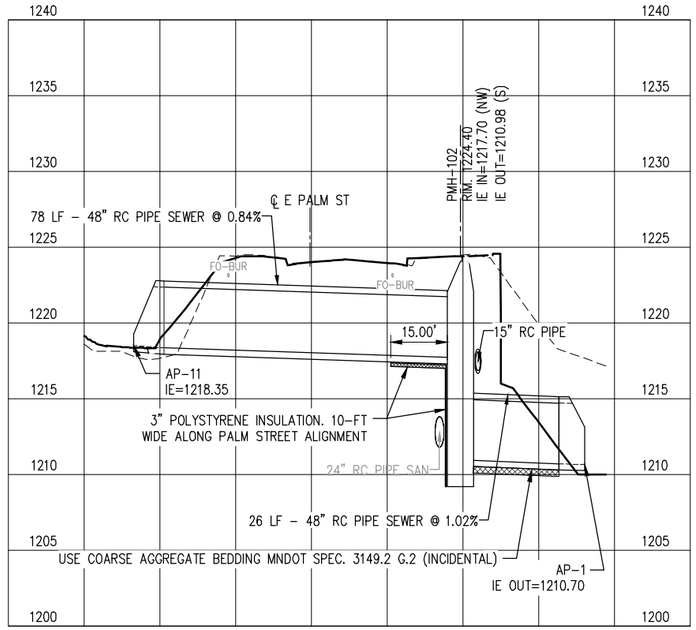
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

SWPPP

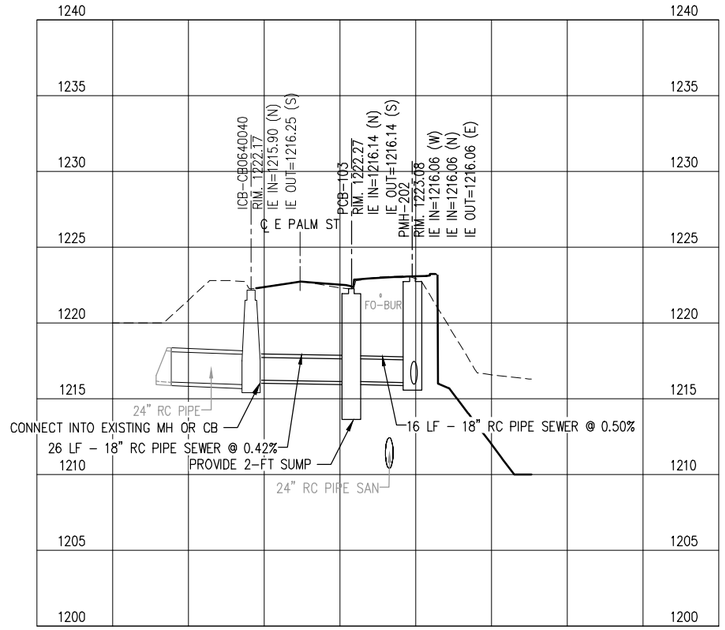
SHEET NO. 31 OF 47 SHEETS

LHB PROJECT NO. 240078

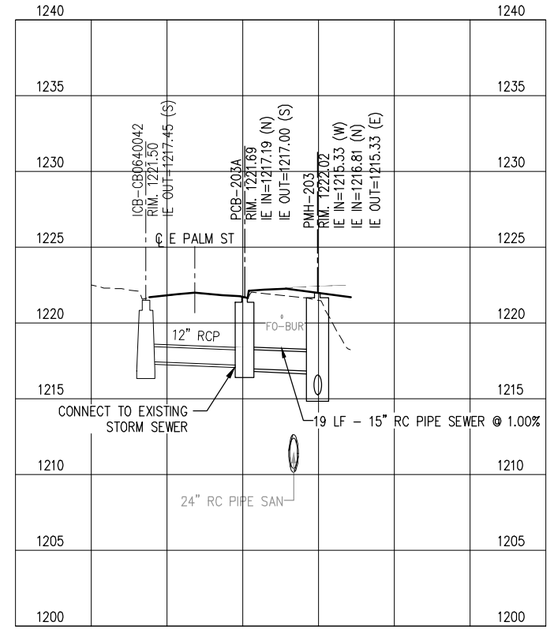
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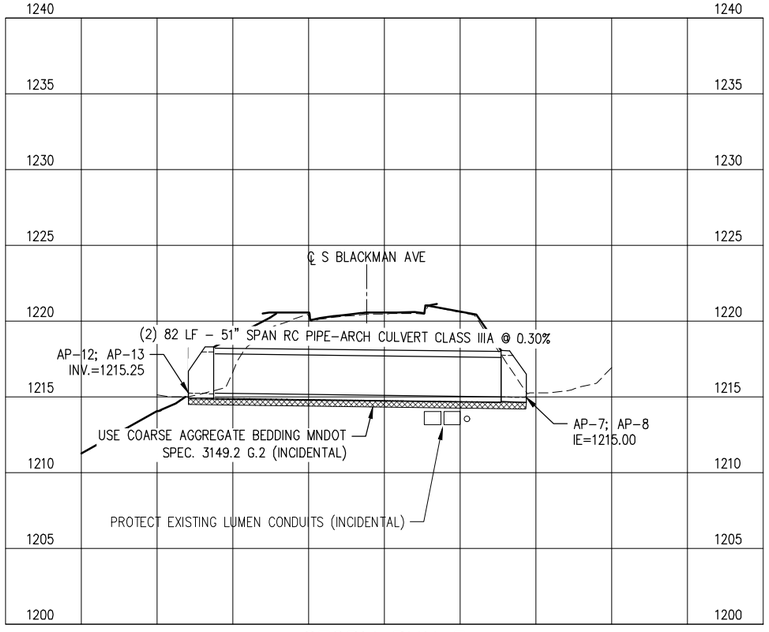

STORM RUN A



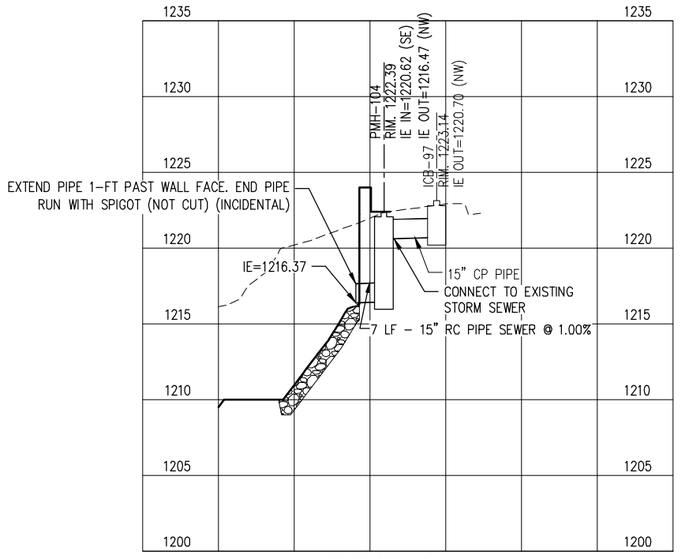

STORM RUN B



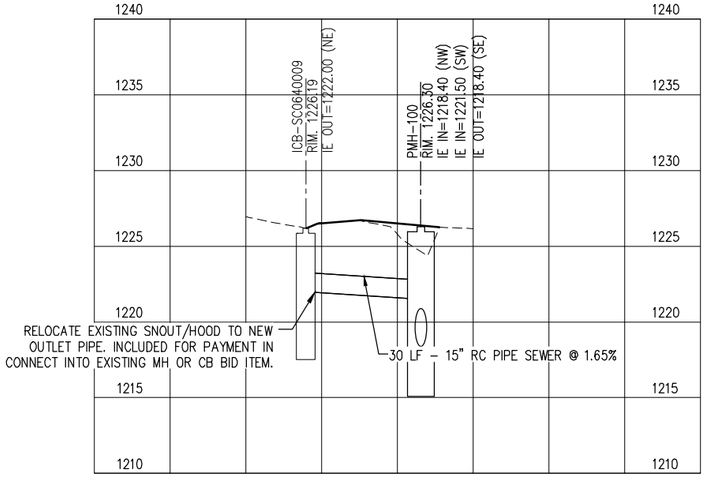

STORM RUN C




STORM RUN E




STORM RUN F




STORM RUN G

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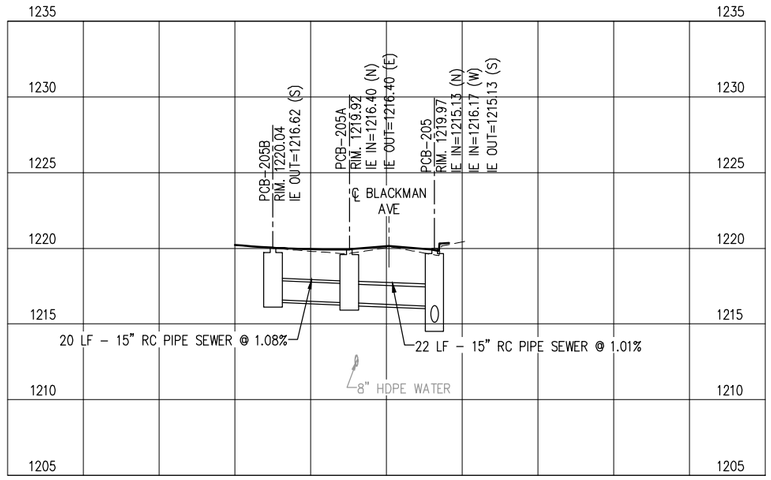
CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

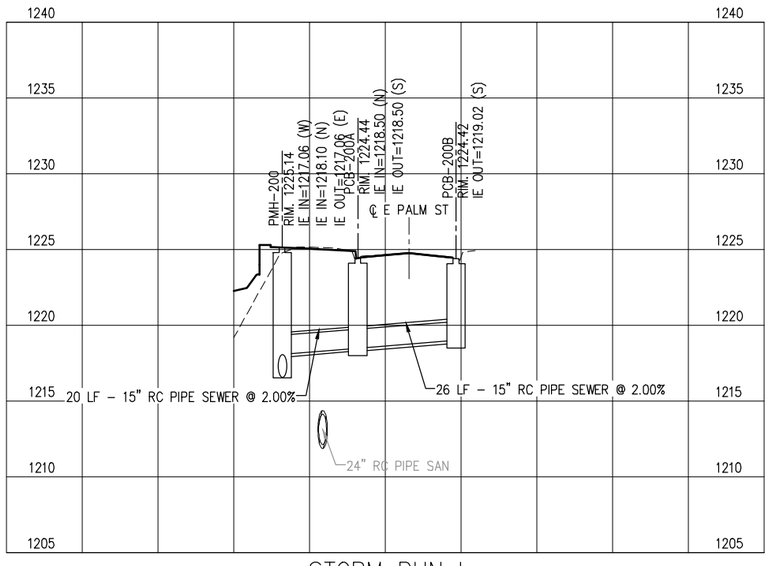
STORM PROFILES

SHEET NO. 32 OF 47 SHEETS

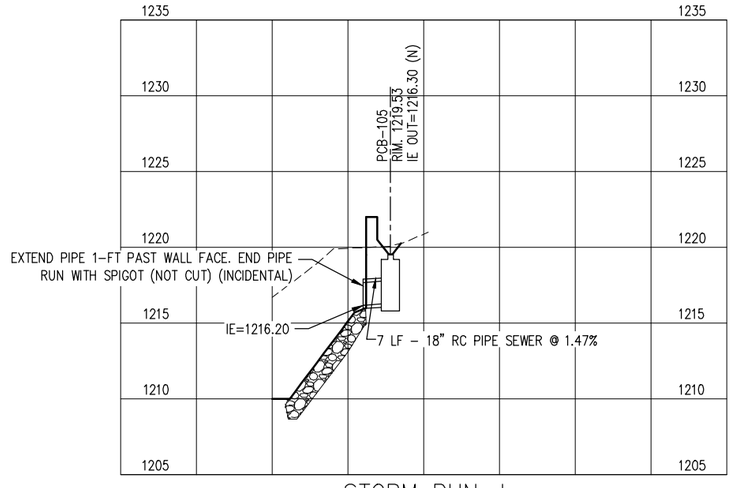
LHB PROJECT NO. 240078




STORM RUN H




STORM RUN I




STORM RUN J

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MEGAN GOPLIN
PRINTED NAME

Megan Goplin
SIGNATURE

01/12/2026
DATE

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LIC. NO.

CITY PROJECT NO. 2208

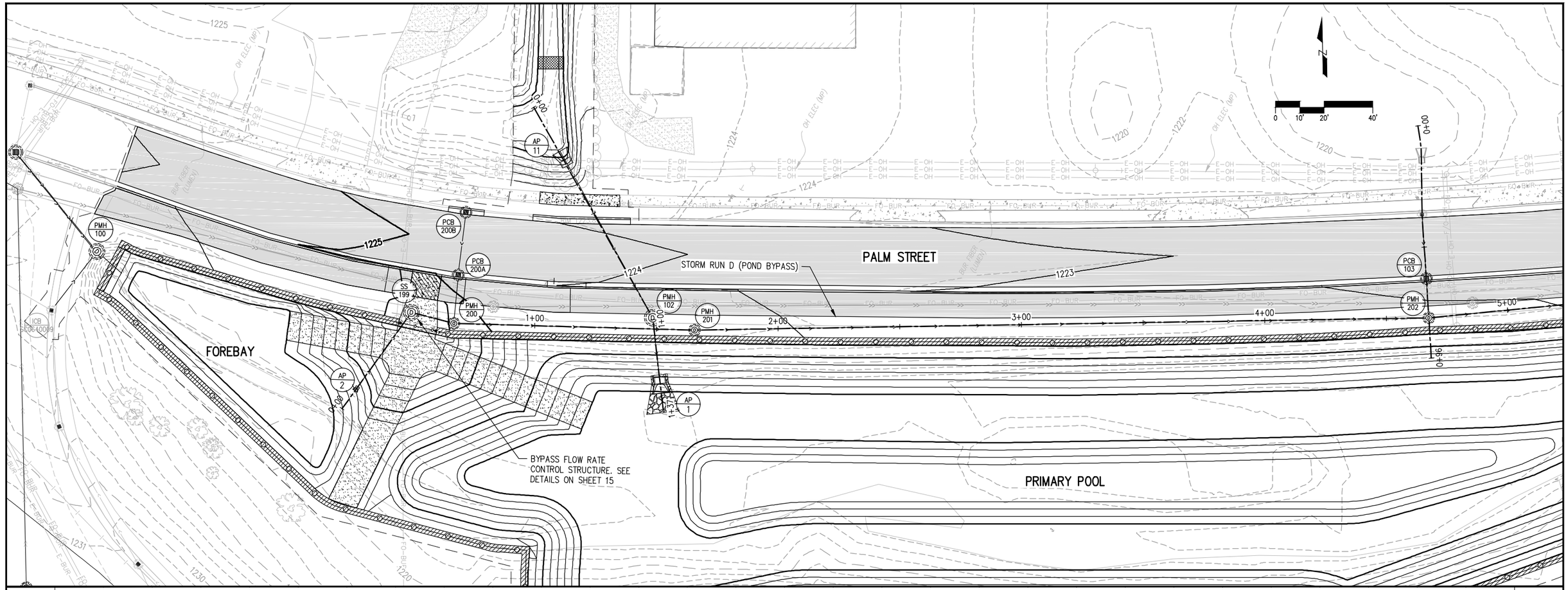
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

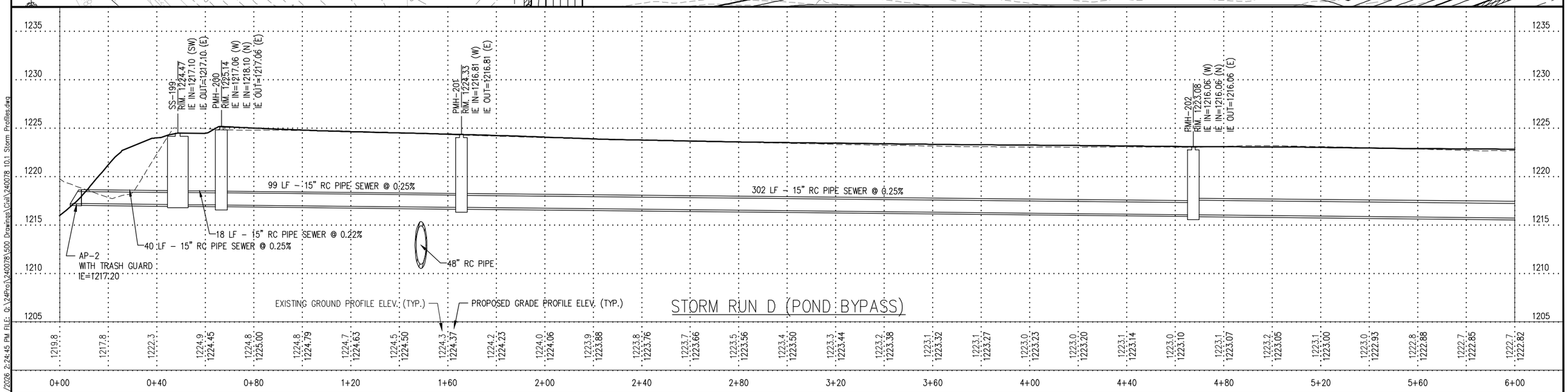
STORM PROFILES

SHEET NO. 33 OF 47 SHEETS

LHB PROJECT NO. 240078

PLOT DATE: 1/9/2026 1:00:26 PM FILE: Q:\24Proj\240078\500 Drawings\Civil\240078 10.0 Storm Profiles.dwg




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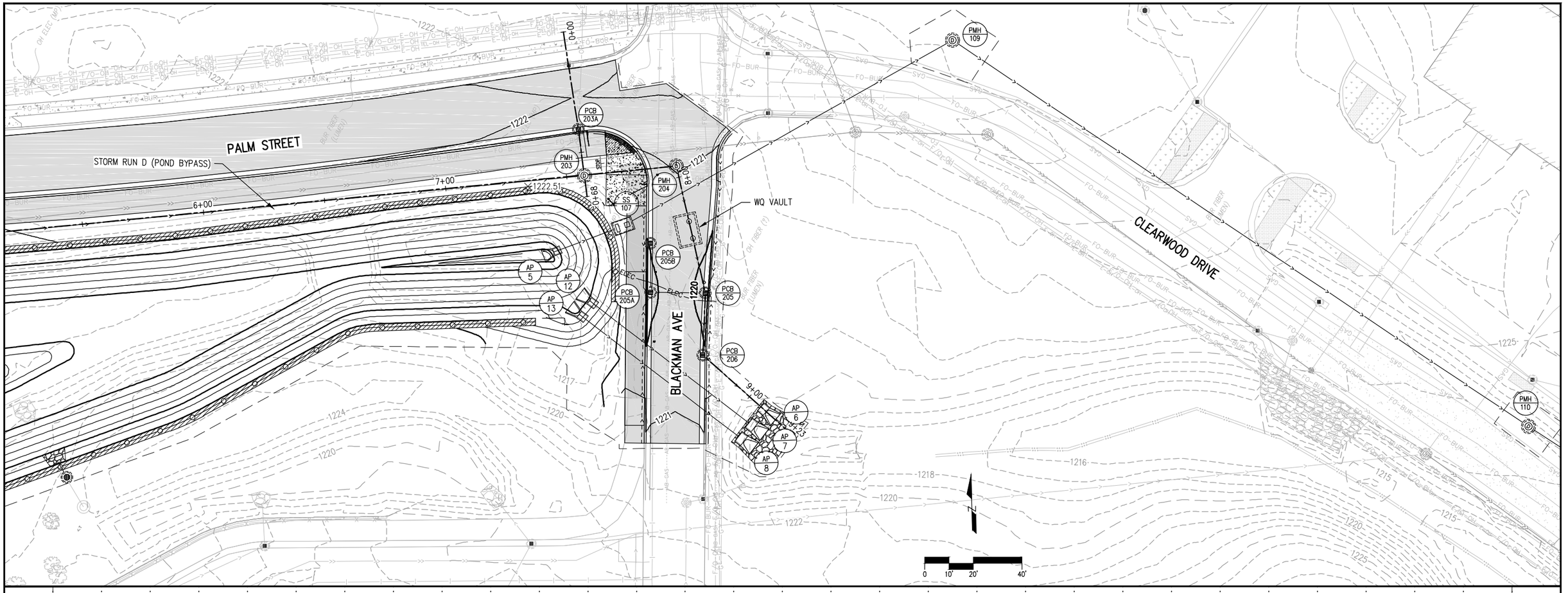
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

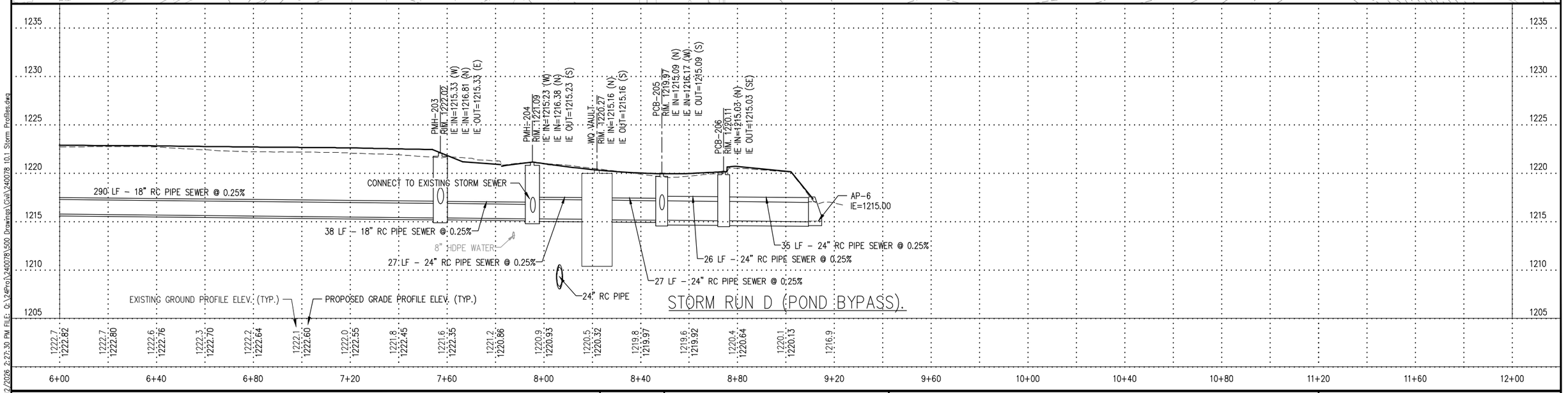
STORM RUN D (POND BYPASS) PLAN & PROFILE

SHEET NO. 34 OF 47 SHEETS

PLOT DATE: 1/12/2026 2:24:45 PM FILE: Q:\24Pro\240078\500 Drawings\Civil\240078 10.1 Storm Profiles.dwg

LHB PROJECT NO. 240078




STORM RUN D (POND BYPASS).

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PRINTED NAME

Megan Goplin
SIGNATURE

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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

STORM RUN D (POND BYPASS) PLAN & PROFILE

SHEET NO. 35 OF 47 SHEETS

PLOT DATE: 1/12/2026 2:27:30 PM FILE: C:\24Pro\240078\500 Drawings\Civil\240078 10.1 Storm Profiles.dwg

LHB PROJECT NO. 240078

# TRAFFIC CONTROL NOTES & GUIDELINES

## TRAFFIC CONTROL NOTES:

1. ALL WORK SHOWN ON THIS TRAFFIC CONTROL PLAN INCLUDING, BUT NOT LIMITED TO TEMPORARY SIGNAGE, DELINEATORS, BARRICADES, PAVEMENT MASKING AND TEMPORARY PAVEMENT MARKINGS SHALL BE INCLUDED FOR PAYMENT IN THE LUMP SUM TRAFFIC CONTROL ITEM.

2. ALL DISTANCES ARE APPROXIMATE.

3. ALL SIGNING INDICATED ON THIS TRAFFIC CONTROL PLAN, EXCEPT THOSE SIGNS WHICH ARE INPLACE, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. ALL APPROPRIATE SIGNING, INCLUDING INPLACE SIGNS, SHALL BE MAINTAINED BY THE CONTRACTOR DURING THE LIFE OF THE CONTRACT. EXISTING STOP SIGNS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT.

4. ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO, AND BE PLACED IN ACCORDANCE WITH, THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MMUTCD) INCLUDING PART VI AND THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS DATED "CURRENT", THE MINNESOTA STANDARD SIGNS MANUALS PARTS I, II, AND III AND THE APPROPRIATE MATERIAL SPECIFICATIONS.

5. THE CONTRACTOR SHALL PLACE ADEQUATE PLASTIC DRUMS, WARNING SIGNS, AND BARRICADES WITHIN THE CONSTRUCTION ZONE TO PROTECT VEHICULAR TRAFFIC AND PEDESTRIAN TRAFFIC FROM CONSTRUCTION OPERATIONS. ADDITIONAL SIGNING MAY INCLUDE, BUT IS NOT LIMITED TO BUMP, DIP, LOOSE GRAVEL, ETC. THE NUMBER AND PLACEMENT OF TRAFFIC CONTROL DEVICES SHALL BE DETERMINED BY THE SEQUENCE OF THE CONTRACTOR'S OPERATIONS. TRAFFIC CONTROL DEVICES MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

6. ALL TRAFFIC CONTROL DEVICES SHALL BE REMOVED OR COVERED AS SOON AS THEY ARE NO LONGER REQUIRED OR APPROPRIATE.

7. THE INITIAL CONSTRUCTION SIGNING SHALL BE ERECTED PRIOR TO CONSTRUCTION OPERATIONS.

8. TYPE A (LOW INTENSITY) FLASHERS SHALL BE FURNISHED, INSTALLED, AND MAINTAINED ON TYPE III BARRICADES AND ADVANCED WARNING SIGNS WHEN USED AT NIGHT, OR TO IDENTIFY HAZARDS, AND AS DETAILED IN THIS TRAFFIC CONTROL PLAN. ADDITIONAL FLASHERS SHALL BE FURNISHED, INSTALLED, AND MAINTAINED ON SIGNS, BARRICADES, AND CHANNELIZERS AS NEEDED OR AS DIRECTED BY THE ENGINEER FOR TRAFFIC CONTROL THROUGH WORK ZONES WITHIN THE PROJECT LIMITS.

9. "ROAD CLOSED AHEAD" SIGNS SHALL BE MOUNTED APPROXIMATELY 600' IN ADVANCE OF THE CONSTRUCTION AND THE NEAREST INTERSECTION AND SHALL HAVE A TYPE "A" LOW INTENSITY FLASHING AMBER WARNING LIGHT MOUNTED ON THEM.

10. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING TRAFFIC CONTROL ON THE PROJECT. ADDITIONAL TRAFFIC CONTROL (NOT SHOWN) AS NEEDED TO COMPLETE THE WORK AND/OR AS NEEDED TO ACCOMMODATE THE CONTRACTOR'S MEANS AND METHODS FOR CONSTRUCTING THE PROJECT SHALL BE CONSIDERED INCIDENTAL. ALL TRAFFIC CONTROL SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE MNMUTCD AND THE CURRENT VERSION OF THE FIELD MANUAL.

11. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING A TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) AND ERECTING TEMPORARY PEDESTRIAN SIGNAGE INCLUDING CHANNELIZERS, BARRIERS, RAMPS, AND TEMPORARY SURFACING TO CONTROL AND MANAGE PEDESTRIAN TRAFFIC. CONTRACTOR SHALL SUBMIT A PHASED TEMPORARY PEDESTRIAN ACCESS ROUTE MANAGEMENT PLAN FOR REVIEW AND APPROVAL BY THE OWNER PRIOR TO CONSTRUCTION. THE TPAR MUST ADVISE PEDESTRIAN OF SIDEWALK CLOSURES, PROVIDE ALTERNATE ROUTES FOR PEDESTRIAN TO SAFELY TRAVERSE THE WORK ZONE(S). ALL WORK TO PROVIDE AND MAINTAIN THE TPAR SHALL BE CONSIDERED INCLUDED FOR PAYMENT UNDER THE LUMP SUM TRAFFIC CONTROL PAY ITEM.

12. ALL TEMPORARY SIGNS ARE REQUIRED TO BE CRASHWORTHY PER THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE 2016 (MASH-2016). TEMPORARY SIGN STRUCTURES THAT ARE CRASHWORTHY UNDER THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 350 (NCHRP-350) MAY BE USED PROVIDED THE DEVICES WERE ACQUIRED BY THE CONTRACTOR PRIOR TO DECEMBER 31ST, 2019. THE MINNESOTA TYPE "C" AND "D" BRACED LEG U-CHANNEL (KNEE BRACE) SIGN SUPPORT IS NOT ALLOWED.

13. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE FINAL SIGNS TO ASSURE THAT THE FINAL SIGNS ARE PLACED AS NEEDED, OR PROVIDE TEMPORARY SIGNING UNTIL THE FINAL SIGNING IS PLACED.

14. WHEN MULTIPLE GROUND MOUNTED SIGN STRUCTURES ARE PLACED ADJACENT TO EACH OTHER THERE SHOULD BE NO MORE THAN 2 POSTS WITHIN 84" OF EACH OTHER. WHEN THIS SPACING CAN NOT BE MAINTAINED, THEN SIGN STRUCTURES SHALL BE OFFSET, AND STAGGERED WITH A MINIMUM OF 4' BETWEEN SIGN STRUCTURES

15. WHEN A SIGN OR BARRICADE IS ORIENTED SUCH THAT VISIBILITY TO ROAD USERS INCLUDING BIKES AND PEDESTRIANS IS REDUCED ENOUGH TO CAUSE A HAZARD, DELINEATE THE SIGN/BARRICADE WITH APPROPRIATE DEVICES.

16. TEMPORARY SIGNS SHALL BE PLACED SUCH THAT OBSTACLES DO NOT BLOCK THEM FROM BEING VIEWED BY APPROACHING ROAD USERS. OBSTACLES MAY INCLUDE, BUT ARE NOT LIMITED TO, LIGHT POLES, TREES, SIGNS, AND BUILDINGS.

17. TEMPORARY SIGNS SHALL BE PLACED AND ORIENTED APPROXIMATELY AS SHOWN IN THE PLAN, AT RIGHT ANGLES TO DIRECTION OF AND FACING THE TRAFFIC THEY ARE INTENDED TO SERVE, UNLESS OTHERWISE SPECIFIED.

18. LONGITUDINAL DROPOFFS SHALL BE SIGNED AS SHOWN IN THE "MINNESOTA TEMPORARY TRAFFIC CONTROL FIELD MANUAL" PAGES (6K-aj) THRU (6K-al) UNLESS OTHERWISE SPECIFIED IN THESE PLANS.

19. AFTER REMOVAL OF SIGN AND/OR SIGN BASE, BACK FILL, COMPACT, AND LEVEL SOIL TO MATCH SURROUNDING SOIL.

20. PLACE AND MAINTAIN TEMPORARY BARRIER DELINEATORS ANY TIME TRAFFIC IS WITHIN 10' OF BARRIER. DELINEATORS WILL EACH HAVE A MINIMUM OF 24 SQ IN. OF RETROREFLECTIVE SURFACE ON BOTH SIDES PLACED AT 25' SPACING ON TOP OF THE BARRIER. IF THE ENGINEER OR PLAN REQUIRES SIDE MOUNTED TEMPORARY BARRIER DELINEATORS, THEY WILL HAVE A MINIMUM OF 12 SQ. IN. OF RETROREFLECTIVE SURFACE AREA AND BE PLACED AT 12.5' SPACING. IF A SMALLER APPROVED BARRIER DELINEATOR IS USED IT SHALL BE A MINIMUM OF 6 SQ IN. OF RETROREFLECTIVE SURFACE AREA AND BE PLACED ON BOTH SIDES AT 6.25' SPACING. TEMPORARY BARRIER DELINEATOR COLOR SHALL MATCH APPLICABLE PAVEMENT MARKING.

21. THE CONTRACTOR SHALL USE CONSTRUCTION INFORMATION SIGNING AS SHOWN IN THE PLAN WHICH ARE TO BE USED AS FOLLOWS:

    PLACE G20-X2 ADVANCE NOTICE SIGNS 7 DAYS PRIOR TO THE WORK STARTING DATE. ONCE WORK BEGINS, COVER THE START DATE LEGEND WITH SUGGESTED PLAQUE CONTAINED IN THIS PLAN. IF NO ALTERNATE MESSAGE IS SUGGESTED OR IF DIRECTED BY THE ENGINEER, DISPLAY THE CORRECT ESTIMATED FINISH DATE, MONTH, OR SEASON

    IF CONSTRUCTION INFORMATION SIGNING IS NO LONGER VISIBLE TO THE MOTORING PUBLIC ONCE WORK BEGINS, MOVE SAID SIGNING TO A SITE IN ADVANCE OF THE WORK ZONE OR CLOSURE AS DIRECTED BY THE PLAN OR ENGINEER.

22. MAINTAIN ACCESS TO TRU HOTEL AND ARRIS APARTMENT PARKING LOTS AT ALL TIMES.

## CONSTRUCTION STAGING

BLACKMAN AVE: INCLUDES THE FULL RECONSTRUCTION OF BLAKCMAN AVE FROM THE INTERSECTION OF PALM ST TO 200-FT SOUTH. ROAD CLOSURE SHALL BE POSTED AND TRAFFIC CONTROL SHALL APPLY DURING CONSTRUCTION ACTIVITIES.

PALM STREET: INCLUDES THE FULL RECONSTRUCTION OF THE BITUMINOUS TRAIL AND RESURFACING OF PALM STREET BETWEEN THE ARRIS DRIVEWAY AND BLACKMAN AVE. A SMALL PORTION OF PALM STREET WILL BE RECONSTRUCTED FOR THE INSTALLATION OF STORM PIPES AND STRUCTURES. ROAD CLOSURES SHALL BE POSTED AND TRAFFIC CONTROL SHALL APPLY DURING CONSTRUCTION ACTIVITIES

### TRAFFIC CONTROL SUMMARY

| WORK TYPE/OPERATION | MINIMUM REQUIRED TRAFFIC CONTROL (SEE NOTE 9) |
|---|---|
| – DEMOLITION/ REMOVAL ACTIVITIES<br>– FULL DEPTH EXCAVATION AND BACKFILL ACTIVITIES<br>– UTILITY INSTALLATION<br>– PAVING OPERATIONS | – WORK PERFORMED USING ROAD CLOSURE WITH DETOUR. RESIDENTIAL AND BUSINESS ACCESS SHALL BE MAINTAINED. |
| – MISCELLANEOUS WORK WITHIN RIGHT-OF-WAY (DITCHING, GRADING, PED RAMP CONSTRUCTION, TURF ESTABLISHMENT AND LANDSCAPING.<br>– ANY WORK AT OR ADJACENT TO ROADWAY SHOULDER REQUIRED FOR CONSTRUCTION, ACCESS OR STAGING | – WORK PERFORMED USING SHOULDER CLOSURE. RESIDENTIAL AND BUISSNESS ACCESS SHALL BE MAINTAINED.<br>– PROVIDE SIDEWALK CLOSED SIGNS ON ALL PALM ST AND BLACKMAN AVE SIDEWALKS AND TRAILS. |

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MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/12/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

TRAFFIC CONTROL PLAN

SHEET NO. 36 OF 47 SHEETS

PLOT DATE: 1/9/2026 11:15:29 AM FILE: Q:\24Proj\240078\500 Drawings\Civil\240078 11.0 Traffic Control - Detour.dwg

LHB PROJECT NO. 240078

## "M" SERIES

| SIGN | SIGN NO. | COLOR | SIZE (IN. X IN.) | ASSEMBLY (WxH) | NUMBER OF POST | POST SPACING |
|---|---|---|---|---|---|---|
| DETOUR | M4-8 | BLACK ON ORANGE | 24 X 12 | | | |
| END | M4-6 | BLACK ON ORANGE | 24 X 18 | | | |
| ⇦ ⇨ | M5-1 | WHITE ON BLUE | 21X15 | | | |
| ⇧ | M6-3 | WHITE ON BLUE | 21X15 | | | |
| ⇦ ⇨ | M6-1 | WHITE ON BLUE | 21X15 | | | |

## "W" SERIES

| SIGN | SIGN NO. | COLOR | SIZE (IN. X IN.) (WxH) | ASSEMBLY (IN. X IN.) (WxH) | NUMBER OF POST | POST SPACING INCHES |
|---|---|---|---|---|---|---|
| ROAD WORK AHEAD | W20-1 | BLACK ON ORANGE | 48X48 | 48X48 | 1 | -- |
| DETOUR AHEAD | W20-2 | BLACK ON ORANGE | 48X48 | 48X48 | 1 | -- |
| ROAD CLOSED AHEAD | W20-3 | BLACK ON ORANGE | 48X48 | 48X48 | 1 | |

## "G" SERIES

| SIGN | SIGN NO. | COLOR | SIZE (IN. X IN.) (WxH) | ASSEMBLY (IN. X IN.) (WxH) | NUMBER OF POST | POST SPACING INCHES |
|---|---|---|---|---|---|---|
| ① PALM ST ROAD WORK AT BLACKMAN AVE BEGINS MONTH DAY | G20-X2 | BLACK ON ORANGE | 96 X 84 | 96 X 84 | 3 | 42 |
| ① BLACKMAN AVE ROAD WORK AT PALM ST BEGINS MONTH DAY | G20-X2 | BLACK ON ORANGE | 96 X 84 | 96 X 84 | 3 | 42 |
| PALM ST / BLACKMAN AVE | G20-X4 | BLACK ON ORANGE | 72 X 18 | 72 X 18 | 2 | |

## "R" SERIES

| SIGN | SIGN NO. | COLOR | SIZE (IN. X IN.) (WxH) | ASSEMBLY (IN. X IN.) (WxH) | NUMBER OF POST | POST SPACING INCHES |
|---|---|---|---|---|---|---|
| SIDEWALK CLOSED | R9-9 | BLACK ON WHITE | 24 X 12 | 24 X 12 | | |

## BARRICADE MOUNTED SIGNS

| SIGN | SIGN NO. | COLOR | SIZE (W x H) INCHES |
|---|---|---|---|
| LANE CLOSED | R11-2M | BLACK ON WHITE | 48X30 |
| ROAD CLOSED | R11-2M | BLACK ON WHITE | 48X30 |
| ROAD CLOSED TO THRU TRAFFIC | R11-4 | BLACK ON WHITE | 60X30 |
| ROAD CLOSED X MILES AHEAD LOCAL TRAFFIC ONLY | R11-3A | BLACK ON WHITE | 60X30 |

## DEVICES

| SIGN | SIGN NO. | COLOR | SIZE |
|---|---|---|---|
| | TYPE III | BLACK ON ORANGE | 8' LONG |

GENERAL NOTES:

1. SIGN STRUCTURE TABULATIONS INDICATE SQUARE TUBE GROUND MOUNTED SIGN STRUCTURES THAT ARE MASH-16 COMPLIANT.
2. USE PRODUCTS FROM THE BASES FOR SQUARE TUBE SIGN STRUCTURES APPROVED-QUALIFIED PRODUCTS LIST FOR THE INDICATED SQUARE TUBE RISER POST SIZE. PLACE PER THE MANUFACTURER'S SPECIFICATIONS.
3. ALUMINUM STRINGERS SHALL BE USED FOR SIGNS 36 INCHES AND WIDER. SEE MANUFACTURER'S SPECIFICATIONS FOR SQUARE TUBE MOUNTING DETAILS. STRINGERS ON SINGLE POST ASSEMBLIES ARE REQUIRED TO BE AT LEAST 9 INCHES IN FROM THE EDGE OF THE SIGN.
4. UNLESS OTHERWISE INDICATED, USE 2-1/2 INCH RISER POSTS FOR GROUND MOUNTED SIGN STRUCTURES.

SPECIFIC NOTES:

① SIGNS SHALL BE PLACED AS DIRECTED BY THE ENGINEER, 4 SIGNS REQUIRED.

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MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/12/2026
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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

TRAFFIC CONTROL PLAN

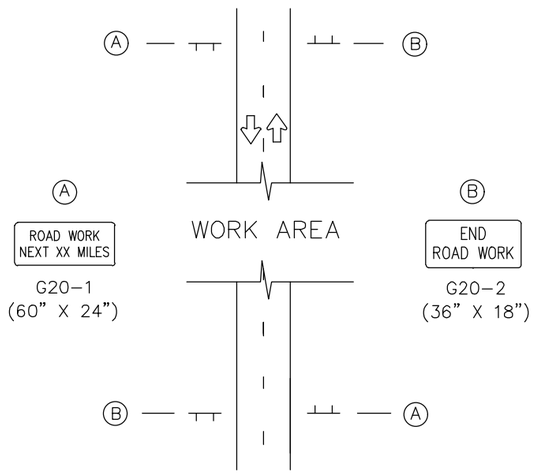
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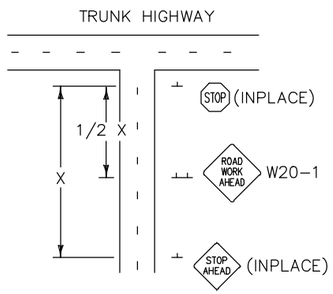
LHB PROJECT NO. 240078

## TERMINI SIGNING 2 LANE

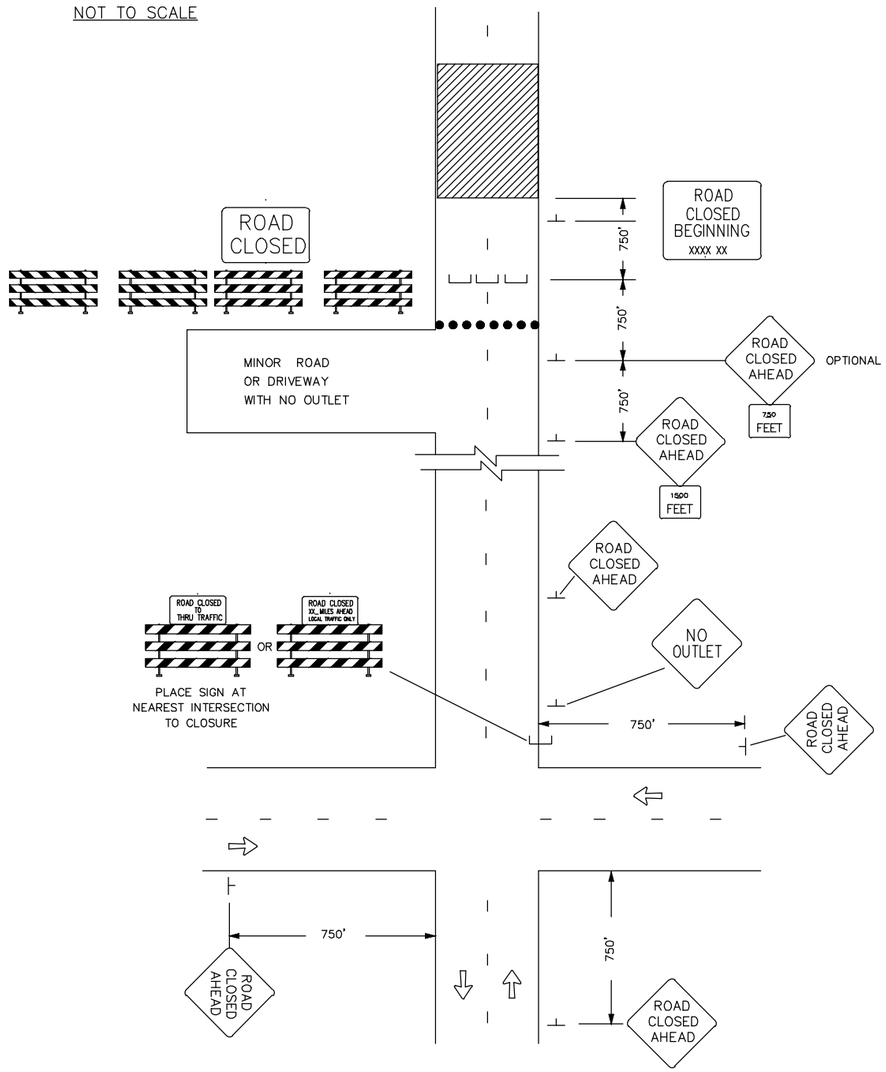
TRUNK HIGHWAY




## CROSS ROADS SIGNING




NOT TO SCALE




TYPICAL SIGNING FOR ROAD CLOSURE
SHORT AND LONG TERM

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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

TRAFFIC CONTROL PLAN

SHEET NO. 38 OF 47 SHEETS

LHB PROJECT NO. 240078

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## GENERAL NOTES:

1. GROUND MOUNTED SQUARE TUBE SIGN STRUCTURES PLACED WITHIN 50' OF THE RADIUS END OF AN INTERSECTION SHALL BE PLACED ON ONE 2" OR 2–1/2" POST.
2. FOR 2" SQUARE TUBE RISER POST IN SOIL, USE FIN BASE PLACED PER MANUFACTURER'S SPECIFICATIONS. USE A 2" X 2" PRE–PUNCHED, GALVANIZED STEEL, SQUARE TUBE RISER POST. PLACE 3/8" STAINLESS STEEL BOLT THROUGH THE 5TH HOLE DOWN FROM THE TOP OF THE BASE. RISER POST SHALL REST ON THE BOLT.
3. FOR 2–1/2" SQUARE TUBE RISER POST IN SOIL, USE SLIP BASE PLACED PER MANUFACTURER'S SPECIFICATIONS USING A 10 GAUGE , 2–1/2" X 2–1/2" PRE–PUNCHED, GALVANIZED STEEL, SQUARE TUBE RISER POST WITH A 10 GAUGE 2–3/16" X 2–3/16" PRE–PUNCHED, GALVANIZED STEEL, SQUARE TUBE INTERNAL INSERT.

## SPECIFIC NOTES:

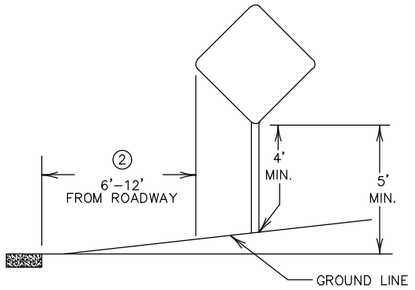
① IF ANY PART OF A SIGN OR SIGN ASSEMBLY EXTENDS MORE THAN 4" INTO THE PEDESTRIAN FACILITY, THE MINIMUM HEIGHT TO BOTTOM OF THE SIGN OR SIGN ASSEMBLY SHALL BE 7'.

② 6' – 12' FROM EDGE OF ROADWAY, MUST BE A MINIMUM OF 6' FROM EDGE OF PAVED SHOULDER (WHEN PRESENT).

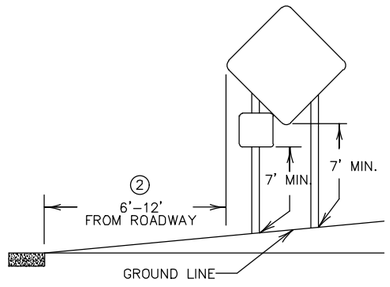
③ IF GROUND MOUNTED TEMPORARY SIGN OR SIGN ASSEMBLY IS PLACED ON 2–1/2" SQUARE TUBE RISER POST(S), THE MINIMUM CLEARANCE FROM THE GROUND LINE TO THE BOTTOM OF THE LOWEST SIGN ON THE ASSEMBLY SHALL BE 7', OR AS SHOWN IN DETAIL, WHICHEVER IS GREATER.

④ 5' MINIMUM IN RURAL. 7' MINIMUM IN BUSINESS, COMMERCIAL, OR RESIDENTIAL AREAS.

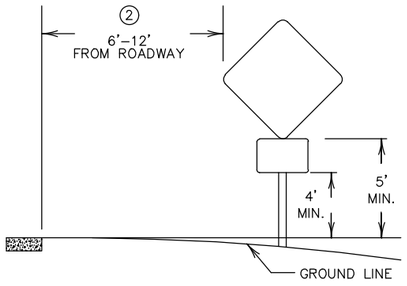
NOT TO SCALE



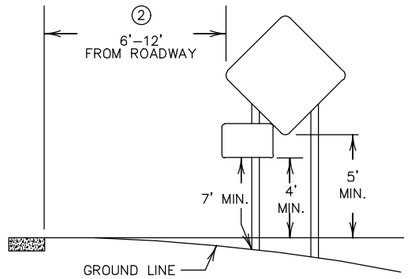

TYPICAL RURAL DESIGN
AND 2" RISER POST



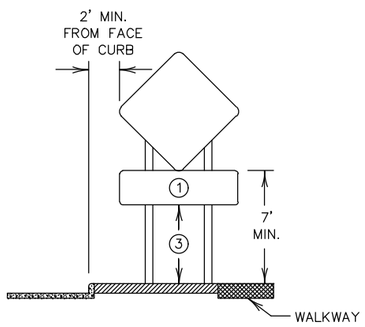

TYPICAL RURAL DESIGN WITH SUPPLEMENTAL
PLAQUE AND 2–1/2" RISER POST



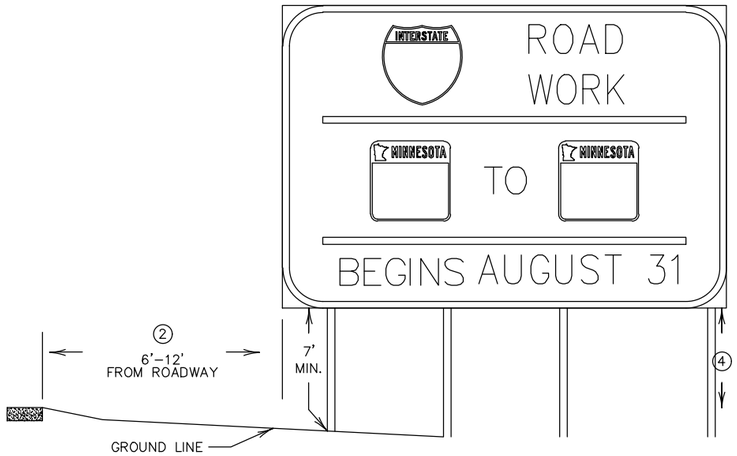

TYPICAL RURAL DESIGN WITH SUPPLEMENTAL
PLAQUE AND 2" RISER POST




TYPICAL RURAL DESIGN
2–1/2" RISER POST




BUSINESS,COMMERCIAL,
OR RESIDENTIAL AREA




TYPICAL G20–X2 DESIGN

| | | | | |
|---|---|---|---|---|
| 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. | MEGAN GOPLIN<br>PRINTED NAME | Megan Goplin<br>SIGNATURE | 01/12/2026<br>DATE<br>53018<br>LIC. NO. | CITY PROJECT NO. 2208 | PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS | TRAFFIC CONTROL PLAN<br>SHEET NO. 39 OF 47 SHEETS |

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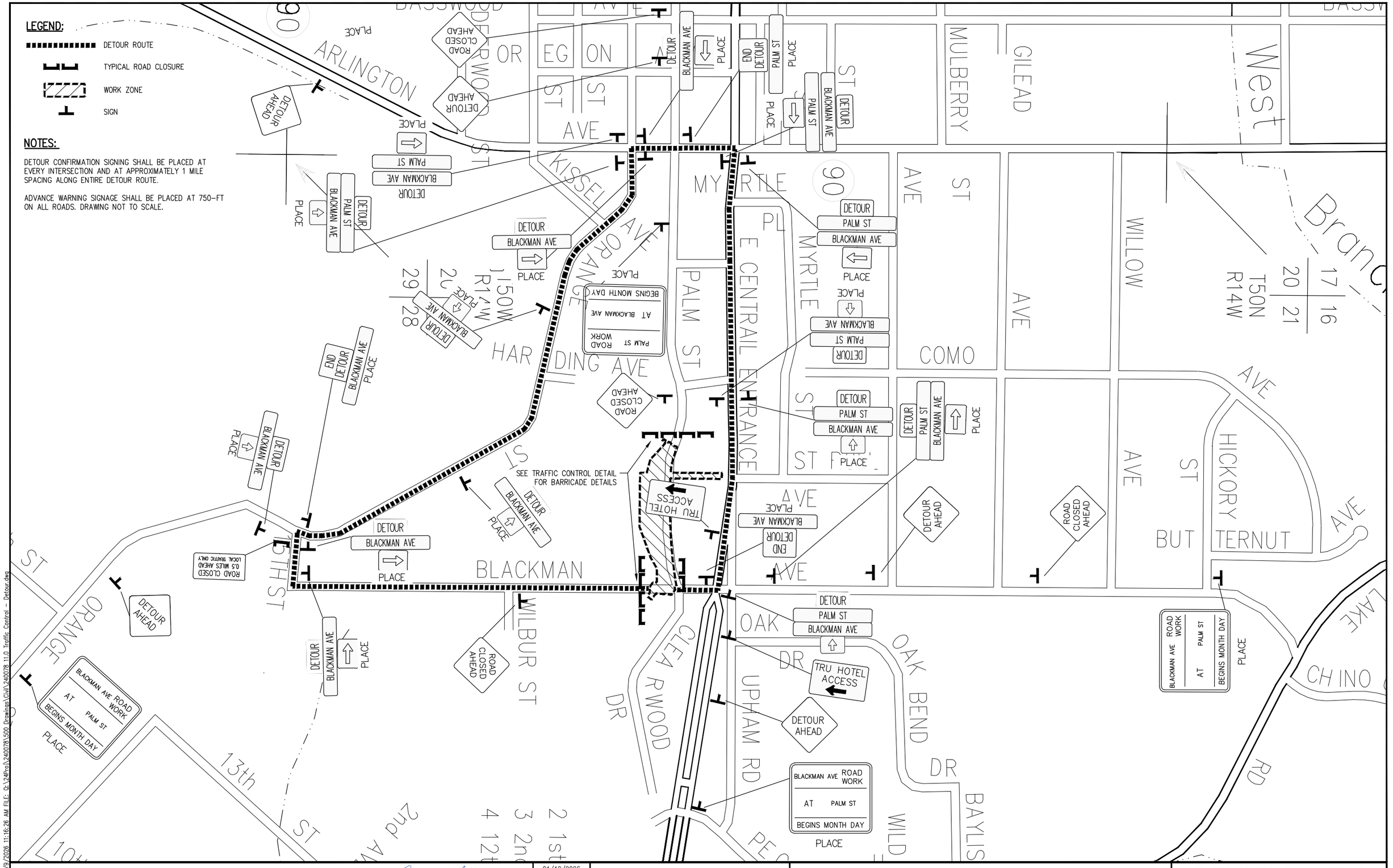
**LEGEND:**

- DETOUR ROUTE
- TYPICAL ROAD CLOSURE
- WORK ZONE
- SIGN

**NOTES:**

DETOUR CONFIRMATION SIGNING SHALL BE PLACED AT EVERY INTERSECTION AND AT APPROXIMATELY 1 MILE SPACING ALONG ENTIRE DETOUR ROUTE.

ADVANCE WARNING SIGNAGE SHALL BE PLACED AT 750-FT ON ALL ROADS. DRAWING 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 Licensed Professional Engineer under the laws of the State of Minnesota.

MEGAN GOPLIN
PRINTED NAME

Megan Goplin
SIGNATURE

01/12/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

TRAFFIC CONTROL PLAN – DETOUR

SHEET NO. 40 OF 47 SHEETS

PLOT DATE: 1/9/2026 11:16:26 AM FILE: G:\24Proj\240078\500 Drawings\Civil\240078 11.0 Traffic Control – Detour.dwg

LHB PROJECT NO. 240078

SEE TRAFFIC CONTROL DETOUR PLAN

T.H. 194 (CENTRAL ENTRANCE)

PID 010-0360-00520

PID 010-0360-00530
312 E CENTRAL ENT

ROAD CLOSED

PID 010-0360-00540
322 E CENTRAL ENT

ENTERPRISE RENT-A-CAR

PID 010-2710-05982
326 E CENTRAL ENT

DOLLAR TREE

CARHOP AUTO

PID 010-2710-05984
328 E CENTRAL ENT

ROAD CLOSED

PID 010-2710-05983
332 E CENTRAL ENT

WATER'S EDGE ANIMAL HOSPITAL

TUMBLE FRESH COIL LAUNDRY

PID 010-2710-05990
338 E CENTRAL ENT

TRU HOTEL ACCESS

ROAD CLOSED

POST

CONTRACTOR LAYDOWN AREA

PID 010-0130
[illegible] E CENTRAL ENT

MAINTAIN ACCESS TO TRU HOTEL PARKING LOT AT ALL TIMES

PID 010-0550-00150
543 CLEARWOOD DR

TRU HOTEL

CHARTER UTILITY FACILITY

PID 010-0550-00170
603 CLEARWOOD DR

PALM ST

PID 010-0360-00600
306 E PALM ST

MAINTAIN ACCESS TO ARRIS APARTMENT PARKING LOT AT ALL TIMES

PALM STREET SMART STORMWATER MANAGEMENT SYSTEM

PID 010-0360-00570
330 E PALM ST

PID 010-2604-00010
330 E PALM ST

PID 010-2710-05986
330 E PALM ST

PID 010-0550-00435
PO BOX 176
COTTON MN 55724

CLEARWOOD DR

PID 010-0550-00420
PO BOX 176
COTTON MN 55724

S BLACKMAN AVE

ROAD CLOSED

PID 010-0550-00440
122 S BLACKMAN AVE

MAINTAIN ACCESS TO ARRIS APARTMENT PARKING LOT AT ALL TIMES

PID 010-2710-06002
123 S BLACKMAN AVE

PID 010-0550-00450
126 S BLACKMAN AVE

MAINTAIN AT LEAST SINGE LANE ACCESS (12 FT MIN) TO CHARTER UTILITY FACILITY AT ALL TIMES

BREWERY CREEK

PID 010-0147-00010
201 S BLACKMAN AVE

PID 010-0550-00460
204 S BLACKMAN AVE

PID 010-0147-00025
209 S BLACKMAN AVE

PID 010-0550-00470
214 S BLACKMAN AVE

ARRIS APARTMENT

PID 010-0147-00090

PID 010-0147-00030
215 S BLACKMAN AVE

PID 010-0550-00480
218 S BLACKMAN AVE

PID 010-0147-00040
219 S BLACKMAN AVE

PID 010-0550-00490

PID 010-0147-00050
303 S BLACKMAN AVE

SEE TRAFFIC CONTROL DETOUR PLAN

PID 010-0147-00060
309 S BLACKMAN AVE

PID 010-0550-00500

PID 010-0435-00010
ISD 709
709 PORTIA JOHNSON DR

N

0 30' 60' 120'

## LEGEND:

- DETOUR ROUTE
- TYPICAL ROAD CLOSURE
- WORK ZONE
- SIGN

## NOTES:

DETOUR CONFIRMATION SIGNING SHALL BE PLACED AT EVERY INTERSECTION AND AT APPROXIMATELY 1 MILE SPACING ALONG ENTIRE DETOUR ROUTE.

ADVANCE WARNING SIGNAGE SHALL BE PLACED AT 750-FT ON ALL ROADS. DRAWING NOT TO SCALE.

PLOT DATE: 1/9/2026 11:17:29 AM FILE: C:\24Proj\240078\500 Drawings\Civil\240078 11.5 Traffic Control-Detail.dwg

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.

MEGAN GOPLIN
PRINTED NAME

Megan Goplin
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01/12/2026
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53018
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CITY PROJECT NO. 2208

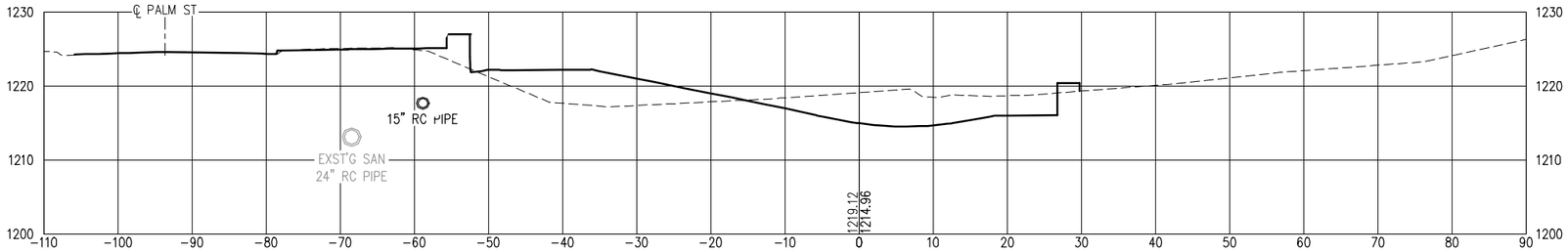
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

TRAFFIC CONTROL PLAN – DETAIL

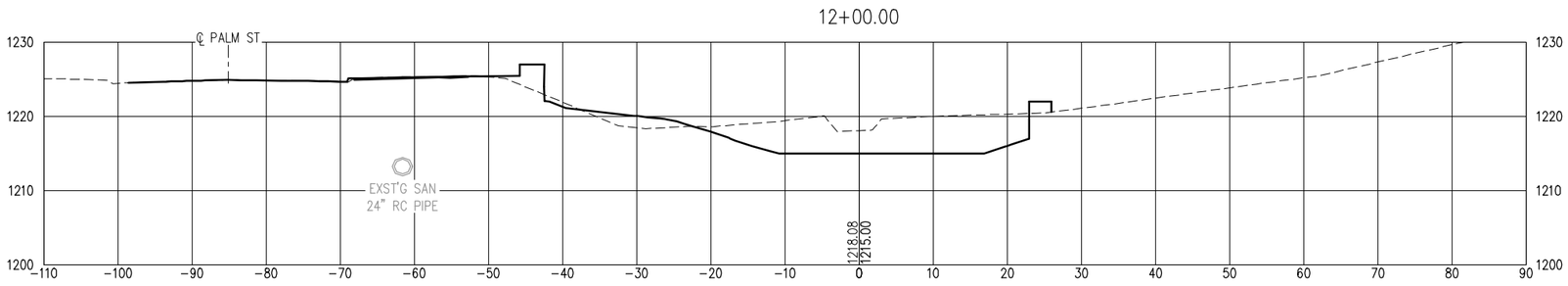
SHEET NO. 41 OF 47 SHEETS

LHB PROJECT NO. 240078

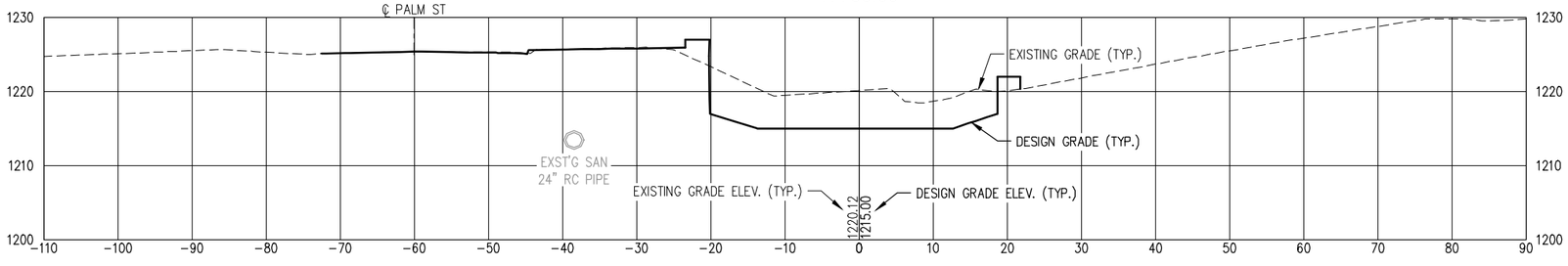
12+50.00




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11+50.00




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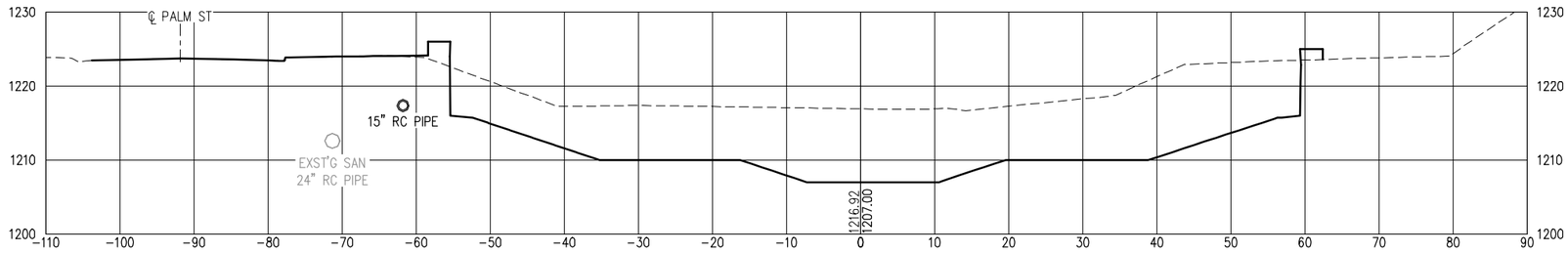
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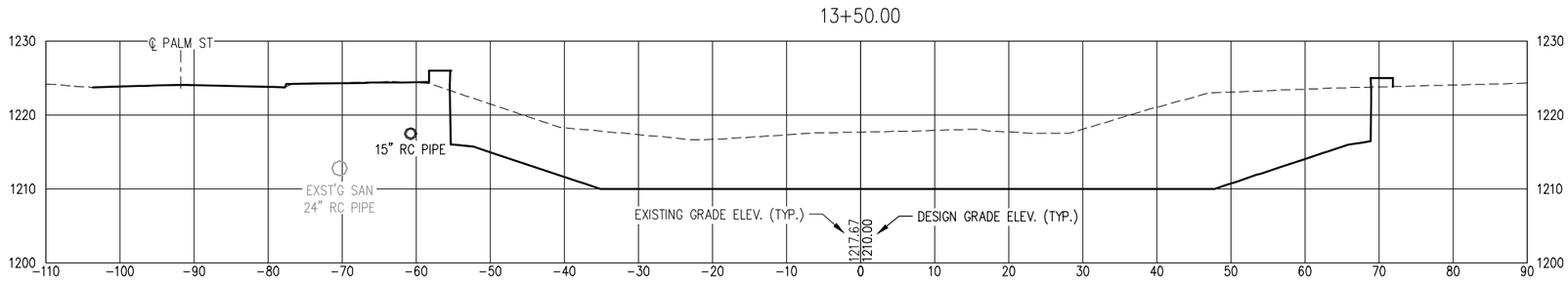
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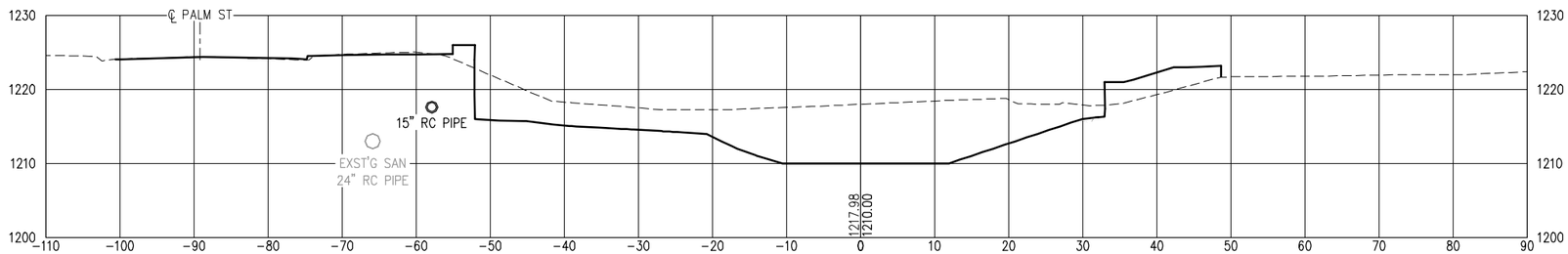
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13+00.00




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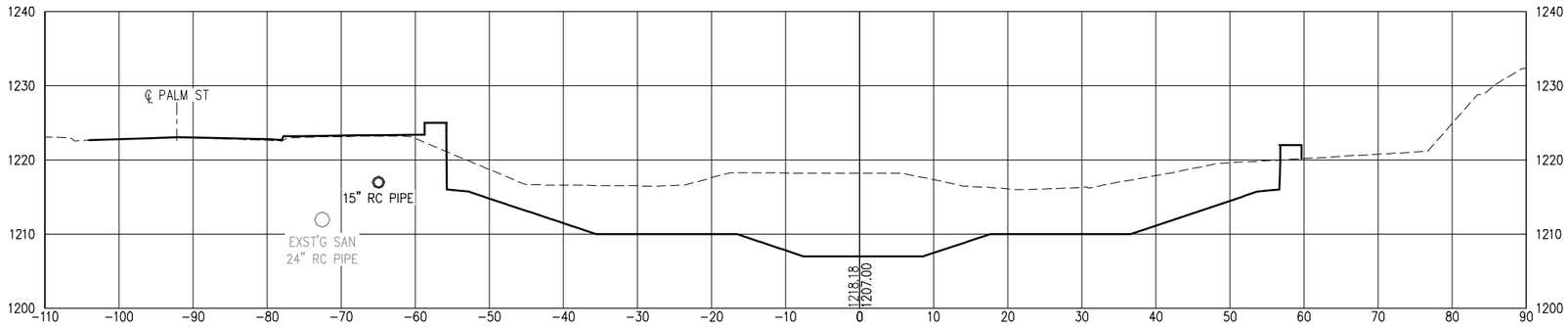
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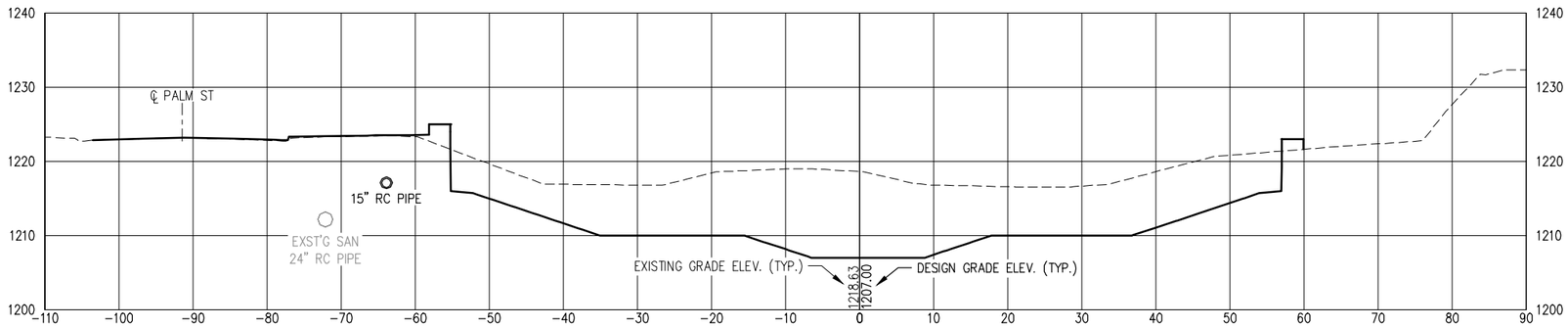
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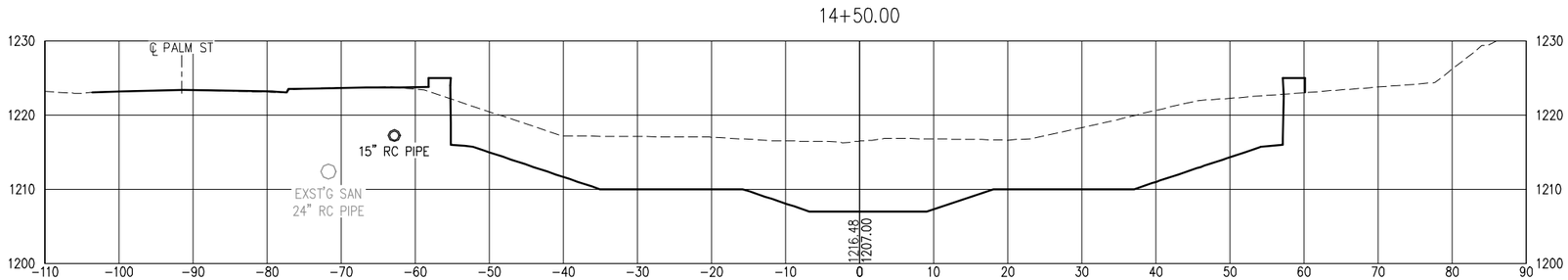
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14+50.00




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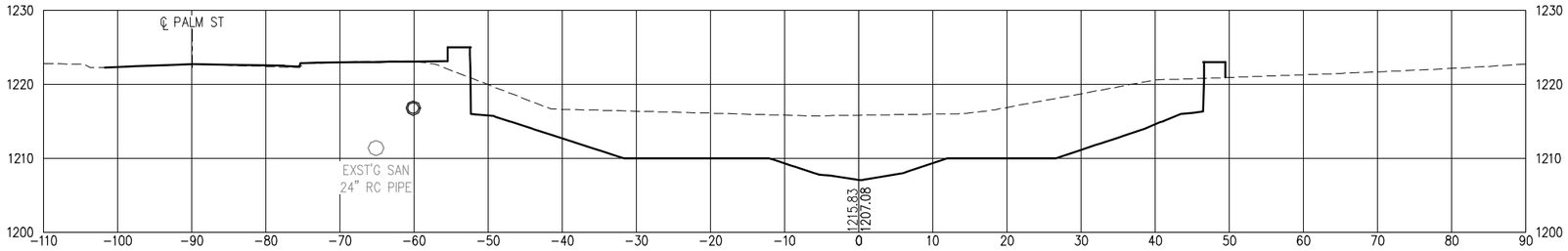
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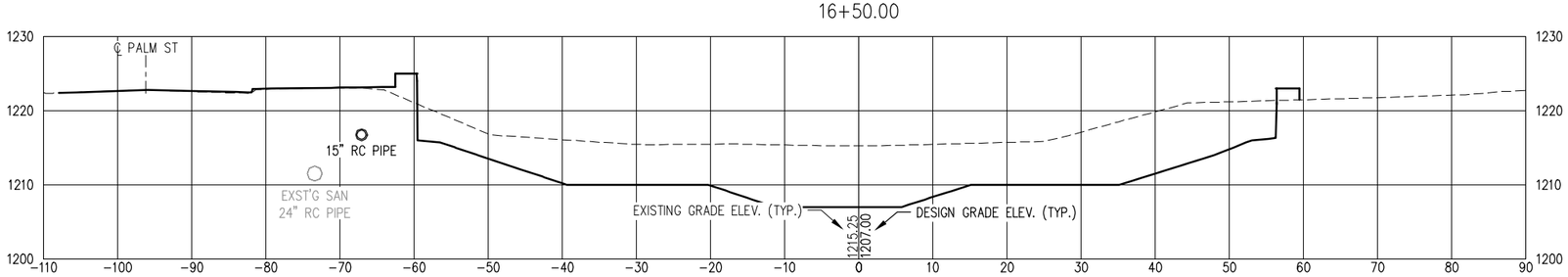
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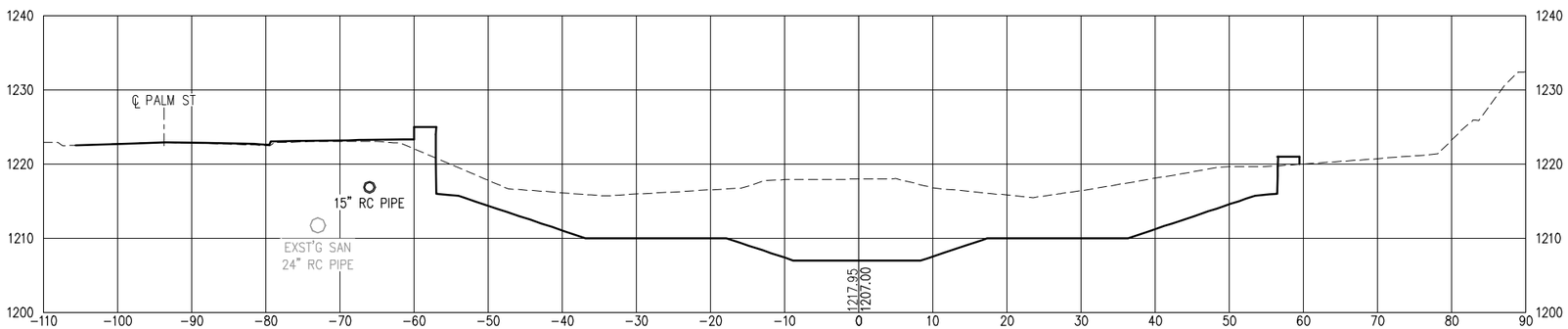
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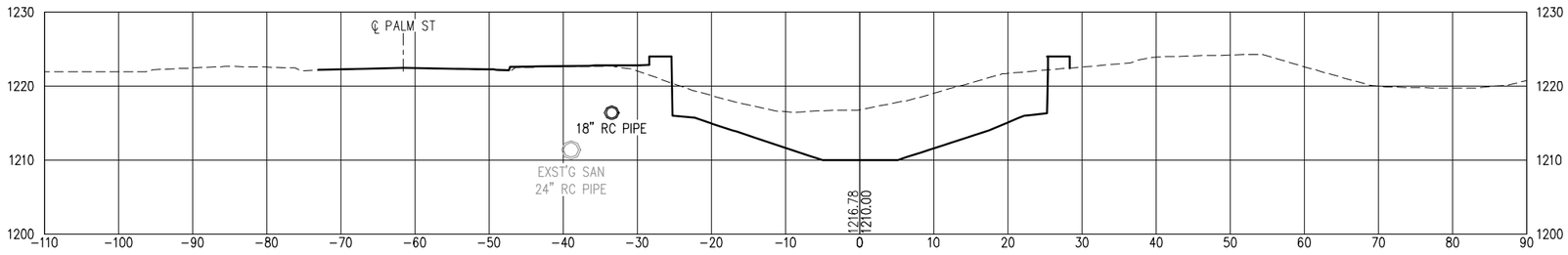
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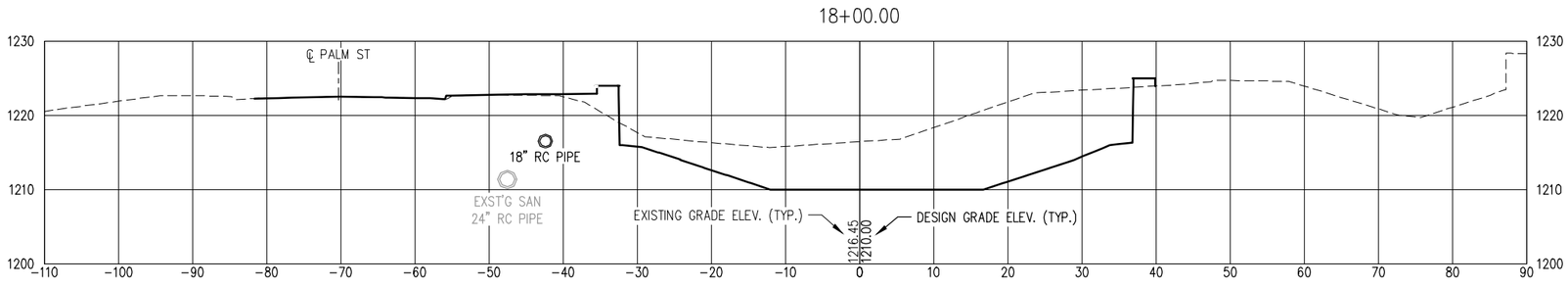
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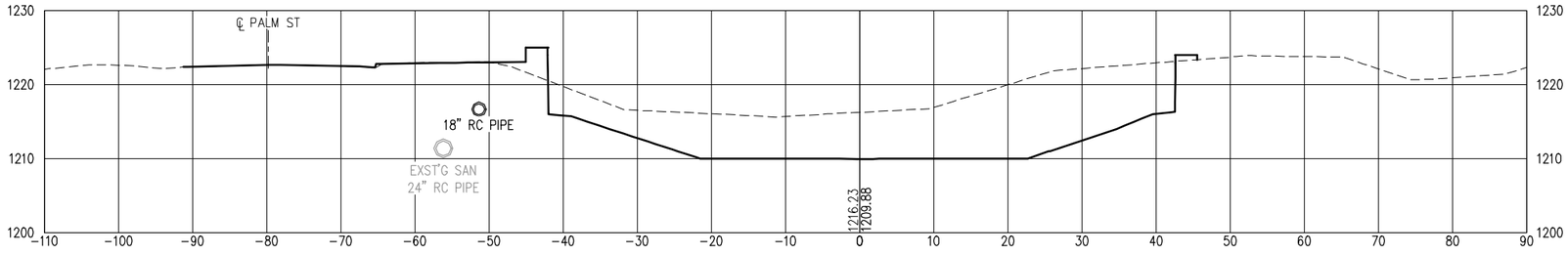
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18+00.00




17+50.00




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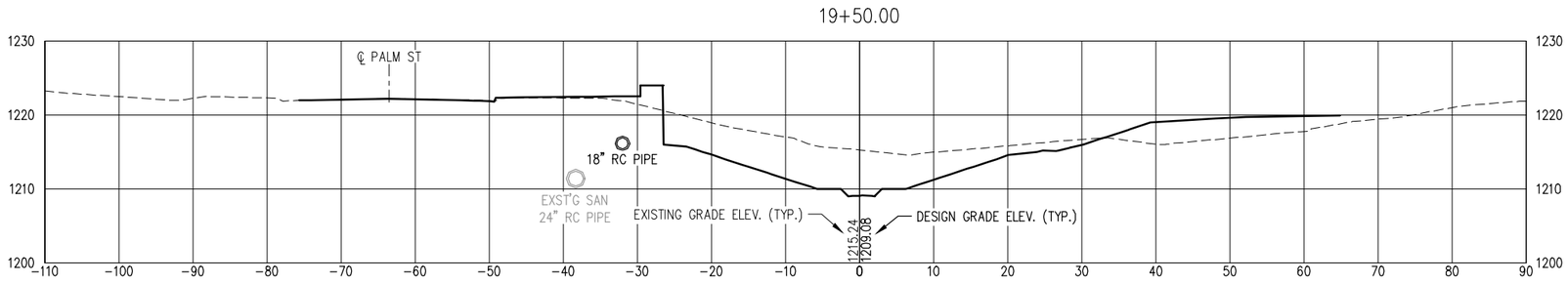
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

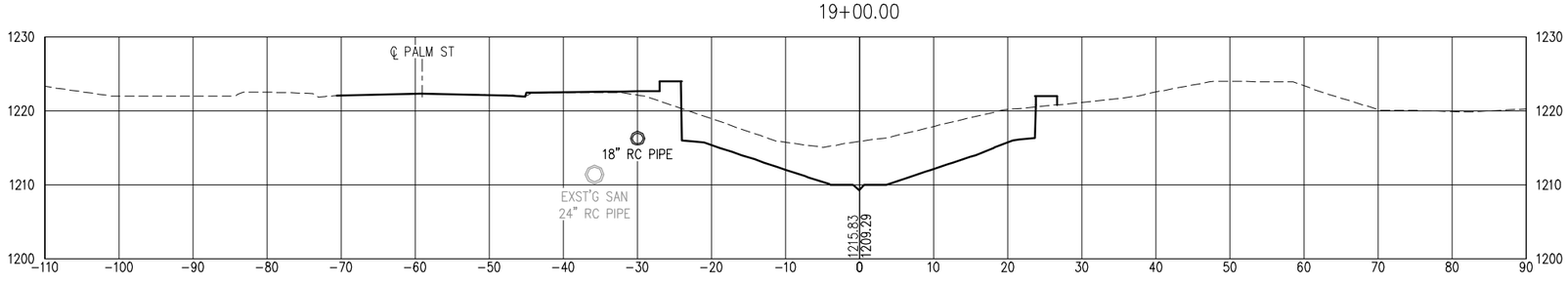
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SHEET NO. 46 OF 47 SHEETS

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LHB PROJECT NO. 240078




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MEGAN GOPLIN
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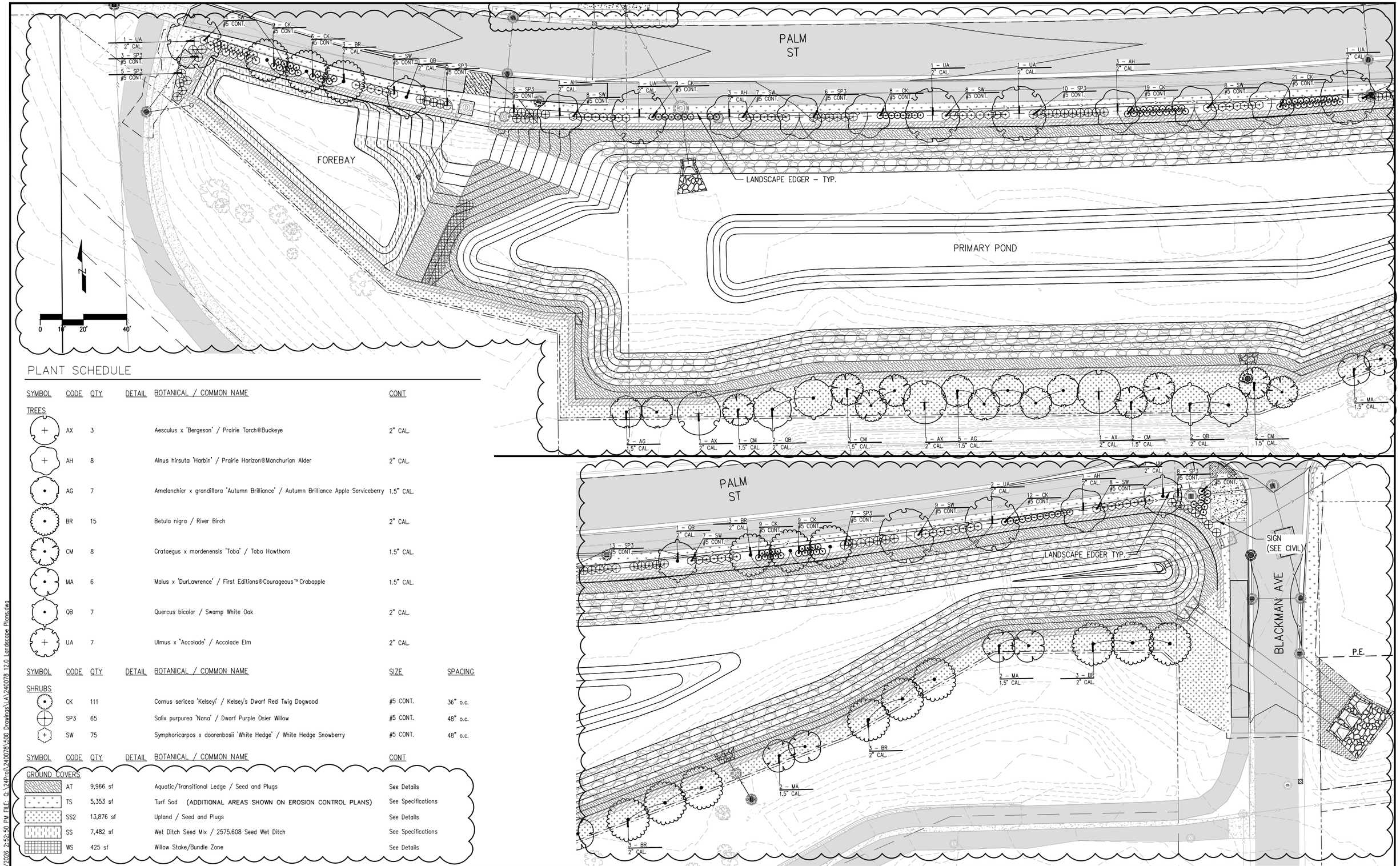
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

CROSS SECTIONS

SHEET NO. 47 OF 47 SHEETS

PLOT DATE: 1/9/2026 11:18:55 AM FILE: C:\24Proj\240078\500 Drawings\Civil\240078 12.1 Cross Sections.dwg

LHB PROJECT NO. 240078




## PLANT SCHEDULE

| SYMBOL | CODE | QTY | DETAIL | BOTANICAL / COMMON NAME | CONT |
|---|---|---|---|---|---|
| **TREES** | | | | | |
| + | AX | 3 | | Aesculus x 'Bergeson' / Prairie Torch®Buckeye | 2" CAL. |
| + | AH | 8 | | Alnus hirsuta 'Harbin' / Prairie Horizon®Manchurian Alder | 2" CAL. |
| • | AG | 7 | | Amelanchier x grandiflora 'Autumn Brilliance' / Autumn Brilliance Apple Serviceberry | 1.5" CAL. |
| • | BR | 15 | | Betula nigra / River Birch | 2" CAL. |
| • | CM | 8 | | Crataegus x mordenensis 'Toba' / Toba Hawthorn | 1.5" CAL. |
| • | MA | 6 | | Malus x 'DurLawrence' / First Editions®Courageous™ Crabapple | 1.5" CAL. |
| • | QB | 7 | | Quercus bicolor / Swamp White Oak | 2" CAL. |
| + | UA | 7 | | Ulmus x 'Accolade' / Accolade Elm | 2" CAL. |

| SYMBOL | CODE | QTY | DETAIL | BOTANICAL / COMMON NAME | SIZE | SPACING |
|---|---|---|---|---|---|---|
| **SHRUBS** | | | | | | |
| • | CK | 111 | | Cornus sericea 'Kelseyi' / Kelsey's Dwarf Red Twig Dogwood | #5 CONT. | 36" o.c. |
| ⊕ | SP3 | 65 | | Salix purpurea 'Nana' / Dwarf Purple Osier Willow | #5 CONT. | 48" o.c. |
| ⬡ | SW | 75 | | Symphoricarpos x doorenbosii 'White Hedge' / White Hedge Snowberry | #5 CONT. | 48" o.c. |

| SYMBOL | CODE | QTY | DETAIL | BOTANICAL / COMMON NAME | CONT |
|---|---|---|---|---|---|
| **GROUND COVERS** | | | | | |
| | AT | 9,966 sf | | Aquatic/Transitional Ledge / Seed and Plugs | See Details |
| | TS | 5,353 sf | | Turf Sod **(ADDITIONAL AREAS SHOWN ON EROSION CONTROL PLANS)** | See Specifications |
| | SS2 | 13,876 sf | | Upland / Seed and Plugs | See Details |
| | SS | 7,482 sf | | Wet Ditch Seed Mix / 2575.608 Seed Wet Ditch | See Specifications |
| | WS | 425 sf | | Willow Stake/Bundle Zone | See Details |

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.

HEIDI BRINGMAN
PRINTED NAME

Heidi S Bringman
SIGNATURE

01/12/2026
DATE

46914
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

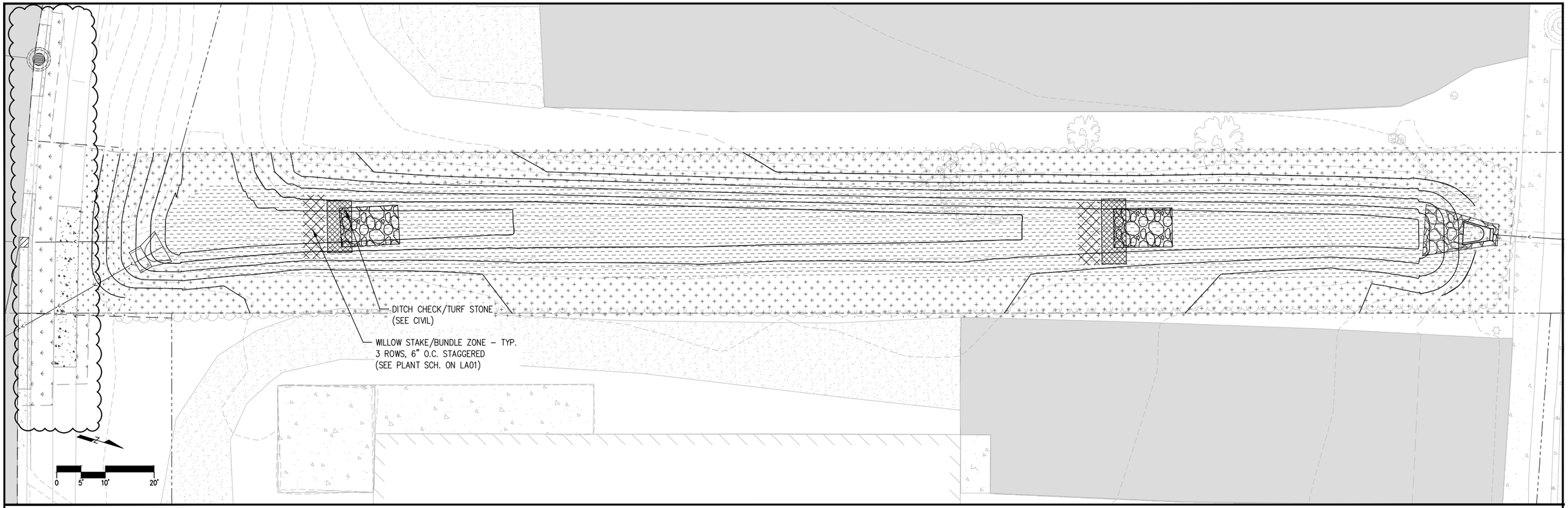
REVISION
⚠ 02/03/26

LANDSCAPE PLANS

SHEET NO. LA01 OF LA03 SHEETS

LHB PROJECT NO. 240078

PLOT DATE: 2/2/2026 2:52:50 PM FILE: Q:\24Proj\240078\500 Drawings\LA\240078 12.0 Landscape Plans.dwg




## LANDSCAPE NOTES

GENERAL LANDSCAPE NOTES:

1. THIS DRAWING DOES NOT CONSTITUTE AN OFFICIAL SURVEY OF THE SITE. CONFIRM ALL LOCATIONS OF SURFACE AND SUB-SURFACE FEATURES BEFORE BEGINNING INSTALLATION. ADVISE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.
2. CONFIRM ALL QUANTITIES, SHAPES, AND LOCATIONS OF LANDSCAPE AREAS, AND ADJUST TO CONFORM TO THE SITE CONDITIONS. CONFIRM ANY ADJUSTMENTS WITH THE LANDSCAPE ARCHITECT.
3. VERIFY LOCATIONS OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING. NOTIFY THE LANDSCAPE ARCHITECT OF ANY CONFLICTS WITH PLANT INSTALLATION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL MULCHES AND SOIL QUANTITIES TO COMPLETE THE WORK SHOWN IN THE DRAWINGS. VERIFY ALL QUANTITIES SHOWN ON THE PLANT SCHEDULE.
5. REFER TO SECTION 31 2323 FILL FOR SOIL REQUIREMENTS. DO NOT BEGIN PLANTING OPERATIONS IF SOIL CONDITIONS ARE NOT AS SPECIFIED.
6. REMOVE FROM THE SITE ALL TURF WHICH HAS BEEN REMOVED FOR NEW PLANT BEDS. LONG-TERM STORAGE OF MATERIALS OR SUPPLIES ON-SITE IS NOT ALLOWED. THE PLAN TAKES PRECEDENCE OVER THE PLANT SCHEDULE IF DISCREPANCIES EXIST. ADVISE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.
7. STAKE TREE AND PLANTING BED LAYOUT IN-FIELD FOR LANDSCAPE ARCHITECT APPROVAL PRIOR TO PLANTING OPERATIONS.

PROTECTIONS

8. AVOID DAMAGING EXISTING TREES. DO NOT STORE OR DRIVE HEAVY MATERIALS OVER TREE ROOTS. DO NOT DAMAGE TREE BARK OR BRANCHES.
9. KEEP PAVEMENTS, FIXTURES AND BUILDINGS CLEAN AND UNSTAINED. ANY DAMAGE TO EXISTING FACILITIES WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. KEEP THE PROJECT SITE CLEAR OF CONSTRUCTION WASTES AND DEBRIS.
10. PROVIDE AND MAINTAIN INLET AND PERIMETER EROSION CONTROL BMPS AS SPECIFIED ON CIVIL SHEETS.
11. ALL AREAS OF THE SITE DISTURBED BY CONSTRUCTION WILL BE RESTORED WITH SEED OR SOD UNLESS OTHERWISE NOTED. SEE SPECIFICATIONS FOR TURF RESTORATION REQUIREMENTS.

PLANT MATERIAL

12. PLANT TREE ROOT BALLS FLUSH WITH FINAL GRADE AND THE TOP OF ROOT FLARE EXPOSED, PER PLANTING DETAILS.
13. NO SUBSTITUTIONS OF PLANT MATERIAL WILL BE ACCEPTED UNLESS APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT.
14. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANTS WHICH ARE DEEMED UNSATISFACTORY.
15. ALL PLANTING STOCK SHALL CONFORM TO THE "AMERICAN STANDARD FOR NURSERY STOCK", ANSI-Z60. LATEST EDITION, OF THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
16. HEEL IN AND WATER ANY PLANT STOCK NOT PLANTED WITHIN 24 HOURS OF DELIVERY UNTIL INSTALLATION. PLANTS NOT MAINTAINED IN THIS MANNER WILL BE REJECTED.
17. REFER TO SPECIFICATIONS FOR WARRANTY REQUIREMENTS AND OTHER PLANTING ACCESSORIES.

MAINTENANCE AND CARE

18. BEGIN PLANT MAINTENANCE IMMEDIATELY AFTER EACH PORTION OF THE WORK IS IN PLACE.
19. MAINTENANCE INCLUDES WATERING, WEEDING, MULCHING, REMOVAL OF DEAD MATERIAL PRIOR TO GROWING SEASON, RE-SETTING PLANTS AND PROPER GRADE, AND KEEPING PLANTS IN A PLUMB POSITION.
20. REFER TO SPECIFICATIONS FOR FULL INSPECTION, MAINTENANCE, AND WARRANTY REQUIREMENTS.

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.

HEIDI BRINGMAN
PRINTED NAME

Heidi S Bringman
SIGNATURE

01/12/2026
DATE

46914
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

REVISION
⚠ 02/03/26

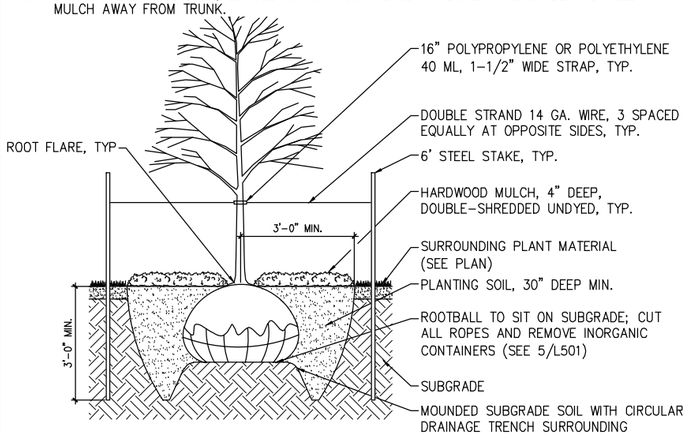
LANDSCAPE PLANS

SHEET NO. LA02 OF LA03 SHEETS

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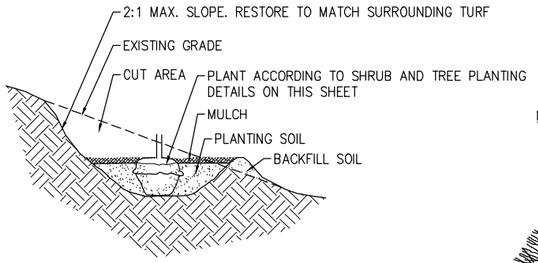
LHB PROJECT NO. 240078

NOTES:
1. IT IS THE CONTRACTOR'S OPTION TO STAKE TREES; HOWEVER, THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TREES IN A PLUMB POSITION THROUGHOUT THE GUARANTEE PERIOD.
2. SCARIFY BOTTOM AND SIDES OF HOLE PRIOR TO PLANTING.
3. DO NOT PLANT TOO DEEP; EXPOSE TOP OF ROOT FLARE 1" ABOVE FINAL GRADE AND PULL MULCH AWAY FROM TRUNK.



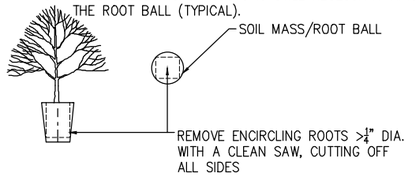

1 DECIDUOUS TREE
NOT TO SCALE

NOTE:
1. EXTEND EXCAVATION AND BACKFILL SOIL TO A POINT DOWNSLOPE EQUAL TO OR LOWER IN ELEVATION THAN THE BOTTOM OF THE HOLE DIRECTLY BENEATH THE PLANT TO ENSURE ADEQUATE DRAINAGE IN HEAVY SOILS. GRANULAR SOIL MUST BE ADDED AS BACKFILL IN AREAS OF POOR DRAINAGE.



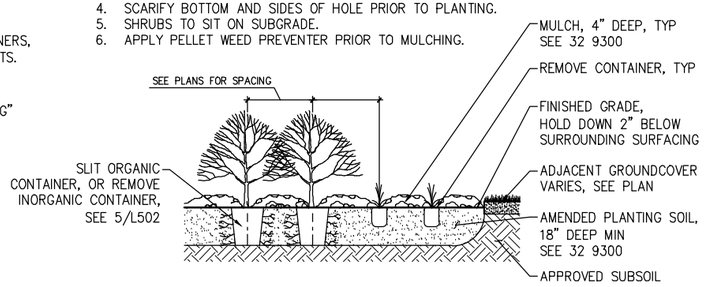

2 TREE ON A SLOPE
NOT TO SCALE

NOTES:
1. FOR TREES, SHRUBS, AND PERENNIALS WITH INORGANIC CONTAINERS, FOLLOW THE "BOXING" PROCEDURE TO REMOVE ENCIRCLING ROOTS.
2. "BOXING" IS ONLY NECESSARY ON THE PLANTS THAT HAVE ENCIRCLING ROOTS WITH DIAMETERS GREATER THAN ¼"
3. HAND LOOSENING OF ROOTS IS STILL NECESSARY AFTER "BOXING" THE ROOT BALL (TYPICAL).

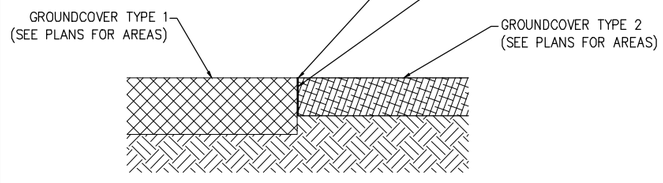



3 BOXING PROCEDURE FOR CONTAINERIZED PLANTS
NOT TO SCALE

NOTES:
1. HAND LOOSEN ROOTS OF CONTAINERIZED MATERIAL (TYPICAL).
2. HAND REMOVE EXCESS SOIL AT TOP OF ROOT BALL TO EXPOSE TOP OF ROOT FLARE. TYPICALLY REQUIRES THE REMOVAL OF 1-6" OF SOIL FROM CONTAINER OR B&B.
3. ENSURE THAT FIRST MAIN LATERAL ROOT IS LESS THAN 1" BELOW THE FINAL PLANTING SURFACE.
4. SCARIFY BOTTOM AND SIDES OF HOLE PRIOR TO PLANTING.
5. SHRUBS TO SIT ON SUBGRADE.
6. APPLY PELLET WEED PREVENTER PRIOR TO MULCHING.

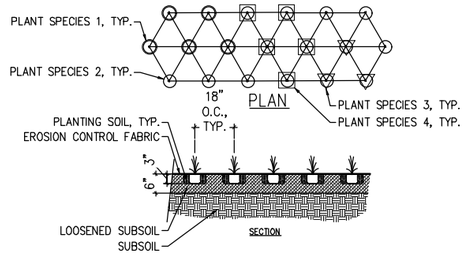



4 SHRUB & PERENNIAL PLANTING
NOT TO SCALE




5 LANDSCAPE EDGER
NOT TO SCALE

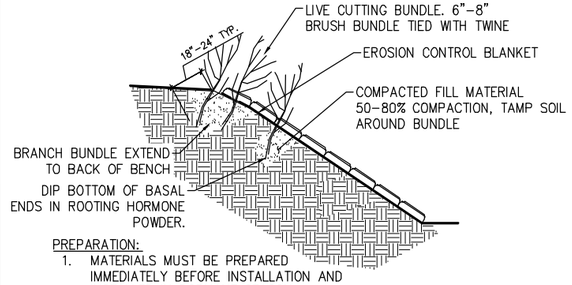
NOTES:
1. SEED MIX TO BE PLACED BETWEEN PLUG PLANTINGS. REFER TO SPECIFICATIONS FOR SEED MIX.
2. CAREFULLY PUNCTURE EROSION CONTROL FABRIC TO PLANT PLUGS AFTER SEEDING. TAKE CARE NOT TO COMPACT SEEDED AREAS DURING PLANTING OPERATIONS. CONTRACTOR MAY PROPOSE DIFFERENT ORDER OF OPERATIONS TO ACHIEVE DESIGN INTENT FOR LANDSCAPE ARCHITECTURE APPROVAL.
3. SHRUB SPECIES TO BE PLUGS OR BARE ROOT, BASED ON AVAILABILITY.
4. ALL BARE ROOT PLANTS TO BE PLANTED IN EARLY SPRING BEFORE GROWTH BEGINS.
5. PLANTINGS SHOULD BE RANDOMLY DISTRIBUTED IN GROUPS OF 3 OR 5 AMONG SPECIES IN 1/L502 PER RESTORATION ZONE DESIGNATED IN THE PLAN.




6 PLUG PLANTING
NOT TO SCALE

| AQUATIC TRANSITIONAL PLANT SPECIES | | | | |
|---|---|---|---|---|
| GRASSES/SEDGES – 50% COVERAGE | | | SHRUBS – <5%COVERAGE | |
| COMMON NAME | BOTANICAL NAME | | COMMON NAME | BOTANICAL NAME |
| AWL-FRUITED SEDGE | CAREX STIPATA | | BLACK WILLOW | *SALIX NIGRA* |
| FOWL BLUEGRASS | *POA PALUSTRIS* | | | |
| FOWL MANNA GRASS | GLYCERIA STRIATA | | | |
| PRAIRIE SEDGE | CAREX PRAIREA | | | |
| FRINGED BROME | *BROMUS CILIATUS* | | | |
| PATH RUSH | *JUNCUS TENUIS* | | | |
| PERENNIALS – 50% COVERAGE | | | | |
| COMMON NAME | BOTANICAL NAME | | | |
| ARUM LEAVED ARROWHEAD | SAGITTARIA CUNEATA | | | |
| BROAD LEAVED ARROWHEAD | *SAGITTARIA LATIFOLIA* | | | |
| PICKERELWEED | PONTEDERIA CORDATA | | | |
| SESSILE FRUITED ARROWHEAD | SAGITTARIA RIGIDA | | | |
| WATER HORSETAIL | EQUISETUM FLUVIATILE | | | |
| WILD CALLA | CALLA PALUSTRIS | | | |
| | | | | |
| SEED MIX: 2575.608 SEED WET DITCH | | | | |

| UPLAND PLANT SPECIES | | | | |
|---|---|---|---|---|
| PERENNIALS & GRASSES – 30-50% COVERAGE | | | SHRUBS – 50-75% COVERAGE | |
| COMMON NAME | BOTANICAL NAME | | COMMON NAME | BOTANICAL NAME |
| THREE-TOOTHED CINQUEFOIL | *POTENTILLA TRIDENTATA* | | DOWNY ARROWWOOD | *VIBURNUM RAFINESQUIANUM* |
| YARROW | *ACHILLEA MILLEFOLIUM* | | NANNYBERRY | *VIBURNUM LENTAGO* |
| BLACK EYED SUSAN | *RUDBECKIA HIRTA* | | PRAIRIE WILLOW | *SALIX HUMILIS* |
| HAIRY GOLDENROD | *SOLIDAGO HISPIDA* | | BEBB'S WILLOW | *SALIX BEBBIANA* |
| POVERTY GRASS | *DANTHONIA SPICATA* | | RED OSIER DOGWOOD | *CORNUS SERICEA* |
| PALE CORYDALIS | *CORYDALIS SEMPERVIRENS* | | SHRUBBY CINQUEFOIL | *POTENTILLA FRUTICOSA* |
| ROCK SPIKEMOSS | *SELAGINELLA RUPESTRIS* | | GREEN ALDER | *ALNUS VIRIDIS* |
| PARASOL SEDGE | *CAREX UMBELLATTA* | | SWEET GALE | *MYRICA GALE* |
| BACK'S SEDGE | *CAREX BACKII* | | PRICKLY WILD ROSE | *ROSA ACICULARIS* |
| NORTHERN SEDGE | *CAREX DEFLEXA* | | BUSH HONEYSUCKLE | *DIERVILLA LOICERA* |
| FRINGED FALSE BUCKWHEAT | *POLYGONUM CILINODE* | | JUNEBERRIES | *AMELANCHIER SPP.* |
| LARGE-LEAVED ASTER | *ASTER MACROPHYLLUS* | | | |
| TUFTED HAIR GRASS | *DESCHAMPSIA CESPITOSA* | | TREES – SPARSE <5% COVERAGE | |
| HAREBELL | *CAMPANULA ROTUNDIFOLIA* | | COMMON NAME | BOTANICAL NAME |
| RUSTY WOODSIA | *WOODSIA ILVENSIS* | | WHITE SPRUCE | *PICEA GLAUCA* |
| PUSSY TOES | *ANTENNARIA SPP.* | | PAPER BIRCH | *BETULA PAPYRIFERA* |
| ROUGH BENTGRASS | *AGROSTIS SCABRA* | | MOUNTAIN ASH | *SORBUS AMERICANA* |
| UPLAND WHITE ASTER | *SOLIDAGO PTARMICOIDES* | | QUAKING ASPEN | *POPULUS TREMULOIDES* |
| FLAT-TOPPED ASTER | *ASTER UMBELLATUS* | | | |
| BIRDS-EYE PRIMROSE | PRIMULA MISTASSINICA | | | |
| KALM'S LOBELIA | LOBELIA KALMII | | | |
| | | | | |
| SEED MIX: 2575.608 SEED NORTHEAST ROADSIDE | | | | |




PREPARATION:
1. MATERIALS MUST BE PREPARED IMMEDIATELY BEFORE INSTALLATION AND INSTALLED IN DORMANT SEASON.
2. GROUP LIVE CUT BRANCHES INTO BUNDLES THAT ARE 6"-8" IN DIAMETER DO NOT TRIM BRANCH ENDS FROM CUTTINGS, USE ONE SPECIES PER BUNDLE.
3. BUNDLE PRIOR TO PLANTING.

| ACCEPTABLE BRANCH BUNDLE SPECIES LIST | |
|---|---|
| COMMON NAME | BOTANICAL NAME |
| PRAIRIE WILLOW | *SALIX HUMILIS* |
| BEBB'S WILLOW | *SALIX BEBBIANA* |
| RED OSIER DOGWOOD | *CORNUS SERICEA* |

INSTALLATION:
1. DIG SHALLOW TRENCH INTO SLOPE 18"-24" DEEP.
2. ADD 1 TEASPOON OF SUPER-ABSORBENT POLYMER AND 1 TEA BAG OF SOIL MYCORRHIZAE AMENDMENT PER LINEAR FOOT OF TRENCH.
3. DIP BOTTOM 4" TO 6" OF BASAL ENDS INTO IBA ROOTING HORMONE (RHISOPON AA #2 OR EQUAL).
4. PLACE BRUSH BUNDLE IN TRENCH 2' ON CENTER, BASAL ENDS INTO THE BACK OF BANK WITH BRANCH ENDS EXTENDING ⅓ OF THEIR LENGTH OUT FROM THE BANK.
5. BACKFILL WITH SOIL TO ASTM 50%-85% COMPACTION AND KEEP MOIST.
6. DISTRIBUTE BUNDLES RANDOMLY AMONG SPECIES LIST.

7 BRUSH BUNDLE CROSS SECTION
NOT TO SCALE

INSTALLATION:
1. PREPARE RESTORATION ZONES WITH TOPSOIL, PER SPECIFICATIONS, AND SEED AS NOTED IN SPECIES LIST TO COVER ALL EXTENTS PER PLAN.
2. COVER RESTORATION ZONE WITH COIR FIBER MATTING IN AREAS 3:1 SLOPE OR GREATER, AND NETLESS STRAW MAT FOR AREAS UNDER 3:1 SLOPE, STAKE AT INTERVALS PER MANUFACTURERS RECOMMENDATION.
   2.1. FOR RESTORATION ZONE 1: USE LIVE STAKES FOR 35% – 50% OF REQUIRED STAKES TO SECURE COIR FIBER MATTING. SEE 6/L501
   2.2. FOR BETWEEN FOR RESTORATION ZONES 2 & 3: USE LIVE STAKES FOR ALL REQUIRED STAKES TO SECURE COIR FIBER MATTING. SEE 6/L501
3. SELECT PLUG AND SEEDLING SPECIES BASED ON AVAILABILITY FORM SPECIES LISTS. PRE-APPROVED ALTERNATE SPECIES CAN BE SELECTED FROM SPECIES INCLUDED IN THE SEED MIX, SPECIES LISTED IN RESTORATION ZONE SPECIES LIST HAVE PRIORITY.
   3.1. FOR PERENNIALS AND GRASSES: NO MORE THAN 8% OF PLUG PLANTINGS CAN COME FROM ONE SPECIES.
   3.2. FOR SHRUBS ANN TREES: NO MORE THAN 20% OF PLUG OR SEEDLING PLANTINGS CAN COME FROM ONE SPECIES.
4. DISTRIBUTE PLUGS, AND SEEDLINGS TO MEET COVERAGE RANGE FOR EACH RESTORATION ZONE. SEE 7/L501 AND 8/L501.
5. IN AREAS WITH SLOPES GREATER THAN 3:1 USE BRUSH BUNDLE PLANTINGS, SEE 5/L501.
6. SELECTED SUPPLIER TO COORDINATE WITH OWNER AND LANDSCAPE ARCHITECT TO SELECT AVAILABLE SPECIES.
7. IN AREAS WHERE THERE IS EXPOSED BEDROCK AT OR WITHIN 3" OF FINISHED GRADE, ALLOW BEDROCK TO REMAIN EXPOSED, DO NOT COVER WITH TOPSOIL, SEED OR COIR MATTING.

8 RESTORATION ZONE PLANTING
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 Licensed Professional Engineer under the laws of the State of Minnesota.

HEIDI BRINGMAN
PRINTED NAME

SIGNATURE

01/12/2026
DATE

46914
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

LANDSCAPE DETAILS

SHEET NO. LA03 OF LA03 SHEETS

LHB PROJECT NO. 240078

PLOT DATE: 1/9/2026 4:06:52 PM FILE: Q:\24Proj\240078\500 Drawings\LA\240078 13.0 Landscape Details.dwg

## SHEET PILE WALL ALIGNMENT

| | POINT NUMBER | SHEET PILE STATION | OFFSET | CURVE DATA DELTA | DEGREE | RADIUS | TANGENT | LENGTH | COORDINATES X | Y | AZIMUTH |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | P 01 | 50+12.00 | 0.00 | | | | | | 4839403.879 | 3347579.457 | 267°59'45.06" |
| | P 02 NOT USED | | | | | | | | | | |
| | PC 03 | 50+78.10 | 0.00 | | | | | | 4839337.829 | 3347577.107 | 267°59'45.06" |
| (1) | PI 04 | 50+85.43 | 0.872 RT | 026°41'32.94" LT | 181°53'29.14" | 31.50' | 7.47' | 14.67' | 4839330.370 | 3347576.846 | 241°18'12.12" |
| | PT 05 | 50+92.78 | 0.00 | | | | | | 4839323.796 | 3347573.257 | 241°18'12.12" |
| | PC 06 | 51+57.07 | 0.00 | | | | | | 4839267.406 | 3347542.384 | 241°18'12.12" |
| (1) | PI 07 | 51+64.59 | 0.286 LT | 008°43'27.68 RT | 058°10'05.89" | 98.50' | 7.51' | 15.00' | 4839260.815 | 3347538.776 | 250°01'39.81" |
| | PT 08 | 51+72.07 | 0.00 | | | | | | 4839253.753 | 3347536.210 | 250°01'39.81" |
| | PI 09 | 53+34.96 | 0.00 | | | | | | 4839100.659 | 3347480.572 | 294°46'54.17" |
| | PC 10 | 53+42.31 | 0.00 | | | | | | 4839093.990 | 3347483.651 | 294°46'54.17" |
| (1) | PI 11 | 53+48.69 | 0.704 RT | 024°46'54.17" LT | 194°13'22.98" | 29.50" | 6.48 | 12.76 | 4839088.106 | 3347486.367 | 270°00'00.00" |
| | PT 12 | 53+55.07 | 0.00 | | | | | | 4839081.625 | 3347486.367 | 270°00'00.00" |
| | PI 13 NOT USED | | | | | | | | | | |
| | PI 14 NOT USED | | | | | | | | | | |
| | PC 15 | 55+57.62 | 0.00 | | | | | | 4838879.076 | 3347486.367 | 270°00'00.00" |
| (1) | PI 16 | 55+60.65 | 0.153 RT | 011°32'06.52" | 190°59'09.60" | 30.00' | 3.03' | 6.04' | 4838876.046 | 3347486.367 | 258°27'53.48" |
| | PT 17 | 55+63.66 | 0.00 | | | | | | 4838873.077 | 3347485.761 | 258°27'53.48" |
| | PC 18 | 56+09.38 | 0.00 | | | | | | 4838828.276 | 3347476.618 | 258°27'53.48" |
| (1) | PI 19 | 56+12.58 | 0.170 LT | 012°09'41.53" | 190°59'09.60" | 30.00' | 3.20' | 6.37' | 4838825.145 | 3347475.979 | 270°37'35.01" |
| | PT 20 | 56+15.75 | 0.00 | | | | | | 4838821.949 | 3347476.014 | 270°37'35.01" |
| | PI 21 | 56+75.74 | 0.00 | | | | | | 4838761.961 | 3347476.669 | 000°37'24.49" |
| | PI 22 | 57+07.09 | 0.00 | | | | | | 4838762.302 | 3347508.014 | 004°05'31.11" |
| | PI 23 | 57+15.29 | 0.00 | | | | | | 4838762.888 | 3347516.202 | 274°05'31.11" |
| | PC 24 | 57+24.72 | 0.00 | | | | | | 4838753.482 | 3347516.875 | 274°05'31.11" |
| (1) | PI 25 | 57+27.52 | 0.130 LT | 010°38'55.73" | 190°59'09.60" | 30.00' | 2.80' | 5.58' | 4838750.693 | 3347517.074 | 284°44'26.85" |
| | PT 26 | 57+30.30 | 0.00 | | | | | | 4838747.989 | 3347517.786 | 284°44'26.85" |
| | PC 27 | 57+91.07 | 0.00 | | | | | | 4838689.224 | 3347533.247 | 284°44'26.85" |
| (1) | PI 28 | 57+98.99 | 1.025 LT | 028°50'39.45" | 181°53'29.14" | 31.50 | 8.10' | 15.86' | 4838681.390 | 3347535.309 | 313°35'06.30" |
| | PT 29 | 58+06.92 | 0.00 | | | | | | 4838675.522 | 3347540.893 | 313°35'06.30" |
| | PC 30 | 59+16.03 | 0.00 | | | | | | 4838596.494 | 3347616.111 | 313°35'06.30" |
| (1) | PI 31 | 59+21.72 | 0.535 RT | 020°15'57.66" | 169°30'51.12" | 33.80' | 6.04' | 11.66' | 4838592.329 | 3347620.076 | 293°19'09.34" |
| | PT 32 | 59+27.69 | 0.00 | | | | | | 4838586.785 | 3347622.466 | 027°06'33.10" |
| | PC 33 | 59+52.96 | 0.00 | | | | | | 4838598.301 | 3347644.962 | 120°35'19.82" |
| (1) | PI 34 | 59+58.50 | 0.345 RT | 014°18'43.88" | 128°10'42.69" | 44.70' | 4.65' | 10.16' | 4838603.092 | 3347642.129 | 106°16'35.94" |
| | PT 35 | 59+63.11 | 0.00 | | | | | | 4838607.553 | 3347640.827 | 106°16'35.94" |
| | PI 36 | 60+35.95 | 0.00 | | | | | | 4838677.472 | 3347620.412 | 102°38'43.23" |
| | PI 37 | 60+94.00 | 0.00 | | | | | | 4838734.113 | 3347607.704 | 091°18'56.17" |
| | PI 38 | 61+67.53 | 0.00 | | | | | | 4838807.625 | 3347606.016 | 090°53'14.27" |
| | PI 39 | 62+34.40 | 0.00 | | | | | | 4838874.486 | 3347604.980 | 090°21'04.09" |
| | PI 40 | 63+47.61 | 0.00 | | | | | | 4838987.687 | 3347604.287 | 089°02'22.35" |
| | PI 41 | 63+94.40 | 0.00 | | | | | | 4839034.477 | 3347605.071 | 088°37'03.26" |
| | PI 42 | 64+34.40 | 0.00 | | | | | | 4839074.465 | 3347606.036 | 088°29'07.05" |
| | PI 43 | 64+47.79 | 0.00 | | | | | | 4839087.849 | 3347606.390 | 086°31'02.71" |
| | PI 44 | 64+95.39 | 0.00 | | | | | | 4839135.356 | 3347609.281 | 088°03'31.16" |
| | PI 45 | 65+29.60 | 0.00 | | | | | | 4839169.548 | 3347610.440 | 085°10'08.79" |
| | PI 46 | 66+13.62 | 0.00 | | | | | | 4839253.273 | 3347617.516 | 082°21'04.11" |
| | PI 47 | 66+34.40 | 0.00 | | | | | | 4839273.869 | 3347620.282 | 082°07'25.34" |
| | PI 48 | 66+84.40 | 0.00 | | | | | | 4839323.397 | 3347627.134 | 081°49'59.76" |
| | PI 49 | 67+04.40 | 0.00 | | | | | | 4839343.194 | 3347629.975 | 083°43'19.44" |
| | PI 50 | 67+34.40 | 0.00 | | | | | | 4839373.013 | 3347633.255 | 083°36'13.90" |
| | PC 51 | 67+65.50 | 0.00 | | | | | | 4839403.924 | 3347636.720 | 083°36'13.90" |
| (1) | PI 52 | 67+84.05 | 6.810 LT | 070°49'27.57" | 190°59'09.60" | 30.00' | 21.33' | 37.08' | 4839425.120 | 3347639.097 | 154°25'41.47" |
| | PT 53 | 68+02.59 | 0.00 | | | | | | 4839434.327 | 3347619.857 | 154°25'41.47" |
| | | | | | | | | | | | |

## SHEET PILE WALL ALIGNMENT

| | POINT NUMBER | SHEET PILE STATION | OFFSET | CURVE DATA DELTA | DEGREE | RADIUS | TANGENT | LENGTH | COORDINATES X | Y | AZIMUTH |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC 54 | 68+04.81 | 0.00 | | | | | | 4839435.287 | 3347617.851 | 154°25'41.47" |
| (1) | PI 55 | 68+11.65 | 0.797 LT | 026°07'31.44" | 190°59'09.60" | 30.00' | 6.96' | 13.68' | 4839438.288 | 3347611.572 | 180°33'12.92" |
| | PT 56 | 68+18.49 | 0.00 | | | | | | 4839438.224 | 3347604.612 | 180°33'12.92" |
| | P 57 | 68+25.91 | 0.00 | | | | | | 4839438.152 | 3347597.195 | |
| | | | | | | | | | | | |

(1) PLACE SHEET PILE ALONG THE RADIUS BY INSTALLING THE INDIVIDUAL SHEETS WITH A MAXIMUM OF 5-DEGREES OF ROTATION AT EACH OF THE SHEET PILE INTERLOCKS. IF FACTORY INTERLOCKS DO NOT PROVIDE SUFFICIENT ROTATIONAL CAPACITY TO FOLLOW THE DESIGNED RADIUS THE CONTRACTOR SHALL PROVIDE CORNER CONNECTORS AS NEEDED (INCIDENTAL).

## CONSTRUCTION NOTES:

-THE 2025 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

-SEE SPECIAL PROVISIONS FOR ALL XXXX.6XX SERIES PAY ITEMS FOR ADDITIONAL REQUIREMENTS.

-THE BAR SIZES SHOWN IN THIS PLAN ARE IN U.S. CUSTOMARY DESIGNATIONS.

-PROVIDE EPOXY COATED BARS MARKED WITH THE SUFFIX "E" IN ACCORDANCE WITH SPEC. 3301.

-THIS PLAN USED COLOR (BLUE) TO DEPICT REINFORCEMENT BARS AND/OR WELDED WIRE FOR CONCRETE REINFORCEMENT. THE COLOR IS FOR INFORMATIONAL PURPOSED ONLY TO AID PLAN READABILITY DURING CONSTRUCTION. ANY CONSTRUCTION PLAN ERRORS REGARDING DEPICTED COLOR ONLY ARE NOT SUBJECT TO MONETARY CLAIMS.

## NOTES:

- STRUCTURAL STEEL SHEET PILE Fy = 50 KSI (WEATHERING STEEL)
- STEEL SHEET PILE SHALL HAVE A MINIMUM SECTION MODULUS OF 33.5 CUBIC INCHES PER FOOT OF WALL AND A MINIMUM MOMENT OF INERTIA OF 255.5 INCHES TO THE FOURTH PER FOOT OF WALL.
- NO COLD ROLLED SHEET PILE WILL BE ACCEPTED AS AN ALTERNATIVE TO THE PZC18
- SEE SPECIAL PROVISIONS FOR REQUIRED DRIVING TOLERANCES
- WELDING SHALL BE IN ACCORDANCE WITH CURRENT AWS STRUCTURAL WIELDING CODE D1.1. ALL WELDING SHALL BE BY AN AWS-CERTIFIED WELDER EXPERIENCED IN THE TYPE OF THE CONSTRUCTION ON THE PROJECT.
- WELDING ELECTRODES SHALL BE IN ACCORDANCE WITH ASTM A233 AND 70 KSI
- VERIFY LOCATION OF ALL EXISTING UTILITIES AND/OR OTHER UNDERGROUND SITE FEATURES PRIOR TO DRIVING SHEETS.
- ALL SHEETS SHALL BE DRIVEN WITH AN APPROVED VIBRATORY OR DROP HAMMER.
- ALL SHEETS SHALL BE INTERLOCKED.
- ALL LABOR AND MATERIAL REQUIRED FOR THE COMPLETE SHEET PILE WALL INSTALLATION INCLUDING THE FURNISHING AND INSTALLATION OF THE SHEET PILE CAP AS DETAILED ON SHT. 5 AND THE CONSTRUCTION OF PIPE PENETRATIONS AS DETAILED ON SHTS. 3 & 4 SHALL BE INCLUDED FOR PAYMENT UNDER ITEMS "WIRE FENCE DESIGN SPECIAL", "CONSTRUCTION PIPE PENETRATIONS A-F"

## RETAINING WALL ESTIMATED QUANTITIES | RW

| ITEM | UNIT | ESTIMATED QUANTITIES |
|---|---|---|
| STRUCTURAL STEEL (3306) | POUNDS | 61 944 |
| CONSTRUCT PIPE PENETRATION A | EACH | 2 |
| CONSTRUCT PIPE PENETRATION B | EACH | 4 |
| STEEL SHEET PILING (PERMANENT) | SQ FT | 64 591 |
| RANDOM RIPRAP CLASS II | CU YD | 1860 |
| GEOTEXTILE FILTER TYPE 7 | SQ YD | 5670 |
| VEHICULAR GATE DESIGN SPECIAL-SINGLE | EACH | 1 |
| WIRE FENCE DESIGN SPECIAL VINYL COATED | LIN FT | 1802 |
| | | |

## LIST OF SHEETS FOR RETAINING WALL

| NO. | DESCRIPTION |
|---|---|
| RW01 | SHEET PILE ALIGNMENT TABULATION, QUANTITIES AND LIST OF SHEETS |
| RW02 | SHEET PILE ALIGNMENT PLAN |
| RW03-RW05 | RETAINING WALL ELEVATIONS |
| RW06 | SHEET PILE SECTION AND DATA |
| RW07-RW08 | SHEET PILE PENETRATION DETAILS |
| RW09 | SHEET PILE CAP AND FENCE DETAILS |
| | |

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.

CHRIS MILLER
PRINTED NAME

Christopher J. Miller
SIGNATURE

01/13/2026
DATE

49840
LIC. NO.

CITY PROJECT NO. 2208

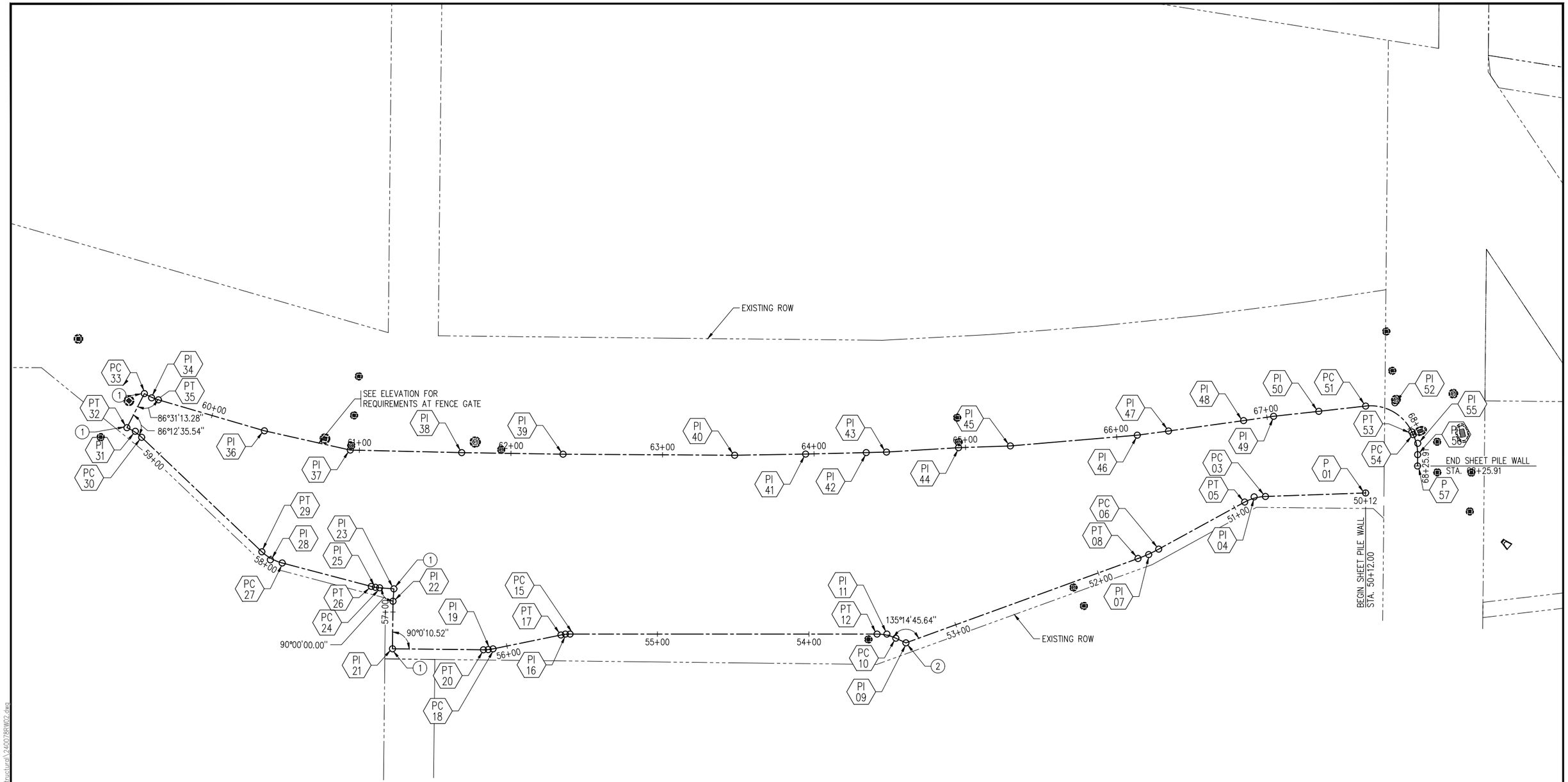
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

SHEET PILE ALIGNMENT TABULATION, QUANTITIES AND LIST OF SHEETS

SHEET NO. **RW01** OF **RW09** SHEETS

LHB PROJECT NO. 240078

PLOT DATE: 1/13/2026 8:37:32 AM FILE: O:\24Proj\240078\500 Drawings\Structural\240078RW01.dwg




## SHEET PILE WALL ALIGNMENT

(P 02, PI 13 & PI 14 NOT USED)

## KEY NOTES:

1. CORNER TO UTILIZE A 90° CORNER SHEET OR INTERLOCK TO MAKE REQUIRED ALIGNMENT (INCIDENTAL).
2. A 90° AND 45° KNUCKLE WILL BE REQUIRED TO MAKE REQUIRED ALIGNMENT (INCIDENTAL).

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.

CHRIS MILLER
PRINTED NAME

Christopher J. Miller
SIGNATURE

01/13/2026
DATE

49840
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

SHEET PILE ALIGNMENT

SHEET NO. RW02 OF RW09 SHEETS

LHB PROJECT NO. 240078

PLOT DATE: 1/13/2026 8:37:47 AM FILE: Q:\24Proj\240078\500 Drawings\Structural\240078RW02.dwg

## MATCH LINE CALL OUT

A = MATCH LINE NUMBER
B = SHEET NUMBER OF ASSOCIATED MATCHLINE

A
B

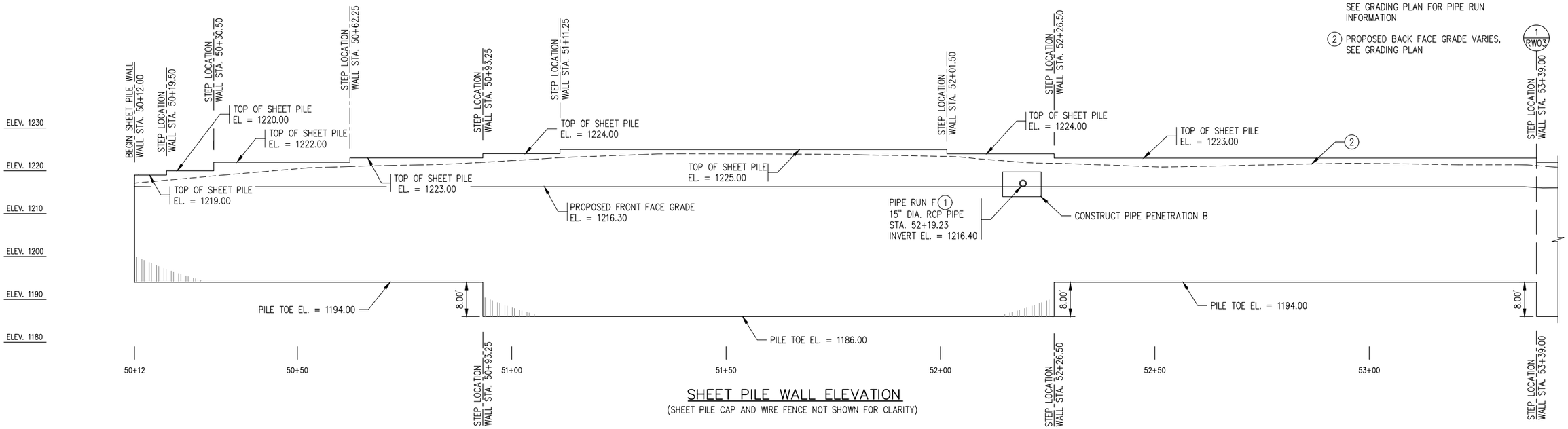
## GENERAL NOTES

-SOIL PROPERTIES:
UNIT WEIGHT = 120 PCF
ANGLE OF FRICTION = 30 DEGREES

-LIVE LOAD SURCHARGE = 240 PSF

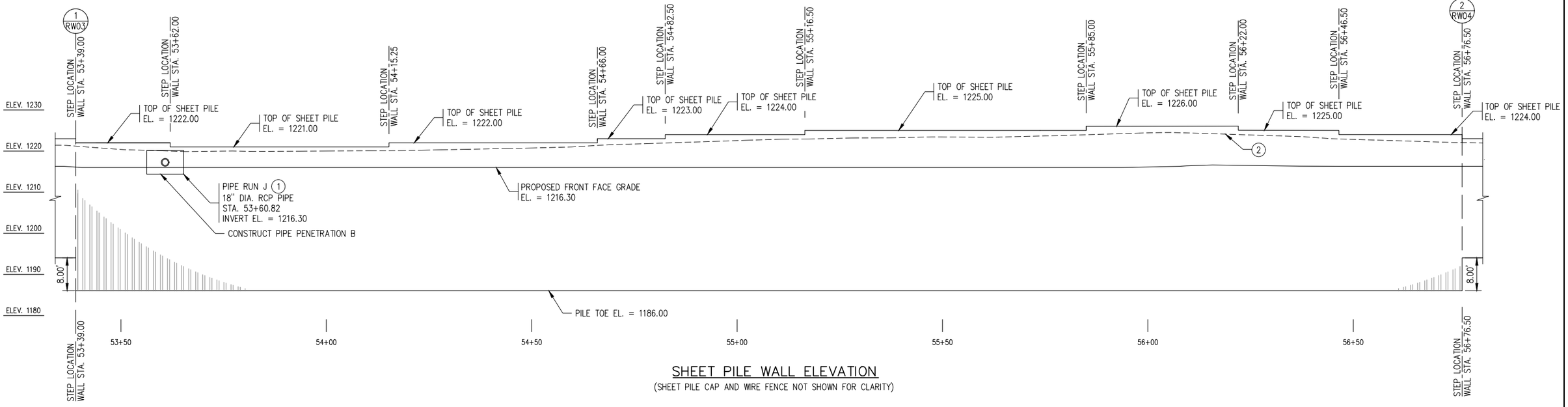
## KEY NOTE:

1. SEE SHEETS RW07 & RW08 FOR PIPE PENETRATION COLLAR DETAILS. SEE GRADING PLAN FOR PIPE RUN INFORMATION
2. PROPOSED BACK FACE GRADE VARIES, SEE GRADING PLAN




## SHEET PILE WALL ELEVATION

(SHEET PILE CAP AND WIRE FENCE NOT SHOWN FOR CLARITY)




## SHEET PILE WALL ELEVATION

(SHEET PILE CAP AND WIRE FENCE NOT SHOWN FOR CLARITY)

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01/13/2026
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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

RETAINING WALL ELEVATIONS

SHEET NO. **RW03** OF **RW09** SHEETS

## MATCH LINE CALL OUT

A = MATCH LINE NUMBER
B = SHEET NUMBER OF ASSOCIATED MATCHLINE

A
B

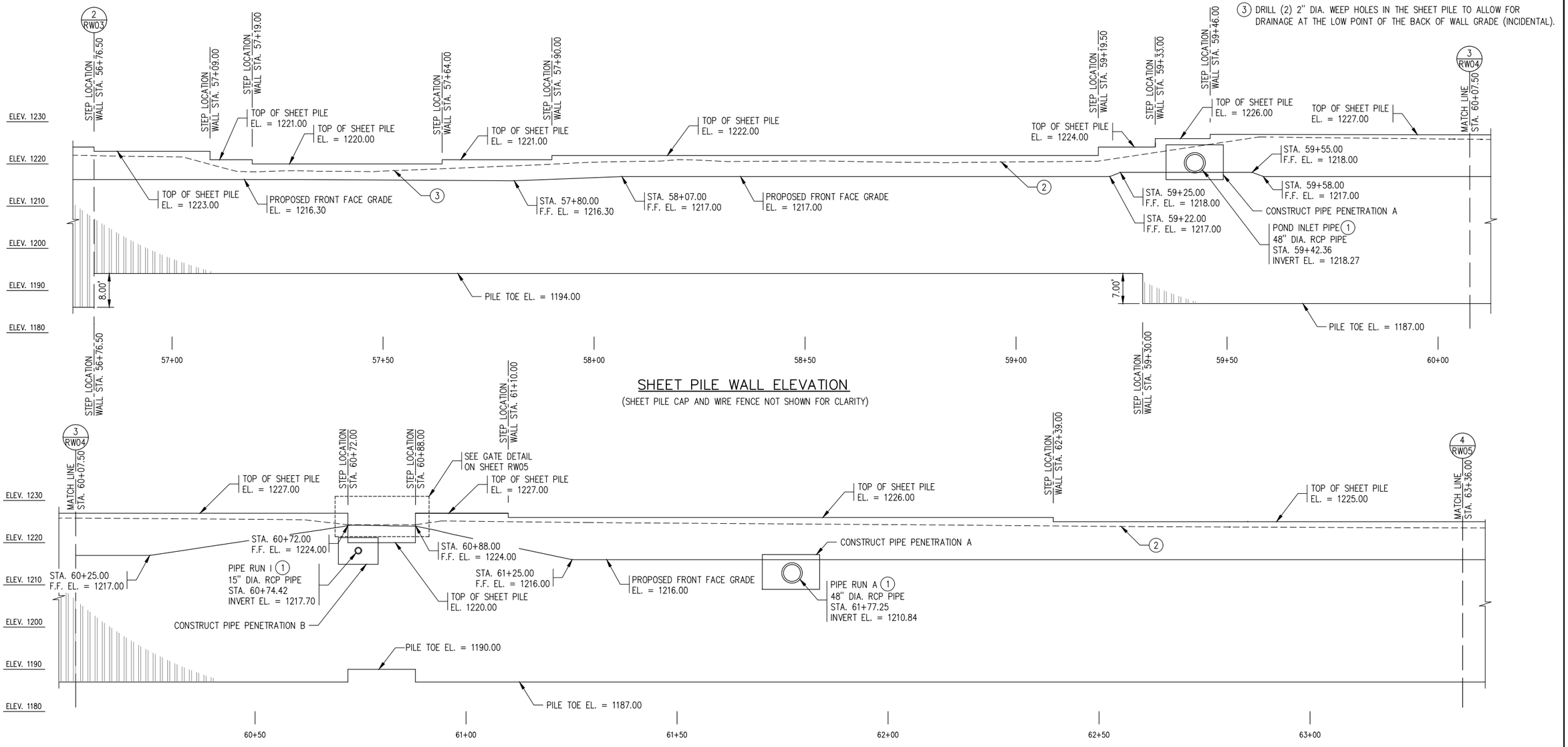
## GENERAL NOTES

-SOIL PROPERTIES:
UNIT WEIGHT = 120 PCF
ANGLE OF FRICTION = 30 DEGREES

-LIVE LOAD SURCHARGE = 240 PSF

## KEY NOTE:

1. SEE SHEETS RW07 & RW08 FOR PIPE PENETRATION COLLAR DETAILS. SEE GRADING PLAN FOR PIPE RUN INFORMATION
2. PROPOSED BACK FACE GRADE VARIES, SEE GRADING PLAN
3. DRILL (2) 2" DIA. WEEP HOLES IN THE SHEET PILE TO ALLOW FOR DRAINAGE AT THE LOW POINT OF THE BACK OF WALL GRADE (INCIDENTAL).




## SHEET PILE WALL ELEVATION

(SHEET PILE CAP AND WIRE FENCE NOT SHOWN FOR CLARITY)

## SHEET PILE WALL ELEVATION

(SHEET PILE CAP AND WIRE FENCE NOT SHOWN FOR CLARITY)

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CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

RETAINING WALL ELEVATIONS

SHEET NO. **RW04** OF **RW09** SHEETS

## MATCH LINE CALL OUT

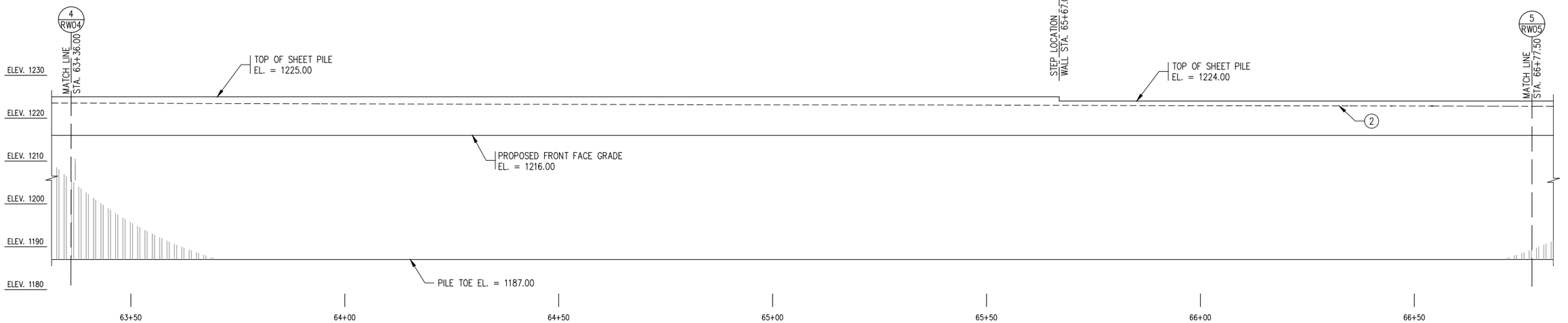
A = MATCH LINE NUMBER
B = SHEET NUMBER OF ASSOCIATED MATCHLINE

## GENERAL NOTES

- SOIL PROPERTIES:
  UNIT WEIGHT = 120 PCF
  ANGLE OF FRICTION = 30 DEGREES
- LIVE LOAD SURCHARGE = 240 PSF

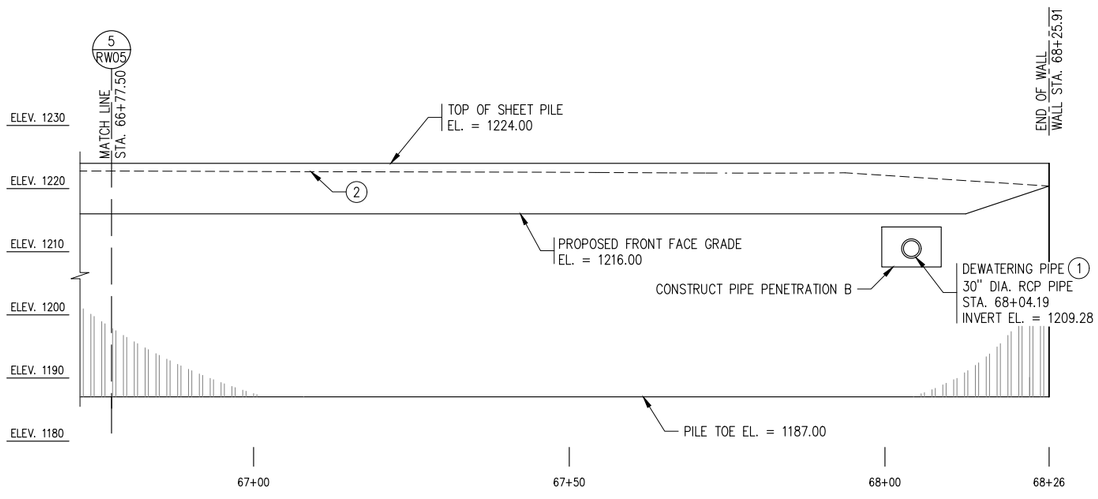
## KEY NOTE:

1. SEE SHEETS RW07 & RW08 FOR PIPE PENETRATION COLLAR DETAILS. SEE GRADING PLAN FOR PIPE RUN INFORMATION
2. PROPOSED BACK FACE GRADE VARIES, SEE GRADING PLAN



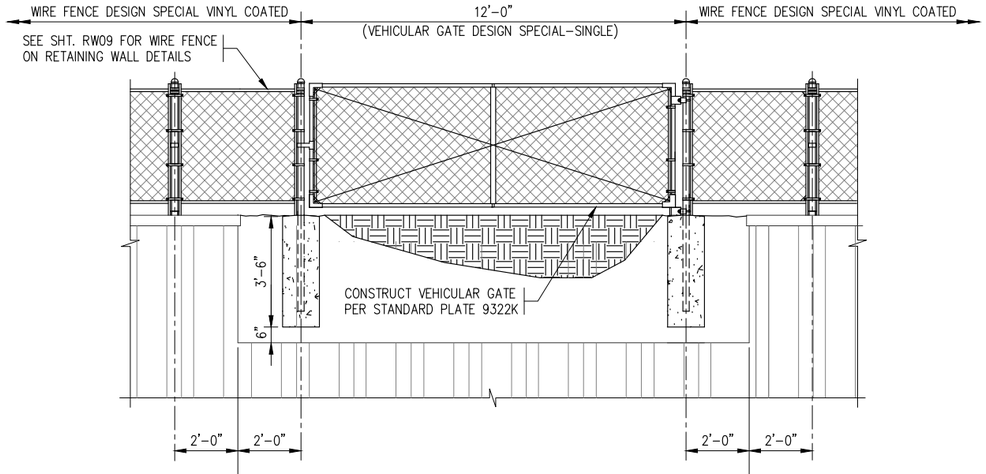

## SHEET PILE WALL ELEVATION

(SHEET PILE CAP AND WIRE FENCE NOT SHOWN FOR CLARITY)




## SHEET PILE WALL ELEVATION

(SHEET PILE CAP AND WIRE FENCE NOT SHOWN FOR CLARITY)




## GATE DETAIL

(CONSTRUCTION OF VEHICULAR GATE AS SHOWN AND AS DETAILED ON STANDARD PLATE 9322K. TO BE INCLUDED FOR PAYMENT UNDER "VEHICULAR GATE DESIGN SPECIAL-SINGLE")

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.

CHRIS MILLER
PRINTED NAME

Christopher J. Miller
SIGNATURE

01/13/2026
DATE

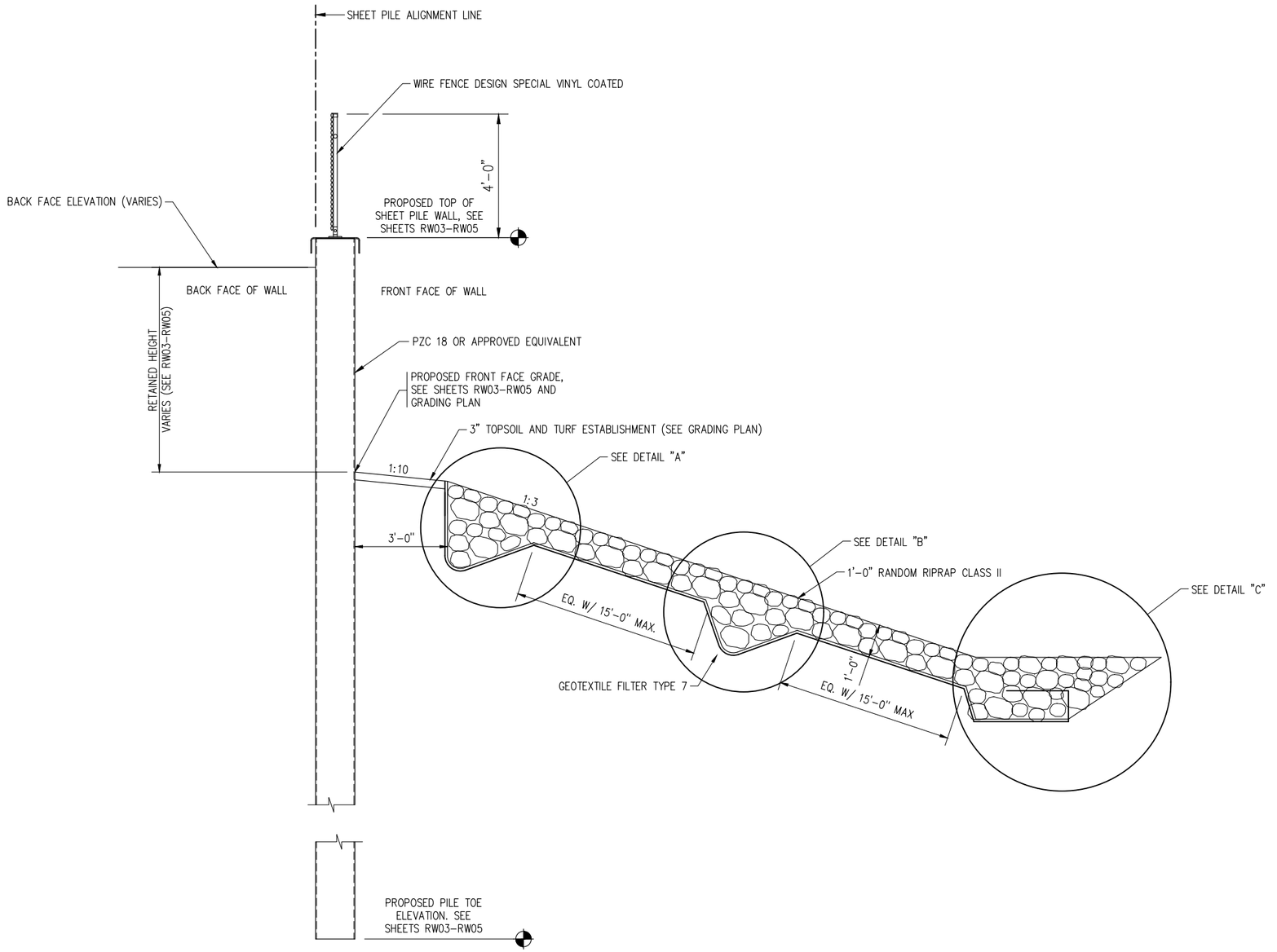
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CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

RETAINING WALL ELEVATIONS

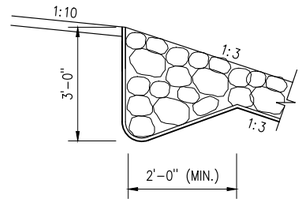
SHEET NO. **RW05** OF **RW09** SHEETS



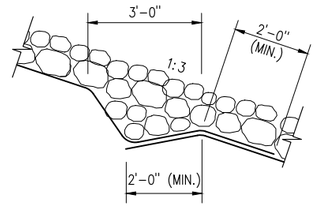

SHEET PILE WALL CROSS SECTION

## KEY NOTE:

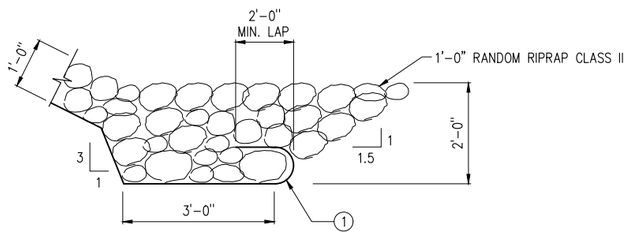
(1) WRAP GEOTEXTILE AROUND TOE, OVERHANG BETWEEN 1ST AND 2ND LAYER OF RIPRAP. USE HAND PLACEMENT OR SIMILAR METHODS TO ESTABLISH PROFILE AND PLACE FABRIC IF UNDER WATER.




DETAIL "A"




DETAIL "B"




DETAIL "C"

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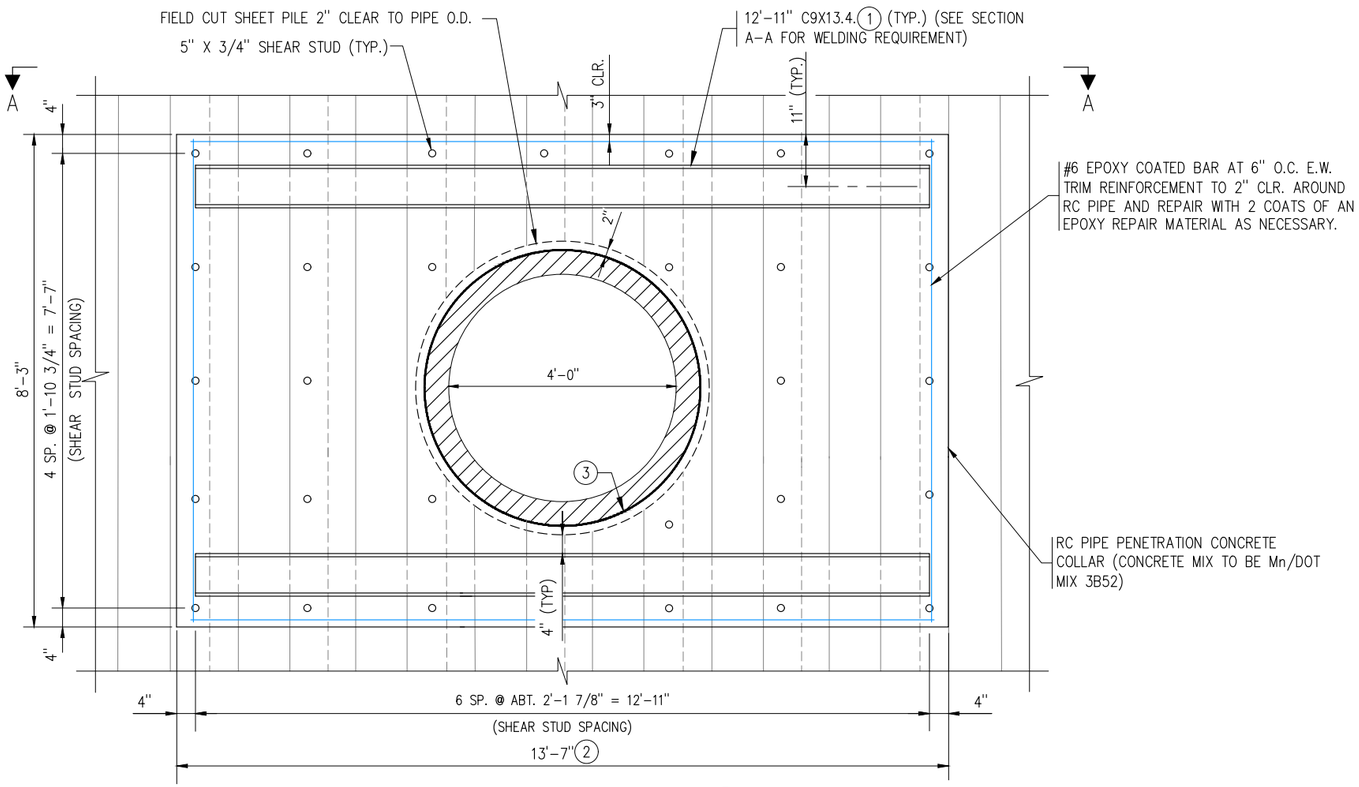
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

SHEET PILE SECTION AND DATA

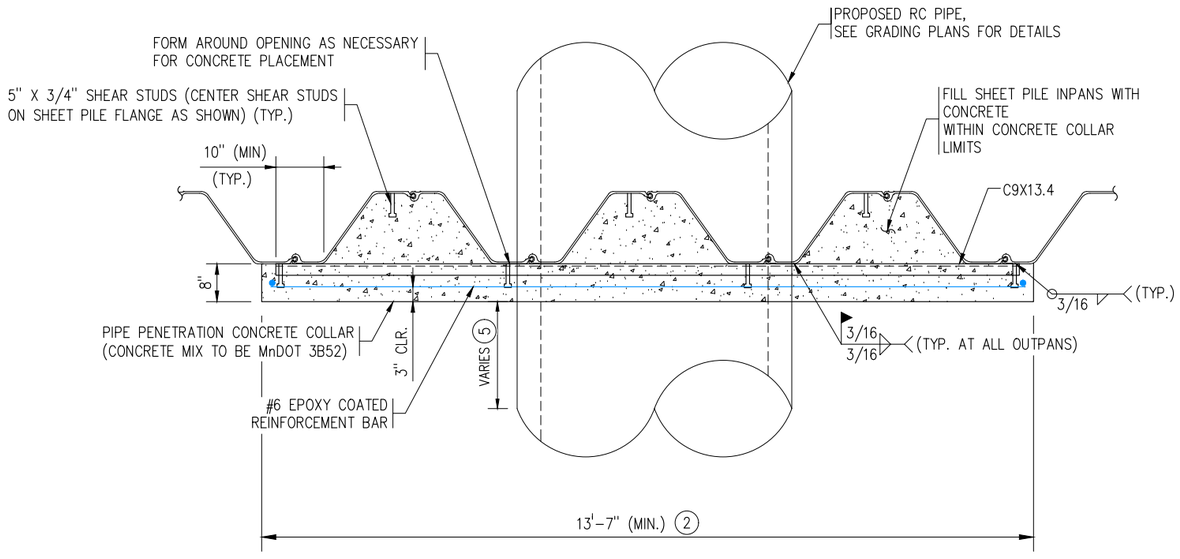
SHEET NO. **RW06** OF **RW09** SHEETS

LHB PROJECT NO. 240078

PLOT DATE: 1/13/2026 8:38:46 AM FILE: Q:\24Proj\240078\500 Drawings\Structural\240078RW06.dwg




PIPE PENETRATION DETAIL (4)




SECTION A-A

| SHEET PILE PIPE PENETRATION (4) | | | | |
|---|---|---|---|---|
| PIPE LABEL/RUN | PIPE TYPE | SHEET PILE STATION | PIPE O.D. | INVERT ELEVATION AT WALL |
| STORM RUN A | 48" RC PIPE | 61+77.25 | 58.00 IN | 1210.84 |
| POND INLET | 48" RC PIPE | 59+42.36 | 58.00 IN | 1218.27 |
| | | | | |

CONTRACTOR SHALL VERIFY ACTUAL LOCATION/ SIZE OF PIPE AND ADJUST AS NECESSARY PRIOR TO CUTTING OF SHEET PILE WALL AND FABRICATING MATERIAL FOR PIPE PENETRATION.

## GENERAL NOTES:

CHANNEL PER MNDOT SPEC 3306 AND GALVANIZED PER MNDOT SPEC 3394.

PROVIDE SHEAR STUDS PER MNDOT SPEC 3391.2.D AND INSTALLED PER MNDOT SPEC 2402.3.J

## KEY NOTES:

(1) 13'-1" (MIN.), ADJUST LENGTH OF CHANNEL AS NEEDED SUCH THAT CHANNEL PROJECTS EACH SIDE OF RC PIPE TO 10 INCH (MIN.) PAST EDGE OF NEAREST OUTPAN OF ADJACENT UNCUT SHEETS EACH SIDE OF PIPE PENETRATION AS SHOWN IN SECTION A-A.

(2) 13'-7" (MIN.), SIZE CONCRETE COLLAR AS NECESSARY TO PROVIDE 3" CLEAR PAST END OF C9X13.4

(3) PROPOSED STORM SEWER, SEE TABLE THIS SHT. & GRADING PLANS FOR DETAILS. PROVIDE 1/2" BIT. FELT AROUND ENTIRE PERIMETER OF PIPE BETWEEN PIPE AND CONCRETE COLLAR. SECURE BIT. FELT TO CONCRETE COLLAR WITH 1 1/2" COPPER NAILS AT 1'-0" O.C.

(4) ALL MATERIAL AND LABOR REQUIRED TO CONSTRUCT THE COMPLETE PIPE PENETRATIONS AS DETAILED SHALL BE INCLUDED FOR PAYMENT UNDER BID ITEM "CONSTRUCT PIPE PENETRATION A"

(5) SEE GRADING PLANS FOR PIPE END TREATMENT

PIPE PENETRATION "A" DETAIL

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.

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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

SHEET PILE PENETRATION DETAILS

SHEET NO. RW07 OF RW09 SHEETS

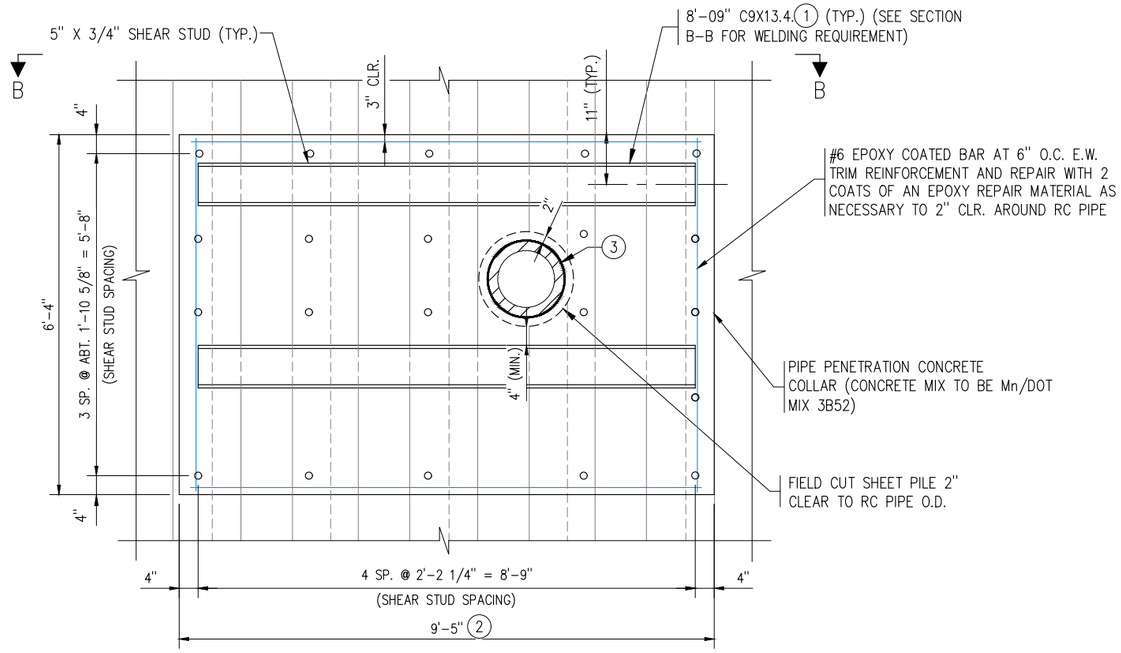
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LHB PROJECT NO. 240078

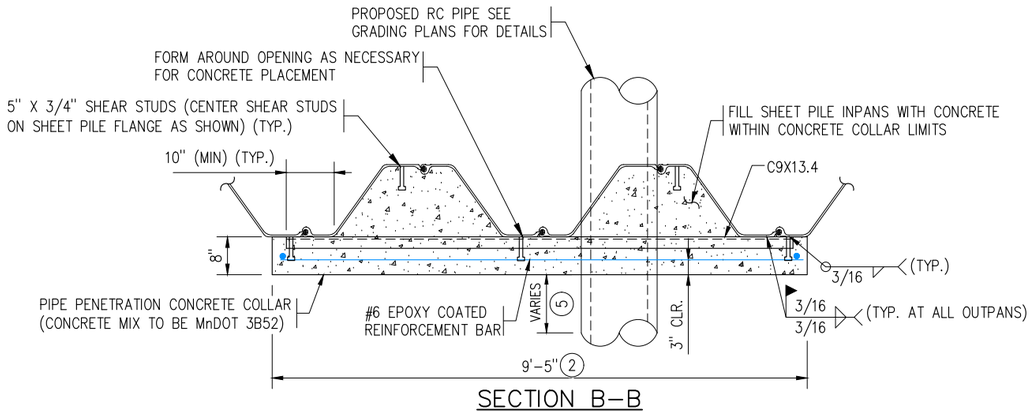
## SHEET PILE PIPE PENETRATION (4)

| PIPE LABEL/RUN | PIPE TYPE | SHEET PILE STATION | PIPE O.D. | INVERT ELEVATION AT WALL |
|---|---|---|---|---|
| STORM RUN F | 15" RC PIPE | 52+19.23 | 19.50 IN | 1216.40 |
| STORM RUN J | 18" RC PIPE | 53+60.82 | 23.00 IN | 1216.30 |
| STORM RUN I | 15" RC PIPE | 60+74.42 | 19.50 IN | 1217.70 |
| DEWATERING | 30" RC PIPE | 68+04.19 | 37.00 IN | 1209.28 |
| | | | | |

CONTRACTOR SHALL VERIFY ACTUAL LOCATION/SIZE OF PIPE AND ADJUST AS NECESSARY PRIOR TO CUTTING OF SHEET PILE WALL AND FABRICATING MATERIAL FOR PIPE PENETRATION.




PIPE PENETRATION DETAIL (4)




SECTION B-B

## KEY NOTES:

(1) 8'-11" (MIN.) ADJUST LENGTH OF CHANNEL AS NEEDED SUCH THAT CHANNEL PROJECTS EACH SIDE OF RC PIPE TO 10 INCH (MIN.) PAST EDGE OF NEAREST OUTPAN OF ADJACENT UNCUT SHEETS EACH SIDE OF PIPE PENETRATION AS SHOWN IN SECTION B-B.

(2) 9'-5" (MIN.) SIZE CONCRETE COLLAR AS NECESSARY TO PROVIDE 3" CLEAR PAST END OF C9X13.4

(3) PROPOSED STORM WATER PIPE, SEE TABLE THIS SHT. & GRADING PLANS FOR DETAILS. PROVIDE 1/2" BITFELT AROUND ENTIRE PERIMETER OF PIPE BETWEEN PIPE AND CONCRETE COLLAR. SECURE BITFELT TO CONCRETE COLLAR WITH 1 1/2" COPPER NAILS AT 1'-0" O.C.

(4) ALL MATERIAL AND LABOR REQUIRED TO CONSTRUCT THE COMPLETE PIPE PENETRATIONS AS DETAILED SHALL BE INCLUDED FOR PAYMENT UNDER BID ITEMS "CONSTRUCT PIPE PENETRATIONS B"

(5) SEE GRADING PLANS FOR PIPE END TREATMENT

## GENERAL NOTES:

CHANNEL PER MNDOT SPEC 3306 AND GALVANIZED PER MNDOT SPEC 3394.

PROVIDE SHEAR STUDS PER MNDOT SPEC 3391.2.D AND INSTALLED PER MNDOT SPEC 2402.3.J

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PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

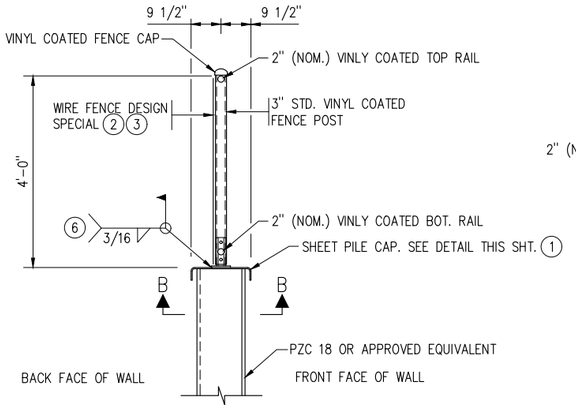
PIPE PENETRATION "B" DETAIL

SHEET PILE PENETRATION DETAILS

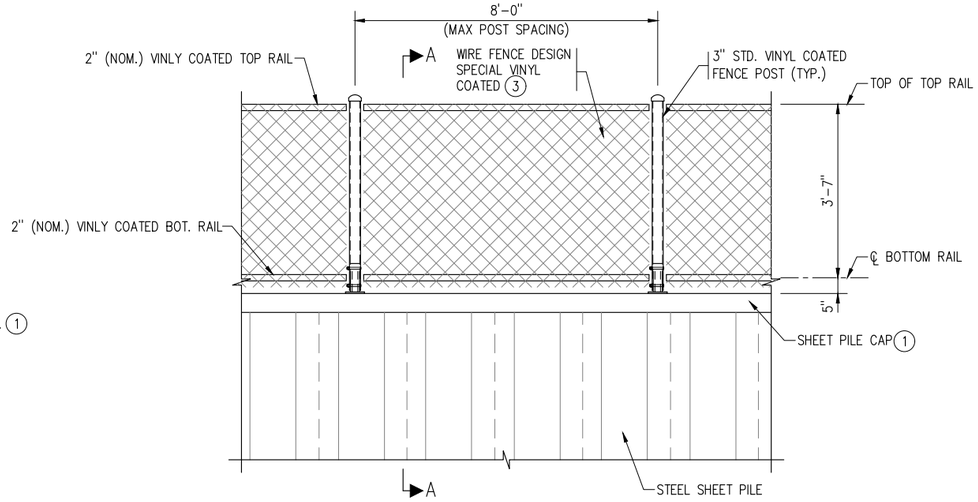
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LHB PROJECT NO. 240078

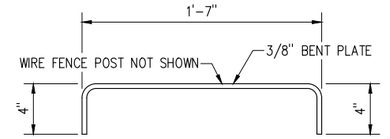



SECTION A–A (2)



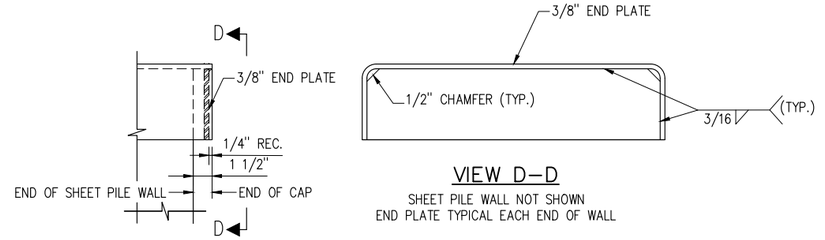

SHEET PILE ELEVATION (2)

ATTACH FENCE RAILS TO FENCE POSTS WITH VINYL COATED RAIL CLAMPS




SHEET PILE CAP DETAIL (1)

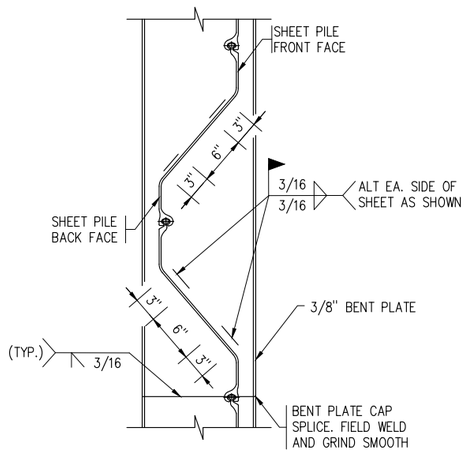
SHEET PILE CAP SHALL CONFORM TO SPEC 3306 PROVIDE SHEET PILE CAP IN 20'-0" MAXIMUM LENGTH SEGMENTS WHERE PRATICAL. PROVIDE MITERED JOINTS AT LOCATIONS OF CURVATURE AND WALL PI'S. CONTINUOUSLY WELD IN FIELD IN LENGTHS OF 200 FT. LEAVE 1/2" GAP IN CAP SEGMENTS AT 200 FT INTERVALS



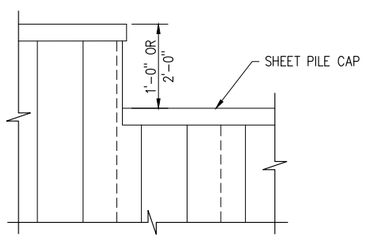

VIEW D–D

SHEET PILE WALL NOT SHOWN
END PLATE TYPICAL EACH END OF WALL

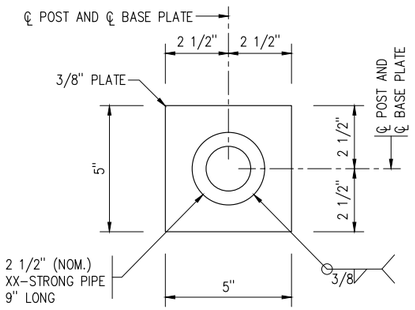
PILE CAP END DETAIL




SECTION B–B (1)

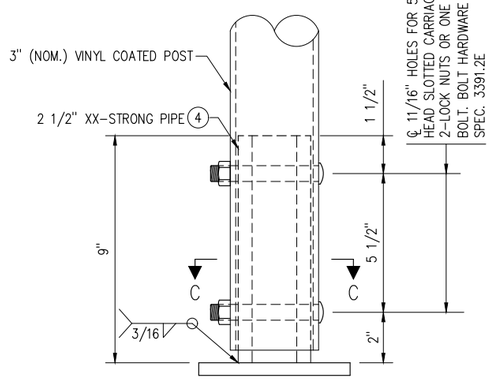



CAP STEP DETAIL




SECTION C–C

3" (NOM.) VINYL COATED FENCE POST AND CARRIAGE BOLTS NOT SHOWN




FENCE POST BASE DETAIL (2) (4)

3/8" PLATE SHALL CONFORM TO SPEC 3306 AND 2 1/2" XX-STRONG PIPE SHALL CONFORM TO SPEC. 3362

## CHAIN LINK FENCE NOTES:

STRUCTURAL STEEL PER MNDOT SPEC. 3306

STRUCTURAL PIPE PER MNDOT SPEC. 3362

GALVANIZE THE FENCE POST AND FENCE POST BASE AFTER FABRICATION PER MNDOT SPEC. 3394.

ALL HARDWARE TO BE GALVANIZED PER MNDOT SPEC 3392

## CHAIN LINK FENCE DETAILS:

FENCE SHALL BE PROVIDED AND INSTALLED ACCORDING TO DETAILS (THIS SHEET) AND THE FOLLOWING:

1. A TOP AND BOTTOM RAIL SHALL BE PROVIDED THE ENTIRE LENGTH OF EACH FENCE
2. STRETCHER BARS SHALL BE PROVIDED AT EACH END POST AND ALONG THE TOP AND BOTTOM OF RAILS.
3. ALL END POSTS AND INTERMEDIATE (LINE) POSTS SHALL BE 3" NOM. DIAMETER AS DETAILED AND NOTED ABOVE.
4. ALL FENCE COMPONENTS SHALL BE GALVANIZED INCLUDING BASE PLATES AND PIPE SLEEVES

## NOTES:

(1) ALL MATERIAL AND LABOR REQUIRED TO FURNISH AND INSTALL PILE CAP AS SHOWN SHALL BE INCLUDED IN "STRUCTURAL STEEL (3306)"

(2) ALL MATERIAL AND LABOR REQUIRED TO FURNISH AND INSTALL FENCE AS SHOWN, INCLUDING BUT NOT LIMITED TO FENCE POST, TOP AND BOTTOM RAIL, CHAIN LINK FABRIC, POST BASE CONNECTIONS AND WELDING TO STEEL CAP, SHALL BE INCLUDED IN PRICE BID FOR ITEM "WIRE FENCE DESIGN SPECIAL VINYL COATED"

(3) CHAIN LINK FENCE SHALL BE ATTACHED ON THE BACK SIDE WALL FACE OF THE POSTS.

(4) PRIOR TO FABRICATION AND ORDERING OF REQUIRED QUANTITY OF FENCE POST BASES, ENSURE FIT UP OF 2 1/2" XX-STRONG BASE PIPE INTO INTERIOR OF 3" NOM. FENCE POST. NOTIFY ENGINEER IF TOLERANCES DO NOT ALLOW FOR FIT UP AND PROPOSE ALTERNATE SIZE BASE PIPE.

(5) CAP TO BE BUILT UP WITH 3/8" PLATES IN AREAS OF WALL CURVATURE. WELD PLATE WITH 3/16 GROOVE WELD GROUND SMOOTH. BUILT UP CAP SHALL MATCH DIMENSIONS OF BENT CAP.

(6) REPAIR GALVANIZING ON FENCE POST BASE AFTER FIELD WELD (INCIDENTAL).

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.

CHRIS MILLER
PRINTED NAME

Christopher J. Miller
SIGNATURE

01/13/2026
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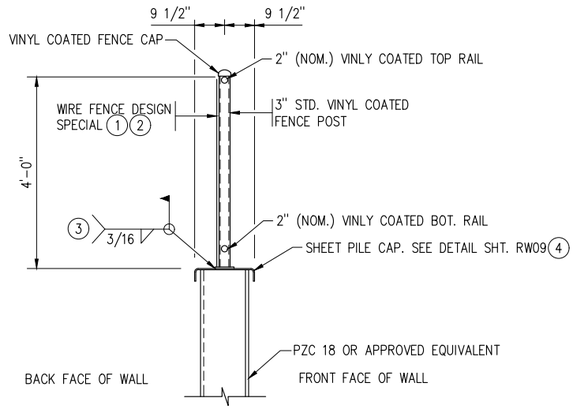
PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

SHEET PILE CAP AND FENCE DETAILS

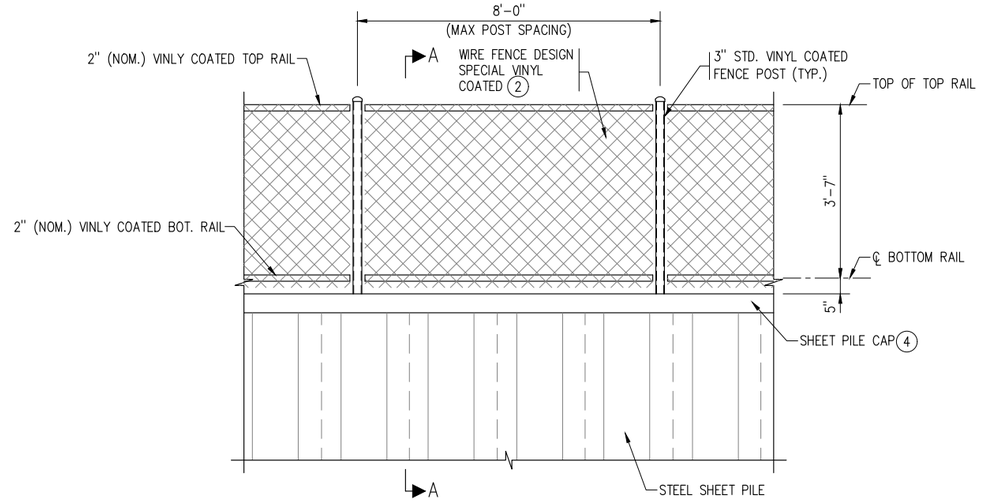
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LHB PROJECT NO. 240078

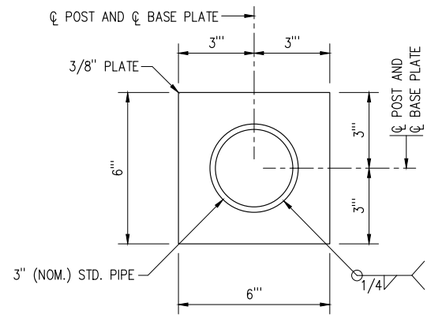



SECTION A–A (1)




SHEET PILE ELEVATION (1)

ATTACH FENCE RAILS TO FENCE POSTS WITH VINYL COATED RAIL CLAMPS




BASE PLATE DETAIL

## CHAIN LINK FENCE NOTES:

STRUCTURAL PIPE PER MNDOT SPEC. 3362

GALVANIZE THE FENCE POST AND FENCE POST BASE AFTER FABRICATION PER MNDOT SPEC. 3394.

ALL HARDWARE TO BE GALVANIZED PER MNDOT SPEC 3392

## CHAIN LINK FENCE DETAILS:

FENCE SHALL BE PROVIDED AND INSTALLED ACCORDING TO DETAILS (THIS SHEET) AND THE FOLLOWING:

1. A TOP AND BOTTOM RAIL SHALL BE PROVIDED THE ENTIRE LENGTH OF EACH FENCE
2. STRETCHER BARS SHALL BE PROVIDED AT EACH END POST AND ALONG THE TOP AND BOTTOM OF RAILS.
3. ALL END POSTS AND INTERMEDIATE (LINE) POSTS SHALL BE 3" NOM. DIAMETER AS DETAILED AND NOTED ABOVE.
4. ALL FENCE COMPONENTS SHALL BE GALVANIZED INCLUDING BASE PLATES.

## NOTES:

(1) ALL MATERIAL AND LABOR REQUIRED TO FURNISH AND INSTALL FENCE AS SHOWN, INCLUDING BUT NOT LIMITED TO FENCE POST, TOP AND BOTTOM RAIL, CHAIN LINK FABRIC, POST BASE AND WELDING TO STEEL CAP, SHALL BE INCLUDED IN PRICE BID FOR ITEM "WIRE FENCE DESIGN SPECIAL VINYL COATED"

(2) CHAIN LINK FENCE SHALL BE ATTACHED ON THE BACK SIDE WALL FACE OF THE POSTS.

(3) REPAIR GALVANIZING ON FENCE POST BASE AFTER FIELD WELD (INCIDENTAL).

(4) SEE SHT. RW09 FOR ALL PILE CAP DETAILS AND DETAILS NOT SHOWN.

⚠1

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.

CHRIS MILLER
PRINTED NAME

Christopher J. Miller
SIGNATURE

02/03/2026
DATE

49840
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

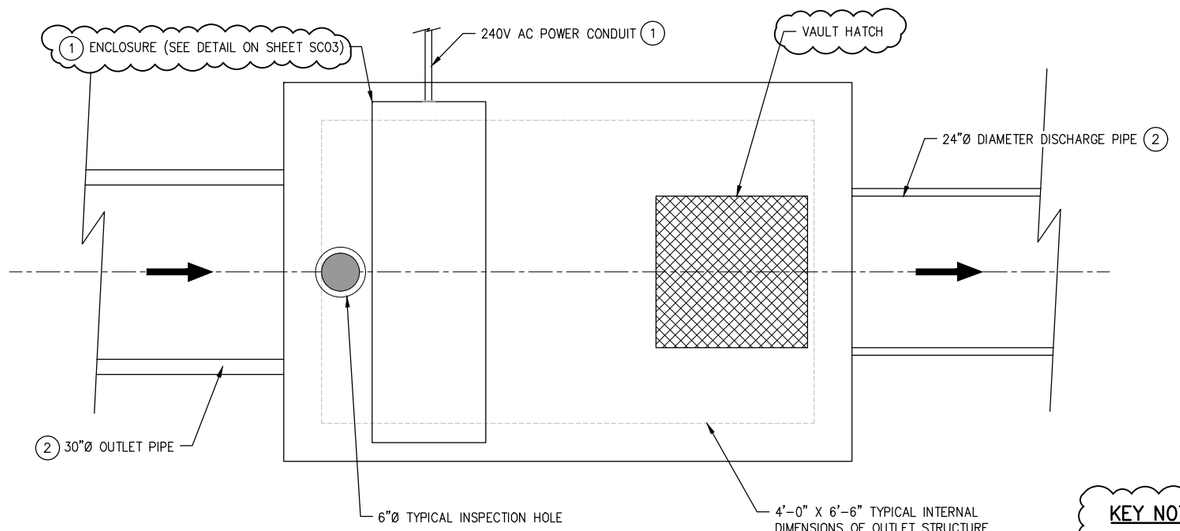
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⚠1 02/03/2026

FENCE DETAILS – ALTERNATIVE DESIGN

SHEET NO. **RW09A** OF **RW09** SHEETS

LHB PROJECT NO. 240078

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## CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 3

**KEY NOTES**

1. PAID FOR AS SMART POND CONTROLS.
2. PAID FOR UNDER ANOTHER ITEM.

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.

MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/23/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

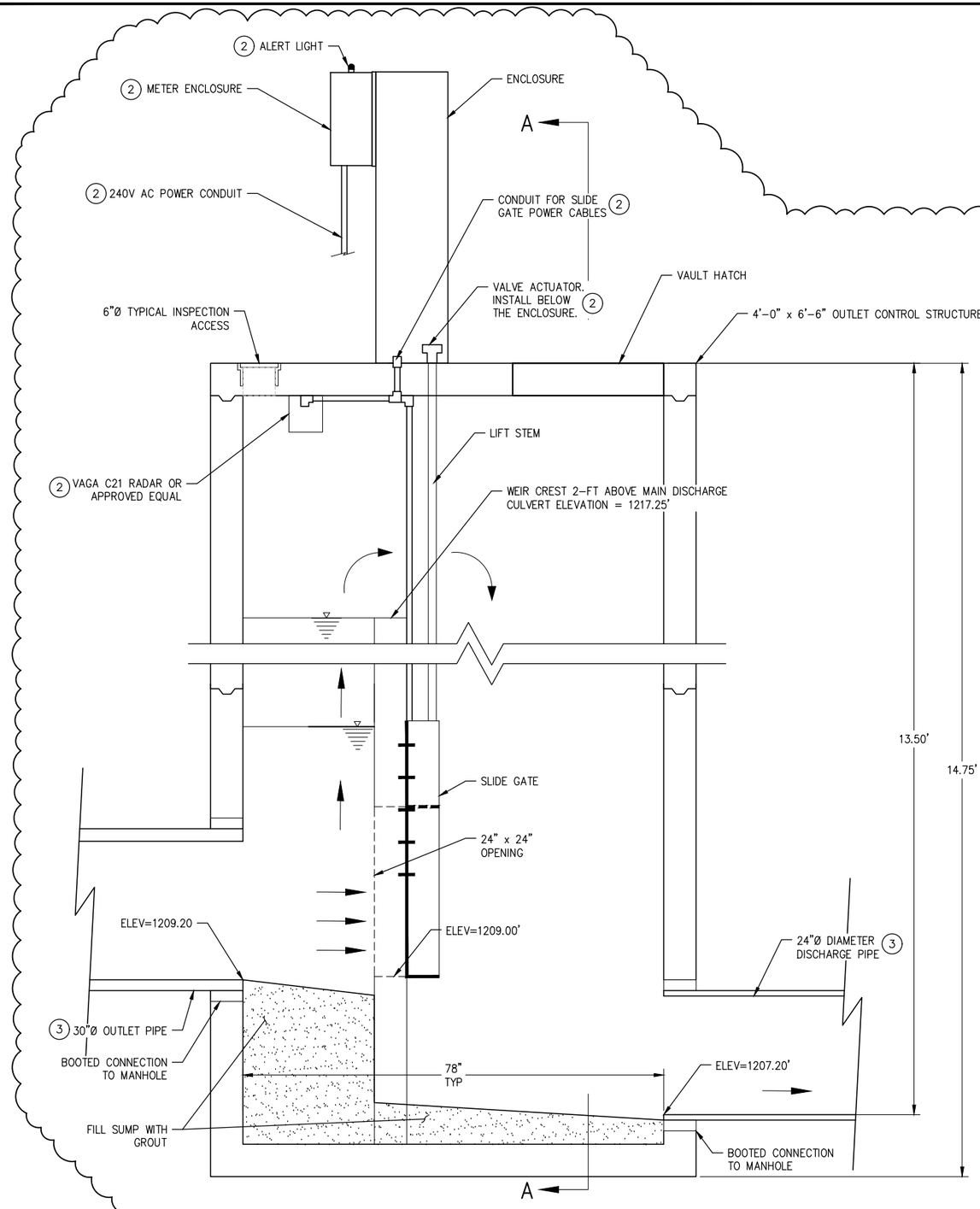
REVISION
⚠ 01/23/26

SMART POND CONTROLS

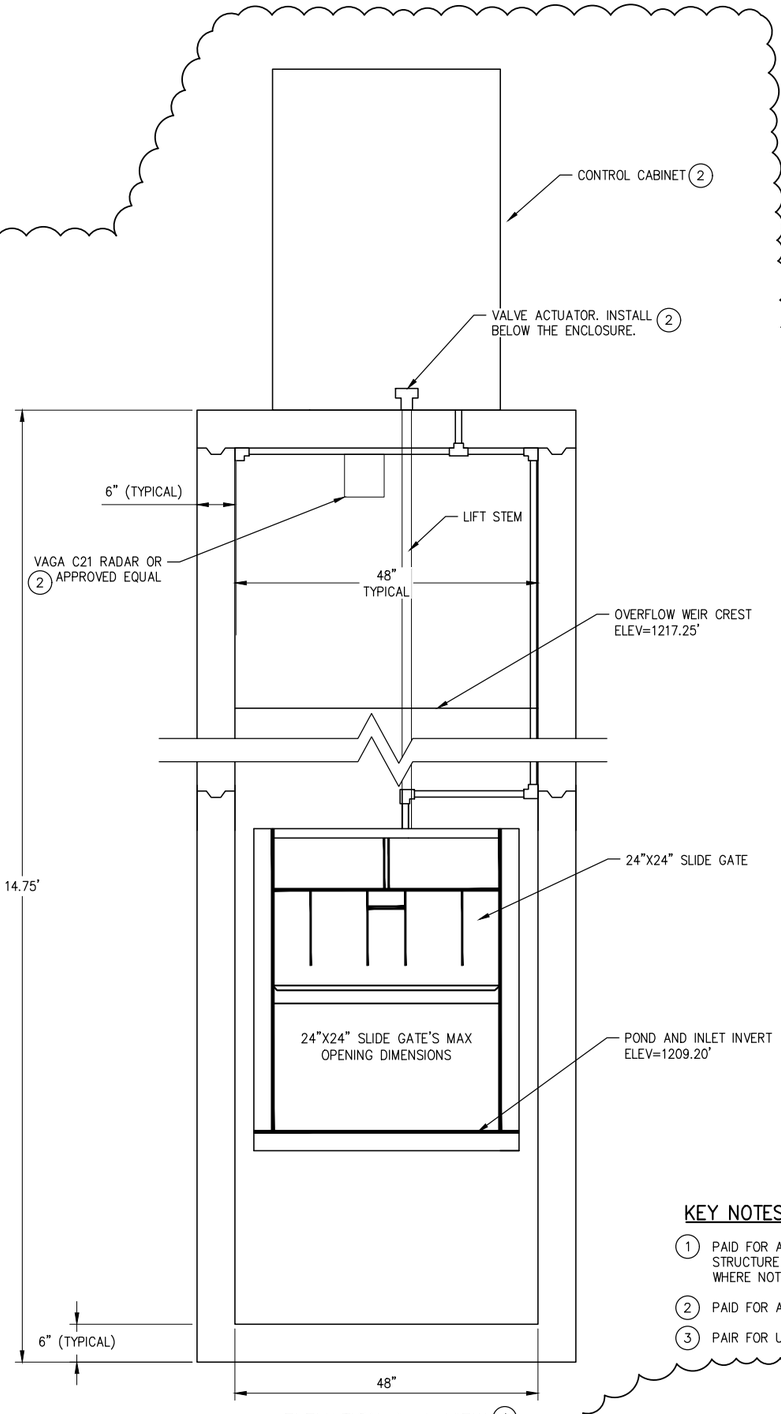
SHEET NO. SC01 OF SC04 SHEETS

LHB PROJECT NO. 240078

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ELEVATION VIEW, OUTLET STRUCTURE WITH CONTROL ENCLOSURE & SLIDE GATE 1




ELEVATION A-A VIEW 1

## KEY NOTES

1. PAID FOR AS CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 3 EXCEPT WHERE NOTED.
2. PAID FOR AS SMART POND CONTROLS.
3. PAIR FOR UNDER ANOTHER ITEM.

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.

MEGAN GOPLIN
PRINTED NAME

Megan Goplin
SIGNATURE

01/27/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

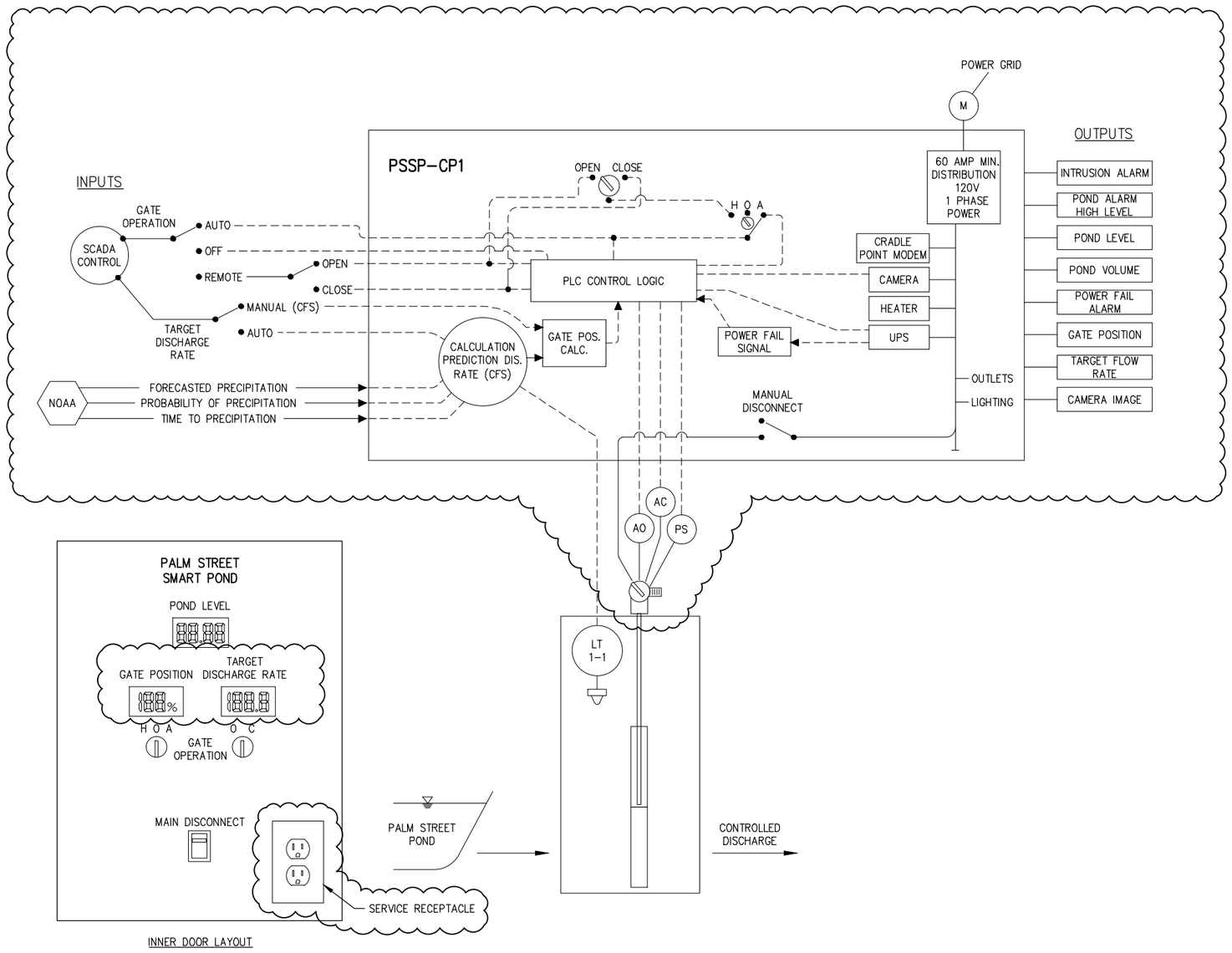
REVISION
⚠ 01/23/26

SMART POND CONTROLS

SHEET NO. SC02R OF SC04 SHEETS

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LHB PROJECT NO. 240078




## PROCESS AND INSTRUMENTATION DIAGRAM (P&ID)

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MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/27/2026
DATE

53018
LIC. NO.

LHB PROJECT NO. 240078

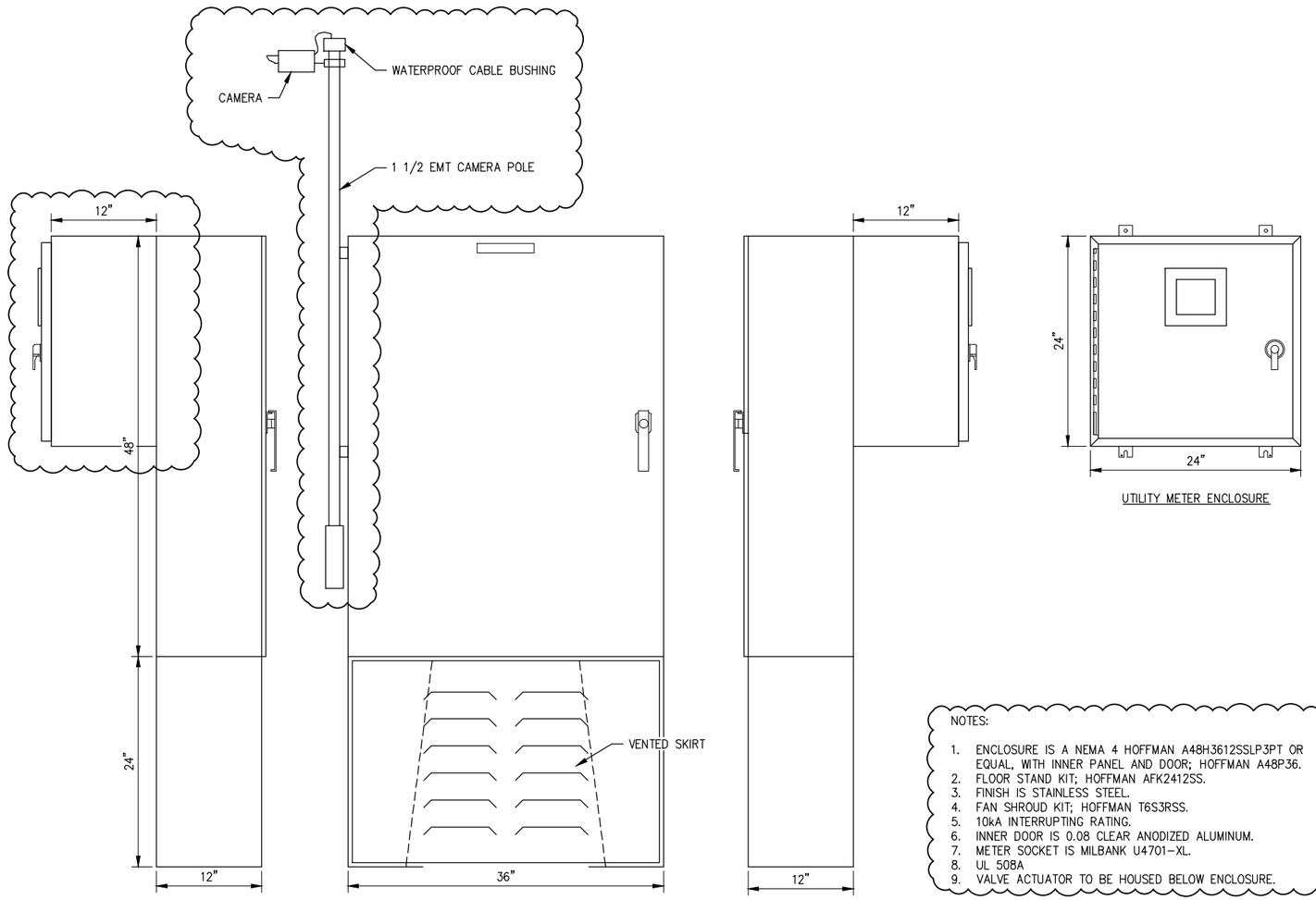
CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

REVISION
⚠ 01/23/26

SMART POND CONTROLS

SHEET NO. SC03R OF SC04 SHEETS




UTILITY METER ENCLOSURE

NOTES:

1. ENCLOSURE IS A NEMA 4 HOFFMAN A48H3612SSLP3PT OR EQUAL, WITH INNER PANEL AND DOOR; HOFFMAN A48P36.
2. FLOOR STAND KIT; HOFFMAN AFK2412SS.
3. FINISH IS STAINLESS STEEL.
4. FAN SHROUD KIT; HOFFMAN T6S3RSS.
5. 10kA INTERRUPTING RATING.
6. INNER DOOR IS 0.08 CLEAR ANODIZED ALUMINUM.
7. METER SOCKET IS MILBANK U4701-XL.
8. UL 508A
9. VALVE ACTUATOR TO BE HOUSED BELOW ENCLOSURE.

## ENCLOSURE DETAIL

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.

MEGAN GOPLIN
PRINTED NAME

SIGNATURE

01/23/2026
DATE

53018
LIC. NO.

CITY PROJECT NO. 2208

PALM STREET PERMANENT STORMWATER MANAGEMENT SYSTEM IMPROVEMENTS

REVISION
⚠ 01/23/26

SMART POND CONTROLS

SHEET NO. SC04 OF SC04 SHEETS

LHB PROJECT NO. 240078

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