

101-0141

101-0141

\* 201-1-2A, 201-2A, 201-3-2A  
201-2HB, 201-2HB-1  
201-3HB, 3HB-4, 3HB-5, 3HB-6

FEDERAL AID ROUTE NO.	SEC.	COUNTY	TOTAL LENGTH	PLAN NO.
412	*	WINNEBAGO	3.17	1

P-92-026-74



LOCATION OF SECTION INDICATED THUS

INDEX OF SHEETS ON SHEET NO. 2

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

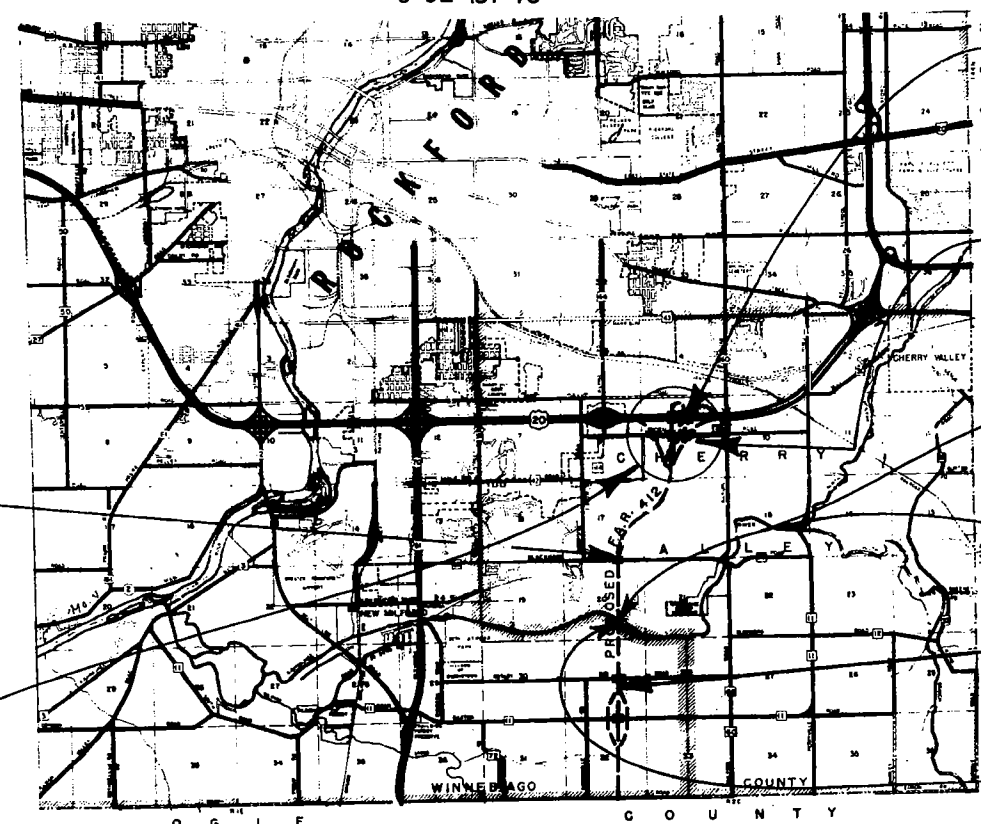
PLANS FOR PROPOSED  
FEDERAL AID HIGHWAY

F. A. ROUTE 412

SECTION 201-1-2A, 201-2A, 201-3-2A  
SECTION 201-2HB, 201-2HB-1  
SECTION 201-3HB, -3HB-4, -3HB-5, -3HB-6  
F.A. PROJECT FFD-412-5(II)

WINNEBAGO COUNTY

C-92-157-78



- PROJECT FFD -412-5 (II)  
SECTION 201-3-2A ENDS  
F.A. ROUTE 412  
STA. 2569 + 85
- SECTION 201-3-2A BEGINS  
F.A. ROUTE 412  
STA. 2558 + 85.39
- SECTION 201-2A ENDS  
F.A. ROUTE 412  
STA. 2558 + 85.39
- SECTION 201-2A BEGINS  
F.A. ROUTE 412  
STA. 2430 + 87
- OMISSION FOR SECTION 201-1B  
F.A. ROUTE 412  
STA. 2419+16.5 TO 2430+87
- PROJECT FFD -412-5 (II)  
SECTION 201-1-2A BEGINS  
F.A. ROUTE 412  
STA. 2386+50.00
- SECTION 201-1-2A ENDS  
F.A. ROUTE 412  
STA. 2419 + 16.5

**SECTION 201-3HB**  
INCLUDES COMPLETE CONSTRUCTION OF A SIMPLE SPAN (1 AT 86'-0") WELDED PLATE GIRDER STRUCTURE CARRYING NORTHBOUND F.A. ROUTE 412 OVER TOWNSHIP ROAD 223 (LINDEN ROAD) AT STATION 2559+60.39 ALONG CENTERLINE F.A. ROUTE 412.

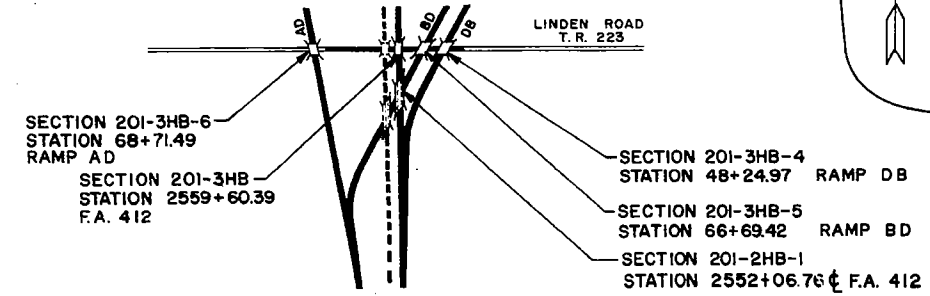
**SECTION 201-3HB-4**  
INCLUDES COMPLETE CONSTRUCTION OF A SIMPLE SPAN (1 AT 103'-0") WELDED PLATE GIRDER STRUCTURE CARRYING RAMP DB OVER TOWNSHIP ROAD 223 (LINDEN ROAD) AT STATION 48+24.97 ALONG BASELINE RAMP DB.

**SECTION 201-3HB-5**  
INCLUDES COMPLETE CONSTRUCTION OF A SIMPLE SPAN (1 AT 103'-0") WELDED PLATE GIRDER STRUCTURE CARRYING RAMP BD OVER TOWNSHIP ROAD 223 (LINDEN ROAD) AT STATION 66+69.42 ALONG BASELINE RAMP BD.

**SECTION 201-3HB-6**  
INCLUDES COMPLETE CONSTRUCTION OF A SIMPLE SPAN (1 AT 88'-0") WELDED PLATE GIRDER STRUCTURE CARRYING RAMP AD OVER TOWNSHIP ROAD 223 (LINDEN ROAD) AT STATION 68+71.49 ALONG BASELINE RAMP AD.

**SECTION 201-2HB-1**  
INCLUDES COMPLETE CONSTRUCTION OF A THREE SPAN (1 AT 47'-6", 1 AT 159'-0" & 1 AT 47'-6") WELDED PLATE GIRDER STRUCTURE CARRYING NORTHBOUND F.A. ROUTE 412 OVER RAMP BD AT STATION 2552+06.76 ALONG CENTERLINE F.A. ROUTE 412.

**SECTION 201-2HB** INCLUDES COMPLETE CONSTRUCTION OF DUAL SIMPLE SPAN (1 AT 86'-6") WELDED PLATE GIRDER STRUCTURES CARRYING F.A. ROUTE 412 OVER C.H. ROUTE 20 (BLACKHAWK ROAD) AT STATION 2468+11.84 ALONG CENTERLINE F.A. ROUTE 412.



BRIDGE SECTION LOCATION PLAN

**DESIGN DESIGNATION**  
F.A. ROUTE 412 -3015 (95) TRUNK 17.06 (CRPCC-20)  
LINDEN ROAD 180(97) COLLECTOR 0.07(BIT. CONC.-20)

LAYOUT  
SCALE 1"=1 MILE

GROSS LENGTH OF IMPROVEMENT = 18,335 FEET = 3.473 MILES  
NET LENGTH OF IMPROVEMENT = 17,164.5 FEET = 3.251 MILES

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUBMITTED April 9 1979  
EXAMINED May 25 1979  
PASSED May 25 1979  
APPROVED May 25 1979

DISTRICT ENGINEER  
ENGINEER OF PLANS AND CONTRACTS  
ENGINEER OF DESIGN  
SUPERVISOR OF HIGHWAYS

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED  
DIVISION ADMINISTRATOR DATE

REVISED SET  
10-1-79

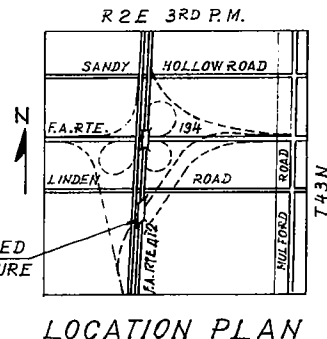
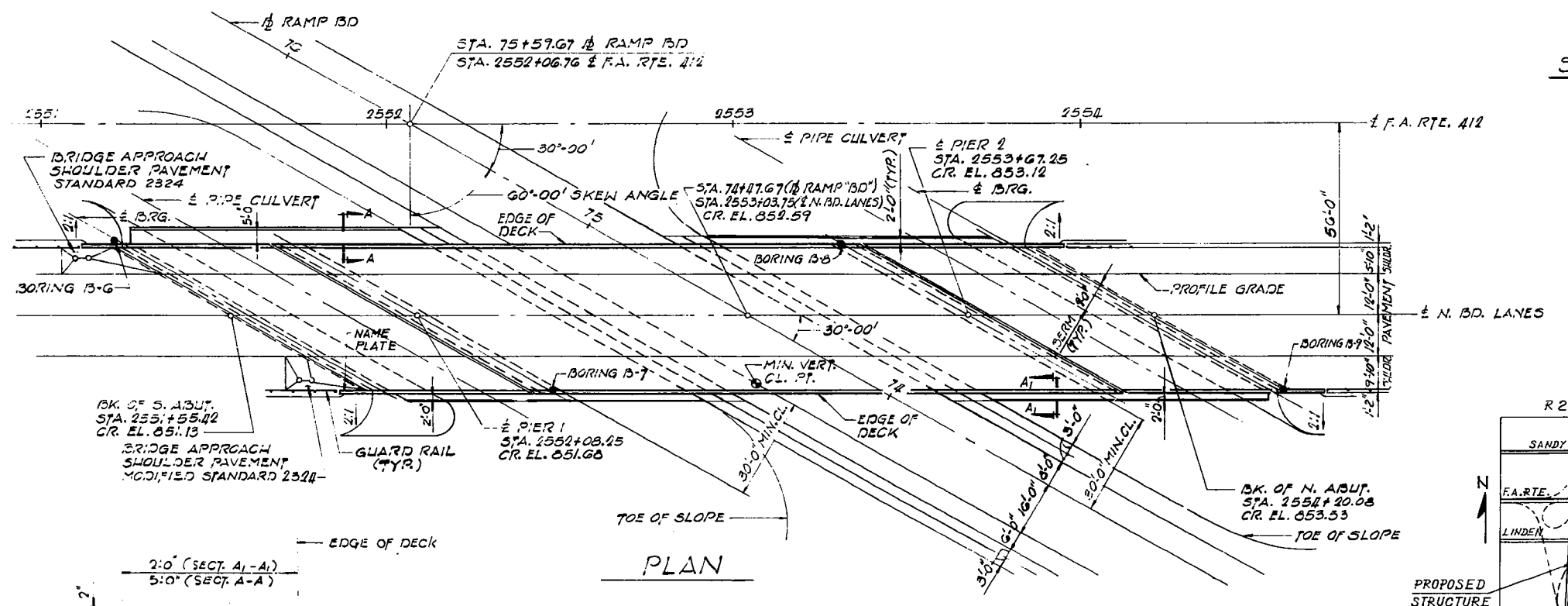
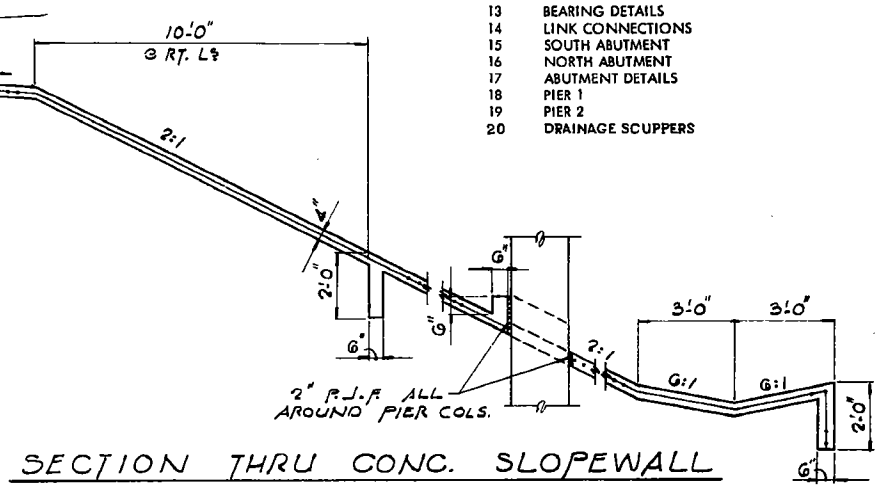
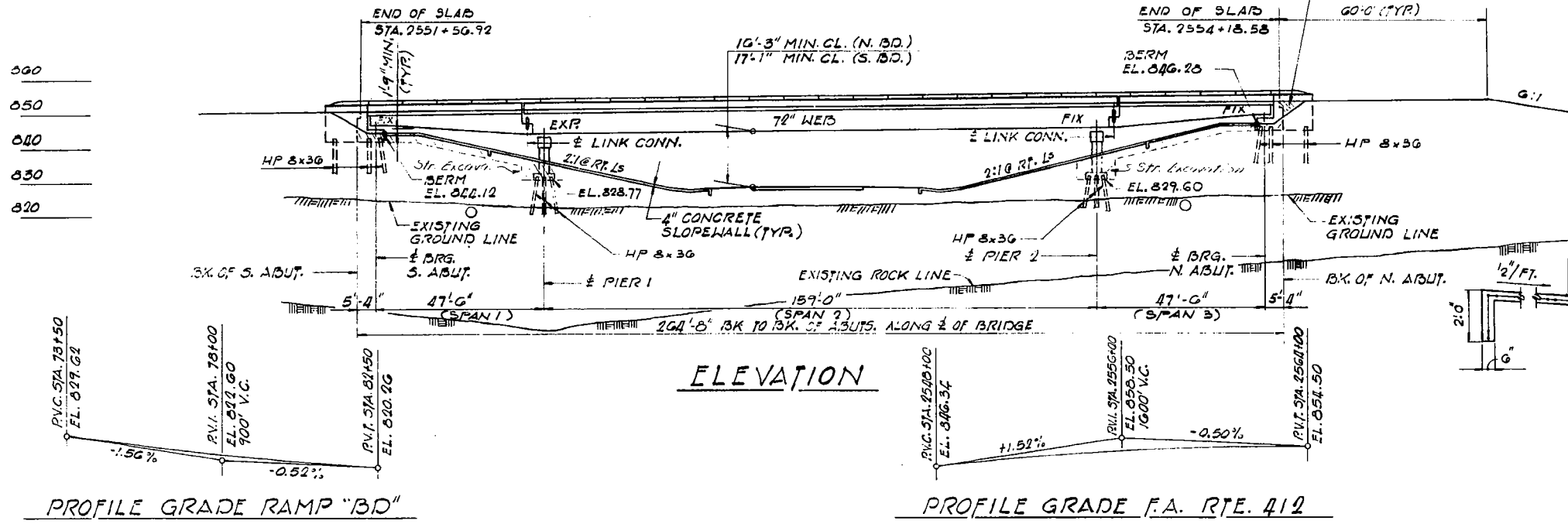
BENCHMARK #7: TOP CONC. R.O.W. MARKER, NORTH SIDE LINDEN, 170' EAST OF F.A. 412 ELEV. = 854.767

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
EA. 412	201-2HB-1	WINNEBAGO	347	93
STA.		TO STA.		
F.H.W. & RES. NO. 4		ILLINOIS		PROJECT

SHEET 1 OF 20

INDEX OF SHEETS

- 1 GENERAL PLAN AND ELEVATION
- 2 GENERAL NOTES AND QUANTITIES
- 3 DECK REINFORCEMENT PLAN SPANS 1, 2 AND 3
- 4 DECK DETAILS
- 5 NEOPRENE EXPANSION JOINTS (2")
- 6 NEOPRENE EXPANSION JOINTS (4")
- 7 ALUMINUM HANDRAIL DETAILS
- 8 TOP OF SLAB ELEVATIONS
- 9 TOP OF SLAB ELEVATIONS
- 10 FRAMING PLAN
- 11 BEAM & GIRDER DETAILS
- 12 DIAPHRAGMS & CROSS FRAMES
- 13 BEARING DETAILS
- 14 LINK CONNECTIONS
- 15 SOUTH ABUTMENT
- 16 NORTH ABUTMENT
- 17 ABUTMENT DETAILS
- 18 PIER 1
- 19 PIER 2
- 20 DRAINAGE SCUPPERS



**DESIGN LOAD**  
 L.L. = HS20-44  
 FUTURE D.L. = 25 P.S.F.

**DESIGN STRESSES**  
 $f_c = 3,500$  P.S.I.

$f_c = 1,400$  P.S.I. (SUBSTRUCTURE)  
 $f_c = 1,000$  P.S.I. (WITH EARTH PRESSURE)  
 $v = 56.2$  P.S.I. (FOOTING)  
 $n = 10$

**REINFORCING STEEL**  
 $f_r = 20,000$  P.S.I. (SUBSTRUCTURE)

**STRUCTURAL STEEL**  
 $f_s = 20,000$  P.S.I. (M183)

**MAX. L.L. DEFLECTION**  
 $1/1200$  (COMPOSITE)

**DESIGN SPECIFICATIONS**  
 AASHTO: 1975, AND INTERIMS AS APPLICABLE

**DECK SLAB**  
 $f_y = 60,000$  psi  
 $f_c = 3,500$  psi

SECTION A-A & A<sub>1</sub>-A<sub>1</sub>



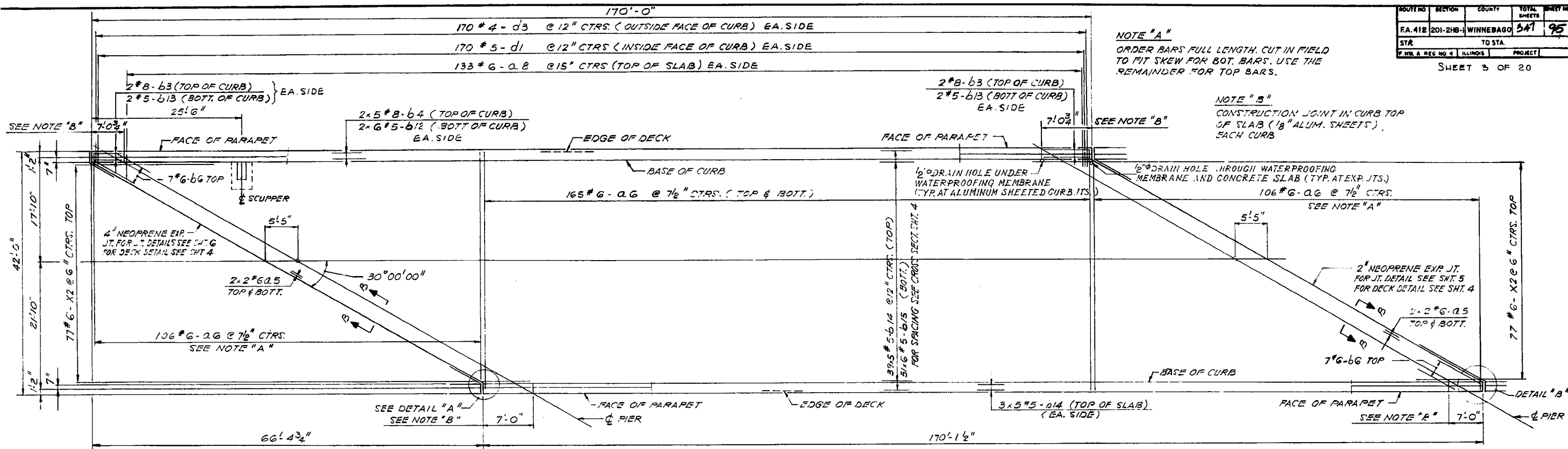
APPROVED  
*[Signature]*  
 Alfred Benesch & Company  
 #1994

ALFRED BENESCH & COMPANY  
 CONSULTING ENGINEERS  
 JOB NO. 1605-E  
 233 N. MICHIGAN AVE. CHICAGO, ILLINOIS

**GENERAL PLAN AND ELEVATION**  
**F.A. ROUTE 412 N.B.D.**  
**OVER RAMP 13D**  
**PROJECT**  
**SECTION 201-2HB-1**  
**WINNEBAGO COUNTY**  
**STATION 2552+06.76**

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 412	201-2HB-1	WINNEBAGO	347	95
STA.	TO STA.		PROJECT	
1+00.00	1+00.00		ILLINOIS	

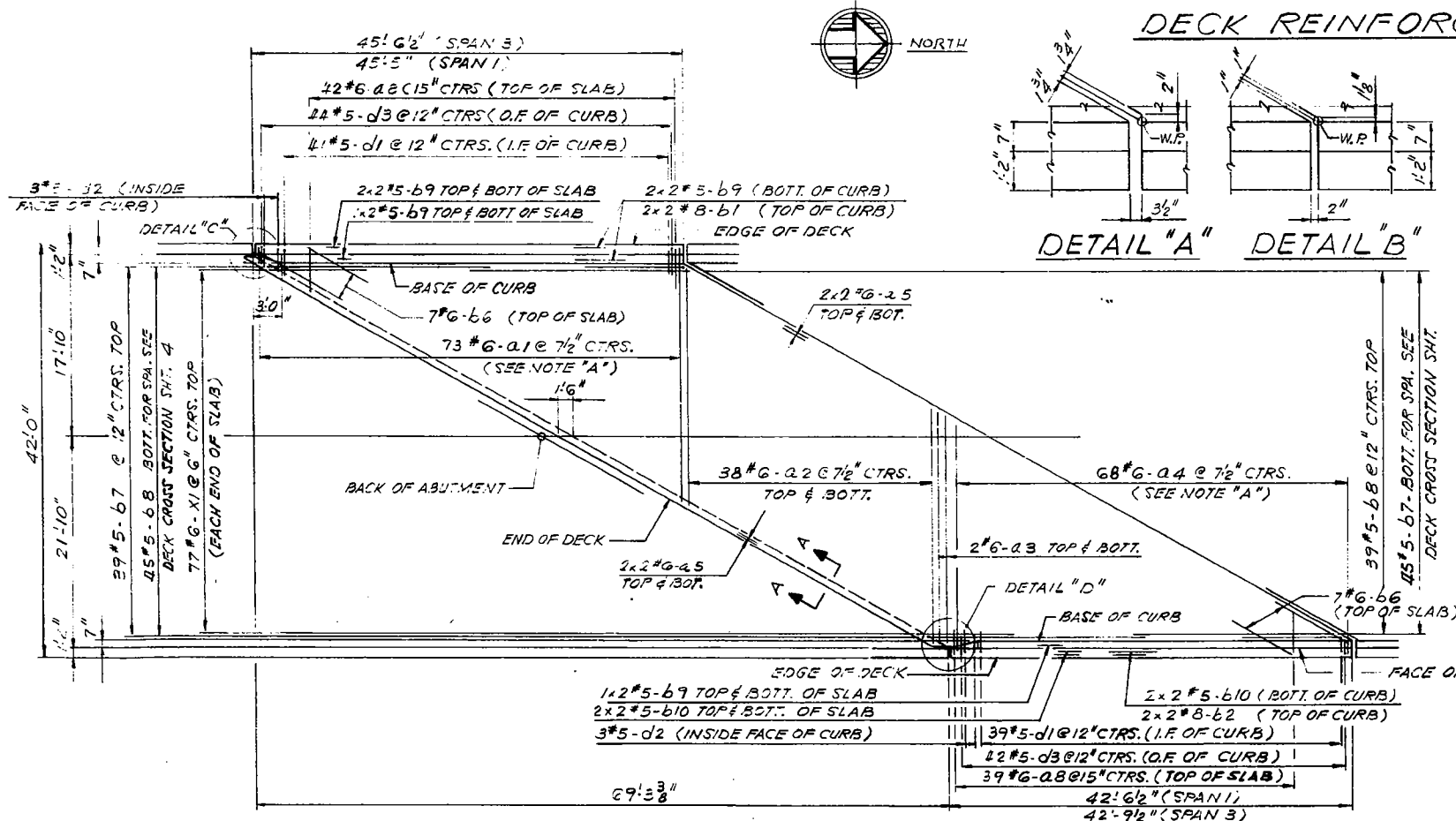
SHEET 3 OF 20



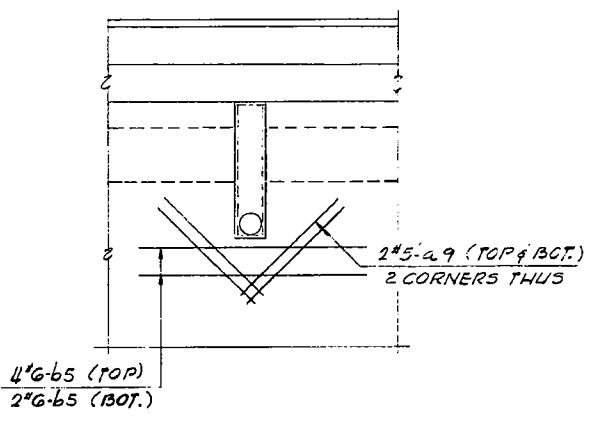
**NOTE "A"**  
ORDER BARS FULL LENGTH, CUT IN FIELD TO FIT SKEW FOR BOT. BARS. USE THE REMAINDER FOR TOP BARS.

**NOTE "B"**  
CONSTRUCTION JOINT IN CURB TOP OF SLAB (1/8" ALUM. SHEETS), EACH CURB

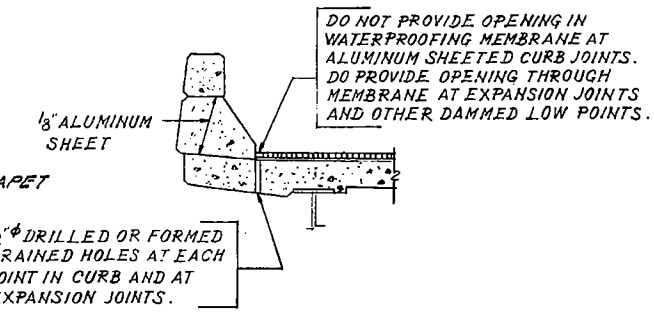
**DECK REINFORCEMENT PLAN - SPAN 2**



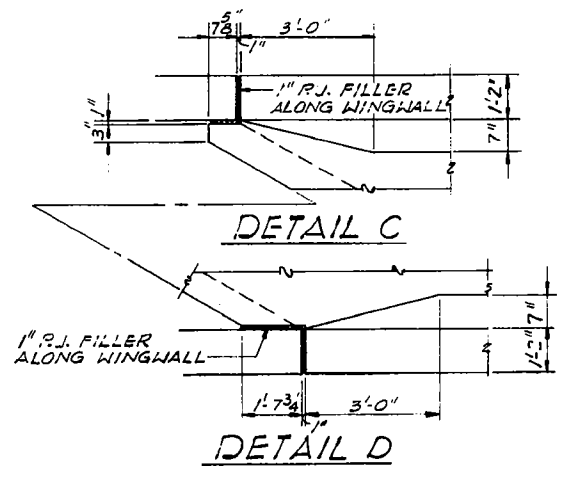
**DETAIL "A" DETAIL "B"**



**DETAIL AT SCUPPER**



**SECTION AT CURB**



**DETAIL C**

**DETAIL D**

**DECK REINFORCEMENT PLAN SPAN 1 SHOWN (SPAN 3 SIMILAR BY ROTATION 180°)**

ALFRED BENESCH & COMPANY  
CONSULTING ENGINEERS  
JOB NO. 1608-E  
233N. MICHIGAN AVE., CHICAGO, ILLINOIS

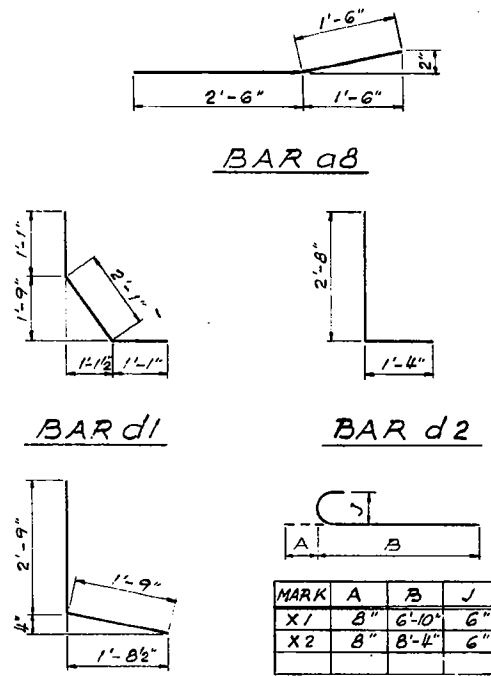
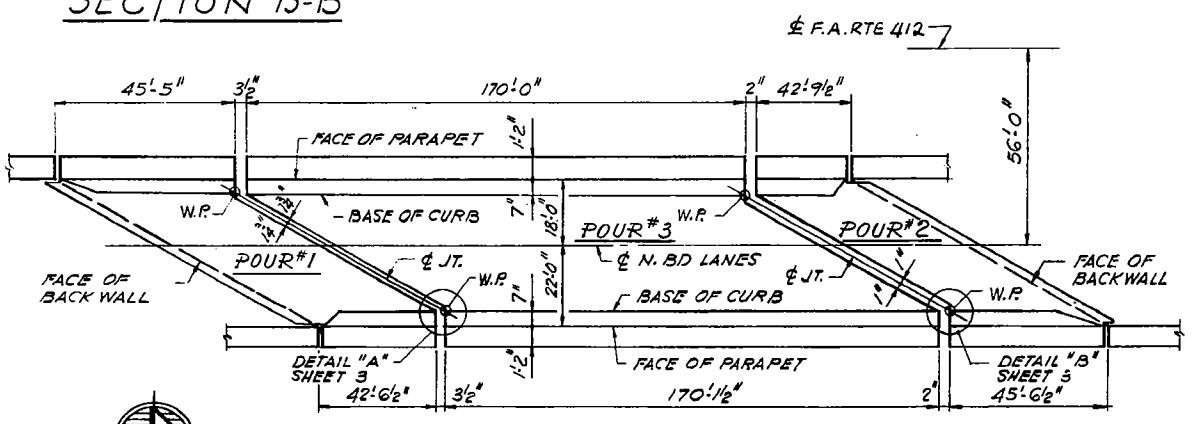
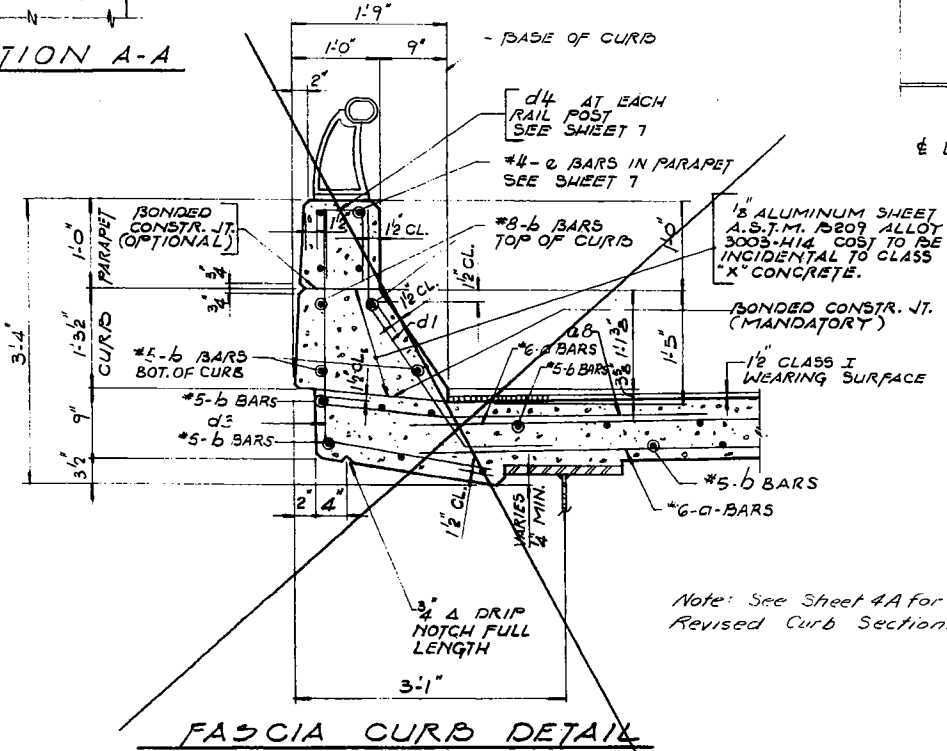
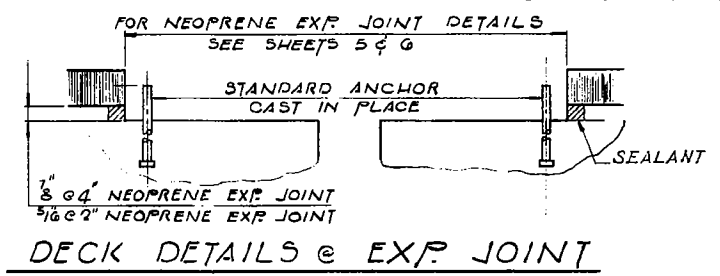
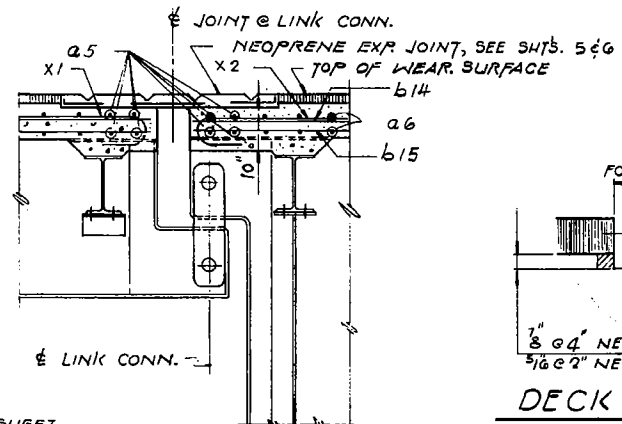
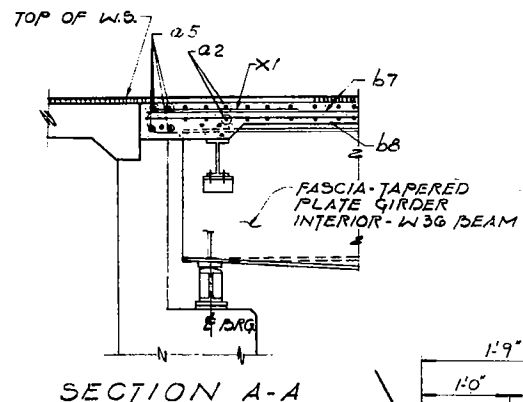
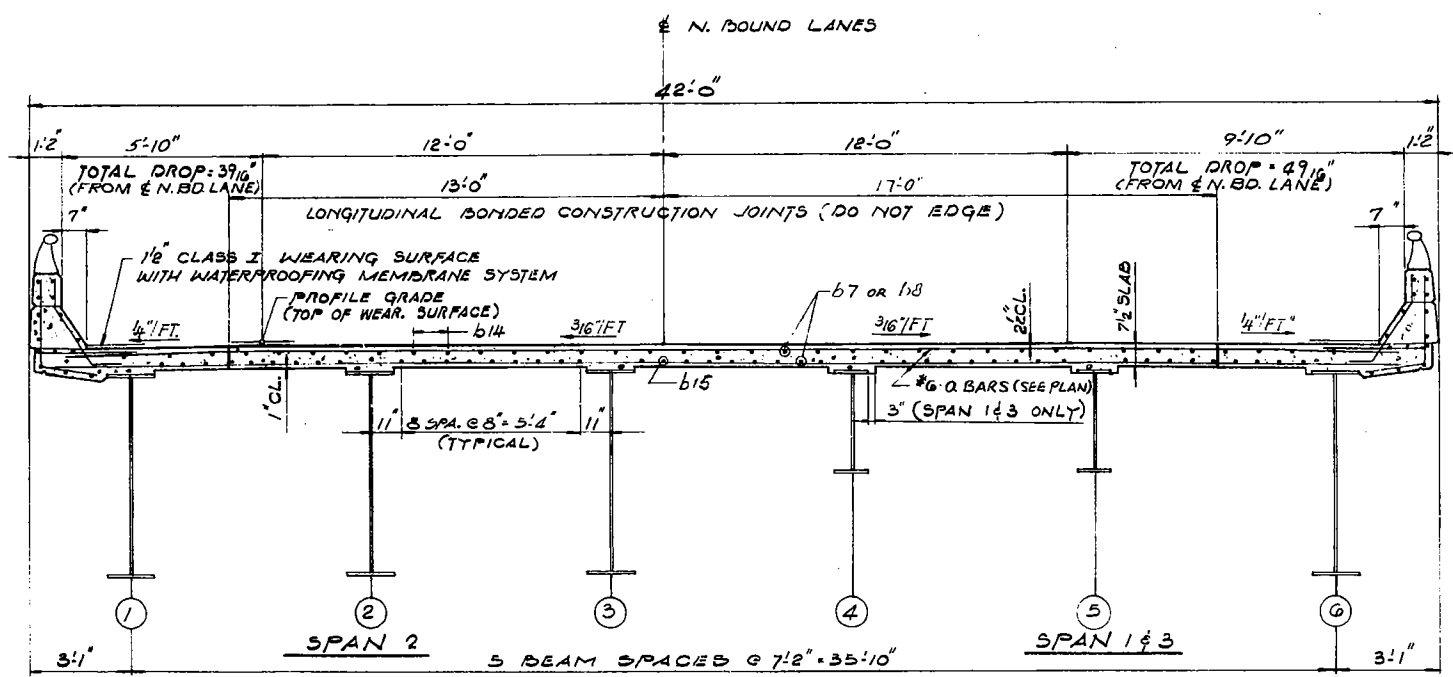
**DECK REINFORCEMENT PLAN SPAN 1, 2 AND 3**  
**F. A. ROUTE 412 N. RD.**  
**OVER RAMP RD**  
**PROJECT**  
**SECTION 201-2HB-1**  
**WINNEBAGO COUNTY**  
**STATION 2552+06.76**

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
EA 412	201-2HB-1	WINNEBAGO	341	96
STA.	TO STA.		PROJECT	
2552+06.7				

SHEET 4 OF 20

**BILL OF MATERIAL**

BAR	NO. REQ'D.			SIZE	LENGTH	SHAPE
	SPAN 1	SPAN 2	SPAN 3			
a1	73	—	73	#6	29'-0"	—
a2	76	—	76	#6	25'-9"	—
a3	4	—	4	#6	25'-0"	—
a4	68	—	68	#6	26'-0"	—
a5	16	16	16	#6	41'-0"	—
a6	—	542	—	#6	40'-0"	—
a8	81	266	81	#6	4'-0"	—
a9	—	8	—	#5	3'-0"	—
b1	4	—	4	#8	23'-9"	—
b2	4	—	4	#8	22'-6"	—
b3	—	8	—	#8	6'-9"	—
b4	—	20	—	#8	32'-9"	—
b6	14	14	14	#6	7'-6"	—
b7	34	—	34	#5	26'-6"	—
b8	34	—	34	#5	20'-0"	—
b9	20	—	20	#5	23'-6"	—
b10	12	—	12	#5	22'-0"	—
b12	—	24	—	#5	27'-0"	—
b13	—	8	—	#5	6'-9"	—
b14	—	225	—	#5	35'-0"	—
b15	—	306	—	#5	29'-6"	—
d1	80	340	80	#5	4'-3"	L
d2	6	—	6	#5	4'-0"	L
d3	86	340	86	#4	4'-6"	L
x1	154	—	154	#6	7'-6"	C
x2	—	154	—	#6	9'-0"	C
ITEM	UNIT			TOTAL		
CLASS "X" CONCRETE	CUYDS.			324		
REINFORCEMENT BARS	LBS.			96,730		



MARK	A	B	J
X1	B	6'-10"	6"
X2	B	8'-4"	6"

NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT.

NOTES:

FOR DECK REINFORCEMENT PLAN SEE SHEET 3.

FOR HANDRAIL DETAILS, REINFORCEMENT, AND CLASS X CONCRETE SEE SHEET 7

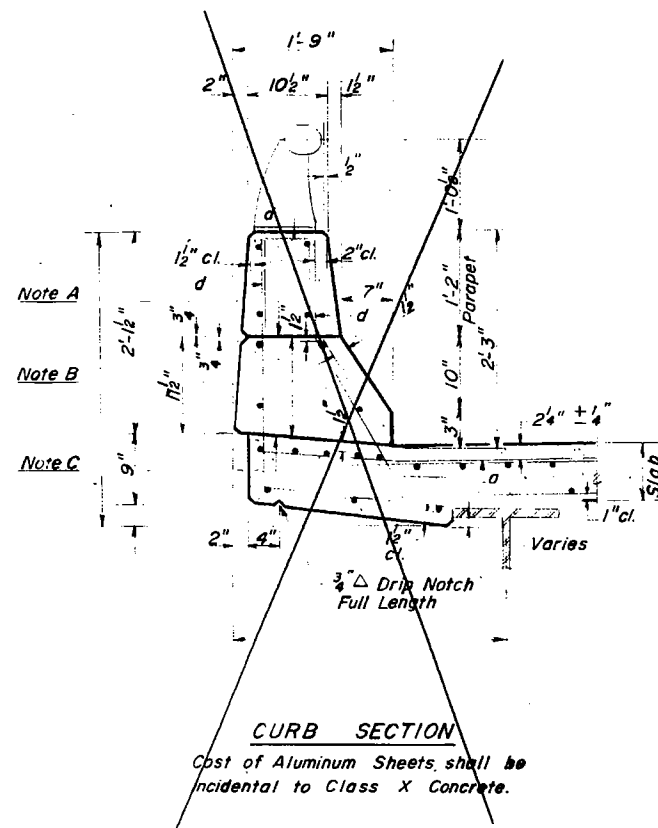
DECK DETAILS  
 F. A. ROUTE 412 N. BD.  
 OVER RAMP BD  
 PROJECT  
 SECTION 201-2HB-1  
 WINNEBAGO COUNTY  
 STATION 2552+06.76

ALFRED BENESCH & COMPANY  
 CONSULTING ENGINEERS  
 JOB NO. 1602-B  
 233 N. MICHIGAN AVE. CHICAGO, ILLINOIS

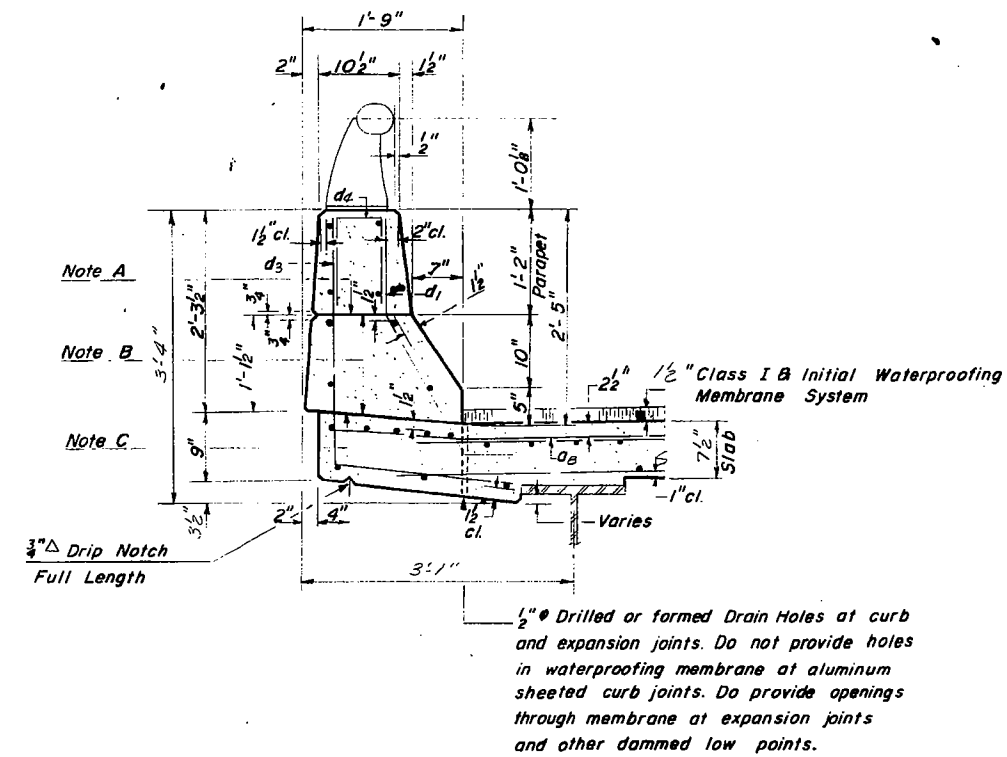
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. RTE. 412	201-2HB-1	Winnebago	347	97
PER. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT.	

SHEET NO. 4A  
10 SHEETS



Note: All edges shall have 3/4" chamfer.



Note A - Bonded Construction Joint (Optional)

Note B - 1/8" Aluminum Sheets ASTM: B209 alloy 3003-H14

Note C - Bonded Construction Joint (Mandatory)

**CURB SECTION**

Cost of Aluminum Sheets shall be incidental to Class X Concrete.

DESIGNED	EXAMINED
CHECKED	PASSED
DRAWN D. DERRINGER	APPROVED
CHECKED	

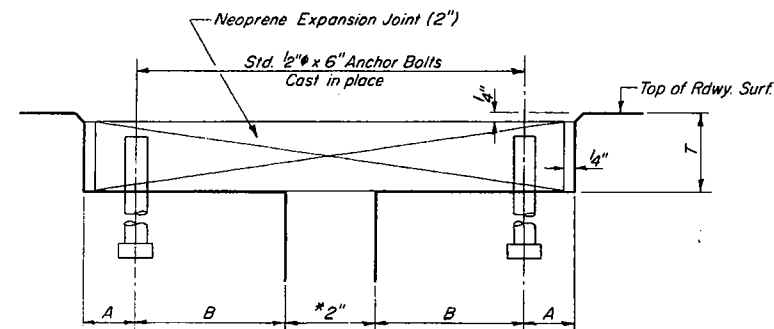
19	ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES
	ENGINEER OF ROAD
	DIRECTOR OF HIGHWAYS

**SUPERSTRUCTURE  
REVISED PARAPET CONFIGURATION**

F.A. RTE. 412 N. BOUND  
OVER RAMP ED  
SECTION 201-2HB-1  
WINNEBAGO COUNTY  
STA. 2552 + 06.76

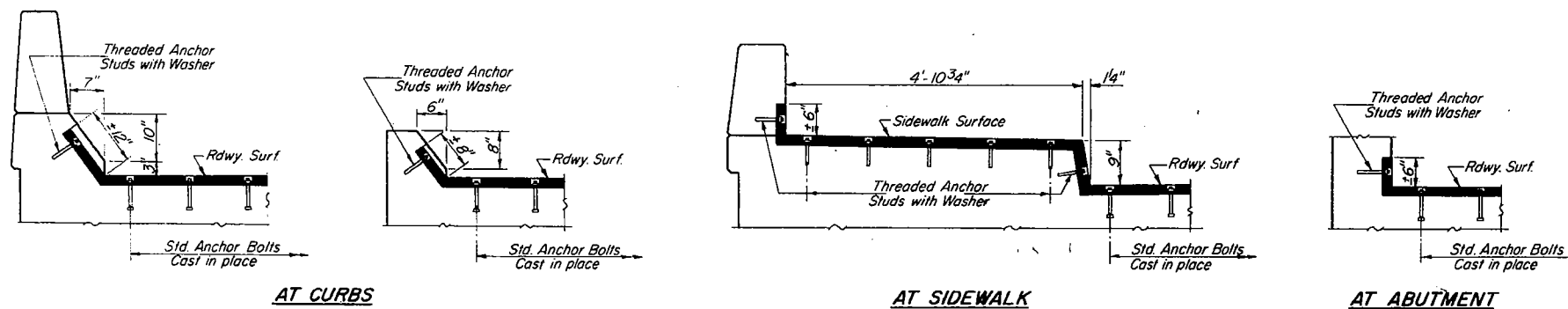
**ALTERNATE NEOPRENE EXPANSION JOINTS (2")**  
 (See Special Provisions)

Model	Supplier	Blockout Dimensions
TRANSFLEX, MODEL 200A	General Tire Company	T = 1 <sup>3</sup> / <sub>16</sub> " A = 1 <sup>5</sup> / <sub>8</sub> " B = 3 <sup>5</sup> / <sub>16</sub> "
WABOFLEX, MODEL SR 2	Watson Bowman Associates, Inc.	T = 1 <sup>3</sup> / <sub>16</sub> " A = 1 <sup>1</sup> / <sub>4</sub> " B = 3 <sup>3</sup> / <sub>16</sub> "
FEL-SPAN, MODEL T-30 Set joint seal 1 <sup>5</sup> / <sub>8</sub> " at 50°F.	Fel-Pro Building Products Inc.	T = 1 <sup>3</sup> / <sub>4</sub> " A = 2 <sup>1</sup> / <sub>4</sub> " B = 2 <sup>1</sup> / <sub>3</sub> / <sub>16</sub> "
WABO ELASTODAM, TYPE 300 Set joint seal 1 <sup>5</sup> / <sub>8</sub> " at 50°F.	Watson Bowman Associates, Inc.	T = 1 <sup>3</sup> / <sub>4</sub> " A = 2 <sup>1</sup> / <sub>4</sub> " B = 2 <sup>1</sup> / <sub>3</sub> / <sub>16</sub> "
<del>WABO ALU-STRIP, TYPE III S300 Set joint seal 1<sup>1</sup>/<sub>2</sub>" at 50°F. Permitted for 0° skew only.</del>	<del>Watson Bowman Associates, Inc.</del>	<del>T = 1<sup>3</sup>/<sub>4</sub>" A = 1<sup>5</sup>/<sub>8</sub>" B = 2<sup>3</sup>/<sub>4</sub>"</del>
<del>LOW PROFILE ONFLEX-25 Set joint seal 1<sup>1</sup>/<sub>2</sub>" at 50°F. Roadway ball channel shall be filled with approved grout. Permitted for up to 50° skew.</del>	<del>Structural Accessories, Inc.</del>	<del>T = 1<sup>3</sup>/<sub>4</sub>" A = 1<sup>5</sup>/<sub>8</sub>" B = 2<sup>3</sup>/<sub>8</sub>"</del>



**CROSS SECTION**  
 \*At 50°F  
 Dimensions are at right angles.

NOTE:  
 Joint openings shall be adjusted in accordance with Article 503.07(c) of the Std. Specs. when the deck is poured at an ambient temperature other than 50°F.



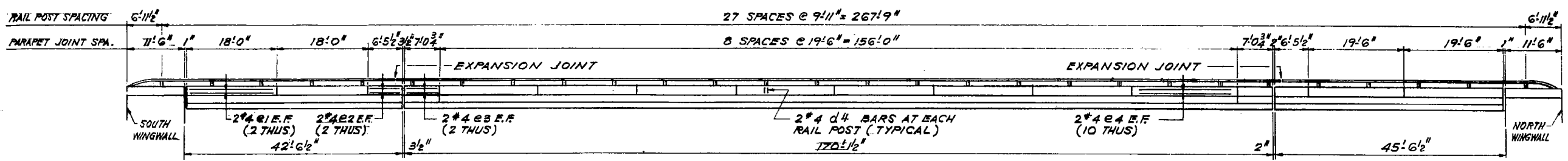
**TYPICAL END TREATMENTS**

DESIGNED	19
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	APPROVED

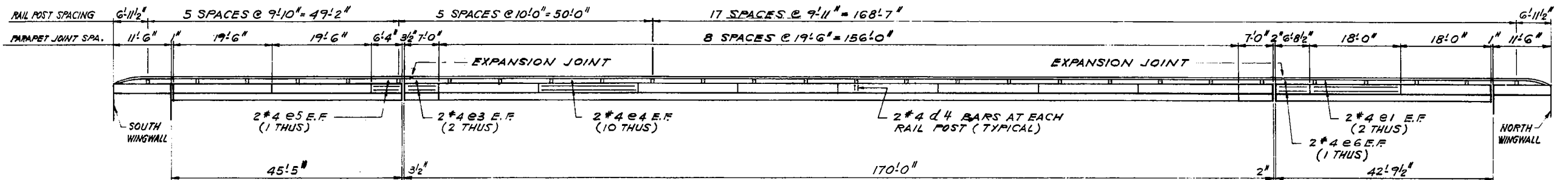
**NEOPRENE EXPANSION JOINTS (2")**  
 FOR EXPANSION LENGTH OF DECK = 0 to 160 ft.  
 F.A. ROUTE 412 N.B.D.  
 OVER RAMP B.D.  
 SECTION 201-21B-1  
 WINNEBAGO COUNTY  
 STA. 2552+06.76

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 412	201-2HB-1	WINNEBAGO	347	100
STA.	TO STA.		PROJECT	
7. M.S. & RES. NO. 4	ILLINOIS			

SHEET 7 OF 20



ELEVATION OF EAST HANDRAIL

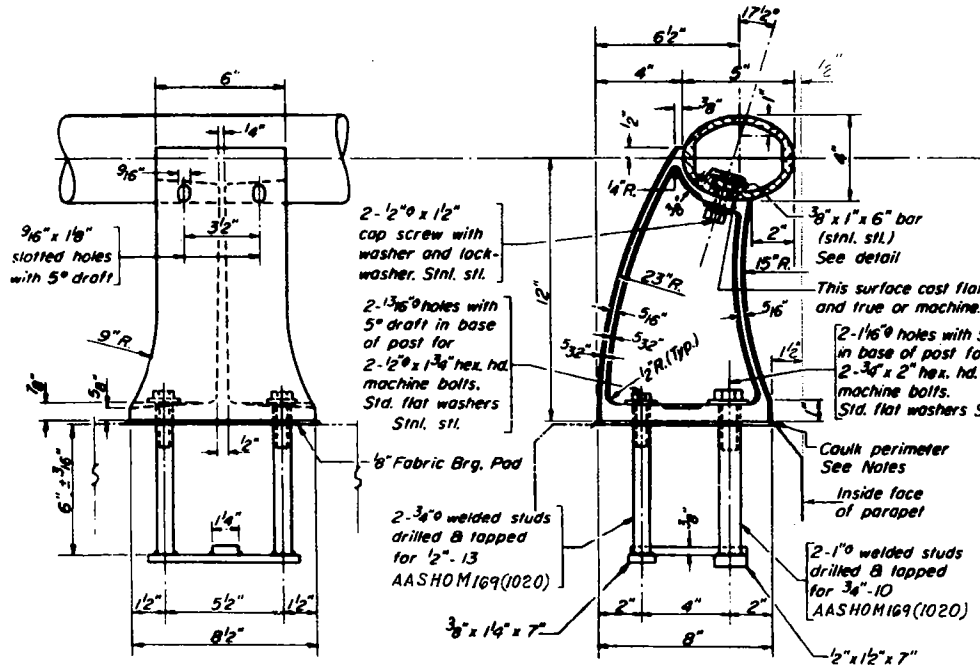


ELEVATION OF WEST HANDRAIL

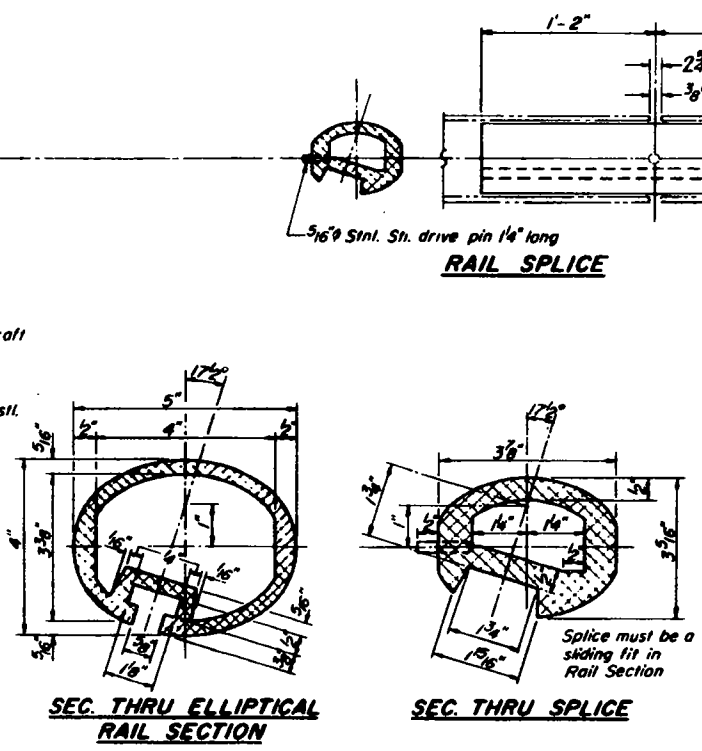
BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
d4	172	*4	2'-3"	□
e1	16	*4	17'-9"	—
e2	8	*4	6'-3"	—
e3	16	*4	6'-9"	—
e4	80	*4	19'-3"	—
e5	4	*4	6'-0"	—
e6	4	*4	6'-6"	—
CLASS "X" CONCRETE		CU. YDS.	16.6	
REINFORCEMENT BARS		LBS.	1,530	
ALUMINUM RAILING		LIN. FT.	559	

NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT.

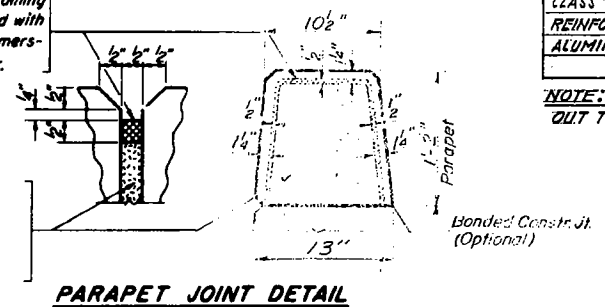


RAIL POST DETAILS

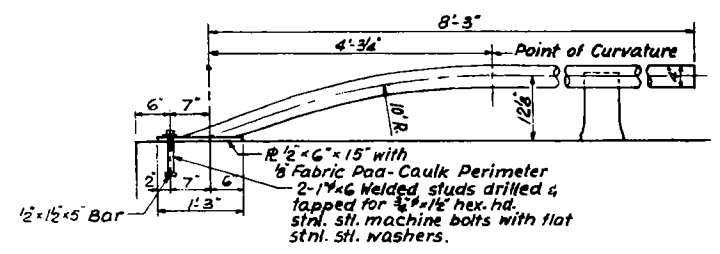


SEC. THRU ELLIPTICAL RAIL SECTION

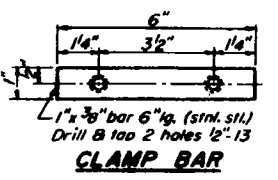
SEC. THRU SPLICE



PARAPET JOINT DETAIL



BRIDGE RAIL TERMINAL SECTION



NOTES:

All Aluminum Alloy Extruded Rail shall be supplied in modular lengths of 30 feet, except at the end of bridge or over open joints in bridge deck where the rail shall be attached to a minimum of 2 posts. If the rail is on a horizontal curve of 2300 foot radius or less, the modular lengths may be reduced but shall be attached to a minimum of 2 posts.

All joints in rail shall be spliced per detail.

Provide 1-1/8" and 2-1/16" Aluminum Shims for 25% of the Posts. Rail element shall be parallel to Grade - high spots shall be ground and low spots shimmed.

Seal perimeter of base of post to parapet with two component non-staining gray sealing compound with polysulfide liquid polymers, gun grade with primer. Fabric Bearing Pad shall have same dimensions as base of post.

Aluminum alloy rail shall conform to ASTM B221 alloy 6061-T6 or 6351-T5 with min. yield 35 ksi, min. tensile 38 ksi, and elongation of 10% in 2 inches.

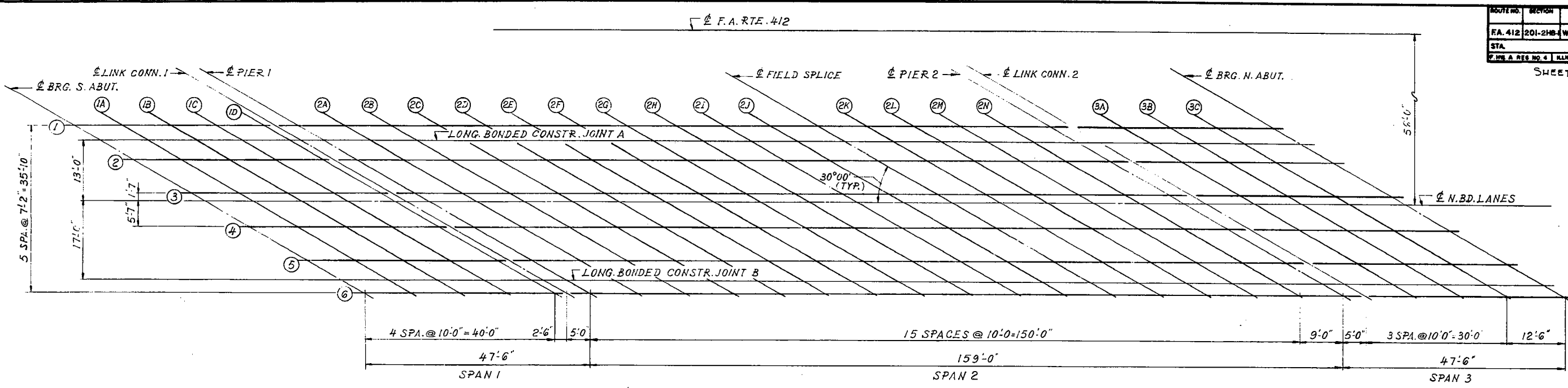
Stainless Steel machine bolts or cap screws shall be in accordance with article 710.37(a) of the Std. Specs except grade B8 or B8N may be furnished.

ALUMINUM HANDRAIL DETAILS  
 F.A. ROUTE 412 N.B.D.  
 OVER RAMP B.D.  
 PROJECT  
 SECTION 201-2HB-1  
 WINNEBAGO COUNTY  
 STATION 2552+06.76

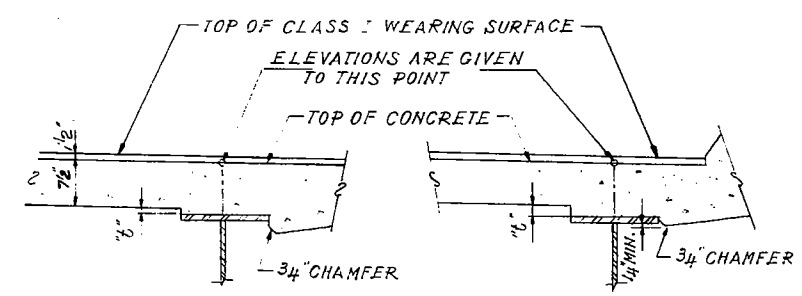
ALFRED BENESCH & COMPANY  
 CONSULTING ENGINEERS  
 108 N. W. 36th St.  
 233 N. MICHIGAN AVE. CHICAGO, ILLINOIS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 412	201-2HB-1	WINNEBAGO	347	107
STA.	TO STA.		PROJECT	
2552+06.76	ILLINOIS		PROJECT	

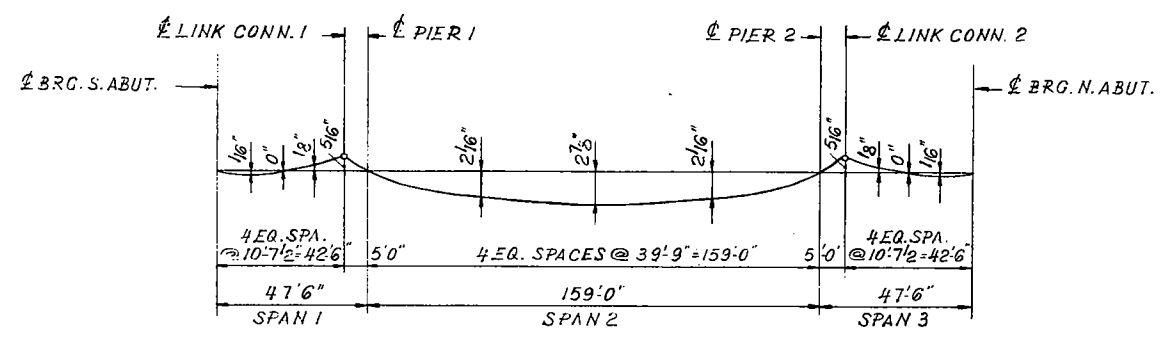
SHEET 8 OF 20



PLAN



AT MINIMUM FILLET      AT MAXIMUM FILLET  
FILLET HEIGHTS



DEAD LOAD DEFLECTION DIAGRAM  
 (INCLUDES WEIGHT OF CONG. ONLY)

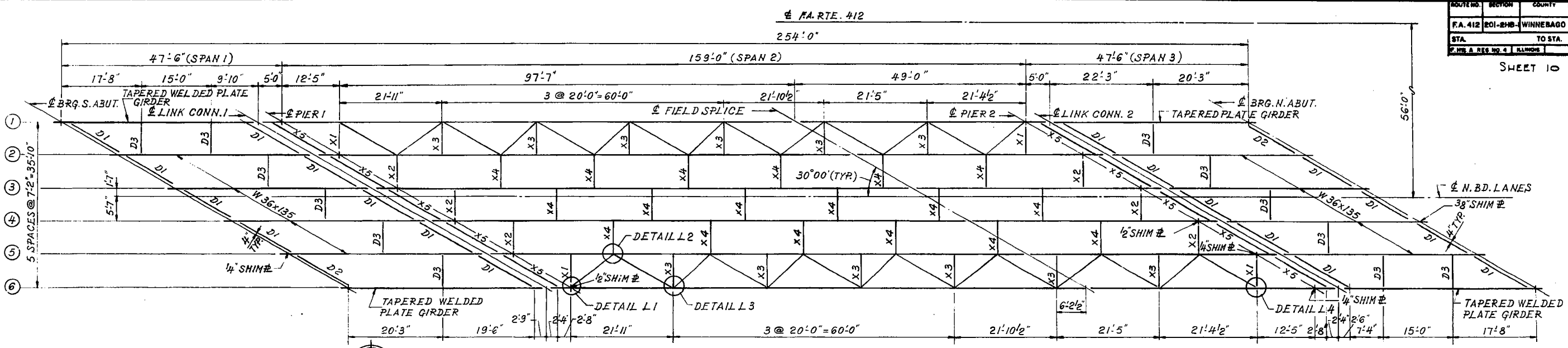
FILLET "t" THICKNESS:  
 TO DETERMINE "t" AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED, ELEVATIONS OF THE TOP FLANGES OF THE GIRDERS SHALL BE TAKEN AT INTERVALS SHOWN. THESE ELEVATIONS SUBTRACTED FROM THE "THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION" SHOWN ON SHEET 9, MINUS SLAB THICKNESS, EQUALS THE FILLET HEIGHT "t" ABOVE TOP FLANGE OF THE GIRDERS.

NOTE:  
 THE ABOVE DEFLECTIONS ARE NOT TO BE USED IN THE FIELD IF THE ENGINEER IS WORKING FROM THE GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTIONS.

ALFRED BENESCH & COMPANY  
 CONSULTING ENGINEERS  
 JOB NO. 16-05-E  
 233 N. MICHIGAN AVE., CHICAGO, ILLINOIS

TOP OF SLAB ELEVATIONS  
F.A. ROUTE 412 N.B.D.  
OVER RAMP BD  
PROJECT  
SECTION 201-2HB-1  
WINNEBAGO COUNTY  
STATION 2552+06.76





**FRAMING PLAN**

**GIRDER ELEVATIONS**  
(UNDEFLECTED GIRDERS FOR FABRICATION ONLY)

LOCATION	GIRD.	1	2	3	4	5	6
BRG. S. ABUT.		849.737	850.067*	850.312*	850.382*	850.395*	850.312
LINK CONN. 1		850.092	850.353	850.592	850.654	850.661	850.633
PIER 1		850.173	850.433	850.671	850.733	850.739	850.710
FIELD SPLICE		851.462	851.705	851.926	851.970	851.959	851.913
PIER 2		851.666	851.902	852.115	852.151	852.133	852.079
LINK CONN. 2		851.679	851.914	852.126	852.162	852.142	852.088
BRG. N. ABUT.		852.122	852.412*	852.618*	852.647*	852.621*	852.498

**FABRICATION DIMENSIONS**

GIRDER OR BM.	A	B	C	D	E	F
1	4 1/4"	5 1/4"	1'-8 1/16"	1'-11 1/8"	1'-11 5/16"	2'-4 5/8"
2	3 7/8"	4 3/8"	1'-7 5/8"	1'-10"	1'-10 3/16"	2'-4 1/8"
3	3 3/8"	4 5/16"	1'-7 3/8"	1'-9 5/8"	1'-9 3/4"	2'-3 1/16"
4	3 1/4"	4 3/16"	1'-7 1/16"	1'-9 1/4"	1'-9 3/8"	2'-3 3/16"
5	3 3/16"	4 1/8"	1'-6 3/4"	1'-8 7/8"	1'-8 5/16"	2'-2 1/16"
6	3 7/8"	4 3/4"	1'-7 3/16"	1'-9 3/16"	1'-9 5/16"	2'-2 1/4"

**INTERIOR GIRDER MOMENT TABLE**

	NON COMPOSITE		COMPOSITE		NON COMPOSITE
	0.4 SPAN 1	PIER 1	0.5 SPAN 2	PIER 2	0.6 SPAN 3
I <sub>s</sub> (IN <sup>4</sup> )	7,820	113,485	136,453	113,485	7,820
I <sub>c</sub> (IN <sup>4</sup> )			232,367		
S <sub>s</sub> (IN <sup>3</sup> )	440	3,530	4,026	3,530	440
S <sub>c</sub> (IN <sup>3</sup> )			4,702		
*D.L. (K/1)	1.241	1.504	1.211	1.504	1.241
MD.L. (IK)	288	-155	3,645	-155	288
S <sub>s</sub> D.L. (KSI)	7.9	0.5	10.9	0.5	7.9
S <sub>s</sub> D.L. (K/1)			0.416		
MSDL (IK)			1,265		
MLL (IK)	320	-163	1,785	-163	320
MIMP (IK)	96	-48	314	-48	96
VRSD.L. (K/1)	416	-211	3,364	-211	416
S <sub>s</sub> SD.L. (K/1)	11.3	0.7	8.6	0.7	11.3
S <sub>s</sub> TOTAL	19.2	1.2	19.5	1.2	19.2
VR (K)			59.0		

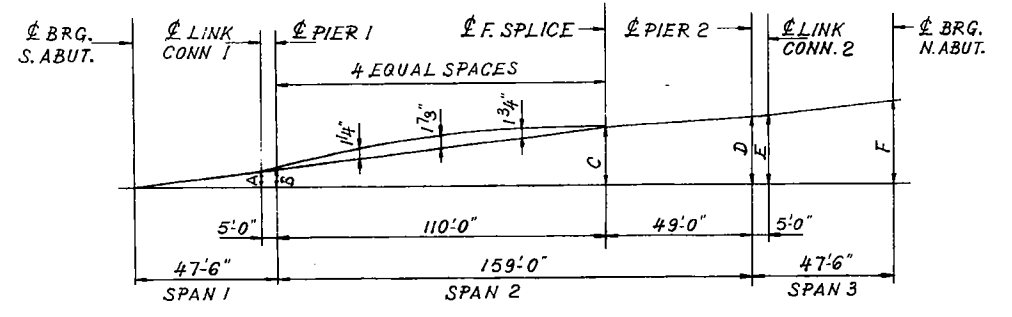
\* INCLUDES SDL IN NONCOMPOSITE PORTION.

**INTERIOR GIRDER REACTION TABLE**

	S. ABUT.	PIER 1	PIER 2	N. ABUT.
R.D.L.	27.1	158.1	158.1	27.1
R.L.L.	41.1	69.4	69.4	41.1
RIMP	12.3	12.2	12.2	12.3
R TOTAL	80.5	239.7	239.7	80.5

I<sub>s</sub> AND S<sub>s</sub> ARE THE MOMENT OF INERTIA AND SECTION MODULUS OF THE STEEL SECTION.  
I<sub>c</sub> AND S<sub>c</sub> ARE THE MOMENT OF INERTIA AND SECTION MODULUS OF THE COMPOSITE SECTION USED IN COMPUTING S<sub>s</sub>.  
VR IS THE MAX. LL+IMPACT SHEAR RANGE IN SPAN USED TO DETERMINE SHEAR CONNECTOR SPACING.

NOTE: FOR STEEL DETAILS SEE SHEETS 11, 12, 13 & 14



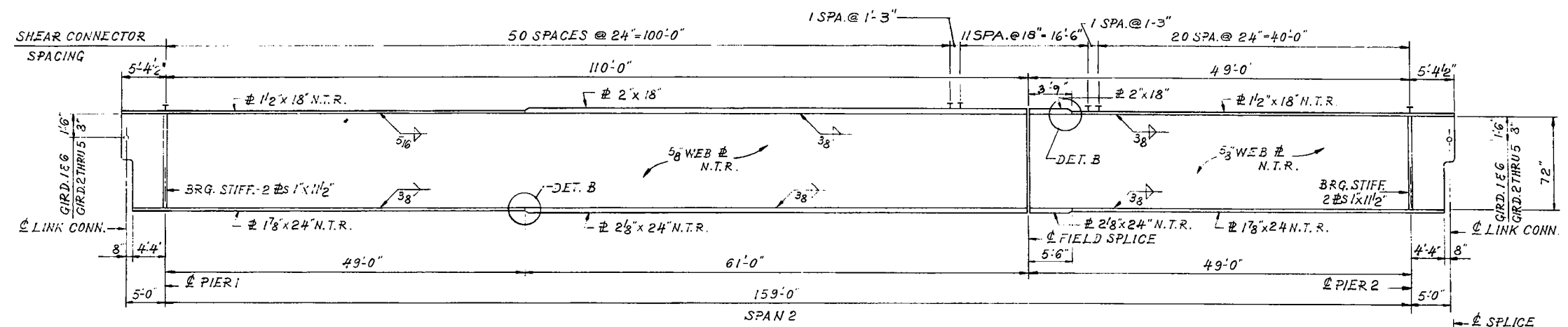
**CAMBER DIAGRAM**

ALFRED BENESCH & COMPANY  
CONSULTING ENGINEERS  
JOB NO. 1605-2  
235 N. MICHIGAN AVE. CHICAGO, ILLINOIS

**FRAMING PLAN**  
**F.A. ROUTE 412 N. RD.**  
**OVER RAMP BD**  
**PROJECT**  
**SECTION 201-2HB-1**  
**WINNEBAGO COUNTY**  
**STATION 2552+06.76**

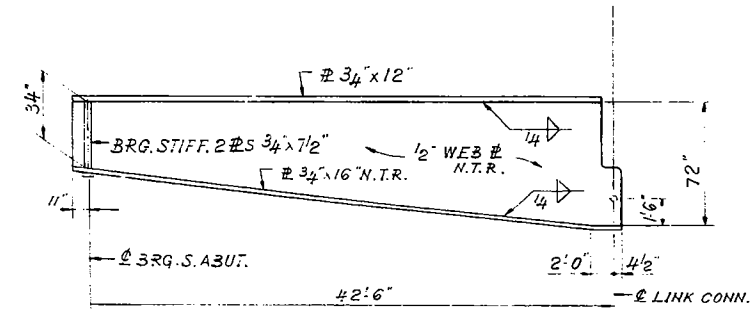
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 412	201-2HB-1	WINNEBAGO	347	104
STA.	TO STA.		PROJECT	
7. MR. A. REG. NO. 2	ILLINOIS			

SHEET 11 OF 20

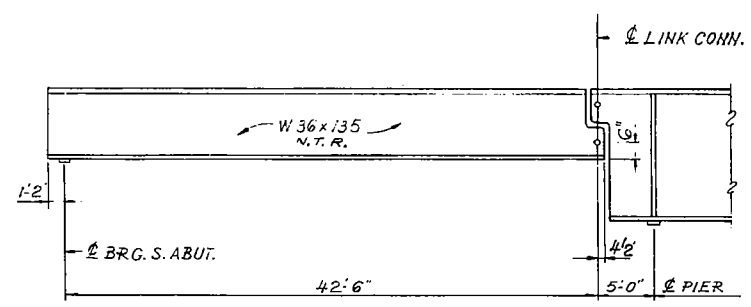


ELEVATION OF GIRDERS 1 THRU 6  
SPAN 2

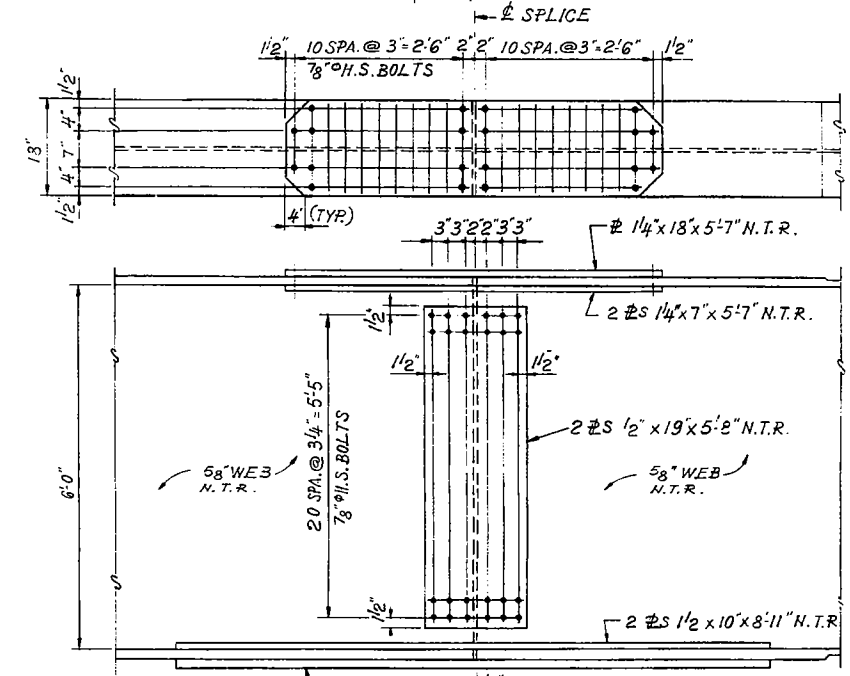
NOTE:  
N.T.R. DESIGNATES MEMBERS SUBJECT TO THE SUPPLEMENTAL REQUIREMENTS FOR NOTCH TOUGHNESS.



ELEVATION OF EXTERIOR GIRDERS 1 & 3  
SPAN 1 & 3

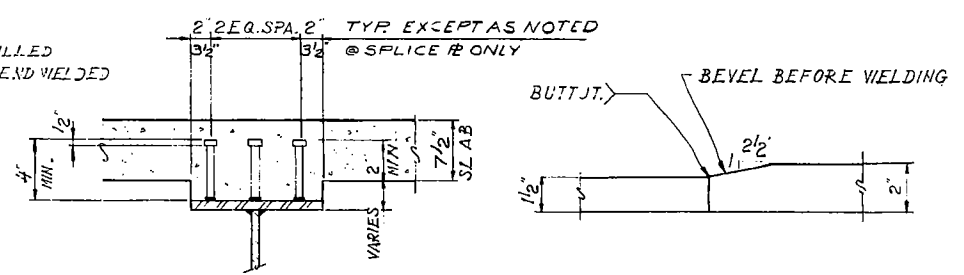


ELEVATION OF INTERIOR GIRDERS 2 THRU 5  
SPAN 1 & 3



FIELD SPLICE DETAIL

3/4" GRANULAR OR SOLID FLUX FILLED HEADED STUDS AUTOMATICALLY END WELDED TO FLANGE. NO. REQ'D = 1512



SECTION AA

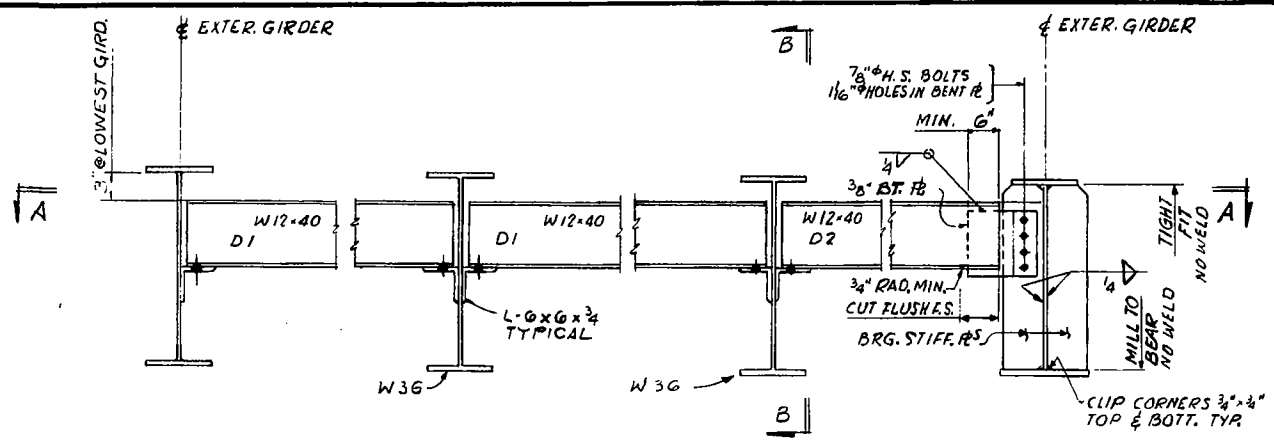
DETAIL B

BEAM & GIRDER DETAILS  
F.A. ROUTE 412 N. BD.  
OVER RAMP BD  
PROJECT  
SECTION 201-2HB-1  
WINNEBAGO COUNTY  
STATION 2552+06.76

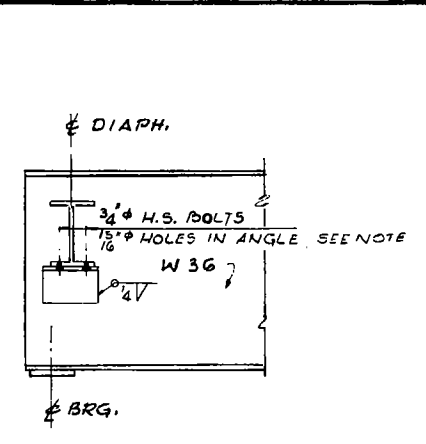
ALFRED BENESCH & COMPANY  
CONSULTING ENGINEERS  
JOB NO. 1605-E  
233 N. MICHIGAN AVE. CHICAGO, ILLINOIS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 412	201-2HB-1	WINNEBAGO	347	105
STA.	TO STA.		PROJECT	
7 HW. A REG. NO. 4	ILLINOIS			

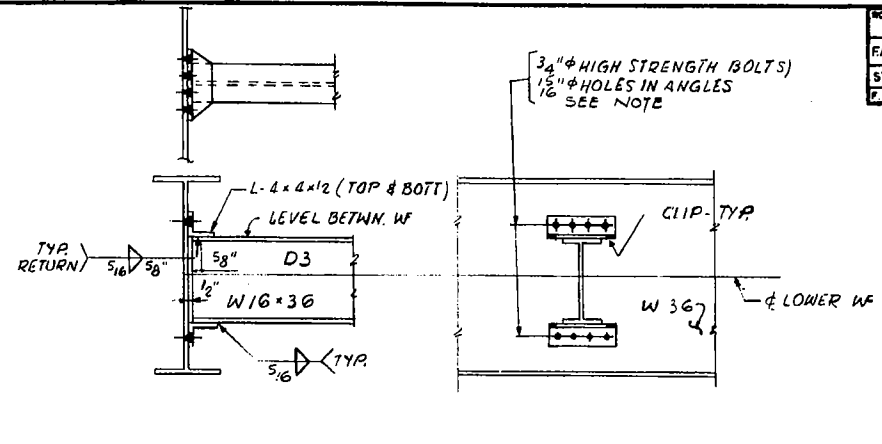
SHEET 12 OF 20



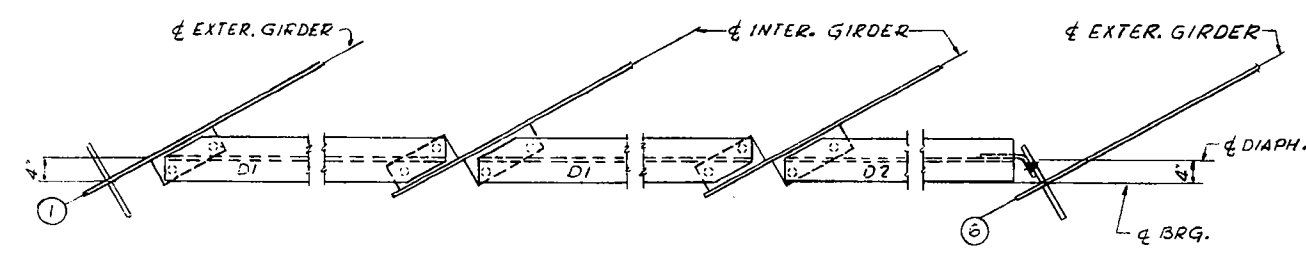
ELEVATION AT SOUTH ABUTMENT SHOWN  
(NORTH ABUTMENT SIMILAR)



SECTION B-B

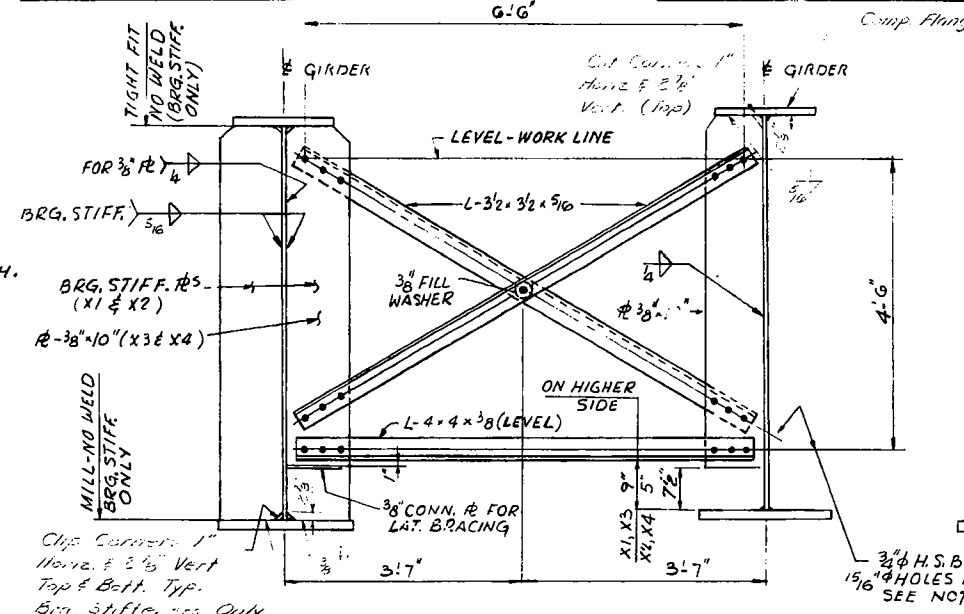


INTERIOR DIAPHRAGM-D3

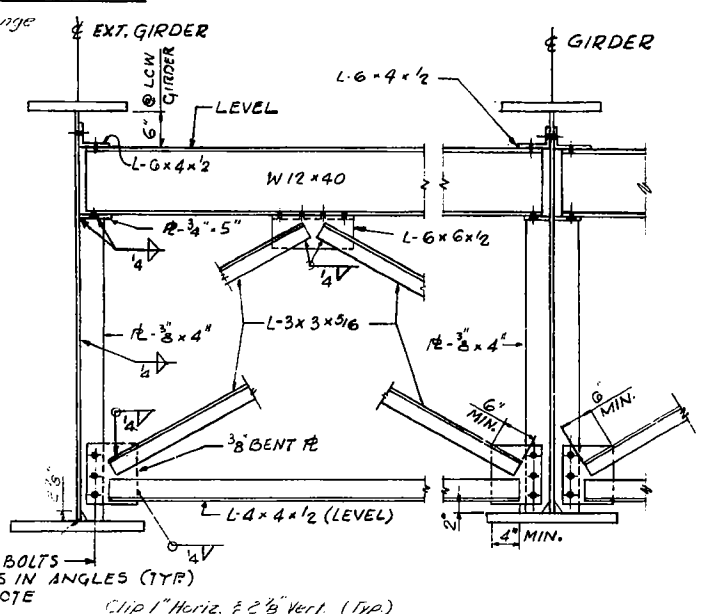


SECTION A-A

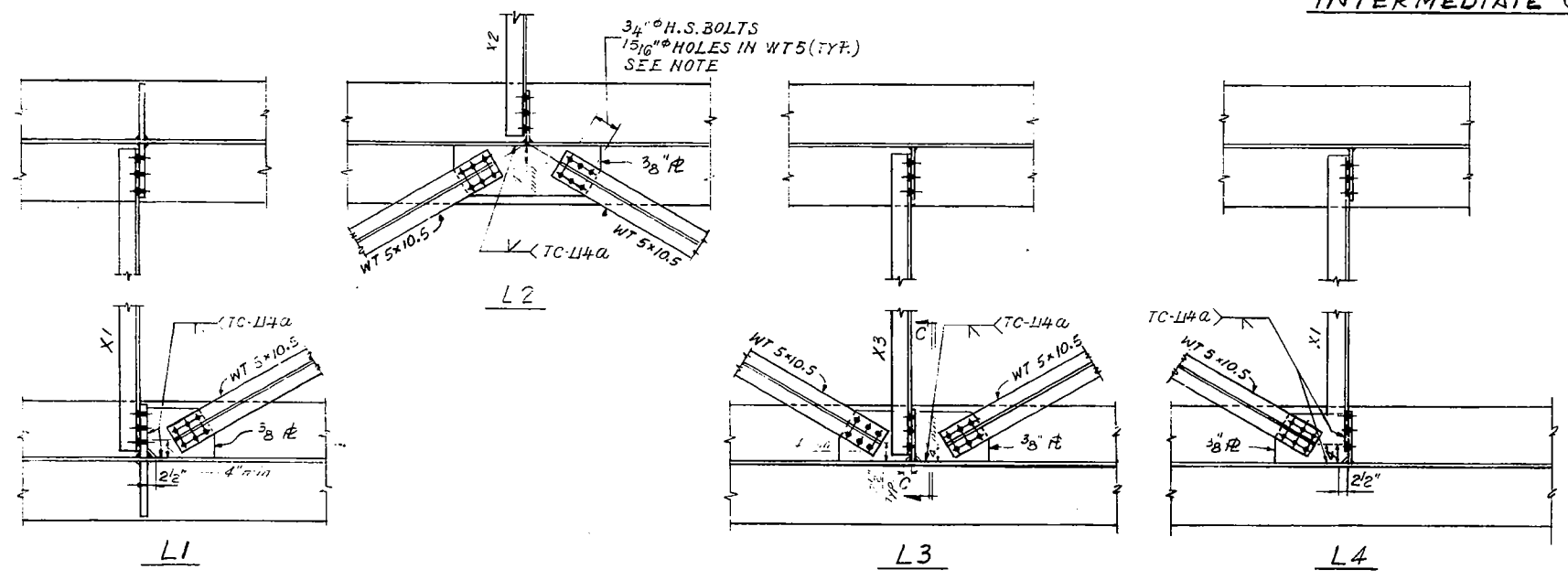
END DIAPHRAGMS D1 AND D2



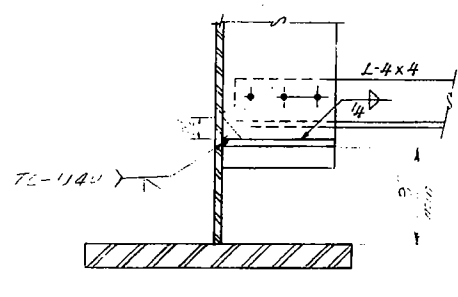
INTERMEDIATE CROSS-FRAMES X1, X2, X3, X4



END CROSS-FRAME X5



LATERAL BRACING CONNECTION DETAILS



SECTION C-C

NOTE:  
HARDENED WASHERS SHALL  
BE REQUIRED OVER 15/16" HOLES.

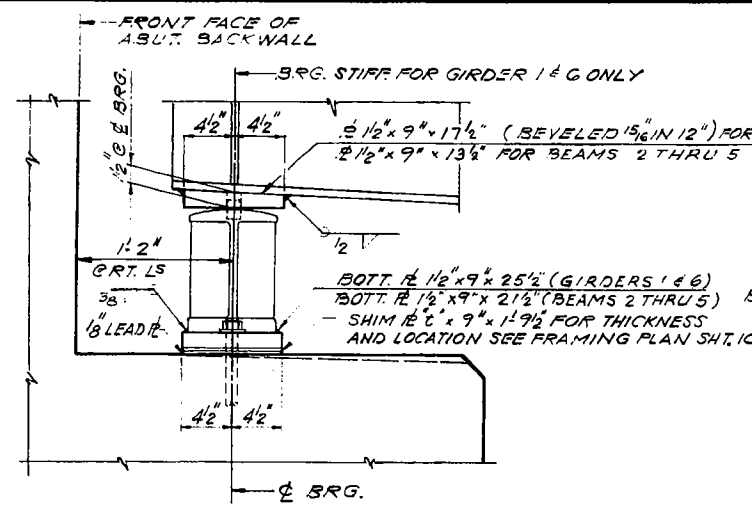
DIAPHRAGMS & CROSS FRAMES  
F.A. ROUTE 412 N.B.D.  
OVER RAMP B.D.  
PROJECT  
SECTION 201-2HB-1  
WINNEBAGO COUNTY  
STATION 2552+06.76

ALFRED BENESCH & COMPANY  
CONSULTING ENGINEERS  
JOB NO. 1605-E  
233 N. MICHIGAN AVE. CHICAGO, ILLINOIS

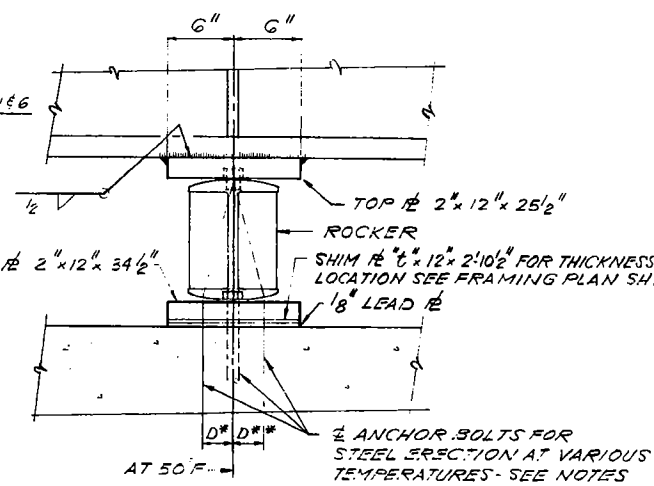
SEC - 201-2-1A 2HB, 1, 34B, 4, 5, 6 W...

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 412	201-2HB-1	WINNEBAGO	341	106
STA.		TO STA.		
P. INT. & REG. NO. 4		ILLINOIS PROJECT		

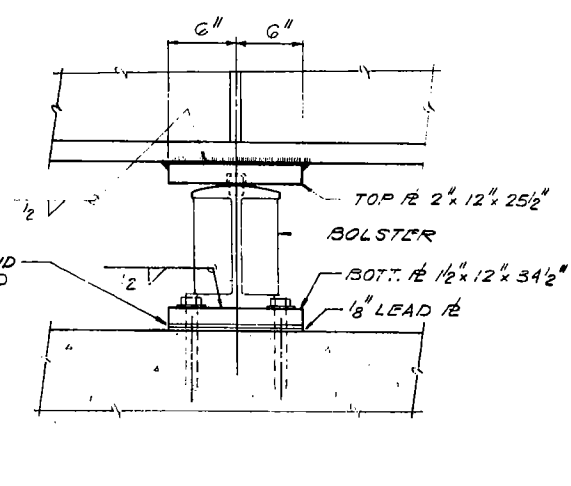
SHEET 13 OF 20



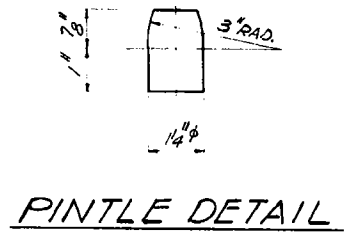
SECTION AT ABUTMENTS



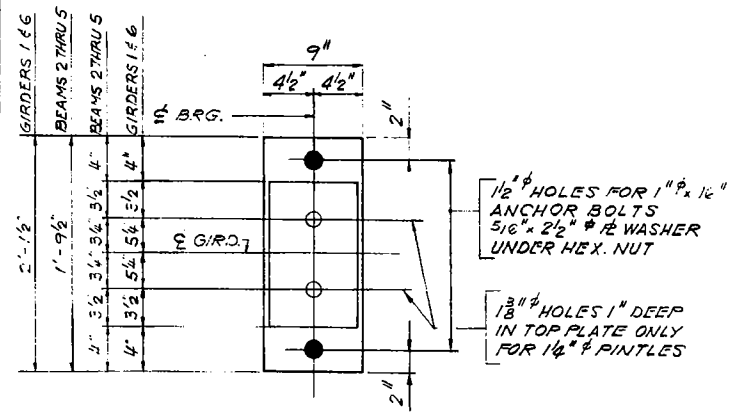
SECTION AT PIER 1



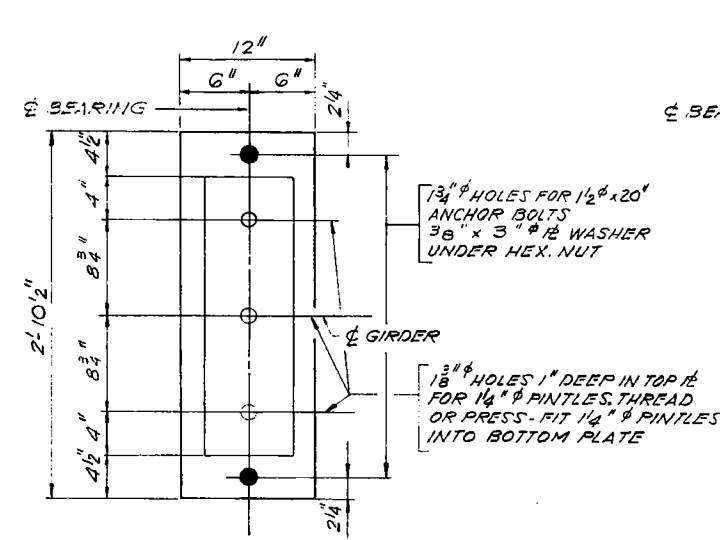
SECTION AT PIER 2



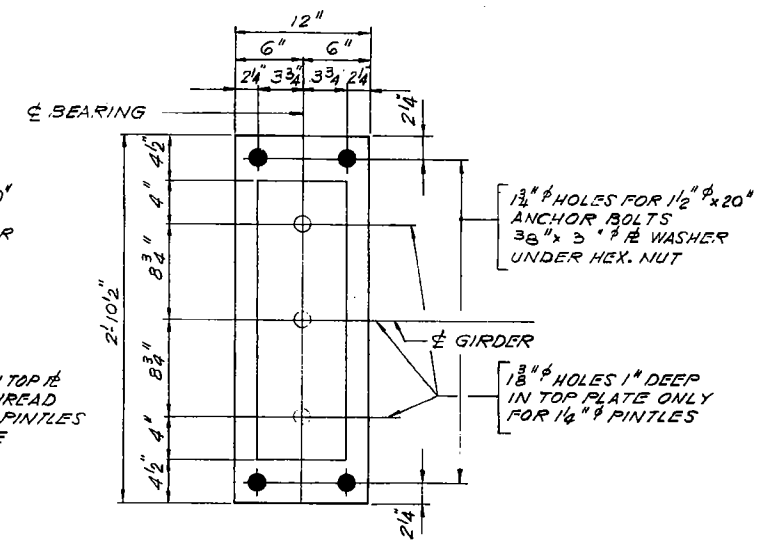
PINTLE DETAIL



PLAN AT ABUTMENTS



PLAN AT PIER 1



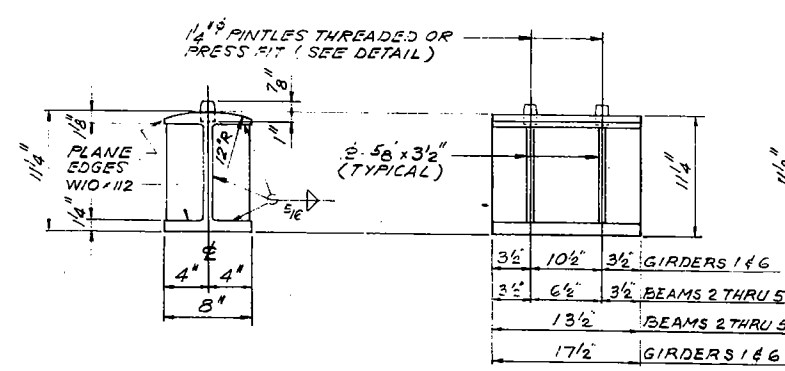
PLAN AT PIER 2

NOTE:  
HARDENED WASHERS SHALL BE USED OVER 15/16\"/>

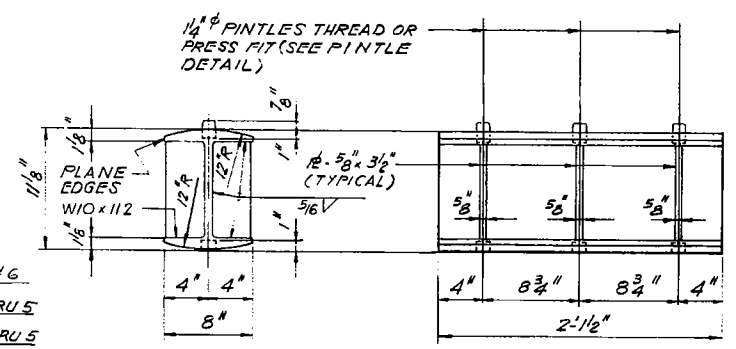
NOTES ON SETTING OF ANCHOR BOLTS AT EXPANSION BEARINGS

- D\* (SIDE OF BEARING AWAY FROM FIXED BEARING)  
D\* = 1/8" PER EACH 100' OF EXPANSION FOR EVERY 15° FALL BELOW THE NORMAL TEMP. OF 50° F.
- D\*\* (SIDE OF BEARING TOWARD FIXED BEARING)  
D\*\* = 1/8" PER EACH 100' OF EXPANSION FOR EVERY 15° RISE ABOVE THE NORMAL TEMP. OF 50° F.

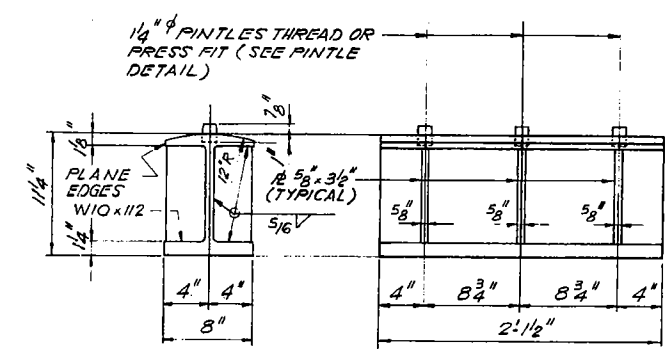
AFTER BEAMS HAVE BEEN ERECTED AND DIMENSIONS D\* OR D\*\* DETERMINED, HOLES SHALL BE DRILLED AND ANCHOR BOLTS SHALL BE GROUTED IN PLACE. ALL FIXED ANCHOR BOLTS MAY BE BUILT INTO THE MASONRY.



BOLSTER DETAILS



ROCKER DETAILS



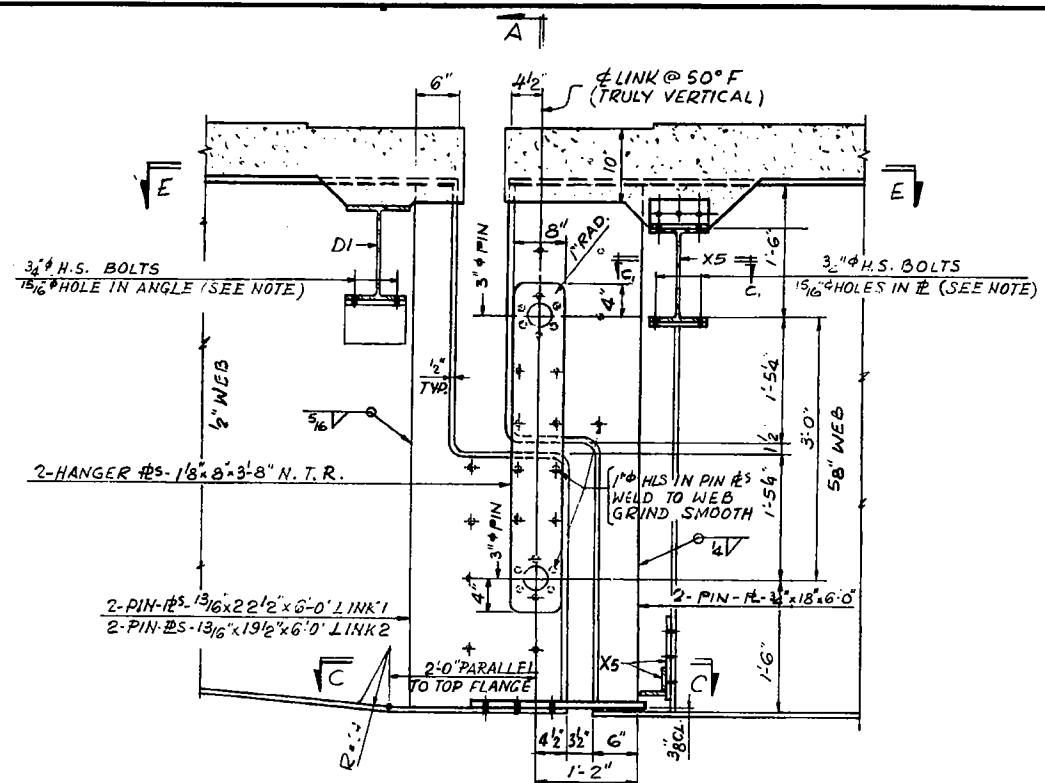
BOLSTER DETAILS

BEARING DETAILS  
F.A. ROUTE 412 N.B.D.  
OVER RAMP 8D  
PROJECT  
SECTION 201-2HB-1  
WINNEBAGO COUNTY  
STATION 2552+06.76

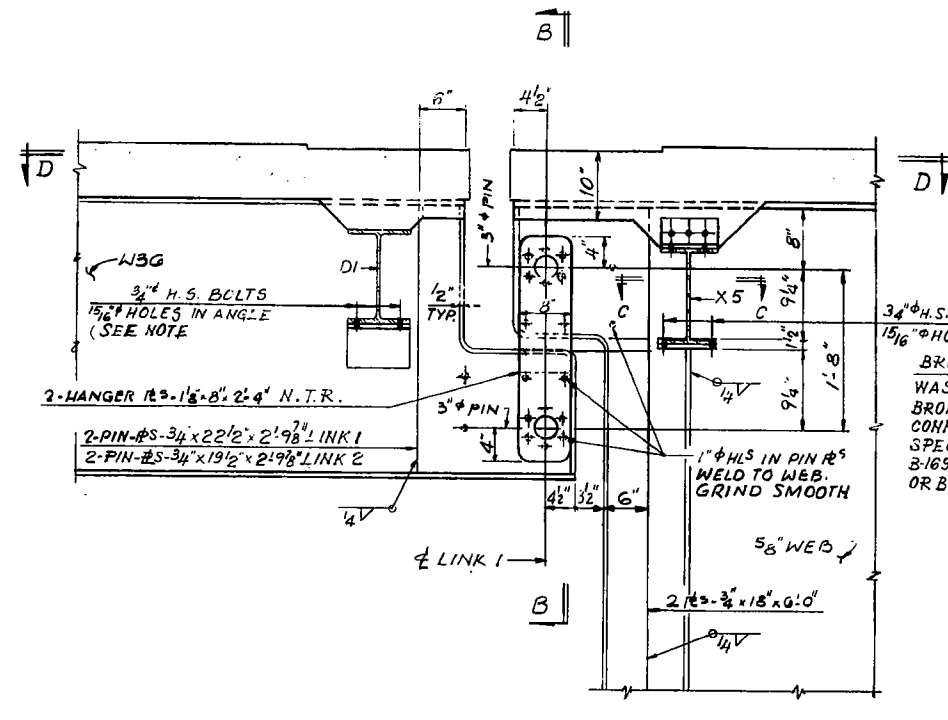
ALFRED BENESCH & COMPANY  
CONSULTING ENGINEERS  
JOB NO. 1905-E  
233 N. MICHIGAN AVE. CHICAGO, ILLINOIS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 412	201-2HB-1	WINNEBAGO	347	107
STA.	TO STA.		PROJECT	
F.M.W.A. RES. NO. 4	ILLINOIS			

SHEET 14 OF 20

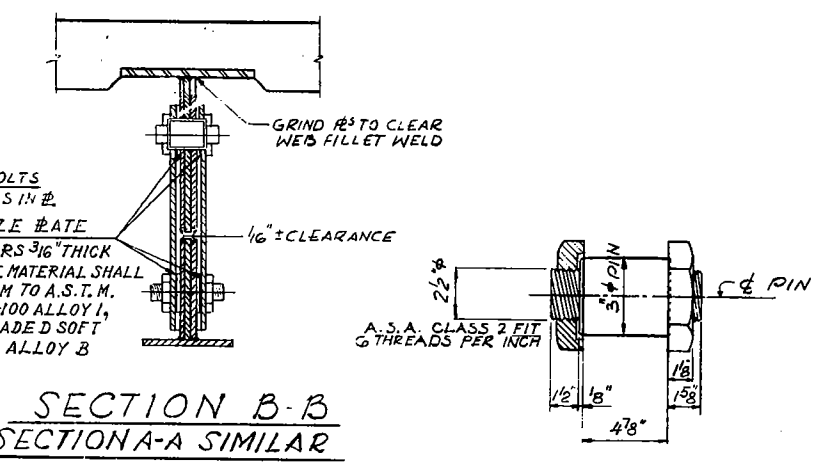


EXTERIOR GIRDERS: 1 AND 6



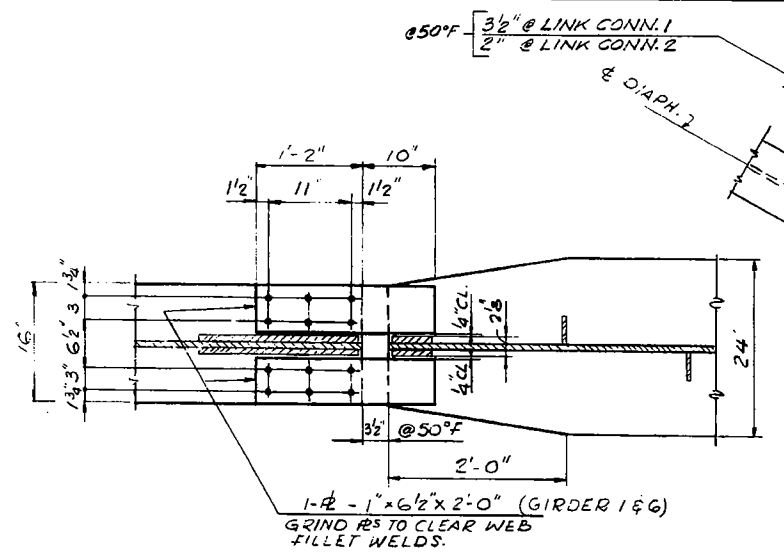
INTERIOR GIRDERS 2 THRU 5

DETAILS OF LINK CONNECTIONS 1 AND 2

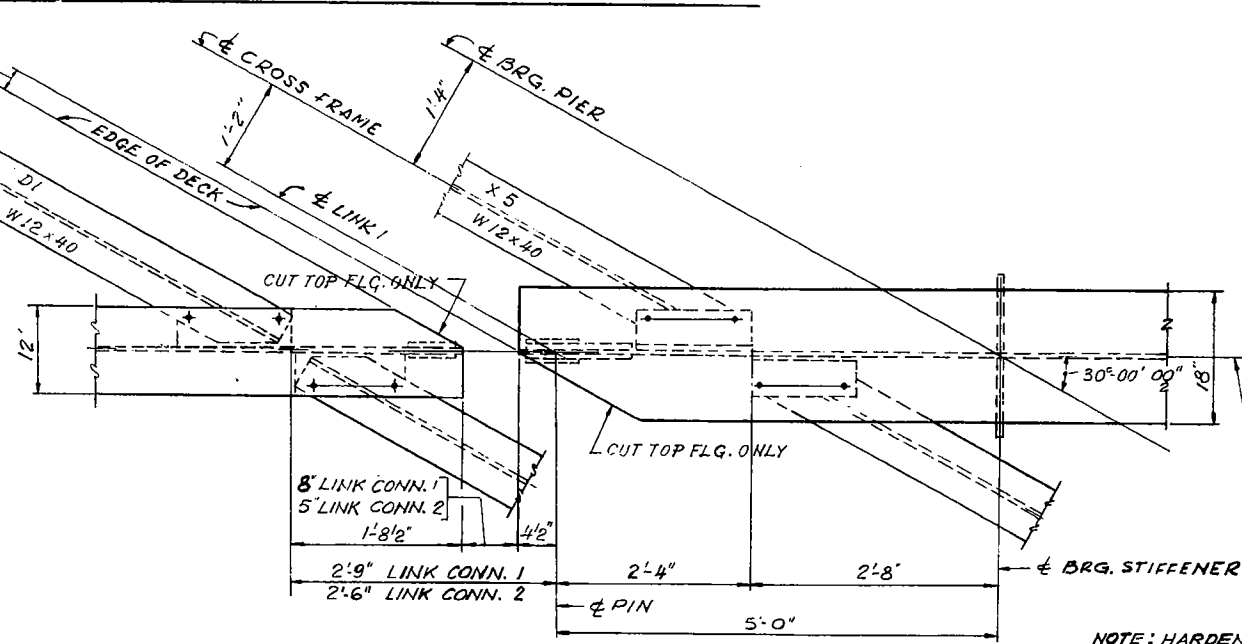


SECTION B-B  
SECTION A-A SIMILAR

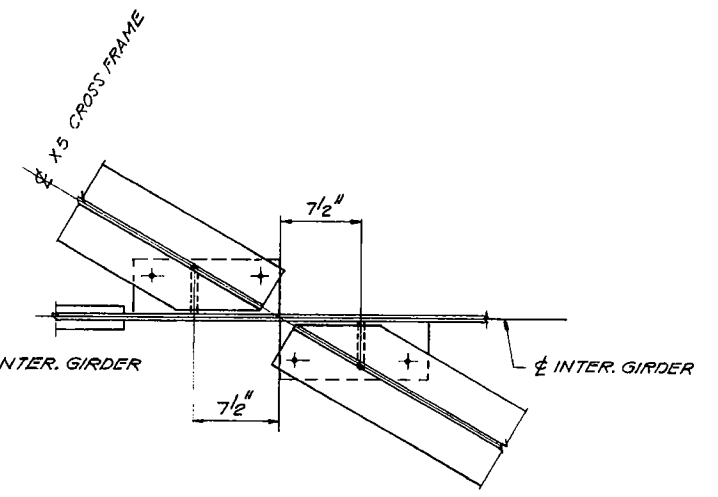
**PIN DETAIL**  
NUTS SHALL BE FINGER TIGHTENED AND THREADS BURRED.  
TOTAL NO. REQ'D = 24 (M102 CLASS C1)



SECTION C-C



SECTION D-D  
SECTION E-E SIMILAR EXCEPT AS NOTED



SECTION C-C  
(SECTION C,C, SIMILAR)

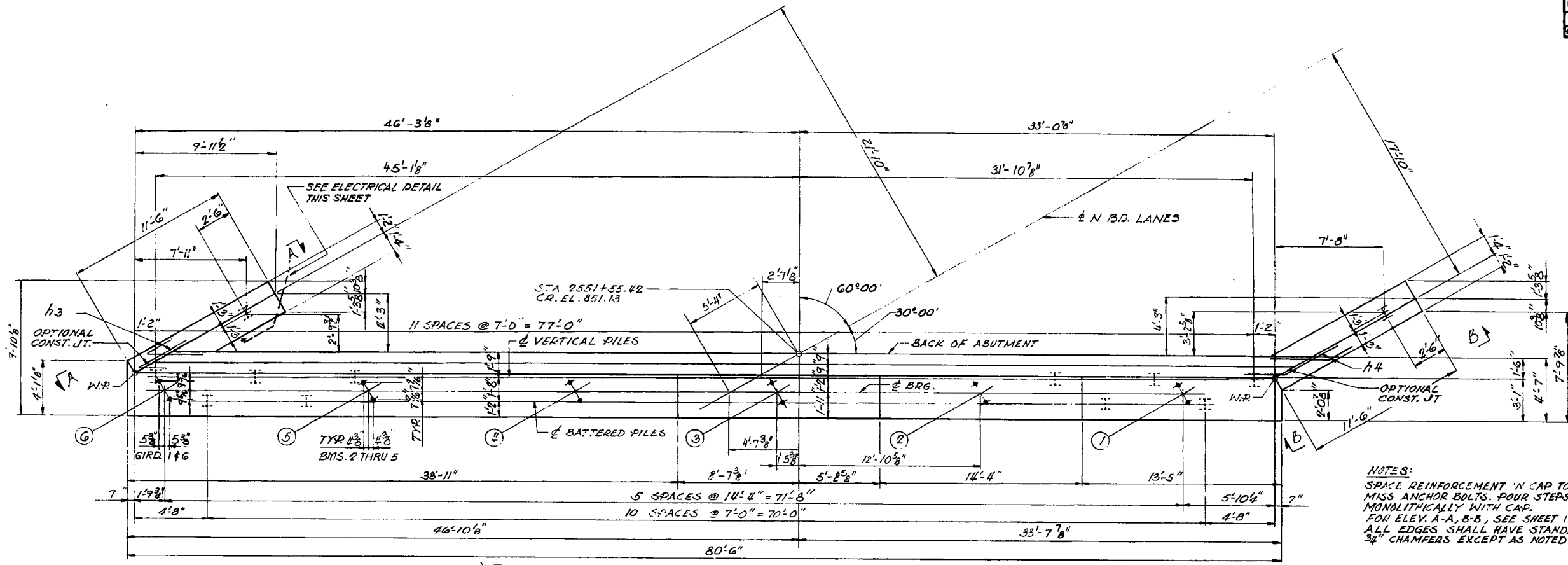
NOTE: HARDENED WASHERS SHALL BE REQUIRED OVER 15/16 INCH HOLES.

ALFRED BENESCH & COMPANY  
CONSULTING ENGINEERS  
JOB NO. 1500-B-2  
233 N. MICHIGAN AVE. CHICAGO, ILLINOIS

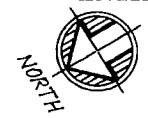
**LINK CONNECTIONS**  
**F.A. ROUTE 412 N. BD.**  
**OVER RAMP BD.**  
**PROJECT**  
**SECTION 201-2HB-1**  
**WINNEBAGO COUNTY**  
**STATION 2+52+06.76**

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS
FA. 412	201-2HB-1	WINNEBAGO	347
STA.	TO STA.		
P. NO. & REG. NO. &	ILLINOIS	PROJECT	

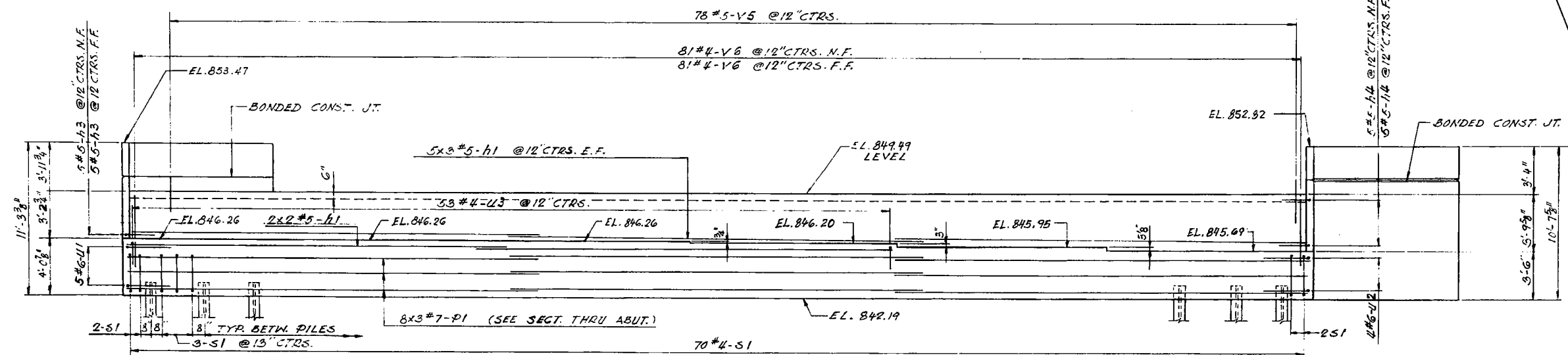
SHEET 15 OF 20



NOTES:  
 SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS. POUR STEPS MONOLITHICALLY WITH CAP.  
 FOR ELEV. A-A, B-B, SEE SHEET 17  
 ALL EDGES SHALL HAVE STANDARD 3/4" CHAMFERS EXCEPT AS NOTED.



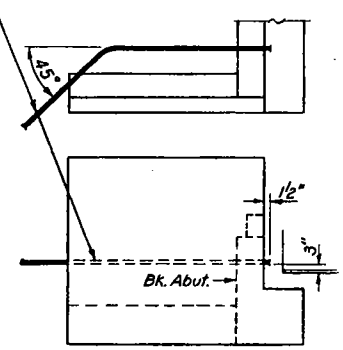
PLAN



ELEVATION

PILE DATA  
 TYPE HP 8x36  
 CAPACITY 35 TON  
 EST. LENGTH 34 FT.  
 NO. REQ'D 25\*  
 \* INCLUDES ONE TEST PILE

Locate 2" Galv. Conduit (Sch. 40 Pipe) ±12" inside of fascia beam web and parallel to beam line. Extend to clear the wing wall and terminate at a point outside of shoulder. Thread and cap each end. Cost incidental.



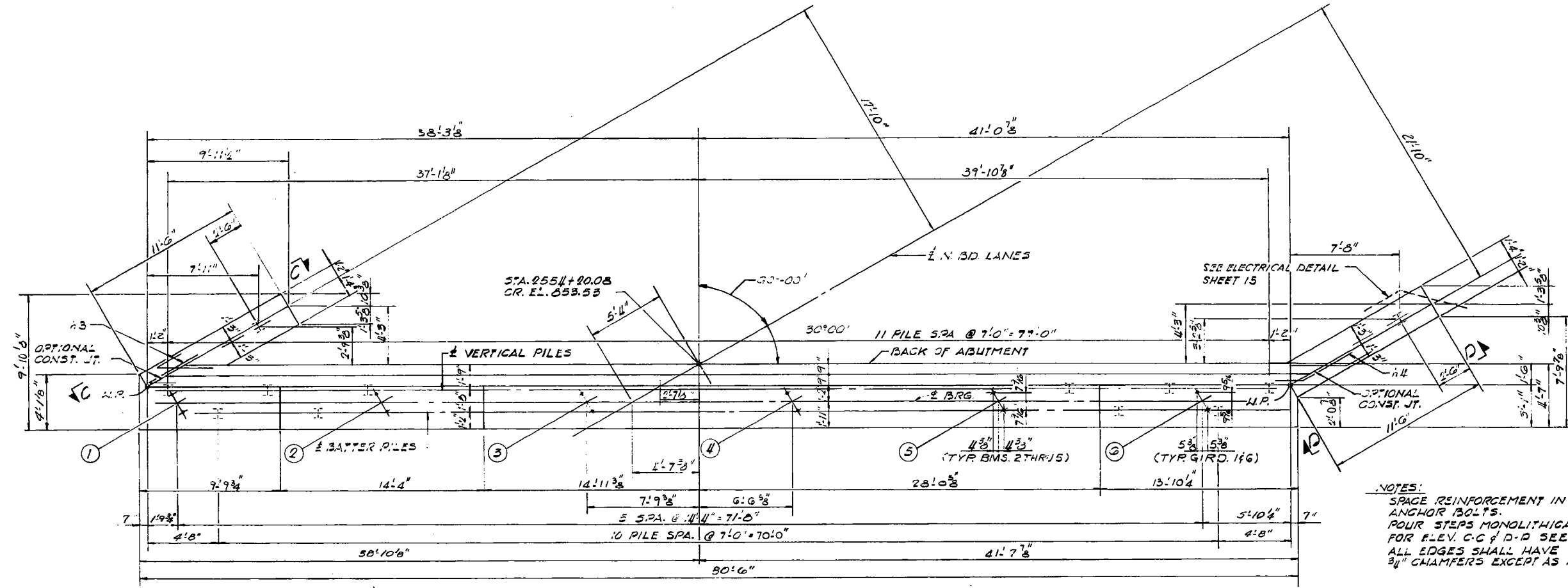
ELECTRICAL CONDUIT DETAIL

ALFRED BENESCH & COMPANY  
 CONSULTING ENGINEERS  
 JOB NO.  
 233 N. WICHITAN AVE. CHICAGO, ILLINOIS

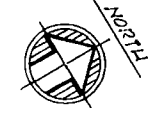
**SOUTH ABUTMENT**  
**F.A. ROUTE 412 N. BD.**  
**OVER RAMP BD**  
**PROJECT**  
**SECTION 201-2HB-1**  
**WINNEBAGO COUNTY**  
**STATION 2552+06.75**

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
EA. 412	201-2HB-1	WINNEBAGO	347	109
STA.	TO STA.			
F.H.E. & RES. NO. 4	ILLINOIS	PROJECT		

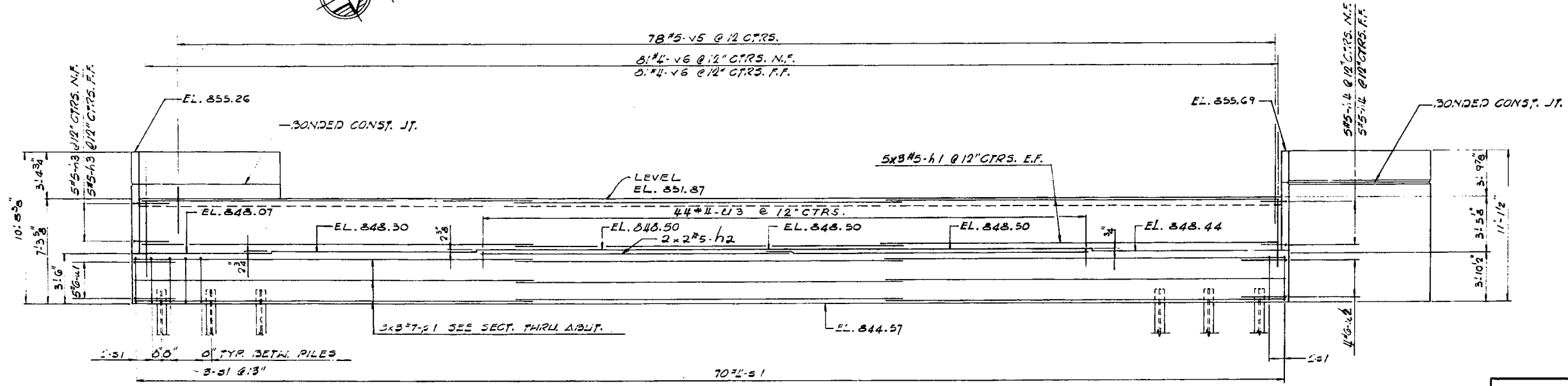
SHEET 16 OF 20



NOTES:  
 SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS.  
 POUR STEPS MONOLITHICALLY WITH CAP.  
 FOR ELEV. C.C. & D-D SEE SHEET 17  
 ALL EDGES SHALL HAVE STANDARD 3/4" CHAMFERS EXCEPT AS NOTED.



PLAN



ELEVATION

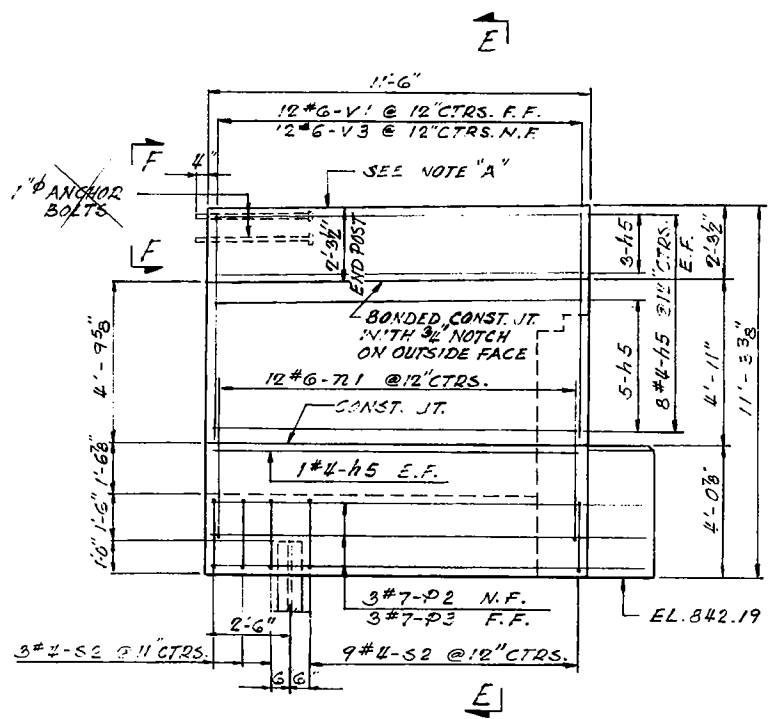
PILE DATA

TYPE	HP8x36
CAPACITY	35 TON
EST. LENGTH	35 FT.
NO. REQUIRED	25*

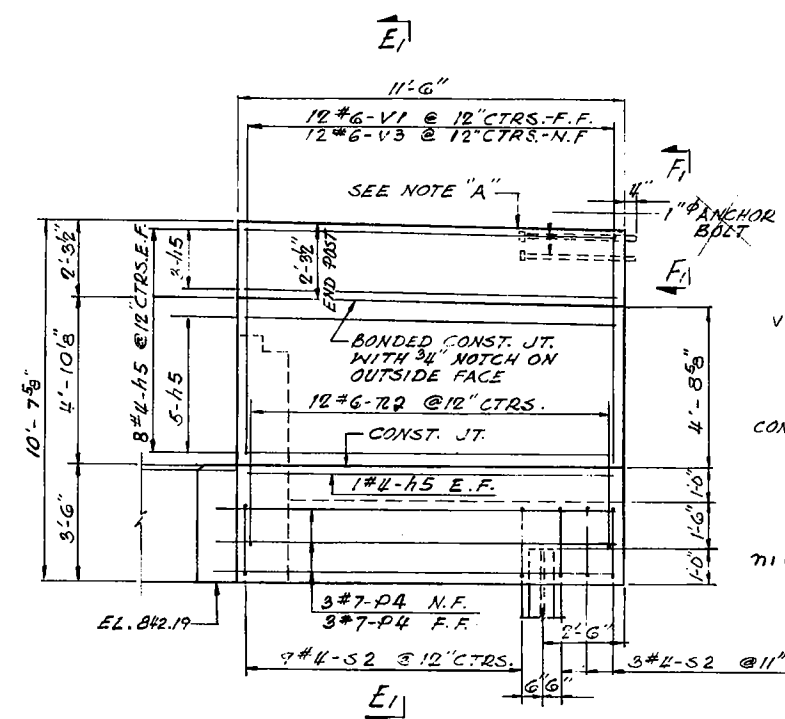
\* INCLUDES ONE TEST PILE

ALFRED BENESCH & COMPANY  
 CONSULTING ENGINEERS  
 JOB NO.  
 233N. MICHIGAN AVE. CHICAGO, ILLINOIS

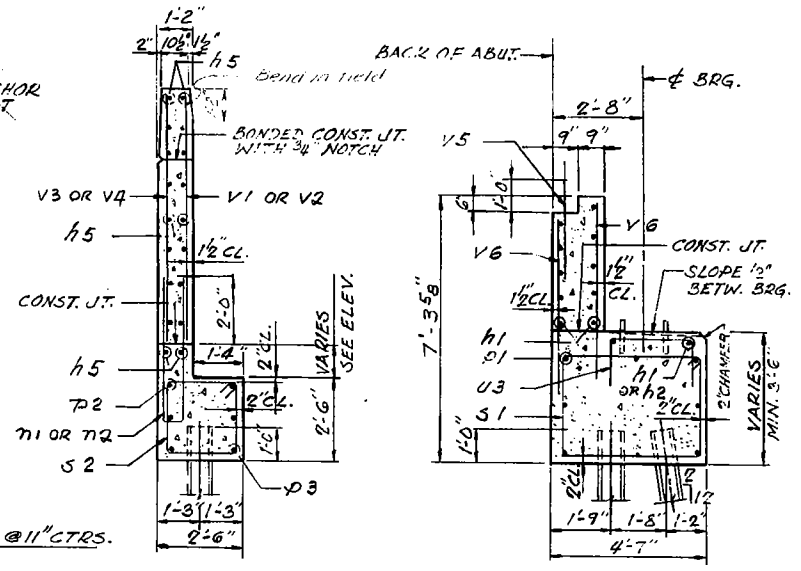
NORTH ABUTMENT  
 F.A. ROUTE 412 N.B.D.  
 OVER RAMP BD  
 PROJECT  
 SECTION 201-2HB-1  
 WINNEBAGO COUNTY  
 STATION 2552+06.76



ELEVATION A-A

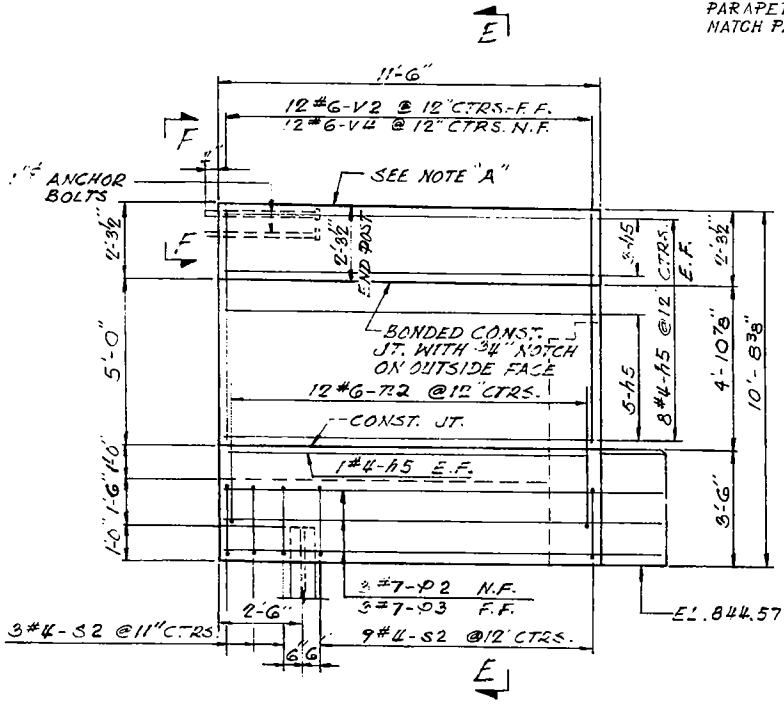


ELEVATION B-B

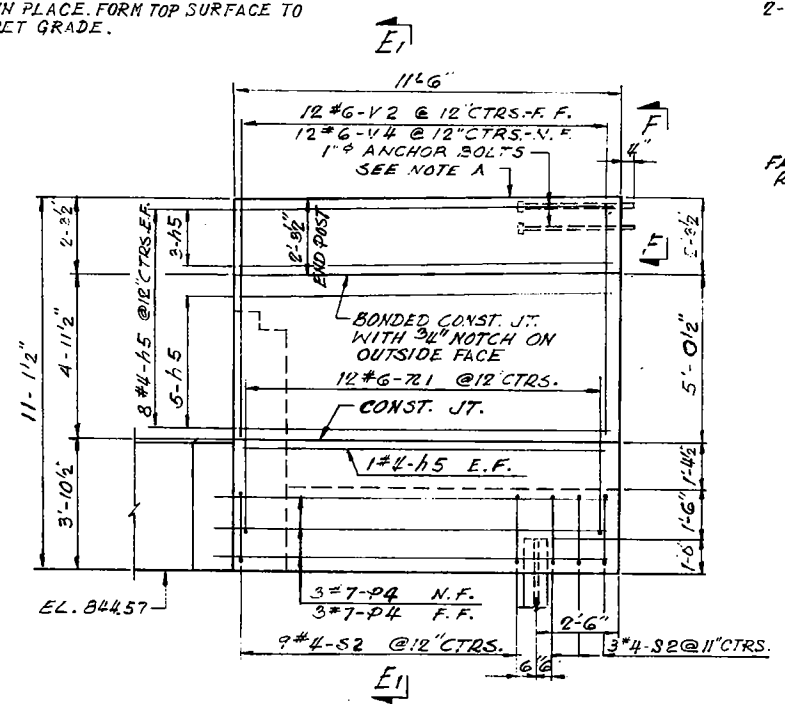


SECTION E-E  
SECTION E1-E1 SIMILAR  
SECT. THRU ABUT.

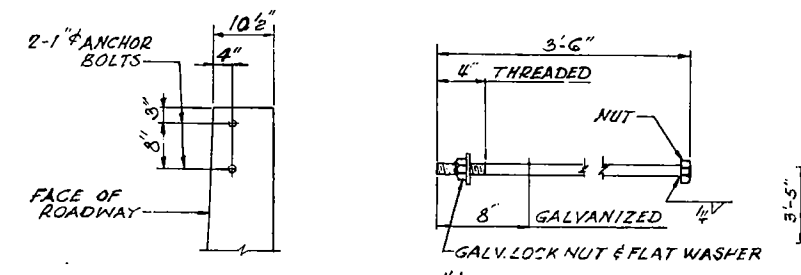
NOTE A:  
END POST SHALL BE POURED AFTER BRIDGE PARAPET IS IN PLACE. FORM TOP SURFACE TO MATCH PARAPET GRADE.



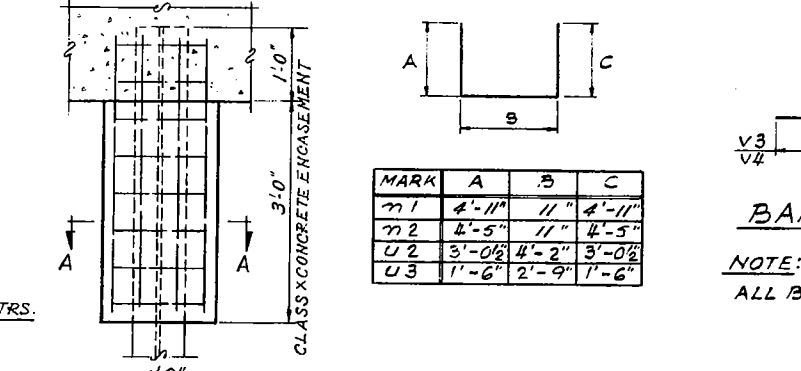
ELEVATION C-C



ELEVATION D-D



VIEW F-F  
VIEW F1-F1 SIMILAR  
At Exit End Only



WELDED WIRE FABRIC 6X6 MESH #4  
WIRE-WEIGHING 58#/100 SQ. FT.  
THE COST OF CLASS X CONCRETE  
ENCASUREMENT AND REINFORCEMENT  
IS INCIDENTAL TO THE COST OF FURNISHING  
PILES. FORMS FOR ENCASUREMENT MAY BE OMITTED  
WHEN SOIL CONDITIONS WILL PERMIT.

HP8x36

SECTION A-A

**BILL OF MATERIAL**

BAR	NO	REQ'D	SIZE	LENGTH	SHAPE
h1	34	30	#5	27'-3"	—
h2	—	4	#5	22'-3"	—
h3	10	10	#5	6'-3"	—
h4	10	10	#5	6'-3"	—
h5	36	36	#4	11'-3"	—
m1	12	12	#6	10'-9"	□
m2	12	12	#6	9'-9"	□
p1	24	24	#7	28'-3"	—
p2	3	3	#7	11'-0"	—
p3	3	3	#7	8'-0"	—
p4	6	6	#7	13'-6"	—
s1	70	70	#4	15'-7"	□
s2	24	24	#4	9'-5"	□
u1	5	5	#6	9'-6"	□
u2	4	4	#6	10'-3"	□
u3	53	44	#4	5'-9"	□
v1	24	—	#6	6'-10"	—
v2	—	24	#6	7'-1"	—
v3	24	—	#6	6'-10"	—
v4	—	24	#6	7'-1"	—
v5	78	78	#5	3'-0"	—
v6	162	162	#4	5'-0"	—
ITEM	UNIT	SABUT.	NABUT.		
CLASS X CONCRETE	CU YDS	79.1	78.2		
REINFORCEMENT BARS	LBS.	5,900	5,860		
STEEL PILES #8x36	UN. FT.	770	748		
TEST PILES, STEEL	EACH	1	1		

NOTE:  
ALL BAR DIMENSIONS ARE OUT TO OUT.

**ABUTMENT DETAILS**  
F.A. ROUTE 412 N. BD.  
OVER RAMP BD  
PROJECT  
SECTION 201-2HB-1  
WINNEBAGO COUNTY  
STATION 2552+06.76

ALFRED BENESCH & COMPANY  
CONSULTING ENGINEERS  
JOB NO. 1608-E  
233 N. MICHIGAN AVE. CHICAGO, ILLINOIS



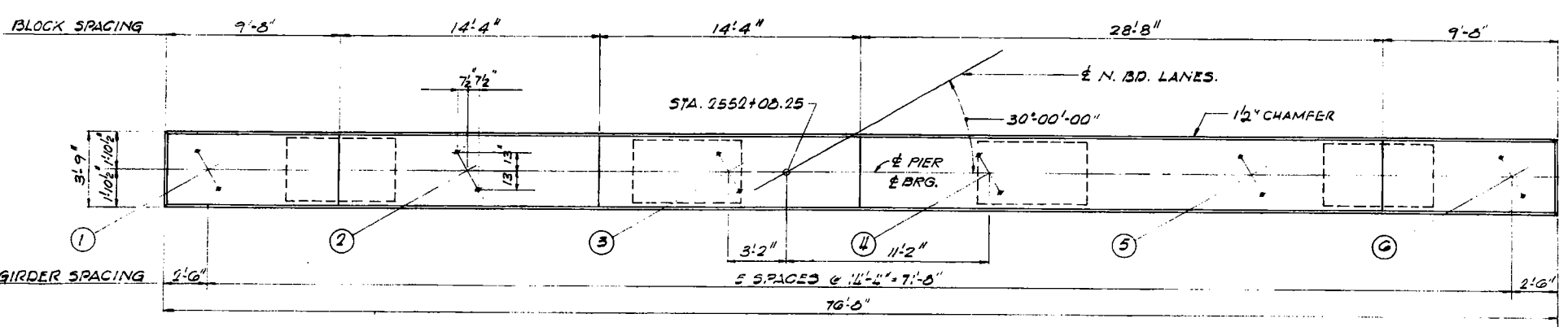
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS
FA. 412	201-2HB-1	WINNEBAGO	3A7
STA.	TO STA.		
PIE & REG. NO. 4	ALLIANCE	PROJECT	

SHEET 13 OF 20

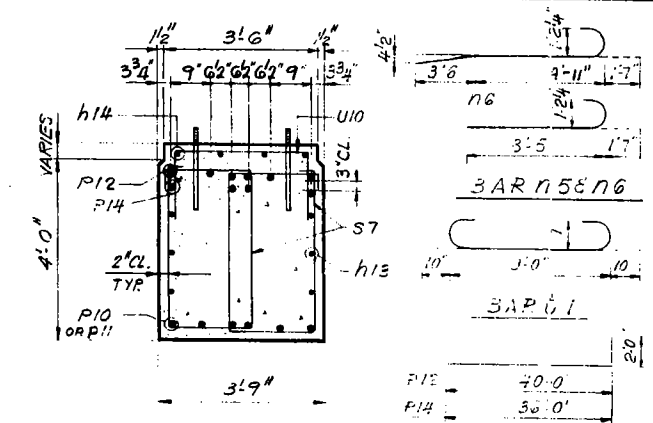
**BILL OF MATERIAL**

BAR	NO.	SIZE	LENGTH	SHAPE
h10	5	#10	28'-0"	
h11	5	#10	38'-6"	
h12	18	#5	22'-6"	
h13	18	#5	26'-6"	
h14	8	#5	27'-0"	
n5	24	#11	10'-0"	
n6	48	#11	10'-0"	
p10	6	#11	26'-0"	
p11	6	#11	36'-0"	
p12	12	#11	42'-0"	
p13	12	#6	10'-0"	
p14	8	#11	38'-0"	
s5	20	#5	14'-6"	
s6	40	#5	14'-0"	
s7	84	#5	12'-5"	
u5	10	#6	7'-6"	
u6	44	#5	9'-6"	
u7	44	#5	8'-8"	
u8	8	#5	6'-0"	
u9	56	#5	7'-3"	
u10	53	#4	6'-0"	
l1	22	#7	10'-8"	
v10	72	#11	7'-9"	
w1	24	#8	34'-6"	

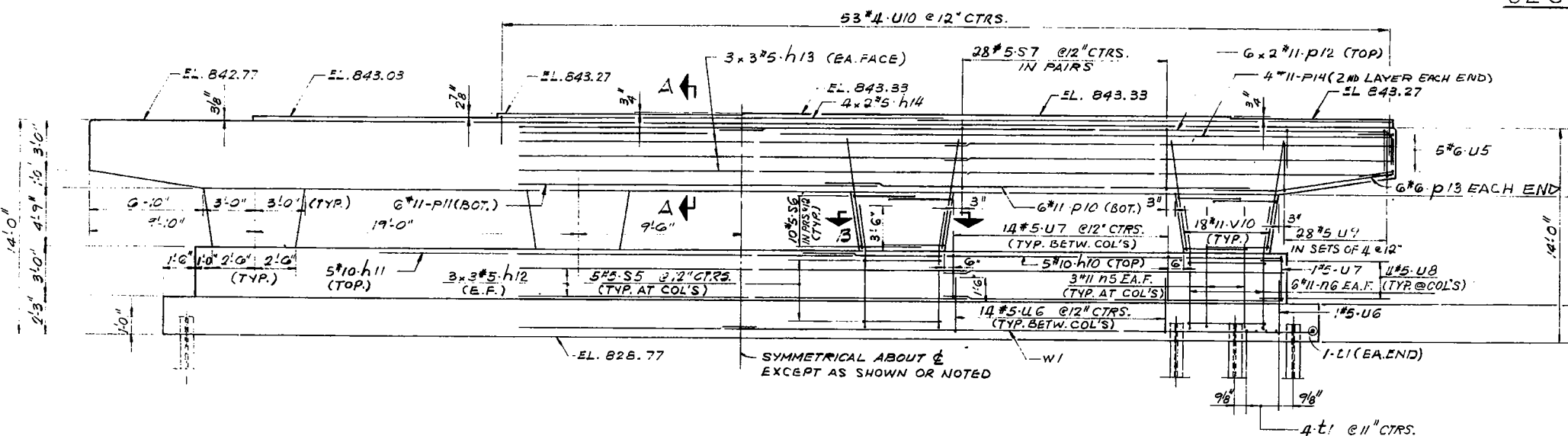
CLASS X CONCRETE	CU. YDS.	134.1
REINFORCEMENT BARS	LBS.	23043
STEEL PILES HP 8x36	LIN. FT.	1316
TEST PILES, STEEL	EACH	1



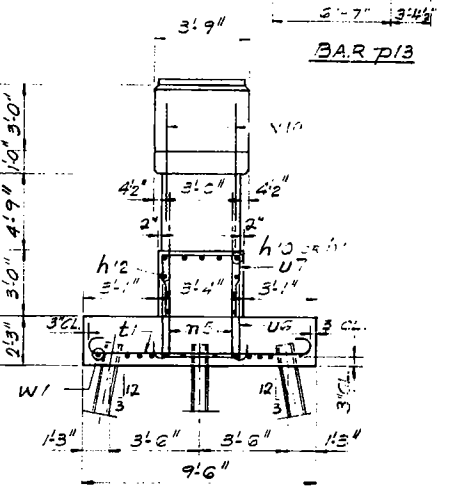
**TOP PLAN**



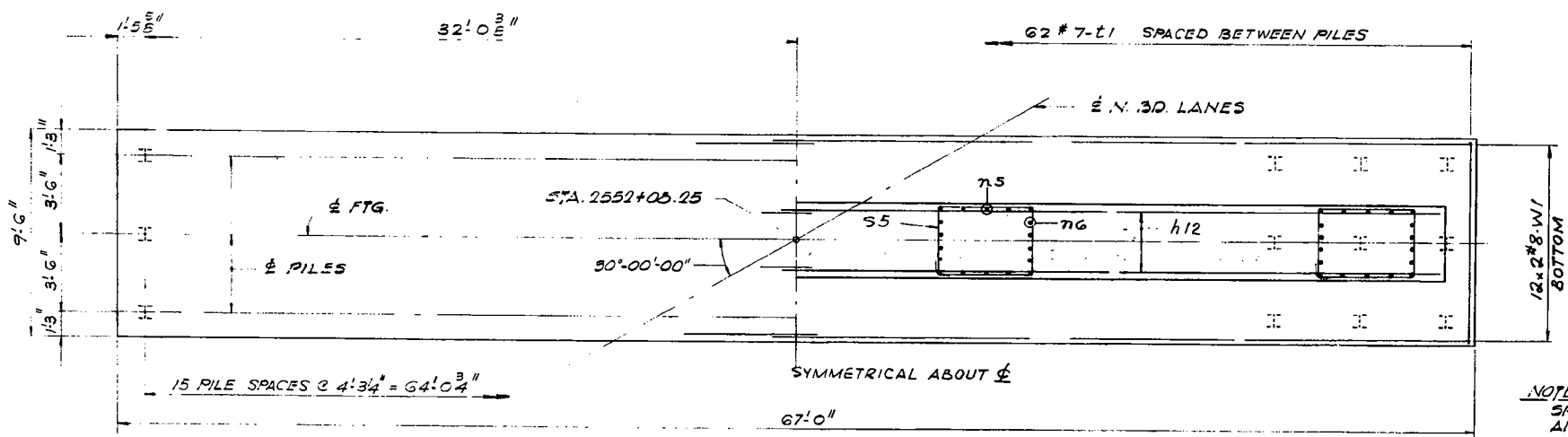
**SECTION A-A**



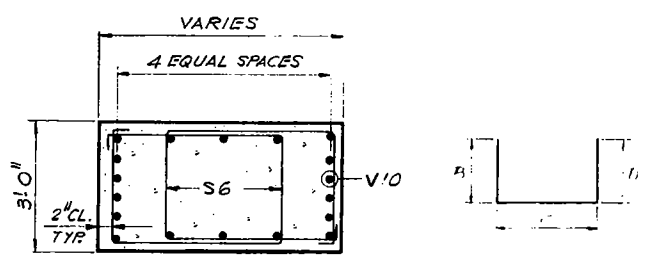
**ELEVATION**



**END VIEW**



**FOOTING PLAN**



**SECTION B-B**

MARK	B	C	D
h10	2'-4"	3'-3 1/2"	2'-1 1/2"
u6	3'-3"	3'-0"	3'-3"
u7	2'-1 1/2"	3'-0"	2'-10"
u8	1'-7"	2'-10 1/2"	1'-5 1/2"
u9	2'-5"	2'-2"	2'-7"
u10	1'-6"	3'-0"	1'-6"

MARK	A	B	C
s5	2'-4"	4'-5"	6"
s6	2'-8"	4'-3"	6"
s7	2'-2"	3'-8"	6"

**NOTES:**  
 SPACE REINFORCEMENT IN GAP TO MISS ANCHOR BOLTS.  
 BARS INDICATED THUS: 12x2 #8 ETC. INDICATES 12 LINES OF BARS WITH 2 BAR LENGTHS PER LINE.  
 ALL EDGES SHALL HAVE STANDARD 3/4" CHAMFERS, EXCEPT AS OTHERWISE NOTED.  
 ALL BAR DIMENSIONS ARE OUT TO OUT.

**PILE DATA**

TYPE	HP 8x36
CAPACITY	35 TON
EST. LENGTH	28'
NO. REQUIRED	48*
*INCLUDES ONE TEST PILE	

ALFRED BENESCH & COMPANY  
 CONSULTING ENGINEERS  
 JOB NO. 1005-E  
 233 N. MICHIGAN AVE., CHICAGO, ILLINOIS

**PIER 1**  
**F.A. ROUTE 412 N.B.D.**  
**OVER RAMP B.D.**  
**PROJECT**  
**SECTION 201-2HB-1**  
**WINNEBAGO COUNTY**  
**STATION 2552+05.76**

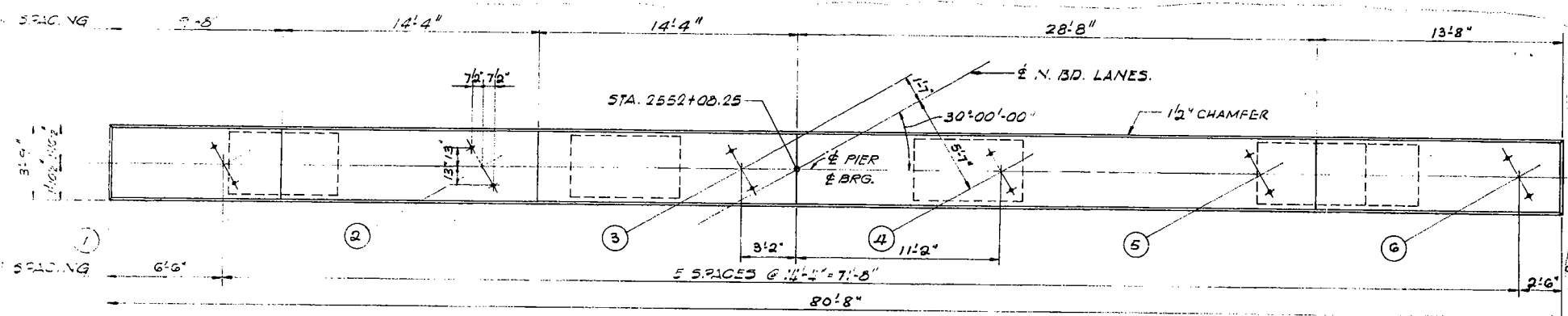


**BILL OF MATERIAL**

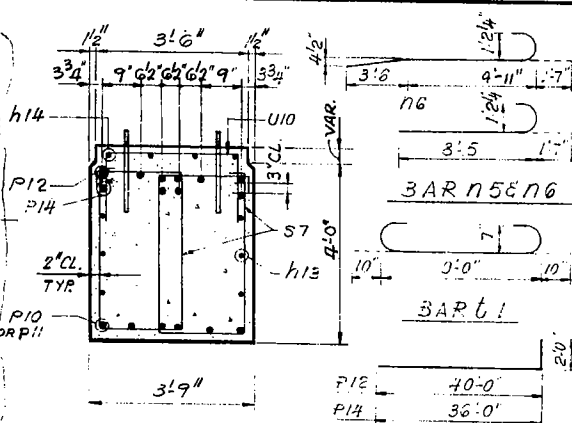
BAR	NO.	SIZE	LENGTH	SHAPE
h10	5	*10	18'-0"	—
h11	5	*10	18'-6"	—
h12	18	*5	12'-6"	—
h13	18	*5	16'-6"	—
h14	8	*5	17'-0"	—
n5	24	*11	10'-0"	—
n6	48	*11	10'-0"	—
p10	6	*11	16'-0"	—
p11	6	*11	36'-0"	—
p12	12	*11	12'-0"	—
p13	12	*6	10'-0"	—
p14	8	*11	38'-0"	—
s5	20	*5	14'-6"	□
s6	40	*5	14'-0"	□
s7	34	*5	12'-3"	□
u5	10	*6	7'-6"	□
u6	44	*5	9'-6"	□
u7	44	*5	8'-8"	□
u8	8	*5	6'-0"	□
u9	56	*5	7'-3"	□
u10	53	*4	6'-0"	□
t1	32	*7	10'-8"	—
v10	72	*11	7'-9"	—
w1	24	*8	38'-6"	—

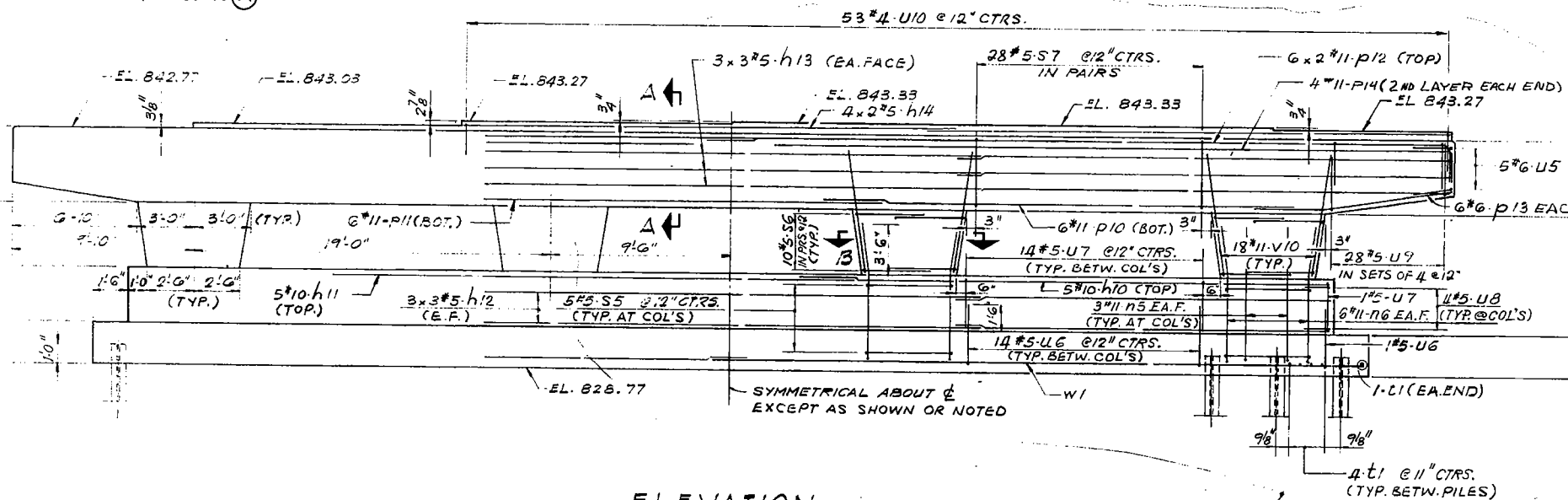
CLASS X CONCRETE	CU. YDS.	134.1
REINFORCEMENT BARS	LBS.	23,043
STEEL PILES HP 8x36	LIN. FT.	1316
TEST PILES, STEEL	EACH	1



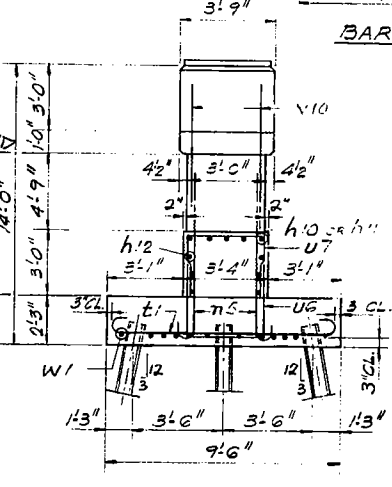
TOP PLAN



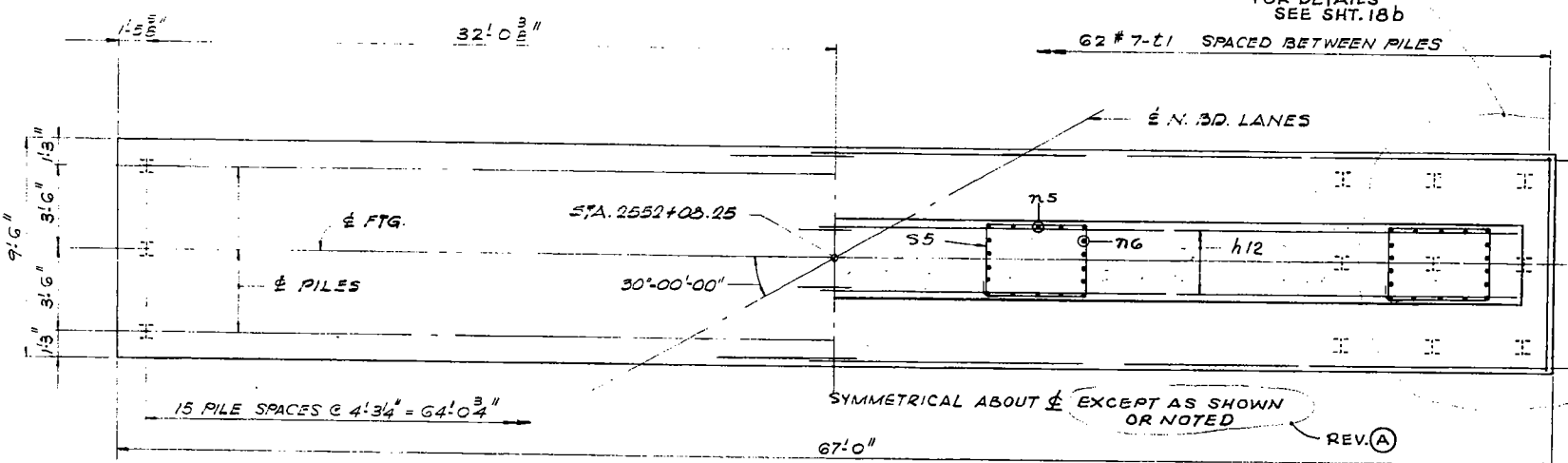
SECTION A-A



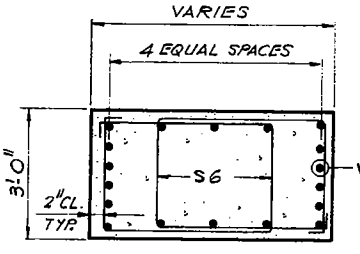
ELEVATION



END VIEW



FOOTING PLAN



SECTION B-B

MARK	B	C	D
u5	2'-1"	3'-3 1/2"	2'-1 1/2"
u6	3'-3"	3'-0"	3'-3"
u7	2'-10"	3'-0"	2'-10"
u8	1'-7"	2'-10 1/2"	1'-6 1/2"
u9	2'-6"	2'-2"	2'-7"
u10	1'-6"	3'-0"	1'-6"

MARK	A	E	C
s5	2'-4"	4'-5"	6"
s6	2'-8"	4'-3"	6"
s7	2'-2"	3'-8"	6"

**PILE DATA**

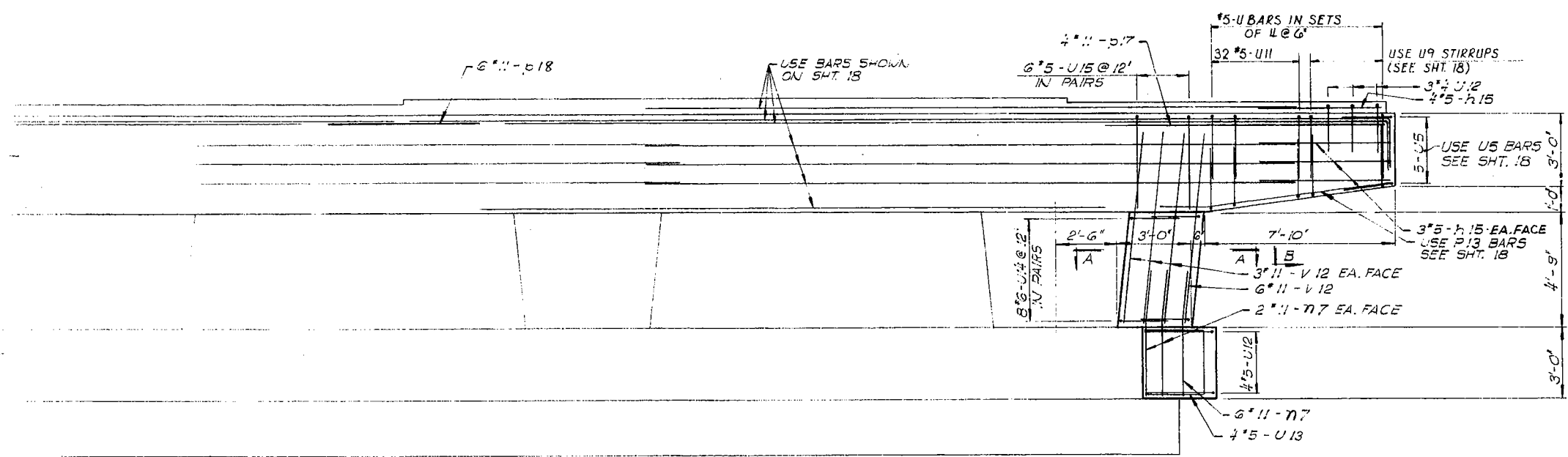
TYPE	HP 8x36
CAPACITY	35 TON
EST. LENGTH	28'
NO. REQUIRED	48*
*INCLUDES ONE TEST PILE	

**NOTES:**  
 SPACE REINFORCEMENT IN GAP TO MISS ANCHOR BOLTS.  
 BARS INDICATED THUS: 12x2#8 ETC. INDICATES 12 LINES OF BARS WITH 2 BAR LENGTHS PER LINE.  
 ALL EDGES SHALL HAVE STANDARD 3/4" CHAMFERS EXCEPT AS OTHERWISE NOTED.  
 ALL BAR DIMENSIONS ARE OUT TO OUT.

ALFRED BENESCH & COMPANY  
 CONSULTING ENGINEERS  
 JOB NO. 1605-E  
 233 N. MICHIGAN AVE. CHICAGO, ILLINOIS

REVISION (A) OCTOBER 10, 1980

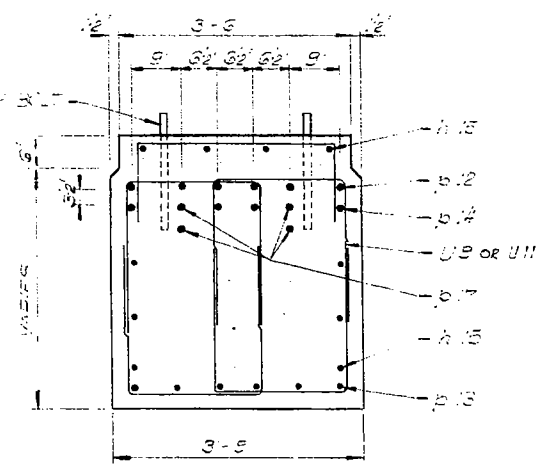
PIER 1  
 F.A. ROUTE 412 N. BD.  
 OVER RAMP RD.  
 PROJECT  
 SECTION 201-2HB-1  
 WINNEBAGO COUNTY  
 STATION 2552+00.76



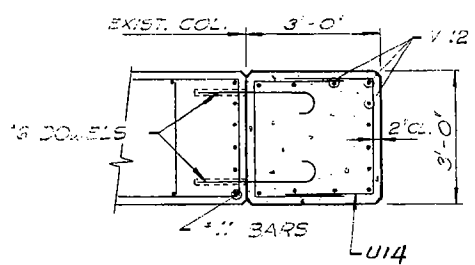
BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
h.15	10	#5	5'-6"	—
n.7	10	#11	6'-6"	—
p.17	4	#11	11'-9"	—
p.18	6	#11	12'-0"	—
U.11	32	#5	7'-3"	—
U.12	3	#5	8'-6"	—
U.13	4	#5	8'-0"	—
U.14	8	#6	7'-0"	—
U.15	6	#5	9'-6"	—
V.12	12	#11	7'-9"	—
DOWELS	24	#6	3'-2"	—

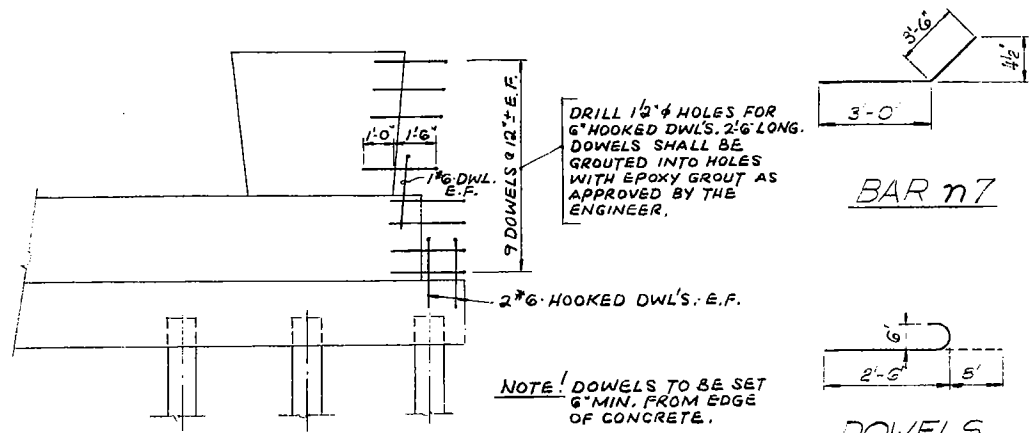
REVISIONS TO PIER 1



SECTION 3-B



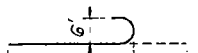
SECTION A-A



LOCATION OF ANCHOR DOWELS

**NOTES:**  
 PIER 1 HAS BEEN CONSTRUCTED IN THE FIELD EXCEPT FOR THE PIER CAP.  
 THE BARS LISTED ON THIS SHEET SHALL BE USED IN ADDITION TO THE BARS LISTED ON SHT. 18.  
 THE QUANTITIES SHOWN ON THIS SHEET SHALL BE ADDED TO THE QUANTITIES SHOWN ON SHT. 18.  
 UNLESS OTHERWISE SHOWN OR NOTED ON THIS SHEET, DIMENSIONS & DETAILS ON SHT. 18a GOVERN

BAR n.7



DOWELS



MARK	B	C	D
U.11	2'-5"	2'-2"	2'-7"
U.12	2'-9"	3'-0"	2'-9"
U.13	2'-8"	2'-8"	2'-8"
U.14	2'-2"	2'-8"	2'-2"
U.15	3'-8"	2'-2"	3'-8"

ALFRED BENESCH & COMPANY  
 CONSULTING ENGINEERS  
 JOB NO. 1605-E  
 233 N. MICHIGAN AVE. CHICAGO, ILLINOIS

**PIER 1 (REVISION A)**  
 F.A. ROUTE 417, N. BD.  
 OVER RAMP BD  
 PROJECT  
 SECTION 201.24B-1  
 WINNEBAGO COUNTY  
 STATION 2552+06.76

SHEET NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 412	201-2HB-1	WINNEBAGO	347	112
STA.	TO STA.			
LINE & REG. NO. & ILLINOIS	PROJECT			

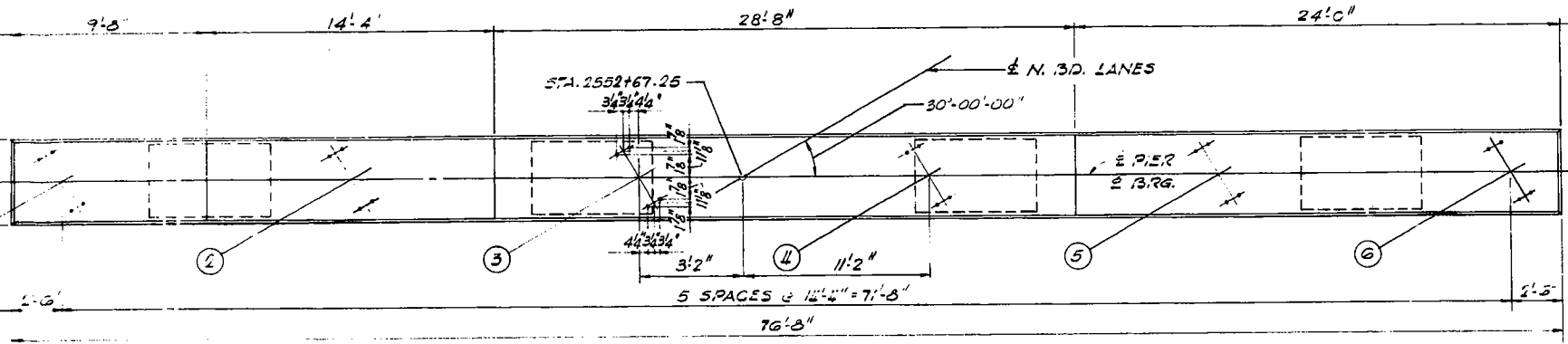
SHEET 19 OF 20

### BILL OF MATERIAL

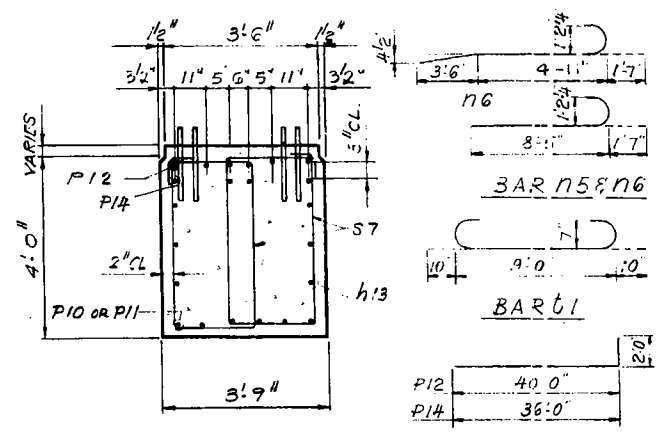
BAR	NO.	SIZE	LENGTH	SHAPE
h10	5	#10	25'-0"	—
h11	5	#10	55'-8"	—
h12	16	#5	22'-6"	—
h13	18	#5	26'-6"	—
m5	24	#11	10'-0"	—
m6	48	#11	10'-0"	—
p10	6	#11	25'-0"	—
p11	6	#11	36'-0"	—
p12	12	#11	42'-0"	—
p13	12	#11	10'-0"	—
p14	8	#11	38'-0"	—
s5	20	#5	14'-6"	—
s6	48	#5	14'-10"	—
s7	24	#5	12'-8"	—
u5	62	#7	10'-8"	—
u6	44	#5	7'-6"	—
u7	44	#5	5'-8"	—
u8	8	#5	6'-0"	—
u9	56	#5	7'-5"	—
v11	72	#11	5'-6"	—
w1	24	#8	54'-6"	—

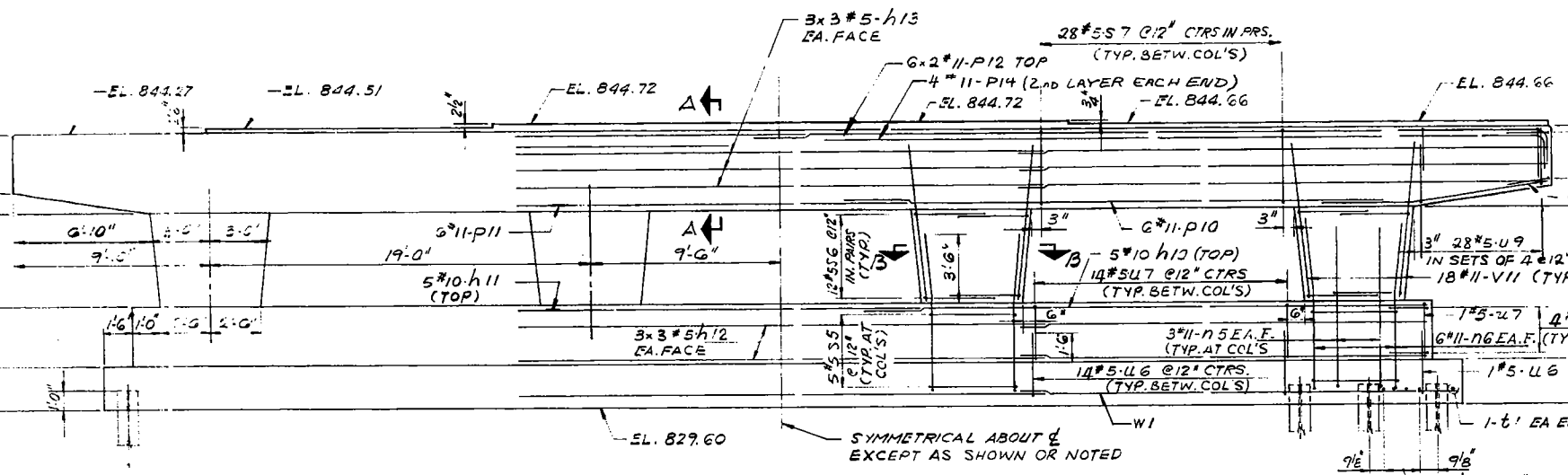
CLASS X CONCRETE	CU. YDS.	135
REINFORCEMENT BARS	LB.	23,020
STEEL PILES HP 8x36	LIN. FT.	1504
TEST PILES, STEEL	EACH	1



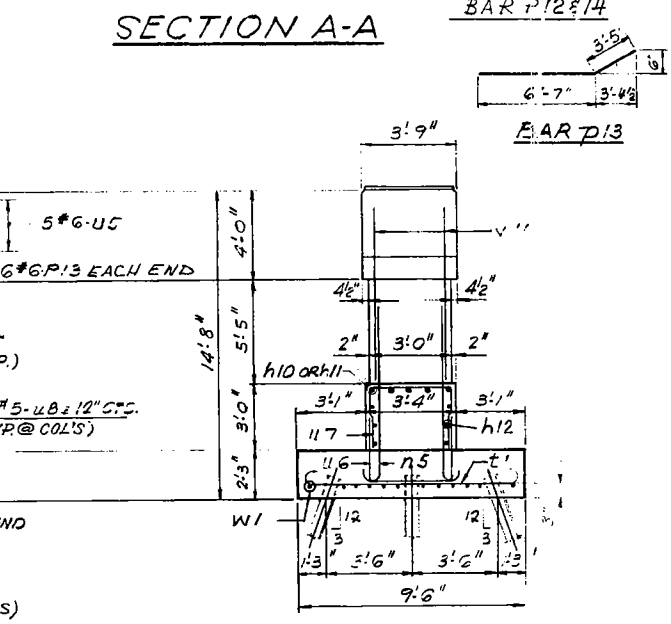
TOP PLAN



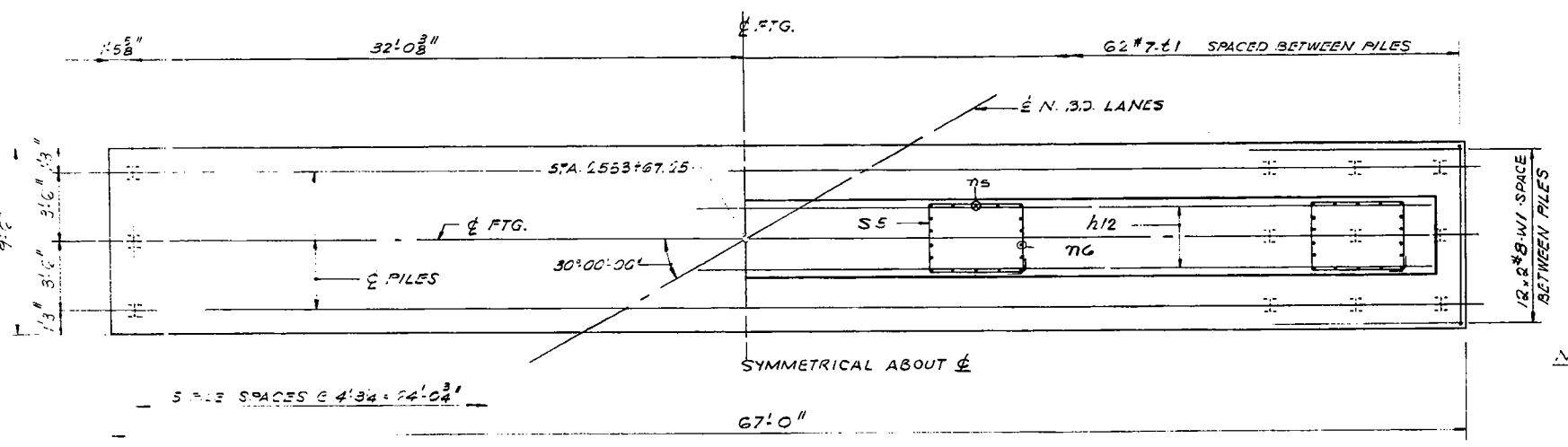
SECTION A-A



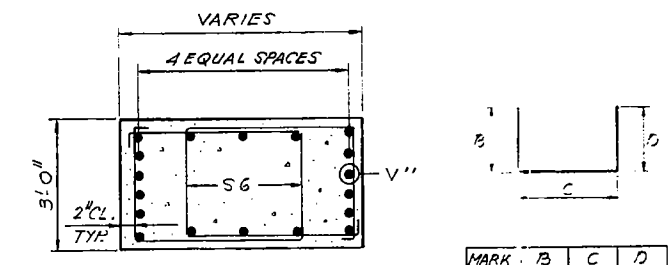
ELEVATION



END VIEW



FOOTING PLAN



SECTION B-B

MARK	B	C	D
u5	2'-1"	3'-3 1/2"	2'-1 1/2"
u6	3'-3"	3'-0"	3'-3"
u7	2'-0"	3'-0"	2'-10"
u8	1'-7"	2'-10 1/2"	1'-6 1/2"
u9	1'-2"	2'-2"	1'-7"

MARK	A	B	C
s5	2'-2"	4'-5"	2"
s6	2'-8"	4'-3"	2"
s7	2'-2"	3'-8"	6"

NOTES:  
 SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS.  
 BARS INDICATED THUS: 12 #8 ETC. INDICATES IRLINES OF BARS WITH 5 BAR LENGTHS PER LINES.  
 ALL EDGES SHALL HAVE STANDARD 45° CHAMFERS EXCEPT AS OTHERWISE NOTED.  
 ALL BAR DIMENSIONS ARE OUT TO OUT.

PILE DATA

TYPE	HP 8x36
CAPACITY	35 TON
EST. LENGTH	32'
NO. REQUIRED	48*

\* INCLUDES ONE TEST PILE

ALFRED BENESCH & COMPANY  
 CONSULTING ENGINEERS  
 JOB NO. 1605-E  
 233 N. MICHIGAN AVE., CHICAGO, ILLINOIS

PIER 2  
 F.A. ROUTE 412 N.B.D.  
 OVER RAMP B.D.  
 PROJECT  
 SECTION 201-2HB-1  
 WINNEBAGO COUNTY  
 STATION 2552+06.75



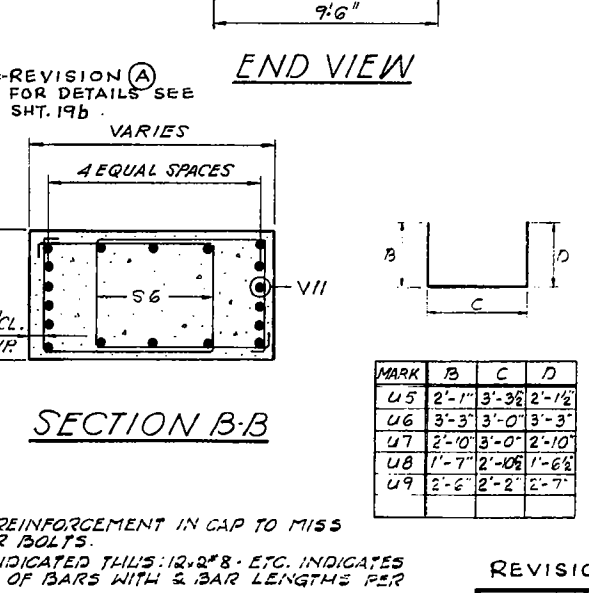
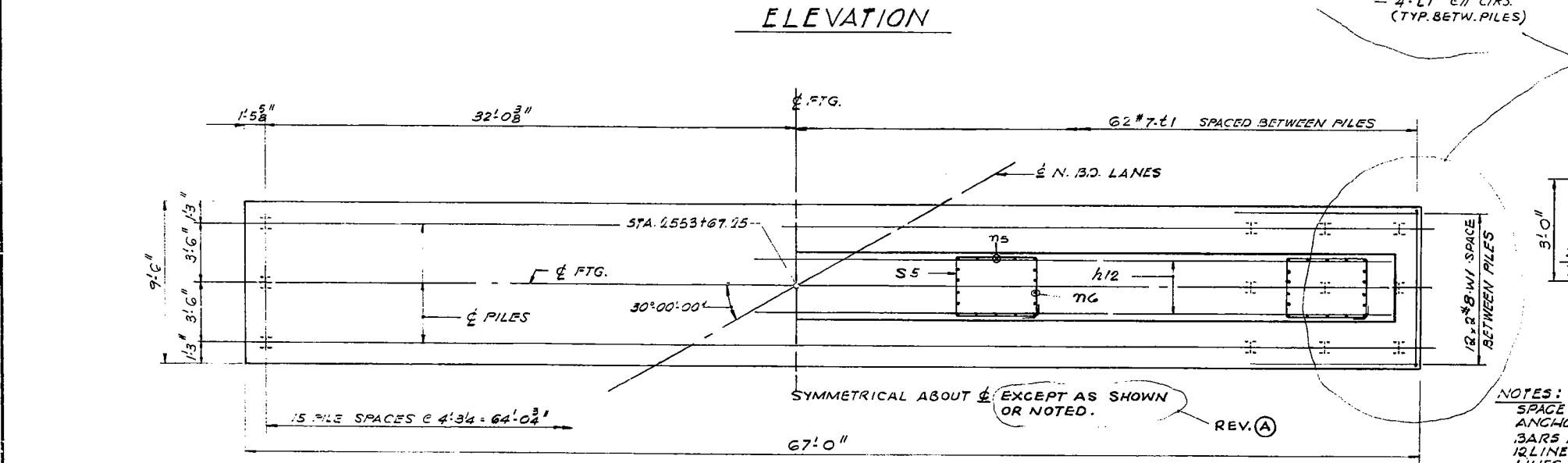
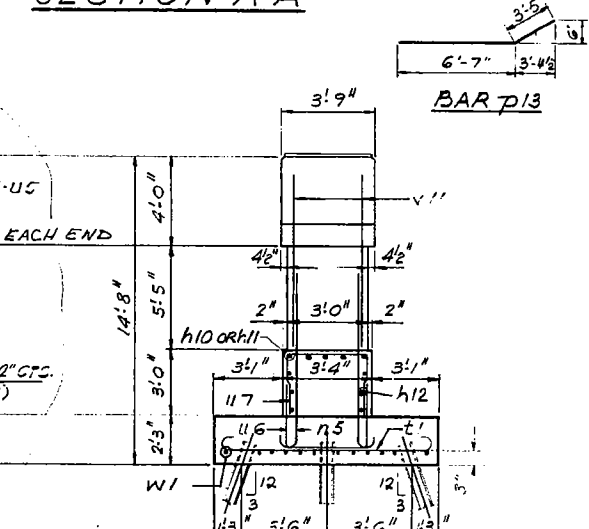
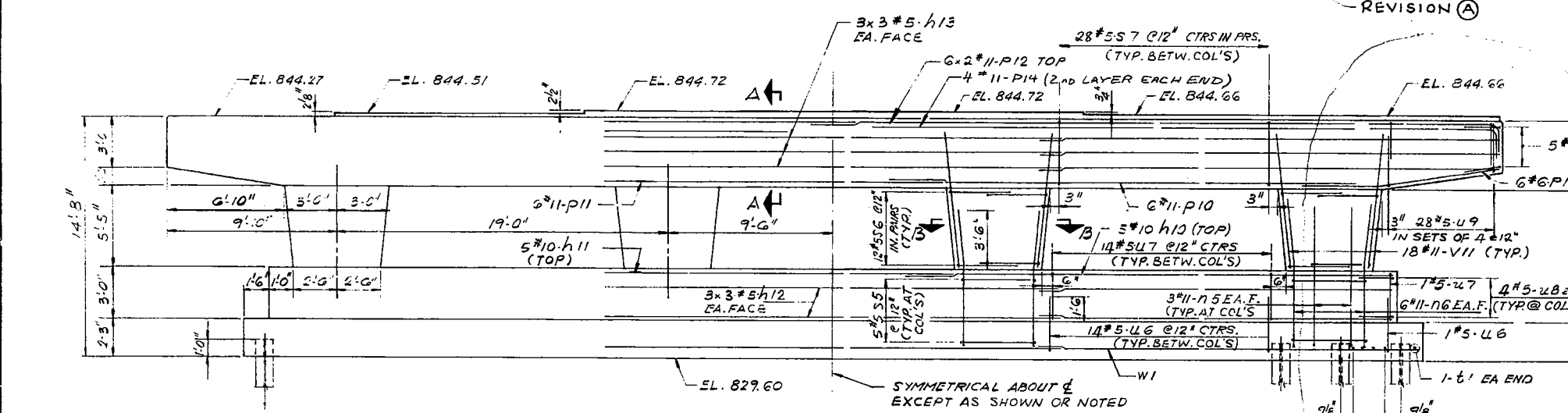
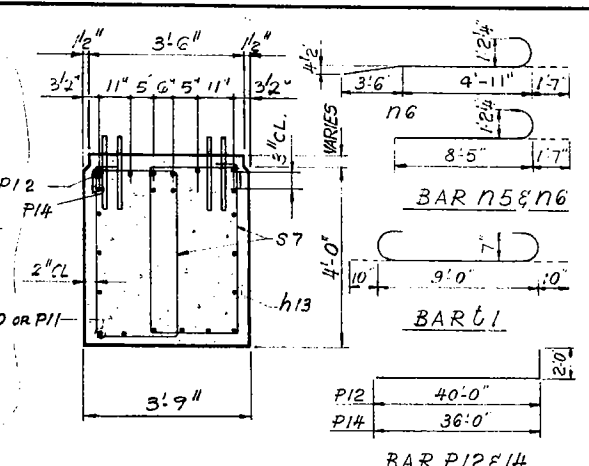
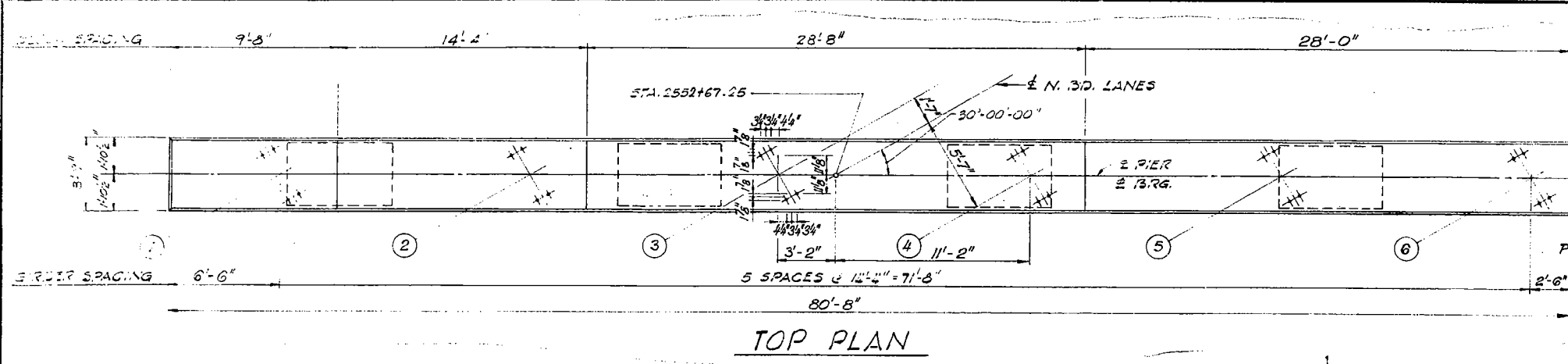
PLATE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PA 412	201-2HB-1	WINNEBAGO	347	19a
STA.		TO STA.		
P & R RES. NO. & ILLINOIS		PROJECT		

SHEET 19a OF 20

**BILL OF MATERIAL**

BAR	NO.	SIZE	LENGTH	SHAPE
P10	5	#10	28'-0"	—
P11	5	#10	36'-6"	—
P12	18	#5	22'-6"	—
P13	18	#5	26'-6"	—
P14	24	#11	10'-0"	—
P15	48	#11	10'-0"	—
P16	6	#11	22'-0"	—
P17	6	#11	36'-0"	—
P18	12	#11	42'-0"	—
P19	12	#6	10'-0"	—
P20	8	#11	38'-0"	—
P21	20	#5	14'-6"	—
P22	48	#5	14'-10"	—
P23	8	#5	12'-8"	—
P24	62	#7	10'-8"	—
P25	10	#6	7'-6"	—
P26	44	#5	9'-6"	—
P27	44	#5	3'-8"	—
P28	8	#5	6'-0"	—
P29	56	#5	7'-3"	—
P30	72	#7	3'-6"	—
P31	24	#8	34'-6"	—

CLASS X CONCRETE	CU.YDS.	135
REINFORCEMENT BARS	LBS.	23,020
STEEL PILES HP X 36	LIN. FT.	1504
TEST PILES, STEEL	EACH	1



**PILE DATA**

TYPE	HP 8 X 36
CAPACITY	35 TON
EST. LENGTH	32'
NO. REQUIRED	48*

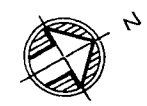
\* INCLUDES ONE TEST PILE

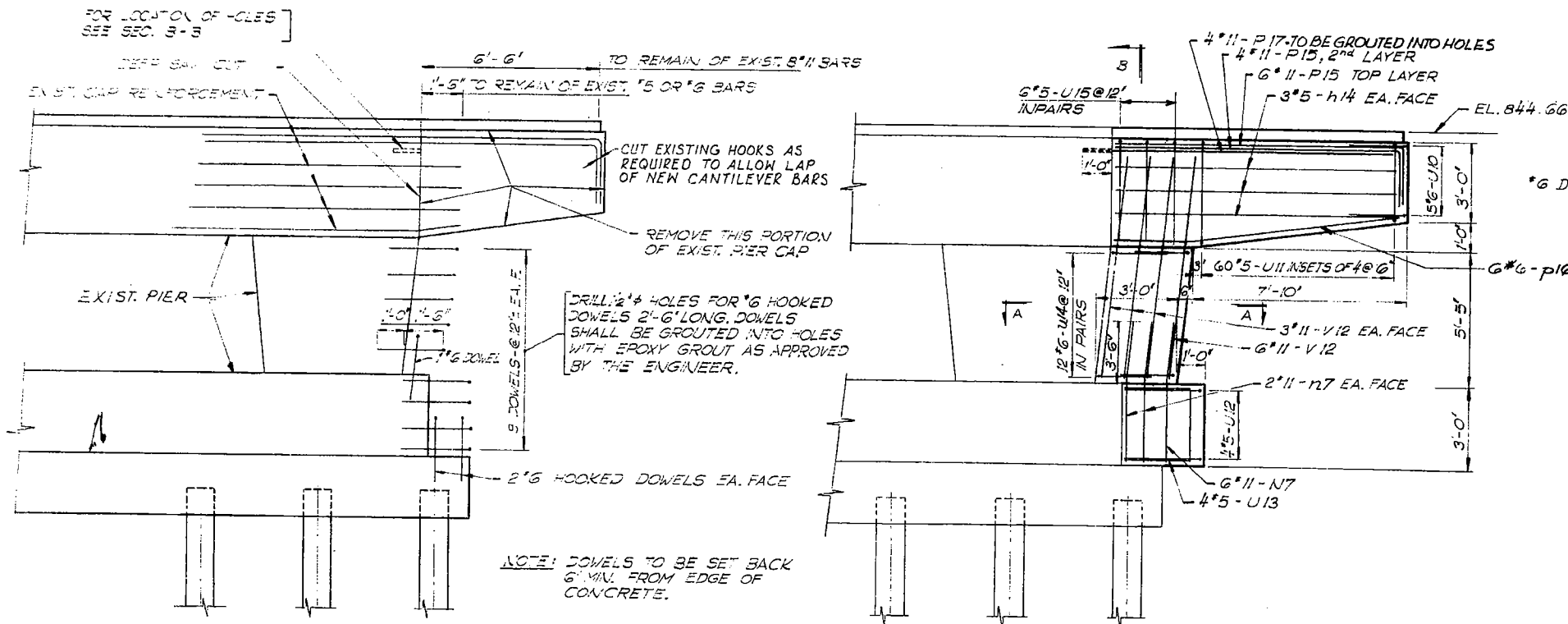
**NOTES:**  
 SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS.  
 BARS INDICATED THUS: 12-#8-ETC. INDICATES 12 LINES OF BARS WITH 2 BAR LENGTHS PER LINE.  
 ALL EDGES SHALL HAVE STANDARD 3/4" CHAMFERS, EXCEPT AS OTHERWISE NOTED.  
 ALL BAR DIMENSIONS ARE OUT TO OUT.

REVISION (A) OCTOBER 10, 1980

**PIER 2  
 F.A. ROUTE 412 N.B.D.  
 OVER RAMP B.D.  
 PROJECT  
 SECTION 201-2HB-1  
 WINNEBAGO COUNTY  
 STATION 2552+06.76**

ALFRED BENESCH & COMPANY  
 CONSULTING ENGINEERS  
 JOB NO. 1608-E  
 233N. MICHIGAN AVE. CHICAGO, ILLINOIS

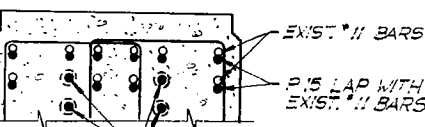




DRILL 2" HOLES FOR #6 HOOKED DOWELS 2'-6" LONG. DOWELS SHALL BE GROUTED INTO HOLES WITH EPOXY GROUT AS APPROVED BY THE ENGINEER.

NOTE: DOWELS TO BE SET BACK 6" MIN. FROM EDGE OF CONCRETE.

SECTION A-A



SECTION B-B

BILL OF MATERIAL

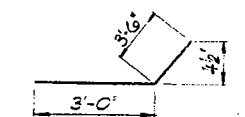
BAR	NO.	SIZE	LENGTH	SHAPE
p 14	3	#5	10'-6"	
p 15	10	#11	12'-6"	
p 16	6	#6	10'-6"	
p 17	4	#11	11'-8"	
U 10	5	#6	7'-6"	
U 11	60	#5	7'-3"	
U 12	4	#5	8'-8"	
U 13	4	#5	8'-0"	
U 14	12	#6	7'-0"	
U 15	6	#5	3'-6"	
V 12	12	#11	8'-6"	
R 7	10	#11	6'-6"	
DOWELS	24	#6	3'-2"	

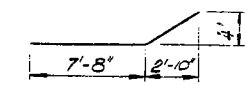
ITEM	UNIT	TOTAL
CONCRETE REMOVAL	CU. YD.	3.7
CLASS 'X' CONCRETE	CU. YD.	8.9
REINFORCEMENT BARS	LBS.	2840
1/2" DIA. HOLES 1'-0" DEEP	EA.	24
2" DIA. HOLES 1'-0" DEEP	EA.	4

REVISIONS TO PIER 2

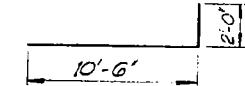
NOTE:  
PIER 2 HAS BEEN CONSTRUCTED IN ITS ENTIRETY. UNDER REVISION (A) THE EASTERLY EXIST. CANTILEVER SHALL BE REMOVED AND MODIFIED IN ACCORDANCE WITH THE REVISIONS SHOWN ON THIS SHEET. THE BILL OF MATERIAL ON THIS SHEET REFLECTS THESE REVISIONS. UNLESS OTHERWISE SHOWN OR NOTED ON THIS SHEET DIMENSIONS AND DETAILS ON SHEET 19a GOVERN.



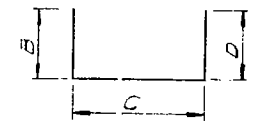
BAR n7



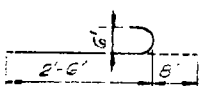
BAR p16



BAR p15



MARK	B	C	D
U 10	2'-11"	3'-3/4"	2'-12"
U 11	2'-6"	2'-2"	2'-7"
U 12	2'-9"	3'-0"	2'-9"
U 13	2'-8"	2'-8"	2'-8"
U 14	2'-2"	2'-8"	2'-2"
U 15	3'-8"	2'-2"	3'-8"

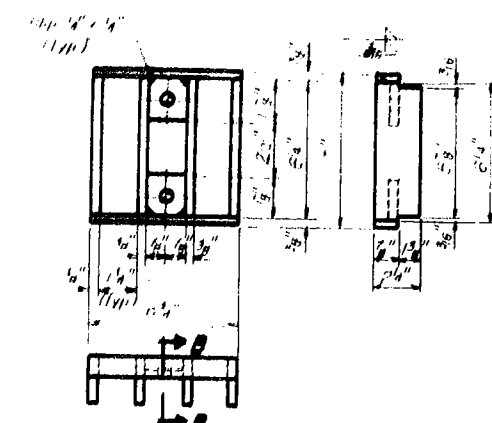
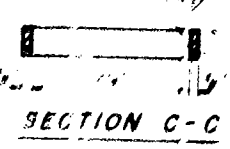
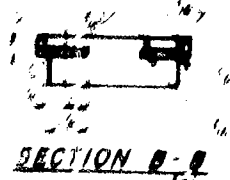
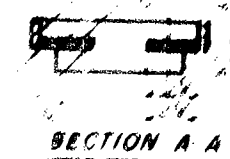


DOWELS

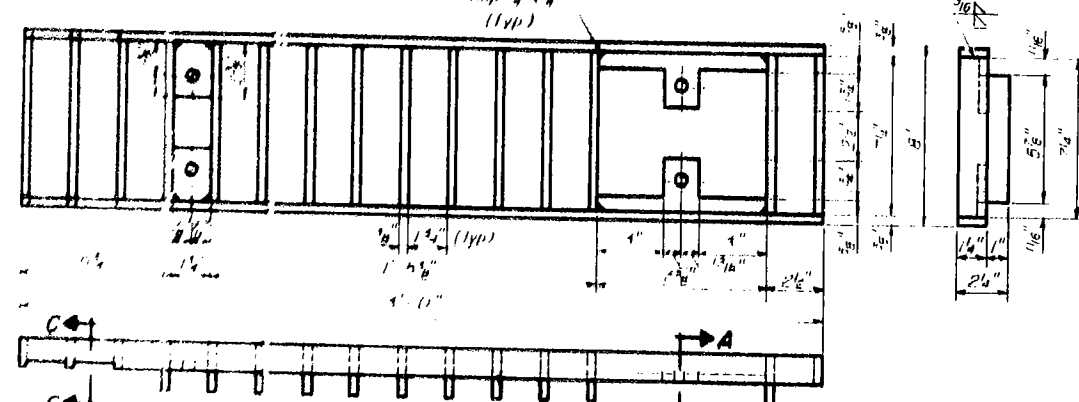
ALFRED BENESCH & COMPANY  
CONSULTING ENGINEERS  
JOB NO. 1000-C  
233 N. MICHIGAN AVE. CHICAGO, ILLINOIS

PIER 2 (REVISION A)  
F.A. ROUTE 412 N.B.D.  
OVER RAMP R1  
PROJECT  
SECTION 201-2HB-1  
WINNEBAGO COUNTY  
STATION 2552-109.75

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 412	201-2HB-1	WINNEBAGO	317	113
STA.	TO STA.		PROJECT	
7-ME & REG NO. 4	ILLINOIS		SHEET 20 OF 20	

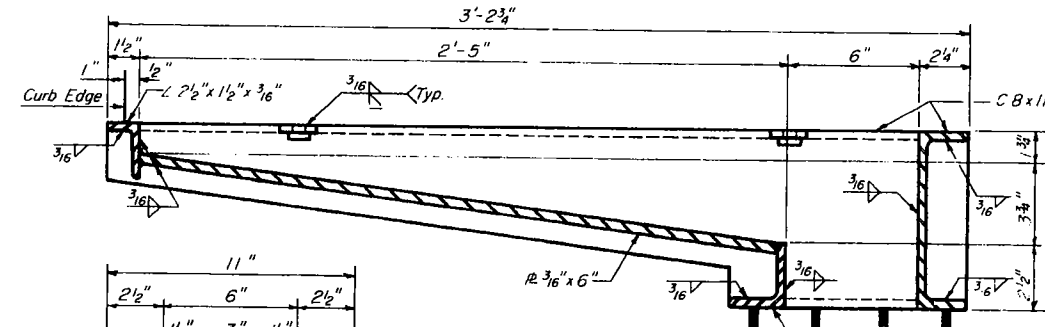
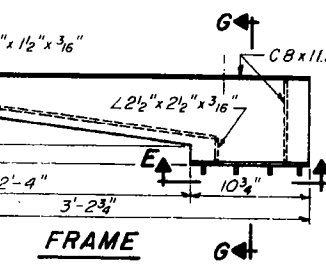
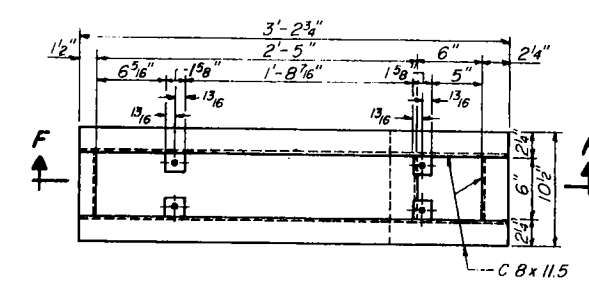


CLEANOUT GRATE



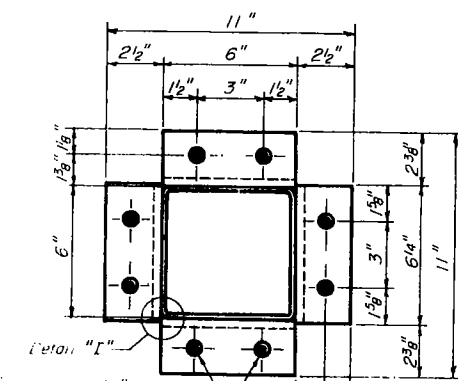
MAIN GRATE

Notes:  
 1. All structural steel tubing shall conform to the requirements of ASTM A 134.  
 2. All bolts, washers and nuts shall conform to the requirements of ASTM A 307.  
 3. The Main Grate, Cleanout Grate, Frame and Downspout shall be galvanized after fabrication in accordance with AASHTO M 288 or ASTM A 1249.  
 4. All bolts, washers and nuts shall be galvanized in accordance with AASHTO M 288 or ASTM A 1249.  
 5. The Membrane System shall be installed such that the membrane covers the entire opening and extends down into the frame with the grate placed on top of the membrane.  
 6. The cost of the Membrane System, Grate, Frame, Downspout, Bolts, Washers and Nuts shall be included in the unit price for the grate and shall be paid for at the unit bid price for the grate.

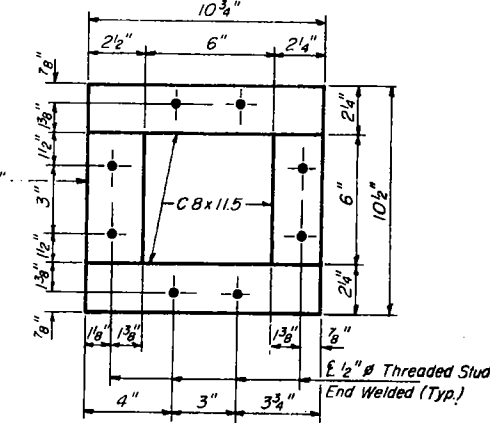


SECTION F-F

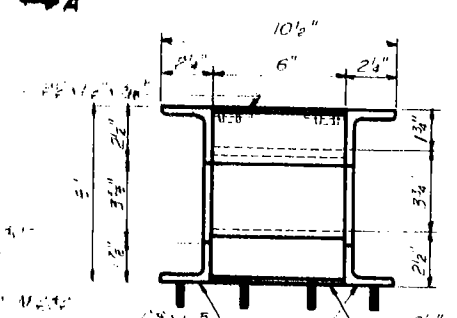
DRAINAGE SCUPPER



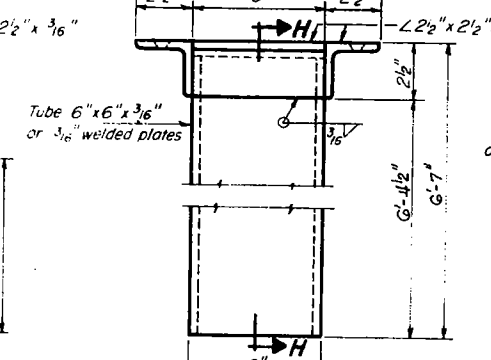
DETAIL 'I'



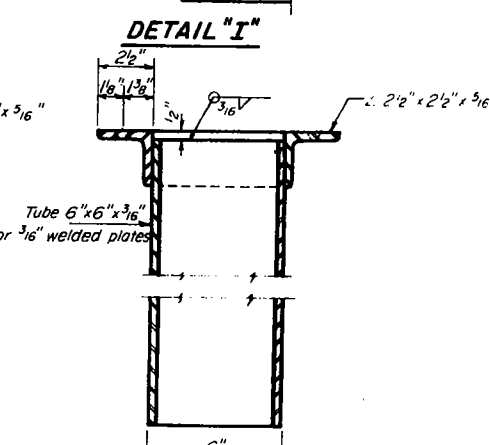
VIEW E-E



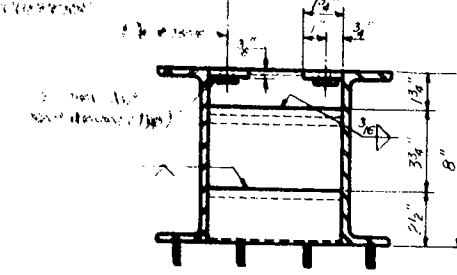
VIEW D-D



DOWNSPOUT



SECTION H-H



SECTION G-G

**DRAINAGE SCUPPERS**  
 F.A. ROUTE 412 N. BD.  
 OVER RAMP BD  
 PROJECT  
 SECTION 201-2HB-1  
 WINNEBAGO COUNTY  
 STATION 2552+06.76

ALFRED BENESCH & COMPANY  
 CONSULTING ENGINEERS  
 JOB NO. 1605-J  
 2338 N. MICHIGAN AVE. CHICAGO, ILLINOIS