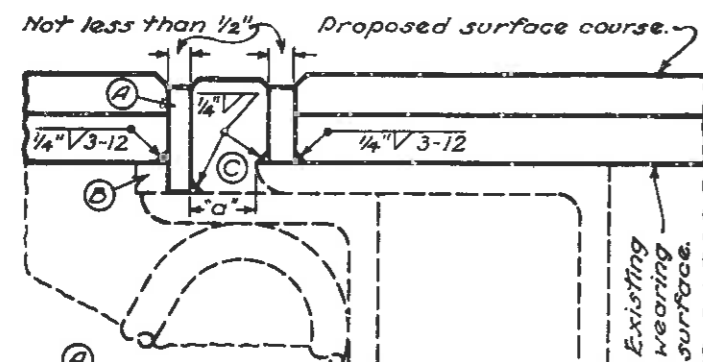


RESURFACING

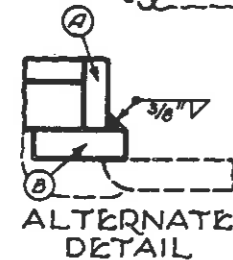


Alternate detail to be used if dimension "a" is less than anticipated expansion.

Bar (B) will be made 2" wide to provide better anchorage of bar (A).

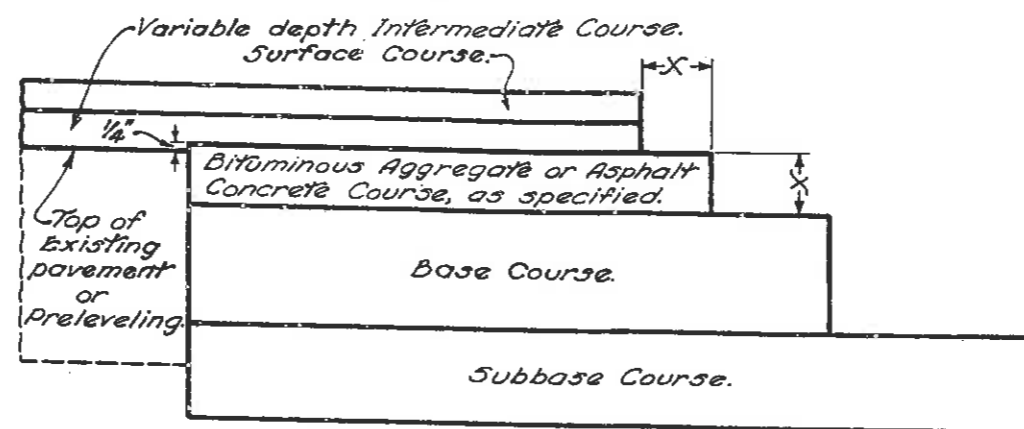
(C) 702.07 filler or similar bituminous material.

Steel bars shall be structural grade steel.



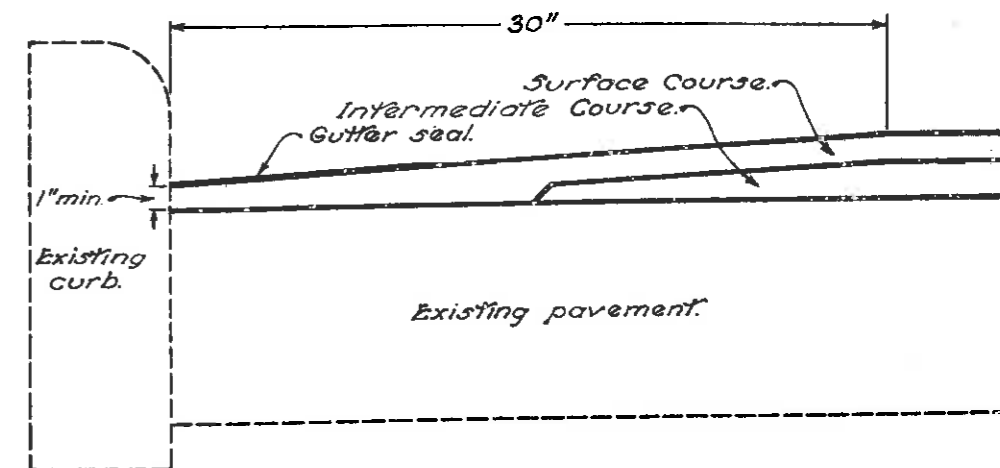
ALTERNATE DETAIL

RAISING EXPANSION JOINTS AT BRIDGE



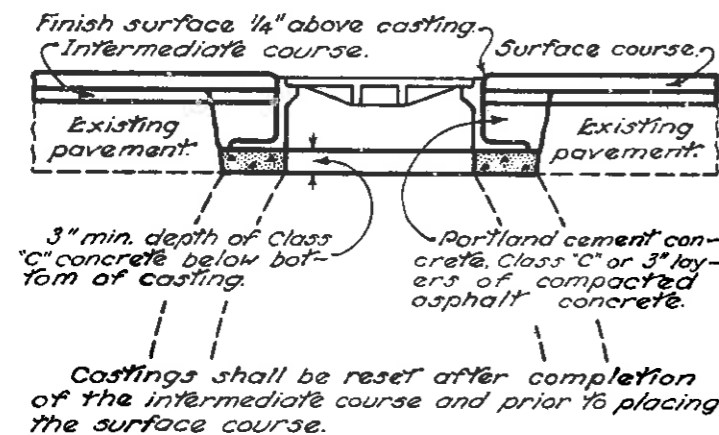
The Bituminous Aggregate or Asphalt Concrete Base Course in the upper part of the base widening shall finish approximately 1/4" above the edge of the existing pavement where no preleveling is used. Where a preleveling (using intermediate course material) is specified, it shall be placed prior to excavation of the widening trench and the upper course of the base widening shall finish approximately 1/4" above the preleveling.

COURSE DETAIL FOR WIDENING

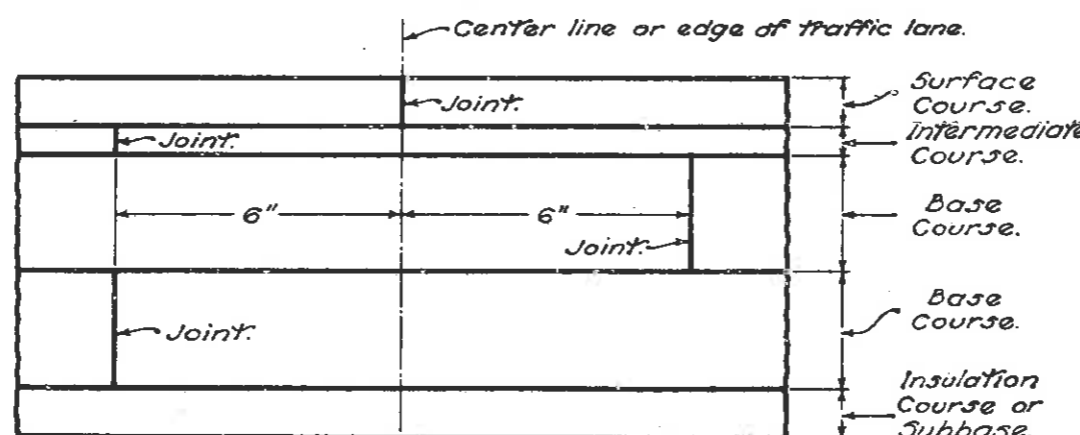


Special care shall be exercised during construction to obtain maximum compaction of bituminous concrete in all gutters.

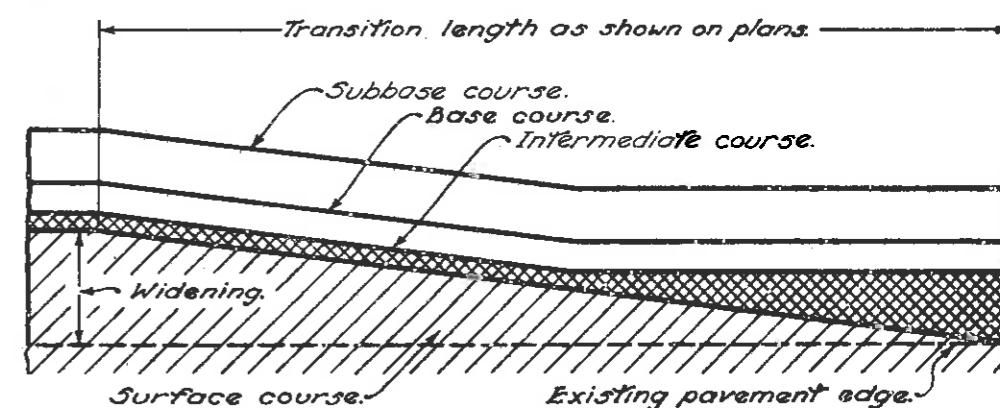
GUTTER FINISH



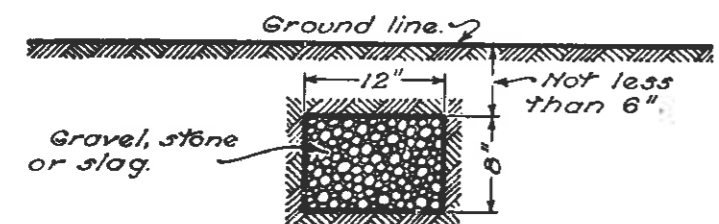
CASTINGS ADJUSTED TO GRADE



LAPPING LONGITUDINAL JOINTS

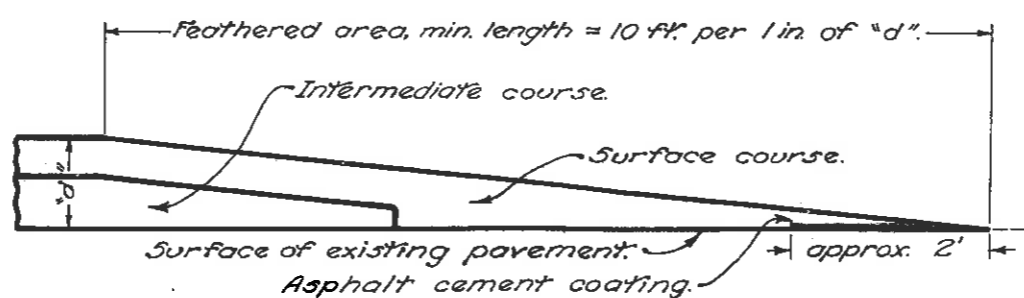


MERGING EDGE OF PAVEMENT WIDENING WITH EDGE OF EXISTING PAVEMENT

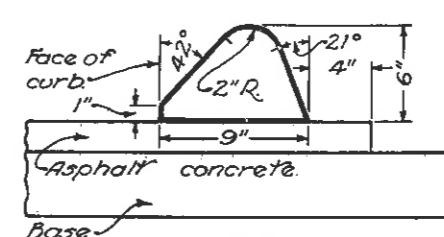


Aggregate drains to be placed where and as directed by the Engineer.

AGGREGATE DRAINS



PLACING FEATHERED AREAS



TYPE 1 ASPHALT CONCRETE CURB

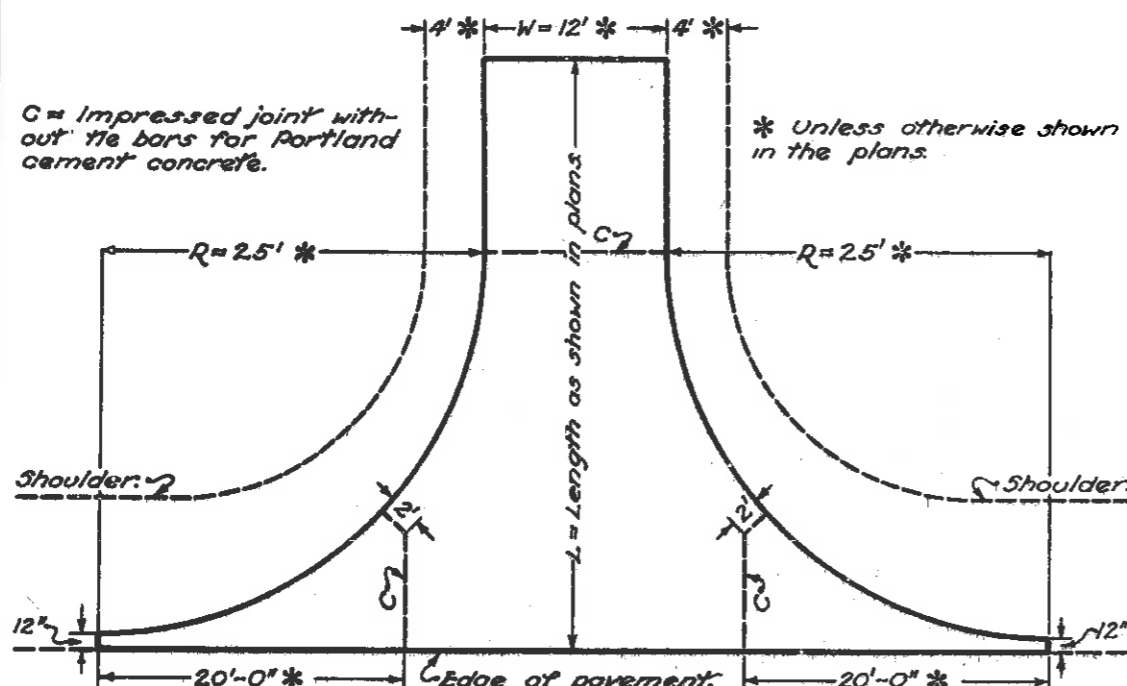
BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

RESURFACING

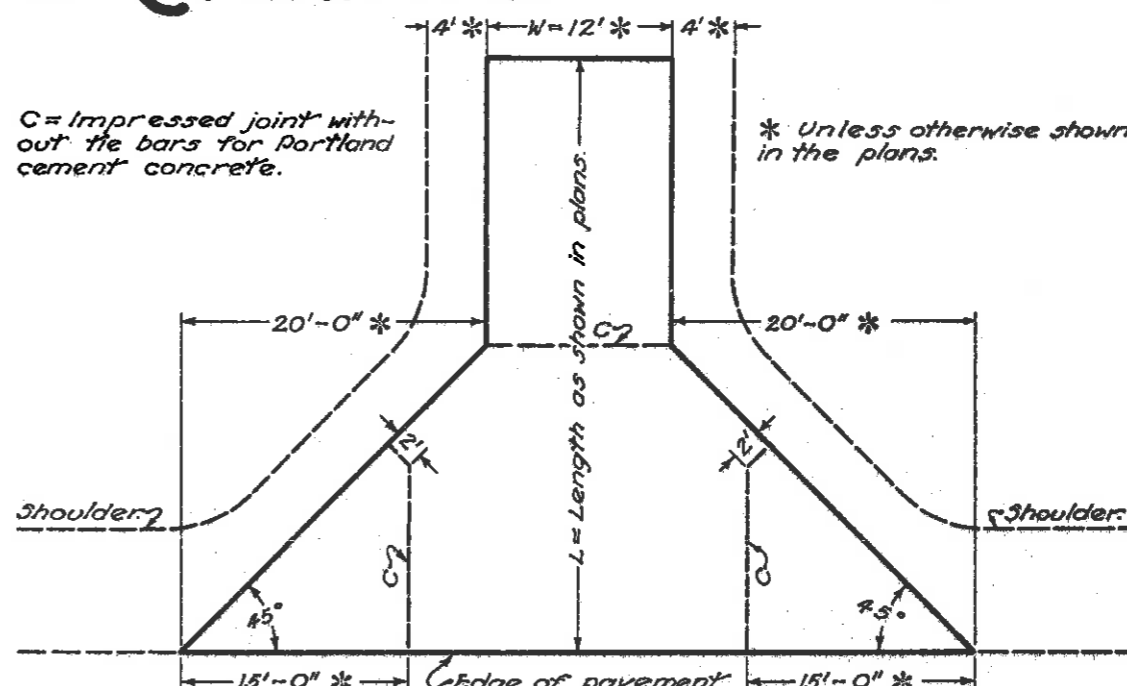
STANDARD CONSTRUCTION DRAWING **BP-5**

APPROVED *[Signature]* ENGR. L. & D.

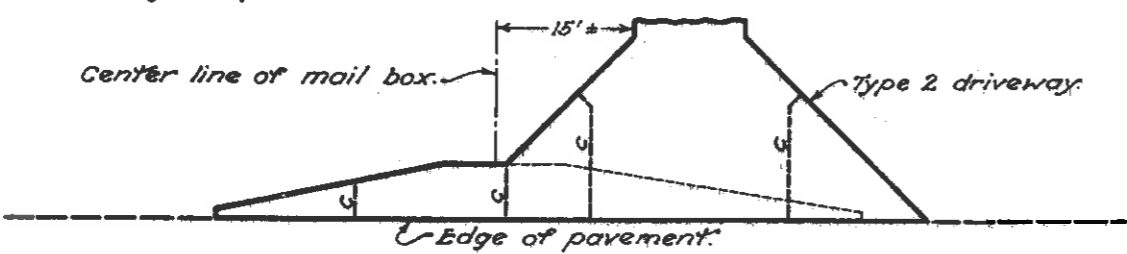
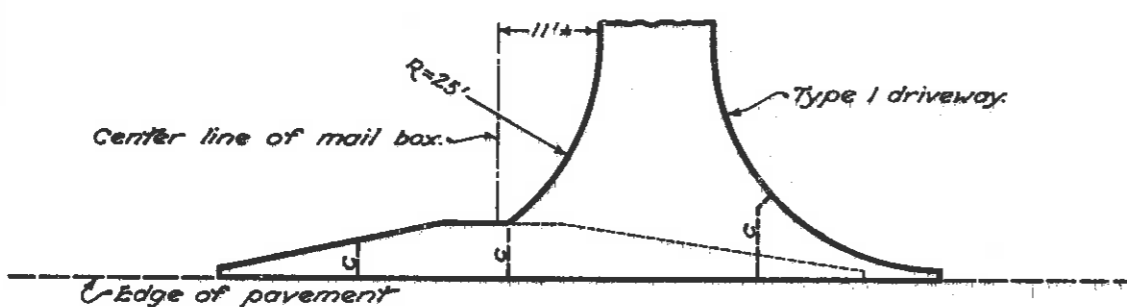
DRIVEWAYS



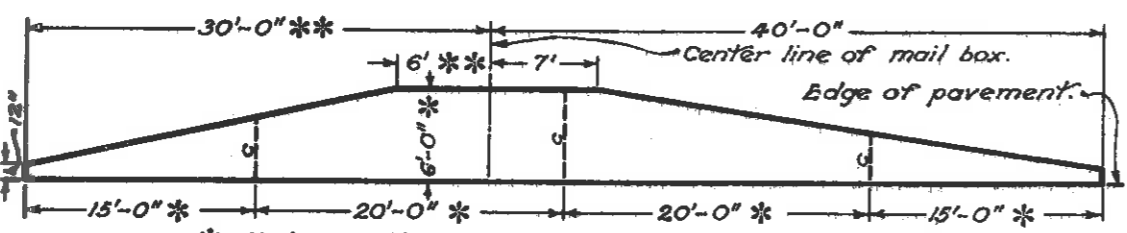
TYPE 1 DRIVEWAY



TYPE 2 DRIVEWAY

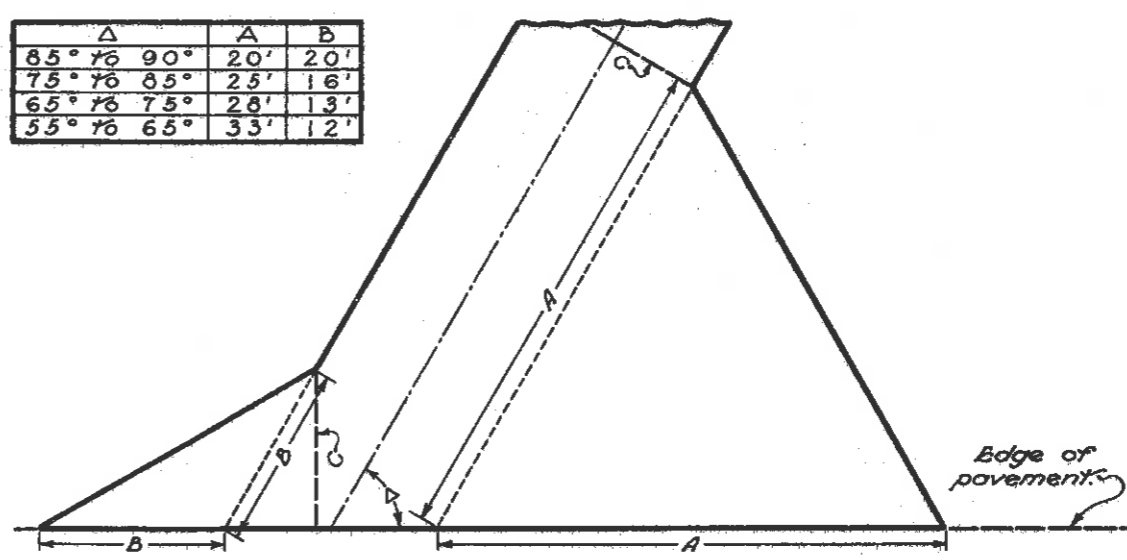


COMBINED DRIVEWAY & MAIL BOX APPROACH



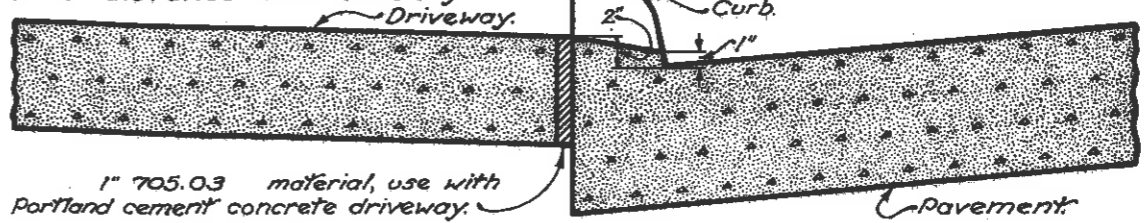
TYPICAL MAIL BOX APPROACH
 * Unless otherwise shown in plan.
 ** Add 2 feet for each additional mail box.

Δ	A	B
85° to 90°	20'	20'
75° to 85°	25'	16'
65° to 75°	28'	13'
55° to 65°	33'	12'



TYPE 2 SKEWED DRIVEWAY

Transition from standard curb section to drop curb section to be made in 10" distance from driveway.



DROP CURB DETAILS AT DRIVEWAYS

NOTES

GENERAL: The design details shown hereon shall govern construction of driveways unless otherwise shown in the project plans.

The pavement type and thickness shall be specified in the project plans.

Driveway and mail box approaches shall be combined when feasible.

JOINTS: Impressed joints in Portland cement concrete driveways shall be 1/4" minimum width by 3"± depth and shall be set with 705.01 or 705.02.

In addition to the joints shown hereon, impressed joints with tie bars shall be placed in Portland cement concrete driveways at intervals not to exceed seven feet in the portion of the driveway back of the flare.

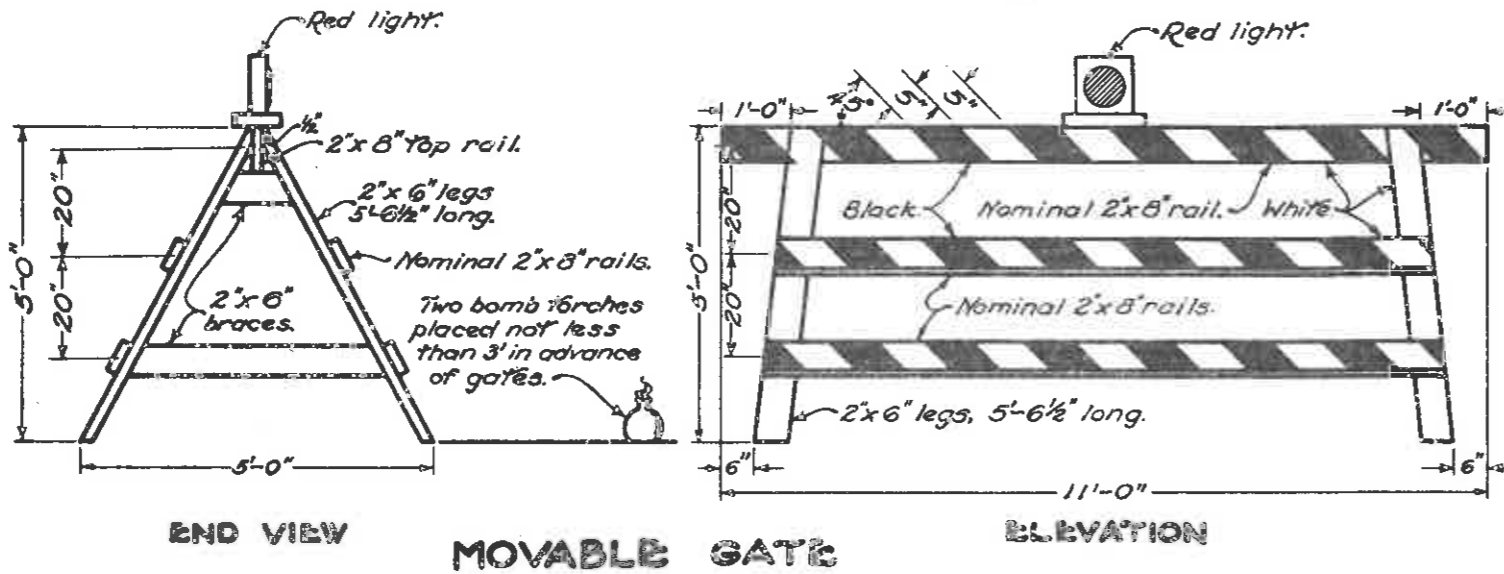
BUREAU OF LOCATION AND DESIGN
 OHIO DEPARTMENT OF HIGHWAYS

DRIVEWAYS

STANDARD CONSTRUCTION DRAWING
BP-6
 APPROVED BY *[Signature]* ENGR. L. & D.

STANDARD BARRICADES AND GATES

NOTES



LUMBER used in the construction of the gates and barricades shall be No. 1 common yellow pine or No. 1 common Douglas fir, or other materials approved by the Engineer, surfaced on four sides standard.

POSTS shall be sound 4" x 4" sawed or 4 1/2" round.

CHAINS. Gates shall be chained and padlocked to one another and to adjacent posts of the barricades. Chains shall be 5/8" stock with welded links.

BARRICADES shall be constructed according to details shown. Rails of the barricade shall be bolted to the posts with 5/8" bolts.

The barricade shall provide an opening of a minimum width of 24 feet. For pavement widths greater than 20 feet minimum open width shall be the pavement width plus four (4) feet. Where erected on divided pavements the barricade shall effectively close the median opening.

PAINTING & REFLECTORIZATION. All rails of the barricades shall be reflectorized with 5" stripes of white reflective sheeting alternated with 5" stripes of black paint; stripes shall be on a 45° angle sloping downward toward the center line of the roadway.

When traffic is maintained the top rail of the barricade shall provide the above described treatment on both front and back, and the other rails on the front only. Three yellow reflector units 3" in diameter spaced on 4 1/2" centers shall be mounted on both sides of the posts nearest the pavement edges, as shown.

GATES. The movable gate shall be constructed according to the details shown. One gate shall be erected for each traffic lane. The gates shall be well spiked, using spikes long enough to clinch.

A hinged gate may be used and shall be an approved farm type having 12' length, 48" height, with steel frame or a type approved by the Engineer. The gate shall be hung on hinge screw hooks or as otherwise approved. Striping similar to that used on the movable gate shall be accomplished with lumber 1" nominal thickness or with metal strips fastened to the gate. The gate shall be supported at the center in an approved manner.

All rails shall be reflectorized, front and back with 5" stripes of white reflective sheeting alternated with 5" stripes of black paint; stripes shall be on a 45° angle sloping downward toward the center of the gate opening.

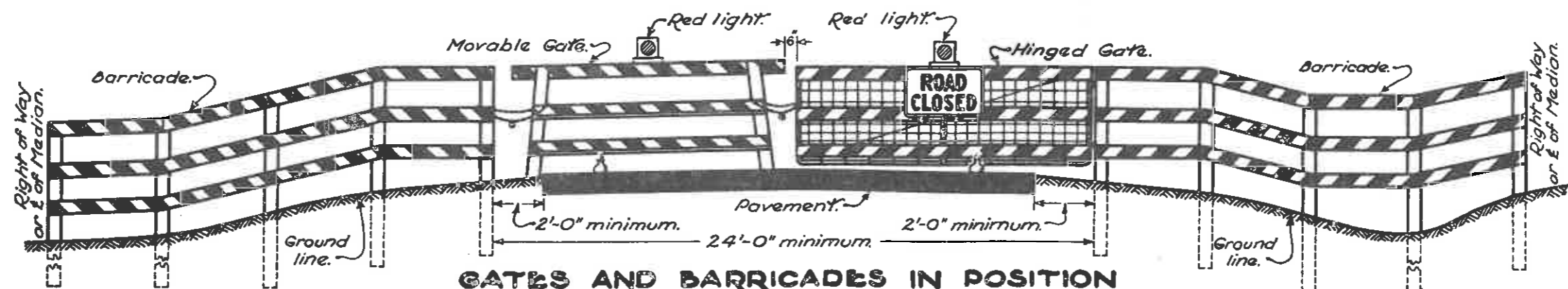
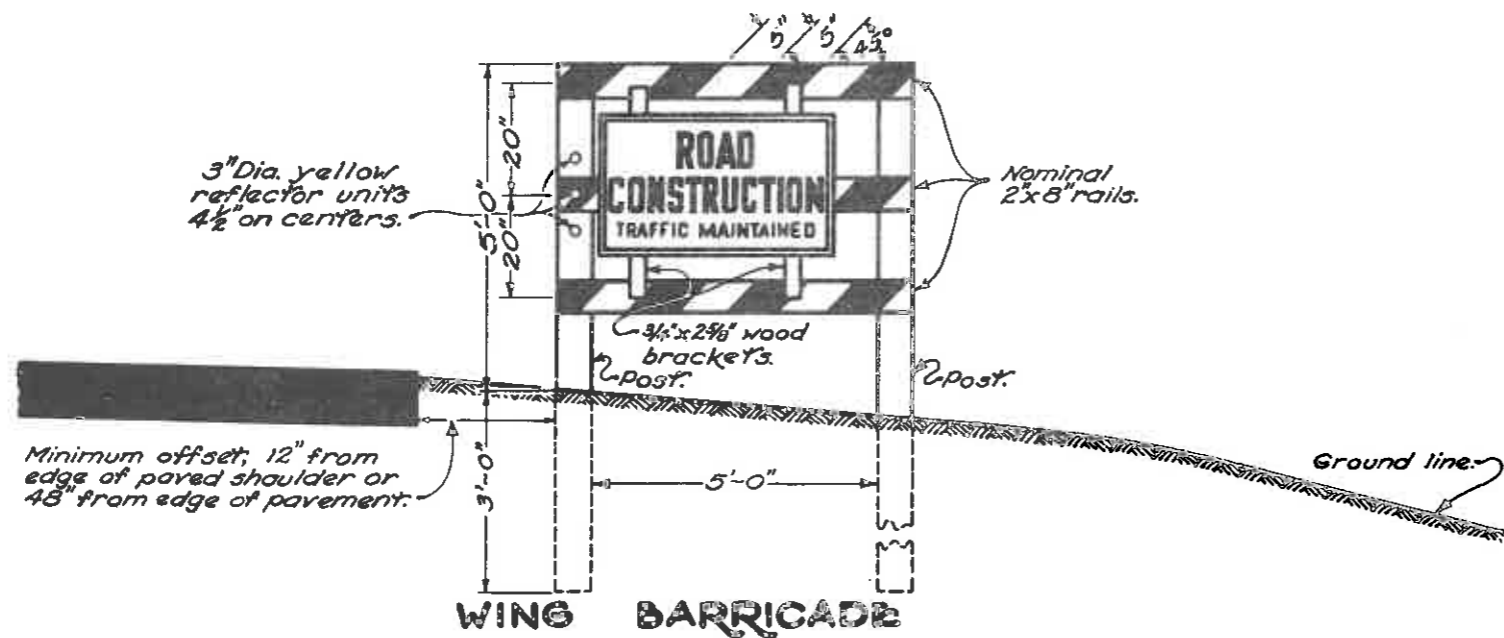
RED LIGHT. Each gate shall be equipped with a steady burning red light. During the hours of darkness, the red light shall be bright enough to be conspicuously visible at all distances up to 800 feet from the unit under normal atmospheric conditions. The red light may be operated by battery electric generator, commercial power, or propane gas.

The red light shall be in operation at all times between sunset and sunrise during the period the highway is closed.

SIGNS. Upon the erection of the gates and barricades, according to the above standards, a ROAD CLOSED sign, size 48" x 30" shall be mounted on the gate as shown. When three gates are used for closing three-lane roads, the sign shall be mounted on the middle gate facing traffic approaching the closed section.

Where traffic is maintained a ROAD CONSTRUCTION TRAFFIC MAINTAINED sign, size 48" x 30" shall be mounted on the barricade at the right-hand side of the roadway adjacent to the pavement, facing traffic approaching the construction section. An END OF CONSTRUCTION sign, size 48" x 30" shall be mounted on the barricade at the right hand side of the road facing traffic leaving the construction section.

MODIFIED DESIGN. The barricade shown hereon is primarily for use in rural areas. In urban areas and at locations where it is impracticable to extend the barricade to the right-of-way line because of a sidewalk or other obstruction, the ends of the barricade shall be located as directed by the Engineer to effect the desired closing of the highway.



BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

BARRICADES AND GATES

STANDARD CONSTRUCTION DRAWING MC-3
APPROVED *R. E. Little* ENGR. L. & D.

DEEP BEAM RAIL TYPE 4

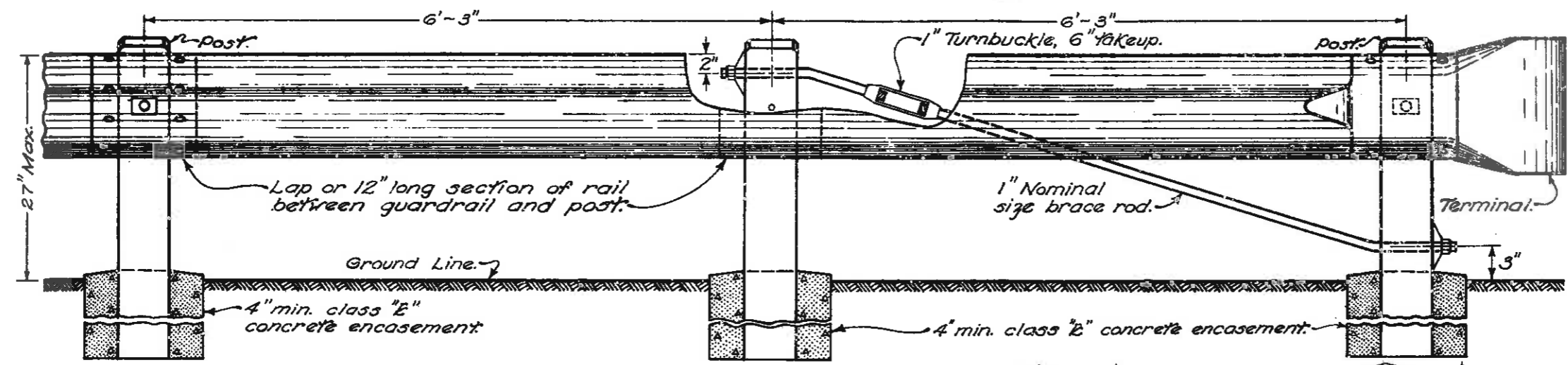
NOTES

POSTS: Posts for standard design be round or square-sawn pressure-treated wood or may be 6B x 8 1/2 pound galvanized steel. Posts for barrier design shall be square-sawn pressure-treated wood or 6B x 8 1/2 pound galvanized steel. The standard type post shall be used throughout the length of a project unless otherwise required by the plans or permitted by the Engineer. For details of wood posts not shown hereon, see Standard Drawing 6. Posts other than the last three of each of each continuous run need not be set in concrete, and shall be spaced at 12'-0" centers unless otherwise specified, except that post spacing in runs of less than 100 feet in length and in flares shall be 6'-3".

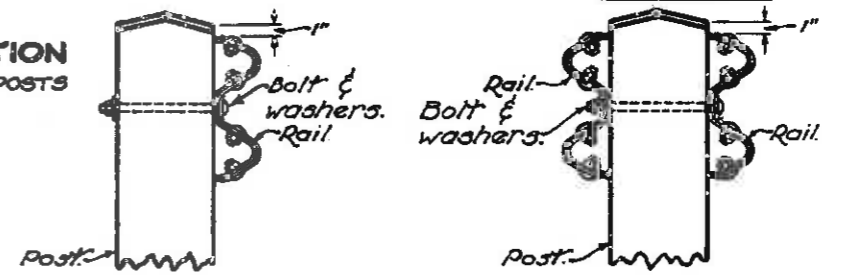
ANCHOR ASSEMBLY: The anchor assembly shown in elevation shall be used at each end section of standard or barrier deep beam guardrail. Brace rod assembly shall develop a tensile strength of at least 50,000 pounds. Not required at junction of standard and barrier designs in a continuous run.

BRIDGE RAILING: Where deep beam rail is used as bridge railing, post spacing shall be 6'-3" on the bridge and for a minimum distance of 12'-6" beyond each corner of the bridge. If the deep beam guardrail terminates within 18'-6" of the last bridge post, all standard design posts shall be set in concrete and an anchor assembly provided as detailed hereon.

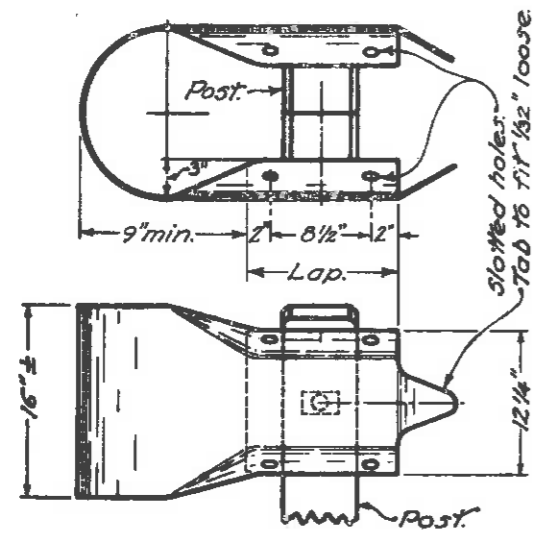
RAIL ELEMENT: Rail elements may be fabricated with post bolt hole slots on centers regardless of post spacing. At post where an overlap of rail element does not occur, a 12-inch-long section of rail shall be provided between the main element and the post, fastened by the post bolt. Washers shall be provided at each end of each post bolt: provide a standard 5/8" round steel washer between the rail and post; provide a 1 1/8" x 3" x 8 ga. steel washer at each rail connection between post and rail. Washer hole shall be elongated to accommodate the shoulder of the bolt. Used adjacent to the bolt head and shall be a round hole 1/16" in diameter when adjacent to a nut.



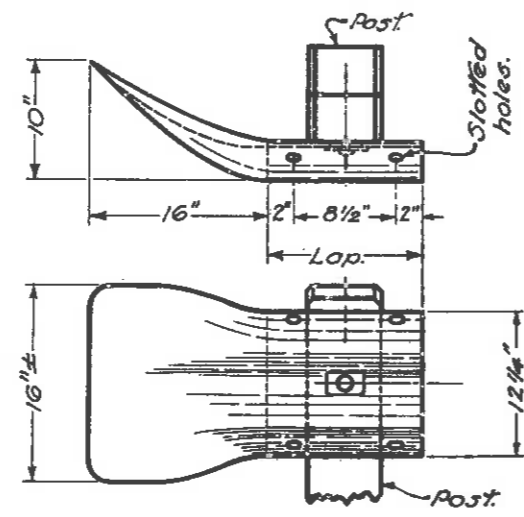
ELEVATION TERMINAL SECTION
TO BE USED WITH BOTH STEEL AND WOOD POSTS



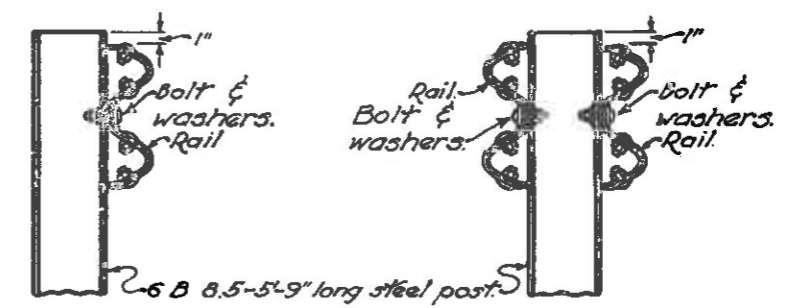
STANDARD DESIGN USING WOOD POSTS
BARRIER DESIGN USING WOOD POSTS



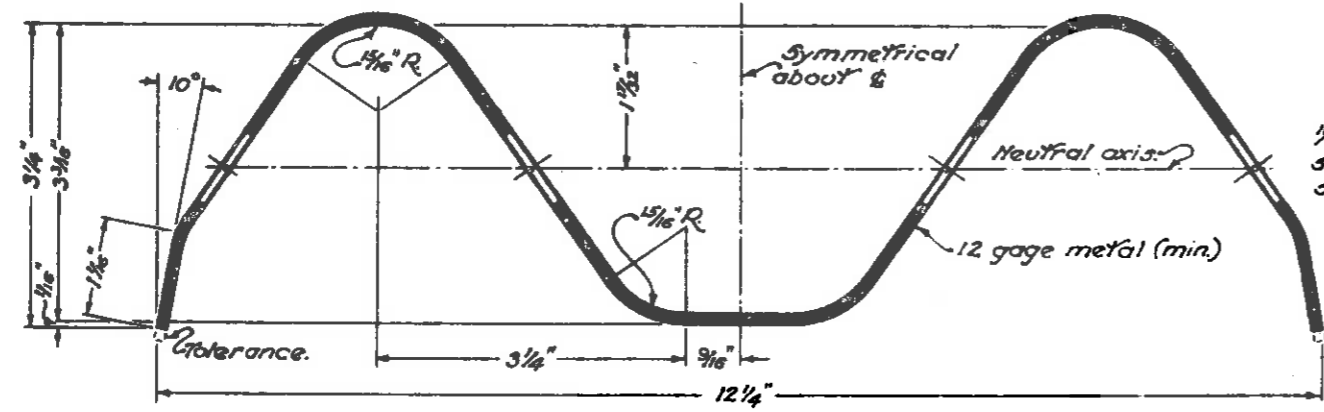
BARRIER TERMINAL



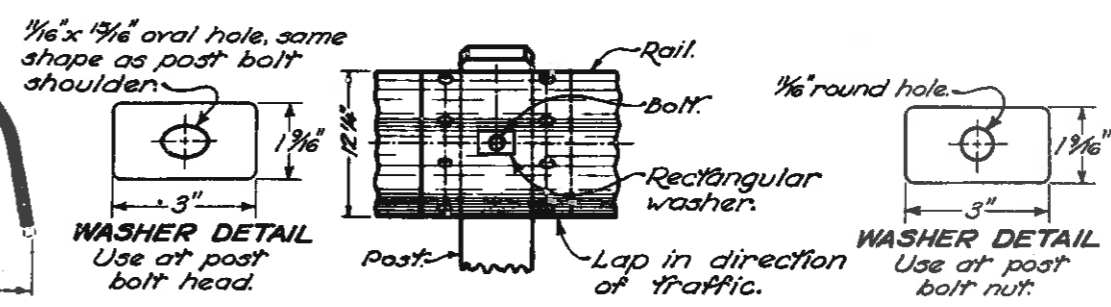
STANDARD TERMINAL



STANDARD DESIGN USING STEEL POSTS
BARRIER DESIGN USING STEEL POSTS



SECTION THRU RAIL ELEMENT



RAIL SPLICE

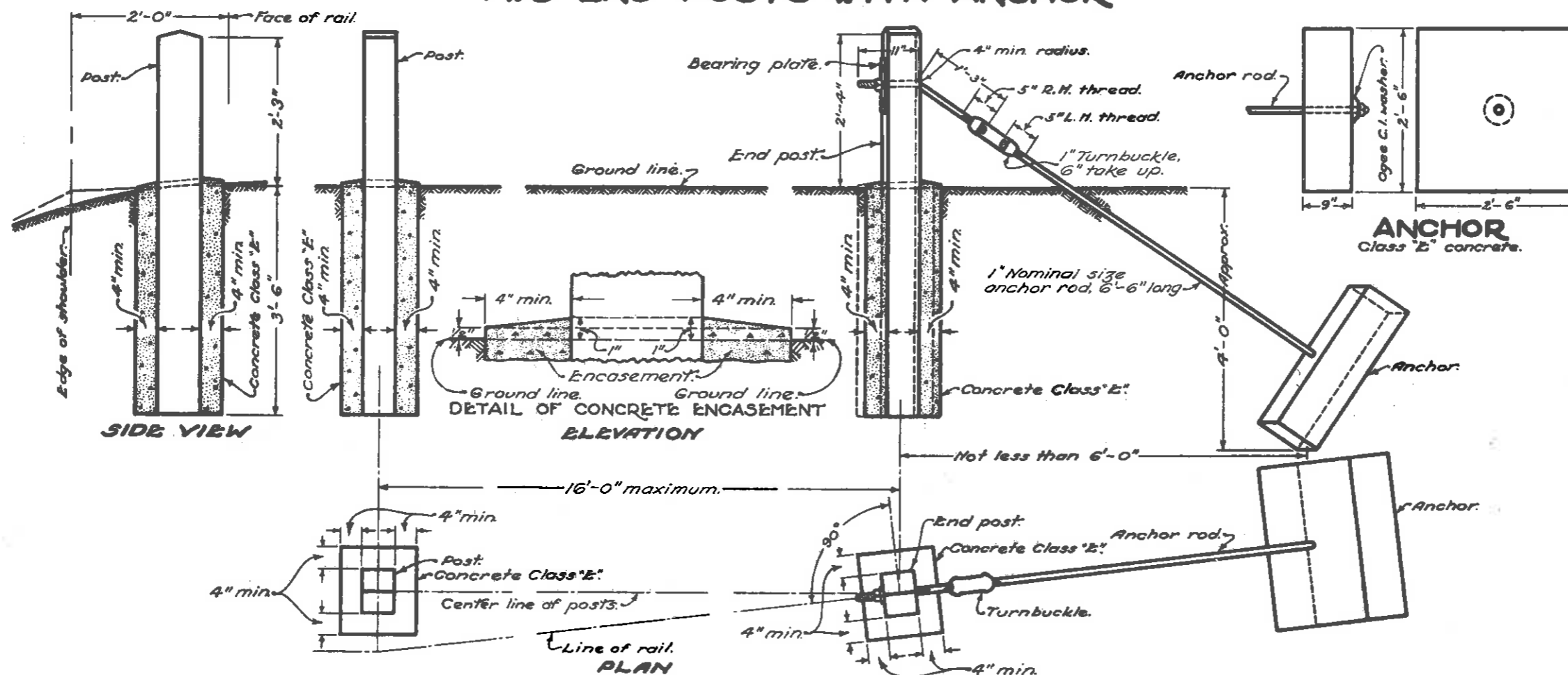
BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

GUARD RAIL

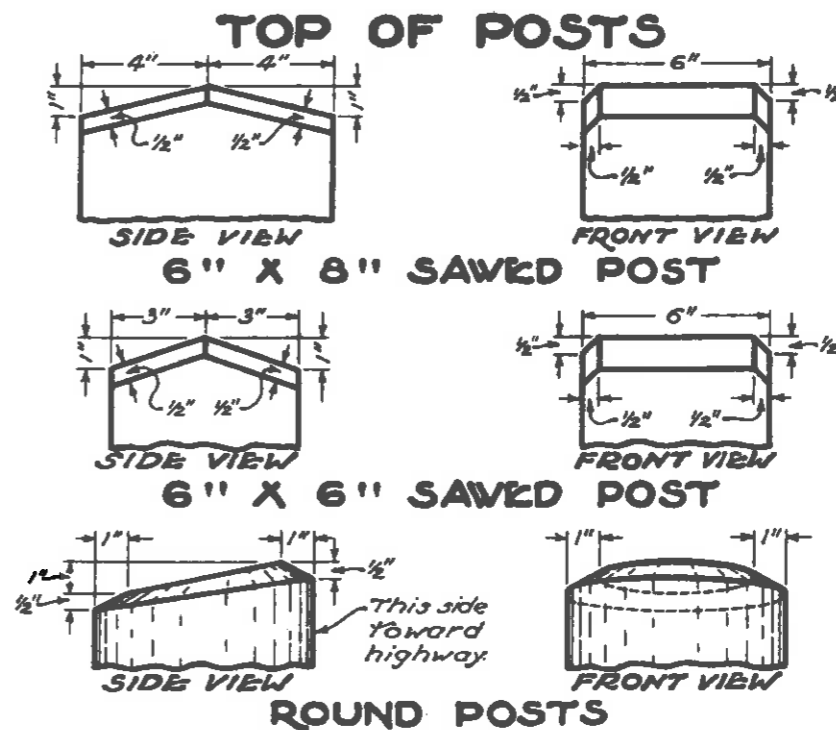
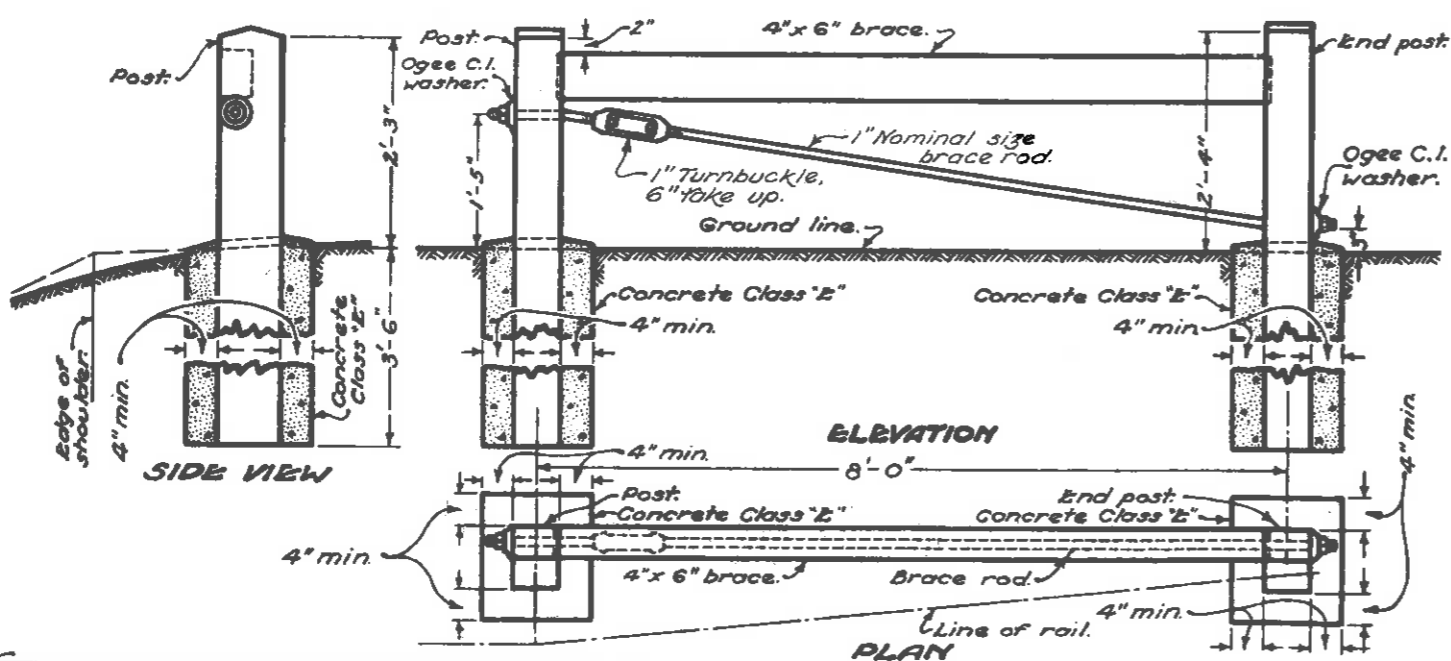
STANDARD CONSTRUCTION DRAWING **GR-2A**
APPROVED *[Signature]* ENGR. L. & D.

STANDARD GUARD RAIL

TWO END POSTS WITH ANCHOR



TWO END POSTS WITH BRACING



NOTES

GENERAL: Standard Construction Drawings showing rail type shall be used in conjunction with this drawing.

POSTS: Wood posts may be either round or square-sawed. For flexible plate Type 2, deep Type 4, and 4 wire ropes Type 1, square-sawed posts, when used, shall be full 6"x8". For 3 wire ropes Type 1, square-sawed posts, when used, may be full 6"x6". Galvanized steel posts shall be 6B x 8 1/2 pounds.

Bolt holes shall be bored in tops of posts trimmed after posts are set.

END ANCHORAGE: Except Type 3 or 4, deadmen shall be used for end anchorage unless physical features such as bridges, drive, road intersections, etc., make this impractical, in which case the anchorage shall be of the bracing type with the two end posts spaced 8 feet on centers. Brace rod or chain assembly shall develop a tensile strength of at least 50,000 pounds.

CONCRETE ENCASEMENT: The two posts at each end of a run of all guard rail shall be encased in concrete. When Type 1 rail is used, the final three posts at each end of each run shall be encased in concrete.

GUARD POSTS: The posts shall conform to 606 and shall be spaced 6'-0" center to center unless otherwise indicated on plans. Wood posts may be either round or square-sawed as directed on this drawing. Concrete encasement is not required. Posts shall be omitted.

PREFABRICATED POSTS: Cutting and trimming of post tops set with of grade will not be required. Posts be fabricated with square ends and not be longer than specified length, one inch. Posts that are a part of anchor assembly shall be set in concrete. All other posts may be set in drilled holes or may be driven to grade.

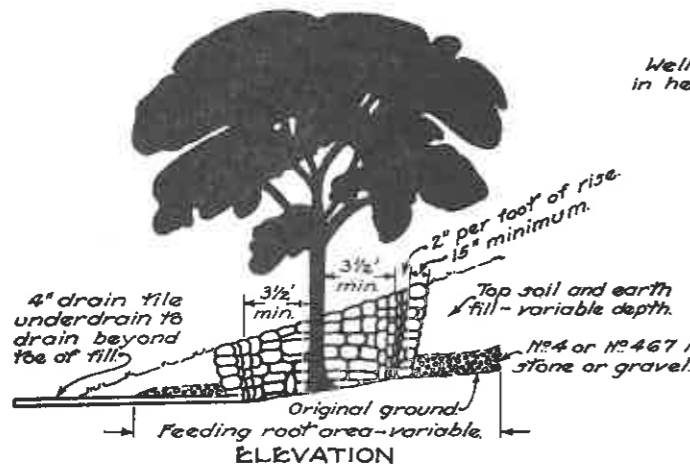
BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

GUARD RAIL

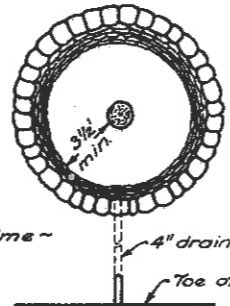
STANDARD CONSTRUCTION DRAWING

GR-1

APPROVED *R.E. Both* ENGR. L. & D.



Wells to be circular and equal in height to fill around tree.



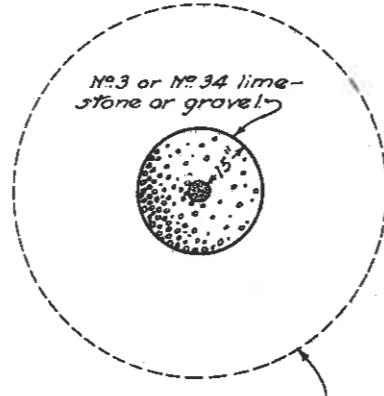
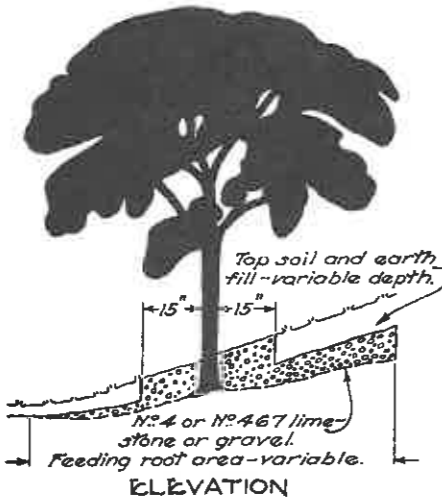
PLAN



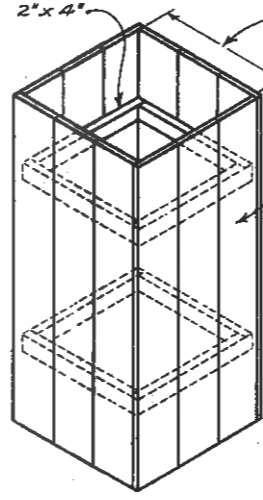
FRONT VIEW

Where fill around tree is 12" or more in depth over any part of feeding root area or periphery of the tree, wells are to be constructed as shown, augmented by Specifications for Roadside Improvement.

RIPRAP AND AGGREGATE FOR TREE PROTECTION AND AERATION IN FILL

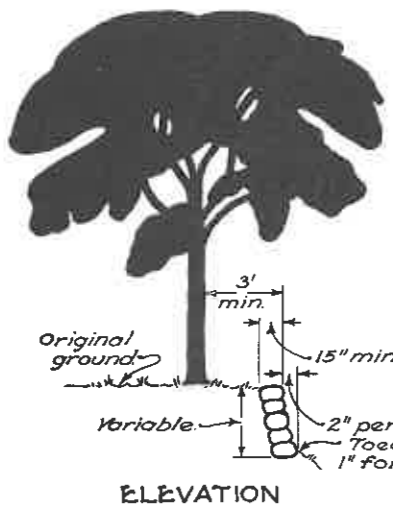


PLAN

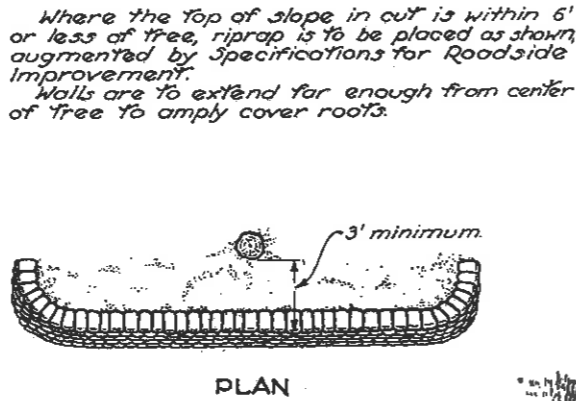


TREE PROTECTION BOX

AGGREGATE FOR TREE ROOT AERATION IN FILL

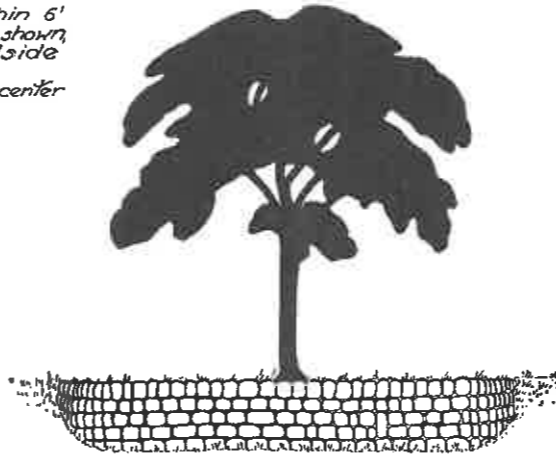


ELEVATION

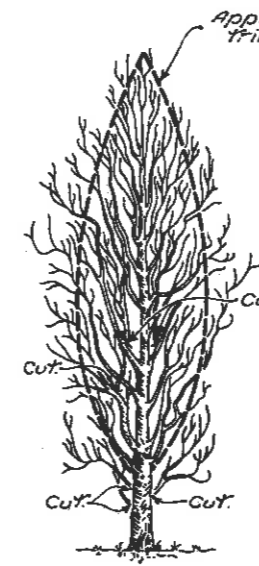


PLAN

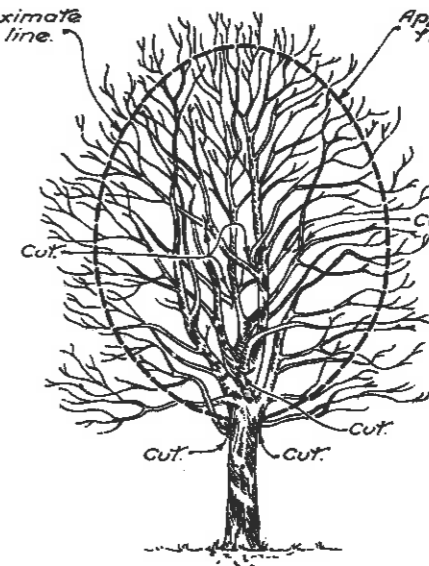
RIPRAP FOR TREE PROTECTION IN CUT



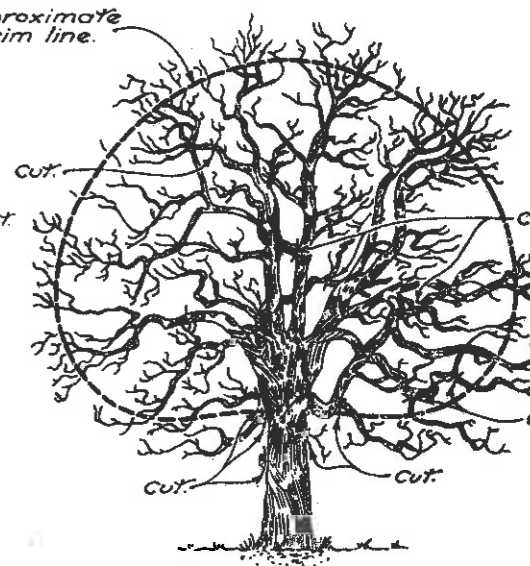
FRONT VIEW



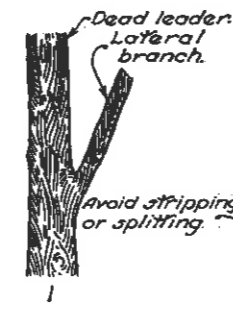
PYRAMIDAL TYPE



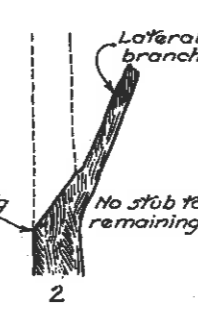
ROUND-HEADED TYPE



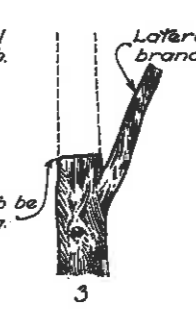
SPREADING TYPE



PART OF LEADER OR BRANCH TO BE REMOVED



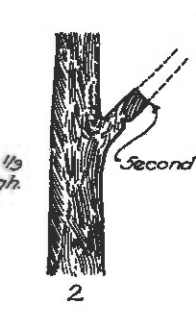
Proper.



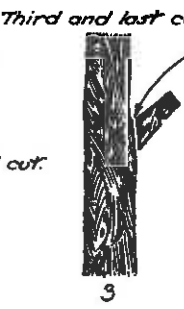
Improper



Undercut to prevent bark from stripping.

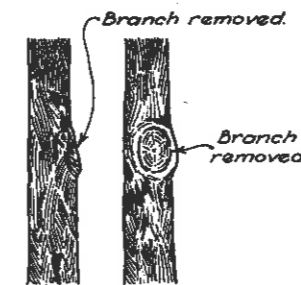


Limb removed by making downward cut leaving stub.

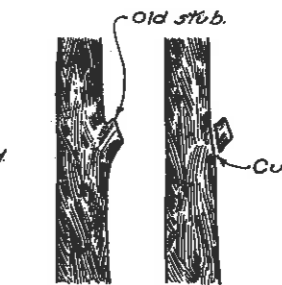


Removal of stub by downward cut from top side.

PROPER REMOVAL OF BRANCHES

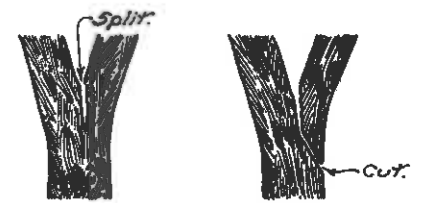


Cuts made flush with remaining limb or trunk and ready for painting if diameter exceeds 1/2 - 1" as specified.



Remove wire, nails etc.

REMOVING STUBS



PROPER CROTCH TREATMENT

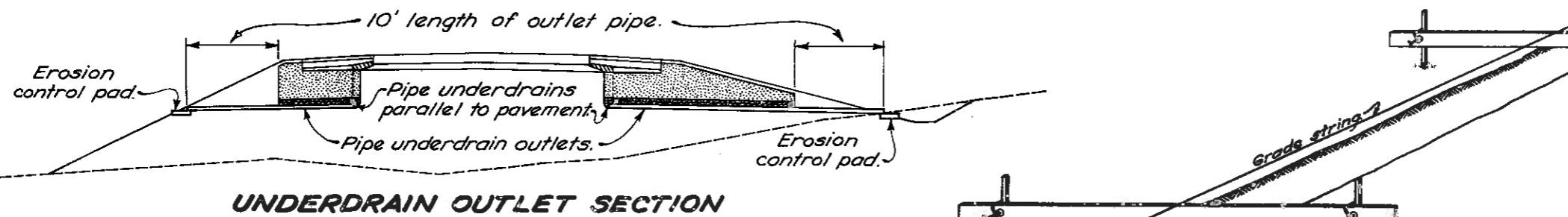
PRUNING

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

ROADSIDE IMPROVEMENT

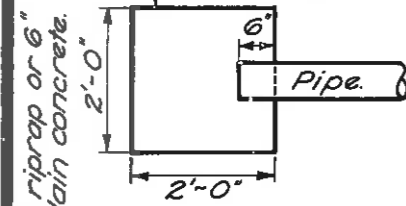
STANDARD CONSTRUCTION DRAWING L-1
APPROVED *ROBERT W. ENGR. L. & D.*

CONSTRUCTION METHODS

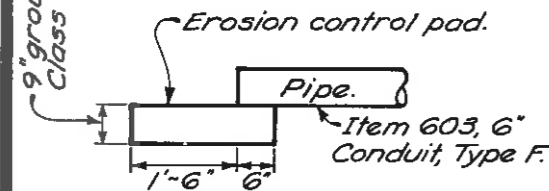


UNDERDRAIN OUTLET SECTION

Erosion control pad shall be included in the price bid for Item 603, 6" Conduit, Type F.

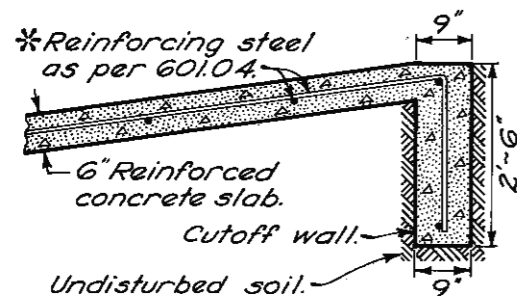


PLAN

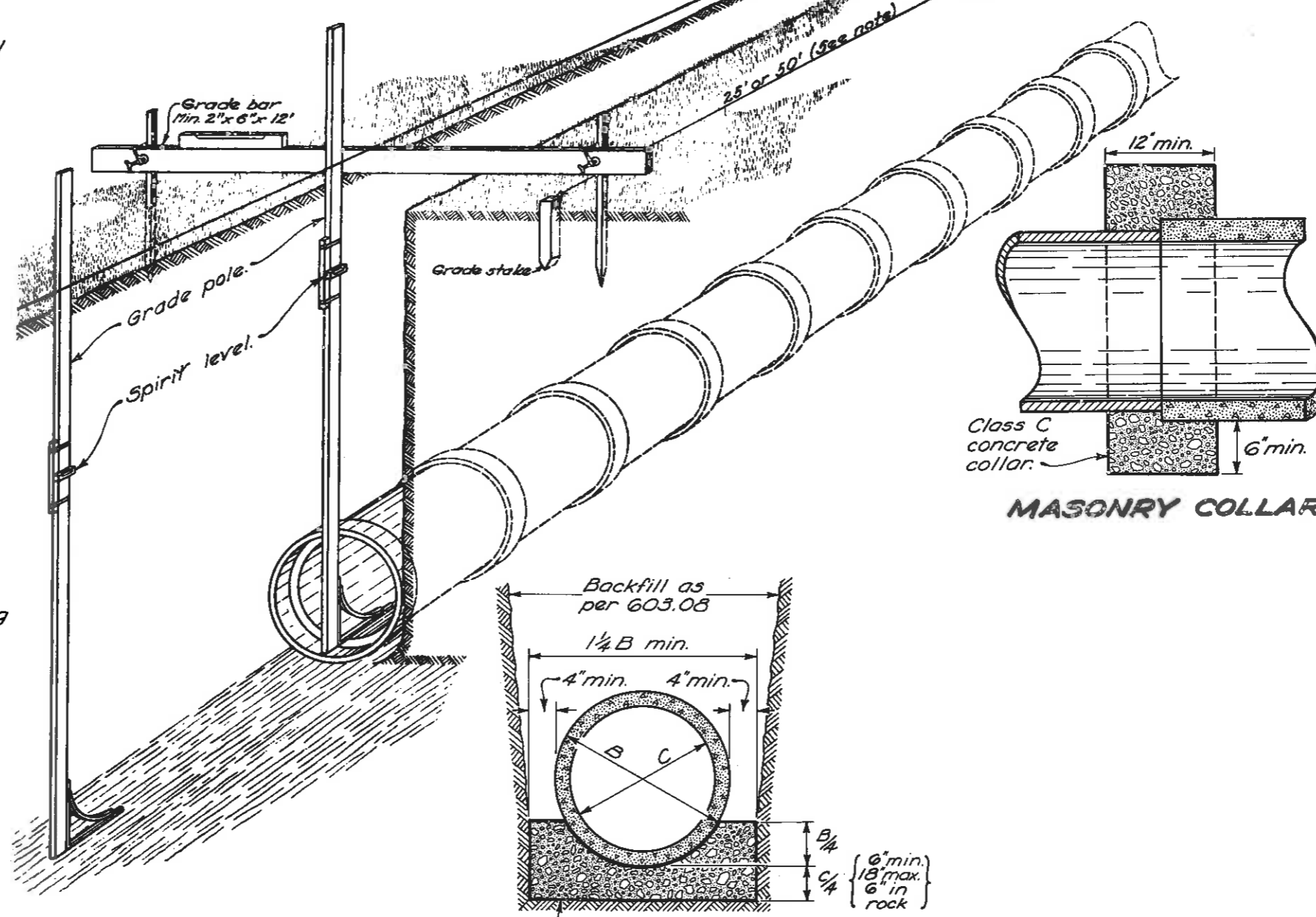


**PROFILE
PIPE UNDERDRAIN
OUTLET**

*If wire fabric is used in the slab,
*4 bars @ 24" centers, overlapping
the fabric 12", may be used in the
cutoff wall.



RIPRAP CUTOFF WALL
Cutoff wall shall be included in
the price bid for Item 601 Riprap-
6" Reinforced Concrete Slab.



LAYING PIPE

**CONCRETE CRADLE
CLASS A BEDDING**

MASONRY COLLAR

NOTES

GRADE STAKES shall be set at following intervals:
For grades less than 0.70% - 25'
For grades of 0.70% and over - 50'

GRADE POLE shall be a straight pole dressed with corners rounded, depending on length but approximately 1" x 2". The pole shall be equipped with metal bracket on the bottom with projecting length of 12". Notches shall be cut on the pole for the depth of flowline below the grade string and for the depth of trench. A spirit level shall be used on the pole to determine when the pole is vertical.

ALTERNATE METHODS: The Engineer may approve other methods of determining alignment and grade of pipe lines if the Contractor can demonstrate that the same degree of accuracy can be obtained as can be obtained by use of the method shown on this drawing.

MASONRY COLLARS: Where plans require that a pipe extension be joined to the end of an existing pipe with a butt joint, a collar shall be provided and the cost shall be included in the price bid for new conduit.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

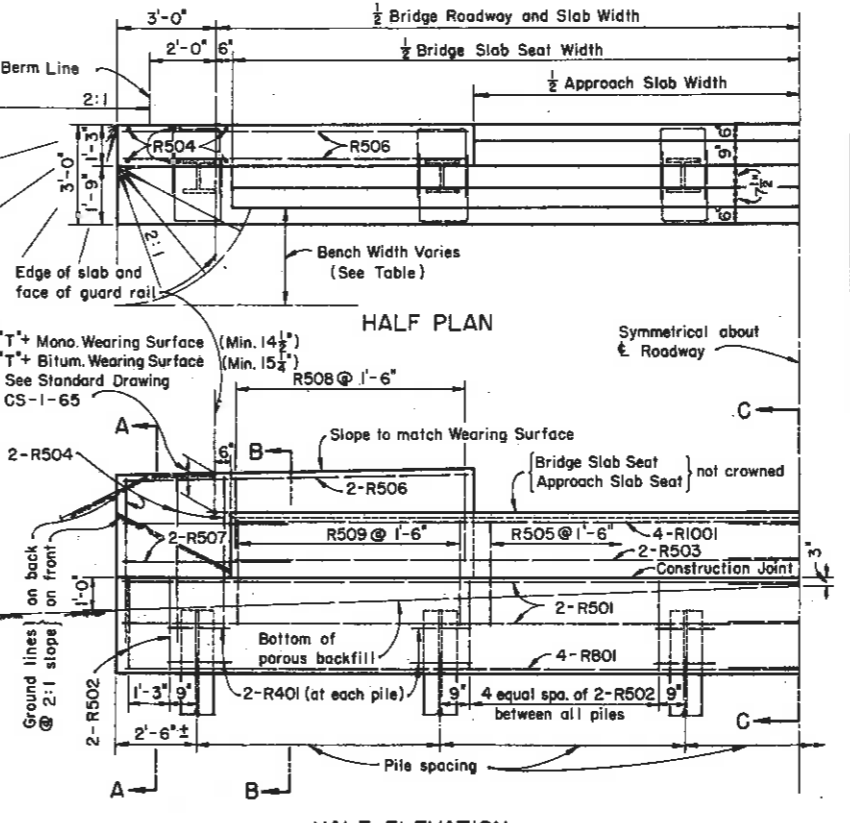
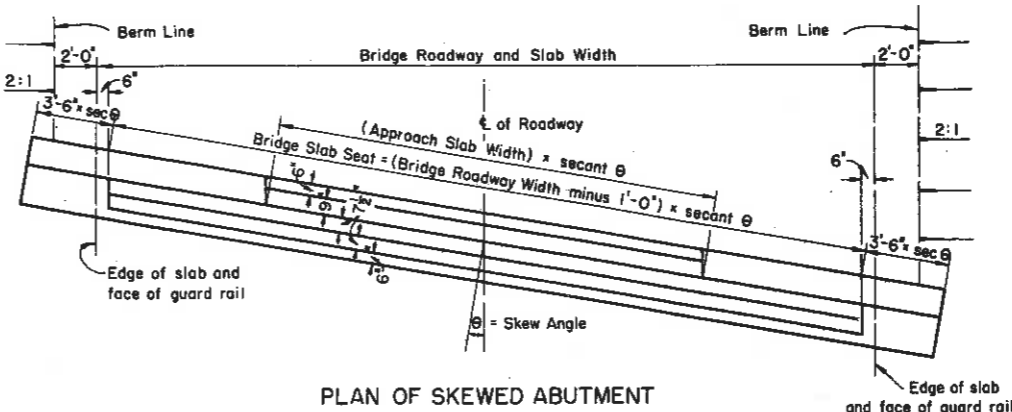
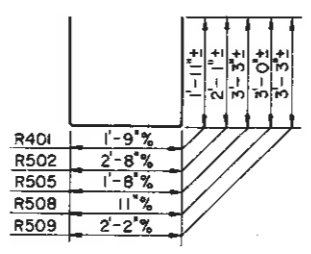
DRAINS AND SEWERS

STANDARD CONSTRUCTION DRAWING MC-4
APPROVED *R. L. Bell* ENGR. L. & D.

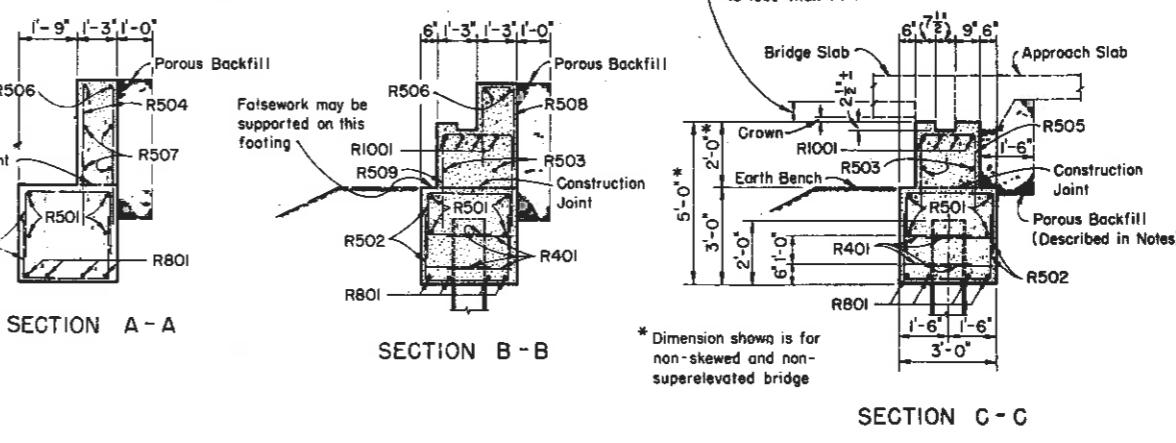
LOAD FREQUENCY	SPANS	NUMBER, SPACING, AND DESIGN LOAD (IN TONS) OF PILES FOR ONE NON-SKEWED ABUTMENT						CONCRETE AND REINFORCING STEEL IN TWO NON-SKEWED ABUTMENTS											
		24' R'dwy. 5 Piles @ 6'-3"	28' R'dwy. 6 Piles @ 5'-10"	32' R'dwy. 6 Piles @ 6'-7"	36' R'dwy. 7 Piles @ 6'-2"	40' R'dwy. 7 Piles @ 6'-10"	44' R'dwy. 8 Piles @ 6'-5"	24' R'dwy. Reinf. Steel Lbs.	28' R'dwy. Concrete Cu. Yds.	32' R'dwy. Reinf. Steel Lbs.	36' R'dwy. Concrete Cu. Yds.	40' R'dwy. Reinf. Steel Lbs.	44' R'dwy. Concrete Cu. Yds.	24' R'dwy. Reinf. Steel Lbs.	28' R'dwy. Concrete Cu. Yds.	32' R'dwy. Reinf. Steel Lbs.	36' R'dwy. Concrete Cu. Yds.	40' R'dwy. Reinf. Steel Lbs.	44' R'dwy. Concrete Cu. Yds.
		CF = 30	16'-20'-16"	19	17	19	18	20	19	29	32	36	41	44	49	49	49	49	49
CF = 130	16'-20'-16"	19	18	20	19	21	20	29	33	37	41	45	49	49	49	49	49	49	49
CF = 400	16'-20'-16"	19	18	20	19	21	20	29	33	37	41	45	49	49	49	49	49	49	49
CF = 2000	16'-20'-16"	19	18	20	19	21	20	29	33	37	41	45	49	49	49	49	49	49	49

BRIDGE ROADWAY WIDTH	R1001 Straight 16" Length Required	R801 Straight 16" Length Required	R501 Straight 16" Length Required	R502 Bent 6'-7" Long Number	R503 Straight 8" Length Required	R504 Straight 5'-4" Long Number	R505 Bent 7'-11" Long Number	R506 Straight 8" Length Required	R507 Straight 16" Length Required	R508 Bent 6'-8" Long Number	R509 Bent 8'-5" Long Number	R401 Bent 5'-5" Long Number
24'	12'-11"	16'-1"	15'-7"	96	12'-1"	24	*	*	4'-11"	*	*	40
28'	14'-11"	18'-1"	17'-7"	116	14'-1"	24	*	*	4'-11"	*	*	48
32'	16'-11"	20'-1"	19'-7"	116	16'-1"	24	*	*	4'-11"	*	*	48
36'	18'-11"	22'-1"	21'-7"	136	18'-1"	24	*	*	4'-11"	*	*	56
40'	20'-11"	24'-1"	23'-7"	136	20'-1"	24	*	*	4'-11"	*	*	56
44'	22'-11"	26'-1"	25'-7"	156	22'-1"	24	*	*	4'-11"	*	*	64

* See Notes for explanation of length or number.



"A"	BENCH WIDTH
14 1/2" thru 16"	3'-0"
16 1/2" thru 17 1/2"	3'-3"
17 3/4" thru 19"	3'-6"
19 1/4" thru 20 1/2"	3'-9"
20 3/4" thru 22"	4'-0"
22 1/4" thru 23 1/2"	4'-3"
23 3/4" thru 24 3/4"	4'-6"



GENERAL: This drawing provides design and general construction details intended to be used with Standard Drawing CS-1-65. The project plans for structure will show span lengths; roadway width; skew; elevations; type, and required capacity of piles; estimated quantities; reinforcing steel list and other necessary notes and details.

DESIGN SPECIFICATIONS: This standard drawing conforms to the "Design Specifications for Highway Structures" of the State of Ohio, Department of Public Safety, dated October 1, 1951, together with revisions dated July 15, 1952 and April 15, 1953.

EXPANSION: Where provision for expansion is required, this drawing shall not be used.

PILE TYPE AND SIZE: The piles usually will be specified on the project as cast-in-place reinforced concrete or steel H. The type and size generally will be the same as for the pier piles if the piers are of the type shown on Standard P-1-54. If the type of pier is different from that shown on Standard Drawing the abutment piles, if of the steel H type, generally will be specified as 12" and if of the cast-in-place concrete type, as 12" diameter if the sum of the pile lengths is less than 100 feet, and as 14" diameter if more than 100 feet.

PILE SPACING: In case of skew, the number of piles shall be the same but the tabulated spacing dimension shall be multiplied by the secant of angle of skew.

PILE CAPACITY shall be as specified on the project plans. The required capacity according to the formula in Sec. 507.05 of the Construction and Material Specifications generally will be the same as the design load listed in the table, except for piles that are to be driven to firm contact with rock or other hard material which case the required formula capacity generally will be greater than the design load and will be dependent upon the relative magnitude of the design load on a hammer, and upon the kind and relative depth of the penetrated soil.

EARTH EMBANKMENT shall be placed up to the elevation of the earth after which the excavation shall be made for the abutment and the piles driven.

CONCRETE shall be Class "E" and payment will be made on this basis, but Class "C" concrete may be used for any or all parts of the abutments.

REINFORCING STEEL: For a skewed abutment the tabulated length of R1001, R801, R501, R503, R506 and R507 bars will be multiplied by the secant of theta (the angle of skew). The number of the R505, R508 and R509 bars or length of the R506 bars will be determined for each individual bridge. The R801, R501 and R503 bars, at the option of the Contractor, may be furnished two lengths as indicated hereon, with a 30-diameter lap, or as single bars, net length, except where such length would be greater than 52'-0"; and the determination of pay quantity shall be based on two lapped lengths unless called for on the project plans. The clearance from the face of the concrete reinforcing steel shall be 2".

POROUS BACKFILL shall extend upward to the approach slab and to the top of the earth shoulders, and outward to the surface of the embankment slope. Excavation therefor, in excess of that required for construction of the footing, shall be considered as paid for in the bid price per cu. yd. paid for porous backfill.

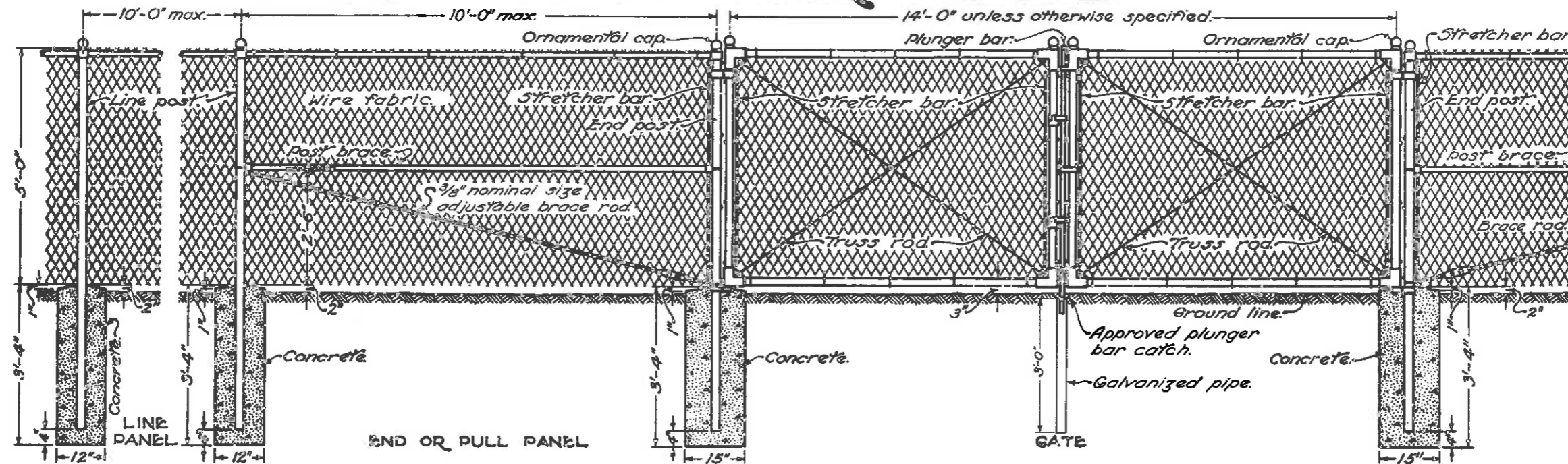
EXCAVATION QUANTITY includes the removal of embankment material to the bottom of the abutment footing and the top of the earth bench.

CONCRETE QUANTITY: For skewed bridges the concrete quantity as will be multiplied by the secant of theta (the angle of skew).

BAR SIZE is indicated in the bar mark. The first digit where three digit and the first two digits where four are used, indicate the bar size number. Example, R801 is a No. 8 size bar and R1001 is a No. 10 size.

REVISIONS	STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES
12-1-54	STANDARD CAPPED PILE ABUTMENT FOR CONTINUOUS SLAB BRIDGE WITHOUT CURBS MIDDLE SPAN 20 FEET TO 55 FEET LOAD FREQUENCY CF = 30, CF = 130, CF = 400, CF = 2000
11-8-65	
APPROVED:	DESIGNED BY: [Signature]
DATE: 2-1-66	CHECKED BY: [Signature]
PREPARED BY: [Signature]	TRACED BY: [Signature]
CEI LJE RAG	CER
CFB JCH WMR	FHR
	CSS BPS CHA
	AJF BNS

TYPE CL - CHAIN LINK FENCE



NOTES

BRACES: - Braces shall be fastened to the posts with No. 16 nails.

FABRIC: - Other methods for splicing wire fence may be used in lieu of the method shown when approved by the Director.

GATES: - Each gate shall be equipped with an approved padlock with double locking bolt, five-pi. tumbler, laminated steel case, brass cylinder, rust-proof. When companion gates are installed on opposite sides of the highway, the locks shall be identically set in each lock so that the same key will open each lock. Two keys shall be furnished with each padlock.

CONCRETE: - The provisions of 511.13 are modified to the extent that concrete shall be protected during the curing period in a manner such that it will not freeze. Concrete shall Class "C".

STREAM CROSSINGS: - When chain link fence is to be constructed continuously across streams, and stream crossing closures are required by the plans, the closure shall be constructed in accordance with details shown on Standard Construction Drawing F-2, modified as necessary to conform with Type CL dimensions and details.

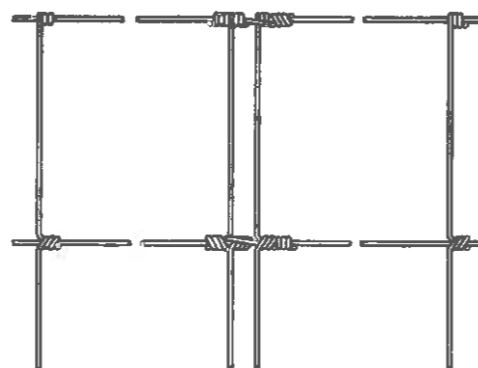
TYPE 39 WOVEN WIRE FENCE



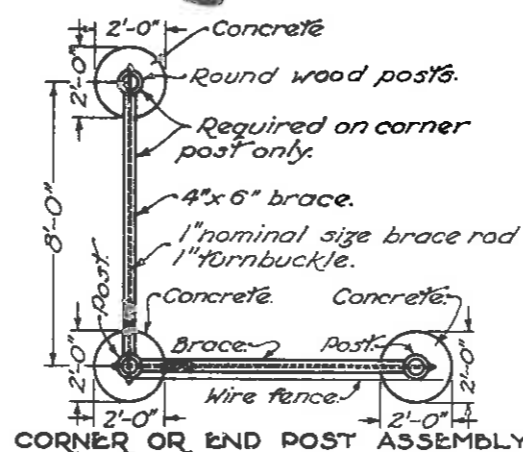
R/W FENCE TREATMENT AT CULVERTS



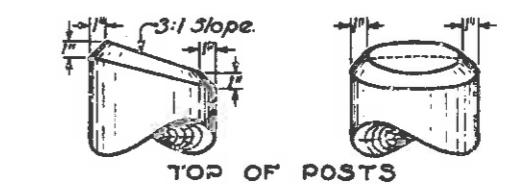
R/W FENCE TREATMENT AT DRIVES



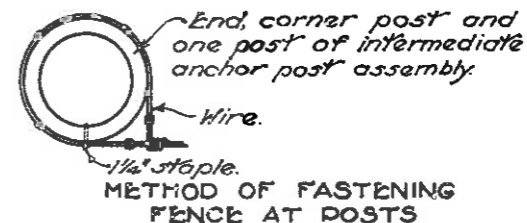
WIRE FENCE SPLICE



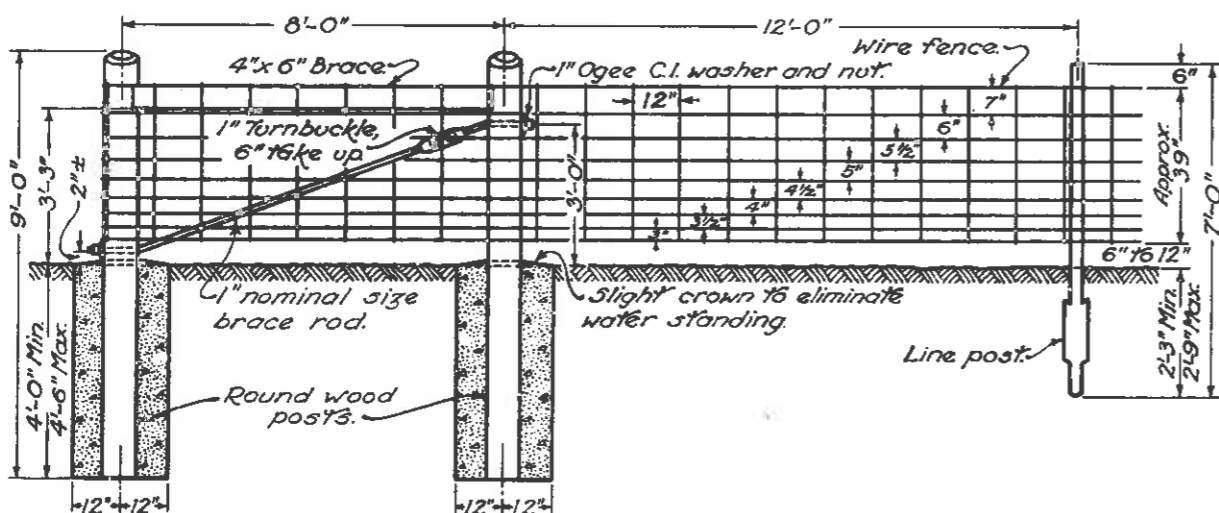
CORNER OR END POST ASSEMBLY



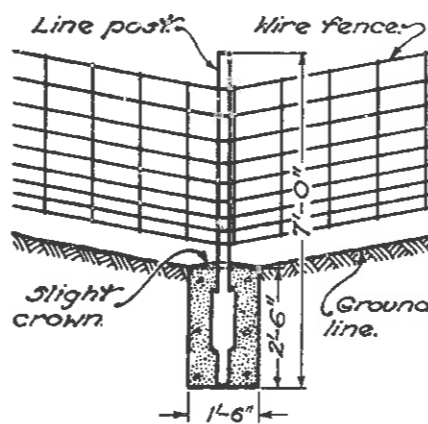
TOP OF POSTS



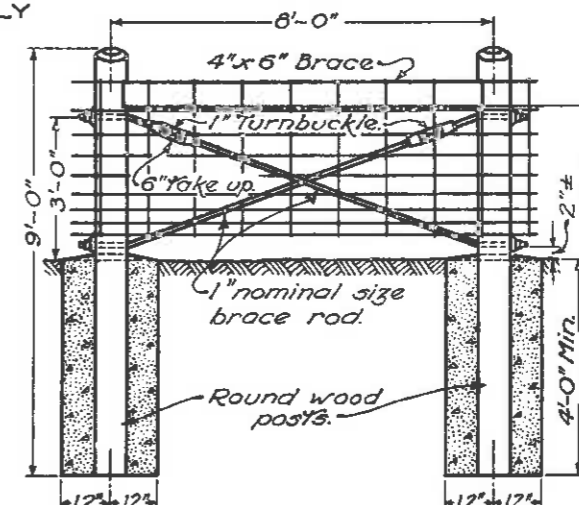
METHOD OF FASTENING FENCE AT POSTS



CORNER OR END POST ASSEMBLY



LINE POST IN DIP SECTION

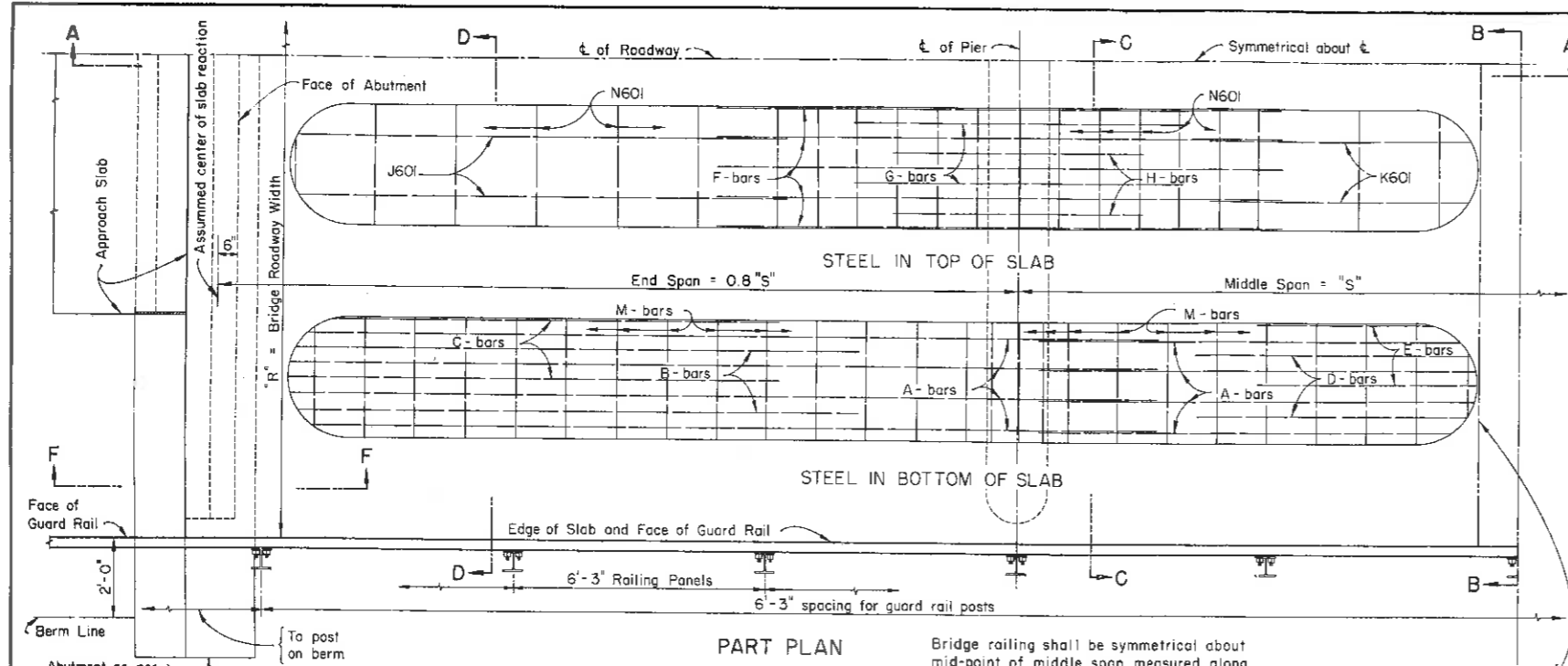


INTERMEDIATE ANCHOR POST ASSEMBLY

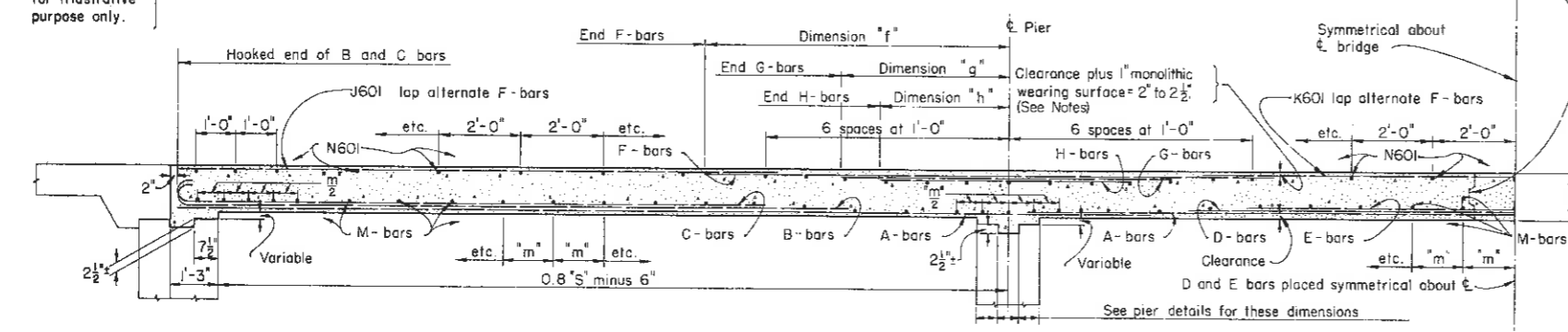
BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

FENCE

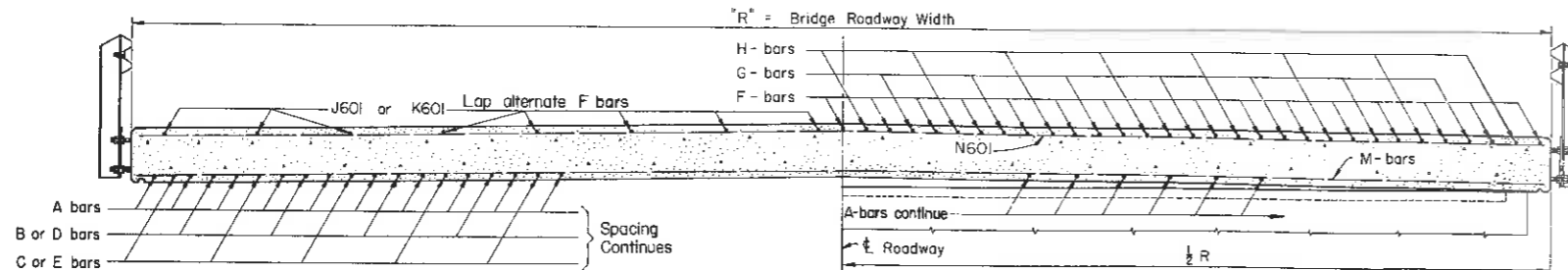
STANDARD CONSTRUCTION DRAWING F-1
APPROVED *R. L. Smith* ENGR. L. & D.



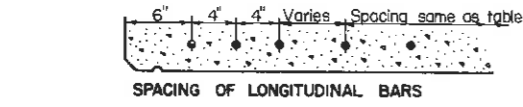
PART PLAN
 Bridge railing shall be symmetrical about mid-point of middle span measured along the edge of the slab.



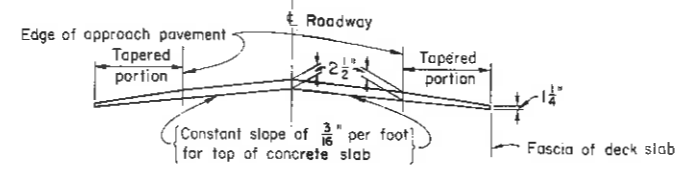
SECTION A - A



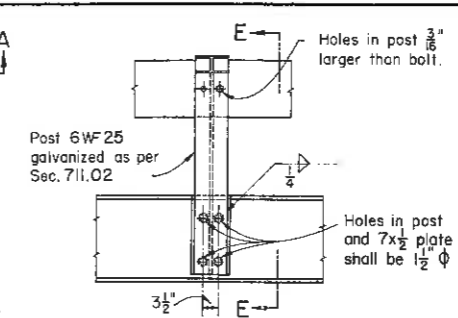
SECTION B - B AND D - D



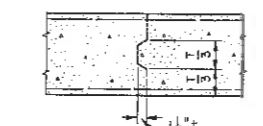
BRIDGE ROADWAY CROWN FOR MONOLITHIC WEARING SURFACE



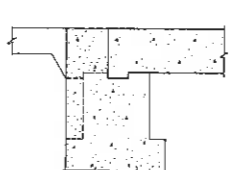
BRIDGE ROADWAY CROWN FOR BITUMINOUS WEARING SURFACE FOR BRIDGE WITHOUT SUPERELEVATION



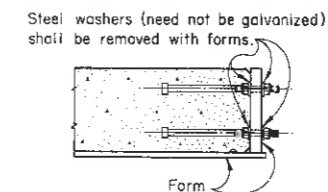
ELEVATION OF RAILING POST



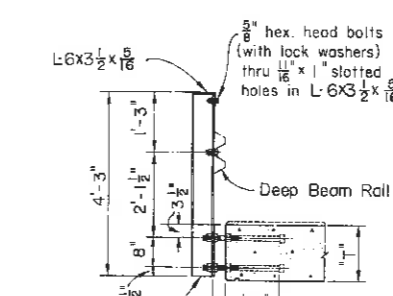
CONSTRUCTION JOINT
(See note)



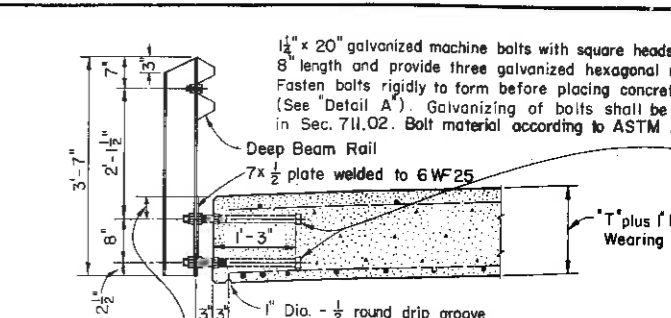
SECTION F - F



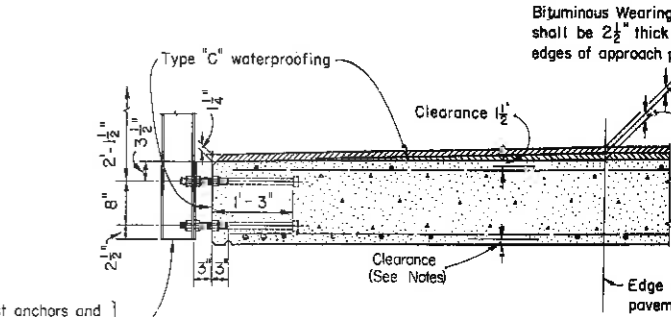
DETAIL A



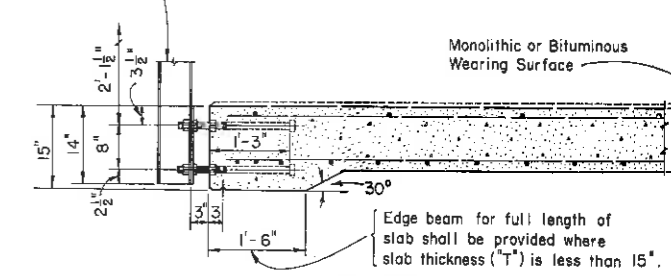
SECTION G - G



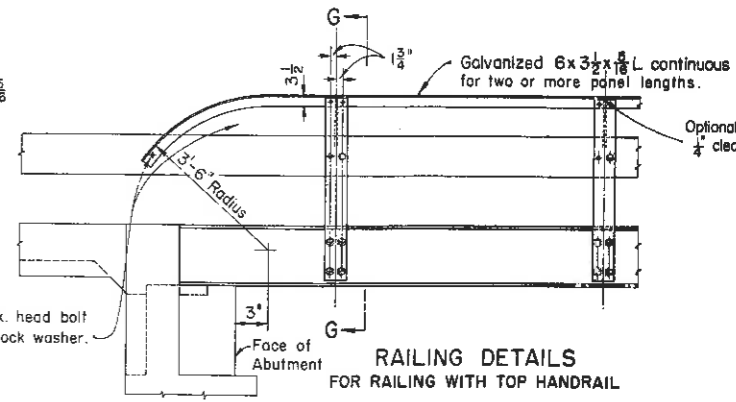
SECTION E - E SHOWING MONOLITHIC WEARING SURFACE



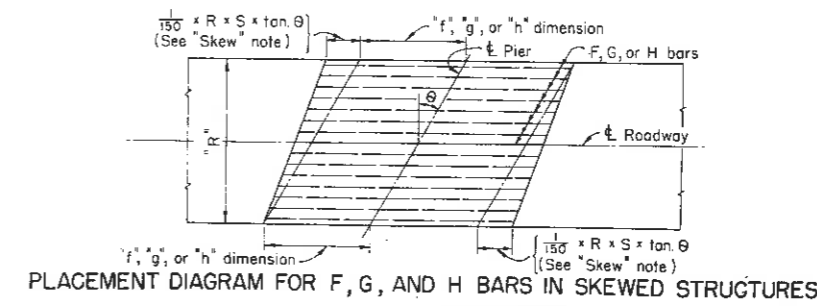
SECTION E - E SHOWING BITUMINOUS WEARING SURFACE



SECTION E - E SHOWING DETAILS OF EDGE BEAM



RAILING DETAILS FOR RAILING WITH TOP HANDRAIL



PLACEMENT DIAGRAM FOR F, G, AND H BARS IN SKEWED STRUCTURES

REVISIONS		STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES	
STANDARD		CONTINUOUS SLAB BRIDGE WITHOUT CURBS AND WITH HIGHWAY GUARDRAILS MIDDLE SPAN 20 FEET TO 55 FEET LOAD FREQUENCY: CF = 30, CF = 130, CF = 400, CF = 2000	
APPROVED:	DATE: 6-1-15	DR	
PREPARED:	TRACED:	CHECKED:	REVIEWED:
RHL DEJ CFB	DEJ	OW MPB	OSD BFO CHA
JCM WHR	FHR	AJP DMD	

S L A B DATA

LOAD FREQUENCY	SPANS	A, B, C, D, and E bars												F, G, and H bars												J-bars				K-bars				M-bars		N-bars			
		A - bars			B - bars			C - bars			D - bars			E - bars			F - bars			G - bars			H - bars			J-60I		K-60I		M-bars		N-60I							
		Mark	Spag.	Lgth.	Mark	Spag.	Lgth.	Mark	Spag.	Lgth.	Mark	Spag.	Lgth.	Mark	Spag.	Lgth.	Mark	Spag.	Lgth.	Mark	Spag.	Lgth.	Mark	Spag.	Lgth.	Mark	No.	Sp.m	Lgth.	No.	Lgth.								
		In.	Fl.-In.	Fl.-In.	In.	Fl.-In.	Fl.-In.	In.	Fl.-In.	Fl.-In.	In.	Fl.-In.	Fl.-In.	In.	Fl.-In.	Fl.-In.	In.	Fl.-In.	Fl.-In.	In.	Fl.-In.	Fl.-In.	In.	Fl.-In.	Fl.-In.	In.	Fl.-In.	Fl.-In.	In.	Fl.-In.	Fl.-In.								
CF = 30	16'-20" - 16'	A 700	14 1/2	19-3	B 700	29	15-0	14-2	C 700	29	13-4	12-6	D 700	29	14-8	E 700	29	10-8	F 700	12 1/2	12-6	6-6	G 700	25	8-0	4-0	H 700	25	7-0	3-6	25	12-0	25	11-0	M 60I	48	16	41	

LOAD FREQUENCY	SPANS	QUANTITIES PER FOOT OF WIDTH						GUARD RAIL	
		Concrete (Cu.Yd)		Bitum. Wearing Surface (Cu.Yd)		Type "C" Water-proofing Sq.Yds.	Reinf. Steel Lbs.	No. of Full Panels Ea.Side	Lin.Ft. Both Sides
		Mono Surface	Separate Surface	2 1/2" Thick	1 1/2" Av. Thick				
CF = 30	16'-20" - 16'	1.71	1.54	0.41	0.31	5.9	404	8	107

* Dimension "T" does not include monolithic wearing surface.

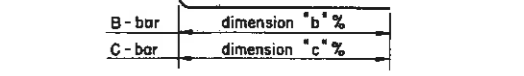
BAR SIZE is indicated in the bar mark. The first digit where three digits are used and the first two digits where four are used, indicate the bar size number. For example, A700 is a No. 7 size bar and A1014 is a No. 10 size.

GENERAL: This drawing provides design and general construction details. The project plans for each structure will show span lengths, roadway width, load frequency, skew, curve and super-elevation (if any), elevations, wearing surface, substructure details, estimated quantities, reinforcing steel list and other necessary details and special notes.

SKREW: For bridges with skew, longitudinal bars shall be placed parallel to centerline of roadway and transverse bars parallel to piers and abutments. For skews of less than 10°, longitudinal reinforcement as shown for non-skewed bridges may be used. For skews from 10° to 30°, "F", "G", and "H" bars shall be lengthened and "K" bars shortened an amount equal to 1/150 x R x S x tan.θ. "F", "G", and "H" bars shall be placed as shown in Placement Diagram. (For skew greater than 30° another type of bridge should be used.)

RAILING: Transition between guard rail height on bridge and on approaches shall be made in a distance of 100 feet from each end of bridge. An upper hand rail and longer posts shall be provided if called for on the project plans.

REINFORCING STEEL CLEARANCE from face of concrete shall be 1 1/2" for #11 bars, 1 1/4" for #9 and #10 bars and 1" for all smaller bars. (The above clearances do not include monolithic wearing surface.) Where two bars of different size are lapped, the clearance requirement for the larger bar shall also apply to the smaller bar.



DESIGN SPECIFICATIONS: This standard drawing conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated September 1, 1957, together with revisions thereof dated February 21, 1958, May 1, 1962 and December 20, 1963.

SUPERELEVATION: For bridges on curves the concrete slab shall be super-elevated for full width of deck at the same rate as the approach pavement. The bituminous wearing surface shall be of uniform thickness for the full width of the slab.

Tabulated railing quantity is for the length of railing within the overall length of slab. The price per linear foot of railing includes payment for guard rail, hand rail (if called for), posts, anchors, connections and galvanizing. It also includes those curved portions of the hand rail which project beyond the above stated limits. **CONCRETE** shall be class "C".

REINFORCING STEEL: The "M" bars and "N" bars may be furnished in pairs of equal length, lapped thirty diameters at the centerline of roadway, or they may be furnished in pairs of different length in order to place the lap beyond a longitudinal construction joint at the centerline of roadway, at the option of the contractor. Determination of the pay quantity will be according to the number and length of bars as shown hereon unless otherwise called for on the project plans.

ADDITIONAL INTERIOR SPANS, similar to middle span, may be incorporated into the structure without change in slab thickness or area of reinforcing steel. In case of added spans, the project plans will show revised details and estimated quantities.

MONOLITHIC WEARING SURFACE shall be 1" concrete quantities have been computed on this basis.

CONSTRUCTION JOINTS: One construction joint in bridge slab shall be placed on transverse centerline of middle span or 1'-0" ± off transverse centerline if necessary to miss railing posts and transverse reinforcing bars. One longitudinal joint will be permitted, on centerline of roadway.

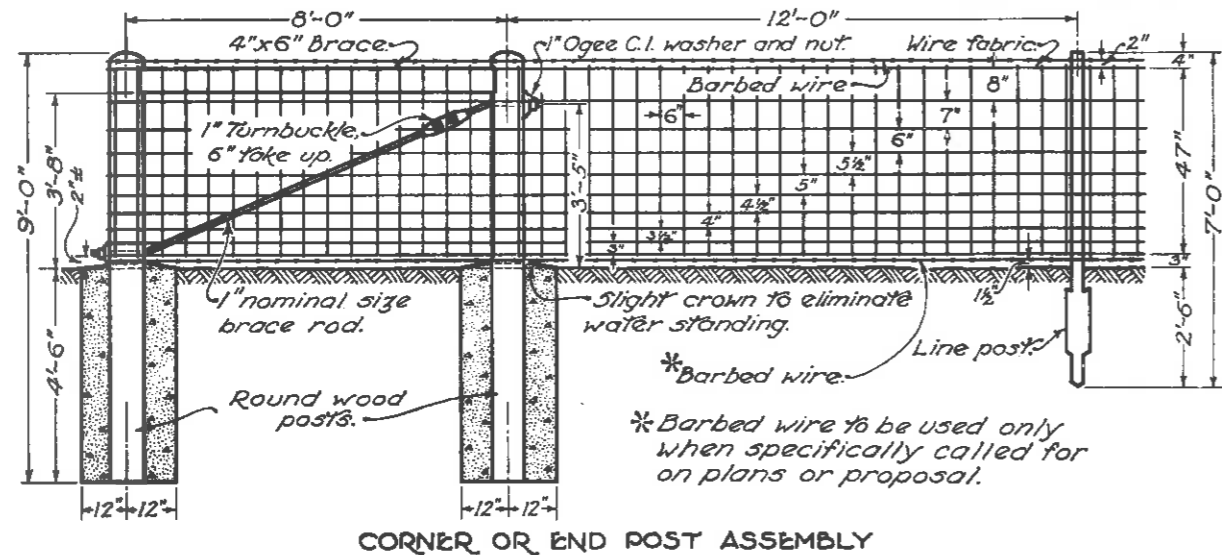
CAMBER of 1/800 of the span shall be provided in each span (in addition to that required for conformance with the profile of the highway) to allow for dead load deflection. This is the amount of camber required before falsework is released. To obtain this, proper allowance shall be made for the deflection of falsework members.

EXPANSION: Where the greatest distance between diagonally opposite corners of the superstructure, taking into account the sum of the spans, the width and the skew (if any), exceeds 175 feet, provision shall be made for expansion of the deck.

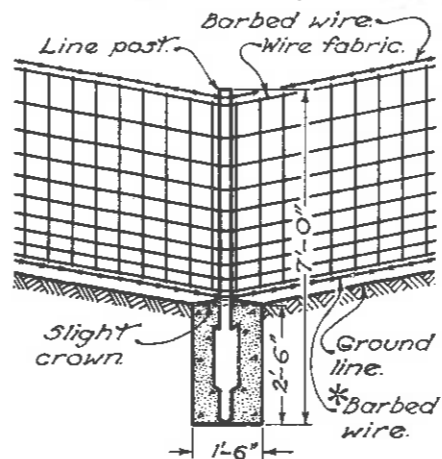
TYPE "C" WATERPROOFING QUANTITY as determined from the table shall have added to it the number of sq. yds. fascia of slab.

REVISIONS STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES
STANDARD CONTINUOUS SLAB BRIDGE WITHOUT CURBS AND WITH HIGHWAY GUA MIDDLE SPAN 20 FEET TO 55 FEE LOAD FREQUENCY: CF = 30, CF = 130, CF = 400, CF = 200
APPROVED: _____ DATE: 6-1-65 PREPARED: RHL DEJ GFB JCM WNR TRACED: _____ CHECKED: _____ ENGINEER OF BRIDGES CIVIL ENGINEER

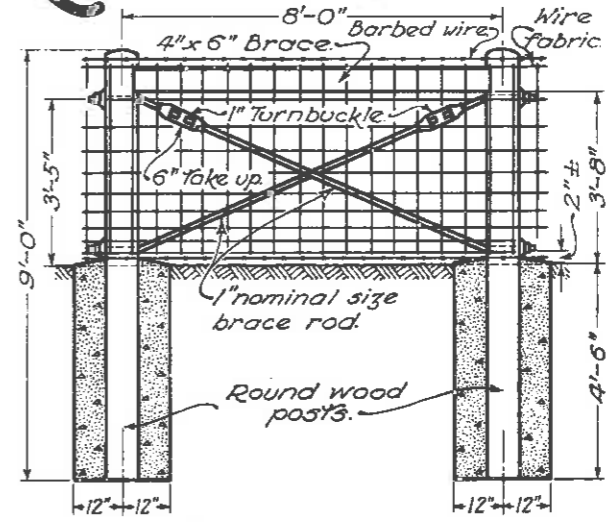
TYPE 47 WOVEN WIRE FENCE



CORNER OR END POST ASSEMBLY



LINE POST IN DIP SECTION



INTERMEDIATE ANCHOR POST ASSEMBLY

NOTES

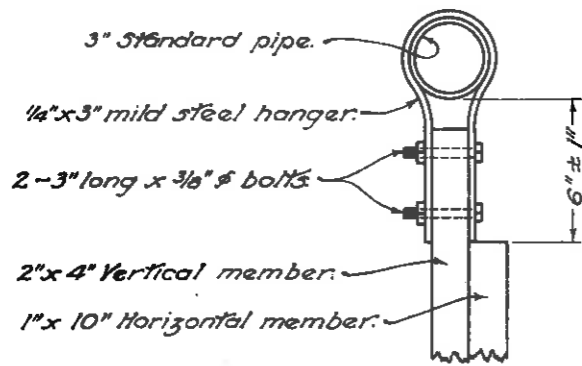
BRACES:— Braces shall be fastened to the posts with No. 16 nail.

STREAM CROSSINGS:— Type 1 and 2 stream crossings shall be specified at earth side ditches and streams served by culverts smaller than 48 inch rise. Rock channel protection shall be provided for the full length of the fanned barbed wire to a depth of 18 inches and a width of 2 feet outside the fence and 4 feet inside the fence, total width 6 feet. Rock channel protection shall be paid for under 601.

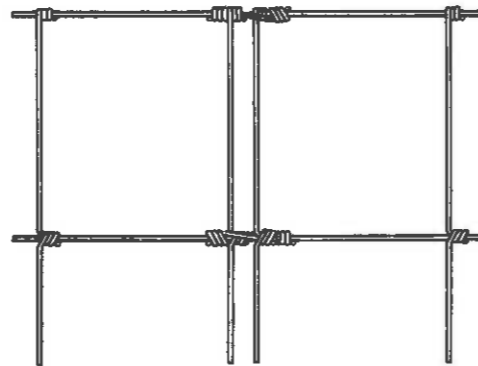
Type 3 stream crossing shall be provided where fence crosses post gutter.

FABRIC:— Other methods for splicing wire fence may be used, lieu of the method shown when approved by the Director.

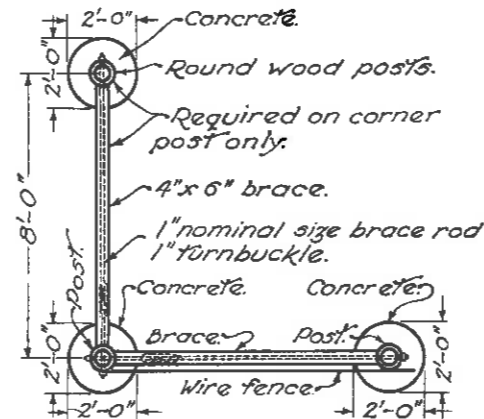
CONCRETE:— The provisions 511.13 are modified to the extent concrete shall be protected during the curing period in a manner so that it will not freeze. Concrete shall be Class "C".



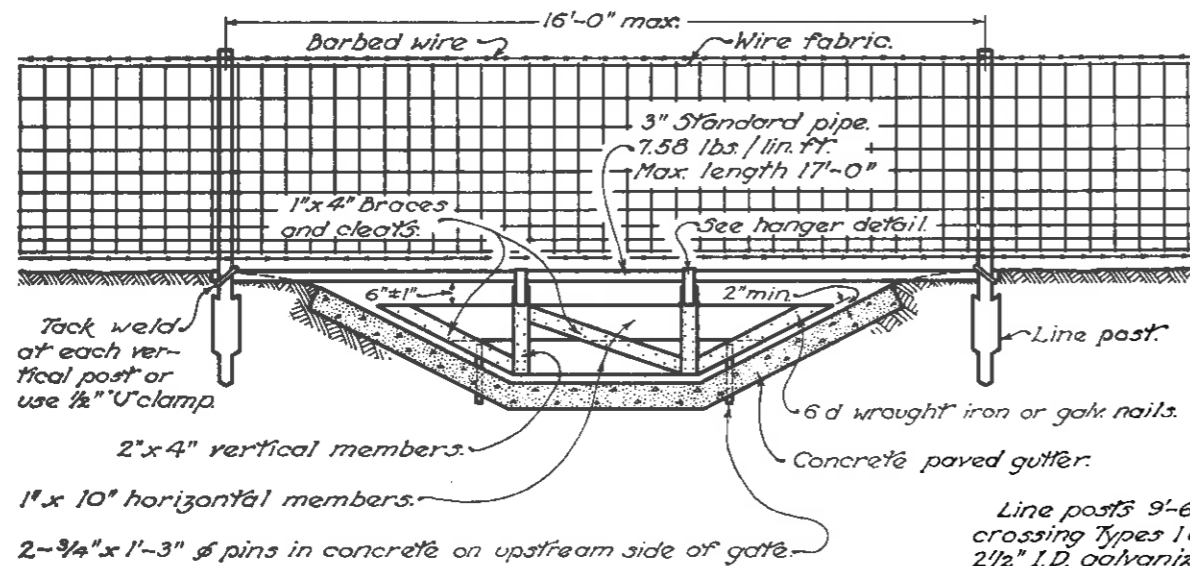
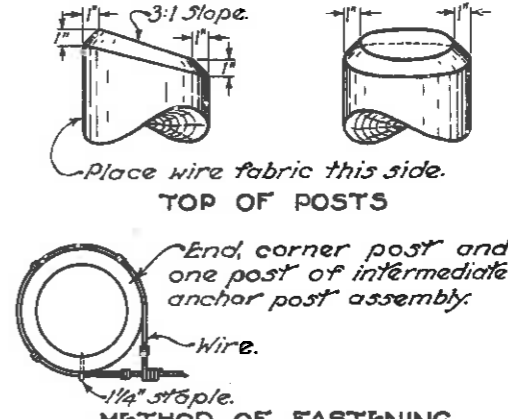
HANGER DETAIL



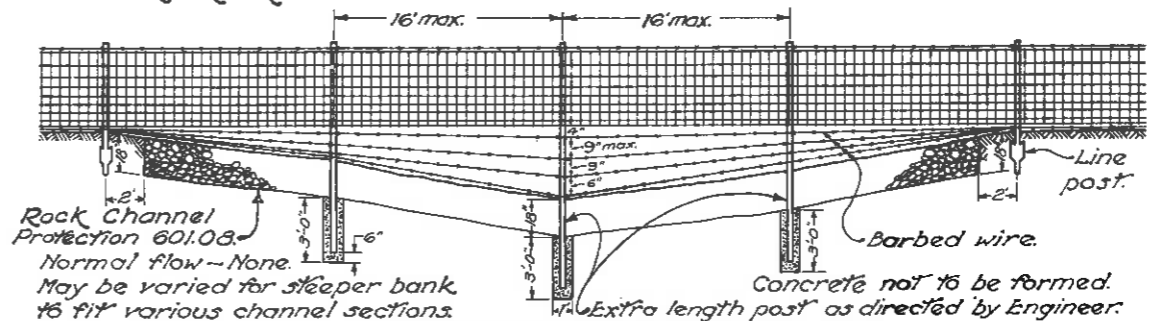
WIRE FENCE SPLICE



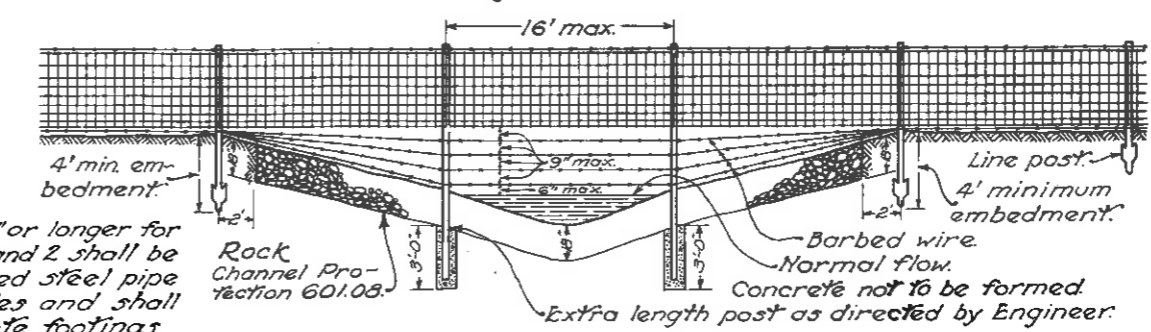
CORNER OR END POST ASSEMBLY



CROSSING TYPE 3



CROSSING TYPE 1



CROSSING TYPE 2

Line posts 9'-6" or longer for crossing Types 1 and 2 shall be 2 1/2" I.D. galvanized steel pipe or 3"x3"x 1/4" angles and shall be set in concrete footings.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

FENCE

STANDARD CONSTRUCTION DRAWING F-2
APPROVED *R. B. Smith* ENGR. L. & D.

A-578

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

C.R. 10-5.09

State Issue No 1

FED. RD. DIVISION	STATE	PROJECT
		State

LOGAN COUNTY
COUNTY RD. 10-5.09

CONVENTIONAL SIGNS

PROPERTY LINE	
FENCE LINE	
CENTER LINE	
POLE LINE	
HEDGE	
DRAIN PIPE (NEW)	
DRAIN PIPE (OLD)	
GUARD RAIL (NEW)	
GUARD RAIL (OLD)	
TREES & STUMPS (REMOVE)	
R/W LINE (PROPOSED)	

LINE DATA

BEGIN PROJECT	STA. 246+75
BEGIN WORK	STA. 246+00
END PROJECT	STA. 257+75
END WORK	STA. 258+00
DEDUCT STA. EQUATION	12.49 LIN. FT.
NET LENGTH OF PROJECT	1087.51 LIN. FT. OR 0.205 MILE
NET LENGTH OF WORK	1187.51 LIN. FT. OR 0.224 MILE

INDEX OF SHEETS

TITLE SHEET	1
TYPICAL SECTION	2
GENERAL NOTES	3
GENERAL SUMMARY	4
PLAN & PROFILE	5
CROSS SECTIONS	6-8
STRUCTURE OVER 20' SPAN	9-13
CHANNEL SECTIONS	14
RIGHT OF WAY	15

LOGAN COUNTY

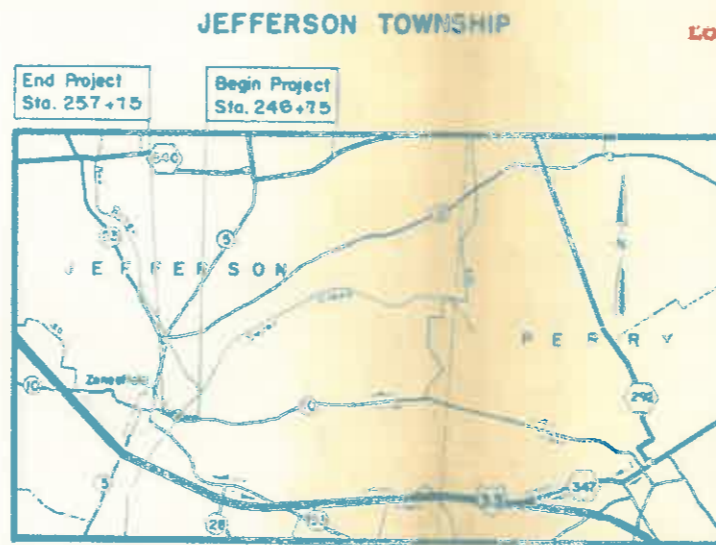
RECEIVED

1970 SPECIFICATIONS

The standard specifications of the state of Ohio, Department of Highways, 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 County of Logan.

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.



LOCATION PLAN



DETOUR

OCT 1 1970

LOGAN COUNTY ENGINEER

APPROVED DATE

6-18-70

Oliver M. Lewis
DIVISION DEPUTY DIRECTOR

APPROVED DATE

6-30-70

C. H. Albrater
ENGINEER OF BRIDGES

APPROVED DATE

7-1-70

R. E. Gatten
ENGINEER OF LOCATION & DESIGN

APPROVED DATE

7-1-70

George J. Thurgood
DEPUTY DIRECTOR OF DESIGN & CONSTRUCTION

APPROVED DATE

DEPUTY DIRECTOR OF RIGHT OF WAY

APPROVED DATE

12-5-70

Thomas ...
DEPUTY DIRECTOR OF PLANNING & PROGRAMMING

APPROVED DATE

FIRST ASSISTANT DIRECTOR

APPROVED DATE

DIRECTOR OF HIGHWAYS

APPROVED DATE

MAY 14, 1970

Chester R. Kurtz, P.E.
LOGAN COUNTY ENGINEER

APPROVED DATE

MAY 15, 1970

Don Downing
James C. Powell
John A. ...
LOGAN COUNTY COMMISSIONERS

SCALES

PLAN	
PROFILE (HORIZONTAL)	
PROFILE (VERTICAL)	
CROSS SECTIONS (HORIZONTAL)	
CROSS SECTIONS (VERTICAL)	

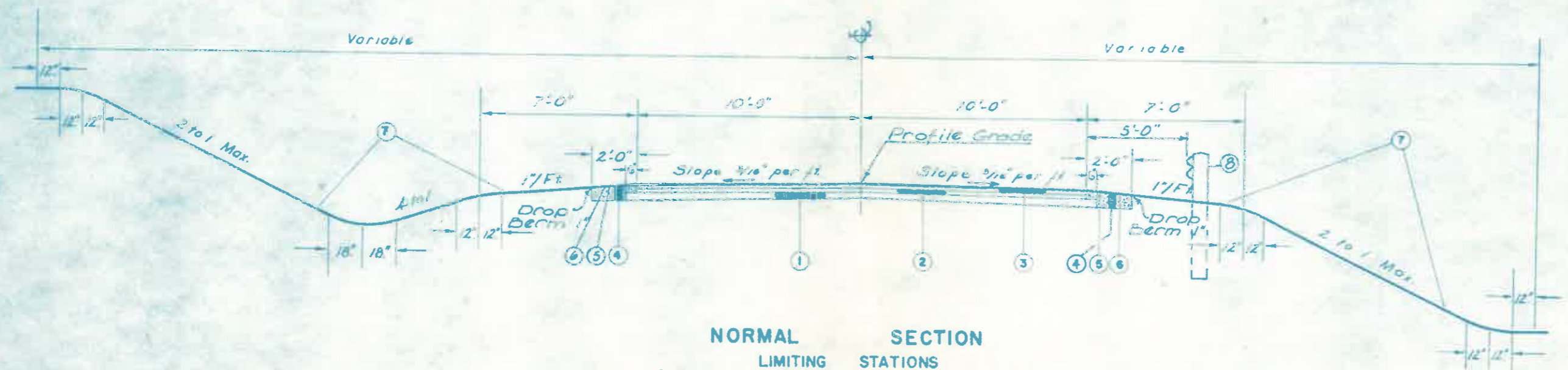
STANDARD DRAWINGS

Drawing	Date	Drawing	Date	REVISIONS	Date
BP-5	6/1/65				
BP-6	6/1/65	MC-4	6/3/65		
MC-5	6/20/69	P-1-54	11/8/65	808	11/4/69
GR-2A	1/1/67	A-1-54	11/8/65	836	4-17-69
GR-1	1-1-67	CS-1-65	6/1/65	838	4-12-69
L-1	6-1-63	F-2	5-10-66	1001	7-1-69
F-6	10-1-66	F-1	3-10-69		

FILE NUMBER	Logan County	LOGAN COUNTY RD 10
DATE OF LETTING	_____	
CONTRACT NO.	_____	

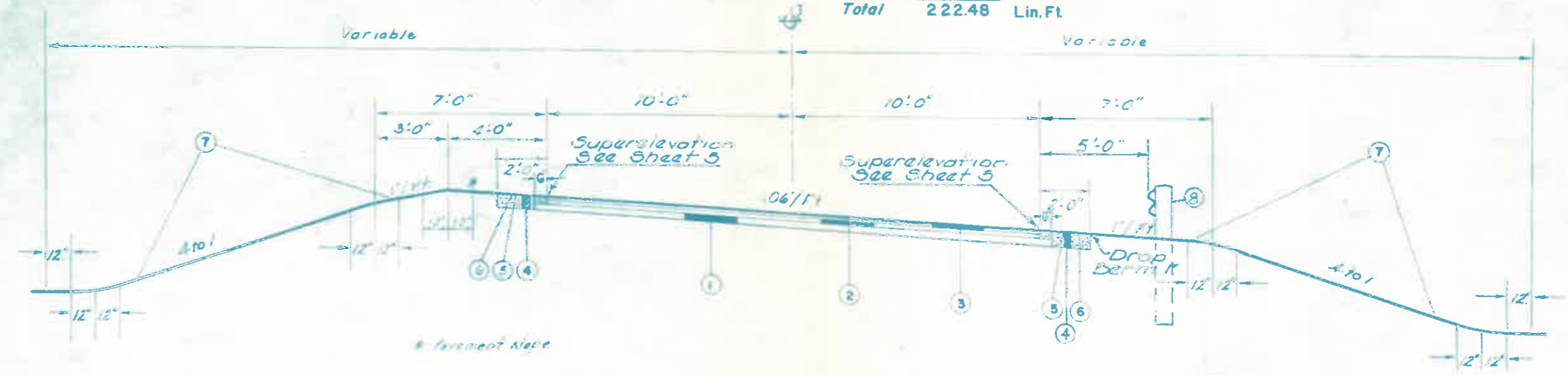
TYPICAL SECTIONS

TYPE 404 ON 301



NORMAL SECTION

LIMITING STATIONS			
245+75	to 247+52.05	77.05	Lin. Ft.
256+29.57	to 257+75	145.43	Lin. Ft.
Total		222.48	Lin. Ft.



SUPERELEVATED SECTION

LIMITING STATIONS		
247+52.05	to 256+17.08	865.03 Lin. Ft.
252+57.00 To 255+59.00 - BRIDGE LIMITS		

- ① ITEM 301 6" Bituminous Aggregate Base: 762.01 (85-100) or 702.05
- ② ITEM 402 1 1/4" Asphalt Concrete (85-100)
- ③ ITEM 404 1" Asphalt Concrete (85-100)
- ④ ITEM 304 Aggregate Base (8" Thick)
- ⑤ ITEM 408 Prime Coat of .50 Gal per Sq Yd. MC 30 or MC 70
- ⑥ ITEM 409 Seal Coat of .35 Gal. per Sq Yd. MC 800 or MC 3000
25 Lbs. per Sq Yd. No. 8 Aggregate
- ⑦ ITEM 659 Seeding and Mulching (See General Note)
- ⑧ ITEM 606 Guard Rail, Type A (For locations see Sheet No. 5)

GENERAL NOTES

DESIGN SPEED - The geometrics for this project have been planned for a design speed of 30 m.p.h.

UTILITIES - The contractor shall notify, at least 48 hours before breaking ground, all Public Service Corporations having wires, poles or other structures that may be affected by this operation. Any or all work required for public or private utilities will be done by and at the expense of their respective owners. *For utility owners and addresses, see sheet M.S.*

ROUNDING OF CORNERS ON CROSS SECTIONS - The rounded corners, *shown on the typical sections*, apply to all cross sections even though otherwise shown in these plans.

ELEVATION DATUM - All elevations are based on U.S.G.S. datum.

~~**EXCAVATION FOR ITEM 300** - Where man box turnouts and drives are in "Fill" excavation for Item 300 material shall be made by the contractor at his own expense if he builds the embankment up to finish grade before placing the Item 300 material.~~

ITEM 659 COMMERCIAL FERTILIZER - All areas to be seeded under Item 659 shall have commercial fertilizer 12-12-12 analysis, applied at the rate of twenty (20) pounds per 1,000 Sq. Ft.

ITEM 601 ROCK CHANNEL PROTECTION - This item is provided in the plans for erosion control. The engineer shall check and make adjustments in the locations and quantities for this item where indicated by field conditions during construction. Should rock of a stable nature be encountered at the flow line of this item, it may be non-performed.

REMOVAL OF TREES AND STUMPS - All trees and stumps lying within the construction limits of this project shall be removed under Item 201, Lump sum bid for clearing and grubbing. There are approximately 30 trees 12" to 18" to be removed. The above estimate is approximate and the County of Logan reserves the right to order the removal of additional trees or stumps within the right of way lines. Payment for the removal of these additional trees or stumps *shall be included in the lump sum price bid for Item 201 Clearing and Grubbing.*

Any trees to be removed will be conspicuously marked by the Engineer. Before any trees are removed, the contractor shall notify the Engineer so that trees to be removed will be marked.

REMOVAL OF EXISTING STRUCTURE - Existing stone and concrete abutments shall be removed (to an elevation 1 foot below finished grade) *in accordance with 202.03*

DRIVEWAYS - Drive profile to be constructed as a straight grade from berm to R/W line.

- 304 Aggregate Base shall be 6"
- 301 Bituminous Aggregate Base shall be 6"
- 402 Asphalt Concrete shall be 1 1/4"
- 404 Asphalt Concrete shall be 1"

RIGHT OF WAY FENCE - Fence shall be Type 47 and shall be placed as directed by the Engineer. Existing fence shall be tightly fastened to the new end post right of Sta's 246+00 and 252+45± to the satisfaction of the Engineer. Beyond Sta. 258+00, fence shall be installed by County forces.

REPLACEMENT - The contractor shall replace at his own expense any item not specifically listed for removal that is damaged or destroyed by his operation.

CONSTRUCTION LAYOUT STAKES - All construction layout stakes will be provided by the County of Logan at the expense to the contractor.

TRAFFIC: The highway shall not be closed to traffic between December 1 and April 1. The time when the road is closed and traffic is detoured, shall not exceed 90 days. At all times, traffic shall be maintained over the existing pavement, the proposed pavement or temporary roadways. Payment for the above shall be included in the Lump Sum bid for item 614, Maintaining Traffic.

SEEDING: Quantities for seeding are calculated for the soil areas between the work limits as shown on the cross sections.

SALVAGING EXISTING MATERIALS - All existing guard rail, guard rail posts, fence, fence posts, and pickets between Sta. 246 and 258 shall be carefully removed or dismantled and stored on the R/W for pick-up by County forces. All costs for removal & storage shall be included in the unit price bid for the various removal items.

A-598

STATE OF OHIO
DEPARTMENT OF HIGHWAYS












C.R. 10-5.09

State Issue No. 1

FED. RD. DIVISION	STATE	PROJECT
		State

LOGAN COUNTY
COUNTY RD. 10-5.09

CONVENTIONAL SIGNS

- PROPERTY LINE 
- FENCE LINE 
- CENTER LINE 
- POLE LINE 
- HEDGE 
- DRAIN PIPE (NEW) 
- DRAIN PIPE (OLD) 
- GUARD RAIL (NEW) 
- GUARD RAIL (OLD) 
- TREES & STUMPS (REMOVE) 
- R/W LINE (PROPOSED) 

LINE DATA

BEGIN PROJECT	STA. 246+75
BEGIN WORK	STA. 246+00
END PROJECT	STA. 257+75
END WORK	STA. 258+00
DEDUCT STA. EQUATION	12.49 LIN. FT.
NET LENGTH OF PROJECT	1087.51 LIN. FT. OR 0.205 MILE
NET LENGTH OF WORK	1187.51 LIN. FT. OR 0.224 MILE

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LOGAN COUNTY

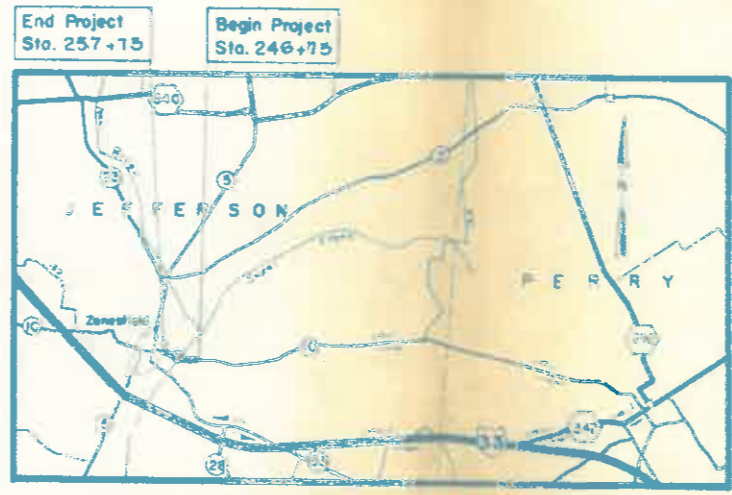
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1970 SPECIFICATIONS

OCT 1 1970

LOGAN COUNTY ENGINEER

JEFFERSON TOWNSHIP



LOCATION PLAN



DETOUR

APPROVED DATE 6-18-70

Oliver M. Lewis
DIVISION DEPUTY DIRECTOR

APPROVED DATE 6-30-70

C. H. Ackwater
ENGINEER OF BRIDGES

APPROVED DATE 7-1-70

R. E. Ballin
ENGINEER OF LOCATION & DESIGN

APPROVED DATE 7-1-70

George J. Thompson
DEPUTY DIRECTOR OF DESIGN & CONSTRUCTION

APPROVED DATE

DEPUTY DIRECTOR OF RIGHT OF WAY

APPROVED DATE 7-8-70

Thompson
DEPUTY DIRECTOR OF PLANNING & PROGRAM

APPROVED DATE 7-23-70

Swisher
FIRST ASSISTANT DIRECTOR

APPROVED DATE

R. E. White
DIRECTOR OF HIGHWAYS

APPROVED DATE MAY 14, 1970

Charles R. Kutz, P.E.
LOGAN COUNTY ENGINEER

APPROVED DATE MAY 15, 1970

Don Downing
James C. Powell
John R. Sisk
LOGAN COUNTY COMMISSIONERS

SCALES

- PLAN
- PROFILE (HORIZONTAL) 1" = 100'
- PROFILE (VERTICAL) 1" = 10'
- CROSS SECTIONS (HORIZONTAL) 1" = 100'
- CROSS SECTIONS (VERTICAL) 1" = 10'

STANDARD DRAWINGS

Drawing	Date	Drawing	Date	SUPPLEMENTAL	Date
BP-5	6-1-65				
BP-6	6/1/65	MC-4	6-15-65		
MC-5	6/20/69	P-1-54	11/8/65	500	10-12-69
GR-2A	1/1/67	A-1-54	11/8/65	630	6-17-69
GR-1	1-1-67	CS-1-65	6/1/65	210	8-12-69
L-1	4-1-65	F-2	7-1-69	1001	1-1-69
F-6	10-1-66	F-1	3-10-69		

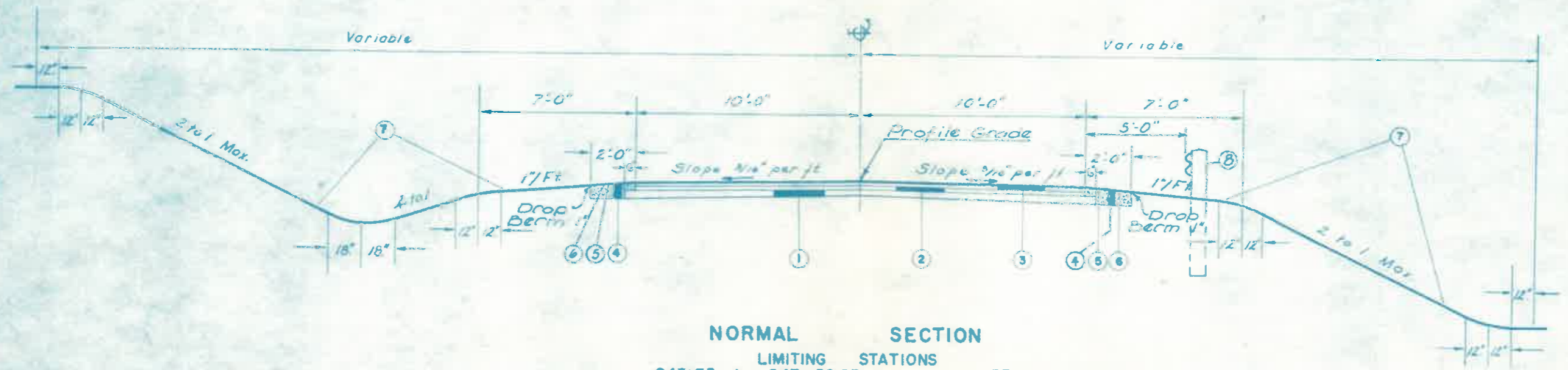
FILE NUMBER Logan County LOG CO RD. 10

DATE OF LETTING _____

CONTRACT NO. _____

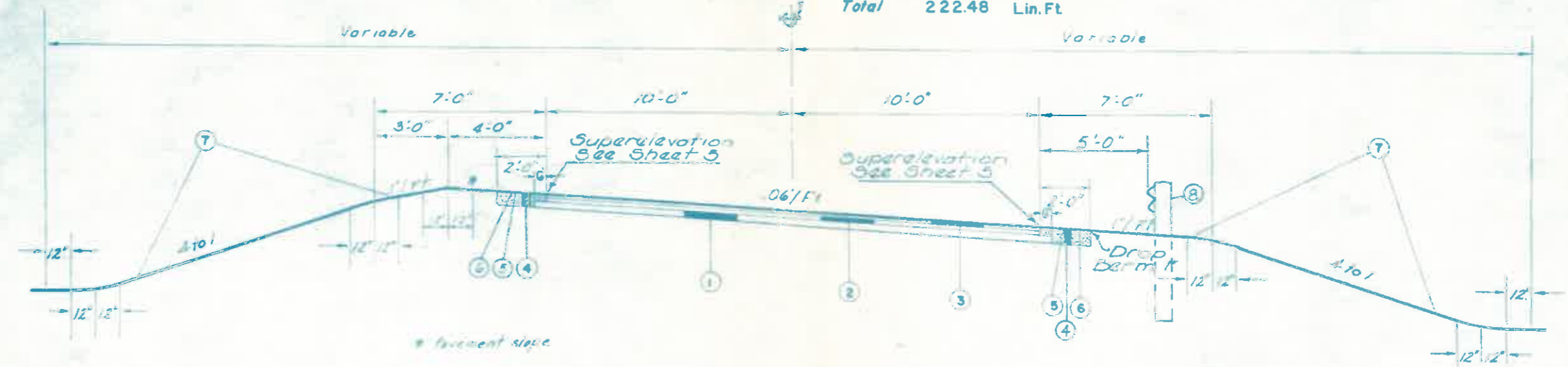
TYPICAL SECTIONS

TYPE 404 ON 301



NORMAL SECTION

LIMITING STATIONS			
248+75	to	247+52.05	- 77.05 Lin. Ft.
256+29.57	to	257+75	- 145.43 Lin. Ft.
		Total	222.48 Lin. Ft.



SUPERELEVATED SECTION

LIMITING STATIONS		
247+52.05	to	256+17.08 - 865.03 Lin. Ft.
252+57.00	to	253+59.00 - BRIDGE LIMITS

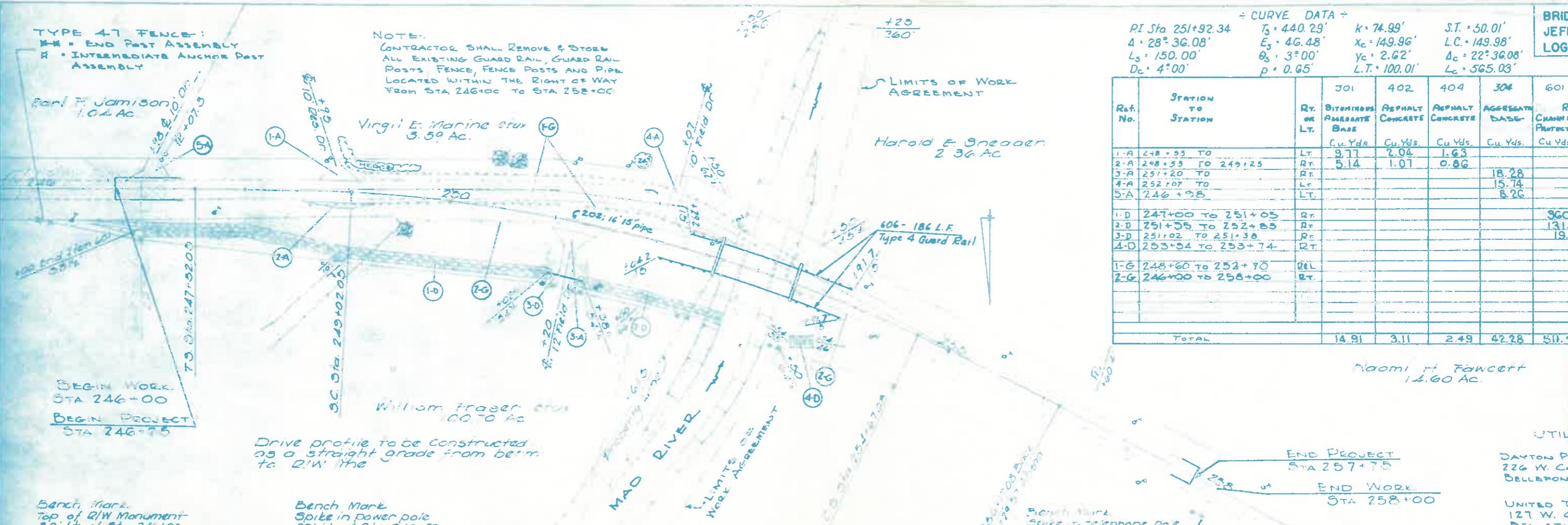
- ① ITEM 301 6" Bituminous Aggregate Base: 102.01 (85-100) or 102.02
- ② ITEM 402 1 1/4" Asphalt Concrete (85-100)
- ③ ITEM 404 1" Asphalt Concrete (85-100)
- ④ ITEM 304 Aggregate Base (8" Thick)
- ⑤ ITEM 408 Prime Coat at .50 Gal. per Sq. Yd. MC 30 or MC 70
- ⑥ ITEM 409 Seal Coat at .35 Gal. per Sq. Yd. MC 800 or MC 3000
25 Lbs. per Sq. Yd. No. 8 Aggregate
- ⑦ ITEM 659 Seeding and Mulching (See General Note)
- ⑧ ITEM 606 Guard Rail, Type 4 (For locations see Sheet No. 5)

TYPE 47 FENCE:
 E = END POST ASSEMBLY
 I = INTERMEDIATE ANCHOR POST ASSEMBLY

NOTE:
 CONTRACTOR SHALL REMOVE & STORE
 ALL EXISTING GUARD RAIL, GUARD RAIL
 POSTS, FENCE, FENCE POSTS AND PIPE
 LOCATED WITHIN THE RIGHT OF WAY
 FROM STA 246+00 TO STA 258+00

± CURVE DATA ±
 PI Sta 251+92.34 $T_3 = 440.29'$ $K = 74.99'$ $S.T. = 50.01'$
 $\Delta = 28^\circ 36.08'$ $E_3 = 46.48'$ $X_c = 149.96'$ $L.C. = 149.98'$
 $L_3 = 150.00'$ $Q_3 = 3^\circ 00'$ $Y_c = 2.62'$ $\Delta_c = 22^\circ 36.08'$
 $D_c = 4^\circ 00'$ $p = 0.65'$ $L.T. = 100.01'$ $L_c = 565.03'$

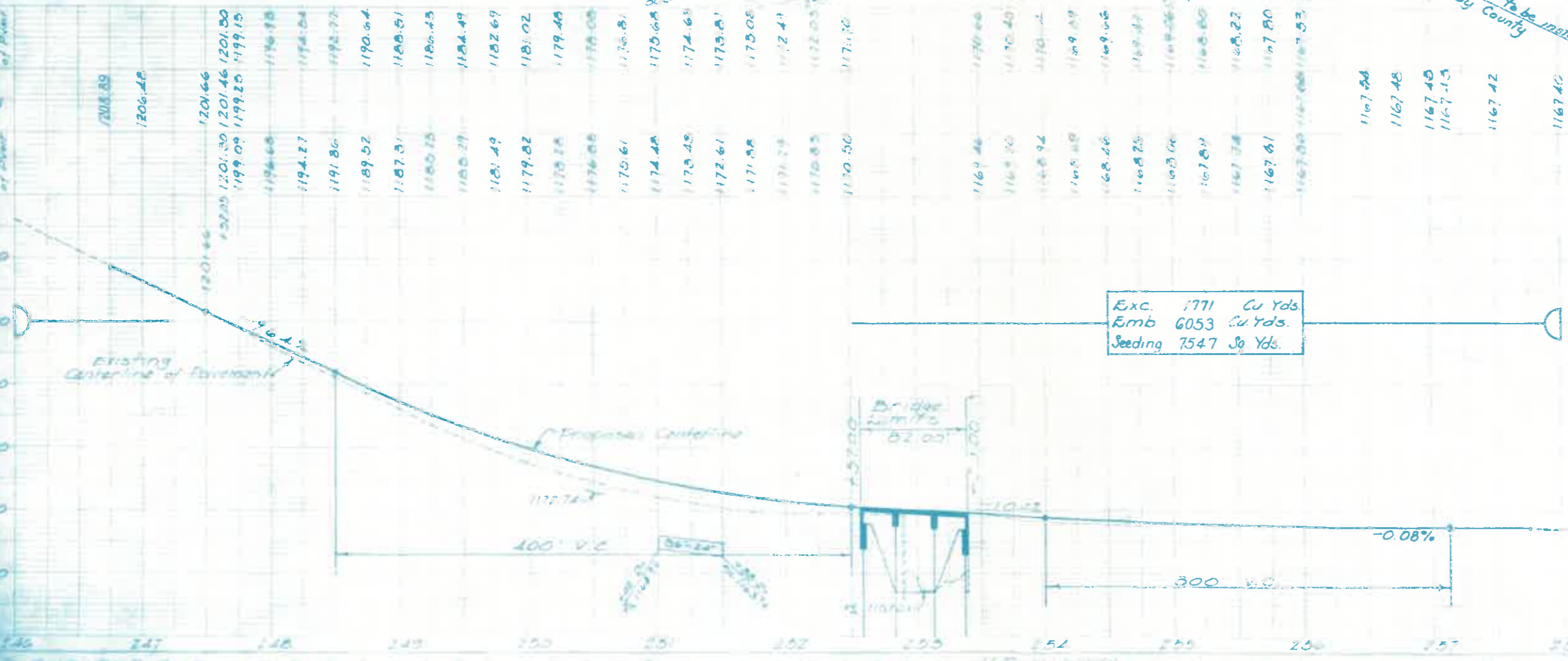
BRID
 JEFF
 LOG



Ref. No.	STATION TO STATION	Rt. or Lt.	BITUMINOUS BASE Cu. Yds.	ASPHALT CONCRETE Cu. Yds.	ASPHALT CONCRETE Cu. Yds.	AGGREGATE BASE Cu. Yds.	CHANNEL PROTECT. Cu. Yds.
1-A	248+55 TO	LT.	9.77	2.04	1.63		
2-A	248+55 TO 249+25	RT.	5.14	1.07	0.86		
3-A	251+20 TO	RT.				18.28	
4-A	252+07 TO	LT.				15.74	
5-A	246+58	LT.				8.26	
1-D	247+00 TO 251+05	RT.					360
2-D	251+55 TO 252+85	RT.					131
3-D	251+02 TO 251+38	RT.					19
4-D	253+54 TO 253+74	RT.					
1-G	248+60 TO 252+70	REL.					
2-G	246+00 TO 258+00	RT.					
TOTAL			14.91	3.11	2.49	42.28	511.7

Bench Mark
 Top of R/W Monument
 80' Lt. of Sta. 246+00
 Elev. 1215.30

Bench Mark
 Spike in power pole
 27' Lt. of Sta. 248+78
 Elev 1187.89



* PROPOSED STRUCTURE DATA
 TYPE: Continuous Reinforced Concrete Joist
 SPANS: 24'-30'-24' 1/2 brg's.
 ROADWAY: 30'-0" 1/2 of Guard Rail
 SKEW: None
 LOADING: HS-15-44
 WEARING SURFACE: 1" Monolithic Concrete
 ALIGNMENT: 4'00 Curve Right
 SUPERELEVATION: 0.06 Ft/Ft
 * For existing structure data see Sheet No. 2

TYPICAL SEC. OF ADJ. STA 246+75
 2 1/2" SURFACE TREATED

TYPICAL SEC. OF ADJ. STA 251+75
 2 1/2" SURFACE TREATED

8.5' 10.0'

0' 7.2'

UNITED T
 127 W. C
 BELLETO

DAYTON P
 226 W. C
 BELLETON

UTIL

Naomi H. Fawcett
 12.60 AC.

END PROJECT
 STA 257+75
 END WORK
 STA 258+00

Fence to be installed
 by County

Bench Mark
 Spike in telephone pole
 20' Lt. of Sta. 258+21
 Elev. 1167.53

Bench Mark
 Spike in power pole
 27' Lt. of Sta. 248+78
 Elev. 1187.89

LIMITS OF
 WORK AGREEMENT

MAD RIVER

William Fraser
 1.00 TO 1.00 AC

Harold E. Sneider
 2.36 AC.

Virgil E. Marine
 3.59 AC.

Carl F. Jamison
 1.04 AC

BEGIN WORK
 STA 246+00
 BEGIN PROJECT
 STA 246+75

+20
 360'

+20
 360'

+20
 360'

+20
 360'

+20
 360'

+20
 360'

+20
 360'

+20
 360'

+20
 360'

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+20
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+20
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+20
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+20
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+20
 360'

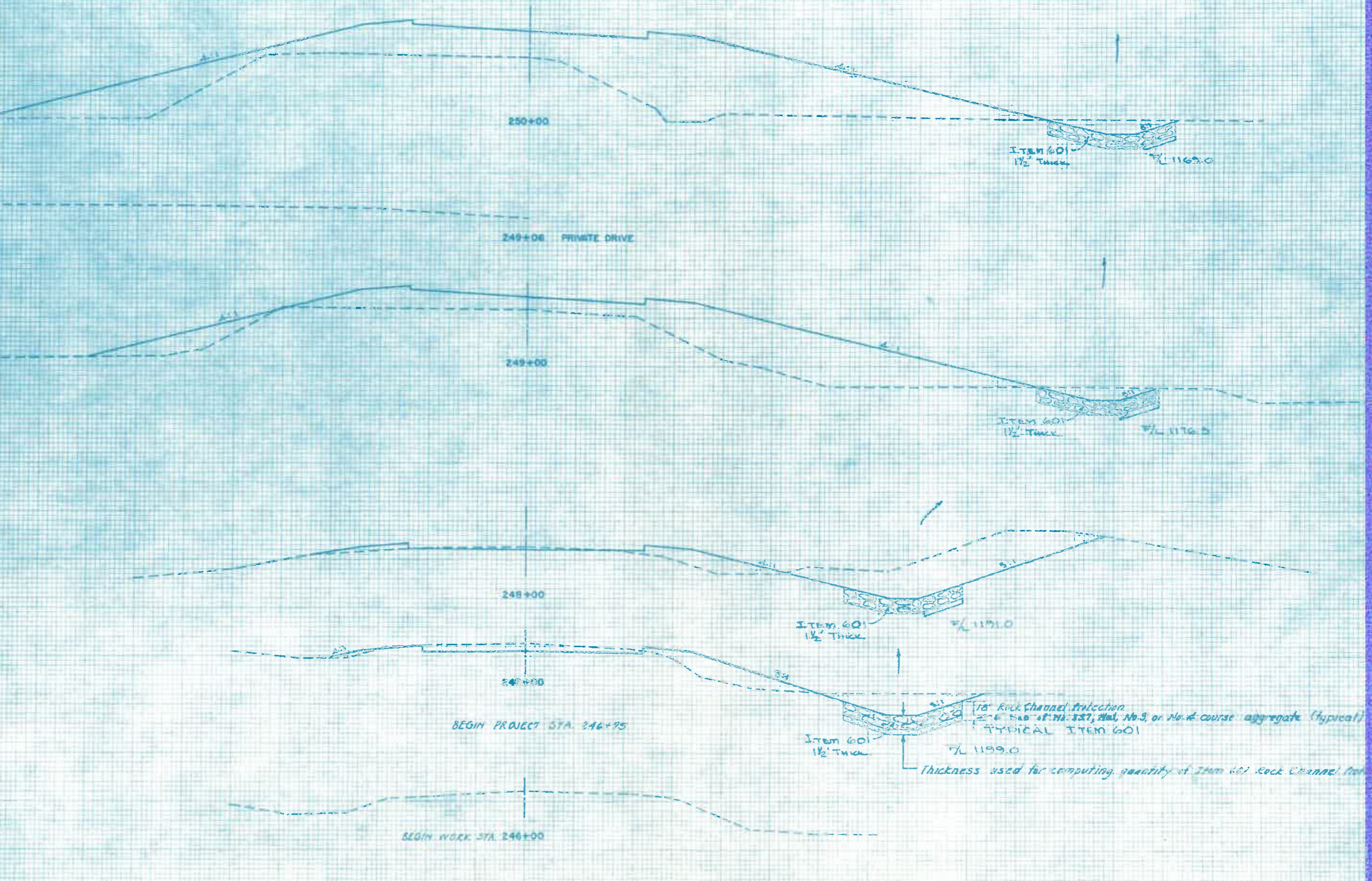
+20
 360'

+20
 360'

+20
 360'

246 247 248 249 250 251 252 253 254 255 256 257 258 259 260

END AREA	CUBIC YARDS
CUT	FILL
5	335
30	1140
11	221
114	444
53	19
222	78
39	23
12	43



BEGIN PROJECT STA. 246+75

BEGIN WORK STA. 246+00

1/2" Rock Channel Protection
 2" No. 10 Mesh, No. 3, or No. 4 course aggregate (typical)
 TYPICAL ITEM 601
 Thickness used for computing quantity of Item 601 Rock Channel for

General Summary Notes and Calculations

CALCULATIONS

301 BITUMINOUS AGGREGATE
 STA. 248+75 TO 257+00 * 1100.00 LIN. FT.
 DEDUCT STA. EQUATION * 12.49 LIN. FT.
 DEDUCT BRIDGE * 81.00 LIN. FT.
 TOTAL LIN. FT. * 1006.51 LIN. FT.
 21" x 1/2" x 1006.51 ÷ 27 * 391.03 CU. YDS.
 FROM SHEET 5 * 14.51 CU. YDS.
 TOTAL * 405.54 CU. YDS.
 TO GENERAL SUMMARY * 406 CU. YDS.

402 ASPHALT CONCRETE
 20" x 1/2" x 1006.51 ÷ 27 * 77.56 CU. YD.
 FROM SHEET 5 * 3.11
 TOTAL * 80.67 CU. YD.
 TO GENERAL SUMMARY * 81 CU. YD.

404 ASPHALT CONCRETE
 20" x 1/2" x 1006.51 ÷ 27 * 62.07 CU. YD.
 FROM SHEET 5 * 2.49 CU. YD.
 TOTAL * 64.56 CU. YD.
 TO GENERAL SUMMARY * 65 CU. YD.

659 COMMERCIAL FERTILIZER
 9353 x 9 ÷ 1000 x 201b * 1683.54 Lbs.
 1683.54 ÷ 2000 * 0.842 TONS
 TO GENERAL SUMMARY * 0.84 TONS

203 SUBGRADE COMPACTION
 20" x 1006.51 x 1/9 * 2234.46 SQ. YD.
 To General Summary * 2235 SQ. YD.

304 AGGREGATE BASE
 1006.51 x 2 * 2011.02 LIN. FT.
 DEDUCT FOR MAIL BOX TURNOUT * 700 LIN. FT.
 DEDUCT FOR DRIVES * 120 LIN. FT.
 TOTAL LIN. FT. * 1821.02
 2" x 9/12" x 1821.02 ÷ 27 * 63.93 CU. YD.
 FROM SHEET 5 * 42.26 CU. YD.
 TOTAL * 132.21 CU. YD.
 TO GENERAL SUMMARY * 132 CU. YD.

408 PRIME COAT
 2" x 1821.02 ÷ 9 * 404.67 SQ. YD.
 404.67 x 0.50 * 202.34 GALLONS
 TO GENERAL SUMMARY * 202 GALLONS

409 SEAL COAT
 804.67 x 0.35 * 141.63 GALLONS
 TO GENERAL SUMMARY * 142 GALLONS

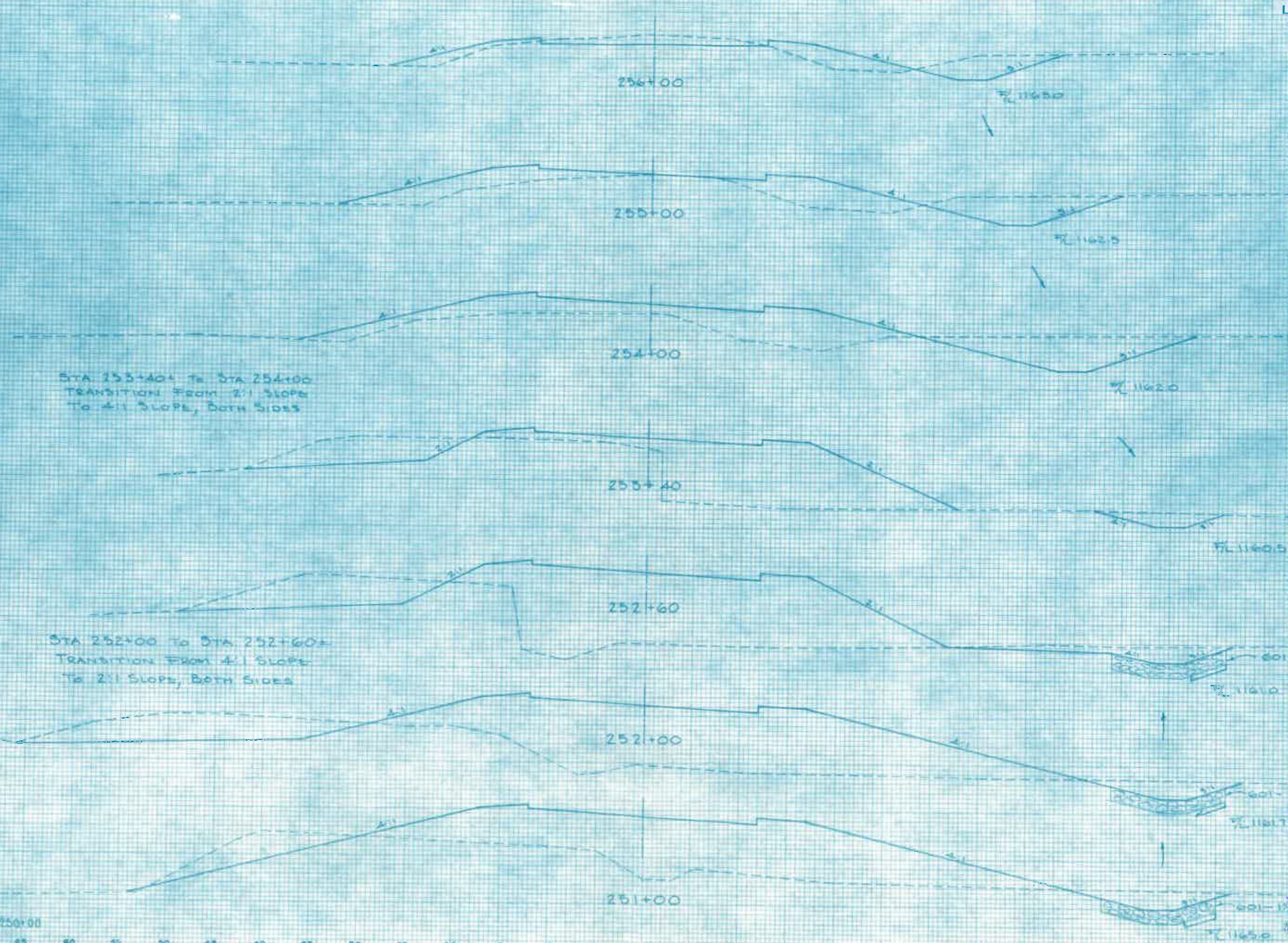
409 SEAL COAT COVER AGG. No. 8
 404.67 x 25 LB. ÷ 2400 * 4.22 CU. YDS.
 TO GENERAL SUMMARY * 4 CU. YDS.

659 AGRICULTURAL LIMING
 9353 x 9 ÷ 1000 x 100 * 841.70 Lbs.
 841.70 ÷ 2000 * 0.421 TONS
 TO GENERAL SUMMARY * 0.42 TONS

GENERAL SUMMARY			
ITEM	DESCRIPTION	UNIT	QUANTITY
ROADWAY			
201	Clearing & Grubbing	Lump	Lump
202	15" Pipe Removed for Storage	Lin. Ft.	16
202	Guard Rail Removed for Storage, as per plan.	Lin. Ft.	778
202	Fence Removed for Storage, as per plan.	Lin. Ft.	1097
203	Subgrade Compaction	Sq. Yd.	2235
203	Excavation Not Including Embankment Construction	Cu. Yd.	5416
203	Embankment	Cu. Yd.	6612
607	Fence, Type 47	Lin. Ft.	1088
607	GATE, Type 47, 4' x 16'	EACH	1
659	Seeding & Mulching	Sq. Yd.	9353
659	Commercial Fertilizer (12-12-12)	Ton	0.84
659	Agricultural Liming	Ton	4.2
606	Guard Rail, TYPE A	Lin. Ft.	186
606	Anchor Assembly	Each	4
DRAINAGE			
601	Rock Channel Protection, TYPE B	Cu. Yd.	511
603	24" Conduit, Type D	Lin. Ft.	36
PAVEMENT			
301	Bituminous Aggregate Base: 702.01 (BS-100) or 702.02, RF-11 or RF-12	Cu. Yd.	406
402	Asphalt Concrete (BS-100)	Cu. Yd.	81
404	Asphalt Concrete (BS-100)	Cu. Yd.	65
408	Bituminous Prime Coat, 702.02, MC-30 or MC-70	Gals.	202
409	Seal Coat Bituminous Material, 702.02, MC-800 or MC-3000	Gals.	142
409	Seal Coat Cover Aggregate No. 8	Cu. Yd.	4
304	Aggregate Base	Cu. Yd.	132
STRUCTURE OVER 20'			
505	First Test Pile	Lump	LUMP
202	EXISTING STRUCTURE REMOVED	Lump	LUMP
507	14" Cast in Place Reinforced Concrete Pile	Lin. Ft.	720
509	Reinforcing Steel	Lbs.	32,525
511	Class C Concrete, Superstructure & Pier Caps	Cu. Yd.	112
511	Class C Concrete, Abutments	Cu. Yd.	50
517	Railing (DEEP BEAM RAIL WITH STEEL POSTS AND BOLTS)	Lin. Ft.	164
518	Porous Backfill	Cu. Yd.	13
601	ROCK CHANNEL PROTECTION, TYPE A	Cu. Yd.	330
603	UNCLASSIFIED EXCAVATION	Cu. Yd.	126
608	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, B, OR D	UNITS	101
614	Maintaining Traffic	Lump	Lump

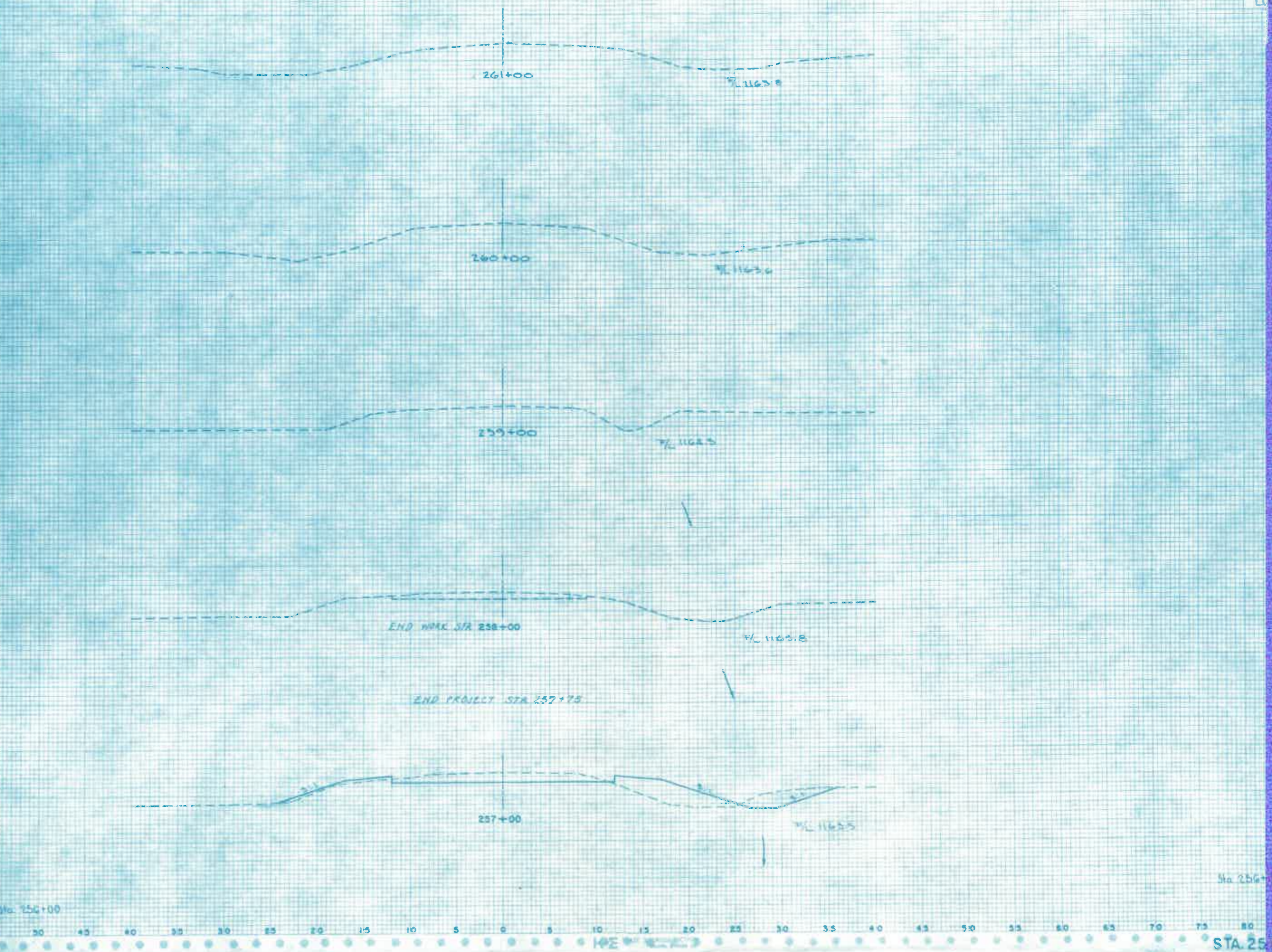
d

END AREA		CUBIC YARDS
TOP	Bottom	
33	25	
43	58	
56	64	
70	38	
84	20	
125	33	
61	85	
83	308	
136	66	
93	355	
285	22	
61	301	
128	254	
8	398	



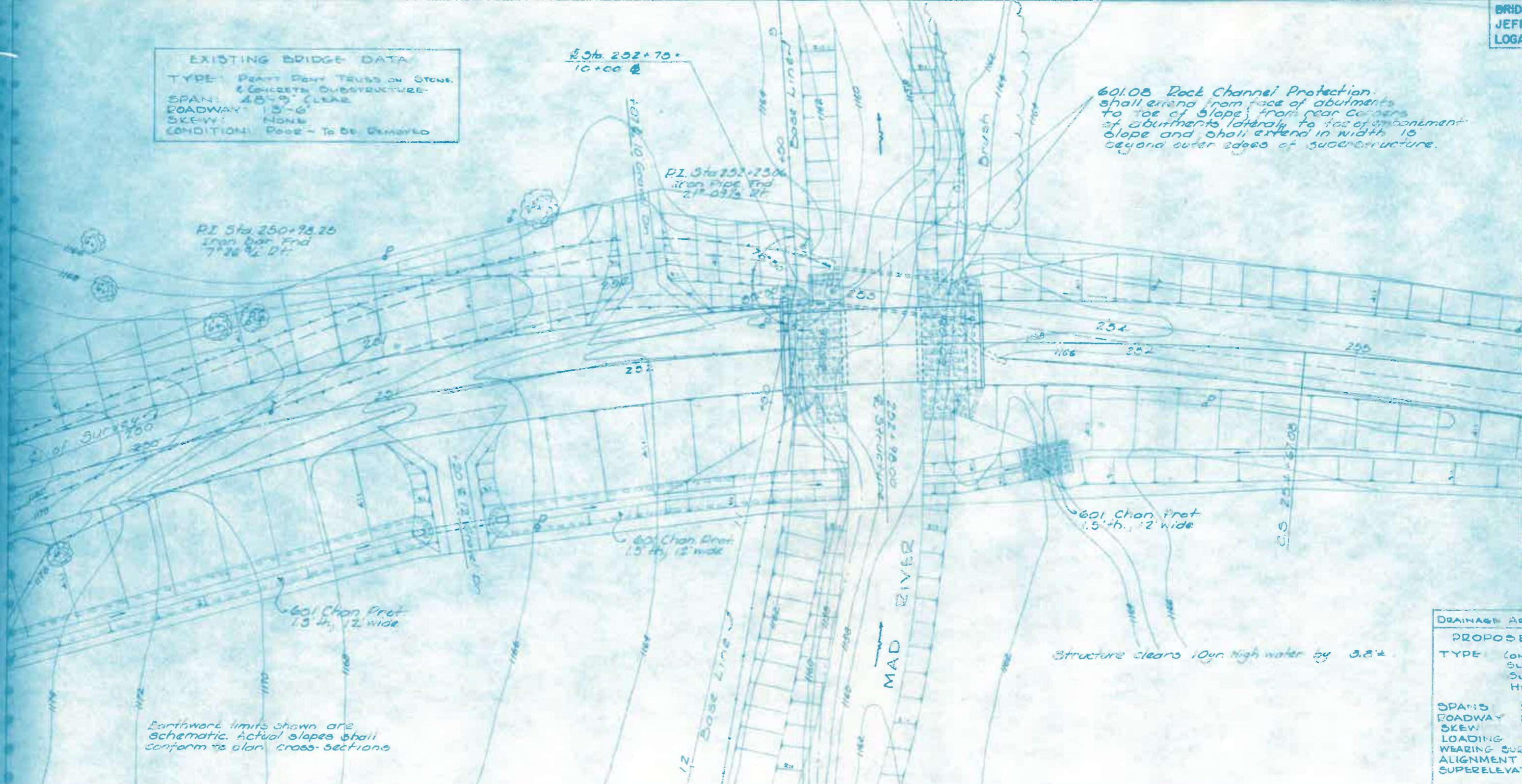
STA 251

END AREA		CUBIC YARDS	
CUT	FILL	CUT	FILL
11	0		
81	43		
33	23		
	133	92	
19	25		



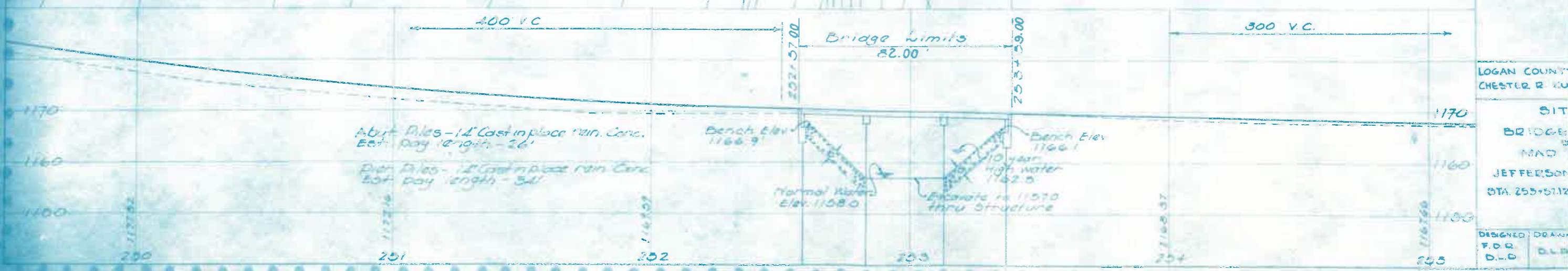
EXISTING BRIDGE DATA
 TYPE: PAINTED TRUSS ON STONE
 & CONCRETE SUBSTRUCTURE
 SPAN: 25-9' CLEAR
 ROADWAY: 13'-6"
 SKEW: NONE
 CONDITION: POOR - TO BE DEMOLISHED

601.05 Rock Channel Protection shall extend from face of abutments to toe of slope, from rear corners of abutments laterally to toe of embankment slope and shall extend in width 15' beyond outer edges of superstructure.

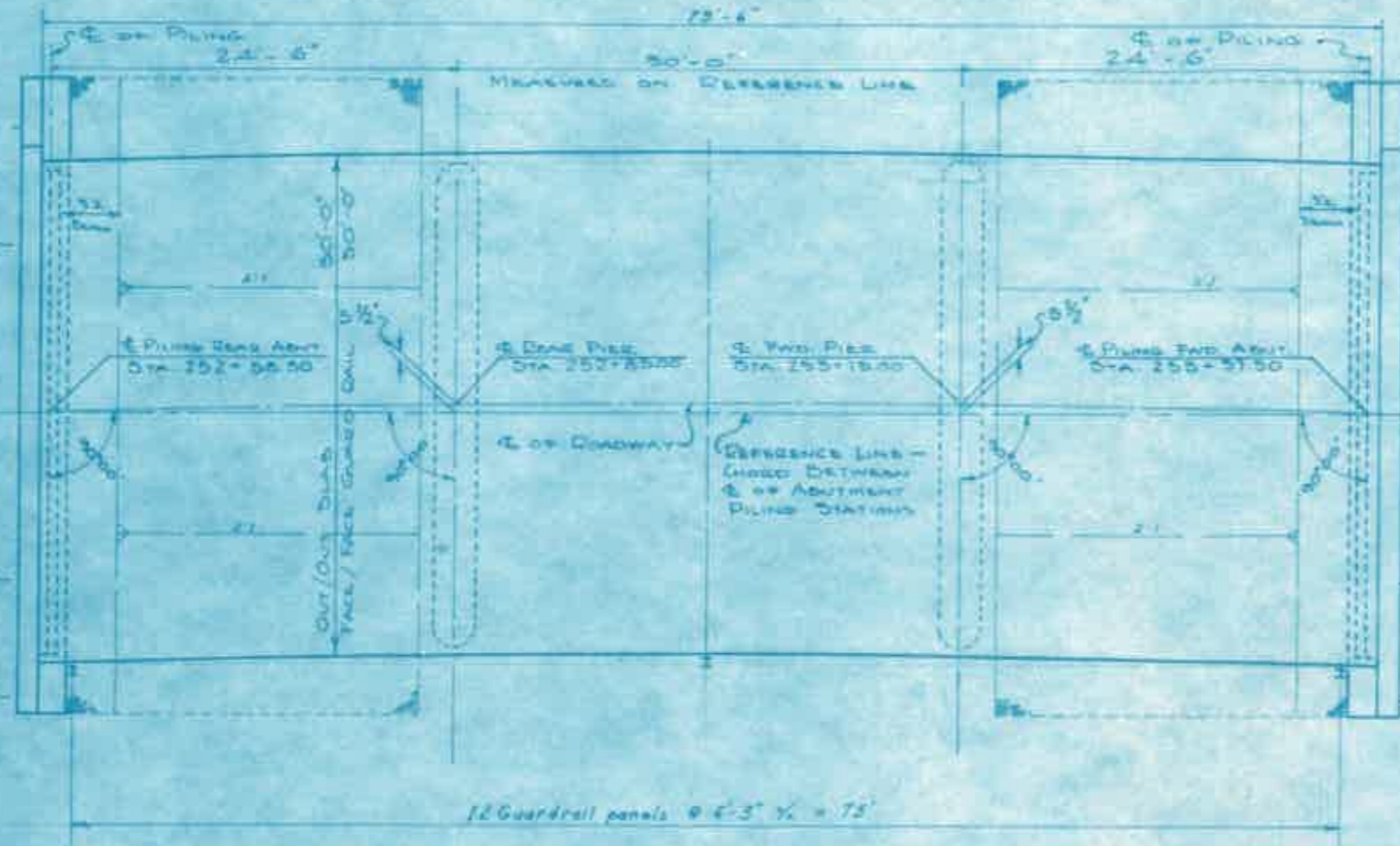


Earthwork limits shown are schematic. Actual slopes shall conform to plan cross-sections.

Structure clears 10yr. high water by 3.8'



DRAINAGE AREA	PROPOSED
TYPE	CON
	SU
	SU
	HI
SPANS	2
ROADWAY	13'-6"
SKEW	
LOADING	
WEARING SUR	
ALIGNMENT	
SUPERELEVAT	
LOGAN COUNTY	
CHESTER R. KU	
SIT	
BRIDGE	
MAD	
JEFFERSON	
STA. 255+51.12	
DESIGNED	DRAWN
F.O.R.	D.L.D.
D.L.D.	D.L.D.



GENERAL PLAN

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

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER	ABUT.	PIER
503	126	CU.YDS.	UNCLASSIFIED EXCAVATION		126	
505		LUMP	FIRST TEST PILE			
507	720	LIN.FT.	14" CAST IN PLACE REINFORCED CONC. PILE		312	408
509	32525	LBS.	REINFORCING STEEL	25014	4471	3040
517	104	LIN.FT.	RAILING (DEEP BEAM RAIL WITH STEEL POSTS & BOLTS)	104		
518	13	CU.YD.	POROUS BACKFILL		13	
601	350	CU.YD.	ROCK CHANNEL PROTECTION - "A"			
511	112	CU.YD.	CLASS C CONCRETE	101		11
511	50	CU.YD.	CLASS C CONCRETE		50	
202	LUMP	SUM	EXISTING STRUCTURE REMOVED			
808	101	UNITS	CHEMICAL ADMIXTURE FOR CONCRETE, TYPE A, 6% O	101		

GENERAL NOTES

Reference shall be made to standard drawings CS-1-65, Dated 6-1-65, revised 11-8-65 and supplemental specifications 808 dated 11-14-69 and 836 dated 6-17-69 (Cost in EMBANKMENT CONSTRUCTION). The embankments shall be constructed to the level of the distance of 200 feet back of the abutments. Excavation shall then be made for the abutment.

ABUTMENT EXCAVATION QUANTITY: In addition to 503.10, includes the removal of embankment.

PILES: Shall be driven to a minimum bearing capacity of 25 tons per pile for the abutment and for the piers.

PIER PILE ENCASEMENT: As shown on Standard Drawing No. P-1-54 may be omitted proportion, if any, of all pier piles does not extend above the stream bed. If the tapered ends above this limitation, the encasement will be required for all the pier piles. If the pile casings shall have a thickness of metal not less than No. 7 gage, and the pile extend to low water elevation.

POROUS BACKFILL: Shall extend upward to the subgrade and to the surface and outward to the surface of the embankment slopes.



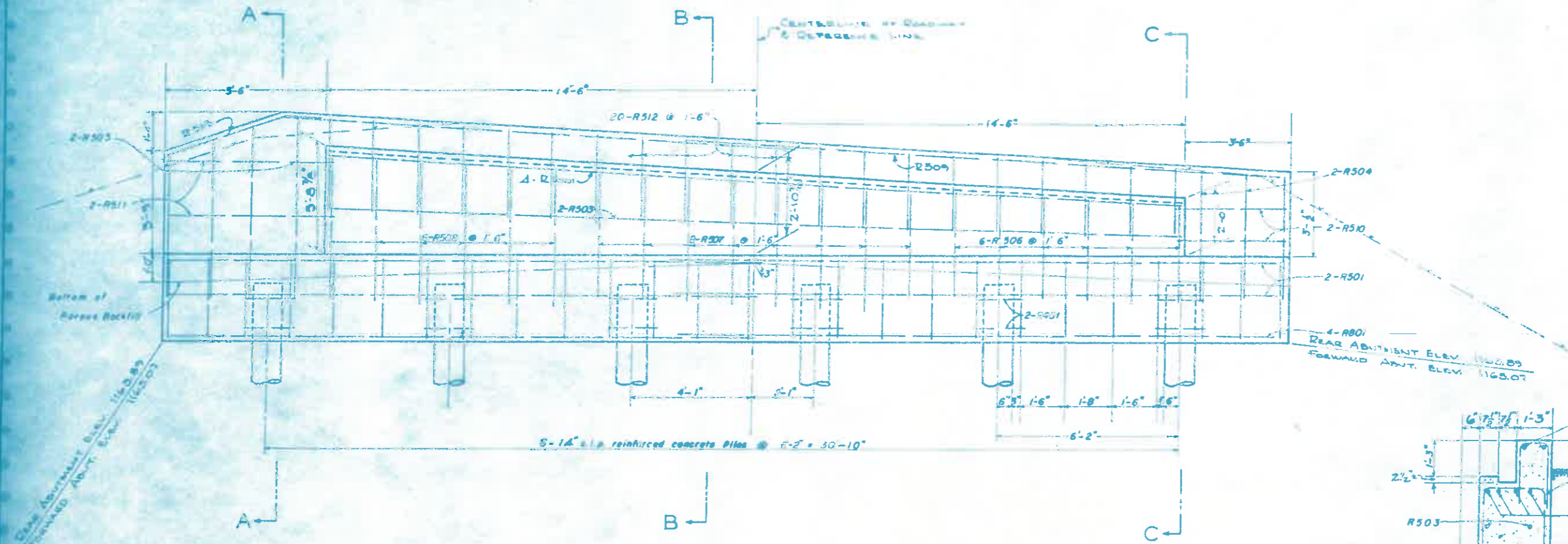
ELEVATION

DETAIL OF ROCK CHANNEL PROTECTION TYPE A

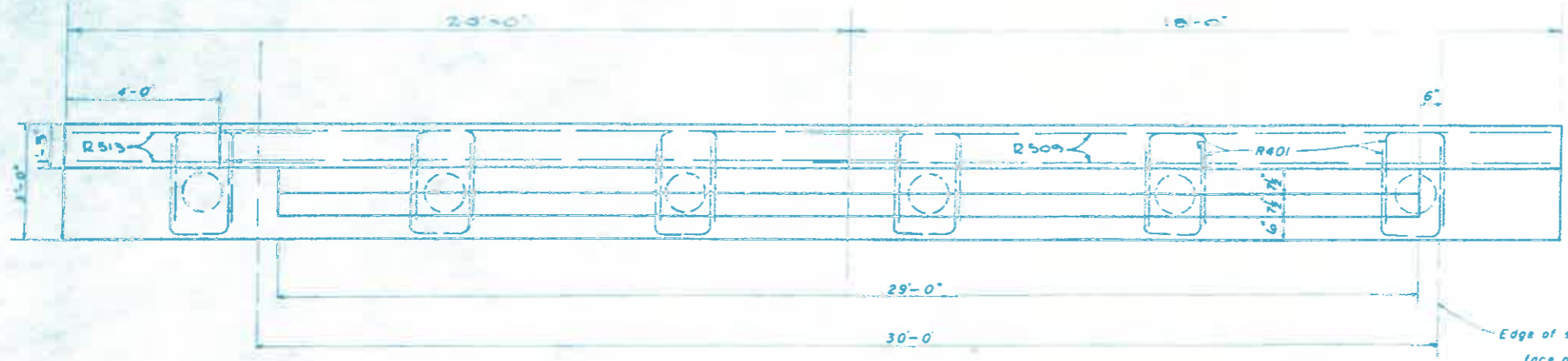


1" BED OF No. 357 COARSE AGGREGATE
THICKNESS OF 3" USED FOR COMPLETE QUANTITY OF ITEM 601, ROCK CHANNEL PROTECTION

LOGAN COUNTY	
Chester R.	
BRIDGE	
JEFFERSON	
Sta. 253+5	
DESIGNED D.L.O.	DRAWN D.L.O. P.V.

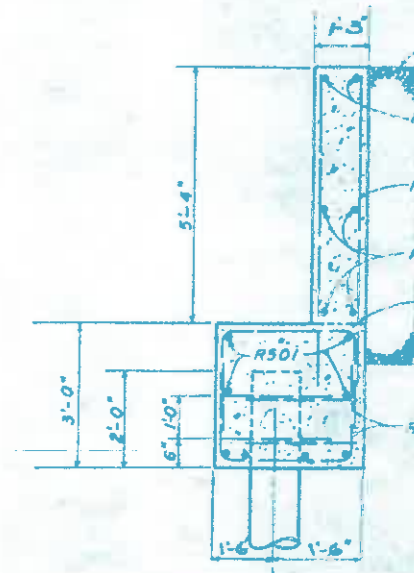


ELEVATION

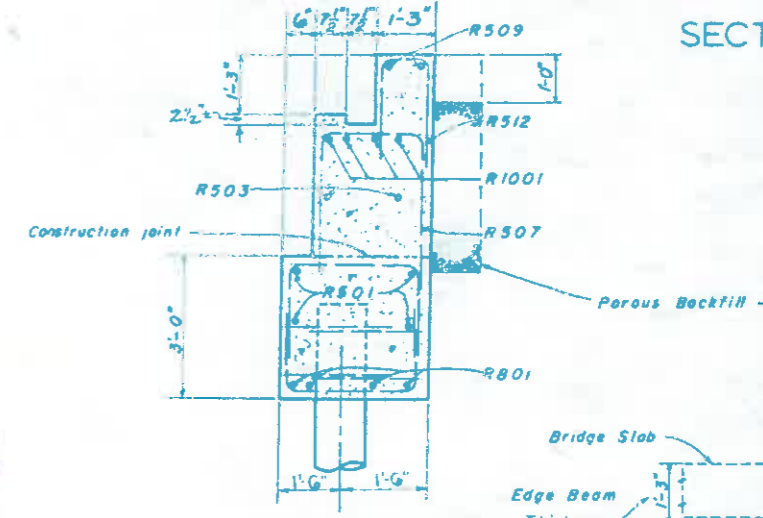


PLAN

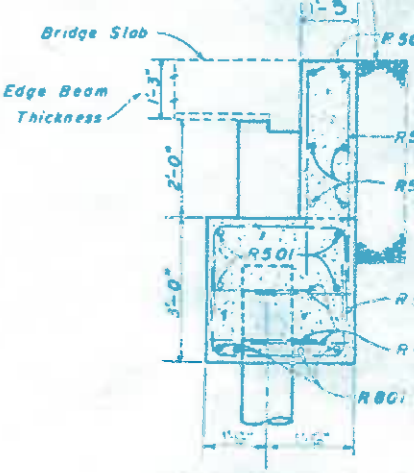
FORWARD ABUTMENT SHOWN
REAR ABUTMENT OPPOSITE HAND



SECTION A-A

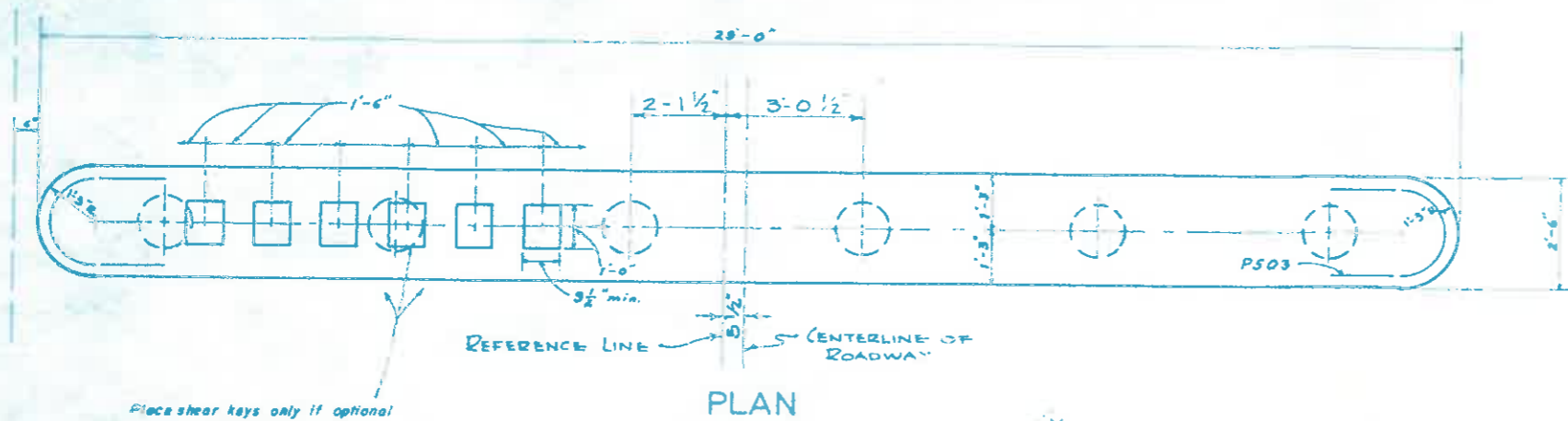


SECTION B-B

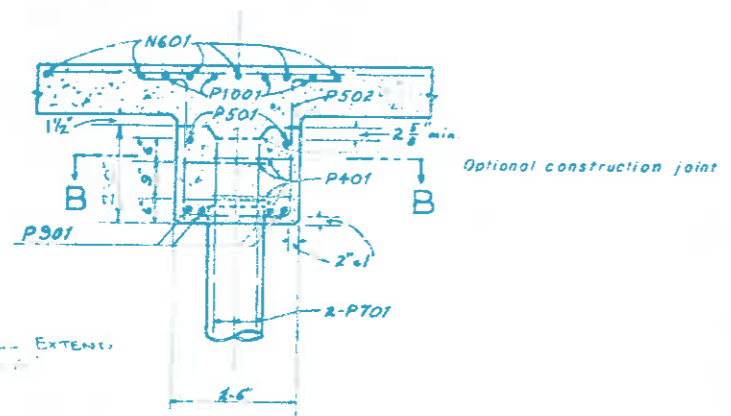
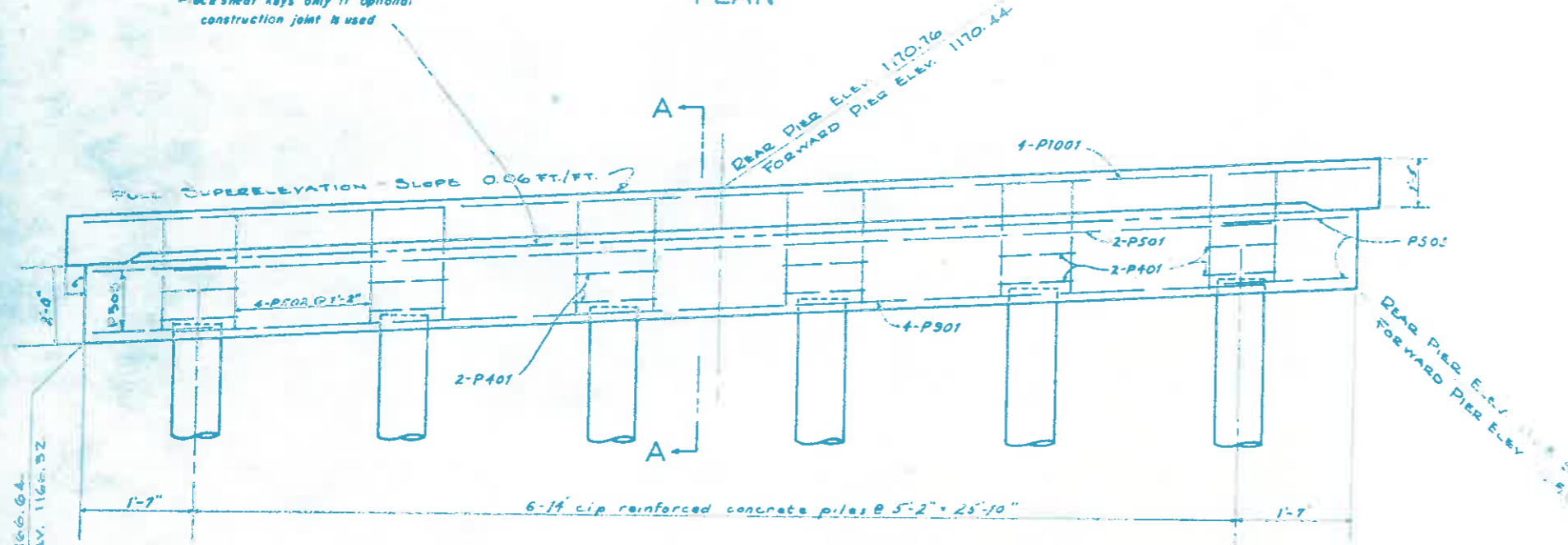


SECTION C-C

LOGAN COUNTY HIGHWAY Chester R Kurtz Co.		
ABUTMENT NO. 10 over MAD RIVER JEFFERSON TO		
DESIGNED F.D.R.	DRAWN F.D.R.	CHECKED C.R.L.



Place shear keys only if optional construction joint is used



PILE CASING SHALL EXTEND INTO CAP 2' MIN.



Reinforcing Steel List

MARK	NO.	LENGTH	WEIGHT	SHD	SP'G
SUPERSTRUCTURE					
A824	81	28'-1"	6073.58	S	13 1/2"
B824	28	21'-0"	1569.96	B	27"
C824	24	18'-4"	1174.80	B	27"
D824	14	13'-6"	728.31	S	27"
E824	12	15'-10"	507.50	S	27"
F924	54	21'-3"	3878.55	S	13 1/2"
G924	28	10'-6"	983.72	S	27"
H924	24	8'-2"	662.48	S	27"
J601	28	15'-3"	641.35	S	27"
K601	14	13'-10"	290.89	S	27"
M601	80	29'-6"	3544.72	S	13"
N601	54	29'-6"	2532.69	S	
ABUTMENTS					
R1001	16	15'-11"	1062.47	S	
R801	16	20'-0"	854.40	S	
R501	16	20'-0"	333.76	S	
R502	104	6'-7"	714.11	B	
R503	8	15'-1"	125.86	S	
R504	12	4'-0"	50.06	S	
R505	16	5'-6"	91.78	S	
R506	12	3'-2"	115.25	B	
R507	16	11'-3"	184.26	B	
R508	12	11'-10"	148.63	B	
R509	8	17'-5"	143.93	S	
R510	8	4'-6"	37.55	S	
R511	8	6'-6"	54.24	S	
R512	40	6'-9"	283.34	B	
R513	4	5'-8"	23.64	S	
R401	48	5'-5"	271.18	B	
PIERS					
P1001	8	29'-6"	984.59	S	
P901	8	26'-6"	716.56	S	
P701	72	4'-0"	588.67	S	
P501	4	26'-6"	110.56	S	
P502	44	9'-0"	413.03	B	
P503	8	6'-4"	52.85	B	
P401	48	5'-5"	173.68	B	
REPLACEMENT BARS					
R1001	1	8'-9"		S	
F924	1	8'-0"		S	
A824	1	7'-6"		S	
P701	1	7'-6"		S	
M601	1	7'-0"		S	
R-502	1	7'-0"		S	
R-401	1			B	

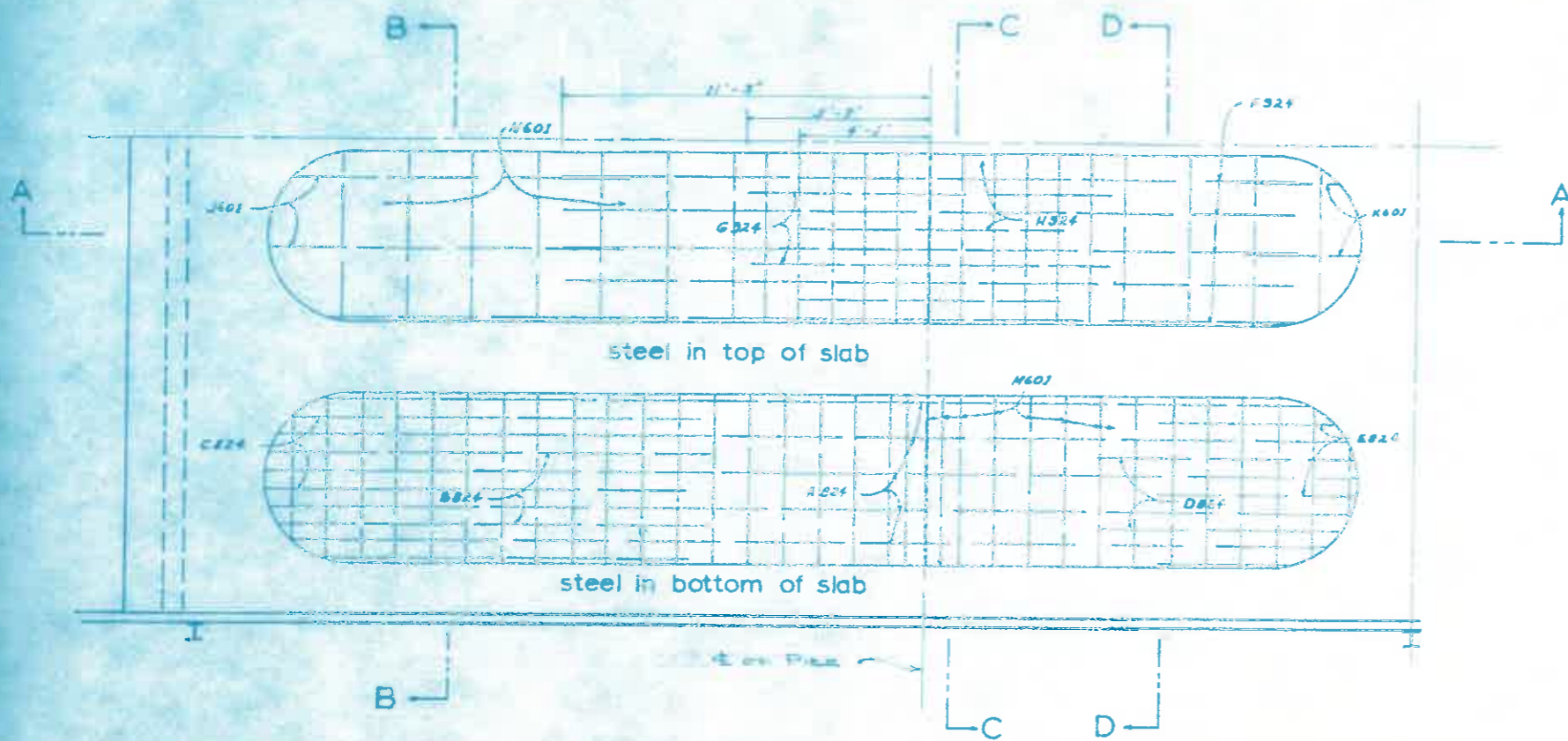
Bar size is indicated in bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A100 is a No. 7 size bar and A1014 is a No. 10 size.

LOGAN COUNTY
Chester R.

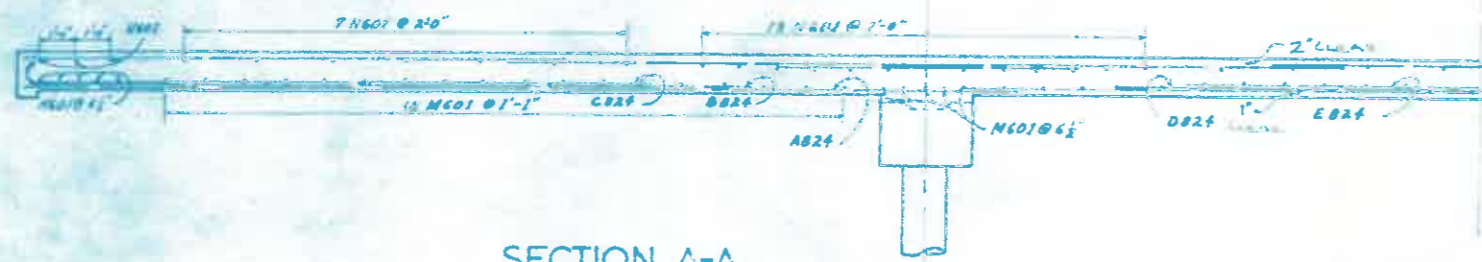
BRIDGE

JEFFERSON
Sta. 253+57.1

DESIGNED DRAWN
F.D.R. F.D.R.



PART PLAN
scale: $\frac{3}{8}'' = 1'$



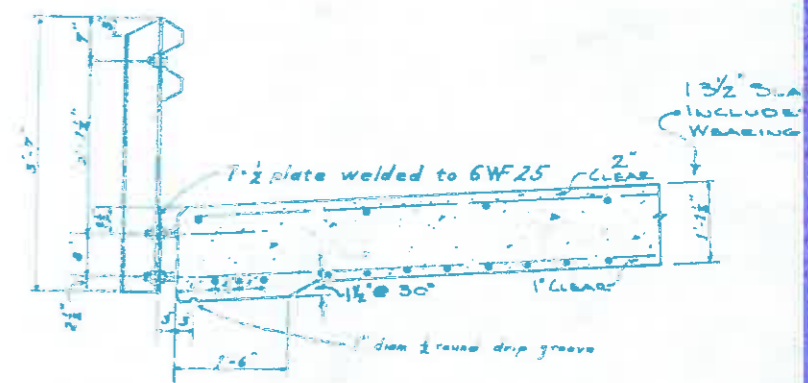
SECTION A-A



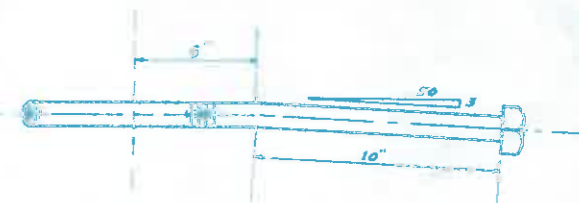
SECTION B-B & D-D



SECTION C-C



EDGE BEAM DETAIL

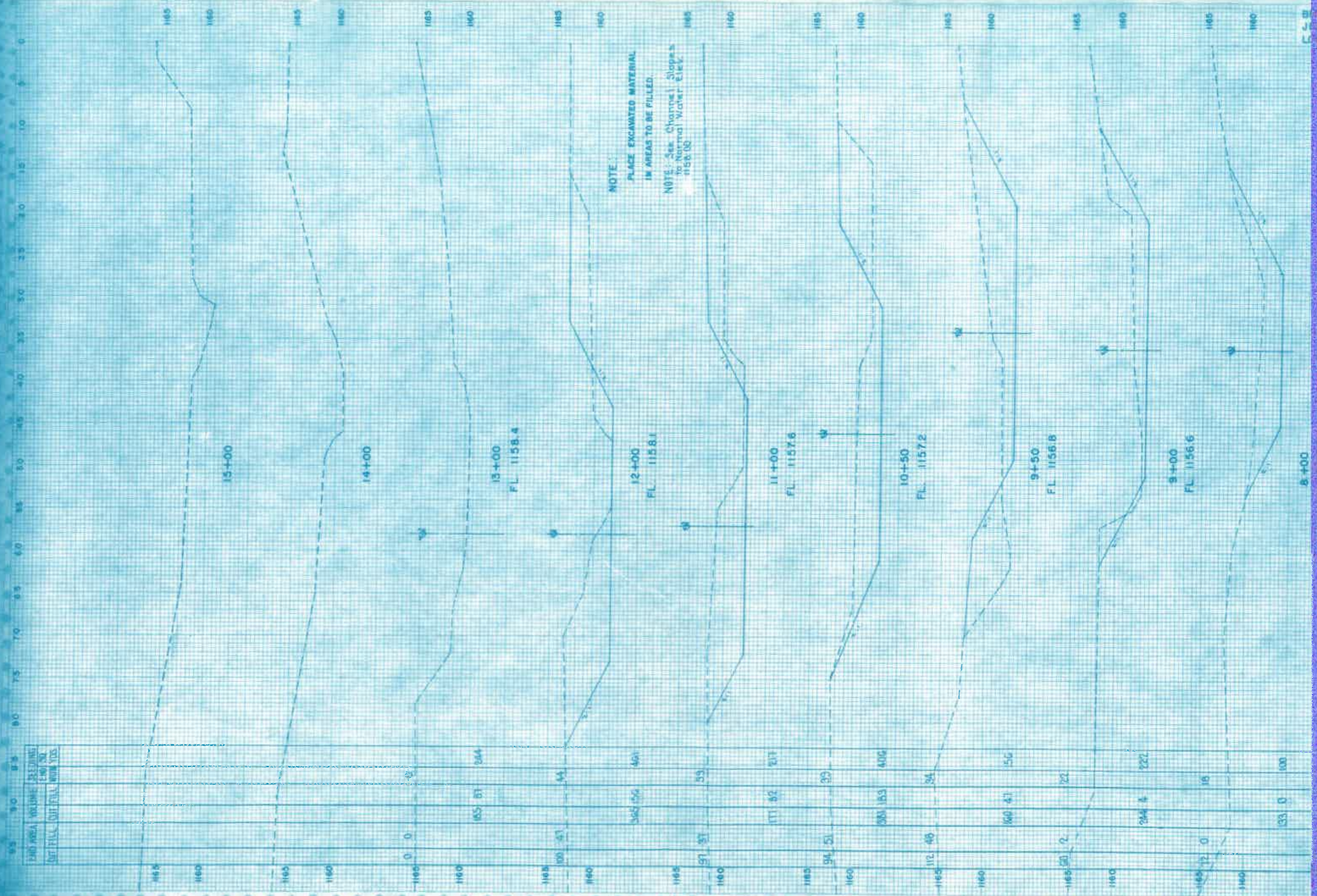


ANCHOR BOLT DETAIL

1 1/2" x 20" galvanized machine bolts
Thread 8" length, provide three
galvanized hexagonal nuts per bolt.

LOGAN COUNTY Chester R. Ku	
DE BRIDGE	
MA JEFFER	
Sta 253+57.	
DESIGNED F.D.R.	DRAWN F.D.R.

STATION	END AREA	VOLUME	PRECEDING ELEV. (FOOT)	END NO.
8+00	1160	0	1158.0	1
9+00	1160	0	1158.0	2
10+00	1160	0	1158.0	3
11+00	1160	0	1158.0	4
12+00	1160	0	1158.0	5
13+00	1160	0	1158.0	6
14+00	1160	0	1158.0	7
15+00	1160	0	1158.0	8



STANDARD FOR HIGHWAY PLANNING
 STATE OF OHIO
 COUNTY OF [blank]
 [Illegible text regarding surveying standards]

OFFICE OF THE LOCAL ENGINEERS
 OFFICE OF THE LOCAL SURVEYING COMMISSIONERS
 [Illegible text and signatures]

OFFICE OF THE LOCAL ENGINEERS
 OFFICE OF THE LOCAL SURVEYING COMMISSIONERS
 [Illegible text and signatures]

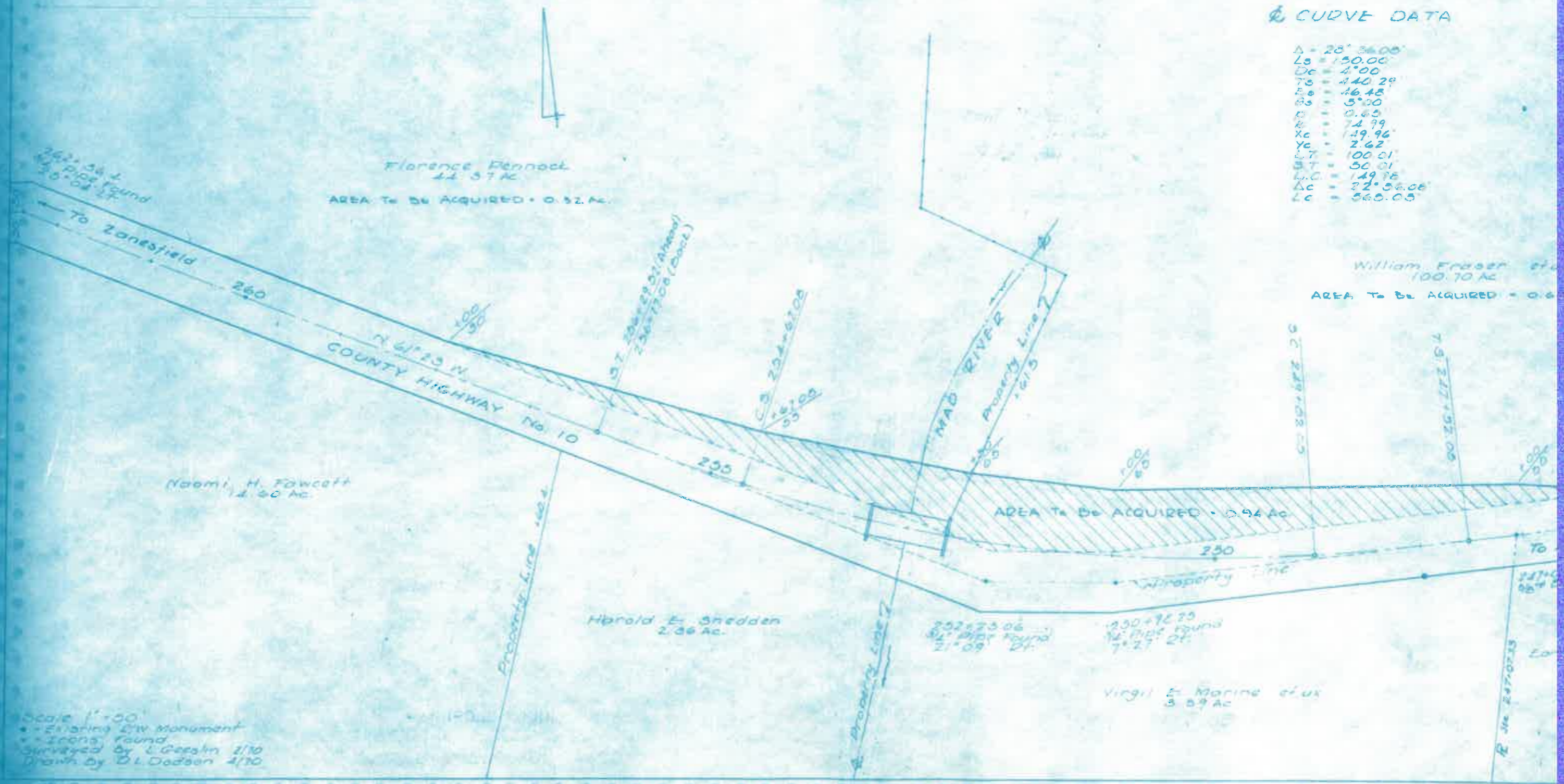
OFFICE OF THE LOCAL SURVEYING COMMISSIONERS
 [Illegible text and signatures]

EXISTING RIGHT OF
 COM. JOUR. 7,

JEFFERSON TOWNSHIP
 V.M.S. 3137

CURVE DATA

Δ	$= 28^{\circ} 36' 00''$
Ls	$= 150.00'$
Dc	$= 4.00'$
Ts	$= 240.29'$
Ea	$= 16.48'$
Es	$= 5.00'$
P	$= 0.65'$
K	$= 14.99'$
Xc	$= 19.96'$
Yc	$= 2.62'$
LT	$= 100.01'$
ST	$= 50.01'$
$L.C.$	$= 129.98'$
Δc	$= 22^{\circ} 56' 00''$
Lc	$= 360.03'$



Scale 1" = 50'
 • Existing DW Monument
 • Irons found
 Surveyed by L. Goslin 2/10
 Drawn by D.L. Dodson 4/10