

BRIDGE REPLACEMENT

MADISON COUNTY BRIDGE UNI-133A-0.13

CHESELDINE ROAD OVER DEER CREEK

SPILLWAY REPAIRS

MADISON LAKE STATE PARK

MADISON COUNTY, OHIO

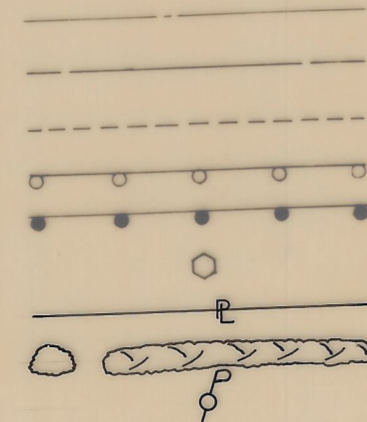
1975 SPECIFICATIONS
 The Standard Specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal, shall govern this improvement.

The right of way for this improvement will be provided by the Madison County, Ohio.

I hereby approve these plans and declare that the making of this improvement will require the closing of the highway to traffic and that detours will be provided as indicated on the plans.

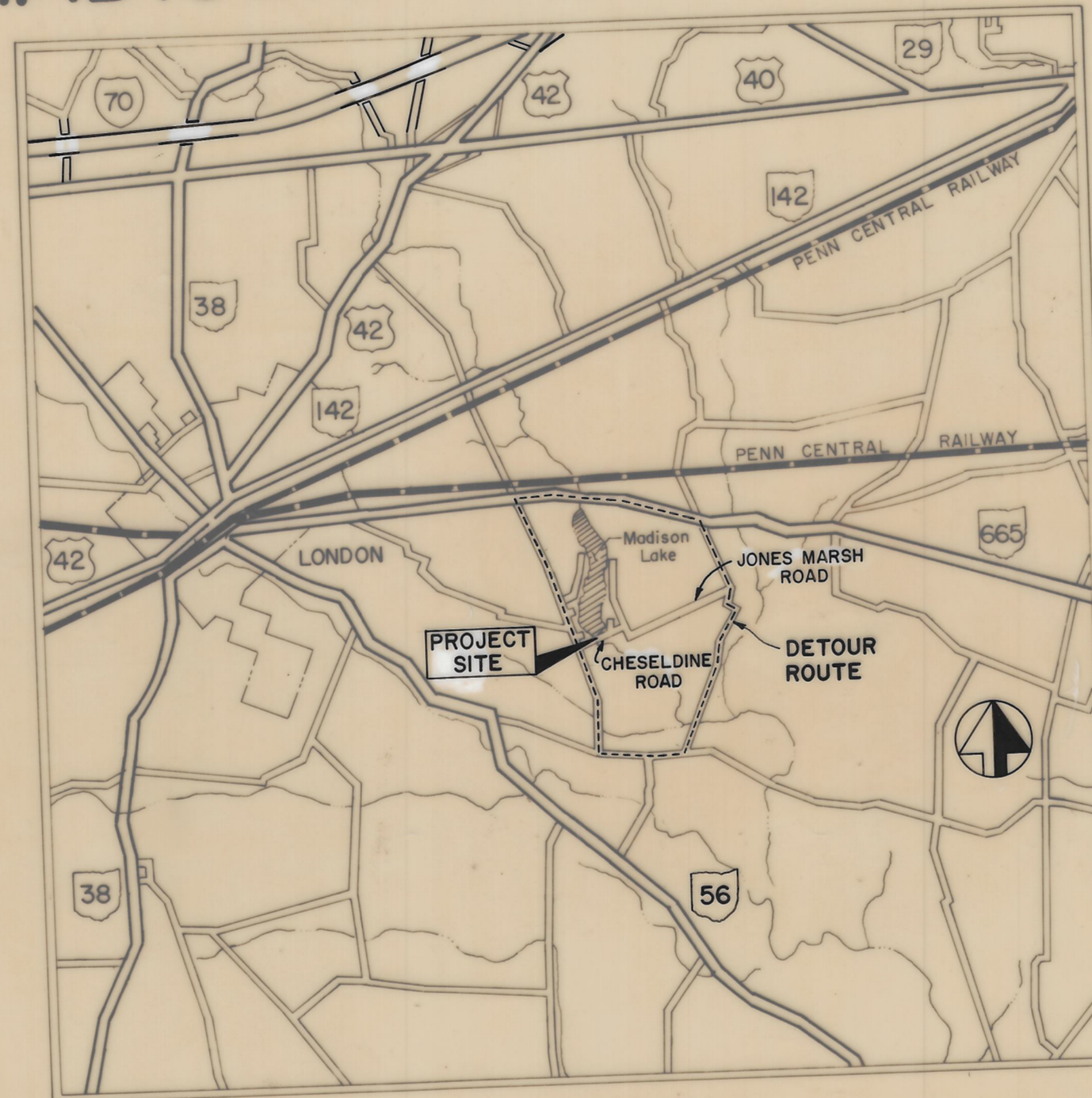
CONVENTIONAL SIGNS

- CENTER LINE
- EXISTING R/W LINE
- CONSTRUCTION LIMIT
- GUARD RAIL (EXISTING)
- GUARD RAIL (PROPOSED)
- TRAFFIC SIGN
- PROPERTY LINE
- SHRUB - HEDGE
- POWER POLE



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VICINITY MAP
 SCALE IN MILES

SCALE IN FEET

PLAN	0 10 20 40
PROFILE VERTICAL	0 1 2 4
PROFILE HORIZONTAL	0 10 20 40
CROSS SECTION	0 5 10 20

APPROVED BY:

FOR MADISON COUNTY, OHIO

DATE 2 June 1975 John L. Sanford
 COMMISSIONER
 DATE 2 June 1975 Robert Edwards
 COMMISSIONER
 DATE _____ _____
 COMMISSIONER
 DATE 2 June 1975 W.D. Bahr
 COUNTY ENGINEER

FOR THE OHIO DEPARTMENT OF TRANSPORTATION

DATE _____ DIRECTOR

FOR THE OHIO DEPARTMENT OF NATURAL RESOURCES

DATE 5-28-75 Jana A. Smith Miller
 CHIEF ENGINEER
 DATE 5-28-75 Robert W. Teeter
 DIRECTOR

Mark Gelderloos P.E. No. 38645



STANDARD CONSTRUCTIONS DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	
PSBD-1-71, SHT. 1,2,3	9-1-71		
MC-3	6-1-73		
DBR-1-71	1-1-71		

BURGESS & NIPLE, LIMITED
 CONSULTING ENGINEERS
 COLUMBUS, OHIO

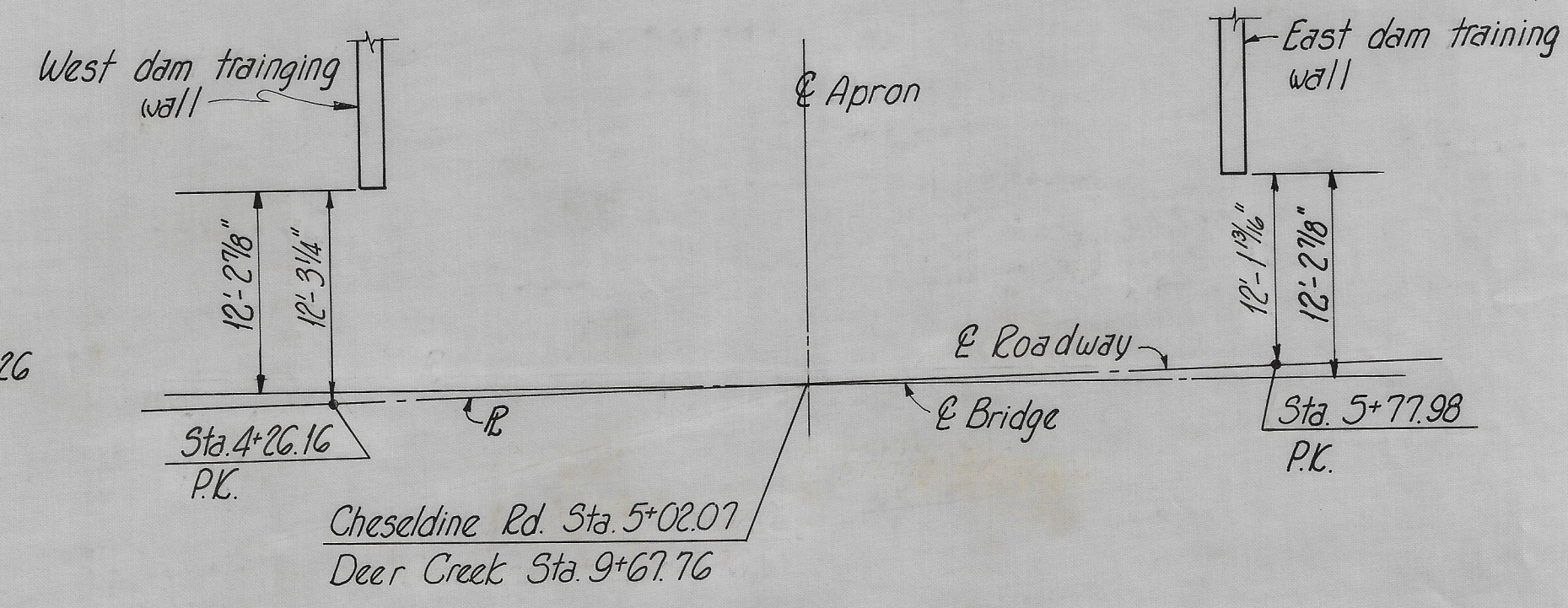
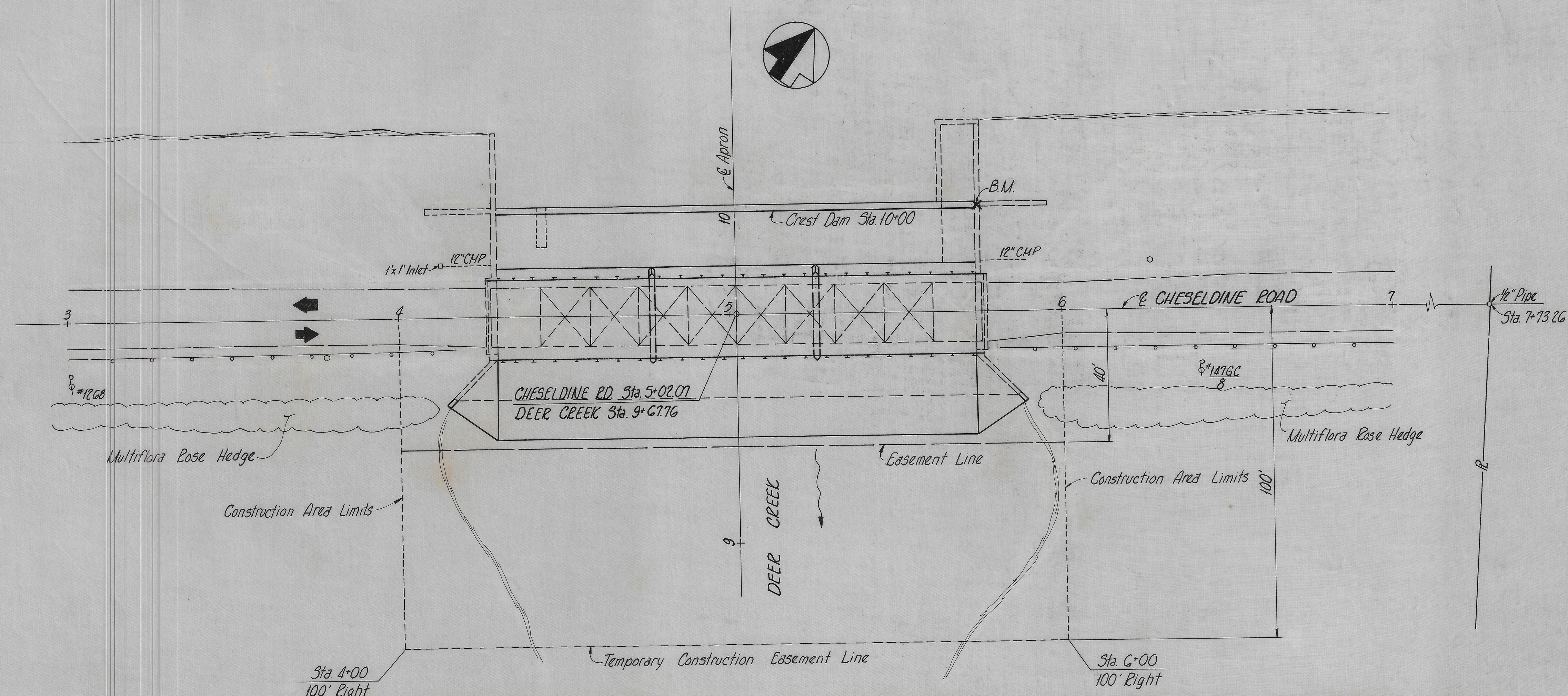
STATE OF OHIO
 DEPARTMENT OF NATURAL RESOURCES
 OFFICE OF CHIEF ENGINEER

MADISON COUNTY, OHIO
 OFFICE OF COUNTY ENGINEER

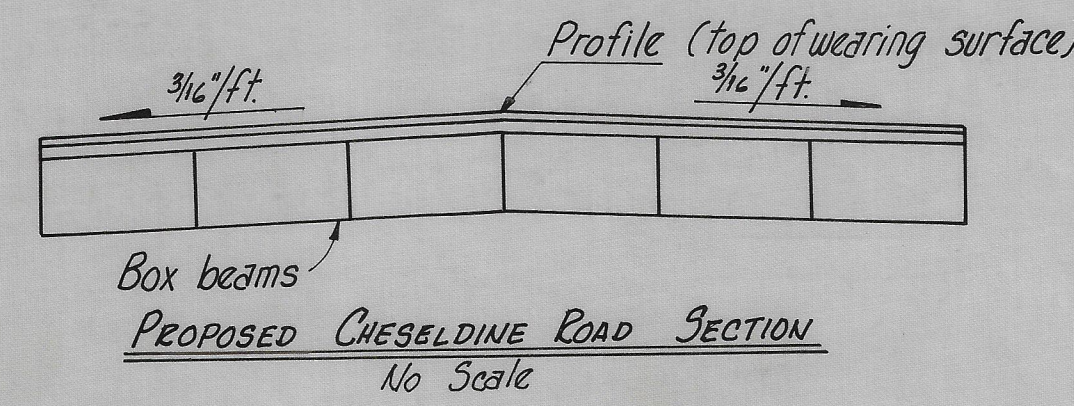
DESIGNED BY M.I.G.	JOB NUMBER 5061
DRAWN BY K.CASEY	SCALE AS NOTED
CHECKED BY T.E.U.	DATE MAY 23, 1975
APPROVED BY W.C.R.	REVISED

TITLE SHEET

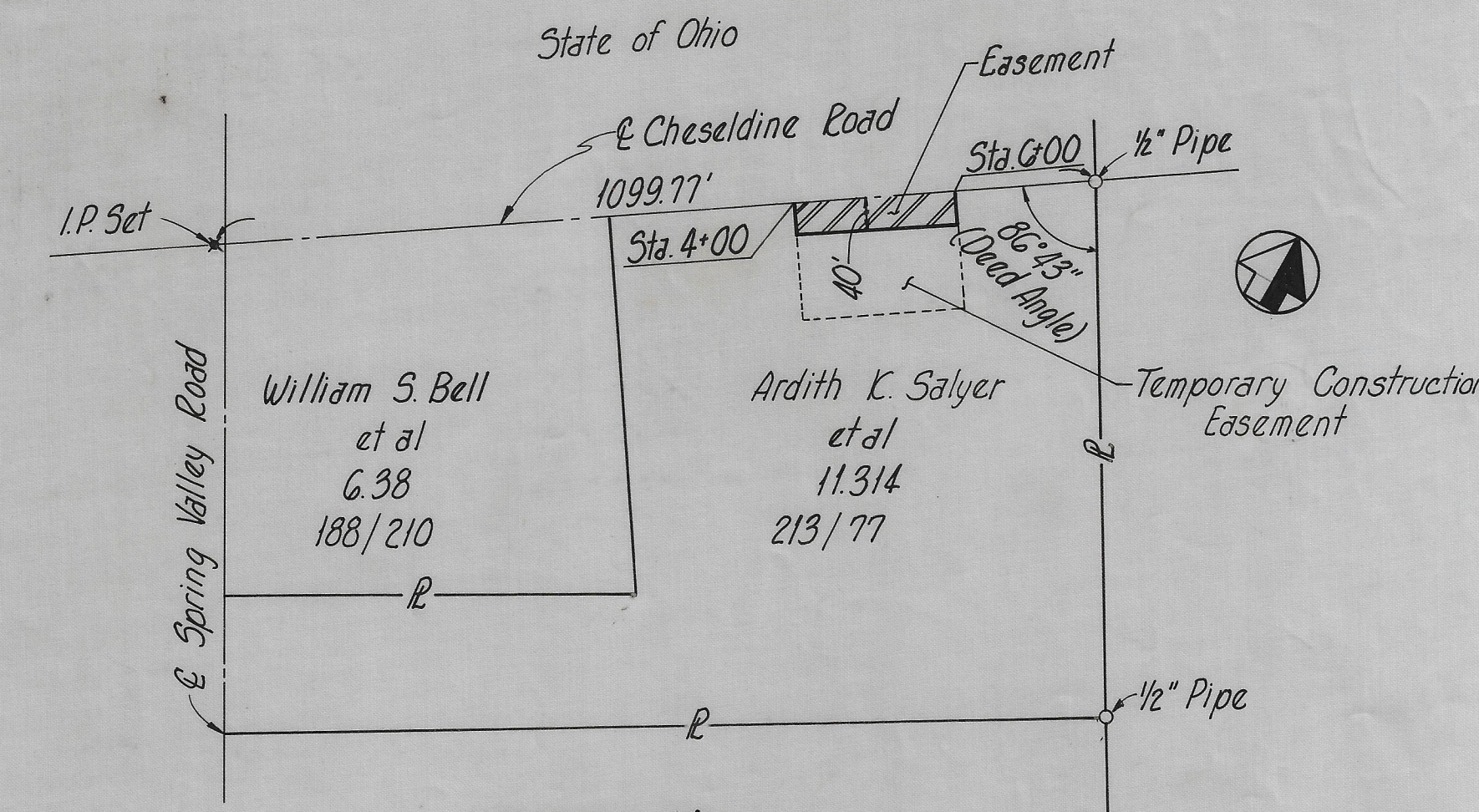
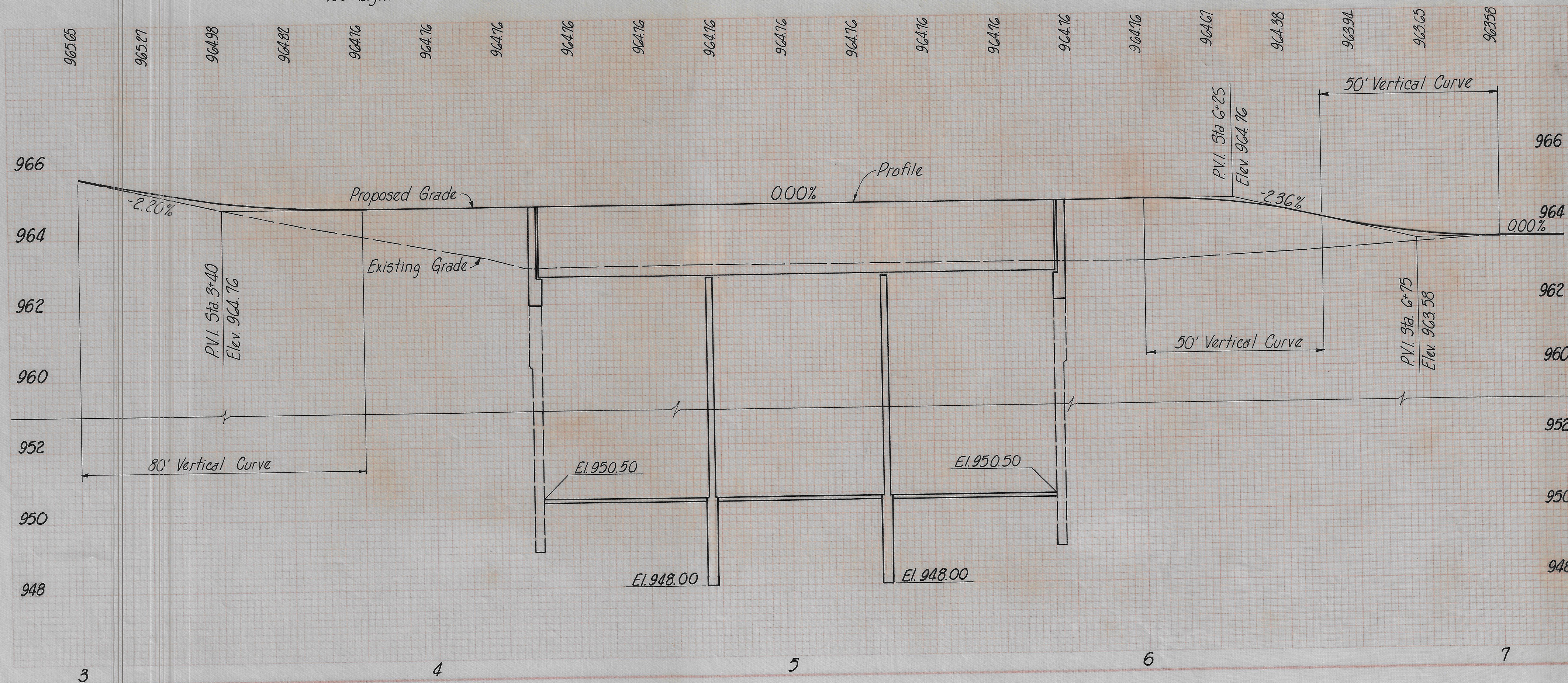
MADISON COUNTY
CHESELDINE ROAD
MADISON LAKE DAM



CENTERLINE BRIDGE REFERENCE
No Scale

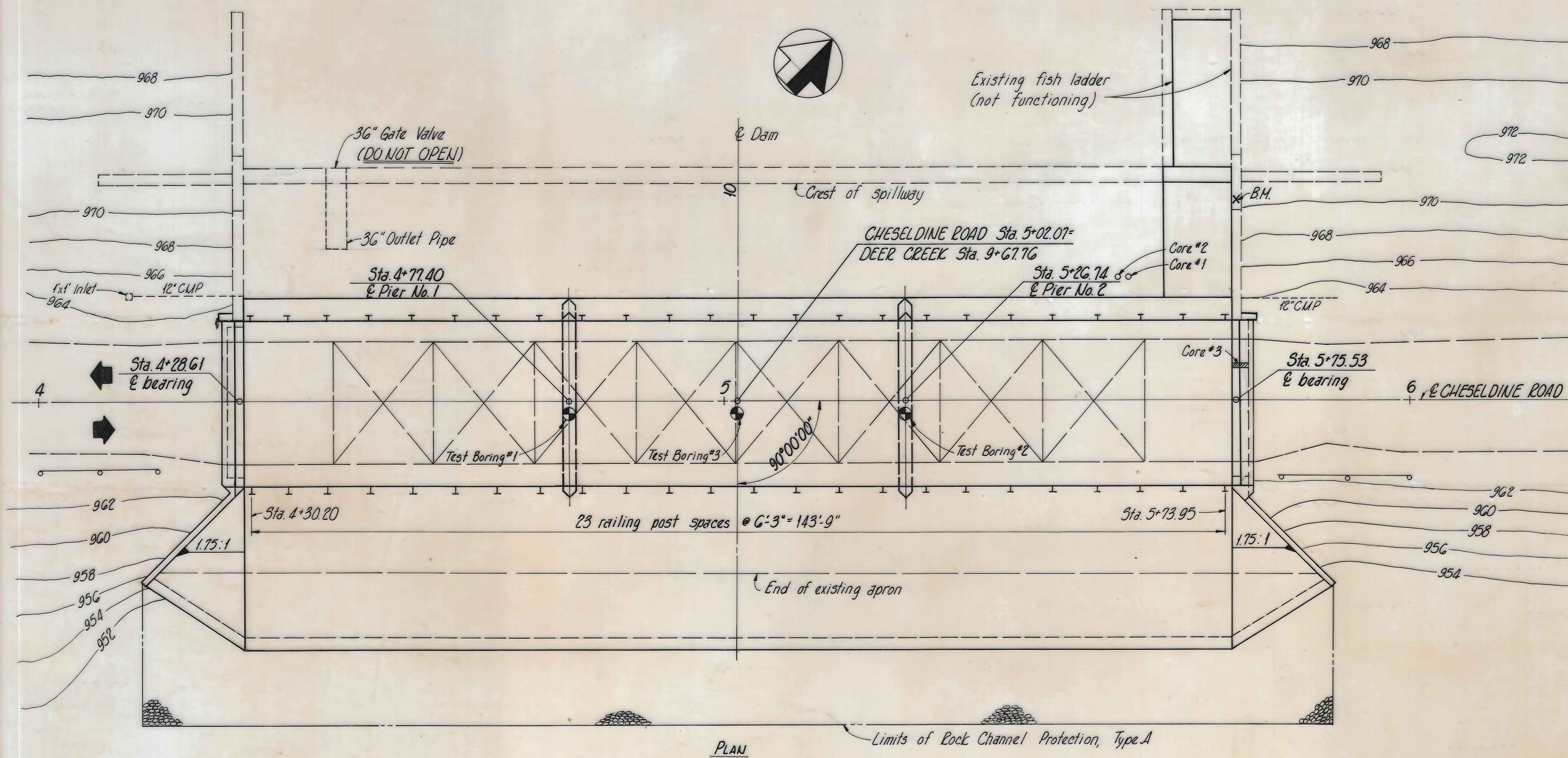


PROPOSED CHESELDINE ROAD SECTION
No Scale



PROPERTY MAP
No Scale

Bench Mark
Top of dam training wall east side of dam, Cheseldine Road.
Sta. 5+75.50, 27.75' Lt.
Elev. 973.00



EXISTING STRUCTURE	
TYPE:	Single span steel pratt truss
SPAN:	148.3' 9/16 bearings
ROADWAY:	17.75' f/r railing
LOADING:	Unknown
SKIEW:	None
WEARING SURFACE:	1" asphalt on 2x4 timber strip floor
APPROACH SLABS:	None
ALIGNMENT:	Tangent
SUPERELEVATION:	None
CONDITION:	Critical

PROPOSED STRUCTURE	
TYPE:	Three (3) span prestressed concrete box girder
SPANS:	48'-3", 48'-3", 48'-3" 9/16 bearings
ROADWAY:	24'-3 3/4" f/r guardrail
LOADING:	H20-44
SKIEW:	None
WEARING SURFACE:	2 1/2" asphalt concrete
APPROACH SLABS:	None
ALIGNMENT:	Tangent
SUPERELEVATION:	None

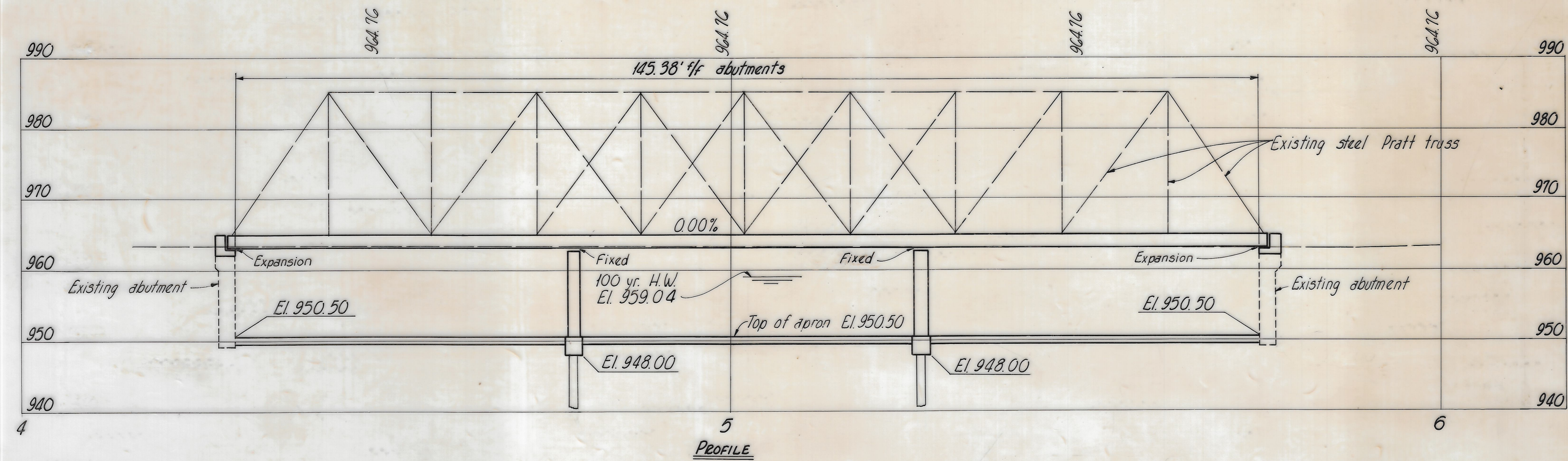
BENCH MARK: Top of dam training wall east side of dam, Cheseldine Road. Sta. 5+75.50, 27.75' Lt. Elev. 973.00

ESTIMATED AVERAGE PAV LENGTHS for steel piles, HP 14x117:
 Pier No. 1 30 feet
 Pier No. 2 30 feet

DRAINAGE AREA = 55 Sq. miles
 Q₁₀₀ = 4771 cfs Tailwater = El. 959.04

APPROACH WORK including embankment and pavement will be constructed by others.

ESTIMATED WEIGHT OF STRUCTURAL STEEL in existing truss bridge is 34 tons.



ESTIMATED QUANTITIES

ITEM	TOTAL	UNITS	DESCRIPTION	ABUTMENTS	PIERS	SUPESTR.	SPILLWAY	APRON	GENERAL
Part I Quantities									
202	Lump	Sum	Existing steel truss, including floor removed						Lump
202	70	C.Y.	Portions of abutment walls removed	70					
503	Lump	Sum	Cofferdams, cribs and sheeting for abutment repair and pier construction						Lump
505	Lump	Sum	Test pile		Lump				
507	300	L.F.	Steel piles, HP14x117		300				
509	6523	Lb.	Reinforcing steel	1615	4908				
510	240	L.F.	Dowel holes, abutments and wingwalls	240					
510	24	L.F.	Dowel holes for prestressed concrete bridge member anchor bars	8	16				
511	14	C.Y.	Class C concrete, pier footings		14				
511	50	C.Y.	Class C concrete, pier walls		50				
511	17	C.Y.	Class C concrete, abutments and wingwalls	17					
513	205	Lb.	Structural steel (pier nosing), including field painting per 514		205				
515	18	each	Prestressed concrete bridge members			18			
516	181	S.F.	1" Preformed expansion joint filler (abutments and piers at prestressed concrete bridge members)	86	95				
516	108	L.F.	Joint sealer			108			
516	12	each	6"x9"x1" elastomeric bearing pads, grade 70			12			
516	30	each	6"x18"x1" elastomeric bearing pads, grade 70			30			
517	312.50	L.F.	Railing, deep beam rail with steel posts, bolts and handrail			312.50			
518	37	C.Y.	Porous backfill (for abutments and wingwalls)	37					
518	42	L.F.	6" perforated, helical corrugated metal pipe, 707.01 including specials (abutments)	42					
518	32	L.F.	6" non-perforated, helical corrugated metal pipe, 707.01 (abutments)	32					
Special	289.50	L.F.	Galvanized steel drip strip, as per plan			289.50			
Part II Quantities									
202	Lump	Sum	Existing reinforced concrete apron slab removed and disposed of as per plan						Lump
503	Lump	Sum	Cofferdams, cribs and sheeting for apron slab replacement and spillway repair						Lump
503	146	C.Y.	Unclassified excavation, apron slab cut-off wall				146		
509	266.54	Lb.	Reinforcing steel				1462	25192	
510	95	L.F.	Dowel holes, spillway			95			
511	337	C.Y.	Class C concrete, apron slab including cut-off wall					337	
511	8	C.Y.	Class C concrete, fish ladder slab				8		
511	50	C.Y.	Class C concrete, spillway section				50		
511	6	C.Y.	Class C concrete, sill blocks					6	
516	224	S.F.	1" Preformed expansion joint filler (apron slab)					224	
518	422	C.Y.	Porous backfill (apron slab)					422	
518	695	L.F.	6" perforated, helical corrugated metal pipe, 707.01, including specials (apron slab)					695	
518	88.83	L.F.	6" non-perforated, helical corrugated metal pipe, 707.01 (apron slab)					88.83	
520	635	bags	Pneumatically placed mortar (spillway)				635		
520	88	bags	Pneumatically placed mortar (abutment walls)	88					
601	218	C.Y.	Rock channel protection type A, without bedding						218
516	30	L.F.	24 oz 12" Copper water stop				30		
516	256	Sq.Ft.	1/2" Preformed expansion joint filler (at new spillway section)				256		
516	279.50	L.F.	Joint sealer (apron slab)					279.50	

PROJECT GENERAL NOTES

LIGHTS AND SIGNS AT ADJACENT ROAD INTERSECTIONS
The Contractor shall, in addition to the general requirements of Item 614 on this project perform the following:

- Provide, erect, and maintain 48"x30" size "Road Closed" signs, sign supports, and lights at the following locations during periods in which the affected roads are closed to traffic:
 1. Cheseldine Road just east of Spring Valley Road.
 2. Jones-Marsh Road just west of Glade Run Road.
 3. 100' east and west of respective abutments.

UNDERGROUND UTILITIES

The locations of the underground utilities shown on the plans have been obtained by diligent field checks and searches of available records. It is believed that they are essentially correct, but the accuracy or completeness of the underground utilities shown are not guaranteed.

ELEVATION DATUM

All elevations are based on U.S.G.S. datum.

SUGGESTED CONSTRUCTION SEQUENCE:

The Contractor shall submit in writing his proposed construction procedure to the Engineer for approval. The construction procedure shall be approved before construction begins.

Part I

Remove existing bridge, reconstruct abutments, construct piers and superstructure.

Part II

Remove fish ladder and apron, remove portions of fish ladder walls and training walls, diversion of water from construction area, repair existing spillway, construct new spillway, construct new apron. (The gate valve at the west end of the spillway shall not be opened.)

FOUNDATION INVESTIGATION: Foundation design is based on a study of borings made at the site. This foundation information may be inspected in the office of the Madison County Engineer. There is no guarantee as to the accuracy thereof.

BRIDGE GENERAL NOTES

REFERENCES shall be made to Standard Drawings:
DBE-1-71 dated 1-1-71
MC-3 dated 6-1-73
PSBD-1-71 sheets 1,2,3 dated 9-1-71

DESIGN SPECIFICATIONS: This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1973, including the Ohio "Supplement" to these specifications.

DESIGN DATA:

Design Loading - W520-44
Concrete Class C - unit stress 1933 p.s.i. for substructure
Reinforcing Steel - ASTM A615, A616 or A617 - unit stress 20,000 p.s.i.
Concrete for prestressed concrete beam - unit stress 2200 p.s.i. compression
444 p.s.i. tension
Prestressing strand ASTM A416
f_s = 270,000 p.s.i.
Initial stress = 0.70 f_s

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain traffic the existing steel truss superstructure and deck shall be removed and become property of the Contractor. Abutments shall be removed to elevation shown on the plans. PILES shall be driven to a minimum bearing capacity of 70 tons per pile for the piers.

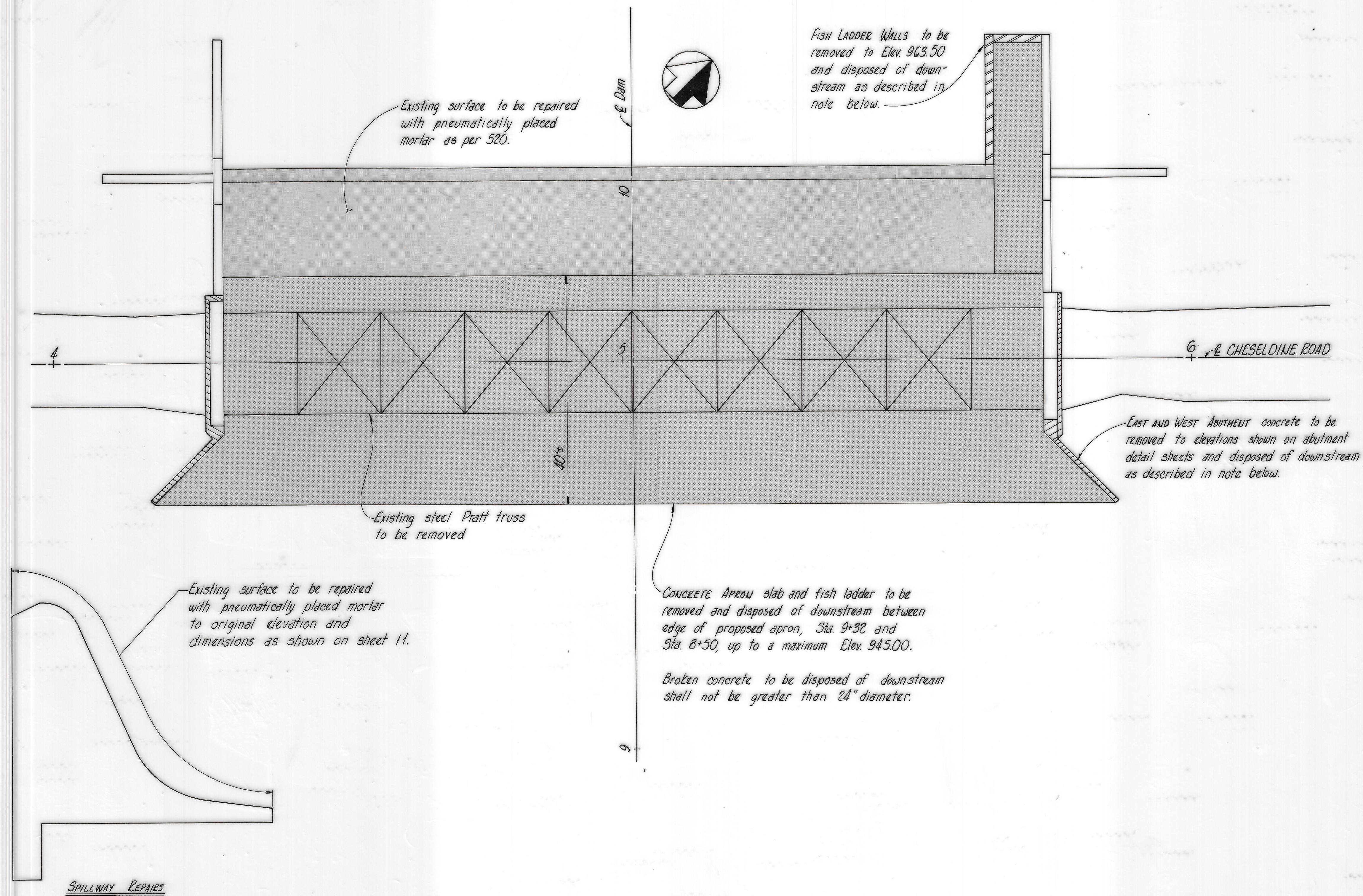
UTILITY LINES: All expense involved in relocating (installing) the affected utility lines shall be borne by the Owner(s). The Contractor and Owner(s) are requested to cooperate by arranging their work in such a manner that inconvenience to either would be held to a minimum.

UTILITIES:

Ohio Edison
47 N. Main Street
Acron, Ohio 44308

PNEUMATICALLY PLACED MORTAR shall be applied as per Item 520 of the Construction and Material Specifications. Payment will be made per 94 pound bag of Portland cement used to produce pneumatically placed mortar. This price shall include removal of disintegrated concrete to sound concrete, the furnishing and placing of reinforcing steel including wire fabric, dowels and/or expansion anchor bolts, mixing and applying pneumatically placed mortar composed of Portland cement and sand as described in the Specifications.

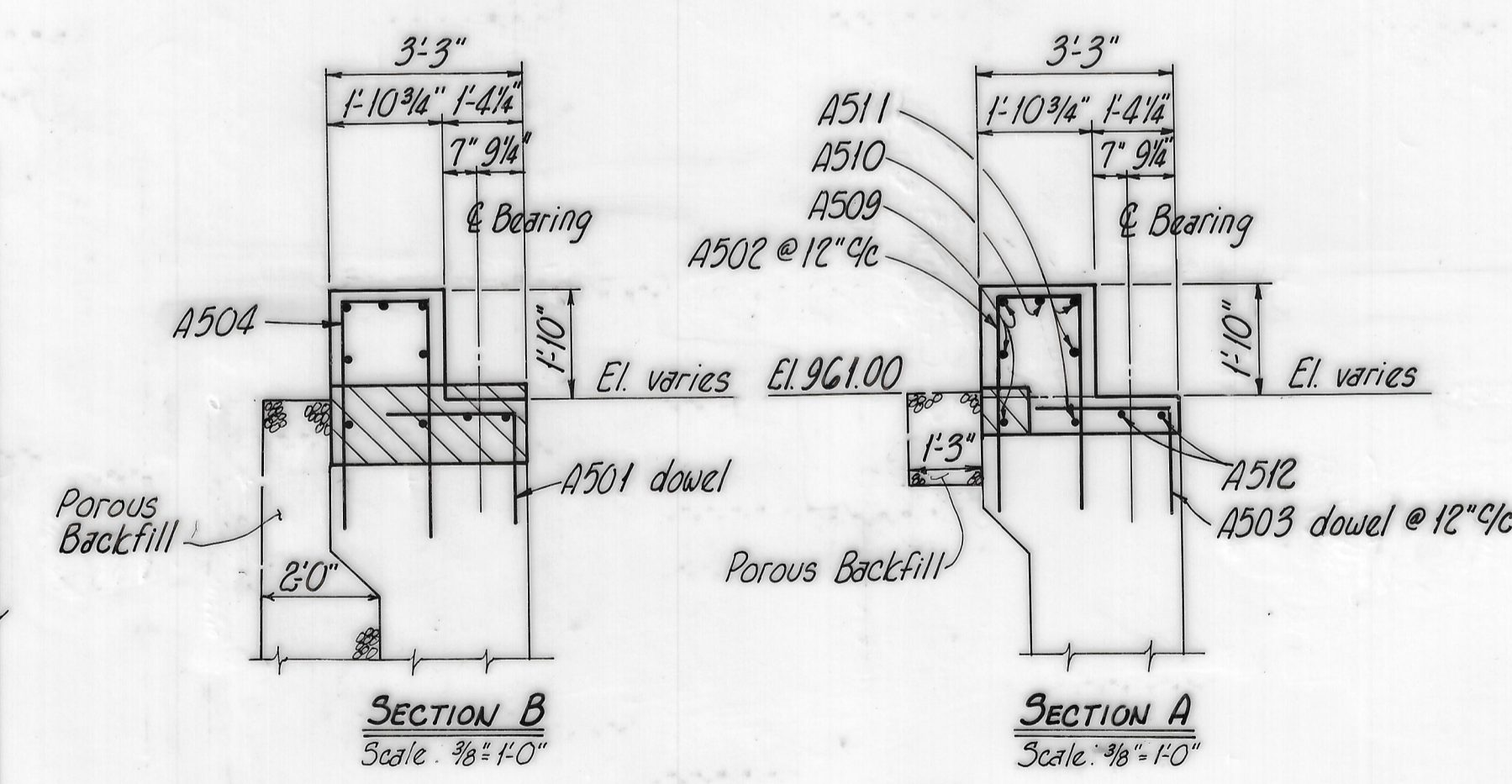
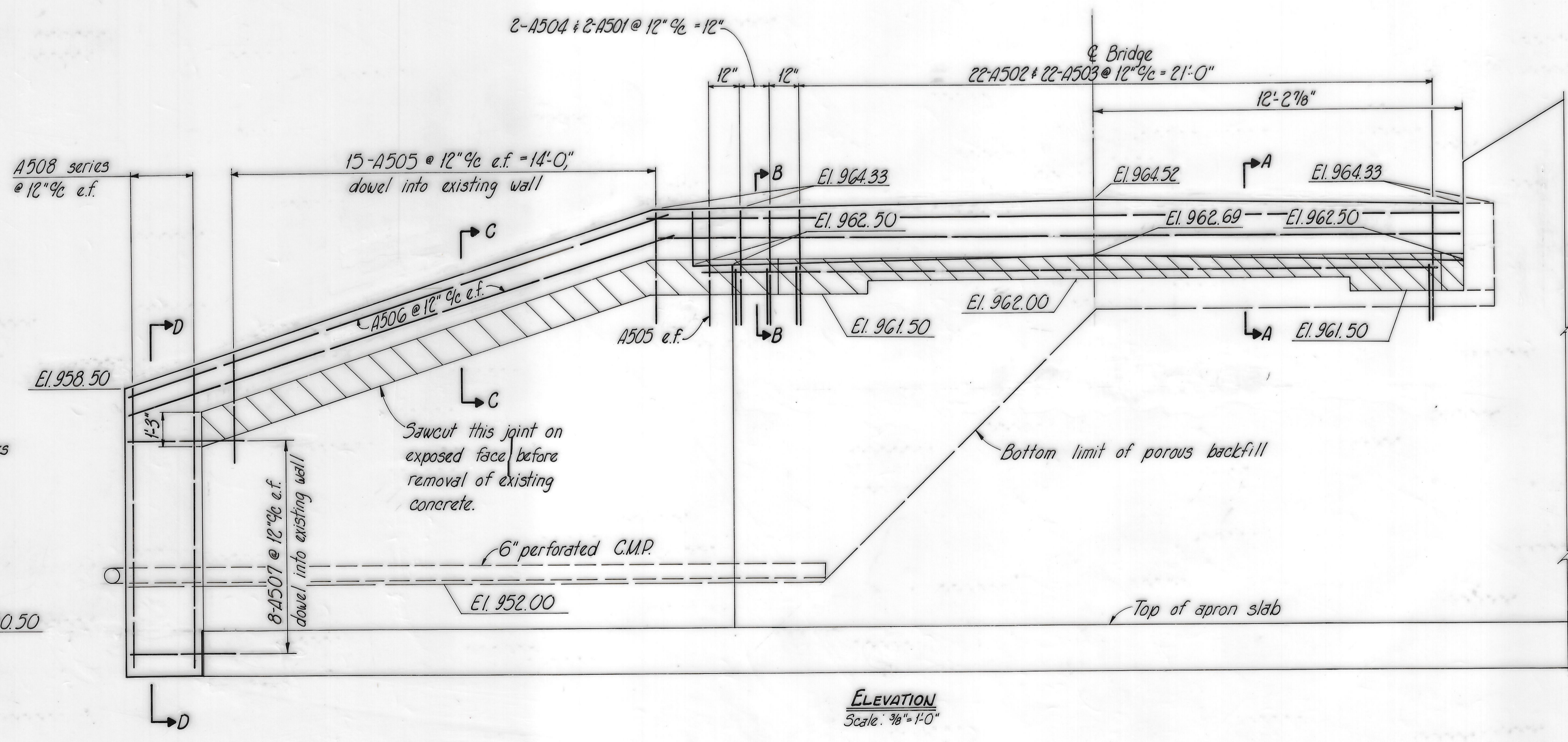
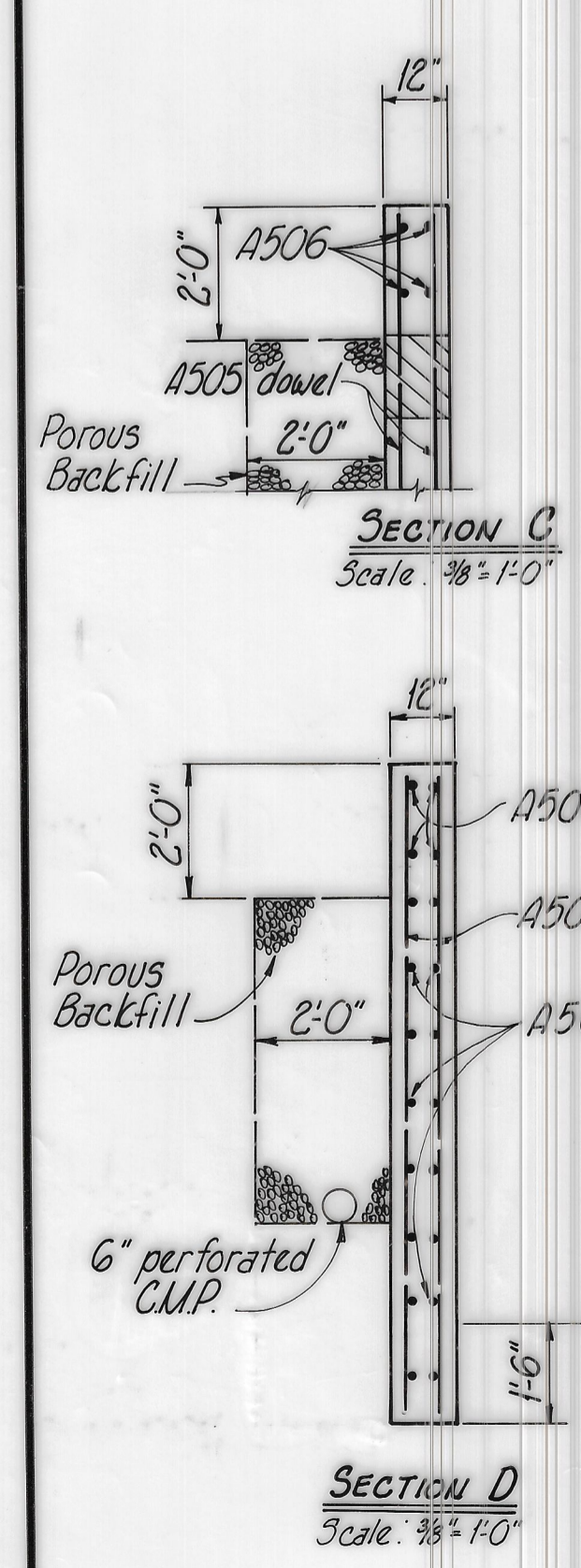
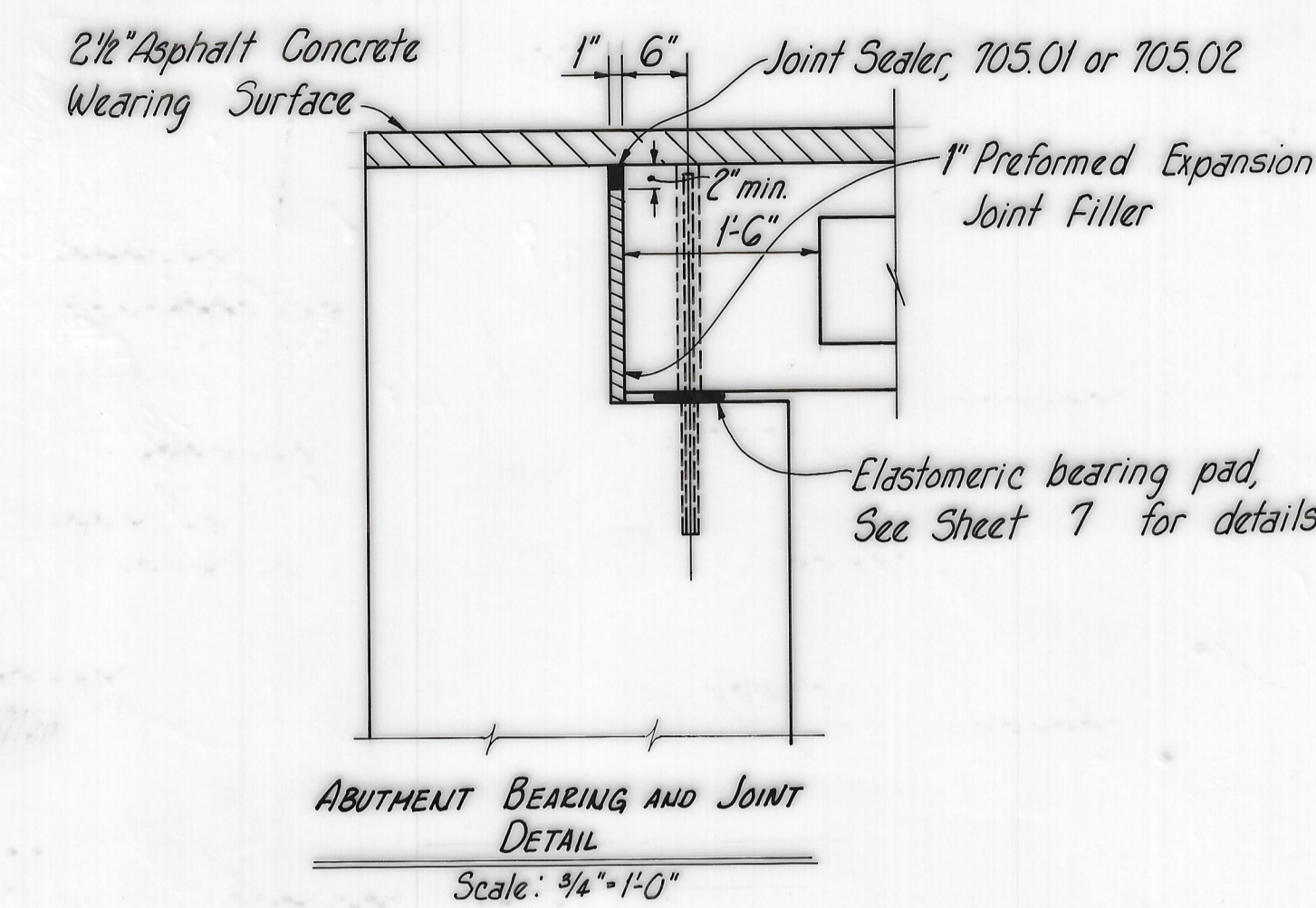
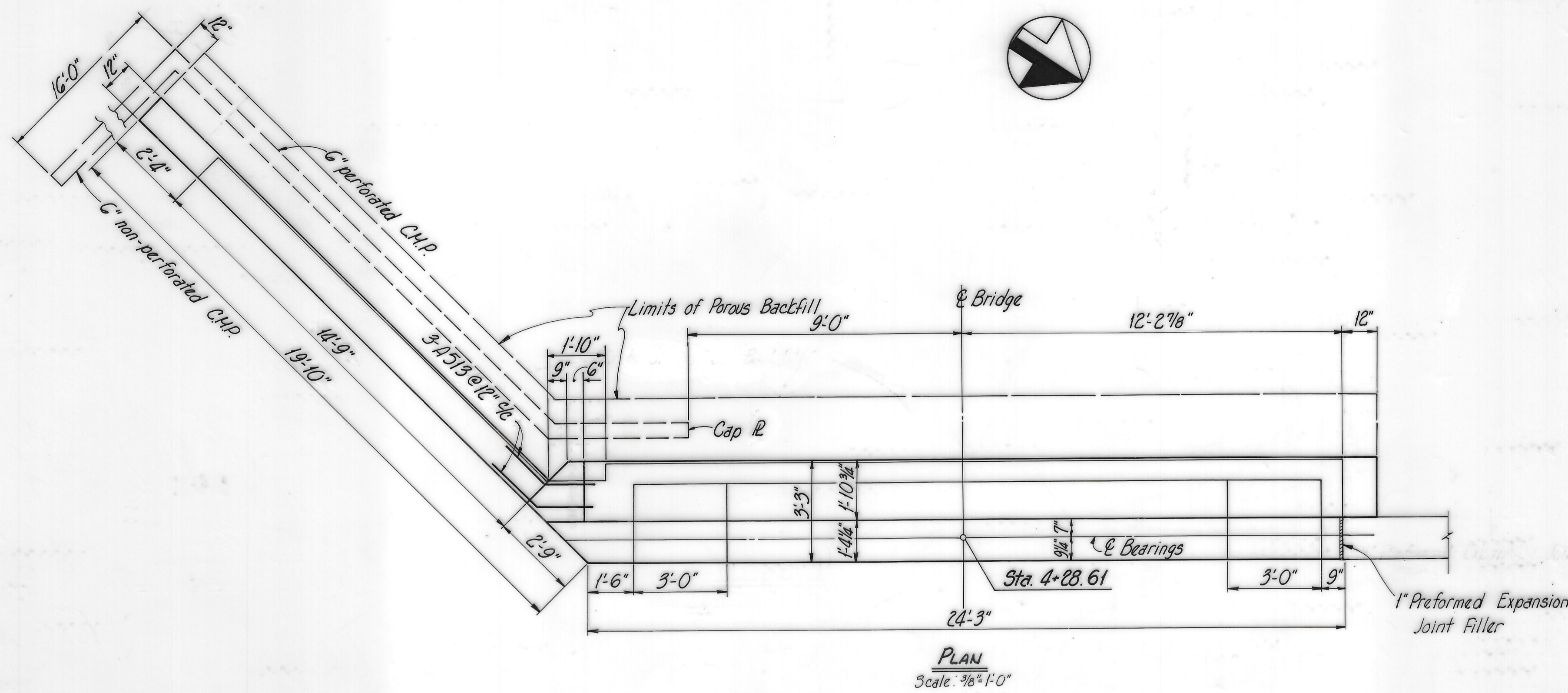
RESERVOIR POOL: The Contractor will be permitted to lower the reservoir pool to El. 963.50 by cutting the existing fish ladder walls down to El. 963.50 and permitting outflow through the fish ladder area.



POROUS BACKFILL: Two (2) feet thick shall extend up to the plane of the subgrade and laterally to ends of the wingwalls.

BRIDGE SEAT REINFORCING: Reinforcing steel in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of anchor bar holes.

ABUTMENT DOWELS: Holes for reinforcing steel into the existing abutment wall shall be drilled 1/2" drill after removal of existing concrete.



LEGEND

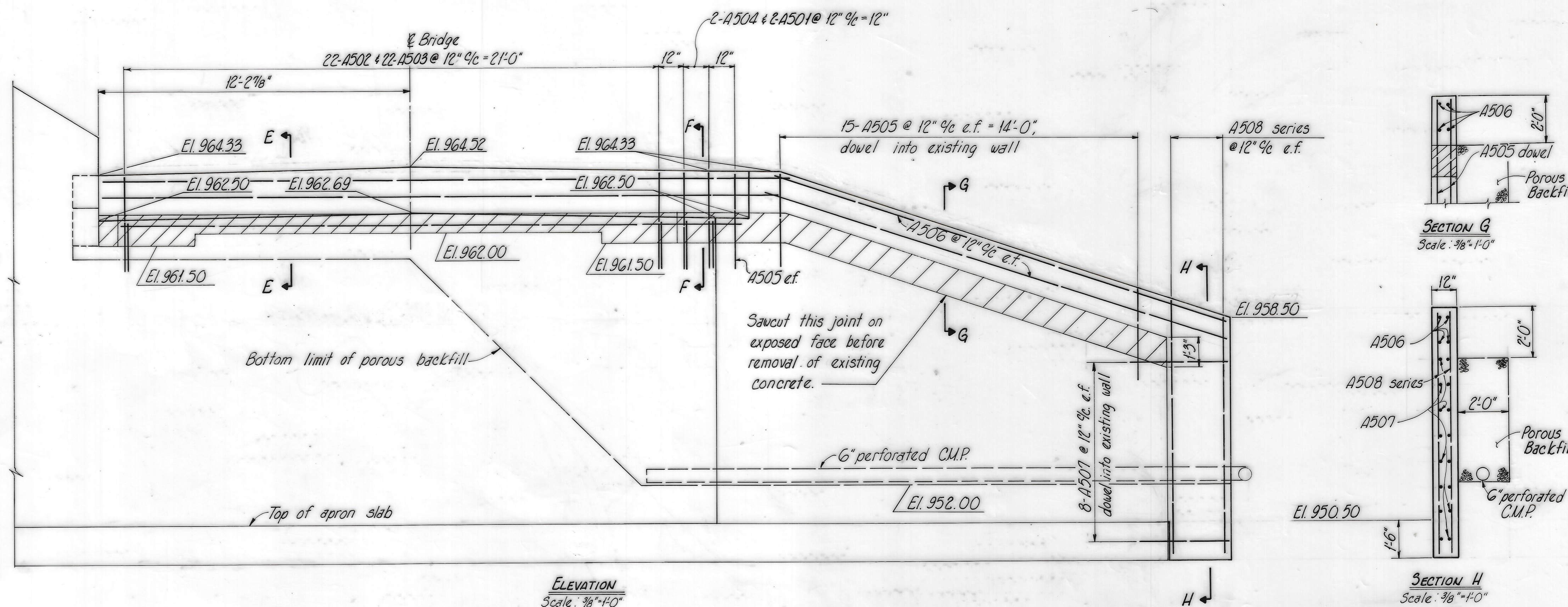
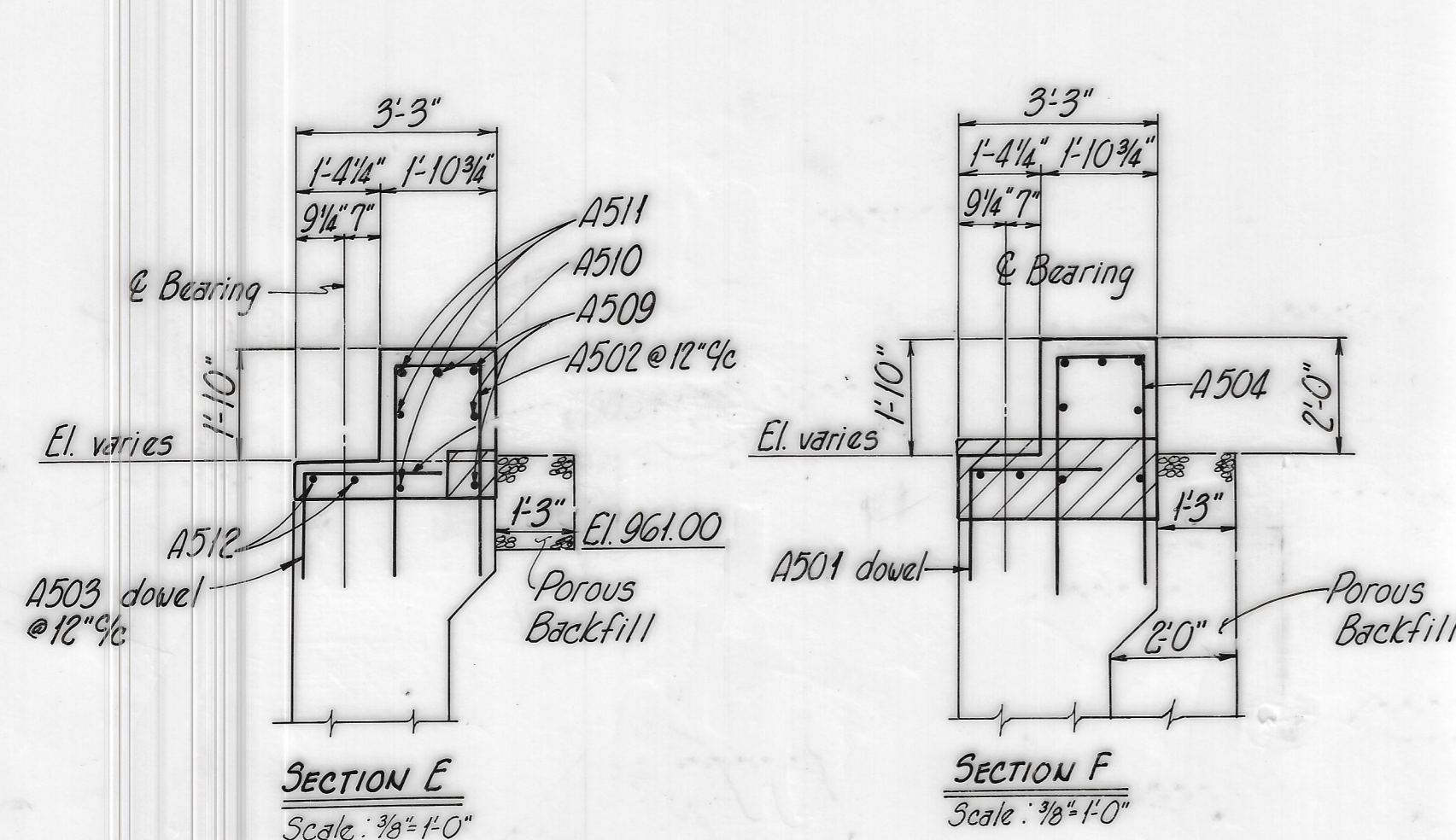
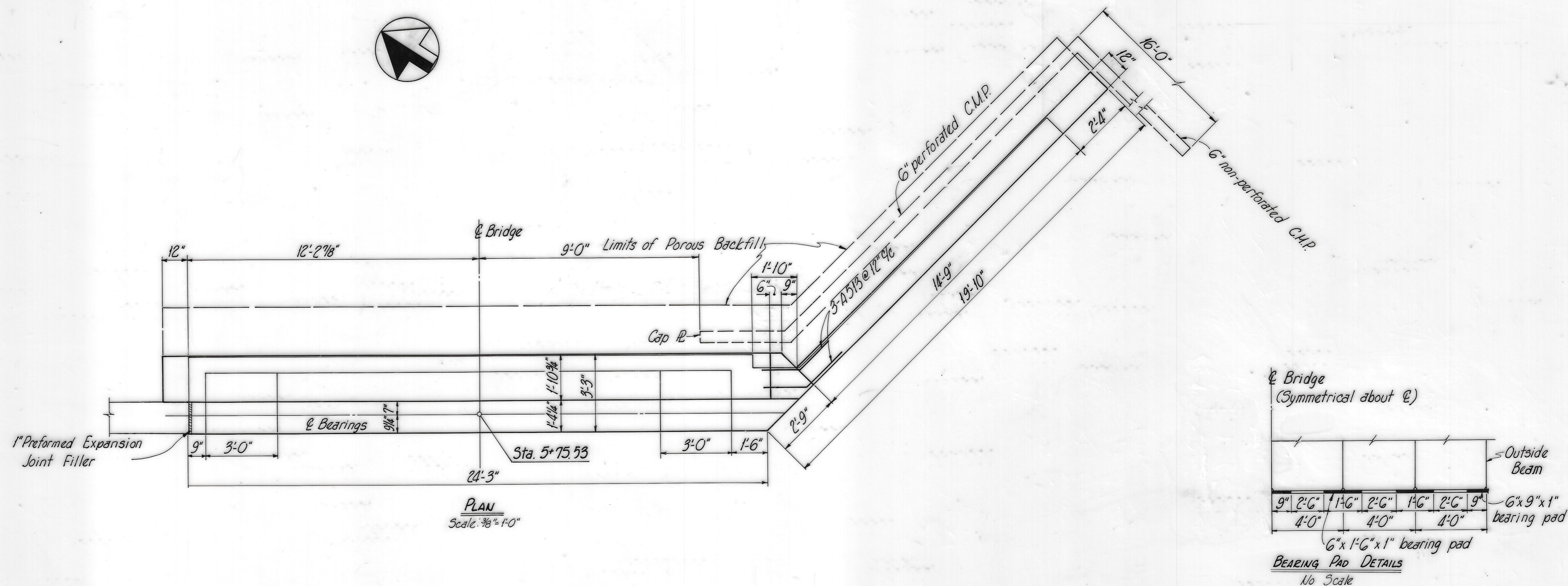
Existing concrete to be removed

e.f. Each face

POREOUS BACKFILL: Two (2) feet thick shall extend up to the plane of the subgrade and laterally to ends of the wingwalls.

BRIDGE SEAT REINFORCING: Reinforcing steel in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of anchor bar holes.

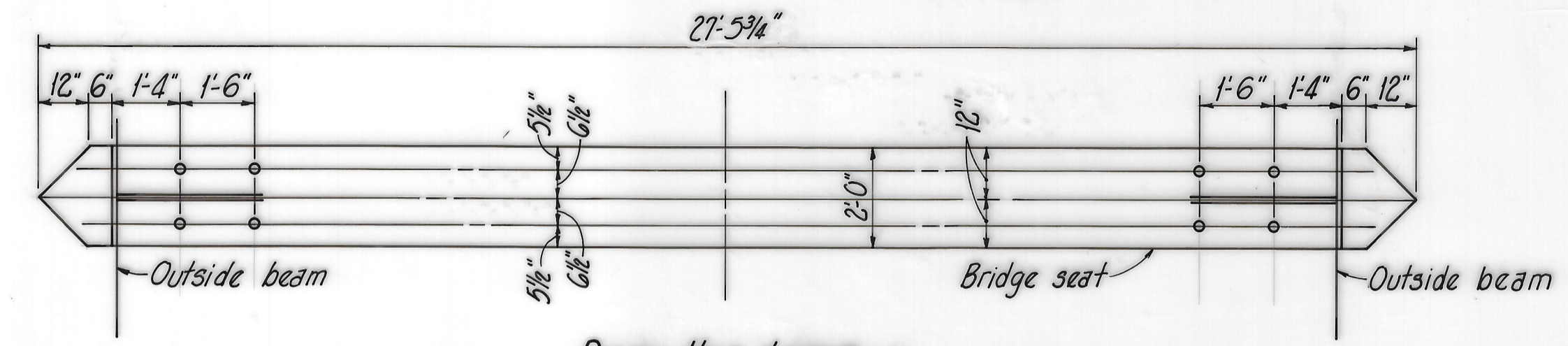
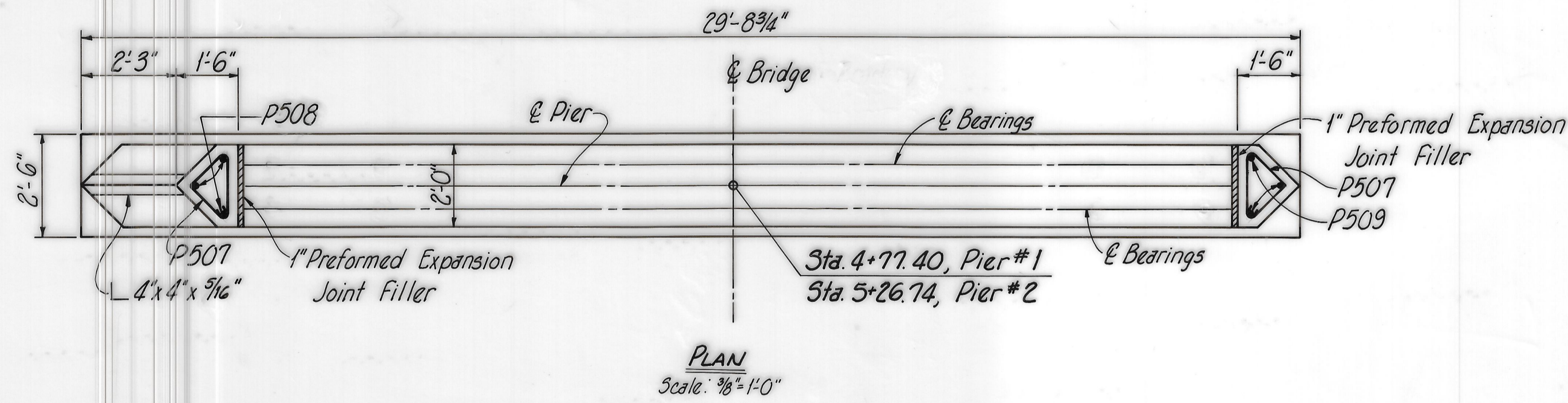
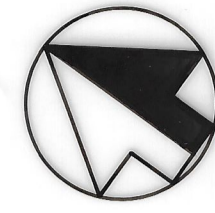
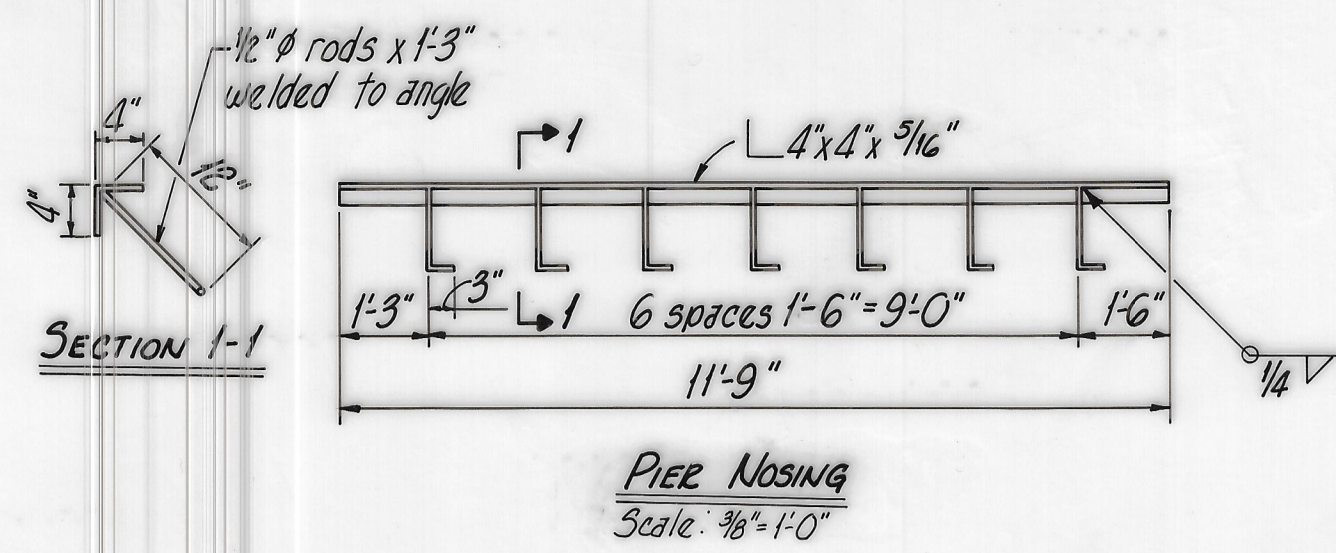
ABUTMENT DOWELS: Holes for reinforcing steel into the existing abutment wall shall be drilled 12" deep after removal of existing concrete.



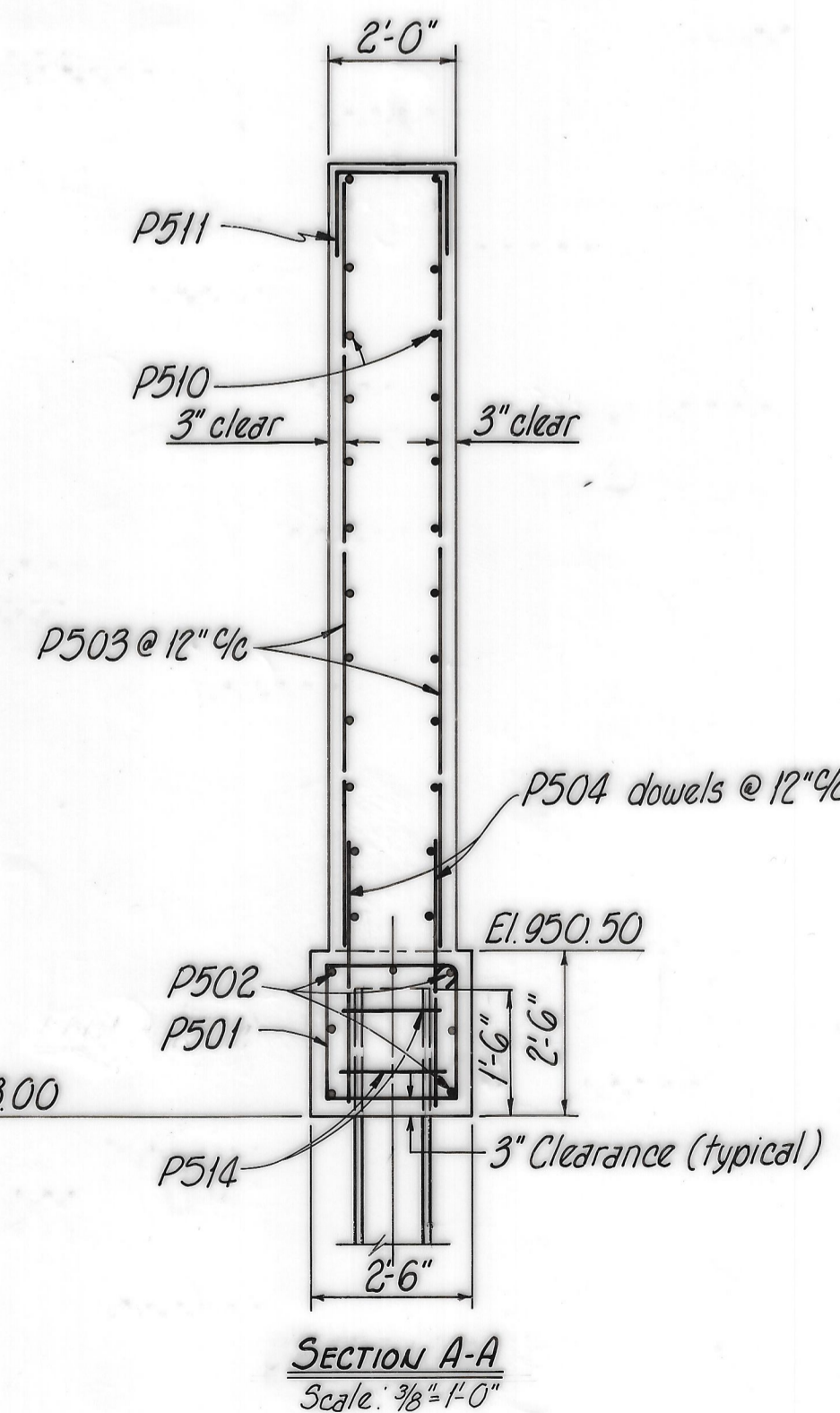
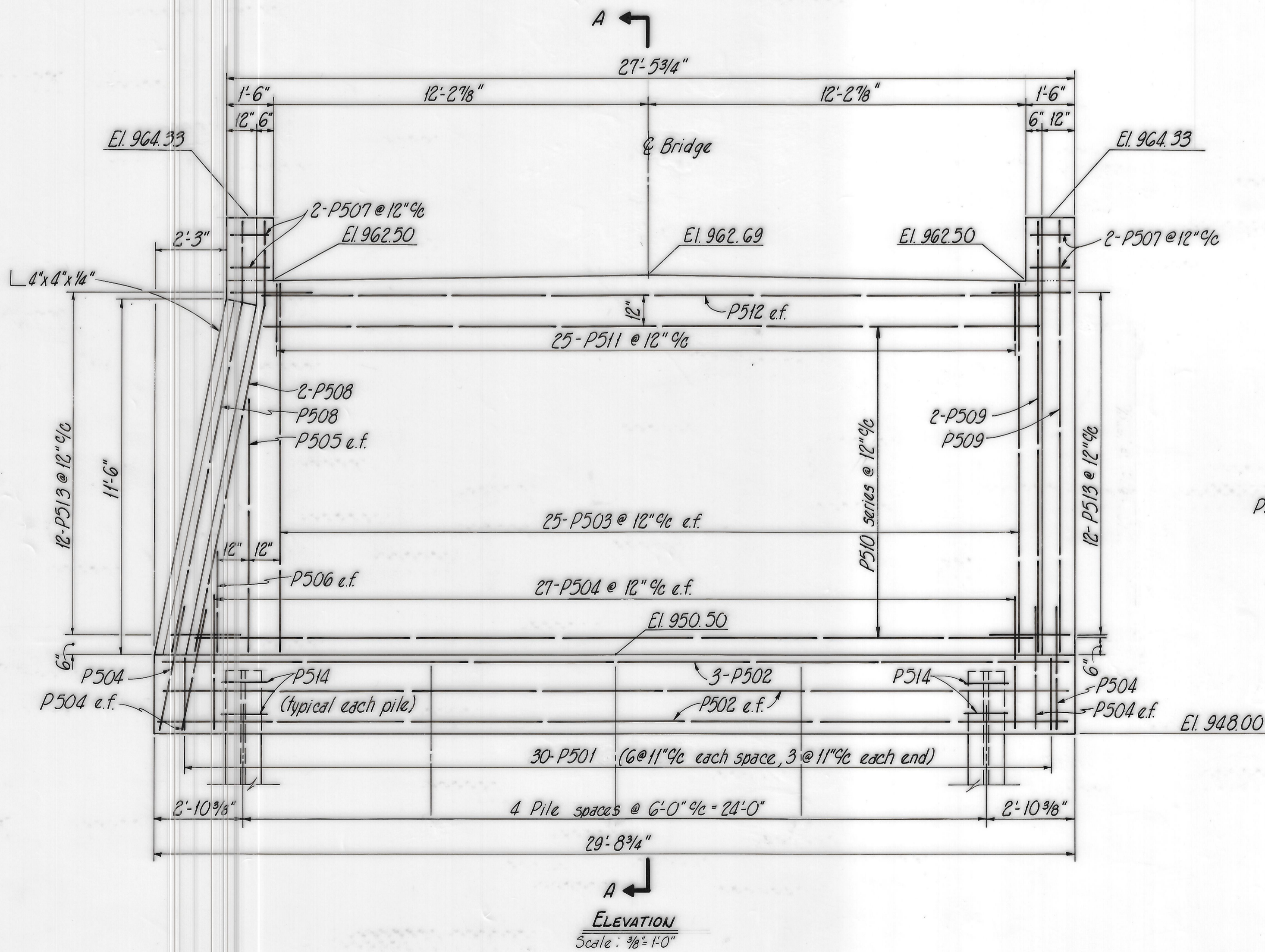
LEGEND
 Existing concrete to be removed
 e.f. Each face

The pier nosing shall be field painted with a corrosion resistant gray finish paint per 514.

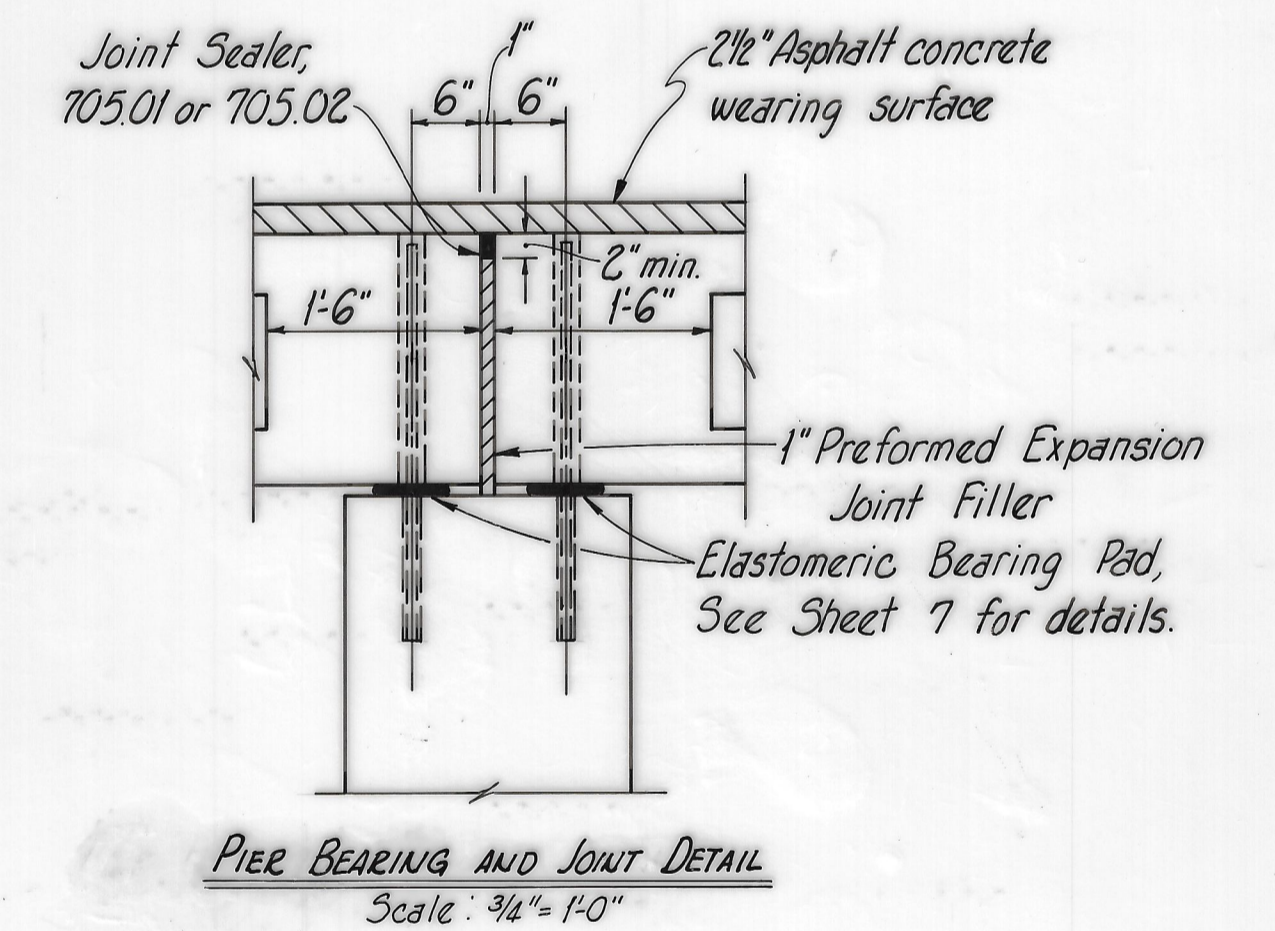
BRIDGE SEAT REINFORCING: Reinforcing steel in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of anchor bar holes.

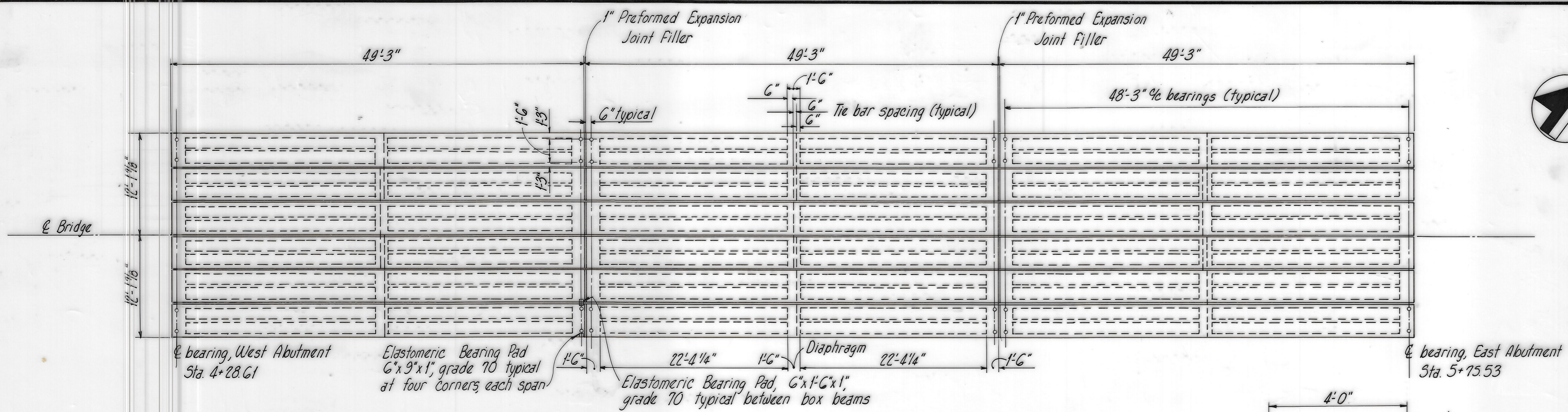


NOTE: Dowel holes to be drilled after placement of beams and tie rods. See Sheet and P3BD-1-71 for additional details.

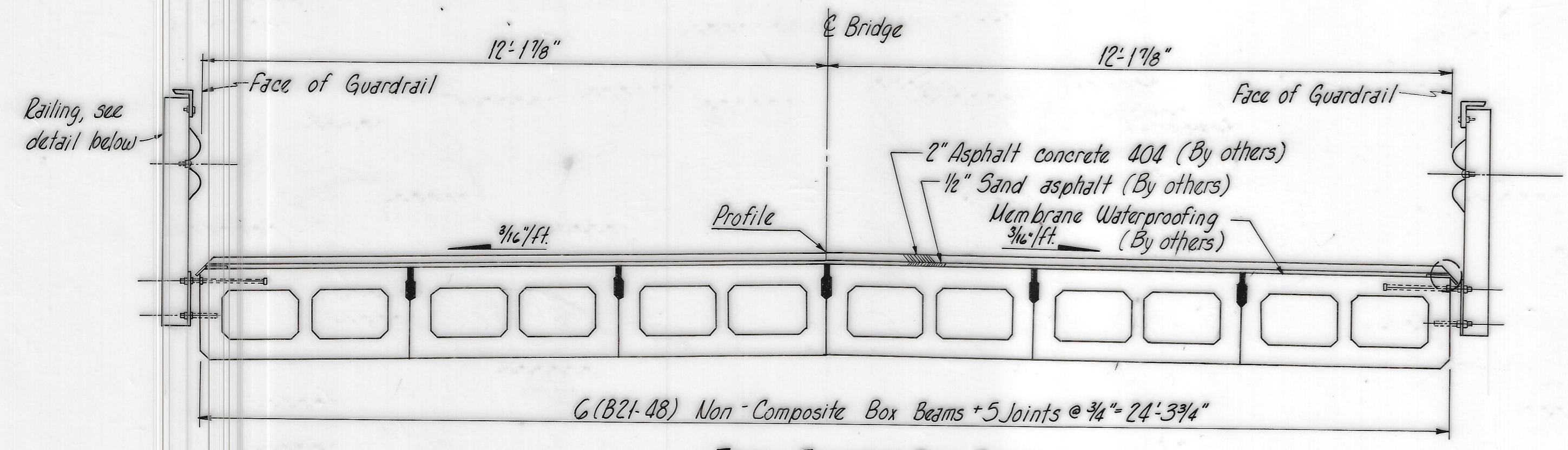


LEGEND
e.f. each face

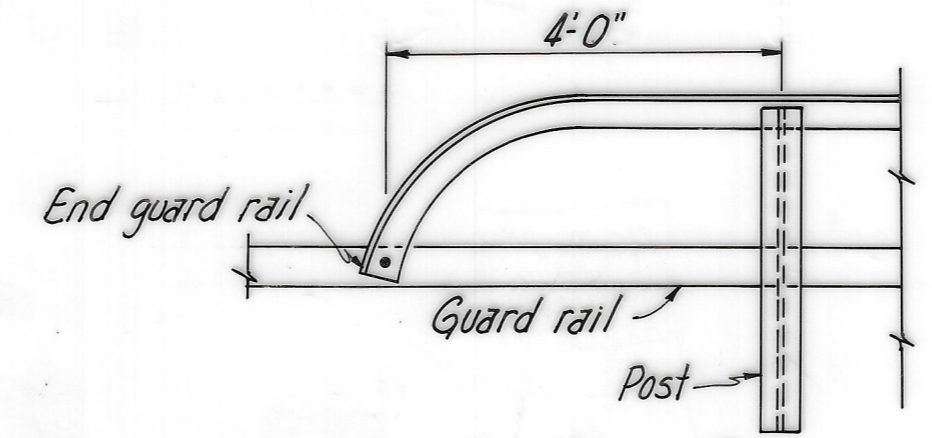




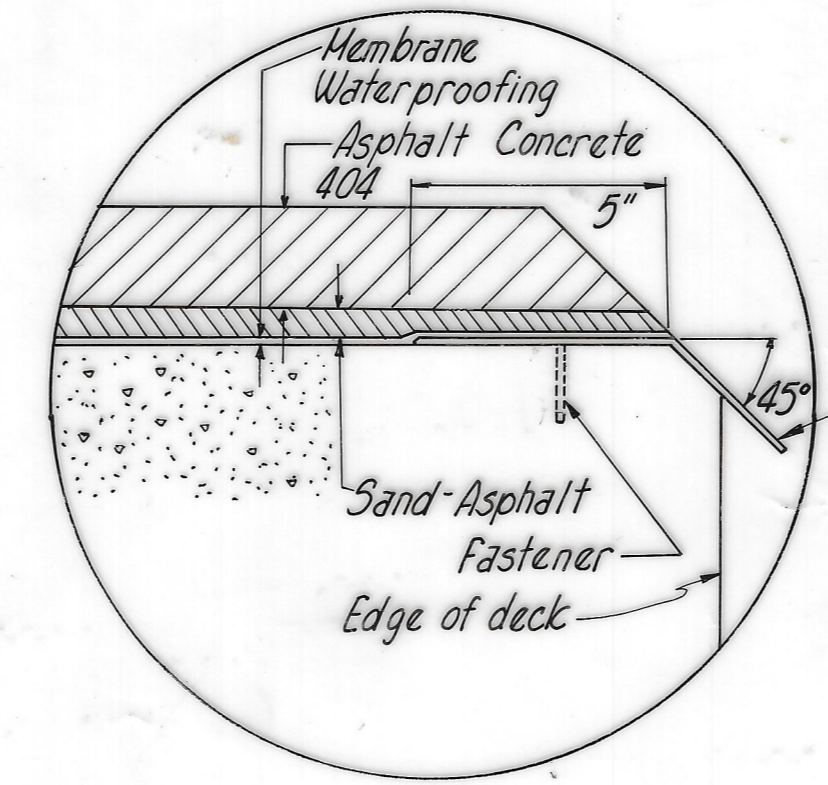
DECK PLAN
Scale: 1/8" = 1'-0"



TYPICAL TRANSVERSE DECK SECTION
Scale: 1/2" = 1'-0"



HAND RAILING DETAIL
No Scale



GALVANIZED STEEL DRIP STRIP
No Scale

8" x 0.1046" Galvanized Steel Drip Strip. Fasten at 3'-0" maximum with power driven pins or #10 Galvanized Expansion Screws, subject to approval by the Engineer. See Note this sheet.

CAMBER: Calculated camber at release of prestress is 9/16". This includes allowance for creep. Calculated deflection due to weight of surface course and guard rail is 1/8". Net final camber of beams is 1/16". This is 1/16" in excess of the required value. This excess amount shall be compensated for by thickening the 404 asphalt concrete course from 2" at the center of spans to 2 7/16" at the ends of the spans.

ASPHALT CONCRETE SURFACE COURSE shall consist of a variable thickness of 404. (By others)

PRESTRESSING STRANDS shall be uncoated seven-wire stress relieved strand, grade 270 as per ASTM designation A416. Initial tension is 28,900 pounds per strand.

GALVANIZED STEEL DRIP STRIP: Prior to applying deck membrane waterproofing the bent galvanized steel drip strip shall be installed along the edges of the deck as shown on the detail on this sheet. The strips shall run the full length of the deck, except that strips may be shorter lengths with a minimum lap three (3) inches. Steel shall meet the requirements of ASTM A568 and galvanizing shall be in accordance with 711.02. Payment shall be at the contract price, bid for Item Special, lineal foot, galvanized steel drip strip, which shall include all materials, labor, tools and incidentals necessary to complete the item.

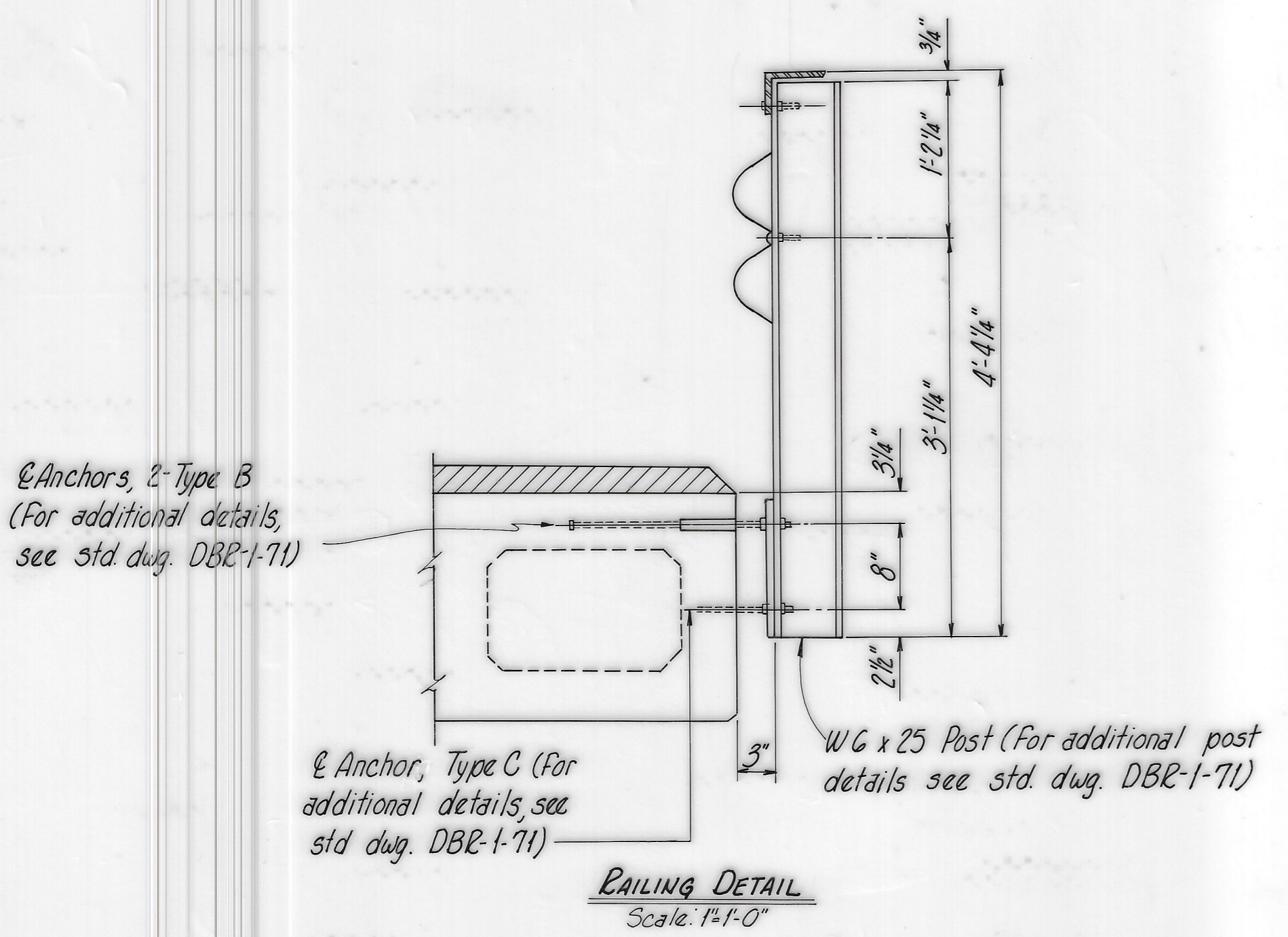
STANDARD DRAWING PSBD-1-71 notes and details which apply to this structure are as follows:

- Notes:
- General
 - Transverse tie rods
 - Galvanizing
 - Anchor dowels
 - Non-shrinking mortar and grout
 - Mortaring of shear keys

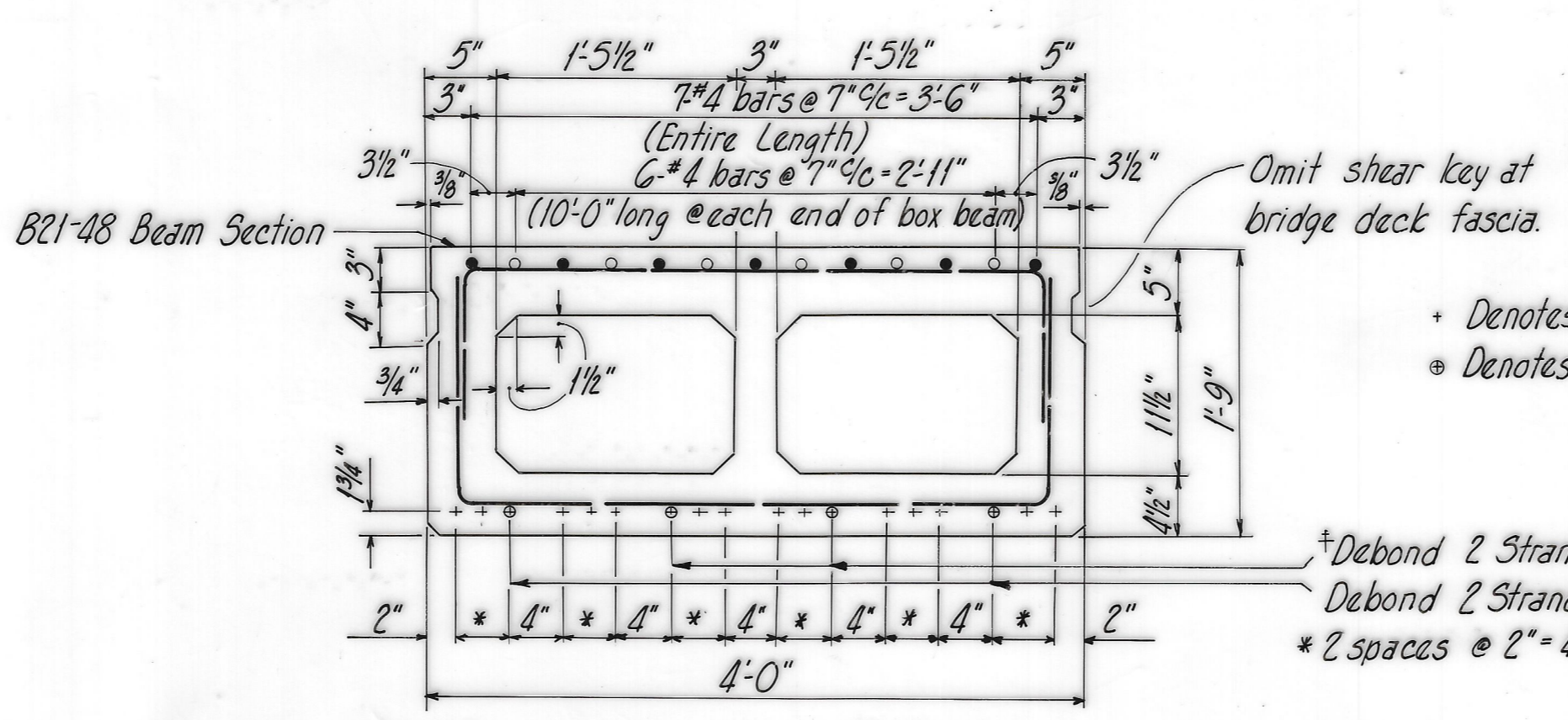
- DETAILS:
- Beam lifting inserts
 - Section showing wall thickness at guard rail anchors
 - Anchor dowels (fixed)
 - Details for reinforcement of beams ends (without notch)
 - Typical plans for diaphragms and transverse tie rods
 - End details of transverse tie rod anchorage
 - Normal crown treatment at roadway (joint at roadway)
 - Beam dimensional tolerances
 - 48" wide non-composite beams (B21-48)

FABRICATOR'S SHOP DRAWINGS in accordance with Item 501 will be required for the prestressed concrete members. These shop drawings shall show complete details of the reinforcing steel for the prestressed concrete members

BEAM PLACEMENT: The north most beams in the end spans shall be placed against the 1" Preformed Expansion Joint Filler first.



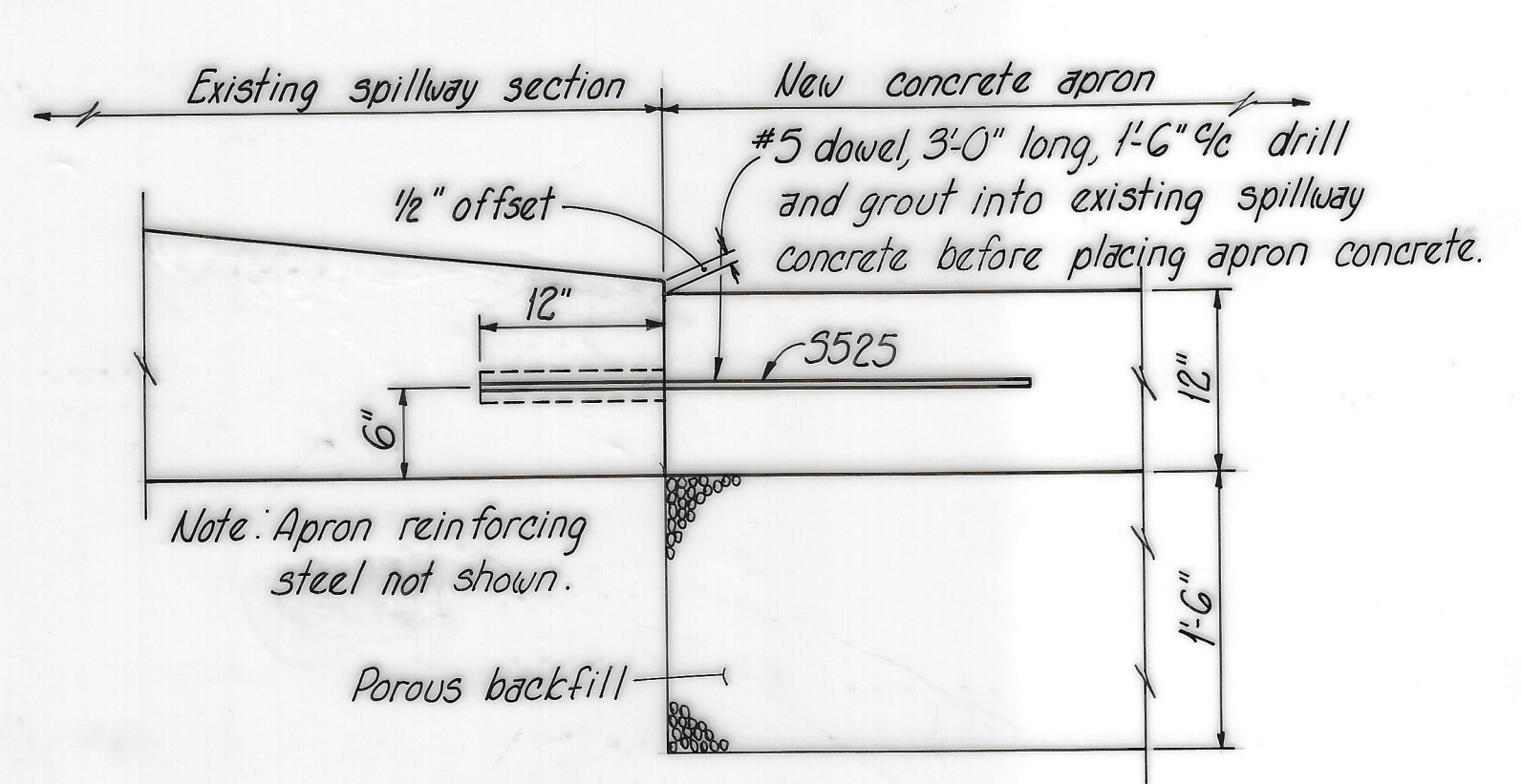
RAILING DETAIL
Scale: 1" = 1'-0"



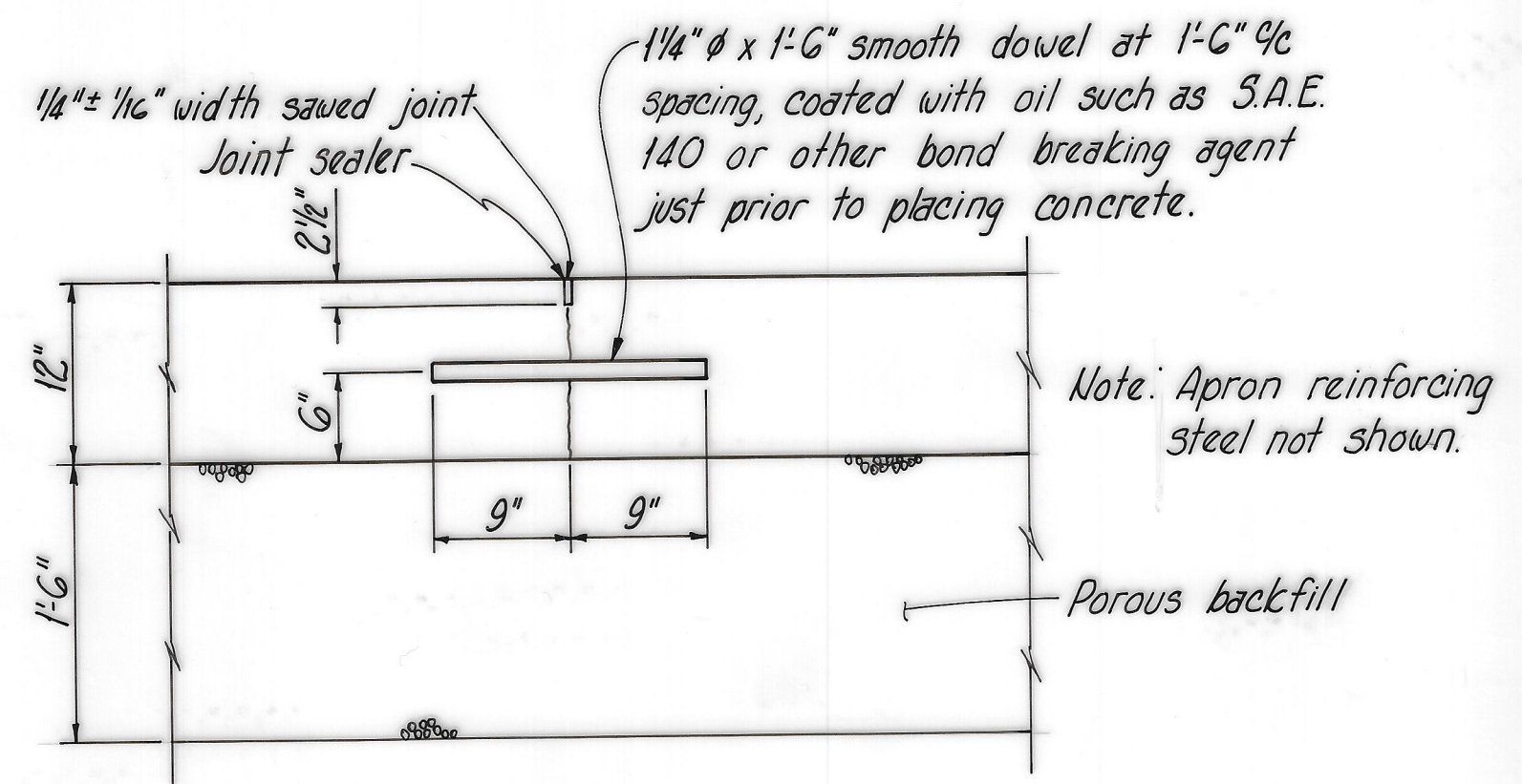
PRESTRESSED BOX BEAM B21-48 SECTION
(Showing location of 1/2" 270K, 7 wire prestressing strands. For additional details see std. dwg. PSBD-1-71, sht. 3)
Scale: 1" = 1'-0"

- + Denotes 270K strands
- Denotes debonded strands

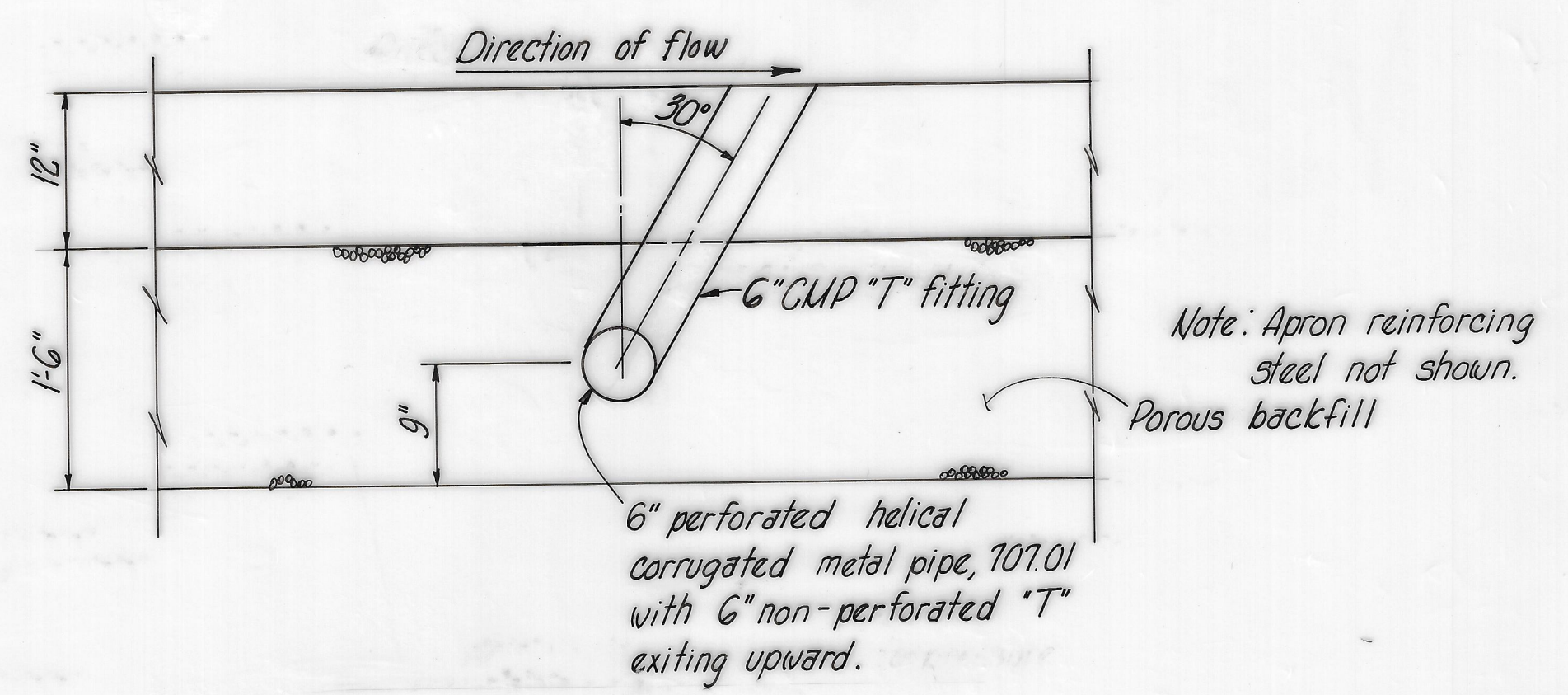
* Debond 2 Strands 2'-6"
* Debond 2 Strands 1'-6"
* 2 spaces @ 2" = 4"
* Debond the strands symmetrically about vertical centerline of beam by means of plastic sheaths as approved by the Engineer. Length of strands to be debonded is measured from ends of beam.



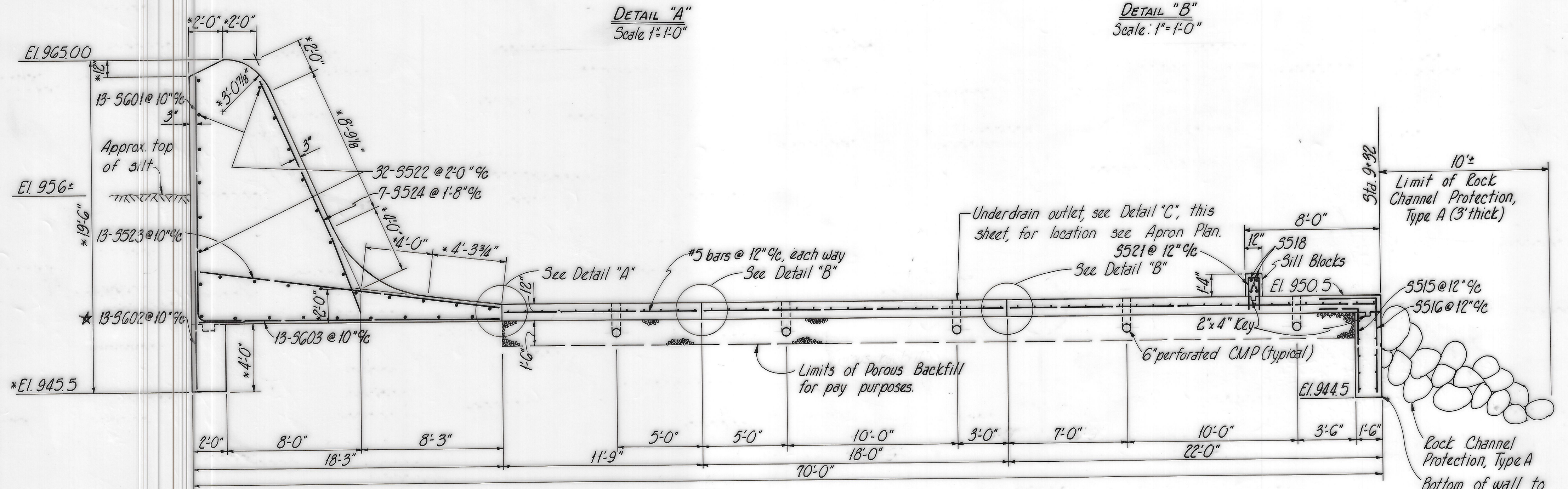
DETAIL "A"
Scale: 1"=1'-0"



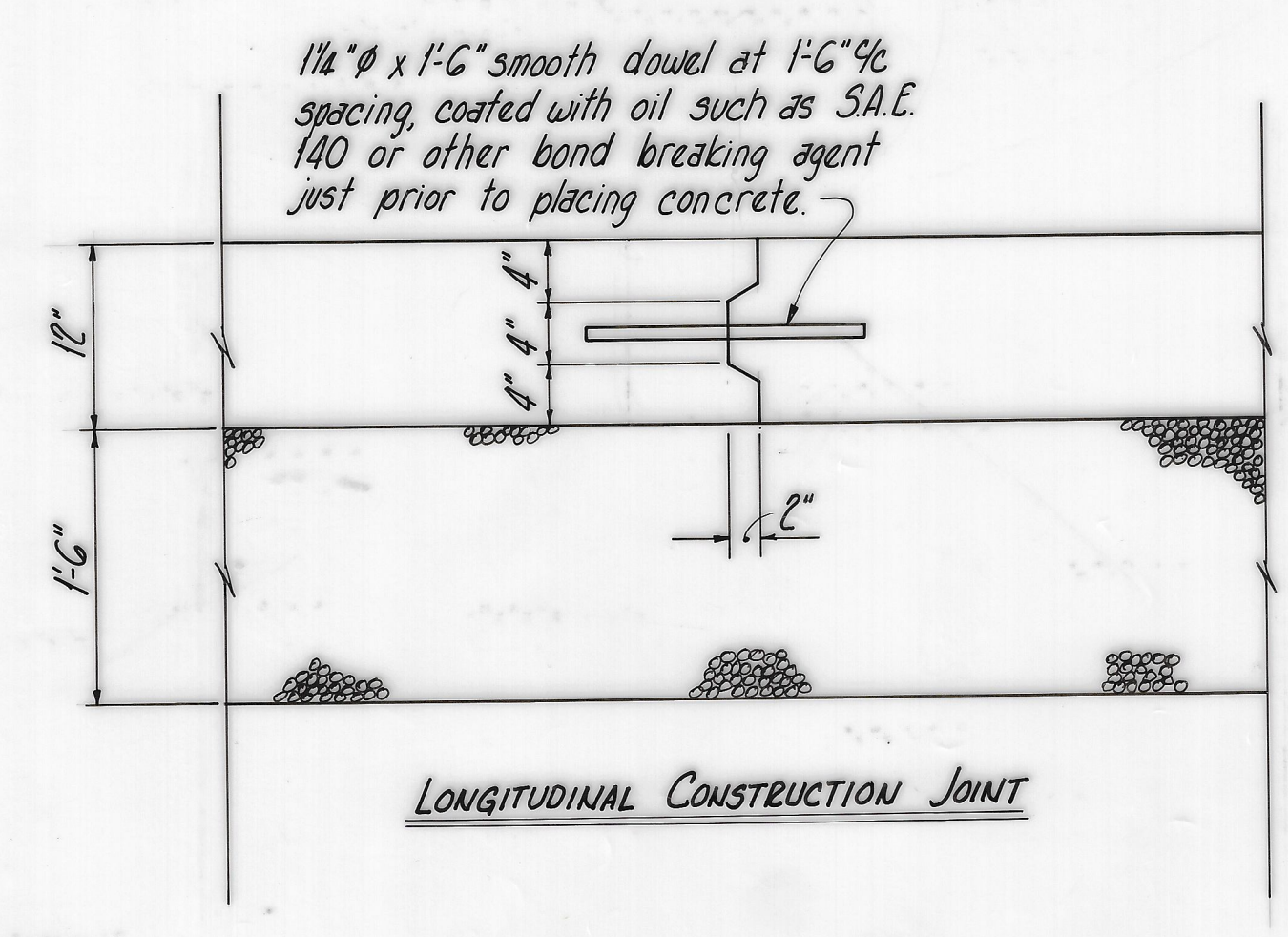
DETAIL "B"
Scale: 1"=1'-0"



DETAIL "C" - UNDERDRAIN OUTLET
Scale: 1"=1'-0"

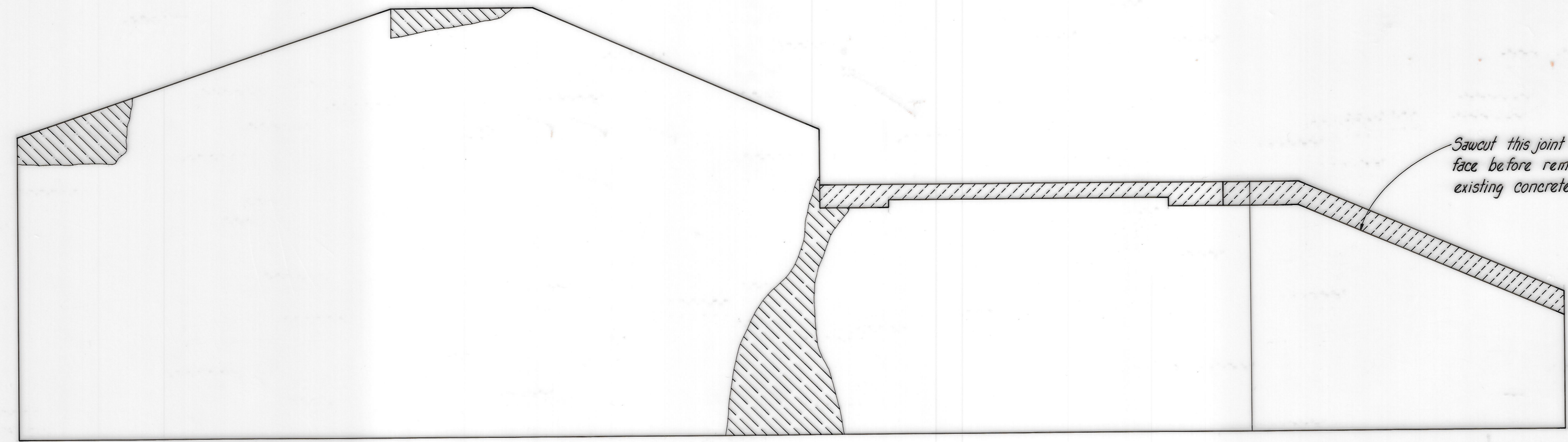


SPILLWAY AND APRON - TYPICAL TRANSVERSE SECTION
Scale: 1/4"=1'-0"



LONGITUDINAL CONSTRUCTION JOINT

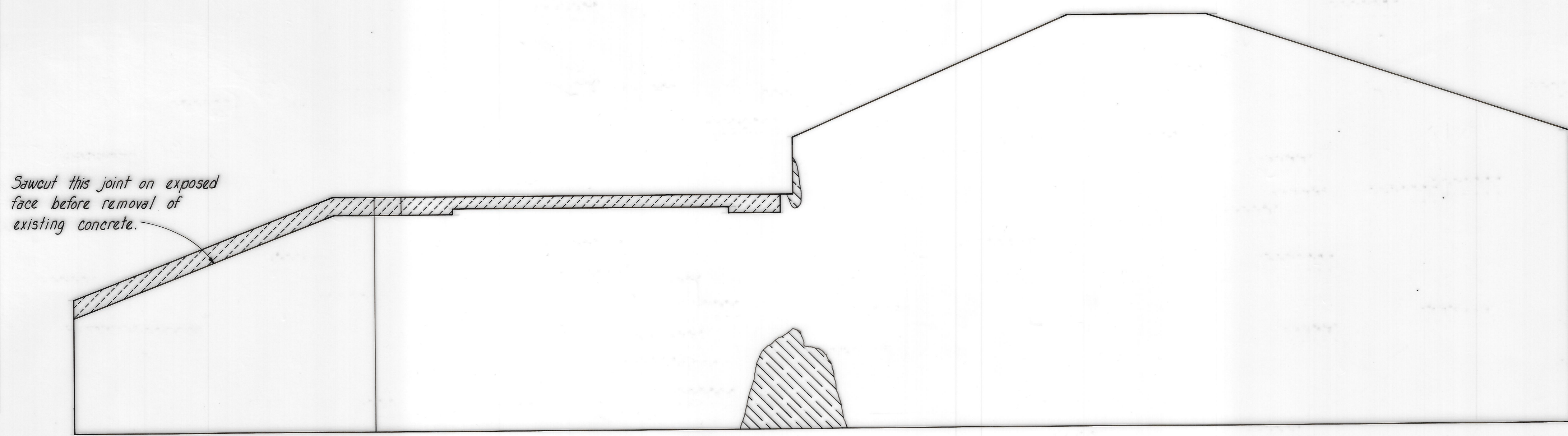
* Dimensions are taken from existing plans.
* If existing cutoff wall can be used, drill and grout 5602 12" into cutoff wall before placing spillway concrete.



EAST ABUTMENT

Sawcut this joint on exposed face before removal of existing concrete.



The limits of deteriorated concrete to be removed shown on this sheet are approximate. The final limits shall be approved by the Engineer.



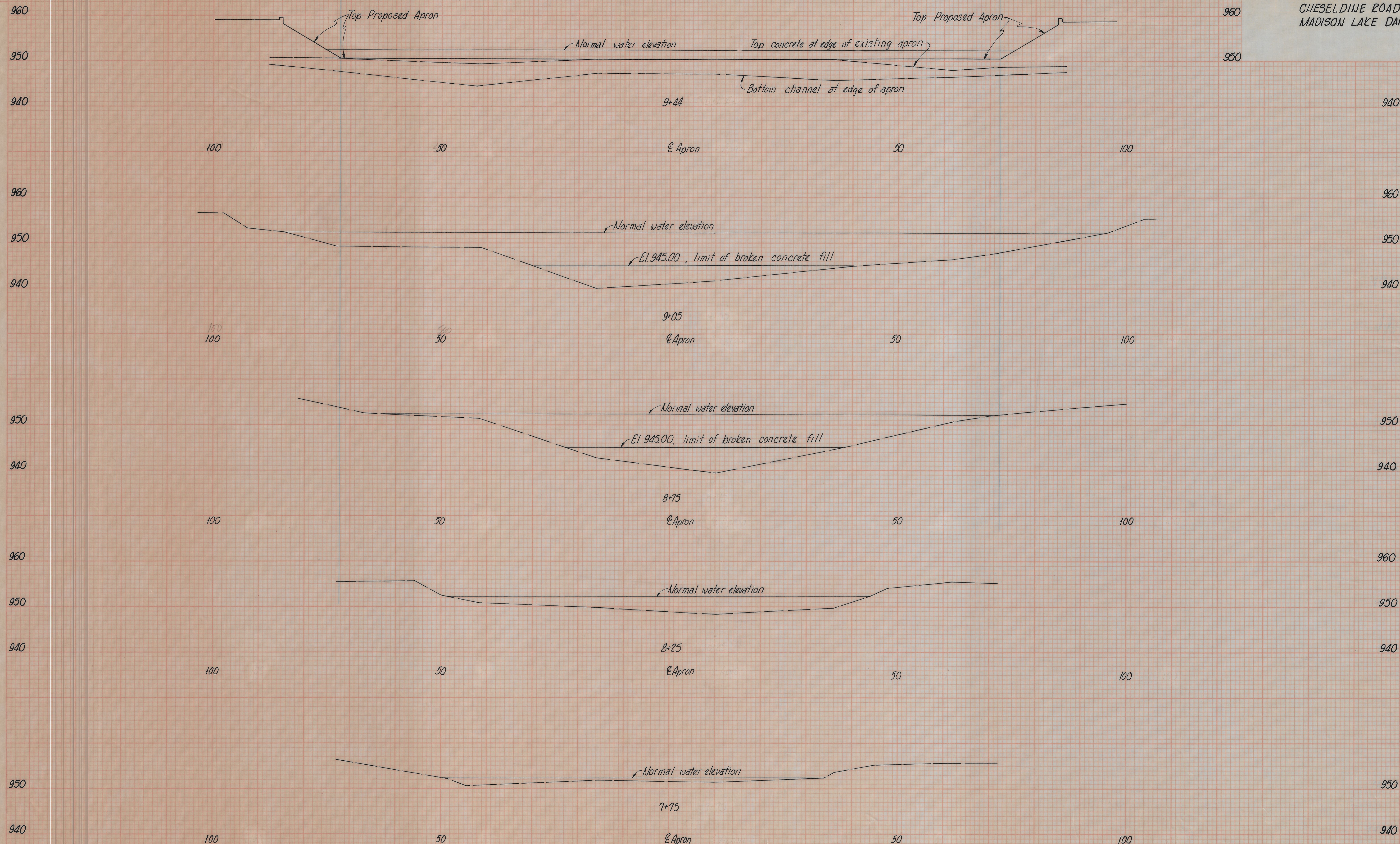
WEST ABUTMENT

Sawcut this joint on exposed face before removal of existing concrete.

LEGEND

-  To be removed
-  To be repaired with pneumatically placed mortar as per 520

MADISON COUNTY
CHESELDINE ROAD
MADISON LAKE DAM



END AREA		VOLUME	
CUT	FILL	CUT	FILL

BURGESS & NIPLÉ, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

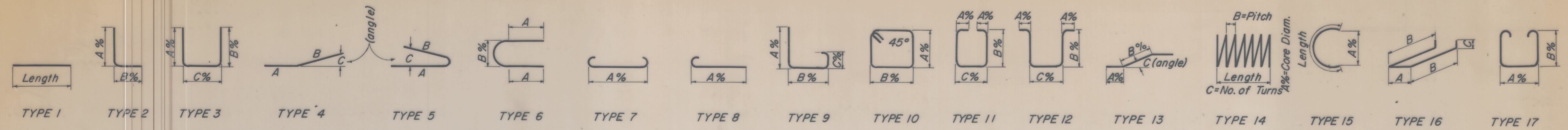
STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF CHIEF ENGINEER

MADISON COUNTY, OHIO
OFFICE OF COUNTY ENGINEER

DESIGNED BY *MIG*
DRAWN BY *C. CASEY*
CHECKED BY *T.E.U.*
APPROVED BY *MOR*

JOB NUMBER 5061
SCALE 1" = 10'-0"
DATE MAY 23, 1975
REVISED

CHANNEL CROSS-SECTIONS



Mark	No.	Length	Inc.	Weight	Type	Dim. A	Dim. B	Dim. C	Bar Distribution			
									Inc.	Weight	Bar #1	Bar #2
ABUTMENTS												
A501	4	3'-8"	15		2	1'-9"	2'-0"		2	2		
A502	44	7'-8"	352		3	3'-2"	3'-2"	1'-7"	22	22		
A503	44	3'-2"	145		2	1'-3"	2'-0"		22	22		
A504	4	8'-8"	36		3	3'-8"	3'-8"	1'-7"	2	2		
A505	64	3'-7"	239		1				32	32		
A506	8	18'-6"	54		1				4	4		
A507	32	3'-2"	106		1				16	16		
A508	series of 3	series of 10'-0"	series of 5	120	1				series of 3	series of 3		
A509	6	25'-0"	156		1				3	3		
A510	2	26'-0"	54		1				1	1		
A511	6	26'-6"	166		1				3	3		
A512	4	23'-9"	99		1				2	2		
A513	12	3'-2"	40		4	1'-7"	1'-7"	45°	6	6		
AG01	8	2'-9"	33		1							

Mark	No.	Length	Inc.	Weight	Type	Dim. A	Dim. B	Dim. C	Bar Distribution			
									Inc.	Weight	Bar #1	Bar #2
PIERS												
P501	60	8'-6"	532		10	2'-0"	2'-0"		30	30		
P502	14	29'-2"	426		1				7	7		
P503	100	11'-10"	1234		1				50	50		
P504	120	4'-0"	501		1				60	60		
P505	4	9'-5"	39		1				2	2		
P506	4	4'-6"	19		1				2	2		
P507	8	4'-5"	37	25	1'-2"	1'-6"			4	4		
P508	6	14'-5"	90	4	11'-9"	2'-8"	11°		3	3		
P509	6	13'-8"	86		1				3	3		
P510	series of 4	series of 25'-3"	series of 1216	3					series of 2	series of 2		
P511	50	4'-9"	248	3	1'-9"	1'-9"	1'-6"		25	25		
P512	4	25'-3"	105		1				2	2		
P513	48	6'-2"	309	26	1'-2"	2'-0"			24	24		
PG01	16	2'-9"	66		1							

Mark	No.	Length	Inc.	Weight	Type	Dim. A	Dim. B	Dim. C	Bar Distribution			
									Inc.	Weight	Bar #1	Bar #2
SPILLWAY												
S601	13	16'-10"	329		2	14'-3"	2'-9"					
S602	13	6'-0"	117		1							
S603	13	17'-9"	347		1							
S501	141	11'-3"	1654		1							
S502	141	17'-6"	2574		1							
S503	145	21'-6"	3252		1							
S504	62	30'-3"	1956		1							
S505	30	15'-6"	485		1							
S506	32	25'-6"	851		1							
S507	30	7'-0"	219		1							
S508	62	25'-6"	1649		1							
S509	30	12'-3"	383		1							
S510	32	25'-6"	851		1							
S511	30	10'-3"	321		1							
S512	62	35'-6"	2296		1							
S513	series of 2	series of 13	series of 18'-6"	series of 14	312							
S514	series of 17	series of 16'-0"	series of 10	331	1							
S515	177	7'-2"	1323		2	5'-0"	2'-3"					
S516	177	8'-8"	1600		2	5'-6"	3'-3"					
S517	24	15'-6"	388		1							
S518	116	3'-6"	423		1							
S519	10	21'-0"	219		1							
S520	20	9'-6"	198		1							
S521	116	4'-5"	534		3	2'-0"	2'-0"	0'-8"				
S522	32	9'-6"	317		1							
S523	13	17'-10"	242		1							
S524	7	15'-0"	110		1							
S525	94	3'-0"	294		1							
1 1/4" Smooth dowels	328	1'-6"	3079		1							

