MINNESOTA DEPARTMENT OF TRANSPORTATION

CITY OF DULUTH, MINNESOTA

CONSTRUCTION PLANS

FOR

GRADING, SUBBALLAST, TURNOUTS, BALLAST, RAIL

RICE'S POINT

DULUTH SEAWAY PORT EXPANSION

CITY OF DULUTH PROJECT #1717

SP 118-080-063

EXISTING

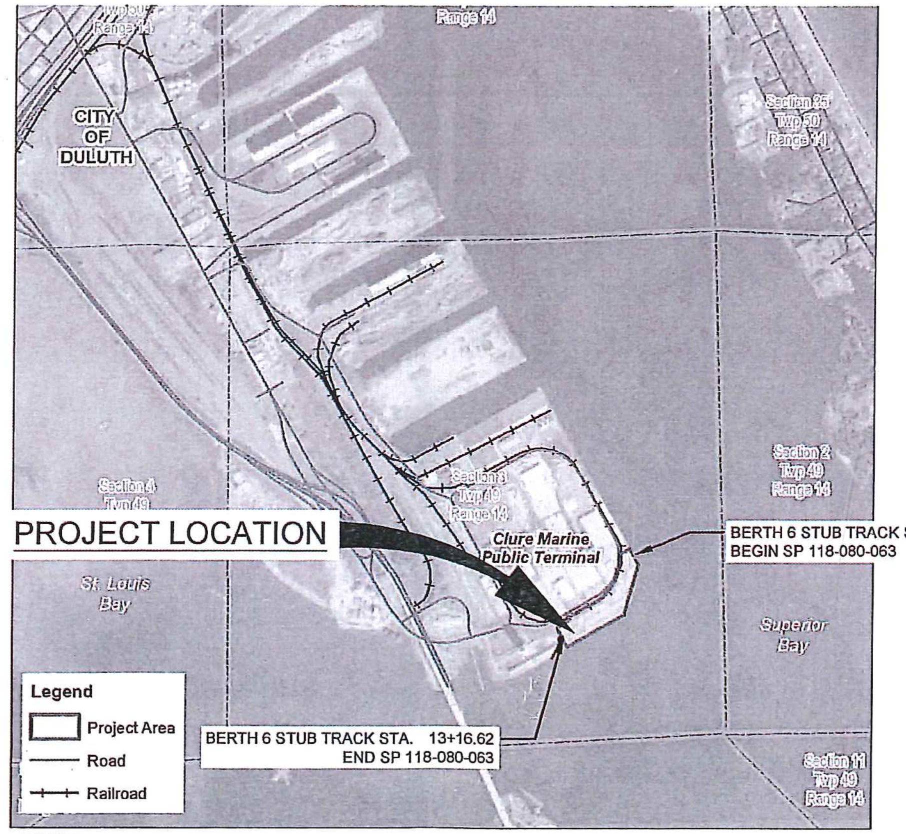
RIGHT OF WAY
PERMANENT EASEMENT
PROPERTY LINE
HORIZONTAL CONTROL POINT
BENCHMARK
SURVEY MARKER
SOIL BORING
SANITARY SEWER AND MANHOLE
FORCE MAIN AND LIFT STATION
SANITARY SEWER SERVICE & CLEANOUT
WATER MAIN, HYDRANT, VALVE AND MANHOLE
WATER SERVICE AND CURB STOP BOX
STORM SEWER, MANHOLE AND CATCH BASIN
CULVERT AND APRON ENDWALL
GAS MAIN, VALVE, VENT AND METER
HANDHOLE
BURIED FIBER OPTIC CABLE AND MANHOLE
BURIED PHONE CABLE, PEDESTAL AND MANHOLE
BURIED TV CABLE, PEDESTAL AND MANHOLE
BURIED ELECTRIC CABLE, PEDESTAL, MANHOLE, TRANSFORMER AND METER
OVERHEAD WIRE, POLE AND GUY WIRE
LIGHT POLE
TRAFFIC SIGNAL
STREET NAME SIGN
SIGN (NON STREET NAME)
RAILROAD TRACKS
DECIDUOUS AND CONIFEROUS TREE
BUSH / SHRUB AND STUMP
EDGE OF WOODED AREA
WETLAND
BUILDING
FENCE (UNIDENTIFIED)
BARBED WIRE FENCE
CHAIN LINK FENCE
ELECTRIC WIRE FENCE
WOOD FENCE
WOVEN WIRE FENCE
PLATE BEAM GUARDRAIL
CABLE GUARDRAIL
POST / BOLLARD
RETAINING WALL

PROPOSED

STREET CENTERLINE
RIGHT-OF-WAY
PERMANENT EASEMENT
TEMPORARY EASEMENT
CONSTRUCTION LIMITS
SANITARY SEWER, BULKHEAD AND MANHOLE
FORCE MAIN
SANITARY SERVICE AND CLEANOUT
WATER MAIN, TEE, HYDRANT, BULKHEAD AND VALVE
WATER VALVE MANHOLE, REDUCER, BEND AND CROSS
WATER SERVICE AND CURB STOP BOX
STORM SEWER, MANHOLE AND CATCH BASIN
CULVERT AND APRON ENDWALL
DRAIN TILE
DITCH / SWALE
RIPRAP
STREET NAME SIGN
SIGN (NON STREET NAME)
RETAINING WALL

TRACK

PROPOSED TRACK CENTERLINE
EXISTING TRACK CENTERLINE
TRACK TO BE REMOVED/SALVAGED



N

1000 0 1000 2000 feet
scale 500

PROJECT LOCATION

CITY OF DULUTH, ST. LOUIS COUNTY
SEC. 3, T49, R14

SCALES

PLAN	0 – 50
PROFILE	HOR 0 – 30; VERT 0 – 5
CROSS SECTION	HOR 0 – 10; VERT 0 – 5
INDEX MAP	0 – 1000

NOTE:
THE SUBSURFACE UTILITY QUALITY INFORMATION IN THIS PLAN IS 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."

THE CONTRACTOR SHALL CALL THE ONE CALL SYSTEM AT 811 BEFORE COMMENCING EXCAVATION.

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

MINN. PROJ. NO. NHFP 6919(091)

GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN EXCEPT AS MODIFIED BY THE SPECIFICATIONS FOR THIS PROJECT.

THE CITY OF DULUTH 2017 CONSTRUCTION STANDARDS SHALL APPLY

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.

INDEX

THIS PLAN CONTAINS 45 SHEETS.

DESIGN DESIGNATION

STOPPING SIGHT DISTANCE BASED ON:
3.5' HEIGHT OF EYE — 2' HEIGHT OF OBJECT

STREET NAME
SAP 118-080-063

GROSS LENGTH	1316.62'
BRIDGE LENGTH	NA
EXCEPTION LENGTH	NA
NET LENGTH	1316.62'
DESIGN	NA
DESIGN SPEED	NA
R-VALUE	NA
ESALS	NA
EXISTING A.D.T. (20XX)	NA
20 YR. PROJECTED A.D.T. (20XX)	NA
% HCADT (20XX)	NA
FUNCTIONAL CLASSIFICATION	NA
NO. OF TRAFFIC LANES	NA
NO. OF PARKING LANES	NA

APPROVED: [signature] 7/26/18
CITY ENGINEER — DATE

APPROVED: [signature] FOR 7/26/18
CHIEF ENGINEER OF TRANSPORTATION — DATE

APPROVED: [signature] 7/26/18
CHIEF ENGINEER OF UTILITIES — DATE

RECOMMENDED FOR APPROVAL: [signature] 9/5/18
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY — DATE

RECOMMENDED FOR APPROVAL: [signature] for 9-5-18
APPROVED FOR STATE AID AND FEDERAL FUNDING STATE AID ENGINEER — DATE

CITY OF DULUTH, MINNESOTA

SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

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

Signature: [signature] MATTHEW J. BOLF, PE
Date: 7/26/18 Lic. No. 43913

FILE NO. DUSPA-144638

1 / 45

SP 118-080-063

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STATEMENT OF ESTIMATED QUANTITIES — S.A.P 118-080-063

NOTE	TAB	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITIES
		2021.501	MOBILIZATION	LUMP SUM	1
		2100.601	GUARD SHACK	LUMP SUM	1
	A	2104.502	SALVAGE HYDRANT & VALVE	EACH	1
	A	2104.502	REMOVE HYDRANT	EACH	1
	A	2104.502	REMOVE LIGHTING UNIT	EACH	3
	A	2104.502	ABANDON WATER MAIN	EACH	1
	A	2104.502	SALVAGE BUMPING POST	EACH	1
6	A	2104.502	SALVAGE VEHICULAR GATE	EACH	2
	A	2104.502	REMOVE VEHICULAR GATE	EACH	1
	A	2104.502	REMOVE CONCRETE TRANSFORMER PAD	EACH	4
	A	2104.503	SALVAGE CHAIN LINK FENCE	LIN FT	1065
	A	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	760
	A	2104.503	REMOVE RAILROAD TRACK	LIN FT	96
4	A	2104.503	SALVAGE PIPE CULVERT	LIN FT	98
	A	2104.518	REMOVE CONCRETE PAVEMENT	SQ FT	11800
		2105.604	BIAXIAL GEOGRID	SQ YD	4000
1		2105.507	COMMON EXCAVATION	CU YD	3200
		2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	1800
		2211.607	CRUSHED CONCRETE	CU YD	2700
		2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	3600
		2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (3,F)	TON	3650
		2360.509	TYPE SP 19 NON-WEARING COURSE MIXTURE (3,B)	TON	9950
2		2411.502	CONCRETE STRUCTURE DES. SHELTER SLAB	EACH	1
	B	2501.503	8" SCH. 40 STEEL PIPE CULVERT	LIN FT	199
4	B	2501.503	INSTALL 15" RC PIPE CULVERT	LIN FT	98
	B	2502.503	6" PERF PVC PIPE DRAIN	LIN FT	2118
	B	2502.503	8" GALVANIZED STEEL PIPE	LIN FT	12
	C	2504.602	CONNECT TO EXISTING WATER MAIN	EACH	2
	C	2504.602	CONNECT TO EXISTING HYDRANT LEAD	EACH	2
	C	2504.602	INSTALL HYDRANT & VALVE	EACH	1
	C	2504.602	8" GATE VALVE AND BOX	EACH	2
	C	2504.603	6" DIPS HDPE WATERMAIN SDR 11	LIN FT	84
	C	2504.603	8" DIPS HPDE WATERMAIN SDR 11 (DIRECTIONAL DRILLED)	LIN FT	759
	C	2504.603	12" STEEL CASING PIPE	LIN FT	50
	C	2504.608	DUCTILE IRON FITTINGS	POUND	130
3	B	2506.502	DRAINAGE STRUCTURE DESIGN H	EACH	8
	D	2540.602	CONNECT TO EXISTING RAILROAD TRACK	EACH	2
	D	2540.602	NO. 9 TURNOUT	EACH	1
	D	2540.602	INSTALL BUMPING POST	EACH	1
	D	2540.602	BUMPING POST	EACH	1
	D	2540.603	RAILROAD TRACK	LIN FT	2510
	D	2540.603	RAILROAD CROSSING - PERMANENT (CONCRETE)	LIN FT	448
	D	2540.603	RAILROAD CROSSING - PERMANENT (TIMBER)	LIN FT	32
	D	2540.603	FLANGEWAY ANGLE	LIN FT	418
	E	2545.502	LIGHTING UNIT TYPE SPECIAL	EACH	2
	E	2545.502	LIGHT FOUNDATION DESIGN SPECIAL	EACH	2
	E	2545.502	SERVICE CABINET	EACH	1
	E	2545.502	SERVICE EQUIPMENT	EACH	1
	E	2545.502	EQUIPMENT PAD	EACH	1
	E	2545.502	HANDHOLE	EACH	3
	E	2545.503	2" NON-METALLIC CONDUIT	LIN FT	60
	E	2545.503	3" NON-METALLIC CONDUIT	LIN FT	735

STATEMENT OF ESTIMATED QUANTITIES — S.A.P 118-080-063

NOTE	TAB	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITIES
	E	2545.503	3" RIGID STEEL CONDUIT	LIN FT	40
	E	2545.503	UNDERGROUND WIRE 1/C 4 AWG	LIN FT	2600
	E	2545.503	UNDERGROUND WIRE 1/C 6 AWG	LIN FT	1040
	E	2545.602	RECEPTACLE STANCHION	EACH	2
	F	2557.502	VEHICULAR GATE - 20 FT ROLLER	EACH	1
	F	2557.502	INSTALL VEHICULAR GATE	EACH	1
	F	2557.603	INSTALL CHAIN LINK FENCE	LIN FT	1036
5		2563.601	TRAFFIC CONTROL	LUMP SUM	1
	G	2573.501	STABILIZED CONSTRUCTION EXIT	LUMP SUM	1
	G	2573.502	STORM DRAIN INLET PROTECTION	EACH	3
	G	2573.503	SEDIMENT CONTROL LOG TYPE WOOD CHIP	LIN FT	2981
	H	2575.504	EROSION CONTROL BLANKET, CATEGORY 3N	SQ YD	230
	H	2575.505	SEEDING	ACRE	0.25
	H	2575.605	MULCH MATERIAL TYPE 1	ACRE	0.25

NOTES:

1	DOES NOT INCLUDE BITUMIOUS AND CONCRETE REMOVALS
2	INCLUDES 6" CLASS 5 AGGREGATE BASE FOUNDATION
3	INCLUDES CASTING ASSEMBLIES
4	INCLUDES PIPE APRONS
5	INCLUDES TWO W20-1, 48x48, "ROAD WORK AHEAD" SIGNS
6	INCLUDES DELIVERY OF SWING GATE AT STA. 11+25 TO DSPA

EXISTING UTILITIES

COMPANY	SERVICE
GOPHER STATE ONE CALL	LOCATORS
DULUTH SEAWAY PORT AUTHORITY	SITE LIGHTS, GAS, SANITARY SEWER AND STORM SEWER
MINNESOTA POWER	ELECTRIC POWER
MN ENERGY RESOURCES	GAS
CENTURY LINK	TELEPHONE
CHARTER COMMUNICATIONS	CABLE TV
WESTERN LAKE SUPERIOR SANITARY DISTRICT	SANITARY SEWER

STANDARD PLATES

THESE STANDARD PLATES AS APPROVED BY THE FHWA SHALL APPLY

PLATE NO.	DESCRIPTION
4006L	MH OR CB PRECAST - DES. G OR H
8000J	CHANNELIZERS
8117G	PRECAST CONCRETE HANDHOLE

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Duluth Seaway Port Authority

DRAWN BY:	SRP	NO.	BY	DATE	REVISIONS
DESIGNER:	BJR				
CHECKED BY:	BJR				
DESIGN TEAM					

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

MATTHEW J. BOLF, PE

Date: 07/26/2018 Lic. No. 43913

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PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

DULUTH, MINNESOTA
SP 118-080-063
CITY OF DULUTH PROJECT #1717

STATEMENT OF ESTIMATED QUANTITIES DULUTH SEAWAY PORT AUTHORITY

FILE NO. DUSPA 144638

A - REMOVALS & SAWCUTS

STATION TO STATION	LOCATION	SPEC. 2104 SALVAGE HYDRANT & VALVE	SPEC. 2104 REMOVE HYDRANT	SPEC. 2104 REMOVE LIGHTING UNIT	SPEC. 2104 ABANDON WATER MAIN	SPEC. 2104 SALVAGE BUMPING POST	SPEC. 2104 SALVAGE VEHICULAR GATE	SPEC. 2104 REMOVE VEHICULAR GATE	SPEC. 2104 REMOVE CONCRETE TRANSFORMER PAD	SPEC. 2104 SALVAGE CHAIN LINK FENCE	SPEC. 2104 SAWING CONCRETE PAVEMENT (FULL DEPTH)	SPEC. 2104 REMOVE RAILROAD TRACK	SPEC. 2104 SALVAGE PIPE CULVERT	SPEC. 2104 REMOVE CONCRETE PAVEMENT
		EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	SQ FT
BERTH 6 STUB TRACK														
0+00 - 3+04	RT/LT													7700
0+00 - 3+04	RT										328			
0+00 - 1+76	LT										206			
3+04	LT										57			
4+75 - EOT	RT									842				
11+24	1' RT						1						98	
DSPA STUB TRACK														
23+02 - 24+24	RT/LT													4100
23+02	RT										15			
23+02 - 24+24	LT										140			
23+02 - 23+93	CL/LT											96		
23+49 - 31+39	20' RT				1									
23+93	11' LT					1								
23+93	5' LT		1											
24+24	RT										14			
26+94	2' LT			1										
27+63	3' RT								1					
27+66	18' LT								1					
31+75	30' RT								1					
31+83	13.5' RT			1										
32+63	26' RT								1					
34+14	10' LT						1	1						
34+14 - EOT	LT/RT									223				
35+00	17.5' RT			1										
35+30	15.5' RT													
35+30	15.5' RT	1												
PROJECT ITEM TOTALS		**1**	**1**	**3**	**1**	**1**	**2**	**1**	**4**	**1065**	**760**	**96**	**98**	**11800**

G - TEMPORARY EROSION CONTROL

STATION TO STATION	LOCATION	2573 STORM DRAIN INLET PROTECTION	2573 SEDIMENT CONTROL LOG TYPE WOOD CHIP	
		EACH	LIN FT	
BERTH 6 STUB TRACK				
1+07 - 4+45	RT		324	
4+75 - 11+15	RT		625	
11+08	RT	1		
11+36 - EOT	RT		183	
11+45	RT	2		
DSPA STUB TRACK				
21+24 - EOT	LT		1624	
WEST END OF SITE			225	
PROJECT ITEM TOTALS		**3**	**2981**	

H - TURF ESTABLISHMENT

STATION TO STATION	LOCATION	SPEC. 2575 EROSION CONTROL BLANKET, CATEGORY 3N	SPEC. 2575 SEEDING	SPEC. 2575 MULCH MATERIAL TYPE 1
		SQ YD	ACRE	ACRE
BERTH 6 STUB TRACK				
13+16 - EOT	RT		0.25	0.25
7+70 - EOT	RT	230		
PROJECT ITEM TOTALS		**230**	**0.25**	**0.25**

B - DRAINAGE

STATION TO STATION	LOCATION	NO.	TOP OF CASTING	START INV.	SLOPE	END INV.	SPEC. 2501 8" SCH. 40 STEEL PIPE CULVERT	SPEC. 2501 INSTALL 15" RC PIPE CULVERT	SPEC. 2502 6" PERF PVC PIPE DRAIN	SPEC. 2502 8" GALVANIZED STEEL PIPE	SPEC. 2506 DRAINAGE STRUCTURE DESIGN H
							LIN FT	LIN FT	LIN FT	LIN FT	EACH
BERTH 6 STUB TRACK											
1+14 - 5+00	5.25' RT								400		
5+00	40' RT									6	
5+15	6.25' LT	1	609.39	606.94							1
5+15	22.75' RT	2			2.00%	606.36	29.00				
6+15	6.25' LT	3	609.26	606.60							1
6+15	22.75' RT	4			2.00%	606.02	29.00				
7+15	6.25' LT	5	609.16	606.20							1
7+15	19.75' RT	6			2.00%	605.68	26.00				
8+15	6.25' LT	7	609.06	650.84							1
8+15	17.75' RT	8			2.00%	650.36	24.00				
9+15	6.25' LT	9	608.96	605.52							1
9+15	18.75' RT	10			2.00%	605.02	25.00				
10+15	6.25' LT	11	608.86	605.16							1
10+15	17.75' RT	12			2.00%	604.68	24.00				
10+90	6.25' LT	13	608.94	640.84							1
10+90	14.75' RT	14			2.00%	640.42	21.00				
11+24	RT							98			
11+52	17.5' RT									6	
11+52 - EOT	RT								181		
12+15	6.25' LT	15	608.98	605.21							1
12+15	14.75' RT	16			2.00%	604.79	21.00				
DSPA STUB TRACK											
23+02 - EOT	5.25' LT								1328		
WEST END OF SITE									209		
PROJECT ITEM TOTALS							**199**	**98**	**2118**	**12**	**8**

Duluth Seaway Port Authority

DRAWN BY: SRP
DESIGNER: BJR
CHECKED BY: BJR
DESIGN TEAM | NO. | BY | DATE | REVISIONS

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

MATTHEW J. BOLF, PE
Date: 07/26/2018 Lic. No. 43913

SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

DULUTH, MINNESOTA
SP 118-080-063
CITY OF DULUTH PROJECT #1717

TABULATIONS
DULUTH SEAWAY PORT AUTHORITY

FILE NO. DUSPA 144638

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C - WATER UTILITIES

STATION TO STATION	LOCATION	FITTING TYPE	SPEC. 2504 CONNECT TO EXISTING WATER MAIN	SPEC. 2504 CONNECT TO EXISTING HYDRANT LEAD	SPEC. 2504 INSTALL HYDRANT & VALVE	SPEC. 2504 8" GATE VALVE AND BOX	SPEC. 2504 6" DIPS HDPE WATERMAIN SDR 11	SPEC. 2504 8" DIPS HPDE WATERMAIN SDR 11 (DIRECTIONAL DRILLED)	SPEC. 2504 12" STEEL CASING PIPE	SPEC. 2504 DUCTILE IRON FITTINGS
			EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	POUND
DSPA STUB TRACK										
23+49 - 31+39	20' RT							759		
23+55	20.5' RT		1			1				
29+50	34' LT			1						
29+53.5	22.8' RT	8"X6" TEE								75
29+53.5	RT/LT						58		25	
29+53.5	19.6' LT	22.50 BEND								55
31+32.38	20.5' RT		1			1				
35+30	15.3' RT			1						
35+30	RT/LT						26		25	
35+30	10' LT				1					
PROJECT ITEM TOTALS			**2**	**2**	**1**	**2**	**84**	**759**	**50**	**130**

D - RAIL

STATION TO STATION	LOCATION	SPEC. 2540 CONNECT TO EXISTING RAILROAD TRACK	SPEC. 2540 NO. 9 TURNOUT	SPEC. 2540 INSTALL BUMPING POST	SPEC. 2540 BUMPING POST	SPEC. 2540 RAILROAD TRACK	SPEC. 2540 RAILROAD CROSSING - PERMANENT (CONCRETE)	SPEC. 2540 RAILROAD CROSSING - PERMANENT (TIMBER)	SPEC. 2540 FLANGEWAY ANGLE
		EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT
BERTH 6 STUB TRACK									
0+00.00	CL	1	1						
0+00.00 - 3+01.92	CL								302
1+07.38 - 13+16.62	CL					1210			
3+01.92 - 4+77.92	CL						176		
11+14.66 - 11+38.66	CL						24		
13+16.62	CL				1				
DSPA STUB TRACK									
23+02.19	CL	1							
23+02.19 - 36+01.47	CL					1300			
23+02.19 - 24+17.56	CL								116
24+17.56 - 26+65.56	CL						248		
29+92.00 - 30+08.00	CL							16	
33+84.00 - 34+00.00	CL							16	
36+01.47	CL			1					
PROJECT ITEM TOTALS		**2**	**1**	**1**	**1**	**2510**	**448**	**32**	**418**

F - FENCE

STATION TO STATION	LOCATION	SPEC. 2557 VEHICULAR GATE - 20 FT ROLLER	SPEC. 2557 INSTALL VEHICULAR GATE	SPEC. 2557 INSTALL CHAIN LINK FENCE
		EACH	EACH	LIN FT
BERTH 6 STUB TRACK				
4+76 - EOT	RT			821
11+26.40	12' RT	1		
DSPA STUB TRACK	????			
34+04	20' LT		1	
34+12 - EOT	12' LT			215
PROJECT ITEM TOTALS		**1**	**1**	**1036**

E- ELECTRICAL AND LIGHTING

STATION TO STATION	LOCATION	SPEC. 2545 LIGHTING UNIT TYPE SPECIAL	SPEC. 2545 LIGHT FOUNDATION DESIGN SPECIAL	SPEC. 2545 SERVICE CABINET	SPEC. 2545 SERVICE EQUIPMENT	SPEC. 2545 EQUIPMENT PAD	SPEC. 2545 HANDHOLE	SPEC. 2545 2" NON-METALLIC CONDUIT	SPEC. 2545 3" NON-METALLIC CONDUIT	SPEC. 2545 3" RIGID STEEL CONDUIT	SPEC. 2545 UNDERGROUND WIRE 1/C 4 AWG	SPEC. 2545 UNDERGROUND WIRE 1/C 6 AWG
		EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT
DSPA STUB TRACK												
30+50 - 34+45	LT						3	60	735		2600	1040
30+65	LT/RT									40		
30+66	17' LT			1	1	1						
31+12	16.5' LT	1	1									
34+45	13' LT	1	1									
PROJECT ITEM TOTALS		**2**	**2**	**1**	**1**	**1**	**3**	**60**	**735**	**40**	**2600**	**1040**

Duluth Seaway Port Authority

DRAWN BY: SRP
DESIGNER: BJR
CHECKED BY: BJR
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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

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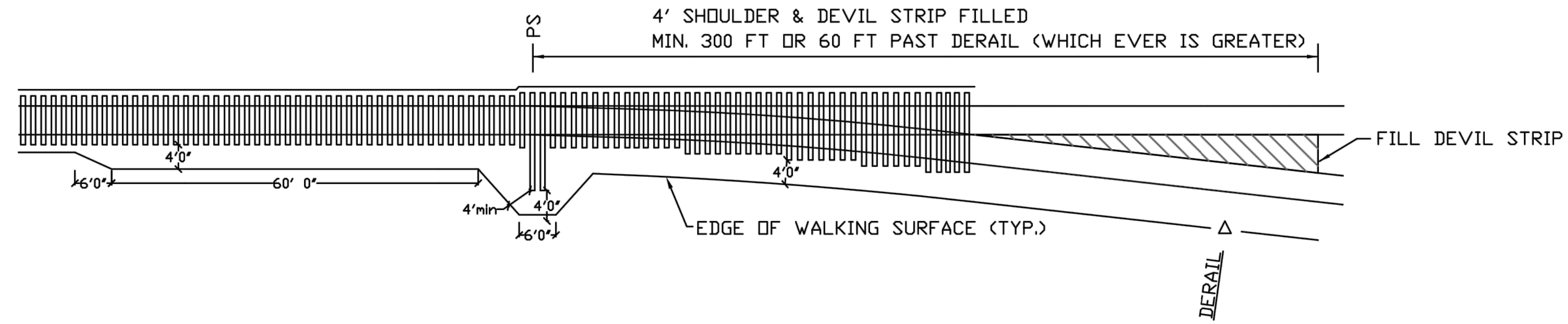
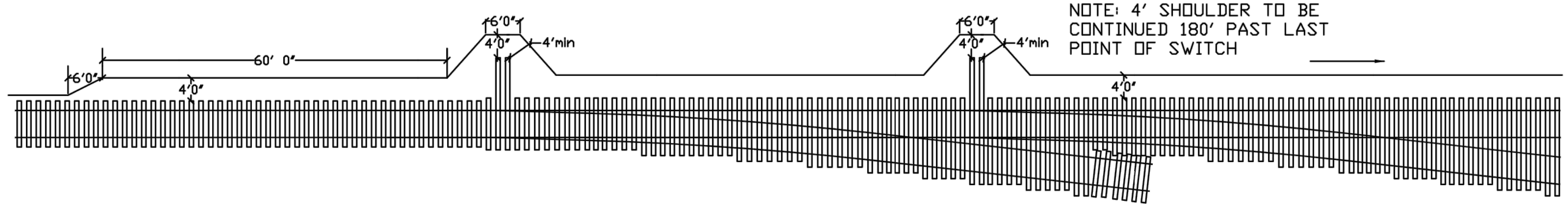
BALLAST ARRANGEMENT FOR MAIN TRACK TURNOUTS AND DERAILS

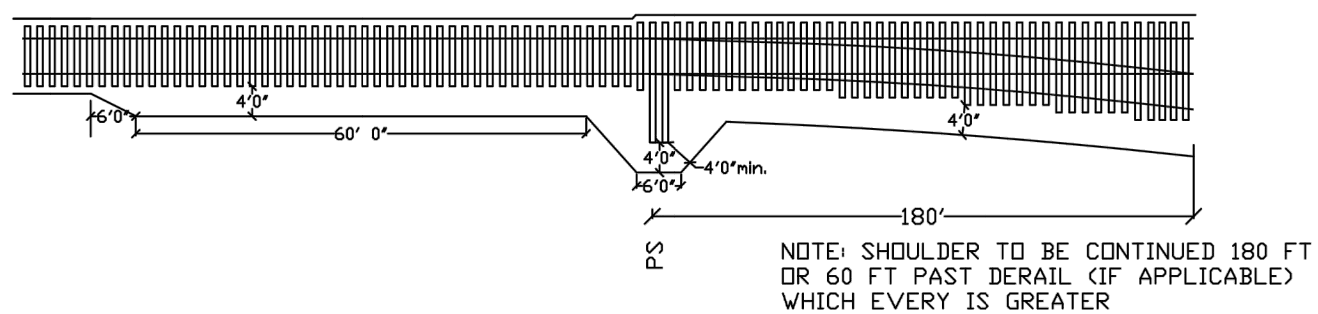
SCALE: N.T.S.



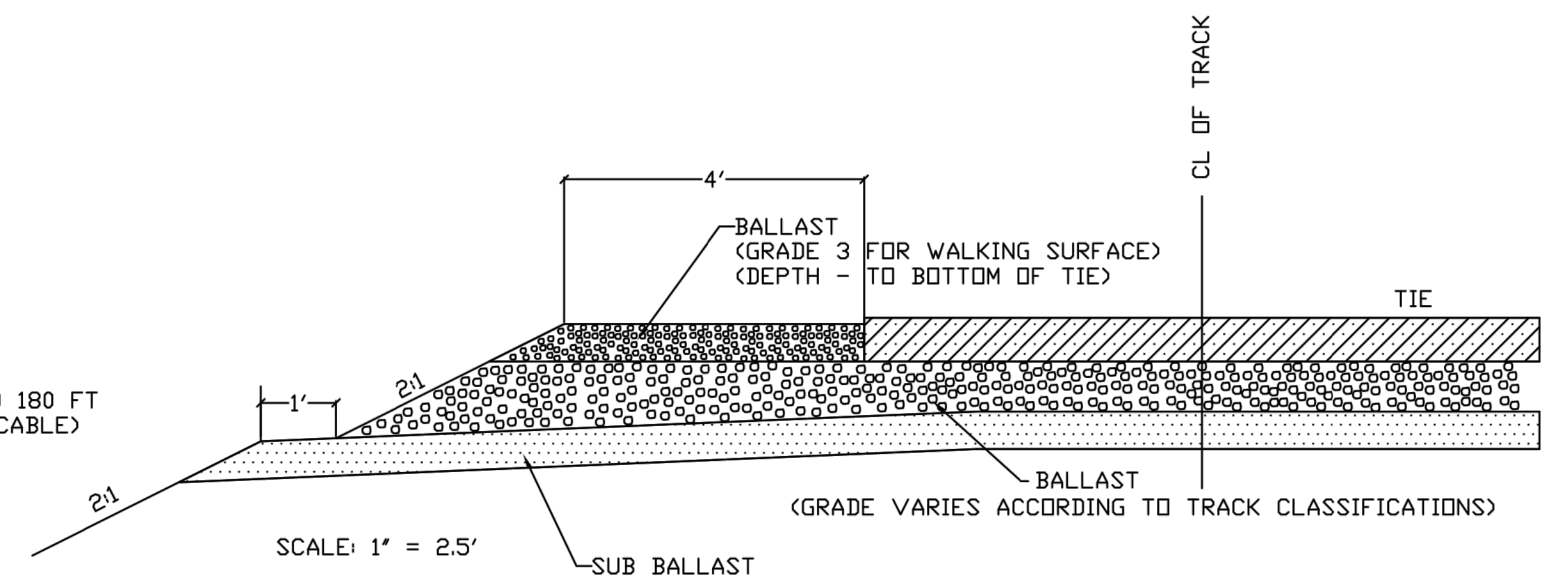
BALLAST ARRANGEMENT FOR TURNOUTS ON LADDERS

SCALE: N.T.S.





BALLAST ARRANGEMENT FOR SINGLE YARD TURNOUTS



SCALE: 1" = 2.5'

NOTE: BALLAST AND SUB BALLAST THICKNESS MAY VARY TO SUIT TRACK CLASSIFICATIONS AND SOIL CONDITIONS

TYPICAL SECTION

SCALE: N.T.S.

NOTE: FOR DERAILS LOCATED OUTSIDE THESE LIMITS, BALLAST SECTION SHOULD BE EXTENDED ACCORDINGLY

CANADIAN PACIFIC
ENGINEERING PROJECTS

INDUSTRIAL TRACK STANDARDS
WALKING SURFACE GUIDELINES FOR TURNOUTS & DERAILS

No.	DATE	REVISION	BY
B	JULY 29/16	UPDATED TITLE BLOCK, COLOURS	KSM
A	DEC 3/12	UPDATED TITLE BLOCK	JWM

DWG. BY: R. KLOPP CHK BY: H. ROBINSON
ENGINEER: R. HORSMAN
MGR. TECHNICAL SERVICES
OFFICE FILE: PSSTD002b.DWG
SCALE: AS NOTED
DATE: NOV. 26 2001
PLAN No. PSSTD-002 B

Duluth Seaway Port Authority

Save: 7/25/2018 4:22 PM sprall Plot: 8/27/2018 1:01 PM S:\AE\D\DUSPA\144638\5-final-dsgn\51-drawings\10-Civil\cad\dwg\sheet\DU144638DT.dwg

DRAWN BY: SRP
DESIGNER: BJR
CHECKED BY: BJR
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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

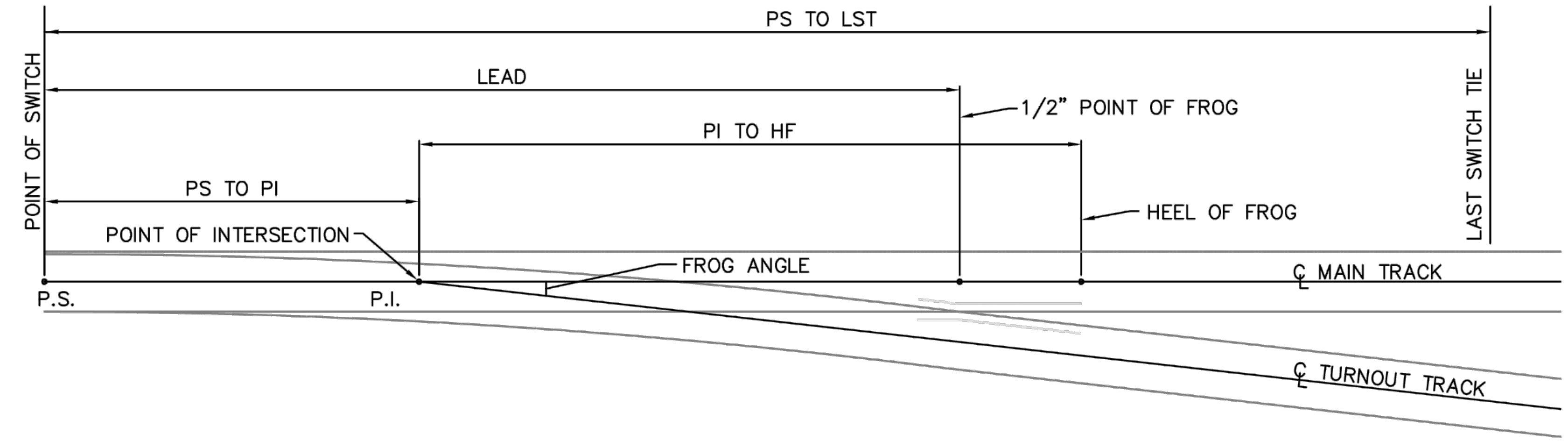
MATTHEW J. BOLF, PE
Date: 07/26/2018 Lic. No. 43913

SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

DULUTH, MINNESOTA
SP 118-080-063
CITY OF DULUTH PROJECT #1717

DETAILS
DULUTH SEAWAY PORT AUTHORITY

FILE NO. DUSPA 144638



LAYOUT DIAGRAM OF TURNOUT (RIGHT HAND SHOWN)

	#9	#11	#15
P.S. TO P.I.	29' 7 1/2"	42' 1 3/16"	39' 11 7/16"
P.I. TO H.F.	52' 4 1/2"	62' 9 1/2"	88' 8 5/16"
P.S. TO L.S.T.	104' 5"	133' 4"	166' 9 1/2"
LEAD	72' 4 1/2"	94' 4 3/16"	111' 2 3/4"
FROG ANGLE	6° 21' 35"	5° 12' 18"	3° 49' 06"
SIDING CURVE	9° 30'	6° 00'	3° 30'

NOTE :

Duluth Seaway Port Authority

No.	DATE	REVISION	BY
A	July29/16	UPDATED TITLE BLOCK,COLOURS	KSM

CANADIAN PACIFIC

ENGINEERING PROJECTS

INDUSTRIAL TRACK STANDARDS
LAYOUT GEOMETRY OF
COMMON TURNOUTS

DWG. BY: KSM CHK BY:
ENGINEER:
MGR. PROJECT SERVICES WEST
OFFICE FILE: PSSTD004a.DWG
SCALE: NTS
DATE: NOV 27 2012
PLAN No. PSSTD-004
Rev. A

DRAWN BY: SRP
DESIGNER: BJR
CHECKED BY: BJR
DESIGN TEAM

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SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

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FILE NO. DUSPA 144638

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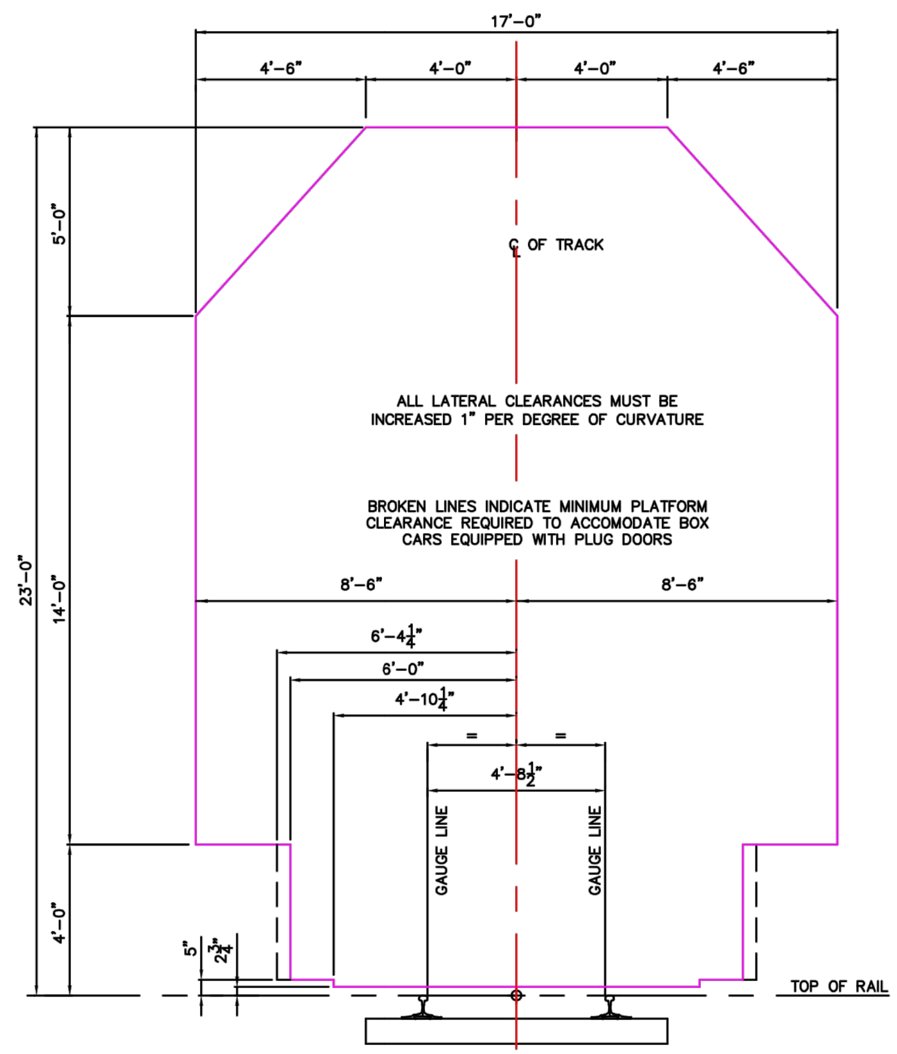
NOTE :

1. NO PORTION OF ANY BUILDING, POLE, SIGN, MATERIAL OR OTHER OBSTRUCTION SHALL BE PERMITTED WITHIN THE LIMITS OF THE CLEARANCE DIAGRAM UNLESS AUTHORIZED BY STANDARD OR SPECIAL PLAN.



CLEARANCE DIAGRAM

NTS

No.	DATE	REVISION	BY

CANADIAN PACIFIC

ENGINEERING PROJECTS

INDUSTRIAL TRACK STANDARDS
CLEARANCE DIAGRAM

DWG. BY: KSM CHK BY:
ENGINEER:
SR. ENGINEER PROJECTS
OFFICE FILE: PSSTD005.DWG
SCALE: NTS
DATE: SEPT 26 2016
PLAN No. PSSTD-005
Rev. 0

Duluth Seaway Port Authority

DRAWN BY: SRP
DESIGNER: BJR
CHECKED BY: BJR
DESIGN TEAM

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SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
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DETAILS
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FILE NO.
DUSPA 144638

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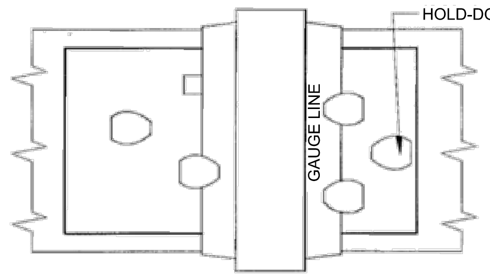
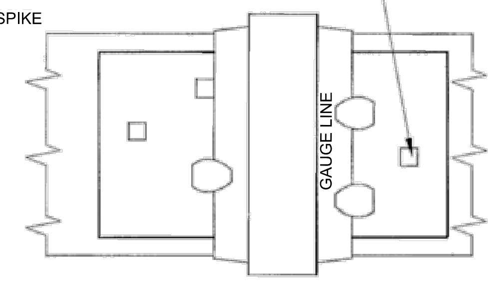
AN ADDITIONAL SPIKE SHALL BE INSTALLED IN THE GAUGE SIDE HOLD-DOWN HOLE WHERE FREIGHT TRAIN SPEEDS EXCEED 50 MPH AND THE ANNUAL GROSS TONNAGE EXCEEDS 10 M.G.T

AN ADDITIONAL SPIKE SHALL BE INSTALLED IN THE GAUGE SIDE HOLD-DOWN HOLE WHERE FREIGHT TRAIN SPEEDS EXCEED 50 MPH AND THE ANNUAL GROSS TONNAGE EXCEEDS 10 M.G.T

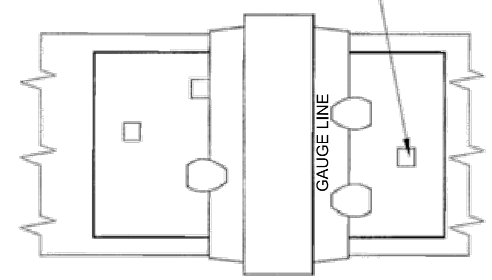


SPIKING PATTERN FOR ECCENTRIC TIE PLATES ON CURVES AND SPIRALS WHERE ELEVATION IS 1/2" OR GREATER



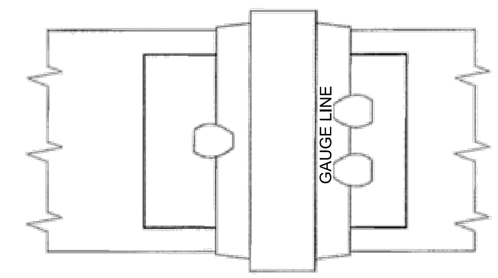
SPIKING PATTERN FOR DOUBLE SHOULDER TIE PLATES ON CURVES AND SPIRALS WHERE ELEVATION IS 1/2" OR GREATER

FOR CURVES 3 DEGREES AND GREATER



SPIKING PATTERN FOR DOUBLE SHOULDER TIE PLATES ON CURVES AND SPIRALS

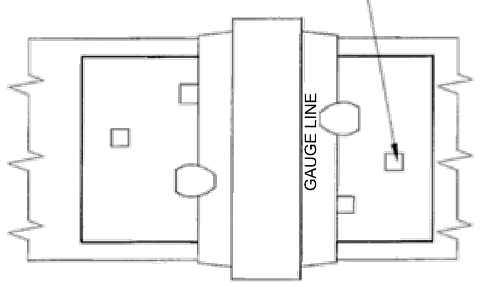
FOR CURVES LESS THAN 3 DEGREES



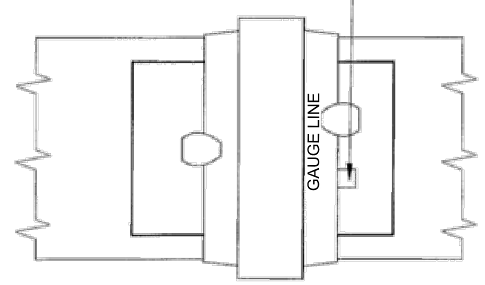
SPIKING PATTERN FOR SINGLE SHOULDER TIE PLATES ON CURVES AND SPIRALS

AN ADDITIONAL SPIKE SHALL BE INSTALLED IN THE GAUGE SIDE HOLD-DOWN HOLE WHERE FREIGHT TRAIN SPEEDS EXCEED 50 MPH AND THE ANNUAL GROSS TONNAGE EXCEEDS 10 M.G.T

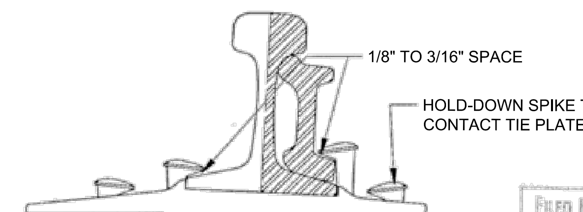
AN ADDITIONAL SPIKE SHALL BE INSTALLED WHEN RAILS LAID ARE OVER 39 FEET IN LENGTH OR WHERE FREIGHT TRAIN SPEEDS EXCEED 50 MPH



SPIKING PATTERN FOR DOUBLE SHOULDER TIE PLATES IN TANGENTS

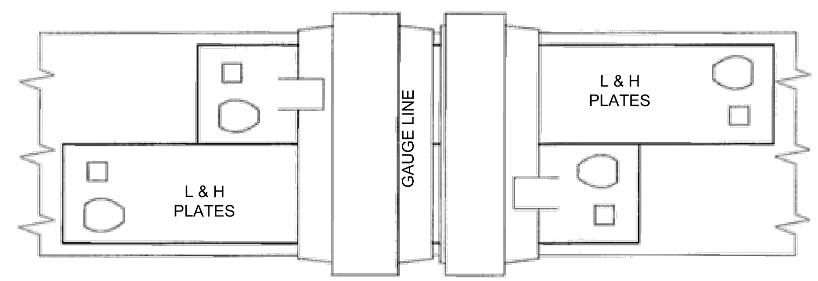


SPIKING PATTERN FOR SINGLE SHOULDER TIE PLATES IN TANGENTS



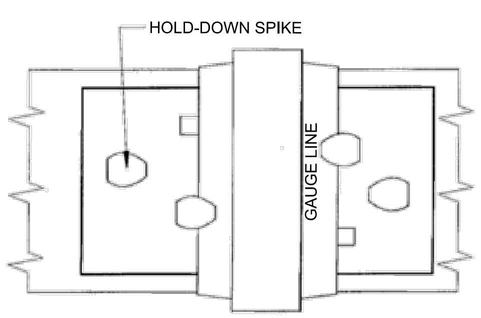
SIDE ELEVATION

FILED IN PLAN ROOM
MAY 29 2001

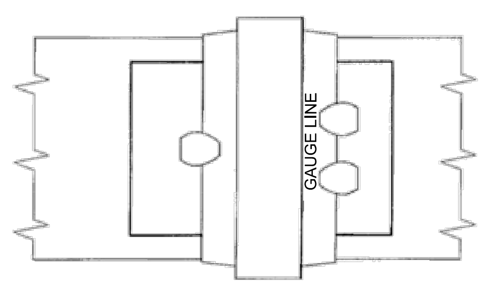


NOTES

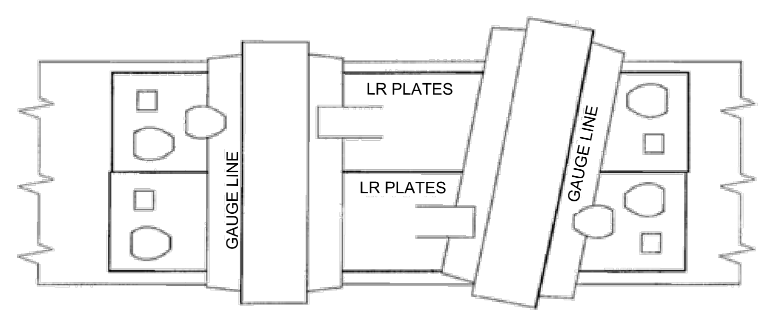
- -SPIKING PATTERNS SHALL APPLY TO ALL MAIN TRACKS AND SIDINGS.
- -SPIKING PATTERNS SHALL BE THE SAME ON HIGH AND LOW RAILS.
- -ALL SPIKES SHALL BE STARTED AND DRIVEN VERTICALLY AND SQUARE WITH THE RAIL AND SO DRIVEN AS TO ALLOW 1/8" TO 3/16" BETWEEN THE UNDERSIDE OF THE HEAD OF THE SPIKE AND THE TOP OF THE BASE OF RAIL OR THE TOE OF THE JOINT BAR.
- -HOLD DOWN SPIKES SHALL BE DRIVEN DOWN SO AS TO CONTACT THE TIE PLATE.
- -IN NO CASE SHALL THE SPIKES BE OVERDRIVEN OR STRAIGHTENED WHILE BEING DRIVEN.
- -ADDITIONAL SPIKES MAY BE USED WHERE NECESSARY TO MAINTAIN PROPER GAUGE.
- -WHEN A SPIKE IS WITHDRAWN, THE SPIKE HOLE MUST BE PLUGGED. THE TIE PLUG SHOULD BE DRIVEN DOWN TO THE FULL DEPTH, WITH THE WIDENED HEAD PARALLEL WITH THE TIE. AS AN ALTERNATE A CHEMICAL COMPOUND APPROVED BY THE MANAGER, TRACK STANDARDS, MAY BE USED INSTEAD OF TIE PLUGS.
- -SPIKES SHALL NOT BE DRIVEN AGAINST THE ENDS OF JOINT BARS.
- -ALL TRACK SPIKES UTILIZED SHALL BE 6" LONG. SEE PLAN R-14-4-6 FOR LENGTHS OF SHIMMING SPIKES REQUIRED WITH VARYING SHIM THICKNESS.
- -SEE PLAN R-14-4-9 FOR LENGTH OF SCREWSPIKES REQUIRED.
- -SEE PLAN R-14-57-19 FOR SCREWSPIKE PATTERN TO BE USED ON CPR ROLLED TIE PLATE.
- -SEE PLANS R-14-57-16 AND R-14-57-21 FOR SPIKING PATTERN TO BE USED ON BRIDGE TIE PLATES.
- -SEE PLANS R-14-82-1 AND R-14-82-3 FOR SPIKING PATTERNS TO BE USED ON APPROACHES AND EXISTS TO BRIDGES.
- -FOR OTHER INFORMATION REFER TO SPC TRACK #16-TIE PLATES AND SPC #18-SPIKING.



SPIKING PATTERN FOR FLAT SEAT DOUBLE SHOULDER TIE PLATES IN TURNOUTS



SPIKING PATTERN FOR SINGLE SHOULDER TIE PLATES IN TURNOUTS



SPIKING PATTERN FOR HOOK TWIN TIE PLATES IN TURNOUTS

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NO.	DATE	REVISION	BY
	MAY 25, 2001	PLAN REDRAWN CLARIFYING SPIKING PATTERNS ON CURVES	MJH L.P.
	~~SEPT. 9, 1991~~	SPIKING PATTERNS REVISED & 5 1/2" LG. SPIKES DELETED	MH EHT
	~~APR. 28, 1986~~	TANGENT SPIKING PATTERNS REVISED	MH EHT
	~~AUG. 1, 1977~~		

CANADIAN PACIFIC RAILWAY

NOTE, THIS PLAN SUPERSEDES X-10-16-221

TRACK SPIKING PATTERNS

MANAGER, TRACK STANDARDS
ENGINEERING & MECHANICAL SERVICES, CALGARY, ALBERTA

OFFICE FILE NO. VMT0024 (TRCKFAST) VMT0019 (TRCKFAST)

PLAN NO. R-14-4-8

SCALE: 3"=1'-0"

DR: MJH
CH: E.H.T.

Duluth Seaway Port Authority

DRAWN BY: SRP					
DESIGNER: BJR					
CHECKED BY: BJR					
DESIGN TEAM	NO.	BY	DATE	REVISIONS	

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MATTHEW J. BOLF, PE

Date: 07/26/2018 Lic. No. 43913

SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
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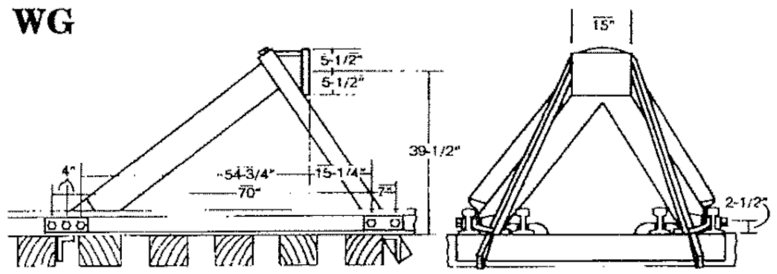
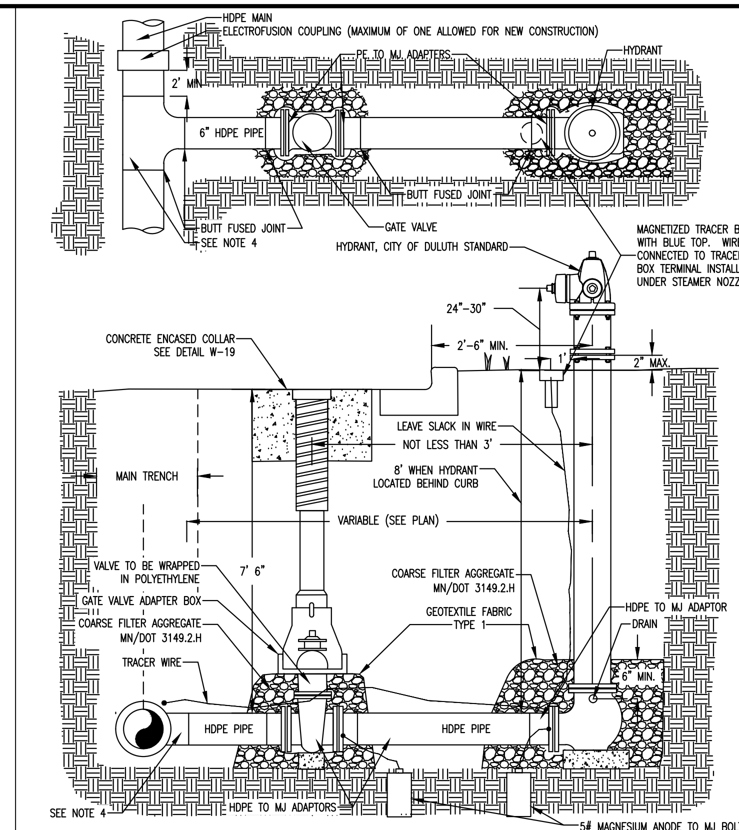
DETAILS
DULUTH SEAWAY PORT AUTHORITY

FILE NO. DUSPA 144638

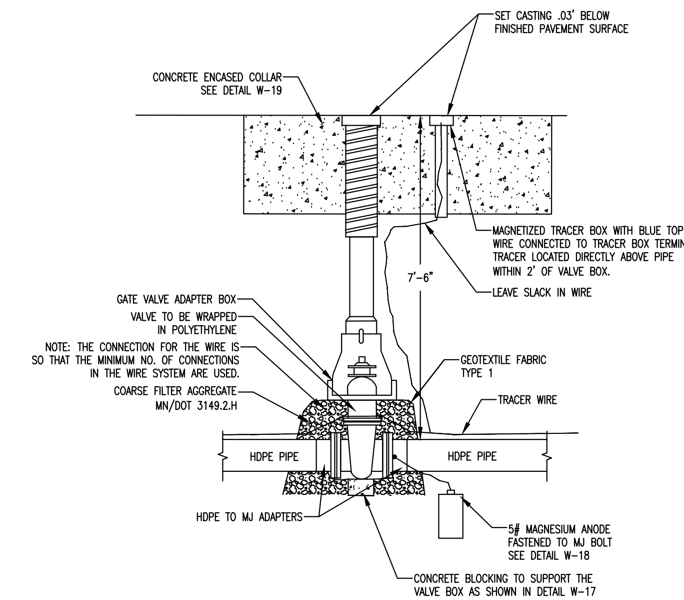


BUMPING POST DETAIL
NO SCALE



NOTES
1. VALVES SHALL BE CONNECTED DIRECTLY TO MECHANICAL JOINT ADAPTORS.
2. USE EPOXY COATING ON VALVE AND HYDRANT BASE
3. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.
4. FOR 8" MAINS, CONTRACTOR SHALL USE AN 8 X 8 TEE WITH A MACHINED 8 X 6 REDUCER OR AN 8 X 6 ELECTROFUSION BRANCH SADDLE. FOR LARGER DIMENSION MAINS A FABRICATED TEE WITH A 6" BRANCH OUTLET MAY BE USED.
5. GATE VALVES WITH HDPE STUBS MAY BE USED IN LIEU OF MJ VALVES. ANODES SHALL BE CONNECTED DIRECTLY TO THE VALVE BONNET BOLTS.

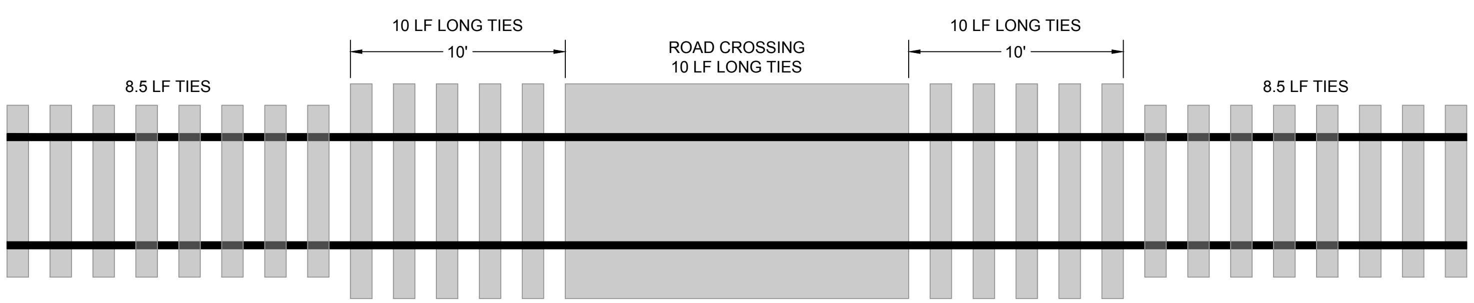
FIRE HYDRANT SETTING DETAIL – HDPE		W–4A
REVISED/APPROVED 1/8/2016	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE



NOTES:
1. VALVES SHALL BE CONNECTED DIRECTLY TO HDPE WITH HDPE TO MECHANICAL JOINT ADAPTERS.
2. USE EPOXY COATING ON EXTERIOR OF VALVES.
3. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.
4. FOR OPEN CUT PIPE INSTALLATIONS, ELECTROFUSION COUPLINGS ARE NOT ALLOWED FOR CONNECTION OF HDPE TO MJ ADAPTERS. FOR DIRECTIONAL DRILLED INSTALLATIONS, ONE ELECTROFUSION COUPLING MAY BE USED PER VALVE.
5. GATE VALVES WITH HDPE STUBS MAY BE USED IN LIEU OF MJ VALVES. ANODE SHALL BE CONNECTED DIRECTLY TO THE VALVE BONNET BOLTS.

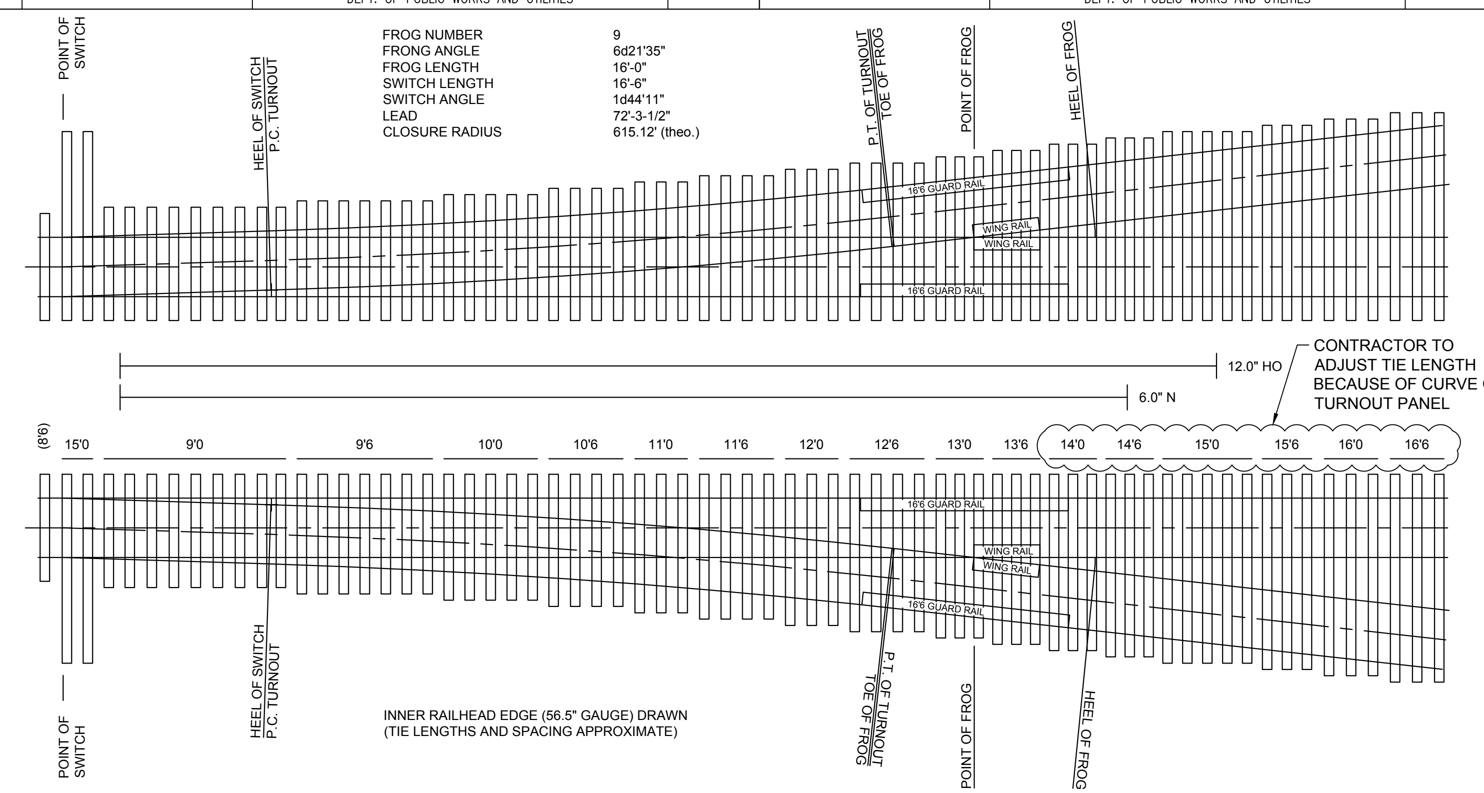
WATER VALVE BOX – HDPE MAIN		W–17A
REVISED/APPROVED 1/8/2016	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE

ROAD CROSSING DETAIL



FULLY BOX ANCHOR TIES FOR 25 FEET ON EITHER SIDE OF CROSSING PANELS

FROG NUMBER	9
FRONG ANGLE	6d21'35"
FROG LENGTH	16'-0"
SWITCH LENGTH	16'-6"
SWITCH ANGLE	1d44'11"
LEAD	72'-3-1/2"
CLOSURE RADIUS	615.12' (theo.)



#9 TURNOUT DETAIL
NO SCALE

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Duluth Seaway Port Authority

DRAWN BY:	SRP				
DESIGNER:	BJR				
CHECKED BY:	BJR				
DESIGN TEAM		NO.	BY	DATE	REVISIONS

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Date: 07/26/2018 Lic. No. 43913

SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
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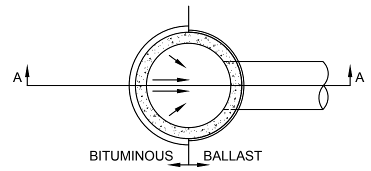
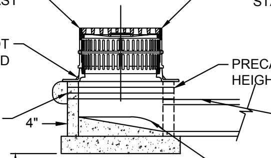


PLAN



SECTION A-A

NTS

SEH	DESIGN H CATCH BASIN AT BALLAST/BITUMINOUS EDGE	Revised: Oct. 2011 SEH Plate No. STM-06

Duluth Seaway Port Authority

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DESIGNER: BJR				
CHECKED BY: BJR				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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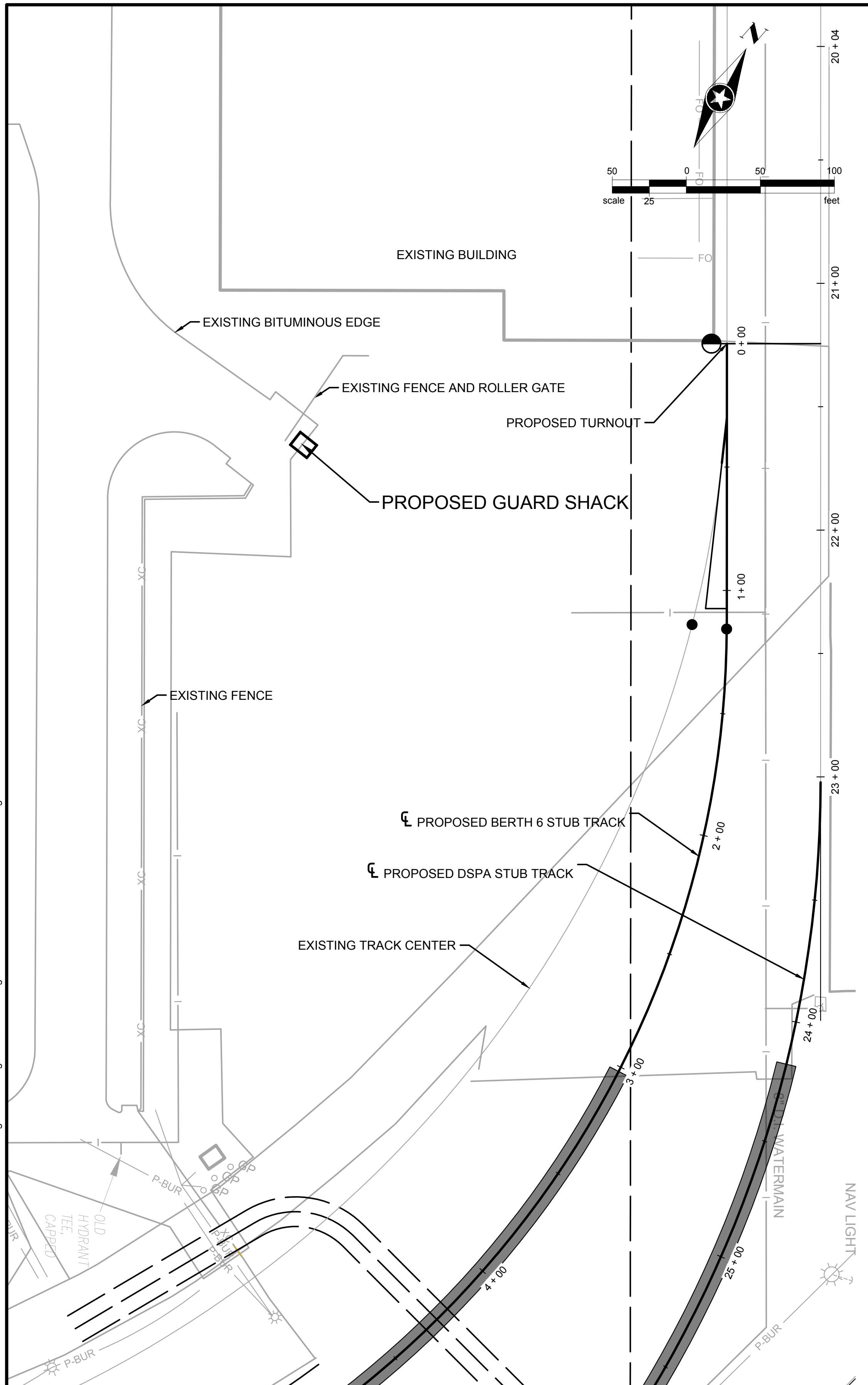
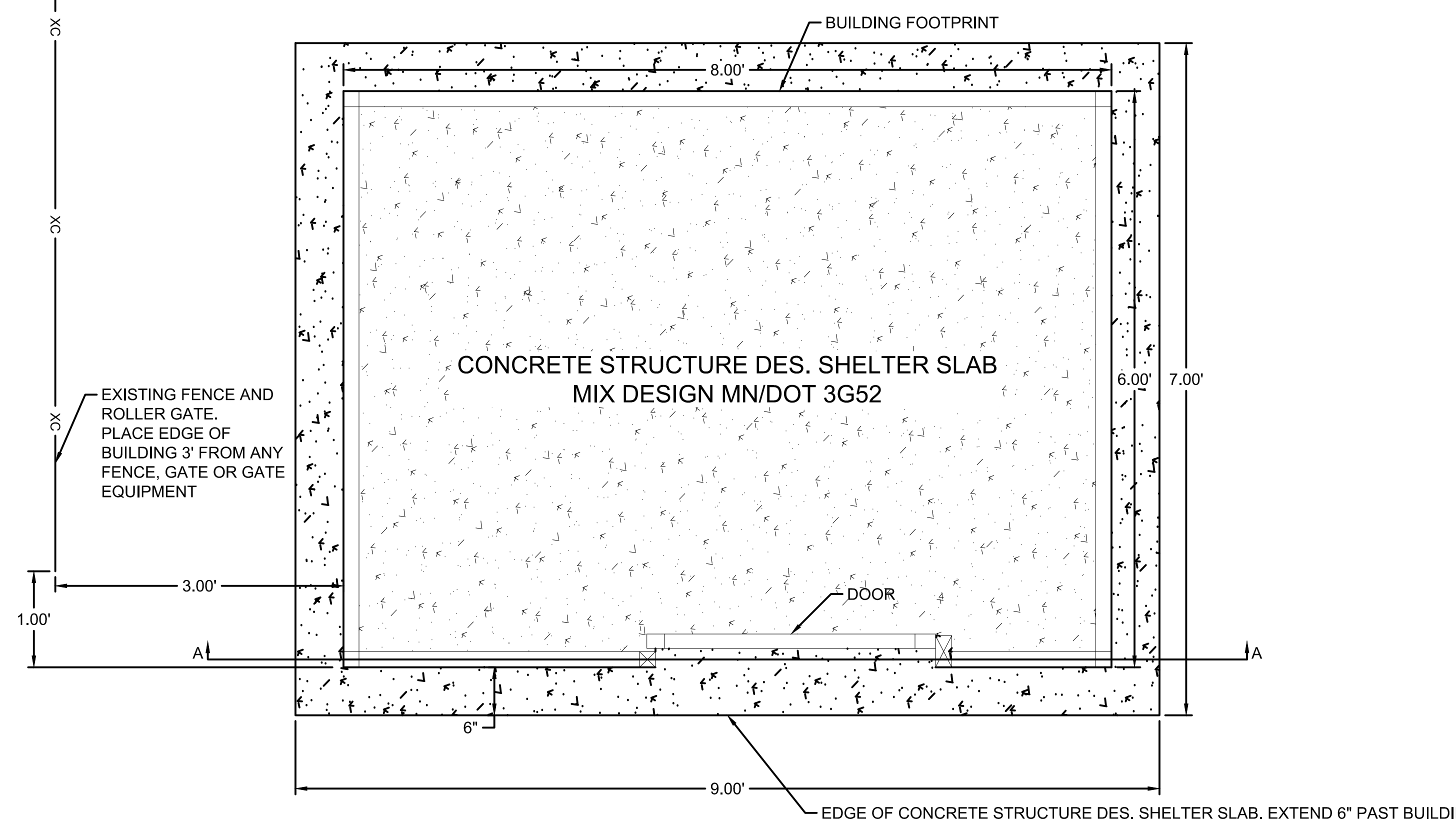
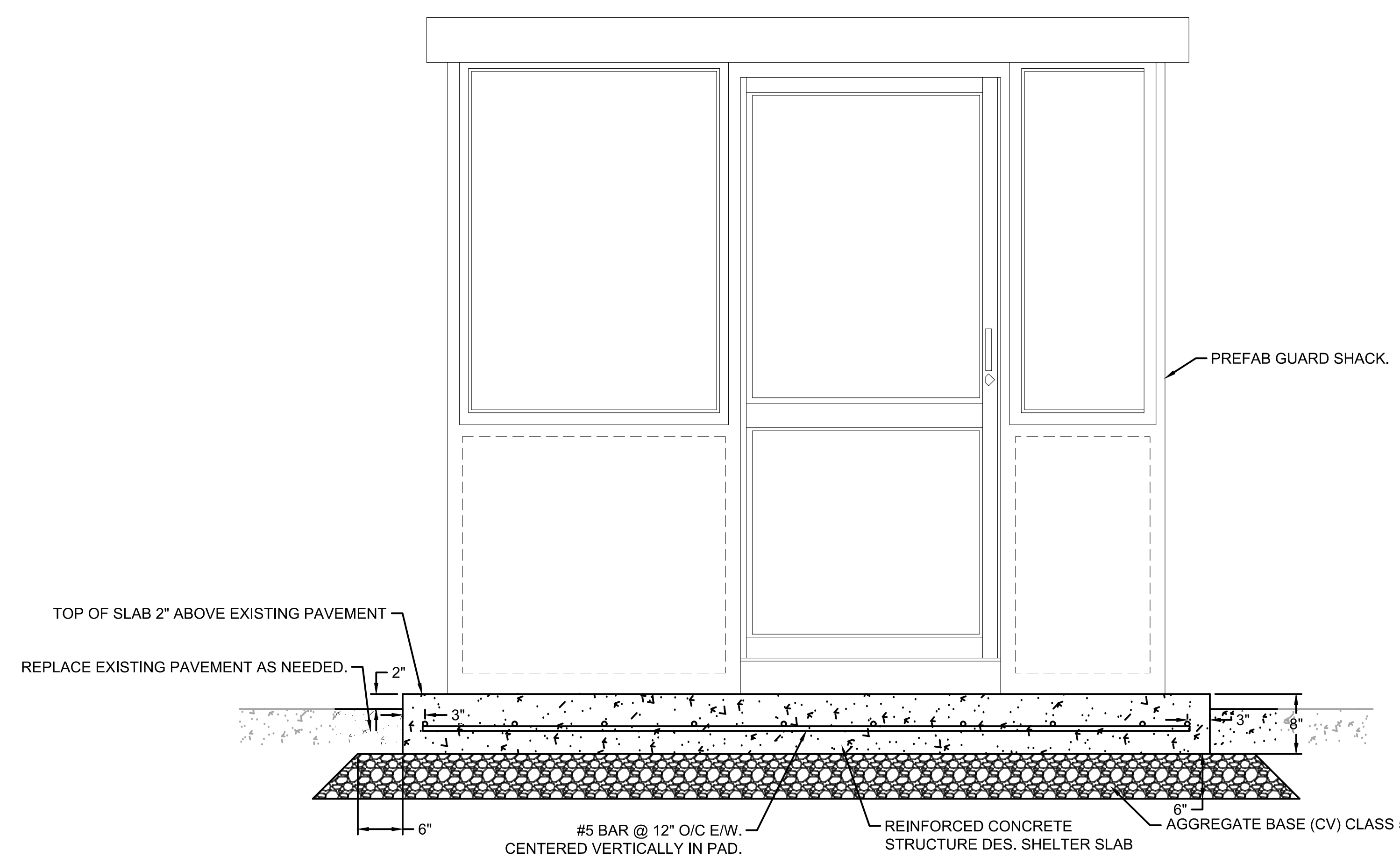




SECTION A - A



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GUARD SHACK DETAIL
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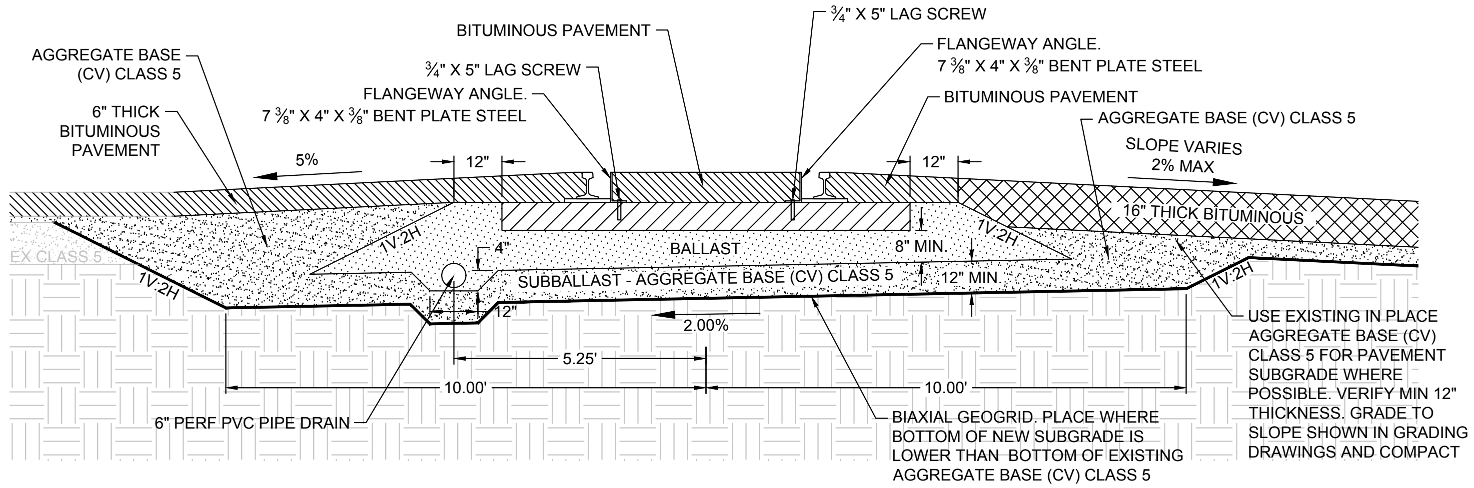
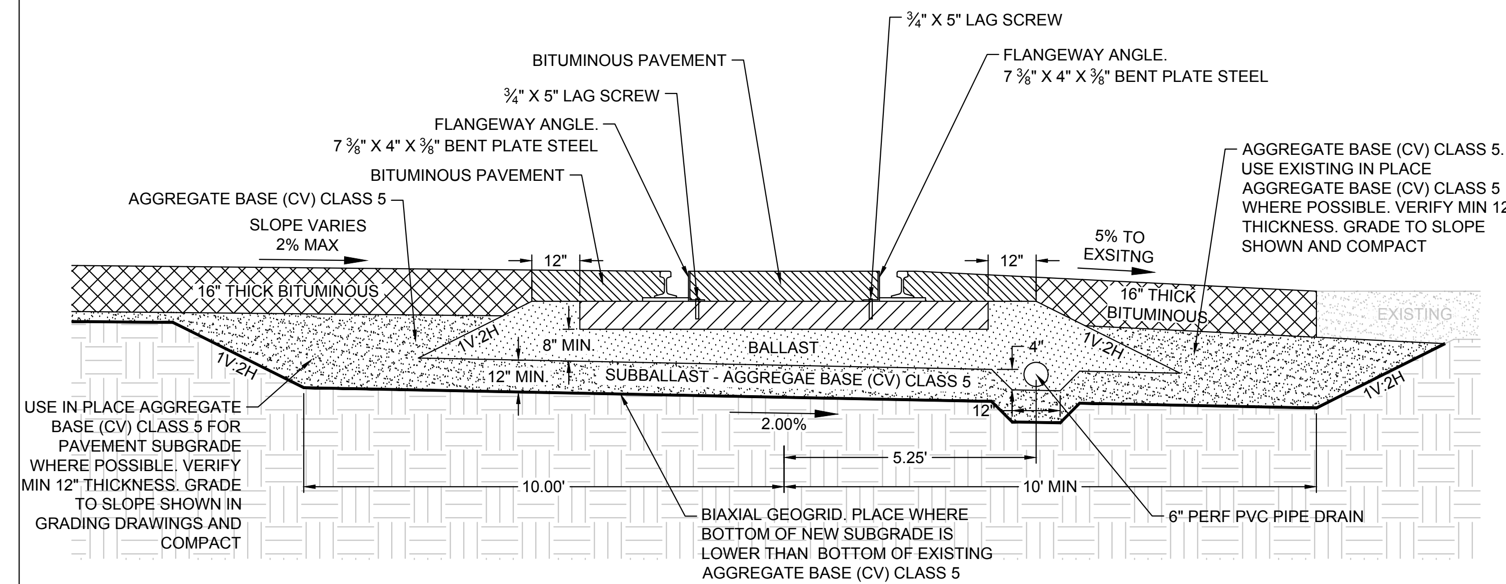
DSPA STUB TRACK TYPICAL SECTION
STA: 23+02 - 26+65.56



RAIL: 115# RE OR BETTER JOINTED
TIES: 7"X9"X8.5' TIMBER AT 21.5" CENTERS
BALLAST: AREMA GRADE 4
TANGENT TRACK: BOX ANCHORED EVERY 3RD TIE
CURVED TRACK: BOX ANCHORED EVERY TIE
FROGS: RAIL BOUND MANGANESE OR SOLID MANGANESE SELF-GUARDED

NOTE: RAILROAD CROSSING - PERMANENT (CONCRETE) IN PLACE OF BITUMINOUS PAVEMENT AND FLANGEWAY ANGLE STA: 24+17.58 - 26+65.56

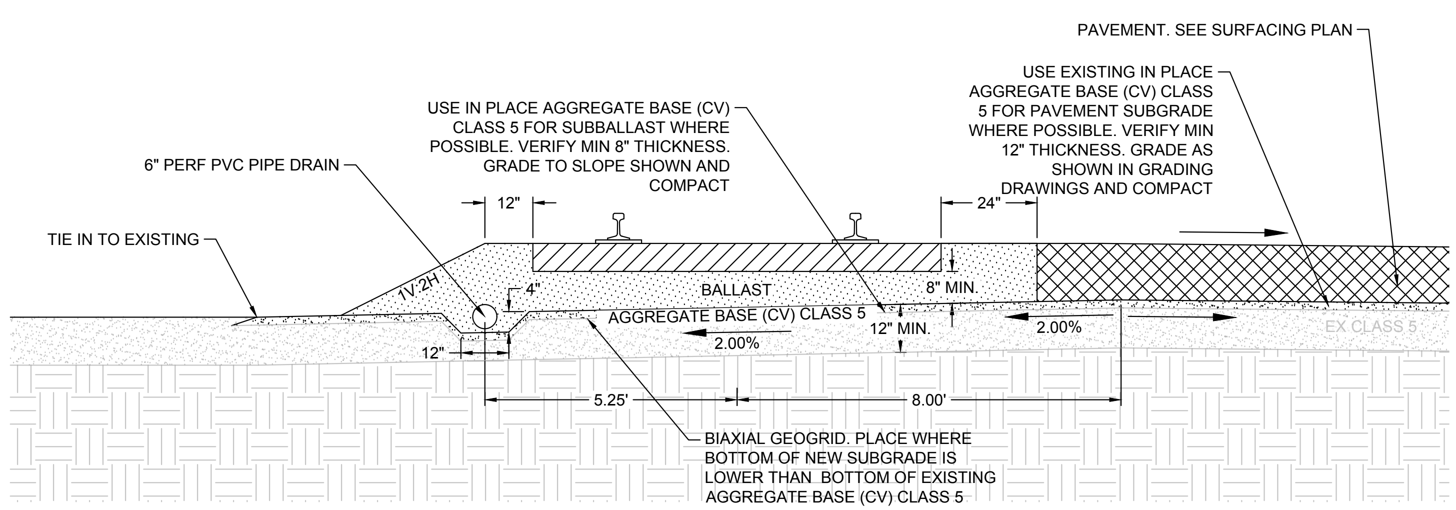
BERTH 6 STUB TRACK TYPICAL SECTION
STA: 0+00 - 4+77.92



RAIL: 115# RE OR BETTER JOINTED
TIES: 7"X9"X8.5' TIMBER AT 21.5" CENTERS
BALLAST: AREMA GRADE 4
TANGENT TRACK: BOX ANCHORED EVERY 3RD TIE
CURVED TRACK: BOX ANCHORED EVERY TIE
FROGS: RAIL BOUND MANGANESE OR SOLID MANGANESE SELF-GUARDED

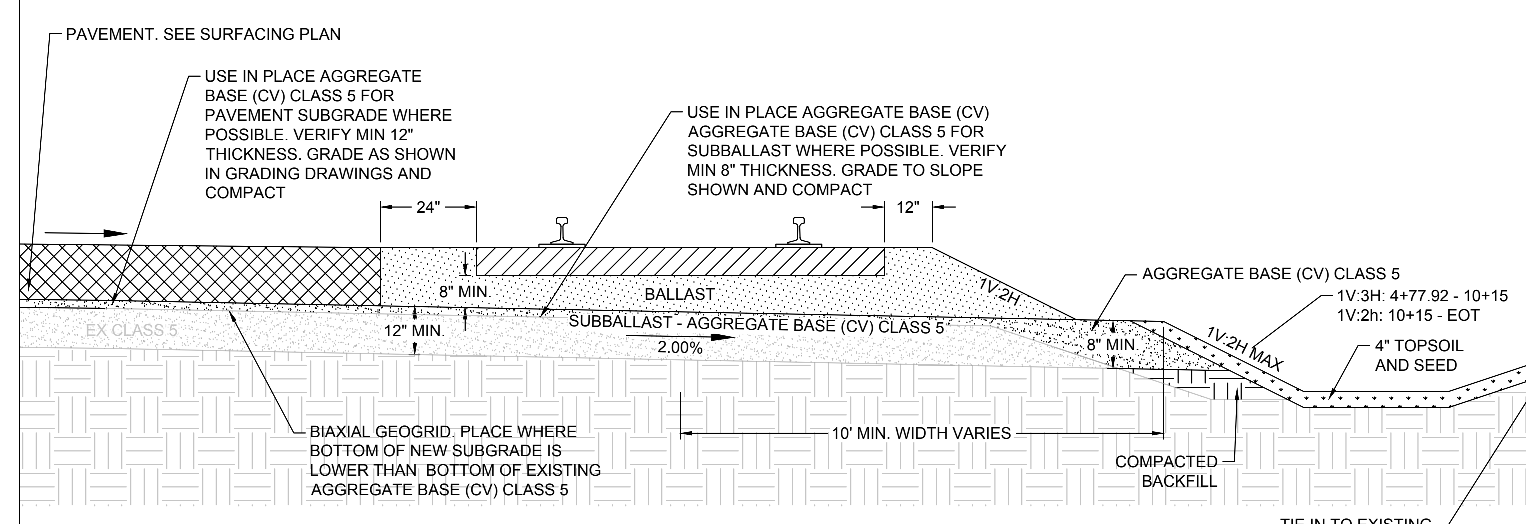
NOTE: RAILROAD CROSSING - PERMANENT (CONCRETE) IN PLACE OF BITUMINOUS PAVEMENT AND FLANGEWAY ANGLE STA: 3+01.92 - 4+77.92

DSPA STUB TRACK TYPICAL SECTION
STA: 26+65.56 - EOT



RAIL: 115# RE OR BETTER JOINTED
TIES: 7"X9"X8.5' TIMBER AT 21.5" CENTERS
BALLAST: AREMA GRADE 4
TANGENT TRACK: BOX ANCHORED EVERY 3RD TIE
CURVED TRACK: BOX ANCHORED EVERY TIE
FROGS: RAIL BOUND MANGANESE OR SOLID MANGANESE SELF-GUARDED

BERTH 6 STUB TRACK TYPICAL SECTION
STA: 4+77.92 - EOT



RAIL: 115# RE OR BETTER JOINTED
TIES: 7"X9"X8.5' TIMBER AT 21.5" CENTERS
BALLAST: AREMA GRADE 4
TANGENT TRACK: BOX ANCHORED EVERY 3RD TIE
CURVED TRACK: BOX ANCHORED EVERY TIE
FROGS: RAIL BOUND MANGANESE OR SOLID MANGANESE SELF-GUARDED

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Duluth Seaway Port Authority

DRAWN BY: SRP
DESIGNER: BJR
CHECKED BY: BJR
DESIGN TEAM | NO. | BY | DATE | REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
MATTHEW J. BOLF, PE
Date: 07/26/2018 Lic. No. 43913

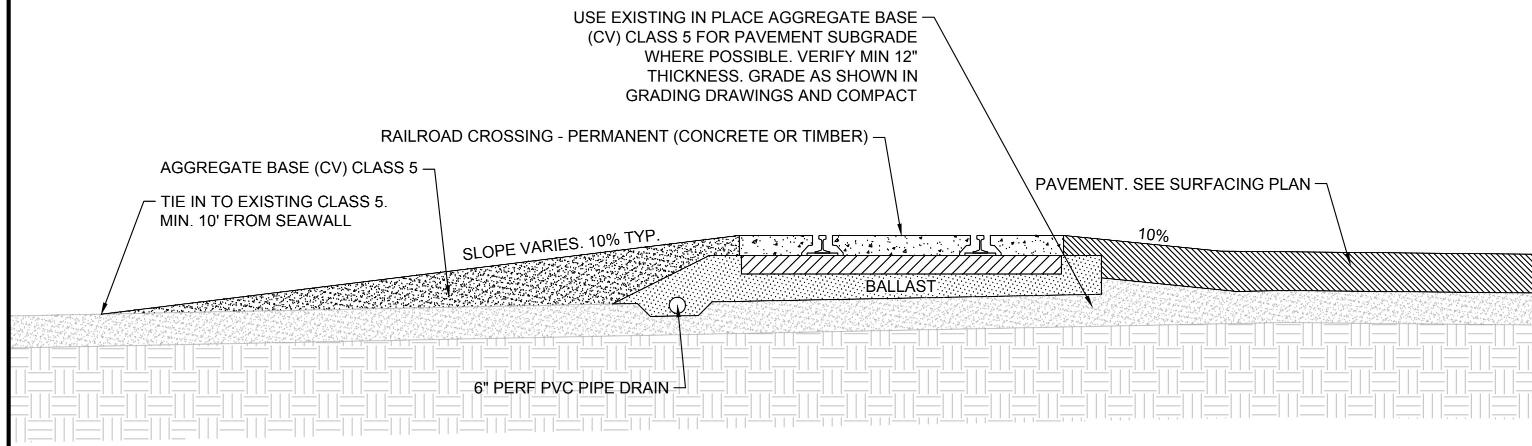
SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

DULUTH, MINNESOTA
SP 118-080-063
CITY OF DULUTH PROJECT #1717

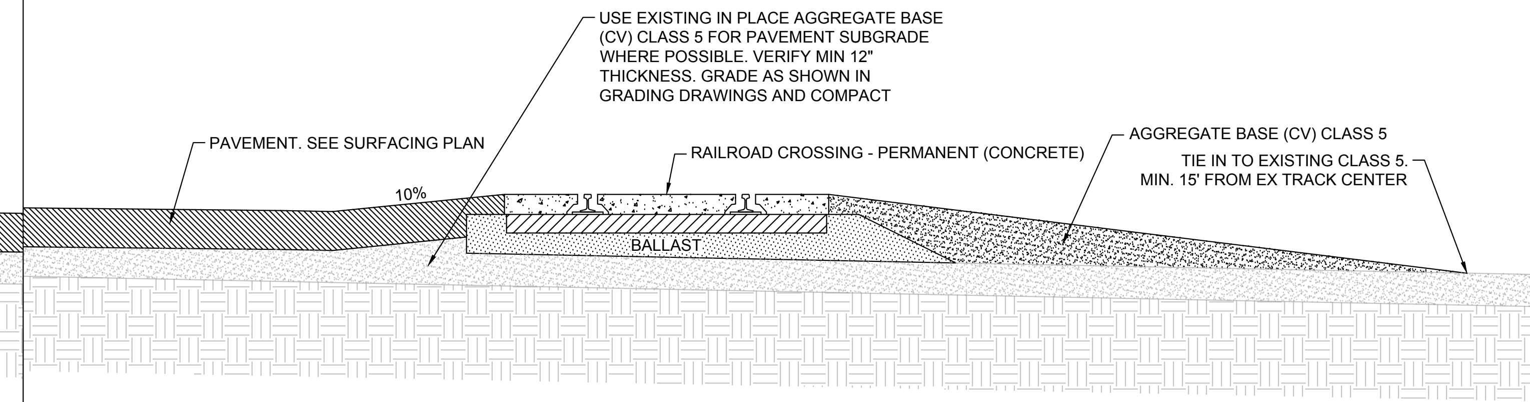
RAIL TYPICAL SECTIONS
DULUTH SEAWAY PORT AUTHORITY

FILE NO. DUSPA 144638

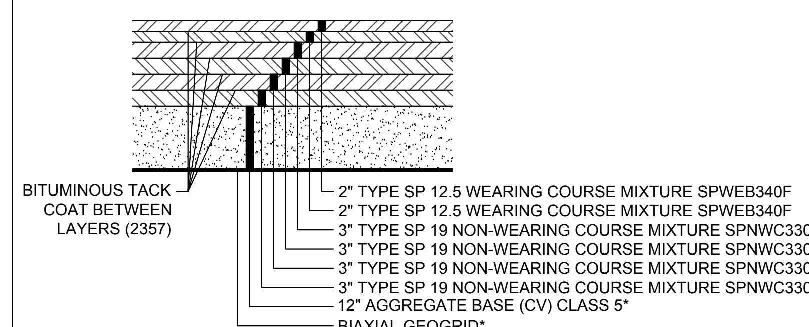
DSPA STUB TRACK
CROSSING PANEL SECTION
STA: 30+00 & 33+92



BERTH 6 STUB TRACK
CONCRETE CROSSING PANEL SECTION
STA: 11+26.66

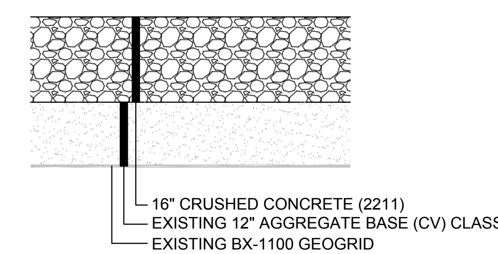


16" BITUMINOUS PAVEMENT TYPICAL SECTION

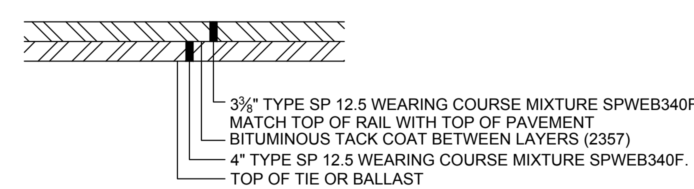


*USE IN PLACE AGGREGATE BASE (CV) CLASS 5 AND BIAXIAL GEOGRID WHERE POSSIBLE. REPLACE BIAXIAL GEOGRID IN AREAS THAT CUT OUT EXISTING GEOGRID. VERIFY EXISTING SECTION THICKNESS

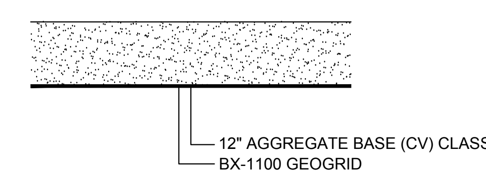
16" CRUSHED CONCRETE TYPICAL SECTION



BITUMINOUS PAVEMENT BETWEEN RAILS AND ON TOP OF BALLAST TYPICAL SECTION



EXISTING TYPICAL SECTION



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Duluth Seaway Port Authority

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DESIGNER:	BJR				
CHECKED BY:	BJR				
DESIGN TEAM					

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MATTHEW J. BOLF, PE

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SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

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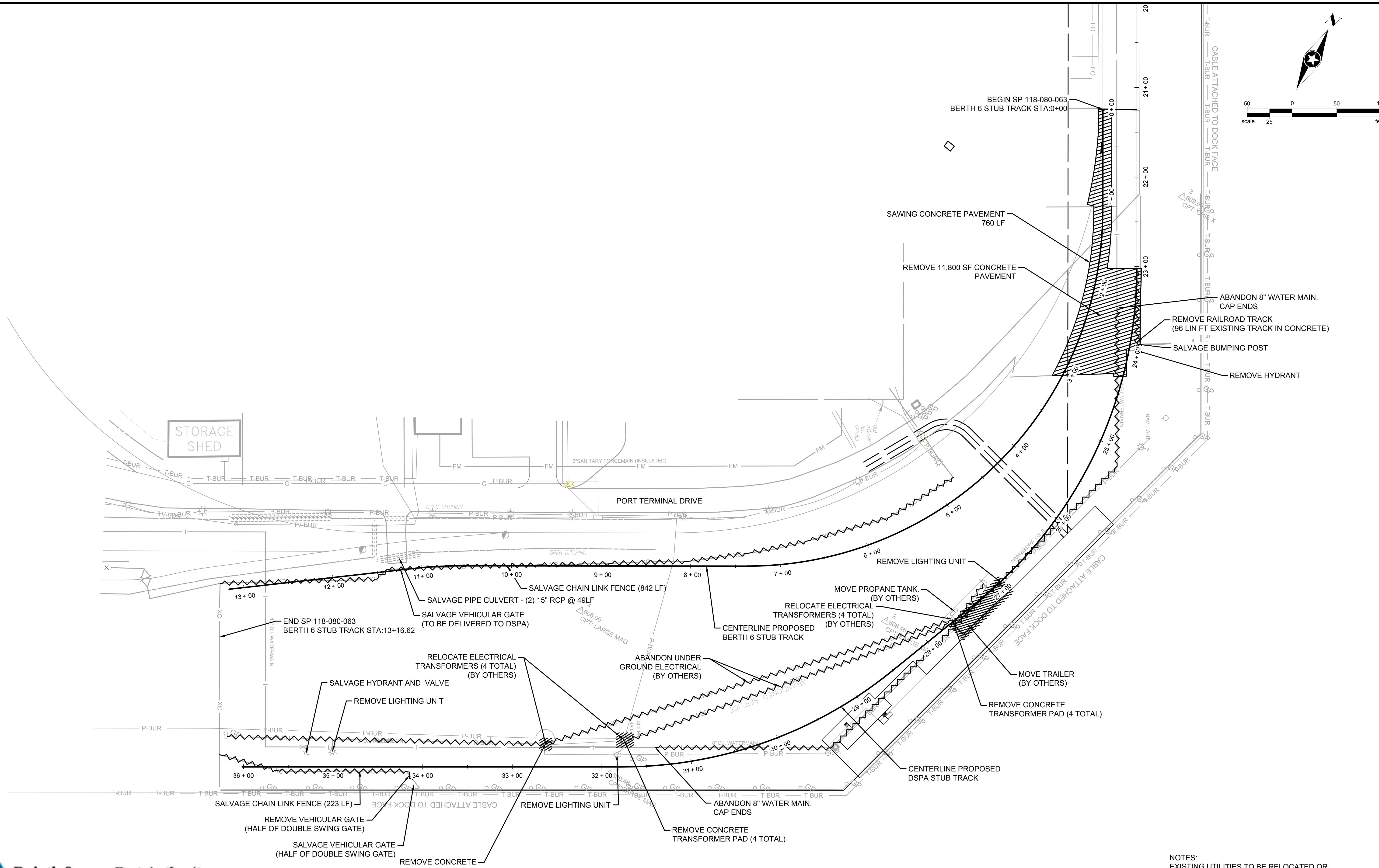
SP 118-080-063
CITY OF DULUTH PROJECT #1717

TYPICAL SECTIONS
DULUTH SEAWAY PORT AUTHORITY

FILE NO. DUSPA 144638



NOTES:
EXISTING UTILITIES TO BE RELOCATED OR ENCASED AT RAILROAD TRACK CROSSINGS.

Duluth Seaway Port Authority

DRAWN BY:	SRP	NO.	BY	DATE	REVISIONS
DESIGNER:	BJR				
CHECKED BY:	BJR				
DESIGN TEAM					

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MATTHEW J. BOLF, PE
Date: 07/26/2018 Lic. No. 43913

SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

DULUTH, MINNESOTA
SP 118-080-063
CITY OF DULUTH PROJECT #1717

REMOVALS PLAN
DULUTH SEAWAY PORT AUTHORITY

FILE NO.
DUSPA 144638

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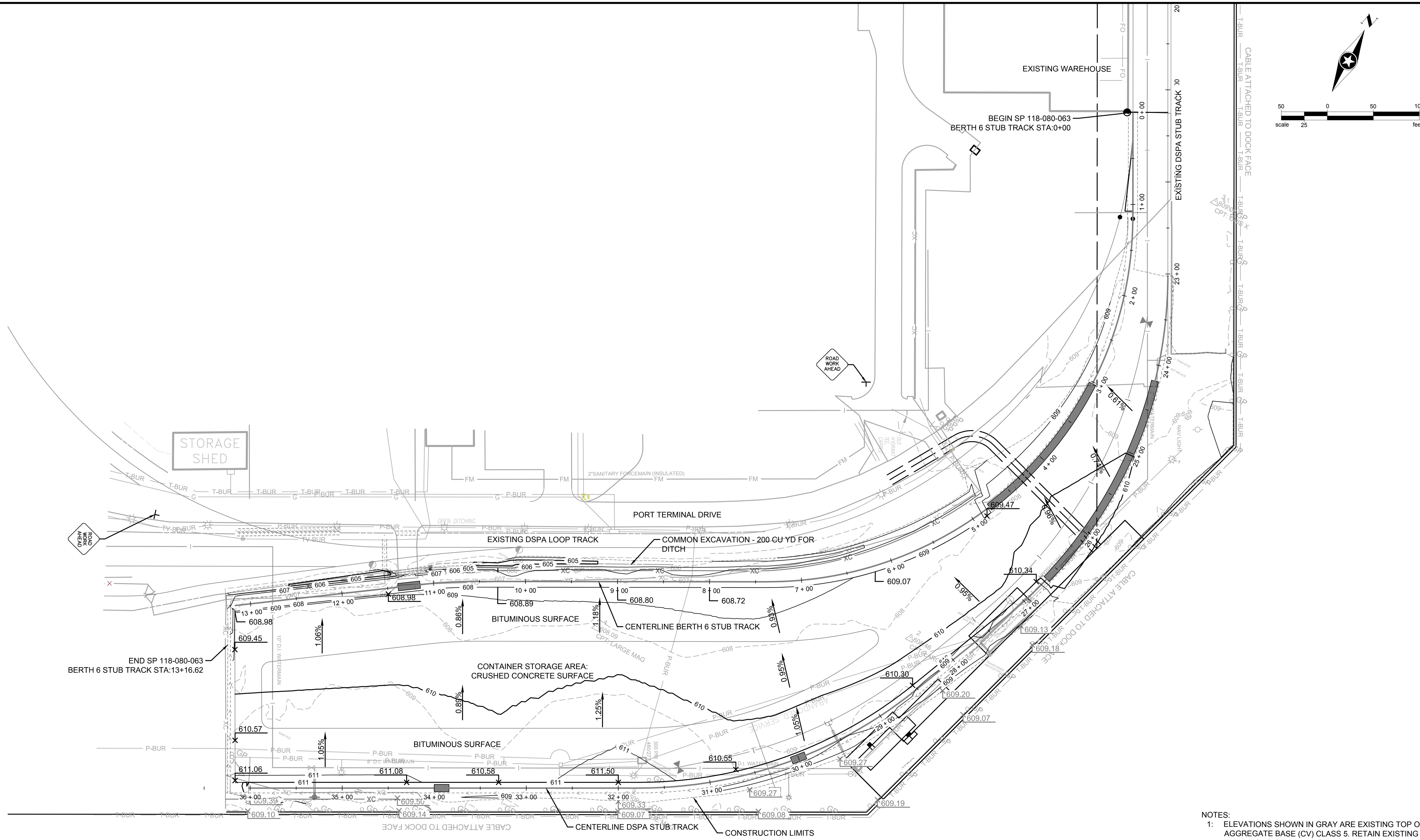

NOTES:

1: ELEVATIONS SHOWN IN GRAY ARE EXISTING TOP OF AGGREGATE BASE (CV) CLASS 5. RETAIN EXISTING ELEVATIONS OR DRAINAGE PATTERNS.

2: ELEVATIONS SHOWN IN BLACK ARE GRADE BREAKS IN TOP OF BITUMINOUS AT EDGE OF BITUMINOUS

3: CONTOURS SHOWN ARE FINISH GRADES (TOP OF BITUMINOUS AND TOP OF RAIL SUBBALLAST)

Duluth Seaway Port Authority

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DESIGNER:	BJR
CHECKED BY:	BJR
DESIGN TEAM	

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SEH

PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

DULUTH, MINNESOTA
SP 118-080-063
CITY OF DULUTH PROJECT #1717

GRADING PLAN / TRAFFIC CONTROL
DULUTH SEAWAY PORT AUTHORITY

FILE NO.
DUSPA 144638

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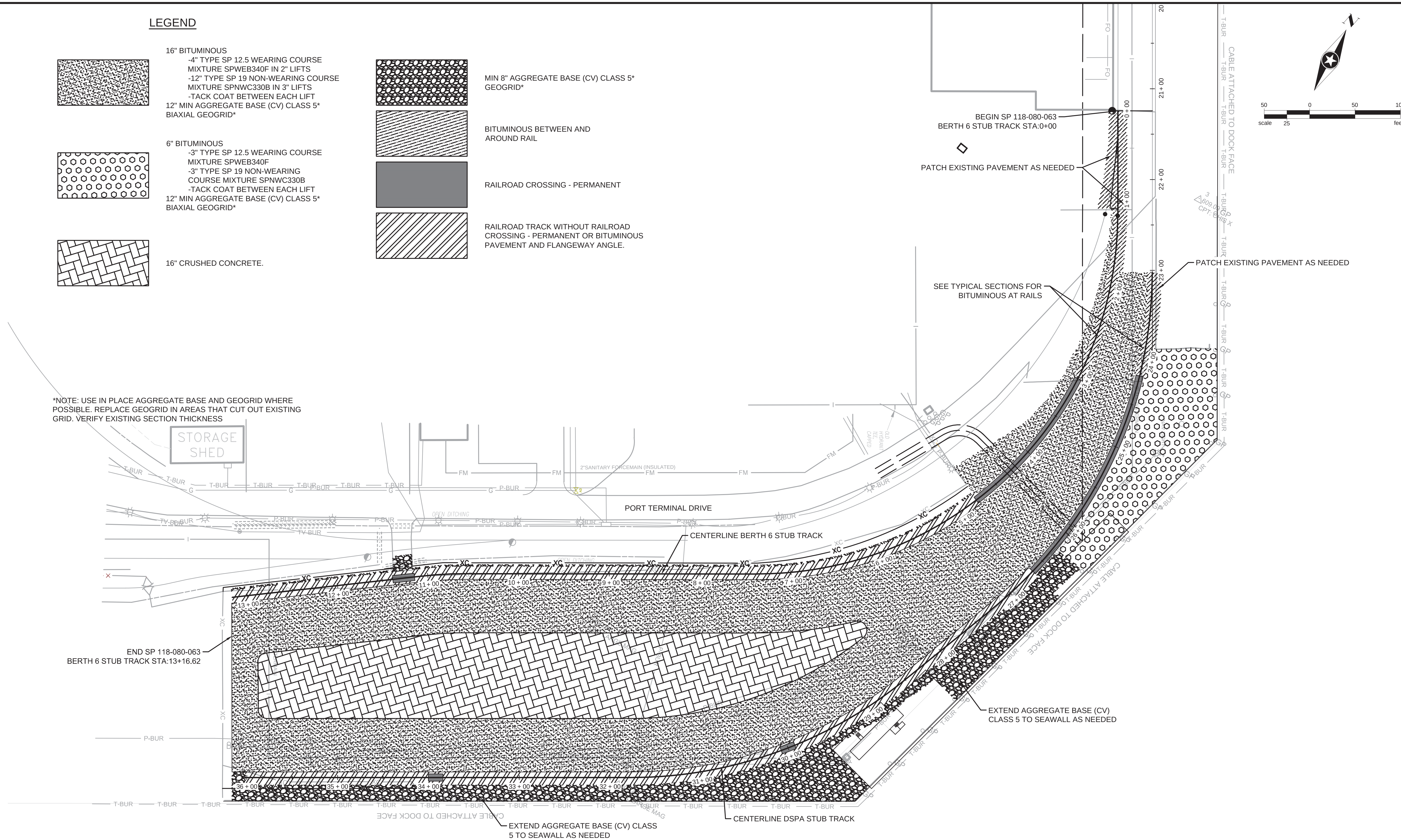
LEGEND

16" BITUMINOUS -4" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB340F IN 2" LIFTS -12" TYPE SP 19 NON-WEARING COURSE MIXTURE SPNWC330B IN 3" LIFTS -TACK COAT BETWEEN EACH LIFT 12" MIN AGGREGATE BASE (CV) CLASS 5* BIAXIAL GEOGRID*	MIN 8" AGGREGATE BASE (CV) CLASS 5* GEOGRID*
6" BITUMINOUS -3" TYPE SP 12.5 WEARING COURSE MIXTURE SPWEB340F -3" TYPE SP 19 NON-WEARING COURSE MIXTURE SPNWC330B -TACK COAT BETWEEN EACH LIFT 12" MIN AGGREGATE BASE (CV) CLASS 5* BIAXIAL GEOGRID*	BITUMINOUS BETWEEN AND AROUND RAIL
16" CRUSHED CONCRETE.	RAILROAD CROSSING - PERMANENT
	RAILROAD TRACK WITHOUT RAILROAD CROSSING - PERMANENT OR BITUMINOUS PAVEMENT AND FLANGEWAY ANGLE.

*NOTE: USE IN PLACE AGGREGATE BASE AND GEOGRID WHERE POSSIBLE. REPLACE GEOGRID IN AREAS THAT CUT OUT EXISTING GRID. VERIFY EXISTING SECTION THICKNESS



Duluth Seaway Port Authority

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DESIGNER:	BJR				
CHECKED BY:	BJR				
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SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
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DULUTH, MINNESOTA
SP 118-080-063
CITY OF DULUTH PROJECT #1717

SURFACING PLAN
DULUTH SEAWAY PORT AUTHORITY

FILE NO. DUSPA 144638

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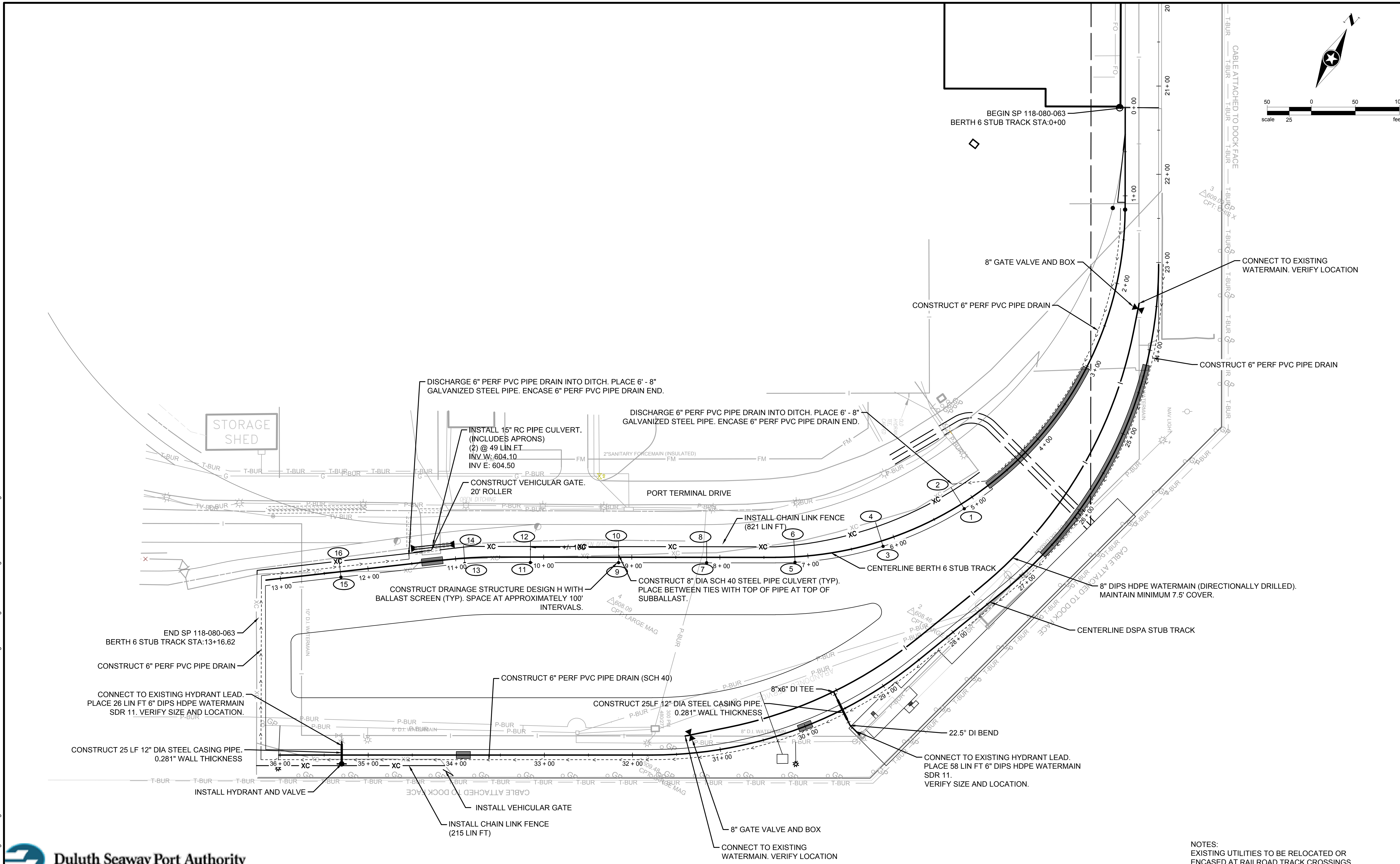

NOTES:
EXISTING UTILITIES TO BE RELOCATED OR ENCASED AT RAILROAD TRACK CROSSINGS.

Duluth Seaway Port Authority

DESIGN TEAM	
DRAWN BY:	SRP
DESIGNER:	BJR
CHECKED BY:	BJR

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SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

DULUTH, MINNESOTA
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CITY OF DULUTH PROJECT #1717

UTILITIES PLAN
DULUTH SEAWAY PORT AUTHORITY

FILE NO. DUSPA 144638

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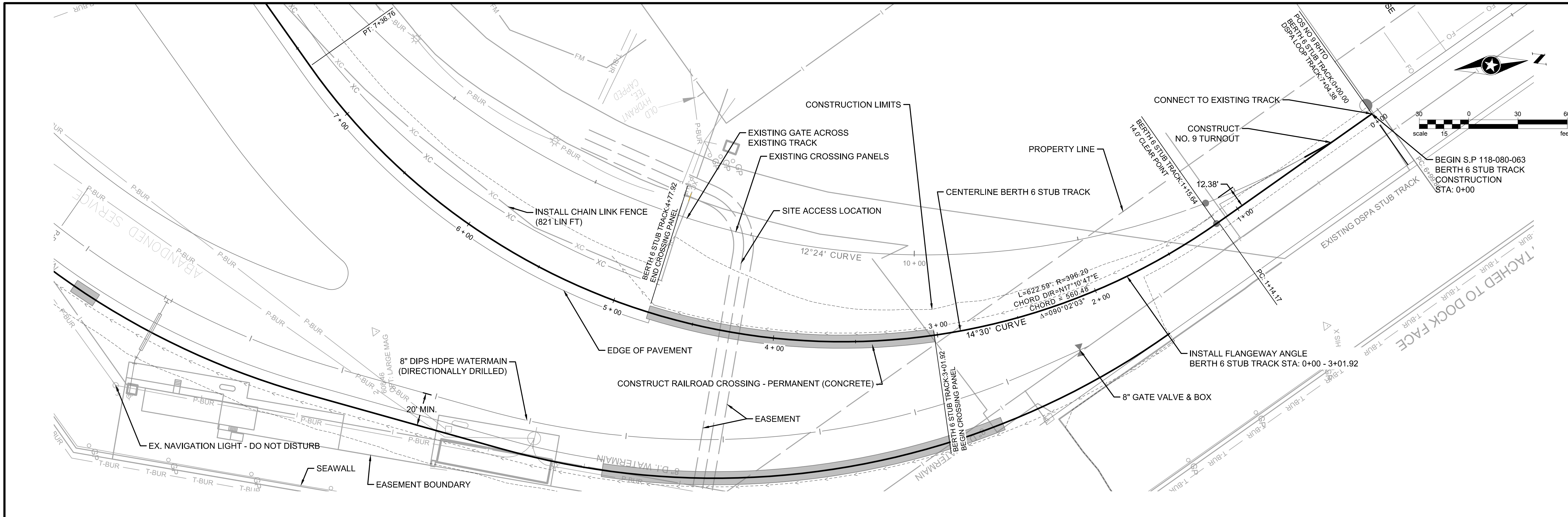

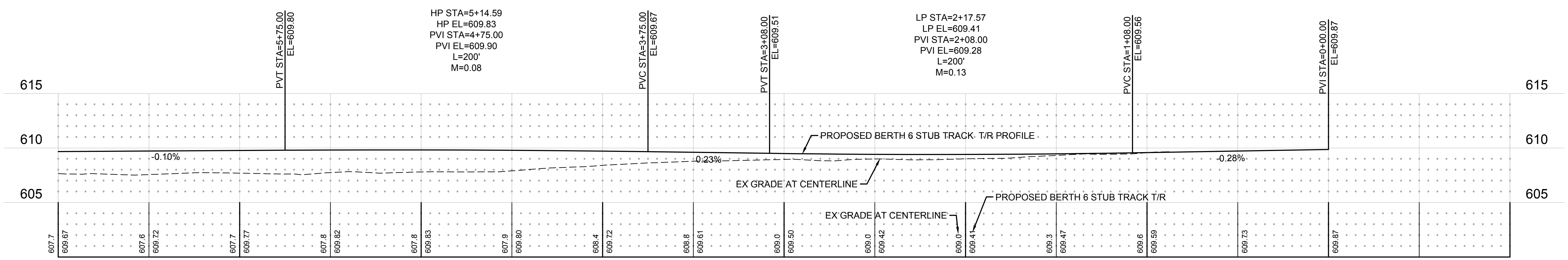

NOTES:
EXISTING UTILITIES TO BE RELOCATED OR ENCASED AT RAILROAD TRACK CROSSINGS.

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Duluth Seaway Port Authority

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DESIGNER: BJR				
CHECKED BY: BJR				
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Date: 07/26/2018 Lic. No. 43913

SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

DULUTH, MINNESOTA
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CITY OF DULUTH PROJECT #1717

BERTH 6 STUB TRACK
PLAN AND PROFILE
DULUTH SEAWAY PORT AUTHORITY

FILE NO. DUSPA 144638

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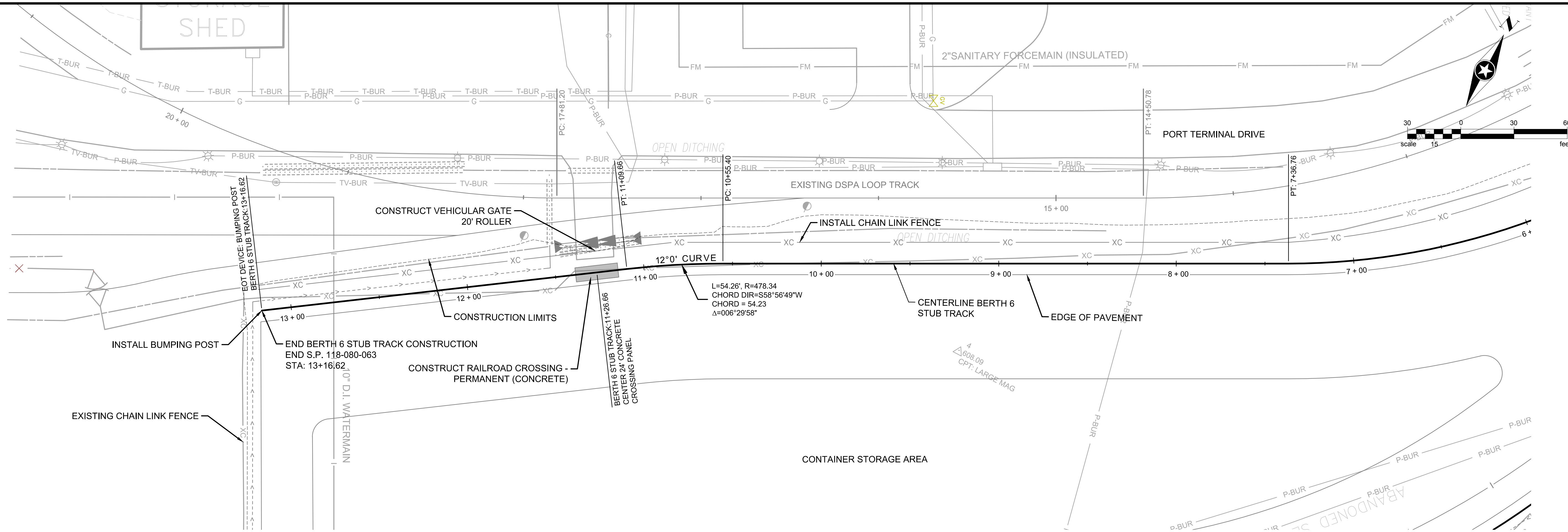

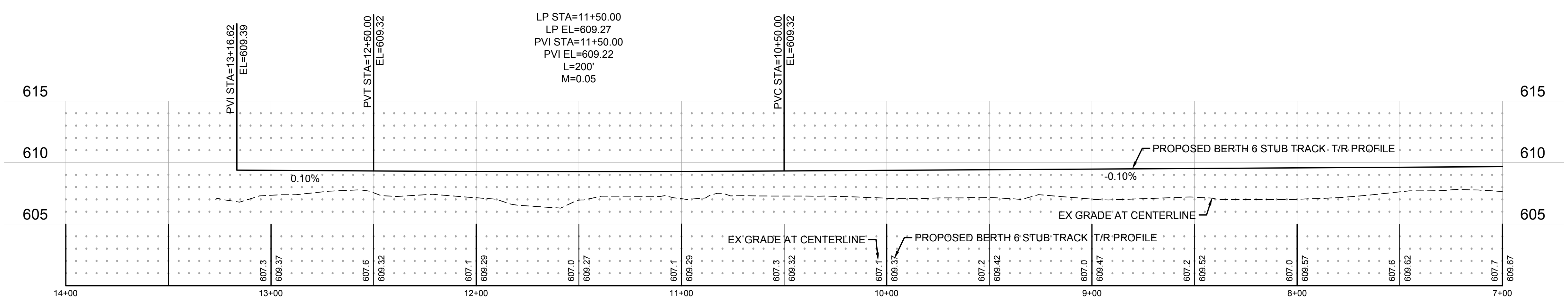

NOTES:
EXISTING UTILITIES TO BE RELOCATED OR ENCASED AT RAILROAD TRACK CROSSINGS.

Duluth Seaway Port Authority

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DESIGNER:	BJR				
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MATTHEW J. BOLF, PE
Date: 07/26/2018 Lic. No. 43913

SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

DULUTH, MINNESOTA
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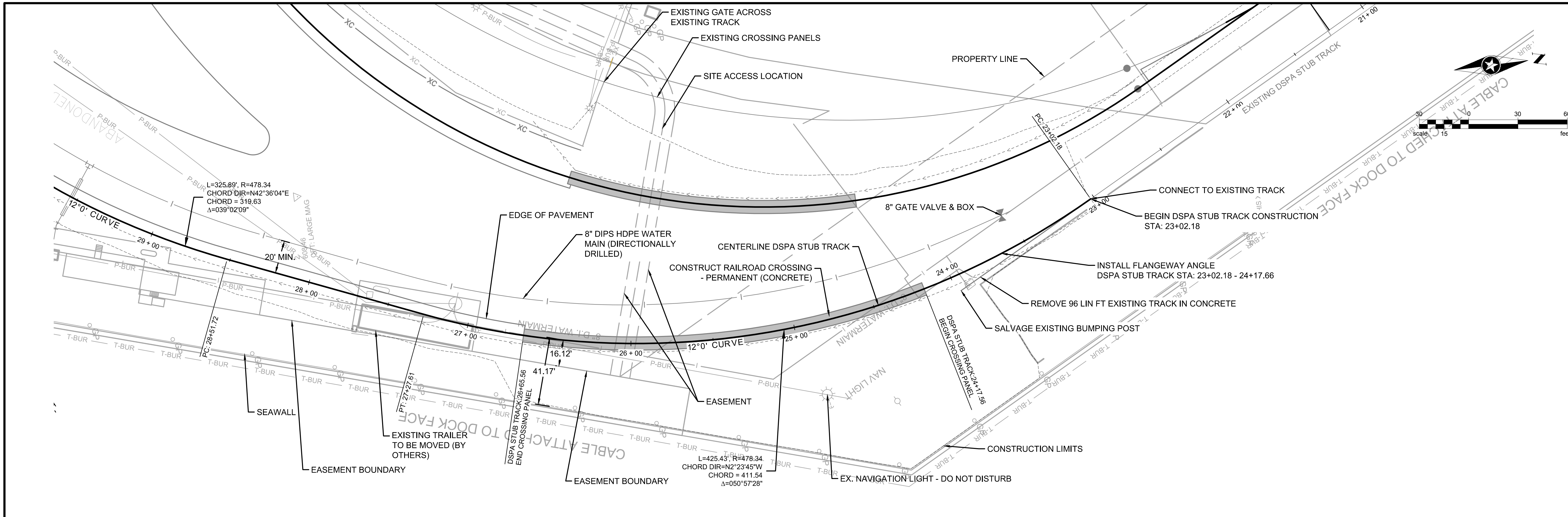
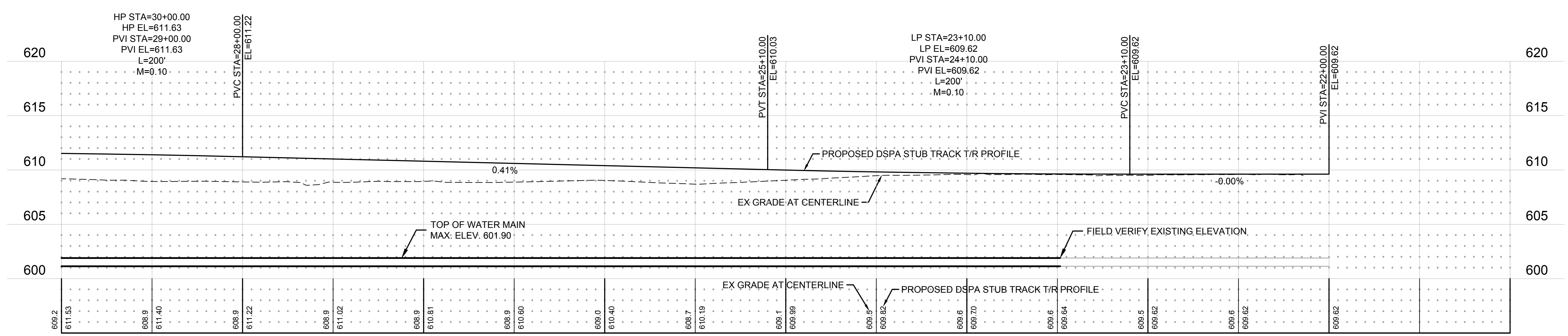
CITY OF DULUTH PROJECT #1717

BERTH 6 STUB TRACK
PLAN AND PROFILE
DULUTH SEAWAY PORT AUTHORITY

FILE NO. DUSPA 144638





NOTES:
EXISTING UTILITIES TO BE RELOCATED OR ENCASED AT RAILROAD TRACK CROSSINGS.

Duluth Seaway Port Authority

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DESIGNER:	BJR				
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DESIGN TEAM					

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SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

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DSPA STUB TRACK
PLAN AND PROFILE
DULUTH SEAWAY PORT AUTHORITY

FILE NO. DSPA 144638

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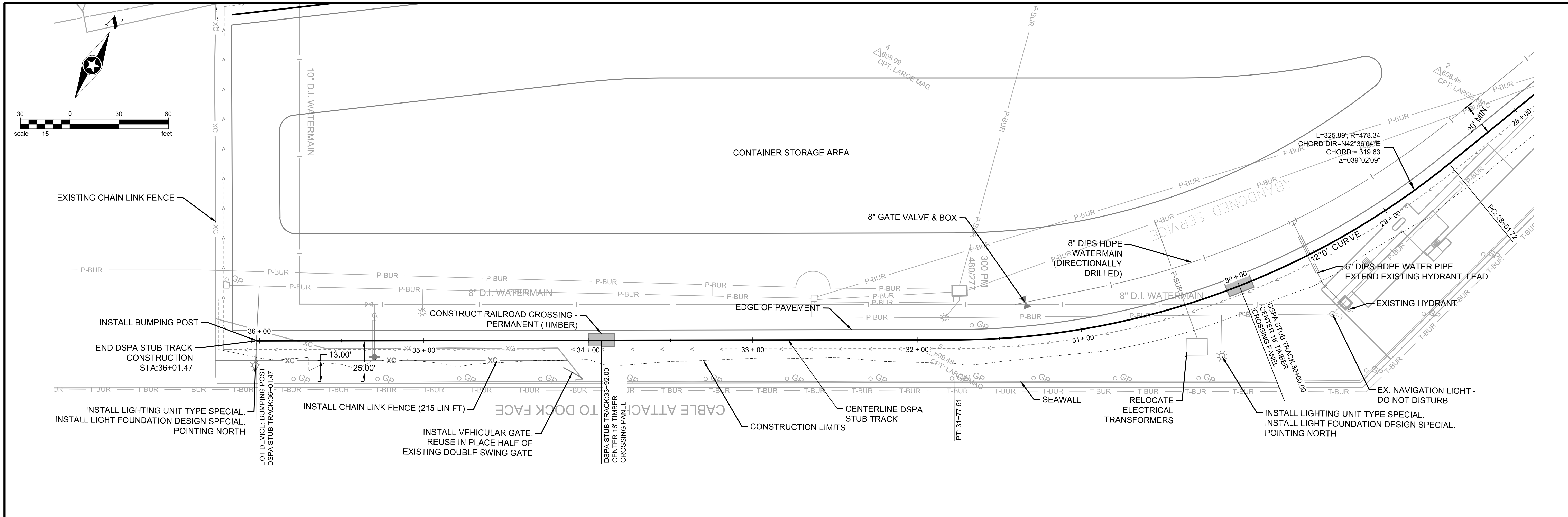

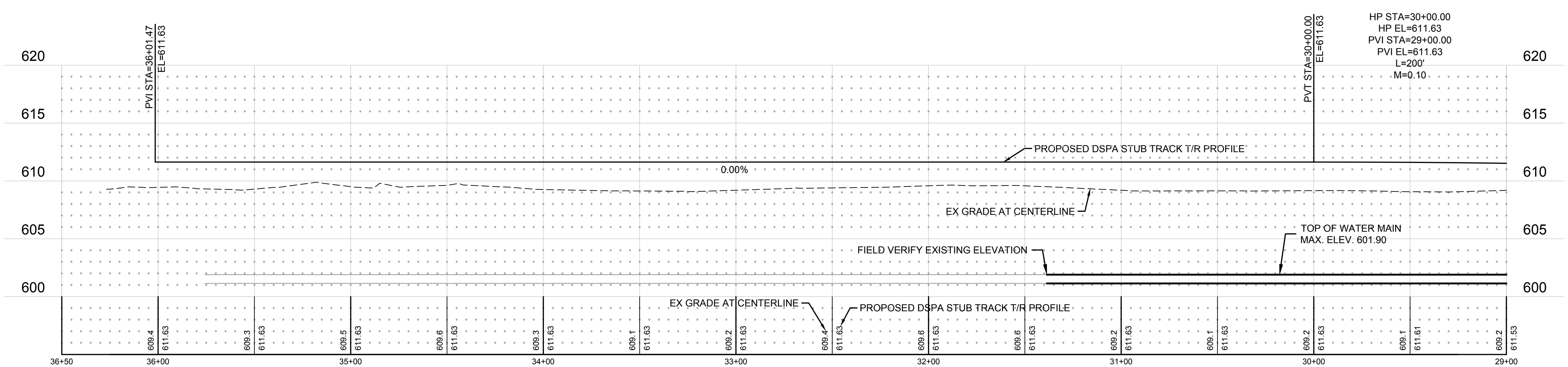

NOTES:
EXISTING UTILITIES TO BE RELOCATED OR ENCASED AT RAILROAD TRACK CROSSINGS.

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Duluth Seaway Port Authority

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DESIGN TEAM		NO.	BY	DATE	REVISIONS

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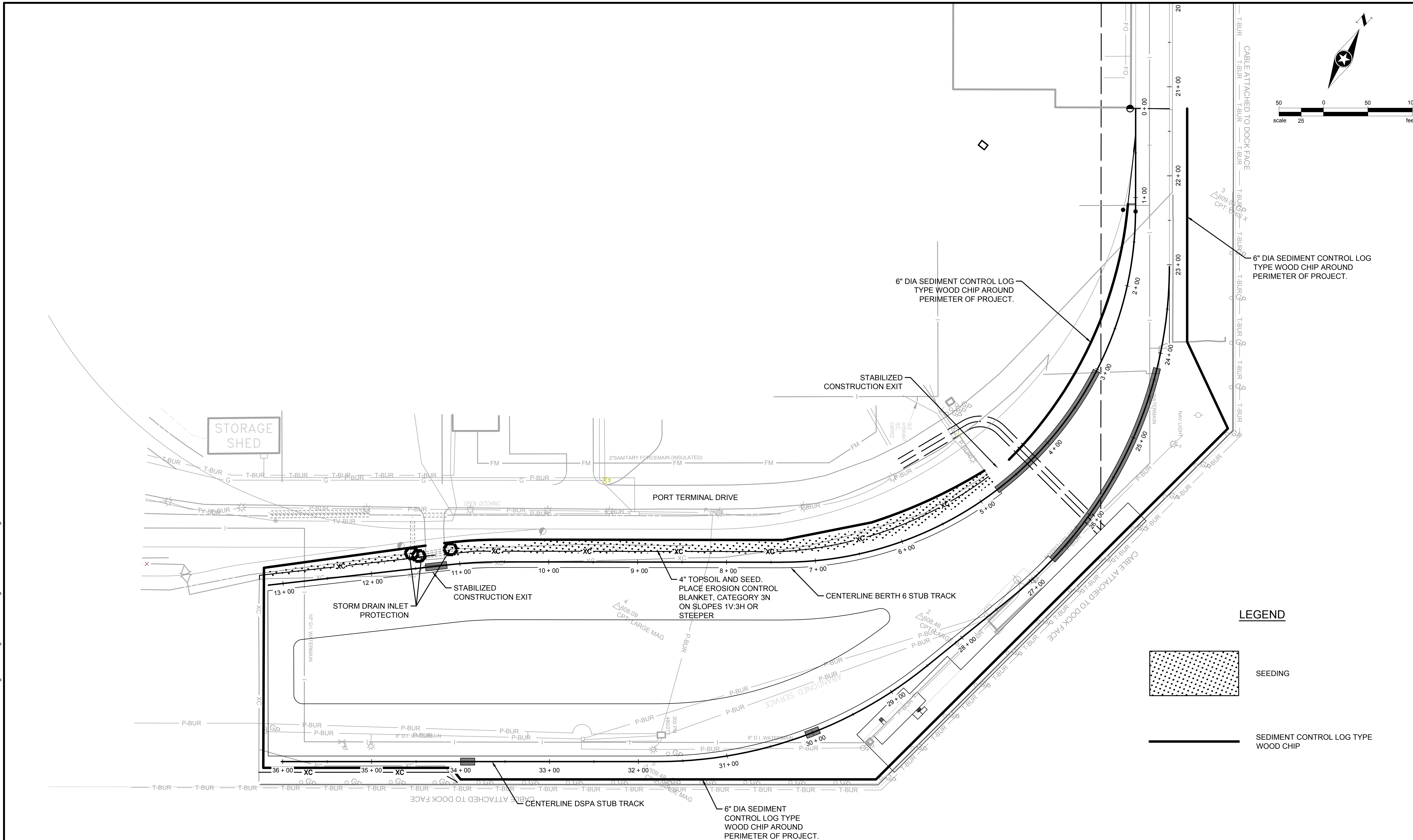
SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

DULUTH, MINNESOTA
SP 118-080-063
CITY OF DULUTH PROJECT #1717

DSPA STUB TRACK PLAN AND PROFILE DULUTH SEAWAY PORT AUTHORITY

FILE NO. DSPA 144638



Duluth Seaway Port Authority

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DESIGNER:	BJR
CHECKED BY:	BJR
DESIGN TEAM	

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SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
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SP 118-080-063
CITY OF DULUTH PROJECT #1717

EROSION CONTROL AND TURF ESTABLISHMENT PLAN
DULUTH SEAWAY PORT AUTHORITY

FILE NO. DUSPA 144638

22 / 45

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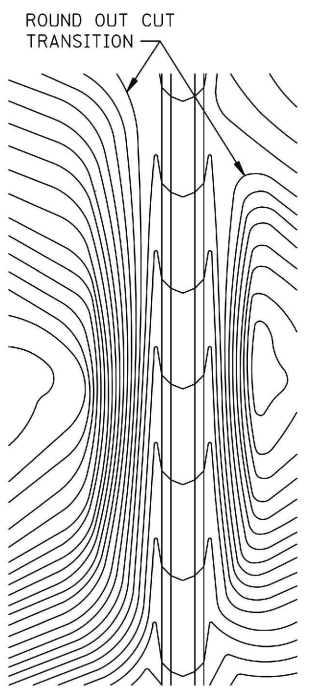
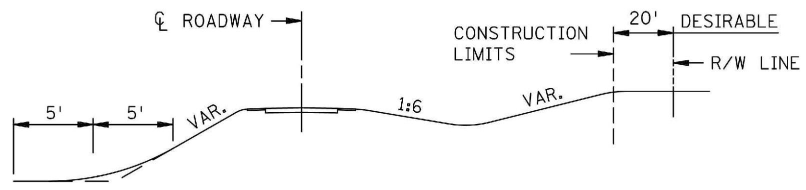
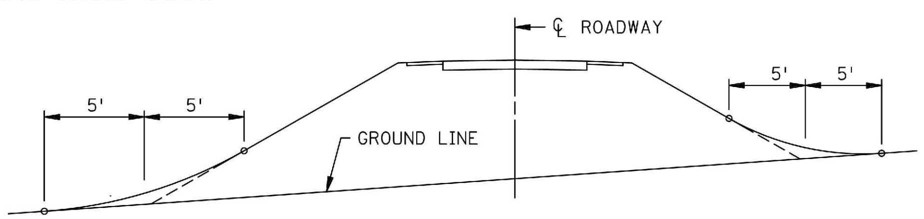


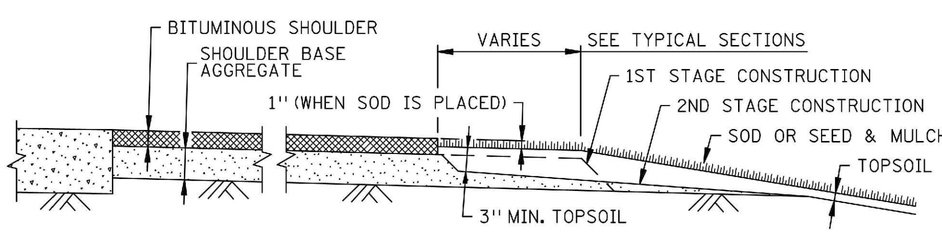
CONTOURING ROAD CUTS



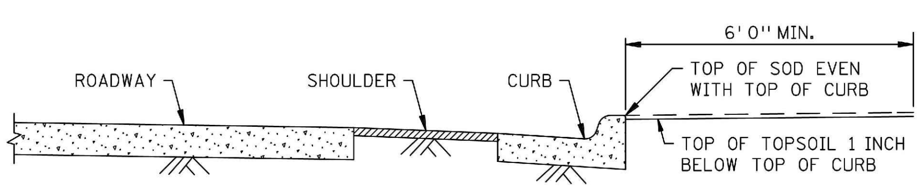
ROUNDING SHOULDERS AND BACKSLOPES



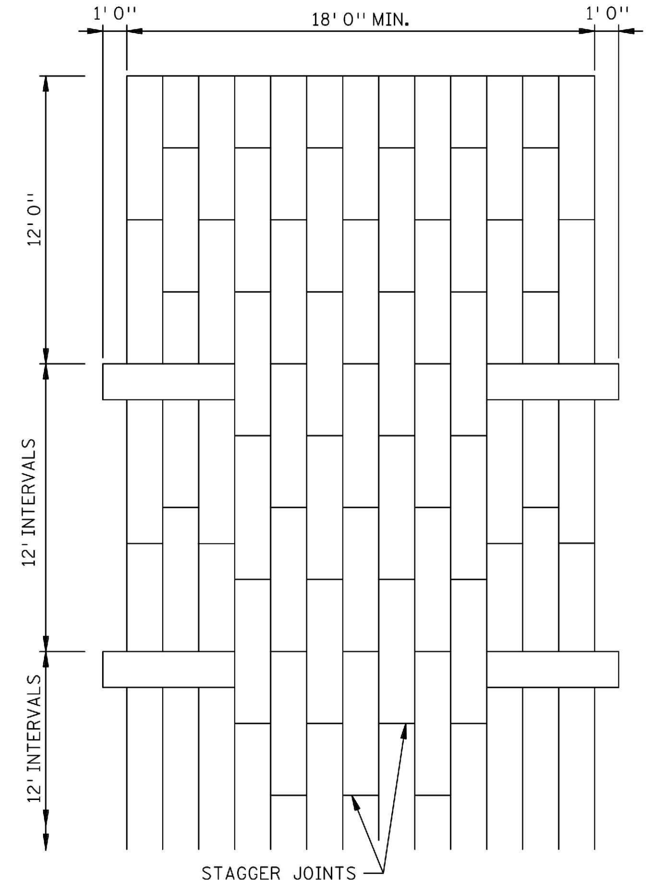
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



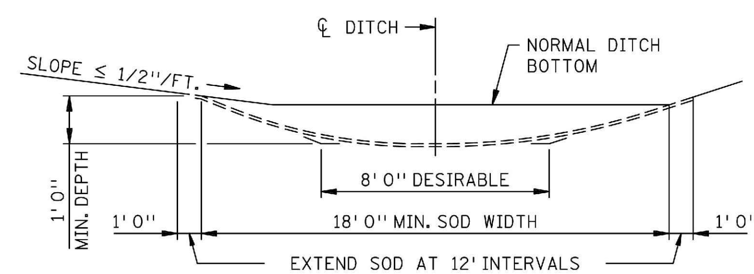
SHAPING AND TOPSOILING INSLOPES



SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

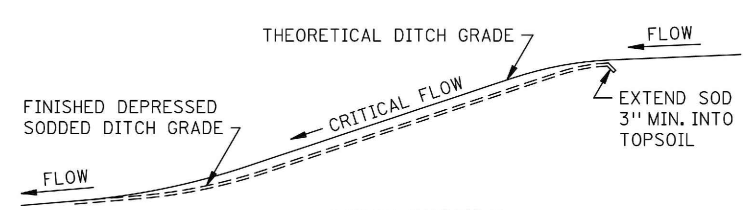


PLAN VIEW



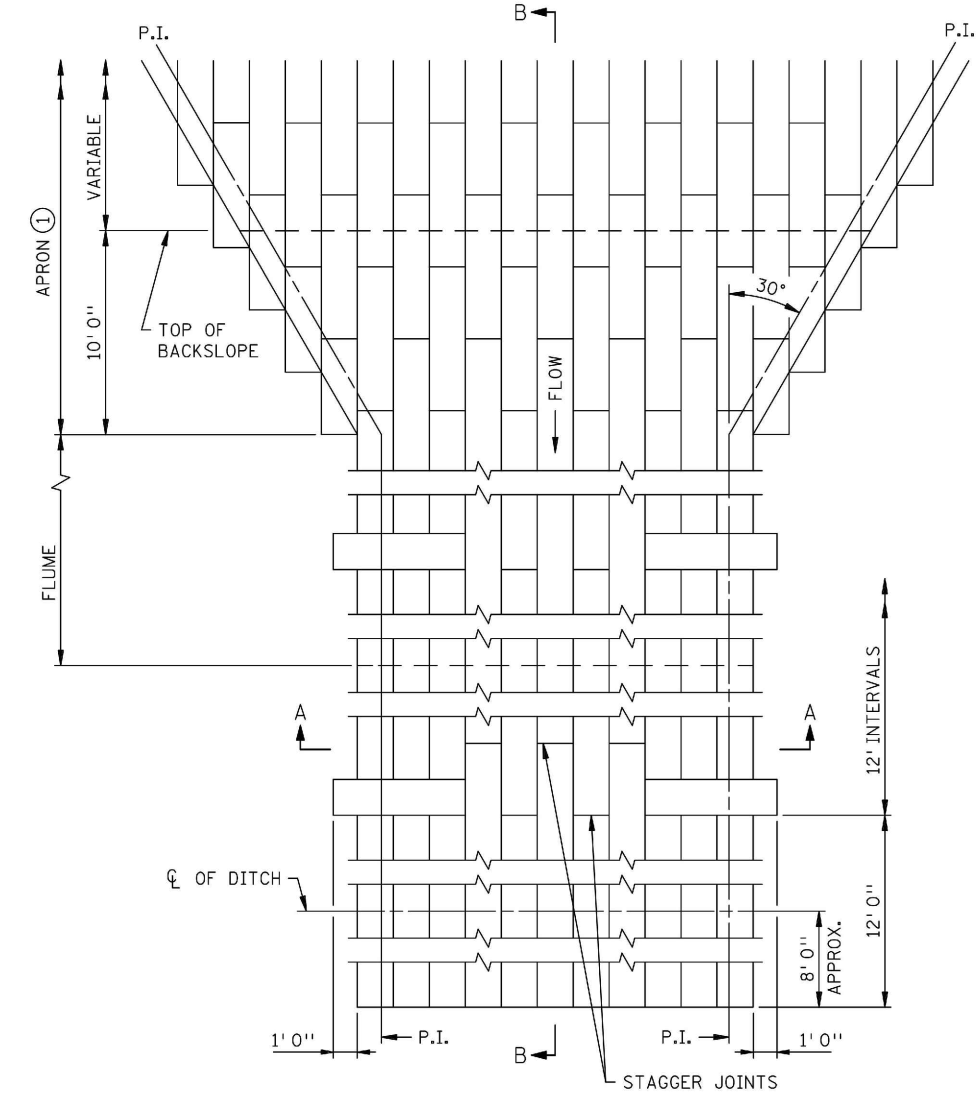
SODDED DITCH CROSS SECTION

WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2''/FT.),
FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.

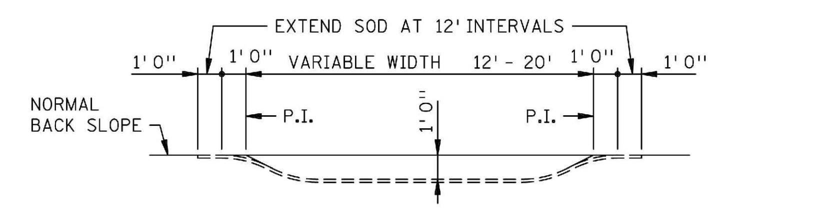


DITCH PROFILE

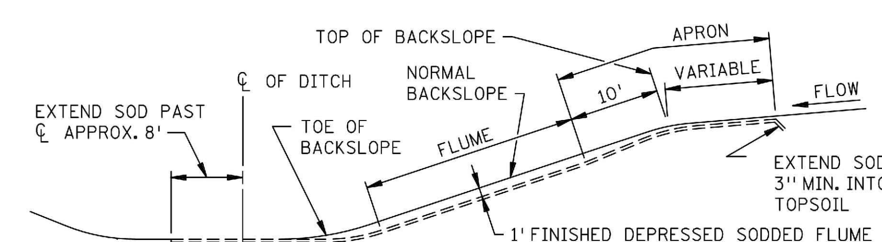
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



SECTION B-B

SODDED FLUME DETAILS

NOTES:

SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.

① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

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MINNESOTA DEPARTMENT OF TRANSPORTATION

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2-28-2017

PERMANENT EROSION CONTROL

ALONG ROADWAYS, DITCHES AND FLUMES

STANDARD PLAN 5-297.404

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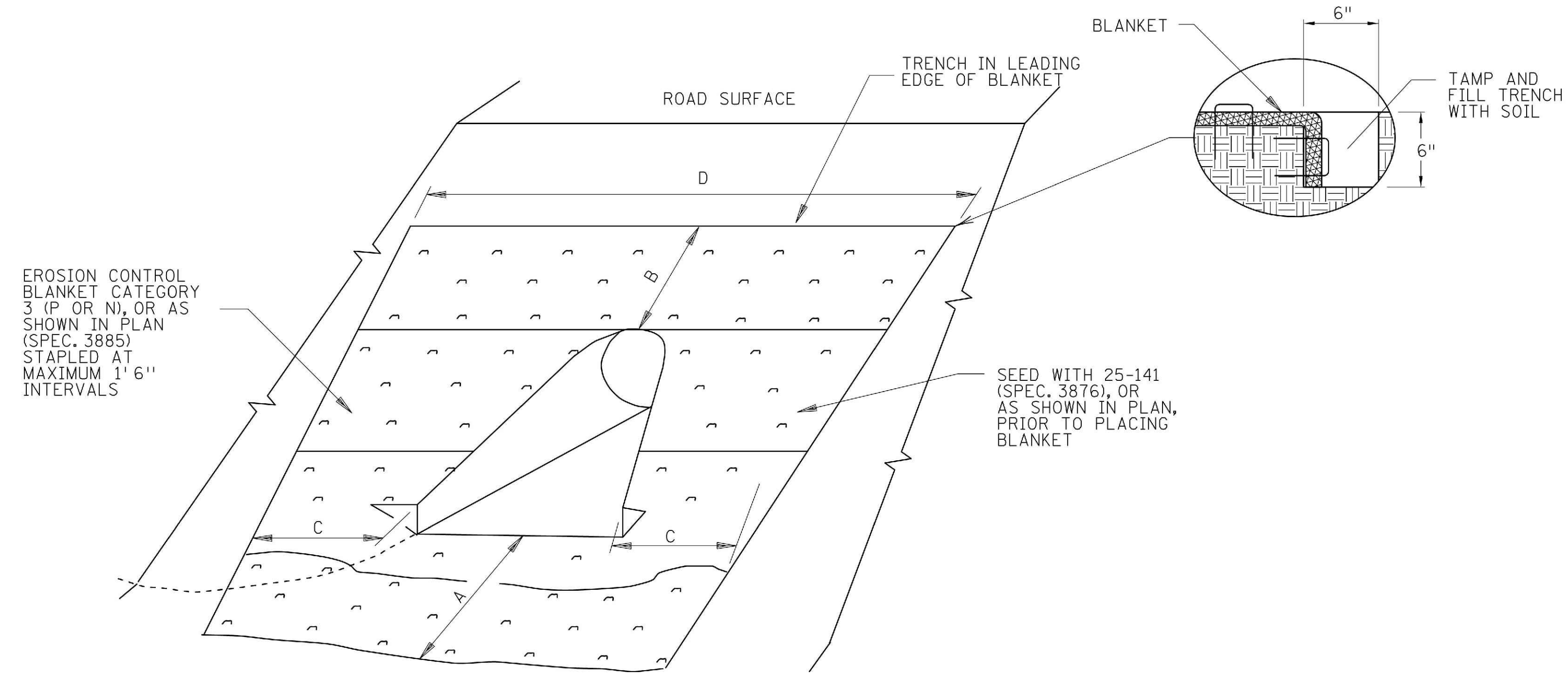
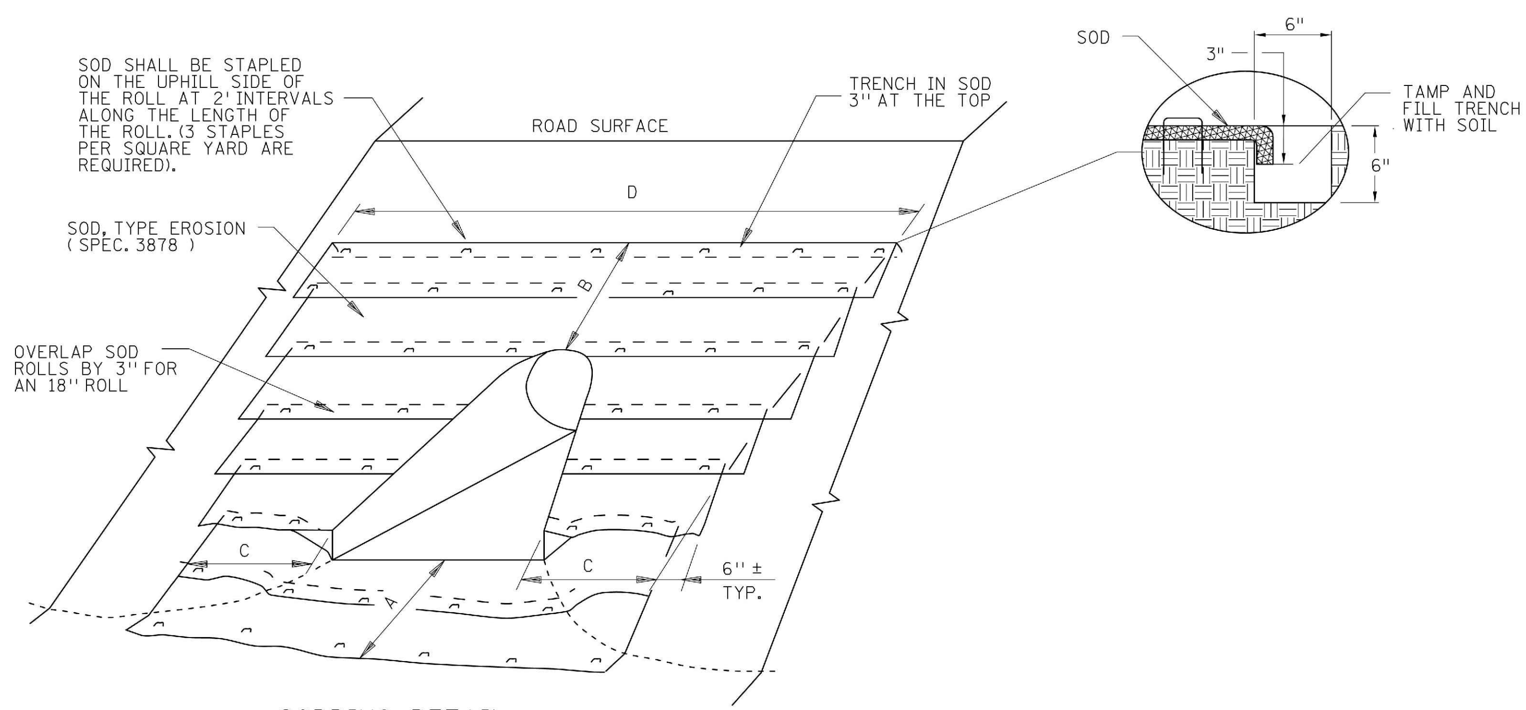


EROSION CONTROL BLANKET & SEED DETAIL



SODDING DETAIL

CULVERT INLET APRON ①

CULVERT DIAMETER ②	SOD OR EROSION CONTROL BLANKET (SQ. YDS.) CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)	"A"	"B"	"C"	"D"
15"	9	9	8	8	N/A	N/A	3'	1.5'	3'	13'
18"	13	12	12	14	16	N/A	3'	3'	3'	16'
21"	14	14	14	16	18	14	3'	3'	3'	17'
24"	16	15	16	19	21	17	3'	3'	3'	18'
27"	N/A	20	N/A	N/A	N/A	N/A	3'	4.5'	3'	20'
30"	23	22	25	30	32	N/A	3'	4.5'	3'	22'
36"	34	34	39	48	51	37	4.5'	4.5'	4.5'	27'
42"	43	40	51	64	N/A	N/A	4.5'	6'	4.5'	30'
48"	54	50	66	82	N/A	N/A	4.5'	7.5'	4.5'	34'
54"	65	58	81	102	N/A	N/A	4.5'	9'	4.5'	37'
60"	69	59	91	115	N/A	N/A	4.5'	9'	4.5'	39'
66"	69	63	N/A	N/A	N/A	N/A	4.5'	9'	4.5'	39'
72"	78	72	99	122	N/A	N/A	4.5'	10.5'	4.5'	41'

CULVERT OUTLET APRON ①

CULVERT DIAMETER ②	SOD OR EROSION CONTROL BLANKET (SQ. YDS.) CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)	"A"	"B"	"C"	"D"
15"	10	10	9	10	N/A	N/A	4.5'	1.5'	3'	13'
18"	13	13	12	14	15	N/A	6'	1.5'	3'	14'
21"	16	14	16	18	19	15	6'	1.5'	3'	15'
24"	18	18	18	21	22	18	7.5'	1.5'	3'	16'
27"	N/A	19	N/A	N/A	N/A	N/A	7.5'	1.5'	3'	17'
30"	23	23	24	28	29	N/A	9'	1.5'	3'	18'
36"	36	35	38	47	48	37	10.5'	1.5'	4.5'	23'
42"	43	40	47	58	N/A	N/A	12'	1.5'	4.5'	25'
48"	50	46	57	70	N/A	N/A	13.5'	1.5'	4.5'	27'
54"	57	50	67	84	N/A	N/A	15'	1.5'	4.5'	29'
60"	74	63	90	113	N/A	N/A	16.5'	1.5'	6'	33'
66"	75	67	N/A	N/A	N/A	N/A	16.5'	1.5'	6'	33'
72"	77	70	92	114	N/A	N/A	16.5'	1.5'	6'	34'

NOTES:

AREA SHOWN IN SQUARE YARDS IS FOR ONE CULVERT END.

QUANTITIES ARE CALCULATED TO INCLUDE SOD REQUIRED TO PROVIDE A 3" OVERLAP ON ALL 18" WIDE ROLLS. THIS ALLOWS FOR SHRINKAGE OF THE SOD.

FOR PIPE ARCHES USE EQUIVALENT PIPE DIAMETER TO APPROXIMATE AREA.

FOR CORRUGATED POLYETHYLENE PIPE METAL APRON (PLATE 3129), USE THE METAL APRON COLUMN (PLATE 3123).

AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE BASED ON APRON SIDE SLOPES OF NO STEEPER THAN 1:2, UNLESS INDICATED AS FOR SAFETY APRONS.

CARE SHOULD BE TAKEN IN SELECTING SOD TO STABILIZE THE APRON. RIP-RAP SHOULD BE USED FOR FLOW VELOCITIES GREATER THAN 6 FPS.

① ADDITIONAL QUANTITIES MAY BE SHOWN IN THE PLAN OR REQUIRED BY THE ENGINEER.

② FOR ARCH PIPE USE CLOSEST CIRCULAR PIPE DIAMETER AND APRON SLOPE. (DIAMETERS LARGER THAN 72" REQUIRE SPECIAL DESIGNS.)

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PERMANENT EROSION CONTROL

TURF ESTABLISHMENT DETAIL AT CULVERT ENDS

STANDARD PLAN 5-297.404

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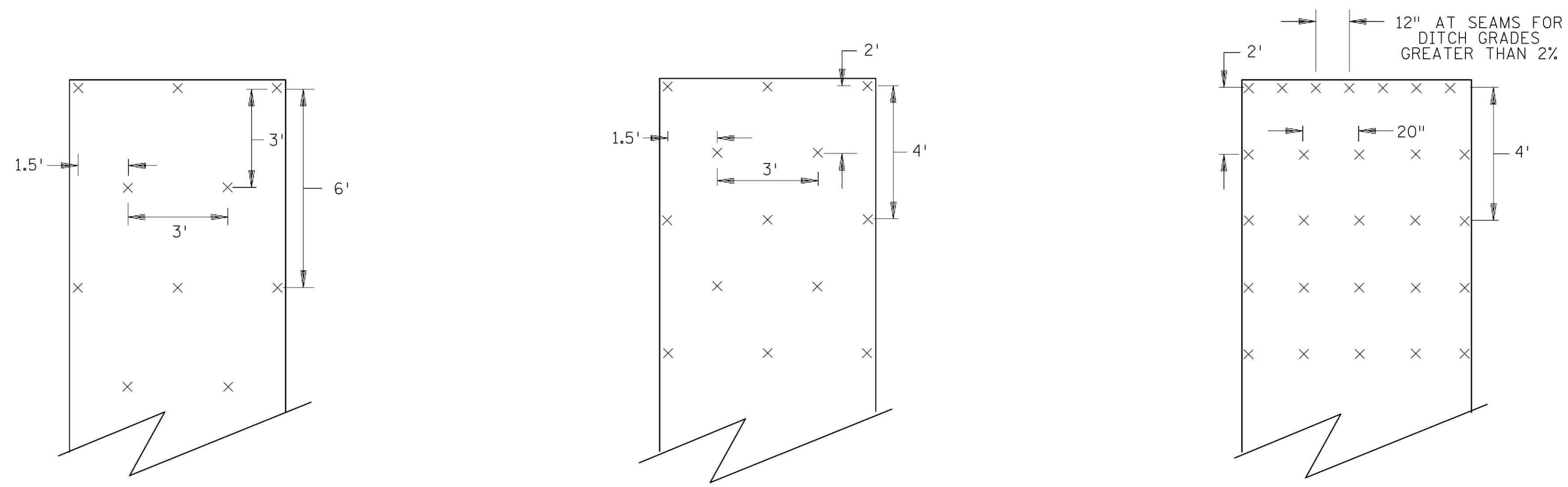
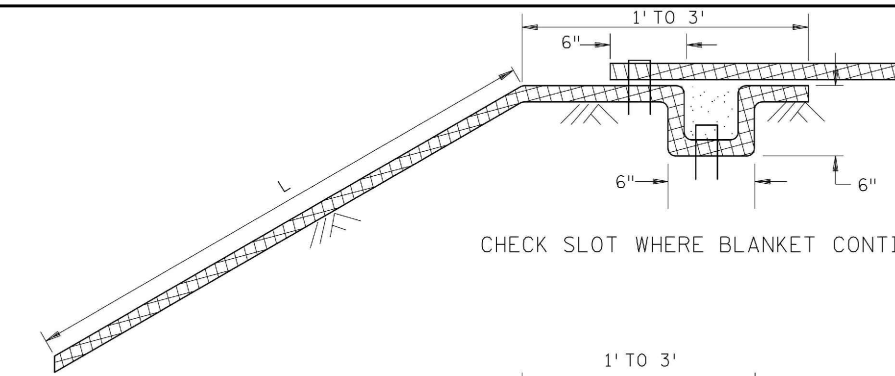


SLOPES FLATTER THAN 1:2
(120 STAPLES PER 100 SQ YD)

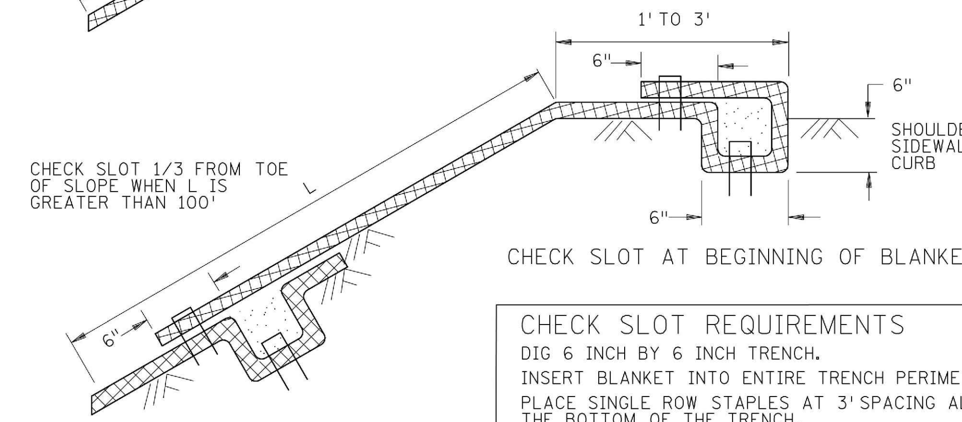
SLOPES 1:2 TO 1:1
(170 STAPLES PER 100 SQ YD)

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

BLANKET STAPLE PATTERN



CHECK SLOT WHERE BLANKET CONTINUES



CHECK SLOT AT BEGINNING OF BLANKET

CHECK SLOT REQUIREMENTS

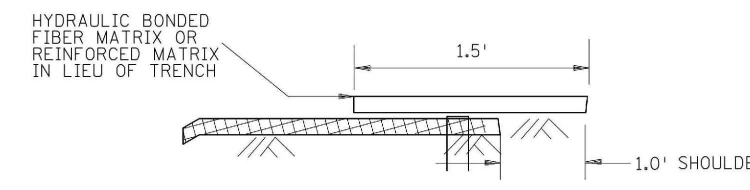
DIG 6 INCH BY 6 INCH TRENCH.

INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.

PLACE SINGLE ROW STAPLES AT 3' SPACING ALONG THE BOTTOM OF THE TRENCH.

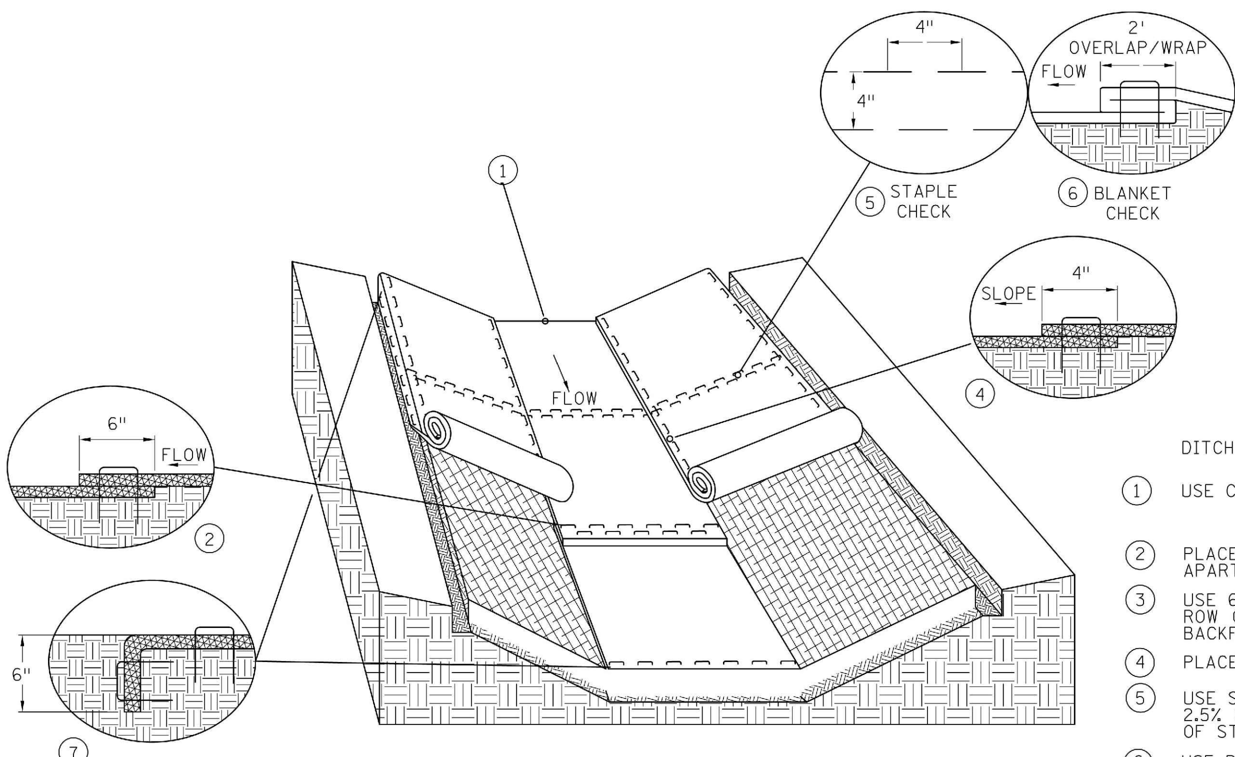
BACKFILL TRENCH WITH SOIL AND TAMP.

PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.

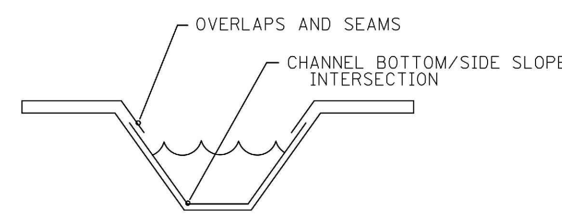


CHECK SLOT ALTERNATIVE
PLACE SINGLE ROW STAPLES AT 12" SPACING

CHECK SLOT DETAILS



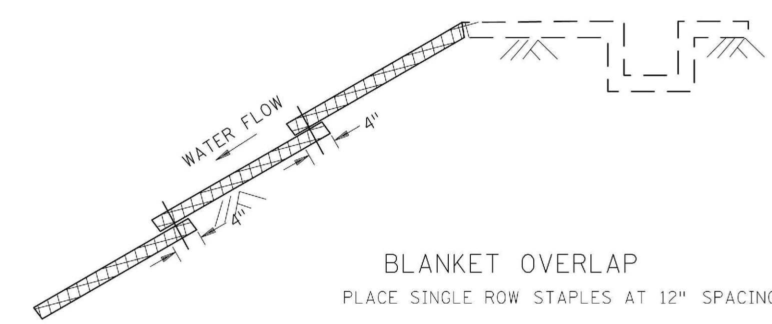
DITCH BLANKET STAPLE DETAIL



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.



BLANKET OVERLAP
PLACE SINGLE ROW STAPLES AT 12" SPACING

GENERAL BLANKET INSTALLATION REQUIREMENTS

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" (MIN.) 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.

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MINNESOTA DEPARTMENT OF TRANSPORTATION

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2-28-2017

PERMANENT EROSION CONTROL
BLANKET STAPLE PATTERN FOR SLOPES

STANDARD PLAN 5-297.404

SP 118-080-063

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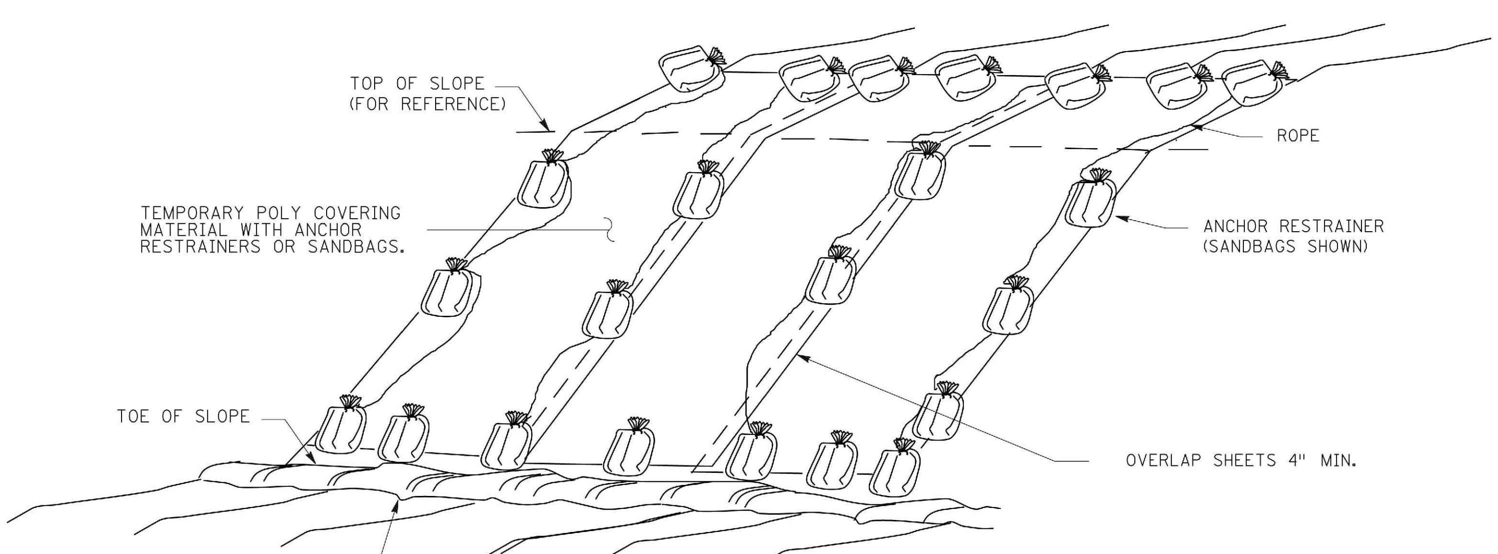
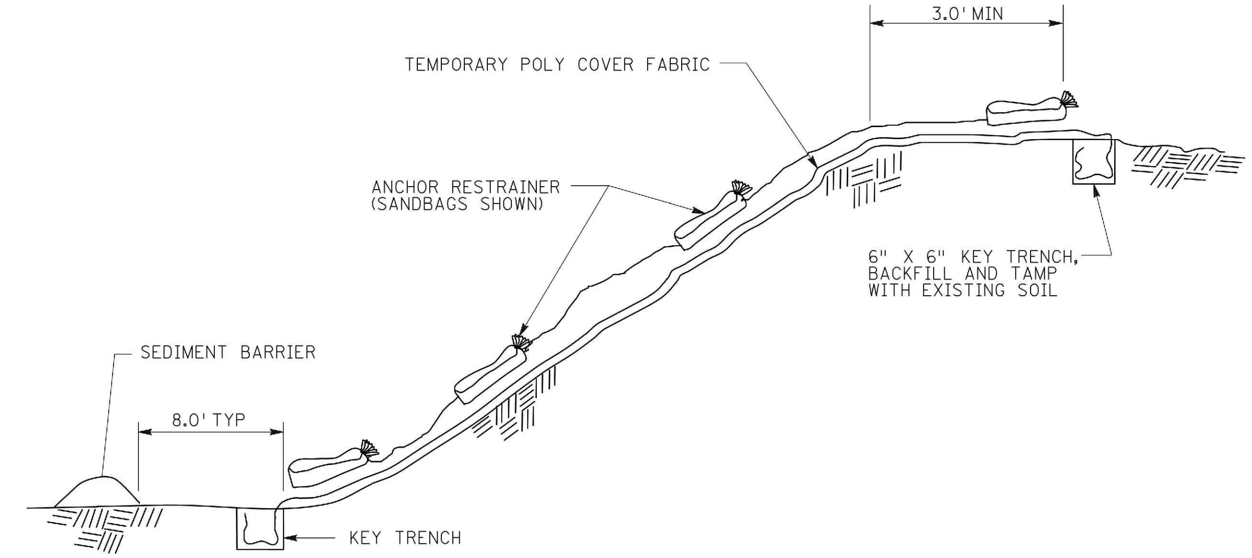
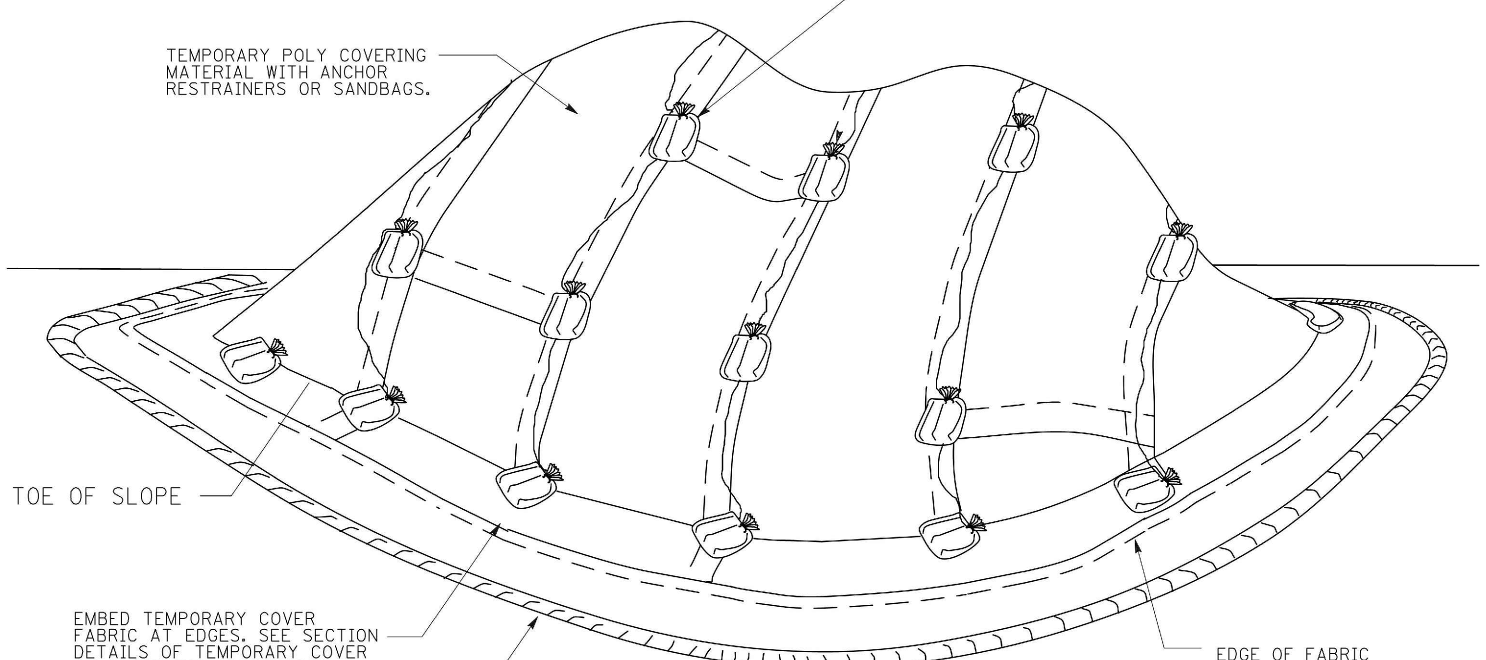


PLAN VIEW

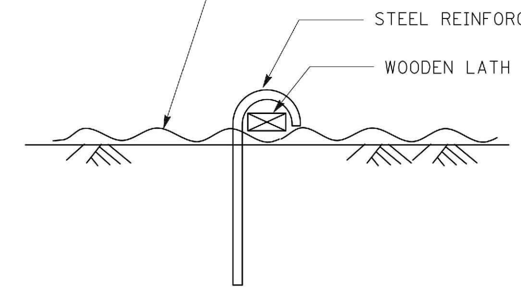


ELEVATION VIEW

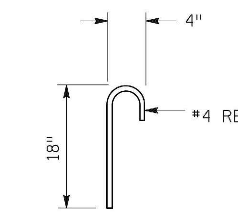
TEMPORARY POLY COVER ON SLOPE



TEMPORARY POLY COVER ON STOCKPILE



ANCHOR RESTRAINER
(STEEL BAR AND WOODEN LATH OPTION)



STEEL REINFORCING BAR DETAIL

NOTES

ANCHOR RESTRAINERS: TYPE, QUANTITY, AND SPACING ARE INCIDENTAL TO POLY COVER. PROVIDE ON CORNERS AND SEAMS OF POLY COVER MATERIAL TO KEEP FROM BLOWING OFF. NO MINIMUM SPACING REQUIRED.

PERIMETER CONTROL: USE SEDIMENT CONTROL LOGS TYPE WOOD CHIP OR COMPOST, INCIDENTAL.

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TEMPORARY EROSION CONTROL
TEMPORARY POLY COVERINGS

STANDARD PLAN 5-297.409

SP 118-080-063

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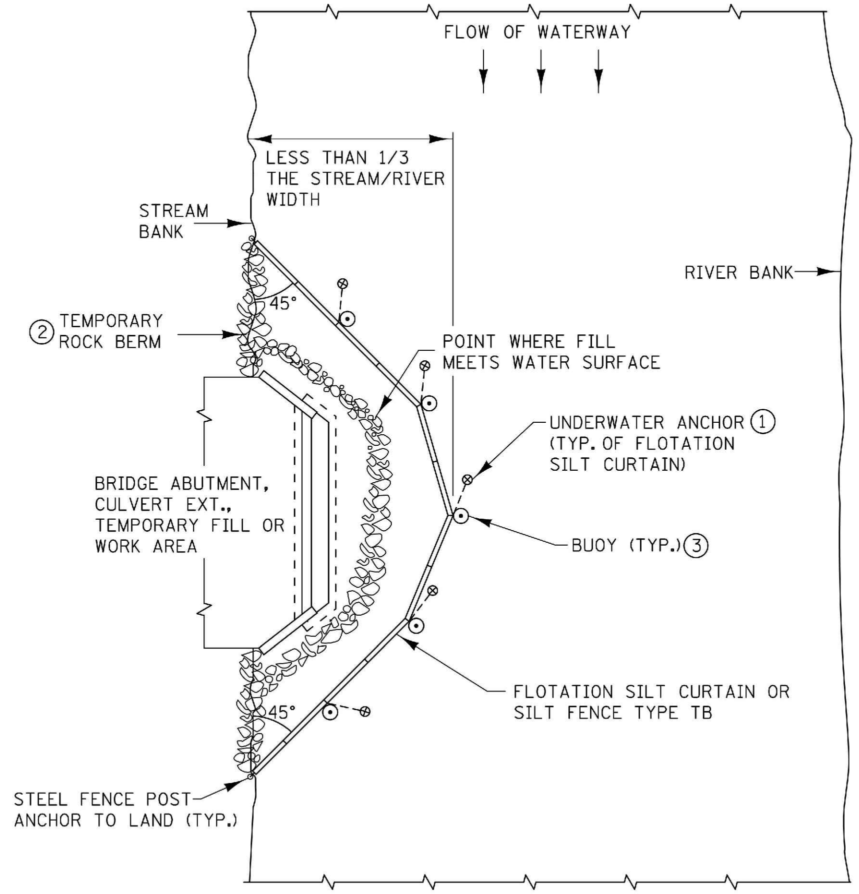
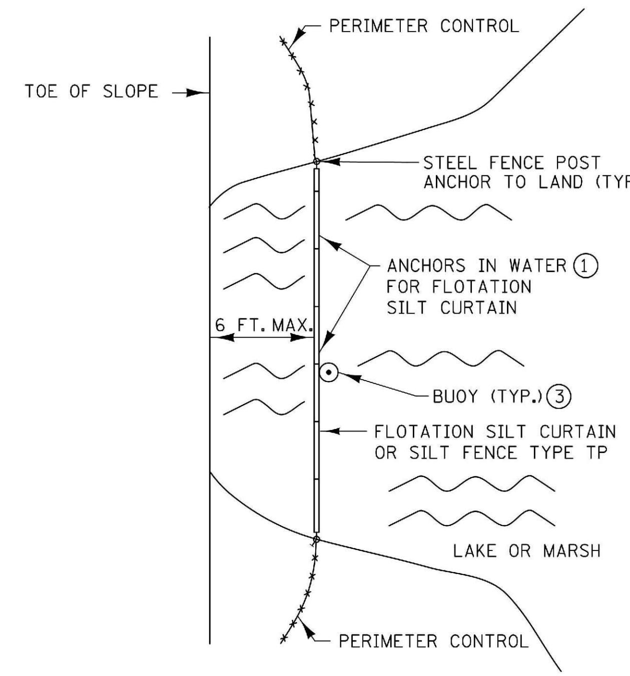
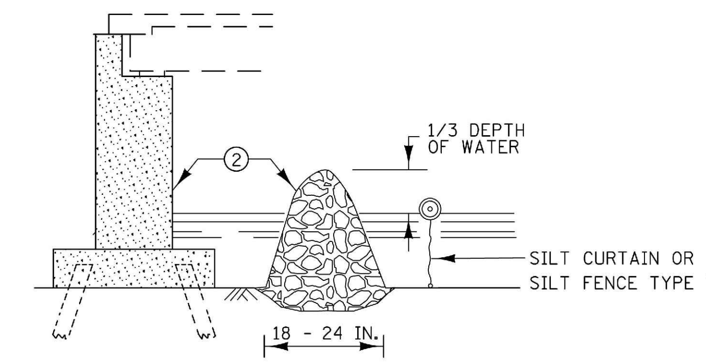


PLAN VIEW FOR STREAM ⑤



PLAN VIEW FOR LAKE OR MARSH ⑤

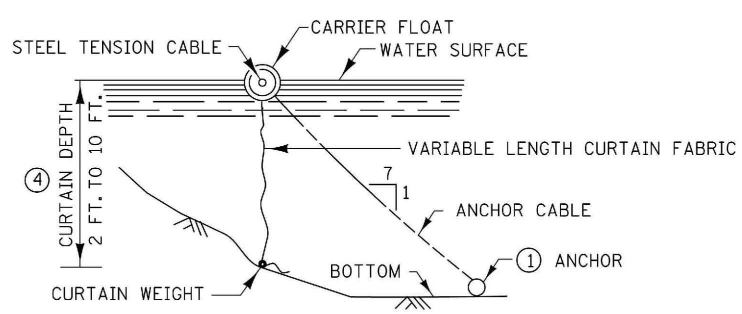


TEMPORARY ROCK BERM
FOR SEDIMENT CONTROL

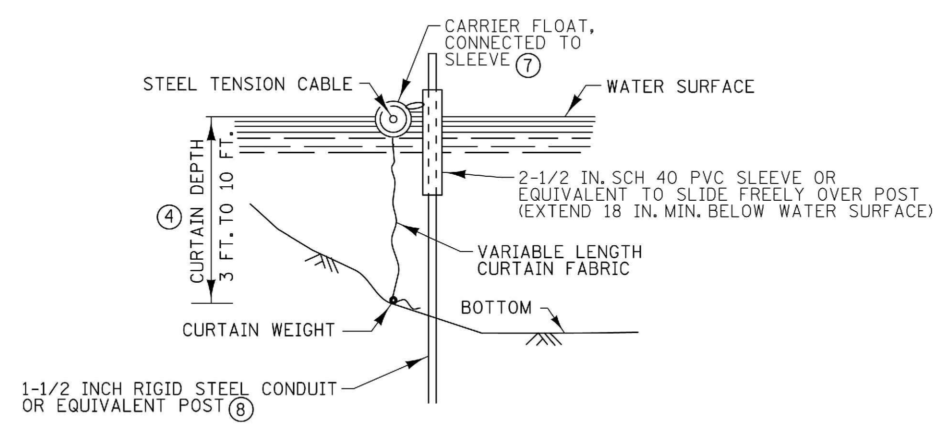
INSTALLATION GUIDELINES
SILT FENCE TYPE TB
MINIMUM WATER DEPTH: 1 FT.
MAXIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.

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

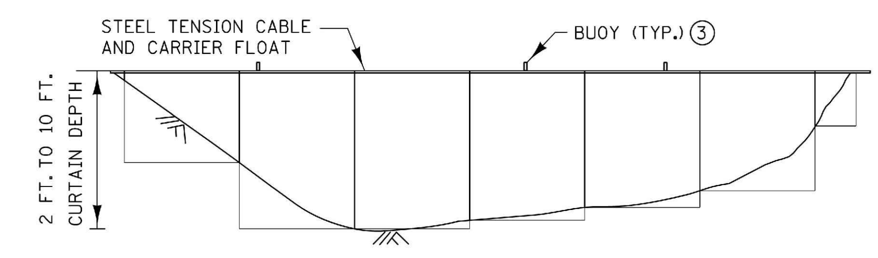
INSTALLATION GUIDELINES ④
FLOTATION SILT CURTAIN
TYPE: MOVING WATER
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.
MAXIMUM WAVE HEIGHT: 2 FT.



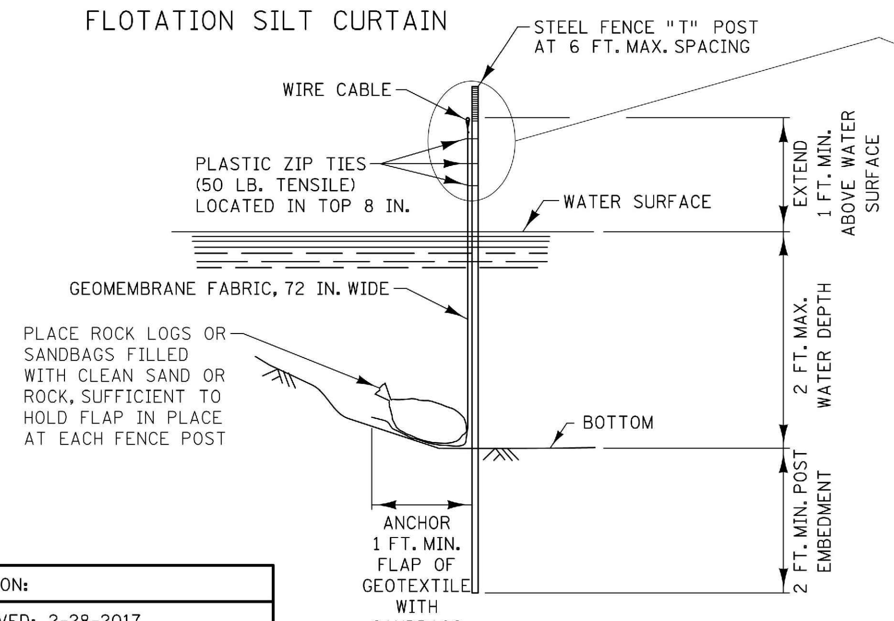
FLOTATION SILT CURTAIN



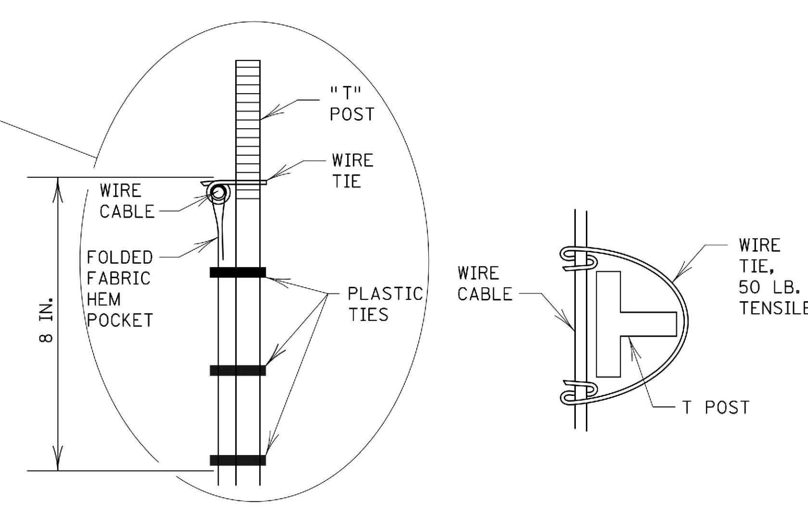
ALTERNATE FLOTATION SILT CURTAIN



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.

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TEMPORARY SEDIMENT CONTROL
SILT CURTAIN OR SILT FENCE TYPE TB

STANDARD PLAN 5-297.405

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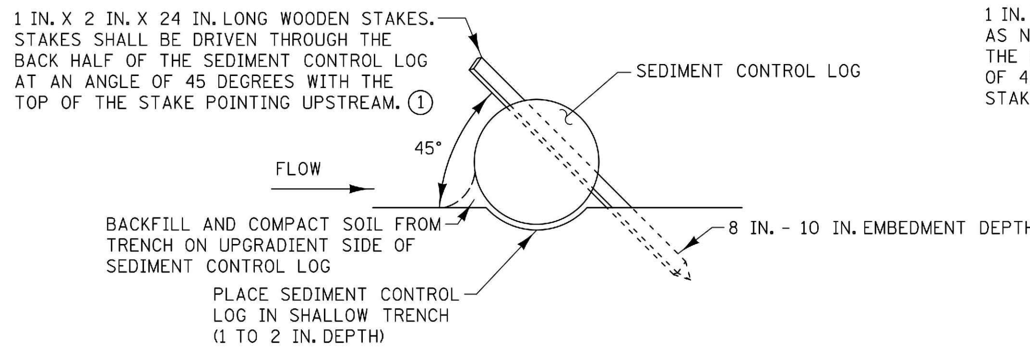
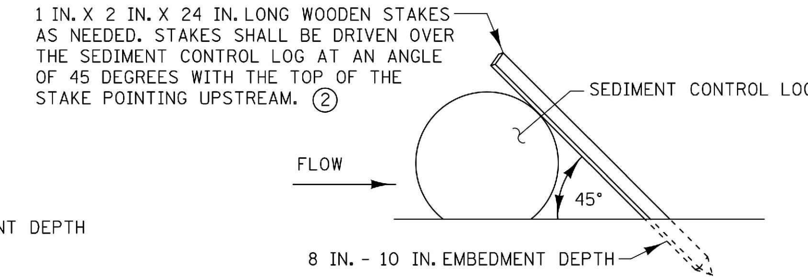
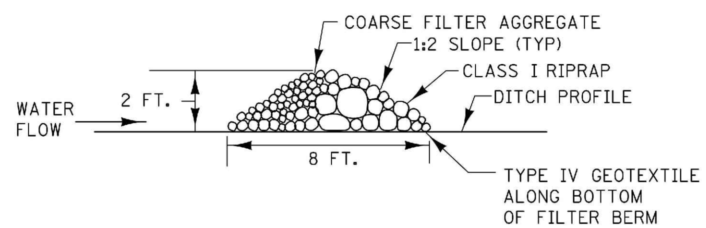


TYPES: STRAW, WOOD FIBER, OR COIR

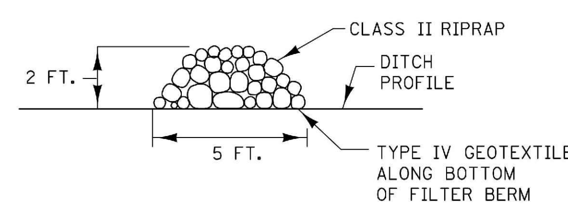


TYPES: WOOD CHIP, COMPOST, OR ROCK

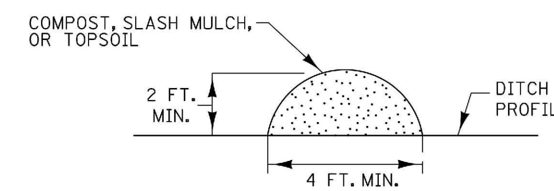
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

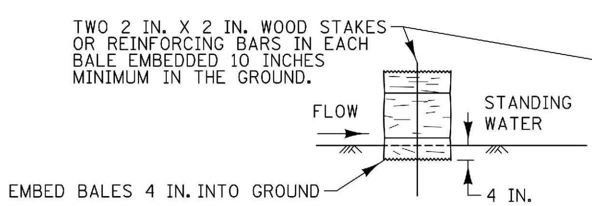


TYPE 5 (ROCK)

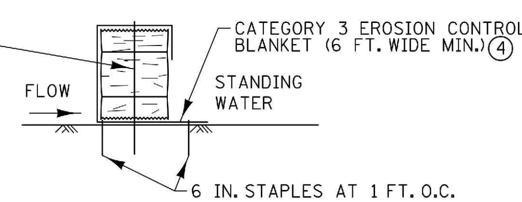


TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)

FILTER BERMS



EMBEDMENT METHOD



BLANKET METHOD (ALTERNATE)

BALE BARRIERS (3)

NOTES:

SEE SPECS. 2573, 3149, 3874, 3882, 3886, & 3897.

(1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET FOR OTHER APPLICATIONS.

(2) PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.

(3) TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6 INCH MAX. DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14 IN. X 18 IN. X 36 IN. LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.

(4) INSTEAD OF TRENCHING, PLACE BALE ON THE BLANKET AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

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TEMPORARY SEDIMENT CONTROL

FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

STANDARD PLAN 5-297.405

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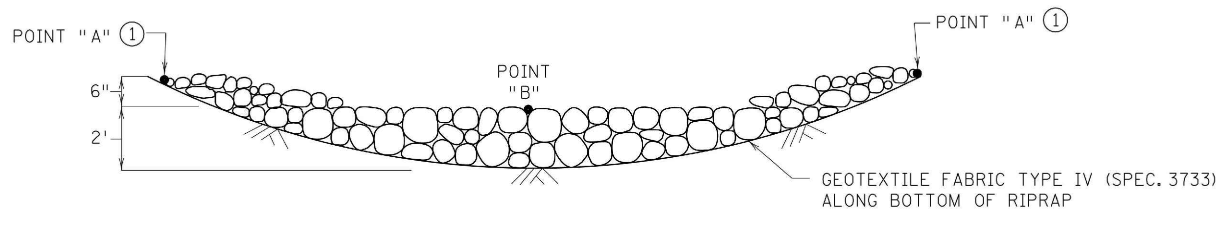
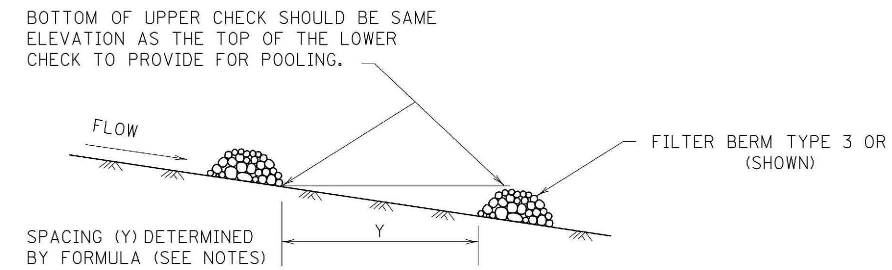
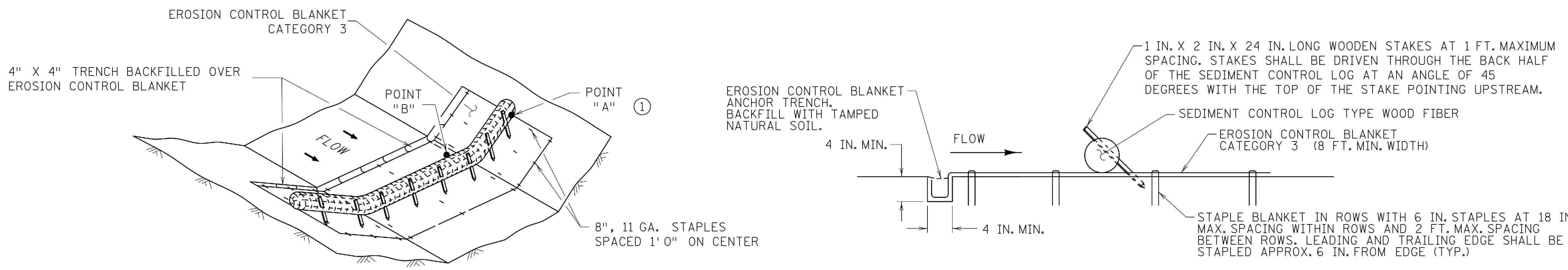


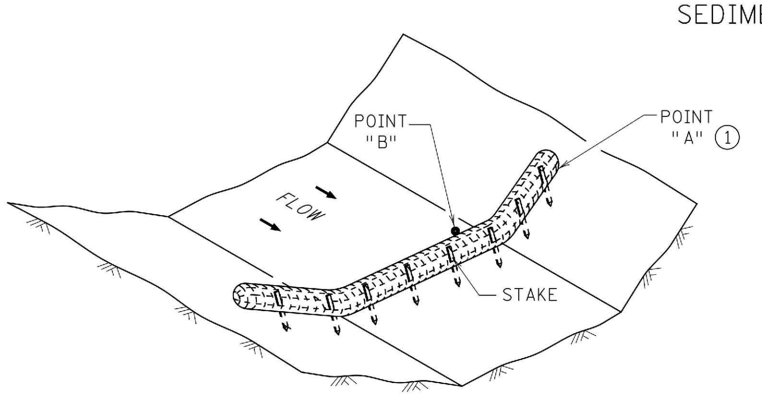
ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ②③
(FOR USE ON ROUGH GRADED AREAS)



DITCH CHECK SPACING
(FOR ALL FILTER BERM TYPES)



SEDIMENT CONTROL LOG TYPE BLANKET SYSTEM ④



SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤
(FOR USE ON ROUGH GRADED AREAS)

NOTES:

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT)}}{\text{\% CHANNEL SLOPE}} \times 100$$

① POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

② PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC..

④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC..

⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC..

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2-28-2017

TEMPORARY SEDIMENT CONTROL
DITCH CHECK

STANDARD PLAN 5-297.405

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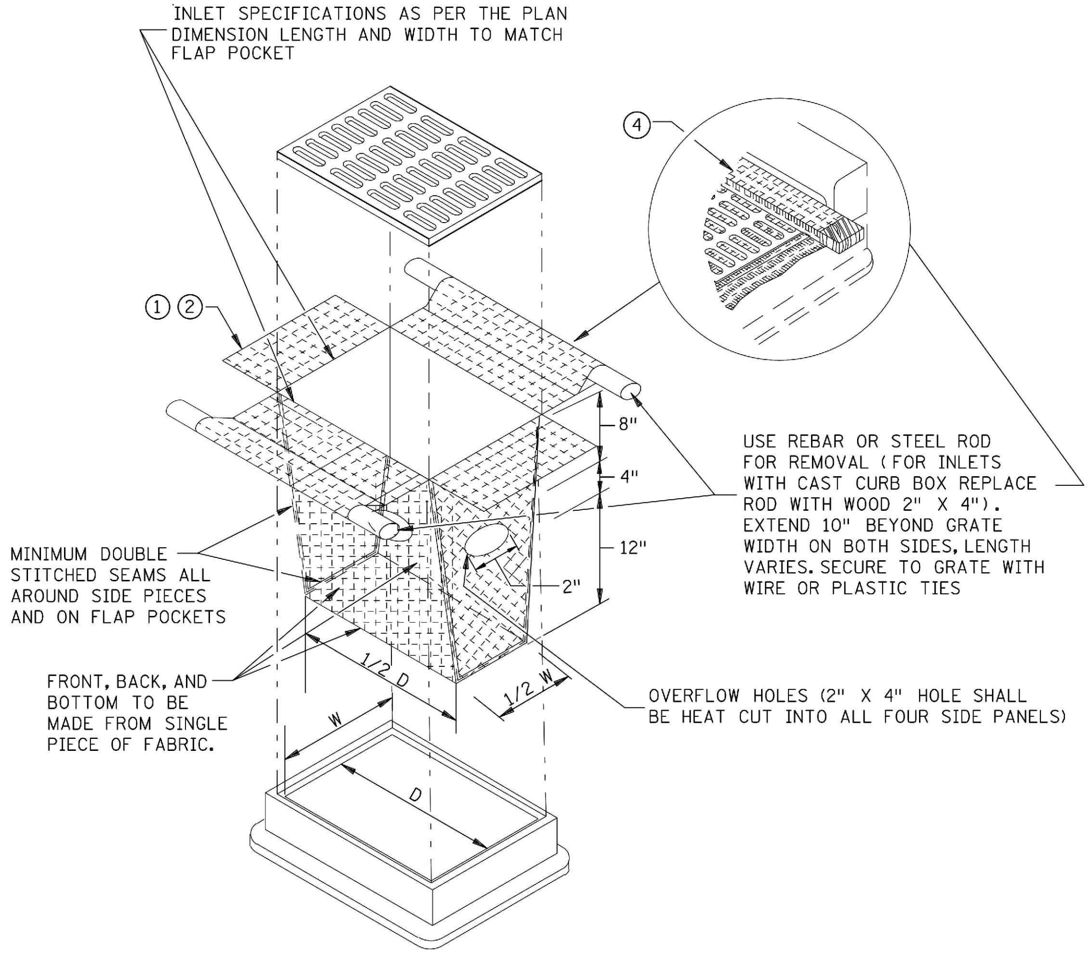
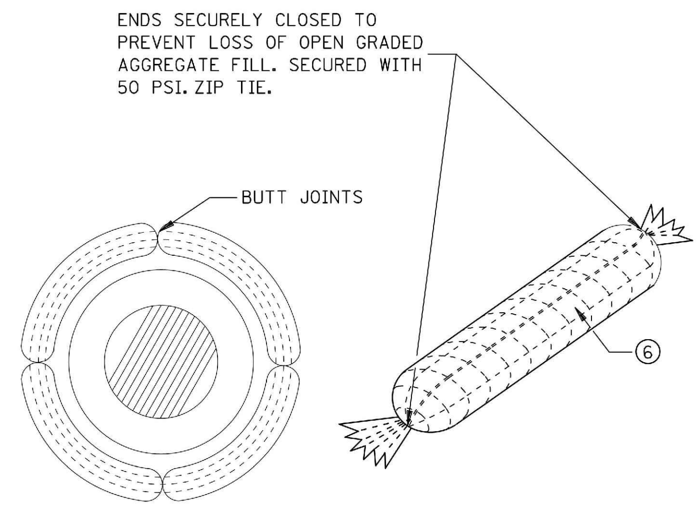
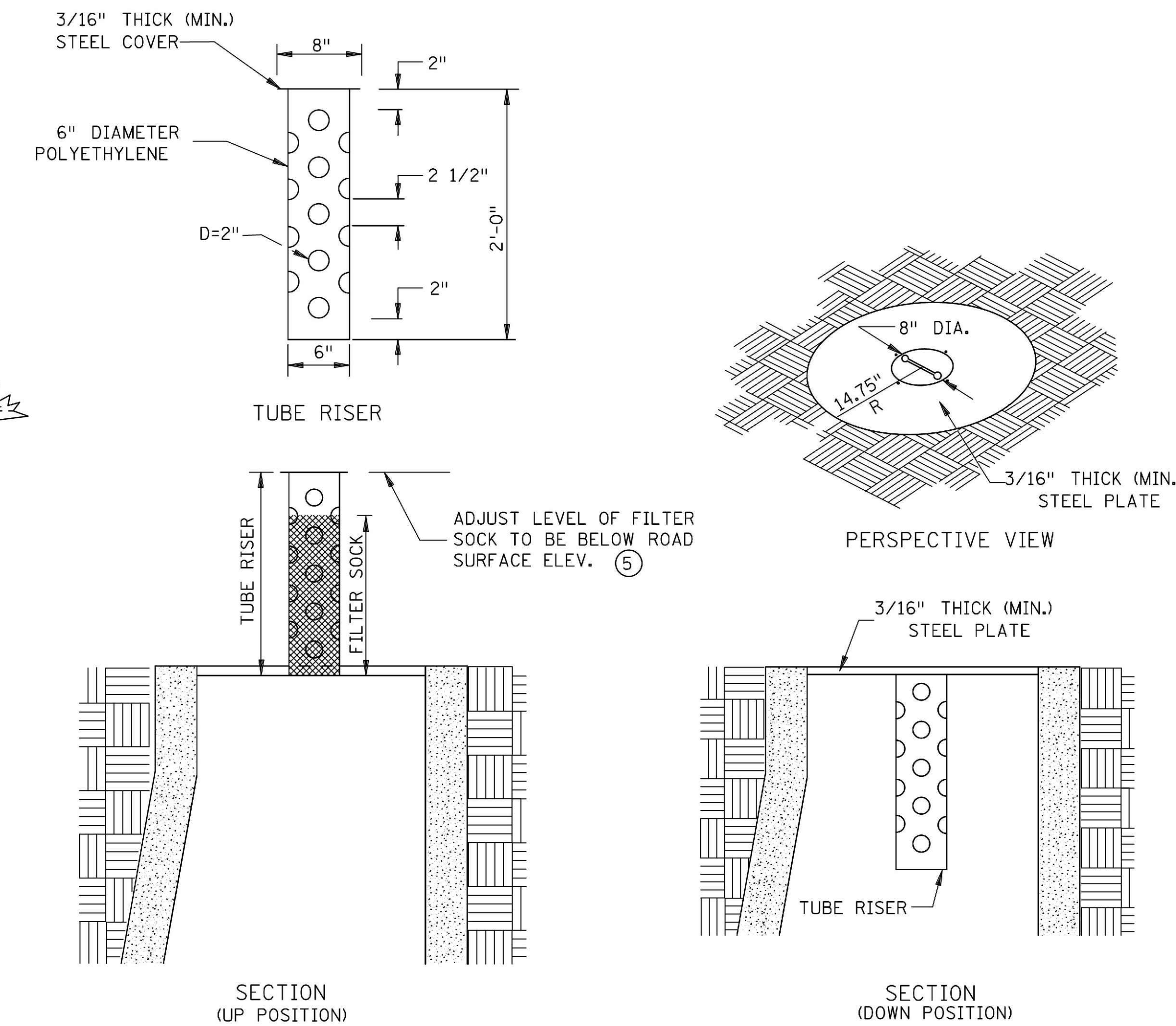


FILTER BAG INSERT ③

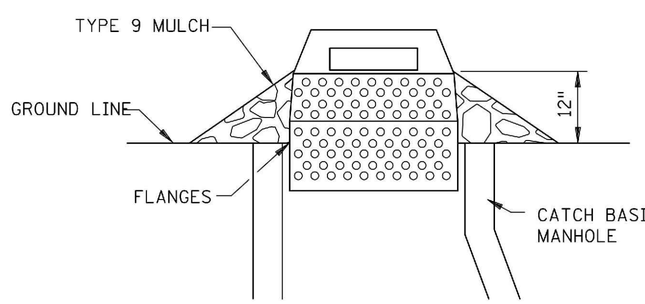
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)



ROCK LOG/COMPOST LOG

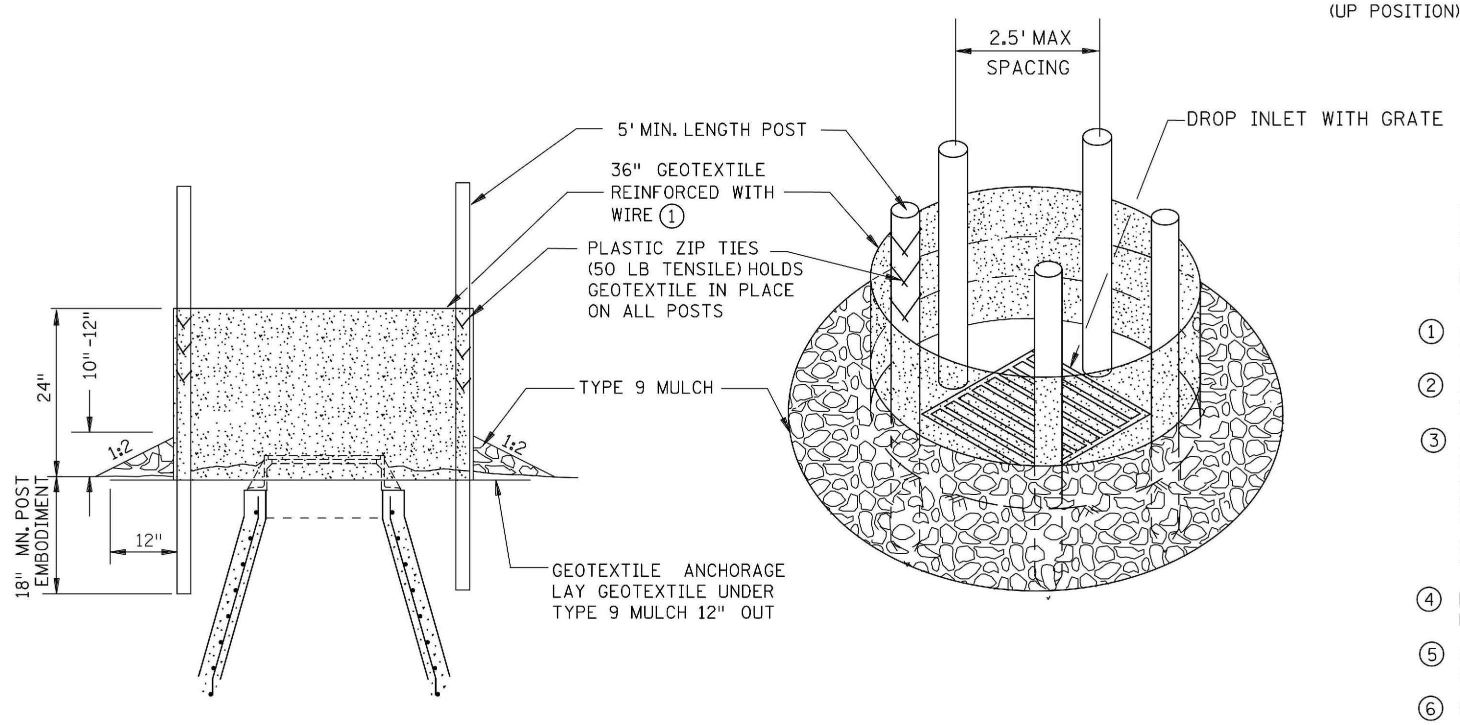


POP-UP HEAD



SEDIMENT CONTROL INLET HAT

NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



SILT FENCE RING AND ROCK FILTER BERM

USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 or LESS

NOTES:

SEE SPECS. 2573, 3137, & 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.

① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.

② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

③ INSTALLATION NOTES:
DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.

④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.

⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.

⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

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TEMPORARY SEDIMENT CONTROL
STORM DRAIN INLET PROTECTION

STANDARD PLAN 5-297.405

SP 118-080-063

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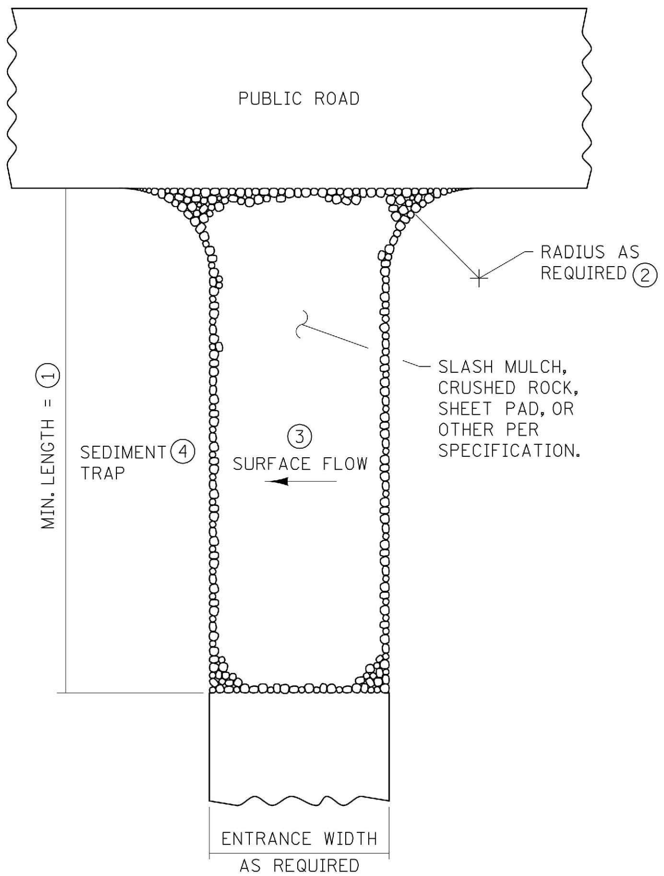
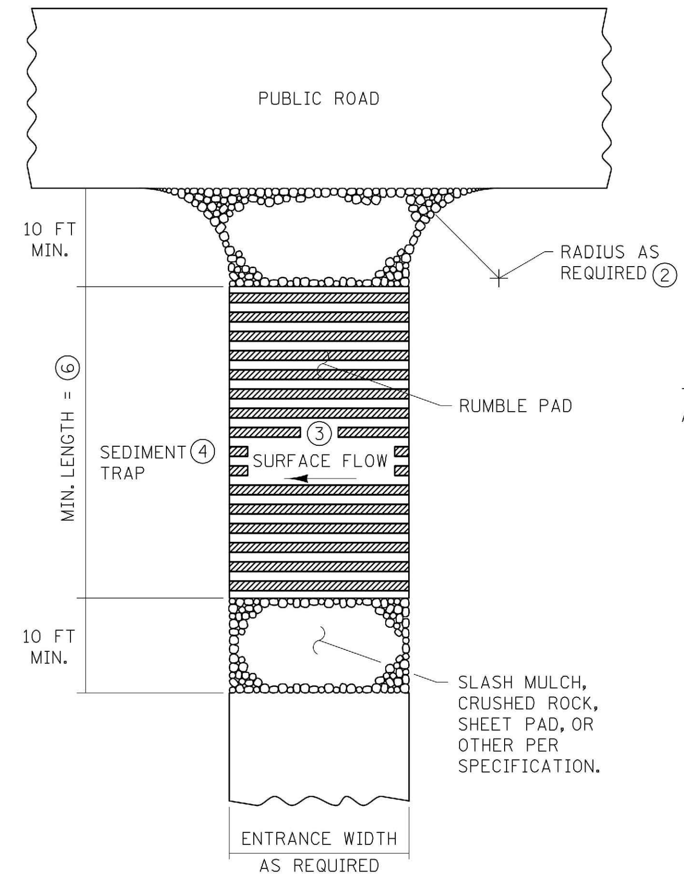
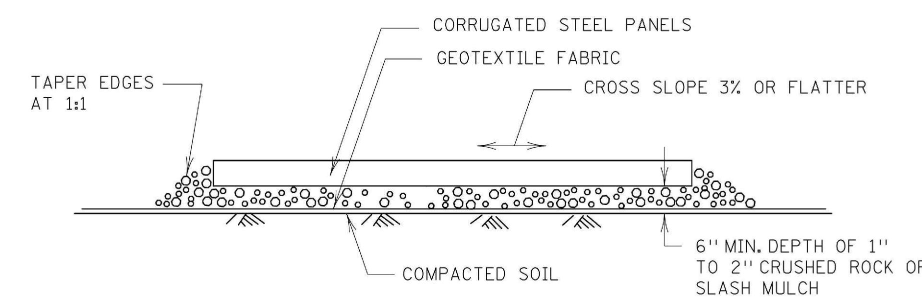


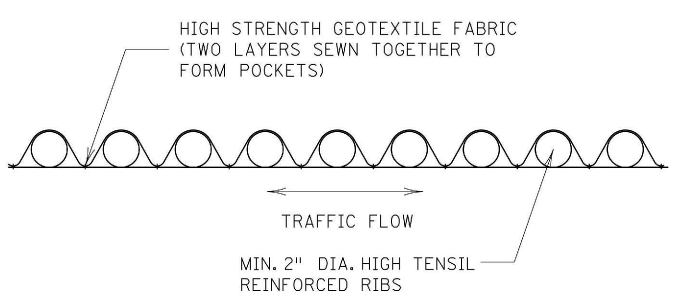
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



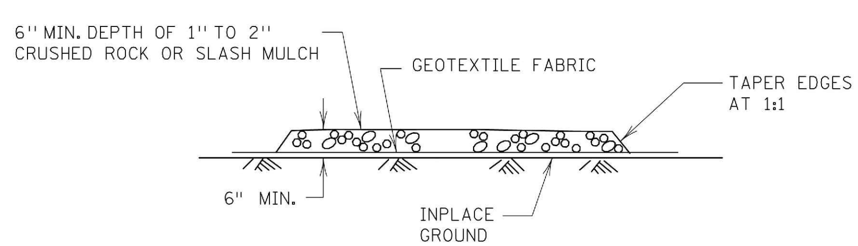
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

1. MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.
2. PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.
3. IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.
4. IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.
5. IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.
6. MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.
7. MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

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CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

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TEMPORARY SEDIMENT CONTROL

STABILIZED CONSTRUCTION EXIT

STANDARD PLAN 5-297.405

SP 118-080-063

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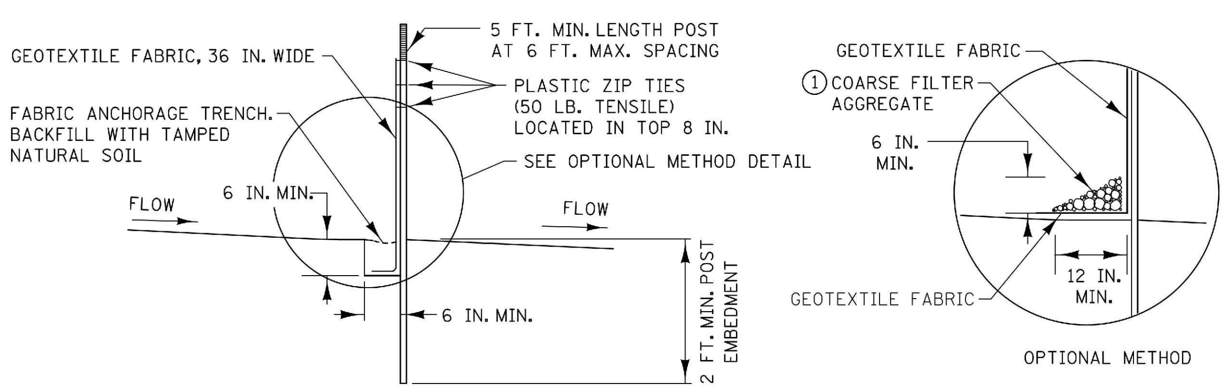
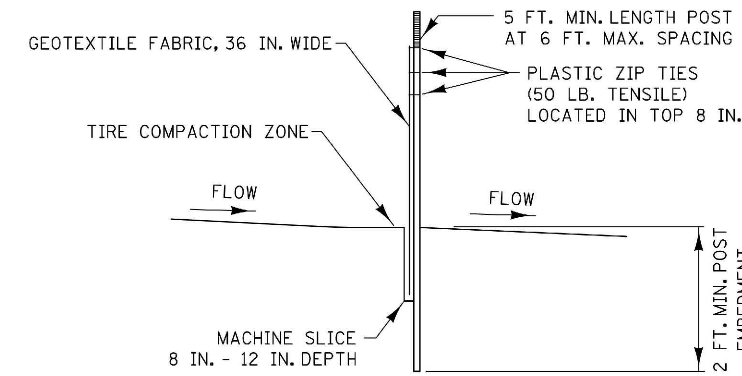
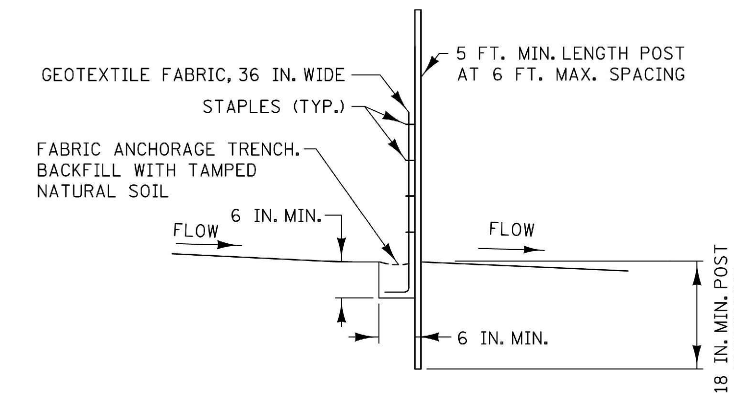


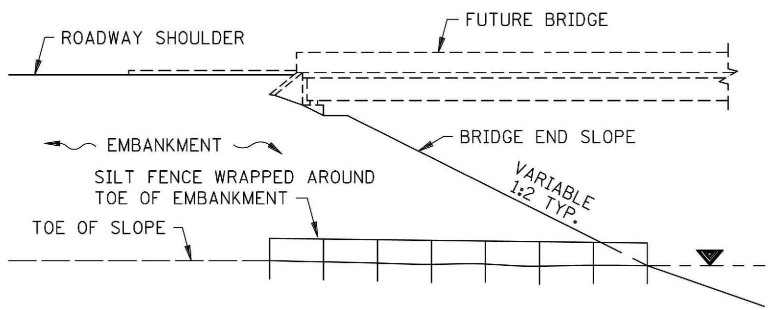
SILT FENCE TYPE HI ②
(HAND INSTALLED)



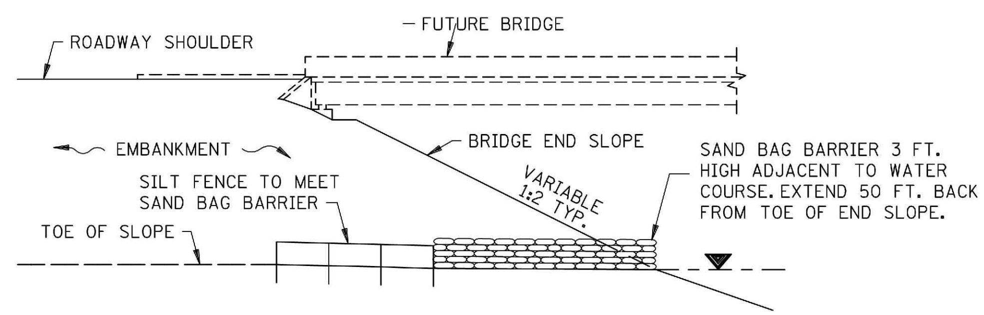
SILT FENCE TYPE MS ②
(MACHINE SLICED)



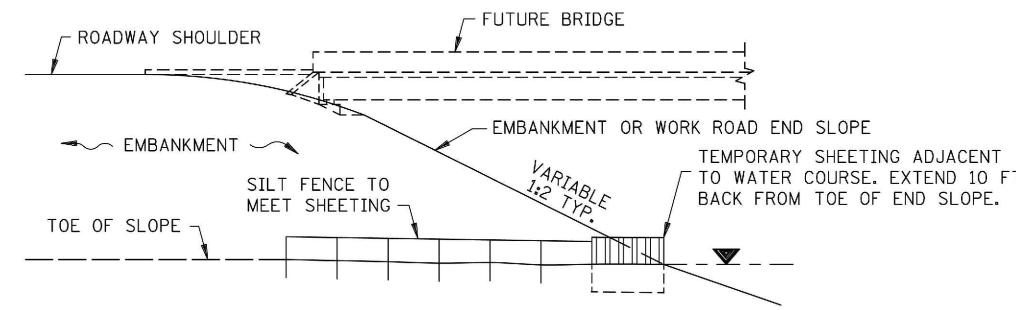
SILT FENCE TYPE PA ③
(PREASSEMBLED)



SILT FENCE ONLY ④

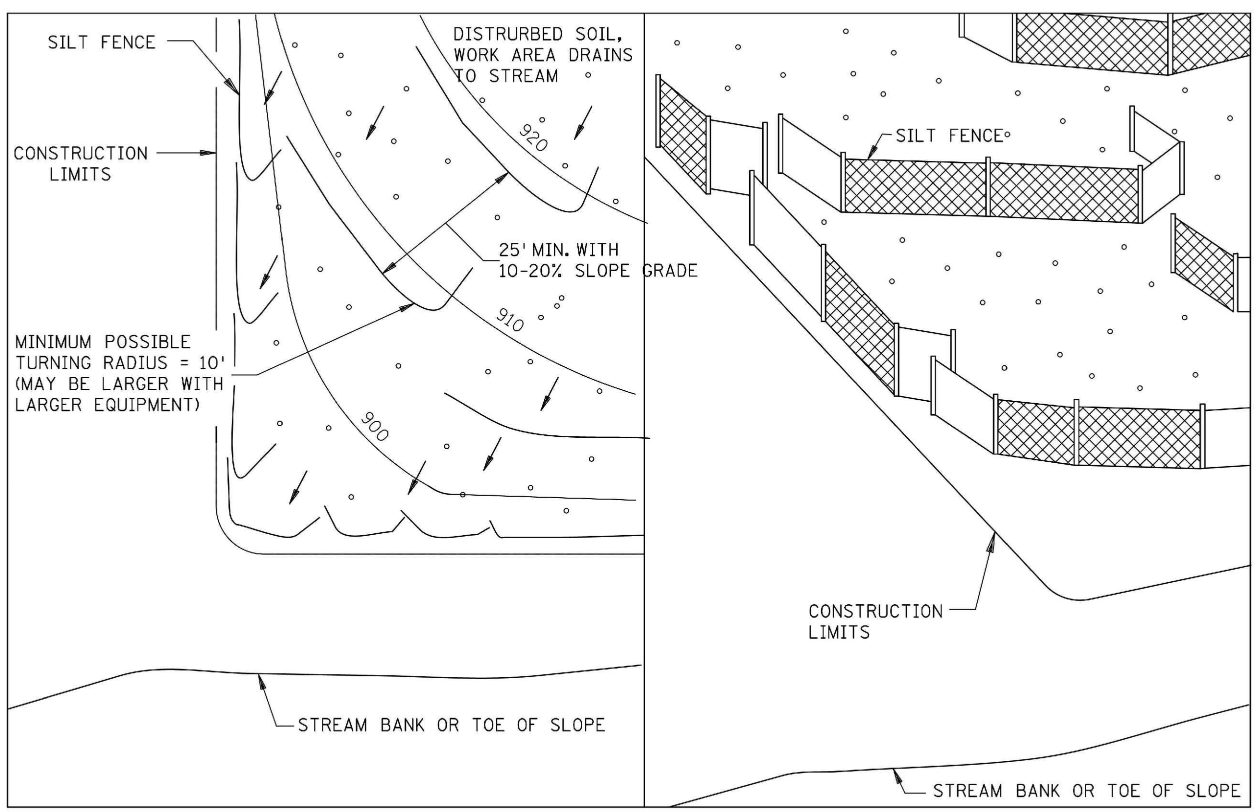


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

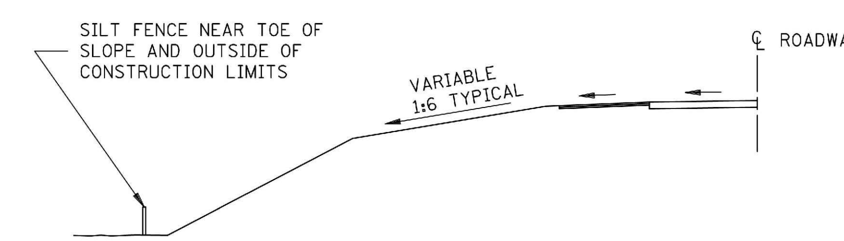
INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW

PERSPECTIVE VIEW

J-HOOK INSTALLATION



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.

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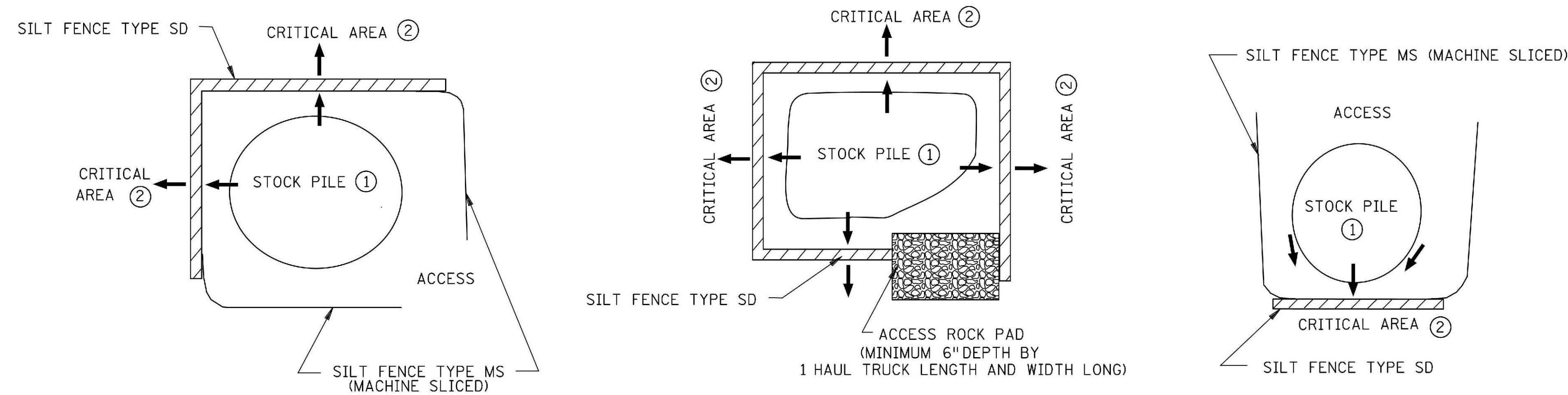
2-28-2017

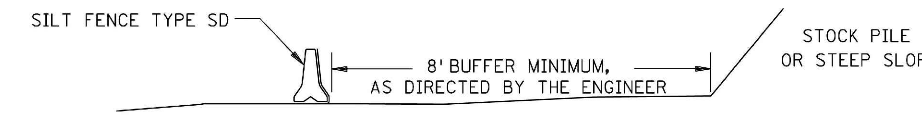
TEMPORARY SEDIMENT CONTROL

SILT FENCE

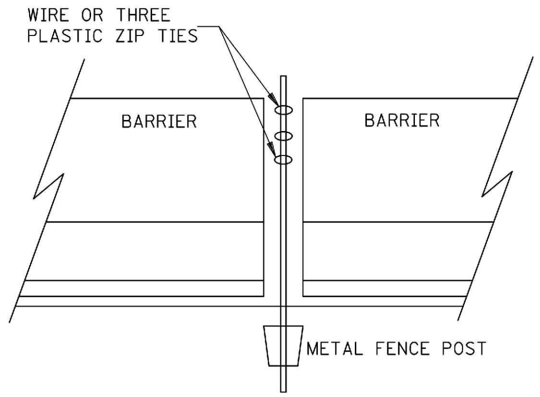
STANDARD PLAN 5-297.405



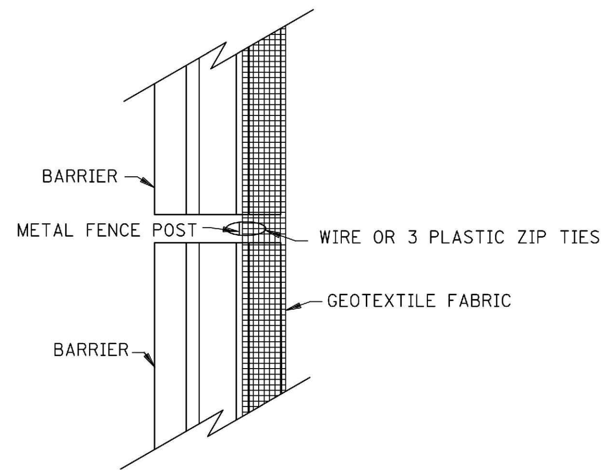
STOCK PILE CONTAINMENT



STOCKPILE SEDIMENT CONTROL

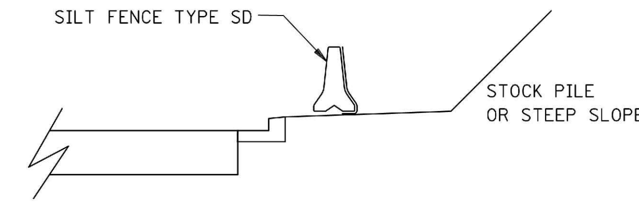


PROFILE VIEW

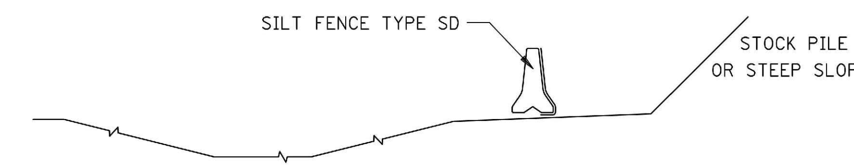


TOP VIEW

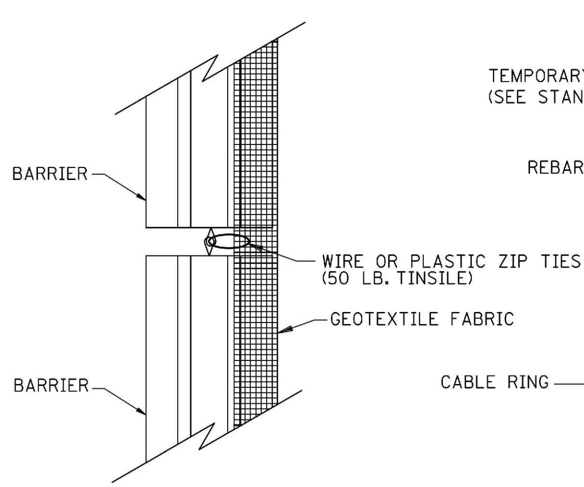
SILT FENCE TYPE SD (SUPER DUTY)
BARRIER WITHOUT LOOP BARS



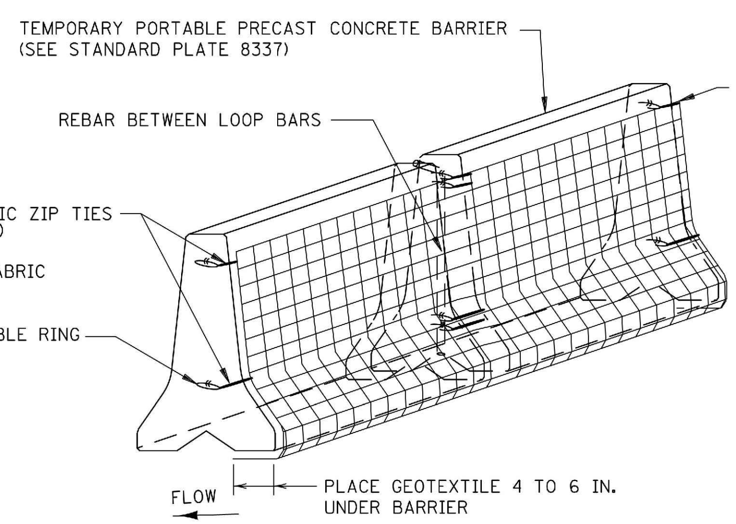
CURB AND GUTTER PROTECTION SYSTEM



DITCH PROTECTION SYSTEM



TOP VIEW



PERSPECTIVE VIEW

SILT FENCE TYPE SD (SUPER DUTY)
BARRIER WITH LOOP BARS

NOTES:

SEE SPECS. 2533, 2573 & 3886.

SILT FENCE TYPE SD USED TO PROTECT CRITICAL AREAS FROM SHEET FLOW, AND AREAS WHERE OTHER SILT FENCES CANNOT BE PLACED. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

PLACE SILT FENCE TYPE SD ALONG A CONSTANT ELEVATION.

SILT FENCE TYPE SD CAN UTILIZE EITHER A CONCRETE, OR WATER FILLED, TEMPORARY MEDIAN BARRIER.

① PLACING STOCK PILES NEXT TO AN ENVIRONMENTALLY SENSITIVE AREA IS NOT RECOMMENDED. WHEN THERE ARE NO FEASIBLE ALTERNATIVES, PLACE SILT FENCE SD AS SHOWN OR AS DIRECTED BY THE ENGINEER.

② CRITICAL AREAS INCLUDE WETLANDS, JUDICIAL DITCHES, STREAMS, WATER BODIES, AND OTHER AREAS REQUIRING PROTECTION.

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TEMPORARY SEDIMENT CONTROL
SUPER DUTY SILT FENCE

STANDARD PLAN 5-297.405

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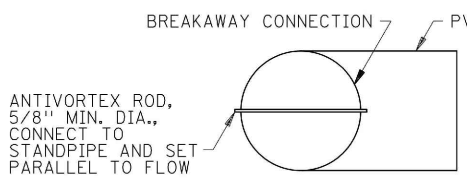
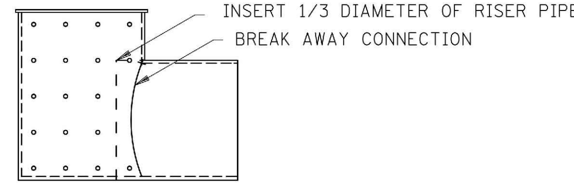
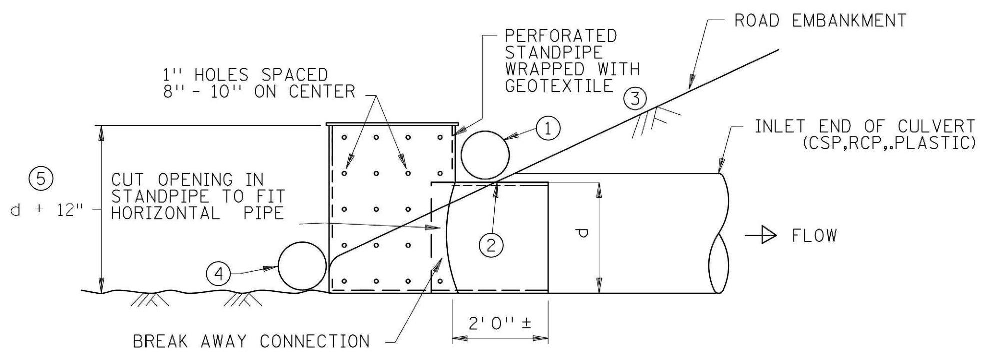


PLAN VIEW



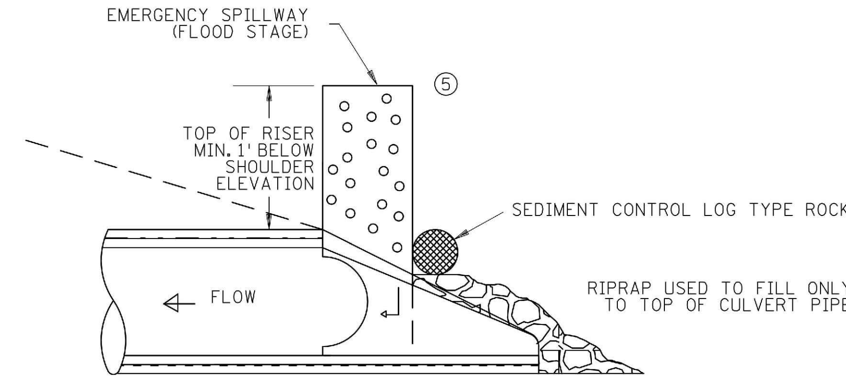
CULVERT STANDPIPE



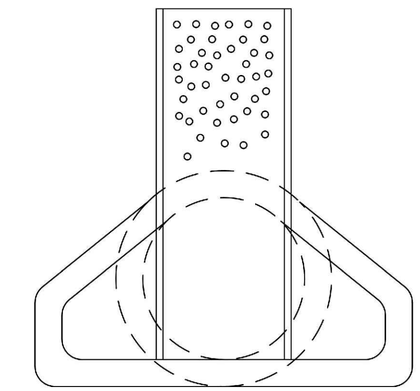
ELEVATION VIEW OF CULVERT INSTALLATION

CULVERT STANDPIPE INSERT (D-RISER)

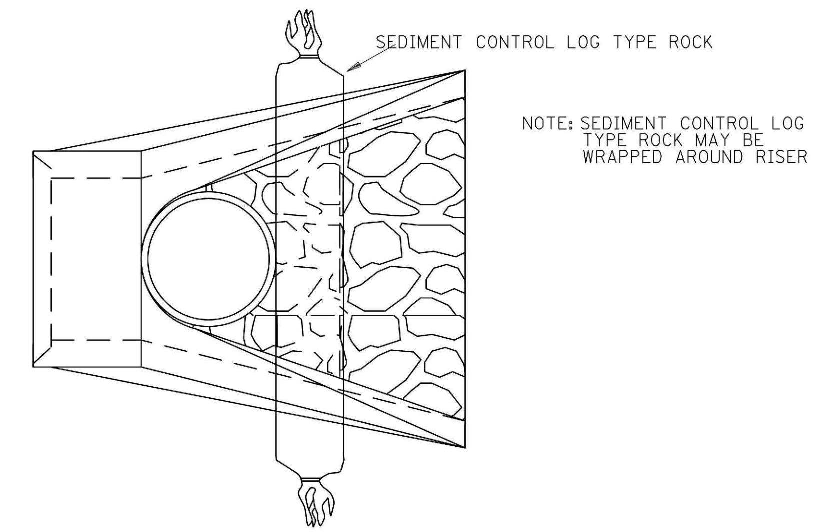
d= CULVERT SIZE: 12" - 36"



LONGITUDINAL SECTION



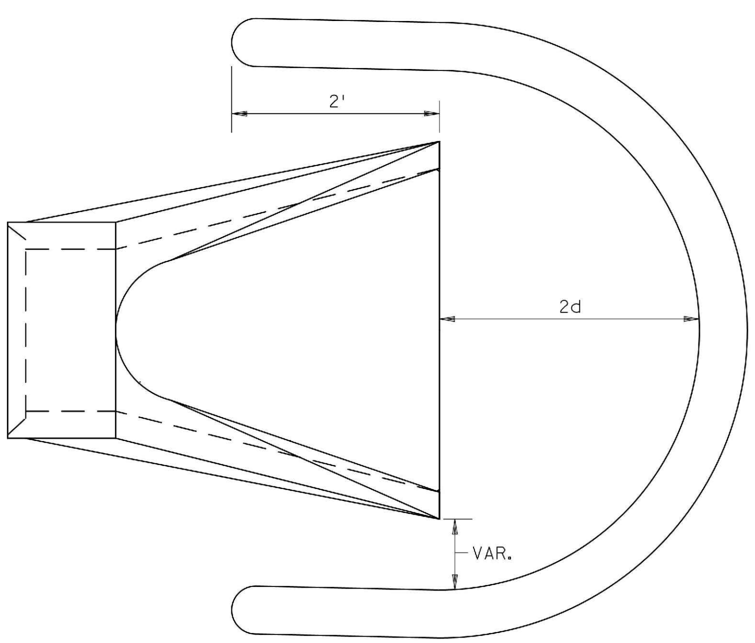
END VIEW



NOTE: SEDIMENT CONTROL LOG TYPE ROCK MAY BE WRAPPED AROUND RISER

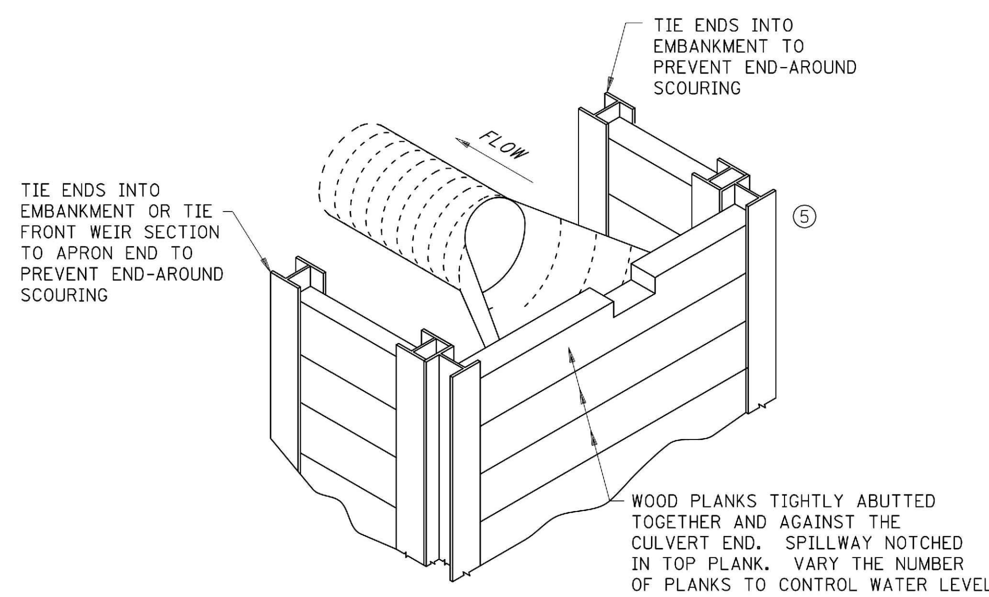
TOP VIEW

CULVERT STANDPIPE INSERT (D-RISER)



SEDIMENT CONTROL LOG WEIR
(COMPOST, WOOD CHIP, OR ROCK)

d = CULVERT SIZE: 12" -36"



WOOD PLANK WEIR

NOTES:

SEE SPECS. 2573, 3891 & 3893.

FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.

MANUFACTURED ALTERNATIVES LISTED ON MnDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.

① ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.

② PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT.

③ ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.

④ ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.

⑤ HEIGHT OVERFLOW NOT TO CAUSE FLOODING OF ROAD OR ADJACENT PROPERTIES.

REVISION:
APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION	STATE DESIGN ENGINEER	REVISED: APPROVED: 2-28-2017	TEMPORARY SEDIMENT CONTROL CULVERT END CONTROLS	
			STANDARD PLAN 5-297.405	34 OF 45

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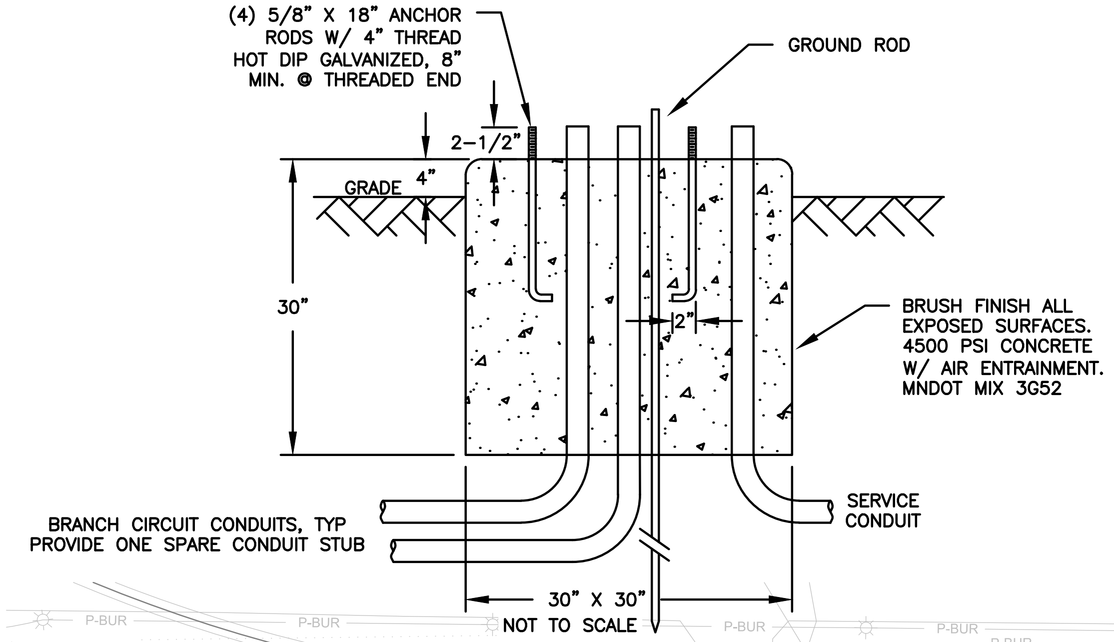
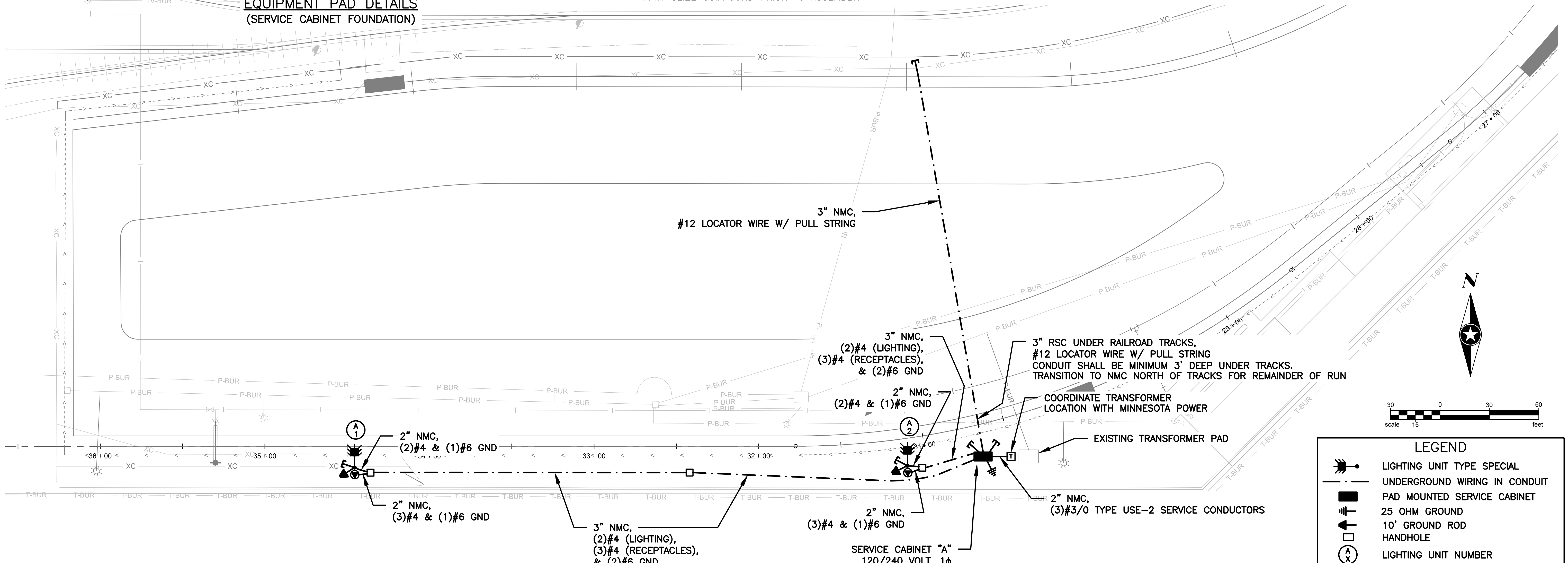


EQUIPMENT PAD DETAILS
(SERVICE CABINET FOUNDATION)

NOTES :

1. ALL CONDUIT SHALL BE 3" NMC SCHEDULE 40 UNLESS OTHERWISE NOTED. ALL CONDUCTORS SHALL BE COPPER, TYPE XHHW-2.
2. FURNISH AN APPROVED SERVICE HAVING A 22,000-AIC 200-AMP 2-POLE CIRCUIT BREAKER, GROUNDING ELECTRODES AND CONNECTIONS, CONDUIT AND FITTINGS, AND ALL NECESSARY CONDUCTORS AND EQUIPMENT REQUIRED BY THE UTILITY FOR A SERVICE CONNECTION. VERIFY FAULT CURRENT OF TRANSFORMER WITH MINNESOTA POWER. CONTRACTOR SHALL PROVIDE TRANSFORMER PAD FOR NEW SINGLE PHASE UTILITY TRANSFORMER. COORDINATE SIZE DETAILS WITH MINNESOTA POWER.
3. HANDHOLE: 17"X30"X18" TIER 22 NOX AND COVER, MANUFACTURED OF POLYMER CONCRETE. COVER DESIGNED TO CARRY HEAVY TRAFFIC, MOLD "LIGHTING" INTO COVER & PROVIDE DRAIN OPENING IN BOTTOM. PROVIDE 12" OF PEA GRAVEL BASE UNDER HANDHOLE.
4. COORDINATE SERVICE CONNECTION WITH MINNESOTA POWER.
5. ALL MATERIAL AND WORK SHALL BE IN ACCORDANCE WITH THE N.E.C.
6. ALL MATERIALS SHALL BE UL LISTED.
7. THIS WORK SHALL CONSIST OF FURNISHING ALL LABOR, EQUIPMENT, AND MATERIALS FOR THE CONSTRUCTION OF A COMPLETE AND OPERATIONAL LIGHTING SYSTEM.
8. CONTRACTOR SHALL FURNISH AS-BUILT PLANS THAT INDICATE ACCURATE LOCATIONS FOR CABLE, CONDUIT, SERVICE CABINET, LIGHTING UNIT, AND HANDHOLE LOCATIONS.
9. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY PERMITS AND UTILITY COORDINATION.
10. THE CONTRACTOR SHALL COAT ALL THREADED HARDWARE WITH AN APPROVED ZINC-BASED ANTI-SEIZE COMPOUND PRIOR TO ASSEMBLY.
11. FOUNDATION DESIGNS FOR LIGHTING POLES SHALL BE PROVIDED BY THE POLE MANUFACTURER FOR REVIEW PRIOR TO BID SUBMITTAL. IT IS IMPORTANT THAT THE CONTRACTOR RECEIVE ACCURATE ESTIMATES OF FOUNDATION SIZES FROM THE MANUFACTURER PRIOR TO BIDDING. FOUNDATION DESIGN SHALL BE SIGNED BY AN ENGINEER REGISTERED IN MINNESOTA.
12. NO SPLICING IS ALLOWED UNDERGROUND OR WITHIN HANDHOLES.
13. THE CONTRACTOR SHALL SUBMIT A COMPLETE SET OF SHOP DETAIL DRAWINGS TO THE OWNER. THE SUBMITTED ITEMS MUST BE APPROVED BY THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE LIGHTING AND ELECTRICAL SYSTEM.
14. THE CONTRACTOR SHALL RESTORE ANY DAMANGES RESULTING FROM CONSTRUCTION ACTIVITIES TO ACCEPTABLE CONDITION AS DIRECTED BY THE ENGINEER OR CITY. THIS INCLUDES BUT IS NOT LUMITED TO RESTORATION OF SOD, SETTLING/HEAVING/CRACKING OF PAVEMENT DUE TO CONSTRUCTION ACTIVITIES AND ANY OTHER DAMAGE ASSOCIATED WITH THE INSTALLATION OF THE ELECTRICAL LIGHTING SYSTEM.
15. THE CONTRACTOR SHALL SUPPLY ACCURATE AS-BUILT DRAWINGS OF THE PROJECT TO THE OWNER. DRAWINGS SHALL INDICATE LOCATION AND SETBACK OF CONDUIT, SERVICE CABINET, UTILITY SERVICE POINT, AND POLE AND HANDHOLE LOCATIONS ALONG THE PROJECT SITE MEASURED FROM A RELIABLE LOCATION. CONTRACTOR SHALL ASSEMBLE INTO ONE BOOK THE INSTALLATION DETAILS, INSTRUCTIONS, AND SCHEMATICS OF ACTUAL EQUIPMENT AND OPERATIONS DIRECTIONS SUPPLIED BY THE MANUFACTURER WITH ALL EQUIPMENT. FINAL ACCEPTANCE OF THE WORK WILL BE WITHHELD UNTIL SUCH DATA HAS BEEN PRESENTED COMPLETED TO THE OWNER.
16. CONTRACTOR SHALL TEST THE EQUIPMENT INSTALLED UNDER THIS CONTRACT AND SHALL DEMONSTRATE ITS PROPER OPERATION TO THE OWNER'S STAFF.



LEGEND

- LIGHTING UNIT TYPE SPECIAL
- UNDERGROUND WIRING IN CONDUIT
- PAD MOUNTED SERVICE CABINET
- 25 OHM GROUND
- 10' GROUND ROD
- HANDHOLE
- LIGHTING UNIT NUMBER
- HANDHOLE
- CONDUIT STUB
- PAD MOUNTED TRANSFORMER
- RECEPTACLE STANCHION

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Duluth Seaway Port Authority

DRAWN BY:	AKF	NO.	BY	DATE	REVISIONS
DESIGNER:	AKF				
CHECKED BY:	KST				
DESIGN TEAM					

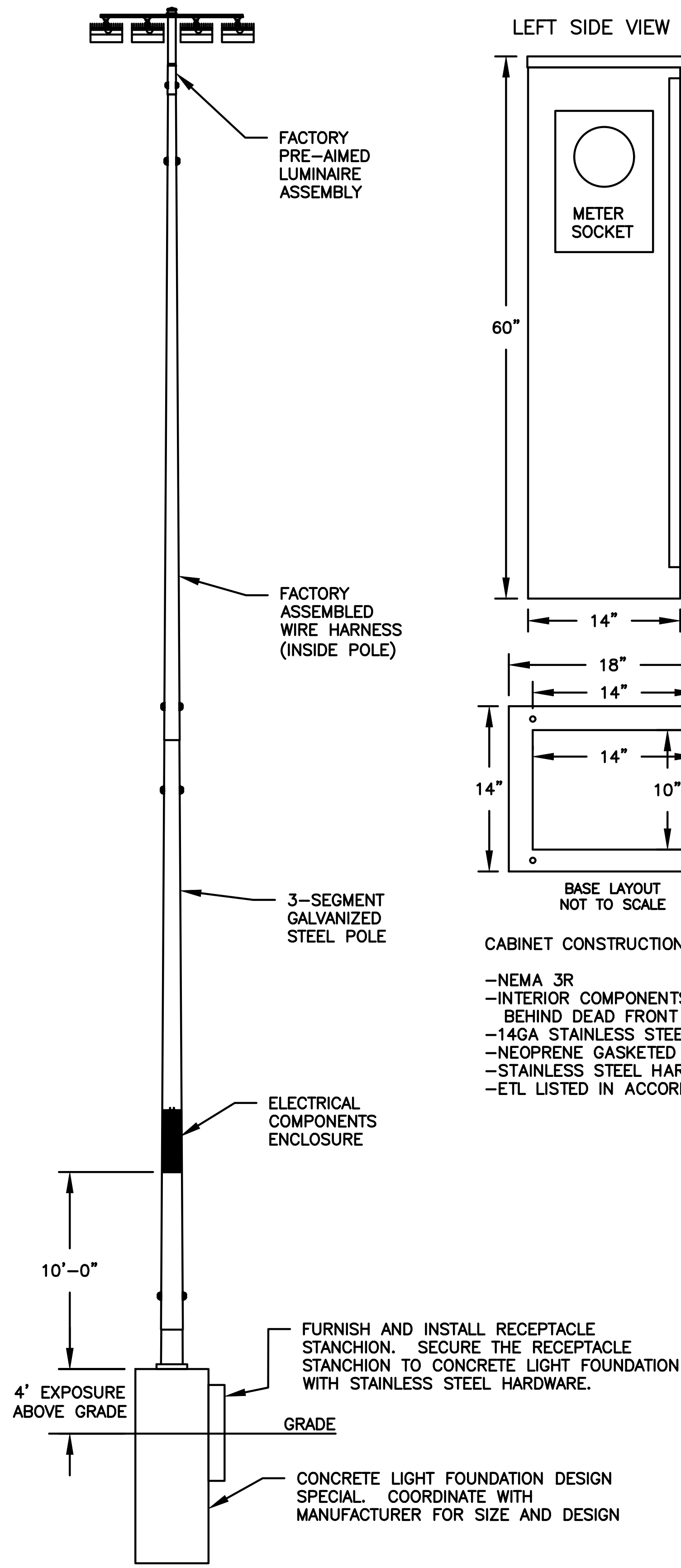
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
CHAD B. WESTBROOK, P.E.
Date: 7/26/2018 Lic. No. 41700

SEH
PHONE: 218.279.3000
418 W SUPERIOR ST
STE 200
DULUTH, MN 55802-1512
www.sehinc.com

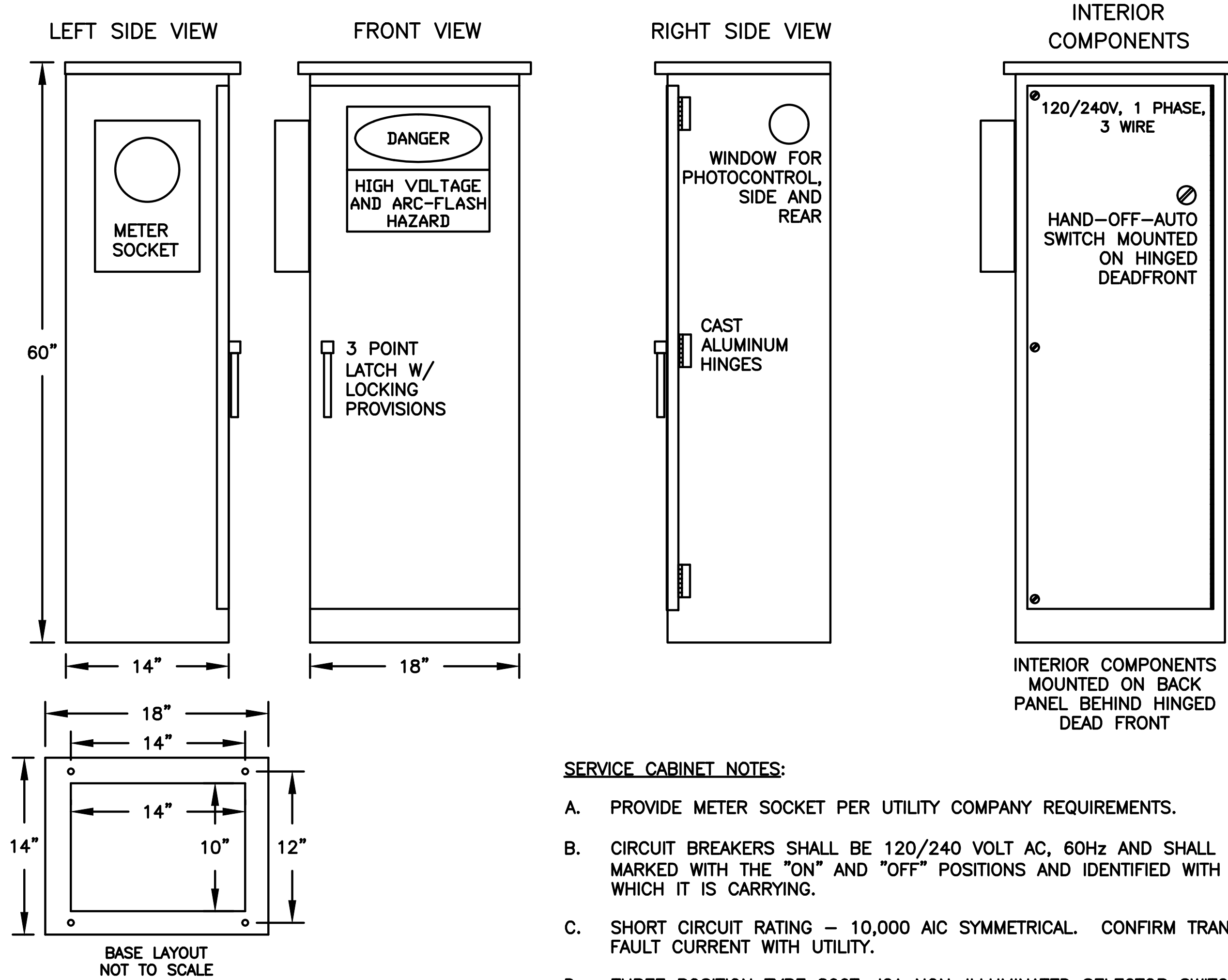
DULUTH, MINNESOTA
SP 118-080-063
CITY OF DULUTH PROJECT #1717

ELECTRICAL PLAN
DULUTH SEAWAY PORT AUTHORITY

FILE NO. DUSPA 144638



LIGHTING UNIT TYPE SPECIAL DETAIL



CABINET CONSTRUCTION

- NEMA 3R
- INTERIOR COMPONENTS MOUNTED ON BACK PANEL BEHIND DEAD FRONT
- 14GA STAINLESS STEEL
- NEOPRENE GASKETED DOORS
- STAINLESS STEEL HARDWARE
- ETL LISTED IN ACCORDANCE WITH UL508A

SERVICE CABINET NOTES:

A. PROVIDE METER SOCKET PER UTILITY COMPANY REQUIREMENTS.

B. CIRCUIT BREAKERS SHALL BE 120/240 VOLT AC, 60Hz AND SHALL BE CLEARLY MARKED WITH THE "ON" AND "OFF" POSITIONS AND IDENTIFIED WITH THE LOAD WHICH IT IS CARRYING.

C. SHORT CIRCUIT RATING – 10,000 AIC SYMMETRICAL. CONFIRM TRANSFORMER FAULT CURRENT WITH UTILITY.

D. THREE POSITION TYPE 800T-J2A NON-ILLUMINATED SELECTOR SWITCH WITH 1-N.O. AND 1-N.C. MAINTAINED CONTACTS. SHALL HAVE TYPE 4/13 OPERATORS.

E. CIRCUIT CONTACTORS SHALL HAVE A 240 VOLT RATING, WITH 120 VOLT COIL.

F. PROVIDE 50kA SURGE PROTECTOR.

G. PROVIDE PANEL WITH DIMENSIONS AS REQUIRED TO FIT EQUIPMENT PROPOSED.

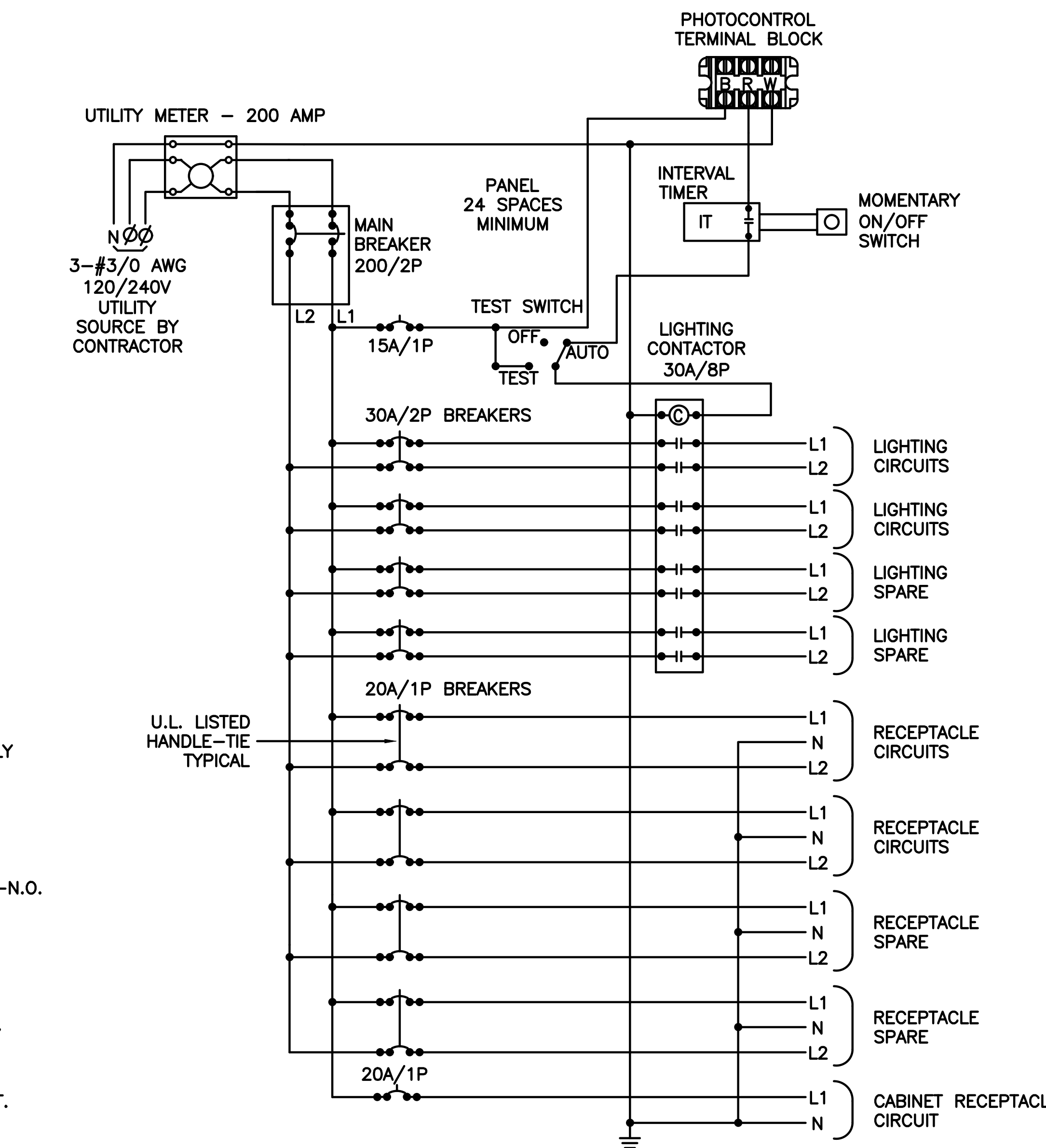
H. PROVIDE A 25-OHM GROUND AT CABINET AS PER NEC.

I. PROVIDE 20A WR-RATED GFCI RECEPTACLE MOUNTED TO CABINET DEAD-FRONT.

J. BOTH PHOTOCONTROL AND ITS SOCKET SHALL BE 3 TERMINAL, POLARIZED, TWIST-LOCK TYPE. IT SHALL BE EQUIPPED WITH A MOV TYPE LIGHTNING ARRESTER.

K. COORDINATE SERVICE CONNECTION WITH MINNESOTA POWER.

SERVICE CABINET DETAILS



SERVICE CABINET SCHEMATIC

EQUIPMENT SCHEDULE

SYMBOL	DESCRIPTION	LAMP SOURCE	MOUNTING	OPTICS	MANUFACTURER & SERIES #
	LIGHTING UNIT TYPE SPECIAL (4)LED SPORTS LIGHTS ON 70' TALL POLE	(4)1150 WATT LED 5700K	70' POLE ON PRECAST LIGHT FOUNDATION	TYPE III	LUMINAIRE: (4)TLC TYPE POLE: 70' 3 SEGMENT GALVANIZED STEEL POLE
	RECEPTACLE STANCHION 70A RV STYLE RECEPTACLE STANCHION WITH LOCKABLE COVER: (2)20A/1P GFI BREAKERS W/ (2)20A RECEPTACLES ON DIRECT BURIED PEDESTAL	N/A	DIRECT BURIED PEDESTAL BOLTED TO LIGHT FOUNDATION DESIGN SPECIAL	N/A	U011GP6 – LOOP FEED STYLE

Duluth Seaway Port Authority

DRAWN BY: AKF	NO.	BY	DATE	REVISIONS
DESIGNER: AKF				
CHECKED BY: KST				
DESIGN TEAM				

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

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ELECTRICAL DETAILS
DULUTH SEAWAY PORT AUTHORITY

FILE NO. DUSPA 144638

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SWPPP SUMMARY/OVERVIEW:
THIS STORM WATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN DEVELOPED TO ADDRESS THE REQUIREMENTS OF NPDES PERMIT MN R100001, PART III, SUBPART A. THIS SWPPP INCLUDES A COMBINATION OF NARRATIVE AND PLAN SHEETS THAT DESCRIBE THE TEMPORARY AND PERMANENT STORM WATER MANAGEMENT PLAN FOR THE PROJECT.

PROJECT INFORMATION:

LOCATION:	DULUTH, MINNESOTA
LATITUDE/LONGITUDE::	46°45'12" N, 92°05'44" W
PROJECT DESCRIPTION:	CONTAINER STORAGE AND TRANSLOAD FACILITY
SOIL DISTURBING ACTIVITIES:	GRADING

CONTACTS:

OWNER:	DULUTH SEAWAY PORT AUTHORITY
CONTACT:	JASON PAULSON
ADDRESS:	1200 PORT TERMINAL DRIVE, DULUTH, MN 55802
PHONE:	218-727-8525
EMAIL:	jpaulson@duluthport.com

ENGINEER:	SHORT ELLIOTT HENDRICKSON INC. (SEH)
CONTACT:	MATT BOLF, PE
PHONE:	218.279.305
EMAIL:	mbolf@sehinc.com
PROJECT NO.:	SAP 118-080-063/CITY OF DULUTH PROJECT 1717

KNOWLEDGEABLE PERSON/CHAIN OF RESPONSIBILITY
THE CONTRACTOR SHALL IDENTIFY A PERSON KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BMPS WHO WILL OVERSEE THE IMPLEMENTATION OF THE SWPPP, INCLUDING: INSTALLATION, INSPECTION AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS. THE GENERAL CONTRACTOR SHALL ATTACH CONTACT INFORMATION TO THE SWPPP PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY.

CONTRACTOR: TBD
CONTACT: TBD
PHONE: TBD
EMAIL: TBD

THE CONTRACTOR SHALL ESTABLISH A CHAIN OF RESPONSIBILITY FOR ALL CONTRACTORS AND SUB-CONTRACTORS ON SITE TO ENSURE THE SWPPP IS BEING PROPERLY IMPLEMENTED AND MAINTAINED. THE CONTRACTOR SHALL PROVIDE THE CHAIN OF RESPONSIBILITY TO THE OWNER AND ATTACH TO THE SWPPP PRIOR TO ANY CONSTRUCTION ACTIVITY.

GENERAL SWPPP RESPONSIBILITIES:
THE CONTRACTOR SHALL KEEP THE SWPPP, INCLUDING ALL AMENDMENTS AND INSPECTION AND MAINTENANCE RECORDS ON SITE DURING CONSTRUCTION.

THE SWPPP WILL BE AMENDED AS NEEDED AND/OR AS REQUIRED BY PROVISIONS OF THE PERMIT. AMENDMENTS WILL BE APPROVED BY BOTH THE OWNER AND CONTRACTOR AND WILL BE ATTACHED OR OTHERWISE INCLUDED WITH THE SWPPP DOCUMENTS. THE SWPPP AMENDMENTS SHALL BE INITIATED, FACILITATED, AND PROCESSED BY THE CONTRACTOR. THE SWPPP AND AMENDMENTS SHALL BE KEPT ON SITE BY THE CONTRACTOR WHENEVER CONSTRUCTION ACTIVITY IS IN PROGRESS.

THE CONTRACTOR SHALL DOCUMENT AMENDMENTS TO THE SWPPP AS A RESULT OF INSPECTION(S) WITHIN 7 DAYS.

BOTH THE OWNER AND CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER TERMINATION AND/OR TRANSFER OF THE PERMIT.

LONG TERM OPERATION AND MAINTENANCE
THE OWNER WILL BE RESPONSIBLE OR WILL OTHERWISE IDENTIFY WHO WILL BE RESPONSIBLE FOR THE LONG TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT SYSTEM(S).

THE OWNER WILL PREPARE AND IMPLEMENT A PERMANENT STORMWATER TREATMENT SYSTEM(S) MAINTENANCE PLAN.

TRAINING DOCUMENTATION:

PREPARER/DESIGNER OF SWPPP:	STEVE PRALL, PE
EMPLOYER:	SHORT ELLIOTT HENDRICKSON INC. (SEH)
TRAINING AND DATE OBTAINED:	OCTOBER 2016
NAME OF INSTRUCTOR(S):	UNIVERSITY OF MINNESOTA

THE CONTRACTOR (OPERATOR) SHALL ADD TO THE SWPPP TRAINING RECORDS FOR THE FOLLOWING PERSONNEL:

-INDIVIDUALS OVERSEEING THE IMPLEMENTATION OF, REVISING, AND AMENDING THE SWPPP
-INDIVIDUALS PERFORMING INSPECTIONS
-INDIVIDUALS PERFORMING OR SUPERVISING THE INSTALLATION, MAINTENANCE AND REPAIR OF BMPS

TRAINING MUST RELATE TO THE INDIVIDUAL'S JOB DUTIES AND RESPONSIBILITIES AND SHALL INCLUDE:

1) DATES OF TRAINING
2) NAME OF INSTRUCTORS
3) CONTENT AND HOURS OF TRAINING

THE CONTRACTOR SHALL ENSURE THAT THE INDIVIDUALS ARE TRAINED BY LOCAL, STATE, FEDERAL AGENCIES, PROFESSIONAL ORGANIZATIONS, OR OTHER ENTITIES WITH EXPERTISE IN EROSION PREVENTION, SEDIMENT CONTROL, PERIMETER CONTROL, PERMANENT STORMWATER MANAGEMENT AND THE MINNESOTA NPDES/SDS CONSTRUCTION STORMWATER PERMIT.

PROJECT SUMMARY:

TOTAL PROJECT AREA:	7.1 AC
TOTAL DISTURBED AREA:	5.9 AC
PRE-CONSTRUCTION IMPERVIOUS AREA:	6.9 AC
POST-CONSTRUCTION IMPERVIOUS AREA:	7.1 AC
IMPERVIOUS AREA ADDED:	0.2 AC

RECEIVING WATER(S) WITHIN ONE MILE FROM PROJECT BOUNDARIES:
(http://pca-gis02.pca.state.mn.us/CSW/index.html)

ID	NAME	TYPE	SPECIAL WATER CLASSIFICATION	TMDL
	LAKE SUPERIOR	LAKE	EPA APPROVED IMPAIRMENT	

ADDITIONAL BMPS AND/OR ACTIONS REQUIRED:	
NO	
DOES THE PROJECT DISCHARGE TO A CALCAREOUS FEN:	NO
IS THE PROJECT LOCATED IN A KARST AREA:	NO
PROJECTS LOCATED IN KARST AREA MEASURES IMPLEMENTED TO ENSURE PROTECTION OF DRINKING WATER SUPPLY:	
N/A	

SITE SOIL INFORMATION: (http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx)
(SOIL INFORMATION PROVIDED IS FOR NPDES PERMIT INFORMATION ONLY. SOIL INFORMATION WAS OBTAINED FROM THE USGS WEBSITE. THE CONTRACTOR SHALL NOT RELY ON THIS SOIL INFORMATION FOR CONSTRUCTION PURPOSES.)

SOIL NAME:	HYDROLOGIC CLASSIFICATION:
URBAN LAND - UDORTHENTS-AQUENTS COMPLEX	A

RELATED REVIEWS & PERMITS:
ENVIRONMENTAL, WETLAND, ENDANGERED OR THREATENED SPECIES, ARCHEOLOGICAL, LOCAL, STATE, AND/OF FEDERAL REVIEWS/PERMITS:

TYPE OF PERMIT/REVIEW:	REQUIRED ACTION(S):
N/A	N/A

IMPLEMENTATION SEQUENCE:
THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING SEQUENCE.
THE ENGINEER MAY APPROVE ADJUSTMENTS TO THE SEQUENCE AS NEEDED.

1.	INSTALL ROCK CONSTRUCTION ENTRANCE(S)
2.	INSTALL PERIMETER CONTROL AND STABILIZE DOWN GRADIENT BOUNDARIES
3.	COMPLETE SITE GRADING
4.	INSTALL UTILITIES, STORM SEWER, INLET PROTECTION, CURB & GUTTER, PAVING
5.	COMPLETE FINAL GRADING AND STABILIZE DISTURBED AREAS
6.	AFTER CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED, REMOVE ACCUMULATED SEDIMENT, REMOVE BMPS, AND RE-STABILIZE ANY AREAS DISTURBED BY THEIR REMOVAL.

THE FOLLOWING DOCUMENTS ARE CONSIDERED PART OF THE SWPPP:
PLAN AND PROFILE PLAN SHEETS:
EROSION AND SEDIMENT CONTROL PLAN SHEETS:
GRADING PLAN SHEETS:
DETAIL PLAN SHEETS:
SWPPP NOTE AND DETAIL SHEETS:
PROJECT SPECIFICATIONS:
PROJECT BID FORM:

BMP DESIGN FACTORS:

BMPS ARE SIZED FOR THE FOLLOWING DESIGN STORM:	2-YEAR 24 HOUR EVENT
NATURE OF STORMWATER RUNOFF	
ESTIMATED CONCENTRATED PEAK FLOW FROM IMPERVIOUS SURFACE:	26.5 CFS
ESTIMATED CONCENTRATED PEAK FLOW FROM STEEP (1:3) SLOPES:	N/A CFS
SITE DRAINAGE FEATURE	ESTIMATED FLOW
INFILTRATION BASIN	26.5 CFS
BMPS UTILIZED TO CONTROL RUNOFF FROM CHANNELIZED FLOW	
GRASSED DITCHES	

TEMPORARY SEDIMENT BASINS:
THE CONTRACTOR SHALL INSTALL TEMPORARY SEDIMENT BASIN(S) INDICATED ON PLANS AND REQUIRED BY THE NPDES CONSTRUCTION PERMIT.

TEMPORARY SEDIMENT BASIN OUTLETS SHALL BE CONSTRUCTED TO PREVENT SHORT-CIRCUITING AND PREVENT THE DISCHARGE OF FLOATING DEBRIS.

BASINS MUST HAVE THE ABILITY TO ALLOW COMPLETE DRAWDOWN, INCLUDE A STABILIZED EMERGENCY OVERFLOW, WITHDRAW WATER FROM THE SURFACE, AND PROVIDE ENERGY DISSIPATION AT THE OUTLET.

TEMPORARY SEDIMENT BASINS SHALL BE PROVIDED WITH ENERGY DISSIPATION AT ANY BASIN OUTLET TO PREVENT SOIL EROSION.

SEDIMENT BASINS MUST BE SITUATED OUTSIDE OF SURFACE WATERS AND ANY BUFFER ZONES, AND MUST BE DESIGNED TO AVOID THE DRAINING WATER FROM WETLANDS.

TEMPORARY SEDIMENT BASINS SHALL BE CONSTRUCTED AND MADE OPERATIONAL CONCURRENT OR PRIOR TO SOIL DISTURBANCE THAT IS UPGRADIENT AND CONTRIBUTES RUNOFF TO THE BASIN.

PERMANENT STORMWATER MANAGEMENT SYSTEM
PERMANENT STORMWATER MANAGEMENT SYSTEM IS DESIGNED TO MEET THE REQUIREMENTS OF NPDES GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY.

NEW (ADDED) IMPERVIOUS:	0.2 AC	
WATER QUALITY VOLUME (WQV):	0.02 AF	
PERMANENT MANAGEMENT SYSTEM:	WQV INFILTRATED	WQV TREATED (NOT INFILTRATED)
INFILTRATION	0.02 AF	0 AF
TOTAL WQV INFILTRATED/TREATED	0.02 AF	
IF NOT INFILTRATING TOTAL WQV - DOCUMENT REASON FOR INFEASIBILITY:		
N/A		

INFILTRATION/FILTRATION DESIGN PARAMETERS:

DESIGN INFILTRATION RATE:	0.8 IN/HR
CALCULATED DRAWDOWN TIME:	48 HR

CONTRACTOR SHALL ENSURE INFILTRATION/FILTRATION SYSTEMS ARE NOT BE EXCAVATED TO FINAL GRADE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN CONSTRUCTED AND FULLY STABILIZED.

CONTRACTOR SHALL IMPLEMENT RIGOROUS EROSION PREVENTION AND SEDIMENT CONTROLS BMPS SHALL BE USED TO KEEP SEDIMENT AND RUNOFF COMPLETELY AWAY FROM THE INFILTRATION/FILTRATION AREA(S).

CONTRACTOR SHALL STAKE OFF AND MARK INFILTRATION/FILTRATION AREA(S) TO AVOID SOIL COMPACTION.

THE CONTRACTOR SHALL COMPLETE ON-SITE TESTING TO VERIFY INFILTRATION/FILTRATION RATES AFTER ALL CONSTRUCTION IS COMPLETE.

EROSION PREVENTION MEASURES AND TIMING:

THE CONTRACTOR IS RESPONSIBLE FOR ALL EROSION PREVENTION MEASURES FOR THE PROJECT.

EROSION PREVENTION MEASURES SHOWN ON PLANS ARE THE ABSOLUTE MINIMUM REQUIREMENTS. THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL EROSION PREVENTION MEASURES AS NECESSARY TO PROPERLY MANAGE THE PROJECT AREA.

THE CONTRACTOR SHALL PLAN AND IMPLEMENT APPROPRIATE CONSTRUCTION PRACTICES AND CONSTRUCTION PHASING TO MINIMIZE EROSION AND RETAIN VEGETATION WHENEVER POSSIBLE.

THE CONTRACTOR SHALL DELINEATE AREAS NOT TO BE DISTURBED AND/OR TO BE PROTECTED WITH FLAGS, STAKES, SIGNS, SILT FENCE, OR OTHER MEANS NECESSARY TO PROTECT THESE AREAS BEFORE CONSTRUCTION BEGINS ON THE SITE.

THE CONTRACTOR SHALL STABILIZE OF ALL EXPOSED SOILS IMMEDIATELY TO LIMIT SOIL EROSION. IN NO CASE SHALL ANY EXPOSED AREAS, INCLUDING STOCK PILES, HAVE EXPOSED SOILS FOR MORE THAN 7 DAYS WITHOUT PROVIDING TEMPORARY OR PERMANENT STABILIZATION.

DRAINAGE PATHS, DITCHES, AND/OR SWALES SHALL HAVE TEMPORARY OR PERMANENT STABILIZATION WITHIN 24 HOURS OF CONNECTING TO A SURFACE WATER OR 24 HOURS AFTER CONSTRUCTION ACTIVITY IN THE DITCH/SWALE HAS TEMPORARILY OR PERMANENTLY CEASED.

THE CONTRACTOR SHALL COMPLETE THE STABILIZATION OF ALL EXPOSED SOILS WITHIN 24 HOURS THAT LIE WITHIN 200 FEET OF PUBLIC WATERS PROMULGATED "WORK IN WATER RESTRICTIONS" BY THE MN DNR DURING SPECIFIED FISH SPAWNING TIMES.

THE CONTRACTOR SHALL IMPLEMENT STORMWATER CONVEYANCE CHANNELS WHEN APPROPRIATE TO ROUTE WATER AROUND UNSTABILIZED AREAS ON SITE TO REDUCE EROSION.

THE CONTRACTOR SHALL IMPLEMENT EROSION CONTROL BMPS AND VELOCITY DISSIPATION DEVICES ALONG CONSTRUCTED STORMWATER CONVEYANCE CHANNELS AND OUTLETS.

THE CONTRACTOR SHALL STABILIZE TEMPORARY AND/OR PERMANENT DRAINAGE DITCHES OR SWALES WITHIN 200 LINEAL FEET FROM PROPERTY EDGE, OR DISCHARGE POINT(S) WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE.

TEMPORARY OR PERMANENT DITCHES OR SWALES USED AS A SEDIMENT CONTAINMENT SYSTEM DURING CONSTRUCTION MUST BE STABILIZED WITHIN 24 HOURS AFTER NO LONGER BEING USED AS A SEDIMENT CONTAINMENT SYSTEM.

THE CONTRACTOR SHALL NOT UTILIZE HYDROMULCH, TACKIFIER, POLYACRYLAMIDE OR SIMILIAR EROSION PREVENTION PRACTICES AS A FORM OF STABILIZATION FOR TEMPORARY OR PERMANENT DRAINAGE DITCHES OR SWALES.

THE CONTRACTOR SHALL ENSURE PIPE OUTLETS HAVE TEMPORARY OR PERMANENT ENERGY DISSIPATION WITH IN 24 HOURS OF CONNECTION TO A SURFACE WATER.

THE CONTRACTOR SHALL DIRECT DISCHARGES FROM BMPS TO VEGETATED AREAS TO INCREASE SEDIMENT REMOVAL AND MAXIMIZE STORMWATER INFILTRATION. VELOCITY DISSIPATION DEVICES MUST BE USED TO PREVENT EROSION WHEN DIRECTING STORMWATER TO VEGETATED AREAS.

SEDIMENT CONTROL MEASURES AND TIMING:

THE CONTRACTOR IS RESPONSIBLE FOR ALL SEDIMENT CONTROL MEASURES FOR THE PROJECT.

SEDIMENT CONTROL MEASURES SHOWN ON PLANS ARE THE ABSOLUTE MINIMUM REQUIREMENTS. THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL SEDIMENT CONTROL MEASURES AS NECESSARY TO PROPERLY MANAGE THE PROJECT AREA.

THE CONTRACTOR SHALL ENSURE SEDIMENT CONTROL MEASURES ARE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS BEFORE ANY UPGRADIENT LAND DISTURBING ACTIVITIES BEGIN. THESE MEASURES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION HAS BEEN ESTABLISHED.

THE CONTRACTOR SHALL ENSURE THERE ARE NO UNBROKEN SLOPE LENGTH GREATER THAN 75 FEET ON SLOPES 3:1 OR STEEPER.

THE CONTRACTOR SHALL ENSURE SEDIMENT CONTROL PRACTICES REMOVED OR ADJUSTED FOR SHORT-TERM ACTIVITIES BE RE-INSTALLED IMMEDIATELY AFTER THE SHORT-TERM ACTIVITY HAS BEEN COMPLETED. SEDIMENT CONTROL PRACTICES MUST BE REINSTALLED BEFORE THE NEXT PRECIPITATION EVENT EVEN IF THE SHORT-TERM ACTIVITY IS NOT COMPLETE.

THE CONTRACTOR SHALL ENSURE STORM DRAIN INLETS AND CULVERT INLETS ARE PROTECTED BY APPROPRIATE BMPS DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAS BEEN STABILIZED. INLET AND CULVERT PROTECTION SHALL CONFORM TO THE 2014 MNDOT SPECIFICATIONS 2573.

THE CONTRACTOR SHALL ENSURE STOCK PILES ARE PROVIDED WITH AN EFFECTIVE SEDIMENT PERIMETER CONTROL AND STOCK PILES SHALL NOT BE PLACED IN ANY TYPE OF SURFACE WATER OR NATURAL BUFFER.

THE CONTRACTOR SHALL INSTALL PERIMETER CONTROL AROUND ALL STAGING AREAS, BORROW PITS, AND AREAS CONSIDERED ENVIRONMENTALLY SENSITIVE.

THE CONTRACTOR SHALL ENSURE VEHICLE TRACKING BE MINIMIZED WITH EFFECTIVE BMPS. WHERE THE BMPS FAIL TO PREVENT SEDIMENT FROM TRACKING ONTO STREETS THE CONTRACTOR SHALL CONDUCT STREET SWEEPING TO REMOVE ALL TRACKED SEDIMENT.

THE CONTRACTOR SHALL IMPLEMENT CONSTRUCTION PRACTICES TO MINIMIZE SOIL COMPACTION.

THE CONTRACTOR SHALL ENSURE ALL CONSTRUCTION ACTIVITY REMAIN WITHIN PROJECT LIMITS AND THAT ALL IDENTIFIED RECEIVING WATER BUFFERS ARE MAINTAINED.

RECEIVING WATER	BUFFER
XX	XX FT
XX	XX FT

THE CONTRACTOR SHALL NOT UTILIZE SEDIMENT CONTROL CHEMICALS ON SITE.

EROSION PREVENTION BMP SUMMARY:

SEE EROSION AND SEDIMENT CONTROL PLAN SHEET AND BID FORM FOR TYPE, LOCATION, AND QUANTITY OF EROSION PREVENTION BMPS.

SEDIMENT CONTROL BMP SUMMARY:

SEE EROSION AND SEDIMENT CONTROL PLAN SHEETS AND BID FORM FOR TYPE, LOCATION, AND QUANTITY OF SEDIMENT CONTROL BMPS.

DEWATERING AND BASIN DRAINING ACTIVITIES:

THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL DEWATERING AND SURFACE DRAINAGE REGULATIONS.

WATER FROM DEWATERING ACTIVITIES SHALL DISCHARGE TO A TEMPORARY AND/OR PERMANENT SEDIMENT BASIN.

IF WATER CANNOT BE DISCHARGED TO A SEDIMENTATION BASIN, IT SHALL BE TREATED WITH OTHER APPROPRIATE BMPS, TO EFFECTIVELY REMOVE SEDIMENT.

DISCHARGE THAT CONTAINS OIL OR GREASE MUST BE TREATED WITH AN OIL-WATER SEPARATOR OR SUITABLE FILTRATION DEVICE PRIOR TO DISCHARGE.

DISCHARGE POINTS SHALL BE PROTECTED FROM EROSION AND SCOUR.

DISCHARGE WATER SHALL BE DISPERSED OVER AN ACCEPTED ENERGY DISSIPATION MEASURE.

WATER FROM DEWATERING SHALL BE DISCHARGED IN A MANNER THAN DOES NOT CAUSE NUISANCE CONDITIONS, EROSION, OR INUNDATION OF WETLANDS.

BACKWASH WATER USED FOR FILTERING SHALL BE HAULED AWAY FOR DISPOSAL, RETURNED TO THE BEGINNING OF TREATMENT PROCESS, OR INCORPORATED INTO THE SITE IN A MANNER THAT DOES NOT CAUSE EROSION. THE CONTRACTOR SHALL REPLACE AND CLEAN FILTER MEDIAS USED IN DEWATERING DEVICES WHEN REQUIRED TO MAINTAIN ADEQUATE FUNCTION.

INSPECTION AND MAINTENANCE:

ALL INSPECTIONS, MAINTENANCE, REPAIRS, REPLACEMENTS, AND REMOVAL OF BMPS IS TO BE CONSIDERED INCIDENTAL TO THE BMP BID ITEMS.

THE CONTRACTOR IS RESPONSIBLE FOR COMPLETING SITE INSPECTIONS, AND BMP MAINTENANCE TO ENSURE COMPLIANCE WITH THE PERMIT REQUIREMENTS.

THE CONTRACTOR SHALL INSPECT THE CONSTRUCTION SITE ONCE EVERY 7 DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS.

THE CONTRACTOR SHALL DOCUMENT A WRITTEN SUMMARY OF ALL INSPECTIONS AND MAINTENANCE ACTIVITIES CONDUCTED WITHIN 24 HOURS OF OCCURRENCE. RECORDS OF EACH ACTIVITY SHALL INCLUDE THE FOLLOWING:

-DATE AND TIME OF INSPECTIONS;
-NAME OF PERSON(S) CONDUCTING INSPECTION;
-FINDINGS AND RECOMMENDATIONS FOR CORRECTIVE ACTIONS IF NECESSARY;
-CORRECTIVE ACTIONS TAKEN;
-DATE AND AMOUNT OF RAINFALL EVENTS;
-POINTS OF DISCHARGE OBSERVED DURING INSPECTION AND DESCRIPTION OF THE DISCHARGE
-AMENDMENTS MADE TO THE SWPPP.

THE CONTRACTOR SHALL SUBMIT A COPY OF THE WRITTEN INSPECTIONS TO THE ENGINEER AND OWNER ON A MONTHLY BASIS. IF MONTHLY INSPECTION REPORTS ARE NOT SUBMITTED, MONTHLY PAYMENTS MAY BE HELD.

THE CONTRACTOR SHALL KEEP THE SWPPP, ALL INSPECTION REPORTS, AND AMENDMENTS ONSITE. THE CONTRACTOR SHALL DESIGNATE A SPECIFIC ONSITE LOCATION TO KEEP THE RECORDS

THE CONTRACTOR IS RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF TEMPORARY AND PERMANENT WATER QUALITY BMP'S, AS WELL AS EROSION AND SEDIMENT CONTROL BMP'S.

THE CONTRACTOR SHALL INSPECT EROSION PREVENTION AND SEDIMENTATION CONTROL BMPS TO ENSURE INTEGRITY AND EFFECTIVENESS. ALL NONFUNCTIONAL BMPS SHALL BE REPAIRED, REPLACED, OR SUPPLEMENTED WITH FUNCTIONAL BMPS WITHIN 24 HOURS OF FINDING. THE CONTRACTOR SHALL INVESTIGATE AND COMPLY WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS:

PERIMETER CONTROL DEVICES, INCLUDING SILT FENCE SHALL BE REPAIRED, OR REPLACED, WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/3 OF THE DEVICE HEIGHT. THESE REPAIRS SHALL BE MADE WITHIN 24 HOURS OF DISCOVERY.

TEMPORARY AND PERMANENT SEDIMENT BASINS SHALL BE DRAINED AND THE SEDIMENT REMOVED WHEN THE DEPTH OF SEDIMENT COLLECTED IN THE BASIN REACHES ½ THE STORAGE VOLUME. DRAINAGE AND REMOVAL MUST BE COMPLETED WITHIN 72 HOURS OF DISCOVERY.

SURFACE WATERS, INCLUDING DRAINAGE DITCHES AND CONVEYANCE SYSTEMS, MUST BE INSPECTED FOR EVIDENCE OF EROSION AND SEDIMENT DEPOSITION. THE CONTRACTOR SHALL REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS, INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS. THE CONTRACTOR SHALL RE-STABLIZE THE AREAS WHERE SEDIMENT REMOVAL RESULTS IN EXPOSED SOIL. REMOVAL AND STABILIZATION MUST TAKE PLACE WITHIN 7 DAYS OF DISCOVERY, UNLESS PRECLUDED BY LEGAL, REGULATORY, OR PHYSICAL CONSTRAINTS. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL LOCAL, REGIONAL, STATE AND FEDERAL AUTHORITIES AND OBTAIN ANY APPLICABLE PERMITS, PRIOR TO CONDUCTING ANY WORK IN SURFACE WATERS.

CONSTRUCTION SITE VEHICLE EXIT LOCATIONS SHALL BE INSPECTED DAILY FOR EVIDENCE OF SEDIMENT TRACKING ONTO PAVED SURFACES. TRACKED SEDIMENT MUST BE REMOVED FROM ALL PAVED SURFACES WITHIN 24 HOURS OF DISCOVERY.

IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT MUST BE REMOVED IN A MANOR AND AT A FREQUENCY SUFFICIENT TO MINIMIZE OFF-SITE IMPACTS.

INFILTRATION AREAS SHALL BE INSPECTED FOR SIGNS OF SEDIMENTATION AND COMPACTION.

POLLUTION PREVENTION MANAGEMENT MEASURES:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POLLUTION PREVENTION MANAGEMENT MEASURES.

ALL POLLUTION PREVENTION MEASURES ARE CONSIDERED INCIDENTAL TO THE MOBILIZATION BID ITEM, UNLESS OTHERWISE NOTED.

THE CONTRACTOR IS RESPONSIBLE FOR INFORMING ALL VISITORS AND/OR PERSONNEL ON-SITE OF THE POLLUTION PREVENTION MANAGEMENT MEASURES. POLLUTION PREVENTION MANAGEMENT MEASURES INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:

THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER DISPOSAL, IN COMPLIANCE WITH MPCA DISPOSAL REQUIREMENTS, OF ALL HAZARDOUS MATERIALS, SOLID WASTE, AND PRODUCTS ON-SITE.

THE CONTRACTOR SHALL ENSURE BUILDING PRODUCTS THAT HAVE THE POTENTIAL TO LEACH POLLUTANTS ARE KEPT UNDER COVER TO PREVENT THE DISCHARGE OF POLLUTANTS.

THE CONTRACTOR SHALL ENSURE PESTICIDES, HERBICIDES, INSECTICIDES, FERTILIZERS, TREATMENT CHEMICALS, AND LANDSCAPE MATERIALS ARE COVERED TO PREVENT THE DISCHARGE OF POLLUTANTS.

THE CONTRACTOR SHALL ENSURE HAZARDOUS MATERIALS AND TOXIC WASTE IS PROPERLY STORED IN SEALED CONTAINERS TO PREVENT SPILLS, LEAKS, OR OTHER DISCHARGE. STORAGE AND DISPOSAL OF HAZARDOUS WASTE OR HAZARDOUS MATERIALS MUST BE IN COMPLIANCE WITH MINN. R. CH. 7045 INCLUDING SECONDARY CONTAINMENT AS APPLICABLE.

THE CONTRACTOR SHALL ENSURE ASPHALT SUBSTANCES USED ON-SITE SHALL ARE APPLIED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

THE CONTRACTOR SHALL ENSURE PAINT CONTAINERS AND CURING COMPOUNDS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT AND/OR CURING COMPOUNDS SHALL NOT BE DISCHARGED INTO THE STORM SEWER SYSTEM AND SHALL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURE'S INSTRUCTION.

THE CONTRACTOR SHALL ENSURE SOLID WASTE BE STORED, COLLECTED AND DISPOSED OF PROPERLY IN COMPLIANCE WITH MINN. R. CH. 7035.

THE CONTRACTOR SHALL ENSURE POTABLE TOILETS ARE POSITIONED SO THAT THEY ARE SECURE AND WILL NOT BE TIPPED OR KNOCKED OVER. SANITARY WASTE MUST BE DISPOSED OF PROPERLY IN ACCORDANCE WITH MINN. R, CH. 7041.

THE CONTRACTOR SHALL MONITOR ALL VEHICLES ON-SITE FOR LEAKS AND RECEIVE REGULAR PREVENTION MAINTENANCE TO REDUCE THE CHANCE OF LEEKAGE.

EXTERNAL WASHING OF TRUCKS AND OTHER CONSTRUCTION VEHICLES AND ENGINE DEGREASING ARE PROHIBITED AT THE CONSTRUCTION SITE.

THE CONTRACTOR SHALL ENSURE WASHOUT WASTE MUST CONTACT THE GROUND AND BE PROPERLY DISPOSED OF IN COMPLIANCE WITH MPCA RULES.

THE CONTRACTOR SHALL INCLUDE SPILL KITS WITH ALL FUELING SOURCES AND MAINTENANCE ACTIVITIES. SECONDARY CONTAINMENT MEASURES SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR.

THE CONTRACTOR SHALL ENSURE SPILLS ARE CONTAINED AND CLEANED UP IMMEDIATELY UPON DISCOVERY. SPILLS LARGE ENOUGH TO REACH THE STORM WATER CONVEYANCE SYSTEM SHALL BE REPORTED TO THE MINNESOTA DUTY OFFICER AT 1.800.422.0798.

FINAL STABILIZATION:

THE CONTRACTOR IS RESPONSIBLE FOR ENSURING FINAL STABILIZATION OF THE ENTIRE SITE. FINAL STABILIZATION INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

ALL SOIL DISTURBING ACTIVITIES HAVE BEEN COMPLETED.

ALL EXPOSED SOILS HAVE BEEN UNIFORMLY STABILIZED WITH AT LEAST 70% VEGETATION COVERAGE.

PERMANENT STORM WATER MANAGEMENT SYSTEM(S) ARE CONSTRUCTED AND ARE OPERATING AS DESIGNED.

ALL DRAINAGE DITCHES, PONDS, AND ALL STORM WATER CONVEYANCE SYSTEMS HAVE BEEN CLEARED OF SEDIMENT AND STABILIZED WITH PERMANENT COVER TO PRECLUDE EROSION.

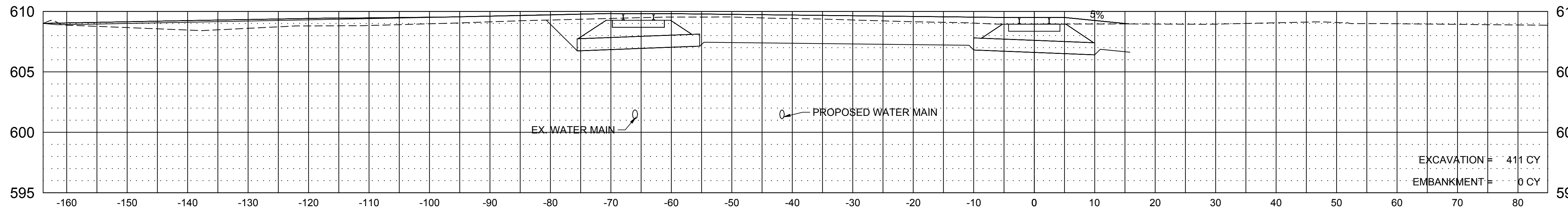
ALL TEMPORARY BMPS HAVE BEEN REMOVED AND PROPERLY DISPOSED OF.

IN RESIDENTIAL CONSTRUCTION, INDIVIDUAL LOTS ARE CONSIDERED FINALLY STABILIZED IF THE STRUCTURE(S) ARE FINISHED AND TEMPORARY EROSION PROTECTION AND DOWNGRADIENT PERIMETER CONTROL HAS BEEN COMPLETED, THE RESIDENCE HAS BEEN SOLD TO THE HOMEOWNER, AND THE HOMEOWNER HAS BEEN PROVIDED A "HOMEOWNER FACT SHEET" BY THE CONTRACTOR TO INFORM THE HOMEOWNER OF THE NEEDS FOR, AND BENEFITS OF, PERMANENT COVER.

AGRICULTURAL LAND DISTURBED HAS BEEN RETURNED TO ITS PRECONSTRUCTION AGRICULTURAL USE.

FINAL STABILIZATION SHALL BE PREFORMED IN ACCORDANCE WITH MNDOT 2014 SPECIFICATION 2575.

Duluth Seaway Port Authority



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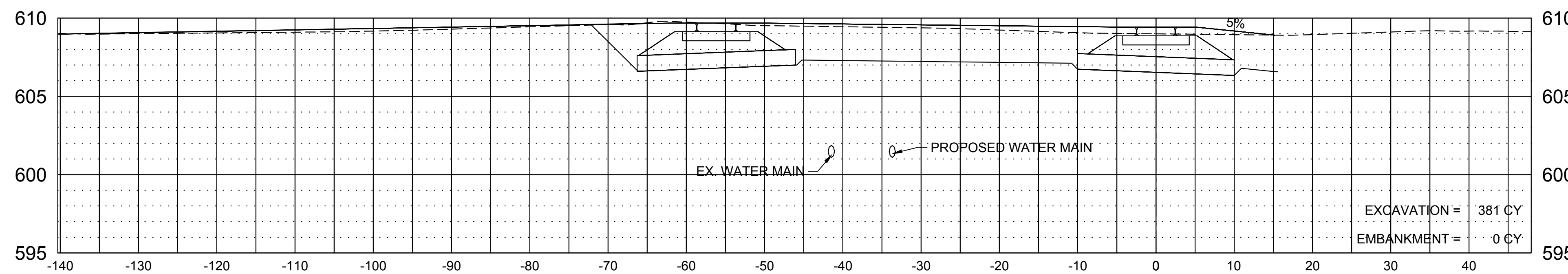

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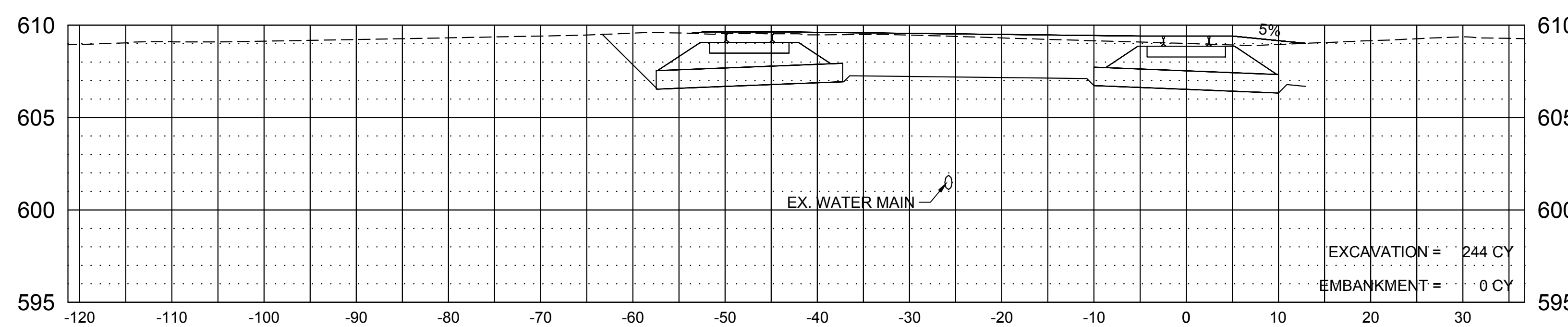

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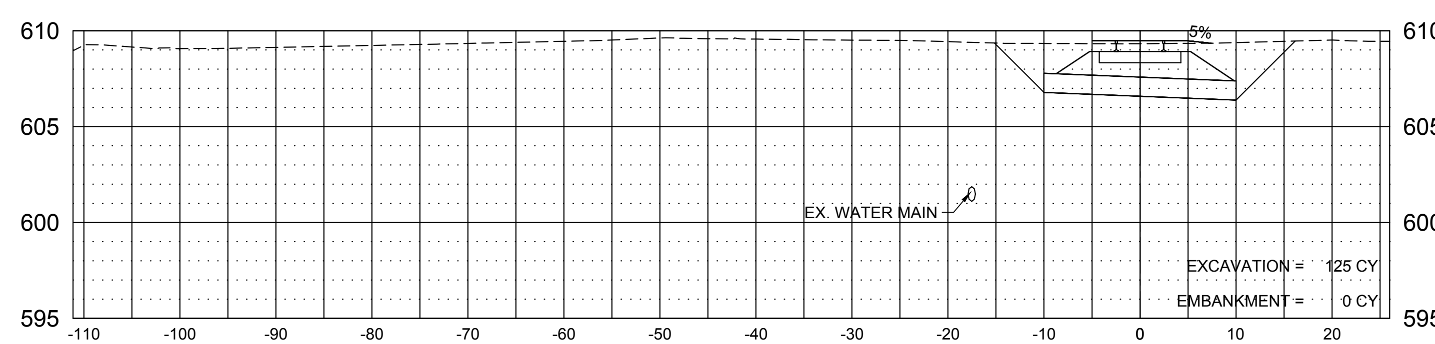

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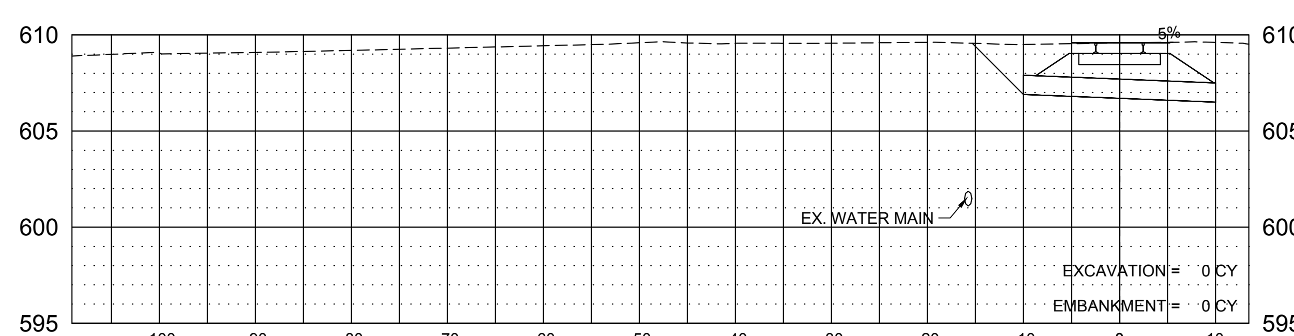

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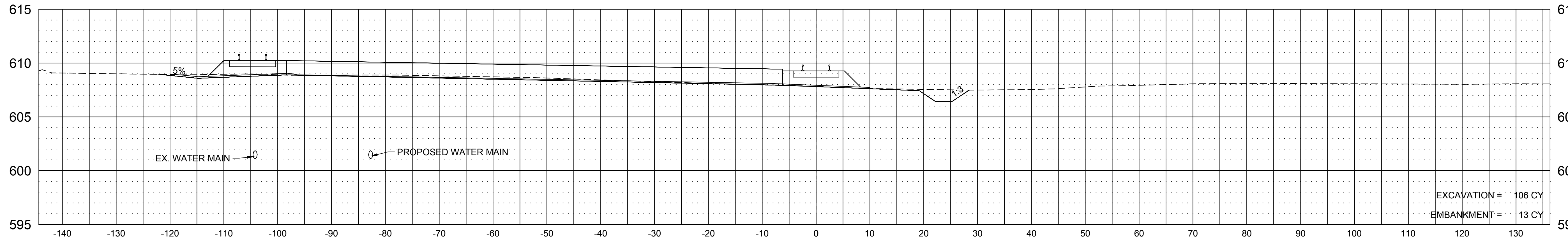

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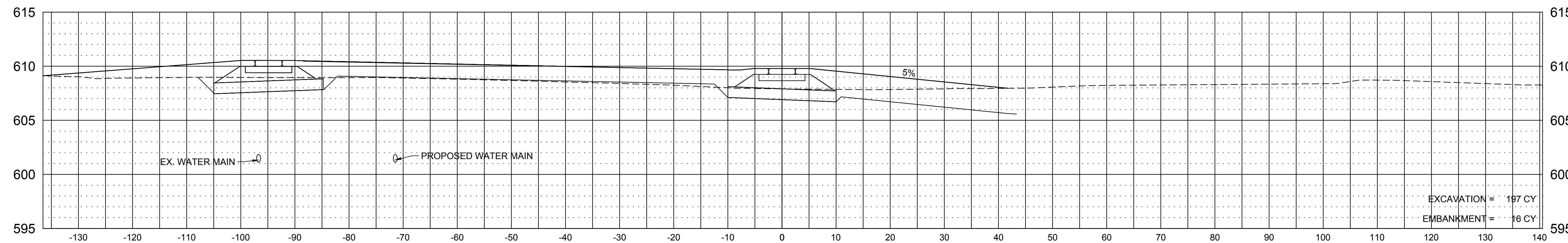

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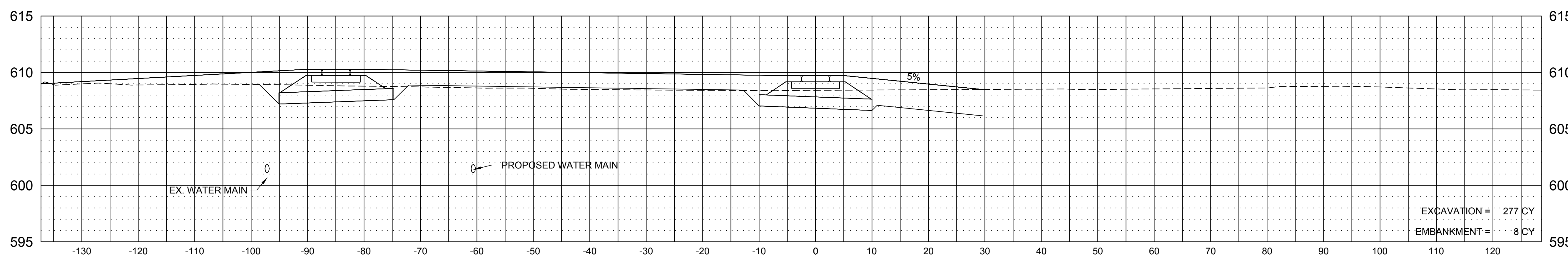

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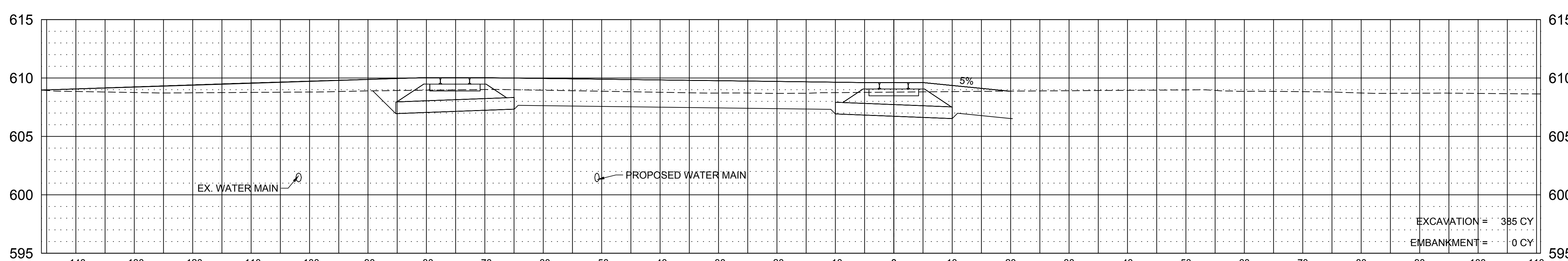

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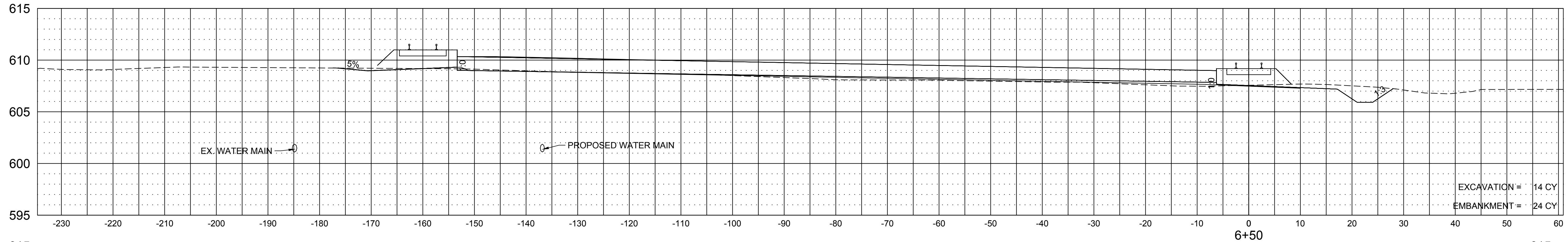

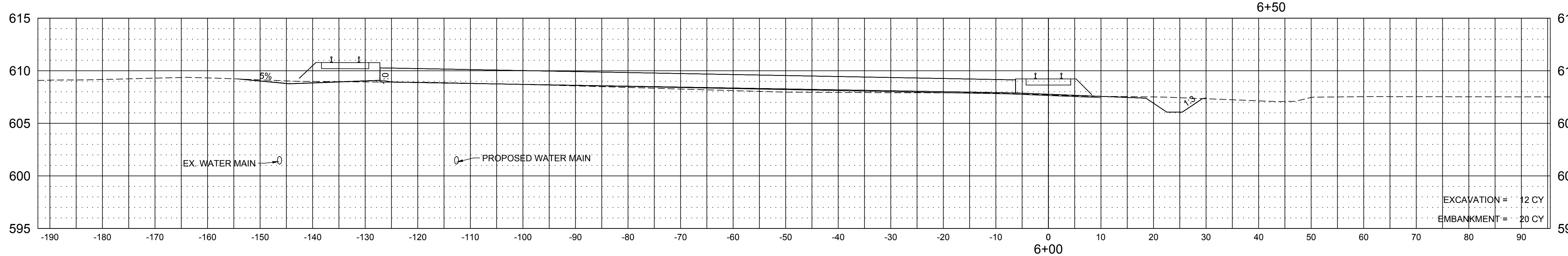

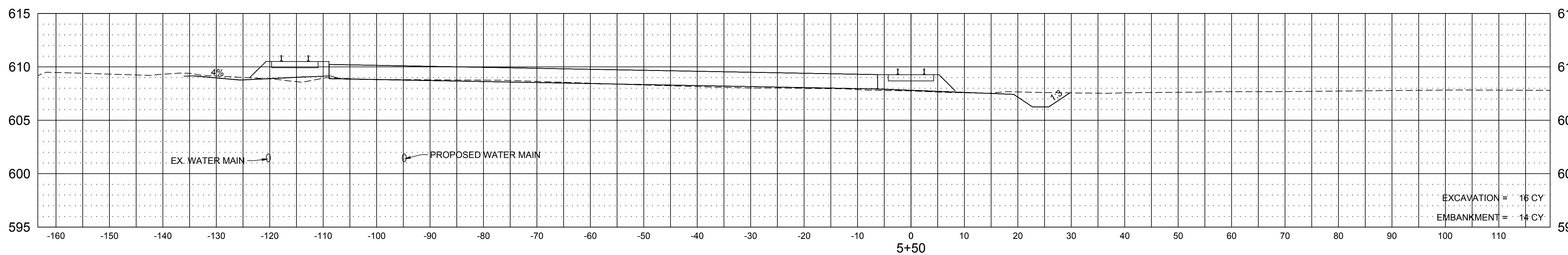

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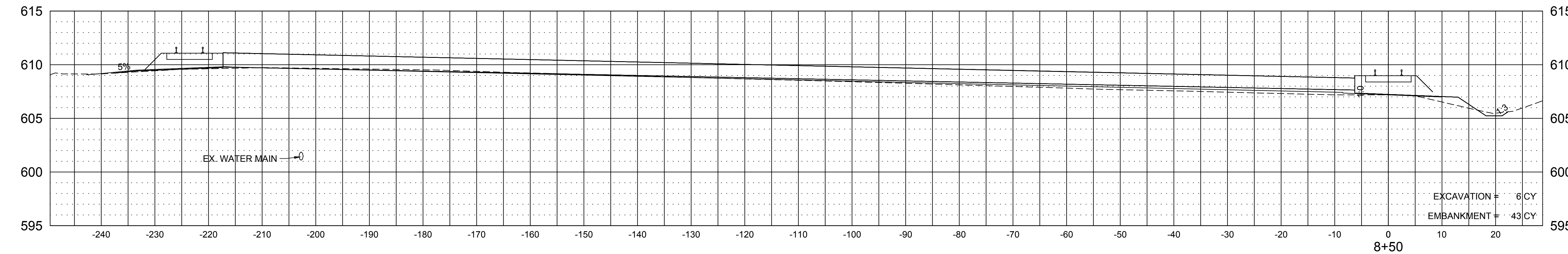

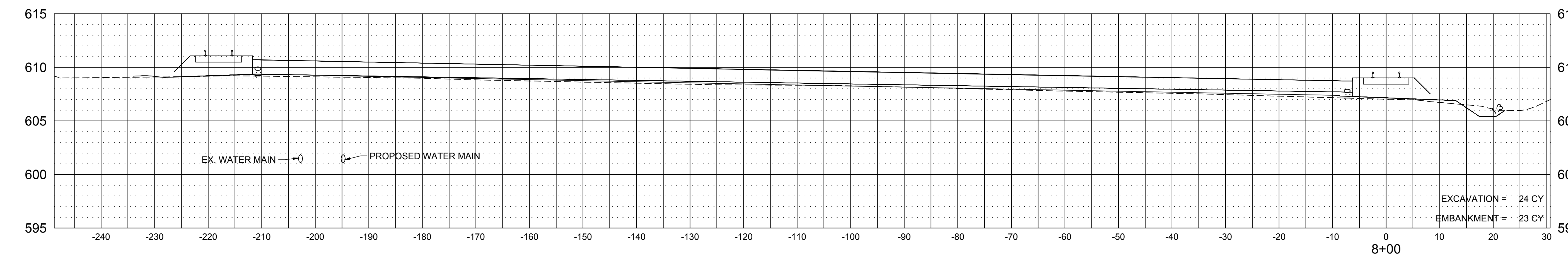

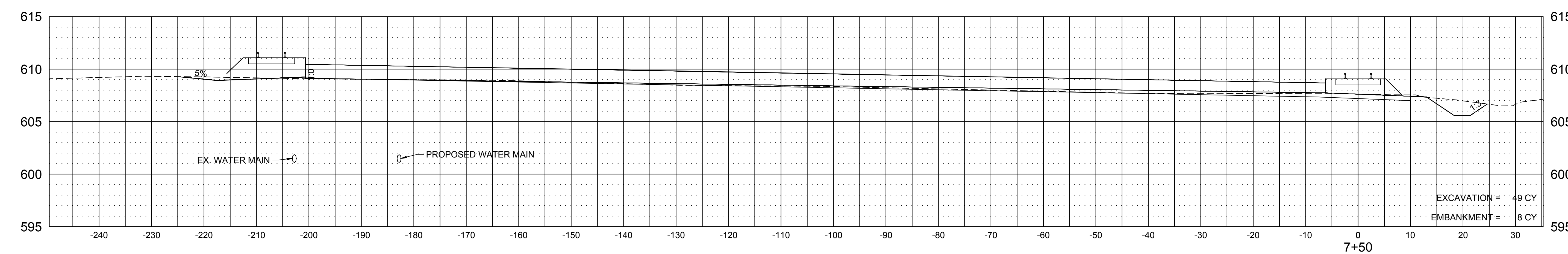

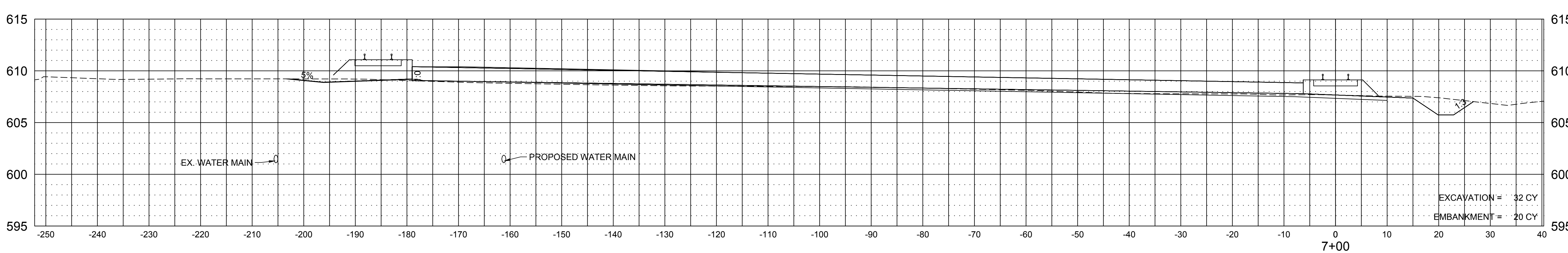

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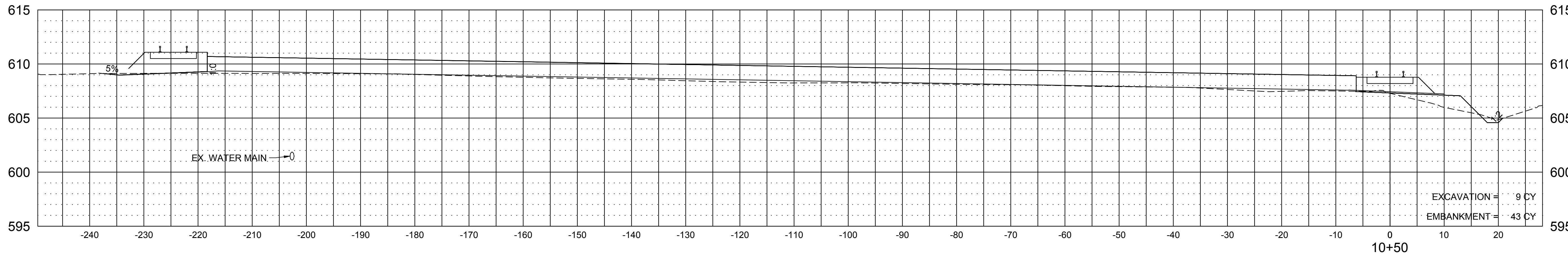

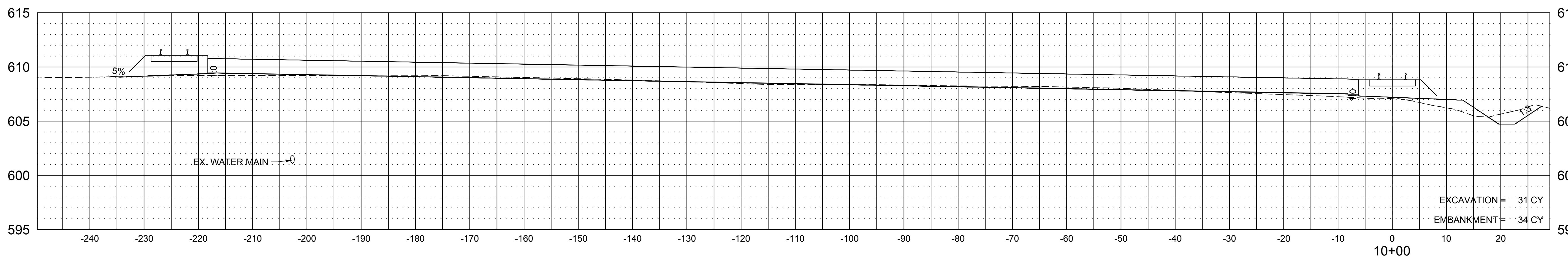

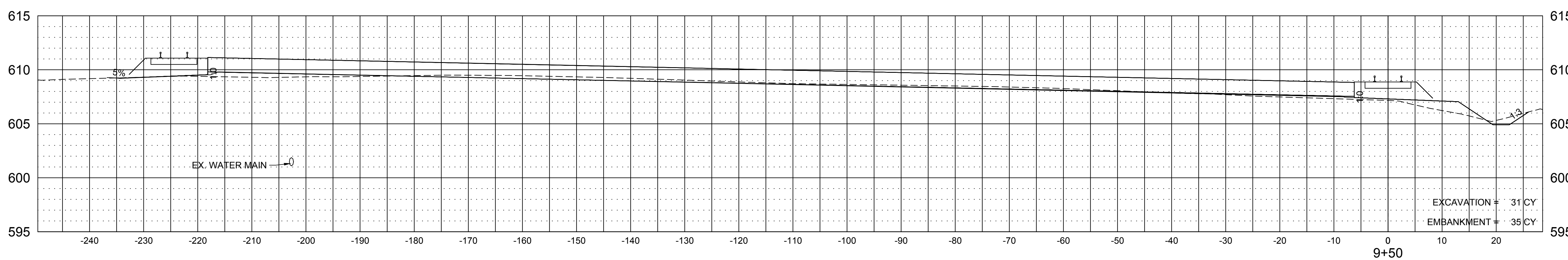

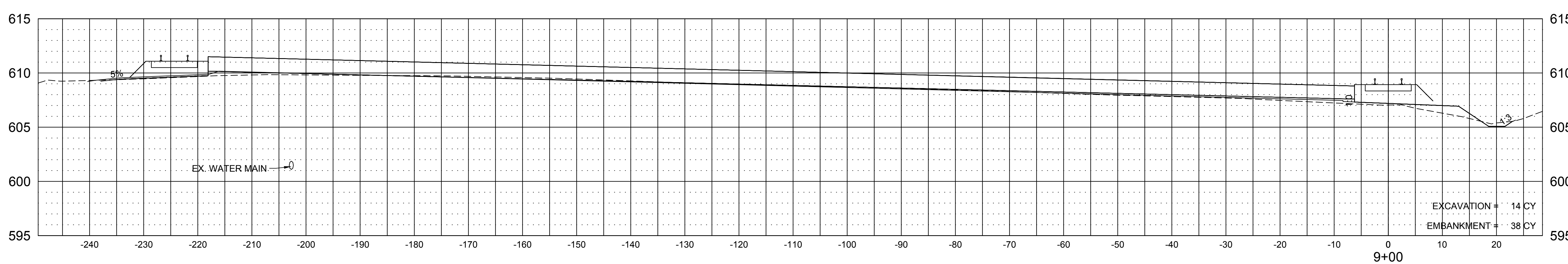

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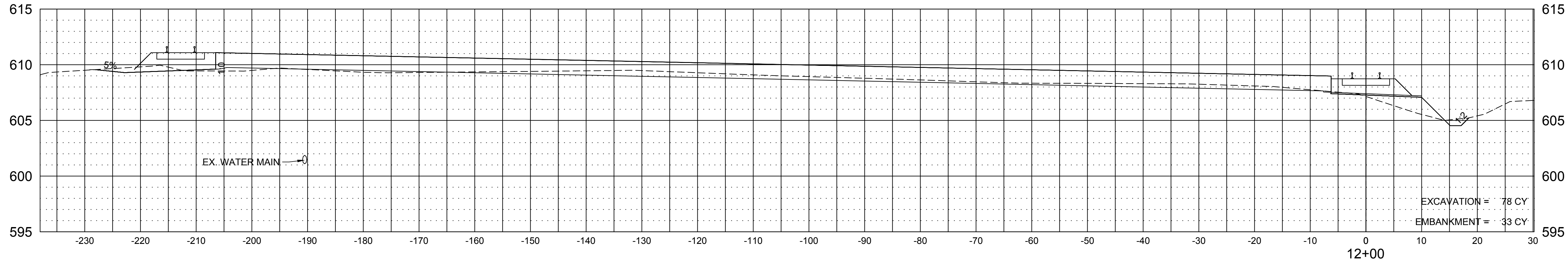

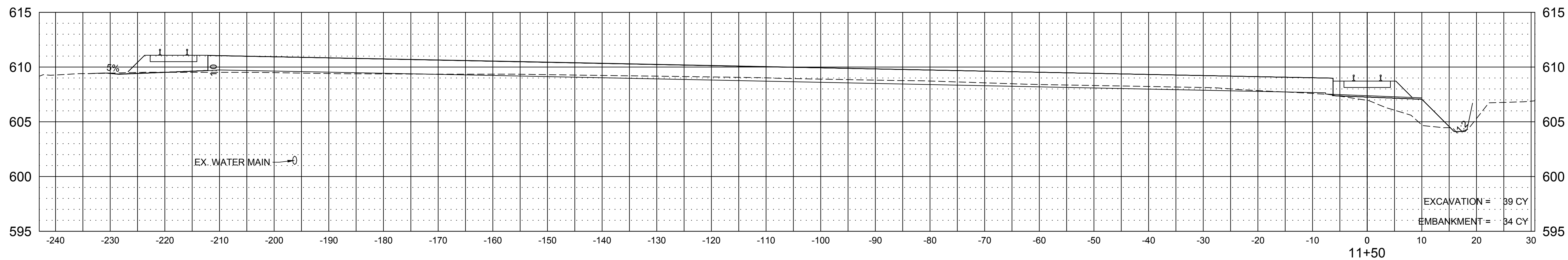

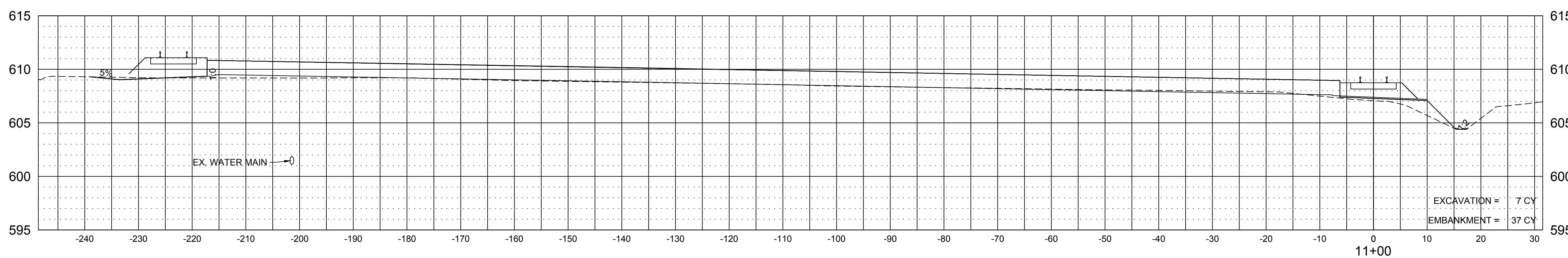

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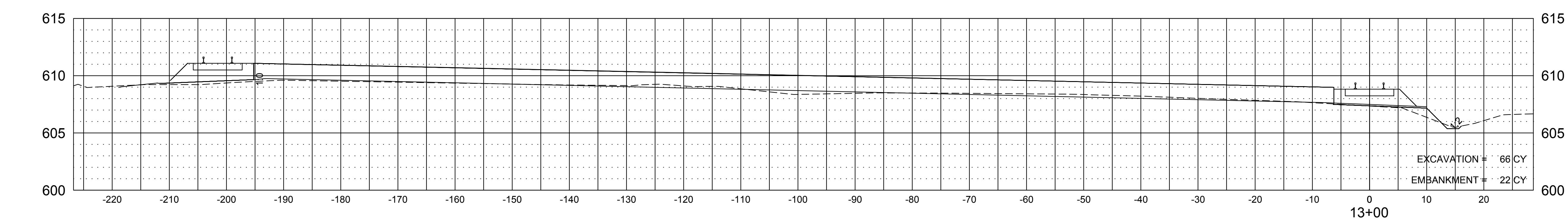

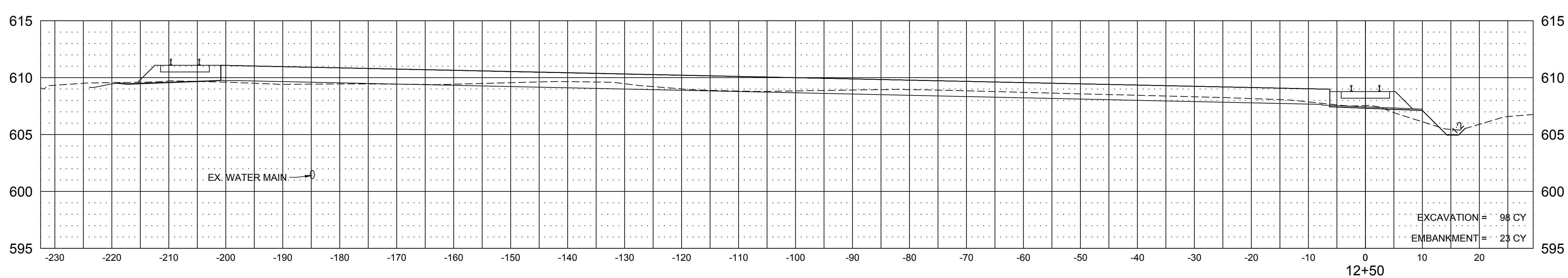

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