

IOWA
DEPARTMENT OF TRANSPORTATION
Highway Division
PLANS OF PROPOSED IMPROVEMENT ON THE
FARM TO MARKET SYSTEM
CRAWFORD COUNTY
CULVERT

INDEX OF SHEETS

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STANDARD ROAD PLANS					
THE FOLLOWING STANDARD ROAD PLANS SHALL BE CONSIDERED APPLICABLE TO CONSTRUCTION WORK ON THIS PROJECT.					
IDENT.	DATE	IDENT.	DATE	IDENT.	DATE
RL-1	4-23-82				
RF-30A	1-9-90				

PROJECT TRAFFIC CONTROL PLAN
TRAFFIC DURING CONSTRUCTION.
LOCAL TRAFFIC TO ADJACENT PROPERTIES WILL BE MAINTAINED AS PROVIDED FOR IN ARTICLE 1107.06, 1984 SPECIFICATIONS PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS. TRAFFIC CONTROL DEVICES, PROCEDURES AND LAYOUTS SHALL BE AS PROVIDED FOR BY SUPPLEMENTAL SPECIFICATIONS FOR TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS, SPECIFICATION 502.5 AND THE IOWA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE STANDARD SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION, SERIES OF 1984, PLUS CURRENT SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS, SHALL APPLY TO WORK ON THIS PROJECT.

TOTAL ESTIMATED QUANTITIES			
ITEM NO.	ITEM	UNIT	QUANTITY
1.	CONCRETE, STRUCTURAL, CLASS "C"	C.Y.	454.0
2.	STEEL, REINFORCING	LBS.	67,995
3.	EXCAVATION, CLASS 10 CHANNEL	C.Y.	3507
4.	EXCAVATION, CLASS 20	C.Y.	2145
5.	FABRIC, ENGINEERING	S.Y.	1164
6.	REVTMENT, CLASS "E" RIPRAP	TONS	844
7.	TRAFFIC CONTROL	L.S.	LUMP SUM
8.	BARRICADES	ONLY	2
9.	MOBILIZATION	L.S.	LUMP SUM
10.	CLEARING AND GRUBBING	A.C.	0.35
11.	REMOVAL OF EXISTING STRUCTURES	L.S.	LUMP SUM
12.	CULVERT, CORRUGATED METAL ENTRANCE PIPE, 24 IN. DIA.	L.F.	95
13.	CULVERT, CORRUGATED METAL ENTRANCE PIPE, 18 IN. DIA.	L.F.	55
14.	GRANULAR BACKFILL	TONS	290

ITEM NO.	ESTIMATE REFERENCE INFORMATION
3.	SUITABLE CLASS 10 (CHANNEL) EXCAVATION, AS DIRECTED BY THE ENGINEER, SHALL BE USED FOR BACKFILLING AND CONSTRUCTION OF THE APPROACH SECTION.
5.-6.	"REVTMENT, CLASS 'E' RIP-RAP" AND "ENGINEERING FABRIC" IS TO BE PLACED AS SHOWN BY THE SHADED AREA ON THE SITUATION PLAN. RIP-RAP IS TO BE PLACED AT A THICKNESS OF 18".
7.	SEE NOTES ON SHEETS 1, 2 AND 7.
8.	SEE TABULATION ON SHEET 7.
10.	SEE SHEET 2 FOR LIMITS OF CLEARING AND GRUBBING.
11.	SEE GENERAL NOTES.
12.-13.	SEE SHEETS 2 AND 7 FOR DETAILS.
14.	SEE GENERAL NOTES.

-135-

1988, TRAFFIC COUNT = 260 V.P.D.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR DATE

APPROVED
H. Dale Wight 2-4-91
CRAWFORD COUNTY ENGINEER DATE

John P. Lawler
Roy Jensen
LeRoy G. Hansohn
Vigil E. Anderson
2-4-91
BOARD OF SUPERVISORS DATE

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY SUPERVISION AND THAT ENGINEERING DECISIONS WITH REGARD TO THE DESIGN WERE MADE BY ME OR BY OTHER DULY REGISTERED PROFESSIONAL ENGINEERS UNDER THE LAWS OF THE STATE OF IOWA.
Iowa Registration Number 3803 DATE 1-30-91

DEPARTMENT OF TRANSPORTATION
IOWA
Highway Division
AUTHORIZED FOR LETTING
George F. Sisson 3-6-91
DEPUTY CHIEF ENGINEER DATE

IOWA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
ACCEPTED FOR LETTING
DISTRICT LOCAL SYSTEMS ENGR. DATE

CULVERT

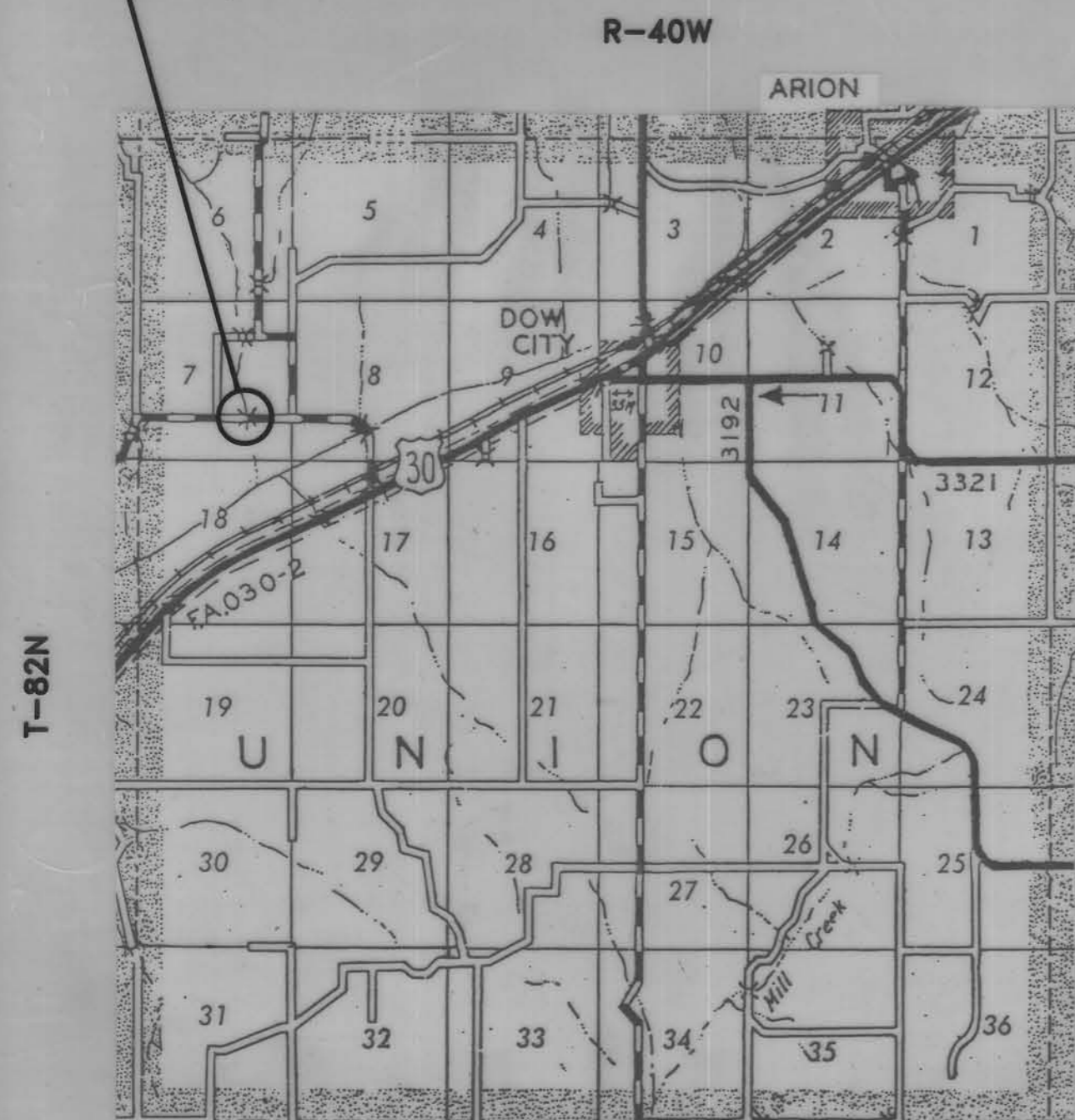
PROJECT NO. BROS-9024(29)--5F-24

CRAWFORD COUNTY

LETTING DATE: April 30, 1991

910696
007599
DOB
SIF

DESIGN NO.
STATION 13+35
PROPOSED TWIN 14' x 14' x 66'-0"
R.C.B. CULVERT, 0° SKEW



PROJECT LOCATION
SCALE 1" = 1 MILE

SPECIFICATIONS

DESIGN: AASHTO SERIES OF 1989.
 CONSTRUCTION: STANDARD SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION, SERIES OF 1984, PLUS CURRENT SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS.

DESIGN STRESSES

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1989:

CONCRETE	SECTION 8 F'C = 3,500 PSI
REINFORCING STEEL	SECTION 8
ASTM A615	GRADE 60, F _s = 24,000 PSI

GENERAL NOTES

THIS CULVERT IS DESIGNED FOR HS20-44 LOADING AND 4.3' OF FILL. VERTICAL EARTH LOAD IS ASSUMED AS 140 P.C.F. AND LATERAL EARTH LOADS AS AN EQUIVALENT FLUID PRESSURE OF 36 PSF/FT.

THE EXISTING BRIDGE IS AN 86' X 17.8' BRIDGE INCLUDING A 50' X 17.8' RIVETED STEEL PONY TRUSS WITH TWO I-BEAM APPROACHES, CORRUGATED METAL DECK, WOOD TRESTLE PIERS AND HIGH WOOD ABUTMENTS.

THE LUMP SUM BID FOR REMOVAL OF EXISTING STRUCTURES SHALL INCLUDE THE REMOVAL AND DISPOSAL OF THE EXISTING SUPERSTRUCTURE AND THE EXISTING SUBSTRUCTURE IN ACCORDANCE WITH THESE PLANS AND SECTION 2401 OF THE STANDARD SPECIFICATIONS. THE EXISTING TIMBER PILES SHALL BE REMOVED TO AT LEAST 1'0" BELOW FINISHED GROUNDLINE AND TO THE EXTENT THAT THEY DO NOT INTERFERE WITH CONSTRUCTION.

ALL SALVAGEABLE MATERIAL SHALL REMAIN THE PROPERTY OF CRAWFORD COUNTY. THE CONTRACTOR SHALL STACK THIS MATERIAL NEATLY WITHIN THE RIGHT-OF-WAY FOR REMOVAL FROM THE SITE BY COUNTY FORCES.

THE CONTRACTOR SHALL USE A GRANULAR SURFACING MATERIAL LISTED IN SPECIFICATION SECTION 4120 OR OTHER SUITABLE MATERIAL APPROVED BY THE ENGINEER TO IMPROVE WET AND MUDDY CONDITIONS ALONG THE BOTTOM OF EXCAVATION. ALL COSTS TO FURNISH AND PLACE THIS MATERIAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "GRANULAR BACKFILL".

THE CULVERT FLOOR SHALL BE FINISHED SMOOTH. SIDES OF THE FOOTING SHALL BE FORMED TO ENSURE CORRECT LINE AND GRADE. ALL EXPOSED CORNERS OF 90 DEGREES OR SHARPER SHALL BE FILLETED WITH A 3/4" DRESSED AND BEVELED STRIP. UNLESS OTHERWISE SHOWN, ALL CONSTRUCTION JOINTS SHALL BE FORMED WITH BEVELED PLANKS.

ALL REINFORCING STEEL SHALL BE SECURELY WIRED IN PLACE BEFORE CONCRETE IS PLACED. BAR CHAIRS SPACED AT NOT MORE THAN 3'-0" CENTERS IN EITHER DIRECTION SHALL BE USED TO SUPPORT ALL REINFORCING IN ACCORDANCE WITH THE SECTION 2404 OF THE STANDARD SPECIFICATIONS.

CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2" UNLESS OTHERWISE SHOWN. LONGITUDINAL REINFORCING SHALL NOT EXTEND THROUGH CONSTRUCTION JOINTS, EXCEPT FOR 5-1 SLAB DOWEL BARS.

THE REINFORCING STEEL SHALL BE GRADE 60. THE PERMISSIBLE CONSTRUCTION JOINT AT THE TOP OF THE WALLS MAY BE LOWERED 2'-11" AT THE CONTRACTOR'S OPTION.

CLASS 10 CHANNEL EXCAVATION INCLUDES EXCAVATION FOR THE DITCHES. SUITABLE CLASS 10 CHANNEL EXCAVATION, AS DESIGNATED BY THE ENGINEER, SHALL BE USED FOR BACKFILLING THE CULVERT. BACKFILL SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 2107. UNSUITABLE CHANNEL EXCAVATION SHALL BE STOCKPILED OR WASTED NEAR THE SITE AS DIRECTED BY THE ENGINEER. COST OF STOCKPILING AND WASTING SHALL BE INCIDENTAL TO CONSTRUCTION.

STANDARD ROAD PLAN RL-1 IS AVAILABLE FROM THE IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION, AMES, IOWA.

THE CONTRACTOR SHALL SUBMIT A PLAN FOR TEMPORARY STREAM DIVERSION PRIOR TO CONSTRUCTION OF THE CULVERT. THIS PLAN IS TO BE REVIEWED AND APPROVED THE ENGINEER.

KEYWAYS IN CONSTRUCTION JOINTS ARE TO BE FORMED WITH BEVELED 2X4'S UNLESS OTHERWISE NOTED.

BOTTOM OF FLOOR IS TO BE TAPERED 2" IN 12" TO ACCOMMODATE DIFFERENCE IN FLOOR THICKNESS BETWEEN BARREL FLOOR AND APRON OF HEADWALL. TAPER IS TO BE DIRECTLY BELOW AND PARALLEL TO PARAPET.

UNUSABLE MATERIAL REMOVED FROM THE EXISTING STRUCTURE OR CHANNEL SHALL BE DEPOSED OFF THE HIGHWAY RIGHT-OF-WAY ON A WASTE AREA PROVIDED BY THE CULVERT CONTRACTOR AND APPROVED BY THE ENGINEER. THE WASTE MATERIAL MUST NOT CREATE AN UNSIGHTLY CONDITION WHEN VIEWED FROM PUBLIC HIGHWAYS. THE COST OF WASTING THIS MATERIAL IS TO BE INCLUDED IN THE LUMP SUM BID FOR "REMOVAL OF EXISTING STRUCTURES". NO PAYMENT WILL BE MADE FOR OVERHAUL.

THE VERTICAL BARS IN THE WALLS MAY BE SPLICED ABOVE THE FOOTING AT THE CONTRACTOR'S OPTION AS FOLLOWS:

BAR SIZE NUMBER	4	5	6	7	8
MINIMUM SPLICE LENGTH	21"	26"	31"	45"	55"

THIS SPLICE, IF USED, WILL BE AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR MAY PLACE UP TO 200 CUBIC YARDS OF FILL MATERIAL BELOW ELEVATION 1103.2 IN ORDER TO CONSTRUCT A TEMPORARY STREAM CROSSING AND/OR ACCOMPLISH THE WORK NECESSARY TO COMPLETE CONSTRUCTION. ADDITIONAL FILL MATERIAL MAY BE PLACED ABOVE ELEVATION 1103.2 AS NECESSARY TO COMPLETE THE WORK. CULVERTS SHALL BE INSTALLED TO ACCOMMODATE LOW FLOWS.

THE CONTRACTOR SHALL VISIT THE CONSTRUCTION SITE TO ENSURE THAT HE IS FAMILIAR WITH THE EXISTING UTILITIES BEFORE COMMENCING WORK. SHOULD ANY UNDERGROUND UTILITIES BE FOUND, THEY SHALL BE PROTECTED IN PLACE AND THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL OVERHEAD AND UNDERGROUND UTILITIES.

IF ARCHAEOLOGICAL MATERIALS ARE ENCOUNTERED DURING THE CONSTRUCTION PHASE OF THIS PROJECT, THE OFFICE OF PROJECT PLANNING AND/OR THE OFFICE OF LOCAL SYSTEMS (IOWA DOT) MUST BE CONTACTED IMMEDIATELY SO THE PROPER AUTHORITIES CAN BE NOTIFIED ACCORDING TO THE EXISTING FEDERAL REGULATIONS AND STATE PROCEDURES. ADDITIONALLY, IT SHOULD BE NOTED THAT FINDINGS AND RECOMMENDATIONS FOR CLEARANCE OR FURTHER TESTING CANNOT BE CONSIDERED FINAL UNTIL CONCURRENCE IS RECEIVED FROM THE STATE HISTORIC PRESERVATION OFFICER. PHONE: OFFICE OF PROJECT PLANNING-515/239-1225; OFFICE OF LOCAL SYSTEMS - 515/239-1528.

THE REINFORCED CONCRETE BOX CULVERT IS TO BE CONSTRUCTED WITH THE EXISTING BRIDGE LEFT IN PLACE AND CARRYING NORMAL TRAFFIC. WHEN THE REINFORCED CONCRETE BOX CULVERT IS COMPLETED, CURED AND SUITABLE FOR BACKFILLING, BACKFILLING OPERATIONS ARE TO BE COMPLETED WHERE PRACTICABLE, OR AS DIRECTED BY THE ENGINEER. THE EXISTING STRUCTURE IS THEN TO BE DISMANTLED, THE REMAINDER OF THE CULVERT BACKFILLED, ROADWAY SURFACING COMPLETED, AND THE ROADWAY OPENED TO TRAFFIC DURING A TIME PERIOD SO AS NOT TO INTERFERE WITH HEAVY WEEKEND PARK TRAFFIC. SCHEDULED REMOVAL OF THE EXISTING STRUCTURE SHALL BE APPROVED BY THE ENGINEER.

DRESSING OF SLOPES OUTSIDE THE CULVERT AREA NOT DISTURBED BY THE CONTRACTOR SHALL BE PAID FOR AS EXTRA WORK.

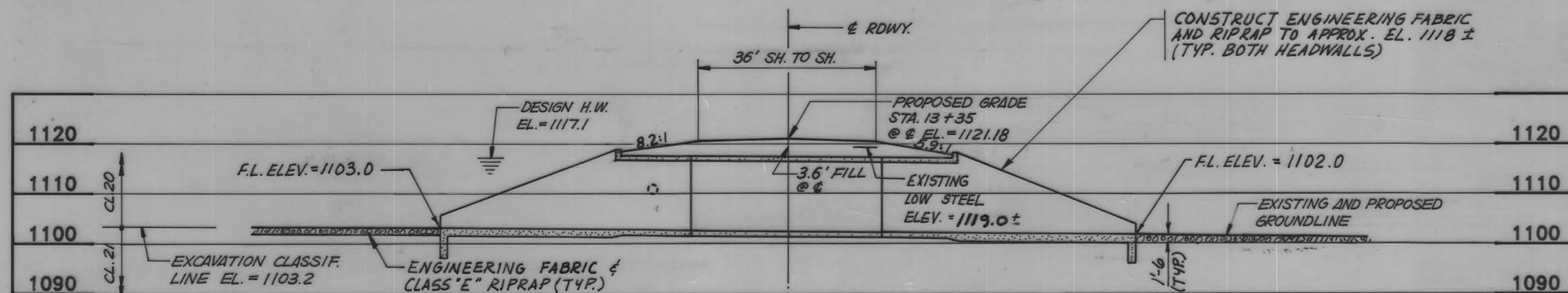
WHEN DE-WATERING PRESENTS A PROBLEM FOR PLACING THE CURTAIN WALLS AS DETAILED, ALTERNATE METHODS SUCH AS STEEL SHEET PILE AND PRECAST CONCRETE WALLS MAY BE APPROVED BUT AT NO ADDITIONAL COST. THE CULVERT CONTRACTOR IS TO SUBMIT TO THE ENGINEER FOR APPROVAL, COMPLETE DRAWINGS OF THE PROPOSED CURTAIN WALL ALTERNATE BEFORE BEGINNING CONSTRUCTION.

TWIN 14'x14'x66'-0" REINFORCED CONCRETE BOX CULVERT

SITUATION PLAN

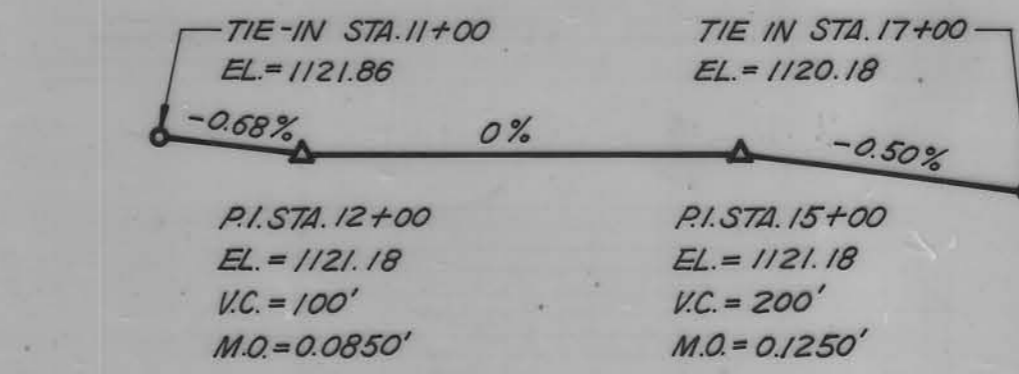
STATION 13+35
 CRAWFORD COUNTY, IOWA

SHEET 2 OF 9

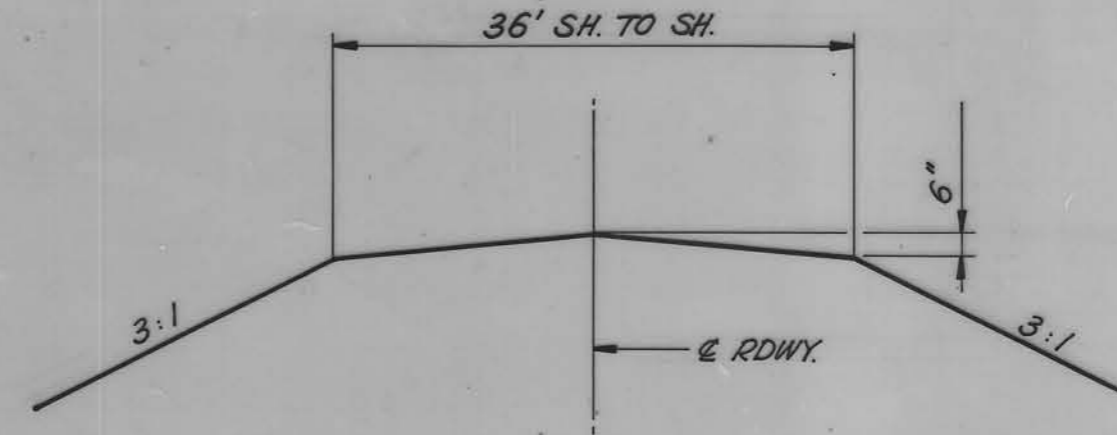


SECTION THROUGH CULVERT

NOTE:
 1119.0 ELEV. LOW STEEL EXIST. BRIDGE
 1117.5 ELEV. TOP OF SLAB R.C.B.
 1.5'± CLEARANCE FOR CONSTRUCTION

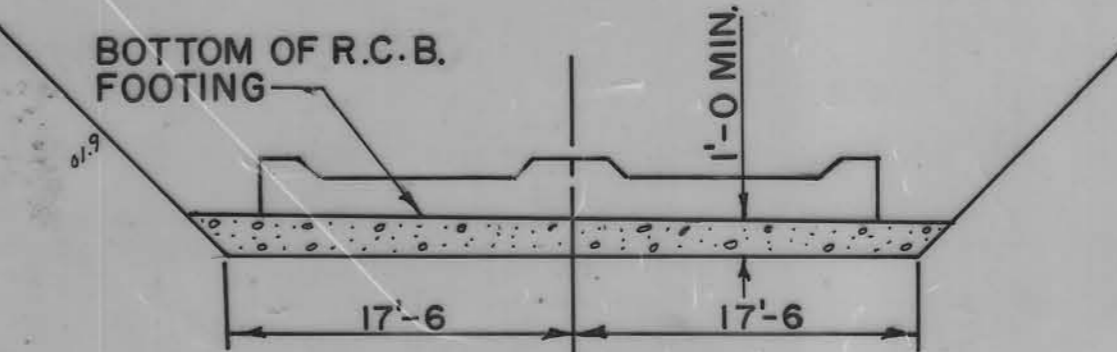


PROPOSED GRADE



TYPICAL APPROACH SECTION

LIMITS OF CLEARING AND GRUBBING FOR S.E. CORNER
 STA. 13+44, 19' RT.
 TO STA. 13+81, 19' RT.
 TO STA. 13+76, 135' RT.
 TO STA. 13+45, 175' RT.
 TO STA. 13+54, 175' RT.
 TO STA. 13+45, 135' RT.
 TO STA. 13+44, 19' RT.
 = 0.11 AC.



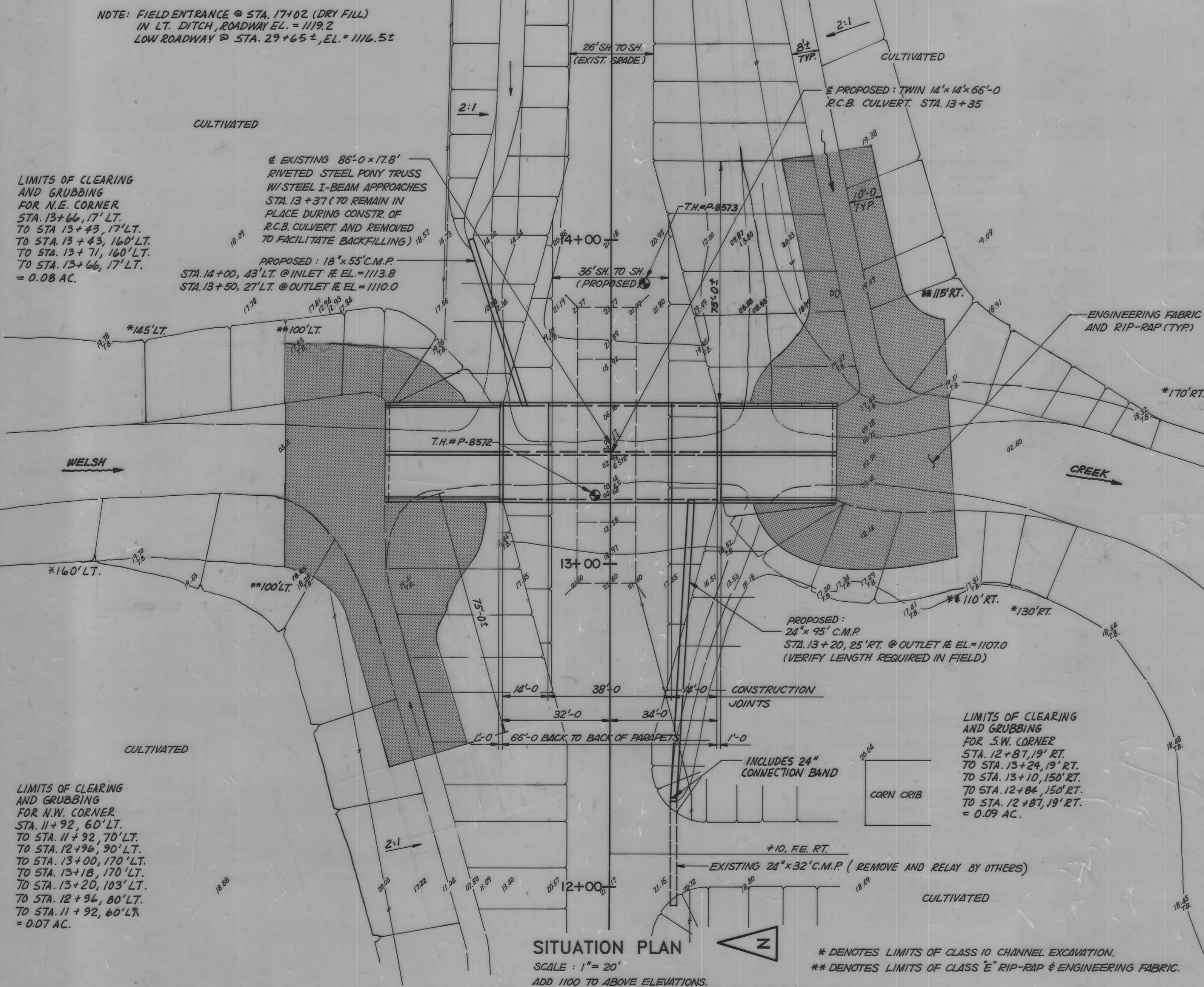
GRANULAR BACKFILL DETAIL ENTIRE LENGTH OF R.C.B. (193 C.Y.) - (290 TONS)

LOCATION

CRAWFORD COUNTY
 T-82N, R-40W
 SECTION 7
 UNION TWP
 OVER WELSH CREEK

HYDRAULIC DATA

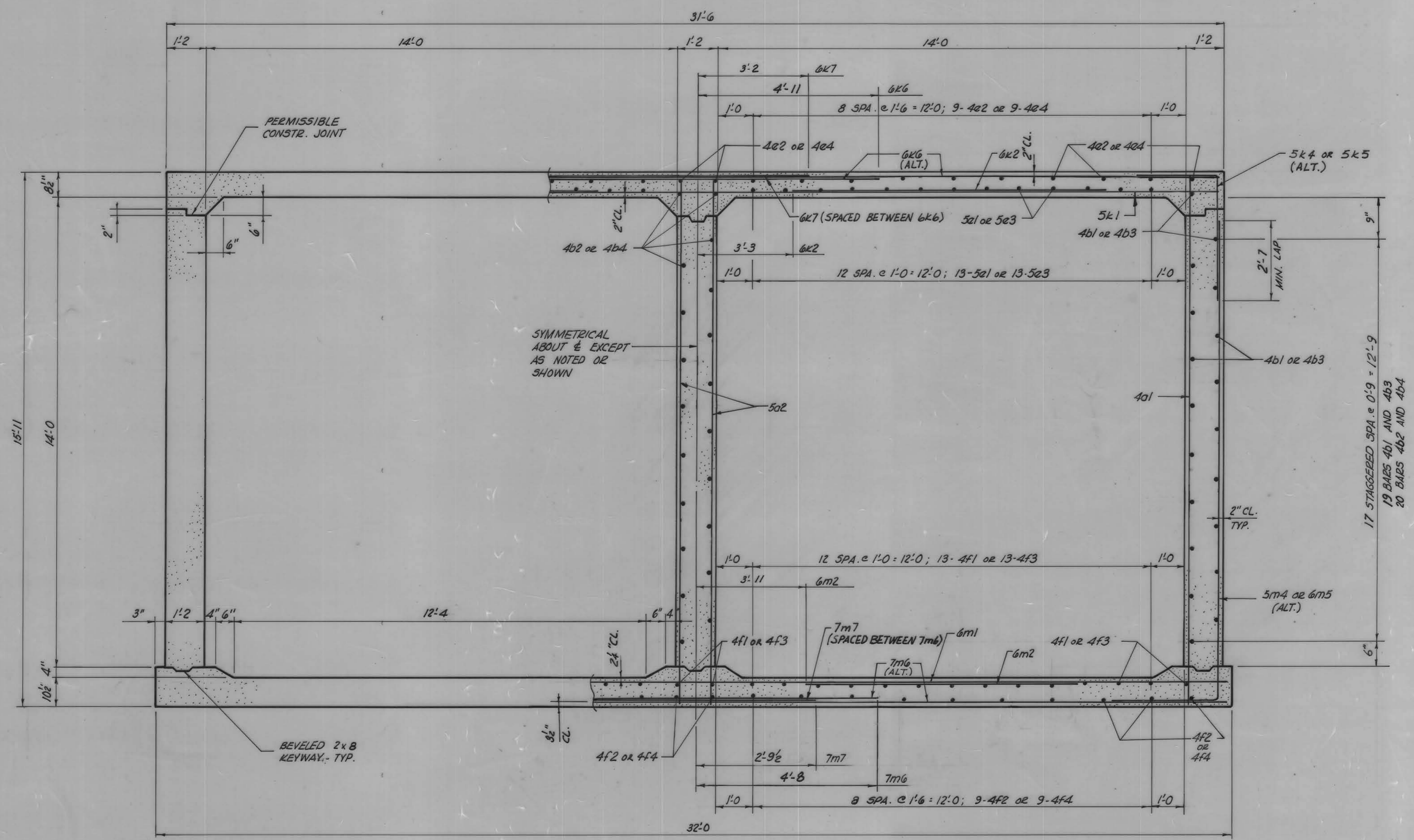
DRAINAGE AREA = 13.0 SQ. MILES
 DESIGN DISCHARGE = 3,230 C.F.S.
 DESIGN H.W. EL. = 1117.1
 MANNING SLOPE = 0.0038 FT./FT.
 Q 25 = 2,630 C.F.S. STAGE = 1115.5
 Q 50 = 3,230 C.F.S. STAGE = 1117.1 (DESIGN)
 Q 100 = 3,930 C.F.S. STAGE = 1118.8
 Q OVERTOP = 4,200 C.F.S. STAGE = 1120.2
 EXT. H.W. EL. = UNKNOWN



SITUATION PLAN

SCALE: 1" = 20'
 ADD 100 TO ABOVE ELEVATIONS.

* DENOTES LIMITS OF CLASS 10 CHANNEL EXCAVATION.
 ** DENOTES LIMITS OF CLASS "E" RIP-RAP & ENGINEERING FABRIC.



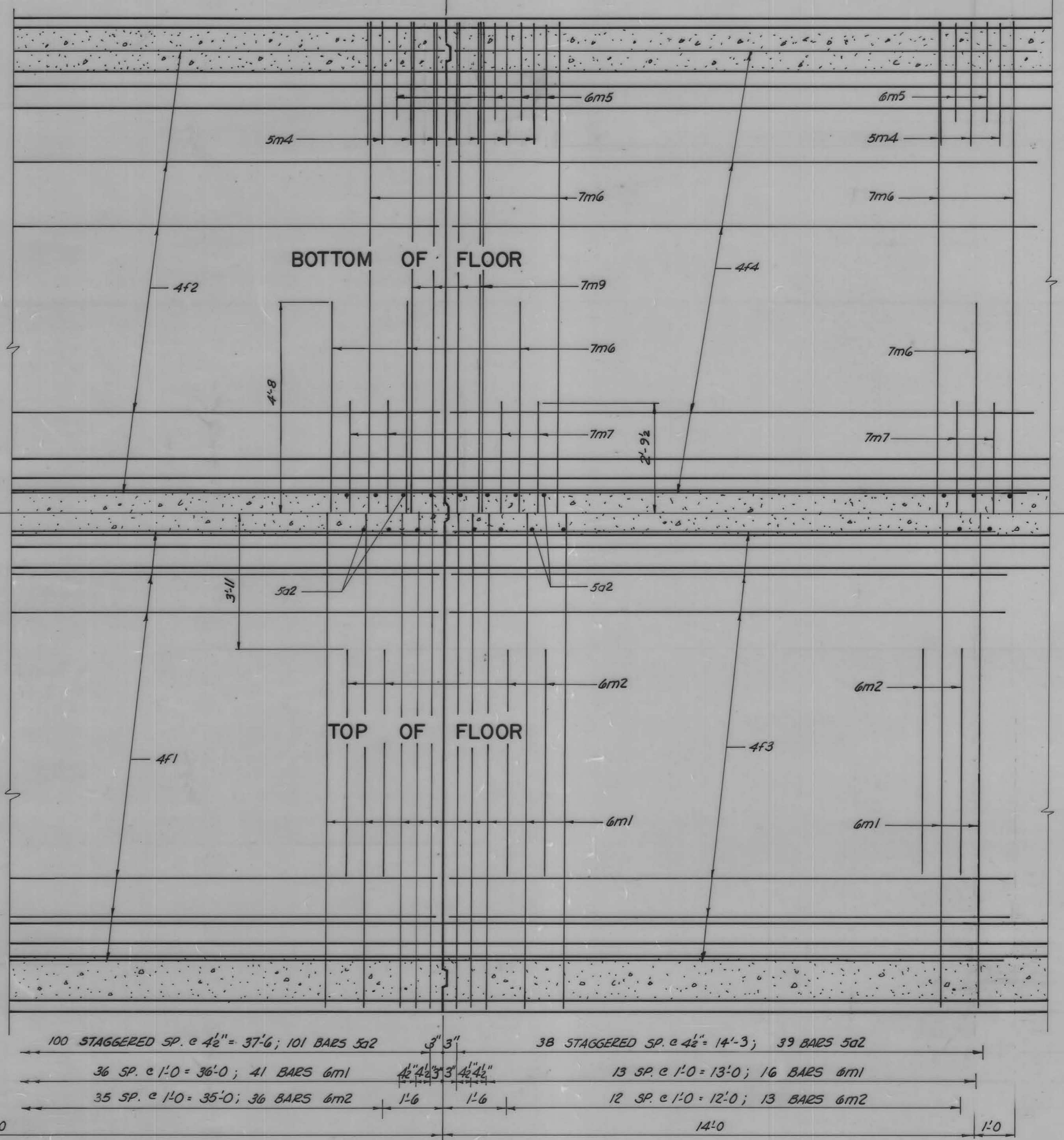
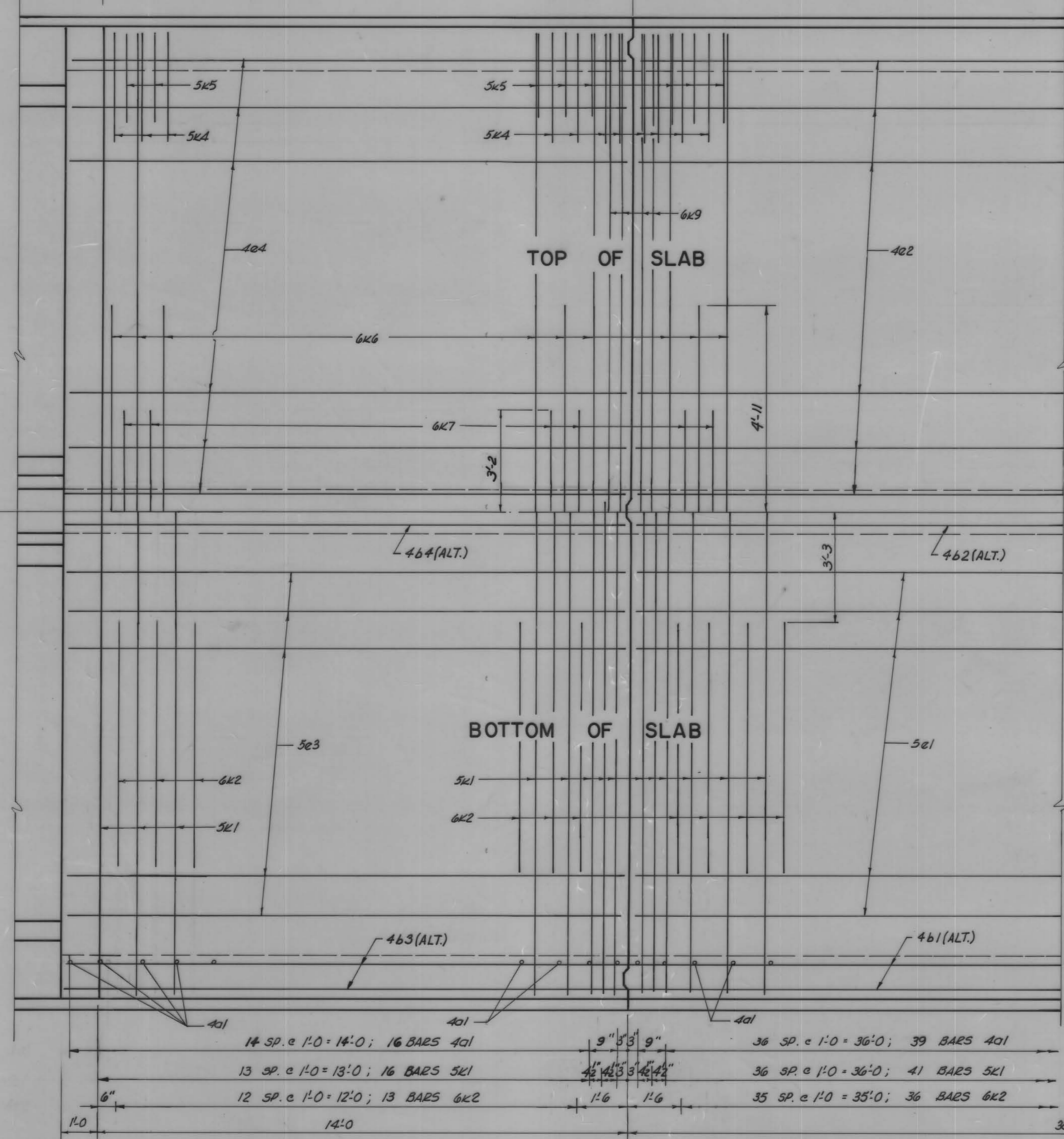
BARREL SECTION

TWIN 14'x 14'x 66'-0 REINFORCED CONCRETE
 BOX CULVERT
 CULVERT DETAILS

STATION 13+35
 CRAWFORD COUNTY
 0°SKEW
 IOWA
 SHEET 3 OF 9

$7\frac{1}{2}$ " 16 SP. @ 9" = 12'-0"; 17 BARS 6k7
 3" 17 SP. @ 9" = 12'-9"; 18 BARS 6k6
 1'-0" 16 SP. @ 9" = 12'-0"; 17 BARS 5k5
 $7\frac{1}{2}$ " 17 SP. @ 9" = 12'-9"; 19 BARS 5k4
 1'-4 $\frac{1}{2}$ 1'-4 $\frac{1}{2}$ 47 SP. @ 9" = 35'-3"; 48 BARS 6k7
 1'-0" 1'-0" 48 SP. @ 9" = 36'-0"; 49 BARS 6k6
 1'-0" 1'-0" 48 SP. @ 9" = 36'-0"; 49 BARS 5k5
 $4\frac{1}{2}$ " 3" 3" 4" 2 BARS 6k9
 49 SP. @ 9" = 36'-9"; 52 BARS 5k4

35 SP. @ 1'-0" = 35'-0"; 36 BARS 7m7
 36 SP. @ 1'-0" = 36'-0"; 37 BARS 7m6
 48 SP. @ 9" = 36'-0"; 49 BARS 6m5
 49 SP. @ 9" = 36'-9"; 52 BARS 5m4
 1'-6" 1'-6" 13 SP. @ 1'-0" = 13'-0"; 14 BARS 7m7
 1'-0" 1'-0" 14 SP. @ 1'-0" = 14'-0"; 15 BARS 7m6
 1'-0" 1'-0" 18 SP. @ 9" = 13'-6"; 19 BARS 6m5
 $4\frac{1}{2}$ " 3" 3" 4" 2 BARS 7m9
 19 SP. @ 9" = 14'-3"; 21 BARS 5m4

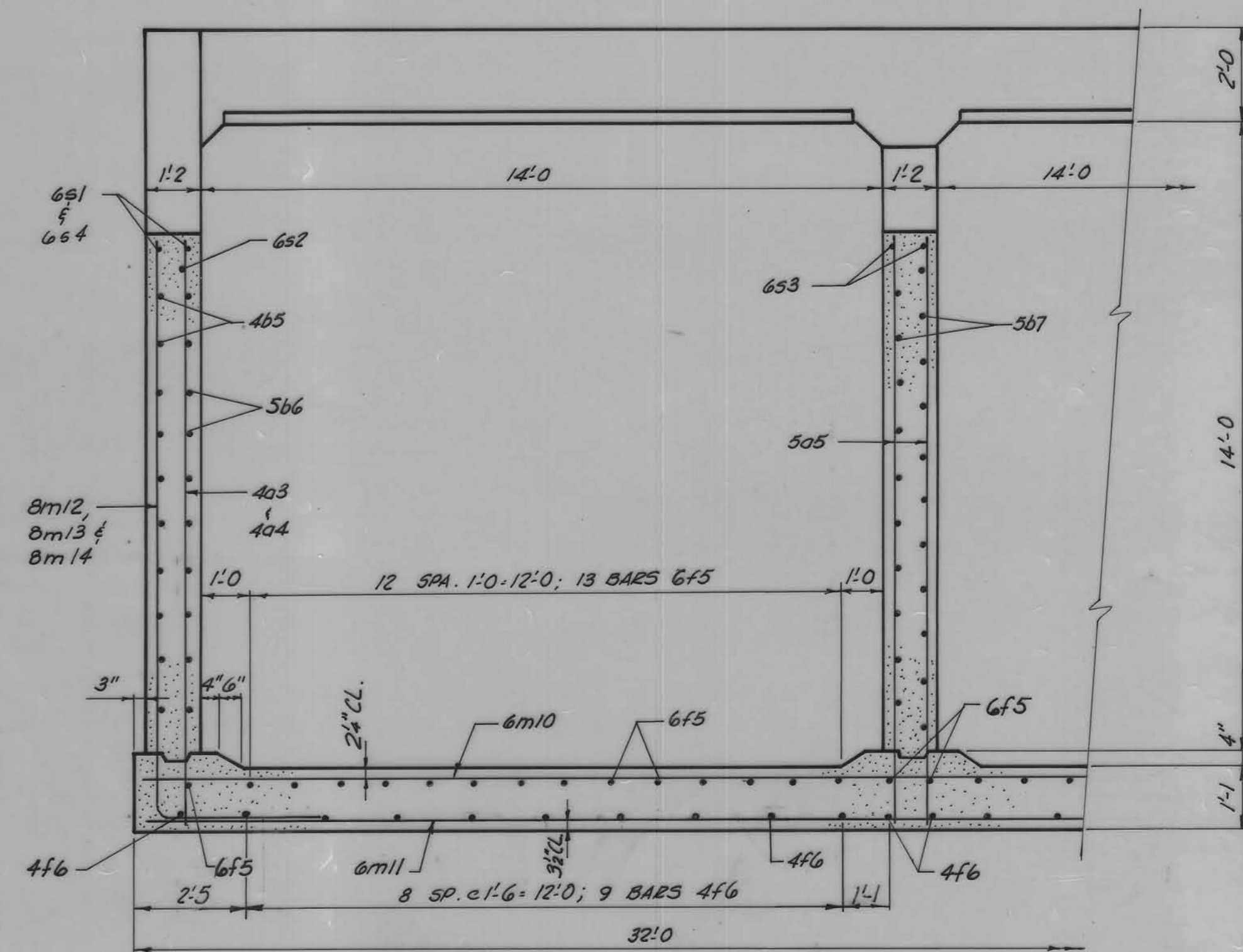
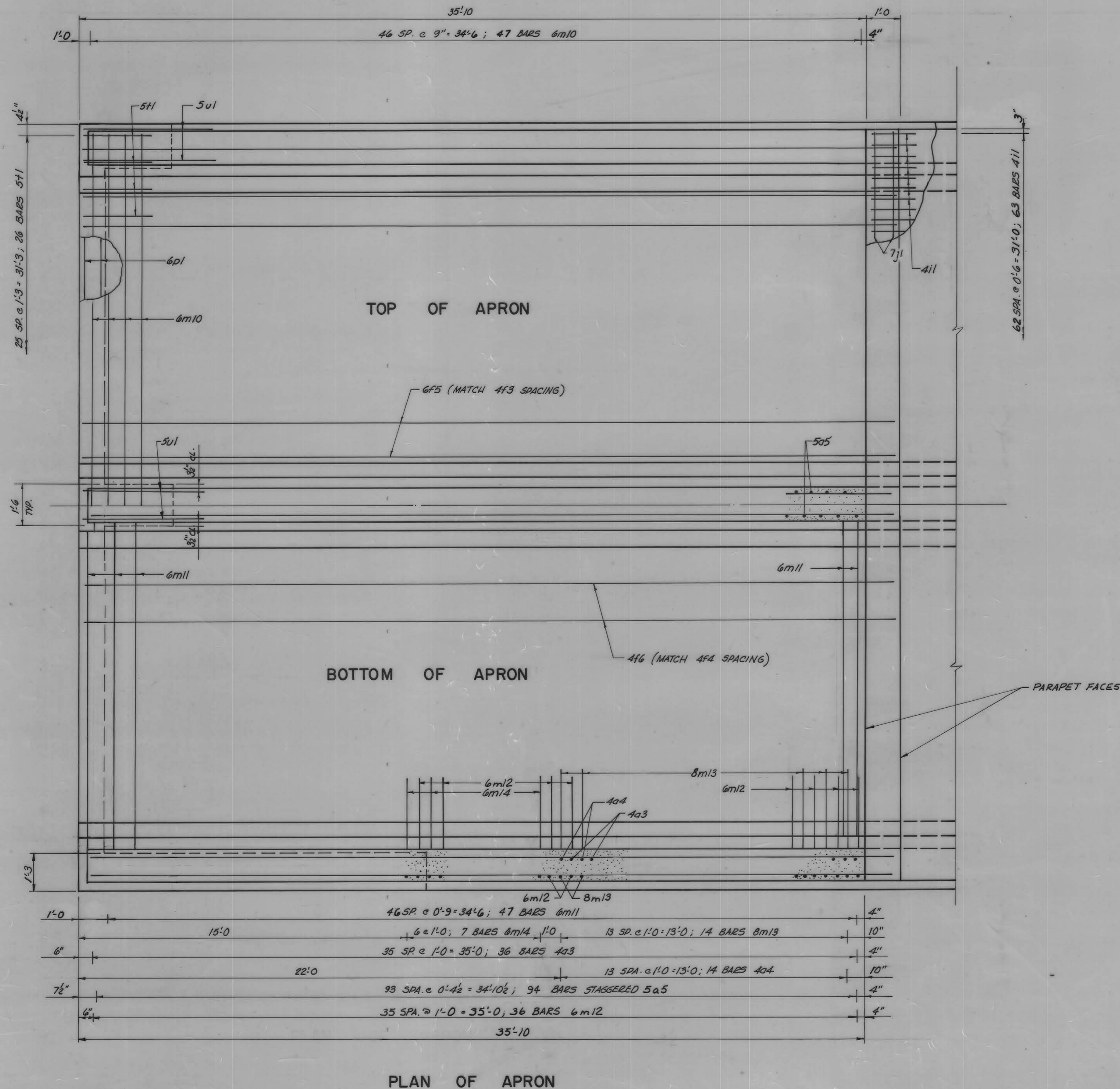


PLAN

TWIN 14'x 14'x 66'-0 REINFORCED CONCRETE
 BOX CULVERT
 CULVERT DETAILS

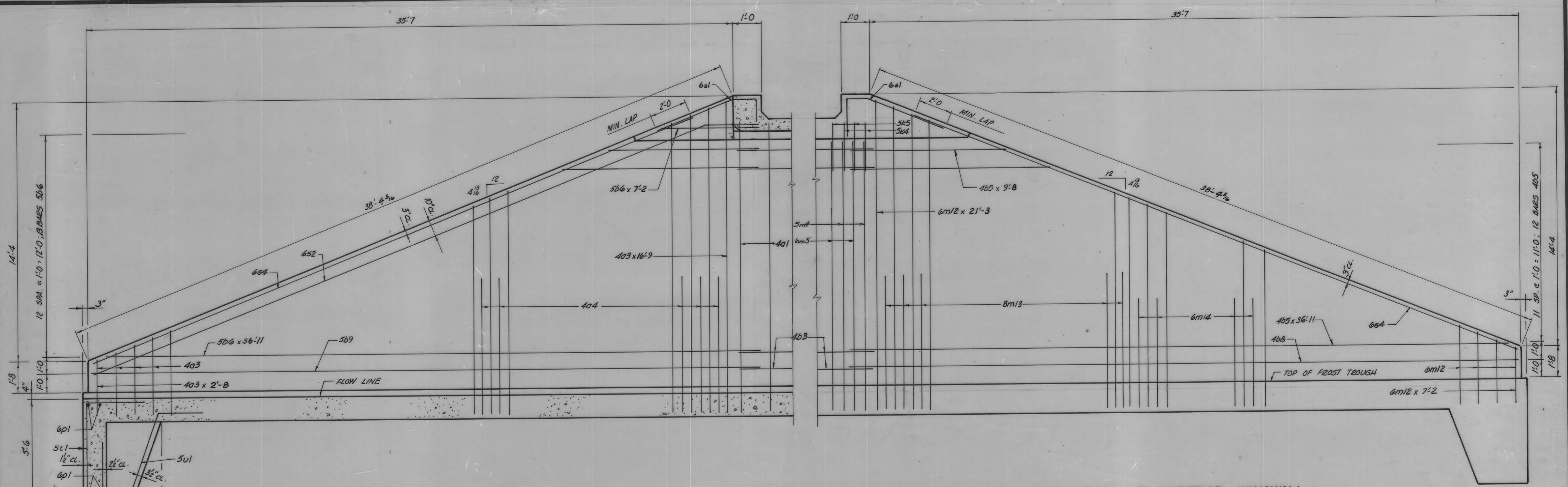
STATION 13+35
 CRAWFORD COUNTY

0° SKEW
 IOWA
 SHEET 4 OF 9

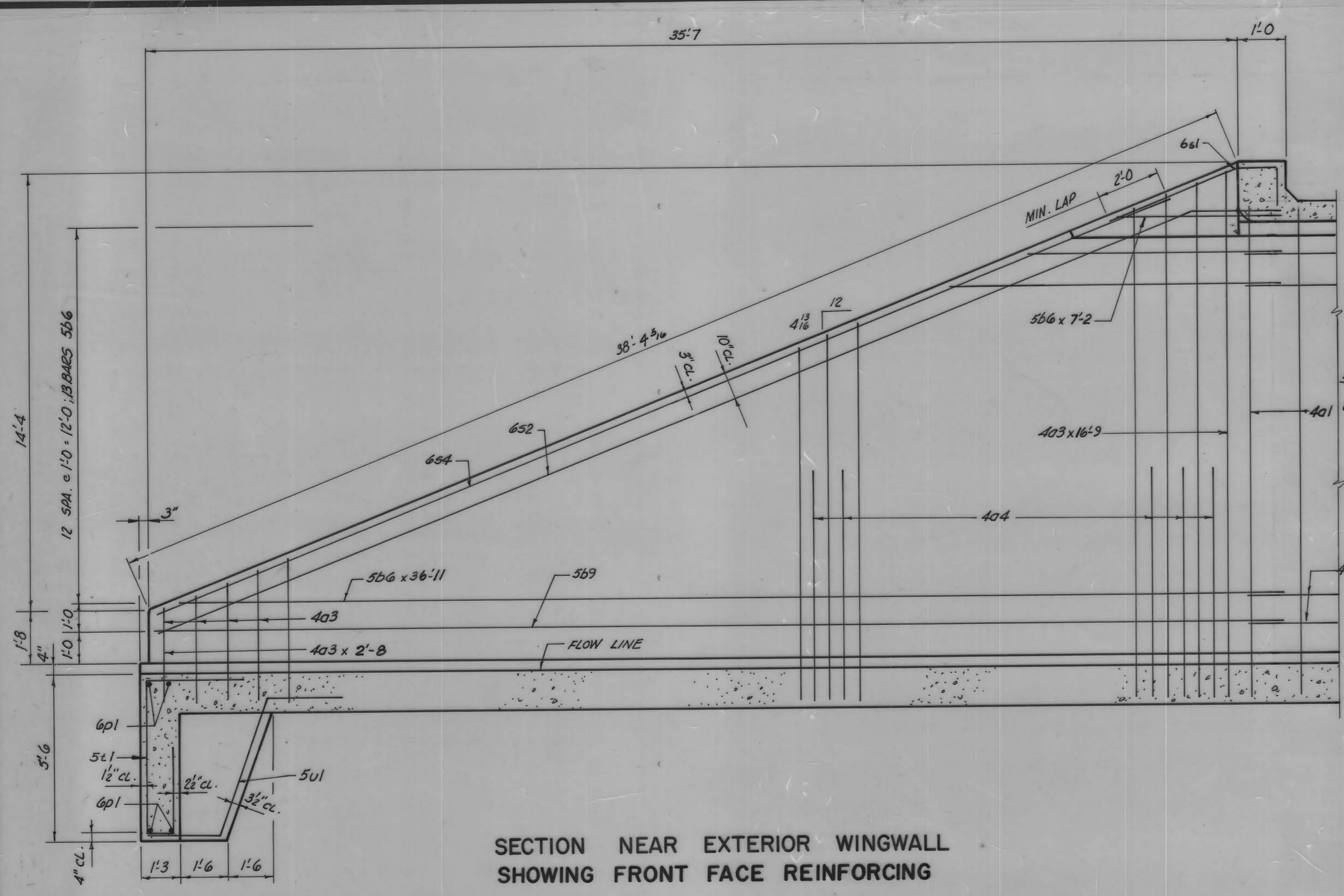


PART SECTION THROUGH HEADWALL

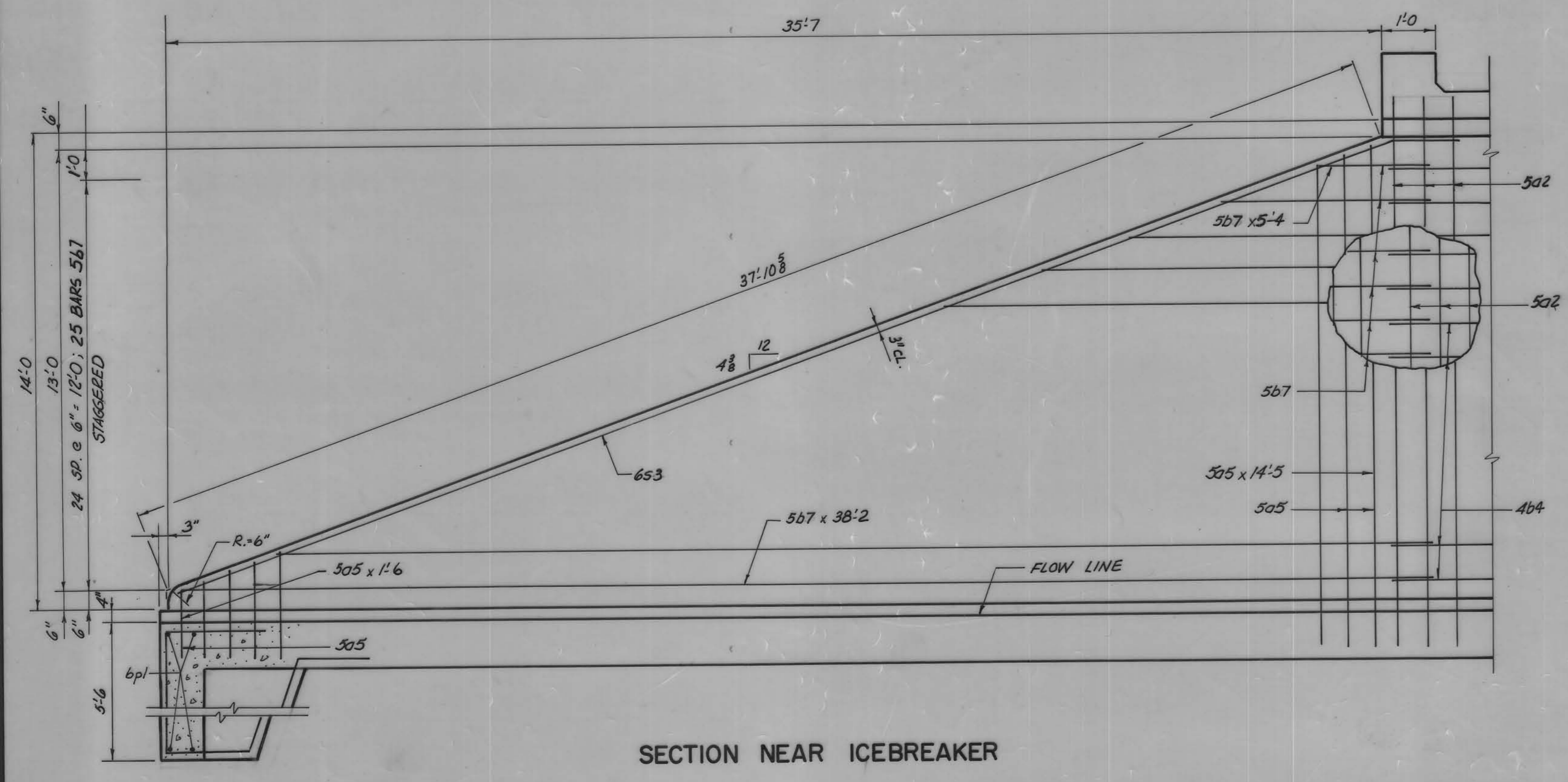
TWIN 14'x 14'x 66'-0 REINFORCED CONCRETE BOX CULVERT
 CULVERT DETAILS
 STATION 13+35
 CRAWFORD COUNTY
 0°SKEW
 IOWA
 SHEET 5 OF 9



ELEVATION OF EXTERIOR WINGWALL
SHOWING BACK FACE REINFORCING



SECTION NEAR EXTERIOR WINGWALL
SHOWING FRONT FACE REINFORCING



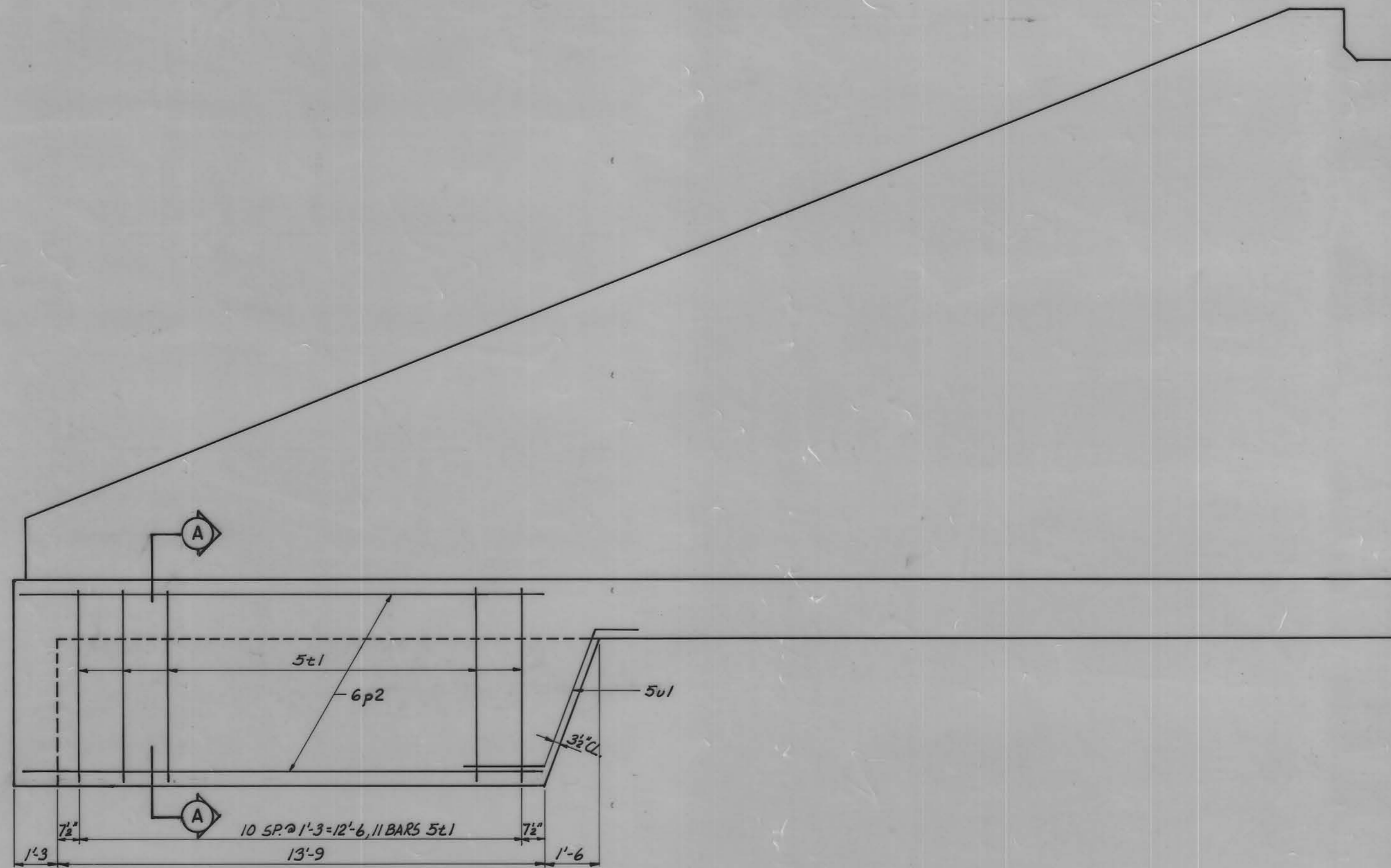
SECTION NEAR ICEBREAKER

TWIN 14'x 14'x 66'-0 REINFORCED CONCRETE
BOX CULVERT
CULVERT DETAILS

STATION 13+35
CRAWFORD COUNTY

0° SKEW
IOWA

SHEET 6 OF 9



NORTHWEST AND SOUTHEAST CURTAIN WALL DETAIL

TRAFFIC CONTROL PLAN

THE PROJECT ROUTE WILL BE CLOSED TO TRAFFIC DURING REMOVAL OF THE EXISTING BRIDGE AND PARTIAL BACKFILLING OPERATIONS. TRAFFIC CONTROL ON THIS PROJECT SHALL BE IN ACCORDANCE WITH DETAIL SHEET 520-26. FOR ADDITIONAL COMPLIMENTARY INFORMATION, REFER TO SUPPLEMENTAL SPECIFICATION 5001 AND THE IOWA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR.

SLAT FENCE BARRICADES OR PLASTIC SAFETY FENCE SHALL BE PLACED ON BOTH SIDES OF THE BRIDGE SITE. IN ADDITION, A TYPE III BARRICADE SHALL BE PLACED IN ADVANCE OF THE SLAT FENCE OR PLASTIC SAFETY FENCE. A "ROAD CLOSED" SIGN (R-11-2, 48" X 30") SHALL BE PLACED ON EACH TYPE III BARRICADE ALONG WITH TWO TYPE "A" LOW INTENSITY FLASHING WARNING LIGHTS. THE "ROAD CLOSED" SIGN SHALL BE MOUNTED SUCH THAT NO PART OF THE BARRICADE IS COVERED.

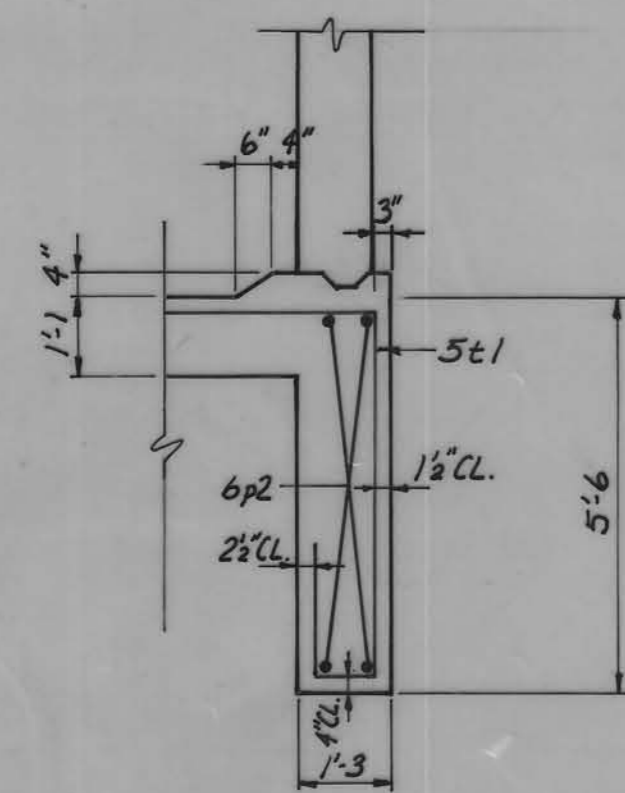
THE CRAWFORD COUNTY MAINTENANCE SHALL SALVAGE ALL ROAD MARKERS AFTER ROAD IS CLOSED.

THE BID ITEM "TRAFFIC CONTROL" SHALL INCLUDE THE COST FOR ALL TRAFFIC CONTROL MEASURES REQUIRED OF THE CONTRACTOR EXCEPT FOR THOSE WHICH ARE SEPARATE BID ITEMS OR ARE INCIDENTAL TO OTHER BID ITEMS.

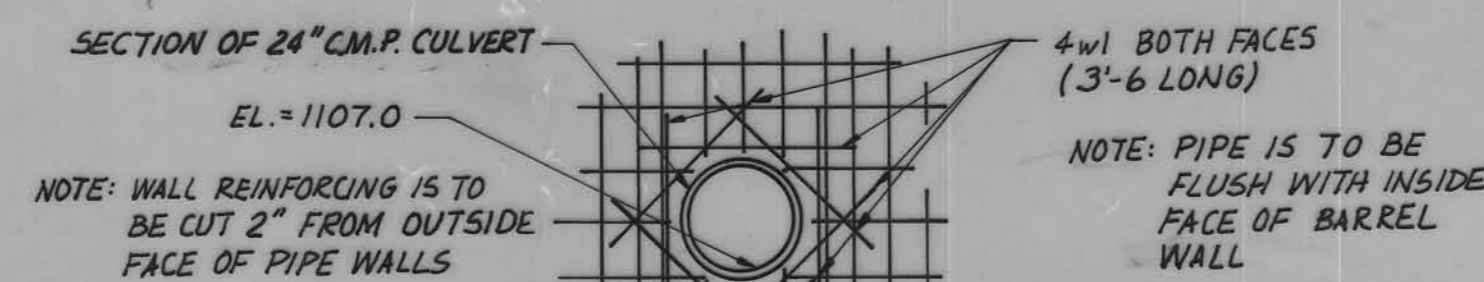
THE EXISTING BRIDGE SHALL REMAIN IN PLACE UNTIL THE PROPOSED REINFORCED CONCRETE BOX CULVERT IS BUILT. SEE "GENERAL NOTES", SHEET 2.

TABULATION OF BARRICADES
(Refer to Section 2518 of the St'd. Spec's.)

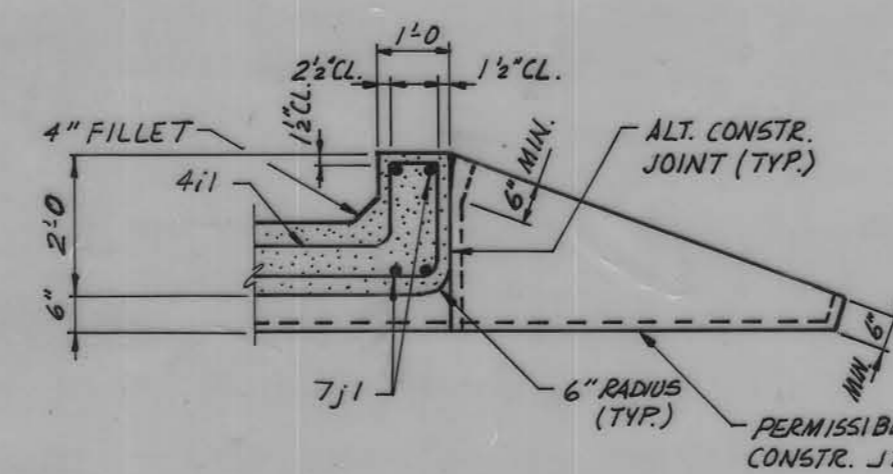
NO.	STATION
1	12+30 W. END
1	15+00 E. END



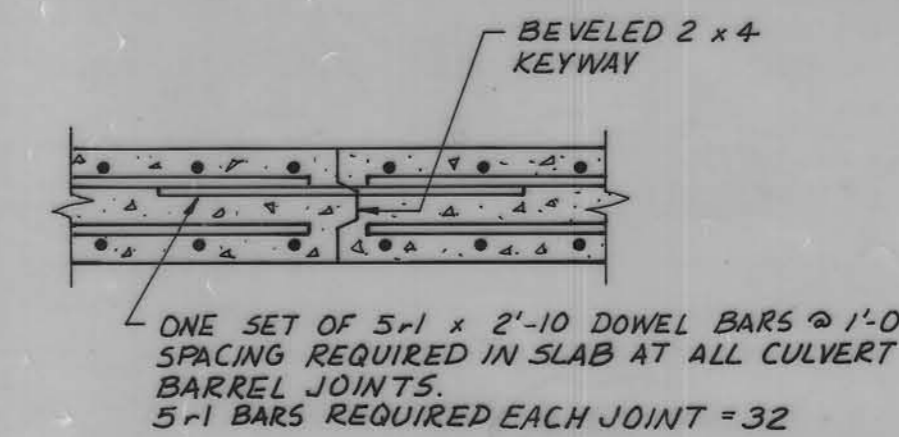
SECTION A-A



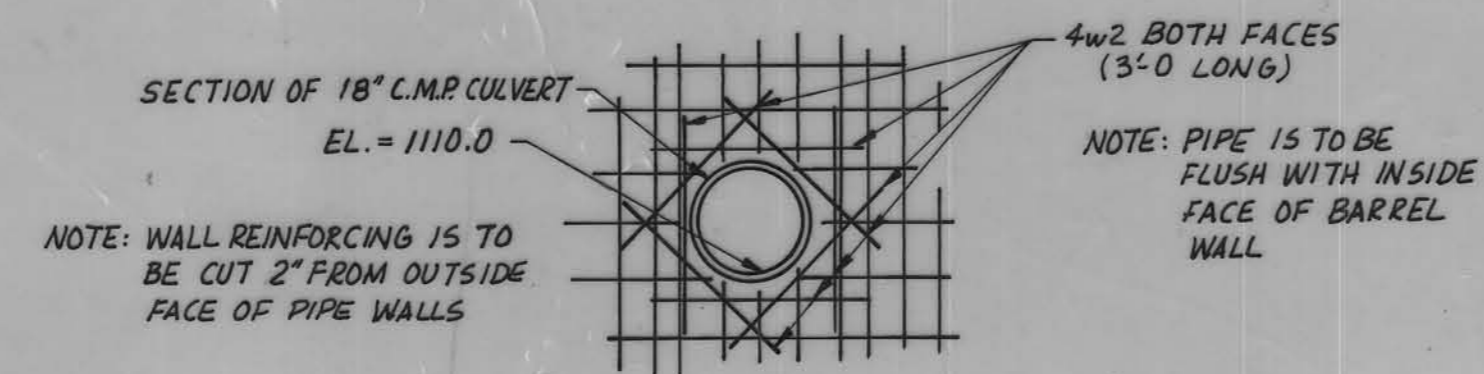
CULVERT INLET DETAIL
24" DIA. C.M.P.



PARAPET DETAIL



TOP SLAB CONSTRUCTION
JOINT DETAIL



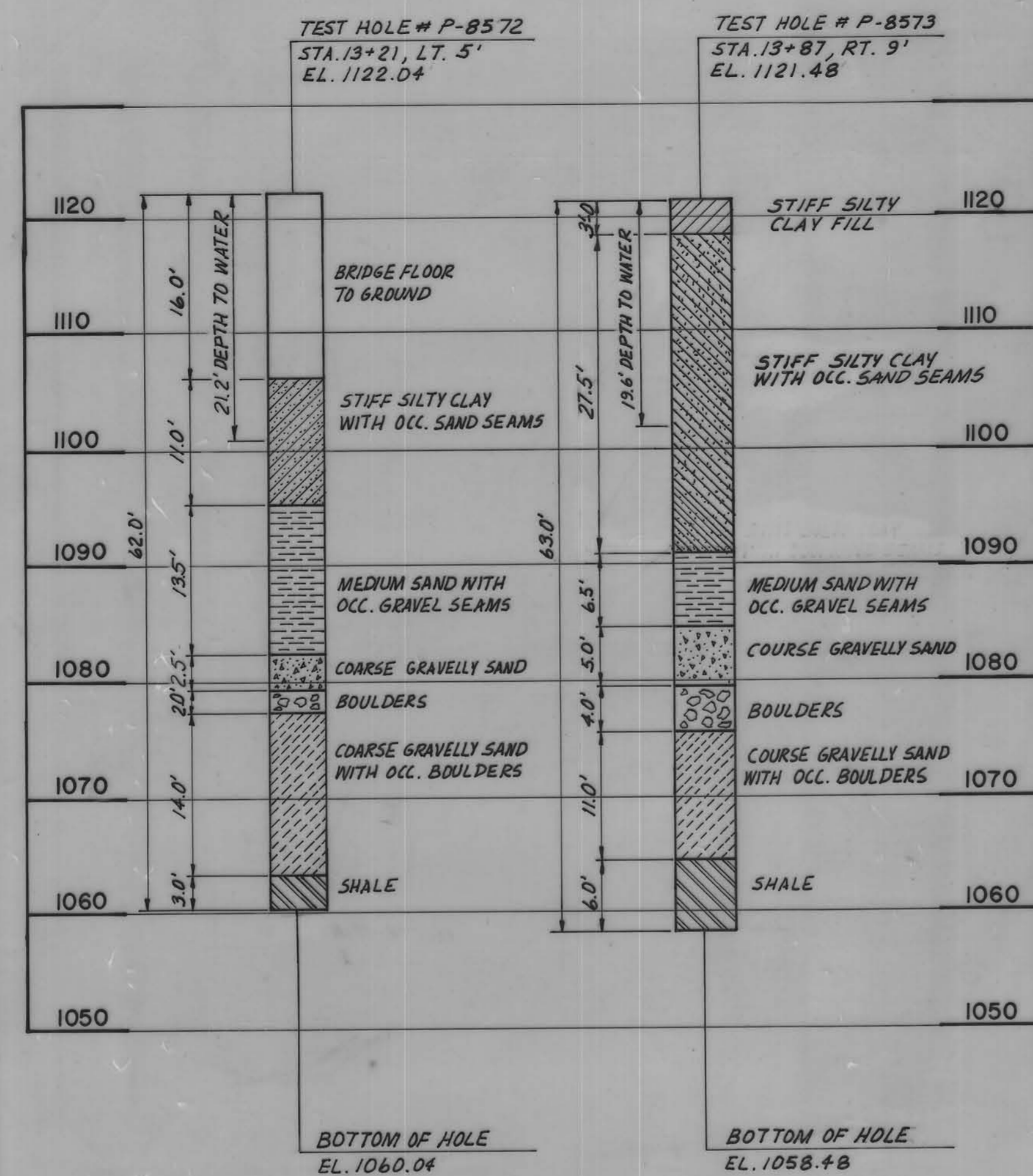
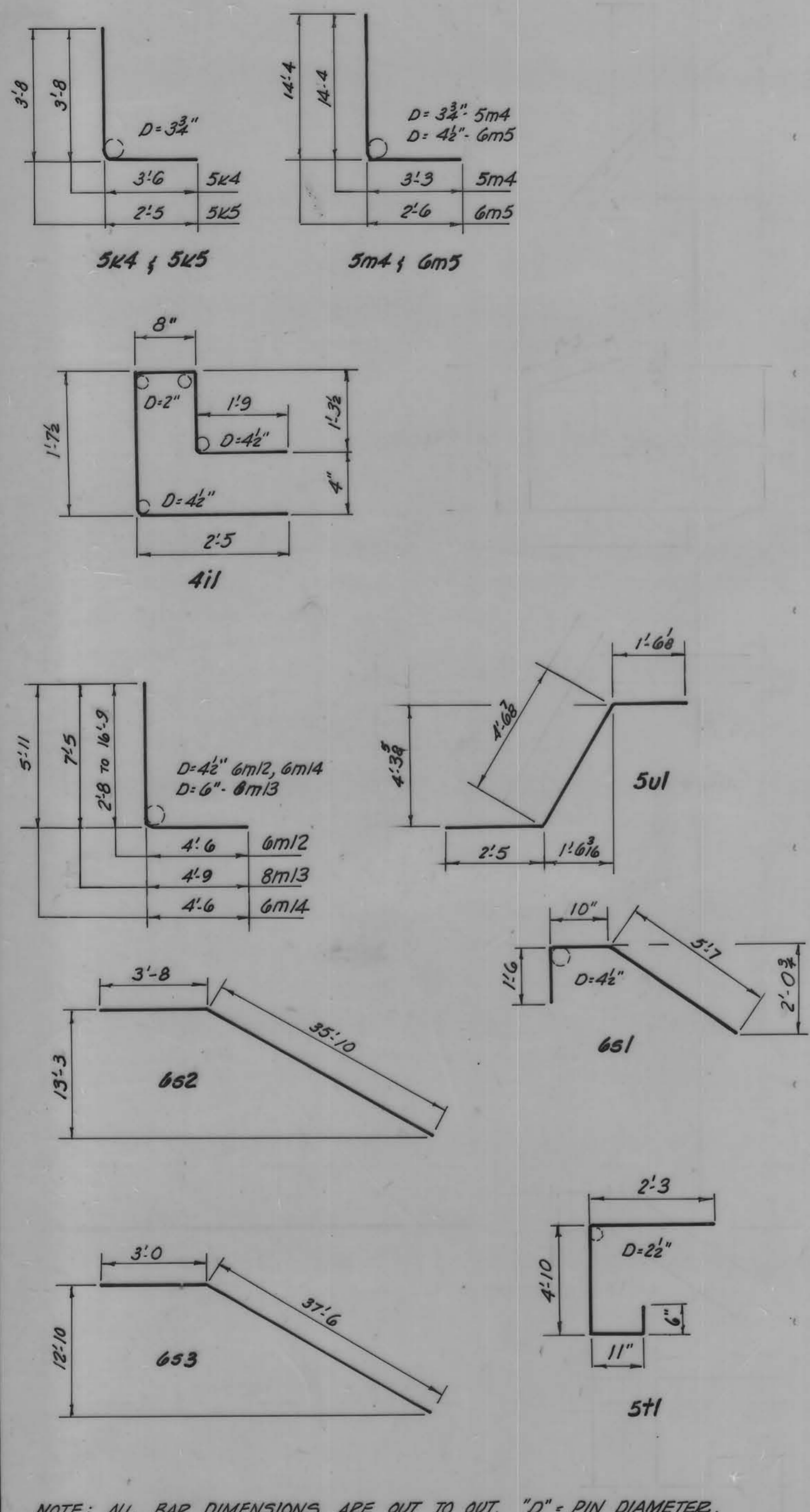
CULVERT INLET DETAIL
18" DIA. C.M.P.

TWIN 14'x14'x66'-0 REINFORCED CONCRETE
BOX CULVERT
CULVERT DETAILS

STATION 13+35
CRAWFORD COUNTY,

0° SKEW
IOWA
SHEET 7 OF 9

BENT BAR DETAILS



SOUNDING DATA
SCALE 1"=10'
DATED: 11-19-90

REINFORCING BAR LIST - TWO HEADWALLS

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
403	WING WALL, F.F.V.	—	144	VARIES	984
404	WING WALL, F.F.V.	—	56	7'5	278
505	ICEBREAKER, BOTH FA. VEET.	—	188	VARIES	1561
4b5	WING WALL, B.F.H.	—	48	VARIES	747
5b6	WING WALL, F.F.H.	—	52	VARIES	1196
5b7	ICEBREAKER, HORIZ.	—	50	VARIES	1134
4b8	WING WALL, B.F.H., BOTTOM	—	4	38'5	103
5b9	WING WALL F.F.H., BOTTOM	—	4	38'5	160
6f5	APRON, TOP, LONGITUDINAL	—	60	38'5	3462
4f6	APRON, BOTT., LONGITUDINAL	—	44	38'5	1129
6m10	APRON, TOP, TRANSVERSE	—	94	31'8	4471
6m11	APRON, BOTT., TRANSVERSE	—	94	31'8	4471
6m12	APRON, BOTT., CORNER	└	144	VARIES	3074
8m13	APRON, BOTT., CORNER	└	56	12'2	1820
6m14	APRON, BOTT., CORNER	└	28	10'5	438
6p1	CURTAIN WALL, HORIZ.	—	8	31'8	381
6p2	CURTAIN WALL EXT., HORIZ.	—	8	14'8	176
6s1	WING SLOPE, BOTH FA.	└	8	7'11	95
6s2	WING SLOPE, F.F.	└	4	39'6	237
6s3	ICE BREAKER, SLOPE, BOTH FA.	└	4	40'6	243
6s4	WING SLOPE, BOTH FA.	—	8	35'0	421
5t1	CURTAIN WALL, VERTICAL	└	74	8'6	656
5u1	CURTAIN WALL, STRUTS	└	12	8'6	106
TOTAL (LBS) =					27,293

REINFORCING BAR LIST - BARREL

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
401	EXT. WALLS, F.F.V.	—	142	15'6	1470
502	INT. WALLS, BOTH FA. VEET.	—	179	15'6	2894
4b1	EXT. WALLS, HORIZ. STD. SECT.	—	38	37'8	956
4b2	INT. WALLS, HORIZ. STD. SECT.	—	20	37'8	503
4b3	EXT. WALLS, HORIZ. END SECT.	—	76	14'10	753
4b4	INT. WALLS HORIZ. END SECT.	—	40	14'10	396
5s1	SLAB, BOTT. LONGIT. STD. SECT.	—	26	37'8	1022
4s2	SLAB, TOP, LONGIT. STD. SECT.	—	22	37'8	554
5s3	SLAB, BOTT. LONGIT. END SECT.	—	52	14'2	769
4s4	SLAB, TOP, LONGIT. END SECT.	—	44	14'8	431
4f1	FLOOR TOP, LONGIT. STD. SECT.	—	30	37'8	755
4f2	FLOOR BOTT., LONGIT. STD. SECT.	—	22	37'8	554
4f3	FLOOR TOP, LONGIT. END SECT.	—	60	14'10	595
4f4	FLOOR BOTT. LONGIT. END SECT.	—	44	14'10	436
4j1	PARAPET, VERTICAL	└	126	7'9	652
7j1	PARAPET, HORIZONTAL	—	8	31'2	510
5k1	SLAB, BOTTOM, TRANSV.	—	73	31'2	2373
6k2	SLAB, BOTTOM, TRANSV.	—	124	9'5	1754
5k4	SLAB, TOP, CORNER	└	180	7'2	1346
5k5	SLAB, TOP, CORNER	└	166	6'1	1053
6k6	SLAB, TOP, TRANSVERSE	—	85	20'6	2617
6k7	SLAB, TOP, TRANSVERSE	—	82	6'4	780
6k9	SLAB, TOP, TRANSVERSE	—	8	31'2	375
6m1	FLOOR, TOP, TRANSVERSE	—	73	31'8	3472
6m2	FLOOR, TOP, TRANSVERSE	—	124	8'2	1522
5m4	FLOOR, BOTT., CORNER	└	188	17'7	3448
6m5	FLOOR, BOTT., CORNER	└	174	16'10	4399
7m6	FLOOR, BOTT., TRANSVERSE	—	67	20'6	2807
7m7	FLOOR, BOTT., TRANSVERSE	—	64	5'7	730
7m9	FLOOR, BOTT., TRANSVERSE	—	8	31'8	518
5r1	SLAB, DOWELS, CONST. JOINT	—	64	2'10	189
4w1	WINGWALL CULV. INLET, BOTH FA.	—	16	3'6	37
4w2	WINGWALL CULV. INLET, BOTH FA.	—	16	3'0	32
TOTAL (LBS) =					40,702

CONCRETE PLACEMENT QUANTITIES

ITEM	INLET	*BARREL	OUTLET	TOTAL
SLAB	15.8	34.4	15.8	66.0
FLOOR	76.0	42.0	76.0	194.0
WALLS	63.5	67.0	63.5	194.0
TOTAL (CU.YDS)	155.3	143.4	155.3	454.0

* STANDARD 38' SECTION
 ^ INCLUDE HEADWALLS ABOVE CONSTRUCTION JOINTS

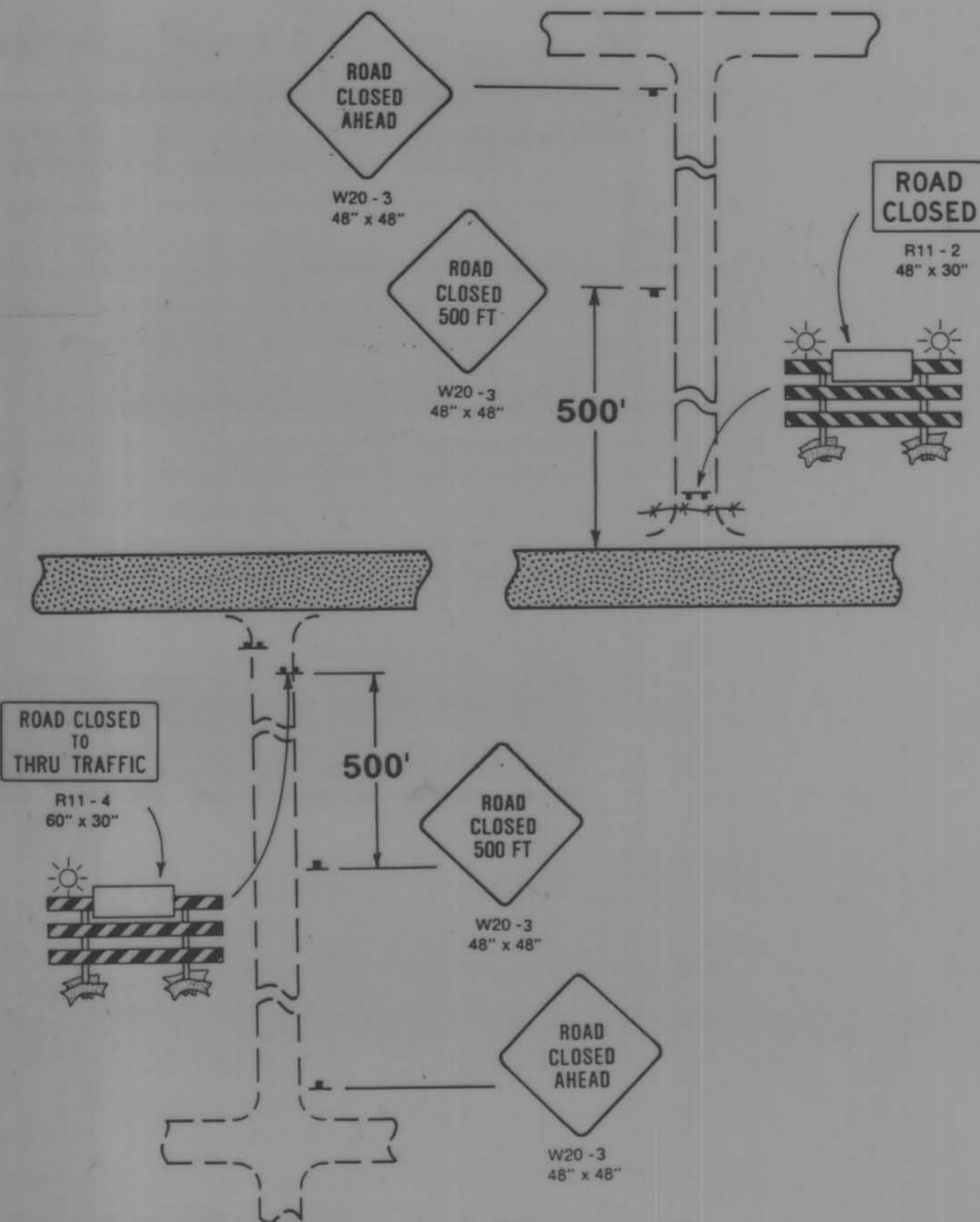
TWIN 14'x 14'x 66'-0 REINFORCED CONCRETE BOX CULVERT

CULVERT QUANTITIES AND SOUNDING DATA

STATION 13+35
 CRAWFORD COUNTY
 0° SKEW
 IOWA
 SHEET 8 OF 9

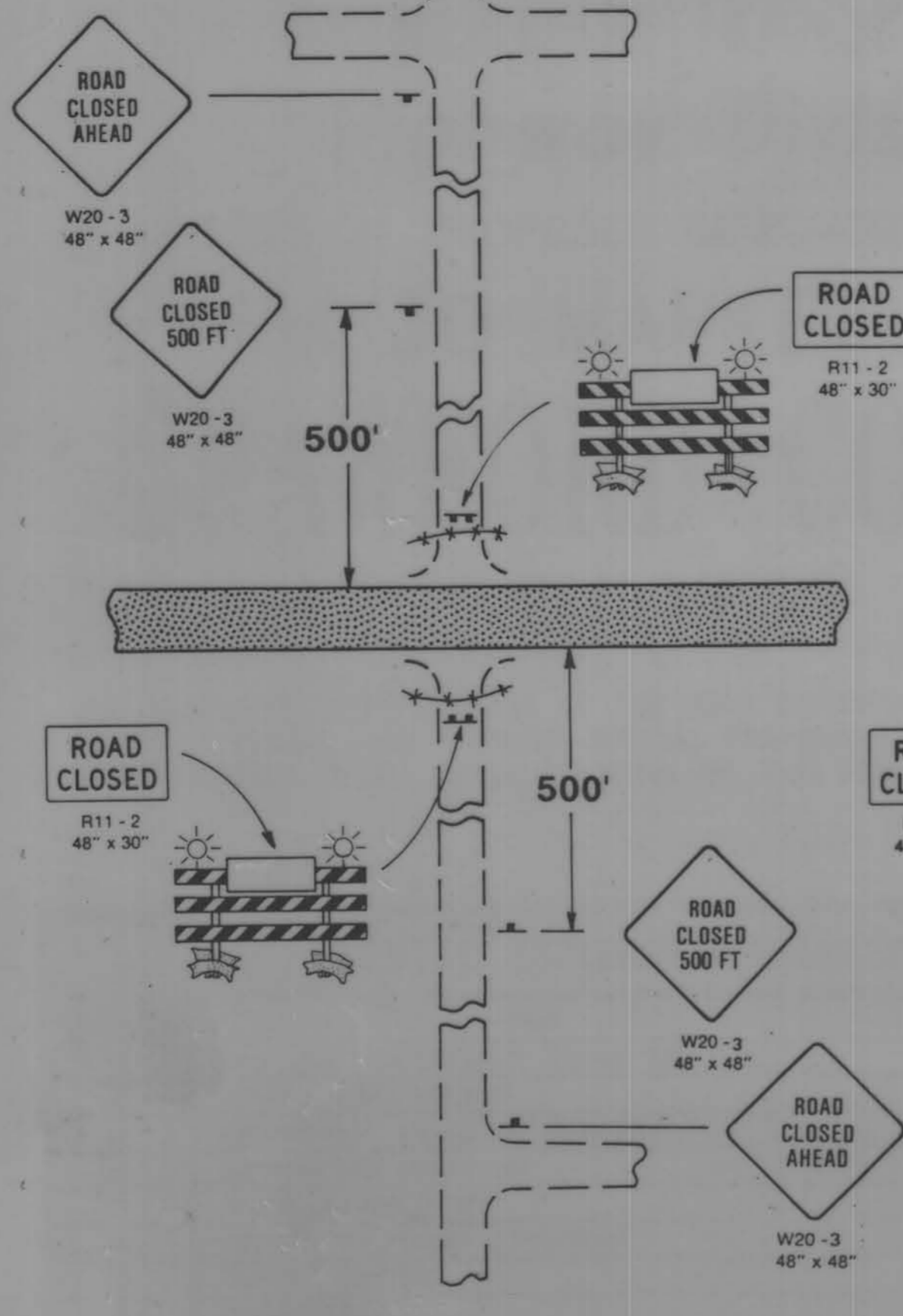
SITUATION 2

No Access to project.



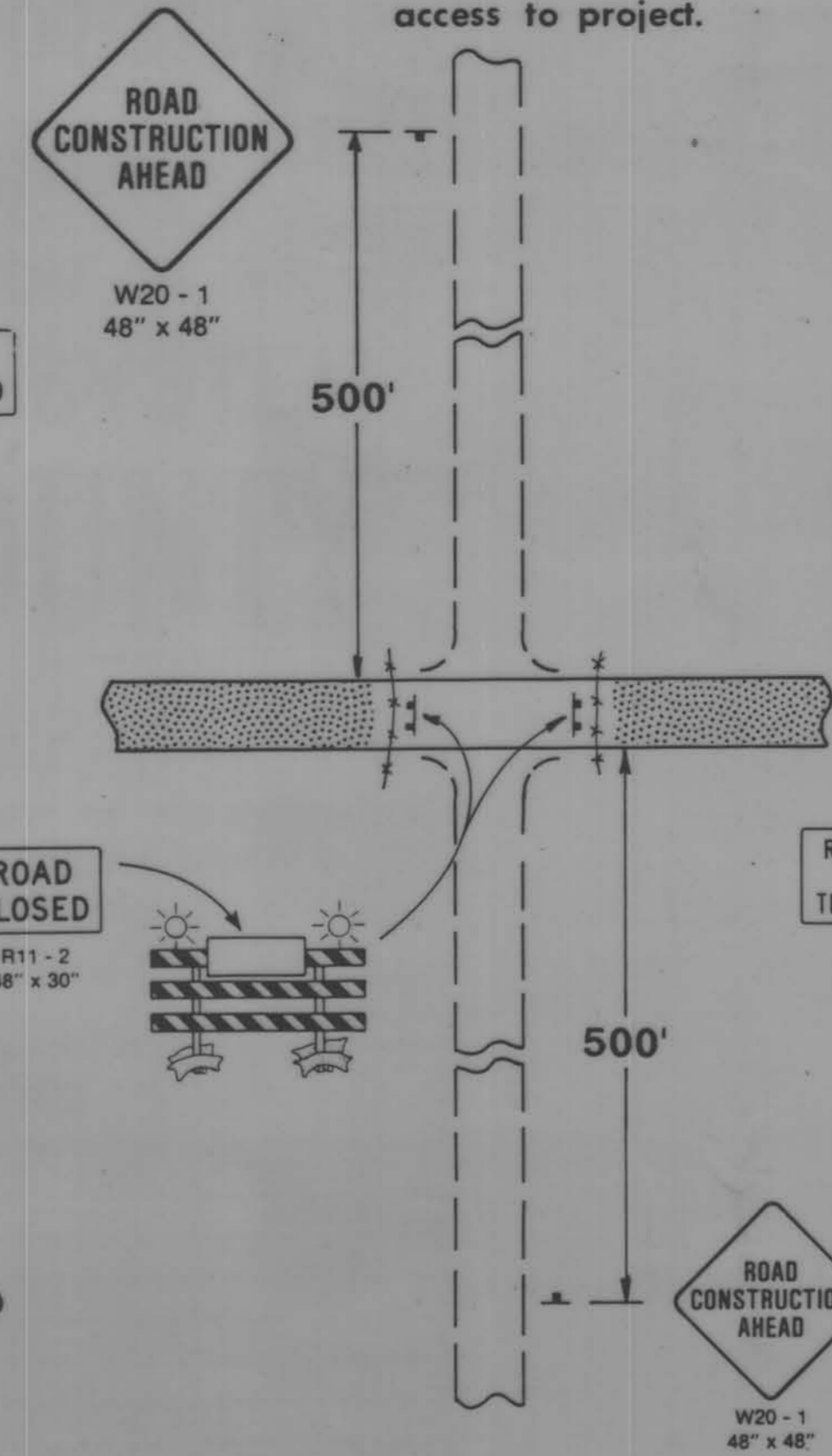
SITUATION 4

No Access to project.



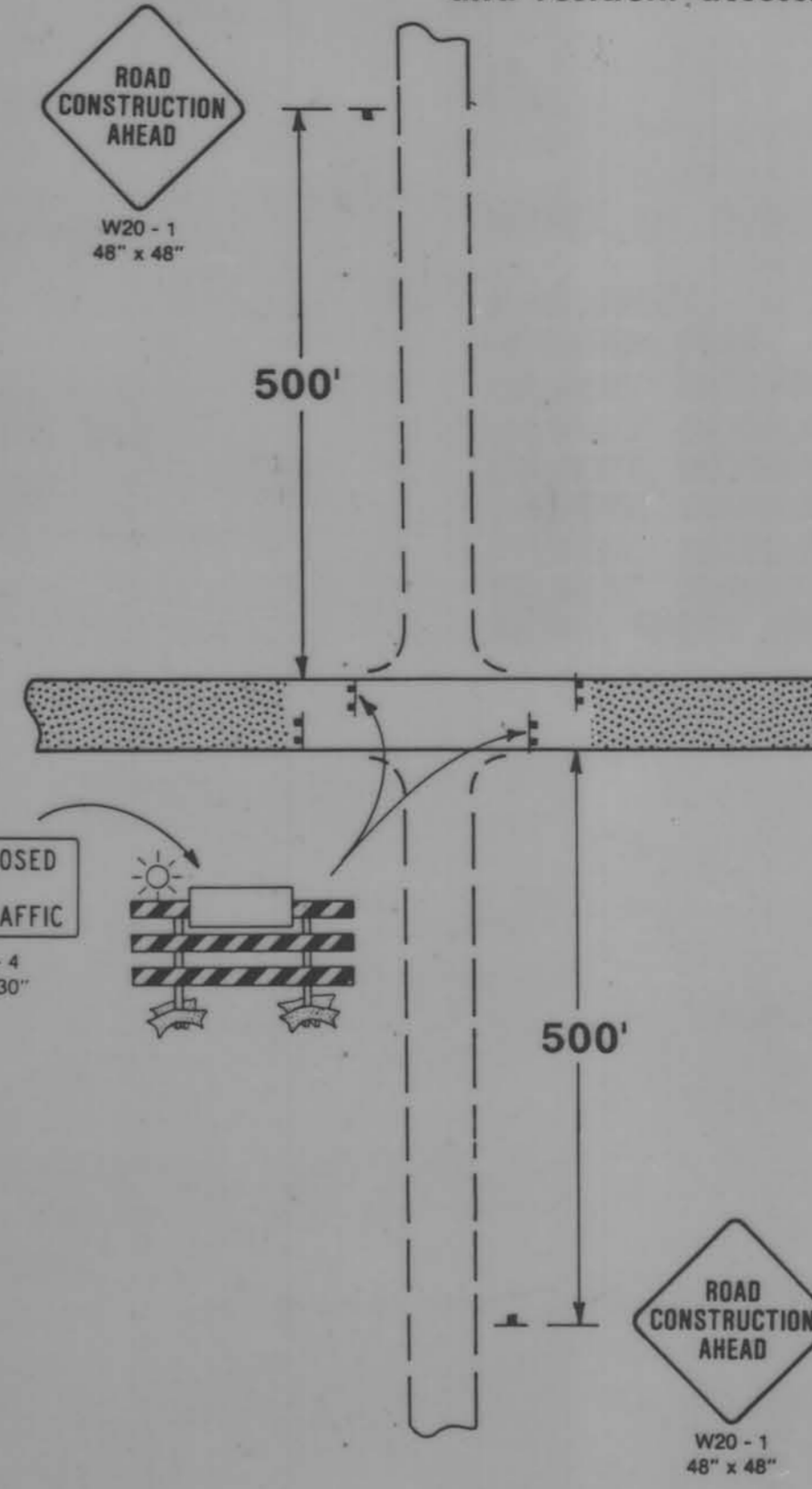
SITUATION 5

Public cross-traffic maintained. No access to project.



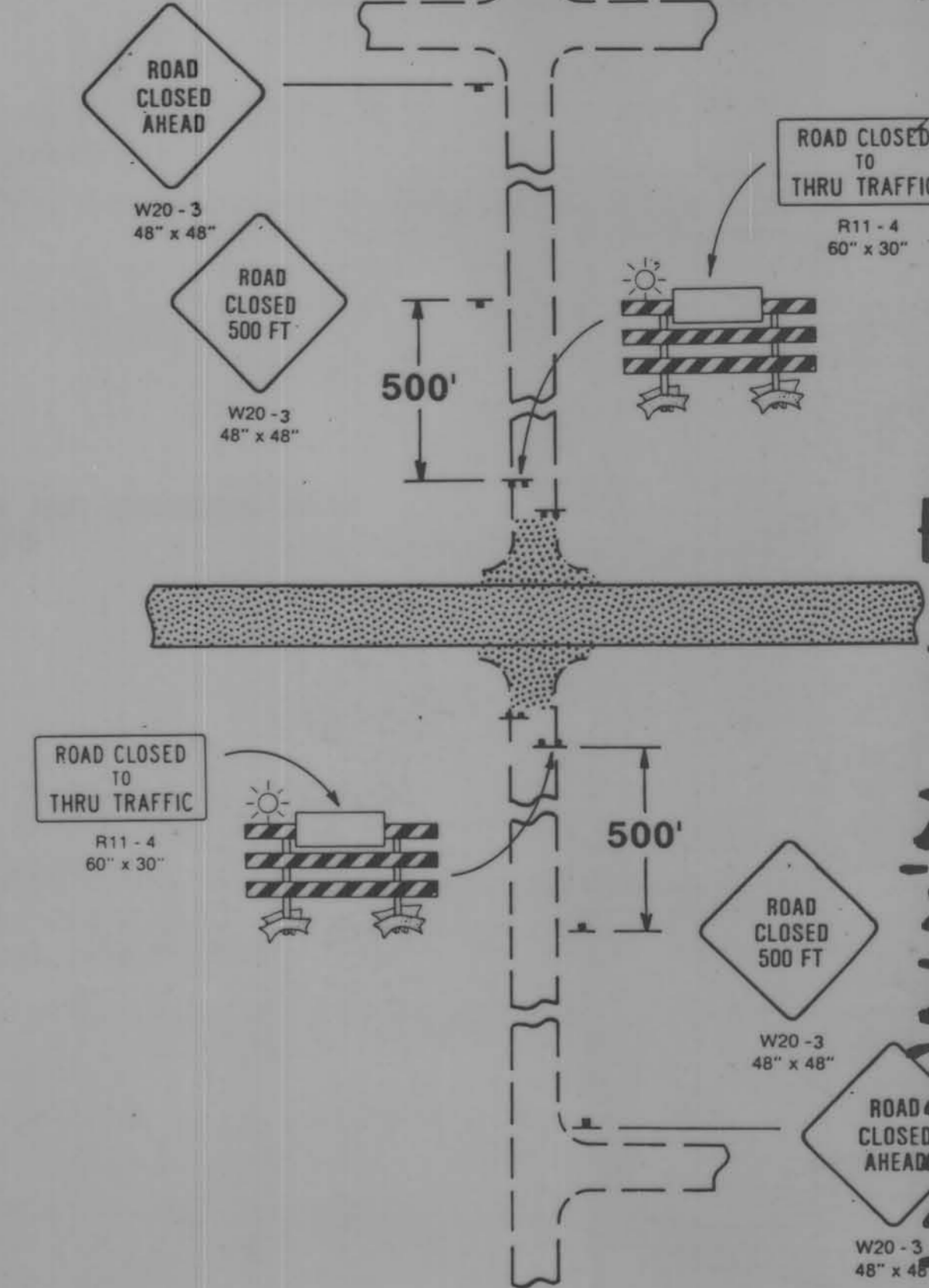
SITUATION 6

Public cross-traffic maintained. Contractor and resident access.



SITUATION 7

No Public access. Contractor and resident access only.



SITUATION 3

No Public access. Contractor and resident access only.

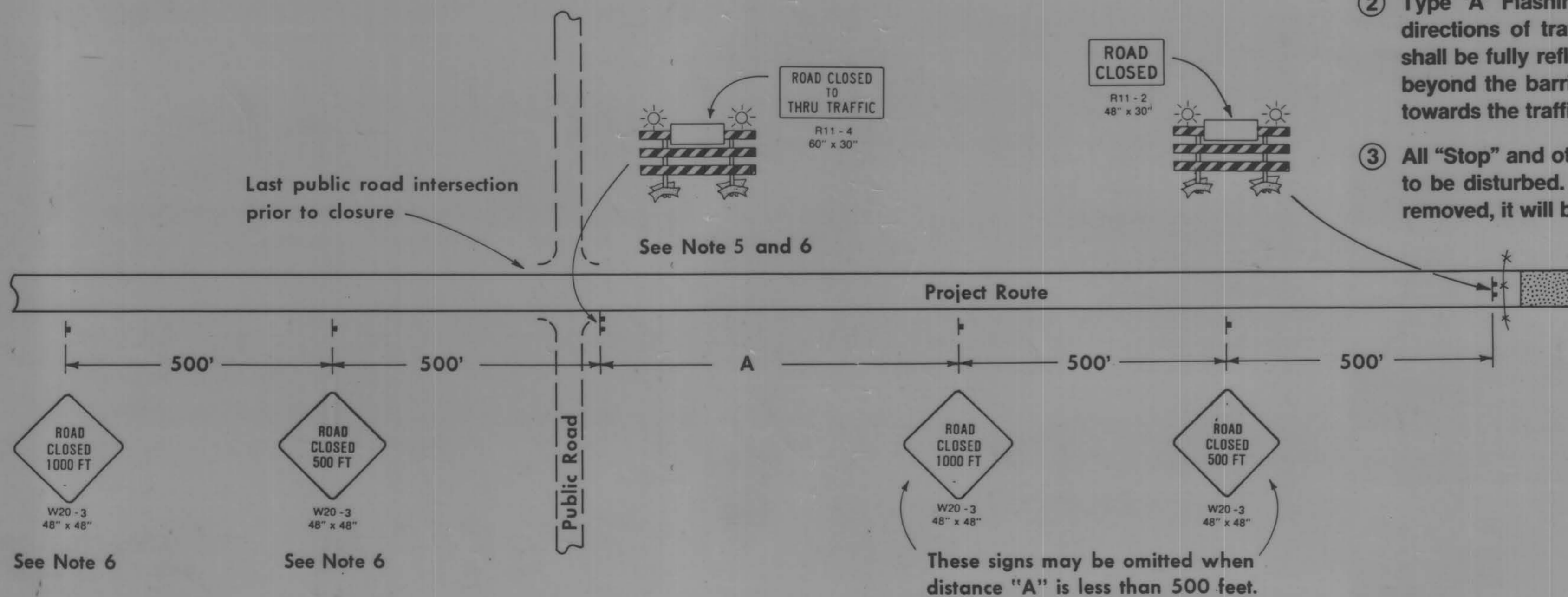
GENERAL NOTES:

- SITUATION 1 illustrates traffic control necessary to close the project route. SITUATION 2 through 7 are for signing of sideroads based on existing agreements and field conditions and will be selected by the engineer in charge of construction.
- Type 'A' Flashing Warning Lights shall be visible to both directions of traffic. The backside of the type III barricades shall be fully reflectorized unless there is no access permitted beyond the barricade. Stripes shall be properly sloped down towards the traffic side.
- All "Stop" and other regulatory signs on the sideroads are not to be disturbed. If a "Stop" or other regulatory sign must be removed, it will be relocated by the Contracting Authority.

- This layout does not include barricades as may be required by Section 2518 of the Standard Specifications.
- In Situation 1, when distance "A" is less than 500 feet the barricade should be placed in the middle of the traffic lane approaching the work area. In this case, Note 2 shall apply. the barricade may be omitted if the distance to the work area is less than 400 feet.
- In Situation 1, if the intersection is the point of detour these two signs and barricade will become the responsibility of the contracting authority and may be modified by the contracting authority to fit detour signing.

SITUATION 1

Project Route closure.



LEGEND

- Traffic Sign
- Type III Barricade (Type "A" Low Intensity Flashing Warning Light Required for Nighttime Use)
- Type "A" Low Intensity Flashing Warning Light
- Work Area
- Slat Fence Barricade or Orange Plastic Safety Fence

Iowa Department of Transportation
Highway Division

DETAIL SHEET 520-26

SIGNING FOR TEMPORARY ROAD CLOSURES IN RURAL AREAS (PROJECT ROUTE CLOSED TO TRAFFIC)

REVISION: Revised General Note no. 2.

NO.	DATE
2	10-02-90

BROS-9024(29)--5F-54
 154951
 REC'D Union Twp.
 12/11/14
 12/11/14
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