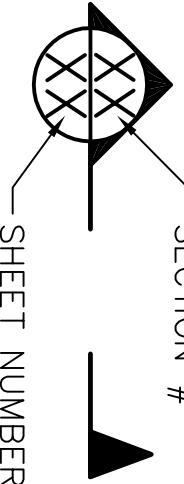


STATE MASS.	FED. AID PROJ. NO. BR-001S74X	FISCAL YEAR 2007	SHEET NO. 16	TOTAL SHEETS 38																																																																					
PROJECT FILE NO. 60356																																																																									
<p><b>DESIGN:</b>          IN ACCORDANCE WITH THE 2002 SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS FOR MS22.5 LOADING.</p> <p><b>DATUM:</b>          ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.</p> <p><b>BENCH MARK:</b>          VRN1 GPS, PK NAIL, N 904620.419, E 152268.981. ELEVATION 194.204.</p> <p><b>DATE:</b>          TO BE PLACED ON THE INSIDE FACE OF THE HIGHWAY GUARDRAIL TRANSITION AS INDICATED. A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED. THE DATE USED SHALL BE THE LATEST YEAR OF CONTRACT COMPLETION AS OF THE DATE THE FIRST HIGHWAY GUARDRAIL TRANSITION IS CONSTRUCTED. ALL HIGHWAY GUARDRAIL TRANSITIONS SHALL FEATURE THE SAME DATE.</p> <p><b>SURVEY NOTEBOOKS:</b>          COPIES OF ELECTRONIC FILES MAY BE OBTAINED FROM THE MASSACHUSETTS HIGHWAY DEPARTMENT.</p> <p><b>SCALES:</b>          SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE THE SCALES BY 2 FOR HALF-SIZE PRINTS.</p> <p><b>FOUNDATIONS:</b>          FOUNDATIONS MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED DURING CONSTRUCTION, WITH THE APPROVAL OF THE ENGINEER.</p> <p><b>UNSUITABLE MATERIAL:</b>          ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.</p> <p><b>ANCHOR BOLTS:</b>          ALL ANCHOR BOLTS SHALL BE SET BY TEMPLATE BEFORE CONCRETE IS PLACED.</p> <p><b>GEO-TECHNICAL REPORT:</b>          REFER TO GEOTECHNICAL REPORT DATED NOVEMBER, 2002.</p> <p><b>HYDRAULIC REPORT:</b>          REFER TO HYDRAULIC REPORT DATED JUNE 27, 2002.</p> <p><b>HYDRAULIC DATA:</b>          DRAINAGE AREA – 254.29 SQ. KILOMETERS          DESIGN DISCHARGE – 114.98 CUBIC METERS PER SECOND          DESIGN FREQUENCY – 50 YEARS          DESIGN VELOCITY – 3.64 METERS PER SECOND          DESIGN HIGH WATER – EL. 187.60</p> <p><b>BASIC (100 YEAR) FLOOD DATA:</b>          FLOOD DISCHARGE – 148.68 CUBIC METERS PER SECOND          FLOOD STAGE – EL. 187.86</p> <p><b>FLOOD OF RECORD:</b>          DISCHARGE – UNKNOWN          STAGE – UNKNOWN</p> <p><b>HISTORY OF ICE FLOES:</b>          NONE DOCUMENTED IN NBIS FILES.</p>																																																																									
<p><b>GENERAL NOTES</b></p> <p><b>CONCRETE:</b></p> <ol style="list-style-type: none"> <li>1. ALL EXPOSED EDGE CORNERS NOT OTHERWISE DETAILED ON THE PLANS SHALL HAVE A MINIMUM OF 20 mm CHAMFER.</li> <li>2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING CONCRETE STAINS OR DISCOLORATION DURING CONSTRUCTION UNTIL SUCH TIME AS THE SURFACES ARE APPROVED AND ACCEPTED. ANY CONCRETE STAINS AND DISCOLORATION OCCURRING PRIOR TO ACCEPTANCE OF THE SURFACES SHALL BE REMOVED BY THE CONTRACTOR AT ITS OWN EXPENSE USING AN APPROVED PROCEDURE.</li> </ol> <p><b>ESTIMATED QUANTITIES</b>          (NOT GUARANTEED)</p> <table border="1"> <thead> <tr> <th>ITEM</th> <th>QUANTITY</th> <th>UNITS</th> </tr> </thead> <tbody> <tr> <td>DEMOLITION OF BRIDGE NO. 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B-02-012 (9CN)</td> <td>2</td> <td>E.A.</td> </tr> <tr> <td></td> <td>1</td> <td>L.S.</td> </tr> </tbody> </table> <p><b>REINFORCEMENT:</b></p> <p>REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615M GRADE 420. UNLESS OTHERWISE NOTED ON THE PLANS, ALL BARS SHALL BE LAPPED AS FOLLOWS:</p> <table border="1"> <thead> <tr> <th>MODIFICATION CONDITION</th> <th>#13 BARS</th> <th>#16 BARS</th> </tr> </thead> <tbody> <tr> <td>1. NONE</td> <td>520 mm</td> <td>650 mm</td> </tr> <tr> <td>2. 300 mm OF NEW CONCRETE BELOW BAR</td> <td>730 mm</td> <td>910 mm</td> </tr> <tr> <td>3. COATED BARS, COVER &lt; 3db, OR CLEAR SPACING &lt; 6db</td> <td>780 mm</td> <td>980 mm</td> </tr> <tr> <td>4. COATED BARS, ALL OTHER CASES</td> <td>600 mm</td> <td>750 mm</td> </tr> <tr> <td>5. CONDITION 2, AND 3</td> <td>880 mm</td> <td>1110 mm</td> </tr> <tr> <td>6. CONDITION 2, AND 4</td> <td>840 mm</td> <td>1050 mm</td> </tr> <tr> <td>IF THE ABOVE BARS ARE SPACED 150 mm OR MORE ON CENTER, THE LAP LENGTH SHALL BE 80% OF THE LAP LENGTH GIVEN ABOVE, ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE PLANS. THE MINIMUM CONCRETE COVER IS 50 mm EXCEPT AS NOTED.</td> <td></td> <td></td> </tr> </tbody> </table> <p>ALL REINFORCING BARS AND SUPPORTING DEVICES IN THE DECK SLAB, DIAPHRAGMS, HIGHWAY GUARDRAIL TRANSITIONS, BACKWALLS, BEAM SEATS, PIER CAPS, COLUMNS, AND DRILLED SHAFTS SHALL BE EPOXY COATED.</p> <p><b>DIMENSIONS:</b>          ALL DIMENSIONS SHOWN ON THE PLANS ARE HORIZONTAL AND ARE FOR THE STRUCTURES AT 20°C, UNLESS OTHERWISE NOTED.</p> <p><b>CONSTRUCTION REQUIREMENTS AND PROCEDURES:</b>          THE CONTRACTOR SHALL TAKE THE PROPER PRECAUTIONS TO INSURE THE STABILITY AND SAFE PERFORMANCE OF ALL STRUCTURAL ELEMENTS DURING CONSTRUCTION.</p> <p><b>STRUCTURAL STEEL:</b>          ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-270M, GRADE 345W, EXCEPT AS NOTED. WELDED FABRICATION SHALL BE IN ACCORDANCE WITH THE BRIDGE WELDING CODE, AASHTO/AWS D1.5 AND ALL INTERIM REVISIONS PUBLISHED BY AASHTO AS OF THE BID OPENING DATE.</p> <p><b>SECTION MARK:</b></p>  <p>SECTION #</p> <p>SHEET NUMBER ON WHICH THE VIEW IS IDENTIFIED/DRAWN.</p>					ITEM	QUANTITY	UNITS	DEMOLITION OF BRIDGE NO. B-02-012 (15H)	1	L.S.	BRIDGE EXCAVATION	650	C.M.	GRAVEL BORROW FOR BRIDGE FOUNDATIONS	45	C.M.	GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	80	C.M.	HOT MIX ASPHALT	50	M.G.	HOT MIX ASPHALT DENSE BINDER COURSE FOR BRIDGES	50	M.G.	DRILLED SHAFT EXCAVATION 1.070 METER DIAMETER	170	M	ROCK SOCKET EXCAVATION 1.070 METER DIAMETER	20	M	OBSTRUCTION EXCAVATION 1.070 METER DIAMETER	10	M	DRILLED SHAFT 1.070 METER DIAMETER	170	M	CROSS HOLE SONIC TESTING ACCESS PIPES	880	M	OSTERBERG LOAD CELL AXIAL LOAD TEST	14	E.A.	BRIDGE STRUCTURE, BRIDGE NO. B-02-012 (9CN)	2	E.A.		1	L.S.	MODIFICATION CONDITION	#13 BARS	#16 BARS	1. NONE	520 mm	650 mm	2. 300 mm OF NEW CONCRETE BELOW BAR	730 mm	910 mm	3. COATED BARS, COVER < 3db, OR CLEAR SPACING < 6db	780 mm	980 mm	4. COATED BARS, ALL OTHER CASES	600 mm	750 mm	5. CONDITION 2, AND 3	880 mm	1110 mm	6. CONDITION 2, AND 4	840 mm	1050 mm	IF THE ABOVE BARS ARE SPACED 150 mm OR MORE ON CENTER, THE LAP LENGTH SHALL BE 80% OF THE LAP LENGTH GIVEN ABOVE, ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE PLANS. THE MINIMUM CONCRETE COVER IS 50 mm EXCEPT AS NOTED.		
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Project Address: Vernon Avenue over Ware River		Contract #:31240		Station: 30+86.7		Offset: 3.0m ft		Elev: 191.00		= 4.15 m LT		= 10+7.11														
Start Time: 10:00AM		Date End: 7/28/02		Sampler:		End Time: 4:00PM		Elev: 191.00		= 4.01 m LT		= 10+6.71														
Casing: Type: HW Hammer: 36kg		Size: 1m I.D.		SIS Hammer: 63.5kg		Size: 34.9mm I.D.		Fall: 780 mm Length		Size: 34.9mm I.D.		Fall: 780 mm Length														
GROUNDWATER OBSERVATION - METRIC SCALE		Casing: Depth: None		Casing: Stationization Per:		Casing: Depth: None		Casing: Stabilization Per:		Casing: Depth: None		Casing: Stabilization Per:														
DP	S#	DEPTH (m)	PEN (m)	REC	BLOWS/15m	SIC	SAMPLE DESCRIPTION		DP	S#	DEPTH (m)	PEN (m)	REC	BLOWS/15m	SIC	SAMPLE DESCRIPTION		DP	S#	DEPTH (m)	PEN (m)	REC	BLOWS/15m	SIC	SAMPLE DESCRIPTION	
—	—	0.-0.6	.5	.45	6-12-11	25	ASPHALT		—	—	0.-0.6	.5	.23	9-14-11-0	25	ASPHALT		—	—	0.-0.6	.5	.05	12-14-11-17	3	ASPHALT	
1m	—	—	—	—	—	—	Most medium, dense, brown, FINE TO COARSE SAND, some fine to coarse gravel.		1m	—	—	—	—	—	—	Most medium, dense, brown, FINE TO COARSE SAND, some fine to coarse gravel.		1m	—	—	—	—	—	—	Most medium, dense, brown, FINE TO COARSE SAND, some fine to coarse gravel.	
2m	—	—	—	—	—	—	Most loose, brown, FINE TO COARSE SAND, some fine to coarse gravel.		2m	—	—	—	—	—	—	Most medium, dense, brown, FINE TO COARSE SAND, some fine to coarse gravel.		2m	—	—	—	—	—	—	Most medium, dense, brown, FINE TO COARSE SAND, some fine to coarse gravel.	
3m	—	—	—	—	—	—	Most loose, brown, FINE TO COARSE SAND, some fine to coarse gravel.		3m	—	—	—	—	—	—	Most loose, brown, FINE TO COARSE SAND, some fine to coarse gravel.		3m	—	—	—	—	—	—	Most loose, brown, FINE TO COARSE SAND, some fine to coarse gravel.	
4m	—	—	—	—	—	—	Bottom of Exploration = 4.0m		4m	—	—	—	—	—	—	Bottom of Exploration = 4.0m		4m	—	—	—	—	—	—	Bottom of Exploration = 4.0m	
5m	—	—	—	—	—	—	EL 187.00		5m	—	—	—	—	—	—	EL 187.00		5m	—	—	—	—	—	—	EL 187.00	
6m	—	—	—	—	—	—	NO RECOVERY.		6m	—	—	—	—	—	—	NO RECOVERY.		6m	—	—	—	—	—	—	NO RECOVERY.	
7m	—	—	—	—	—	—	S-3 4.5-5.1		7m	—	—	—	—	—	—	S-3 4.5-5.1		7m	—	—	—	—	—	—	S-3 4.5-5.1	
8m	—	—	—	—	—	—	S-4 6.0-6.6		8m	—	—	—	—	—	—	S-4 6.0-6.6		8m	—	—	—	—	—	—	S-4 6.0-6.6	
9m	—	—	—	—	—	—	S-5 7.5-8.1		9m	—	—	—	—	—	—	S-5 7.5-8.1		9m	—	—	—	—	—	—	S-5 7.5-8.1	
10m	—	—	—	—	—	—	S-6 9.0-9.6		10m	—	—	—	—	—	—	S-6 9.0-9.6		10m	—	—	—	—	—	—	S-6 9.0-9.6	
11m	—	—	—	—	—	—	S-7 10.5-11.1		11m	—	—	—	—	—	—	S-7 10.5-11.1		11m	—	—	—	—	—	—	S-7 10.5-11.1	
12m	—	—	—	—	—	—	S-8 12.0-12.4		12m	—	—	—	—	—	—	S-8 12.0-12.4		12m	—	—	—	—	—	—	S-8 12.0-12.4	
13m	—	—	—	—	—	—	S-9 13.5-14.05		13m	—	—	—	—	—	—	S-9 13.5-14.05		13m	—	—	—	—	—	—	S-9 13.5-14.05	
14m	—	—	—	—	—	—	S-10 15.0-15.58		14m	—	—	—	—	—	—	S-10 15.0-15.58		14m	—	—	—	—	—	—	S-10 15.0-15.58	
15m	—	—	—	—	—	—	S-11 16.46-17.85		15m	—	—	—	—	—	—	S-11 16.46-17.85		15m	—	—	—	—	—	—	S-11 16.46-17.85	
16m	—	—	—	—	—	—	S-12 17.98-19.46		16m	—	—	—	—	—	—	S-12 17.98-19.46		16m	—	—	—	—	—	—	S-12 17.98-19.46	
17m	—	—	—	—	—	—	S-13 19.46		17m	—	—	—	—	—	—	S-13 19.46		17m	—	—	—	—	—	—	S-13 19.46	
18m	—	—	—	—	—	—	S-14 19.46		18m	—	—	—	—	—	—	S-14 19.46		18m	—	—	—	—	—	—	S-14 19.46	
19m	—	—	—	—	—	—	S-15 19.46		19m	—	—	—	—	—	—	S-15 19.46		19m	—	—	—	—	—	—	S-15 19.46	

**BORING NOTES:**

- LOCATION OF BORINGS SHOWN ON THE PLAN THUS: B-2
- BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
- WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
- FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 34.9 mm I.D. SPLIT SPOON SAMPLER 150 mm WITH A 63.5 KILOGRAM MASS FALLING 760 mm.
- BORING SAMPLES ARE STORED AT A STORAGE FACILITY LOCATED ON ROUTE 114 IN LAWRENCE, MA. THE CONTRACTOR MAY LOOK AT THE SAMPLES OR EXAMINE THE SAMPLES BY CONTRACTING MASS HIGHWAY GEOTECHNICAL SECTION AT 10 PARK PLAZA, ROOM 6500, BOSTON, MA. 02116 AT (617) 973-8836.
- ALL BORINGS WERE MADE IN JULY AND AUGUST, 2002.
- BORINGS WERE MADE BY NEW HAMPSHIRE BORING, INC. P.O. BOX 165 DERRY, NH 03038.
- THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.
- THE DEPTHS AS SHOWN ON THE ORIGINAL BORING LOGS HAVE BEEN CONVERTED TO ELEVATIONS BY THE ENGINEER.
- STATION AND OFFSET SHOWN ON THE ORIGINAL BORING LOGS BEEN CONVERTED TO BASELINE CONSTRUCTION BY THE ENGINEER.

**BORING DATA**

SCALE 1:50

STATE FED. AID PROJ. NO. FISCAL SHEET TOTAL SHEETS

MASS. BR-001S(74X) 2007 17 38

PROJECT FILE NO. 60356

E MAIL: min@minboring

PHONE: (603) 437-4034

PHONE: (603) 437-1610

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PROJECT FILE NO. 60356

FS & T FILE NO.		DES.		DR.		EST.		CHK.		JFL							
VK-031		-		RAT		-		CHK.		-							
ENGINEER IN CHARGE																	
Differ/Sewer Gasline		Helper/George Bell		Inspection: John Adams		APPROX. BOT. OF DRILLED SHAFT		Helper/George Bell		Inspection: John Adams		APPROX. BOT. OF DRILLED SHAFT					
Remarks: PAGE 1 OF 1 HOURS WORKED: 8 CAVING USED: HW CAVING SIZE: HW CAVING USED: 15.0 TYPE OF COREBARREL: No. Of Road Signs Used: 4 Bags Of Grout Used: Wall Size: Screen Size: Riser: Note 1:		Soc: 1m ID.		SS		Size: 34.9mm ID.		Fall: 680 mm length		Size: 34.9mm ID.		Fall: 760 mm length					
Soc: 1m ID.		SS		Hammer: 63.5 kg		Size: 34.9mm ID.		Fall: 680 mm length		Size: 34.9mm ID.		Fall: 760 mm length					
Hamer: 63.5 kg																	
GROUNDWATER OBSERVATION - METRIC, SCALE																	
Date: Time: Depth: Note Taken		Casing: Depn: Hammer: Fall: Stabilization Per:		Soc: 1m ID.		SS		Hammer: 63.5 kg		Fall: 680 mm length		Size: 34.9mm ID.					
DP	S#	DEPTH (m)	PEN (m)	REC	BLOWS/15m	SC	SAMPLE DESCRIPTION		DP	S#	DEPTH (m)	PEN (m)	REC	BLOWS/15m	SC	SAMPLE DESCRIPTION	
5m					18	Cored through bridge deck.	Note: Boulders encountered from 5.18m to 9.0m		5m					18	ASPHALT	Note: Boulders encountered from 5.18m to 9.0m	
6m					38	2m Concrete			6m					35	Concrete 2m		
7m					Air				7m					Air			
8m							No Recovery - Drove through BOULDERS		8m								
9m	S-1	9.0 - 9.2	.2	.2	8	9.2	Most, medium, dense, brown, FINE TO COARSE SAND, some fine to coarse sand, trace gravel.		9m	S-1	6.0 - 6.6	0.6	0.23	1-3-7-8		Note: Boulders encountered from 5.18m to 9.0m	
S-1A	9.2 - 9.6	.4	.18	10-14-15			Most, medium dense, grey, FINE TO COARSE SAND, some inorganic silt, trace gravel.		9m	S-3	9.0 - 9.6	0.6	0.53			EL 187.00	
S-2	10.5 - 11.1	.6	.23	13-16-22-28			Most hard, grey CLAY and inorganic silt, some fine sand, trace coarse sand, trace fine gravel.		10m	S-2	7.5 - 8.1	0.6	0.53			EL 187.00	
S-3	12.0 - 12.6	.6	.43	11-14-28-38			Most hard, grey CLAY and inorganic silt, some fine sand, trace coarse sand, trace fine gravel.		10m	S-3	9.0 - 9.6	0.6	0.53			EL 187.00	
S-4	13.5 - 14.1	.6	.35	25-31-44-50			Most, hard, grey CLAY and inorganic silt, some fine sand, trace coarse sand, trace fine gravel.		11m	S-4	10.5 - 11.1	0.6	0.6			EL 187.00	
S-5	15.0 - 15.28	.28	.2	22-120/13			Most, hard, grey CLAY and inorganic silt, some fine sand, trace coarse sand, trace fine gravel.		12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-5	15.0 - 15.28	.28	.2	15.28			Possible rock encountered at 15.28m BOTTOM OF EXCAVATION = 15.28m		13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13					12m	S-5	12.0 - 12.6	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	15.28					13m	S-6	13.5 - 14.1	0.6	0.6			EL 187.00	
S-6	15.0 - 15.28	.28	.2	22-120/13</													

PHONE: (603) 437-1610		NEW HAMPSHIRE BORING, INC.		FAX: (603) 437-4034	
P.O. BOX 65, DERRY, NH 03038		E MAIL: mh@nhboring.com		FAX: (603) 437-4034	
Boring #: B-1		Project Address: Vernon Avenue over Ware River	Contract #31240	Station: 31-384	= 11+18.81
Date Start: 7/31/02		City: Boscawen	Offset: 23ft	Offset: 23ft	= 5.31 m LT
Casing:		Start Time: 7:30AM	Date End: 7/31/02	End Time: 4:30PM	End Time: 4:30PM
Type: HW		Size: 1m ID.	SS	Size: 34.9mm ID.	
Hammer: 63.5kg		Fall: 600 mm Length	Hammer: 63.5kg	Fall: 600 mm Length	
<b>GROUNDWATER OBSERVATION - METRIC, SCALE</b>					
Date: 7/31/02	Time: 5:00	Depth: 4.00m	Casing: Hammer - METRIC, SCALE	Stabilization Per:	
DP	S#	DEPTH (m)	PEN (m)	REC	BLOWS/15m
—	S-1	0 - 0.6	0.6	0.2	9-11-7-6
—	S-2	1.5 - 2.1	.6	0.15	7-5-6-6
—	S-3	3.0 - 3.6	.6	0.58	9-7-4-6
—	S-4	4.5 - 5.1	.6	0.6	8-12-15-20
—	S-5	6.0 - 6.6	.6	0.6	18-16-24-28
—	S-6	7.5 - 8.1	.6	0.6	12-16-19-23
—	S-7	9.0 - 9.6	.6	0.6	14-19-28-33
—	S-8	10.5 - 10.63	.13	1.13	120-13
—	S-9	12.0 - 12.08	.08	.06	120-108
—	S-10	13.5 - 13.88	.60	.38	16-34-50-08
—	S-11	15.0 - 15.13	.13	.13	120-13
—	S-12	16m			
<b>DRILLER'S NOTE</b>					
Remarks: PAGE 1 OF 1	HOURS WORKED: 10	CASING SIZE: HW	CASING USED: 15.0	TYPE OF COREBARREL:	
No. Of Road Signs Used: 4	Bags Of Grout Used:	Well Size:	Screen Size:	Riser:	
Note 1: 1/2 bag asphalt					
S.#: SAMPLE	PEN: PENETRATION	REC: RECOVERY	SC: STRATA CHANGE		

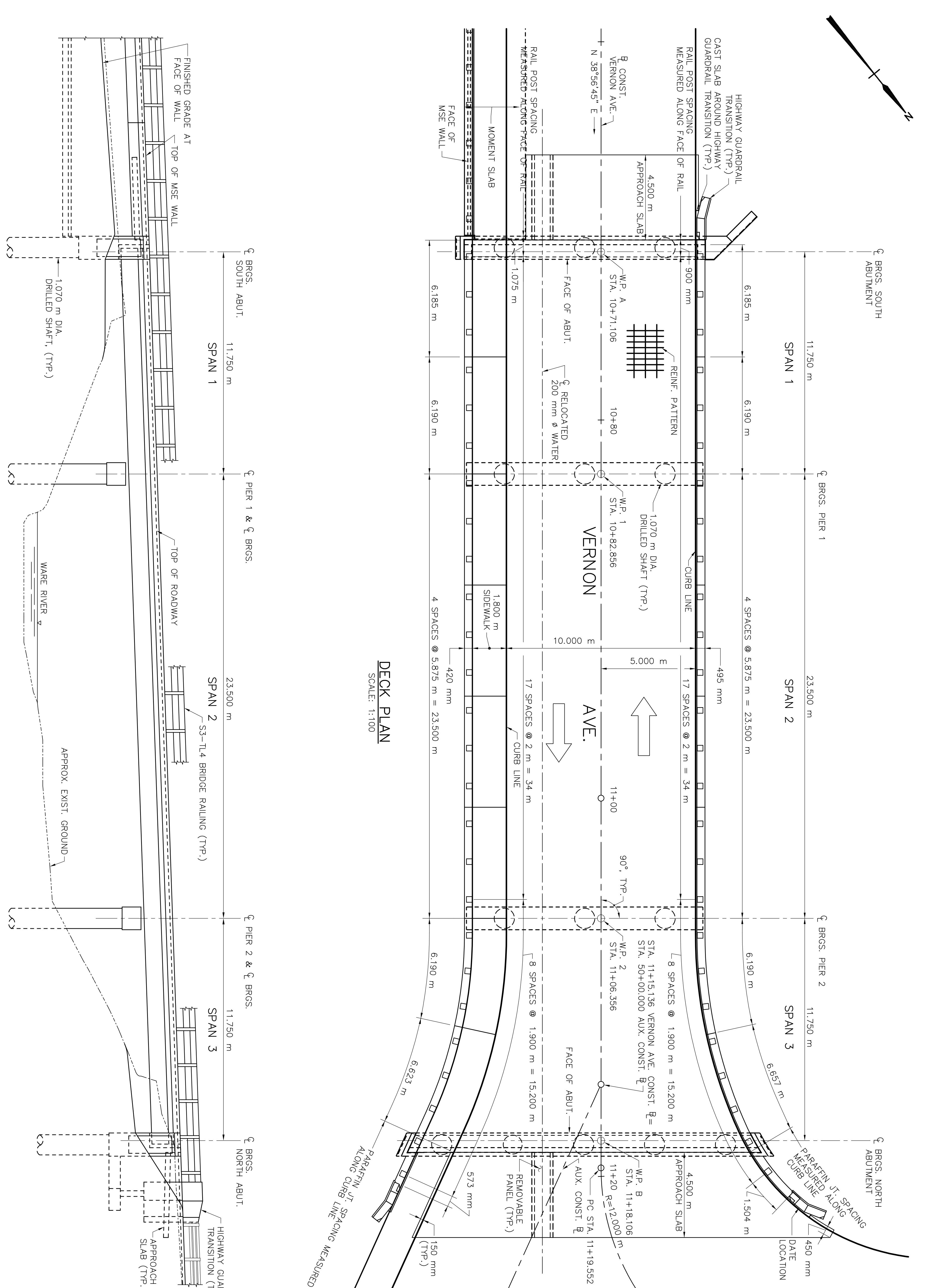
PHONE: (603) 437-1610		NEW HAMPSHIRE BORING, INC.		FAX: (603) 437-4034	
P.O. BOX 65, DERRY, NH 03038		E MAIL: mh@nhboring.com		FAX: (603) 437-4034	
Boring #: B-2		Project Address: Vernon Avenue over Ware River	Contract #31240	Station: 31-384	= 11+18.81
Date Start: 7/30/02		City: Boscawen	Offset: 24ft	Offset: 4.60ft	= 4.34 m RT
Casing:		Start Time: 7:30AM	Date End: 7/31/02	End Time: 4:30PM	End Time: 4:30PM
Type: HW		Size: 1m ID.	SS	Size: 34.9mm ID.	
Hammer: 63.5kg		Fall: 600 mm Length	Hammer: 63.5kg	Fall: 600 mm Length	
<b>GROUNDWATER OBSERVATION - METRIC, SCALE</b>					
Date: 7/30/02	Time: 5:00	Depth: 4.00m	Casing: Hammer - METRIC, SCALE	Stabilization Per:	
DP	S#	DEPTH (m)	PEN (m)	REC	BLOWS/15m
—	S-1	0 - 0.6	0.6	0.28	9-14-6-17
—	S-2	1.5 - 2.1	.6	0.13	22-6-4-6
—	S-3	3.0 - 3.6	.6	0.457	6-5-1-1-1
—	S-4	4.5 - 5.1	.6	0.42	13-17-19-19
—	S-5	6.0 - 6.6	.6	0.6	17-24-27-34
—	S-6	7.5 - 8.1	.6	0.6	12-16-24-23
—	S-7	9.0 - 9.6	.6	0.6	14-19-28-33
—	S-8	10.5 - 10.63	.13	1.13	120-13
—	S-9	12.0 - 12.08	.08	.06	120-108
—	S-10	13.5 - 13.88	.60	.38	16-34-50-08
—	S-11	15.0 - 15.13	.13	.13	120-13
—	S-12	16m			
<b>DRILLER'S NOTE</b>					
Remarks: PAGE 1 OF 1	HOURS WORKED: 8	CASING SIZE: HW	CASING USED: 14.9	TYPE OF COREBARREL:	54.7
No. Of Road Signs Used: 4	Bags Of Grout Used:	Well Size:	Screen Size:	Riser:	
Note 1: 1/2 bag asphalt					
S.#: SAMPLE	PEN: PENETRATION	REC: RECOVERY	SC: STRATA CHANGE		

**BORING DATA**

SCALE 1:50

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	BR-001S(74)X	2007	19	38
PROJECT FILE NO. 60356				
ISSUED FOR CONSTRUCTION				
DATE: SEPT. 8, 2007				
DESCRIPTION: USE ONLY PRINTS OF LATEST DATE				

FS & T FILE NO.	DES.	PKS	CHK.	SCW
VK-031	DR.	RAT	CHK.	JFL
ENGINEER IN CHARGE	EST.	XXX	CHK.	XXX



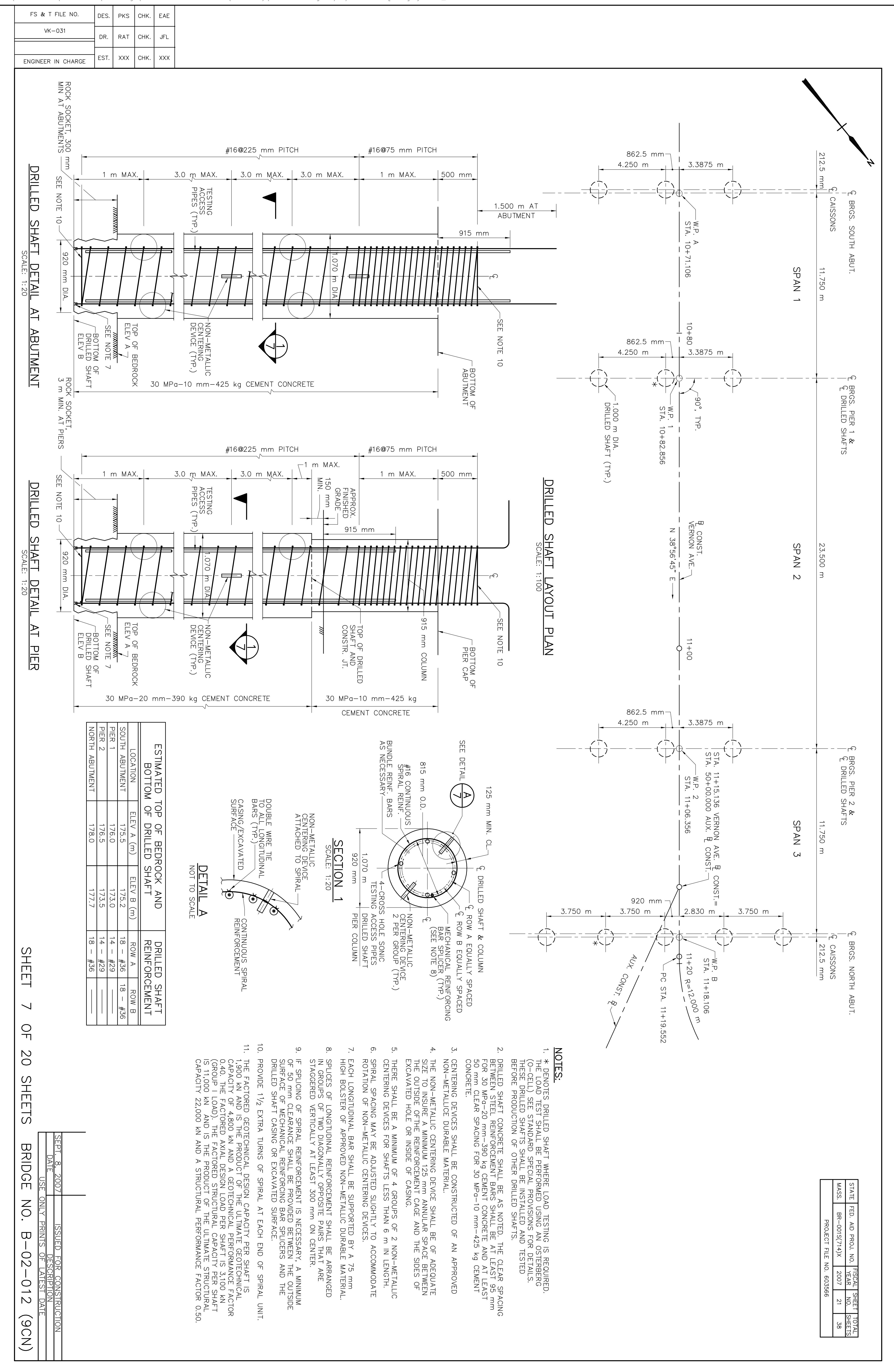
STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	BR-001S(714)X	2007	20	38
PROJECT FILE NO. 603566				

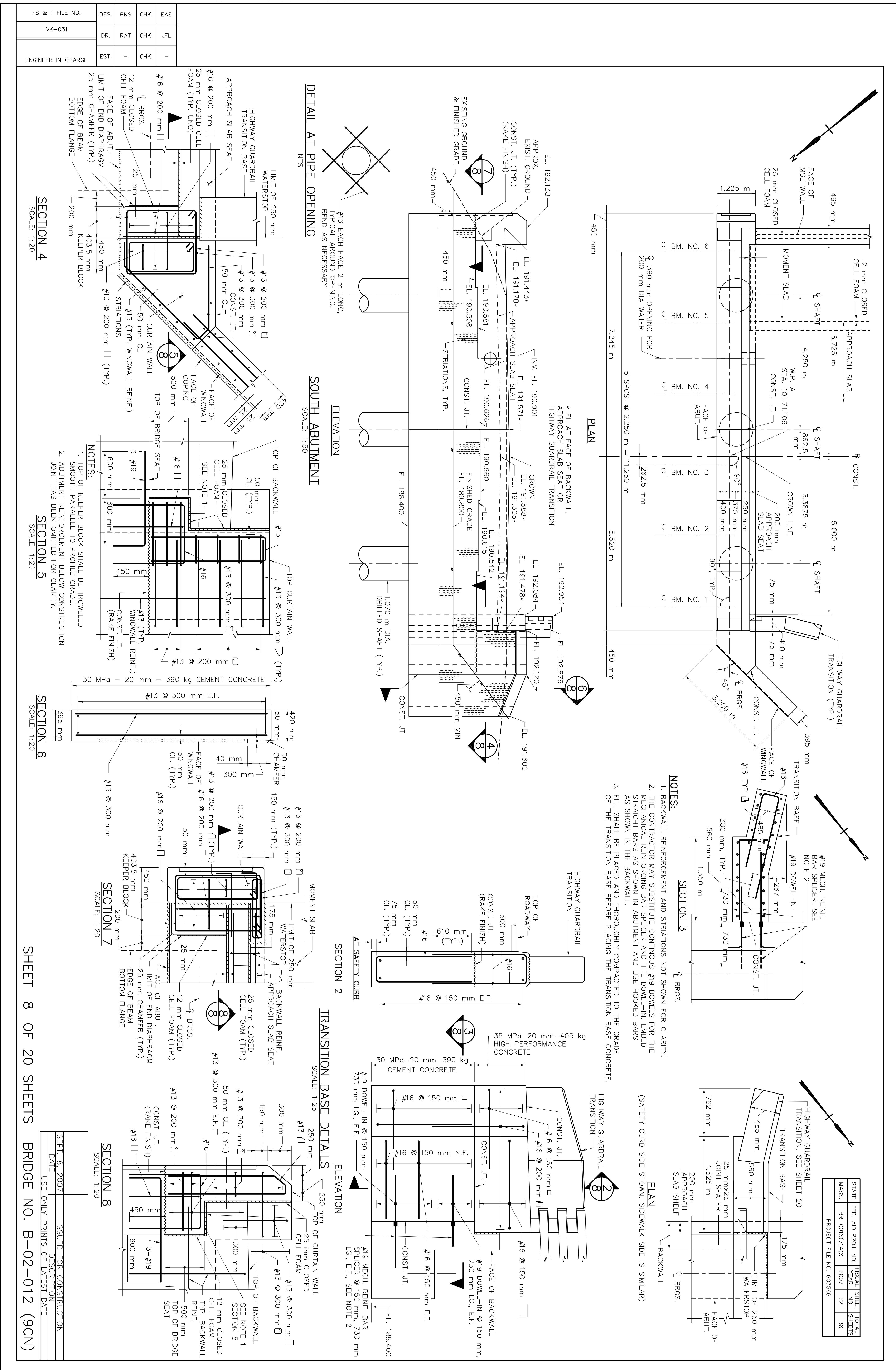
**NOTES:**

1. FOR GENERAL PLAN, SEE SHEET NO. 1.
2. FOR GENERAL NOTES, SEE SHEET NO. 2.

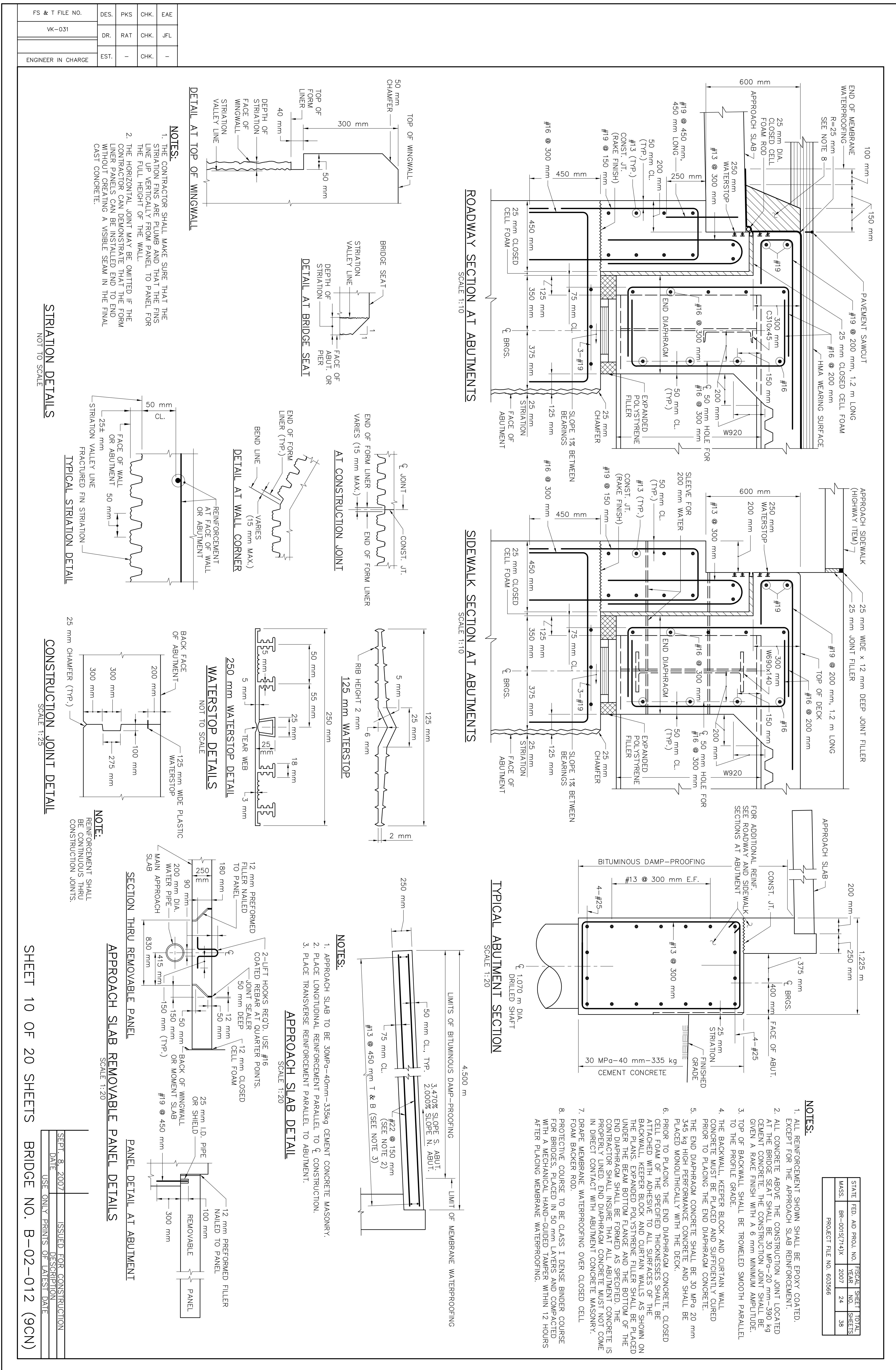
SHEET 6 OF 20 SHEETS

BRIDGE NO. B-02-012 (9CN)

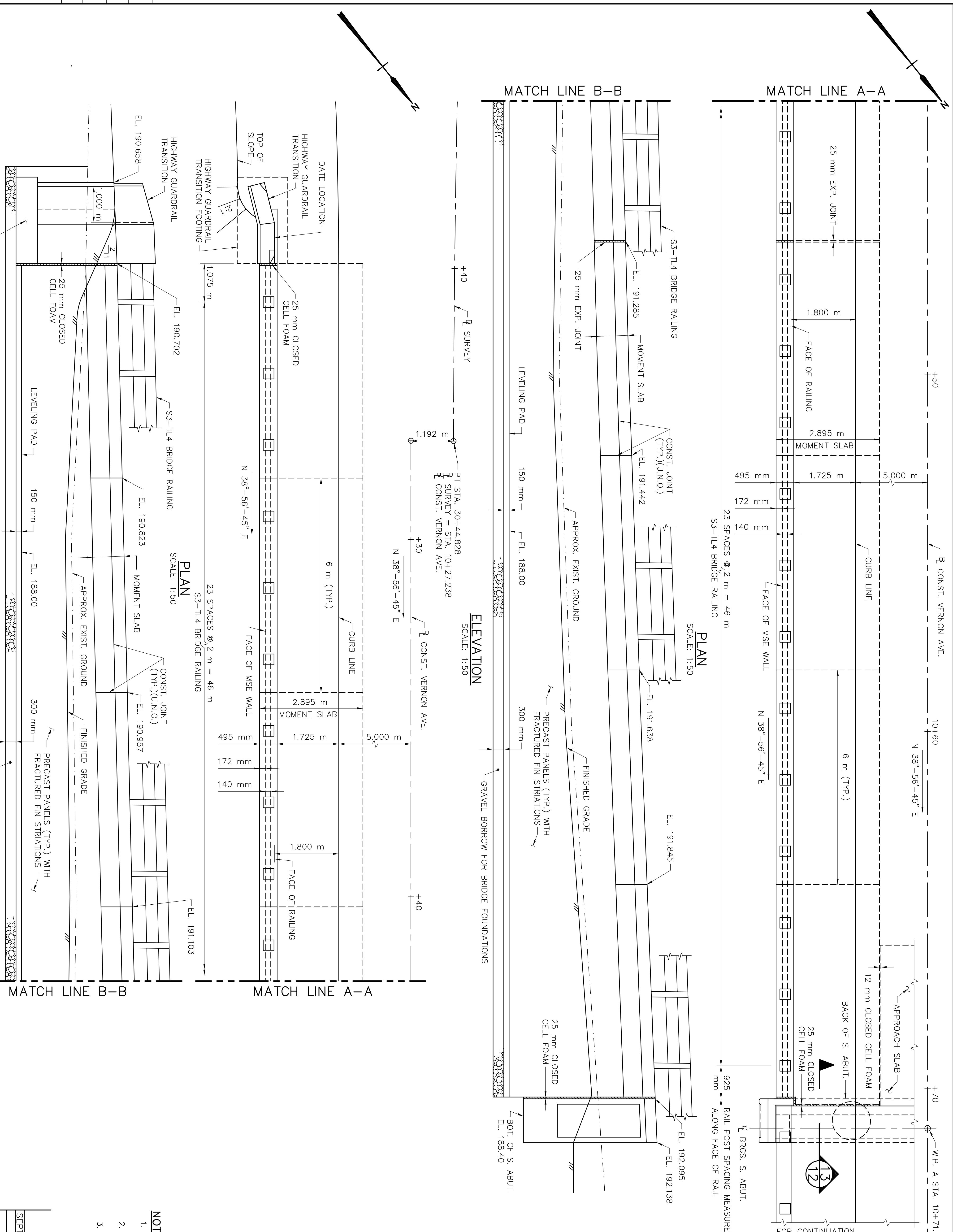








FS & T FILE NO.	DES.	JF
VK-031	DR.	RA
ENGINEER IN CHARGE	EST.	XX



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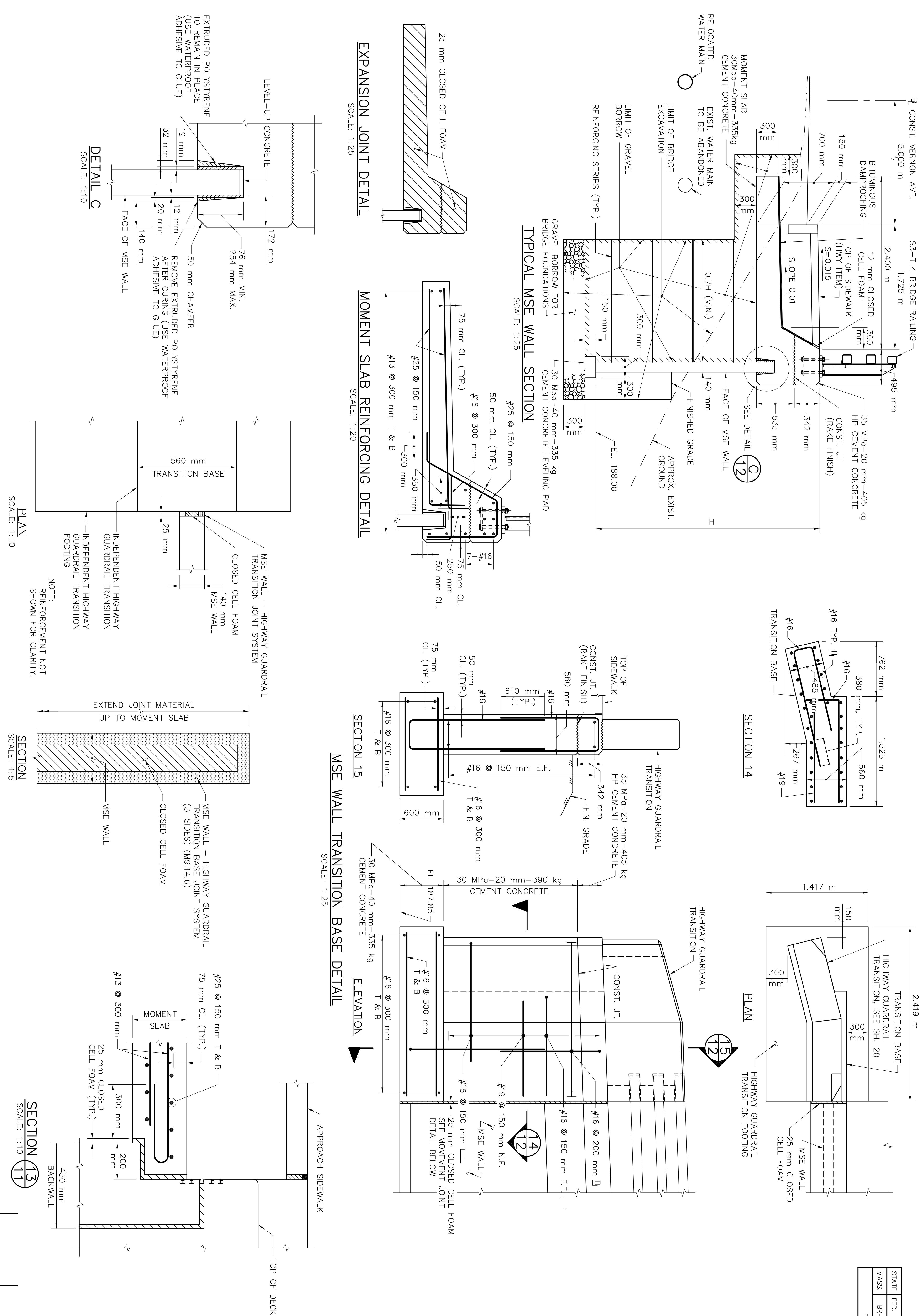
## NOTES

- NOTES:**

  1. FOR TYPICAL WALL SECTION AND DETAILS,  
SEE SHEET NO. 12.
  2. FOR FRACTURED FIN STRIATION DETAILS,  
SEE SHEET NO. 10.
  3. U.N.O. = UNLESS NOTED OTHERWISE.

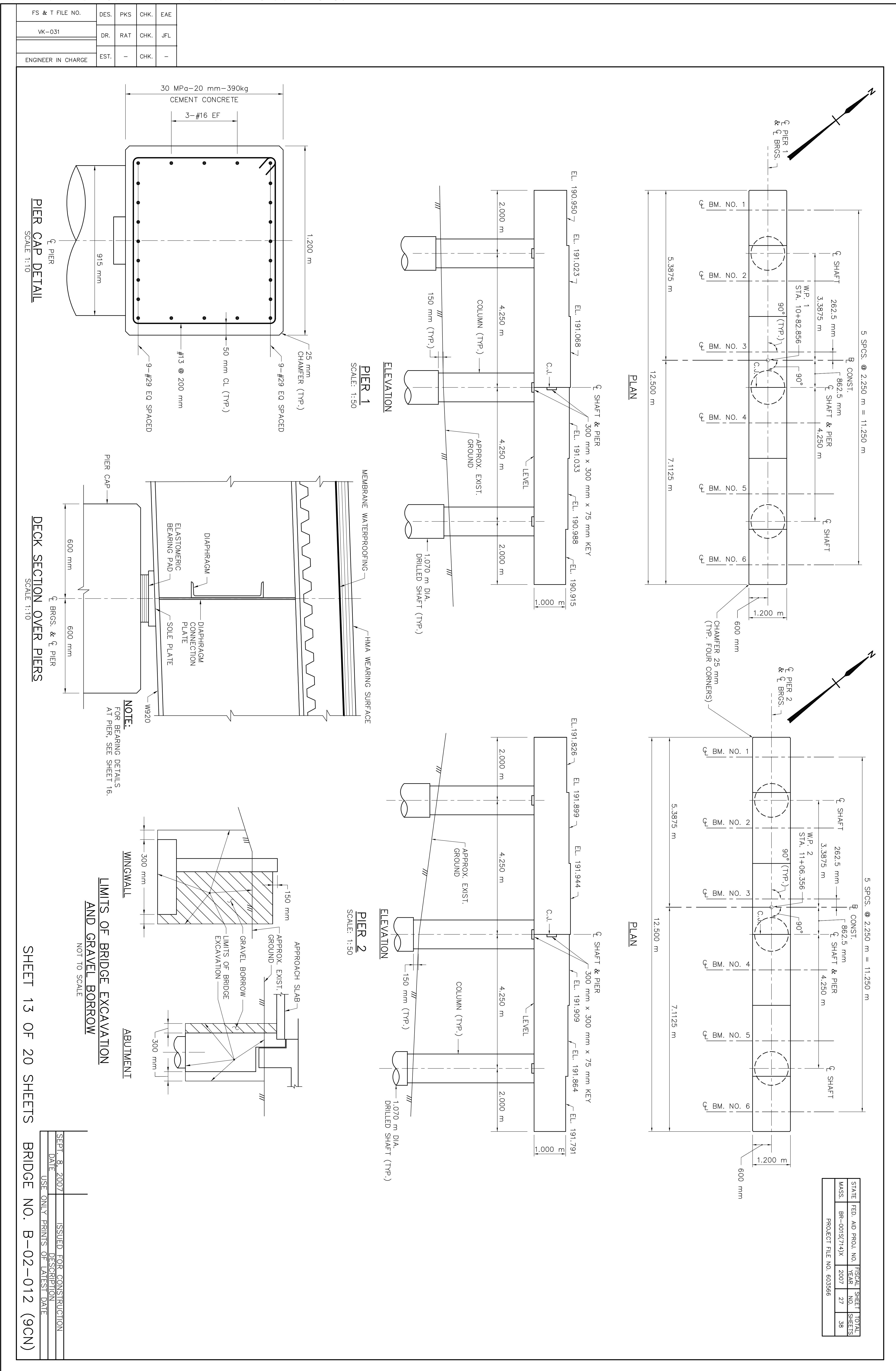
STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
MASS.	BR-001S(714)X	2007	25	38
PROJECT FILE NO. 603566				

FS & T FILE NO.	DES.	JFL	CHK.	JFL
VK-031	DR.	RAT	CHK.	JFL
	EST.	XXX	CHK.	XXX
ENGINEER IN CHARGE				



STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	BR-001S(714)X	2007	26	38

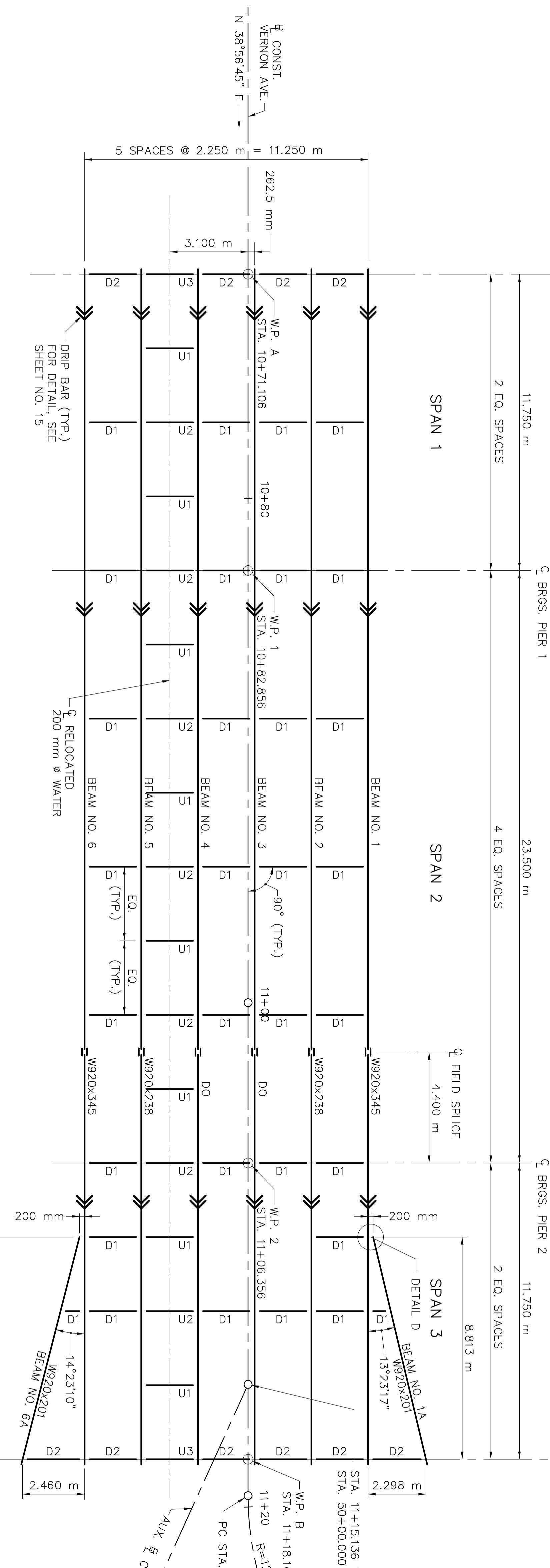
PROJECT FILE NO. 6033566



FS & T FILE NO.	DES.	PKS	CHK.	SCW
VK-031	DR.	RAT	CHK.	JFL
ENGINEER IN CHARGE	EST.	XXX	CHK.	XXX

—  
C  
BRGS. SOUTH  
ABUTMENT

£ BRGS. NORTH  
— ABUTMENT



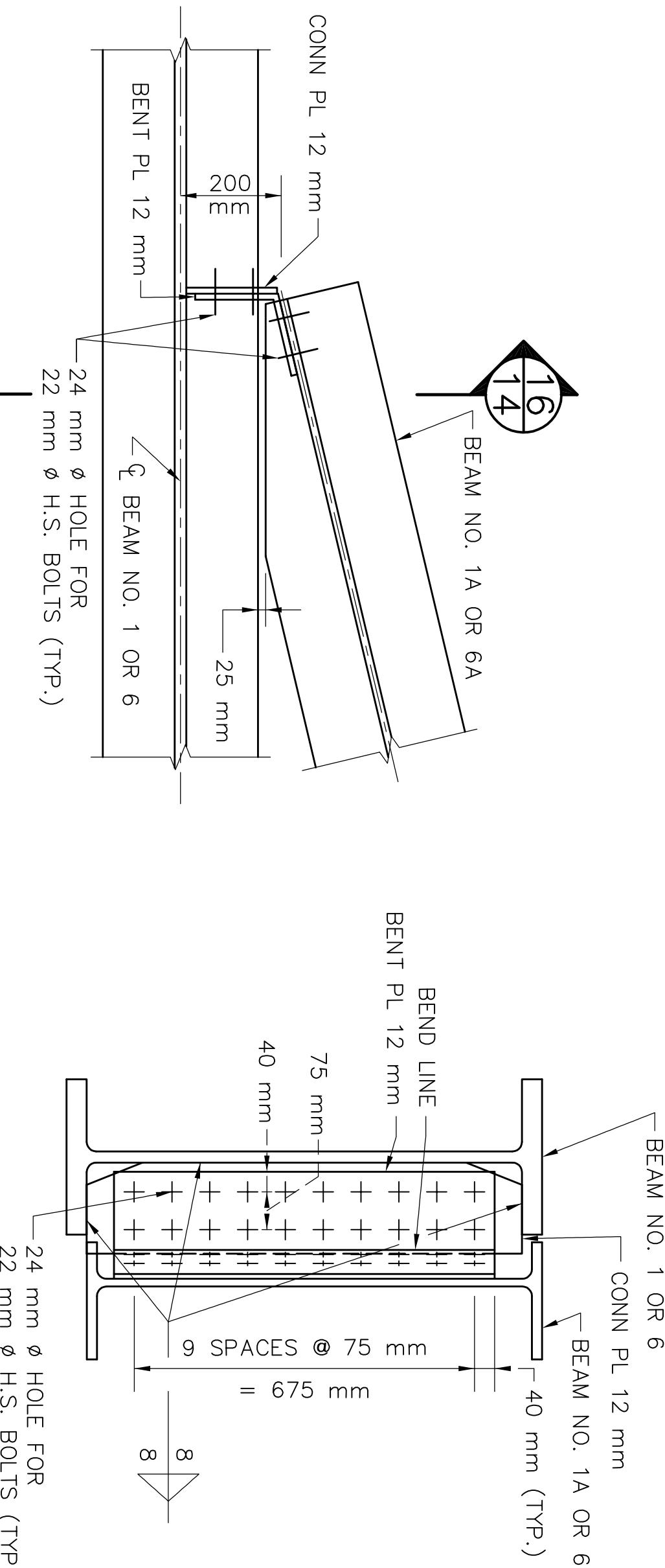
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**NOTE**

- =

  1. ALL STEEL SHALL CONFORM TO AASHTO M270M GRADE 345W.
  2. ALL CONNECTIONS TO BE MADE WITH M22 $\phi$  BOLTS IN 24 mm $\phi$  HOLES.
  3. DIAPHRAGMS ARE PARALLEL TO C BRGS.
  4. SEE SHEET NO. 13 FOR DIAPHRAGM AND UTILITY SUPPORT DETAILS.
  5. ALL STEEL BEAMS ARE MAIN LOAD CARRYING MEMBERS.
  6. ABUTMENTS AND PIERS ARE PARALLEL.
  7. ENDS OF BEAMS, ALL STIFFENERS AND ALL CONNECTION PLATES SHALL BE PLUMB UNDER FULL DEAD LOAD.

FRAMING PLAN



## SECTION 16

SCALE: 1:10

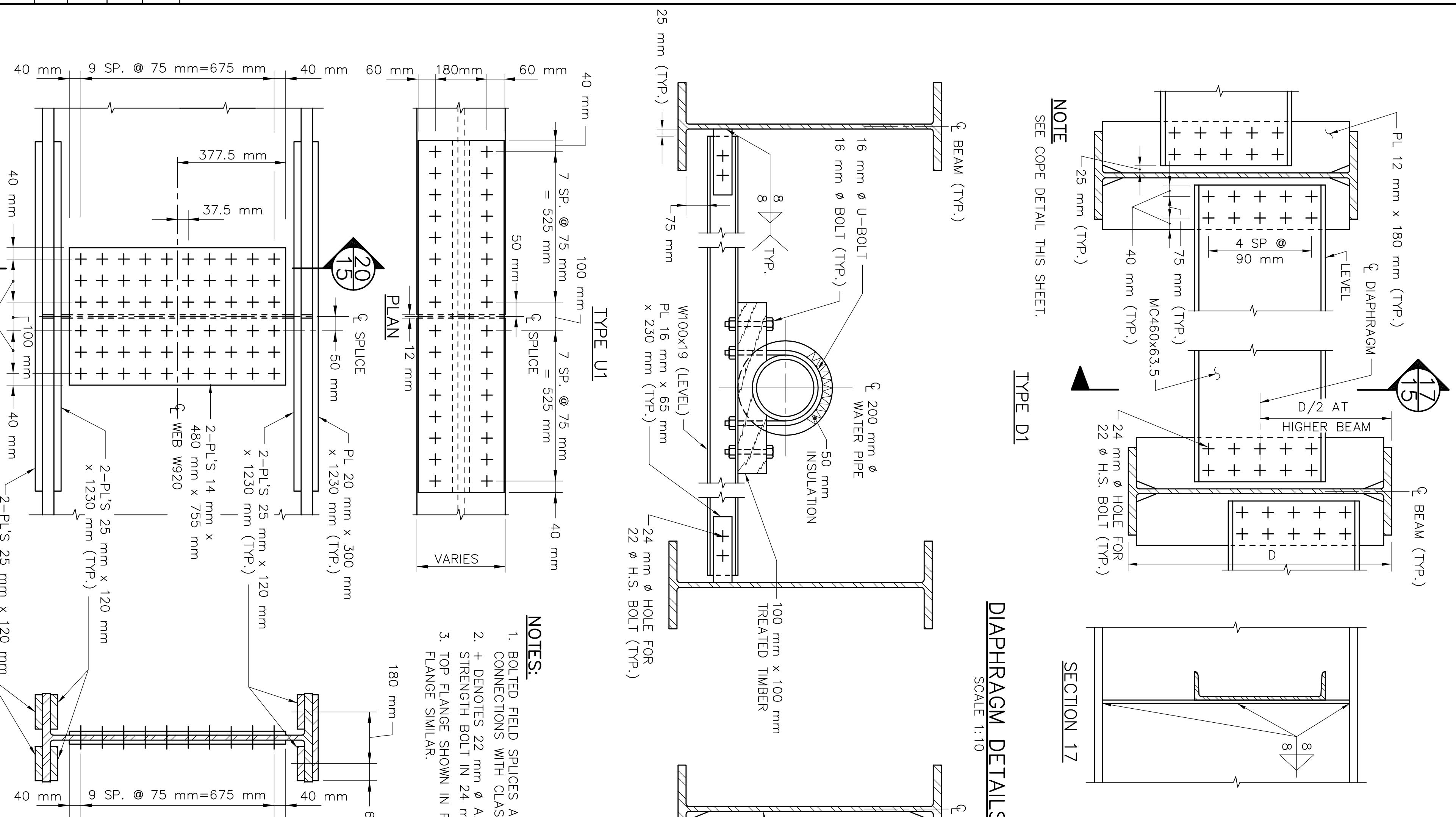
SHEET 14 OF 20 SHEETS

BRIDGE NO. B-02-012 (9CN)

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	BR-001S(714)X	2007	28	38
PROJECT FILE NO. 603566				

FS & T FILE NO.		DES.	PKS	CHK.	SCW
DR.	RAT	CHK.	JFL		
VK-031	-	CHK.	-		

ENGINEER IN CHARGE

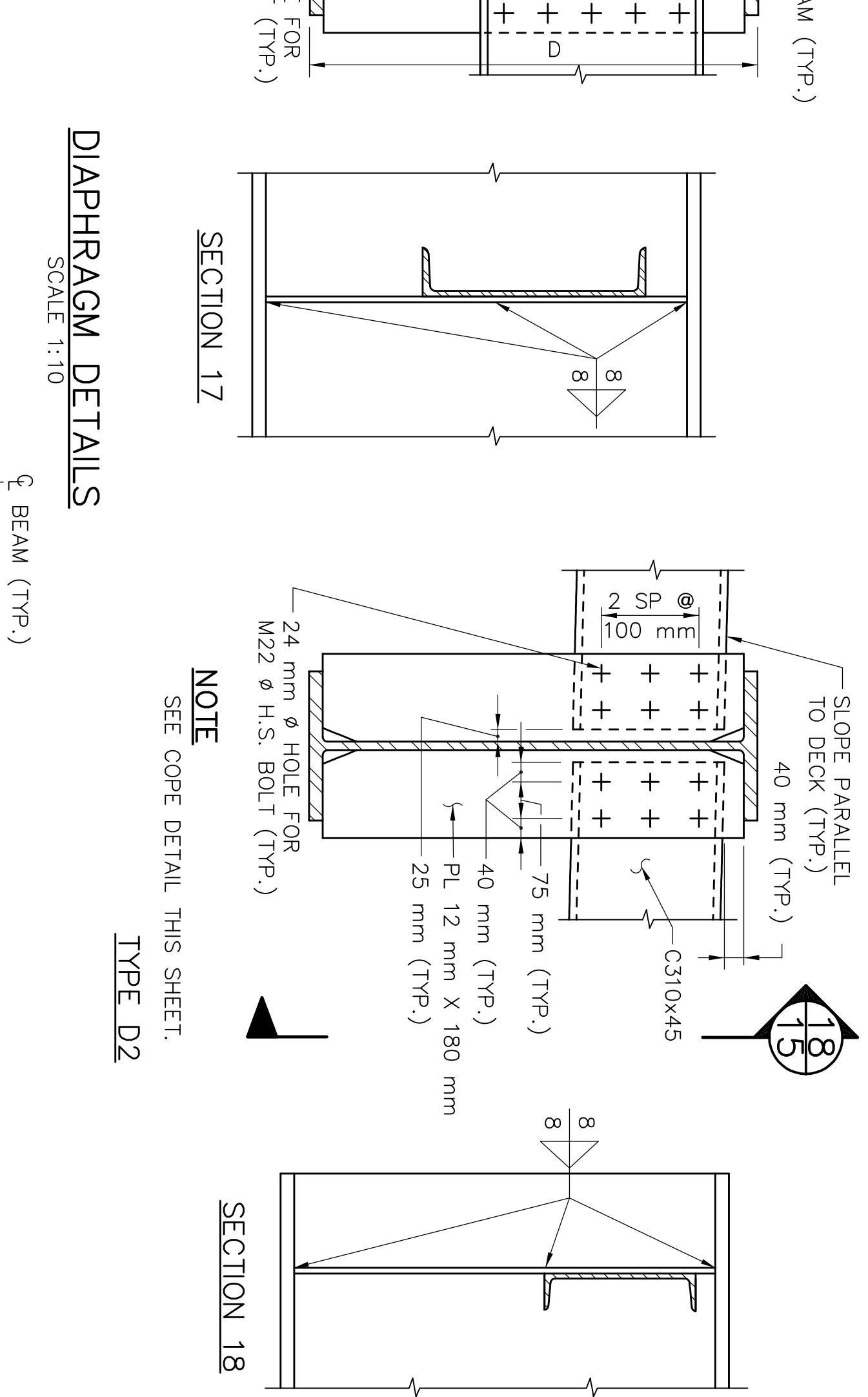


NOTE  
SEE COPE DETAIL THIS SHEET.

TYPE D1

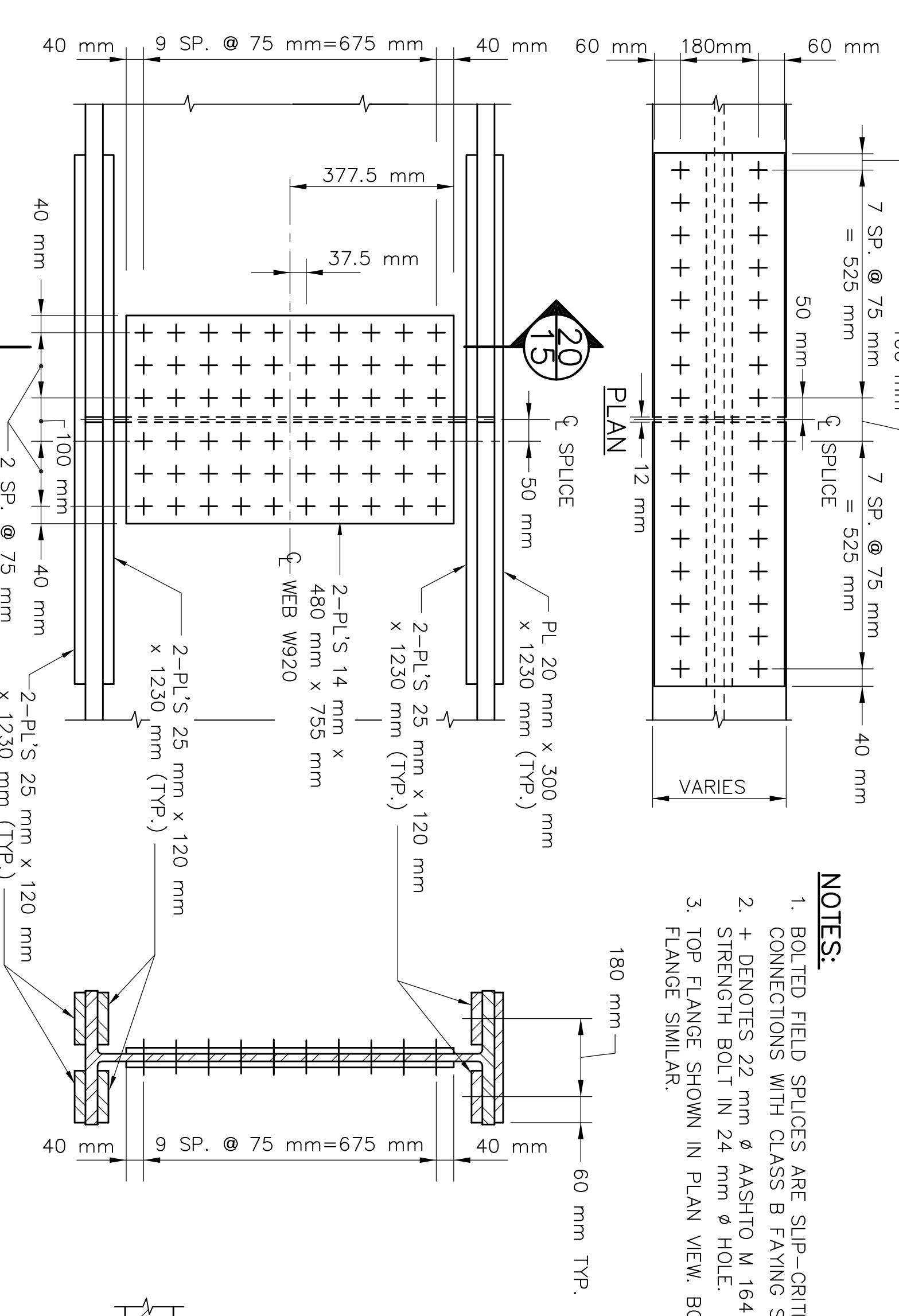
### DIAPHRAGM DETAILS

SCALE 1:10

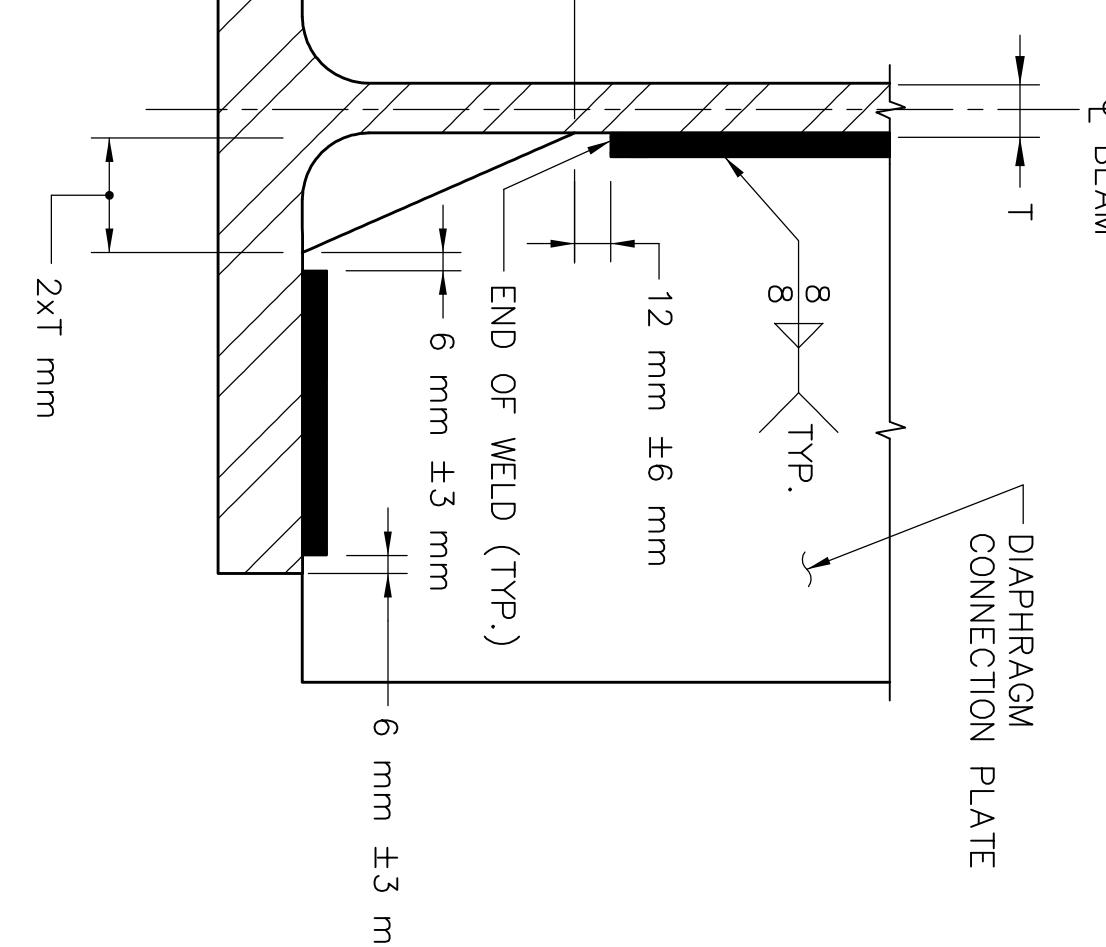


NOTE  
SEE COPE DETAIL THIS SHEET.

TYPE D2



- NOTES:
1. BOLTED FIELD SPLICES ARE SLIP-CRITICAL CONNECTIONS WITH CLASS B FACING SURFACES.
  2. + DENOTES 22 mm  $\phi$  AASHTO M 164 HIGH STRENGTH BOLT IN 24 mm  $\phi$  HOLE.
  3. TOP FLANGE SHOWN IN PLAN VIEW. BOTTOM FLANGE SIMILAR.

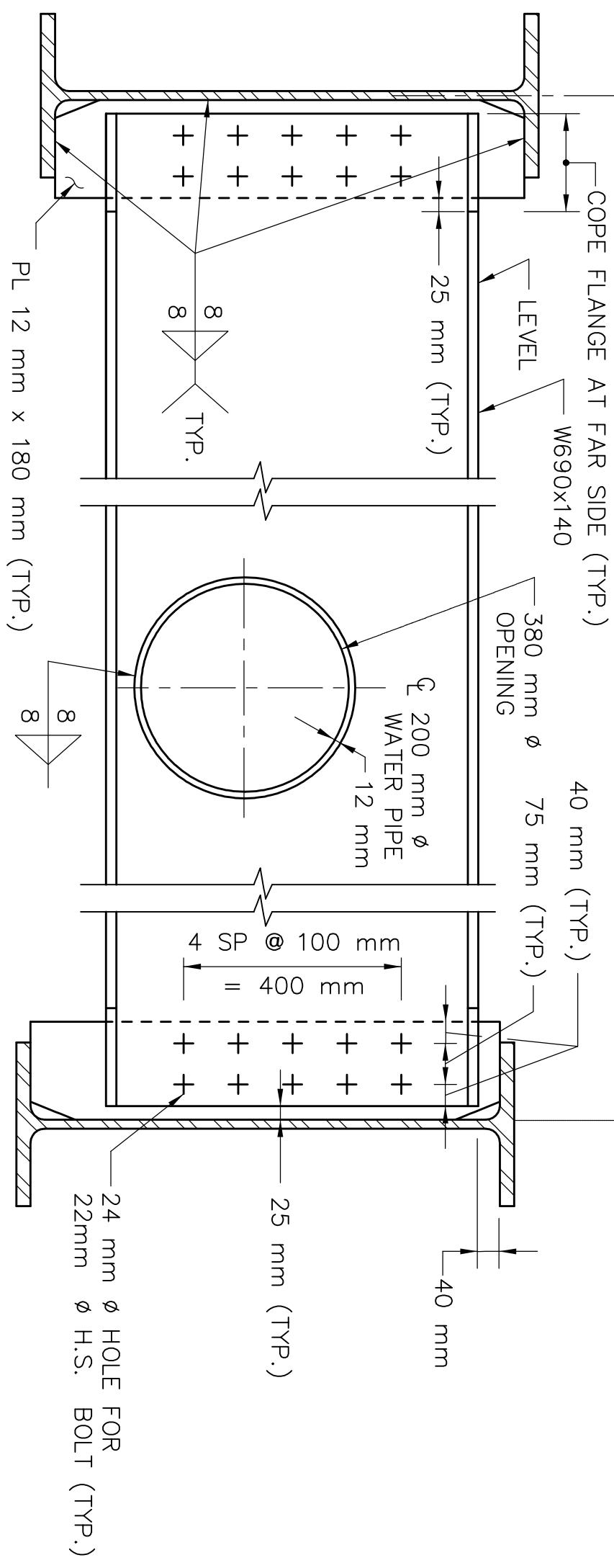


NOTE  
SEE COPE DETAIL THIS SHEET.

TYPE U2

### UTILITY SUPPORT DETAILS

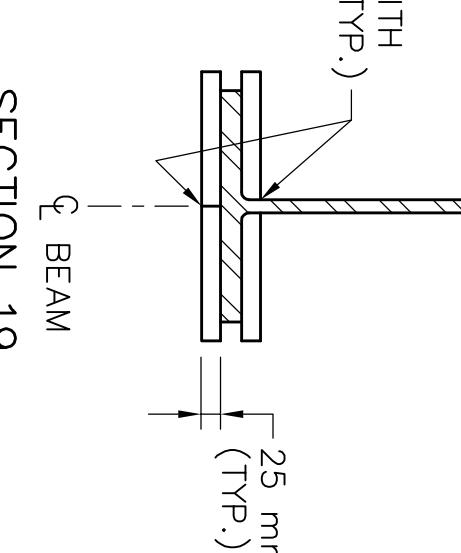
SCALE 1:10



NOTE:  
DRIP BARS SHALL BE LOCATED ON THE UPGRADE SIDE OF EACH C BRGS. FOR ALL BEAMS.

### DRIP BAR DETAIL

SCALE 1:10



SECTION 19

PLAN

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	BR-001S(714)X	2007	29	38

PROJECT FILE NO.
60356

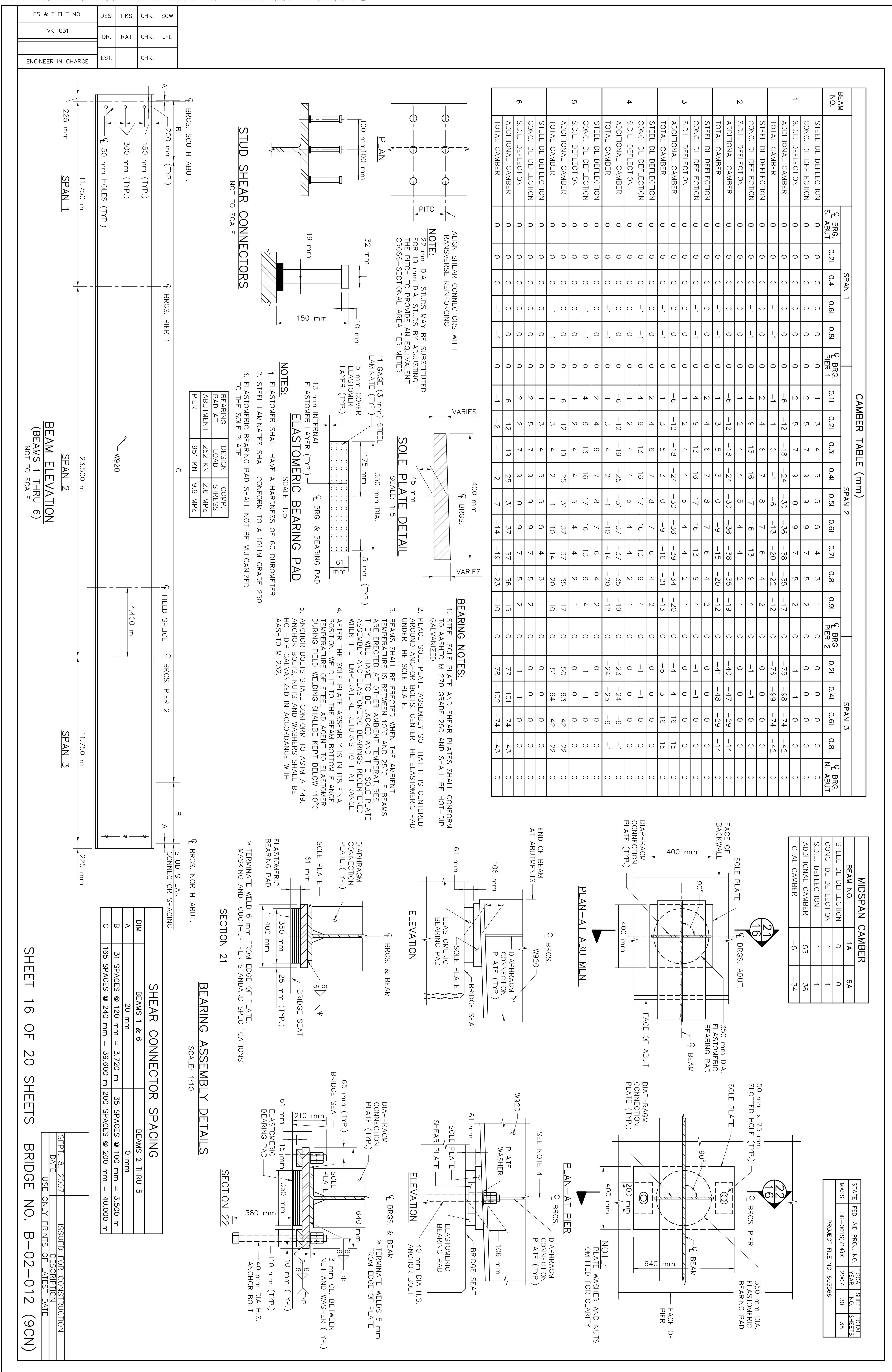
### BEAM SPLICE DETAIL

ELEVATION  
SCALE 1:10

### COPE DETAIL

SECTION 20

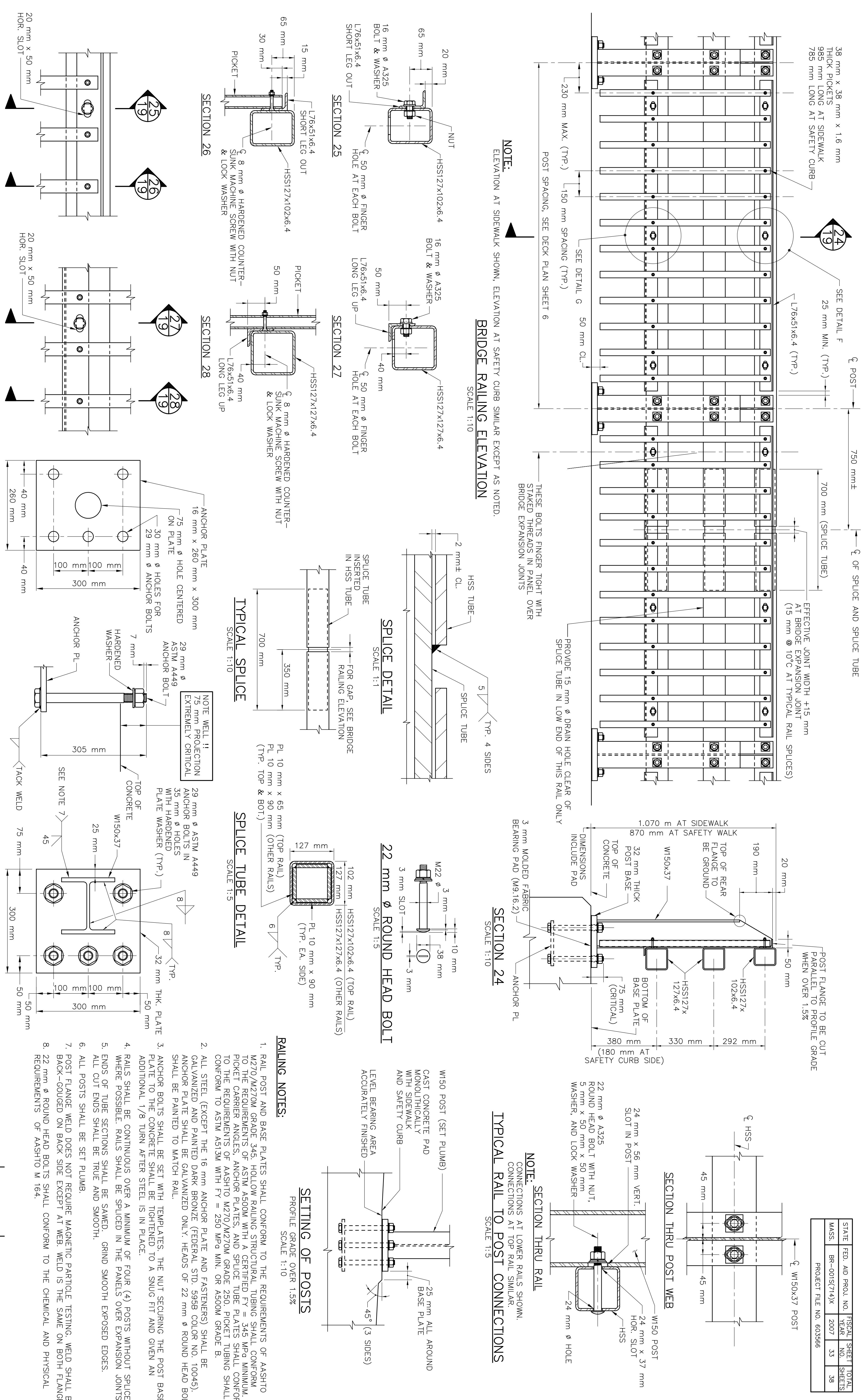
NOT TO SCALE







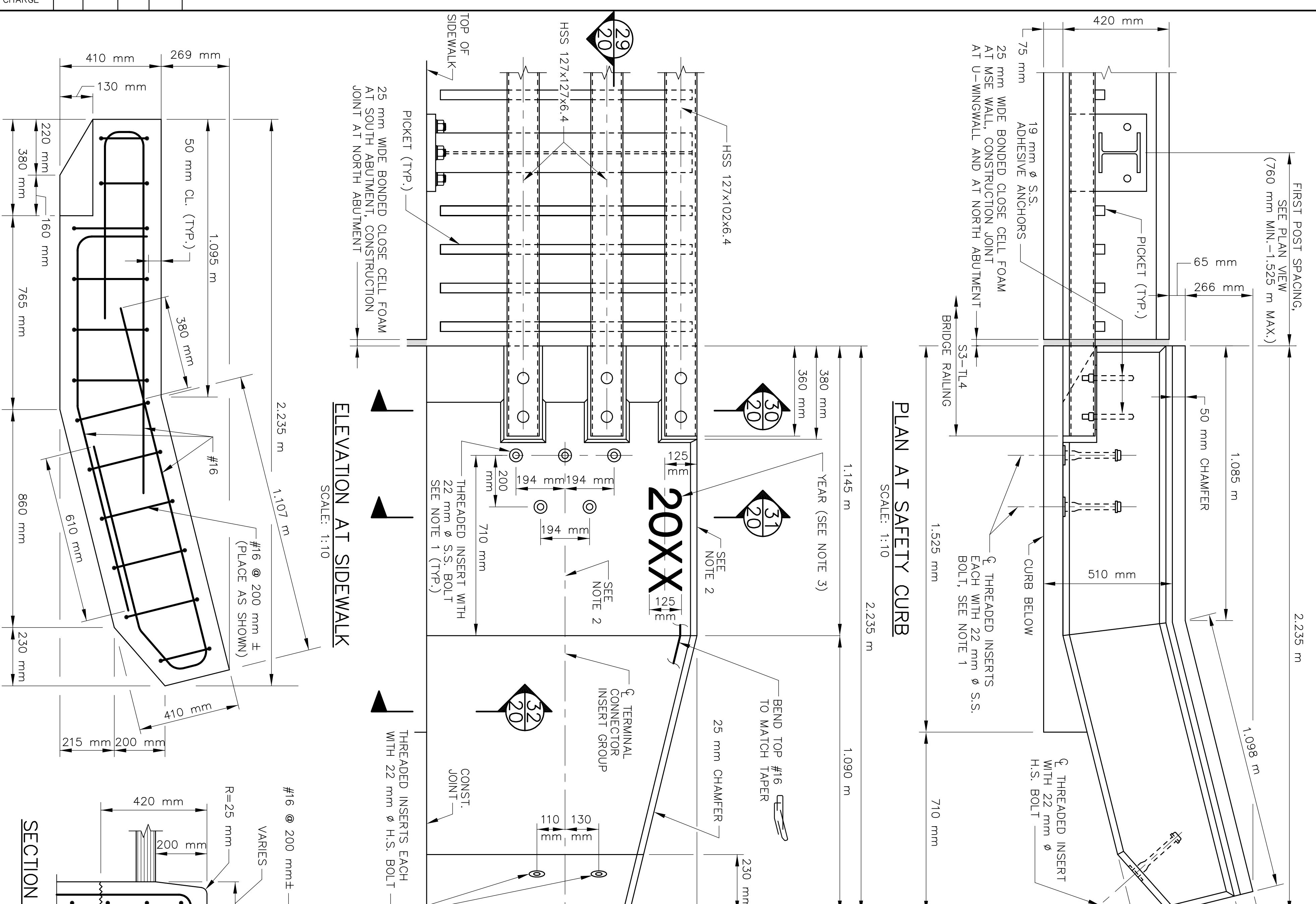
FS & T FILE NO.
VK-031
ENGINEER IN CHARGE



STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	BR-001S(714)X	2007	33	38

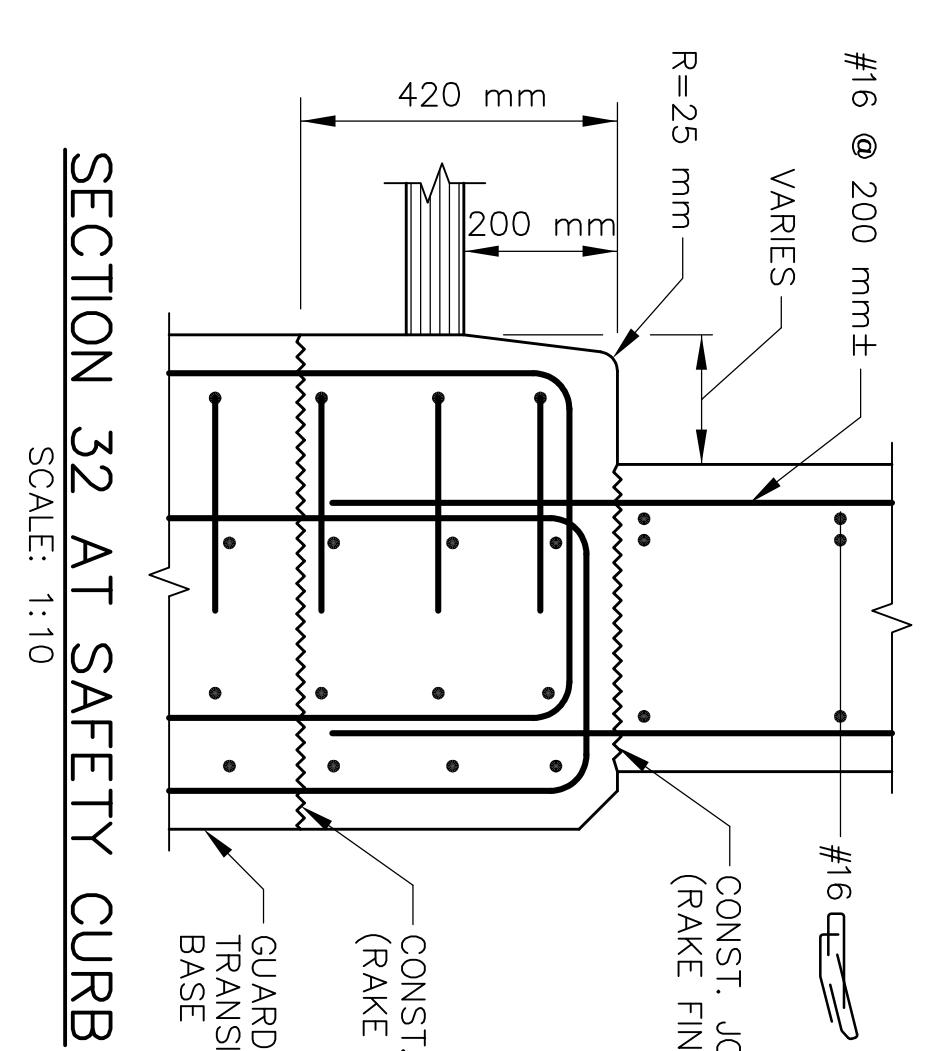
PROJECT FILE NO. 603566

FS & T FILE NO.	VK-031
DES.	-
DR.	RAT
CHK.	CHK.
EST.	XXX
ENGINEER IN CHARGE	



PLAN AT SAFETY CURB

SCALE: 1:10



ELEVATION AT SIDEWALK

SCALE: 1:10

SECTION 31 AT SAFETY CURB

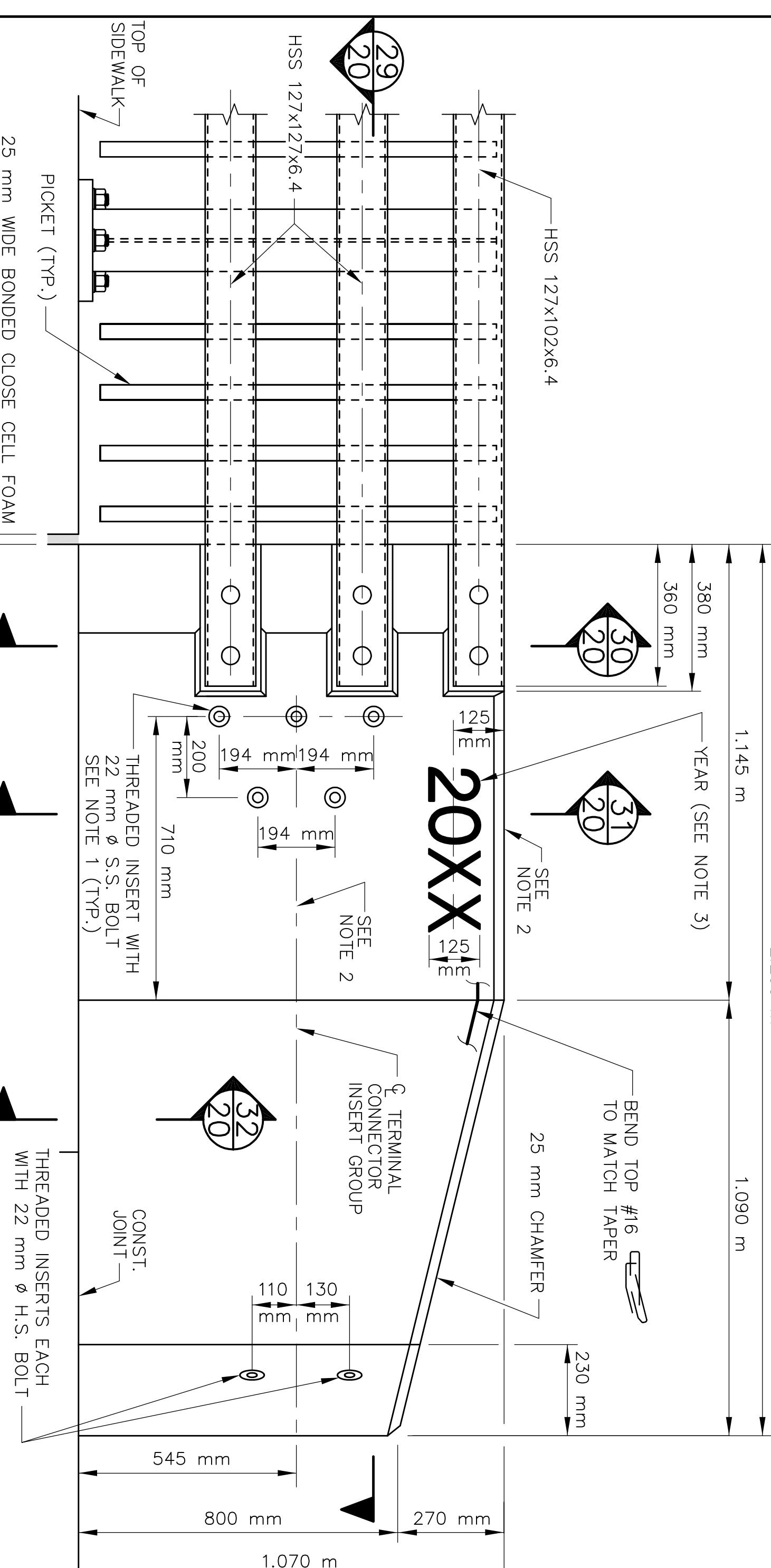
SCALE: 1:10

SECTION 30 AT SAFETY CURB

SCALE: 1:10

RAIL ATTACHMENT

SCALE: 1:10



SECTION 31 AT SAFETY CURB

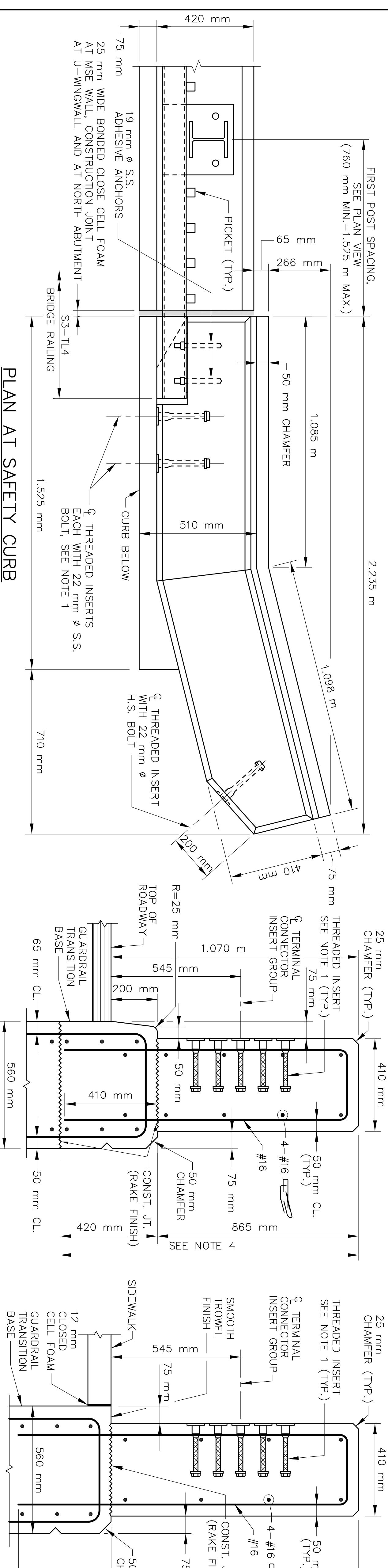
SCALE: 1:10

SECTION 30 AT SIDEWALK

SCALE: 1:10

RAIL ATTACHMENT

SCALE: 1:10



SECTION 32 AT SAFETY CURB

SCALE: 1:10

SECTION 32 AT SIDEWALK

SCALE: 1:10

**NOTES:**

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING AN ULTIMATE SHEAR CAPACITY OF 91 KN PER 22 mm  $\phi$  x 40 mm LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL INSERTS FOR 22 mm  $\phi$  S.S. BOLTS SHALL BE CAST-IN-PLACE AND GALVANIZED.
2. TOP OF GUARDRAIL TRANSITION, TERMINAL CONNECTOR INSERT GROUP, AND RAIL POCKETS SHALL BE SLOPED TO MATCH THE PROFILE GRADE.
3. USE LATEST CONTRACT COMPLETION DATE IN EFFECT WHEN THE FIRST TRANSITION IS CAST. USE THIS YEAR FOR ALL GUARDRAIL TRANSITIONS.
4. ALL CONCRETE FOR THE HIGHWAY GUARDRAIL TRANSITION SHALL BE 35 MPa, 20 mm, 405 kg HIGH PERFORMANCE CEMENT CONCRETE.

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
BR-001S(714)X	2007	34	38	

PROJECT FILE NO. 60356
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SECTION 29

SCALE: 1:10

HIGHWAY GUARDRAIL TRANSITION – S3-TL4 RAILING

SHEET 20 OF 20 SHEETS

BRIDGE NO. B-02-012 (9CN)

SEPT. 8, 2007	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

USE ONLY PRINTS OF LATEST DATE