

Note: Hook Bars @ back into Bottom Slab as per sheet (Wing walls only). See Section A-A, this sheet. Note: Reinforce four (4) Wing Walls thus.

CONVENTIONAL SIGNS & ABBREVIATIONS

STATE LINE	-----	EXCAVATION	-----	E
COUNTY LINE	-----	EMBANKMENT	-----	F
TOWNSHIP LINE	-----	OVERHAUL	-----	H
SECTION LINE	-----	SURFACING	-----	S
CITY, VILLAGE, OR BOROUGH	-----	GUARD RAIL	-----	G.R.
FENCE LINE	-----	INTERSECTION ANGLE	-----	A
RIGHT-OF-WAY LINE	-----	RADIUS	-----	R
TRAVELLED WAY	-----	ELEVATION	-----	EL
RAILROADS	-----	VERTICAL CURVE	-----	V.C.
RETAINING WALL	-----	BENCH MARK	-----	B.M.
BASE OF SURVEY LINE	-----	SECTIONAL CONCRETE CULVERT	-----	P.C.
LEVEE	-----	CORRUGATED METAL CULVERT	-----	C.M.
GRAVEL PIT	-----	CULVERT HAUL	-----	P.H.
SAND PIT	-----	TOW MILES	-----	T.M.
CLAY PIT	-----	PLACE	-----	P
ROCK QUARRY	-----	IN PLACE	-----	INP.
CULVERTS	-----	REPLACE	-----	REP.
PLAIN	-----	RIGHT	-----	R
WITH FACEWALLS	-----	LEFT	-----	L
WITH WINGWALLS	-----	HAND DITCHING	-----	H.D.
DROP INLET	-----	POINT OF CURVE	-----	P.C.
POWER POLE LINE	-----	POINT OF TANGENT	-----	P.T.
TELEPHONE OR TELEGRAPH LINE	-----	POINT OF INTERSECTION	-----	P.I.
MARSH	-----	SPECIAL EXCAVATION	-----	S.E.
HEDGE, BRUSH, OR TIMBER	-----	SPECIAL PLOWING	-----	S.P.
GROUND ELEVATION	-----	TELEPHONE POLE	-----	TEL.P.
GRADE ELEVATION	-----			

OFFICE OF COUNTY SURVEYOR
 RAMSEY COUNTY
 CONSTRUCTION PLAN OF EAST SHORE DRIVE PROJ. 49-51

From Sta. 8+25 To Sta. 12+50

GROSS LENGTH 425.0 FEET 0.08 MILES
 LENGTH OF EXCEPTIONS 0 FEET 0 MILES
 NET LENGTH 425.0 FEET 0.08 MILES

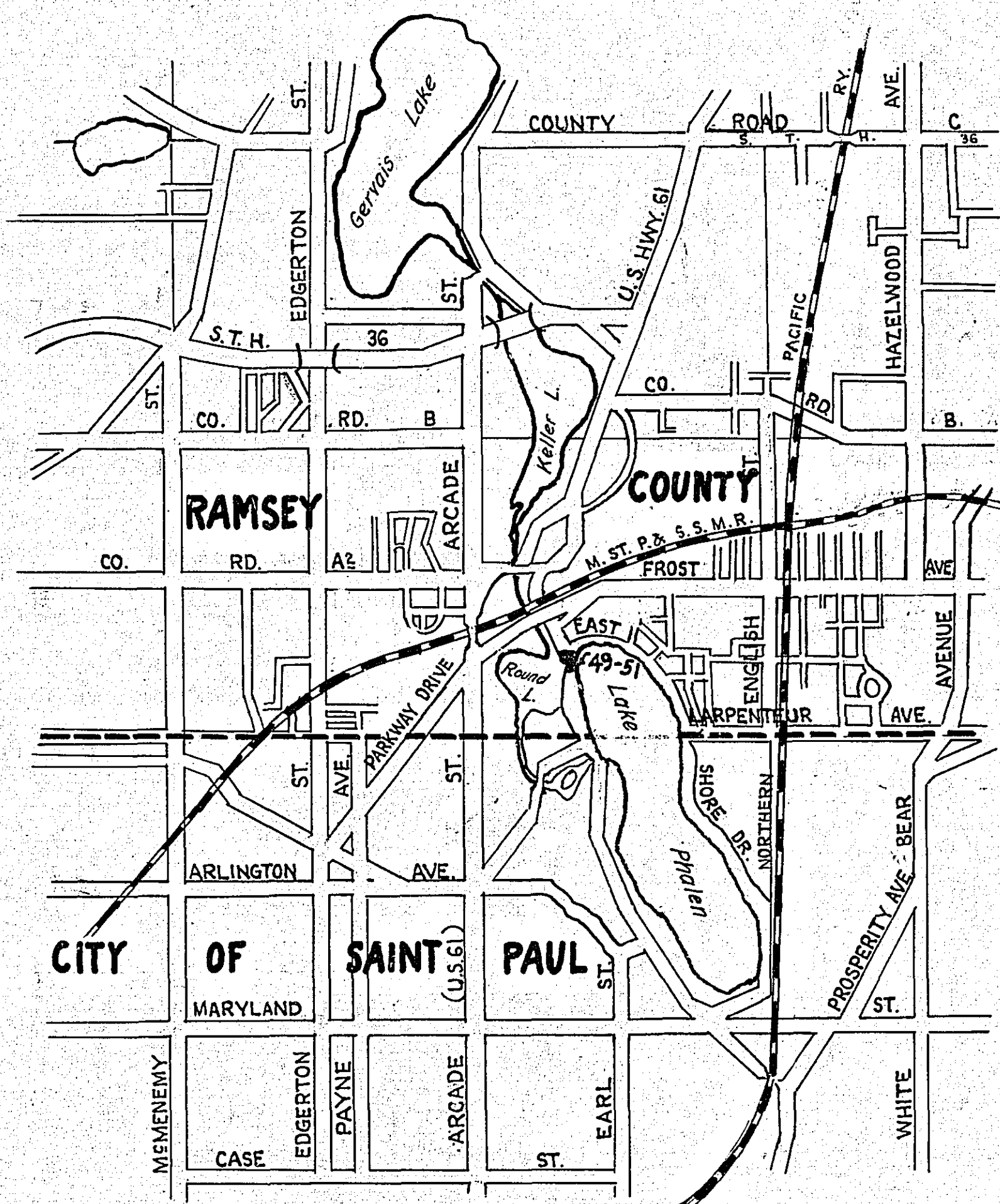
PLAN, 1 Inch = 750 Feet
 PROFILE, Horz. 1 Inch = 50 Feet. Vert. 1 Inch = 5 Feet
 WORKING PLANS (Horz. 1 Inch = 100 Feet
 Vert. 1 Inch = 10 Feet
 Cross-Sections, 1 Inch = 10 Feet

LAYOUT
 SCALE, 1 Inch = 2640 Feet

SPECIFICATIONS
 The Specification for Highway Construction dated July 1, 1947, and submitted for approval by the Division Engineer of the Public Roads Administration, October 15, 1947, shall govern.

INDEX OF SHEETS

Sheet No. 1.	Title Sheet and Layout Map
" No. 2.	Plan and Detail Sheets and Statement
" No. 3.	Cross-Sections
" No. 4.	Cross-Sections
" No. 5.	Cross-Sections, Borrow Pit
" No. 6.	Reinforced Concrete Box Culvert
" No. 7.	Reinforced Concrete Box Culvert

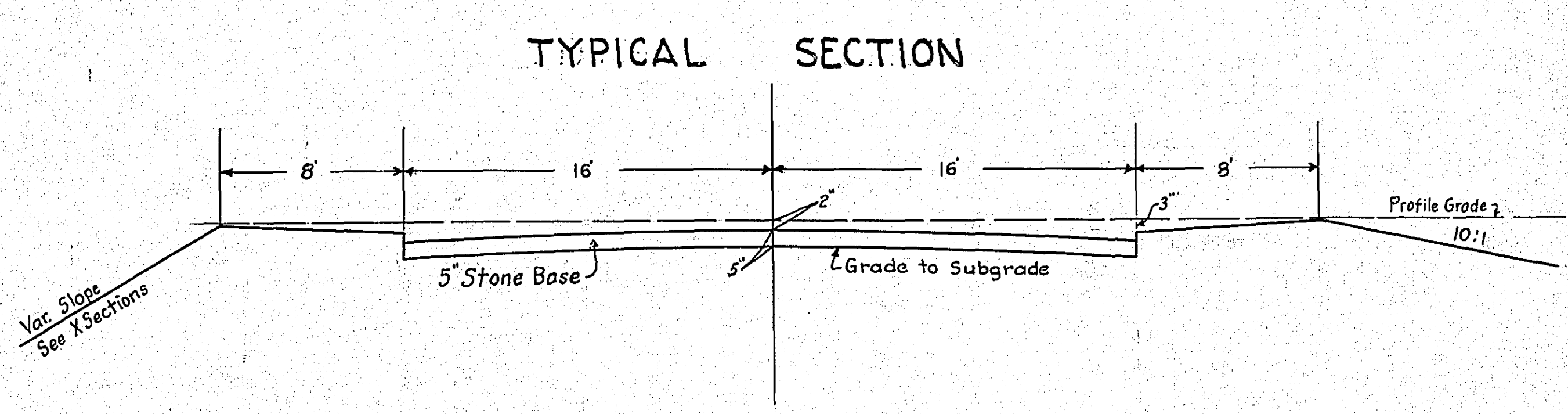
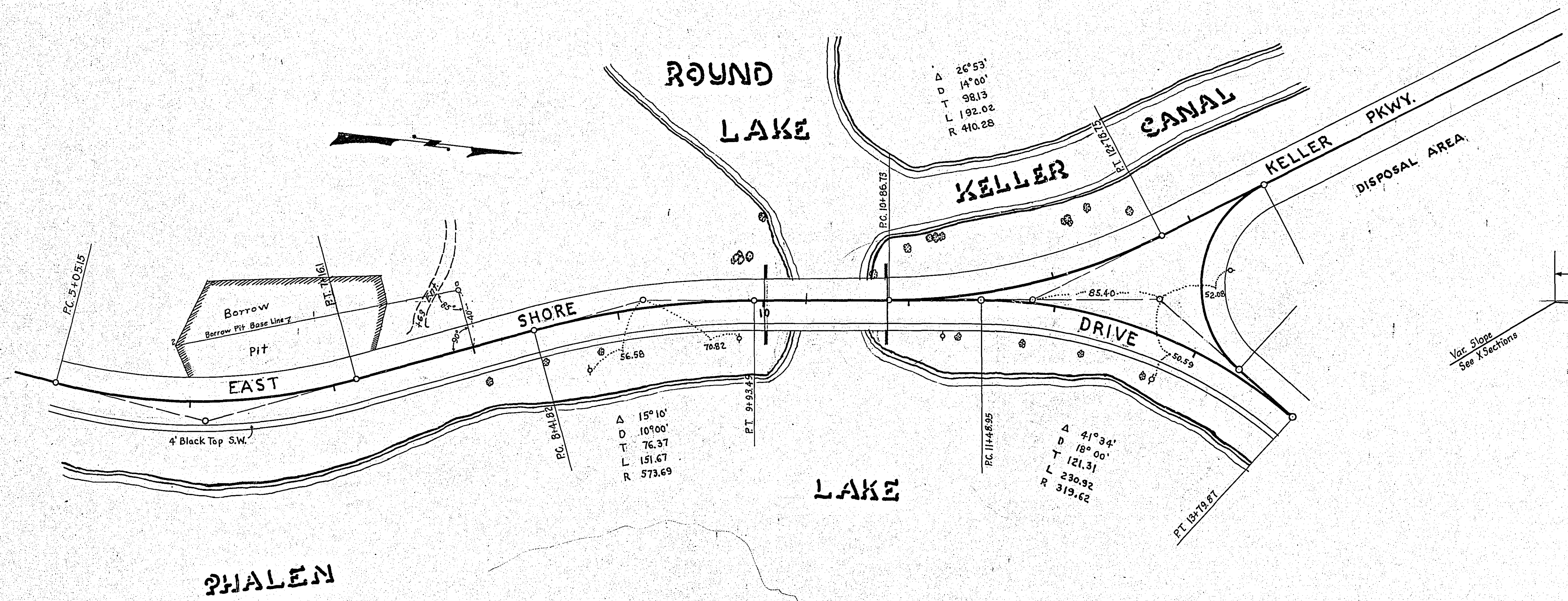


Recommended for Approval *Abel D. Crampton*
 PRINCIPAL ASSISTANT ENGINEER

Plans Approved and Recommended for Consideration *Randy S. Bronson*
 COUNTY SURVEYOR

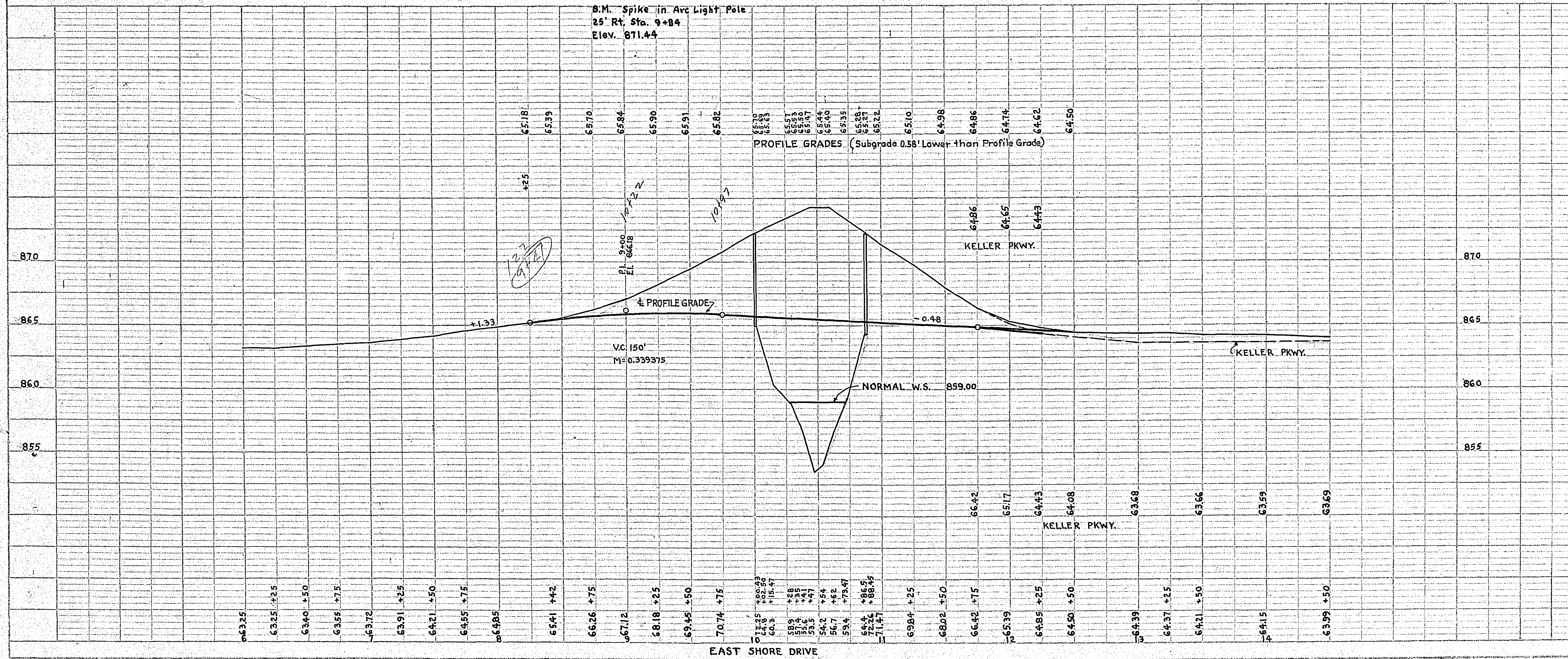
Approved by County Board *May 2 19 49* *Edward M. Delaney*
 CHAIRMAN OF COUNTY BOARD

Sta. 10+29.5 ± Sta. 10+00.43 to Sta. 10+88.45
 Pl. Monolithic Culv. Remove Old Structure
 See detail

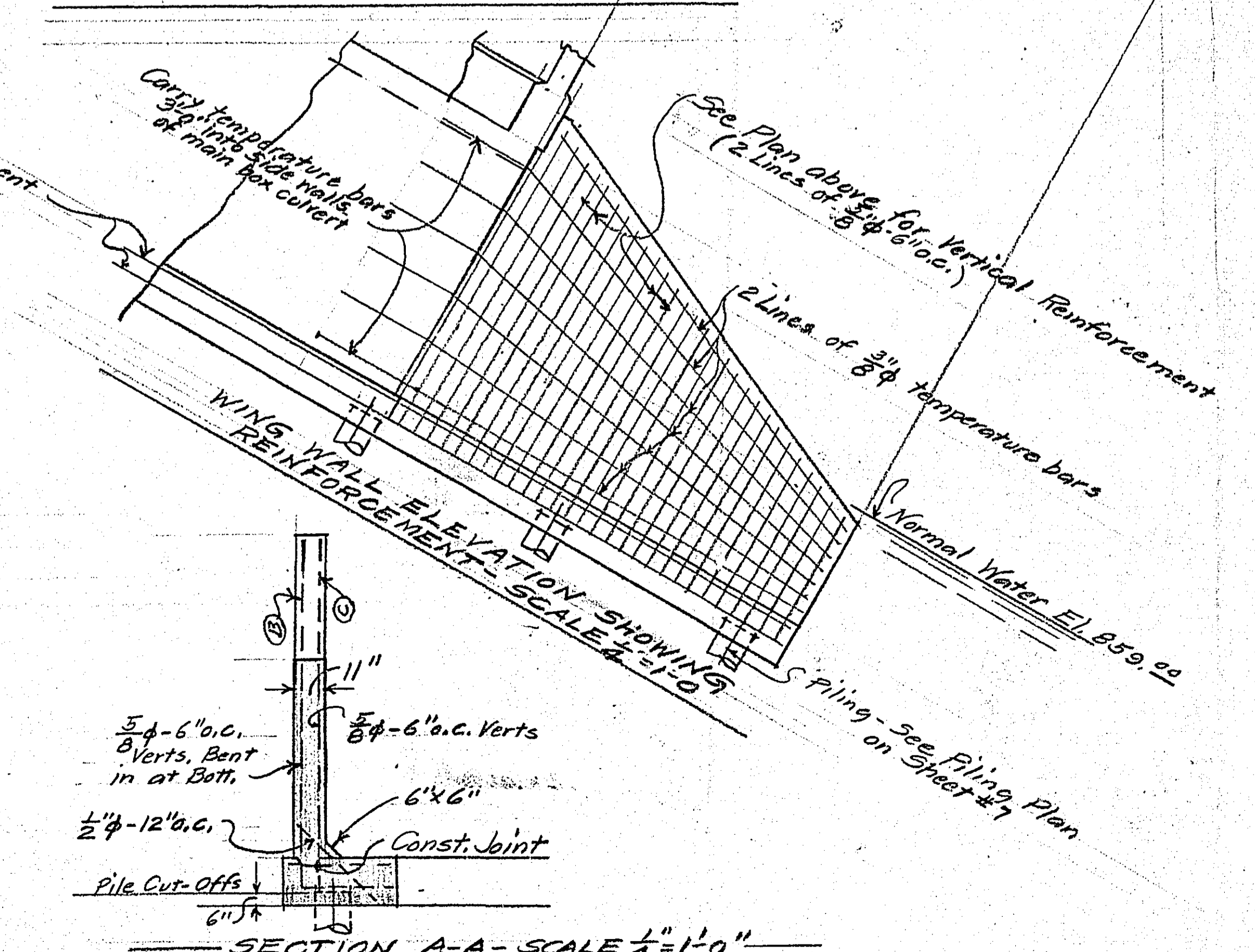
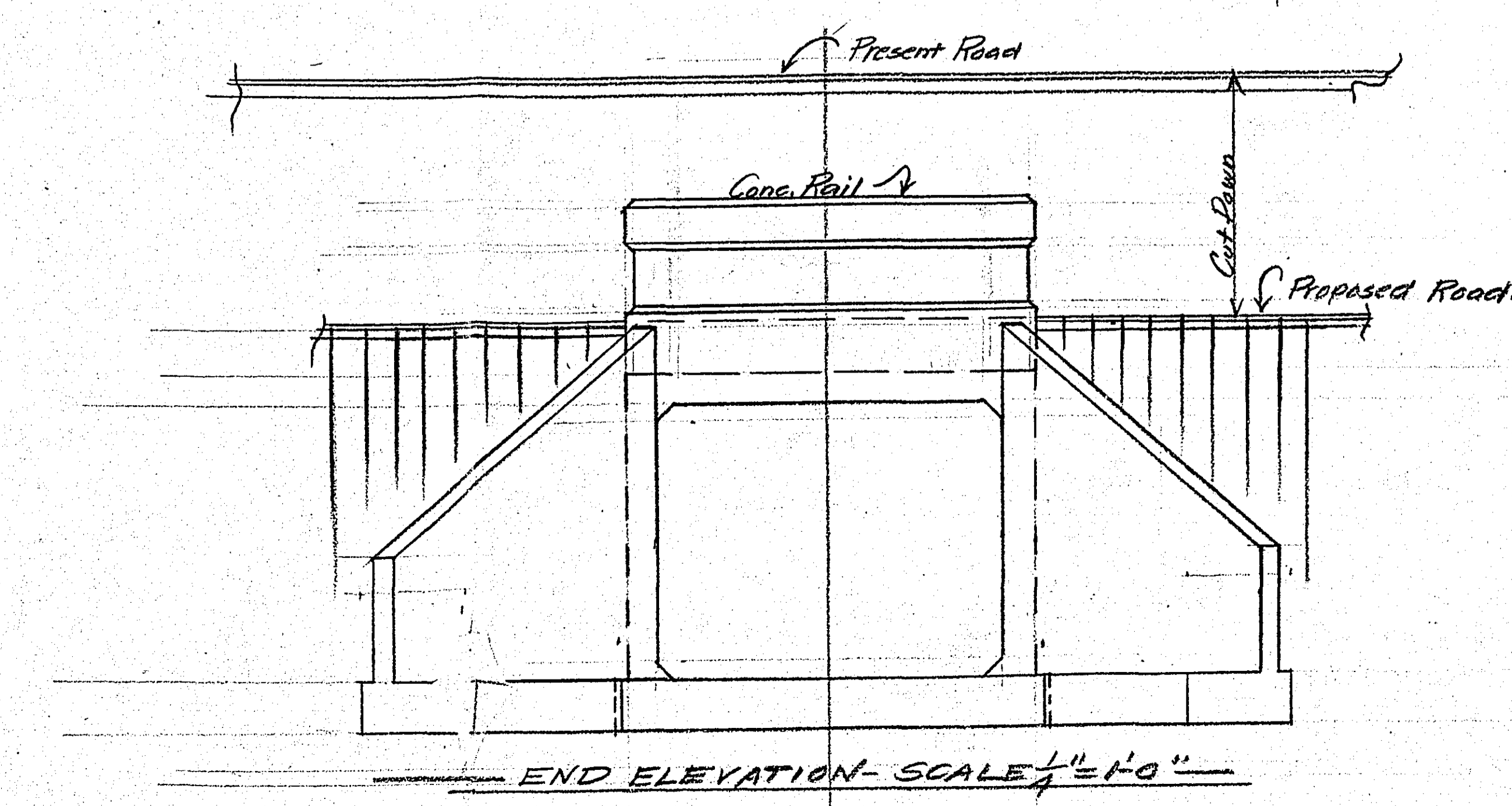
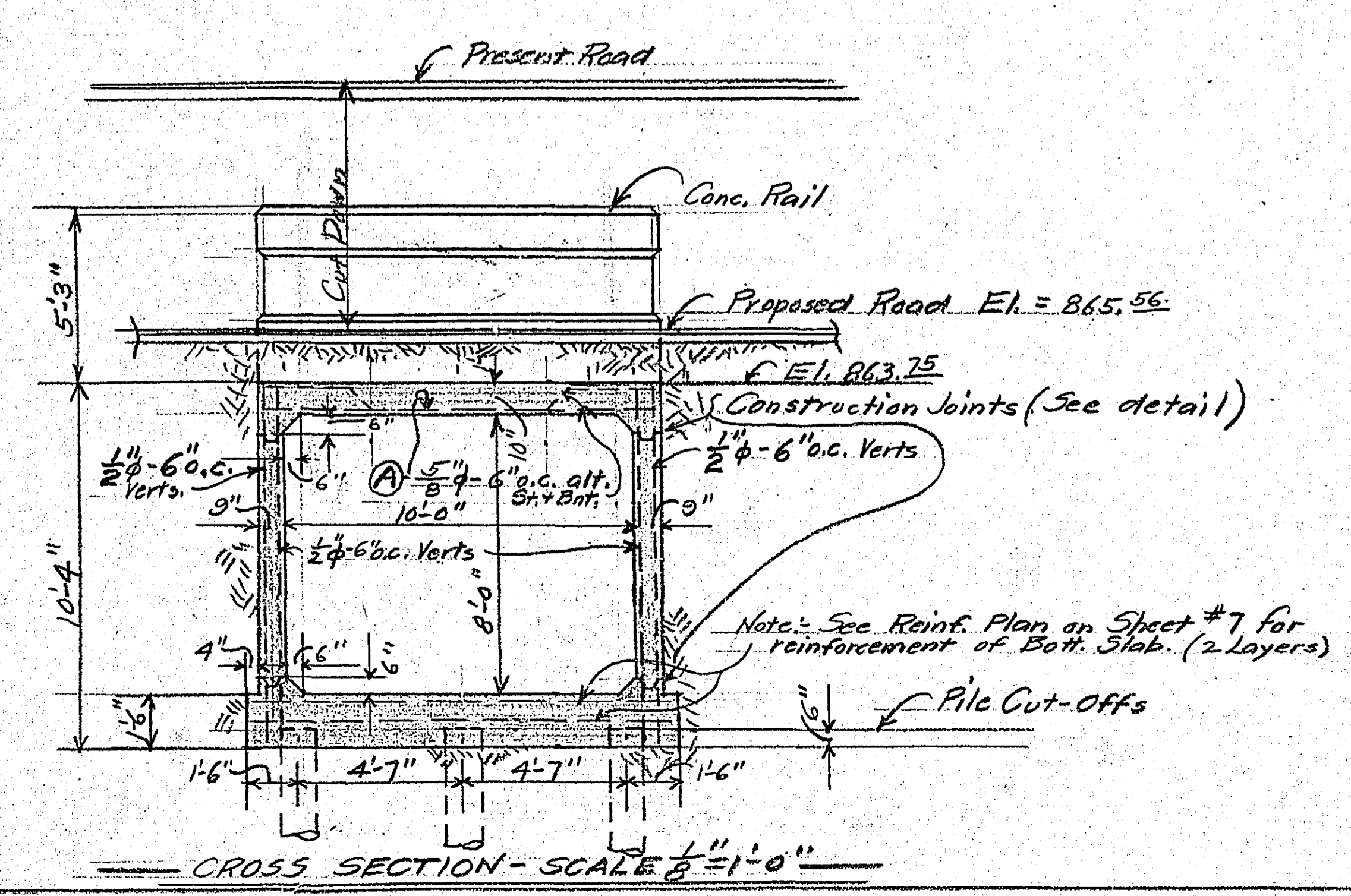
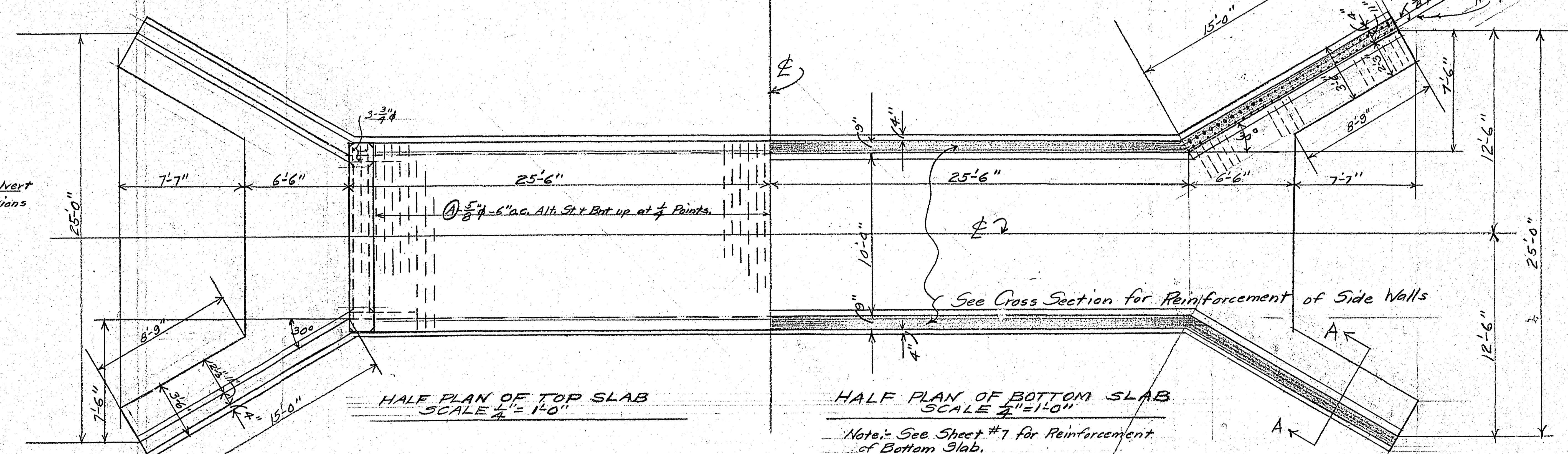
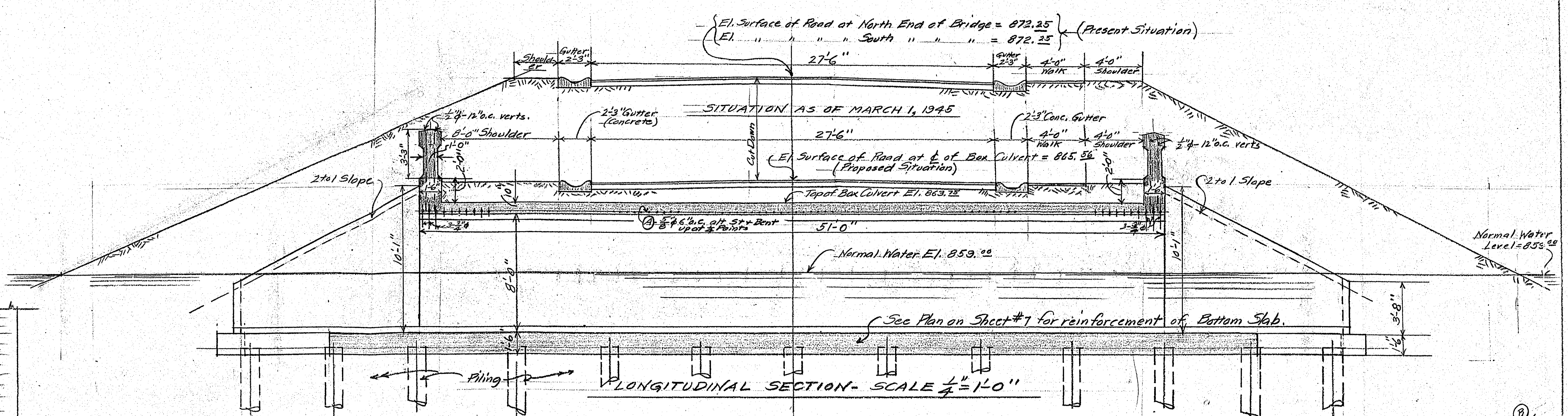
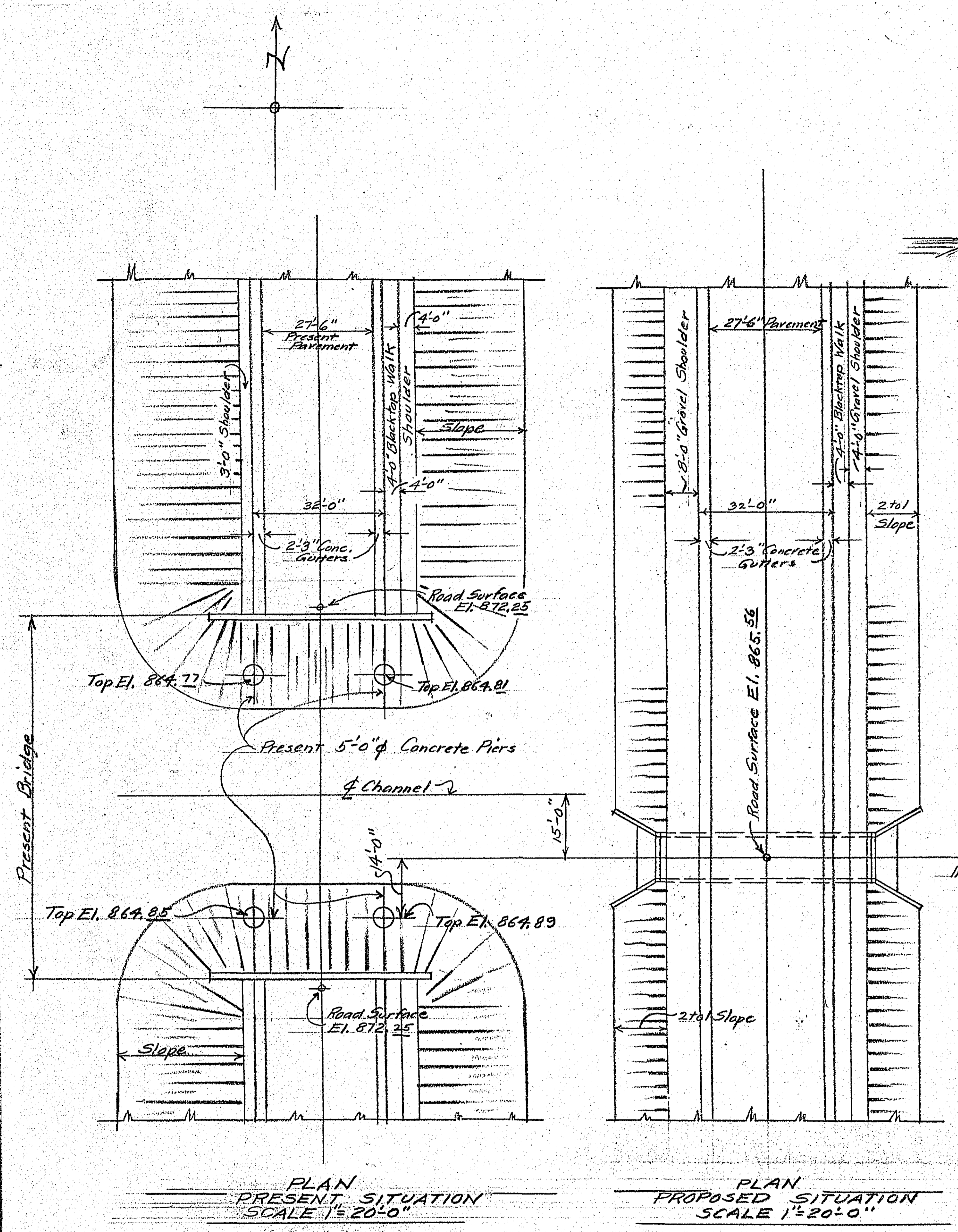


PLAN	SUBMITTED	DATE
	PLOTTED	
	ALIGNMENT CHECKED	
	RT. OF WAY CHECKED	
	NO.	

PROFILE	SUBMITTED	DATE
	PLOTTED	
	GRADES CHECKED	
	S.M. NOTED	
	STRUCTURE NOTED (AS SHOWN)	
	NO.	



STATEMENT OF ESTIMATED QUANTITIES			
SPECIFICATION REF. NO.	ITEM	UNIT	TOTAL ESTIMATED QUANTITIES
2101.502	CLEARING	TREE	6
2101.507	GRUBBING	TREE	6
2104.505	REMOVE GUTTER	LIN.FT.	82.5
2105.503	CLASS 'C' EXCAVATION	CU.YD.	2500
2105.515	SALVAGED AGGREGATE BASE	CU.YD.	212
2106.501	SPECIAL SWAMP EXCAVATION	CU.YD.	361
2442.501	REMOVE OLD STRUCTURE	STRUCTURE	1
	EARTH DAMS	CU.YD.	250
	PILING	LIN.FT.	990
	REINFORCED CONCRETE	CU.YD.	111



Note: Hook Bars (B) back into Bottom Slab. See this sheet for Section A-A (Wing walls only).
Note: Reinforce four (4) wing walls thus.

**SPECIFICATIONS
(BOX CULVERT ONLY)**

Work to be Done: Refer to Specifications on Grading Plan.
Contractor will thoroughly examine present bridge and site to familiarize himself with present situation. Note that, under proposed contract, the road surface will be cut down approximately 7'-0" from its present elevation at culvert site to the proposed new elevation of regraded road.
Contractor will wreck present bridge and haul it away. He will cut down the north and south reinforced concrete abutments to an elevation of 863.25. He will also cut down the four (4) 5'-0" diameter circular concrete piers to an elevation of 863.75. Debris from this cutting operation may be deposited in the present channel. See Note below.
Contractor will build reinforced concrete box culvert as shown and designed on Sheets #6 and #7 herewith. See following Specifications.

Excavation: Refer to Specifications on Grading Plan.
Backfill: Refer to Specifications on Grading Plan. See below for additional note on backfilling.
Pumping: Contractor will be responsible for damming off lake water from site during construction and pumping out water to keep site sufficiently dry for construction purposes. After culvert construction is complete, dams will be removed and water admitted to culvert. However, dams will not be removed and water admitted until culvert construction has been in place for at least fifteen (15) days.

Piling: Piling will be untreated cedar wood piling with butts at least 12" in diameter after bark is removed. For purposes of bidding, contractor will figure on all piles except one, to be thirty feet (30'-0") in length and, in his bid, will set forth a deduction or addition in price per foot of piling, should such deduction or addition be necessary to get piles down to substantial refusal. The one odd pile mentioned above will be the first one driven and it will be a forty foot (40'-0") test pile. It will be driven to substantial refusal and the length of all subsequent piling will be determined therefrom. See piling plan on this sheet. Substantial refusal will be considered to have been reached when a penetration of less than 2" occurs under a 2000# hammer dropping 18'-0". After piles are in place, they will be cut off at level shown and no brooming or crushing of butts at cut-off level will be allowed.

Concrete: All concrete will be reinforced concrete produced by the water-cement ratio method so that crushing strength at age of 28 days will be at least 2500# per square inch. Proportion of aggregate to cement shall be such as to produce a mix which will work readily into corners and angles of forms and around reinforcing steel without permitting segregation of materials. If necessary, forms will be vibrated while pouring, and no honeycombing will be permitted. The combined aggregates shall be such that, when separated on the #4 standard sieve, the weight of fine aggregate passing through will not be less than 30% or more than 50% of the total.
Fine aggregate will be clean, washed concrete sand and coarse aggregate will be clean, washed gravel, both meeting requirements of A.S.T.M. specifications as to hardness, coarseness, etc., for reinforced concrete. Maximum size of coarse aggregate will not be larger than 1 1/2" or less than 1/2" in greatest dimension and coarse aggregate may be graded between these two sizes except that, in no case, will coarse aggregate be larger than 3/4" of the minimum clear spacing between reinforcing bars.

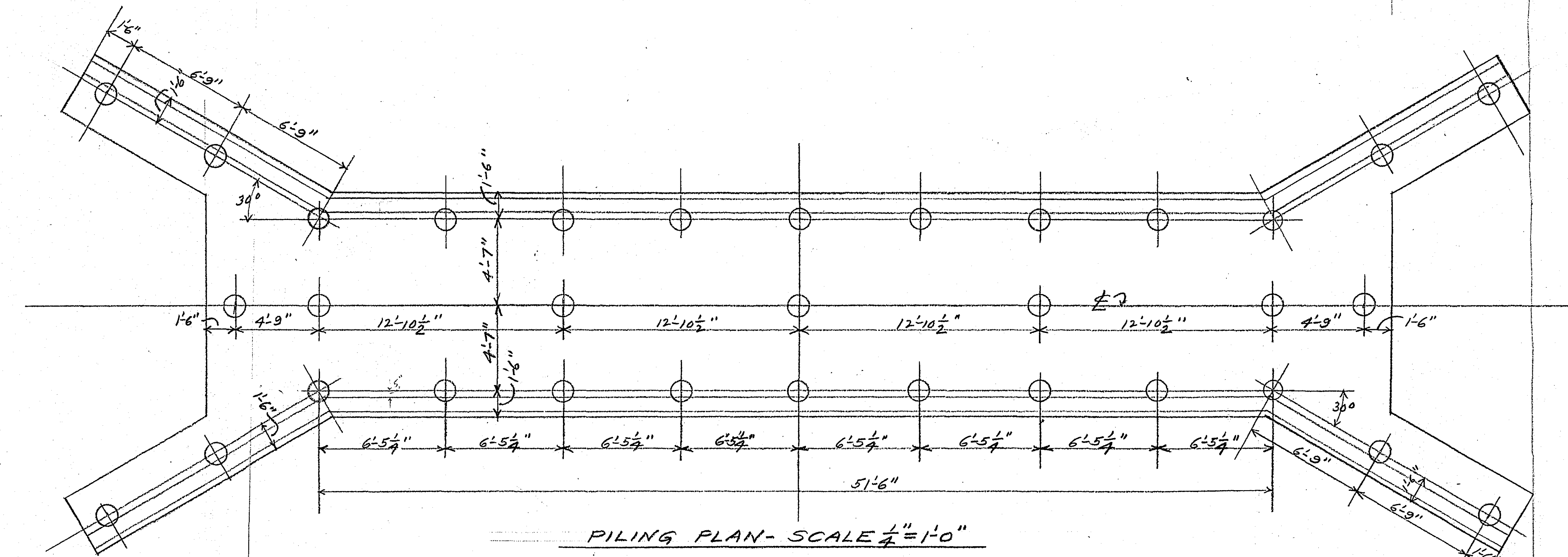
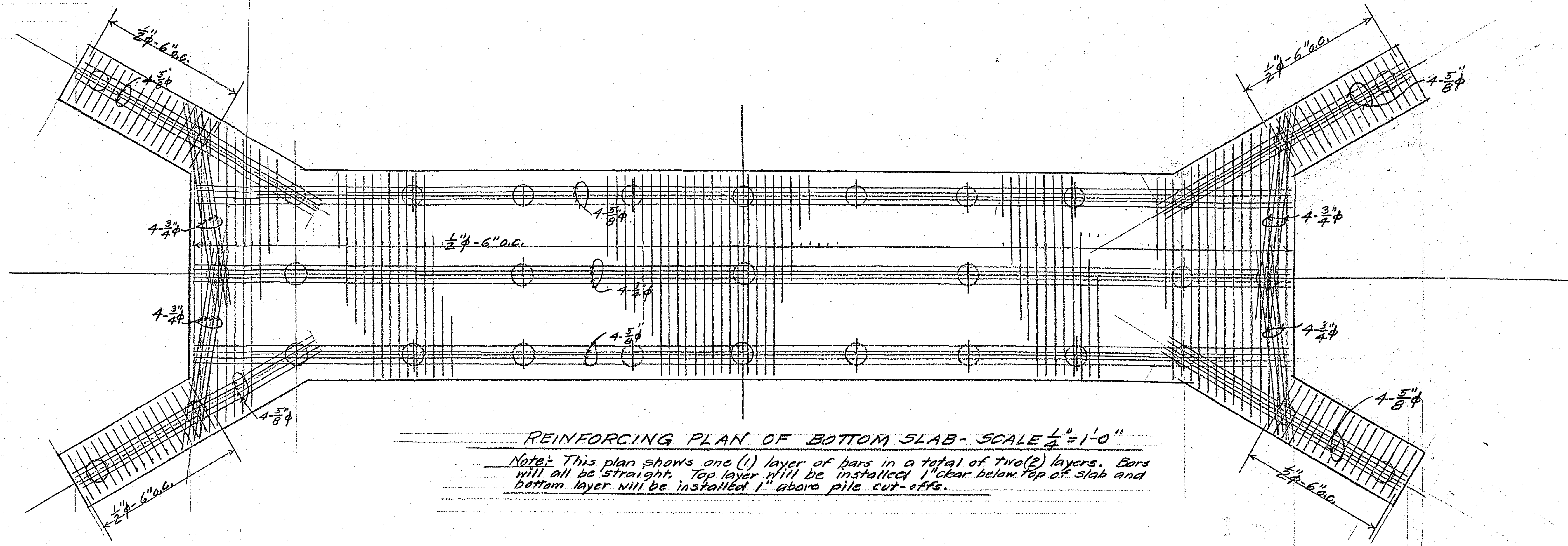
After removal of forms, all exposed surfaces of concrete railings and exposed surfaces of wing walls will be rubbed smooth so as to remove all form markings.
Reinforcing Steel: Reinforcing steel will be installed as shown on Sheets #6 and #7 herewith. In addition to steel shown, #4 temperature bars will be installed 1'-0" o.c. perpendicular to all main reinforcing bars. These temperature bars are not shown on drawings except in Wing Wall Elevation on Sheet #6, but will be installed nevertheless throughout structure.
All Reinforcing Steel will be New Billet Steel meeting specifications of the A.S.T.M. It will be well wired or supported so that no movement will take place during pouring of concrete.

Construction Joints: See Detail on Sheet #7 herewith.

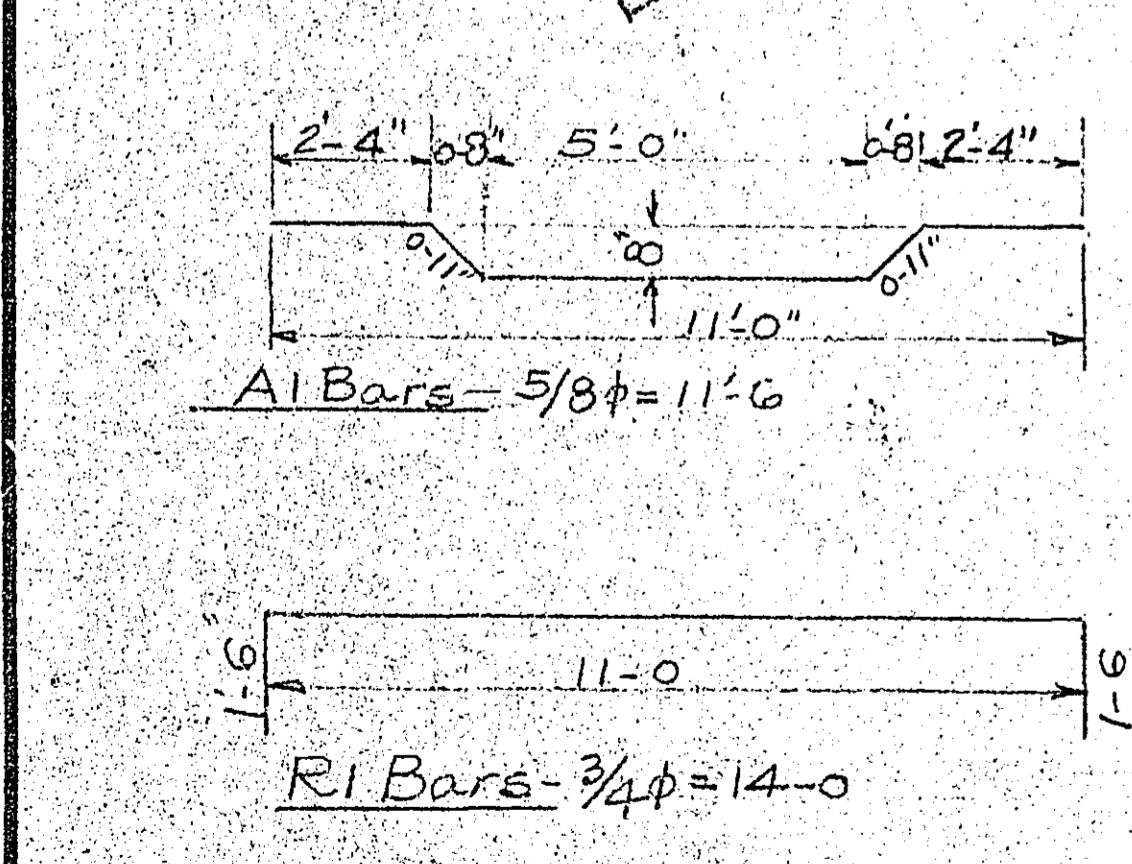
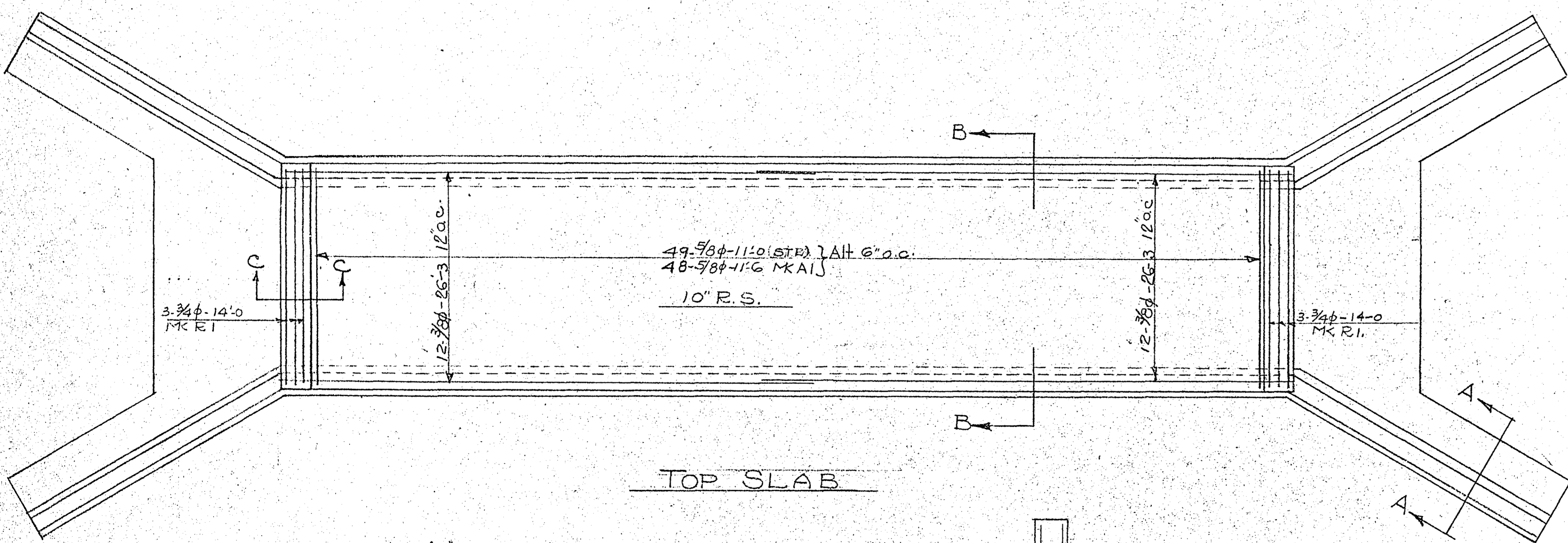
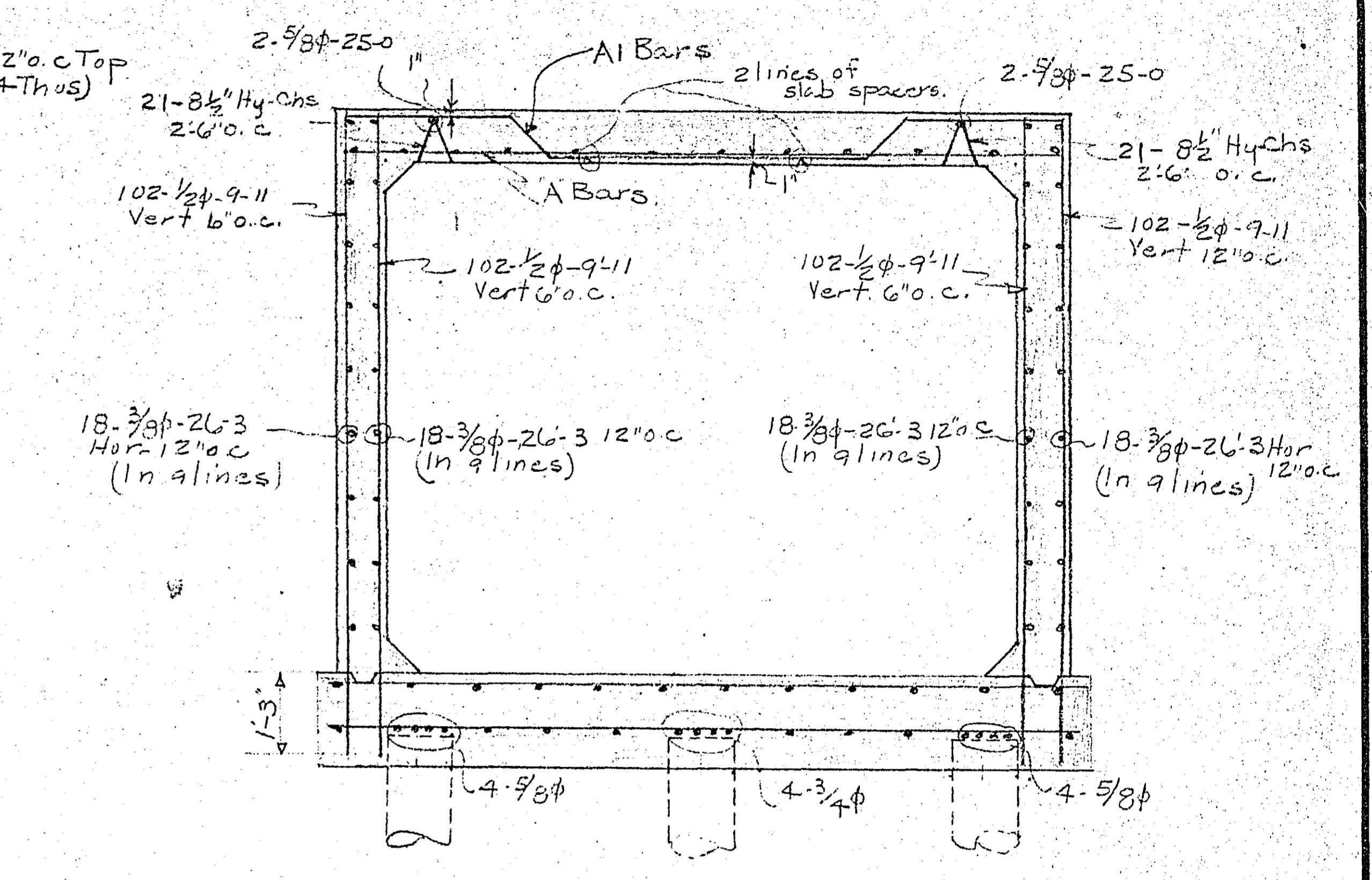
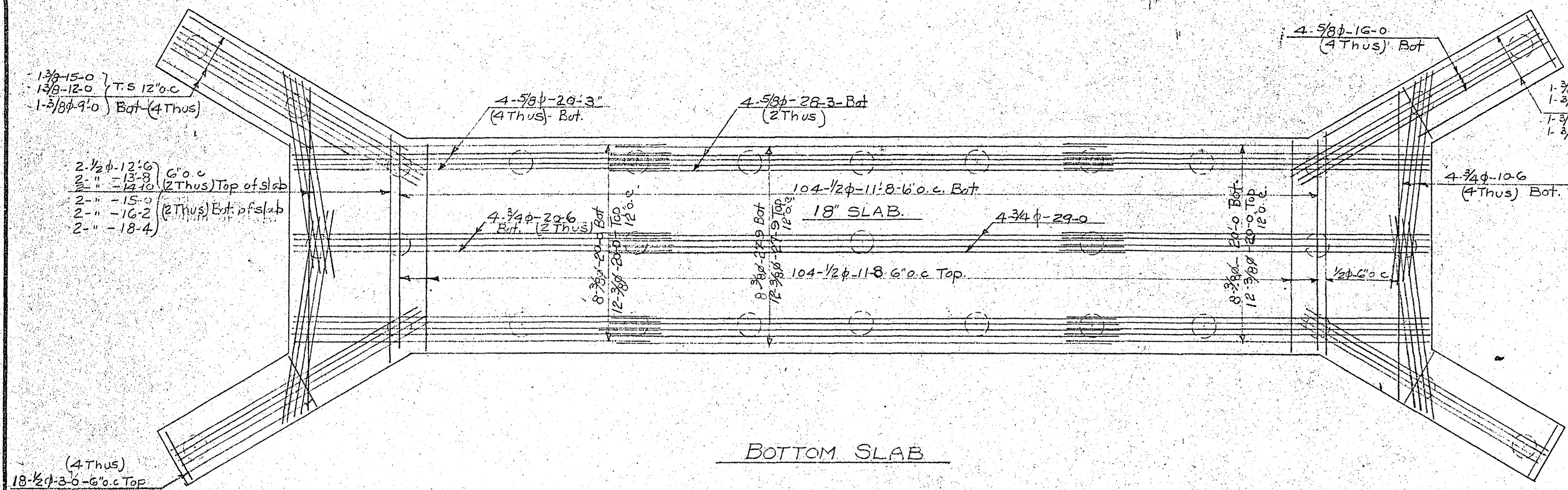
Note: Construction will be under supervision of the County Engineer or his authorized representative.
Backfill: (Additional Note): No backfilling will be done until concrete has been in place at least fifteen (15) days.

Forms: Provide forms for all concrete construction as may be required to properly support concrete. Forms shall be sufficiently strong to hold concrete true to line and built so as to be removable without injury to the concrete. Design and arrangement of all forms will be subject to approval of the County Engineer. No forms will be removed until approval of the County Engineer is given.

Note: As to wrecking present bridge and hauling it away, this will apply to everything on present structure except wood floor planking. This planking will be removed and stockpiled at site where directed and will remain in possession of Ramsey County.



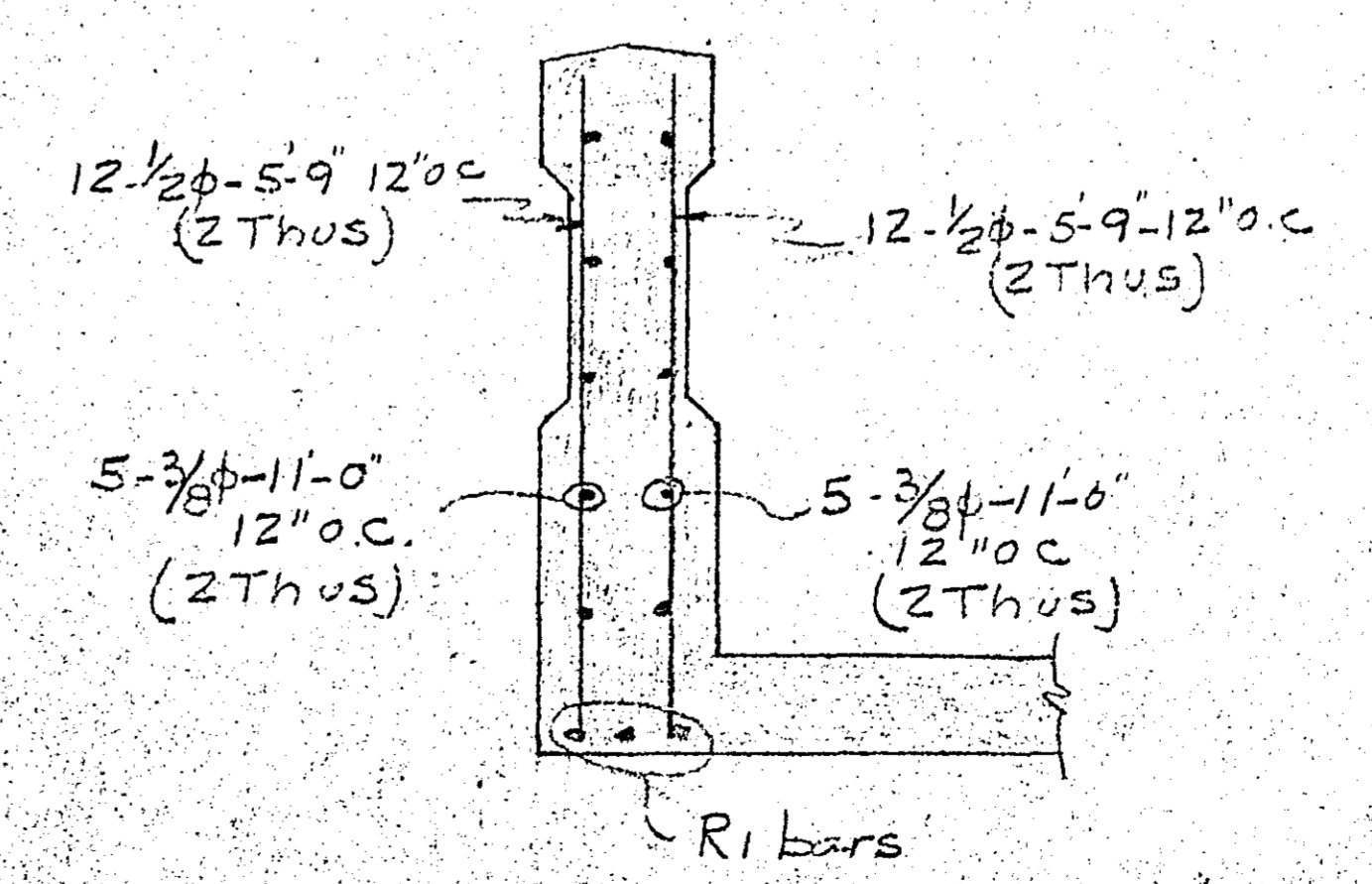
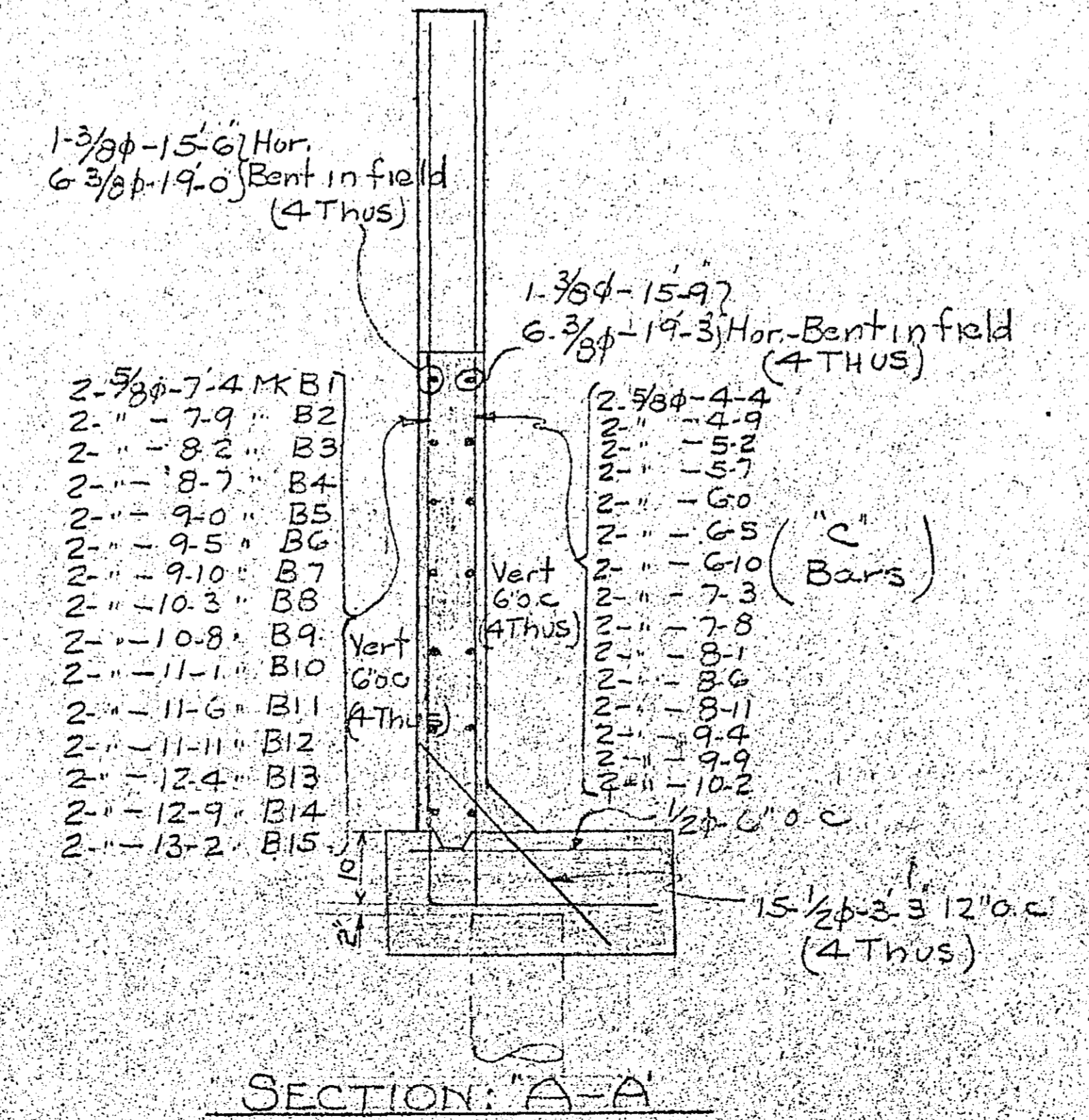
PROPOSED REINFORCED CONCRETE BOX CULVERT TO REPLACE PRESENT BRIDGE ON EAST SHORE DRIVE ADJACENT TO LAKE PHALEN IN RAMSEY COUNTY, MINN. APRIL 1949
H.S. BRONSON - COUNTY ENGINEER



**B-B BARS - 5/8\"/>

No	A	B	LENGTH	MARK
2	4-4	3-0	7-4	B1
"	4-9	"	7-9	B2
"	5-2	"	8-2	B3
"	5-7	"	8-7	B4
"	6-0	"	9-0	B5
"	6-5	"	9-5	B6
"	6-10	"	9-10	B7
"	7-3	"	10-3	B8
"	7-8	"	10-5	B9
"	8-1	"	11-1	B10
"	8-6	"	11-6	B11
"	8-11	"	11-11	B12
"	9-4	"	12-4	B13
"	9-9	"	12-9	B14
2	10-2	"	13-2	B15

(4 THUS)**



Handwritten note:
 C.A.
 H.S. Bronson
 County Engineer
 7/14/49
 (No lengths checked)

20 Nos. 1" Slab Spacers @ 5'-0" Req'd. (3)

PAPER, CALMENSEN & CO.		
COUNTY ROAD B AND WALNUT STREET, ST. PAUL 8, MINN.		
JOB: <u>BOX CULVERT</u>		
LOCATION: <u>ST. PAUL, MINN.</u>		
CONTRACTOR: <u>C.F. SCULLEY</u>		
ARCHITECT: <u>H.S. BRONSON - COUNTY ENGR.</u>		
REVISIONS:	DRAWN BY: <u>H.S. Bronson</u>	SHEET NO.
	DATE: <u>7-13-49</u>	<u>R1</u> OF <u>1</u>
	APPROVED:	
	JOB NO: <u>49-191</u>	FILE NO.