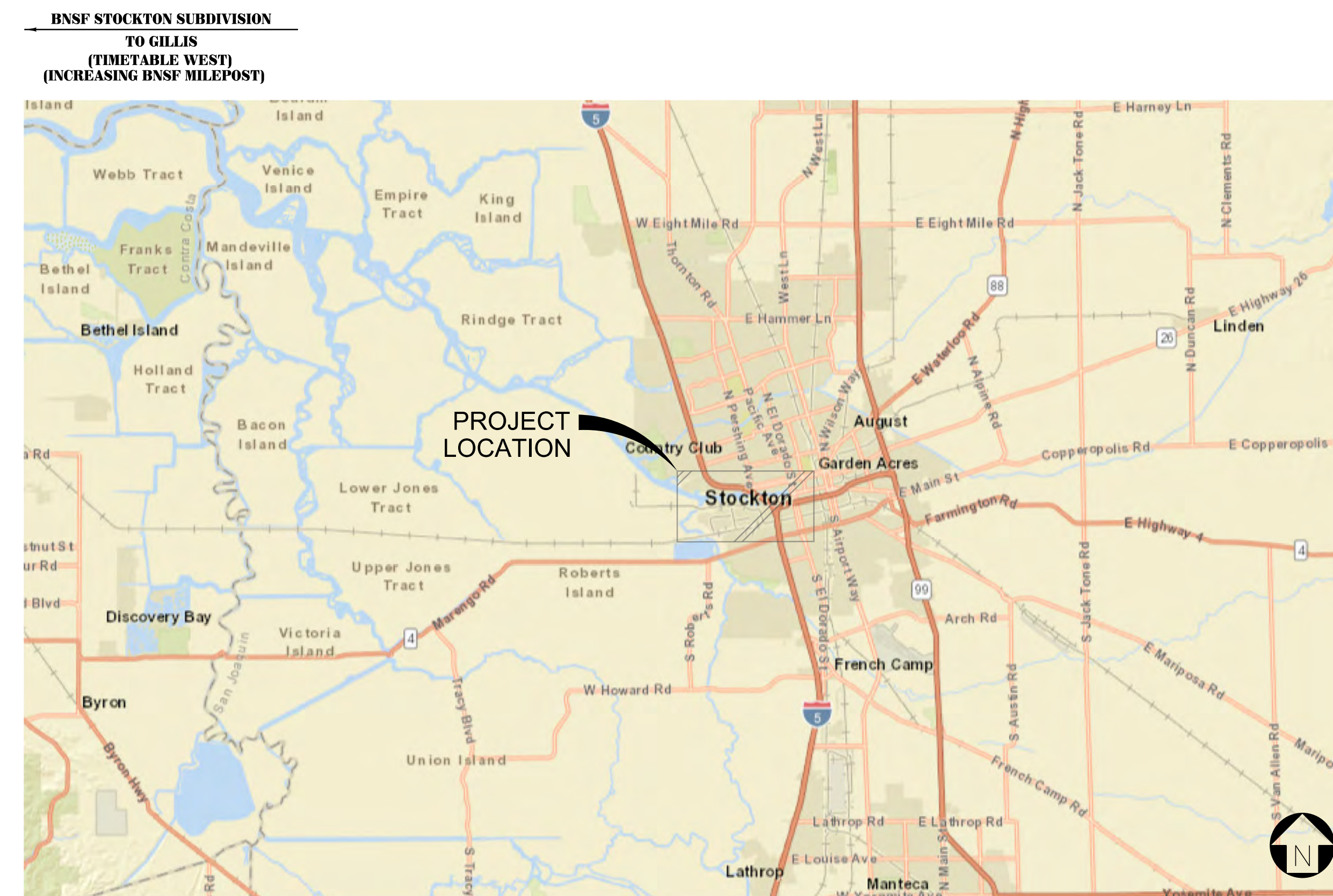


PORT OF STOCKTON RAIL BRIDGE REPLACEMENT AND RAIL IMPROVEMENTS PROJECT SR-4 RETAINING WALL (WALL No. 1)

2201 WEST WASHINGTON STREET
STOCKTON, CA 95203

DRAWING SCHEDULE		
SHEET	SHEET NO.	DESCRIPTION
1	S01	TITLE SHEET
2	S02	GENERAL NOTES (SHEET 1 OF 2)
3	S03	GENERAL NOTES (SHEET 2 OF 2)
4	S04	RETAINING WALL No. 1 GENERAL PLAN
5	S05	RETAINING WALL No. 1 DETAILS
6	S06	HANDRAILING DETAILS



VICINITY MAP

SCALE: **N.T.S.**



LOCATION MAP

SCALE: **N.T.S.**

ISSUED FOR BID NOT FOR CONSTRUCTION

				 Know what's below. Call before you dig.	 BRIDGE ENGINEERING KANSAS CITY, KS	SCALE	AS NOTED		 PORT OF STOCKTON RAIL BRIDGE AND RAIL IMPROVEMENTS SR-4 RETAINING WALL (WALL NO. 1)	STOCKTON, SAN JOAQUIN COUNTY, CALIFORNIA		LATITUDE: 37°56'24.87" N	LONGITUDE: 121°18'59.59"W
						DESIGNED BY	KGJ			STOCKTON SUBDIVISION MP 1122.88 TO MP 1125.83			
						DRAWN BY	TM						
						CHECKED BY	CL						
						APPROVED BY							
						DATE	08/31/2026						
	08/31/2026	ISSUED FOR BID											
ISSUE	DATE	DESCRIPTION									PROJECT NO:	SHEET NO: S01	SHEET: 1 OF 6

File Location: p:\projects\811\811-01\Documents\Structure Sheets\Rail Shields\Retaining Wall Segment 1.dwg BNSF STD RW-532

GENERAL NOTES:

1. ALL WORK REQUIREMENTS SHOWN ON THESE DRAWINGS AND NOT OTHERWISE DETAILED SHALL BE ACCOMPLISHED AS SPECIFIED IN THE UPRR/BNSF GUIDELINES FOR RAILROAD GRADE SEPARATION PROJECTS (2016) AND THE AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA) MANUAL FOR RAILWAY ENGINEERING (2023). IN THE EVENT OF CONFLICTS BETWEEN SPECIFICATIONS, THE MORE RESTRICTIVE SHALL APPLY.
2. CONSTRUCTION MEANS AND METHODS SHALL COMPLY WITH ALL APPLICABLE LAWS, PERMITS AND AGREEMENTS.
3. ALL INFORMATION SHOWN ON THESE DRAWINGS REGARDING LOCATION OF THE EXISTING TRACKS, EXISTING STRUCTURES AND EXISTING GROUND ELEVATIONS ARE BASED ON A SITE SURVEY PERFORMED BY CINQUINI & PASSARINO, DATED APRIL 24, 2023 AND ON DRAWINGS OF THE EXISTING STRUCTURES PROVIDED BY THE PORT OF STOCKTON.
4. THE EXISTING STRUCTURES ARE TO REMAIN IN SERVICE DURING CONSTRUCTION OF THE NEW STRUCTURES. ALL TRACK CURFEWS SHALL BE COORDINATED WITH BNSF AND/OR UPRR.
5. STATIONING AND TOP OF RAIL ELEVATIONS ARE BASED ON PORT OF STOCKTON BNSF LEAD IMPROVEMENTS PLAN AND PROFILE DATED 08-31-2026. FOR SURVEY CONTROL, SEE SHEET G-100.
6. GEOTECHNICAL RECOMMENDATIONS FOR USE IN DESIGN WERE PREPARED BY KLEINFELDER IN THE MEMORANDUM "DESIGN PARAMETERS FOR RETAINING WALL T-WALL #1, DATED 29, 2024".
7. COORDINATE ALL CONSTRUCTION ACTIVITIES WITH BNSF AND/OR UPRR AND THE PORT OF STOCKTON AS REQUIRED. FOR COORDINATION WITH BNSF AND/OR UPRR, REFER TO THE RAILROAD'S COORDINATION REQUIREMENTS IN THE SPECIAL PROVISIONS.
8. BEFORE ORDERING ANY MATERIAL, THE CONTRACTOR SHALL MAKE A DETAILED FIELD INSPECTION OF THE SITE VERIFYING ALL PERTINENT DIMENSIONS AND ELEVATIONS. ANY VARIATIONS IN DIMENSIONS OR ELEVATIONS FROM THOSE SHOWN ON THE DRAWINGS SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.
9. ANY MODIFICATIONS TO THIS DESIGN SHALL BE APPROVED BY THE ENGINEER AND BNSF PRIOR TO CONSTRUCTION.
10. VERIFY THE LOCATION, RELOCATION, ABANDONMENT, AND/OR TEMPORARY SUPPORT OF ALL UTILITIES AFFECTED BY THE CONSTRUCTION OF THE STRUCTURE AND EMBANKMENT. COORDINATE THESE ACTIVITIES WITH THE APPROPRIATE UTILITY COMPANIES, AGENCIES AND/OR AUTHORITIES.
11. CONTACT THE BNSF "CALL BEFORE YOU DIG" NUMBER AT 1-800-533-2891, "BNSF FIBER" AT 1-800-533-2891, AND "BNSF SIGNAL" AT 1-800-832-5452 90 DAYS (NOT LESS THAN 60 DAYS) PRIOR TO PROPOSED CONSTRUCTION START DATE. PRIOR TO CONSTRUCTION, CONFIRM THAT ALL NECESSARY RELOCATIONS HAVE BEEN COMPLETED.
12. NOTIFY ALL PUBLIC AND PRIVATE UTILITY OWNERS 48 HOURS PRIOR TO COMMENCEMENT OF WORK ADJACENT TO THE UTILITY. CONTACT USA NORTH 811 AT 1-800-642-2444.
13. APPLY FOR AND OBTAIN ALL CONSTRUCTION PERMITS NECESSARY TO PERFORM THE WORK.
14. PROVIDE THE ENGINEER WITH A DETAILED CONSTRUCTION PLAN DEFINING THE ACTIVITY, SCHEDULE AND PROCEDURE FOR EACH ASPECT OF THE WORK. CONSTRUCTION SHALL NOT BEGIN UNTIL THE CONSTRUCTION PLAN HAS BEEN APPROVED BY THE ENGINEER AND BNSF.
15. PROVIDE ALL TEMPORARY STRUCTURES (SHORING, BRACING AND/OR FALSEWORK) REQUIRED TO SUPPORT AND PROTECT THE EXISTING EMBANKMENTS AND STRUCTURES AFFECTED BY THE WORK. PROVIDE THE ENGINEER WITH DETAILS, DESIGN AND PROCEDURE FOR ALL TEMPORARY STRUCTURES. ALL TEMPORARY STRUCTURES SHALL BE DESIGNED, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA. ALL TEMPORARY STRUCTURES SHALL BE APPROVED BY THE ENGINEER AND BNSF PRIOR TO BEGINNING CONSTRUCTION. TEMPORARY SHORING MUST ADHERE TO THE REQUIREMENTS PRESCRIBED IN THE UPRR/BNSF GUIDELINES FOR TEMPORARY SHORING, DATED 12-07-2021.
16. ENTIRE HANDRAIL SYSTEM, INCLUDING ANCHORAGES, SHALL BE CAPABLE OF WITHSTANDING WITHOUT FAILURE, A FORCE OF 200 LBS. APPLIED IN ANY OUTWARD OR DOWNWARD DIRECTION AT ANY POINT.
17. ACCOMPLISH ACTIVITIES WITHIN THE SCHEDULE SPECIFIED IN THE APPROVED CONSTRUCTION PLAN.
18. THE CONTRACTOR SHALL SUBMIT AN EROSION AND SEDIMENT CONTROL PLAN TO THE ENGINEER PRIOR TO CONSTRUCTION. THE PROPOSED PLAN MUST FOLLOW SPECIFIC CALIFORNIA PROCEDURES AND MUST OBTAIN THE APPROVAL OF THE ENGINEER AND BNSF PRIOR TO THE START OF CONSTRUCTION.
19. PROVIDE DESIGN CALCULATIONS AND DETAILING FOR PRECAST T-WALL GRAVITY SYSTEM PER PROJECT SPECIFICATIONS. PRECAST T-WALL GRAVITY SYSTEM SHALL BE DESIGNED, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA. ALL DESIGN CALCULATIONS AND DRAWINGS SHALL BE APPROVED BY THE ENGINEER AND BNSF PRIOR TO BEGINNING CONSTRUCTION.

GENERAL NOTES: (CONT.)

20. CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF ALL EXCAVATED SLOPES AND SHALL ASSURE THAT SURFACE RUNOFF IS DIVERTED AWAY FROM WALL. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING DEWATERING EXCAVATED AREAS IN ORDER TO MAINTAIN DRY WORKING CONDITIONS DURING CONSTRUCTION OF THE WALL.

T-WALL DESIGN LOADS:

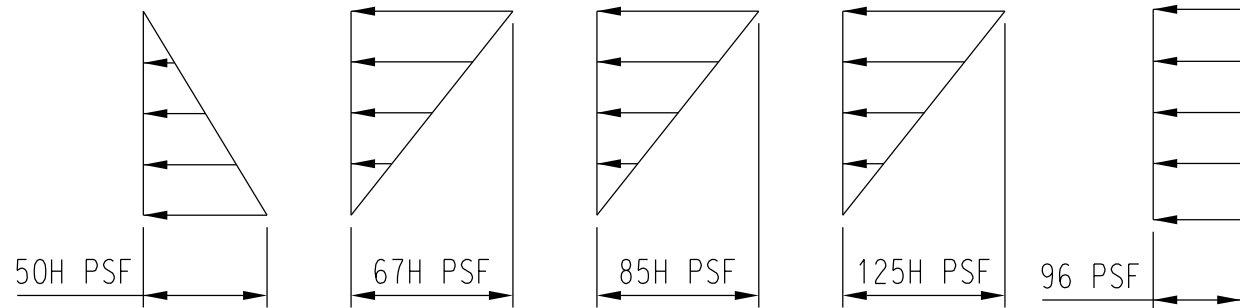
USE THE FOLLOWING LOADS FOR DESIGN OF PRECAST CONCRETE GRAVITY WALL SYTEM. THE WALL MANUFACTURER SHALL VERIFY THE LOADS AND APPLICATION OF LOADS PROVIDED HERE WITH THE GEOTECHNICAL REPORT. THE EARTH PRESSURE PROVIDED HERE ARE FOR BACKFILL.

COOPER E-80 LIVE LOAD SURCHARGE IS CALCULATED PER AREMA SECTION 8.

STATIC, SEISMIC EARTH PRESSURE AND CONSTRUCTION LIVE LOAD SURCHARGE DISTRIBUTION

SERVICEABILITY LIMIT STATE (LEVEL 1)	=	67H	PSF/FT
ULTIMATE LIMIT STATE (LEVEL 2)	=	85H	PSF/FT
SURVIVABILITY LIMIT STATE (LEVEL 3)	=	125H	PSF/FT
STATIC	=	50H	PSF/FT
CONSTRUCTION LIVE LOAD SURCHARGE	=	96	PSF/FT

H = DESIGN WALL HEIGHT FROM TOP OF RETAINED SOIL TO BOTTOM OF FOOTING IN FT



BEARING PRESSURE AND PULLOUT RESISTANCE

REFER TO GEOTECHNICAL MEMORANDUM FOR BEARING PRESSURE, SLIDING, AND PULLOUT RESISTANCE

WALL SYSTEM SHALL BE DESIGNED TO TRANSMIT DESIGN FORCES FROM HANDRAIL AND LIVE LOAD SURCHARGE FROM LD01 AND LD02 TRACKS.

SELECT GRANULAR BACKFILL

1. GENERAL GRADATION REQUIREMENT OF THIS BACKFILL MATERIAL IS:

SIEVE SIZE	PERCENT PASSING
3 IN	100
3/4 IN	20-100
NO. 200	0-15

LOCALLY PRODUCED MATERIAL WITH A GRADATION THAT FALLS BETWEEN THE UPPER AND LOWER LIMITS STATED ABOVE WOULD BE CONSIDERED SATISFACTORY.

2. SOIL PARAMETERS

SOIL DENSITY = 125 PCF

ACTIVE EARTH PRESSURE COEFFICIENT
Ka = 0.40

SEISMIC ACTIVE EARTH PRESSURE

KaE = 0.53	(LEVEL 1)
KaE = 0.68	(LEVEL 2)
KaE = 1.00	(LEVEL 3)

COMPACTION: 95% OF MODIFIED PROCTOR, ASTM D1557/AASHTO T180

PLACEMENT AND COMPACTION OF THE BACKFILL SHALL BE ACCOMPLISHED WITHOUT DISPLACEMENT OF THE T-WALL UNITS.

BACKFILL PLACEMENT LIFTS SHOULD BE UNIFORM IN THICKNESS AND NOT EXCEED 12 INCHES.

T-WALL FOUNDATION

1. UNSTABLE MATERIALS ARE TO BE REMOVED AND REPLACED WITH COMPACTED SELECT FILL PER T-WALL SPECIFICATIONS. THE FOUNDATION SOIL SHALL BE EVALUATED BY A GEOTECHNICAL ENGINEER, PROVIDED BY THE CONTRACTOR OR THE OWNER, TO ENSURE THAT THE BEARING SOILS MEET OR EXCEED THE DESIGN CONDITIONS AND ASSUMPTIONS. REFER TO THE PROJECT GEOTECHNICAL REPORT.

DESIGN NOTES:

1. THE PROPOSED RETAINING STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2023 AREMA MANUAL FOR RAILWAY ENGINEERING, CHAPTER 8: CONCRETE STRUCTURES AND FOUNDATIONS, CHAPTER 9, SEISMIC DESIGN FOR RAILWAY STRUCTURES.
2. T-WALL RETAINING WALL STRUCTURES WERE DESIGNED FOR COOPER E80 LIVE LOAD. DEAD LOAD INCLUDES MAXIMUM 30" TOTAL DEPTH OF BALLAST.
3. SEISMIC DESIGN PERFORMED IN ACCORDANCE WITH AREMA CHAPTER 9 FOR THREE LEVEL GROUND MOTION AND PERFORMANCE CRITERIA AS DEFINED BY AREMA.

1. SERVICEABILITY LIMIT STATE

2. ULTIMATE LIMIT STATE

3. SURVIVABILITY LIMIT STATE

CONSTRUCTION NOTES:

GRADING

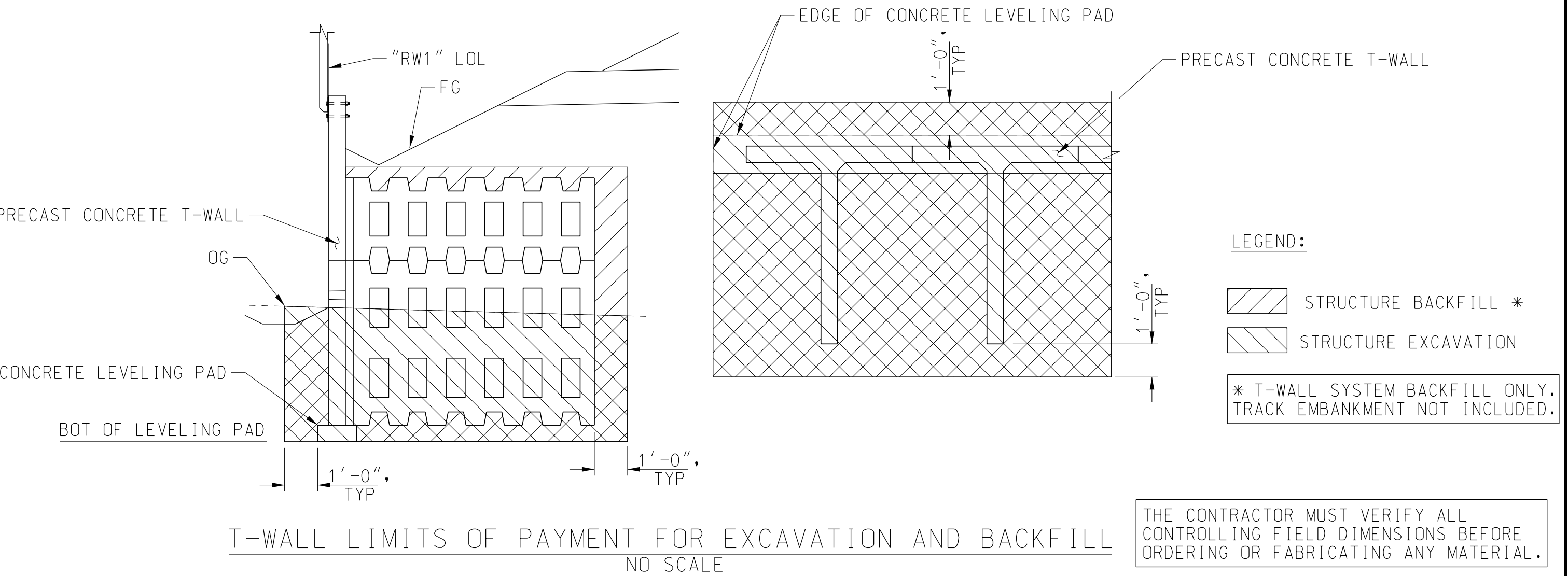
1. PERFORM GRADING AS REQUIRED FOR CONSTRUCTION OF THE NEW STRUCTURE AND REPLACE AREAS REMOVED AND DISTURBED IN THE COURSE OF CONSTRUCTION TO A CONDITION EQUAL TO OR BETTER THAN EXISTING.

PROFILE

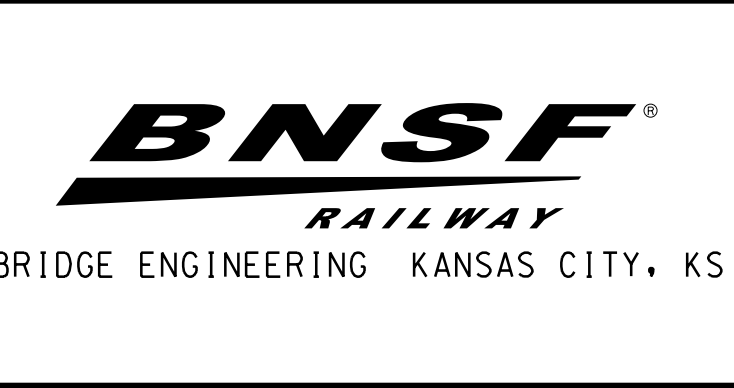
1. SEE TRACK PLANS FOR EXISTING AND PROPOSED TRACK PROFILES.

REINFORCING STEEL

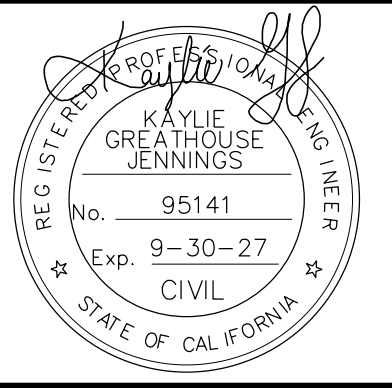
1. REINFORCING STEEL SHALL BE DEFORMED, NEW BILLET BARS PER CURRENT ASTM A615 SPECIFICATIONS AND MEET GRADE 60 REQUIREMENTS.
2. FABRICATION OF REINFORCING STEEL SHALL BE PER CHAPTER 7 OF THE CRSI MANUAL OF STANDARD PRACTICE. DIMENSIONS OF BENDING DETAILS ARE OUT TO OUT OF BAR.
3. REINFORCING STEEL SHALL BE BLOCKED AND TIED TO PROPER LOCATION AND SECURELY WIRED AGAINST DISPLACEMENT. TIE WIRES SHALL BE INSTALLED AT EVERY OTHER BAR INTERSECTION SO THAT AT LEAST 50% OF THE INTERSECTIONS ARE TIED. TACK WELDING OF REINFORCING IS PROHIBITED. MINIMUM CONCRETE COVER ON REINFORCING NOT OTHERWISE NOTED SHALL MEET THE AREMA MANUAL FOR RAILWAY ENGINEERING REQUIREMENTS.
1. THE LEVELING PAD CONCRETE SHALL HAVE A NOMINAL COMPRESSIVE STRENGTH OF 2,500 PSI MINIMUM AT 28-DAYS. UNDER NORMAL CIRCUMSTANCES THE LEVELING PAD STRENGTH IS CONSIDERED ACCEPTABLE FOR PLACEMENT OF THE T-WALL UNITS AFTER 24 HRS.
2. NO REINFORCEMENT IS REQUIRED IN THE CIP LEVELING PAD.
3. AT EACH UNIT FOUNDATION LEVEL, TWO CONCRETE LEVELING PADS SHALL BE PROVIDED AS SHOWN ON THE APPROVED DRAWINGS. LEVELING PADS SHALL BE LEVEL AND FLAT WITHIN ±1/4" PER 15FT AND SHALL NOT EXCEED 1/4" OVER 100FT. LEVELING PADS THAT DO NOT MEET THIS REQUIREMENT SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST.



	08/31/2026	ISSUED FOR BID
ISSUE	DATE	DESCRIPTION



SCALE	AS NOTED
DESIGNED BY	KGJ
DRAWN BY	TM
CHECKED BY	CL
APPROVED BY	
DATE	08/31/2026



STOCKTON SUBDIVISION MP 1122.88 TO MP 1125.83			
GENERAL NOTES (SHEET 1 OF 2)			
PROJECT NO:	SHEET NO: S02	SHEET: 2	OF 6

CONCRETE (CONT.)

13. PRODUCTION PROCEDURE FOR THE MANUFACTURE OF PRECAST MEMBERS SHALL BE IN ACCORDANCE WITH THE AREMA MANUAL FOR RAILWAY ENGINEERING AND PRESTRESSED CONCRETE INSTITUTE'S MANUAL MNL 116 FOR QUALITY CONTROL.
14. DIMENSIONAL TOLERANCES GOVERNING THE MANUFACTURE OF PRECAST MEMBERS SHALL CONFORM TO DIVISION 6, SECTION 6.4 OF THE PRECAST CONCRETE INSTITUTE'S MANUAL MNL 116 FOR QUALITY CONTROL FOR THE APPROPRIATE SHAPE. TOLERANCE FOR THE LOCATION OF LIFTING DEVICES SHALL BE $\pm 1/2"$.
15. THE FABRICATOR SHALL BE RESPONSIBLE FOR LOADING AND PROPERLY SECURING ALL PRECAST CONCRETE MEMBERS FOR SHIPMENT. ALL CONCRETE COMPONENT SHALL BE MADE AVAILABLE FOR INSPECTION BY THE RAILROAD AT THE FABRICATOR'S PLANT PRIOR TO SHIPMENT, AT THE RAILROAD'S DISCRETION.
16. VERTICAL AND HORIZONTAL PLAN TOLERANCES OF THE WALL ARE TO BE $3/4"$ IN $10'-0"$.

LIFTING DEVICES

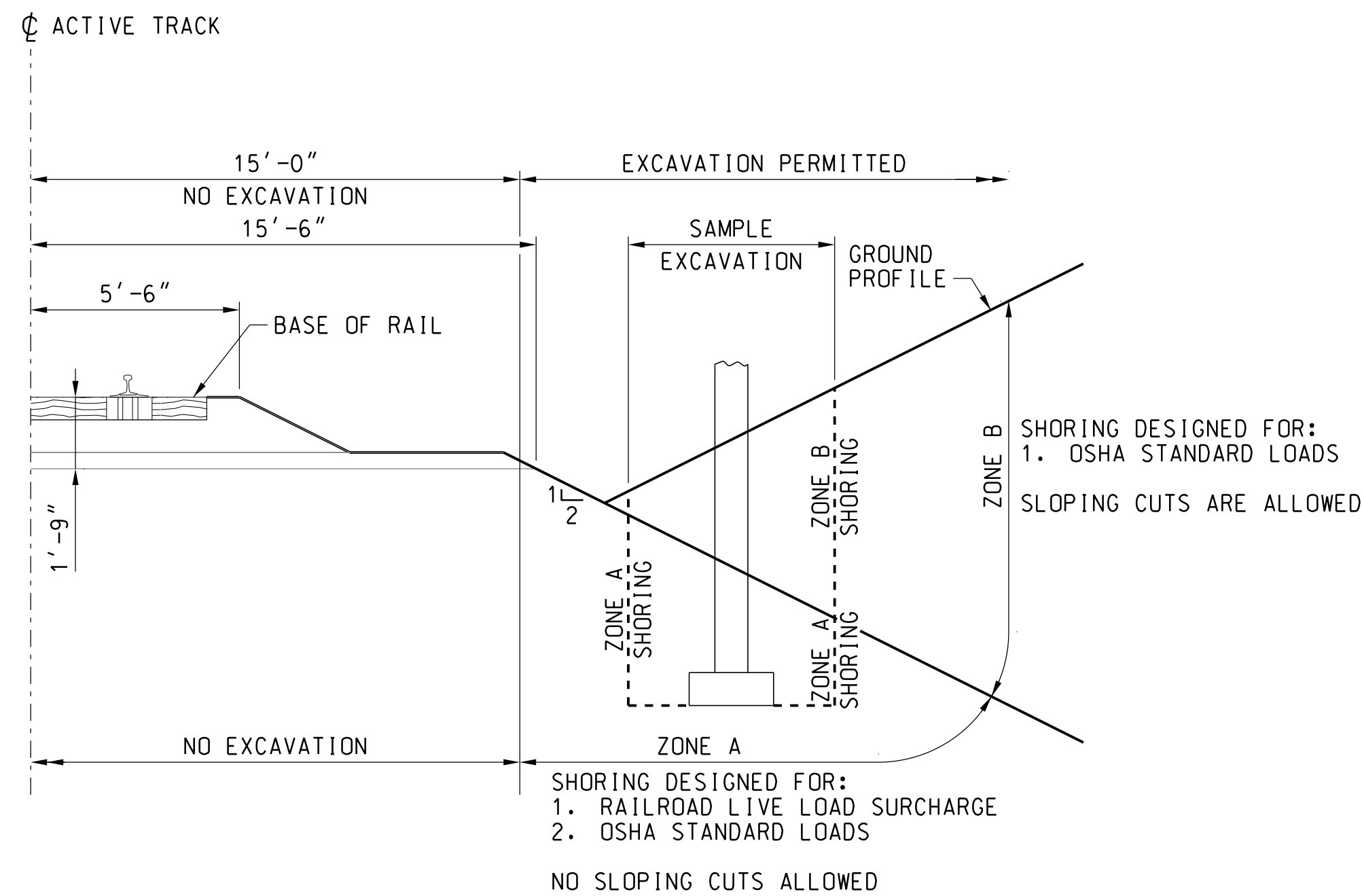
1. PRECAST CONCRETE T-WALL FABRICATOR SHALL PROVIDE LIFTING DEVICES AND HANDLING PLANS FOR USE DURING FABRICATION, SHIPPING, AND INSTALLATION OF THE PRECAST CONCRETE T-WALL UNITS.
2. LIFTING DEVICES TO BE REMOVED IN FIELD FLUSH WITH CONCRETE SURFACE.
3. THE FABRICATOR IS RESPONSIBLE FOR DEVELOPING LIFTING DEVICES DETAILS TO PROVIDE SAFETY FACTOR OF 4 ON WORKING LOAD. DETAIL SHALL BE PROOF-TESTED WITH TEST RESULTS KEPT ON FILE BY THE FABRICATOR AND AVAILABLE FOR INSPECTION BY THE ENGINEER AND BNSF.

HANDRAILING NOTES:

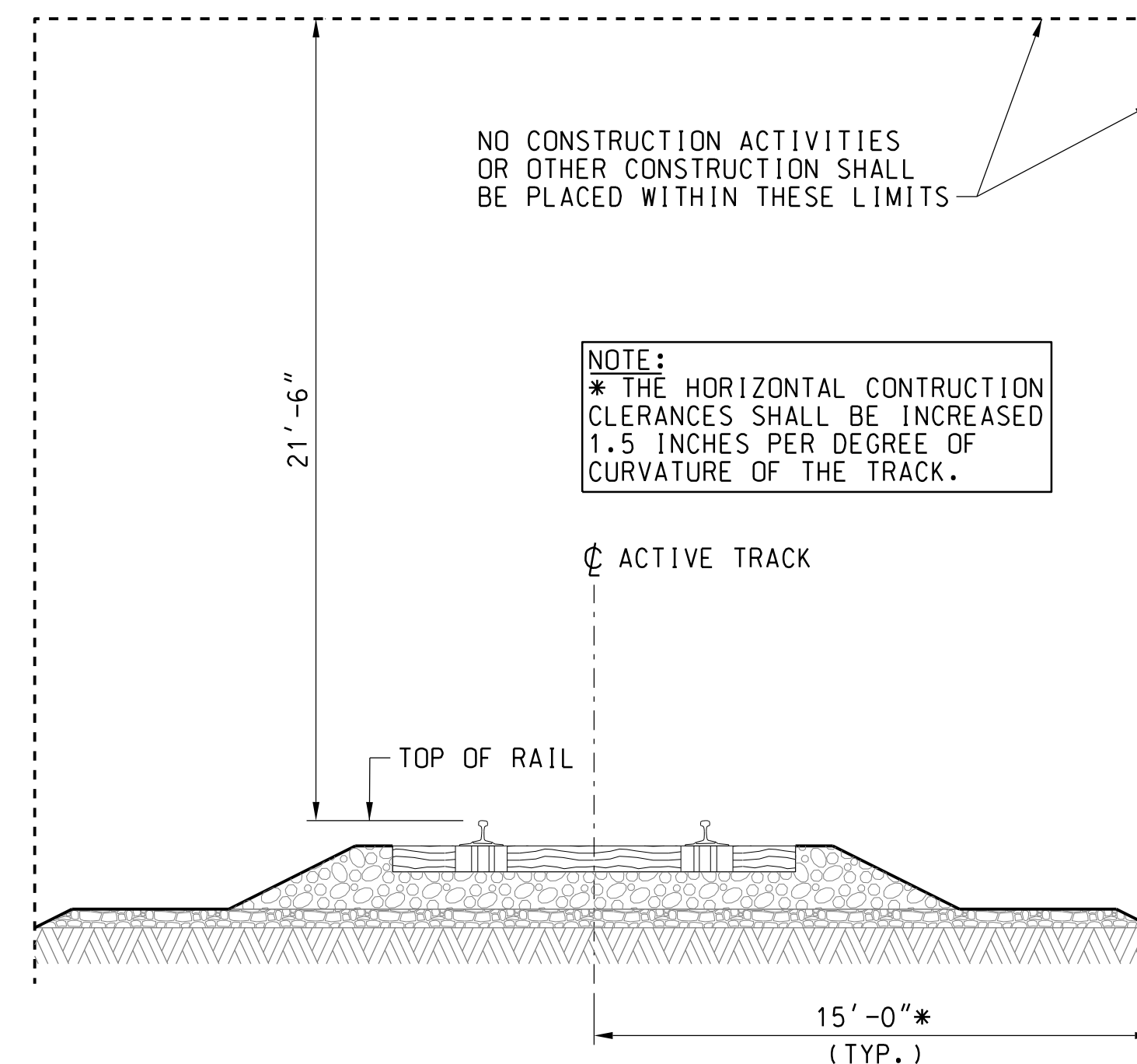
1. MATERIAL SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

ROLLED SHAPES & PLATES	ASTM A36
PIPE	ASTM A53 GR. B
BOLTS	ASTM A307 GR. A
ELASTIC LOCKNUT	MIL-N-25027
WASHERS	ASTM F436
2. DESIGN, FABRICATION, AND ERECTION PER THE AREMA MANUAL RAILWAY ENGINEERING, CHAPTER 15, STEEL STRUCTURES.
3. ALL WELDING SHALL BE SAW OR SMAW PROCESS PER AWS D1.1 STRUCTURAL WELDING CODE. WELDERS MUST POSSESS VALID QUALIFICATIONS.
4. STEEL PIPE HANDRAIL ASSEMBLIES SHALL CONSIST OF ALL POSTS, HANDRAIL PIPES AND ANCHORAGE PLATES BETWEEN FIELD SPLICES. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL.
5. HANDRAIL ASSEMBLIES AND HARDWARES SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. AFTER GALVANIZING, ALL ELEMENTS SHALL BE FREE OF FINIS, ABRASIONS, ROUGH OR SHARP EDGES, AND OTHER SURFACE DEFECTS.
6. ABRASIONS TO THE STEEL PIPE HANDRAILS DURING INSTALLATION SHALL BE COLD GALVANIZED IN ACCORDANCE WITH ASTM A780.

BOT	BOTTOM
CIP	CAST-IN-PLACE
CL	CENTERLINE
ϕ	CENTER LINE
CLR	CLEARANCE
CY	CUBIC YARD
ELEV	ELEVATION
EP	EDGE OF PAVEMENT
ETW	EDGE OF TRAVELWAY
FG	FINISHED GRADE
FT	FOOT
LBS	POUNDS
LF	LINEAR FOOT
LOL	LAY-OUT LINE
LT	LEFT
MAX	MAXIMUM
MIN	MINIMUM
NTS	NOT TO SCALE
OG	ORIGINAL GROUND
PL	PLATE
PT	POINT
R/W	RIGHT-OF-WAY
SQF T	SQUARE FOOT
TYP	TYPICAL



TRACK PROTECTION SHORING ZONES



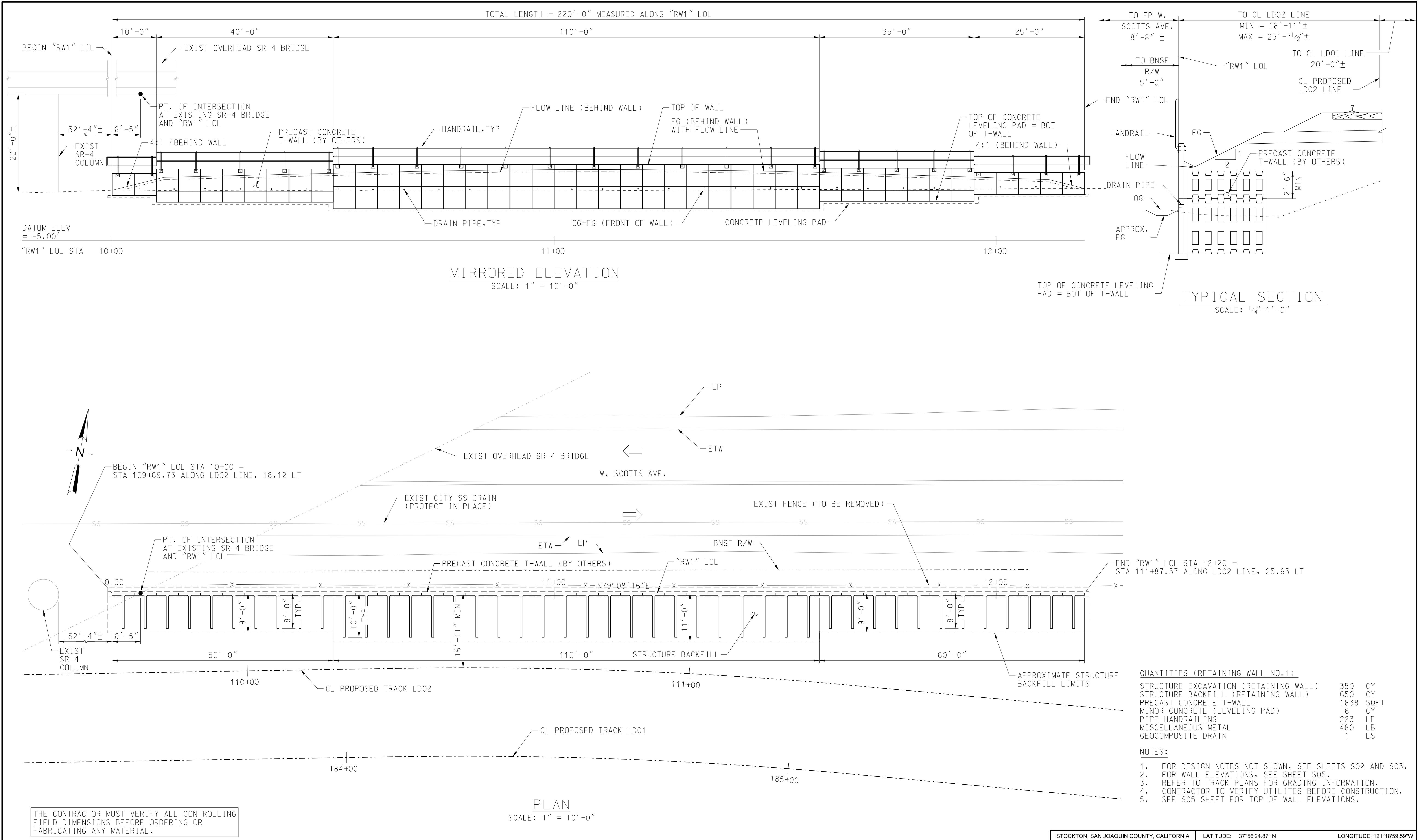
MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

(NORMAL TO RAILROAD)

THE CONTRACTOR MUST VERIFY ALL
CONTROLLING FIELD DIMENSIONS BEFORE
ORDERING OR FABRICATING ANY MATERIAL.

			 Know what's below. Call before you dig.	 BRIDGE ENGINEERING KANSAS CITY, KS	SCALE	AS NOTED		 PORT OF STOCKTON RAIL BRIDGE AND RAIL IMPROVEMENTS SR-4 RETAINING WALL (WALL NO. 1)	STOCKTON SUBDIVISION MP 1122.88 TO MP 1125.83		
					DESIGNED BY	KGJ			GENERAL NOTES (SHEET 2 OF 2)		
					DRAWN BY	TM					
					CHECKED BY	CL					
					APPROVED BY						
					DATE	08/31/2026			PROJECT NO:		
	08/31/2026	ISSUED FOR BID									
	ISSUE	DATE	DESCRIPTION								

F:\proj\stockton\hdp\US_Veg\01\Documents\72010307160_CAD_BIM\2_01\BIM\2_01\CONTRACT DOCUMENTS\Structures\Sheet\Rail Shields\Retaining Wall Segment 1.dwg BNSF STD RW-504



				 Know what's below. Call before you dig.	 BRIDGE ENGINEERING KANSAS CITY, KS	SCALE	AS NOTED		 PORT OF STOCKTON RAIL BRIDGE AND RAIL IMPROVEMENTS SR-4 RETAINING WALL (WALL NO. 1)	STOCKTON SUBDIVISION MP 1122.88 TO MP 1125.83				
						RETAINING WALL NO. 1 GENERAL PLAN								
		08/31/2026	ISSUED FOR BID											
ISSUE	DATE	DESCRIPTION				DATE	08/31/2026				PROJECT NO:	SHEET NO: S04	SHEET: 4	OF 6

