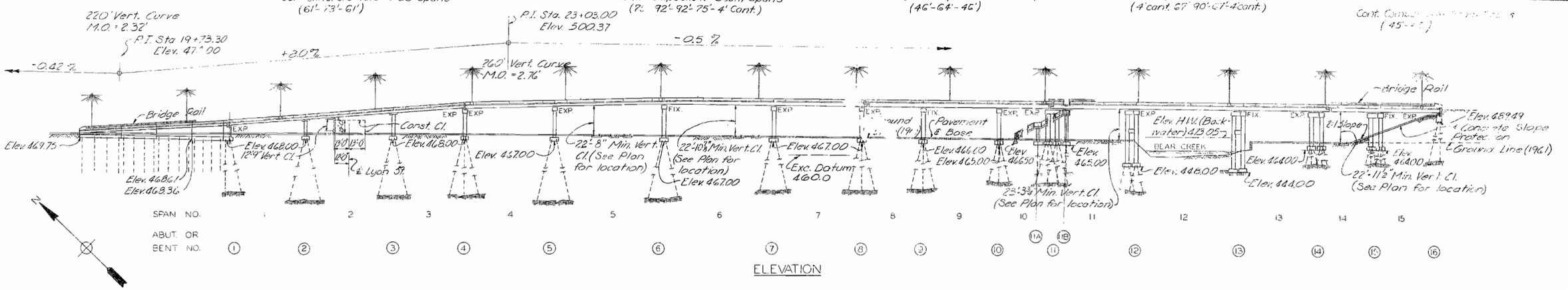
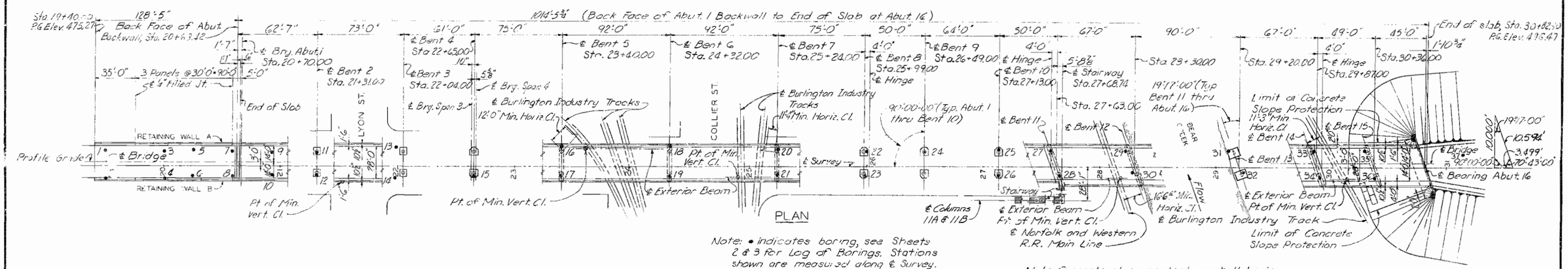
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	33	



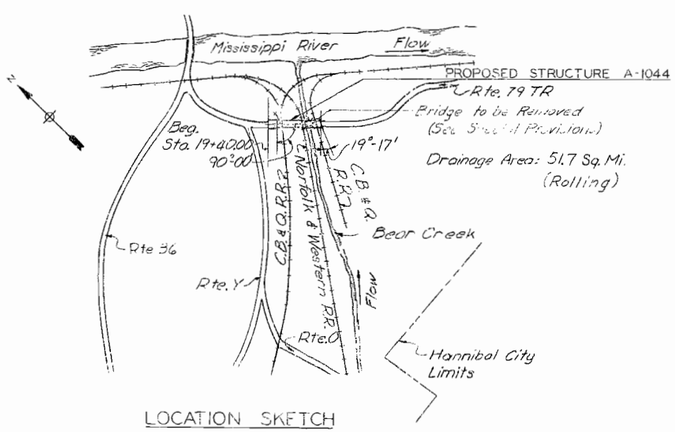
ELEVATION



PLAN

Note: • indicates boring, see Sheets 2 & 3 for Log of Borings. Stations shown are measured along ℄ Survey. Light Standards not shown in Plan.

Note: Concrete slope protection shall be in accordance with Standard Specification 83.50. Concrete Protection on front slope at Abut. 16 to be included under roadway items. Provide ½" Joints (Standard Specification 157.1.7) between slope protection pavement and Abut. 16 and columns of Bent 15.



LOCATION SKETCH

ESTIMATED QUANTITIES		RET. WALLS A & B	BRIDGE SUBSTR.	BRIDGE SUPERSTR.	BRIDGE TOTAL	TOTAL
Class 2 Excavation for Structures	Cu. Yd.		240		240	240
Class 1 Excavation for Structures	Cu. Yd.	395	620	—	620	1015
Cast in Place Piles	Lin. Ft.	2,560	—	—	—	2,560
10BP42 Steel Piles in Place	Lin. Ft.	—	5,031	—	5,031	5,031
10BP42 Steel Pile Cut-offs	Lin. Ft.	—	204	—	204	204
12BP53 Steel Piles in Place	Lin. Ft.	—	2,756	—	2,756	2,756
12BP53 Steel Pile Cut-offs	Lin. Ft.	—	114	—	114	114
Class B Concrete	Cu. Yd.	189.0	441.8	—	441.8	630.8
Class B1 Concrete	Cu. Yd.	49.2	1.8	1347.1	1348.9	1398.1
Reinforcing Steel	Lb.	17,010	95,990	389,700	485,690	502,700
Painting	Ton	—	—	300.6	300.6	300.6
Fabricated Structural Carbon Steel	Lb.	—	—	630,670	630,670	630,670
H.S. Bridge Rail (Tim. Tube Type)	Lin. Ft.	246	—	2,011	2,011	2,257
Conduit System (on Structure)	Lump Sum	—	—	1	1	1
3'-0" Guard Fence (Steel, Galvanized)	Lin. Ft.			88	88	88
4'-0 Guard Fence (Steel, Galvanized)	Lin. Ft.			14	14	14

Note: No payment for excavation will be allowed at Abutment 16. Substructure quantities include all concrete and reinforcement in footings of Bents 2, 3, 11A & 11B and in Bents 4 thru 16, except that all concrete in end post, parapets & curbs on Abut. 1 and Walls is included in superstructure concrete. All other concrete and reinforcement for the bridge and stairway included in superstructure quantities.

BENCH MARKS

B.M. "X" on curb on S. Side of Lyon St. 135' Rt. Sta. 21+83, Elev. = 474.35.
B.M. Nail & Washer in E. Root of 20" Cottonwood 330' Rt. Sta. 32+10, Elev. = 476.82.

NOTES

For General Notes and Pile Data see Sheet 2.

SUBMITTED BY: D. B. Jenkins DATE 10/1/65 BRIDGE ENGINEER

APPROVED BY: M. G. Snider DATE 10/11/65 CHIEF ENGINEER

SUBMITTED BY: Ronald E. Jones REGISTERED PROFESSIONAL ENGINEER MISSOURI NO. E-2047

BRIDGE OVER LYON & COLLIER STS., CB&Q, N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. 5-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION COUNTY

GENERAL PLAN AND ELEVATION

SHEET 1 OF 21

STD. 52.02
STD. 54.00
A-1044

DRAWN BY: S. Mazzitas June 1965
TRACED BY:
CHECKED BY:
23B4
655306

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SEE SHEET 2 FOR BRIDGE DATA

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	34	

LOG OF BORINGS

ELEV	HOLE NO. 27 Sta. 27+63 14' Lt	HOLE NO. 28 Sta. 27+63 8' Rt	HOLE NO. 29 Sta. 28+26 15' Lt	HOLE NO. 30 Sta. 28+27 5' Rt	HOLE NO. 31 Sta. 29+16 15' Lt	HOLE NO. 32 Sta. 29+22 4' Rt	HOLE NO. 33 Sta. 29+87 15' Lt	HOLE NO. 34 Sta. 29+87 9' Rt.	HOLE NO. 35 Sta. 30+34 15' Lt	HOLE NO. 36 Sta. 30+34 9' Rt	HOLE NO. 37 Sta. 31+18 9' Lt	ELEV
475	470.5	470.4		470.6	471.0	471.0	470.5	470.5	470.4	470.3	471.0	475
465	Pavement & base	Pavement & base	470.6	Pavement & base	Bridge floor to ground	Floor	Pavement & base	Pavement & base & fill	Pavement & base	Pavement & base	Br loam	465
455	Bldrs & gravel	Gr clay alluvium	Backfill	Back fill	Gr silty alluvium	Air	Cinder backfill	Dk clay, firm	Cinder backfill	Dk loam Clay, tough	Gr silty alluvium	455
445	Gravel	Chert gravel, open	Bldrs	Gr soft silty alluvium with bldrs	Bldrs	Alluvium	Soft gr silty alluvium	Hard rock	Soft gr silty alluvium, free water	Firm gr shale	Hard shale	445
435			Gr silty alluvium, soft and wet	Sandy alluvium	Sandy silt	Concrete, old abutment	Gr firm clay	Rock 441.8	Clay & bldrs	Hard shale	Shale 442.5	435
425	Bldrs		Bldrs in gr sandy silt	Wshale or tough clay	Gravel	Soft alluvium	Gr shale, firm		Firm gr dry silty shale	Shale 442.3		425
415	Clay & Bldrs	Stiff clay	Gr clayey silt, tough	Tough hard shale	Chert gravel & bldrs	Hard rock 443.9	Shale 435.5		Shale 430.4			415
405		Bldrs & sand	Hard rock 422.4	Shale	Gr firm laminated shale, fair dry. 437.3							405
395	Firm shale 402.5	Gr clayey silt or w/shale, firm		407.6	Shale							395
385		Shale, firm 393.4										385

Note: For Log of Boring Notes and Holes 1 thru 86 see Sheet 3.

PILE DATA

	RETAINING WALL A				BRIDGE																	
Wall Panel No. or Bent No.	1	2	3	4	1	2	3	4	5	6	7	8	9	10	11	11A	11B	12	13	14	15	16
Pile Type & Size	Cast in Place				10BP42	12BP53	12BP53	10BP42	10BP42	12BP53	10BP42	10BP42	10BP42	10BP42	10BP42	10BP42	10BP42	12BP53	Shale	10BP42	12BP53	10BP42
Number	8	8	8	8	9	8	8	6	8	8	8	6	6	6	6	1	1	8	—	6	6	5
Approximate Length Ft.	40	40	40	40	95	100	100	100	100	100	85	85	80	65	65	65	65	40	—	25	25	50
Design Bearing Tons	25	25	28	30	50	65	65	55	54	66	54	38	55	55	47	13	13	60	6 Tons/ft²	52	61	35
* Hammer Energy Req'd. Ft. Lbs.	8000	8000	8000	8000	18000	15,900	15,900	13,600	13,600	15,900	12,100	10,700	12,400	12,400	10,600	5200	8200	13,500	—	11,700	13,700	7900

Note: Piles for Retaining Wall B on right side of Rte. 79 TR same as shown for Wall A.

Piles for Retaining Walls shall conform to MSHD Pile Standard 52.02, Steel Thick Shell, Foundation Type.

All cast in place pile shall be driven to the minimum penetrations and to not less than the design bearings noted.

All bearing pile shall be driven to practical refusal at 1.9 times the design bearing value.

* Minimum energy requirement of hammer based on plan length and design bearing value of piles.

[illegible] piles [illegible] in lengths greater [illegible] 65 may [illegible] furnished in two pieces for field splicing.

Footings at Bent 13 shall be carried 6" into hard, solid undisturbed rock or 18" into soft rock or shale and cast against vertical faces of same.

GENERAL NOTES

SPECIFICATIONS: Missouri State Highway Commission Standard Specifications (1961 Edition) and Special Provisions.

DESIGN LOADING: In accordance with Division I of the A.A.S.H.O. Standard Specifications for Highway Bridges, 1961 Edition, except Article 1.3.2(c) Case B shall be in accordance with the 1957 Edition.

Live Load: H20-44.

Dead Load: Provision is made for future wearing surface of 15 pounds per square foot of roadway surface.

Earth Weight: 120 lbs. per cu. ft.; Equivalent Fluid Pressure, 30 lbs. per cu. ft.

DESIGN UNIT STRESSES:

Structural Steel (Tension in extreme fibers subject to bending):

A.S.T.M.-A36-62T-- f_s = 20,000 lbs. per sq. in.

Concrete in flexure:

Class B1 Concrete - f_c = 1,600 lbs. per sq. in.

Class B Concrete - f_c = 1,200 lbs. per sq. in.

Reinforcing Steel: - - - - - f_s = 20,000 lbs. per sq. in.

Steel Piles: A.S.T.M.-A36-62T - f_s = 9000 lbs. per sq. in.

CONCRETE: Concrete for Superstructure, and all curbs, parapets and end posts, shall be Class B1.

Concrete for Substructure shall be Class B.

FILLED JOINTS: Where joint filler is specified on the plans it shall conform to Standard Specification 157.2.4.

WELDING: See Standard Specification 55.3.13 for qualifications of welding operators. No field welding will be permitted unless specified on the drawings or approved by the engineer.

PAINTING: Shop, none; Field, three coats, except contact surfaces of bearings and beam flanges connected with high strength bolts shall receive one coat of red lead.

REINFORCEMENT: All dimensions to reinforcing steel on detail drawings are to ℄ bar except were the clear distance is noted from the face of concrete. All reinforcing shall be lapped a minimum of 24 bar diameters unless otherwise shown or noted.

SURFACE SEALING: Superstructure deck to be surface sealed.

CONSTRUCTION CLEARANCES:

See Special Provisions.

Falsework over existing Lyon St. shall be constructed with a minimum vertical clearance of 10'-0" and a minimum horizontal clearance of 26'-0" centered on ℄ Lyon St.

BRIDGE OVER LYON & COLLIER STS., C.B.&Q., N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE.Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION COUNTY

LOG OF BORINGS

SHEET 2 OF 21

A-1044

322

DRAWN BY: S.A. Meyers, June '62
TRACED BY:
CHECKED BY: W.O. Walden, July 1965

2384
655340

SVERDRUP & PARCEL AND ASSOCIATES, Inc
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	3	5

LOG OF BORINGS

ELEV: 475, 465, 455, 445, 435, 425, 415, 405, 395, 385, 375, 365, 355

HOLE NO. 1
Sta. 19+50, 12' Lt — 473.8
- Pavement & base
- Gr. gravelly clay
- Softer grey gravelly clay
- Gravel
- Sand
- 425.3

HOLE NO. 2
Sta. 19+50, 12' Rt — 473.8
- Pavement & base
- Gr sandy alluvium with brick fragments
- 456.8 Gr soft clay sandy silt with sand seams.

HOLE NO. 3
Sta. 20+00, 12' Lt — 473.6
- Pavement & base
- Backfill
- Olive gr. silty clay
- Soft gr. silty clay
- Gravelly clay and sand
- Gravel
- Sand
- 425.1

HOLE NO. 4
Sta. 20+00, 12' Rt — 473.6
- Pavement & base
- Backfill
- Gr soft clay silt with sand seams.
- 456.6

HOLE NO. 5
Sta. 20+24, 14' Lt — 473.6
- Pavement
- Cinder backfill
- Loose dirty sand
- Bldr.
- Gr soft silty clay and silt with clay strata
- Chert gravel, not too dense
- Yellow dense sand with silt strata.
- Gr. dense fine sand
- Sand
- 442.1

HOLE NO. 6
Sta. 20+24, 8' Rt. — 473.6
- Pavement & base
- Backfill, silt, bricks fragments, etc.
- Soft wet gray clayey silt
- Gravel
- Bldrs.
- Sand and clay in layers moderately fine to firm with isolated bldrs.
- Hard ls. 380.3

HOLE NO. 7
Sta. 20+59, 12' Lt — 473.5
- Pavement & base
- Gr sandy clay & sand
- Soft gr silty alluvium
- Gravel
- Sand
- Bldrs
- Gr tough clay with isolated bldrs
- Bldrs
- Refusal on Ls 371.7 Limestone

HOLE NO. 8
Sta. 20+59, 9' Rt — 473.5
- Pavement & base
- Gr. silty clay alluvium
- Water Level
- Soft gr. silty clay alluvium
- Gravelly clay
- Gravel
- Sand
- 425.0

HOLE NO. 9
Sta. 20+94, 12' Lt — 473.2
- Pavement & base
- Gray clayey backfill
- Gr fairly firm silty clay
- Gravel
- Dense sand
- Sand
- 424.7

HOLE NO. 10
Sta. 20+94, 8' Rt — 473.3
- Pavement
- Cinders
- Dk loam
- Soft clayey silt, dk
- Gravel
- Sand
- Gr clayey silt, firm
- Ls. bldrs.
- Gravelly clay with isolated bldrs.
- Hard Ls
- Limestone
- 380.3

HOLE NO. 11
Sta. 21+5[illegible], 12' Lt — 473.0
- Pavement & Base
- Backfill
- Gr. silty alluvium
- Gravelly Clay
- 448.5

HOLE NO. 12
Sta. 21+31, 8 Rt — 473.0
- Pavement & base
- Dk clayey sandy silt
- Creek gravel in clay grading into clayey gravel
- Yellow sand med. gradation @ 46' gr silty shale, firm
- Yellow sand & silt
- Fine gr sand
- Gr silt & very fine sand, possible thin clay seams
- Gravel
- Gravel to 78'
- Barrel blocked by gravel
- Dense firm gray silty clay
- Tough clay
- Chert gravel
- Thin bedded Ls
- Med. bedded hard limestone
- Limestone
- 365.5

HOLE NO. 13
Sta. 21+98, 16' Lt — 472.7
- Pavement & base
- Gr gravelly silty clay and silt, soft
- Gravel
- Gr clayey silt & silty clay
- Bldrs
- Stiff clay
- Heavy bldrs w/Ls
- Hard Ls, refusal
- Limestone
- 371.5

HOLE NO. 14
Sta. 21+98, 8' Rt — 472.7
- Pavement & base
- Dk clay loam
- Soft clayey sandy silt
- Bldrs & gravel
- Sand
- Gr clayey silt, firm
- Tough clay
- Refusal Ls. 374.2 Rock

HOLE NO. 15
Sta. 22+65, 8' Rt — 472.5
- Pavement
- Dk clay loam
- Soft wet dk clayey silt
- Bldrs & gravel
- Sand & sandy silt with firm layers
- Refusal, ls. 373.5

HOLE NO. 16
Sta. 23+40, 17' Lt — 472.5
- Pavement & base
- Backfill
- Dk loam
- Soft gr silty alluvium
- Sandy silt
- Bldrs in sand
- Silt
- Clay with isolated bldrs
- Tough clay, gr
- Ls bldrs
- Hard Ls.
- Limestone
- 369.3

HOLE NO. 17
Sta. 23+40, 8' Rt — 472.5
- Pavement & base
- Backfill
- Soft gr sandy silt
- Gravelly clay
- Lt tan sandy chert gravel
- Lt tan coarse sand and gravelly sand
- Gr tough clay with gravels
- Gr tough clay with Ls fragments
- 401.0 Clay
- Limestone

HOLE NO. 18
Sta. 24+32, 17' Lt — 472.2
- Pavement & base
- Gr soft silty alluvium
- Chert gravel & bldrs
- Gr clayey sand & silt
- Gr dense firm clayey silt with Ls bldrs throughout
- Extra tough gr silty clay with Ls pebbles. Bldrs.
- Lt gr hard ls. medium bedded
- 372.2

HOLE NO. 19
Sta. 24+32, 8' Rt — 472.2
- Pavement & base
- Backfill
- Gr wet soft silty alluvium
- Gravel
- Gr clay
- Tough clay and chert gravel
- Hard Ls. 375.0

HOLE NO. 20
Sta. 25+25, 15' Lt — 472.2
- Pavement & base
- Backfill
- Gr clayey silt
- Clayey gravel
- Gravel
- Sand
- Firm clay
- Clay & bldrs
- W/Ls
- Hard ls. refusal
- 389.0

HOLE NO. 21
Sta. 25+24, 8' Rt — 472.2
- Pavement & base
- Gr soft gravelly clayey silt
- Gravel
- Gr sandy clayey silt, firm
- Clay, tough & bldrs
- Hard rock, refusal
- Limestone
- 384.0

HOLE NO. 22
Sta. 25+99, 13' Lt — 471.7
- Pavement & base
- Sof[illegible] gr silty sandy alluvium
- Gravel
- Silty clay & clay with isolated bldrs
- Hard rock, refusal
- Limestone
- 389.0

HOLE NO. 23
Sta. 2[illegible]+98, 8' Rt — 471.7
- Pavement & base
- Gr soft sandy silt
- Gravelly clay
- Coarse gravel
- Firm clay
- Tough clay
- Tough clay with bldrs
- Extremely tough clay (possibly shale) W/Ls
- Hard limestone
- 389.7

HOLE NO. 24
Sta. 26+40, 13' Lt — 471.4
- Pavement & base
- Gravelly gr sandy silt
- Gravel
- Bldrs
- Gr silty clay & silt
- Soft shale
- Rock, refusal
- Limestone
- 389.8

HOLE NO. 25
Sta. 27+13, 16' Lt — 470.7
- Pavement & base
- Soft gr silty alluvium
- Gravel & bldrs
- Gr clay with isolated bldrs
- Soft shale
- Firm gr shale
- Shale
- 402.3

HOLE NO. 26
Sta. 27+13, 8' Rt — 470.7
- Pavement & base
- Gr silt and bldr alluvium
- Clean open chert gravel
- Tough gr clayey silt
- Ls bldrs in gr tough clayey silt
- Gr tough clayey silt and ls bldrs
- Gr tough clay and clayey silt with isolated bldrs
- Olive gr fissile dry hard shale
- Shale
- 397.2

Note: These data are furnished for information only and may or may not represent the actual conditions which will be found when the work is executed.
Stations shown are on ℄ Survey with distances shown right or left.
Borings were made during February, 1963.
Holes 5, 12, 17, 18 & 26 are cored holes. All others were made with a power auger.

Note: For Holes 27 thru 37 see Sheet 2.

BRIDGE OVER LYON & COLLIER STS., CB&Q, N&W R.R'S AND BEAR CREEK
STATE ROAD FROM RTE.Y SOUTH TO RTE. AA
ABOUT IN HANNIBAL
PROJECT NO. U-UG-79-1(5)(RTE.79TR) **STA.** 19+40.00

MARION COUNTY

LOG OF BORINGS

SHEET 3 OF 21 A-1044

DRAWN BY: S. Metz 25 June 1965
TRACED BY:
CHECKED BY: W.O. Walden July 1965
2384
655338

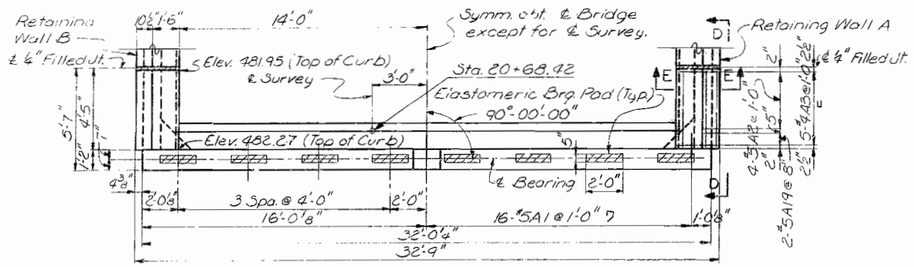
323

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

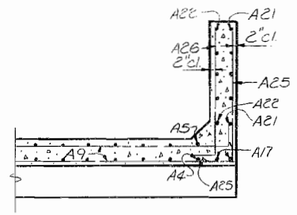
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	36	



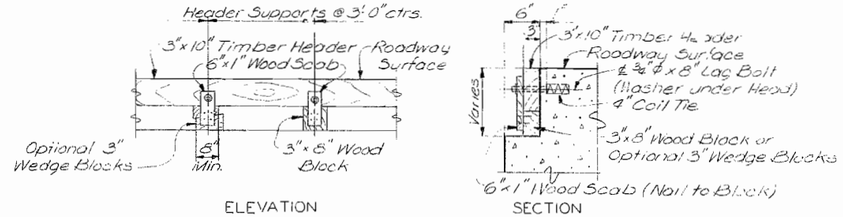
PLAN

Note: 2'-0"×5"×1" Elastomeric Bearing Pads to be 60 Durometer Neoprene.
Top of Backwall to conform to top of roadway.



SECTION A-A

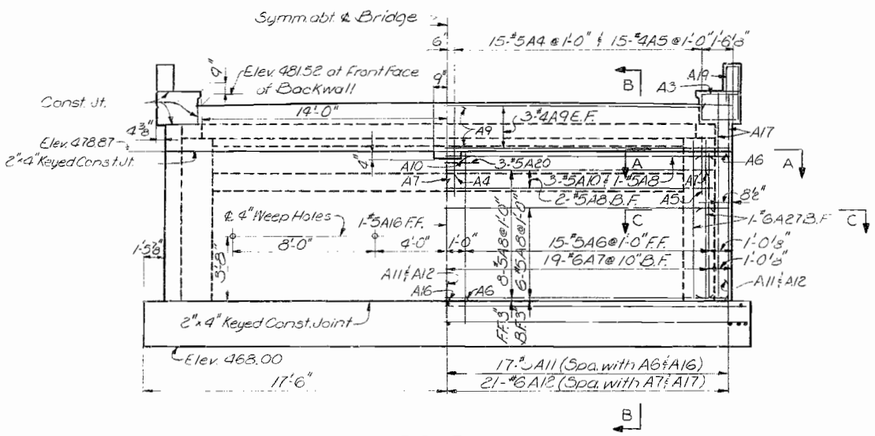
Note: E.F. indicates Each Face.
F.F. indicates Front Face
B.F. indicates Back Face.



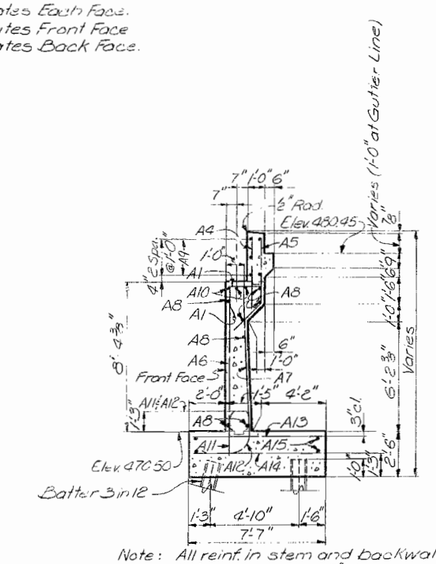
ELEVATION SECTION

TIMBER HEADER DETAILS

Note: Cost of timber headers complete in place to be included in bid price for concrete.

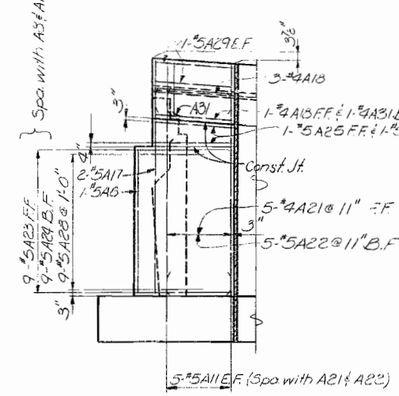


ELEVATION

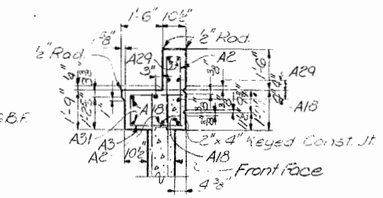


Note: All reinf. in stem and backwall above top of footing to be 2" cl.

SECTION B-B

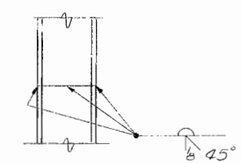


VIEW D-D



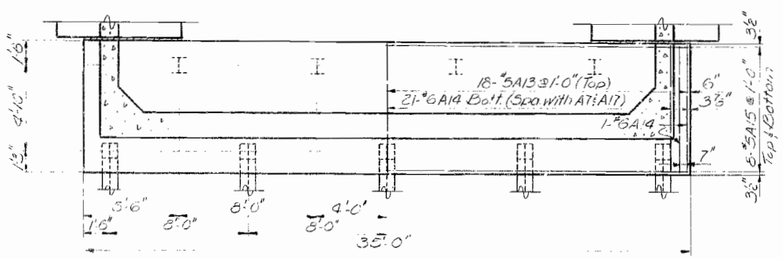
SECTION E-E

Note: All reinf. in curb and parapet to be 1½" cl.
Concrete above 2"x4" Keyed Construction Joint to be Class B1.



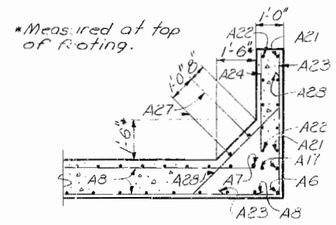
PILE SPLICE

Note: Top of lower Section to be cut square.

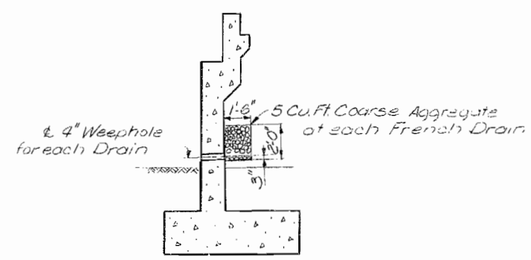


FOOTING PLAN

Note: Pile Spacing measured along bottom of footing.
9-10 BP42 required.



SECTION C-C



French Drains, in accordance with Sec. 504.9 of the Standard Specifications, shall be located as shown on the details.

DETAIL OF FRENCH DRAIN

BRIDGE OVER LYON & COLLIER STS., CB&Q, N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION COUNTY

ABUTMENT 1

SHEET 4 OF 21

A-1044

324

DRAWN BY: Gunnin, June 1965
TRACED BY:
CHECKED BY: Dillon, Aug. 1965
2384
655344

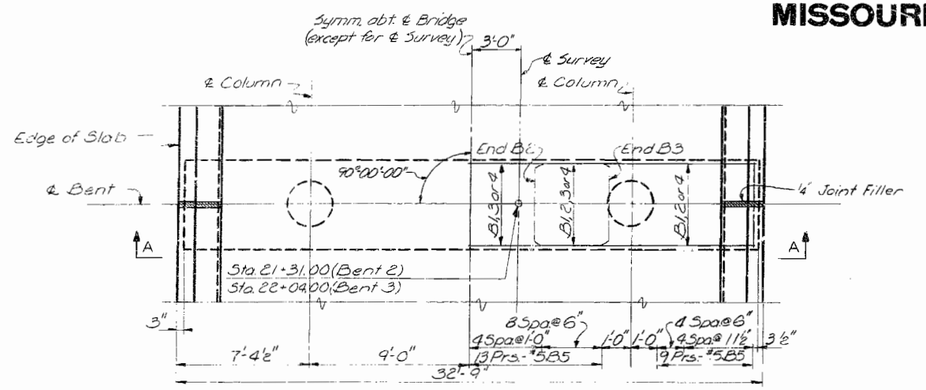
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

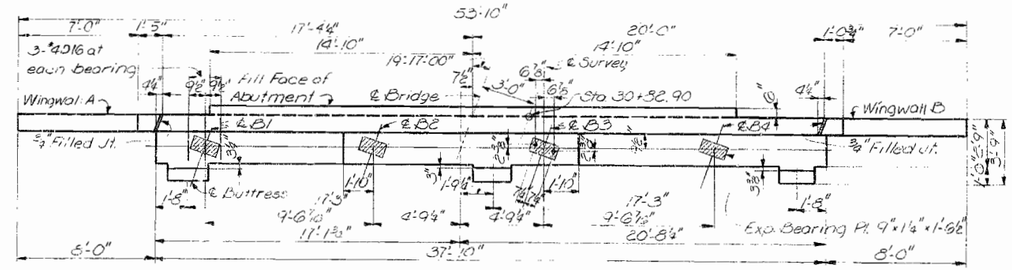
NO CONSTRUCTION

MISSOURI STATE HIGHWAY DEPARTMENT

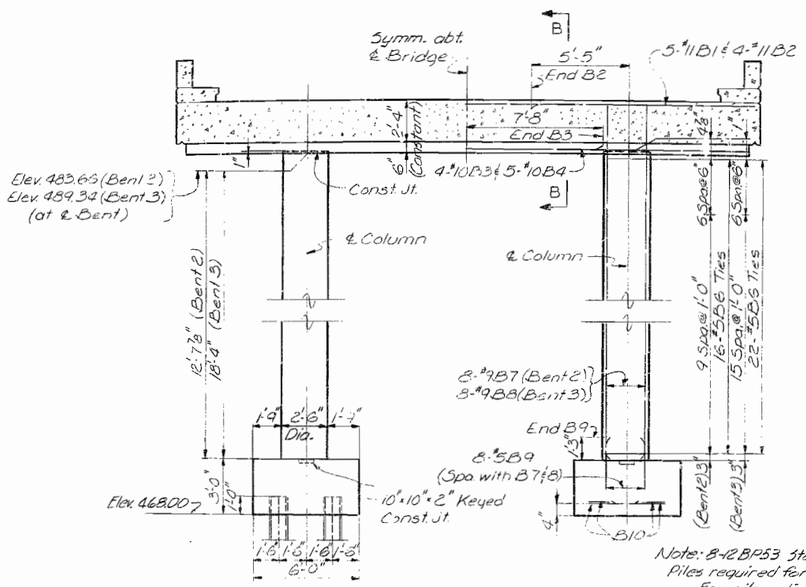
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	37	



PLAN

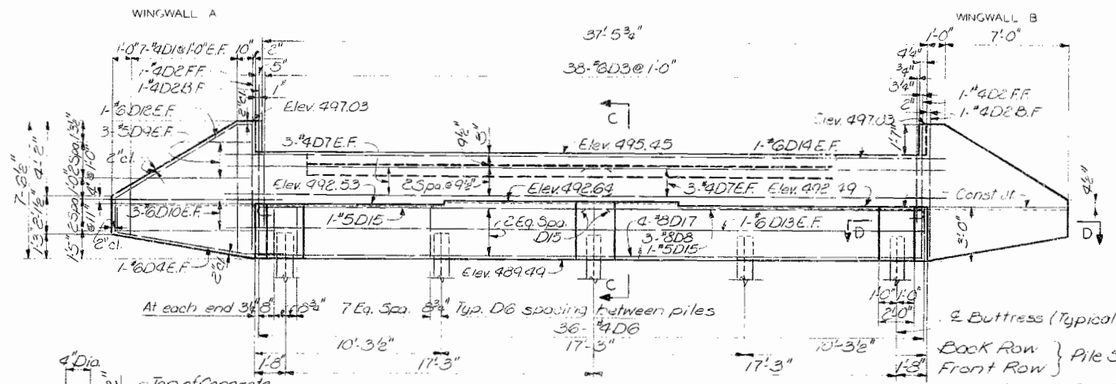


PLAN



Note: 8-12BP53 Steel Bearing Piles required for each bent. For pile splice see Sheet 4.

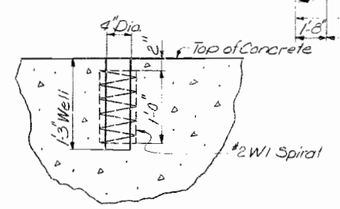
SECTION A-A



ELEVATION

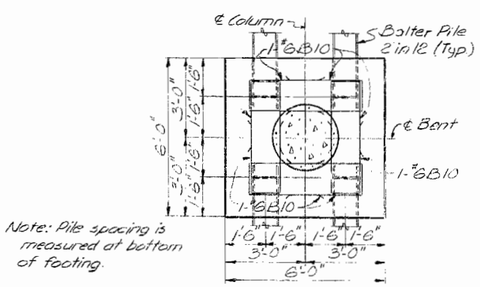
Note: Reinforcing in Buttress not shown. 5-10BP42 Steel Bearing Piles required.

Note: Wingwall B reinforcing and dimensions not shown are same as Wingwall A.



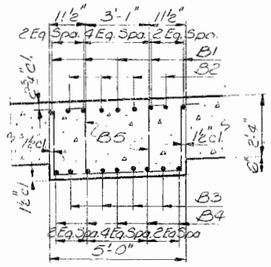
ANCHOR BOLT WELL

Note: Anchor Bolts may be set in wells as shown or in holes drilled into concrete substructure. See Sect. 55.4.4 of the Standard Specifications for setting anchor bolts.



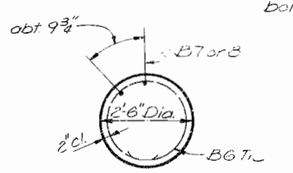
Note: Pile spacing is measured at bottom of footing.

FOOTING PLAN



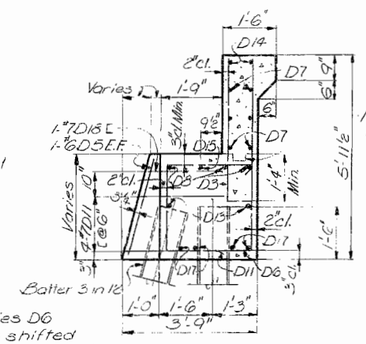
SECTION B-B

BENTS 2 & 3



SECTION THRU COLUMN

Note: Spacing of B7 or 8 is measured along inside of B6.

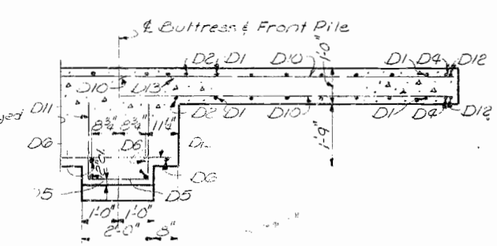


Note: Ties D6 may be shifted slightly in field where necessary to clear anchor bolt wells.

SECTION C-C

ABUTMENT 16

Note Fill at Abutment shall not be carried above bottom of beam and wings until adjacent superstructure span is in place.



SECTION D-D

Note:
E.F. indicates Each Face.
F.F. indicates Front Face.
B.F. indicates Back Face.

BRIDGE OVER LYON & COLLIER STS., C.B.&Q., N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE.Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79TR) **STA.** 19+40.00

MARION **COUNTY**

BENTS 2 & 3 AND ABUTMENT 16

SHEET 5 OF 21

A-1044

DRAWN BY: Gunnin June 1965
TRACED BY:
CHECKED BY: Nolan & Dillon Jan. 1966
2384
655.366

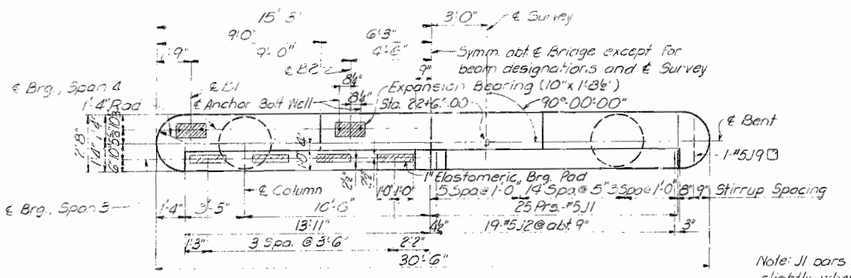
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

325

MISSOURI STATE HIGHWAY DEPARTMENT

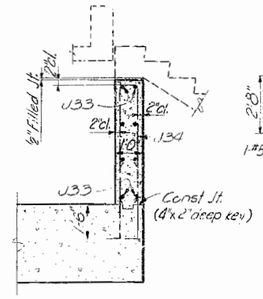
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	39	



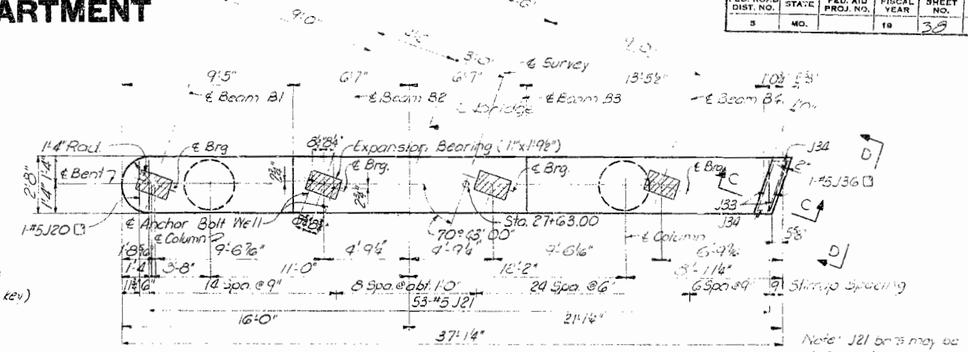
TOP PLAN

Note: 5"x2'-0"x1" Elastomeric Bearing Pads to be 60 Durometer Neoprene.

Note: J1 bars may be shifted slightly where necessary to clear anchor bolt wells.

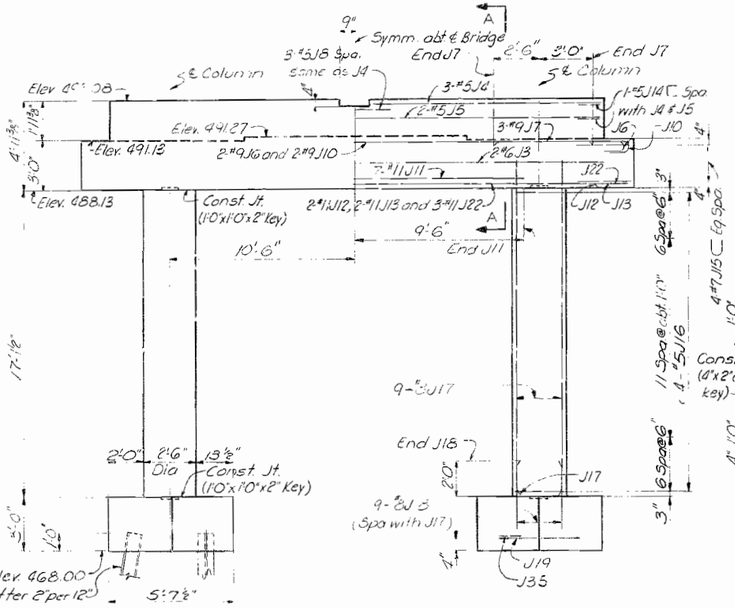


SECTION C-C

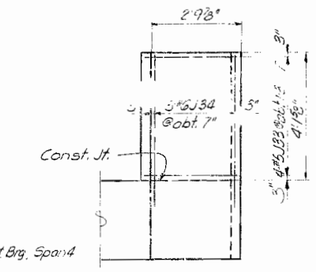


TOP PLAN

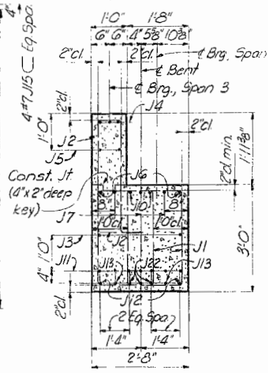
Note: J21 bars may be shifted slightly where necessary to clear anchor bolt wells.



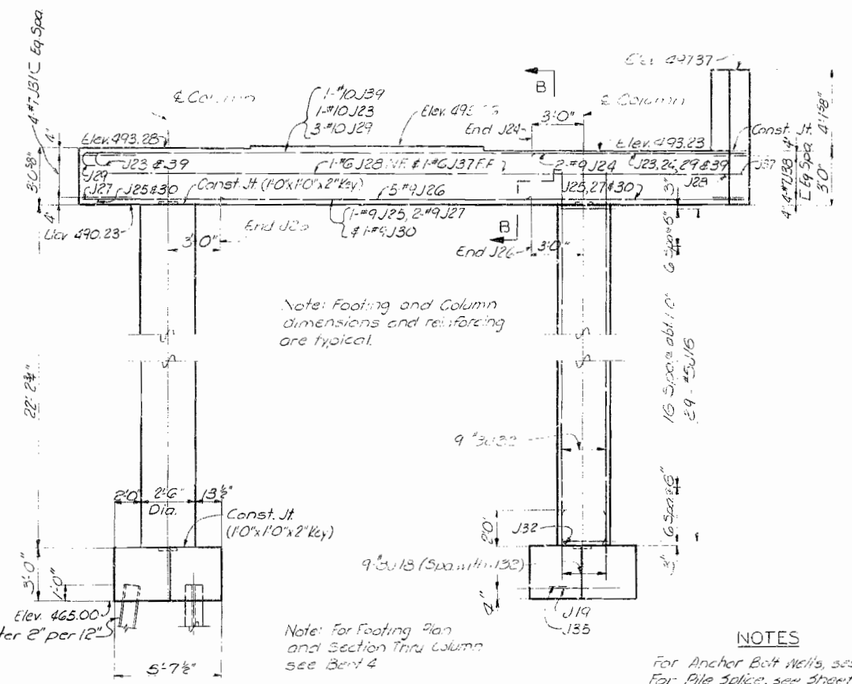
ELEVATION



VIEW D-D



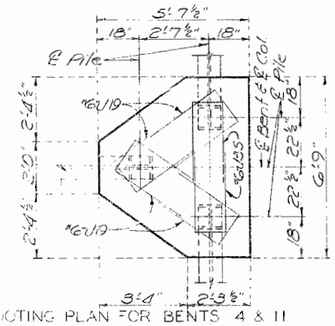
SECTION A-A



Note: N.F. indicates Near Face. F.F. indicates Far Face. E.F. indicates Each Face.

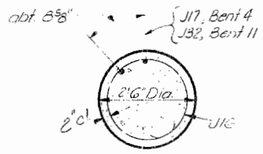
ELEVATION

Note: For Footing Plan and Section Thru Column see Bent 4



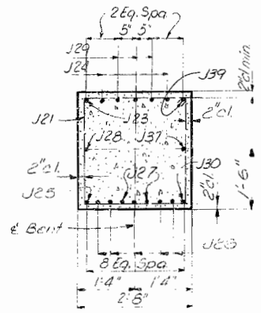
FOOTING PLAN FOR BENTS 4 & 11

BENT 4



SECTION THRU COLUMN FOR BENTS 4 AND 11

Note: Spacing of J17 and J32 is measured along inside of J16.



SECTION B-B

BENT 11

NOTES

For Anchor Bolt Wells, see Sheet 5.
For Pile Splice, see Sheet 4.

BRIDGE OVER LYON & COLLIER STS., CB&Q, N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE.Y SOUTH TO RTE.AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION **COUNTY**

BENTS 4 & 11

SHEET 6 OF 21

A-1044

DRAWN BY: Gunnin, June 1965
TRACED BY:
CHECKED BY: Gilbert, Aug. 1965

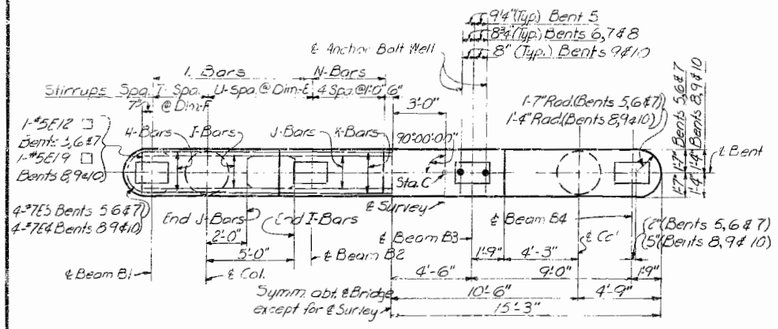
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

326

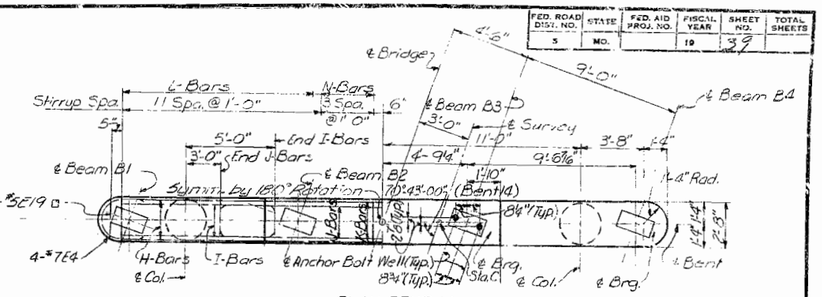
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	39	

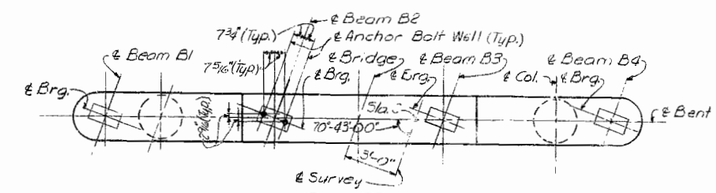


PLAN-BENTS 5 THRU 10

Description	Bent 5	Bent 6	Bent 7	Bent 8	Bent 9	Bent 10	Bent 14	Bent 15
Dim.-A	20'-5¼"	22'-1"	20'-11¾"	21'-0"	22'-1¼"	22'-10¾"	22'-1⅜"	22'-11⅜"
Sta. C	23+00.00	24+32.00	25+24.00	25+99.00	26+49.00	27+13.00	29+87.00	30+36.00
Dim.-D	6⅞"	6⅞"	6⅞"	11⅛"	9¾"	9¾"	11⅛"	9¾"
Dim.-E	6"	6"	6"	1'-0"	9"	9"	—	—
Dim.-F	9"	9"	9"	1'-0"	1'-0"	1'-0"	—	—
G-Bars	14-#9E30	13-#9E30	14-#9E30	7-#9E30	8-#9E30	8-#9E30	7-#9E30	8-#9E30
H-Bars	2-#10E6	2	2-#10E6	2-#10E6	2-#11E9	2-#11E9	2-#10E13	2-#10E13
I-Bars	4-#10E7	4-#10E7	4-#10E7	2-#8E10	2-#8E10	2-#8E10	2-#10E14	2-#10E14
J-Bars	5-#11E8	5-#11E8	5-#11E8	3-#10E11	3-#11E8	3-#11E8	3-#11E15	3-#11E15
K-Bars	4-#11E36	4-#11E35	4-#11E35	4-#11E35	4-#11E35	4-#11E35	4-#11E16	4-#11E16
L-Bars	16Pcs.-#5E29	16Pcs.-#5E29	16Pcs.-#5E29	9Pcs.-#5E31	11Pcs.-#5E31	11Pcs.-#5E31	11Pcs.-#5E34	11Pcs.-#5E34
M-Bars	2-#10E24	2-#10E24	2-#10E24	2-#10E24	2-#11E25	2-#11E25	2-#10E26	2-#10E26
N-Bars	5-#5E27	5-#5E27	5-#5E27	5-#5E28	5-#5E28	5-#5E28	4-#5E28	4-#5E28
P-Bars	14-#9E17	14-#9E18	14-#9E20	7-#9E20	8-#9E22	8-#9E23	7-#9E18	8-#9E23
Q-Bars	—	—	—	7-#9E21	—	—	7-#9E21	—
R-Bars	26-#5E32	28-#5E32	27-#5E32	27-#5E33	28-#5E33	28-#5E33	28-#5E33	28-#5E33
No. of Spa. S	15	17	16	16	17	17	17	17
No. of Spa. T	4	4	4	3	3	3	—	—
No. of Spa. U	12	12	12	6	8	8	—	—
Elev. V	467.00	467.00	467.00	467.00	466.00	465.00	464.00	464.00
Elev. W	493.58	495.22	494.13	494.14	494.74	494.05	—	—
Elev. X	493.44	495.08	493.98	494.00	494.60	493.90	—	—

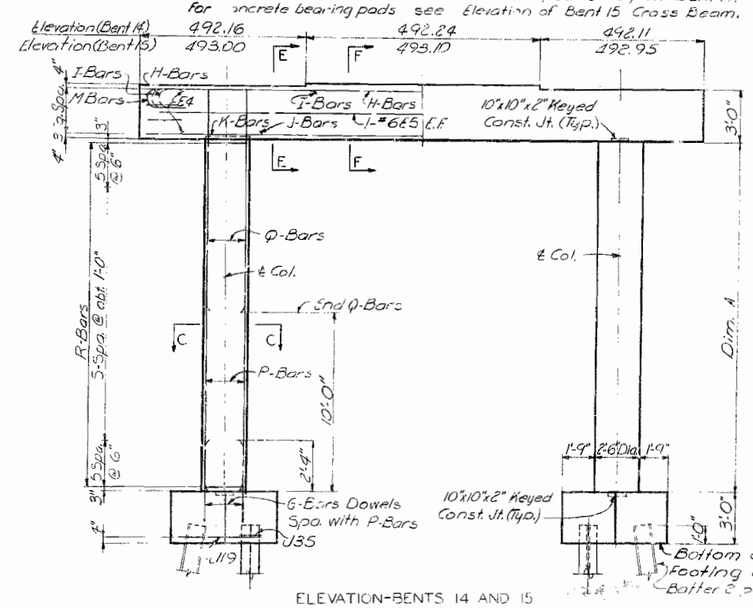


PLAN-BENT 14

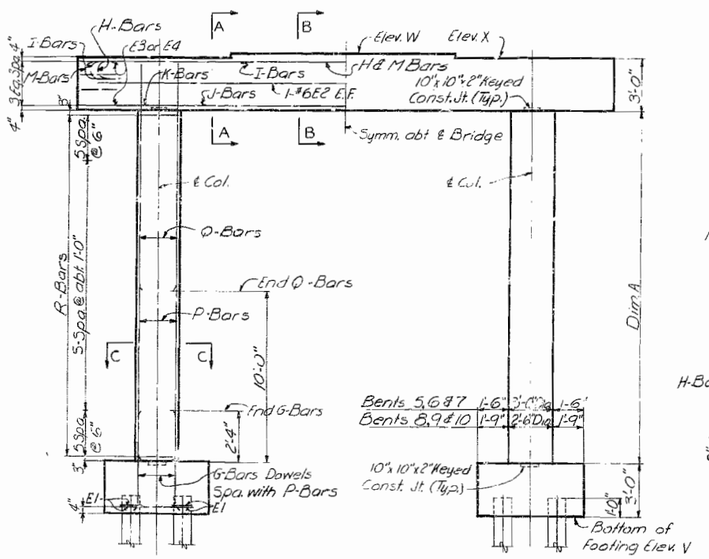


PLAN-BENT 15

Note: For dimensions and reinforcement not shown, same as plan Bent 14. For concrete bearing pads see Elevation of Bent 15 Cross Beam.



ELEVATION-BENTS 14 AND 15

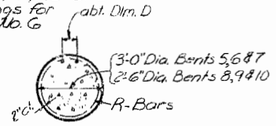


ELEVATION-BENTS 5 THRU 10

(Footings shown are for Bts. #5, #6 & #7) Footings for Bts. #8, #9 & #10 are identical to footings for Bt. #4. See sheet No. 6 of 21.

PILES PER BENT

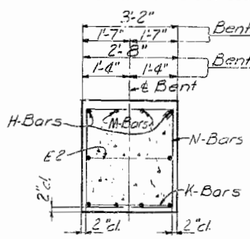
Bent	No. of Piles
5 & 7	8-10BP42
6	8-12BP53
9 & 10	6-10BP42
14	6-10BP42
15	6-12BP53



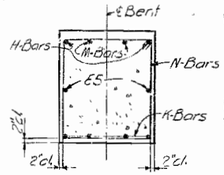
SECTION C-C

Note: Spacing of vertical column reinforcement is measured along inside of R-Bars. Space Q-Bars between P-Bars.

Note: J-Bars not shown. Dimensions not shown see Section A-A.

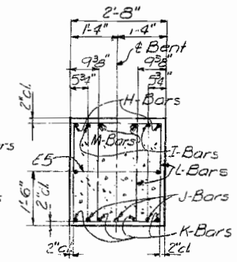


SECTION B-B

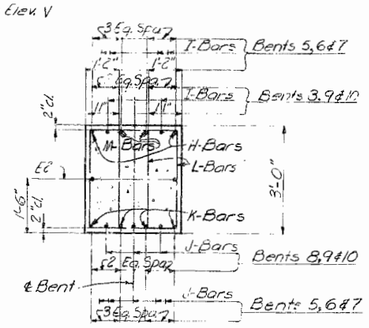


SECTION F-F

Note: J-Bars not shown. Dimensions not shown see Section E-E

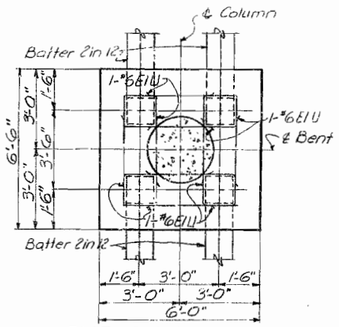


SECTION E-E



SECTION A-A

Note: Dimensions not shown see Section B-B



FOOTING PLAN
BENTS 5, 6 & 7

NOTES

L-Bars may be shifted slightly to clear Anchor Bolt Wells. For detail of Anchor Bolt Well see Sheet 5. For Pile Splice, see Sheet 4. Footings for Bents No. 14 & 15 are identical to footings for Bent No. 4. See sheet No. 6 of 21.

BRIDGE OVER LYON & COLLIER STS., C.B.&Q. N.&W. R.R.'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION COUNTY

BENTS 5 THRU 10, 14 AND 15

SHEET 7 OF 21

A-1044

DRAWN BY: E. Brown, June 1965
TRACED BY:
CHECKED BY: G. Jostink Aug. 1965

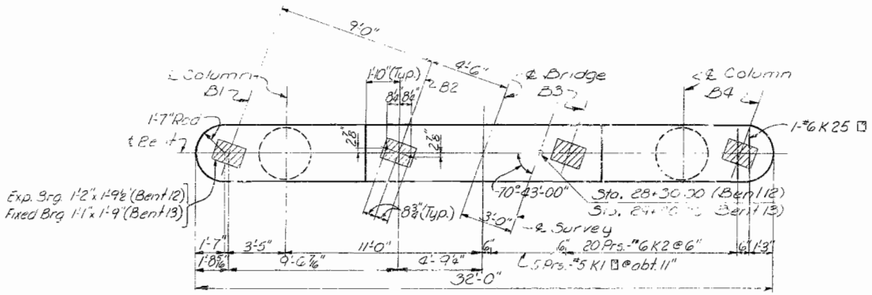
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

327

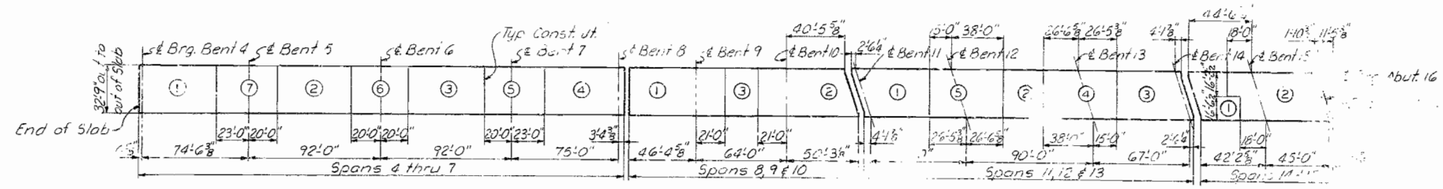
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	40	



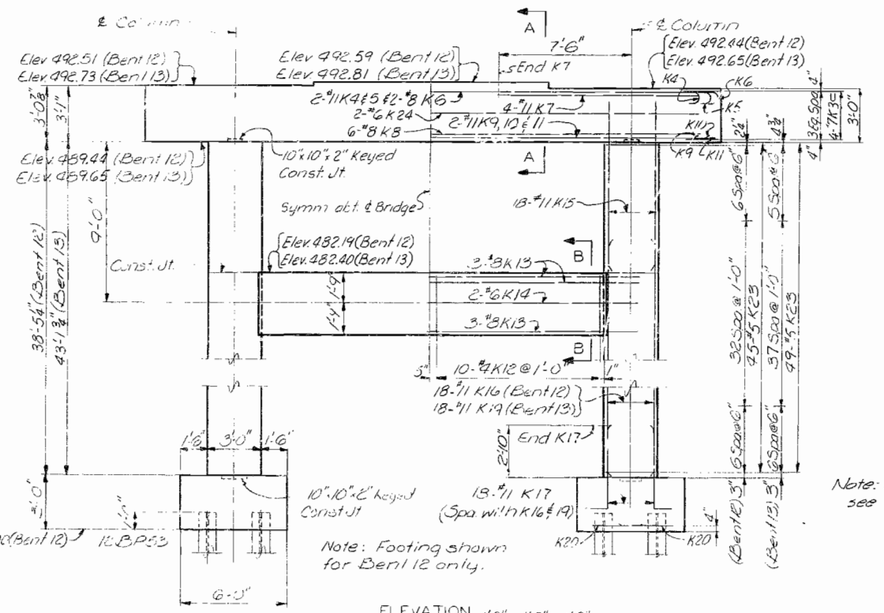
PLAN

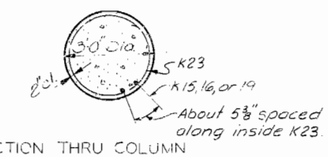
Note: Dim. & Reinf. symmetrical about ℄ Bridge by 180° rotation unless otherwise noted.
For detail of Anchor Bolt Well see Sheet 5.



SLAB POURING SEQUENCE
Note: For Slab Construction Joint Details, see Sheet 15.

	SPANS 4 THRU 7							SPANS 8, 9 & 10			SPANS 11, 12 & 13					SPANS 14 & 15	
	Sequence of Pours							Sequence of Pours			Sequence of Pours					Sequence of Pours	
	Direction							Direction			Direction					Direction	
Basic Sequence	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	1	2
	Either Direction							Either Direction			Either Direction					End to 2	1 to End
Alternate "A" Pours	1		7+2		6+3		5+4	1		3+2	1		5+2		4+3	1+2	
	End to 7		1 to 6		2 to 5		3 to End	End to 3		1 to End	End to 5		1 to 4		2 to End	End to End	
Alternate "B" Pours	1+7+2			6+3		5+4		1+3+2			1+5+2			4+3			
	End to 6			2 to 5		3 to End		End to End			End to 4			2 to End			
Alternate "C" Pours	1+7+2				6+3+5+4												
	End to 6				2 to End												
Alternate "D" Pours	1+7+2+6+3+5+4																
	End to End																





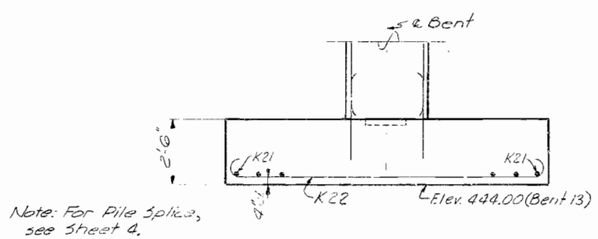
SECTION THRU COLUMN

Note: The contractor shall use an approved oscillating screed type, self-propelled mechanical finishing machine and shall pour and satisfactorily finish the slab pours at a rate of not less than 35 cubic yards per hour unless he elects to use an approved retarder at his own expense to retard the set of concrete to 2.5 hours in which case he may reduce his pouring and finishing rate to not less than 25 cubic yards per hour. The contractor shall observe the basic pouring sequence unless he can demonstrate to the engineer that he can pour and satisfactorily finish one of the longer alternate pours. Finishing machine loads will not be permitted on concrete less than 48 hours old.

Adjacent to Bent 8 Pour No. 1 shall be made prior to Pour No. 4.

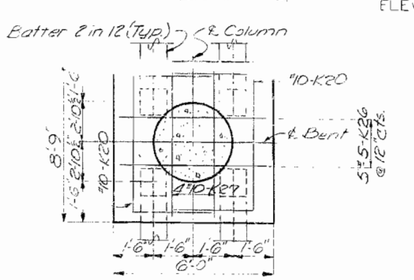
Adjacent to Bent 11 Pour No. 2 shall be made prior to Pour No. 1.

Adjacent to Bent 14 Pour No. 1 shall be made prior to Pour No. 3.



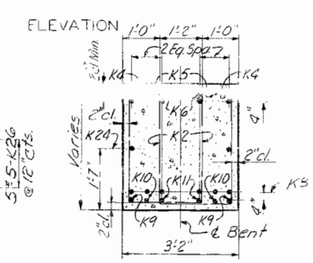
Note: For Pile Splice, see Sheet 4.

FOOTING ELEVATION BENT 13

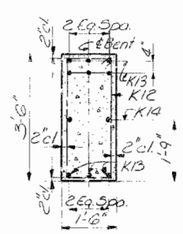


FOOTING PLAN

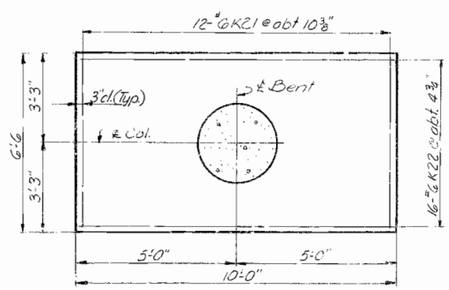
Note: Footing Plan for Bent 12 only.



SECTION A-A



SECTION B-B



FOOTING PLAN BENT 13

BRIDGE OVER LYON & COLLIER STS., CB&Q, N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

AJOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION **COUNTY**

BENTS 12 AND 13

SHEET 8 OF 21

A-1044

BENTS 12 & 13

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

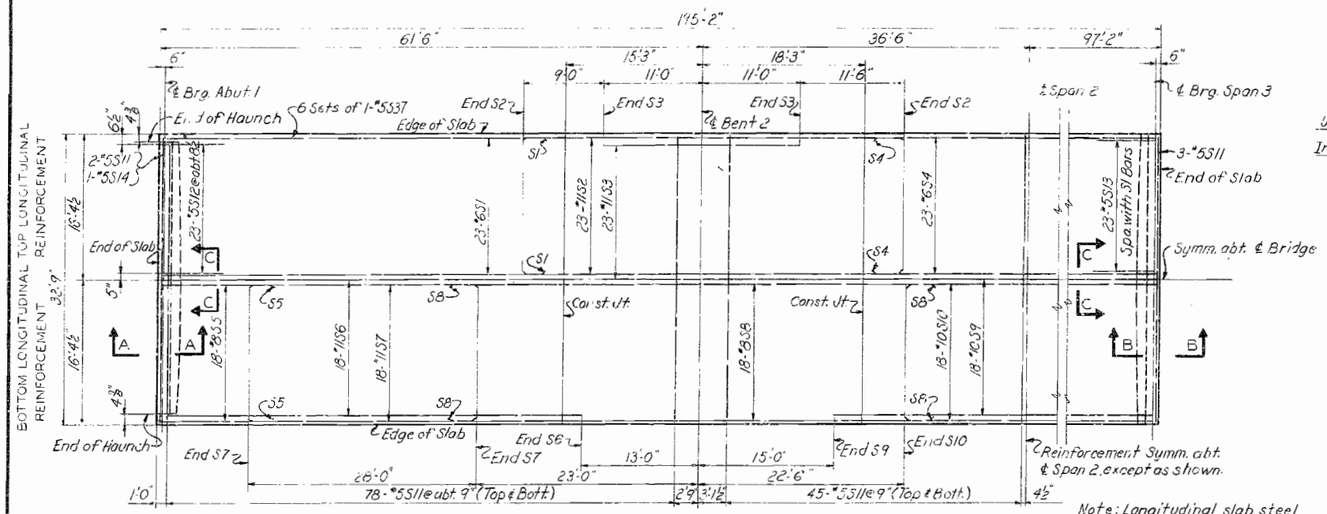
DRAWN BY: Gunnin July, 1965
TRACED BY:
CHECKED BY: G. Joefink Aug. 1965
2384
255372

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

328

MISSOURI STATE HIGHWAY DEPARTMENT

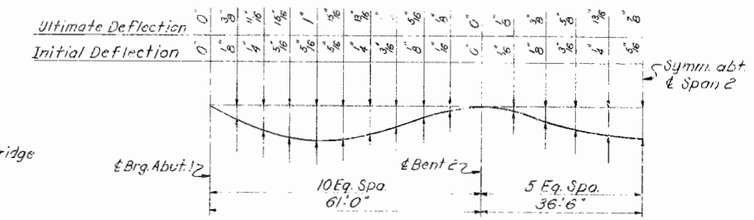
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YR. 4/7	SHEET NO.	TOTAL SHEETS
5	MO.		19	41	



PLAN

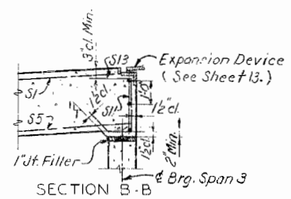
Note: Safety Curbs and Parapets not shown. See sheet 16.

Note: Longitudinal slab steel shall be placed so that ends of bars are not less than 1" ± from expansion device.

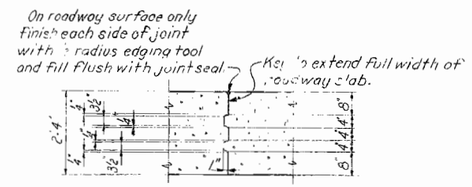


DEAD LOAD DEFLECTION ORDINATES

Note: The Contractor shall make allowances in setting forms to compensate for Ultimate Dead Load Deflection.
E_c = 2,000,000 p.s.i. used in computing ultimate dead load deflections.
E_c = 6,000,000 p.s.i. used in computing initial dead load deflections.

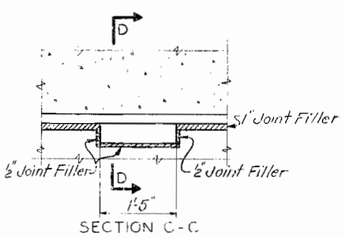


SECTION B-B

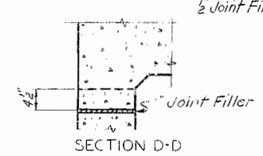


CONSTRUCTION JOINT THRU SLAB

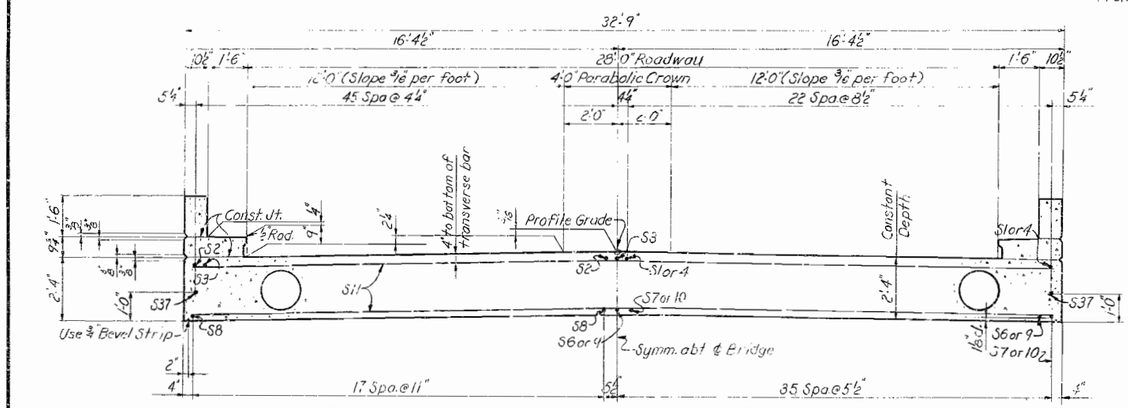
Note: The Contractor shall use an approved oscillating screed type, self-propelled mechanical finishing machine and shall pour and satisfactorily finish the roadway slab at a rate of not less than 45 cubic yards per hour. He shall observe the transverse construction joints shown on plans unless he can demonstrate to the satisfaction of the engineer that he is equipped to pour and satisfactorily finish the roadway slab at a rate which will permit a continuous pouring through some or all of these joints.
Finishing machine load will not be permitted on concrete less than 48 hours old.



SECTION C-C

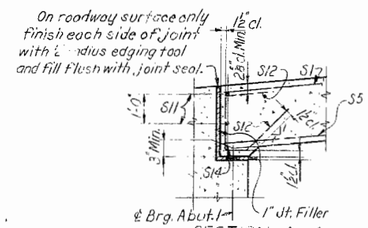


SECTION D-D

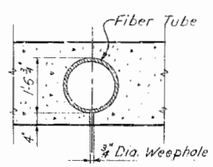


CROSS SECTION

Note: For reinforcement and dimensions not shown in Safety Curbs and Parapets see Sheet 16.

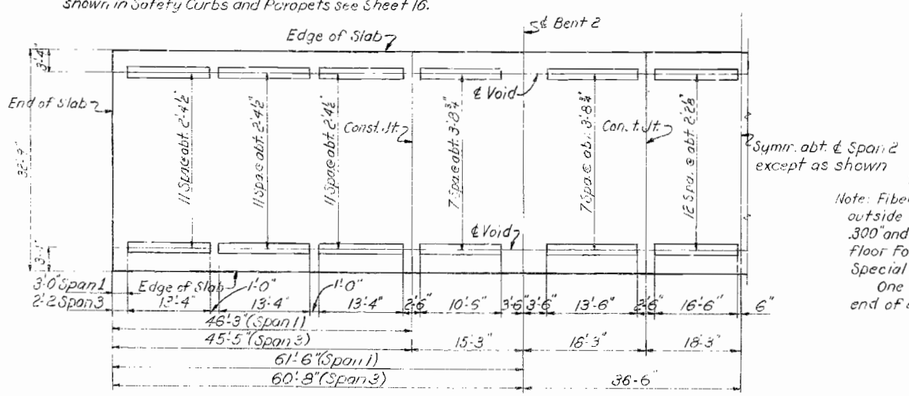


SECTION A-A



SECTION THRU SLAB VOID

Note: Fiber tubes for producing voids shall have an outside diameter of 18.70" and a wall thickness of .300" and shall be anchored to joists carrying the floor forms at not more than 4'-0" centers. See Special Provisions for metal tube alternate for voids.
One ¾" weephole shall be provided 3" from each end of each void.



VOID SPACING

NOTES

All longitudinal dimensions shown are horizontal.
Safety curbs and parapets to be cast independently of slab.
Payment for joint seal to be included in other items of work.
For top of slab elevations along profile grade see sheet 20.

BRIDGE OVER LYON & COLLIER STS., C.B.&Q., N.&W. R.R'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION COUNTY

SLAB SPANS 1, 2 & 3

SHEET 9 OF 21

A-1044

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

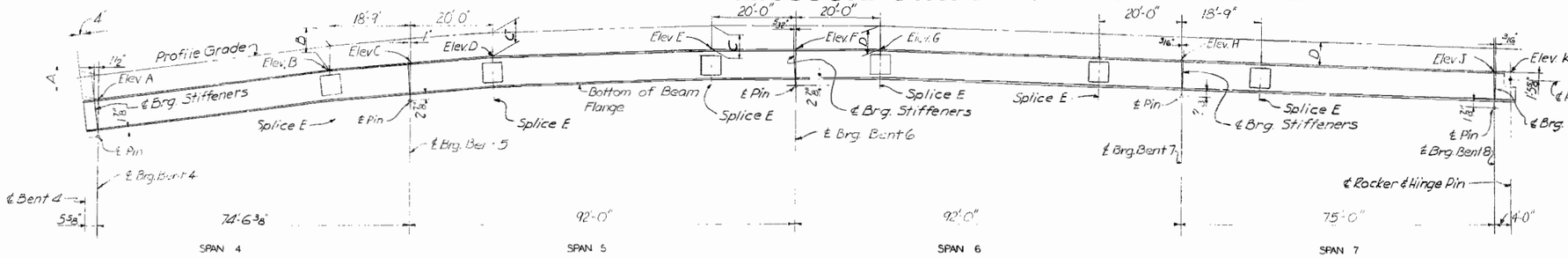
DRAWN BY: J. Booth, June 1985
TRACED BY:
CHECKED BY: L. Glossen Aug. 1985
2384
655347

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

329

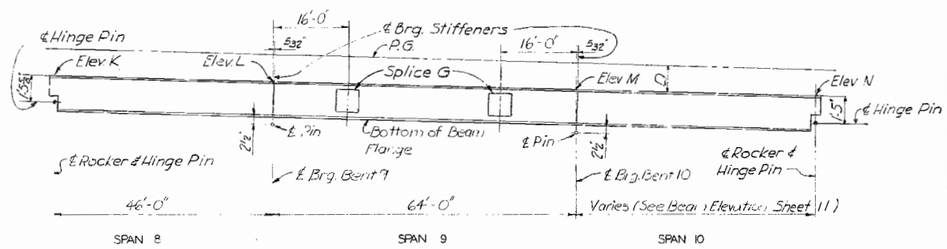
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	42	



Note: Top of beams are straight lines (under no load) between Elevs. A-B, B-D, D-E, E-G and from Elev. G to end of beams at Abut. 16.

SPANS 4 THRU 7

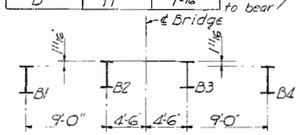


SPANS 8 THRU 10

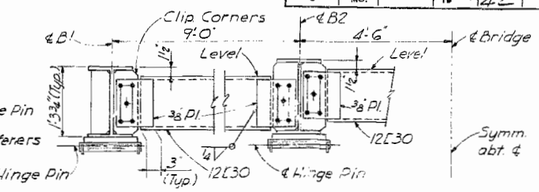
SHOE PIN ELEVATIONS					
Bent	Beam	Elev.	Bent	Beam	Elev.
4	B1, B4	491.89	11	B1	494.06
4	B2, B3	492.03	11	B2	494.14
5	B1, B4	494.56	11	B3	494.15
5	B2, B3	494.70	11	B4	494.01
6	B1, B4	495.50	12	B1	493.60
6	B2, B3	495.64	12	B2	493.68
7	B1, B4	495.08	12	B3	493.69
7	B2, B3	495.22	12	B4	493.53
8	B1, B4	494.80	13	B1	493.15
8	B2, B3	494.94	13	B2	493.23
9	B1, B4	495.03	13	B3	493.24
9	B2, B3	495.17	13	B4	493.08
10	B1, B4	494.71	14	B1	492.94
10	B2, B3	494.85	14	B2	493.02
			14	B3	493.03
			14	B4	492.89
			15	B1	493.37
			15	B2	493.47
			15	B3	493.47
			15	B4	493.33
			16	B1	493.19
			16	B2	493.29
			16	B3	493.30
			16	B4	493.14

DIMENSIONS A, B, C & D		
Dimension	B1, B4	B2, B3
A	10 15/16"	9 5/16"
B	10 1/2"	8 13/16"
C	10 5/8"	8 15/16"
D	11"	9 5/16"

Or grind to bear

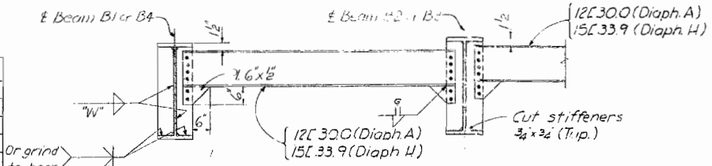


SECTION THRU BEAMS NORMAL TO ℄ BRIDGE



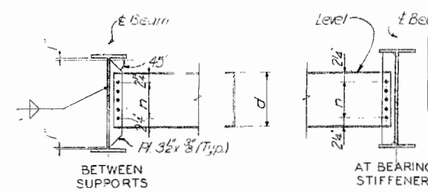
VIEW F-F – DIAPHRAGM E

Note: Expansion Device not shown



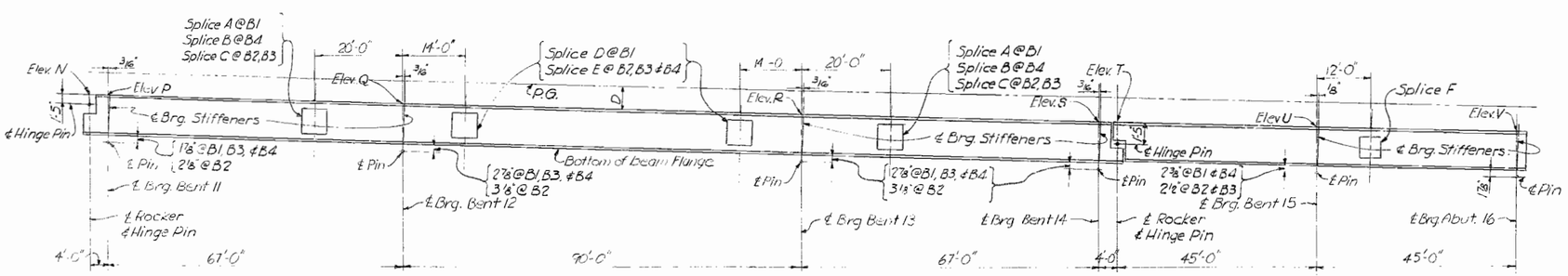
DIAPHRAGMS A, H, AND BEARING STIFFENERS

Note: Grind Brg. Stiffeners to bear at top.
"W" = 1/4" for stiffener plates to 3/4" thickness inclusive
"W" = 5/16" for stiffener plates over 3/4" thickness.
For welding of skewed stiffeners to web see sheet 14



Diaph.	d	n	Bent Plate
B	1'-9"	4 Spa.	27" x 5/16"
C	1'-6"	4 Spa.	24" x 5/16"
D	1'-3"	3 Spa.	21" x 5/16"

DIAPHRAGMS B, C, & D



SPANS 11 THRU 15

BEAM LAYOUT

Note: Cover Plates and Splice Plates not shown. See Sheets 11 & 12

TABLE OF ELEVATIONS																				
Beam	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V
B1	495.06	497.36	497.82	498.33	498.87	498.77	498.71	498.35	497.97	497.95	497.72	497.40	497.22	497.18	496.84	496.39	496.06	496.06	495.81	495.59
B2	495.20	497.50	497.96	498.47	499.01	498.91	498.85	498.49	498.11	498.09	497.86	497.54	497.34	497.30	496.97	496.52	496.18	496.18	495.94	495.71
B3	←			Same	as	B2						→	497.33	497.29	496.95	496.50	496.17	496.17	495.92	495.70
B4	←			Same	as	B1						→	497.17	497.13	496.80	496.35	496.01	496.01	495.77	495.54

Note: All elevations are to top of Beam Flange before deflections.

NOTES

All longitudinal dimensions are measured horizontally at top of beams.
All structural steel shall conform to A.S.T.M. Designation A36-62T except as noted.
Payment for structural steel will be made on Fabricated Structural Carbon Steel except as otherwise noted. The estimated quantity of Fabricated Structural Steel includes the weight of high strength bolts.
All field connections shall be made with 3/4" High Strength Bolts unless otherwise noted. All high strength bolts shall conform to A.S.T.M. Designation A325-61T.

BRIDGE OVER LYON & COLLIER STS., CB&Q, N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79TR) **STA.** 19+40.00

MARION **COUNTY**

BEAM DETAILS

SHEET 10 OF 21

A-1044

330

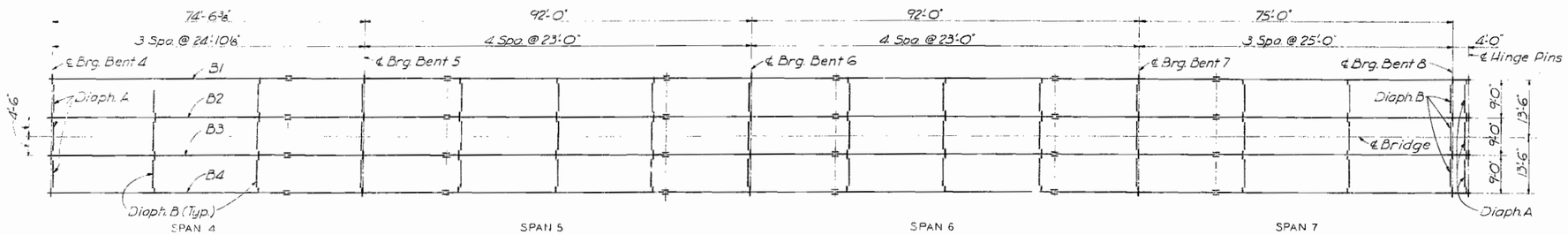
DRAWN BY: Carson July 1965
TRACED BY:
CHECKED BY: Dillon, Aug. 1965
2354
655377

SVERDHUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

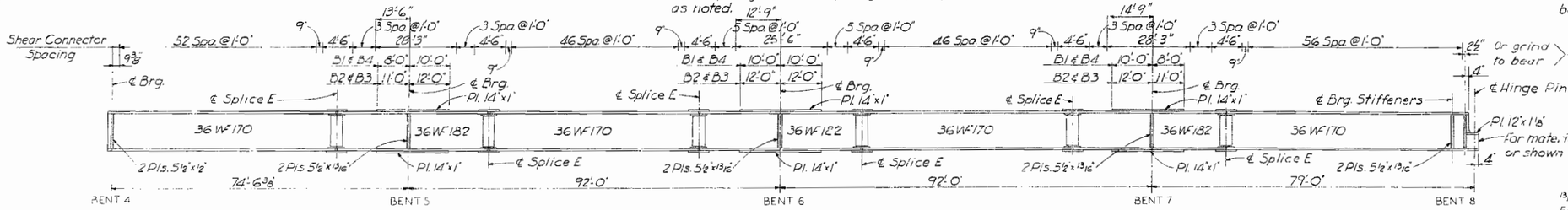
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	43	



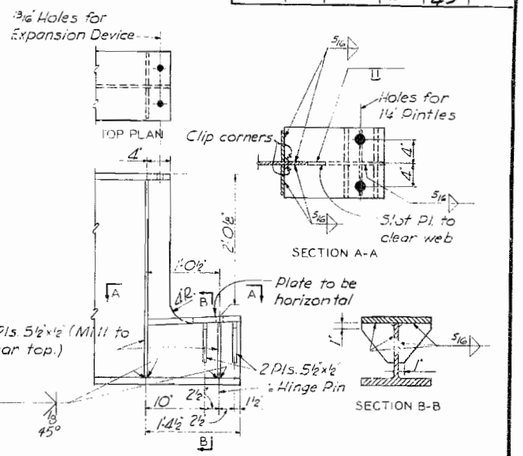
FRAMING PLAN - SPANS 4 THRU 7

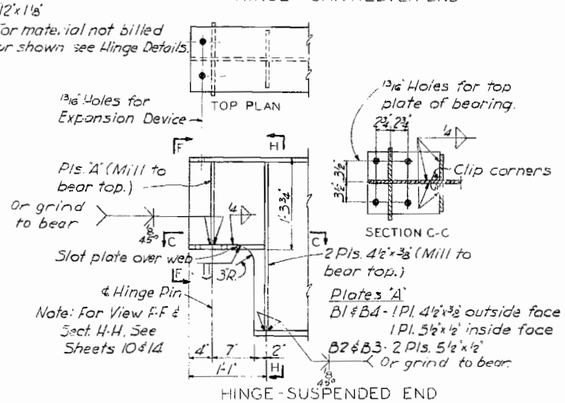
Note: All dimensions are measured horizontally. All diaphragms are Diaphragm B, except as noted.



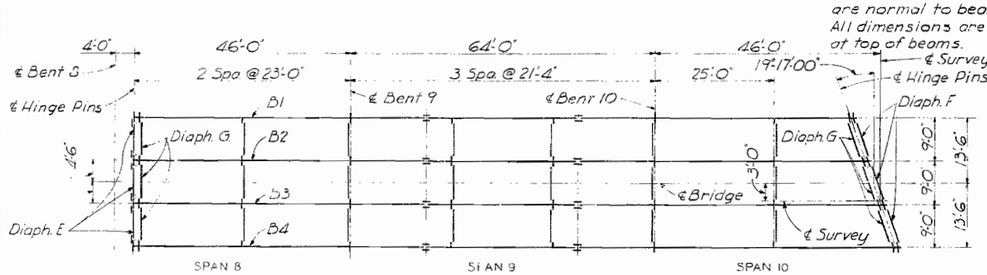
ELEVATION - SPANS 4 THRU 7

Notes: For Splice locations, See Sheet 10
All Stiffeners and Diaphragm Conn. plates are normal to beam flanges.
All dimensions are measured horizontally at top of beams.



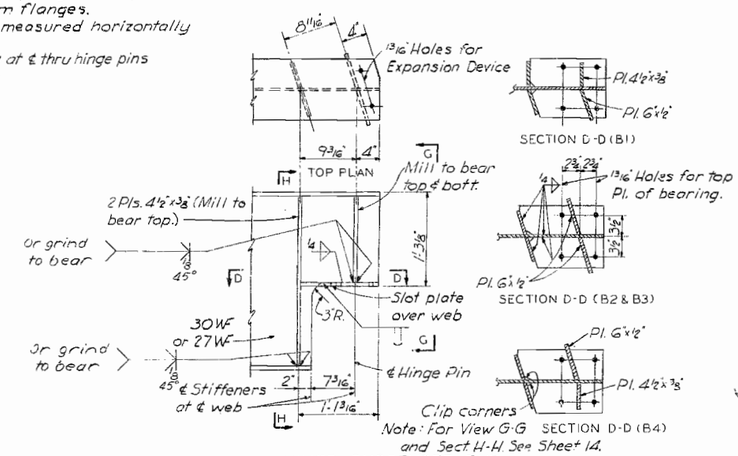


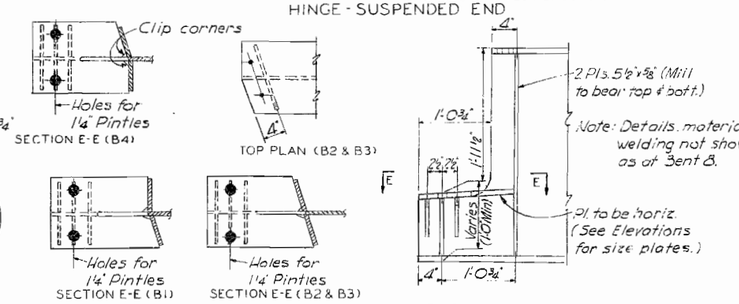
HINGE DETAILS - BENT 6
(For Assembly See Sheet 14)



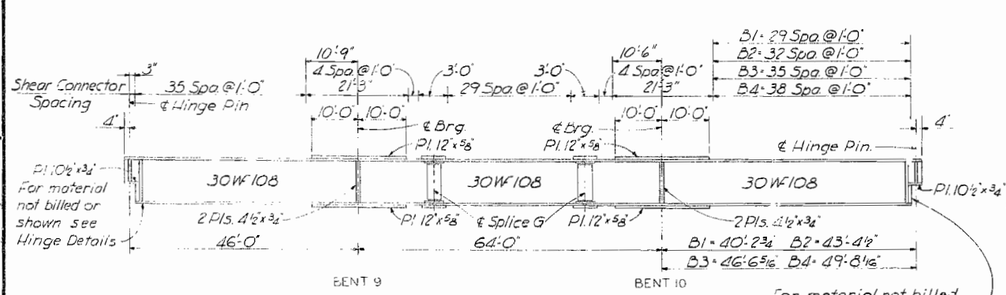
FRAMING PLAN - SPANS 8, 9 & 10

Notes: All Diaphragms are Diaphragm C except as noted.
All dimensions are measured horizontally at top of beams



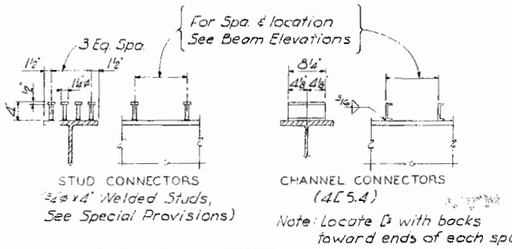


HINGE DETAILS - BENTS 11 & 14



ELEVATION - SPANS 8, 9 & 10

Notes: All Stiffener and diaphragm conn. plates are normal to beam flanges
For Splice locations, See Sheet 10
All dimensions are measured horizontally at top of beams.



SHEAR CONNECTORS

Pay weight for shear connectors will be based on weight of studs regardless of type actually furnished.
One 4 [5.4 shall be equivalent to one row of 4" ø stud connectors.

BRIDGE OVER LYON & COLLIER STS., CB&Q, N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION **COUNTY**

FRAMING PLAN - SPANS 4 THRU 10

SHEET 11 OF 21

A-1044

331

DRAWN BY: G. Meuer Aug 1965
TRACED BY: 2384
CHECKED BY: Dillon Aug 1965
655367

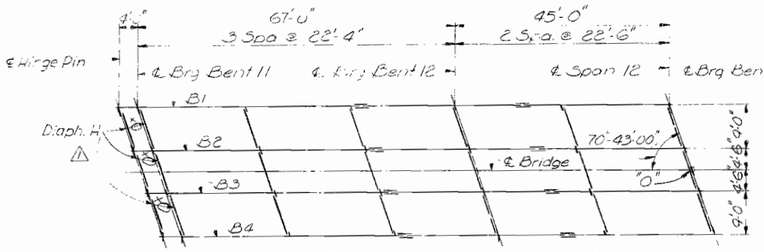
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

NO CONSTRUCTION

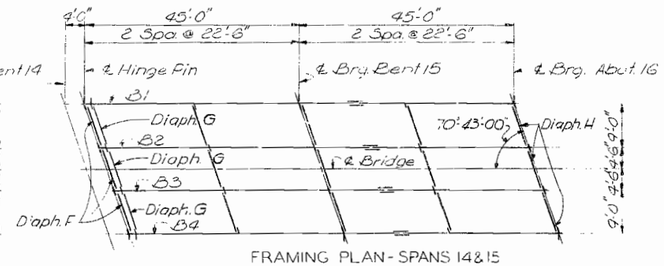
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	NO.		19	44	



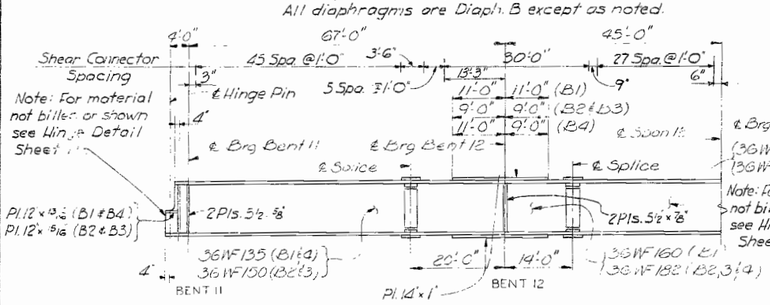
HALF FRAMING PLAN - SPANS 11 12 & 13

Note: Spans 11, 12 & 13 symmetrical by 180° rotation about point O, except at centerline. All diaphragms are Diaph. B except as noted.

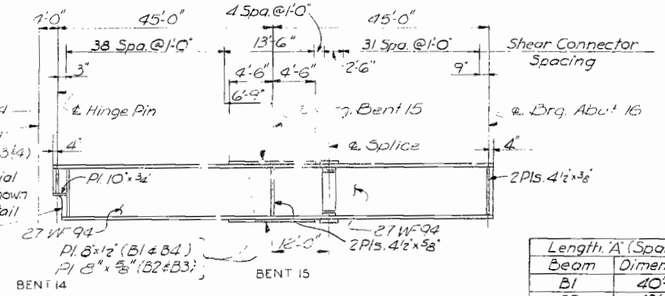


FRAMING PLAN - SPANS 14 & 15

Note: All diaphragms are Diaph. D except as noted.

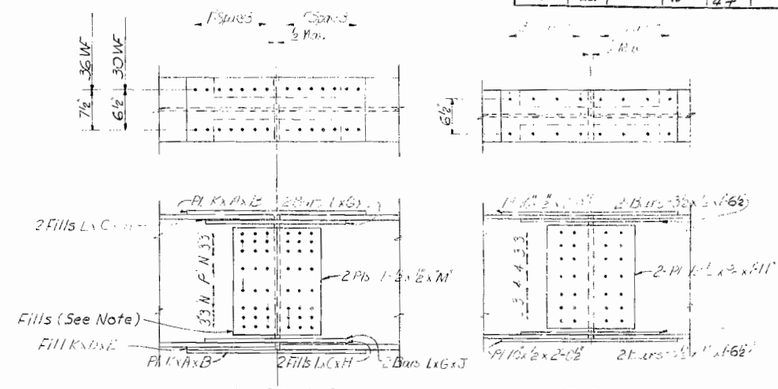


HALF ELEVATION - SPANS 11, 12 & 13



ELEVATION - SPANS 14 & 15

Length "A" (Span 10)	
Beam	Dimension
B1	40'-2¾"
B2	43'-4½"
B3	46'-6 5/16"
B4	49'-8 1/16"



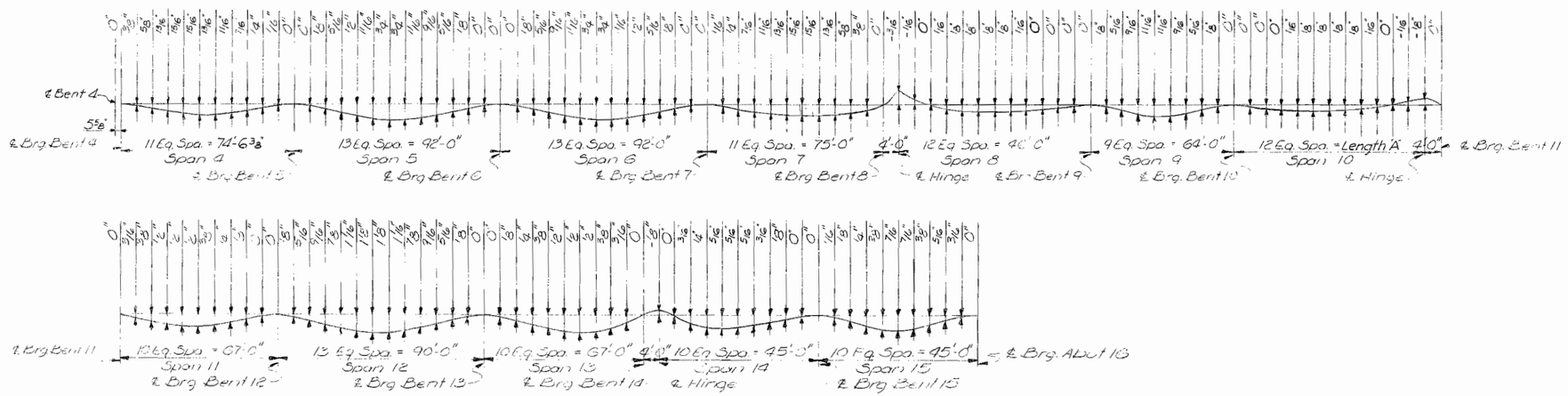
30 WF & 36 WF

27 WF 94

Splice		A	B	C	D	E	F	G	H	I	J	K	L	M	N	P
A	36WF135 to 160	1½	2'-6½	1⅜	1 9/16	1'-3"	4	5⅝	1'-3"	2'-6½	12"	4½	2'-7"	5"	6"
B	" " 182	1½	2'-6½	⅞	¾	1'-3"	4	5½	1'-3"	2'-6½	12"	4½	2'-7"	5"	6"
C	36WF150 to 182	⅝	3'-0½	1⅜	½	1'-6"	5	5½	1'-3"	2'-6½	12"	4½	2'-7"	5"	6"
D	36WF160 to 160	⅝	3'-6½	—	—	—	6	5½	—	2'-6½	12"	4½	2'-7"	5"	6"
E	36 WF170 to 182	¾	4'-0½	14Ga.	8Ga.	2'-[illegible]	7	5½	1'-3"	2'-6½	12"	4½	2'-7"	5"	6"
G	30WF108 to 108	½	2'-6½	-	-	-	4	½	9"	1'-6½	10½	4"	2'-2"	3"	5"

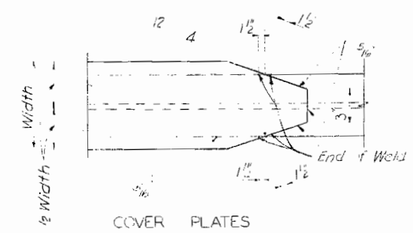
SPLICES

Note: Use ¾" A.B.P. strength bolts in Splices.
For Splices B and C use ⅛" fill each side of web on lighter beam.



DEAD LOAD DEFLECTION ORDINATES

Note: Deflections are for full dead load exclusive of future wearing surface. Deflections due to weight of steel only equals about 17% of ordinates shown.



COVER PLATES

NOTES

All transverse and longitudinal dimensions are measured horizontally.
All stiffeners and diaphragm connection plates are normal to beam flanges.

BRIDGE OVER LYON & COLLIER STS., CB&Q. N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UC-79-1(5)(RTE.79TR) **STA.** 19+40.00

MARION **COUNTY**

FRAMING PLAN - SPANS 11 THRU 14

SHEET 12 OF 21

A-1044

332

DRAWN BY: Gunning June 1965
TRACED BY: 2389
CHECKED BY: Dillon Aug. 1965
665368

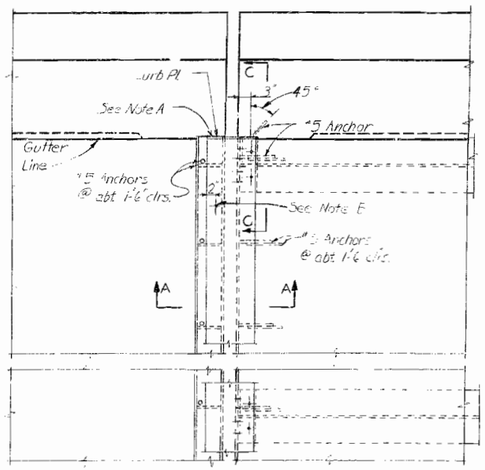
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

△ Revised July 1966

MISSOURI STATE HIGHWAY DEPARTMENT

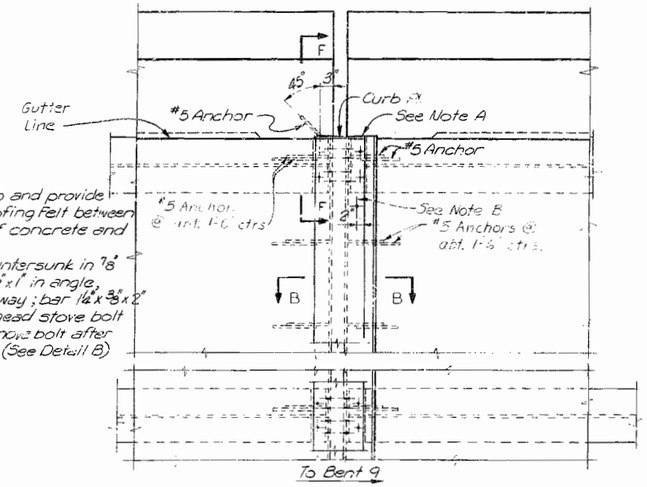
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	43	



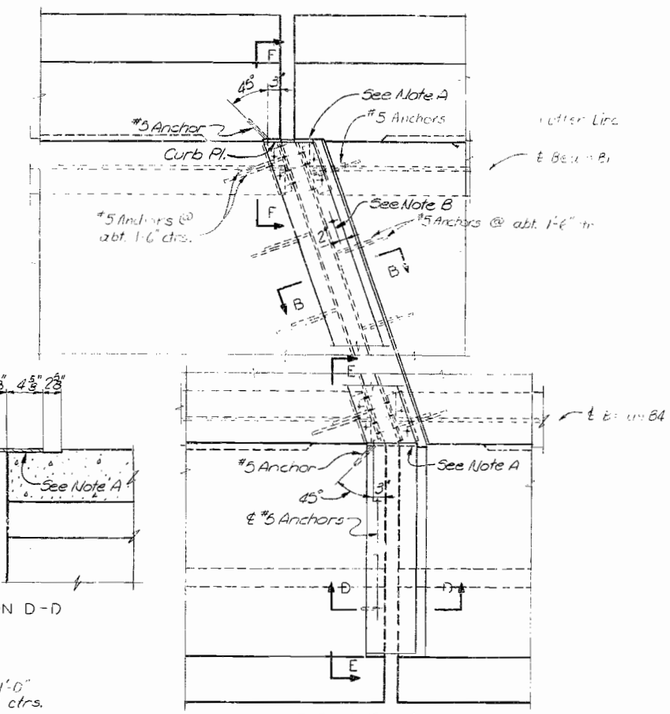
PART PLAN-BENT 4

Note A: Recess curb and provide 2 layers of 55# Roofing Felt between sliding surfaces of concrete and curb pl.

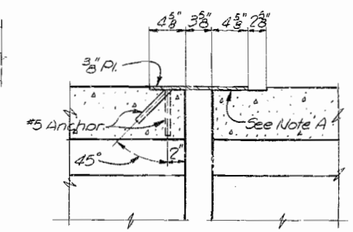
Note B: 7/16" ϕ hole countersunk in 7/8" pl.; slotted hole 2"x1" in angle, parallel to ℄ roadway; bar 1 1/4"x 3/8"x 2" tapped for 3/8" flat head stove bolt @ abt. 4'-0" ctrs. Remove bolt after concrete has set. (See Detail B)



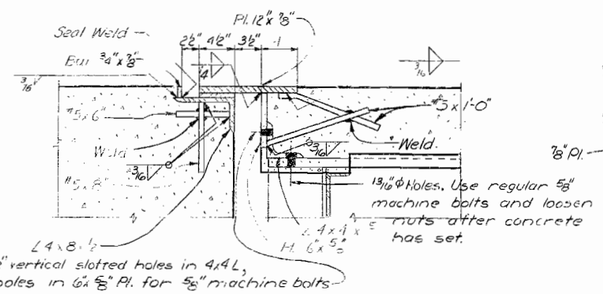
PART PLAN NEAR BENT 8



PART PLAN NEAR BENTS 11 AND 14

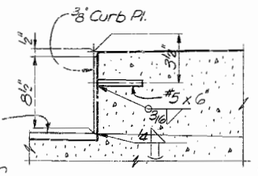


SECTION D-D



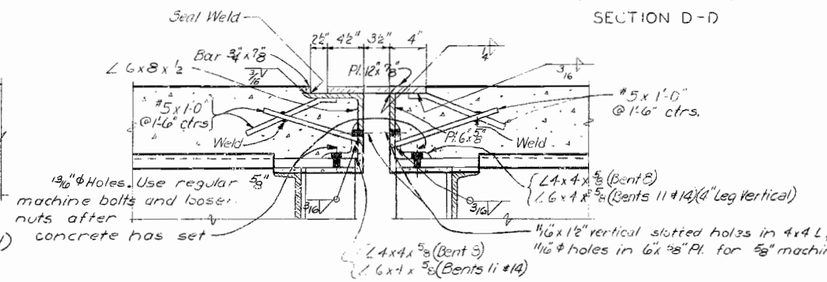
SECTION A-A

Note: See Detail A for additional details of plates.

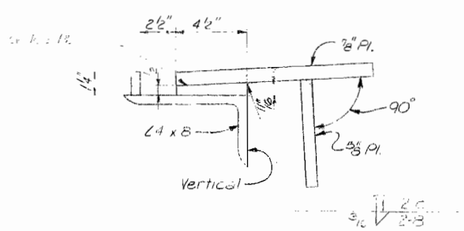


SECTION C-C

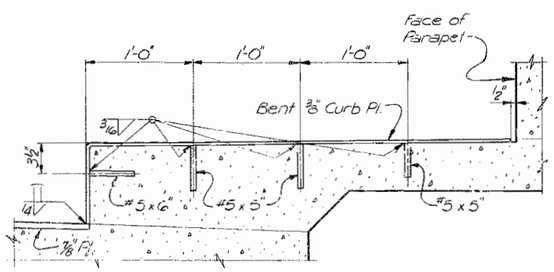
(Section F-F opposite hand)



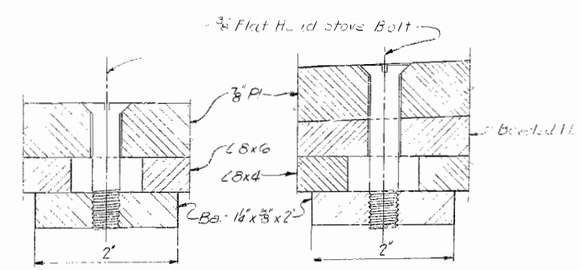
SECTION B-B



DETAIL A



SECTION E-E



AT BENTS 8, 11 & 14 — AT BENT 4

DETAIL B

NOTES

Expansion Device shall be fabricated in one section and erected to fit crown and grade of roadway.

Expansion Device is shown in normal position at a temperature of 60°F.

All material for Expansion Device is included in the quantities for Fabricated Structural Carbon Steel and will be paid for as such.

All material in Expansion Device except #5 Bars shall conform to A.S.T.M. Designation A36-62T.

Approved stud welded anchors may be used in lieu of #5 Anchors. #5 Bars shall be of structural grade.

All field connections shall be made with 3/4" high strength bolts, except as noted.

BRIDGE OVER LYON & COLLIER STs., CB&Q, N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE.Y SOUTH TO RTE.AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION COUNTY

EXPANSION DEVICES

SHEET 13 OF 21

A-1044

333

DRAWN BY: Ca. 1971, June, 1965
TRACED BY:
CHECKED BY: T.V. Dillon, Aug. 1965
2394
65313

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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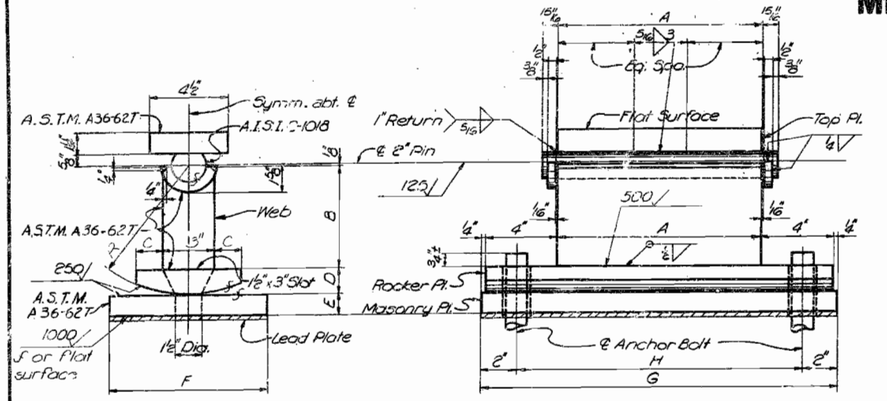
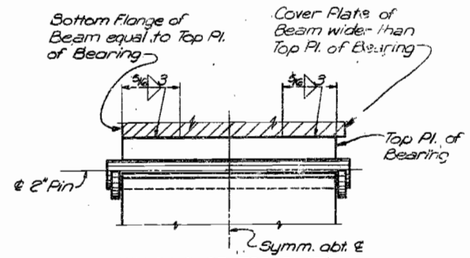
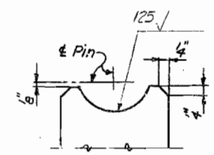


EXPANSION

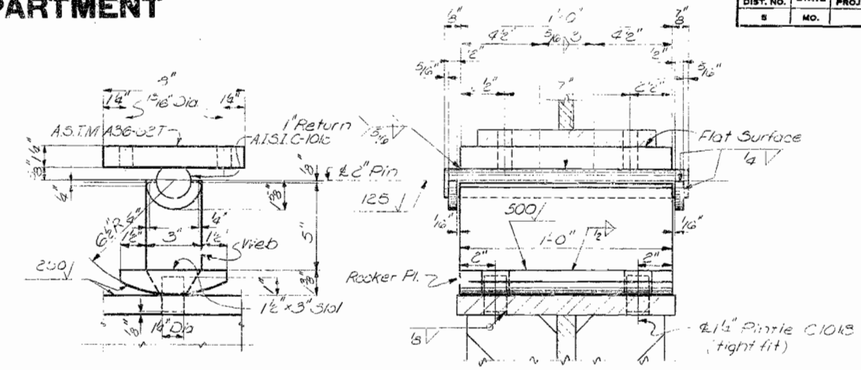
Note: Anchor Bolts shall be 1½" diameter swedged bolts and shall extend 1'-0" minimum into concrete.



WELDING OF TOP PLATE TO BEAM



END VIEW OF WEB

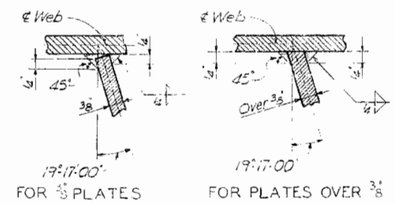


EXPANSION BEARING AT HINGES

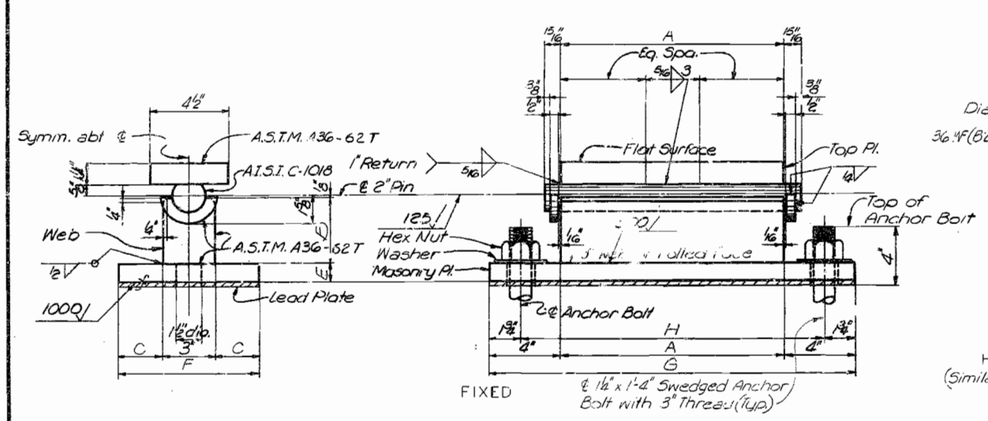
Note: For End View of Web not shown, see Expansion Bearing at Bents.

VARIABLE DIMENSIONS FOR EXPANSION BEARINGS AT BENTS												
Location	No. Req'd.	Est. Wt. Ea.	A.B. Length	A	B	C	D	E	F	G	H	R
Bent 4	4	219 Lb.	1'-4"	1'-0"	5⅜"	1½"	1¾"	1½"	10"	1'-3⅜"	1'-4½"	7½"
Bent 5	4	469 Lb.	1'-5¾"	1'-2"	8¼"	2"	2⅝"	2¾"	1'-3"	1'-10⅝"	1'-6½"	10½"
Bents 7 & 12	8	406 Lb.	1'-5½"	1'-1"	8⅝"	2"	2⅝"	2½"	1'-2"	1'-9⅝"	1'-5⅜"	10½"
Bent 11 & 14	8	267 Lb.	1'-4½"	1'-1"	5½"	2"	1¾"	1¾"	11"	1'-9⅝"	1'-5⅜"	7½"
Bent 8	4	300 Lb.	1'-5"	1'-1"	5⅜"	2"	2"	2"	1'-0"	1'-9⅝"	1'-5⅜"	7½"
Bent 10	4	274 Lb.	1'-5"	11½"	5⅜"	2"	2"	2"	1'-0"	1'-8"	1'-4"	7½"
Abut. 16	4	160 Lb.	1'-3¾"	10"	4¾"	1½"	1⅝"	1¼	9"	1'-6½"	1'-2½"	6½"

Note: A.B. indicates Anchor Bolt.

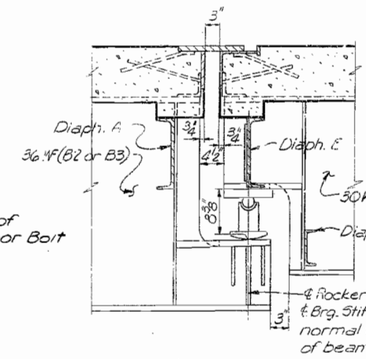


SKEWED STIFFENER WELDING



FIXED

℄ 1½" x 1'-4" Swedged Anchor Bolt with 3" Thread (Typ.)



HINGE ASSEMBLY NEAR BENT 8

(Similar and opposite hand near Bents 11 and 14)

VARIABLE DIMENSIONS FOR FIXED BEARINGS AT BENTS										
Location	No. Req'd.	Est. Wt.	A.B. Length	A	B	C	E	F	G	H
Bents 6 & 13	8	207 Lb.	1'-4"	1'-1"	3"	5"	1⅞"	1'-1"	1'-9"	1'-5⅜"
Bent 9	4	196 Lb.	1'-4"	11½"	3⅜"	4"	1½"	11"	1'-7½"	1'-4"
Bent 15	4	118 Lb.	1'-4"	11"	3"	3¼"	1¼"	10"	1'-7"	1'-3½"

Note: Dimension 'J' to be 1½" at B2 only at Bents 11, 12, 13, 14, 15 and Abut. 16, and 1¼" at all other shoes.

BEARINGS

Note: Estimated Weights do not include weight of Anchor Bolts.

BEARING NOTES

Rockers of expansion bearings shall be vertical at 60°F.

Where Flat surface is indicated, tolerance shall be .003 in. per in. in any direction.

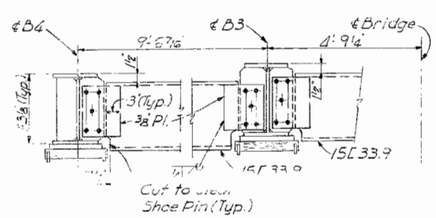
Machined surfaces shall be finished as shown in accordance with Standard Specification 55.3.25. Bottom of masonry plates on Fixed Bearings and bottom of rocker plates on Expansion Bearings shall be finished after welding.

Lead Plates shall be approximately ⅛" thick and weigh 3 lbs. per sq. ft. Cost of lead plates shall be included in the prices bid for other items.

All material for Bearings including anchor bolts is included in the quantities for fabricated Structural Carbon Steel, and will be paid for as such.

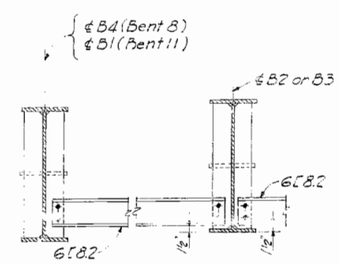
Contact surfaces of Pins, Web Plates, Rockers, and Masonry plates shall be coated in accordance with Standard Specification 55.2.7

Anchor Bolts shall be set in accordance with Standard Specification 55.4.4.



DEVELOPED VIEW G-G

DIAPHRAGM F



DEVELOPED SECTION H-H

DIAPHRAGM E

Note: For location of View G-G and Section H-H see sheet 11.

BRIDGE OVER LYON & COLLIER STS., C.B.Q., N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION COUNTY

BEARINGS AND DETAILS

SHEET 14 OF 21

A-1044

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

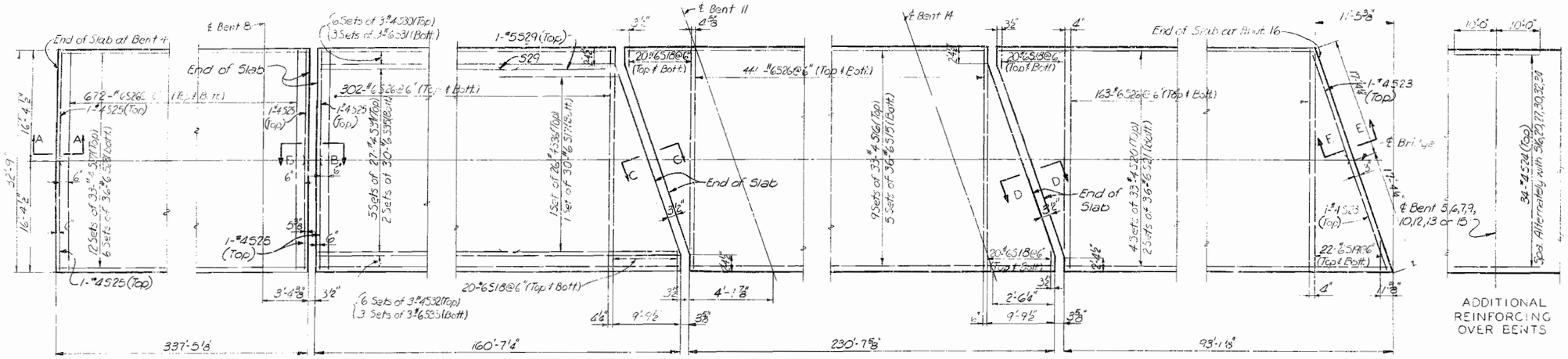
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: Gunnin July
TRACED BY:
CHECKED BY: T.K. Dillon, Aug. 1
2384
655370

334

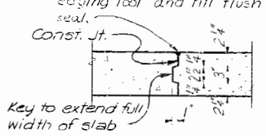
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	217	

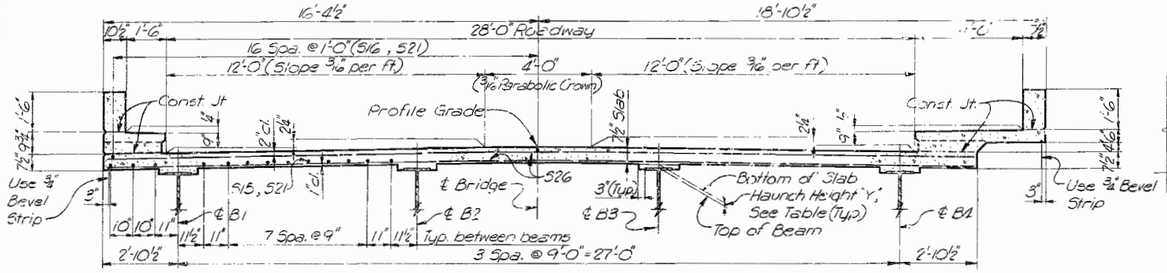


PLAN

ADDITIONAL REINFORCING OVER BENTS

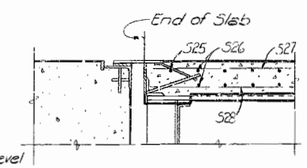


CONSTRUCTION JOINT DETAIL

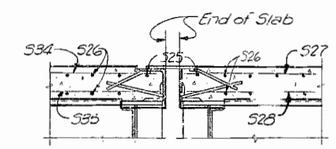


Note: Reinforcing steel in sidewalk, safety curb and parapets not shown, see Sheet 16.

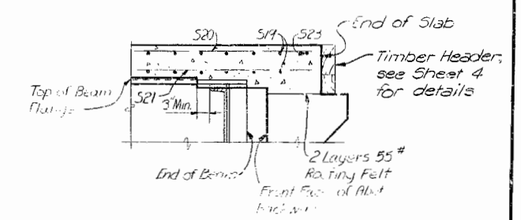
SECTION THRU SLAB-SPANS 11 THRU 15
(Half Section thru Slab-Spans 4 thru 10 same as left half of section shown and symm. about ℄ Bridge.)



SECTION A-A



SECTION B-B
SECTION C-C & D-D SIMILAR



SECTION E-E

NOTES

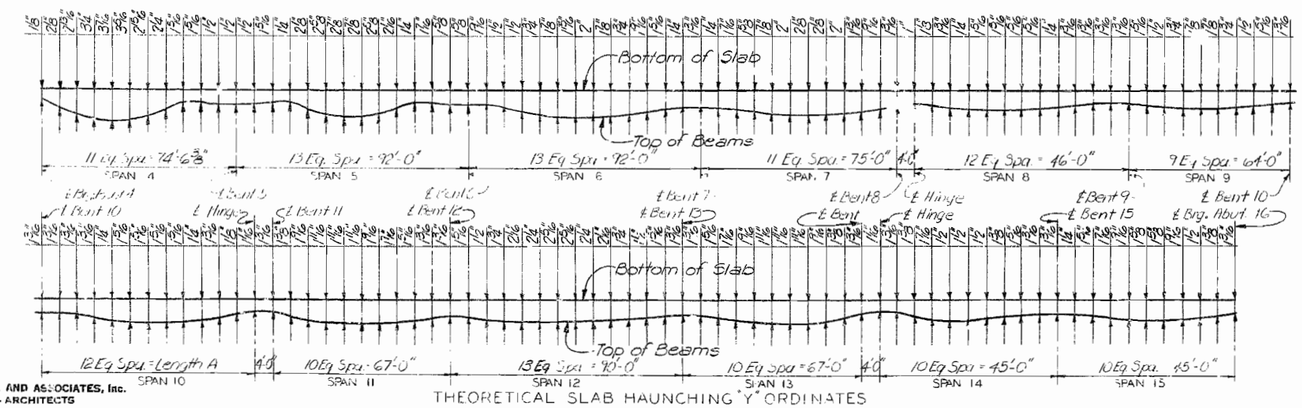
All longitudinal and transverse dimensions shown are horizontal. Payment for joint seal to be included in other items of work.

The slab shall be built to proper finished grade and to a uniform thickness of 7½". Dead load deflection shall be compensated for by haunching to top of beams (not cover plates) the amount shown. This additional concete is included in "Estimated Quantities.

For dead load deflection ordinates, see Sheet 12.

Longitudinal Reinforcing Steel shall be placed so that ends shall not be more than 1" from ⅝" plate and 4"x4" or 6"x4" angles at Expansion Devices.

For Pouring Sequence, see Sheet 6.



Note: For Span Length A, see Sheet 11.

THEORETICAL SLAB HAUNCHING "Y" ORDINATES

BRIDGE OVER LYON & COLLIER STS., C.B.&Q., N.&W. R.R.'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR.) **STA.** 19+40.00

MARION COUNTY

SLAB-SPANS 4 THRU 15

SHEET 15 OF 21

A-1044

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

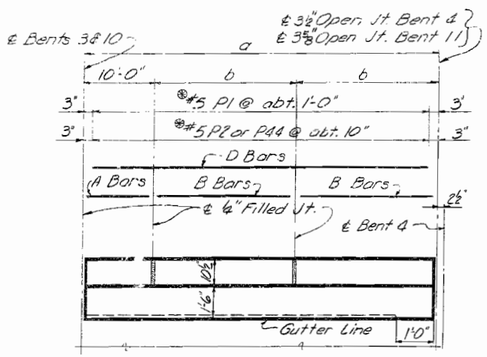
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: Carson, June, 1965
TRACED BY: W. Dillon, Aug. 1965
CHECKED BY:

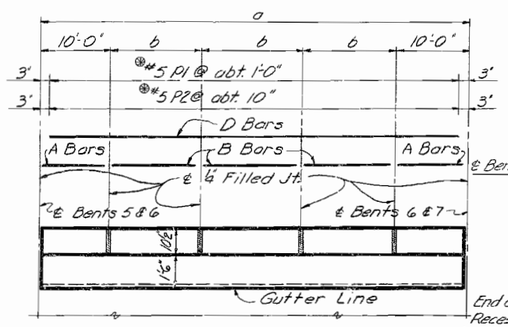
335

MISSOURI STATE HIGHWAY DEPARTMENT

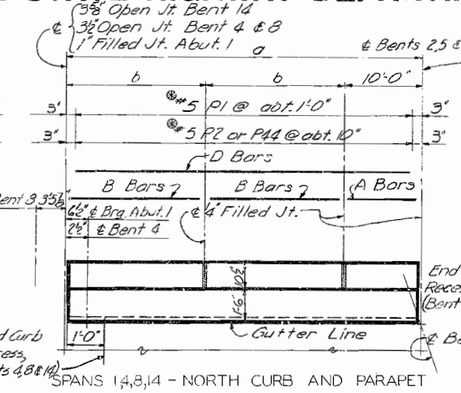
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	48	



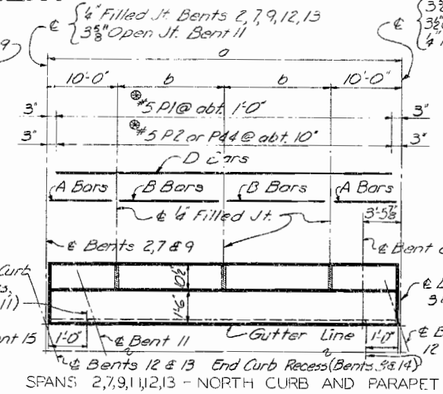
SPAN 3 - NORTH CURB AND PARAPET
SPANS 3,10 - SOUTH CURB AND PARAPET



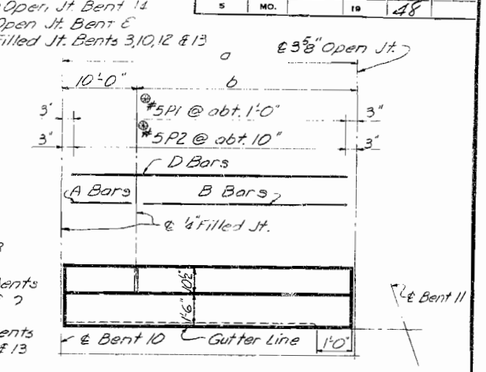
SPANS 5,6 - NORTH CURB AND PARAPET
SPANS 5,6 - SOUTH CURB AND PARAPET



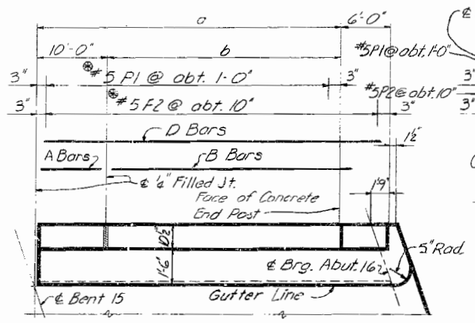
SPANS 1,4,8,14 - NORTH CURB AND PARAPET
SPANS 1,4,8 - SOUTH CURB AND PARAPET



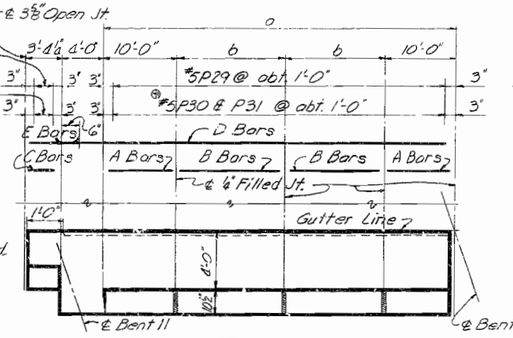
SPANS 2,7,9,11,12,13 - NORTH CURB AND PARAPET
SPANS 2,7,9 - SOUTH CURB AND PARAPET



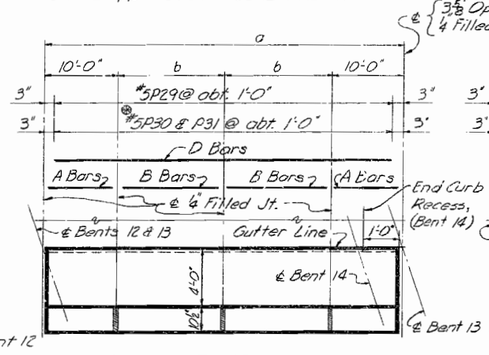
SPAN 10 - NORTH CURB AND PARAPET



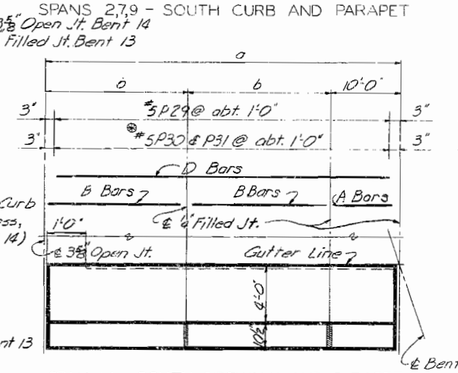
SPAN 15 - NORTH CURB AND PARAPET



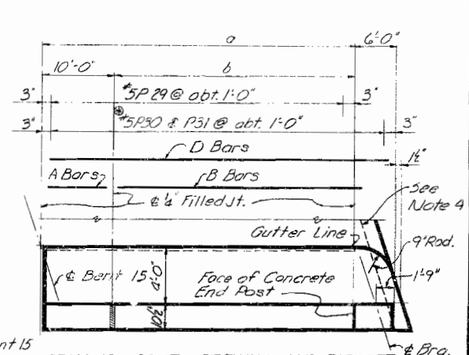
SPAN 11 - SOUTH SIDEWALK AND PARAPET



SPANS 12,13 - SOUTH SIDEWALK AND PARAPET



SPAN 14 - SOUTH SIDEWALK AND PARAPET



SPAN 15 - SOUTH SIDEWALK AND PARAPET
Note A: Haunch concrete to top of abutment backwall.

PLAN

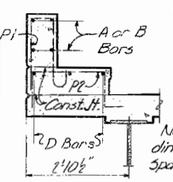
Note: Supports for light standards not shown. For location and details see Sheet 20.

⊛ Note: P1, P2, P30 and P31 Bars are placed as shown between curb outlets.

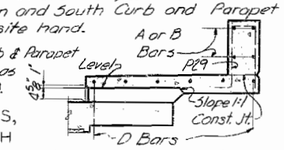
Note: Where North & South Curbs and Parapets are shown in one Plan, North Curb and Parapet is shown and South Curb and Parapet is opposite hand.

	DIMENSIONS AND REINFORCEMENT																
				Parapet						Curbs & Sidewalk							
	Span	a	b	#5P1	#5P29	#5P4	A Bars	B Bars	C Bars	No. of Outlets	D Bars	#5P2	#5P30	#5P31	#5P44
North and South Curb and Parapet	1	61'-6½"	25'-9¼"	62	—	—	4-#5P3	2 Sets of 4-#5P5	—	—	2 Sets of 3-#5P6	—	—	—	74
	2	73'-0"	26'-6"	74	—	—	2 Sets of 4-#5P3	2 Sets of 4-#5P7	—	—	3 Sets of 3-#5P8	—	—	—	88
	3	60'-9½"	25'-4⅜"	61	—	—	4-#5P3	2 Sets of 4-#5P9	—	—	2 Sets of 3-#5P41	—	—	—	73
	4	75'-2½"	32'-7¼"	61	—	10	4-#5P3	2 Sets of 4-#5P10	—	10	2 Sets of 3-#6P11	73	—	—	—
	5	92'-0"	24'-0"	86	—	5	2 Sets of 4-#5P3	3 Sets of 4-#5P12	—	5	4 Sets of 3-#6P13	102	—	—	—
	6	92'-0"	24'-0"	80	—	9	2 Sets of 4-#5P3	3 Sets of 4-#5P12	—	9	4 Sets of 3-#6P13	95	—	—	—
	7	78'-5⅜"	29'-2 15/16"	61	—	12	2 Sets of 4-#5P3	2 Sets of 4-#5P14	—	12	2 Sets of 3-#6P15	74	—	—	—
	8	46'-6⅜"	18'-3 1/16"	36	—	6	4-#5P3	2 Sets of 4-#5P16	—	8	2 Sets of 3-#6P17	42	—	—	—
	9	64'-0"	22'-0"	50	—	10	2 Sets of 4-#5P3	2 Sets of 4-#5P18	—	10	2 Sets of 3-#6P19	60	—	—	—
North Curb and Parapet	10	40'-7⅜"	30'-7⅛"	33	—	6	4-#5P3	4-#5P39	—	6	3-#6P20	39	—	—	—
	11	70'-5⅜"	25'-2 15/16"	58	—	9	2 Sets of 4-#5P3	2 Sets of 4-#5P21	—	9	2 Sets of 3-#6P22	69	—	—	—
	12	90'-0"	35'-0"	75	—	15	2 Sets of 4-#5P3	2 Sets of 4-#5P23	—	15	3 Sets of 3-#6P43	82	—	—	—
	13	70'-5⅜"	25'-2 15/16"	55	—	11	2 Sets of 4-#5P3	2 Sets of 4-#5P21	—	11	2 Sets of 3-#6P22	66	—	—	—
	14	45'-6⅜"	17'-9 1/16"	41	—	4	4-#5P3	2 Sets of 4-#5P42	—	4	2 Sets of 3-#6P24	48	—	—	—
	15	39'-11⅛"	29'-11⅛"	32	—	6	4-#5P3	4-#5P25	—	6	2 Sets of 3-#6P26	38	—	—	—
South Sidewalk and Parapet	10	50'-4⅜"	20'-2 15/16"	39	—	—	4-#5P3	2 Sets of 4-#5P27	—	8	2 Sets of 3-#6P28	47	—	—	—
	11	63'-1⅜"	21'-6 1/16"	4	52	—	2 Sets of 4-#5P3	2 Sets of 4-#5P32	4-#5P38	8	3 Sets of 6-#4P33 ⊠	4	52	52	—
	12	90'-0"	35'-0"	—	69	—	2 Sets of 4-#5P3	2 Sets of 4-#5P23	—	15	4 Sets of 6-#4P34	—	69	69	—
	13	70'-5⅜"	25'-2 15/16"	—	55	—	2 Sets of 4-#5P3	2 Sets of 4-#5P21	—	11	3 Sets of 6-#4P35	—	55	55	—
	14	45'-6⅜"	17'-9 1/16"	—	39	—	4-#5P3	2 Sets of 4-#5P42	—	5	2 Sets of 6-#4P36	—	39	39	—
	15	42'-2"	32'-2"	—	33	—	4-#5P3	4-#5P45	—	7	2 Sets of 6-#4P37	—	33	33	—

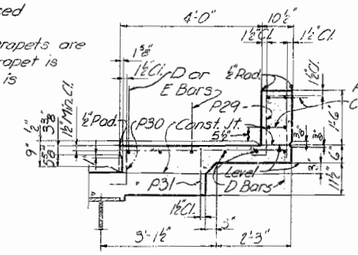
⊠ Note: E Bars, Span 11, South Curb to be 3-#5P40.



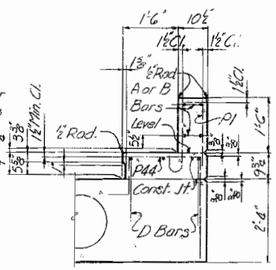
SECTION THRU NORTH CURBS, SPANS 4 THRU 15 AND SOUTH CURBS, SPANS 4 THRU 10



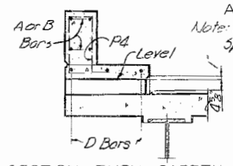
SECTION THRU SIDEWALK AT CURB OUTLET
Note: Dim. same as South Sidewalk, Spans 11 thru 15.



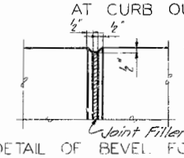
SECTION THRU SOUTH SIDEWALK SPANS 11 THRU 15



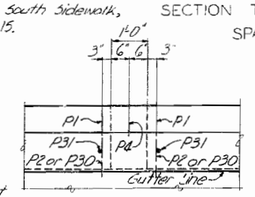
SECTION THRU NORTH AND SOUTH CURB AND PARAPET SPANS 1,2 & 3



SECTION THRU SAFETY CURB AT CURB OUTLET
Note: Curb & Parapet dim. same as Spans 1,2 & 3.



DETAIL OF BEVEL FOR FILLED JOINT



PLAN OF CURB OUTLET
Note: For location of curb outlets see Sheet 20.

NOTES

All longitudinal dimensions are measured horizontally along profile grade.

Omit curve on curbs when drain basin is provided on approach slab.

BRIDGE OVER LYON & COLLIER STS., CB&Q, N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79TR) **STA.** 19+40.00

MARION COUNTY

SAFETY CURBS, PARAPETS AND SIDEWALK

SHEET 16 OF 21

A-1044

336

DRAWN BY: S. Mezines, July 1965
TRACED BY: 65544
CHECKED BY: W. D. Wilden, Aug. 1965
2384

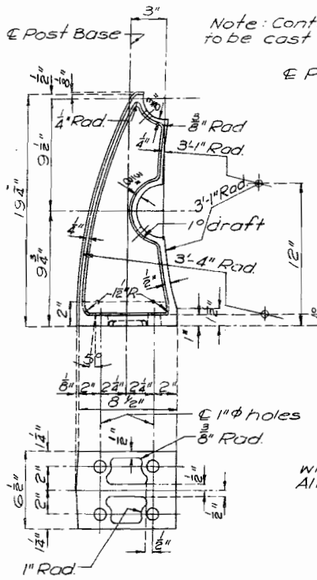
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

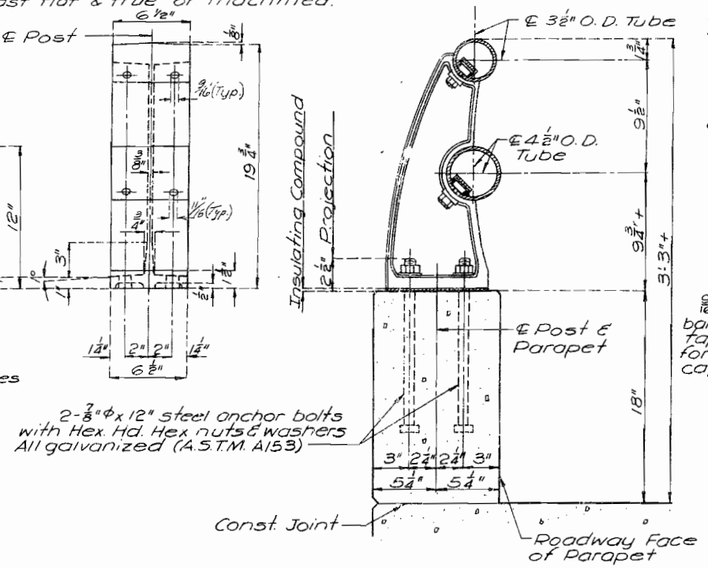
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	49	

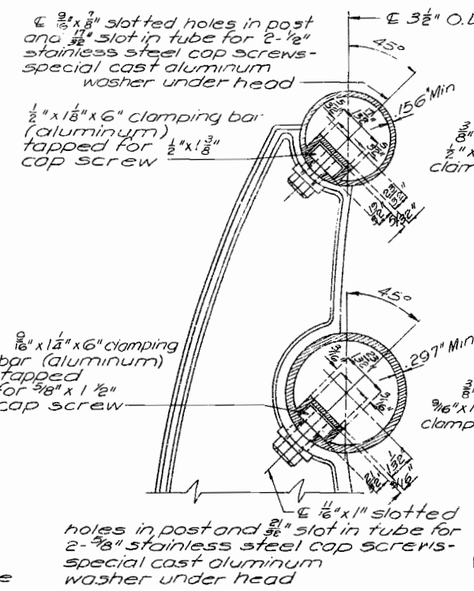
Note: Contact surfaces of tubes & post to be cast flat & true or machined.



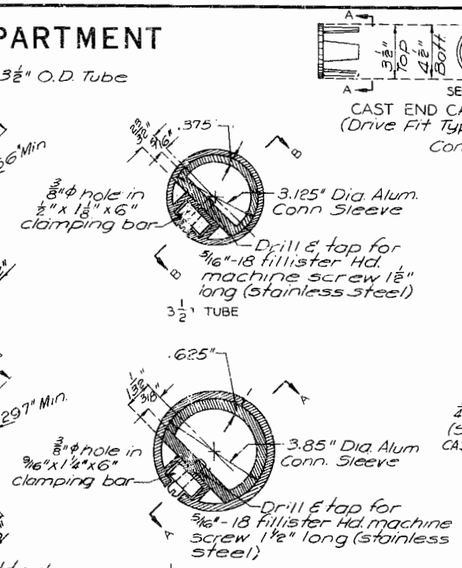
HANDRAIL POST



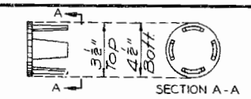
SECTION THRU HANDRAIL



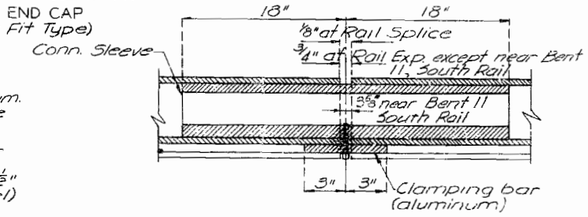
RAIL ATTACHMENT TO POST



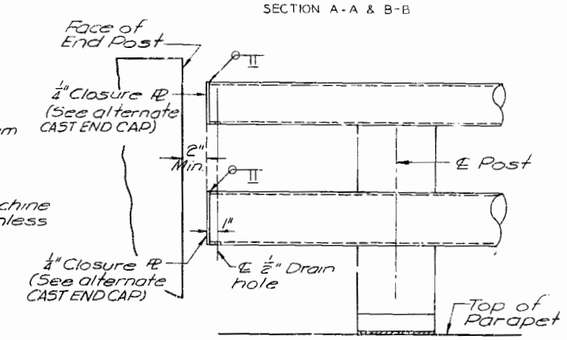
TWO TUBE ALUMINUM RAIL



CAST END CAP
(Drive Fit Type)

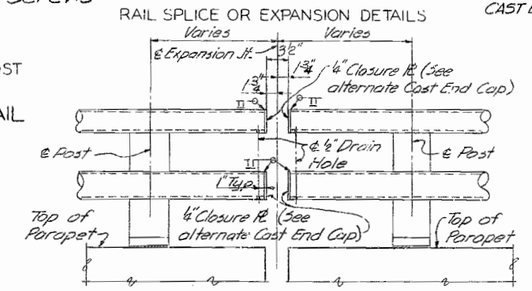


SECTION A-A & B-B



ELEVATION AT END RAIL POST

RAIL SPLICE OR EXPANSION DETAILS



ELEVATION OF RAIL AT EXPANSION DEVICES
(Typ. except for South Rail near Bent 11 see Section AA & BB)

GENERAL NOTES:

All handrail posts shall be set normal to grade.

Aluminum tube handrail shall be bent to conform to vertical and horizontal alignment of parapet.

Top of curbs and parapets to be built parallel to grade. Concrete end post to be vertical.

All exposed edges of end posts and parapet to have 1/8" radius.

All outside corners of aluminum post to have 1/8" radius except as noted.

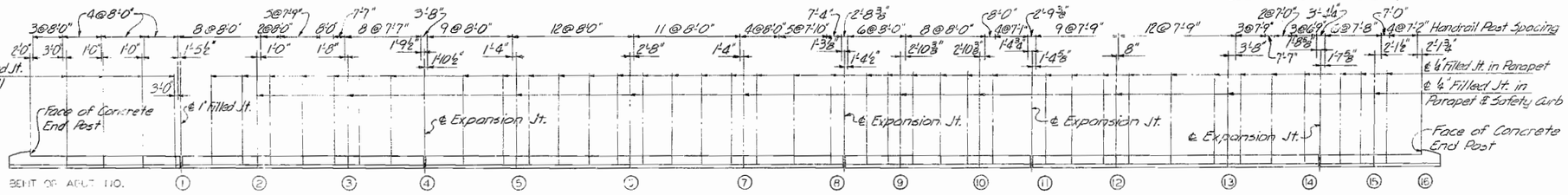
All fillets 1/4" except as noted.

All drafts 2° except as noted.

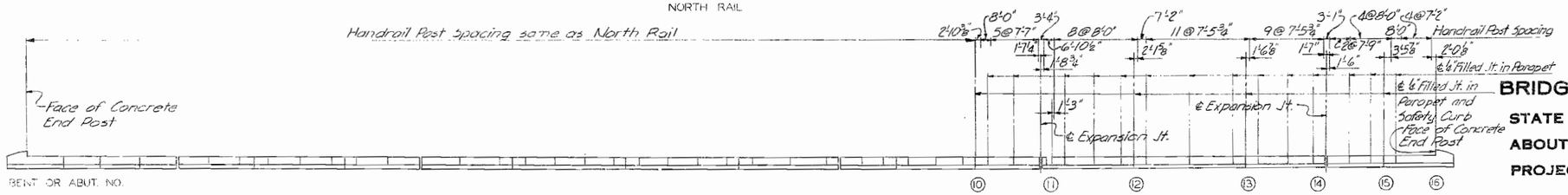
Rail to be fabricated in two or three panel lengths unless otherwise approved.

All rail splices shall be located near the 1/4 point between rail posts.

If the contractor desires, he may use drive fit cast aluminum end caps in lieu of welded aluminum closure plates. See Special Provisions.



NORTH RAIL



SOUTH RAIL

ELEVATION OF HANDRAILS

Note: This drawing is not to scale. Follow dimensions.

SVERDRUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS — ARCHITECTS
ST. LOUIS, MISSOURI

OVER LYON & COLLIER STS., CB&Q, N&W R.R'S AND BEAR CREEK

BRIDGE

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION COUNTY

HANDRAIL

SHEET 17 OF 21

A-1044

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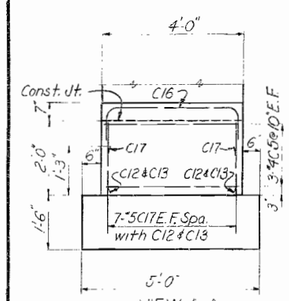
No. 1.5.6	Revised	238d	DRAWN BY: S. Haines, Aug. 1965
July 1964	Sept. 1964	635d45	CHECKED BY: W. Walden, Aug. 1965

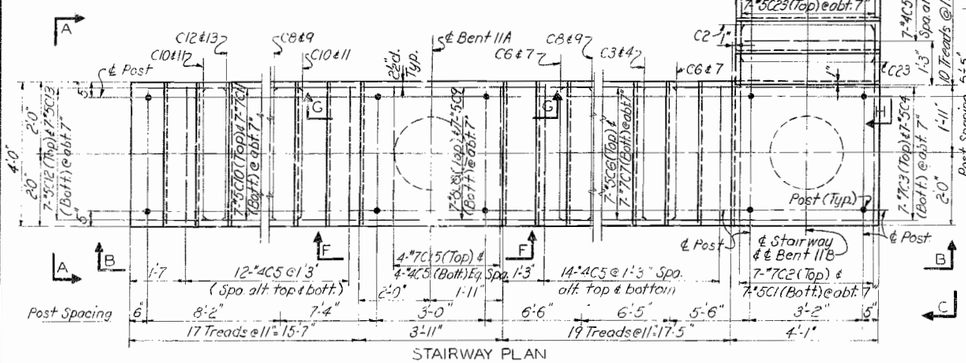
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	50	



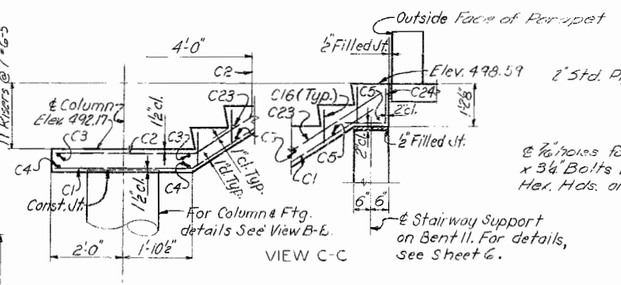
VIEW A-A

Note: E.F. indicates Each Face.



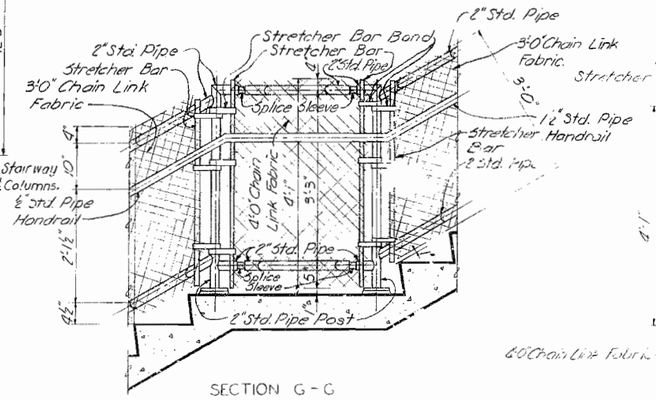
STAIRWAY PLAN

Note: Handrail and fence not shown, see details.
Spacing of transverse bars is measured horizontally.
Stretcher bar and bands required only at posts shown on plan.
Post spacing is measured horizontally.

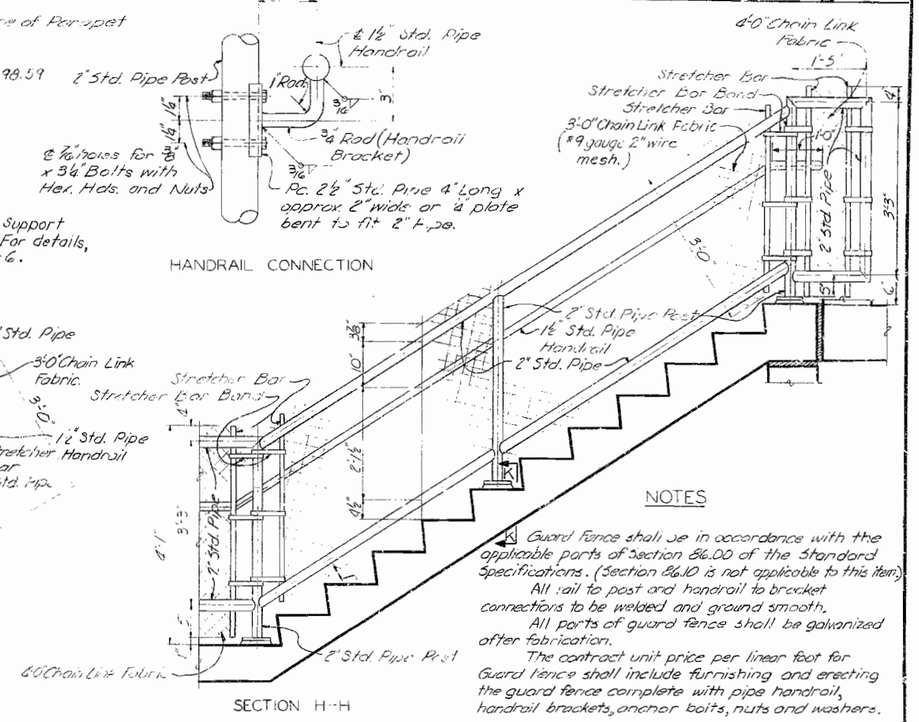


VIEW C-C

HANDRAIL CONNECTION



SECTION G-G
View F-F Similar



SECTION H-H

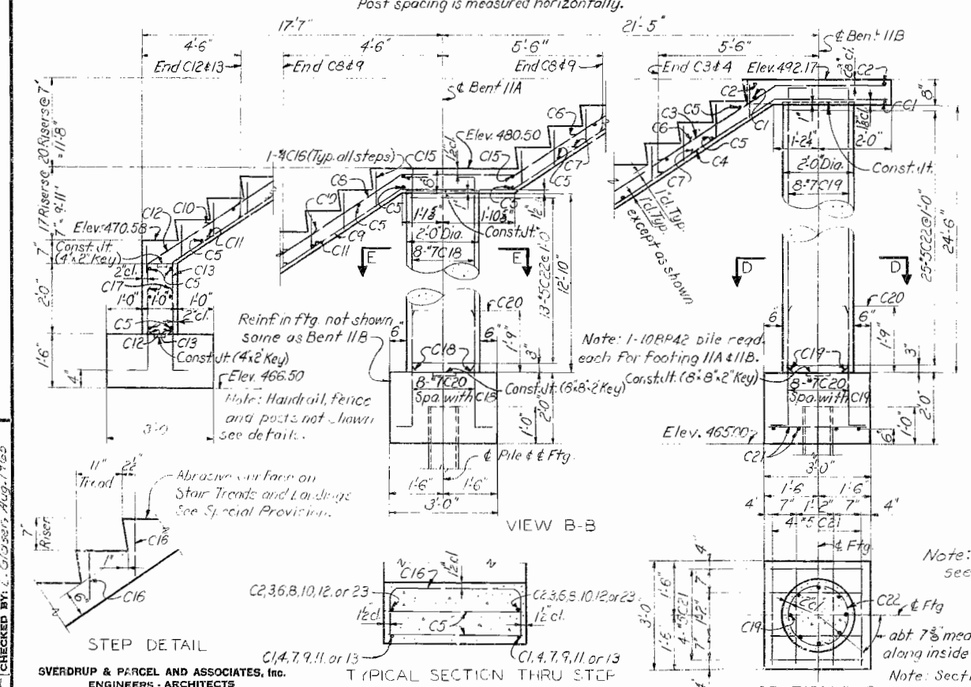
NOTES

Guard Fence shall be in accordance with the applicable parts of Section 86.00 of the Standard Specifications. (Section 86.10 is not applicable to this item.)

All rail to post and handrail to bracket connections to be welded and ground smooth.

All parts of guard fence shall be galvanized after fabrication.

The contract unit price per linear foot for Guard fence shall include furnishing and erecting the guard fence complete with pipe handrail, handrail brackets, anchor bolts, nuts and washers.

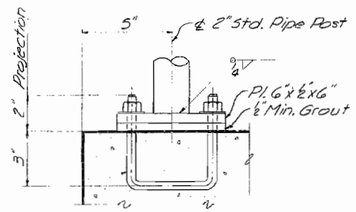


STEP DETAIL

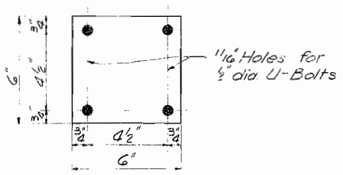
TYPICAL SECTION THRU STEP

VIEW B-B

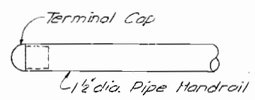
SECTION D-D



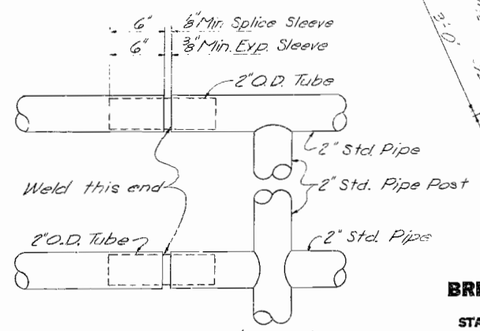
SECTION K-K



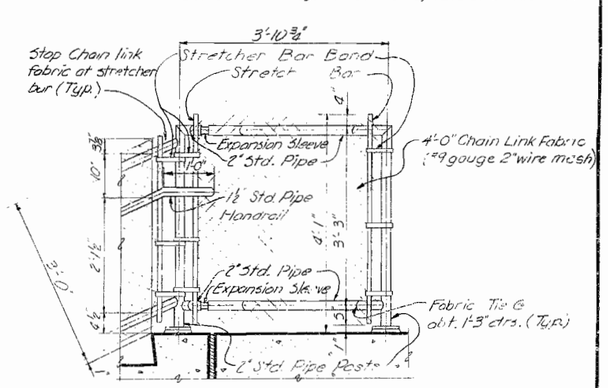
BASE PLATE



END OF HANDRAIL



DETAIL OF FIELD JOINT (TYPICAL)
Note: Rails and posts shall be 2" Std. Pipe except for Handrail pipe shown on stairs.



SECTION J-J

BRIDGE OVER LYON & COLLIER STS., CB&Q, N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION COUNTY

STAIRWAY DETAILS

SHEET 18 OF 21

A-1044

338

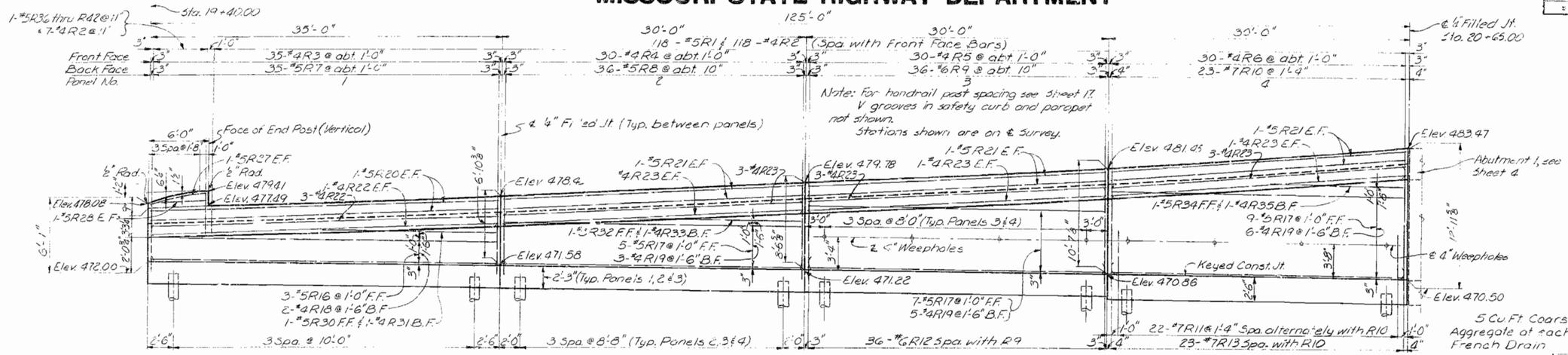
DRAWN BY: A. Martinez, June 1965
TRACED BY:
CHECKED BY: L. Glasgow, Aug. 1965
238 a
655372

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

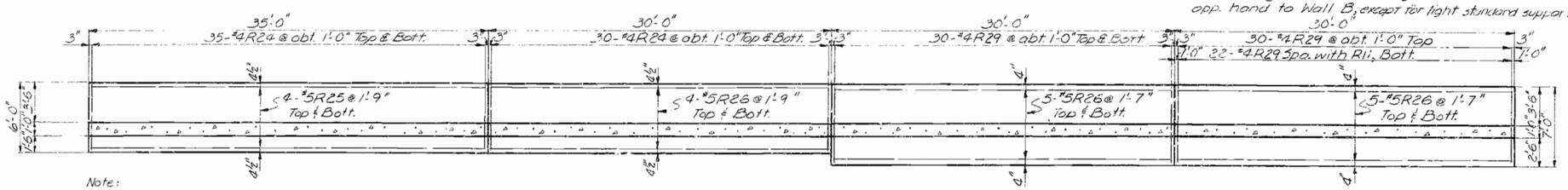
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	17	



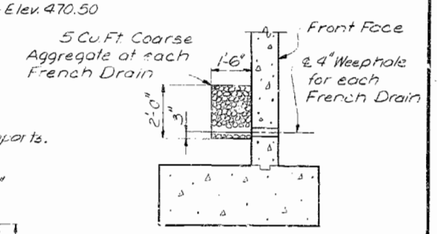
FRONT FACE ELEVATION OF WALL B

Note: Wall A symm. about ℄ bridge and opp. hand to Wall B, except for light standard supports.



FOOTING PLAN

Note: 32-Cast-in-place concrete piles required for each Wall A & B.

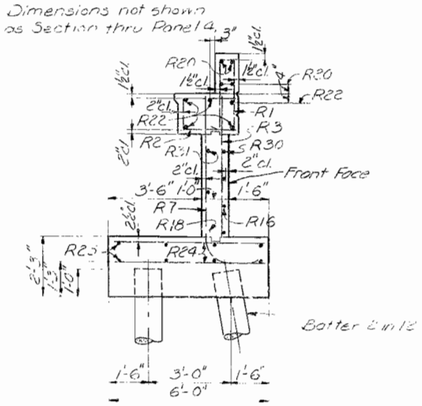


French Drains, in accordance with Sec. 504.9 of the Standard Specifications, shall be located as shown on the elevation.

DETAIL OF FRENCH DRAIN

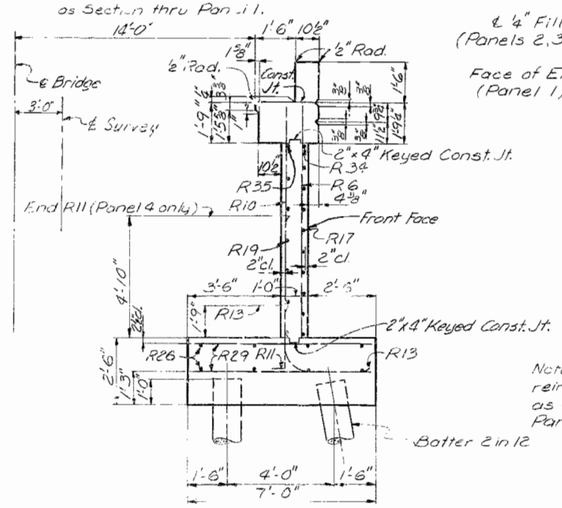
Note:
E.F. indicates Each Face
F.F. indicates Front Face.
B.F. indicates Back Face.

Note: Dimensions not shown same as Section thru Panel 4.

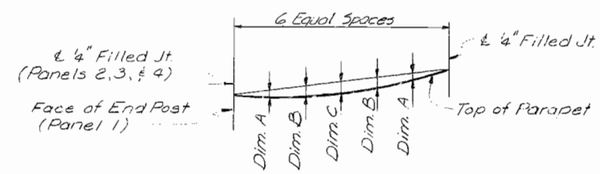


SECTION THRU PANEL 1
Note: Section thru Panel 2 similar.

Note: Reinf not shown same as Section thru Panel 1.

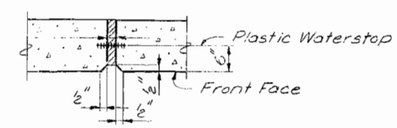


SECTION THRU PANEL 4
Note: Section thru Panel 3 similar except as shown.
Concrete above upper 2"x4" keyed Construction Joint to be Class B1.



Panel	Dimension A	Dimension B	Dimension C
1	4"	9/16"	1/2"
2, 3 & 4	9/16"	7/16"	1/2"

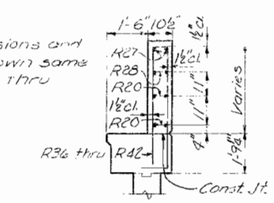
VERTICAL CURVE ORDINATES



Note: Plastic Waterstop to be 4" wide and in accordance with Section 157.2.1 of the Standard Specifications.
Plastic Waterstop to extend from top of footing to bottom of safety curb.

TYPICAL SECTION THRU ¼" FILLED JOINT IN WALL

Note: Dimensions and reinf. not shown same as Sections thru Panels 1 & 4.



SECTION THRU END POST

NOTES

Longitudinal dimensions shown are measured horizontally.
Supports for light standards not shown. For location and details see Sheet 20.

BRIDGE OVER LYON & COLLIER STS., C.B.&Q., N.&W. R.R'S AND BEAR CREEK

STATE ROAD FROM RTE.Y SOUTH TO RTE.AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION COUNTY

WALL DETAILS

SHEET 19 OF 21

A-1044

339

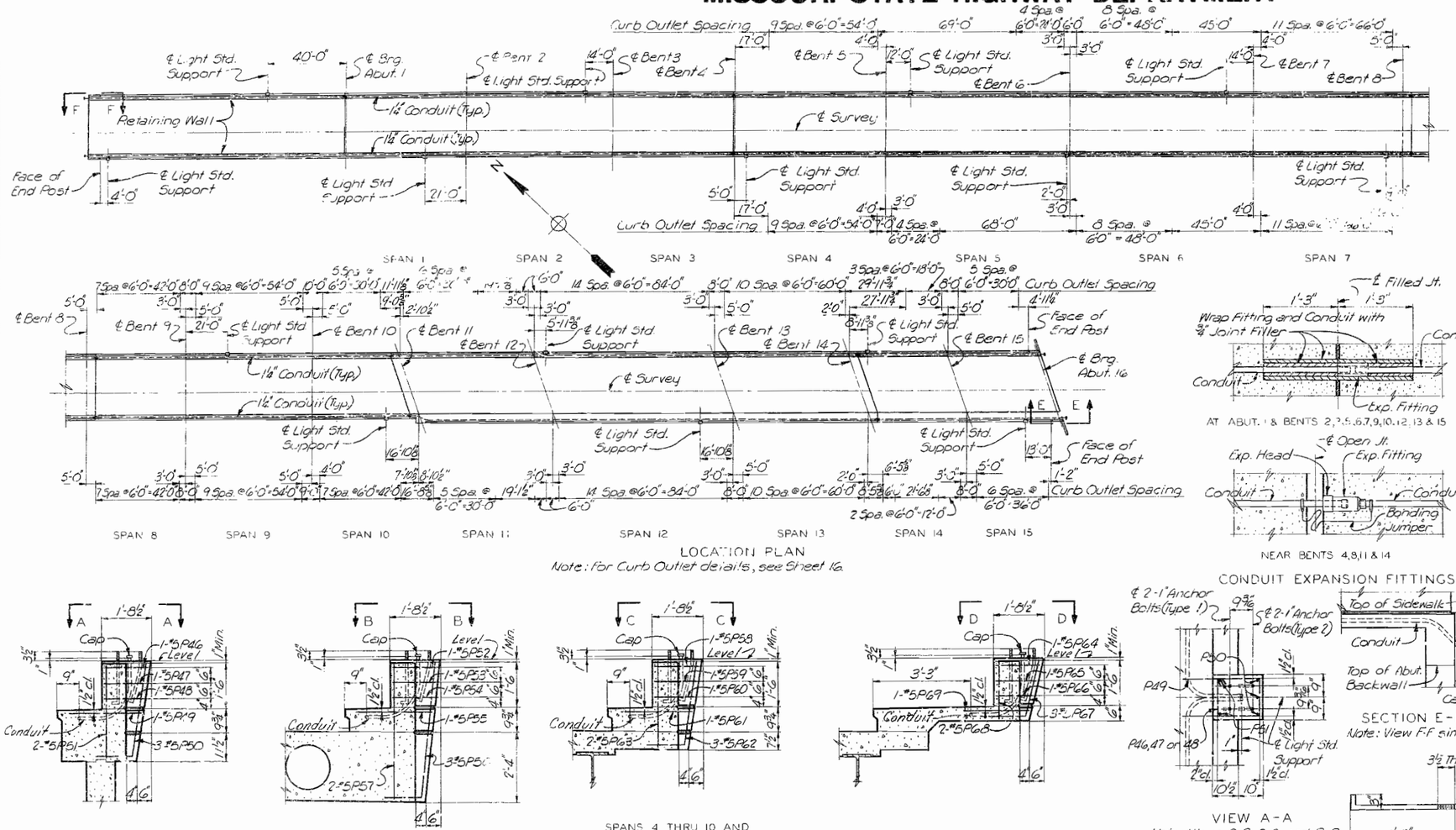
DRAWN BY: Gunnin, June 1965
TRACED BY:
CHECKED BY: W.O.Webber, Aug 1965
12-34
655339

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

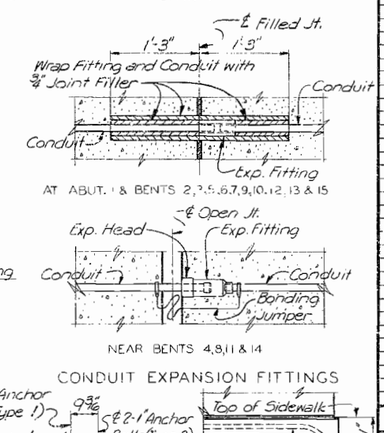
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		19	57	



LOCATION PLAN

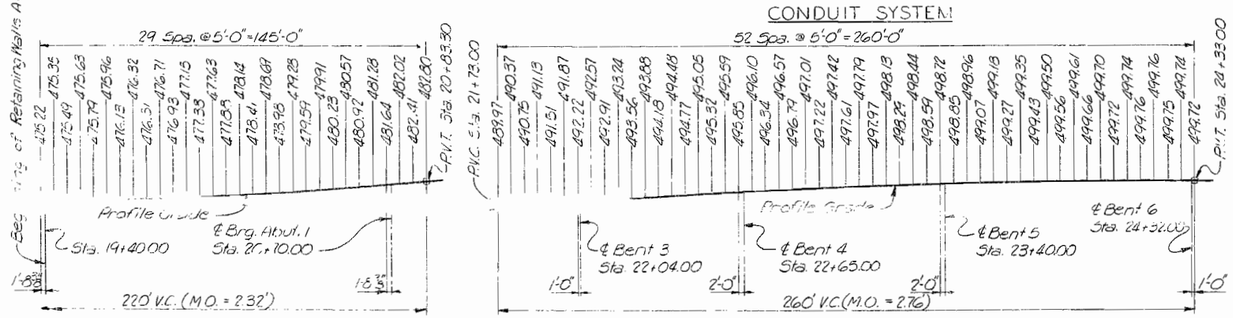
Note: for Curb Outlet details, see Sheet 16.



CONDUIT EXPANSION FITTINGS

SECTIONS NEAR LIGHT STANDARD SUPPORTS

CONDUIT SYSTEM



PROFILE GRADE ELEVATIONS

BAR LIST

NO. REQ'D.	SIZE NO.	LENGTH	MARK	TYPE	LOCATION	DIMENSIONS FOR BENDING A	B	C	D	G	H	K	R	O
RETAINING WALLS A & B														
236	5	7'-1"	R1	55	Parapet	9"	2"		2'-9"					
250	4	5'-7"	R2	17	Safety Curb		1'-6"		2'-0"					
35	4	8'-10"	R3	Str.	Wall									
30		9'-0"	R4	Str.	do									
30		3'-9"	R5	Str.	do									
30	4	20'-1"	R6	Str.	do									
35	5	14'-4"	R7	Spd.	do									
36	5	17'-5"	R8	Spd.	do									
36	6	15'-9"	R9	Str.	do									
73	7	20'-3"	R10	Str.	do									
44	7	6'-7"	R11	2	do	1'-0½"	5'-6½"							
72	6	5'-5"	R12	11	do		1'-6"		2'-0"	1'-11"				
66	7	5'-8"	R13	11	do		1'-9"		2'-0"	1'-11"				
			R14		Not Used									
			R15		Not Used									
6	5	34'-8"	R16	Str.	Wall									
42	5	29'-8"	R17	Str.	do									
4	4	34'-8"	R18	Str.	do									
28	4	29'-8"	R19	Str.	do									
8	5	34'-8"	R20	Str.	Parapet									
84	5	29'-8"	R21	Str.	do									
10	4	34'-8"	R22	Str.	Safety Curb									
30	4	29'-8"	R23	Str.	do									
260	4	5'-6"	R24	Str.	Footing									
16	5	34'-6"	R25	Str.	do									
56	5	29'-6"	R26	Str.	do									
4	5	5'-8"	R27	Str.	End Post									
4	5	5'-8"	R28	Str.	do									
224	4	6'-6"	R29	Str.	Footing									
2	5	17'-6"	R30	Str.	Wall									
2	4	17'-6"	R31	Str.	do									
2	5	9'-8"	R32	Str.	do									
2	4	16'-3"	R33	Str.	do									
2	5	13'-6"	R34	Str.	do									
2	4	13'-6"	R35	Str.	do									
2	5	5'-9"	R36	55	End Post	9"	2'-4½"		7½"	2'-0"				
2	5	6'-6"	R37	55	do	9"	2'-9"		7½"	2'-4½"				
2	5	7'-1"	R38	55	do	9"	3'-0½"		7½"	2'-8"				
2	5	7'-6"	R39	55	do	9"	3'-5"		7½"	2'-10½"				
2	5	7'-9"	R40	55	do	9"	3'-6½"		7½"	3'-0"				
2	5	7'-10"	R41	55	do	9"	3'-5"		7½"	3'-0½"				
2	5	7'-10"	R42	55	do	9"	3'-5"		7½"	3'-0½"				
SUBSTRUCTURE														
31	5	6'-9"	A1	Spd.	Stem									
8	5	7'-2"	A2	55	Parapet	9"	3'-0"		7½"	2'-9"				
10	4	5'-8"	A3	17	Safety Curb		2'-1"		1'-6"	2'-1"				
30	5	21'-2"	A4	Str.	Backwall									
30	4	31'-1"	A5	Str.	do									
32	5	8'-3"	A6	Str.	Stem									
37	6	7'-10"	A7	Str.	do									
17	4	30'-10"	A8	Str.	do									
12	4	17'-4"	A9	17	Backwall		1'-0"		1'-4"					
6	5	14'-11"	A10	Str.	Stem									
5	5	2'-6"	A11	Str.	Stem									
41	6	4'-4"	A12	13	do		1'-3"		1'-0"	1'-3"			3¼"	1'-1½"	2'-5½"
35	5	7'-1"	A13	Str.	Footing									
45	6	7'-1"	A14	Str.	do									
16	5	34'-6"	A15	Str.	do									
1	5	7'-10"	A16	Str.	Stem									
4	5	11'-8"	A17	Str.	Wing Wall									
8	4	4'-1"	A18	Str.	Safety Curb									
4	5	5'-8"	A19	17	Parapet		3'-0"		7½"	2'-0½"				
3	5	4'-4"	A20	Str.	Stem									
10	4	17'-5"	A21	Str.	Wing Wall									
10	5	11'-8"	A22	Str.	do									
18	5	7'-8"	A23	17	do		2'-1"		3'-3"					
18	5	2'-1"	A24	Str.	do									
4	5	5'-4"	A25	17	do		1'-3"		4'-1"					
4	5	6'-10"	A26	2	do	9"	4'-1"							
4	6	9'-0"	A27	Str.	Fillet									
18	5	5'-1"	A28	19	do		1'-3"		4'-7½"			10¾"	10¾"	5'-6½"
8	5	4'-1"	A29	Str.	Parapet									
			A30		Not Used									
2	4	3'-1"	A31	Str.	Safety Curb									

Note: For continuation of Bar List see Sheet 21.

NOTES

All conduits shall be rigid galvanized steel with a 2" minimum cover in concrete.

Expansion fittings shall be O.Z. Electric Mfg. Co. Cat. No. AX125 with AJ175 Bonding Jumper or equal for 1½" conduit.

Provide for ½" movement in conduit coupling [illegible]

For details of wiring and fixtures, see lighting plans.

Anchor Bolts to be furnished complete with 2 Std. Hex nuts and washers, all galvanized.

Shift reinforcing in field where necessary to clear conduits.

Cost of furnishing and placing couplings, conduits, expansion fittings, caps and anchor bolts for light standards shall be included in the contract unit price of Conduit System (on Structure).

BRIDGE OVER LYON & COLLIER STS., CB & Q, N & W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE Y SOUTH TO [illegible]A

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION COUNTY

CONDUIT SYSTEM, PROFILE GRADE ELEVATIONS AND BAR LIST

SHEET 20 OF 21

A-1044

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS · ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: O.J. Comotto, Ad. 1/93
TRACED BY:
CHECKED BY: W. Wuebker, Feb. 93
2384
65,944

340

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSOURI STATE HIGHWAY DEPARTMENT

Fed. Road Dist. No.	State	Fed. Aid Proj. No.	Fiscal Year	Sheet No.	Total Sheets
5	MO.		19	53	

SUBSTRUCTURE (CONT'D)

No. Req'd	Size No.	Length	Mark	Type	Location	A	B	C	D	G	H	K	R	O
32	5	2'-6"	E9	Str.	Footing									
32	6	6'-10"	B10	17	do		2'-10"	1'-2" (11'-5" Δ)	2'-10"					
14	4	4'-6"	D1	Str.	Wingwalls	See Cutting Diagram								
7	4	7'-2"	D2	Str.	do									
38	6	8'-11"	D3	17	Backwall		4'-1½"	8"	4'-1½"					
4	6	11'-0"	D4	Spcl.	Wingwall									
6	6	2'-9"	D5	Str.	Buttress									
36	4	10'-8"	D6	T1	Beam	3"	2'-5"	2'-6"	2'-5"	5"	2'-6"			
12	4	21'-0"	D7	Str.	Backwall									
3	5	39'-8"	D8	1	Beam	1'-1"	37'-6"			1'-1"				
3	5	8'-11"	D9	Str.	Wingwall	See Cutting Diagram								
12	6	9'-2"	D10	Str.	do									
6	?	13'-4"	D11	Spcl.	Buttress	See Cutting Diagram								
4	6	10'-5"	D12	Spcl.	Wingwall									
4	6	37'-6"	D13	Str.	Beam									
2	6	42'-0"	D14	Str.	Backwall									
2	5	19'-11"	D15	1	Beam	7"	19'-4"							
4	4	3'-5"	D16	17	Beam		6"	2'-5"	6"					Δ 17'-9"
4	8	37'-6"	D17	Str.	Beam									
3	7	5'-8"	D18	17	Buttress		2'-0"	1'-8"	2'-0"					
98	5	9'-4"	J1	T1	Cap	6"	1'-6"	2'-8"	1'-6"	6"	2'-8"			
38	5	7'-8"	J2	55	do	9"	2'-9"	8"	2'-9"	9"				
2	6	27'-10"	J3	Str.	do									
6	5	12'-10"	J4	Str.	do									
4	5	2'-6"	J5	Str.	do									
2	9	31'-5"	J6	1	do	1'-3"	28'-11"			1'-3"				
2	9	5'-6"	J7	Str.	do									
3	5	4'-4"	J8	Str.	do									
2	5	9'-7"	J9	T1	do	6"	2'-1½"	2'-8"	2'-1½"	6"	2'-8"			
2	9	32'-7"	J10	1	do	1'-3"	30'-1"			1'-3"				
7	11	19'-0"	J11	Str.	do									
2	11	28'-1"	J12	Str.	do									
2	11	29'-6"	J13	Str.	do	6'-11" Δ								
4	5	3'-5"	J14	17	do		1'-3"	6¾"	1'-3"					
8	7	10'-½"	J15	10	do	1'-9"	(7'-0")	1'-9"					1'-0½"	2'-2¾"
?	?	?	J16	T3	Column	Δ 3'-5"	1'-5"							2'-2"
18	8	19'-4"	J17	Str.	do									
36	8	4'-0"	J18	Str.	Footing									
56	6	7'-9"	J19	17	do		3'-6"	1'-5"	3'-6"					
1	5	10'-8"	J20	T1	do	6"	2'-4"	2'-8"	2'-4"	6"	2'-8"			
33	5	11'-0"	J21	T1	do	6"	2'-4"	2'-8"	2'-4"	6"	2'-8"			
3	11	30'-?	J22	Str.	do									
1	?	37'-1"	J23	1	do	1'-5"	35'-8"							
2	?	7'-1"	J24	Str.	do									
1	5	5'-8"	J25	Str.	do									
1	9	1'-2"	J26	Str.	do									
2	9	3'-5"	J27	Str.	do									
1	6	3'-5"	J28	Str.	do	6'-11" Δ								
3	?	37'-1"	J29	1	do	1'-5"	36'-6"							
4	9	36'-5"	J30	Str.	do									
4	7	10'-½"	J31	10	do	1'-9"	(7'-0")	1'-9"					1'-0½"	2'-2¾"
18	8	24'-6"	J32	Str.	Column	Δ 3'-5"								
8	5	2'-6"	J33	Str.	Hair Support									
5	6	13'-6"	J34	35	do	10½"	5'-6"	8¼"	5'-6"	10½"				
28	6	7'-9"	J35	17	Footing		3'-4½"	1'-2"	3'-4½"					
1	5	11'-4"	J36	T1	Cap	6"	2'-6"	2'-8"	2'-6"	6"	2'-8"			
1	6	36'-2"	J37	Str.	do									
4	7	5'-11"	J38	Spcl.	do									
1	10	37'-10"	J39	1	do	1'-5"	36'-5"							
48	6	7'-4"	E1	17	Footing		3'-1"	1'-2"	3'-1"					
12	6	8'-3"	E2	Str.	Cap	7'-5" Δ	4'-2" Δ							
24	7	(7'-1")	E3	10	do	1'-9"	(4'-5")	1'-9"					1'-3½"	2'-8¼"
40	7	(10'-6")	E4	10	do	1'-9"	(7'-0")	1'-9"					1'-0½"	2'-2¾"
4	6	29'-7"	E5	Str.	do	2'-5" Δ								
8	10	31'-2"	E6	1	do	1'-5"	28'-4"			1'-5"				
24	10	10'-6"	E7	1	do	1'-5"	9'-1"							
21	11	17'-0"	E8	Str.	do	6'-1" Δ								
27	11	32'-0"	E9	1	do	1'-7"	28'-10"			1'-7"				
12	8	10'-5"	E10	1	do	1'-1"	9'-4"							
11	11	17'-0"	E11	Str.	do									
8	11	11'-4"	E12	T1	do	6"	2'-6"	2'-8"	2'-6"	6"	2'-8"			
4	10	32'-5"	E13	1	do	1'-5"	29'-7"			1'-5"				
4	10	11'-3"	E14	1	do	1'-5"	9'-10"							
4	11	16'-0"	E15	Str.	do									
8	11	29'-1"	E16	Str.	do									
28	9	22'-0"	E17	Str.	Column									
42	9	26'-6"	E18	Str.	do									
10	5	10'-6"	E19	T1	Cap	6"	2'-1"	2'-8"	2'-1"	6"	2'-8"			
42	9	23'-4"	E20	Str.	Column									
28	9	14'-6"	E21	Str.	do									
14	9	25'-0"	E22	Str.	do									
22	9	25'-4"	E23	Str.	do									
8	10	32'-10"	E24	1	Cap	1'-5"	30'-0"			1'-5"				
4	11	33'-2"	E25	1	do	1'-7"	30'-0"			1'-7"				
4	10	33'-7"	E26	1	do	1'-5"	30'-9"			1'-5"				
30	5	12'-0"	E27	T1	do	6"	2'-10"	2'-8"	2'-10"	6"	2'-8"			
46	5	11'-0"	E28	T1	do	6"	2'-4"	2'-8"	2'-4"	6"	2'-8"			
198	5	10'-6"	E29	T1	do	6"	2'-1"	2'-8"	2'-1"	6"	2'-8"			
160	9	4'-8"	E30	Str.	Footing									
124	5	9'-6"	E31	T1	Cap	6"	1'-7"	2'-8"	1'-7"	6"	2'-8"			
162	5	9'-8"	E32	T3	Column			1'-3"						2'-8"
278	5	8'-1"	E33	T3	do			1'-3"						2'-2"
88	5	9'-9"	E34	T1	Cap	6"	1'-8½"	2'-8"	1'-8½"	6"	2'-8"			
24	11	28'-4"	E35	Str.	do									
10	5	5'-9"	K26	Str.	Footing									
8	10	15'-6"	K27	Str.	Footing									
16	7	4'-3"	C20	2	Footing	10½"	3'-2"							
16	5	2'-6"	C21	Str.	do									

SUBSTRUCTURE (CONT'D)

Δ 7'-5"

No. Req'd	Size No.	Length	Mark	Type	Location	A	B	C	D	G	H	K	R	O
40	5	10'-4"	K1	T1	Cap	6"	2'-0"	2'-8"	2'-0"	6"	2'-8"			
160	6	10'-6"	K2	T1	do	7"	2'-0"	2'-8"	2'-0"	7"	2'-8"			
16	7	(7'-11")	K3	10	do	1'-6"	(4'-5")	1'-9"					1'-3½"	2'-8¼"
4	11	33'-0"	K4	1	do	1'-7"	29'-10"	4'-2" Δ		1'-7"				
4	11	34'-4"	K5	1	do	1'-7"	31'-2"			1'-7"				
4	8	33'-8"	K6	1	do	1'-1"	31'-6"			1'-1"				
16	11	11'-5"	K7	Str.	do									
12	8	28'-10"	K8	Str.	do									
4	11	29'-0"	K9	Str.	do									
4	11	31'-9"	K10	Str.	do									
4	11	31'-6"	K11	Str.	do									
40	4	9'-6"	K12	T1	Strut	5"	1'-2"	3'-2"	1'-2"	5"	3'-2"			
18	8	23'-6"	K13	Str.	do									
4	6	23'-6"	K14	Str.	do									
72	11	10'-0"	K15	Str.	Column									
36	11	34'-0"	K16	Str.	do									
72	11	6'-3"	K17	2	Footing	1'-8½"	4'-6½"							
			K18		Not Used									
36	11	38'-9"	K19	Str.	do									
4	10	(15'-3")	K20	17	Footing		5'-0"	7'-9"	5'-0"					
24	6	6'-0"	K21	Str.	do									
32	6	10'-10"	K22	1	do	8"	9'-6"			8"				
188	5	9'-8"	K23	T1	Column			1'-3"						2'-8"
4	6	28'-10"	K24	Str.	Cap									
4	6	11'-10"	K25	T3	do	7"	2'-8"	2'-8"	2'-8"	7"	2'-8"			
104	2	19'-9"	W1	Spcl.	do									

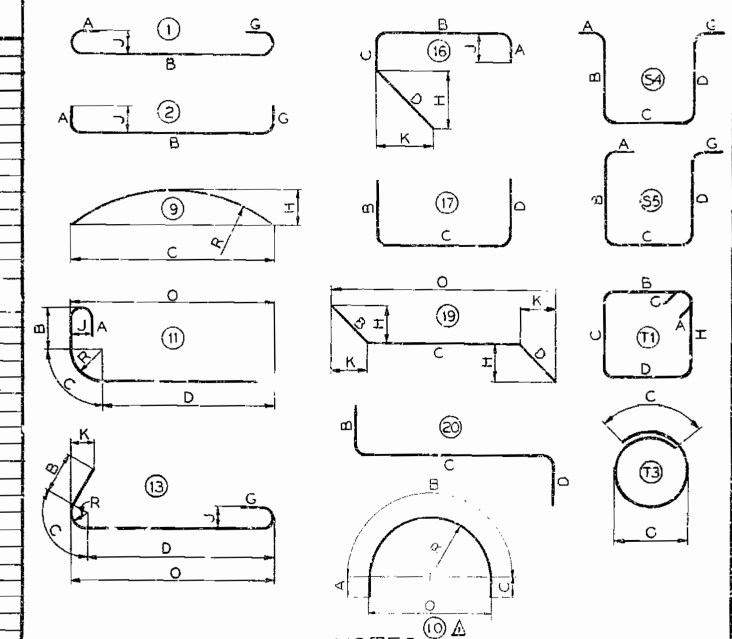
SUPERSTRUCTURE

No. Req'd	Size No.	Length	Mark	Type	Location	A	B	C	D	G	H	K	R	O
92	6	42'-11"	S1	Str.	Slab									
92	11	42'-6"	S2	Str.	do									
90	11	22'-0"	S3	Str.	do									
46	6	31'-0"	S4	Str.	do									
12	8	?	S5	Str.	do									
70	11	48'-4"	S6	Str.	do									
72	11	28'-0"	S7	Str.	do									
72	8	49'-6"	S8	Str.	do									
35	10	43'-0"	S9	Str.	do									
36	10	28'-0"	S10	Str.	do									
497	5	32'-5"	S11	Str.	do									
46	5	5'-3"	S12	16	do	9"	2'-2¾"	7½"	1'-6"			1'-0½"	1'-0½"	
46	5	5'-3"	S13	16	do	9"	2'-1¼"	7½"	1'-6"			1'-0½"	1'-0½"	
?	5	3'-9"	S14	Str.	do									
180	6	47'-5"	S15	Str.	Slab									
297	4	26'-6"	S16	Str.	do									
15	6	99'-4"	S17	Str.	do	See Cutting Diagram								
80	6	38'-6"	S18	Str.	do	do								
22	6	34'-8"	S19	Str.	do	do								
132	4	24'-0"	S20	Str.	do									
72	6	47'-2"	S21	Str.	do									
			S22		Not Used									
2	4	17'-2"	S23	Str.	Slab									
272	4	20'-0"	S24	Str.	do									
6	4	16'-9"	S25	Str.	do									
315	6	32'-5"	S26	Str.	do									
396	4	29'-0"	S27	Str.	do									
216	6	51'-6"	S28	Str.	do									
1	4	17'-7"	S29	Str.	do									
18	4	25'-11"	S30	Str.	do									
9	6	51'-2"	S31	Str.	do									
4	6	27'-7"	S32	Str.	do									
9	6	52'-6"	S33	Str.	do									
135	4	27'-7"	S34	Str.	do									
?0	6	54'-5"	S35	Str.	do									
13	4	45'-8"	S36	Str.	do	See Cutting Diagram								
12	5	33'-6"	S37	Str.	do									
1479	5	5'-5"	P1	(37) Spcl. Δ	Parapet	7"	2'-1"	7½"	2'-1"	9"				
1285	5	4'-1"	P2	55	Safety Curb	—	1'-1"	2'-0"	1'-1"	9"				
184	5	9'-7"	P3	Str.	Parapet									
159	5	5'-8"	P4	55	do	9"	1'-9"	7½"	1'-9"	9"				
16	5	25'-6"	P5	Str.	do									
12	5	31'-3"	P6	Str.	Safety Curb									
12	5	26'-3"	P7	Str.	Parapet									
18	5	25'-3"	P8	Str.	Safety Curb									
16	5	25'-9"	P9	Str.	Parapet									
16	5	32'-4"	P10	Str.	do									
16	5	32'-6"	P11	Str.	Safety Curb									
48	5	23'-9"	P12	Str.	Parapet									
48	5	24'-1"	P13	Str.	Safety Curb									
16	5	28'-1"	P14	Str.	Parapet									
12	5	34'-10"	P15	Str.	Safety Curb									
16	5	18'-0"	P16	Str.	Parapet									
16	5	29'-10"	P17	Str.	Safety Curb									
12	5	31'-9"	P18	Str.	Parapet									
16	5	32'-8"	P19	Str.	Safety Curb									
3	6	40'-2"	P20	Str.	do									
24	5	24'-11"	P21	Str.	Parapet									
12	6	33'-0"	P22	Str.	Safety Curb									
16	5	34'-9"	P23	Str.	Parapet									
16	6	23'-4"	P24	Str.	Safety Curb									
4	5	34'-0"	P25	Str.	Parapet									
6	6	23'-0"	P26	Str.	Safety Curb									
6	5	19'-1"	P27	Str.	Parapet									
6	6	25'-9"	P28	Str.	Safety Curb									
243	5	5'-1"	P29	55	Parapet	—	1'-10"	7½"	1'-10"	9"				
248	5	6'-4"	P30	55	Safety Curb	—	—	4'-6"	1'-1"	9"				
248	5	1'-2"	P31	Str.	do									
8	5	21'-3"	P32	Str.	Parapet									
8	4	33'-3"	P33	Str.	Safety Curb									
24	4	23'-3"	P34	Str.	do									
18	4	24'-1"	P35	Str.	do									
12	4	23'-1"	P36	Str.	do									

SUPERSTRUCTURE (CONT'D)

No. Req'd	Size No.	Length	Mark	Type	Location	A	B	C	D	G	H	K	R	O
12	4	24'-9"	P37	Str.	Safety Curb									
4	5	31'-1"	P38	Str.	Parapet									
4	5	30'-4"	P39	Str.	do									
3	5	31'-9"	P40	Str.	Safety Curb									
12	5	30'-10"	P41	Str.	Parapet									
16	5	17'-6"	P42	Str.	Parapet									
9	6	30'-11"	P43	Str.	Safety Curb									
470	5	6'-7"	P44	55	do	—	2'-4"	2'-0"	1'-1"	9"				
4	5	33'-3"	P45	Str.	Parapet									
2	5	6'-2"	P46	T1	Sidewalk Support	6"	1'-3"	1'-4"	1'-3"	6"	1'-4"			
2	5	6'-0"	P47	T1	do	6"	1'-3"	1'-3"	1'-3"	6"	1'-3"			
2	5	5'-11"	P48	T1	do	6"	1'-3"	1'-2½"	1'-3"	6"	1'-2½"			
2	5	6'-1"	P49	17	do		2'-5"	1'-3"	2'-5"					
6	5	4'-5"	P50	19	do		1'-3"	3'-1½"	—		2'-8"	1'-2½"		
4	5	3'-2"	P51	Str.	do									
2	5	6'-2"	P52	T1	do	6"	1'-3"	1'-4"	1'-3"	6"	1'-4"			
2	5	6'-1"	P53	T1	do	6"	1'-3"	1'-3½"	1'-3"	6"	1'-3½"			
2	5	6'-0"	P54	T1	do	6"	1'-3"	1'-3"	1'-3"	6"	1'-3"			
2	5	6'-3"	P55	17	do		2'-6"	1'-3"	2'-6"					
4	5	5'-9"	P56	19	do		1'-3"	4'-6"	—		1'-4"	1'-3"		
2	5	4'-5"	P57	Str.	do									
9	5	6'-2"	P58	T1	do	6"	1'-3"	1'-4"	1'-3"	6"	1'-4"			
6	5	6'-1"	P59	T1	do	6"	1'-3"	1'-3"	1'-3"	6"	1'-3"			
9	5	5'-10"	P60	T1	do	6"	1'-3"	1'-2"	1'-3"	6"	1'-2"			
9	5	5'-8"	P61	17	do		2'-2½"	1'-3"	2'-2½"					
27	5	4'-10"	P62	19	do		1'-3"	2'-9"	—		2'-6"	1'-2½"		
18	5	2'-9"	P63	Str.	do									
2	5	6'-1"	P64	T1	do	6"	1'-3"	1'-3½"	1'-3"	6"	1'-3½"			
2	5	5'-11"	P65	T1	do	6"	1'-3"	1'-2½"	1'-3"	6"	1'-2½"			
2	5	5'-?	P66	T1	do	6"	1'-3"	1'-1"	1'-3"	6"	1'-1"			
2	5	5'-?	P67	17	do		2'-2"	1'-3"	2'-2"					
6	5	5'-?	P68	19	do		1'-3"	1'-10"	—		3'-3½"	1'-2½"		
4	5	1'-9"	P69	Str.	do									
70	11	32'-5"	B1	Str.	Beam									
16	11	12'-8"	B2	Str.	do									
8	10	15'-4"	B3	Str.	do									
10	10	31'-11"	B4	Str.	do									
172	5	10'-8"	B5	Spcl.	do									
76	5	8'-1"	B6	T3	Column			1'-3"						2'-2"
16	9	15'-9"	B7	Str.	do									
16	9	21'-0"	B8	Str.	do									
7	5	15'-3"	C1	19	Stairs		3'-11"	11'-4"	—		2'-1⅛"	3'-4"		14'-8"
7	7	7'-0"	C2	19	do		3'-10"	3'-1½"	—		2'-0⅛"	3'-2¾"		6'-4"
7	7	8'-3"	C3	19	do		3'-0½"	5'-2"	—		1'-7⅞"	2'-2¾"		7'-8"
7	5	6'-4"	C4	19	do		3'-2"	5'-1½"	—		1'-8⅝"	2'-8"		7'-9⅞"
44	4	3'-9"	C5	Str.	Pedestal									
7	7	14'-10"	C6	Str.	Stairs									
7	7	15'-10"	C7	Str.	do									
7	8	11'-5"	C8	Spcl.	do									
7	5	11'-5"	C9	Spcl.	do									
7	5	12'-9"	C10	Str.	do									
7	7	13'-9"	C11	Str.	do									
7	5	7'-2"	C12	19	do		1'-11"	5'-3"	—		1'-7⅛"	1'-0¼"		6'-3¾"
7	5	6'-3"	C13	19	do		1'-11⅝"	4'-3¾"	—		1'-8"	1'-1"		5'-4¾"
			C14		Not Used									
4	7	3'-9"	C15	Str.	Stairs									
49	4	5'-6"	C16	17	do		10½"	3'-9"	10½"					
14	5	3'-2"	C17	2	Pedestal	9"	2'-5"							
8	7	14'-4"	C18	2	Column	1'-0½"	13'-3"							
8	7	26'-0"	C19	2	do	1'-0½"	24'-11"							
38	5	6'-6"	C22	T3	do			1'-3"						1'-8"
7	5	10'-6"	C23	Str.	Stairs									
7	5	2'-4"	C24	17	do		10"	1'-6"						

TYPICAL BAR TYPES



NOTES

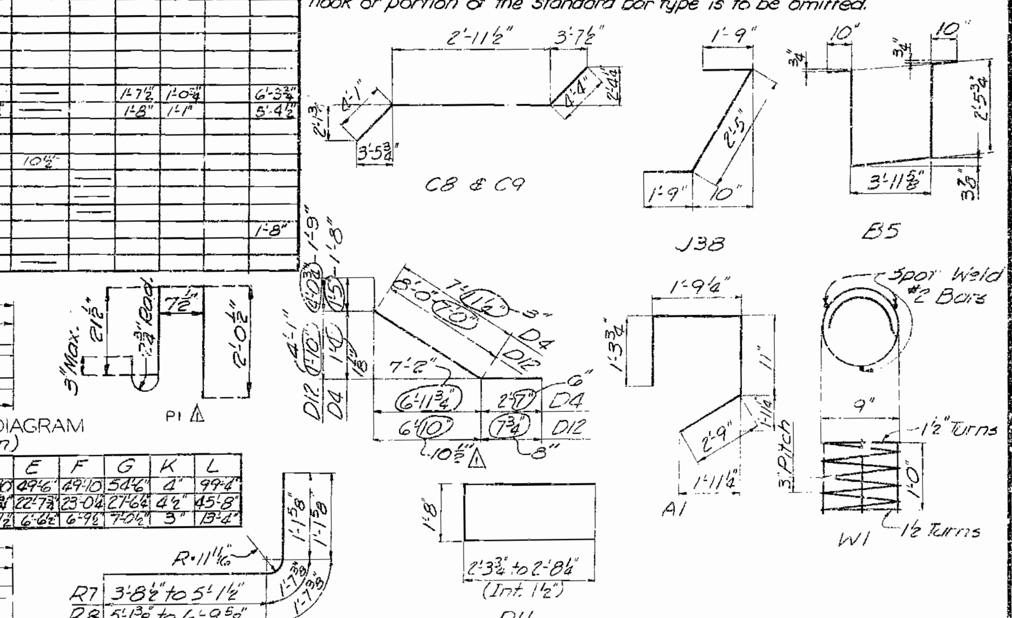
All dimensions are out to out, except "R" which is to inside of bend.

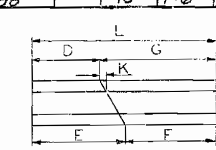
All bends shown are bent around a standard mandrel, except where radius "R" is indicated.

Figures in circles indicate bar types from A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete Structures."

Dimensioning, bending and hooks for bent bars shall conform to recommendations indicated in A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete Structures."

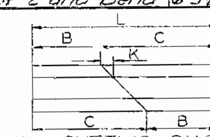
A dash used in the appropriate dimension column indicates that a hook or portion of the standard bar type is to be omitted.





UNEQUAL CUTTING DIAGRAM
(One Set Shown)

Mark	Cutting Schedule	D	E	F	G	K	L
S17	Cut 1 Set of 15	44'-0	49'-6	49'-10	54'-6	4"	99'-4
S36	Cut 1 Set of 13	18'-9	22'-7	23'-0	27'-6	4½"	45'-8
D11	Cut 3 Sets of 2 and Bend	6'-3½	6'-6	6'-9	7'-0	3"	13'-4



EQUAL CUTTING DIAGRAM
(One Set Shown)

Mark	Cutting Schedule	B	C	K	L
D1	Cut 2 Sets of 7	2'-6"	7'-0"	9"	9'-6"
D9	Cut 2 Sets of 3	2'-9⅝	6'-1⅝	1'-8⅛	8'-11"
S18	Cut 4 Sets of 20	2'-7⅜	29'-10⅝	1'-5⅛	38'-6
S19	Cut 1 Set of 22	2'-5⅝	32'-5⅝	1'-5⅛	34'-8
P3	Cut 1 Set of 35	3'-8⅝	5'-1½	9"	8'-10"
P4	Cut 1 Set of 30	5'-2"	6'-10"	⅝	12'-0"
P5	Cut 1 Set of 30	6'-9⅞	8'-1⅝	⅝	15'-9"
P6	Cut 1 Set of 30	8'-3⅛	11'-8⅛	⅝	20'-1"
P7	Cut 1 Set of 35 and Bend	6'-5⅛	7'-10½	⅛	14'-4"
P8	Cut 1 Set of 23 and Bend	7'-10⅞	9'-6⅞	⅜	17'-5"
P9	Cut 1 Set of 36	6'-10⅞	8'-10⅛	⅜	15'-9"
P10	Cut 1 Set of 23	8'-11⅝	11'-5⅝	⅝	20'-5"

Δ Revised 8/22/66

BRIDGE OVER LYON & COLLIER STS., CB&Q, N&W R.R's AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5) (RTE. 79 TR) **STA.** 19 + 40.00

MARION **COUNTY**

BAR LIST

SHEET 21 OF 21

A-1044

DRAWN BY: S. Meatnes, Aug. 1965
TRACED BY:
CHECKED BY:

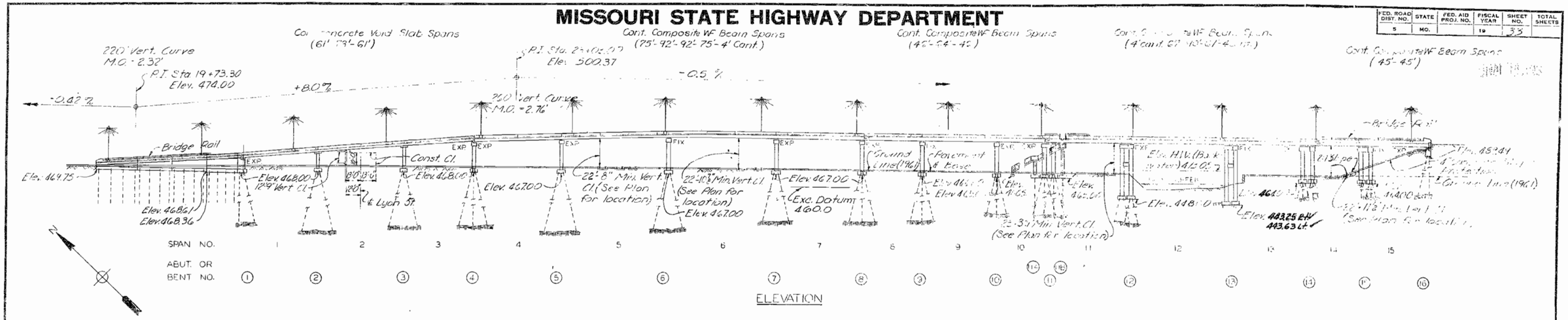
2384
655449

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

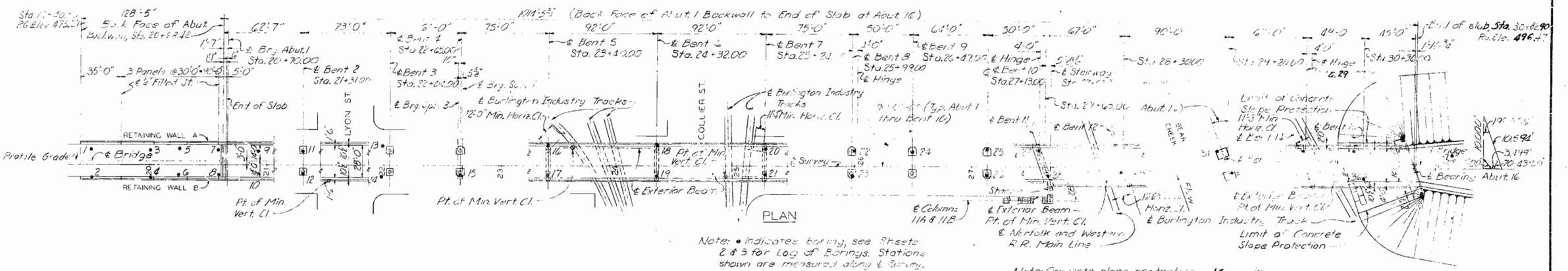
341

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	33	



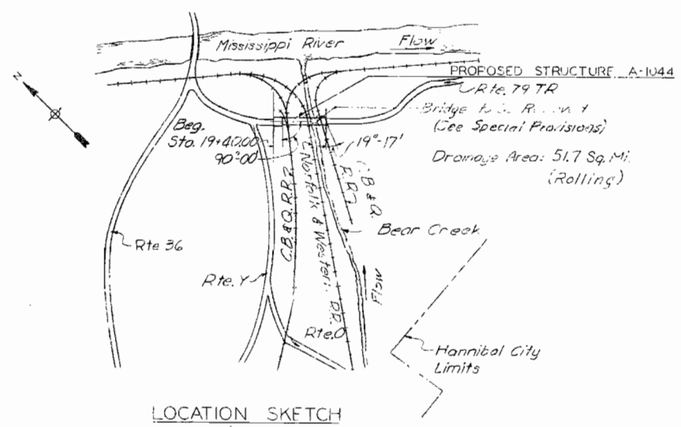
ELEVATION



PLAN

Note: • indicates boring, see Sheets 2 & 3 for Log of Borings. Stations shown are measured along ℄ Survey. Light Standards not shown in Plan.

Note: Concrete slope protection is in accordance with Standard Specification [illegible]. Concrete Protection on front slope of Abut. 16 is included under roadway item. Provided Joints (Standard Specification [illegible]) between slope protection pavement and Abut. 16 and columns of Bent 15.



LOCATION SKETCH

QUANTITIES

		RET. WALLS A & B	BRIDGE SUBSTR.	BRIDGE SUPERSTR.	BRIDGE TOTAL	TOTAL
Class 2 Excavation for Structures	Cu. Yd.	0	237.5	—	237.5	237.5
Class 1 Excavation for Structures	Cu. Yd.	3.91	561.5	—	561.5	952.5
Cast in Place Piles	Lin. Ft.	2445	—	—	—	2445
10 BP 42 Steel Piles in Place	Lin. Ft.	—	5156	—	5156	5156
10 BP 42 Steel Pile Cut-offs	Lin. Ft.	—	506	—	506	506
12 BP 53 Steel Piles in Place	Lin. Ft.	—	2662	—		2662
12 BP 53 Steel Pile Cut-offs	Lin. Ft.	—	400	—		400
Class B Concrete	Cu. Yd.	189.0	442.5	—	442.5	631.5
Class B1 Concrete	Cu. Yd.	49.2	1.5	1347.1	1348.9	1398.1
Reinforcing Steel	Lb.	17010	95990	389700	485,690	502,700
Pointing	Ton	—	—	312.0	312.0	312.0
Fabricated Structural Carbon Steel	Lb.	—	—	629750	629750	629750
Hand Rail (Type 7)	Lin. Ft.	246	—	2011	2011	2257
Conduit System (on Structure)	Lump Sum	—	—	1	1	1
3'-0" Guard Fence (Steel, Galvanized)	L.F.	—	—	88	88	88
Class 2 Excav. +50%			2.5		2.5	2.5
[illegible] Guard Fence (Steel, Galvanized)	L.F.			14	14	14
Test Holes		0	8		8	8

Note No measurement for excavation was allowed at Abutment 16.
Substructure quantities include all concrete and reinforcement in footings of Bents 2, 3, 11A & 11B and in Bents 4 thru 11B except that all concrete in end post, parapets & curbs on Abut 1 and Walls is included in superstructure concrete. All other concrete and reinforcement for the bridge and stairway included in superstructure quantities.

BENCH MARKS

B.M. Nail in sidewalk 34' Rt. 19+40
Elev. 473.87

B.M. Bolt in Top Rt. Wingwall Abut. 16
Elev. 497.06

NOTES

For General Notes and Pile Data see Sheet 2.

SUBMITTED BY D. B. Jenkins DATE 10/11/65 BRIDGE ENGINEER

APPROVED BY [illegible] DATE 10/11/65 CHIEF ENGINEER

SUBMITTED BY:

BRIDGE OVER LYON & COLLIER STS., CB&Q, N&W R.R.'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. U-UG-79-1(5)(RTE. 79 TR) **STA.** 19+40.00

MARION **COUNTY**

GENERAL PLAN AND ELEVATION

SHEET 1 OF 2

STD. 52.02
STD. 54.00
A-1044

342

DRAWN BY: S. Meginnes, June 1965
TRACED BY:
CHECKED BY:
7384
655346

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

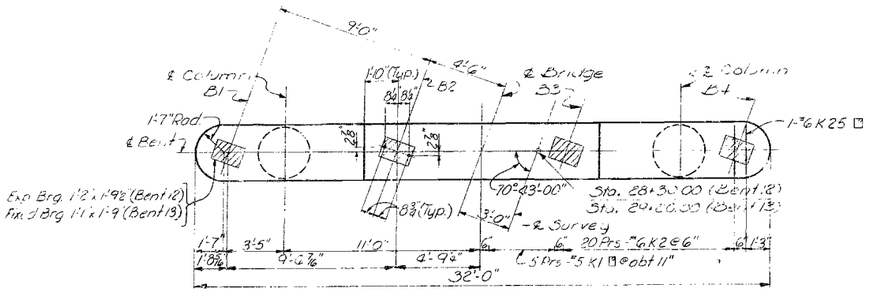
REGISTERED PROFESSIONAL ENGINEER MISSOURI NO. E-2047

FINAL PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

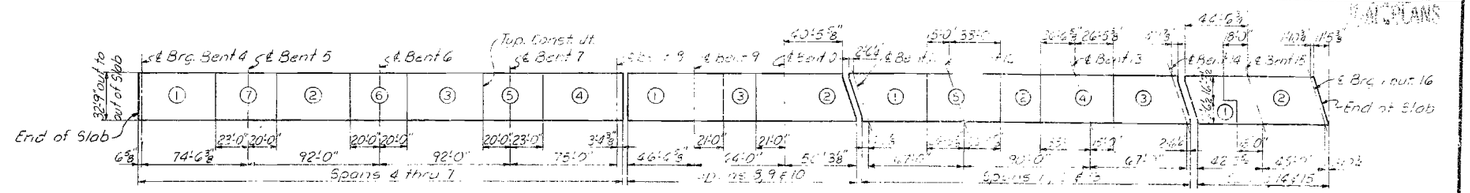
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	40	

FINAL PLANS



PLAN

Note: Dim. & Reinf. symmetrical about ℄ Bridge by 180° rotation unless otherwise noted.
For detail of Anchor Bolt Well see Sheet 15.



SLAB POURING SEQUENCE

Note: For Slab Construction Joint Details, see Sheet 15.

	SPANS 4 THRU 7							SPANS 8, 9 & 10			SPANS 11, 12 & 13					SPANS 14 & 15	
	Sequence of Pours							Sequence of Pours			Sequence of Pours					Sequence of Pours	
	Direction							Direction			Direction					Direction	
Basic Sequence	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	1	2
	Either Direction							Either Direction			Either Direction					E. of 2	1 to End
Alternate "A" Pours	1		7+2		6+3		5+4	1		3+2	1		5+2		4+3	1+2	
	End to 7		1 to 6		2 to 5		3 to End	End to 3		1 to End	End to 5		1 to 4		2 to End	End to End	
Alternate "B" Pours	1+7+2			6+3		5+4		1+3+2			1+5+2			4+3			
	End to 6			2 to 5		3 to End		End to End			End to 4			2 to End			
Alternate "C" Pours	1+7+2				6+3+5+4												
	End to 6				2 to End												
Alternate "D" Pours	1+7+2+6+3+5+4																
	End to End																

Note: The contractor did [illegible] spread tops, [illegible] pour.

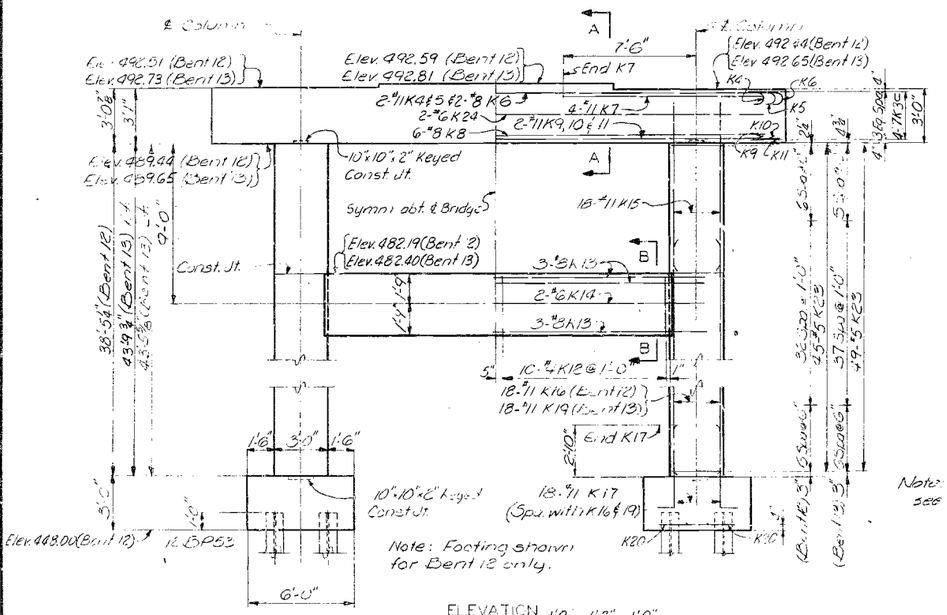
[illegible] allowed to pour on approved retarder at his own expense to retard the set of concrete to 2.5 hours in which case he did reduce his pouring and finishing rate to not less than 25 cubic yards per hour. The [illegible] did [illegible] the Alt. "B" [illegible]

[illegible] mulling loads were not permitted on concrete less than 43 hours old.

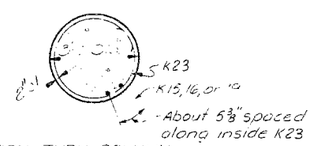
Adjacent to Bent 8 Pour No. 1 was made prior to Pour No. 4.

Adjacent to Bent 11 Pour No. 2 was made prior to Pour No. 1.

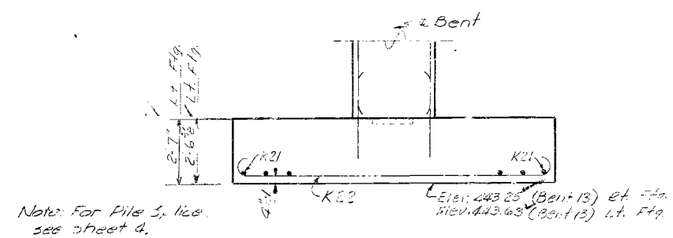
Adjacent to Bent 14 Pour No. 1 was made prior to Pour No. 3.



ELEVATION

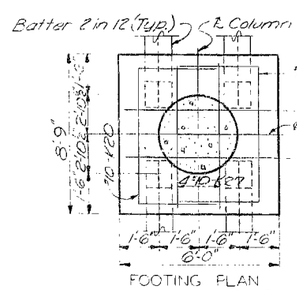


SECTION THRU COLUMN



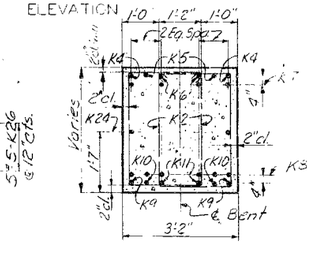
Note: For Pile Splice see Sheet 4.

FOOTING ELEVATION BENT 13

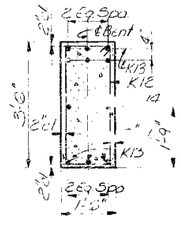


FOOTING PLAN

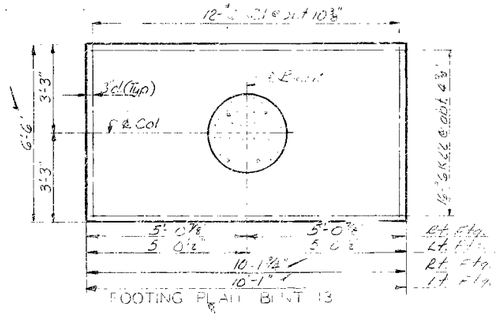
Note: Footing Plan for Bent 12 only.



SECTION A-A



SECTION B-B



FOOTING PLAN BENT 13

BRIDGE OVER LYON & COLLIER STS., CB&Q, N&W R.R'S AND BEAR CREEK

STATE ROAD FROM RTE. Y SOUTH TO RTE. AA

ABOUT IN HANNIBAL

PROJECT NO. I-UG-79-1(5) (RTE. 79 TR) **STA.** 19 + 40.00

MARION **COUNTY**

BENTS 12 AND 13

SHEET 8 OF [illegible]

A-1044

FINAL PLANS

343

DRAWN BY: Gumin July, 1965
TRACED BY:
CHECKED BY: G. Toefink Aug. 1965

2584
65392

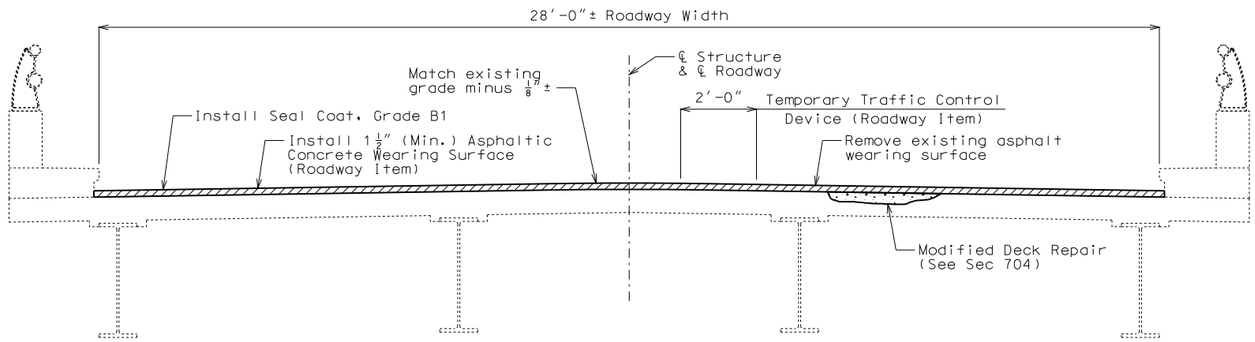
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

BENTS 12 & 13

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SEC/SUR 28 TWP 57N RGE 4W

U.I.P. & REHAB. EXISTING (61'-73'-61') CONT. CONC. VOID SLAB SPANS, (75'-92'-92'-75'-4') (46'-64'-46')(4'-67'-90'-67'-4')(45'-45') CONT. COMP. WIDE FLANGE BEAM SPANS



SECTION THRU SLAB

(Spans 4 thru 10 shown; other spans similar)

General Notes:

Design Specifications:

2002 - AASHTO 17th Edition
Load Factor Design
Bridge Deck Rating = 5

Miscellaneous:

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

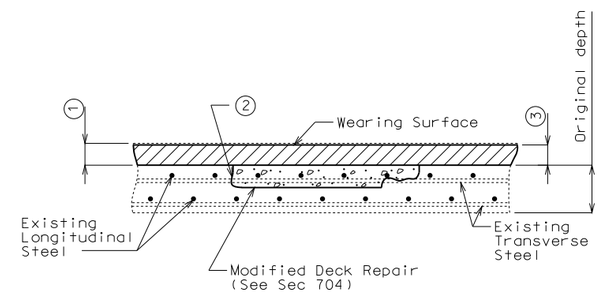
Contractor shall verify all dimensions in field before ordering new material.

In order to maintain grade and a minimum thickness of overlay as shown on plans it may be neccessary to use additional quantities of overlay at various locations throughout the structure. The cost of furnishing and installing the overlay will be considered completely covered in the contract unit price, including all additional labor, materials or equipment for variations in thickness of overlay.

Concrete for repairing concrete deck shall be a qualified special mortar in accordance with Sec 704 instead of Class B-1 concrete.

Traffic Handling:

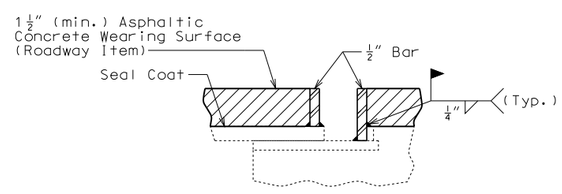
Maintain traffic on structure during construction with stage construction. See Roadway Plans for traffic control.



MODIFIED DECK REPAIR

(Spans 4 thru 15 shown; Spans 1 thru 3 similar)

1. Remove 2" (Min.) existing asphalt wearing surface.
2. One inch vertical side shall be established outside the deteriorated area. See Sec 704.
3. 3/8" (Min.) Seal Coat, Grade B1 & 1 1/2" (Min.) for Asphaltic Concrete Wearing Surface (Roadway Item)



SECTION THRU EXISTING EXPANSION DEVICE SHOWING BAR DAMS

Note:

Structural steel shall be ASTM A709 Grade 50 and shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum).

Estimated Quantities		
Item		Total
Removal of Asphalt Wearing Surface	sq. foot	28,679
Emulsified Asphalt, Seal Coat	gallon	1210
Seal Coat Aggregate, Grade B1	sq. yard	3183
Modified Deck Repair	sq. foot	860
Steel Bar Dam	each	4

REPAIRS TO BRIDGE OVER CITY STREETS, NORFOLK SOUTHERN R.R. AND BEAR CREEK

ROUTE 79 FROM I-72 TO ROUTE T
ABOUT 0.2 MILES N.W. OF ROUTE T
STA. 19+40.00± (Match Existing)

Detailed Nov. 2014
Checked Nov. 2014

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
MICHELE ANN ATKINSON
NUMBER PE-026610
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/19/2014

ROUTE	STATE
79	MO
DISTRICT	SHEET NO.
BR	1

COUNTY MARION
JOB NO. J2S3006B
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A10441

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.