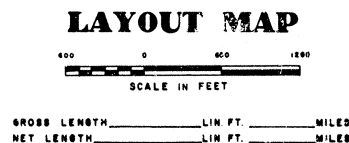
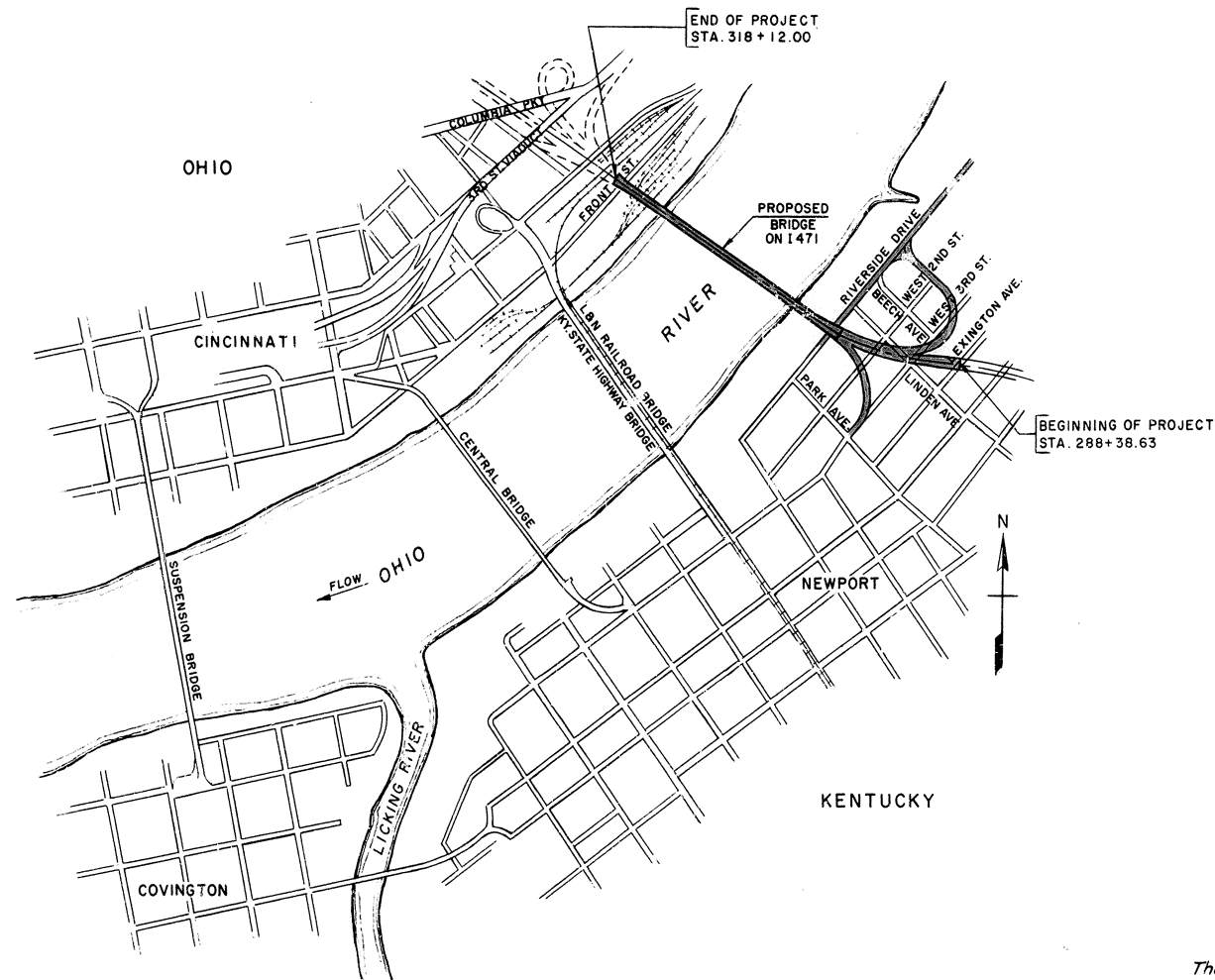


FED. ROAD DIST.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	KY. & OHIO	471-4		1	

SHEET NO.	TITLE
1	INDEX AND TITLE SHEET
2	GENERAL NOTES
3	ESTIMATED QUANTITIES
4	PLAN & PROFILE
5	LOG OF BORINGS
6	HYDROGRAPH
7	GENERAL PLAN-SPANS 8 THRU 11
8-9	PIER 10 S.B.
10-11	PIER 10 N.B.
12-13	PIER 11 S.B.
14-15	PIER 11 N.B.
16-17	PIER 12 S.B.
18-19	PIER 12 N.B.
20-21	PIER REINFORCEMENT
22	PILE RECORD
23-27	SPANS 9 THRU 11 STRUCTURAL STEEL
28	PIER 10 PLATFORM DETAILS
29	MODULAR EXPANSION JOINT AT PIER 9 (FOR REFERENCE)
30	MODULAR EXPANSION JOINT AT PIER 12
31	PARAPET EXPANSION DETAILS
32	SPANS 9 THRU 11 SLAB SECTIONS
33	SPANS 9 AND 10 S.B. SLAB PLAN
34	SPANS 10 AND 11 S.B. SLAB PLAN
35	SPANS 9 AND 10 N.B. SLAB PLAN
36	SPANS 10 AND 11 N.B. SLAB PLAN
37	SPANS 9 THRU 11 DRAINAGE DETAILS
38	PIERS 10 THRU 12 DOWNSPOUTS
39	SEWER PLAN AND PROFILES
40	MANHOLE DETAILS
41	SPANS 9 THRU 11 S.B. CONSTRUCTION ELEVATIONS
42	SPANS 9 THRU 11 N.B. CONSTRUCTION ELEVATIONS
43	SIGN SUPPORTS
44-47	STANDARD OVERHEAD SIGN SUPPORTS
48	INFORMATIONAL RIGHT OF WAY PLAN

COMMONWEALTH OF KENTUCKY
STATE OF OHIO
STATE HIGHWAY DEPARTMENTS

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY
CAMPBELL COUNTY
PROJECT I 471-4 (7) 4
CONTRACT B



RECOMMENDED FOR APPROVAL
HAZELET AND ERDAL
CONSULTING ENGINEERS

BY Lewis G. Huxum
DATE June 30, 1971

APPROVED BY KENTUCKY DEPARTMENT OF HIGHWAYS

BY Charles B. Cook 7/7 DATE 1971
DIRECTOR OF BRIDGES

BY J. P. Harrison DATE 7/7/71
STATE HIGHWAY ENGINEER

APPROVED BY OHIO DEPARTMENT OF HIGHWAYS

BY H. K. Kauter DATE 7-9-71
DEPUTY DIRECTOR, DIVISION OF DESIGN AND CONSTRUCTION

BY D. R. R. R. DATE 7/11/71
DIRECTOR OF HIGHWAYS

The Plans for this Project include drawings 18484, 18485 and 18486 and the three sets of drawings shall be worked together.

SHEET 1 OF 48

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____
DIVISION ENGINEER DATE _____

DRAWING NO. 18486

MICROFILMED-71

Revised: Removed Sigs 43-47 1/3 2-5-72

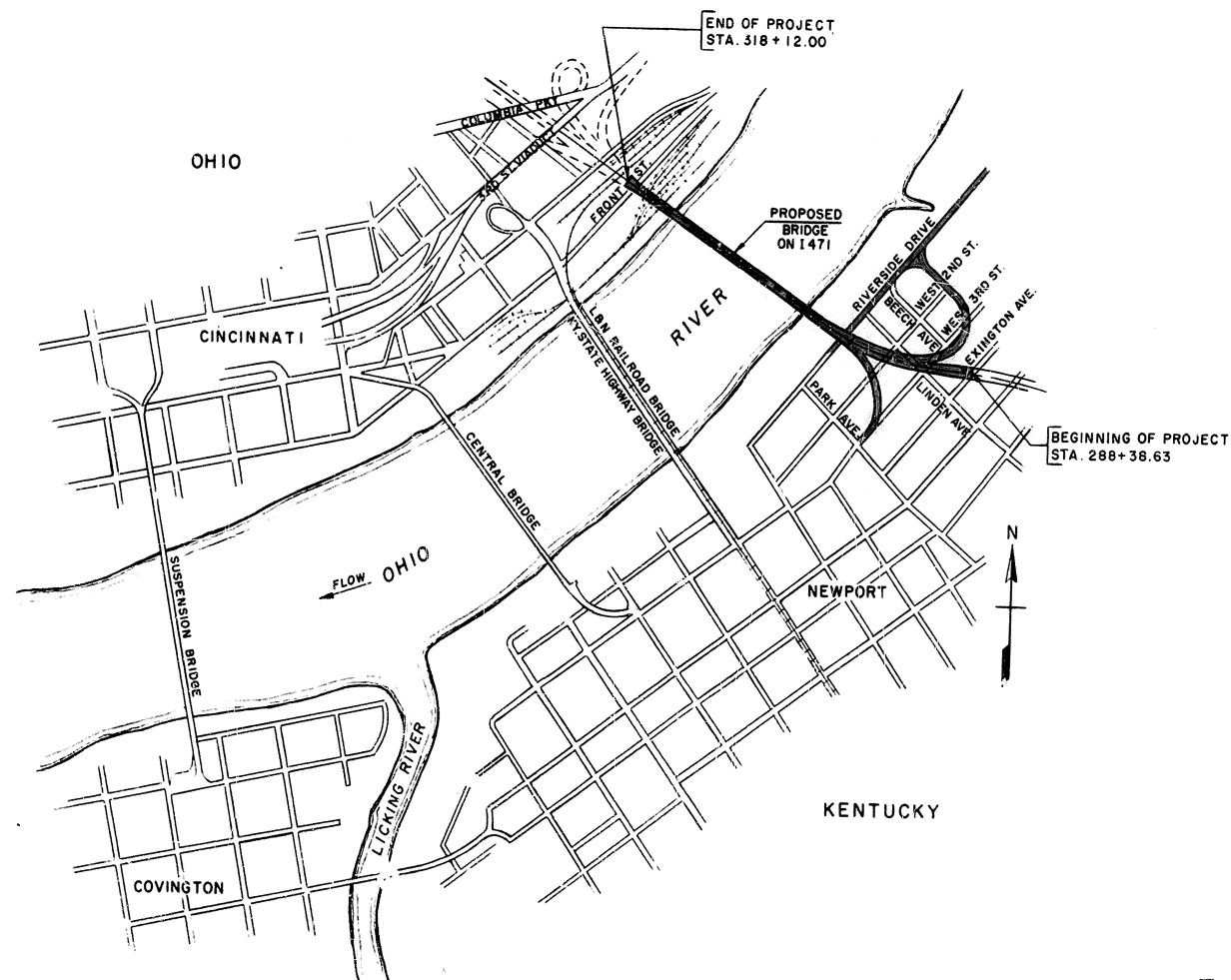
FED. ROAD DIST.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
KY. & OHIO	KY. & OHIO	1471-4 (7) 4	1971	1	48

INDEX OF PLANS

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8-9	PIER 10 S.B.
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12-13	PIER 11 S.B.
14-15	PIER 11 N.B.
16-17	PIER 12 S.B.
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COMMONWEALTH OF KENTUCKY STATE OF OHIO STATE HIGHWAY DEPARTMENTS

PLAN AND PROFILE OF PROPOSED STATE HIGHWAY CAMPBELL COUNTY PROJECT I 471-4 (7) 4 CONTRACT B



LAYOUT MAP



GROSS LENGTH _____ LIN. FT. _____ MILES
NET LENGTH _____ LIN. FT. _____ MILES

RECOMMENDED FOR APPROVAL
HAZELET AND ERDAL
CONSULTING ENGINEERS

BY Lewis E. Hazlett

DATE June 30, 1971

APPROVED BY KENTUCKY DEPARTMENT OF HIGHWAYS

BY Charles H. Cook 7/7 DATE 1971
DIRECTOR OF BRIDGES

BY J. R. Harrison DATE 7/7/71
STATE HIGHWAY ENGINEER

APPROVED BY OHIO DEPARTMENT OF HIGHWAYS

BY H. H. Harrison DATE 7-9-71
DEPUTY DIRECTOR, DIVISION OF DESIGN AND CONSTRUCTION

BY [Signature] DATE 7/11/71
DIRECTOR OF HIGHWAYS

SHEET 1 OF 48

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ENGINEER DATE

DRAWING NO. 18496

The Plans for this Project
include drawings 18484,
18485 and 18486 and
the three sets of drawings
shall be worked together.

DESIGN SPECIFICATIONS: Standard Specifications for Highway Bridges, Tenth Edition, adopted by the American Association of State Highway Officials, 1969, and the Geometric Design Standards for the National System of Interstate and Defense Highways, adopted by the American Association of State Highway Officials July 12, 1956, Revised October 20, 1963, May 15, 1965 and September 15, 1966, as modified by the Design Specifications for this project.

DEAD LOAD: Actual weight plus 20 lbs per sq. ft. on full width of roadways for future wearing surface. The slab is designed with 1-inch thick monolithic wearing surface. The notation dead load shall include future wearing surface (FWS) unless noted.

LIVE LOAD: Class HS20-44 or alternate loading of two 24,000 lb axles spaced four feet apart, whichever produces the greater stress in the member under consideration.

WIND LOAD: Design wind velocity = 82 m.p.h. (50 lbs per sq. ft.)

PERMISSIBLE UNIT STRESSES: (In lbs. per sq. in.)
Concrete Class AA: $f'_c = 4,000$
 $f'_c = 1,600$ (for other than slabs.)
 $f'_c = 1,200$ (for deck slabs.)
 $f_s = 20,000$
 $u = 200$ (for embedment)
 $u = 300$ (for Σa)
 $n = 8$
Class A: $f'_c = 3,000$
 $f'_c = 1,200$
 $f_s = 20,000$
 $u = 200$ (for embed.)
 $u = 300$ (for Σa)
 $n = 10$

A36 Steel:

Thickness: Up to 8" incl.
Tension 20,000

Compression: See Design Specifications as modified.
Bearing (Milled Parts) LL 29,000

Shear on Fasteners: 13,500 psi for friction type connections (A325 High Strength Bolts.)

A588 Steel:

Thickness:	4" And Under	Over 4" to 5" Incl.	Over 5" to 8" Incl.
Tension:	LL 27,000	25,000	23,000

Compression: See Design Specifications as modified.
Bearing: 40,000 37,000 34,000
(Milled Parts)

Shear on Fasteners: 13,500 psi for friction type connections (A325 High Strength Bolts)

FOUNDATION PILE LOADS:

Piles are designed for a maximum load of 70 tons per pile for steel bearing piles. This maximum is for Group 1 loads with increases allowed for other loading groups in accordance with AASHTO Specifications, Article 12.22.

PILING: Steel bearing piles shall be driven to refusal or to solid rock. Test piles shall be driven where designated in the Plans to determine the length required. All test piles shall be accurately located so that they may be used in the finished structure.

TYPES OF PILES: The Contractor shall use 12" structural steel Bearing Piles at 53 pounds, Standard Drawing P212-C, current edition, for Piers 10 through 12.

CONSTRUCTION SPECIFICATIONS: Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, current edition, with revisions, Special Notes, and Special Provisions shall apply to this project.

EXISTING CONDITIONS: Pier 9 for this structure has been or is being constructed under separate contract. The Superstructure Contractor shall arrange his work to match the existing locations (both dimensions and elevations) of the substructure. Any discrepancies between the substructure in place and these Plans shall be called to the attention of the Engineer before proceeding.

ELEVATION DATUM: Mean Sea Level, United States Coast and Geodetic Survey, 1929 General Adjustment.

CONCRETE: Class AA concrete is to be used throughout the superstructure. Class A concrete is to be used in the substructure.

SLAB FORMS: Stay-in-Place forms will not be permitted for the concrete bridge floors.

BEVELED EDGES: All exposed edges shall be beveled $\frac{1}{8}$ " unless otherwise shown.

REINFORCEMENT: Dimensions shown from face of concrete to bars are to center of bars unless noted as clear distance. Spacing of bars is from center to center of bars.

STRUCTURAL STEEL: All shop and field connections shall be high strength (H.S.) bolts (ASTM A325) unless noted otherwise on the Plans. Holes shall be $1/16$ " larger than nominal diameter of the bolts unless noted. The size of the bolts shall be as noted on the Plans. All steel shall be the type designated on the Plans.

PAYMENT FOR STRUCTURAL STEEL: The Lump Sum bid for structural steel shall be full payment for all structural steel, bolts, washers, deck drains, steel pins, cast iron, lead plates, molten lead, welding and welding materials, floor drains, inspection walk, shop drawings, paint, and all labor and materials necessary to erect the steel in accordance with the Plans and Specifications. The approximate weight of Structural Steel shown in the Estimate of Quantities does not include overrun or weld material.

DIMENSIONS: Dimensions shown on the Plans are for a normal temp. of 60°F with dead load without FWS on the structure. Tapes used by the contractor, including the structural steel fabricator and erector, shall have been calibrated correctly with the U.S. Bureau of Standards to insure correct fit of the steelwork.

WELDING NOTES: All groove welds are to be full penetration welds unless otherwise noted. All welds shall be made with an approved automatic process where practicable. The butt and fillet welds of the girders of Spans 9 thru 11 shall be inspected in accordance with the AWS Specifications and the Special Notes.

ELECTRICAL SERVICE: A three phase service has been provided, to the contractor who is presently working on Pier 9, by the Cincinnati Gas & Electric Company (Electrical Division). The proposed contractors are alerted to the existing three phase service, if this three phase service will interfere with the proposed contractor, Cincinnati Gas & Electric Company can adjust this three phase service on 24-hour notice.

WELD DETAILS: The butt weld symbols indicate only the general type of weld desired. The fabricator shall submit to the Engineer for approval The Proposed Weld Geometry of the welds to be used in fabrication. Fillet weld sizes not shown shall be the Minimum fillet weld size as determined by AWS D2.0-69 Article 224.b.

PROHIBITED FIELD WELDING: Except as shown on the Plans, no welding of any nature shall be performed on the load carrying members of the bridge without written consent of the Director, Division of Bridges, or his authorized representative, and then only in the manner and at the locations designated in the authorization.

CAMBER: Girders shall be cut to provide camber for full dead load excluding future wearing surface. Provide for possible warpage of girders due to extra heat in top flange by virtue of shear connectors. Girders which do not conform to plan camber and grade in the erected position shall be considered as requiring, at no additional cost to the State, either an adjustment in depth of the concrete slab haunch over the steel supporting members, or a reworking of the girder camber to meet the plan grade and slab thickness.

PAINTING STRUCTURAL STEEL: All Structural Steel shall be cleaned and painted in accordance with Special Provision for blast cleaning and painting of Structural Steel, current edition.

ERECTION: Erection shall conform with the Standard Specifications and the Special Notes.

MATERIAL: All material shall conform to the ASTM Specifications designated in the Standard Specifications, Special Notes, and/or on the drawings.

GALVANIZING: All galvanizing shall be done in accordance with Article 643.19.3 of the Specifications

MEMBRANE CURING COMPOUND: White pigmented curing compound shall be applied to the bridge deck in accordance with the Special Provision, except that the membrane compound used shall have a resinous base.

STYRENE-BUTADIENE PROTECTIVE COATING: Styrene-Butadiene Protective Coating shall be applied to the inside face of the parapets, and to the top horizontal surface of the parapets in accordance with the Special provision.

LINSEED OIL PROTECTIVE COATING: Linseed Oil Protective Coating shall be applied in accordance with the Special Provision, except that it shall only be applied to the bridge deck between the gutter lines and shall not be applied until after the styrene-butadiene protective coating has been applied to the parapets.

CONSTRUCTION IDENTIFICATION: The names of the prime contractor and the sub-contractor shall be imprinted in the concrete with one inch letters at a location designated by the Engineer. The contractor shall furnish all plans, equipment and labor necessary to do the work, for which no direct payment will be made.

CONSTRUCTION JOINTS: All construction joints shall be carefully formed. The Contractor shall furnish sufficient mixer capacity to place the concrete between construction joints, as noted in the Plans.

After one section of the concrete has been placed, the construction joint shall be thoroughly cleaned of all laitance and loose or foreign material just before the concrete takes its final set (which is about six hours). The joint shall then be covered with burlap and kept completely saturated with water. Flush the joint with 1:2 Portland Cement Mortar before placing the adjoining section.

SPIRAL COLUMN TIES: Splices for spirals where desired by the Contractor shall be made with a minimum of one and one-half turns of spiral. No additional payment will be made for these splices, and the cost will be considered incidental to the cost of the developed length of spiral shown on the Plans. Spiral reinforcement shall meet the requirement of Section 6-4.5.0 of the Standard Specifications.

CIRCULAR SECTION REINFORCED CONCRETE COLUMNS: This note modifies the requirement of Article 404.3.1 and 403.3.8 for pier columns. The concrete shall be placed, finished and cured as specified in Article 404.3.1 except as required by the following:

(a) All forms for the circular section columns shall be made of metal or shall be plastic or plastic-lined so as to give the surface a true, smooth, cylindrical shape free from fins, joints and irregularities.

(b) The concrete shall be placed in, and carefully vibrated against, the forms to assure smooth surfaces without voids, honeycomb, air pockets or irregularities in the surface.

(c) A rubbed surface finish will not be required for the columns as specified in Article 403.3.8-C. Instead, the surface shall be finished as specified in Article 403.3.8-B.

No extra payment will be made to the Contractor for the use of metal, plastic or plastic-lined forms, nor for placing or finishing the concrete. The cost of furnishing the forms, placing the concrete, and finishing as specified shall be included in the unit price bid for Class A concrete.

CONSTRUCTION IDENTIFICATION SIGNS: Two (2) construction identification signs will be required on this project, placed where and as directed by the Engineer.

DRAIN PIPE: The drain pipe shall be 6" standard weight in accordance with Article 411.3.5 of the Specifications. Pipe fittings, brackets and connections shall be included in the unit price per linear foot of 6" drain pipe complete in place. Pipe and all fittings shall be painted in accordance with the Special Provisions for Blast Cleaning and Painting Structural Steel, current edition.

GENERAL NOTES

SHEET 2

KENTUCKY DEPARTMENT OF HIGHWAYS OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON 1471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18486

INDEX

ESTIMATED QUANTITIES

ITEM	UNIT	PIER 10	PIER 11	PIER 12	SUPERSTRUCTURE SPANS 9-11	MISC.	TOTALS
Structure Excavation, Common	C.Y.	454	454	326			1234
Structure Excavation, Unclassified	C.Y.					370	370
Piles, Steel BP 12 @ 53, Furnish	L.F.	4082	4147	3546			11775
Piles, Steel BP 12 @ 53, Drive	L.F.	4082	4147	3546			11775
Concrete, Class A	C.Y.	516.7	512.7	476.7			1506.1
Concrete, Class AA	C.Y.				1625.7		1625.7
Steel Reinforcement	Lbs.	106842	108571	70553	479,933		765,899
Structural Steel ①	L.S.						L.S.
6 Inch ④ Drain Pipe	L.F.	272	267	254	772		1565
Protective Coating, Styrene-Butadiene	Gal.				31		31
Protective Coating, Linseed Oil	S.Y.				4905		4905
Overhead Sign Supports ②	EA						EA
Concrete Pipe Manhole Type P (Special)	Each					4	4
Manhole Type R (Special)	Each					1	1
12" Reinforced Conc. e Sewer Pipe Class II	L.F.					553	553
Modular Expansion Joint at Pier 12	L.S.						L.S.
Telephone Conduit ④ ⑤	-						-
Bridge Lighting ⑤	⑤						-
Removal of Structures on Parcel 5000	L.S.						L.S.

① The bid item "Structural Steel" includes the approximate estimated weights (in pounds) shown in the table below.

- ③ For breakdown of Lighting Bid Items and Quantities, See Drawing 18+84, Sheet 67.
④ Non-Participation Item (Indicates non-participation of Federal Funds.)
⑤ These items for entire bridge shown on Drawing No. 18+84.

ESTIMATED STRUCTURAL STEEL *	
TYPE STEEL	TOTAL
A 36	1,670,250
Bridge Shoes	74,580
Drain Castings	9,540
Total	1,754,370

* These weights do not include any allowance for overrun for plates wider than 36 inches.

The non-participating weight of Structural Steel included in Telephone Conduit is shown on Sheet 3 of drawing 18+84.

REMOVAL OF STRUCTURES ON PARCEL 5000

- Railroad Tracks
 - Main spur line now in use located south of Front Street shall remain open and free of obstructions at all times, along with the siding track leading from the main spur to the shredder and conveyor.
 - Remove the following track after cutting same eighteen inches (18") inside the temporary right-of-way limits as shown on the plans.
 - All track, excluding the main spur track and the siding track noted in 'A' above, located south of Front Street and north of the main spur line.
- Buildings and Concrete Islands
 - The building north of Front Street located on Parcel 5000WL-2 and 5000T-4 shall be severed as follows:
 - Two feet (2') west of the corrugated metal partition. The contractor shall not interfere with the principal support column and joists located between the corrugated metal partition and the cut-off line.
 - At the western edge of Parcel 5000T-3 the building shall be removed from the I-Beam column and pilaster located immediately east of the temporary right-of-way line (B't East of temporary right-of-way line). This support column, pilaster, and joists are not to be removed. The contractor shall make all cuts for the building removal east of the floor girder located at the above column. This girder is to be saved through the second bay as shown in the detail on the Right-of-Way Plan. The third bay is to be removed.
 - All of the building including foundations, floors, pits, and wells located between the above limits shall be removed to a minimum of one foot (1') below the grade of the surrounding floor area. The floors shall be cut in a neat line. Before commencing with work, the contractor shall assure himself that all utility service connections have been disconnected from the portions of the buildings to be removed.
 - The concrete loading docks and islands located immediately north of the building shall be removed in their entirety. The foundations for the loading docks shall be removed to a minimum of one foot (1') below the grade of the surrounding area.
- Shredder and Conveyor Metal Building
 - This building located within the limits of Parcel 5000T-1 shall not be disturbed in any way.

REFERENCES

Note: The Standard Drawings listed below are the Current Edition and are to be used with these Plans.
P212C 12" Copper Content Structural Steel Bearing Pile at 53 lbs.
AWS-3 Modifications and Additions to AWS D2.0-69 Specifications.

SPECIAL PROVISIONS

- No. 6B For Staking
No. 7-A For Construction Identification Signs on Federal-Aid Highway Projects
No. 8-A For Linseed Oil Protective Coating
No. 15 Relating to Bid Proposal Guaranty and Contract Bonds
No. 30-B Membrane Curing of Concrete Structures
No. 31 For Pile Load Tests
No. 35-B For Class "AA" Concrete
No. 36-A For Set-Retarding Admixtures for Concrete
No. 37-B Preformed Compression Joint Seats

- No. 46-C Water Pollution Controls
No. 77-B Styrene-Butadiene Protective Coating
No. 79 Concrete Bridge Deck Finishing Machine
No. 80-B Blast Cleaning and Painting Structural Steel (Aikyo System)
No. 82-A Roadway Lighting Systems
No. 83 Partial Payment
No. 89 Reflex-reflective materials.
Plus: Special Notes for Bridge Construction
Special Notes for Bridge Deck Construction

PR 1273 (Rev. 10-69) Required Contract Provisions

Chronological Listing of Revisions to the 1965 Edition of the Standard Specifications
No. 90-A Contract Time

SHEET 3

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18486

INDEX

ESTIMATED QUANTITIES

ESTIMATED QUANTITIES

ITEM	UNIT	PIER 10	PIER 11	PIER 12	SUPERSTRUCTURE SPANS 9-11	MISC.	TOTALS
Structure Excavation, Common	C.Y.	454	454	326			1234
Structure Excavation, Unclassified	C.Y.					370	370
Piles, Steel BP 12 @ 53, Furnish	L.F.	4082	4147	3546			11775
Piles, Steel BP 12 @ 53, Drive	L.F.	4082	4147	3546			11775
Concrete, Class A	C.Y.	516.7	512.7	476.7			1506.1
Concrete, Class AA	C.Y.				1628.2		1628.2
Steel Reinforcement	Lbs.	106842	108571	70553	480437		766403
Structural Steel ①	L.S.						L.S.
6 Inch Ø Drain Pipe	L.F.	272	267	254	772		1565
Protective Coating, Styrene-Butadiene	Gal.				31		31
Protective Coating, Linseed Oil	S.Y.				4905		4905
Overhead Sign Supports ②	L.S.						L.S.
Concrete Pipe Manhole Type P (Special)	Each					4	4
Manhole Type R (Special)	Each					1	1
12" Reinforced Concrete Sewer Pipe Class II	L.F.					553	553
Modular Expansion Joint at Pier 12	L.S.						L.S.
Telephone Conduit ④⑤	-						-
Bridge Lighting ⑤	⑤						-
Removal of Structures on Parcel 5000	L.S.						L.S.

- ① The bid item "Structural Steel" includes the approximate estimated weights (in pounds) shown in the table below.
- ② Sign support bridges may be of the following optional types:
1. Aluminum, See Sheets 44 & 45
 2. Galvanized Steel, See Sheets 46 & 47
- ③ For breakdown of Lighting Bid Items and Quantities, See Drawing 18484, Sheet 67.
- ④ Non-Participation Item (Indicates non-participation of Federal Funds.)
- ⑤ These items for entire bridge shown on Drawing No. 18484.

ESTIMATED STRUCTURAL STEEL *

TYPE STEEL	TOTAL
A 36	1,675,540
Bridge Shoes	74,580
Drain Castings	9,540
Total	1,759,660

* These weights do not include any allowance for overrun for plates wider than 36 inches.

The non-participating weight of Structural Steel included in Telephone Conduit is shown on Sheet 3 of drawing 18484.

REMOVAL OF STRUCTURES ON
PARCEL 5000

1. Railroad Tracks
 - A. Main spur line now in use located south of Front Street shall remain open and free of obstructions at all times, along with the siding track leading from the main spur to the shredder and conveyor.
 - B. Remove the following track after cutting some eighteen inches (18") inside the temporary right-of-way limits as shown on the plans.
 - i. All track, excluding the main spur track and the siding track noted in 'A' above, located south of Front Street and north of the main spur line.
2. Buildings and Concrete Islands
 - A. The building north of Front Street located on Parcel 5000 WL-2 and 5000 T-4 shall be severed as follows:
 - i. Two feet (2') west of the corrugated metal partition. The contractor shall not interfere with the principal support column and joists located between the corrugated metal partition and the cut-off line.
 2. At the western edge of Parcel 5000 T-3 the building shall be removed from the I-Beam column and pilaster located immediately east of the temporary right-of-way line (8'± East of temporary right-of-way line). This support column, pilaster, and joints are not to be removed. The contractor shall make all cuts for the building removal east of the floor girder located at the above column. This girder is to be saved through the second bay as shown in the detail on the Right-of-Way Plan. The third bay is to be removed.
 3. All of the building including foundations, floors, pits, and wells located between the above limits shall be removed to a minimum of one foot (1') below the grade of the surrounding floor area. The floors shall be cut in a neat line. Before commencing with work, the contractor shall assure himself that all utility service connections have been disconnected from the portions of the buildings to be removed.
 4. The concrete loading docks and islands located immediately north of the building shall be removed in their entirety. The foundations for the loading docks shall be removed to a minimum of one foot (1') below the grade of the surrounding area.
3. Shredder and Conveyor Metal Building
 - A. This building located within the limits of Parcel 5000 T-1 shall not be disturbed in any way.

REFERENCES

Note: The Standard Drawings listed below are the Current Edition and are to be used with these Plans.

P212C 12" Copper Content Structural Steel Bearing Pile at 53 Lbs.

AWS-3 Modifications and Additions to AWS D2.0-69 Specifications.

SPECIAL PROVISIONS

- No. 6B For Staking
- No. 7-A For Construction Identification Signs on Federal-Aid Highway Projects
- No. 8-A For Linseed Oil Protective Coating
- No. 15 Relating to Bid Proposal Guaranty and Contract Bonds
- No. 30-B Membrane Curing of Concrete Structures
- No. 31 For Pile Load Tests
- No. 35-B For Class "AA" Concrete
- No. 36-A For Set-Retarding Admixtures for Concrete
- No. 37-B Preformed Compression Joint Seats
- No. 46-C Water Pollution Controls
- No. 77-B Styrene-Butadiene Protective Coating
- No. 79 Concrete Bridge Deck Finishing Machine
- No. 80-B Blast Cleaning and Painting Structural Steel (Aikyo System)
- No. 82-A Roadway Lighting Systems
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- Plus: Special Notes for Bridge Construction
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- PR 1273 (Rev. 10-69) Required Contract Provisions

Chronological Listing of Revisions to the 1965 Edition of the Standard Specifications

No. 90-A Contract Time

SHEET 3

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT : 471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18486

INDEX

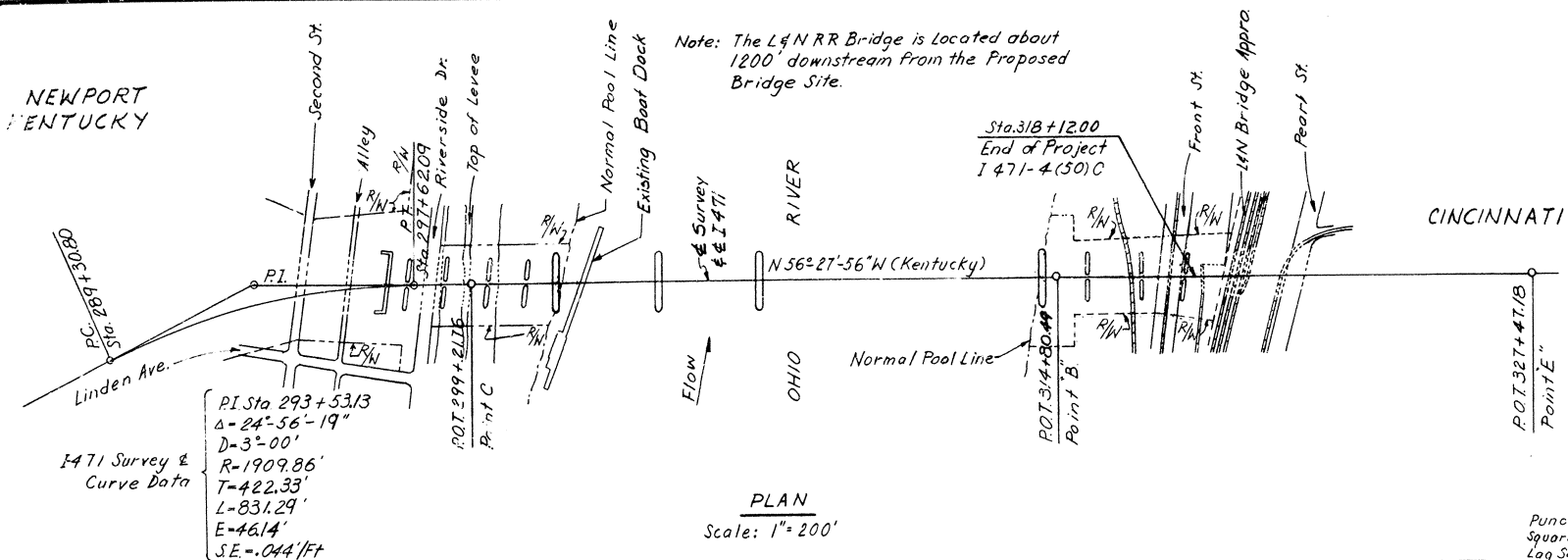
ESTIMATED QUANTITIES

FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	1471	1954	4	10

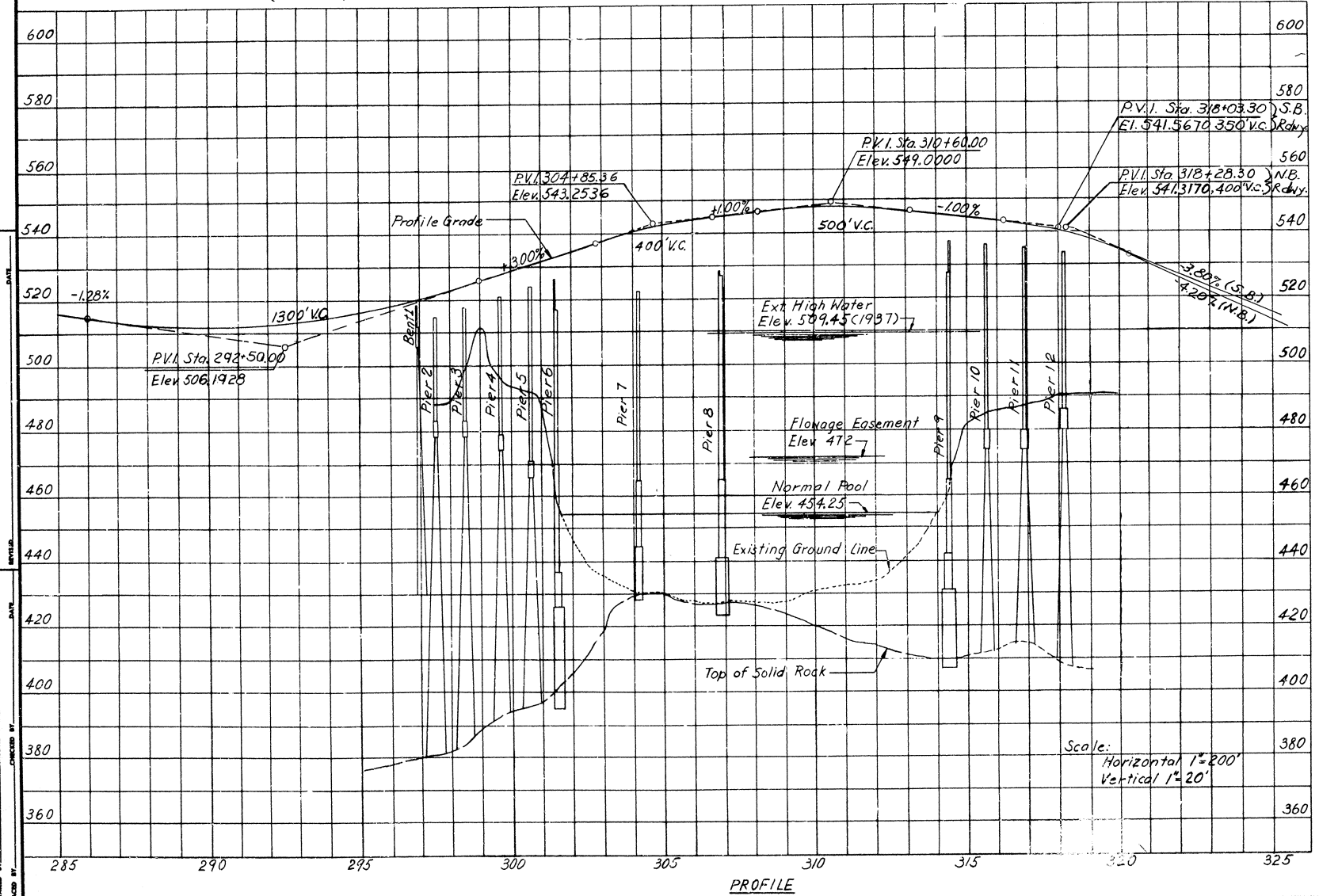
NEWPORT
KENTUCKY

CINCINNATI, OHIO

Note:
Survey #1471 bearing
N36°-21'-56"W (Kentucky) equals
bearing N35°-19'-56"W (Ohio).

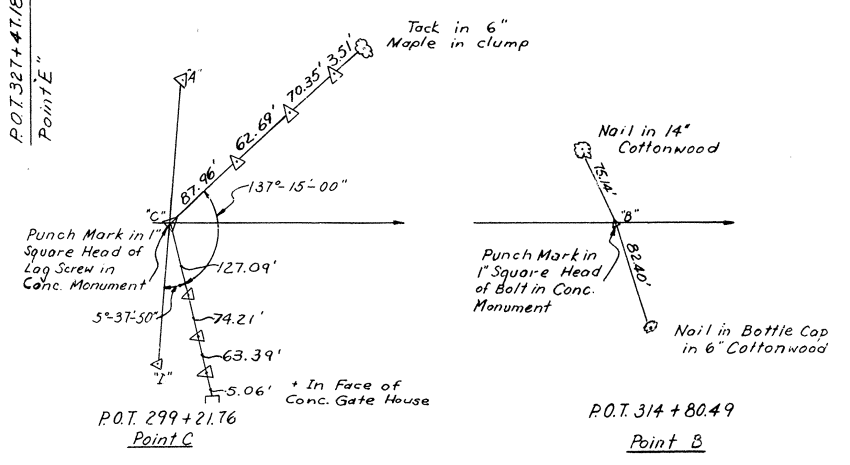


PLAN
Scale: 1"=200'



PROFILE

Scale:
Horizontal 1"=200'
Vertical 1"=20'



BENCH MARKS

KENTUCKY G142 Elev. 490.800
A Bronze Disk established by U.S.C. & G.S. and stamped G142 19- . Located in Newport at the concrete floodwall, at the foot of Saratoga Street, southwest of the Louisville and Nashville RR Bridge over the Ohio River. Set vertically 1.5 feet above ground and 20 feet below top of wall in southeast face of the concrete floodwall. 15 feet southwest of the southwest edge of bridge.

OHIO 24 Elev. 490.626
A chisel cut on the end of a 3/8 inch brass bolt, leaded horizontally and surrounded by the letters "U.S.C. & G.S.". Located in Cincinnati, at the northeast corner of Front and Butler Streets, at the west end of a pier of the Louisville and Nashville RR Bridge over the Ohio River. Set in the third course above ground, 10 inches north of south face and 44 feet above the pavement

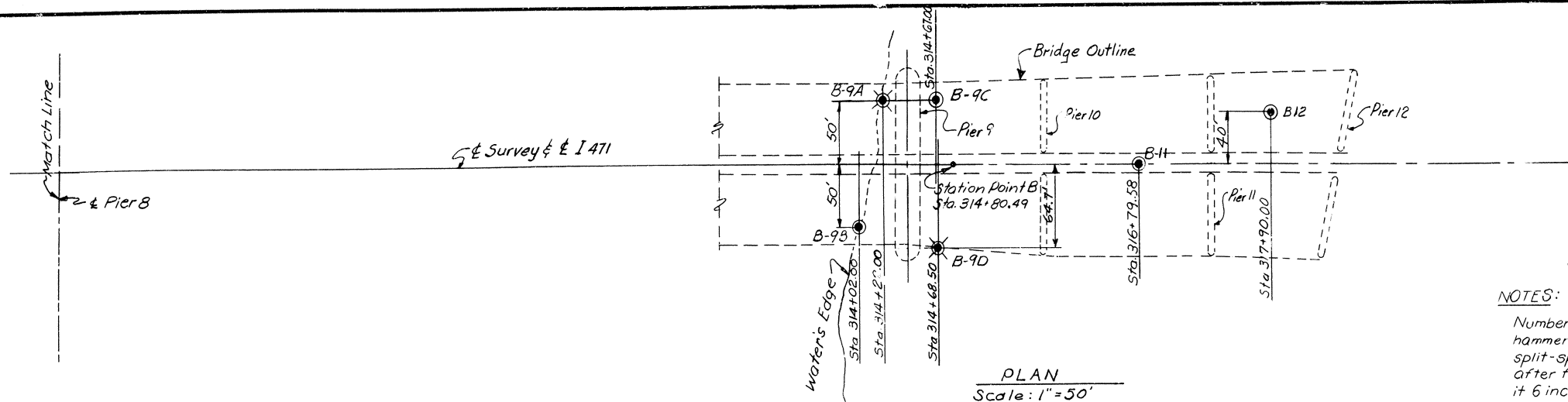
Note:
Elevations Refer to Mean Sea Level.
U.S.C. & G.S. - 1929 General Adjustment.
See ROW drawings for right of way and for the limits of temporary construction easements.

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18486	INDEX
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PLAN & PROFILE



NOTES:

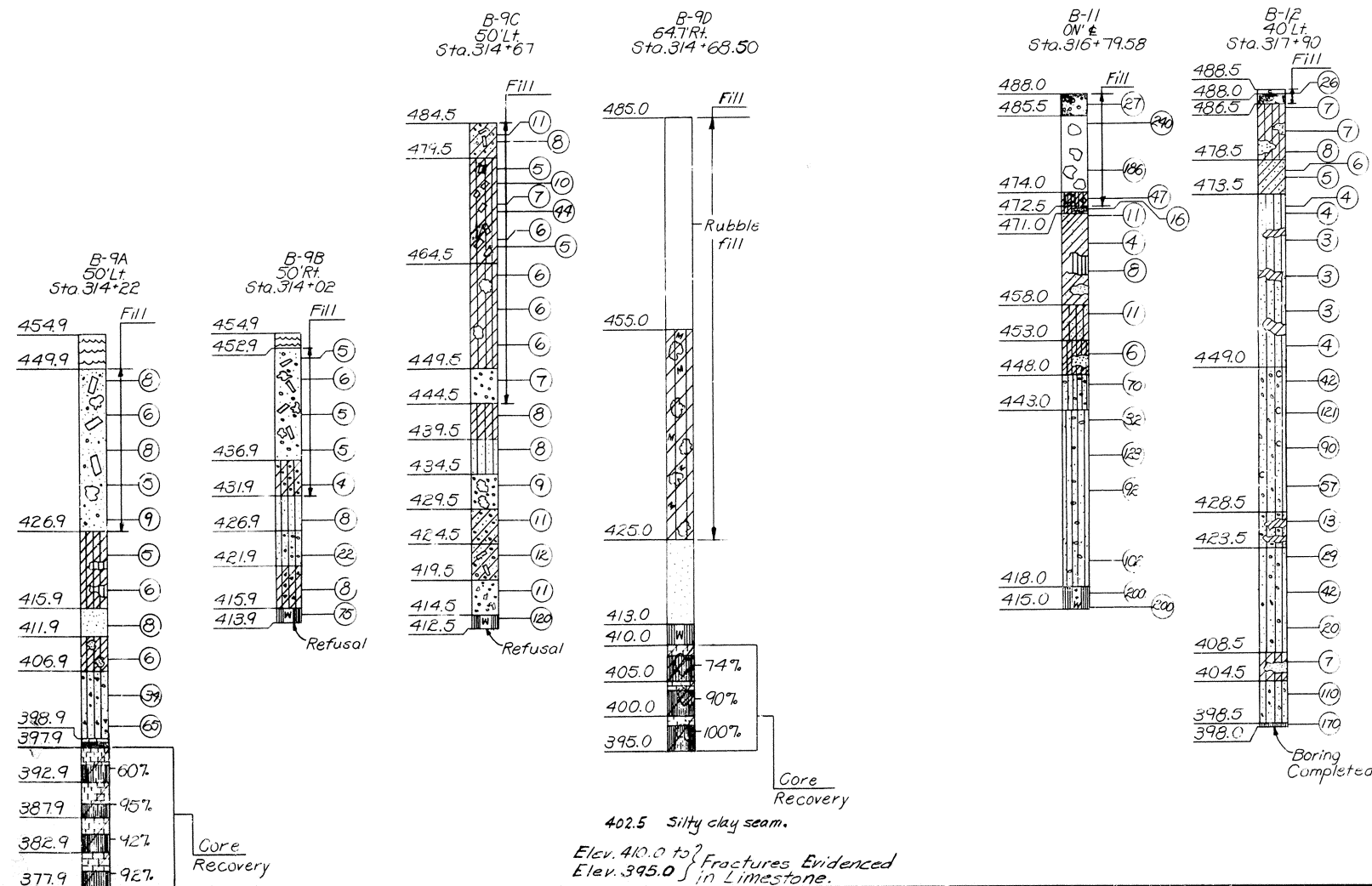
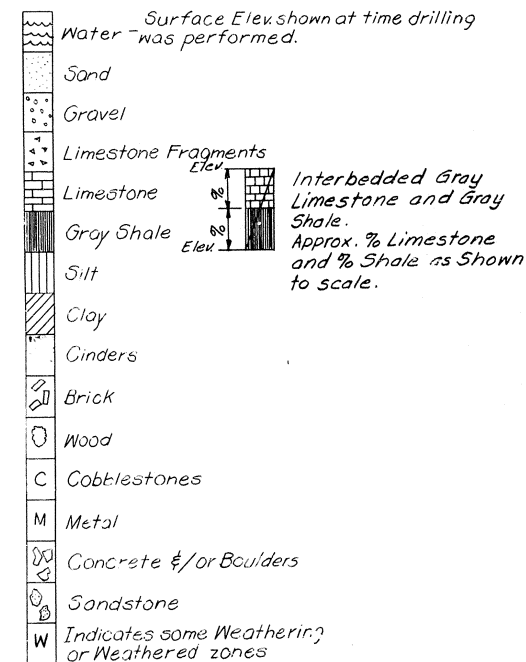
Number in circle indicates number of blows of 140 Lb. hammer dropped 30 inches required to drive a 2 inch split-spoon sampler 1.0 ft. (unless otherwise indicated) after first seating the split-spoon sampler by driving it 6 inches.

Percentage number indicates % core recovery.

● = Borings to rock

⊙ = Borings drilled 20' into rock

SOIL TYPE LEGEND



SHEET 5

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELEY & ERDAL
Consulting Engineers
File No. 889

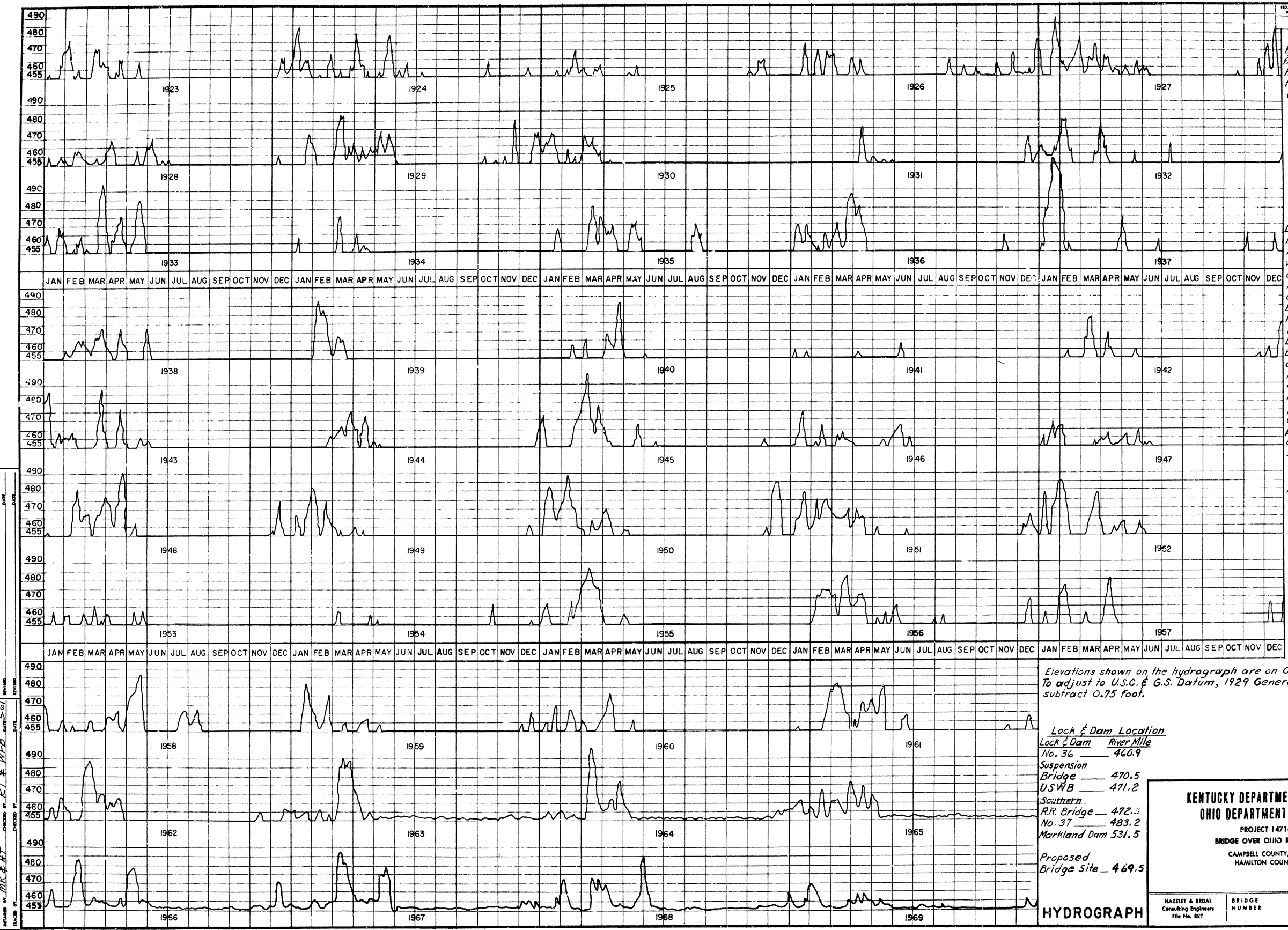
BRIDGE
NUMBER

DRAWING NO.
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The data for this hydrograph was reduced from gage readings and hydrographs made by the Corps of Engineers U.S. Army, at the following Locations:

- Lock & Dam No. 36
- Lock & Dam No. 37
- U.S. Weather Bureau (in Cincinnati)
- Southern R.R. Bridge (near Mill Creek)
- Suspension Bridge (Cincinnati to Covington)
- Markland Locks and Dam, with an Upper Pool Elevation of 455.0 (Ohio River Datum) is located very near former Lock and Dam No. 39 and inundates Dams No. 36 and No. 37. Upper Pool Elevation 455.0 at Markland Locks and Dam is Normal Pool Elevation at the proposed bridge site. Therefore, only high water above Normal Pool Elevation 455.0 was plotted. The hydrograph at the proposed bridge site was obtained by interpolation of hydrographs at Dams No. 36 and No. 37 for the years 1923 thru 1939. From 1940, the hydrograph was plotted from the gage readings taken in Cincinnati.



Elevations shown on the hydrograph are on Ohio River Datum. To adjust to U.S.C. & G.S. Datum, 1929 General Adjustment, subtract 0.75 foot.

Lock & Dam Location
Lock & Dam River Mile
 No. 36 460.9
 Suspension Bridge 470.5
 USWB 471.2
 Southern R.R. Bridge 472.3
 No. 37 483.2
 Markland Dam 531.5
 Proposed Bridge Site - 469.5

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

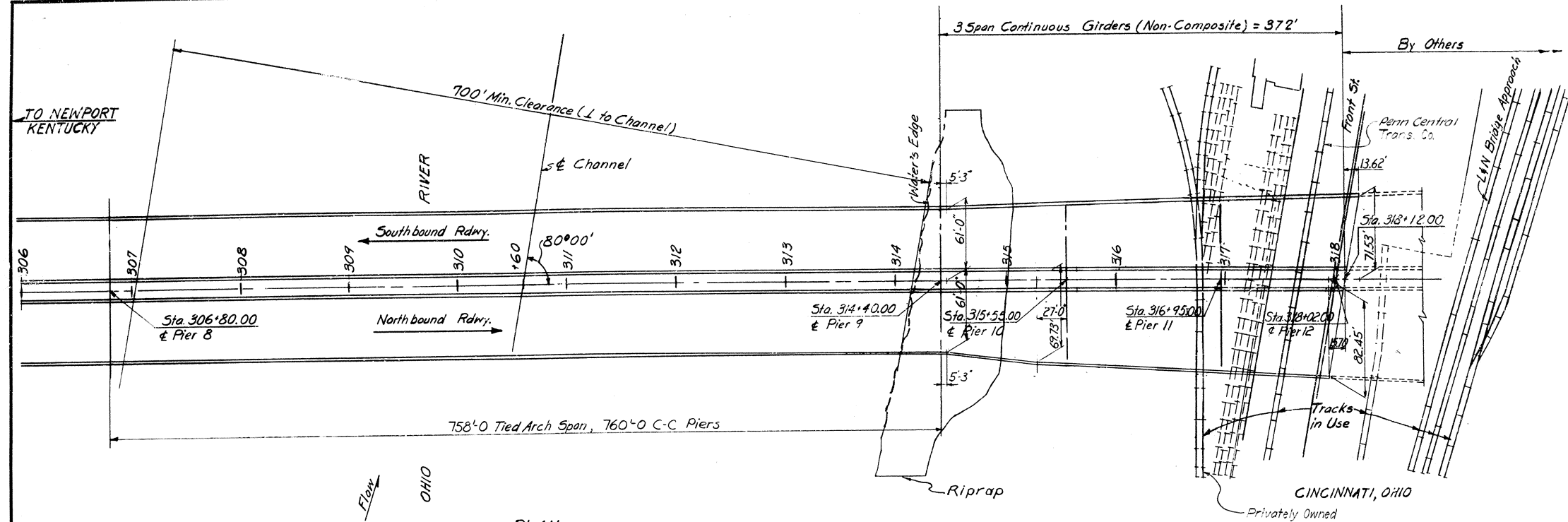
PROJECT 1471-4 ()
 BRIDGE OVER OHIO RIVER ON I 471
 CAMPBELL COUNTY, KENTUCKY
 HAMILTON COUNTY, OHIO

HAZELET & ERDAL Consulting Engineers File No. 867	BRIDGE NUMBER	DRAWING NO. 18486	INDEX
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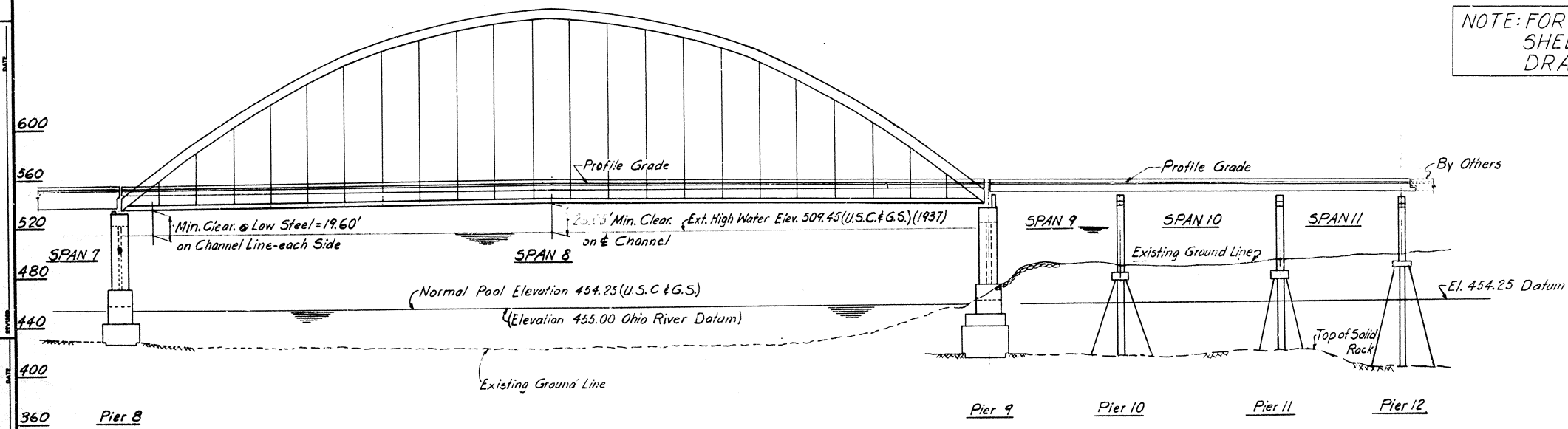
HYDROGRAPH

SHEET 6

FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	1471-	(21)		



NOTE: FOR LIGHTING DETAILS SEE SHEETS NO. 62 THRU 67 OF DRAWING NO. 18484



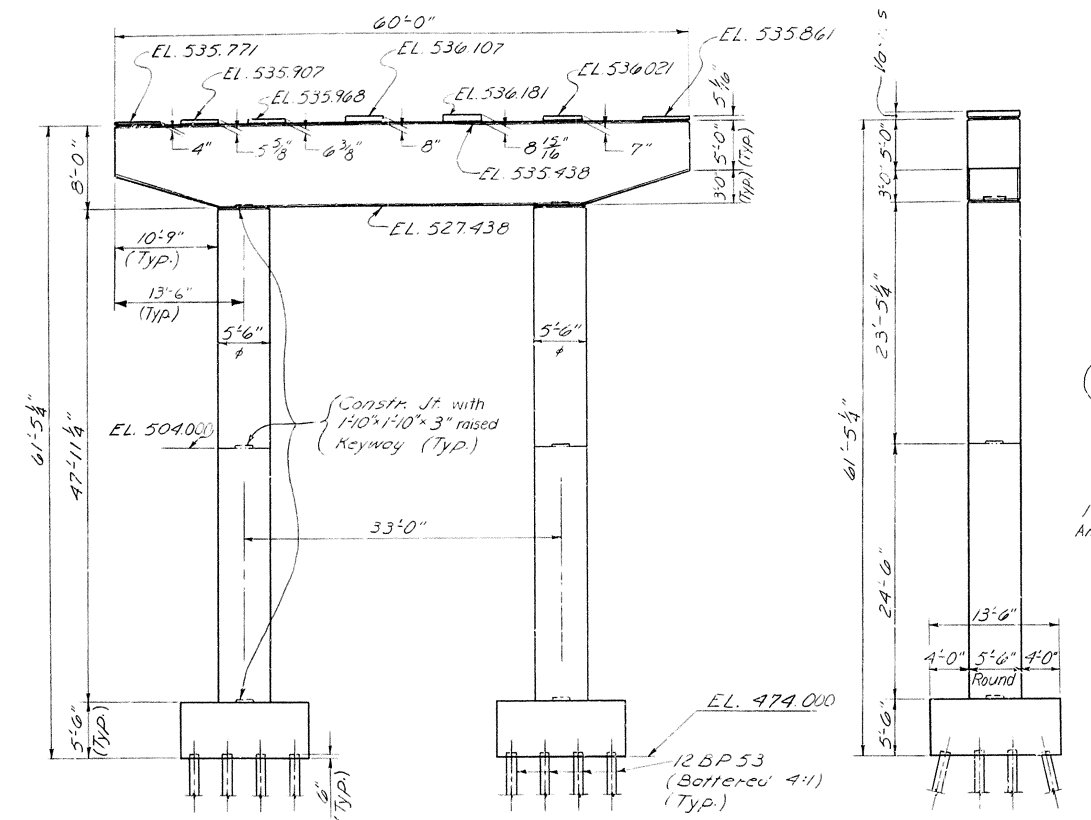
SHEET 7

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

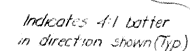
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZLET & ERDAL Consulting Engineers File No. 689	BRIDGE NUMBER	DRAWING NO. 18486	INDEX
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GENERAL PLAN
SPANS 8 THRU 12



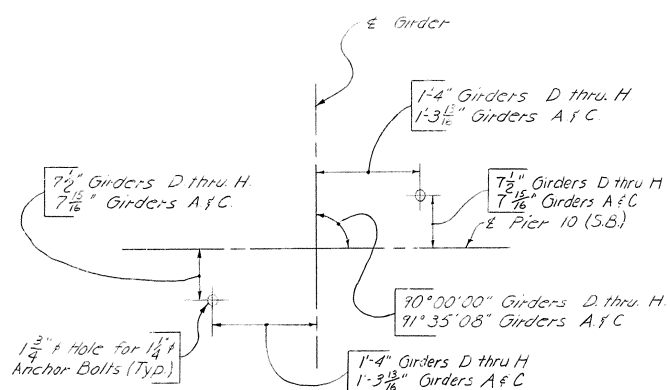
END VIEW



FOOTING PLAN

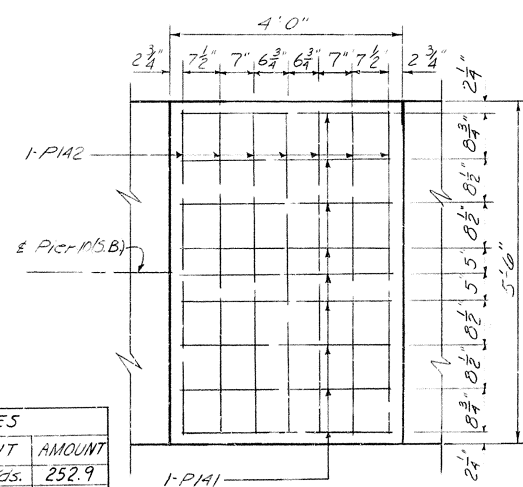
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DETAIL D

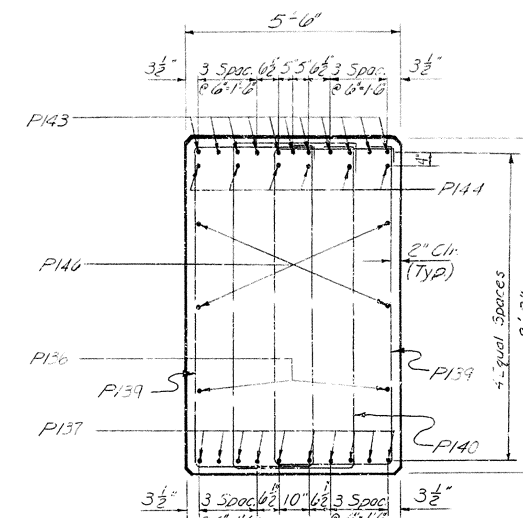


ANCHOR BOLT LAYOUT

For "Anchor Bolt Setting Note" see Sh. No. 10.

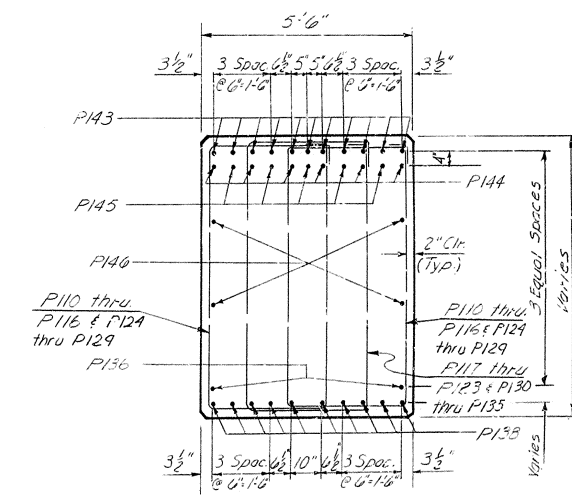


DETAIL E



SECTION A-A

Note: Top of cap bars are to be accurately located in accordance with the plans so that they will not interfere with drilling anchor bolt holes.



SECTION B-B

For Reinforcing Steel List see Sh. 20.

PIER 10 S.B.

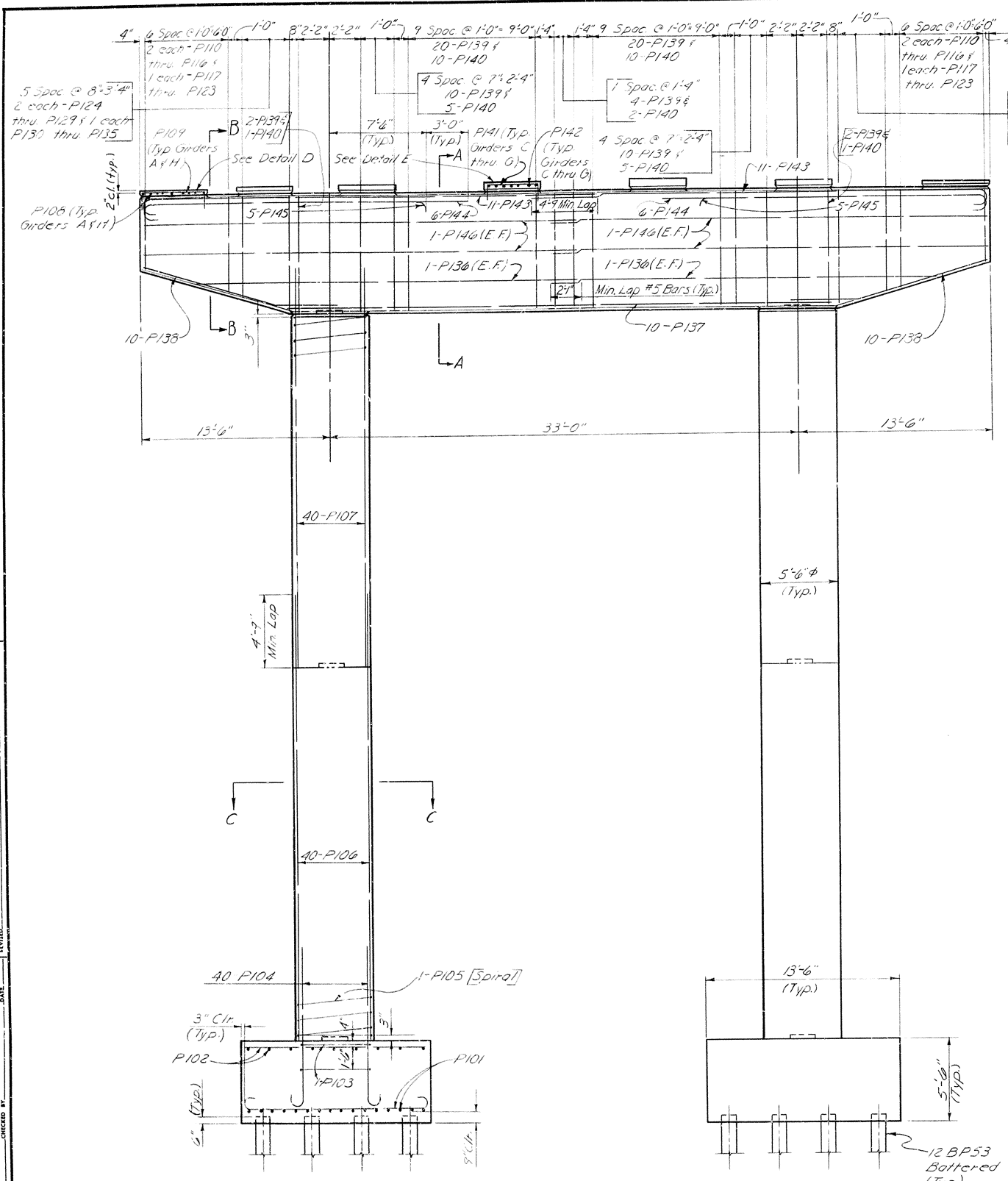
KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON 1471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE NUMBER	
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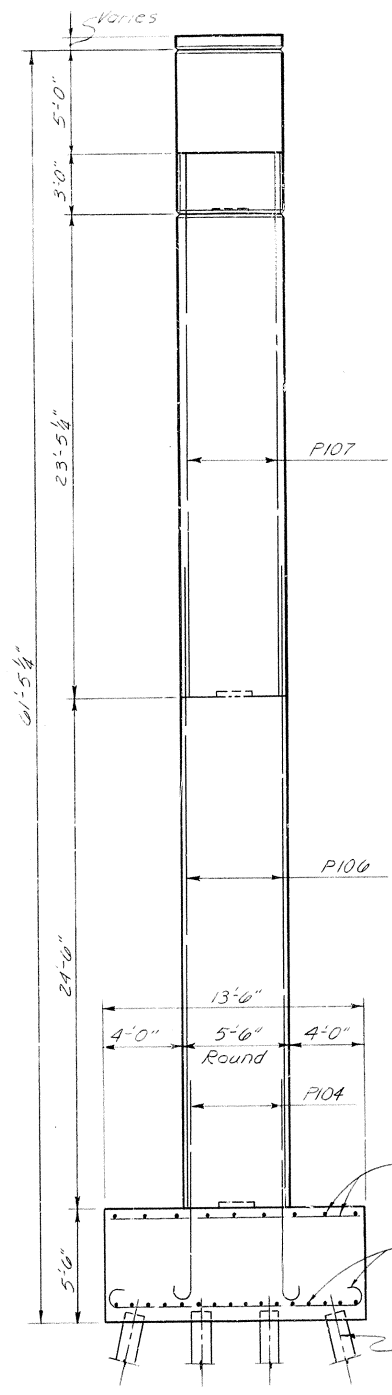
DRAWING NO.
18486

INDEX

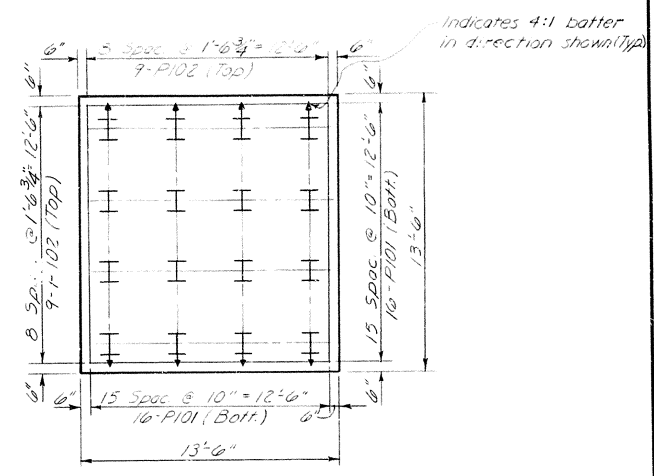


ELEVATION PIER 10 (S. B.)

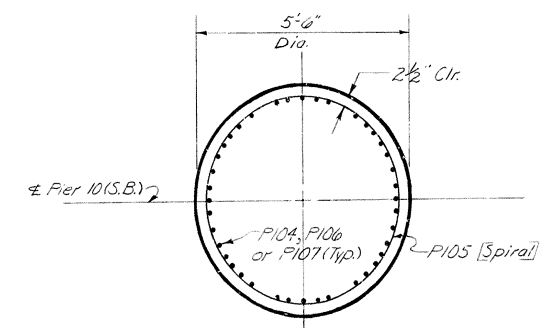
Note: E.F. denotes Each Face

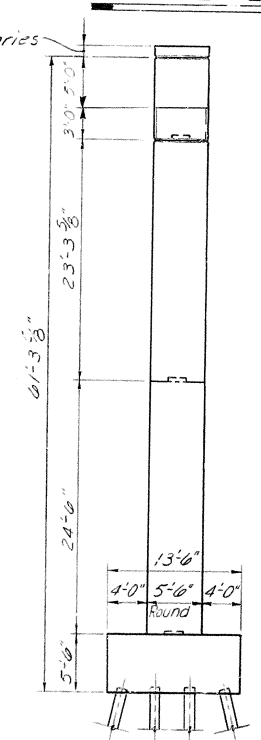
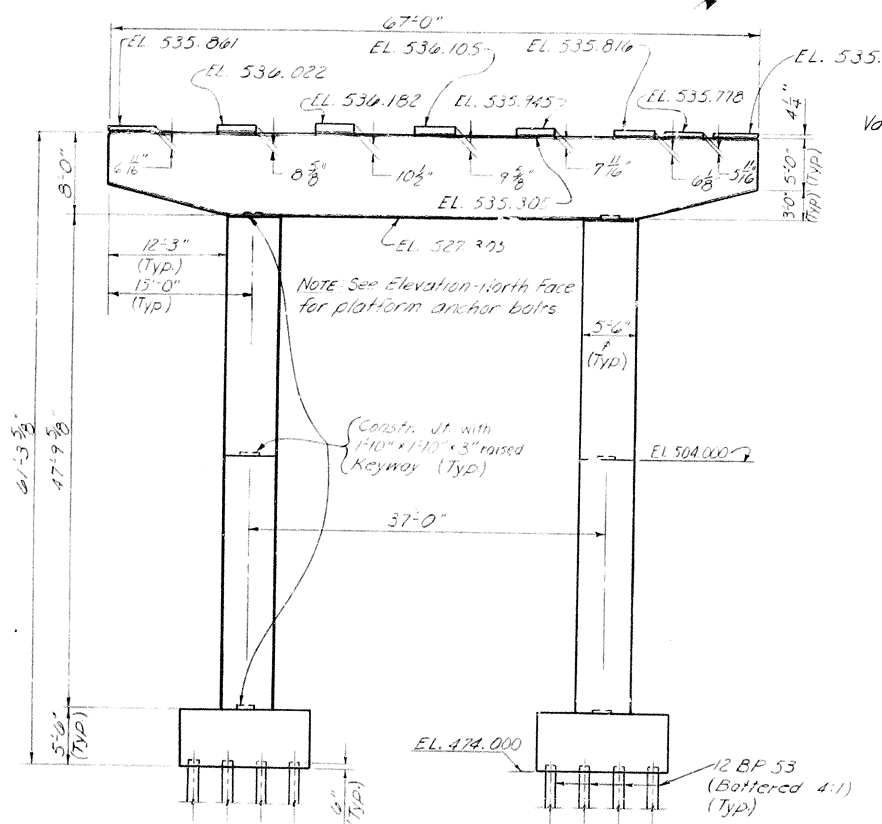
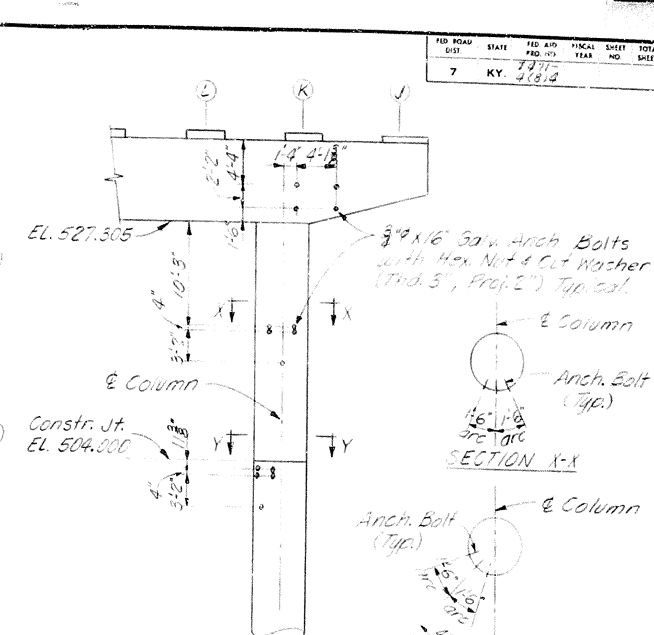
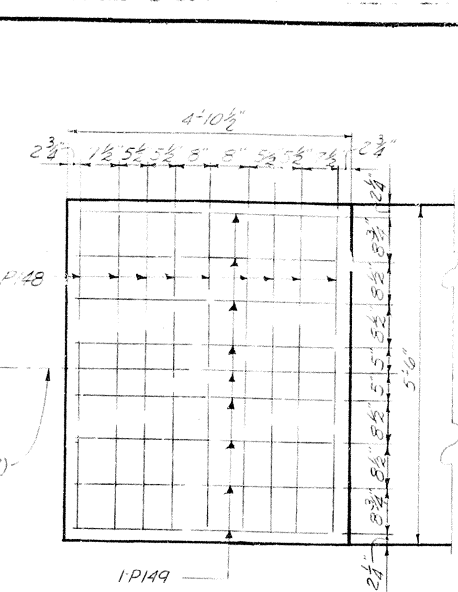
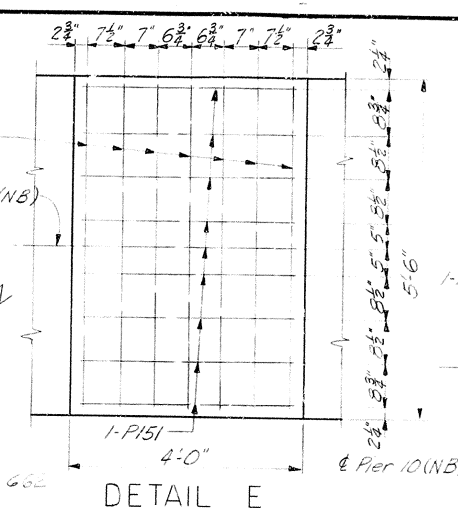
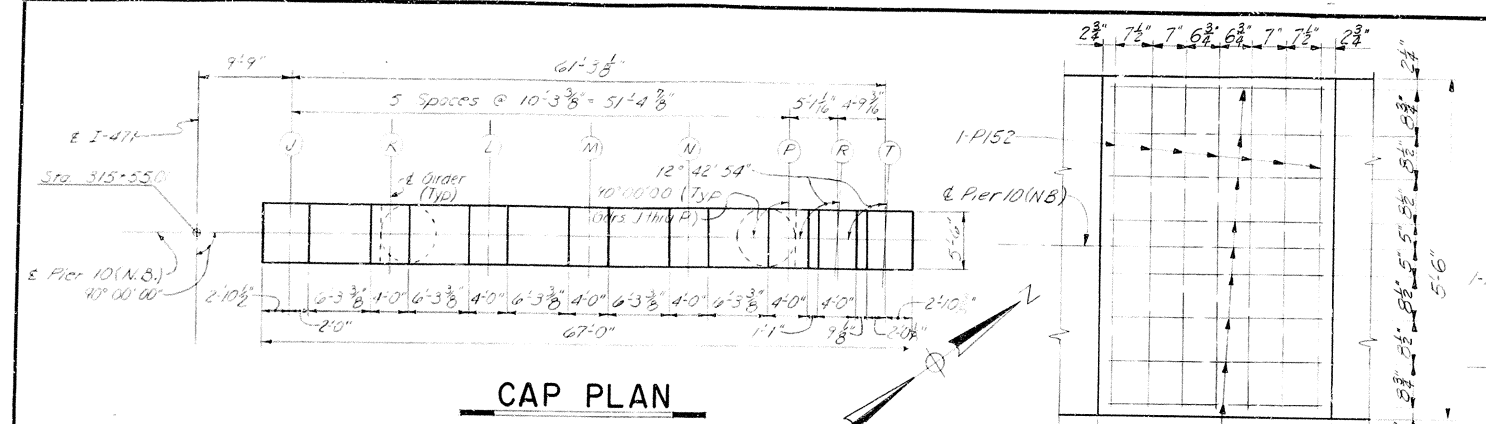


END VIEW



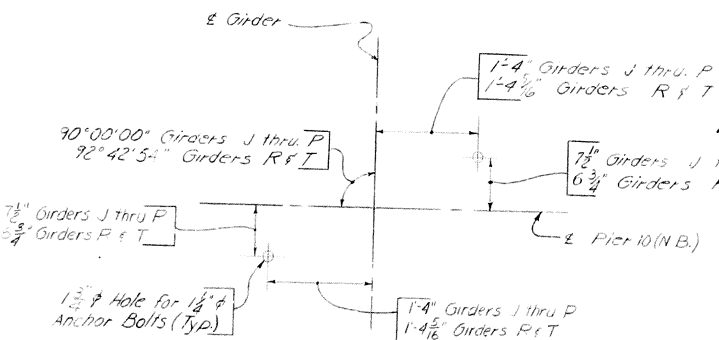
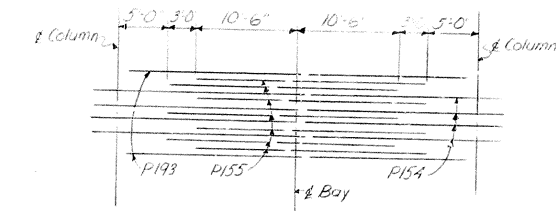
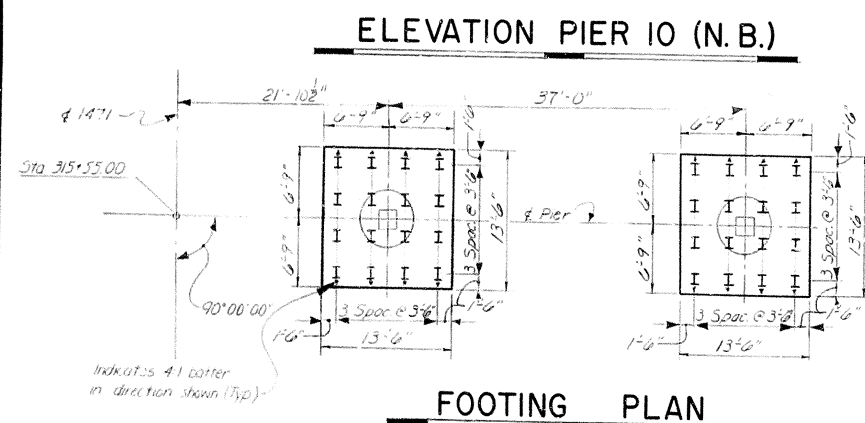
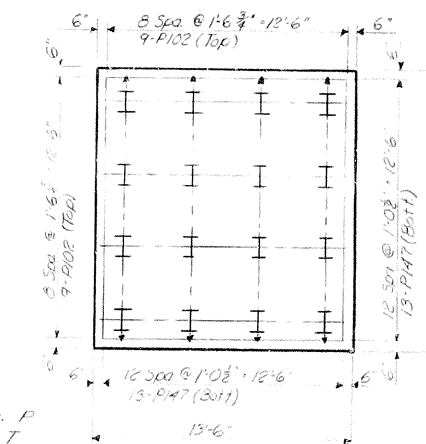
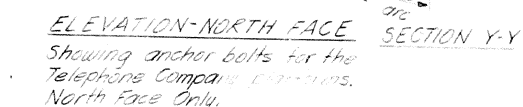
TYPICAL FOOTING





ESTIMATE OF QUANTITIES		
ITEM	UNIT	AMOUNT
Concrete Class A	Cu Yds	263.8
Steel Reinforcement	Lbs.	56,754
Piles, Steel HP 12@53, furnish	Lin. Ft.	2041
Piles, steel HP 12@53, Drive	Lin. Ft.	2041
Structure Excavation Common	Cu Yds	227

Note: The cost of furnishing and installing $\frac{3}{8}$ " ϕ galv. anchor bolts, including hex nuts and cut washers, is to be included in the lump sum bid for telephone conduits.

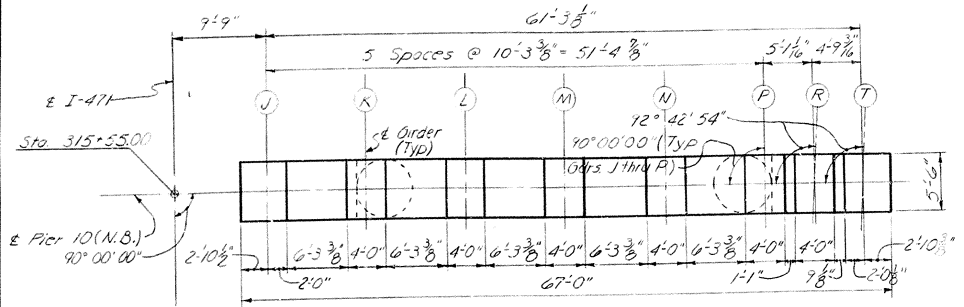


ANCHOR BOLT LAYOUT

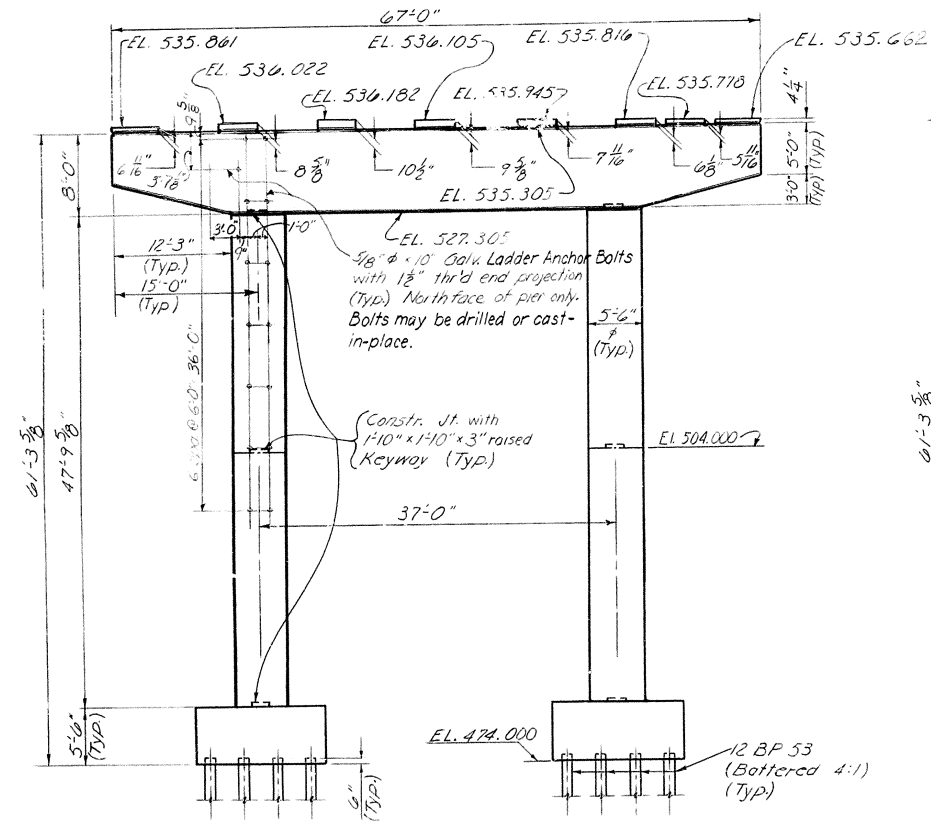
Anchor Bolt Setting Notes:

After the base plates are properly set, the superstructure contractor shall drill holes for anchor bolts which provide 1-0" min. embedment in the concrete, and shall be responsible for keeping these holes dry in freezing weather. With the anchor bolts in position, molten lead shall be poured in the holes to completely fill them flush with the top of the base plates. At the time of setting, anchor bolts are to be heated to a blue heat to assure free flow of lead to the bottom of the holes.

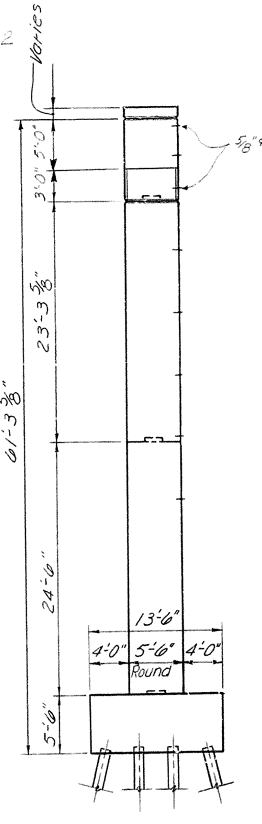
The cost of drilling holes, furnishing lead, and filling holes with molten lead shall be incidental to and included in the lump sum bid for structural steel.



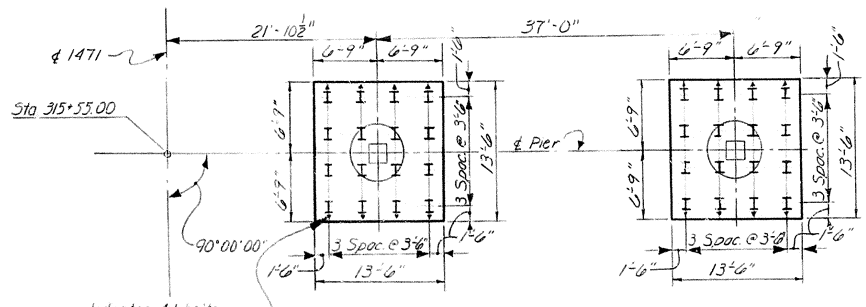
CAP PLAN



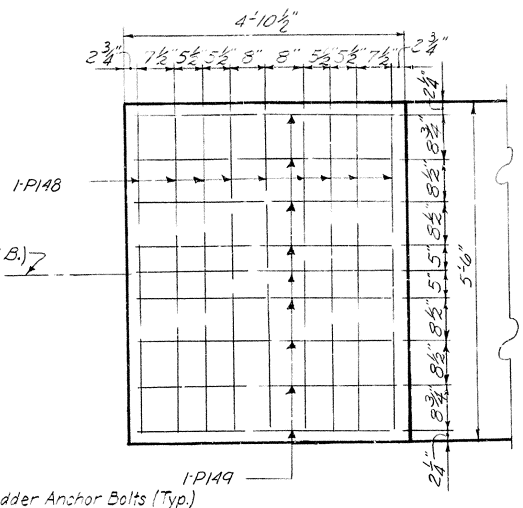
ELEVATION PIER 10 (N.B.)



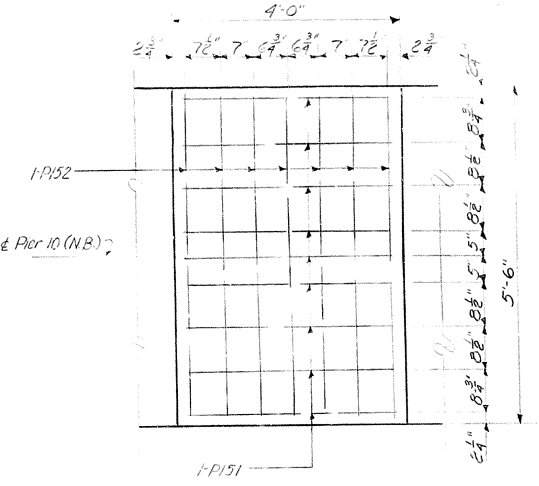
END VIEW



FOOTING PLAN



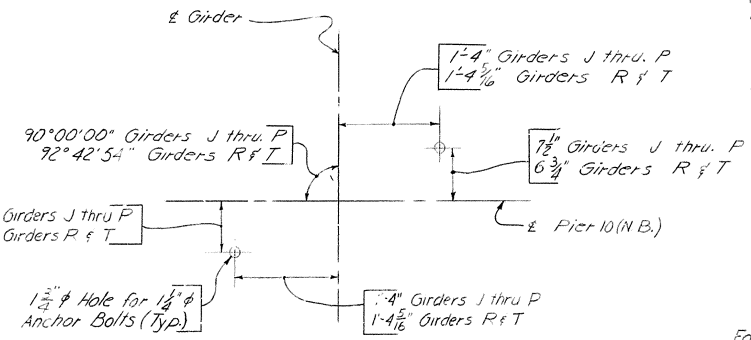
DETAIL D



DETAIL E

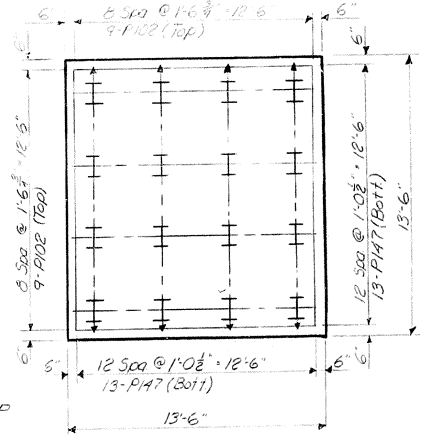
ESTIMATE OF QUANTITIES		
ITEM	UNIT	AMOUNT
Concrete Class A	Cu Yds.	263.8
Steel Reinforcement	Lbs.	56,754
Piles, Steel HP 12@53, furnish	Lin. Ft.	2041
Piles, Steel HP 12@53, Drive	Lin. Ft.	2041
Structure Excavation Common	Cu Yds.	227

Note: The cost of furnishing and installing 5/8" x 10" ladder anchor bolts, including hex nuts and cut washers, is to be included in the lump sum bid for telephone conduits.



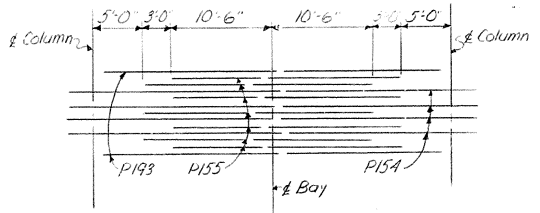
ANCHOR BOLT LAYOUT

Anchor Bolt Setting Note:
After the base plates are properly set, the superstructure contractor shall drill holes for anchor bolts which provide 1'-0" min. embedment in the concrete, and shall be responsible for keeping these holes dry in freezing weather. With the anchor bolts in position, molten lead shall be poured in the holes to completely fill them flush with the top of the base plates. At the time of setting, anchor bolts are to be heated to a blue heat to assure free flow of lead to the bottom of the holes.
The cost of drilling holes, furnishing lead, and filling holes with molten lead shall be incidental to and included in the lump sum bid for structural steel.



TYPICAL FOOTING

For Reinforcing Steel List see sh 20.



DETAIL F

PIER 10 N.B.

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

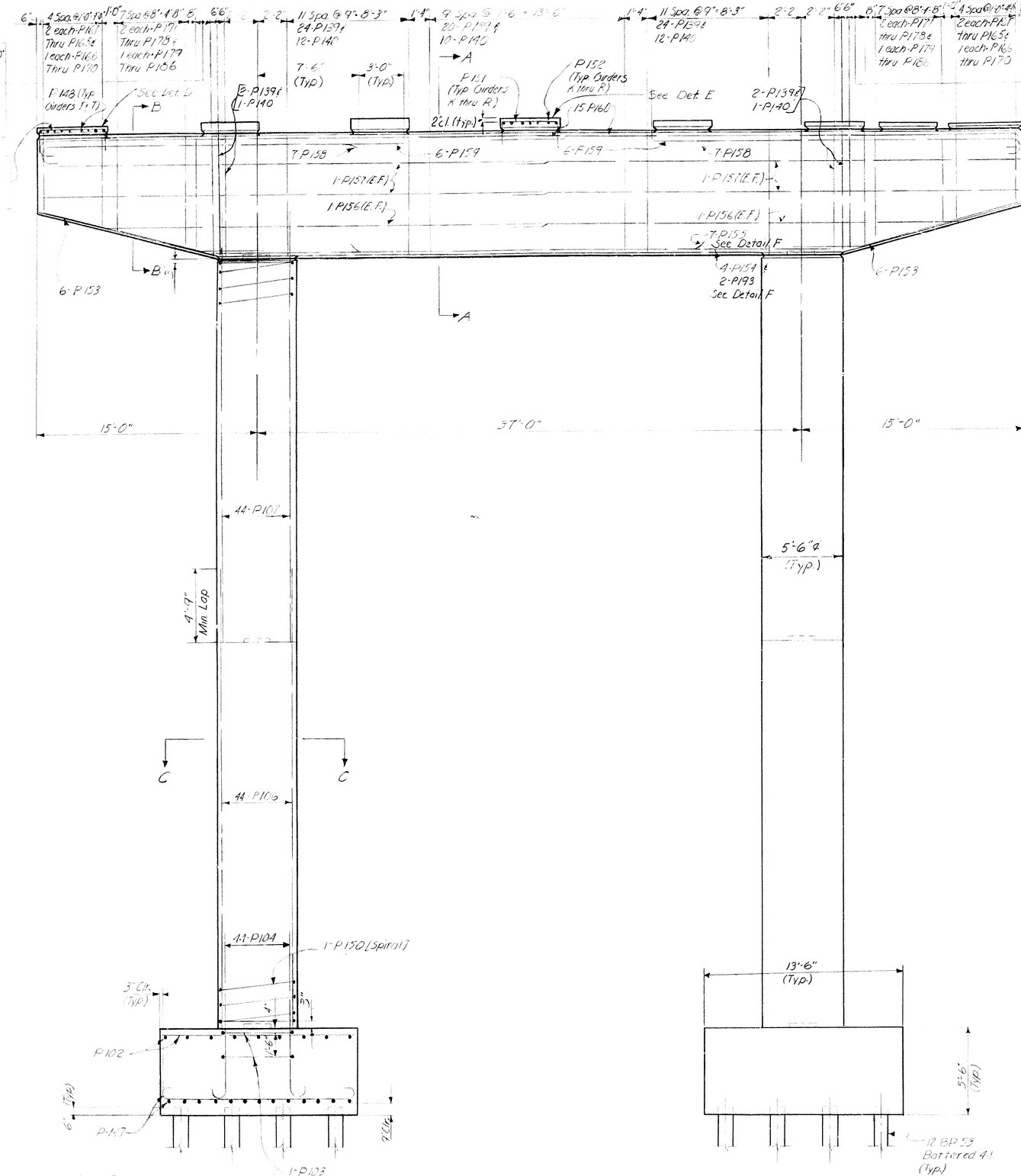
HAZLET & ERDAL
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NUMBER

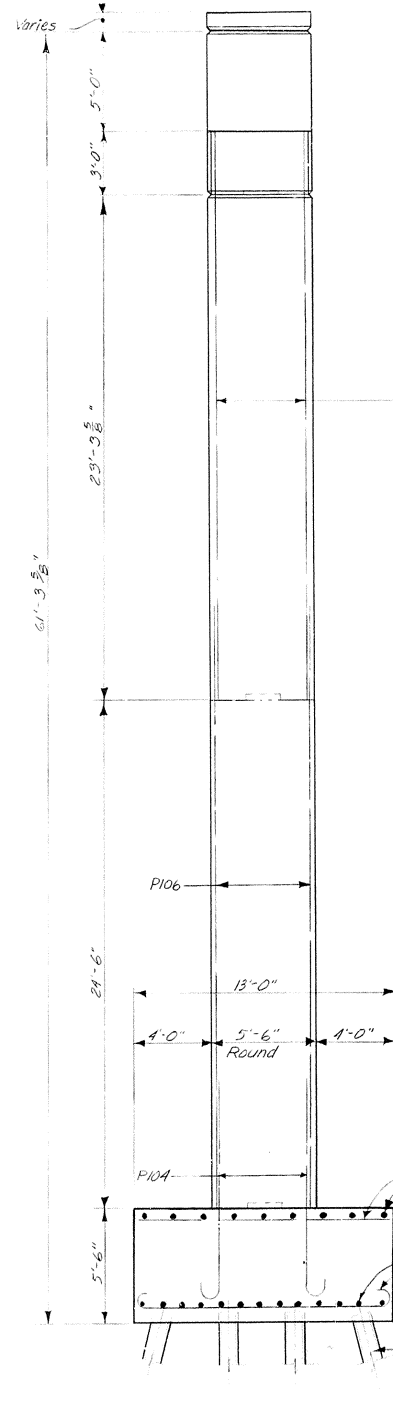
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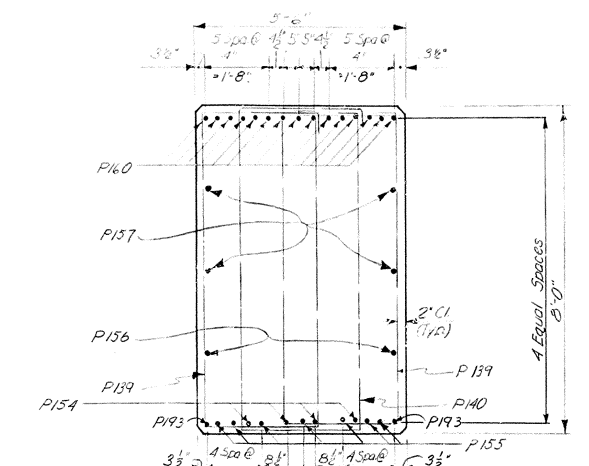
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7	KY.	1471	1971	3 (3)4	



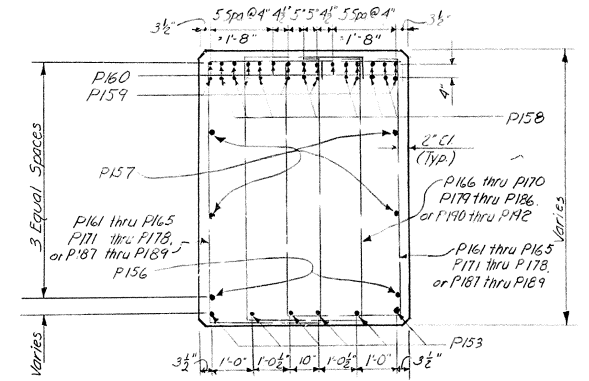
ELEVATION PIER 10 (N.B.)



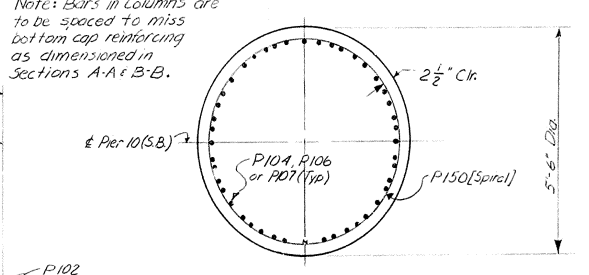
END VIEW



SECTION A-A



SECTION B-B



SECTION C-C

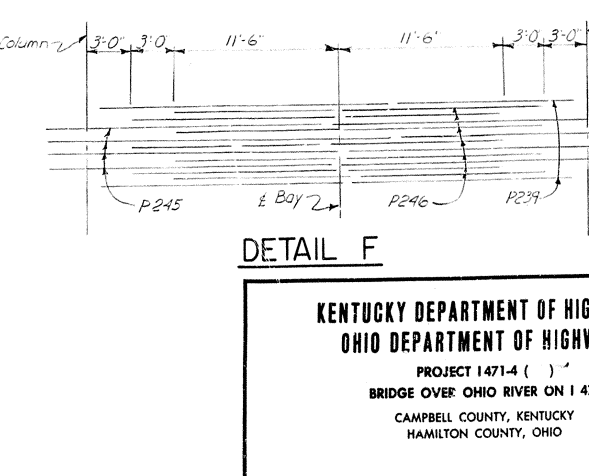
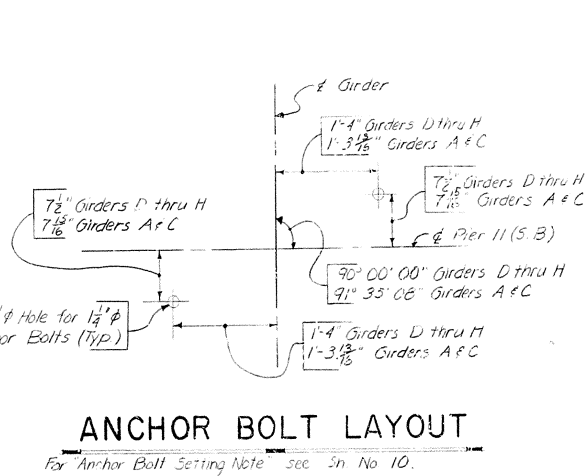
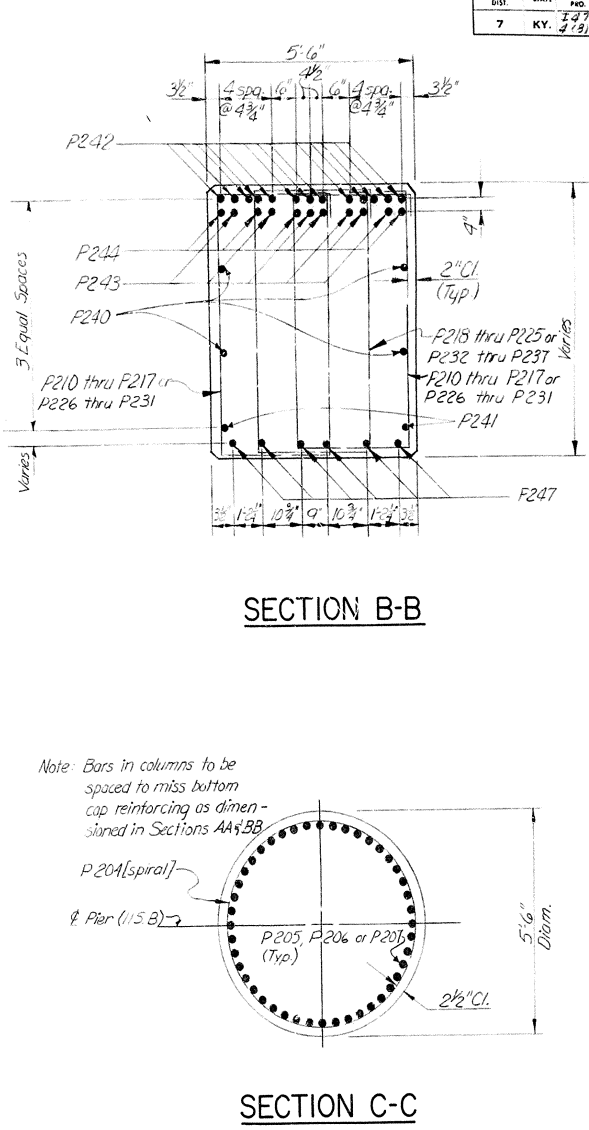
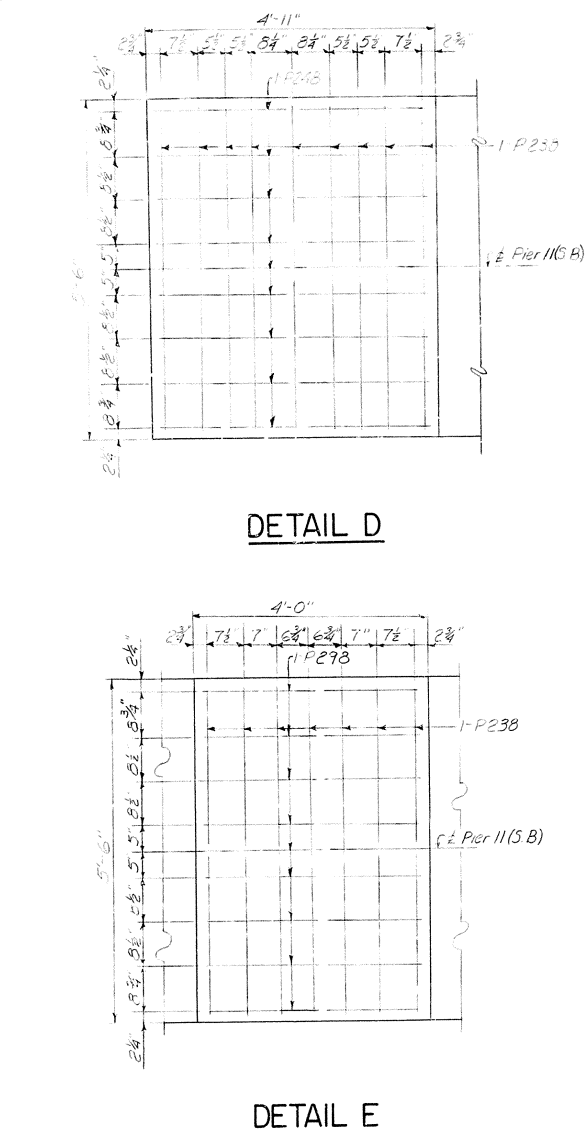
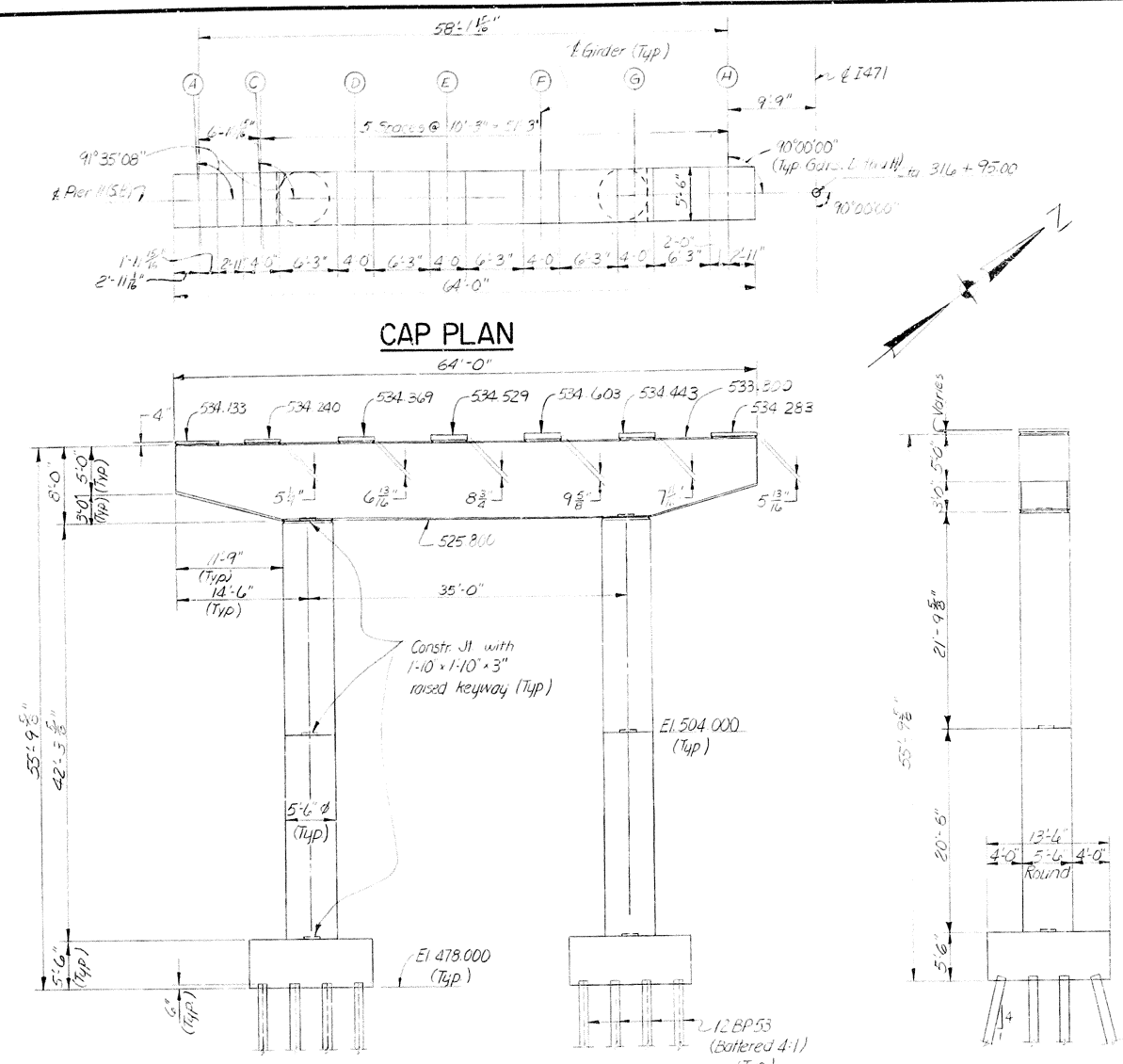
SHEET 11

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
 PROJECT 1471-4 ()
 BRIDGE OVER OHIO RIVER ON I 471
 CAMPBELL COUNTY, KENTUCKY
 HAMILTON COUNTY, OHIO

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PIER 10 N.B.

Note: E.F. denotes Each Face



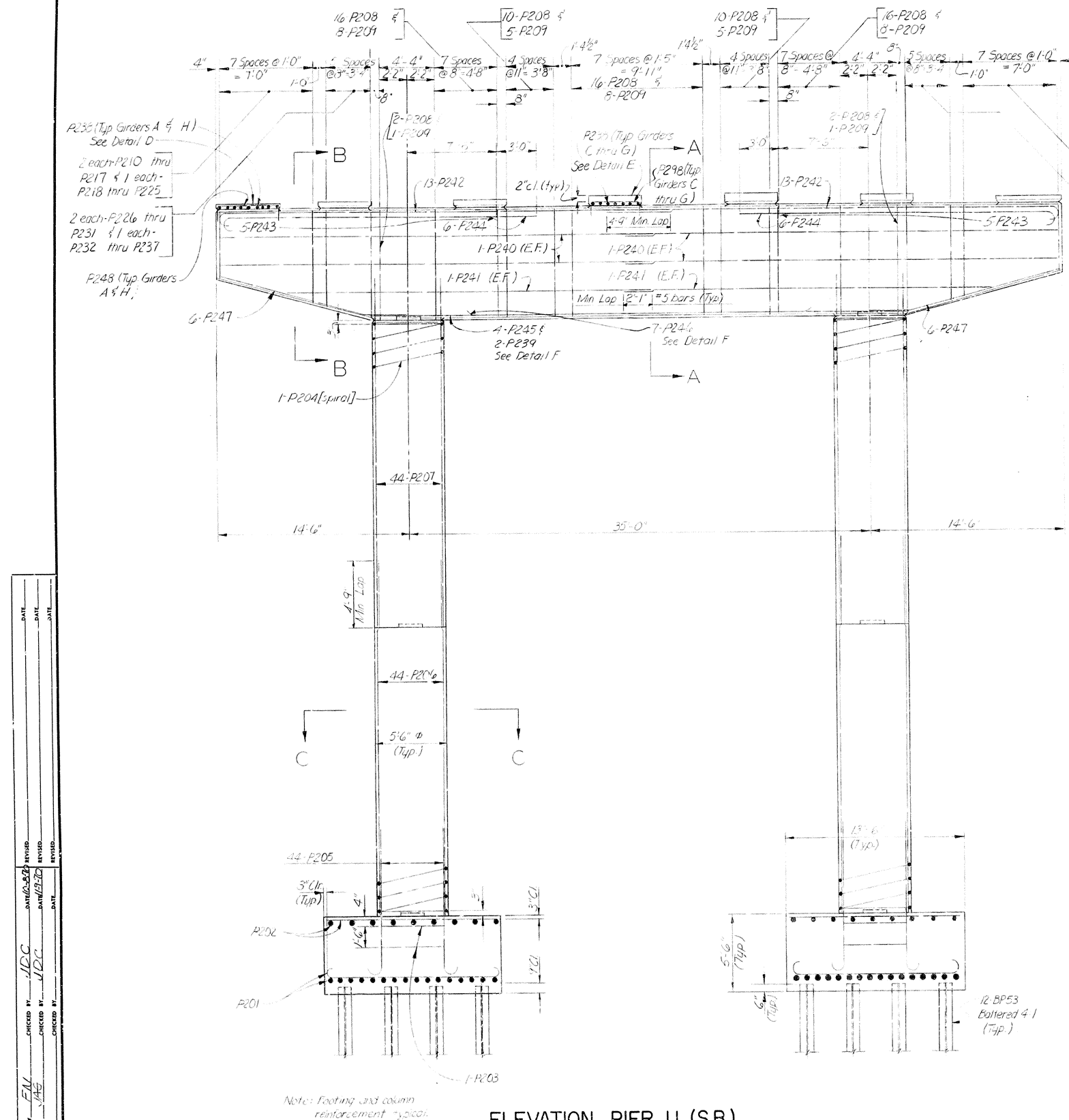
ESTIMATE OF QUANTITIES		
ITEM	UNIT	AMOUNT
Concrete Class A	Cu Yds.	249.2
Steel Reinforcement	Lbs.	51,508
Piles Steel BP 12@53 Furnish	Lin Ft.	2073
Piles Steel BP 12@53 Drive	Lin Ft.	2073
Structure Excavation, Common	Cu Yds.	227

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
 PROJECT 1471-4 ()
 BRIDGE OVER OHIO RIVER ON I 471
 CAMPBELL COUNTY, KENTUCKY
 HAMILTON COUNTY, OHIO

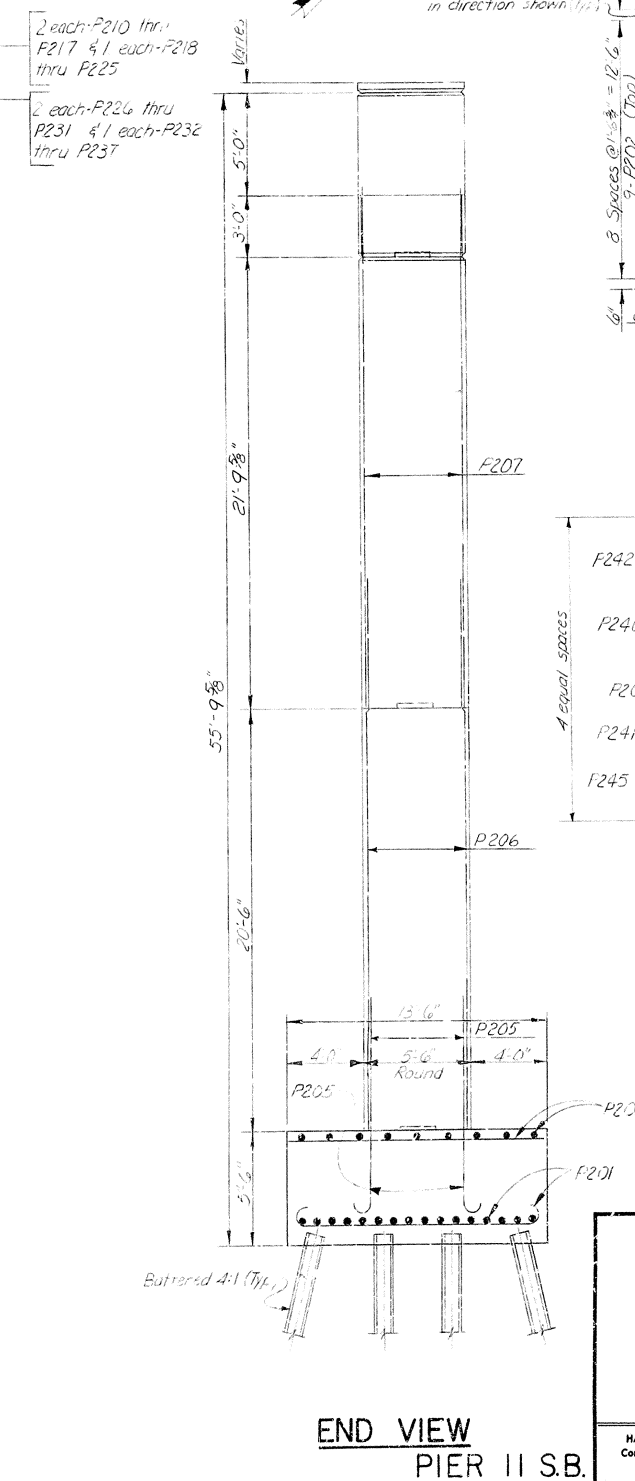
SHEET 12

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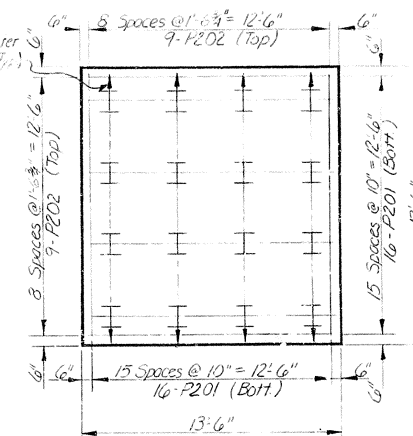
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 CHECKED BY: JDC
 DATE: 10/2/70
 DRAWN BY: JDC
 CHECKED BY: JDC
 DATE: 10/2/70
 REVISIONS: NONE



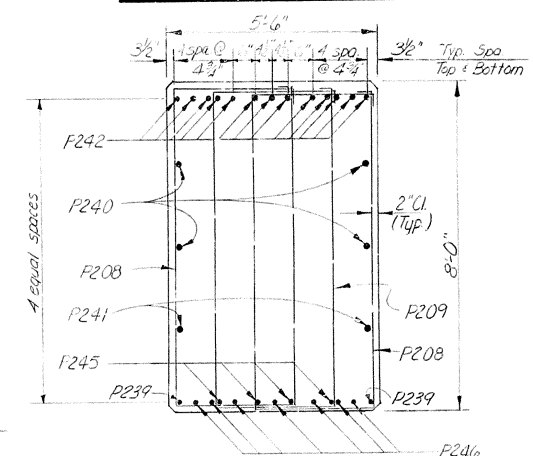
ELEVATION PIER 11 (S.B.)



END VIEW
PIER II S.B.



TYPICAL FOOTING



SECTION A-A

Note: Top of cap bars are to be accurately located in accordance with the plans so that they will not interfere with drilling anchor bolt holes.

Note: E.F. denotes Each Face.

SHEET 13

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

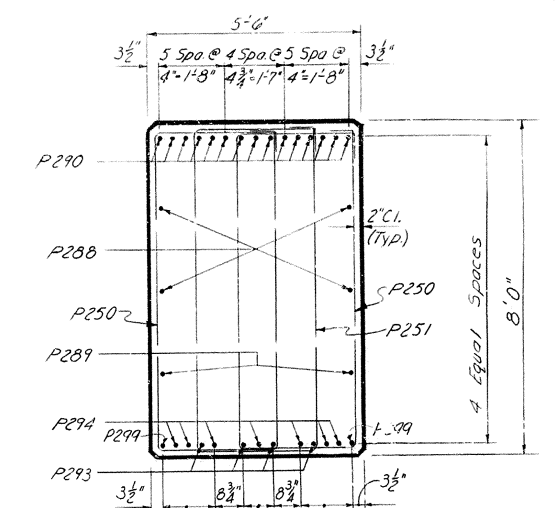
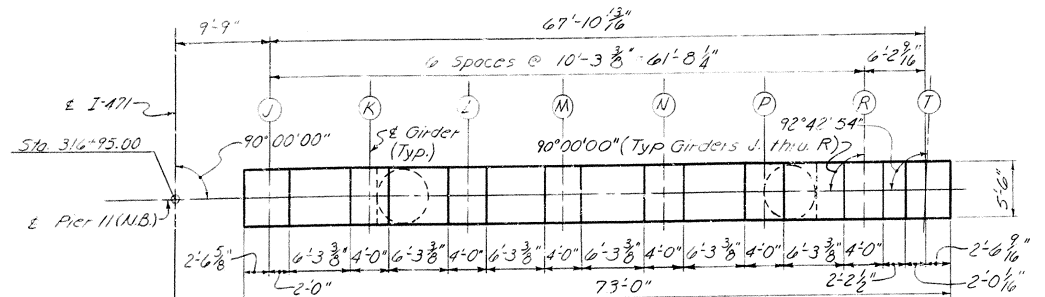
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE NUMBER	
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DRAWING NO.
18486

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SECTION A-A

CAP PLAN

73'-0"

EL. 534.283
EL. 534.475
EL. 534.635
EL. 534.559
EL. 534.398
EL. 534.238
EL. 534.078
EL. 533.981

7 5/8" 9 15/16" 11 7/8" 10 15/16" 9" 7 1/16" 5 3/16"

4'-0" 5'-0" 4" (Typ.)

13'-9" (Typ.)
16'-6" (Typ.)
5'-6" (Typ.)

EL. 525.648
EL. 533.648

EL. 504.009

{ Constr. JT with
1'-10" x 1'-10" x 3" raised
Keyway (Typ.)

40'-0"

5'-6" (Typ.)
42'-1 3/4"

EL. 478.0

12 B P 53
(Boilered 4:)
(Typ.)

[illegible]

Σ Girder

90°00'00" Girders J thru R
92°42'54" Girder T.

1'-4" Girders J. thru R.
1'-4 $\frac{3}{16}$ " Girder T.

7 1/2" Girders J. thru R.
6 3/4" Girder T.

Σ Pier 11 (N.B.)

7 1/2" Girders J thru R
6 3/4" Girder T.

1'-4" Girders J. thru R.
1'-4 $\frac{5}{16}$ " Girder T.

1 3/4" ∅ Hole for 1 1/4" ∅ Anchor Bolts (Typ.)

0 10

5'-6"

3 1/2"

5 Sp. @ 4 Sp. @ 5 Sp. @
4" = 1'-8" 4 3/4" = 1'-7" 4" = 1'-8"

P290

P291

P288

thru P257
4 thru. P275

P289

P295

P292

2" CI (Typ)

P252 thru.
P257 or P264
thru. P275

P258 thru. P263
or P276 thru.
P287

3 Equal Spaces

Varies

3 1/2"

1'-0" 1'-0 3/4" 9 1/4" 1'-0 3/4" 1'-0"

3 1/2"

Varies

Hand-drawn plan view of two bridge piers, Pier 6 and Pier 7, showing their rectangular cross-sections, reinforcement details, and dimensions.

Pier 6 (Left):

- Overall width: 13'-6"
- Overall height: 13'-6"
- Reinforcement: 3" Spacing, 3' 3" 6" (3' 3" 6" x 3' 3" 6")
- Dimensions: 6'-9" (width), 6'-9" (height), 1'-6" (width), 1'-6" (height), 13'-6" (width), 13'-6" (height)

Pier 7 (Right):

- Overall width: 13'-6"
- Overall height: 13'-6"
- Reinforcement: 3" Spacing, 3' 3" 6" (3' 3" 6" x 3' 3" 6")
- Dimensions: 6'-9" (width), 6'-9" (height), 1'-6" (width), 1'-6" (height), 13'-6" (width), 13'-6" (height)

Gap and Orientation:

- Gap between piers: 40'-0"
- Orientation: E 147°
- Stationing: Sta 316+95.00

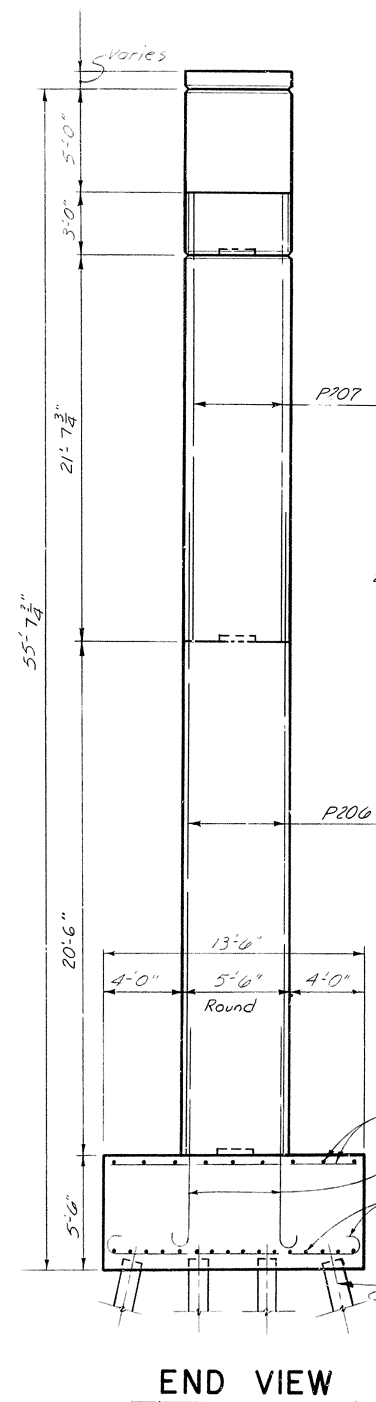
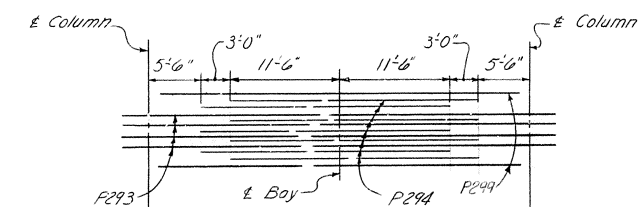
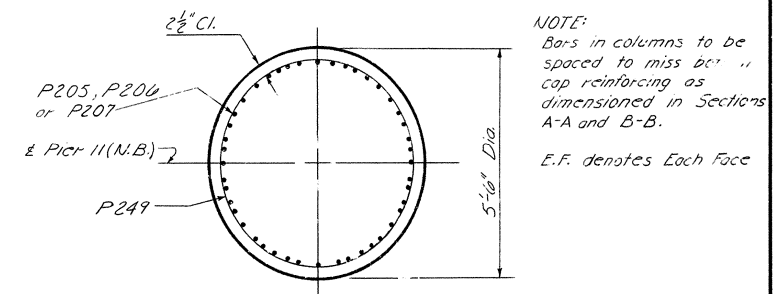
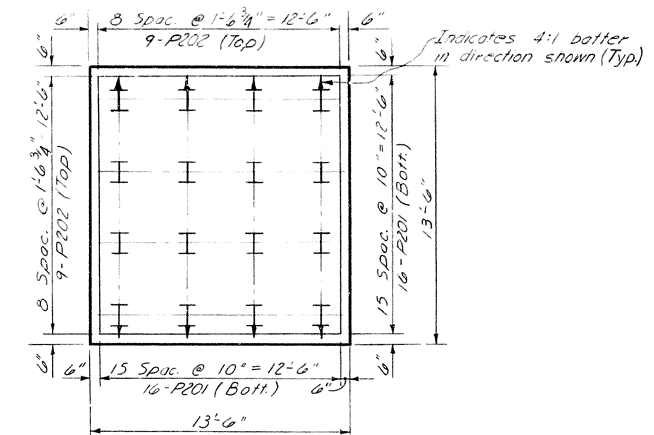
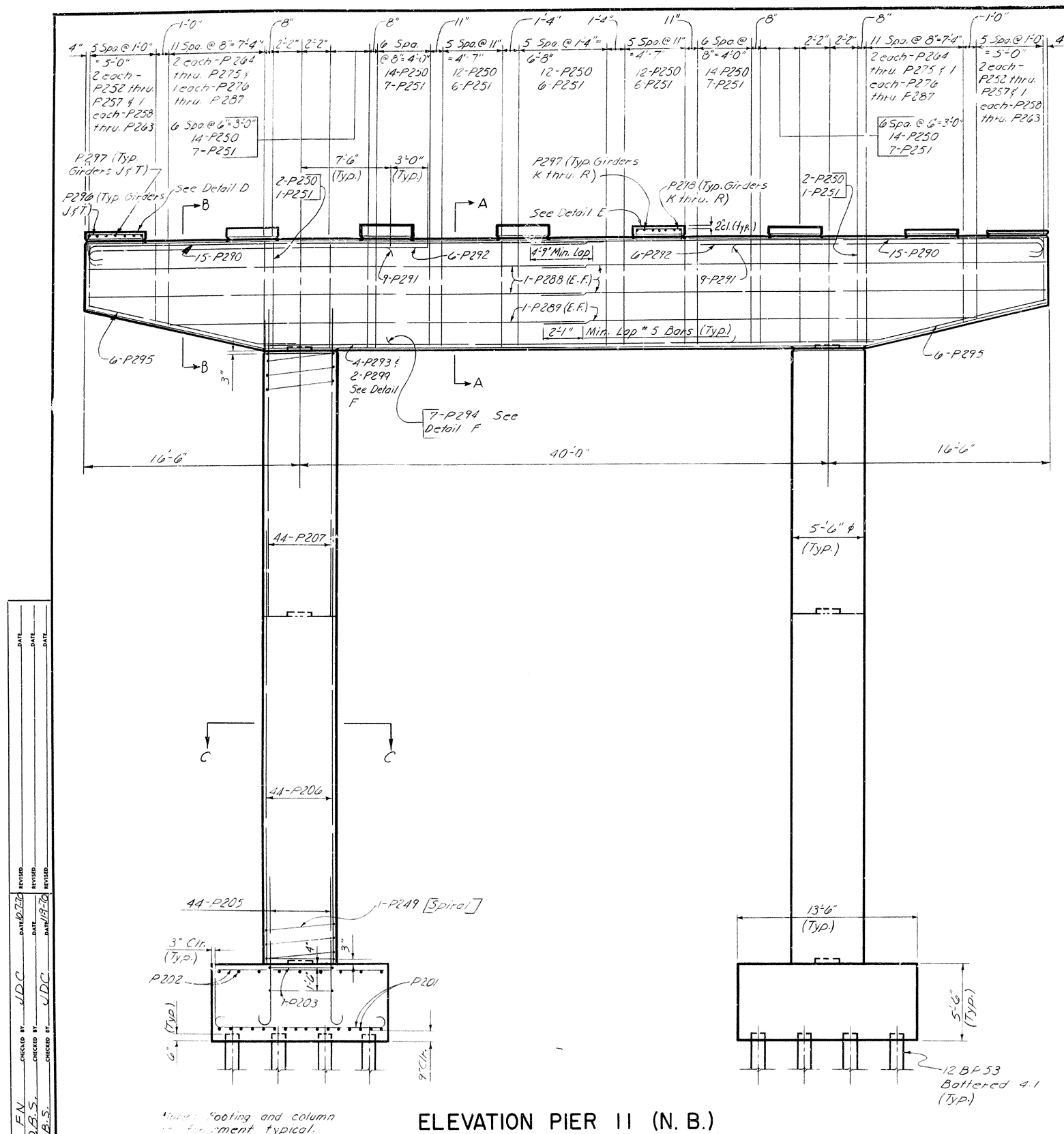
ESTIMATE OF QUANTITIES		
ITEM	UNIT	AMOUNT
Concrete Class A	Cu Yds.	263.5
Steel Reinforcement	Lbs.	57,063
Piles, Steel BP 12" x 53, Furnish	Lin. Ft.	2074
Piles, Steel BP 12" x 53, Drive	Lin. Ft.	2074
Structure Excavation Common	Cu Yds.	227

[illegible]

PIER II NB

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY;
HAMILTON COUNTY, OHIO





KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAMILTON COUNTY, OHIO

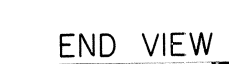
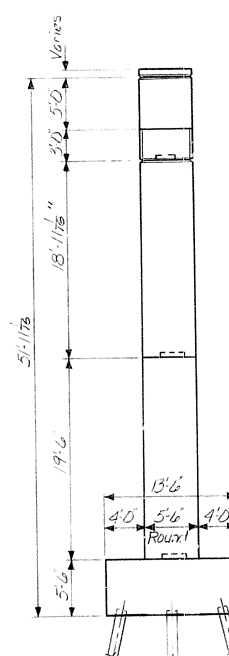
HAZELET & ERDAL
Consulting Engineers
File No. 889

3RIDGE
NUMBER

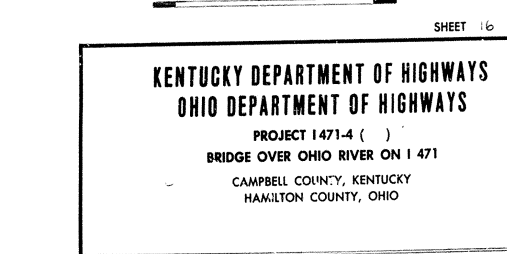
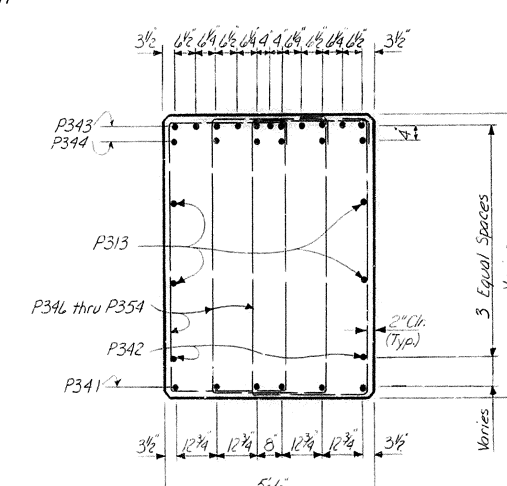
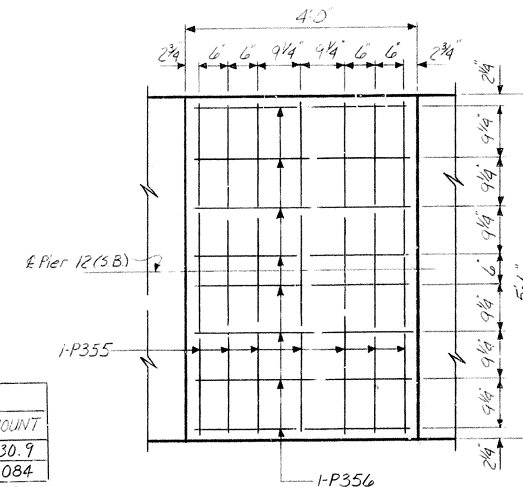
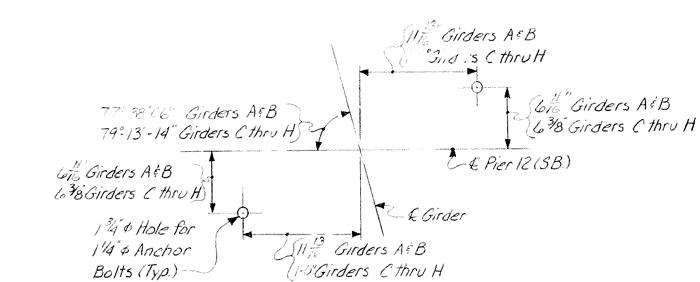
DRAWING NO.
18486

INDEX

PIER II N.B.



For Reinforcing Steel List see sh 21.



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PIER 12 S.B.



For Reinforcing Steel List see sh. 21.



For "Anchor Bolt Setting Note" see Sh. No. 10.



Note: Top of cap bars are to be accurately located in accordance with the plans so that they will not interfere with drilling anchor bolt holes.



SHEET 18

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

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18486

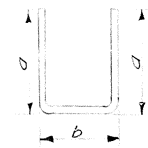
INDEX

PIERS 10 & 11 REINFORCEMENT

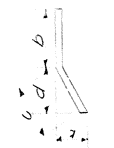
KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-A ()
BRIDGE OVER OHIO RIVER ON 1471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

BILL OF REINFORCEMENT

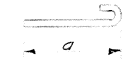
MARK	TYPE	SIZE	NO. REQD.	LENGTH		LOCATION	a		b		c		d	
				FT.	IN.		FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
P301	26	9	22	15	6	Footing	13	0						
P302	26	9	22	12	0	Footing	9	6						
P303	Str.	6	28	13	0	Footing								
P304	Str.	6	36	9	6	Footing								
P305	39	4	8	17	6	Footing	5	1						
P306	24	11	96	12	6	Column	10	11						
P307	Str.	11	50	24	3	Column								
P308	Str.	11	48	22	6	Column								
P309	Spiral	4	2	658	8	Column	5	1	1	0				
P310	Str.	11	6	48	6	Cap								
P311	Str.	11	6	30	0	Cap								
P312	16	8	12	18	2	Cap	0	8	14	10	3	4	3	1/4
P313	Str.	5	12	34	11	Cap								
P314	Str.	5	8	39	11	Cap								
P315	24	11	24	42	10	Cap	41	3						
P316	24	11	12	29	5	Cap	27	10						
P317	24	11	8	26	5	Cap	24	10						
P318	51	6	114	23	0	Cap	7	8	3	5 1/4	0	6		
P319	51	6	6	22	10	Cap	7	7 1/4	3	5 1/4	0	6		
P320	51	6	6	22	6	Cap	7	5	3	5 1/4	0	6		
P321	51	6	6	22	1	Cap	7	2 3/4	3	5 1/4	0	6		
P322	51	6	6	21	9	Cap	7	0 1/2	3	5 1/4	0	6		
P323	51	6	6	21	4	Cap	6	10 1/4	3	5 1/4	0	6		
P324	51	6	6	20	9	Cap	6	6 1/2	3	5 1/4	0	6		
P325	51	6	6	20	2	Cap	6	3	3	5 1/4	0	6		
P326	51	6	6	19	6	Cap	5	11 1/4	3	5 1/4	0	6		
P327	51	6	6	18	11	Cap	5	7 1/2	3	5 1/4	0	6		
P328	51	6	6	18	4	Cap	5	4	3	5 1/4	0	6		
P329	51	6	6	17	8	Cap	5	0 1/4	3	5 1/4	0	6		
P330	51	6	6	17	1	Cap	4	8 1/2	3	5 1/4	0	6		
P331	1	4	16	6	6	Pad	1	4	3	10 3/4				
P332	1	4	63	8	7	Pad	1	9	5	2				
P333	1	4	56	7	1	Pad	1	9	3	8				
P334	1	4	8	7	10	Pad	1	9 1/4	4	4 1/4				
P335	26	10	20	15	10	Footing	13	0						
P336	26	10	20	12	4	Footing	9	6						
P337	Str.	11	48	21	11	Column								
P338	Spiral	4	2	650	8	Column	5	1	1	0				
P339	Str.	11	6	43	6	Cap								
P340	Str.	11	5	26	0	Cap								
P341	16	8	12	15	9	Cap	0	9 1/2	12	5	3	4	3	2 3/4
P342	Str.	5	4	31	5	Cap								
P343	24	11	22	37	10	Cap	36	3						
P344	24	11	12	33	11	Cap	22	4						
P345	51	6	93	22	2	Cap	7	8	3	0 1/2	0	6		
P346	51	6	6	21	10	Cap	7	5 3/4	3	0 1/2	0	6		
P347	51	6	6	21	2	Cap	7	2	3	0 1/2	0	6		
P348	51	6	6	20	6	Cap	6	10	3	0 1/2	0	6		
P349	51	6	6	19	10	Cap	6	6	3	0 1/2	0	6		
P350	51	6	6	19	2	Cap	6	2	3	0 1/2	0	6		
P351	51	6	6	18	7	Cap	5	10 1/4	3	0 1/2	0	6		
P352	51	6	6	17	10	Cap	5	5 3/4	3	0 1/2	0	6		
P353	51	6	6	17	1	Cap	5	1 1/2	3	0 1/2	0	6		
P354	51	6	6	16	4	Cap	4	9	3	0 1/2	0	6		
P355	1	4	56	9	1	Pad	2	0	5	2				
P356	1	4	40	7	7	Pad	2	0	3	8				
P357	1	4	8	6	6	Pad	1	4	3	11 1/4				
P358	1	4	8	5	10	Pad	1	4	3	3				



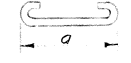
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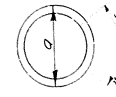
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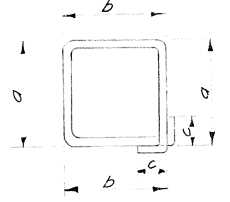
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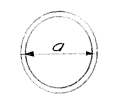
Type 26



Type 39



Type 51



SPIRAL

1 1/2 turns @ 0" pitch
(Top & Bottom)

b = Pitch
See Table A
for number of
turns.

TABLE A	
MARK	NO. OF TURNS
P105	50 1/2
P150	50
P204	45
P249	44 1/2
P309	41 1/2
P338	41

PIER 12 REINFORCEMENT

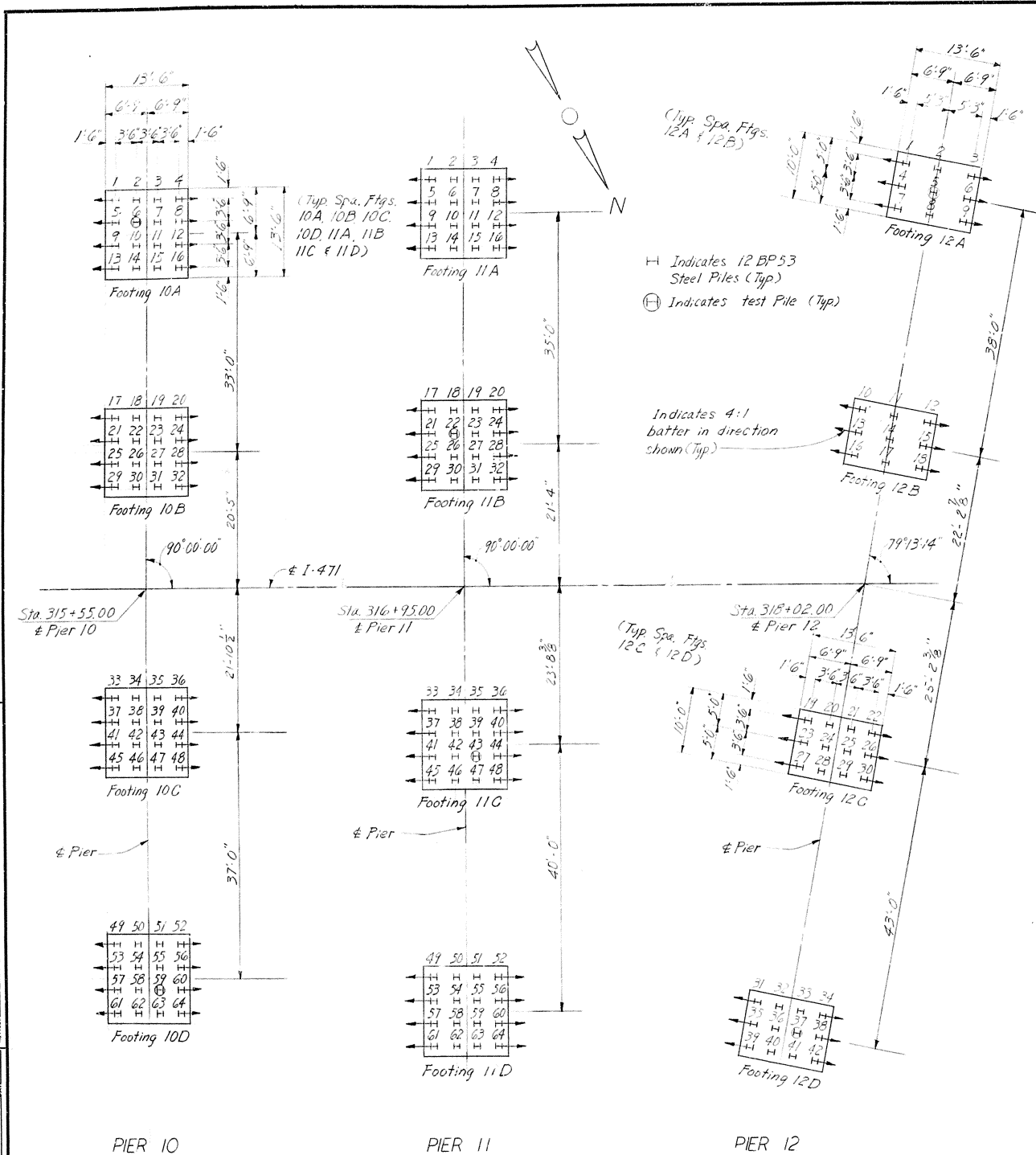
KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPELL COUNTY, KENTUCKY
HAMILTON C. JUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18486

INDEX



PILING PLAN

PIER 10				
Pile No.	Cutoff Elevation	Tip of Pile Elevation as Driven	Length of Pile in Place	Calculated Bearing Capacity Tons
1	474.50			
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
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50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64	474.50			

PIER 11				
Pile No.	Cutoff Elevation	Tip of Pile Elevation as Driven	Length of Pile in Place	Calculated Bearing Capacity Tons
1	478.50			
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
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49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64	478.50			

PIER 12				
Pile No.	Cutoff Elevation	Tip of Pile Elevation as Driven	Length of Pile in Place	Calculated Bearing Capacity Tons
1	480.50			
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
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21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42	480.50			

NOTES: After all piles have been driven, the Resident Engineer shall record for each pile, the tip-of-pile elevation as driven, the length of pile in place and the calculated bearing capacity and shall return one blue print copy of this sheet with this data to the Director of the Division of Bridges so that the data may be recorded on the original plans. Lengths of piles in place shown hereon are the actual lengths of piles in the finished structure below cutoff elevation and are not necessarily pay items. This pile record does not replace other records of piles required to be kept and submitted by the Resident Engineer.

ESTIMATED TEST PILE LENGTHS	
LOCATION	LENGTHS
Pier 10 North Bound	72.5'
Pier 10 South Bound	72.5'
Pier 11 North Bound	73.5'
Pier 11 South Bound	73.5'
Pier 12 North Bound	92.5'
Pier 12 South Bound	92.5'

PILE RECORD

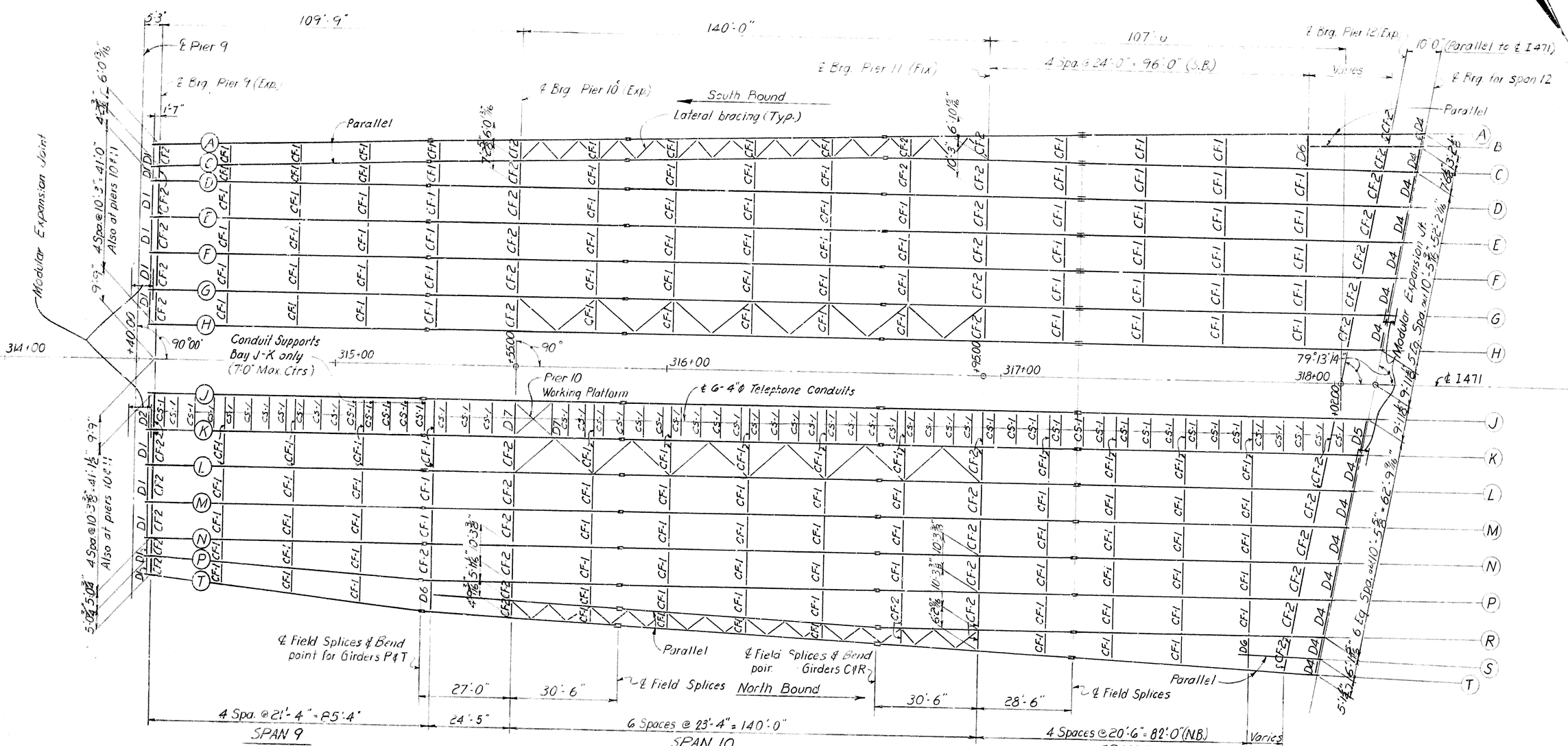
KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
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BRIDGE
NUMBER

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18486

INDEX



CAMBER ORDINATES (Inches)

Ord	a	b	c	d	e	f	g	h	j	k
A	1 1/16	1 3/16	1/2	1 1/16	2 1/16	1 9/16	2 1/8	3 3/8	2 3/8	1
C	3/4	1 3/16	5/16	1 3/16	2 3/16	1 5/8	1 3/8	2 1/8	2 1/4	15/16
D	3/4	1 3/16	1/2	1 1/4	2 3/16	1 3/4	1 5/8	2 1/16	2 1/8	7/8
E	7/8	1 1/16	3/8	1 3/16	2 3/16	1 3/4	1 1/16	2 1/2	2	13/16
F	7/8	1 1/16	3/8	1 3/16	2 3/8	1 13/16	1 7/16	2 3/16	1 3/16	3/4
G	7/8	1 1/16	3/8	1 3/16	2 3/8	1 13/16	1 7/16	2 3/16	1 3/4	3/4
H	1 1/16	1	3/8	1 3/16	2 7/16	2	1 1/4	2 1/8	1 1/16	3/4
J	1 1/16	1	3/8	1 3/16	2 7/16	2	1 1/16	2	1 1/16	3/4
K	1 1/16	7/8	5/16	1 3/16	2 7/16	2	1 1/16	1 3/4	1 3/8	11/16
L	1 1/16	7/8	5/16	1 3/16	2 7/16	1 1/16	1 1/16	1 1/2	1 3/16	5/8
M	1 1/16	7/8	5/16	1 3/16	2 7/16	1 1/16	1 1/16	1 1/2	1 3/16	5/8
N	1 1/16	7/8	5/16	1 3/16	2 7/16	1 1/16	1 1/16	1 1/2	1 3/16	5/8
P	5/8	3/8	3/16	1 1/16	2 1/16	2 1/8	3/4	1 1/4	1	1/2
R	-	-	-	1 3/8	2 7/16	1 3/8	3/4	1 1/4	1	1/2
T	1 1/16	1	5/16	1 1/16	2 1/4	1 1/16	5/8	1 1/16	7/8	1/2

NOTE:
Total camber includes effect of dead load and roadway geometry measured from chords between C's of bearing at bottom edge of web plate.

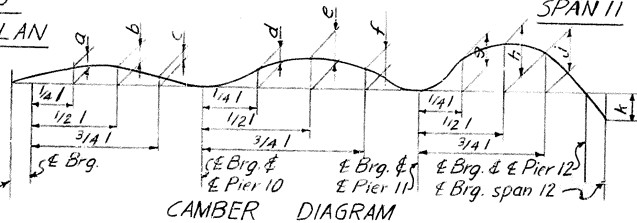


TABLE FOR GIRDER LENGTHS

Girders	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T
Span 9	109'-9"	-	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	24'-6"	-	110'-3"
Span 10	140'-0"	-	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-1"	-	140'-1"
Span 11	120'-8"	23'-0"	118'-7"	116'-7"	114'-8 1/2"	112'-9 1/2"	110'-9 1/2"	108'-10"	105'-12"	103'-2 1/2"	101'-2 1/2"	99'-3 1/2"	97'-3 1/2"	95'-4 1/2"	93'-4 1/2"	10'-3 1/2"	91'-5"

* Indicates bent girder, length shown is along girder.

Notes:
Shop connections shall be welded except as noted.
Field connections shall be made with 3/4" high strength bolts conforming to ASTM A325 except as noted.
Open holes shall be 1/8" except as noted.
All transverse and bearing stiffeners and splices are to be vertical.
All longitudinal dimensions are horizontal and girder lengths given in table must be adjusted for grade.

Notes: No camber required in partial length girder B & S or in the portion of girder R south of Pier 10.

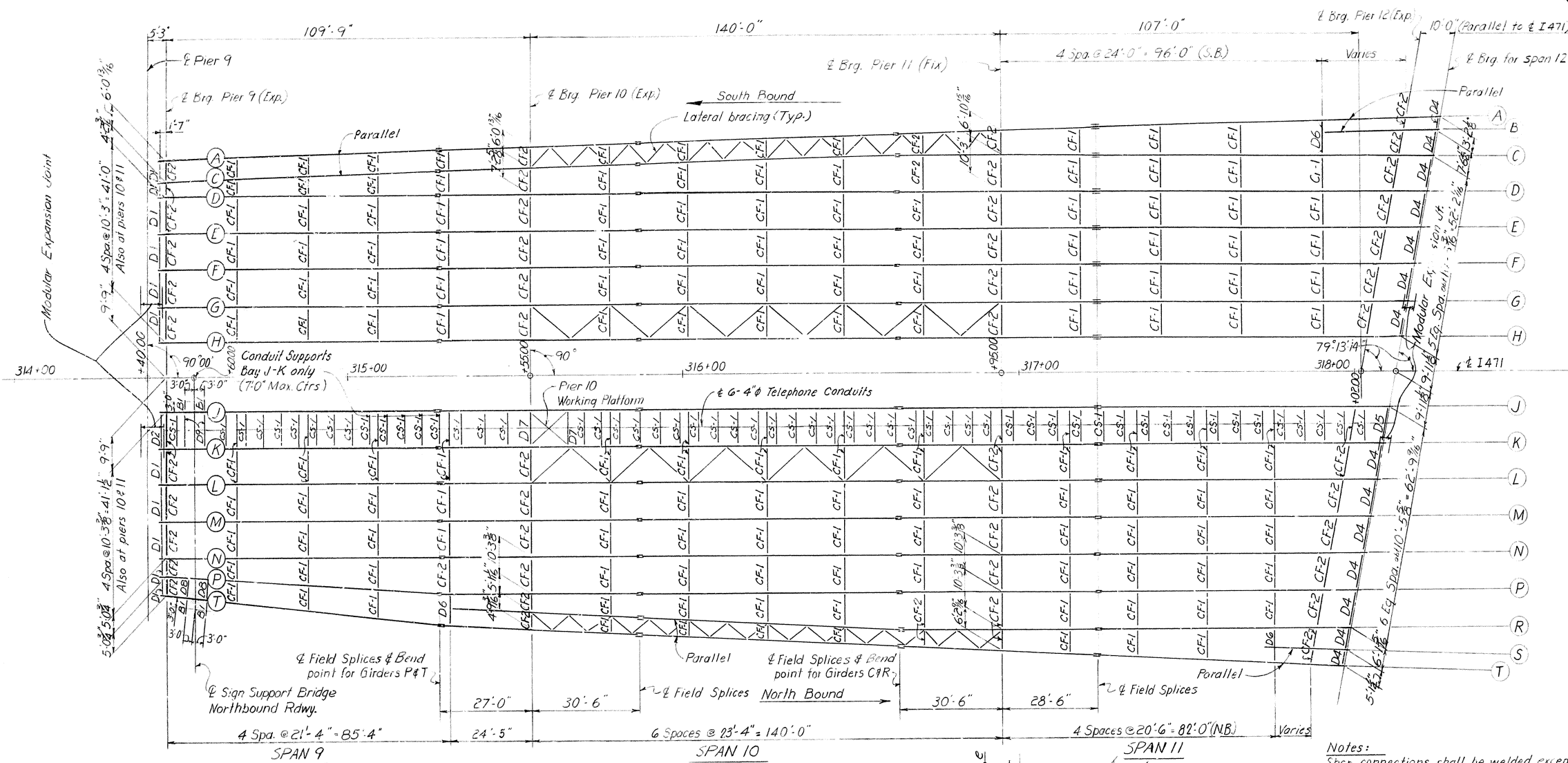
**SPANS 9 THRU 11
STRUCTURAL STEEL**

Work sheets 23 thru 28 together

**KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS**

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZLET & ERDAL Consulting Engineers File No. P-1	BRIDGE NUMBER	DRAWING NO. 18486	INDEX
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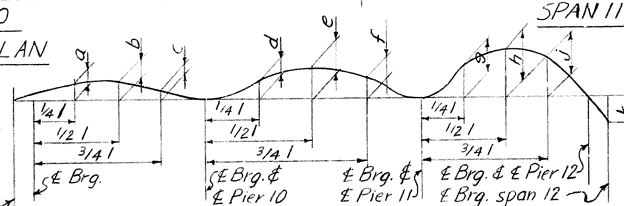


CAMBER ORDINATES (Inches)										
Gird.	a	b	c	d	e	f	g	h	j	k
A	1/16	1/16	1/2	1/16	2/16	1/16	2/8	3/8	2/8	-1
C	3/4	1/16	5/16	1/16	2/16	1/8	1/16	2/8	2/4	-15/16
D	3/4	1/16	1/4	1/16	2/16	1/4	1/8	2/16	2/8	-7/8
E	7/8	1/16	3/8	1/16	2/16	1/4	1/16	2/12	2	-13/16
F	7/8	1/16	3/8	1/16	2/16	1/16	1/16	2/16	1/16	-3/4
G	7/8	1/16	3/8	1/16	2/16	1/16	1/16	2/16	1/4	-3/4
H	13/16	1	3/8	1/16	2/16	2	1/4	2/8	1/16	-3/4
J	13/16	1	3/8	1/16	2/16	2	1/16	2	1/16	-3/4
K	13/16	7/8	5/16	1/16	2/16	2	1/16	1/4	1/8	-11/16
L	13/16	7/8	5/16	1/16	2/16	1/16	1/16	1/2	1/16	-5/8
M	13/16	7/8	5/16	1/16	2/16	2/16	1/16	1/8	1/8	-9/16
N	11/16	11/16	3/16	1/16	2/16	2/16	3/4	1/16	1/16	-1/2
P	5/8	5/8	3/16	1/16	2/16	2/16	3/4	1/4	1	-1/2
R	-	-	-	1/8	2/16	1/16	3/4	1/4	1	-1/2
T	13/16	1	5/16	1/16	2/16	1/16	5/8	1/16	7/8	-1/2

Note: No camber required in partial length girder B & S or in the portion of girder R south of Pier 10.

NOTE: Total camber includes effect of dead load and roadway geometry measured from chords between ϕ 's of bearing at bottom edge of web plate.

FRAMING PLAN



CAMBER DIAGRAM

TABLE FOR GIRDER LENGTHS																
Girders	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T
Span 9	109'-9 1/2"	-	109'-9 1/2"	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	109'-9"	109'-10 1/2"	24'-6"	110'-3 1/2"
Span 10	140'-0 3/8"	-	140'-0 3/8"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-0"	140'-1 1/2"	140'-1 1/2"
Span 11	120'-8"	23'-0 1/2"	118'-7 1/8"	116'-7 1/8"	114'-8 1/2"	112'-9 1/8"	110'-9 1/8"	108'-10 1/2"	105'-1 1/2"	103'-2 1/2"	101'-2 3/8"	99'-3 1/2"	97'-3 1/2"	95'-4 1/2"	93'-4 1/2"	91'-5"

* Indicates bent girder, length shown is along girder.

Notes:
 Shop connections shall be welded except as noted.
 Field connections shall be made with 3/4" high strength bolts conforming to ASTM A325 except as noted.
 Open holes shall be 1/2" except as noted.
 All transverse and bearing stiffeners and splices are to be vertical.
 All longitudinal dimensions are horizontal and girder lengths given in table must be adjusted for grade.
 For details of sign support bracket B1 & diaphragms D8 & D9 see sheet 45.

Work sheets 23 thru 28 together

SHEET 23

KENTUCKY DEPARTMENT OF HIGHWAYS
 OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
 BRIDGE OVER OHIO RIVER ON I 471
 CAMPBELL COUNTY, KENTUCKY
 HAMILTON COUNTY, OHIO

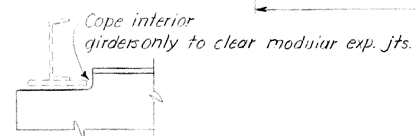
HAZELET & ERDAL
 Consulting Engineers
 File No. 889

BRIDGE
 NUMBER

DRAWING NO.
 18486

INDEX

SPANS 9 THRU 11
 STRUCTURAL STEEL



DETAIL A

Left Brg. & Pier 11

Right Brg. & Pier 12

23'-0" Bottom Flange compr.

22'-0 3/4" Rev. Reg. S.B. Top Flange compr. South Bound only.

21'-0 3/4" Rev. Reg. S.B. 5'-0" 10'-0" Both Fl. compr.

Stress Reversal Region - North Bound only.

7 Equal Spaces

2'-9" 5 Equal Spaces

5 Equal Spaces

6 Equal Spaces

4'-0" Max.

2@2'-0"

South Bound Stiff. spacing. So Bound Cross Frame Stiffs.

3@3'-6" 4 Eq. spn.

6 Equal spaces

6 Equal Spaces

4'-0" Max.

North Bound Stiff. spacing. No Bound Cross Frame Stiffs.

8 1/2" x 1" Brg. Stiff. each side

See Hinge Detail

3/4" Web Pl.

9"

Brg. Type F-425

Field Splice

Typ. - X

Brg. Type E-275

Span 11 Length

Southbound 15'-0"

Northbound 14'-0"

Grd. Flgs. Top & Bottom

10'-0"

10'-0"

18'-0"

15'-0"

44'-0"

40'-0"

16'-6"

16'-6"

Varies

Varies

Rs m

Rs n

Rs p

Rs q

Rs r

Rs s

10'-0"

NOTE: Prior to op

NOTE:
Prior to approval of the shop detail drawings, the Contractor may request permission from the Engineer to extend a thicker flange plate in the direction of a smaller to eliminate one or more butt welded flange splices. No extra payment will be made for the additional steel weight.

TABLE OF TOP & BOTTOM FLANGE PLATE THICKNESSES (ALL RS. 18" WIDE)																			
SOUTHBOUND																			
		SPAN 9					SPAN 10					SPAN 11					CANT LEVEL		
Grds.	F's	a	b	c	d	e	f	g	h	j	k	l	m	n	p	q	r	s	s
A	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"
C	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"
D	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"
E	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"
F	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"
G	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"
H	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"

NORTHBOUND																			
		SPAN 9					SPAN 10					SPAN 11					CANT LEVEL		
Grds.	F's	a	b	c	d	e	f	g	h	j	k	l	m	n	p	q	r	s	s
J	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"
K	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"
L	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"
M	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"
N	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"
P	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"
R	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"
T	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"	2"	2"	1"	1"	1"	1"	1"

Work sheets 23 thru 28 together

SHEET 24

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

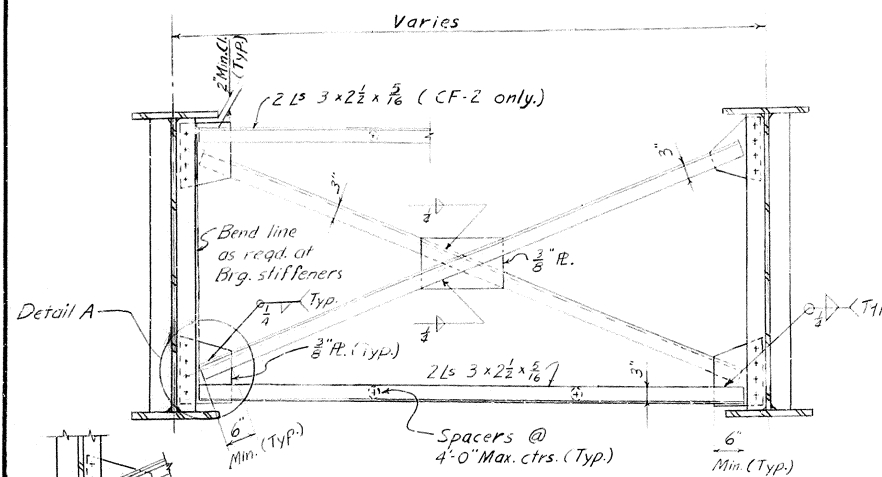
SPANS 9 THRU 11
STRUCTURAL STEEL

HAZELET & ERDAL
Consulting Engineers
File No. 889

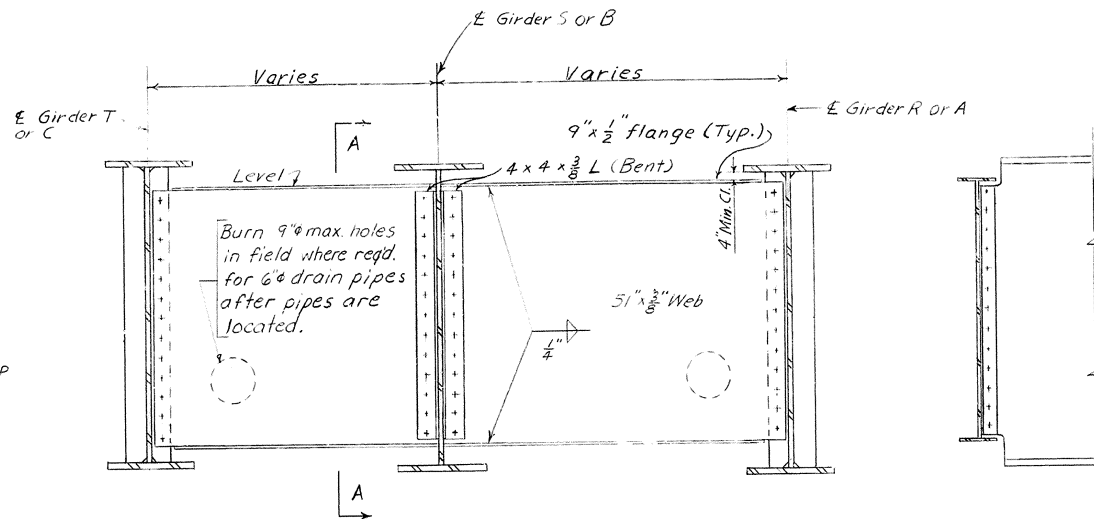
BRIDGE
NUMBER

DRAWING NO.
18486

INDEX

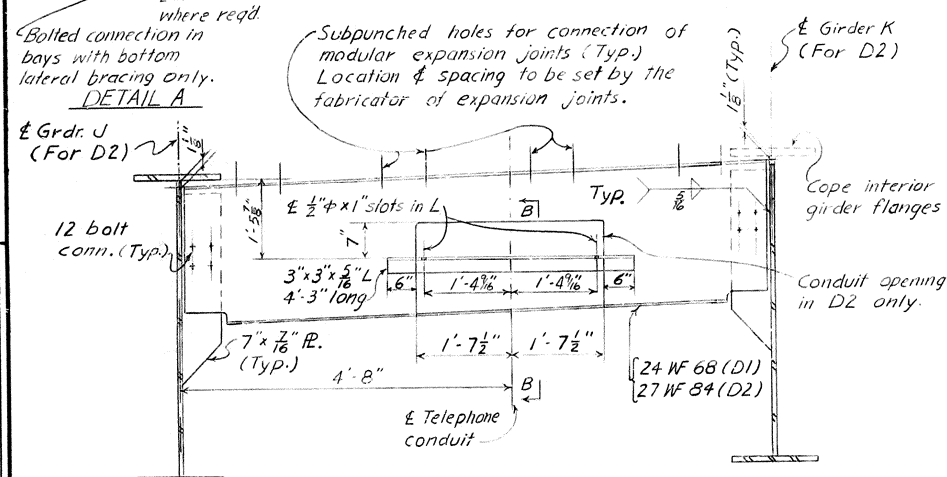


CROSS FRAMES CF-1 & CF-2



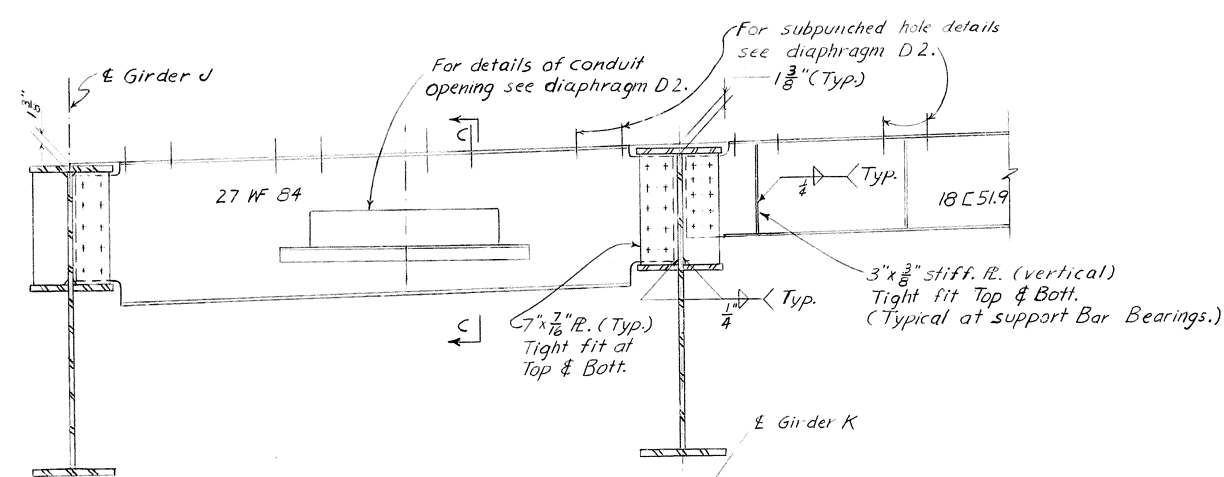
DIAPHRAGM D6

SECTION A-A



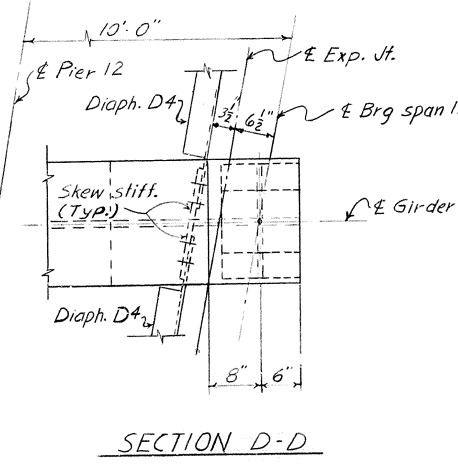
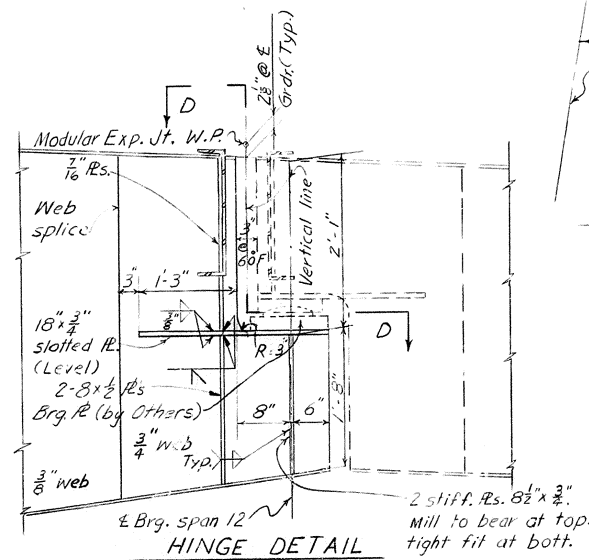
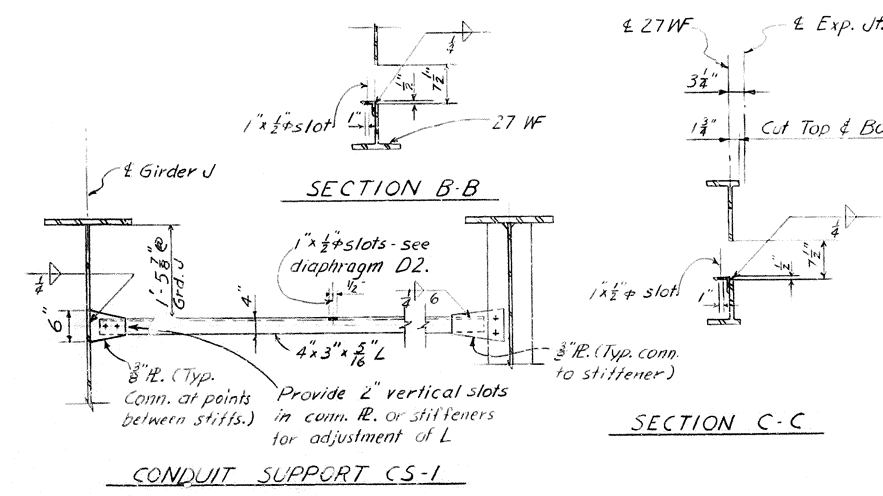
END DIAPHRAGM D2 (As Shown)

END DIAPHRAGM D1 (As Noted)



DIAPHRAGM D5

DIAPHRAGM D4

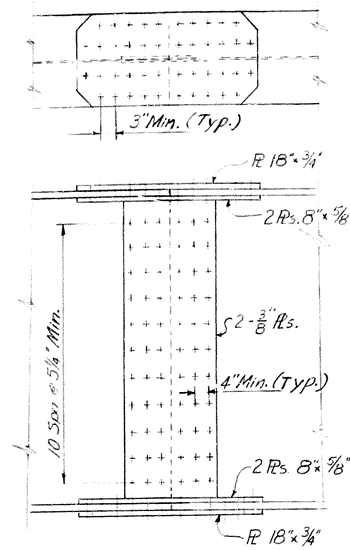


SPANS 9 THRU 11 STRUCTURAL STEEL

Work sheets 23 thru 28 together.
SHEET 25

KENTUCKY DEPARTMENT OF HIGHWAYS OHIO DEPARTMENT OF HIGHWAYS PROJECT 1471-4 () BRIDGE OVER OHIO RIVER ON I 471 CAMPBELL COUNTY, KENTUCKY HAMILTON COUNTY, OHIO	
DRAWING NO. 18486	INDEX

DESIGNED BY: B.P.T. 10/28/50
 CHECKED BY: B.P.T. 10/28/50
 DATE: 10/28/50
 BY: B.P.T. 10/28/50
 DATE: 10/28/50

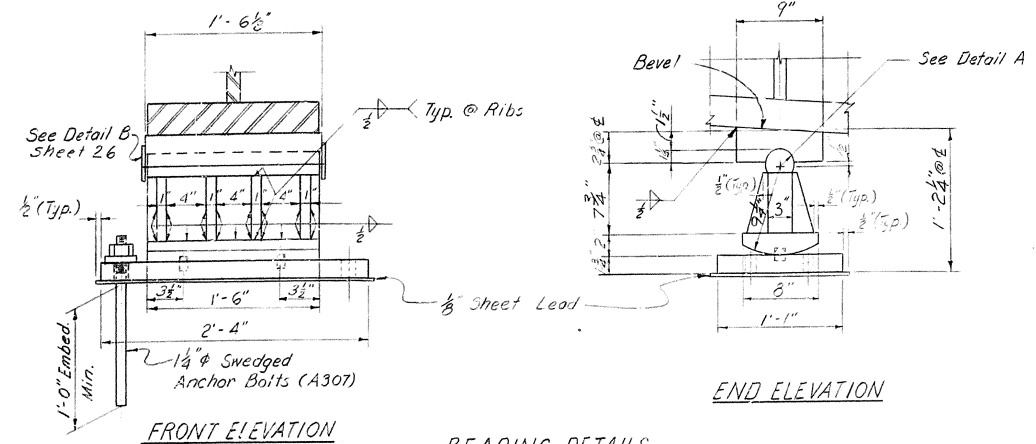


FIELD SPLICE DETAIL

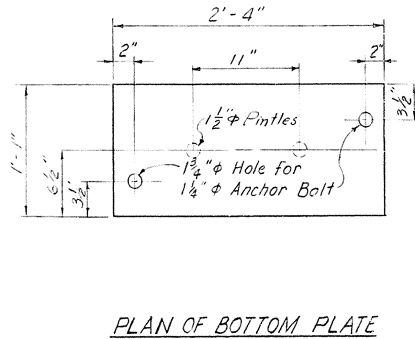
LATERAL BRACING CONNECTION
(at $\pm$ Brg. Pier 10 & Pier 11)

LATERAL BRACING CONNECTION
(Between Cross frames @ Int. Stiff.)

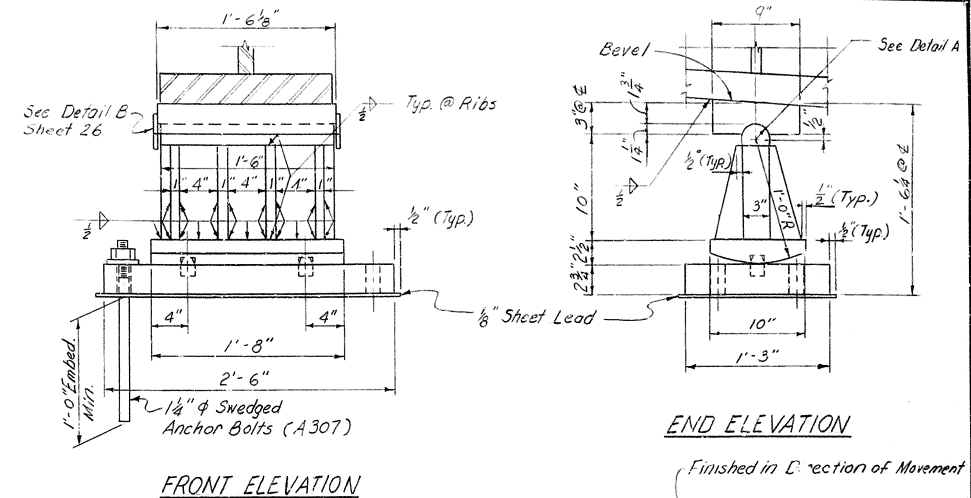
FILE NO.	STATE	FED. AID	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	1.471	41814		



BEARING DETAILS
E-150 (USE @ PIER 9)

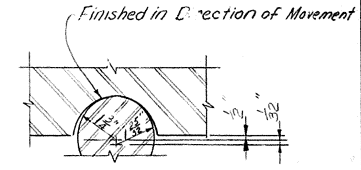


PLAN OF BOTTOM PLATE

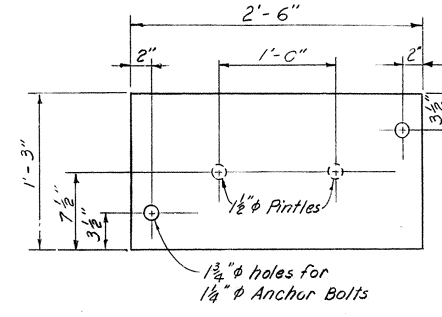


FRONT ELEVATION

END ELEVATION

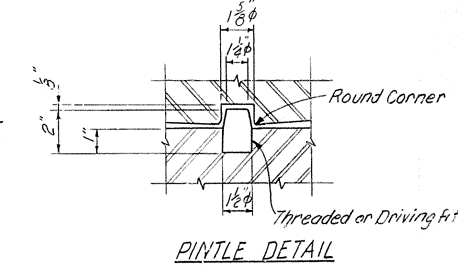


DETAIL A

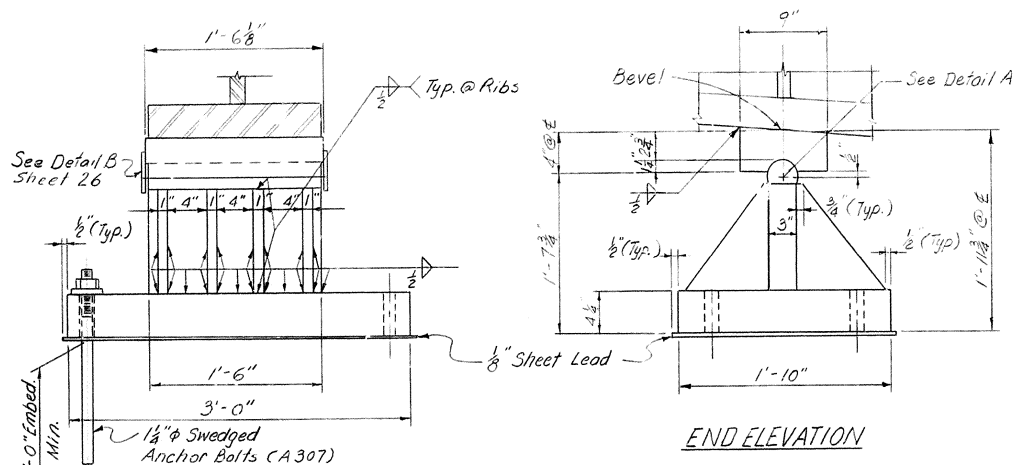


PLAN OF BOTTOM PLATE

BEARING DETAILS
E-275 (USE @ PIER 12)

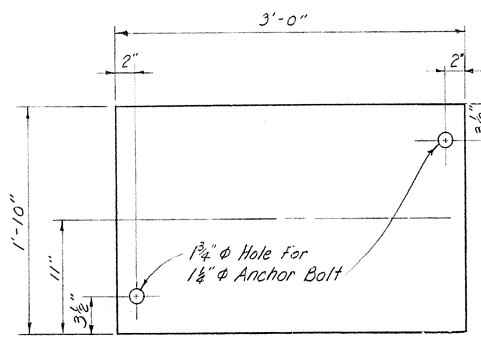


PINTLE DETAIL

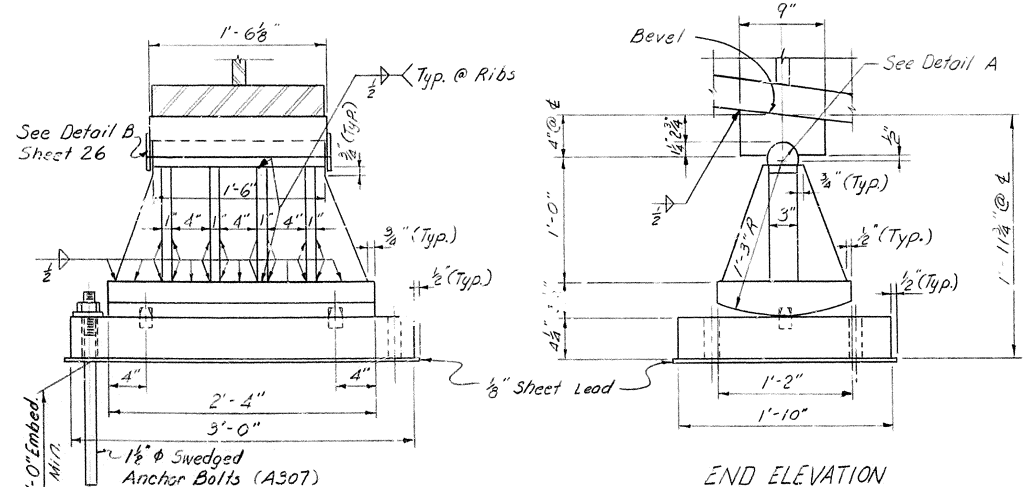


FRONT ELEVATION

BEARING DETAILS
F-425 (USE @ PIER 11)

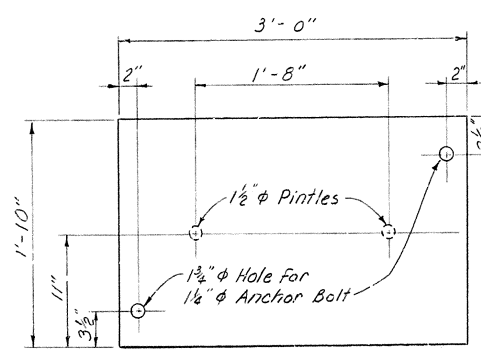


PLAN OF BOTTOM PLATE

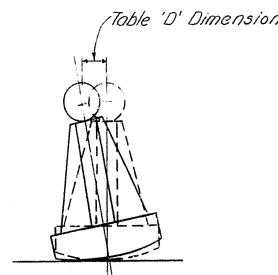


FRONT ELEVATION

BEARING DETAILS
E-425 (USE @ PIER 10)



PLAN OF BOTTOM PLATE



TYPICAL PIN TO WEB CONNECTION AT ALL SHOES

TABLE 'D' FOR SETTING EXPANSION SHOES

TEMP. DIFF.	-20°	0°	20°	40°	60°	80°	100°	120°
PIER 9	1.56	1.17	0.78	0.39	0	0.39	0.78	1.17
PIER 10	0.87	0.66	0.44	0.22	0	0.22	0.44	0.66
PIER 12	0.68	0.51	0.34	0.17	0	0.17	0.34	0.51

Work sheets 23 thru 28 together

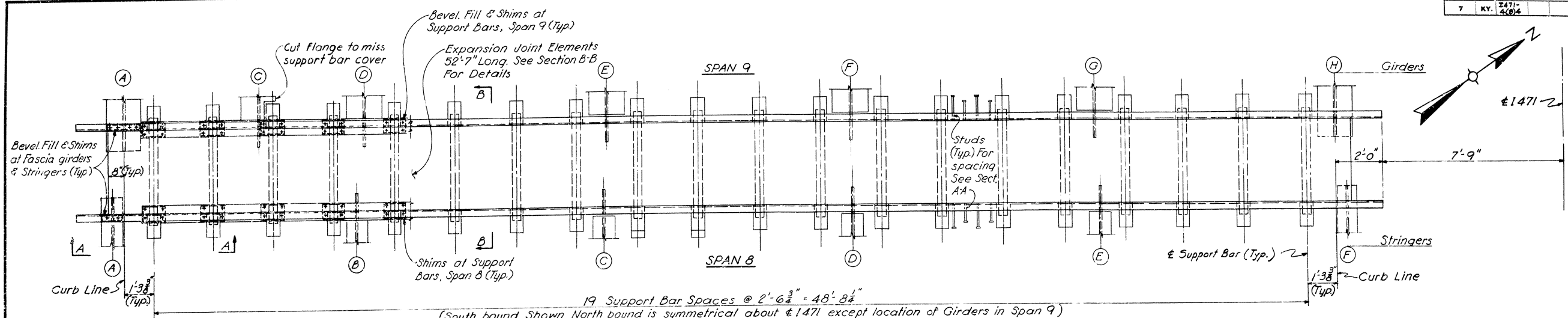
SHEET 27

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

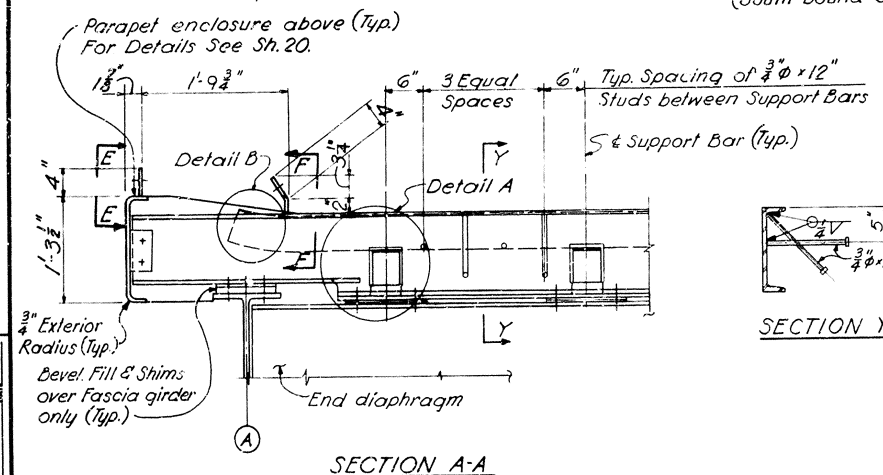
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZLET & ENDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18486	INDEX
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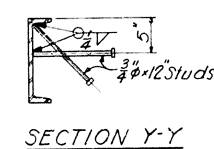
SPANS 9 THRU 11
STRUCTURAL STEEL



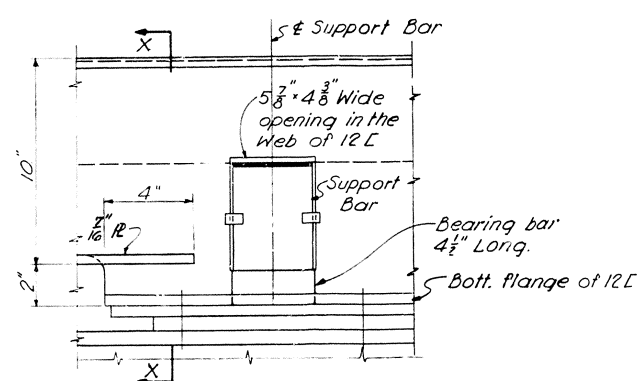
PLAN



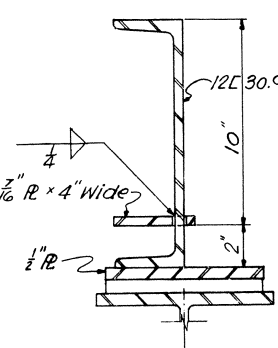
SECTION A-A



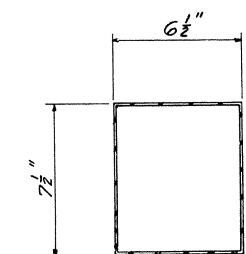
SECTION Y-Y



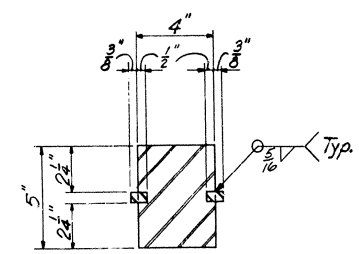
DETAIL A



SECTION X-X



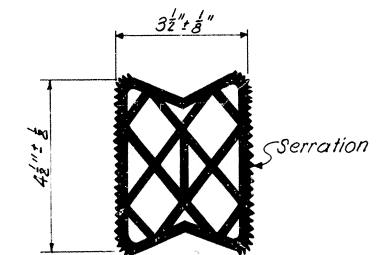
SECTION C-C



SECTION D-D

Preset Width 'A' of Expansion Joint in inches						
30°	40°	50°	60°	70°	80°	90°
43 1/2	42 11/16	41 13/16	41	40 3/16	39 5/16	38 1/2

The movement, due to expansion and contraction, is based on a temperature range from -20°F. to +120°F.



SEALER

FOR REFERENCE ONLY
This Expansion Dam shown on
Drwg. No. 18485

MODULAR EXPANSION JOINT AT PIER 9

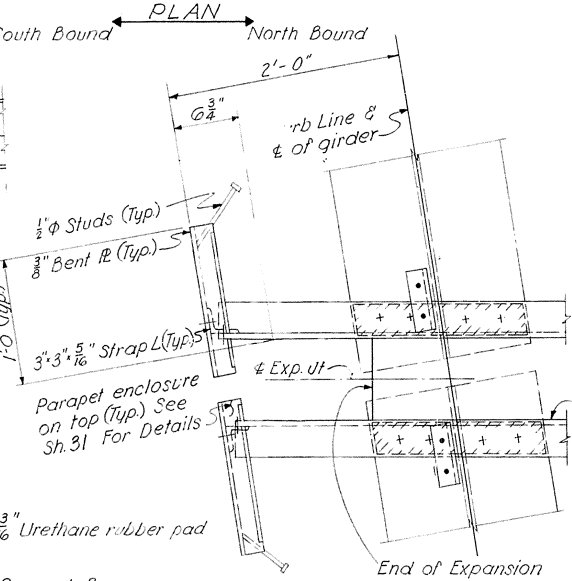
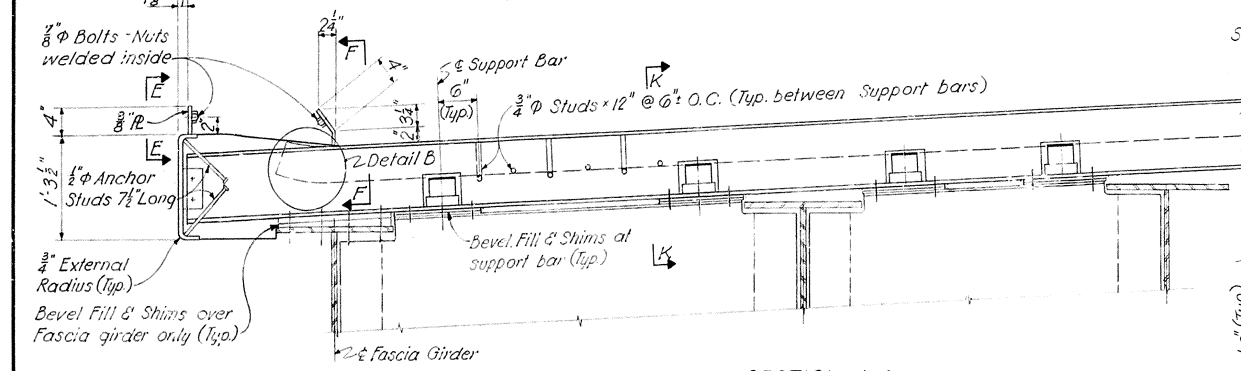
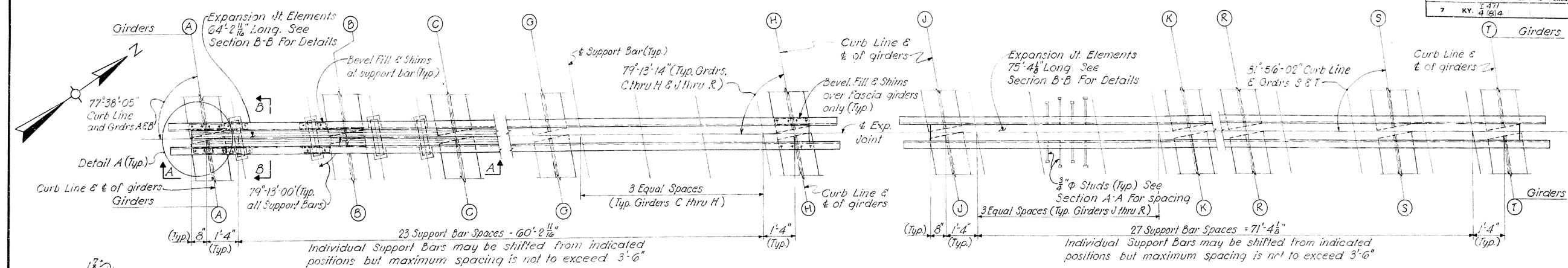
SHEET 29

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

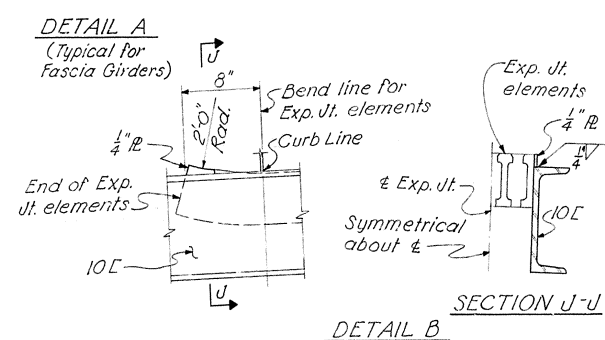
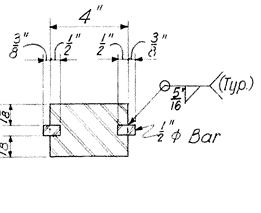
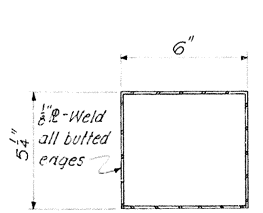
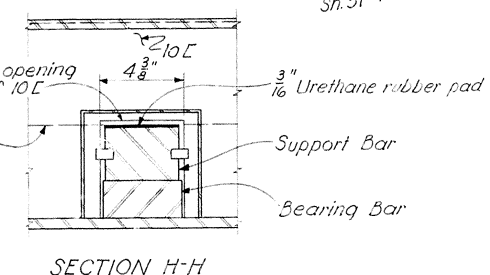
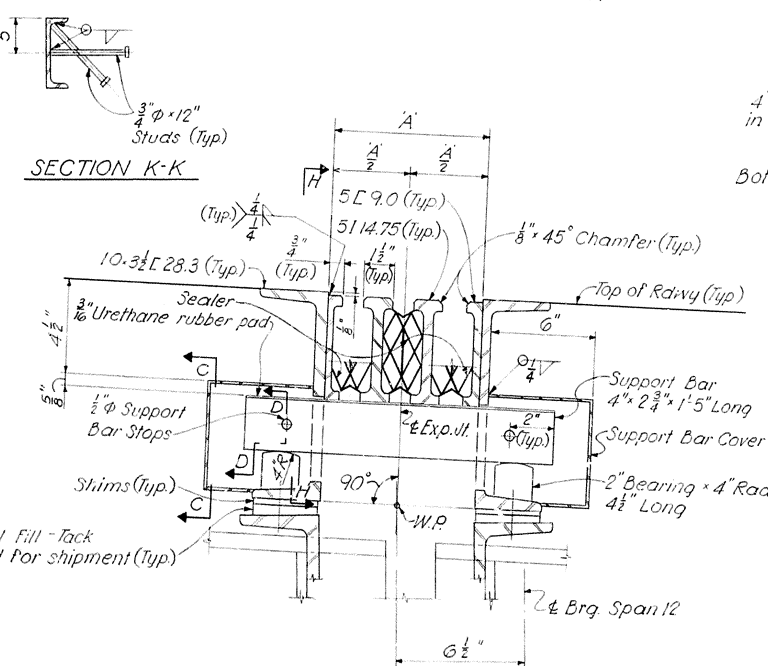
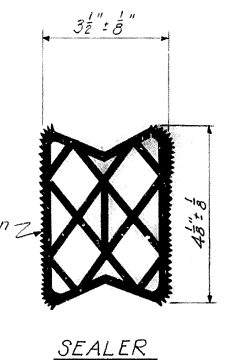
PROJECT 1471-4 ()
 BRIDGE OVER OHIO RIVER ON 1471
 CAMPBELL COUNTY, KENTUCKY
 HAMILTON COUNTY, OHIO

HAZLET & ERDAL Consulting Engineers File No. 289	BRIDGE NUMBER	DRAWING NO. 18486	INDEX
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DESIGNED BY: DATE: 10/10/68
 CHECKED BY: DATE: 10/10/68
 DRAWN BY: DATE: 10/10/68
 INCHES BY: DATE: 10/10/68



NOTE: The Modular Expansion Dam at Pier 12 can not be erected until the steel work for the adjacent structure, the state of Ohio bridge Contract HAM 471-000L, is in place. In the event of a delay, as a result of the adjacent contract, the deck slab pour in Span 11 is to be terminated at the Optional Construction Joint near Pier 12 and completed as soon as possible after the Expansion Dam is in place. No additional payment is to be made as a result of this delay.



Preset Width 'A' of Expansion Joint in inches							
30"	40"	50"	60"	70"	80"	90"	
8 5/8"	8 7/16"	8 3/8"	8"	7 13/16"	7 9/16"	7 3/8"	

The movement, due to expansion and contraction is based on a temperature range from -20° to +120°

MODULAR EXPANSION JOINT AT PIER 12

Work: sheets 30 & 31 together

SHEET 30

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

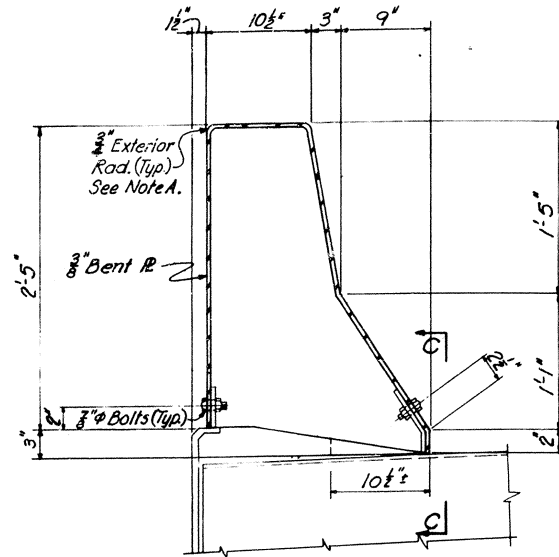
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON 1471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZLET & ERDAL
Consulting Engineers
File No. 189

BRIDGE NUMBER

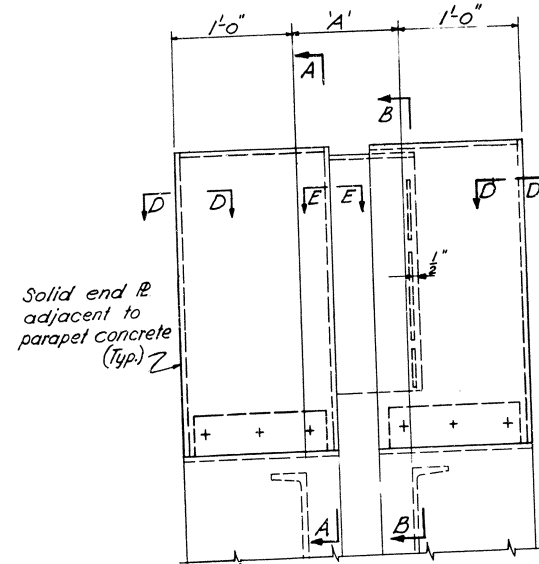
DRAWING NO. 18486

INDEX



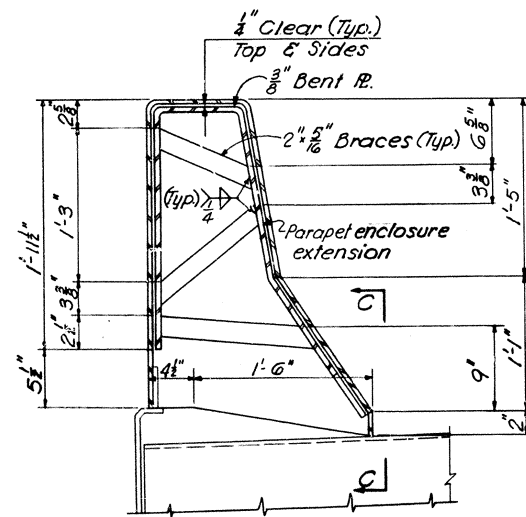
Note A: Top corners may be made by welding separate plates in lieu of the detail shown, at the option of the fabricator.

SECTION A-A

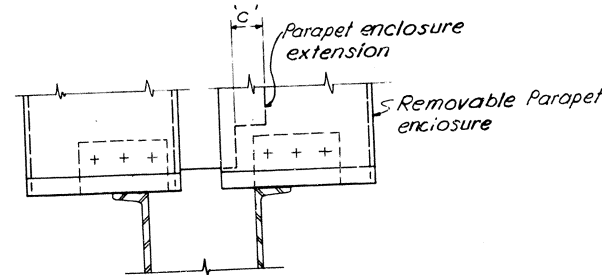


PARAPET ELEVATION
(Fascia Side shown)

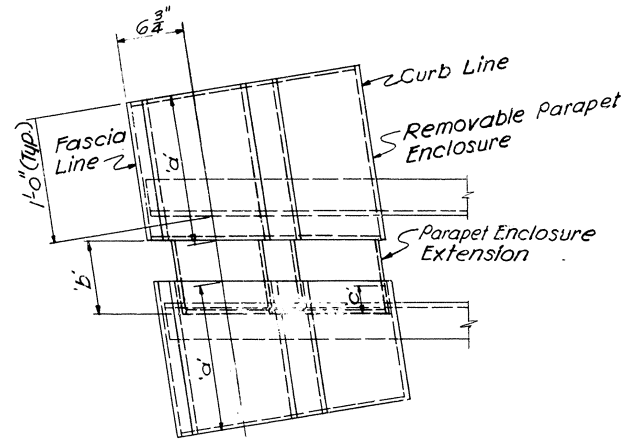
Pier	Dimension		
	a'	b'	c'
2	1'-3"	8"	3"
6	1'-6"	11"	4"
8	1'-3"	8"	3"
9	2'-4"	1'-6 1/2"	3"
Span 12	1'-2 1/2"	5 1/2"	2"



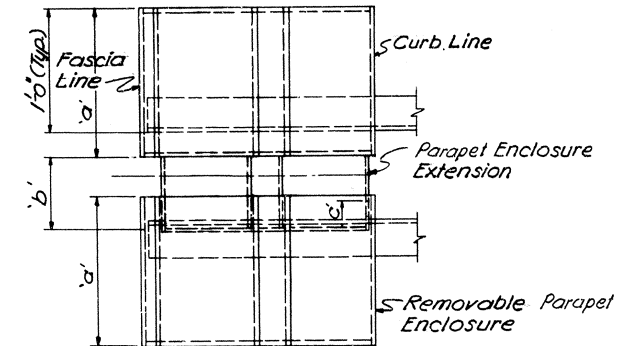
SECTION B-B



SECTION C-C



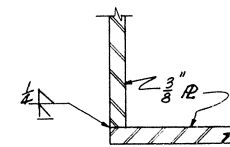
PLAN
(At Skew)



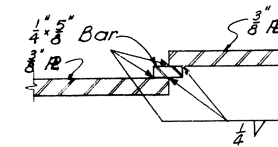
PLAN
(At Right Angle)

Modular Expansion Joint Notes:

Steel in expansion joints, except support bar covers and stops, shall be ASTM A588.
No splices will be permitted in the joint sealer.
The fabricator shall provide prestressing bolts placed through the entire unit after assembling. Assembly is to be prefabricated and shipped to site with width preset for 60°F. Final adjustment for width shall be made at the time of installation. Prestressing bolts shall be removed prior to pouring concrete against the joints.
Holes for prestressing bolts in top flanges of steel channels shall be sealed by plug welding.
The expansion joints shall be fabricated to follow the contour of the top of roadway slab.
Holes for connection of modular joints to diaphragms and girders or stringers shall be subpunched 1/4" and reamed after erection in the field. Actual spacing of these holes will be established by the fabricator of the modular joint.
For material specifications for neoprene, urethane and adhesives, see Special Notes.
Neoprene ends shall be cut square and sealed with neoprene sponge cemented to the full perimeter and walls.



SECTION D-D



SECTION E-E

Work sheets 30 and 31 together

SHEET 31

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

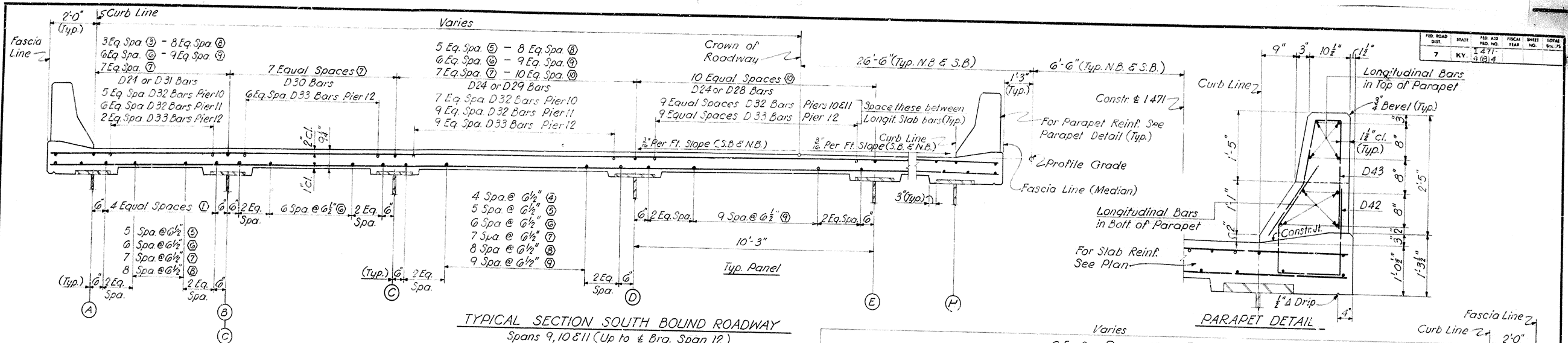
PARAPET EXPANSION DETAILS

HAZLET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18486

INDEX

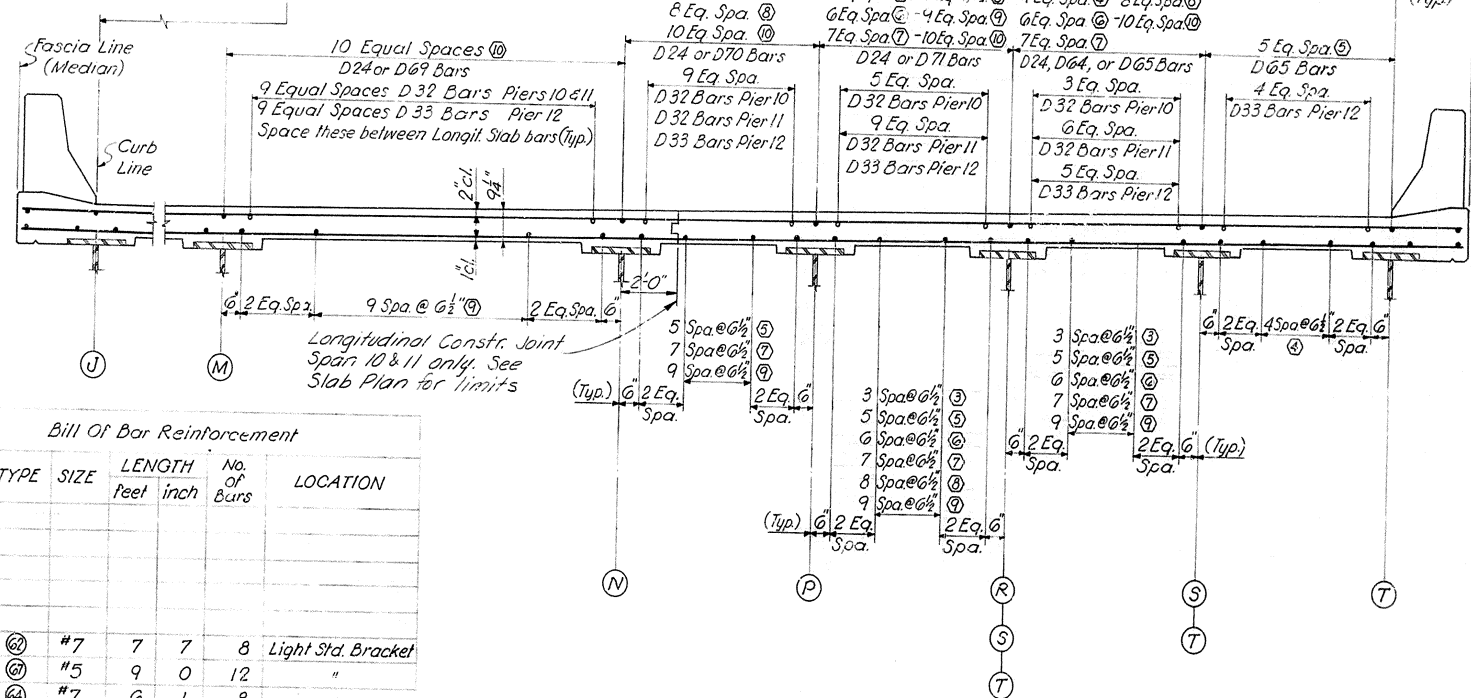


TYPICAL SECTION SOUTH BOUND ROADWAY
Spans 9, 10 & 11 (Up to & Brg. Span 12)

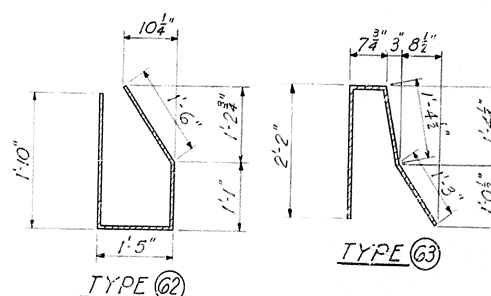
MARK	TYPE	SIZE	LENGTH Feet inch	No. of Bars	LOCATION
D1	Str.	#6	31 3	2544	Transv. S.B. & N.B.
D2	"	"	26 10	75	Transv. S.B.
D3	"	"	27 4	72	"
D4	"	"	27 11	72	"
D5	"	"	28 5	72	"
D6	"	"	28 10	58	"
D7	"	"	29 3	60	"
D8	"	"	29 8	58	"
D9	"	"	30 2	60	"
D10	"	"	30 9	74	"
D11	"	"	31 4	112	"
D12	"	"	31 11	76	"
D13	"	"	32 5	54	"
D14	"	"	32 9	60	"
D15	"	"	33 3	60	"
D16	"	"	33 8	58	"
D17	"	"	34 1	60	"
D18	"	"	34 8	82	"
D19	"	"	35 4	84	"
D20	"	"	36 0	84	"
D21	"	"	31 9	148	"
D22	"	"	36 8	48	"
D23	"	"	37 4	62	"
D24	"	#5	30 0	3619	Longt. S.B. & N.B.
D25	"	"	36 0	28	Longt. S.B.
D26	"	"	38 0	24	"
D27	"	"	40 0	24	"
D28	"	"	42 0	24	"
D29	"	"	44 0	24	"
D30	"	"	45 3	18	"
D31	"	"	46 4	11	"
D33	"	#8	31 8	478	Longt. @ Piers 10 & 11
D34	"	#5	16 9	131	Longt. @ Pier 12
D35	"	"	29 1	48	Longt. Parapet S.B. & N.B.
D36	"	"	29 8	40	Longt. Parapet S.B.
D37	"	"	31 9	16	"
D38	"	"	28 9	16	"
D39	"	"	8 1	4	"
D40	"	"	7 8	4	"
D40	"	"	44 3	4	"

MARK	TYPE	SIZE	LENGTH Feet inch	No. of Bars	LOCATION
D41	Str.	#5	33 0	4	Longt. Parapet S.B.
D42	Str.	#6	5 9	1354	Transv. Parapet.
D43	Str.	#6	5 4	1354	"
D44	Str.	"	28 3	75	Transv. N.B.
D45	"	"	30 4	72	"
D46	"	"	32 4	72	"
D47	"	"	34 5	72	"
D48	"	"	35 6	58	"
D49	"	"	36 3	60	"
D50	"	"	37 0	58	"
D51	"	"	37 9	60	"
D52	"	"	38 8	74	"
D53	"	"	39 8	76	"
D54	"	"	40 8	76	"
D55	"	"	41 4	54	"
D56	"	"	42 2	60	"
D57	"	"	43 0	60	"
D58	"	"	43 8	58	"
D59	"	"	44 5	60	"
D60	"	"	45 3	68	"
D61	"	"	46 1	68	"
D62	"	"	47 0	68	"
D63	"	"	48 6	76	"
D64	"	#5	25 6	28	Longt. N.B.
D65	"	"	23 6	34	"
D66	"	"	58 6	27	"
D67	"	"	56 3	24	"
D68	"	"	54 3	24	"
D69	"	"	52 6	24	"
D70	"	"	50 6	24	"
D71	"	"	48 6	24	"
D72	"	"	29 3	16	Longt. Parapet N.B.
D73	"	"	29 8	40	"
D74	"	"	28 0	4	"
D75	"	"	26 4	16	"
D76	"	"	14 3	4	"
D77	"	#6	5 0	96	Deck Drains

MARK	TYPE	SIZE	LENGTH Feet inch	No. of Bars	LOCATION
LS1	Str.	#7	7 7	8	Light Std. Bracket
LS2	Str.	#5	9 0	12	"
LS3	Str.	#7	6 1	8	"
LS4	Str.	#5	7 2	4	"
LS5	Str.	#5	9 10	12	"



TYPICAL SECTION NORTH BOUND ROADWAY
Spans 9, 10 & 11 (Up to & Brg. Span 12)



SPANS 9 THRU 11
SLAB SECTIONS

Work Sheets 32 thru 36 together.

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

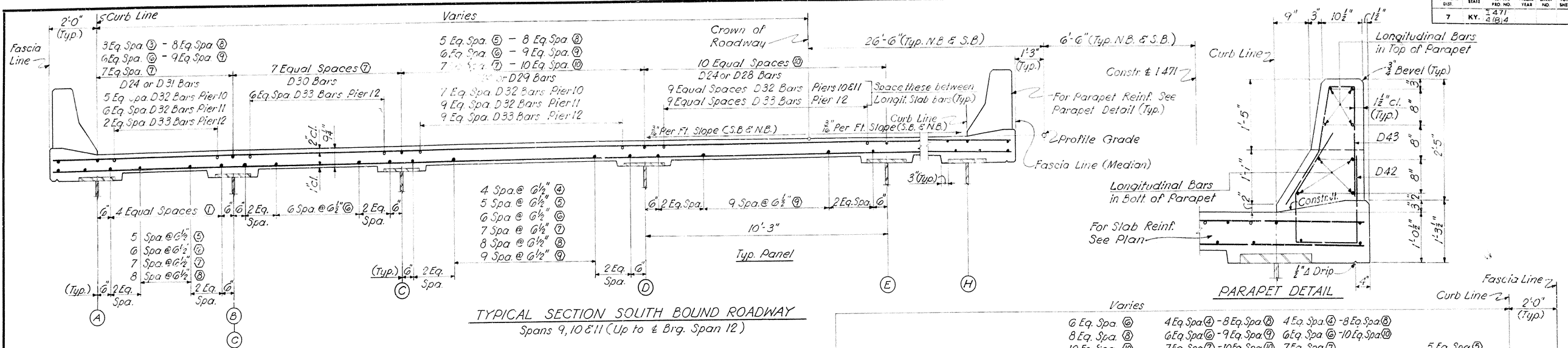
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZLET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18486

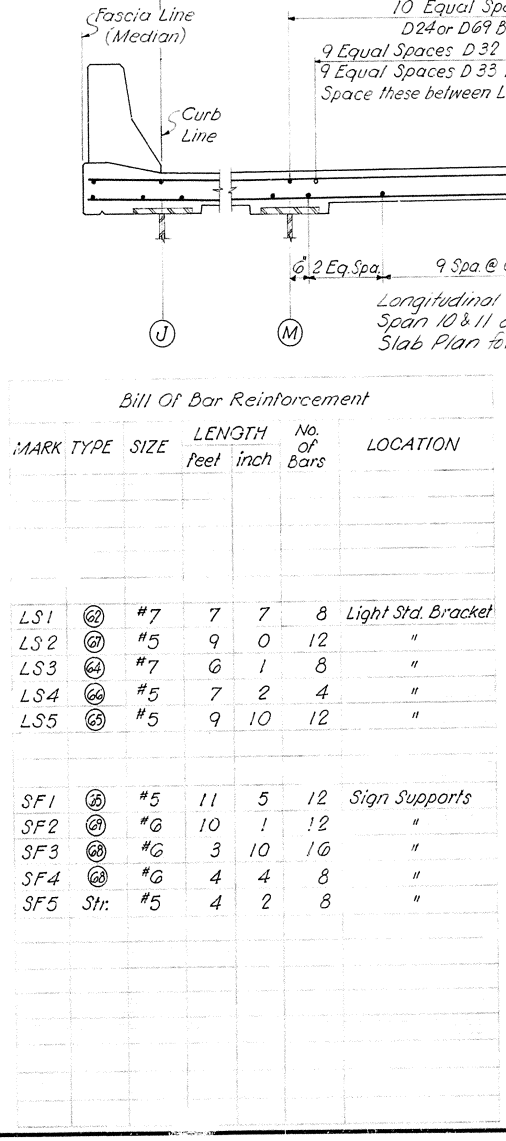
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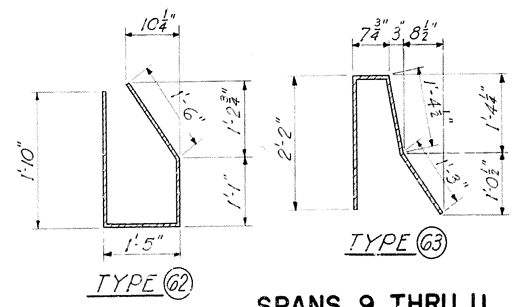
TYPICAL SECTION SOUTH BOUND ROADWAY
Spans 9, 10 & 11 (Up to & Brg. Span 12)

Bill Of Bar Reinforcement						
MARK	TYPE	SIZE	LENGTH		No. of Bars	LOCATION
			feet	inch		
D1	Str.	#6	31	3	2544	Transv. S.B. & N.B.
D2	"	"	26	10	75	Transv. S.B.
D3	"	"	27	4	72	"
D4	"	"	27	11	72	"
D5	"	"	28	5	72	"
D6	"	"	28	10	58	"
D7	"	"	29	3	60	"
D8	"	"	29	8	58	"
D9	"	"	30	2	60	"
D10	"	"	30	9	74	"
D11	"	"	31	4	112	"
D12	"	"	31	11	76	"
D13	"	"	32	5	54	"
D14	"	"	32	9	60	"
D15	"	"	3	3	60	"
D16	"	"	33	8	58	"
D17	"	"	34	1	60	"
D18	"	"	34	8	82	"
D19	"	"	35	4	84	"
D20	"	"	36	0	84	"
D21	"	"	31	9	148	"
D22	"	"	36	8	48	"
D23	"	"	37	4	62	"
D24	"	#5	30	0	3619	Longt. S.B. & N.B.
D25	"	"	36	0	28	Longt. S.B.
D26	"	"	38	0	24	"
D27	"	"	40	0	24	"
D28	"	"	42	0	24	"
D29	"	"	44	0	24	"
D30	"	"	45	3	18	"
D31	"	"	46	4	11	"
D32	"	#8	31	8	478	Longt. @ Piers 10 & 11.
D33	"	#8	16	9	131	Longt. @ Pier 12
D34	"	#5	29	1	48	Longt. Parapet S.B. & N.B.
D35	"	"	29	8	40	Longt. Parapet S.B.
D36	"	"	31	9	16	"
D37	"	"	28	9	16	"
D38	"	"	8	1	4	"
D39	"	"	7	8	4	"
D40	"	"	44	3	4	"

Bill Of Bar Reinforcement						
MARK	TYPE	SIZE	LENGTH		No. of Bars	LOCATION
			Feet	inch		
D41	Str.	#5	33	0	4	Longt. Parapet S.B.
D42	⊗	#6	5	9	1354	Transv. Parapet.
D43	⊗	#6	5	4	1354	"
D44	Str.	"	28	3	75	Transv. N.B.
D45	"	"	30	4	72	"
D46	"	"	32	4	72	"
D47	"	"	34	5	72	"
D48	"	"	35	6	58	"
D49	"	"	36	3	60	"
D50	"	"	37	0	58	"
D51	"	"	37	9	60	"
D52	"	"	38	8	74	"
D53	"	"	39	8	76	"
D54	"	"	40	8	76	"
D55	"	"	41	4	54	"
D56	"	"	42	2	60	"
D57	"	"	43	0	60	"
D58	"	"	43	8	58	"
D59	"	"	44	5	60	"
D60	"	"	45	3	68	"
D61	"	"	46	1	68	"
D62	"	"	47	0	68	"
D63	"	"	48	6	76	"
D64	"	#5	25	6	28	Longt. N.B.
D65	"	"	23	6	34	"
D66	"	"	58	6	27	"
D67	"	"	56	3	24	"
D68	"	"	54	3	24	"
D69	"	"	52	6	24	"
D70	"	"	50	6	24	"
D71	"	"	48	6	24	"
D72	"	"	29	3	16	Longt. Parapet N.B.
D73	"	"	29	8	40	"
D74	"	"	28	0	4	"
D75	"	"	26	4	16	"
D76	"	"	14	3	4	"
D77	"	#6	5	0	96	Deck Drains



TYPICAL SECTION NORTH BOUND ROADWAY
Spans 9, 10 & 11 (Up to & Brg. Span 12)



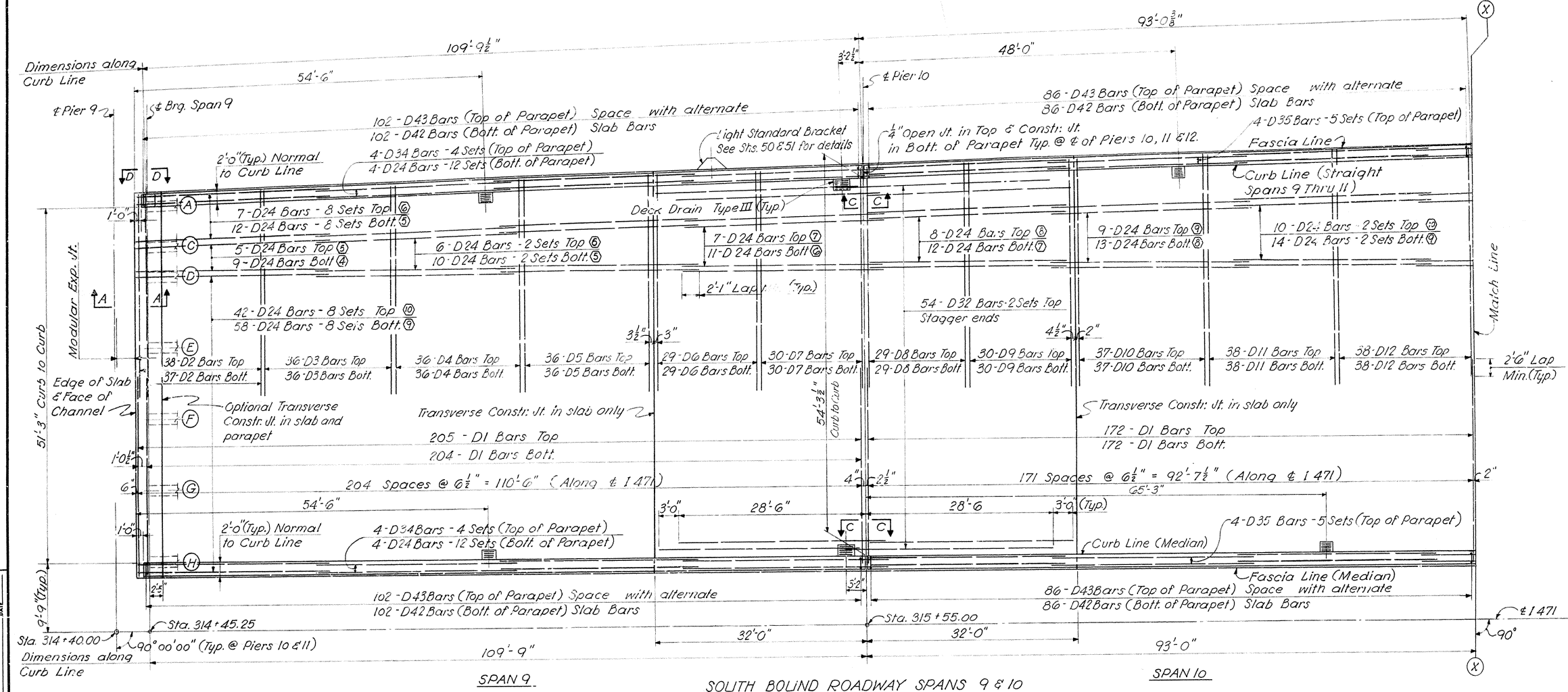
SPANS 9 THRU 11
SLAB SECTIONS

Work Sheets 32 thru 36 together.

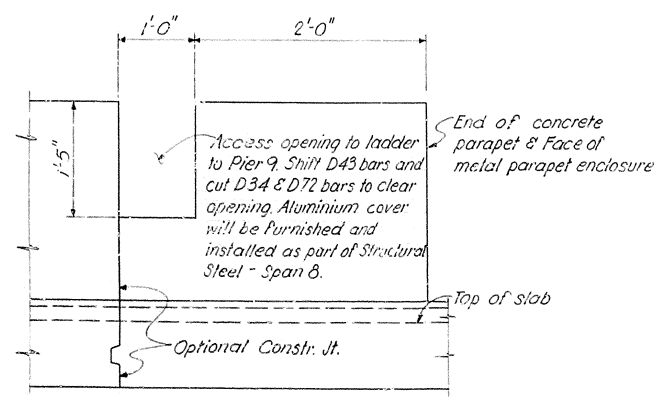
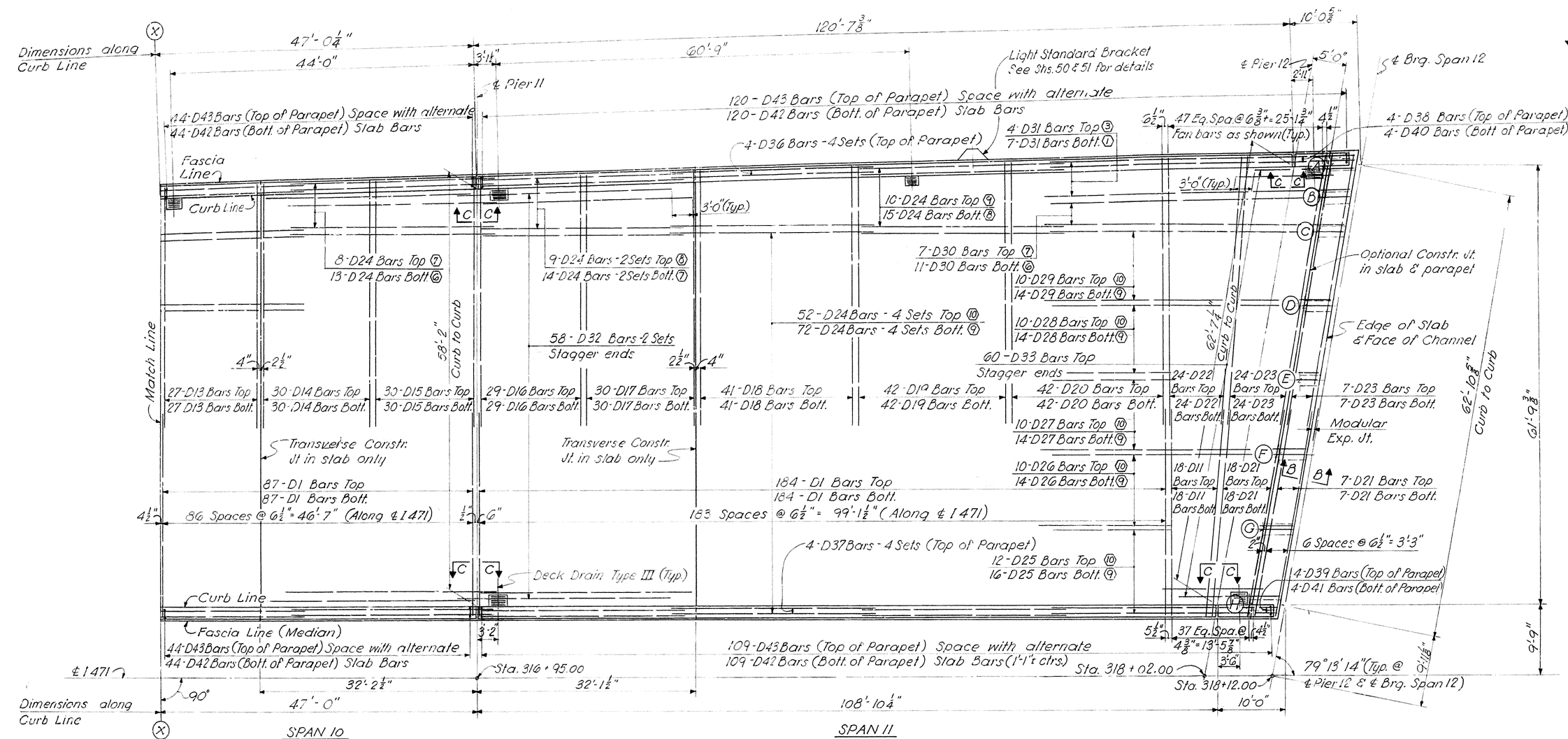
KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON 1471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

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FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	1471	1944		



SECTION D-D AS SHOWN
SECTION E-E OPP. HAND

For Sections B-B & C-C See Sheet 33
Work Sheets 32 thru 36 together.

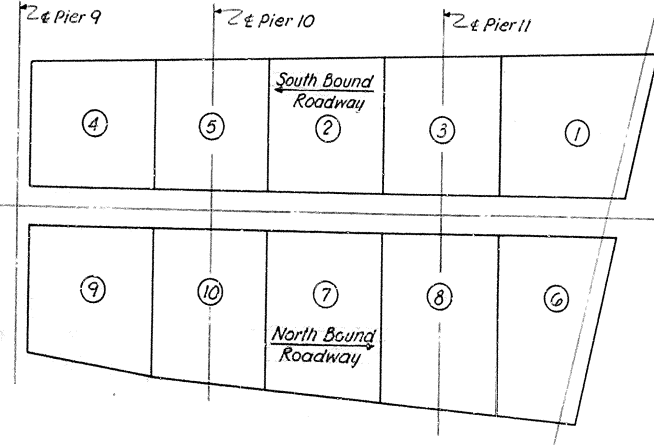
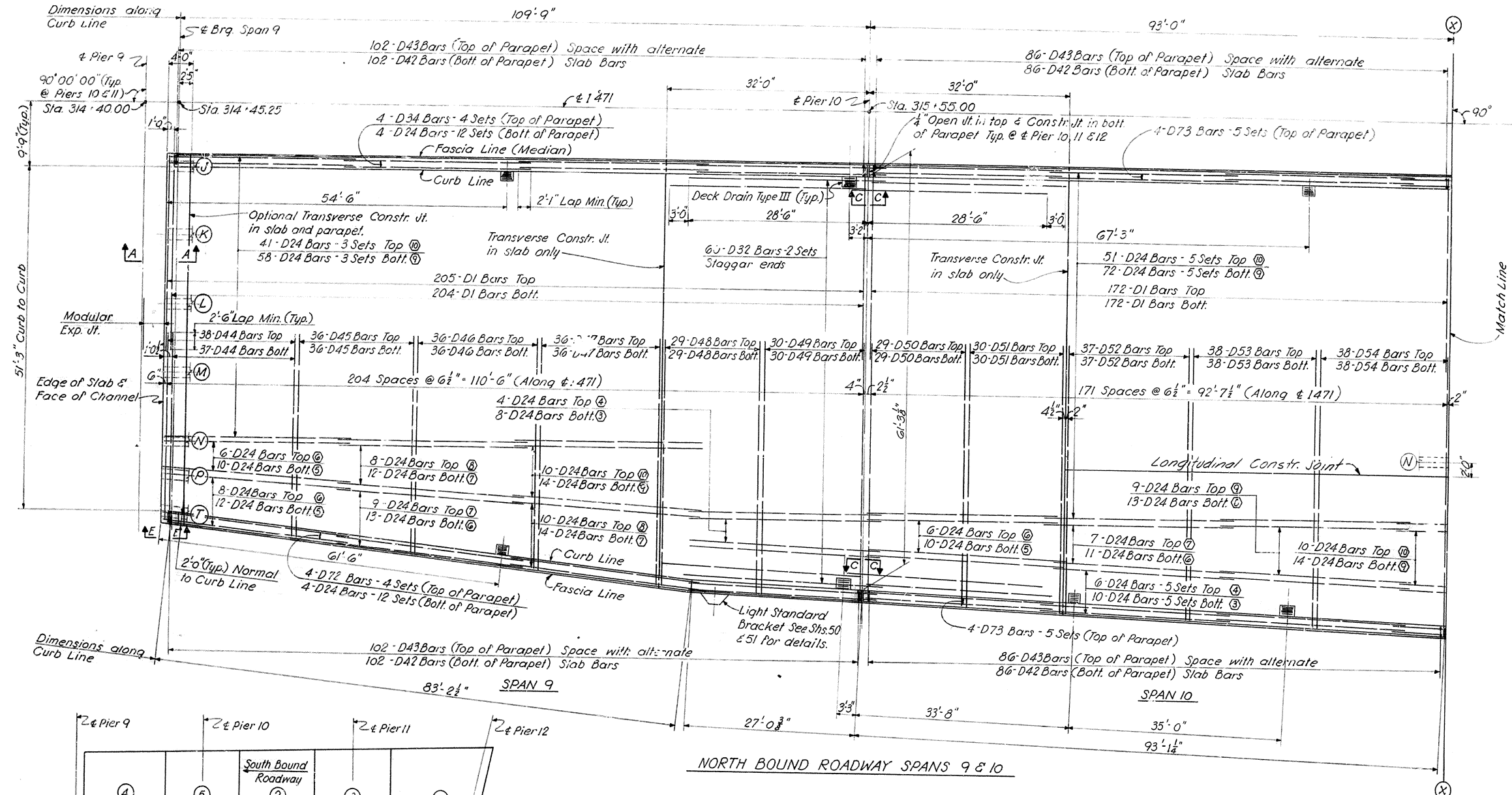
SHEET 34

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

SPANS 10 AND 11 S.B.
SLAB PLAN

HAZELET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18436	INDEX
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QUANTITIES		
ITEM	UNIT	TOTAL
Concrete - Class AA	C.Y.	1,625.7
Steel Reinforcement	Lbs.	479,933
Prot. Coat., Styrene - Butadiene	Gal.	31
Protective Coating, Linseed oil	S.Y.	4,905

Notes:

The construction joint between the roadway slab and the parapet is mandatory. The concrete in the parapet shall not be poured until the deck has properly cured.

Modular Expansion Joints shall be erected before placing deck concrete.

See Sheet 37 for drain details including special reinforcement.

See Sheets 41 & 42 for construction elevations.

For Section E-E See Sheet 34.
For Sections A-A & C-C See Sheet 33.
Work Sheets 32 thru 36 together.

SHEET 35

SPANS 9 AND 10 N.B.
SLAB PLAN

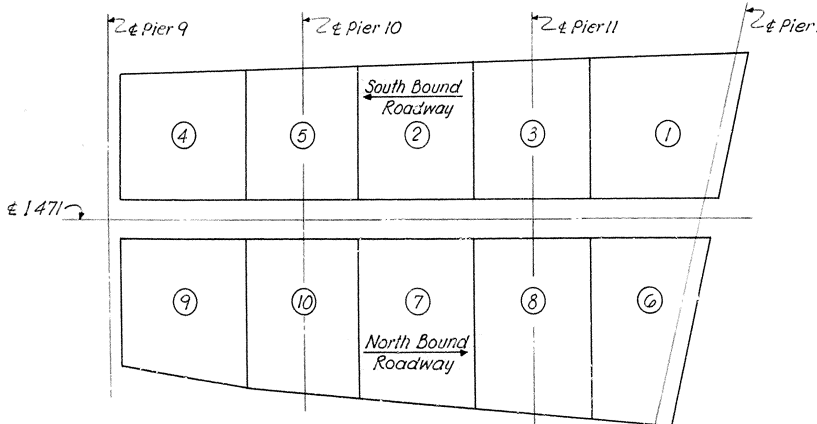
KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
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 BRIDGE OVER OHIO RIVER ON I 471
 CAMPBELL COUNTY, KENTUCKY
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 NUMBER

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NORTH BOUND ROADWAY SPANS 9 & 10

Notes:

The construction joint between the roadway slab and the parapet is mandatory. The concrete in the parapet shall not be poured until the deck has properly cured.

Modular Expansion Joints shall be erected before placing deck concrete.

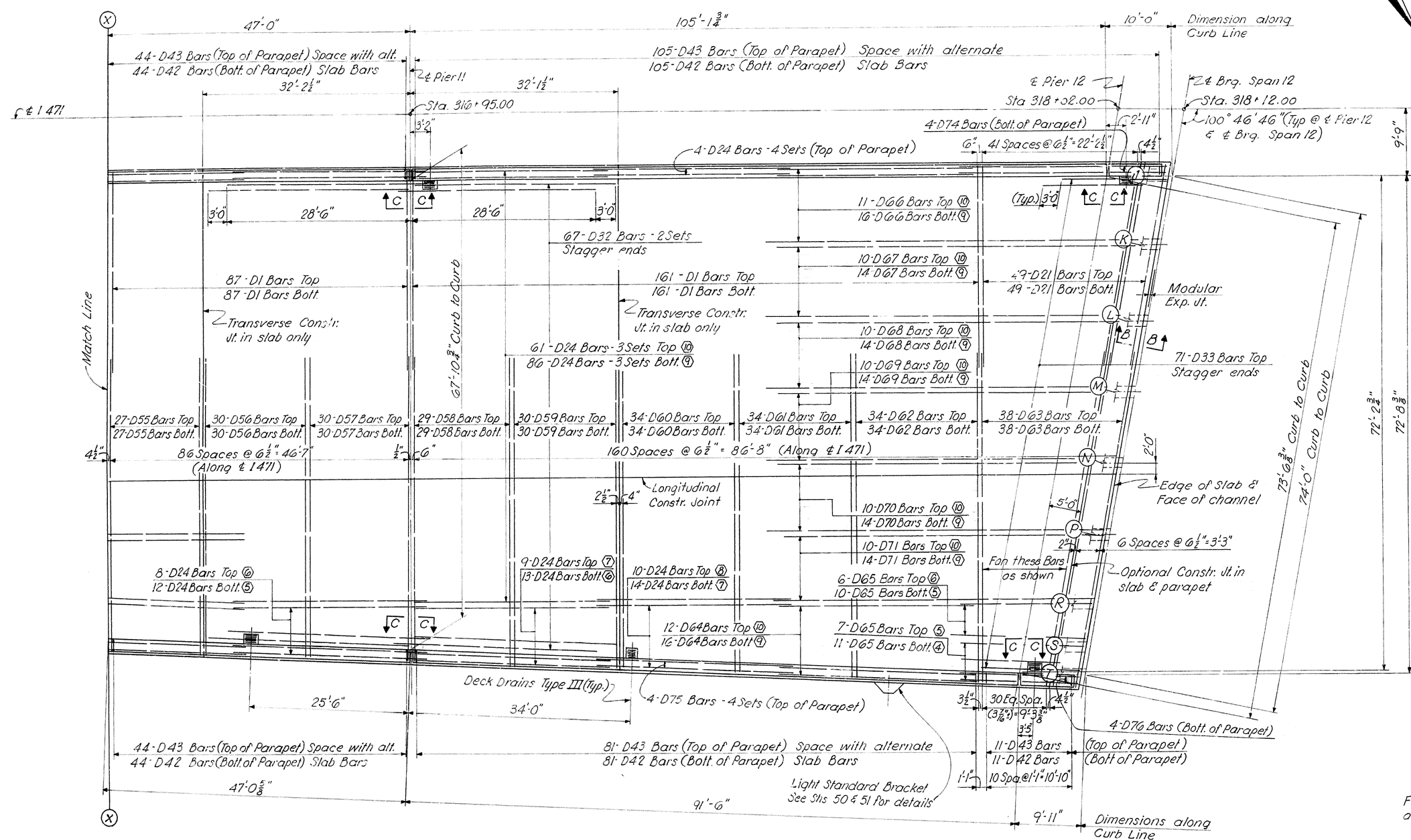
See Sheet 37 for drain details including special reinforcement.

See Sheets 41 & 42 for construction elevations.

For Section E-E See Sheet 34.
For Sections A-A & C-C See Sheet 33.
Work Sheets 32 thru 36 & 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 86

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY OHIO

HAZELET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 13486	INDEX
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For Modular Expansion Dam erection
and slab pouring note see sheet 30

For Section B-B & C-C See Sheet 33.
Work Sheets 32 thru 36 together.

SHEET 36

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

SPANS 10 AND 11 N.B.
SLAB PLAN

HAZELET & ERDAL
Consulting Engineers
File No. 839

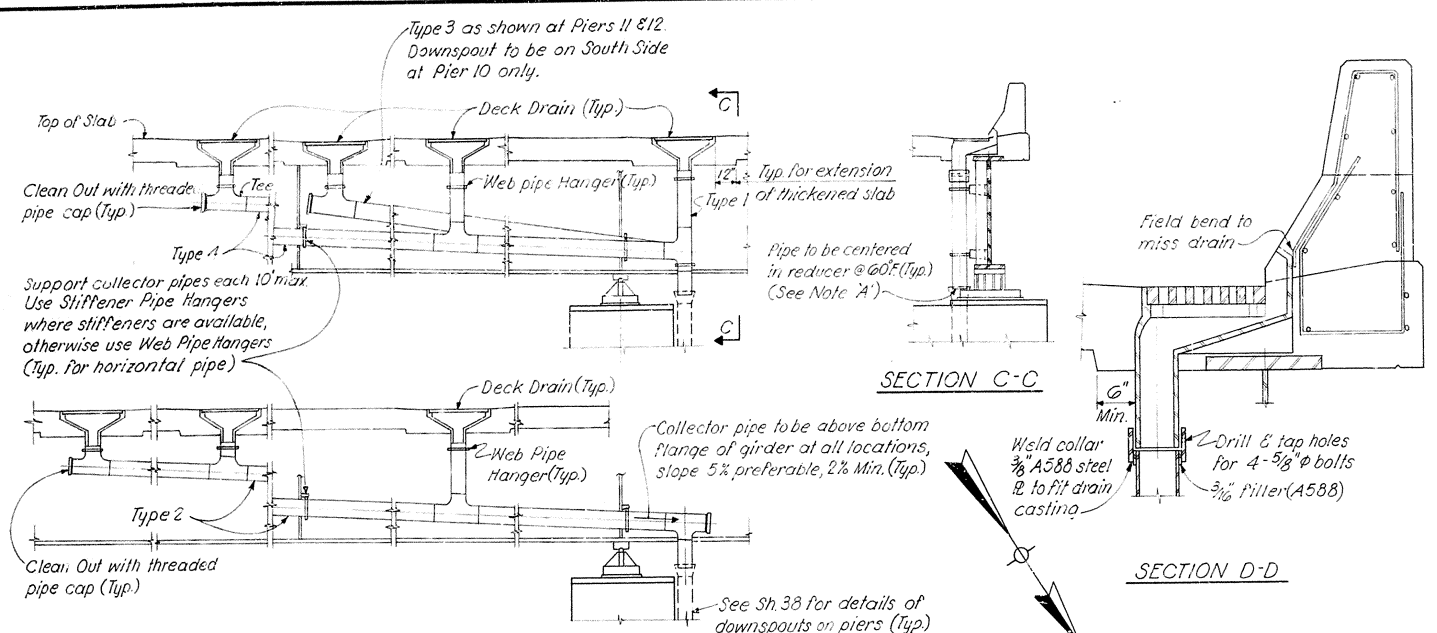
BRIDGE NUMBER	
------------------	--

DRAWING NO.
18486

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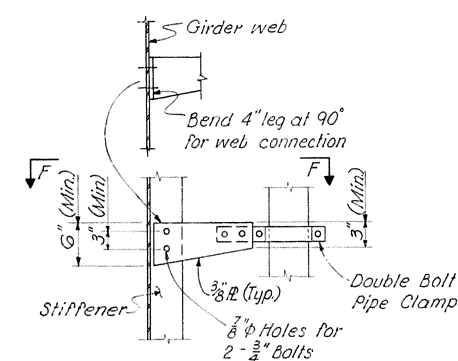
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TRAFFIC NUMBER 7130172



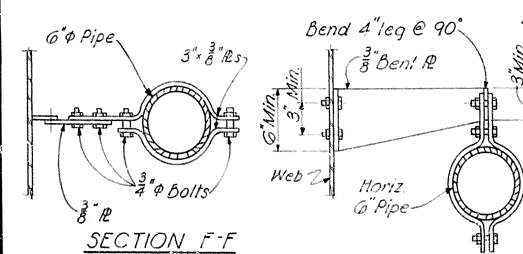
DECK DRAINAGE COLLECTOR DETAILS
See slab plans for location of deck drains.

Note A:
For temperatures other than 60°F,
adjust 0.078" per 100' for each 10°
temperature change. (Typ.)



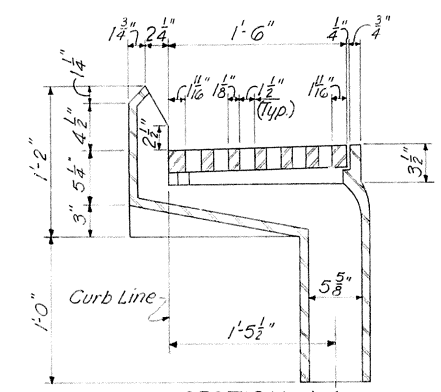
DETAIL OF PIPE HANGER

*Attach to stiffener if available,
otherwise attach to web.*

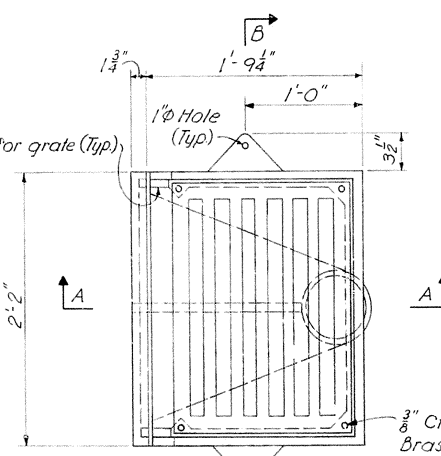


SECTION F-F

WEB PIPE HANGER

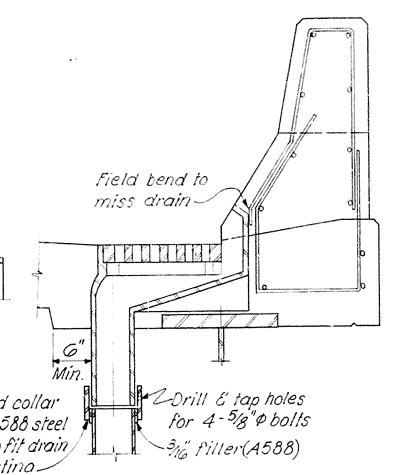


SECTION A-A

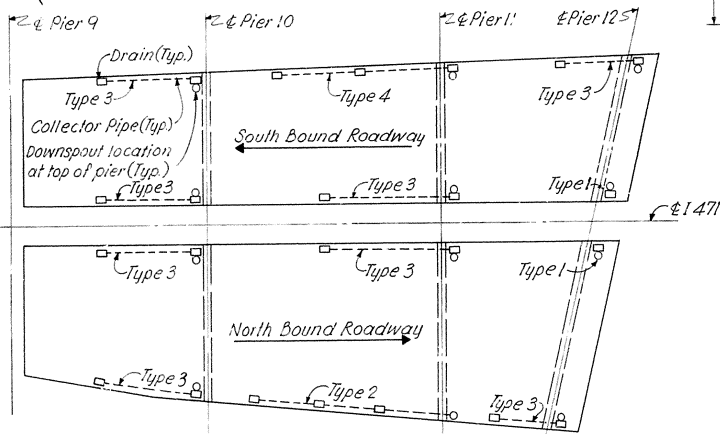


PLAN

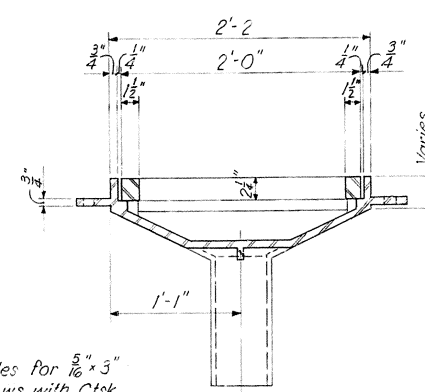
DECK DRAIN DETAILS



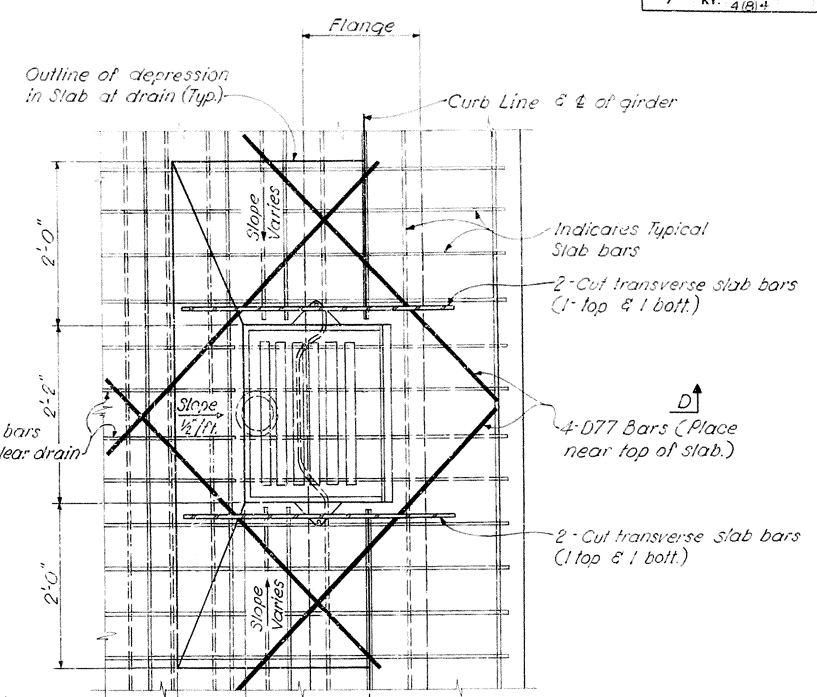
SECTION D-D



LOCATION PLAN



SECTION B-B



PLAN OF REINFORCEMENT
AT DECK DRAIN

BILL OF REINFORCEMENT					
Mark	Type	Size	No. Reqd.	Length	
				Ft.	In.
D 77	Str.	6	4	5	0

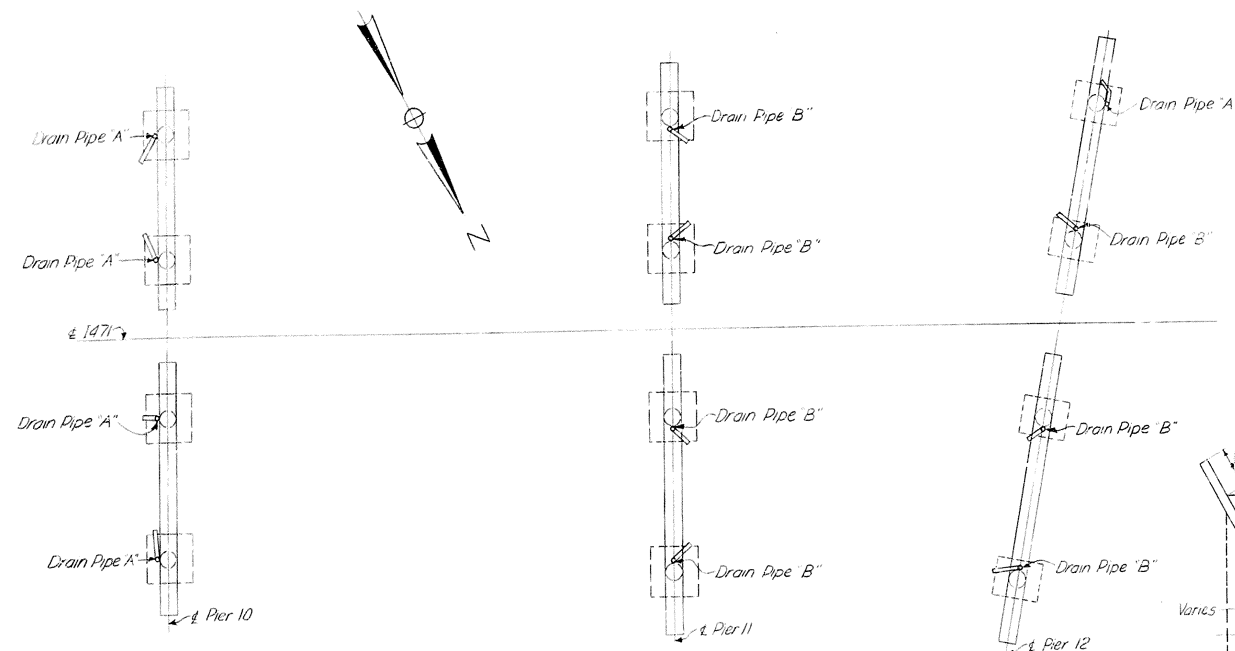
Table indicates the number of bars required for each drain installation. See Bill of Bar Reinforcement for Spans 9-11 for total No. of bars.

Foundry Notes:
Body of Drain Casting shall be Gray Cast Iron, ASTM A48 Class 30A.
Drain Grafts shall be Cast Steel, ASTM A27 Grade 70-36.
Fit grate to body and ship in place.
Report of Field Inspection of Castings, current form, shall be submitted to the laboratory of the Division of Materials.
Payment for drain castings will be included in the lump sum price of structural steel.
Painting shall be in accordance with Special Provision No. 80, current edition.
Wall thickness of castings to be $\frac{3}{4}$ " except down pipe.
Down pipe to have $\frac{1}{2}$ " wall thickness.

NOTE:
Collector pipes shall be cut and set to clear cross frames when erection of Structural Steel has been completed. See note on Sheet 25 for access hole in diaphragm D6.
For Drain Pipe notes see Sheet 2.

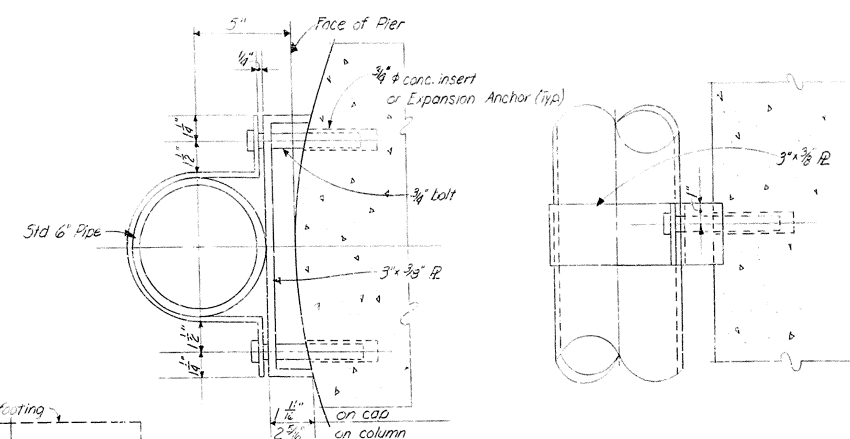
QUANTITIES		
ITEM	UNIT	TOTAL
6" ϕ Drain Pipe	L.F.	772

SPANS 9 THRU 11
DRAINAGE DETAILS

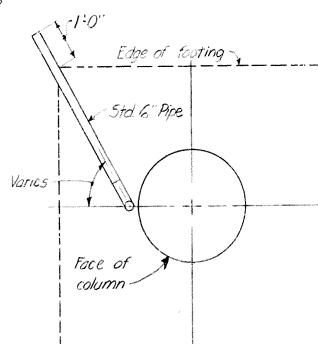


Note: Work this sheet with Sh. No. 39.

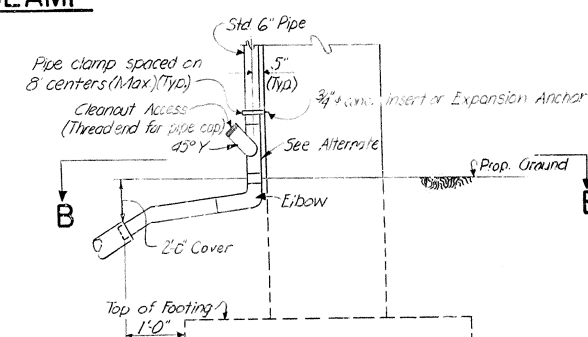
PLAN
(Piling not shown)



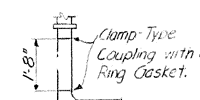
PIPE CLAMP



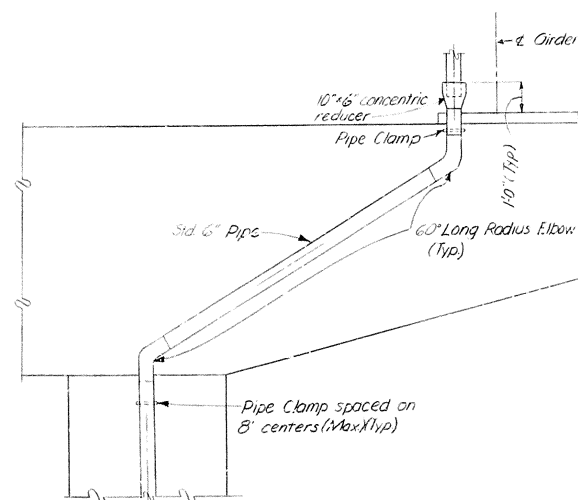
SECTION B - B



DRAINAGE AT FOOTING

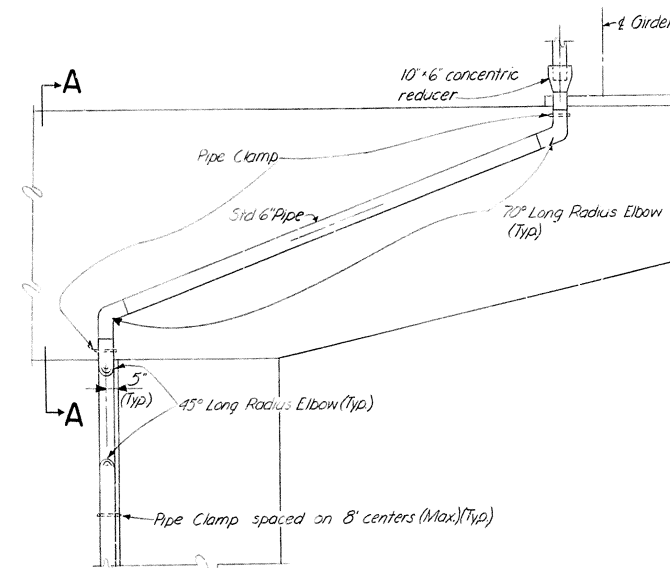


ALTERNATE DETAIL



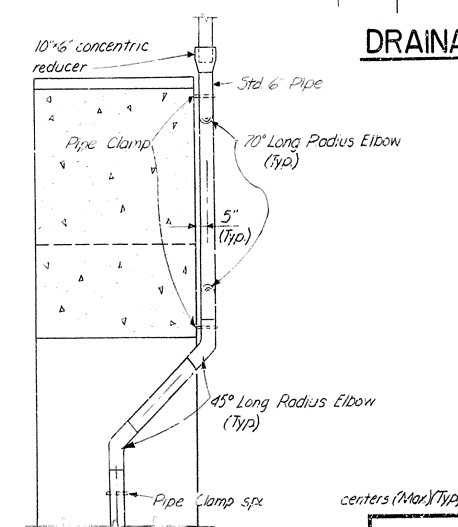
**TYPICAL DETAIL OF DOWNSPOUT
FOR TYPE "A"**

Notes: All anchoring devices for pipe drains shall be so constructed as to be rattle free and secured against rotation or translation.
All pipe shall be supported every 10' maximum horizontally and 8' maximum vertically.
Pipe shall be cut and welded to field dimensions.
All pipe connections shall be leak proof.
For Material Specifications and other notes see General Notes, Sh. No. 2.
Shop drawings are required for drainage details.
Locate all downspouts on columns as shown in Plan.



**TYPICAL DETAIL OF DOWNSPOUT
FOR TYPE "B"**

ESTIMATED QUANTITIES
6" Drain Pipe 79.3 Lin. Ft.

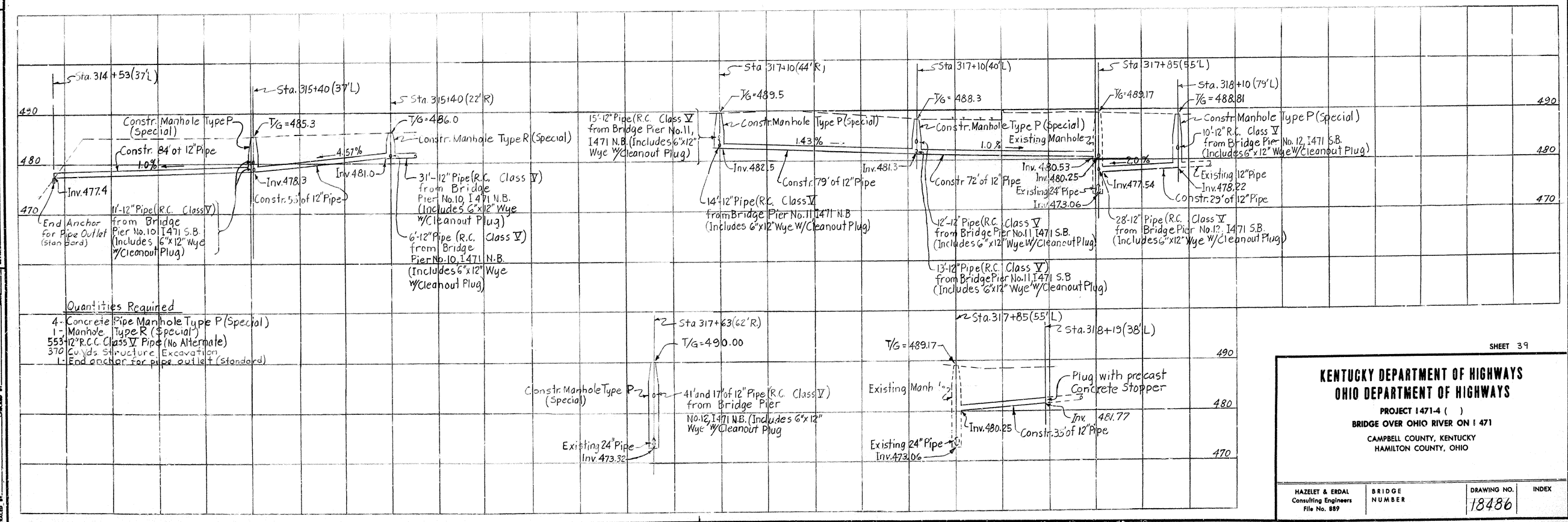
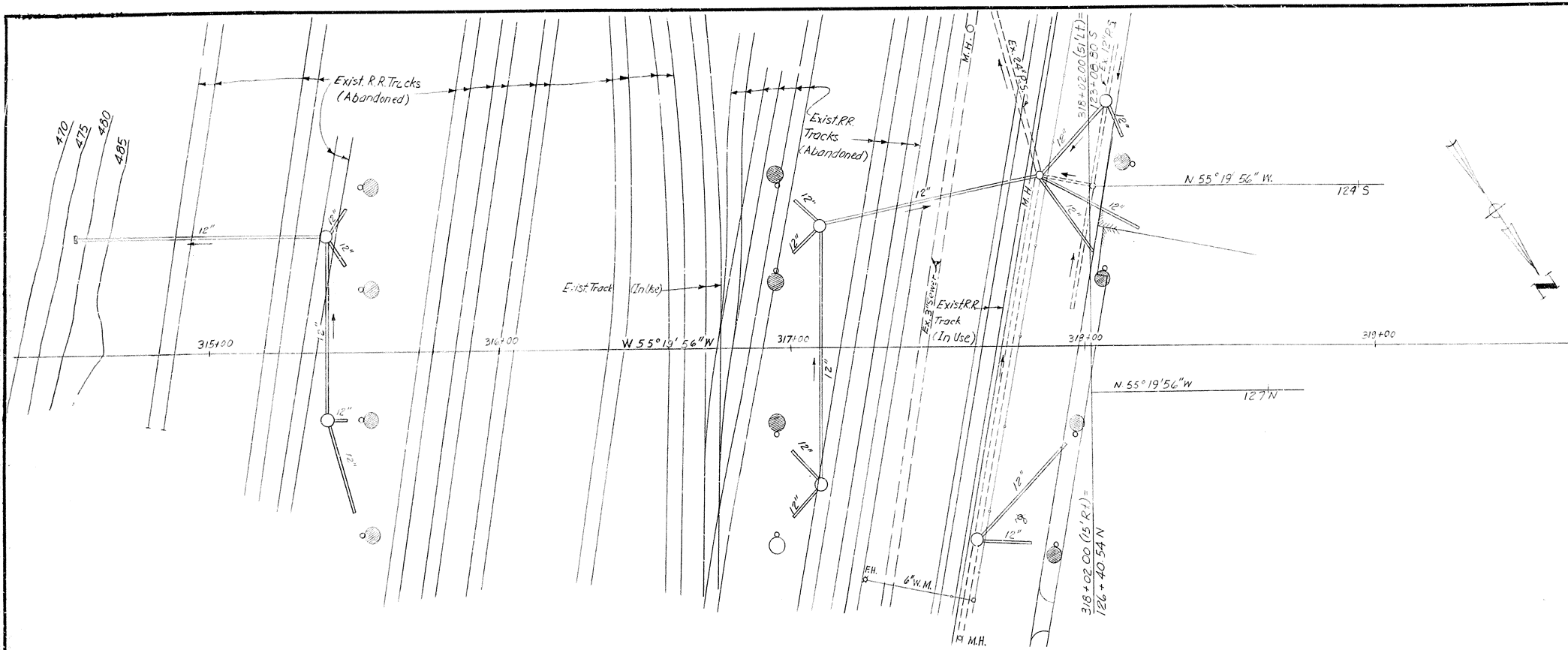


SECTION A - A

PIERS 10 THRU 12 DOWNSPOUTS

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON 1471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZLET & ENDAL Consulting Engineers File No. 389	BRIDGE NUMBER	DRAWING NO. 18486	INDEX
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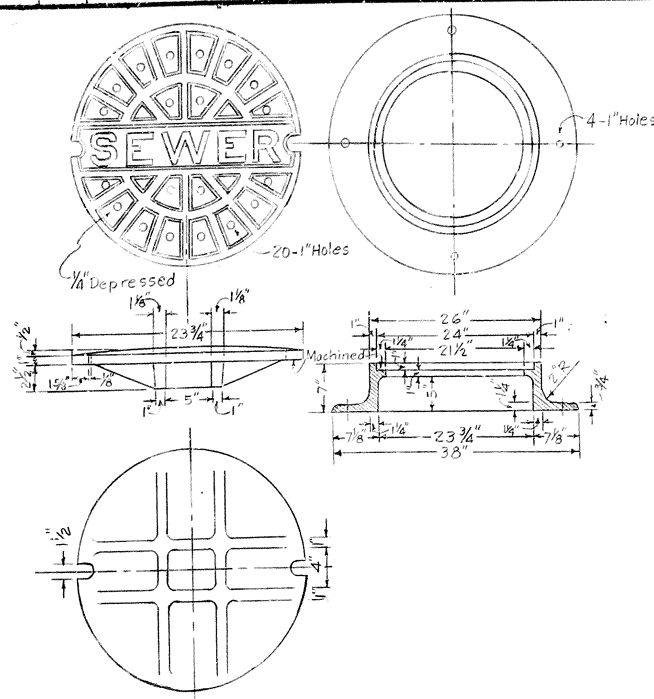


SHEET 39

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

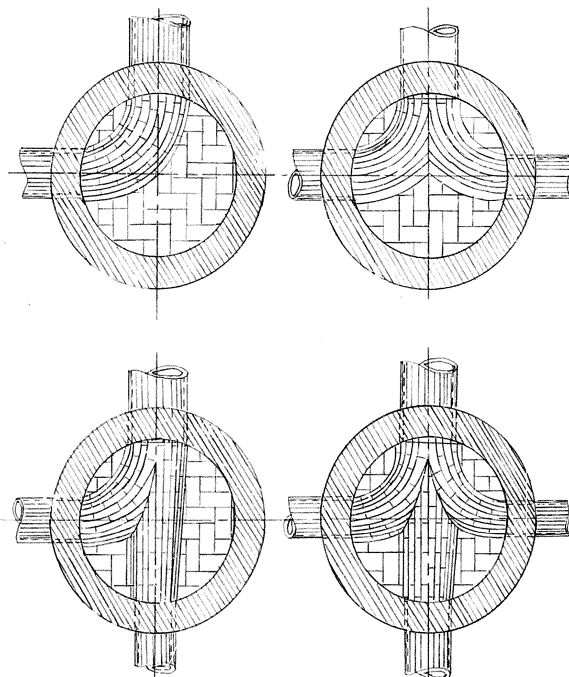
PROJECT 1471-4 ()
 BRIDGE OVER OHIO RIVER ON I 471
 CAMPBELL COUNTY, KENTUCKY
 HAMILTON COUNTY, OHIO

HAZELET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18486	INDEX
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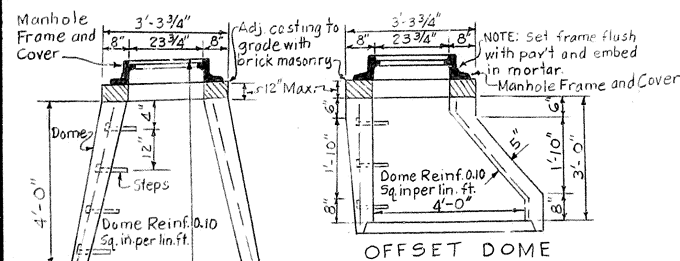


MANHOLE FRAME AND COVER

Vitrified brick shall meet the requirements of ASTM C-32 Grade 5A, with the following exceptions: Brick shall be not less than 2 1/8 inches by 3 1/2 inches by 7 1/2 inches, nor more than 2 1/2 inches by 4 inches by 8 1/2 inches in size. They shall be rectangular in cross section, of uniform dimension throughout, with straight parallel edges and square corners. The use of cored brick or brick having a depression or recess will not be permitted.



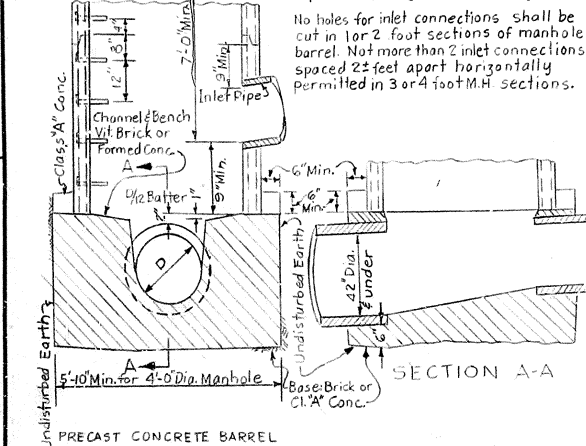
TYPICAL INVERTS



OFFSET DOME

Offset dome may be used only where permission is granted by the Engineer.

No holes for inlet connections shall be cut in for 2 foot sections of manhole barrel. Not more than 2 inlet connections spaced 2 feet apart horizontally permitted in 3 or 4 foot M.H. sections.

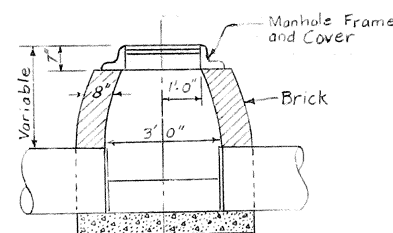


SECTION A-A

PRECAST CONCRETE BARREL

706.02, Class II Conduit - 0 to 20' Depth
706.02, Class III Conduit - 20' to 40' Depth
706.02, Class IV Conduit - Over 40' Depth

MANHOLE TYPE P (SPECIAL)



TYPE B (SPECIAL) MANHOLE

NOTE:

Channel and Bench may be made of Vitrified Brick or formed of Class "A" Concrete. Where sewer does not change size or direction at Manhole, Channel Pipe may be used.

SHEET 40

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

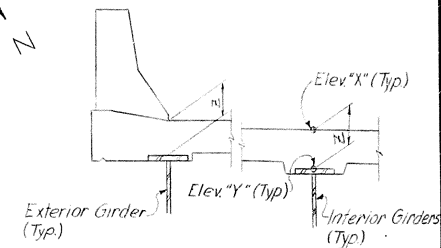
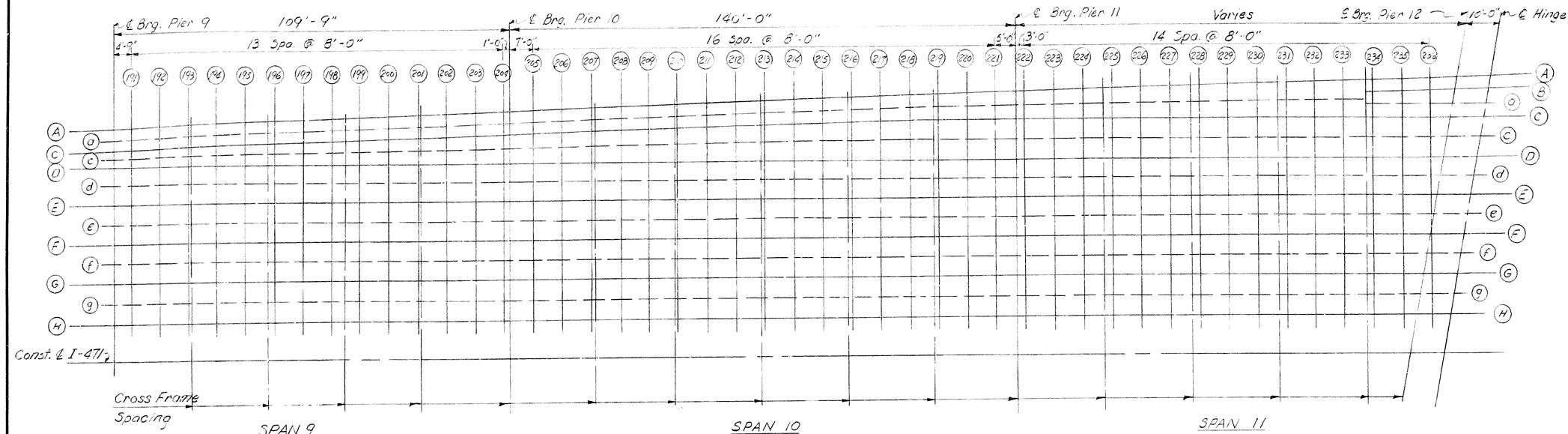
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZLET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

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INDEX



TYPICAL SECTION

TABLE OF ELEVATIONS SPANS 9, 10 & 11

Section	Gird. A			Gird. C			Gird. D			Gird. E			Gird. F			Gird. G			Gird. H			Section
	X @ Gutter	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	
E Brg.	545.124			545.219			545.284			545.444			545.518			545.358			545.198			E Brg.
191	.090			.177			.247			.409			.484			.324			.166			191
192	545.080			.109			.184			.349			.423			.263			.108			192
193	544.966			545.039			.115			.284			.359			545.045			544.978			193
194	.897			544.965			545.045			.216			.290			544.978			.827			194
195	.822			.886			544.970			.143			.217			545.057			.906			195
196	.739			.805			.892			545.064			.138			544.978			.743			196
197	.652			.719			.808			544.981			.130			.895			.634			197
198	.560			.628			.722			.894			.124			544.968			.564			198
199	.465			.536			.633			.803			.116			.716			.467			199
200	.367			.442			.542			.709			.109			.623			.374			200
201	.267			.349			.450			.616			.100			.530			.281			201
202	.171			.257			.362			.525			.100			.440			.194			202
203	544.078			.170			.278			.439			.103			.353			.112			203
204	543.991			.085			.197			.357			.272			.261			.101			204
E Brg.	.979			.074			.187			.346			.261			.261			.101			E Brg.
205	.908			544.006			.121			.279			.195			544.036			.542.036			205
206	.830			543.989			544.050			.207			.123			543.966			.541.993			206
207	.755			.856			543.981			.138			.214			544.055			.900			207
208	.684			.785			.915			.073			.169			543.990			.837			208
209	.612			.715			.850			544.007			.104			.925			.714			209
210	.542			.642			.783			543.939			.059			.859			.710			210
211	.468			.566			.711			.869			.081			.781			.643			211
212	.389			.487			.636			.795			.073			.716			.570			212
213	.307			.403			.558			.718			.069			.639			.494			213
214	.217			.315			.472			.633			.063			.553			.408			214
215	.120			.217			.379			.542			.061			.461			.322			215
216	543.015			543.112			.276			.440			.057			.360			.211			216
217	542.901			542.999			.164			.329			.046			.248			543.098			217
218	.783			.883			543.050			.213			.090			542.979			542.979			218
219	.682			.785			542.931			543.093			.169			543.010			.855			219
220	.581			.686			.819			542.971			.146			542.886			.789			220
221	.487			.595			.727			542.921			.121			.761			.602			221
E Brg.	.381			.489			.609			.768			.109			.683			.523			E Brg.
222	.286			.403			.567			.723			.097			.636			.475			222
223	.176			.284			.448			.598			.081			.510			.348			223
224	542.055			.165			.328			.473			.073			.445			.221			224
225	541.933			542.039			.204			.347			.117			.354			542.092			225
226	.806			141.911			542.075			.216			.107			542.123			541.961			226
227	.673			.776			541.938			542.081			.150			541.985			.825			227
228	.530			.635			.792			541.937			.140			542.005			.681			228
229	.439			.543			.658			541.854			.136			541.954			.527			229
230	.317			.423			.532			.645			.129			.527			.366			230
231	541.043			541.150			.296			.456			.122			.522			.355			231
232	540.860			540.970			.217			.377			.114			541.174			541.014			232
233	.673			.780			540.919			541.028			.109			540.981			540.826			233
234	.581			.688			.790			540.891			.104			540.959			.630			234
235	.480			.587			.693			.801			.100			.801			.527			235
E Brg.	539.857			.667			.775			.883			.100			.883			.527			E Brg.
E Hinge	.570			539.795			.683			.791			.100			.883			.527			E Hinge

TABLE OF ELEVATIONS FOR CONTROL OF SLAB THICKNESS

Section	Line a			Line c			Line d		
	T	B	CST	T	B	CST	T	B	CST
192	545.070			545.147			545.267		
195	544.854			544.988			545.057		
197	544.686			544.764			544.895		
200	544.465			544.492			544.686		
203	544.124			544.224			544.359		
206	543.880			543.990			544.129		
209	543.664			543.783			543.929		
212	543.438			543.562			543.716		
215	543.169			543.298			543.461		
217	542.950			543.082			542.297		
220	542.594			542.732			542.890		
223	542.230			542.366			542.523		
226	541.859			541.993			542.146		
229	541.431			541.561			541.712		
232	540.915			541.041			541.195		
235	540.307			540.444			540.601		

Section	Line e			Line f			Line g		
	T	B	CST	T	B	CST	T	B	CST
192	545.119			545.343			545.186		
195	545.273			545.137			544.982		
197	545.061			544.915			544.819		
200	544.781			544.703			544.545		
203	544.519			544.433			544.274		
206	544.287			544.203			544.045		
209	544.081			544.005			543.850		
212	543.870			543.716			543.643		
215	543.622			543.541			543.392		
217	543.409			543.328			543.173		
220	543.051			542.966			542.808		
223	542.678			542.590			542.429		
226	542.296			542.203			542.042		
229	541.866			541.765			541.610		
232	541.357			541.255			541.100		
235	540.768			540.671			540.509		

TABLE OF ELEVATIONS SPAN 11 (Cont.)

Section	Gird. A			Gird. B			Gird. C			Gird. D		
	X @ Gutter	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
234				540.506								
235				.289								
236	540.018			.067			540.163			540.316		
E Brg.				539.921								

SPANS 9 THRU 11 S.B. CONSTRUCTION ELEVATIONS

CONSTRUCTION NOTES

- 1- Lay out Sections 191-191, 192-192 etc. as shown in plan on sheets thru sheet . Center punch mark on top of girders for elevation points.
- 2- Read elevations on top of girders as erected, after diaphragms and cross frames are in place and shoring and falsework are removed but before forms are placed and deck slab, plinths, etc. are poured. These elevations are to be entered in the table as elevation "Y".
- 3- Compute Dimension "Z" (See Typical Sections) Top of concrete Elevation "X" minus Elevation "Y" equals Dimension "Z".
- 4- Always measure from top of girder to top of slab (Dimension "Z") for setting templates. DO NOT set templates by Elevation "X".
- 5- Elevation "X" includes calculated deflections due to weight of floor slab, plinths, and median.
- 6- Gutter line elevations (X @ Gutter) contain the deflections of the adjacent girder as shown in Typical Sections. Dimension "Z" will indicate the difference in elevation of the top of girder at the center punch mark and the gutter line at a point measured along the section line.

Work sheets 41 & 42 together

SHEET 41

KENTUCKY DEPARTMENT OF HIGHWAYS OHIO DEPARTMENT OF HIGHWAYS

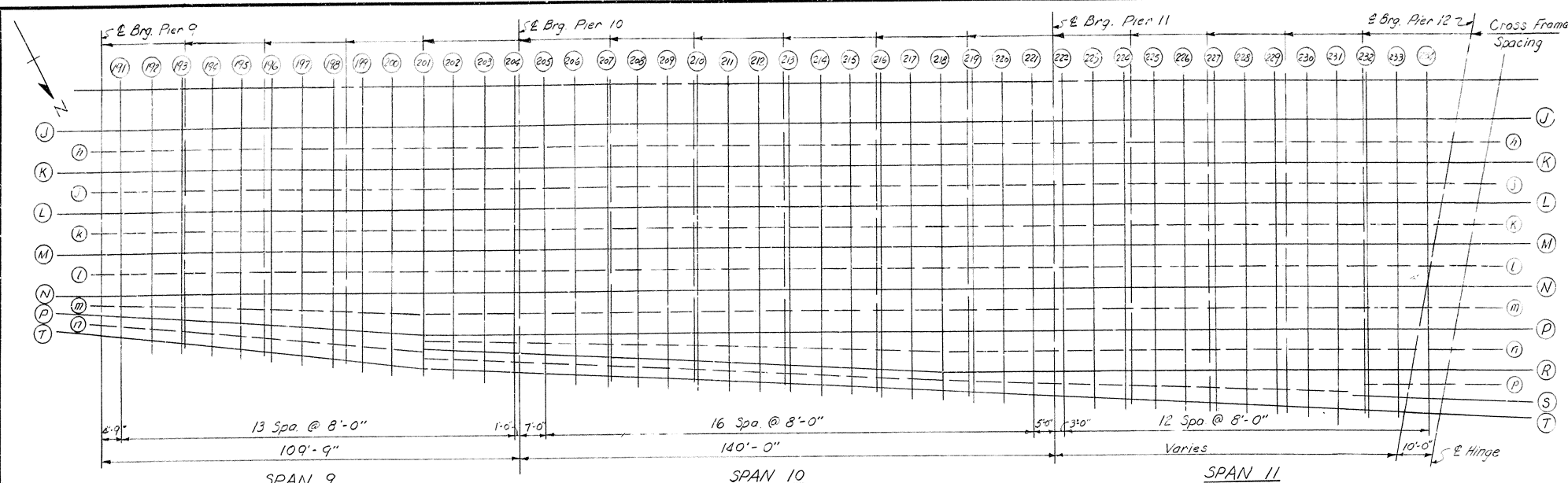
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELT & ERDAL
Consulting Engineers
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NOTES FOR TABLE OF ELEVATIONS FOR CONTROL OF SLAB THICKNESS

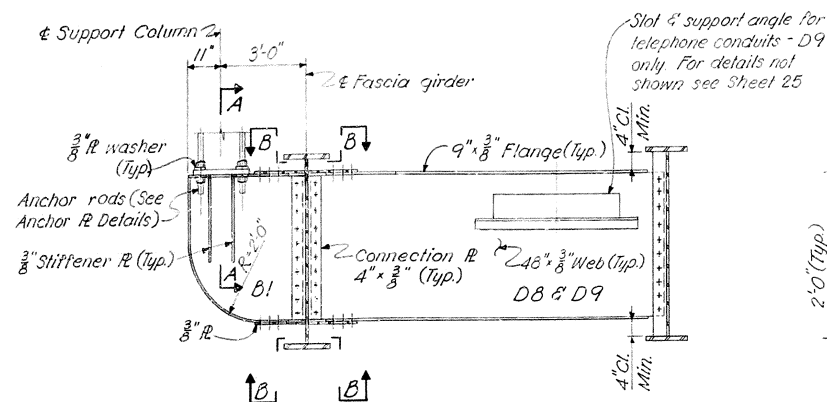
After the slab forms are erected and before the slab reinforcement is placed, the Resident Engineer shall take field elevations of the slab thickness check points and enter them in the table under column B. The slab thickness shall then be computed. If the computed slab thickness varies more than 1/4" from the plan thickness, allowing for of the slab span for deflection of the form work, the form shall be adjusted until the computed slab thickness is within the tolerance allowed.

Lines a, b, c, d, e, f, g, h, j, k, l, m, n, p and q are midway between girder lines.

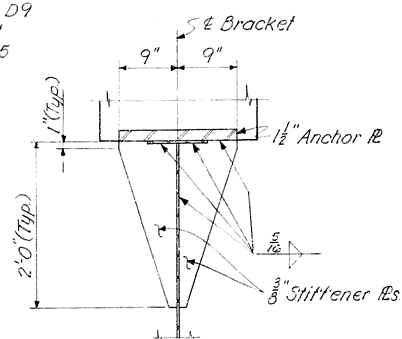
T = Top of Slab Elevation
B = Bottom of Slab Elevation
CST = Computed Slab Thickness

		TABLE OF ELEVATIONS												SPANS 9, 10 & 11																	
		GIRDER J			GIRDER K			GIRDER L			GIRDER M			GIRDER N			GIRDER P			GIRDER R			GIRDER T								
Section	X.M.Gutter	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	Section						
E 809	545.198			545.359			545.519			545.679			545.839			545.999			546.159			546.319			546.479	E 809					
191	.166			.326			.485			.644			.803			.962			1.121			1.280			1.439	191					
192	.128			.264			.425			.585			.745			.905			1.065			1.225			1.385	192					
193	545.045			.198			.359			.520			.681			.842			1.003			1.164			1.325	193					
194	544.978			.128			.289			.449			.610			.771			1.003			1.164			1.325	194					
195	.906			545.052			.213			.374			.535			.696			1.003			1.164			1.325	195					
196	.827			544.974			.135			545.058			.888			.756			1.003			.672			1.003	196					
197	.743			.891			545.052			544.975			.904			.665			1.003			.576			1.003	197					
198	.654			.803			544.964			.887			.717			.571			1.003			.475			1.003	198					
199	.564			.712			.873			.796			.627			.475			1.003			.370			1.003	199					
200	.467			.620			.781			.704			.535			.377			1.003			.262			1.003	200					
201	.374			.528			.689			.612			.444			.279			1.003			.155			1.003	201					
202	.281			.438			.599			.522			.357			.194			1.003			544.060			1.003	202					
203	.194			.352			.513			.436			.273			.112			1.003			543.967			1.003	203					
204	.112			.271			.432			.355			.194			.032			1.003			.881			1.003	204					
E 809	.101			.261			.422			.345			.185			544.024			543.945			.870			1.003	E 809					
205	544.036			.196			.357			.280			.123			543.961			.876			.801			1.003	205					
206	543.966			.126			.287			.210			544.053			.800			.800			.785			1.003	206					
207	.900			544.059			.220			.143			543.988			.827			.727			.654			1.003	207					
208	.837			543.994			.155			.078			.927			.767			.655			.586			1.003	208					
209	.774			.932			.093			544.016			.866			.704			.583			.519			1.003	209					
210	.712			.869			544.030			543.953			.801			.639			.508			.451			1.003	210					
211	.645			.800			543.961			.884			.734			.571			.451			.379			1.003	211					
212	.570			.719			.880			.803			.663			.498			.349			.301			1.003	212					
213	.494			.650			.811			.734			.593			.422			.265			.219			1.003	213					
214	.425			.587			.727			.651			.502			.338			.175			.130			1.003	214					
215	.332			.475			.635			.559			.410			.246			543.077			543.031			1.003	215					
216	.211			.372			.533			.456			.305			.142			542.971			542.924			1.003	216					
217	543.098			.260			.321			.345			.194			543.031			.876			.812			1.003	217					
218	542.979			.142			.303			.226			543.075			542.910			.736			.679			1.003	218					
219	.855			543.019			.179			543.102			542.945			.780			.612			.547			1.003	219					
220	.789			542.891			543.051			542.975			.619			.657			.491			.411			1.003	220					
221	.602			.763			542.923			.847			.688			.528			.364			.275			1.003	221					
E 809	.523			.683			.844			.767			.607			.446			.286			.189			1.003	E 809					
222	.475			.635			.793			.719			.557			.397			.237			.137			1.003	222					
223	.388			.507			.667			.588			.425			.267			542.109			541.999			1.003	223					
224	.221			.375			.531			.455			.293			.136			541.777			.861			1.003	224					
225	542.092			.246			.408			.322			.160			542.001			.844			.720			1.003	225					
226	541.961			542.111			.273			.184			542.024			541.863			.706			.575			1.003	226					
227	.825			541.973			542.131			542.042			541.881			.721			.563			.425			1.003	227					
228	.681			.826			541.981			541.894			.733			.573			.415			.270			1.003	228					
229	.527			.671			.824			.738			.579			.417			.258			541.109			1.003	229					
230	.366			.508			.658			.574			.415			.253			541.093			540.989			1.003	230					
231	.195			.338			.484			.406			.244			541.082			540.922			.763			1.003	231					
232	541.014			541.158			.305			.229			541.066			540.905			.743			.582			1.003	232					
233	540.826			540.970			541.120			541.046			540.884			.722			.561			.395			1.003	233					
234	.620			.778			540.988			540.858			—			—			—			—			1.003	234					
E 809	.368			.675			.881			.650			.735			.620			.505			.388			1.003	E 809					
E 41092	.272			.428			.639			.612			.499			.385			.271			.150			1.003	E 41092					

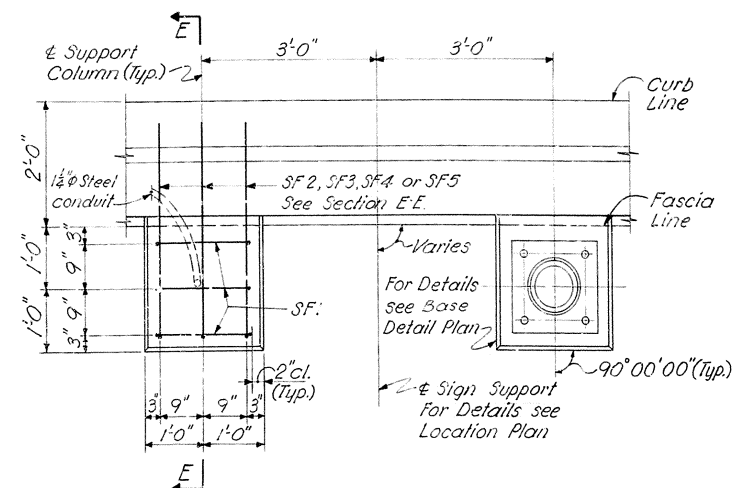
ORDER BY _____ ORDER BY <u>N.M.R.</u>	DATE _____ DATE <u>10/5/70</u>	REVISED _____ REVISED _____	DATE _____ DATE _____
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BRACKET AND DIAPHRAGM AT SIGN SUPPORT
Sign Support Brackets shall be vertical.



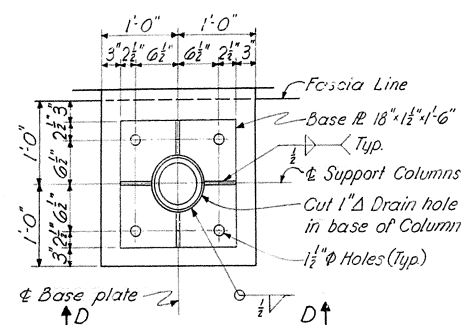
SECTION A-A



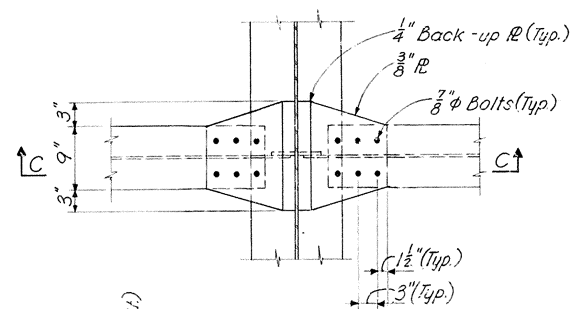
PLAN OF SIGN SUPPORT AT FASCIA

BILL OF BAR REINFORCEMENT						α		b	
MARK	TYPE	SIZE	NO.	LENGTH		ft.	in.	ft.	in.
				ft.	in.				
SF1	(25)	5	3	11	5	1	8	3	1 1/2
SF2	(29)	6	3	10	1	4	6	3	0
SF3	(28)	6	4	3	10	1	1	2	10
SF4	(28)	6	2	4	4	1	1	3	4
SF5	Str.	5	2	4	2				

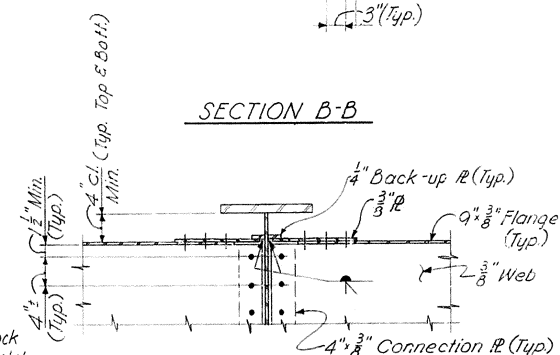
*For one Bracket only



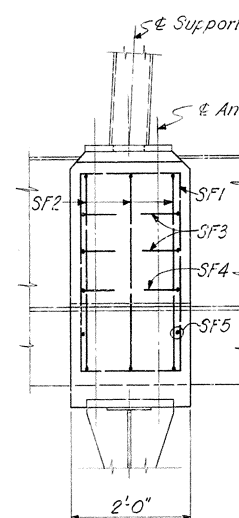
BASE DETAIL PLAN



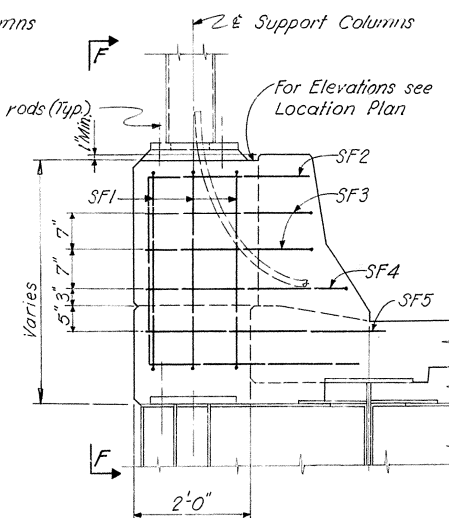
SECTION B-B



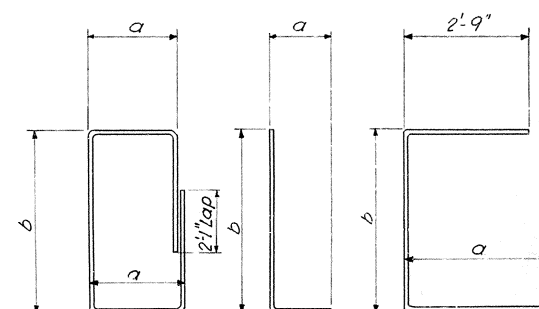
SECTION C-C



SECTION F-F



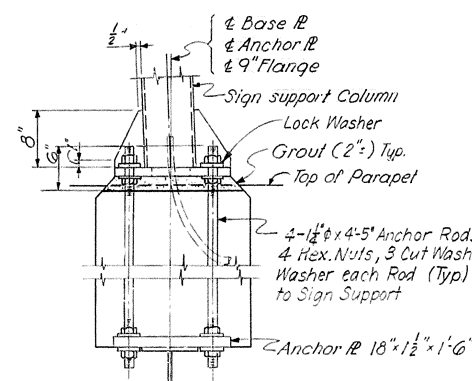
SECTION E-E



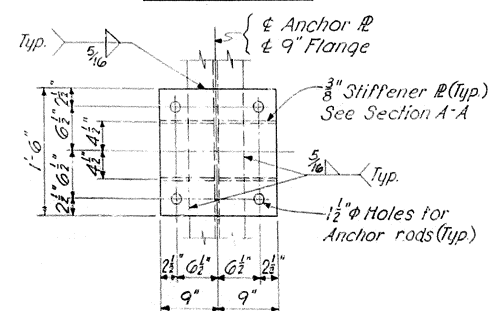
TYPE (65)

TYPE (68)

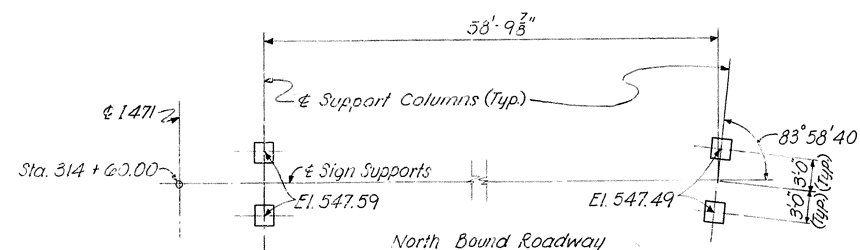
TYPE (69)



SECTION D-D



ANCHOR PLATE DETAILS



SIGN SUPPORT LOCATION PLAN

Note:
Elevations shown are at top
of brackets. See Section EE

Work sheets 43 thru 47 together:

SHEET 43

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18486

INDEX

SIGN SUPPORTS

GENERAL NOTE

SPECIFICATIONS: THE KENTUCKY DEPARTMENT OF HIGHWAYS STANDARDS AND SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION WITH REVISIONS, SHALL APPLY TO THIS PROJECT.

DESIGN: DESIGNED FOR 85 M.P.H. WIND ON A SIGN AREA OF 400 SQ. FT. IN ACCORDANCE WITH "SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS" PUBLISHED BY A.S.T.M. 1961.

LOCATION: ROADWAY STATION OF SIGN SUPPORT INDICATED ON THE PLANS IS APPROXIMATE ONLY. WHERE SHOULDER LINES ARE DIVERGING IN PLAN, IT MAY BE NECESSARY TO EXIST THE LOCATION OF THE SUPPORT IN ORDER TO MAINTAIN SIDE CLEARANCE WITHOUT CHANGING THE SPAN LENGTH. CHANGES IN STATION OF MORE THAN 30 FEET WILL REQUIRE WRITTEN APPROVAL FROM THE DIRECTOR OF TRAFFIC.

SUPERELEVATION OF ROADWAY: THE CONTRACTOR SHALL ALLOW FOR DIFFERENCES IN ELEVATION ACROSS THE FULL SHOULDER WIDTH AS SHOWN ON THE ROADWAY PLANS IN MAINTAINING THE REQUIRED 10 FOOT MINIMUM VERTICAL CLEARANCE TO THE BOTTOM OF THE LOWEST PART OF THE SIGNS OR SUPPORT. SIGNS ARE TO BE CENTERED OVER THE LANE OR LANES TO WHICH THEY APPLY UNLESS SHOWN OTHERWISE.

CONCRETE: CLASS "A" CONCRETE IS TO BE USED THROUGHOUT.

BEVELED EDGES: ALL EXPOSED CONCRETE EDGES ARE TO BE BEVELED 7/8" UNLESS OTHERWISE SHOWN.

REINFORCEMENT: DIMENSIONS FROM FACE OF CONCRETE TO BARS ARE CLEAR DISTANCES EXCEPT AS OTHERWISE SHOWN. DIMENSIONS FOR BAR SPACINGS ARE DISTANCES CENTER TO CENTER OF BARS.

SHOP DRAWINGS: THE CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS TO THE DIVISION OF CONSTRUCTION FOR APPROVAL PRIOR TO FABRICATION IN ACCORDANCE WITH THE SPECIFICATIONS.

FABRICATION: THE ALUMINUM SIGN SUPPORT SHALL BE FABRICATED IN ACCORDANCE WITH A.S.T.M. SPECIFICATIONS AND SECTION I OF PAPER 970 OF THE "JOURNAL OF THE STRUCTURAL DIVISION" PUBLISHED MAY 1956 BY THE AMERICAN SOCIETY OF CIVIL ENGINEERS.

WELDERS AND WELDING PROCEDURE: WELDED FABRICATION SHALL BE LIMITED TO THE INERT-GAS FILLED, TUNGSTEN OR CONSUMABLE ELECTRODE METHODS OF ARC WELDING. WELDING PROCEDURE, WELDERS AND WELDING OPERATORS SHALL BE QUALIFIED ACCORDING TO SECTION IX OF THE A.S.M.E. BOILER AND PRESSURE VESSEL CODE, 1962 EDITION, PART B, REQUIREMENTS FOR NON-FERROUS METALS. CERTIFIED COPIES IN TRIPLICATE OF A.S.M.E. BOILER CODE, APPENDIX II, QUALIFICATION TEST FORMS 0-1, 0-1G AND 0-1F SHALL BE SUBMITTED TO THE DEPARTMENT OF HIGHWAYS. THE PERTINENT FORMS SHALL INDICATE ACCEPTABLE QUALIFICATION OF WELDING PROCEDURES AND WELDER PERFORMANCE ON GROOVE AND FILLET WELDS.

MATERIAL SPECIFICATIONS: THE FOLLOWING A.S.T.M. DESIGNATIONS SHALL GOVERN ALL MATERIAL USED.

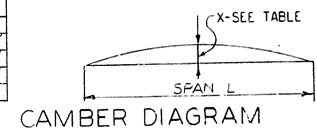
A.S.T.M.	MATERIAL
B21-65	EXTRUDED TUBE ALUMINUM ALLOY 6061 T6511
B21-65	PIPE ALUMINUM ALLOY 6061 T6
B21-65	STRUCTURAL SHAPES ALUMINUM ALLOY 6061 T6
B21-65	EXTRUDED BAR, ROD AND SHAPE ALUMINUM ALLOY 6061 T6511
B21-65	SHEET AND PLATE ALUMINUM ALLOY 6061 T6
B21-65	WELDING FILLER WIRE, ER5356
A193-65	STAINLESS STEEL HARDWARE, NUTS, BOLTS AND WASHERS
A193-65	TYPE 316 ZINCUM COATING FOR ASTM A193 ANCHOR BOLTS, NUTS AND WASHERS
B21-65	SMOOTH CASTINGS, ALUMINUM ALLOY 6061 T6
B21-65	PLAIN FINE MOLD CASTINGS ALUMINUM ALLOY 6061 T6 HEAT TREATED TO A TEMPER T6 INSTEAD OF TEMPER T61 IN ACCORDANCE WITH AASHTO M593-60

FOOTING: ALL FOOTINGS SHALL BE POURED AGAINST UNDISTURBED EARTH AND ARE DESIGNED TO TRANSFER NO MORE THAN 10 TONS PER SQUARE FOOT BEARING CAPACITY TO THE SOIL UNDER A GREEN LOADING CONDITION.

VERTICAL DIMENSIONS: VERTICAL DIMENSIONS H_R AND H_L SHALL NOT EXCEED 22' AND THE COMBINED DIMENSIONS H_R + F_R AND H_L + F_L SHALL NOT EXCEED 31' WITHOUT THE WRITTEN APPROVAL OF THE DIVISION OF BRIDGES.

MILL TEST REPORTS: NOTARIZED TEST REPORTS IN TRIPLICATE SHALL BE FURNISHED THE DEPARTMENT OF HIGHWAYS STATING THAT THE MATERIALS USED CONFORM TO THE SPECIFICATIONS.

L	X
50'	1"
55'	1 1/2"
60'	2"
65'	2 1/2"
70'	3"

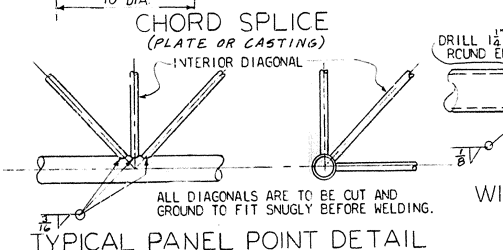
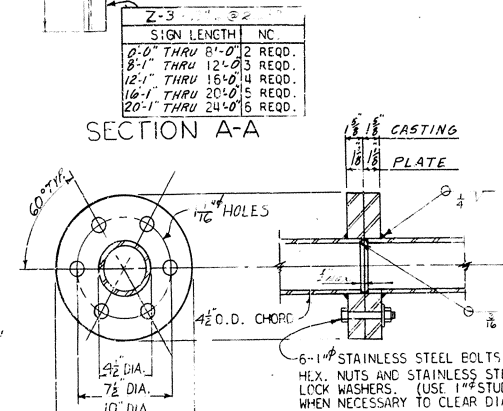
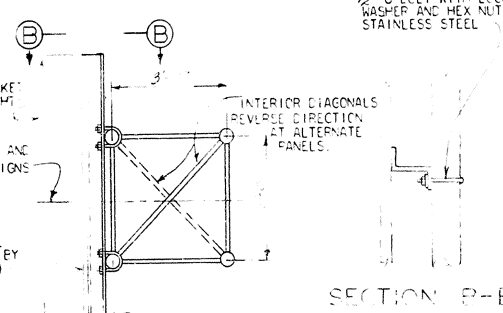
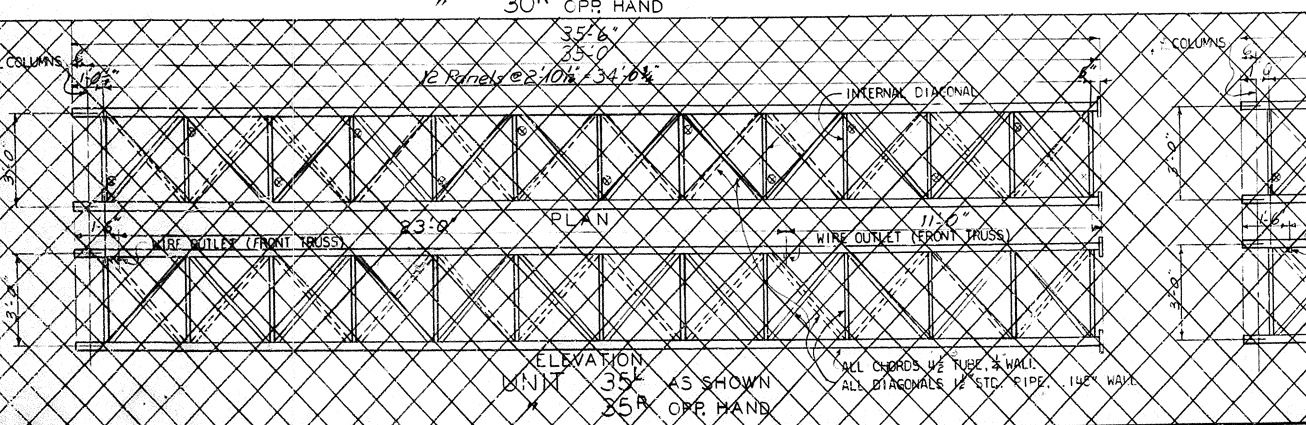
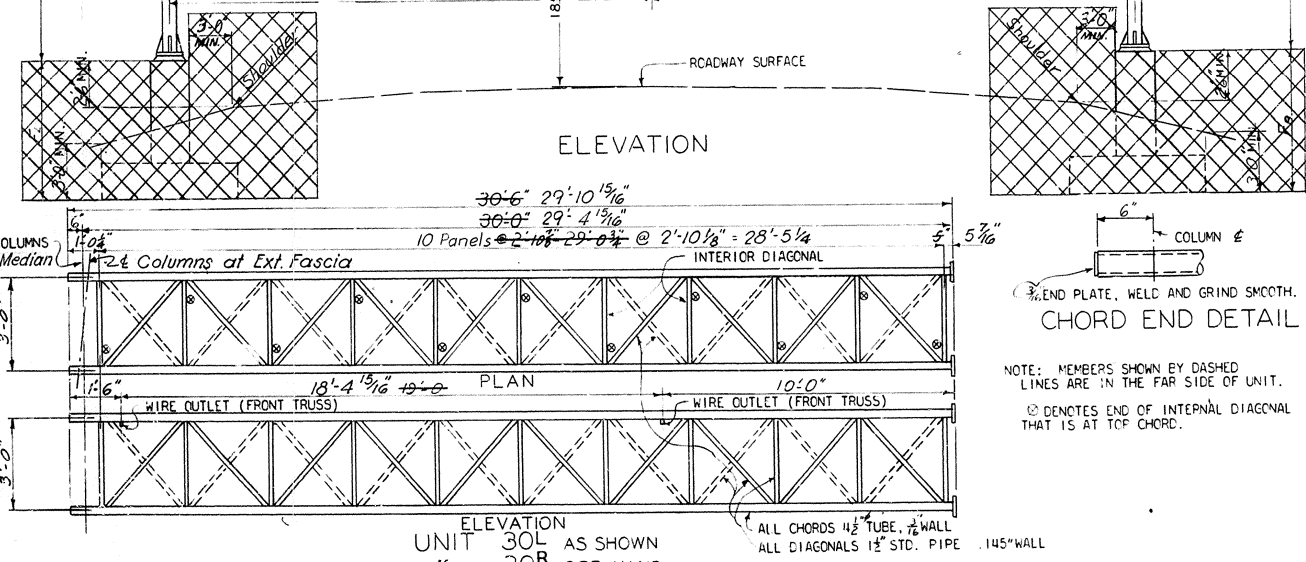
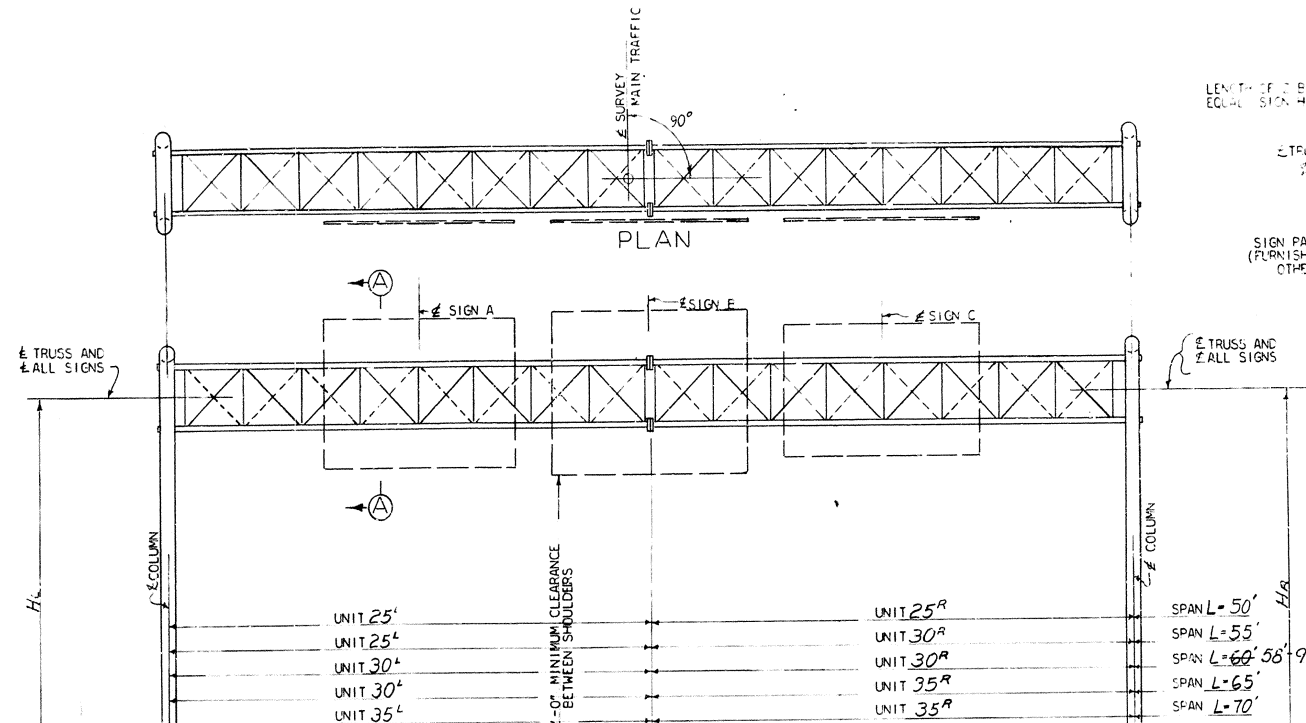


Sheet 44
Work Sheets 43 thru 47 together.

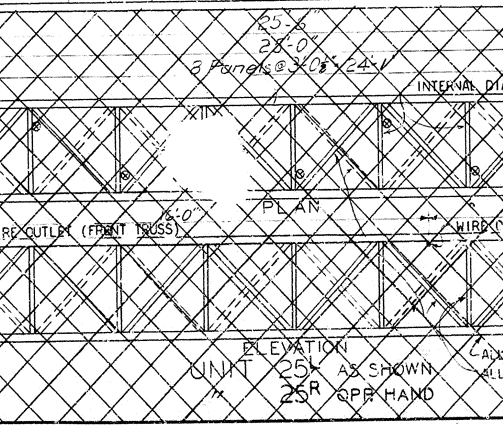
COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

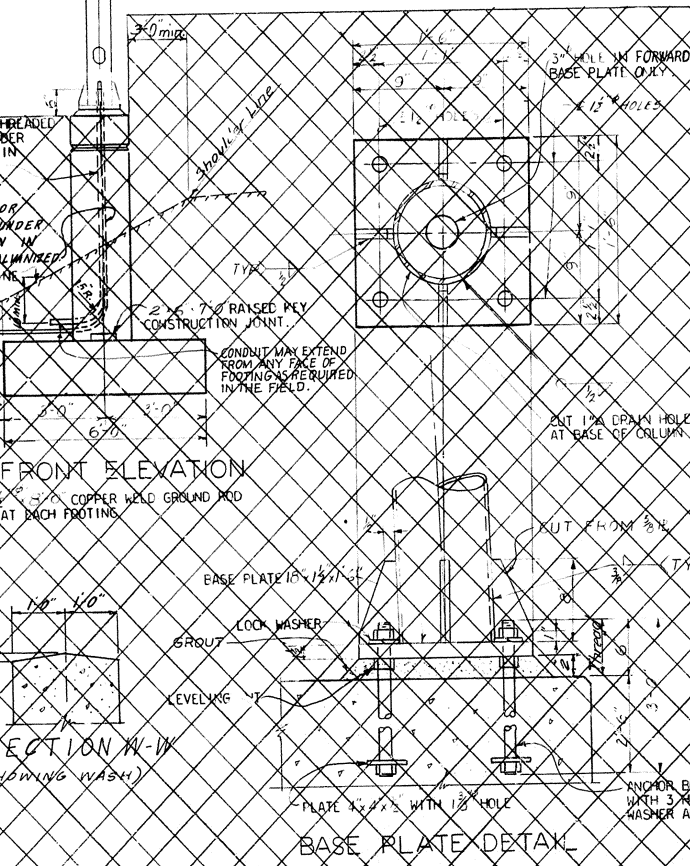
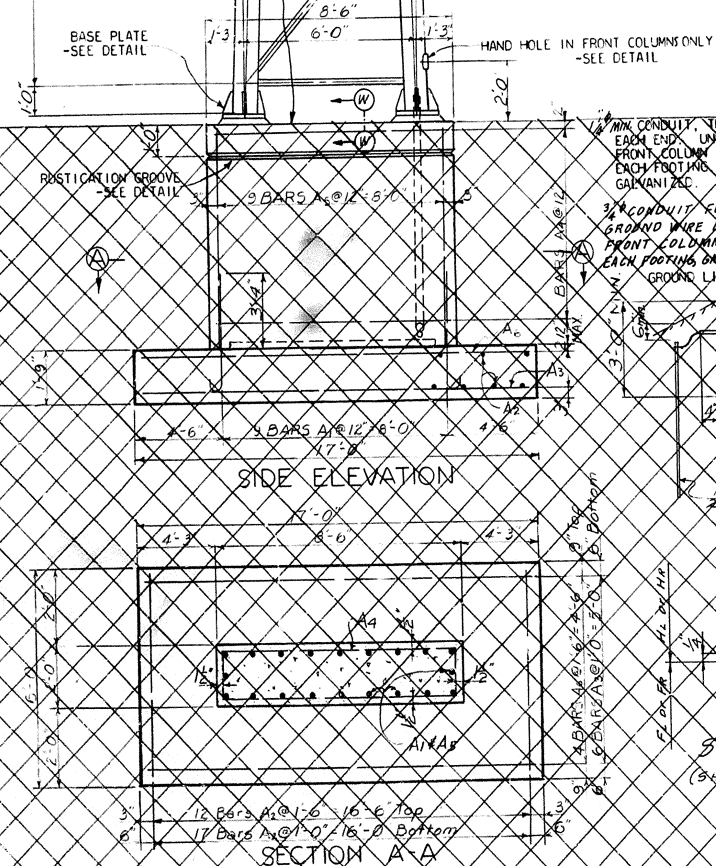
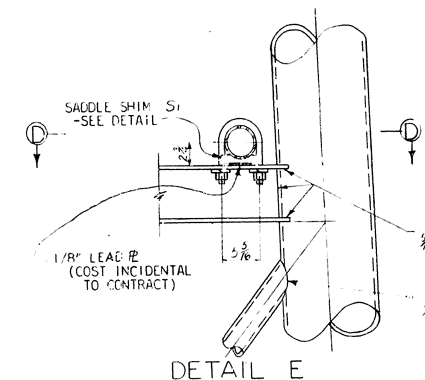
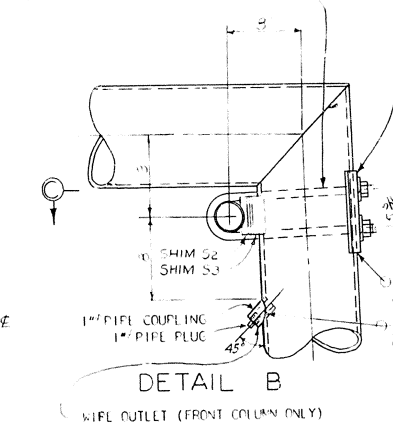
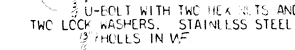
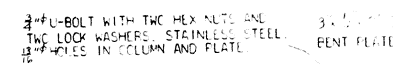
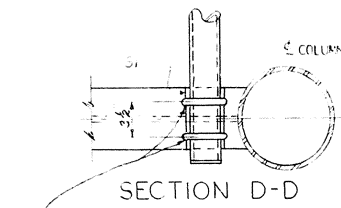
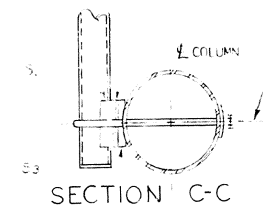
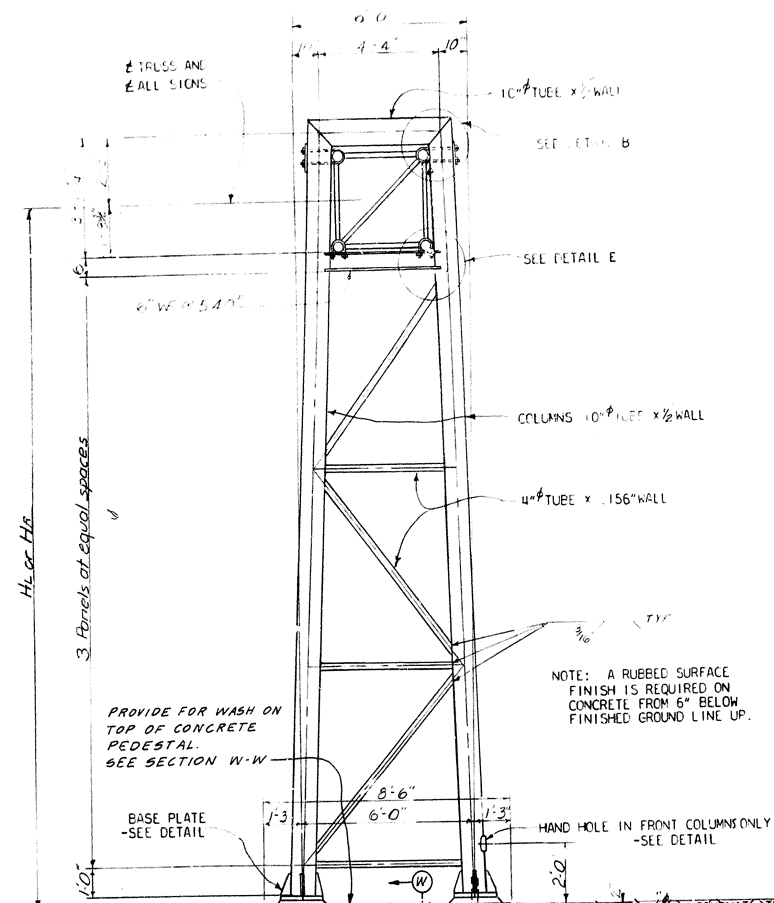
STANDARD OVERHEAD
SIGN SUPPORTS
50' TO 70' SPANS
ALUMINUM

STATION: 314+60.00 PROJECT NO. 19486
APPROVED: STATE HIGHWAY ENGINEER



SUPPORT NO.	STATION	SPAN L	SUPPORT HEIGHT	FOOTING HEIGHT
1	314+60.00	55'-9 3/8"	21'-11 1/2"	21'-10 1/4"





PER ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	5275	1942		

BILL OF REINFORCEMENT FOR ONE FOOTING

Mark	Type	No.	Size	Length	Location
A1	①	2	"6"	5' 2"	Footing and Wall
A2	Str.	29	#5	5' 2"	"
A3	Str.	8	"	16' 8"	"
A4	②	2	"6"	20' 3"	Wall
A5	Str.	29	#5	20' 3"	"
A6	Str.	4	#5	16' 8"	Footing

TYPE ①

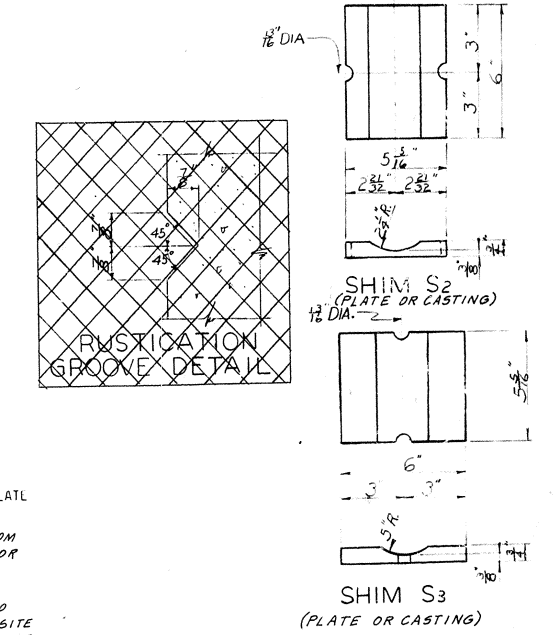
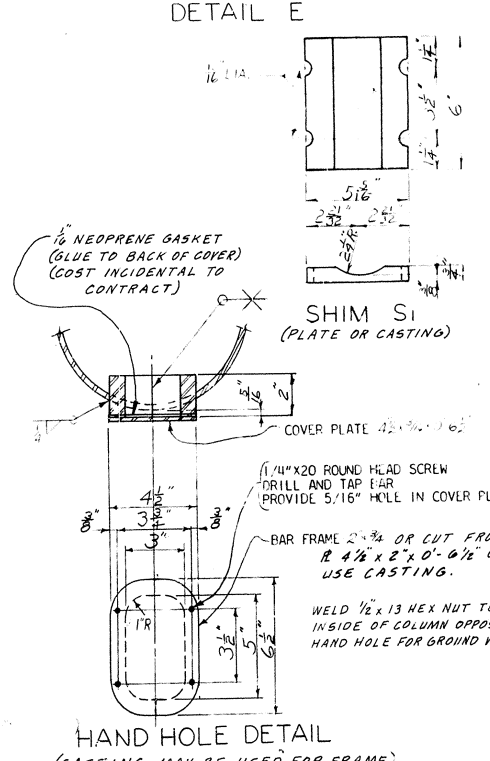
TYPE ②

* APPROX. 1% RATE IS FOR INFORMATION ONLY. F AND FD SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ESTIMATE OF QUANTITIES *

FOR ONE FOOTING

	" = 6' 0"	Additional of Wall
Concrete, Class A	3.3 Cu Yd	0.63 Cu Yd
Rebar	2.8 Lbs	75 Lbs



Work Sheets 43 thru 47 together. She

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT
STANDARD OVERHEAD
SIGN SUPPORTS
50' TO 70' SPANS.
ALUMINUM

STATION		PROJECT NO.	
APPROVED	<i>[Signature]</i> STATE HIGHWAY ENGINEER	DRAWING 13486 No.	INDEX

GENERAL NOTE

SPECIFICATIONS: THE KENTUCKY DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION WITH REVISIONS SHALL APPLY TO THIS PROJECT.

DESIGN: DESIGNED FOR 85 MPH WIND ON A SIGN AREA OF 400 SQ. FT. IN ACCORDANCE WITH ¹ SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS ² PUBLISHED BY AASHTO 196

~~LOCATION: ROADWAY STATION OF SIGN SUPPORT INDICATED ON THE PLANS IS APPROXIMATE ONLY. WHERE SHOULDER LINES ARE DIVERGING IN PLAN, IT MAY BE NECESSARY TO SHIFT THE LOCATION OF THE SUPPORT IN ORDER TO MAINTAIN SIDE CLEARANCE WITHOUT CHANGING THE SPAN LENGTH. CHANGES IN STATION OF MORE THAN 30 FEET WILL REQUIRE WRITTEN APPROVAL FROM THE DIRECTOR OF TRAFFIC.~~

SUPERELEVATION OF ROADWAY: THE CONTRACTOR SHALL ALLOW FOR DIFFERENCES IN ELEVATION ACROSS THE FULL SHOULDER WIDTH AS SHOWN ON THE ROADWAY PLANS IN MAINTAINING THE REQUIRED 16 FOOT MINIMUM VERTICAL CLEARANCE TO THE BOTTOM OF THE LOWEST PART OF THE SIGNS OR SUPPORT. SIGNS ARE TO BE CENTERED OVER THE LANE OF LANES TO WHICH THEY APPLY UNLESS SHOWN OTHERWISE.

~~CONCRETE: CLASS "A" CONCRETE IS TO BE USED THROUGHOUT.~~

~~BEVELED EDGES: ALL EXPOSED CONCRETE EDGES ARE TO BE BEVELED 7/8" UNLESS OTHERWISE SHOWN~~

~~REINFORCEMENT: DIMENSIONS FROM FACE OF CONCRETE TO BARS ARE CLEAR DISTANCES EXCEPT AS OTHERWISE SHOWN. DIMENSIONS FOR BAR SPACINGS ARE DISTANCES CENTER TO CENTER OF BARS.~~

SHOP DRAWINGS: THE CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS TO THE DIVISION OF CONSTRUCTION FOR APPROVAL PRIOR TO FABRICATION IN ACCORDANCE WITH THE SPECIFICATIONS.

FABRICATION: THE SIGN SUPPORT SHALL BE FABRICATED IN ACCORDANCE WITH THE SPECIFICATIONS. ALL METAL COMPONENTS OF THE SUPPORT EXCEPT THE STAINLESS STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED. AFTER ALL FABRICATION HAS BEEN COMPLETED, THE GALVANIZED MATERIAL SHALL BE LOADED, HAULED AND HANDLED IN SUCH A MANNER THAT THE GALVANIZING WILL NOT BE DAMAGED. ALL ABRASED AND DAMAGED SURFACES SHALL BE GALVANIZED OR REPAIRED BY PAINTING WITH TWO COATS OF ZINC OXIDE. ZINC DUST PAINT CONFORMING TO THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-PS-1515. THE PAINT IS TO BE PROPERLY COMPOUNDED IN A SUITABLE VEHICLE. IN THE RATIO OF ONE PART ZINC OXIDE TO FOUR PARTS ZINC DUST, BY WEIGHT. ALL REPAIRS ARE TO BE AS DIRECTED BY THE ENGINEER.

MILL TEST REPORTS. NOTARIZED TEST REPORTS IN TRIPPLICATE SHALL BE FURNISHED THE DEPARTMENT OF HIGHWAYS STATING THAT THE MATERIALS USED CONFORM TO THE SPECIFICATIONS.

WELDERS AND WELDING PROCEDURES. WELDED FABRICATION SHALL BE LIMITED TO THE INERT-GAS SHIELDED TUNGSTEN OR CONSUMABLE ELECTRODE METHODS OF ARC WELDING. WELDING PROCEDURE, WELDERS AND WELDING OPERATORS SHALL BE QUALIFIED ACCORDING TO SECTION IX OF THE A.S.M.E. BOILER AND PRESSURE VESSEL CODE, 1962 EDITION, PART A. REQUIREMENTS FOR FERROUS METALS. CERTIFIED COPIES IN TRIPLICATE OF THE BOILER CODE, APPENDIX I, QUALIFICATION TEST FORMS G-1, G-1C, AND G-1F SHALL BE SUBMITTED TO THE DEPARTMENT OF HIGHWAYS, THE PERFORMING ORGANIZATION, AND THE ACCEPTANCE AGENCY OF WELDING PROCEDURES AND WELDER PERFORMANCE ON GROSS AND FILLET WELDS.

MATERIAL SPECIFICATIONS: THE FOLLOWING A.S.T.M. DESIGNATIONS SHALL
GOVERN ALL MATERIALS USED:

A.S.T.M	MATERIAL
A53-65	GRADE B SEAMLESS STEEL PIPE GALVANIZED IN ACCORDANCE WITH ASTM A 123 FOR PIPE 2" AND GREATER
A36-63T	STRUCTURAL SHAPES, PLATES, BARS AND ANCHOR BOLTS GALVANIZED IN ACCORDANCE WITH ASTM A 123
A320-65	STAINLESS STEEL HARDWARE - NUTS, BOLTS AND WASHERS
A106-64	GRADE B SEAMLESS CARBON STEEL PIPE GALVANIZED IN ACCORDANCE WITH ASTM A 123 FOR PIPE LESS THAN 2"
A27-65	CARBON STEEL CASTING - GRADE 70-36

~~FOOTINGS—ALL FOOTINGS SHALL BE POURED AGAINST UNDISTURBED EARTH AND ARE DESIGNED TO TRANS-~~
~~FER NO MORE THAN 1½ TONS PER SQUARE FOOT BEARING PRESSURE TO THE SOIL UNDER ANY DESIGN~~
~~LOADING CONDITION.~~

VERTICAL DIMENSIONS: VERTICAL DIMENSIONS H_R AND H_L SHALL NOT EXCEED 23' AND THE COMBINED DIMENSIONS $(H_R + F_R)$ AND $(H_L + F_L)$ SHALL NOT EXCEED 31' WITHOUT THE WRITTEN APPROVAL OF THE DIVISION OF BRIDGES.

L	x
50°	1
55°	1
60°	1
65°	1
70°	2

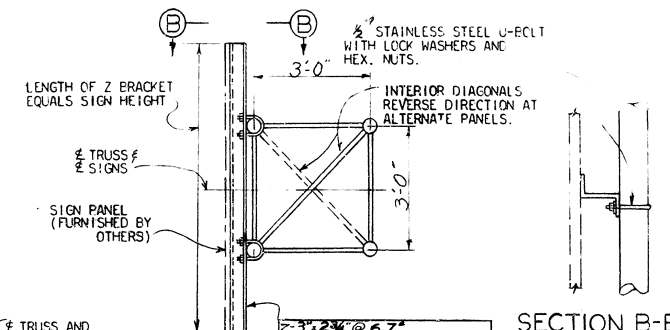
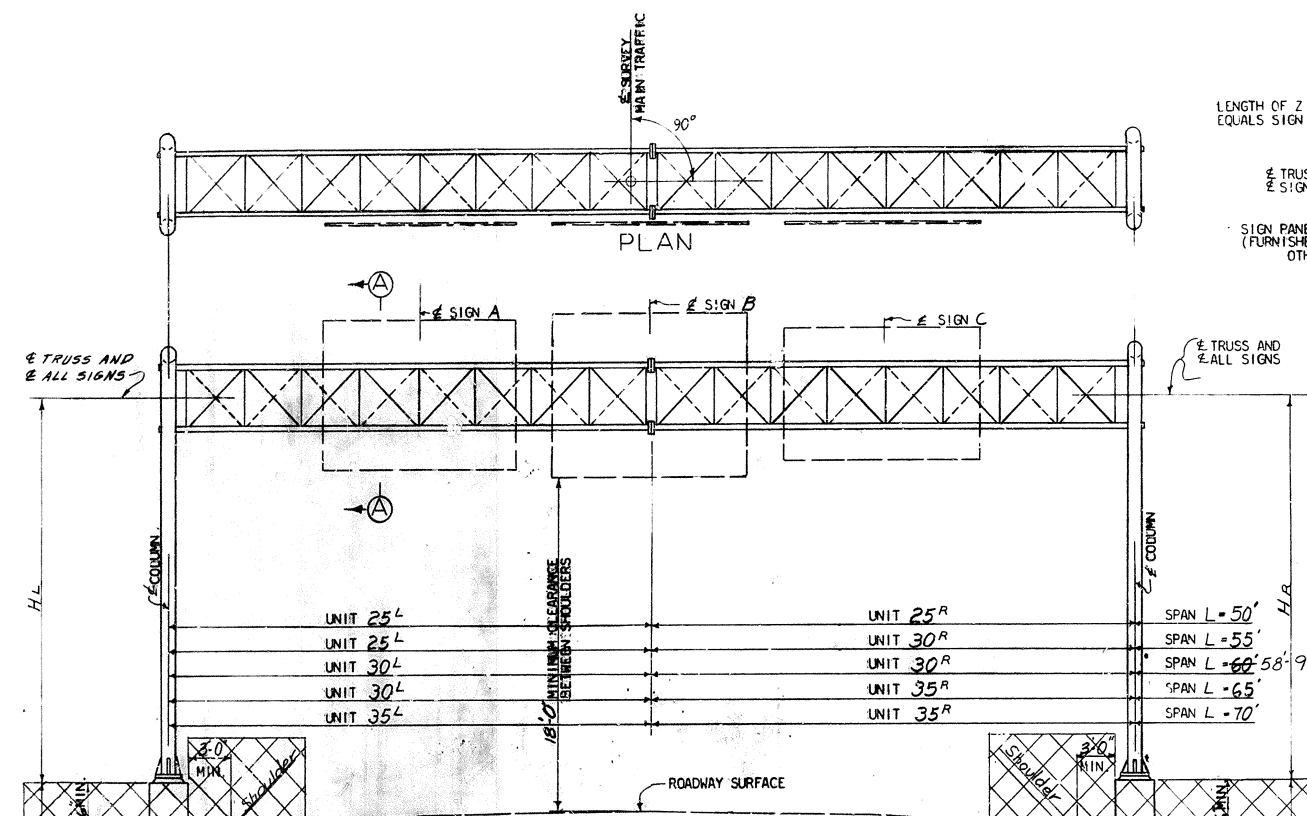
Camber Diagram

Sheet 46
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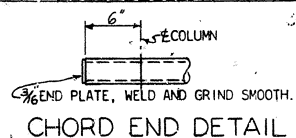
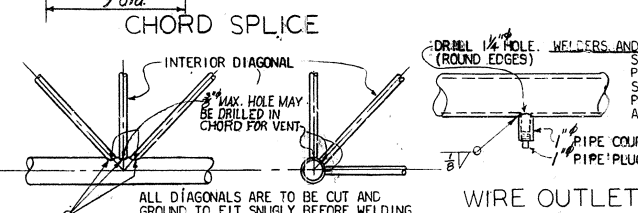
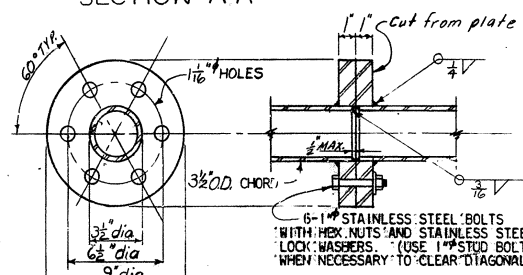
COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

STANDARD OVERHEAD
SIGN SUPPORTS
50' TO 70' SPANS
GALVANIZED STEEL

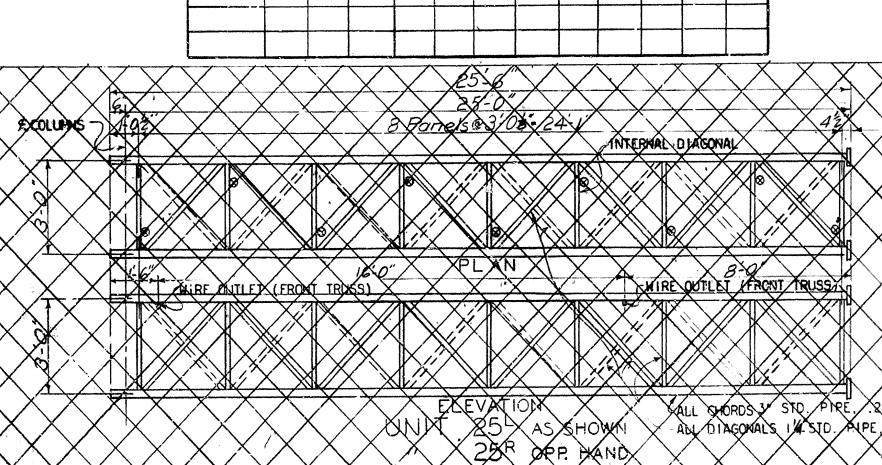
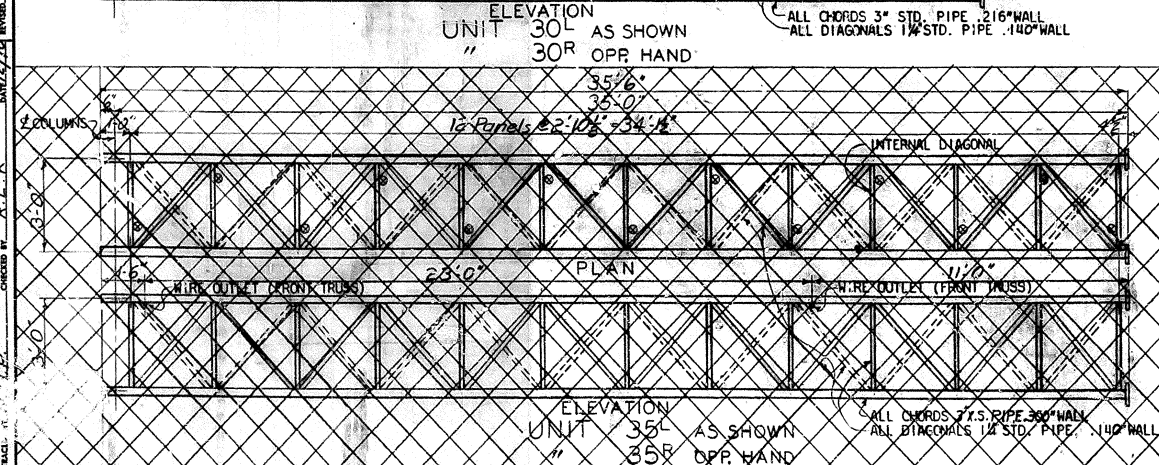
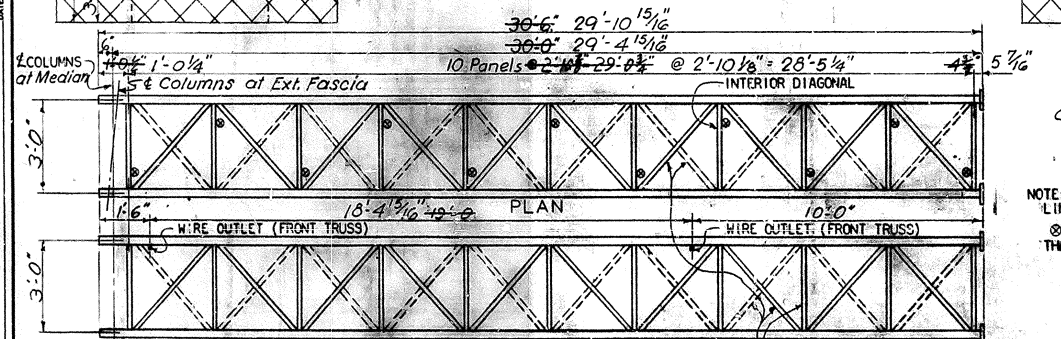
STATION	PROJECT NO.	
	DRAWING	INDEX
APPROVED	18486	
STATE HIGHWAY ENGINEER	NO.	



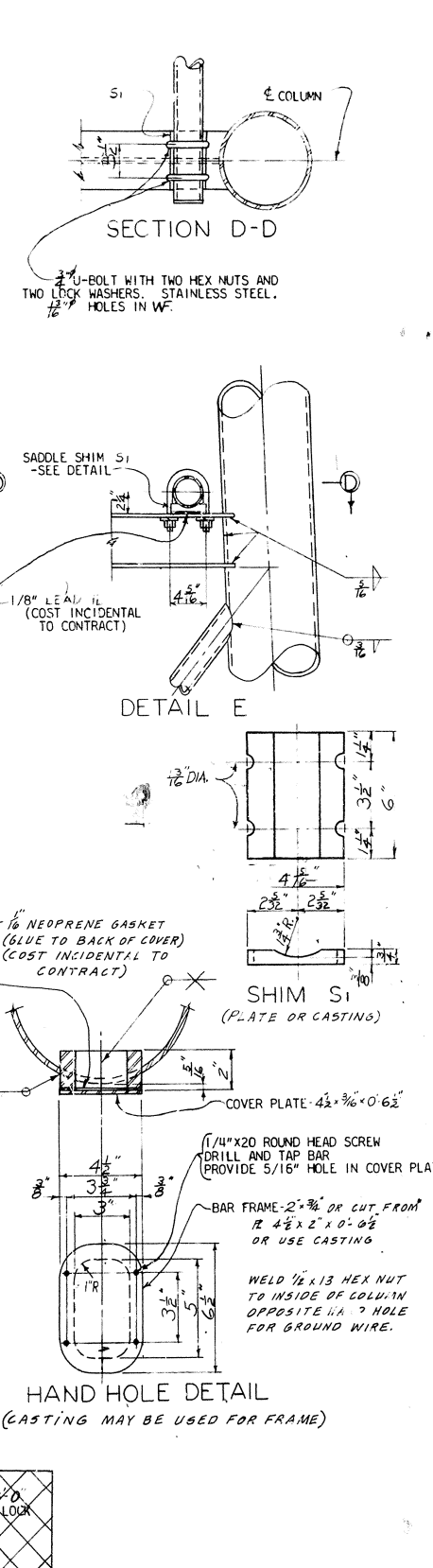
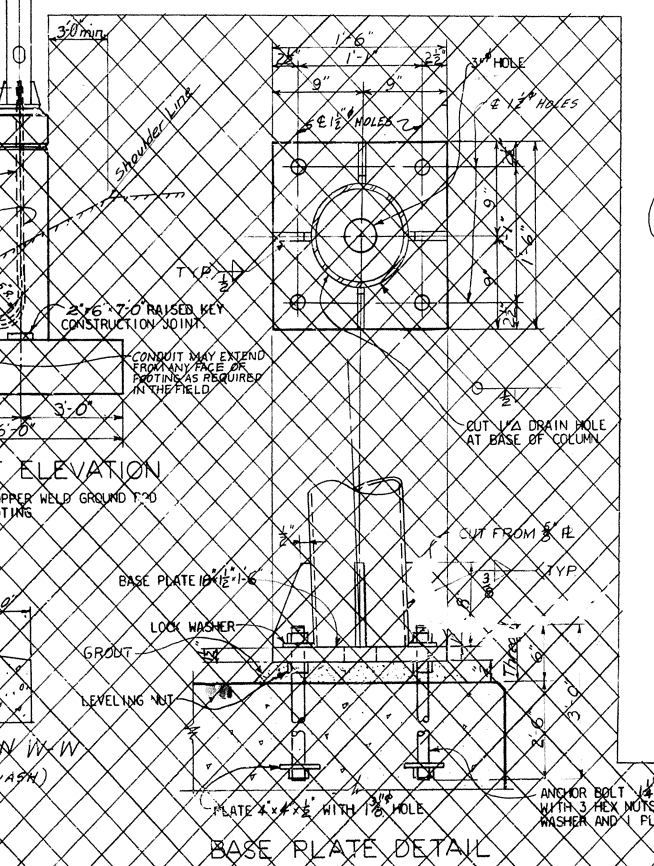
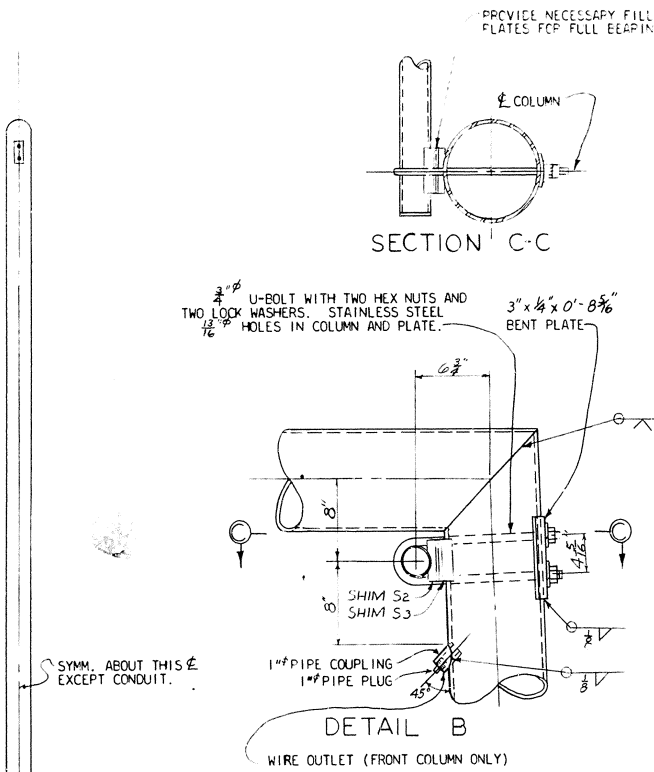
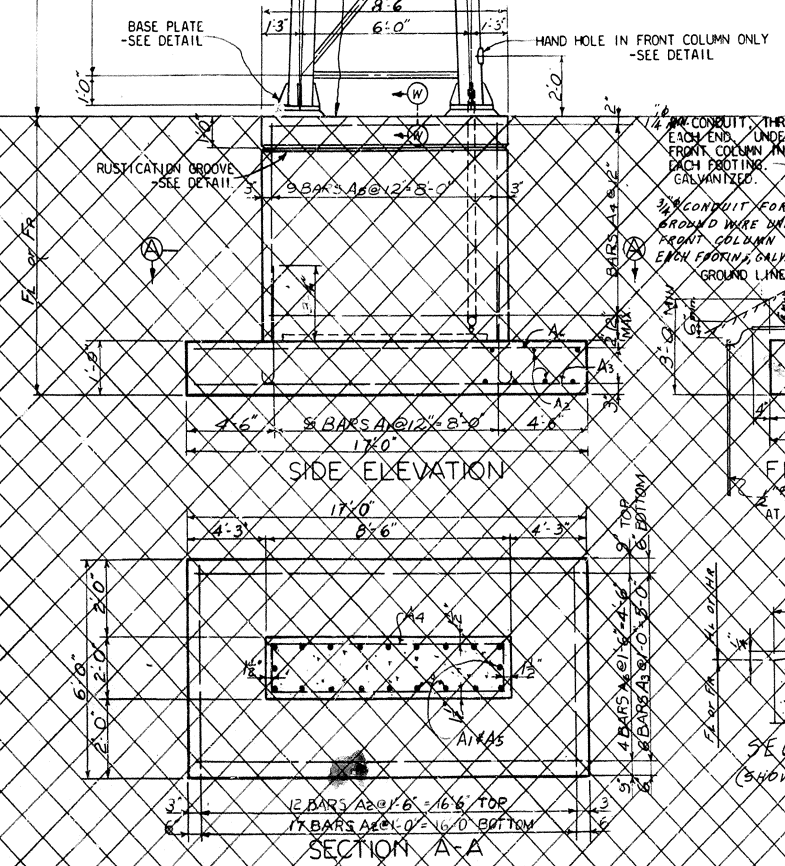
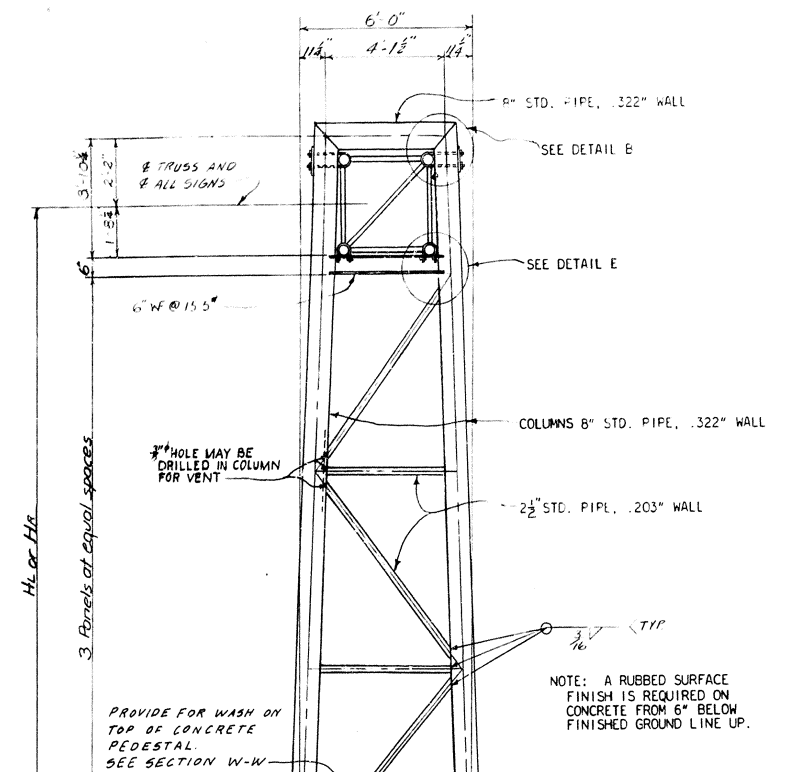
SIGN LENGTH		REQ'D
0'-0" Thru 8'-0"		2
8'-1" Thru 12'-0"		3
12'-1" Thru 16'-0"		4
16'-1" Thru 20'-0"		5
20'-1" Thru 24'-0"		6



NOTE: MEMBERS SHOWN BY DASHED
LINES ARE IN THE FAR SIDE OF UNIT.
⊗ DENOTES END OF INTERNAL DIAGONAL
THAT IS AT TOP CHORD.



DESIGNED BY: *W. J. L. L.* DATE: *11/14/44*
 CHECKED BY: *W. J. L. L.* DATE: *11/14/44*
 TRACED BY: *W. J. L. L.* DATE: *11/14/44*
 REVISIONS: *Added Casting, Changed Conduit*
 DATE: *11/14/44* BY: *W. J. L. L.*
 DATE: *11/14/44* BY: *W. J. L. L.*
 DATE: *11/14/44* BY: *W. J. L. L.*

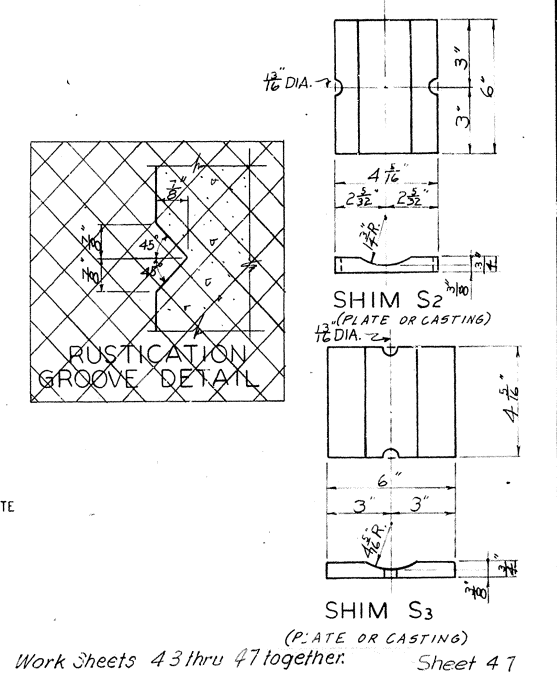


BILL OF REINFORCEMENT FOR ONE FOOTING

Mark	Type	No.	Size	Length	Location
A1	Str.	20	20	5	Footings and Wall
A2	Str.	20	20	5	Footings and Wall
A3	Str.	6	14	16	Wall
A4	Str.	4	14	20	Wall
A5	Str.	20	20	5	Footings
A6	Str.	4	14	16	Footings

ESTIMATE OF QUANTITIES FOR ONE FOOTING

Concrete Class	Class A	Class B	Additional 1' of Wall
Concrete	9.8 Cu. Yd.	9.63 Cu. Yd.	
Reinforcement	768 Lbs.	35 Lbs.	



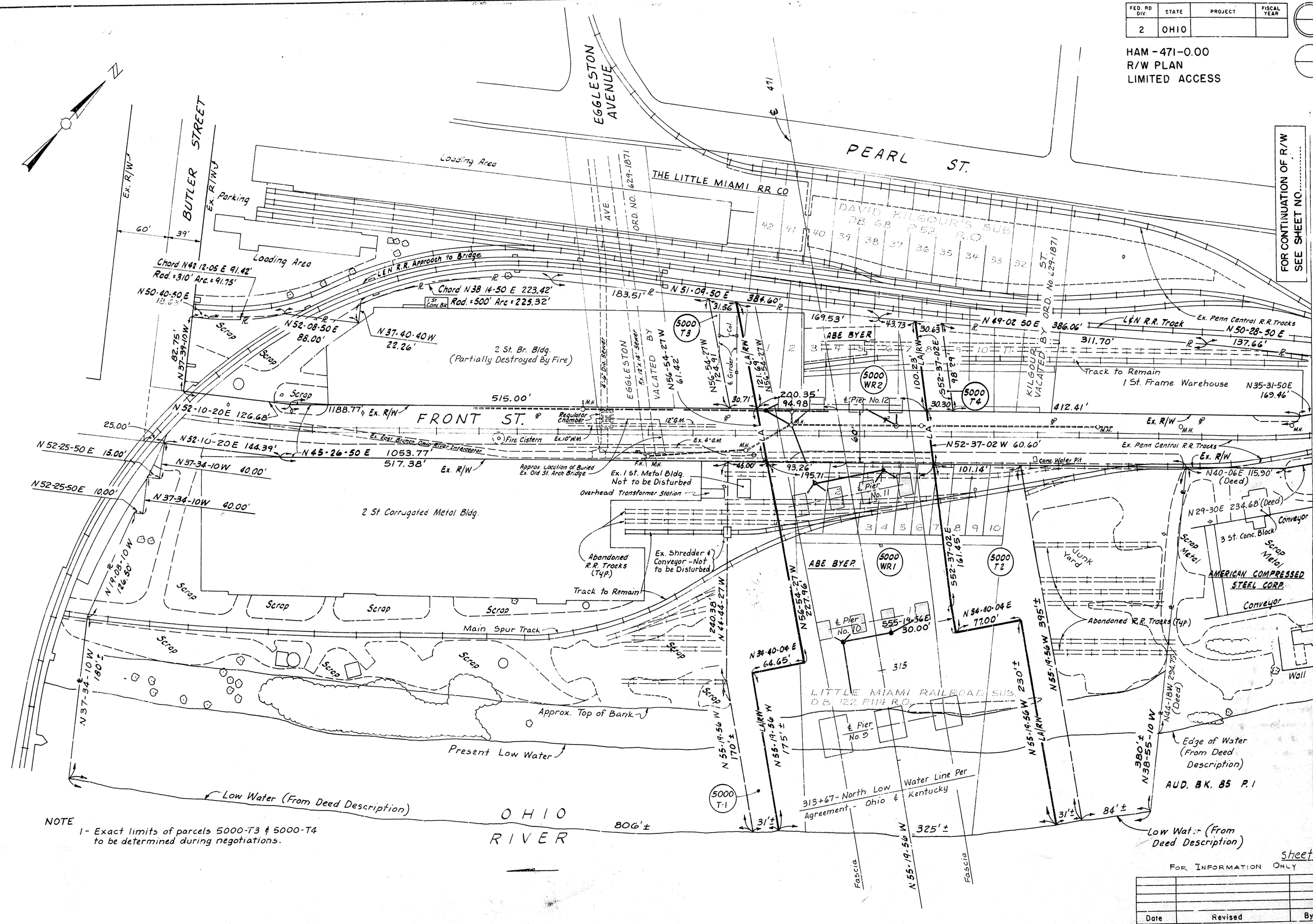
COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT
STANDARD OVERHEAD
SIGN SUPPORTS
50' TO 70' SPANS.
GALVANIZED STEEL.

STATION: *18486* PROJECT NO.: *18486*
 APPROVED: *W. J. L. L.* STATE HIGHWAY ENGINEER
 DRAWING NO.: *18486*

FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
2	OHIO		

HAM-471-0.00
R/W PLAN
LIMITED ACCESS

FOR CONTINUATION OF R/W
SEE SHEET NO.



NOTE
1- Exact limits of parcels 5000-T3 & 5000-T4
to be determined during negotiations.

SECTION 12, T. 4, F. R. 1, CINCINNATI TWP.

sheet 48

FOR INFORMATION ONLY

Date	Revised	By

RIGHT OF WAY PLAN
STA 314+00 TO STA 320+00