

GENERAL NOTES

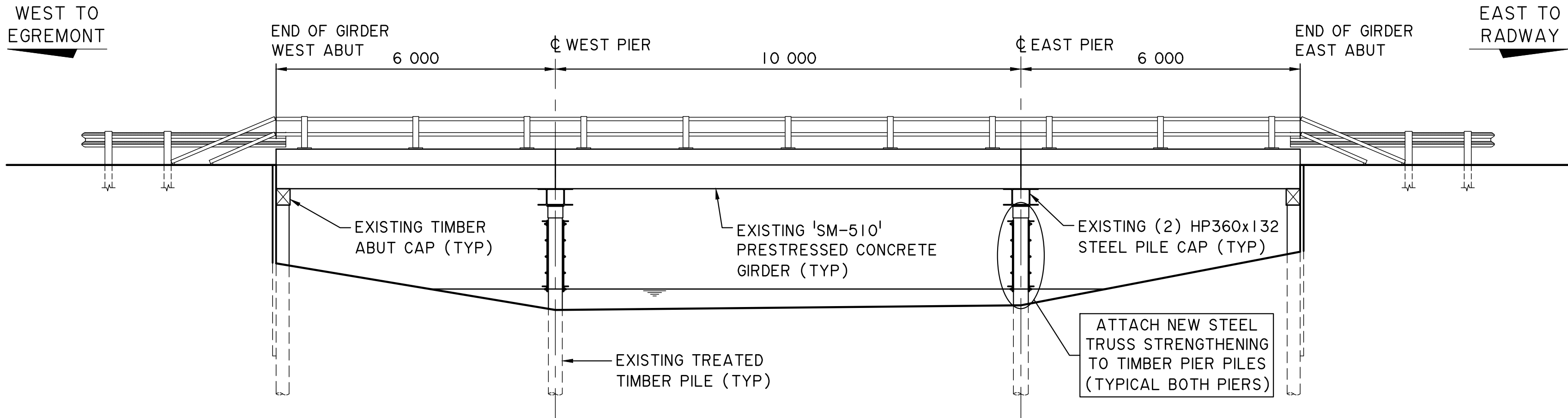
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- DIMENSIONS SHOWN ON DRAWINGS ARE BASED ON FIELD INSPECTIONS AND AVAILABLE REFERENCE DRAWINGS. CONTRACTOR SHALL FIELD CONFIRM THE REQUIRED DIMENSIONS FOR FABRICATED ITEMS PRIOR TO FABRICATION.

MATERIALS

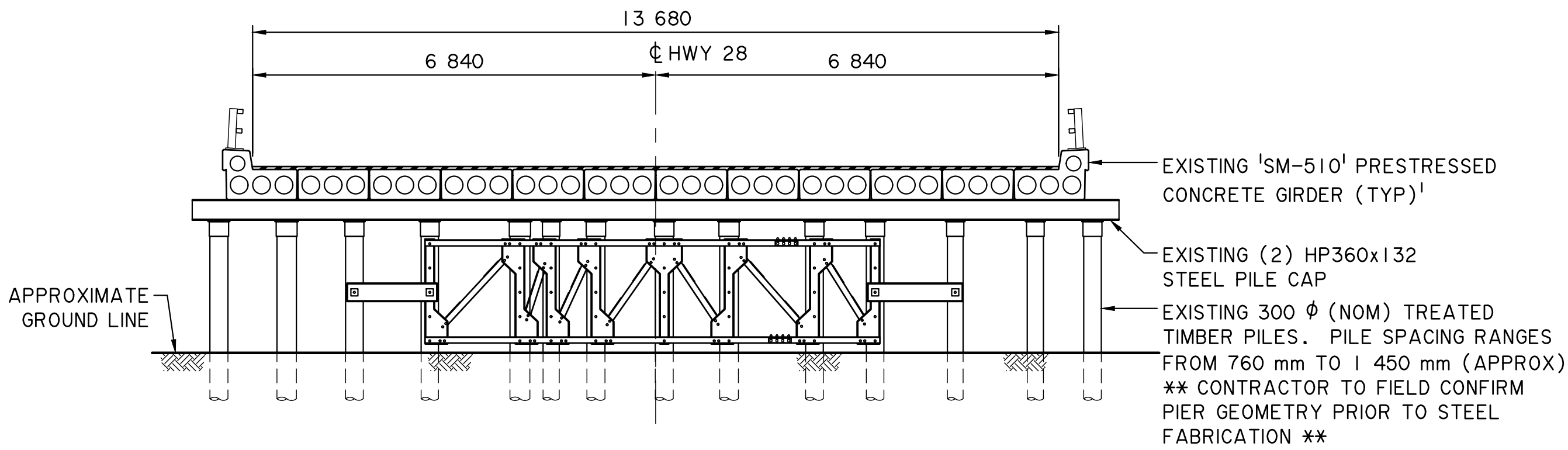
- ALL STRUCTURAL STEEL SHALL BE GALVANIZED AND SHALL CONFORM TO THE REQUIREMENTS OF CSA G40.20-300W.
- ALL BOLTS SHALL CONFORM TO ASTM SPECIFICATION A325M. EXISTING BOLTS SHALL NOT BE REUSED.
- ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF AWS SPECIFICATION D1.5.

CONSTRUCTION

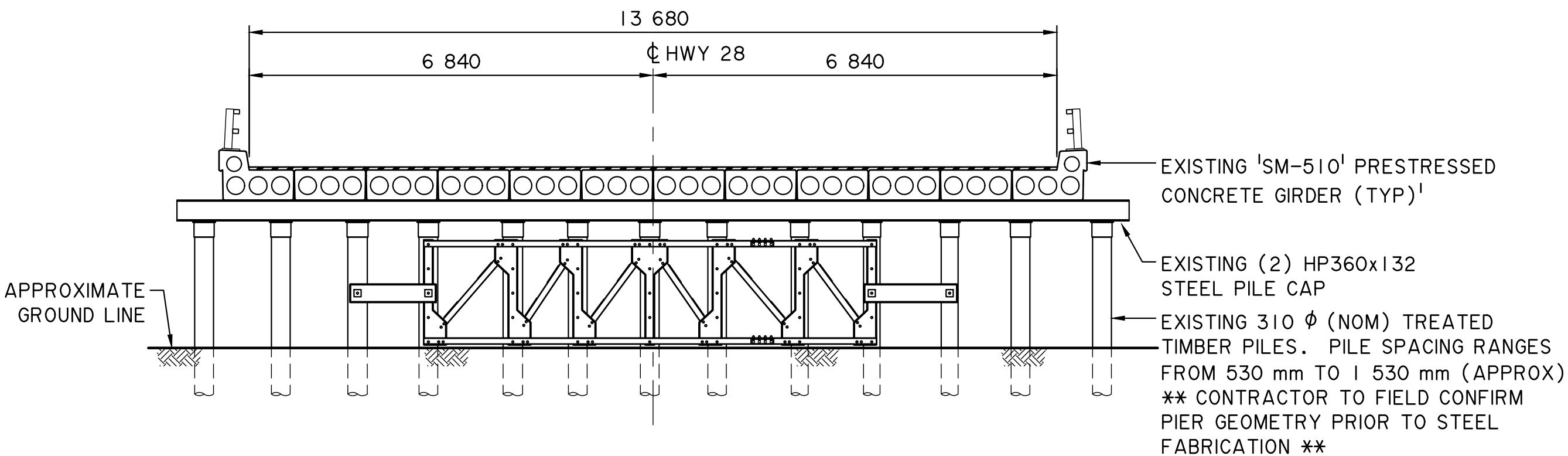
- HOLES IN STRUCTURAL STEEL MEMBERS MAY BE FIELD DRILLED OR SHOP DRILLED.
- ALL CUTS AND ABRASIONS IN THE TREATED TIMBER SHALL, AFTER CAREFUL TRIMMING, BE COATED WITH TWO APPLICATIONS OF CREOSOTE. UNCOVERED CUTS AND ABRASIONS SHALL THEN BE THOROUGHLY COVERED WITH HOT ROOFING PITCH.
- BOLT HOLES IN THE TREATED TIMBER SHALL BE CAREFULLY TREATED WITH CREOSOTE. UNFILLED HOLES SHALL BE PLUGGED WITH OVERSIZE STEEL DOWELS.



ELEVATION
1:75



WEST PIER ELEVATION
(LOOKING EAST) 1:75



EAST PIER ELEVATION
(LOOKING WEST) 1:75

DESCRIPTION	DRAWING
REFERENCE DRAWINGS	

3	REHABILITATION - SHEET 2	3
2	REHABILITATION - SHEET 1	2
1	REHABILITATION LAYOUT	1
SHEET	DESCRIPTION	DRAWING
INDEX		

CONSULTANT

GeoMetrix Group Engineering
STRUCTURAL CONSULTING ENGINEERING

JOB#: 19-0960

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNER

DATE_____

CHECKER

DATE_____

△			
△			
△			
△			
△	20-01-08	ISSUED FOR QUOTE	GO
REV	DATE	REVISION	BY
	DATE	LOCATION	SITE
	YYYY-MM-DD	NE 31-58-20-W4	74397

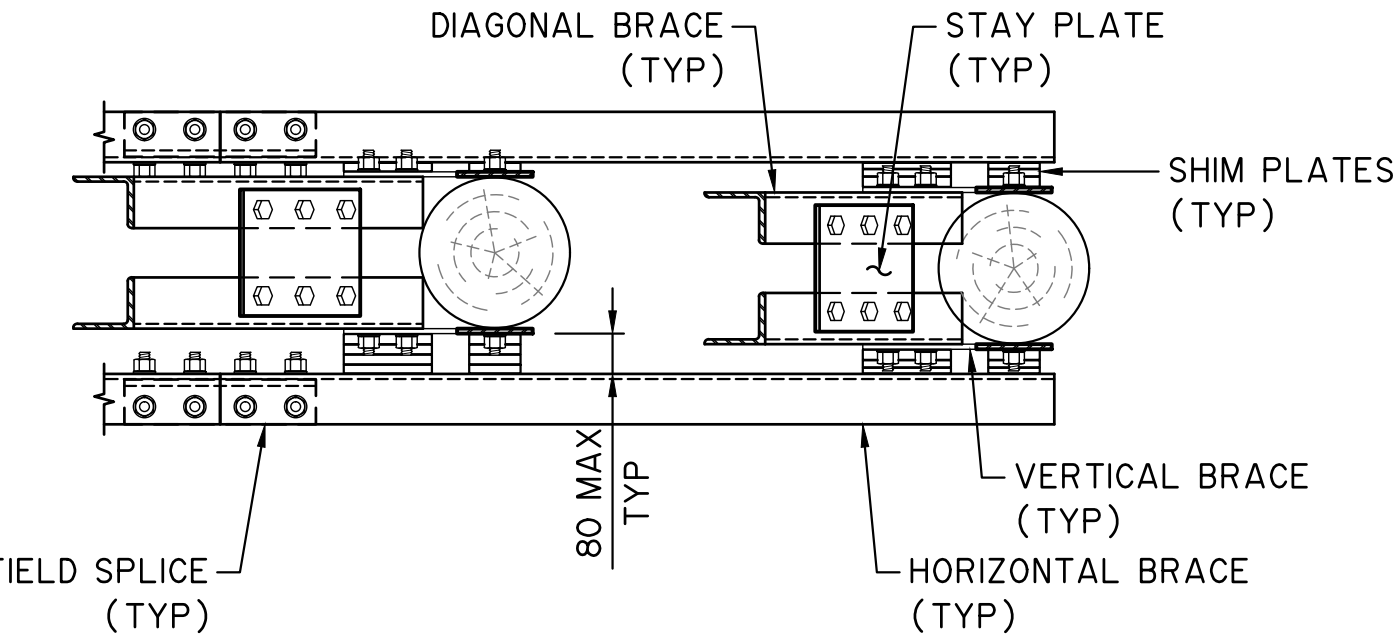
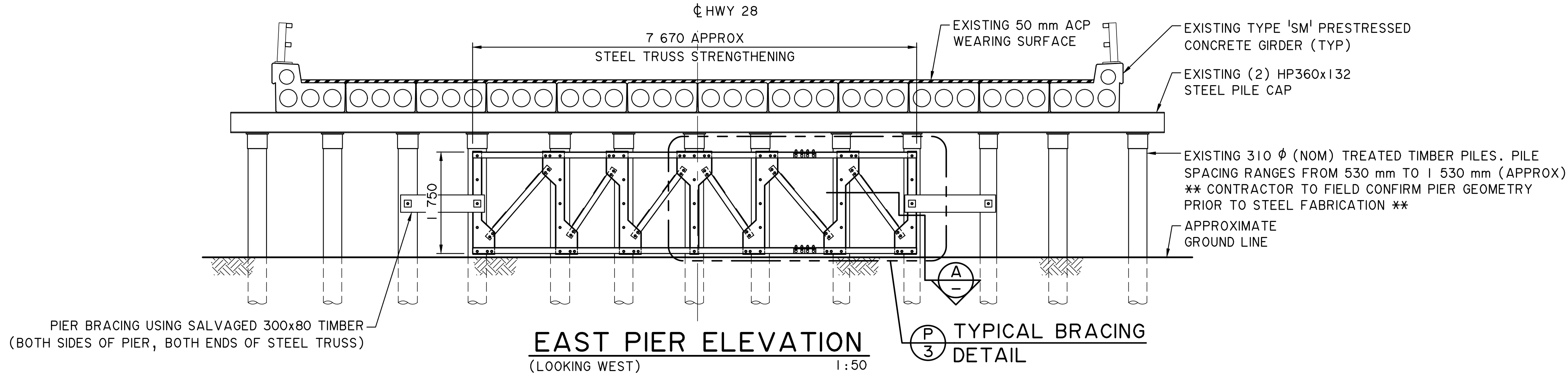
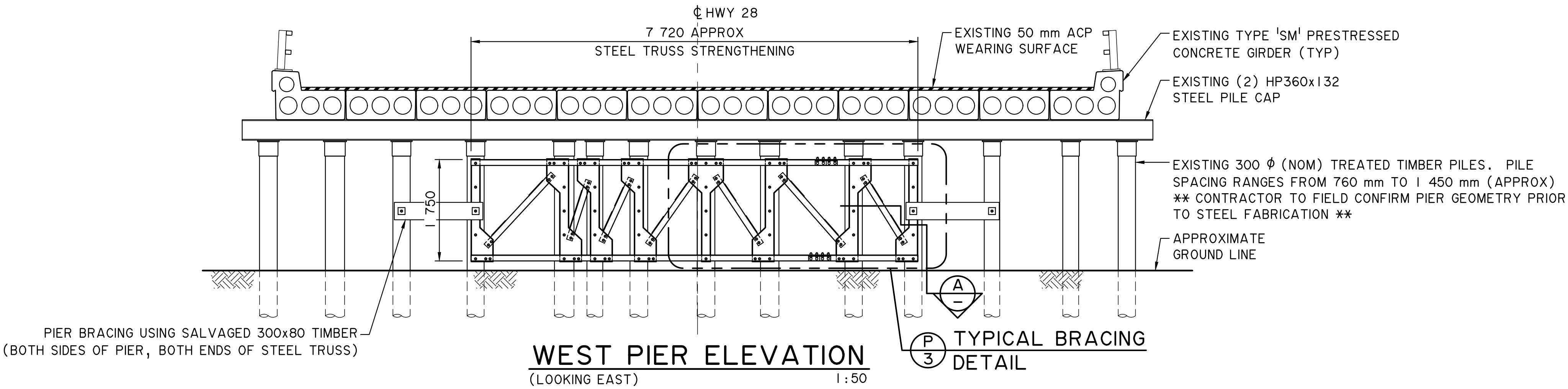
Alberta Transportation

NAMEPI CREEK BRIDGE
ON HWY 28, 2 km W OF RADWAY
REHABILITATION LAYOUT

CONTRACT	HIGHWAY	SHEET	DRAWING
XXXXX	28:06	1 OF 3	1

PIER STRENGTHENING PROCEDURE

- 1. PREPARE HEADSLOPES ADJACENT TO THE BASE OF THE PILES AS REQUIRED TO COMPLETE THE WORK.
- 2. REMOVE EXISTING TIMBER BRACING AS REQUIRED TO INSTALL NEW STEEL PIER BRACING AS SHOWN ON THE DRAWINGS. SUFFICIENT TIMBER BRACING SHALL BE SALVAGED AS REQUIRED TO INSTALL THE TIMBER BRACE BETWEEN THE EXTERIOR STEEL BRACED PIER PILE AND THE ADJACENT PILE, AS SHOWN ON THE DRAWINGS.
- 3. DRILL HOLES IN THE PIER PILES AS NOTED ON THE DRAWINGS AND TREAT WITH CREOSOTE OR APPROVED EQUIVALENT.
- 4. INSTALL NEW STEEL BRACING AS SHOWN ON THE DRAWINGS AND AS PER THE CONTRACTOR'S APPROVED INSTALLATION PLAN.
- 5. STEEL BRACING SHALL BE SHIMMED ONLY AS REQUIRED TO ACHIEVE CORRECT FIT OF STEEL MEMBERS.
- 6. RE-INSTALL TIMBER BRACING TO NEW LOCATION AS SHOWN.
- 7. REPAIR HEADSLOPES TO THEIR PRE-CONSTRUCTION CONDITION.



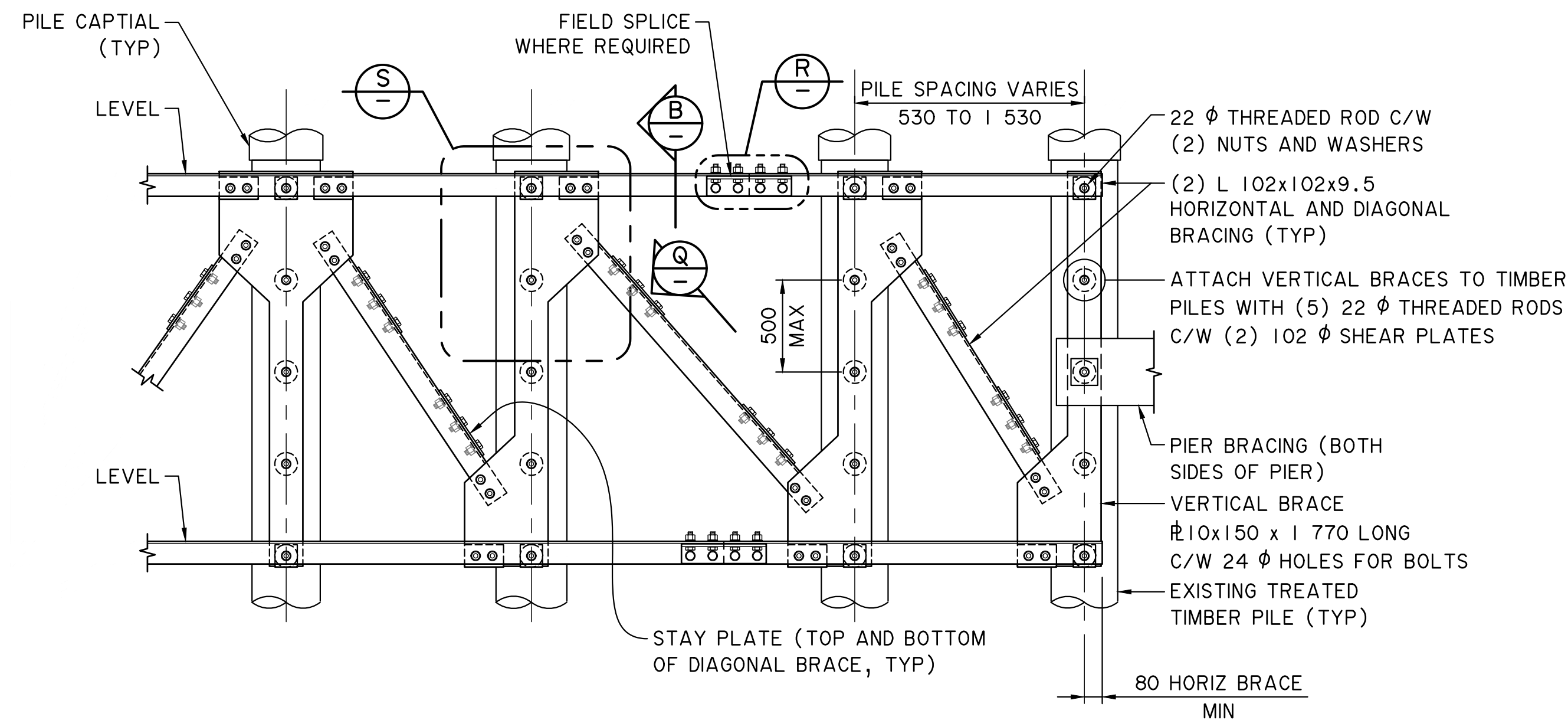
NOTE:
DUE TO ORIGINAL CONSTRUCTION
TOLERANCES, PIER PILE
LOCATIONS MAY VARY UP TO
80 mm LONGITUDINALLY.

<div>CONSULTANT</div> <div>GeoMetrix Group Engineering STRUCTURAL CONSULTING ENGINEERING</div> <div>JOB#: 19-0960</div>	<div>DESIGNER</div> <div>CHECKER</div> <div>DATE _____</div> <div>DATE _____</div>	<div>REVISION</div> <div>DATE</div> <div>LOCATION</div> <div>SITE</div>	<div>20-01-08</div> <div>ISSUED FOR QUOTE</div> <div>GO</div>	<div>CONTRACT</div> <div>HIGHWAY</div> <div>SHEET</div> <div>DRAWING</div>	<div>XXXXX</div> <div>28:06</div> <div>2 OF 3</div> <div>2</div>

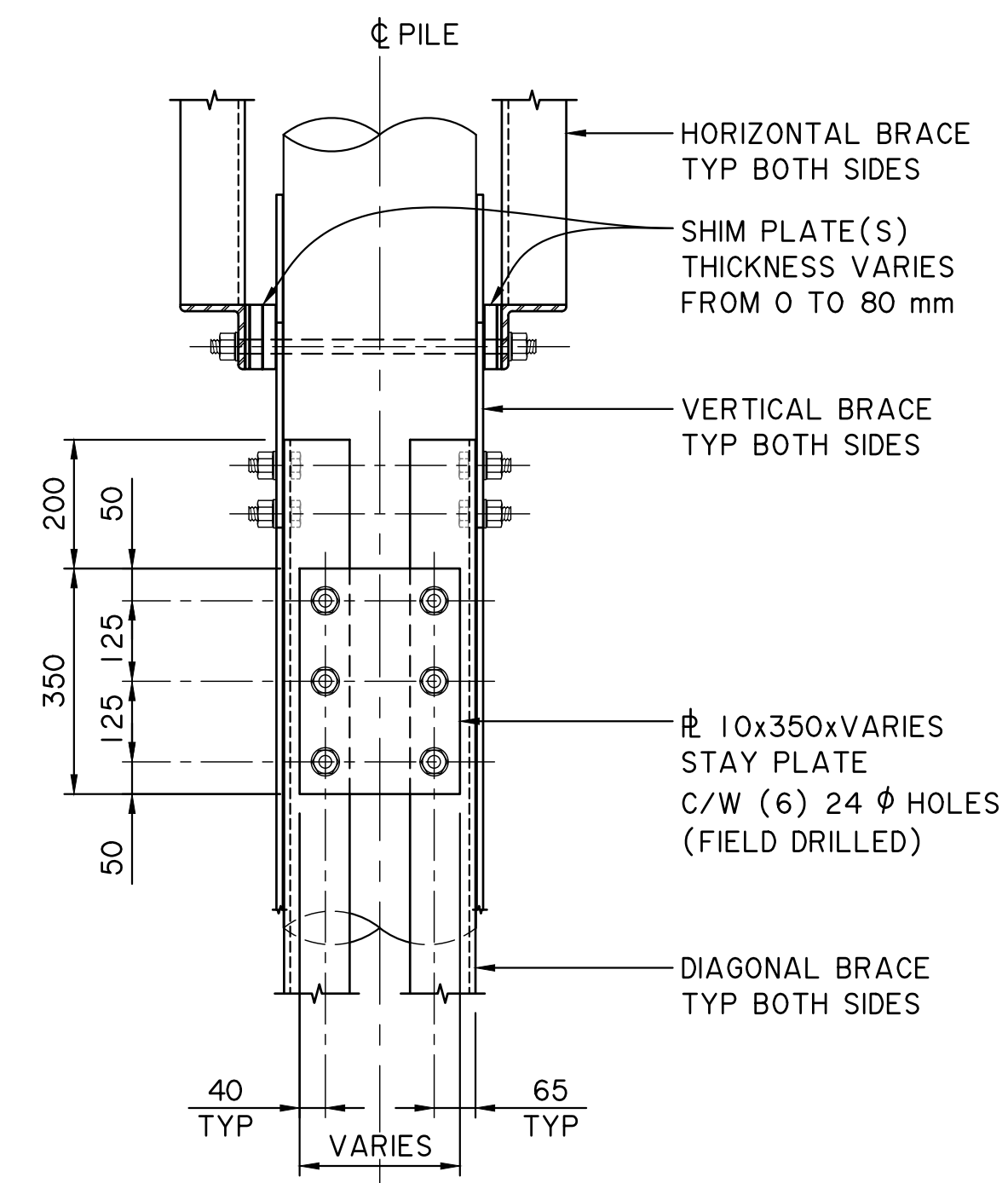
PRELIMINARY
NOT FOR CONSTRUCTION

Alberta Transportation

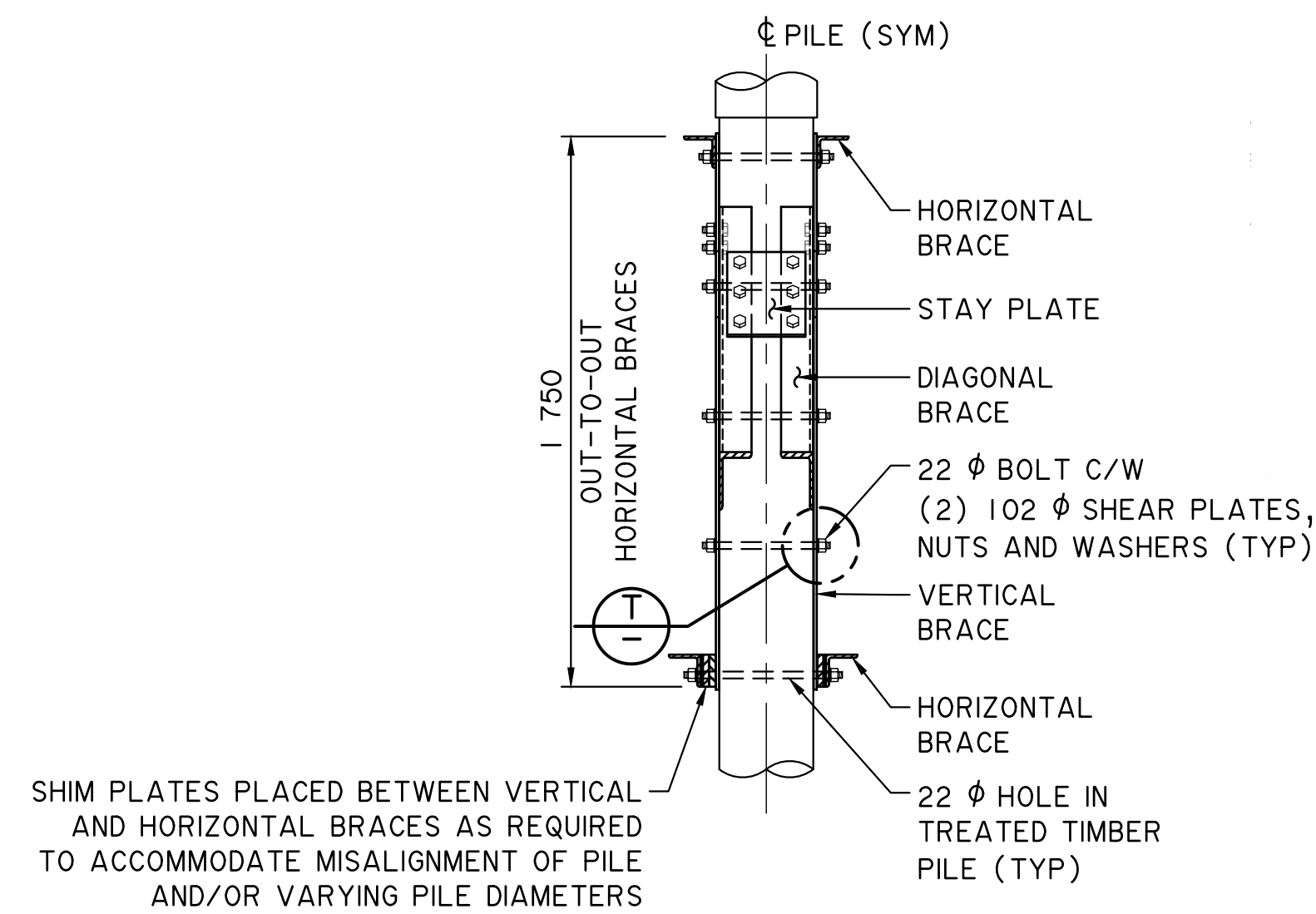
NAMEPI CREEK BRIDGE
ON HWY 28, 2 km W OF RADWAY
REHABILITATION – SHEET 1



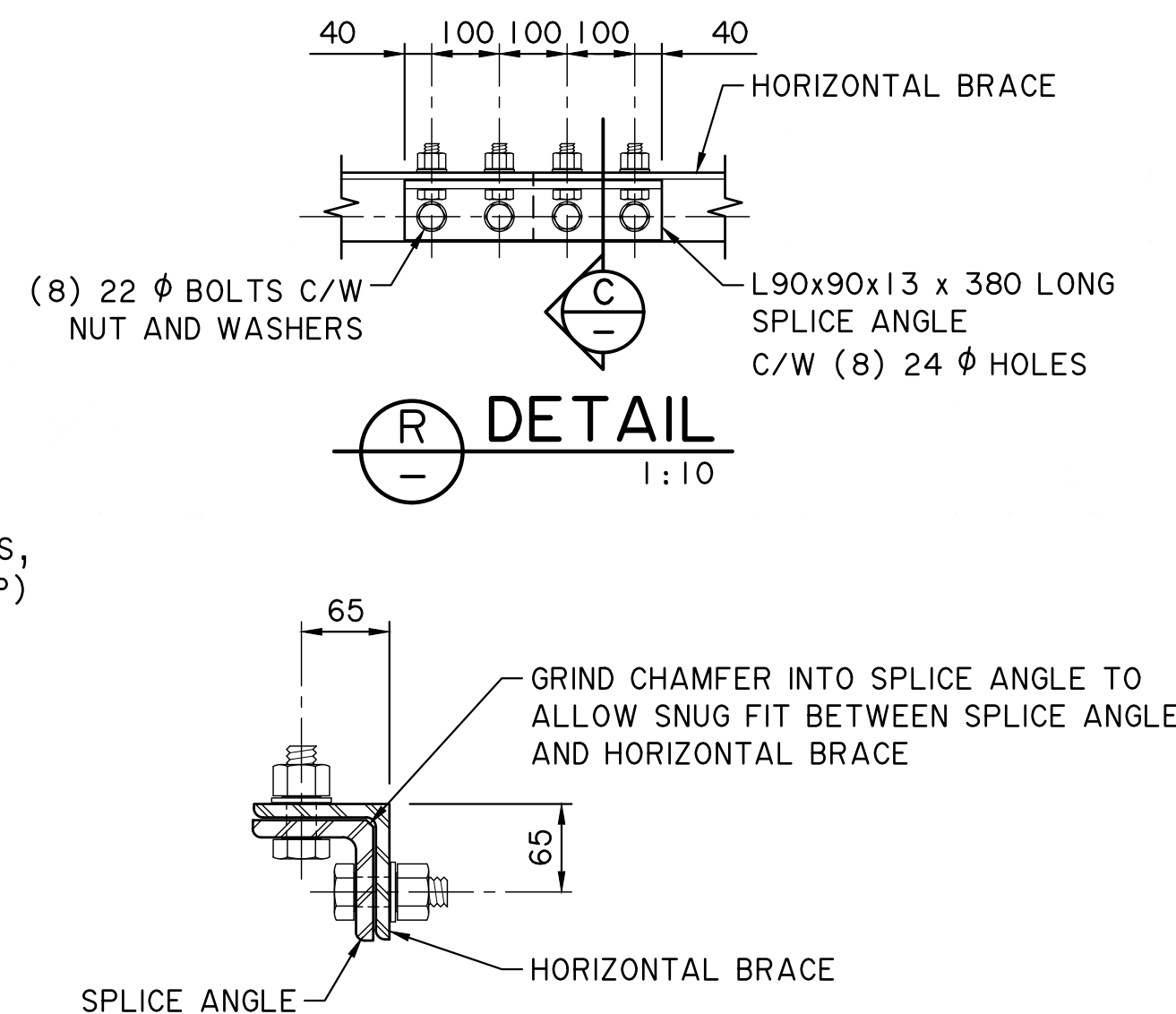
(P) TYPICAL BRACING DETAIL
1:20



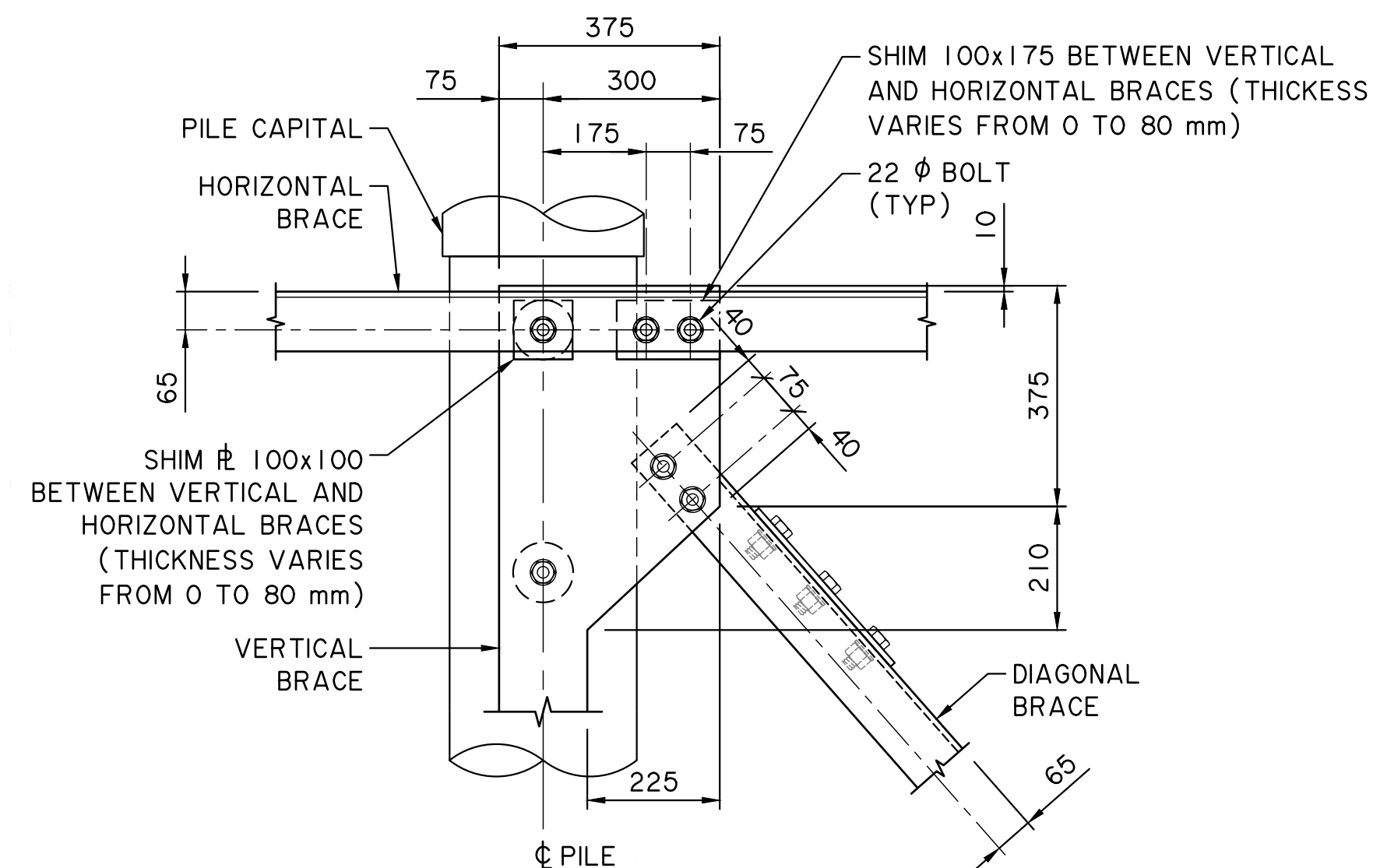
(Q) STAY PLATE DETAIL
1:10



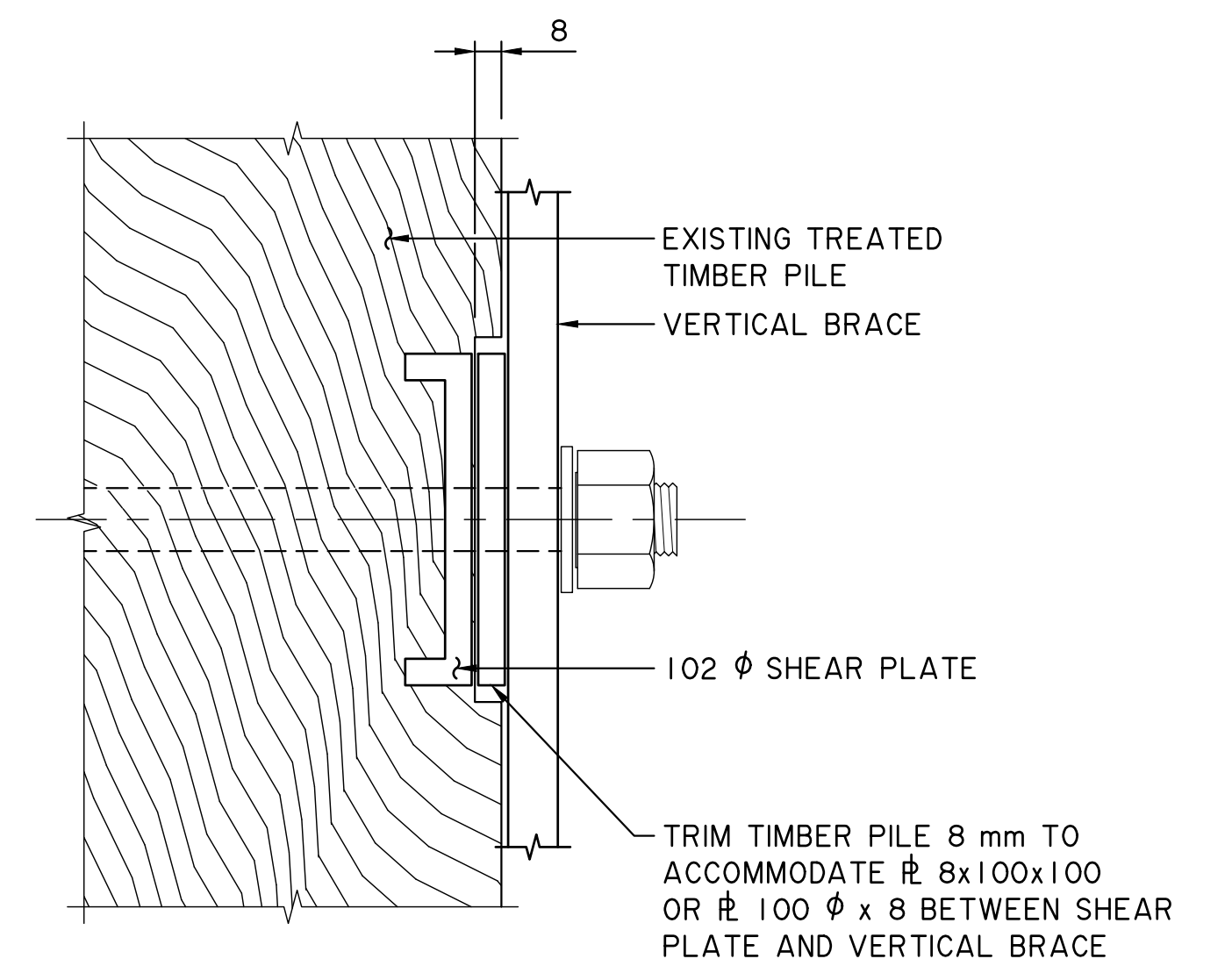
(B) SECTION
1:20



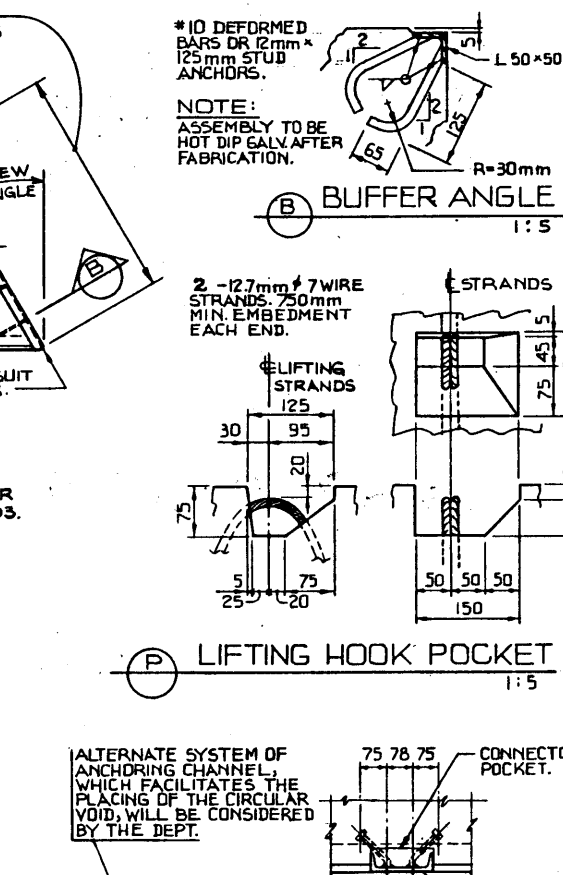
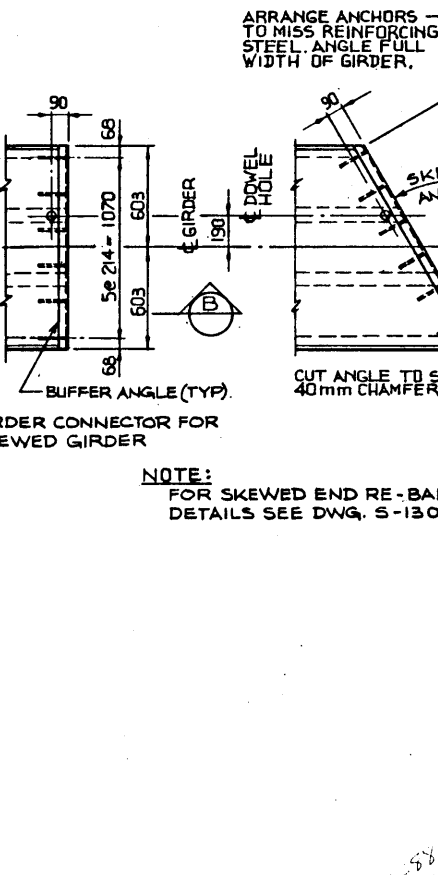
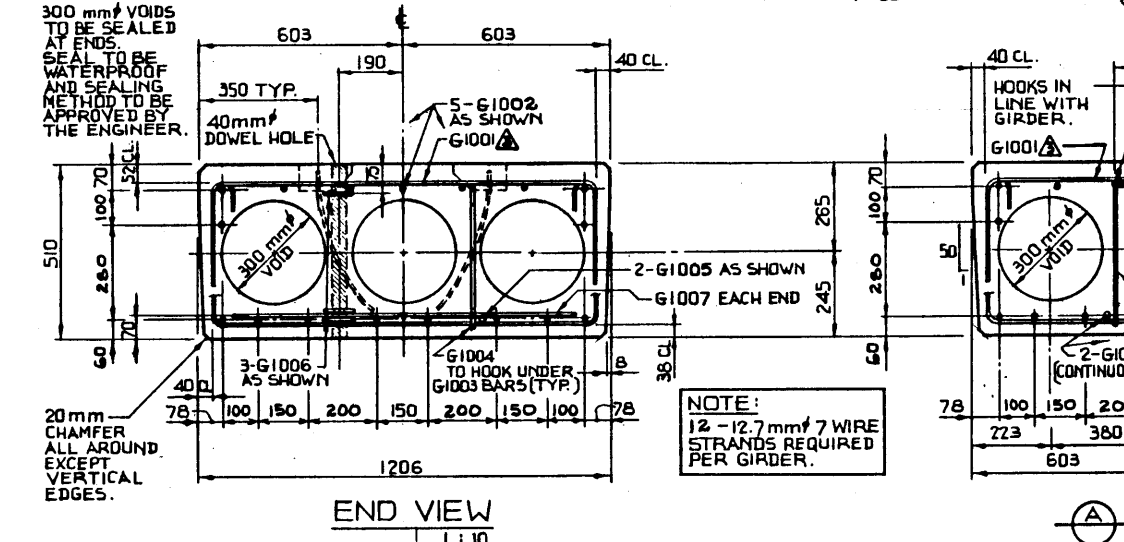
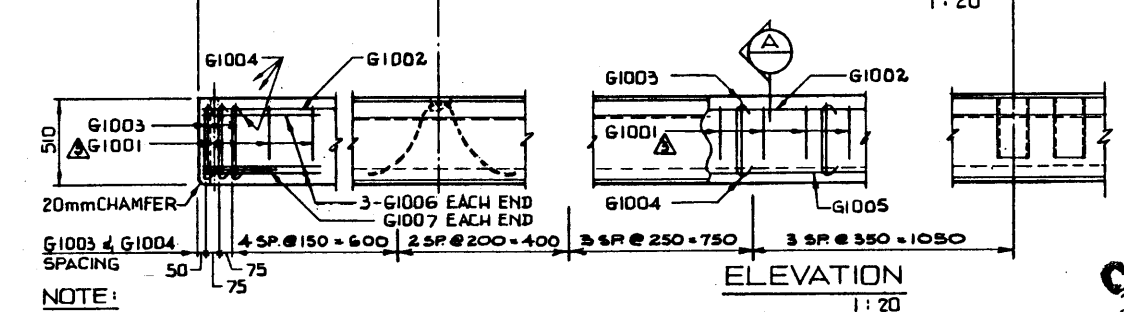
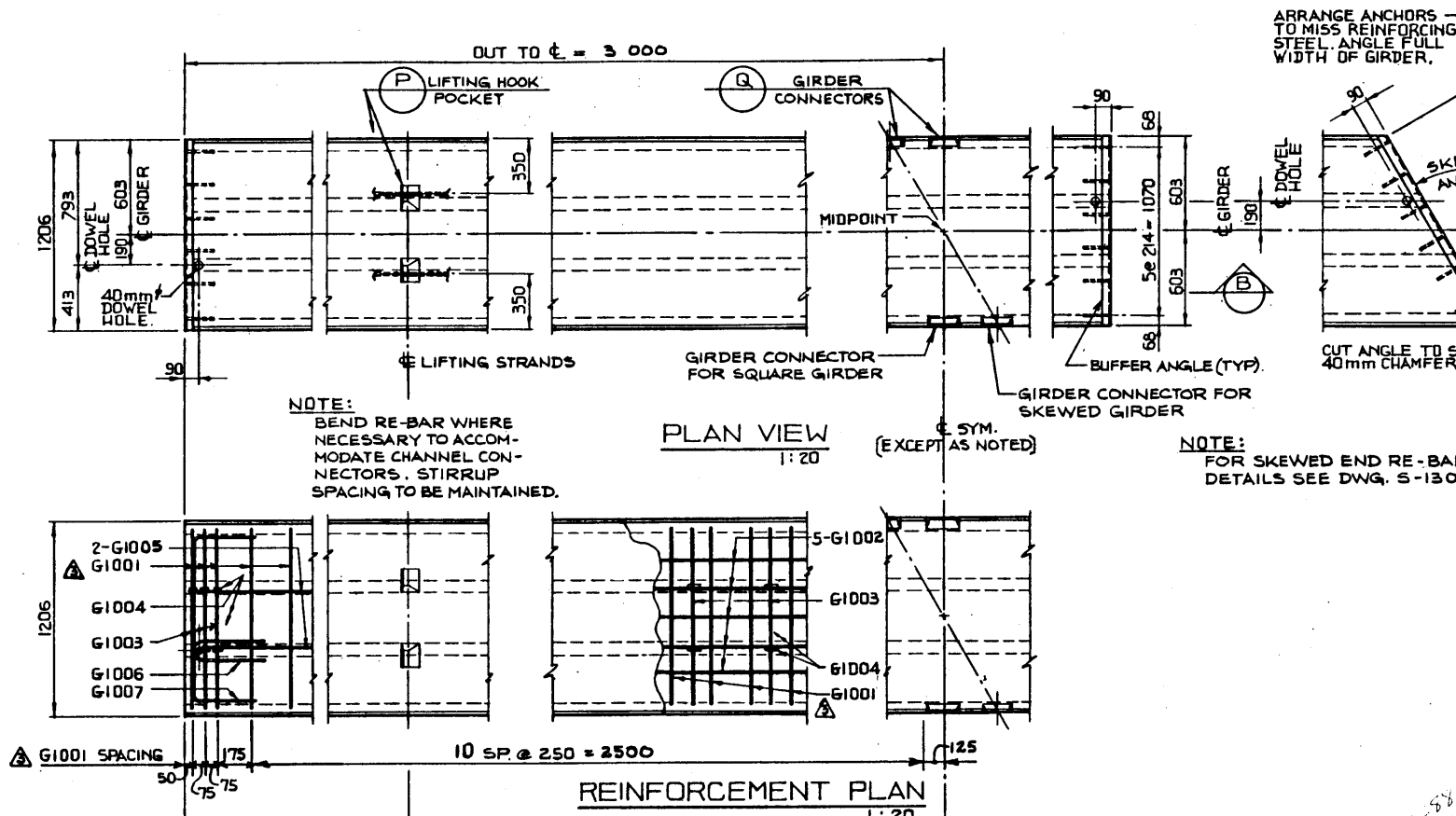
(C) SECTION
1:5



(S) DETAIL
1:10



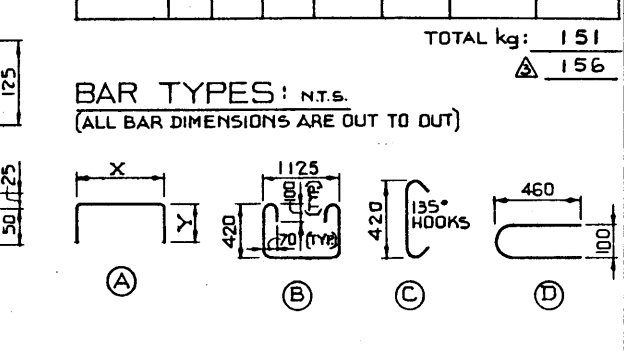
(T) DETAIL
1:2



BAR LIST: FOR SQUARE GIRDER

MARK	SIZE	NO.	TYPE	X	Y	LENGTH	MASS
G1001	10	28	A	1125	300	1725	38
G1002	10	5	STR.			5900	23
G1003	10	29	B			2220	51
G1004	10	56	C			620	27
G1005	10	2	STR.			5800	9
G1006	10	6	D			1020	5
G1007	10	2	A	1000	300	1600	3

TOTAL kg: 151



GENERAL NOTES:

DESIGN:

- A.A.S.H.T.O. 1973 SPECIFICATIONS PLUS INTERIMS TO 1976 EXCEPT AS MODIFIED BELOW:
- ALLOWABLE TENSION AT MIDSPAN IS 80% OF MODULUS OF RUPTURE.
- NO TENSION ALLOWED IN DECK SURFACE.
- WEB REINFORCEMENT - ACCORDING TO A.C.I. 318-71, BUT NOT LESS THAN A.A.S.H.T.O. MINIMUM.
- CAPACITY REDUCTION FACTORS ACCORDING TO C.S.A. 56-1974.

LOADING:

- LIVE LOAD - BRIDGE BRANCH MS-23
- ONE WHEEL LINE PER GIRDER.
- DEAD LOAD - GIRDER - 0.780 t/m
- WEARING SURFACE - 0.150 t/m

MATERIALS:

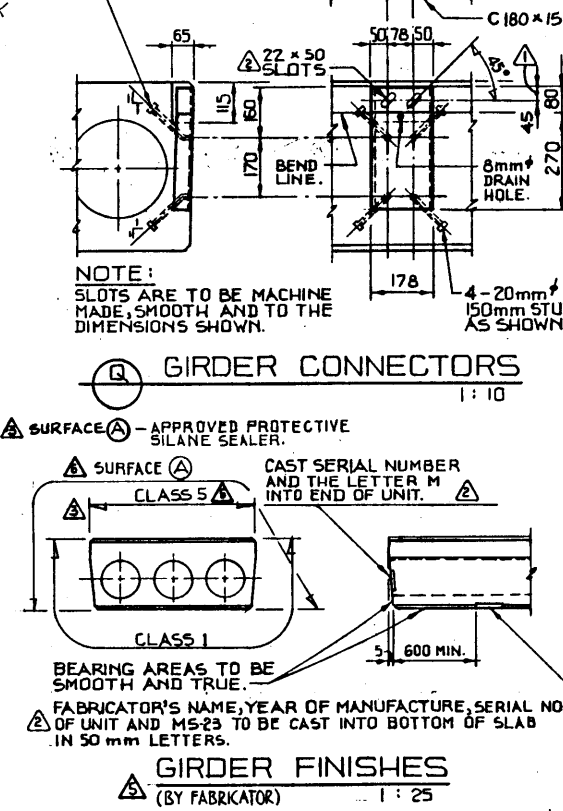
- CONCRETE IN GIRDER SHALL BE MADE OF LIGHTWEIGHT COARSE AGGREGATE AND SAND FINES.
- 28 DAY CONCRETE STRENGTH - 35 MPa
- RELEASE STRENGTH - 28 MPa
- UNIT WEIGHT OF SEMI-LIGHT WEIGHT CONCRETE 1920 kg/m³
- PRESTRESSING STEEL SHALL BE 12.7mm ϕ 7 WIRE STRESS-RELIEVED STRAND ($f_y = 1860$ MPa), 12.7mm ϕ 7 WIRE LOW RELAX. STRAND ($f_y = 1860$ MPa) MAY BE SUBSTITUTED FOR STRESS-RELIEVED STRAND ON A ONE FOR ONE BASIS AT THE SAME INITIAL STRESS. THE ENGINEER SHALL BE NOTIFIED IF SUBSTITUTION IS MADE.

FABRICATION:

- GIRDERS SHALL CONFORM TO THE REQUIREMENTS OF THE ALBERTA BRIDGE BRANCH SPECIFICATION FOR THE MANUFACTURE OF PRESTRESSED CONCRETE BRIDGE UNITS.
- FORCE IN PRESTRESSING STEEL:
 - INITIAL TENSIONING LOAD = 128.6 kN/STRAND.
 - DESIGN LOAD AFTER LOSSES = 103.6 kN/STRAND.
- ALL GALVANIZING SHALL CONFORM TO A.S.T.M. SPEC. A153.
- BEND OR SHIFT REINFORCING WHERE REQUIRED TO CLEAR GIRDER CONNECTORS AND LIFTING HOOK ASSEMBLIES. STIRRUP SPACING IS TO BE MAINTAINED.

ERECTION:

- ANY FREE SPACE BETWEEN CONCRETE UNITS SHALL BE FILLED WITH WASHERS.
- CALCULATED MASS OF ONE GIRDER IS 1.73



GIRDER FINISHES

(BY FABRICATOR)

WORK THIS DWG. IN CONJUNCTION WITH DWG. NO. S-1302 & S-1303

NO.	DATE	DESCRIPTION	BY
85-10-23		GIRDER FINISHES BY FABRICATOR	J.C.Y.
84-01-31		CONNECTOR CHANNEL DESIGNATION	T.P.M.
79-03-20		4-G1001 ADDED GIRDER FINISHES	R.G.R.
78-07-20		CONNECTOR SLOTS & GIRDER MARKINGS	R.G.R.
78-05-11		DIMENSION ADDED	R.W.L.

DESIGNED: R.W.L. DRAWN BY: V.G.B. DATE: 78-02-15 CHECKED BY: DATE: STREAM: LOCATION: HWY. NO.: SCALE: FILE NO.: SHEET: DWG. NO.: S-1301

APPROVED

Albena TRANSPORTATION BRIDGE BRANCH

PRESTRESSED CONCRETE

6 m TYPE SM-510

INTERIOR GIRDER

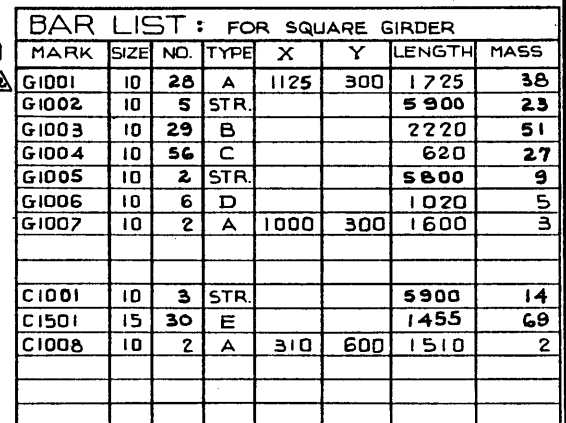
DATE: MAR 23/78

CHIEF BRIDGE ENGINEER

SUPERSEDED

SUPERSEDED

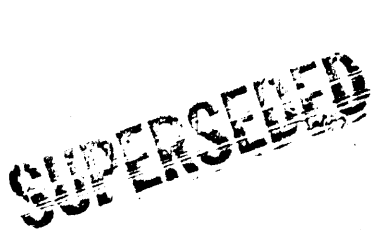
BRIDGE BRANCH - 1111



A 241

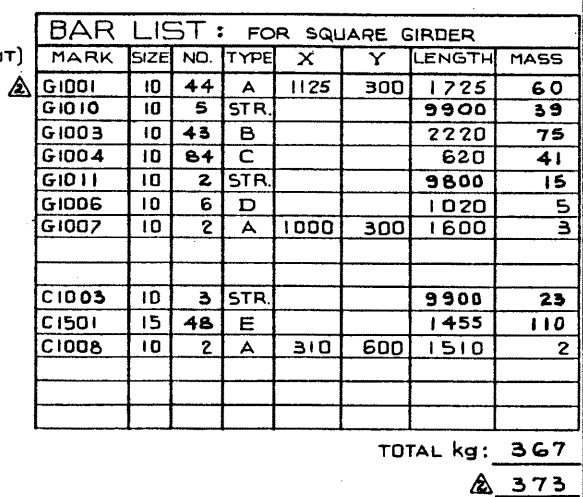
SUPERSEDED

DIMENSIONS ARE GIVEN IN mm
①②③



LOCATION	HWY. NO.	SCALE	FILE NO.	SHEET	DWG. NO. S-1302
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M.P. 237 DESIGN : R.W.L. 78 02 10
DRAWN : N.M.F.



DESIGN:

- A.A.S.H.T.O. 1973 SPECIFICATIONS, PLUS INTERIMS TO 1976 EXCEPT AS MODIFIED BELOW:
 - ALLOWABLE TENSION AT MIDSPAN IS 80% OF MODULUS OF RUPTURE.
 - NO TENSION ALLOWED IN DECK SURFACE.
 - WEB REINFORCEMENT - ACCORDING TO A.C.I. 318-71, BUT NOT LESS THAN A.A.S.H.T.O. MINIMUM.
 - CAPACITY REDUCTION FACTORS ACCORDING TO C.S.A. 56-1974

• LOADING:

LIVE LOAD — BRIDGE BRANCH MS-23	
ONE WHEEL LINE PER GIRDER.	
DEAD LOAD — GIRDER	= 1.020 t/m
WEARING SURFACE & BRIDGERAIL	= 0.110 t/m

- CONCRETE IN GIRDER SHALL BE MADE OF LIGHTWEIGHT COARSE AGGREGATE AND SAND FINES.
- 28 DAY CONCRETE STRENGTH ——— 35 MPa
- RELEASE STRENGTH ——— 28 MPa
- UNIT WEIGHT OF SEMI-LIGHT WEIGHT CONCRETE 1920 kg/m³
- PRESTRESSING STEEL SHALL BE 12.7 mm ϕ 7 WIRE STRESS-RELIEVED STRAND ($f_s = 1860$ MPa). 12.7 mm ϕ 7 WIRE LOW RELAX. STRAND ($f_s = 1860$ MPa) MAY BE SUBSTITUTED FOR STRESS-RELIEVED STRAND ON A ONE FOR ONE BASIS AT THE SAME INITIAL STRESS. THE ENGINEER SHALL BE NOTIFIED IF THIS SUBSTITUTION IS MADE.

- GIRDER SHALL CONFORM TO THE REQUIREMENTS OF THE ALBERTA BRIDGE BRANCH SPECIFICATION FOR THE MANUFACTURE OF PRESTRESSED CONCRETE BRIDGE UNITS.
- FORCE IN PRESTRESSING STEEL :
 INITIAL TENSIONING LOAD = 128.6 kN/STRAND
 DESIGN LOAD AFTER LOSSES = 104.8 kN/STRAND
- CURB TO BE CAST MONOLITHICALLY WITH GIRDER.
- ANCHOR BOLT ASSEMBLIES SHALL BE CAST IN GIRDER AT SPACINGS SHOWN ON DWG. S 1309.
- ALL GALVANIZING SHALL CONFORM TO A.S.T.M. SPEC. A153.
- BEND OR SHIFT REINFORCING WHERE REQUIRED TO CLEAR GIRDER CONNECTORS, LIFTING HOOK AND ANCHOR BOLT ASSEMBLIES. STIRRUP SPACING IS TO BE MAINTAINED.

- ANY FREE SPACE BETWEEN CONNECTORS SHALL BE FILLED WITH WASHERS.
- CALCULATED MASS OF THE GIRDER IS 0.50 T.

DIMENSIONS ARE GIVEN IN mm


 TRANSPORTATION
 BRIDGE BRANCH
 

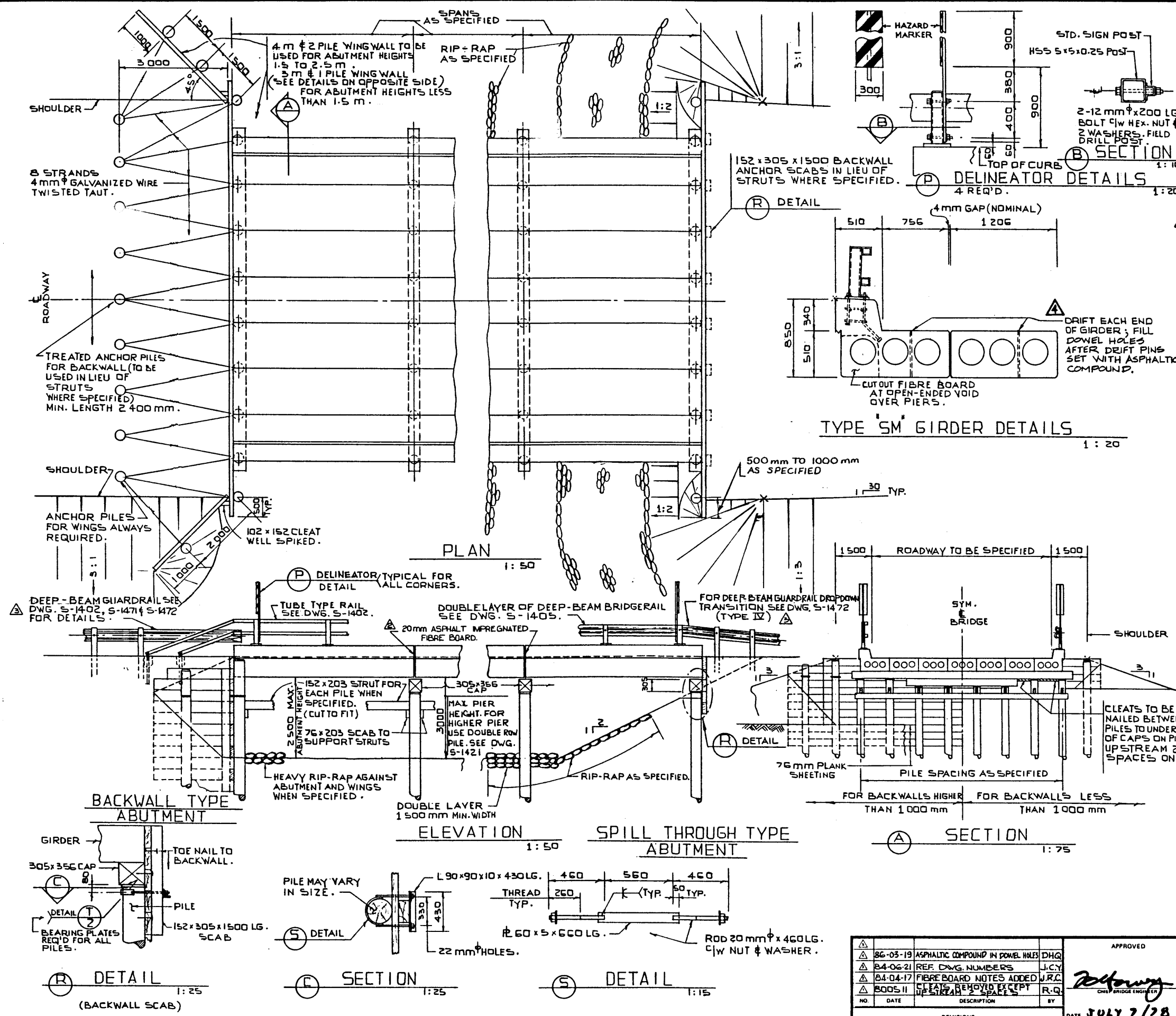
PRESTRESSED CONCRETE
10 m TYPE SM-510
CURB GIRDER

WORK THIS DWG. IN CONJUNCTION WITH DWG. NO. S-1307 & S-1309 (BY FABRICATOR)					1.25
⚠ 31-03-04 SUPERSEDED BY S-1308-BB	DHR		APPROVED		
⚠ 87-10-15 GIRDER FINISHES	TJS				
⚠ 85-10-23 GIRDER FINISHES BY FABRICATOR	JCY				
⚠ 79 03 20 4-GIOLI ADDED & GIRDER FINISHES	R.G.Q.				
⚠ 78 07 20 GIRDER MARKINGS.	R.G.Q.				
NO.	DATE	DESCRIPTION	BY		
REVISIONS					
			DATE <u>MAR 23/78</u>		
DESIGNED	DRAWN BY	DATE	CHECKED BY	DATE	STREAM
R.W.L.	V.G.B.	78 02 15			

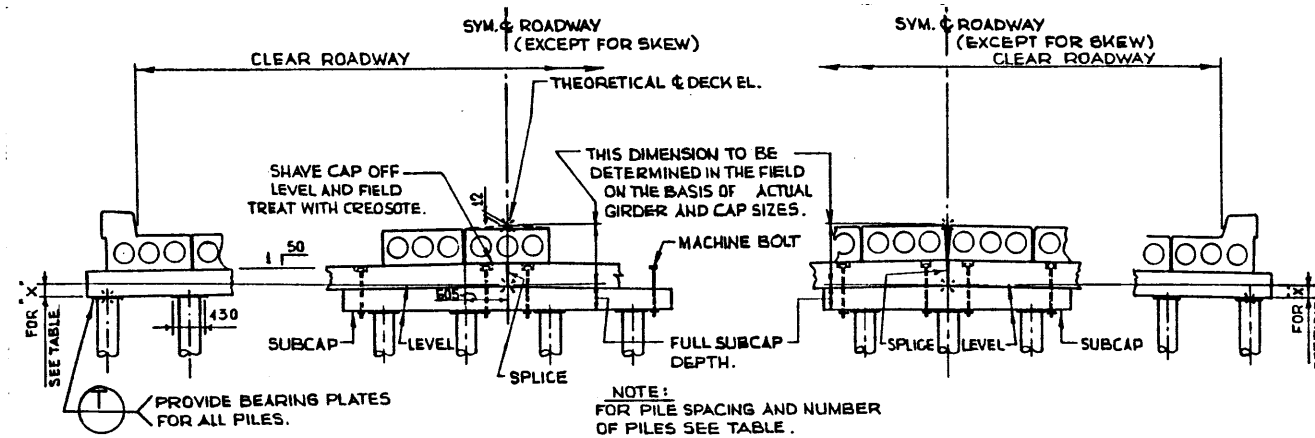
M.P. 237 DESIGN : R.W.L. 78 02 10
DRAWN : M.M.F.

SUPERSEDED
SUB ERO

BY 5-1368-YS
85-03-07
KEU AL



86-03-19 ASPHALTIC COMPOUND IN PORE HOLES DHQ 84-06-21 REF. DVG. NUMBERS J.C.Y. 84-04-17 FIBRE BOARD NOTES ADDED J.R.C. 8005 II CLEATS REMOVED EXCEPT R.Q.		APPROVED CHIEF BRIDGE ENGINEER DATE JULY 7/28		Alberta TRANSPORTATION BRIDGE BRANCH METRIC 'SM' PRECAST BRIDGES T.T. SUBSTRUCTURE - SHEET #1	
DESIGNED	DRAWN BY	DATE	CHECKED BY	DATE	STREAM
R. QUINTON	KOHLMANN	78 02 28			
LOCATION	HWY. NO.	SCALE	FILE NO.	SHEET	DWG. NO.
		SHOWN		1 OF 2	S-1420



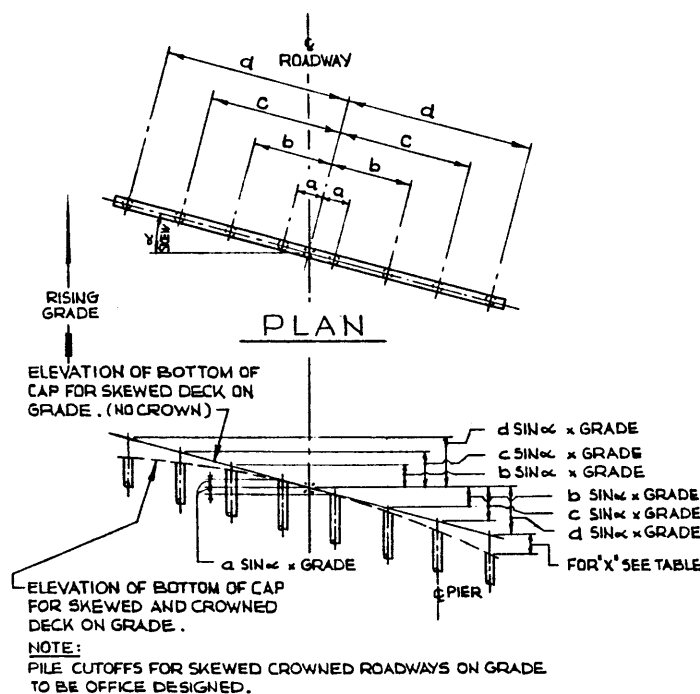
CAP SPLICE DETAIL

CROWNED ROADWAY WITH EVEN NUMBER OF PILES.

N.T.S.

CAP SPLICE DETAIL

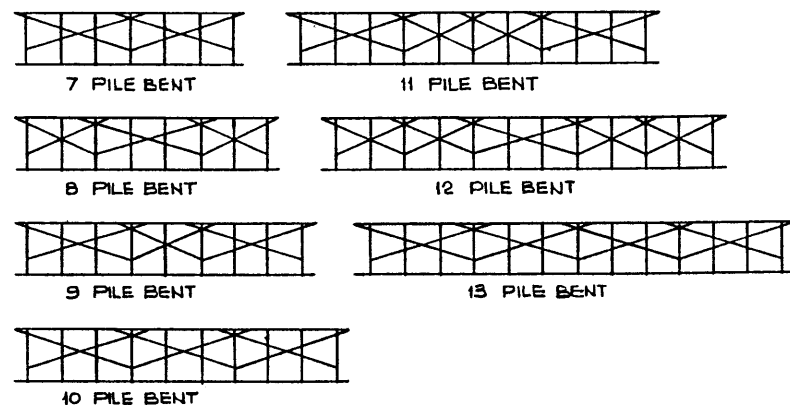
CROWNED ROADWAY WITH ODD NUMBER OF PILES



ELEVATION

SKEWED CROWNED RDWY. ON GRADE

N.T.S.



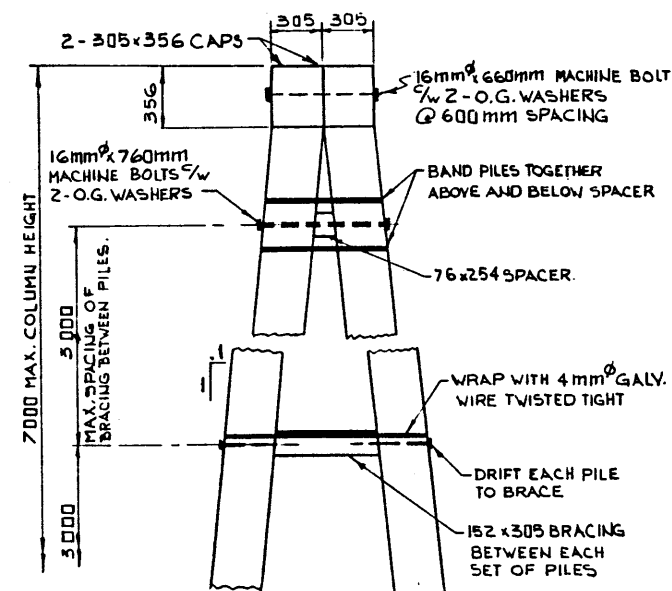
SWAY BRACING LAYOUT

N.T.S.

SWAY BRACING 76 x 254 mm OR 76 x 305 mm PLANKS SPIKED AND BOLTED TO PILES AND CAP.

TABLE IS APPLICABLE TO "SM" SPAN LENGTH OF 6, 8, 10 & 11 m.

CLEAR RDWY.	SKEW	CAP LENGTH	NO. OF PILES	PILE SPACING	MIN. "X" (CROWN)
6 400	0	7 800	7	1 210	75
	15	8 200		1 250	
	30	9 100		1 400	
	45	11 200		1 710	
7 600	0	9 100	8	1 210	85
	15	9 400		1 250	
	30	10 500		1 400	
	45	12 900		1 710	
8 800	0	10 400	9	1 210	100
	15	10 700		1 250	
	30	11 900		1 400	
	45	14 600		1 710	
10 000	0	11 600	10	1 210	110
	15	12 000		1 250	
	30	13 400		1 400	
	45	16 400		1 710	
11 200	0	12 800	11	1 210	120
	15	13 300		1 250	
	30	14 800		1 400	
	45	18 000		1 710	
12 500	0	14 000	12	1 210	135
	15	14 500		1 250	
	30	16 100		1 400	
	45	19 800		1 710	
13 700	0	15 200	13	1 210	145
	15	15 700		1 250	
	30	17 500		1 400	
	45	21 500		1 710	

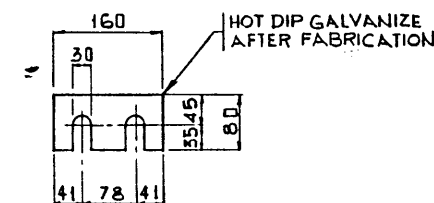


NOTE:

- PILE SPACING SAME AS FOR SINGLE ROW PILES.
- PIER CAP SPLICE SIMILAR TO DETAIL FOR SINGLE ROW CAP.
- USE DOUBLE STOREY SWAY BRACING OR SHEET WITH 76mm PLANKING. (BOTH SIDES)
- PROVIDE NOSE PILE ON U/S END OF PIER. BRACE BACK TO ADJACENT PILES SIMILAR TO BRACING BETWEEN PILES SHOWN IN THIS DETAIL.

DOUBLE PIER DETAIL

USE FOR PIER MORE THAN 3m HIGH 1:20



DROP IN WASHER SM510 GIRDER

(TO FILL GAP BETWEEN GIRDER CONNECTIONS
- SUPPLY 2 x 4 mm THICKNESS)

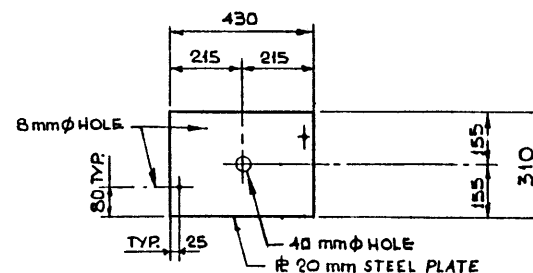
GENERAL NOTES :

- ALL DIMENSIONS ARE GIVEN IN mm EXCEPT AS NOTED.
- PILE SPACING DESIGN BASED ON TYPE "SM" PRE-CAST CONCRETE GIRDERS.
- PILE SPACING DIMENSIONS GIVEN IN THE TABLE TO BE MEASURED ALONG CAP.
- FOR SQUARE SPANS THE PILE CUT-OFFS IN O'SKEW TABLE ARE APPLICABLE TO ANY GRADE.
- CAP SPLICE ON UNCROWNED BRIDGES IS TO BE OVER ANY TWO PILES.
- BEARING PLATES TO BE SUPPLIED BETWEEN ALL PILE TOPS AND CAPS OR SUBCAPS.

BILL OF HARDWARE :

MARK	SIZE	TYPE	WASHERS	PLACING AND NO. REQUIRED
1	20 x 560	DRIFTS		CAPS AND SUBCAPS TO PILES.
2	20 x 600	HEADLESS DRIFTS		GIRDER AND CURBS TO CAPS
3	16 x 660	MACHINE BOLTS	2-16 O.B.	2 PER GIRDER, 2 PER CURB.
4	16 x 560			CAP SPLICE - 4 PER SPLICE.
5	16 x 510			DOUBLE SWAYBRACE TO CAP.
6	16 x 180	FLEX BEAM BOLTS	1-16 LOCK	GUARDRAIL TO POST.
7	16 x 30			GUARDRAIL SPLICE - 8 PER SPLICE.
8	310 x 20 x 430	BEARING PLATE		BETWEEN PILE TOPS AND CAPS.

* FOR BRIDGES WITH FLEX-BEAM RAILS ONLY.



BEARING PLATE DETAIL

PROVIDED BETWEEN PILE AND PILECAP.
(FOR ALL PILES.)

1:10

DESIGNED		DRAWN BY		DATE		CHECKED BY		DATE		STREAM		LOCATION		HWY. NO.		SCALE		FILE NO.		SHEET		DWG. NO.	
A. WAHEED		P. SZOTS		78 02 28																2 OF 2		S-1421	

APPROVED

[Signature]

CHIEF BRIDGE ENGINEER

DATE **JULY 2/8**

Albion TRANSPORTATION BRIDGE BRANCH

METRIC

"SM" PRECAST BRIDGES

T.T. SUBSTRUCTURE - SHEET *2

