

**To:** Shingle Creek/West Mississippi WMO TAC and Commissioners

**From:** Katy Thompson, PE  
Todd Shoemaker, PE

**Date:** November 2, 2023

**Subject:** Gaulke Pond Subwatershed Assessment Update

**Recommended  
Commission Action**

For acceptance

The Shingle Creek Watershed Management Commission (SCWMC) requested Stantec evaluate opportunities to reduce stormwater runoff volume to Gaulke Pond. At the August 10, 2023, Commission meeting, the final eleven best management practices (BMPs) were presented and Opportunity A2, the Colorado Avenue Infiltration Trench, was selected by the Commission as the preferred alternative. The Commission authorized Stantec to proceed with the development of the 30% design plans.

The attached plans show the potential BMP layout within the Colorado Avenue right-of-way and associated details. The BMP design provided is a three-sided 6- by 6-foot concrete box culvert, however we have also included a bid alternative using corrugated polypropylene (PP) pipe chambers, similar to the ADS StormTech chambers installed on Kentucky Avenue in Crystal. If PP chambers are acceptable to the City of Crystal public works staff, this may offer an opportunity to reduce overall implementation costs.

Additionally, the design to date has relied on Minnesota Department of Natural Resources LiDAR topography, City GIS data, and generalized soils information. If the Commission chooses to proceed with 60% design, while out of scope, we recommend collecting detailed topography and utility information, as well as completing a more-thorough geotechnical evaluation of the underlying soils to confirm stability of the nearby city reservoir.



# PRELIMINARY PLANS

FOR

## COLORADO AVENUE STORMWATER INFILTRATION TRENCH

CRYSTAL, MN 55422



2080 WOODDALE DRIVE  
SUITE 100  
WOODBURY, MN 55125  
PHONE: 651-294-4580  
FAX: 651-228-1969  
WWW.STANTEC.COM

SUB CONSULTANT:

CLIENT:

SHINGLE CREEK  
WATERSHED  
MANAGEMENT  
COMMISSION

**COLORADO AVENUE  
STORMWATER IMPROVEMENTS**  
HENNEPIN COUNTY  
CRYSTAL, MN 55422

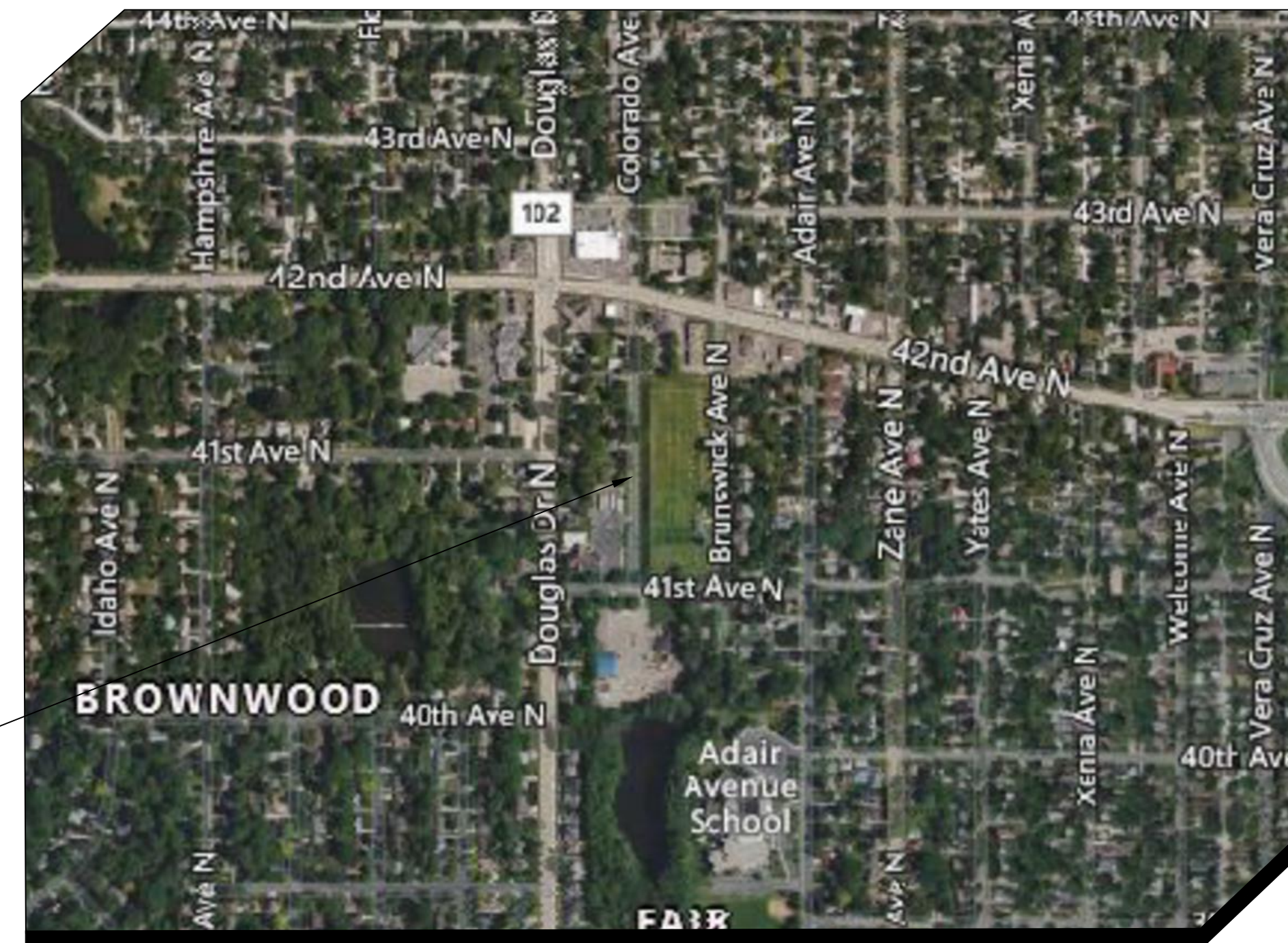
ENGINEER



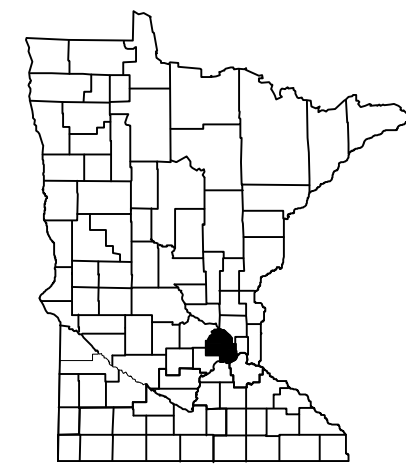
STANTEC  
2080 WOODDALE DRIVE, SUITE 100  
WOODBURY, MN 55125  
(P) - 651-294-4585  
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TODD.SHOEMAKER@STANTEC.COM

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C-801	DETAILS
C-802	DETAILS (BID ALTERNATE)

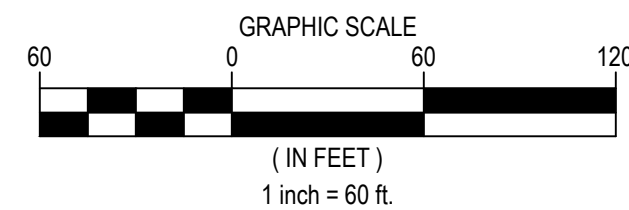
PROJECT LOCATION



VICINITY MAP  
NOT TO SCALE



PROJECT LOCATION  
CITY: CRYSTAL  
COUNTY: HENNEPIN County



PROJECT TITLE:

ISSUE NO.:

0

DESCRIPTION:

DATE:

10/26/2023

CERTIFICATION:

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.

LIC. NO.:

DATE:

PROJECT NO.:

227705751

DWN BY:

CGG

CHK'D BY:

KT

APP'D BY:

###

ISSUE DATE:

10/26/2023

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SHEET TITLE:

COVER SHEET

SHEET NO.:

C-001



GENERAL NOTES:

- 1. UNTIL THE REVISION BLOCK STATES "ISSUED FOR BID", THE PLAN SET IS NOT CERTIFIED FOR CONSTRUCTION AND CONTRACTOR IS BUILDING AT THEIR OWN RISK.
2. EXISTING CONDITIONS SHOWN ARE FROM A COMBINATION OF TOPOGRAPHIC SURVEY AND LIDAR DATA COMPLETED BY STANTEC CONSULTING SERVICES, INC., DATED 08/12/2021. EXISTING FEATURES MAY NOT BE EXACT TO THEIR LOCATION. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE CONDITIONS OF THE SITE AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR VARIATIONS FROM THE DRAWINGS.
3. ALL QUANTITIES ARE APPROXIMATE AND MAY VARY TO ALLOW COMPLETION OF WORK.
4. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-2 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
5. EXACT LOCATION OF UNDERGROUND UTILITIES SUCH AS GAS, TELEPHONE, FIBER OPTIC, PIPELINES, ELECTRICAL, AND CABLE TV ARE UNKNOWN. CONTRACTOR RESPONSIBLE FOR LOCATING PRIOR TO STARTING WORK.
6. CONTRACTOR SHOULD ANTICIPATE PRIVATE UTILITY CONFLICTS THROUGHOUT THE PROJECT SUB CUT AND TRENCH AREAS AND SHALL COORDINATE WITH PRIVATE UTILITY OWNERS.
7. THE RELOCATION AND OR PROTECTION OF ALL EXISTING UTILITIES MUST BE COORDINATED BY THE CONTRACTOR AND ANY COSTS FOR SUCH WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR EXTRA TIME AND EFFORT OF PROVISIONS NECESSARY TO WORK AROUND OR UNDER ANY UTILITIES.
8. CONTRACTOR SHALL SALVAGE AND REINSTALL STREET AND TRAFFIC SIGNS, AS DIRECTED BY FIELD ENGINEER. (INCIDENTAL)
9. CONTRACTOR SHALL COMPLY WITH ALL STATE, COUNTY, AND CITY PERMITS.
10. WORK AND MATERIALS MUST COMPLY WITH CITY, COUNTY, STATE, AND FEDERAL (INCLUDING OSHA) REGULATIONS AND CODES.
11. CONTRACTOR SHALL COORDINATE AND MAINTAIN MAIL, GARBAGE, AND RECYCLING SERVICES TO PROPERTIES THROUGHOUT CONSTRUCTION.
12. CONTRACTOR SHALL PRESERVE AND PROTECT EXISTING PAVEMENT, SITE FEATURES, UTILITIES, TREES, ETC., UNLESS NOTED OR SHOWN OTHERWISE.
13. CONSTRUCTION LIMITS ARE TO PROPERTY LINE UNLESS SHOWN OR NOTED OTHERWISE. CONTRACTOR SHALL RESTRICT CONSTRUCTION ACTIVITIES TO AREAS DESIGNATED ON PLANS WITHIN THE CONSTRUCTION LIMITS.
14. CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS TO PROPERTIES THROUGHOUT CONSTRUCTION.
15. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION AND WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES.
16. CONTRACTOR MUST IMMEDIATELY NOTIFY THE OWNER AND ENGINEER IN WRITING OF DISCREPANCIES OR CONFLICTS IN THE CONTRACT DOCUMENTS BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS ARE TO BE MADE WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER. FAILURE TO NOTIFY OWNER AND ENGINEER OF AN IDENTIFIABLE CONFLICT BEFORE PROCEEDING WITH INSTALLATION RELIEVES OWNER AND ENGINEER OF ANY OBLIGATION TO PAY FOR A RELATED CHANGE ORDER.
17. CONTRACTOR SHALL MAINTAIN DRAINAGE CONVEYANCE DURING CONSTRUCTION (BOTH PIPED AND OVERLAND).
18. CONTRACTOR SHALL HAVE ONE COPY OF EACH REQUIRED CONSTRUCTION PERMIT AND ONE COPY OF THE MOST CURRENT AND COMPLETE SET OF CONSTRUCTION DOCUMENTS (INCLUDING PLANS, SPECIFICATIONS, SPECIAL CONDITIONS AND PROVISIONS, ETC.) AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
19. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR IMPLEMENTATION AND ENFORCEMENT OF SAFE WORK PRACTICES, INCLUDING BUT NOT LIMITED TO PERSONNEL MONITORING, USE OF TRENCHING, SHEETING, AND SHORING, SCAFFOLDING; MATERIALS HANDLING AND DRILLING; OPERATION OF EQUIPMENT; AND SAFETY OF PUBLIC DURING PROGRESS OF WORK.
20. CONTRACTOR SHALL PLAN FOR AND ENSURE PERSONNEL COMPLY WITH PROVISIONS OF OSHA SAFETY AND HEALTH STANDARDS (29 CFR 1910) AND GENERAL CONSTRUCTION STANDARDS (29 CFR 1926) AS APPROPRIATE.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH WORK. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS FOR SAFETY OF EMPLOYEES ON PROJECT SITE AND OTHER PERSONS AND ORGANIZATIONS WHO MAY BE AFFECTED BY THE PROJECT. CONTRACTOR'S DUTIES AND RESPONSIBILITIES FOR SAFETY IN CONNECTION WITH WORK SHALL CONTINUE UNTIL SUCH TIME AS ALL WORK IS COMPLETED, AND ENGINEER HAS ISSUED NOTICE TO CONTRACTOR THAT WORK IS COMPLETE.
22. HAZARDOUS MATERIALS, INCLUDING BUT NOT LIMITED TO OIL, GASOLINE, PAINT AND OTHER HAZARDOUS SUBSTANCES MUST BE PROPERLY STORED, BY THE CONTRACTOR, INCLUDING SECONDARY CONTAINMENTS, TO PREVENT SPILLS, LEAKS, OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MPCA REGULATIONS. CONTRACTOR SHALL REMOVE SPILL OF FUELS, OILS, OR OTHER CHEMICALS IMMEDIATELY UPON DETECTION.
23. THE EXISTING PAVEMENT CONDITIONS HAVE BEEN DOCUMENTED, AND ANY DAMAGE TO THE EXISTING PAVEMENT, CURBING, AND STRIPING SHALL BE REPLACED BY THE CONTRACTOR, TO THE OWNERS SATISFACTION, AT NO ADDITIONAL COST TO THE OWNER.

REMOVAL NOTES:

- 1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. CONTRACTOR SHALL REVIEW FEATURES NOT SPECIFICALLY IDENTIFIED ON PLAN FOR SALVAGE OR REMOVAL THAT CONFLICT WITH CONSTRUCTION WITH THE ENGINEER.
3. MATERIALS REMOVED/DEMOLISHED BY CONTRACTOR BECOME PROPERTY OF THE CONTRACTOR, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL LOAD AND HAUL MATERIAL OFF-SITE AND PROPERLY DISPOSE OF MATERIALS IN ACCORDANCE WITH APPLICABLE REGULATIONS. CONTRACTOR MUST LEAVE THE SITE IN A CONDITION TO THE SATISFACTION OF THE OWNER AND ENGINEER.
4. CONTRACTOR SHALL SALVAGE AND REINSTALL STREET AND TRAFFIC SIGNS IN CONFLICT WITH CONSTRUCTION ACTIVITIES AS NOTED OR AS DIRECTED BY THE ENGINEER. IF SIGNS ARE DAMAGED DURING CONSTRUCTION, CONTRACTOR IS REQUIRED TO PROVIDE NEW SIGNS AT NO ADDITIONAL COST TO THE OWNER.
5. CONTRACTOR SHALL SALVAGE AND REINSTALL FENCE IN CONFLICT WITH CONSTRUCTION ACTIVITIES AS NOTED OR AS DIRECTED BY THE ENGINEER. IF FENCE IS DAMAGED DURING CONSTRUCTION, CONTRACTOR IS REQUIRED TO PROVIDE NEW FENCE, TO OWNER'S SATISFACTION, AT NO ADDITIONAL COST TO THE OWNER.
6. CONTRACTOR SHALL REVIEW ALL TREE REMOVALS WITH THE OWNER AND ENGINEER PRIOR TO REMOVAL OPERATIONS.

GOVERNING SPECIFICATIONS:

- 1. THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" MOST RECENT EDITION & LATEST SUPPLEMENTS.
2. CITY ENGINEERS ASSOCIATION OF MINNESOTA (CEAM) STANDARD UTILITIES SPECIFICATIONS (LATEST EDITION)
3. ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND ORDINANCE WILL BE COMPLETED WITH IN THE CONSTRUCTION OF THIS PROJECT.

TRAFFIC CONTROL NOTES:

- 1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION STAGING, ON OR OFFSITE, AS NECESSARY, TO COMPLETE THE WORK AS SPECIFIED IN THE PROJECT DOCUMENTS. IF OFFSITE STAGING AREA IS REQUIRED, CONTRACTOR IS RESPONSIBLE TO FIND, OBTAIN, AND PAY FOR NECESSARY STAGING AREA AT NO ADDITIONAL COST TO THE OWNER. A STAGING PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ANY CONSTRUCTION RELATED ACTIVITIES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL. ALL TRAFFIC CONTROL SHALL CONFORM TO THE LATEST EDITION OF THE MMUTCD, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS. A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO THE ENGINEER AND CITIES FOR REVIEW AND APPROVAL PRIOR TO ANY CONSTRUCTION RELATED ACTIVITIES. PLANS SHALL COMPLY WITH ALL APPLICABLE PERMIT REQUIREMENTS.

TREE PRESERVATION NOTES:

- 1. PROTECT EXISTING TREES THAT ARE NOT TO BE REMOVED. INSTALL ORANGE MESH FENCING, 4' HIGH, WITH STAKES EVERY 10 FEET, 5' OUTSIDE OF THE DRIP LINE OF ALL PRESERVED TREES, OR AT THE CONSTRUCTION LIMITS AS SHOWN ON THE PLAN. DO NOT PERFORM ACTIONS WITHIN THE PROTECTED AREA THAT MAY HARM THE TREE AND COMPACT THE SOIL, INCLUDING, BUT NOT LIMITED TO EXCAVATION, STORING MATERIALS, PARKING AND TRAFFIC DURING CONSTRUCTION. WHERE CONSTRUCTION REQUIRES DISTURBANCE WITHIN THE PROTECTED AREAS, DISTURB THE ROOT ZONE AS LITTLE AS POSSIBLE. TREE PROTECTION MEASURES SHALL BE CONFIRMED BY OWNER AND ENGINEER PRIOR TO STARTING CONSTRUCTION.
2. ALL TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO BEGINNING CONSTRUCTION.
3. WHEN TREE ROOTS ARE ENCOUNTERED THAT MUST BE REMOVED, CUT ROOTS CLEANLY AS FAR FROM THE TREE AS POSSIBLE AND IMMEDIATELY WATER AND BACKFILL OVER THE ROOTS TO PREVENT DRYING.

EROSION CONTROL NOTES:

- 1. SEE SHEETS C-003 FOR EROSION CONTROL MEASURES.
2. BEFORE SITE DISTURBANCE AND AS REQUIRED AS CONSTRUCTION PROGRESSES, CONTRACTOR SHALL INSTALL, MAINTAIN, REPAIR, AND REPLACE EROSION PREVENTION MEASURES AND SEDIMENT CONTROL DEVICES (INLET PROTECTION, CONSTRUCTION ENTRANCE, BIOLOG, EROSION CONTROL BLANKET, ETC.) IN ACCORDANCE WITH THE EROSION CONTROL PLAN, AND CITY, STATE, AND WATERSHED DISTRICT PERMITS.
3. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED DEPENDING ON SITE CONDITIONS DURING CONSTRUCTION. COORDINATE WITH ENGINEER.
4. CONCRETE WASH-OUT SHALL BE COMPLETED OFF-SITE OR CONCRETE READY MIX TRUCKS SHALL BE SELF-CONTAINED.
5. CONTRACTOR SHALL REMOVE TRACKED SEDIMENT FROM ALL PAVED SURFACES BOTH ON AND OFFSITE ON A DAILY BASIS (INCIDENTAL).
6. CONTRACTOR SHALL MINIMIZE DUST FROM CONSTRUCTION OPERATIONS BY PROVIDING WATER OR OTHER APPROVED METHOD ON A DAILY BASIS (INCIDENTAL).
7. CONTRACTOR SHALL REMOVE ALL EROSION CONTROL MEASURES AFTER SITE HAS BEEN STABILIZED AND VEGETATION IS ESTABLISHED AS DIRECTED BY ENGINEER. EROSION CONTROL MEASURES USED FOR CONSTRUCTION MUST NOT BE REMOVED UNTIL AUTHORIZED BY OWNER OR ENGINEER.

REVEGETATION NOTES:

- 1. REVEGETATE ALL DISTURBED AREAS WITH NATIVE SEED MIX AND EROSION CONTROL BLANKET AS SPECIFIED ON THE EROSION CONTROL DRAWINGS.
2. PRIOR TO SEEDING AND BLANKET INSTALLATION, RIP/SCARIFY ALL SOILS THAT ARE TO BE REVEGETATED TO A 6-INCH DEPTH, AVOIDING SIGNIFICANT TREE ROOT AREAS. (INCIDENTAL)
3. FOR AREAS TO RECEIVE SOD, AFTER INITIAL RIPPING, ADD AND INCORPORATE 3-INCH MINIMUM DEPTH OF MNDOT 3890 GRADE 2 COMPOST INTO TOP 6-INCH DEPTH OF SOIL.

HORIZONTAL AND VERTICAL CONTROL:

- 1. THE HORIZONTAL CONTROL FOR THIS PLAN IS NAD83 HENNEPIN COUNTY COORDINATES.
2. THE VERTICAL CONTROL FOR THIS PLAN IS NAVD88.



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STORMWATER IMPROVEMENTS
HENNEPIN COUNTY
CRYSTAL, MN 55422

PROJECT TITLE:

Table with columns: DATE, DESCRIPTION, ISSUE NO. Row 1: 10/26/2023, 30% PLANS, 0

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LICENS. NO.:
DATE:

PROJECT NO.: 227705751

DWN BY: CCG CHKD BY: KT APPD BY: ####

ISSUE DATE: 10/26/2023

ISSUE NO.: 0

SHEET TITLE:
GENERAL NOTES

SHEET NO.:
C-002



### LEGAL / BOUNDARY LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY BOUNDARY	
	LOT LINE	
	EASEMENT LINE	
	SETBACK LINE	
	RIGHT OF WAY LINE	
	SECTION LINE	
	QUARTER LINE	

### SITE / MISC. LEGEND

EXISTING	DESCRIPTION	PROPOSED
	RAILROAD TRACK	
	FENCE LINE	
	GUARD RAIL	
	RETAINING WALL	
	BUILDING	
	DITCH CENTERLINE	
	WETLAND BOUNDARY	
	WETLAND	
	SIGN	
	BOLLARD/POST	
	UTILITY POLE	
	ANCHOR CABLE	
	LIGHT POLE	
	DECORATIVE LIGHT	
	ANTENNA	
	BENCH	
	AIR CONDITIONER	
	SOIL BORING	
	MAILBOX	
	HANDICAP PARKING SPACE	
	RAILROAD CROSSING SIGNAL	
	STOP LIGHT	
	HAND HOLE	
	PARKING COUNT	

### GRADING / TOPOGRAPHY LEGEND

EXISTING	DESCRIPTION	PROPOSED
	MINOR CONTOUR	
	MAJOR CONTOUR	
	GRADING LIMITS	
	CONSTRUCTION LIMITS	
	SPOT ELEVATION	
	SURFACE GRADE & FLOW DIRECTION	
	SURFACE SLOPE (H:V) & FLOW DIRECTION	

### PAVEMENT LEGEND

EXISTING	DESCRIPTION	PROPOSED
	EDGE OF PAVEMENT / GRAVEL	
	ROAD CENTERLINE	
	CURB AND GUTTER	
	TIP-OUT CURB AND GUTTER	
	CONCRETE PAVEMENT	
	HEAVY DUTY CONCRETE PAVEMENT	
	BITUMINOUS PAVEMENT	
	LIGHT DUTY BITUMINOUS PAVEMENT	
	HEAVY DUTY BITUMINOUS PAVEMENT	
	GRAVEL SURFACE	

### UTILITY LEGEND

EXISTING	DESCRIPTION	PROPOSED
	STORM SEWER	
	SANITARY SEWER	
	FORCEMAIN	
	WATERMAIN	
	IRRIGATION LINE	
	UNDERGROUND GAS LINE	
	UNDERGROUND COMMUNICATION LINE	
	UNDERGROUND FIBER OPTIC LINE	
	UNDERGROUND ELECTRIC LINE	
	OVERHEAD UTILITY LINE	
	DRAINTILE	
	PIPE CASING	
	SANITARY MANHOLE	
	CLEANOUT	
	STORM SEWER MANHOLE	
	STORM SEWER INLET	
	FLARED END SECTION	
	CURB STOP	
	HYDRANT	
	WATER VALVE	
	REDUCER	
	FIRE DEPARTMENT CONNECTION	
	WATER WELL	
	AUTO SPRINKLER	
	POST INDICATOR VALVE	
	WATER METER	
	SPRINKLER HEAD	
	IRRIGATION CONTROL VALVE	
	GAS MARKER	
	GAS VALVE	
	GAS METER	
	COMMUNICATIONS PEDESTAL	
	TELEPHONE MANHOLE	
	ELECTRICAL PEDESTAL	
	ELECTRIC METER	
	TRANSFORMER	
	ELECTRIC MANHOLE	

### VEGETATION / LANDSCAPING LEGEND

EXISTING	DESCRIPTION	PROPOSED
	TREE LINE	
	STUMP	
	SHRUB/PERENNIAL PLANT	
	DECIDUOUS TREE	
	CONIFEROUS TREE	
	ORNAMENTAL TREE	
	ROCK MULCH	
	WOOD MULCH	
	SEED	
	SOD	

### REMOVALS LEGEND

DESCRIPTION	PROPOSED
REMOVE EXISTING BUILDING	
CLEAR AND GRUB AREA	
REMOVE TREE/SHRUB/STUMP	
REMOVE CURB AND GUTTER	
REMOVE CONCRETE PAVEMENT	
REMOVE BITUMINOUS PAVEMENT	
REMOVE GRAVEL SURFACING	
SAWCUT PAVEMENT	

### EROSION CONTROL LEGEND

DESCRIPTION	PROPOSED
ROCK CONSTRUCTION EXIT	
EROSION CONTROL BLANKET	
TURF REINFORCEMENT MAT	
SEED	
SOD	
RIPRAP	
VEGETATED RIPRAP	
SILT FENCE	
FLOTATION SILT CURTAIN	
BIOLOG (OR DITCH CHECK)	
INLET PROTECTION	
HAY BALES	
CULVERT PROTECTION	
TREE PROTECTION	
TEMPORARY DIVERSION DITCH	
TEMPORARY SEDIMENT TRAP DISCHARGE	

### ABBREVIATIONS

BV	BUTTERFLY VALVE	OC	ON CENTER
BW	BOTTOM OF WALL (AT GRADE)	OCS	OUTLET CONTROL STRUCTURE
BVC	BEGIN VERTICAL CURVE	MAX	MAXIMUM
BOT	BOTTOM	MH	MANHOLE
CB	CATCH BASIN	ME	MATCH EXISTING
CBMH	CATCH BASIN MANHOLE	MIN	MINIMUM
CO	CLEANOUT	NWL	NORMAL WATER LEVEL
CF	CUBIC FEET	OFF	OFFSET
CFS	CUBIC FEET PER SECOND	PC	POINT OF CURVATURE
CL	CENTERLINE	PI	POINT OF INTERSECTION
CL	CLASS	PL	PROPERTY LINE
CMP	CORRUGATED METAL PIPE	PR	PROPOSED
CY	CUBIC YARDS	PT	POINT OF TANGENCY
DIP	DUCTILE IRON PIPE	PVC	POLYVINYL CHLORIDE
EG	EXISTING GRADE	PVI	POINT OF VERTICAL INTERSECTION
EOF	EMERGENCY OVERFLOW	R	RADIUS
EL	ELEVATION	RCP	REINFORCED CONCRETE PIPE
EP	EDGE OF PAVEMENT	RIM	STRUCTURE TOP OF CASTING/GRATE
EVC	END VERTICAL CURVE	ROW	RIGHT OF WAY
EX	EXISTING	SF	SQUARE FEET
F/F	FACE TO FACE	SS	SANITARY SEWER
FFE	FINISHED FLOOR ELEVATION	SSMH	SANITARY SEWER MANHOLE
FES	FLARED END SECTION	ST	STORM SEWER
FM	FORCEMAIN	STA	STATION
FNH	FRONT NOZZLE OF HYDRANT	STD	STANDARD
FG	FINISHED GRADE	STMH	STORM SEWER MANHOLE
FL	FLOW LINE	SW	SIDEWALK
GV	GATE VALVE	SY	SQUARE YARDS
GPM	GALLONS PER MINUTE	TC	TOP OF CURB
HDPE	HIGH-DENSITY POLYETHYLENE	TNH	TOP NUT OF HYDRANT
HP	HIGH POINT	TOE	TOE OF DITCH
HYD	HYDRANT	TOP	TOP OF DITCH
HWL	HIGH WATER LEVEL	TP	TOP OF PIPE
INV	INVERT	TW	TOP OF WALL
LF	LINEAL FEET	TYP	TYPICAL
LFE	LOW FLOOR ELEVATION	VCP	VITRIFIED CLAY PIPE
LP	LOW POINT	WM	WATERMAIN
LVC	LENGTH OF VERTICAL CURVE		



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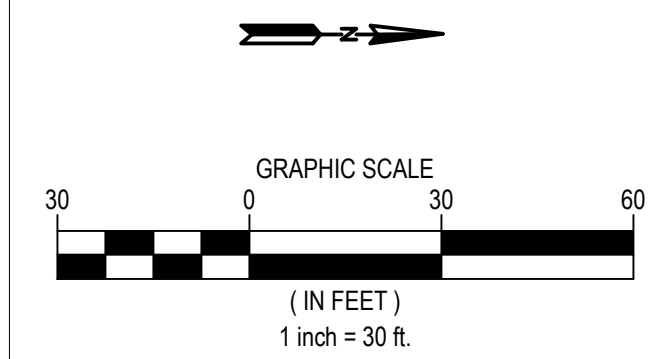
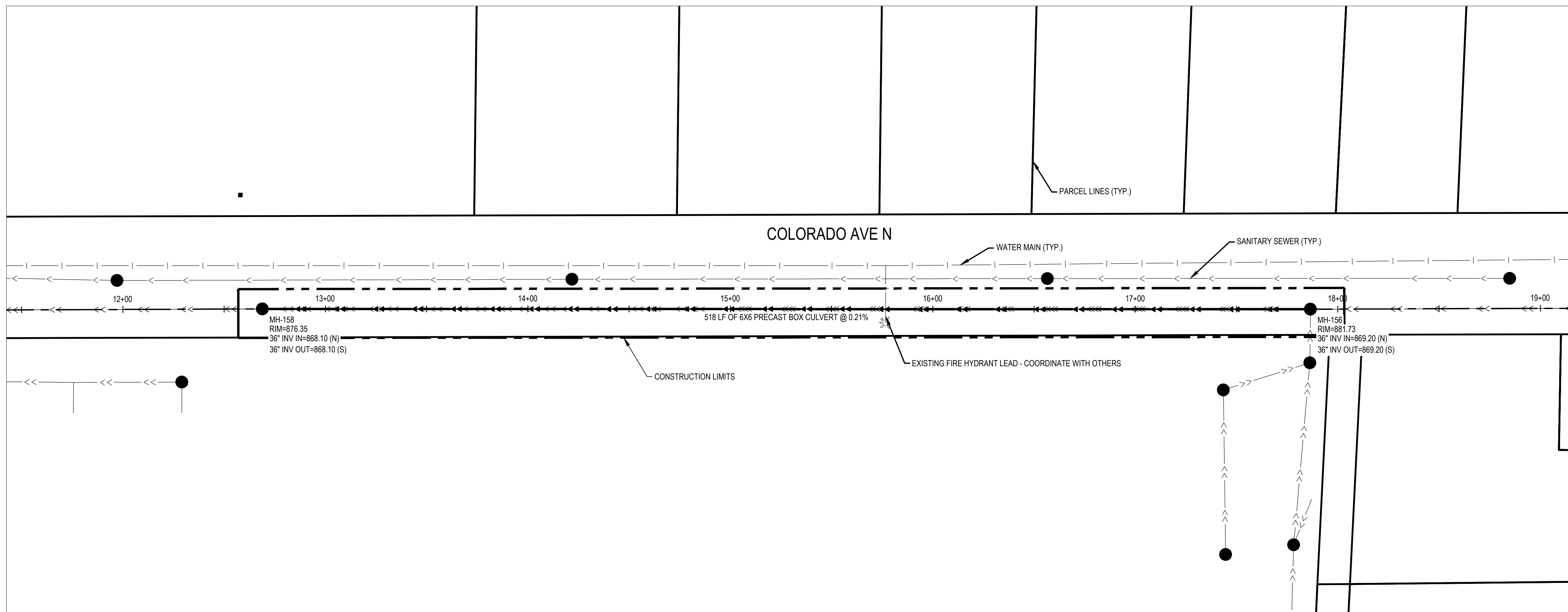
SHEET TITLE:

LEGEND

SHEET NO.:

C-003

10/26/2023 11:33:19 AM



**Stantec**

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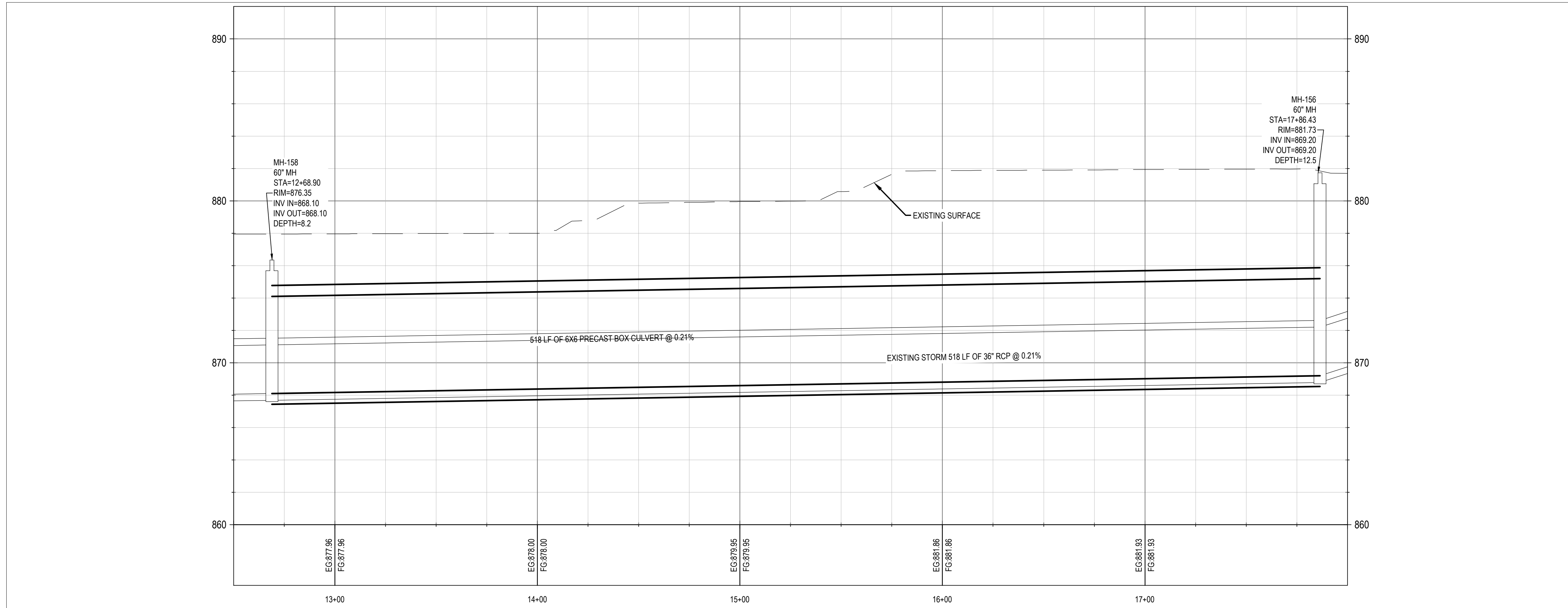
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SHEET TITLE: STORM SEWER PLAN AND PROFILE

SHEET NO.: **C-101**

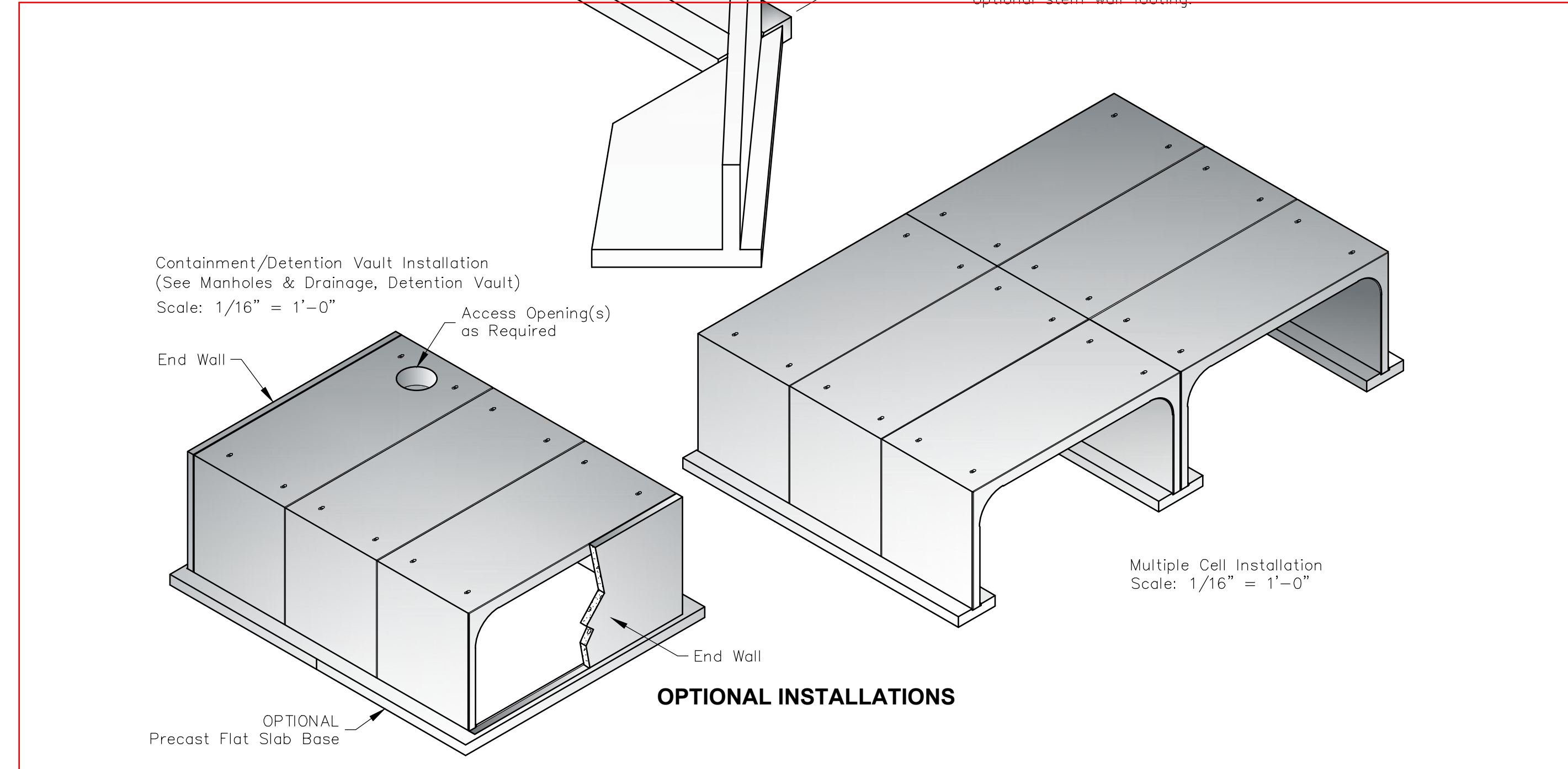
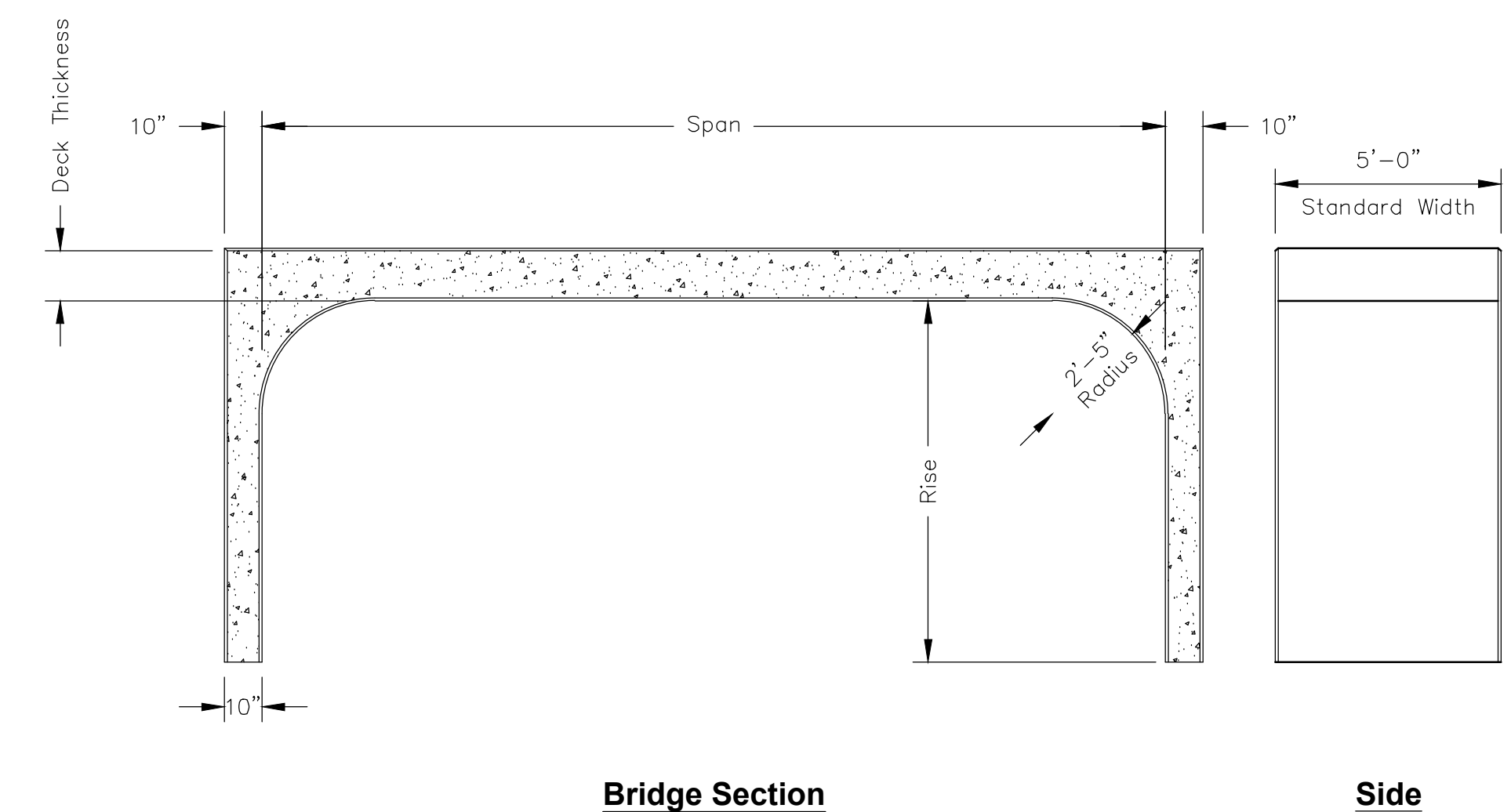
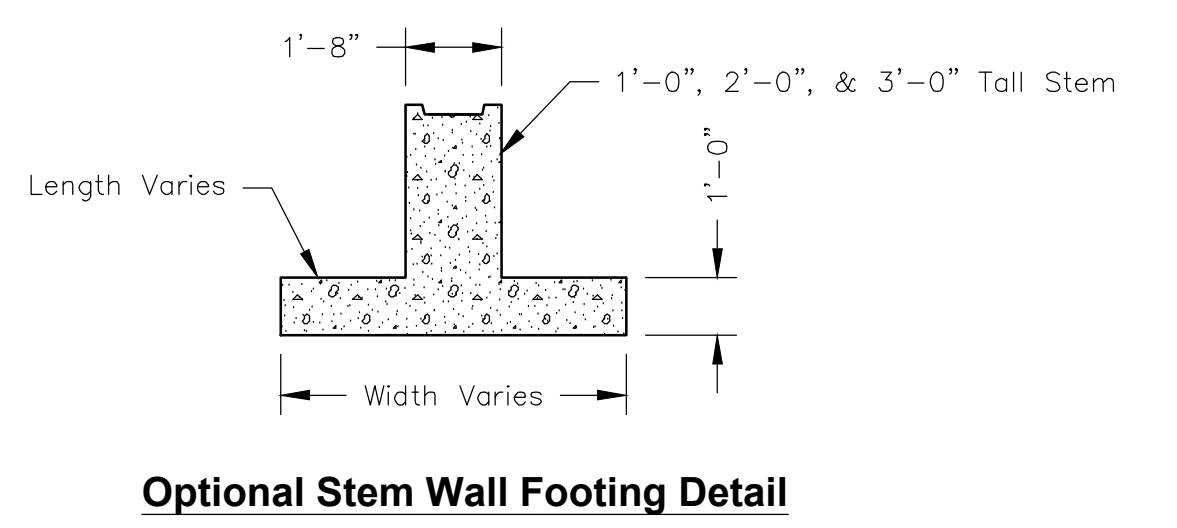
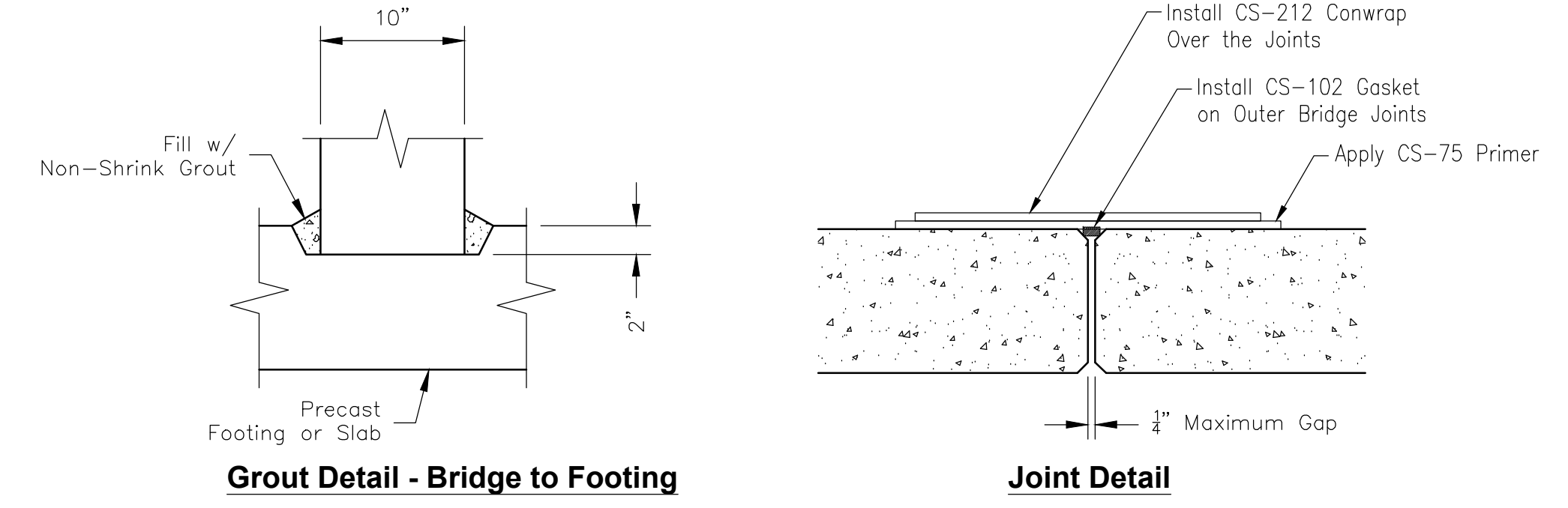
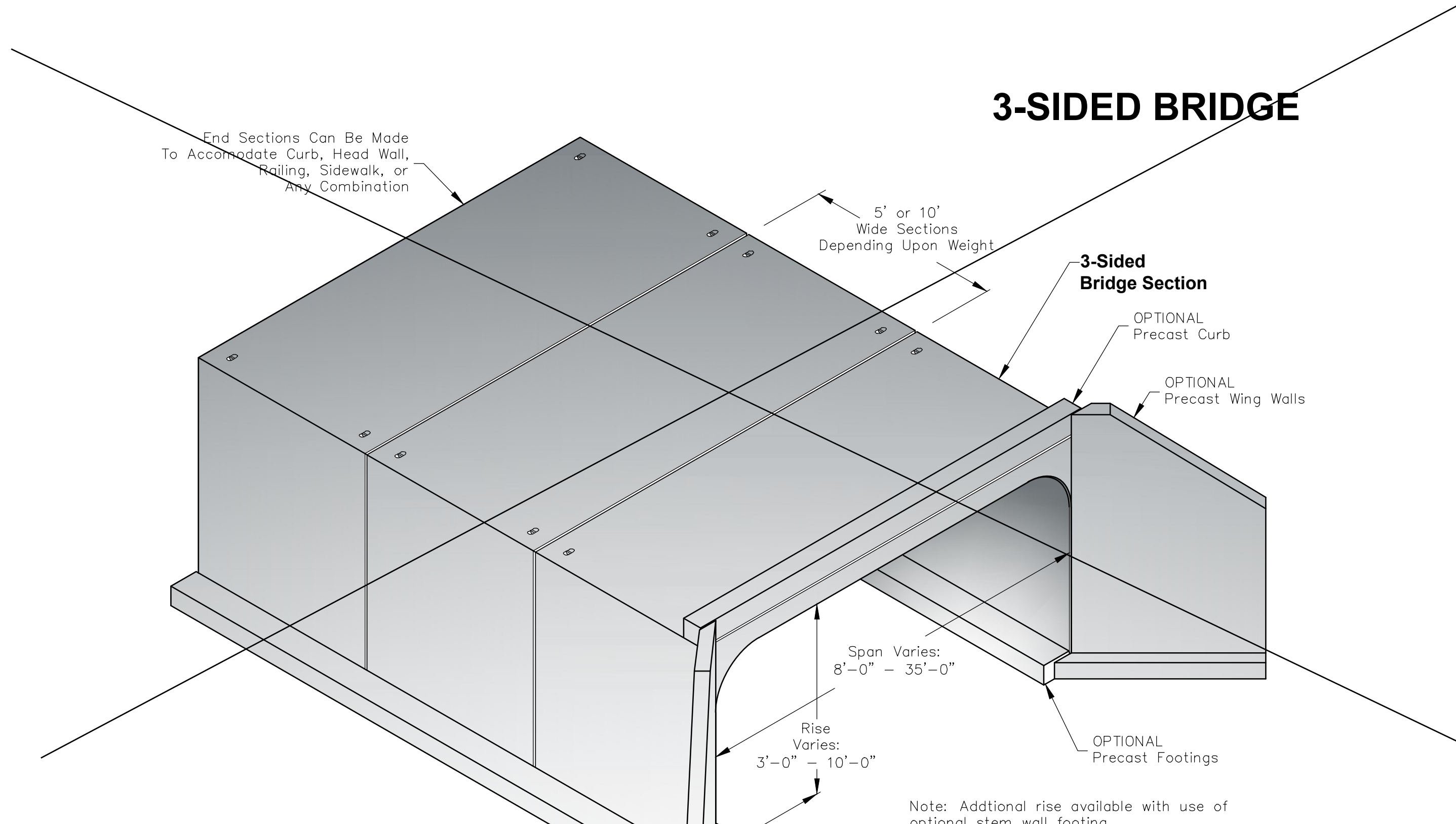
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### 3-SIDED BRIDGE

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<p>PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2657</p>	<p><b>3-SIDED BRIDGE</b></p> <p>File Name: 020-3-SIDED BRIDGE</p>	<p><b>3-SIDED BRIDGE</b></p>
	<p>Issue Date: 2016</p> <p><a href="http://oldcastleprecast.com/wilsonville">oldcastleprecast.com/wilsonville</a></p>	
	<p>1.0</p>	
	<p>1.1</p>	

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