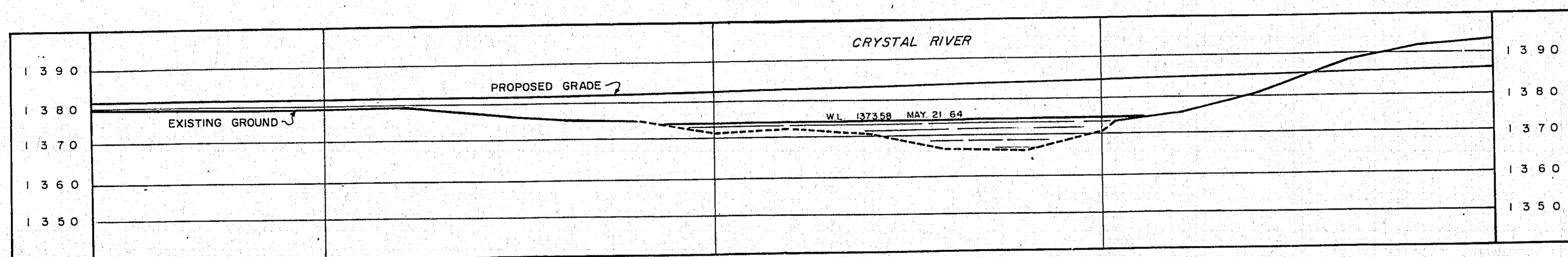
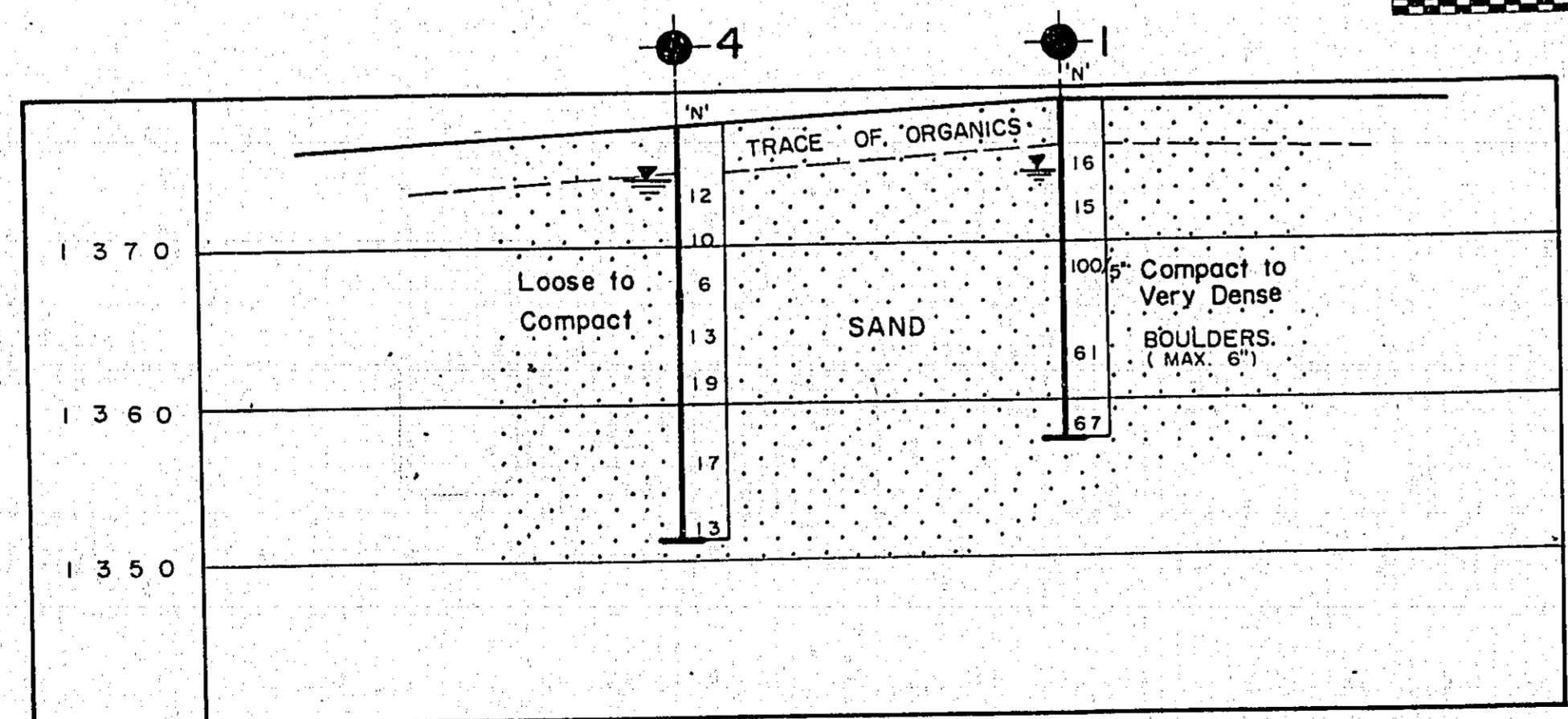


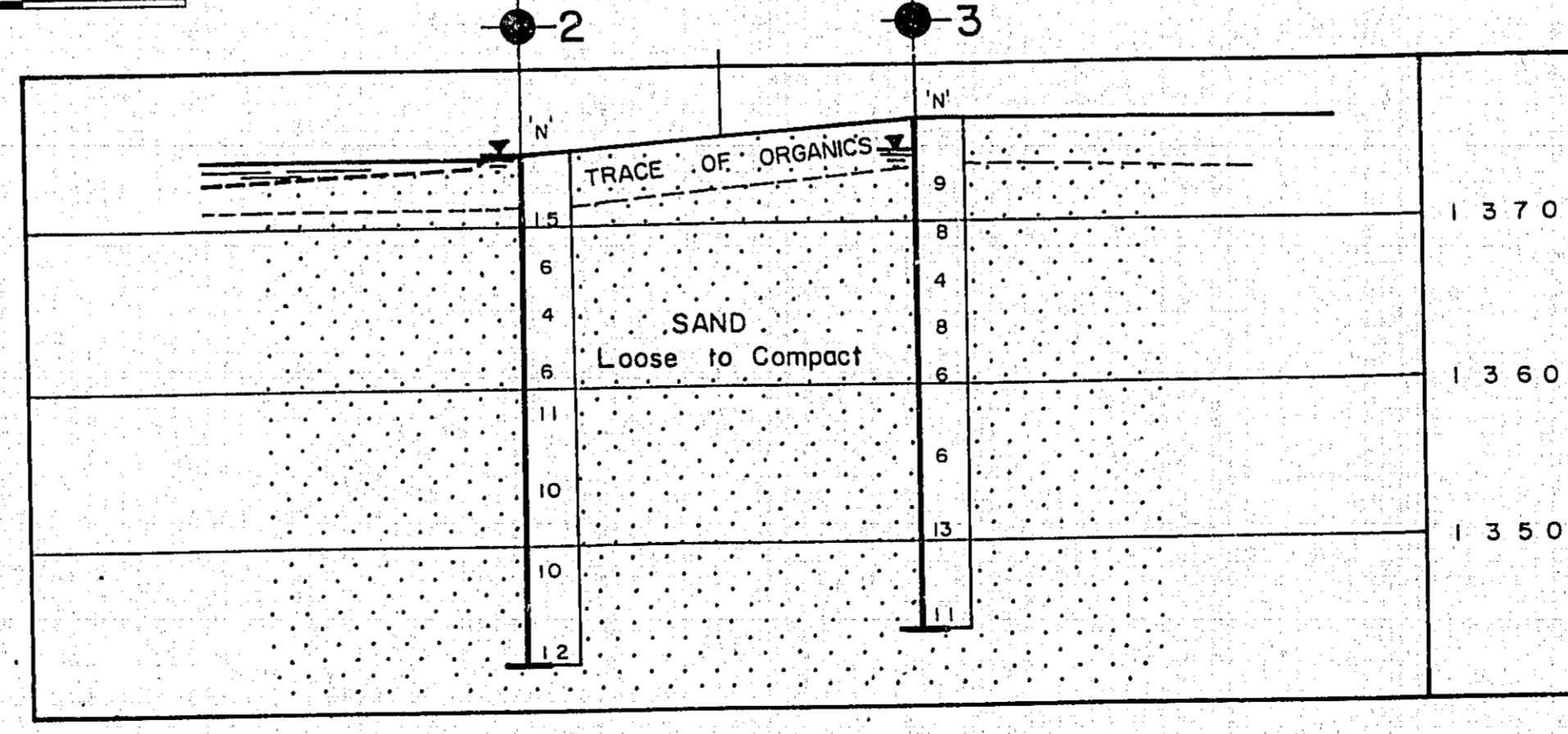
PLAN  
SCALE IN FEET  
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PROFILE  
SCALE IN FEET  
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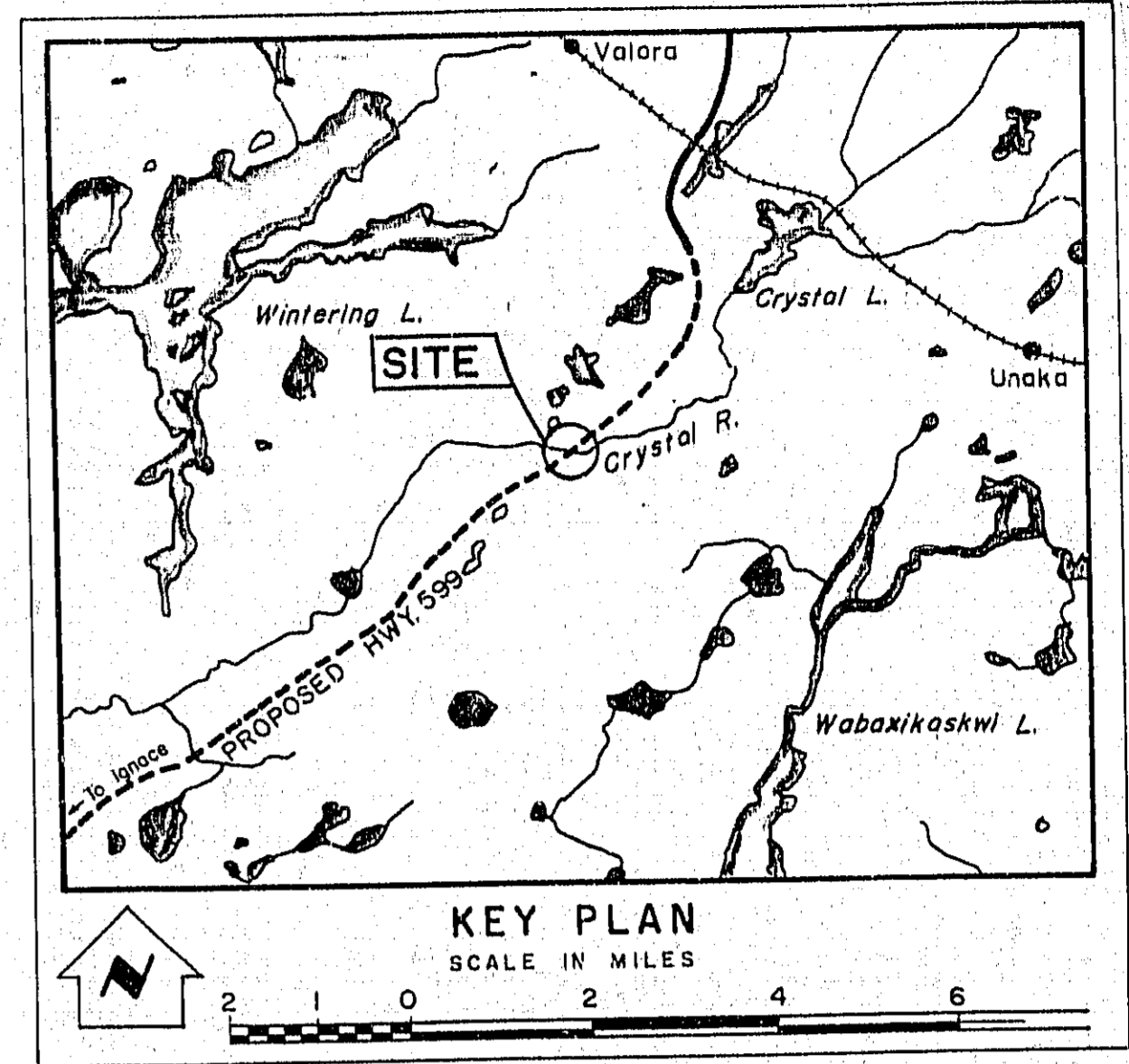


A - A



B - B

SECTIONS  
SCALE IN FEET  
10 5 0 10 20



LEGEND

- Bore Hole
- Cone Penetration Hole
- Bore & Cone Penetration Hole
- Water Levels established at time of field investigation, 14 JULY 64

NO.	ELEVATION	STATION	OFFSET
1	1378.9	1600+40	12' RT.
2	1374.3	1600+48	12' LT.
3	1376.3	1600+75	12' RT.
4	1377.4	1600+82	12' LT.

- NOTE -  
The boundaries between soil strata have been established only at Bore Hole locations. Between Bore Holes the boundaries are assumed from geological evidence and may be subject to considerable error.

REVISIONS

NO.	DATE	BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS - ONTARIO  
MATERIALS & RESEARCH DIVISION - FOUNDATION SECTION

**CRYSTAL RIVER**

KING'S HIGHWAY NO. 599 LINE "T" DIST. NO. 20  
CO. DIST. of KENORA  
TWP. LOT CON.

BORE HOLE LOCATION & SOIL STRATA

SUBM'D. R.M.	CHECKED <i>[Signature]</i>	W.P. NO. 64-F-60	M.B.R. DRAWING NO.
DRAWN P.T.	CHECKED <i>[Signature]</i>	JOB NO. 64-F-60	<b>64-F-60 A</b>
DATE	4 AUG. 1964	SITE NO. 41 S-98	BRIDGE DRAWING NO.
APPROVED <i>[Signature]</i>	PRINCIPAL FOUNDATION ENGINEER	CONT. NO.	<i>05654 P</i>

PRINT RECORD

NO.	FOR	DATE
1	7/25	8/1/64

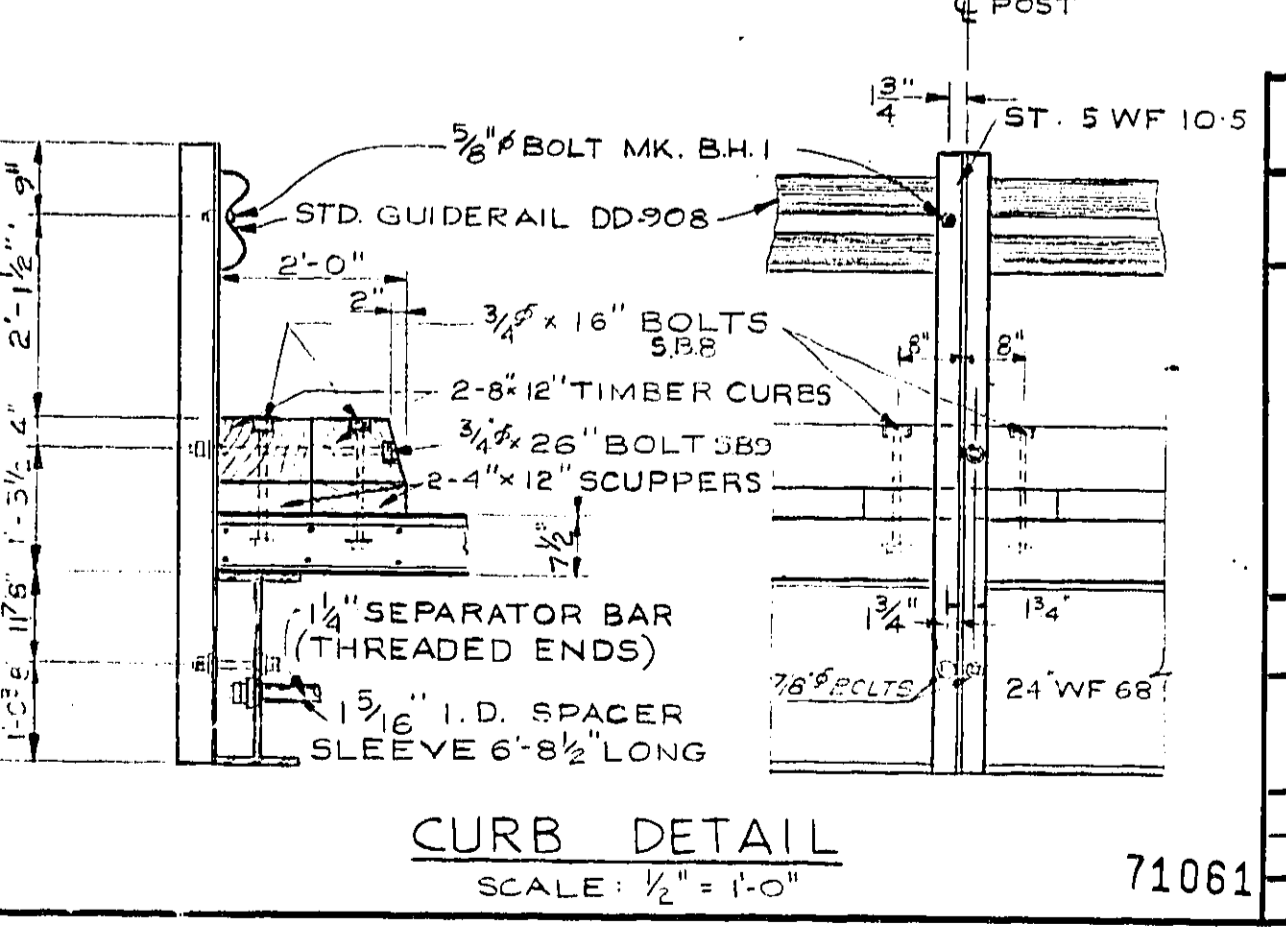
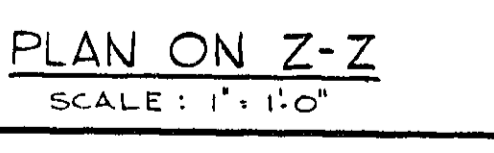
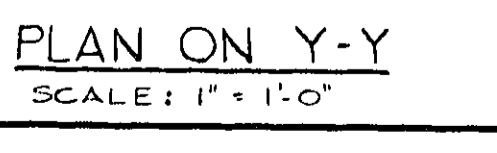
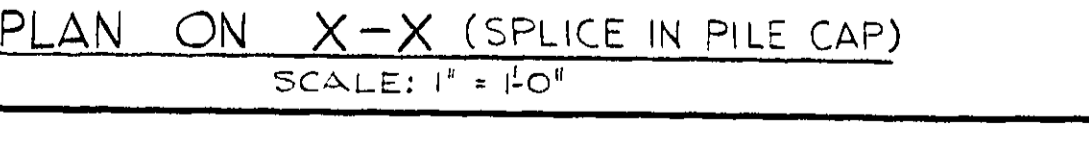
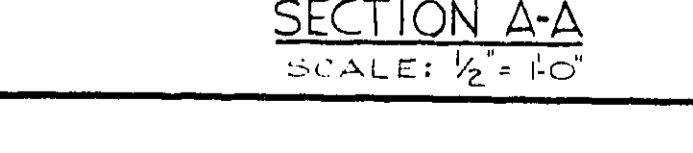
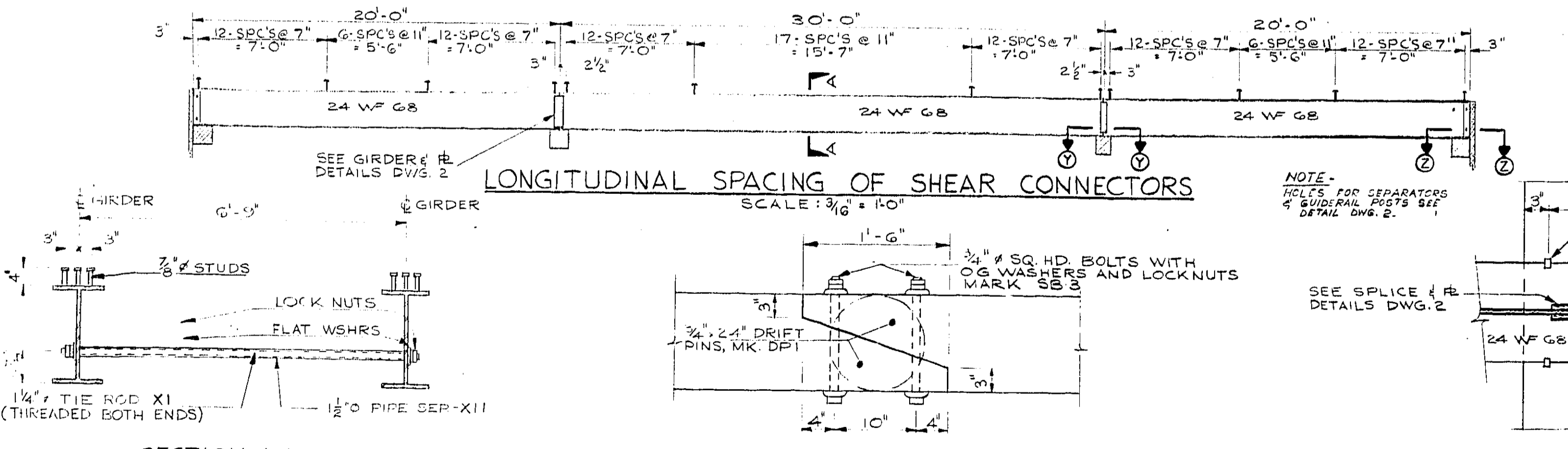
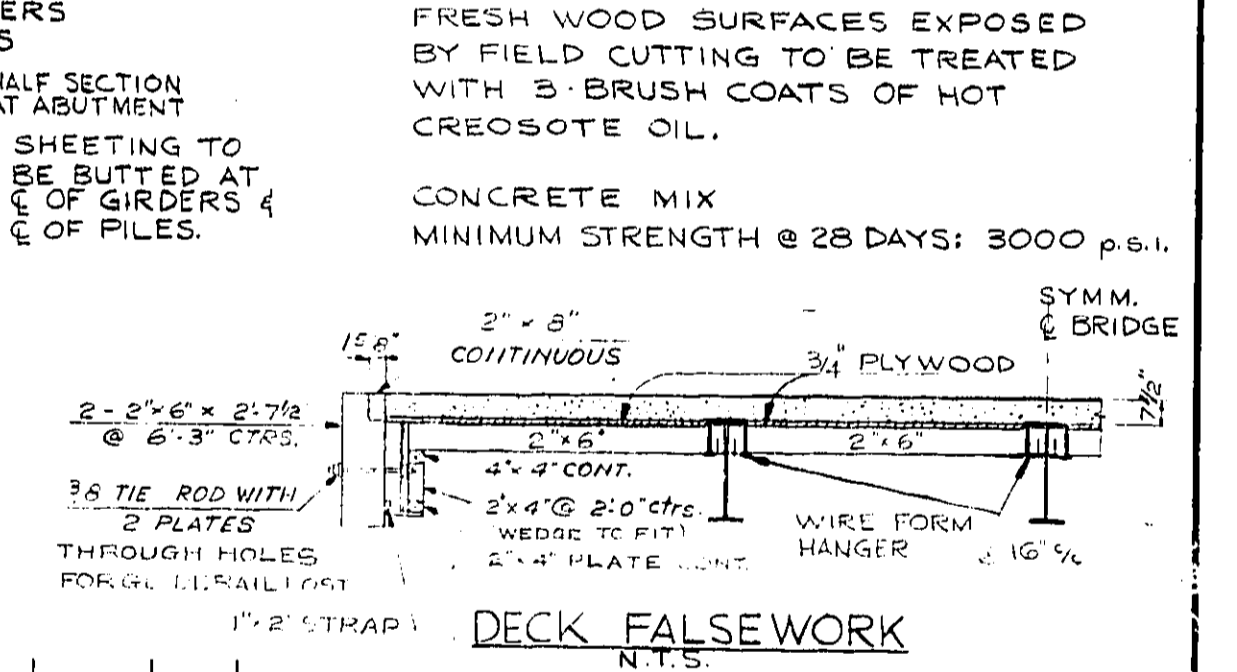
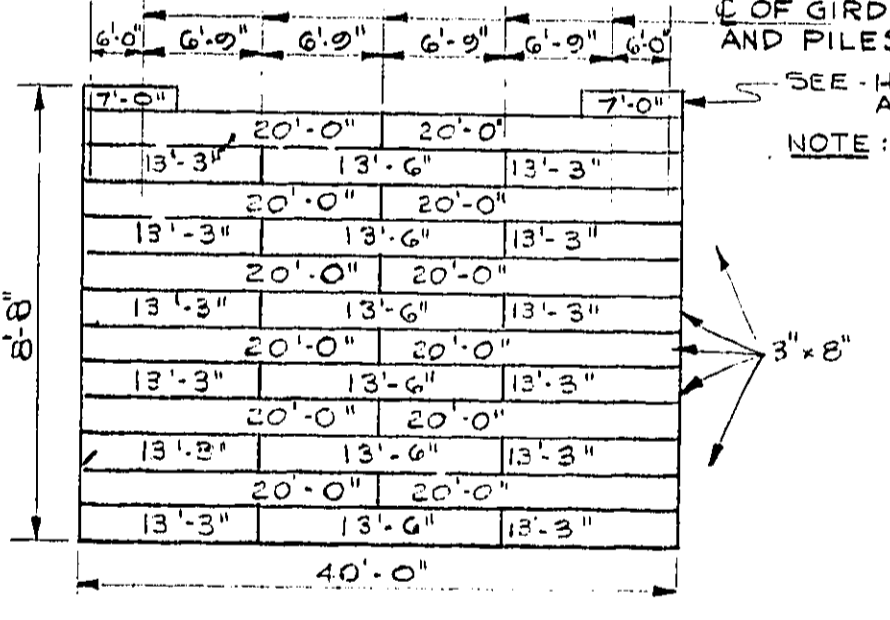
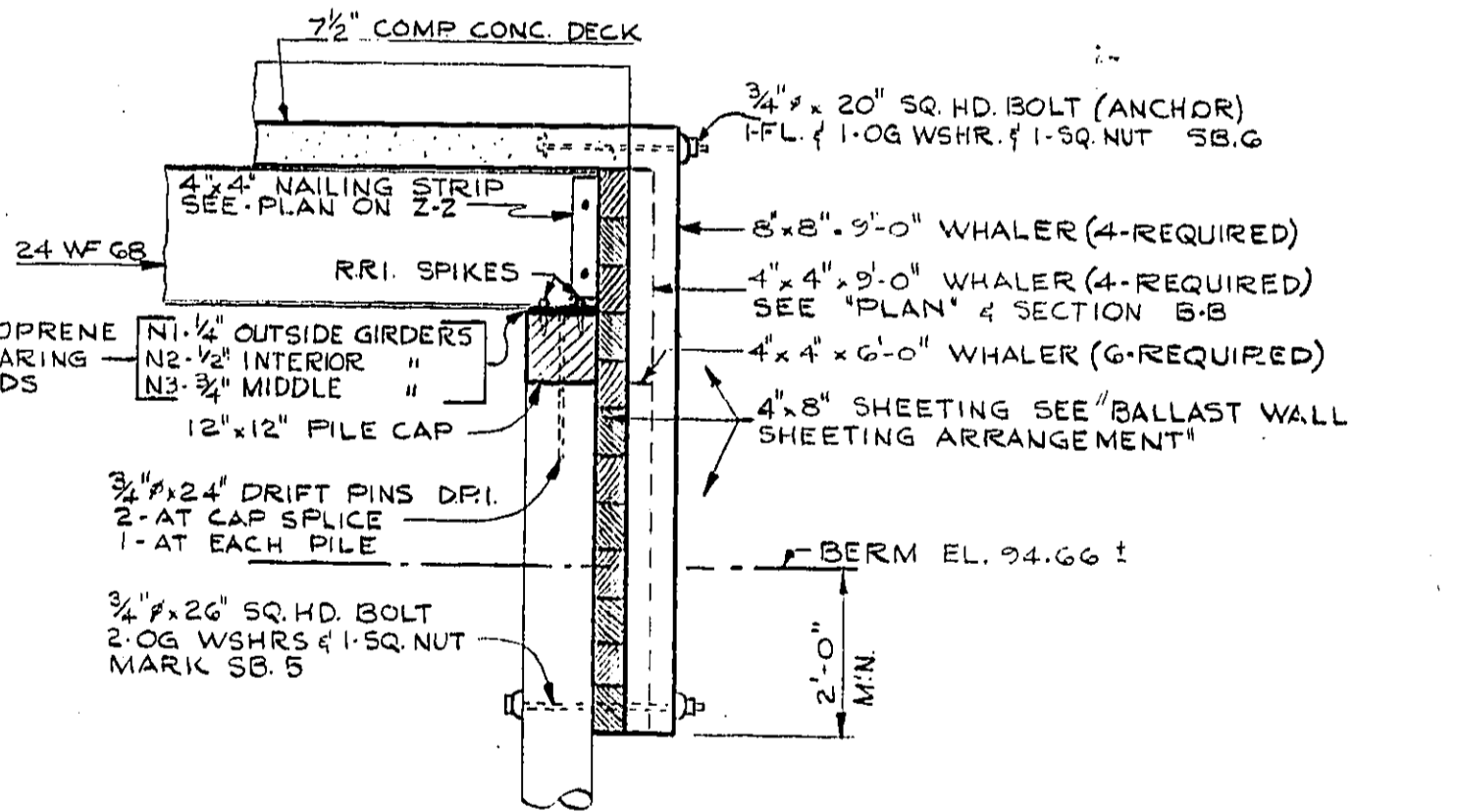
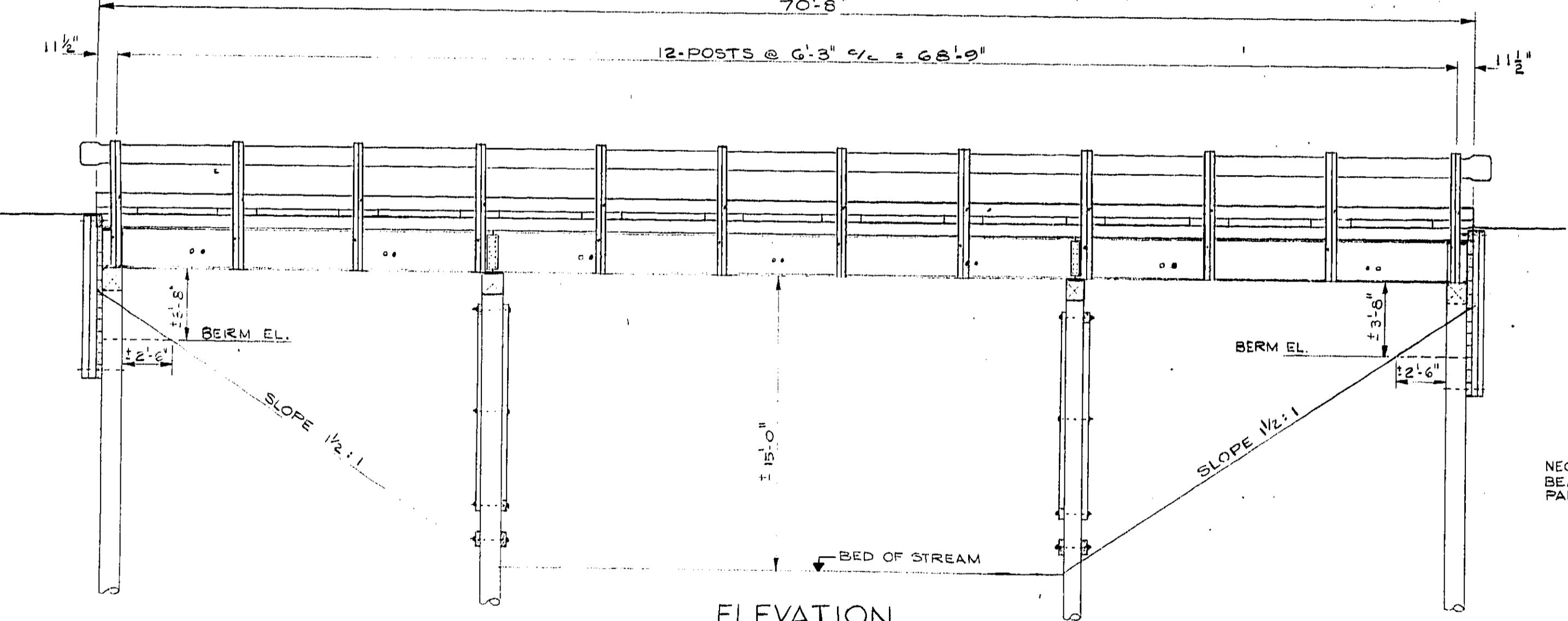
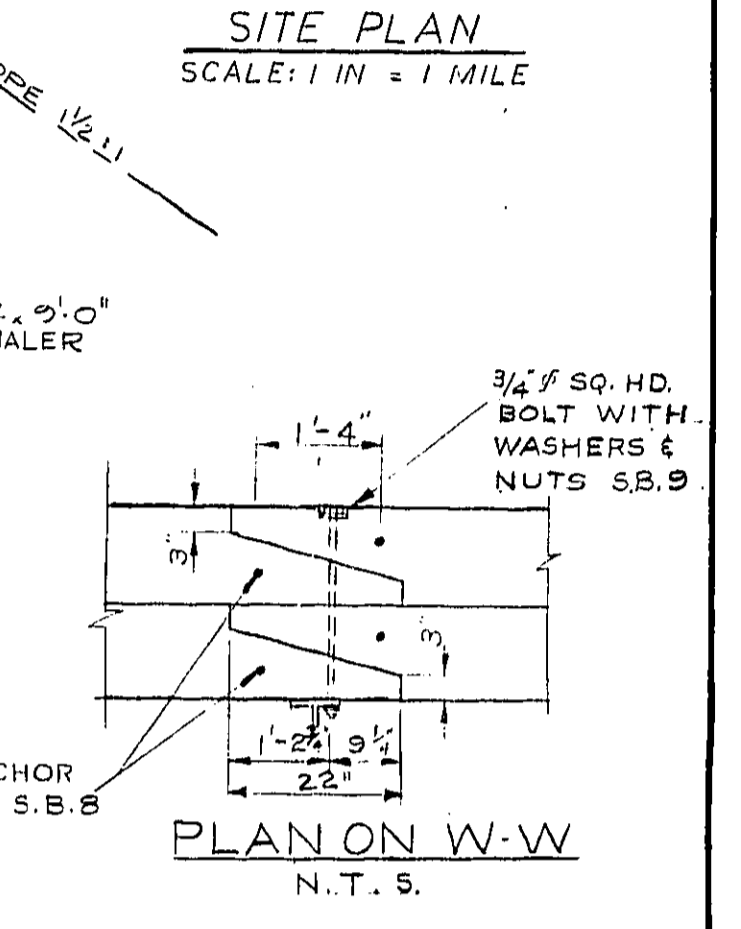
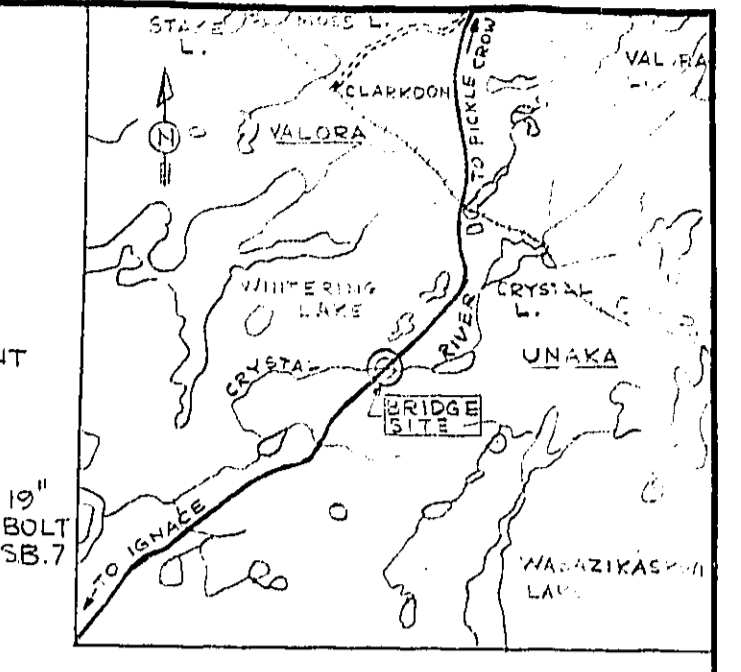
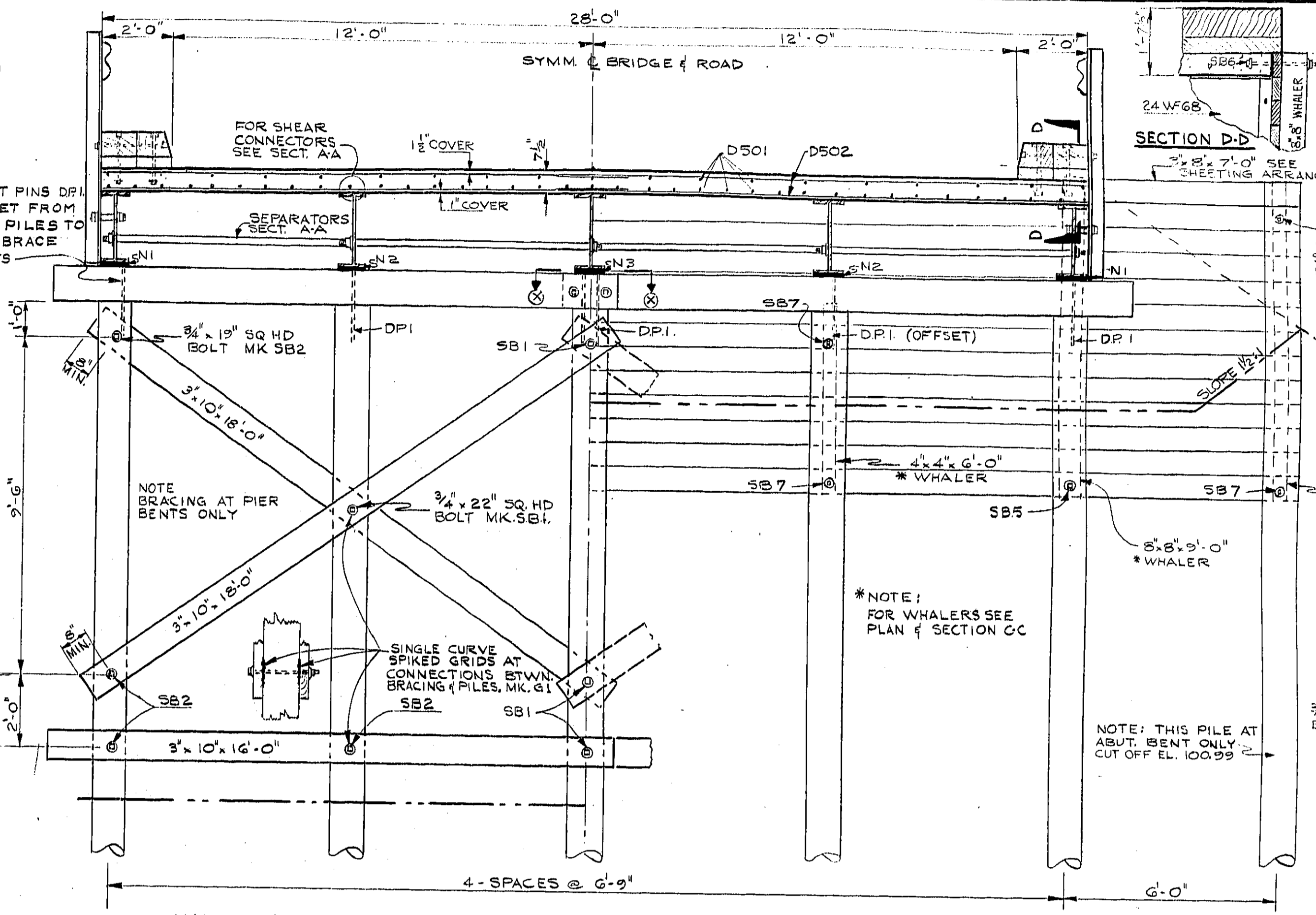
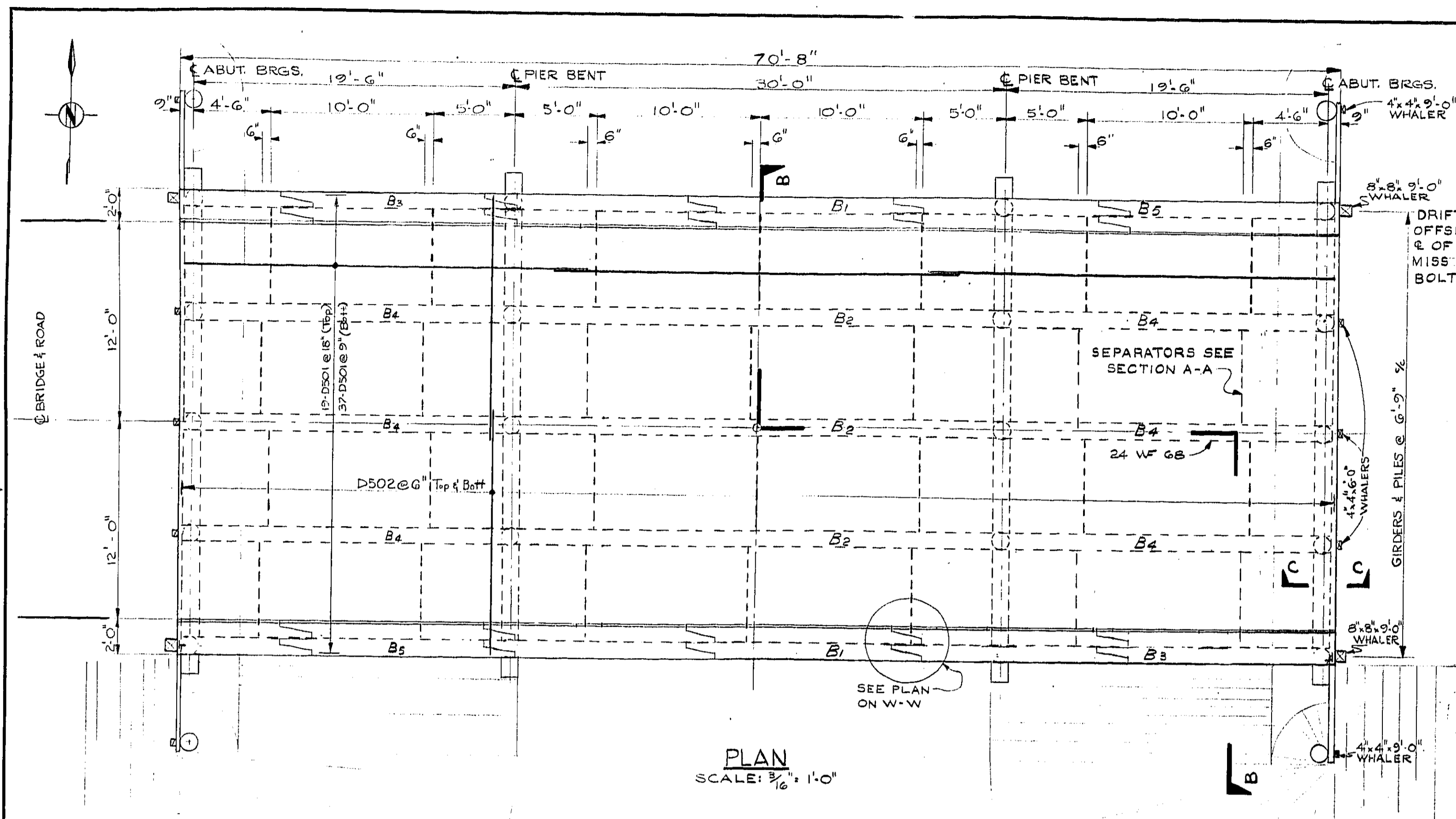
REF. NO. E-4512-1

TWP# 3000-98-2-A

D-2224

812-08

D-2224



**CONSTRUCTION NOTES**

UTMOST CARE MUST BE TAKEN IN HANDLING CREOSOTED TIMBER TO AVOID DEFORMATION OF THE SURFACES. NO CHAINS, HOOKS OR PEAVIES MAY BE USED IN HANDLING SAME.

FIELD DRILLED HOLES MUST BE TREATED WITH HOT CREOSOTE OIL APPLIED WITH A BOLT HOLE TREATER.

FRESH WOOD SURFACES EXPOSED BY FIELD CUTTING TO BE TREATED WITH 3 BRUSH COATS OF HOT CREOSOTE OIL.

CONCRETE MIX MINIMUM STRENGTH @ 28 DAYS: 3000 p.s.i.

PRINT RECORD		
No.	FOR	DATE
23	REVISED	11-6-51

REVISIONS		
NO.	DATE	DESCRIPTION
1	JAN 55	STRUCTURAL STEEL
2	FEB 55	RAIL DECK FALSEWORK

DEPARTMENT OF HIGHWAYS ONTARIO  
BRIDGE DIVISION

**CRYSTAL RIVER BRIDGE**

SITE No. 19

TWP. LOT CON.

PLANS, ELEVATION, SECTIONS & DETAILS

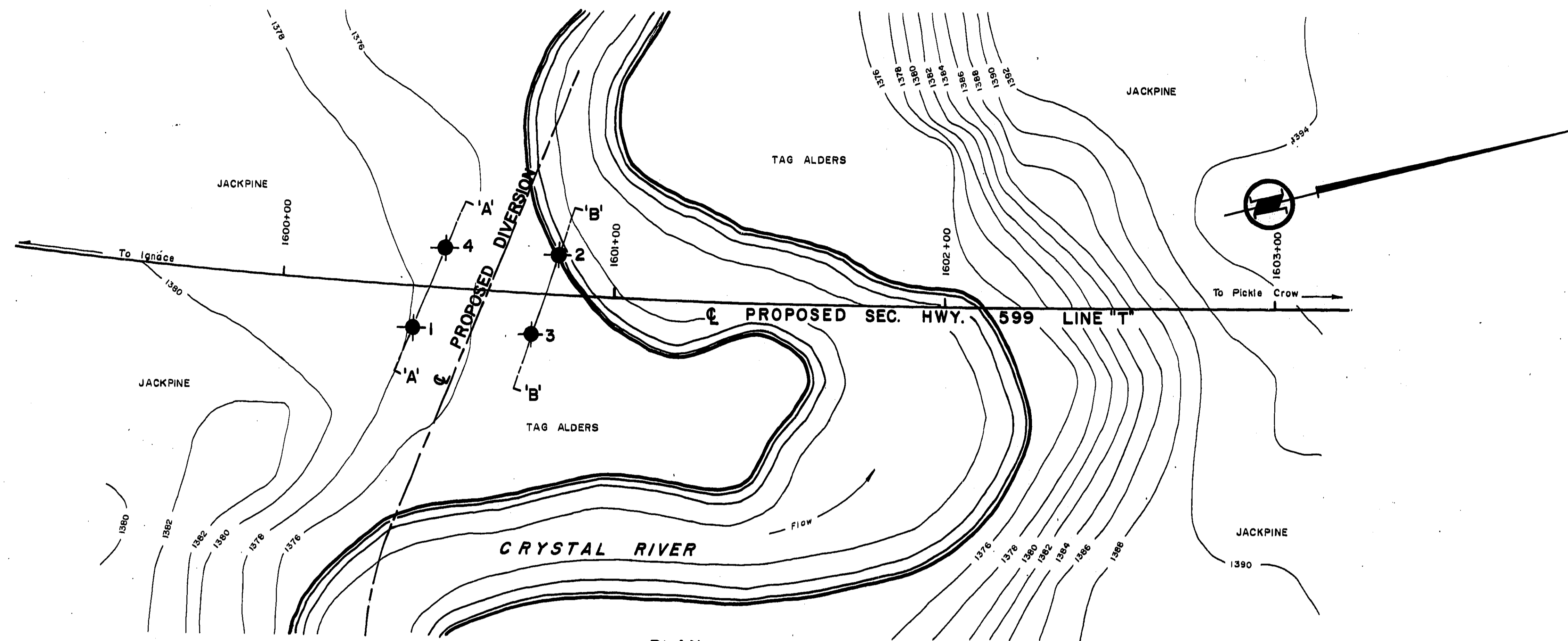
APPROVED: BRIDGE ENGINEER

CONTRACT No. 1810-63

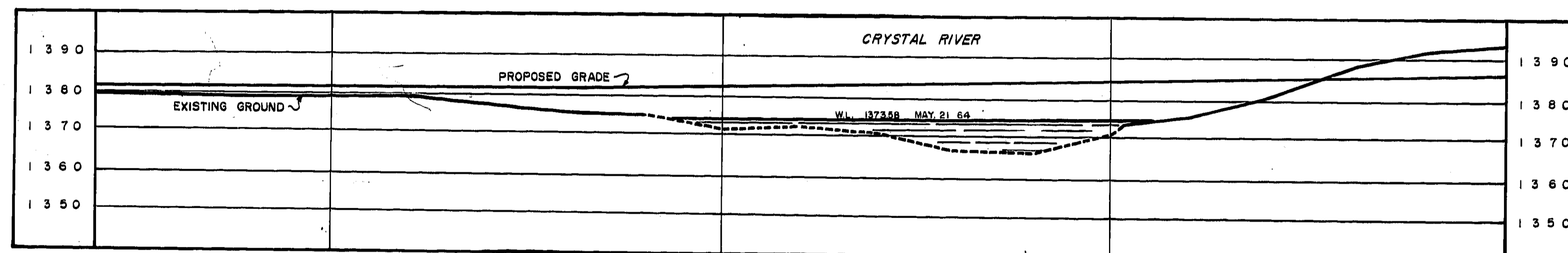
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DATE: SEPT 7/54

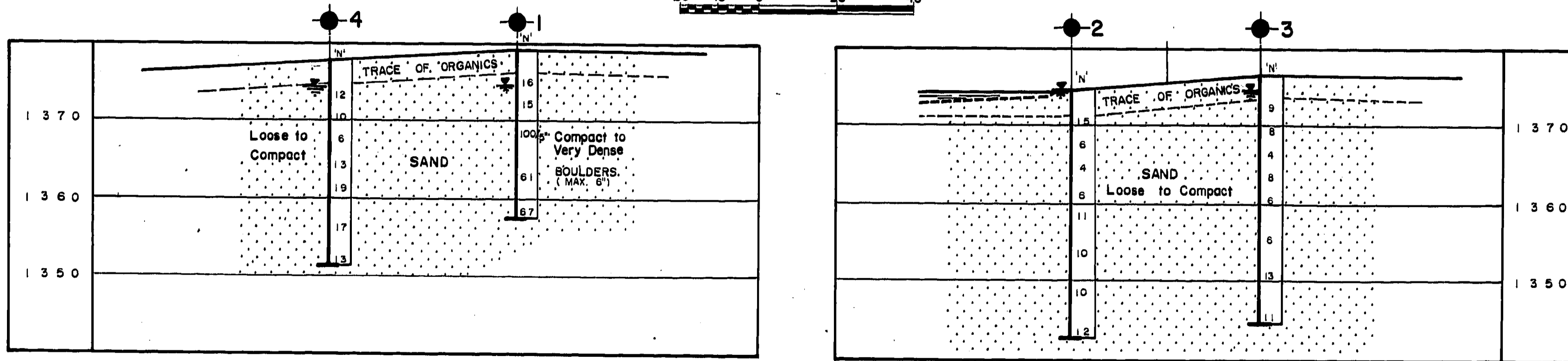
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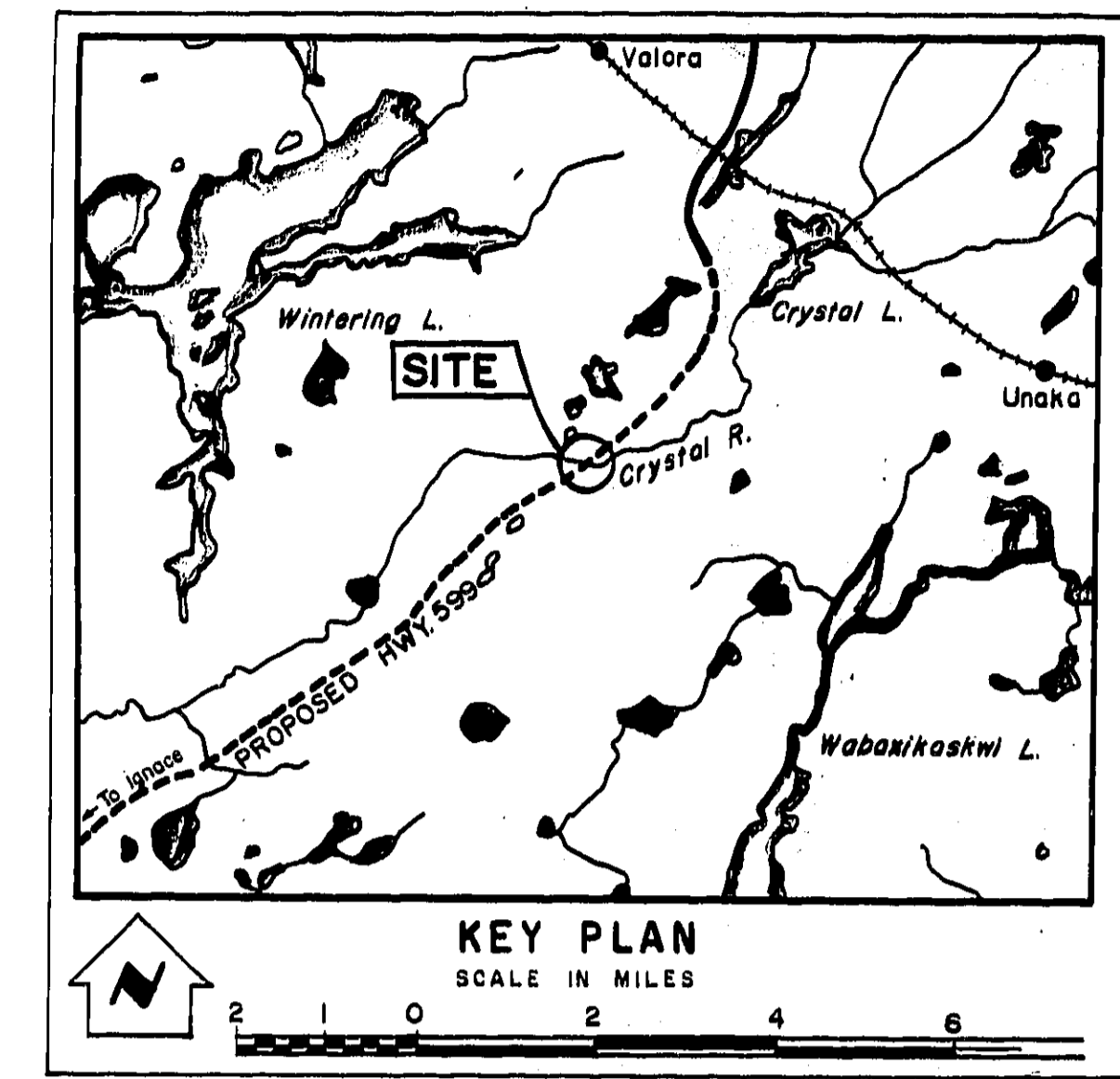
PLAN  
SCALE IN FEET  
20 10 0 20 40



PROFILE  
SCALE IN FEET  
20 10 0 20 40



SECTIONS  
SCALE IN FEET  
10 5 0 10 20



LEGEND

- Bore Hole
- ⊕ Cone Penetration Hole
- ⊗ Bore & Cone Penetration Hole
- ≡ Water Levels established at time of field investigation, 14 JULY 64

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- NOTE -  
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PRINT RECORD

NO.	FOR	DATE
1	23	7/75

REVISIONS

NO.	DATE	BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS - ONTARIO  
MATERIALS & RESEARCH DIVISION - FOUNDATION SECTION

CRYSTAL RIVER

KING'S HIGHWAY NO. 599 LINE "T" DIST. NO. 20  
CO. DIST. OF KENORA  
TWP. LOT CON.

BORE HOLE LOCATION & SOIL STRATA

SUBM'D. P.T.	CHECKED: [Signature]	W.P. NO. 64-63-P	M.R.R. DRAWING NO.
DRAWN P.T.	CHECKED: [Signature]	JOB NO. 64-F-60	64-F-60 A
DATE	4 AUG. 1964	SITE NO. 41 S-98	BRIDGE DRAWING NO.
APPROVED: [Signature]	PRINCIPAL, FOUNDATION ENGINEER	CONT. NO.	D.5654 B

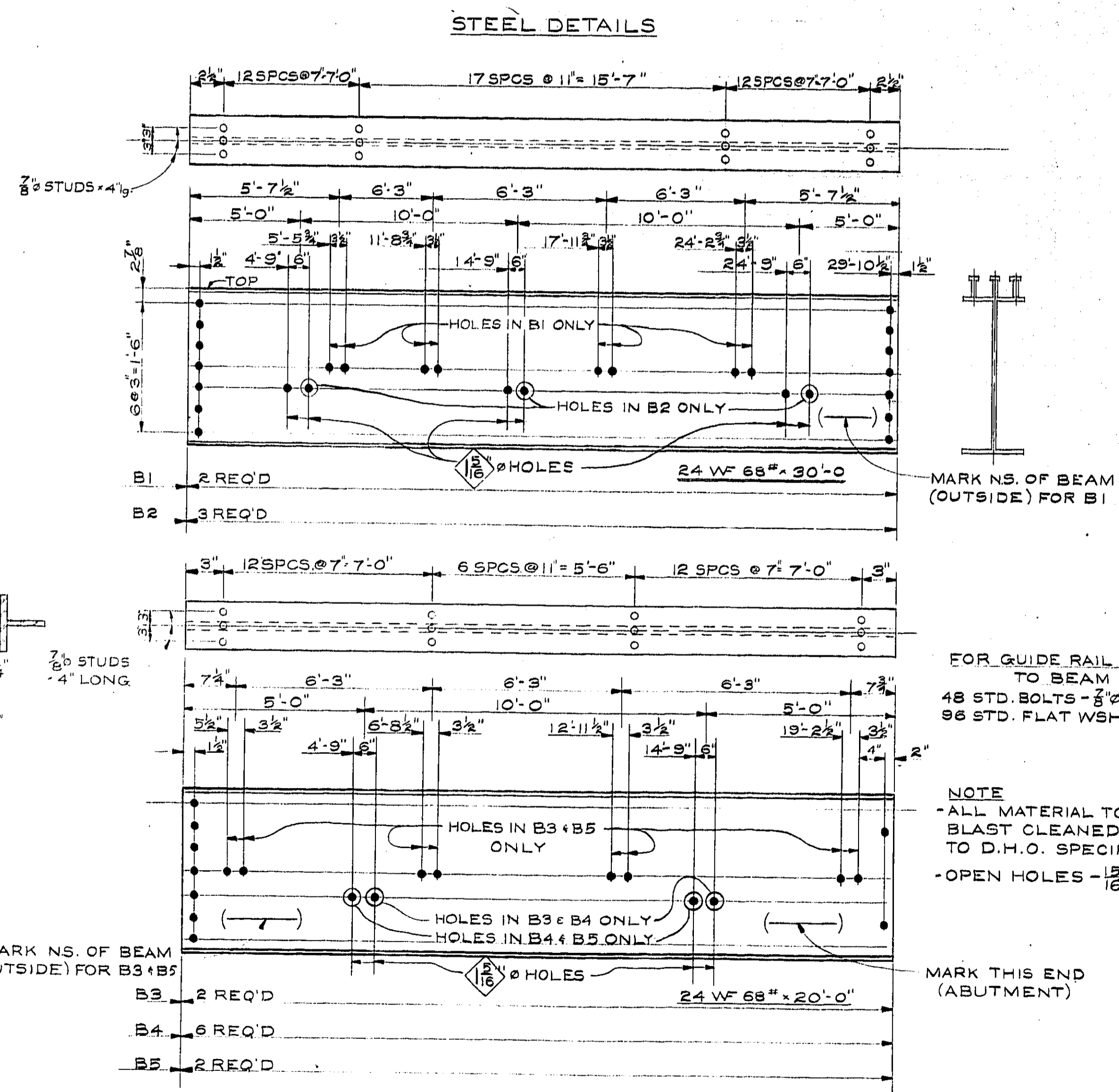
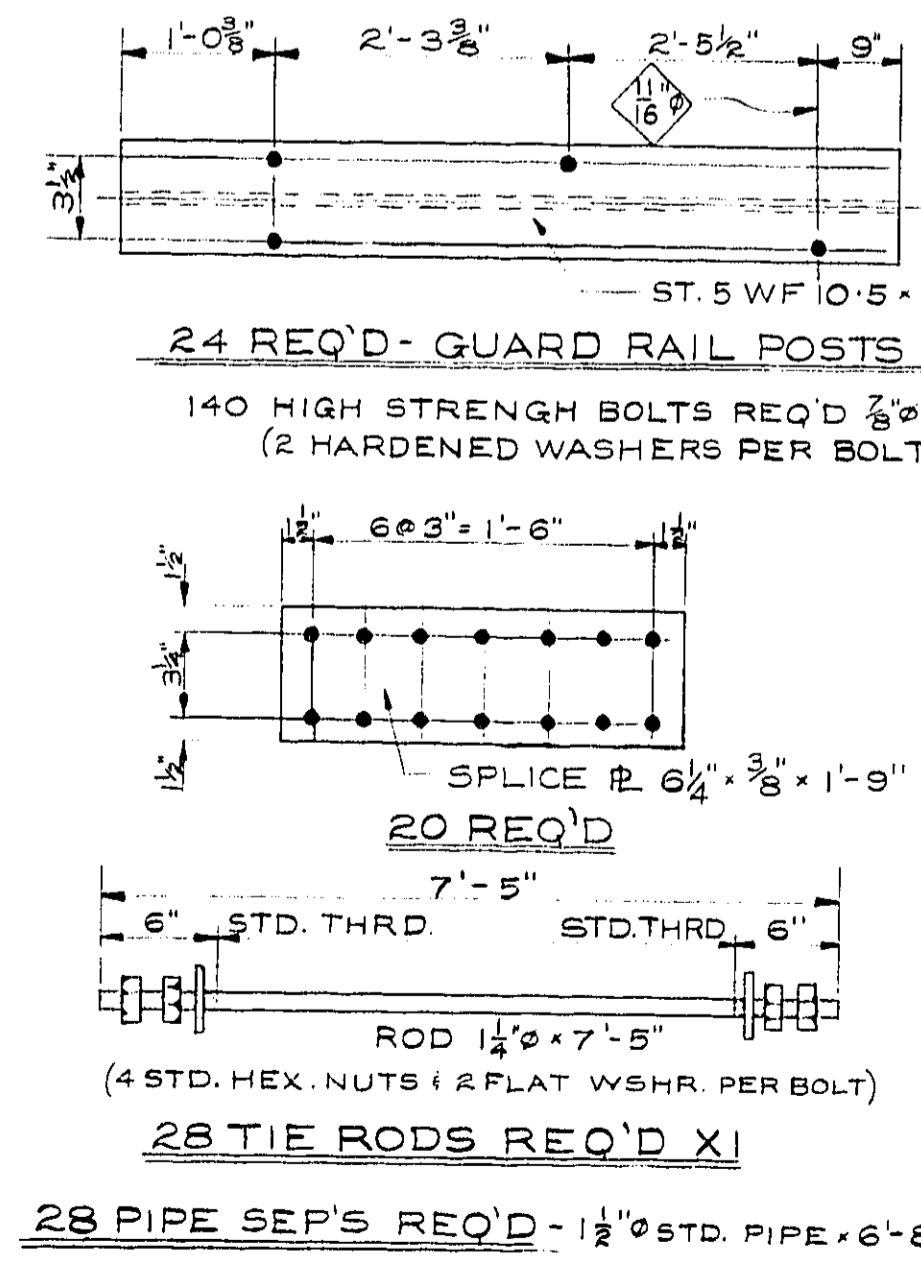
REF. NO. E-4512-1

71062

TWP# 200-98-2-1

HARDWARE BILL OF MATERIAL									
ITEM	MARK	NO REQ'D	SIZE	LENGTH	THREAD	WASHER	NUTS	LOCATION	
SQ. HD. BOLT	S.B.1	10	3/4"	22"	5"	2-O.G.	2-SQ.	AT CONNECTIONS OF BRACES TO PILES	
SQ. HD. BOLT	S.B.2	16	3/4"	19"	5"	do	do	do	
SQ. HD. BOLT	S.B.3	8	3/4"	15"	5"	do	do	AT SPLICE IN PILE CAP	
SQ. HD. BOLT	S.B.4	20	3/4"	11"	3"	2-FLAT	1-SQ.	NAILING STRIP TO GIRDER	
SQ. HD. BOLT	S.B.5	4	3/4"	26"	6"	2-O.G.	do	8'x8'-9'-0" WHALER (BOTTOM) TO SHEETING	
SQ. HD. BOLT (ANCHOR)	S.B.6	4	3/4"	20"	6"	1-O.G. 1-FLAT	do	8'x8'-9'-0" WHALER (TOP) TO SHEETING	
SQ. HD. BOLT	S.B.7	20	3/4"	22"	6"	2-O.G.	do	4'x4'-9'-0" WHALERS (TOP & BOT.) AND 4'x4'-6'-0" WHALERS (TOP & BOT.)	
SQ. HD. BOLT (ANCHOR)	S.B.8	96	3/4"	16"	3"	2-FLAT	do	ANCHORING CURB TO DECK	
SQ. HD. BOLT	S.B.9	24	3/4"	26"	3"	do	2-SQ.	GUIDE RAIL POST TO CURB	
TECO SINGLE CURVE SHEIKED GRID	G1	36						AT ALL CONNECTIONS BETWEEN BRACING & PILE CAPS	
DRIFT PINS	D.P.1	24	3/4"	24"				PILE CAP TO PILES	
NEOPRENE	N1	8	1/4" x 12" x 9"					BEARINGS AT OUTSIDE GIRDERS	
	N2	8	1/4" x 12" x 9"					BEARINGS AT INTERIOR GIRDERS	
	N3	4	3/4" x 12" x 9"					BEARINGS AT MIDDLE GIRDERS	
RAIL ROAD SPIKES (STANDARD OFFSET HEAD)	R.R.1	80	5/8"	6"				GIRDER TO PILE CAP	
BUTTON HEAD BOLT	B.H.1	24	5/8"	11"		1-FLAT	1-HEX.	GUIDE RAIL TO POST	
FLEXBEAM GUIDERAIL		2	STD.	68'-9"					
do	do	4	do	2'-3 1/2"				TERMINAL	

STEEL BILL OF MATERIAL			
ITEM	NO. OF PIECES	SIZE	LENGTH
GIRDER (CENTRE)	5	24 WF 68"	30'-0"
GIRDER (ENDS)	10	24 WF 68"	20'-0"
GIRDER SLICE PLATE	20	3/8" PLATE	6 1/2' x 1'-9"
HIGH STRENGTH STEEL BOLTS	140	7/8"	0'-4"
SHEAR CONNECTORS	1560	7/8" Ø	0'-4"
TIE ROD X1	28	1 1/2" Ø	7'-5"
PIPE SEP'S XII	28	1 1/2" I.D.	6'-8 3/8"
GUIDE RAIL POSTS	24	STD. 5 W/10S	6'-6 1/2"
STD. BOLT (MAX. HD. W/NE (WASHERS PER BOLT))	48	3/8" Ø	6"



REINFORCING STEEL SCHEDULE																				
MARK	LENGTH	NR	SIZE	TYPE	A	B	C	D	E	F	G	H	J	K	L	M	O	R	SHAPE	LOCATION
DECK																				
D501	24'-11"	168	5	STR.																LONGIT. TOP & BOTTOM OF DECK
D502	14'-11"	564	5	STR.																TRANSV. TOP & BOTTOM OF DECK

TIMBER BILL OF MATERIAL									
ITEM	NO REQ'D	SIZE	LENGTH	SPECIES	FINISH	TREATM.	F.B.M.	DETAILS	
PILES	24	12" Ø	40'-0"		ROUGH	CREOS.	6290		
PILE CAPS	8	12" x 12"	16'-0"	DOUGLAS FIR	do	do	1536		
HORIZ. BRACING	4	3" x 10"	16'-0"	JACK PINE	do	do	160		
DIAGONAL BRACING	8	3" x 10"	18'-0"	do	do	do	360		
NAILING STRIP	20	4' x 4"	1'-8"	do	do	do	45		
SHEETING	4	4' x 8"	7'-0"	do	do	do	75		
	24	4' x 8"	20'-0"	do	do	do	1280		
	12	4' x 8"	13'-6"	do	do	do	432		
	24	4' x 8"	13'-6"	do	do	do	848		
WHALER	4	8' x 8"	9'-0"	do	do	do	192		
	4	4' x 4"	9'-0"	do	do	do	48		
	6	4' x 4"	6'-0"	do	do	do	48		
OUTSIDE CURB (WEST END)	2	8' x 12"	8'-1 1/2"	DOUGLAS FIR	M.I.S.	do	130		
OUTSIDE CURB (INTERMEDIATE)	8	8' x 12"	14'-4"	do	do	do	918	<p>NOTE: HOLES TO BE DRILLED AND COUNTERSUNK IN FIELD</p>	
OUTSIDE CURB (EAST END)	2	8' x 12"	14'-4 1/2"	do	do	do	230		
OUTSIDE CURB (WEST END)	2	8' x 12"	8'-1 1/2"	do	ROUGH	do	190		
OUTSIDE CURB (INTERMEDIATE)	8	8' x 12"	14'-4"	do	do	do	918		
OUTSIDE CURB (EAST END)	2	8' x 12"	14'-4 1/2"	do	do	do	230		
SCUPPER BLOCKS	48	4' x 12"	2'-0"	do	do	do	384		

CONCRETE - 45.8 cu. yds.

TOTAL F.B.M. - 14,253

FOR GUIDE RAIL POSTS TO BEAM  
48 STD. BOLTS - 3/8" Ø x 6" LONG  
96 STD. FLAT WSHR. FOR 3/8" Ø BOLTS

NOTE  
- ALL MATERIAL TO BE COMMERCIALY BLAST CLEANED & SHOP PAINTED TO D.H.O. SPECIFICATIONS.  
- OPEN HOLES - 1/8" Ø UNLESS NOTED

PRINT RECORD		
No.	FOR	DATE

REVISIONS		
NO.	DATE	DESCRIPTION

DEPARTMENT OF HIGHWAYS ONTARIO  
BRIDGE DIVISION

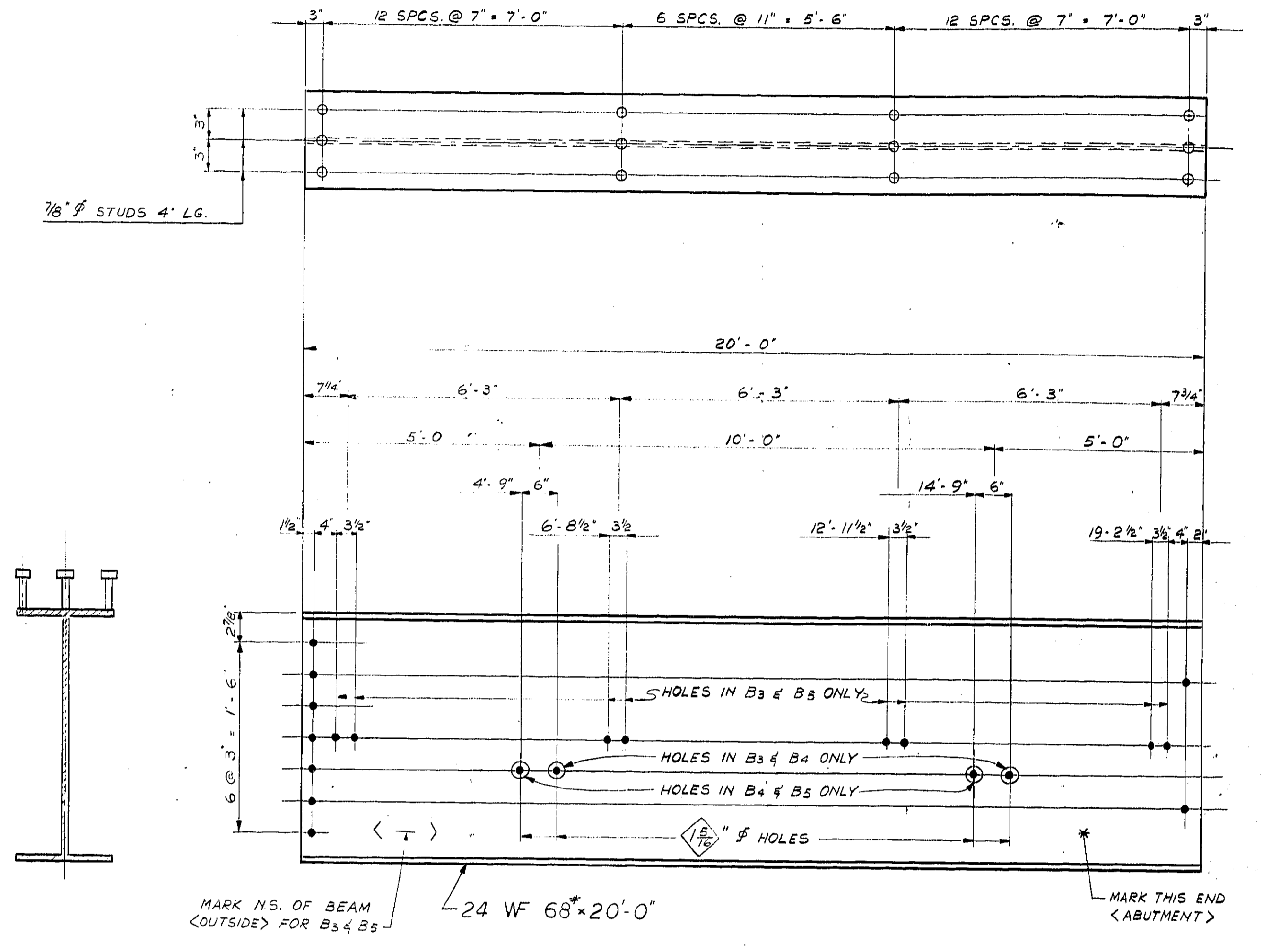
**CRYSTAL RIVER BRIDGE**

KING'S HIGHWAY No. \_\_\_\_\_ DIST. No. 19  
CO. \_\_\_\_\_  
TWP. \_\_\_\_\_ LOT \_\_\_\_\_ CON. \_\_\_\_\_

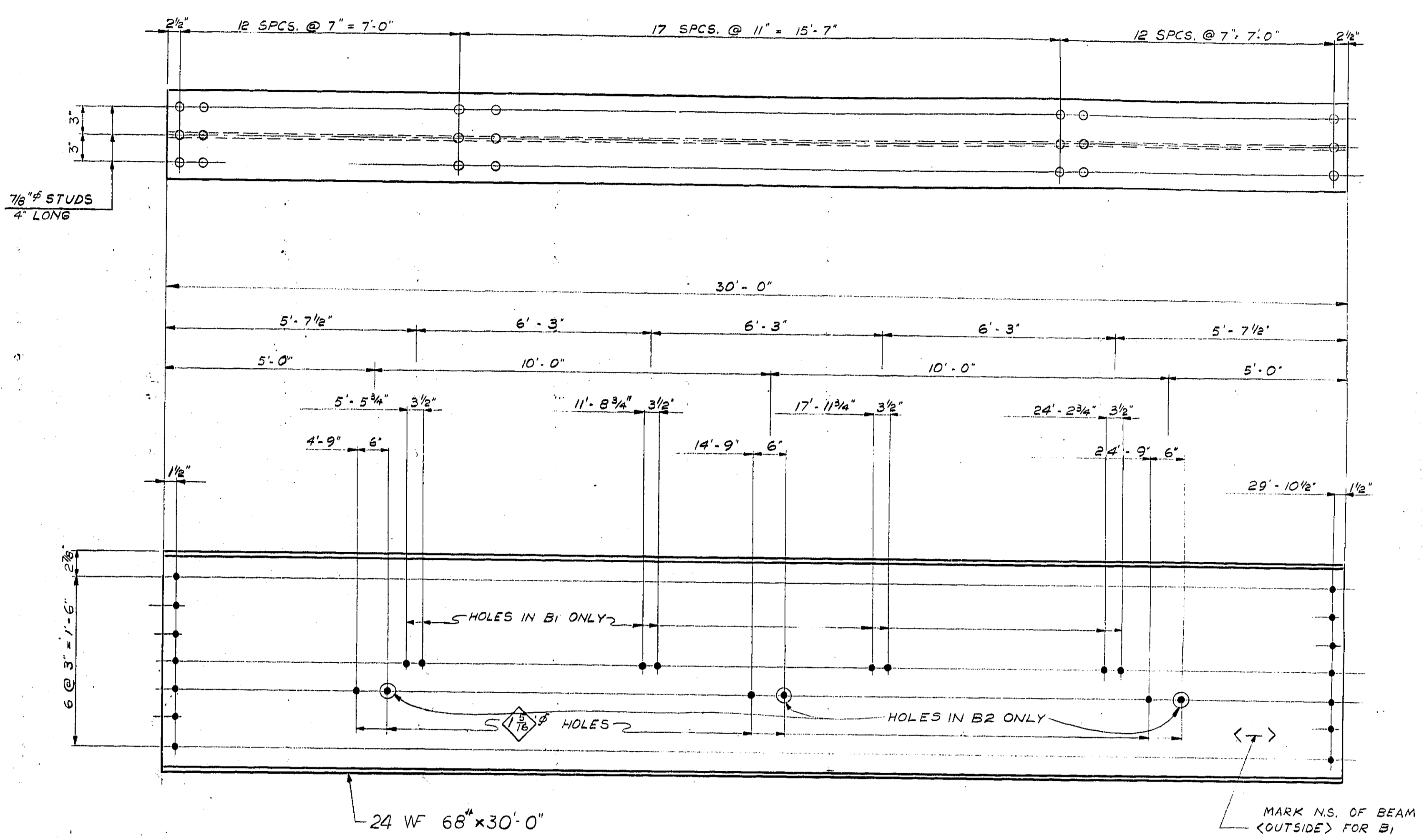
BILLS OF MATERIAL

APPROVED \_\_\_\_\_ BRIDGE ENGINEER SITE No. 41 S-98 W.P. No. \_\_\_\_\_  
DESIGN \_\_\_\_\_ CHECK \_\_\_\_\_ CONTRACT No. \_\_\_\_\_  
DRAWING R.A.J. CHECK \_\_\_\_\_ DATE JAN./88 LOADING \_\_\_\_\_ DRAWING No. D-5554-3

TWP# 3000-95-3-A



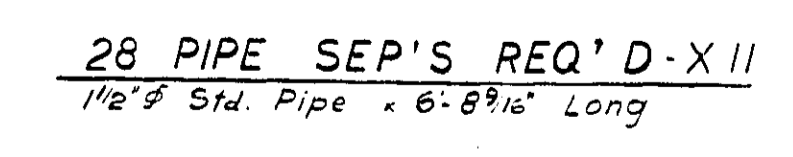
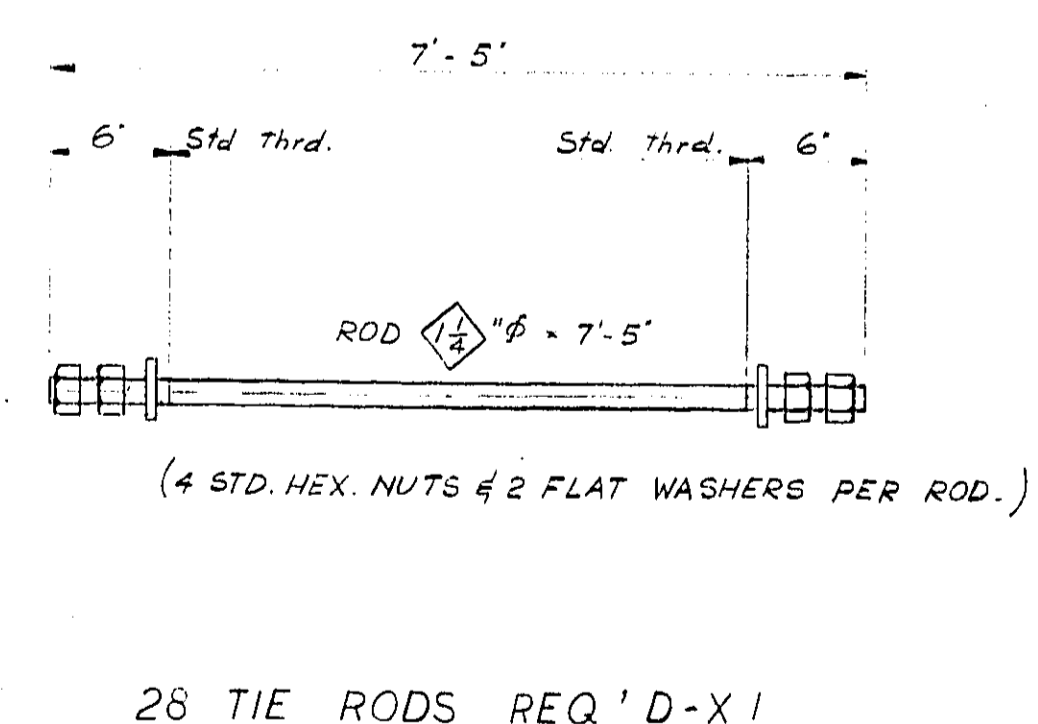
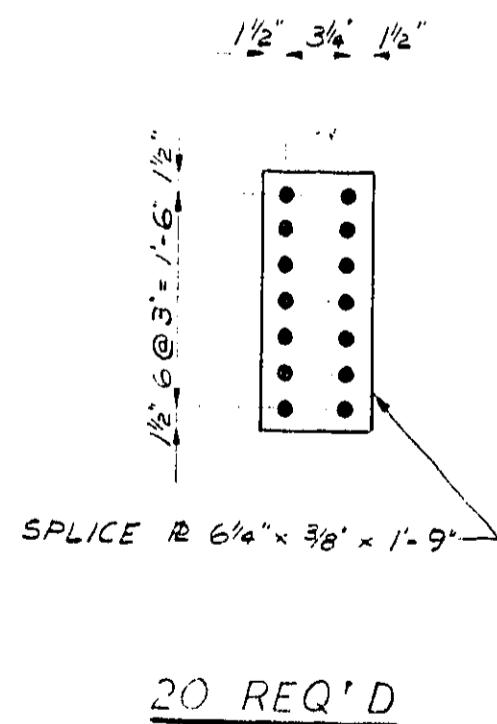
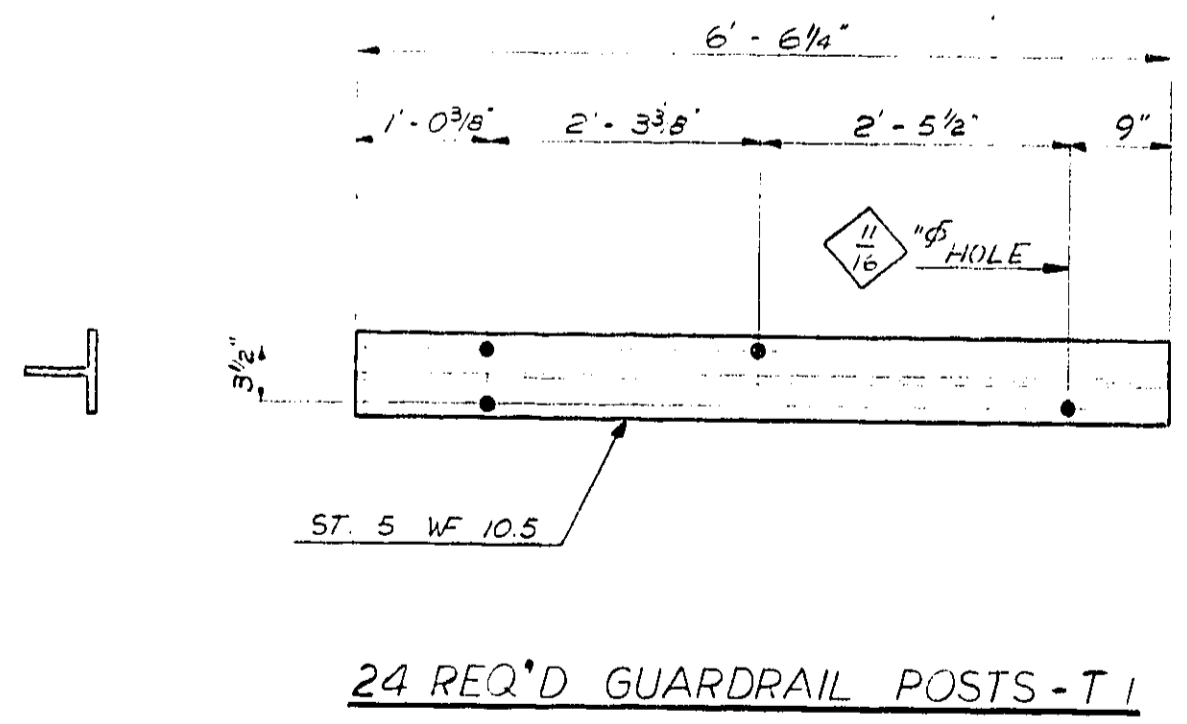
2 BEAMS REQ'D B3  
6 BEAMS REQ'D B4  
2 BEAMS REQ'D B5



2 BEAMS REQ'D B1  
3 BEAMS REQ'D B2

NOTE:  
ALL MATERIAL TO BE G 40.4 STEEL, COMMERCIALY BLAST CLEANED AND SHOP PAINTED TO D.H.Q. SPECIFICATION.  
OPEN HOLES: 1/8" UNLESS NOTED.

PRINT RECORD		
No.	FOR	DATE
1	REVISION	5/75



REQUIRED MISC. MATL.  
FOR GUIDERAIL POSTS TO BEAMS  
48 STD. BOLTS - 7/8" x 6" LONG  
96 STD. FLAT WASHERS FOR 7/8" BOLTS.  
FOR SPLICE - GIRDER CONNECTION  
140-HIGH STRENGTH BOLTS - 7/8" x 2 3/4"  
280-HARDENED WASHERS FOR 7/8" BOLTS.

REVISIONS		
DATE	BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS ONTARIO  
BRIDGE DIVISION

STANDARD FOR 20'-30'-20' BRIDGE  
CRYSTAL RIVER BRIDGE

KING'S HIGHWAY No. \_\_\_\_\_ DIST. No. 19  
CO. \_\_\_\_\_  
TWP. \_\_\_\_\_ LOT \_\_\_\_\_ CON. \_\_\_\_\_

APPROVED \_\_\_\_\_ SITE No. 415-98 W.P. No. \_\_\_\_\_  
DESIGN \_\_\_\_\_ CHECK \_\_\_\_\_ CONTRACT No. \_\_\_\_\_  
DRAWING M.M. CHECK \_\_\_\_\_ DRAWING No. D-5554-4  
DATE [JAN/1965] LOADING [1420/516]

TWP# 3000-98-4-A