

MINN. PROJ. NO.

# MINNESOTA DEPARTMENT OF TRANSPORTATION PINE COUNTY

**GOVERNING SPECIFICATIONS**  
THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. SEE SPECIAL PROVISIONS FOR ALL XXXX.6XX SERIES PAY ITEMS FOR ADDITIONAL REQUIREMENTS.

## CONSTRUCTION PLANS FOR BRIDGE NO. 58559 AND APPROACH GRADING

LOCATED 0.9 MILES SOUTH OF JCT. OF C.S.A.H. 46 ON STURGEON ISLAND RD  
OVER STURGEON ISLAND CHANNEL, 3.7 MILES EAST OF STURGEON LAKE, MN.  
(Geographical Description)

SEC. 16    TWP. 045 N    R 19 W    (Legal Description)

STATE AID PROJ. NO. 058-599-045

GROSS LENGTH	440.00 FEET	0.083 MILES
BRIDGES-LENGTH	40.00 FEET	0.008 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES
NET. LENGTH	440.00 FEET	0.083 MILES

**LIST OF SHEETS**

NO.	DESCRIPTION
1	TITLE SHEET
2	GENERAL PLAN & ELEVATION
3	BRIDGE TYPICAL SECTION
4	BRIDGE QUANTITIES & NOTES
5-6	ABUTMENT
7-9	SUPERSTRUCTURE
10-12	TIMBER DECK PANEL DETAILS
13-14	TL-2 GLULAM TIMBER RAIL
15-16	MISC. BRIDGE DETAILS
17	RIPRAP SLOPES WITH GEOTEXTILE FILTER
18	BRIDGE SURVEY
19	BRIDGE SURVEY ~ PLAN & PROFILE
20	BRIDGE SURVEY ~ BORINGS
21	ROADWAY STATEMENT OF ESTIMATED QUANTITIES
22	ROADWAY TYPICAL SECTION
23	ROADWAY PLAN & PROFILE
24-25	ROADWAY CROSS SECTIONS
26-27	DRAINAGE STRUCTURE DETAILS
28-34	EROSION CONTROL PLAN
35	TEMPORARY BYPASS
36	TRAFFIC CONTROL

THIS PLAN CONTAINS 36 SHEETS.

<b>DESIGN DESIGNATION FOR:</b>	<b>STURGEON ISLAND RD</b>
FUNCTIONAL CLASSIFICATION	RURAL LOCAL
NO. OF TRAFFIC LANES	2
NO. OF PARKING LANES	
DRIVING LANE WIDTH	11'
SHOULDER WIDTH	
ADT (CURRENT YEAR) 2022	<50
ADT (PROJECTED YEAR) 2042	<50
PAVEMENT DESIGN	
ESALS (20)	
R=VALUE	
SOIL FACTOR	
DESIGN SPEED	30 MPH
BASED ON SIGHT DISTANCE	200'
HEIGHT OF EYE / HEIGHT OF OBJECT	3.5' / 2.0'
DESIGN SPEED NOT ACHIEVED AT:	

*Ronald L. Dokken*  
RONALD L. DOKKEN

DESIGN ENGINEER: I HEREBY CERTIFY THAT THIS PLAN (SHEETS 1-20) 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.

DATE 10-19-2022      LICENSE NUMBER 13931

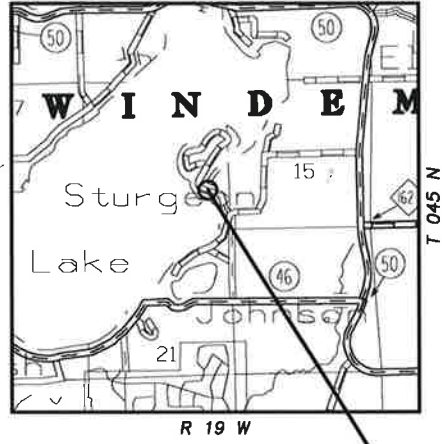
*Man a Joz*  
APPROVED: COUNTY ENGINEER      DATE 11/18/2022

*[Signature]*  
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY      DATE 12/5/2022

*[Signature]*  
STATE AID ENGINEER: APPROVED FOR STATE AID FUNDING      DATE 2/10/2023

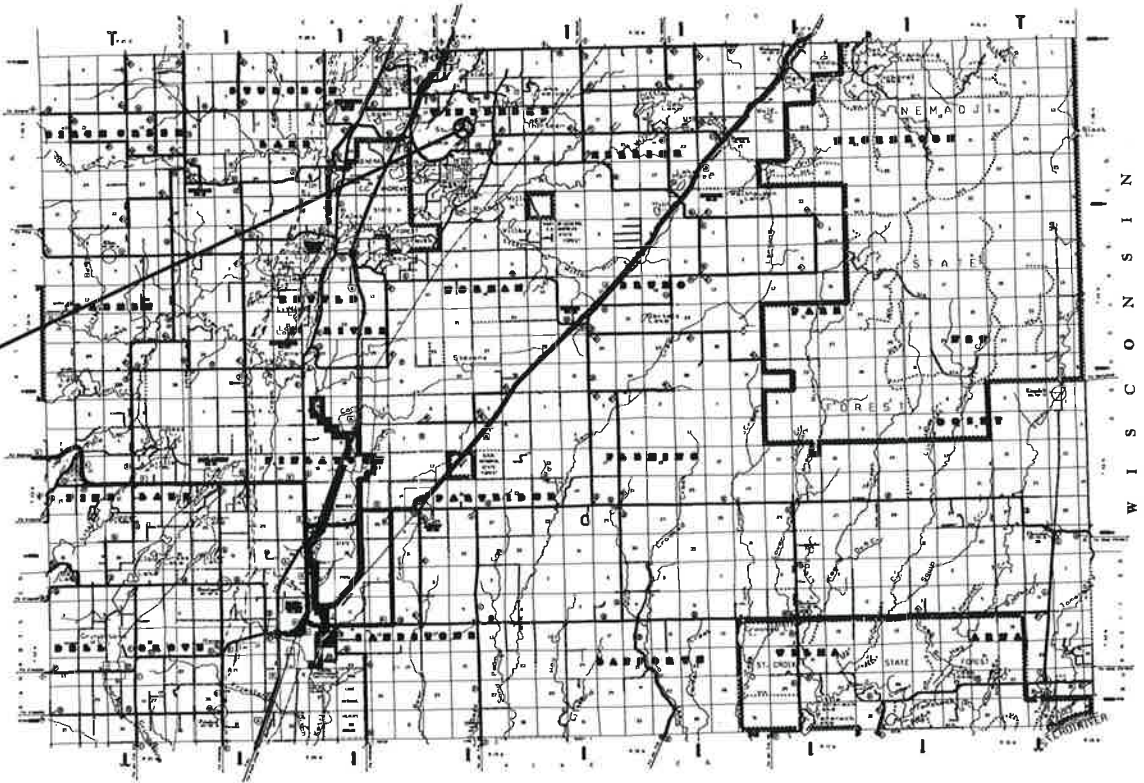
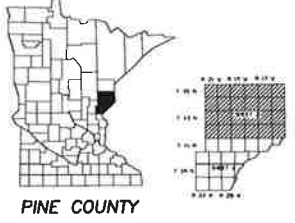
**PLAN SYMBOLS**

COUNTY LINE	-----
TOWNSHIP OR RANGE LINE	-----
SECTION LINE	-----
QUARTER LINE	-----
SIXTEENTH LINE	-----
EXISTING R/W	-----
NEW R/W	-----
TEMP EASE	-----
RAILROAD R/W	-----
UNSURFACED RD. OR SHLD.	-----
EDGE OF LAKE	-----
SWAMP BOUNDARY	-----
MISCELLANEOUS BOUNDARY	-----
CORPORATE OR CITY LIMITS	-----
VACATED PLATTED PROPERTY	-----
RECREATIONAL TRAIL	-----
ALIGNMENT STATIONS	110 +-----+ 112
ALIGNMENT POINTS	-----
RIVER OR CREEK	-----
DRAINAGE DITCH	-----
BRIDGE	-----
RAILROAD (SINGLE TRACK)	-----
RR CROSSING PAVEMENT MARKING	-----
RR CROSSING GATE	-----
RR CROSSBUCK SIGN	-----
RR CROSSBUCK SIGN W/LIGHTS	-----
BARBED WIRE FENCE	-----
CHAIN LINK FENCE	-----
WOVEN WIRE, COMBINATION WOVEN AND BARB	-----
WOOD FENCE	-----
BILLBOARD	-----
RETAINING WALL	-----
GUARDRAIL (CABLE)	-----
GUARDRAIL (PLATE BEAM)	-----
DRAIN TILE	-----
CULVERT	-----
CULVERT WITH APRONS	-----
WOODS OR BRUSH, NURSERY	-----
DECIDUOUS TREES	-----
CONIFER (EVERGREEN) TREES	-----
HEDGE	-----
BUSH OR SHRUB	-----
STUMP	-----
SWAMP OR MARSH	-----
MONUMENT (CLACT, ACP, BCP, ...)	-----
CONCRETE OR STONE MONUMENT	-----
IRON PIPE	-----
IRON PIN OR REBAR	-----
IRON PIN WITH BRASS DISK	-----
NAIL, PK NAIL, SPIKE, SFP, T-BAR, ...	-----
VERTICAL CONTROL	-----
HORIZONTAL CONTROL	-----
POWER POLE	-----
LIGHT POLE	-----
LIGHT AND TELEPHONE POLE	-----
LIGHT, TELEPHONE AND POWER POLE	-----
GLY POLE	-----
POLE ANCHOR	-----
TELEPHONE POLE	-----
TELEPHONE AND POWER POLE	-----
UNDERGROUND CABLE PEDESTAL	-----
TELEPHONE MANHOLE (VAULT)	-----
ELECTRIC CABLE IN CONDUIT	-----
TELEPHONE CABLE IN CONDUIT	-----
BURIED ELECTRIC CABLE	-----
BURIED TELEPHONE CABLE	-----
GAS LINE	-----
WATER LINE	-----
VALVE	-----
FIRE HYDRANT	-----
WATER MANHOLE	-----
WELL	-----
LAWN SPRINKLER HEAD	-----
MANHOLE	-----
CATCH BASIN	-----
SEPTIC TANK	-----
FORCE MAIN LIFT STA.	-----
SEWER LINE	-----
PERMANENT BARRICADE	-----
TRAFFIC SIGNAL LIGHT	-----
HAND HOLE	-----
ENTRANCE	-----
BUILDING	-----
NUMBER 1-S-F	-----
SATELLITE DISH	-----
STEEL TOWER	-----
FLAG POLE	-----



**PROP. BRIDGE NO. 58559**  
S.A.P. 058-599-045  
BEG. PROJ. STA. 17+90.00  
END PROJ. STA. 22+30.00  
EXIST. BRIDGE NO. R0726  
STEEL BM SPAN  
STRUCTURE LENGTH: 43.1'  
ROADWAY WIDTH: 13.6'  
YEAR BUILT: 1960

**PROJECT LOCATION**  
Outline Map of Minnesota showing location of the County within the State.



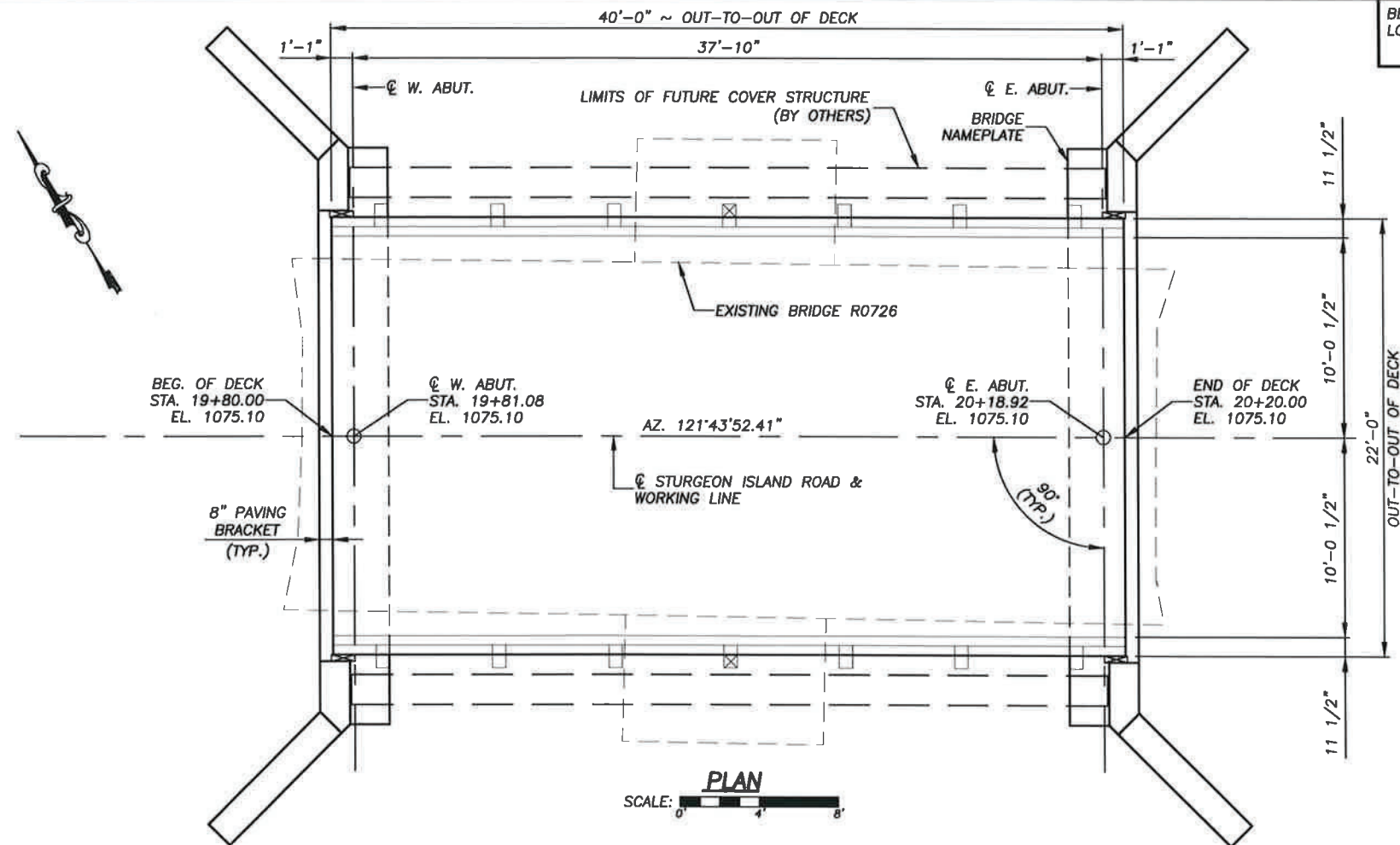
**SUBSURFACE UTILITY NOTE**  
THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

**ERICKSON ENGINEERING**  
WWW.ERICKSONENGINEERING.COM  
952-929-6791

**STATE AID PROJECT NO. 058-599-045**

**SHEET NO. 1 OF 36 SHEETS**

**BRIDGE 58559**



BENCHMARK EL. 1072.60  
 LOCATION: SPIKE IN GROUND, APPROXIMATELY 250 FT.  
 SOUTHEAST OF EXISTING BR. R0726

**DESIGN DATA**

2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS  
 HL-93 LIVE LOAD  
 DEAD LOAD INCLUDES 20 POUNDS PER SQUARE FOOT  
 ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS  
 DEAD LOAD INCLUDES 50 KIPS ALLOWANCE FOR FUTURE COVER STRUCTURE  
 SNOW LOAD AS PER ASCE 7-22

**MATERIAL DESIGN PROPERTIES:**  
 REINFORCED CONCRETE:  
 $f'_c = 4$  KSI CONCRETE  
 $f_y = 60$  KSI PLAIN AND EPOXY COATED BARS  
 $n = 8$  FOR REINFORCEMENT BARS

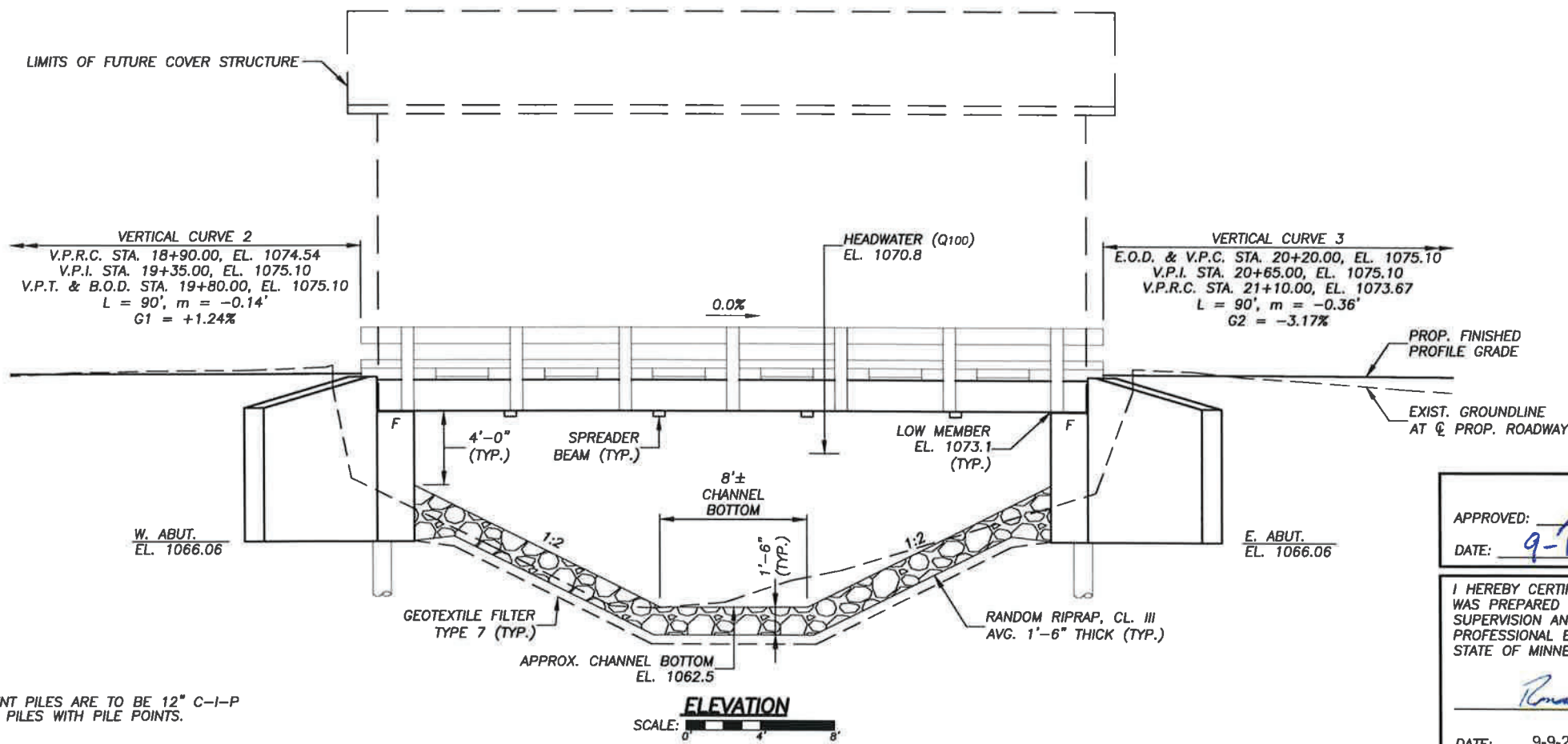
STRUCTURAL STEEL:  
 $F_y = 36$  KSI STRUCTURAL STEEL SPEC. 3306  
 $F_y = 50$  KSI STRUCTURAL STEEL SPEC. 3309

WOOD:  
 $F_{bo} = 1.80$  KSI GLUED LAMINATED TIMBER RAILS  
 $F_{bo} = 1.00$  KSI NAIL LAMINATED DECK PANELS  
 $F_{bo} = 1.20$  KSI RAIL POSTS  
 $F_{bo} = 1.35$  KSI CURBS & SCUPPER BLOCKS  
 $F_{bo} = 1.00$  KSI ALL OTHER WOOD

DESIGN SPEED = 30 MPH  
 DECK AREA = 880 SQUARE FEET  
 <50 ADT FOR YEAR 2022  
 <50 PROJECTED ADT FOR YEAR 2042  
 HL-93 LRFR  
 BRIDGE OPERATING RATING FACTOR RF = 1.84

**LIST OF SHEETS**

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35	TEMPORARY BYPASS
36	TRAFFIC CONTROL



**ERICKSON ENGINEERING**  
 9531 WEST 78TH STREET - SUITE 100  
 EDEN PRAIRIE, MN 55344

STURGEON ISLAND ROAD PINE COUNTY  
 MINNESOTA DEPARTMENT OF TRANSPORTATION

**BRIDGE NO. 58559**  
 LOCATED 0.9 MILES SOUTH OF JCT. C.S.A.H. 46  
 ON STURGEON ISLAND ROAD (TWP. RD. 1065)  
 OVER STURGEON ISLAND CHANNEL  
 40' TIMBER SLAB SPAN  
 20' ROADWAY ~ 0' SKEW  
 GLUED LAMINATED RAIL (TL-2)  
 SPAN IDENTIFICATION NO. 709

**GENERAL PLAN & ELEVATION**  
 SEC. 16 TWP. 45 N R 19 W

TOWNSHIP: WINDEMERE  
 COUNTY: PINE  
 APPROVED: *Edward A. Saitza*  
 STATE BRIDGE ENGINEER

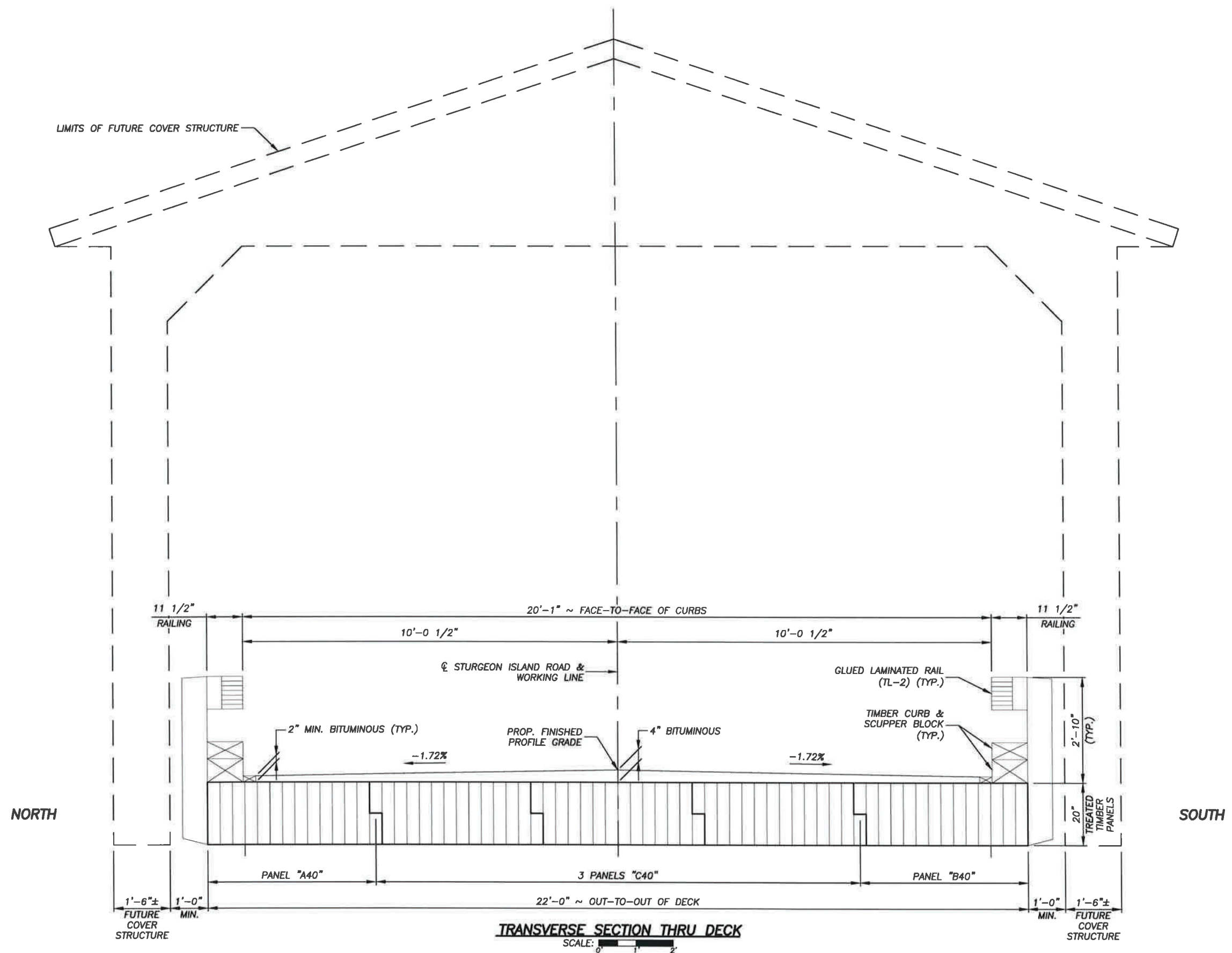
APPROVED: *Man O LeB*  
 DATE: 9-13-22  
 PINE COUNTY ENGINEER

I HEREBY CERTIFY THAT THIS PLAN (SHEETS 1-20)  
 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.

*Ronald L. Dokken*  
 RONALD L. DOKKEN  
 DATE: 9-9-2022 LIC. NO. 13931

DES.:	MWG	DRN.:	NBB	<b>BRIDGE NO.</b> <b>58559</b>
CHK.:	JRJ	CHK.:	RDV	
S.A.P.:	058-599-045			
SHEET 2 OF 36 SHEETS				

NOTE:  
 ABUTMENT PILES ARE TO BE 12" C-I-P  
 CONCRETE PILES WITH PILE POINTS.



**TRANSVERSE SECTION THRU DECK**

SCALE: 1/2" = 1'-0"

DES.: MWG  
 CHK.: JRJ  
 DRN.: NBB  
 CHK.: RDV  
 CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN  
 LIC. NO. 13931 9-9-2022


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 952-929-6791

**BRIDGE TYPICAL SECTION**

S.A.P. 058-599-045

APPROVED:

SHEET NO. 3 OF 36 SHEETS

BRIDGE NO. 58559

**STATEMENT OF QUANTITIES KEYNOTES:**

- A. (P) DENOTES "PLAN QUANTITY"
- B. PAYMENT LENGTH FOR TIMBER RAILING IS THE END-TO-END LENGTH OF RAIL.
- C. BR. R0726 ~ STA. 20+00

**CONSTRUCTION NOTES**

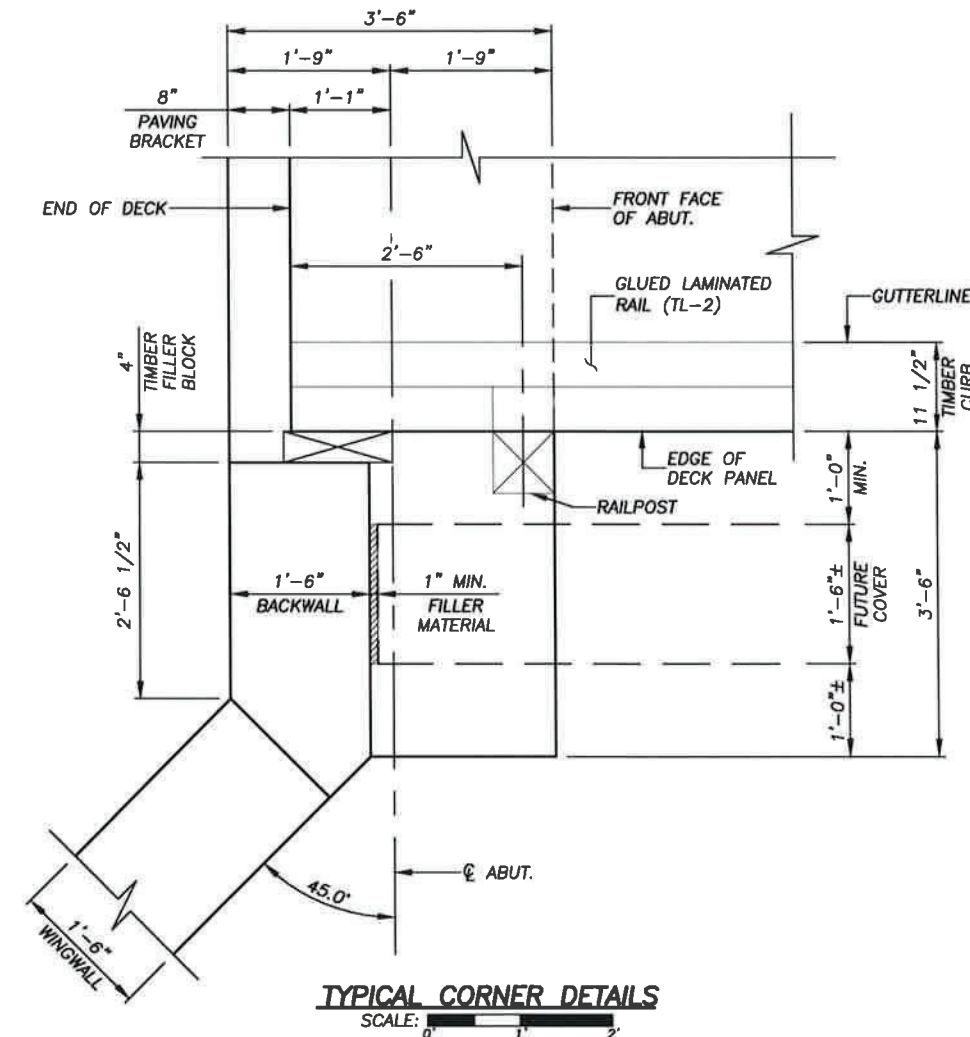
- THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. SEE SPECIAL PROVISIONS FOR ALL XXXX.6XX SERIES PAY ITEMS FOR ADDITIONAL REQUIREMENTS.
- THE BAR SIZES SHOWN IN THIS PLAN ARE IN U.S. CUSTOMARY DESIGNATIONS. BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.
- BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WITH DRILLING HOLES FOR THE ANCHOR RODS. THE TIMBER PANELS SHALL BE ERECTED IN THEIR FINAL POSITION PRIOR TO DRILLING HOLES FOR ANCHOR RODS.
- THE PILE LOADS SHOWN IN THE PLANS AND CORRESPONDING NOMINAL PILE BEARING RESISTANCE (R<sub>n</sub>) WERE COMPUTED USING LRFD METHODOLOGY. PILE BEARING RESISTANCE DETERMINED IN THE FIELD SHALL INCORPORATE THE METHODS AND/OR FORMULAS DESCRIBED IN THE STANDARD SPECIFICATION.
- THE SURVEY USED IN DEVELOPING THIS BRIDGE PLAN MUST BE VERIFIED WITH THE ACTUAL STREAM LOCATION AT THE TIME OF CONSTRUCTION STAKING. IF THE BRIDGE POSITION IS NOT COMPATIBLE WITH THE STREAM, THE ENGINEER SIGNING THESE PLANS SHALL BE NOTIFIED.
- CONSTRUCTION REQUIREMENTS SHALL CONFORM TO SPEC. 2403.
- SAWN LUMBER AND GLUED LAMINATED (GLULAM) TIMBER SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SPEC. 3426.
- SAWN LUMBER AND GLUED LAMINATED (GLULAM) TIMBER SHALL BE PRESSURE TREATED IN ACCORDANCE WITH THE REQUIREMENTS OF SPEC. 3491 AND THE SPECIAL PROVISIONS.
- ALL TIMBER TO BE FINISHED AS SHOWN IN THE BILL OF MATERIALS.
- ALL TIMBER CUT OR DRILLED IN THE FIELD SHALL BE TREATED IN ACCORDANCE WITH SPEC. 2403.3D.
- ALL TIMBER FABRICATION TO BE DETAILED ON SHOP DRAWINGS. SHOP DRAWINGS SHALL BE SUBMITTED TO THE SEALING ENGINEER FOR APPROVAL PRIOR TO SHIPPING MATERIALS.
- ALL HARDWARE IS TO BE GALVANIZED PER SPEC. 3392.
- THREAD ON ALL BOLTS TO BE UPSET AFTER INSTALLATION. BOLT PROJECTIONS EXCEEDING 1" SHALL BE CUT OFF. REPAIR END OF BOLT BY PAINTING WITH AN APPROVED ZINC-RICH PRIMER.
- ALL STRUCTURAL STEEL SHALL CONFORM TO SPEC. 3306 UNLESS OTHERWISE NOTED.
- STEEL INDICATED IN THE PLANS TO BE GALVANIZED SHALL BE GALVANIZED PER SPEC. 3394.

**STATEMENT OF ESTIMATED QUANTITIES FOR ENTIRE BRIDGE**

KEYNOTE	ITEM NO.	ITEM DESCRIPTION	UNIT	PARTICIPATING QUANTITY	NON-PARTICIPATING QUANTITY	TOTAL QUANTITY (A)
	2021.501	MOBILIZATION	LUMP SUM	1		1
	2360.504	TYPE SP 9.5 WEARING COURSE MIXTURE (2,B) 4.0" THICK	SQ. YD.	89		89
	2401.507	STRUCTURAL CONCRETE (3B52)	CU. YD.	69		69 (P)
	2401.508	REINFORCEMENT BARS (EPOXY COATED)	POUND	6,590		6,590 (P)
	2401.601	STRUCTURE EXCAVATION	LUMP SUM	1		1
	2401.601	SLOPE PREPARATION	LUMP SUM	1		1
	2402.502	ELASTOMERIC BEARING PAD TYPE 1	EACH	2		2
	2402.508	STRUCTURAL STEEL (3306)	POUND	1,620		1,620 (P)
	2402.508	STRUCTURAL STEEL (3309)	POUND	2,199		2,199 (P)
	2403.502	PREFAB WOOD PANELS TYPE A40	EACH	1		1
	2403.502	PREFAB WOOD PANELS TYPE B40	EACH	1		1
	2403.502	PREFAB WOOD PANELS TYPE C40	EACH	3		3
	2403.508	HARDWARE	POUND	1,421		1,421 (P)
B	2403.603	TIMBER RAILING	LIN. FT.	80		80 (P)
	2403.622	TREATED TIMBER	M.B.M.	1,370		1,370 (P)
C	2442.501	REMOVE EXISTING BRIDGE	LUMP SUM		1	1
	2452.502	C-I-P CONCRETE TEST PILE 65 FT. LONG 12"	EACH	1		1
	2452.502	C-I-P CONCRETE TEST PILE 85 FT. LONG 12"	EACH	1		1
	2452.502	PILE POINTS 12"	EACH	8		8
	2452.503	C-I-P CONCRETE PILING 12"	LIN. FT.	390		390
	2502.501	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1		1
	2511.504	GEOTEXTILE FILTER TYPE 7	SQ. YD.	280		280
	2511.507	RANDOM RIPRAP CLASS III	CU. YD.	130		130

LIST OF STANDARD PLATES	
PLATE NO.	DESCRIPTION
3131 C	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
3133 D	RIPRAP AT RCP OUTLET
4006 L	MANHOLE OR CATCH BASIN
4129 G	CATCH BASIN FRAME CASTING
4151 B	GRATE CASTING FOR CATCH BASIN
7102 K	CONCRETE CURB AND GUTTER
7111 J	INSTALLATION OF CATCH BASIN CASTINGS
8000 K	TEMPORARY CHANNELIZERS
9000 E	APPROACHES AND ENTRANCES - RECOMMENDED STANDARDS

THE ABOVE STANDARD PLATES, AS APPROVED BY THE F.H.W.A., SHALL APPLY ON THIS PROJECT.



**TYPICAL CORNER DETAILS**

SCALE: 0 1 2

*Ronald L. Dokken*  
 CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN  
 LIC. NO. 13931 9-9-2022

DES.: MWG  
 CHK.: JRJ  
 DRN.: NBB  
 CHK.: RDV

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**BRIDGE QUANTITIES & NOTES**

S.A.P. 058-599-045

APPROVED:

SHEET NO. 4 OF 36 SHEETS

BRIDGE NO. 58559

**NOTES**

F.F. = FRONT FACE  
 B.F. = BACK FACE  
 E.F. = EACH FACE

- ① SPACED WITH A602E B.F.
- ② PULL UP 2" CLEAR BELOW BEARING SEAT.

**PILE NOTES**

- 1 - CAST-IN-PLACE CONCRETE TEST PILE, 65 FT. LONG AT WEST ABUTMENT
- 1 - CAST-IN-PLACE CONCRETE TEST PILE, 85 FT. LONG AT EAST ABUTMENT
- 3 - CAST-IN-PLACE CONCRETE PILES, EST. LENGTH 55 FT. AT WEST ABUTMENT
- 3 - CAST-IN-PLACE CONCRETE PILES, EST. LENGTH 75 FT. AT EAST ABUTMENT
- 8 - CAST-IN-PLACE CONCRETE PILES REQUIRED FOR TWO ABUTMENTS

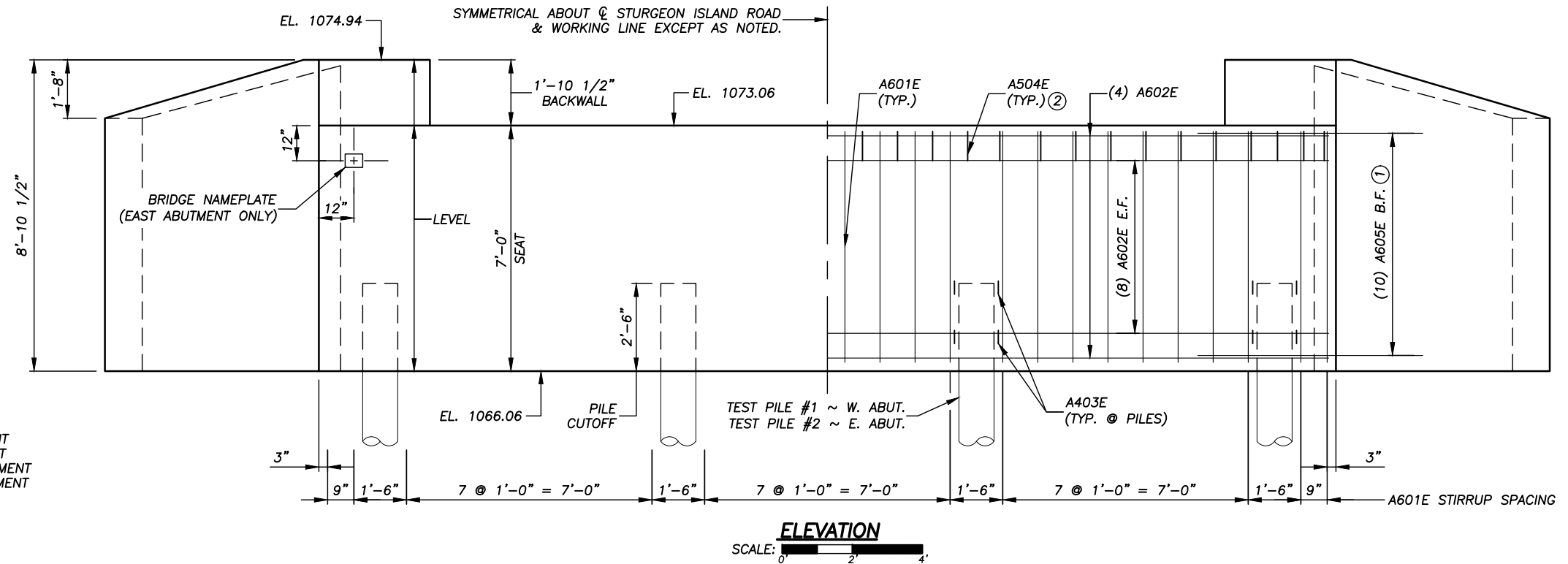
ABUTMENT PILES TO HAVE A NOMINAL DIAMETER OF 12",  
 WITH A MINIMUM WALL THICKNESS OF 5/16".

FOR PILE SPLICE DETAILS SEE B-DETAIL B201.

ALL PILES TO HAVE PILE POINTS.

PILE SPACING SHOWN IS AT BOTTOM OF CAP.

SEE SURVEY SHEET FOR TEST PILE LOCATIONS.



WEST & EAST ABUTMENTS	
COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD	31.7
FACTORED LIVE LOAD	29.0
*FACTORED DESIGN LOAD	60.7

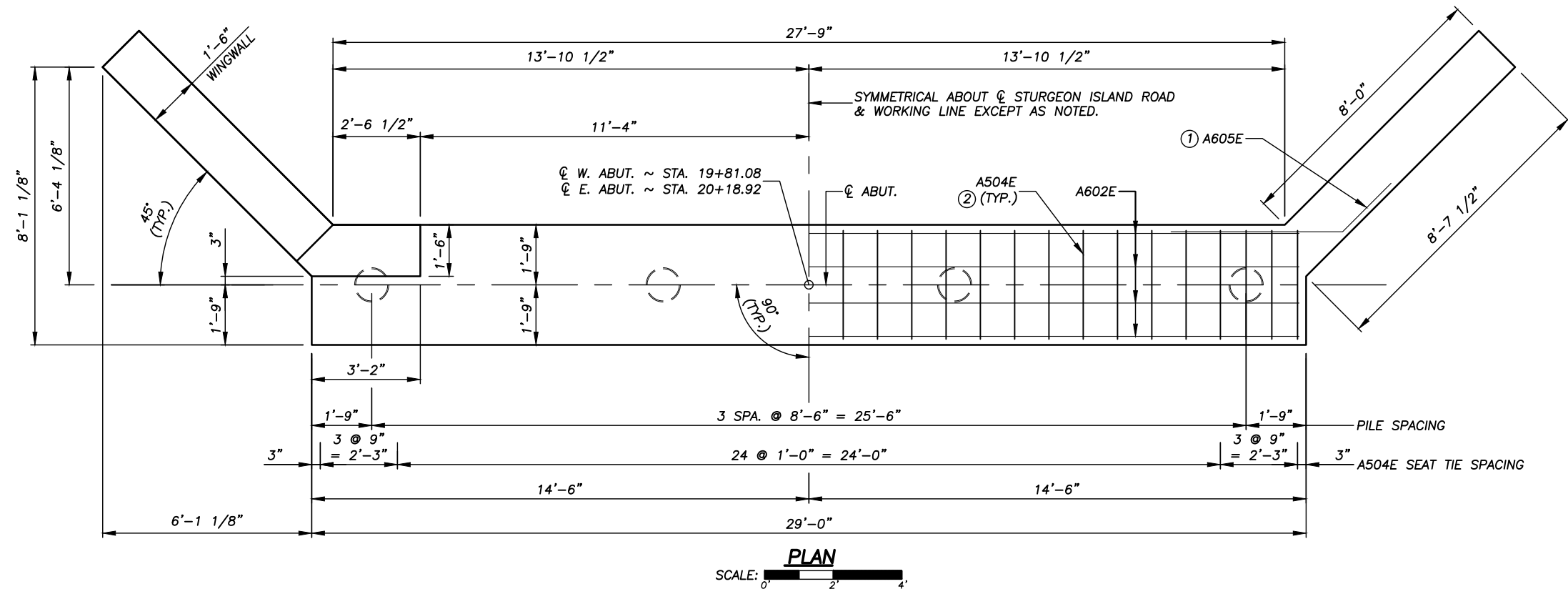
\*\*BASED ON STRENGTH I LOAD COMBINATION WITHOUT FUTURE COVER STRUCTURE.

WEST & EAST ABUTMENTS	
WITH ALLOWANCE FOR FUTURE COVER STRUCTURE	
COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD	35.6
FACTORED SNOW LOAD	4.3
FACTORED LIVE LOAD	29.0
**FACTORED DESIGN LOAD	68.9

\*\*BASED ON STRENGTH I LOAD COMBINATION WITH FUTURE COVER STRUCTURE. FUTURE COVER STRUCTURE LIMITED TO A 12.5 KIP SERVICE LOAD PER BEARING, TWO BEARINGS PER ABUTMENT.

WEST & EAST ABUTMENTS		
REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES $R_n$ - TONS/PILE		
FIELD CONTROL METHOD	$\phi_{dyn}$	* $R_n$
MnDOT PILE FORMULA 2012 (MPF12)	0.50	137.8
$R_n = 20 \sqrt{\frac{WxH}{1000}} \times \log\left(\frac{10}{S}\right)$		
PDA	0.65	106.0

\* $R_n$  = (FACTORED DESIGN LOAD)/ $\phi_{dyn}$



*Ronald L. Dokken*  
 CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN  
 LIC. NO. 13931 10-19-2022

DES.: MWG  
 CHK.: JRJ  
 DRN.: NBB  
 CHK.: RDV

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**ABUTMENT**

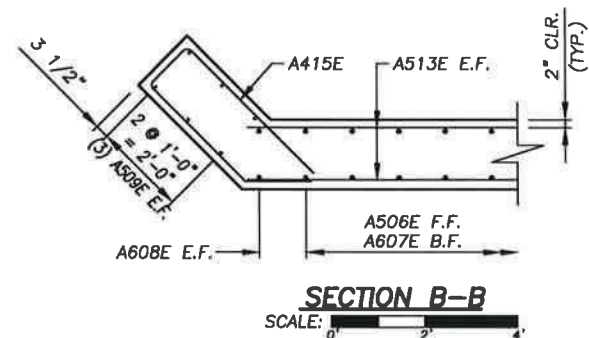
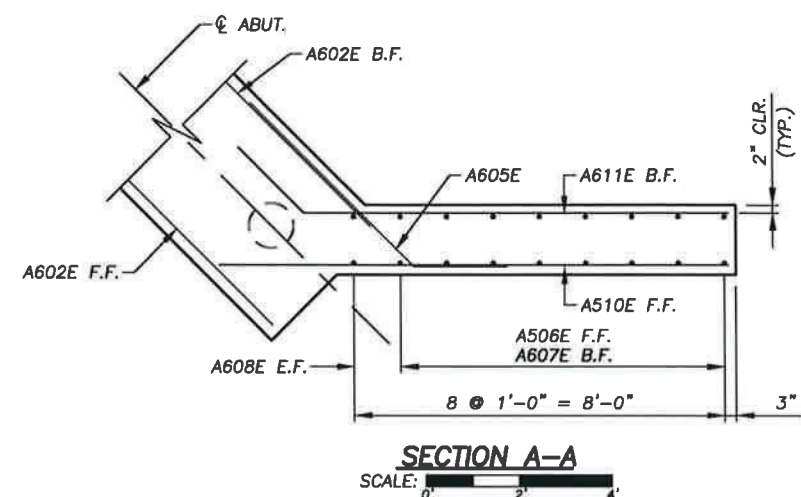
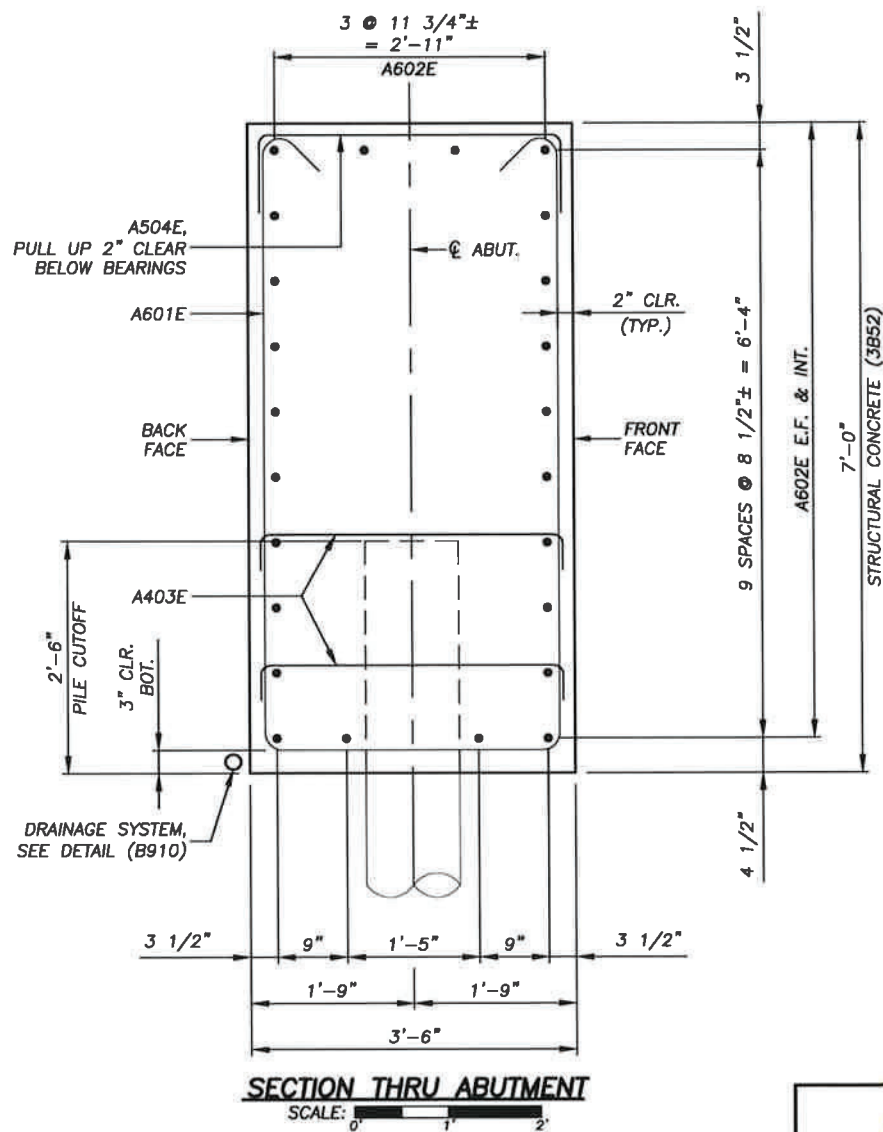
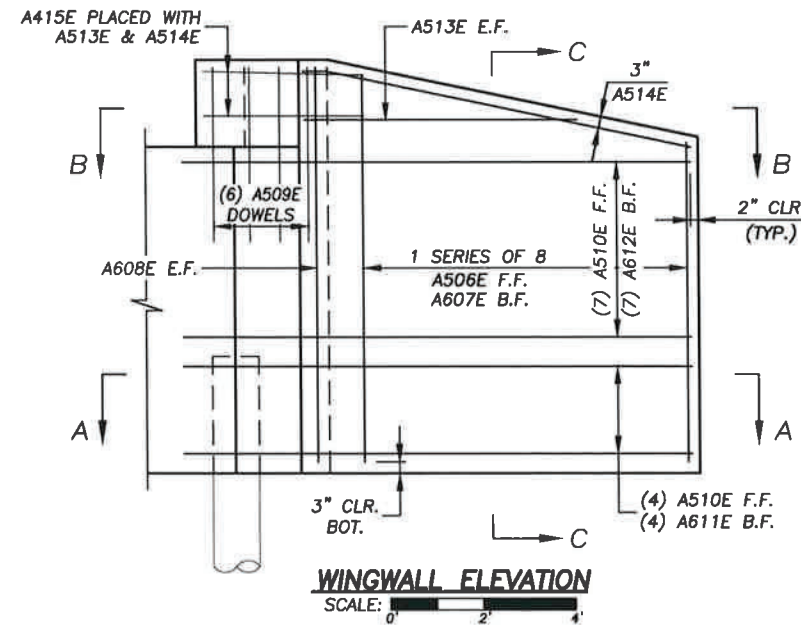
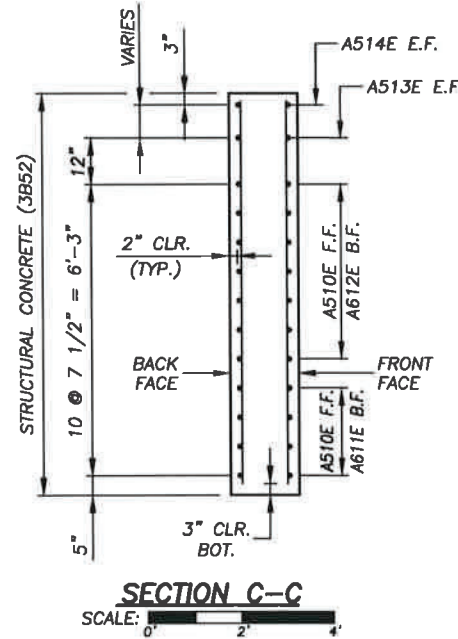
S.A.P. 058-599-045  
 SHEET NO. 5 OF 36 SHEETS

BRIDGE NO. 58559

**NOTES**

F.F. = FRONT FACE  
B.F. = BACK FACE  
E.F. = EACH FACE

- ① SEE SPECIAL PROVISIONS.
- ② BACKFILL BEHIND ABUTMENTS SHALL BE STRUCTURAL BACKFILL, PER SPEC. 3149.2D.2. SEE SURVEY SHEET FOR PLACEMENT LIMITS. INCLUDED IN PRICE BID FOR STRUCTURE EXCAVATION. BACKFILL DENSITY SHALL BE ATTAINED BY THE QUALITY COMPACTION METHOD IN ACCORDANCE WITH SPEC. 2106.3G.2.
- ③ DOES NOT INCLUDE TEST PILES.

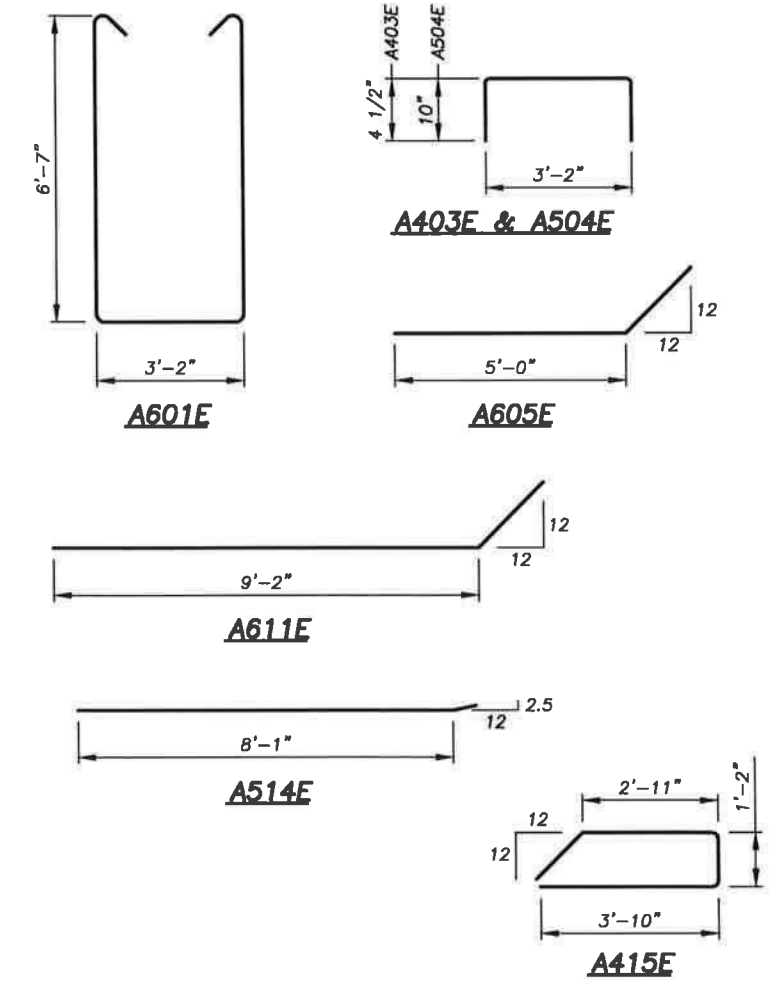


**SUMMARY OF QUANTITIES ~ 2 ABUTMENTS**

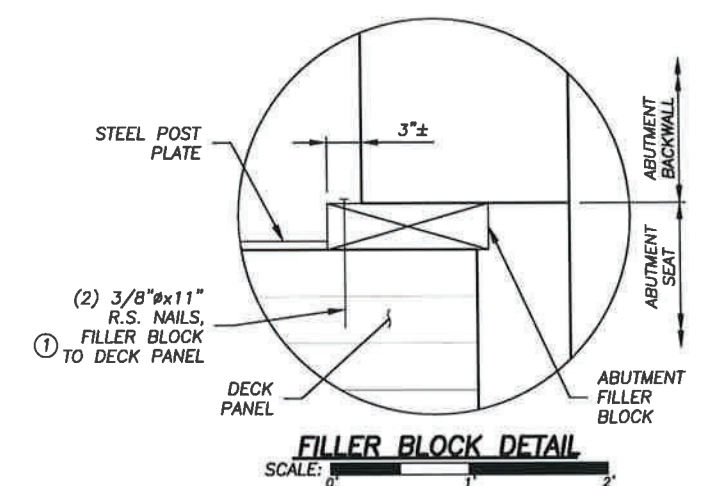
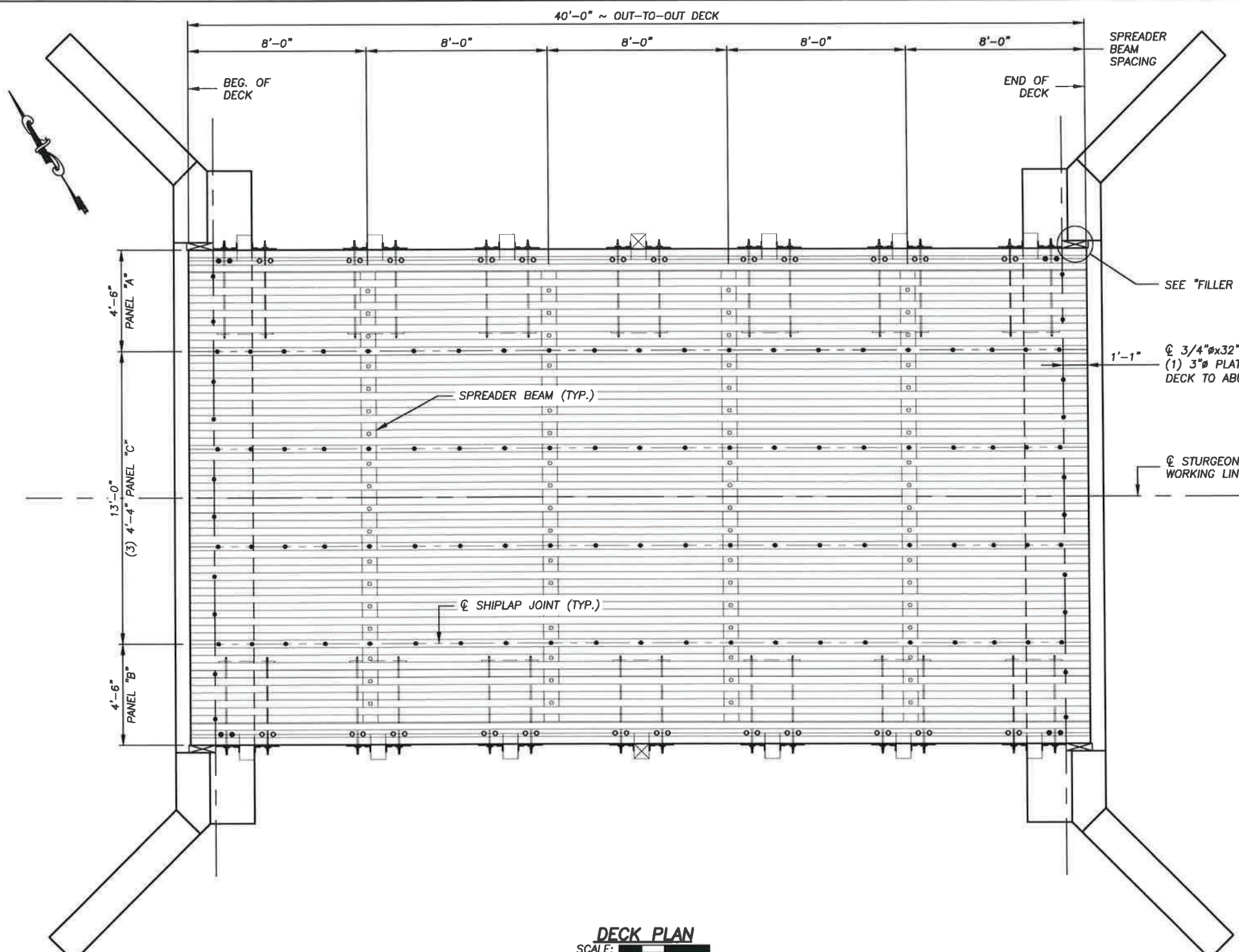
STRUCTURAL CONCRETE (3B52)	69 CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	6,590 POUND
①② STRUCTURE EXCAVATION	1 LUMP SUM
C-I-P CONCRETE TEST PILE 65 FT. LONG 12"	1 EACH
C-I-P CONCRETE TEST PILE 85 FT. LONG 12"	1 EACH
PILE POINTS 12"	8 EACH
③ C-I-P CONCRETE PILING 12"	390 LIN. FT.
DRAINAGE SYSTEM TYPE (B910)	1 LUMP SUM

**BILL OF REINFORCEMENT ~ 2 ABUTMENTS**

BAR	NO.	LENGTH	SHAPE	LOCATION
A601E	56	17'-8"	BENT	CAP ~ STIRRUP
A602E	48	28'-7"	STRT.	CAP ~ HORIZONTAL
A403E	32	3'-11"	BENT	CAP ~ PILE TIE
A504E	62	4'-10"	BENT	CAP ~ SEAT TIE
A605E	40	7'-0"	BENT	CAP ~ B.F. TIE @ CORNERS
A506E	4 SER. OF 8	FROM 6'-10" TO 8'-3"	STRT.	WINGWALL ~ VERTICAL F.F.
A607E	4 SER. OF 8	FROM 6'-10" TO 8'-3"	STRT.	WINGWALL ~ VERTICAL B.F.
A608E	8	8'-5"	STRT.	WINGWALL ~ VERTICAL E.F.
A509E	24	3'-9"	STRT.	WINGWALL ~ DOWEL
A510E	44	11'-0"	STRT.	WINGWALL ~ HORIZONTAL F.F.
A611E	16	11'-2"	BENT	WINGWALL ~ HORIZONTAL B.F.
A612E	28	11'-2"	STRT.	WINGWALL ~ HORIZONTAL B.F.
A513E	8	5'-2"	STRT.	WINGWALL ~ HORIZONTAL
A514E	8	8'-7"	BENT	WINGWALL ~ DIAGONAL
A415E	8	9'-3"	BENT	WINGWALL ~ TIE



 CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN LIC. NO. 13931 9-9-2022	DES.: MWG CHK.: JRJ DRN.: NBB CHK.: RDV	 ERICKSON ENGINEERING WWW.ERICKSONENGINEERING.COM 952-929-6791	ABUTMENT	S.A.P. 058-599-045	APPROVED:	BRIDGE NO. 58559
	SHEET NO. 6 OF 36 SHEETS					

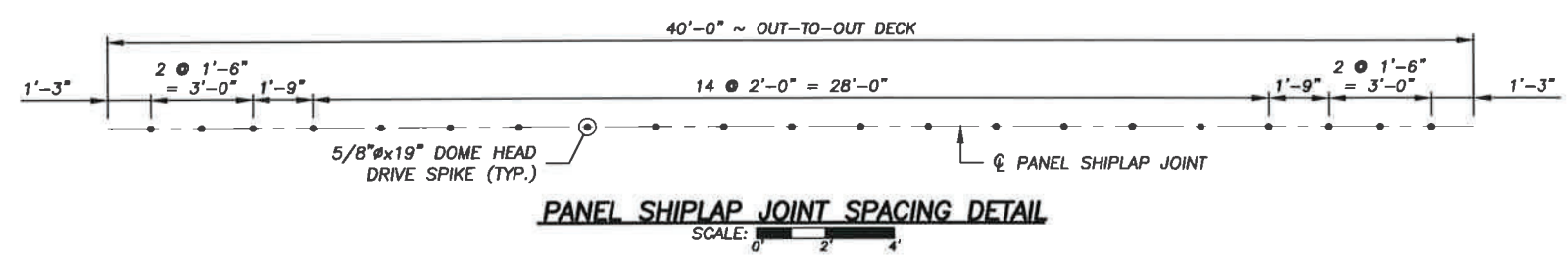


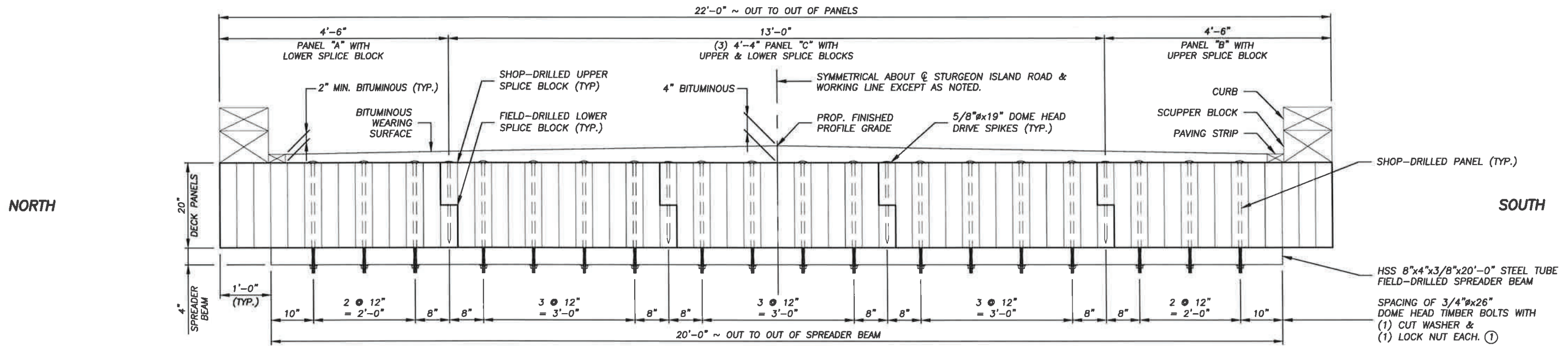
**KEY NOTES:**  
 (1) PRE-DRILL 5/16" HOLES FOR R.S. NAILS, 4" MIN. FROM TOP & BOTTOM OF FILLER BLOCK.

- CONSTRUCTION SEQUENCE:**
- PANEL "A" IS THE FIRST PANEL TO BE PLACED IN ITS FINAL LOCATION ON THE CAPS.
  - USING THE SHOP-DRILLED HOLES IN THE PANEL AS A GUIDE, DRILL THRU PANEL "A" AND INTO THE CAPS AT THE LOCATIONS SHOWN (SEE "TRANSVERSE SECTION AT ABUTMENT" FOR DETAILS) AND INSTALL THE 3/4" ANCHOR ROD & EPOXY PER THE MANUFACTURER'S INSTRUCTIONS.
  - PLACE PANEL "C" SO ITS UPPER SPLICE BLOCK IS OVER THE LOWER SPLICE BLOCK ON PANEL "A" AND DRAW TIGHT TOGETHER WITH MINIMUM 3 TON LEVER HOIST.
  - USING THE SHOP-DRILLED HOLES IN THE UPPER SPLICE BLOCK ON PANEL "C" AS A GUIDE, DRILL HOLES IN THE LOWER SPLICE BLOCK ON PANEL "A" AND DRIVE THE 5/8" DOME HEAD DRIVE SPIKES. HOLES DRILLED IN LOWER SPLICE BLOCK OF EACH PANEL ARE TO BE DRILLED COMPLETELY THROUGH THE BLOCK TO PREVENT SPLITTING WHEN INSTALLING THE 5/8" DRIVE SPIKES.
  - USING THE SHOP-DRILLED HOLES IN THE PANEL AS A GUIDE, DRILL THRU THE PANEL AND INTO THE ABUTMENT CAP AT THE LOCATIONS SHOWN (SEE "TRANSVERSE SECTION AT ABUTMENT" FOR DETAILS) AND INSTALL THE 3/4" ANCHOR ROD & EPOXY PER THE MANUFACTURER'S INSTRUCTIONS.
  - REPEAT STEPS 3-5 FOR REMAINING "C" PANELS AND THE "B" PANEL.

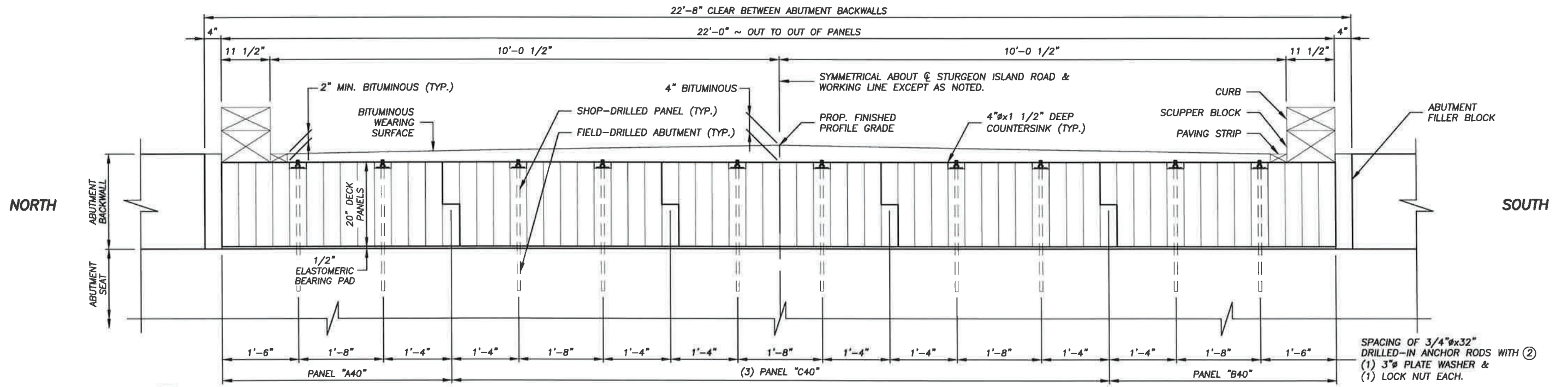
**NOTES:**  
 BOLT PROJECTIONS EXCEEDING 1" SHALL BE CUT OFF. REPAIR END OF BOLT BY PAINTING WITH AN APPROVED ZINC RICH PRIMER.  
 HOLES DRILLED FOR DOME HEAD DRIVE SPIKES ARE TO BE 1/16" DIA. SMALLER THAN SPIKE SIZE.  
 HOLES DRILLED FOR BOLTS ARE TO BE 1/16" DIA. LARGER THAN BOLT SIZE.  
 HOLES DRILLED FOR 3/4" LAG BOLTS ARE TO BE 9/16" IN DIAMETER FOR THE THREADED PORTION OF THE BOLT AND 13/16" DIAMETER FOR THE SHANK.

☒ DENOTES RAIL SPLICE POST

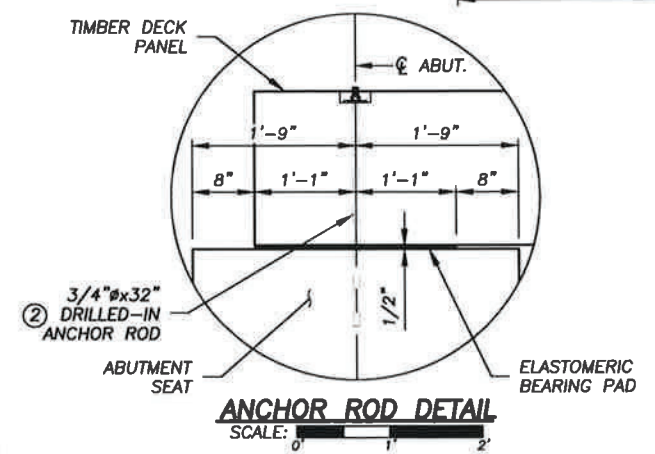




**TRANSVERSE SECTION AT SPREADER BEAM**  
SCALE: 0 1 2'



**TRANSVERSE SECTION AT ABUTMENT**  
SCALE: 0 1 2'



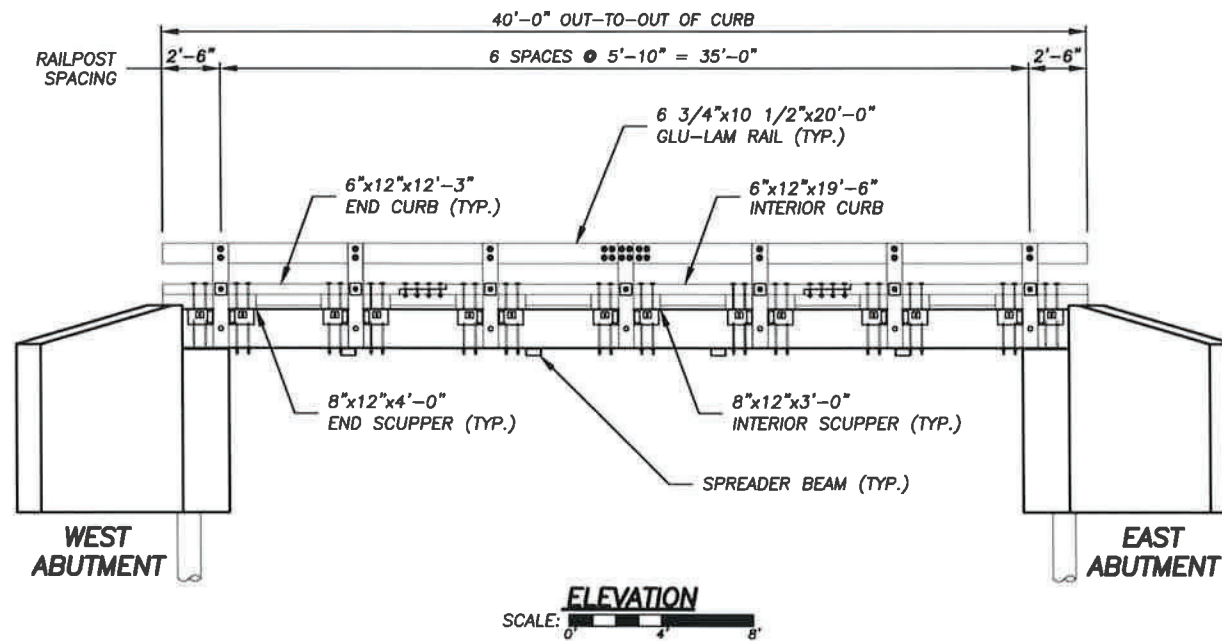
**SPREADER BEAM NOTES:**

DECK PANELS SHALL BE SHOP-DRILLED AS SHOWN UNLESS NOTED OTHERWISE.  
SPREADER BEAMS ARE FIELD-DRILLED USING THE SHOP-DRILLED HOLES IN THE DECK PANELS AS A GUIDE.

**KEY NOTES:**

- ① EYEBOLTS FOR LIFTING SHALL NOT COINCIDE WITH SPREADER BEAM HOLES. EYEBOLT HOLES SHALL BE PLUGGED WITH 3/4" TREATED DOWELS AFTER PANELS ARE LIFTED INTO PLACE.
- ② ANCHOR RODS SHALL HAVE A MINIMUM EMBEDMENT DEPTH OF 10". CUT TOP OF RODS FLUSH WITH TOP OF DECK AFTER INSTALLATION.





BILL OF TREATED TIMBER ~ SUPERSTRUCTURE					
ITEM	QTY.	FINISH	SIZE	LENGTH	F.B.M.
PAVING STRIP	8	RGH	2x4	10'-0"	54
① SPACER BLOCK	14	S1S	6x8	10 1/2"	49
RAIL POST	14	RGH	8x8	4'-6"	336
② CURB ~ END	4	S1S1E	6x12	12'-3"	294
② CURB ~ INTERIOR	2	S1S1E	6x12	19'-6"	234
③ SCUPPER BLOCK ~ END	4	S1S1E	8x12	4'-0"	128
③ SCUPPER BLOCK ~ INTERIOR	10	S1S1E	8x12	3'-0"	240
④ ABUTMENT FILLER BLOCK	4	RGH	4x14	1'-10 1/2"	35
TOTAL TREATED TIMBER (F.B.M.)					1,370
					M.B.M. 1,370

BILL OF STRUCTURAL STEEL (3306) ~ SUPERSTRUCTURE					
ITEM	QTY.	SIZE	LENGTH	WEIGHT EACH	TOTAL WEIGHT
CURB PROTECTION PLATE	4	3/8"x1'-0"	2'-6 1/4"	40.92	164
RAIL SPLICE PLATE	2	1/2"x10 1/2"	2'-1"	39.45	79
INTERNAL STEEL PLATE	14	3/4"x6"	2'-6"	40.58	568
LEFT POST PLATE ASSEMBLY (WITH ∠ 3"x3"x3/8"x6" ANGLE)	14	3/4"x8"	1'-1"	27.05	379
RIGHT POST PLATE ASSEMBLY (WITH ∠ 3"x3"x3/8"x6" ANGLE)	14	3/4"x8"	1'-1"	27.05	379
POST PLATE WASHER	28	1/2"x3"	4"	1.80	51
TOTAL STRUCTURAL STEEL (3306) (POUNDS)					1,620

BILL OF HARDWARE ~ SUPERSTRUCTURE				
ITEM	LOCATION	QTY.	WEIGHT EACH	TOTAL WEIGHT
5/8" x 7" DOME HEAD DRIVE SPIKE	CURB PROTECTION	16	0.88	14
5/8" x 19" DOME HEAD DRIVE SPIKE	PANEL SHIPLAP JOINT	84	1.84	155
3/4" x 16" DOME HEAD DRIVE SPIKE	POST TO PANEL	14	2.17	31
3/4" x 32" DOME HEAD DRIVE SPIKE	CURB TO PANEL	8	4.09	33
5/8" x 22" DOME HEAD TIMBER BOLT	RAIL TO POST	32	2.33	75
3/4" x 8" DOME HEAD TIMBER BOLT	CURB SPLICE	16	1.84	30
3/4" x 26" DOME HEAD TIMBER BOLT	SPREADER BEAM	72	3.42	247
3/4" x 36" DOME HEAD TIMBER BOLT	CURB TO PANEL	48	4.67	225
7/8" x 9" DOME HEAD TIMBER BOLT	RAIL SPLICE	16	2.10	34
⑤ 3/4" x 32" DRILLED-IN ANCHOR ROD	PANEL TO ABUT	20	3.92	79
1 1/4" x 22" DOME HEAD BOLT	POST TO CURB	14	8.17	115
5/8" M.I. WASHER	RAIL TO POST	32	0.32	11
3/4" M.I. WASHER	CURB SPLICE	16	0.42	7
3/4" M.I. WASHER	CURB TO PANEL	48	0.42	20
7/8" M.I. WASHER	RAIL SPLICE	16	0.55	9
3/4" CUT WASHER	SPREADER BEAM	72	0.11	8
3" x 1/4" PLATE WASHER	ANCHOR ROD	20	0.46	10
5 1/2" x 5 1/2" x 1/4" PLATE WASHER	POST TO CURB	14	2.27	32
6" x 6" x 1/4" PLATE WASHER	POST TO CURB	14	2.70	38
5/8" HEAVY HEX NUT		32	0.10	4
3/4" LOCK NUT		156	0.20	32
7/8" HEAVY HEX NUT		16	0.30	5
1 1/4" HEAVY HEX NUT		14	0.79	11
20d NAILS	PAVING STRIP	128	31/8"	5
3/8" x 11" R.S. NAILS	FILLER BLOCK	8	0.34	3
4" SPLIT RING CONNECTOR	SCUPPER BLOCK	112	0.68	76
5/8" x 52" A722 THREADED BAR	POST TO PANEL	28	3.65	103
5/8" A519 FULL LOAD HEX NUT	POST TO PANEL	56	0.15	9
TOTAL HARDWARE (POUNDS)				1,421

BILL OF GLU-LAM RAILING ~ SUPERSTRUCTURE			
ITEM	QTY.	SIZE	LENGTH
RAIL	4	6 3/4" x 10 1/2"	20'-0"
TOTAL GLU-LAM RAILING (LIN. FT.)			80

BILL OF STRUCTURAL STEEL (3309) ~ SUPERSTRUCTURE					
ITEM	QTY.	SIZE	LENGTH	WEIGHT EACH	TOTAL WEIGHT
SPREADER BEAM	4	HSS 8x4x3/8	20'-0"	549.60	2,199
TOTAL STRUCTURAL STEEL (3309) (POUNDS)					2,199

MISCELLANEOUS MATERIALS ~ SUPERSTRUCTURE			
ITEM	QTY.	SIZE	LENGTH
ELASTOMERIC BEARING PAD	2	1/2" x 26"	22'-0"

NOTE: BEARING PADS MAY BE PLACED IN SEGMENTS. 5 SEGMENTS MAXIMUM PER ABUTMENT.

**KEY NOTES:**

- S1S TO 4 3/4" x 8".
- S1S1E TO 5 1/2" x 11 1/2".
- S1S1E TO 7 1/2" x 11 1/2".
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL TREATED SHIMS REQUIRED FOR A TIGHT FIT AFTER FINAL INSTALLATION OF THE DECK PANELS.
- INCLUDES CHEMICAL ADHESIVE. SEE SPECIAL PROVISIONS. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

*Ronald L. Dokken*  
 CERTIFIED BY: PROFESSIONAL ENGINEER/RONALD L. DOKKEN  
 L.I.C. NO. 13931 9-9-2022

DES.: MWG  
 CHK.: JRJ  
 DRN.: NBB  
 CHK.: RDV  
**ERICKSON ENGINEERING**  
 WWW.ERICKSONENGINEERING.COM  
 952-929-6791

**SUPERSTRUCTURE**

S.A.P. 058-599-045

APPROVED:

SHEET NO. 9 OF 36 SHEETS

BRIDGE NO. 58559

TREATED TIMBER PER PANEL		
NO. REQD.	ITEM	M.B.M.
13	4" x 20" x 40'-0"	3.467
1	4" x 10" x 40'-0"	0.133
TOTAL M.B.M.		3.600

GALV. HARDWARE PER PANEL		
NO. REQD.	ITEM	WEIGHT
200	3/8" x 15" R.S. NAILS	100
69	3/8" x 11" R.S. NAILS	24
40	3/8" x 8" R.S. NAILS	11
TOTAL		135

**FABRICATION NOTES:**

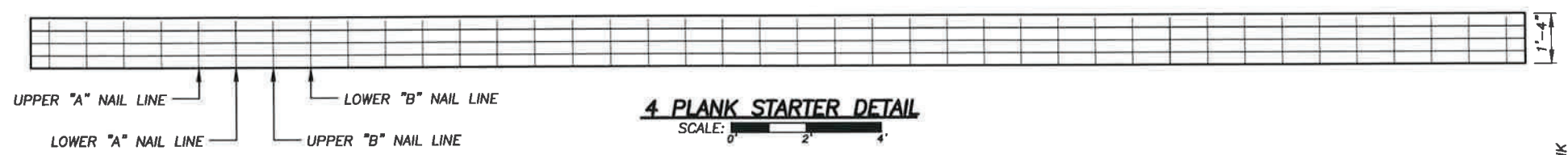
LAMINATE 4"x20" PLANKS USING 3/8"x15" & 3/8"x11" GALV. RING SHANK NAILS AS REQUIRED.

PLANKS TO BE PRESSURE TREATED AS PER SPEC. 3491 AND THE SPECIAL PROVISIONS.

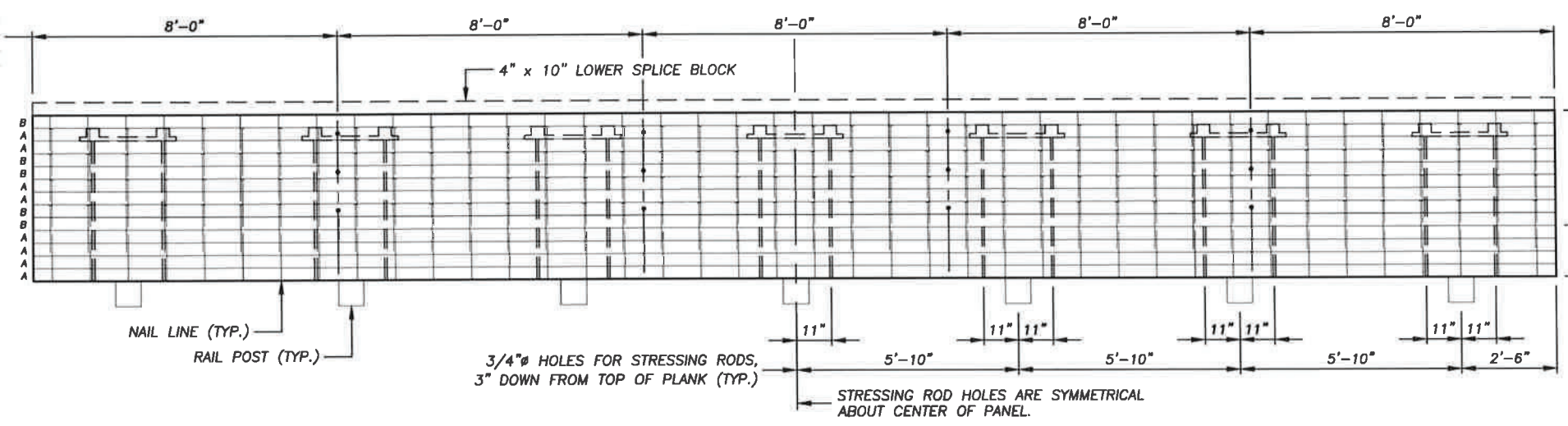
**CONSTRUCTION SEQUENCE:**

1. ALL PLANKS ARE SURFACED ONE SIDE SO THAT THE UNITS WILL BE 4'-4" WIDE AFTER FABRICATING THE PANELS.
2. PLANKS ARE TO BE PREBORED AS PER DETAILS BEFORE BEING TREATED. DRILL 13/16" HOLES FOR PLACING 3/4" EYEBOLTS FOR HANDLING AND FOR FASTENING 3/4" SPREADER BEAM BOLTS.
3. FIRST FABRICATE 4 PLANK STARTER USING 4 "A" PLANKS AS SHOWN.
4. ADD 2 "B" PLANK ALTERNATING WITH 2 "A" PLANK & ADDITIONAL PLANK AS REQUIRED TO MAKE A 4'-4" WIDE PANEL. SET RING SHANK NAILS IN POSITION IN PREBORED HOLES OF 2 PLANK UNITS OR SINGLE PLANK. MECHANICAL PRESS TO BE USED TO DRIVE THE NAILS SO PLANKS ARE DRIVEN TIGHT TOGETHER TO MAKE DIMENSIONS OF 4'-4" WIDE UNITS.
5. ATTACH THE 4" x 10" PLANK AS SHOWN (DEPENDING ON THE PANEL TYPE) TO PANEL USING 11" GALV. RING SHANK NAILS.

- ① LOCATION OF 13/16" HOLES FOR 3/4" SPREADER BEAM BOLTS. SEE SUPERSTRUCTURE DETAILS FOR SPACING.
- ② 3/8"x11" NAILS LAST 3 PLANKS FOR 4'-4" PANEL.

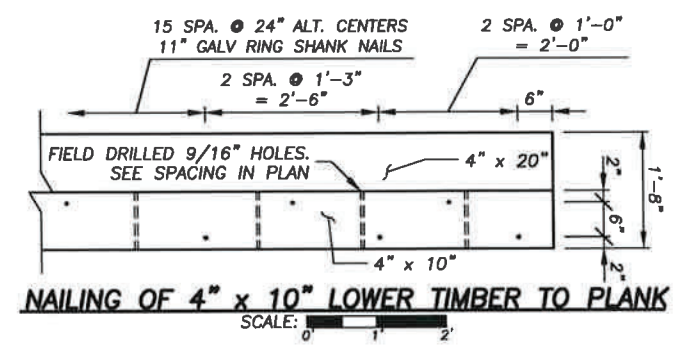
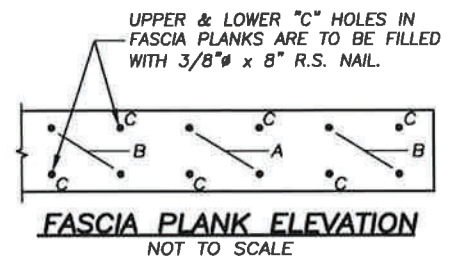
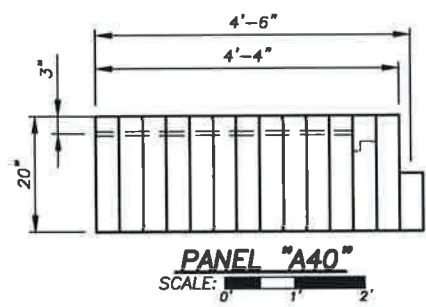
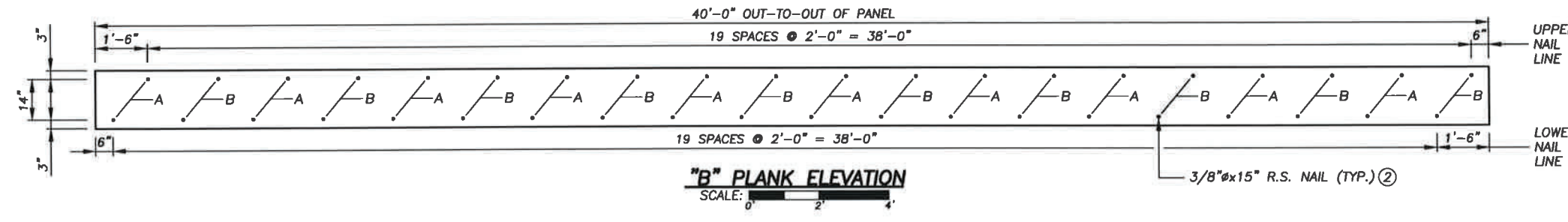
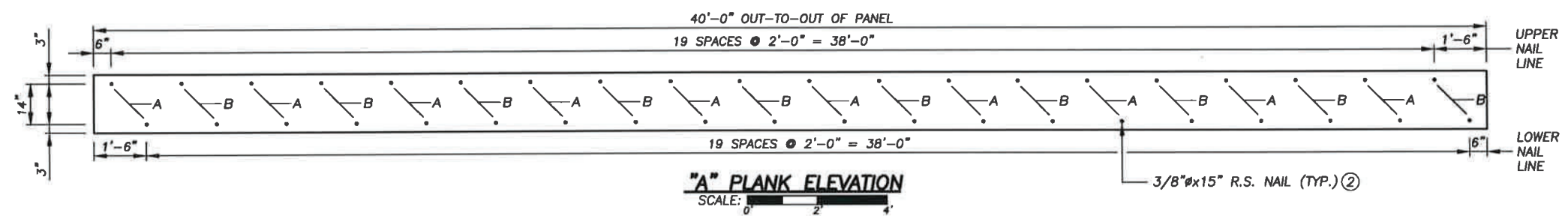


SHOP DRILLED 13/16" HOLES FOR SPREADER BEAM BOLTS



4 LINES OF 2-PLANK TO UNITS PLUS 1 PLANK TO BE NAILED AS INDICATED TO MAKE A 4'-4" PANEL.

**PLAN**  
SCALE: 0 2 4  
(RAIL POSTS SHOWN FOR CLARITY)



DES.: MWG  
CHK.: JRJ  
DRN.: NBB  
CHK.: RDV

CERTIFIED BY: PROFESSIONAL ENGINEER/RONALD L. DOKKEN  
LIC. NO. 13931 9-9-2022

ERICKSON ENGINEERING  
WWW.ERICKSONENGINEERING.COM  
952-929-6791

SUPERSTRUCTURE DETAILS  
"A" PANELS

S.A.P. 058-599-045  
SHEET NO. 10 OF 36 SHEETS

APPROVED:  
BRIDGE NO. 58559

TREATED TIMBER PER PANEL		
NO. REQD.	ITEM	M.B.M.
13	4" x 20" x 40'-0"	3.467
1	4" x 10" x 40'-0"	0.133
TOTAL M.B.M.		3.600

GALV. HARDWARE PER PANEL		
NO. REQD.	ITEM	WEIGHT
200	3/8" x 15" R.S. NAILS	100
69	3/8" x 11" R.S. NAILS	24
40	3/8" x 8" R.S. NAILS	11
TOTAL		135

**FABRICATION NOTES:**

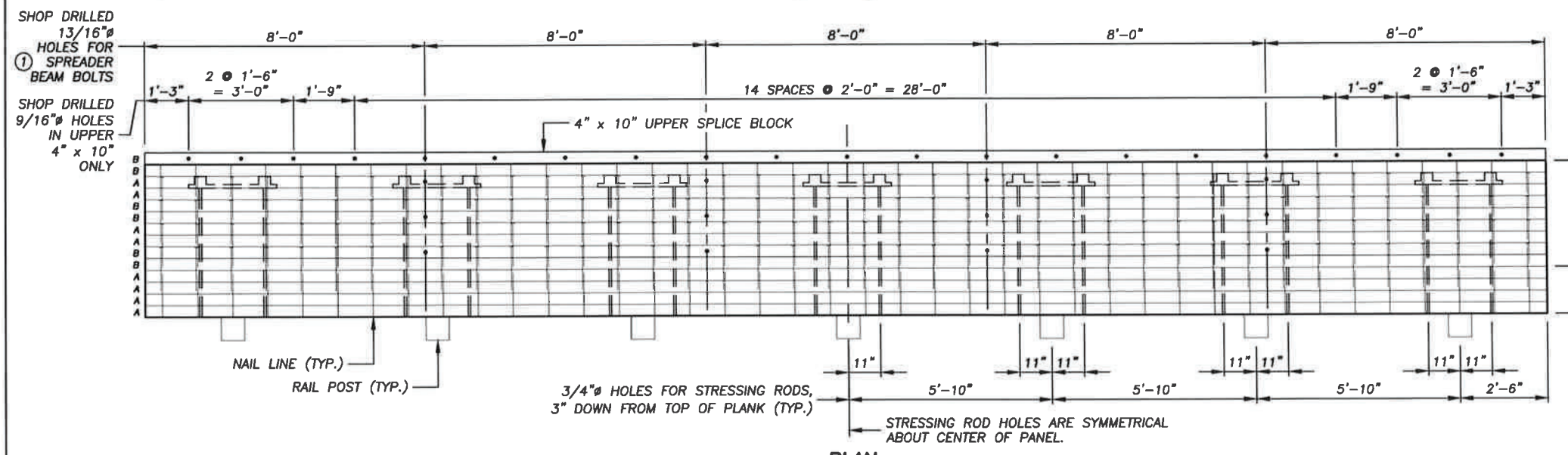
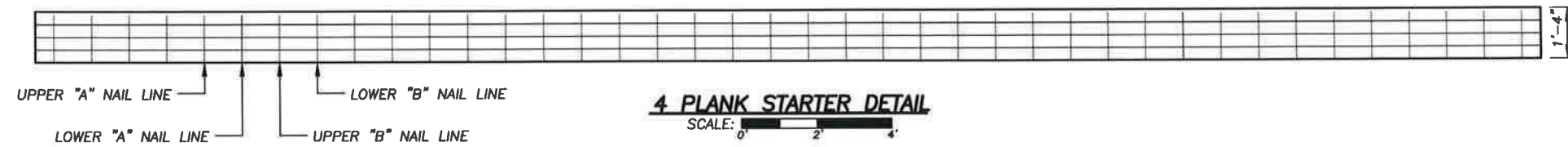
LAMINATE 4"x20" PLANKS USING 3/8"x15" & 3/8"x11" GALV. RING SHANK NAILS AS REQUIRED.

PLANKS TO BE PRESSURE TREATED AS PER SPEC. 3491 AND THE SPECIAL PROVISIONS.

**CONSTRUCTION SEQUENCE:**

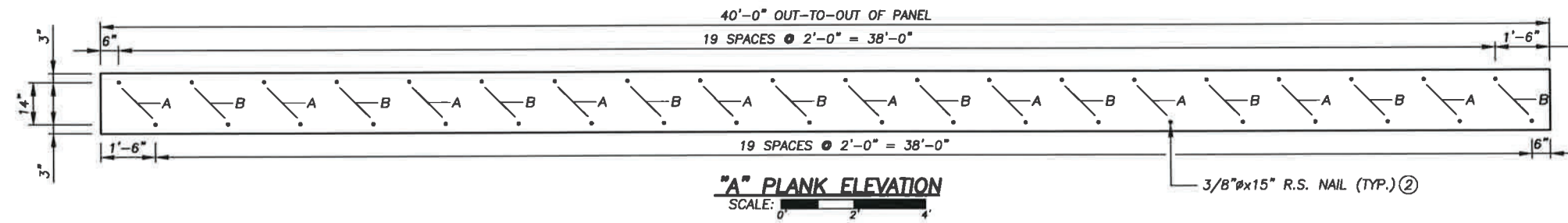
1. ALL PLANKS ARE SURFACED ONE SIDE SO THAT THE UNITS WILL BE 4'-4" WIDE AFTER FABRICATING THE PANELS.
2. PLANKS ARE TO BE PREBORED AS PER DETAILS BEFORE BEING TREATED. DRILL 13/16" HOLES FOR PLACING 3/4" EYEBOLTS FOR HANDLING AND FOR FASTENING 3/4" SPREADER BEAM BOLTS.
3. FIRST FABRICATE 4 PLANK STARTER USING 4 "A" PLANKS AS SHOWN.
4. ADD 2 "B" PLANK ALTERNATING WITH 2 "A" PLANK & ADDITIONAL PLANK AS REQUIRED TO MAKE A 4'-4" WIDE PANEL. SET RING SHANK NAILS IN POSITION IN PREBORED HOLES OF 2 PLANK UNITS OR SINGLE PLANK. MECHANICAL PRESS TO BE USED TO DRIVE THE NAILS SO PLANKS ARE DRIVEN TIGHT TOGETHER TO MAKE DIMENSIONS OF 4'-4" WIDE UNITS.
5. ATTACH THE 4" x 10" PLANK AS SHOWN (DEPENDING ON THE PANEL TYPE) TO PANEL USING 11" GALV. RING SHANK NAILS.

- ① LOCATION OF 13/16" HOLES FOR 3/4" SPREADER BEAM BOLTS. SEE SUPERSTRUCTURE DETAILS FOR SPACING.
- ② 3/8" x 11" NAILS LAST 3 PLANKS FOR 4'-4" PANEL.

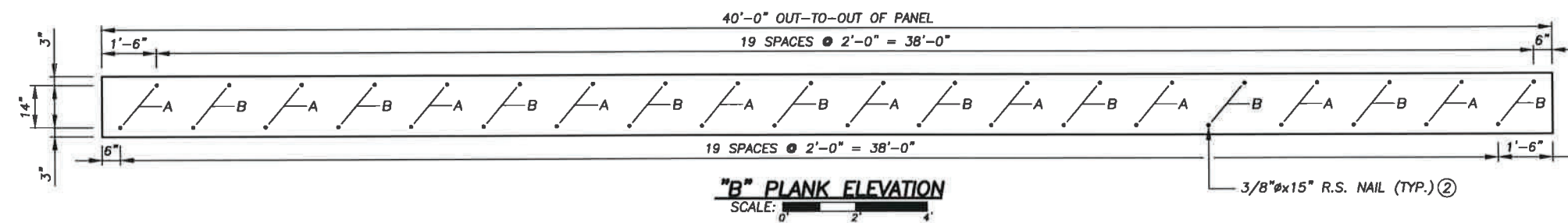


4 LINES OF 2-PLANK TO UNITS PLUS 1 PLANK TO BE NAILED AS INDICATED TO MAKE A 4'-4" PANEL.

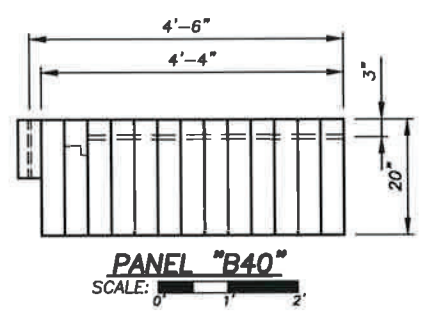
**PLAN**  
SCALE: 0 2 4  
(RAIL POSTS SHOWN FOR CLARITY)



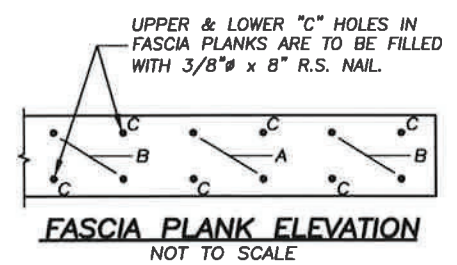
**"A" PLANK ELEVATION**  
SCALE: 0 2 4



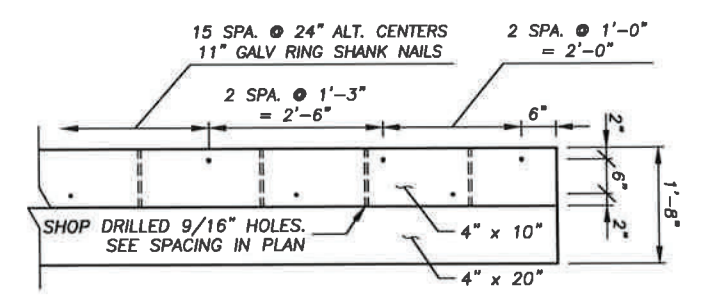
**"B" PLANK ELEVATION**  
SCALE: 0 2 4



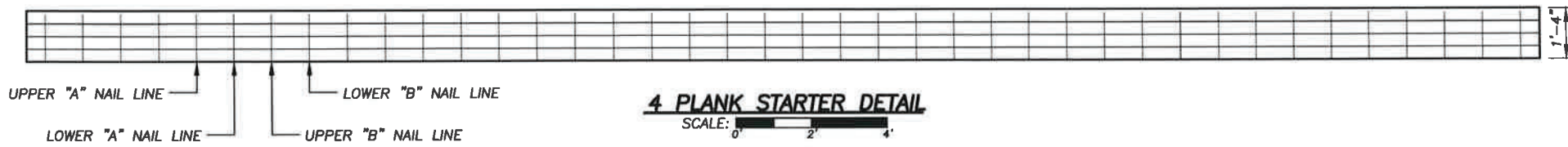
**PANEL "B40"**  
SCALE: 0 1 2



**FASCIA PLANK ELEVATION**  
NOT TO SCALE



**NAILING OF 4" x 10" UPPER TIMBER TO PLANK**  
SCALE: 0 1 2

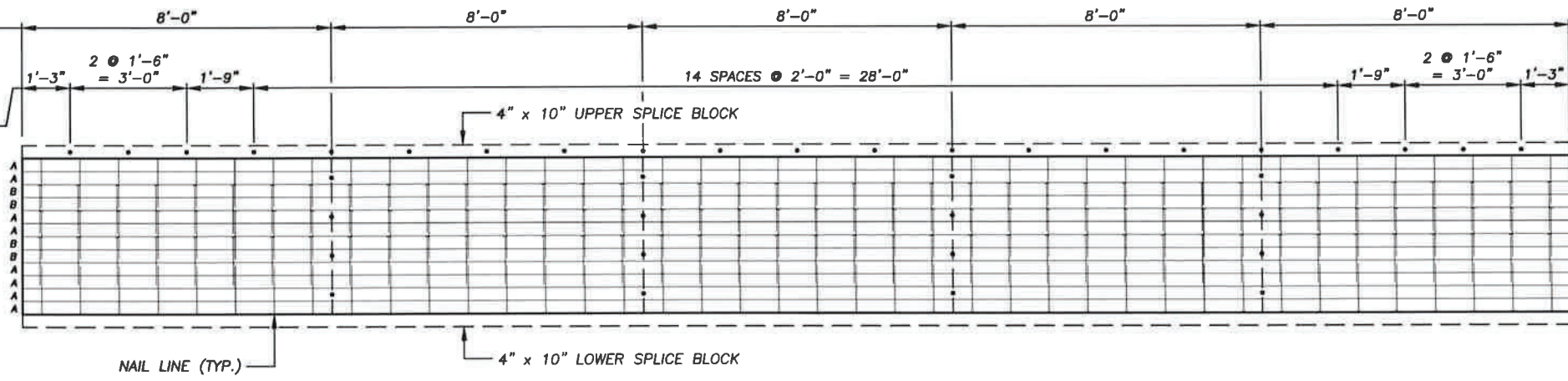


TREATED TIMBER PER PANEL		
NO. REQD.	ITEM	M.B.M.
12	4" x 20" x 40'-0"	3.200
2	4" x 10" x 40'-0"	0.267
TOTAL M.B.M.		3.467

GALV. HARDWARE PER PANEL		
NO. REQD.	ITEM	WEIGHT
200	3/8" x 15" R.S. NAILS	100
58	3/8" x 11" R.S. NAILS	20
TOTAL		120

SHOP DRILLED  
13/16" Ø  
HOLES FOR  
SPREADER  
BEAM BOLTS  
①

9/16" Ø HOLES  
IN UPPER  
4" x 10"  
② ONLY



**FABRICATION NOTES:**

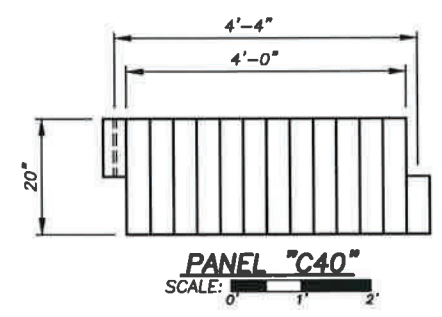
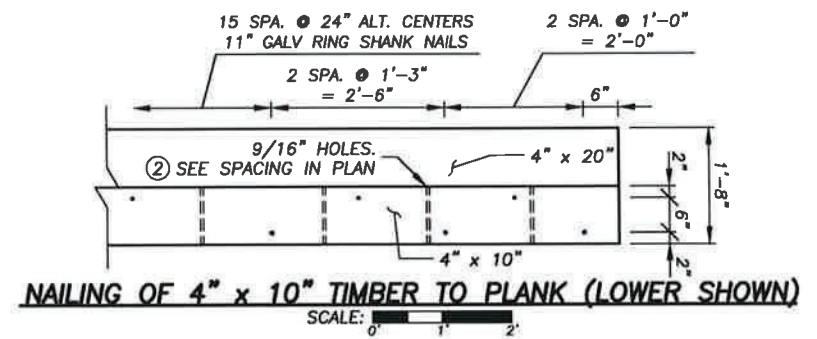
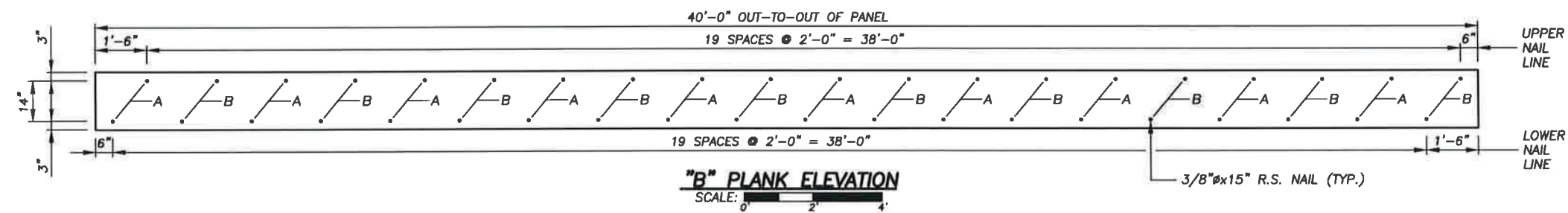
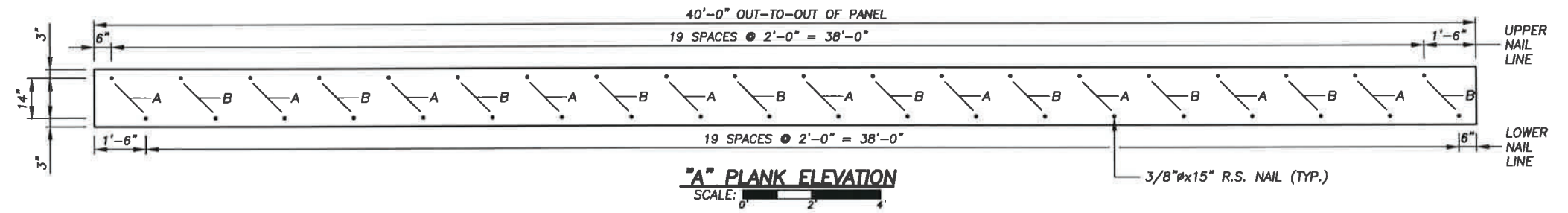
LAMINATE 4"x20" PLANKS USING 3/8"x15" & 3/8"x11" GALV. RING SHANK NAILS AS REQUIRED.

PLANKS TO BE PRESSURE TREATED AS PER SPEC. 3491 AND THE SPECIAL PROVISIONS.

**CONSTRUCTION SEQUENCE:**

1. ALL PLANKS ARE SURFACED ONE SIDE SO THAT THE UNITS WILL BE 4'-0" WIDE AFTER FABRICATING THE PANELS.
2. PLANKS ARE TO BE PREBORED AS PER DETAILS BEFORE BEING TREATED. DRILL 13/16" Ø HOLES FOR PLACING 3/4" Ø EYEBOLTS FOR HANDLING AND FOR FASTENING 3/4" Ø SPREADER BEAM BOLTS.
3. FIRST FABRICATE 4 PLANK STARTER USING 4 "A" PLANKS AS SHOWN.
4. ADD 2 "B" PLANK ALTERNATING WITH 2 "A" PLANK & ADDITIONAL PLANK AS REQUIRED TO MAKE A 4'-0" WIDE PANEL. SET RING SHANK NAILS IN POSITION IN PREBORED HOLES OF 2 PLANK UNITS OR SINGLE PLANK. MECHANICAL PRESS TO BE USED TO DRIVE THE NAILS SO PLANKS ARE DRIVEN TIGHT TOGETHER TO MAKE DIMENSIONS OF 4'-0" WIDE UNITS.
5. ATTACH THE 4" x 10" PLANKS AS SHOWN (DEPENDING ON THE PANEL TYPE) TO PANEL USING 11" GALV. RING SHANK NAILS.

- ① LOCATION OF 13/16" Ø HOLES FOR 3/4" Ø SPREADER BEAM BOLTS. SEE SUPERSTRUCTURE DETAILS FOR SPACING.
- ② UPPER END PLANK TO BE SHOP DRILLED. LOWER END PLANK TO BE FIELD DRILLED



DES.: MWG  
CHK.: JRJ  
DRN.: NBB  
CHK.: RDV

CERTIFIED BY: PROFESSIONAL ENGINEER/RONALD L. DOKKEN  
LIC. NO. 13931 9-9-2022

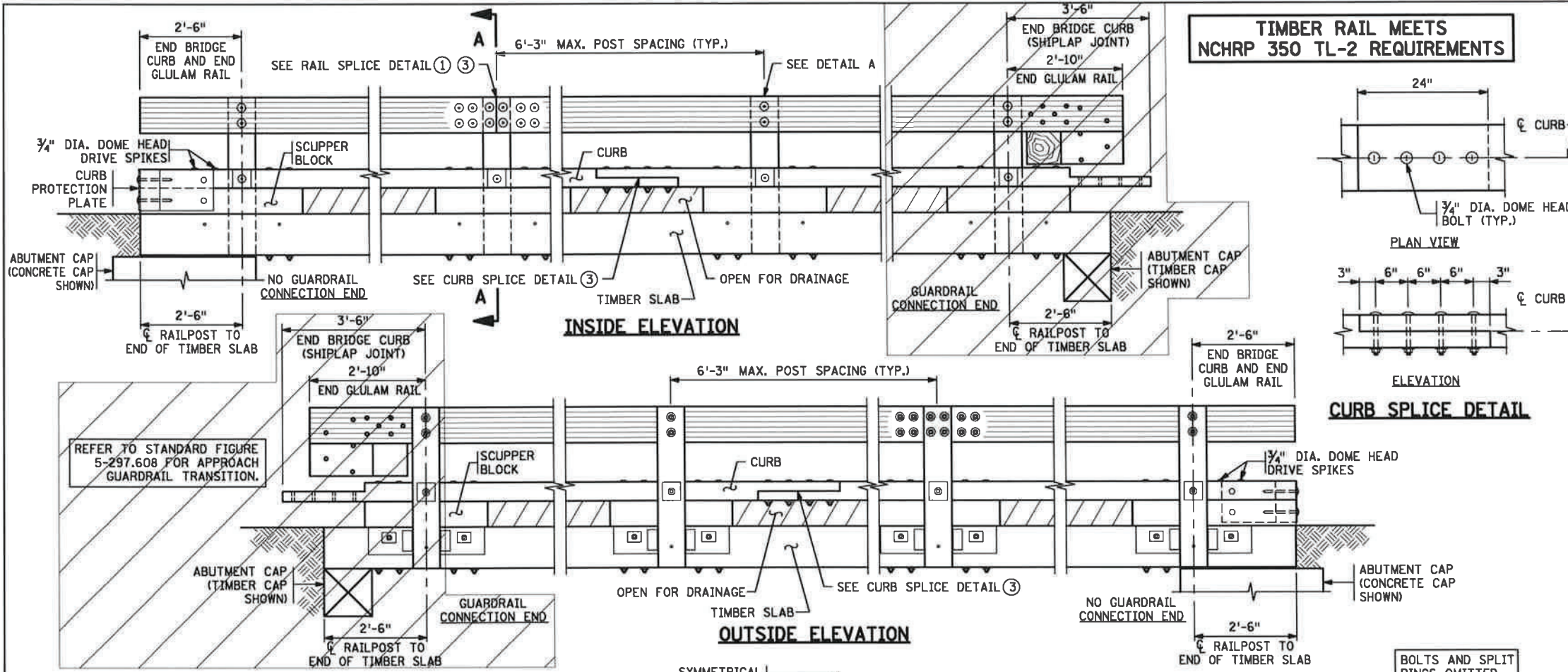
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952-929-6791

**SUPERSTRUCTURE DETAILS  
"C" PANELS**

S.A.P. 058-599-045  
SHEET NO. 12 OF 36 SHEETS

APPROVED:  
**BRIDGE NO. 58559**

**TIMBER RAIL MEETS  
NCHRP 350 TL-2 REQUIREMENTS**



**NOTES**

**MATERIALS**  
USE SAWN LUMBER AND GLUED LAMINATED (GLULAM) TIMBER IN ACCORDANCE WITH THE REQUIREMENTS OF SPEC. 3426 AND PRESSURE TREAT WITH WOOD PRESERVATIVE IN ACCORDANCE WITH SPEC. 3491.

PROVIDE BRIDGE GLULAM RAIL WITH HORIZONTALLY GLUED LAMINATED TIMBER; VISUALLY GRADED WESTERN SPECIES COMBINATION NO. 2 OR VISUALLY GRADED SOUTHERN PINE COMBINATION NO. 4B. OTHER SPECIES AND GRADES OF TIMBER MAY BE USED PROVIDED THAT THE MINIMUM TABULATED VALUES ARE NOT LESS THAN THE FOLLOWING:  
F<sub>b</sub> = 1,800 LB/IN<sup>2</sup> E = 1,800,000 LB/IN<sup>2</sup>.

USE POSTS, CURBS, SCUPPER BLOCKS, AND SPACER BLOCKS WITH SAWN LUMBER OR GLULAM TIMBER. WHEN SAWN LUMBER IS USED, USE VISUALLY GRADED NO. 1 SOUTHERN PINE OR VISUALLY GRADED NO. 1 DOUGLAS FIR LARCH.

PROVIDE STEEL PLATES AND SHAPES MEETING THE REQUIREMENTS OF SPEC. 3306.

PROVIDE BOLTS, NUTS AND WASHERS IN ACCORDANCE WITH SPEC. 3391.2. PROVIDE BOLTS FOR WOOD CONSTRUCTION IN ACCORDANCE WITH 3391.2.A "COMMON STRUCTURAL STEEL BOLTS". TORQUE BOLTS TO 50 FT-LBS. PROVIDE BOLTS WITH DOME HEADS ON TRAFFIC FACE OF RAIL. GALVANIZE BOLTS, NUTS, AND WASHERS IN ACCORDANCE WITH SPEC. 3392.

GALVANIZE PLATE WASHERS, STEEL PLATES AND SHAPES IN ACCORDANCE WITH SPEC. 3394.

PROVIDE SPLIT RINGS MANUFACTURED FROM AISI 1010 HOT ROLLED CARBON STEEL. PROVIDE MALLEABLE IRON SHEAR PLATES IN ACCORDANCE WITH ASTM A47 GRADE 32510.

**FABRICATION AND CONSTRUCTION**  
TO THE EXTENT POSSIBLE CUT, DRILL, AND COMPLETELY FABRICATE ALL WOOD PRIOR TO PRESSURE TREATMENT WITH PRESERVATIVES. WHEN FIELD FABRICATION OF WOOD IS REQUIRED OR IF WOOD IS DAMAGED, IMMEDIATELY FIELD TREAT ALL CUTS, BORE HOLES, AND DAMAGE WITH WOOD PRESERVATIVE IN ACCORDANCE WITH SPEC. 3491.

UNLESS NOTED, PROVIDE MALLEABLE IRON WASHERS UNDER BOLT HEADS AND UNDER NUTS THAT ARE IN CONTACT WITH WOOD. WHEN THE SIZE AND STRENGTH OF THE HEAD IS SUFFICIENT TO DEVELOP CONNECTION STRENGTH WITHOUT WOOD CRUSHING, WASHERS MAY BE OMITTED UNDER HEADS OF DOME-HEAD TIMBER BOLTS.

① DIMENSIONS GIVEN FOR GLULAM TIMBER RAIL ARE ACTUAL DIMENSIONS. THE DEPTH OF THE GLULAM TIMBER RAIL MAY BE INCREASED TO A MAXIMUM OF 10 3/4 IN. TO ALLOW FOR OTHER STANDARD GLULAM SIZES. IN SUCH CASES, MODIFY DETAIL DIMENSIONS ACCORDINGLY.

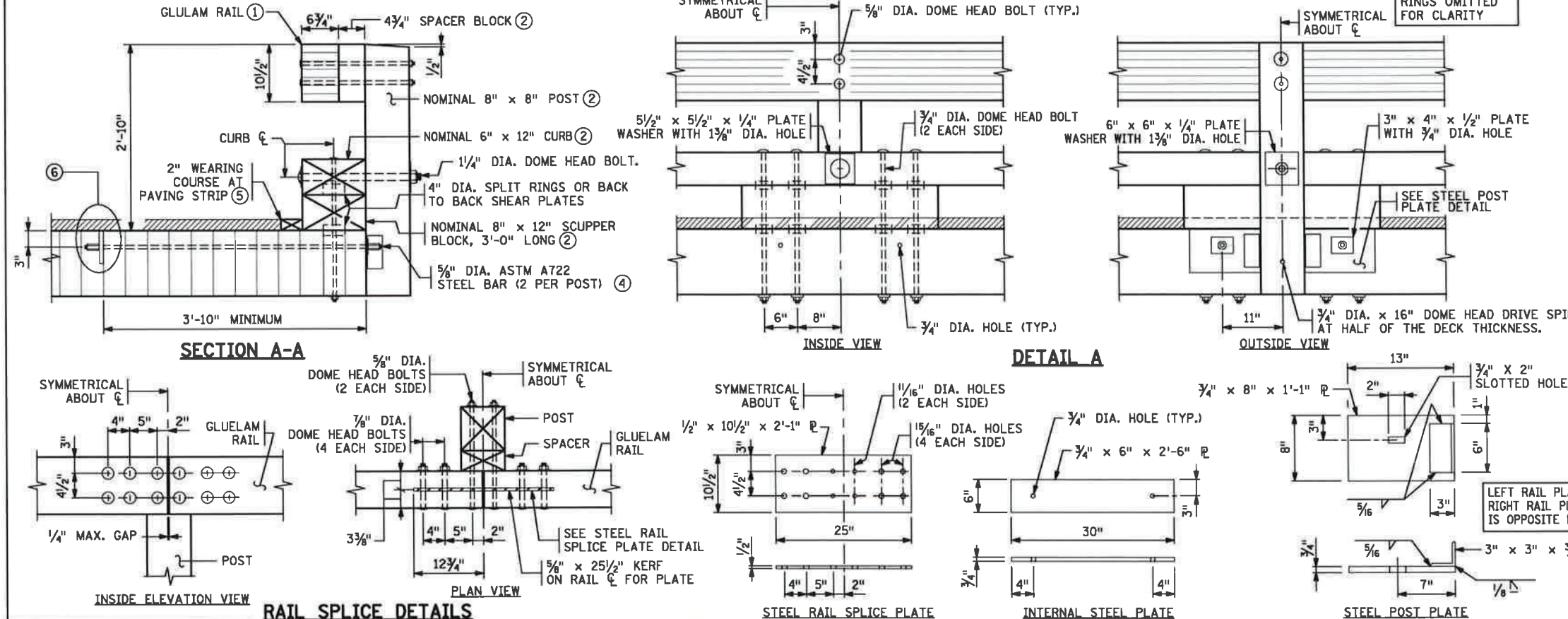
② DIMENSIONS FOR WOOD POSTS, CURBS, AND SCUPPER BLOCKS ARE GIVEN AS NOMINAL DIMENSIONS. ACTUAL DIMENSIONS MAY BE A MAXIMUM OF 1/2 IN. LESS THAN THE STATED NOMINAL DIMENSIONS DEPENDING ON MATERIAL SURFACING. DIMENSION FOR SPACER BLOCK DEPTH IS ACTUAL DIMENSION.

③ LOCATE CURB AND RAIL SPLICES SO THAT CURB AND RAIL MEMBERS ARE CONTINUOUS OVER AT LEAST 2 POSTS. LOCATE CURB SPLICES A MINIMUM OF 1.5 POST SPACINGS AWAY FROM RAIL SPLICES.

④ PROVIDE HIGH-STRENGTH STEEL THREADED BARS WITH PROPERTIES IN ACCORDANCE WITH ASTM A722 WITH FULL LOAD HEX NUT IN ACCORDANCE WITH ASTM A519 OR ASTM A108-81. GALVANIZE HIGH-STRENGTH STEEL THREADED BARS IN ACCORDANCE WITH ASTM A123 WITH PROCEDURES FOR DETECTING AND SAFEGUARDING AGAINST EMBRITTLEMENT IN ACCORDANCE PER ASTM A143.

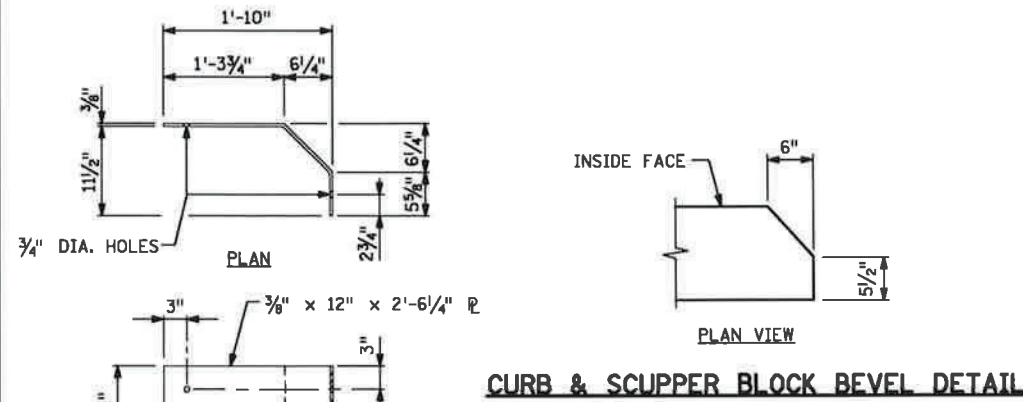
⑤ FASTEN 2X4 (ACTUAL DIMENSIONS) ROUGH SAWN PAVING STRIP TO SLAB WITH (2) 20d NAILS AT 18" CENTERS. PREDRILL HOLES IN PAVING STRIP TO AVOID SPLITTING.

⑥ SEE INTERNAL STEEL PLATE DETAIL. ROUT TO ACCEPT INTERNAL PLATE AND NUT/BAR EXTENSION. FILL ACCESS POCKET AT DECK ANCHORAGE LOCATIONS WITH NON-SHRINK GROUT FROM THE MNDOT APPROVED PRODUCTS LIST OR AN EPOXY APPROVED BY THE ENGINEER.



MODIFICATIONS:  
CONCRETE ABUTMENT SHOWN.  
CURB BOLTS AT ABUTMENT MODIFIED.

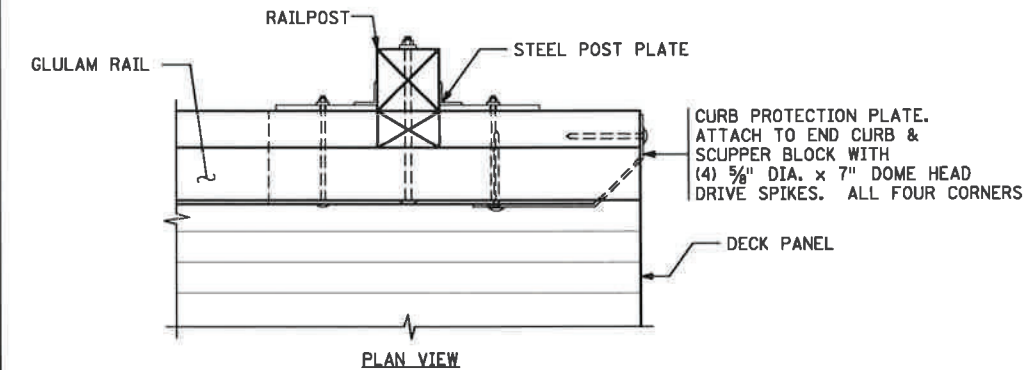
REVISION: APPROVED: APRIL 21, 2021 <i>Kevin Westcott</i> STATE BRIDGE ENGINEER	STANDARD SHEET NO.: 5-397.175 (1 OF 2) MODIFIED STANDARD APPROVED: APRIL 21, 2021	DES.: MWG CHK.: JRJ DRN.: NBB CHK.: RDV	ERICKSON ENGINEERING WWW.ERICKSONENGINEERING.COM 952-929-6791	<b>TL-2 GLULAM TIMBER RAIL (FOR TIMBER SLABS)</b>	S.A.P. 058-599-045 SHEET NO. 13 OF 36 SHEETS	APPROVED: BRIDGE NO. 58559
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**CURB & SCUPPER BLOCK BEVEL DETAIL**

**CURB PROTECTION PLATE**

3/8" x 12" x 2'-6 1/4"  
ALL HOLES ARE 3/4" DIA.

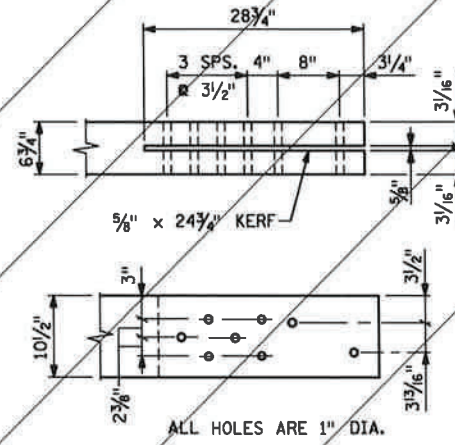


**RAILING TERMINATION DETAIL**

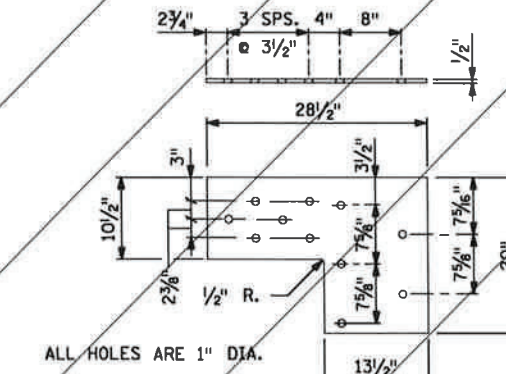
NO APPROACH GUARDRAIL

**WITHOUT GUARDRAIL CONNECTION**

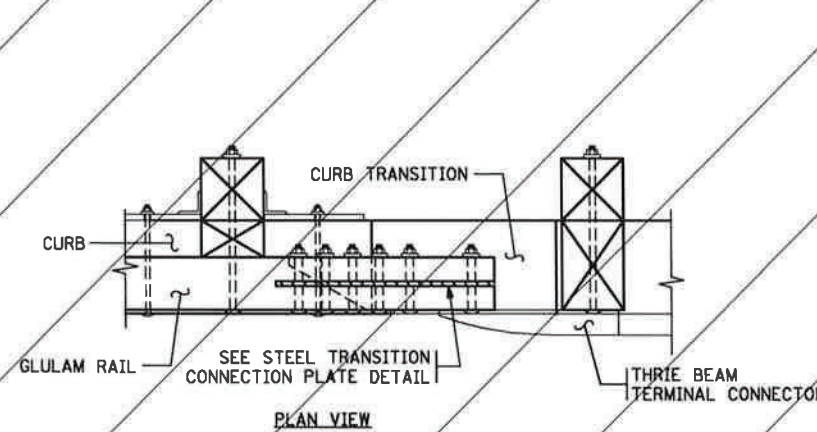
MODIFICATIONS:  
CONCRETE ABUTMENT SHOWN.  
CURB BOLTS AT ABUTMENT MODIFIED.



**TRANSITION GLULAM RAIL BORING DETAIL**

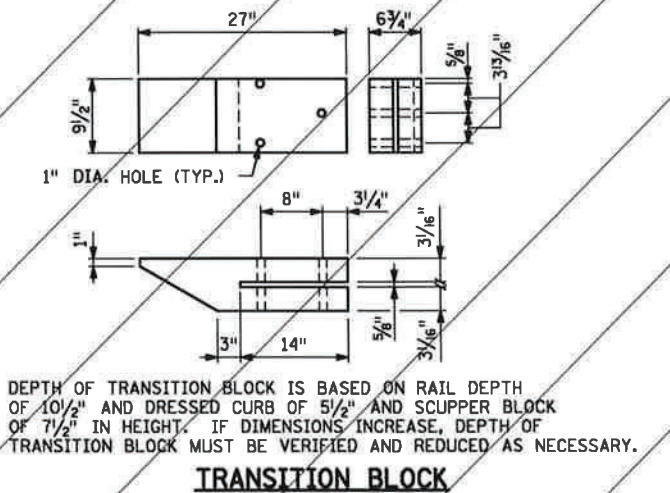


**STEEL TRANSITION CONNECTION PLATE**

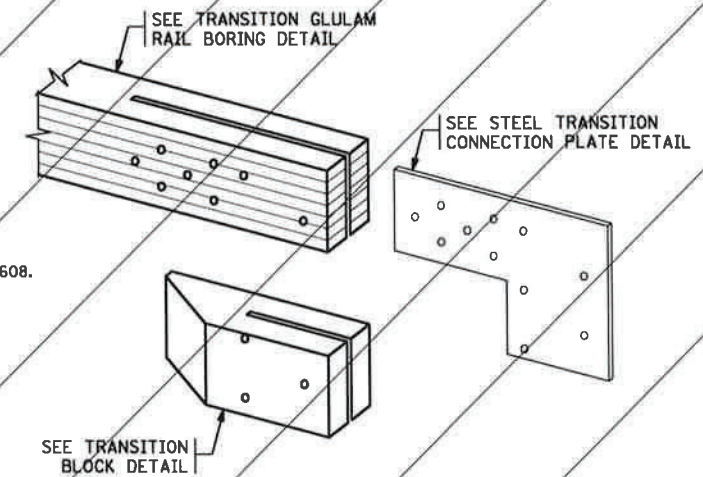


**TRANSITION CONNECTION DETAIL**

**WITH GUARDRAIL CONNECTION**



**TRANSITION BLOCK**



**ISOMETRIC VIEW OF TRANSITION CONNECTION**

REVISION:
APPROVED: APRIL 21, 2021 <i>Kevin Westman</i> STATE BRIDGE ENGINEER

STANDARD SHEET NO.: 5-397.175 (2 OF 2) MODIFIED
STANDARD APPROVED: APRIL 21, 2021

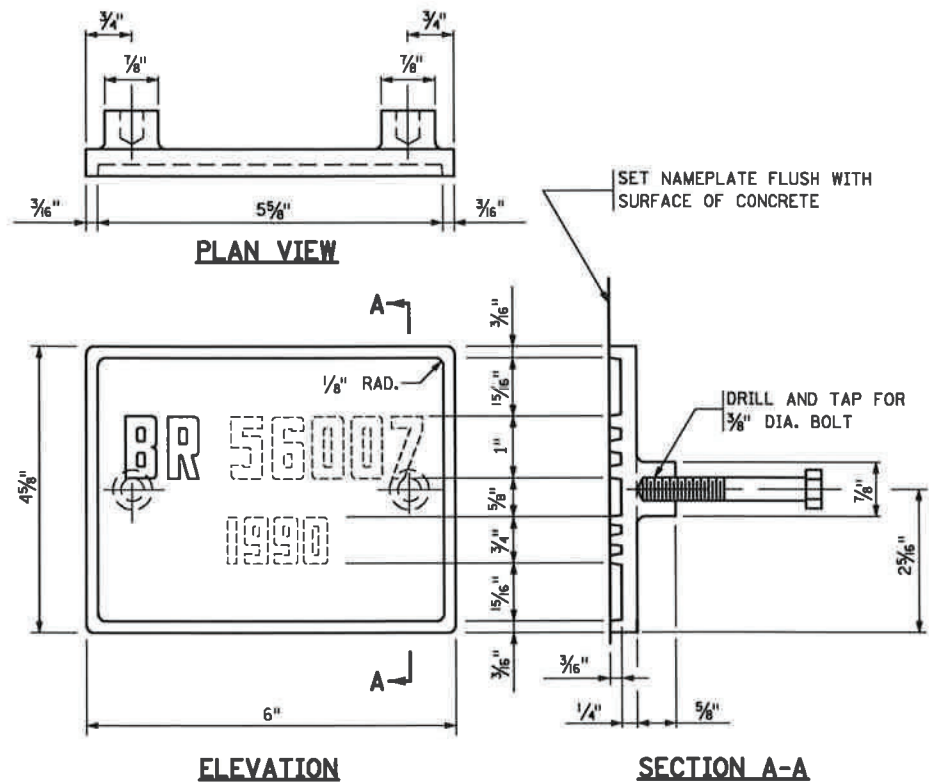
<i>Ronald L. Dokken</i> CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN LIC. NO. 13931 9-9-2022
DES.: MWG CHK.: JRJ DRN.: NBB CHK.: RDV

<b>ERICKSON ENGINEERING</b> WWW.ERICKSONENGINEERING.COM 952-929-6791
--

<b>TL-2 GLULAM TIMBER RAIL END TREATMENTS (FOR TIMBER SLABS)</b>
--

S.A.P. 058-599-045	APPROVED:
SHEET NO. 14 OF 36 SHEETS	

BRIDGE NO. 58559
---------------------



THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION. DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 58559  
 YEAR ①



**NOTES:**

- MATERIAL SHALL COMPLY WITH SPEC. 3327.
- LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.
- DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".
- HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
- TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.
- FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.
- ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.

① YEAR OF CONSTRUCTION.

APPROVED: NOVEMBER 22, 2002

*Daniel J. Morgan*  
 STATE BRIDGE ENGINEER

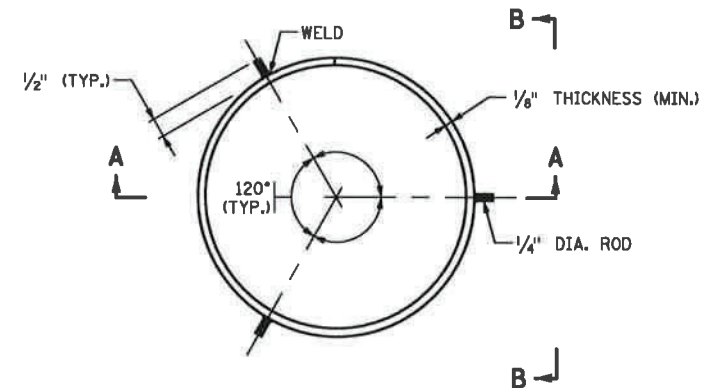
STATE OF MINNESOTA  
 DEPARTMENT OF TRANSPORTATION

**BRIDGE NAMEPLATE**  
 (FOR NEW BRIDGES)

REVISION  
 09-11-2014

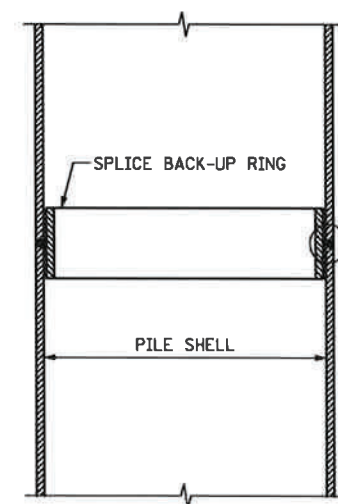
**DETAIL NO.**

**B101**

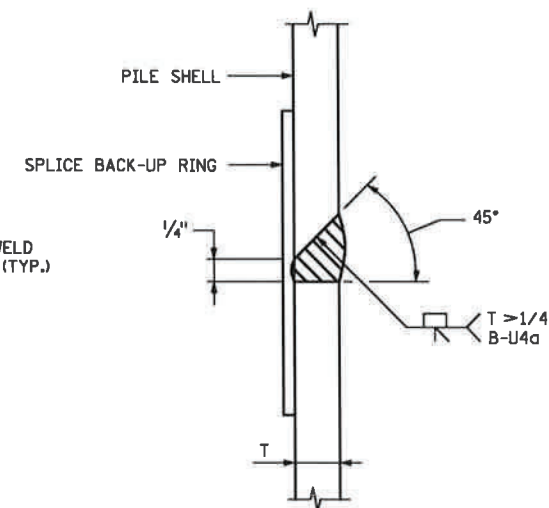


**PLAN VIEW - SPLICE BACK-UP RING**  
 PILE NOT SHOWN

**SECTION B-B**  
 PILE NOT SHOWN



**SECTION A-A**



**DETAIL "A" ①**

**NOTES:**

- APPROVED COMMERCIAL PILE SPLICE BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED, PROVIDED THAT 1/4" ROOT IS MAINTAINED. BACK-UP RING SHALL HAVE A TIGHT FIT.
- WELDING ELECTRODES SHALL BE CELLULOSIC TYPE ELECTRODES E-6010 OR E-6011.
- ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.
- WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0° F. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32° F., THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70° F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.

① FOR PILE SHELL THICKNESSES GREATER THAN 1/4", USE A B-U4a WELD CONFIGURATION. SEE DETAIL "A".

APPROVED: NOVEMBER 22, 2002

*Daniel J. Morgan*  
 STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
 DEPARTMENT OF TRANSPORTATION

**PILE SPLICE**

(CAST-IN-PLACE CONCRETE PILES)

REVISION:  
 11-06-2013

**DETAIL NO.**

**B201**

*Ronald L. Dokken*  
 CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN  
 LIC. NO. 13931 9-9-2022

DES.: MWG  
 CHK.: JRJ  
 DRN.: NBB  
 CHK.: RDV

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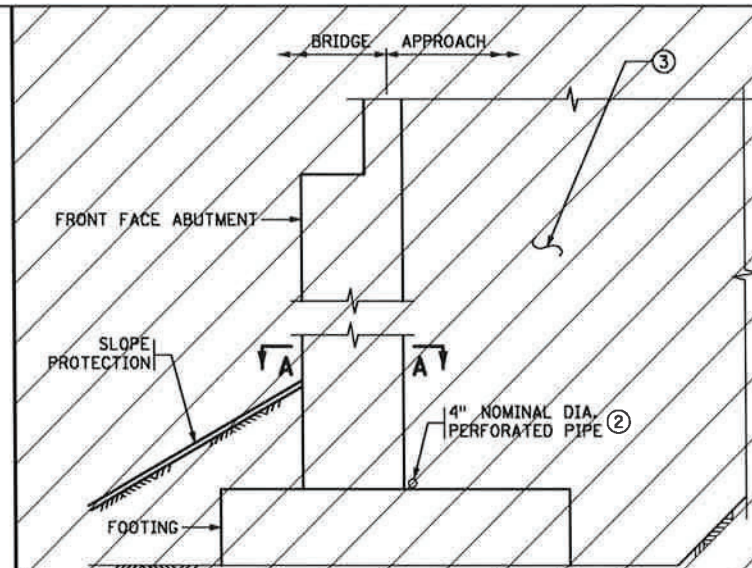
**MISC. BRIDGE DETAILS**

**S.A.P. 058-599-045**

APPROVED:

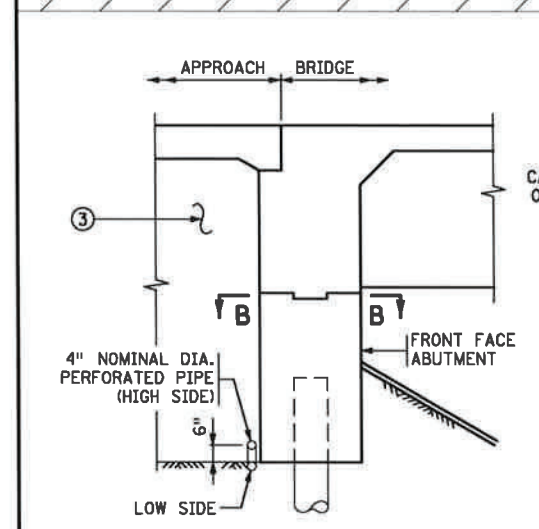
**SHEET NO. 15 OF 36 SHEETS**

**BRIDGE NO. 58559**

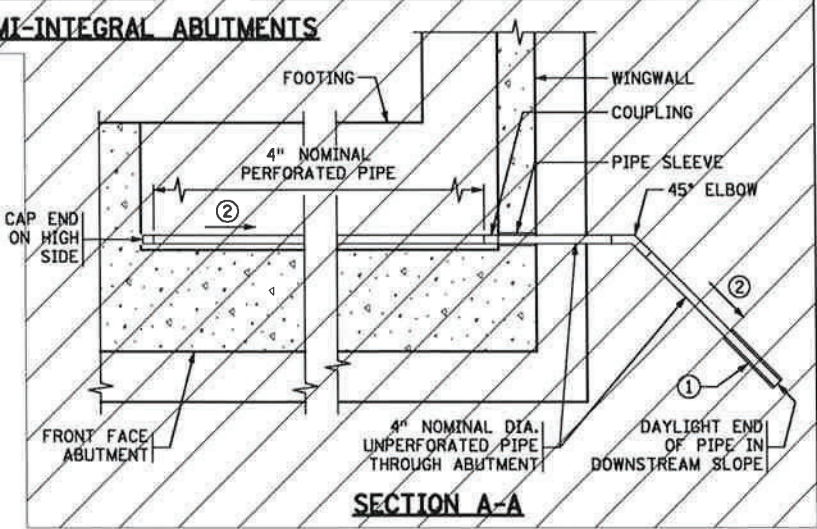


MODIFICATIONS:  
 PRECAST CONCRETE HEADWALL DAYLIGHTS  
 IN DOWNSTREAM SLOPE.  
 BENT WINGWALLS SHOWN.  
 SELECT GRANULAR BORROW INCLUDED IN  
 PRICE BID FOR "STRUCTURE EXCAVATION".

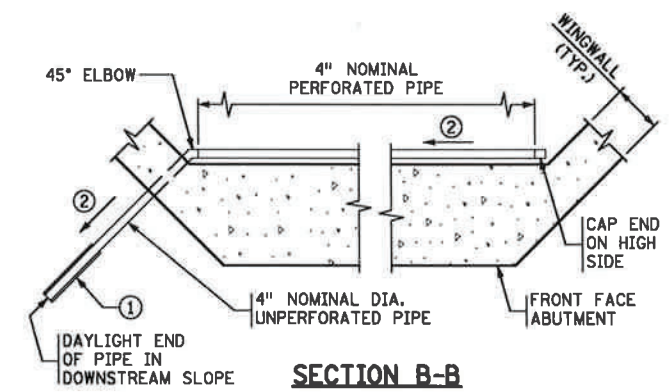
**SECTION THROUGH PARAPET AND SEMI-INTEGRAL ABUTMENTS**



**SECTION THROUGH INTEGRAL ABUTMENT**



**SECTION A-A**



**SECTION B-B**

- NOTES:**
- PAYMENT WILL BE INCLUDED IN THE SINGLE LUMP SUM PRICE FOR "DRAINAGE SYSTEM TYPE (B910)". INCLUDES BUT IS NOT LIMITED TO 4" DIA. PERFORATED AND UNPERFORATED PIPE, ELBOWS, END CAPS, COUPLINGS, SLEEVES AND PRECAST CONCRETE HEADWALLS.
  - ALL PIPE SHALL COMPLY WITH SPECIAL PROVISION 3245.2(6).
  - SLEEVE PERFORATED PIPE WITH GEOTEXTILE KNIT SOCK PER SPEC. 3733, TYPE 1. ATTACH TO PIPE PER SPEC. 2502.3.B.
  - ① AT CONTRACTORS OPTION, MAY TIE APPROACH PANEL DRAINAGE SYSTEM AND ABUTMENT DRAINAGE SYSTEM INTO A SINGLE PRECAST CONCRETE HEADWALL OR INTO A CATCH BASIN AS LONG AS A MINIMUM OF 1% POSITIVE SLOPE CAN BE MAINTAINED.
  - USE PRECAST CONCRETE HEADWALL WITH RODENT SCREEN. SEE STANDARD PLATE 3131 FOR DETAILS.
  - ② 1/8" PER FT. MINIMUM SLOPE.
  - ③ REFER TO BRIDGE PLANS FOR ABUTMENT BACKFILL REQUIREMENTS. (INCLUDED IN PRICE BID FOR "STRUCTURE EXCAVATION")

APPROVED: JANUARY 13, 2015 <i>Nancy Subenberger</i> STATE BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION <b>DRAINAGE SYSTEM</b>	REVISED 12-02-2015 02-22-2018 11-08-2018	DETAIL NO. <b>B910</b> MODIFIED
---	--	---	---------------------------------------

*Ronald L. Dokken*  
 CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN  
 LIC. NO. 13931 9-9-2022

DES.: MWG  
 CHK.: JRJ  
 DRN.: NBB  
 CHK.: RDV

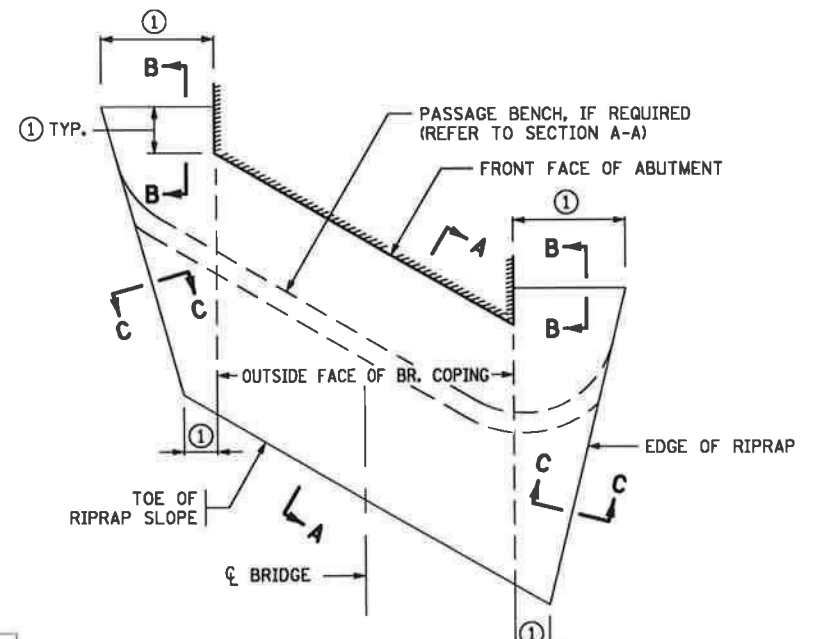
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 952-929-6791

**MISC. BRIDGE DETAILS**

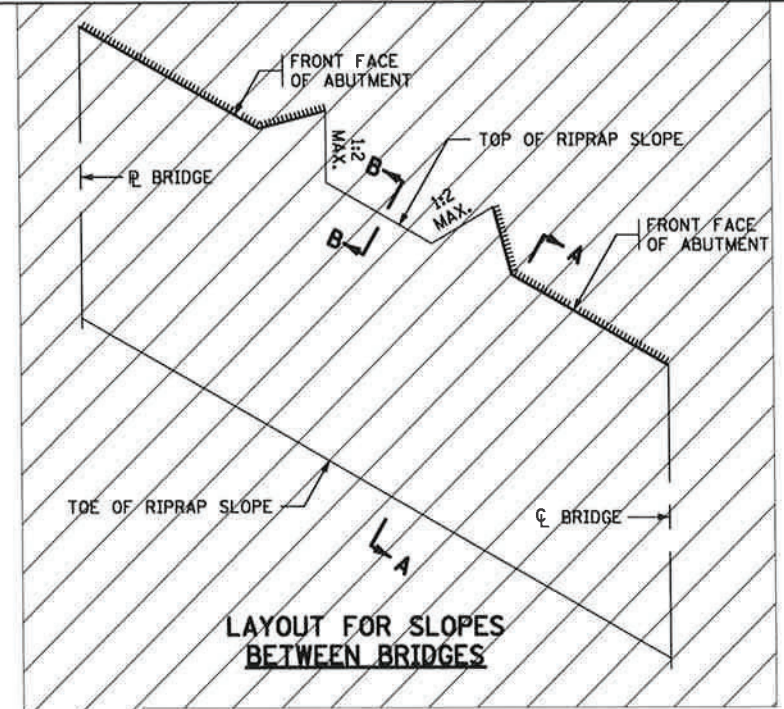
S.A.P. 058-599-045  
 SHEET NO. 16 OF 36 SHEETS

APPROVED:  
**BRIDGE NO. 58559**

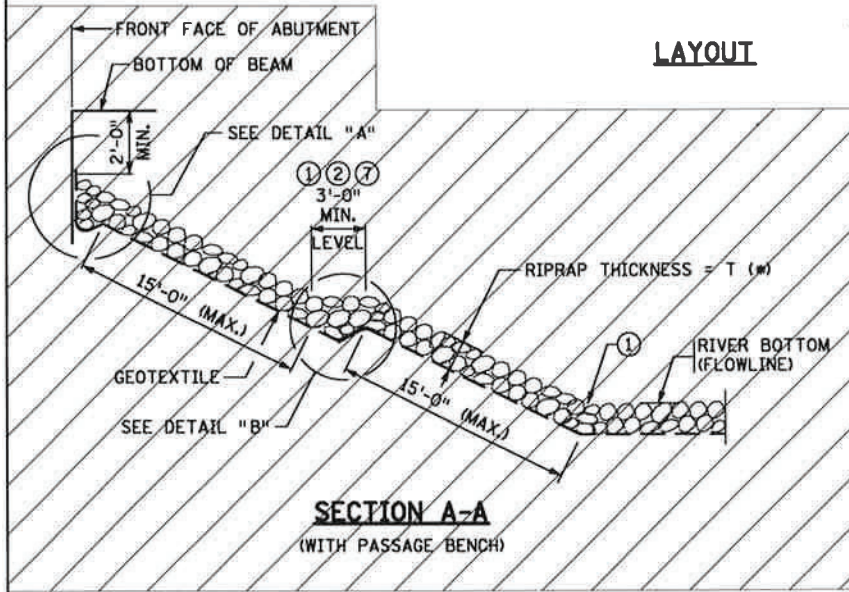




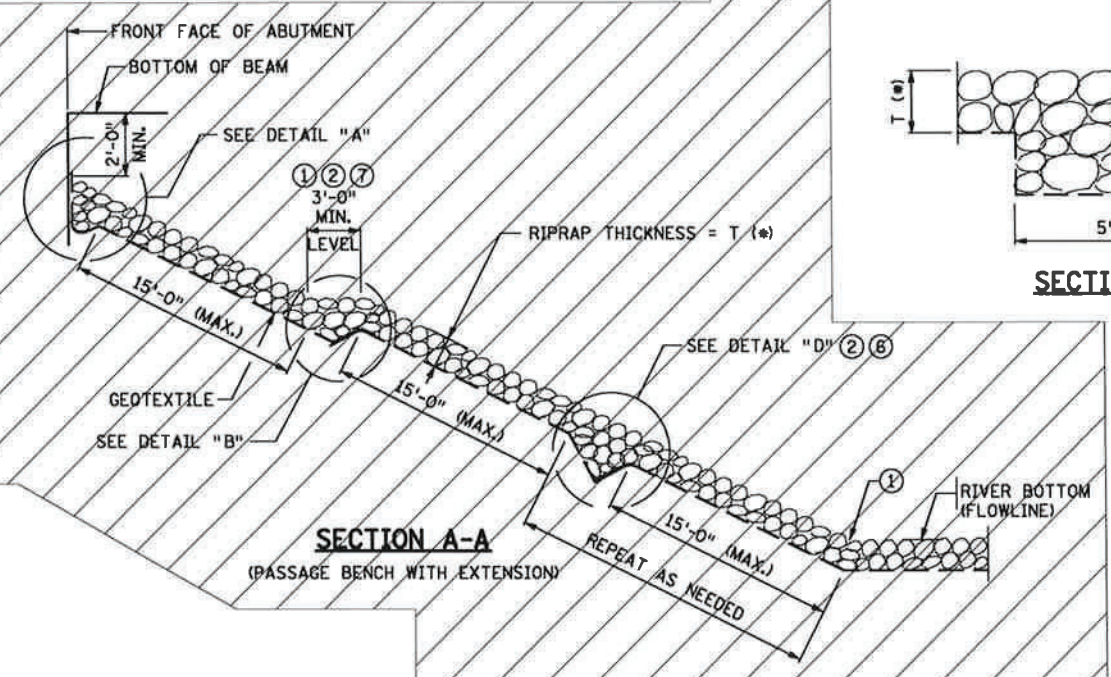
**LAYOUT**



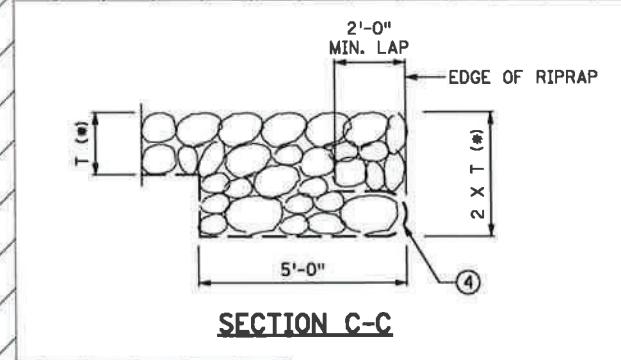
**LAYOUT FOR SLOPES BETWEEN BRIDGES**



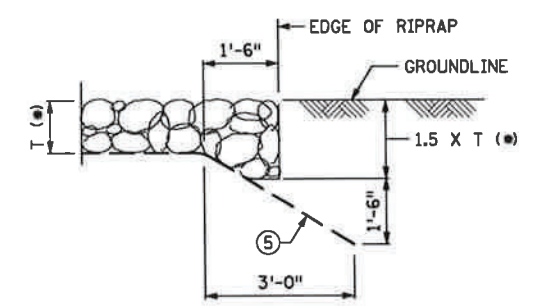
**SECTION A-A (WITH PASSAGE BENCH)**



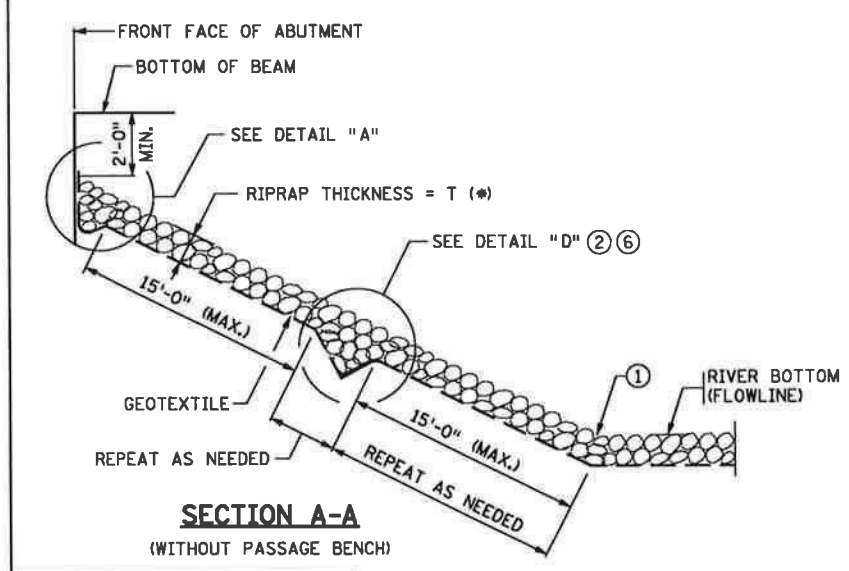
**SECTION A-A (PASSAGE BENCH WITH EXTENSION)**



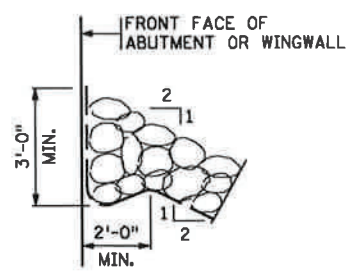
**SECTION C-C**



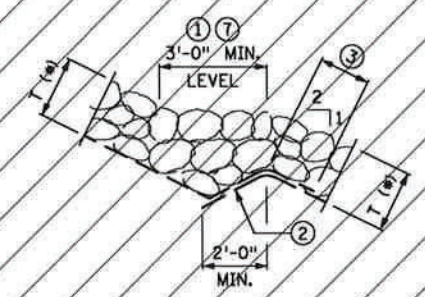
**SECTION B-B**



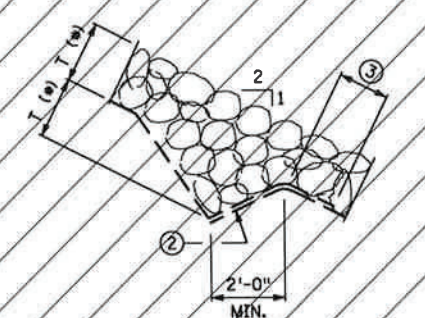
**SECTION A-A (WITHOUT PASSAGE BENCH)**



**DETAIL "A"**



**DETAIL "B"**



**DETAIL "D"**

\* **DIMENSION T**

CLASS III = 1'-6"
CLASS IV = 2'-0"
CLASS V = 2'-6"

- GENERAL NOTES**
- GEOTEXTILE TYPE 7 IN ACCORDANCE WITH SPEC. 3733, BY THE SQ. YD.
- RIPRAP IN ACCORDANCE WITH SPEC. 2511, RANDOM RIPRAP CLASS III BY THE CU. YD.
- ALL WORK FOR FINAL RIPRAP PLACEMENT AS SHOWN IS INCLUDED IN PRICE BID FOR "RANDOM RIPRAP CLASS III".
- SLOPES ARE EXPRESSED AS A RATIO OF VERTICAL DISTANCE : HORIZONTAL DISTANCE.
- SLOPE BOTTOM OF TRENCHES 1:20 PARALLEL TO ABUTMENT FACE TO PROVIDE POSITIVE DRAINAGE.
- SEE SURVEY SHEET PLAN & PROFILE FOR DIMENSIONS AND ELEVATIONS OF RIPRAP TOE AND PASSAGE BENCHES.
  - PLACE RIPRAP STARTING FROM THE BOTTOM OF THE SLOPE. DO NOT PLACE RIPRAP IN TRENCH UNTIL RIPRAP HAS BEEN PLACED ON ENTIRE SLOPE BENEATH THE TRENCH.
  - OVERLAP GEOTEXTILE 2'-0" MINIMUM.
  - WRAP GEOTEXTILE AROUND TOE, OVERHANG BETWEEN 1ST AND 2ND LAYER OF RIPRAP. USE HAND PLACEMENT OR SIMILAR METHODS TO ESTABLISH PROFILE AND PLACE FABRIC IF UNDER WATER.
  - BURY EDGES OF GEOTEXTILE TO DIRECT WATER FLOW OVER THE FABRIC WITHOUT UNDERMINING.
  - OMIT THE TRENCH SHOWN IN DETAIL "D" AND THE 15'-0" MAXIMUM SPACING BETWEEN TRENCHES FOR SLOPES 1:3 OR FLATTER.
  - SURFACE BENCHES WITH COARSE FILTER AGGREGATE IN ACCORDANCE WITH SPEC. 3149.2H (INCLUDED IN PRICE BID FOR RANDOM RIPRAP). TIE BENCHES TO NATURAL GROUND LINES OUTSIDE OF BRIDGE.

MODIFICATIONS:  
REMOVED KEYWAYS FROM ALL DETAILS.  
REMOVED DETAIL "C".

REVISED: FEBRUARY 08, 2022  
APPROVED: MAY 24, 2011  
*Nancy Subenberger*  
STATE BRIDGE ENGINEER

STANDARD SHEET NO.: 5-397.309 MODIFIED  
STANDARD APPROVED: MAY 24, 2011

DES.: MWG  
CHK.: JRJ  
DRN.: NBB  
CHK.: RDV

*Ronald L. Dokken*  
CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN  
LIC. NO. 13931 9-9-2022

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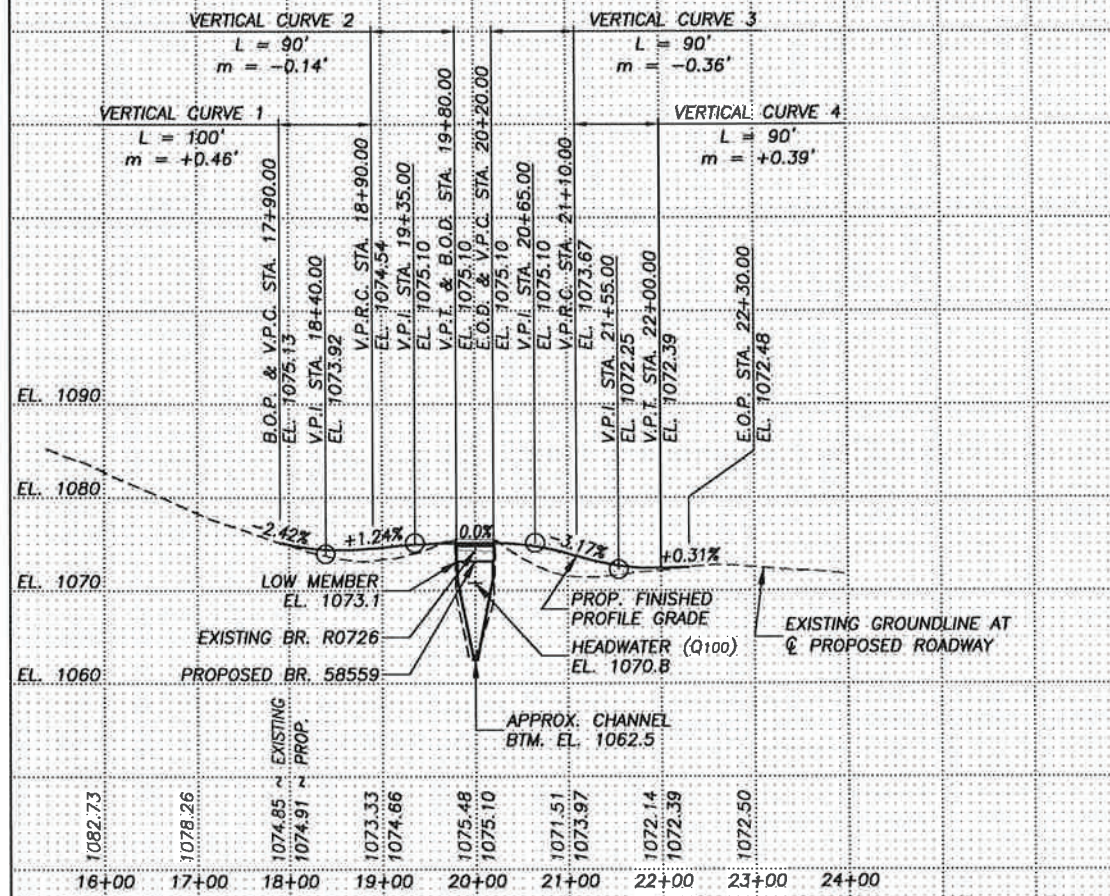
**RIPRAP SLOPE WITH GEOTEXTILE (SLOPES 1:2 AND FLATTER)**

S.A.P. 058-599-045  
SHEET NO. 17 OF 36 SHEETS

APPROVED:  
**BRIDGE NO. 58559**

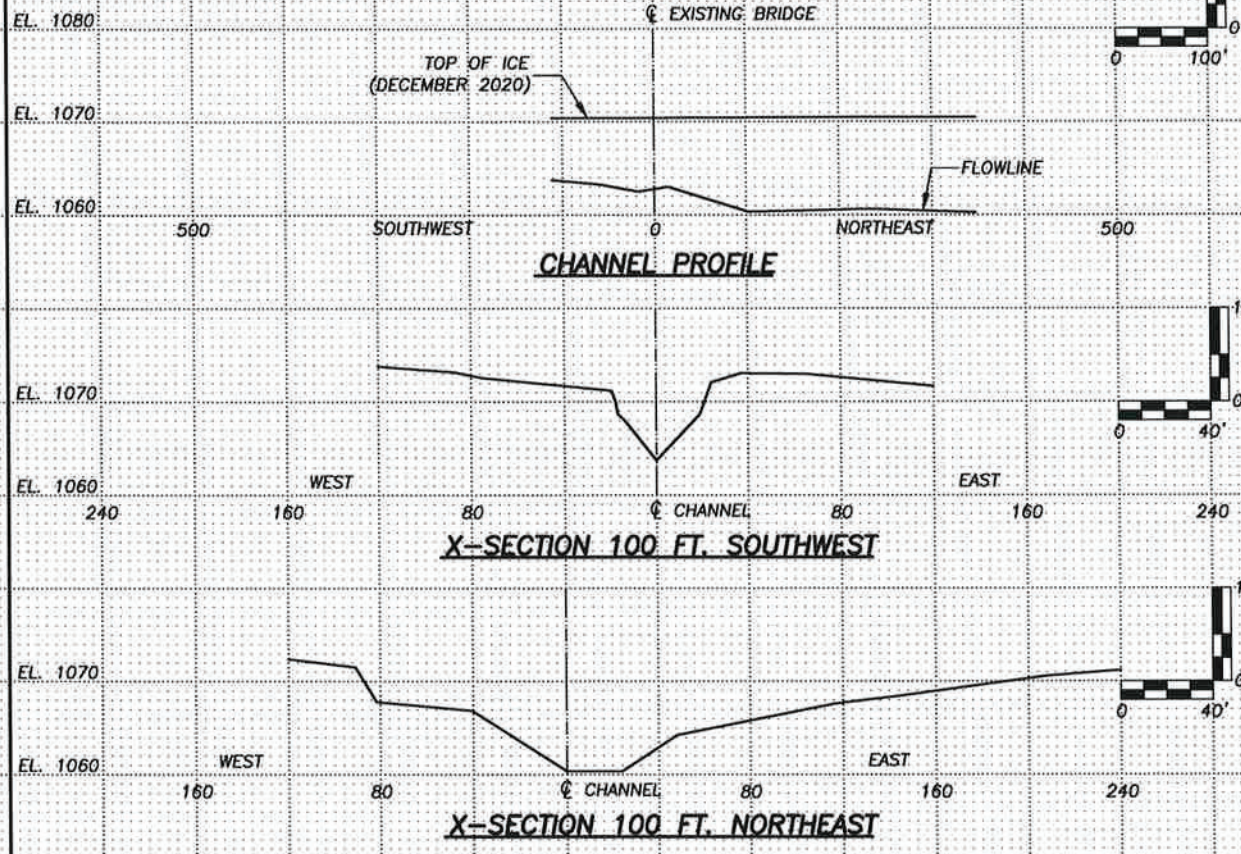
**CONTRACTED PROFILE**

SCALE: HOR. 1" = 50' VER. 1" = 10'



**TYPICAL SECTIONS & PERTINENT DATA**

SCALES AS SHOWN



**Fed. Proj. No.**

LOCATION ENGINEER'S OBSERVATION AT BRIDGE SITE  
DATE \_\_\_\_\_

- Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, rec. boats.
- Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway): Given location, type, length, height above high water, cross-sectional area, etc.
- Apparent Highwater Elevation ..... Feet  
Obtained From .....
- Other Data: Approx. velocity of water at time of survey .....

HYDRAULIC ENGINEER'S RECOMMENDATION  
DATE 4-6-2022

Stream or Ditch Designation	STURGEON ISLAND CHANNEL
Drainage Area	1 SQ. MI.
Max. Flood on Record	UNKNOWN C.F.S.
Max. Observed Highwater Elev.	1070.8 Feet
Design Flood (100 yr. freq.)	50 C.F.S.
Total Stage Increase	<0.1 Feet
Headwater Elevation	1070.8 Feet
Waterway area req'd below elev. (at right angles to channel)	1070.8 = .175 SQ. FT.
Low Member At or Above Elevation	1073.1 Feet
Design Mean Velocity Through Structure	0.3 F.P.S.
Greatest Flood (500 yr. freq.)	70 C.F.S.
Total Stage Increase	<0.1 Feet
Headwater Elevation	1070.9 Feet
Mean Velocity Through Structure	0.4 F.P.S.
Flowline Elevation	1062.5 Skew Angle 0°
Estimated Preliminary Total Scour Elevation (500 yr. freq.)	1062.0 Feet

SCOUR CONFIRMATION RECOMMENDATION  
DATE 4-8-2022

Total Scour Elevation	1062.0 Feet (500 yr. freq.)
Scour Code	L

ENGINEER'S RECOMMENDATION  
DATE 3-5-2021

40' TREATED TIMBER PANEL SPAN  
20' ROADWAY ~ 0° SKEW

Bridge Survey Sheets made from: SURVEY NOTES FROM  
PINE COUNTY HIGHWAY DEPARTMENT (NOVEMBER 2020)

Benchmark Elevation 1072.60  
Location: SPIKE IN GROUND, APPROXIMATELY 250 FT. SOUTHEAST OF EXISTING BR. R0726

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

ON STURGEON ISLAND ROAD (TWP. RD. 1065)  
PROPOSED BRIDGE LOCATED  
.09 MILES SOUTH OF JCT. C.S.A.H. 46  
OVER STURGEON ISLAND CHANNEL  
SEC. 16 TWP. 45 N R. 19 W  
TOWNSHIP WINDEMERE COUNTY PINE  
EXIST. BRIDGE NO. R0726

**PLAT**

SCALE: 1" = 100'



**UTILITY INFORMATION**

WARNING: DIAL GOPHER STATE ONE CALL AT 1-800-252-1166  
A MINIMUM OF 48 HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS TO OBTAIN COMPLETE UTILITY PROPERTY OWNERSHIP AND LOCATION INFORMATION.

UTILITY INFO AVAILABLE FOR PLAN PREPARATION:  
LAKE COUNTRY POWER 218-368-8460  
FRONTIER COMMUNICATIONS (BURIED TEL.) 800-778-9140  
LAKES GAS (BURIED NATURAL GAS) 218-879-4979  
MEDIACOM CABLEVISION (BURIED CABLE) 800-778-9140

NOTE: FIELD VERIFY ALL UTILITIES.

**HORIZONTAL CURVE 1 DATA**

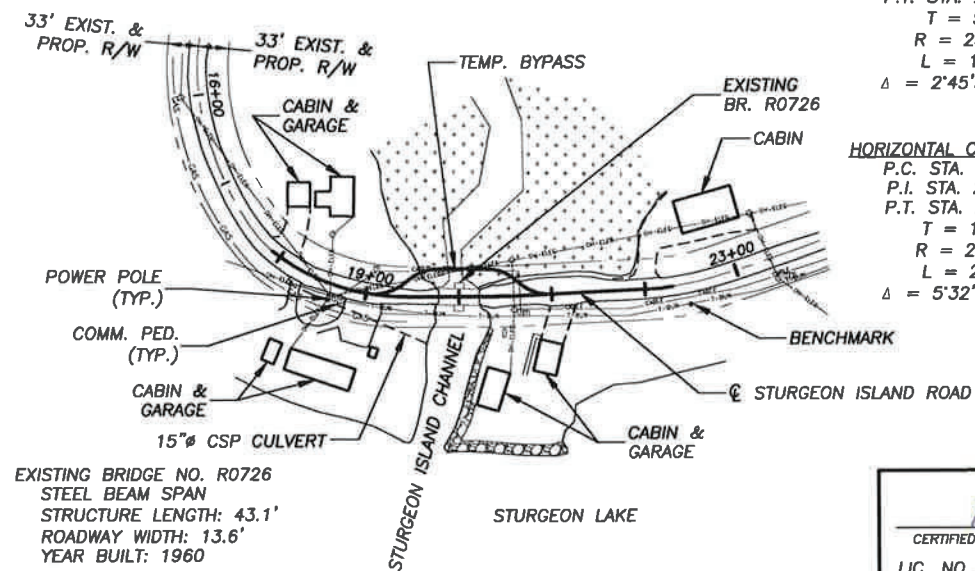
P.C. STA. 17+90.00  
P.I. STA. 18+69.89  
P.T. STA. 19+43.79  
T = 79.89'  
R = 230.00'  
L = 153.79'  
Δ = 38°18'39.94" LT.

**HORIZONTAL CURVE 2 DATA**

P.C. STA. 20+42.05  
P.I. STA. 20+47.60  
P.T. STA. 20+53.15  
T = 5.55'  
R = 230.00'  
L = 11.10'  
Δ = 2°45'51.42" LT.

**HORIZONTAL CURVE 3 DATA**

P.C. STA. 22+03.38  
P.I. STA. 22+16.70  
P.T. STA. 22+30.00  
T = 13.32'  
R = 275.00'  
L = 26.62'  
Δ = 5°32'43.04" LT.



EXISTING BRIDGE NO. R0726  
STEEL BEAM SPAN  
STRUCTURE LENGTH: 43.1'  
ROADWAY WIDTH: 13.6'  
YEAR BUILT: 1960

DES.: MWG  
CHK.: JRJ  
DRN.: NBB  
CHK.: RDV

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952-929-6791

BRIDGE SURVEY

APPROVED: \_\_\_\_\_

S.A.P. 058-599-045

SHEET NO. 18 OF 36 SHEETS

BRIDGE NO. 58559



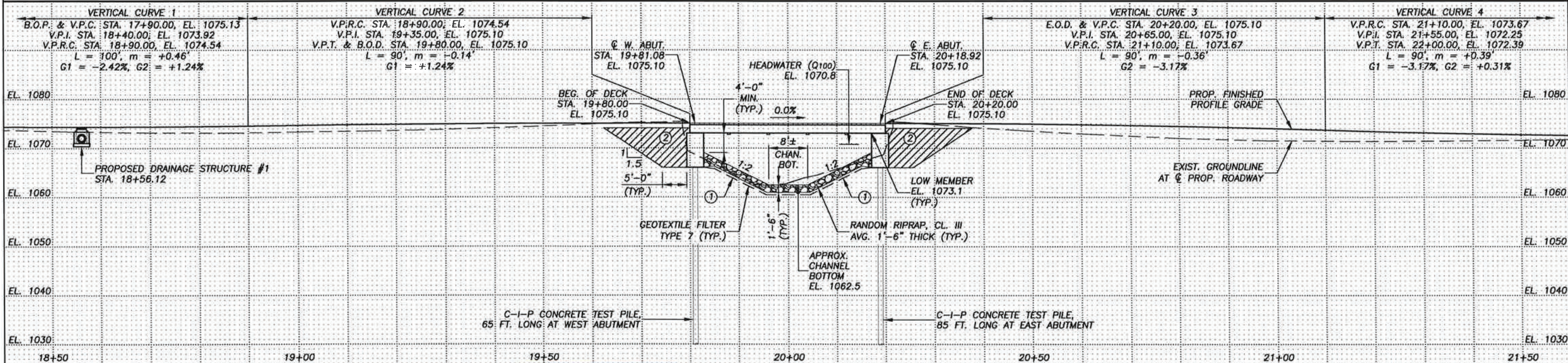
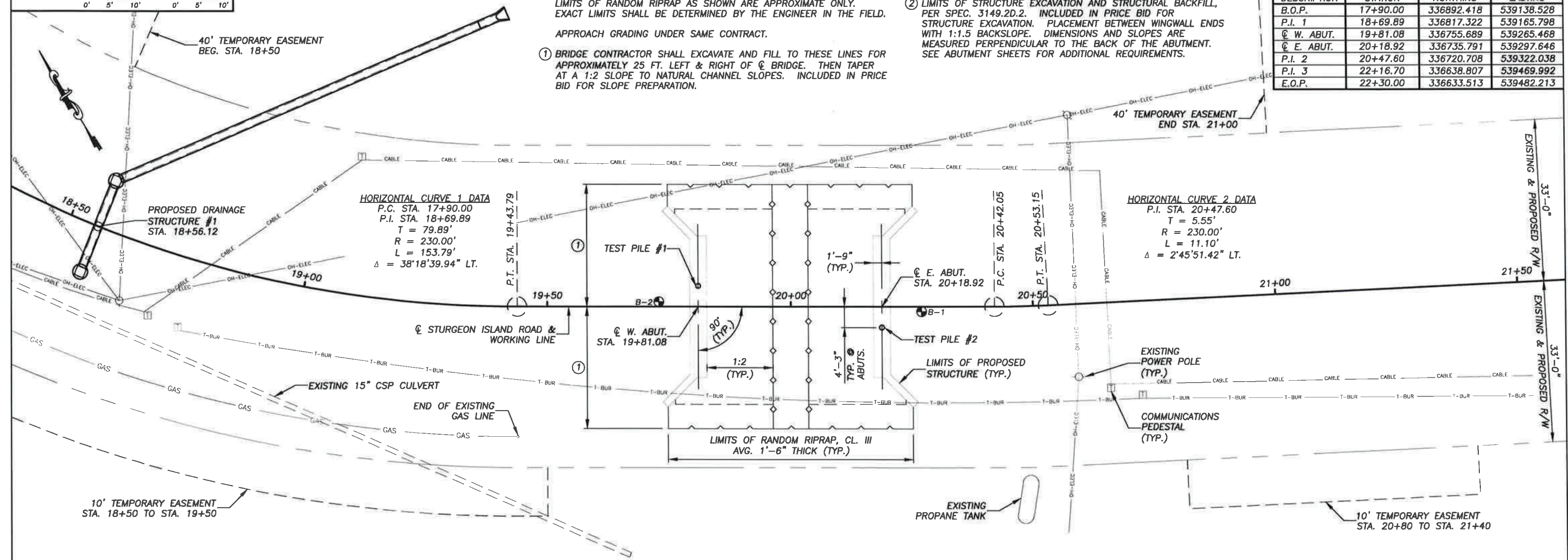
**NOTES**

- LIMITS OF RANDOM RIPRAP AS SHOWN ARE APPROXIMATE ONLY. EXACT LIMITS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
- APPROACH GRADING UNDER SAME CONTRACT.
- ① BRIDGE CONTRACTOR SHALL EXCAVATE AND FILL TO THESE LINES FOR APPROXIMATELY 25 FT. LEFT & RIGHT OF  $\text{\O}$  BRIDGE. THEN TAPER AT A 1:2 SLOPE TO NATURAL CHANNEL SLOPES. INCLUDED IN PRICE BID FOR SLOPE PREPARATION.

- ② LIMITS OF STRUCTURE EXCAVATION AND STRUCTURAL BACKFILL, PER SPEC. 3149.2D.2. INCLUDED IN PRICE BID FOR STRUCTURE EXCAVATION. PLACEMENT BETWEEN WINGWALL ENDS WITH 1:1.5 BACKSLOPE. DIMENSIONS AND SLOPES ARE MEASURED PERPENDICULAR TO THE BACK OF THE ABUTMENT. SEE ABUTMENT SHEETS FOR ADDITIONAL REQUIREMENTS.

**PROP. HORIZONTAL ALIGNMENT DATA**

DESCRIPTION	STATION	NORTHING	EASTING
B.O.P.	17+90.00	336892.418	539138.528
P.I. 1	18+69.89	336817.322	539165.798
$\text{\O}$ W. ABUT.	19+81.08	336755.689	539265.468
$\text{\O}$ E. ABUT.	20+18.92	336735.791	539297.646
P.I. 2	20+47.60	336720.708	539322.038
P.I. 3	22+16.70	336638.807	539469.992
E.O.P.	22+30.00	336633.513	539482.213



*Ronald L. Dokken*  
 CERTIFIED BY: PROFESSIONAL ENGINEER/RONALD L. DOKKEN  
 LIC. NO. 13931 9-9-2022

DES.: MWG  
 CHK.: JRJ  
 DRN.: NBB  
 CHK.: RDV

**ERICKSON ENGINEERING**  
 WWW.ERICKSONENGINEERING.COM  
 952-929-6791

**BRIDGE SURVEY  
 PLAN & PROFILE**

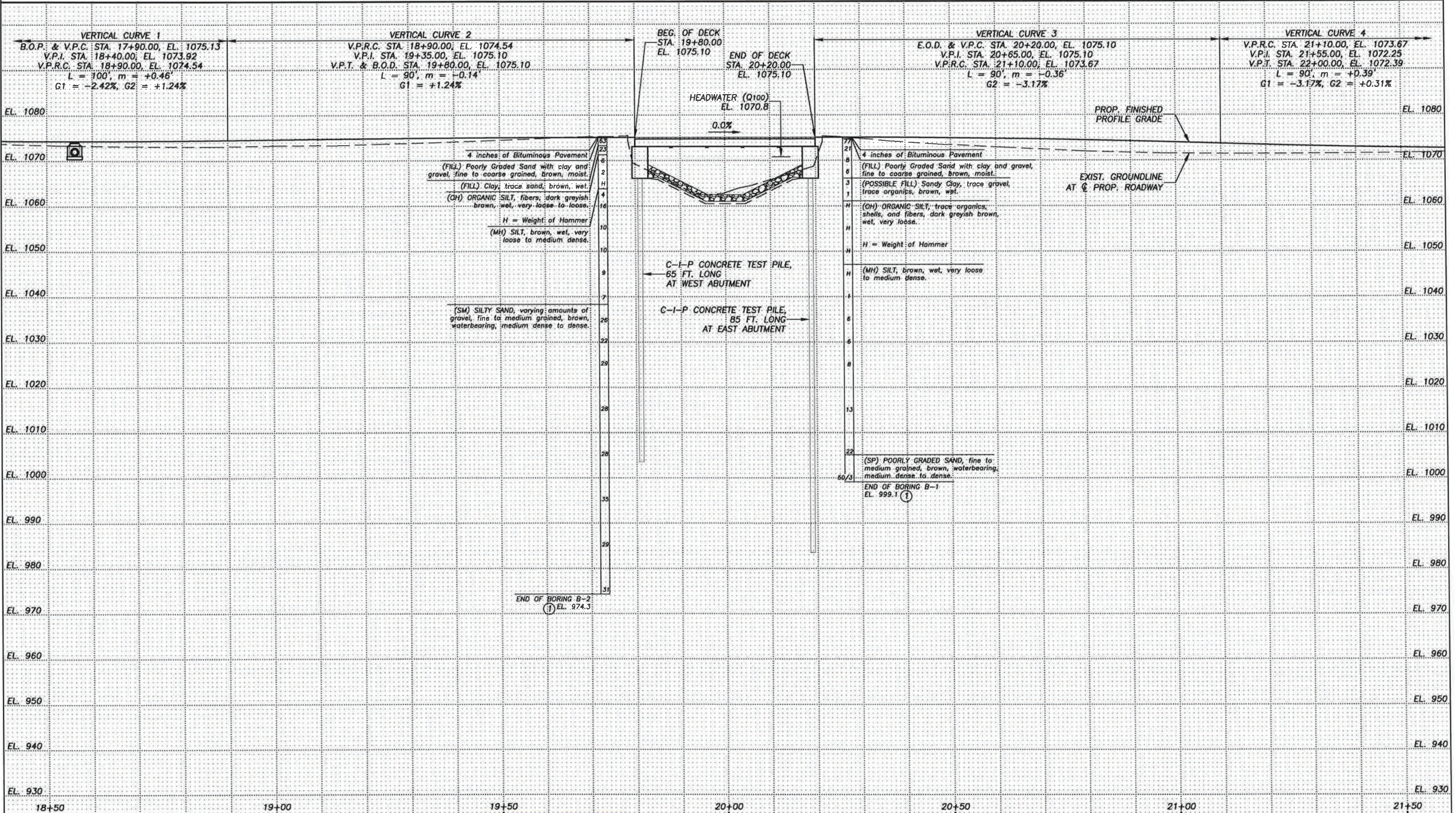
S.A.P. 058-599-045  
 SHEET NO. 19 OF 36 SHEETS

BRIDGE NO.  
**58559**



**NOTES**

① A SHORTENED VERSION OF THE BORING LOG DESCRIPTION IS GIVEN IN THE PLANS. THE COMPLETE GEOTECHNICAL EXPLORATION REPORT AND BORING LOGS ARE AVAILABLE FOR INSPECTION IN THE COUNTY ENGINEER'S OFFICE.



BORINGS SHOWN: B-1 & B-2		DES.: MWG		ERICKSON ENGINEERING WWW.ERICKSONENGINEERING.COM 952-929-6791	BRIDGE SURVEY BORINGS	S.A.P. 058-599-045	APPROVED:	BRIDGE NO. 58559
TAKEN WITH: STANDARD 140 LB HAMMER 30 INCH DROP 2 INCH O.D. SAMPLER		CHK.: JRJ						
CERTIFIED BY: PROFESSIONAL ENGINEER/RONALD L. DOKKEN LIC. NO. 13931 9-9-2022		DRN.: NBB		CHK.: RDV				

**STATEMENT OF ESTIMATED QUANTITIES FOR ROADWAY**

KEYNOTE	ITEM NO.	ITEM DESCRIPTION	UNIT	PARTICIPATING QUANTITY	NON-PARTICIPATING QUANTITY		TOTAL QUANTITY <sup>(A)</sup>
					ROADWAY	STORM SEWER	
B	2101.501	CLEARING AND GRUBBING	LUMP SUM		1		1
C	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN. FT.		98		98
D	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ. YD.		1128		1128
	2104.604	SALVAGE LANDSCAPE ROCK	SQ. YD.		150		150
E	2106.507	EXCAVATION - COMMON	CU. YD.		112		112 (P)
F	2106.507	COMMON EMBANKMENT (CV)	CU. YD.		763		763
	2106.601	ONE LANE BYPASS (14' LANE)	LUMP SUM	1			1
G	2118.507	AGGREGATE SURFACING (CV) CLASS 5	CU. YD.		16		16 (P)
H	2211.507	AGGREGATE BASE (CV) CLASS 5	CU. YD.		283		283 (P)
I	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (2,B)	TON		173		173
J	2402.601	TEMPORARY BRIDGE	LUMP SUM	1			1 (P)
K	2501.502	15" RC PIPE APRON	EACH			2	2
K	2503.503	15" RC PIPE SEWER	LIN. FT.			159	159
L	2506.502	CONSTRUCT DRAINAGE STRUCTURE, DESIGN H	EACH			4	4
M	2511.507	RANDOM RIPRAP CLASS III	CU. YD.			5	5
N	2531.503	CONCRETE CURB & GUTTER DESIGN D412	LIN. FT.		770		770
O	2540.604	INSTALL LANDSCAPE ROCK	SQ. YD.		150		150
	2563.601	TRAFFIC CONTROL	LUMP SUM	1			1
P	2573.503	SILT FENCE, TYPE MS	LIN. FT.		872		872
Q	2573.503	FLOTATION SILT CURTAIN TYPE STILL WATER	LIN. FT.		340		340
R	2575.501	TURF ESTABLISHMENT	LUMP SUM		1		1
S	2575.504	ROLLED EROSION PREVENTION CATEGORY 20	SQ. YD.		914		914
T	2575.505	RAPID STABILIZATION METHOD 1	ACRE		0.2		0.2

**CONSTRUCTION NOTES**

ALL CONSTRUCTION SHALL BE DONE WITHIN R/W LIMITS & THE TEMPORARY EASEMENT. NATURAL TOPSOIL SHALL BE SALVAGED FROM ALL AREAS DISTURBED BY CONSTRUCTION AND PLACED ON ALL CONSTRUCTED SLOPES AND DITCH BOTTOMS WITH A DEPTH OF NOT LESS THAN 3". THE CONTRACTOR WILL BE REQUIRED TO TRANSPORT TOPSOIL TO SIDE ROADS AND ENTRANCE AREAS FOR STORAGE DURING GRADING. THE SALVAGING, TRANSPORTING AND PLACING OF TOPSOIL WILL BE INCLUDED IN "EXCAVATION - COMMON" PAY ITEM.

SELECT GRADING MATERIAL SHALL BE USED FOR ALL EMBANKMENT CONSTRUCTION WHICH SHALL CONSIST OF ALL SOILS ENCOUNTERED EXCEPT TOPSOILS, HIGHLY ORGANIC SOILS, SILT, DEBRIS, AND OTHER UNSUITABLE MATERIALS.

IF SELECT GRADING MATERIAL IS NOT AVAILABLE OR CANNOT BE OBTAINED FROM THE ONSITE EXCAVATIONS, EMBANKMENT MATERIAL SHALL BE FURNISHED FROM SOURCES SELECTED BY THE CONTRACTOR AND SHALL BE APPROVED BY THE ENGINEER PRIOR TO BEING DELIVERED TO THE PROJECT.

THE DENSITY OF THE SUBGRADE AND THE AGGREGATE SURFACE SHALL BE ATTAINED BY THE METHOD OF QUALITY COMPACTION IN ACCORDANCE WITH THE REQUIREMENTS OF 2106.3G.2.

ALL DIMENSIONS AND SLOPES SHOWN IN THE TYPICAL SECTION ARE APPROXIMATE. ANY DAMAGE TO STURGEON ISLAND RD PAVEMENT OR CURB & GUTTER BEYOND THE PROJECT LIMITS RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED TO ITS CONDITION PRIOR TO CONSTRUCTION, TO THE SATISFACTION OF THE ENGINEER IN THE FIELD. ALL ASSOCIATED COSTS SHALL BE CONSIDERED INCIDENTAL.

**STATEMENT OF QUANTITIES KEYNOTES:**

- A. (P) DENOTES "PLAN QUANTITY"
- B. CLEARING AND GRUBBING INCLUDES ALL DISTURBED AREAS ASSOCIATED WITH THIS PROJECT (APPROX. 0.2 ACRES).
- C. SAWCUT ACROSS EXISTING BITUMINOUS AT B.O.P., DRIVEWAY AT STA. 18+35 RT, DRIVEWAY AT STA. 19+00 RT, & E.O.P.
- D. STA. 17+90 TO STA. 22+30 (LESS EXISTING BRIDGE), DRIVEWAY AT STA. 18+35 RT, & DRIVEWAY AT STA. 19+00 RT.
- E. EXCAVATION-COMMON INCLUDES EXCAVATION AND EMBANKMENT AS REQUIRED AND SHOWN ON SHEETS 24-25. INCLUDES 62 CU. YD. OF TOPSOIL (ASSUMED 3" DEEP).
- F. COMMON EMBANKMENT (CV) IS THE FILL REQUIRED TO REACH GRADING GRADE.
- G. INCLUDES: 9 CU. YD. FOR DRIVEWAY AT STA. 18+00 LT, & 7 CU. YD. FOR FIELD ENTRANCE AT STA. 22+04 LT.
- H. INCLUDES: 3 CU. YD. FOR DRIVEWAY AT STA. 18+35 RT, 18 CU. YD. FOR DRIVEWAY AT STA. 19+00 RT, & 8 CU. YD. FOR DRIVEWAY AT STA. 21+13 RT..
- I. BITUMINOUS QUANTITY IS COMPUTED AT 113 LBS. PER SQ. YD. PER INCH OF DEPTH. INCLUDES: 3 TONS FOR DRIVEWAY AT STA. 18+35 RT, & 19 TONS FOR DRIVEWAY AT STA. 19+00 RT.
- J. SEE SPECIAL PROVISIONS FOR TEMPORARY BRIDGE REQUIREMENTS.
- K. INCLUDES SELECT GRANULAR EMBANKMENT & FINE AGGREGATE BEDDING. SEE SHEETS 26-27 FOR LOCATION AND DETAILS.
- L. INCLUDES CONSTRUCTION OF CATCH BASINS & ALL CASTINGS. INCLUDES COARSE FILTER AGGREGATE. SEE SHEETS 26-27 FOR LOCATION AND DETAILS.
- M. FOR STORM SEWER OUTLET AT STA. 21+83.75.
- N. SEE SHEET 23 FOR LOCATION AND DETAILS.
- O. INSTALL 3" DEPTH SALVAGED LANDSCAPE ROCK ON TOP OF AGGREGATE BASE (CV) CLASS 5 ON DRIVEWAY AT STA. 21+13 RT.
- P. PLACE SILT FENCE, TYPE MS AT TOE OF INSLOPE. TWO ROWS OF SILT FENCE ARE REQUIRED WITHIN 50' OF RIVER AND SHALL BE PLACED 5' APART. SEE SHEET 30 FOR LOCATION AND SHEET 33 FOR DETAILS. PLACED AS DIRECTED BY THE ENGINEER IN THE FIELD, SHALL INCLUDE MAINTENANCE. IF SILT FENCE IS DAMAGED OR REMOVED BY CONTRACTOR DURING CONSTRUCTION, THE CONTRACTOR WILL REPLACE THE SILT FENCE WITH NO DIRECT COMPENSATION THEREOF.
- Q. SEE SHEET 30 FOR LOCATION AND SHEET 32 FOR DETAILS. PLACED AS DIRECTED BY THE ENGINEER IN THE FIELD, SHALL INCLUDE MAINTENANCE. IF FLOTATION SILT CURTAIN IS DAMAGED OR REMOVED BY CONTRACTOR DURING CONSTRUCTION, THE CONTRACTOR WILL REPLACE THE FLOTATION SILT CURTAIN WITH NO DIRECT COMPENSATION THEREOF.
- R. FOR PERMANENT TURF ESTABLISHMENT: INCLUDES ALL AREAS DISTURBED BY CONSTRUCTION. SEE EROSION CONTROL PLAN AND QUANTITIES SHEET FOR REQUIREMENTS. APPROXIMATELY 0.2 ACRES.
- S. USED IN CONJUNCTION WITH TURF ESTABLISHMENT. SEE SHEET 30 FOR LOCATION AND SHEET 31 FOR DETAILS.
- T. FOR TEMPORARY TURF ESTABLISHMENT: CONSISTS OF TYPE 1 MULCH APPLIED AT 2 TONS PER ACRE AND DISK ANCHORING. PLACE WHERE SOILS HAVE BEEN DISTURBED WITHIN THE CONSTRUCTION LIMITS.

**SEE BRIDGE PLANS FOR  
"LIST OF STANDARD PLATES"**

**WARNING:**  
DIAL GOPHER STATE ONE CALL AT 1-800-252-1166 A MINIMUM OF 48 HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS TO OBTAIN COMPLETE UTILITY PROPERTY OWNERSHIP AND LOCATION INFORMATION.

I HEREBY CERTIFY THAT THIS PLAN (SHEETS 21-36) 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.

*Thomas J. Wilson*  
CERTIFIED BY: PROFESSIONAL ENGINEER/THOMAS J. WILSON  
LIC. NO. 21690 10-19-2022

DES.: TJW  
CHK.: RDV  
DRN.: JMM  
CHK.: RDV

**ERICKSON ENGINEERING**  
WWW.ERICKSONENGINEERING.COM  
952-929-6791

**ROADWAY STATEMENT  
OF ESTIMATED QUANTITIES**

S.A.P. 058-599-045

APPROVED:

**SHEET NO. 21 OF 36 SHEETS**

**BRIDGE NO.  
58559**

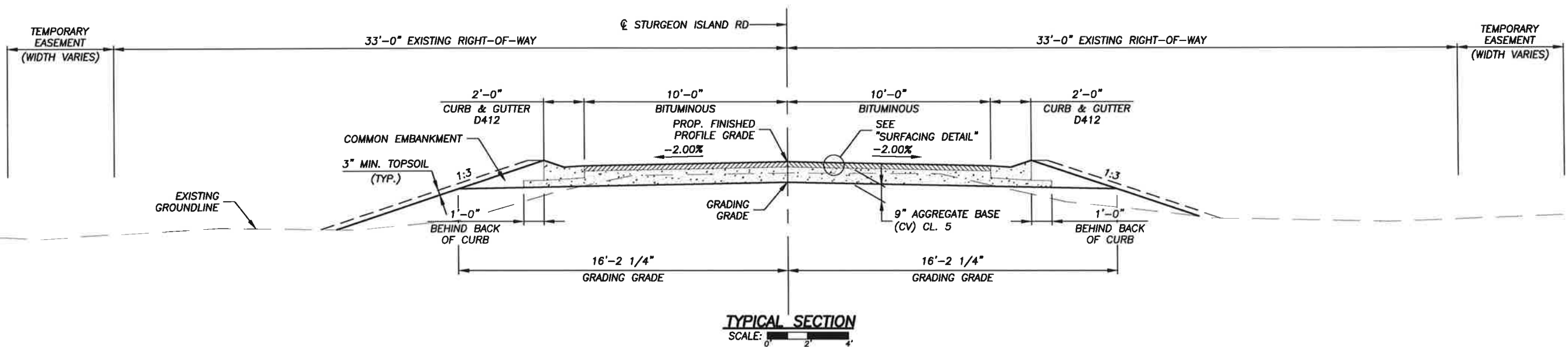
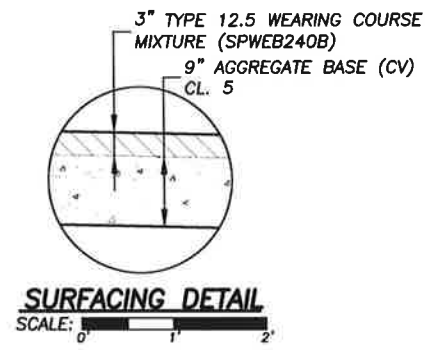
**EARTHWORK (CU. YD.)**

WEST END OF BRIDGE 58559			EAST END OF BRIDGE 58559		
EXCAVATION	54	COMMON TOPSOIL	23	EXCAVATION	58
			31		31
EMBANKMENT (CV)	340	COMMON TOPSOIL	309	EMBANKMENT (CV)	485
			31		454
					31

**EARTHWORK NOTES:**

ALL EXCAVATION AND EMBANKMENT QUANTITIES SHOWN IN THIS CHART HAVE NO CONVERSION, SHRINKAGE OR COMPACTION FACTORS APPLIED TO THEM. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THESE FACTORS AND BID THE PROJECT ACCORDINGLY. FIELD CHANGES WILL BE MEASURED AND QUANTITIES ADJUSTED AS NECESSARY.

ALL TYPES OF EXCAVATION AND EMBANKMENT QUANTITIES IN THE PLAN ARE DETERMINED BY THE GRADING NEEDS OF THE PROJECT. THE EXCAVATION QUANTITIES SHOWN IN THE PLAN ARE EXCAVATED VOLUME. THE EMBANKMENT QUANTITIES ARE COMPACTED VOLUME. FOR BIDDING PURPOSES, THE CONTRACTOR SHALL DETERMINE, WITHIN EACH SEGMENT, WHERE THE EXCAVATED MATERIAL (IN COMPLIANCE WITH THE PLAN & SPECIAL PROVISIONS) WILL BE INCORPORATED INTO THE WORK, HOW MUCH ACTUAL EXCESS MAY BE GENERATED, HOW MUCH ACTUAL COMMON EMBANKMENT MATERIAL WILL BE AVAILABLE FROM ROADWAY EXCAVATIONS, AND HOW MUCH COMMON EMBANKMENT MATERIAL WILL HAVE TO BE HAULED IN FROM OUTSIDE SOURCES.





**UTILITY INFORMATION**

WARNING:  
DIAL GOPHER STATE ONE CALL AT 1-800-252-1166 A MINIMUM OF 48 HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS TO OBTAIN COMPLETE UTILITY PROPERTY OWNERSHIP AND LOCATION INFORMATION.

UTILITY INFO AVAILABLE FOR PLAN PREPARATION:  
SEE SHEET 18 FOR DETAILS.

NOTE: FIELD VERIFY ALL UTILITIES.

**HORIZONTAL CURVE 1 DATA**

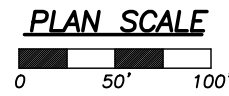
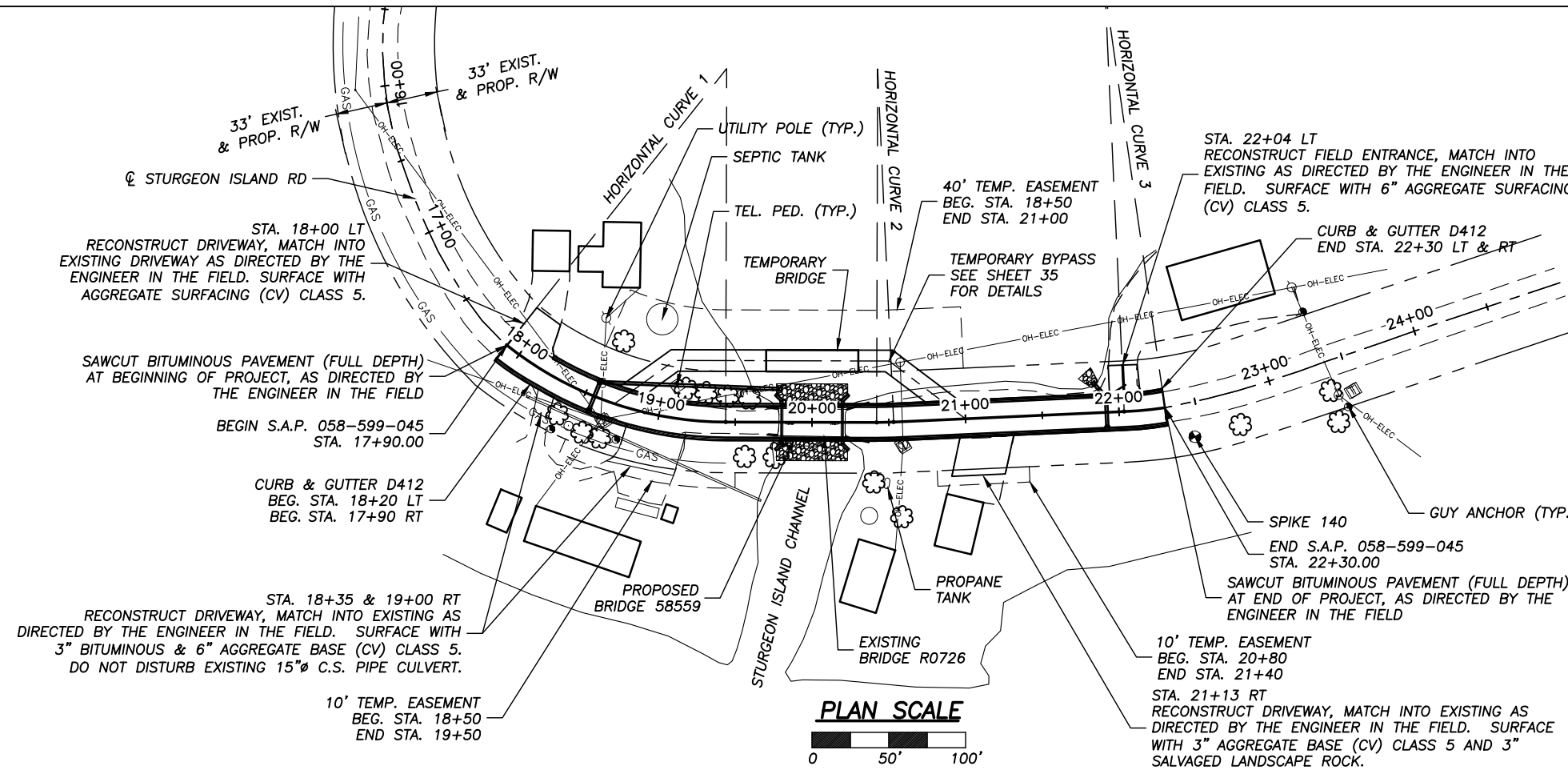
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P.I. STA. 18+69.89  
P.T. STA. 19+43.79  
T = 79.89'  
R = 230.00'  
L = 153.79'  
 $\Delta = 38^{\circ}18'39.94''$  LT.

**HORIZONTAL CURVE 2 DATA**

P.C. STA. 20+42.05  
P.I. STA. 20+47.60  
P.T. STA. 20+53.15  
T = 5.55'  
R = 230.00'  
L = 11.10'  
 $\Delta = 2^{\circ}45'51.42''$  LT.

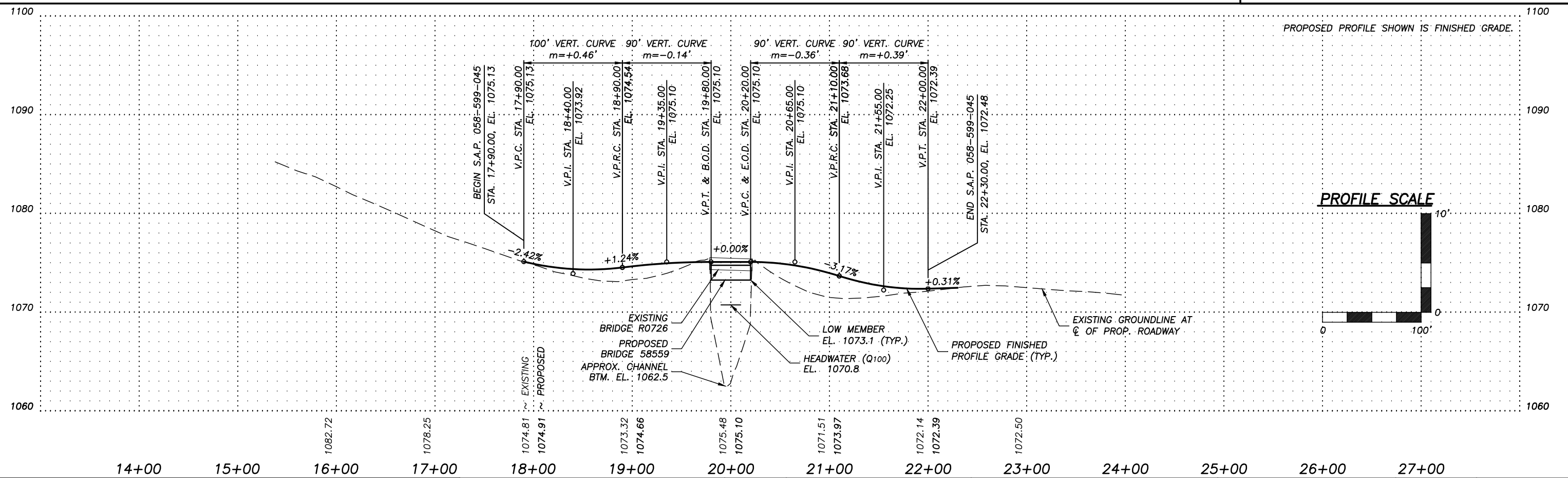
**HORIZONTAL CURVE 3 DATA**

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P.T. STA. 22+30.00  
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R = 275.00'  
L = 26.62'  
 $\Delta = 5^{\circ}32'43.04''$  LT.

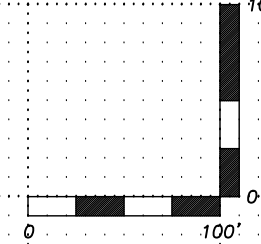


GRADING COORDINATES			
CONTROL DATA			
LOCATION	NORTHING	EASTING	ELEVATION
SPIKE 127	335905.57	540514.79	1117.10
SPIKE 140	336607.13	539489.00	1072.60
SPIKE 141	337657.70	539327.40	1104.41
ALIGNMENT DATA			
LOCATION	NORTHING	EASTING	STATION
B.O.P. & P.C. 1	336892.418	539138.528	17+90.00
P.I. 1	336817.322	539165.798	18+69.89
P.T. 1	336775.302	539233.750	19+43.79
P.C. 2	336723.627	539317.318	20+42.05
P.I. 2	336720.708	539322.038	20+47.60
P.T. 2	336718.020	539326.893	20+53.15
P.C. 3	336645.257	539458.340	22+03.38
P.I. 3	336638.807	539469.992	22+16.70
E.O.P. & P.T. 3	336633.513	539482.213	22+30.00

BENCHMARK ELEV. 1072.60  
LOCATION: SPIKE IN GROUND, APPROXIMATELY 250 FT. SOUTHEAST OF EXISTING BR. R0726



**PROFILE SCALE**



*Thomas J. Wilson*  
CERTIFIED BY: PROFESSIONAL ENGINEER/THOMAS J. WILSON  
LIC. NO. 21690 10-19-2022

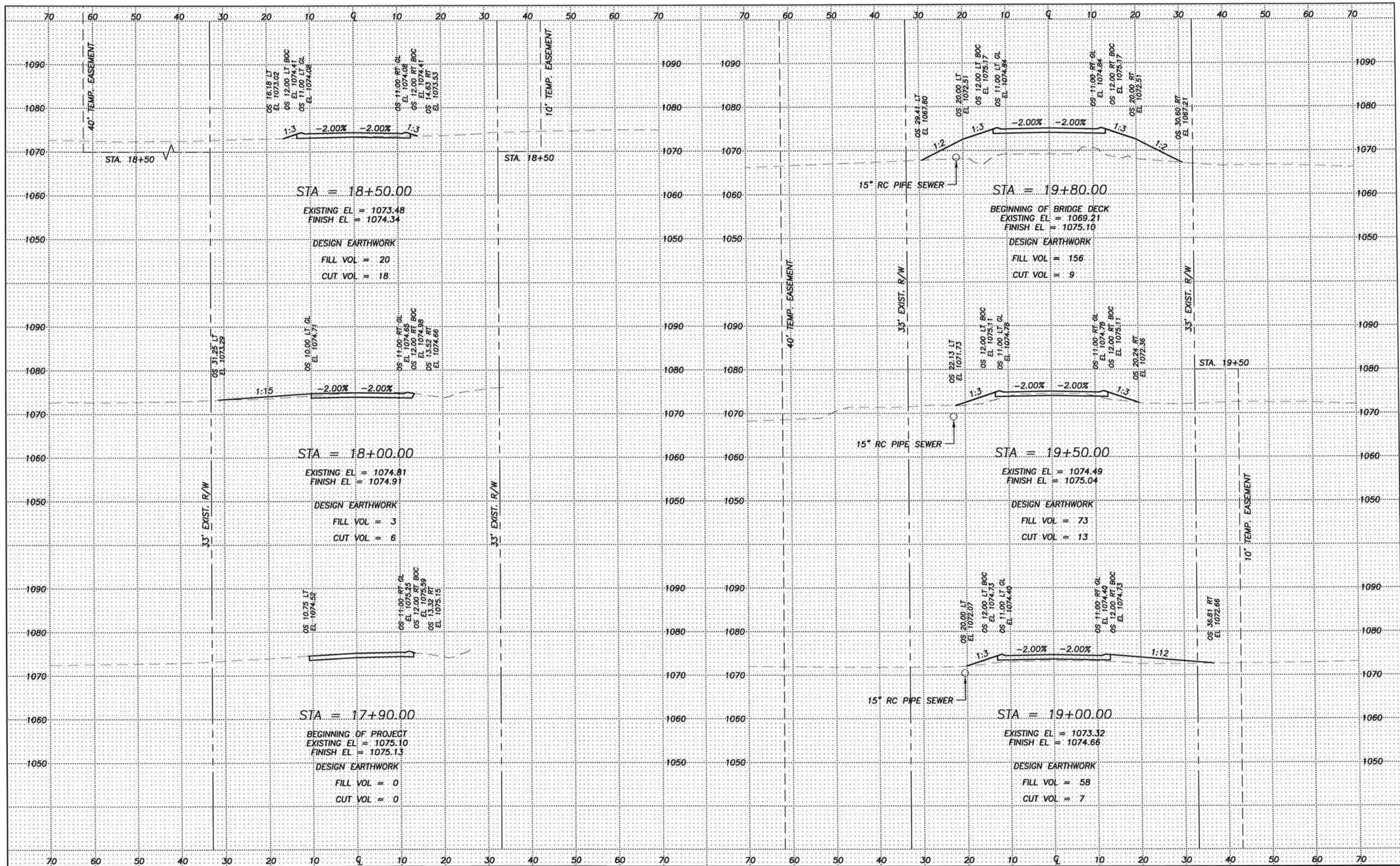
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CHK.: RDV  
DRN.: JMM  
CHK.: RDV

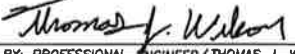
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952-929-6791

**ROADWAY PLAN & PROFILE**

S.A.P. 058-599-045  
SHEET NO. 23 OF 36 SHEETS

BRIDGE NO. 58559



  
 CERTIFIED BY: PROFESSIONAL ENGINEER/THOMAS J. WILSON  
 LIC. NO. 21690 9-9-2022

DES.: TJW  
 CHK.: RDV  
 DRN.: JMM  
 CHK.: RDV

 ERICKSON  
 ENGINEERING  
 WWW.ERICKSONENGINEERING.COM  
 952-929-6791

**ROADWAY CROSS SECTIONS**

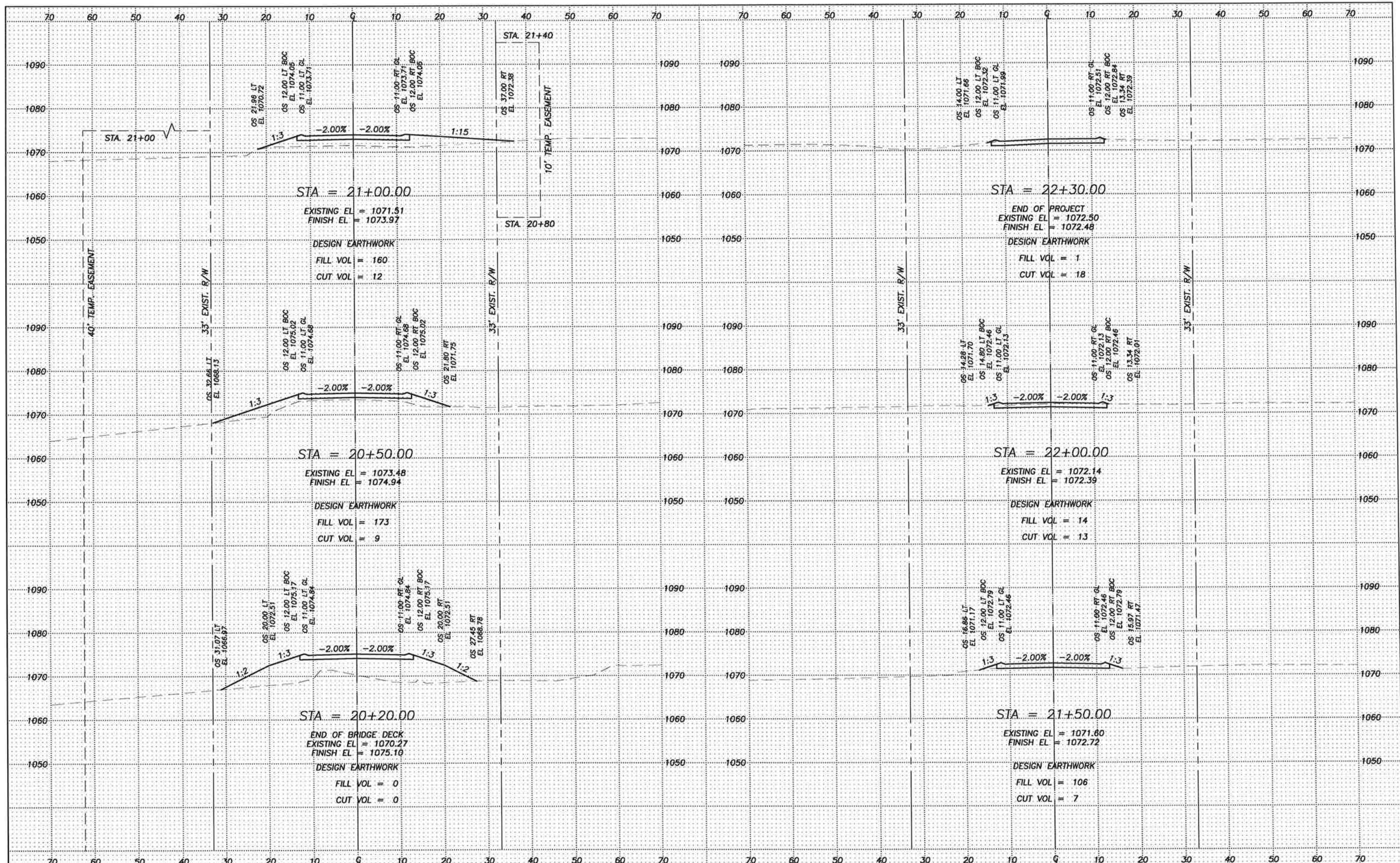
S.A.P. 058-599-045

APPROVED:

SHEET NO. 24 OF 36 SHEETS

BRIDGE NO.  
 58559





*Thomas J. Wilson*  
 CERTIFIED BY: PROFESSIONAL ENGINEER / THOMAS J. WILSON  
 LIC. NO. 21690 9-9-2022

DES.: TJW  
 CHK.: RDV  
 DRN.: JMM  
 CHK.: RDV

**ERICKSON ENGINEERING**  
 WWW.ERICKSONENGINEERING.COM  
 952-929-6791

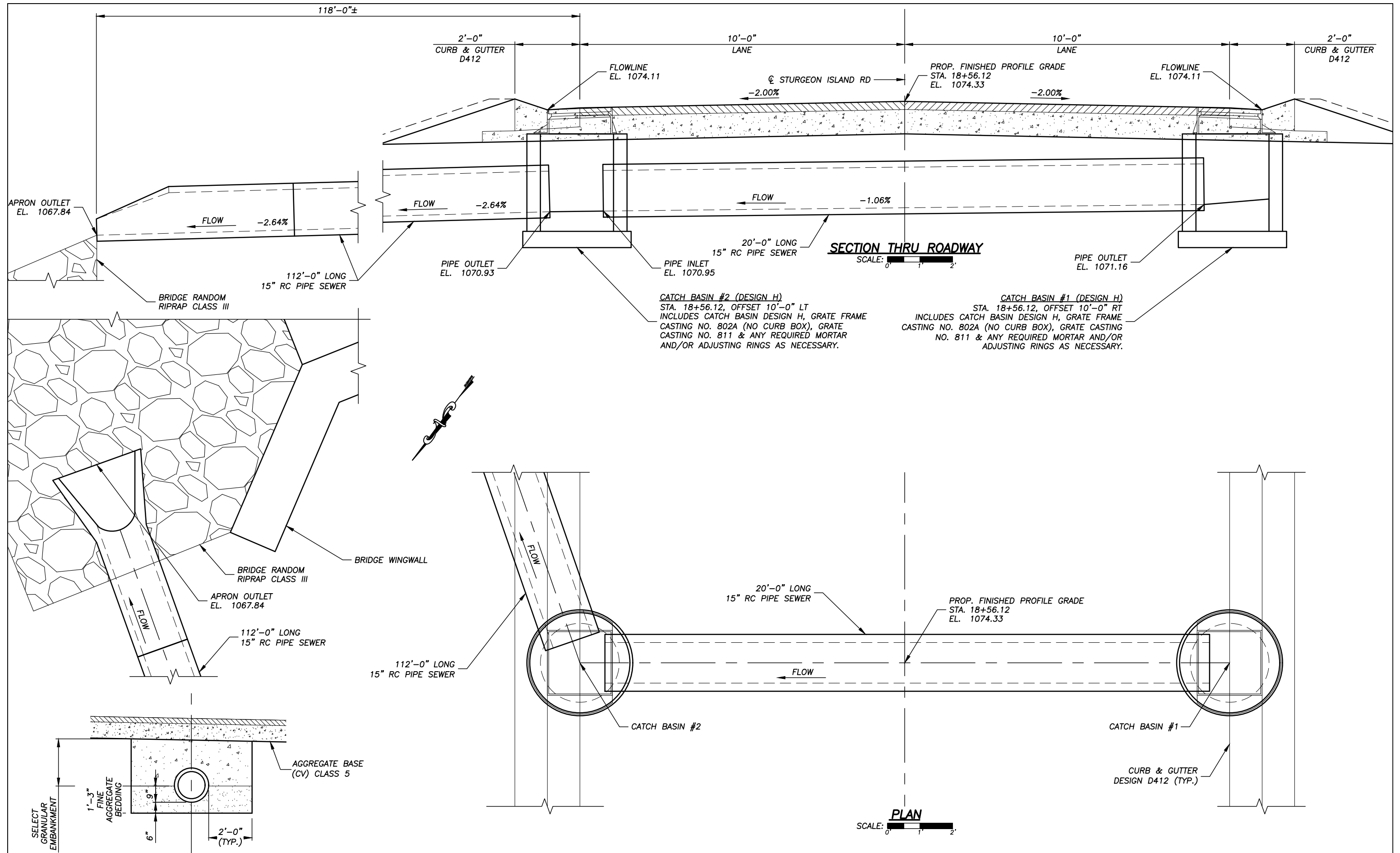
**ROADWAY CROSS SECTIONS**

S.A.P. 058-599-045

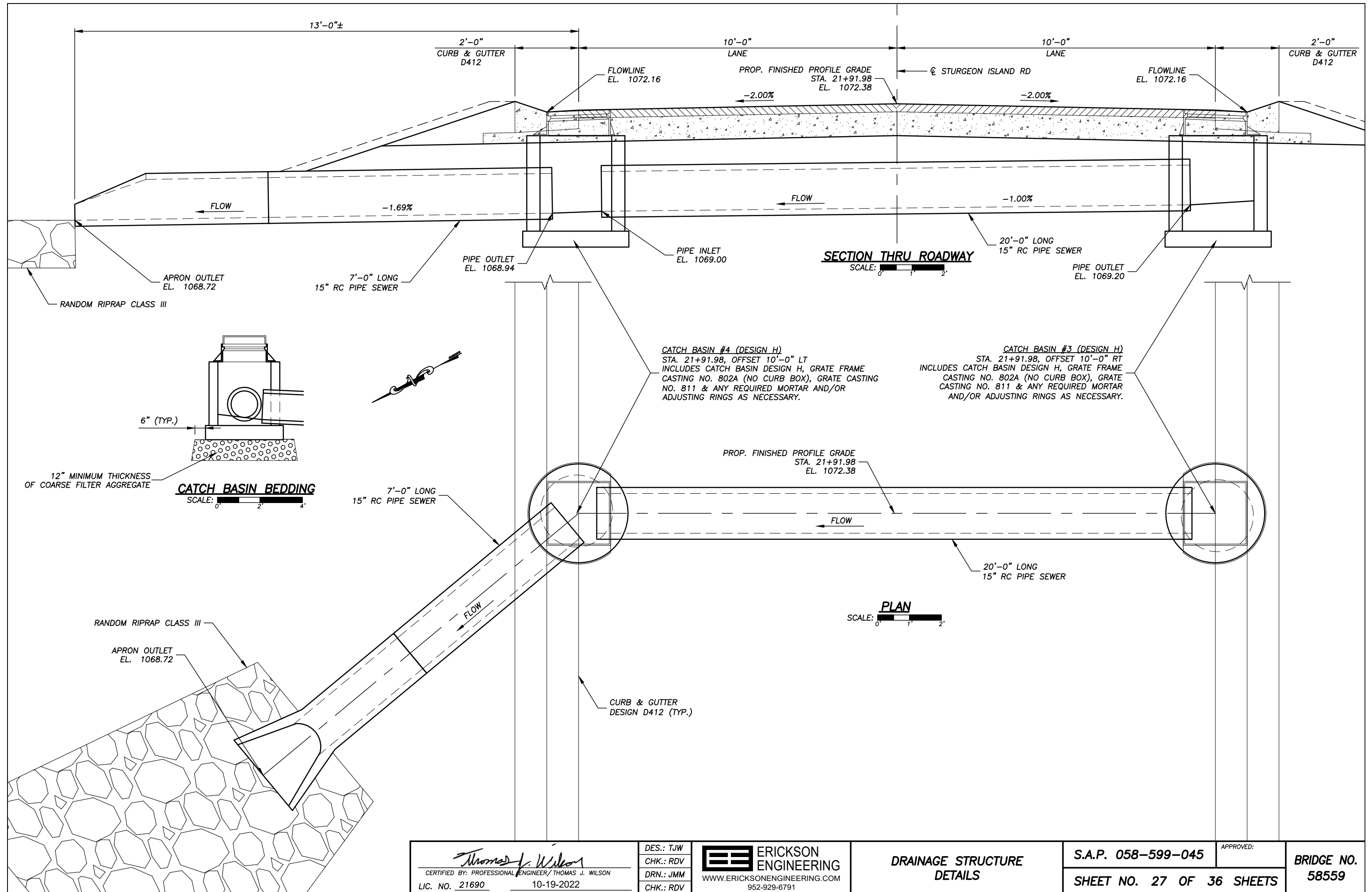
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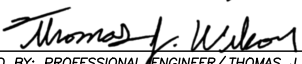
SHEET NO. 25 OF 36 SHEETS

BRIDGE NO. 58559



 CERTIFIED BY: PROFESSIONAL ENGINEER/THOMAS J. WILSON LIC. NO. 21690 10-19-2022	DES.: TJW CHK.: RDV	 <b>ERICKSON ENGINEERING</b> WWW.ERICKSONENGINEERING.COM 952-929-6791	<b>DRAINAGE STRUCTURE DETAILS</b>	S.A.P. 058-599-045	APPROVED:	<b>BRIDGE NO. 58559</b>
	DRN.: JMM CHK.: RDV			SHEET NO. 26 OF 36 SHEETS		



  
 CERTIFIED BY: PROFESSIONAL ENGINEER/THOMAS J. WILSON  
 LIC. NO. 21690      10-19-2022

DES.: TJW  
 CHK.: RDV  
 DRN.: JMM  
 CHK.: RDV

 ERICKSON  
 ENGINEERING  
 WWW.ERICKSONENGINEERING.COM  
 952-929-6791

**DRAINAGE STRUCTURE  
 DETAILS**

S.A.P. 058-599-045      APPROVED:  
 SHEET NO. 27 OF 36 SHEETS

BRIDGE NO.  
 58559

**PROJECT DESCRIPTION/LOCATION**

S.A.P. 058-599-045 IS A BRIDGE CONSTRUCTION PROJECT CONSISTING OF BRIDGE REPLACEMENT AND ROAD GRADING ON A 440 FT SECTION OF PINE COUNTY STURGEON ISLAND RD IN THE TOWNSHIP OF WINDEMERE (S 16 - T 045 N - R 19 W). CONSTRUCTION ACTIVITIES INCLUDE INSTALLATION OF A 40 FT TIMBER SPAN BRIDGE OVER STURGEON ISLAND CHANNEL, 400 FT OF GRADING ON THE ROADWAY, ENTRANCE GRADING AND INSTALLING STORM SEWERS. TOTAL AREA DISTURBED BY THIS PROJECT (EXCLUSIVE OF BORROW AND DISPOSAL AREAS) IS 0.58 ACRES. THE RECEIVING WATER FROM THIS PROJECT WILL BE STURGEON ISLAND CHANNEL WHICH IS A NOT SPECIAL WATER.

**PROJECT CONTACTS**

THE PROJECT ENGINEER AND THE CONTRACTOR ARE RESPONSIBLE FOR IMPLEMENTATION OF THE EROSION CONTROL PLAN AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPs BEFORE AND DURING CONSTRUCTION. PINE COUNTY HIGHWAY DEPARTMENT IS RESPONSIBLE FOR LONG TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT SYSTEM.

THE PINE COUNTY PROJECT SUPERVISOR IS:  
 MARK LUBRUN, COUNTY ENGINEER  
 405 AIRPORT ROAD NE  
 PINE CITY, MN 55063  
 (320) 216-4200  
 mark.lebrun@co.pine.mn.us

**MPCA 24 HOUR EMERGENCY NOTIFICATION**

651-649-5451  
 800-422-0798

**ENVIRONMENTALLY SENSITIVE AREAS**

THERE ARE NO WETLANDS WITHIN THE PROJECT LIMITS.  
 THERE ARE IMPAIRED WATERS WITHIN THE PROJECT LIMITS.  
 THERE ARE NO CALCAREOUS FENS WITHIN THE PROJECT LIMITS.

**TIMING OF BMP INSTALLATION**

THE EROSION AND SEDIMENTATION CONTROL BMPs SHALL BE INSTALLED AS NECESSARY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND CAPTURE SEDIMENT ON SITE.

**WATER QUALITY CALCULATIONS**

WATER QUALITY VOLUME:

NEW IMPERVIOUS AREAS

MAINLINE = 0.22 ACRES  
 BRIDGE DECK = 0.02 ACRES  
 ENTRANCES = 0.06 ACRES

TOTAL NEW IMPERVIOUS AREA = 0.30 ACRES

EXISTING IMPERVIOUS AREAS

MAINLINE = 0.20 ACRES  
 BRIDGE DECK = 0.02 ACRES  
 ENTRANCES = 0.07 ACRES

TOTAL EXISTING IMPERVIOUS AREA = 0.29 ACRES

NEW IMPERVIOUS AREA 0.30 ACRES - EXISTING IMPERVIOUS AREA 0.29 ACRES = 0.01 ACRES = 436 SQ. FT.

**CONSTRUCTION NOTES**

CONSTRUCTION SHALL BE GOVERNED BY THE MnDOT STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL KEEP THE INSPECTION AND MAINTENANCE LOGS.

THIS EROSION CONTROL PLAN, ALL PERMITS, ALL INSPECTION AND MAINTENANCE RECORDS AND DESIGN CALCULATIONS WILL BE KEPT BY THE OWNER AFTER CONSTRUCTION FOR NOT LESS THAN THREE YEARS.

**TMDL IMPLEMENTATION PLANS CONTAINING STORM WATER REQUIREMENTS**

NO TMDL IMPLEMENTATION PLANS CURRENTLY EXIST FOR THE RECEIVING WATERS ON THIS PROJECT.

**LOCATION OF REQUIREMENTS IN PROJECT PLAN**

DESCRIPTION	TITLE	LOCATION
SOIL TYPE DATA AND MAPS	BORING LOG	COUNTY ENGINEER'S OFFICE
SUMMARY OF PERVIOUS AND IMPERVIOUS	WATER QUALITY CALCULATIONS	SHEET 28
RECEIVING SURFACE WATERS	PROJECT DESCRIPTION/LOCATION	SHEET 28
DIRECTION OF FLOW/DRAINAGE AREA	PLAN	SHEET 30
EROSION CONTROL TABULATIONS	QUANTITIES	SHEET 30
FINAL STABILIZATION	GENERAL NOTES	SHEET 30
EROSION CONTROL DETAILS	EROSION AND SEDIMENT CONTROL	SHEETS 31-33
CONCRETE WASHOUT	MISC. DETAILS	SHEET 34
DRAINAGE STRUCTURES	MISC. DETAILS	SHEETS 26-27

**IMPLEMENTATION CONTACTS**

AGENCY	PERMIT	NAME	PHONE/E-MAIL
CONTRACTOR'S EROSION CONTROL SUPERVISOR	NPDES		
SWCD		JILL CARLIER	320-216-4241 jill.carlier@co.pine.mn.us
MnDNR WATERS	GENERAL	HEIDI LINDGREN	218-203-4368 heidi.lindgren@state.mn.us
CORPS OF ENGINEERS	GENERAL		218-788-6408

**SIGNIFICANT MATERIALS INVENTORY**

POLLUTANTS THAT RESULT FROM CLEARING, GRADING, EXCAVATION, BRIDGE AND ROAD BUILDING AND HAVE THE POTENTIAL TO BE PRESENT ARE LISTED IN THE FOLLOWING TABLE. THIS TABLE INCLUDES INFORMATION REGARDING THE MATERIAL TYPE, CHEMICAL AND PHYSICAL DESCRIPTION, AND THE SPECIFIC REGULATED STORM WATER POLLUTANTS ASSOCIATED WITH EACH MATERIAL:

MATERIAL/CHEMICAL	PHYSICAL DESCRIPTION	STORM WATER POLLUTANTS	LOCATION	MANAGEMENT PRACTICE
PESTICIDES	VARIOUS COLORED COLORLESS LIQUID, AEROSOLS, POWDERS, PELLETS OR GRAINS	CHLORINATED HYDROCARBONS, ORGANOPHOSPHATES, CARBAMATES, ARSENIC	HERBICIDES FOR BRUSH AND WEED CONTROL	USE OF CERTIFIED APPLICATOR AND PROPER STORAGE AND CONTAINER DISPOSAL
PERMANENT FERTILIZER	LIQUIDS OR SOLID GRAINS	NITROGEN, PHOSPHOROUS, POTASSIUM	NEWLY SEEDED AREAS	MINIMIZE PHOSPHATES, APPLY APPROPRIATE RATES
TEMPORARY FERTILIZER	LIQUIDS OR SOLID GRAINS	NITROGEN, PHOSPHOROUS, POTASSIUM	RAPID STABILIZATION AREAS, STOCKPILES	MANAGED APPLICATION, QUICK GROWTH PLANTING
CLEANING SOLVENTS	COLORLESS, BLUE OR YELLOW-GREEN LIQUIDS	PERCHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, PETROLEUM DISTILLATES	CONCRETE PREP AND CLEANING, STORAGE AREAS	NO EQUIPMENT CLEANING IN PROJECT AREA, PROPER STORAGE, SPILL KITS
CONSTRUCTION WASTEWATER	RINSATE FROM EQUIPMENT WASHING	SOIL, OIL, GREASE AND OTHER SOLIDS	STORMWATER CONVEYANCE SYSTEM	NO EQUIPMENT CLEANING IN PROJECT AREA
ASPHALT	BLACK SOLID	OIL, PETROLEUM DISTILLATES	HIGHWAY SURFACING	EXCESS MATERIAL REMOVED FROM PROJECT AREA
CONCRETE	WHITE SOLID	LIMESTONE, SAND	BRIDGE CONSTRUCTION	DESIGNATED WASH AREAS OR COMPLETE REMOVAL
GLUE, ADHESIVES	WHITE OR YELLOW LIQUID	POLYMERS, EPOXIES	EXPANSION JOINTS	EMPTY CONTAINER MANAGEMENT
PAINTS	VARIOUS COLORED LIQUID	METAL OXIDES, STODDARD SOLVENT, TALC, CALCIUM CARBONATE, LEAD, ARSENIC	BRIDGE RAILS, SIGNPOSTS, STORAGE	EMPTY CONTAINER MANAGEMENT
CURING COMPOUNDS	CREAMY WHITE LIQUID	NAPHTHA	BRIDGE	EMPTY CONTAINER MANAGEMENT
WOOD PRESERVATIVES	CLEAR, AMBER, OR DARK BROWN LIQUID	STODDARD SOLVENT, PETROLEUM, DISTILLATES, ARSENIC, COPPER, CHROMIUM	TIMBER BEAMS, SIGN POSTS, GAURDRAIL POSTS, STORAGE AREAS	FOLLOW MANUFACTURER'S GUIDELINES
HYDRAULIC OILS	BROWN, RED OR OTHER COLORS. OILY	PETROLEUM AND ADDITIVES	RANDOM LEAKS	PREVENTIVE MAINTENANCE, INSPECTIONS, SPILL KITS ON SITE
GASOLINE	COLORLESS, PALE BROWN OR PINK	PETROLEUM HYDROCARBONS, BENZENE, ETHYL BENZENE, TOLUENE, XYLENE, MTBE	VEHICLES STORAGE	SECONDARY CONTAINMENT, PREVENTIVE MAINTENANCE, INSPECTIONS, SPILL KITS ON SITE
DIESEL FUEL	CLEAR, BLUE GREEN, OR YELLOW LIQUID	PETROLEUM DISTILLATE, OIL, NAPHTHALENE, XYLENE	VEHICLES STORAGE	SECONDARY CONTAINMENT, PREVENTIVE MAINTENANCE, INSPECTIONS, SPILL KITS ON SITE
ANTI-FREEZE, COOLANT	CLEAR, GREEN, YELLOW OR ORANGE LIQUID	ETHYLENE GLYCOL, PROPYLENE GLYCOL	RANDOM LEAKS	PREVENTIVE MAINTENANCE, INSPECTIONS, SPILL KITS ON SITE

**CONSTRUCTION PRACTICES TO MINIMIZE STORM WATER CONTAMINATION**

TO PREVENT STORM WATER CONTAMINATION FROM OCCURRING, THE FOLLOWING BMPS WILL BE IMPLEMENTED:

- ALL AREAS THAT ARE ROUGH GRADED SHALL BE LEFT IN A CONDITION WITH RIDGES THAT RUN PERPENDICULAR TO THE DIRECTION OF SURFACE DRAINAGE IN ORDER TO SLOW DOWN THE FLOW OF WATER AND HOLD SEDIMENT ON THE SLOPE.
- ALL AREAS THAT ARE FINISH GRADED SHALL BE IMMEDIATELY COVERED WITH DEGRADABLE OR NON-DEGRADABLE BLANKETS, MULCH, OR OTHER PROTECTIVE COVERS.
- A STABILIZED CONSTRUCTION ENTRANCE/EXIT WILL BE CONSTRUCTED TO REDUCE VEHICLE TRACKING OF SEDIMENTS OFF THE PROJECT RIGHT OF WAY.
- ALL NON-HAZARDOUS WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER OR OTHER APPROVED CONTAINMENT METHOD AT THE END OF EACH DAY. ANY ALTERNATIVE TO A METAL DUMPSTER MUST BE SUBMITTED IN WRITING FOR APPROVAL BY THE PROJECT ENGINEER. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED AS NECESSARY TO FUNCTION AS INTENDED FOR DEBRIS COLLECTION. NO CONSTRUCTION MATERIALS WILL BE BURIED ON-SITE. THE CONTRACTOR'S EROSION CONTROL SUPERVISOR WILL INSTRUCT ALL PERSONNEL REGARDING THE CORRECT PROCEDURE FOR DISPOSAL.
- A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR WILL COLLECT ALL SANITARY WASTE FROM THE PORTABLE UNITS AT A RATE NECESSARY TO MAINTAIN DESIGNED FUNCTION.
- ALL VEHICLES ON SITE WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE.
- FERTILIZERS WILL BE STORED IN A WEATHER-PROTECTED SHELTER AND PARTIALLY USED BAGS WILL BE TRANSFERRED TO A SEALABLE BIN TO REDUCE THE CHANCE OF SPILLAGE.
- PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS, WHICH ARE CLEARLY LABELED.
- SPILL KITS WILL BE INCLUDED WITH ALL FUELING SOURCES AND MAINTENANCE ACTIVITIES. SECONDARY CONTAINMENT MEASURES WILL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR.
- ANY ASPHALT SUBSTANCES USED ON SITE WILL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ALL PAINT CONTAINERS AND CURING COMPOUNDS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM WATER SYSTEM BUT WILL BE PROPERLY DISPOSED ACCORDING TO MANUFACTURER'S INSTRUCTION.
- MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEAN-UP WILL BE KEPT IN AN ENCLOSED TRAILER OR SHED ON SITE. EQUIPMENT WILL INCLUDE, BUT NOT LIMITED TO, BROOMS, MOPS, DUST PANS, RAGS, GLOVES, GOGGLES, ABSORBENT (KITTY LITTER), OIL ABSORBENT BOOMS AND DIAPERS, AND BUCKETS.
- ALL SPILLS WILL BE CONTAINED AND CLEANED UP IMMEDIATELY UPON DISCOVERY. SPILLS LARGE ENOUGH TO REACH THE STORMWATER CONVEYANCE SYSTEM WILL BE REPORTED TO THE MINNESOTA DUTY OFFICER AT 1-800-422-0798.
- CONCRETE TRUCKS WILL NOT BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ON THE SITE, UNLESS DONE IN AN ENGINEERED CONTAINMENT SYSTEM. THE ENGINEERED SYSTEM MUST INCLUDE SITE DRAWINGS FOR THE PROJECT FILE AND WRITTEN ASSURANCE THAT THE SYSTEM WILL WORK AS DESIGNED AND LEAVE NO DISCHARGE OF CONCRETE OR CONCRETE RESIDUE POTENTIAL TO WATERS OF THE STATE DURING A MINIMUM OF A 100 YEAR STORM EVENT. SYSTEM SHALL COMPLY WITH THE "MPCA: CONCRETE WASHOUT GUIDANCE" PUBLICATION, DATED FEBRUARY 2009.
- FORM RELEASE OIL USED FOR CONCRETE WORK MUST BE APPLIED OVER A PALLET CONTAINING ABSORBENT TO COLLECT EXCESS LIQUID. THE ABSORBENT MATERIAL WILL BE REPLACED AND PROPERLY DISPOSED WHEN SATURATED.
- DISCHARGES FROM BASIN DEWATERING OPERATIONS THAT ARE TURBID OR SEDIMENT LADEN SHALL BE DISCHARGED TO TEMPORARY SEDIMENT BASINS CONSTRUCTED ON THE SITE TO PROVIDE TREATMENT PRIOR TO DISCHARGE TO A WATER OF THE STATE. IF BASINS ARE NOT FEASIBLE, DISCHARGES WILL BE DISPERSED OVER NATURAL ROCK RIPRAP, SHEETING, PLASTIC OR OTHER ENERGY DISSIPATION MEASURES.
- AN UNDISTURBED BUFFER ZONE OF NOT LESS THAN 100 LINEAR FEET FROM ANY SPECIAL WATER SHALL BE MAINTAINED UNLESS WORK IS NECESSARY WITHIN THE BUFFER ZONE DUE TO THE NATURE OF THE WATER CROSSING PROJECT.

*Thomas J. Wilson*  
 CERTIFIED BY: PROFESSIONAL ENGINEER / THOMAS J. WILSON  
 LIC. NO. 21690 9-9-2022

DES.: TJW  
 CHK.: RDV  
 DRN.: JMM  
 CHK.: RDV

 ERICKSON ENGINEERING  
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 952-929-6791

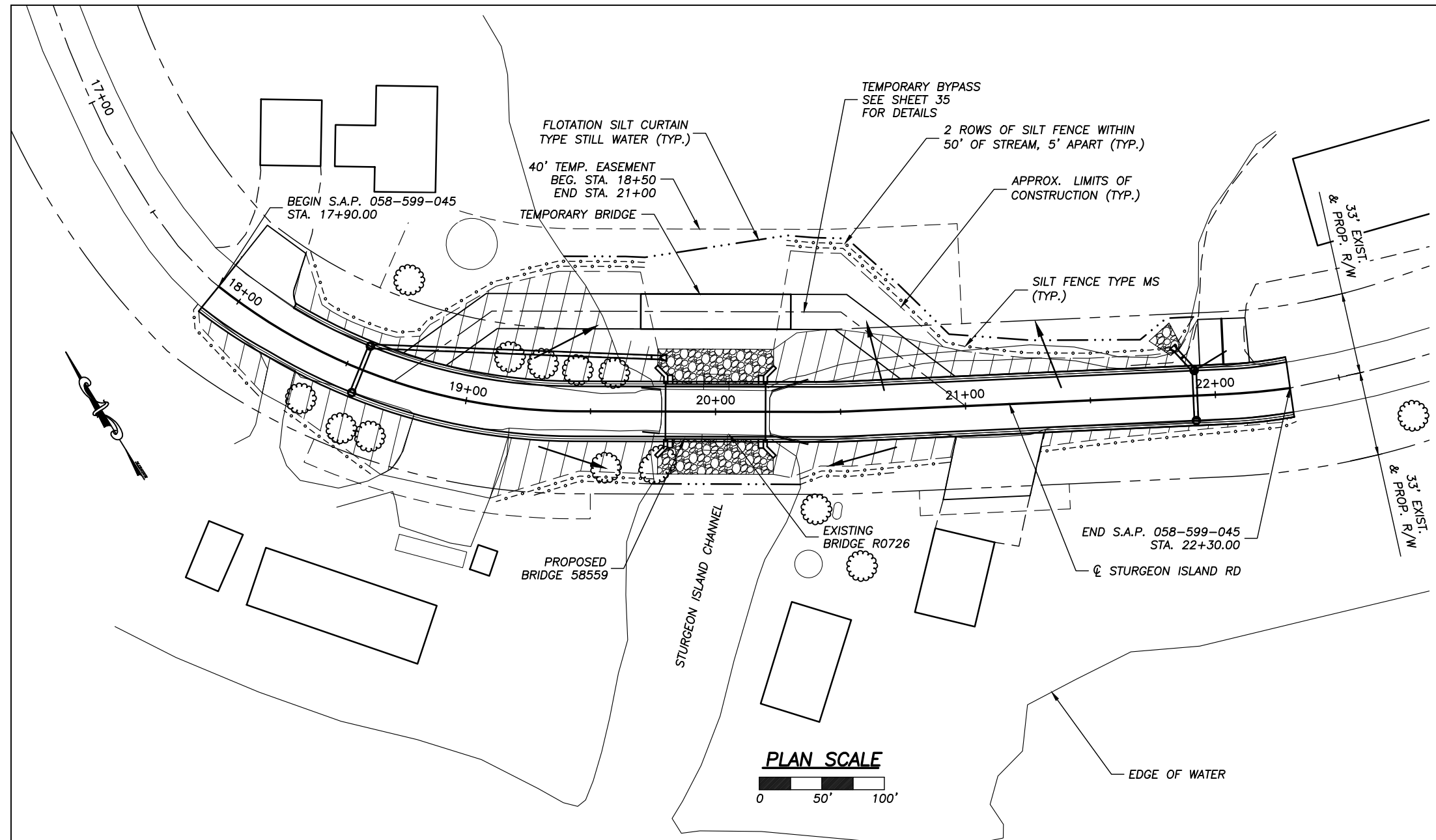
EROSION CONTROL PLAN  
 GENERAL NOTES 2

S.A.P. 058-599-045

APPROVED:

SHEET NO. 29 OF 36 SHEETS

BRIDGE NO.  
 58559



**GENERAL NOTES**

1. PRIOR TO SEEDING OR EROSION CONTROL INSTALLATION, THE CONTRACTOR SHALL MEET THE REQUIREMENTS OF THE PROVISIONS OF MNDOT 2575.3. THE CONTRACTOR SHALL PROVIDE A SMOOTH, MOIST AND EVENLY TEXTURED FOUNDATION OF THE AREA TO BE COVERED. SAID WORK IS INCIDENTAL.
2. THE QUANTITIES AND LOCATIONS OF ALL ITEMS SHOWN ON THE DETAIL SHEETS ARE APPROXIMATE AND WILL BE VERIFIED IN THE FIELD BY THE ENGINEER.
3. PLAN BID ITEMS SHALL BE USED TO MEET THE REQUIREMENTS OF THE NPDES PERMIT, THE PLAN, AND THE SPECIFICATIONS. NO ADDITIONAL COMPENSATION SHALL BE PAID FOR THE NUMBER OF MOBILIZATIONS REQUIRED OR AREA COVERED DURING SUCH MOBILIZATIONS.
4. FOR TEMPORARY TURF ESTABLISHMENT: RAPID STABILIZATION METHOD 1 SHALL BE PLACED IN AREAS EXPECTED TO LIE UNWORKED FOR MORE THAN 7 DAYS.
5. FOR PERMANENT TURF ESTABLISHMENT: SEED MIX AND APPLICATION RATE SHALL BE PER SPEC. 3876. SEED MIX SHALL BE GENERAL ROADSIDE MIX 25-141 @ 59 LBS/ACRE. PLACE FERTILIZER TYPE 2 PRIOR TO SEED PLACEMENT AND TILL AS REQUIRED TO 3 INCH MINIMUM DEPTH.
6. THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE THAT DRAINS WATER FROM ANY PORTION OF THE CONSTRUCTION SITE, OR DIVERTS WATER AROUND THE SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE CONSTRUCTION LIMITS, OR FROM THE POINT OF DISCHARGE INTO ANY SURFACE WATER. STABILIZATION OF THE LAST 200 LINEAL FEET MUST BE COMPLETED WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER.
7. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION BUT IN NO CASE LATER THAN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.

EROSION CONTROL							
		2575.504		2575.505			
		FERTILIZER TYPE 2 (1)	ROLLED EROSION PREVENTION CAT. 20 (2)	SEEDING (1)	RAPID STABILIZATION METHOD 1 (3)		
STA.	— STA.	LT/RT	LBS	SQ YD	ACRE	ACRE	
17+90	— 19+80	LT	21	347	0.07	0.07	
17+90	— 19+80	RT	15	243	0.05	0.05	
20+20	— 22+30	LT	12	214	0.04	0.04	
20+20	— 22+30	RT	6	110	0.02	0.02	
TOTAL =			54	914	0.18	0.18	

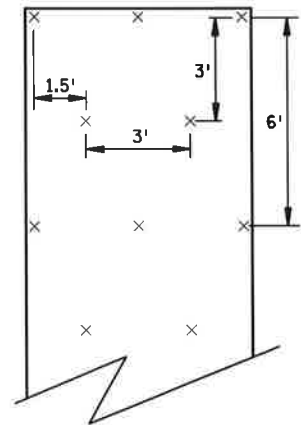
TEMPORARY SEDIMENT CONTROL					
			2573.503	2573.503	
			SILT FENCE TYPE MS	FLOTATION SILT CURTAIN TYPE STILL WATER	
STA.	— STA.	LT/RT	LIN. FT.	LOCATION	LIN. FT.
17+90	— 19+80	LT	208	NORTH	280
17+90	— 19+80	RT	204	SOUTH	60
20+20	— 22+30	LT	234		
20+20	— 22+30	RT	226		
TOTAL =			872	TOTAL =	340

LEGEND	
	FLOW ARROW
	SILT FENCE TYPE MS
	FLOTATION SILT CURTAIN TYPE STILL WATER
	LIMITS OF CONSTRUCTION
	LIMITS OF WETLANDS
	LIMITS OF ROLLED EROSION PREVENTION CATEGORY 20 & SEEDING
	LIMITS OF RANDOM RIPRAP CLASS III

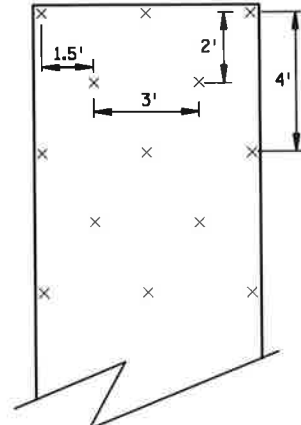
**KEYNOTES:**

- (1) SEEDING AND FERTILIZER SHALL BE INCLUDED IN BID PRICE FOR "TURF ESTABLISHMENT". FERTILIZER TYPE 2 SHALL BE SPREAD AT A RATE OF 300 LBS/ACRE.
- (2) TO BE PLACED AS REQUIRED FOR PERMANENT STABILIZATION ON ALL DISTURBED AREAS.
- (3) TO BE PLACED AS REQUIRED FOR TEMPORARY STABILIZATION ON ALL DISTURBED AREAS.

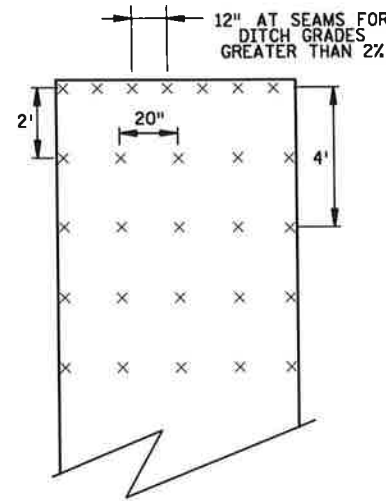
 CERTIFIED BY: PROFESSIONAL ENGINEER/THOMAS J. WILSON LIC. NO. 21690      10-19-2022	DES.: TJW CHK.: RDV DRN.: JMM CHK.: RDV	 <b>ERICKSON ENGINEERING</b> WWW.ERICKSONENGINEERING.COM 952-929-6791	<b>EROSION CONTROL PLAN          PLAN &amp; QUANTITIES</b>	S.A.P. 058-599-045 SHEET NO. 30 OF 36 SHEETS	APPROVED:	<b>BRIDGE NO.          58559</b>
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SLOPES FLATTER THAN 1:2  
(120 STAPLES PER 100 SQ YD)

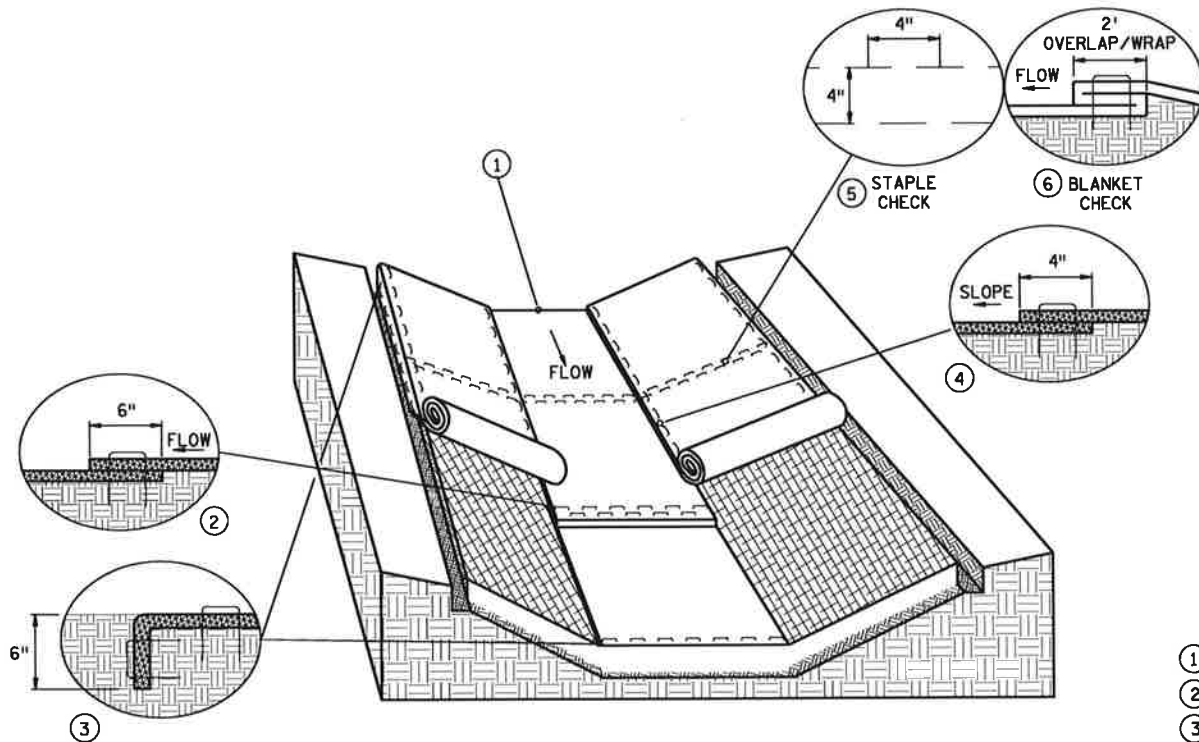


SLOPES 1:2 TO 1:1  
(170 STAPLES PER 100 SQ YD)

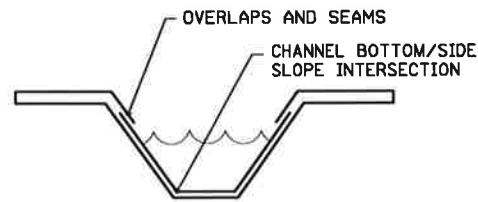


CHANNEL AND DITCH APPLICATIONS  
(350 STAPLES PER 100 SQ YD)

**BLANKET STAPLE PATTERN**



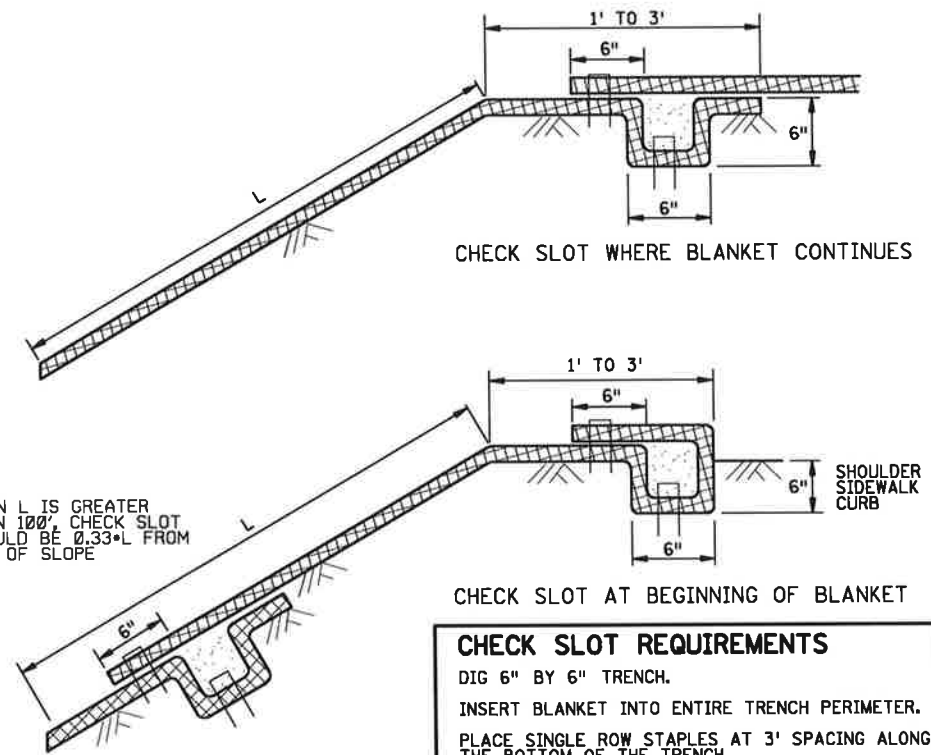
**DITCH BLANKET STAPLE DETAIL**



**DITCH BLANKET CRITICAL POINTS ⑦**

**DITCH BLANKET STAPLE DETAIL NOTES**

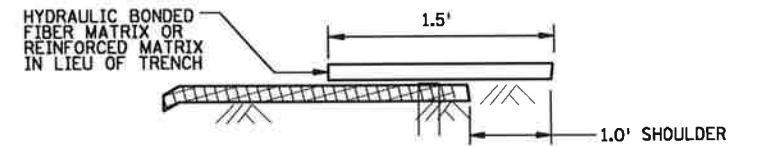
- ① USE CHECK SLOT DETAIL (NO ALTERNATES).
- ② PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER.
- ③ USE 6" X 6" TRENCH TO PLACE BLANKET. PLACE SINGLE ROW OF STAPLES ON TOP AND TRENCH SIDES AT 12" SPACING. BACKFILL TRENCH WITH SOIL AND TAMP.
- ④ PLACE SINGLE ROW OF STAPLES AT 12" SPACING.
- ⑤ USE STAPLE CHECK FOR CHANNEL SLOPES LESS THAN 2.5% GRADE AT 100 FOOT INTERVALS. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND AT 4" SPACING.
- ⑥ USE BLANKET CHECKS FOR THE FOLLOWING SLOPES:  
2.5%-3% 100 FT INTERVALS  
3%-5% 50 FT INTERVALS  
5%-7% 25 FT INTERVALS
- ⑦ CRITICAL POINTS SHALL BE SECURED WITH PROPER STAPLE PATTERNS.



CHECK SLOT WHERE BLANKET CONTINUES

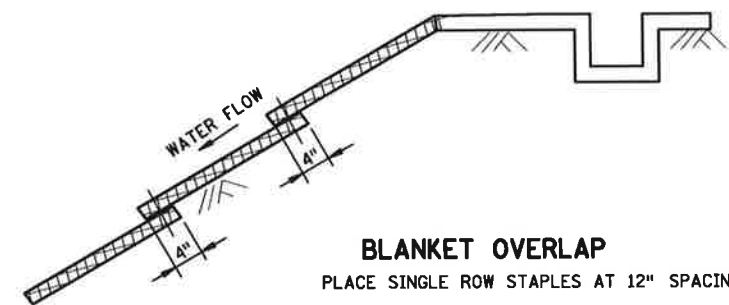
CHECK SLOT AT BEGINNING OF BLANKET

**CHECK SLOT REQUIREMENTS**  
DIG 6" BY 6" TRENCH.  
INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.  
PLACE SINGLE ROW STAPLES AT 3' SPACING ALONG THE BOTTOM OF THE TRENCH.  
BACKFILL TRENCH WITH SOIL AND TAMP.  
PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.



CHECK SLOT ALTERNATIVE  
PLACE SINGLE ROW STAPLES AT 12" SPACING

**CHECK SLOT DETAILS**



**BLANKET OVERLAP**  
PLACE SINGLE ROW STAPLES AT 12" SPACING

**GENERAL BLANKET INSTALLATION REQUIREMENTS**  
REPP = ROLLED EROSION PREVENTION PRODUCT  
PREPARE SOIL AS PER SPECIFICATION 2574.  
LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.  
OVERLAP ADJACENT STRIP EDGES A MINIMUM OF 4 INCHES.  
OVERLAP BLANKET 6" (MINIMUM) AT EACH END. OVERLAP BOTTOM END OF UPPER BLANKET OVER TOP END OF LOWER BLANKET. STAPLE ALONG OVERLAP EVERY 1.5'.  
THE UPPERMOST BLANKET OF ALL SLOPE APPLICATIONS MUST START IN A CHECK SLOT. IF SLOPE LENGTH (L) IS 100' OR GREATER, INSERT BLANKET INTO A CHECK SLOT 1/3 FROM THE BOTTOM OF THE SLOPE.

STANDARD SHEET NO: 5-297.404 (3 OF 3)

**mn** MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISOR: [Signature] APPROVED: 1-8-2020

STATE DESIGN ENGINEER

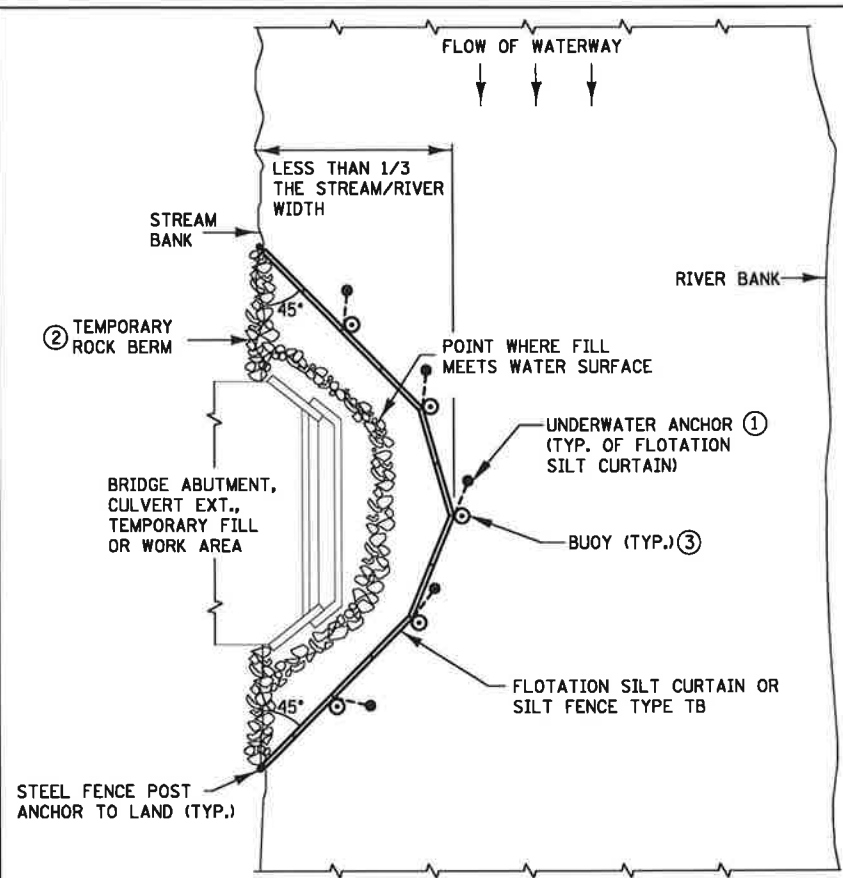
REVISION:  
APPROVED: 1-8-2020  
[Signature] CHIEF ENVIRONMENTAL OFFICER

**EE** ERICKSON ENGINEERING  
WWW.ERICKSONENGINEERING.COM  
952-929-6791

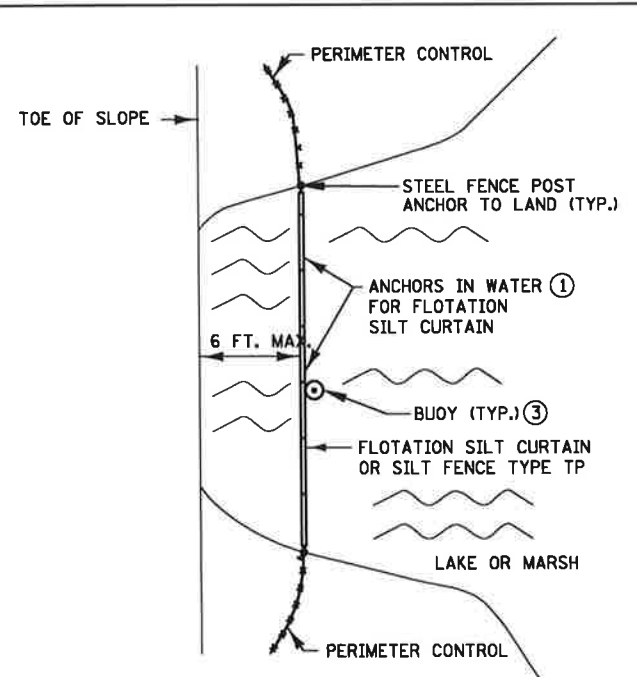
**PERMANENT EROSION CONTROL**  
REPP (BLANKET) STAPLE PATTERN FOR SLOPES

S.A.P. 058-599-045  
SHEET NO. 31 OF 36 SHEETS

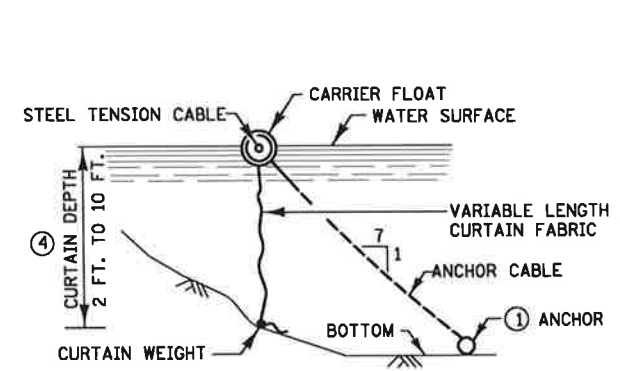
APPROVED:  
BRIDGE NO. 58559



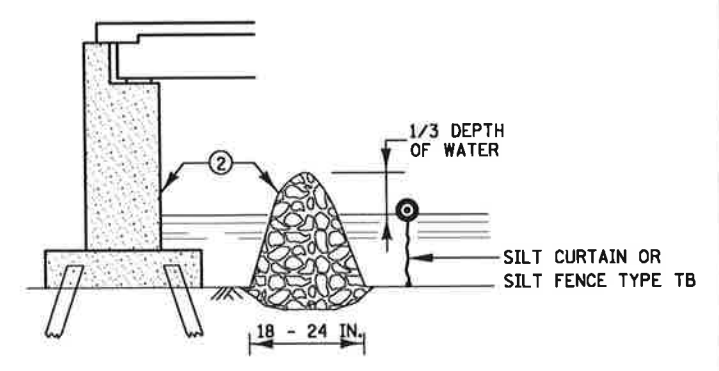
PLAN VIEW FOR STREAM ⑤



PLAN VIEW FOR LAKE OR MARSH ⑤



FLOTATION SILT CURTAIN

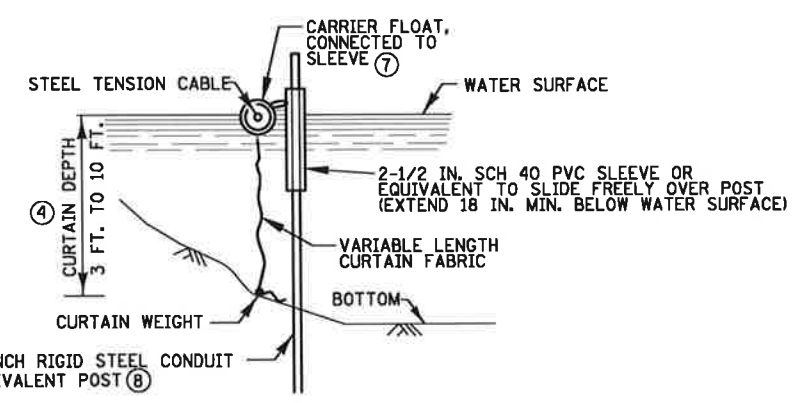


TEMPORARY ROCK BERM FOR SEDIMENT CONTROL

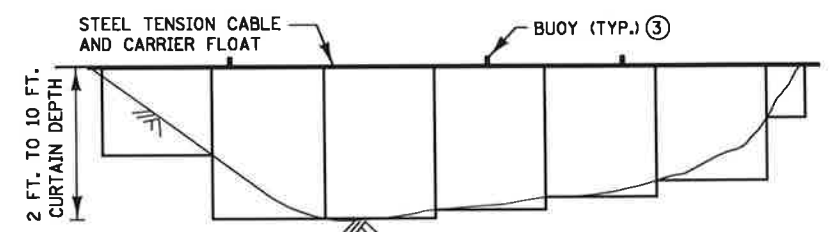
INSTALLATION GUIDELINES  
SILT FENCE TYPE TB  
MINIMUM WATER DEPTH: 1 FT.  
MAXIMUM WATER DEPTH: 3 FT.  
MAXIMUM WATER VELOCITY: 5 FT./SEC.

INSTALLATION GUIDELINES ④  
FLOTATION SILT CURTAIN  
TYPE: STILL WATER  
MINIMUM WATER DEPTH: 3 FT.  
MAXIMUM WATER DEPTH: 10 FT.  
MAXIMUM WATER VELOCITY: 2 FT./SEC.  
MAXIMUM WAVE HEIGHT: 1 FT

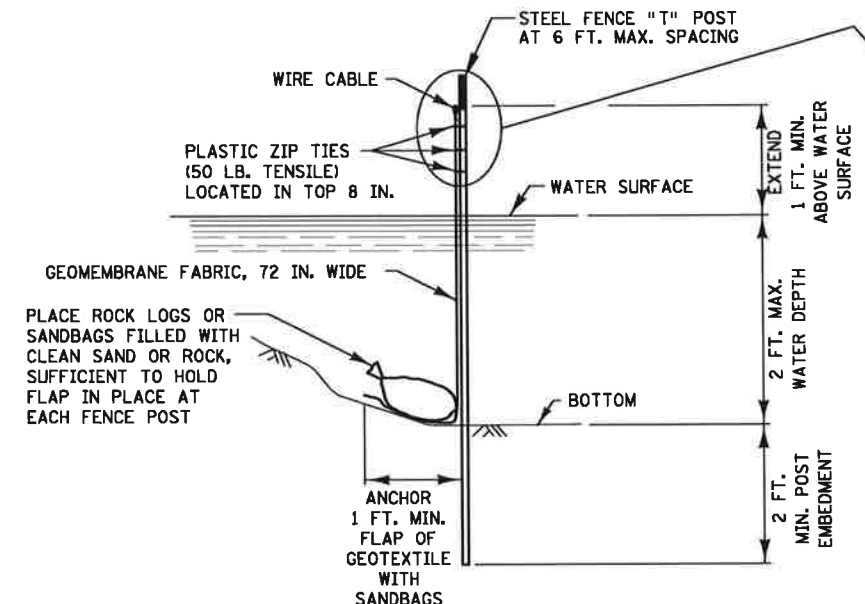
INSTALLATION GUIDELINES ④  
FLOTATION SILT CURTAIN  
TYPE: MOVING WATER  
MINIMUM WATER DEPTH: 3 FT.  
MAXIMUM WATER DEPTH: 10 FT.  
MAXIMUM WATER VELOCITY: 5 FT./SEC.  
MAXIMUM WAVE HEIGHT: 2 FT.



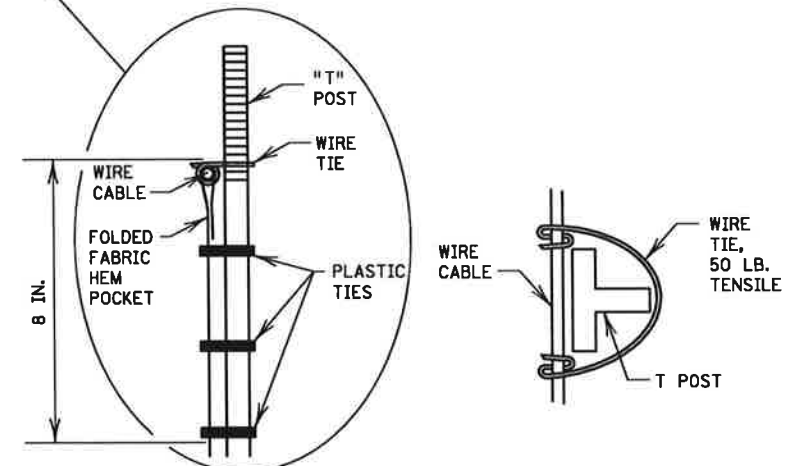
ALTERNATE FLOTATION SILT CURTAIN



FRONT VIEW FOR FLOTATION SILT CURTAIN



SILT FENCE TYPE TB ⑥



FABRIC/CABLE/POST CONNECTION

NOTES:

- SEE SPECS. 2573, 3886, 3887 & 3893.
- ① FOR ANCHOR SPACING AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.
- ② IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT A BRIDGE, CULVERT, OR SLOPE, A TEMPORARY ROCK BERM CONSTRUCTED FROM THE RIPRAP CAN BE USED TO PROVIDE ADDITIONAL PROTECTION. WHEN THE WORK IS COMPLETE THE RIPRAP CAN THEN BE MOVED TO THE PERMANENT LOCATION INDICATED IN THE PLANS. THE TEMPORARY ROCK BERM IS INCIDENTAL.
- ③ ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.
- ④ MINIMUM WATER DEPTH APPLIES TO THE DEEPEST POINT ALONG THE FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB FOR DETERMINING APPLICABILITY OF FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB.
- ⑤ SILT CURTAIN SHOULD BE REMOVED WHEN THE AREA CONTRIBUTING DIRECT RUNOFF HAS BEEN TEMPORARILY OR PERMANENTLY STABILIZED. SILT CURTAIN SHOULD ALSO BE REMOVED BEFORE WINTER IF ICE UP OR ICE FLOW IS ANTICIPATED.
- ⑥ EMBED POST INTO BOTTOM A MINIMUM OF 40% OF THE WATER DEPTH (INCLUDING WAVE HEIGHT), BUT IN NO CASE SHALL EMBEDMENT BE LESS THAN 2 FEET.
- ⑦ ANCHOR FLOAT MUST BE CONNECTED SECURELY TO SLEEVE WITH A MINIMUM TENSILE STRENGTH OF 100 LBS. CONNECTION METHOD MUST ALLOW FOR SLEEVE TO MOVE FREELY ON POST.
- ⑧ PROVIDE SUFFICIENT NUMBER OF POST ANCHORS TO MAINTAIN SILT CURTAIN POSITION.

STANDARD SHEET NO: 5-297.405 (1 OF 8)

REVISION: \_\_\_\_\_

APPROVED: 2-28-2017

APPROVED: *[Signature]* 2-28-2017

STATE DESIGN ENGINEER

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TEMPORARY SEDIMENT CONTROL

SILT CURTAIN OR SILT FENCE TYPE TB

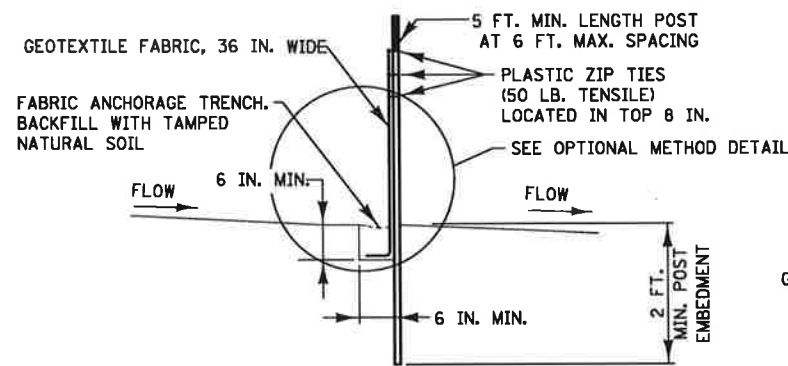
S.A.P. 058-599-045

APPROVED: \_\_\_\_\_

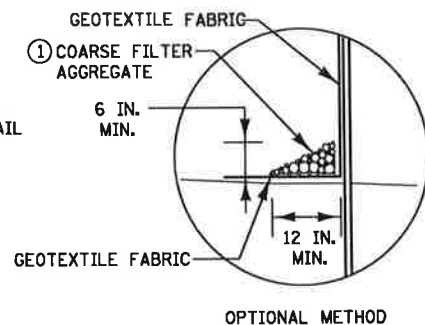
SHEET NO. 32 OF 36 SHEETS

BRIDGE NO. 58559

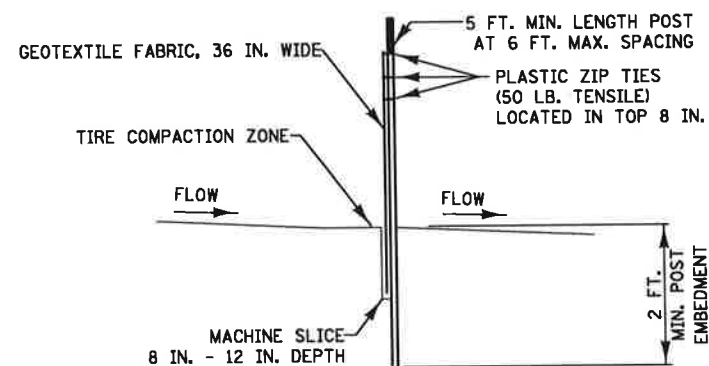




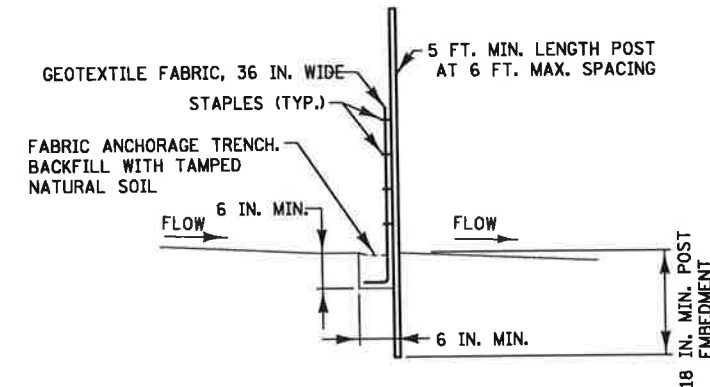
**SILTS FENCE TYPE HI ②  
(HAND INSTALLED)**



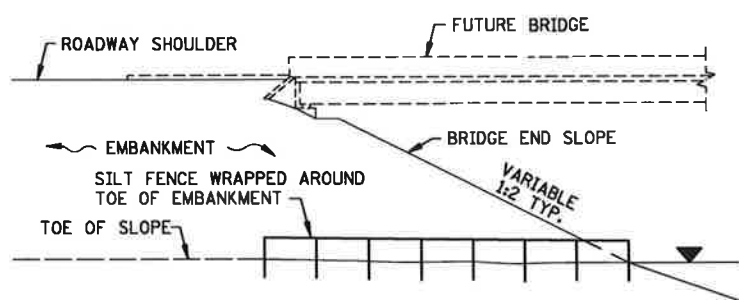
**OPTIONAL METHOD**



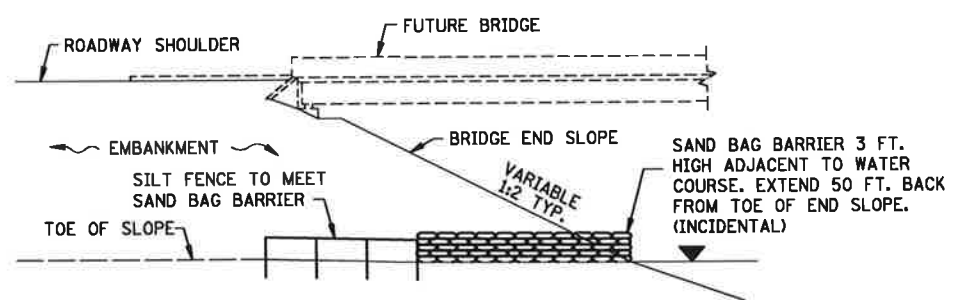
**SILTS FENCE TYPE MS ②  
(MACHINE SLICED)**



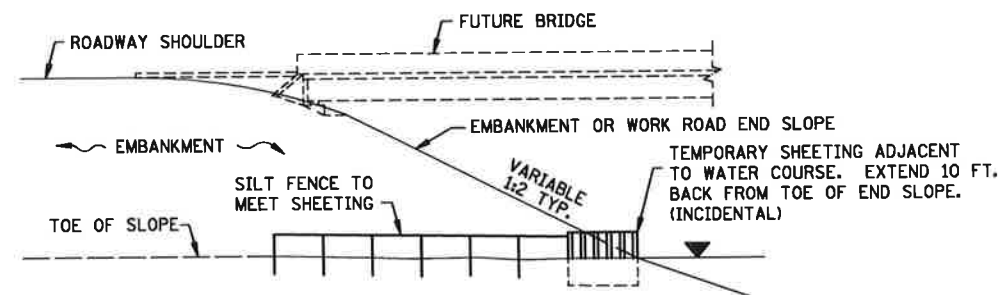
**SILTS FENCE TYPE PA ③  
(PREASSEMBLED)**



**SILTS FENCE ONLY ④**

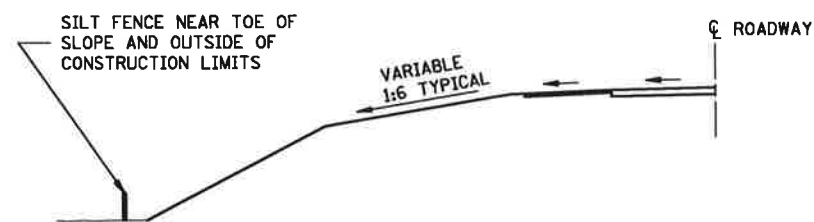


**SILTS FENCE WITH SAND BAGS ⑤**



**SILTS FENCE WITH SHEETING ⑥**

**INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER**

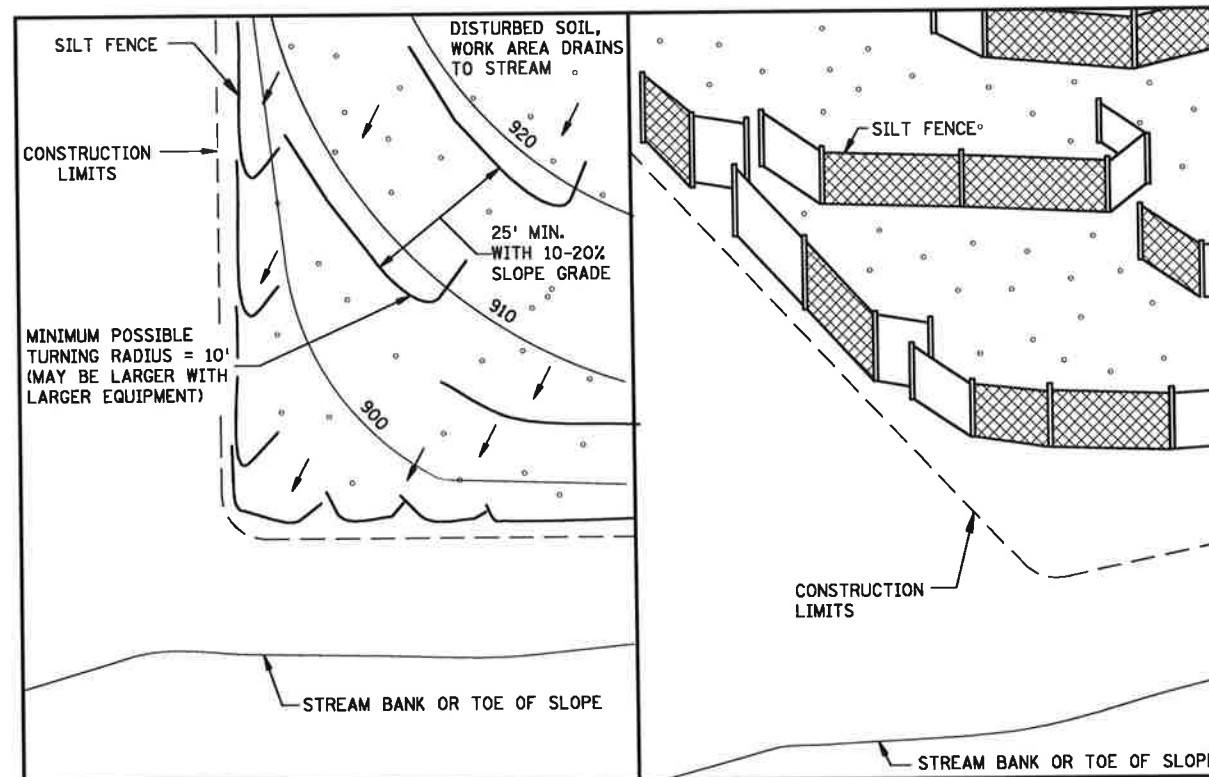


**LOCATION AT TOE OF ROADWAY EMBANKMENT**

**NOTES:**

SEE SPECS. 2573, 3149 & 3886.

- ① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.
- ② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.
- ③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.
- ④ WATER COURSE FLOW VELOCITY: STANDING.  
CONTRIBUTING SLOPE AREA: 1/2 ACRE.
- ⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.  
CONTRIBUTING SLOPE AREA: 1 ACRE.
- ⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.  
CONTRIBUTING SLOPE AREA: 3 ACRES.



**PLAN VIEW**

**PERSPECTIVE VIEW**

**J-HOOK INSTALLATION**

MODIFICATION:  
SAND BAG BARRIER & TEMPORARY SHEETING ADJACENT  
TO WATER COURSE MADE INCIDENTAL.

**STANDARD SHEET NO: 5-297.405 (6 OF 8)**

**mn MINNESOTA**  
DEPARTMENT OF TRANSPORTATION

REVISOR: [Signature]  
APPROVED: 2-28-2017  
STATE DESIGN ENGINEER

DES.: TJW  
CHK.: RDV  
DRN.: JMM  
CHK.: RDV

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CERTIFIED BY: PROFESSIONAL ENGINEER/THOMAS J. WILSON  
LIC. NO. 21690 9-9-2022

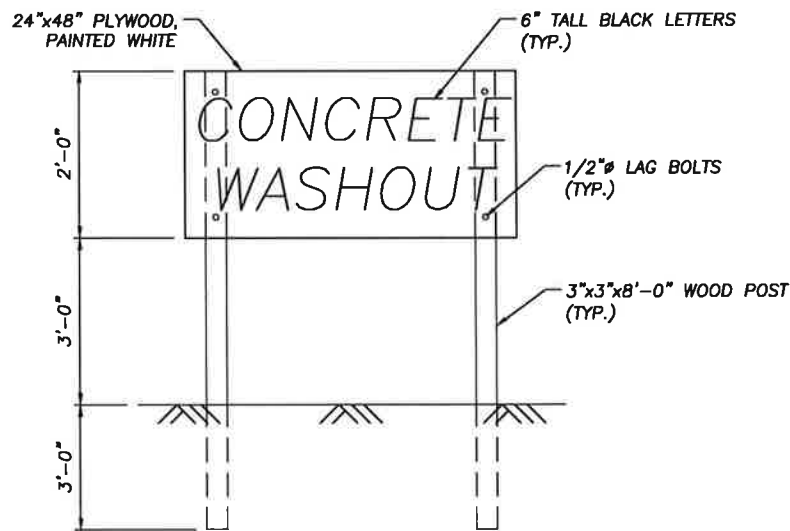
**TEMPORARY SEDIMENT CONTROL**  
SILTS FENCE

S.A.P. 058-599-045  
SHEET NO. 33 OF 36 SHEETS

APPROVED:  
**BRIDGE NO. 58559**

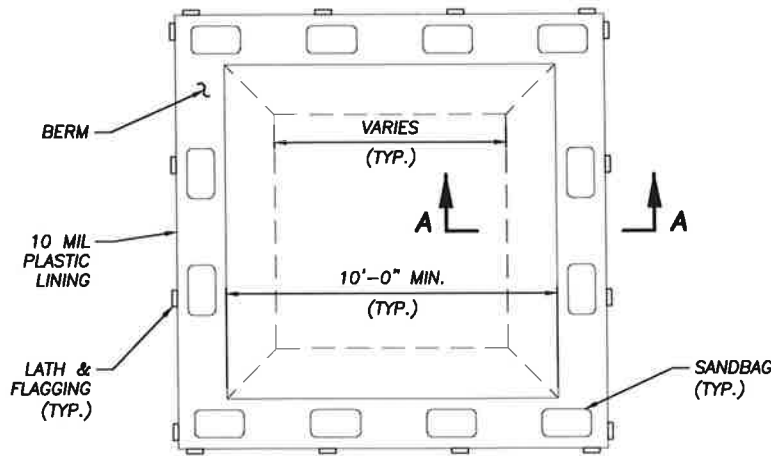
REVISION:  
APPROVED: 2-28-2017  
[Signature]  
CHIEF ENVIRONMENTAL OFFICER

**CONCRETE WASHOUT SIGN DETAIL**  
(OR EQUIVALENT)

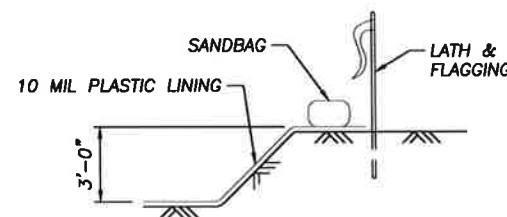


- NOTES:**
- ONE (1) SIGN SHALL BE PLACED WITHIN 30 FEET OF EACH CONCRETE WASHOUT LOCATION.
  - CONCRETE WASHOUT AREA(S) TO BE LOCATED AT LEAST 50 FEET FROM ANY STORM DRAIN, OPEN DITCH, OR WATER BODIES.
  - CONCRETE WASHOUT AREA(S) SHALL BE CONSIDERED INCIDENTAL.

**CONCRETE WASHOUT, TYPE "BELOW GRADE"**

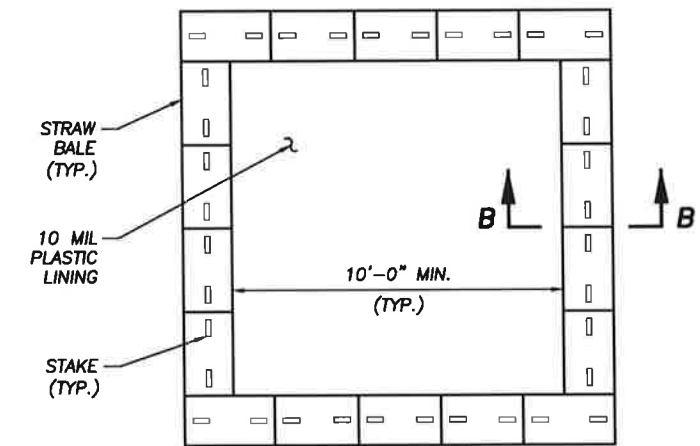


**PLAN**  
(ACTUAL LAYOUT DETERMINED IN THE FIELD)

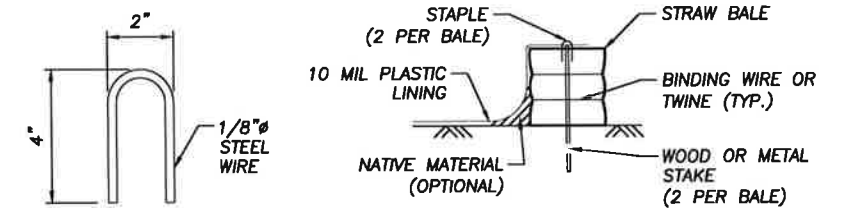


**SECTION A-A**

**CONCRETE WASHOUT, TYPE "BALES ABOVE GRADE"**



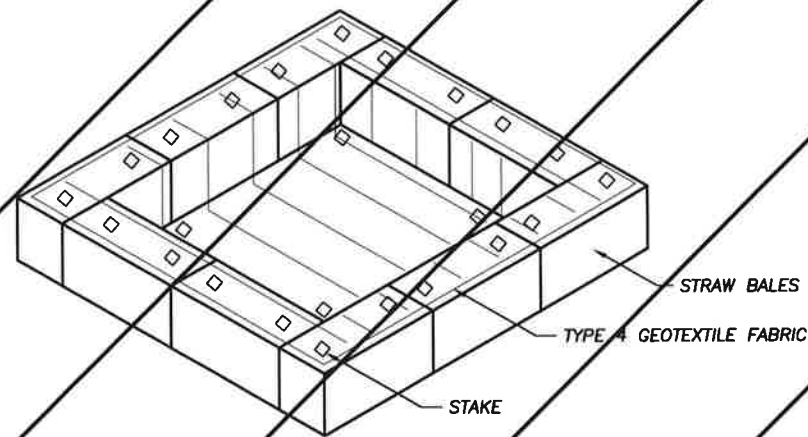
**PLAN**  
(ACTUAL LAYOUT DETERMINED IN THE FIELD)



**STAPLE DETAIL**

**SECTION B-B**

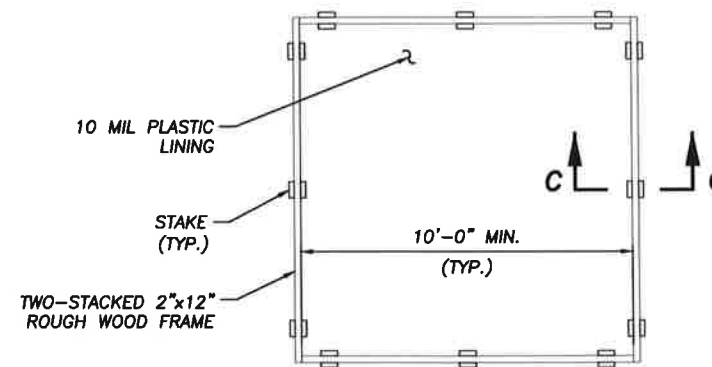
**TEMPORARY SEDIMENT TRAP DEWATERING BASIN**



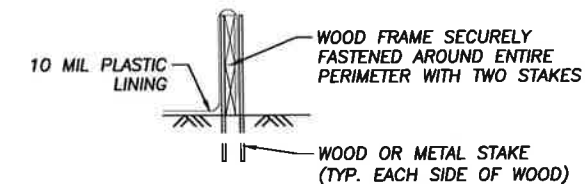
- BASIN IS TYPICALLY USED ON BRIDGE PROJECTS WITH DEWATERING OR CULVERT PROJECTS.
- BASIN IS SIZED FOR A PUMP WITH A 3" DISCHARGE HOSE; LARGER PUMPS WILL REQUIRE A LARGER BASIN.
- BALES ARE TO MEET THE REQUIREMENTS OF BALE CHECK, SPEC. 2573 & 3882.
- REMOVAL OF SEDIMENT FROM THE BASIN IS CONSIDERED TO BE INCIDENTAL.

TYPE 4 GEOTEXTILE FABRIC (SPEC. 3733) IS TO BE DRAPED OVER THE BALES AND INTO THE BASIN. THE FABRIC WILL BE STAKED TO THE GROUND AT THE FOUR CORNERS OF THE BASIN. STAKES TO ANCHOR THE BALES SHALL BE PLACED AFTER THE FABRIC HAS BEEN PLACED, SO AS TO ANCHOR BOTH THE BALES AND THE FABRIC. THE USE OF FLOCCULANTS MAY BE REQUIRED TO ACCELERATE THE SETTLEMENT OF THE SEDIMENT.

**CONCRETE WASHOUT, TYPE "BOARDS ABOVE GRADE"**



**PLAN**  
(ACTUAL LAYOUT DETERMINED IN THE FIELD)



**SECTION C-C**

*Thomas J. Wilson*  
CERTIFIED BY: PROFESSIONAL ENGINEER/THOMAS J. WILSON  
LIC. NO. 21690 9-9-2022

DES.: TJW  
CHK.: RDV  
DRN.: JMM  
CHK.: RDV

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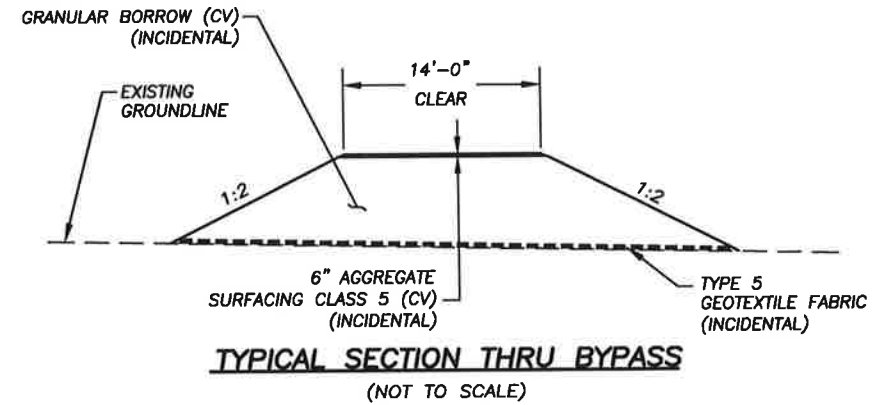
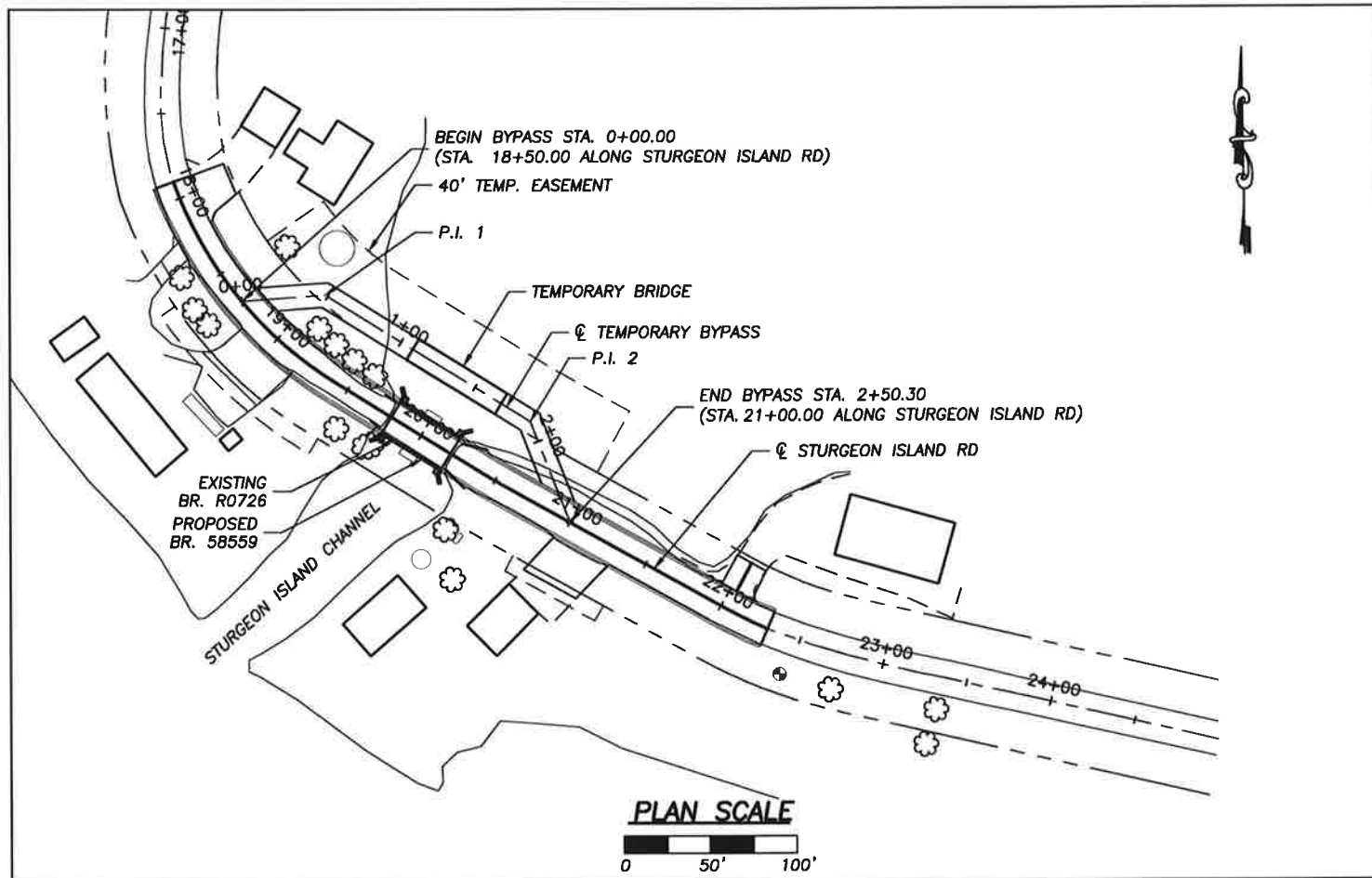
MISC. DETAILS

S.A.P. 058-599-045

APPROVED:

SHEET NO. 34 OF 36 SHEETS

BRIDGE NO.  
58559



**NOTES:**

BYPASS SHALL BE CONSTRUCTED PRIOR TO REMOVAL OF EXISTING BRIDGE TO ALLOW FOR CONTINUOUS ACCESS TO STURGEON ISLAND RD.

BYPASS DISTURBANCE AREA SHALL BE CLEARED BUT NOT GRUBBED TO ALLOW FOR EXISTING VEGETATION TO REMAIN TO MAXIMUM AMOUNT ALLOWABLE.

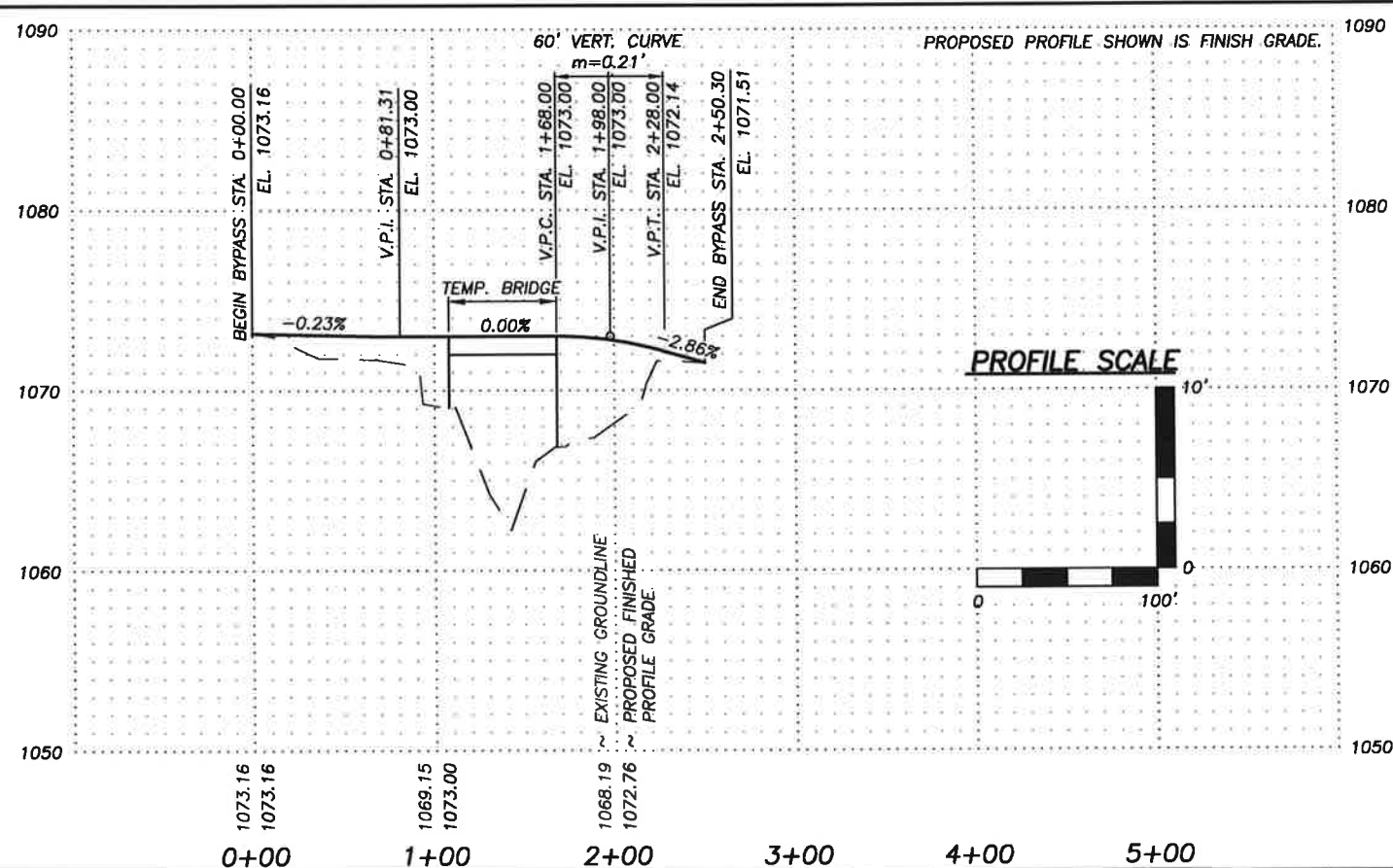
ANY DISTURBANCE OF STREAM BED SHALL BE SATISFACTORILY REPAIRED USING MATERIALS APPROVED BY THE ENGINEER IN THE FIELD. THE CONTRACTOR SHALL SATISFACTORILY RESTORE THE SITE TO A LIKE OR BETTER CONDITION, FOR THE INTENDED FUNCTION, AS IT WAS PREVIOUS TO THE CONSTRUCTION. SUCH WORK AND MATERIALS ARE INCIDENTAL AND NO DIRECT PAYMENT WILL BE MADE.

PAYMENT FOR ITEM NO. 2106.601 ONE LANE BYPASS (14' LANE) SHALL INCLUDE ALL ITEMS NECESSARY TO CONSTRUCT A FULLY FUNCTIONING, COMPLIANT ROADWAY BYPASS WHICH ALLOWS FOR LIGHT RESIDENTIAL TRAFFIC DURING THE PROCESS OF CONSTRUCTION. ANY MODIFICATION TO THIS PLAN SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE ENGINEER IN THE FIELD. TRAFFIC CONTROL FOR THE ROADWAY BYPASS SHALL BE PAID FOR AS PART OF ITEM NO. 2563.601 TRAFFIC CONTROL (LUMP SUM).

REMOVAL AND DISPOSAL OF BYPASS ITEMS (TO ORIGINAL GRADE, INCLUDING FILL AND FABRIC) SHALL BE INCIDENTAL AND NO DIRECT PAYMENT WILL BE MADE. PAYMENT WILL BE MADE FOR TURF RESTORATION AND EROSION CONTROL ITEMS AS SHOWN ON THE RESTORATION PLAN OR AS DIRECTED BY THE ENGINEER IN THE FIELD.

ESTIMATED QUANTITIES FOR BYPASS (ALL LISTED ITEMS INCIDENTAL) LISTING IS FOR INFORMATION ONLY AND IS NOT COMPREHENSIVE OF ALL QUANTITIES NECESSARY FOR ITEM "ONE LANE BYPASS (14' LANE)".

AGGREGATE SURFACING CLASS 5 (CV):	45	CU. YD.
GRANULAR BORROW (CV):	340	CU. YD.
GEOTEXTILE FABRIC TYPE 5:	450	SQ. YD.



GRADING COORDINATES				
ALIGNMENT DATA				
LOCATION	NORTHING	EASTING	STATION	ELEVATION
BEG. OF BYPASS	336823.43	539178.23	0+00.00	1073.16
P.I. 1	336826.85	539226.45	0+48.34	1073.05
P.I. 2	336753.46	539345.12	1+87.87	1072.90
END OF BYPASS	336695.33	539367.89	2+50.30	1071.51

DES.: TJW  
 CHK.: RDV  
 DRN.: JMM  
 CHK.: RDV

*Thomas J. Wilson*  
 CERTIFIED BY: PROFESSIONAL ENGINEER / THOMAS J. WILSON  
 LIC. NO. 21690 9-9-2022

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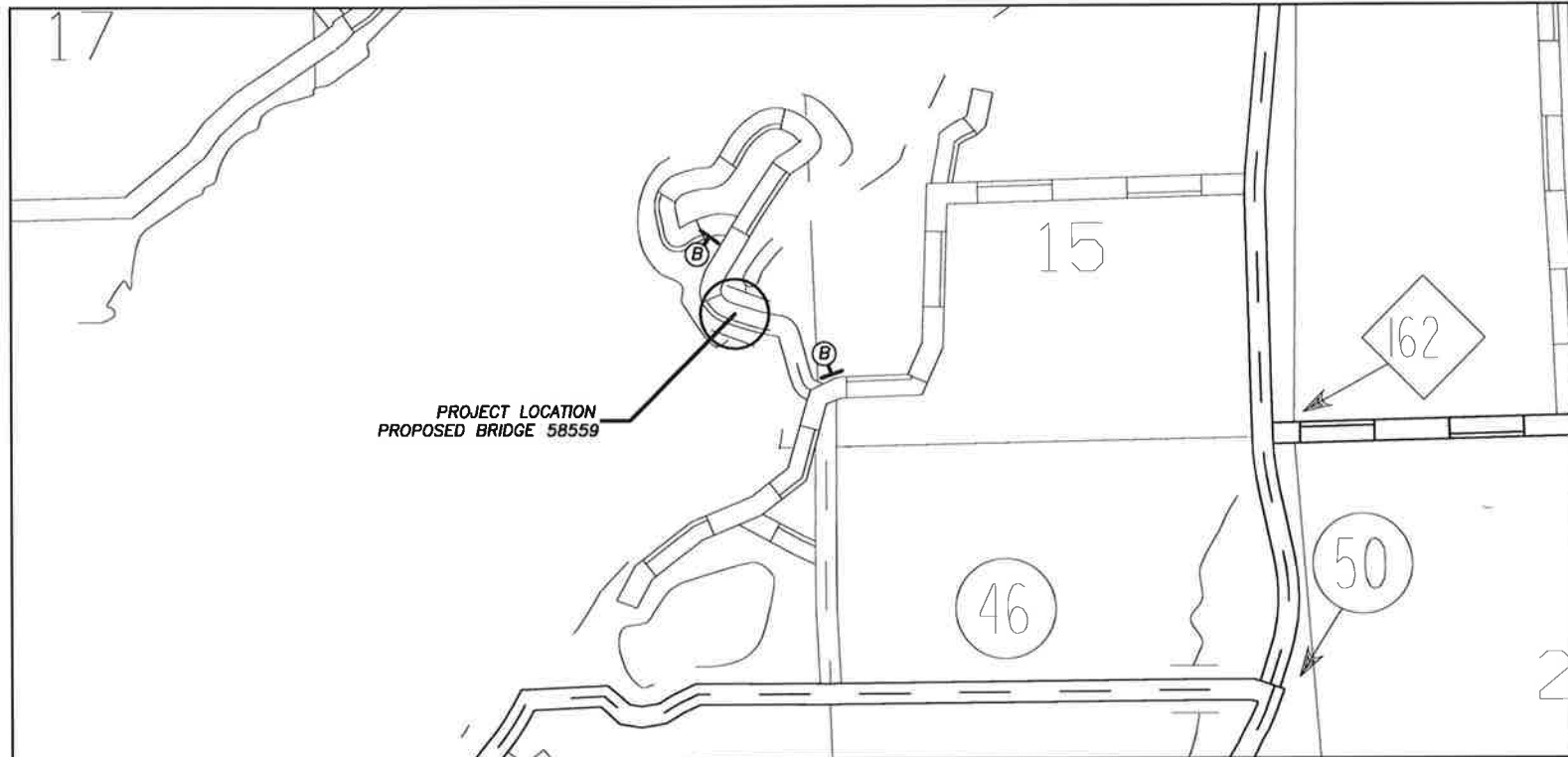
**TEMPORARY BYPASS  
 PLAN & PROFILE**

S.A.P. 058-599-045

APPROVED:

SHEET NO. 35 OF 36 SHEETS

BRIDGE NO.  
 58559



TRAFFIC CONTROL DEVICES				
ITEM	DESIGN NUMBER	F&I BY CONTRACTOR	SIZE	REMARKS
BARRICADES, TYPE III		6		
FLASHERS (TYPE A)		16		
TAKE TURNS	G20-X12P	2	48" x 24"	DOUBLE POST MOUNTED
STOP SIGN	R1-1	2	48" x 48"	DOUBLE POST MOUNTED
BRIDGE CLOSED	R11-2M	2	48" x 30"	LETTERING ~ BLACK ON WHITE
20 MPH	W13-1p	2	30" x 30"	LETTERING ~ BLACK ON YELLOW
ROAD WORK AHEAD	W20-1	2	48" x 48"	LETTERING ~ BLACK ON ORANGE
ONE LANE ROAD AHEAD	W20-4	4	48" x 48"	LETTERING ~ BLACK ON ORANGE
① ORANGE SAFETY FENCE				

**NOTES:**

EXISTING ACCESS TO RESIDENCES SHALL BE MAINTAINED THROUGHOUT PROJECT DURATION.

ALL COSTS INCURRED FOR MATERIALS, INSTALLATION, MAINTENANCE, AND REMOVAL OF TRAFFIC CONTROL DEVICES AS SHOWN ON THIS SHEET AND RELATED WORK DURING CONSTRUCTION SHALL BE INCLUDED IN PRICE BID FOR ITEM "TRAFFIC CONTROL".

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

BARRICADE PLACEMENT TO BE DETERMINED IN THE FIELD SO AS NOT TO OBSTRUCT VISION TO OR FROM ROADWAY ENTRANCES.

EXACT LOCATION OF TRAFFIC CONTROL DEVICES TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE CONTRACTOR SHALL REMOVE, SALVAGE OR COVER & RESTORE AS APPROPRIATE, ALL EXISTING SIGNING THAT CONFLICTS WITH THIS TRAFFIC CONTROL PLAN TO THE SATISFACTION OF THE ENGINEER.

ALL INSTALLATIONS REQUIRING POSTS SHALL BE A "U" CHANNEL TYPE. MINIMUM WEIGHT PER FOOT - 2.75 lbs.

ALL TRAFFIC CONTROL DEVICES SHALL HAVE RETROREFLECTIVE SHEETING.

① THE USE OF TEMPORARY ORANGE CONSTRUCTION FENCING MAY BE REQUIRED BY THE ENGINEER TO COMPLETELY CLOSE OFF ANY SPECIFIC WORK AREA.

