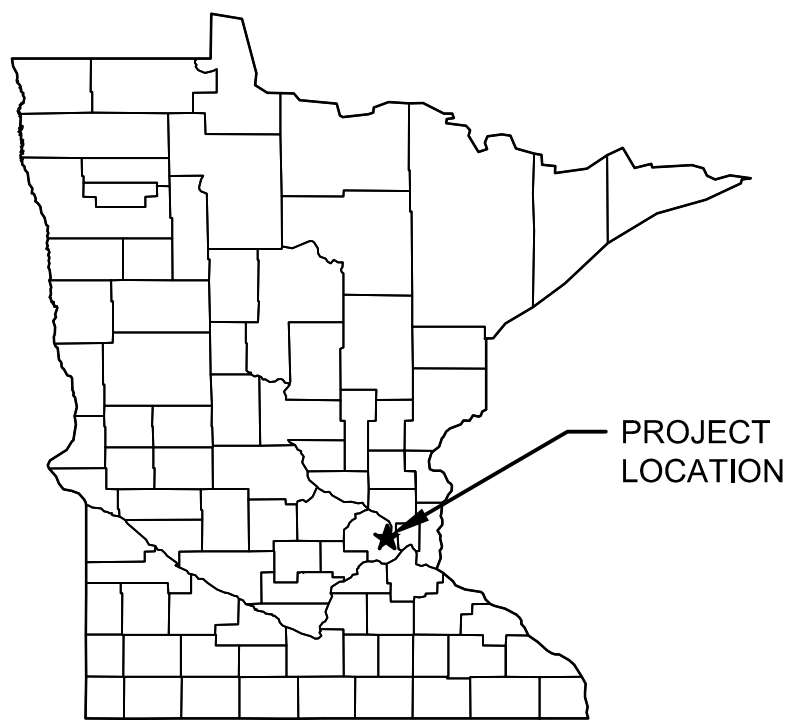


BASSETT CREEK DOUBLE BOX CULVERT REPAIRS

BASSETT CREEK WATERSHED MANAGEMENT COMMISSION

MINNEAPOLIS, MINNESOTA



LOCATION MAP
NOT TO SCALE

REFERENCING

LIMITS OF SECTION CUT

SECTION IDENTIFIER

SECTION REFERENCES
(SHEET SECTION IS
LOCATED ON)

SECTION IDENTIFIER

SECTION: SECTION TITLE

SECTION REFERENCES
(SHEET SECTION IS
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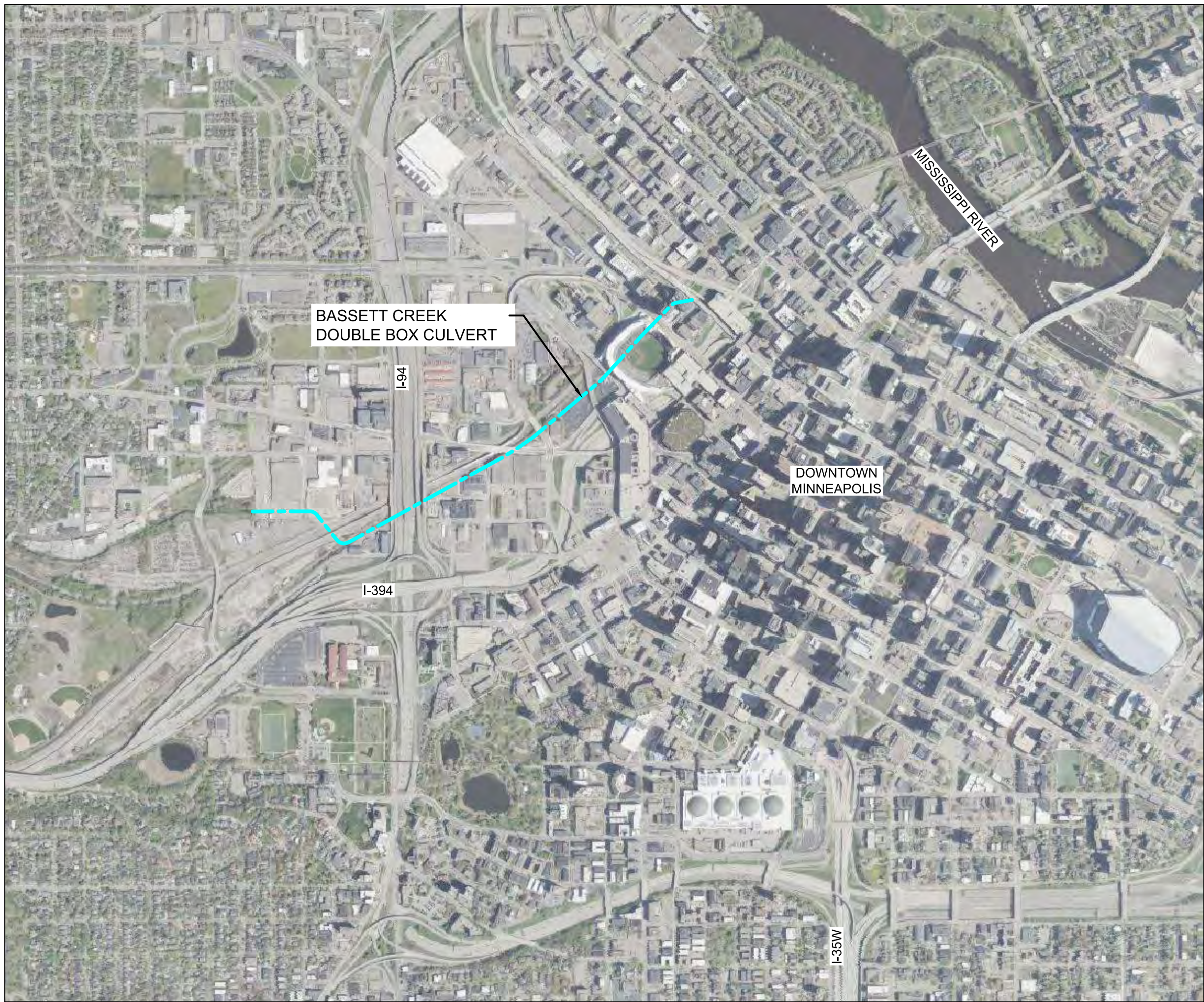
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DETAIL REFERENCES
(SHEET DETAIL IS
LOCATED ON)

DETAIL IDENTIFIER

DETAIL: DETAIL TITLE

DETAIL REFERENCES
(SHEET DETAIL IS
CALLED OUT)



VICINITY MAP
0 1000 2000
SCALE IN FEET

NOTES:

1. COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES, PERMITS, AND REGULATIONS.
2. VERIFY ALL QUANTITIES, GRADES, AND DIMENSIONS.
3. FIELD-LOCATE ALL SITE UTILITIES (PRIVATE AND PUBLIC) PRIOR TO STARTING THE WORK. ALL UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. ANY UTILITIES DAMAGED BY CONTRACTOR SHALL BE REPAIRED TO THE SATISFACTION OF UTILITY OWNER AT CONTRACTOR'S COST.

DRAWING INDEX

SHEET	TITLE
G001	INDEX, LOCATION MAP AND VICINITY MAP
G002	ESTIMATED QUANTITIES & CONSTRUCTION NOTES
G003	EROSION CONTROL DETAILS
C100	SITE PLAN
C101	SHEET LAYOUT REFERENCE
C102	OVERALL ACCESS PLAN
C103	INLET AND MAINTENANCE HOLE ACCESS LOCATIONS
C104	MAINTENANCE HOLE ACCESS LOCATIONS
C200	TYPICAL SECTIONS
C201	REPAIR DETAILS
C202	REPAIR DETAILS
C300	SINGLE BOX REPAIRS STA 120+00 TO 115+10 PLAN AND PROFILE
C301	LEFT BOX REPAIRS STA 128+00 TO 120+00 PLAN AND PROFILE
C302	LEFT BOX REPAIRS STA 136+00 TO 128+00 PLAN AND PROFILE
C303	LEFT BOX REPAIRS STA 144+00 TO 136+00 PLAN AND PROFILE
C304	LEFT BOX REPAIRS STA 152+00 TO 144+00 PLAN AND PROFILE
C305	LEFT BOX REPAIRS STA 160+00 TO 152+00 PLAN AND PROFILE
C306	LEFT BOX REPAIRS STA 168+00 TO 160+00 PLAN AND PROFILE
C307	LEFT BOX REPAIRS STA 174+00 TO 168+00 PLAN AND PROFILE
C401	RIGHT BOX REPAIRS STA 128+00 TO 120+00 PLAN AND PROFILE
C402	RIGHT BOX REPAIRS STA 136+00 TO 128+00 PLAN AND PROFILE
C403	RIGHT BOX REPAIRS STA 144+00 TO 136+00 PLAN AND PROFILE
C404	RIGHT BOX REPAIRS STA 152+00 TO 144+00 PLAN AND PROFILE
C405	RIGHT BOX REPAIRS STA 160+00 TO 152+00 PLAN AND PROFILE
C406	RIGHT BOX REPAIRS STA 168+00 TO 160+00 PLAN AND PROFILE
C407	RIGHT BOX REPAIRS STA 174+00 TO 168+00 PLAN AND PROFILE

PROJECT DATUM:
HORIZONTAL: MINNESOTA STATE PLANE SOUTH ZONE, US FT
VERTICAL: NAVD 88



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



BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA

INDEX, LOCATION MAP, AND VICINITY MAP

BARR PROJECT #	2327005171
DWG #	G001
REV #	B

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 3/11/2026 12:35 PM
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PROJECT MANAGER

CONTACT:
JOSH PHILLIPS
TELEPHONE:
612-419-0188
EMAIL:
JPHILLIPS@BARR.COM

CITY OF MINNEAPOLIS CONTACT

CONTACT:
JOE KLEJWA
TELEPHONE:
612-328-1993
EMAIL:
JOE.KLEJWA@MINNEAPOLISMN.GOV

QUANTITIES TABLE				
ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE
A	MOBILIZATION	LS		
B	WATER MANAGEMENT	LS		
C	EROSION CONTROL	LS		
D	TRAFFIC CONTROL	LS		
E	TYPE 1 - CONCRETE SURFACE REPAIR, 1/2" TO 2-1/2"	SF		
F	TYPE 2 - REINFORCEMENT REPAIR	LF		
G	TYPE 3 - CRACK REPAIR	LF		
H	HYDROPHILIC GROUT	GAL		
I	TYPE 4 - REINFORCEMENT SPACER REPAIR	EA		
J	TYPE 5 - FRACTURE REPAIR	LF		
K	TYPE 6 - TAP REPAIR	EA		
L	TYPE 7 - INSTALL MANHOLE STEP	EA		
M	TYPE 8 - INVERT REPAIR	SF		
N	TYPE 9 - CONCRETE DEMO AND PATCHING REPAIR	SF		
O	TYPE 10 - INVERT CONCRETE DEBRIS REMOVAL	LF		

QUANTITIES TABLE NOTES:

1. CONTINGENCY, BEYOND THE SUM OF THE INDIVIDUAL REPAIR QUANTITIES TABLES HAS BEEN ADDED TO THE ESTIMATED QUANTITIES IN THIS TABLE.

ABBREVIATIONS AND SYMBOLS

APPROX	APPROXIMATE
AVE	AVENUE
CC	CLEAR COVER
CONC	CONCRETE
CY	CUBIC YARD
EA	EACH
EL	ELEVATION
EX	EXISTING
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
LF	LINEAR FEET
LS	LUMP SUM
MAX	MAXIMUM
MIN	MINIMUM
MN	MINNESOTA
NAVD	NORTH AMERICAN VERTICAL DATUM
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NO	NUMBER
OC	ON CENTER
ROW	RIGHT-OF-WAY
SF	SQUARE FOOT
ST	STREET
STA	STATION
TBD	TO BE DETERMINED
TYP	TYPICAL
@	AT
Ø	DIAMETER

CITY OF MINNEAPOLIS NOTES:

1. CONTACT THE CITY OF MINNEAPOLIS A MINIMUM OF TWO WEEKS PRIOR TO BEGINNING WORK TO DISCUSS TRAFFIC CONTROL, PEDESTRIAN SAFETY, AND COORDINATION OF ALL WORK IN THE PUBLIC RIGHT OF WAY AND CITY PROPERTY.
2. SUBMIT TRAFFIC CONTROL PLANS AND ANTICIPATED CONSTRUCTION SCHEDULES FOR EACH PROJECT ACCESS OR POTENTIAL LAYDOWN AREA FOR APPROVAL.
3. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MMUTCD) FOR TEMPORARY TRAFFIC CONTROL.

GENERAL CONSTRUCTION NOTES:

1. ALL DIMENSIONS, LOCATIONS, ELEVATIONS AND CONDITIONS OF EXISTING FEATURES SHOWN ON THE CONTRACT DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
2. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO EQUAL OR BETTER CONDITION THAN EXISTING.
3. TEMPORARY OCCUPANCY PERMIT REQUIRED WHEN PERFORMING WORK ON BNSF PROPERTY (UNDERGROUND WITHIN STORM SEWER). CONTRACTOR TO VERIFY PROPERTY LIMITS.

PROJECT DATUM:
HORIZONTAL: MINNESOTA STATE PLANE SOUTH ZONE, US FT
VERTICAL: NAVD 88

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A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW	
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION	



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MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

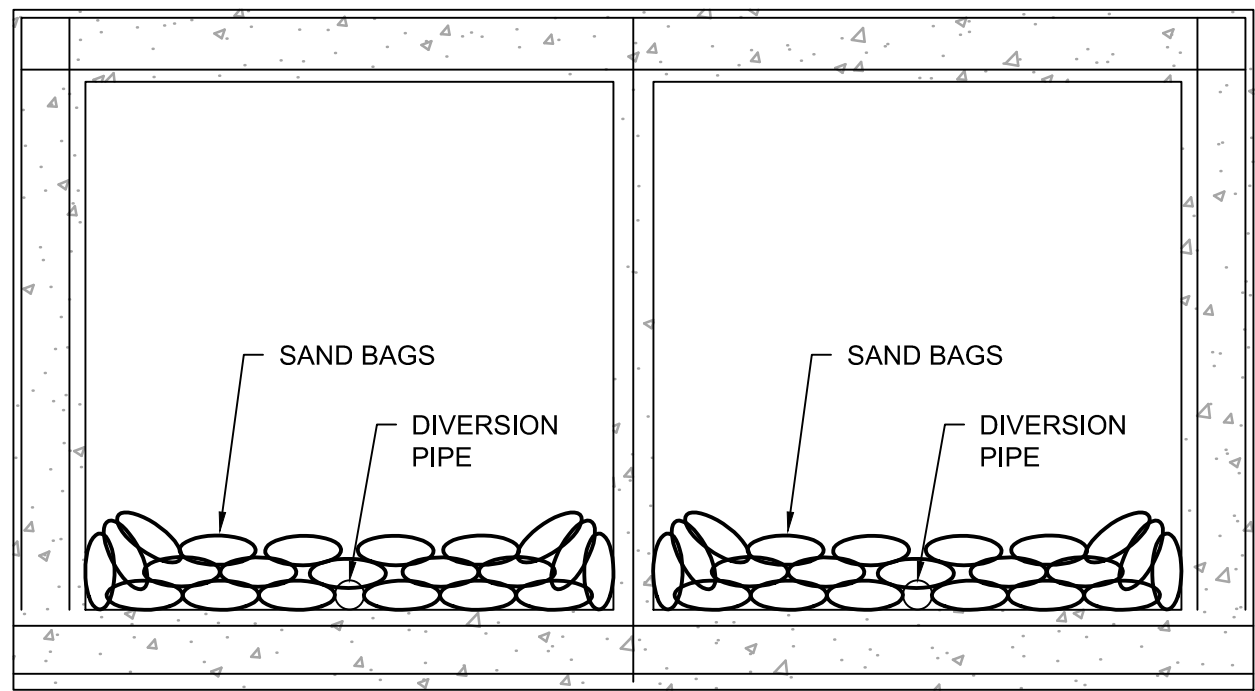
CLIENT PROJECT # FCP-1

BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA

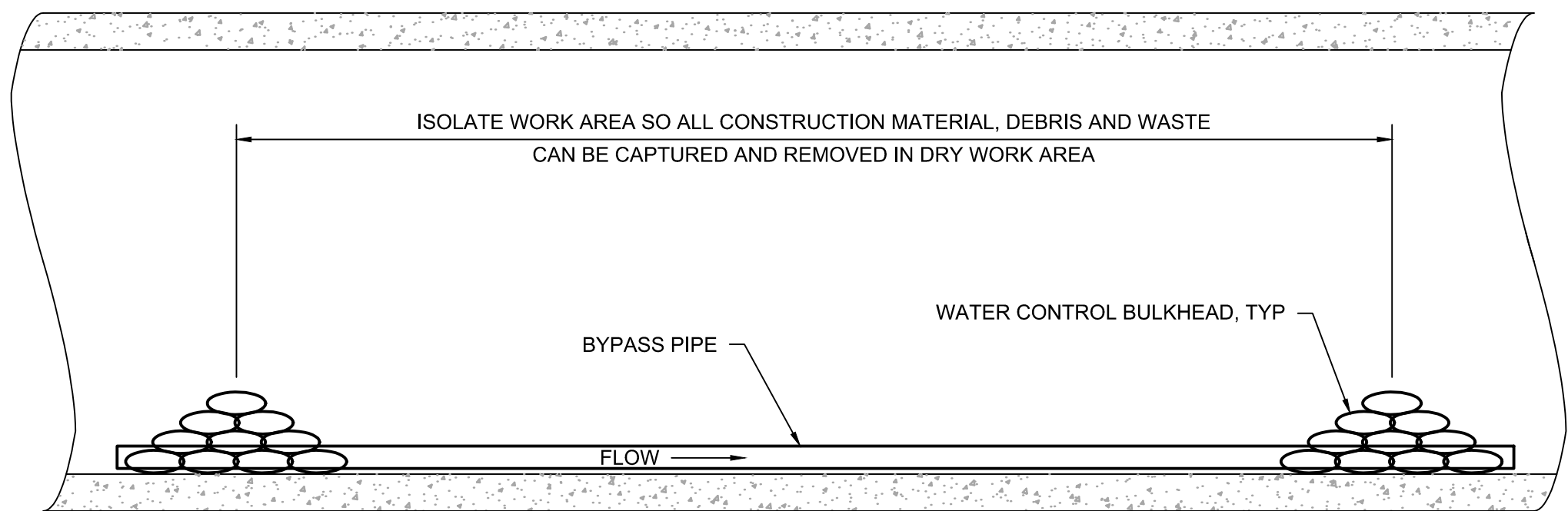
ESTIMATED QUANTITES AND CONSTRUCTION NOTES

BARR PROJECT #	2327005171
DWG #	G002
REV #	B

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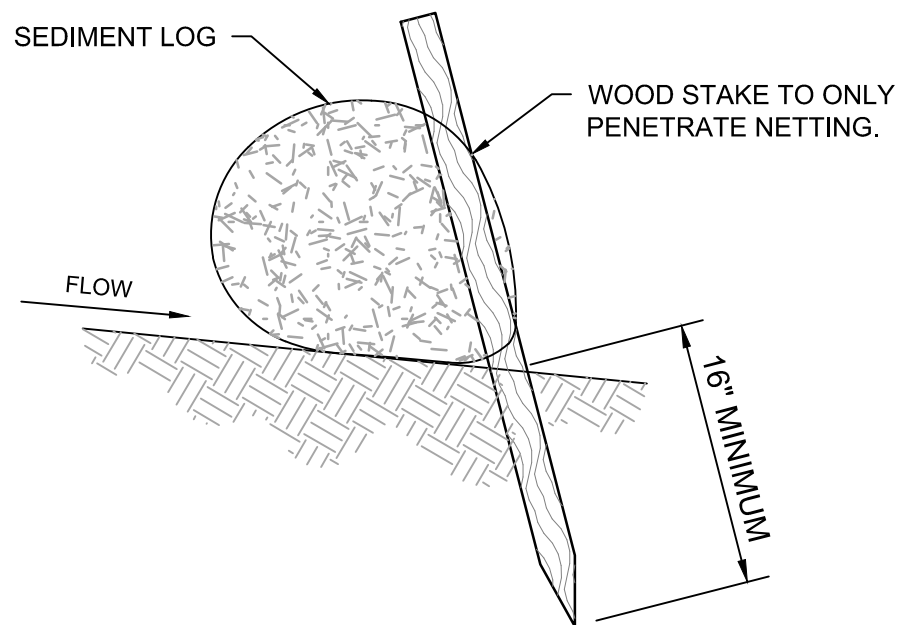
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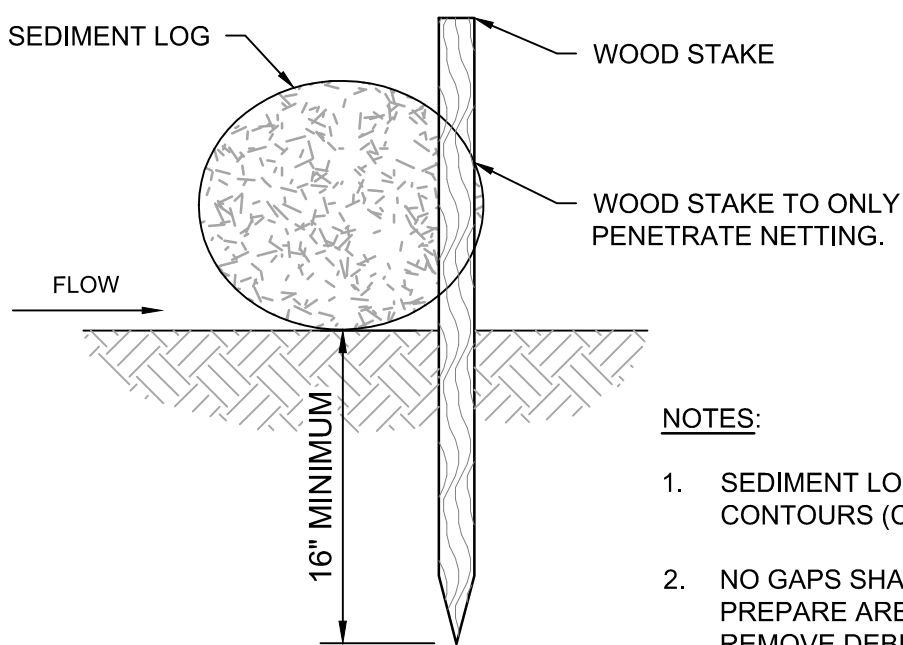
PROFILE

1
-
DETAIL: WORK AREA ISOLATION OPTION
-
NOT TO SCALE

- NOTES:
1. MATERIAL CAPTURED SHALL BE REMOVED ON A DAILY BASIS.
 2. WATER CONTROL BULKHEAD DIMENSIONS AND PIPE DIAMETER TO BE DETERMINED BY CONTRACTOR BASED ON SITE CONDITIONS.

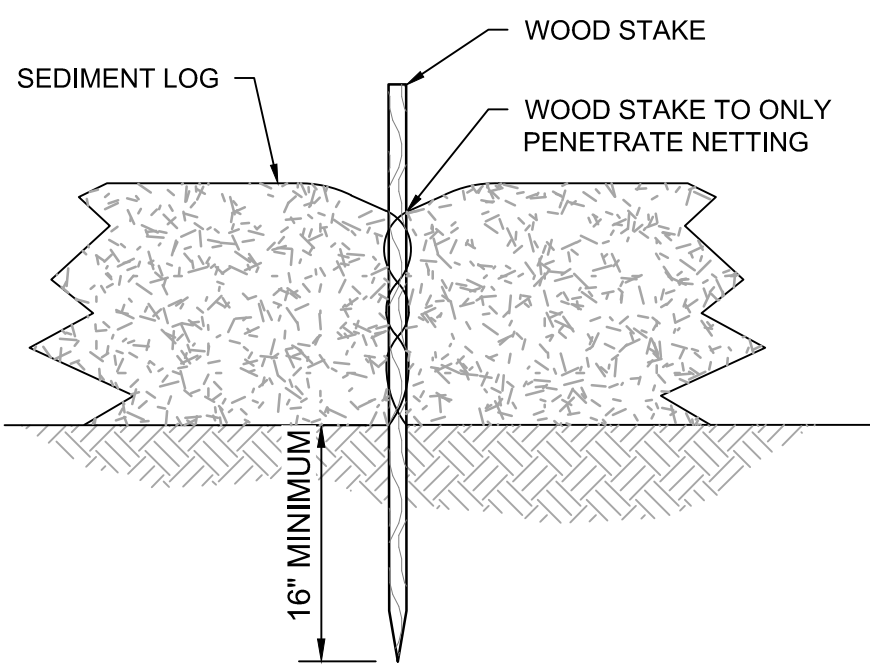


SIDE VIEW ON SLOPE

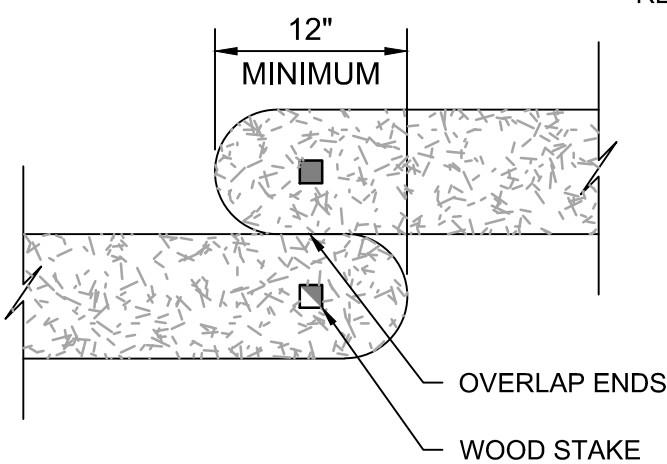


SIDE VIEW FLAT

- NOTES:
1. SEDIMENT LOG SHOULD BE INSTALLED ALONG CONTOURS (CONSTANT ELEVATION).
 2. NO GAPS SHALL BE PRESENT UNDER SEDIMENT LOG. PREPARE AREA AS NEEDED TO SMOOTH SURFACE OR REMOVE DEBRIS.
 3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN REACHING 1/2 OF LOG HEIGHT.
 4. SEDIMENT LOG SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIRED OR REPLACED AS REQUIRED.

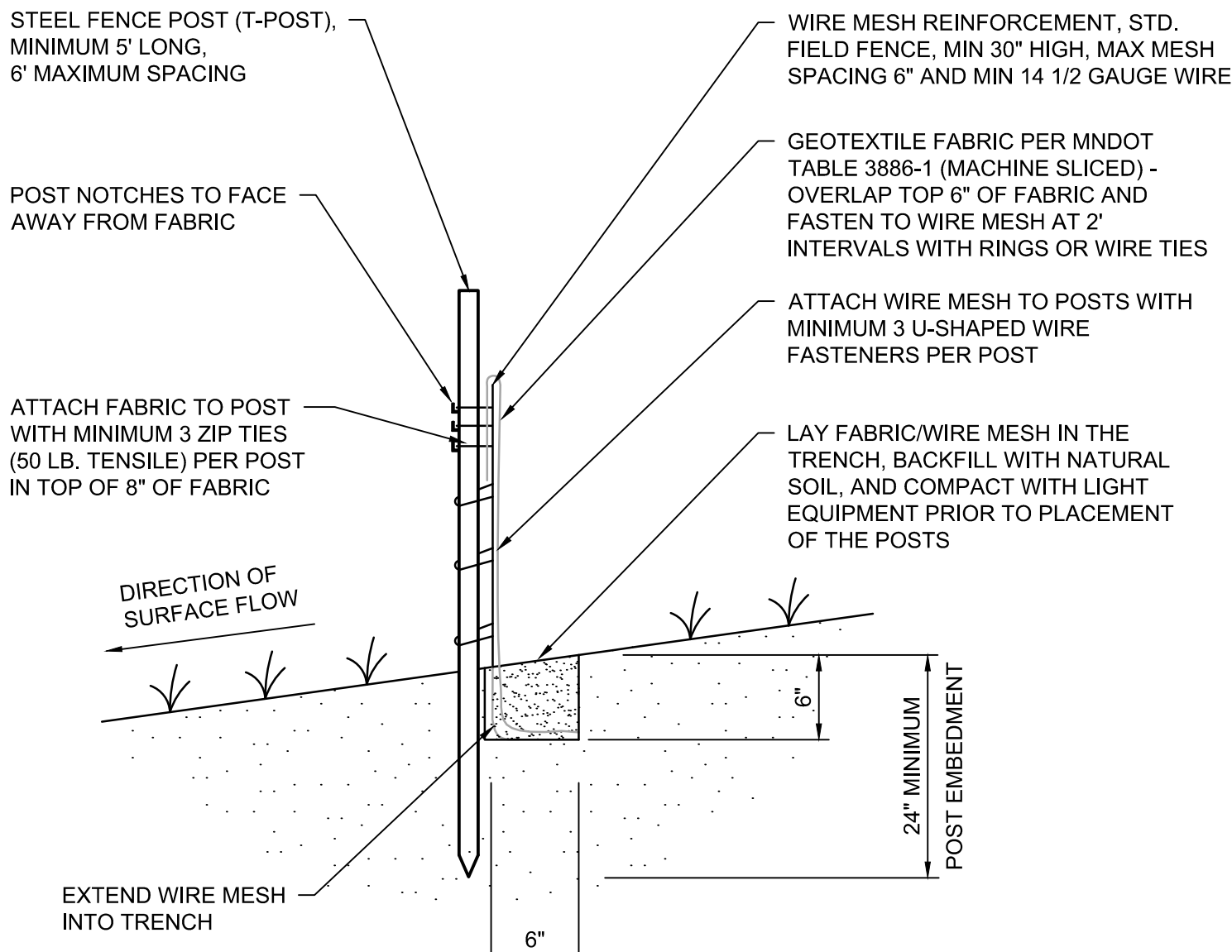


FRONT VIEW



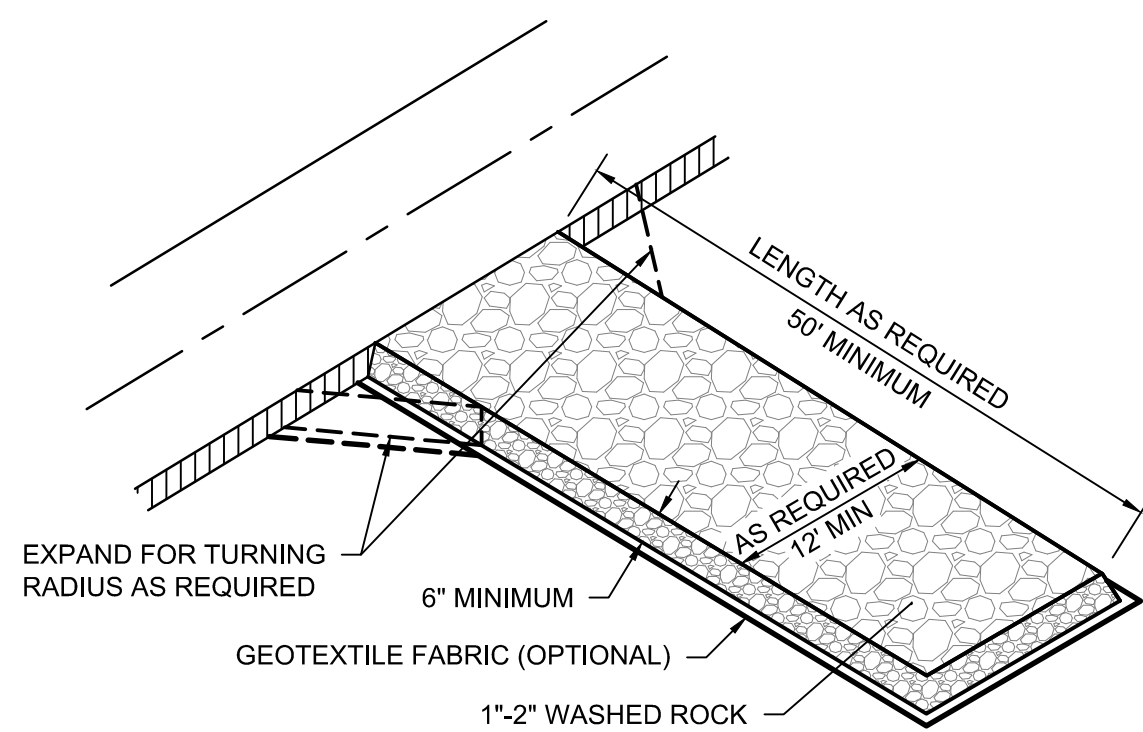
TOP VIEW

2
-
DETAIL: EROSION LOG - STAKING
-
NOT TO SCALE



NOTE:
SPlicing WILL BE MADE AT OPPOSING SILT FENCE POSTS BY PLACING POSTS AND SILT FENCE NEXT TO EACH OTHER AND ROTATING 360°.

3
-
DETAIL: SILT FENCE - HEAVY DUTY
-
NOT TO SCALE



- NOTES:
1. MAINTAIN ENTRANCE THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIR OR REPLACE AS REQUIRED TO PREVENT TRACKING OFFSITE.
 2. REMOVE ENTRANCE IN CONJUNCTION WITH FINAL GRADING AND SITE STABILIZATION.

4
-
DETAIL: CONSTRUCTION ENTRANCE - ROCK
-
NOT TO SCALE

SEDIMENT AND EROSION CONTROL PLAN NARRATIVE

PROJECT DESCRIPTION AND LOCATION:
THIS PROJECT INCLUDES THE REHABILITATION OF AN EXISTING STORMWATER TUNNEL IN THE CITY OF MINNEAPOLIS THAT DISCHARGES INTO THE MISSISSIPPI RIVER. THE REHABILITATION INCLUDES MORTAR REPAIR AND OTHER MISCELLANEOUS REPAIRS. REPAIRS WILL GENERATE CONSTRUCTION DEBRIS. EROSION AND SEDIMENT CONTROL SHALL BE IMPLEMENTED BY CONTRACTOR THROUGHOUT CONSTRUCTION.

ENVIRONMENTALLY SENSITIVE AREAS:
THE PROJECT DISCHARGES DIRECTLY TO THE MISSISSIPPI RIVER, WHICH IS AN IMPAIRED WATER FOR MERCURY AND PCBs. NO CONSTRUCTION RELATED LOAD ALLOCATIONS HAVE BEEN DEVELOPED FOR THIS SECTION OF THE MISSISSIPPI RIVER. THERE ARE NO CALCAREOUS FENS, OUTSTANDING RESOURCE VALUE WATERS, OR WETLANDS WITHIN THE PROJECT LIMITS. THE CONTRACTOR IS RESPONSIBLE FOR THE PLACEMENT, IMPLEMENTATION, INSPECTION, MAINTENANCE, AND REMOVAL OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPs.

LAND FEATURE CHANGES:
TOTAL PROJECT AREA DISTURBED: 0.0 ACRES NO CHANGES IN PERVIOUS OR IMPERVIOUS AREA WILL OCCUR.

SEDIMENT AND EROSION CONTROL NOTES

1. INSTALL PERIMETER EROSION CONTROLS AS INDICATED IN PLANS PRIOR TO START OF WORK. HAYBALES ARE NOT ALLOWED AS EROSION & SEDIMENT CONTROL DEVICE IN MINNEAPOLIS.
2. ESTABLISH ROCK CONSTRUCTION ENTRANCES PRIOR TO BEGINNING LAND DISTURBING ACTIVITIES. 1-1/2"-3" WASHED AGGREGATE IS RECOMMENDED FOR ROCK ENTRANCES, A GEOTEXTILE FABRIC IS REQUIRED.
3. REMOVE ALL SOILS AND SEDIMENTS DEPOSITED ONTO PUBLIC AND/OR PRIVATE PAVEMENT AREAS WITHIN 24 HOURS OF DEPOSITION. REMOVAL OF TRACING MATERIALS SHALL BE COMPLETED AT THE END OF EACH WORK DAY WHEN TRACKING OCCURS. SWEEPING MAY BE ORDERED AT ANY TIME IF CONDITIONS WARRANT. SWEEPING SHALL BE MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION AND IN SUCH A MANNER TO PREVENT DUST BEING BLOWN TO ADJACENT PROPERTIES.
4. INSTALL INLET PROTECTION IN ALL DOWNSTREAM CATCH BASINS WHICH RECEIVE RUNOFF FROM THE DISTURBED AREA. CATCHBASIN INSERTS ARE REQUIRED AT ALL LOCATIONS NOT WITHIN THE DISTURBED AREA WHICH RECEIVE RUNOFF(MNDOT TYPE C INLET PROTECTION). NOTE HAYBALES AND SILT FENCE WRAPPED GRATES ARE NOT EFFECTIVE AND ARE NOT APPROVED FOR USE AS INLET PROTECTION DEVICES.
5. LOCATE ALL SOIL AND DIRT PILES NO LESS THAN 25 FEET FROM ANY PUBLIC OR PRIVATE ROADWAY OR DRAINAGE CHANNEL. ALL STOCK PILES THAT REMAIN IN PLACE FOR 7 DAYS OR MORE SHALL BE STABILIZED BY MULCHING., VEGETATIVE COVE, TARPING OR OTHER MEANS. TEMPORARY STOCK PILES LOCATED ON PAVED SURFACES MUST BE AT LEAST 2 FEET OR MORE AWAY FROM THE DRAINAGE/GUTTER LINE AND SHALL BE COVERED IF REMAINING MORE THAN 24 HOURS.
6. MAINTAIN ALL TEMPORARY EROSION CONTROL DEVICES IN PLACE UNTIL THE CONTRIBUTING DRAINAGE AREA AS BEEN STABILIZED. INSPECT TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES ON A WEEKLY BASIS AND REPLACE DETERIORATED, DAMAGED OR ROTTED EROSION CONTROL DEVICES IMMEDIATELY.
7. MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PERFORMED WHENEVER THE DEVICE IS 30% FULL. FAILURE TO MAINTAIN EROSION CONTROL DEVICES MAY LEAD TO FURTHER ENFORCEMENT ACTION. WEEKLY INSPECTIONS REQUIRED AND AFTER EACH 1/2" INCH OR MORE RAIN EVENT WITHIN 24 HOURS.
8. READY MIXED CONCRETE AND BATCH PLANT WASHOUTS PROHIBITED WITHIN THE PUBLIC RIGHTOF WAY. DESIGNATE CONCRETE WASHOUT AND MIXING LOCATIONS IN THE EROSION CONTROL PLANS. UNDER NO CIRCUMSTANCES MAY WASHOUT WATER DRAIN ONTO THE PUBLIC RIGHT OF WAY OR INTO THE PUBLIC STORM DRAIN.
9. TEMPORARILY OR PERMANENTLY STABILIZE ALL DENUDEED AREAS WHICH HAVE BEEN FINISH GRADED WITHIN 7-14 DAYS (SLOPE DEPENDENT). US SEEDING AND MULCHING, EROSION CONTROL MATTING AND/OR SODDING WITH TEMPORARY STAKING IN GREEN SPACE AREAS. USE EARLY APPLICATION OF GRAVEL BASE FOR AREAS DESIGNATED FOR PAVED SURFACING.
10. REMOVE ALL TEMPORARY SYNTHETIC, STRUCTURAL AND NON-BIODEGRADABLE EROSION AND SEDIMENT CONTROL AFTER THE SITE HAS UNDERGONE FINAL STABILIZATION AND PERMANENT VEGETATION HAS BEEN ESTABLISHED, MINIMUM VEGETATION COVER OF 70% REQUIRED, ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES SHALL BE MAINTAINED UNTIL THE SITE HAS 70% ESTABLISHED VEGETATIVE COVER AND ALL PAVED AREAS HAVE BEEN STABILIZED WITH THE SELECTED PAVEMENT TYPE.
11. ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY OTHER PERMITTING AGENCIES, IT IS THE RESPONSIBILITY OF THE PROJECT ENGINEER TO VERIFY THAT THE CITY AND ALL OTHER AGENCY REQUIREMENTS ARE MET.

60% DESIGN
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B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION

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MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA

EROSION CONTROL DETAILS

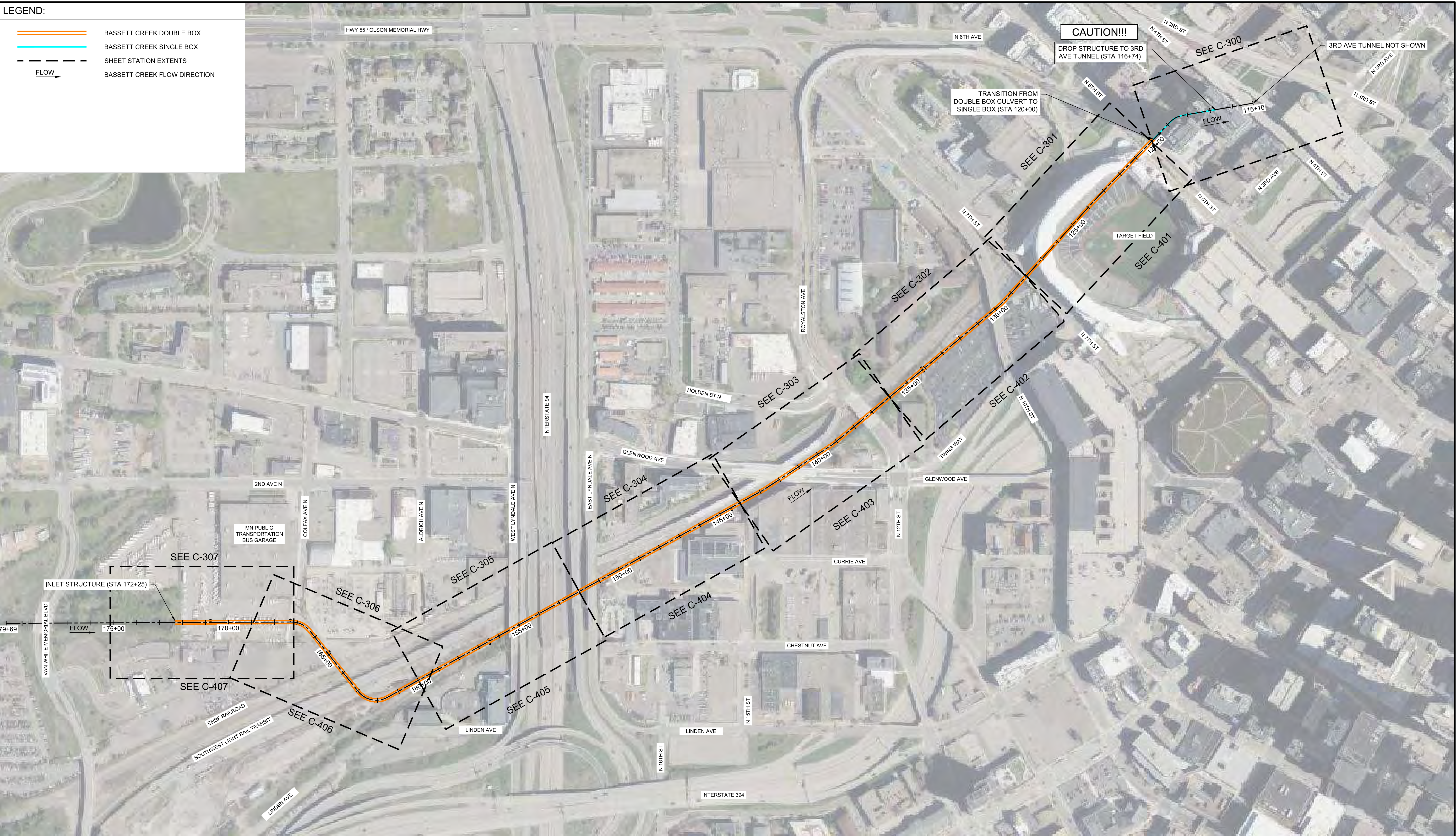
BARR PROJECT #
2327005171

DWG #
G003

REV #
B

LEGEND:

- BASSETT CREEK DOUBLE BOX
- BASSETT CREEK SINGLE BOX
- SHEET STATION EXTENTS
- BASSETT CREEK FLOW DIRECTION



PROJECT DATUM:

HORIZONTAL: MINNESOTA STATE PLANE SOUTH ZONE, US FT
VERTICAL: NAVD 88

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BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

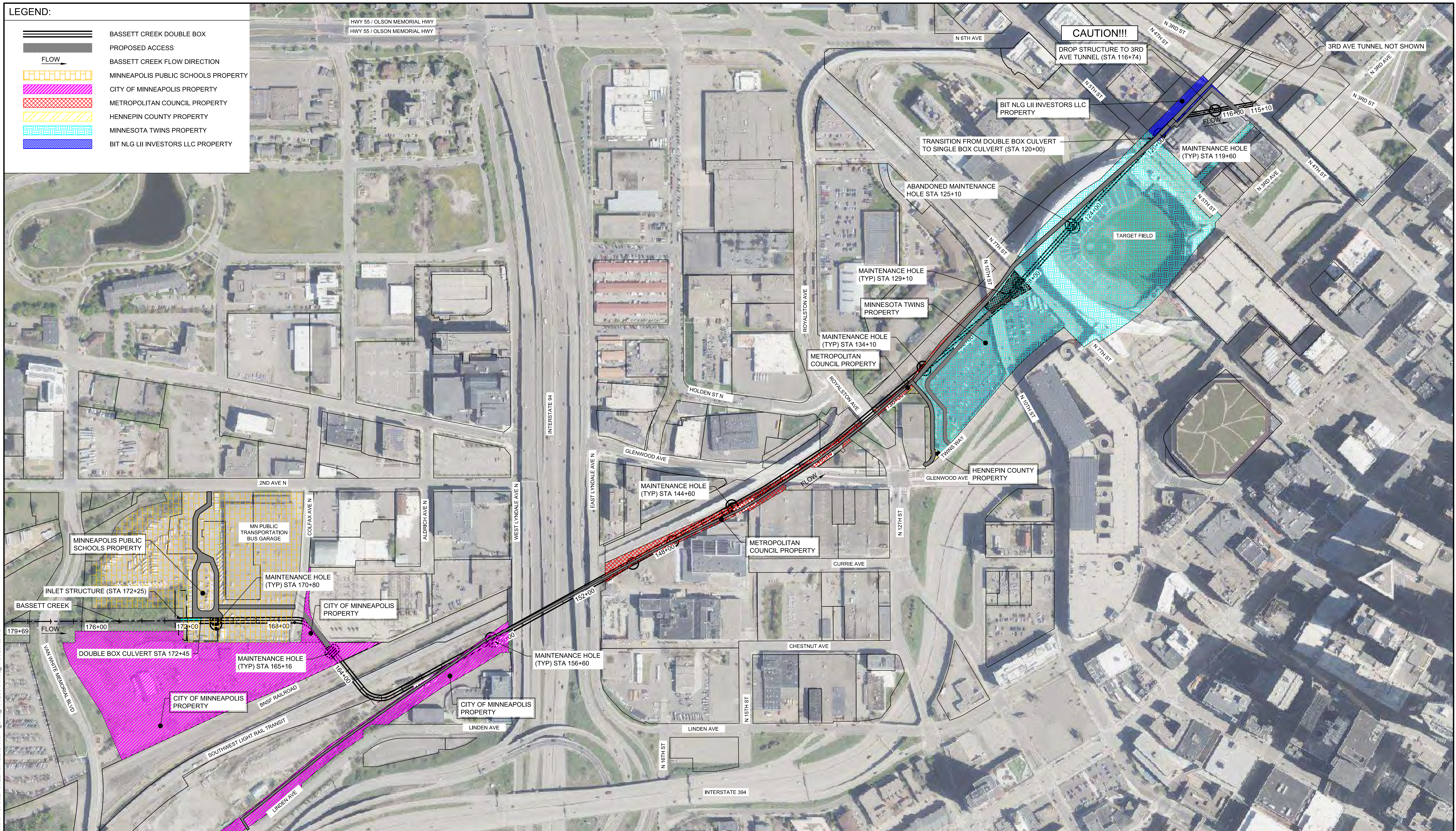
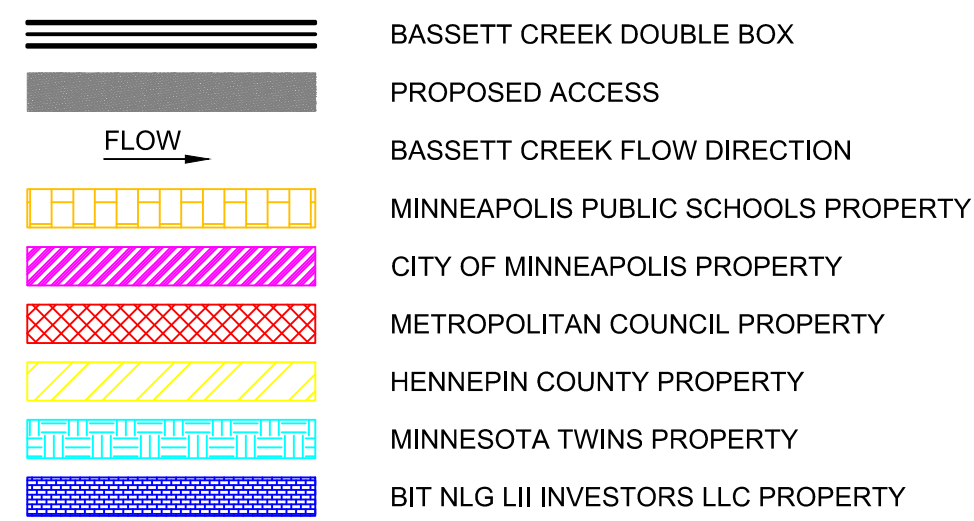
CLIENT PROJECT # FCP-1

BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA

SHEET LAYOUT REFERENCE

BARR PROJECT #	2327005171
DWG #	C101
REV #	B

LEGEND:



1 PLAN: SITE PLAN
0 200
SCALE IN FEET

PROJECT DATUM:
HORIZONTAL: MINNESOTA STATE PLANE SOUTH ZONE, US FT
VERTICAL: NAVD 88

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#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION



BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

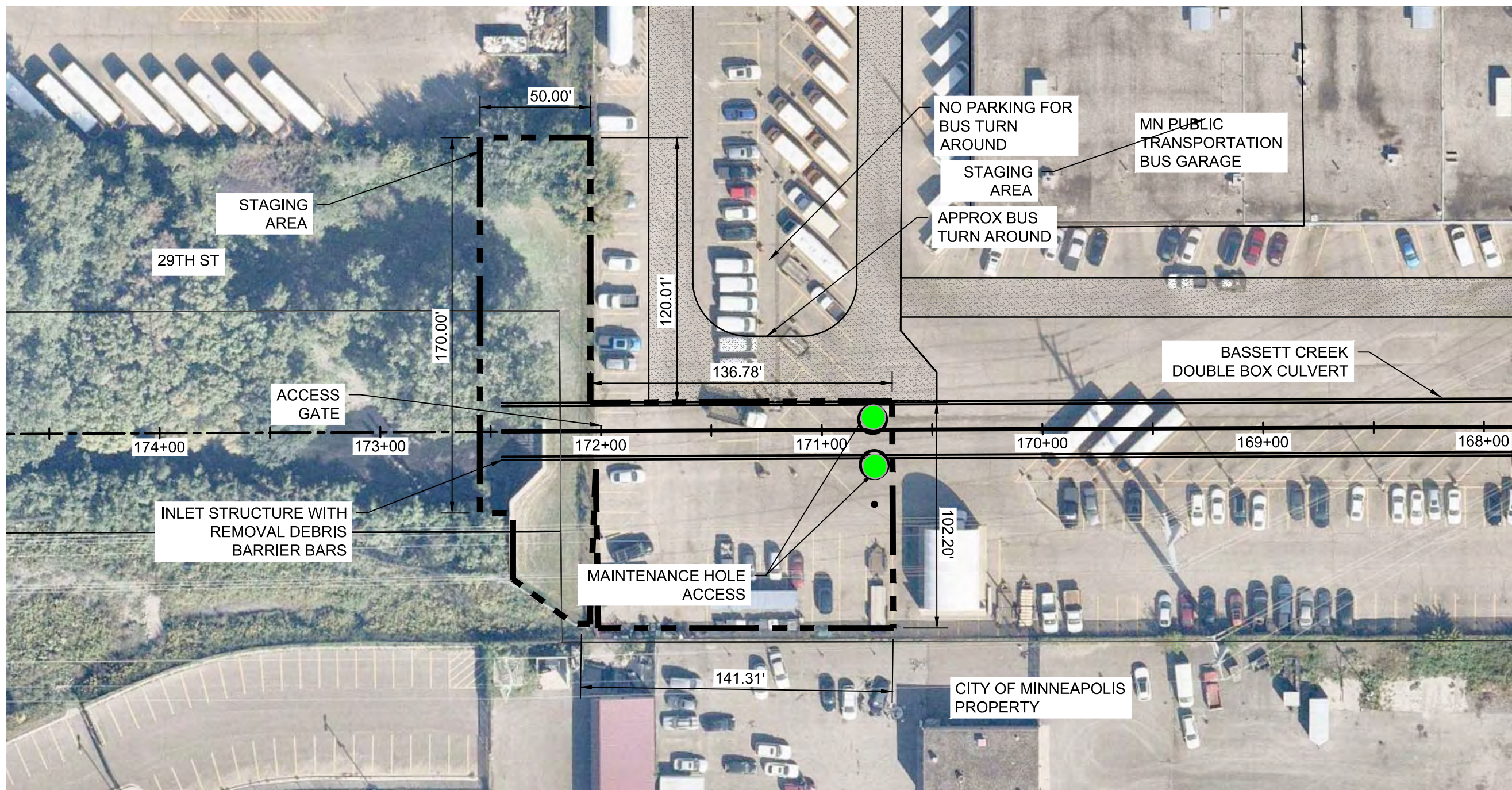
CLIENT PROJECT # FCP-1

BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA

OVERALL ACCESS PLAN

BARR PROJECT #	2327005171
DWG #	C102
REV #	B

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 3/11/2026 12:22 PM
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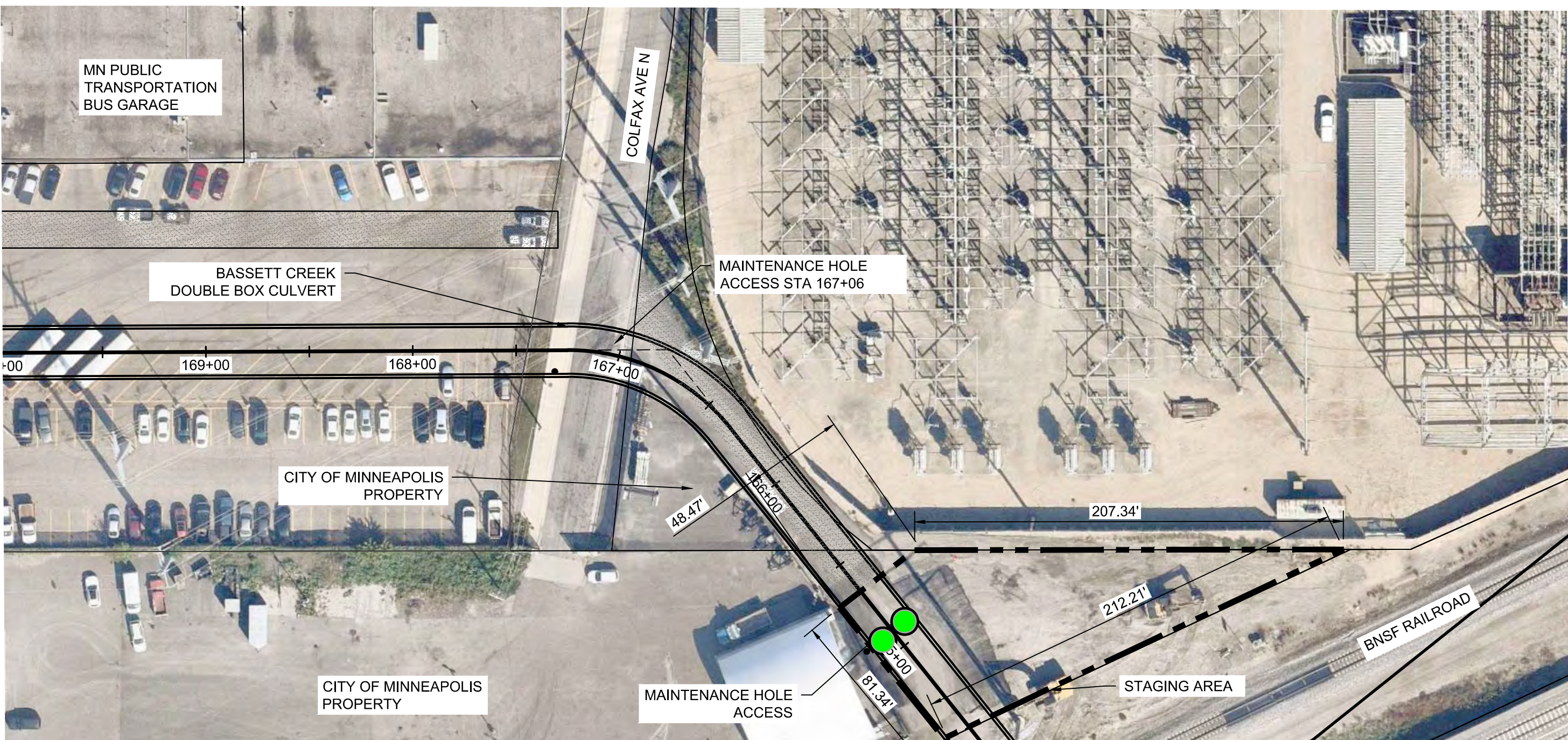
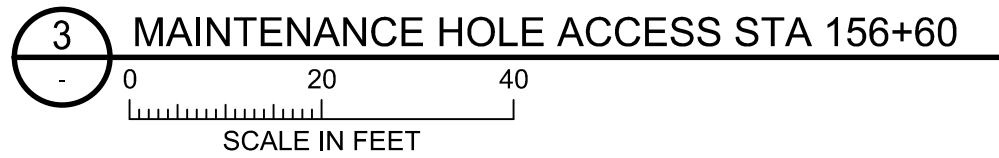
SITE SPECIFIC NOTES:

1. STAGING AREA SHOW IS FOR TEMPORARY USE ONLY. USE OF THIS STAGING AREA REQUIRES APPROVAL BY MINNEAPOLIS PUBLIC SCHOOLS.
2. MAINTAIN ACCESS TO BUS GARAGE AND PARKING LOTS FOR DURATION OF WORK.



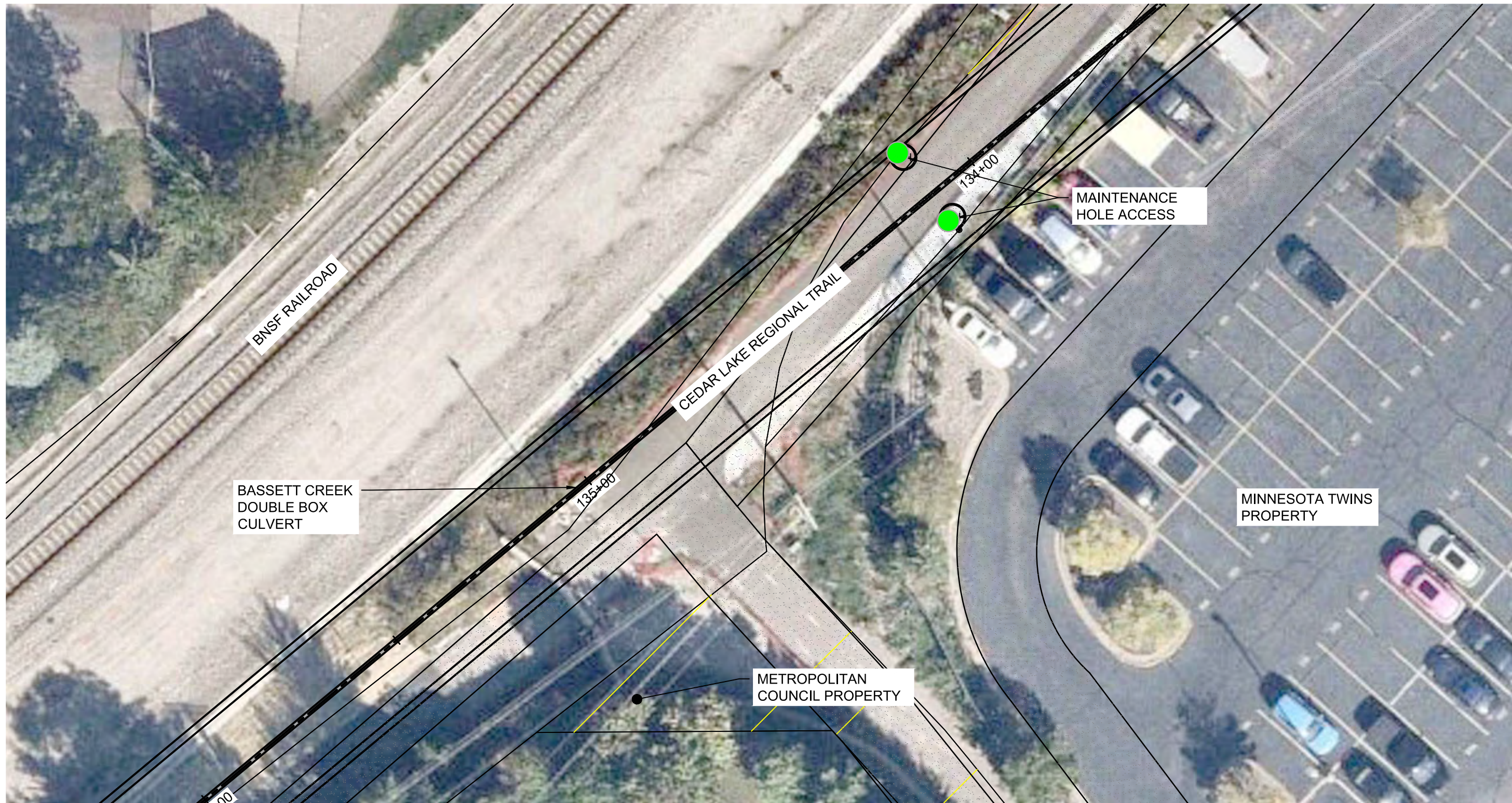
SITE SPECIFIC NOTES:

1. ACCESS ROUTE SHOWN IS APPROXIMATE AND FOR TEMPORARY USE ONLY.
2. USE OF CEDAR LAKE TRAIL REQUIRES APPROVAL BY CITY OF MINNEAPOLIS. MAINTAIN TRAIL USE FOR PEDESTRIANS FOR DURATION OF WORK.



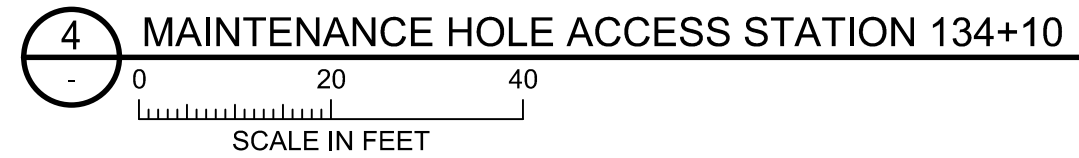
SITE SPECIFIC NOTES:

1. STAGING AREA SHOWN IS FOR TEMPORARY USE ONLY. USE OF THIS STAGING AREA REQUIRES APPROVAL BY CITY OF MINNEAPOLIS



SITE SPECIFIC NOTES:

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2. USE OF THE CEDAR LAKE TRAIL REQUIRES APPROVAL BY CITY OF MINNEAPOLIS. MAINTAIN TRAIL USE FOR PEDESTRIANS FOR DURATION OF WORK.



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ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 3/11/2026 12:23 PM
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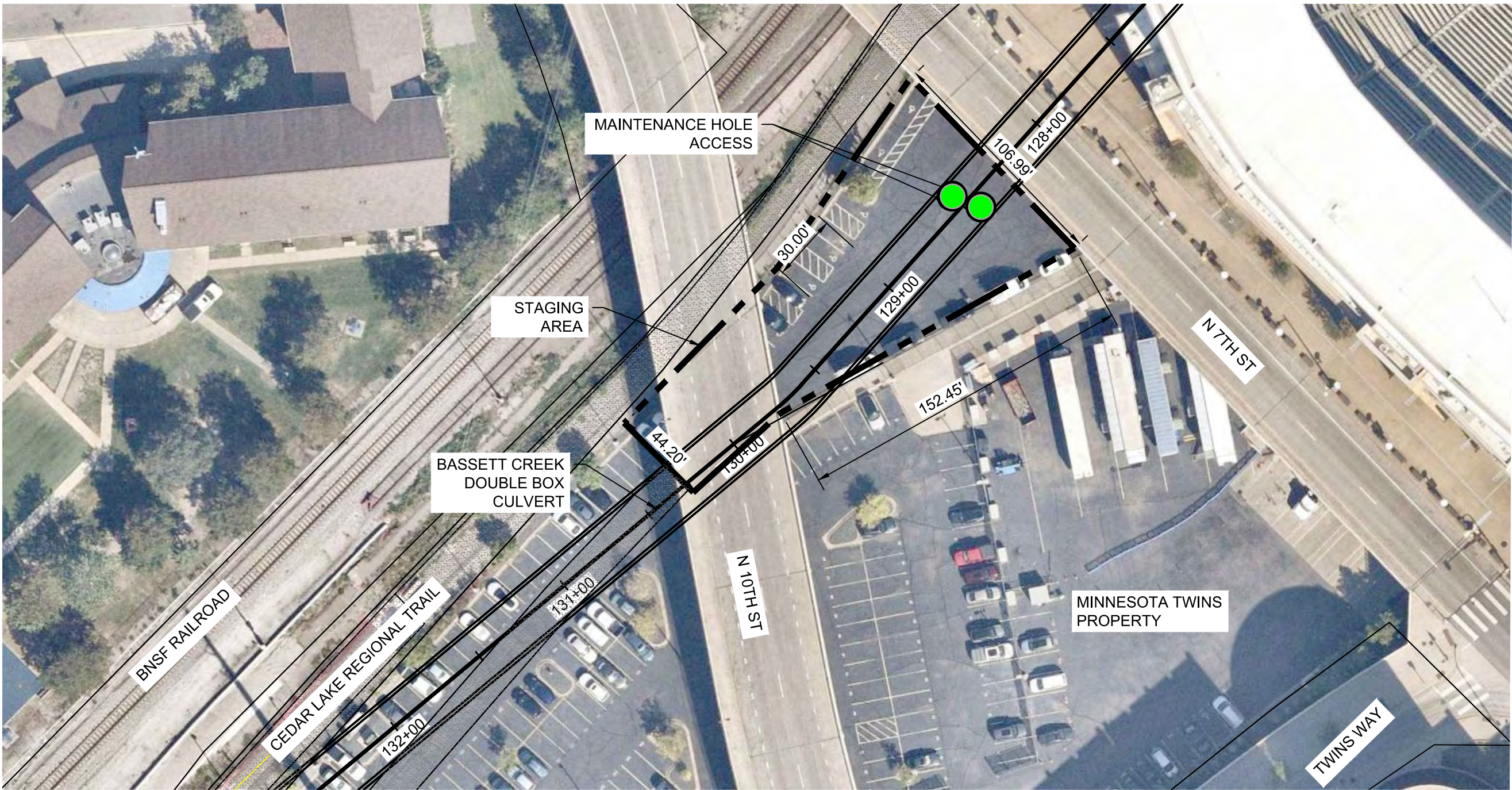
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A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION



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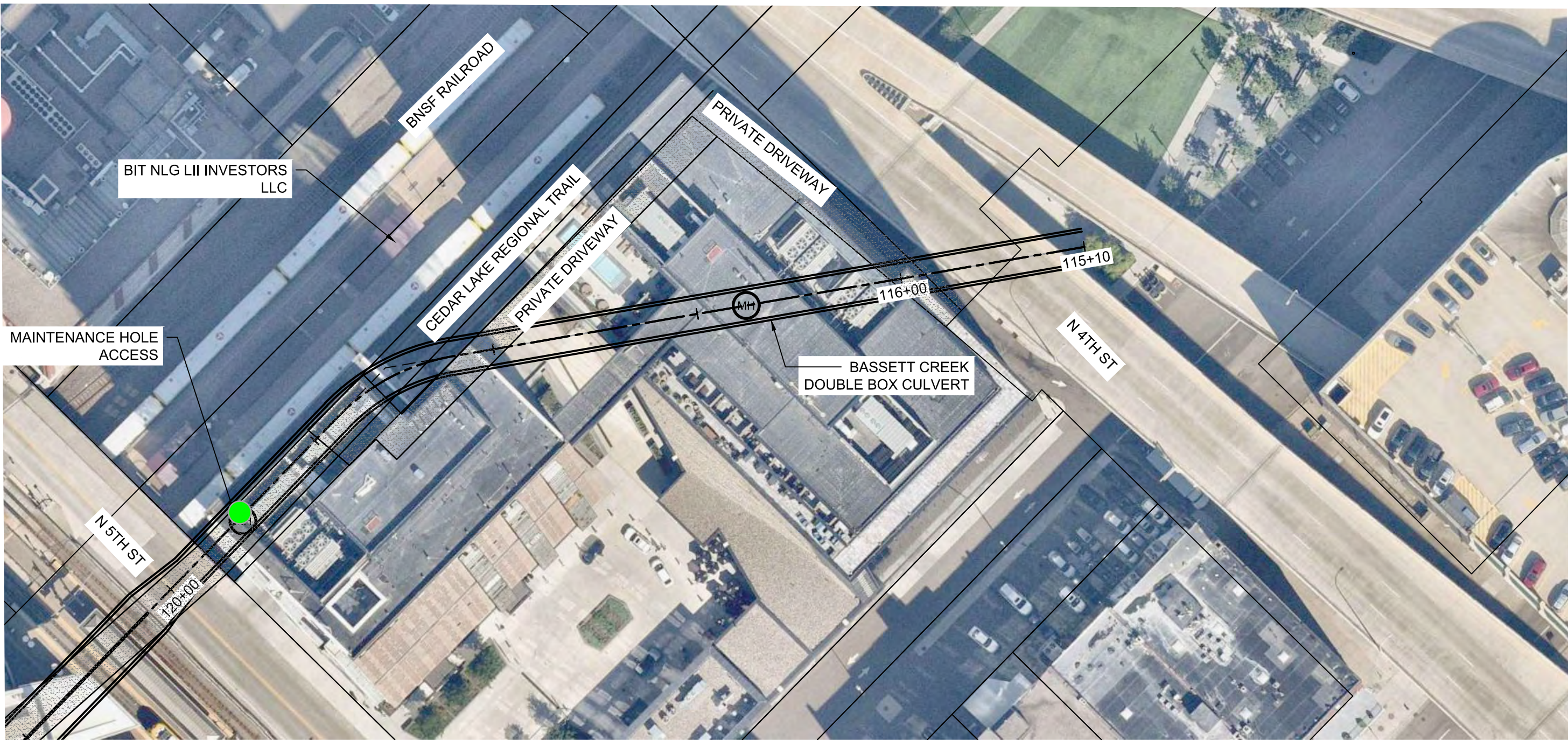
PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

BASSETT CREEK WATERSHED MANAGEMENT COMMISSION	BASSETT CREEK DOUBLE BOX CULVERT REPAIRS MINNEAPOLIS, MINNESOTA		BARR PROJECT # 2327005171
	INLET AND MAINTENANCE HOLE ACCESS LOCATIONS		DWG # C103
			REV # B



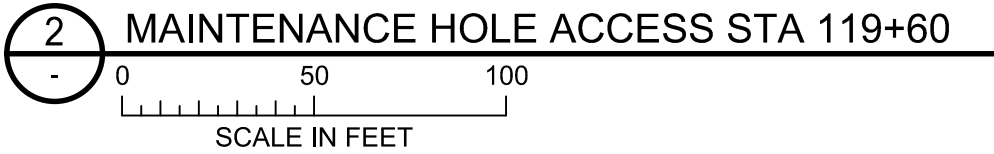
SITE SPECIFIC NOTES:

1. STAGING AREA SHOWN IS FOR TEMPORARY USE ONLY. USE OF THIS STAGING AREA REQUIRES APPROVAL BY THE MINNESOTA TWINS OWNERSHIP.



SITE SPECIFIC NOTES:

1. ACCESS ROUTE SHOWN IS APPROX AND FOR TEMPORARY USE ONLY.
2. USE OF CEDAR LAKE TRAIL REQUIRES APPROVAL BY CITY OF MINNEAPOLIS. MAINTAIN TRAIL USE FOR PEDESTRIANS FOR DURATION OF THE WORK.



60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
B	AFL	JJP	JJP	03/12/2026	ISSUED FOR 60% REVIEW
A	AFL	JJP	JJP	03/02/2026	ISSUED FOR CPTF REVIEW
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION



BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

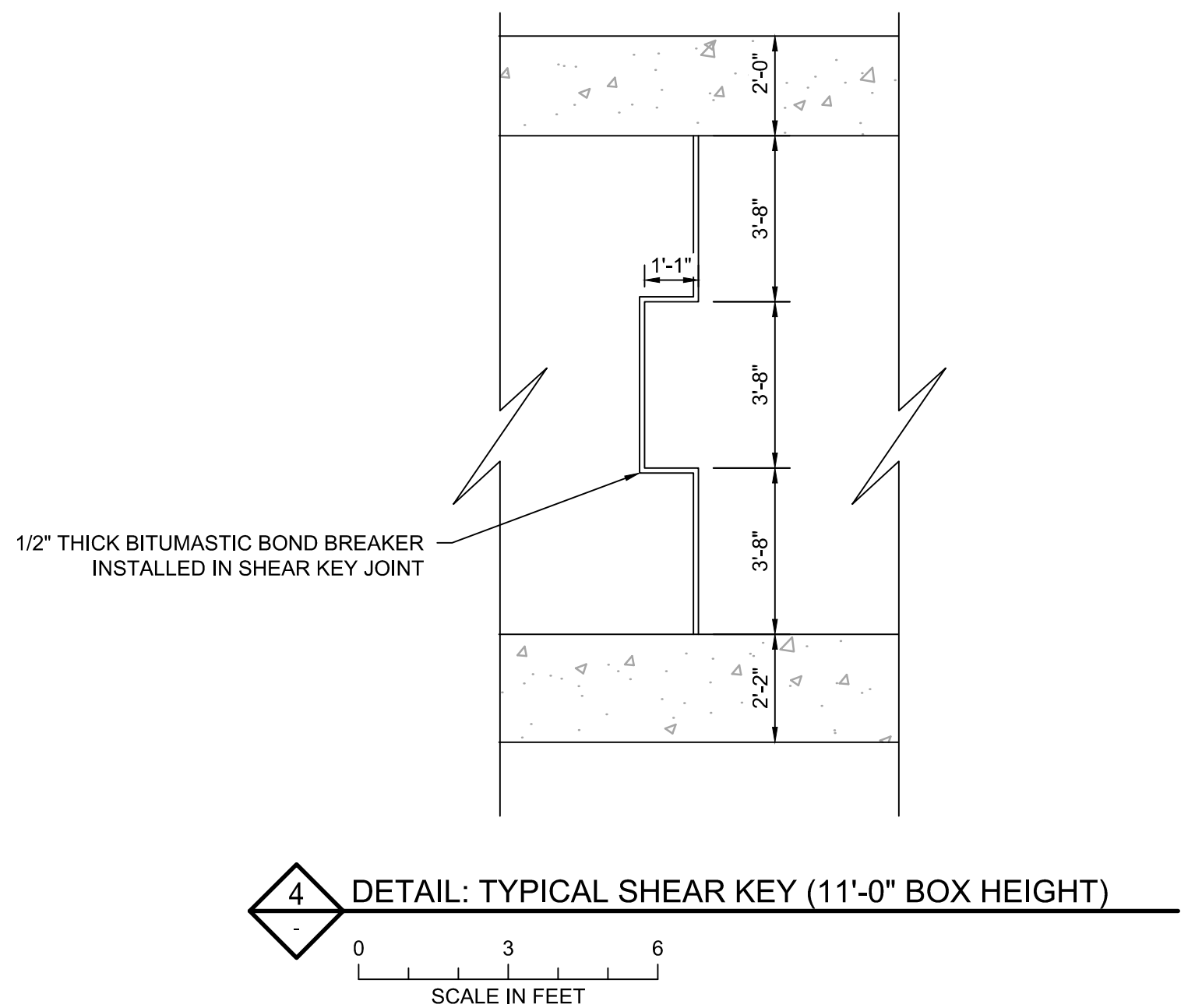
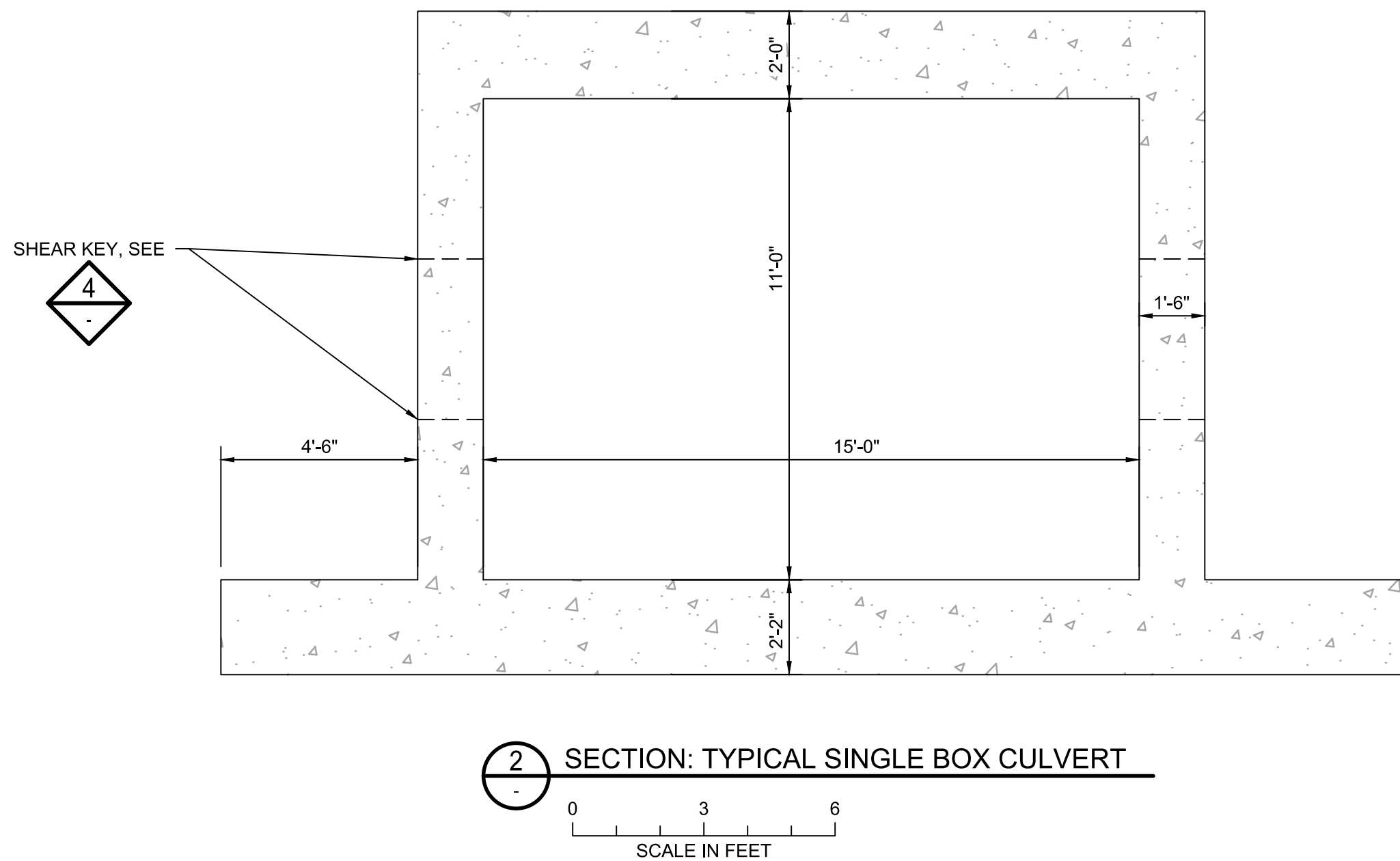
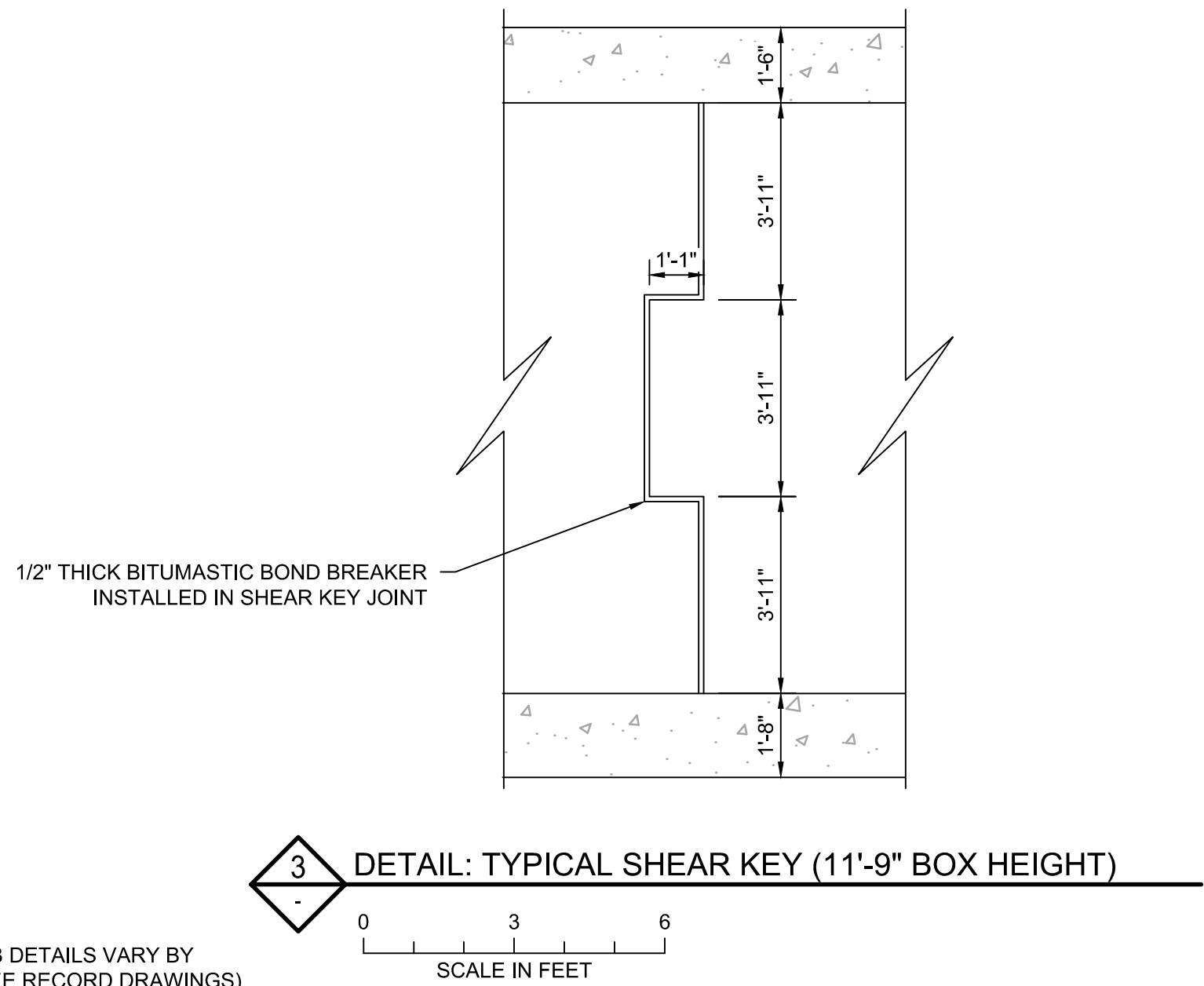
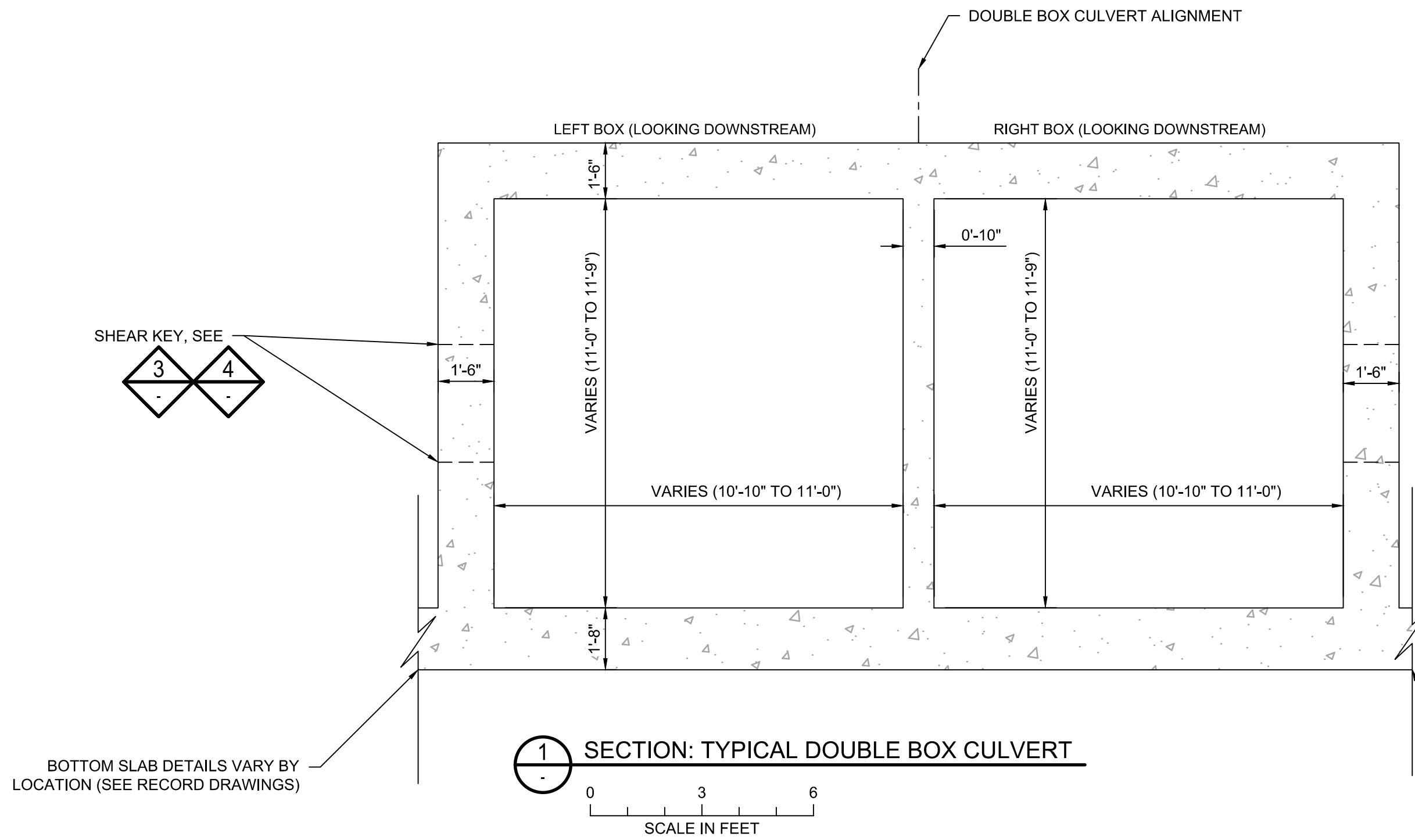
CLIENT PROJECT # FCP-1

BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA

MAINTENANCE HOLE ACCESS LOCATIONS

BARR PROJECT #	2327005171
DWG #	C104
REV #	B

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 3/11/2026 12:23 PM
CADD USER: ANDREW F. LUND FILE: M:\DESIGN\23270051\71-BASSETT CREEK\DWG\23270051\L_C200_TYPICAL SECTION.DWG



SHEAR KEY	LEFT BOX STATION	RIGHT BOX STATION	SINGLE BOX STATION
K1	171+95	172+00	N/A
K2	170+00	170+05	N/A
K3	167+99	168+02	N/A
K4	165+70	166+08	N/A
K5	164+65	164+74	N/A
K6	163+05	163+12	N/A
K7	162+15	162+08	N/A
K8	160+12	160+09	N/A
K9	158+10	158+12	N/A
K10	156+05	156+05	N/A
K11	154+05	154+04	N/A
K12	152+53	152+53	N/A
K13	152+05	152+05	N/A
K14	151+55	151+55	N/A
K15	151+10	151+05	N/A
K16	150+55	150+55	N/A
K17	150+07	150+06	N/A
K18	149+07	149+05	N/A
K19	147+07	147+06	N/A
K20	145+05	145+05	N/A
K21	143+05	143+05	N/A
K22	141+05	141+04	N/A
K23	139+50	139+52	N/A
K24	137+52	137+52	N/A
K25	136+00	136+01	N/A
K26	134+05	134+01	N/A
K27	132+53	132+51	N/A
K28	131+53	131+50	N/A
K29	131+05	130+99	N/A
K30	130+53	130+55	N/A
K31	128+57	128+52	N/A
K32	126+50	126+48	N/A
K33	124+50	124+48	N/A
K34	122+52	122+47	N/A
K35	121+00	120+98	N/A
K36	N/A	N/A	119+82
K37	N/A	N/A	118+00
K38	N/A	N/A	116+80
K39	N/A	N/A	116+74

 **TABLE: SHEAR KEY LOCATIONS**

60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-	
-	-	-	-	-	-	
-	-	-	-	-	-	
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW	
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW	
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION	

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MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

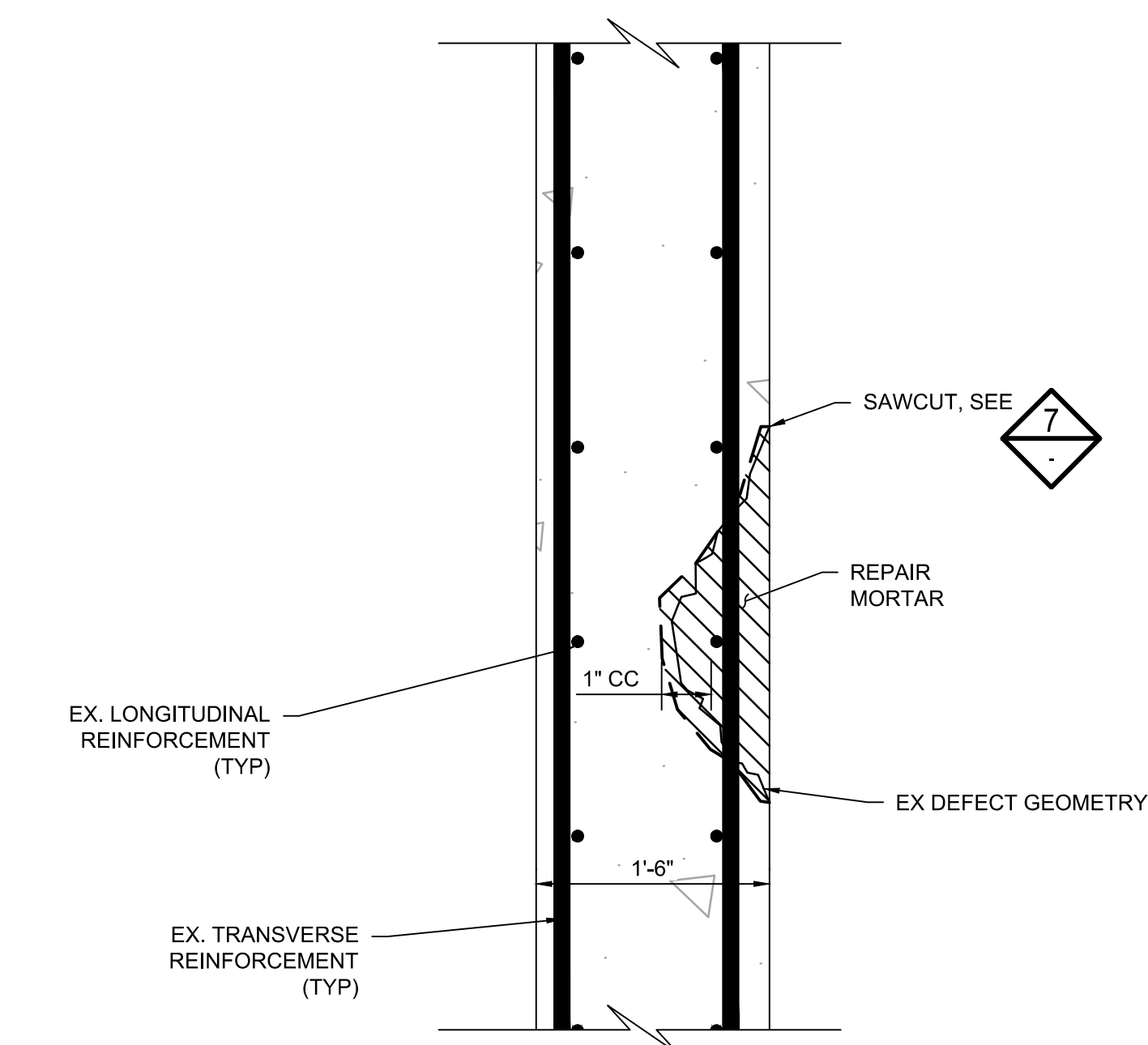
CLIENT PROJECT # FCP-1

BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA

TYPICAL SECTIONS

BARR PROJECT #	2327005171
DWG #	C200
REV #	B

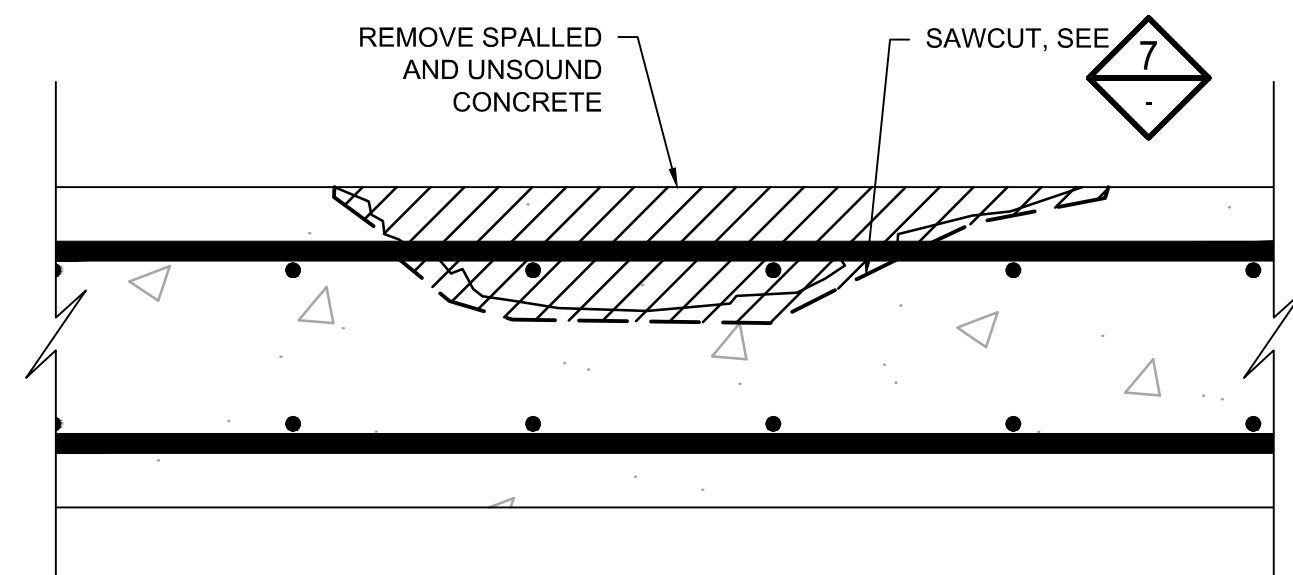
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CADD USER: ANDREW F. LUND FILE: M:\DESIGN\23270051\71-BASSETT CREEK\DWG\23270051_71_C201_DETAILS.DWG



1 DETAIL: TYPE 1 - CONCRETE SURFACE REPAIR, 1/2" TO 2-1/2" OVERLAY

0 1 2
SCALE IN FEET

- NOTES:
1. SAW CUT THE PERIMETER OF THE DEFECT.
 2. PREPARE EXISTING CONCRETE SURFACE.
 3. IF REINFORCEMENT IS ENCOUNTERED IN REPAIR AREA, DEMO CONCRETE BEHIND REINFORCEMENT TO PROVIDE 1" MIN CLEAR COVER (ALL SIDES).
 4. REMOVE CORROSION FROM REINFORCEMENT (IF PRESENT) AND INSTALL CORROSION INHIBITOR.
 5. INSTALL REPAIR MORTAR.

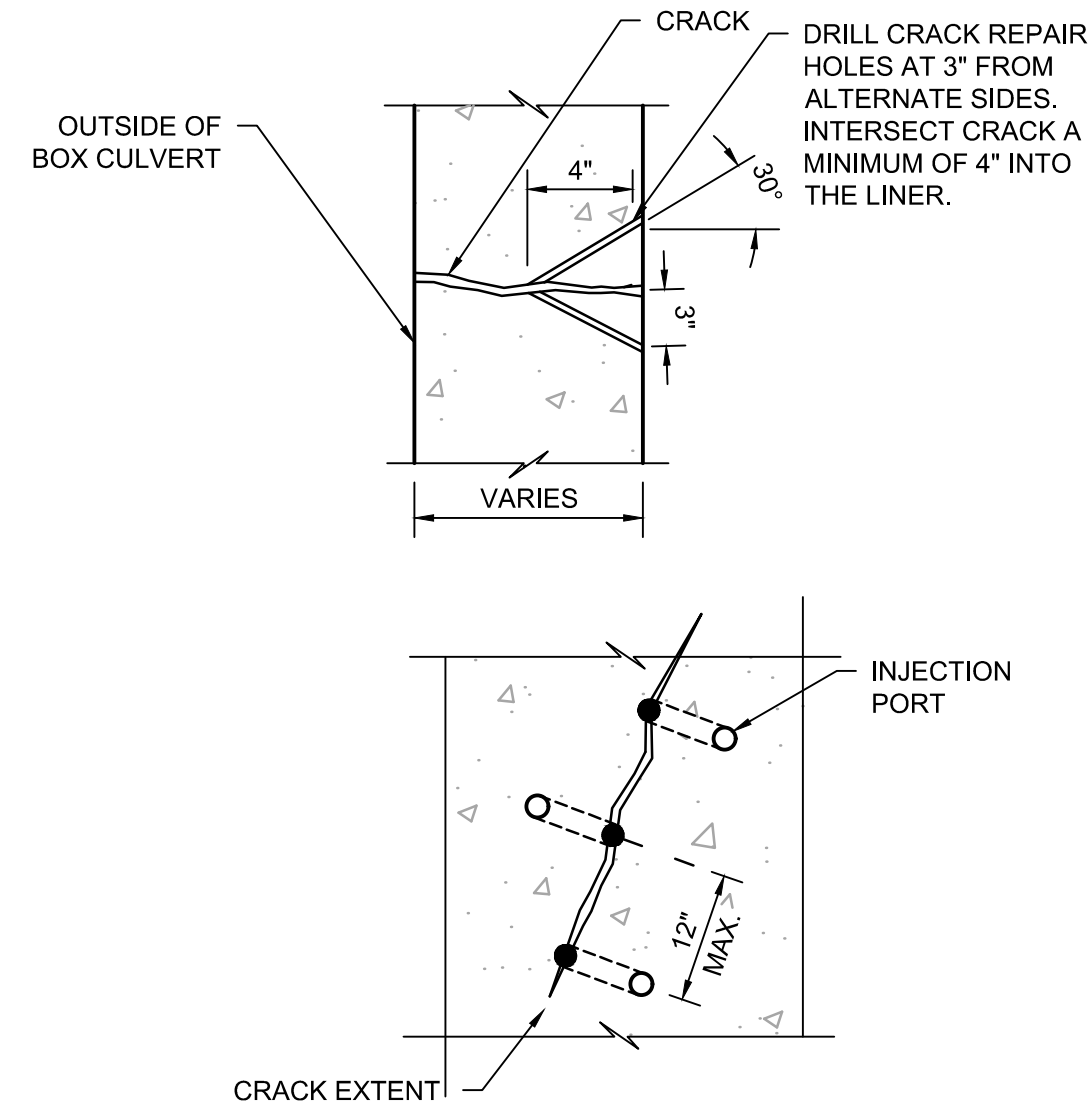


2 DETAIL: TYPE 2 - INVERT REPAIR

0 1 2
SCALE IN FEET

NOTES:

1. SAW CUT THE PERIMETER OF THE DEFECT.
2. PREPARE EXISTING CONCRETE SURFACE.
3. IF REINFORCEMENT IS ENCOUNTERED IN REPAIR AREA, DEMO CONCRETE BEHIND REINFORCEMENT TO PROVIDE 1" MIN CLEAR COVER (ALL SIDES).
4. REMOVE CORROSION FROM REINFORCEMENT (IF PRESENT) AND INSTALL CORROSION INHIBITOR.
5. INSTALL CAST-IN-PLACE CONCRETE.

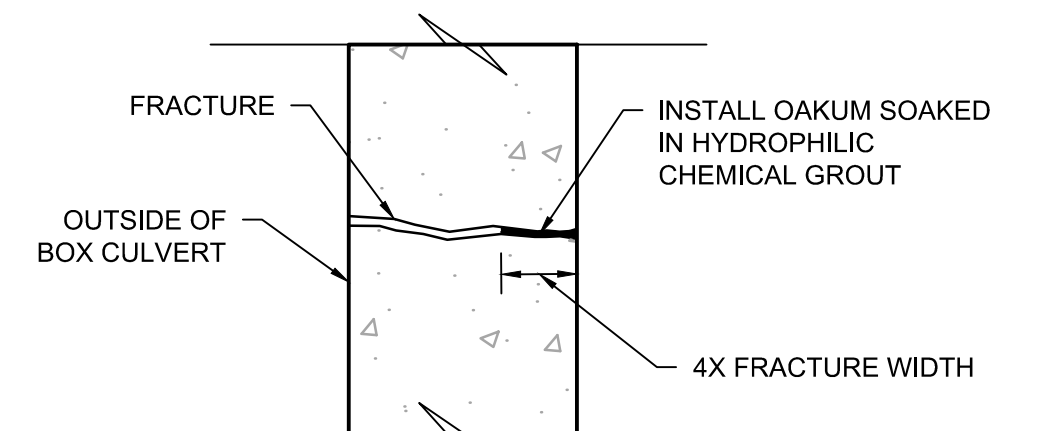


3 DETAIL: TYPE 3 - CRACK REPAIR

N.T.S.

NOTES:

1. UTILIZE HYDROPHILIC GROUT AS REQUIRED IN THE SPECIFICATIONS.
2. HYDROPHILIC GROUT MATERIAL IS PAID UNDER A SEPARATE BID ITEM (HYDROPHILIC CHEMICAL GROUT).

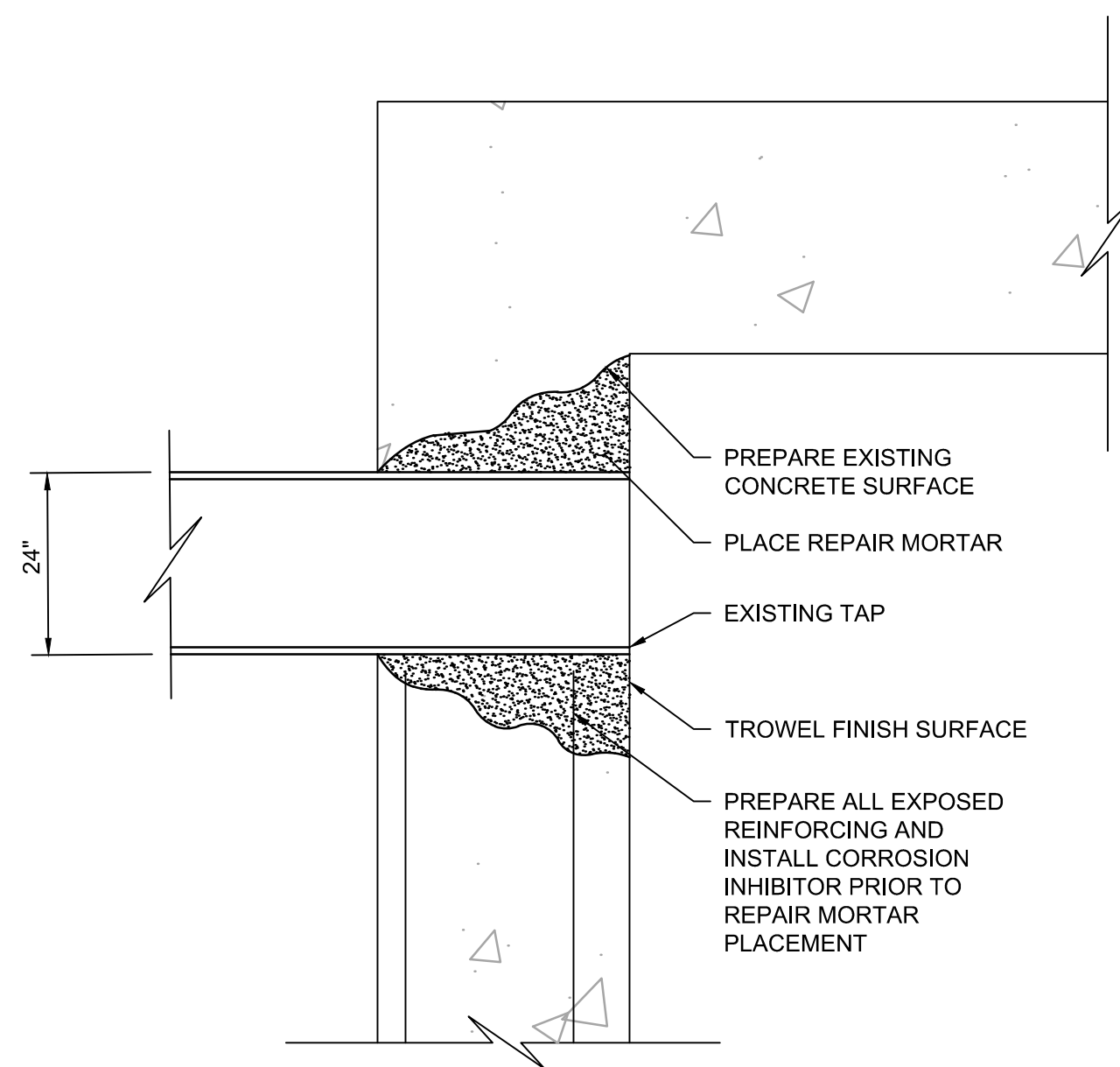


4 DETAIL: TYPE 4 - FRACTURE REPAIR

N.T.S.

NOTES:

1. INSTALL OAKUM AND CHEMICAL GROUT IN ACCORDANCE WITH AVANTI INTERNATIONAL'S EXPANDED GASKET PLACEMENT (EGP) TECHNIQUE.
2. TRIM EGP MATERIAL FLUSH WITH TUNNEL LINER AFTER EGP MATERIAL HAS CURED PER MANUFACTURER'S RECOMMENDATIONS.

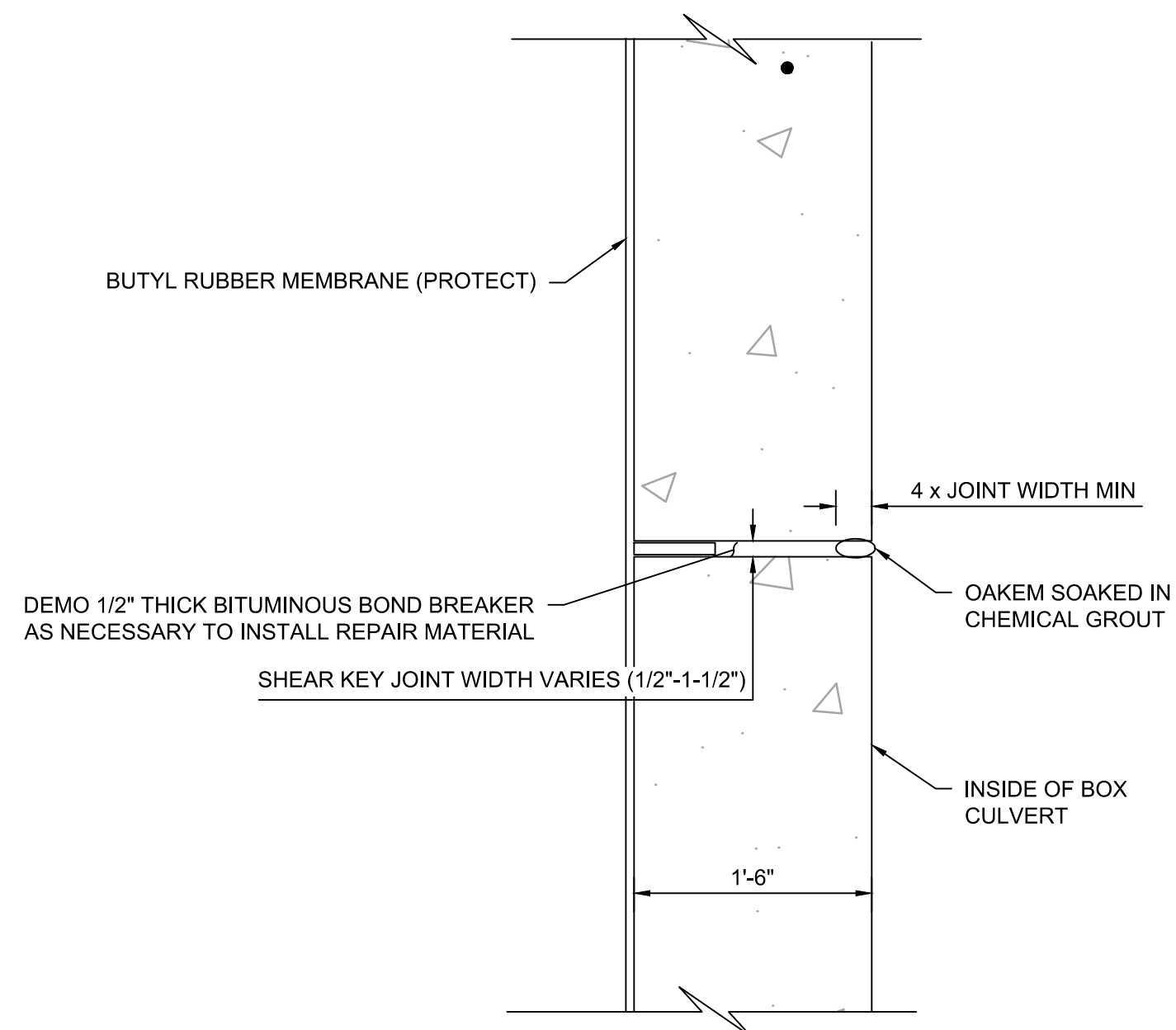


5 DETAIL: TYPE 5 - TAP REPAIR

0 1 2
SCALE IN FEET

NOTES:

1. USE CHEMICAL GROUT TO STOP INFILTRATION PRIOR TO PERFORMING REPAIR, IF REQUIRED.
2. MATERIAL MORTAR TYPE DEPENDS UPON APPLICATION. SEE SPECIFICATIONS.

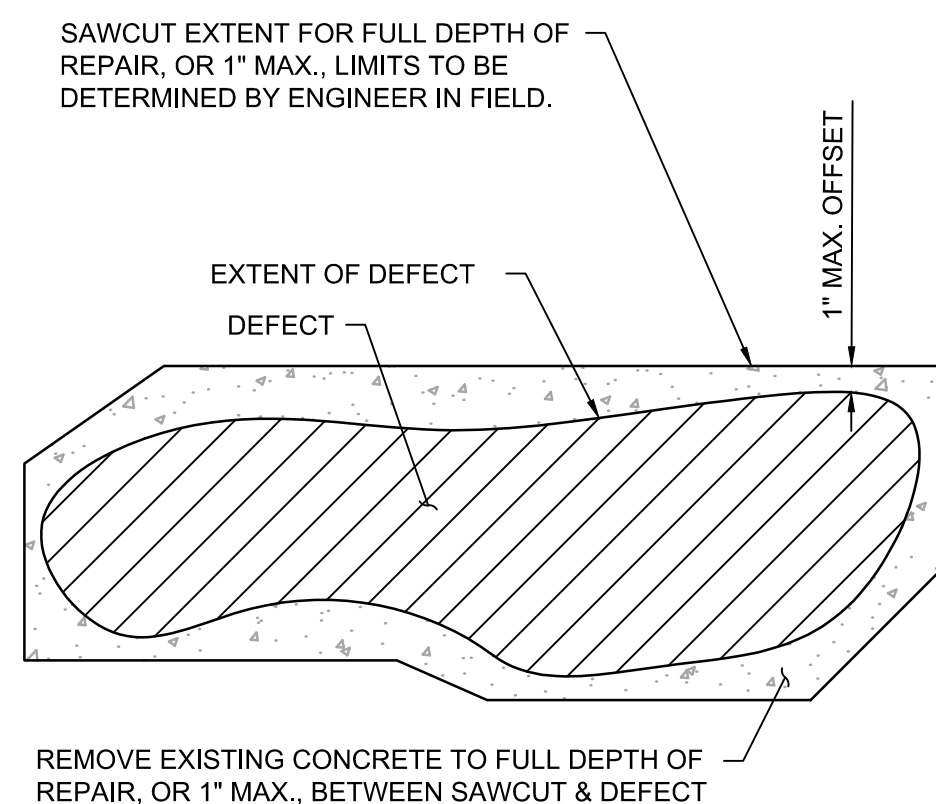


6 DETAIL: TYPE 6 - SHEAR KEY REPAIR

0 1 2 3 4
SCALE IN FEET

NOTE:

1. PERFORM REPAIR ALONG FULL SHEAR KEY JOINT EXTENT, ALONG FULL WALL HEIGHT.



7 DETAIL: SAWCUT

N.T.S.

60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-	
-	-	-	-	-	-	
-	-	-	-	-	-	
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW	
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW	
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION	



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SUITE 200
MINNEAPOLIS, MN 55435

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NUMBER 10104111545

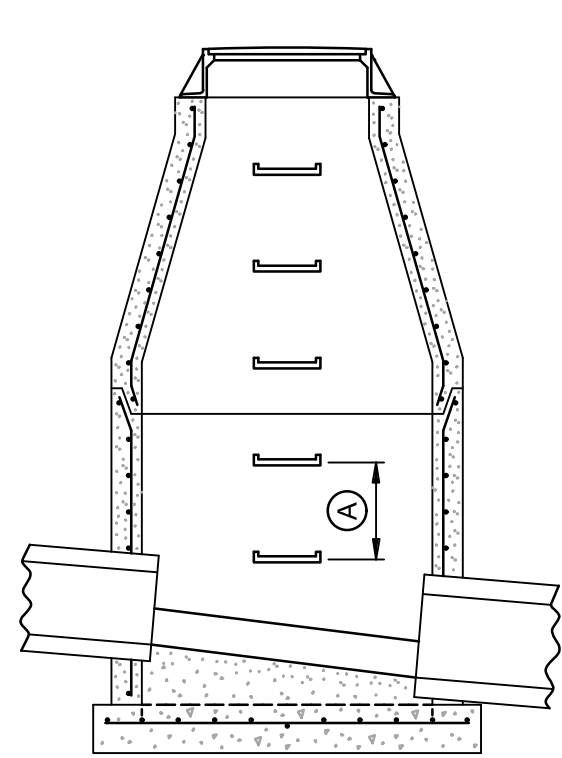
BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

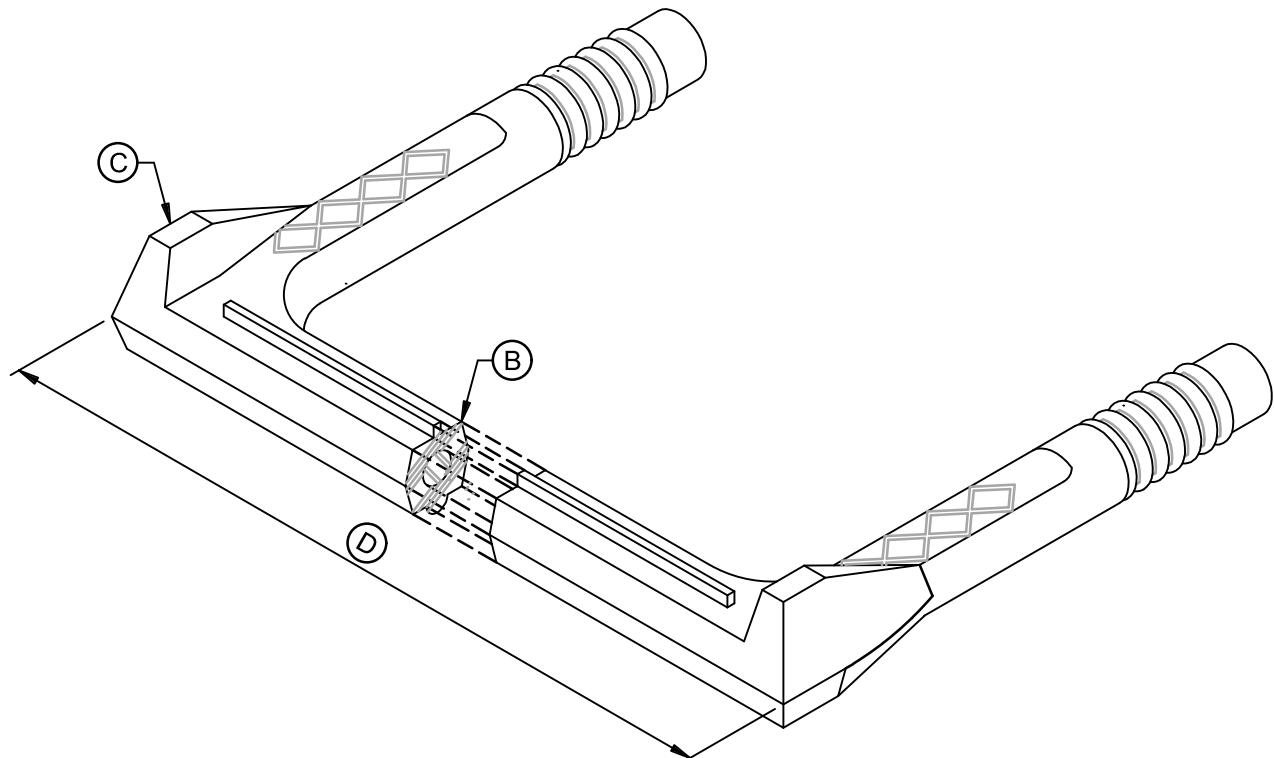
BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA

REPAIR DETAILS

BARR PROJECT #	2327005171
DWG #	C201
REV #	B



TYPICAL STEP ALIGNMENT



TYPICAL REINFORCED PLASTIC STEP

NOTES:

- (A) STEPS SHALL BE SPACED AT A MAXIMUM DESIGN DISTANCE OF 16 IN. APART.

(B) STEPS SHALL HAVE A MINIMUM CROSS SECTION DIMENSION OF 1 IN.

(C) MINIMUM VERTICAL SIDE DIMENSION TO PREVENT FOOT FROM SLIPPING OFF IS 1/2".

(D) THE MINIMUM WIDTH OF RUNGS OR CLEATS SHALL BE 10 IN.

1. STEPS SHOWN ARE BASIC DESIGNS ONLY. FINAL CONFIGURATIONS MAY VARY FROM THESE DRAWINGS.

2. VARIATIONS IN THE ABOVE DESIGNS WHICH WILL NOT DECREASE STRENGTH WILL BE PERMITTED.
3. THE MNDOT OFFICE OF MATERIALS, RESEARCH AND ENGINEERING WILL MAINTAIN A LISTING OF APPROVED MANHOLE STEPS. STEEL REINFORCED PLASTIC STEPS ARE REQUIRED FOR THIS PROJECT.

4. EXCEPT AS OTHERWISE NOTED ON THIS PLATE, STEPS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C478

5. STEPS SHALL BE EMBEDDED IN THE RISER OR CONICAL TOP SECTION WALL A MINIMUM DISTANCE OF 3 IN.

6. THE RUNG OR CLEAT SHALL PROJECT A MINIMUM CLEAR DISTANCE OF 4 IN. FROM THE WALL OF THE RISER OR CONE SECTION MEASURED FROM THE POINT OF EMBEDMENT.

7. THE MIN. CLEAR DISTANCE BETWEEN THE RUNG OR CLEAT AND THE OPOSITE WALL OF THE MANHOLE RISER OR CONE SHALL BE 18 IN. MEASURED AT THE CENTER FACE OF THE STEP.

1

-

DETAIL: TYPE 7 - INSTALL MANHOLE STEP

N.T.S. MN/DOT STD. PLATE 4180J

PAINT CORROSION INHIBITOR ON EXPOSED PORTIONS



2

-

DETAIL: TYPE 8 - REINFORCEMENT SPACER

N.T.S.

NOTES:

1. REMOVE CORROSION FROM REINFORCEMENT SPACERS.
2. INSTALL CORROSION INHIBITOR.
3. INSTALL SKIM COAT OF REPAIR MORTAR OVER REINFORCEMENT SPACERS.

60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION



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SUITE 200

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MINNESOTA ENGINEERING FIRM

NUMBER 10104111545

BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA

REPAIR DETAILS

BARR PROJECT #	2327005171
DWG #	C202
REV #	B



4
C-103
DETAIL: STA. 170+80 MAINTENANCE HOLE



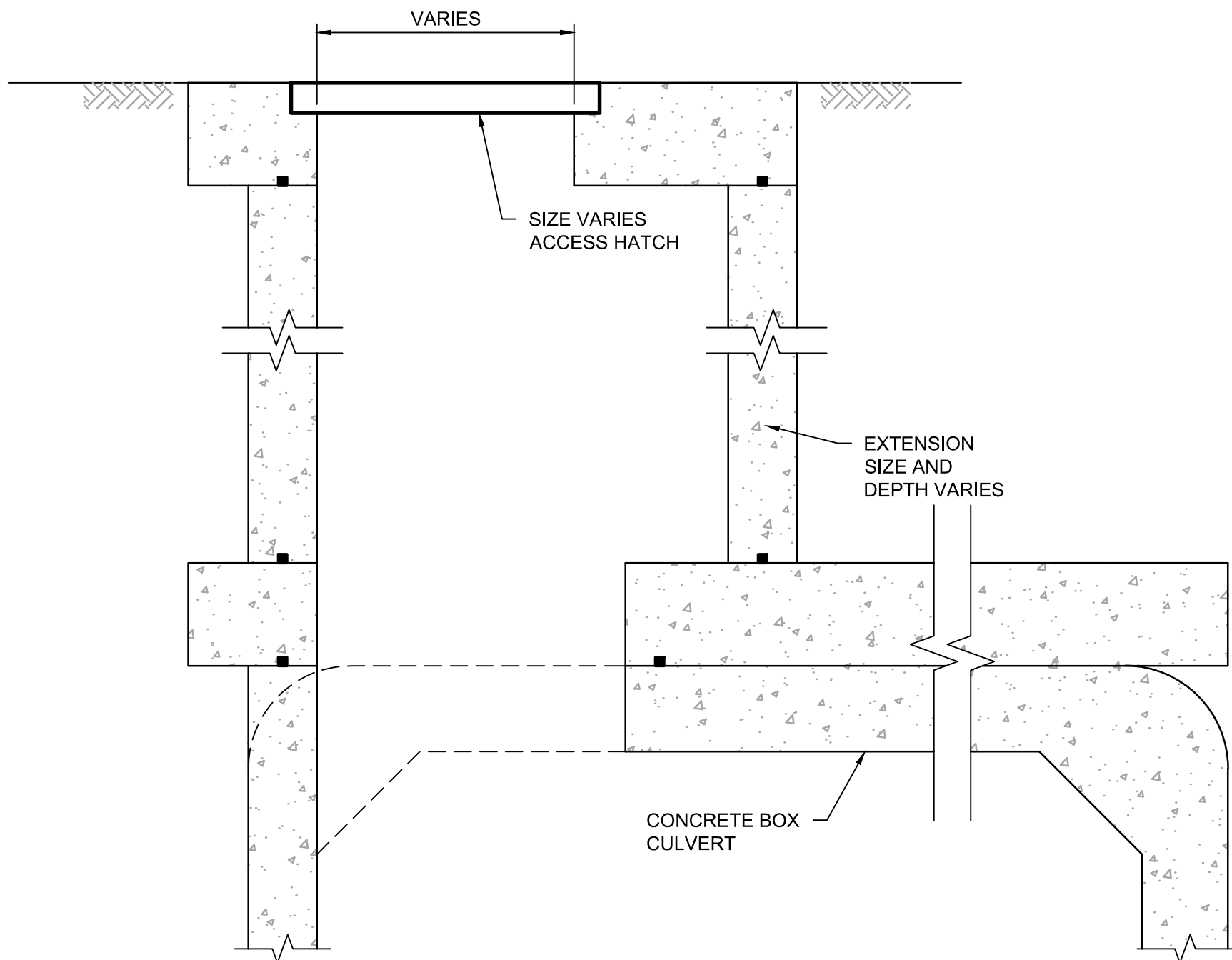
3
C-103
DETAIL: STA. 165+16 MAINTENANCE HOLE



1
C-103
DETAIL: STA. 134+10 MAINTENANCE HOLE



2
C-104
DETAIL: STA. 119+60 MAINTENANCE HOLE



4
SECTION: TYPICAL ACCESS

0 1 2 3
SCALE

- NOTES:
1. CONTRACTOR TO VERIFY ACCESS VAULT DIMENSIONS AHEAD OF MOBILIZATION.



6
C-104
DETAIL: STA. 129+10 MAINTENANCE HOLE INTERIOR



1
C-104
DETAIL: STA. 129+10 MAINTENANCE HOLE

60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW
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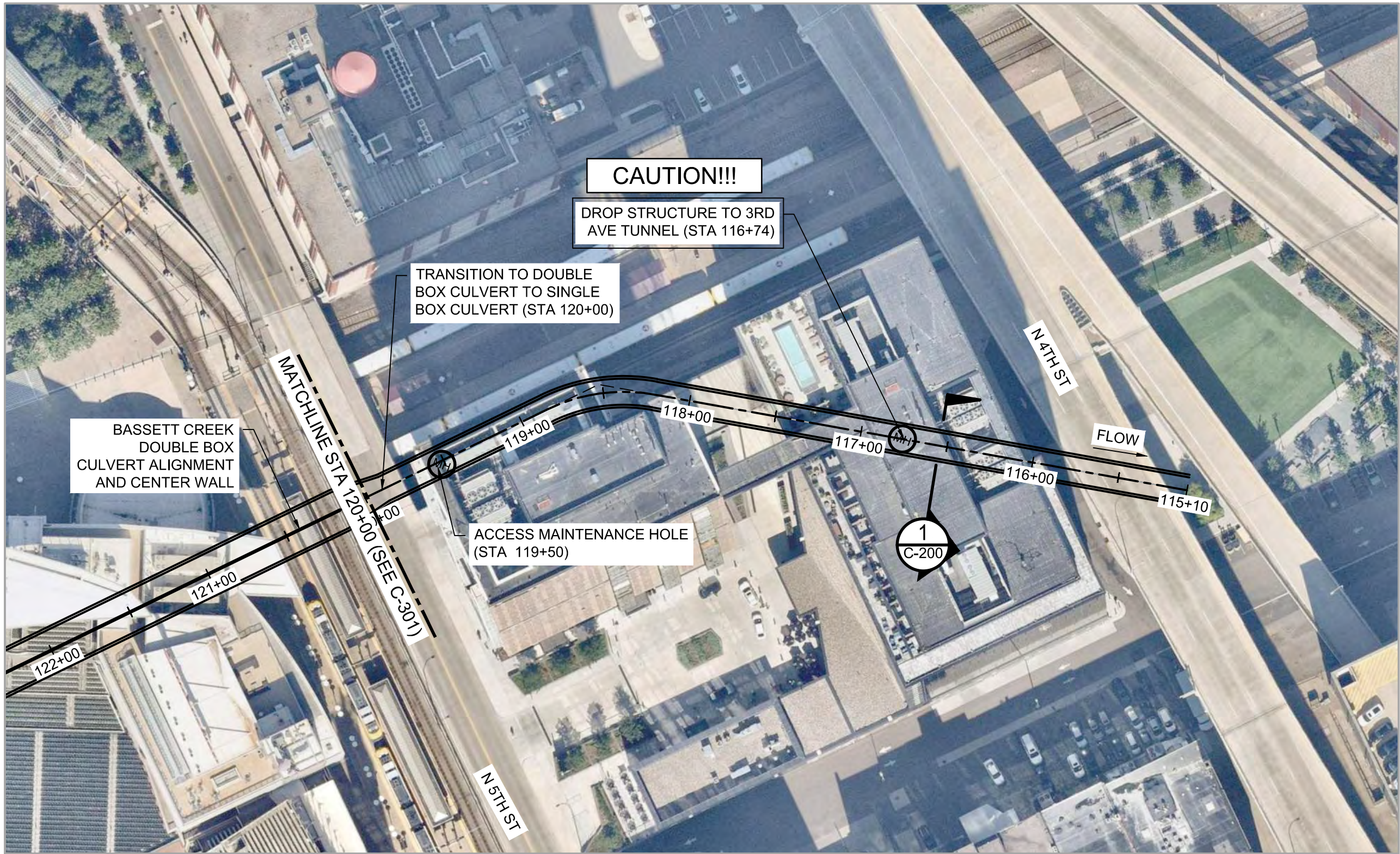
BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA

ACCESS DETAILS

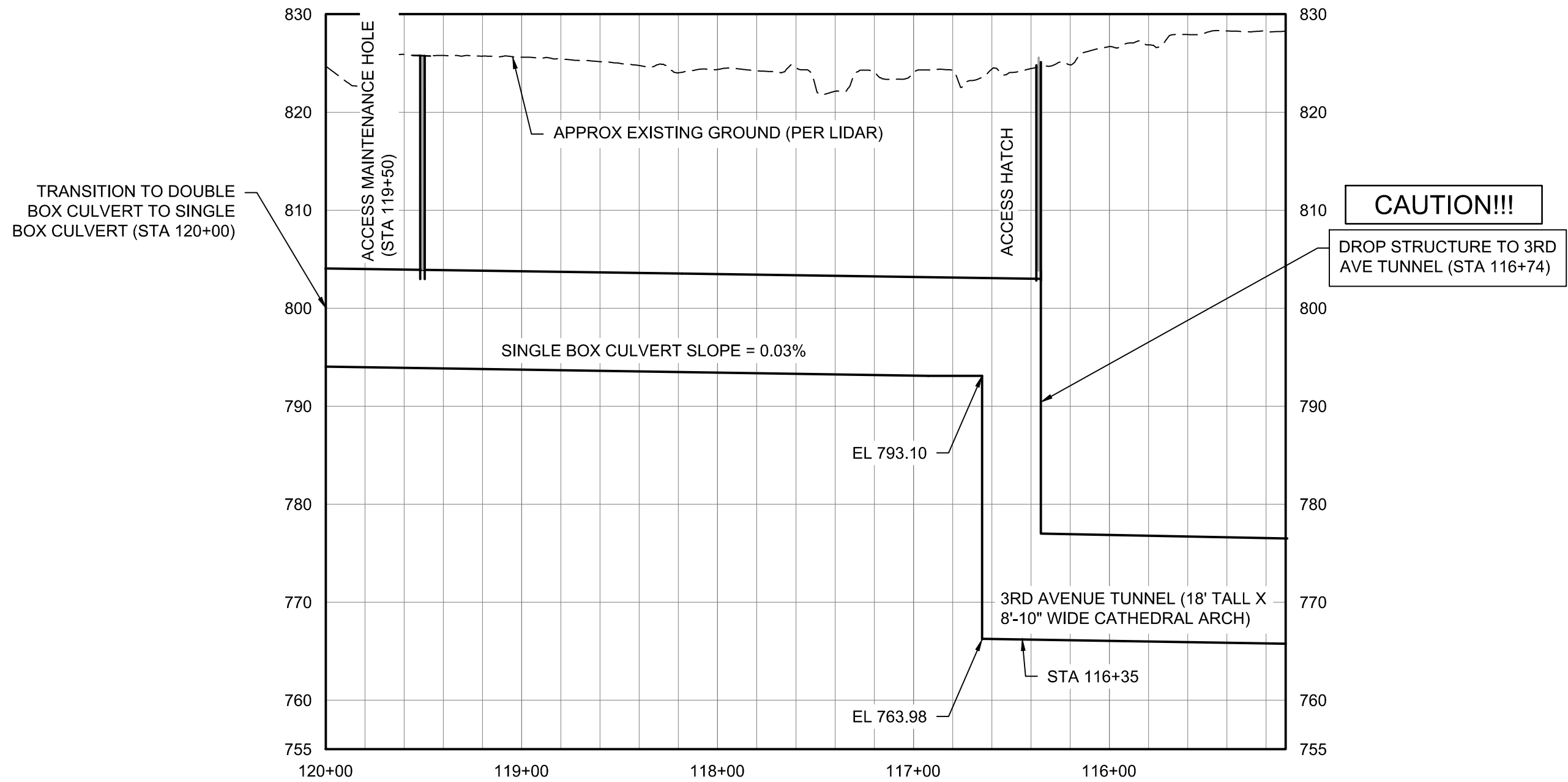
BARR PROJECT #	2327005171
DWG #	C203
REV #	B



1 PLAN: STA 120+00 TO 115+10

0 60 120

SCALE IN FEET



2 PROFILE: STA 120+00 TO 115+10

0 60 120 0 20 40

HORZ. SCALE IN FEET VERT SCALE IN FEET

NOTES:

- REFERENCES TO "LEFT" AND "RIGHT" ARE WITH RESPECT TO FACING DOWNSTREAM.
- REPAIRS SHOWN IN TABLES ARE APPROXIMATE. CONTRACTOR AND ENGINEER TO COORDINATE ON PRIORITY AND PERCENTAGE OF REPAIRS TO EXECUTE DURING CONSTRUCTION.

SINGLE BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
119+82		Shear Key			46		1	Shear Key Repair	Shear key K36: majority of bitumastic bond breaker in place, cracking from 7 to 9 o'clock. Width: K36R: 0"-1/2", K36L: 0"-1/4".
119+82		Surface Aggregate Protruding			0	0.5	1	Surface Repair	Spalling 4" x 4" x 3" deep at two locations.
119+82		Surface Spalling	3		0	0.25	1	Surface Repair	4" x 4" x 2" deep
119+48		Crack Circumferential	7	5	42		1	Crack Repair	Infiltration Weeper at 5 o'clock.
119+47		Crack Circumferential	5		4		1	Crack Repair	Infiltration Weeper at 5 o'clock.
119+46		Crack Circumferential	5		4		1	Crack Repair	Infiltration Weeper at 5 o'clock.
119+40		Crack Circumferential	2	5	12		1	Crack Repair	Infiltration Weeper at 5 o'clock.
119+39		Crack Circumferential	1	5	16		1	Crack Repair	Infiltration Weeper from 1 to 5 o'clock.
119+30		Crack Circumferential	5		4		1	Crack Repair	Infiltration Weeper at 5 o'clock.
119+27		Crack Circumferential	5		4		1	Crack Repair	Infiltration Weeper at 5 o'clock.
119+05		Crack Circumferential	5		4		1	Crack Repair	Infiltration Weeper at 5 o'clock.
118+95		Crack Circumferential	7	11	16		1	Crack Repair	Infiltration Weeper from 7 to 11 o'clock.
118+52		Crack Circumferential	4	5	4		1	Crack Repair	Infiltration Weeper from 4 to 5 o'clock.
118+00		Shear Key	7	8	46		1	Shear Key Repair	Shear key K37: majority of bitumastic bond breaker in place. Width: K37R: 1/4"-1/2", K37L: 3/4". Three crack gages installed on 12/9/2021 by the North Loop Green development contractor, two at 9 o'clock position and one at 3 o'clock.
117+55		Crack Circumferential	7	8	4		1	Crack Repair	Infiltration Weeper from 7 to 8 o'clock.
117+55		Surface Spalling	3		4		1	Surface Repair	
117+27		Crack Circumferential	7	9	8		1	Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
117+26		Crack Circumferential	5		4		1	Crack Repair	Infiltration Weeper at 5 o'clock.
117+18		Crack Circumferential	7	8	4		1	Crack Repair	Infiltration Weeper from 7 to 8 o'clock.
117+03		Crack Circumferential	7	8	4		1	Crack Repair	Infiltration Weeper from 7 to 8 o'clock.
116+80		Shear Key	2	5	46		1	Shear Key Repair	Shear key K38: too close to drop structure to thoroughly inspect. Infiltration Weeper at 9 o'clock.
116+74		Shear Key			46		1	Shear Key Repair	Shear key K39: too close to drop structure to inspect.

60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-	
-	-	-	-	-	-	
-	-	-	-	-	-	
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW	
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW	
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION	



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4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

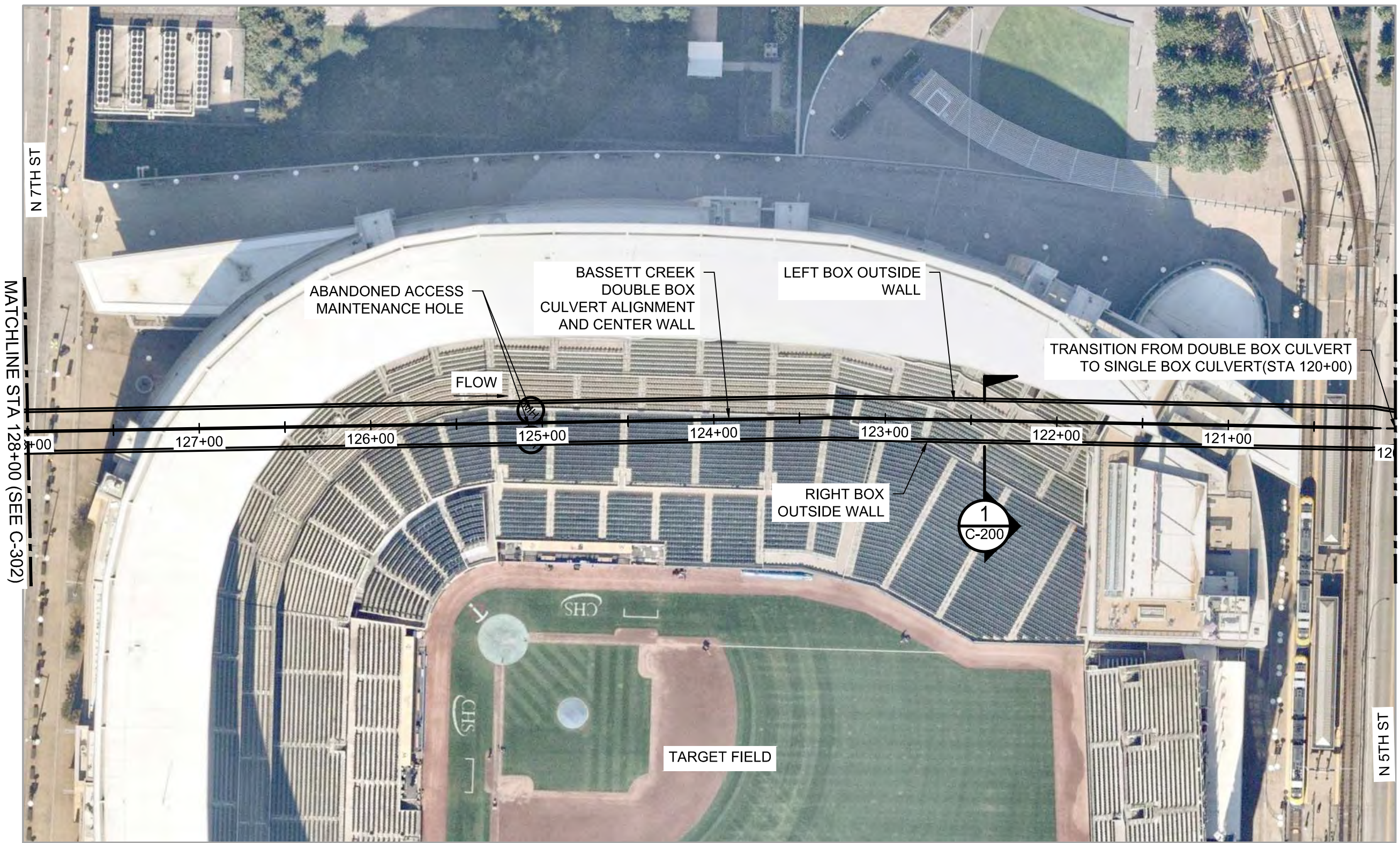
PH: 1-800-632-2277
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MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

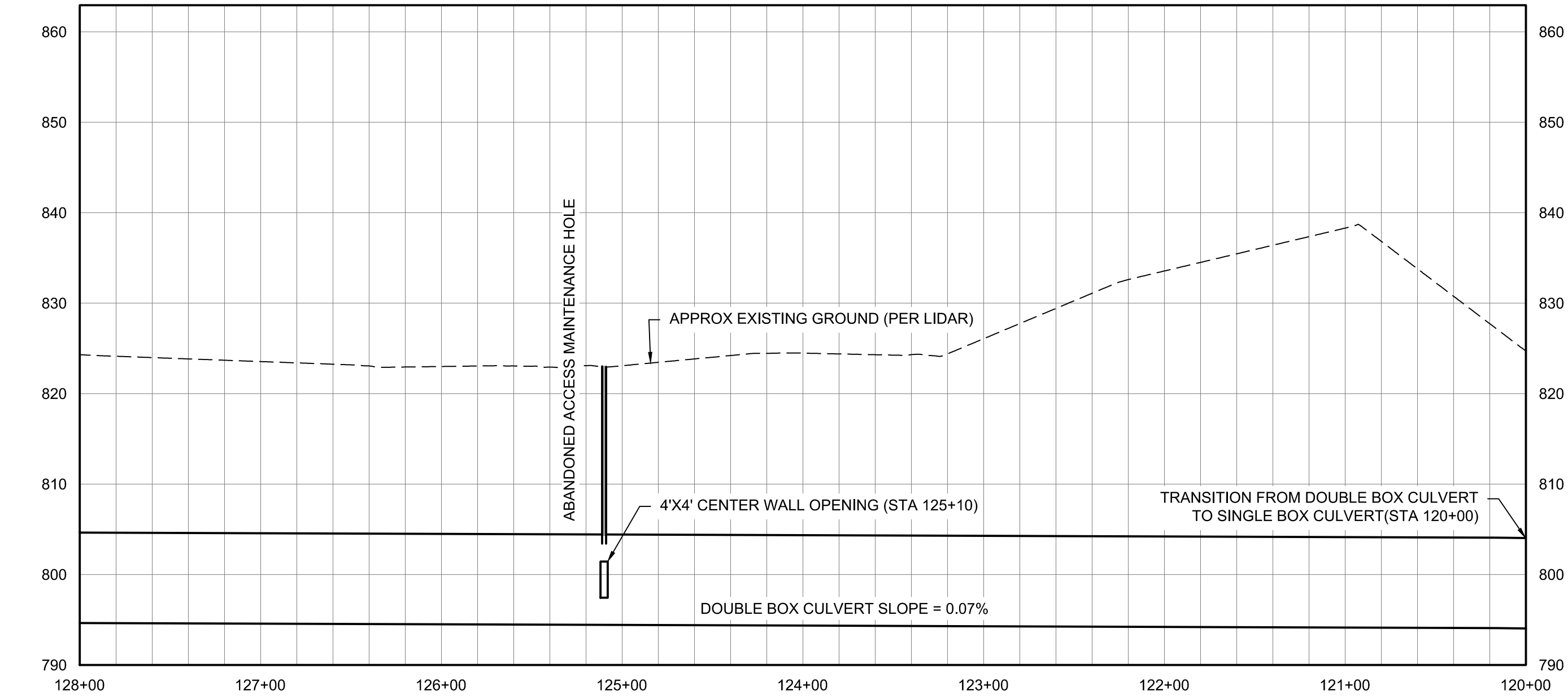
BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA
SINGLE BOX REPAIRS
STA 120+00 TO 115+10
PLAN AND PROFILE

BARR PROJECT #	2327005171
DWG #	C300
REV #	B



1 PLAN: STA 128+00 TO 120+00

0 60 120
SCALE IN FEET



2 PROFILE: STA 128+00 TO 120+00

0 60 120 0 20 40
HORZ. SCALE IN FEET VERT SCALE IN FEET

NOTES:

- REFERENCES TO "LEFT" AND "RIGHT" ARE WITH RESPECT TO FACING DOWNSTREAM.
- REPAIRS SHOWN IN TABLES ARE APPROXIMATE. CONTRACTOR AND ENGINEER TO COORDINATE ON PRIORITY AND PERCENTAGE OF REPAIRS TO EXECUTE DURING CONSTRUCTION.

LEFT BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
126+75		Crack Circumferential	7		4			Crack Repair	Infiltration Weeper at 7 o'clock.
126+50		Shear Key			46			Shear Key Repair	Shear key K32: majority of bitumastic bond breaker in place. Joint Width: K32R: 0"-1/4", K32L: 0"-1/4".
126+50		Fracture Longitudinal	8		4			Fracture Repair	2.5mm left joint
126+50		Surface Spalling	9		0	4		Surface Repair	fractured but in place
126+50		Crack Circumferential	11	2	15			Crack Repair	Infiltration Dripper from 11 to 2 o'clock.
126+50		Fracture Circumferential	10	11	4			Fracture Repair	
125+01		Crack Circumferential	11	1	11			Crack Repair	Infiltration Weeper from 11 to 1 o'clock.
124+50		Shear Key			46			Shear Key Repair	Shear key K33: majority of bitumastic bond breaker in place. Joint Width: K33R: 1/2"-3/4", K33L: 1/2".
124+00		Crack Circumferential	11	1	11			Crack Repair	Infiltration Weeper from 11 to 1 o'clock.
123+51		Crack Circumferential	1	5	16			Crack Repair	Infiltration Weeper from 1 to 5 o'clock.
123+49		Crack Circumferential	11	1	11			Crack Repair	Infiltration Dripper from 11 to 1 o'clock.
123+25		Crack Circumferential	7	2	30			Crack Repair	Infiltration Weeper at 7 o'clock.
122+99		Crack Circumferential	7		4			Crack Repair	Infiltration Weeper at 7 o'clock.
122+77		Crack Circumferential	7	8	4			Crack Repair	Infiltration Weeper from 7 to 8 o'clock.
122+52		Shear Key			46			Shear Key Repair	Shear key K34: bitumastic bond breaker deteriorated, left key has patch repair. Joint Width: K34R: 3/4"-1", K34L: 3/4".
121+00		Surface Spalling	11		0	0.5		Surface Repair	Spalling 2-in x 4-in x 2-in deep left joint
121+00		Shear Key			46			Shear Key Repair	Shear key K35: majority of bitumastic bond breaker in place. Joint Width: K35R: 1/4"-1/2", K35L: 1/4"-1/2". Evidence of differential settlement. Infiltration Stain at 9 o'clock.
121+00		Fracture Multiple	9		4			Fracture Repair	Fractures observed at left shear key
120+50		Crack Circumferential	7	9	8			Crack Repair	Infiltration Weeper from 7 to 8 o'clock.
120+09	120+01	Obstacle Other	6		8		1	Object Removal	4' by 8' piece of plywood in invert

60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-	
-	-	-	-	-	-	
-	-	-	-	-	-	
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW	
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW	
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION	

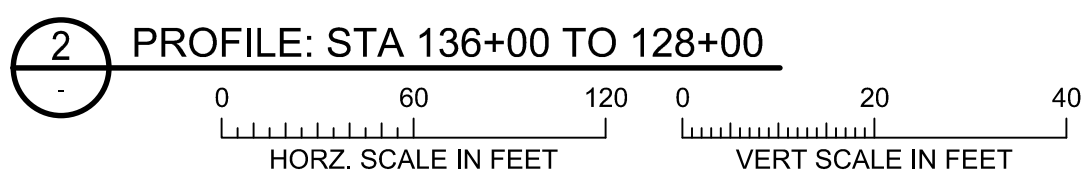
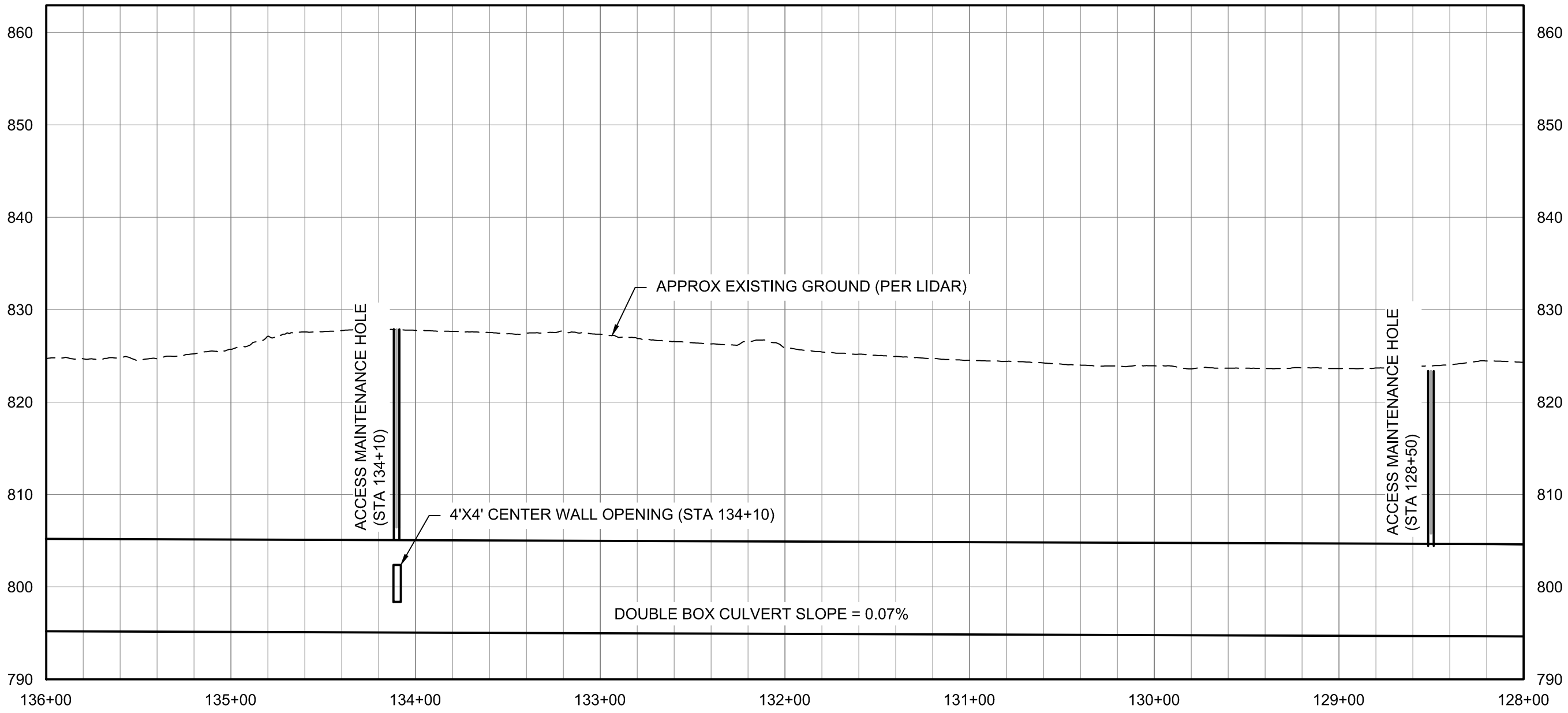
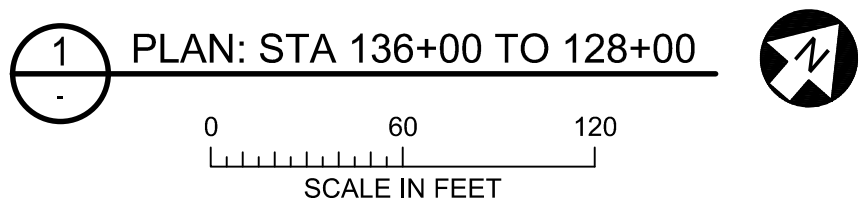
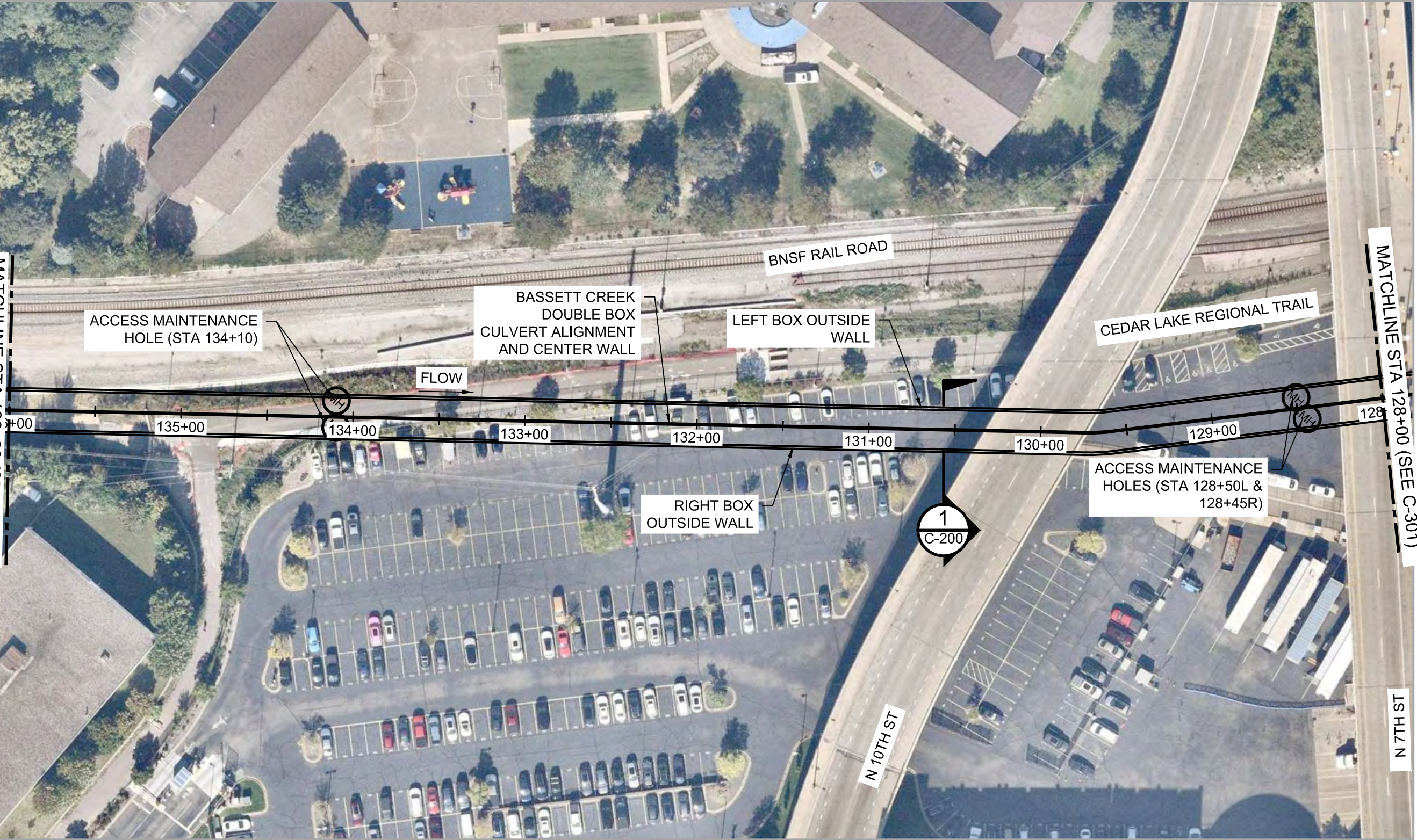


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BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

BASSETT CREEK WATERSHED MANAGEMENT COMMISSION	BASSETT CREEK DOUBLE BOX CULVERT REPAIRS MINNEAPOLIS, MINNESOTA		BARR PROJECT # 2327005171
	LEFT BOX REPAIRS STA 128+00 TO 120+00		DWG # C301
	PLAN AND PROFILE		REV # B



NOTES:

- 1. REFERENCES TO "LEFT" AND "RIGHT" ARE WITH RESPECT TO FACING DOWNSTREAM.
- 2. REPAIRS SHOWN IN TABLES ARE APPROXIMATE. CONTRACTOR AND ENGINEER TO COORDINATE ON PRIORITY AND PERCENTAGE OF REPAIRS TO EXECUTE DURING CONSTRUCTION.

LEFT BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
135+48		Crack Circumferential	7	2	30			Crack Repair	Infiltration Weeper at 7 o'clock.
134+98		Crack Circumferential	7	9	8			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
134+80		Crack Circumferential	7		4			Crack Repair	Infiltration Weeper at 7 o'clock.
134+47		Crack Circumferential	11	1	11			Crack Repair	Infiltration Weeper from 11 to 1 o'clock.
134+05		Shear Key			46			Shear Key Repair	Shear key K26: bitumastic bond breaker in place. Joint Width: K26R: 0"-1/4", K26L: 0"-1/4".
133+70		Crack Circumferential	7	10	12			Crack Repair	Infiltration Dripper from 7 to 10 o'clock.
133+70		Crack Circumferential	2	5	12			Crack Repair	Infiltration Weeper from 2 to 5 o'clock.
133+60		Crack Circumferential	11	5	27			Crack Repair	Infiltration Dripper from 11 to 12 o'clock and Infiltration Weeper from 12 to 1 o'clock.
133+53		Crack Circumferential	7	1	27			Crack Repair	Infiltration Weeper from 7 to 1 o'clock and Deposits Attached Encrustation from 7 to 11 o'clock.
133+45		Crack Circumferential	7	11	16			Crack Repair	Deposits Attached Encrustation from 7 to 11 o'clock.
133+43		Crack Circumferential	11	5	27			Crack Repair	Deposits Attached Encrustation from 1 to 5 o'clock.
133+39		Crack Circumferential	7	1	27			Crack Repair	Deposits Attached Encrustation from 7 to 11 o'clock.
133+24		Crack Circumferential	11	1	11			Crack Repair	Deposits Attached Encrustation from 7 to 11 o'clock.
133+22		Crack Circumferential	7	11	16			Crack Repair	Infiltration Dripper from 7 to 11 o'clock and Deposits Attached Encrustation from 7 to 11 o'clock.
133+02		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 7 to 11 and 1 to 5 o'clock, Infiltration Dripper from 11 to 1 o'clock, and Deposits Attached Encrustation from 7 to 1 o'clock.
132+90		Crack Circumferential	11	1	11			Crack Repair	Infiltration Dripper from 11 to 1 o'clock.
132+81		Crack Circumferential	11	1	11			Crack Repair	Infiltration Dripper from 11 to 12 o'clock.
132+56		Fracture Spiral	3	5	8			Fracture Repair	
132+53		Shear Key			46			Shear Key Repair	Shear key K27: bitumastic bond breaker deteriorated. Joint Width: K27R: 0"-1/2", K27L: unable to measure. Evidence of differential settlement. Deposits Attached Encrustation at 9 o'clock.
132+53		Fracture Multiple			0			Fracture Repair	Cracks/fractures observed in joints
132+53		Surface Spalling	3		0	0.5		Surface Repair	At right shear key, 3" by 4" by 1/2" deep
132+53		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper and Deposits Attached Encrustation from 7 to 11 o'clock.
132+02		Crack Circumferential	7	11	16			Crack Repair	Deposits Attached Encrustation from 7 to 11 o'clock.
131+75	131+10	Deposits Settled Fine	6		65			Sediment Removal	
131+53		Shear Key			46			Shear Key Repair	Shear key K28: bitumastic bond breaker deteriorated, exterior wrap visible. Joint Width: K28R: 1"-1.5", K28L: 1/2"-1.5". Evidence of differential settlement. Joint 1'-6" deep. Infiltration Stain at 9 o'clock.
131+53		Fracture Multiple			0			Fracture Repair	Cracks/fractures observed in joints
131+53		Fracture Circumferential	9	11	8			Fracture Repair	
131+53		Surface Spalling	1		0	0.5		Surface Repair	Spalling 6-in. x 6-in x 3-in deep
131+05		Shear Key			46			Shear Key Repair	Shear key K29: majority of bitumastic bond breaker in place. Joint Width: K29R: 0"-1/4", K29L: 0"-1/4".
130+53		Shear Key			46			Shear Key Repair	Shear key K30: majority of bitumastic bond breaker in place, left joint has been patched. Joint Width: K30R: 0-1", K30L: 0"-1/4". Evidence of differential settlement.
130+53		Fracture Longitudinal	3	3	46			Fracture Repair	Right joint has a fracture
130+53		Fracture Circumferential	1	3	8			Fracture Repair	2.5mm wide
130+15		Crack Circumferential	7	11	16			Crack Repair	Infiltration Weeper at 7 o'clock.
130+05		Crack Circumferential	7		4			Crack Repair	Infiltration Weeper at 7 o'clock.
129+92		Crack Circumferential	7	5	42			Crack Repair	Infiltration Dripper from 11 to 2 o'clock.
129+86		Crack Circumferential	7	1	27			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
129+76		Crack Circumferential	11	2	15			Crack Repair	Infiltration Weeper from 12 to 2 o'clock.
129+66		Crack Circumferential	1	5	16			Crack Repair	Infiltration Weeper.
129+54		Crack Circumferential	11	2	15			Crack Repair	Infiltration Weeper from 11 to 2 o'clock.
129+39		Crack Circumferential	1	5	16			Crack Repair	Infiltration Weeper.
129+30		Crack Circumferential	1	5	16			Crack Repair	Infiltration Weeper.
129+14		Crack Circumferential	1	5	16			Crack Repair	Infiltration Weeper.
128+57		Shear Key			46			Shear Key Repair	Shear key K31: bitumastic bond breaker deteriorated. Joint Width: K31R: 1/2"-3/4", K31L: 1/2"-3/4". Infiltration Weeper from 7 to 5 and Infiltration Dripper from 10 to 2 o'clock.

60% DESIGN
NOT FOR CONSTRUCTION

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 3/11/2026 12:27 PM
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B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW	
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW	
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION	



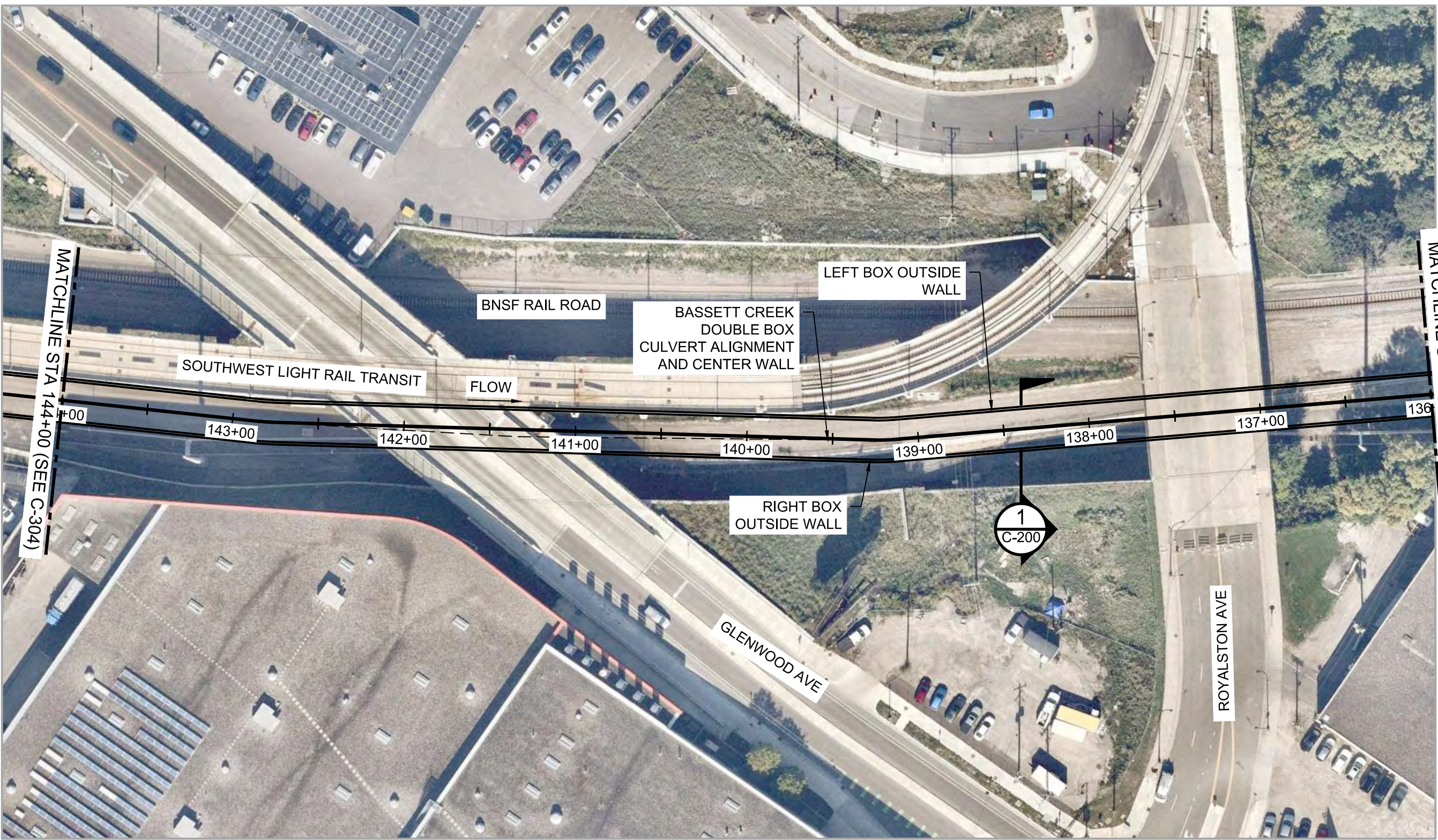
BARR

ENGINEERING

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

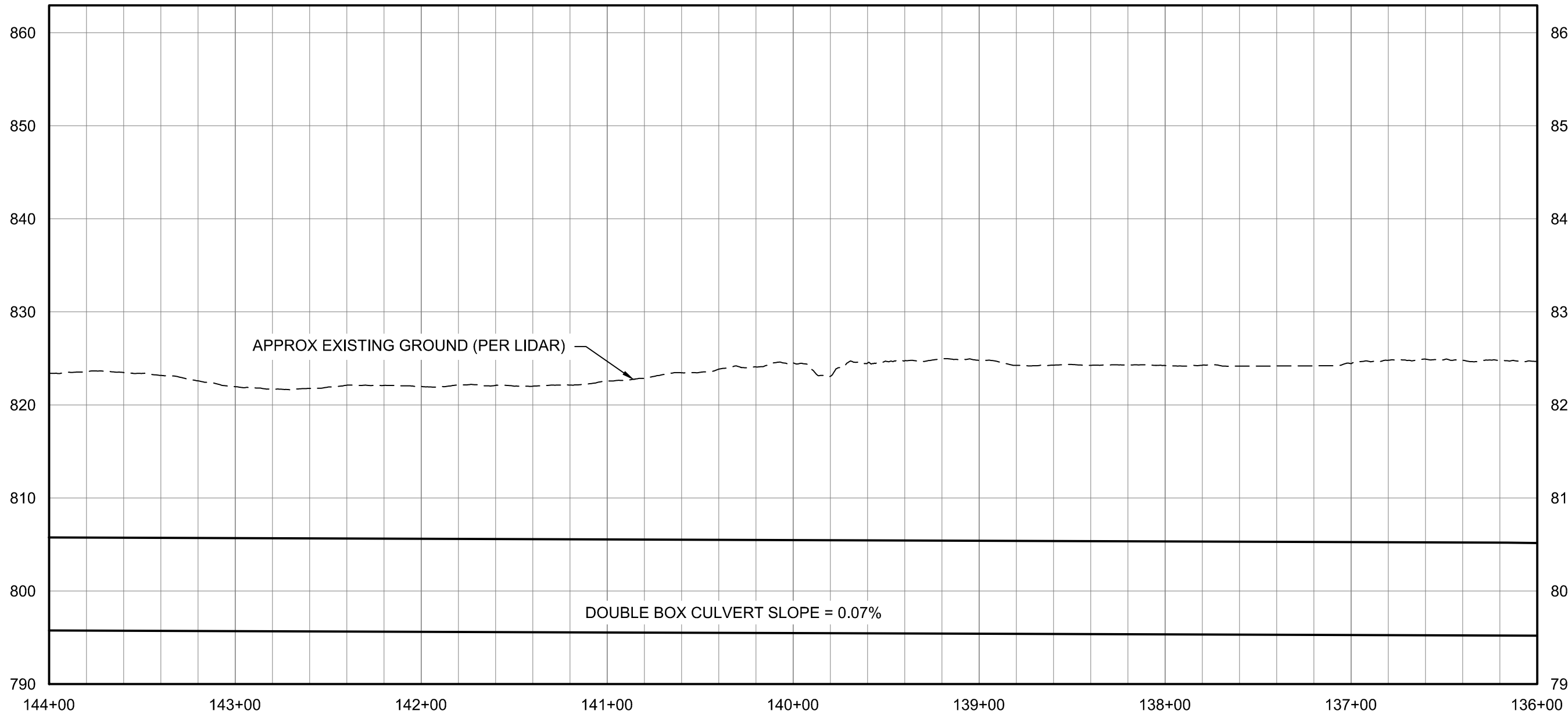
PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

BARR PROJECT # 2327005171 DWG # C302 REV # B	BASSETT CREEK WATERSHED MANAGEMENT COMMISSION		BASSETT CREEK DOUBLE BOX CULVERT REPAIRS MINNEAPOLIS, MINNESOTA	
	CLIENT PROJECT # FCP-1		LEFT BOX REPAIRS STA 136+00 TO 128+00 PLAN AND PROFILE	



1 PLAN: STA 144+00 TO 136+00

0 60 120
SCALE IN FEET



2 PROFILE: STA 144+00 TO 136+00

0 60 120 0 20 40
HORZ. SCALE IN FEET VERT SCALE IN FEET

NOTES:

- REFERENCES TO "LEFT" AND "RIGHT" ARE WITH RESPECT TO FACING DOWNSTREAM.
- REPAIRS SHOWN IN TABLES ARE APPROXIMATE. CONTRACTOR AND ENGINEER TO COORDINATE ON PRIORITY AND PERCENTAGE OF REPAIRS TO EXECUTE DURING CONSTRUCTION.

LEFT BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
143+69		Crack Circumferential	7	9	8			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
143+55		Crack Circumferential	7	1	27			Crack Repair	Infiltration Weeper from 7 to 1 o'clock.
143+05		Shear Key			46			Shear Key Repair	Shear key K21: majority of bitumastic joint filler in place. Joint Width: K21R: 1/2"-3/4", K21L: 1/2"-3/4". Crack gauges installed by others at left and right shear key and at 12 o'clock position. Infiltration Stain from 8 to 10 o'clock and 2 to 4 o'clock.
141+98		Crack Circumferential	12	1	7			Crack Repair	Infiltration Dripper from 12 to 1 o'clock.
141+05		Shear Key			46			Shear Key Repair	Shear key K22: majority of bitumastic bond breaker in place. Joint Width: K22R: 1/4", K22L: 0"-1/4". Crack gauges installed by others at left and right shear key and at 12 o'clock position.
139+54		Surface Spalling	3		0	1		Surface Repair	Spalling 16-in. x 6-in. x 3-in. deep on key
139+50		Shear Key			46			Shear Key Repair	Shear key K23: bitumastic bond breaker deteriorated. Joint Width: K23R: 0"-1.5", K23L: 1/4"-3/4". Evidence of differential settlement. Crack gauges installed by others at left and right shear key and at 12 o'clock position.
138+18		Crack Circumferential	7	2	30			Crack Repair	Infiltration Dripper from 12 to 2 o'clock.
138+01		Crack Circumferential	11	2	15			Crack Repair	Infiltration Dripper from 11 to 2 o'clock.
137+52		Shear Key			46			Shear Key Repair	Shear key K24: bitumastic bond breaker deteriorated. Joint Width: K24R: 1/2", K24L: 1/4". Infiltration Stain at 9 o'clock.
137+52		Surface Spalling	2		0	1		Surface Repair	4" by 18" by 2" deep
136+00		Shear Key			46			Shear Key Repair	Shear key K25: Joint Width: K25R: 1/4", K25L: 0"-1/2".
136+00		Surface Spalling	7		0	0.5		Surface Repair	3" by 4" by 3" deep



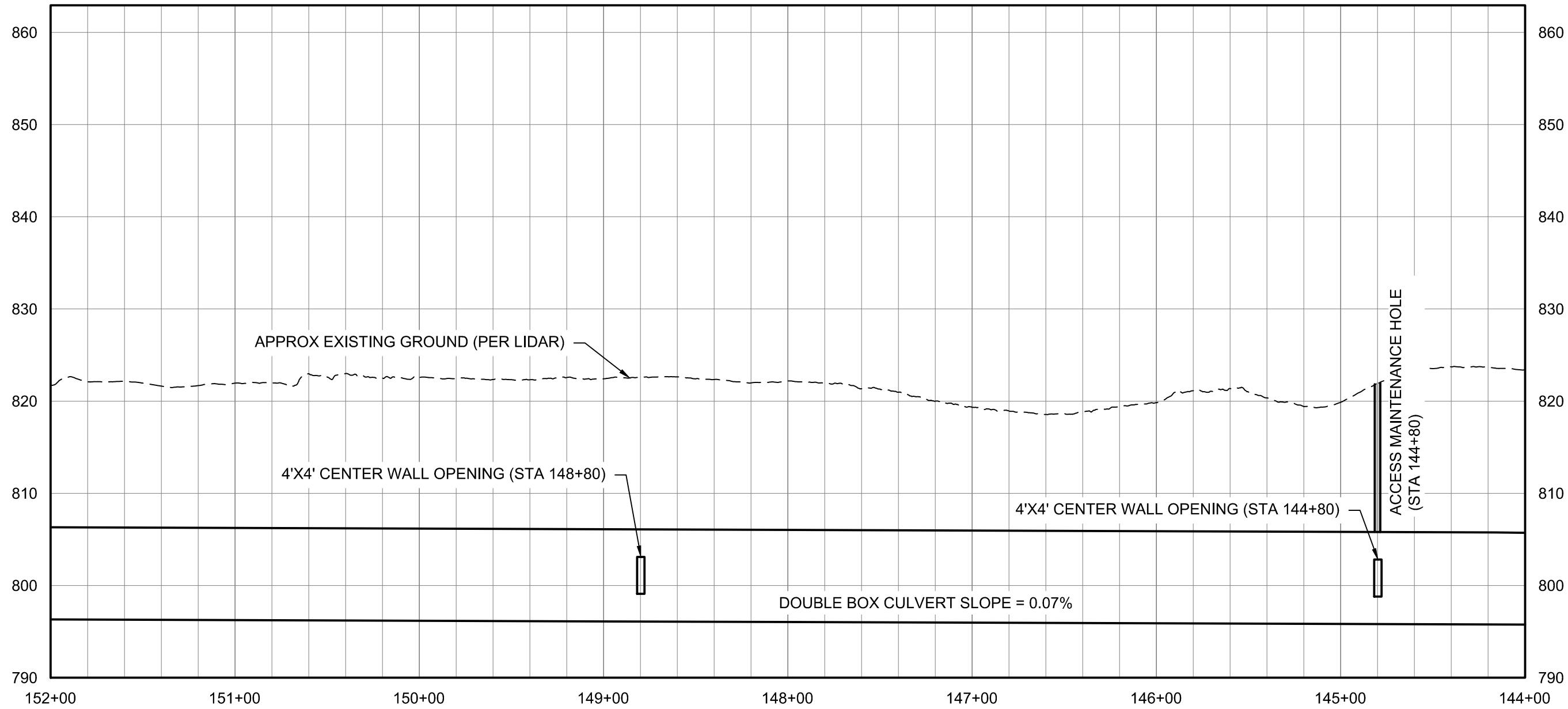
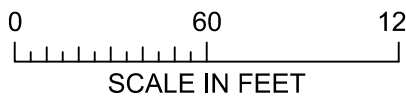
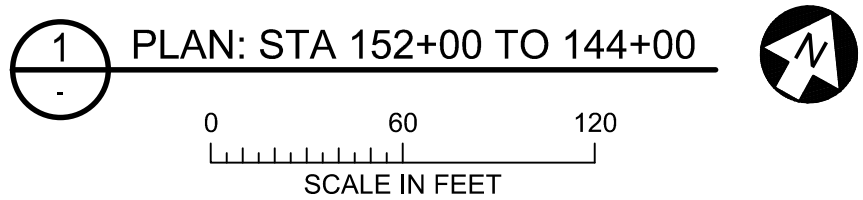
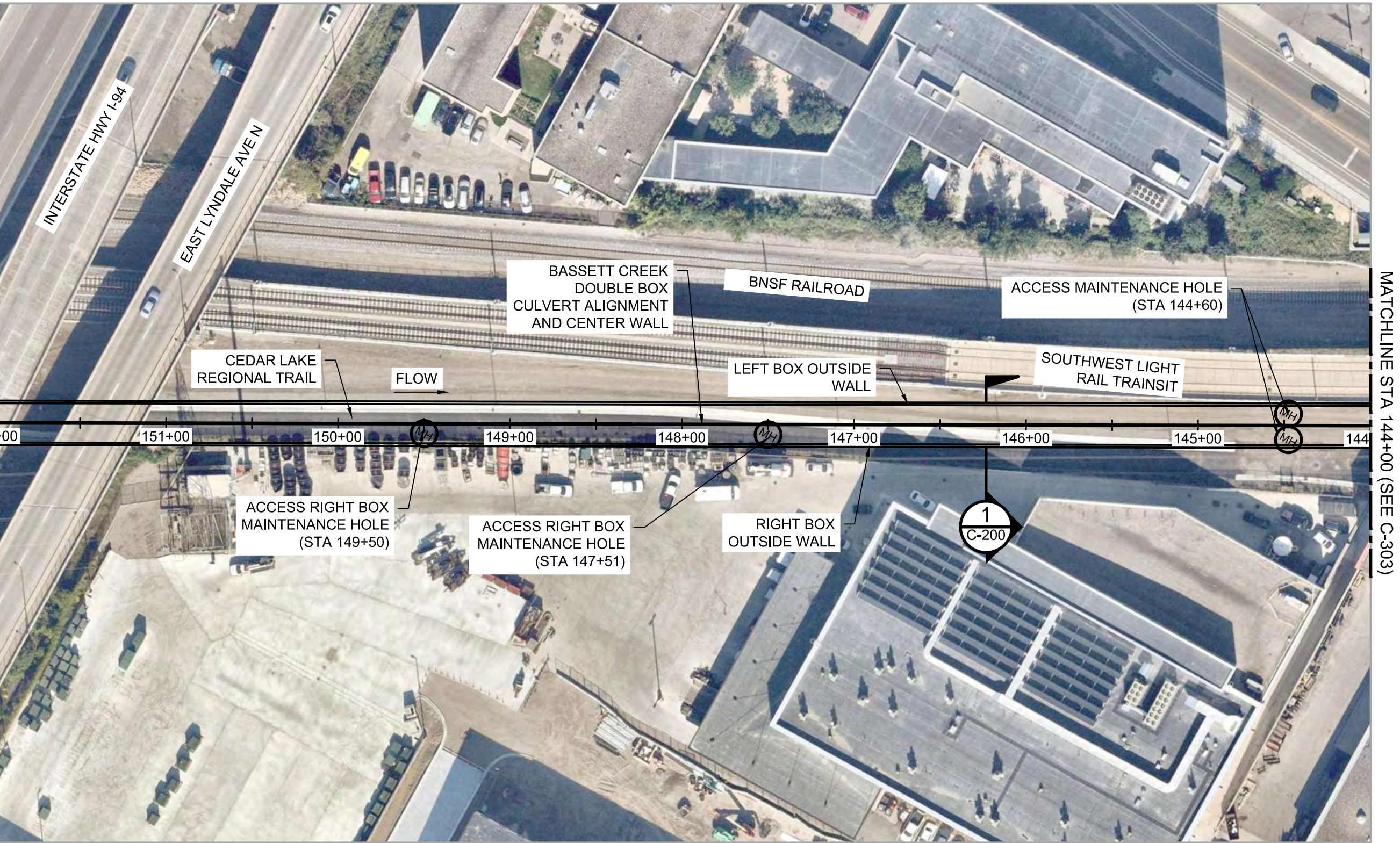
BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

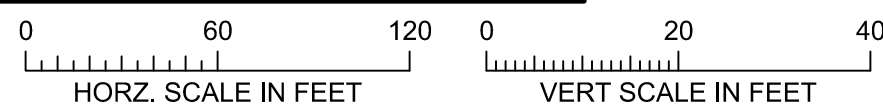
BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA
LEFT BOX REPAIRS
STA 144+00 TO 136+00
PLAN AND PROFILE

BARR PROJECT #	2327005171
DWG #	C303
REV #	B

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2 PROFILE: STA 152+00 TO 144+00



NOTES:

1. REFERENCES TO "LEFT" AND "RIGHT" ARE WITH RESPECT TO FACING DOWNSTREAM.
2. REPAIRS SHOWN IN TABLES ARE APPROXIMATE. CONTRACTOR AND ENGINEER TO COORDINATE ON PRIORITY AND PERCENTAGE OF REPAIRS TO EXECUTE DURING CONSTRUCTION.

LEFT BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
151+55		Shear Key			46			Shear Key Repair	Shear key K14: bitumastic bond breaker deteriorated. Joint Width: K14R: 3/4", K14L: 1/4"-1/2". Infiltration Stain from 8 to 9 o'clock.
151+55	150+99	Deposits Settled Fine	12		56			Sediment Removal	
151+10		Surface Spalling	3		0	1		Surface Repair	spalling 10-in x 8-in x 2-in deep
151+10		Shear Key			46			Shear Key Repair	Shear key K15: bitumastic bond breaker deteriorated. Joint Width: K15R: 1/2"-1", K15L: 1/2"-3/4" Evidence of differential settlement.
150+55		Shear Key			46			Shear Key Repair	Shear key K16: bitumastic bond breaker deteriorated. Joint Width: K16R: 0"-3/4", K16L: 1/4"-3/4". Evidence of differential settlement.
150+07		Shear Key			46			Shear Key Repair	Shear key K17: majority of bitumastic bond breaker in place. Joint Width: K17R: 1/2"-3/4", K17L: 1/4"-3/4". Infiltration Weeper at 9 o'clock.
149+86		Surface Aggregate Visible	9		0	0.5		Surface Repair	6-in. x 3-in. x 1/2-in. deep
149+55		Crack Circumferential	7	10	12			Crack Repair	Deposits Attached Encrustation from 7 to 9 o'clock.
149+50		Crack Circumferential	11	5	27			Crack Repair	Deposits Attached Encrustation from 11 to 12 o'clock.
149+07		Shear Key			46			Shear Key Repair	Shear key K18: bitumastic bond breaker deteriorated. Joint Width: K18R: 0"-1/4", K18L: 1/4"-1/2". Evidence of differential settlement. Infiltration Stain from 7 to 9 o'clock and Infiltration Weeper at 8 o'clock.
148+48		Crack Circumferential	7	11	16			Crack Repair	Deposits Attached Encrustation from 7 to 11 o'clock.
148+43		Crack Circumferential	11	5	27			Crack Repair	Infiltration Dropper from 11 to 1 o'clock.
148+03		Crack Circumferential	11	1	11			Crack Repair	Deposits Attached Encrustation from 11 to 1 o'clock.
147+85		Crack Circumferential	11	5	27			Crack Repair	Deposits Attached Encrustation at 12 o'clock.
147+56		Crack Circumferential	7	1	27			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
147+07		Shear Key			46			Shear Key Repair	Shear key K19: bitumastic bond breaker deteriorated. Joint Width: K19R: 1", K19L: 3/4"-1". Crack gauges installed by others at left and right shear key and at 12 o'clock position. Infiltration Weeper from 8 to 9 o'clock.
147+07	147+00	Crack Circumferential	8	9	7			Crack Repair	Infiltration Weeper from 8 to 9 o'clock.
146+53		Crack Circumferential	7	1	27			Crack Repair	Infiltration Weeper from 7 to 12 o'clock.
146+16	146+12	Crack Spiral	7	12	19			Crack Repair	Infiltration Weeper at 146+16 from 7 to 9 o'clock.
146+06		Crack Circumferential	7	9	8			Crack Repair	Deposits Attached Encrustation from 7 to 9 o'clock.
145+05		Shear Key			46			Shear Key Repair	Shear key K20: bitumastic joint filler deteriorated. Joint Width: K20R: 1", K20L: 1". Crack gauges installed by others at left and right shear key and at 12 o'clock position. Infiltration Weeper at 9 o'clock and Infiltration Stain from 11 to 1 o'clock.
144+60		Deposits Settled Gravel	7		4			Sediment Removal	Directly below manhole.

60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-	
-	-	-	-	-	-	
-	-	-	-	-	-	
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW	
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW	
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION	



BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
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MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

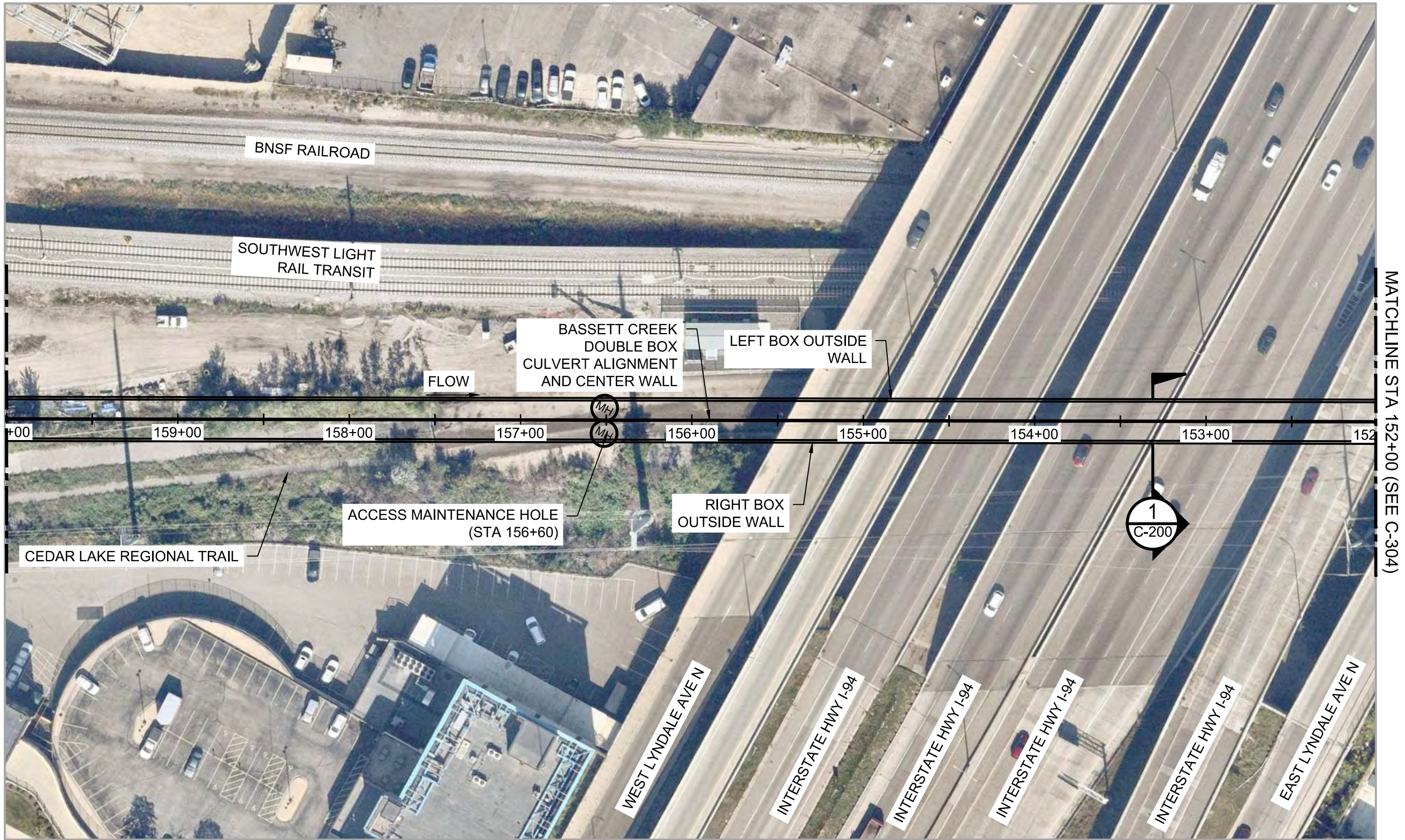
BASSETT CREEK DOUBLE BOX CULVERT REPAIRS MINNEAPOLIS, MINNESOTA	
LEFT BOX REPAIRS STA 152+00 TO 144+00 PLAN AND PROFILE	

BARR PROJECT #	2327005171
DWG #	C304
REV #	B

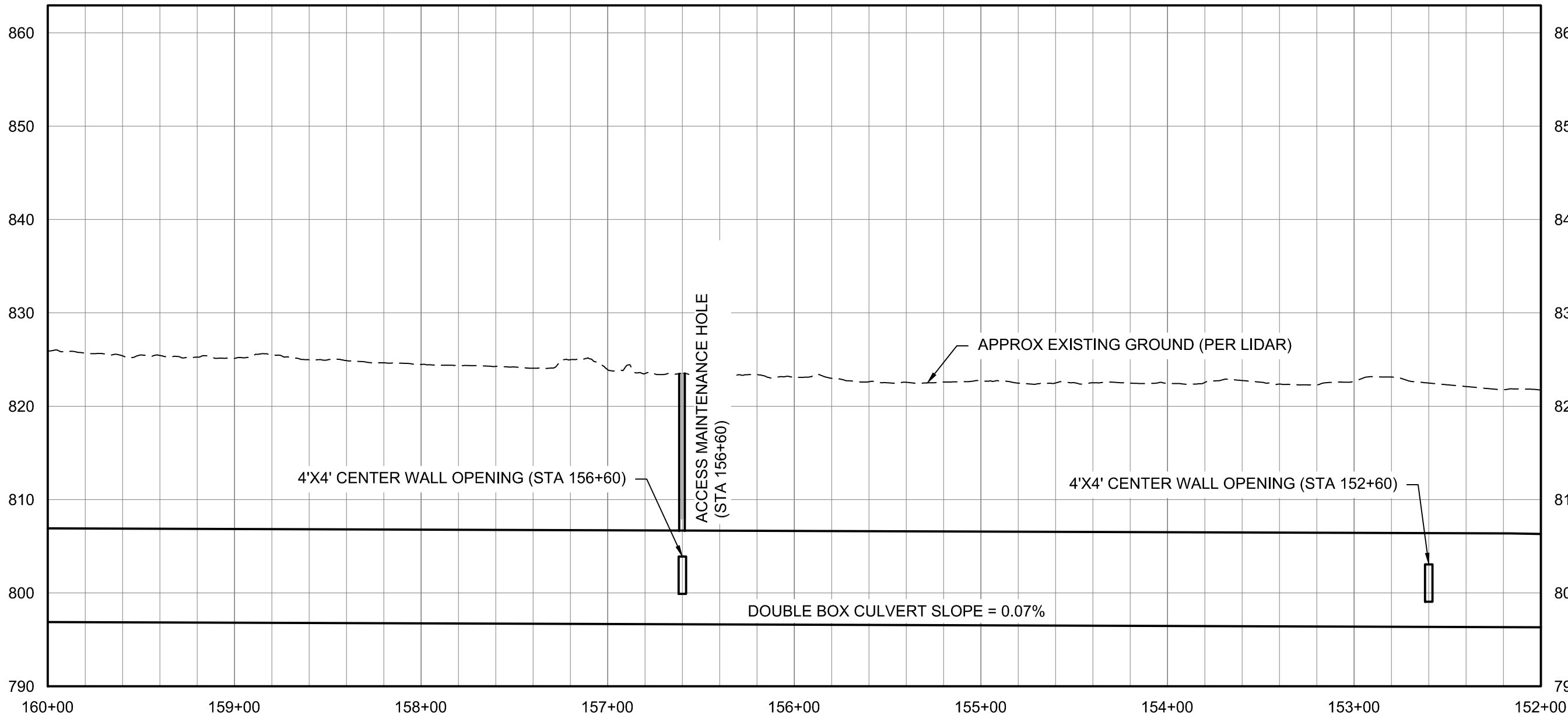
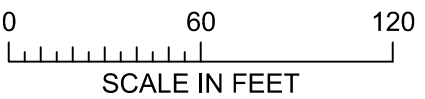
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LEFT BOX REPAIR QUANTITIES TABLE

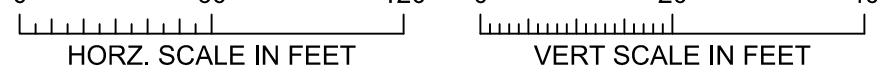
Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
159+60		Crack Circumferential	7	11	16			Crack Repair	Infiltration Weeper from 8 to 10 o'clock, and Infiltration Stain from 7 to 11 o'clock.
159+15		Crack Circumferential	7	9	8			Crack Repair	Infiltration Weeper from 7 to 9 o'clock with Deposits Attached Encrustation at 2 o'clock.
159+00		Crack Circumferential	7	8	4			Crack Repair	Infiltration Weeper from 7 to 8 o'clock.
158+80		Crack Circumferential	11	2	15			Crack Repair	Infiltration Dripper from 11 to 2 o'clock.
158+71		Crack Circumferential	11	1	11			Crack Repair	Infiltration Dripper from 11 to 1 o'clock.
158+60		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 7 to 5 o'clock.
158+20		Crack Circumferential	7	10	12			Crack Repair	Infiltration Weeper at 7 o'clock.
158+10		Shear Key			46			Shear Key Repair	Shear key K9: bitumastic bond breaker deteriorated. Joint Width: K9R: 3/4"-1", K9L: 3/4"-1"
157+60		Crack Circumferential	7	10	12			Crack Repair	Infiltration Weeper from 7 to 10 o'clock.
157+50		Crack Circumferential	7	9	8			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
157+10		Crack Circumferential	7	3	34			Crack Repair	Infiltration Dripper from 7 to 10 o'clock.
156+68		Fracture Circumferential	1	5	16			Fracture Repair	0.7 mils
156+62		Crack Circumferential	7	8	4			Crack Repair	Infiltration Weeper from 7 to 8 o'clock.
156+60		Crack Circumferential	7	8	4			Crack Repair	Infiltration Weeper from 7 to 8 o'clock.
156+05		Shear Key			46			Shear Key Repair	Shear key K10: bitumastic bond breaker deteriorated. Joint Width: K10R: 1/2"-1", K10L: 1/2"-1". Infiltration Weeper at 8 o'clock.
156+05		Surface Spalling			0	0.5		Surface Repair	6" diameter, 2" deep at right shear key.
155+54		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
155+50		Crack Circumferential	11	2	15			Crack Repair	Infiltration Dripper from 12 to 1 o'clock.
155+16		Crack Circumferential	7	11	16			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
155+04		Crack Circumferential	7	2	30			Crack Repair	Deposits Attached Encrustation from 7 to 9 and at 12 o'clock.
154+94		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 10 to 12 o'clock.
154+88		Crack Circumferential	7	1	27			Crack Repair	Infiltration Weeper and Deposits Attached Encrustation from 7 to 9 o'clock.
154+74		Crack Circumferential	7	1	27			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
154+70		Crack Circumferential	7	11	16			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
154+67		Crack Circumferential	7	11	16			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
154+55		Crack Circumferential	7	11	16			Crack Repair	Infiltration Weeper and Deposits Attached Encrustation from 7 to 9 o'clock.
154+05		Shear Key			46			Shear Key Repair	Shear key K11: bitumastic bond breaker deteriorated. Joint Width: K11R: 1/2"-1", K11L: 1/2"-1". Infiltration Stain from 8 to 10 o'clock.
153+77		Crack Circumferential	7	9	8			Crack Repair	Infiltration Weeper from 7 to 9 o'clock and Deposits Attached Encrustation from 7 to 8 o'clock.
153+55		Crack Circumferential	7	2	30			Crack Repair	Deposits Attached Encrustation from 7 to 9 o'clock.
153+41		Crack Circumferential	7	11	16			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
153+26		Crack Circumferential	7	12	19			Crack Repair	Infiltration Weeper and Deposits Attached Encrustation from 7 to 9 o'clock.
153+09		Crack Circumferential	7	2	30			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
152+53		Shear Key			46			Shear Key Repair	Shear key K12: bitumastic bond breaker deteriorated. Joint Width: K12R: 3/4"-1", K12L: 3/4"-1". Infiltration Stain at 9 o'clock.
152+51		Surface Spalling	7		0	4		Surface Repair	Spalling at bottom joint
152+06	152+03	Crack Spiral	7	8	4			Crack Repair	Infiltration Weeper from 7 to 8 o'clock.
152+05		Shear Key			46			Shear Key Repair	Shear key K13: majority of bitumastic bond breaker in place. Joint Width: K13R: 1/2", K13L: 0"-1/4". Evidence of of differential settlement. Infiltration Weeper from 7 to 8 o'clock.
152+05		Surface Spalling	9		0	4		Surface Repair	Minor spalling at left shear key.
152+05		Fracture Multiple	7	8	4			Fracture Repair	Fracture through shear key 13.



1 PLAN: STA 160+00 TO 152+00



2 PROFILE: STA 160+00 TO 152+00



NOTES:

- REFERENCES TO "LEFT" AND "RIGHT" ARE WITH RESPECT TO FACING DOWNSTREAM.
- REPAIRS SHOWN IN TABLES ARE APPROXIMATE. CONTRACTOR AND ENGINEER TO COORDINATE ON PRIORITY AND PERCENTAGE OF REPAIRS TO EXECUTE DURING CONSTRUCTION.

60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION



BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 1010411545

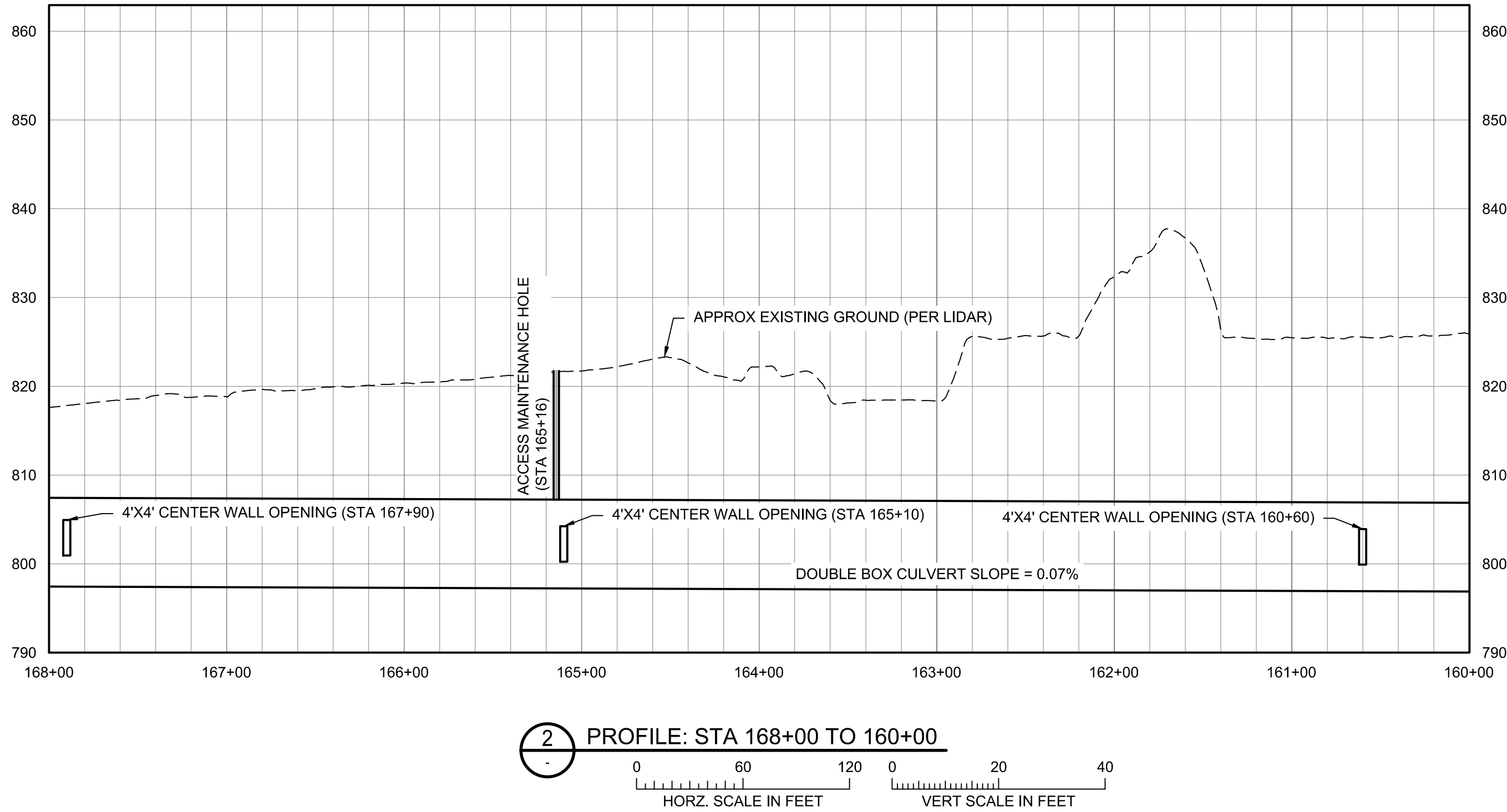
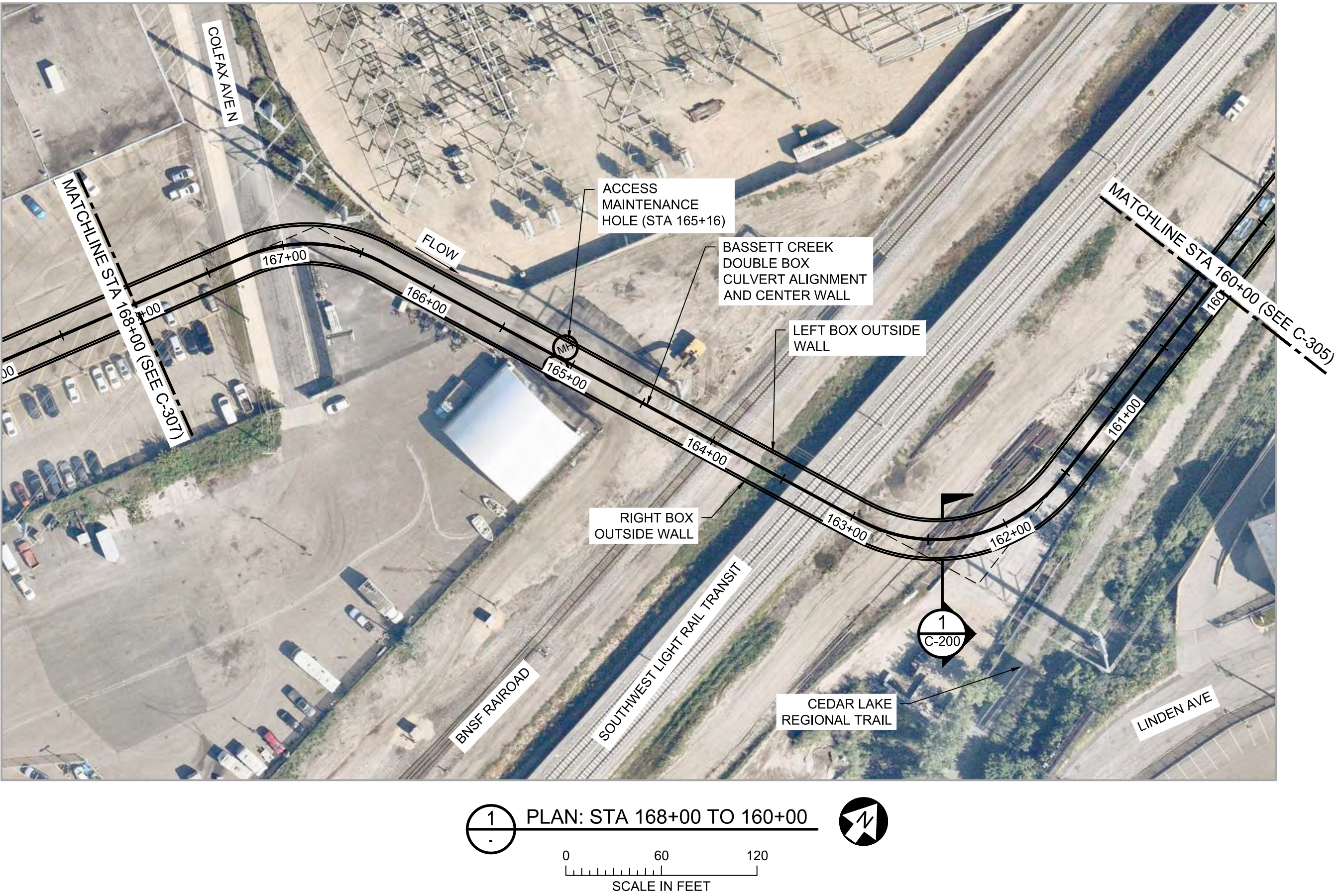
BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA
LEFT BOX REPAIRS
STA 160+00 TO 152+00
PLAN AND PROFILE

BARR PROJECT #	2327005171
DWG #	C305
REV #	B

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 3/11/2026 12:29 PM
CADD USER: ANDREW F. LUND FILE: M:\DESIGN\2327005171-BASSETT CREEK\CIVIL\2327005171_C306_SHEET7.DWG



NOTES:

1. REFERENCES TO "LEFT" AND "RIGHT" ARE WITH RESPECT TO FACING DOWNSTREAM.
2. REPAIRS SHOWN IN TABLES ARE APPROXIMATE. CONTRACTOR AND ENGINEER TO COORDINATE ON PRIORITY AND PERCENTAGE OF REPAIRS TO EXECUTE DURING CONSTRUCTION.

LEFT BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
167+99		Shear Key			46			Shear Key Repair	Shear key K3: bitumastic bond breaker deteriorated. Joint Width: K3R: 1", K3L: 1"-1.5"
167+49		Crack Circumferential	7	9	8			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
167+06		Tap Defective	10		0	12	1	Tap Repair	2-ft-dia. RCP TBA - reinforcement visible around break-in.
166+57		Crack Circumferential	7	11	16			Crack Repair	Infiltration Weeper from 7 to 8 o'clock.
165+70		Shear Key			46			Shear Key Repair	Shear key K4: bitumastic bond breaker gone. Joint Width: K4R: 1/4"-1/2", K4L: 1/2"-1". Right shear key is dry. Infiltration Weeper at 9 o'clock.
165+49		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
165+34		Crack Circumferential	7	1	27			Crack Repair	Infiltration Weeper from 8 to 10 o'clock.
165+00		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
164+78		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper at 7 o'clock.
164+65		Shear Key			46			Shear Key Repair	Shear key K5: majority of bitumastic bond breaker in place. Joint Width: K5R: 1/2"-1", K5L: 1".
164+65		Surface Spalling	10		0	1		Surface Repair	Spalling 12" dia, 3" deep at left shear key.
164+65		Fracture Circumferential	10	11	4			Fracture Repair	
163+81		Crack Circumferential	10	5	31			Crack Repair	Infiltration Dripper from 10 to 2 o'clock.
163+05		Shear Key			46			Shear Key Repair	Shear key K6: majority of bitumastic bond breaker in place. Joint Width: K6R: 1/8"-1/2", K6L: 1/4"-1/2". Crack gauges installed by others at left and right shear key. Infiltration Stain at 9 o'clock.
163+05		Surface Spalling	2		0	4		Surface Repair	Spalling
163+05		Surface Spalling	9		0	4		Surface Repair	Spalling
162+15		Shear Key			46			Shear Key Repair	Shear key K7: majority of bitumastic bond breaker in place. Joint Width: K7R: 1", K7L: 3/4" Infiltration stain at 9 o'clock.
161+68		Crack Circumferential	7	1	27			Crack Repair	Infiltration Weeper at 11 and 12 o'clock.
161+51		Crack Circumferential	7		4			Crack Repair	Infiltration Weeper at 7 o'clock.
161+17		Crack Circumferential	11	5	27			Crack Repair	Infiltration Dripper at 11 o'clock.
161+11		Crack Circumferential	7	2	30			Crack Repair	Infiltration Weeper at 7 o'clock.
160+87		Crack Circumferential	7		4			Crack Repair	Infiltration Weeper at 7 o'clock.
160+60		Crack Circumferential	11	1	11			Crack Repair	Deposits Attached Encrustation from 11 to 1 o'clock.
160+28		Crack Circumferential	7	11	16			Crack Repair	Infiltration Weeper at 7 o'clock.
160+12		Shear Key			46			Shear Key Repair	Shear key K8: bitumastic bond breaker deteriorated, Joint Width: K8R: 1", K8L: 1" Exterior liner in place.

60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION



BARR

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

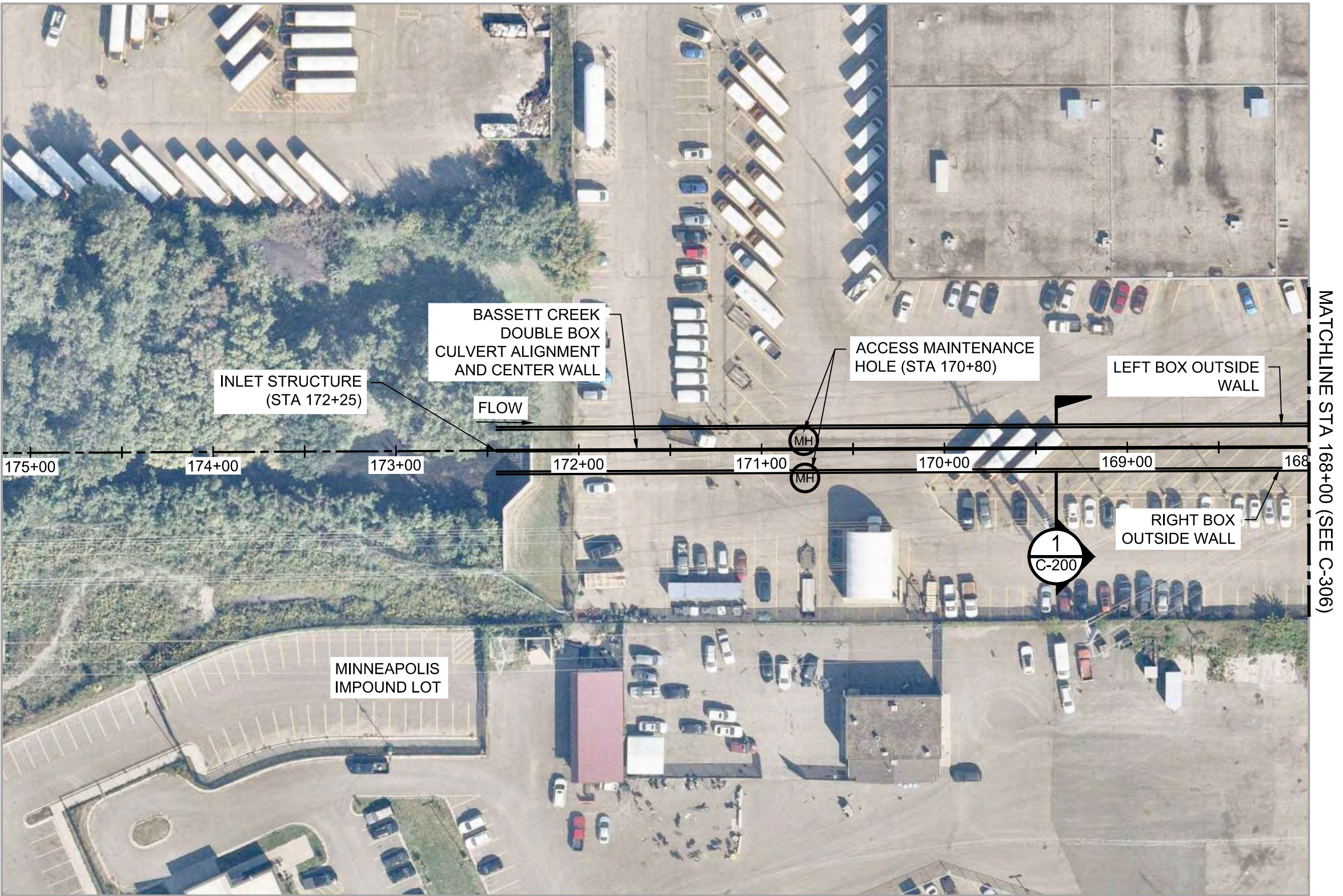
PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

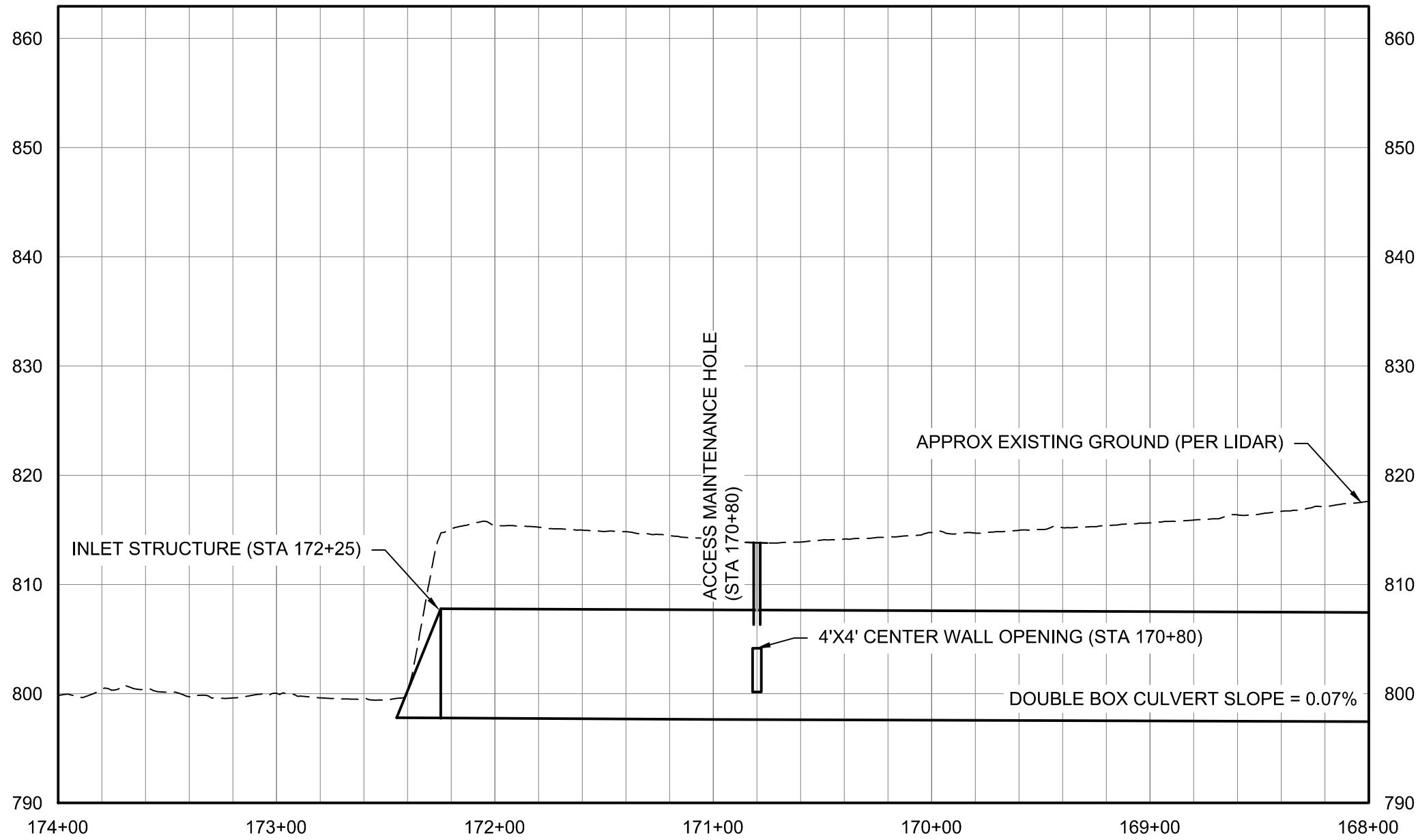
BASSETT CREEK DOUBLE BOX CULVERT REPAIRS MINNEAPOLIS, MINNESOTA LEFT BOX REPAIRS STA 168+00 TO 160+00 PLAN AND PROFILE	BARR PROJECT # 2327005171
	DWG # C306
	REV # B

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 3/11/2026 12:30 PM
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1 PLAN: STA 174+00 TO 168+00

0 60 120
SCALE IN FEET



2 PROFILE: STA 174+00 TO 168+00

0 60 120 0 20 40
HORZ. SCALE IN FEET VERT SCALE IN FEET

NOTES:

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LEFT BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
171+95		Shear Key			46			Shear Key Repair	Shear key K1. Right and left shear keys are referenced walking downstream. Bitumastic bond breaker deteriorated. Joint Width: K1R: 1.5"-2", K1L: 2". Evidence of differential settlement based on measured joint, and defects observed.
171+46		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 7 to 5 o'clock.
171+11		Crack Circumferential	7	1	27			Crack Repair	Infiltration Dripper at 12 o'clock.
170+35		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 7 to 5 o'clock.
170+00		Shear Key			46			Shear Key Repair	Shear key K2: bitumastic bond breaker deteriorated. Joint Width: K2R: 3/4"-1/2", K2L: 1"
169+49		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 7 to 8 o'clock.
169+39		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.
168+50		Crack Circumferential	7	1	27			Crack Repair	Infiltration Weeper from 7 to 8 o'clock.
168+24		Crack Circumferential	7	10	12			Crack Repair	Infiltration Weeper from 7 to 9 o'clock.

60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-	
-	-	-	-	-	-	
-	-	-	-	-	-	
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW	
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW	
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION	



BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
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MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

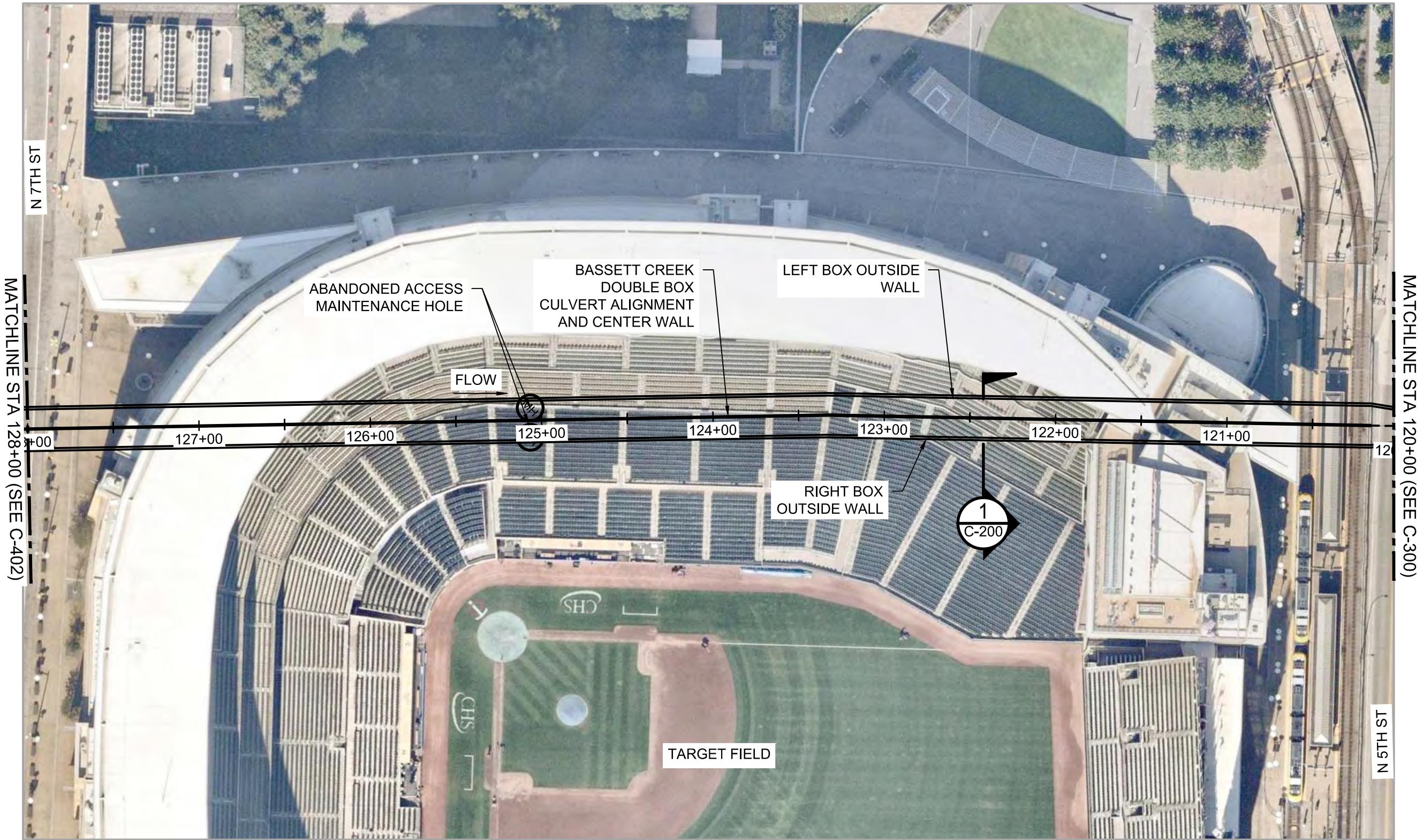
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	LEFT BOX REPAIRS STA 174+00 TO 168+00		DWG # C307
	PLAN AND PROFILE		REV # B

CLIENT PROJECT # FCP-1

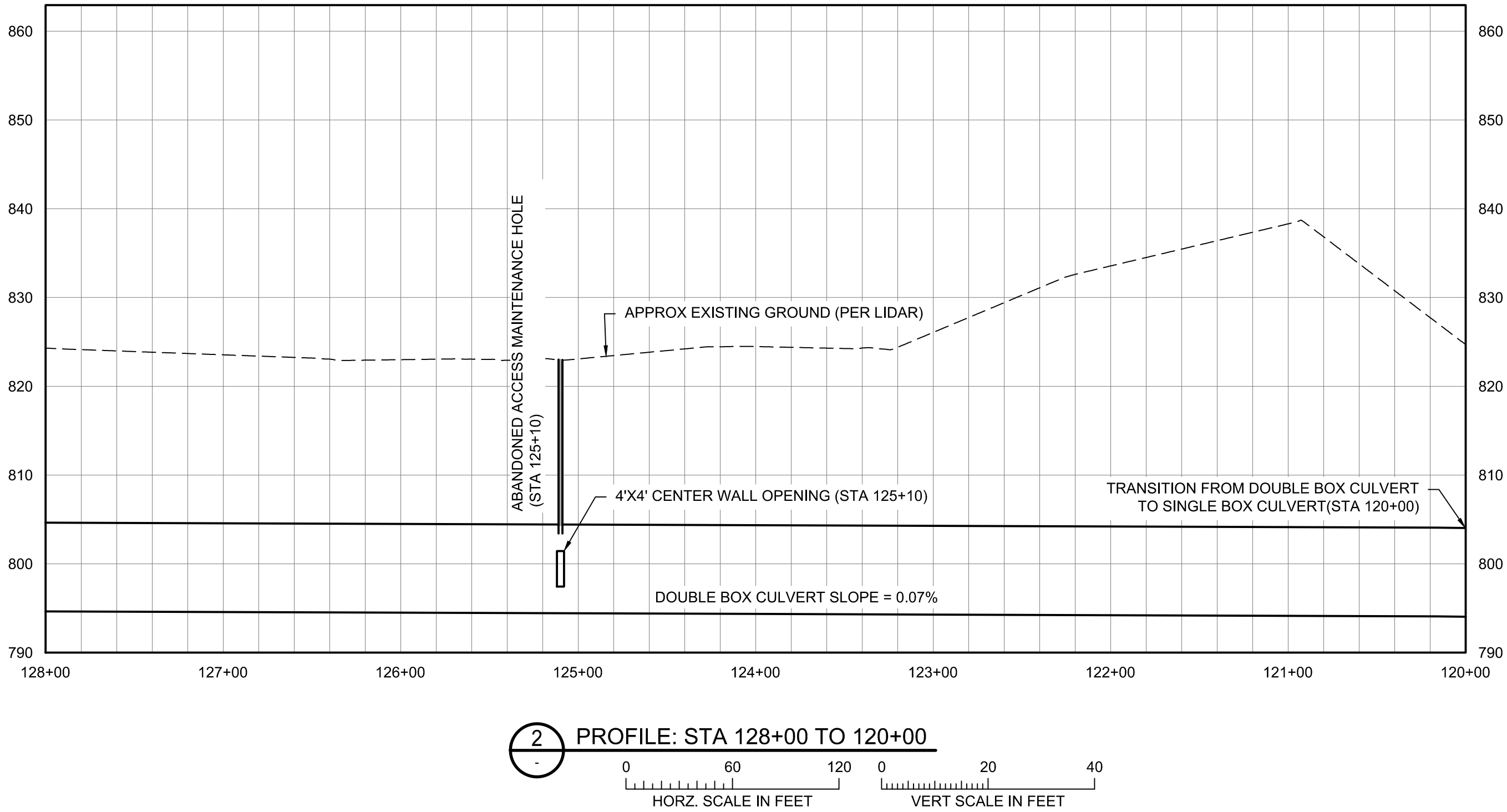
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RIGHT BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
127+15		Obstacle Other	1		4		1	Object Removal	Concrete debris in invert, pipe plug or core.
127+12		Crack Circumferential	11	1	11			Crack Repair	Infiltration Weeper from 11 to 1 o'clock.
126+48		Shear Key			46			Shear Key Repair	Shear key K32: majority of bitumastic bond breaker in place. Joint Width: K32R: 0"-1/4", K32L: 0"-1/2". Evidence of differential settlement.
126+48		Surface Spalling			0	1		Surface Repair	Spalling observed at right joint, hasn't fallen off yet
125+48		Crack Circumferential	1	5	16			Crack Repair	Infiltration Weeper from 11 to 1 o'clock.
124+48		Shear Key			46			Shear Key Repair	Shear key K33: majority of bitumastic bond breaker in place. Joint Width: K33R: 1/4"-3/4", K33L: 1/4"-3/4". Evidence of differential settlement.
123+97		Crack Circumferential	5		4			Crack Repair	Infiltration Weeper at 5 o'clock.
123+48		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 7 to 11 and 1 to 5 o'clock, Infiltration Dripper from 11 to 1 o'clock.
122+47		Shear Key			46			Shear Key Repair	Shear key K34: majority of bitumastic bond breaker in place: Joint Width: K34R: 1/2"-1", K34L: 1/2"-1".
120+98		Shear Key			46			Shear Key Repair	Shear key K35: bitumastic seal in place. Joint Width: K35R: 1/4", K35L: 1/2"-1". Evidence of differential settlement.
120+98		Fractures Multiple	3	5	8			Fracture Repair	Fractures on right joint
120+98		Cracks Multiple	7	9	8			Crack Repair	Cracking on left joint
120+98		Fracture Circumferential	5	6	4			Fracture Repair	Infiltration Weeper from 11 to 12 o'clock.



1 PLAN: STA 128+00 TO 120+00



2 PROFILE: STA 128+00 TO 120+00

NOTES:

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60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION



BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

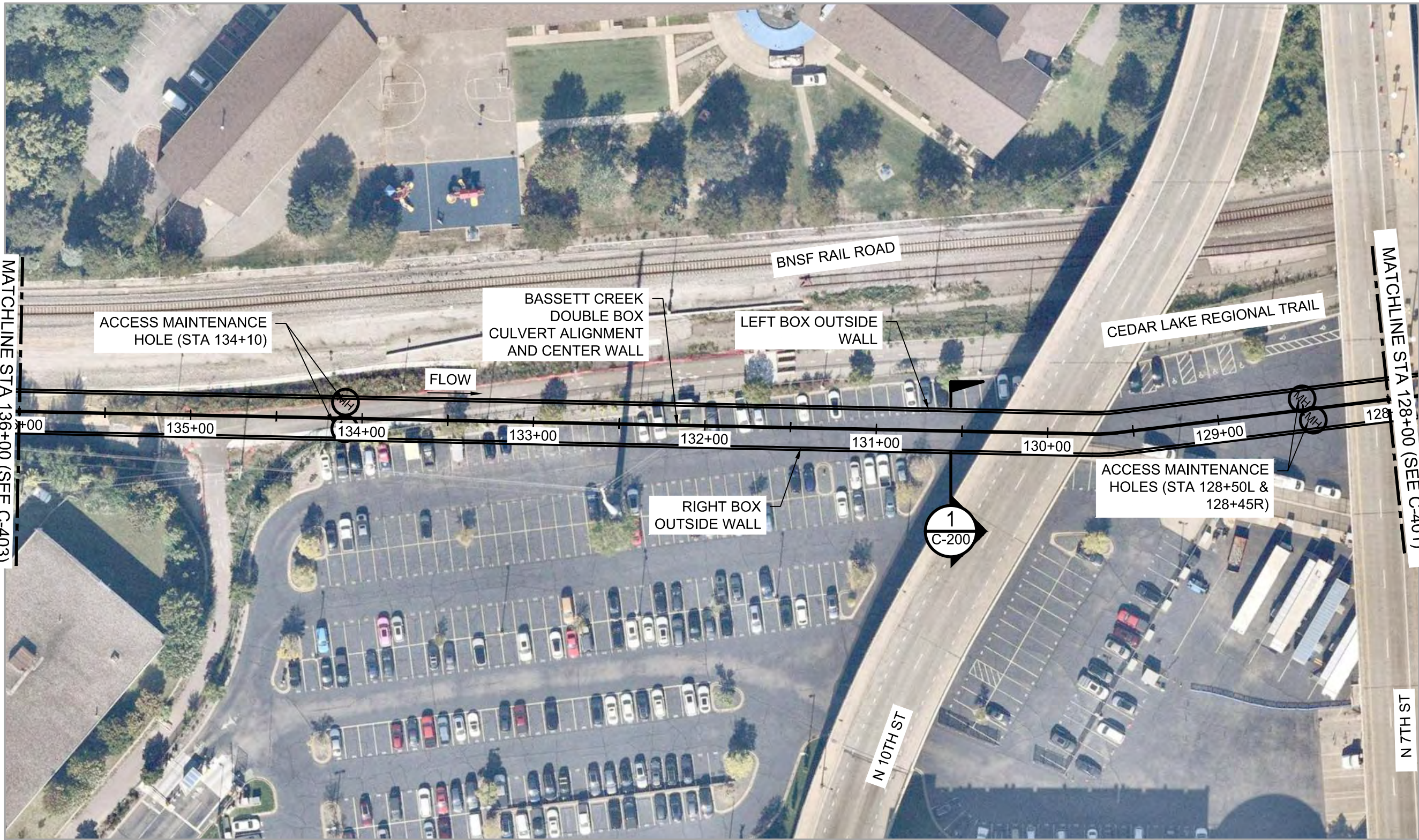
BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

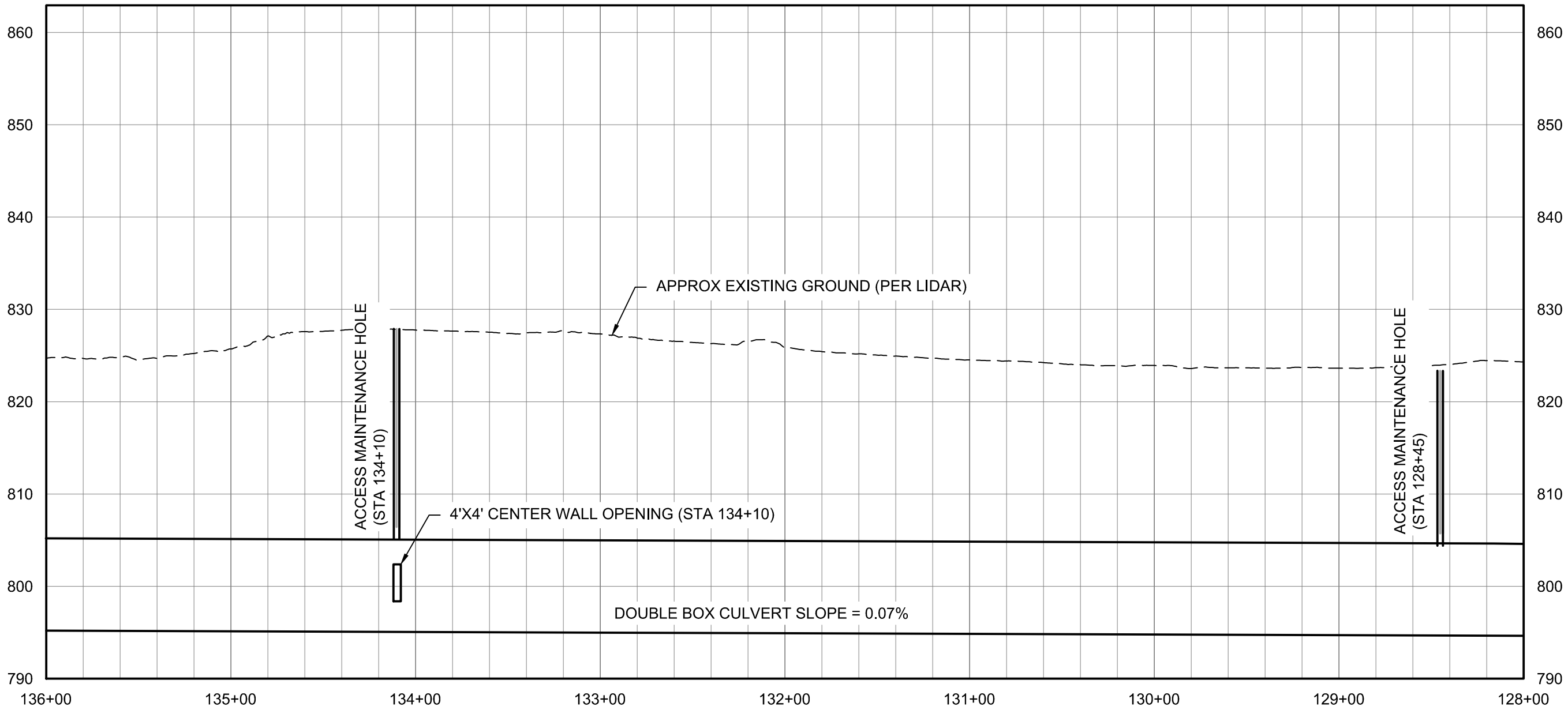
BASSETT CREEK DOUBLE BOX CULVERT REPAIRS MINNEAPOLIS, MINNESOTA RIGHT BOX REPAIRS STA 128+00 TO 120+00 PLAN AND PROFILE	BARR PROJECT # 2327005171
	DWG # C401
	REV # B

RIGHT BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
134+77		Crack Circumferential	11	1	11			Crack Repair	Infiltration Weeper from 11 to 1 o'clock.
134+32		Obstacle Other	6		4		1	Object Removal	Concrete debris in invert
134+01		Shear Key			46			Shear Key Repair	Shear key K26: majority of bitumastic bond breaker in place. Joint Width: K26R: 1/4"-1/2", K26L: 1/4"-1/2". Infiltration Weeper at 9 and 10 to 2 o'clock.
134+01		Invert Defective	6		0	4	1	Invert Repair	Spalling observed at invert of joint
134+01		Surface Spalling	3		0	1		Surface Repair	4" by 4" by 1" deep
133+99		Surface Spalling			0	1		Surface Repair	12-in. by 12-in. by 3 in-deep scour hole
133+50		Crack Circumferential	7	1	27			Crack Repair	Infiltration Weeper from 7 to 1 o'clock.
133+39		Crack Circumferential	7	1	27			Crack Repair	Infiltration Weeper from 7 to 10 o'clock and Infiltration Dripper at 11 o'clock.
132+99		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 7 to 5 o'clock.
132+66		Crack Circumferential	2	5	12			Crack Repair	Infiltration Weeper at 5 o'clock.
132+51		Shear Key			46			Shear Key Repair	Shear key K27: bitumastic bond breaker deteriorated and falling out. Joint Width: K27R: 0"-1/2", K27L: 0"-1/2". Evidence of differential settlement. Minor buckling of invert observed. Infiltration Weeper from 10 to 1 and at 3 o'clock.
132+51		Surface Spalling	6		0	2		Surface Repair	15" by 15" by 2" deep
132+04	131+75	Deposits Settled Gravel	5		29			Sediment Removal	
131+75	131+25	Deposits Settled Fine	6		50			Sediment Removal	
132+04		Crack Circumferential	4	5	4			Crack Repair	Infiltration Weeper from 4 to 5 o'clock.
131+50		Shear Key			46			Shear Key Repair	Shear key K28: bitumastic bond breaker deteriorated. Joint Width: K28R: 1/2"-1-1/2", K28L: 1/4"-1-1/2". Evidence of differential settlement. External liner visible at right joint.
130+99		Shear Key			46			Shear Key Repair	Shear key K29: majority of bitumastic bond breaker in place. Joint Width: K29R: 1/4", K29L: 0".
130+55		Shear Key			46			Shear Key Repair	Shear key K30: bitumastic bond breaker deteriorated. Joint Width: K30R: 0"-1", K30L: 0"-1". Evidence of differential settlement. Infiltration Stain at 3 o'clock.
130+55	130+50	Crack Longitudinal	3		5			Crack Repair	Cracking at right shear key
130+55		Fracture Circumferential	8	11	12			Fracture Repair	3/8" max
130+55		Fracture Circumferential	2	4	8			Fracture Repair	10mm opening max. Infiltration Stain at 3 o'clock.
130+14		Crack Circumferential	3	5	8			Crack Repair	Infiltration Weeper from 3 to 5 o'clock.
130+05		Crack Circumferential	1	5	16			Crack Repair	Infiltration Weeper from 3 to 5 o'clock.
129+94		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper at 1 o'clock.
129+77		Crack Circumferential	4	5	4			Crack Repair	Infiltration Weeper from 4 to 5 o'clock.
128+52		Shear Key			46			Shear Key Repair	Shear key K31: bitumastic bond breaker deteriorated. Joint Width: K31R: 0"-3/4", K31L: 0"-3/4". Infiltration Weeper at 3 and 9 o'clock.
128+52		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 7 to 11 and 1 to 5 o'clock, and Infiltration Dripper from 11 to 1 o'clock.



1 PLAN: STA 136+00 TO 128+00



2 PROFILE: STA 136+00 TO 128+00

NOTES:

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60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION



BARR

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
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MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

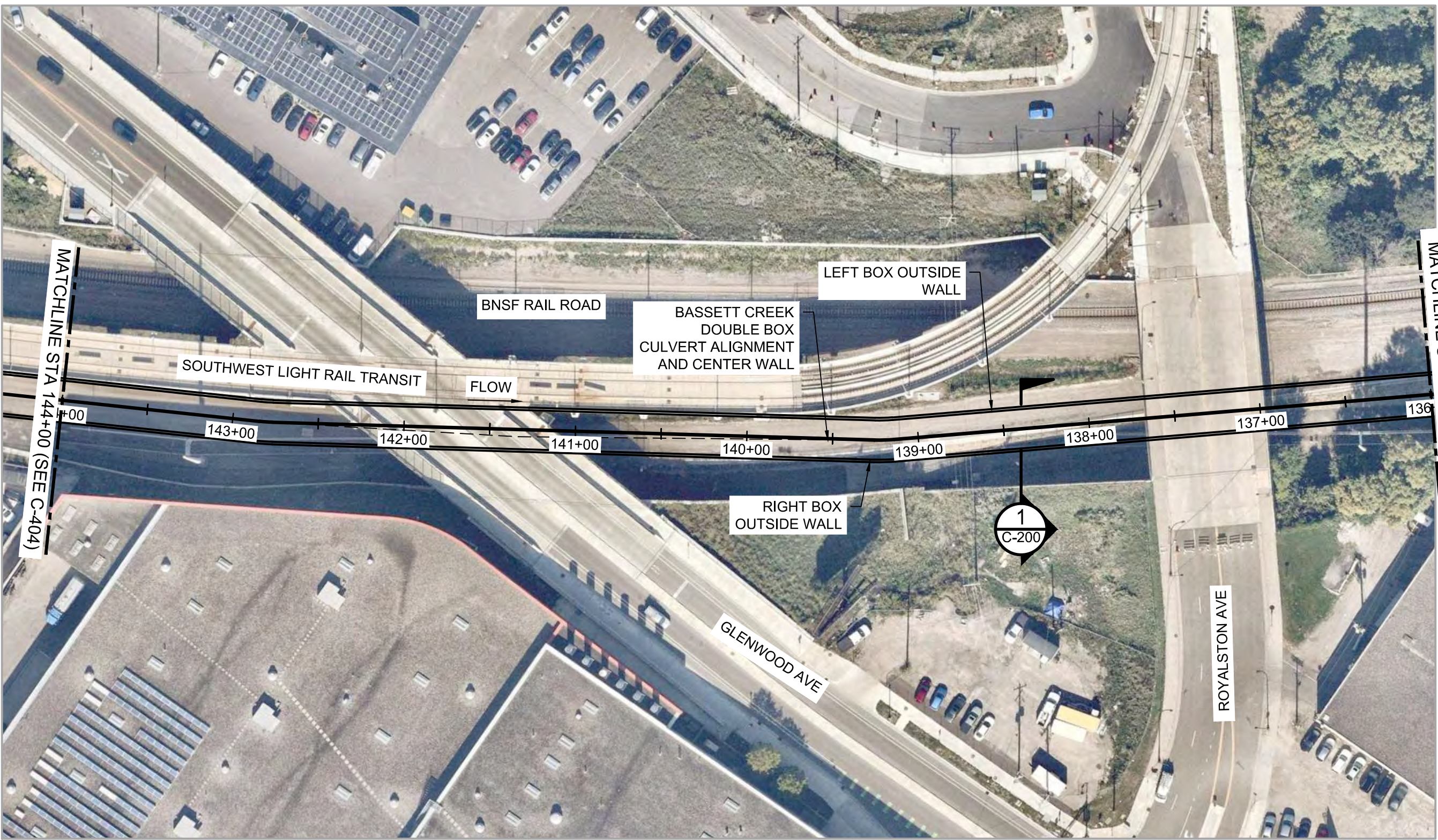
BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA
RIGHT BOX REPAIRS
STA 136+00 TO 128+00
PLAN AND PROFILE

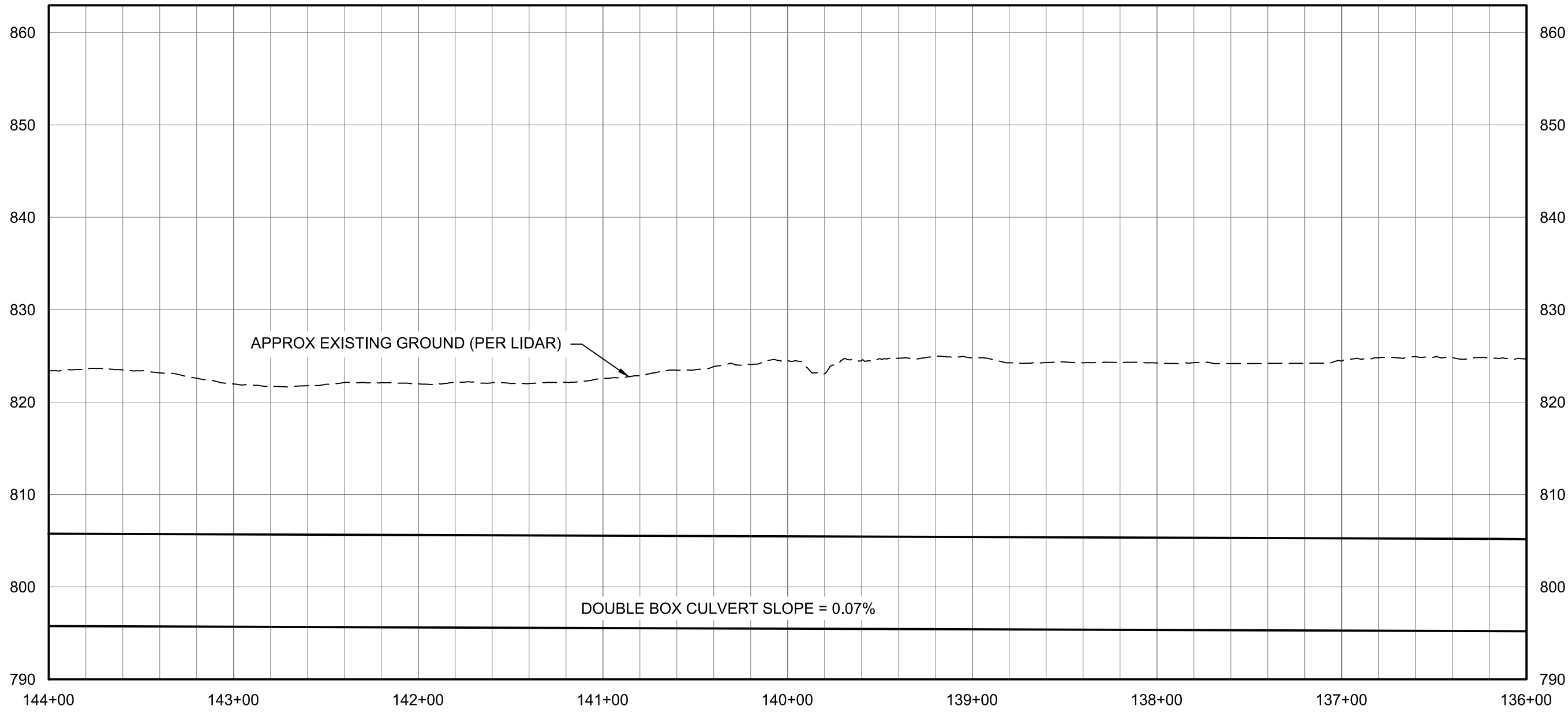
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DWG #	C402
REV #	B

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1 PLAN: STA 144+00 TO 136+00

0 60 120
SCALE IN FEET



2 PROFILE: STA 144+00 TO 136+00

0 60 120 0 20 40
HORZ. SCALE IN FEET VERT SCALE IN FEET

NOTES:

1. REFERENCES TO "LEFT" AND "RIGHT" ARE WITH RESPECT TO FACING DOWNSTREAM.
2. REPAIRS SHOWN IN TABLES ARE APPROXIMATE. CONTRACTOR AND ENGINEER TO COORDINATE ON PRIORITY AND PERCENTAGE OF REPAIRS TO EXECUTE DURING CONSTRUCTION.

RIGHT BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
143+05		Shear Key			46			Shear Key Repair	Shear key K21: majority of bitumastic bond breaker in place but deteriorating. Joint Width: K21R: 1/2", K21L: 1/4"-1/2".
141+94		Crack Circumferential	7	1	27			Crack Repair	Infiltration Dripper from 11 to 12 o'clock.
141+04		Shear Key			46			Shear Key Repair	Shear key K22: majority of bitumastic bond breaker in place. Joint Width: K22R: 0"-3/4", K22L: 1/8"-1/2". Crack gauges installed at right shear key, and at the 12 o'clock position. Deposits Attached Encrustation from 4 to 5 o'clock and Infiltration Weeper from 2 to 5 o'clock.
139+52		Shear Key			46			Shear Key Repair	Shear key K23: majority of bitumastic bond breaker deteriorated and partially missing. Joint Width: K23R: 0"-1/2", K23L: 1/4"-1/2".
138+51		Crack Circumferential	11	1	11			Crack Repair	Infiltration Weeper from 11 to 1 o'clock.
138+20		Crack Circumferential	11		4			Crack Repair	Infiltration Dripper at 11 o'clock.
137+52		Shear Key			46			Shear Key Repair	Shear key K24: majority of bitumastic bond breaker in place but deteriorating. Joint Width: K24R: 1/2"-3/4", K24L: 1/4"-1".
136+49		Crack Circumferential	11	1	11			Crack Repair	Infiltration Dripper from 11 to 1 o'clock.
136+01		Shear Key			46			Shear Key Repair	Shear key K25: majority of bitumastic bond breaker in place but deteriorating. Joint Width: K25R: 1/4"-1/2", K25L: 0"-1/2". Patch in invert.
136+01		Surface Spalling	9		0	1		Surface Repair	Minor spalling observed at 4 o'clock.

60% DESIGN
NOT FOR CONSTRUCTION

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-	-	-	-	-	-	
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW	
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW	
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION	



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4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

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NUMBER 10104111545

BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

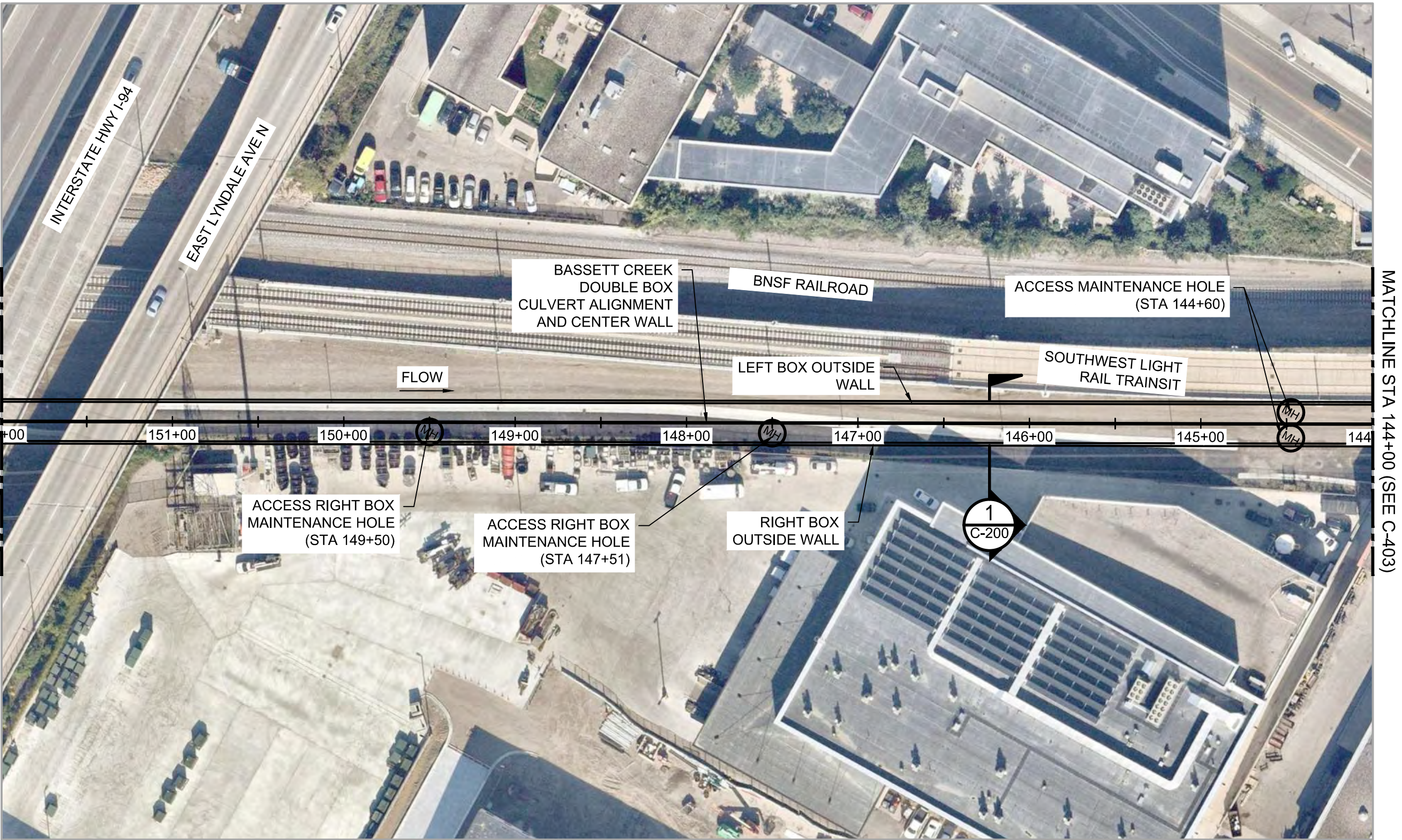
CLIENT PROJECT # FCP-1

BASSETT CREEK DOUBLE BOX CULVERT REPAIRS MINNEAPOLIS, MINNESOTA RIGHT BOX REPAIRS STA 144+00 TO 136+00 PLAN AND PROFILE	BARR PROJECT # 2327005171
	DWG # C403
	REV # B

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 3/11/2026 12:33 PM
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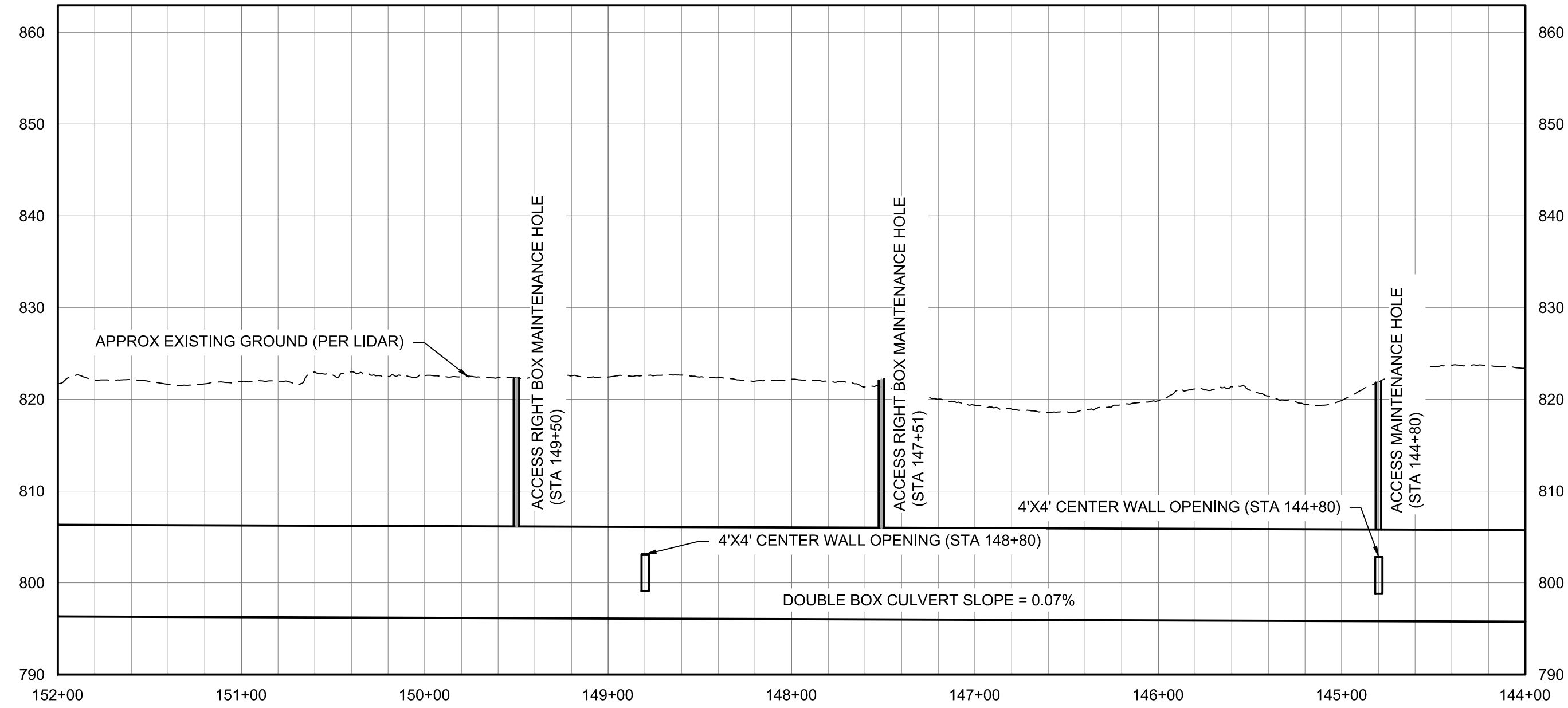
RIGHT BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
151+75	151+00	Deposits Settled Fine	6		75			Sediment Removal	
151+55		Shear Key			46			Shear Key Repair	Shear key K14: majority of bitumastic bond breaker in place. Joint Width: K14R: 0"-1/2", K14L: 1/2". Evidence of differential settlement.
151+05		Shear Key			46			Shear Key Repair	Shear key K15: bitumastic bond breaker deteriorated. Joint Width: K15R: 1/4"-3/4", K15L: 1/4"-1". Evidence of differential settlement. Some soil observed at joint. Infiltration Stain at 3 o'clock.
151+05	151+00	Crack Longitudinal			5			Crack Repair	Cracks in joints.
151+05		Surface Spalling	10		0	1		Surface Repair	6" by 6" by 1" deep at shear key
151+05		Surface Spalling	2		0	1		Surface Repair	6" by 6" by 1" deep at shear key
150+55		Shear Key			46			Shear Key Repair	Shear key K16: majority of bitumastic bond breaker in place. Joint Width: K16R: 0"-1/2", K16L: 0"-3/4". Evidence of differential settlement.
150+55		Surface Spalling	2		0	1		Surface Repair	4" by 2" by 2" deep
150+06		Shear Key			46			Shear Key Repair	Shear key K17: majority of bitumastic bond breaker in place. Joint Width: K17R: 0"-1/2", K17L: 1/2". Evidence of differential settlement. Some soil observed at joint. Slight buckling of invert observed. Infiltration Weeper from 11 to 5 o'clock.
150+06		Invert Defective			0		1	Invert Repair	Pipe invert broken
149+46		Crack Circumferential	7	2	30			Crack Repair	Infiltration Dripper from 11 to 2 o'clock.
149+05		Shear Key			46			Shear Key Repair	Shear key K18: majority of bitumastic bond breaker deteriorated. Joint Width: K18R: 0"-1/2", K18L: 1/4"-1/2". Infiltration Stain at 3 o'clock.
148+48		Crack Circumferential	2	5	12			Crack Repair	Infiltration Weeper from 2 to 5 o'clock.
148+06		Crack Circumferential	2	5	12			Crack Repair	Infiltration Weeper from 2 to 5 o'clock.
147+70		Obstacle Rock	6		4		1	Object Removal	7" diameter
147+56		Crack Circumferential	2	5	12			Crack Repair	Infiltration Weeper from 2 to 5 o'clock.
147+06		Shear Key			46			Shear Key Repair	Shear key K19: bitumastic bond breaker deteriorated and missing. Joint Width: K19R: 1/4"-3/4", K19L: 1/4"-1". Invert is offset approximately 1/2". Infiltration Stain at 3 o'clock.
147+06		Fracture Circumferential	5	6	4			Fracture Repair	
146+52		Crack Circumferential	2	5	12			Crack Repair	Infiltration Weeper from 2 to 5 o'clock.
146+05		Crack Circumferential	2	5	12			Crack Repair	Infiltration Weeper from 2 to 5 o'clock.
146+04		Crack Circumferential	3	5	8			Crack Repair	Deposits Attached Encrustation from 3 to 5 o'clock.
145+05		Shear Key			46			Shear Key Repair	Shear key K20: bitumastic bond breaker deteriorated. Joint Width: K20R: 0"-3/4", K20L: 1/2"-3/4". Invert is offset approximately 1/2". Infiltration Weeper at 3 o'clock.
144+50		Crack Circumferential	11	1	11			Crack Repair	Infiltration Dripper from 11 to 1 o'clock.
144+01		Crack Circumferential	11	12	4			Crack Repair	Infiltration Weeper from 11 to 12 o'clock.
144+01		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 3 to 5 o'clock.



1 PLAN: STA 152+00 TO 144+00

0 60 120
SCALE IN FEET



2 PROFILE: STA 152+00 TO 144+00

0 60 120 0 20 40
HORZ. SCALE IN FEET VERT SCALE IN FEET

NOTES:

- REFERENCES TO "LEFT" AND "RIGHT" ARE WITH RESPECT TO FACING DOWNSTREAM.
- REPAIRS SHOWN IN TABLES ARE APPROXIMATE. CONTRACTOR AND ENGINEER TO COORDINATE ON PRIORITY AND PERCENTAGE OF REPAIRS TO EXECUTE DURING CONSTRUCTION.

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B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION



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4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
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NUMBER 10104111545

BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA

RIGHT BOX REPAIRS
STA 152+00 TO 144+00
PLAN AND PROFILE

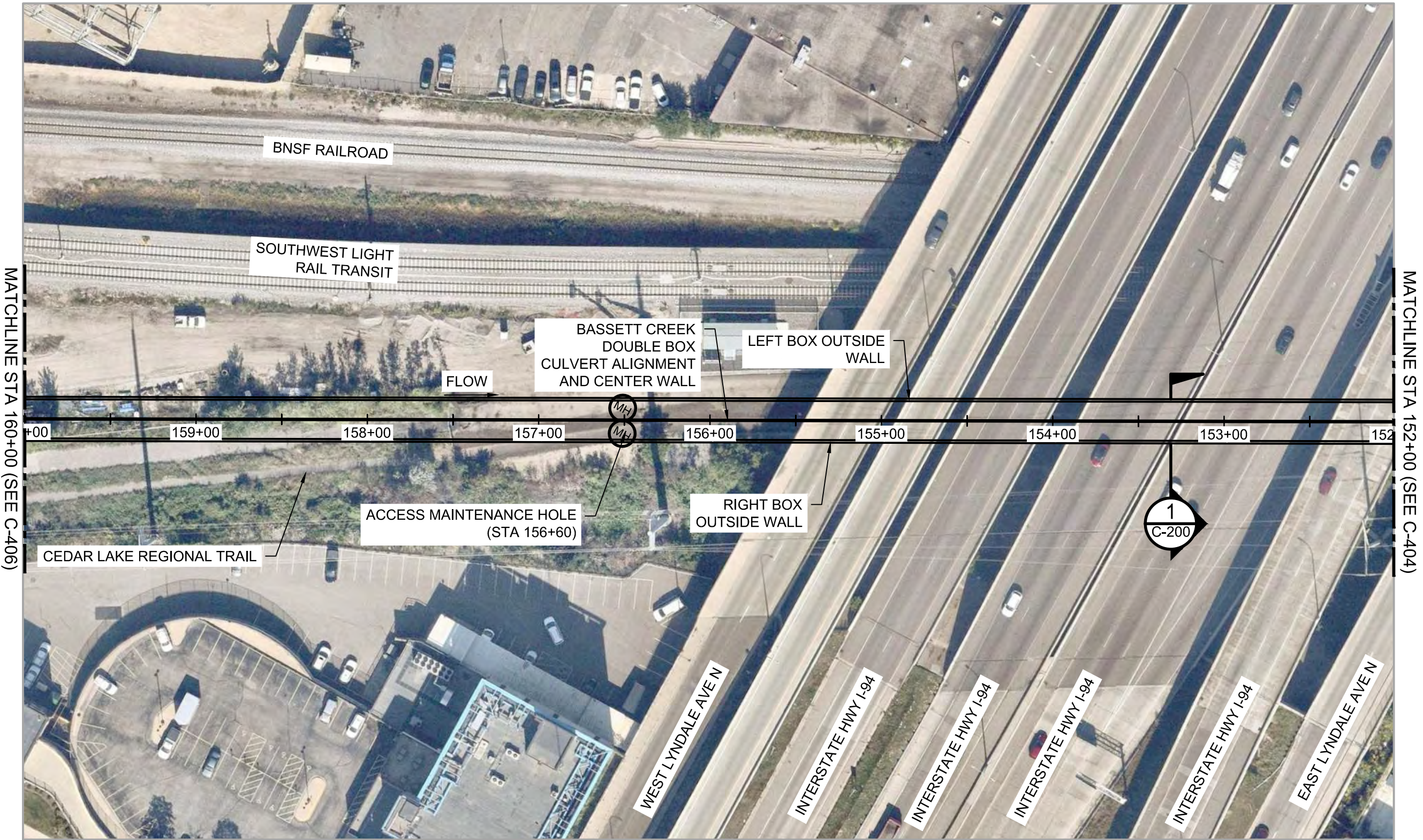
BARR PROJECT #	2327005171
DWG #	C404
REV #	B

60% DESIGN
NOT FOR CONSTRUCTION

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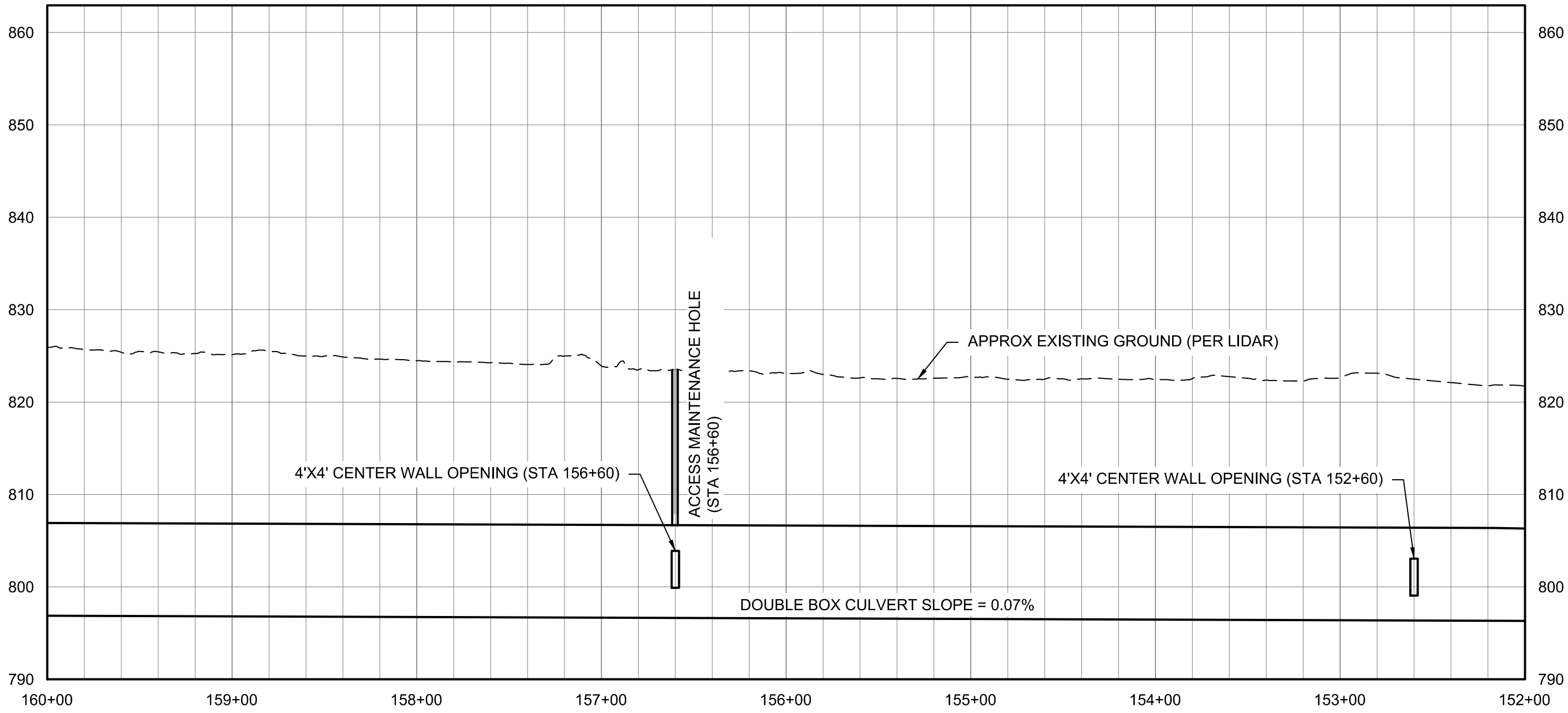
RIGHT BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
159+56		Crack Circumferential	7	5	42			Crack Repair	Infiltration Runner from 3 to 5 o'clock.
159+06		Crack Circumferential	11	5	27			Crack Repair	Infiltration Dripper from 11 to 12 o'clock and Deposits Attached Encrustation from 2 to 5 o'clock.
158+85		Crack Circumferential	11	1	11			Crack Repair	Infiltration Dripper at 11 o'clock.
158+75		Crack Circumferential	2		4			Crack Repair	Infiltration Dripper at 2 o'clock.
158+72		Crack Circumferential	11	5	27			Crack Repair	Infiltration Weeper from 1 to 5 o'clock.
158+68		Crack Circumferential	11	12	4			Crack Repair	Infiltration Dripper from 11 to 12 o'clock.
158+60		Crack Circumferential	11	1	11			Crack Repair	Infiltration Dripper from 11 to 1 o'clock.
158+12		Shear Key			46			Shear Key Repair	Shear key K9: majority of bitumastic bond breaker in place, but starting to fall out. Joint Width: K9R: 1/2"-3/4", K9L: 3/4"-1". Infiltration Stain at 3 o'clock.
157+96		Crack Circumferential	3		4			Crack Repair	Infiltration Weeper at 3 o'clock.
157+13		Crack Circumferential	3	5	8			Crack Repair	Infiltration Weeper from 3 to 5 o'clock.
157+10		Crack Circumferential	3	5	8			Crack Repair	Deposits Attached Encrustation from 3 to 5 o'clock.
156+71		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 3 to 5 o'clock.
156+61		Crack Circumferential	11	5	27			Crack Repair	Infiltration Weeper from 3 to 5 o'clock.
156+22		Obstacle Rock	5		4		1	Object Removal	5" diameter
156+05		Shear Key			46			Shear Key Repair	Shear key K10: bitumastic bond breaker is deteriorated. Joint Width: K10R: 1/2"-3/4", K10L: 1/4"-3/4". Evidence of differential settlement. Infiltration Weeper from 4 to 5 o'clock.
156+05		Surface Spalling	4	5	0	1		Surface Repair	7" by 3" by 1/2" deep at shear key
155+50		Crack Circumferential	10	1	15			Crack Repair	Infiltration Dripper from 11 to 1 o'clock.
155+41		Crack Circumferential	7	12	19			Crack Repair	Infiltration Dripper from 11 to 12 o'clock.
155+34		Crack Circumferential	7	5	42			Crack Repair	Infiltration Dripper from 11 to 12 o'clock.
154+66		Crack Circumferential	3		4			Crack Repair	Infiltration Weeper at 3 o'clock.
154+32		Crack Circumferential	5		4			Crack Repair	Infiltration Weeper at 5 o'clock.
154+29		Crack Circumferential	1	5	16			Crack Repair	Infiltration Weeper at 5 o'clock.
154+04		Shear Key			46			Shear Key Repair	Shear key K11: majority of bitumastic bond breaker in place. Joint Width: K11R: 1/2"-3/4", K11L: 1/4"-1/2".
154+04		Surface Spalling	12		0	4		Surface Repair	
154+04		Surface Aggregate Visible	4		0	4		Surface Repair	
153+07		Crack Circumferential	11	5	27			Crack Repair	Infiltration Weeper from 2 to 5 o'clock.
152+98		Crack Circumferential	11	5	27			Crack Repair	Infiltration Weeper from 3 to 5 o'clock.
152+66		Crack Circumferential	5		4			Crack Repair	Infiltration Weeper at 5 o'clock.
152+53		Shear Key			46			Shear Key Repair	Shear key K12: bitumastic bond breaker deteriorated. Joint Width: K12R: 1/2"-3/4", K12L: 1/2". Soil observed at joint. Infiltration Weeper and Infiltration Stain at 3 o'clock.
152+53		Surface Spalling	3		0	1		Surface Repair	At right shear key
152+06		Fracture Multiple	8		4			Fracture Repair	
152+05		Shear Key			46			Shear Key Repair	Shear key K13: majority of bitumastic bond breaker in place. Joint Width: K13R: 0"-1", K13L: 0"-1". Evidence of differential settlement.



1 PLAN: STA 160+00 TO 152+00

0 60 120
SCALE IN FEET



2 PROFILE: STA 160+00 TO 152+00

0 60 120 0 20 40
HORZ. SCALE IN FEET VERT SCALE IN FEET

NOTES:

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60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION



BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

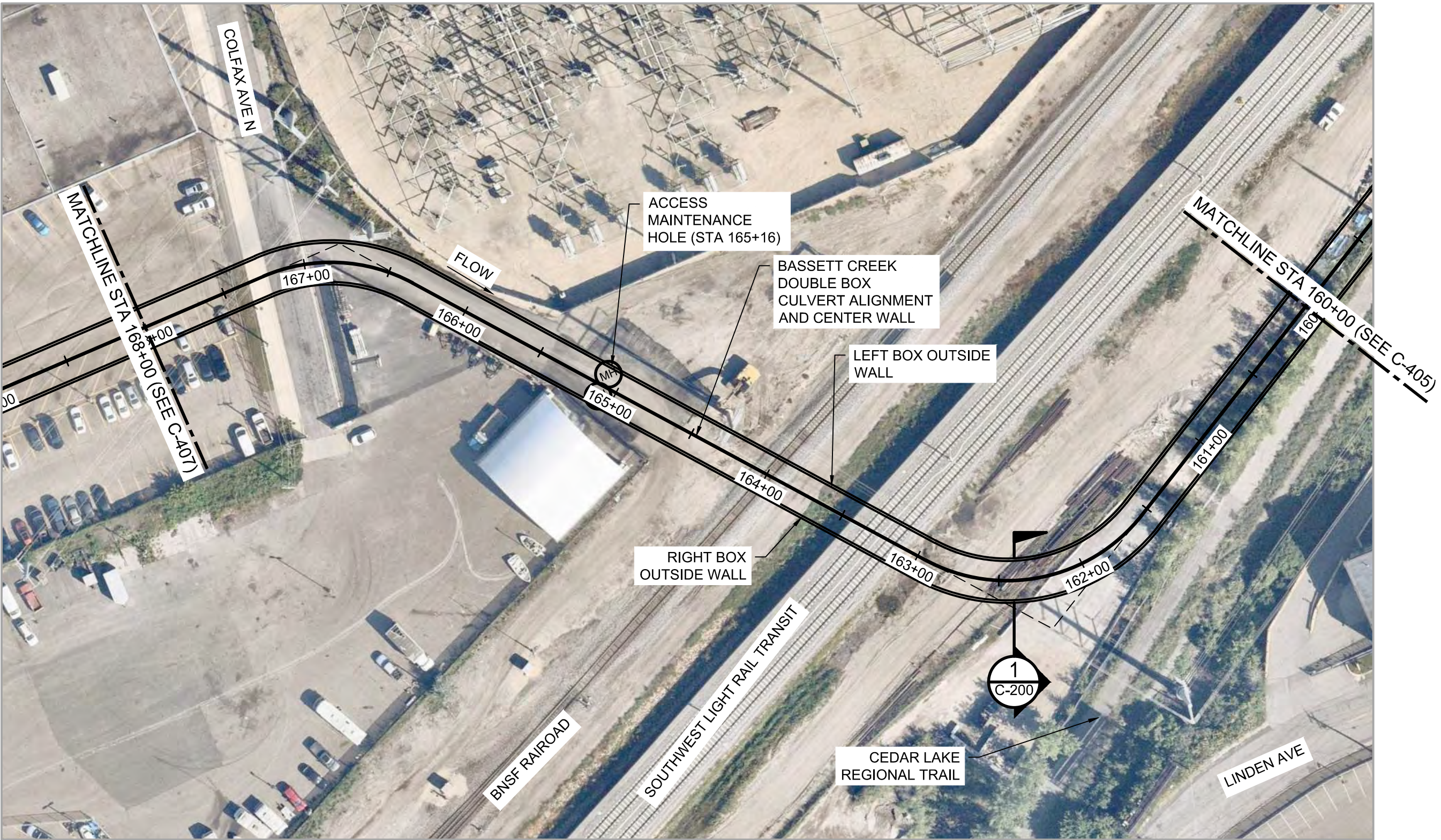
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MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

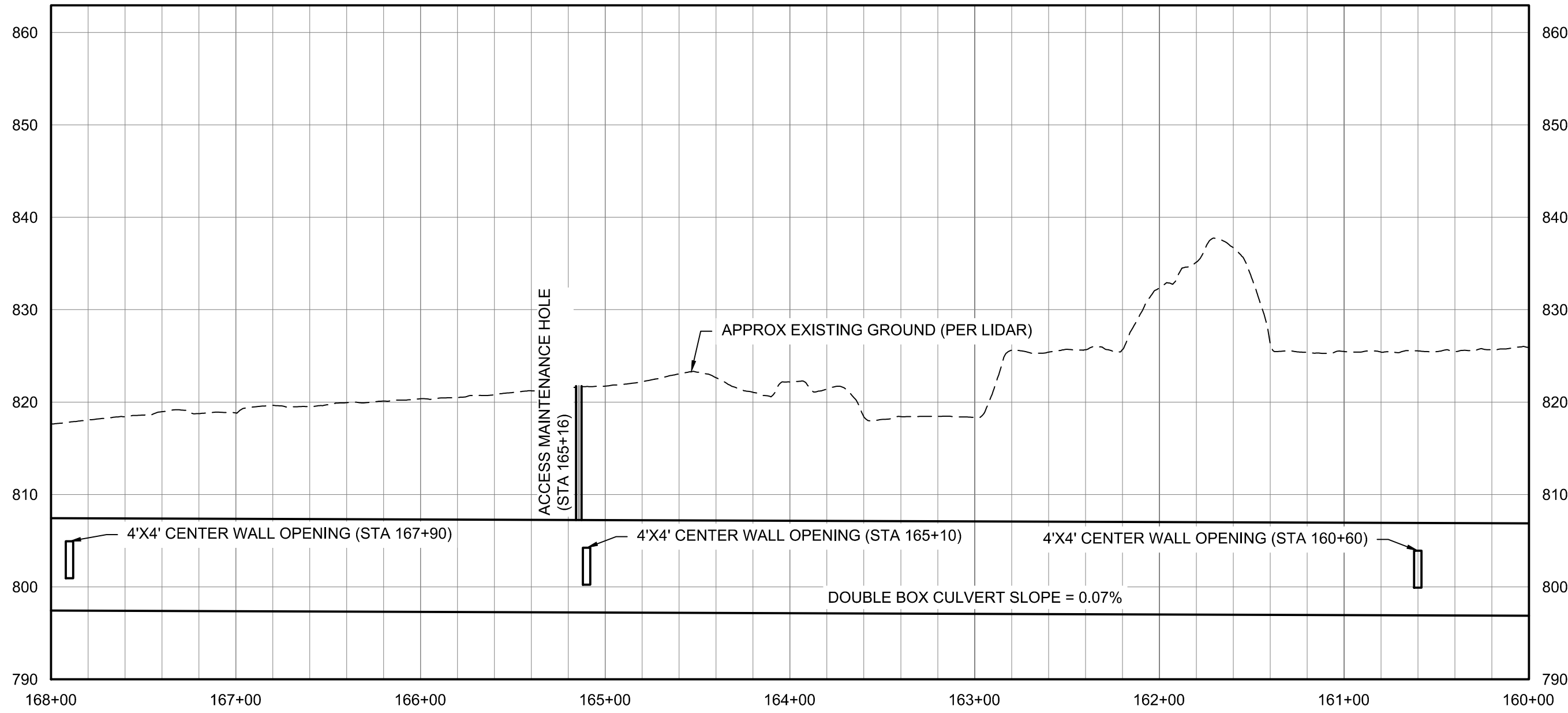
BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA
RIGHT BOX REPAIRS
STA 160+00 TO 152+00
PLAN AND PROFILE

BARR PROJECT #	2327005171
DWG #	C405
REV #	B



1 PLAN: STA 168+00 TO 160+00

0 60 120
SCALE IN FEET



2 PROFILE: STA 168+00 TO 160+00

0 60 120 0 20 40
HORZ. SCALE IN FEET VERT SCALE IN FEET

NOTES:

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RIGHT BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
166+77		Surface Aggregate Visible	8		0	4		Surface Repair	
166+08		Shear Key			46			Shear Key Repair	Shear key K4: majority of bitumastic bond breaker in place. Joint Width: K4R: 1/2"-1", K4L: 1/4"-3/4". Evidence of soil intrusion through joint. Uneven joint at bottom. Infiltration Weeper at 3 o'clock.
166+08		Fracture Circumferential	11		4			Fracture Repair	
166+08		Deposits Settled Gravel	6		4			Sediment Removal	Gravel in invert
165+10		Surface Reinforcement Visible	12		0	4		Surface Repair	
164+74		Shear Key			46			Shear Key Repair	Shear key K5: majority of bitumastic bond breaker in place but crumbling. Joint Width: K5R: 1/2"-1", K5L: 1/2"-3/4".
163+85		Crack Circumferential	11	1	11			Crack Repair	Infiltration Dripper from 11 to 1 o'clock.
163+12		Shear Key			46			Shear Key Repair	Shear key K6: majority of bitumastic bond breaker in place. Joint Width: K6R: 1/2"-3/4", K6L: 1/2"-3/4". Evidence of differential settlement. Crack gauges installed by others at the 3, 9, and 12 o'clock positions.
163+12		Surface Aggregate Visible	6		0	4		Surface Repair	
163+12		Deposits Settled Gravel	6		4			Sediment Removal	
162+75		Obstacle Other	6		4		1	Object Removal	2' by 3' by 1/2" steel plate in invert
162+08		Shear Key			46			Shear Key Repair	Shear key K7: majority of bitumastic bond breaker in place. Joint Width: K7R: 3/4", K7L: 3/4". Infiltration Stain at 3 o'clock.
161+54		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 3 to 5 o'clock.
161+33		Crack Circumferential	5		4			Crack Repair	Infiltration Weeper at 5 o'clock.
161+02		Crack Circumferential	11		4			Crack Repair	Deposits Attached Encrustation at 11 o'clock.
160+96		Crack Circumferential	11	5	27			Crack Repair	Deposits Attached Encrustation at 11 o'clock.
160+76		Crack Circumferential	4	5	4			Crack Repair	Infiltration Weeper from 4 to 5 o'clock.
160+60		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper from 7 to 10, 12 to 2, and 4 to 5 o'clock.
160+25		Crack Circumferential	7	5	42			Crack Repair	Infiltration Weeper at 5 o'clock.
160+09		Shear Key			46			Shear Key Repair	Shear key K8: majority of bitumastic bond breaker in place. Joint Width: K8R: 3/4"-1", K8L: 1"-1-1/2". External liner wrap visible from 2 to 4 o'clock.

60% DESIGN
NOT FOR CONSTRUCTION

-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION



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4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

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NUMBER 10104111545

BASSETT CREEK WATERSHED
MANAGEMENT COMMISSION

CLIENT PROJECT # FCP-1

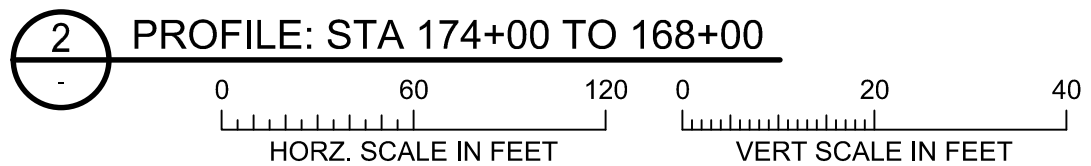
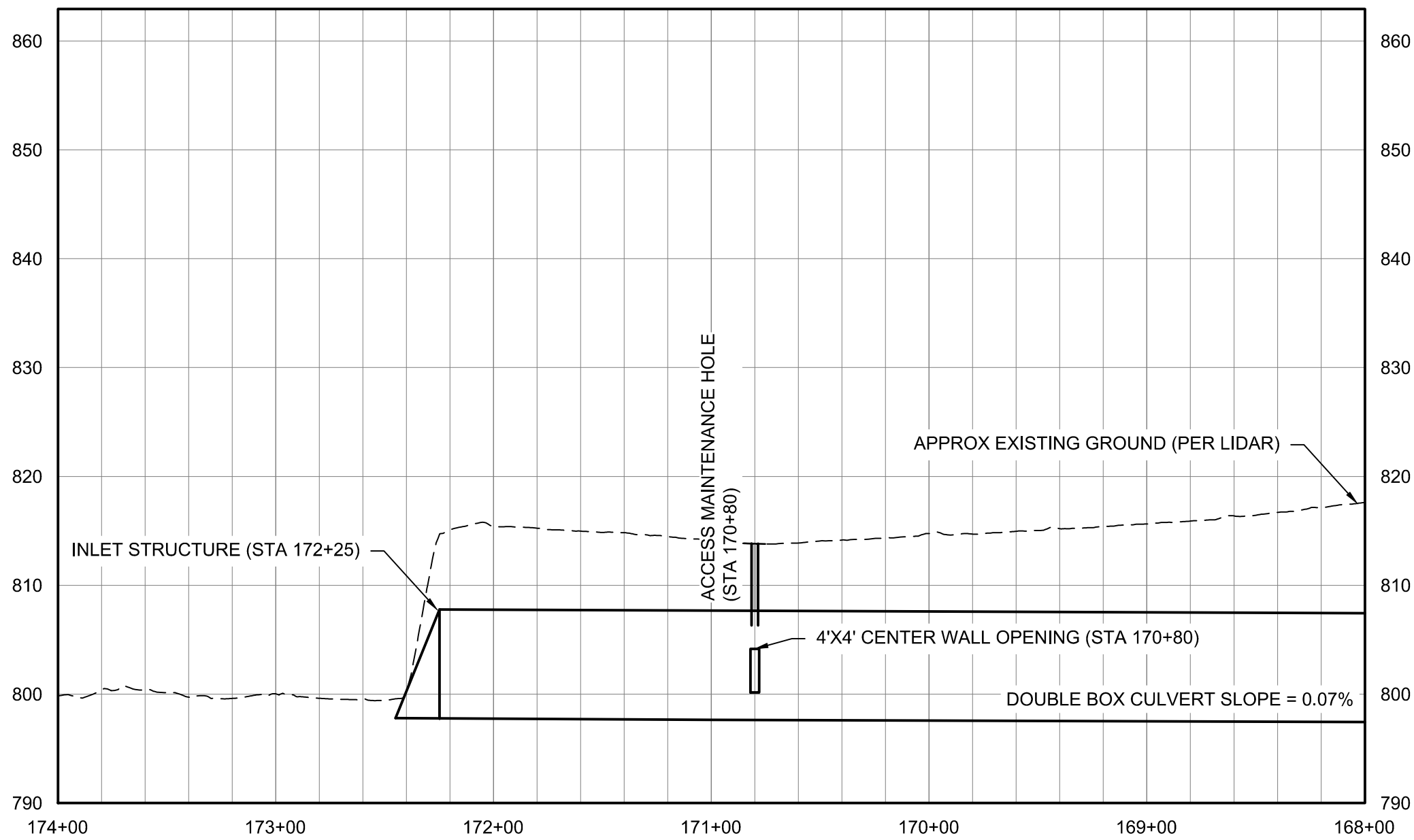
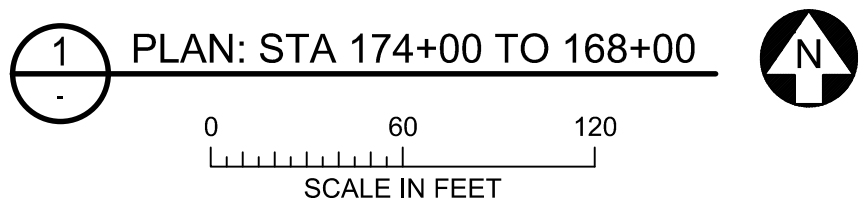
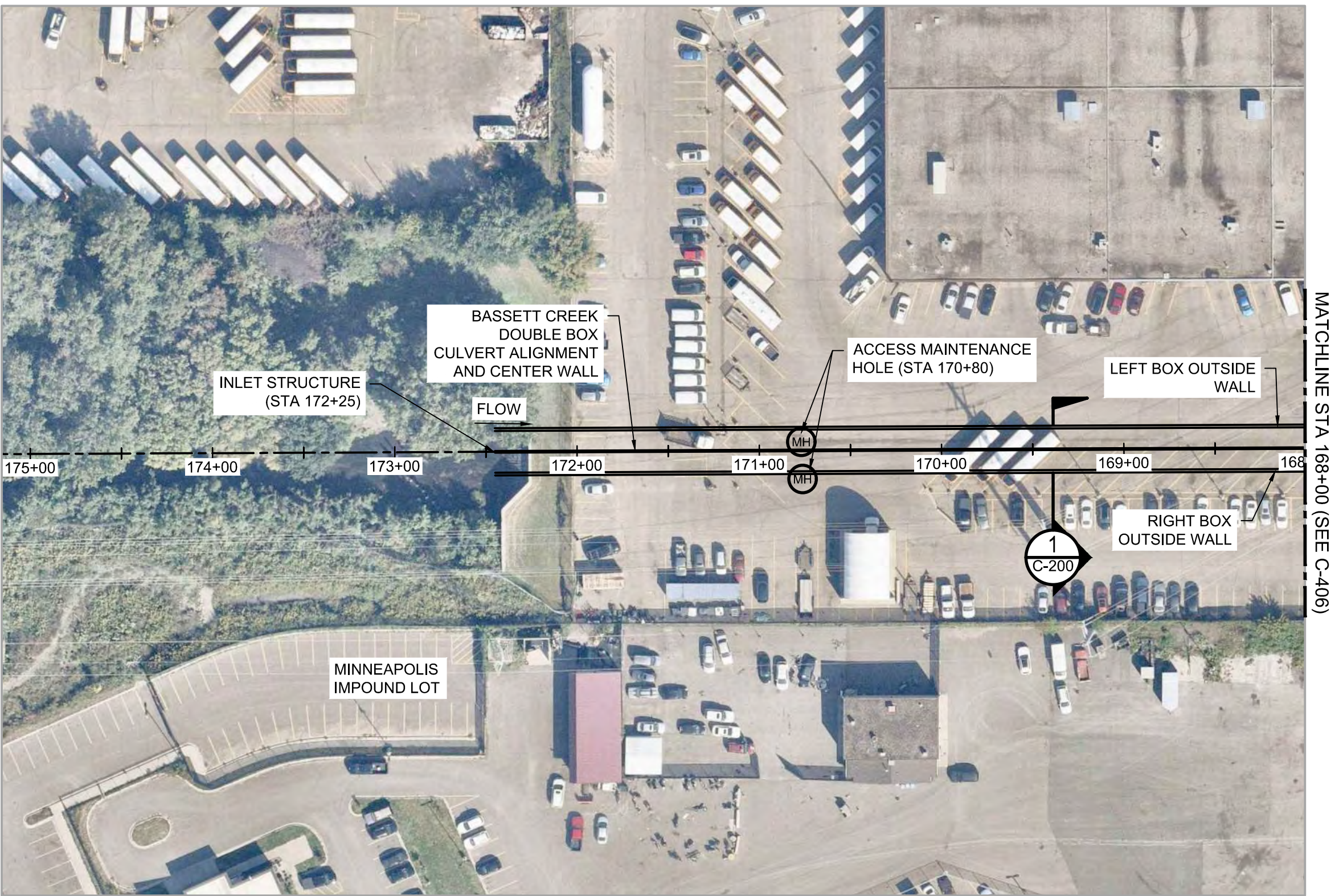
BASSETT CREEK DOUBLE BOX CULVERT REPAIRS
MINNEAPOLIS, MINNESOTA

RIGHT BOX REPAIRS
STA 168+00 TO 160+00
PLAN AND PROFILE

BARR PROJECT #	2327005171
DWG #	C406
REV #	B

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 3/11/2026 12:34 PM
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ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 3/11/2026 12:35 PM
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NOTES:

- REFERENCES TO "LEFT" AND "RIGHT" ARE WITH RESPECT TO FACING DOWNSTREAM.
- REPAIRS SHOWN IN TABLES ARE APPROXIMATE. CONTRACTOR AND ENGINEER TO COORDINATE ON PRIORITY AND PERCENTAGE OF REPAIRS TO EXECUTE DURING CONSTRUCTION.

RIGHT BOX REPAIR QUANTITIES TABLE

Begin Station 1	End Station 1	Defect	Clock From	Clock To	Length (LF)	Surface Area (SF)	Each	Type	Comments
172+00		Shear Key			46			Shear Key Repair	Shear key K1 Right and left shear keys are referenced walking downstream. Majority of bitumastic bond breaker in place. Joint width: K1R: 1-1/2"-2", K1L: 2". Evidence of differential settlement. Infiltration Stain at 3 o'clock.
172+00		Surface Spalling	12		0	4		Surface Repair	
171+50		Crack Circumferential	7	5	42			Crack Repair	Infiltration Stain from 9 to 5 o'clock and Infiltration Weeper from 7 to 9 o'clock.
171+24		Crack Circumferential	10	11	4			Crack Repair	Infiltration Weeper from 10 to 11 o'clock.
170+05		Shear Key			46			Shear Key Repair	Shear key K2: majority of bitumastic bond breaker in place but crumbling. Joint Width: K2R: 1/2"-1", K2L: 1/2"-1".
169+51		Crack Circumferential	5		4			Crack Repair	Infiltration Weeper at 5 o'clock.
169+30		Crack Circumferential	1	5	16			Crack Repair	Infiltration Weeper from 3 to 5 o'clock.
169+00		Crack Circumferential	5		4			Crack Repair	Infiltration Weeper at 5 o'clock.
168+45		Crack Circumferential	3	5	8			Crack Repair	Infiltration Weeper at 5 o'clock.
168+02		Shear Key			46			Shear Key Repair	Shear key K3: majority of bitumastic bond breaker in place. Joint Width: K3R: 3/4"-1", K3L: 1/2"-3/4".
168+02		Surface Spalling	8		0	0.25		Surface Repair	3" by 2" by 1/2" deep at shear key.

60% DESIGN
NOT FOR CONSTRUCTION

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B	AFL	JPP	JPP	03/12/2026	ISSUED FOR 60% REVIEW
A	AFL	JPP	JPP	03/02/2026	ISSUED FOR CPTF REVIEW
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION



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4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

BASSETT CREEK WATERSHED MANAGEMENT COMMISSION	BASSETT CREEK DOUBLE BOX CULVERT REPAIRS MINNEAPOLIS, MINNESOTA		BARR PROJECT # 2327005171
	RIGHT BOX REPAIRS STA 174+00 TO 168+00		DWG # C407
	PLAN AND PROFILE		REV # B