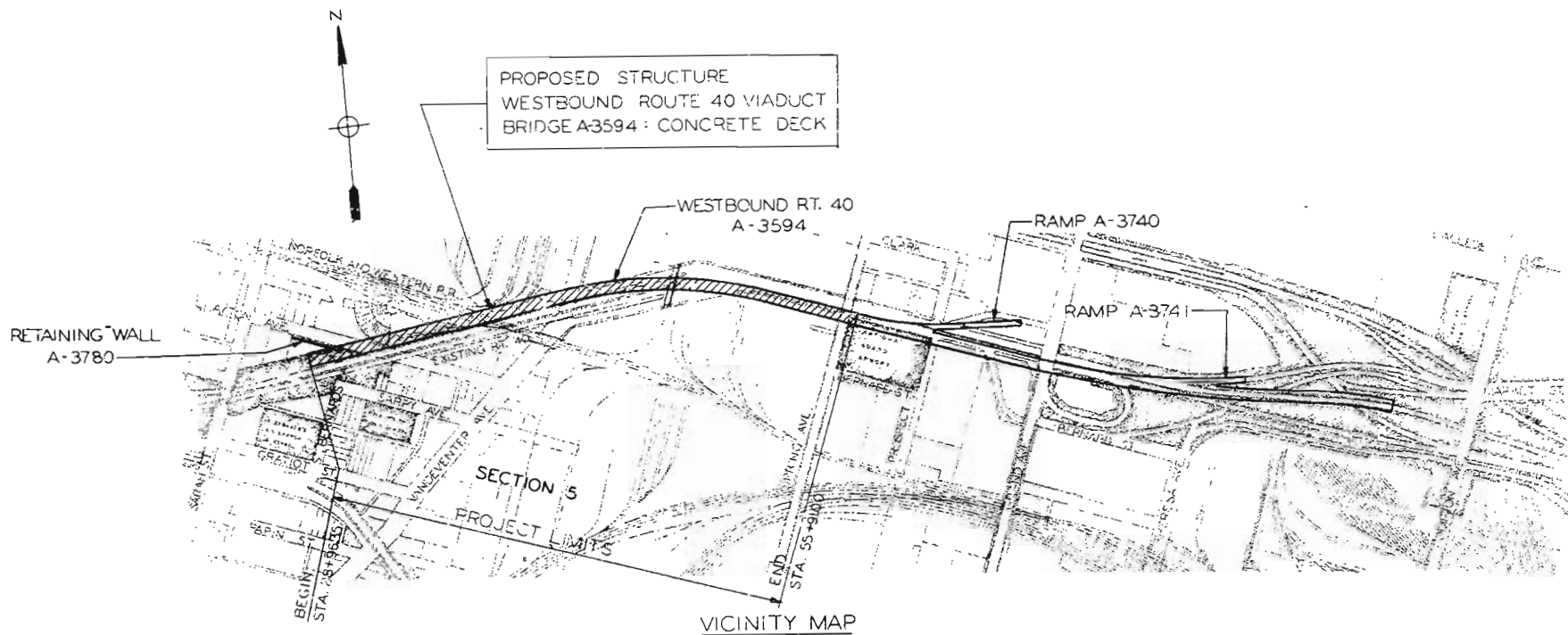


MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

PROJ. ROAD DIST. NO.	SYSTE	PROJ. AND PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
11	MDL		19	157	



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BRIDGE: WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK AND WESTERN RAILROAD

STATE ROAD-ROUTE 40
JOB NO. 6 0040 3e9
PROJECT NO. BRP-4-58-12 STA. 28+94.50
FULL FACE ALIGNMENT

SUBMITTED BY:

William C. Walden
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11783



DATE

CITY OF ST. LOUIS

VICINITY MAP AND
INDEX OF DRAWINGS

SHEET OF 37

STD 706 35

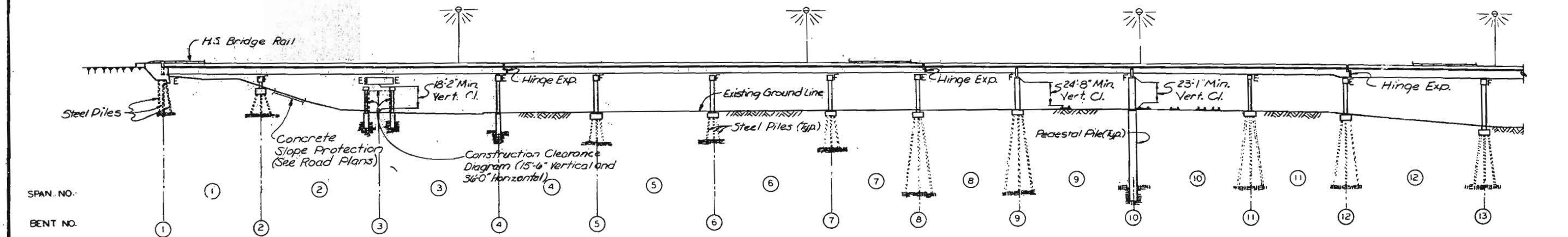
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DRAWN BY: J. O. S. 12/16/58
CHECKED BY: Z. Glasen 12/17/58
5261
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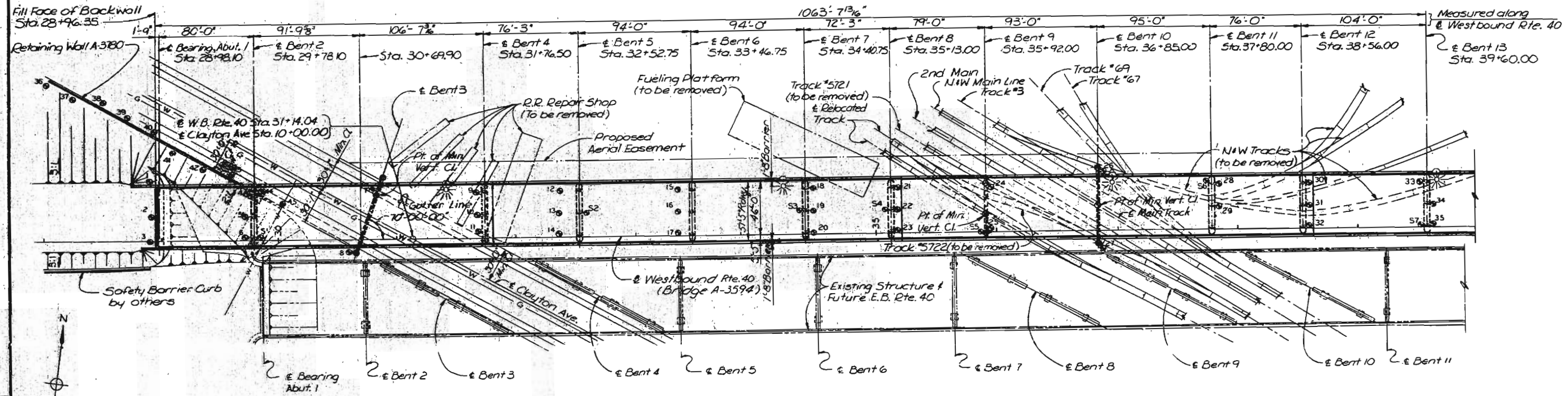
ENGINEERING & ARCHITECTS, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	158	



ELEVATION
Note: All span units are continuous composite plate girders.



- LEGEND FOR EXISTING UTILITIES**
- Sewer, sanitary or storm
 - F&P — Fire and Police
 - G — Gas
 - W — Water
 - P — Underground Power
 - T — Underground Telephone
 - Inlet
 - Manhole

PLAN
• Indicates the approximate location of a boring.

CLEARANCES - N & W RAILROAD
Locations of columns at Bents 9 and 10 provide for 10'-0" minimum horizontal clearance from face of column to centerline of adjacent track.
Construction clearances of 8'-6" horizontal from centerline of tracks and 22'-0" vertical from top of rail shall be provided.

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 2 OF 37

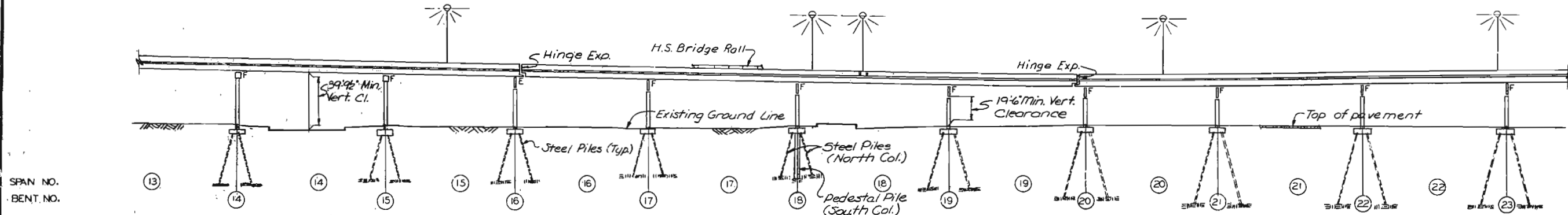
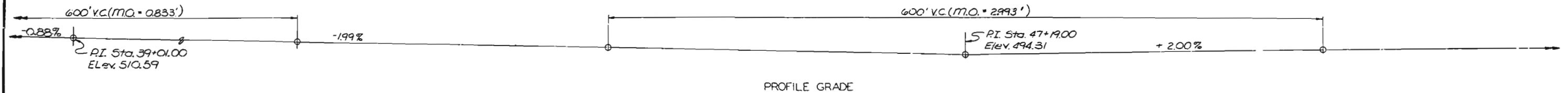
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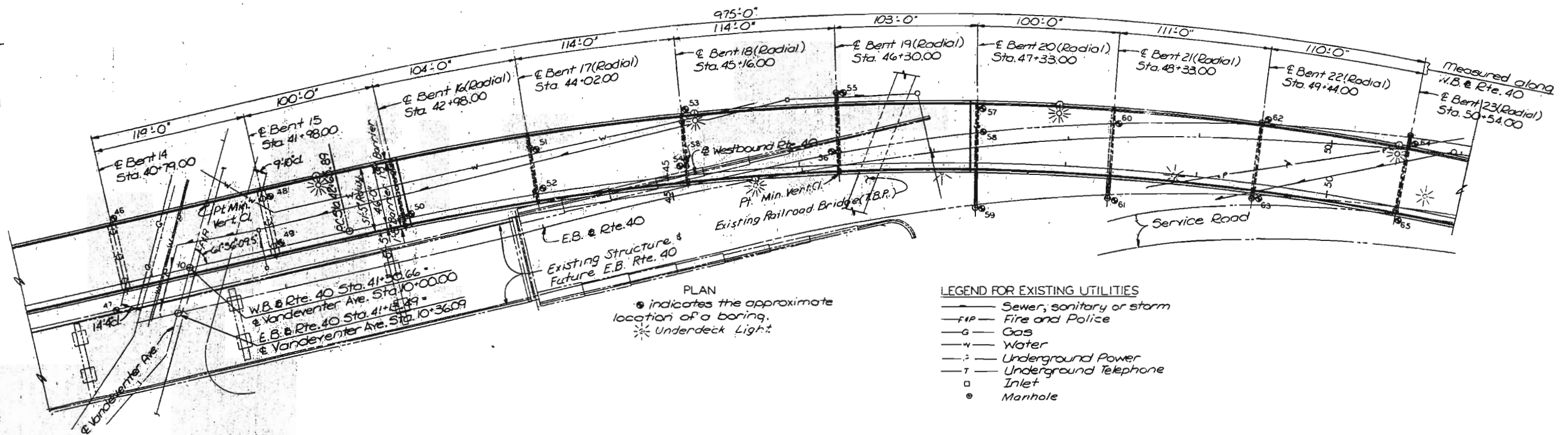
SHAWNEE & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	159	



ELEVATION
Note: All span units are continuous composite plate girders.



PLAN
● indicates the approximate location of a boring.
⊙ Underdeck Light

- LEGEND FOR EXISTING UTILITIES
- Sewer, sanitary or storm
 - FIP — Fire and Police
 - G — Gas
 - W — Water
 - U — Underground Power
 - T — Underground Telephone
 - Inlet
 - Manhole

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 3 OF 37

A-3594

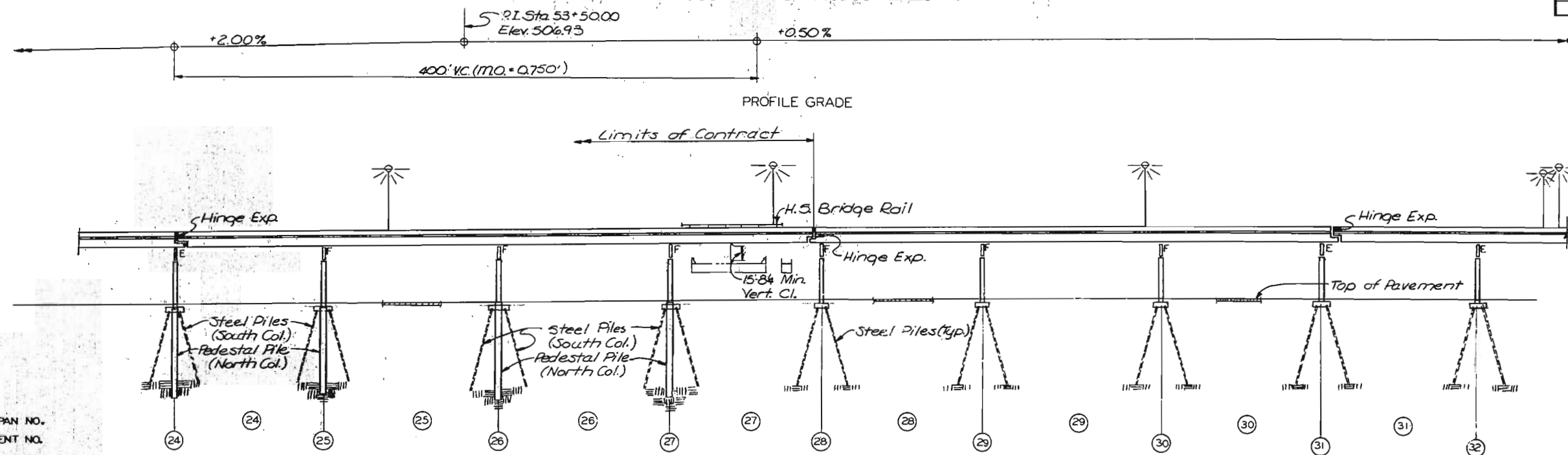
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OVERSEER & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

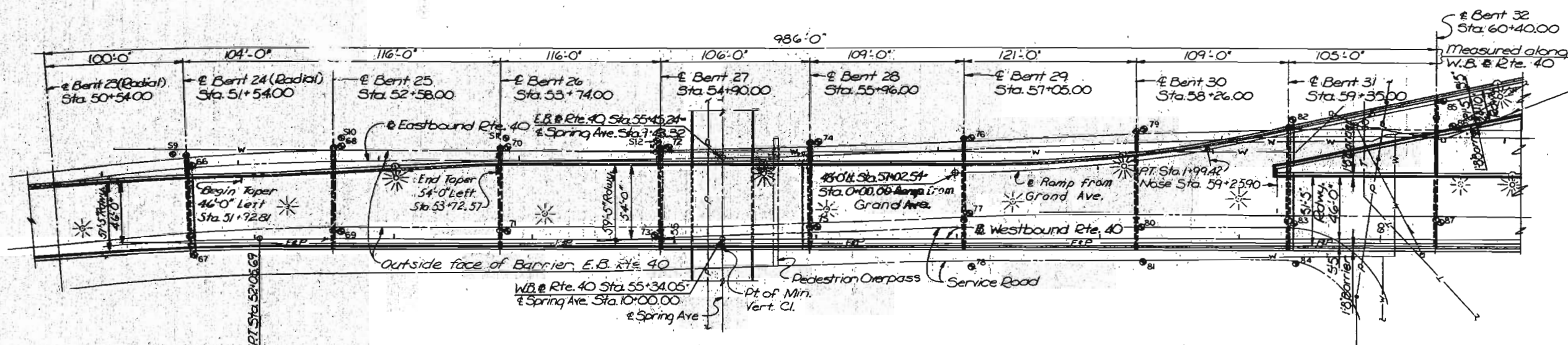
DRAWN BY: LEO...
CHECKED BY: ...
DATE: 11/17/77

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	160	



ELEVATION
Note: All span units are continuous composite plate girders.



PLAN
• indicates the approximate location of a boring.
* Underdeck Light.

LEGEND FOR EXISTING UTILITIES
 — Sewer, sanitary or storm
 — Fire and Police
 — Gas
 — Water
 — Underground Power
 — Underground Telephone
 □ Inlet
 ○ Manhole

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 4 OF 37

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SHEDDEN & PALMER AND ASSOCIATES, Inc.
ENGINEERS-ARCHITECTS
ST. LOUIS, MISSOURI

5261
K5292

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		19	161	

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

Missouri State Highway Commission Specifications for Highway Construction (1981 Edition) and Special Provisions.

DESIGN SPECIFICATIONS:

Division I of the AASHTO "Standard Specifications for Highway Bridges" (1973 Edition including 1974, 1975 and 1976 Interim specifications.

DESIGN LOADING

(Load Factor Design Method - Bridge Slabs.)

Live Load - HS20-44 and modified 24,000 lbs. tandem axle

Dead Load - Weight of Structure includes reinforced concrete at 150 lbs. per cu. ft. with provision for a future wearing surface of 30 lbs. per sq. ft. of roadway.

DESIGN UNIT STRESS:

Concrete in Flexure:

Class B-2 Concrete - $f'_c = 4000$ lbs. per sq. in.
CLASS B-1 CONC. - $f'_c = 4000$ LBS. PER SQ. IN.

Reinforcing Steel:

$f_s = 24,000$ lbs. per sq. in.
 $f_y = 60,000$ lbs. per sq. in.

CONCRETE:

Concrete for slabs shall be Class B-2
Conc. for Barriads shall be Class B-1

REINFORCEMENT:

All reinforcing steel shall be deformed billet steel,
Grade 60.

The top mat of reinforcing steel is to be epoxy coated.

All dimensions to reinforcing bars on detail drawings are to centerline of bar except where the clear distance is noted from the face of concrete.

Lap Splices and embedment of reinforcement as shown on the detail drawings are in accordance with AASHTO, Interim 1974 Specifications.

PROFILE GRADE:

Profile grade is located at the Baseline of Westbound Roadway and at top of roadway slab.

CONSTRUCTION JOINTS:

Construction joints will be permitted only at the locations shown on the detail drawings or as approved by the Engineer

BEVELED EDGES:

All exposed edges of concrete shall be beveled $\frac{1}{2}$ " unless otherwise shown or noted.

ROADWAY SLAB:

The $8\frac{1}{2}$ " roadway slab as detailed includes either a $\frac{1}{2}$ " min. latex concrete or a 2" min. low slump concrete wearing surface. Stay-in-place metal forms as indicated on the details, shall be used in construction of the slab, see Special Provisions.

SHEAR CONNECTORS:

Shear connectors shall be field welded to existing girder flanges in accordance with the details. For number of rows and longitudinal spacing see Steel Framing Plans of Structural Steel Contract.

SECTION 5

ESTIMATE OF QUANTITIES

ITEM	UNIT	TOTAL
Class B-2 Concrete (Alternate A Wearing Surface)	Cu. Yd.	3722.8
Class B-2 Concrete (Alternate B Wearing Surface)	Cu. Yd.	3491.6
Reinforcing Steel (Grade 60)	Lbs.	490,860
Reinforcing Steel (Grade 60), Epoxy Coated	Lbs.	302,700
Bridge Rail (Aluminum - Tube Type)	Lin. Ft.	5,427
Class B-1 Concrete (Barrier Curbs) Alternate A	Cu. Yd.	681.7
Class B-1 Concrete (Barrier Curbs) Alternate B	Cu. Yd.	695.6
CONDUIT SYSTEM ON STRUCTURE	LUMP SUM	1
Concrete Wearing Surface (***)	Sq. Yd.	15,637
Preformed Compression Joint Seal (2 $\frac{1}{2}$ ")	Lin. Ft.	51
Elastomeric Expansion Joint Seal (Movement Rating 4")	Lin. Ft.	162
Elastomeric Expansion Joint Seal (Movement Rating 6 $\frac{1}{2}$ ")	Lin. Ft.	208
*Fabricated Structural Carbon Steel (Misc.)	Lbs.	23,890
Drainage System (8" Steel Pipe)	Lin. Ft.	1159
Drainage System (Type A Drains)	Each	11
Drainage System (Type B Drains)	Each	13

* Weight of fabricated structural carbon steel consists of shear connectors as detailed.
*** See Special Provisions for alternate use of Concrete Wearing Surface.
Alternate A is Latex Modified Concrete, Alternate B is Low Slump Concrete.

ESTIMATE OF QUANTITIES
SEE FINAL PLANS

CITY OF ST. LOUIS

GENERAL NOTES AND
ESTIMATED QUANTITIES

SEE FINAL PLANS

SHEET 5 OF 37

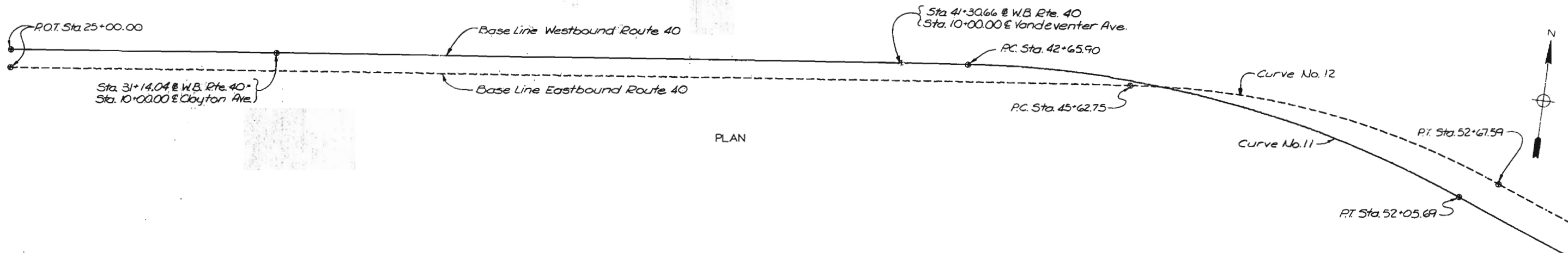
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SWENSON & PARCEL, AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	MO.		18	162	



HORIZONTAL CURVE DATA

Curve No. 11	Curve No. 12	Curve No. 13	Curve No. 14	Curve No. 15	Curve No. 16	Curve No. 17	Curve No. 18	Curve No. 19	Curve No. 20	Curve No. 21	Curve No. 22	Curve No. 23	Curve No. 24	Curve No. 25	Curve No. 27
P.T. Sta. 47+45.51	Sta. 49+22.46	Sta. 55+88.46	Sta. 58+95.22	Sta. 1+00.08	Sta. 1+60.97	Sta. 65+24.53	Sta. 70+61.33	Sta. 71+72.71	Sta. 0+34.99	Sta. 2+78.30	Sta. 75+23.49	Sta. 1+52.50	Sta. 79+38.90	Sta. 82+84.69	Sta. 82+59.18
Δ 28°11'32.9" Rt.	28°11'32.8" Rt.	3°04'03.3" Lt.	3°04'03.3" Rt.	11°57'55.4" Lt.	63°31'30.1" Rt.	6°14'13.4" Rt.	7°13'56.1" Lt.	10°14'05.5" Lt.	26°04'22.0" Rt.	13°30'29.9" Rt.	1°22'15.7" Lt.	18°08'50.1" Lt.	2°27'00.5" Lt.	2°27'00.5" Rt.	12°19'54.3" Rt.
D 3°00'00"	4°00'00"	1°00'00"	1°00'00"	6°00'00"	22°02'12.6"	1°00'00"	1°36'27"	0°52'00"	37°54'41.7"	63°39'43.1"	0°29'54.8"	6°00'00"	0°42'30.8"	0°42'30.8"	2°00'00"
T 471.61'	359.71'	153.42'	153.42'	100.08'	160.97'	312.16'	225.25'	592.05'	34.99'	209.52'	137.51'	152.50'	172.92'	172.92'	309.49'
L 439.80'	704.84'	306.76'	306.76'	199.42'	288.27'	625.71'	449.91'	1180.94'	68.77'	209.71'	273.00'	302.45'	345.79'	345.79'	616.59'
R 1909.86'	1432.39'	5729.58'	5729.58'	954.93'	260.00'	5729.58'	3564.30'	6611.05'	151.13'	90.00'	11492.00'	954.93'	8086.36'	8086.36'	2864.79'

BENCH MARKS U.S.G.S. DATUM

NUMBER	DESCRIPTION	ELEV.
B.M. #4	on stone curb in front of General Equip. Co. bldg. No. 3952, Clayton Ave.	477.89
B.M. #5	on NE corner of 2x2 conc. base of stop light at Vandeventer & left side of ramp from Mkt St.	459.32
B.M. #6	on open of fire plug N. side of W.B.L. under pedestrian overpass at Spring Ave.	466.94
B.M. #7	on concrete median under center of Grand Ave. bridge.	465.56
B.M. #8	on wheel guard NE corner of E. end of E.B. bridge over E.B. Mkt St. ramp.	495.83
B.M. #9	on SE corner of W.W. endpost of E.B. bridge over E.B. Mkt St. ramp.	497.70
B.M. #E	top of S.W. corner of light standard at the S.W. corner of Grand Ave. bridge.	489.63

CITY OF ST. LOUIS

ALIGNMENT, HORIZONTAL CURVE DATA,
AND BENCH MARKS

SHEET 6 OF 37

A-3594

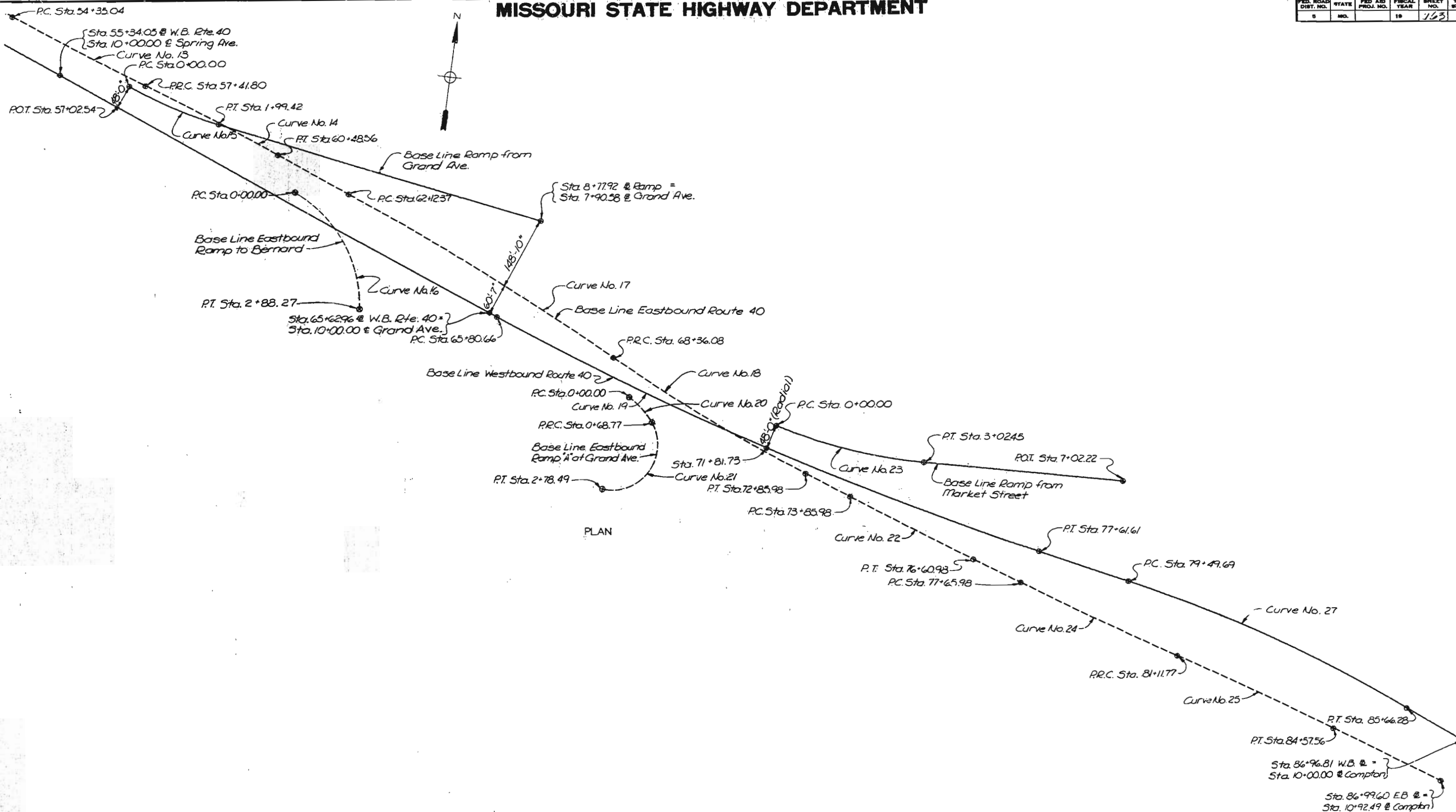
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OVERDRUP & PANCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: J. O. G. (SIGNED) Date: 12/2/77
CHECKED BY: E. J. (SIGNED) Date: 12/2/77
5261
765294

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
0	MO.		19	163	



PLAN

CITY OF ST LOUIS

ALIGNMENT

SHEET 7 OF 37

A-3594

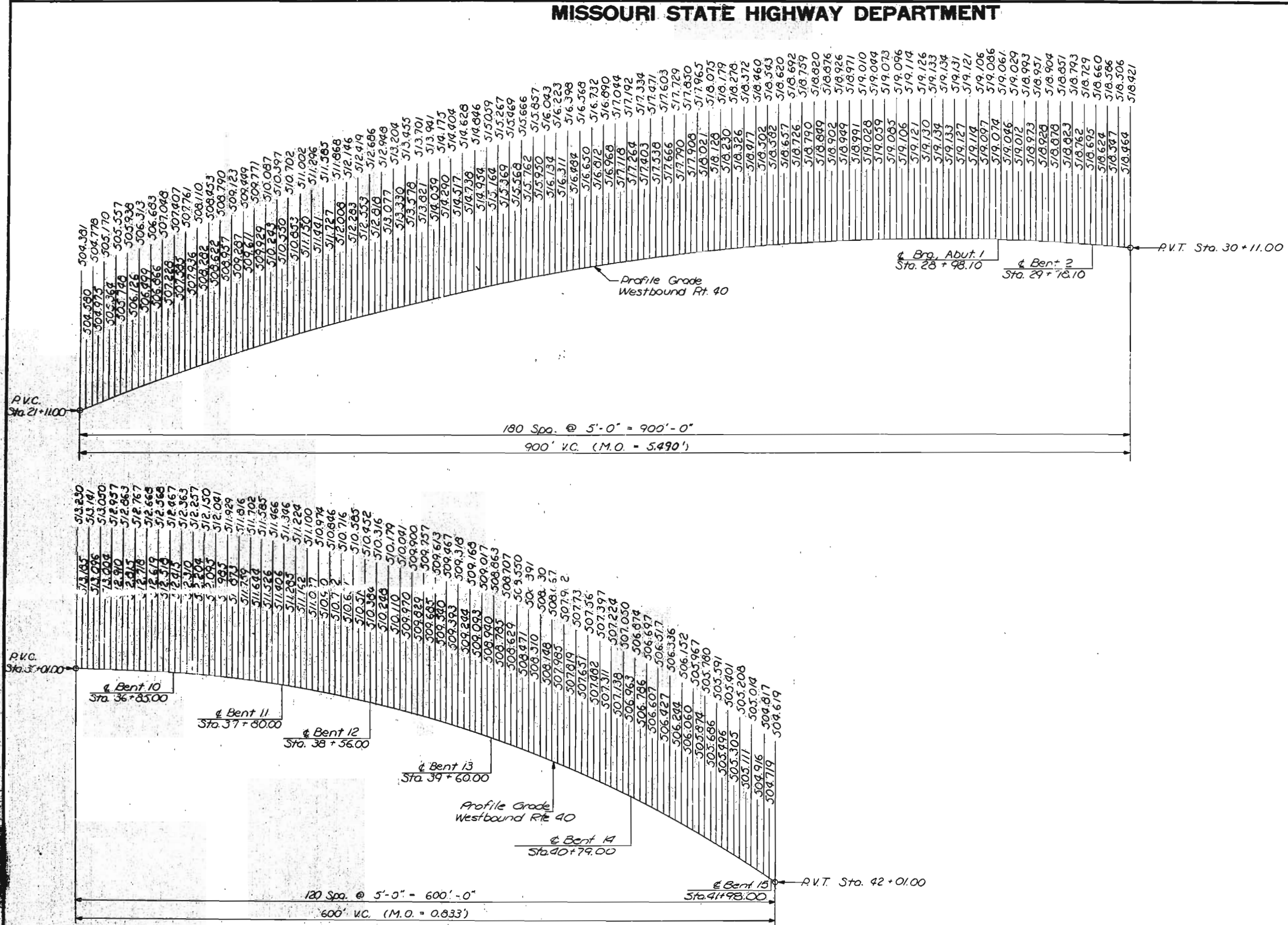
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 CHECKED BY: J. S. Smith, Nov. 1977
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 ENGINEERS - ARCHITECTS
 ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	164	



CITY OF ST. LOUIS

VERTICAL CURVE ELEVATIONS

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

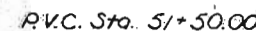
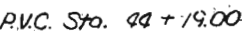
SHEET 8 OF 37

A-3594

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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

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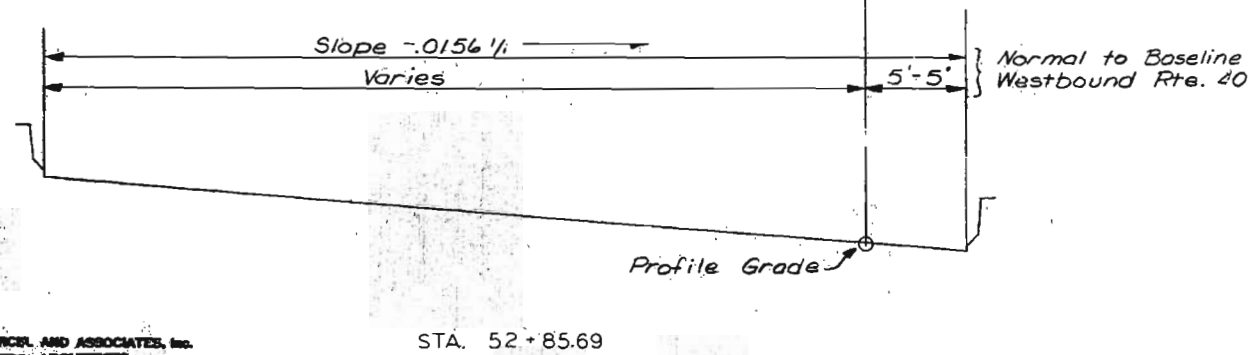
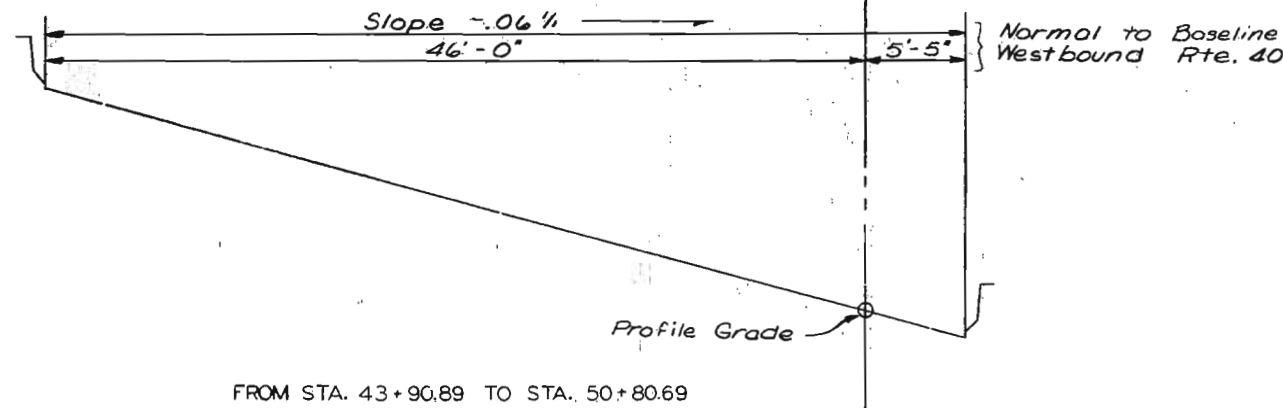
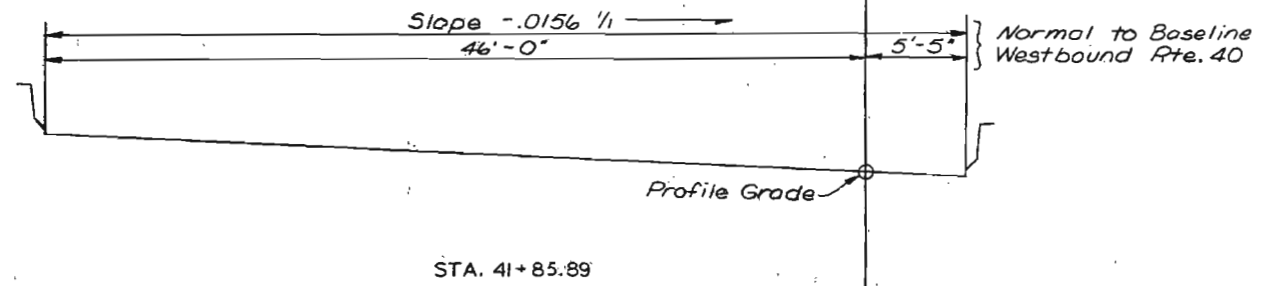
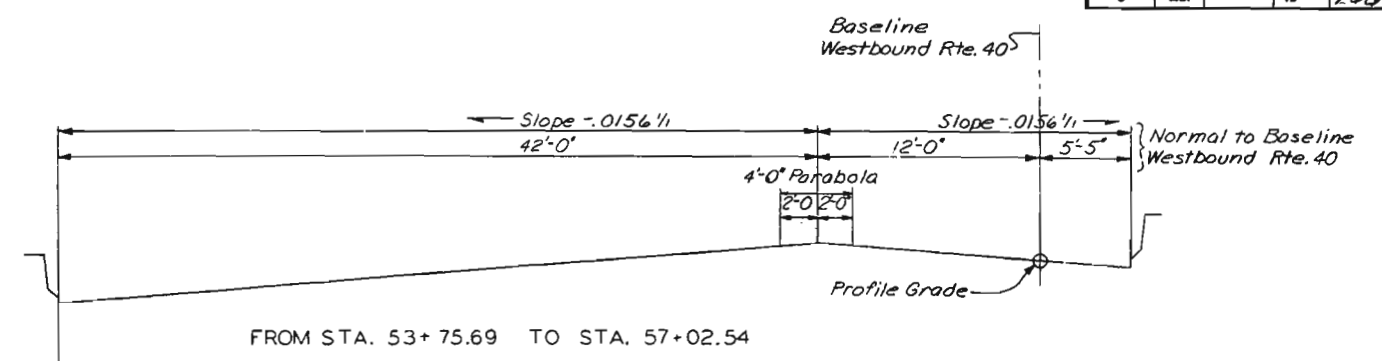
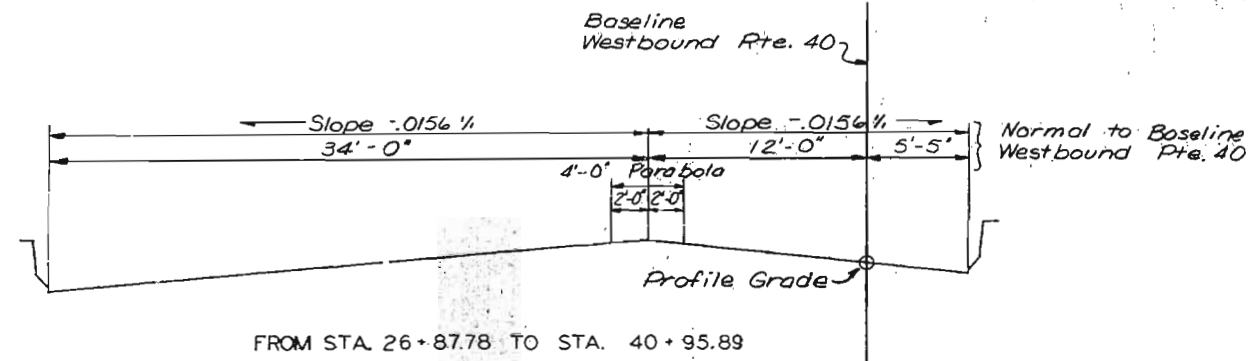
SHEET 9 OF 37

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		19	166	



CITY OF ST. LOUIS

ROADWAY CROSS SLOPES

SHEET 10 OF 37

A-3594

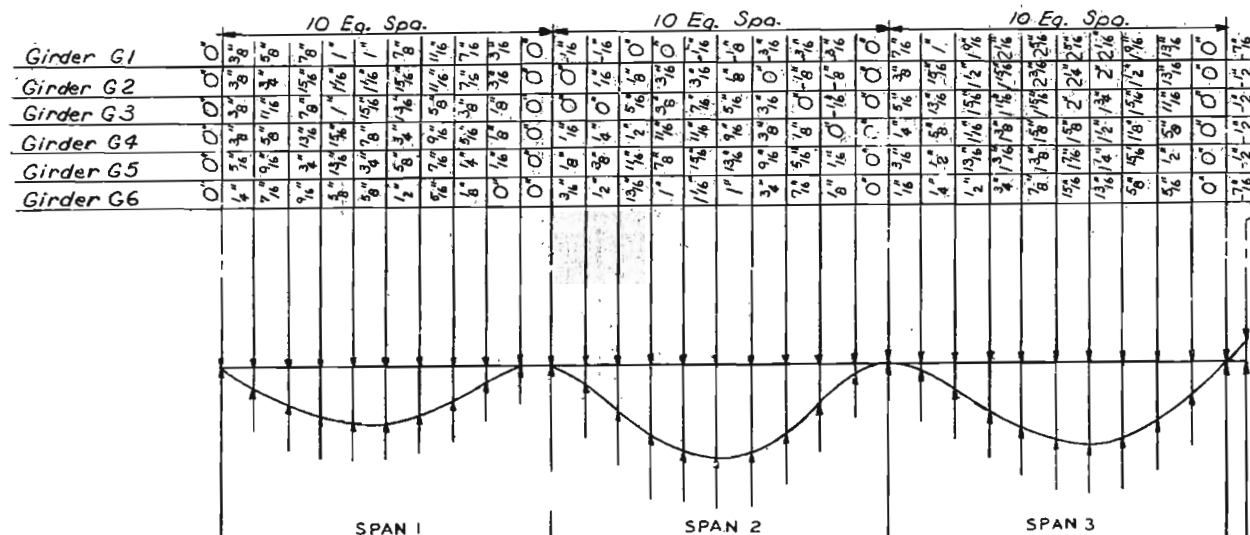
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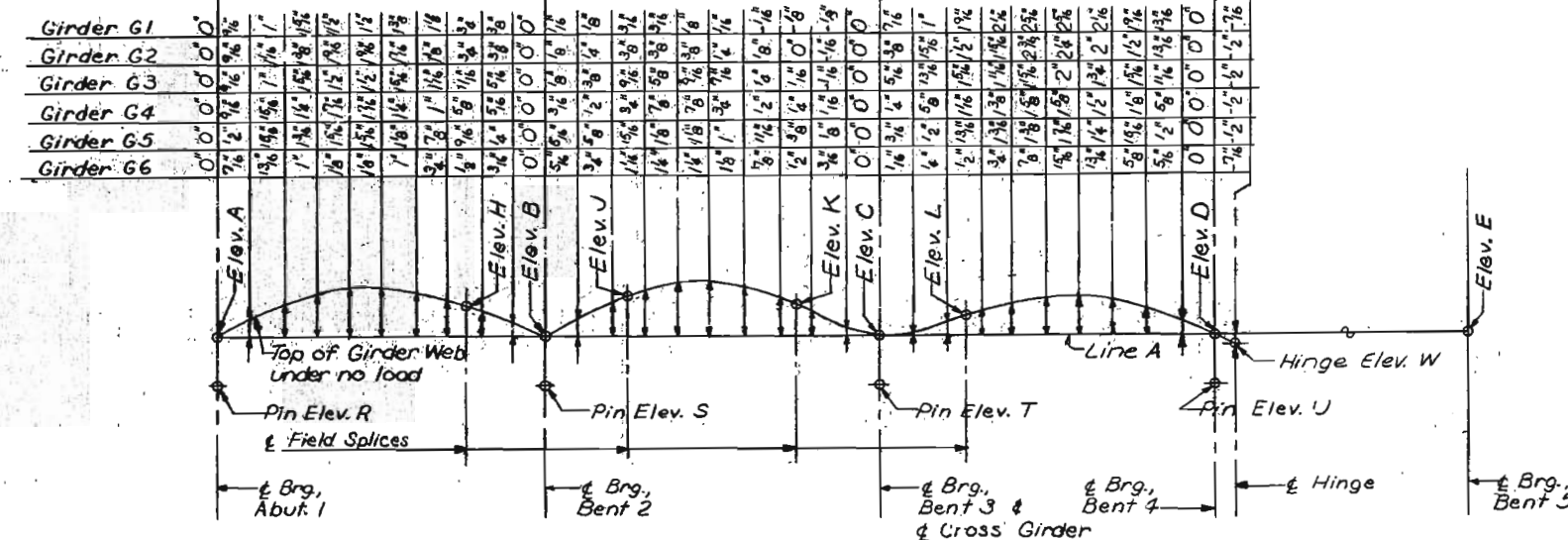
SWENBERG & PARCEL AND ASSOCIATES, Inc.
 ENGINEERS - ARCHITECTS
 ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

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5	MO.		19	167	



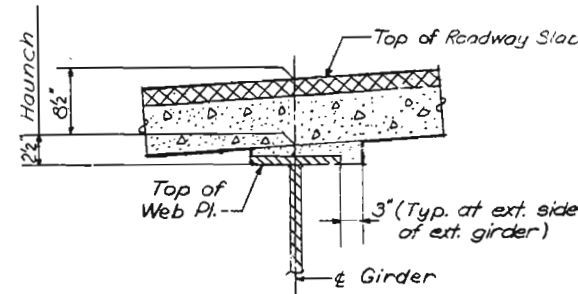
DEAD LOAD DEFLECTION DIAGRAM
Note: Negative values indicate upward deflections.



CAMBER DIAGRAM
(Girder as fabricated and erected)
Note: Elevations shown do not include D.L. deflection of Longitudinal Girders.
Elevations shown do include D.L. deflection of Cross Girder at Bent 3.
Line A is a straight line between & Brg. Stiffeners at top of web plate.

TOP OF GIRDER WEB ELEVATIONS										PIN ELEVATIONS				HINGE
Girder	Elev. A	Elev. B	Elev. C	Elev. D	Elev. E	Elev. F	Elev. G	Elev. H	Elev. I	Elev. J	Elev. K	Elev. L	Elev. M	Elev. N
G1	518.091	517.704	516.938	515.987	515.317	517.880	517.524	517.199	516.810	513.820	513.464	512.656	511.748	515.916
G2	518.242	517.854	517.038	516.138	515.467	518.033	517.687	517.334	516.930	513.971	513.615	512.777	511.899	516.061
G3	518.285	517.897	517.070	516.181	515.510	518.069	517.728	517.359	516.934	514.014	513.616	512.788	511.942	516.104
G4	518.134	517.747	516.888	516.030	515.359	517.912	517.586	517.129	516.746	513.863	513.496	512.606	511.791	515.953
G5	517.983	517.596	516.706	515.880	515.209	517.754	517.440	516.973	516.553	513.713	513.335	512.425	511.640	515.803
G6	517.833	517.445	516.524	515.729	515.058	517.647	517.290	516.811	516.353	513.562	513.185	512.243	511.489	515.657

512.553
512.455
512.372
512.305



TYPICAL HAUNCH DETAIL

DEAD LOAD DEFLECTION AND CAMBER NOTES

Spacing of dead load deflection and camber ordinates is measured along & girder.
Camber shown includes allowance for vertical curves, superelevation transition and full dead load deflection, excluding future wearing surface. The percentage of dead load deflection due to weight of structural steel only is as shown in table below.
Haunch dimension shown in Typical Haunch Detail is for cambered portions of girders. This dimension may vary if the girder camber after erection differs from the plan camber by more than the percentage of dead load deflection due to the weight of structural steel only.
For non-cambered portions of girders at Bents 9 and 10 the haunch shall be varied, using the haunch shown in Typical Haunch Detail as a minimum to arrive at top of slab elevations conforming to profile grade and cross slopes.
The concrete quantity computed for the haunches is included in the estimated quantities for Class B2 Concrete. No payment will be made for additional variations in haunching.

STEEL ONLY DEAD LOAD DEFLECTION PERCENTAGE

Span	Girder	%	Span	Girder	%
1	G1-G6	15	18	G2-G5	15
1	G2-G5	13	19	G1-G6	17
2	G1-G6	15	19	G2-G5	16
2	G2-G5	13	20	G1-G6	17
3	G1	21	20	G2-G5	15
3	G2	18	21	G1-G6	17
3	G3-G6	17	21	G2-G5	15
3	G4	16	22	G1-G6	17
3	G5	15	22	G2-G5	15
4	G1-G6	14	23	G1-G6	17
4	G2-G5	13	23	G2-G5	15
5	G1-G6	15	24	G1	17
5	G2-G5	13	24	G2-G4	15
6	G1-G6	15	24	G5	18
6	G2-G5	13	24	G6	23
7	G1-G6	14	24	G7	21
7	G2-G5	13	25	G1	16
8	G1-G6	15	25	G2-G4	14
8	G2-G5	13	25	G5	15
9	G1-G6	15	25	G6	17
9	G2-G5	13	25	G7	18
10	G1-G6	15	26	G1	16
10	G2-G5	13	26	G2-G5	14
11	G1-G6	15	26	G6	15
11	G2-G5	13	26	G7	17
12	G1-G6	16	27	G1	17
12	G2-G5	14	27	G2-G5	15
13	G1-G6	16	27	G6	16
13	G2-G5	14	27	G7	18
14	G1-G6	16			
14	G2-G5	14			
15	G1-G6	16			
15	G2-G5	14			
16	G1-G6	17			
16	G2-G5	16			
17	G1-G6	17			
17	G2-G5	15			
18	G1-G6	17			

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 1 THRU 3

SHEET 167 OF 37

A-3594

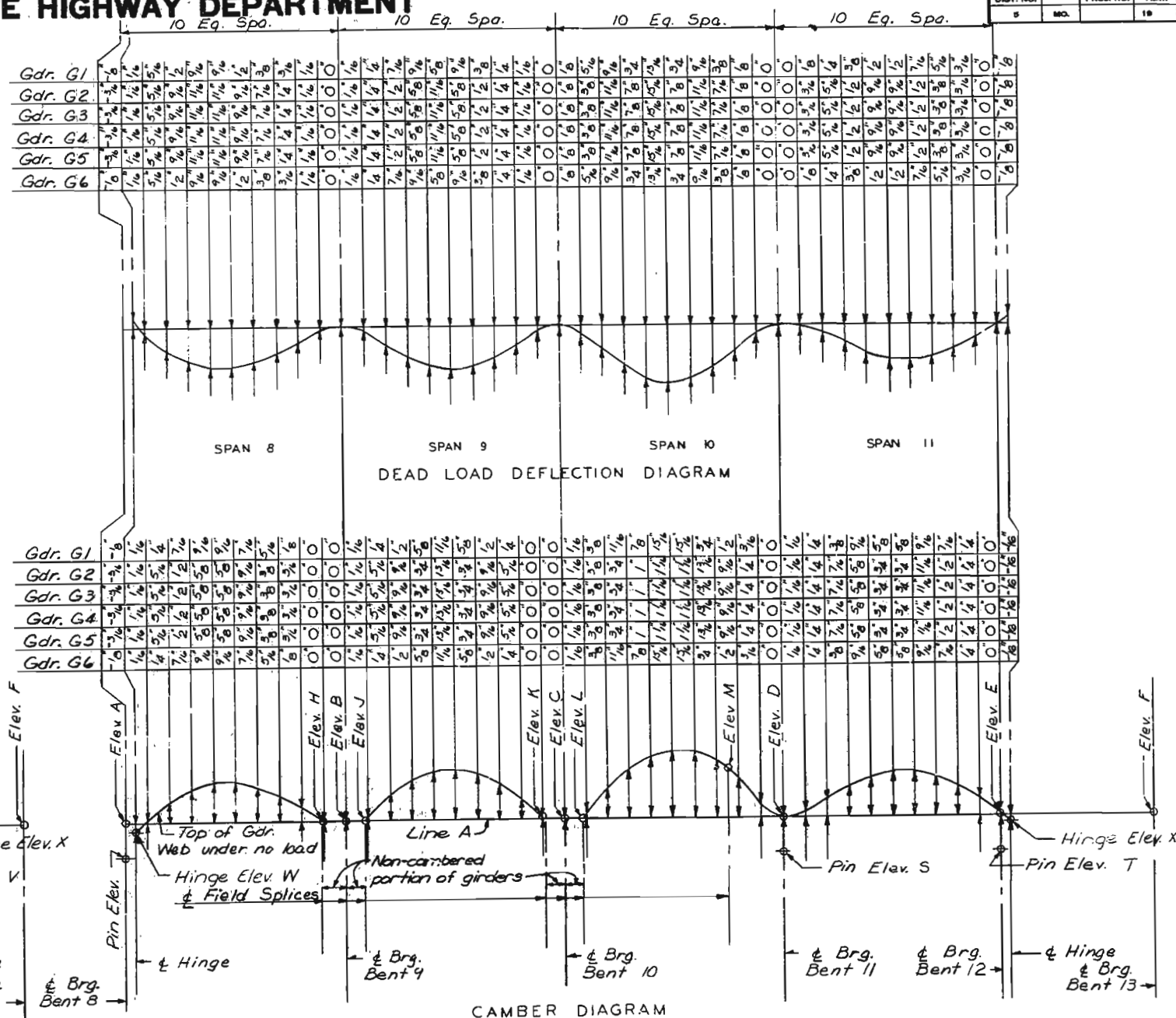
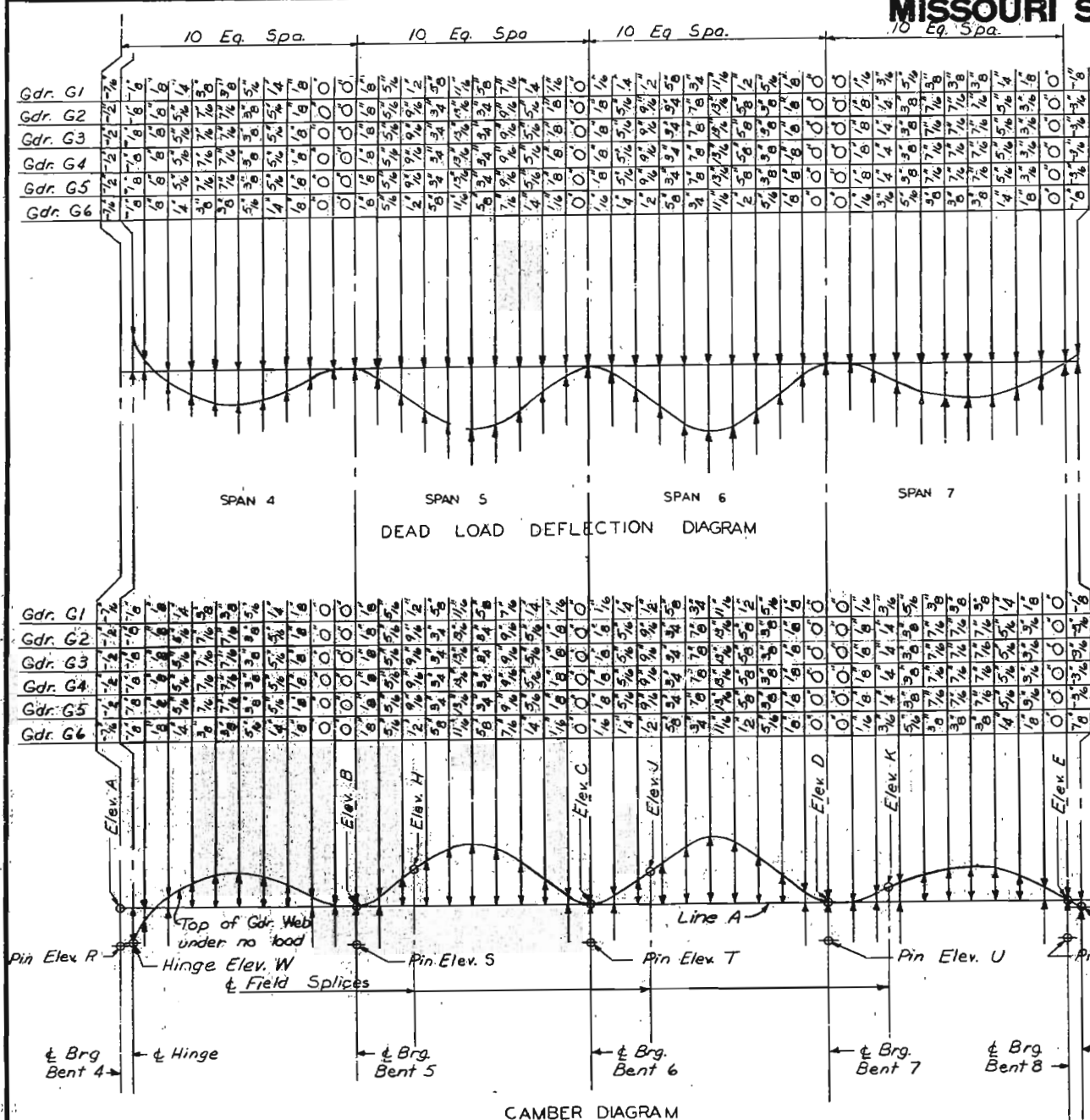
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS. Revised 12-17-81

DESIGNED BY: E. G. GORDON, June 1977
CHECKED BY: J. S. GORDON, June 1977
DRAWN BY: J. S. GORDON, June 1977
SCALE: 1" = 20'

GORDON & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

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



TOP OF GIRDER WEB ELEVATIONS													ELEV. PIN ELEVATIONS			ELEV. HINGE	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. O	ELEV. P	ELEV. Q
G1	515.987	515.317	514.489	513.662	513.027	512.332	511.543	510.711	510.000	509.219	508.402	507.777	507.145	506.513	505.881	505.249	504.617
G2	516.138	515.467	514.640	513.813	513.178	512.482	511.693	510.860	510.149	509.359	508.527	507.895	507.263	506.631	505.999	505.367	504.735
G3	516.181	515.510	514.683	513.856	513.220	512.525	511.736	510.903	510.192	509.402	508.570	507.938	507.306	506.674	506.042	505.410	504.778
G4	516.030	515.359	514.532	513.705	513.070	512.375	511.586	510.753	510.042	509.252	508.420	507.788	507.156	506.524	505.892	505.260	504.628
G5	515.879	515.209	514.382	513.555	512.919	512.224	511.435	510.602	509.891	509.101	508.269	507.637	506.999	506.367	505.735	505.103	504.471
G6	515.729	515.058	514.231	513.404	512.768	512.073	511.284	510.451	509.740	508.950	508.118	507.486	506.854	506.222	505.590	504.958	504.326

TOP OF GIRDER WEB ELEVATIONS													ELEV. PIN ELEVATIONS			ELEV. HINGE	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. O	ELEV. P	ELEV. Q
G1	513.027	512.332	511.448	510.581	509.707	508.801	507.872	506.920	505.946	504.951	503.936	502.901	501.846	500.771	500.000	499.219	498.438
G2	513.178	512.482	511.599	510.732	509.858	508.952	512.559	512.419	511.685	511.524	510.808	508.927	506.282	504.318	513.127	509.499	509.348
G3	513.220	512.525	511.642	510.775	509.899	508.993	512.602	512.461	511.728	511.567	510.851	508.970	506.325	504.361	513.170	509.541	509.391
G4	513.070	512.375	511.491	510.624	509.748	508.842	512.451	512.311	511.577	511.417	510.700	508.820	506.174	504.210	513.019	509.391	509.240
G5	512.919	512.224	511.340	510.473	509.597	508.691	512.300	512.160	511.426	511.266	510.549	508.669	506.023	504.060	512.868	509.240	509.089
G6	512.768	512.073	511.189	510.322	509.446	508.540	512.148	512.008	511.275	511.115	510.393	508.513	505.867	503.904	512.722	509.094	508.943

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.
Girders shown on Camber Diagrams as fabricated and erected.
Elevations shown on Camber Diagrams do not include D.L. Deflection of Longitudinal Girders.
Elevations shown on Camber Diagrams do include D.L. Deflection of Cross Girders at Bents 9 and 10.
For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 11.
Line A is a straight line between ϵ Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 4 THRU 11

SHEET 12 OF 37

A-3594

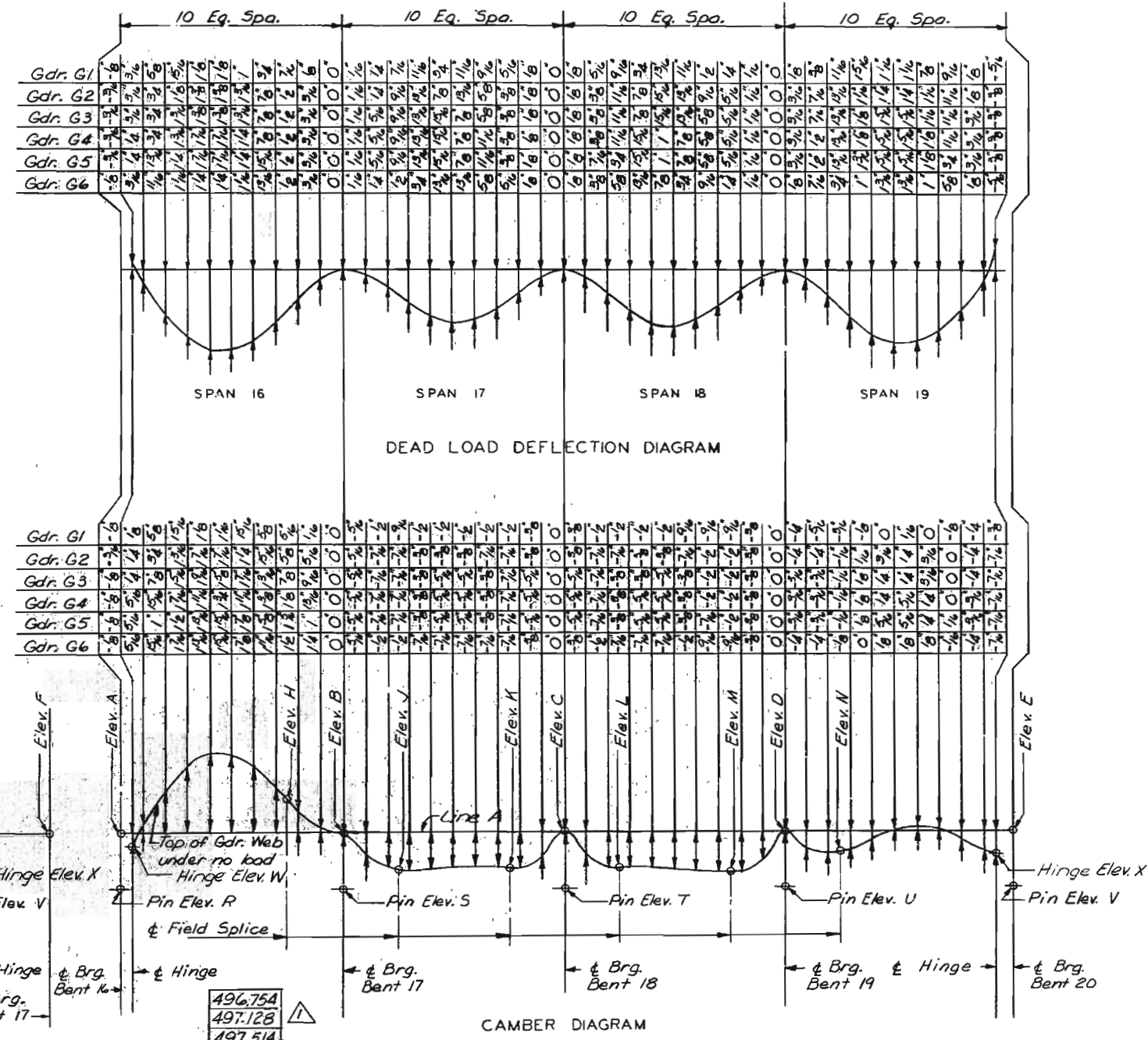
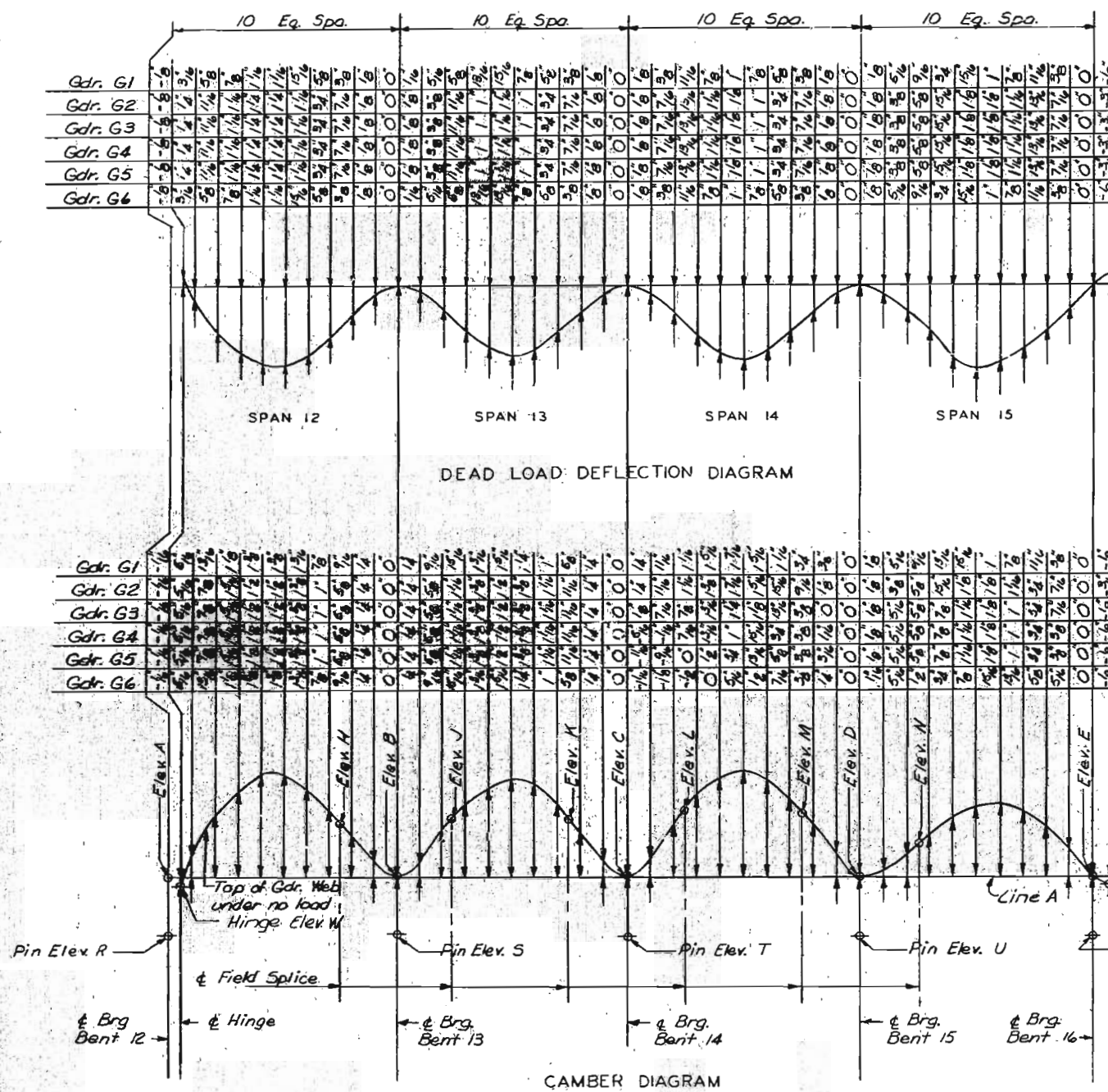
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: M. C. FINE, June 71
CHECKED BY: J. W. FINE, Sept. 1971
5261
775241

SWENNER & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		19	1169	



TOP OF GIRDER WEB ELEVATIONS														
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N
G1	509.407	507.901	505.933	503.692	501.618	499.410	508.323	507.469	506.496	505.441	504.333	504.208	504.168	502.630
G2	509.558	508.632	506.083	503.868	502.003	500.050	508.479	507.626	506.654	505.599	504.491	503.444	504.318	502.781
G3	509.601	508.085	506.126	504.044	502.389	500.630	508.522	507.669	506.697	505.651	504.520	503.672	504.361	502.824
G4	509.640	507.948	505.975	504.220	502.774	501.210	508.371	507.519	506.546	505.550	504.711	503.901	504.210	502.673
G5	509.689	507.793	505.825	504.396	503.160	501.790	508.220	507.368	506.396	505.445	504.802	503.129	504.060	502.522
G6	509.148	507.643	505.674	504.572	503.545	502.370	509.064	507.210	506.237	505.330	504.886	504.350	503.909	502.372

TOP OF GIRDER WEB ELEVATIONS														
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N
G1	501.618	499.470	497.514	496.412	496.161	500.024	498.937	497.959	497.195	496.639	496.331	496.378	494.178	492.243
G2	502.003	500.050	498.094	496.992	496.741	500.583	499.522	498.547	497.783	497.224	496.911	496.764	494.758	492.825
G3	502.389	500.630	498.674	497.572	497.321	501.135	500.103	499.128	498.363	497.805	497.498	497.149	495.338	493.403
G4	502.774	501.210	499.254	498.152	497.901	501.686	500.684	499.710	498.945	498.386	498.080	497.535	495.918	493.983
G5	503.160	501.790	499.834	498.732	498.481	502.245	501.265	500.288	499.522	498.967	498.660	497.920	496.498	494.563
G6	503.545	502.370	500.414	499.312	499.061	502.783	501.840	500.864	500.099	499.542	499.231	498.306	497.078	495.143

PIN ELEVATIONS														
Pin	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V	ELEV. W	ELEV. X	ELEV. Y	ELEV. Z	ELEV. AA	ELEV. AB	ELEV. AC	ELEV. AD	ELEV. AE
Pin	496.754	497.128	497.514	497.910	498.306	498.702	499.098	499.494	499.890	500.286	500.682	501.078	501.474	501.870

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.

Girders shown on Camber Diagrams as fabricated and erected.

Elevations shown on Camber Diagrams do not include D.L. Deflection of Longitudinal Girders.

Elevations shown on Camber Diagrams do include D.L. Deflection of Cross Girders at Bents 16-20.

For Dead Load Deflection and Camber Notes and Typical Haunch Detail, See Sheet 11.

Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 12 THRU 19

SHEET 13 OF 37

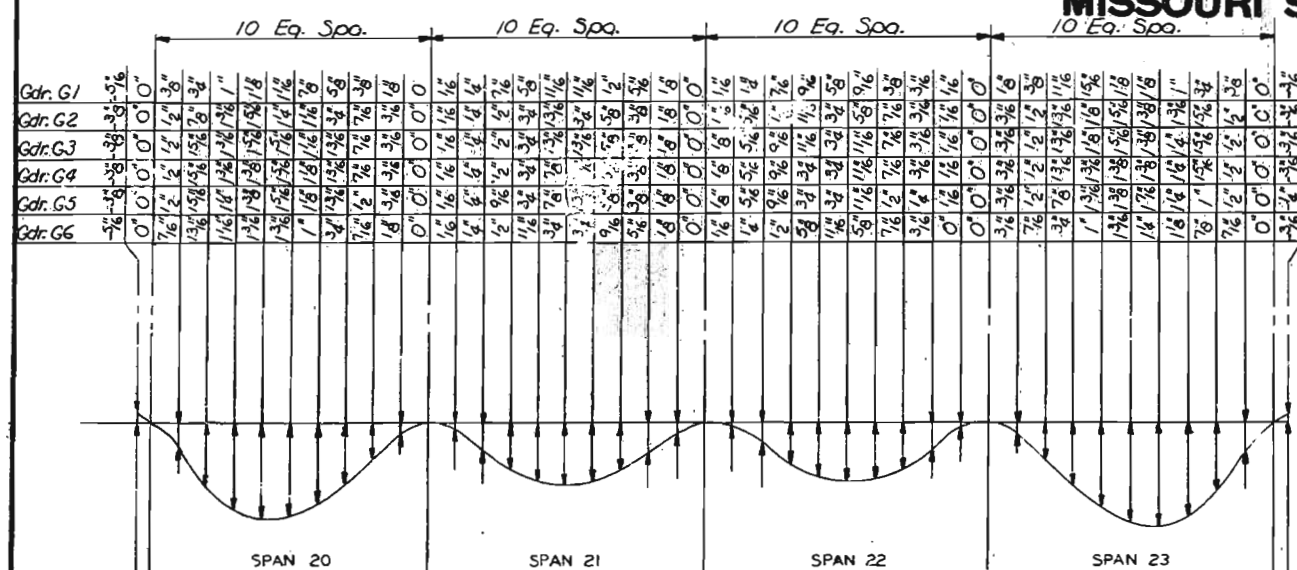
A-3594

DESIGNED BY: M.O. Feltner, Aug. 1917
CHECKED BY: J. H. Smith, Aug. 1917
APPROVED BY: J. H. Smith, Aug. 1917

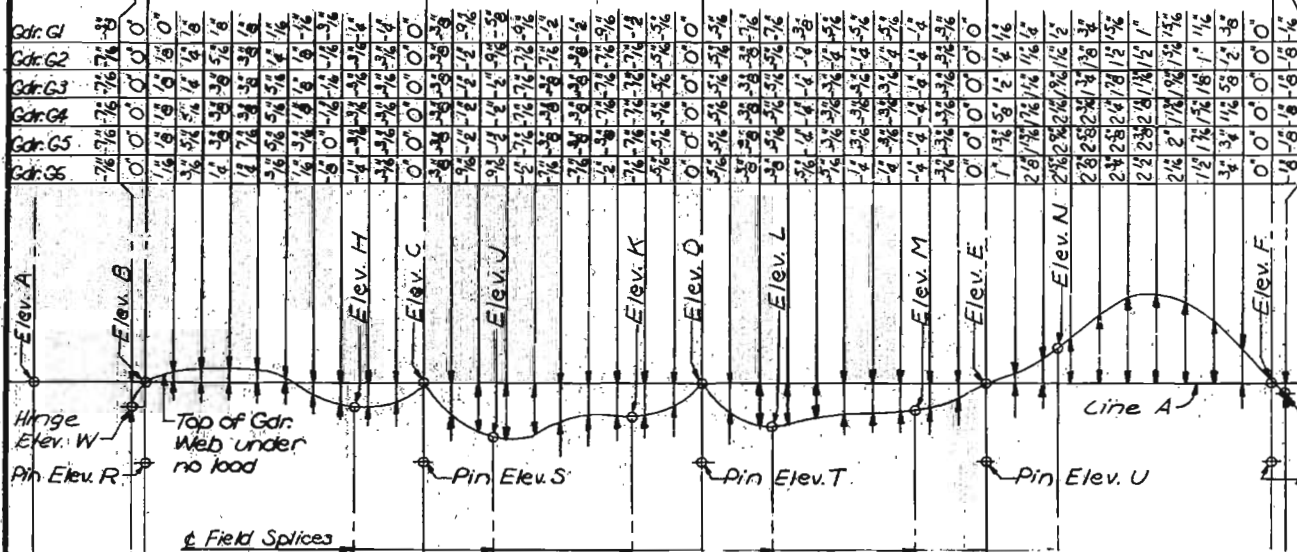
OVERMAN & PARCE, AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO. STATE FED. AID PROJ. NO. FISCAL YEAR SHEET NO. TOTAL SHEETS
5 MO. 19 170 170

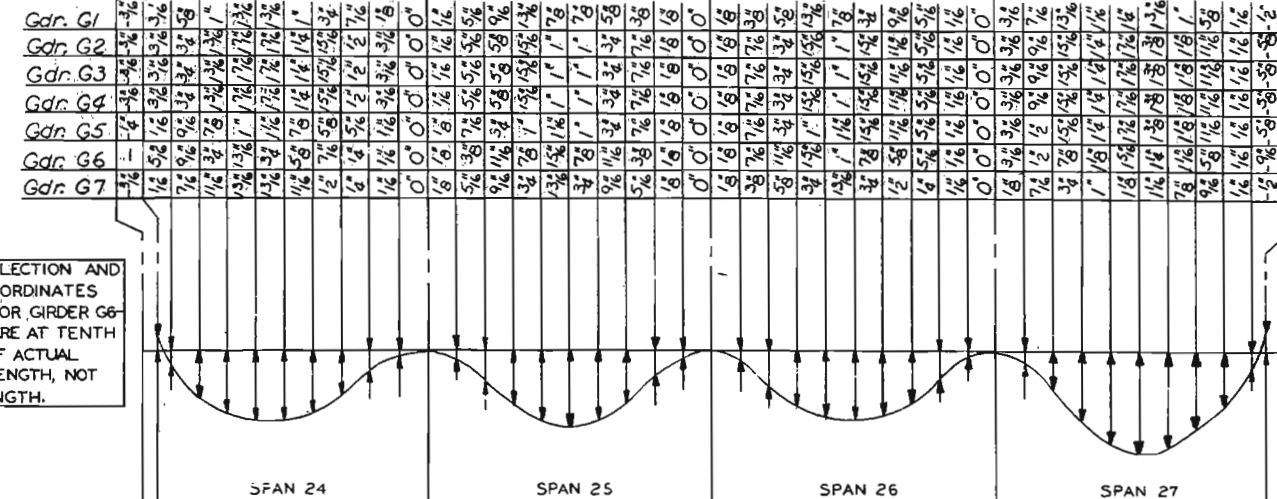


DEAD LOAD DEFLECTION DIAGRAM

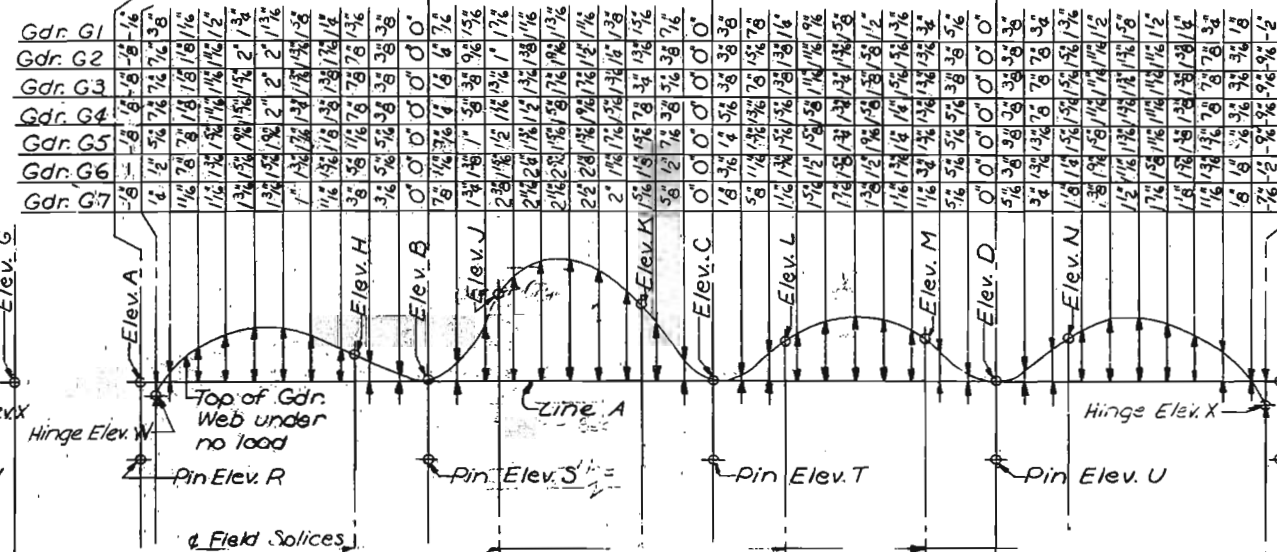


CAMBER DIAGRAM
Note: Line A is a straight line between & Brg. Stiffeners at top of web plate.

NOTE: DEFLECTION AND CAMBER ORDINATES SHOWN FOR GIRDER G6-SPAN 24 ARE AT TENTH POINTS OF ACTUAL GIRDER LENGTH, NOT SPAN LENGTH.



DEAD LOAD DEFLECTION DIAGRAM



CAMBER DIAGRAM
Note: Line A is a straight line between & Brg. Stiffeners at top of web plate.

Spans 20 - 23

TOP OF GIRDER WEB ELEVATIONS														PIN ELEVATIONS				HINGES		
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V	ELEV. W	ELEV. X
G1	496.412	496.161	496.591	497.048	499.060	501.921	503.870	496.467	496.855	497.490	498.316	499.334	500.403	490.921	491.299	492.577	494.569	496.682	496.126	501.999
G2	496.992	496.741	497.171	498.428	500.440	502.348	504.079	497.050	497.441	498.075	498.900	499.918	500.994	491.501	491.879	493.157	495.149	497.100	496.701	502.411
G3	497.572	497.321	497.751	499.008	501.020	502.774	504.288	497.632	498.021	498.658	499.481	500.498	501.575	492.081	492.459	493.737	495.729	497.533	497.281	502.829
G4	498.152	497.901	498.331	499.588	501.600	503.201	504.496	498.212	498.601	499.238	500.062	501.079	502.156	492.661	493.039	494.317	496.309	497.961	497.661	503.247
G5	498.732	498.481	498.911	500.168	502.180	503.627	504.705	498.794	499.181	499.819	500.642	501.659	502.737	493.241	493.619	494.897	496.889	498.388	498.441	503.663
G6	499.312	499.061	499.491	500.748	502.760	504.054	504.953*	499.369	499.759	500.394	501.218	502.233	513.310	493.821	494.199	495.477	497.469	498.819	499.021	504.083

497.092
497.509
497.930
498.367

Spans 24 - 27

TOP OF GIRDER WEB ELEVATIONS														PIN ELEVATIONS				HINGES		
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V	ELEV. W	ELEV. X
G1	501.921	503.870	505.491	506.584	507.182	503.480	504.375	505.179	505.849	506.391	506.798	496.682	498.922	500.554	501.636	501.942	501.999	501.115		
G2	502.348	504.079	505.642	506.735	507.333	503.752	504.529	505.334	506.009	506.548	506.957	497.108	499.131	500.704	501.787	502.093	502.411	502.261		
G3	502.774	504.288	505.687	506.778	507.376	504.013	504.679	505.414	506.051	506.591	507.000	497.535	499.340	500.799	501.830	502.136	502.829	507.304		
G4	503.201	504.496	505.542	506.627	507.225	504.274	504.825	505.366	505.901	506.440	506.849	497.961	499.549	500.604	501.679	501.985	503.247	507.153		
G5	503.627	504.705	505.397	506.477	507.074	504.514	504.975	505.317	505.745	506.287	506.693	498.388	499.757	500.459	501.529	501.834	503.663	507.002		
G6	503.883**	504.846	505.251	506.326	506.923	504.655	505.084	505.262	505.593	506.132	506.541		499.897	500.314	501.378	501.684		506.856		
G7	504.054	504.933	505.131	506.201	506.798	504.769	505.170	505.218	505.460	506.002	506.406	498.814	500.005	500.994	501.253	501.559	504.083	506.737		

NOTES
Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.
Girders shown on Camber Diagrams as fabricated and erected.
Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.
Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girders at Bents 19-28.
* Elevation shown is for Girder G7 at Bent 25.
** Elevation A - Girder G6 is at actual end of Girder, not & Bent 24.
For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 11.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 20 THRU 27

SHEET 4 OF 35

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS. Revised 12-17-81

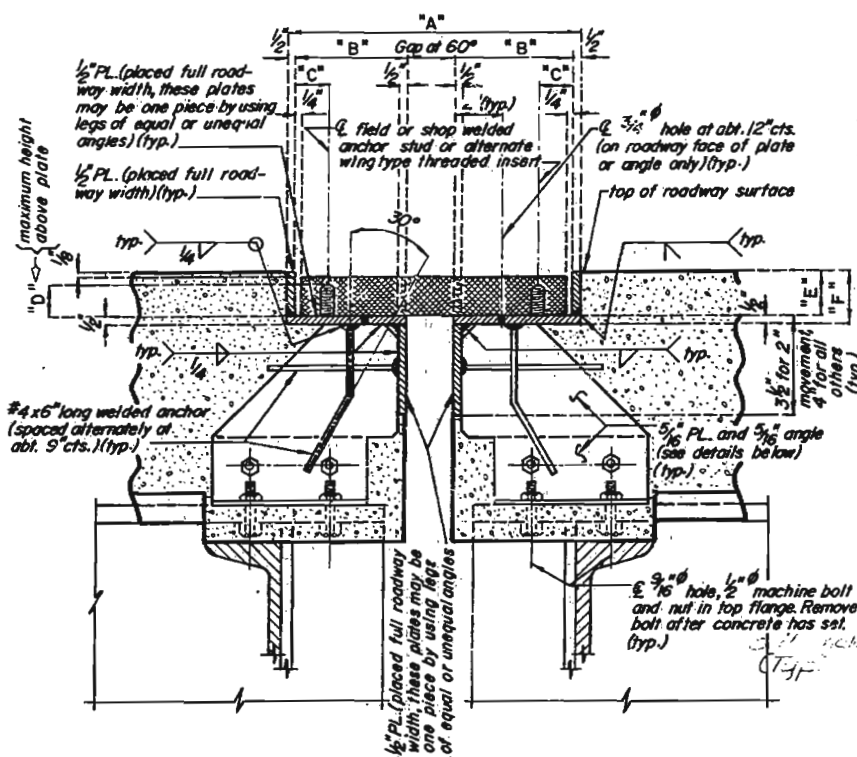
14
DRAWN BY: E. G. GORDON, JR., JULY 1977
CHECKED BY: T. S. SANCHEZ, JR., SEPT. 1977
5261
775231

OVERBURY & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

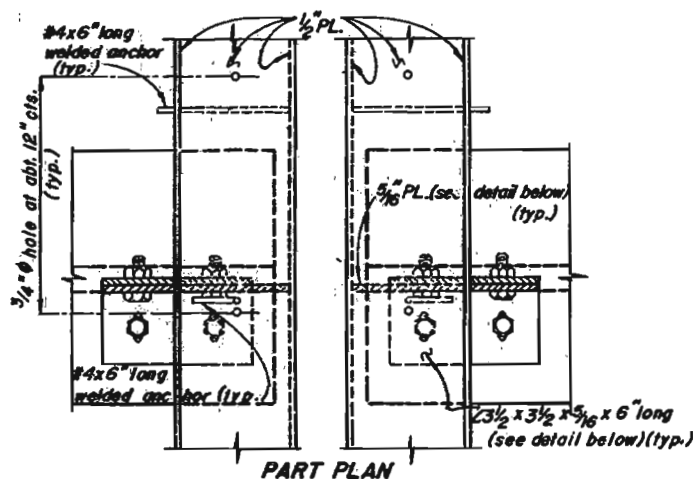
TABLE OF DIMENSIONS

LOCATION	MOVEMENT RATING	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A" AT 60°	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE "G"
Bents 4, 8 & 28	4"	Transflex 400 A	3 7/8"	24 5/8"	9 1/2"	2 1/4"	1 1/2"	2 7/16"	2 3/16"	3/4" 85
Bents 12, 16, 20 & 24	6 1/2"	Transflex 650	4 1/2"	29 3/4"	12 1/8"	2 3/8"	2"	3 1/16"	3 1/16"	7/8" 100

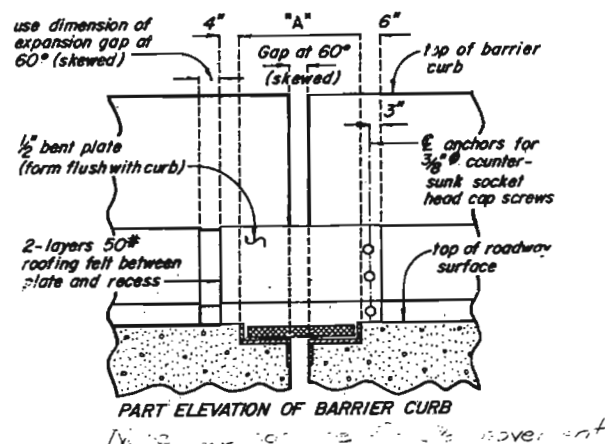
NOTE: All dimensions are at right angles.



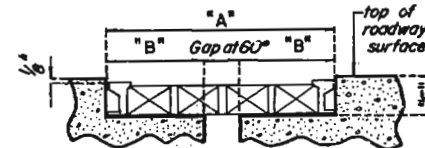
PART SECTION THRU ARMORED JOINT



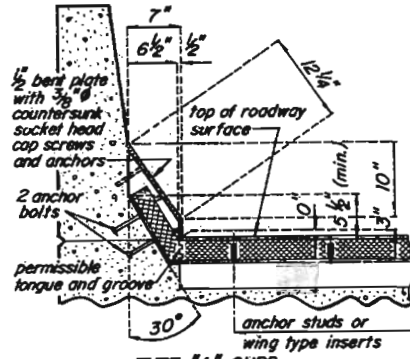
PART PLAN



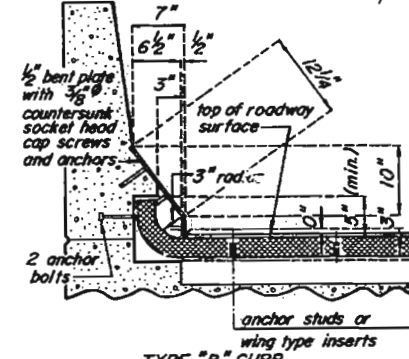
PART ELEVATION OF BARRIER CURB



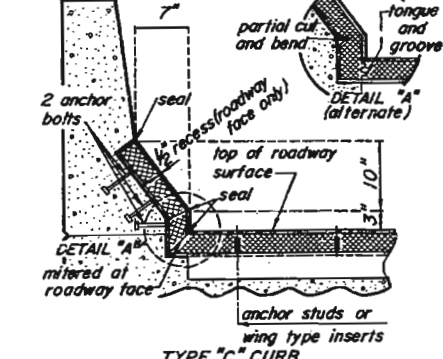
BLOCKOUT FOR MODULAR UNITS
(When modular units are specified as an alternate, steel curb plate treatments are required)



TYPE "A" CURB
Note: Do not use Type "A" or "B" Curb for 6 1/2" movement.

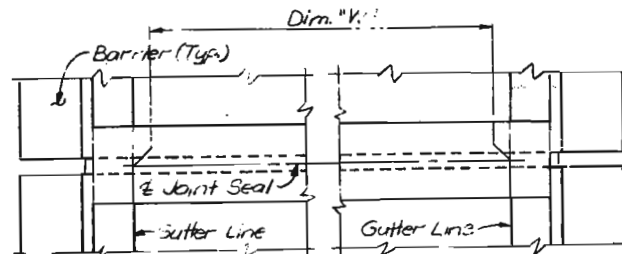


TYPE "B" CURB
(maximum skew of 10°)

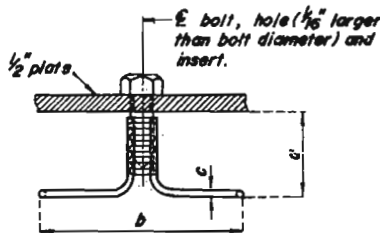


TYPE "C" CURB

ALTERNATE CURB TREATMENTS



PART PLAN



Bolt Diameter	Safe Load Tension (lbs.) (min.)	Approx. Ult. Cap. Tension (lbs.) (min.)	Dimensions (min.)
1/2"	800	8,000	1-5/8" 5" .218"
5/8"	1,300	9,200	1-5/8" 5" .218"
3/4"	1,800	13,200	2-1/4" 6" .262"
7/8"	2,000	16,200	2-1/2" 6-1/2" .306"
1"	2,000	16,200	2-1/2" 6-1/2" .306"

DETAILS OF ALTERNATE WING TYPE THREADED INSERT

(Machine bolts need only be used to secure the Wing Type Threaded Inserts to the steel plate until the concrete has attained 3,000 p.s.i.)

DETAILS OF ELASTOMERIC EXPANSION JOINT SEAL

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

GENERAL NOTES:

THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE NUTS ON THE ANCHOR STUDS SHALL BE TIGHTENED TO THE FOOT POUNDS "G" SPECIFIED IN THE TABLE OF DIMENSIONS. RETIGHTEN TO "G" FOOT POUNDS A MINIMUM OF 30 MINUTES AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDUCED BASE TYPE.

MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL. NO. 4 BARS FOR ANCHORS SHALL BE STRUCTURAL GRADE STEEL. APPROVED STUD WELDED ANCHORS OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 4 BARS SHOWN.

SEE SPECIAL PROVISIONS FOR PAINTING.

ANCHOR BOLTS IN THE BARRIER CURB SHALL BE CAST-IN-PLACE, GROUTED OR CONE-EXPANSION TYPE. HOLES IN THE BARRIER CURB FOR ANCHORS SHALL NOT BE DRILLED UNTIL THE CONCRETE IS AT LEAST 7 DAYS OLD.

PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE.

CONTACT SURFACE OF STEEL TO ALUMINUM SHALL BE INSULATED WITH THE MATERIAL SPECIFIED ON THE SHOP DRAWINGS.

FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT.

FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR OTHER ITEMS.

Complete Expansion joint seal near bent 28 shall be furnished under Section 5 of this contract. Parts of device not required for Section 5 shall be installed under Section 5 of this contract. See Special Provisions.

Location	Δ	"W"	Longit. Gr.
Bent 4	5/16"	51'-5"	-0.83 %
Bent 8	1/4"	51'-5"	-0.88 %
Bent 12	5/16"	51'-5"	+1.34 %
Bent 16	5/16"	51'-5"	-1.99 %
Bent 20	5/16"	51'-5"	+0.08 %
Bent 24	5/16"	51'-5"	+1.97 %
Bent 28	1/4"	59'-5"	+0.50 %

Note: Δ indicates increase or decrease for each 10° fall or rise in temperature that is to be applied to Exp. Gap and Dim. "A" shown in Table of Dimensions. Dim. "W" is measured horizontally.

15

SPS - INT. BT. REVISED FEB. 1978 AUG. 1980

DETAILED June 1981
CHECKED June 1981

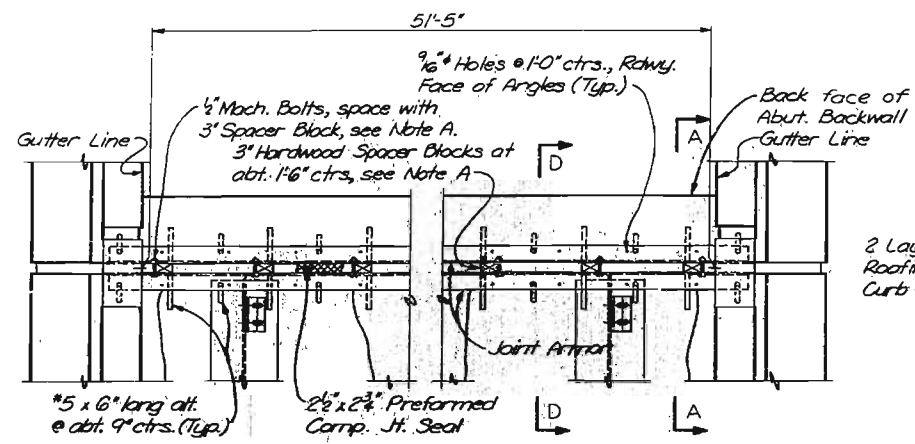
Sheet No. 10 of 31

CITY OF ST. LOUIS

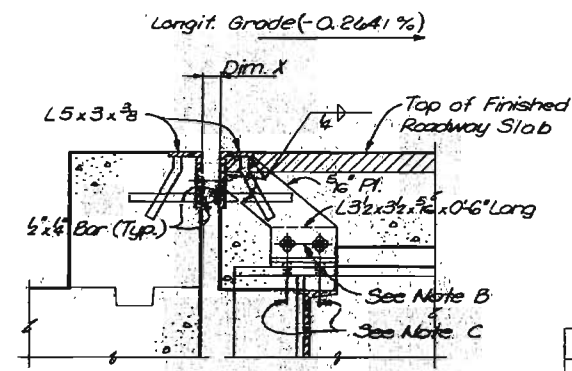
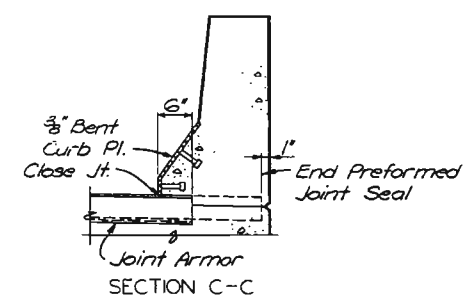
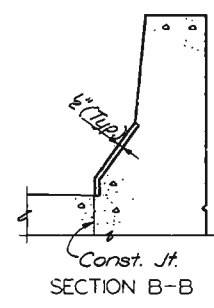
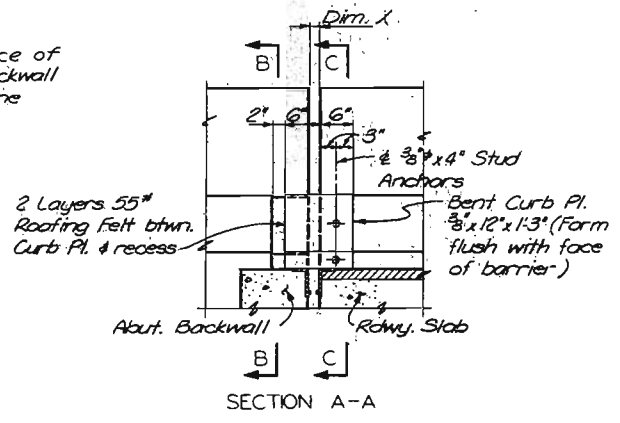
A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	172	



PART PLAN EXPANSION JOINT AT ABUTMENT I



SECTION D-D (Typ. at each girder)

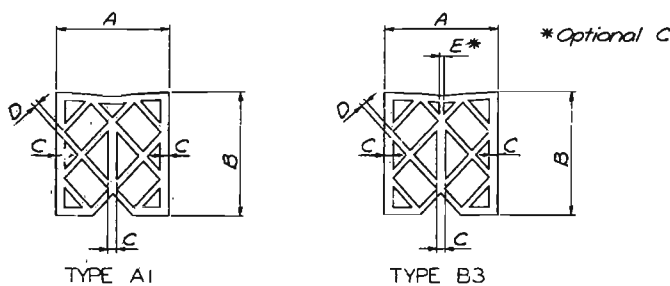


TABLE OF PREFORMED JOINT SEAL TOLERANCES					
Type (Nominal Seal Size)	A Width	B Height	C Shell	D Webs	E (B3 only) Small Webs
A1 or B3 (2 1/2" x 2 3/4")	2.500" ±.250" ±.000"	2.750" ±.125" ±.125"	0.187" ±.046" -0.015"	0.093" ±.031" -.015"	0.062" ±.031" -.031"

DIMENSION X (INSTALLATION DIMENSIONS)									
Seal Width	-10°F.	0°F.	+20°F.	+40°F.	+60°F.	+80°F.	+100°F.	+110°F.	+120°F.
2 1/2"	2 1/8"	2"	1 7/8"	1 3/4"	1 3/8"	1 1/2"	1 1/8"	1 1/16"	1 1/4"

- Note A: Cut 1/2" machine bolts flush with angle and remove wood blocks after concrete in latter placement has taken initial set.
- Note B: Provide 3/8" x 1" longitudinal slots in L 3 1/2 x 3 1/2 and 3/8" x 1" vertical slots in 3/8" plates for 1/2" machine bolts.
- Note C: Verify dimensions before field drilling 3/16" holes in top flange for L 3 1/2 x 3 1/2 having 3/16" x 1" slotted holes.

NOTES

Splicing of fabricated steel sections comprising the expansion device is permissible. The expansion device shall be bent to conform to the grade and cross slope of the roadway.

No. 5 bars for expansion device shall be structural grade.

Approved stud welded anchors or deformed bar anchors (A.S.T.M. A496) may be used in lieu of #5 bars shown.

Preformed Compression Joint Seal may be installed before concrete is placed for barriers at the joint.

3/8" Curb plate shall be installed with barrier.

Plan dimensions are based on installation at 60°F. Expansion joint width shall be adjusted during installation for compliance with table.

See Special Provisions for requirements of Compression Joint Seal.

Spliced joints in seals may be mitered and shall be factory made by a vulcanizing process which integrally joins the ends of seal sections being spliced.

Payment for furnishing and installing the expansion joint seal shall be made under unit price bid per lineal foot of Preformed Compression Joint Seal.

Payment for furnishing and installing all structural steel for the expansion joint shall be paid for in the prices bid for other items of work.

16

DRAWN BY: J.S. 10/18/88
CHECKED BY: J.S. 10/18/88
5261
28522

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

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

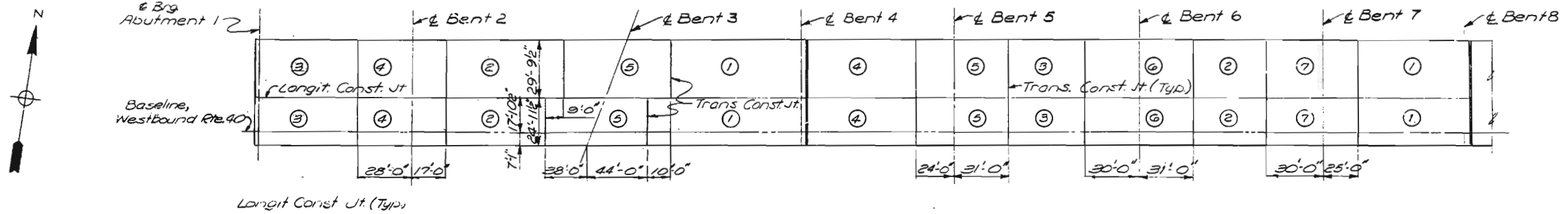
COMPRESSION JOINT SEALS

SHEET 16 OF 37

A-302-4

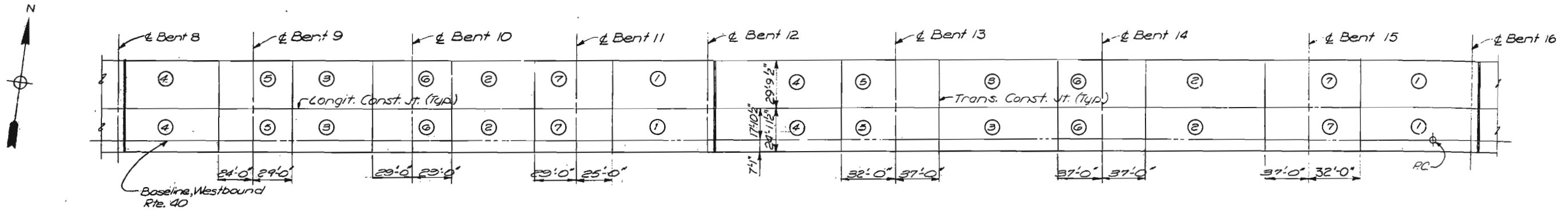
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	175	



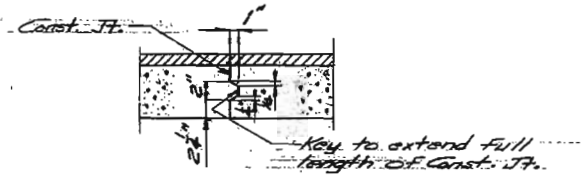
SPANS 1-3

SPANS 4-7

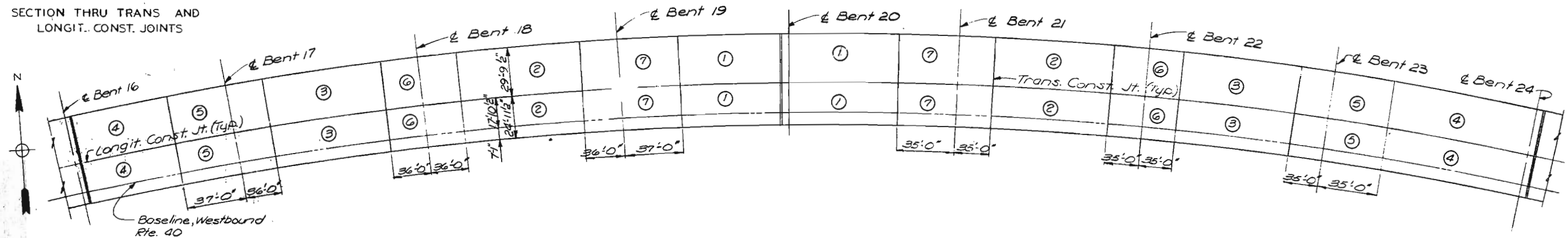


SPANS 8-11

SPANS 12-15



SECTION THRU TRANS AND LONGIT. CONST. JOINTS



SPANS 16-19

SPANS 20-23

CITY OF ST. LOUIS

SLAB PLACING SEQUENCE

SHEET 17 OF 37

A-35-4

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: T. J. L. 10/10/77
CHECKED BY: T. J. L. 10/10/77
5261
775341

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

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	174	



Basic Sequence	Sequence of Pairs					Min. Pairs of Pairs Left to Right Without Reorder	
	1	2	3	4	5	25	25
Alternate Pairs to the Basic side sequence are subject to the approval of the engineer in accordance with Sec. 103.3.24 of Mo. Std. Specs.							
Alternate "A" Pairs	1	5+2	4+3			25	30
Alternate "B" Pairs	End to 3	1 to 4	2 to End			25	30
Alternate "C" Pairs	1+5+2	4+3				25	30
Alternate "D" Pairs	End to 4	2 to End				25	30
Alternate "E" Pairs	1+5+2+4+3	End to End				25	30

	Sequence of Pours						Min. Rate of Pour cu. yds. / hour	
	Direction						With Pulverizer	Without Pulverizer
Basic Sequence	1	2	3	5	6	7	25	25
	Either Direction							
<p>Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec. 703.3.124 of Mo. Std. Specs.</p>								
Alternate "A" Pours	1	7+2	G+3	5+4			25	Span (4-7) 28
	End to 7	1 to 6	6 to 5	3 to End				Span (8-11) 28
Alternate "B" Pours	1+7+2	G+3	5+4					Span (12-15) 36
	End to 6	2 to 3	3 to End					Span (16-19) 36
Alternate "C" Pours	1+7+2	G+3+5+4						Span (20-23) 34
	End to 6	2 to End						Span (24-27) 44
Alternate "D" Pours	1+7+2+6+3+5+4							
	End to End							

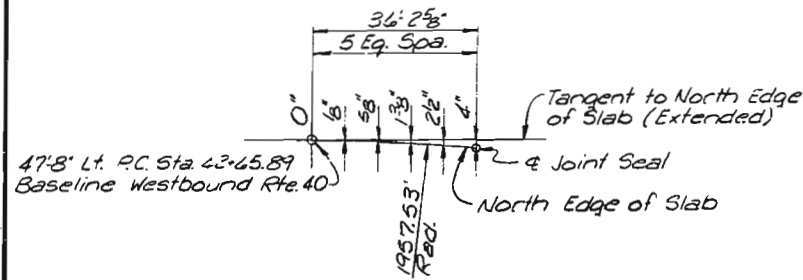
If the contractor elects to use a retarder he shall furnish an approved retarder to retard the set of the concrete to 2.5 hours and shall pour and satisfactorily finish the slab pours at the rate given by plans.

A-354

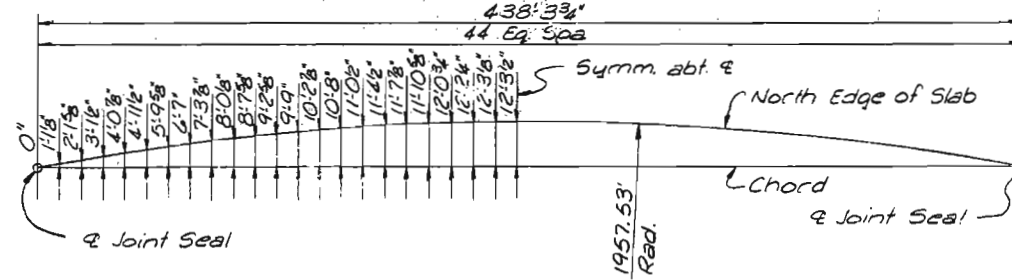
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS

MISSOURI STATE HIGHWAY DEPARTMENT

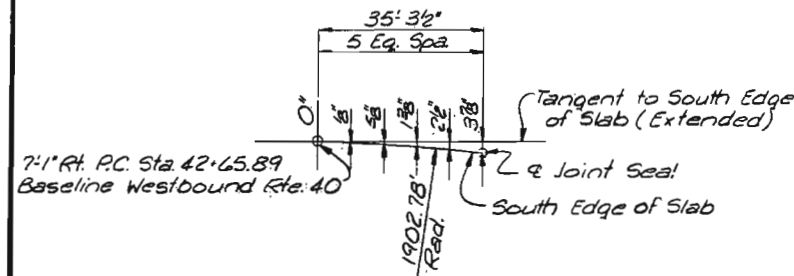
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	175	



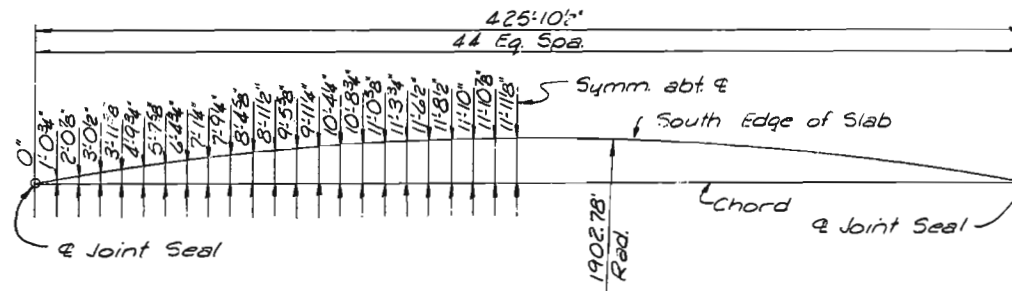
SPAN 15 - NORTH EDGE



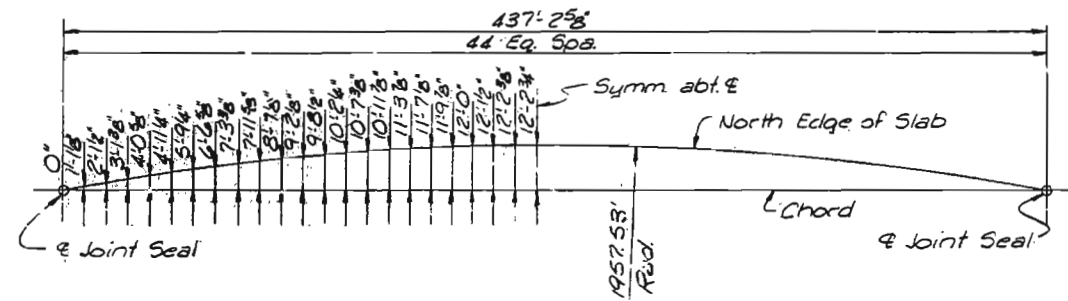
SPANS 16 THRU 19 - NORTH EDGE



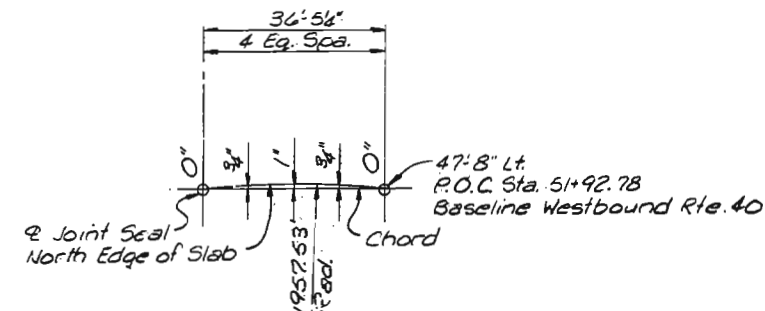
SPAN 15 - SOUTH EDGE



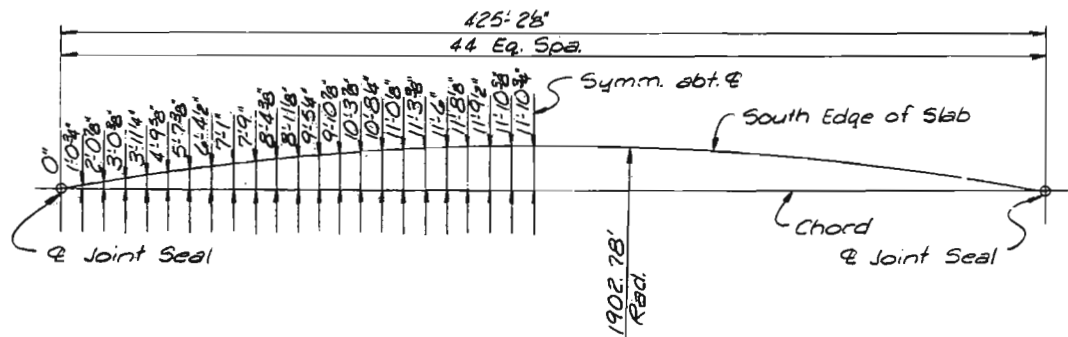
SPANS 16 THRU 19 - SOUTH EDGE



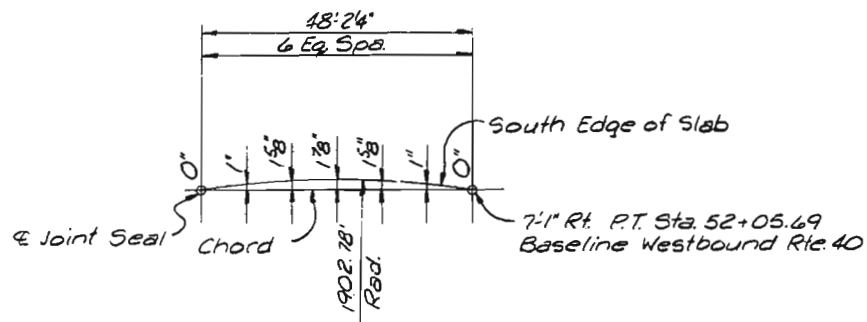
SPANS 20 THRU 23 - NORTH EDGE



SPAN 24 - NORTH EDGE



SPANS 20 THRU 23 - SOUTH EDGE



SPAN 24 - SOUTH EDGE

CITY OF ST. LOUIS

EDGE OF SLAB ORDINATES

SHEET 19 OF 37

A-3594

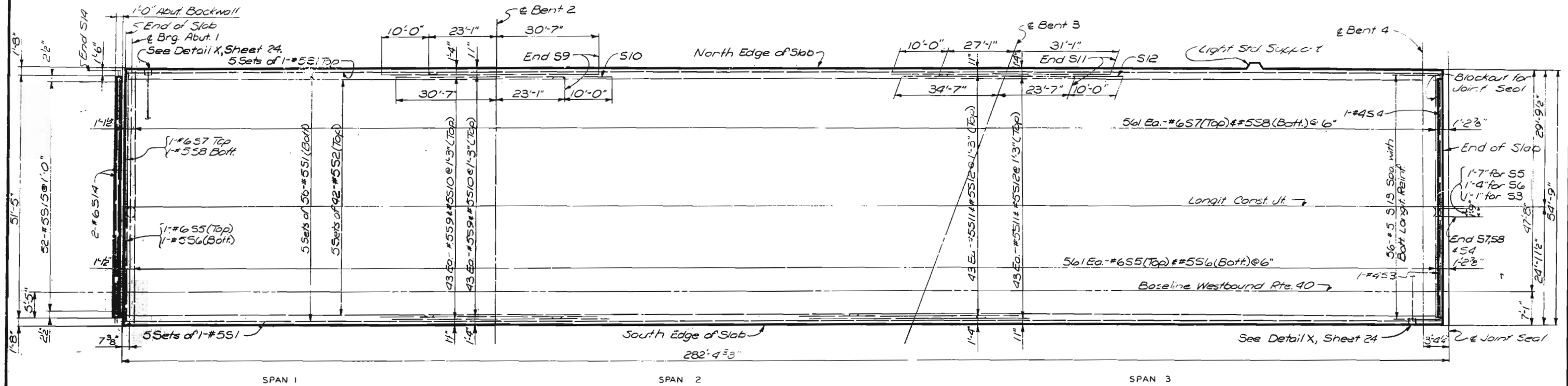
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: O. J. Schramm, Mar. 1978
CHECKED BY: R. E. Beck, Mar. 1978
5261
78541

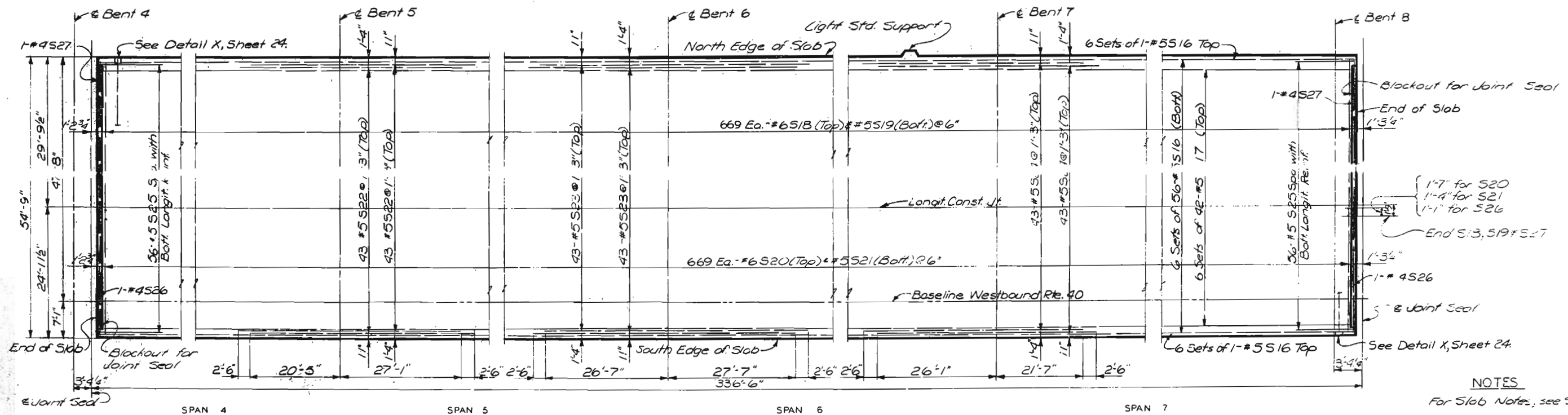
OVERDRUP & PARCEL, AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	176	



SLAB PLAN



NOTES

For Slab Notes, see Sheet 23.

CITY OF ST. LOUIS

SLAB- SPANS 1 THRU 7

SHEET 20 OF 37

A-3594

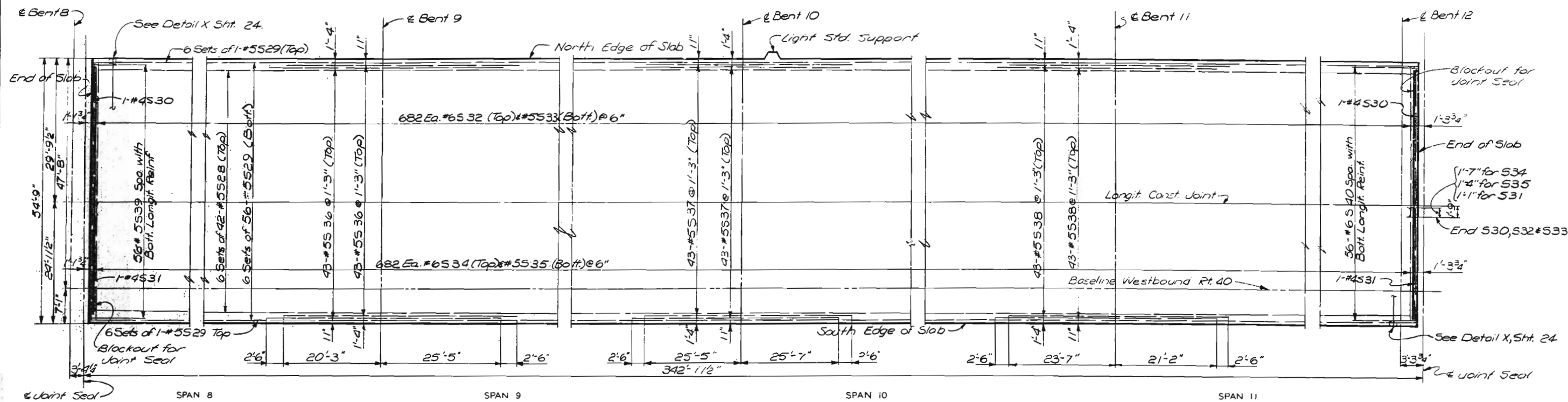
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

OVERDRUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: TULLOCH, Nov. 1977
CHECKED BY: R. E. B. Mar. 1978
526/175362

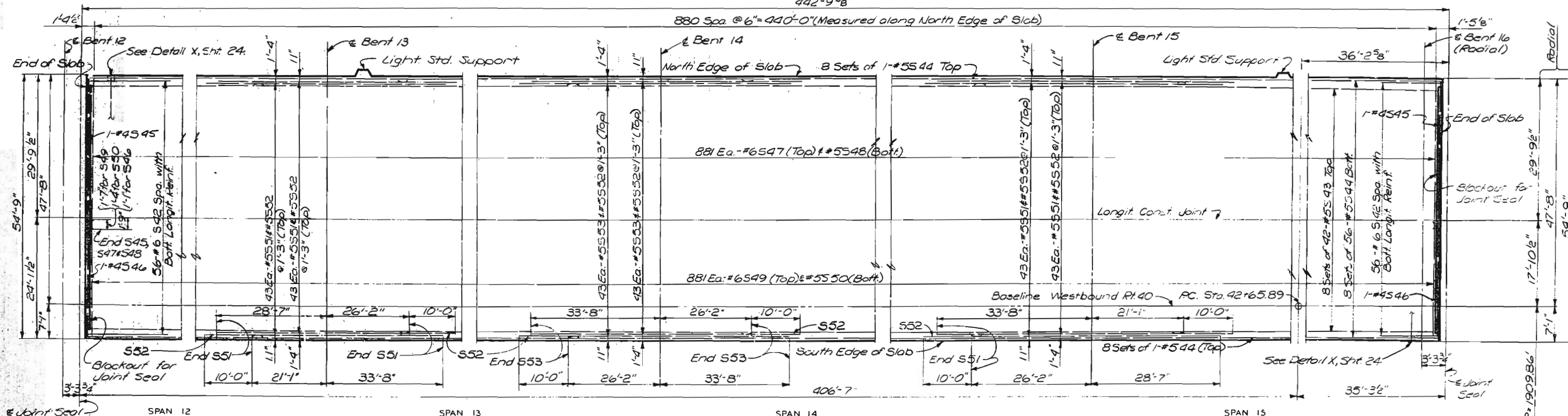
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	177	



SLAB PLAN 442'-9 5/8"

880 Spa. @ 6" = 440'-0" (Measured along North Edge of Slab)



SLAB PLAN

NOTES

For Slab notes see Sheet 23.

CITY OF ST. LOUIS

SLAB- SPANS 8 THRU 15

SHEET 21 OF 37

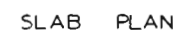
A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGNED BY: TULLER & BART, Nov. 1977
CHECKED BY: R. F. Beck, Mar. 1978
3261
775365

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

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	179	



For Slot Notes, see Sht 23.

SLAB- SPANS 16 THRU 23

SHEET 22 OF 37

A-359-i

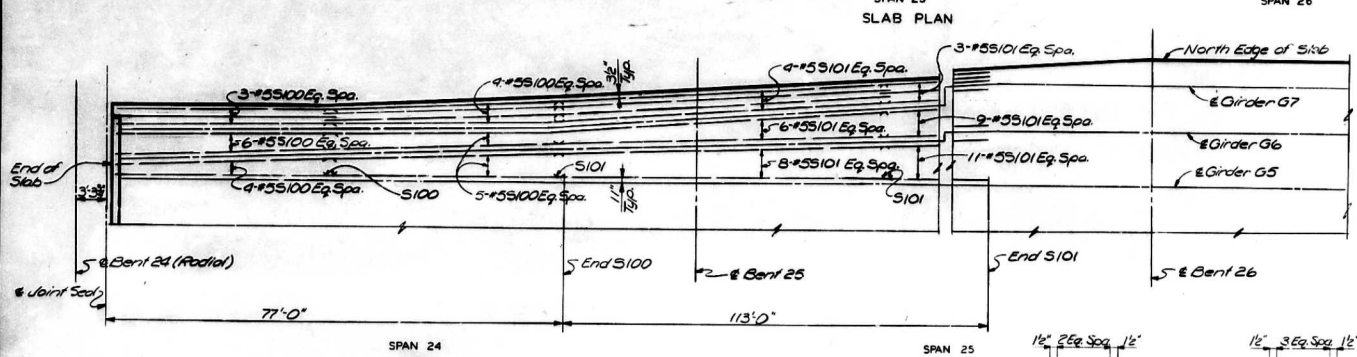
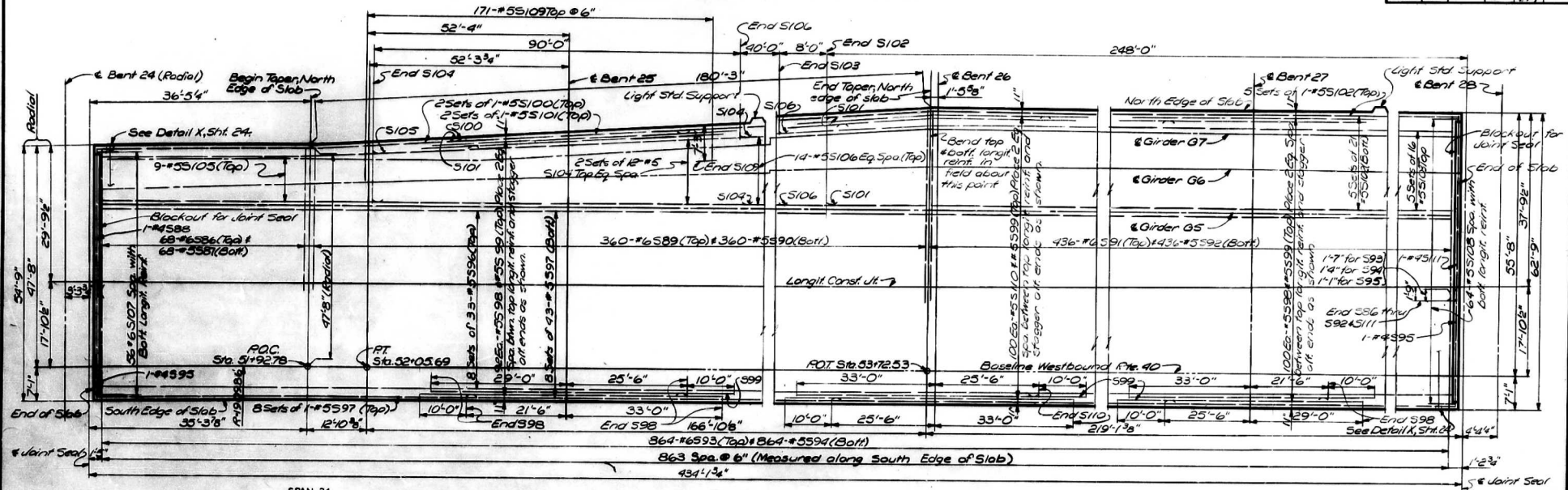
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

58	DRAWN BY T.J. Lumbert, Nov 1977
	TRACED BY:
17058	CHECKED BY R.F. Beck, April 1978

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
0	MO.	10	774		



SLAB NOTES

- All longitudinal dimensions shown are measured horizontally along edge of slab unless otherwise noted or shown.
- Transverse reinforcement shall be placed radial and/or perpendicular to Baseline Westbound Route 40.
- Top layer of longitudinal and transverse reinforcement and hooked bars at ends of slab shall be epoxy coated except for the first longitudinal bar adjacent to the edge of slab.
- Longitudinal reinforcement shall be lapped 1'-4" min. except additional longitudinal reinforcement over bents shall be lapped 2'-2" when spliced.
- Reinforcement may be cut or shifted slightly to clear roadway drains.
- For location of roadway drains and additional reinforcement around drains see Sheet 31 thru 34.
- For location of transverse construction joints and concrete placing sequence see Sheets 17 and 18.
- For sections thru slab see Sheet 24.
- For edge of slab ordinates see Sheet 19.
- For location of conduits and supports for lighting standards see Sheets 25 thru 29.
- For roadway cross slopes see Sheet 10.
- For barrier reinforcement see Sheets 25 thru 29.
- For parapet reinforcement see Sheet 24.
- For height heights see Sheets 11 thru 14.
- For profile grade elevations in vertical curves see Sheets 8 and 9.

SHEAR CONNECTORS
 Note: Shear connectors are estimated to weigh 23,890 lbs. Furnishing and installation will be paid for as fabricated Structural Carbon Steel (Misc)

CITY OF ST. LOUIS

SLAB-SPANS 24 THRU 27

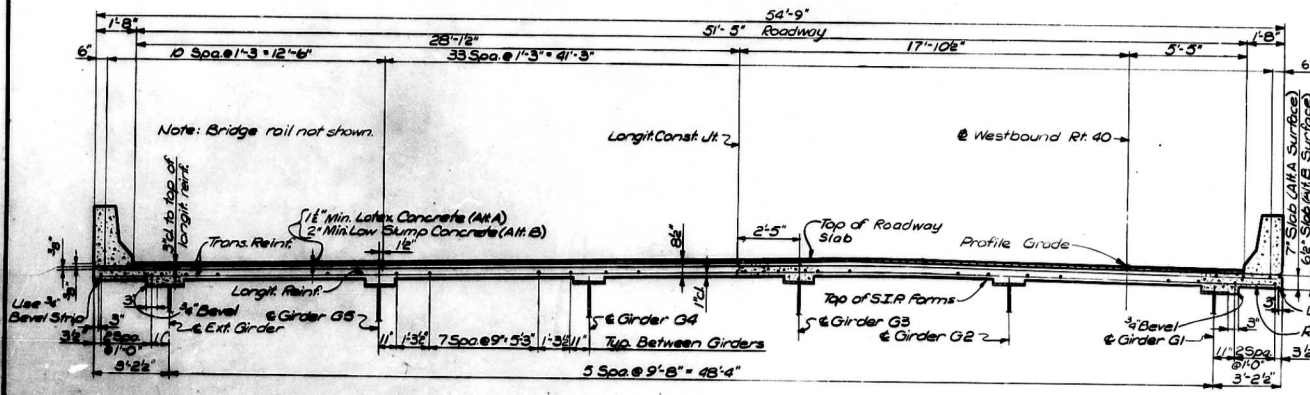
SHEET 23 OF 37 A-3594

OWNER & ENGINEER, INC.
 ST. LOUIS, MISSOURI

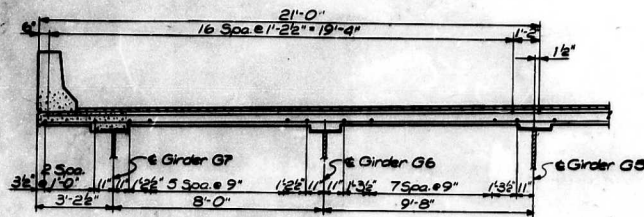
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSOURI STATE HIGHWAY DEPARTMENT

DES. NO.	STATE	DES. NO.	PROJ. NO.	YEAR
2	MO.	1	18	17

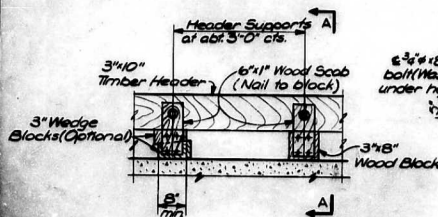


SECTION THRU 54'-9" WIDE SLAB



PART SECTION THRU 62'-9" WIDE SLAB

Note: Details not shown are same as shown for 54'-9" wide slab.

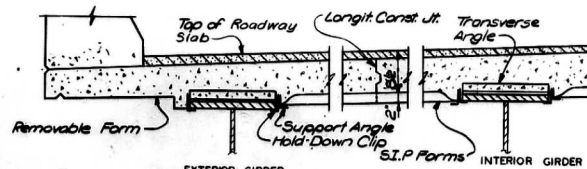


PART ELEVATION

TIMBER HEADER DETAIL

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

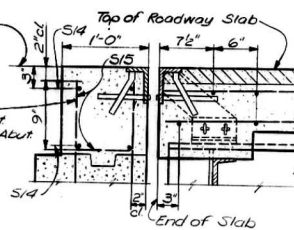
SECTION A-A



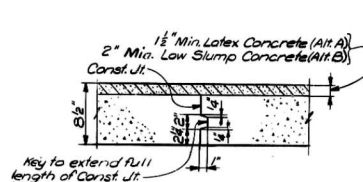
EXTERIOR GIRDER

STAY-IN-PLACE METAL FORM DETAILS

Note: Stay-in-place forms and supporting elements shall not be welded to girder flanges. The Contractor shall submit complete details for forms to the Engineer for his approval. See Special Provisions.

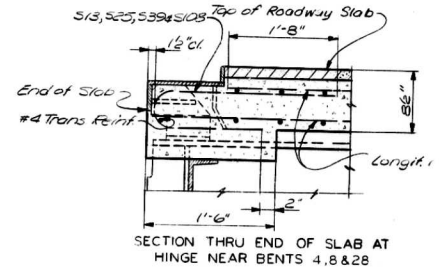
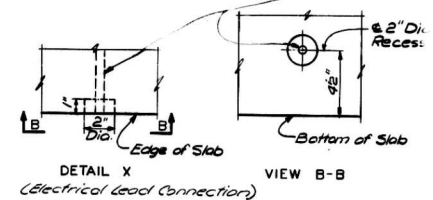


SECTION THRU SLAB AT ABUTMENT I

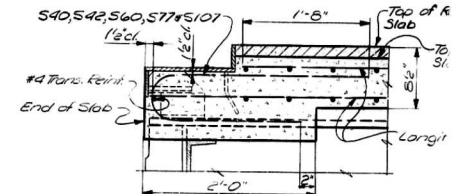


SECTION THRU CONSTRUCTION JOINT

Two Electrical Lead Connections required for each continuous unit. At least 3" dia. Top transverse bar from end of slab shall be shifted to edge of slab. Actual location of shifted bar to be designated by Engineer as part of the test system.



SECTION THRU END OF SLAB AT HINGE NEAR BENTS 4, 8 & 28



SECTION THRU END OF SLAB AT HINGE NEAR BENTS 12, 16, 20 & 24

NOTES

For Slab Notes, see Sheet 23.

CITY OF ST. LOUIS

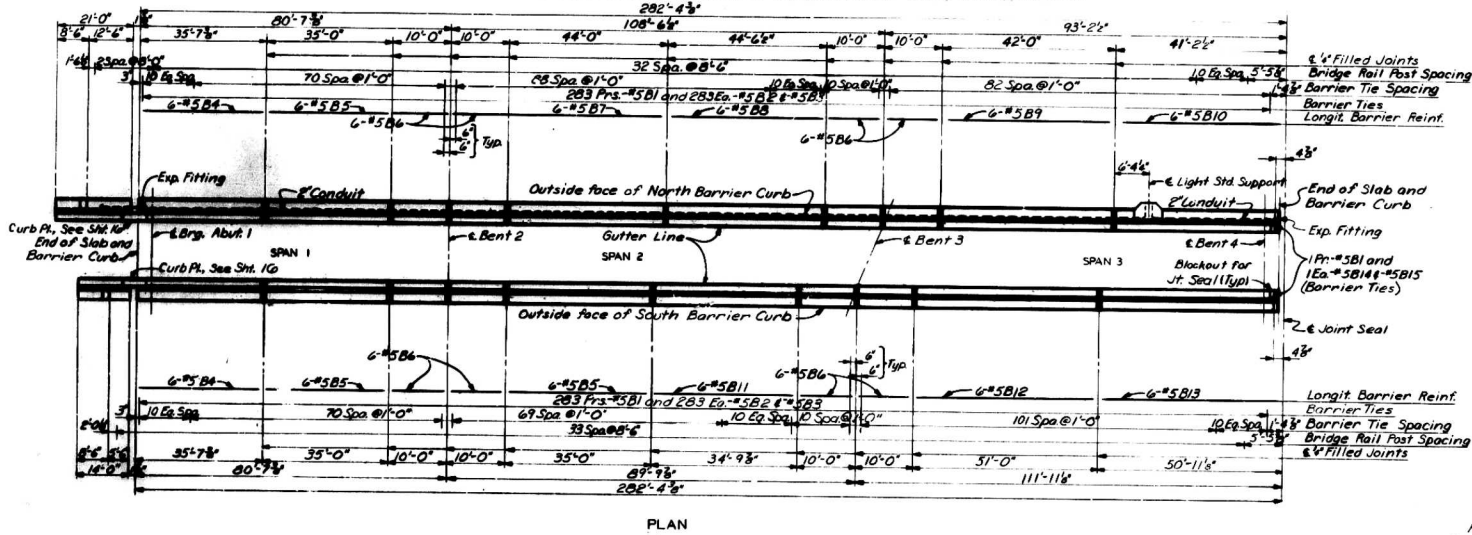
SLAB-SECTIONS AND DETAILS

SHEET 24 OF 37

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

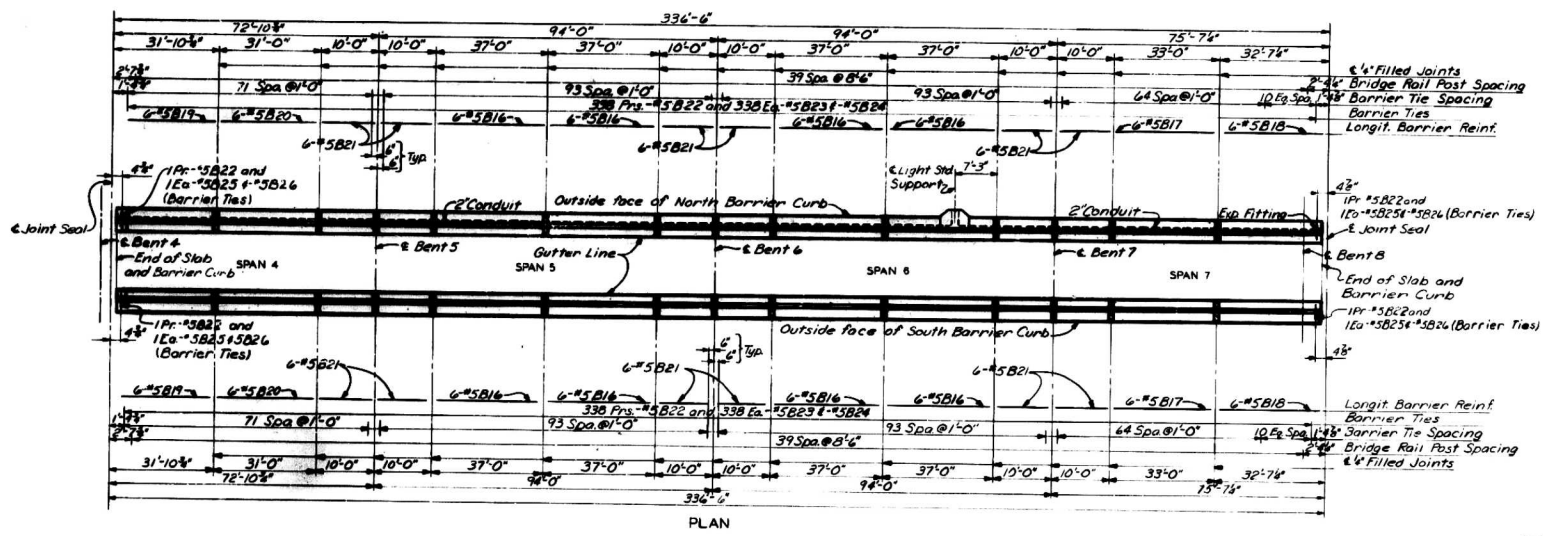
MISSOURI STATE HIGHWAY DEPARTMENT

DESIGN	DATE	BY	CHKD	APP'D	REVISION
171					



NOTES

For Barrier Curb and Conduit System notes and details, see Sheet 29.



CITY OF ST. LOUIS

STEELE & PIERCE, AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

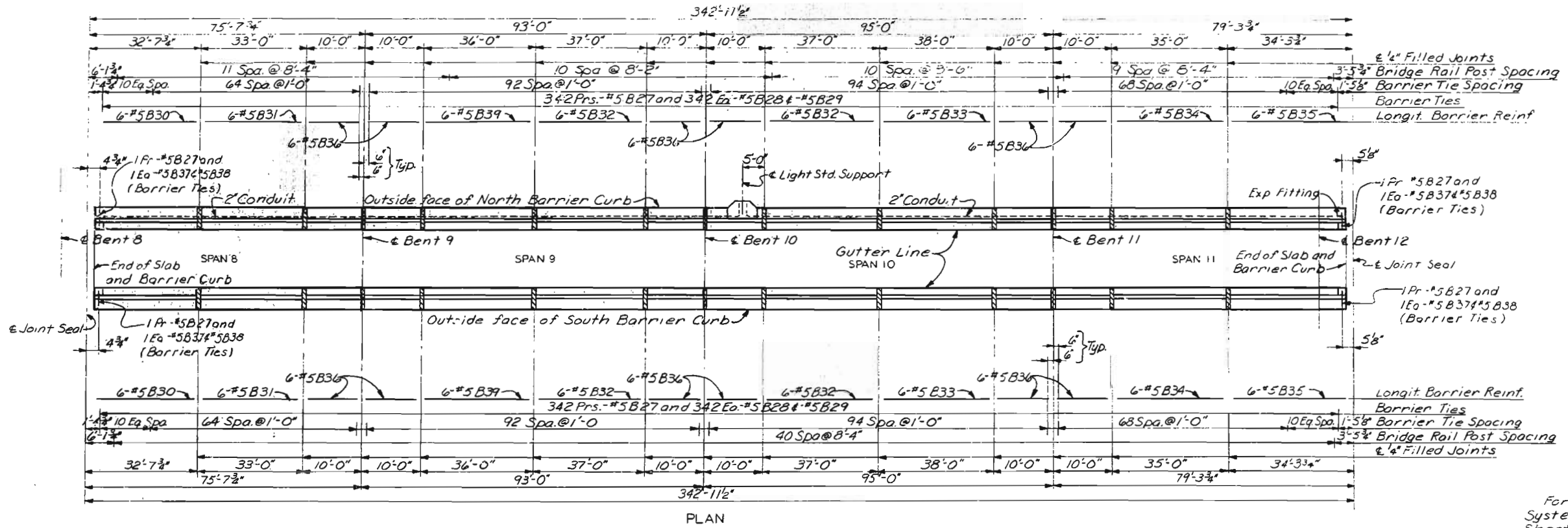
BARRIERS-SPAN 1 THRU 7

SHEET 25 OF 37

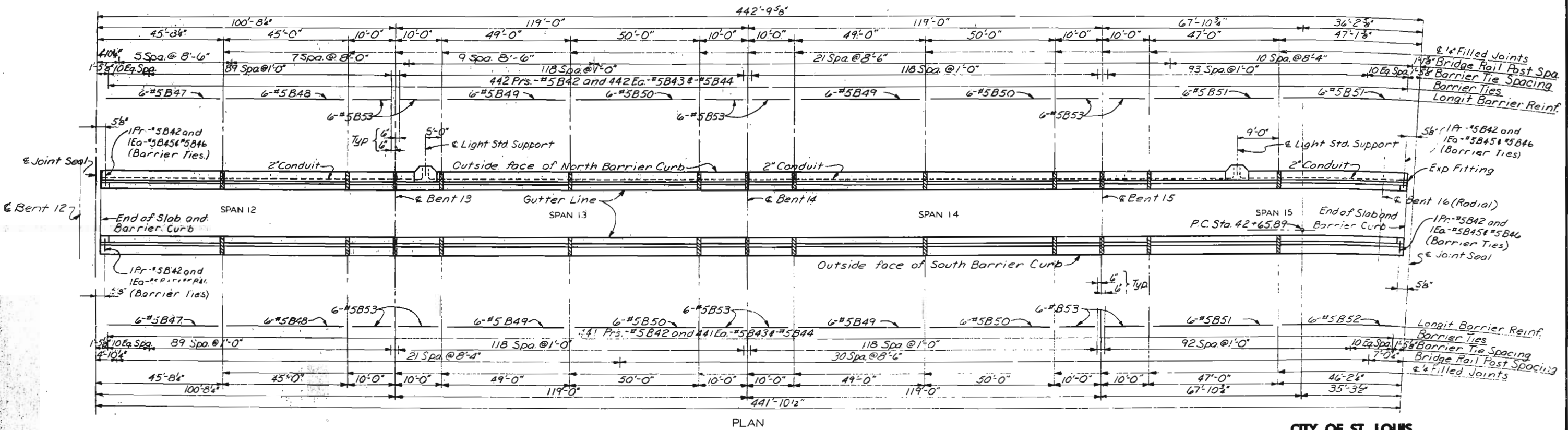
A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	182	



NOTES
For Barrier Curb and Conduit
System notes and details, see
Sheet 29.



CITY OF ST. LOUIS

26

DRAWN BY: M. J. J. Jan. 1978
CHECKED BY: C. G. G. Mar. 1978
18511

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

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

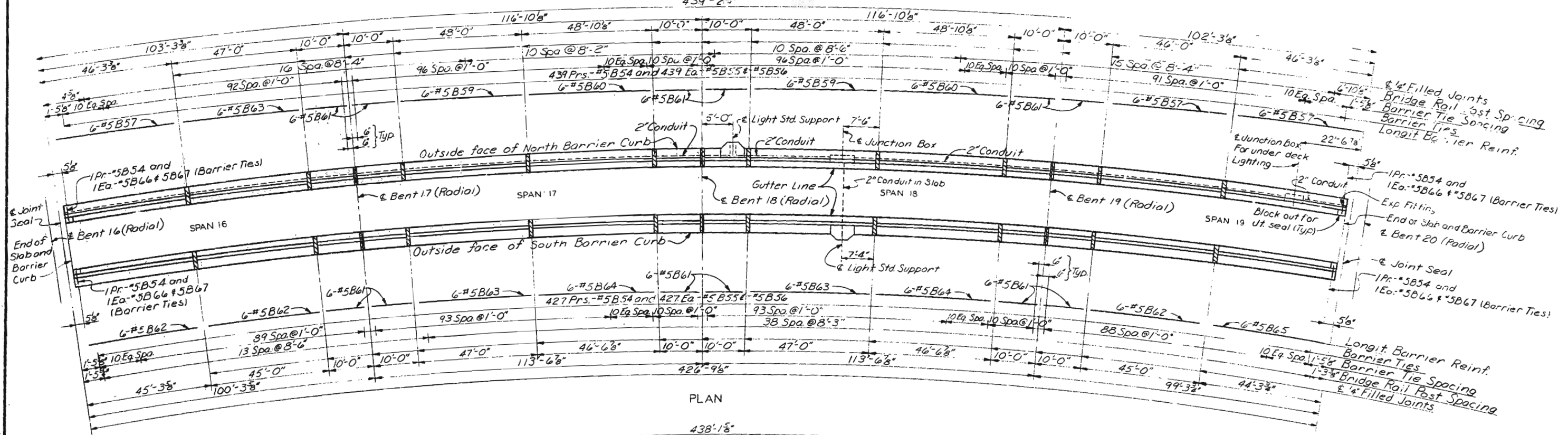
BARRIER-SPANS 8 THRU 15

SHEET 25 OF 31

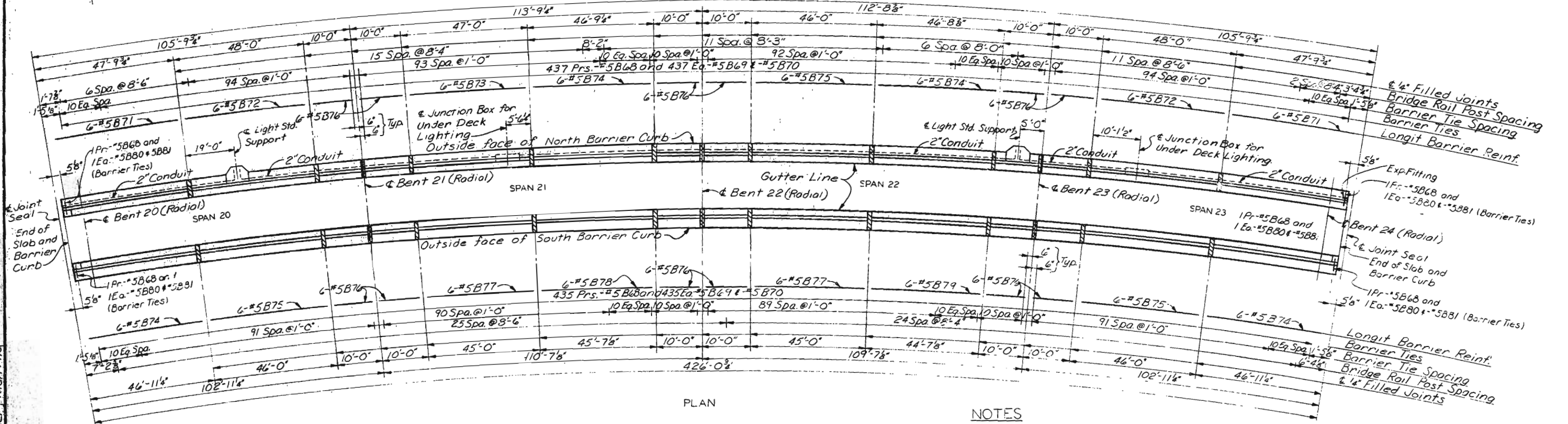
A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	183	



PLAN



PLAN

NOTES

For Barrier Curb and Conduit System notes and details, see Sheet 24

CITY OF ST. LOUIS

BARRIERS - SPANS 16 THRU 23

SHEET 27 OF 37

A-3594

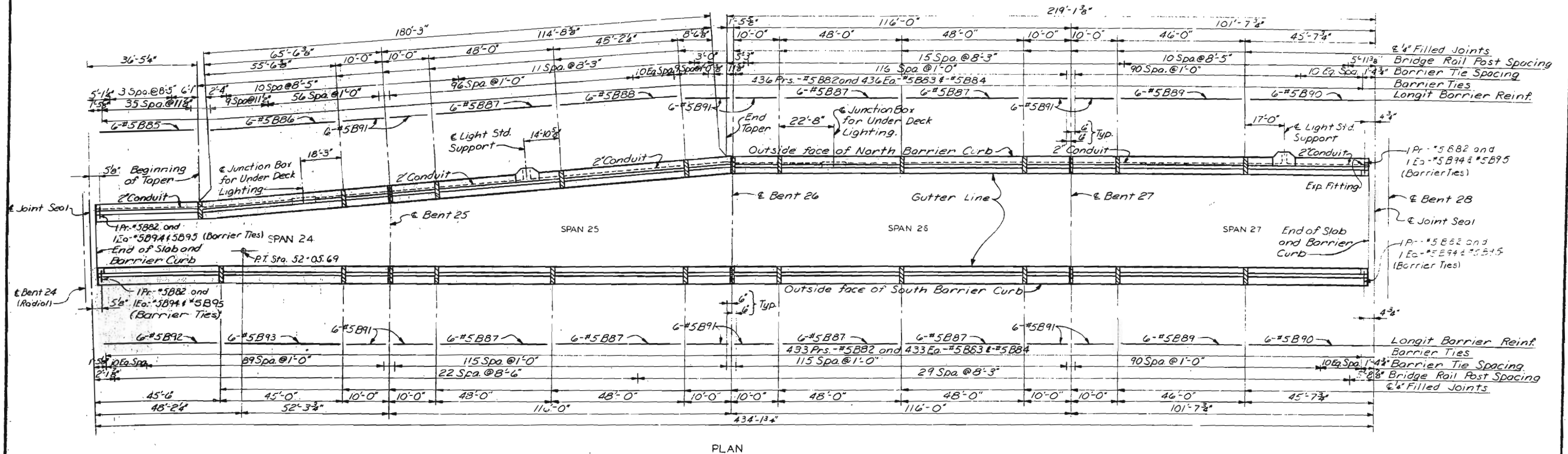
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGNED BY: M. J. J. Jan. 1978
CHECKED BY: L. Glaser, Mar. 1978
5261
78512

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	184	



NOTES

For Barrier Curb and Conduit System notes and details, see Sheet 29.

CITY OF ST. LOUIS

BARRIERS-SPAN 24 THRU 27

SHEET 28 OF 37

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

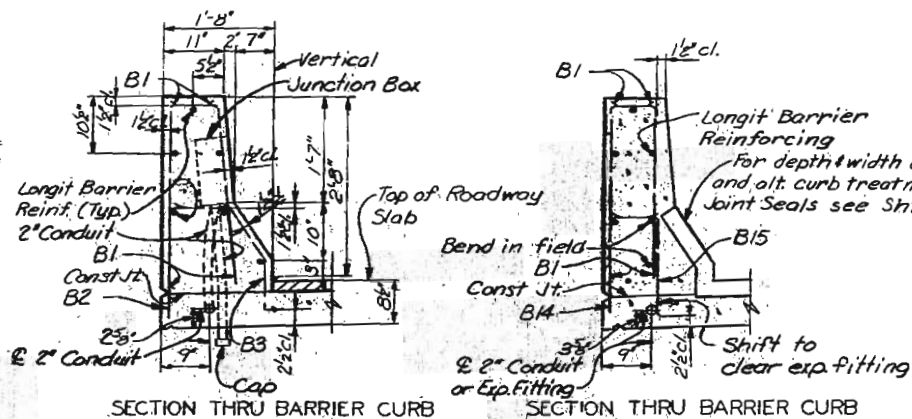
DRAWN BY: M. Jung Jan 1978
CHECKED BY: L. Blaser Mar 1978
5261
78513

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

MISSOURI STATE HIGHWAY DEPARTMENT

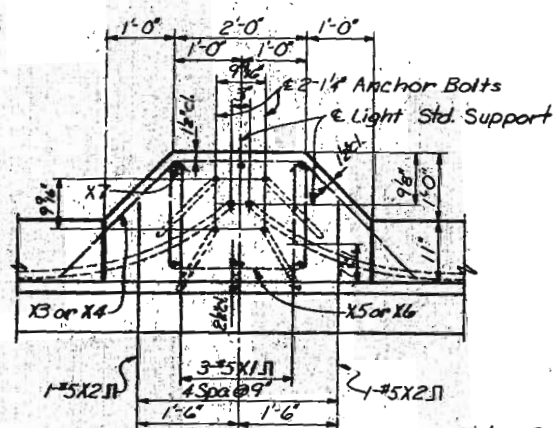
Note: E.F. indicates Each Face.
F.F. indicates For Face.
N.F. indicates Near Face.

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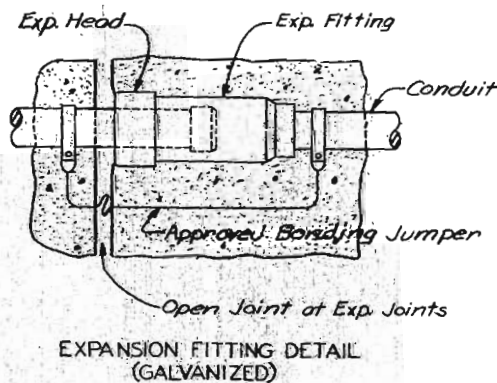
SECTION THRU BARRIER CURB

Note: Bar marks shown are for spans 1 thru 3.



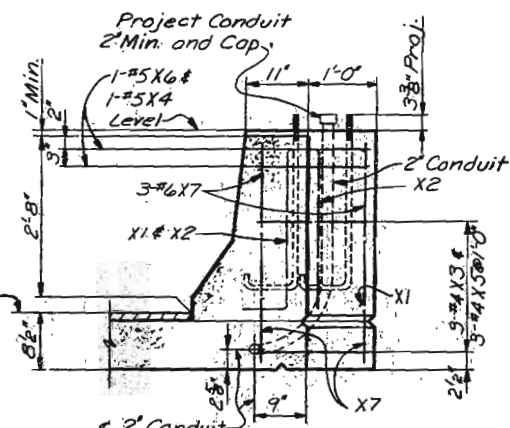
PLAN-LIGHT STD. SUPPORT

Note: Barrier reinf. not shown. Top of light std. supports to be made horizontal and anchor bolts to be placed vertically and symm. abt. & light std. supports.



EXPANSION FITTING DETAIL (GALVANIZED)

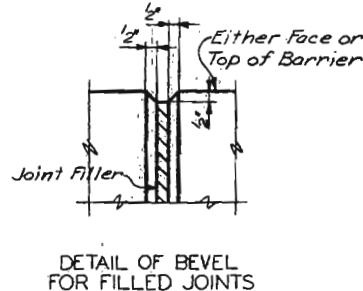
PLASTIC WATERSTOP AT FILLED JOINTS
Note: Plastic waterstop shall be placed in all barrier curb filled joints. Cost of plastic waterstop complete in place to be included in unit price bid for concrete.



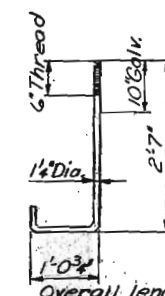
SECTION THRU BARRIER CURB NEAR LIGHT STD. SUPPORT

CONDUIT SYSTEM NOTES

All conduit to be rigid galvanized steel. Light standards, wiring and fixtures to be furnished and installed by others.
All junction boxes shall be flush mounted and equal to O.Z. Gedney Co. type "YU" and/or Spring City Elec. Mfg. Co. type "IR." Wall thickness to be sufficient to provide 5 full threads for watertight conduit joint.
Expansion fittings to be used at preformed compression joint seals and 2", 2 1/2" and 4" joint seals shall be equal to O.Z. Gedney Co. type "AX" and/or Spring City Elec. Mfg. Co. type "AF".
Expansion fitting to be used at 6" joint seals shall be equal to O.Z. Gedney Co. type "AXB" or "EX" and/or Spring City Elec. Mfg. Co. type "EF".



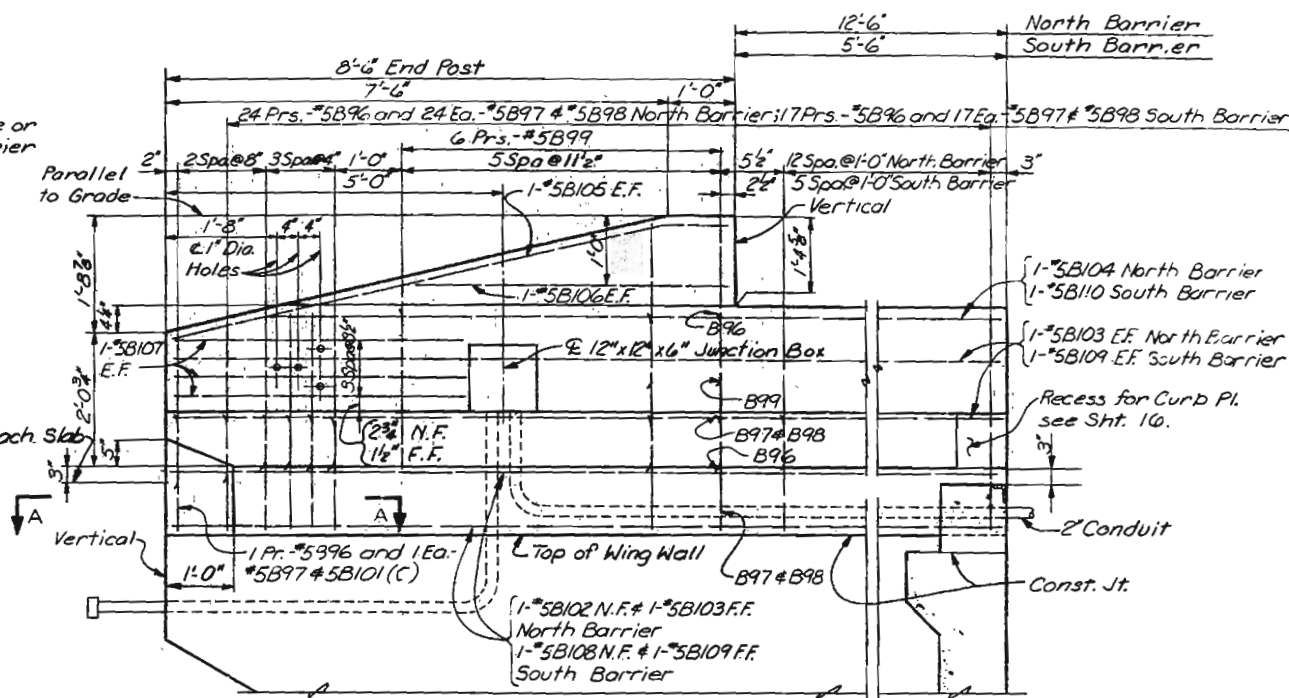
DETAIL OF BEVEL FOR FILLED JOINTS



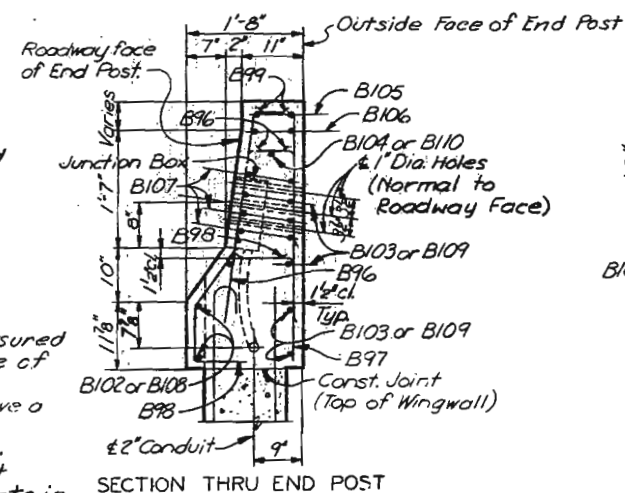
LIGHT STANDARD ANCHOR BOLT
Note: Cost of furnishing and placing anchor bolts for light standards shall be included in contract unit price bid for other items.

BARRIER CURB NOTES

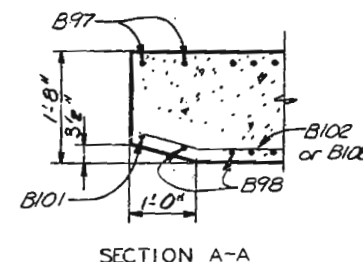
Longitudinal dimensions are measured horizontally along the outside face of barrier curb.
All exposed edges of concrete shall have a 1/2" radius or 3/8" bevel.
For detail of bridge rail see Sheet 30.
Top of barrier curbs to be built parallel to grade with filled joints in barrier curbs normal to grade.
Ends of barrier curb shall be vertical. Reinforcement shall be cut to clear drains and shifted or cut to clear junction boxes.



ELEVATION OF END POST - ROADWAY FACE
Note: North end post shown, South end post opposite hand and as noted. Conduit and junction box shown is in the North Barrier only.



SECTION THRU END POST



SECTION A-A

CITY OF ST. LOUIS

BARRIER DETAILS

SHEET 29 OF 37

A-3594

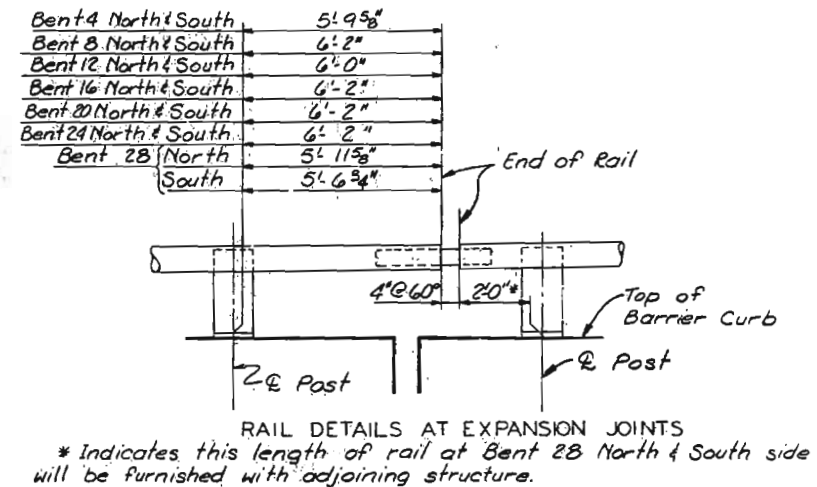
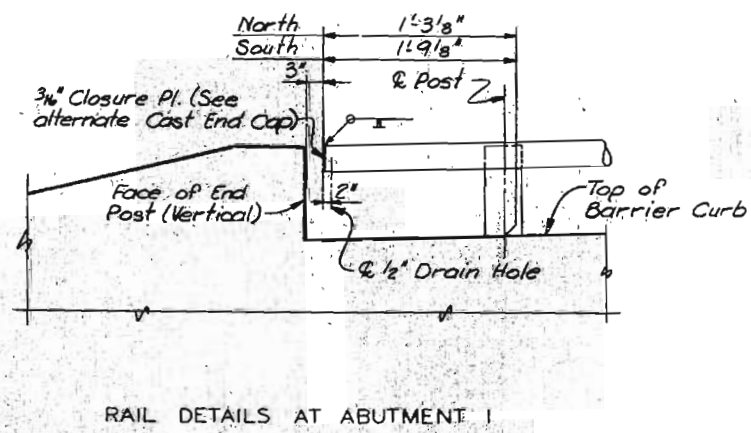
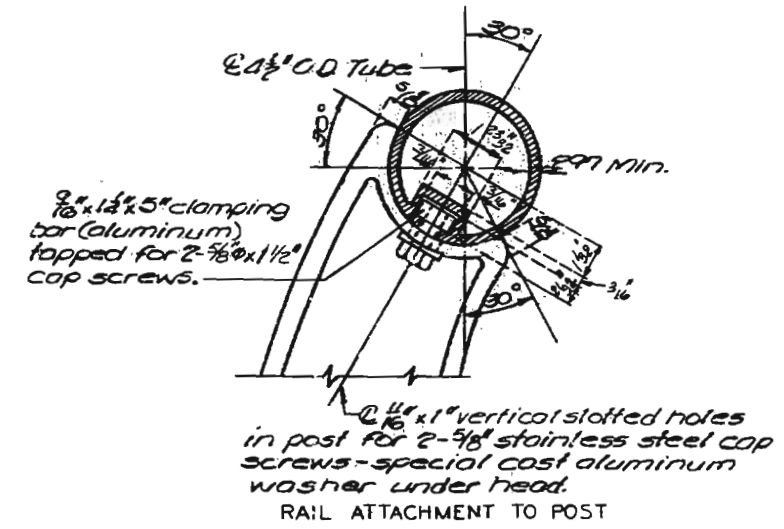
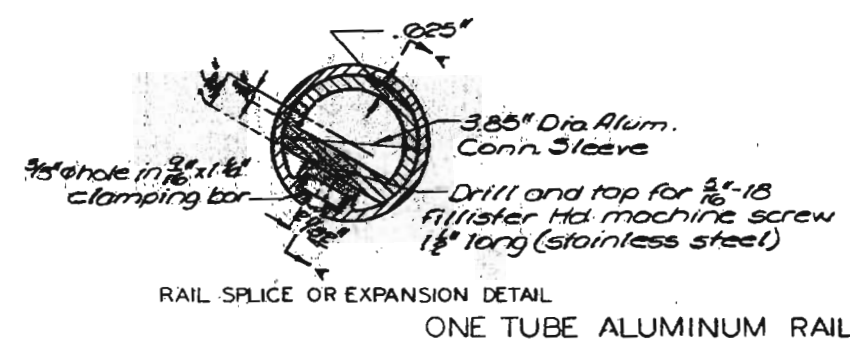
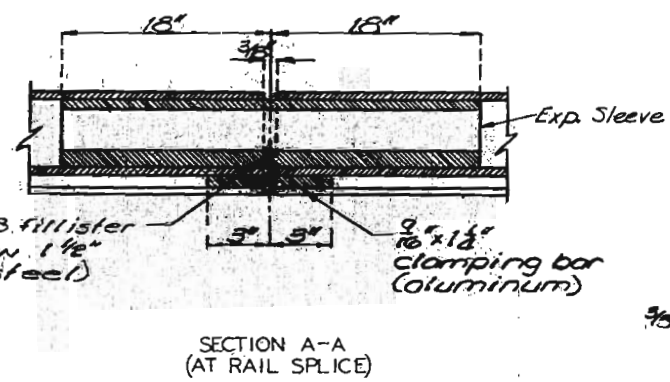
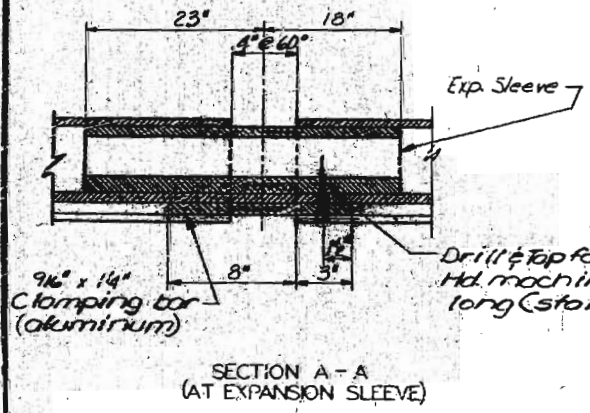
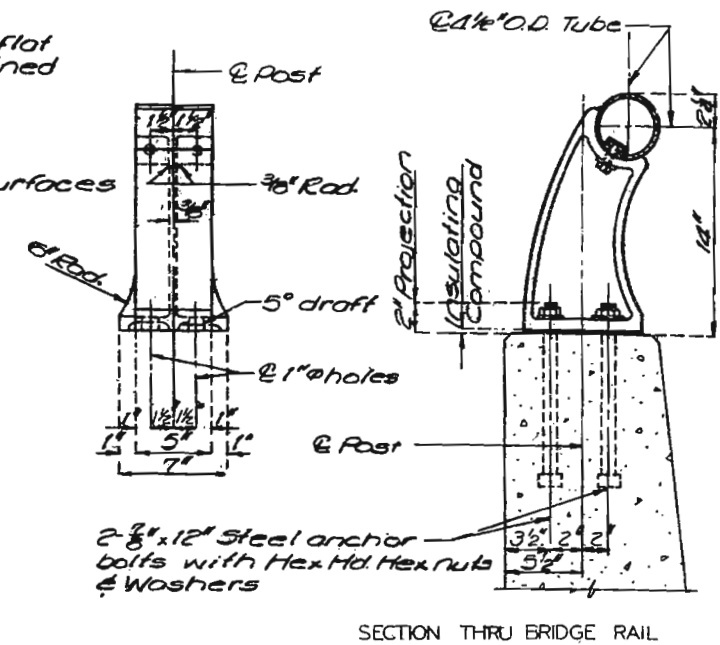
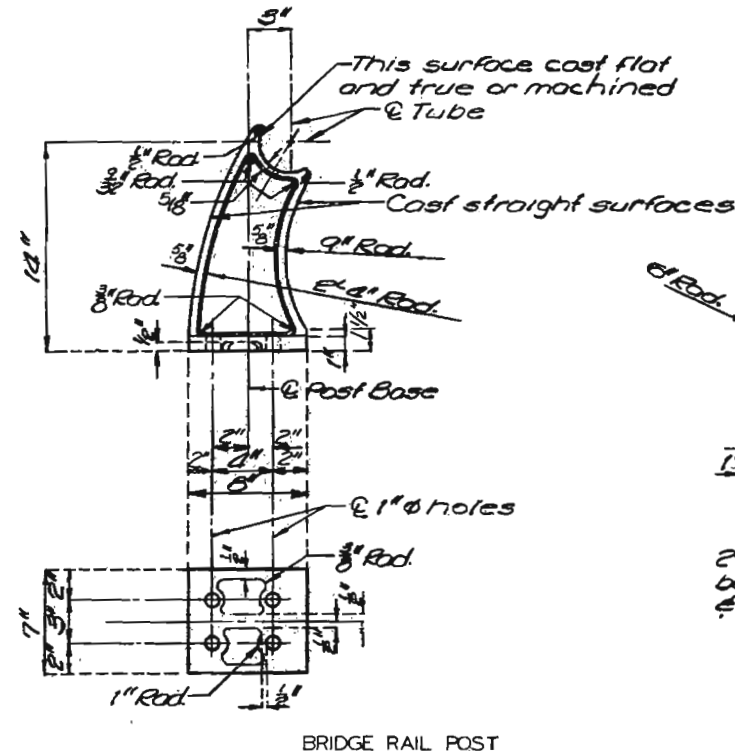
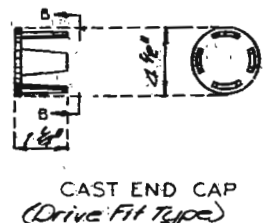
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	180	

GENERAL BRIDGE RAIL NOTES:

All bridge rail posts shall be set normal to grade.
 Aluminum tube bridge rail shall be bent to conform to vertical and horizontal alignment of curb barrier.
 Aluminum washer shims between top of curb barrier and post base may be used for adjusting bridge rail alignment. Maximum thickness of shims to be 1/8". Where more tilting of post is required for proper alignment, concrete bearing areas shall be ground down.
 All parts of bridge rail, except anchor bolts, nuts, washers and screws are to be of aluminum material.
 All fillets 1/4" except as noted.
 All drafts 3° except as noted.
 All rail splices shall be located near a 4 point between rail post.
 All outside corners of aluminum posts to have 6" radius except as noted.
 A thin coating of material shall be applied to the stainless steel cap screws and the stainless steel fillister head machine screws to prevent locking to aluminum posts or tube. The coating material shall be equal to Wynn Oil Company's "Viscotene" or Stahl Specialty Company's "PBC 516" or National Chemsearch Corporation's "Thread Ete."



CITY OF ST. LOUIS

BRIDGE RAIL

SHEET 30 OF 37

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	187	



Longitudinal dimensions shown are measured horizontally along the gutter line.
For Drainage Notes, Roadway Drain Details, Pipe Hangers and Supports, see Sheet 34.
Work this sheet with Sheets 32 and 33.

CITY OF ST. LOUIS

SHEET 31 OF 37

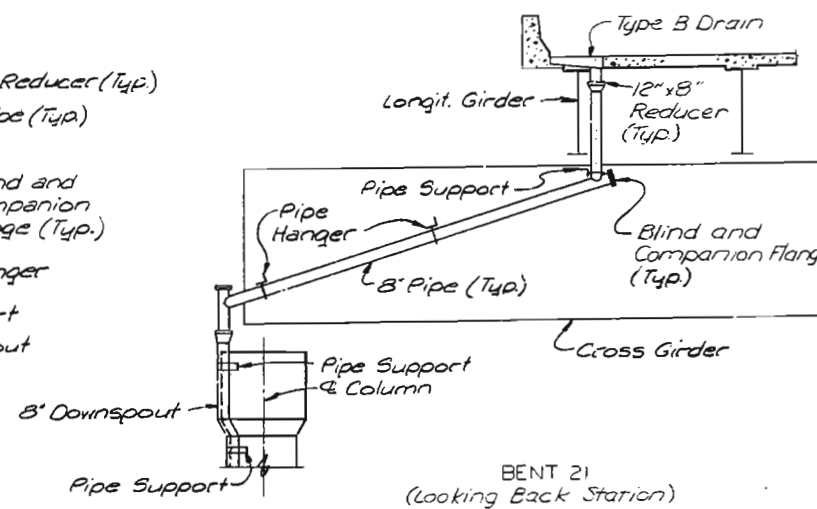
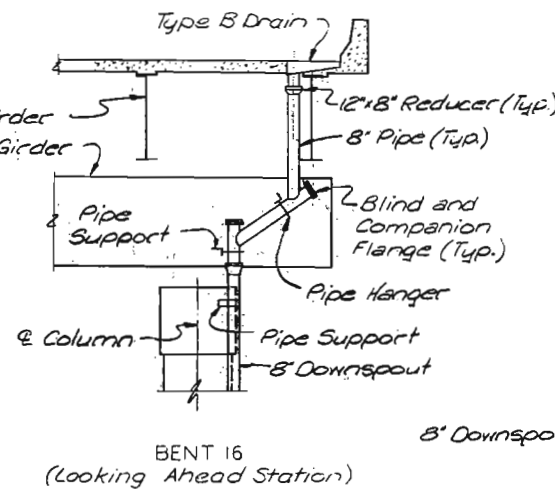
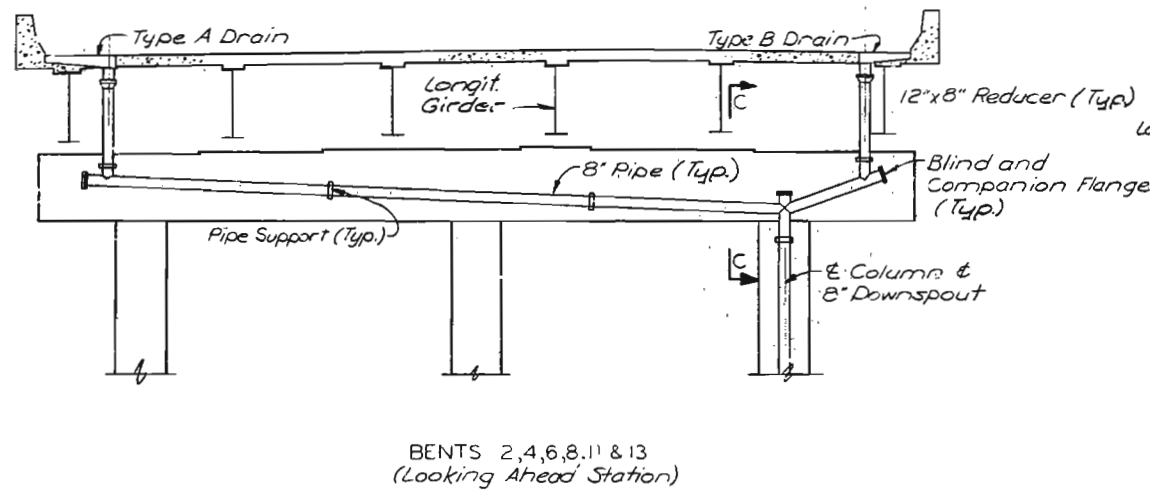
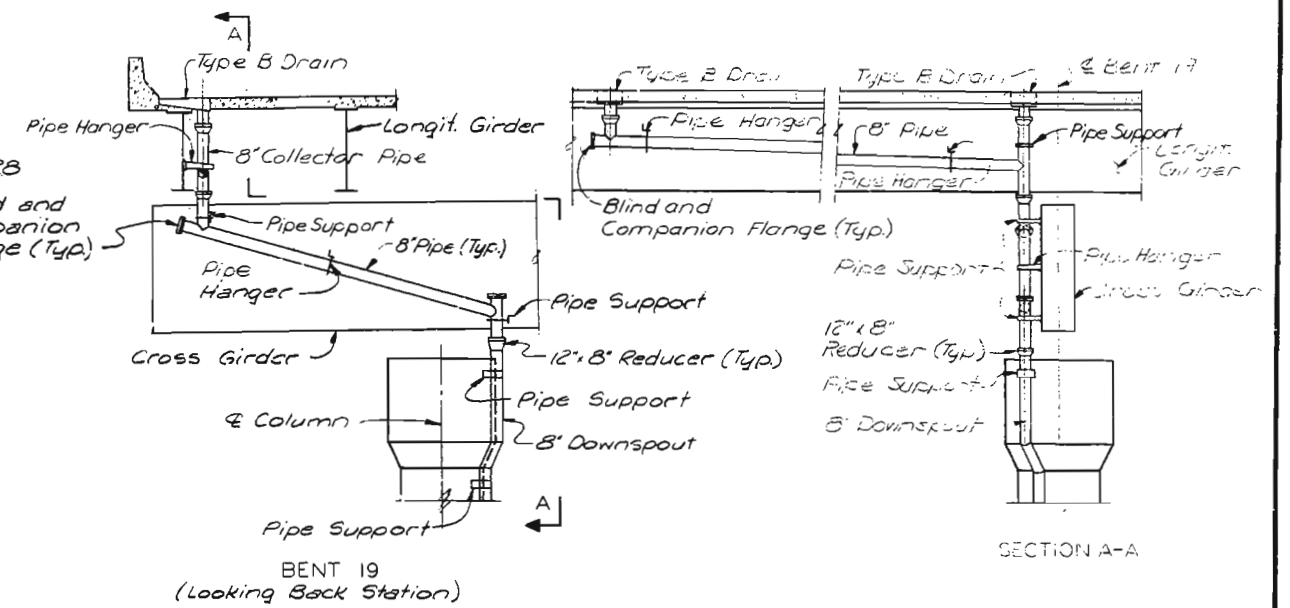
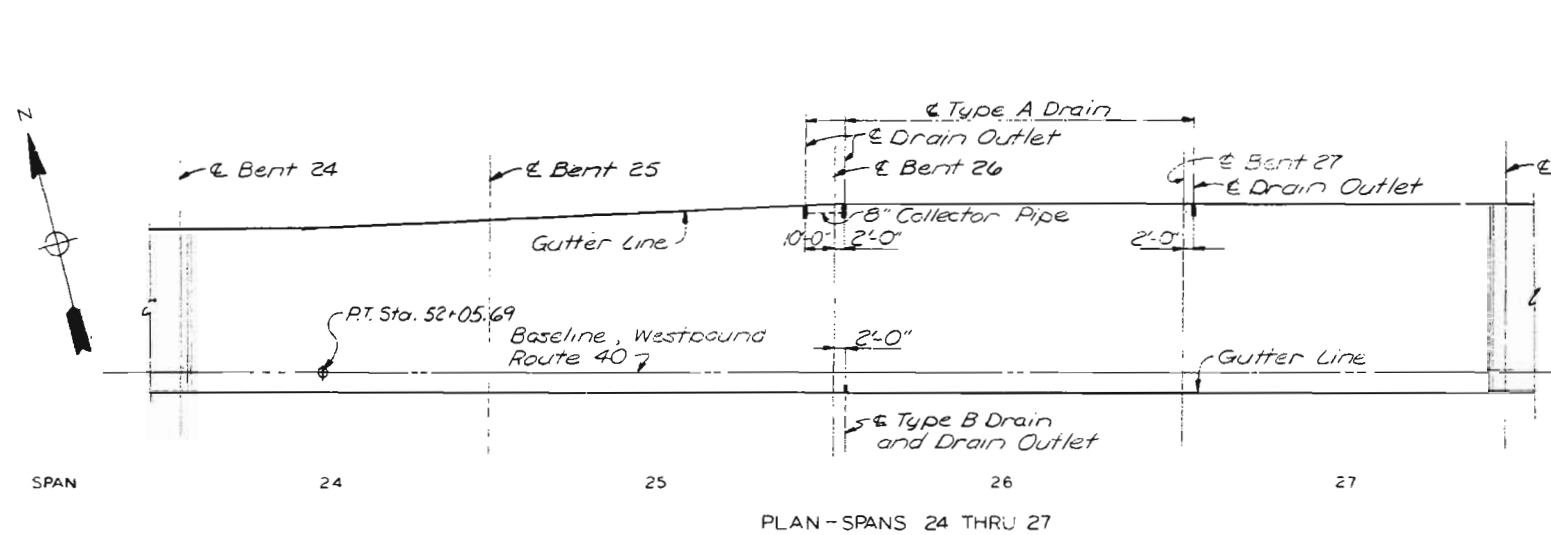
A-3594

5261	DRAWN BY: C. M. H. 11, Dec. 1971
775400	THRU BY:
	CHECKED BY: D. J. S. 11, Mar. 1978

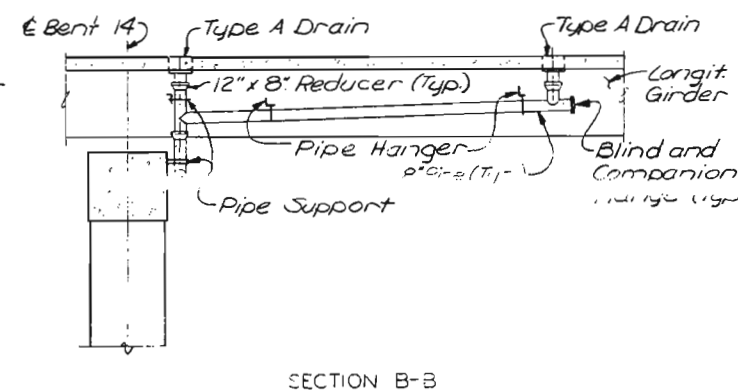
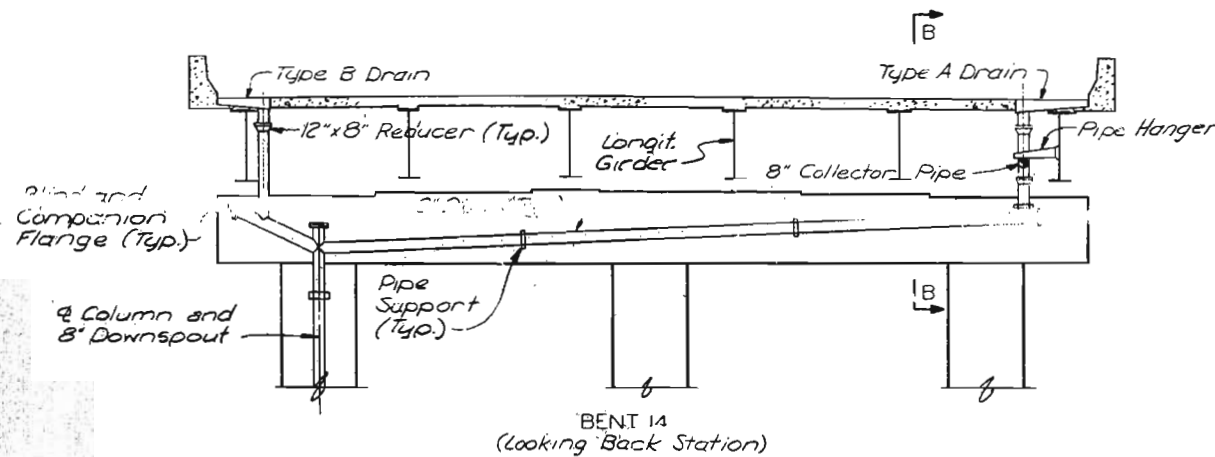
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	188	



NOTES
Work this sheet with
sheets 31 and 33.



CITY OF ST. LOUIS

DRAINAGE SYSTEM:

SHEET 32 OF 37

A-3594

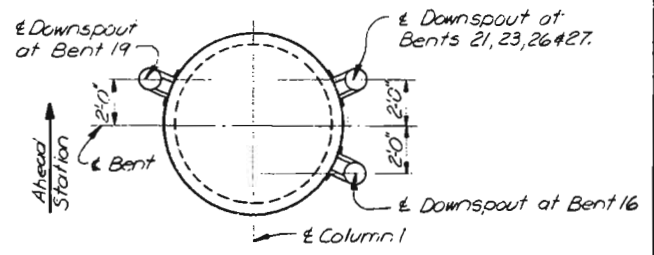
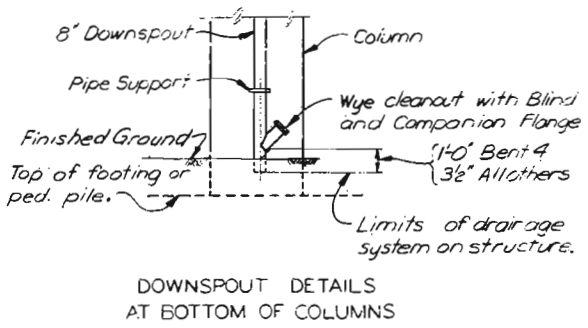
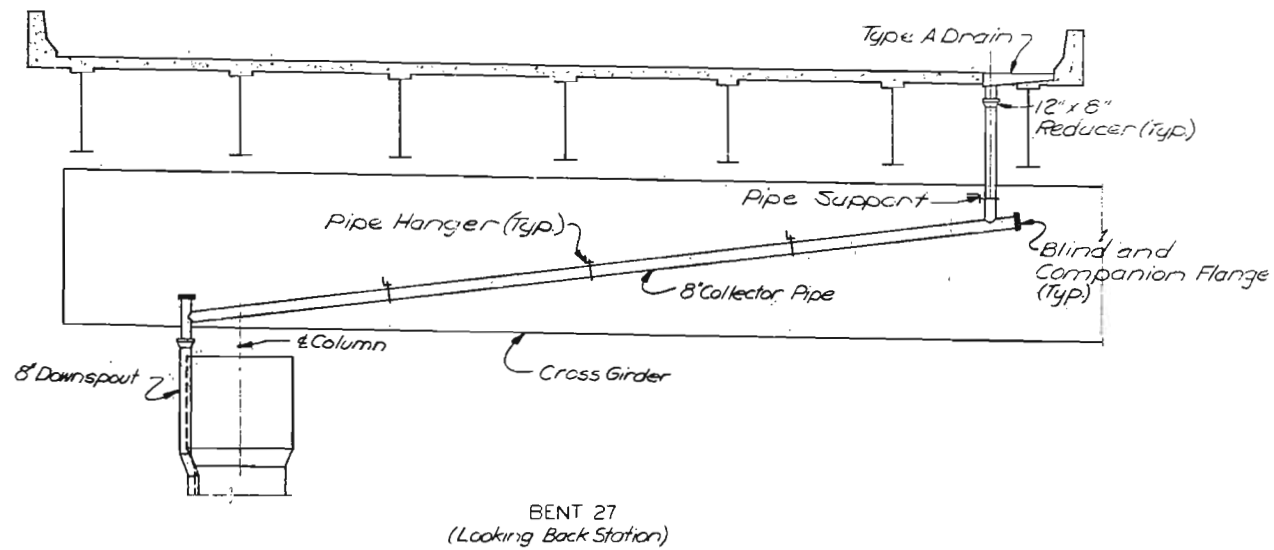
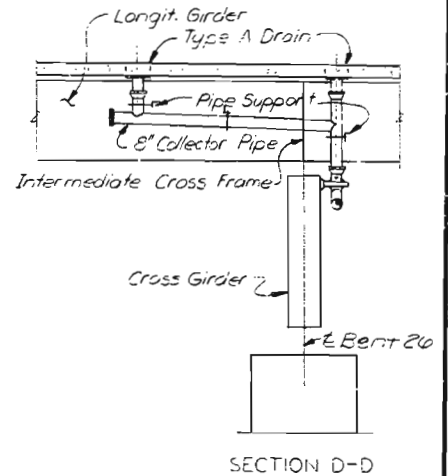
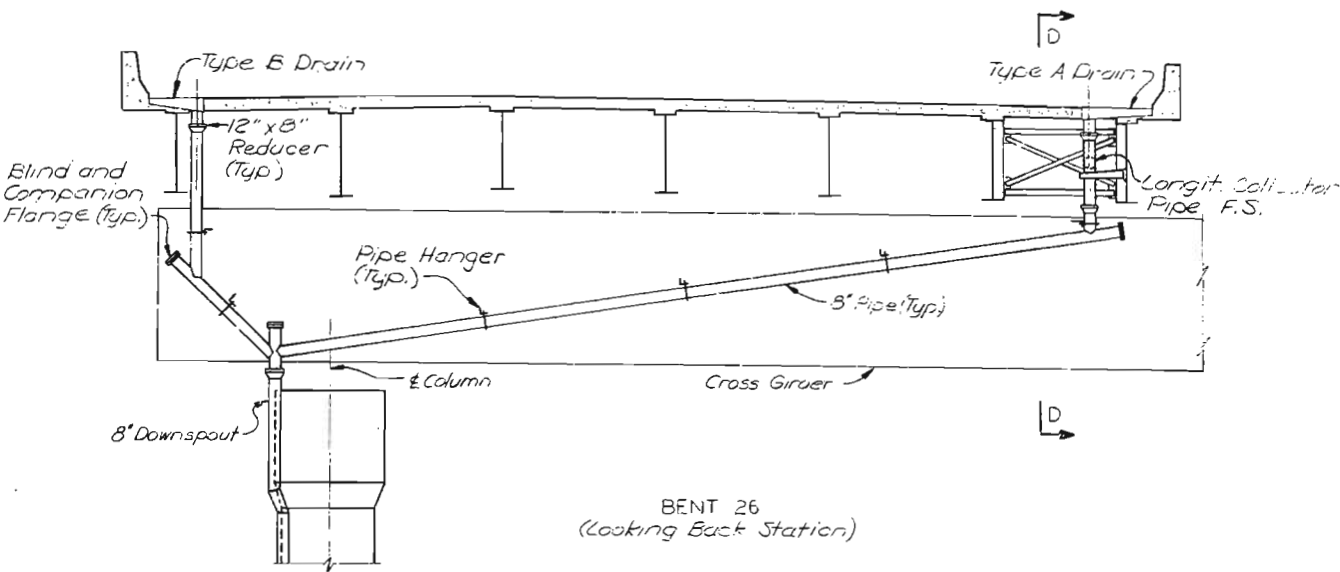
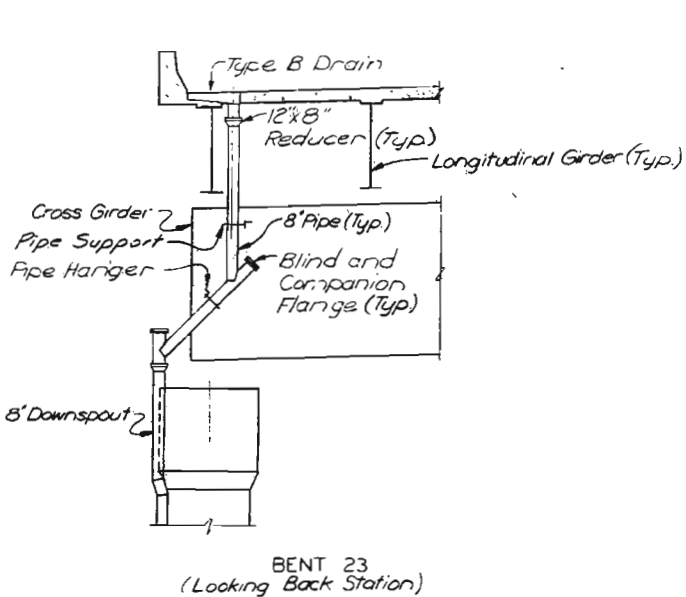
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

DRAWN BY: L. M. H. 11, Dec. 1971
CHECKED BY: D. S. R. 11, Mar. 1972
5261
TISAU

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	189	



PLAN OF DOWNSPOUT LOCATIONS
(Bents 16, 19, 21, 23, 26 and 27 only)
Note: Dimensions are measured at top of Column.

NOTES
Work this sheet with Sheet 31.

DRAWN BY: L. J. ANDERSON, ARCHITECT
CHECKED BY: J. S. F. L. ANDERSON
5267
70535

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

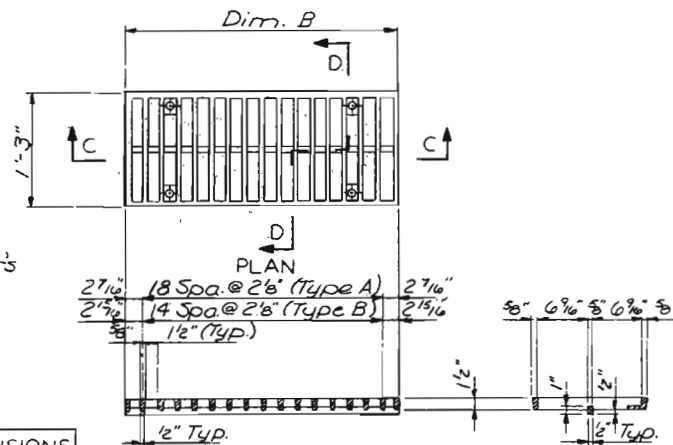
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS
DRAINAGE SYSTEM

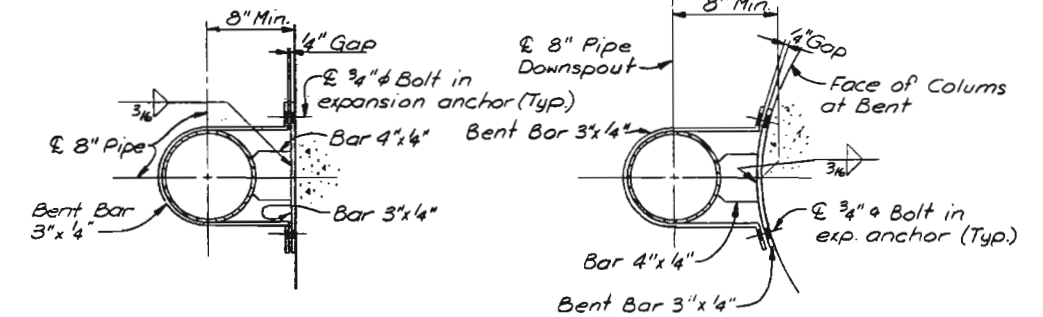
SHEET 33 OF 37

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FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	190	

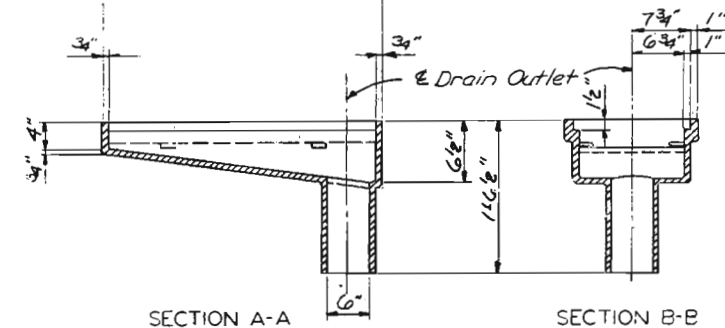


VARIABLE DIMENSIONS		
DIMENSION	TYPE A	TYPE B
A	3'-9 1/2"	3'-1 3/8"
B	3'-7 1/8"	2'-11 3/8"
C	3'-4 3/8"	2'-9 3/8"



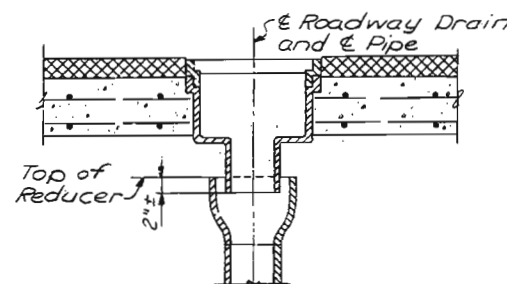
LONGIT. PIPE HANGER
(Concrete Bent Cap)

PIPE SUPPORT
(Concrete Column)

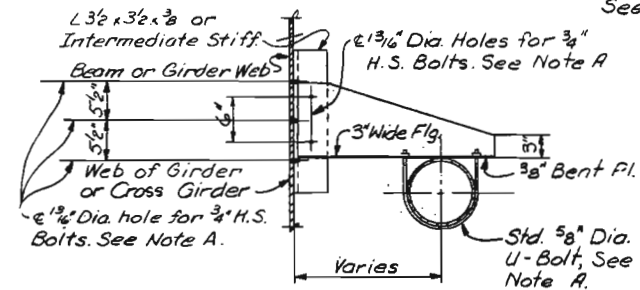


ROADWAY DRAIN CASTING

(11 Required Type A)
(13 Required Type B)

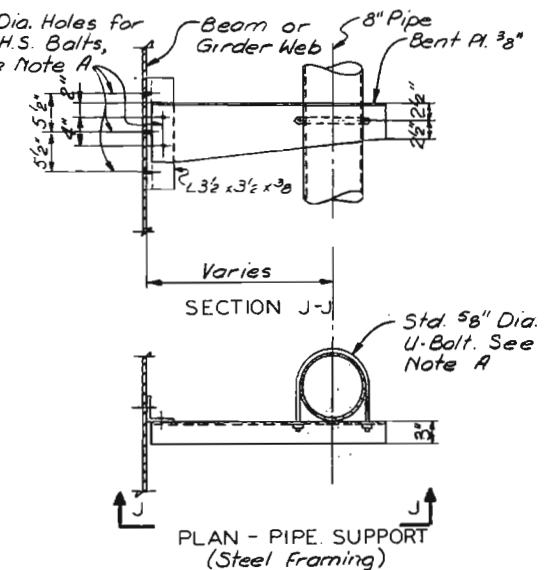


SECTION E-E



LONGIT PIPE HANGER
(Steel Framing)

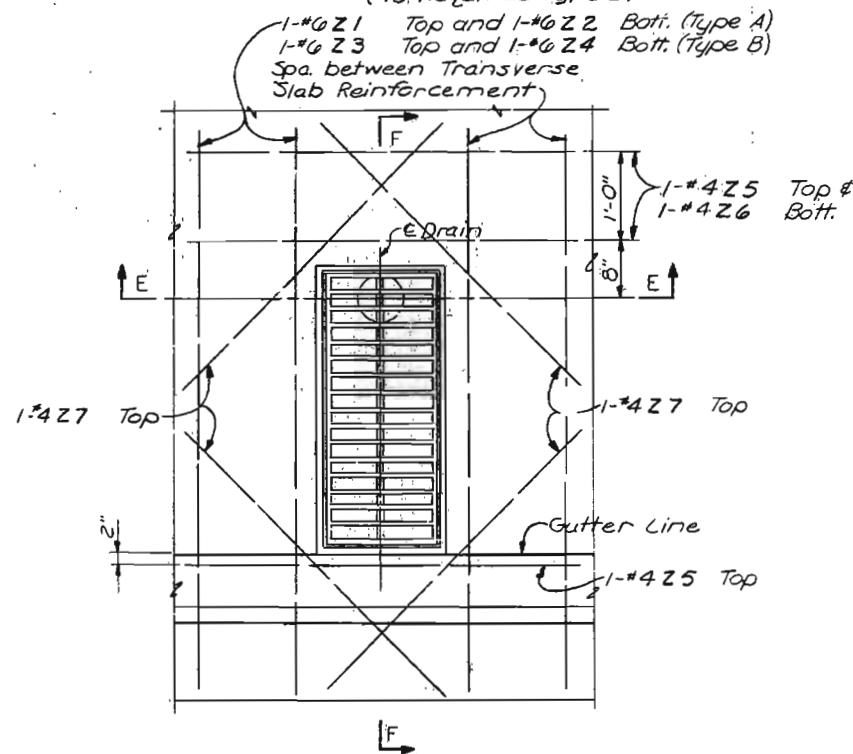
Note A: Drilling of $1\frac{3}{16}$ " holes shall be done in the field. Burr threads of U-Bolt after installing pipe.



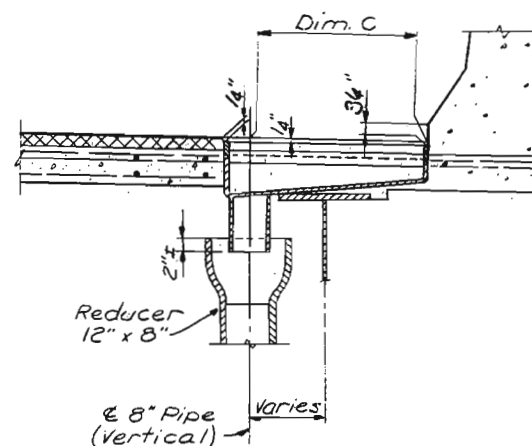
PLAN - PIPE SUPPORT
(Steel Framing)

DRAINAGE NOTES

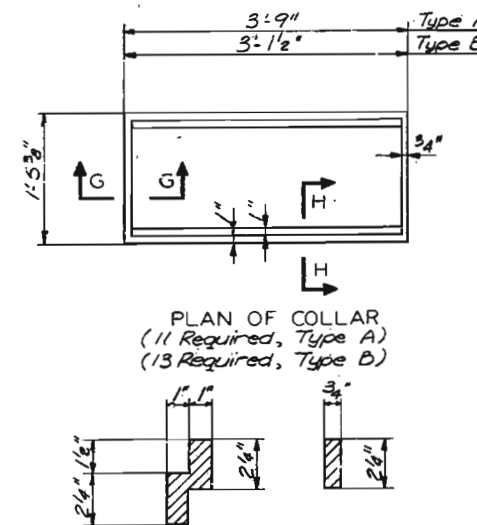
Work this sheet with Sheets 31, 32 & 33.
All pipe shall be 8" ϕ A.S.T.M. A-501 carbon steel pipe (Galvanized).
Collector pipes shall have the max. slope possible, with a min. slope of 1%.
All pipe fittings are to be Cast Iron conforming to A.S.T.M. A126, Class A.
Pipe shall be spliced by full penetration groove weld or threaded steel couplings.
All pipe support material is to be A.S.T.M. A36
All bolts and fasteners shall be galvanized.
All grates and roadway drain castings shall be Ductile Iron conforming to A.S.T.M. A536, Grade 60-40-18 and shall be hot-dip galvanized.
Cost of furnishing, fabricating, erecting and galvanizing drainage system complete as detailed shall be all inclusive in unit price bid for Drainage System items.
Piping shall be fabricated from field checked dimensions after installation of drains.
Pipe supports and longit. pipe hangers shall be spaced at 15 feet max. Min. distance from field drilled holes to girder flange shall be 1'-0".
See Special Provisions for drainage system.



PLAN OF TYPICAL ROADWAY DRAIN
Note: Transverse centerline of drain shall be placed normal to gutterline.
Bars Z1, Z3, Z5 and Z7 are to be epoxy coated.



SECTION F-F
Note: Grate not shown.



SECTION H-H SECTION G-G

MISSOURI STATE HIGHWAY DEPARTMENT

MISSOURI STATE HIGHWAY DEPARTMENT										FED. ROAD DIST. NO.		STATE		FED. AID PROJ. NO.		FISCAL YEAR		SHEET NO.		TOTAL SHEETS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	193	



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18		

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

Missouri State Highway Commission Specifications for Highway Construction (1981 Edition) and Special Provisions.

DESIGN SPECIFICATIONS:

Division 1 of the AASHTO "Standard Specifications for Highway Bridges" (1973 Edition including 1974, 1975 and 1976 Interim specifications.

DESIGN LOADING

(Load Factor Design Method - Bridge Slabs.)

Live Load - HS20-44 and modified 24,000 lbs. tandem axle

Dead Load - Weight of Structure includes reinforced concrete at 150 lbs. per cu. ft. with provision for a future wearing surface of 30 lbs. per sq. ft. of roadway.

DESIGN UNIT STRESS:

Concrete in Flexure:

Class B-2 Concrete - $f'_c = 4000$ lbs. per sq. in.
CLASS B-1 CONC. $f'_c = 4000$ LBS. PER SQ. IN.

Reinforcing Steel:

$f_s = 24,000$ lbs. per sq. in.
 $f_y = 60,000$ lbs. per sq. in.

CONCRETE:

Concrete for slabs is Class B-2
Conc. for Barriers is Class B-1

REINFORCEMENT:

All reinforcing steel is deformed billet steel, Grade 60.

The top mat of reinforcing steel is epoxy coated.

All dimensions to reinforcing bars on detail drawings are to centerline of bar except where the clear distance is noted from the face of concrete.

Lap Splices and embedment of reinforcement as shown on the detail drawings are in accordance with AASHTO, Interim 1974 Specifications.

PROFILE GRADE:

Profile grade is located at the Baseline of Westbound Roadway and at top of roadway slab.

CONSTRUCTION JOINTS:

Construction joints were permitted only at the locations shown on the detail drawings or as approved by the Engineer

BEVELED EDGES:

All exposed edges of concrete is beveled $\frac{1}{4}$ " unless otherwise shown or noted.

ROADWAY SLAB:

The $8\frac{1}{2}$ " roadway slab as detailed includes a 2" min. low slump concrete wearing surface. Stay-in-place metal forms as indicated on the details were used in construction of the slab, see Special Provisions.

SHEAR CONNECTORS:

Shear connectors were field welded to existing girder flanges in accordance with the details. For number of rows and longitudinal spacing see Steel Framing Plans of Structural Steel Contract.

SECTION 5

FINAL QUANTITIES

ITEM	UNIT	TOTAL
Class B-2 Concrete (Alternate A Wearing Surface)	Cu. Yd.	0 ✓
Class B-2 Concrete (Alternate B Wearing Surface)	Cu. Yd.	3491.6 ✓
Reinforcing Steel (Grade 60)	Lbs.	490,860 ✓
Reinforcing Steel (Grade 60), Epoxy Coated	Lbs.	802,700 ✓
Bridge Rail (Aluminum - Tube Type)	Lin. Ft.	5,421 ✓
Class B-1 Concrete (Barrier Curbs) Alternate A	Cu. Yd.	0 ✓
Class B-1 Concrete (Barrier Curbs) Alternate B	Cu. Yd.	695.6 ✓
CONDUIT SYSTEM ON STRUCTURE	LUMP SUM	1 ✓
Concrete Wearing Surface (***)	Sq. Yd.	15,637 ✓
Preformed Compression Joint Seal (2 $\frac{1}{2}$ ")	Lin. Ft.	51 ✓
Elastomeric Expansion Joint Seal (Movement Rating 4")	Lin. Ft.	162 ✓
Elastomeric Expansion Joint Seal (Movement Rating 6 $\frac{1}{2}$ ")	Lin. Ft.	206 ✓
*Fabricated Structural Carbon Steel (Misc.)	Lbs.	23,890 ✓
Drainage System (8" Steel Pipe)	Lin. Ft.	1166 ✓
Drainage System (Type A Drains)	Each	11 ✓
Drainage System (Type B Drains)	Each	13 ✓

* Weight of fabricated structural carbon steel consists of shear connectors as detailed

THE ABOVE QUANTITIES ARE INCLUDED IN THE SUMMARY OF QUANTITIES FOR A-3594 ON FIRST SHEET OF BRIDGE PLANS.

CITY OF ST. LOUIS

GENERAL NOTES AND
ESTIMATED QUANTITIES

SHEET 54 OF 37

FINAL PLANS

A-3594

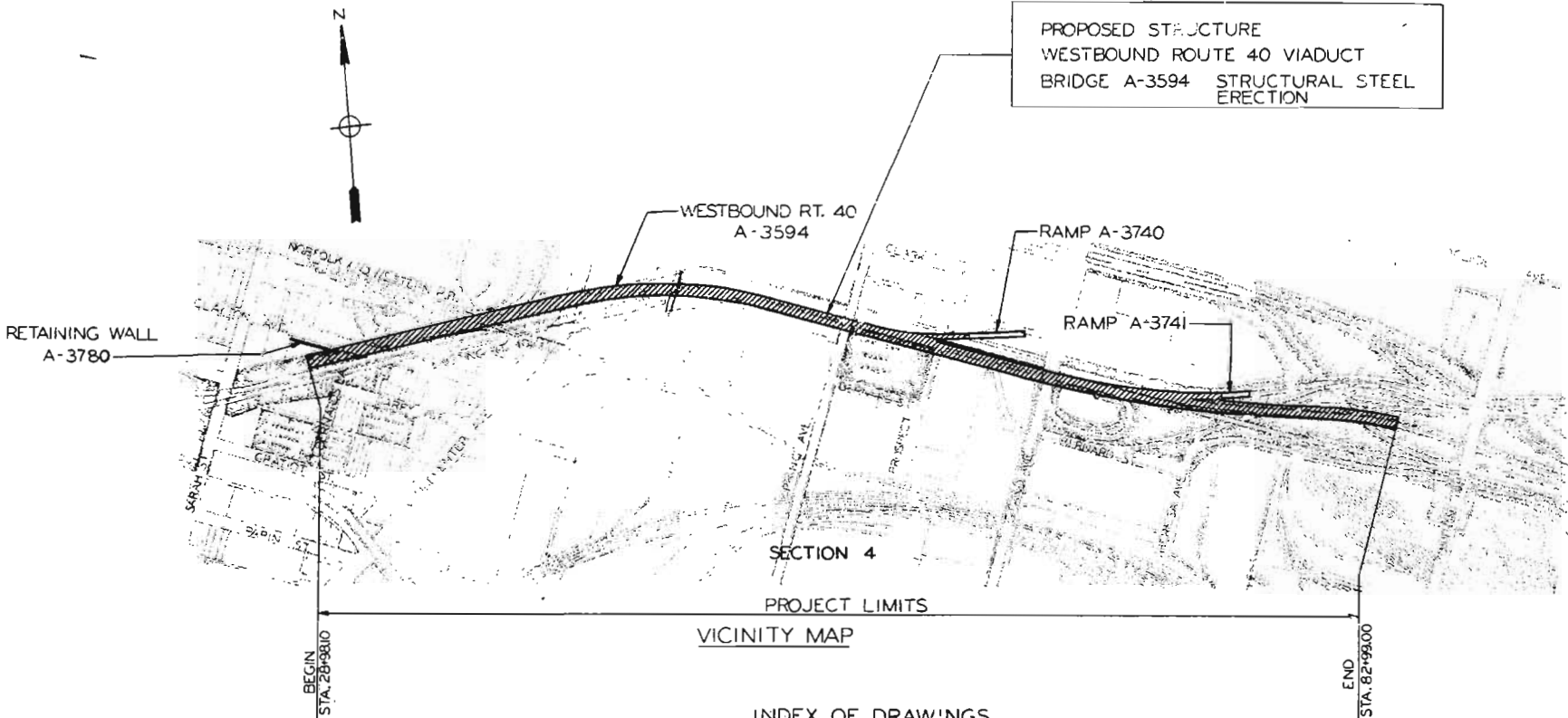
SVENDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: L. Mitchell, April 1978
CHECKED BY: W. Walden, April 1978
5261
78567

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

DES. NO.	DATE	DES. NO.	DATE	DES. NO.	DATE	DES. NO.	DATE
1	1976	2	1976	3	1976	4	1976



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2. GENERAL PLAN AND ELEVATION	27. ANCHOR BOLT PLAN - ABUTMENT 1 AND BENTS 2 THRU 19	52. FRAMING PLAN - SPANS 40 AND 41	71. CROSS GIRDERS AT BENTS 9 AND 10	87. CROSS GIRDER BEARINGS - TYPES F16 THRU F22
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15. TOP OF SLAB ELEVATIONS AT RAMPS	40. FRAMING PLAN - SPANS 18 AND 19	65. HINGES NEAR BENTS 4, 8 AND 53	84. LONGITUDINAL GIRDER BEARINGS AT CROSS GIRDERS - TYPES E9 THRU E13	
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21. DEAD LOAD DEFLECTION AND CAMBER - SPANS 31 THRU 37	46. FRAMING PLAN - SPANS 29 AND 30			
22. DEAD LOAD DEFLECTION AND CAMBER - SPANS 31 AND 32	47. FRAMING PLAN - SPANS 31, 32 AND 33			
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24. DEAD LOAD DEFLECTION AND CAMBER - SPANS 42 THRU 45	49. FRAMING PLAN - SPANS 31 AND 32			
25. DEAD LOAD DEFLECTION AND CAMBER - SPANS 46 THRU 49	50. FRAMING PLAN - SPANS 36 AND 37			

BRIDGE: WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK AND WESTERN RAILROAD

STATE ROAD - ROUTE 40
JOB NO. 6 UO40 26
PROJECT NO. BRF-40-54-
STA 28+96.35
FILL FACE ABUTMENT 1

CITY OF ST. LOUIS

DATE:

VICINITY MAP AND
INDEX OF DRAWINGS

SHEET 1 OF 93

A-3594



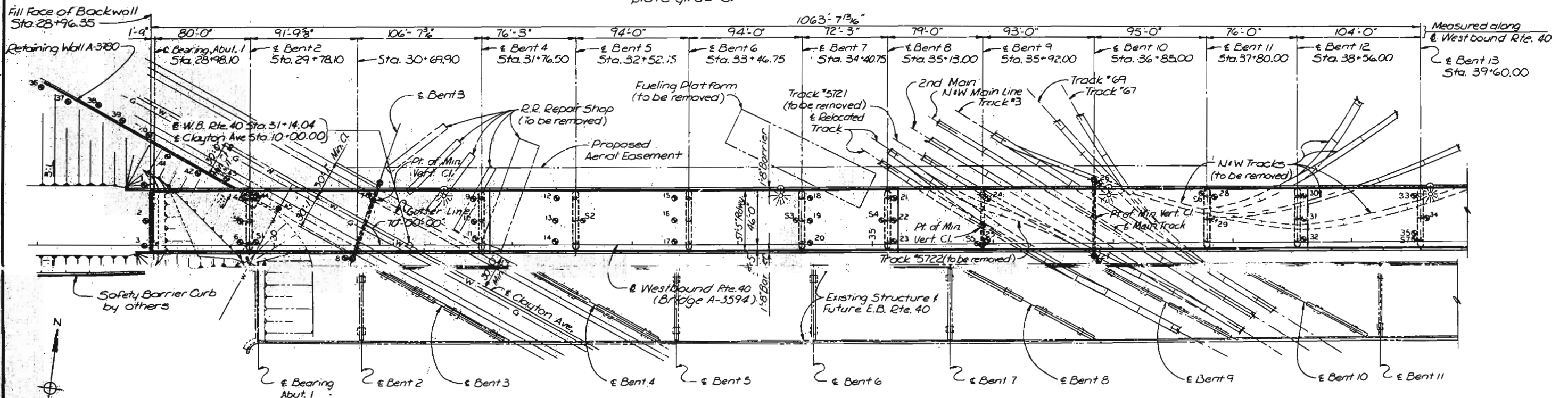
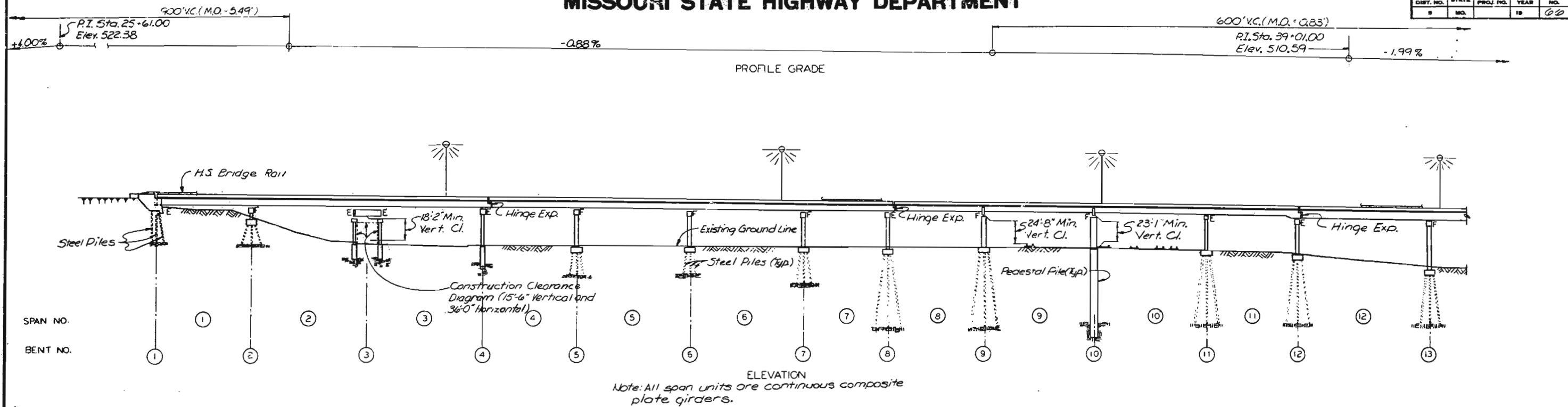
SUBMITTED BY:

Wilburn O. Walden
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11783

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
9	MO.		19	62	



LEGEND FOR EXISTING UTILITIES

- Sewer, sanitary or storm
- F&P — Fire and Police
- G — Gas
- W — Water
- P — Underground Power
- T — Underground Telephone
- Inlet
- Manhole

PLAN

• Indicates the approximate location of a boring.

CLEARANCES - N & W RAILROAD

Locations of columns at Bents 9 and 10 provide for 10'-0" minimum horizontal clearance from face of column to centerline of adjacent track.

Construction clearances of 8'-6" horizontal from centerline of tracks and 22'-0" vertical from top of rail shall be provided.

NOTES

For Alignment, see Sheets 8 & 9.

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

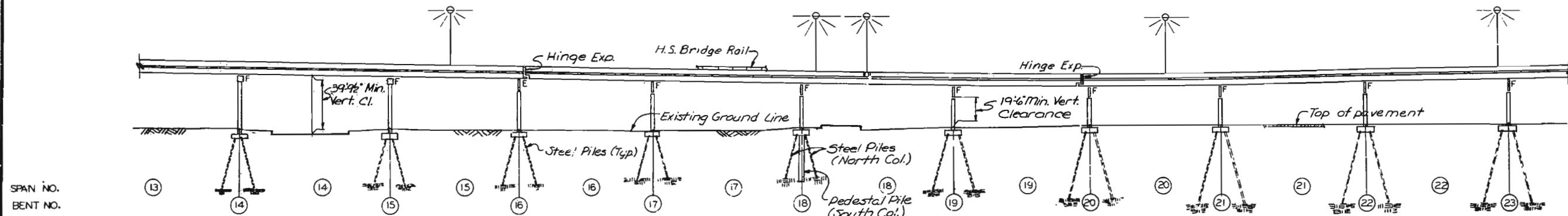
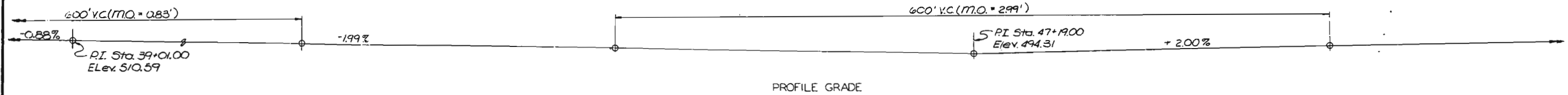
SHEET 2 OF 93

A-3594

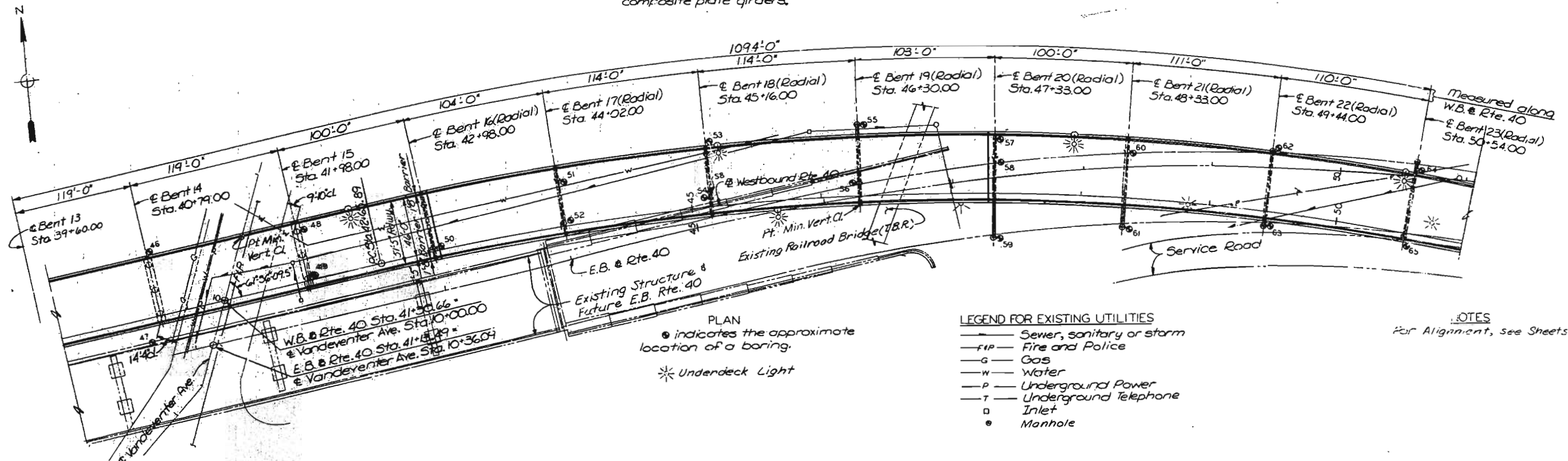
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	27	



ELEVATION
 Note: All span units are continuous composite plate girders.



PLAN
 • indicates the approximate location of a boring.
 * Undeck Light

LEGEND FOR EXISTING UTILITIES
 — Sewer, sanitary or storm
 — FIP — Fire and Police
 — G — Gas
 — W — Water
 — P — Underground Power
 — T — Underground Telephone
 □ Inlet
 • Manhole

NOTES
 For Alignment, see Sheets 8 & 9.

DRAWN BY: J.E.O. DATE: Dec 1976
 CHECKED BY: J.E.O. DATE: Jan 1977
 DESIGNED BY: J.E.O. DATE: Sept 1977

OVERHURST & PENCEL AND ASSOCIATES, Inc.
 ENGINEERS - ARCHITECTS
 ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

GENERAL PLAN AND ELEVATION

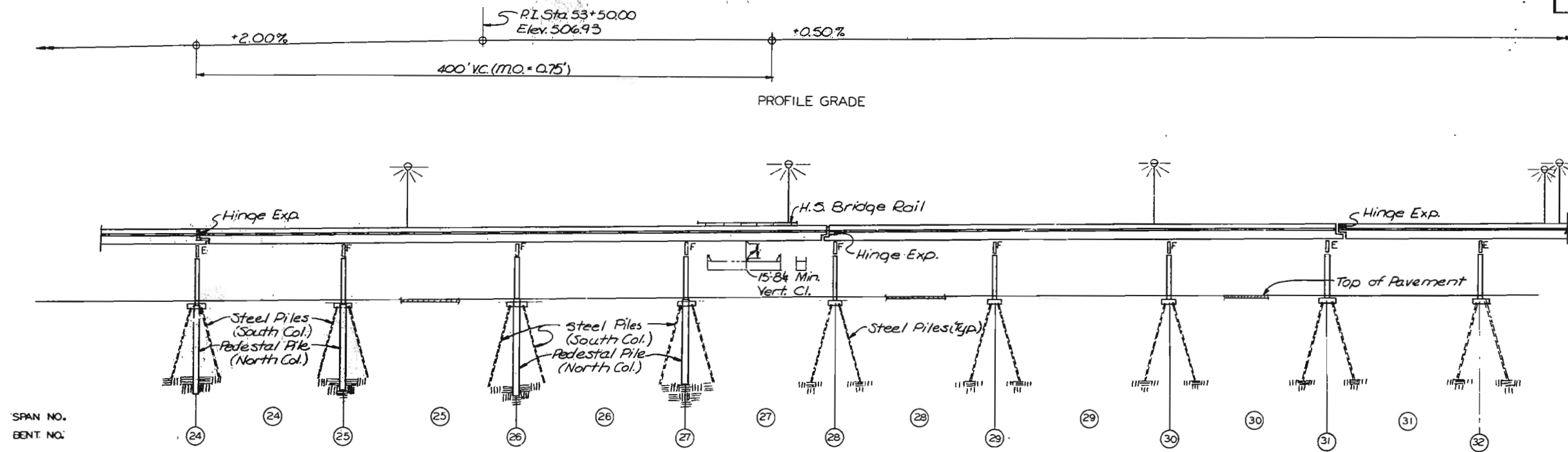
SHEET 3 OF 93

A-3594

CITY OF ST. LOUIS

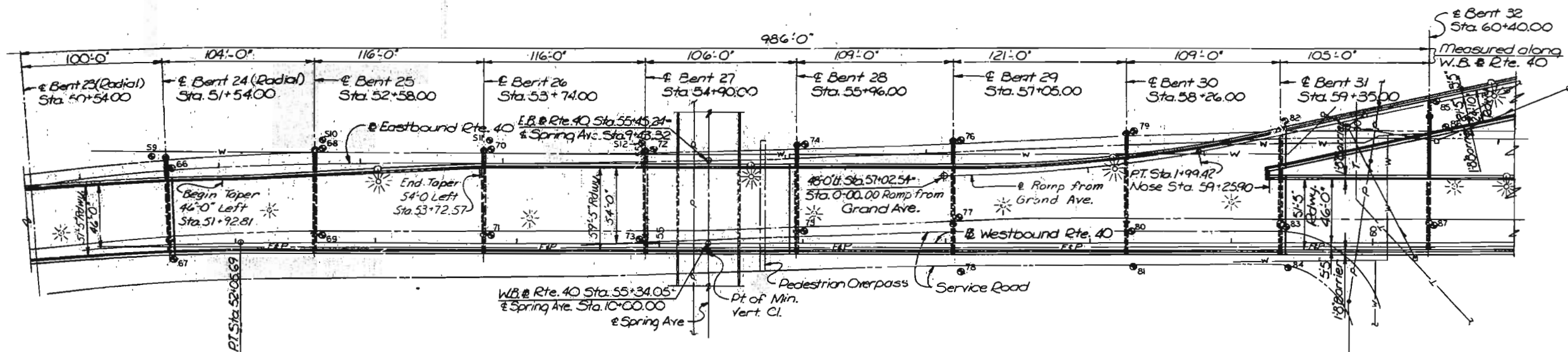
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	68	



SPAN NO.
BENT NO.

ELEVATION
Note: All span units are continuous composite plate girders.



PLAN
● indicates the approximate location of a boring.
* Underdeck Light

LEGEND FOR EXISTING UTILITIES
— Sewer, sanitary or storm
— Fire and Police
— Gas
— Water
— Underground Power
— Underground Telephone
□ Inlet
○ Manhole

NOTES
For Alignment, see Sheets 889.

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 4 OF 93

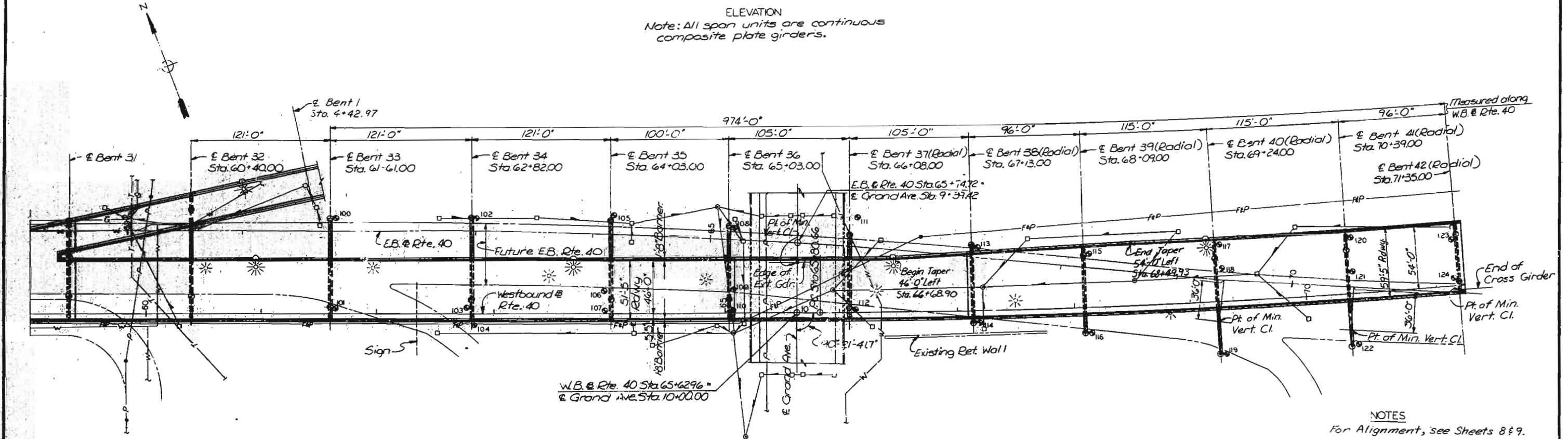
A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

200
DRAWN BY: J. J. O'NEILL, Dec. 1976
CHECKED BY: J. J. O'NEILL, Dec. 1976
DESIGNED BY: J. J. O'NEILL, Dec. 1976

ENGINEER & ARCHITECT, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	69	



PLAN

- Indicates the approximate location of a boring.
- ⊙ Underdeck Light

- LEGEND FOR EXISTING UTILITIES
- S— Sewer, storm or sanitary
 - FP— Fire and Police
 - G— Gas
 - W— Water
 - ◆P◆ Overhead Power
 - T— Underground Telephone
 - Inlet
 - Manhole

GENERAL PLAN AND ELEVATION

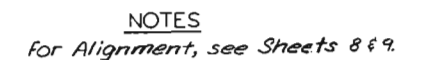
SEP - 24 PLANS

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

765285	5261	DRAWN BY: JG	DATE: 12-76
		TRAINED BY:	
		765285	12-76

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		10	70	



A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

76-5296
SEARCHED BY: [Signature]
CHECKED BY: [Signature]
DRAWN BY: L. CHESBROUGH, Dec. 1976
TRAISED BY:
CHECKED BY: [Signature], Aug. 1977

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	71	

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

Missouri State Highway Commission Specifications for Highway Construction (1981 Edition) and Special Provisions.

DESIGN SPECIFICATIONS:

Division I of the AASHTO "Standard Specifications for Highway Bridges" (1973 Edition including 1974, 1975 and 1976 interim specifications.

DESIGN LOADINGS:

Live Load - HS20-44 and modified 24,000 lbs. tandem axle.
Dead Load - Weight of Structure including reinforced concrete at 150 lbs. per cu. ft. with provision for a future wearing surface of 30 lbs. per sq. ft. of roadway.

DESIGN UNIT STRESSES:

Structural Carbon Steel (ASTM A36) - fs 20,000 lbs. per sq. in.
Structural Low Alloy Steel - A-572 Grade 50, up to 2" thick.
A-588, over 2" thick.
fs 27,000 lbs. per sq. in.
fy 50,000 lbs. per sq. in.

STRUCTURAL STEEL NOTES:

See Sheet 33.

PAINTING:

Field coat, none, except touch up after erection with System C. See Special Provision.

PROFILE GRADE:

Profile grade is located at the Base Line of Westbound Rt. 40 at top of roadway slab.

ANCHOR BOLTS:

Anchor bolts for all bearings on concrete substructures shall *be drilled in place.*

SECTION 4

ESTIMATE OF QUANTITIES

ITEM	UNIT	TOTAL
* State Furnished Structural Steel (Erection Only)	Lb.	9,625,810
* Pot Bearings (Erection Only)	EACH	11
High Strength Bolts (7/8" Dia.)	LUMP SUM	1

THE ABOVE QUANTITIES ARE INCLUDED IN THE SUMMARY OF QUANTITIES FOR A-3594 ON FIRST SHEET OF BRIDGE PLANS.

* State Furnished Structural Steel includes 7,313,420 lbs. Fabricated Structural Carbon Steel, 2,055,390 lbs. Fabricated Structural Low Alloy Steel, 256,800 lbs. Fabricated Structural Steel Bearings and 11 Pot Bearings.

CITY OF ST. LOUIS

GENERAL NOTES AND ESTIMATED QUANTITIES

SHEET 7 OF 93

A-3594

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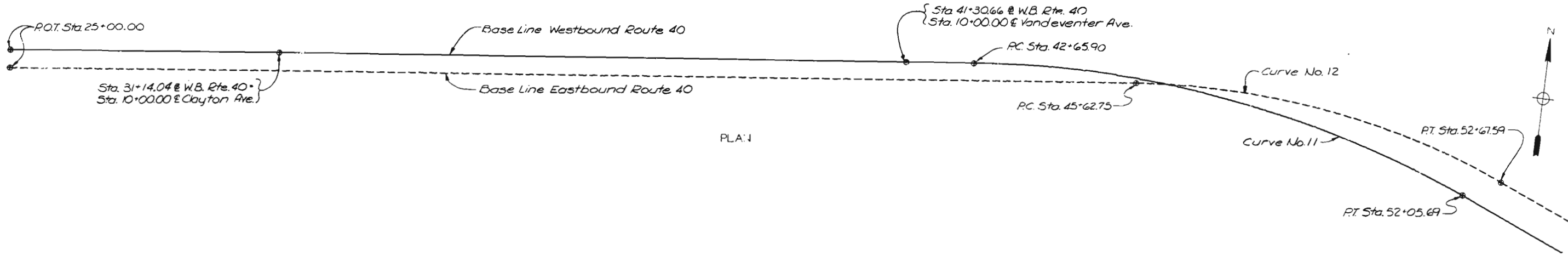
BRUNNEN & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
OF LOUIS. MISSOURI

DRAWN BY: M. J. J. Jan 1978
CHECKED BY: M. J. J. Jan 1978
5261
7856

203

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	72	



HORIZONTAL CURVE DATA																
Curve No.	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	27
P.I.	Sta. 47+45.51	Sta. 49+22.46	Sta. 55+58.46	Sta. 58+95.22	Sta. 1+00.08	Sta. 1+60.97	Sta. 65+24.53	Sta. 70+61.33	Sta. 71+72.71	Sta. 0+34.99	Sta. 2+78.30	Sta. 75+23.49	Sta. 1+52.50	Sta. 79+38.90	Sta. 82+84.69	Sta. 82+59.18
Δ	28°11'37.9" Rt.	28°11'37.8" Rt.	3°04'03.3" Lt.	3°04'03.3" Rt.	11°57'55.4" Lt.	63°31'30.1" Rt.	1°14'13.4" Rt.	7°13'56.1" Lt.	10°14'05.5" Lt.	26°04'22.0" Rt.	133°30'29.9" Rt.	1°22'15.7" Lt.	18°08'50.1" Lt.	2°27'00.3" Lt.	2°27'00.3" Rt.	12°19'54.3" Rt.
D	3°00'00"	4°00'00"	1°00'00"	1°00'00"	6°00'00"	22°02'12.6"	1°00'00"	1°36'27"	0°52'00"	37°54'41.7"	63°39'43.1"	0°29'54.8"	6°00'00"	0°42'30.8"	0°42'30.8"	2°00'00"
T	474.61'	359.71'	153.42'	153.42'	100.08'	160.97'	312.16'	225.25'	592.05'	34.99'	209.52'	137.51'	152.50'	172.92'	172.92'	309.49'
L	939.80'	704.84'	306.76'	306.76'	199.42'	288.27'	623.71'	449.91'	1180.94'	68.77'	209.71'	275.00'	302.45'	345.79'	345.79'	616.59'
E	1909.86'	1432.39'	572.58'	572.58'	954.93'	260.00'	573.958'	3564.30'	6611.05'	151.13'	90.00'	11492.00'	954.93'	8086.36'	8086.36'	2864.79'

BENCH MARKS U.S.G.S. DATUM		
NUMBER	DESCRIPTION	ELEV.
B.M. #4	"a" on stone curb in front of General Equip. Co. bldg. No. 3952 Clayton Ave.	477.89
B.M. #5	"b" on N.E. corner of 2 1/2" conc. base of stop light at Vandeventer & left side of ramp from Mkt. St.	459.32
B.M. #6	"c" in open of fire plug N. side of W.B.L. under pedestrian overpass at Spring Ave.	466.94
B.M. #7	"a" on concrete median under center of Grand Ave. bridge.	465.56
B.M. #8	"a" on wheel guard N.E. corner of E. end of E.B. bridge over E.B. Mkt. St. ramp	495.83
B.M. #16	"b" on S.E. corner of N.W. endpost of E.B. bridge over E.B. Mkt. St. ramp	497.70
B.M. "E"	Top of S.W. corner of light standard at the S.W. corner of Grand Ave. bridge.	489.63

0:04

DRAWN BY: J. O. O'Connell, Dec. 1974
CHECKED BY: T. Sanders, May 1977
5261
765294

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

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

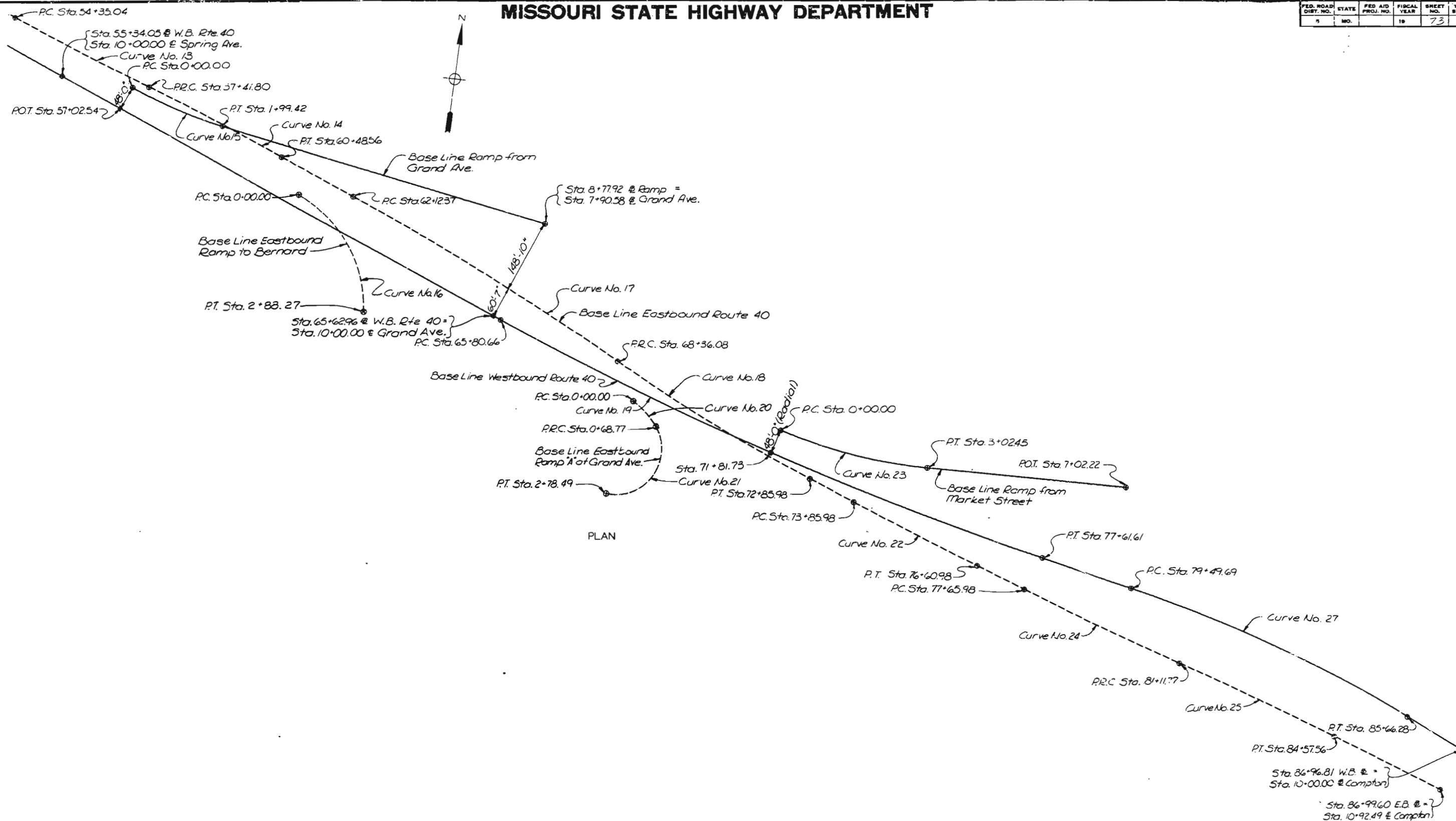
ALIGNMENT, HORIZONTAL CURVE DATA,
AND BENCH MARKS

SHEET 6 OF 93

A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	73	



PLAN

CITY OF ST LOUIS

ALIGNMENT

SHEET 9 OF 93

A-3594

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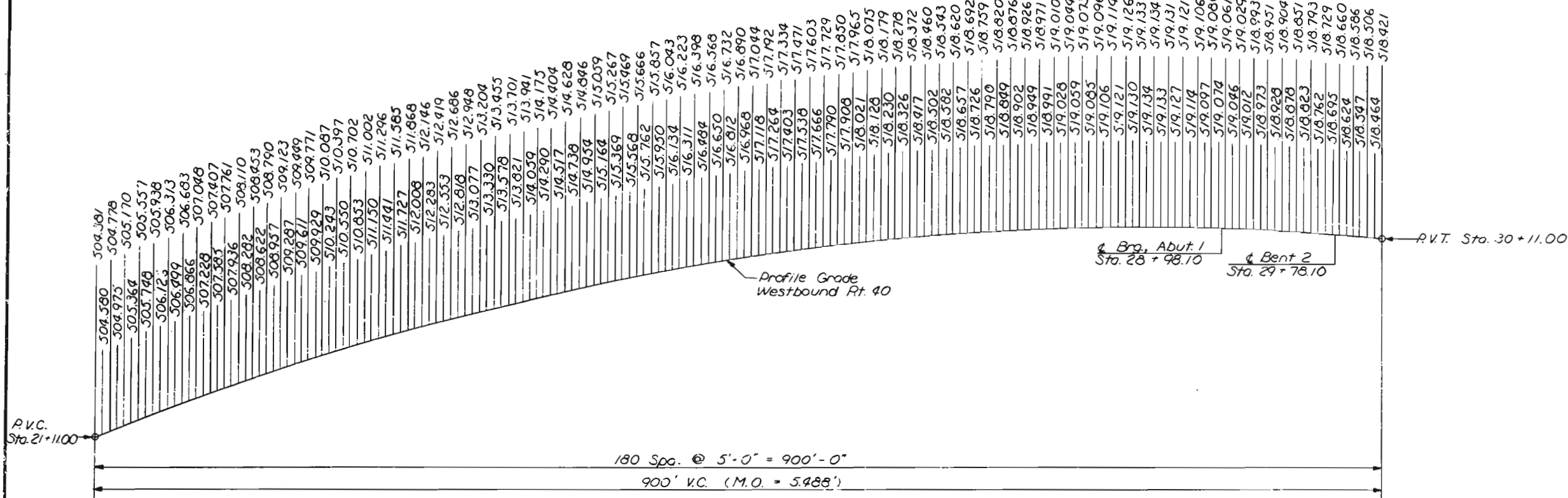
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: L. Ostermann, Dec. 1976
CHECKED BY: T. Sanders, May 1977
5261
765295

205

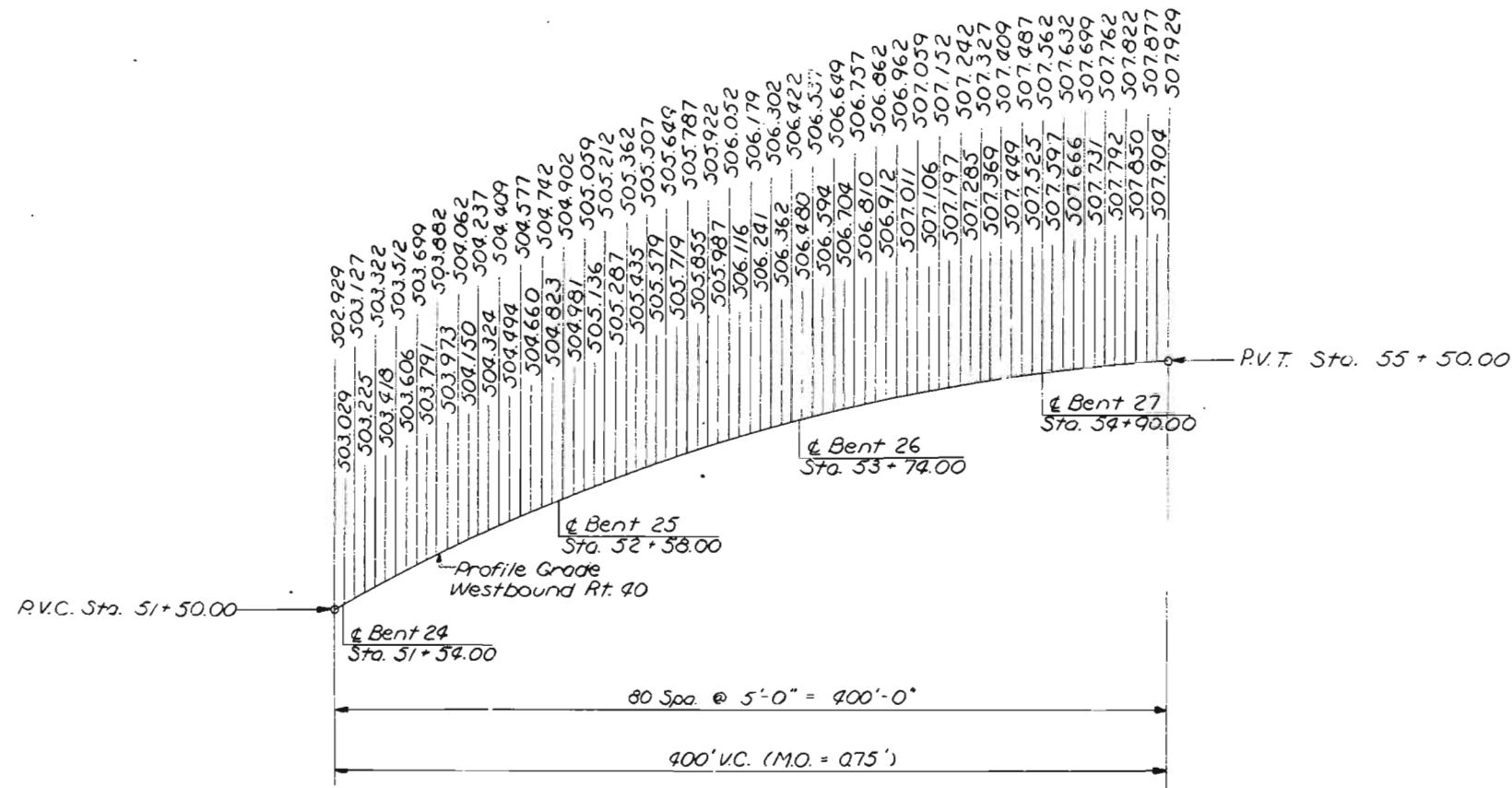
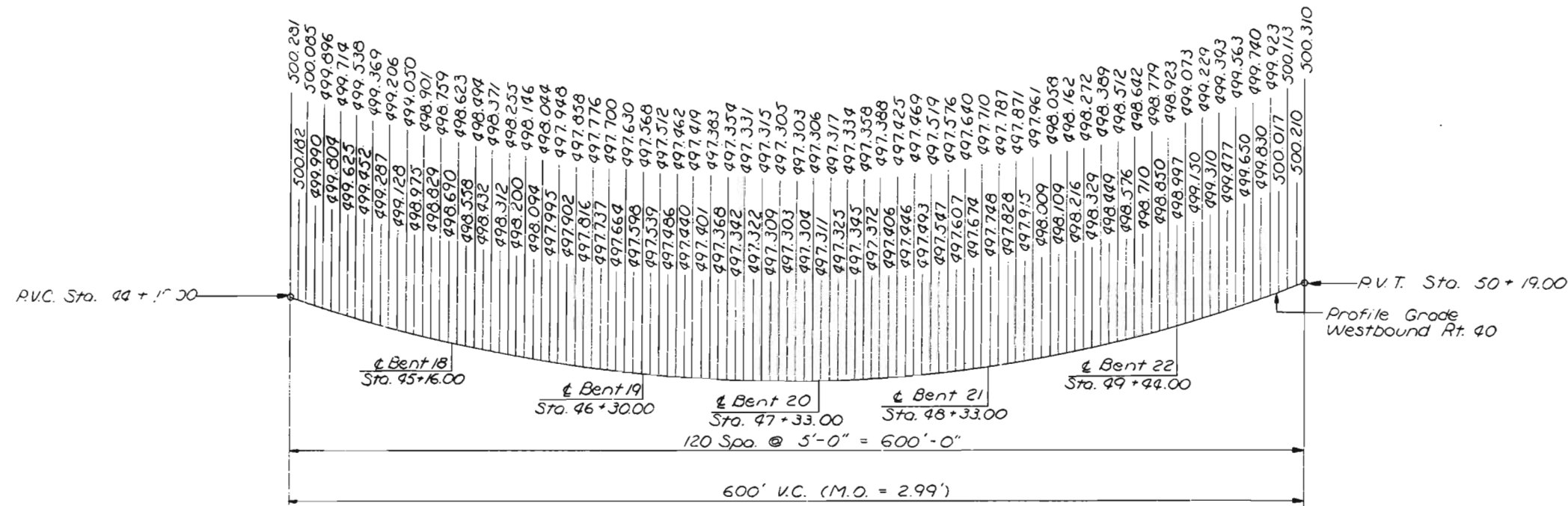
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		18	14	



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	75	



CITY OF ST. LOUIS

VERTICAL CURVE ELEVATIONS

SHEET 11 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

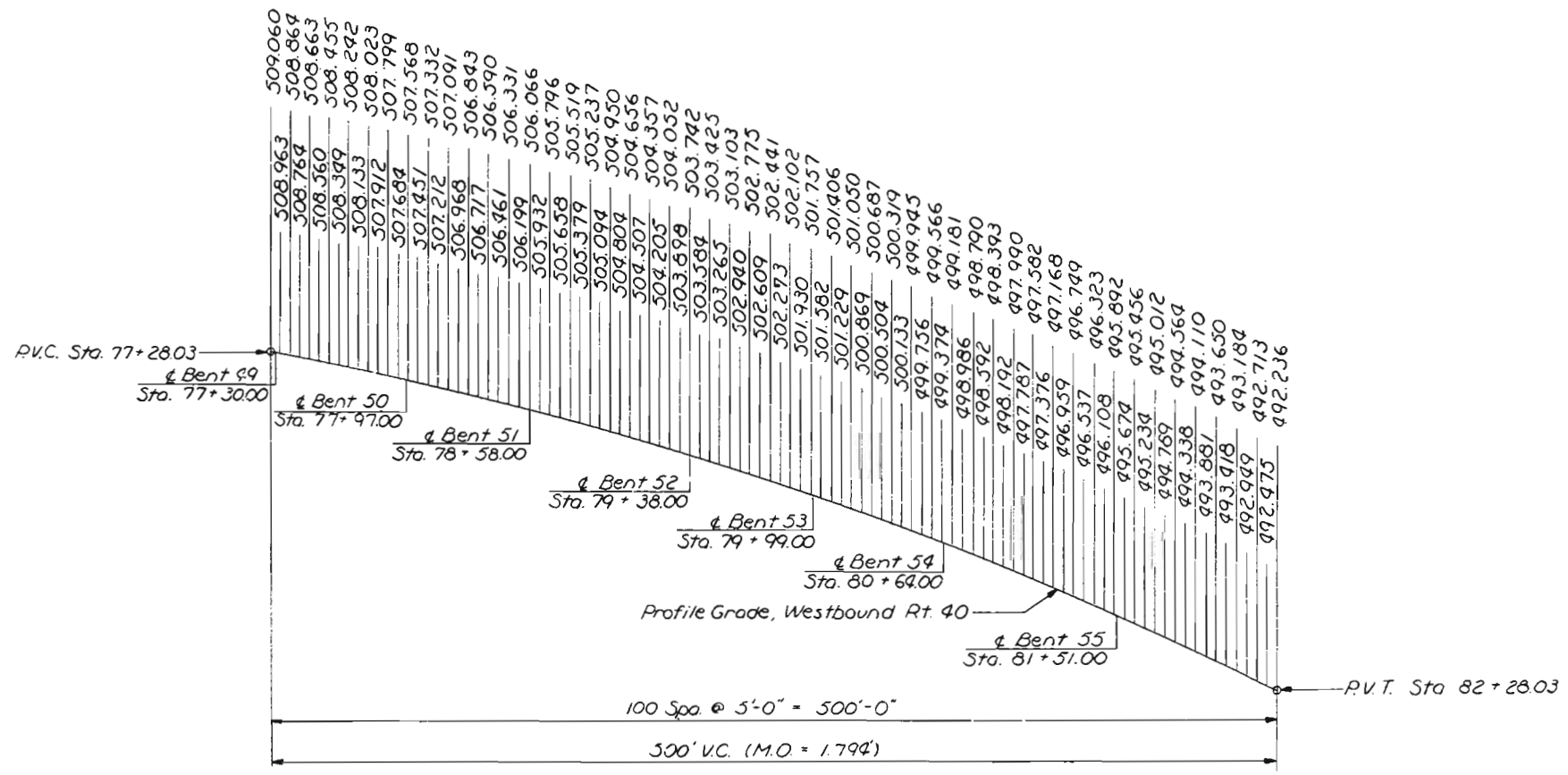
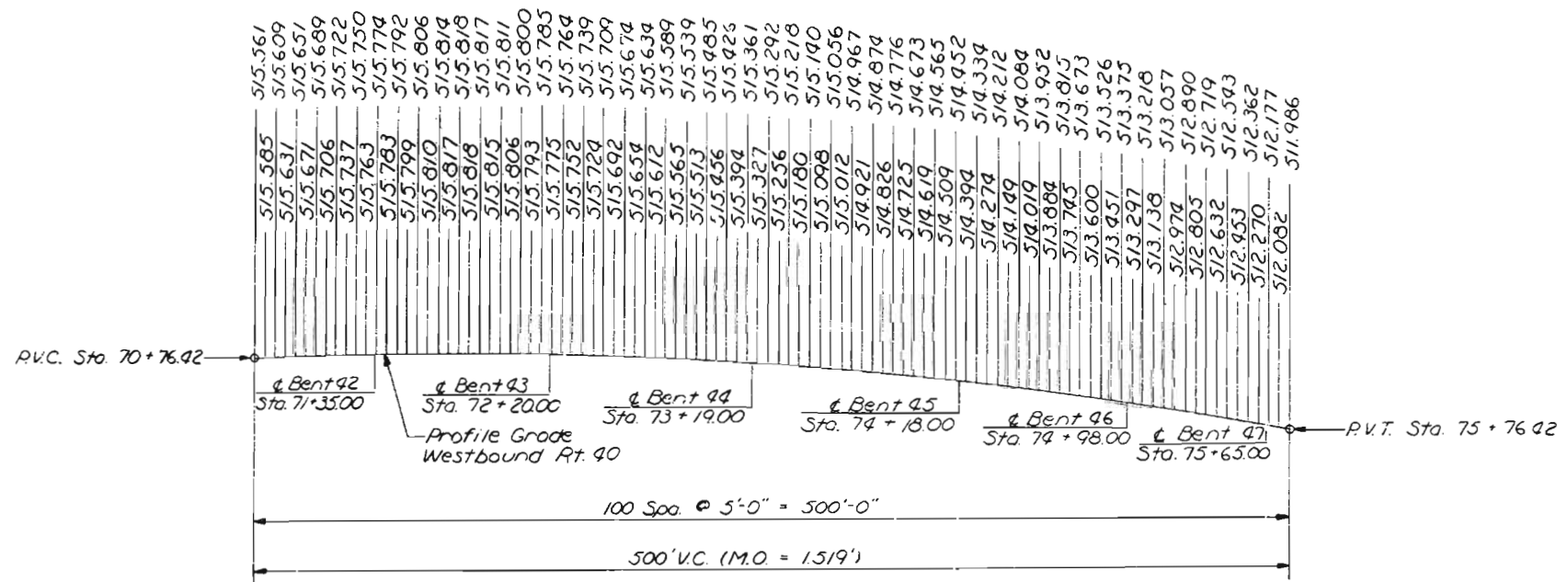
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: E. GREGORY, July 1977
CHECKED BY: T. SANDERS, Aug. 1977
5261
773260

201

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	74	



208

DRAWN BY: E. Gregory, July 1977
CHECKED BY: T. Sanders, Aug. 1977
3261
775263

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

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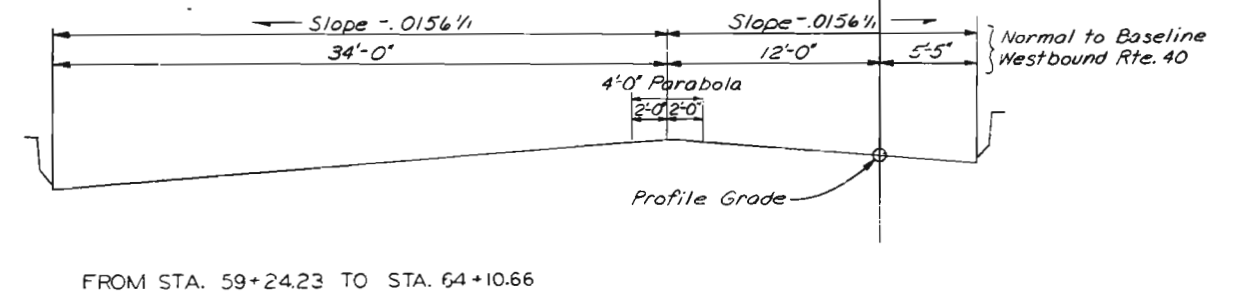
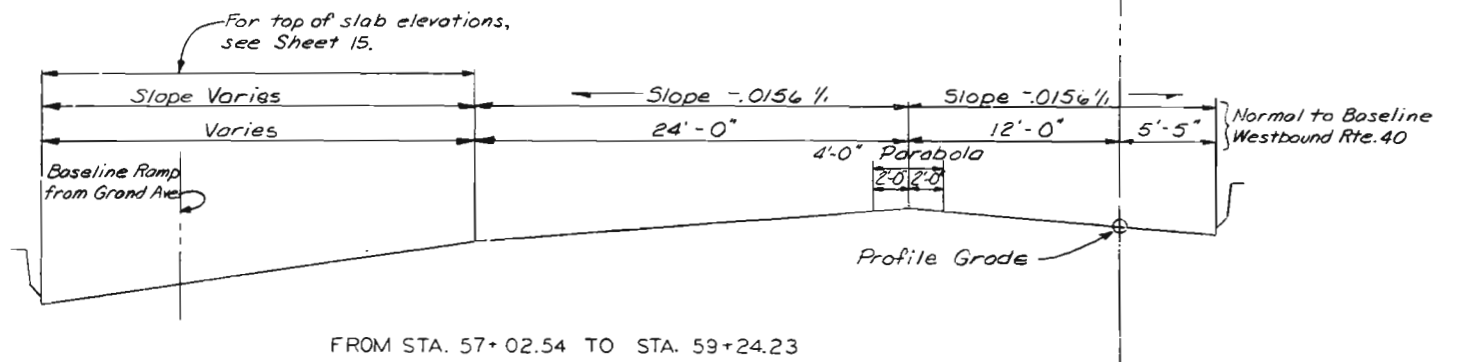
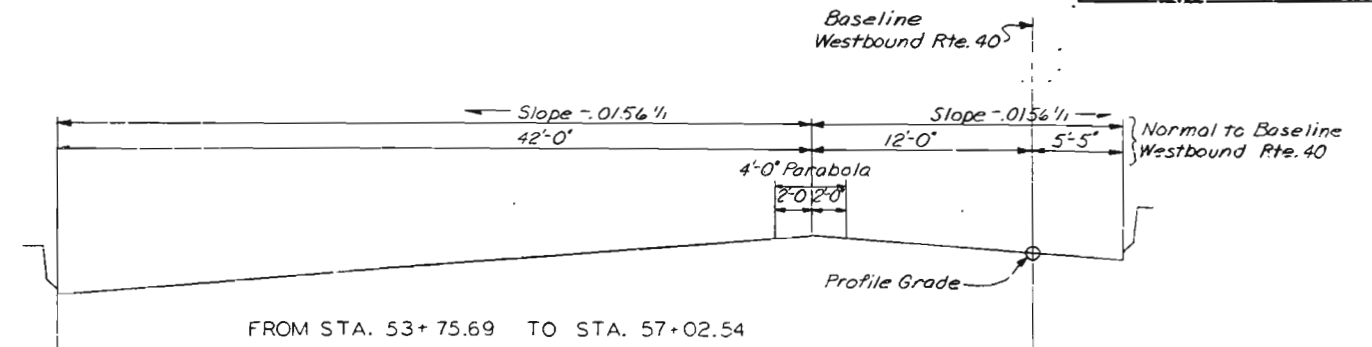
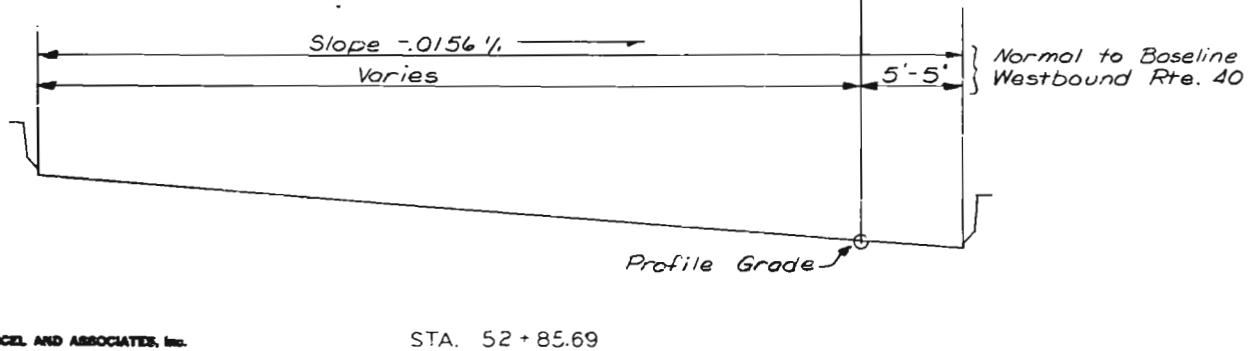
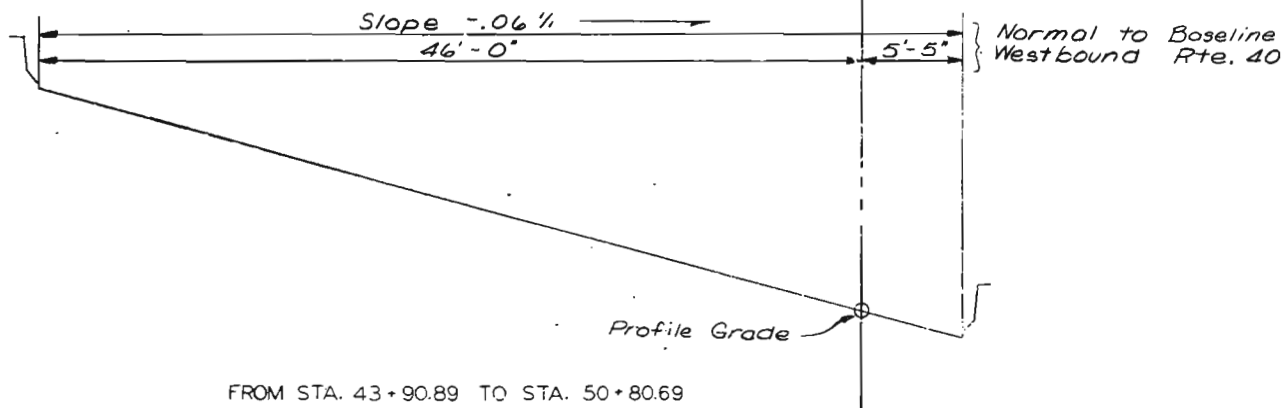
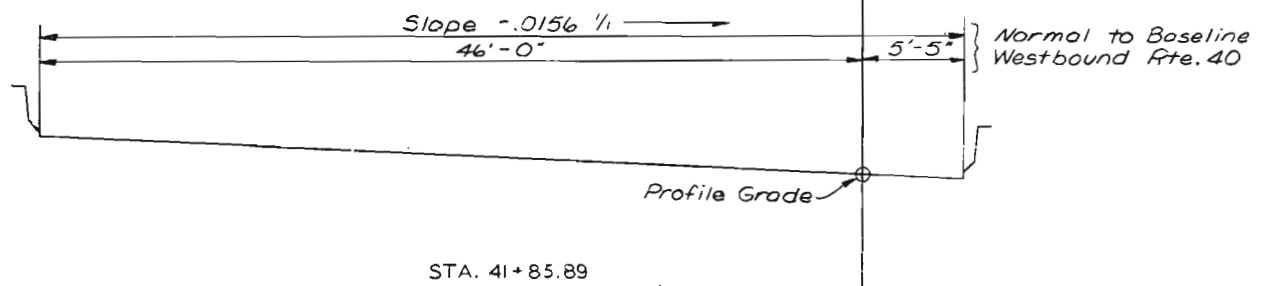
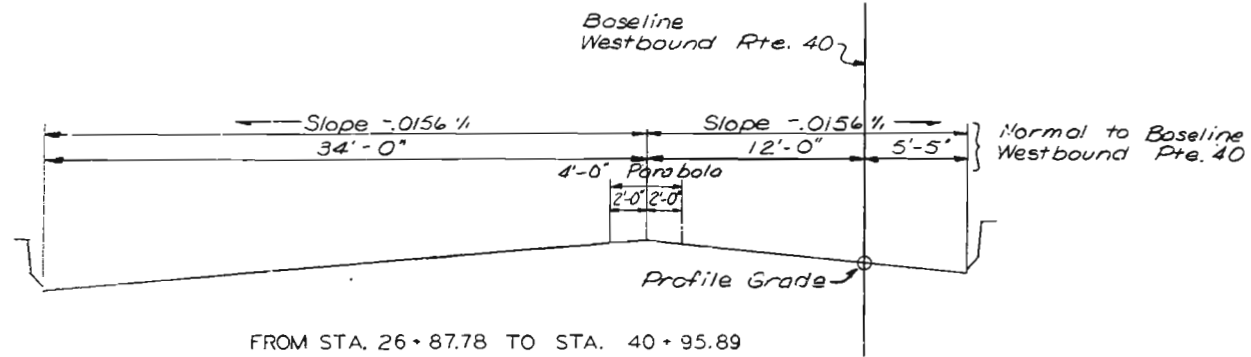
CITY OF ST. LOUIS
VERTICAL CURVE ELEVATIONS

SHEET 12 OF 93

A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		16	77	



CITY OF ST. LOUIS

ROADWAY CROSS SLOPES

SHEET 13 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

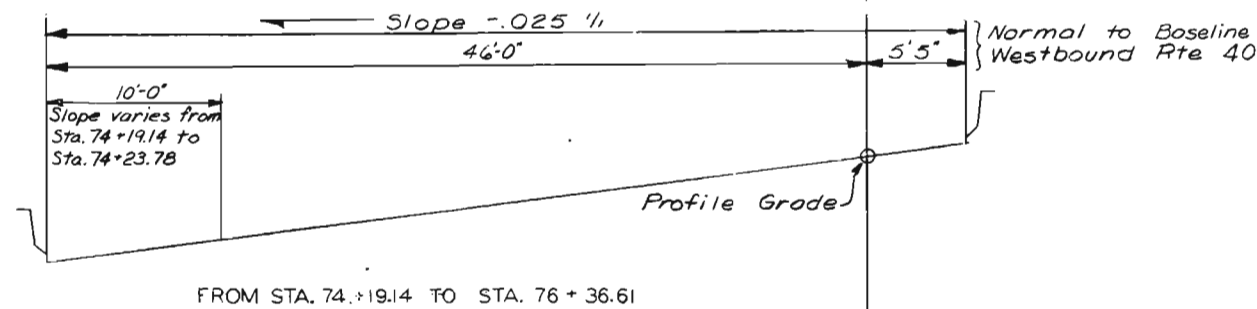
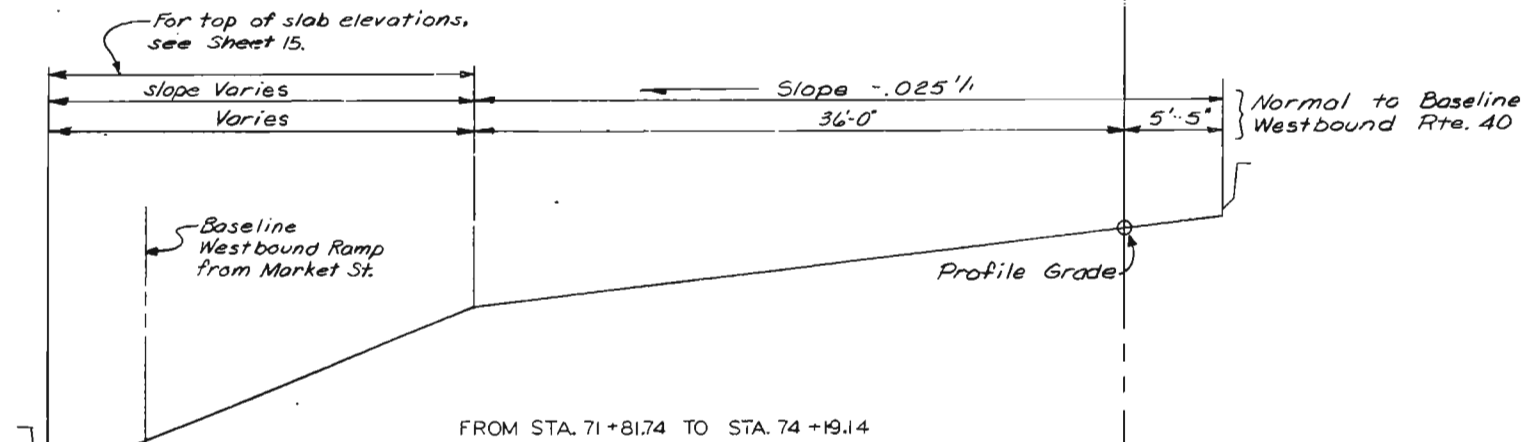
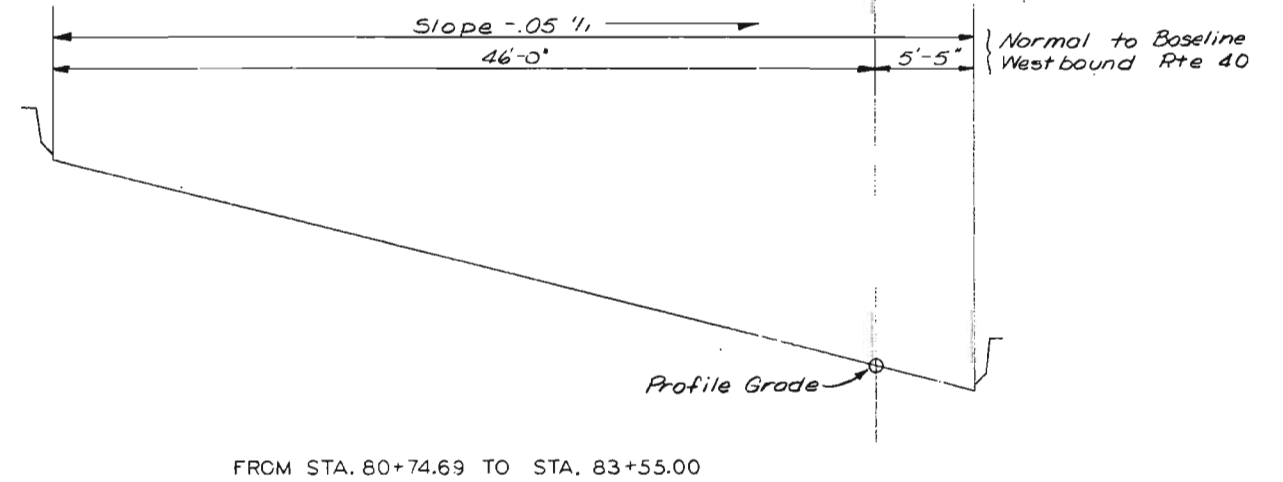
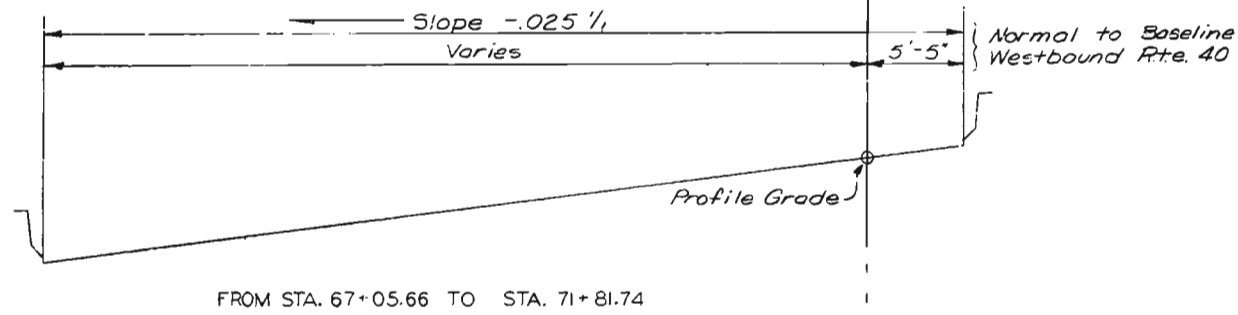
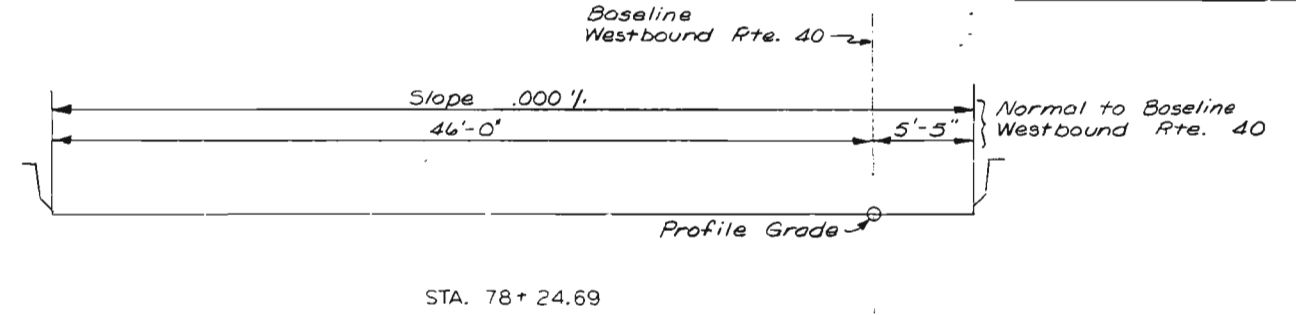
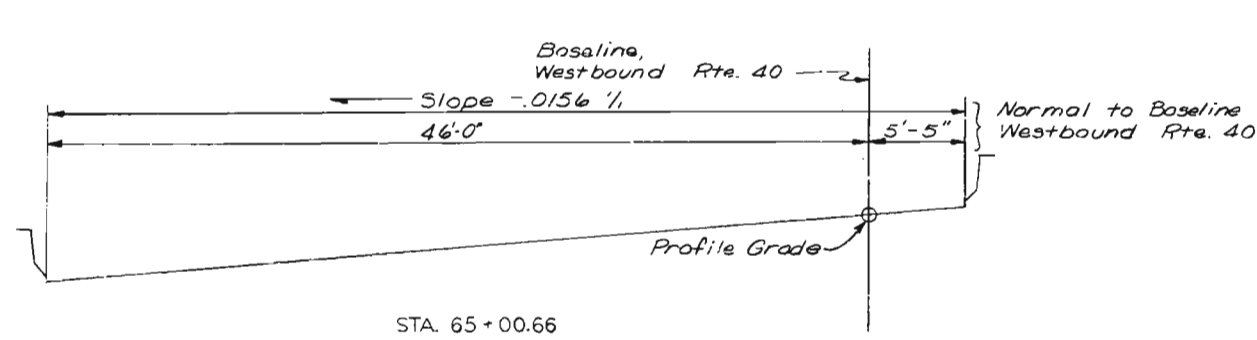
OVERHUNG & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: M.O. Erling July, 1977
CHECKED BY: R.L. Butterfield, Aug. 1977
5261
775293

209

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	78	



CITY OF ST. LOUIS

ROADWAY CROSS SLOPES

SHEET 14 OF 93

A-3594

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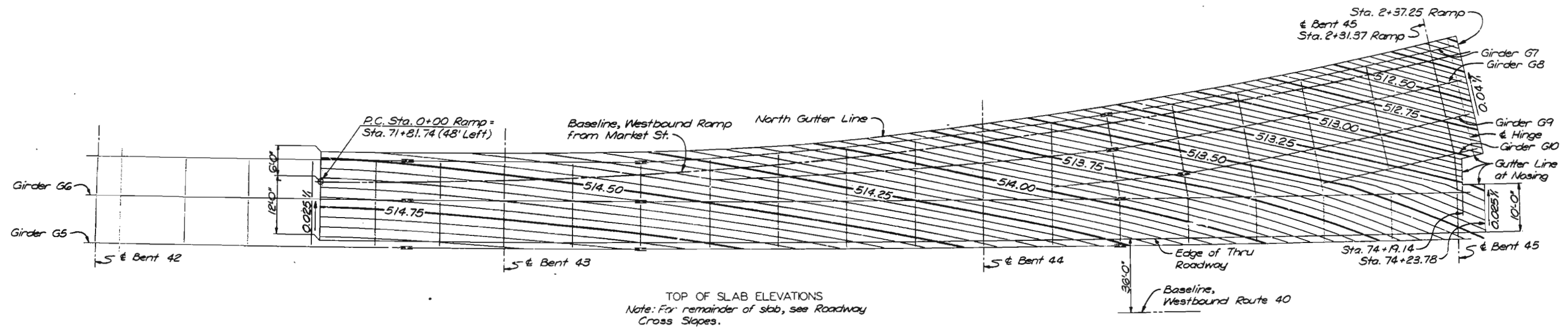
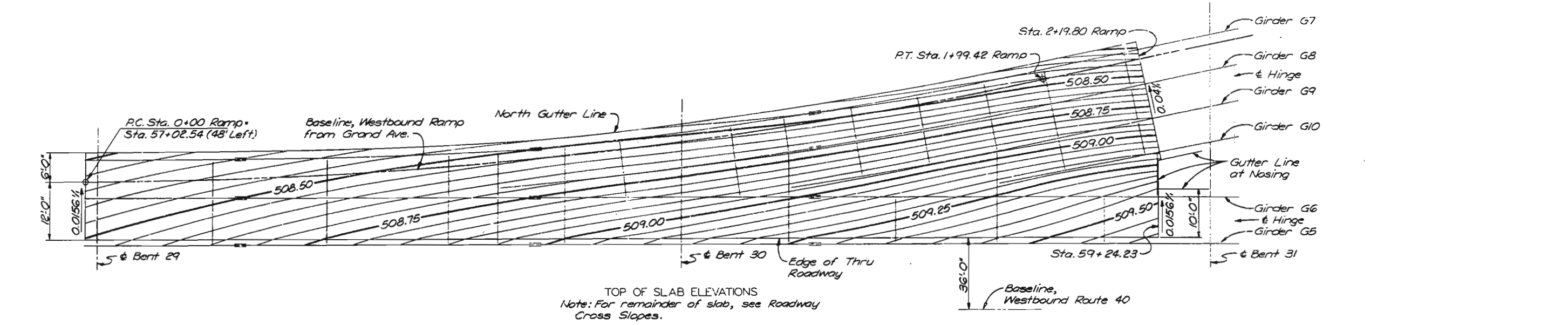
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: M.O. Fleming July 1977
CHECKED BY: R.V. Butlerfield Aug. 1977
5261
775292

210

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	79	



CITY OF ST. LOUIS

TOP OF SLAB ELEVATIONS AT RAMPS

SHEET 15 OF 93

A-3594

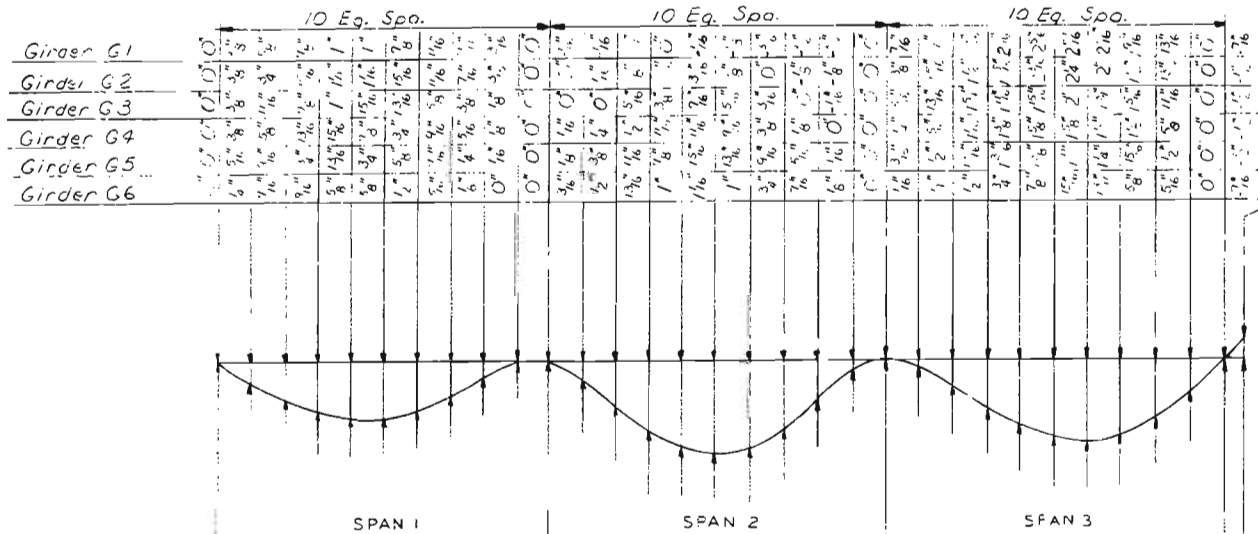
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OVERGRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

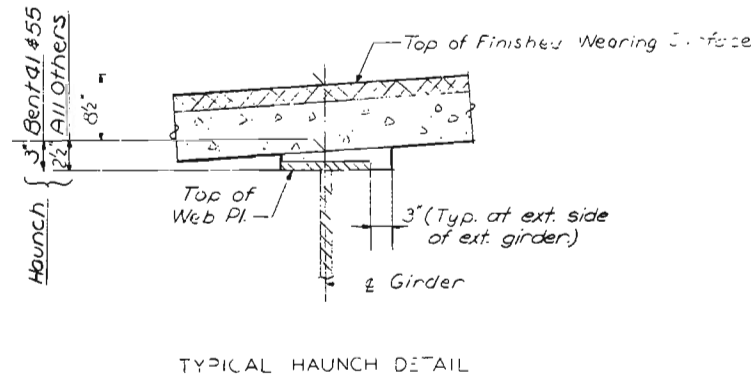
DRAWN BY: T. Sanders, Dec 97
CHECKED BY: R. V. B. W. H. L. 12/97
5261
773360

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	EC	

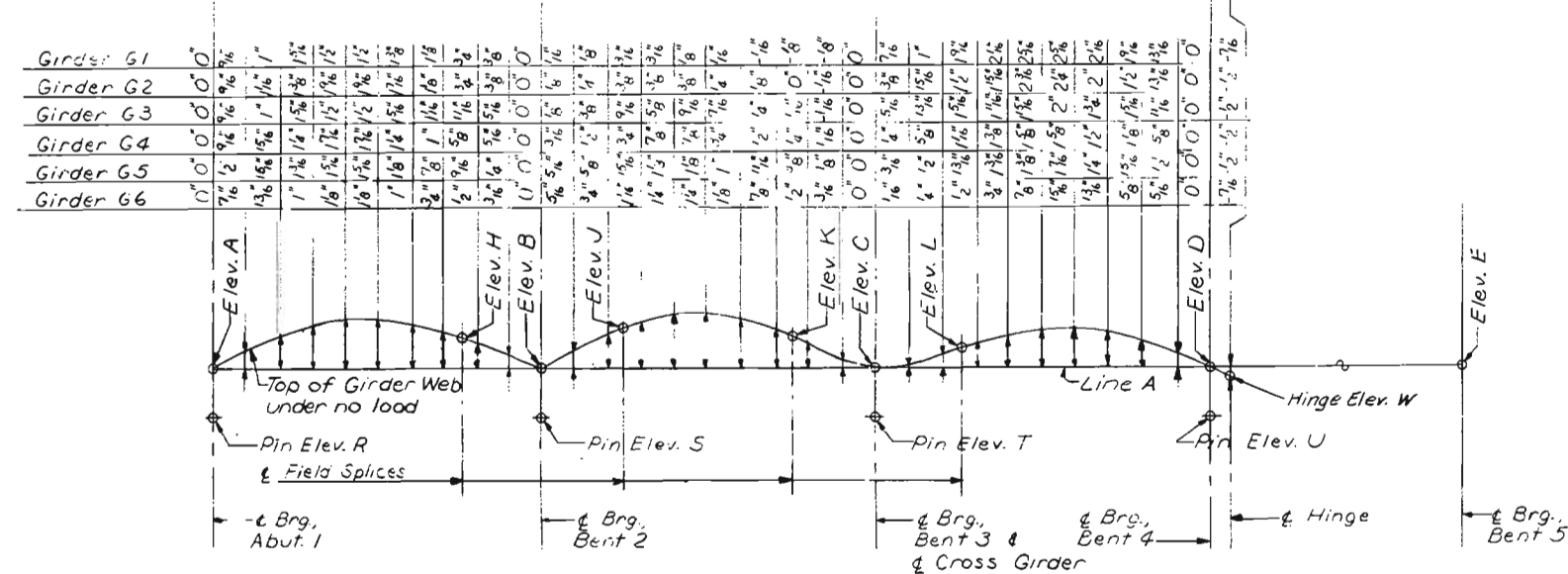


DEAD LOAD DEFLECTION DIAGRAM
Note: Negative values indicate upward deflections.



DEAD LOAD DEFLECTION AND CAMBER NOTES

Spacing of dead load deflection and camber ordinates is measured along $\frac{1}{2}$ girder.
Camber shown includes allowance for vertical curves, superelevation transition and full dead load deflection, excluding future wearing surface. The percentage of dead load deflection due to weight of structural steel only is as shown in table below.
Haunch dimension shown in Typical Haunch Detail is for cambered portions of girders. This dimension may vary if the girder camber after erection differs from the plan camber by more than the percentage of dead load deflection due to the weight of structural steel only.
For non-cambered portions of girders at Bents 9, 10, 41, 42 and 55 the haunch shall be varied, using the haunch shown in Typical Haunch Detail as a minimum, to arrive at top of slab elevations conforming to profile grade and cross slopes.
The concrete quantity computed for the haunches is included in the estimated quantities for Class B1 Concrete. No payment will be made for additional variations in haunching.



CAMBER DIAGRAM
(Girders as fabricated and erected)
Note: Elevations shown do not include D.L. deflection of Longitudinal Girders.
Elevations shown do include D.L. deflection of Cross Girder at Bent 3.
Line A is a straight line between $\frac{1}{2}$ Brg. Stiffeners at top of web plate.

STEEL ONLY DEAD LOAD DEFLECTION PERCENTAGE											
Span	Girder	%	Span	Girder	%	Span	Girder	%	Span	Girder	%
1	G1 & G6	15	18	G2-G5	15	30	G8	16	41	G7	17
1	G2-G5	13	19	G1 & G6	17	30	G9 & G10	17	42	G1	15
2	G1 & G6	15	19	G2-G5	16	31	G1 & G6	16	42	G2-G5	13
2	G2-G5	13	20	G1 & G6	17	31	G2-G5	14	42	G6	14
3	G1	21	20	G2-G5	15	31	G7	17	42	G7	16
3	G2	18	21	G1 & G6	17	31	G8 & G9	15	43	G1 & G6	15
3	G3 & G6	17	21	G2-G5	15	31	G10	16	43	G2-G5	13
3	G4	16	22	G1 & G6	17	32	G1 & G6	16	43	G7	17
3	G5	15	22	G2-G5	15	32	G2-G5	14	43	G8	18
4	G1 & G6	14	23	G1 & G6	17	32	G7	17	44	G1	15
4	G2-G5	13	23	G2-G5	15	32	G8 & G9	15	44	G2-G5	13
5	G1 & G6	15	24	G1	17	32	G10	16	44	G6 & G7	17
5	G2-G5	13	24	G2-G5	15	33	G1 & G6	16	44	G8	20
6	G1 & G6	15	24	G5	18	33	G2-G5	14	44	G9 & G10	19
6	G2-G5	13	24	G6	23	34	G1 & G6	16	45	G1 & G6	15
7	G1 & G6	14	24	G7	21	34	G2-G5	14	45	G2-G5	13
7	G2-G5	13	25	G1	16	35	G1 & G6	16	46	G1 & G6	13
8	G1 & G6	15	25	G2-G5	14	35	G2-G5	14	46	G2-G5	12
8	G2-G5	13	25	G5	15	36	G1 & G7	16	47	G1 & G6	14
9	G1 & G6	15	25	G6	17	36	G2-G5	14	47	G2-G5	12
9	G2-G5	13	25	G7	18	37	G1 & G5	16	48	G1 & G6	14
10	G1 & G6	15	26	G1	16	37	G2-G5	14	48	G2-G5	12
10	G2-G5	13	26	G2-G5	14	37	G6	17	49	G1 & G6	13
11	G1 & G6	15	26	G6	15	37	G7	19	49	G2-G5	12
11	G2-G5	13	26	G7	17	38	G1 & G6	16	50	G1 & G6	13
12	G1 & G6	16	27	G1	17	38	G2-G5	14	50	G2-G5	12
12	G2-G5	14	27	G2-G5	15	38	G7	17	51	G1 & G6	14
13	G1 & G6	16	27	G6	16	39	G1	16	51	G2-G5	12
13	G2-G5	14	27	G7	18	39	G2-G5	14	52	G1 & G6	13
14	G1 & G6	16	28	G1	17	39	G6	15	52	G2-G5	12
14	G2-G5	14	28	G2-G6	15	39	G7	17	53	G1 & G6	14
15	G1 & G6	16	28	G7	18	40	G1	16	53	G2-G5	12
15	G2-G5	14	29	G1 & G7	17	40	G2-G5	14	54	G1 & G6	15
16	G1 & G6	17	29	G2-G6	14	40	G6	15	54	G2-G5	13
16	G2-G5	16	29	G8	20	40	G7	17	55	G1 & G6	15
17	G1 & G6	17	30	G1	17	41	G1	16	55	G2-G5	13
17	G2-G5	15	30	G2-G6	15	41	G2-G5	14	56	G1 & G6	14
18	G1 & G6	17	30	G7	18	41	G6	15	56	G2-G5	12

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 1 THRU 3

SHEET 16 OF 93

A-3594

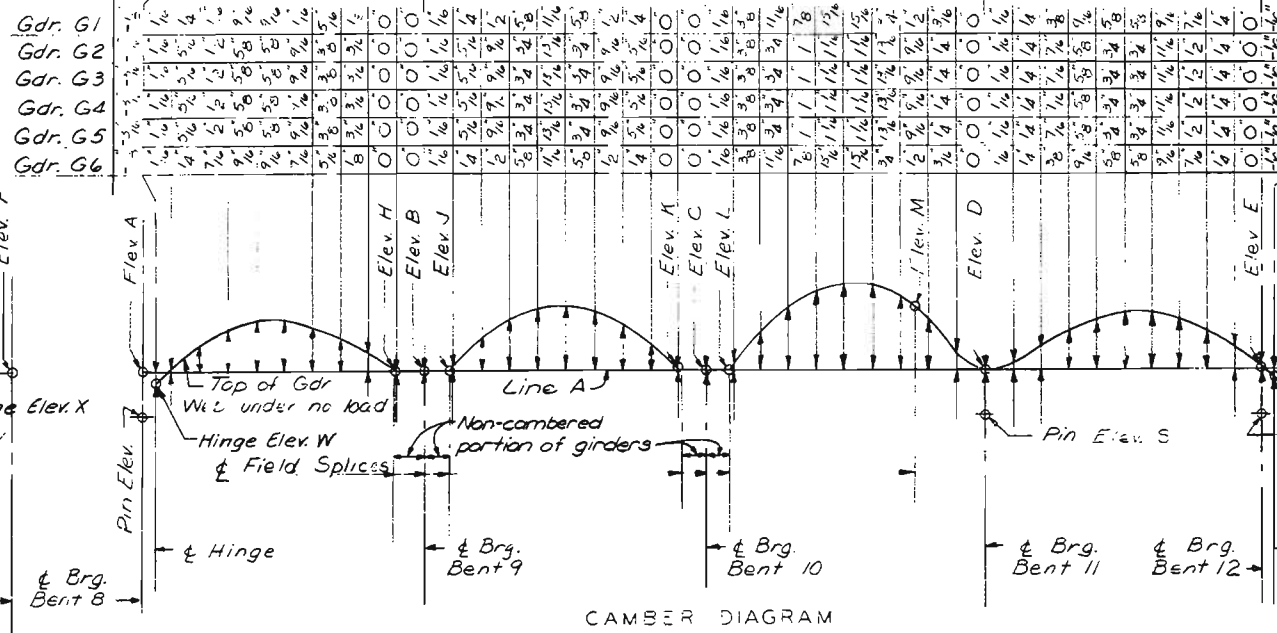
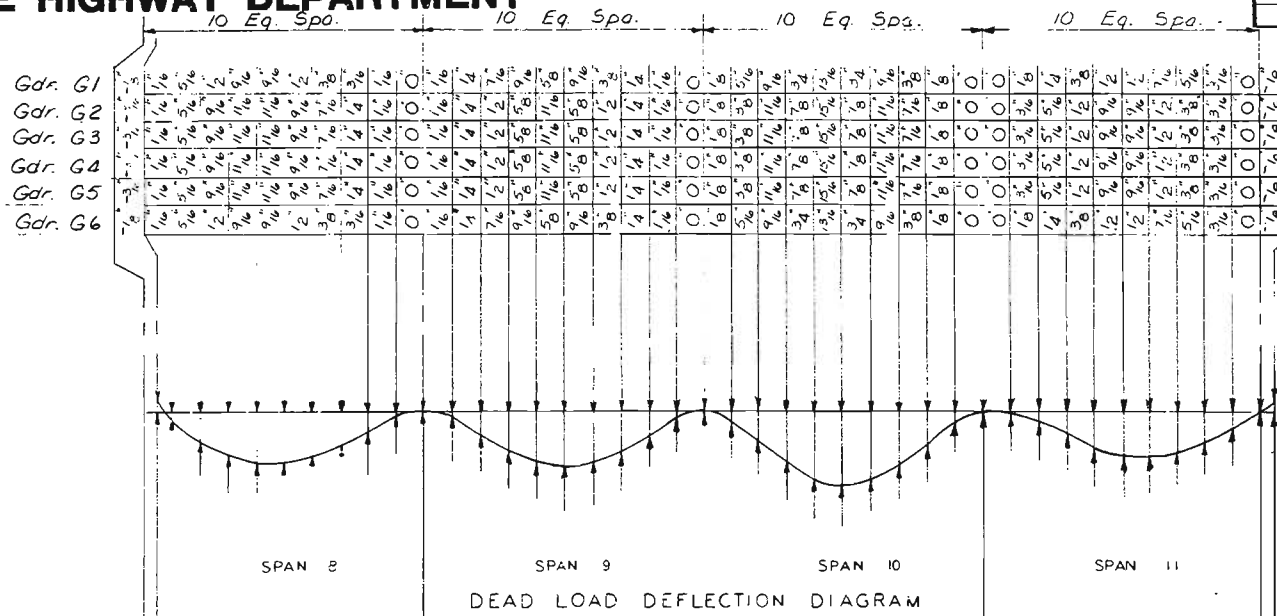
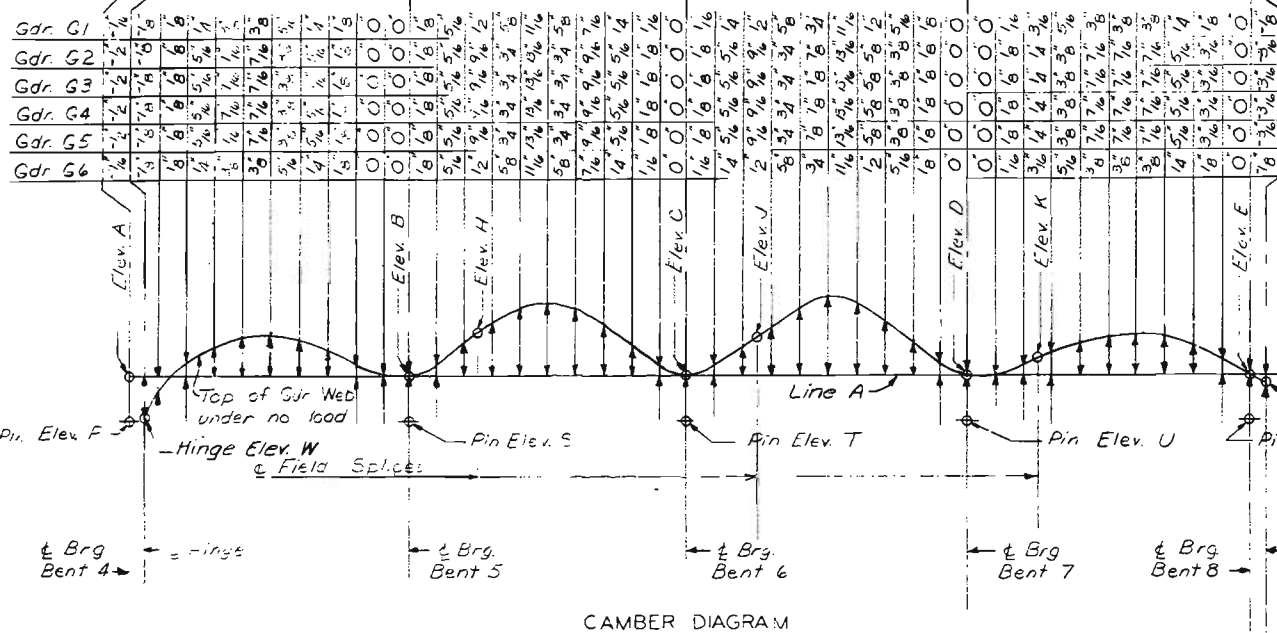
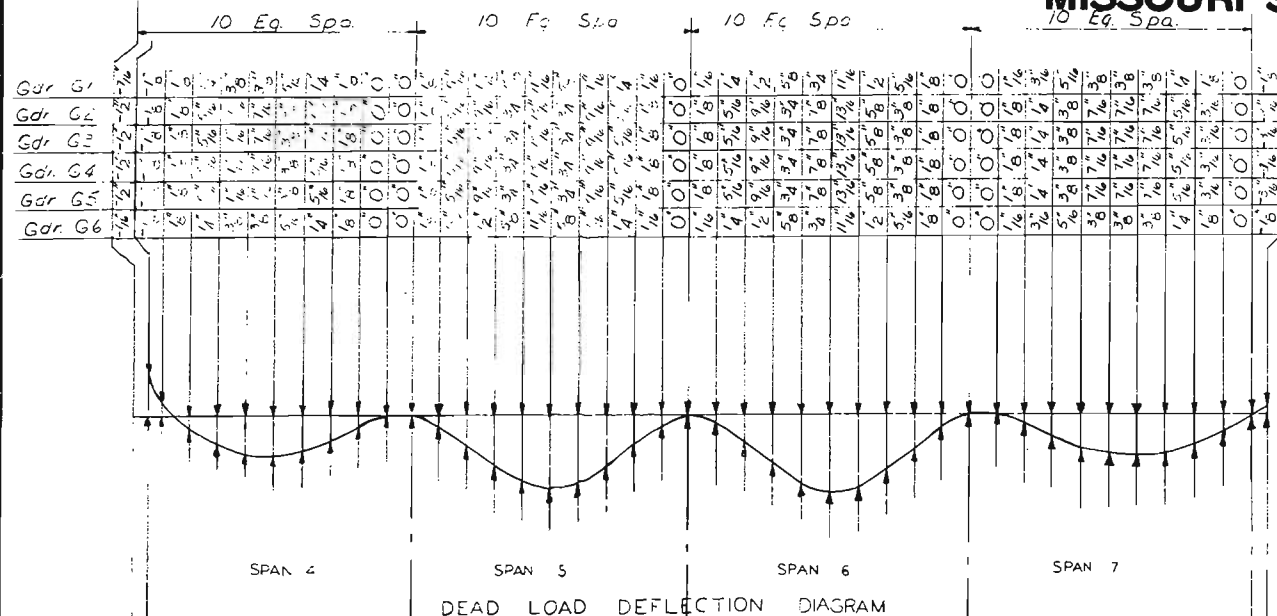
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

DRAWN BY: E. Gregory, June 1977
CHECKED BY: T. Sanders, Sept 1977
3261
775225

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	30A	



TOP OF GIRDER WEB ELEVATIONS														PIN ELEVATIONS				HINGE	
Girder	Elev. A	Elev. B	Elev. C	Elev. D	Elev. E	Elev. F	Elev. G	Elev. H	Elev. I	Elev. J	Elev. K	Elev. L	Elev. M	Elev. N	Elev. O	Elev. P	Elev. Q	Elev. R	Elev. S
G1	515.987	515.317	514.489	513.662	513.027	512.332	511.645	510.958	510.271	511.516	511.748	511.056	510.219	509.402	508.777	515.916	512.981		
G2	516.138	515.467	514.640	513.813	513.178	512.482	511.795	511.108	510.421	511.666	511.899	511.207	510.369	509.553	508.928	515.061	513.127		
G3	516.181	515.510	514.683	513.856	513.220	512.525	511.838	511.151	510.464	511.709	511.942	511.243	510.412	509.596	508.970	516.104	513.170		
G4	516.030	515.359	514.532	513.705	513.070	512.375	511.688	511.001	510.314	511.559	511.791	511.099	510.261	509.445	508.820	515.953	513.019		
G5	515.819	515.209	514.382	513.555	512.919	512.224	511.537	510.850	510.163	511.408	511.640	510.943	510.111	509.294	508.669	515.803	512.868		
G6	515.729	515.058	514.231	513.404	512.768	512.073	511.386	510.699	510.012	511.257	511.489	510.797	509.960	509.143	508.518	515.657	512.722		

TOP OF GIRDER WEB ELEVATIONS														PIN ELEVATIONS				HINGE	
Girder	Elev. A	Elev. B	Elev. C	Elev. D	Elev. E	Elev. F	Elev. G	Elev. H	Elev. I	Elev. J	Elev. K	Elev. L	Elev. M	Elev. N	Elev. O	Elev. P	Elev. Q	Elev. R	Elev. S
G1	513.027	512.332	511.448	510.561	509.407	507.901	512.461	512.267	511.534	511.372	510.508	508.777	504.131	504.168	512.981	509.328			
G2	513.178	512.482	511.599	510.532	509.538	508.052	512.511	512.419	511.685	511.524	510.508	508.927	506.282	504.318	513.127	509.499			
G3	513.220	512.525	511.642	510.575	509.601	508.095	512.602	512.461	511.728	511.567	510.851	508.970	506.325	504.361	513.170	509.541			
G4	513.070	512.375	511.491	510.424	509.430	507.944	512.451	512.311	511.577	511.417	510.700	508.820	506.174	504.210	513.019	509.391			
G5	512.919	512.224	511.340	510.273	509.299	507.793	512.300	512.160	511.426	511.266	510.549	508.669	506.023	504.060	512.868	509.240			
G6	512.768	512.073	511.189	510.122	509.148	507.643	512.148	512.008	511.275	511.113	510.393	508.518	505.872	503.909	512.722	509.089			

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.

Girders shown on Camber Diagrams as fabricated and erected.

Elevations shown on Camber Diagrams do not include D.L. Deflection of Longitudinal Girders.

Elevations shown on Camber Diagrams do include D.L. Deflection of Cross Girders at Bents 9 and 10.

For Dead Load Deflection and Camber Notes and Typical Haurich Detail, see Sheet 16.

Line A is a straight line between ± Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 4 THRU 11

SHEET 17 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

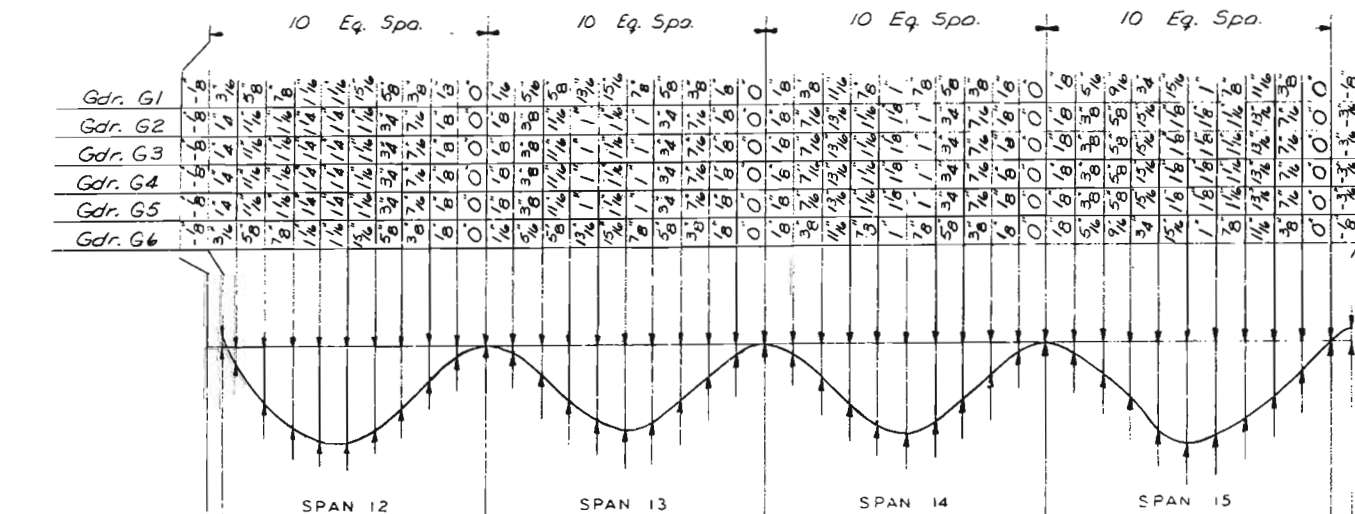
SVENDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: M. O. Etling, June 77
CHECKED BY: T. Sanders, Sept. 1977
5261
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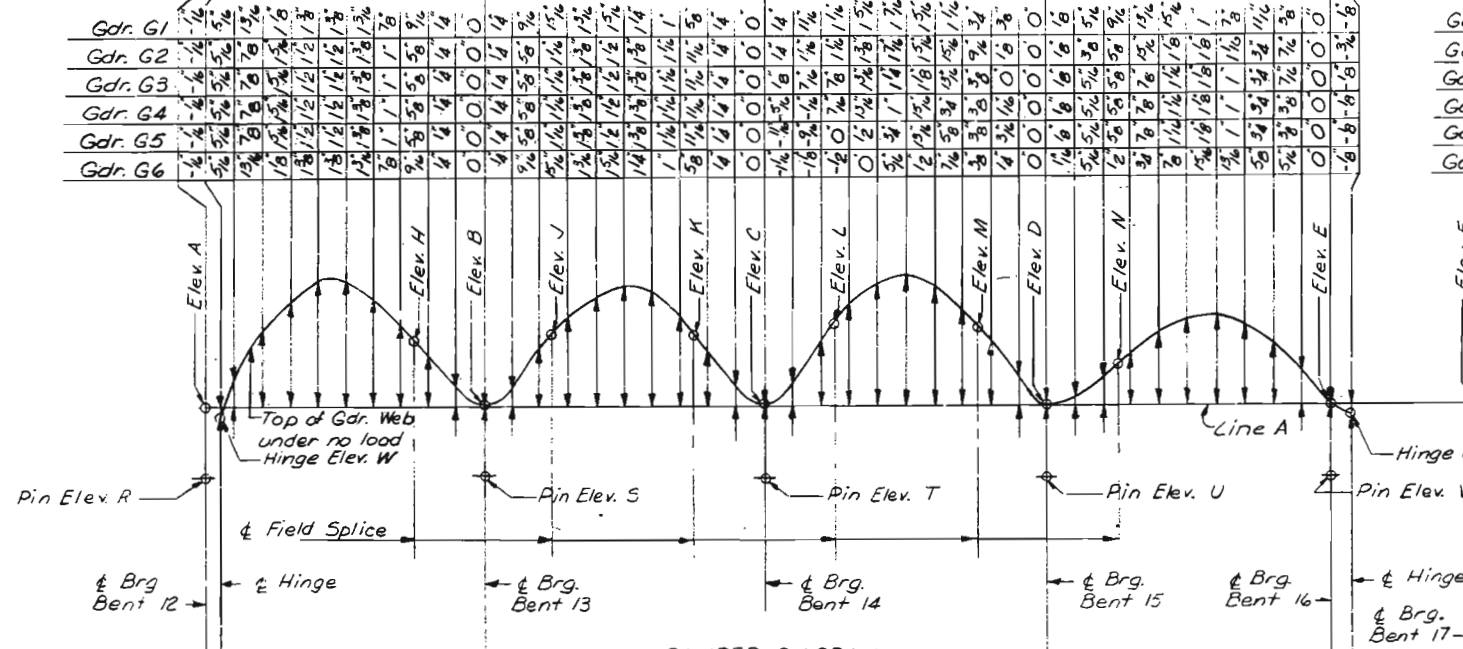
213

MISSOURI STATE HIGHWAY DEPARTMENT

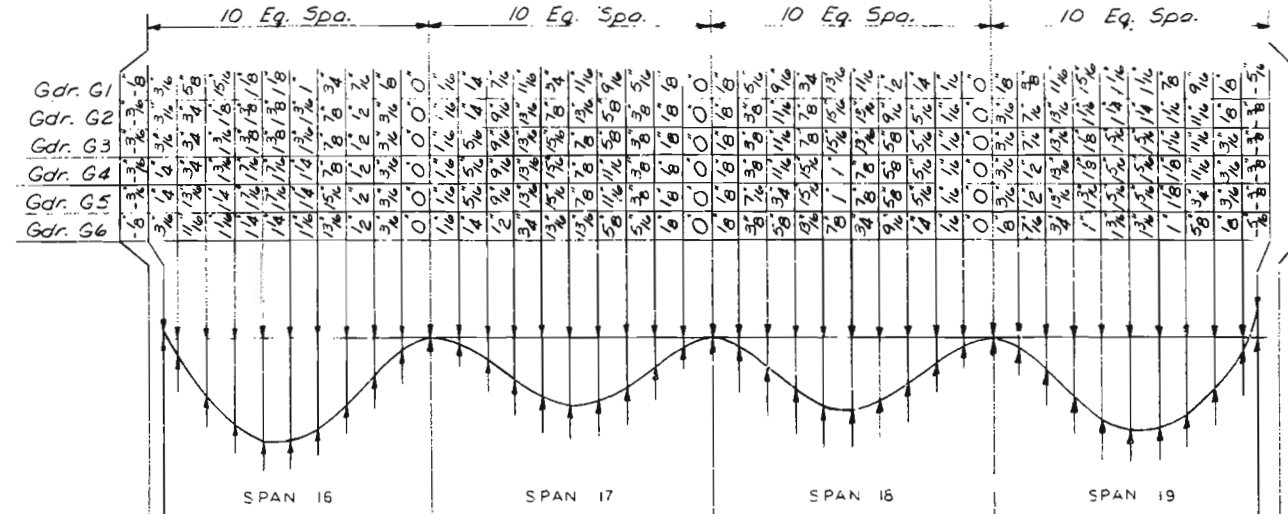
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	81	



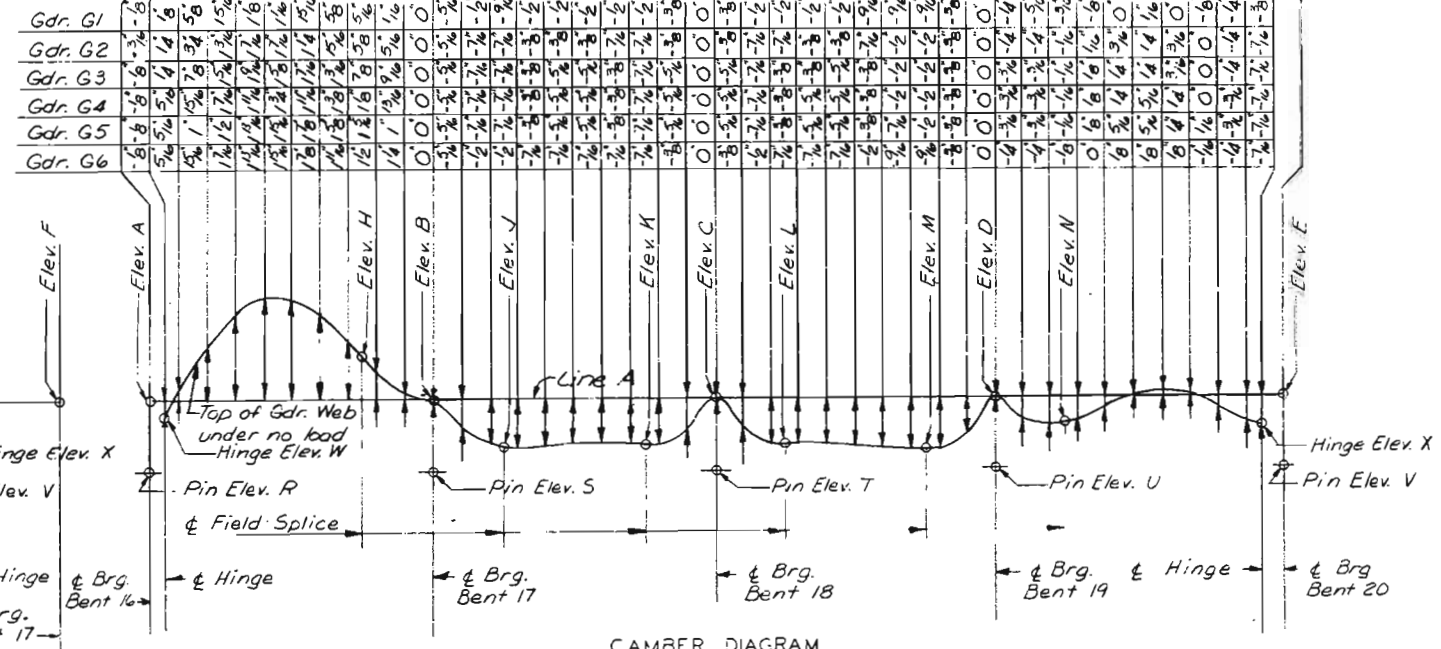
DEAD LOAD DEFLECTION DIAGRAM



CAMBER DIAGRAM



DEAD LOAD DEFLECTION DIAGRAM



CAMBER DIAGRAM

TOP OF GIRDER WEB ELEVATIONS																
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. R	ELEV. S	ELEV. T	ELEV. U
G1	504.407	507.901	505.933	503.692	501.618	499.470	508.323	507.469	506.496	505.441	504.333	503.208	504.168	502.630	500.672	498.421
G2	509.558	508.052	506.083	503.868	502.003	500.050	508.479	507.624	506.654	505.599	504.491	503.444	504.313	502.781	500.823	498.597
G3	509.601	508.095	506.126	504.044	502.389	500.630	508.522	507.669	506.697	505.657	504.620	503.672	504.361	502.824	500.866	498.773
G4	509.450	507.944	505.975	504.220	502.774	501.210	508.371	507.519	506.546	505.550	504.711	503.901	504.210	502.673	500.715	498.949
G5	509.299	507.793	505.825	504.396	503.160	501.790	508.220	507.368	506.396	505.445	504.802	503.729	504.060	502.522	500.564	498.725
G6	509.148	507.643	505.674	504.572	503.545	502.370	509.064	507.210	506.237	505.330	504.886	504.350	503.909	502.372	500.413	498.302

TOP OF GIRDER WEB ELEVATIONS																
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V
G1	501.618	499.470	497.514	496.412	496.161	500.024	498.937	497.959	497.195	496.639	496.331	496.378	494.178	492.243	491.121	490.921
G2	502.003	500.050	498.094	496.992	496.741	500.583	499.522	498.547	497.783	497.224	496.911	496.754	494.758	492.823	491.701	491.491
G3	502.389	500.630	498.674	497.572	497.321	501.135	500.103	499.128	498.363	497.805	497.498	497.128	495.338	493.403	492.281	492.071
G4	502.774	501.210	499.254	498.152	497.901	501.686	500.684	499.710	498.945	498.386	498.080	497.514	495.918	493.983	492.861	492.661
G5	503.160	501.790	499.834	498.732	498.481	502.245	501.265	500.288	499.526	498.967	498.660	497.910	496.498	494.563	493.441	493.241
G6	503.545	502.370	500.414	499.312	499.061	502.783	501.840	500.864	500.099	499.542	499.231	498.306	497.078	495.143	494.021	493.821

PIN ELEVATIONS																
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V
G1	501.618	499.470	497.514	496.412	496.161	500.024	498.937	497.959	497.195	496.639	496.331	496.378	494.178	492.243	491.121	490.921
G2	502.003	500.050	498.094	496.992	496.741	500.583	499.522	498.547	497.783	497.224	496.911	496.754	494.758	492.823	491.701	491.491
G3	502.389	500.630	498.674	497.572	497.321	501.135	500.103	499.128	498.363	497.805	497.498	497.128	495.338	493.403	492.281	492.071
G4	502.774	501.210	499.254	498.152	497.901	501.686	500.684	499.710	498.945	498.386	498.080	497.514	495.918	493.983	492.861	492.661
G5	503.160	501.790	499.834	498.732	498.481	502.245	501.265	500.288	499.526	498.967	498.660	497.910	496.498	494.563	493.441	493.241
G6	503.545	502.370	500.414	499.312	499.061	502.783	501.840	500.864	500.099	499.542	499.231	498.306	497.078	495.143	494.021	493.821

HINGE																
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V
G1	501.618	499.470	497.514	496.412	496.161	500.024	498.937	497.959	497.195	496.639	496.331	496.378	494.178	492.243	491.121	490.921
G2	502.003	500.050	498.094	496.992	496.741	500.583	499.522	498.547	497.783	497.224	496.911	496.754	494.758	492.823	491.701	491.491
G3	502.389	500.630	498.674	497.572	497.321	501.135	500.103	499.128	498.363	497.805	497.498	497.128	495.338	493.403	492.281	492.071
G4	502.774	501.210	499.254	498.152	497.901	501.686	500.684	499.710	498.945	498.386	498.080	497.514	495.918	493.983	492.861	492.661
G5	503.160	501.790	499.834	498.732	498.481	502.245	501.265	500.288	499.526	498.967	498.660	497.910	496.498	494.563	493.441	493.241
G6	503.545	502.370	500.414	499.312	499.061	502.783	501.840	500.864	500.099	499.542	499.231	498.306	497.078	495.143	494.021	493.821

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.
Girders shown on Camber Diagrams as fabricated and erected.
Elevations shown on Camber Diagrams do not include D.L. Deflection of Longitudinal Girders.
Elevations shown on Camber Diagrams do include D.L. Deflection of Cross Girders at Bents 16-20.
For Dead Load Deflection and Camber Notes and Typical Haunch Detail, See Sheet 16.
Line A is a straight line between & Brg. Stiffeners at top of web plate.

Revised 12-23-81

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 12 THRU 19

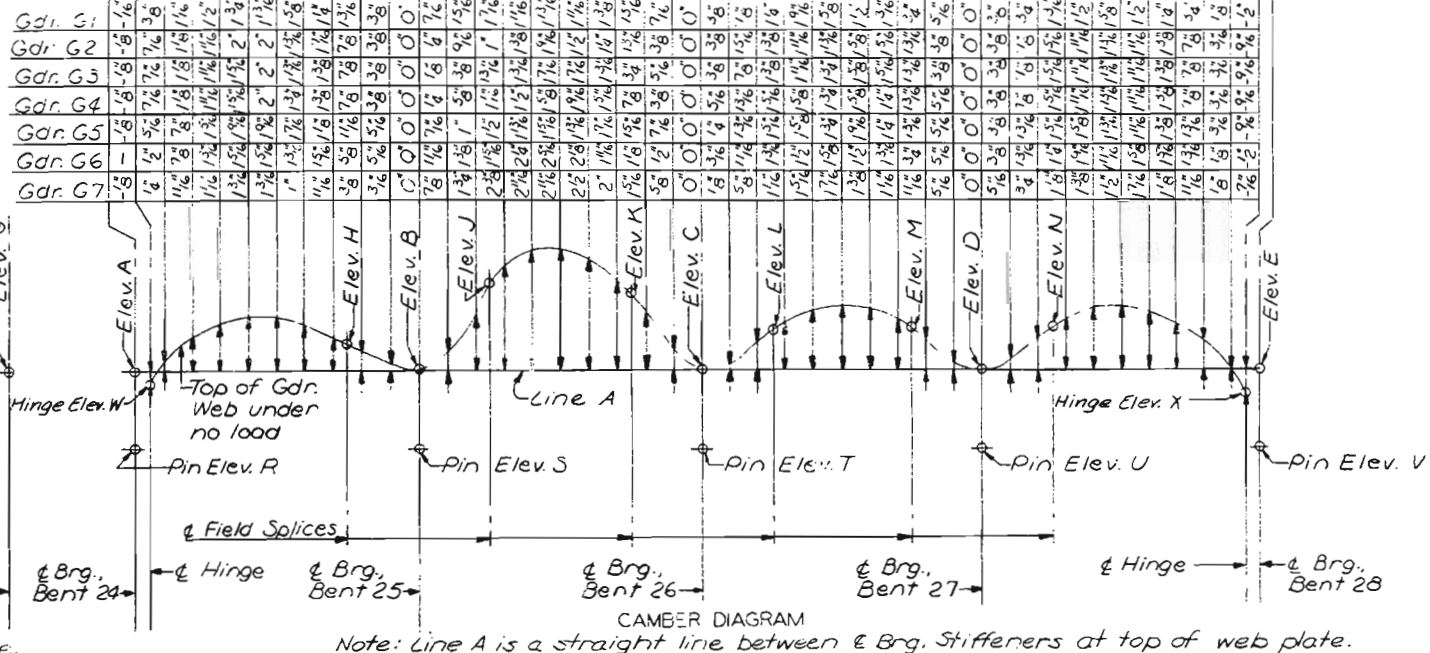
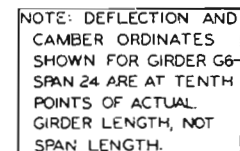
SHEET 18 OF 92

A-3594

DRAWN BY: M.O. Ething, Aug. 1977
CHECKED BY: J. Sanders, Sept. 1977
5261
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OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		19	22	



Spans 20 - 23	TOP OF GIRDER WEB ELEVATIONS														PIN ELEVATIONS					HINGES	
	Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V	ELEV. W	ELEV. X
	G1	496.412	496.161	496.391	497.848	499.860	501.921	503.870	496.467	496.855	497.490	498.316	499.334	500.403	499.921	491.299	492.577	494.569	496.682	496.126	501.999
	G2	496.992	496.741	497.171	498.428	500.440	502.348	504.079	497.050	497.144	498.075	498.900	499.918	500.994	497.491	491.879	493.157	495.149	497.092	496.701	502.411
	G3	497.572	497.321	497.751	499.008	501.020	502.774	504.288	497.632	498.021	498.658	499.481	500.499	501.575	492.071	492.459	493.737	495.729	497.503	497.281	502.829
	G4	498.152	497.901	498.331	499.588	501.600	503.201	504.496	498.212	498.601	499.238	500.062	501.079	502.156	492.661	493.039	494.317	496.309	497.930	497.861	503.247
	G5	498.732	498.481	498.911	500.168	502.180	503.627	504.705	498.799	499.181	499.819	500.642	501.659	502.737	493.241	493.619	494.897	496.889	498.367	498.441	503.665
G6	499.312	499.061	499.491	500.748	502.760	504.054	504.953*	499.369	499.759	500.394	501.218	502.233	513.310	493.821	494.199	495.477	497.469	498.804	499.021	504.083	
Spans 24 - 27	TOP OF GIRDER WEB ELEVATIONS														PIN ELEVATIONS					HINGES	
	Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V	ELEV. W	ELEV. X		
	G1	501.921	503.870	505.491	506.384	507.182	503.480	504.375	505.179	505.849	506.391	506.798	496.682	498.922	500.554	501.636	501.942	501.999	507.115		
	G2	502.348	504.079	505.642	506.735	507.333	503.752	504.529	505.334	506.009	506.548	506.957	497.092	499.131	500.704	501.787	502.093	502.411	507.261		
	G3	502.774	504.288	505.687	506.778	507.376	504.013	504.679	505.414	506.051	506.591	507.000	497.509	499.341	500.799	501.830	502.136	502.829	507.304		
	G4	503.201	504.496	505.542	506.627	507.225	504.274	504.825	505.366	505.901	506.440	506.849	497.930	499.349	500.604	501.679	501.985	503.247	507.153		
	G5	503.627	504.705	505.397	506.477	507.074	504.514	504.975	505.317	505.745	506.287	506.693	498.367	499.757	500.459	501.529	501.834	503.665	507.082		
	G6	503.883**	504.846	505.237	506.326	506.923	504.655	505.084	505.262	505.393	506.132	506.541	—	499.897	500.314	501.378	501.684	—	506.856		
G7	504.054	504.953	505.131	506.201	506.798	504.769	505.170	505.218	505.460	506.002	506.406	498.804	500.005	500.194	501.253	501.559	504.083	506.737			

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.
Girders shown on Camber Diagrams as fabricated and erected.

Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.

Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girders at Bents 19-28.

* Elevation shown is for Girder G7 at Bent 25.

** Elevation A - Girder G6 is at actual end of Girder, not @ Bent 24.

For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 16.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 20 THRU 27

SHEET 19 OF 93

A-3594

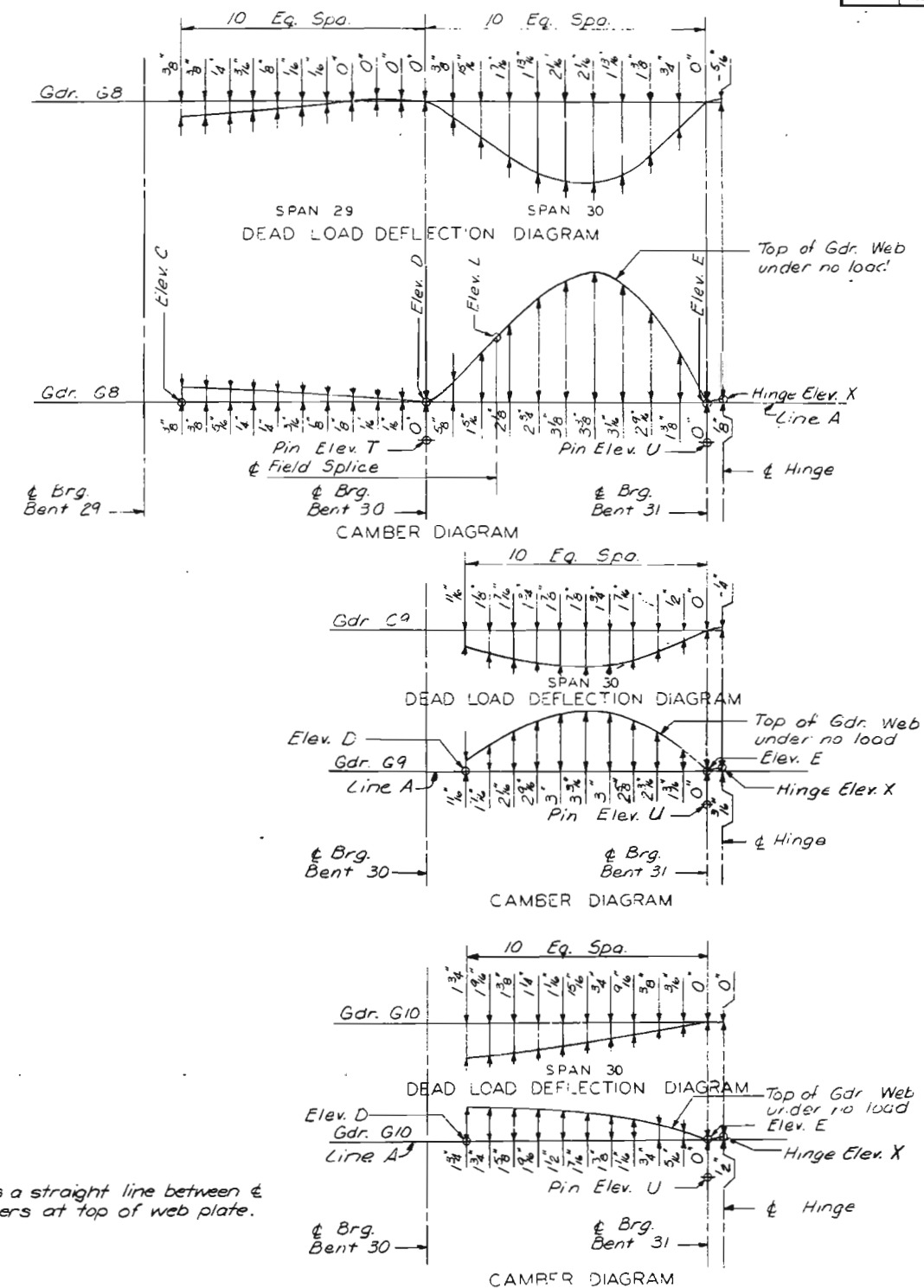
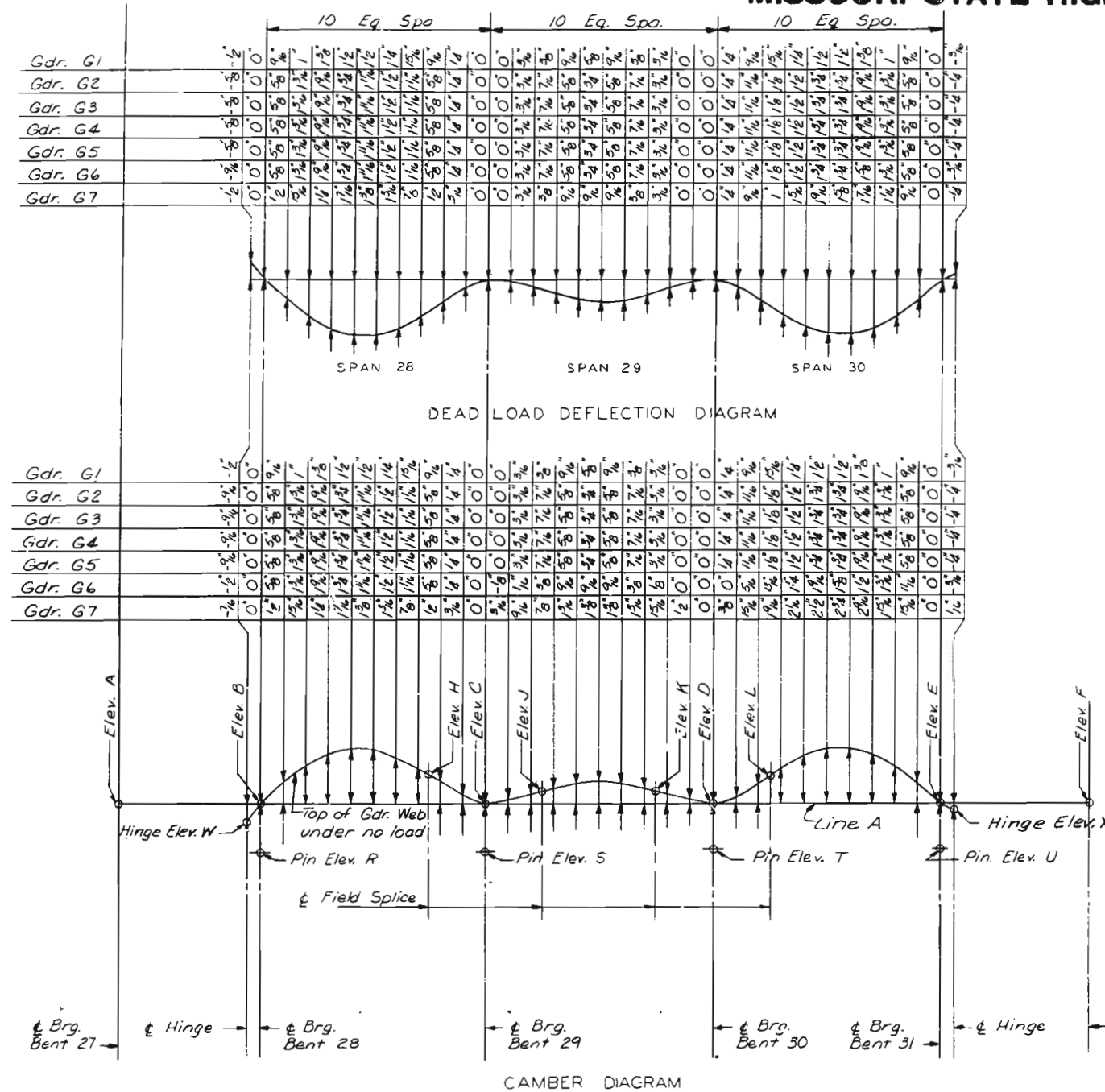
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

775231	5261	DRAWN BY: E. Gregory, July 1977
		TRACED BY:
		CHECKED BY: T. Sanders, Sept. 1977

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	53	



Note: Line A is a straight line between & Brg. Stiffeners at top of web plate.

Girder	TOP OF GIRDER WEB ELEVATIONS										PIN ELEVATIONS				HINGE	
	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. O	ELEV. P
G1	506.584	507.182	507.727	508.332	508.877	509.402	507.652	507.901	508.203	508.532	501.942	502.444	503.031	503.637	507.115	508.886
G2	506.735	507.333	507.878	508.483	509.028	509.553	507.812	508.054	508.358	508.694	502.093	502.594	503.201	503.834	507.261	509.032
G3	506.778	507.376	507.921	508.524	509.077	509.596	507.853	508.097	508.401	508.737	502.136	502.639	503.244	503.877	507.304	509.075
G4	506.627	507.225	507.770	508.375	508.920	509.445	507.704	507.946	508.250	508.586	501.985	502.488	503.093	503.701	507.153	508.924
G5	506.477	507.074	507.619	508.224	508.769	509.294	507.555	507.795	508.100	508.435	501.834	502.338	502.943	503.550	507.002	508.773
G6	506.326	506.923	507.468	508.073	508.618	509.143	507.404	507.644	507.949	508.284	501.684	502.187	502.792	503.400	506.854	508.628
G7	506.201	506.798	507.343	507.948	508.553	509.078	507.339	507.579	507.884	508.219	501.559	502.062	502.667	503.275	506.737	508.511
G8	---	---	507.753	507.778	507.559	505.837	---	---	---	507.864	---	---	502.523	502.159	---	507.215
G9	---	---	---	---	---	506.049	---	---	---	---	---	---	---	502.276	---	507.492
G10	---	---	---	508.258	508.141	506.264	---	---	---	---	---	---	---	502.406	---	507.820

NOTES
 Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.
 Girders shown on Camber Diagrams as fabricated and erected.
 Elevations shown on Camber Diagrams do not include D.L. Deflection of Longitudinal Girders.
 Elevations shown on Camber Diagrams do include D.L. Deflection of Cross Girders at Bents 27-32.
 For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 16.

DEAD LOAD DEFLECTION AND CAMBER
 SPANS 28 THRU 30

SHEET 20 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Revised 12-23-81

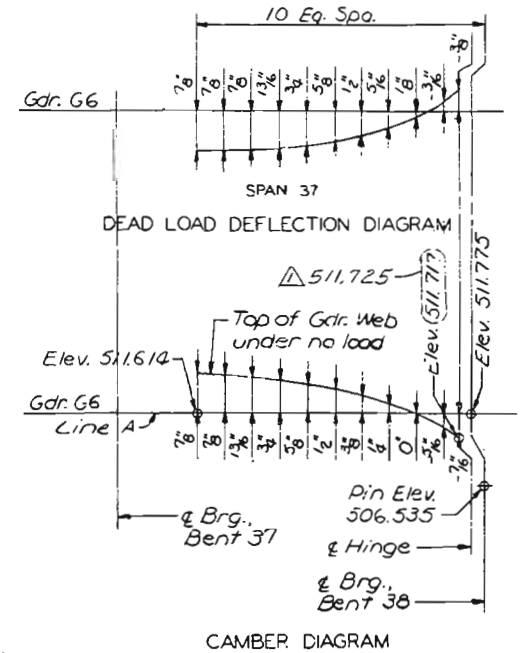
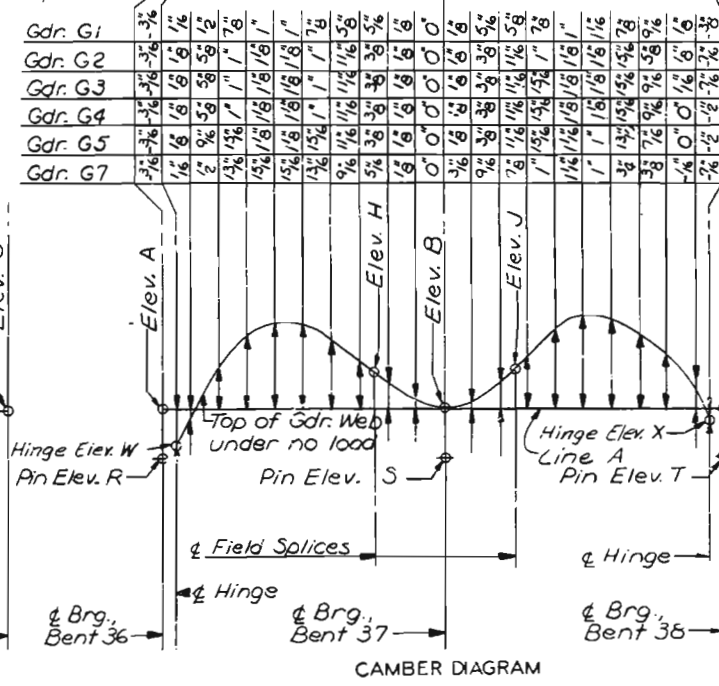
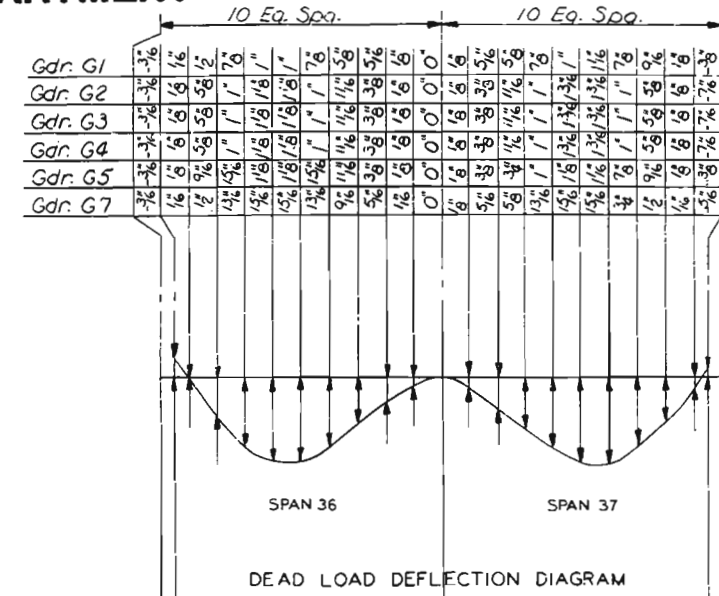
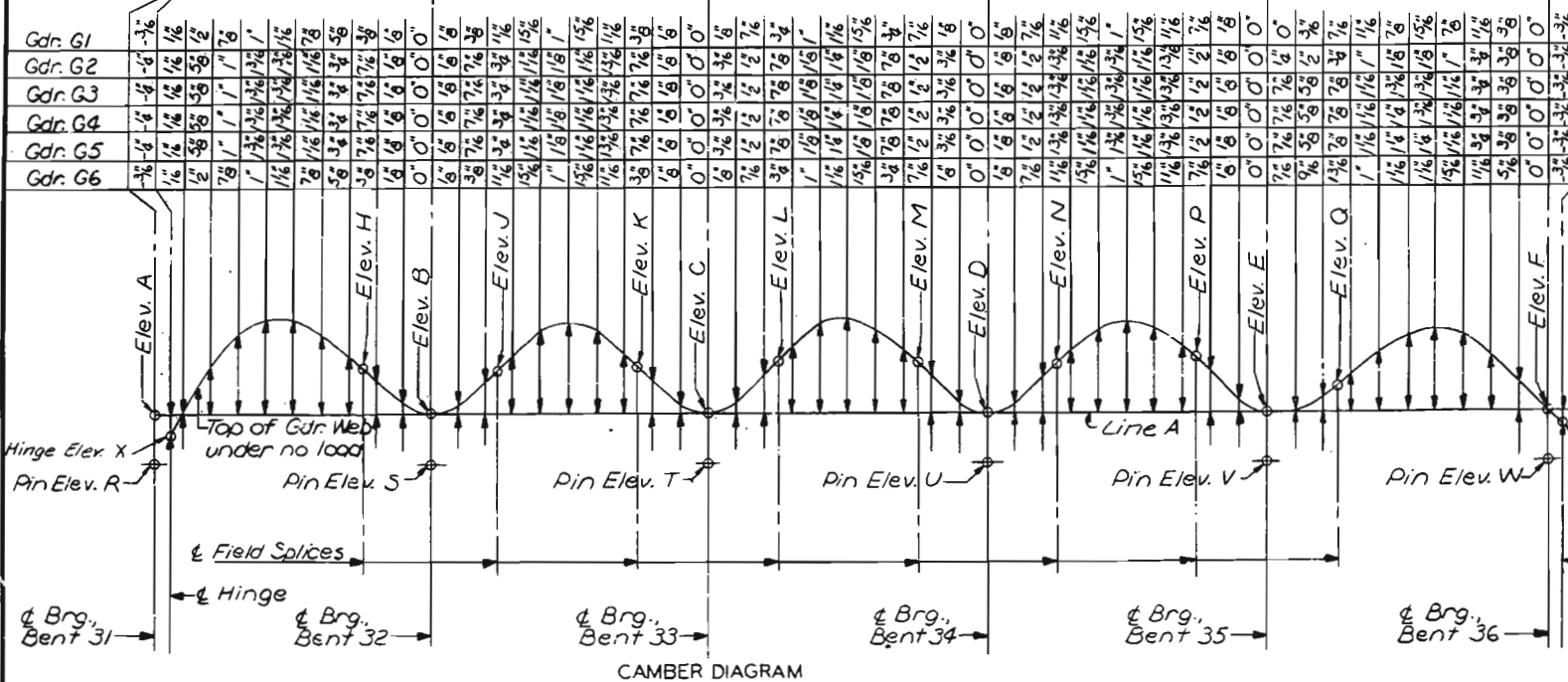
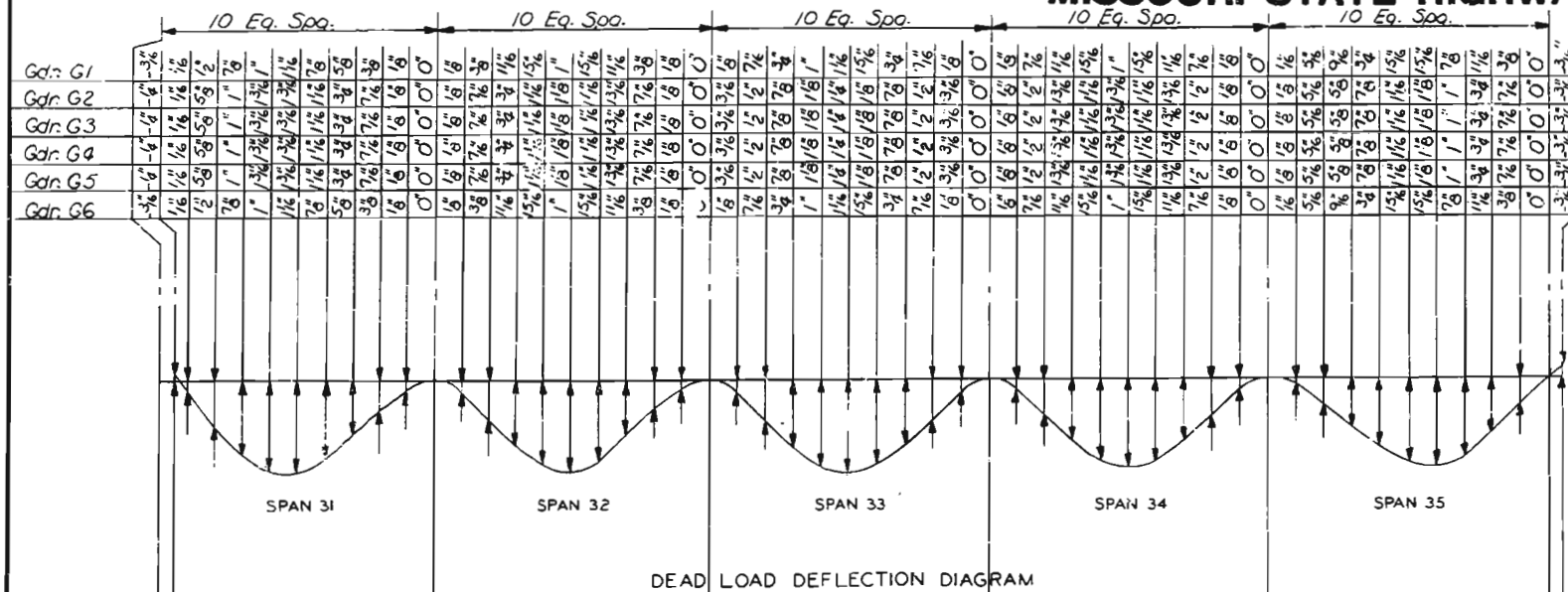
SVENDRUP & PARCEL AND ASSOCIATES, Inc.
 ENGINEERS - ARCHITECTS
 ST. LOUIS, MISSOURI

5261
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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.		18	34	



NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.

Girders shown on Camber Diagrams as fabricated and erected.

Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.

Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girders at Bents 31-38.

For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 16.

Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 31 THRU 37

SHEET 21 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Revised 12-23-81

Girder	TOP OF GIRDER WEB ELEVATIONS															PIN ELEVATIONS						HINGES	
	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. P	ELEV. Q	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V	ELEV. W	ELEV. X	ELEV. Y
G1	508.877	509.402	510.007	510.612	511.217	511.638	512.382	509.316	509.597	509.902	510.206	510.509	510.808	511.112	511.400	503.637	503.891	504.736	505.341	505.946	506.594	508.886	511.848
G2	509.028	509.553	510.158	510.763	511.368	511.686	512.183	509.472	509.753	510.059	510.364	510.667	510.965	511.271	511.499	503.434	503.897	504.887	505.492	506.097	506.447	509.032	511.694
G3	509.071	509.596	510.201	510.806	511.411	511.534	511.985	509.516	509.796	510.102	510.407	510.710	511.008	511.314	511.504	503.227	503.893	504.930	505.535	506.140	506.295	509.075	511.540
G4	508.920	509.445	510.050	510.655	511.260	511.333	511.787	509.365	509.645	509.951	510.256	510.559	510.857	511.163	511.353	503.013	503.882	504.779	505.384	505.989	506.138	508.924	511.386
G5	508.769	509.294	509.899	510.504	511.109	511.231	511.588	509.215	509.494	509.801	510.106	510.408	510.707	511.012	511.203	502.810	503.877	504.628	505.233	505.838	505.984	508.773	511.232
G6	508.618	509.143	509.748	510.353	510.958	511.079	511.390	509.057	509.338	509.643	509.947	510.250	510.549	510.854	511.046	502.619	503.872	504.477	505.082	505.687	505.839	508.628	511.078

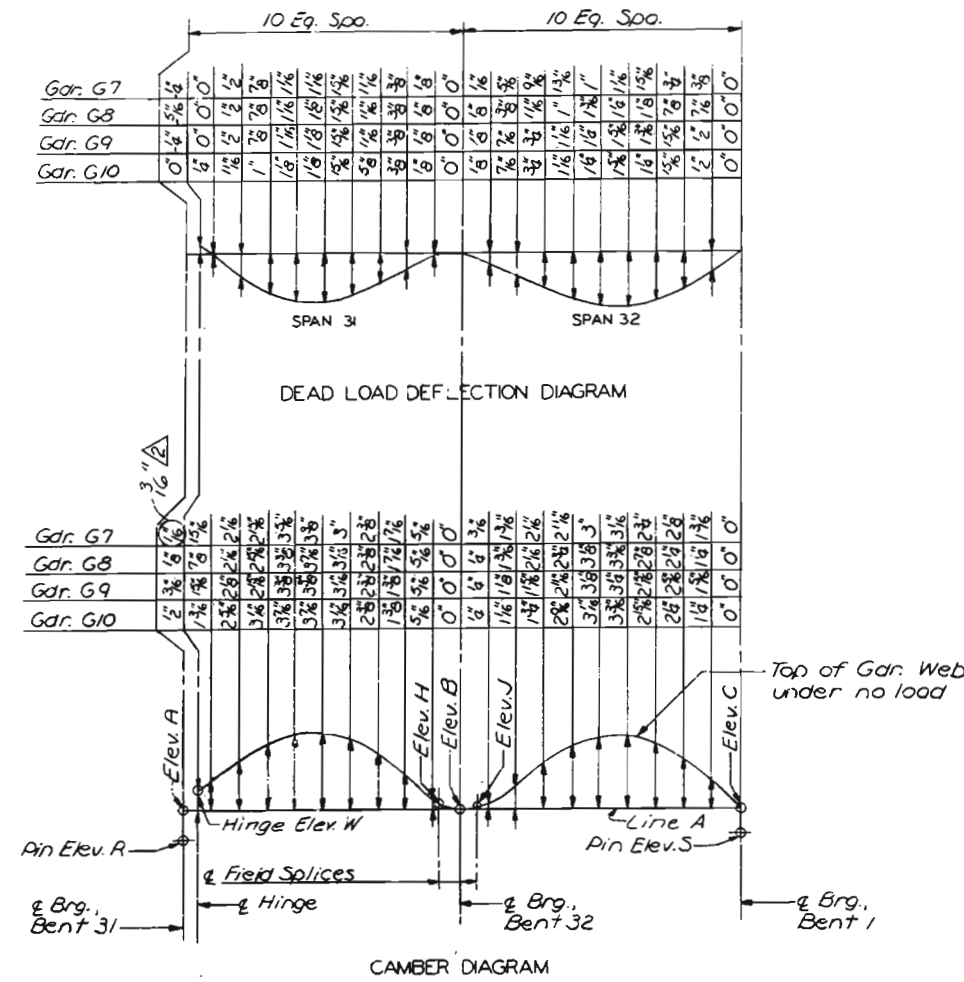
Girder	TOP OF GIRDER WEB ELEVATIONS					PIN ELEVATIONS			HINGES	
	ELEV. A	ELEV. B	ELEV. C	ELEV. H	ELEV. J	ELEV. R	ELEV. S	ELEV. T	ELEV. W	ELEV. X
G1	511.838	512.382	512.924	512.282	512.565	506.594	507.090	507.685	511.898	512.868
G2	511.686	512.183	512.682	512.102	512.361	506.447	506.892	507.443	511.694	512.621
G3	511.534	511.985	512.441	511.916	512.151	506.295	506.693	507.201	511.540	512.379
G4	511.383	511.787	512.199	511.730	511.940	506.138	506.495	506.960	511.386	512.132
G5	511.231	511.588	511.957	511.543	511.730	505.986	506.297	506.718	511.232	511.891
G7	511.079	511.390	511.621	511.350	511.512	505.839	506.098	506.381	511.078	511.565

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5261
75238

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	45	



TOP OF GIRDER WEB ELEVATIONS								PIN ELEVATIONS		HINGE
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. H	ELEV. J	ELEV. R	ELEV. S	ELEV. W		
G7	507.272	505.627	502.435	505.819	505.436	502.054	497.185	507.241	507.215	
G8	507.559	505.837	502.580	506.034	505.641	502.341	497.330	507.529	507.492	
G9	507.849	506.049	502.725	506.252	505.848	502.630	497.475	507.820	507.783	
G10	508.141	506.264	502.870	506.471	506.058	502.922	497.620	508.135	508.093	

502.033
502.159
502.276
502.406

NOTES

Negative values shown on Dead Load Deflection Diagram indicate upward deflections.

Girders shown on Camber Diagram as fabricated and erected.

Elevations shown on Camber Diagram do not include D.L. deflection of Longitudinal Girders.

Elevations shown on Camber Diagram do include D.L. deflection of Cross Girders at Bents 31 & 32.

For Dead Load Deflection and Camber Notes and Typical Erection Detail, see Sheet 16.

Line A is a straight line between E. Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER SPANS 31 AND 32

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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Revised 12-17-81

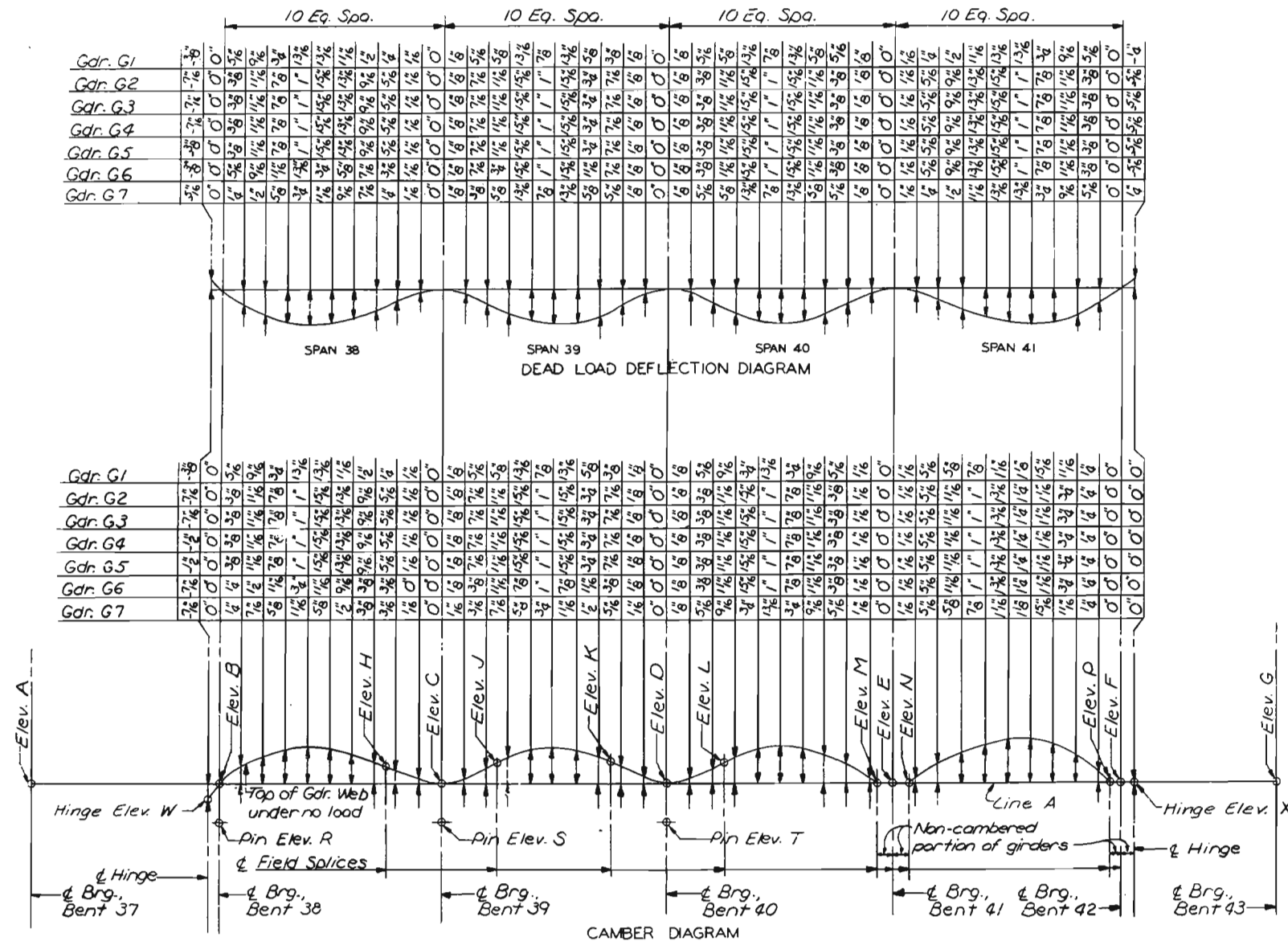
218

DRAWN BY: E. Gregory, Aug. 1977
CHECKED BY: T. Spindler, Sept. 1977
5261
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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	56	



TOP OF GIRDER WEB ELEVATIONS														PIN ELEVATIONS			HINGES		
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. P	ELEV. R	ELEV. S	ELEV. T	ELEV. W	ELEV. X
G1	512.382	512.924	513.404	513.979	514.512	514.951	514.958	513.314	513.388	513.876	514.163	514.519	514.598	514.951	507.685	508.133	508.708	512.868	514.961
G2	512.183	512.682	513.162	513.737	514.271	514.709	514.717	513.079	513.354	513.642	513.927	514.277	514.359	514.713	507.443	507.892	508.467	512.621	514.719
G3	511.985	512.441	512.921	513.496	514.029	514.467	514.475	512.838	513.112	513.400	513.686	514.036	514.117	514.472	507.201	507.650	508.225	512.379	514.478
G4	511.787	512.199	512.679	513.254	513.787	514.226	514.233	512.596	512.871	513.158	513.444	513.794	513.875	514.230	506.960	507.408	507.983	512.132	514.236
G5	511.588	511.957	512.437	513.012	513.546	513.984	513.992	512.354	512.629	512.917	513.202	513.552	513.634	513.988	506.718	507.167	507.742	511.891	513.994
G6	511.614	511.775	512.204	512.771	513.304	513.742	513.718	512.130	512.387	512.675	512.961	513.311	513.392	513.746	506.535	506.933	507.500	511.717	513.753
G7	511.390	511.621	512.015	512.571	513.104	513.542	513.508	511.942	512.179	512.468	512.755	513.110	513.190	513.542	506.381	506.744	507.300	511.565	513.553

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.

Girders shown on Camber Diagrams as fabricated and erected.

Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.

Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girders at Bents 37-42.

* Elevations at beginning of Girder G6 in Span 37.

For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 10.

Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 38 THRU 41

SHEET 23 OF 53

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

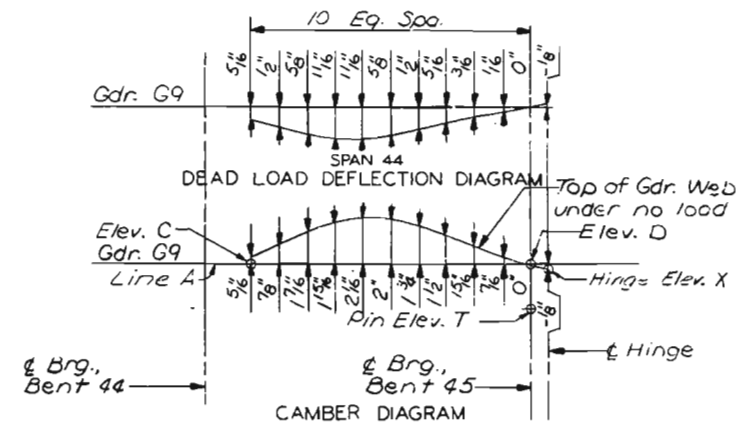
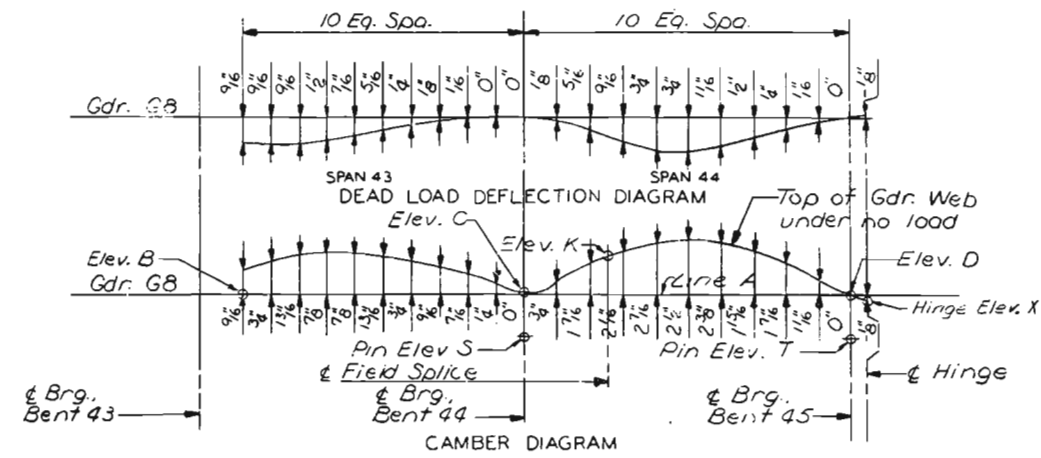
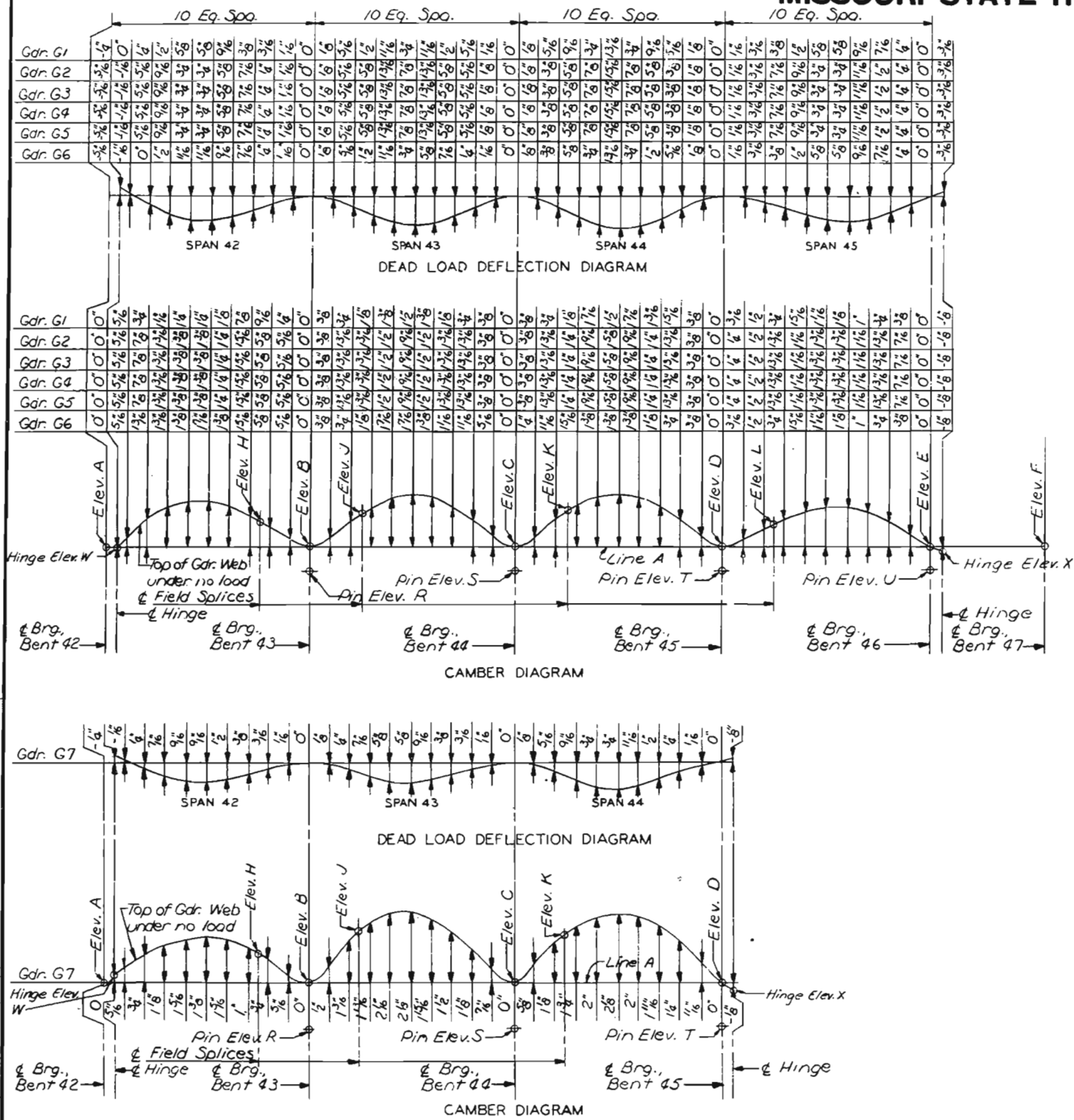
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CHECKED BY: T. Sanders, Sept. 1977
5267
775249

219

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	27	



NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.

Girders shown on Camber Diagrams as fabricated and erected.

Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.

Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girder at Bent 42.

For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 16.

Line A is a straight line between & Brg. Stiffeners at top of web plate.

Girder	TOP OF GIRDER WEB ELEVATIONS										PIN ELEVATIONS				HINGES	
	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. W	ELEV. X
G1	514.951	514.958	514.524	513.614	512.530	511.383	515.016	514.924	514.356	513.394	510.666	510.243	509.333	508.260	514.961	512.458
G2	514.709	514.717	514.283	513.372	512.289	511.142	514.780	514.688	514.121	513.155	510.425	510.001	509.091	508.018	514.719	512.216
G3	514.467	514.475	514.041	513.131	512.047	510.900	514.539	514.446	513.879	512.914	510.183	509.760	508.849	507.776	514.478	511.974
G4	514.226	514.233	513.799	512.889	511.805	510.658	514.297	514.205	513.638	512.672	509.942	509.518	508.608	507.535	514.236	511.732
G5	513.984	513.992	513.558	512.647	511.564	510.417	514.055	513.963	513.396	512.430	509.700	509.276	508.366	507.293	513.994	511.491
G6	513.742	513.750	513.316	512.406	511.322	510.175	513.794	513.702	513.135	512.169	509.426	508.952	508.042	507.051	513.753	511.249
G7	513.502	513.508	513.074	512.164	511.080	510.000	513.538	513.446	512.879	511.914	509.216	508.742	507.832	506.841	513.503	511.003
G8	---	513.433	512.999	512.089	511.005	510.000	---	---	512.728	---	509.162	508.688	507.778	506.787	---	511.923
G9	---	---	513.048	512.138	511.054	---	---	---	---	---	---	---	507.532	---	---	511.713
G10	---	---	512.608	511.698	510.614	---	---	---	---	---	---	---	507.817	---	---	512.013

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Revised 12-23-81

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 42 THRU 45

SHEET 24 OF 93

A-3594

DRAWN BY: E. Gregory, July 1977
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 5267
 75245

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5	MO.		12	88	



NOTES

Line A is a straight line between E Brg. Stiffeners at top of web plate.

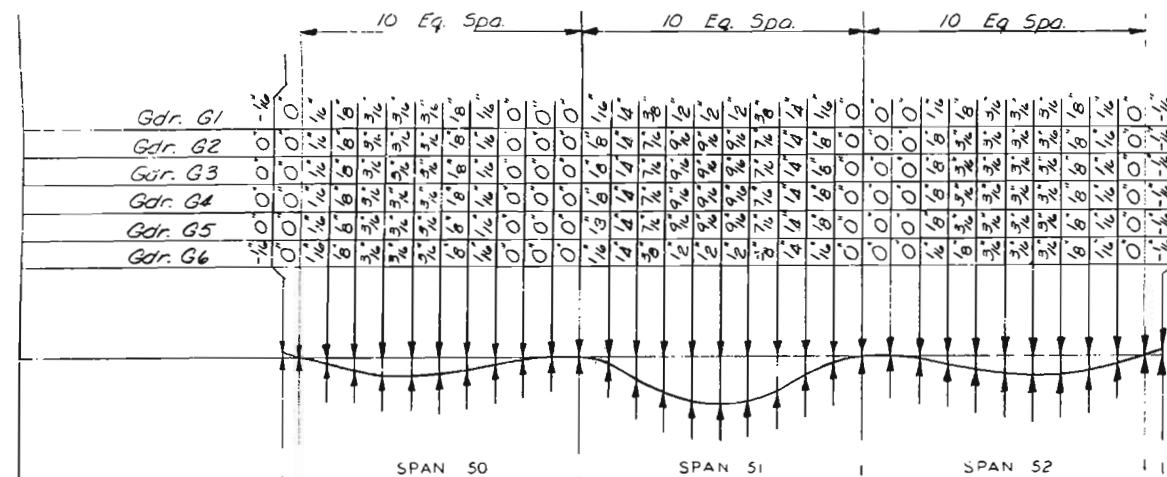
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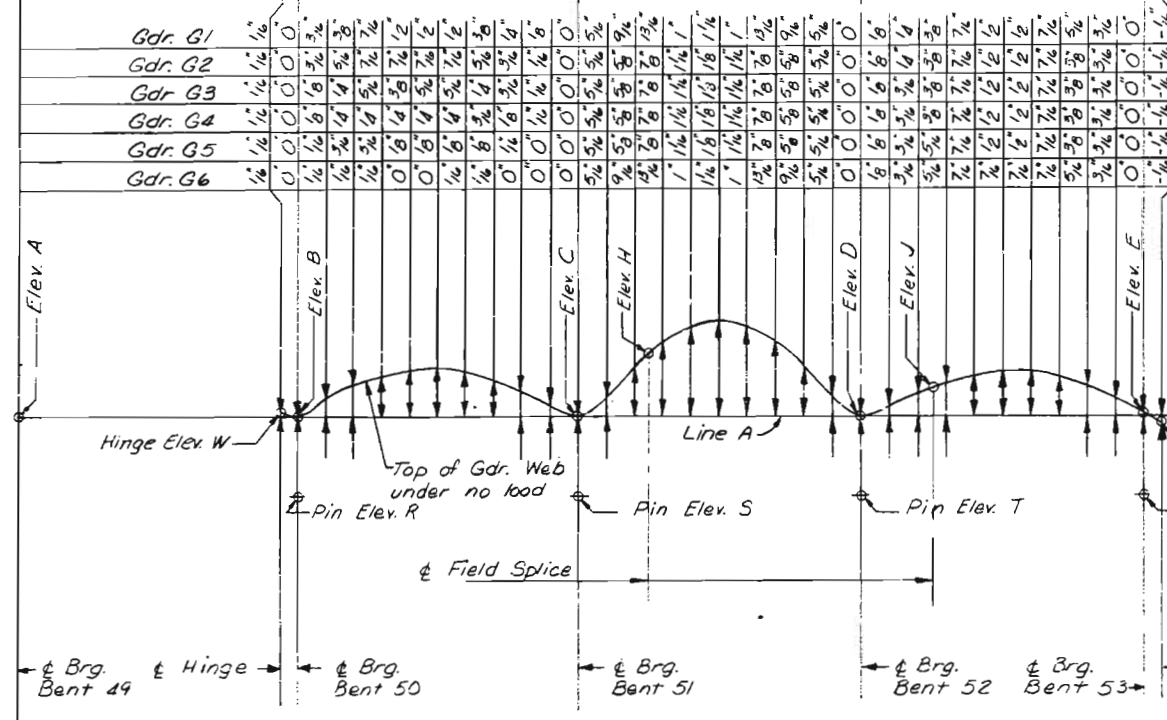
5261	DRAWN BY: E. Gregory, July 1977
77S253	TRACED BY:
	CHECKED BY: T. Sanders, Sept. 1977

MISSOURI STATE HIGHWAY DEPARTMENT

FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2	MO.	18	64	24	93

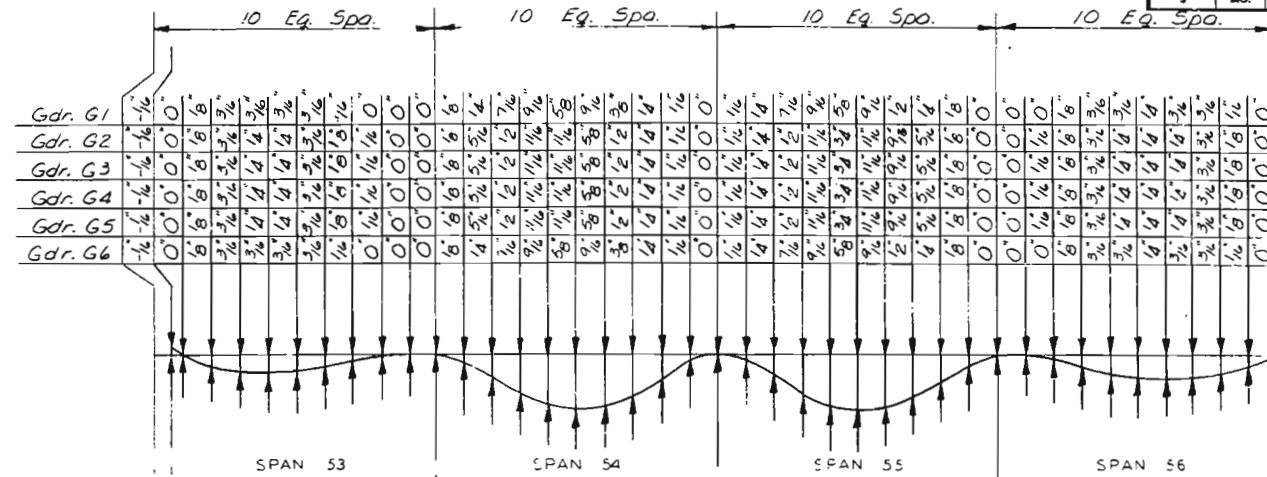


DEAD LOAD DEFLECTION DIAGRAM

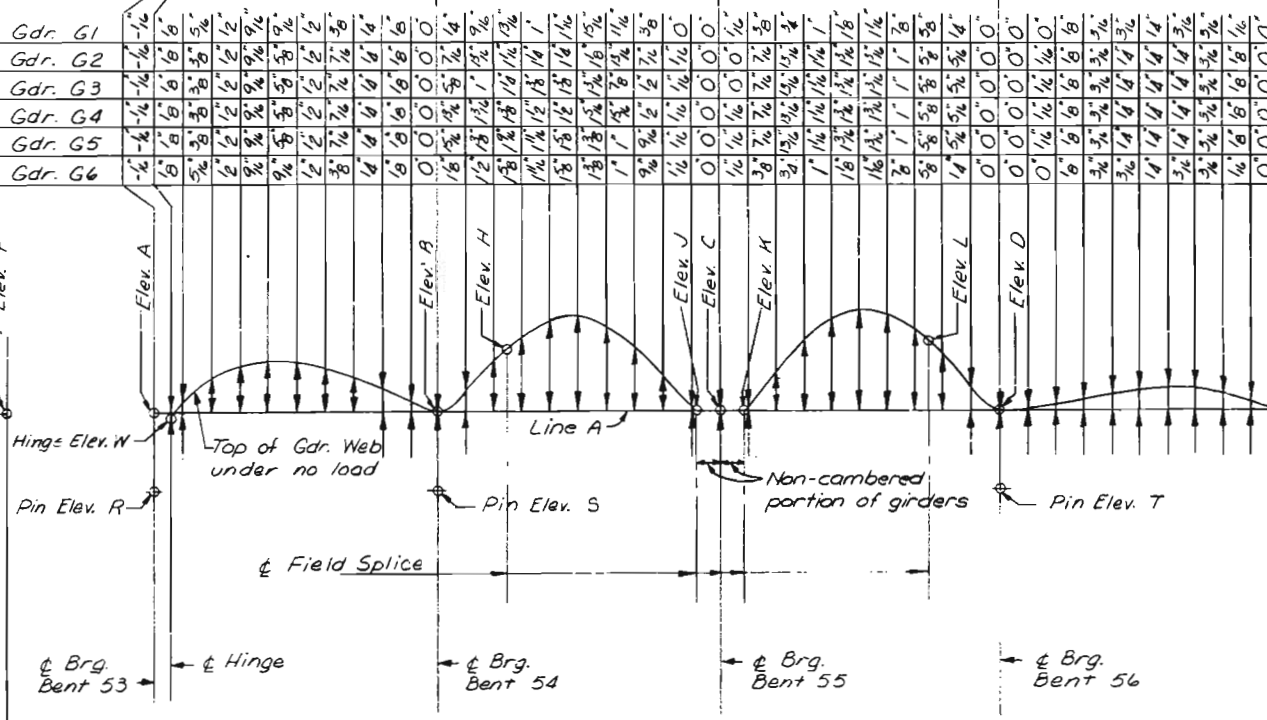


CAMBER DIAGRAM

Girder	TOP OF GIRDER WEB ELEVATIONS								PIN ELEVATIONS				HINGE	
	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. H	ELEV. J	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V	ELEV. X
G1	508.032	506.654	505.189	502.957	501.008	498.697	504.697	502.355	502.412	500.928	498.696	496.769	500.147	500.000
G2	507.911	506.619	505.253	503.176	501.345	499.160	504.800	502.613	502.379	500.993	498.916	497.106	506.708	501.213
G3	507.789	506.583	505.318	503.395	501.682	499.622	504.903	502.871	502.344	501.057	499.135	497.443	506.643	501.559
G4	507.667	506.548	505.382	503.614	502.019	500.085	505.006	503.128	502.308	501.122	499.354	497.780	506.627	501.904
G5	507.546	506.512	505.446	503.833	502.356	500.548	505.104	503.384	502.272	501.186	499.573	498.117	506.586	502.249



DEAD LOAD DEFLECTION DIAGRAM



CAMBER DIAGRAM

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.
Girders shown on Camber Diagrams are fabricated and erected.
Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.
Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girder at Bent 55.
For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 16.
Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 50 THRU 56

SHEET 25 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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775255

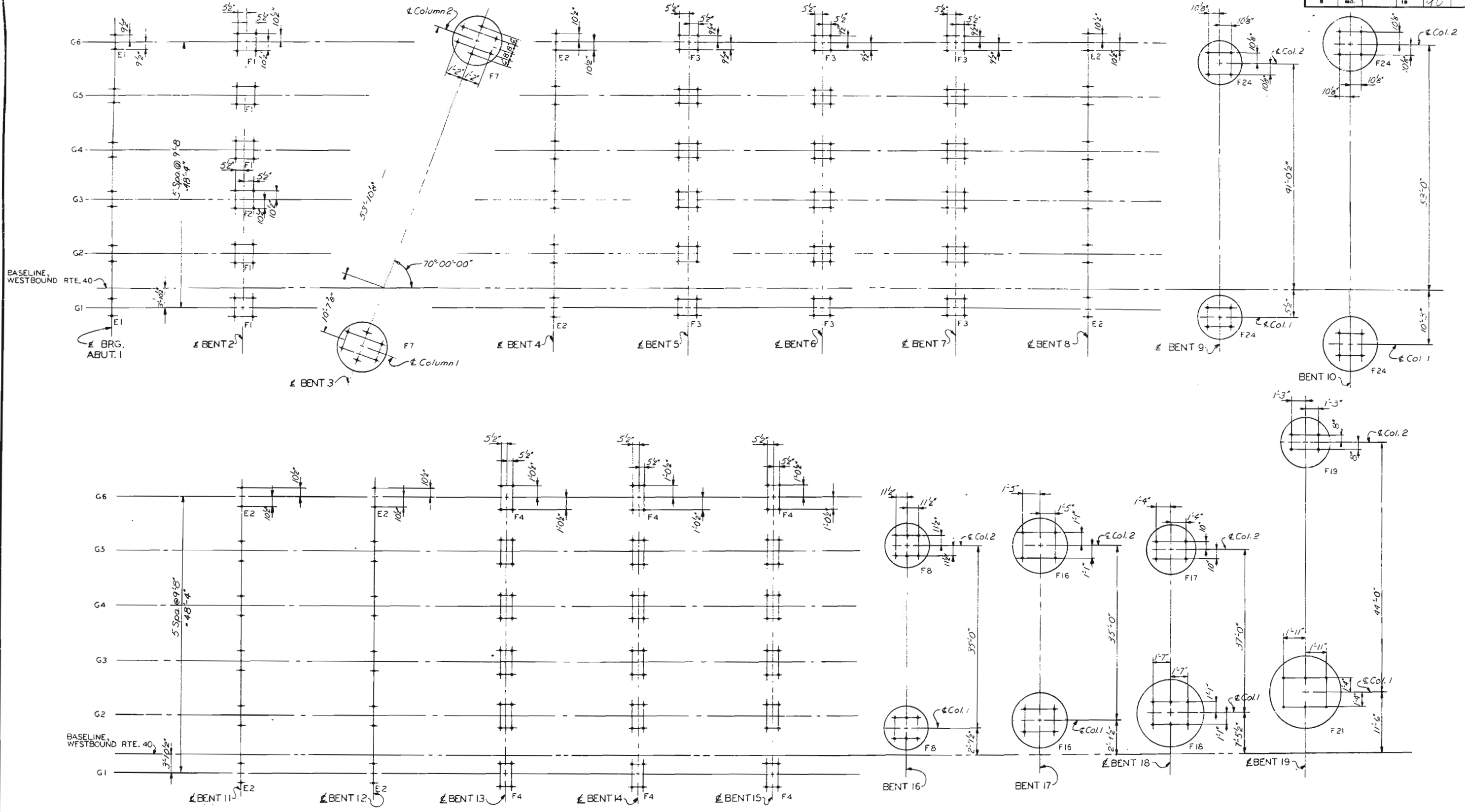
223

DRAWN BY: M. Junge, Sept. 1977
CHECKED BY: J. Sandoz, Dec. 1977
5621
775374

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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	90	



NOTES

All transverse dimensions between bearings are measured along centerline of bent or centerline of bearing of abutment.
E1, F1, etc. indicate Bearing Type Designations, see Bearing Detail Sheets.
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

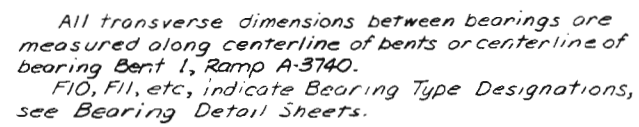
CITY OF ST. LOUIS

ANCHOR BOLT PLAN
ABUTMENT 1 AND BENTS 2 THRU 19

SHEET 27 OF 93

A-3594

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	21	



A-3594

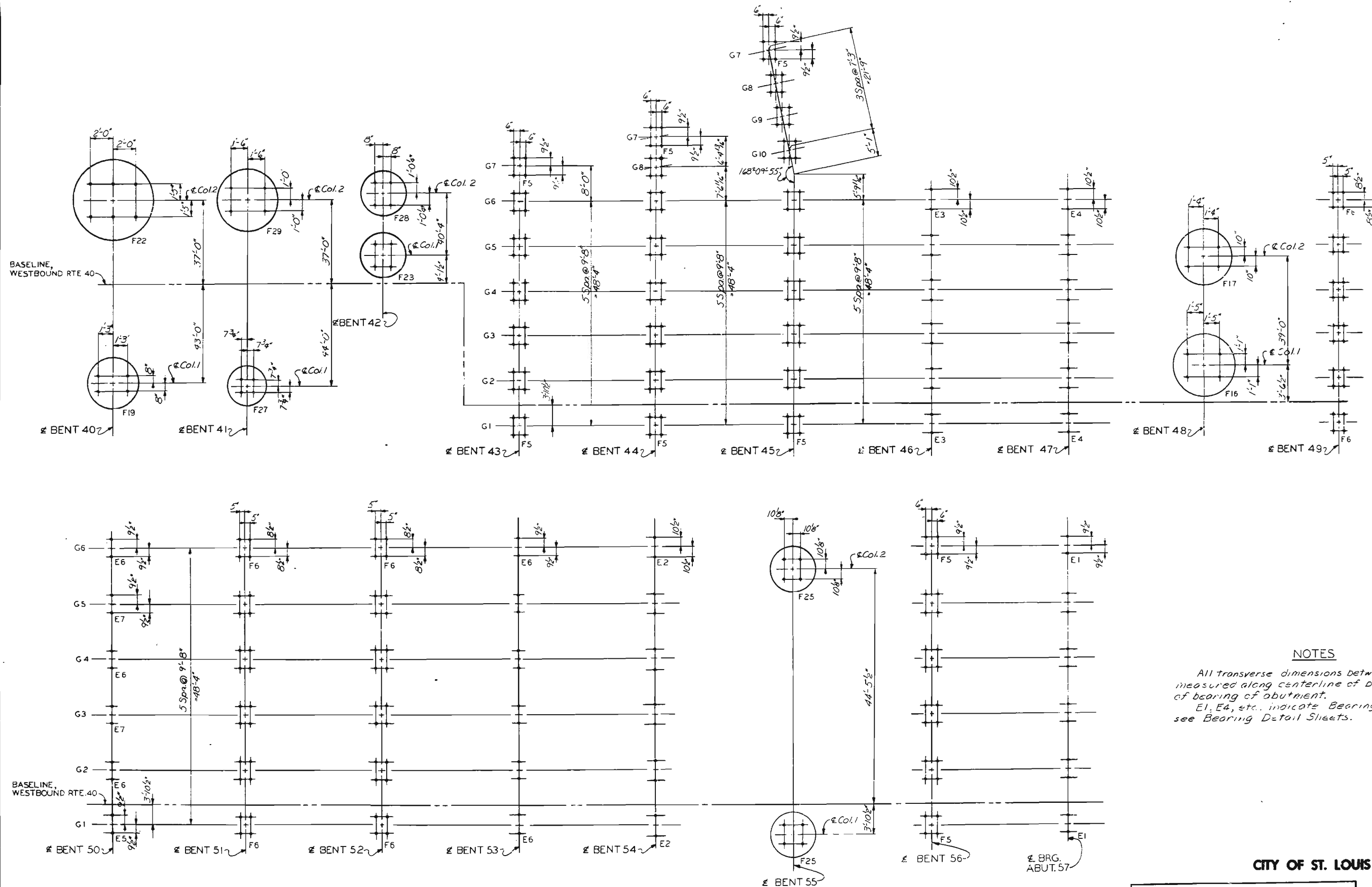
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424

5261	DRAWN BY: <i>M. Junge</i>	Sept. 1977
775376	TRACED BY:	
	CHECKED BY: <i>T. Sanders</i>	Dec. 1977

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	92	



NOTES

All transverse dimensions between bearings are measured along centerline of bents or centerline of bearing of abutment.
E1, E4, etc., indicate Bearing Type Designations, see Bearing Detail Sheets.

CITY OF ST. LOUIS

ANCHOR BOLT PLAN
BENTS 40 THRU 56 AND ABUTMENT 57

SHEET 29 OF 33

A-3594

225

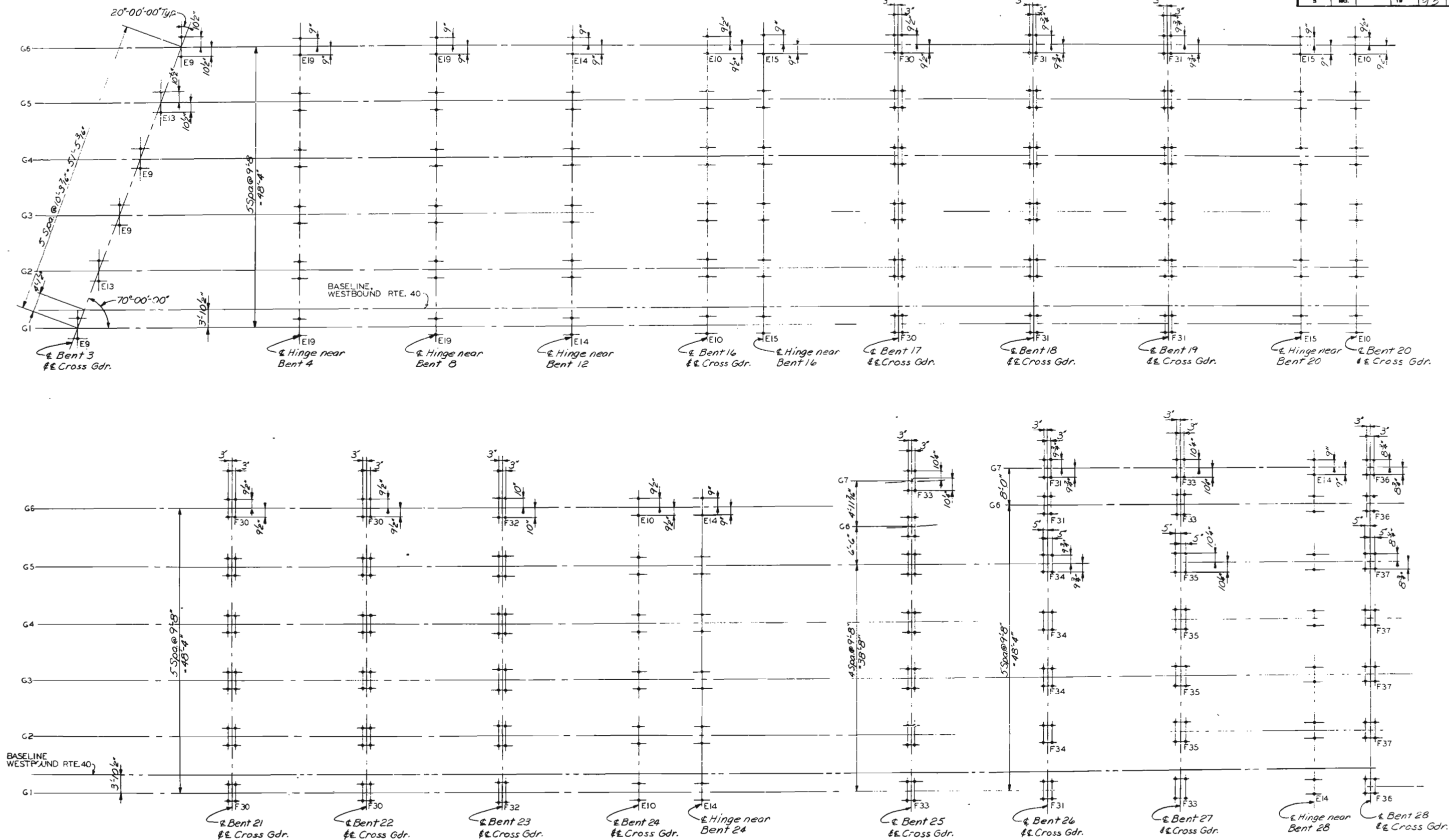
DRAWN BY: M. Junge Oct. 1977
CHECKED BY: T. Sanders, Dec. 1977
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775375

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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.		18	93	



CITY OF ST. LOUIS

ANCHOR BOLT PLAN
CROSS GIRDERS AND HINGES

SHEET 30 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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5261
775403

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FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	97	



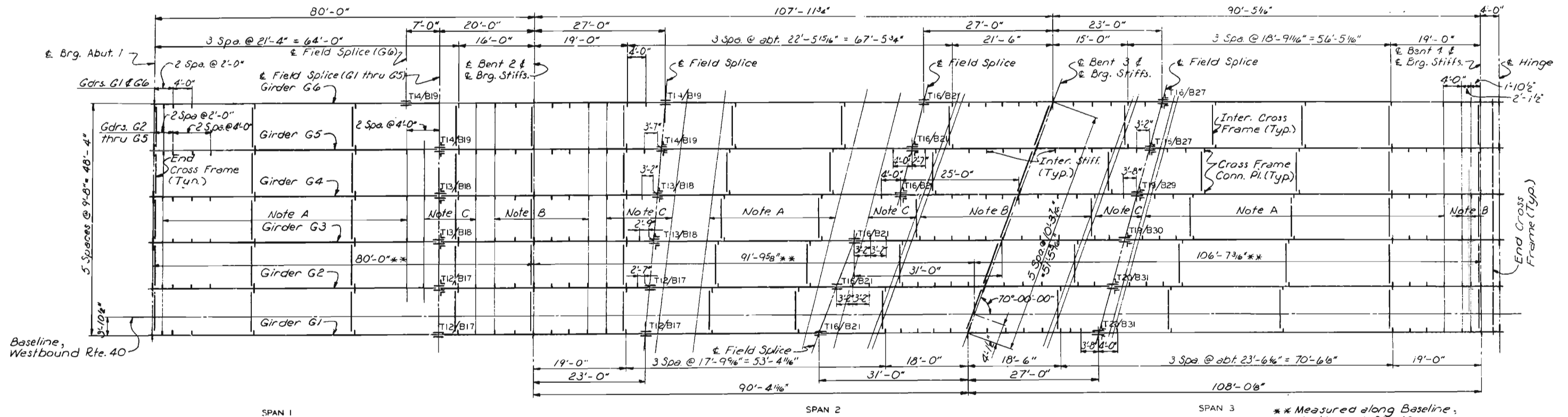
SHEET 31 OF 93

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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775402	TRACED BY:	
	CHECKED BY: T. Sanders,	Dec. 1977

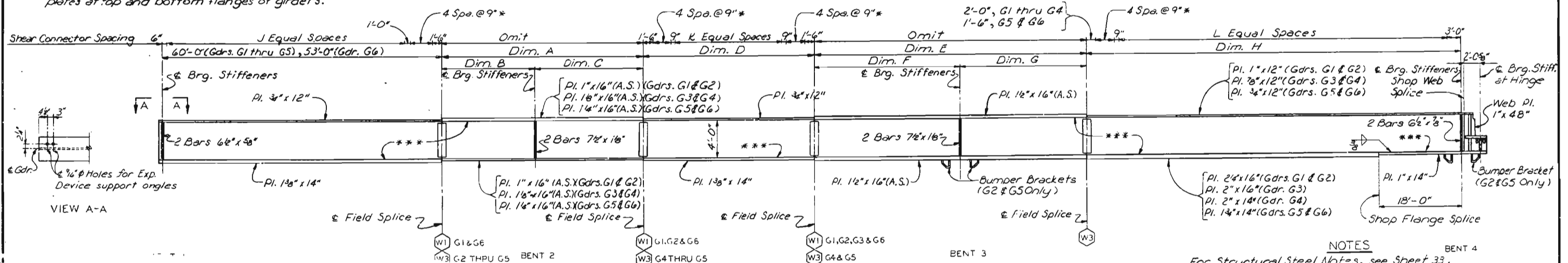
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5.	MO.		18	92	



Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.
Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.

Note: Intermediate stiffeners are Bars 4"x3/8".
Intermediate cross frame connection plates are Bars 4 1/2"x3/8".



NOTES

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally.
Intermediate stiffeners shall be spaced equally between adjacent cross members except as otherwise shown.
For Bumper Bracket Details, see Sheet 60.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 65.

Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Dim. G	Dim. H	J Eq. Spa.	K Eq. Spa.	L Eq. Spa.
G1	43'-0"	20'-0"	23'-0"	36'-4 1/4"	58'-0"	31'-0"	27'-0"	81'-0 1/8"	54	36	64
G2	43'-9 3/4"	20'-0"	23'-9 3/4"	39'-1 1/4"	57'-2 3/8"	31'-0"	26'-2 3/8"	78'-3 3/8"	54	36	61
G3	44'-7 1/4"	20'-0"	24'-7 3/4"	41'-9 1/4"	56'-4 1/4"	31'-0"	25'-4 1/4"	75'-6 1/8"	54	36	60
G4	45'-4 1/4"	20'-0"	25'-4 1/4"	50'-6 1/4"	49'-7 3/8"	25'-0"	24'-7 3/4"	72'-10 5/8"	54	42	58
G5	46'-2 3/8"	20'-0"	26'-2 3/8"	52'-3 1/4"	49'-9 3/8"	26'-0"	23'-9 3/8"	70'-1 5/8"	54	42	55
G6	54'-0"	27'-0"	27'-0"	53'-11 3/4"	50'-0"	27'-0"	23'-0"	67'-5 1/4"	47	45	53

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

FRAMING PLAN
SPANS 1, 2 AND 3

SHEET 32 OF 93

A-3594

222

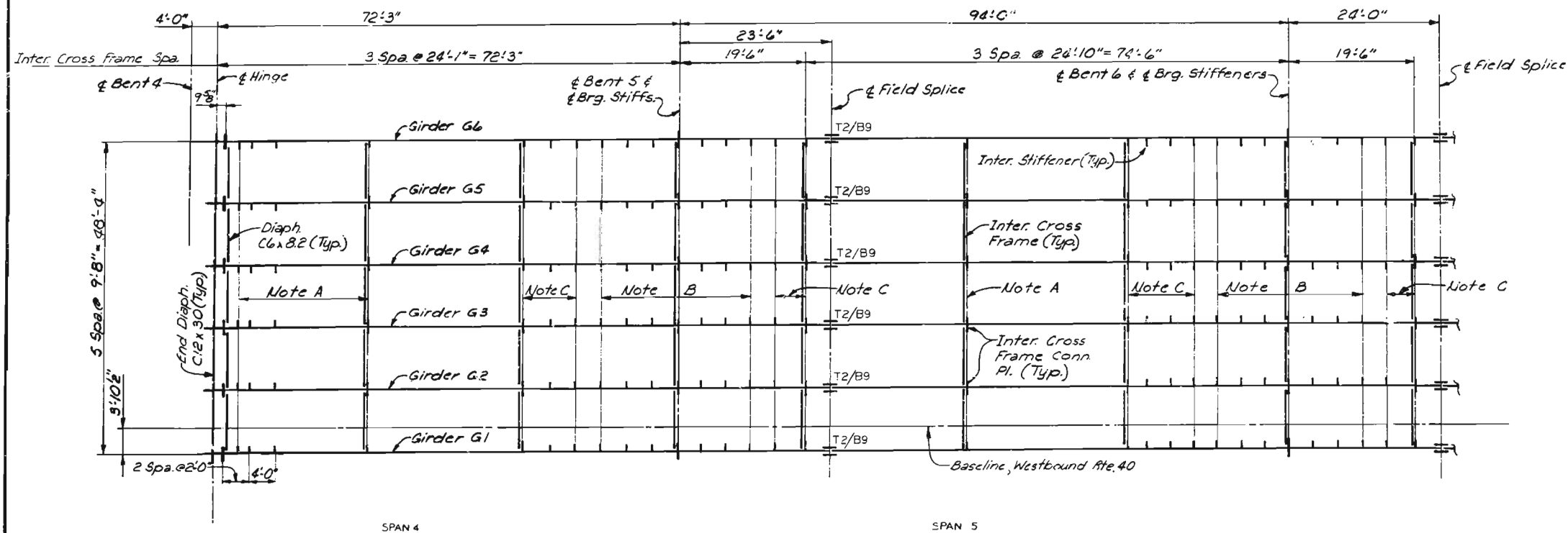
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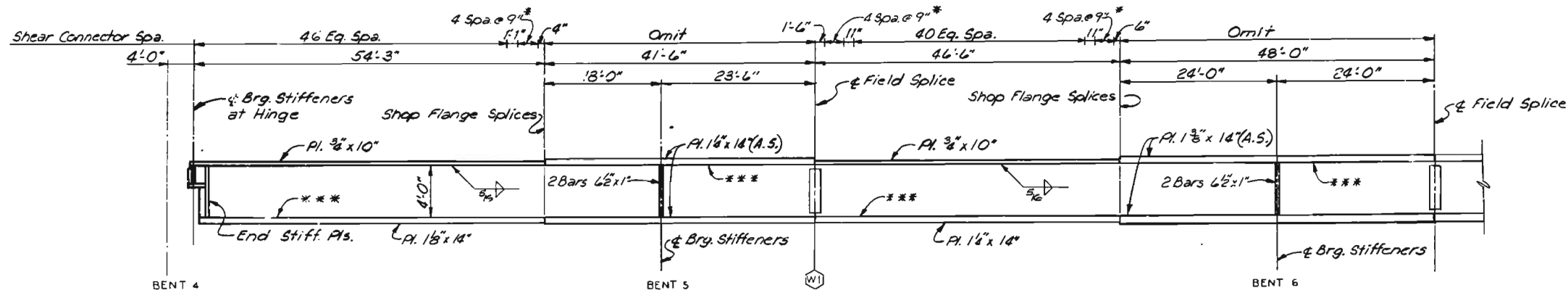
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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	90	



FRAMING PLAN
Note: Intermediate stiffeners are Bars 4"x $\frac{3}{8}$ ".
Intermediate cross frame connection plates are Bars 4 $\frac{1}{2}$ "x $\frac{3}{8}$ ".



ELEVATION-GIRDERS G1 THRU G6

Note: Web plates are $\frac{1}{2}$ "x48".
○ Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.
Field splice flange plates and intermediate stiffeners not shown.
Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) Indicates 4 rows of shear connectors across girder flange.
All web plates shall be subject to notch toughness requirements.

Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.
Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.

STRUCTURAL STEEL NOTES

GENERAL NOTES: See Sheet 7.

MATERIAL: All structural steel shall conform to A.S.T.M. A-36, except as otherwise noted.

LOW-ALLOY STEEL: Low-alloy steel is indicated thus (A.S.).

NOTCH TOUGHNESS: Notch toughness requirements for welded plate girder flanges noted on plans, thus (***). All web plates shall be subject to notch toughness requirements.

FABRICATION: By approval of the Engineer, the Contractor may omit any shop flange splice, if desired, by extending the heavier flange plate and providing approved modifications of details at field flange splices and elsewhere as required. All cost of any required design, plan revisions and rechecking of shop drawings shall be borne by the Contractor. Payweights in any case will be based on material shown on design plans.

BOLTED CONNECTIONS: All connections shall be made with $\frac{3}{4}$ " dia. High Strength bolts conforming to A.S.T.M. A-325 with $\frac{1}{8}$ " dia. holes, except as otherwise noted.

WELDING: All welding shall be in accordance with the Missouri Standard Specifications 1977 Edition, & Special Provisions, except as otherwise shown.

SHEAR CONNECTORS: Shear connectors are to be furnished and installed with the deck, Sections 5 and 6.

CAMBER: Welded plate girders shall be cambered as shown on detail plans.

LAYOUT: All bearing stiffeners, cross frame and cross beam connection plates and splices shall be vertical.

Ti/Bi - Ti Indicates type of Top Flange Splice.
Bi Indicates type of Bottom Flange Splice.

NOTES

Longitudinal dimensions are measured horizontally.
Intermediate stiffeners for longit. girders shall be spaced equally between adjacent cross members except as otherwise shown at end panels.

Work this Sheet with Sheet 34.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 65.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 4 AND 5

SHEET 33 OF 93

A-3594

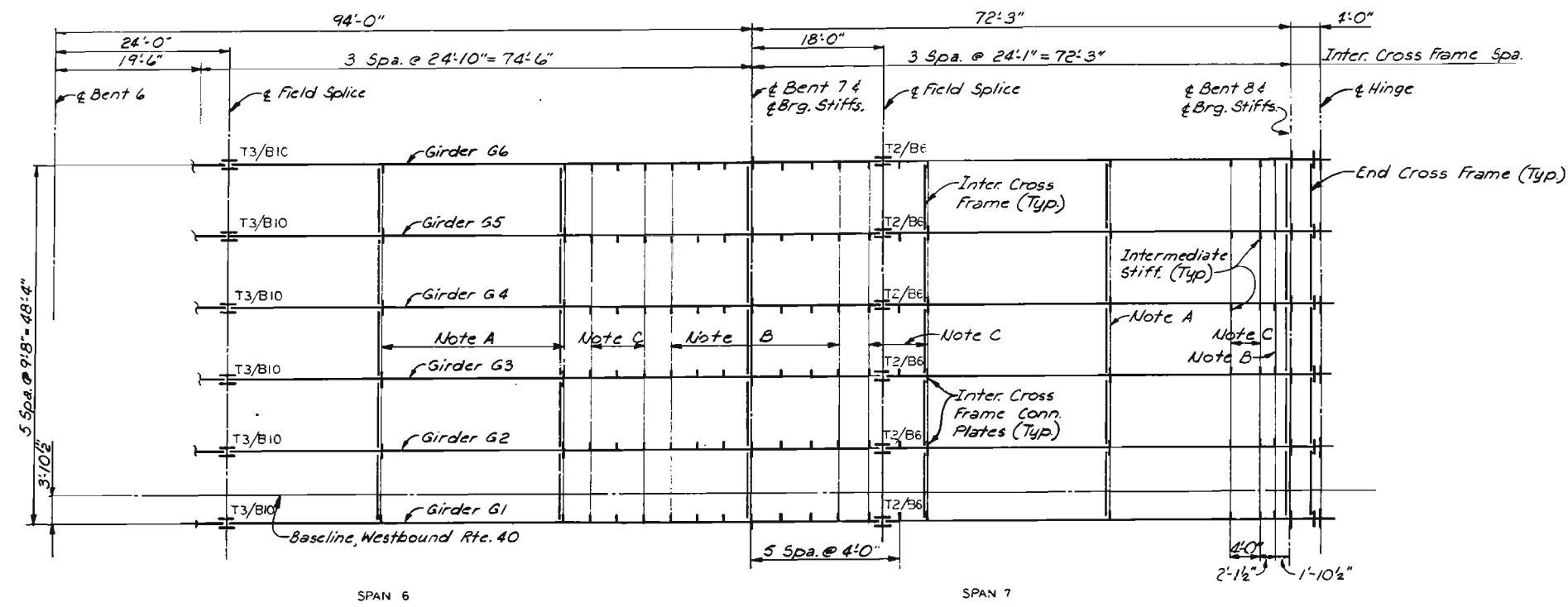
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

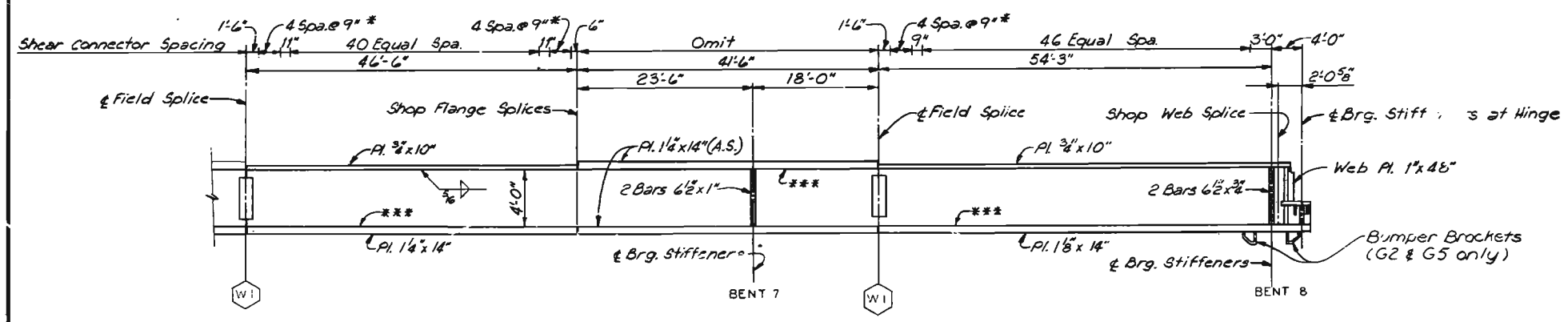
229
DRAWN BY: R.A. Wokurka May '77
TRACED BY:
CHECKED BY: T. Sano, 3, Sept. 1977
5261
775179

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	97	



Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.
Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.



NOTES

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally.
Intermediate stiffeners for longit girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.
For Girder Details, see Sheet 59.
Work this sheet with Sheet 33.
For Hinge Details see Sheet 65.
For Girder Splice Details, see Sheet 61.
For Bumper Bracket Details, see Sheet 60.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 6 AND 7

SHEET 34 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

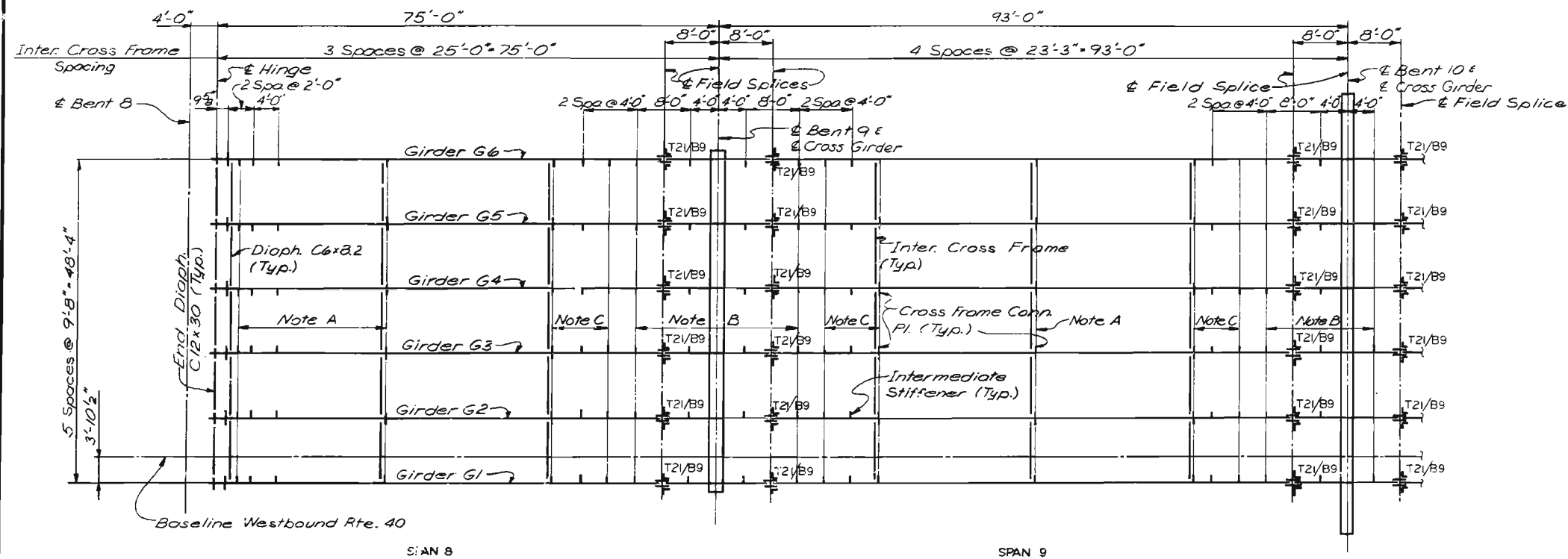
OVERSEER & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: R.A. Moturke May '77
CHECKED BY: T. Sanders, Sept. 1977
5261
775183

230

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	KO.		18	92	



SPAN 8

SPAN 9

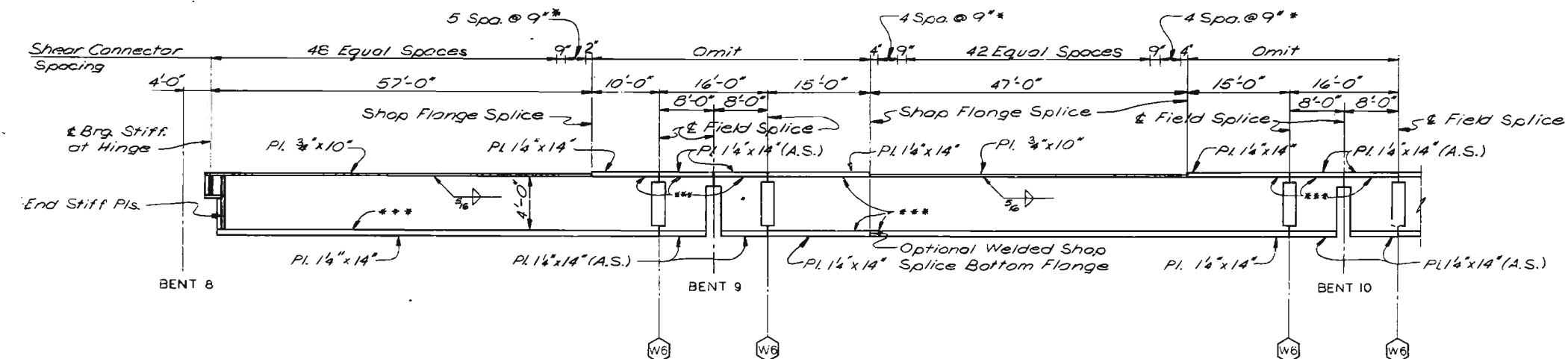
FRAMING PLAN

Note: Intermediate stiffeners are Bars $4 \times \frac{3}{8}$.
Intermediate cross frame connection plates are Bars $4 \frac{1}{2} \times \frac{3}{8}$.

Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.

Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.

Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.



ELEVATION - GIRDERS G1 THRU G6

Note: Field splice flange plates and intermediate stiffeners not shown.

○ Denotes type of field web splice.

Shear Connectors shall be in 3 rows across girder flange except where noted by asterisk.

(*) indicates 4 rows of shear connectors across girder flange.

*** Indicates Flange Plates subject to notch toughness requirements.

Web plates are $\frac{1}{4} \times 48$.

All web plates shall be subject to notch toughness requirements.

NOTES

For Structural Steel Notes, see Sheet 33.

Longitudinal dimensions are measured horizontally.

For Girder Details, see Sheet 59.

Work this Sheet with Sheet 36.

For Hinge Details, see Sheet 65.

For Girder Splice Details, see Sheets 61 and 62.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 8 AND 9

SHEET 35 OF 93

A-3594

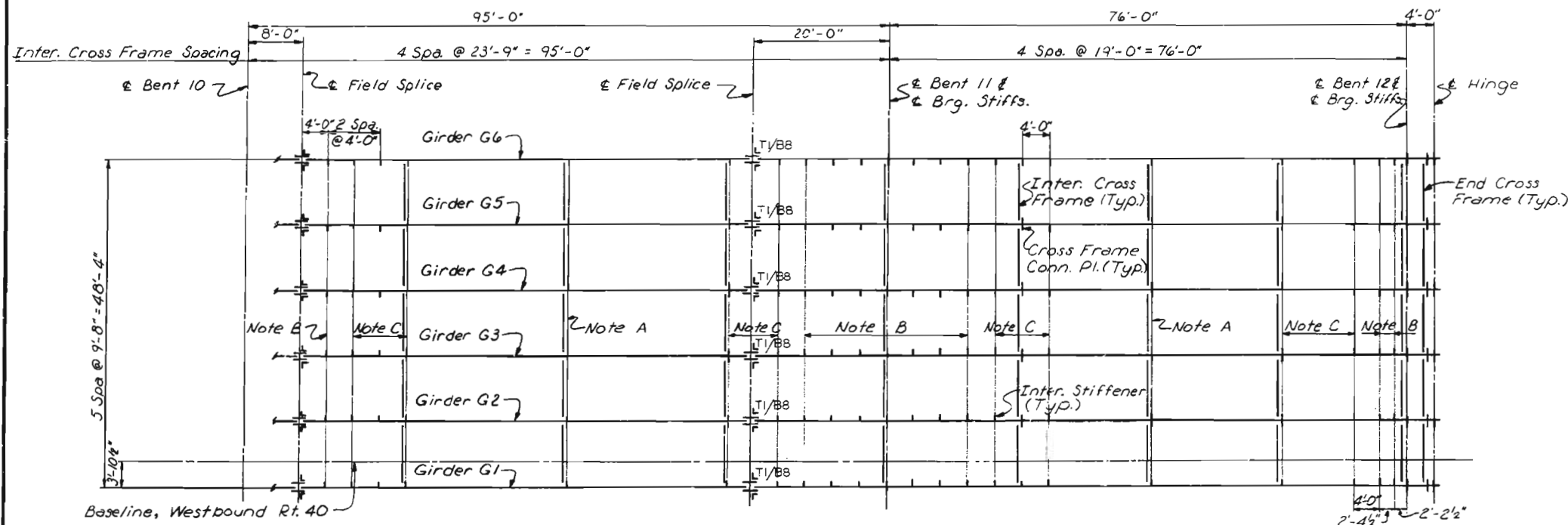
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

231
DRAWN BY: G. M. Andrusko, May 1977
CHECKED BY: T. Sanders, Sept. 1977
5261
775182

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	99	



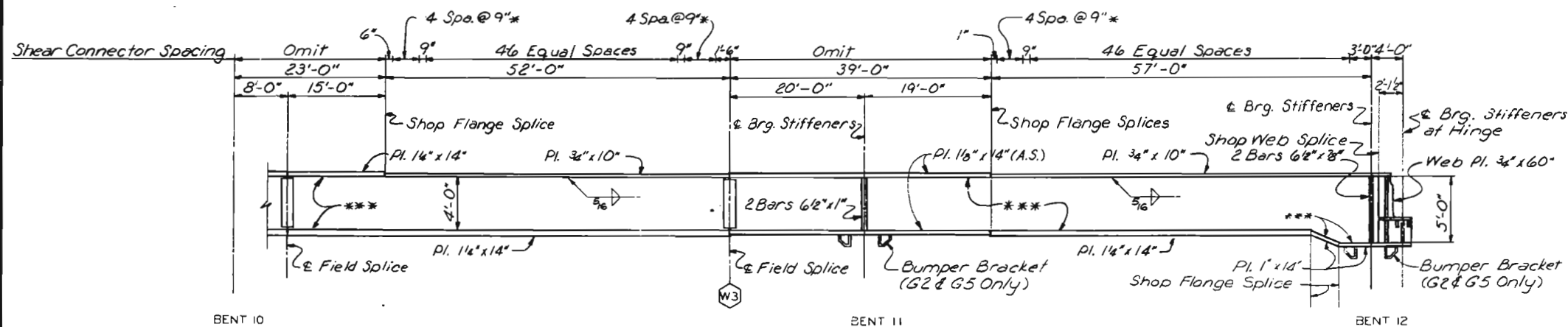
Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.

Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.

Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.

NOTES

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally.
Intermediate stiffeners for longit. girders shall be spaced equally between adjacent cross members except as otherwise shown.
For Bumper Bracket Details, see Sheet 60.
Work this Sheet with Sheet 35.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 66.



CITY OF ST. LOUIS

FRAMING PLAN
SPANS 10 AND 11

SHEET 36 OF 93

A-3594

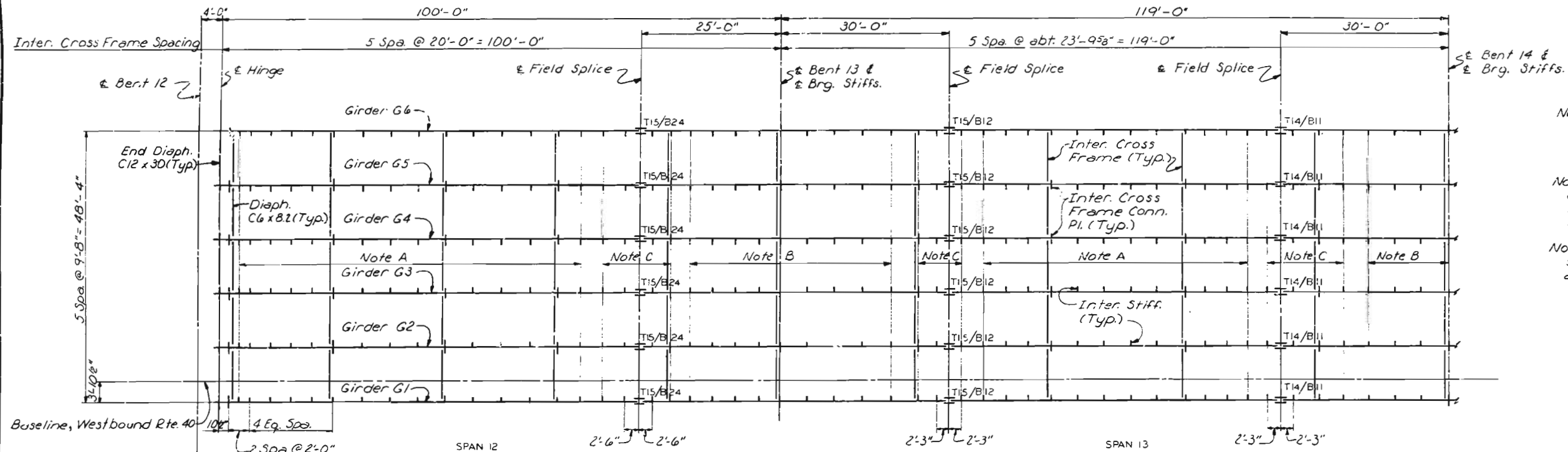
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

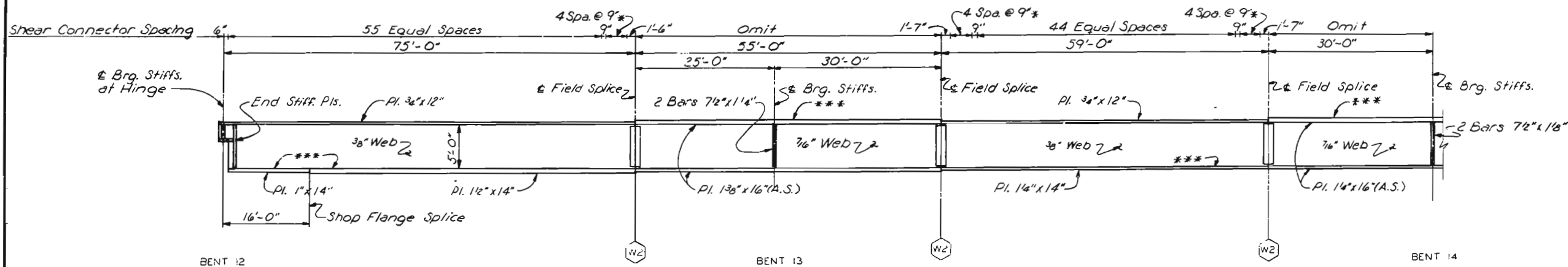
232
DRAWN BY: D.R. BROOKS, May, 1977
CHECKED BY: T. SANDERS, Sept. 1977
5261
773160

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	10	



FRAMING PLAN
Note: Intermediate stiffeners are Bars 4"x 3/8".
Intermediate cross frame connection plates are Bars 4 1/2"x 3/8".



ELEVATION - GIRDERS G1 THRU G6
Note: Field splice flange plates and intermediate stiffeners not shown.
O - Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.
Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) indicates 4 rows of shear connectors across girder flange.
All web plates shall be subject to notch toughness requirements.

NOTES
For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally.
Intermediate stiffeners for longitud. girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panel.
For Girder Details, see Sheet 59.
For Hinge Details, see Sheet 64.
Work this Sheet with Sheet 38.
For Girder Splice Details, see Sheet 61.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 12 AND 13

SHEET 37 OF 93

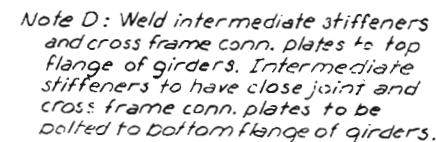
A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

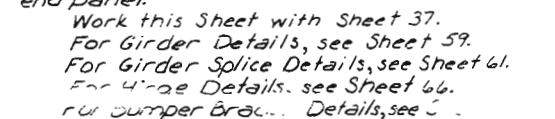
SVERDRUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

233
DRAWN BY: D.R. Brock, June 1977
CHECKED BY: T. Sanders, Sept. 1977
5261
775234

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	121	



** Measured along Baseline
Westbound Rte. 40



All web plates shall be subject to notch toughness requirements.

Note: Angle is measured from tangent to girder at C Hinge, to C Hinge.

FRAMING PLAN
SPANS 14 AND 15

SHEET 38 OF 93

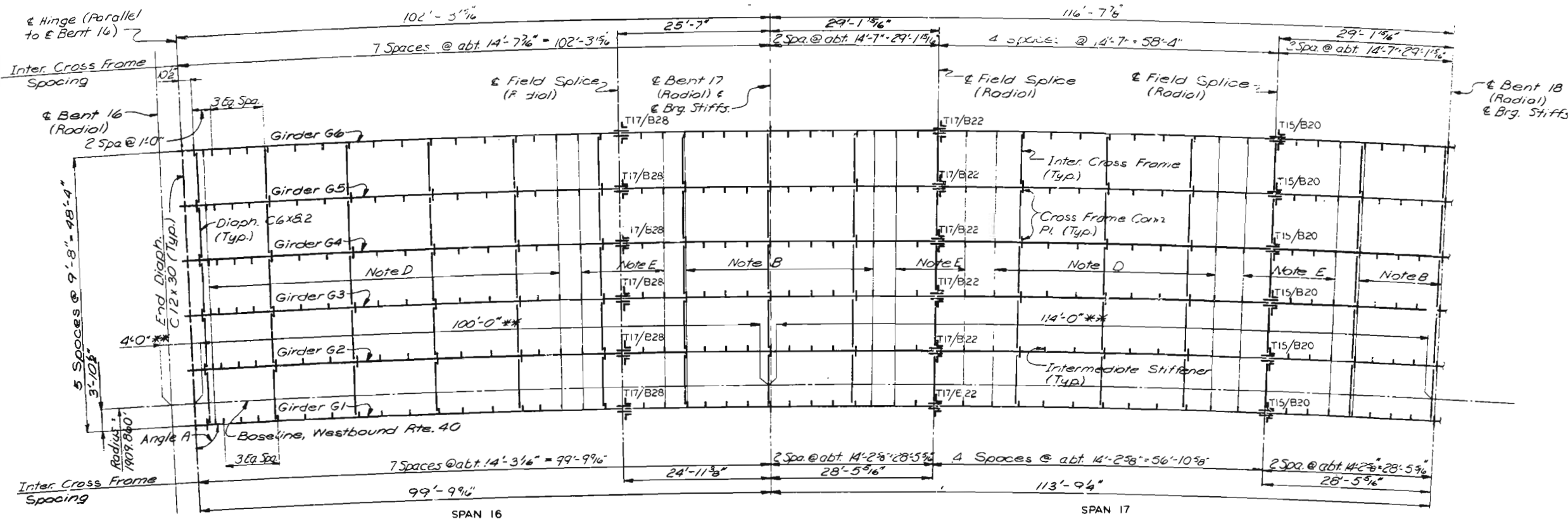
A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS

5261	DRAWN BY: D.R. Brock, May, 1977
775235	TRACED BY:
	CHECKED BY: T. Sanders, Sept 1977

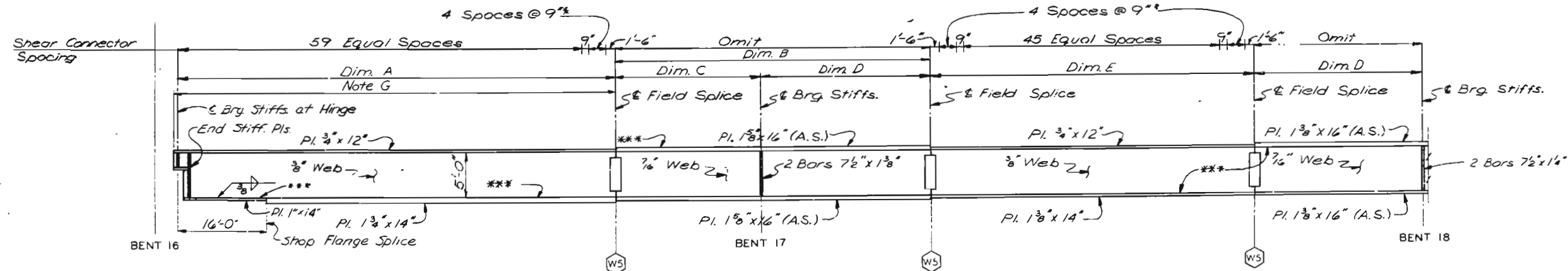
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	1	1



Note: Intermediate stiffeners are Bars $4 \times \frac{3}{8}$.
Intermediate cross frame connection plates are Bars $4 \frac{1}{2} \times \frac{3}{8}$.

Note G: Heat curving of girders G1 thru G6 will not be allowed while in the horizontal position.



ELEVATION - GIRDERS G1 THRU G6
Notes: Field splice flange plates and intermediate stiffeners not shown.

○ — Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.

Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.

(*) Indicates 4 rows of shear connectors across girder flange.

All web plates shall be subject to notch toughness requirements.

Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Angle A
G1	74'-10 1/2"	53'-4 1/4"	24'-11 3/8"	28'-5 1/2"	56'-10 3/8"	89°-52'-47"
G2	75'-2 1/4"	53'-8"	25'-0"	28'-7 1/4"	57'-2"	89°-52'-49"
G3	75'-7 1/4"	53'-11 3/4"	25'-2 1/4"	28'-8 3/4"	57'-5 9/16"	89°-52'-52"
G4	75'-11 1/8"	54'	25'-3 3/4"	28'-10 1/8"	57'-9"	89°-52'-54"
G5	76'-4 1/4"	54'-5 1/4"	25'-5 1/4"	29'-0 1/4"	58'-0 1/4"	89°-52'-56"
G6	76'-8 1/4"	54'-8 1/4"	25'-7"	29'-1 1/4"	58'-4"	89°-52'-58"

Note: Angle is measured from tangent to girder at & Hinge, to & Hinge.

Note D: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders. Intermediate stiffeners to have close joint and cross frame conn. plates to be bolted to bottom flange of girders.

Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.

Note E: For intermediate stiffeners use close joint at top and bottom flanges of girders. Cross frame connection plates to be close joint at top and bolted to bottom flanges of girders.

** Measured along Baseline Westbound Route 40.

NOTES

For Structural Steel Notes, see Sheet 33.

Longitudinal dimensions are measured horizontally along centerline of girders.

Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.

Work this Sheet with Sheet 40.

For Girder Details, see Sheet 59.

For Girder Splice Details, see Sheet 61.

For Hinge Details, see Sheet 66.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 16 AND 17

SHEET 39 OF 93

A-3594

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

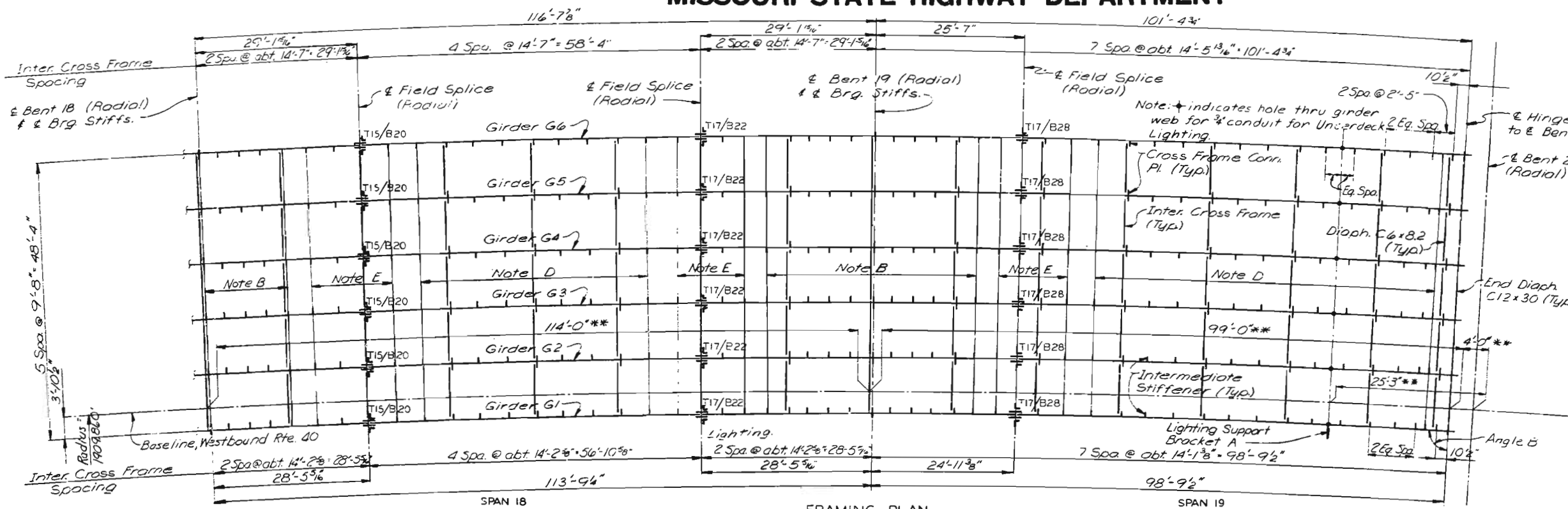
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

235

DRAWN BY: G.M. ANDRUSIAK, Nov. 1977
CHECKED BY: T. BARNES, Sept. 1977
5261
7/5/89

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	103	



Note D: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders. Intermediate stiffeners to have close joint and cross frame conn. plates to be bolted to bottom flange of girders.

Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.

Note E: For intermediate stiffeners use close joint at top and bottom flanges of girders. Cross frame connection plates to be close joint at top and bolted to bottom flanges of girder.

** Measure along Baseline Westbound Route 40

NOTES

For Structural Steel Notes see Sheet 33.

Longitudinal dimensions are measured horizontally along centerline of girders.

Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.

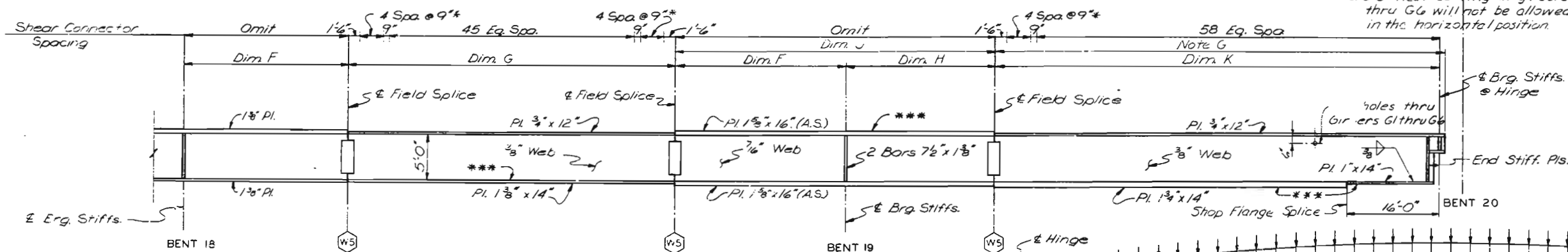
Work this Sheet with Sheet 39.

For Girder Details, see Sheet 59.

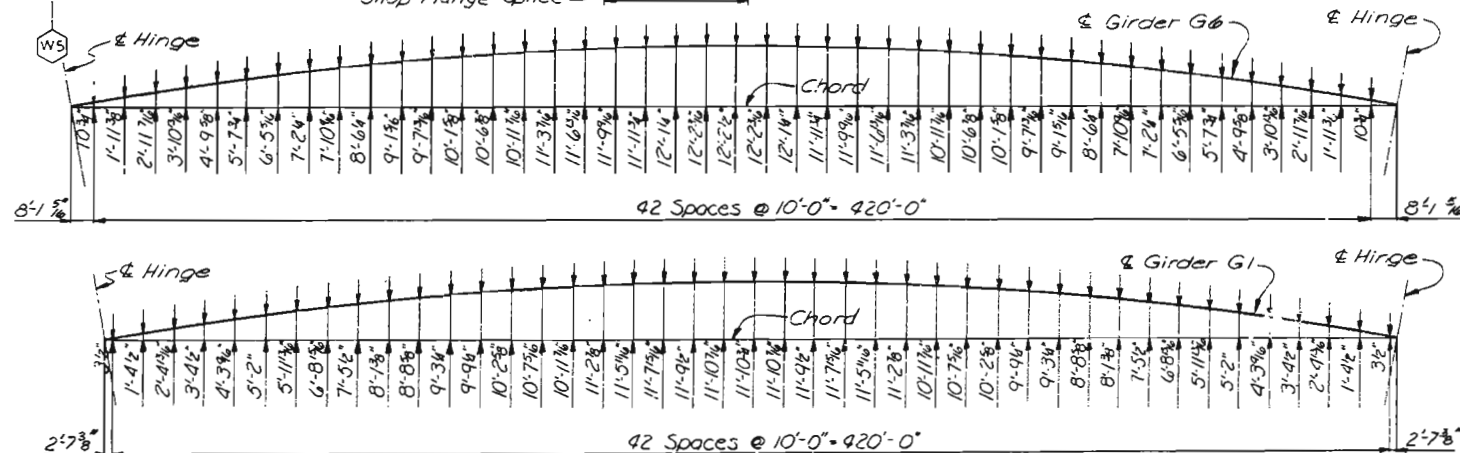
For Girder Splice Details, see Sheet 61.

For Hinge Details, see Sheet 66.

For Lighting Support Bracket Details, see Sheet 63.



Note G: Heat curving of girders G1 thru G6 will not be allowed while in the horizontal position.

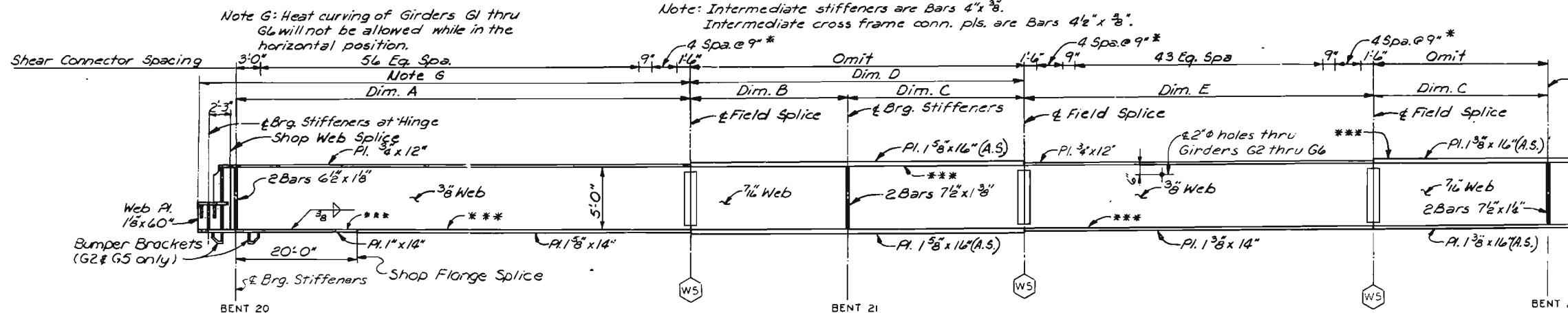
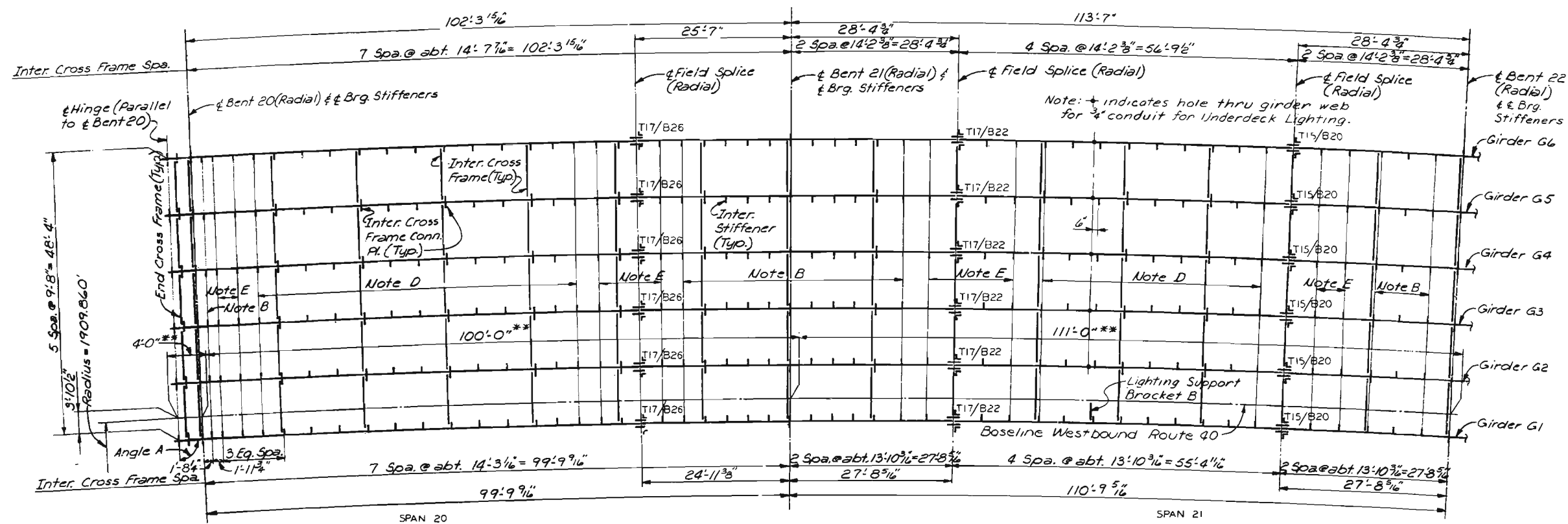


Girder	Dim. F	Dim. G	Dim. H	Dim. J	Dim. K	Angle B
G1	28'-5 1/8"	54'-10 3/8"	24'-11 3/8"	53'-4 1/8"	73'-10 3/8"	89°-52'-47"
G2	28'-7 1/8"	57'-2 1/8"	25'-0 3/8"	53'-8"	74'-2 1/8"	89°-52'-49"
G3	28'-8 1/8"	57'-5 1/8"	25'-2 1/8"	53'-11 1/8"	74'-7 1/8"	89°-52'-52"
G4	28'-10 1/8"	57'-9"	25'-3 3/8"	54'-2 1/8"	75'-0 3/8"	89°-52'-54"
G5	29'-0 1/8"	58'-0 1/8"	25'-5 1/8"	54'-5 1/8"	75'-5 1/8"	89°-52'-56"
G6	29'-1 1/8"	58'-4"	25'-7"	54'-8 3/8"	75'-9 3/8"	89°-52'-58"

Note: Angle is measured from tangent to girder at & Hinge, to & Hinge.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	114	



NOTES

For Structural Steel Notes, see Sheet 33.

Longitudinal dimensions are measured horizontally along centerline of girders.

Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.

Work this sheet with Sheet 42.

For Girder Details, see Sheet 59.

For Girder Splice Details, see Sheet 61.

For Hinge Details, see Sheet 66.

For Bumper Bracket Details, see Sheet 60.

For Lighting Support Bracket Details, see Sheet 63.

Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Angle A
G1	74'-10 3/4"	24'-11 3/8"	27'-8 3/4"	52'-7 1/16"	55'-4 1/16"	90° 07' 13"
G2	75'-2 1/4"	25'-0 1/8"	27'-10"	52'-10 1/16"	55'-8 1/16"	90° 07' 11"
G3	75'-7 1/4"	25'-2 1/8"	27'-11 1/16"	53'-2 3/8"	55'-11 3/8"	90° 07' 09"
G4	75'-11 3/8"	25'-3 1/4"	28'-1 1/8"	53'-5 3/8"	56'-2 3/8"	90° 07' 06"
G5	76'-4 1/4"	25'-5 1/8"	28'-3 1/4"	53'-8 3/8"	56'-6 3/8"	90° 07' 04"
G6	76'-8 3/4"	25'-7"	28'-4 3/8"	53'-11 3/8"	56'-9 3/8"	90° 07' 02"

Note: Angle is measured from tangent of girder at Hinge, to Hinge.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 20 AND 21

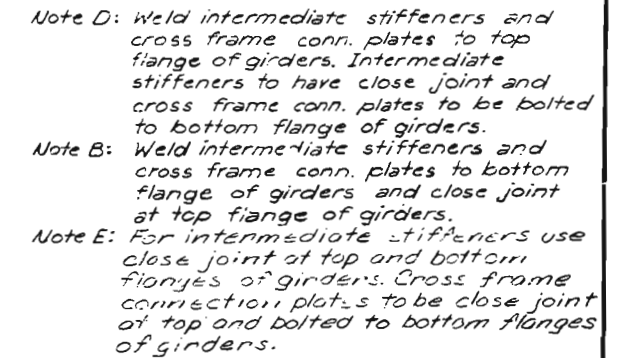
SHEET 41 OF 93

A-3594

SVENDRUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

237
DRAWN BY: R.A. Wokurka, May '77
CHECKED BY: T. Sanders, Sept. 1977
5261
7/25/72

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	105	



Girder	Dim F	Dim G	Dim H	Dim J	Dim K
G1	27'-5 $\frac{1}{2}$ "	54'-0 $\frac{1}{2}$ "	52'-4 $\frac{1}{2}$ "	24'-11 $\frac{1}{8}$ "	74'-10 $\frac{3}{4}$ "
G2	27'-7"	55'-2"	52'-7 $\frac{1}{2}$ "	25'-0 $\frac{1}{2}$ "	75'-2 $\frac{1}{2}$ "
G3	27'-8"	55'-5 $\frac{1}{2}$ "	52'-11 $\frac{1}{8}$ "	25'-2 $\frac{1}{2}$ "	75'-7 $\frac{1}{4}$ "
G4	27'-10 $\frac{3}{4}$ "	55'-8 $\frac{1}{2}$ "	53'-2 $\frac{1}{4}$ "	25'-3 $\frac{3}{4}$ "	75'-11 $\frac{1}{8}$ "
G5	28'-0"	56'-0 $\frac{1}{2}$ "	53'-5 $\frac{1}{2}$ "	25'-5 $\frac{1}{2}$ "	76'-4 $\frac{1}{2}$ "
G6	28'-1 $\frac{1}{2}$ "	56'-3 $\frac{3}{8}$ "	53'-8 $\frac{1}{2}$ "	25'-7 $\frac{1}{2}$ "	76'-8 $\frac{1}{2}$ "

Girder Angle B

G1	90°-07'-13"
G2	90°-07'-11"
G3	90°-07'-09"
G4	90°-07'-06"
G5	40°-07'-04"
G6	90°-07'-02"

Note: Angle is measured from tangent of girder at E Hinge, to E Hinge.

Note: Angle is measured from tangent of girder at E Hinge, to E Hinge.

***Measured along Baseline, Westbound Rte. 40.*

Note: Intermediate stiffeners are Bars $4 \times \frac{3}{8}$.
Intermediate cross frame connection plates are Bars $4 \frac{1}{2} \times \frac{3}{8}$.

Note G: Heat curving of Girders G1 thru G6 will not be allowed while in the horizontal position.



For Structural Steel Notes, see Sheet 33.

Longitudinal dimensions are measured horizontally along centerline of girders.

Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.

Work this Sheet with Sheet 41.

For Girder Details, see Sheet 59.

For Girder Splice Details, see Sheet 61.

For Hinge Details, see Sheet 66.

For Bumper Bracket Details, see Sheet 60.

For Lighting Support Bracket Details, see Sheet 63.

Note: Field splice flange plates and intermediate stiffeners not shown.
 ○ ← Denotes type of field web splice.
 *** Indicates Flange Plates subject to notch toughness requirements.

Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) Indicates 4 rows of shear connectors across girder flange.

All web plates shall be subject to notch toughness requirements.



NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 22 AND 23

SHEET 42 OF 93

A-3594

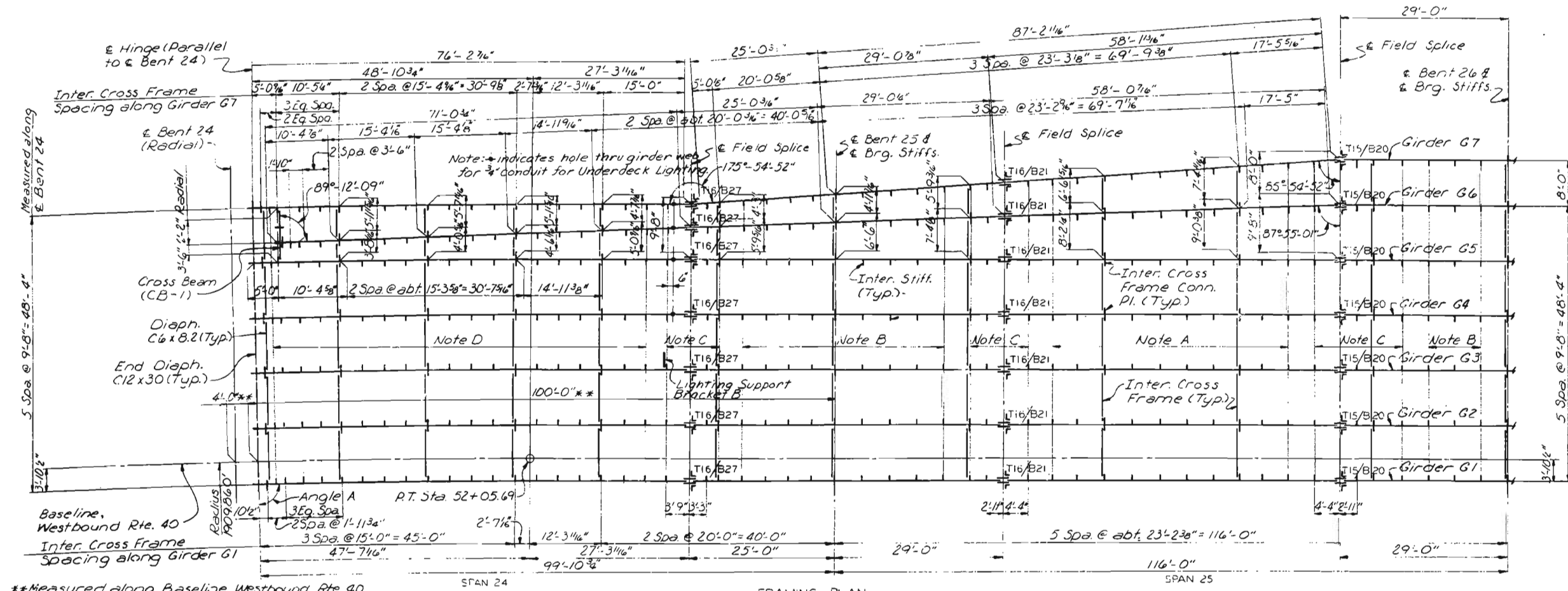
22

DRAWN BY: R.A. Wokurka, May '77
TRACED BY:
CHECKED BY: T. Sanders, Sept. 1977

5261
775198

MISSOURI STATE HIGHWAY DEPARTMENT

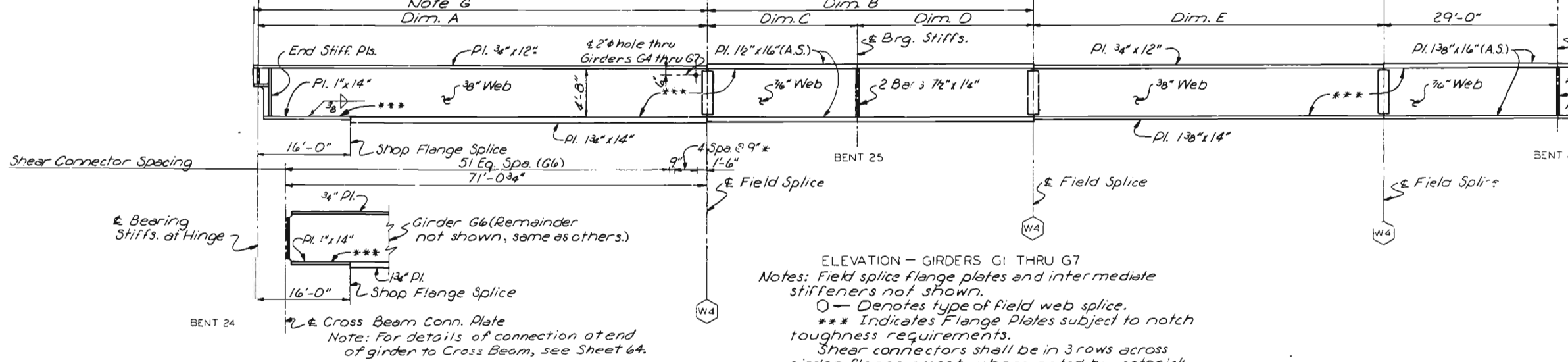
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	106	



**Measured along Baseline, Westbound Rte. 40

Note: Intermediate stiffeners are Bars 4"x3/8". Intermediate cross frame connection plates are Bars 4 1/2"x3/8".

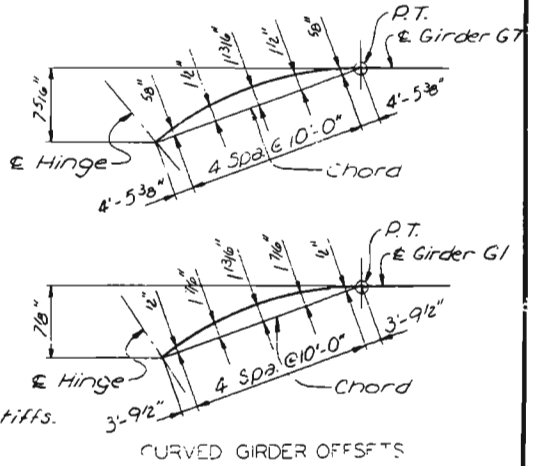
Shear Connector Spacing



Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Angle A
G1	74'-10 3/4"	54'-0"	25'-0"	29'-0"	58'-0"	89°-52'-47"
G2	75'-1 7/8"	54'-0"	25'-0"	29'-0"	58'-0"	89°-52'-49"
G3	75'-5"	54'-0"	25'-0"	29'-0"	58'-0"	89°-52'-52"
G4	75'-8 3/4"	54'-0"	25'-0"	29'-0"	58'-0"	89°-52'-54"
G5	75'-11 5/16"	54'-0"	25'-0"	29'-0"	58'-0"	89°-52'-56"
G6		54'-0 3/4"	25'-0 3/4"	29'-0 3/4"	58'-0 3/4"	
G7	76'-2 7/8"	54'-1 3/8"	25'-0 3/4"	29'-0 3/8"	58'-1 1/4"	89°-52'-58"

Note: Angle is measured from tangent to girder at Hinge, to Hinge.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.



NOTES

For Structural Steel Notes, see Sheet 33. Longitudinal dimensions are measured horizontally along centerline of girders. Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panel. Work this Sheet with Sheet 44. For Girder Details, see Sheet 59. For Girder Splice Details, see Sheet 61. For Hinge Details, see Sheet 60. For Cross Beam Detail, see Sheet 64. For Lighting Support Bracket Detail, see Sheet 63.

CITY OF ST. LOUIS

FRAMING PLAN SPANS 24 AND 25

SHEET 43 OF 93

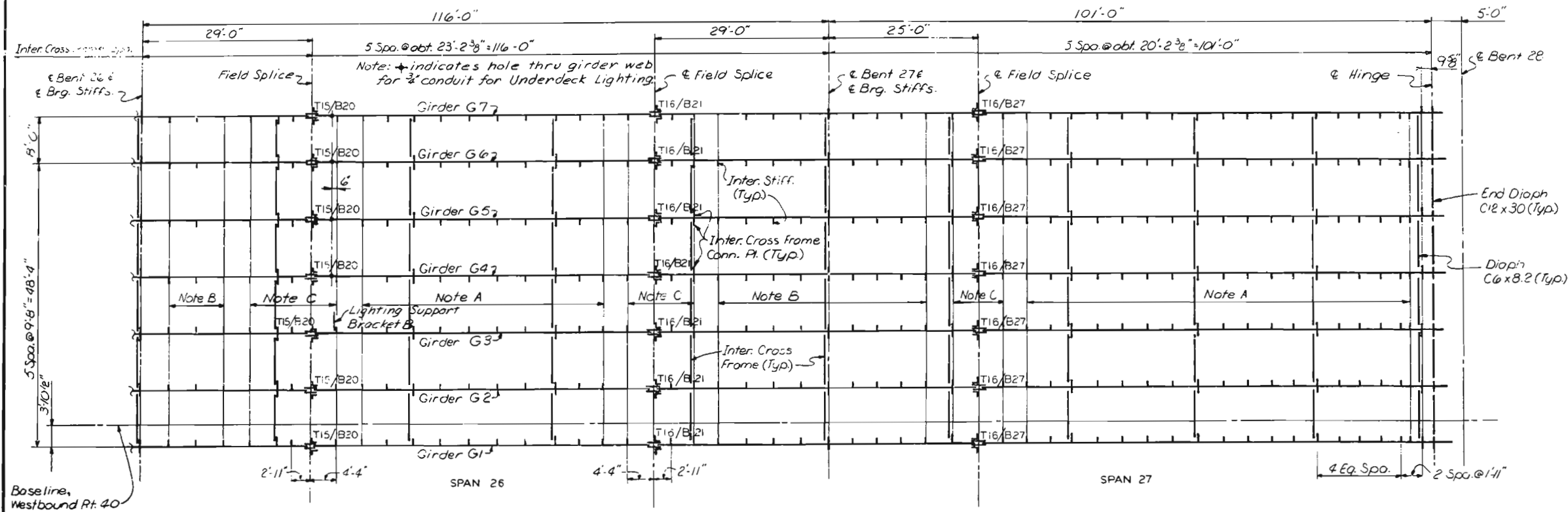
A-5594

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

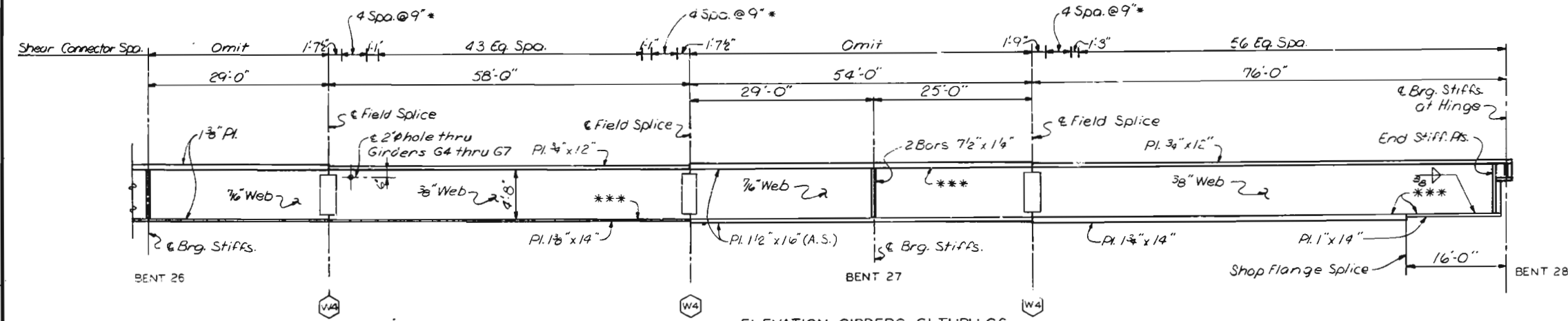
DRAWN BY: D.R. Brock, May, 1972
CHECKED BY: T. Sanders, Sept. 1972
5261
775236

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	127	



- Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.
- Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
- Note C: Use close joint for intermediate stiffeners and cross frame conn. plate at top and bottom flanges of girders.



NOTES

- For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panel.
Work this Sheet with Sheet 43.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 66.
For Lighting Support Bracket Details, see Sheet 63.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 26 AND 27

SHEET 44 OF 93

A-3594

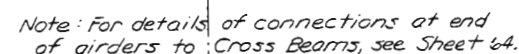
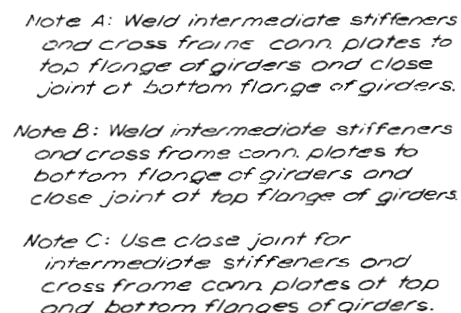
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

240

DRAWN BY: J.D. Avery, May 1977
CHECKED BY: T. Sanders, Sept. 1977
5261
775195

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOT SHEE
5	MO.		18	108	

[illegible]

Notes: Field splice flange plates and intermediate stiffeners not shown.

○ ← Denotes type of field web splice.

*** Indicates Flange Plates subject to notch toughness requirements.

Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.

(*) indicates 4 rows of shear connectors across girder flange.

All web plates shall be subject to notch toughness requirements.



For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally along centerline of girders.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.
Work this Sheet with Sheet 46.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 66.
For Lighting Support Bracket Details, see Sheet 63.

FRAMING PLAN
SPAN 28

SHEET 45 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

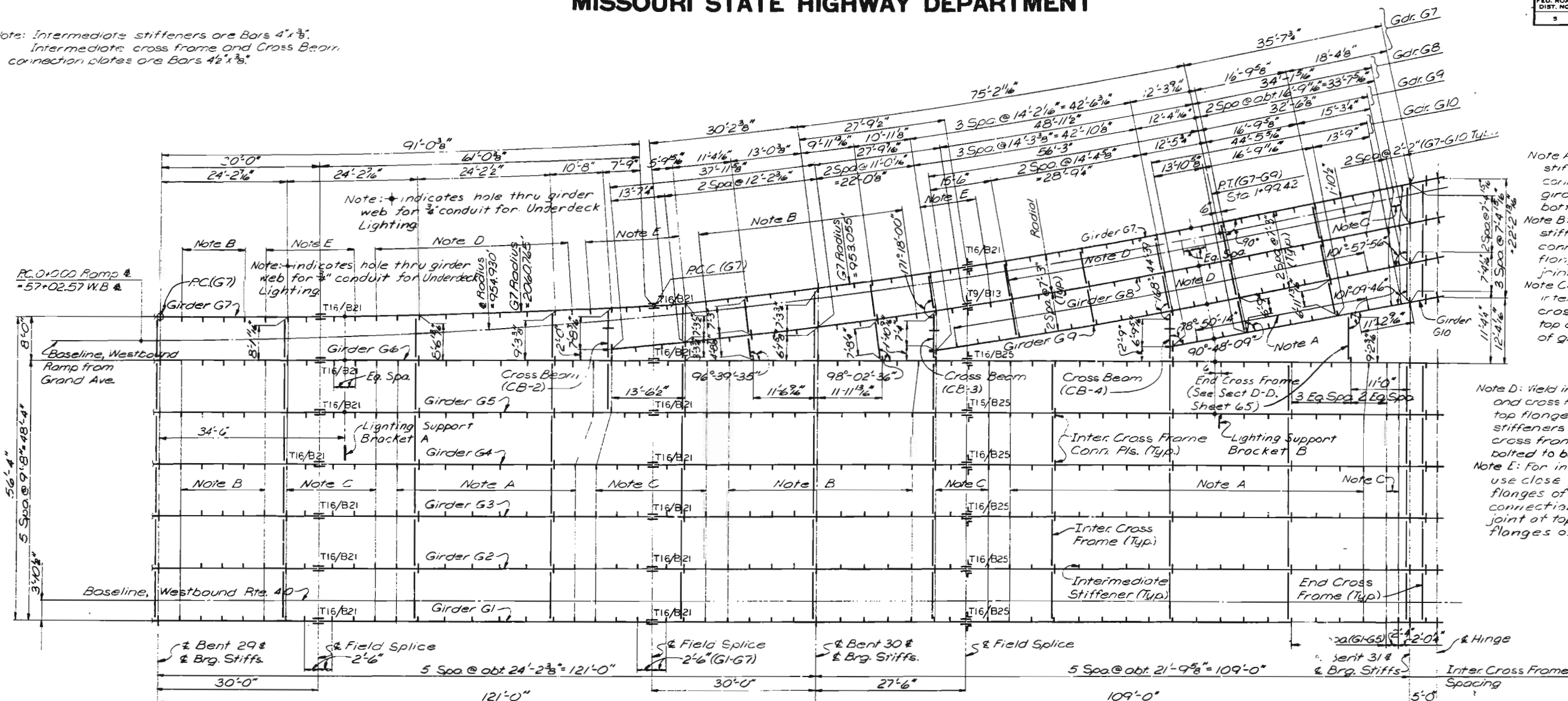
SPERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

5261	DRAWN BY: G. M. Andrews	2 June 1977
TX-220	TRACED BY:	
	CHECKED BY: T. Sanders	Sept. 1977

MISSOURI STATE HIGHWAY DEPARTMENT

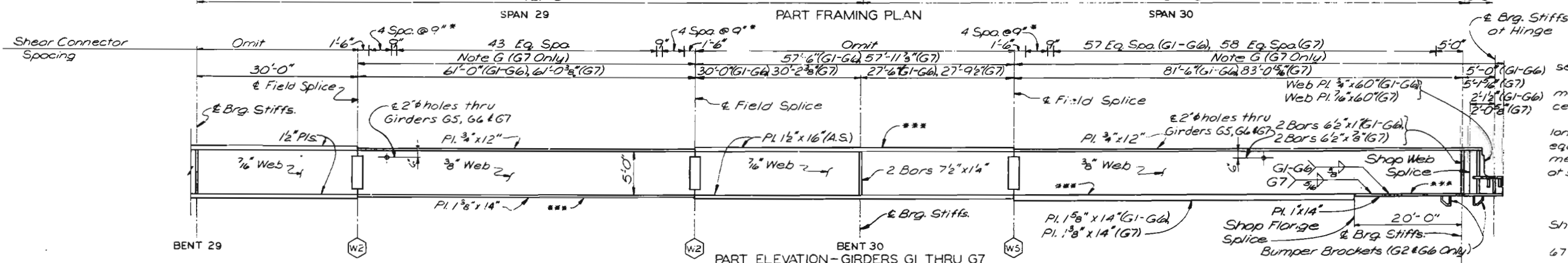
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	109	

Note: Intermediate stiffeners are Bars 4"x8".
Intermediate cross frame and Cross Beam connection plates are Bars 4 1/2"x8".



Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.
Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.

Note D: Weld intermediate stiffeners and cross frame conn. plates to top flange of girder. Intermediate stiffeners to have close joint and cross frame conn. plates to be bolted to bottom flange of girders.
Note E: For intermediate stiffeners use close joint at top and bottom flanges of girders. Cross frame connection plates to be close joint at top and bolted to bottom flanges of girders.



NOTES

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally along centerline of girder.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panel.
Work this Sheet with Sheet 45.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheets 67 and 68.
For Cross Beam Details, see Sheet 64.
For Bumper Bracket Details, see Sheet 60.
For Lighting Support Bracket Details see Sheet 63.

Notes: Field splice flange plates and intermediate stiffeners not shown.
○ Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.
Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) indicates 4 rows of shear connectors across girder flange.
All web plates shall be subject to notch toughness requirements.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 29 AND 30

SHEET 46 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

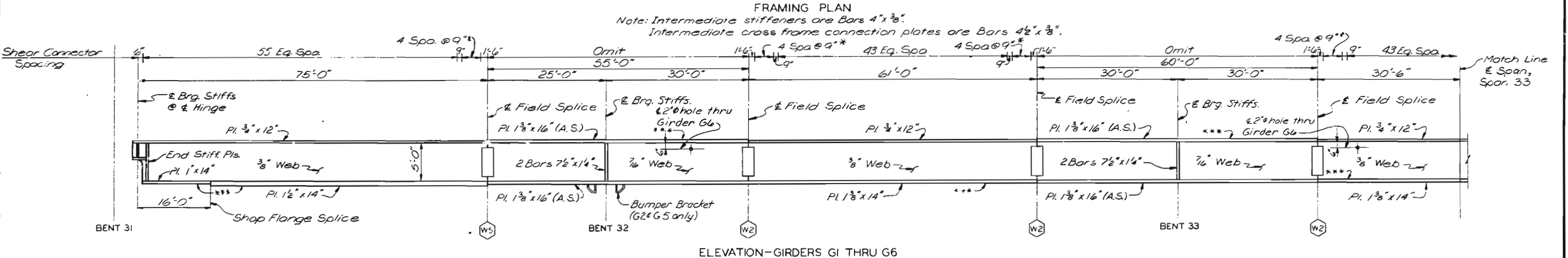
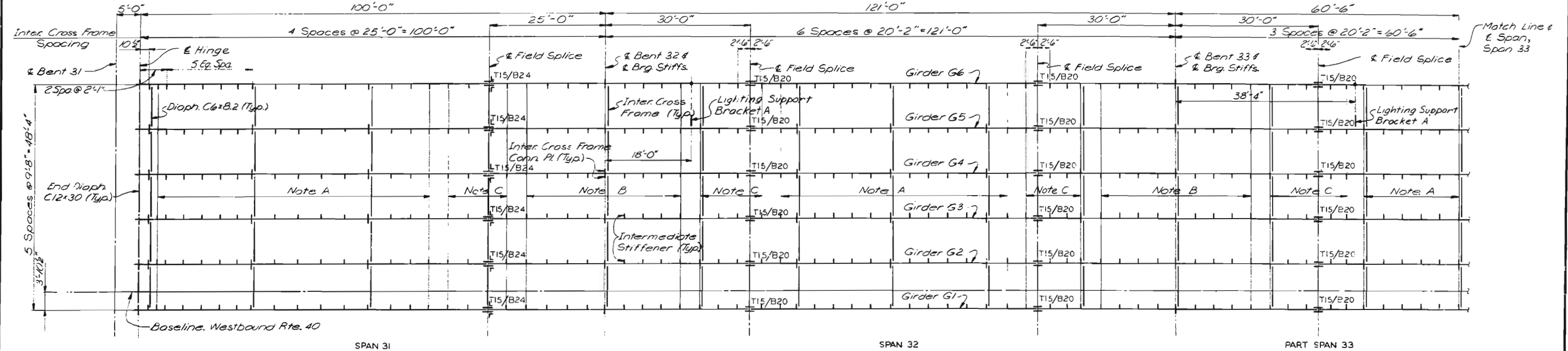
SWENDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

242
DRAWN BY G. M. Anderson, June 1977
CHECKED BY T. T. Sanders, Sept. 1977
5261
725224

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	110	

Note: + indicates hole thru girder web for 2" conduit for Underdeck Lighting.



Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.

Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.

Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.

Note: Field splice flange plates and intermediate stiffeners not shown.

○ — Denotes type of field web splice.

*** Indicates Flange Plates subject to notch toughness requirements.

Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.

(*) indicates 4 rows of shear connectors across girder flange.

All web plates shall be subject to notch toughness requirements.

NOTES

For Structural Steel Notes, see Sheet 33.

Longitudinal dimensions are measured horizontally.

Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panel.

Work this Sheet with Sheet 48.

For Girder Details, see Sheet 59.

For Girder Splice Details, see Sheet 61.

For Hinge Details, see Sheet 67.

For Bumper Bracket Details, see Sheet 60.

For Framing Plan of Girders G6 thru G10 in Spans 31 and 32, see Sheet 49.

For Lighting Support Bracket Details, see Sheet 63.

243

DRAWN BY: G.M. Andrusko, May, 1977
TRACED BY:
CHECKED BY: J. Sanders, Sept. 1977

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CITY OF ST. LOUIS
FRAMING PLAN
SPANS 31, 32 AND 33

SHEET 47 OF 93

A-3594

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	111	

[illegible]

NOTES

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panel.
Work this Sheet with Sheet 47.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 67.
For Bumper Bracket Details, see Sheet 60.
For Lighting Support Bracket Details, see Sheet 63.

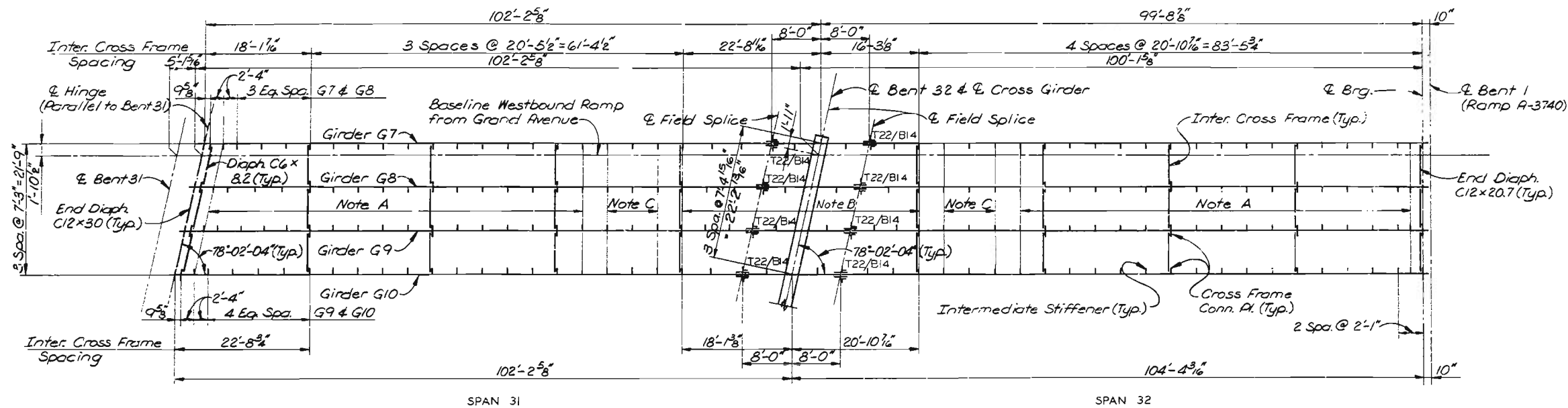
A-3594

5261	DRAWN BY: G. M. Andrusko, June 1977
72528	TRACED BY:
	CHECKED BY: T. Sanders, Sept. 1977

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ST. LOUIS, MISSOURI

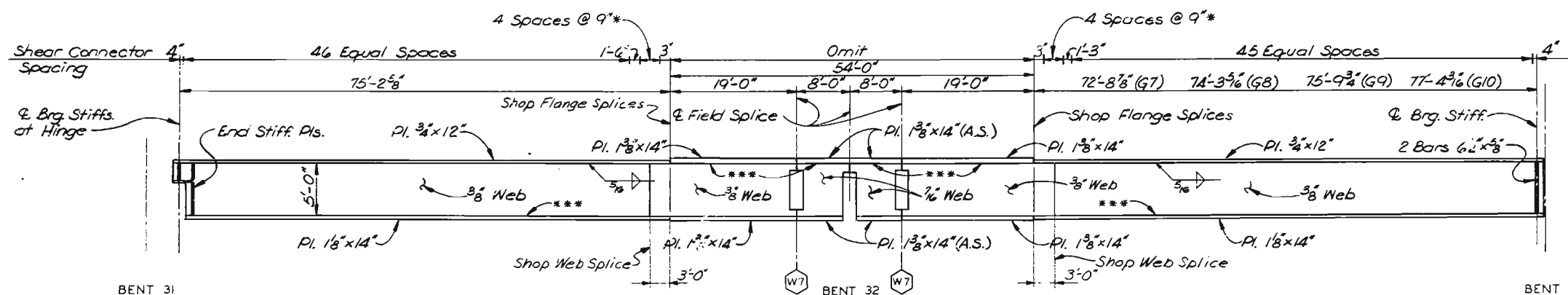
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2	MO.		18	112	



FRAMING PLAN
 Note: Intermediate stiffeners are Bars 4"x8".
 Intermediate cross frame connection plates are Bars 4 1/2"x8".

- Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.
 Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
 Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.



ELEVATION-GIRDERS G7 THRU G10
 Notes: Field splice flange plates and intermediate stiffeners not shown.
 O — Denotes type of field web splice.
 *** Indicates Flange Plates subject to notch toughness requirements.
 All web plates shall be subject to notch toughness requirements.
 Shear connectors shall be in 3 rows across girder flange except where noted by asterick.
 (*) Indicates 4 rows of shear connectors across girder flange.

- NOTES
 For Structural Steel Notes, see Sheet 33.
 Longitudinal dimensions are measured horizontally.
 Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panels.
 For Girder Details, see Sheet 59.
 For Girder Splice Details, see Sheets 61 and 62.
 For Hinge Details, see Sheet 68.
 For Framing Plan of Girders G1 thru G6, see Sheet 47.

CITY OF ST. LOUIS

FRAMING PLAN
 SPANS 31 AND 32

SHEET 45 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

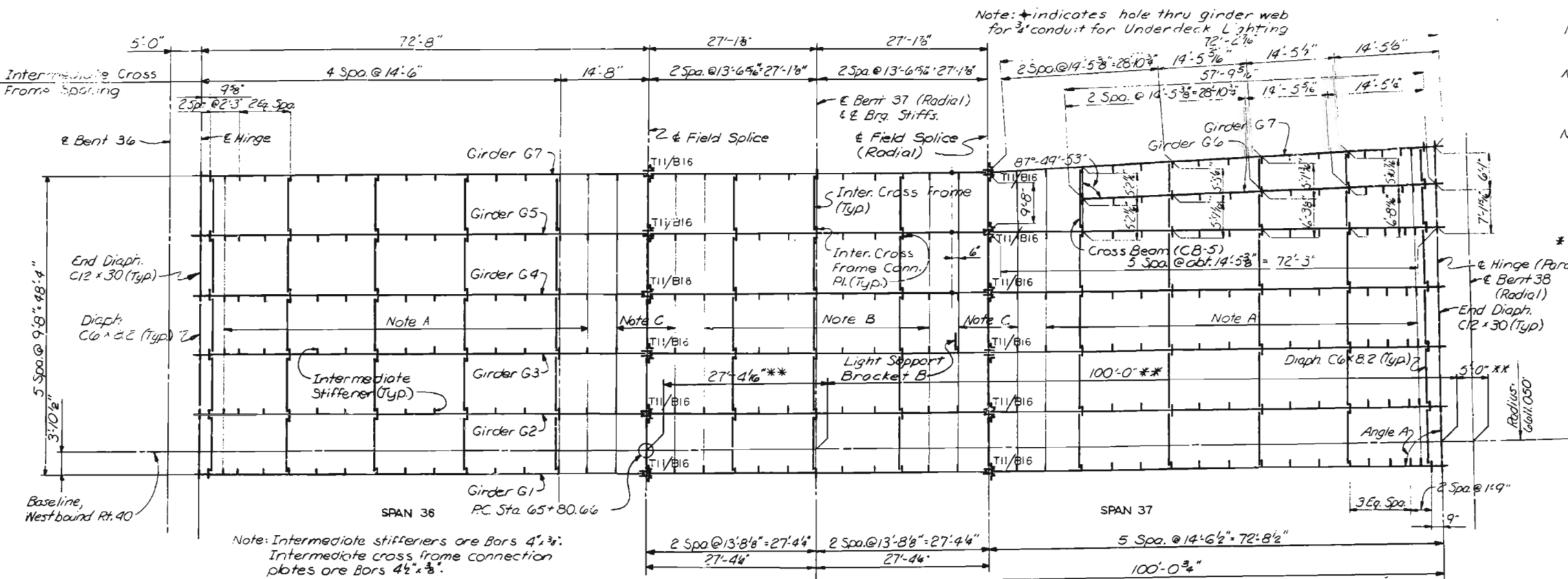
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 ST. LOUIS, MISSOURI

DRAWN BY: D. Ammons, Aug. 1977
 CHECKED BY: T. Sander, Sept. 1977
 5261
 775279

245

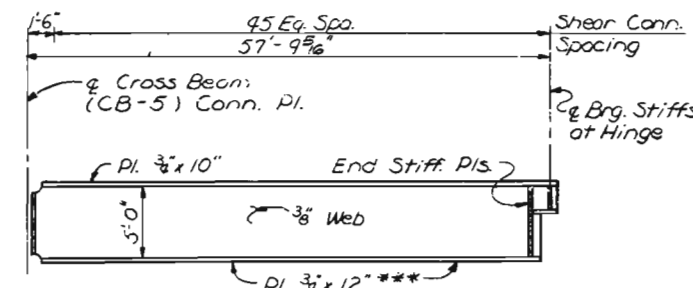
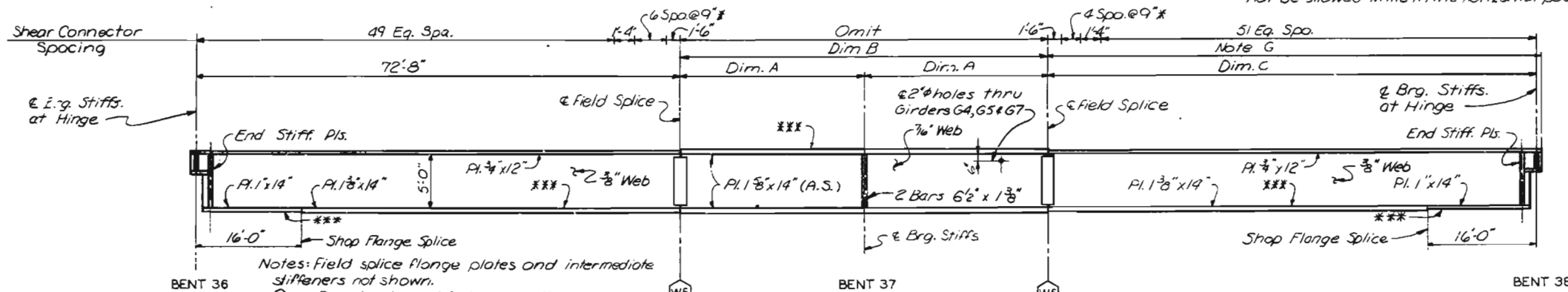
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	113	



Girder	Dim. A	Dim. B	Dim. C	Angle A
G1	27'-4"	54'-8"	72'-8"	89°57'20"
G2	27'-3"	54'-7"	72'-7"	89°57'20"
G3	27'-3"	54'-6"	72'-5"	89°57'20"
G4	27'-2"	54'-5"	72'-4"	89°57'23"
G5	27'-2"	54'-4"	72'-3"	89°57'23"
G6				91°37'49"
G7	27'-2"	54'-3"	72'-2"	92°29'02"

Note: Angle is measured from tangent to girder at & Hinge, to & Hinge.

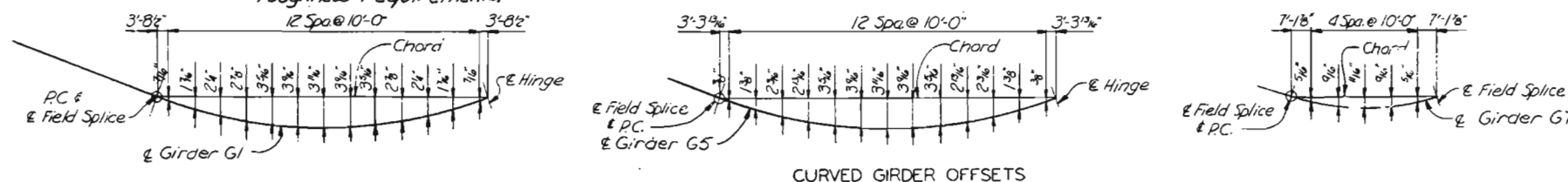


Note: For details of connection at end of girder to Cross Beam, see Sheet 64.

BENT 36 BENT 37 BENT 38

NOTES

- For Structural Steel Notes see Sheet 33.
- Longitudinal dimensions are measured horizontally along centerline of girders.
- Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members and stiffeners shown at end panels.
- For Cross Beam Details, see Sheet 64.
- For Girder Details, see Sheet 59.
- For Girder Splice Details, see Sheet 61.
- For Hinge Details, see Sheet 67.
- For Lighting Support Bracket Details, see Sheet 63.



CITY OF ST. LOUIS

FRAMING PLAN
SPANS 36 AND 37

SHEET 50 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

246

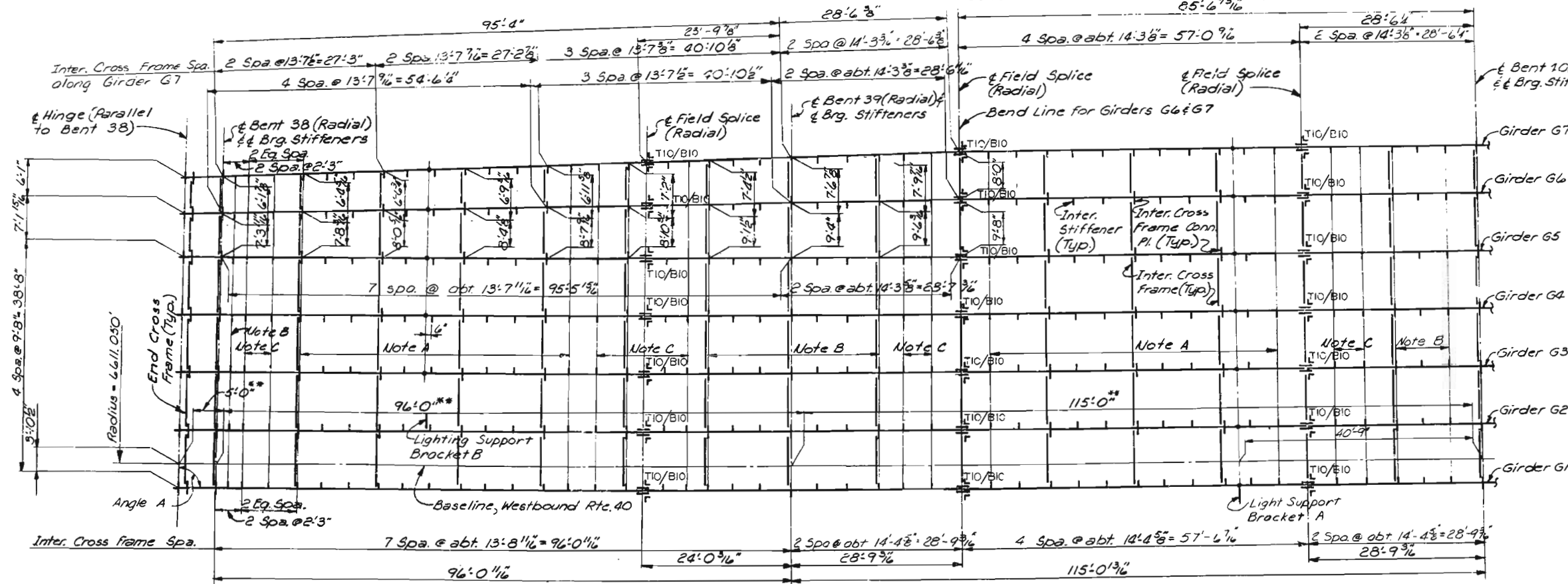
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: J.D. Avery, June 1977
CHECKED BY: T. Sanborn, Sept. 1977
5261
775217

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	114	

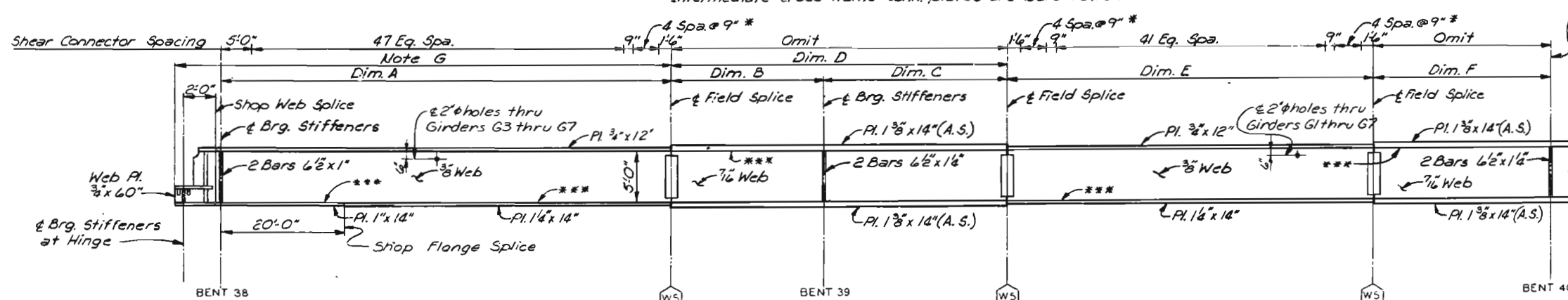
Note: + indicates hole thru girder web for 3/4" conduit for Underdeck Lighting



Note G: Heat curving of Girders G1 thru G5 will not be allowed while in the horizontal position.

Note: Intermediate stiffeners are Bars 4"x8". Intermediate cross frame conn. plates are Bars 4 1/2"x8".

**Measured along Baseline Westbound Rte. 40.



ELEVATION - GIRDERS G1 THRU G7

Notes: Field splice flange plates and intermediate stiffeners not shown.

○ Denotes type of field web splice.

*** Indicates Flange Plates subject to notch toughness requirements.

Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.

(*) Indicates 4 rows of shear connectors across girder flange.

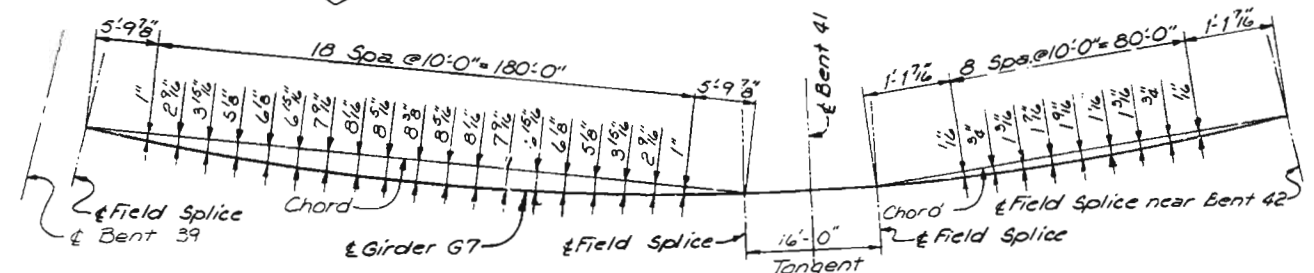
All web plates shall be subject to notch toughness requirements.

Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Angle A
G1	72'-0"	24'-0"	28'-9"	52'-9"	57'-6"	28'-9"	90°-02'-36"
G2	71'-11"	23'-11"	28'-8"	52'-8"	57'-5"	28'-8"	90°-02'-36"
G3	71'-10"	23'-11"	28'-8"	52'-7"	57'-4"	28'-8"	90°-02'-37"
G4	71'-8"	23'-10"	28'-7"	52'-6"	57'-3"	28'-7"	90°-02'-37"
G5	71'-7"	23'-10"	28'-7"	52'-5"	57'-2"	28'-7"	90°-02'-37"
G6	71'-6"	23'-10"	28'-6"	52'-4"	57'-1"	28'-6"	88°-22'-11"
G7	71'-6"	23'-9"	28'-6"	52'-4"	57'-0"	28'-6"	87°-30'-58"

Note: Angle is measured from tangent to girder at & Hinge, to & Hinge.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

NOTES
For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally along centerline of girders.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.
Work this sheet with Sheet 52.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 67.
For Lighting Support Bracket Details, see Sheet 63.



CURVED GIRDER OFFSETS

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 38 AND 39

SHEET 51 OF 93

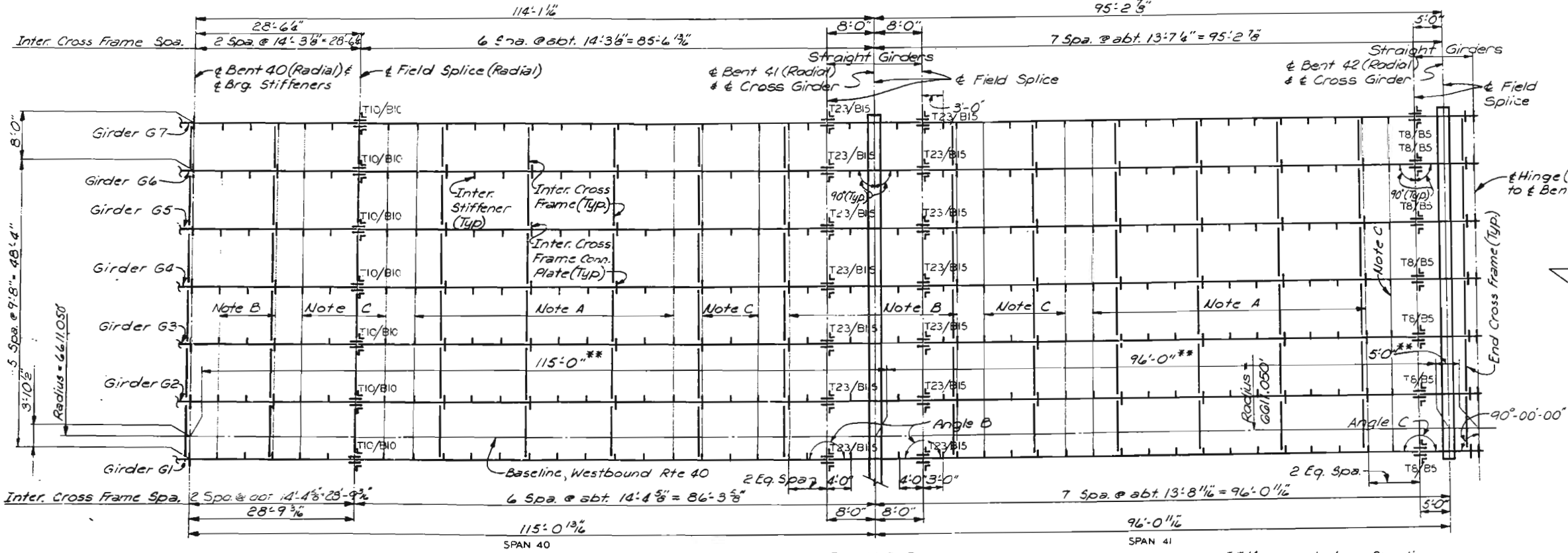
A-3594

SWERDUP & PARCEL AND ASSOCIATES, INC.
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ST. LOUIS, MISSOURI

247
DRAWN BY: R.A. Wotko, Jr. June 1977
CHECKED BY: T. Sander, Jr. Sept. 1977
5261
775211

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	52	



Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.

Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.

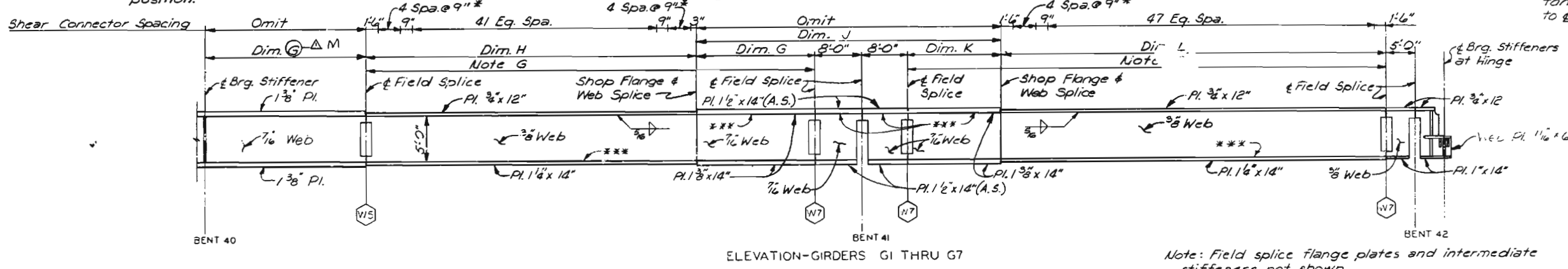
Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.

Girder	Dim. G	Dim. M
G1	20'-9 1/2"	28'-9 1/2"
G2	20'-8 1/2"	28'-8 1/2"
G3	20'-8 1/2"	28'-8 1/2"
G4	20'-8 1/2"	28'-7 1/2"
G5	20'-7 1/2"	28'-7 1/2"
G6	20'-7 1/2"	28'-6 1/2"
G7	20'-7 1/2"	28'-6 1/2"

Girder	Dim. G	Dim. H	Dim. J	Dim. K	Dim. L
G1	20'-9 1/2"	57'-6 1/2"	52'-9 1/2"	16'-0 1/2"	67'-0 1/2"
G2	20'-8 1/2"	57'-5 1/2"	52'-8 1/2"	15'-11 1/2"	66'-11 1/2"
G3	20'-8 1/2"	57'-4 1/2"	52'-7 1/2"	15'-11 1/2"	66'-10"
G4	20'-7 1/2"	57'-3 1/2"	52'-6 1/2"	15'-10 1/2"	66'-8 1/2"
G5	20'-7 1/2"	57'-2 1/2"	52'-5 1/2"	15'-10 1/2"	66'-7 1/2"
G6	20'-6 1/2"	57'-1 1/2"	52'-4 1/2"	15'-10 1/2"	66'-6 1/2"
G7	20'-6 1/2"	57'-0 1/2"	52'-3 1/2"	15'-9 1/2"	66'-5 1/2"

Girder	Angle B	Angle C
G1	179°-55'-51"	179°-57'-24"
G2	179°-55'-50"	179°-57'-24"
G3	179°-55'-50"	179°-57'-24"
G4	179°-55'-50"	179°-57'-23"
G5	179°-55'-49"	179°-57'-23"
G6	179°-55'-49"	179°-57'-23"
G7	179°-55'-48"	179°-57'-23"

Note: Angles are measured from tangent to girder at Field Splice, to Girder.



Note: Field splice flange plates and intermediate stiffeners not shown.

○ Denotes type of field web splice.

*** Indicates Flange Plates subject to notch toughness requirements.

Shear connectors shall be in 3 rows across girder flange except where noted by asterisk. (*) Indicates 4 rows of shear connectors across girder flange.

All web plates shall be subject to notch toughness requirements.

For Structures Steel Notes, see Spec 33.

Longitudinal dimension will be measured along centerline of girder.

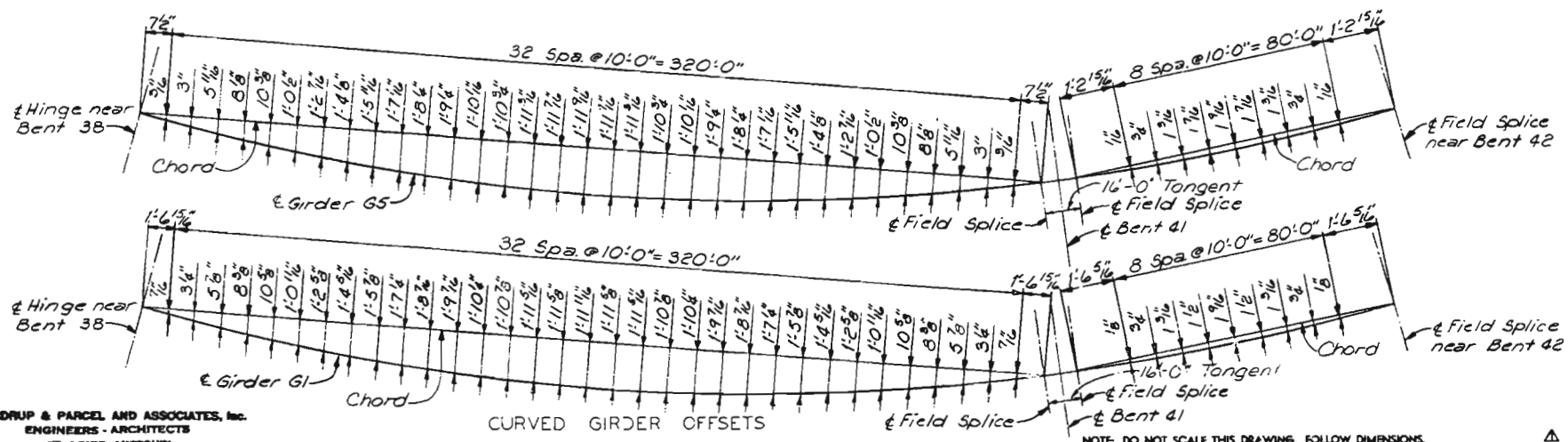
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at Splices and end panel.

Work this Sheet with Sheet 51.

For Girder Details, see Sheet 59.

For Girder Splice Details, see Sheets 61 and 62.

For Hinge Details, see Sheet 67.



NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Revised 7-18-79

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 40 AND 41

SHEET 52 OF 63

A-3594

248

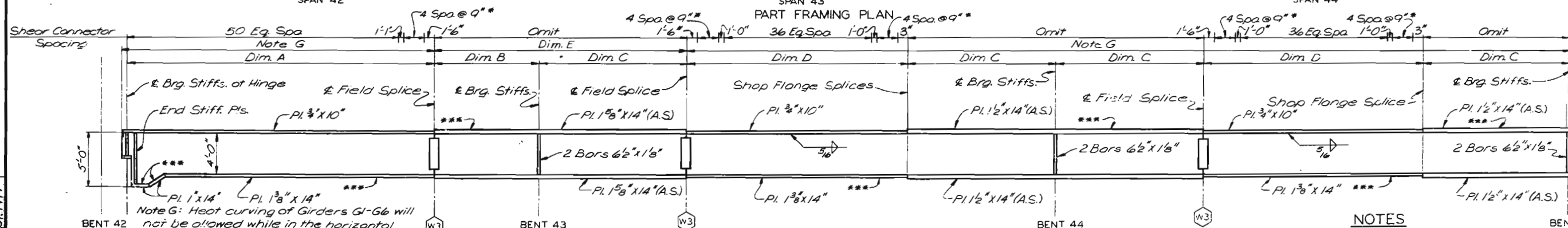
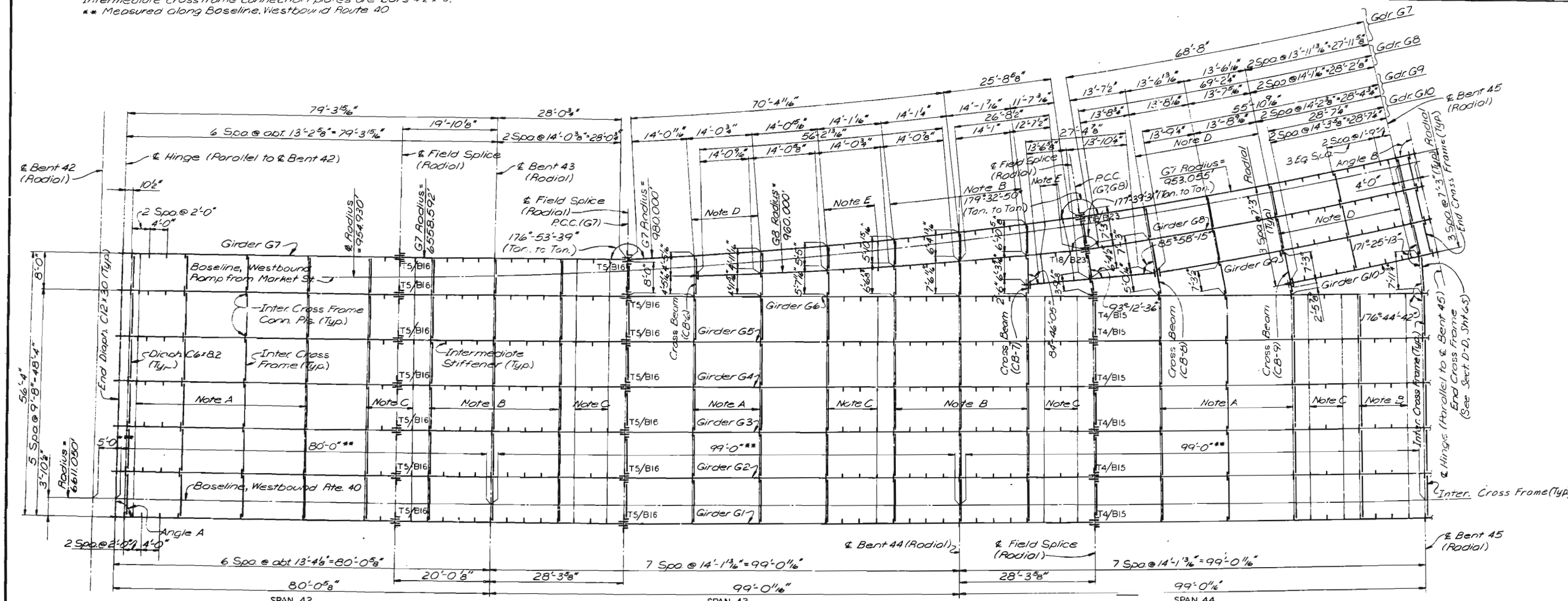
DRAWN BY: R.A. Wokurka, June 77
CHECKED BY: T. Sanders, Sept. 1977
5261
773226

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	116	

Note: Intermediate stiffeners are Bars 4"x8".
Intermediate cross frame connection plates are Bars 4 1/2"x8".
** Measured along Baseline, Westbound Route 40



Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Angle A
G1	60'-0"	20'-0"	28'-3"	42'-5"	48'-3"	89°-57'-24"
G2	59'-10"	19'-11"	28'-3"	42'-4"	48'-2"	89°-57'-24"
G3	59'-10"	19'-11"	28'-2"	42'-4"	48'-2"	89°-57'-24"
G4	59'-4"	19'-11"	28'-2"	42'-3"	48'-1"	89°-57'-23"
G5	59'-7"	19'-10"	28'-1"	42'-2"	48'-0"	89°-57'-23"
G6	59'-6"	19'-10"	28'-1"	42'-1"	47'-11"	89°-57'-23"

Gdr.	Angle A	Angle B
G7	89°-57'-23"	90°-14'-25"
G8	—	90°-14'-19"
G9	—	90°-14'-12"
G10	—	90°-14'-06"

Notes: Web plates are 7/16"x48".
Field splice flange plates and intermediate stiffeners not shown.
○ Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.
Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) indicates 4 rows of shear connectors across girder flange.
All web plates are subject to notch toughness requirements.

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally along centerline of girders.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panels.
Work this Sheet with Sheets 54 & 55.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 67.
For Cross Beam Details, see Sheet 64.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 42, 43 AND 44

SHEET 53 OF 93

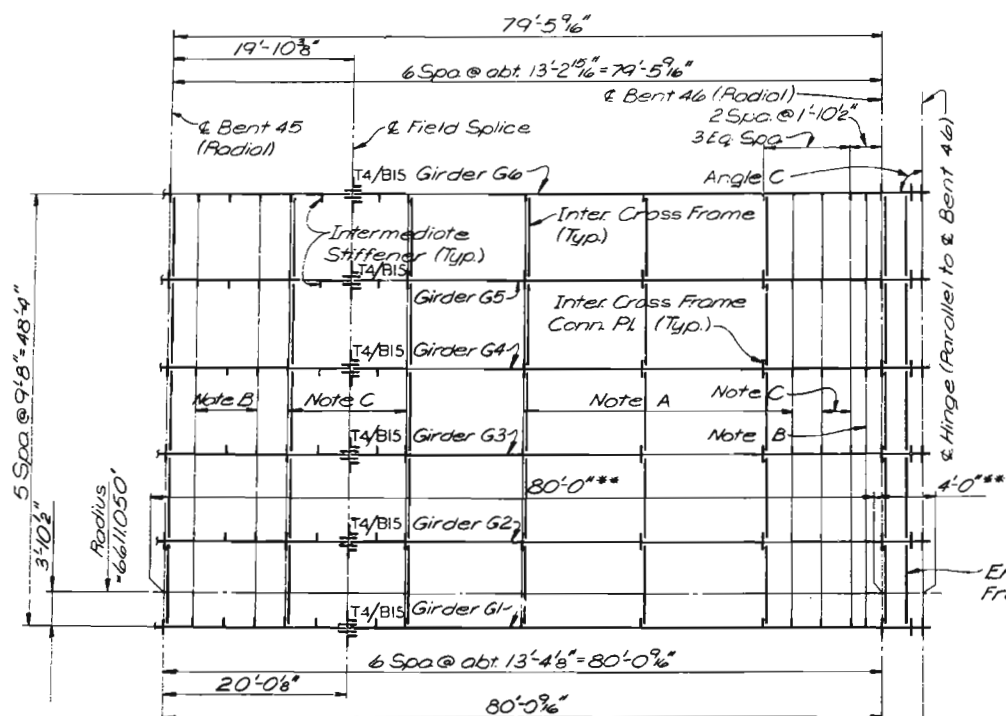
A-3594

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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

5261
775261

MISSOURI STATE HIGHWAY DEPARTMENT

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



Note: Intermediate stiffeners are Bars 4"x3/8". Intermediate cross frame connection plates are Bars 4 1/2"x3/8".

** Measured along Baseline, Westbound Route 40.

Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.

Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.

Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.

Note D: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders. Intermediate stiffeners to have close joint and cross frame conn. plates to be bolted to bottom flange of girders.

Note E: For intermediate stiffeners use close joint at top and bottom flanges of girders. Cross frame connection plates to be close joint at top and bolted to bottom flanges of girders.

NOTES

For Structural Steel Notes, see Sheet 33. Longitudinal dimensions are measured horizontally along centerline of girders. Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.

Work this Sheet with Sheets 53 & 55.

For Girder Details, see Sheet 59.

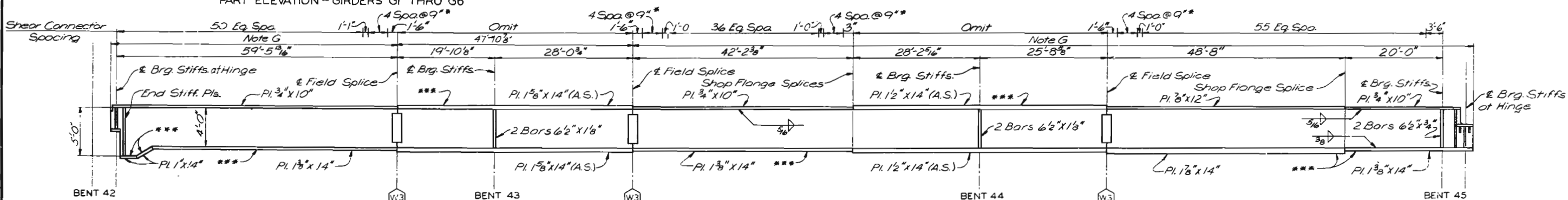
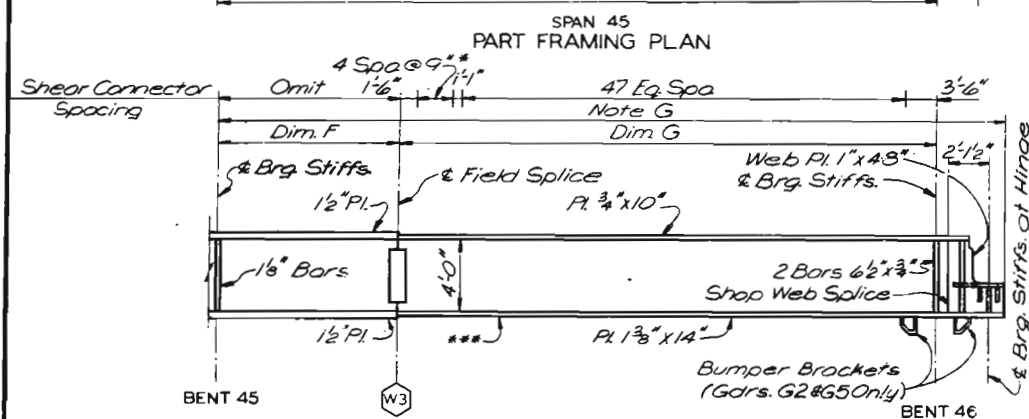
For Girder Splice Details, see Sheet 61.

For Hinge Details, see Sheets 67 and 69.

For Bumper Bracket Details, see Sheet 60.

Note: Angle is measured from tangent to girder at & Hinge, to & Hinge.

Girder	Dim. F	Dim. G	Angle C
G1	20'-0 1/8"	60'-0 1/8"	90°02'-05"
G2	19'-11 1/8"	59'-11 1/8"	90°02'-05"
G3	19'-11 1/8"	59'-10 3/8"	90°02'-05"
G4	19'-11 1/8"	59'-9 5/8"	90°02'-05"
G5	19'-10 3/8"	59'-8 1/2"	90°02'-06"
G6	19'-10 3/8"	59'-7 3/8"	90°02'-06"



Note G: Heat curving of Girders G1-G7 will not be allowed while in the horizontal position.

Notes: Field splice flange plates and intermediate stiffeners not shown.

○ Denotes type of field web splice.

*** Indicates Flange Plates subject to notch toughness requirements.

Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.

(*) indicates 4 rows of shear connectors across girder flange.

Web plates are 7/8"x48", except hinges at Bent 46.

All web plates shall be subject to notch toughness requirements.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

FRAMING PLAN
SPAN 45

SHEET 54 OF 93

A-3594

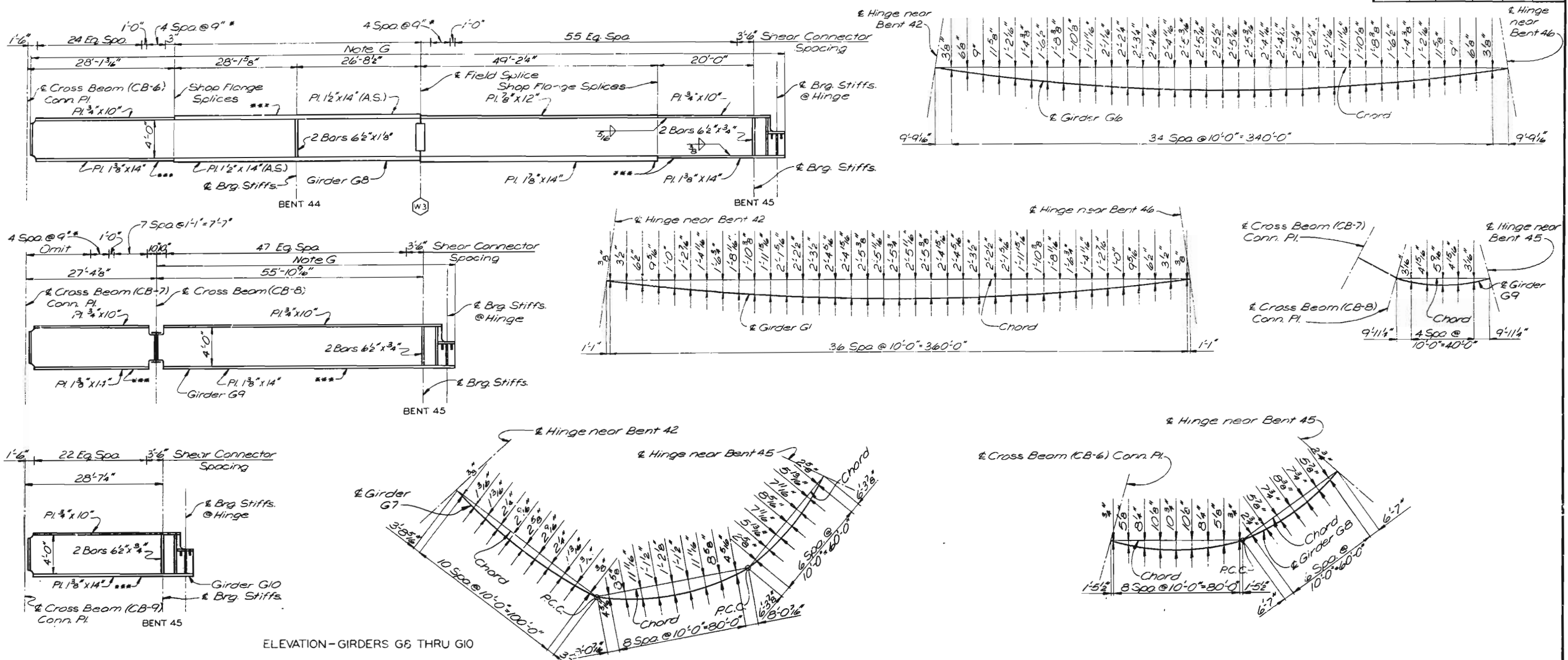
SPERDUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: G. M. Anderson, July 1977
CHECKED BY: J. Sanders, Sept. 1977
5261
775270

250

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		10	118	



Notes: Field splice flange plates and intermediate stiffeners not shown.
○ Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.
Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) indicates 4 rows of shear connectors across girder flange.
Web plates are 7/16" x 48".
All web plates shall be subject to notch toughness requirements.

NOTES
Work this sheet with Sheet 53 and 54.

251

DRAWN BY: G. M. Trachusko, Sept. 1977
CHECKED BY: T. Stordis, Sept. 1977
5261
775313

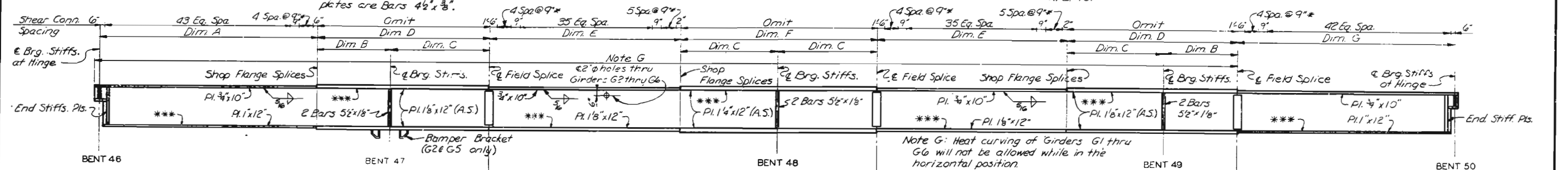
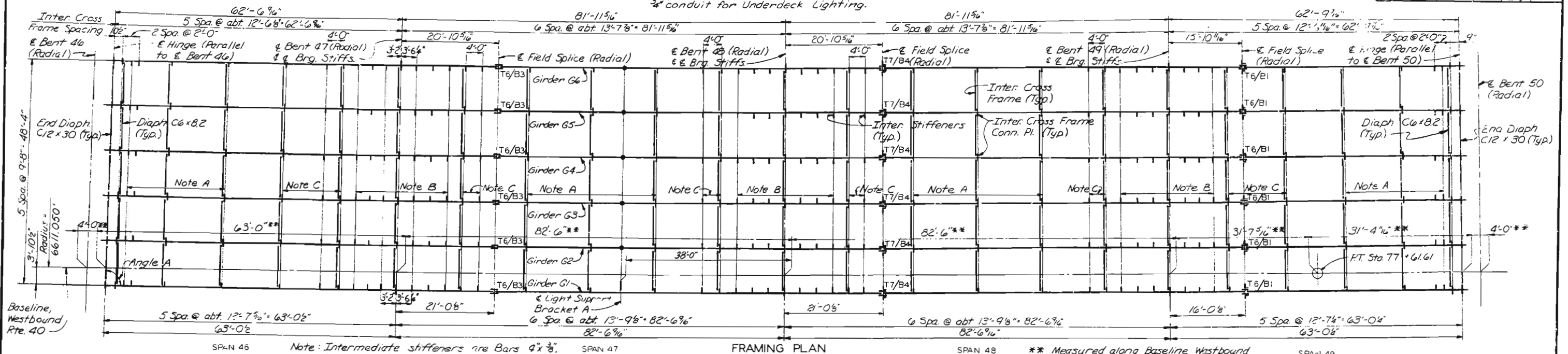
PERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSOURI STATE HIGHWAY DEPARTMENT

Note: * indicates hole thru girder web for 3/4" conduit for Underdeck Lighting.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	119	



Note: Field splice flange plates and intermediate stiffeners not shown.

○ Denotes type of field web splice.

*** Indicates Flange Plates subject to notch toughness requirements.

Shear connectors shall be in 3 rows across girder flange except where noted by asterisk. (*) Indicates 4 rows of shear connectors across girder flange. Web plates are 7/8" x 48". All flange plates shall be subject to notch toughness requirements.

Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.

Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.

Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.

NOTES

For Structural Steel Notes, see Sheet 33.

For longitudinal dimensions, see centerline of girders.

Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown.

For Bumper Bracket Details, see Sheet 60.

For Girder Details, see Sheet 59.

For Girder Splice Details, see Sheet 61.

For Hinge Details, see Sheet 67 and 69.

For Lighting Support Bracket Details, see Sheet 63.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 46 THRU 49

SHEET 56 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

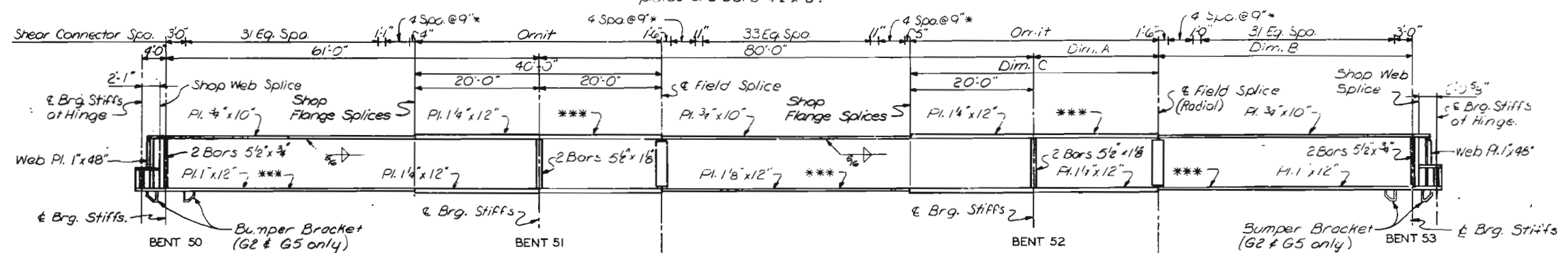
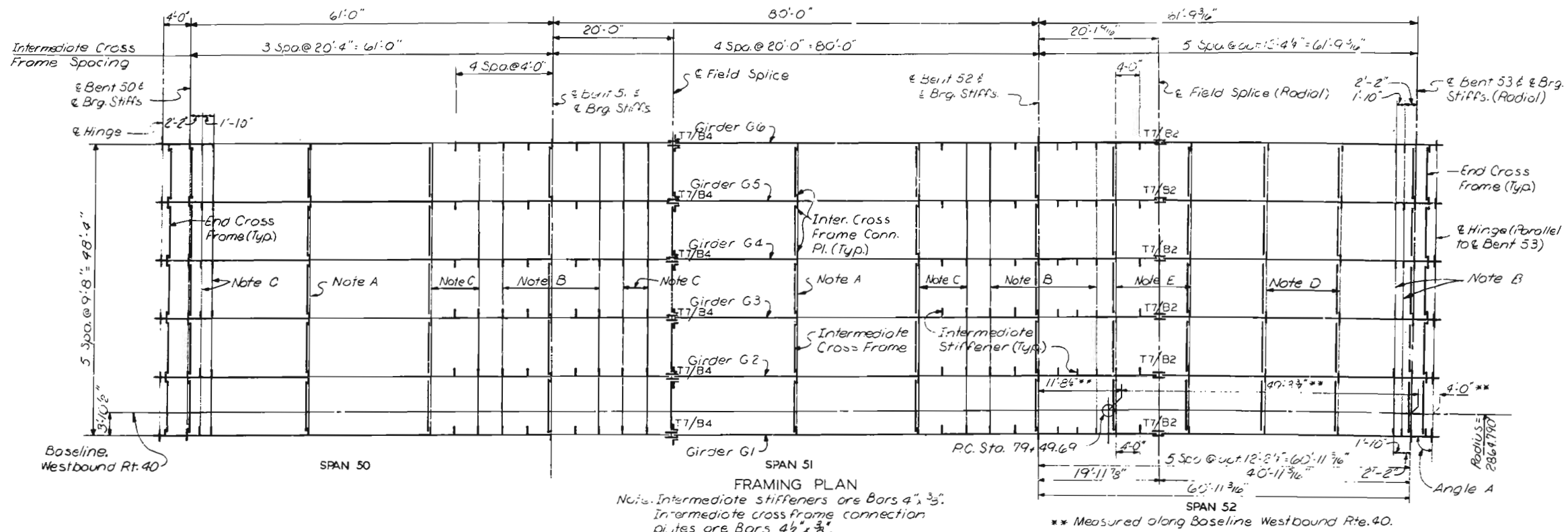
252

DRAWN BY: J.D. AVERY, June 1977
CHECKED BY: T. SANDERS, Sept. 1977

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

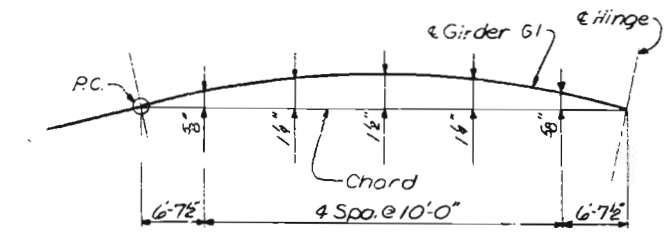
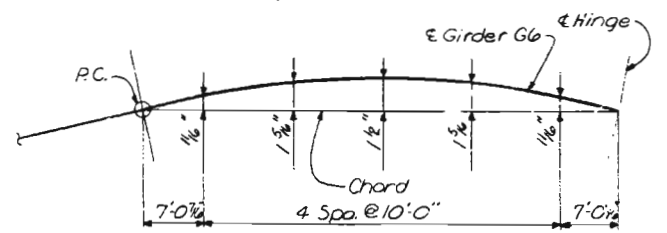
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	120	



NOTES

For Structural Steel Notes, see Sheet 33.
 Longitudinal dimensions are measured horizontally along centerline of girders.
 Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panels.
 For Hinge Details, See Sheets 65 and 69.
 For Girder Details, See Sheet 59.
 For Girder Splice Details, See Sheet 61.



Girder	Dim. A	Dim. B	Dim. C	Angle A
G1	19'-11 3/8"	40'-11 3/8"	39'-11 3/8"	90°-04'-48"
G2	20'-0 3/8"	41'-1"	40'-0 3/8"	90°-04'-47"
G3	20'-0 3/8"	41'-2 3/8"	40'-0 3/8"	90°-04'-47"
G4	20'-0 3/8"	41'-4 3/8"	40'-0 3/8"	90°-04'-46"
G5	20'-1 3/8"	41'-6"	40'-1 3/8"	90°-04'-45"
G6	20'-1 3/8"	41'-7 3/8"	40'-1 3/8"	90°-04'-44"

Note: Angle is measured from tangent to girder at Hinge, to Hinge.

CITY OF ST. LOUIS

FRAMING PLAN
 SPANS 50, 51 AND 52

SHEET 57 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

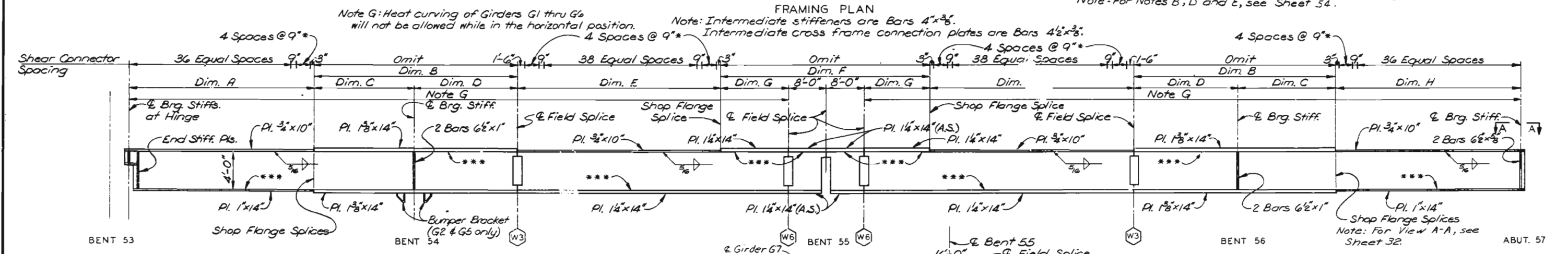
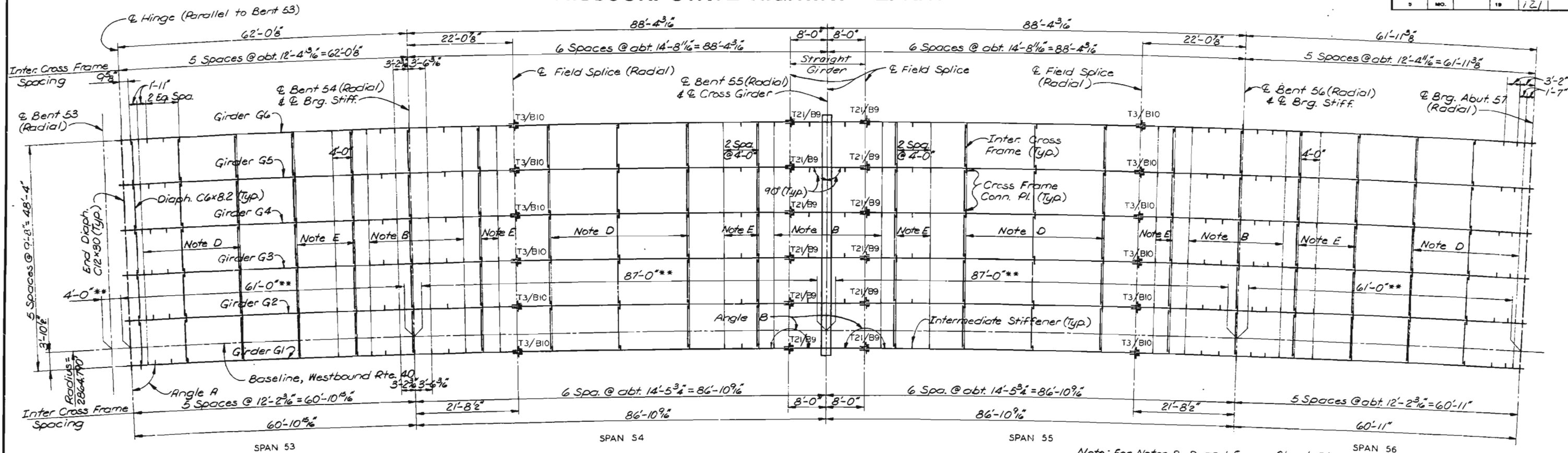
253

DRAWN BY: J. D. Avery, June 1977
 CHECKED BY: T. Sanders Sept. 1977
 5261
 775203

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	121	

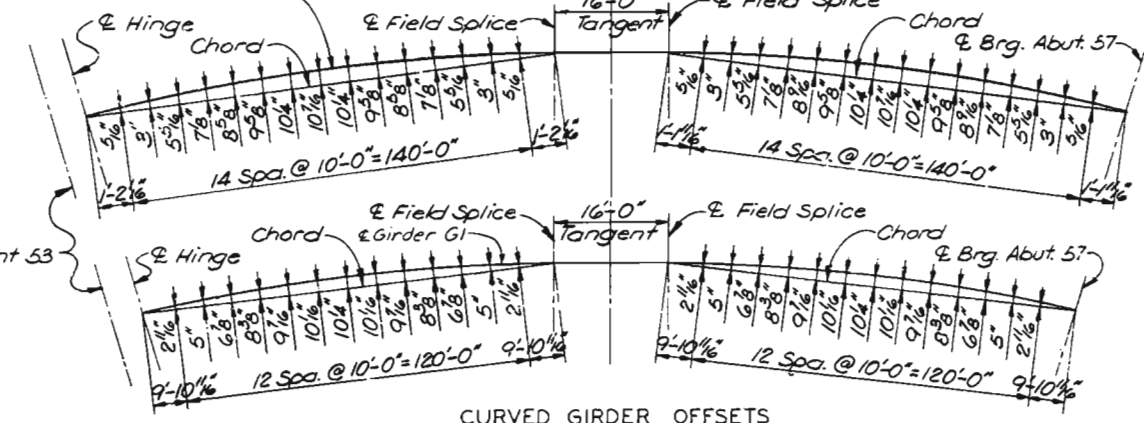


ELEVATION-GIRDERS G1 THRU G6

Notes: Field splice flange plates and intermediate stiffeners not shown.
 ○ Denotes type of field web splice.
 *** Indicates Flange Plates subject to notch toughness requirements.
 Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
 (*) Indicates 4 rows of shear connectors across girder flange.
 Web plates are 1/4" x 48".
 All web plates shall be subject to notch toughness requirements.
 Note: Angle A is measured from tangent to girder at & Hinge, to & Hinge.
 Angle B is measured from tangent to girder at & Field Splice, to & girder.

Girder	Angle A	Angle B
G1	89°55'12"	79°50'23"
G2	89°55'13"	79°50'25"
G3	89°55'14"	79°50'27"
G4	89°55'15"	79°50'29"
G5	89°55'16"	79°50'31"
G6	89°55'16"	79°50'31"

Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Dim. G	Dim. H
G1	40'-2 1/2"	42'-5 1/8"	20'-8 3/8"	21'-8 1/2"	43'-4 1/8"	43'-7 1/8"	13'-9 3/8"	40'-2 3/8"
G2	40'-4 1/8"	42'-6 1/8"	20'-9 1/8"	21'-9 1/8"	43'-6 1/8"	43'-8 1/8"	13'-10 1/8"	40'-4 1/8"
G3	40'-5 1/8"	42'-8 1/8"	20'-10 1/8"	21'-10 1/8"	43'-8 1/8"	43'-9 1/8"	13'-10 1/8"	40'-5 1/8"
G4	40'-7 1/8"	42'-10 1/8"	20'-11 1/8"	21'-11 1/8"	43'-10 1/8"	43'-10 1/8"	13'-11 1/8"	40'-7 1/8"
G5	40'-9 1/8"	43'-0 1/8"	21'-0 1/8"	22'-0 1/8"	44'-0 1/8"	44'-0 1/8"	14'-0 1/8"	40'-8 1/8"
G6	40'-11 1/8"	43'-1 1/8"	21'-0 1/8"	22'-0 1/8"	44'-2 1/8"	44'-1 1/8"	14'-0 1/8"	40'-10 1/8"



NOTES

For Structural Steel Notes, see Sheet 33.
 Longitudinal dimensions are measured horizontally along centerline of girders.
 Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panels.
 For Girder Details, see Sheet 59.
 For Girder Splice Details, see Sheets 61 and 62.
 For Hinge Details, see Sheet 65.
 For Bumper Bracket Details, see Sheet 60.

CITY OF ST. LOUIS

FRAMING PLAN
 SPANS 53 THRU 56

SHEET 56 OF 93

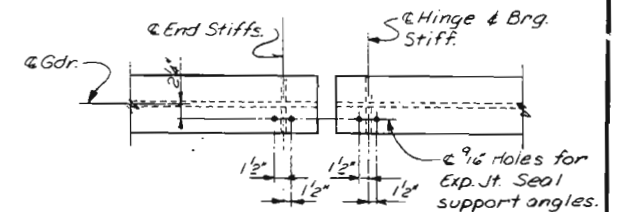
A-3594

254

DRAWN BY: D. Ammon, July 1977
 CHECKED BY: T. Santolucito, Sept. 1977
 5261
 73267

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

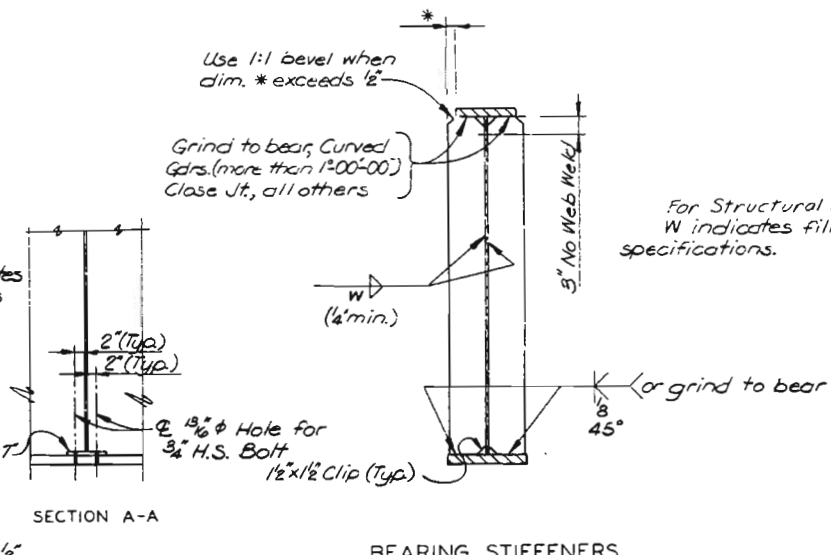
FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	122	



INTERIOR GDRS.

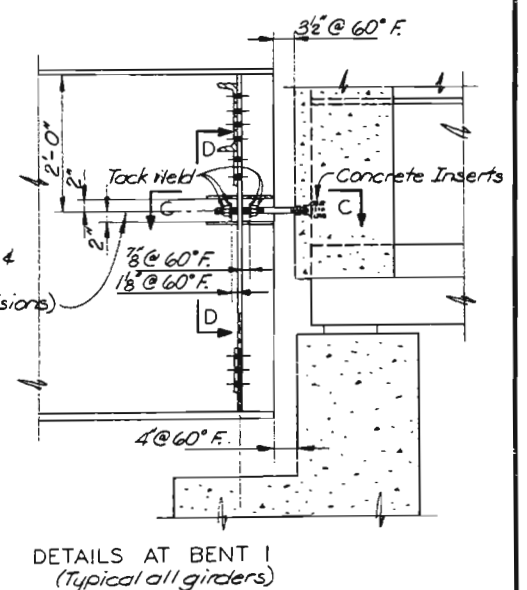
DETAILS FOR GREATER THAN 5° SKEW

LOCATION OF CONNECTION HOLES
FOR EXPANSION JOINT SEAL
SUPPORT ANGLES



GIRDERS ON CURVE
(1°-00'-00" curve or more)
Note: Inter. Stiffeners to be con-
same as girders on tangent.

BEARING STIFFENERS



DETAILS AT BENT 1
(Typical all girders)

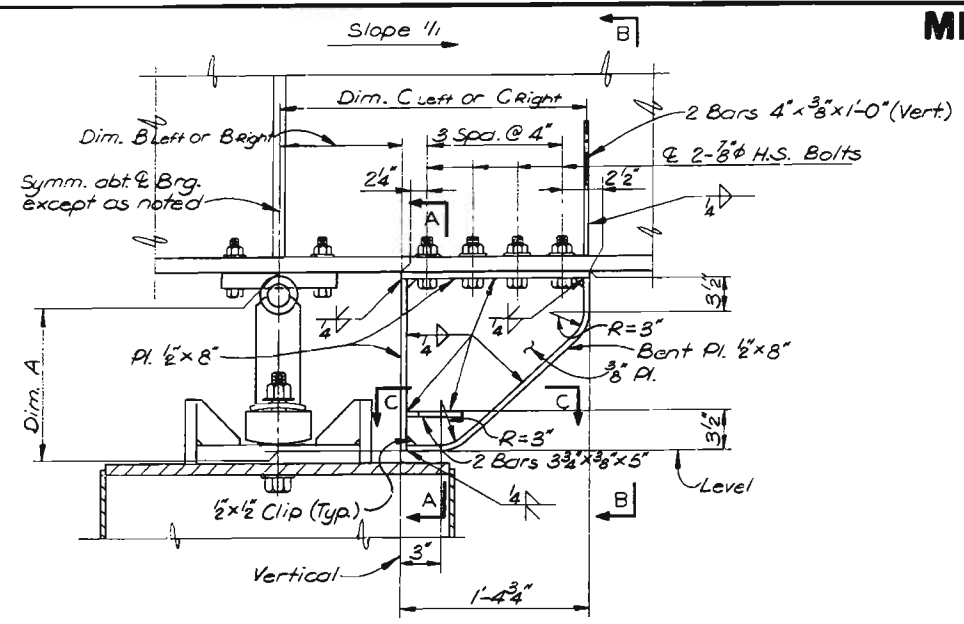
SHEET 59 OF 93

A-3594

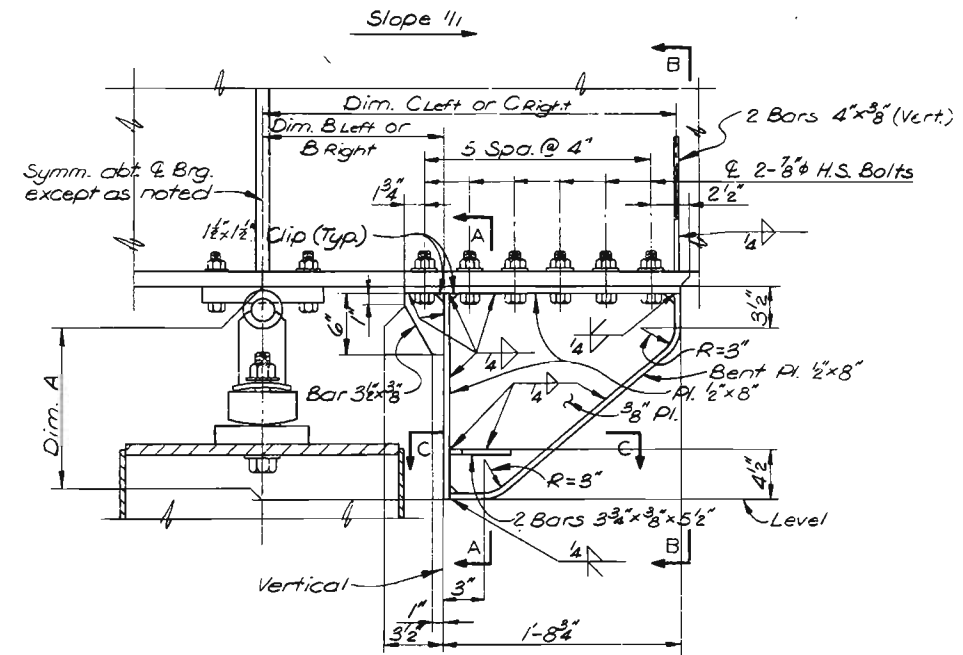
DETAILS AT ABUTMENTS 1 & 57
(Typical all girders)
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS

MISSOURI STATE HIGHWAY DEPARTMENT

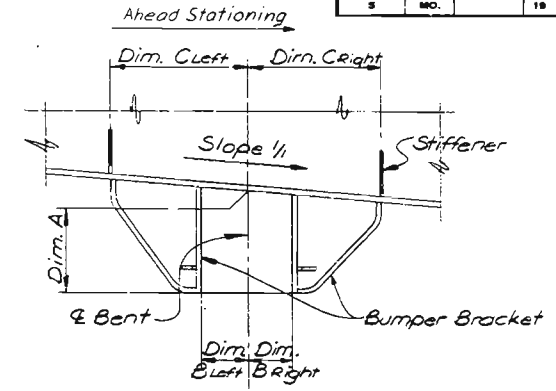
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	23	



BUMPER BRACKETS AT BENT 3



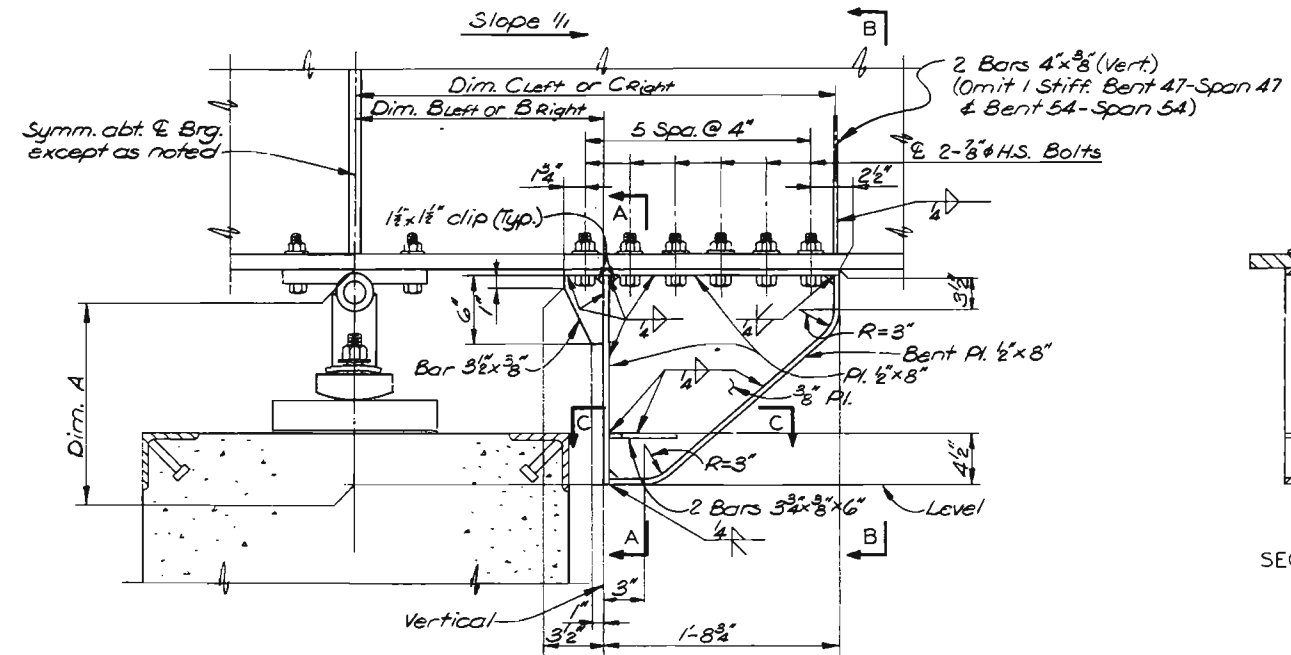
BUMPER BRACKETS AT BENTS 16, 20, 24, 31, 32 & 36



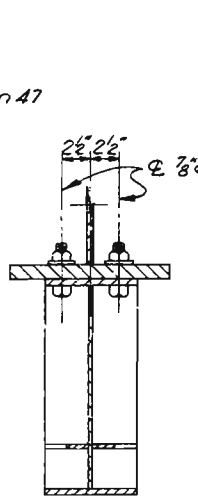
Bent	Gdr	Dim. A	Dim. B L	Dim. B R	Dim. C L	Dim. C R	Slope 1/1
3	2	1'-3 3/4"	11"	11 1/8"	2'-3 1/2"	2'-3 1/2"	-0.09
3	5	1'-2 1/2"	11"	11 1/8"	2'-3 1/2"	2'-3 1/2"	-0.09
4	2	1'-6 1/4"	1'-10"	1'-10 1/4"	3'-6 1/2"	3'-6 1/2"	-0.09
4	5	1'-6 1/4"	1'-10"	1'-10 1/4"	3'-6 1/2"	3'-6 1/2"	-0.09
8	2	1'-6 1/4"	1'-9 3/4"	1'-10"	3'-6 1/2"	3'-6 1/2"	-0.09
8	5	1'-6 1/4"	1'-9 3/4"	1'-10"	3'-6 1/2"	3'-6 1/2"	-0.09
11	2	1'-6 1/4"	1'-9 3/4"	1'-9 3/4"	3'-6 1/2"	3'-6 1/2"	-0.12
11	5	1'-6 1/4"	1'-9 3/4"	1'-9 3/4"	3'-6 1/2"	3'-6 1/2"	-0.12
12	2	1'-6 1/4"	1'-10"	1'-10 1/8"	3'-6 1/2"	3'-6 1/2"	-0.14
12	5	1'-6 1/4"	1'-10"	1'-10 1/8"	3'-6 1/2"	3'-6 1/2"	-0.14
16	2	1'-7 1/4"	1'-3 1/2"	1'-3 1/2"	3'-0"	3'-0 1/2"	-0.19
16	5	1'-7 1/4"	1'-3 1/2"	1'-3 1/2"	3'-0"	3'-0 1/2"	-0.12
20	2	1'-7 1/4"	1'-3 1/2"	1'-3 1/2"	3'-0"	3'-0"	+0.01
20	5	1'-7 1/4"	1'-3 1/2"	1'-3 1/2"	3'-0"	3'-0"	+0.01
24	2	1'-7 1/4"	1'-3 1/2"	1'-3 1/2"	3'-0"	3'-0 1/2"	+0.19
24	5	1'-7 1/4"	1'-3 1/2"	1'-3 1/2"	3'-0"	3'-0 1/2"	+0.12
31	2	1'-11 1/4"	1'-3 1/2"	1'-3 1/2"	3'-0"	3'-0 1/2"	+0.05
31	6	2'-4 1/4"	1'-3 1/2"	1'-3 1/2"	3'-0"	3'-0 1/2"	+0.05
32	2	1'-11 1/8"	1'-4"	1'-3 3/4"	3'-0 1/2"	3'-0 1/2"	+0.05
32	5	1'-8 1/4"	1'-4"	1'-3 3/4"	3'-0 1/2"	3'-0 1/2"	+0.05
36	2	1'-7 1/4"	1'-3 1/2"	1'-3 1/2"	3'-0"	3'-0 1/2"	+0.04
36	5	1'-7 1/4"	1'-3 1/2"	1'-3 1/2"	3'-0"	3'-0 1/2"	+0.02
46	2	1'-6 1/2"	1'-9 1/2"	1'-10 1/8"	3'-6 1/2"	3'-6 1/2"	-0.16
46	5	1'-6 1/2"	1'-9 1/2"	1'-10 1/8"	3'-6 1/2"	3'-6 1/2"	-0.16
47	2	1'-6"	1'-9 1/2"	1'-9 3/4"	3'-6 1/2"	3'-6 1/2"	-0.19
47	5	1'-6"	1'-9 1/2"	1'-9 3/4"	3'-6 1/2"	3'-6 1/2"	-0.19
50	2	1'-6"	1'-9 1/2"	1'-9 1/2"	3'-6 1/2"	3'-6"	-0.23
50	5	1'-6 1/2"	1'-9 1/2"	1'-9 1/2"	3'-6 1/2"	3'-6"	-0.19
53	2	1'-6"	1'-9 1/2"	1'-9 3/4"	3'-6"	3'-6 1/2"	-0.34
53	5	1'-6"	1'-9 1/2"	1'-9 3/4"	3'-6"	3'-6 1/2"	-0.28
54	2	1'-6 1/4"	1'-9 1/2"	1'-9 1/4"	3'-6 1/2"	3'-6 1/4"	-0.38
54	5	1'-6 1/4"	1'-9 1/2"	1'-9 1/4"	3'-6 1/2"	3'-6 1/4"	-0.31

NOTES

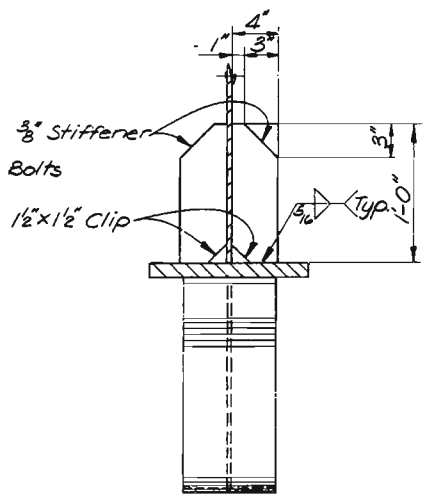
For Structural Steel Notes, see Sheet 33.
W indicates fillet weld in accordance with specifications.
Bumper Brackets to be bolted to girders as designated on Framing Plan.



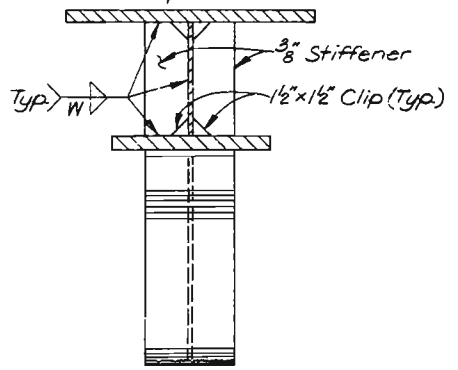
BUMPER BRACKETS AT BENTS 4, 8, 11, 12, 46, 47, 50, 53 & 54



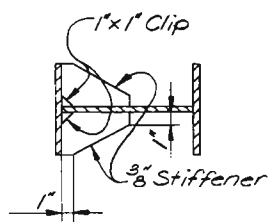
SECTION A-A



TYPICAL SECTION B-B



SECTION B-B
(Section shown only on Hinge side of Bents 4, 8, 12, 14, 20, 24, 46, 50 and 53.)



SECTION C-C

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

BUMPER BRACKETS

SHEET 50 OF 93

A-3594

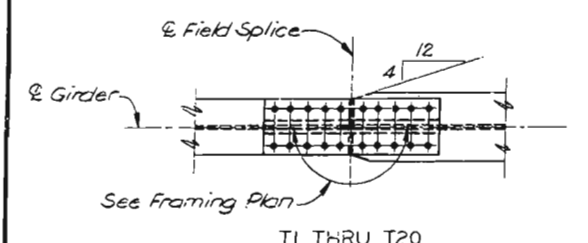
256

DRAWN BY: D. Ammons, Aug. 1977
CHECKED BY: T. Sanders, Oct. 1977
5261
775302

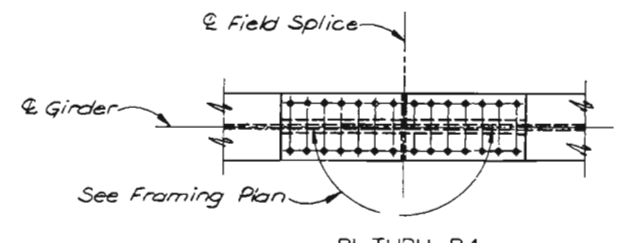
OVERDUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

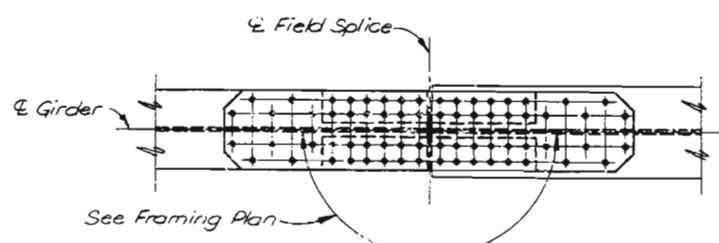
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	19	124	124	



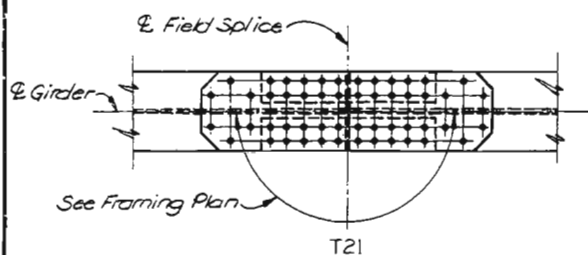
T1 THRU T20



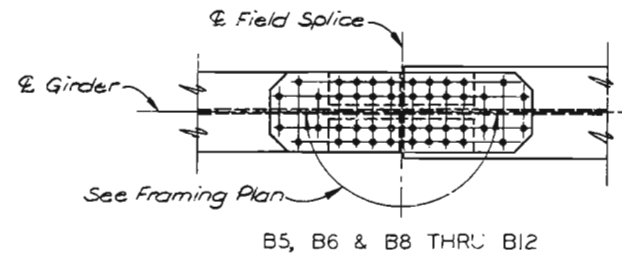
B1 THRU B4



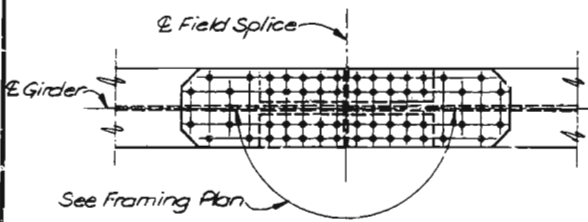
B23 & B27 THRU B31



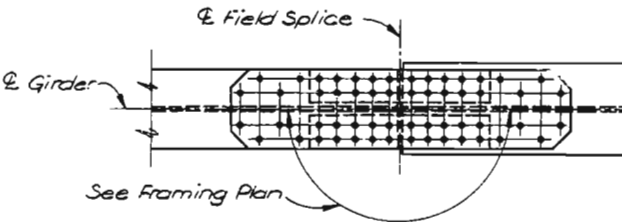
T21



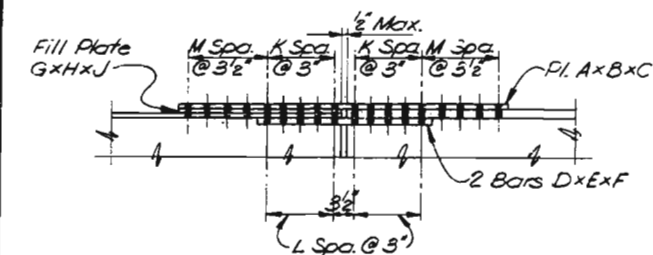
B5, B6 & B8 THRU B12



T22 & T23



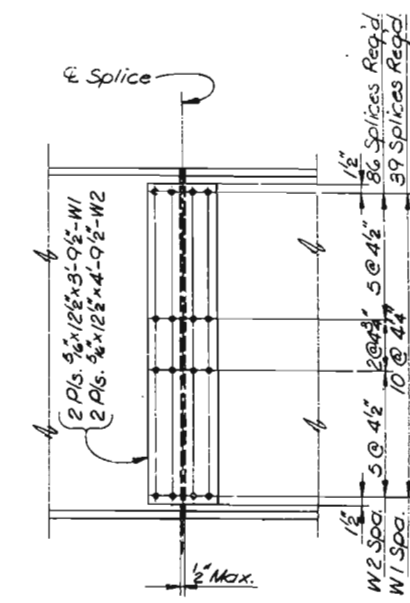
B13 THRU B22 & B24 THRU B26



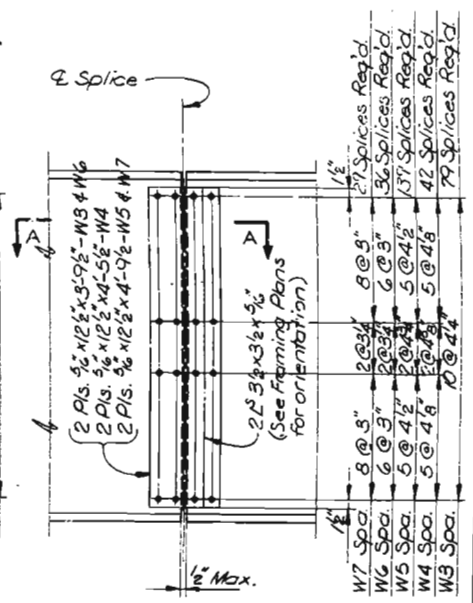
TOP FLANGE SPLICES

Type	Flanges Spliced	A	B	C	D	E	F	G	H	J	K	L	M	No. Req'd
T1	3/4" x 10" to 1 1/2" x 14"	3/8"	10"	2'-0 1/2"	4"	1/2"	2'-0 1/2"	3/8"	10"	1'-0"	3"	3"	—	6
T2	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	12
T3	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	13
T4	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	13
T5	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	14
T6	1 1/2" x 12"	—	—	—	—	—	—	—	—	—	—	—	—	12
T7	3/4" x 10"	10"	2'-0 1/2"	4"	1/2"	2'-0 1/2"	3/8"	10"	1'-0"	3"	3"	—	—	18
T8	3/4" x 12"	12"	2'-6 1/2"	5"	—	2'-6 1/2"	—	—	—	—	4"	4"	—	7
T9	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	1
T10	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	28
T11	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	12
T12	1" x 16"	—	—	—	—	—	—	—	—	—	—	—	—	4
T13	1 1/2" x 16"	—	—	—	—	—	—	—	—	—	—	—	—	4
T14	1 1/2" x 16"	—	—	—	—	—	—	—	—	—	—	—	—	16
T15	1 1/2" x 16"	—	—	—	—	—	—	—	—	—	—	—	—	110
T16	1 1/2" x 16"	—	—	—	—	—	—	—	—	—	—	—	—	64
T17	3/4" x 12"	12"	2'-6 1/2"	5"	—	2'-6 1/2"	—	—	—	—	4"	4"	—	48
T18	3/4" x 12"	12"	3'-6 1/2"	5"	—	3'-6 1/2"	—	—	—	—	6"	6"	—	1
T19	3/4" x 12"	12"	3'-6 1/2"	5"	—	3'-6 1/2"	—	—	—	—	6"	6"	—	2
T20	1" x 12"	12"	3'-6 1/2"	5"	—	3'-6 1/2"	—	—	—	—	6"	6"	—	2
T21	1 1/2" x 14"	1 1/2"	14"	4'-3 1/2"	6"	—	2'-6 1/2"	—	—	—	4"	4"	3	36
T22	1 1/2" x 14"	1 1/2"	14"	4'-10 1/2"	6"	—	2'-6 1/2"	—	—	—	4"	4"	4	8
T23	1 1/2" x 14" to 1 1/2" x 14"	1 1/2"	14"	4'-10 1/2"	6"	—	2'-6 1/2"	—	—	—	4"	4"	4	14

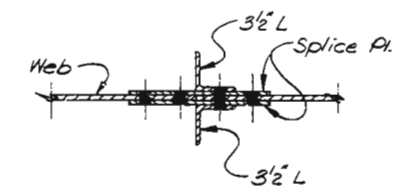
Type	Flanges Spliced	A	B	C	D	E	F	G	H	J	K	L	M	No. Req'd
B1	1" x 12" to 1 1/2" x 12"	1/2"	12"	3'-6 1/2"	3"	5/8"	3'-6 1/2"	1/8"	12"	1'-9"	6"	6"	—	6
B2	1" x 12"	1/2"	12"	3'-6 1/2"	5"	3/8"	3'-6 1/2"	1/8"	12"	1'-9"	6"	6"	—	6
B3	1 1/2" x 12"	5/8"	12"	4'-0 1/2"	5"	3/8"	4'-0 1/2"	—	—	—	7"	7"	—	6
B4	1 1/2" x 12"	5/8"	12"	4'-0 1/2"	5"	3/8"	4'-0 1/2"	1/8"	12"	2'-0"	7"	7"	—	12
B5	1" x 14"	3/4"	14"	3'-3 1/2"	6"	5/8"	1'-6 1/2"	1/8"	14"	1'-7 1/2"	2"	2"	3	7
B6	1 1/2" x 14" to 1 1/2" x 14"	3/4"	14"	3'-9 1/2"	6"	5/8"	2'-0 1/2"	1/8"	14"	1'-10 1/2"	3"	3"	3	6
B7	Not Used	—	—	—	—	—	—	—	—	—	—	—	—	—
B8	1 1/2" x 14" to 1 1/2" x 14"	3/4"	14"	4'-3 1/2"	6"	5/8"	2'-6 1/2"	1/8"	14"	2'-1 1/2"	4"	4"	3	6
B9	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	42
B10	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	46
B11	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	12
B12	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	3
B13	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	4
B14	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	8
B15	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	26
B16	1 1/2" x 14"	—	—	—	—	—	—	—	—	—	—	—	—	26
B17	1" x 16"	—	—	—	—	—	—	—	—	—	—	—	—	4
B18	1 1/2" x 16"	—	—	—	—	—	—	—	—	—	—	—	—	4
B19	1 1/2" x 16"	—	—	—	—	—	—	—	—	—	—	—	—	4
B20	1 1/2" x 16"	—	—	—	—	—	—	—	—	—	—	—	—	80
B21	1 1/2" x 16"	—	—	—	—	—	—	—	—	—	—	—	—	35
B22	1 1/2" x 14"	3/4"	14"	4'-10 1/2"	6"	5/8"	2'-6 1/2"	1/8"	14"	2'-5"	4"	4"	4	24
B23	1 1/2" x 14"	3/4"	14"	5'-1 1/2"	6"	5/8"	3'-0 1/2"	1/8"	14"	2'-11 1/2"	5"	5"	5	2
B24	1 1/2" x 14"	3/4"	14"	4'-10 1/2"	6"	5/8"	2'-6 1/2"	1/8"	14"	2'-5"	4"	4"	4	13
B25	1 1/2" x 14"	3/4"	14"	5'-4 1/2"	6"	5/8"	3'-0 1/2"	1/8"	14"	2'-8"	5"	5"	4	13
B26	1 1/2" x 14"	3/4"	14"	5'-4 1/2"	6"	5/8"	3'-0 1/2"	1/8"	14"	2'-8"	5"	5"	4	12
B27	1 1/2" x 14"	3/4"	14"	5'-11 1/2"	6"	5/8"	3'-0 1/2"	1/8"	14"	2'-11 1/2"	5"	5"	5	16
B28	1 1/2" x 14"	3/4"	14"	5'-11 1/2"	6"	5/8"	3'-0 1/2"	1/8"	14"	2'-11 1/2"	5"	5"	5	12
B29	2" x 14"	1 1/2"	14"	6'-5 1/2"	6"	5/8"	3'-0 1/2"	1/8"	14"	3'-2 1/2"	6"	6"	6	1
B30	1 1/2" x 16"	3/4"	16"	6'-11 1/2"	7"	1"	4'-0 1/2"	1/8"	16"	3'-5 1/2"	7"	7"	7	1
B31	1 1/2" x 16" to 2 1/2" x 16"	1"	16"	6'-11 1/2"	7"	1"	4'-0 1/2"	1/8"	16"	3'-5 1/2"	7"	7"	5	2



W1 & W2



W3 THRU W7



SECTION A-A
WEB SPLICE DETAILS

NOTES

For Structural Steel Notes, see Sheet 33.
All connectors this sheet to be 3/8" High Strength Bolts.
All splice plates of top flange splices T8, T21, T22 and T23 subject to notch toughness requirements.

CITY OF ST. LOUIS

GIRDER SPLICES

SHEET 51 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

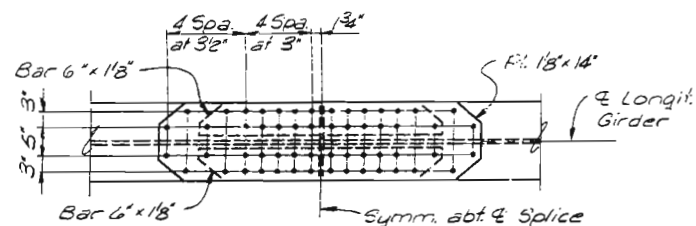
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

257

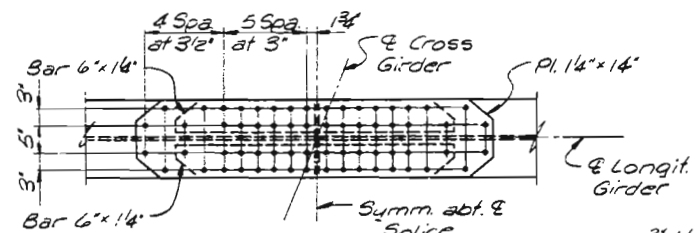
DRAWN BY: D. Ammons, Sept. 1977
CHECKED BY: T. Sanders, Oct. 1977
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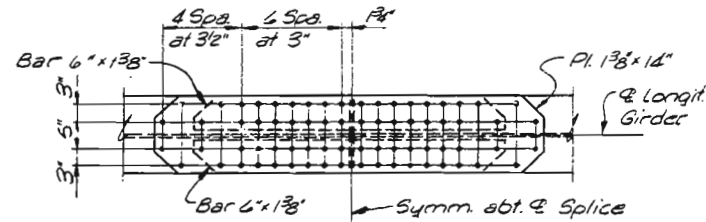
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5	MO.		19	62	93



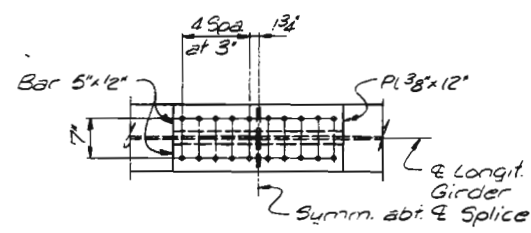
AT BENTS 9, 10 & 55
(Gdrs. G1-G6)



AT BENT 32
(Gdrs. G7-G10)

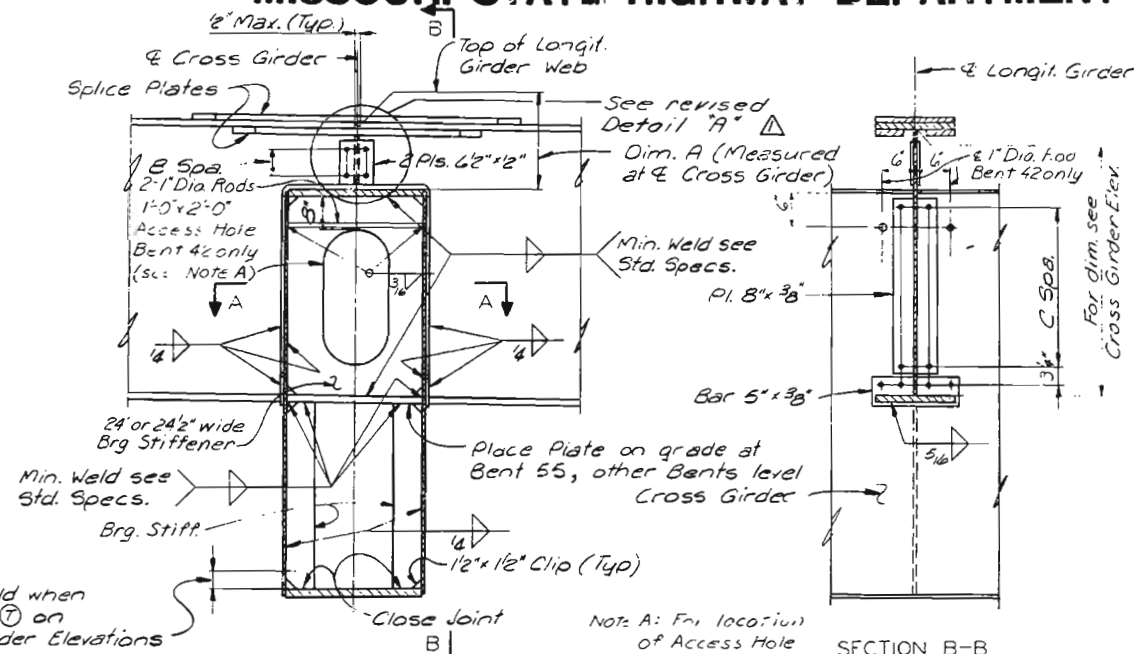


AT BENT 41
(Gdrs. G1-G7)



AT BENT 42
(Gdrs. G1-G7)

TOP FLANGE SPLICES

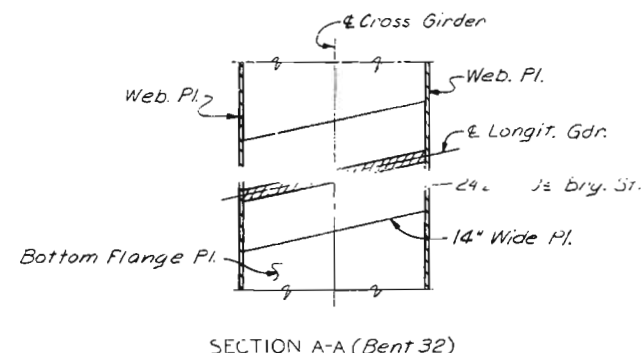


LONGIT. GDR. CONNECTIONS
AT CROSS GIRDERS

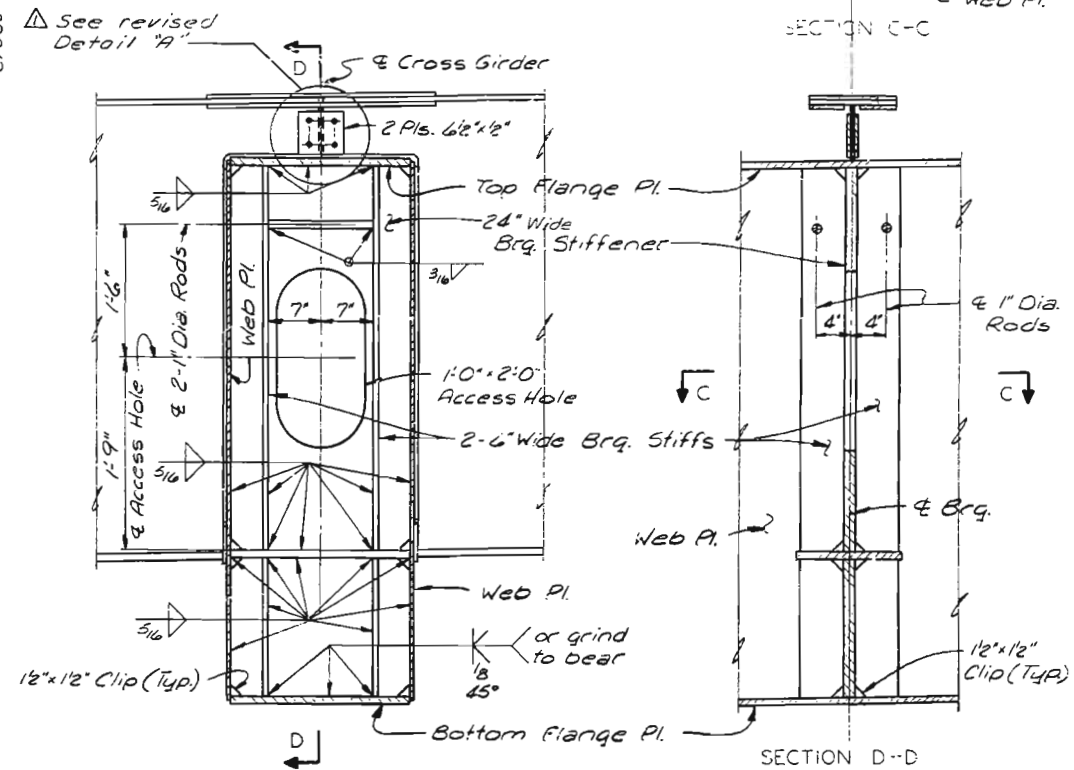
NOTE: A: For location of Access Hole (Bent 42 only) see Details At Gdr. G6 - Bent 42

TABLE OF VARIABLES								
Bent	Gdr.	Dim. A	B Spa.	C Spa.	Bent	Gdr.	Dim. A	B Spa.
9	G1	10 1/8"	1	9	41	G1	7"	1
	G2	11 0 1/16"	2	9		G2	7 3/16"	1
	G3	11 0 3/16"	2	9		G3	7 3/16"	1
	G4	10 3/16"	2	9		G4	7 3/16"	1
	G5	9"	1	9		G5	7 1/16"	1
	G6	7"	1	9		G6	7"	1
10	G1	10"	1	9	42	G7	7"	1
	G2	11 0 1/16"	2	9		G1	7"	1
	G3	11 0 3/16"	2	9		G2	7 1/16"	1
	G4	11 1/16"	2	9		G3	7 3/16"	1
	G5	9 1/16"	1	9		G4	7 1/16"	1
	G6	7"	1	9		G5	7 3/16"	1
32	G7	7"	1	9	55	G6	7 1/16"	1
	G8	9 1/16"	1	9		G7	7"	1
	G9	11 0 3/16"	2	9		G1	7"	1
	G10	11 3 3/16"	2	9		G2	7 1/16"	1
						G3	7 1/16"	1
						G4	7 1/16"	1

Note: All flange splice plates subject to notch toughness requirements.

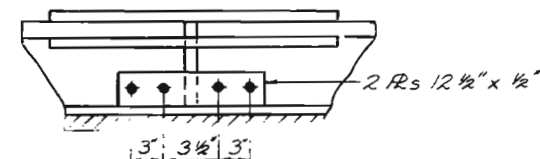


SECTION A-A (Bent 32)



DETAILS AT

GDR. G6 - BENT 42
GDRS. G1 AND G6 - BENT 55



Revised Detail "A" for Gdr. 6 Bt. 9, Gdr. 6 Bt. 10, Gdr. 7 Bt. 32, & All Gdrs. @ Bts. 41, 42 & 55.

NOTES

For Structural Steel Notes, see Sheet 33. All connectors this sheet to be 6" High Strength Bolts.

CITY OF ST. LOUIS

GIRDER SPLICES AT CROSS GIRDERS

SHEET 62 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

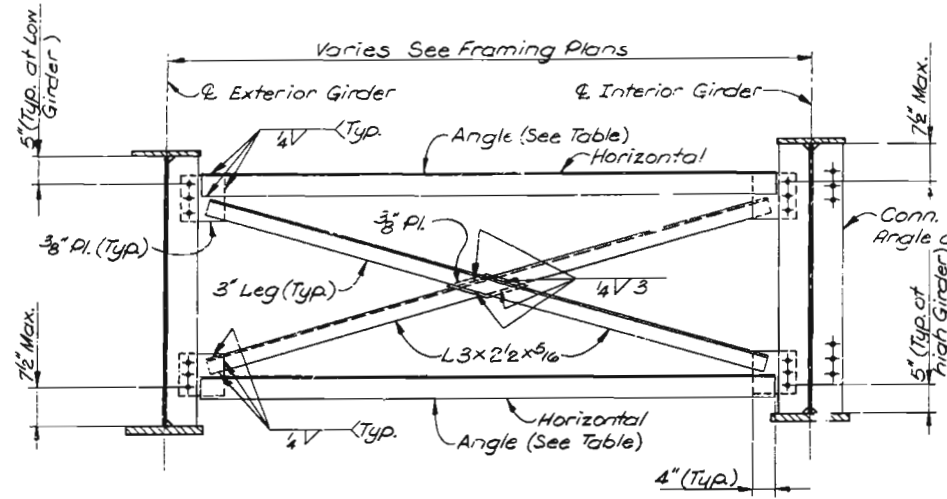
Revised Date Oct 10, 1979

SVZDRUP & PARKER AND ASSOCIATES, Inc.
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DRAWN BY: O. J. Schremp, Sep. 1977
CHECKED BY: R. V. Butterfield, Nov. 1977
5261
7753/8

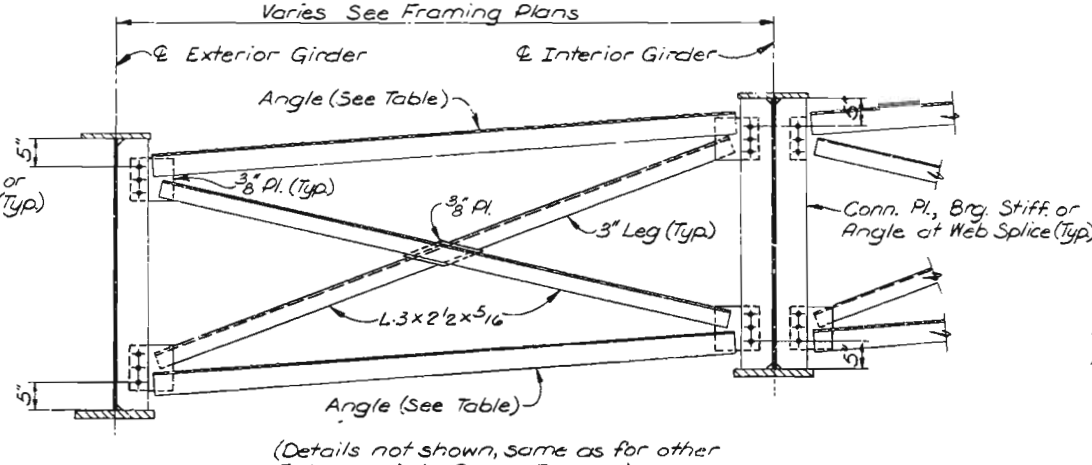
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	126	



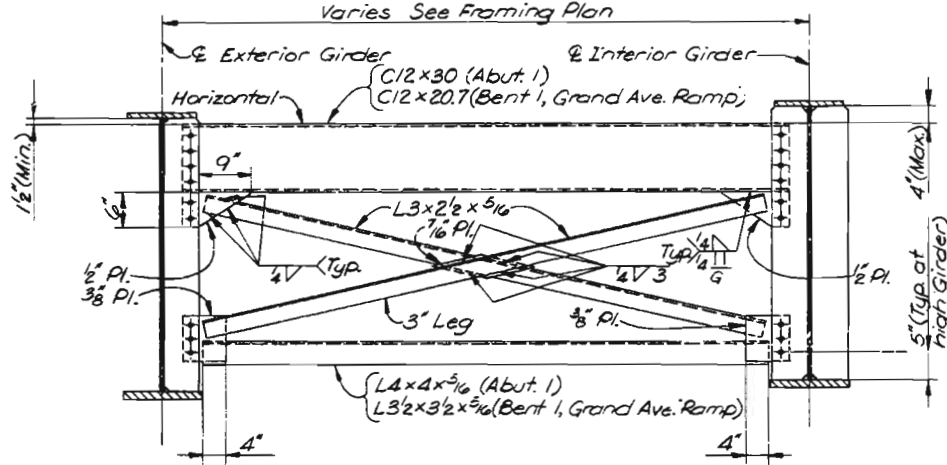
INTERMEDIATE CROSS FRAME

Note: Difference in elevation of adjacent webs less than 2 1/2".

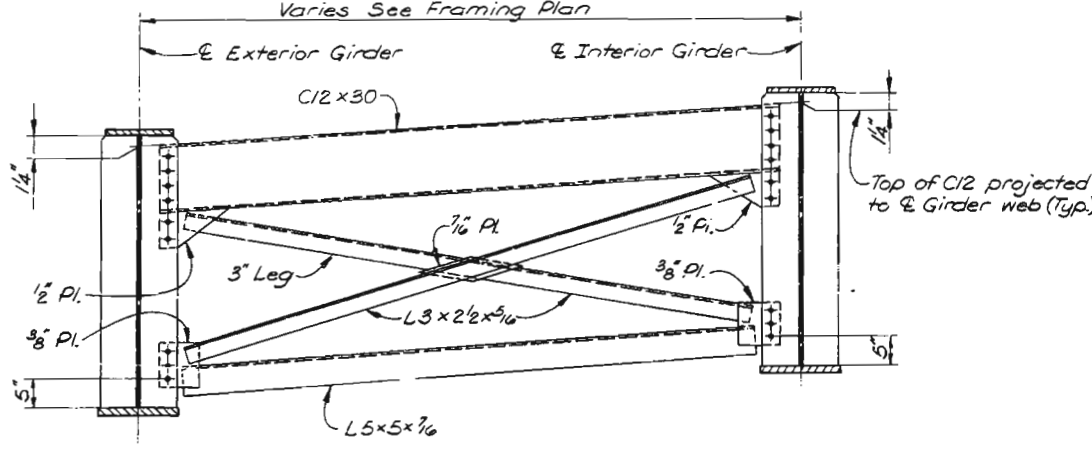


INTERMEDIATE CROSS FRAME

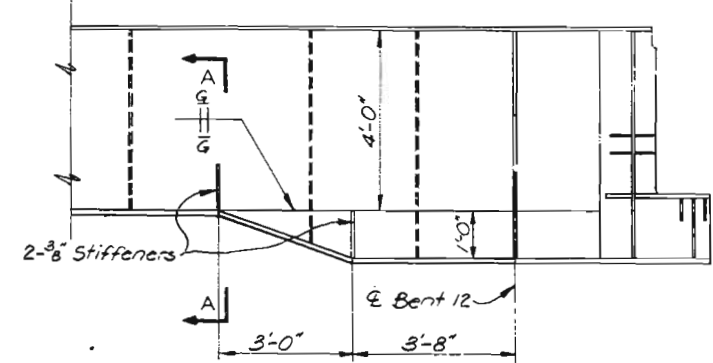
Note: Difference in elevation of adjacent webs 2 1/2" or more.



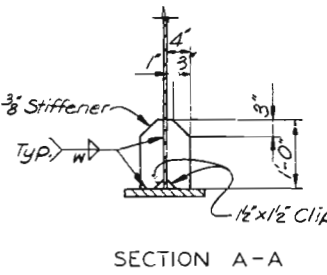
END CROSS FRAME AT ABUT. I & BENT I



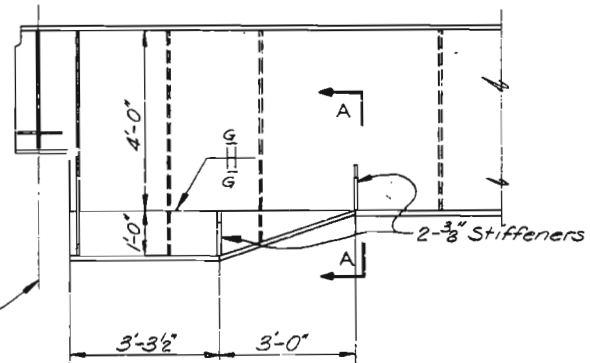
END CROSS FRAME AT ABUT. 57



GIRDER DEPTH TRANSITION NEAR BENT 12



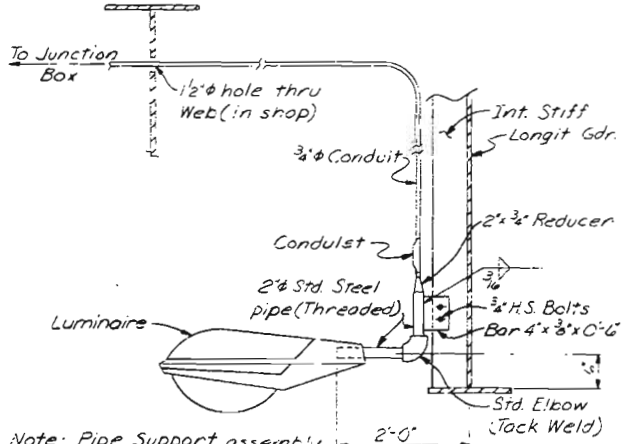
SECTION A-A



GIRDER DEPTH TRANSITION NEAR BENT 42

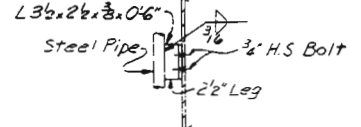
TABLE OF ANGLES		
Girder Spacing	Angle Size	Type Girder
Up to 7'-3"	L3 1/2 x 3 x 5/16	Straight
	L3 1/2 x 3 1/2 x 5/16	* Curved
Over 7'-3" to 8'-0"	L3 1/2 x 3 x 5/16	Straight
	L4 x 3 1/2 x 5/16	* Curved
Over 8'-0"	L4 x 4 x 5/16	Straight
	L5 x 5 x 1/16	* Curved

* Curved girders include girders that are horizontally curved 1°-00' or more.



Note: Pipe Support assembly to be galvanized after welding.

TYPE B UNDERDECK LIGHTING SUPPORT BRACKET
Note: Assembly includes bracket, reducer, steel pipe and elbow. Luminaire, conduit, conduit and junction box by others.



TYPE A UNDERDECK LIGHTING SUPPORT BRACKET
(Remainder of bracket details, same as Type B)

NOTES

For Structural Steel Notes, see Sheet 33.
Work this sheet with Framing Plans.
W indicated fillet weld in accordance with Specification.
Cost of furnishing, fabrication, and installation of Underdeck Lighting Support Bracket shall be included in unit price bid for "Fabricated Structural Carbon Steel".

CITY OF ST. LOUIS

CROSS FRAMES

SHEET 63 OF 92

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

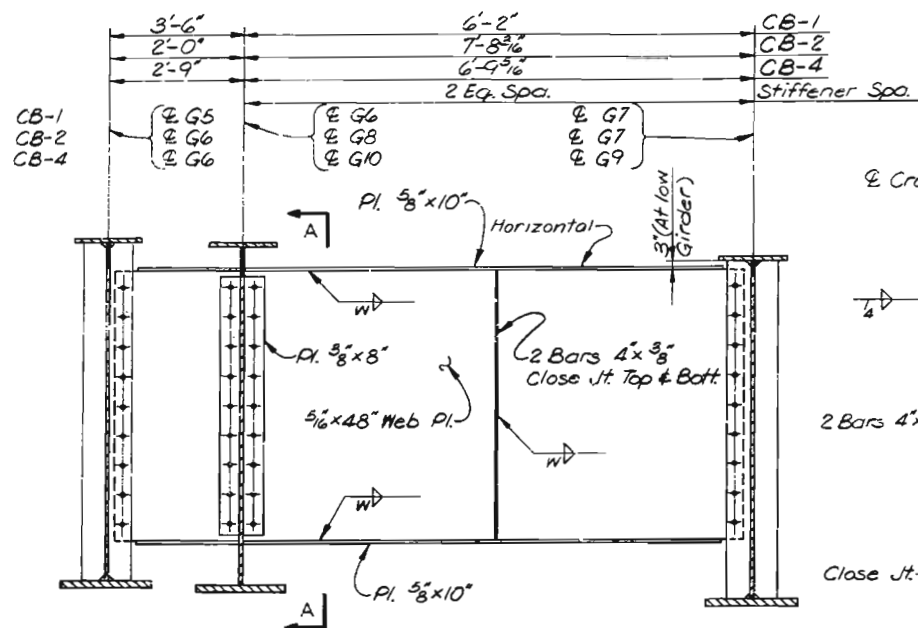
259

DRAWN BY: Q. Ammons, June 1977
CHECKED BY: T. Sanders, Dec. 1977
5261
775240

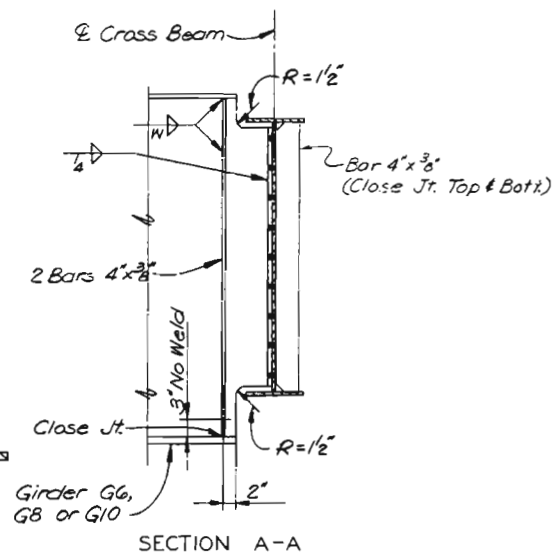
OVERHUP & PANCEL AND ASSOCIATES, Inc.
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MISSOURI STATE HIGHWAY DEPARTMENT

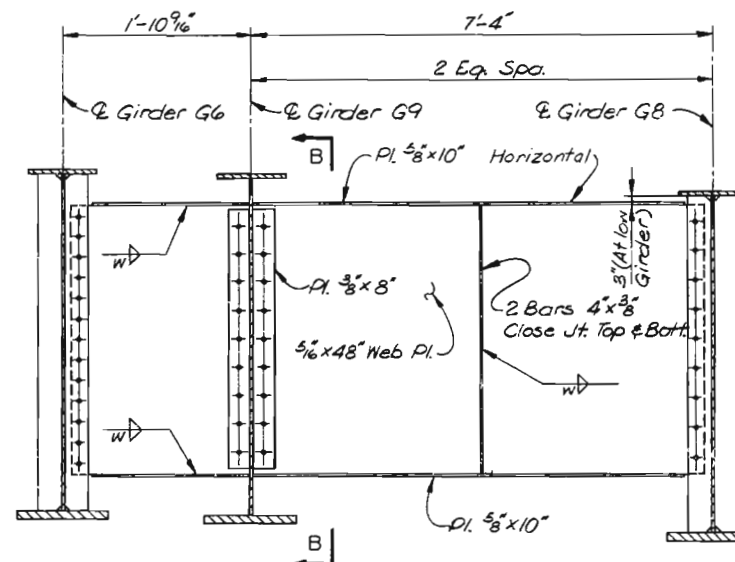
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5	MO.		19	1	1



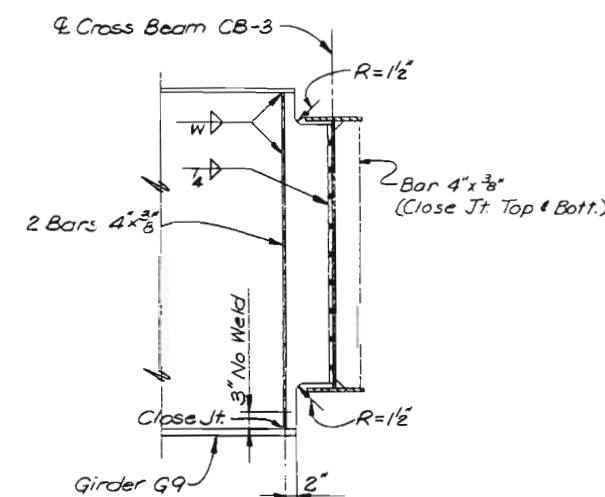
CROSS BEAM CB-1, CB-2 & CB-4
(CB-4 shown, CB-1 & CB-2 similar)



SECTION A-A



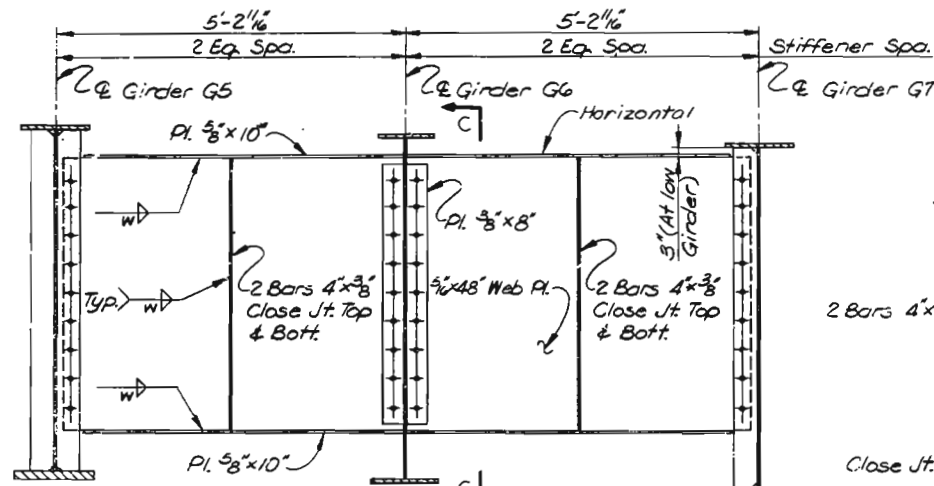
CROSS BEAM CB-3



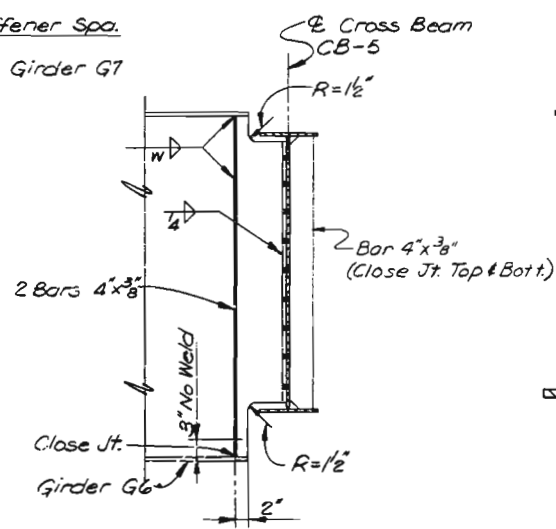
SECTION B-B

NOTES

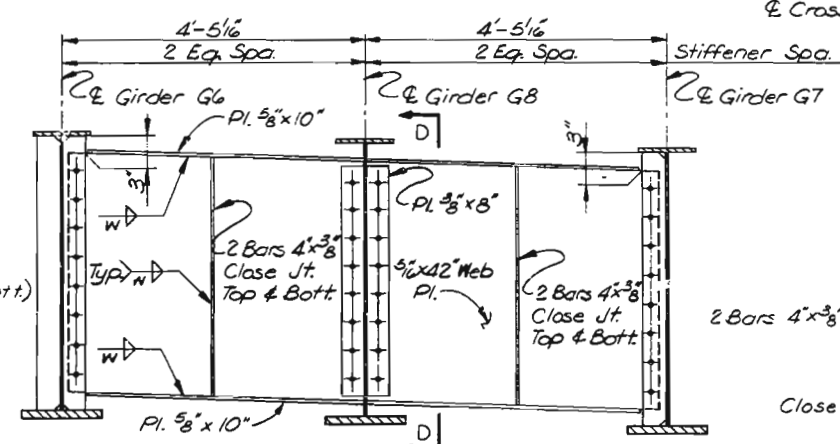
For Structural Steel Notes, see Sheet 33.
All dimensions shown measured along & Cross Beam connection plates.
See Framing Plan for angular relation of Cross Beam to Girders.
All Cross Beam bottom flange plates and Cross Beam web plates shall be subject to notch toughness requirements. W indicates fillet weld in accordance with specifications.
All connections this sheet to be 3/8" High Strength Bolts.
Bar 4"x3/8" (Close Jt. Top & Bott.)



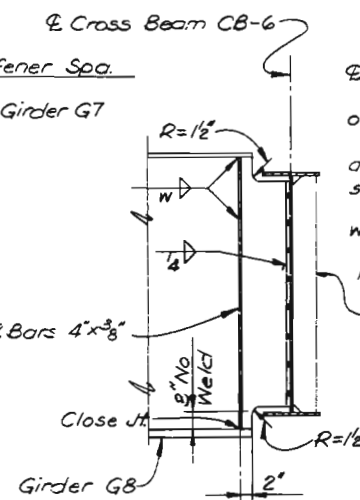
CROSS BEAM CB-5



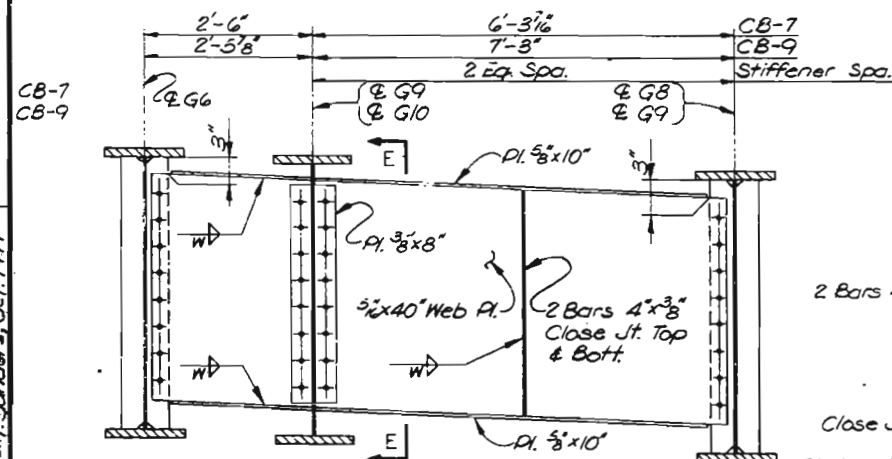
SECTION C-C



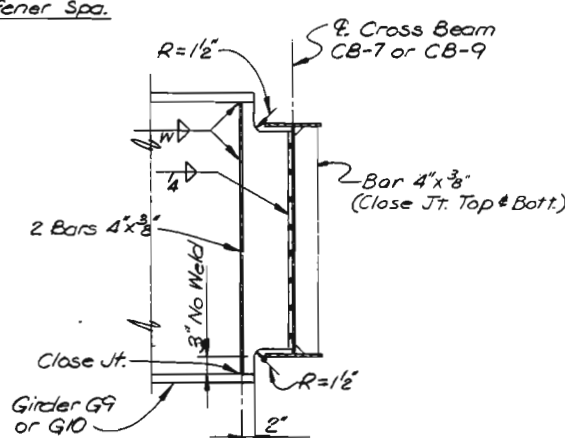
CROSS BEAM CB-6



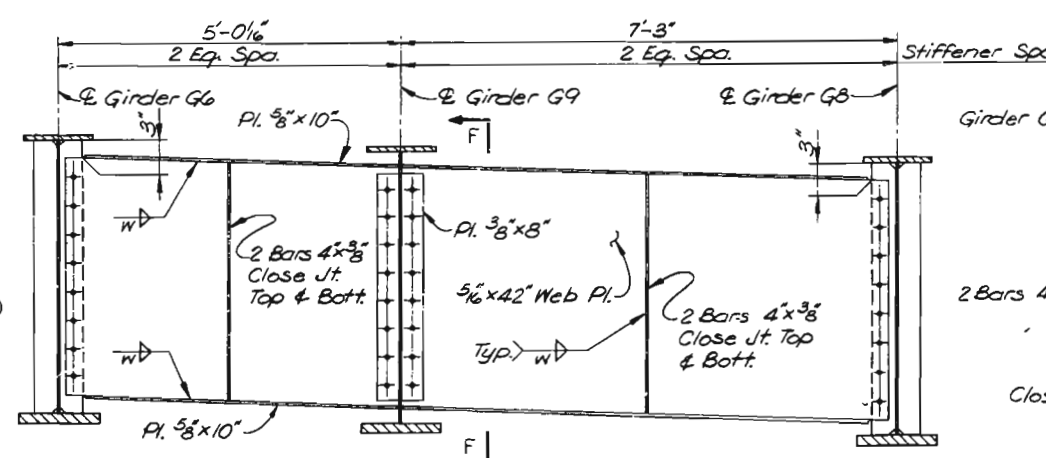
SECTION D-D



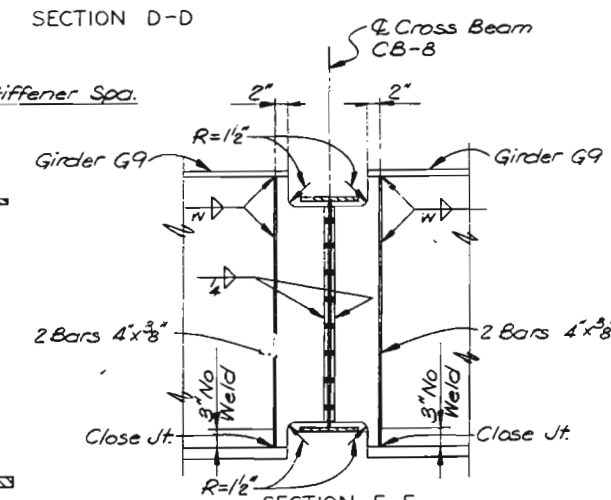
CROSS BEAM CB-7 & CB-9



SECTION E-E



CROSS BEAM CB-8



SECTION F-F

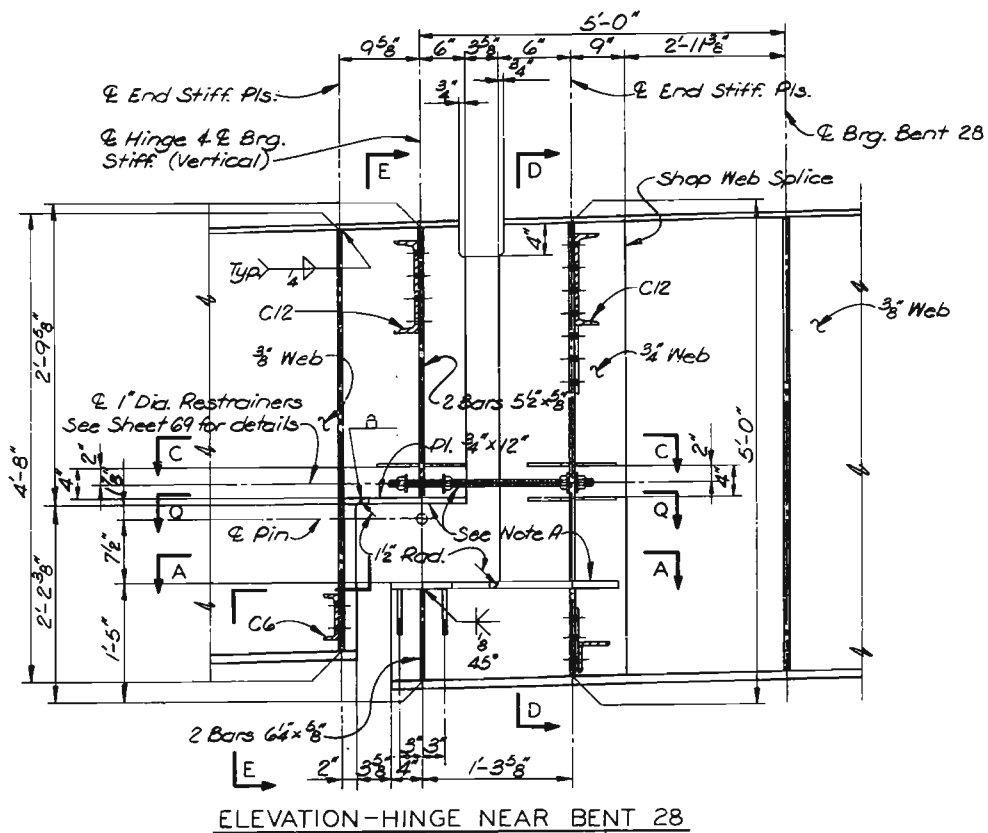
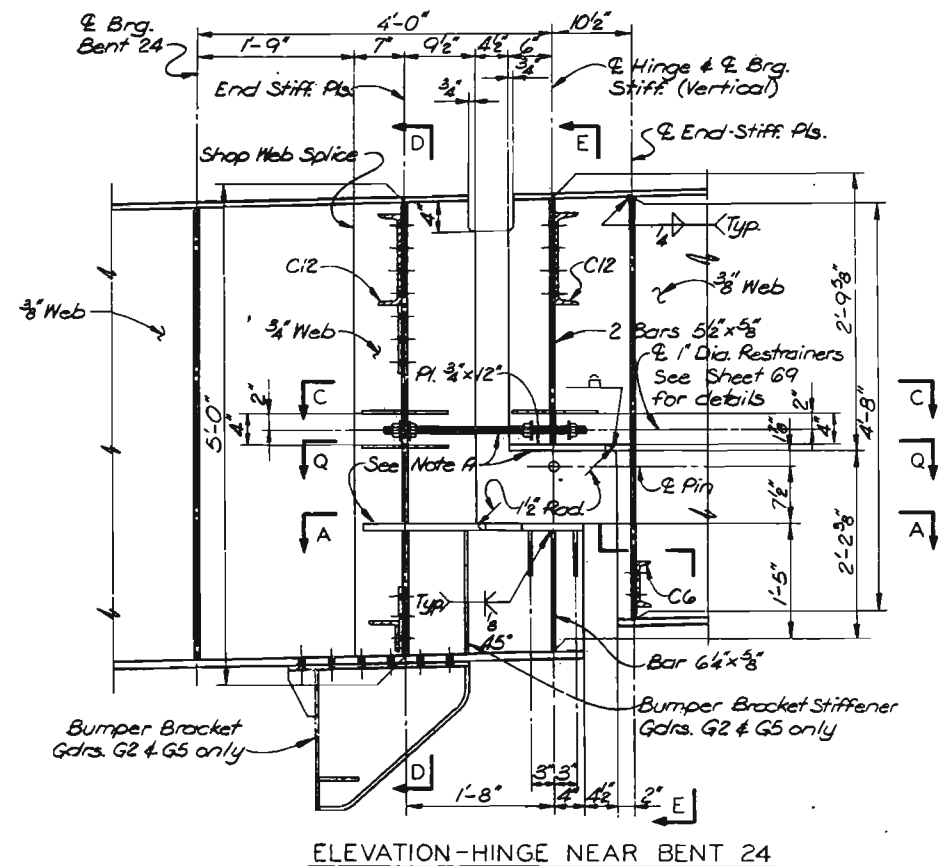
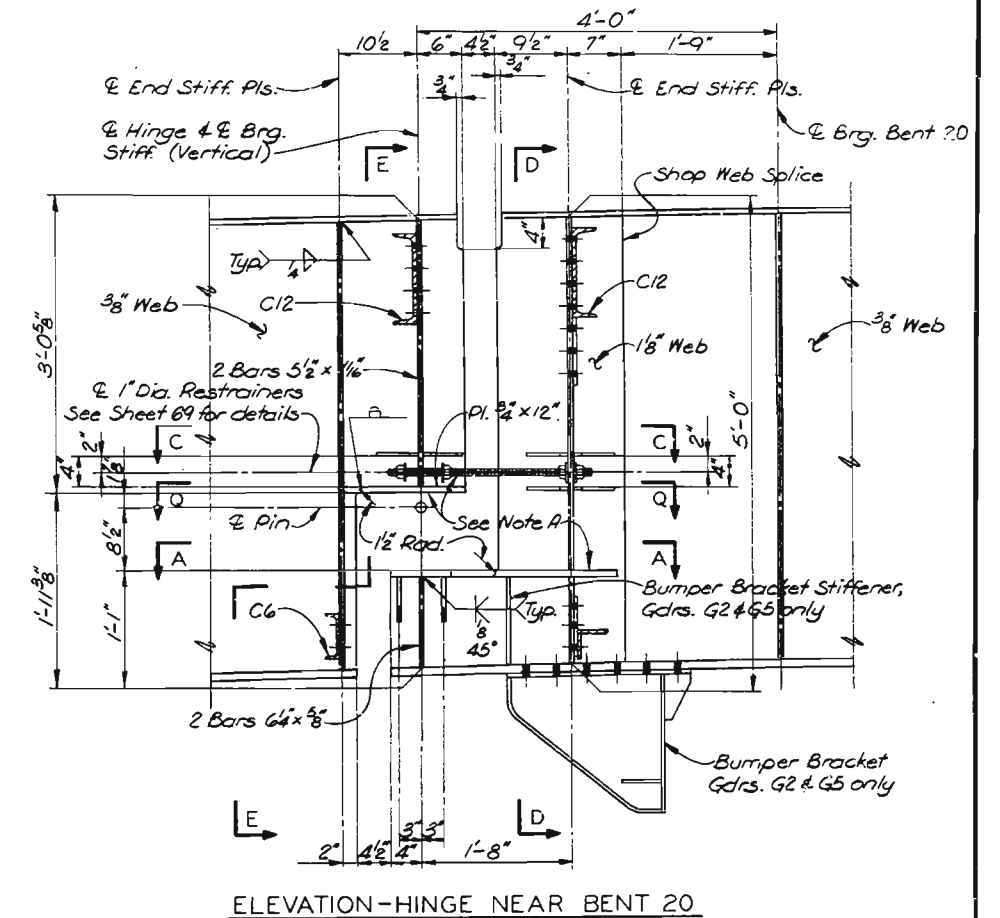
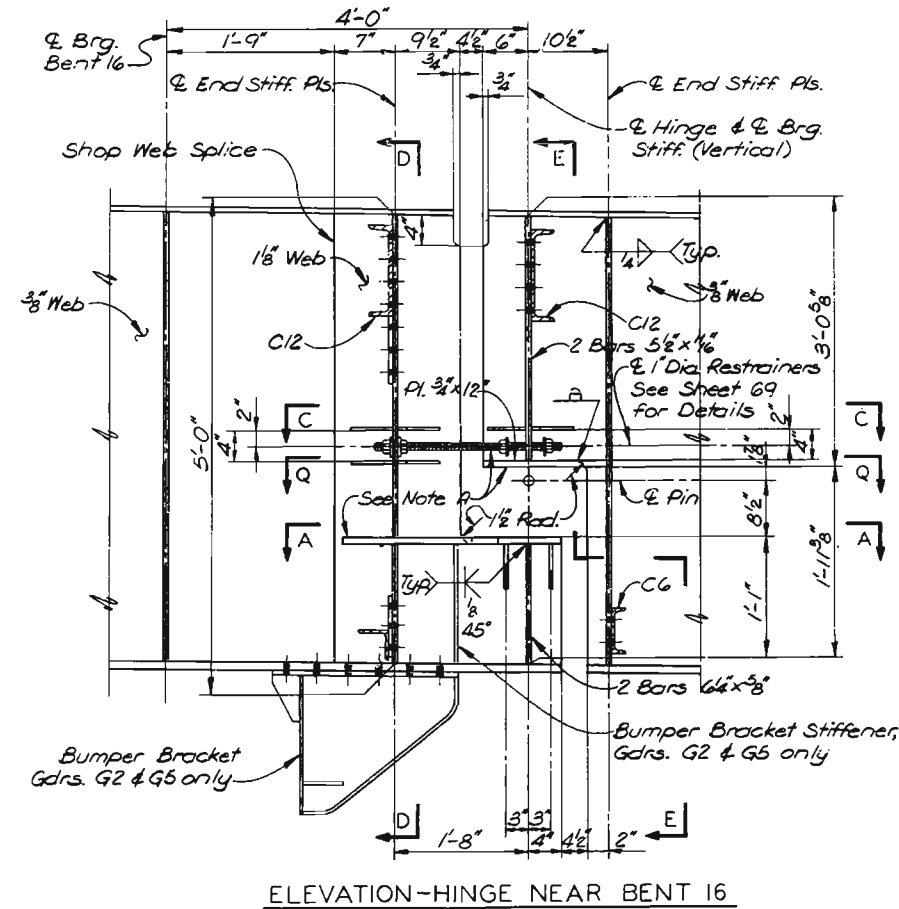
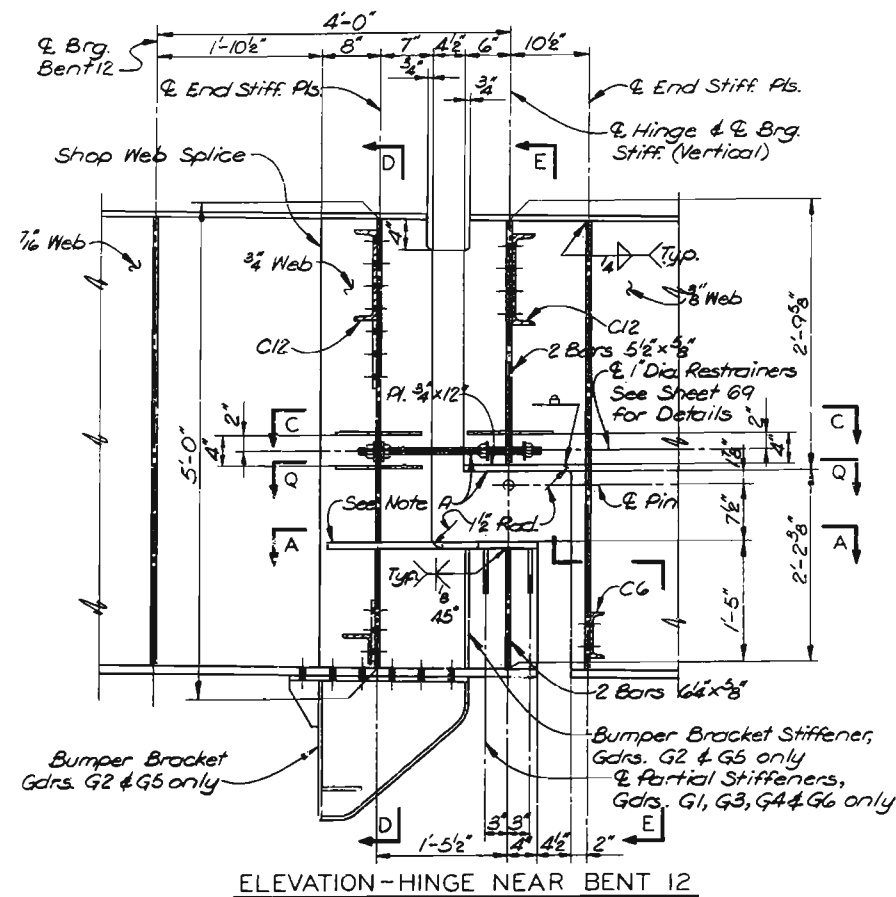
CITY OF ST. LOUIS

CROSS BEAMS

SHEET 64 OF 93

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	13	



NOTES
 For Sections A-A, C-C, D-D & E-E and Note A, see Sheet 65.
 For Section Q-Q, see Sheet 68.
 Restrainers to be on all girders.
 For Structural Steel Notes, see Sheet 33.
 All stiffeners and connection plates shown shall be vertical.
 For details of Bumper Brackets, location and details of Bumper Bracket Stiffeners, see Sheet 60.

CITY OF ST. LOUIS

HINGES NEAR BENTS 12, 16, 20, 24 AND 28

SHEET 66 OF 93

A-3594

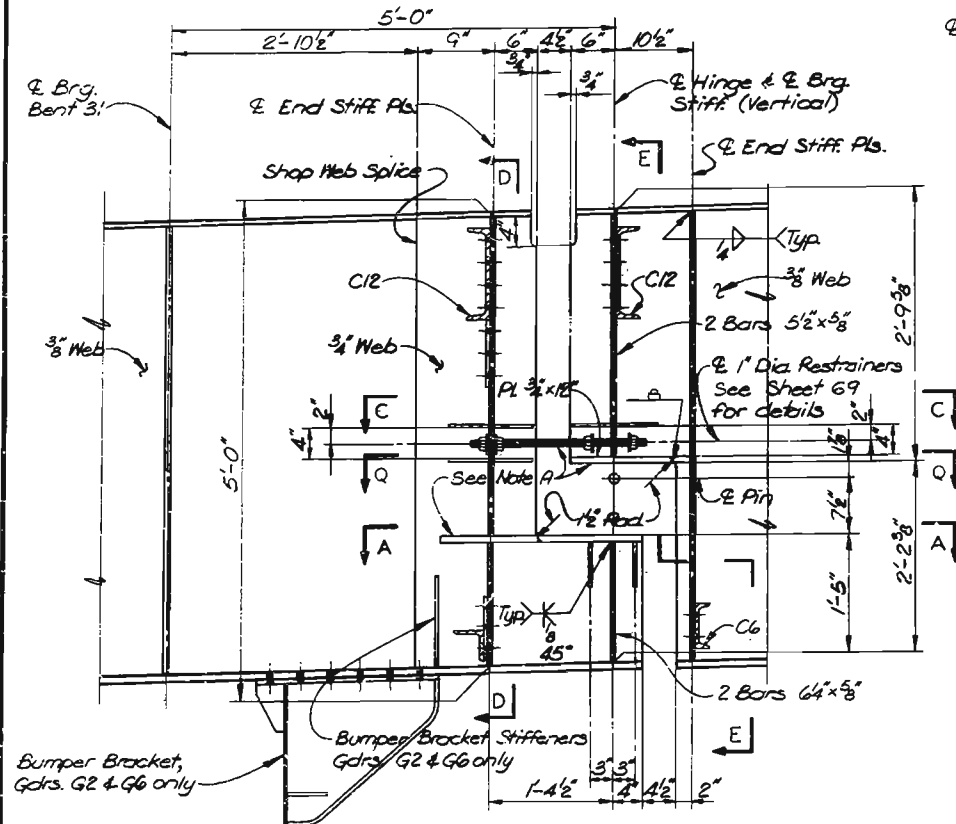
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

OVERSEAS & PARCEL AND ASSOCIATES, INC.
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262
 DRAWN BY: D. Ammons, Oct. 1977
 CHECKED BY: T. Sanders, Dec. 1977
 5261
 75358

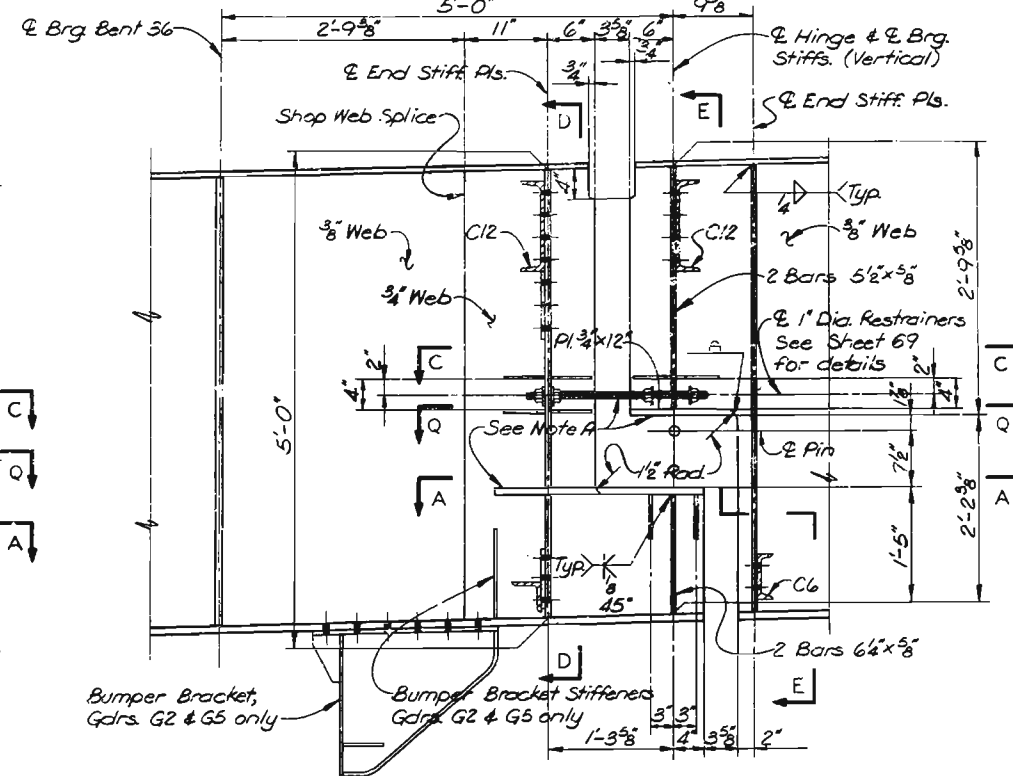
MISSOURI STATE HIGHWAY DEPARTMENT

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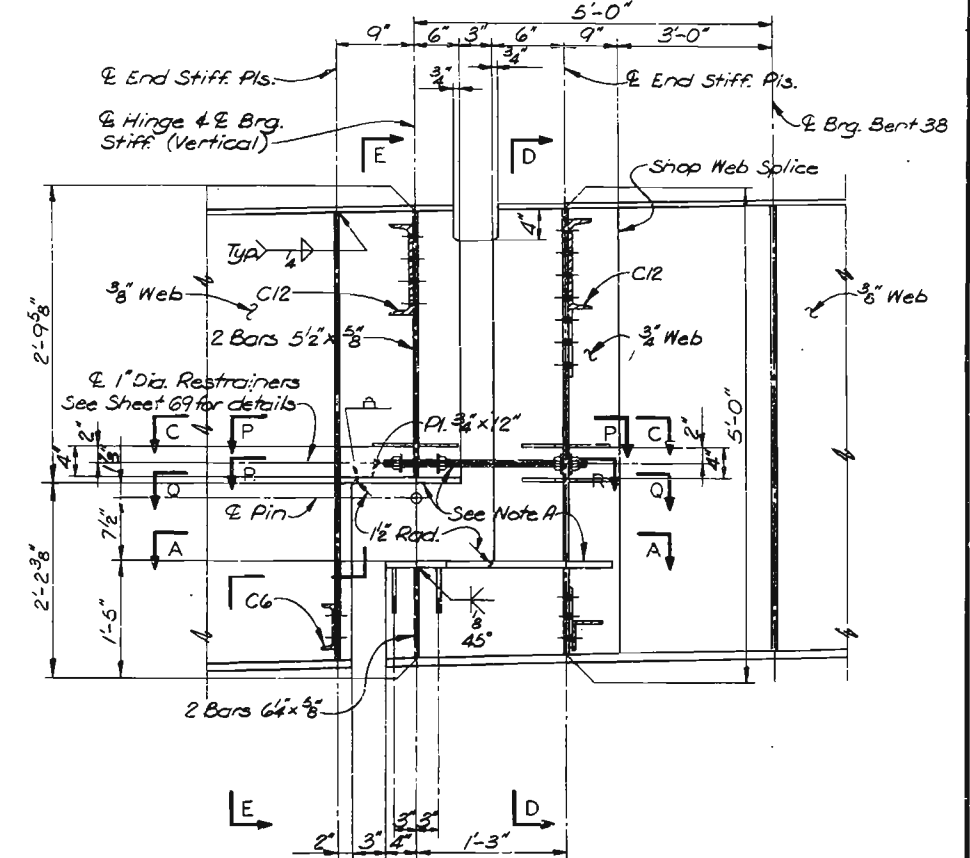


ELEVATION-HINGE NEAR BENT 31

Note: Elevation shown for Girders G1 thru G6, for Girders G7 thru G10 see Sheet 68.

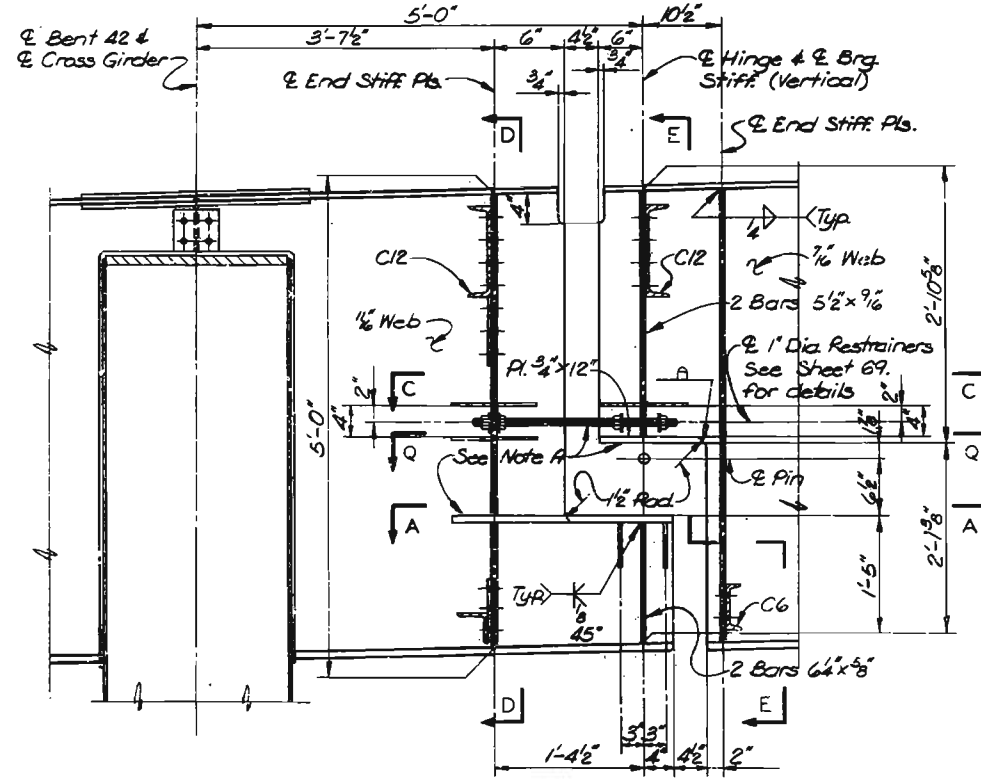


ELEVATION-HINGE NEAR BENT 36

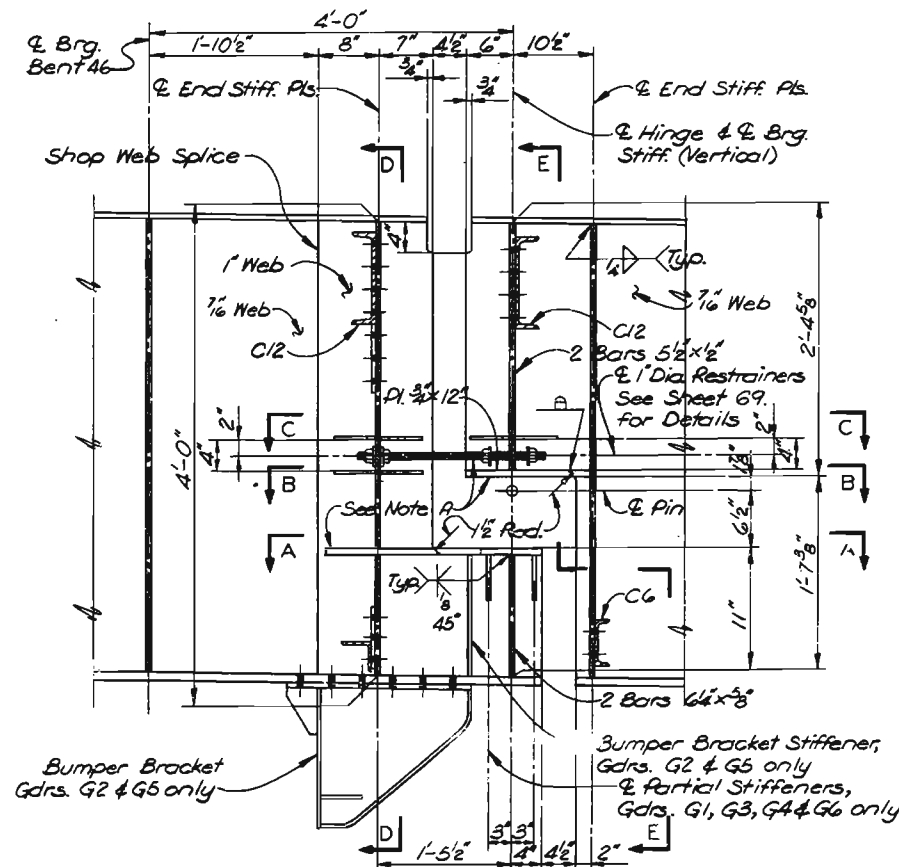


ELEVATION-HINGE NEAR BENT 38

Note: Sections C-C & Q-Q apply to Girders G1 thru G5, Sections P-P & R-R apply to Girders G6 & G7.



ELEVATION-HINGE NEAR BENT 42



ELEVATION-HINGE NEAR BENT 46

NOTES

- For Sections A-A, B-B, C-C, D-D & E-E and Note A, see Sheet 65.
- For Sections P-P, Q-Q & R-R, see Sheet 68.
- Restrainers to be on all Girders.
- For Structural Steel Notes, see Sheet 33.
- All stiffeners and connection plates shown shall be vertical.
- For details of Bumper Brackets, location and details of Bumper Bracket Stiffeners, see Sheet 60.

CITY OF ST. LOUIS

HINGES NEAR BENTS 31, 36, 38, 42 AND 46

SHEET 67 OF 93

A-3594

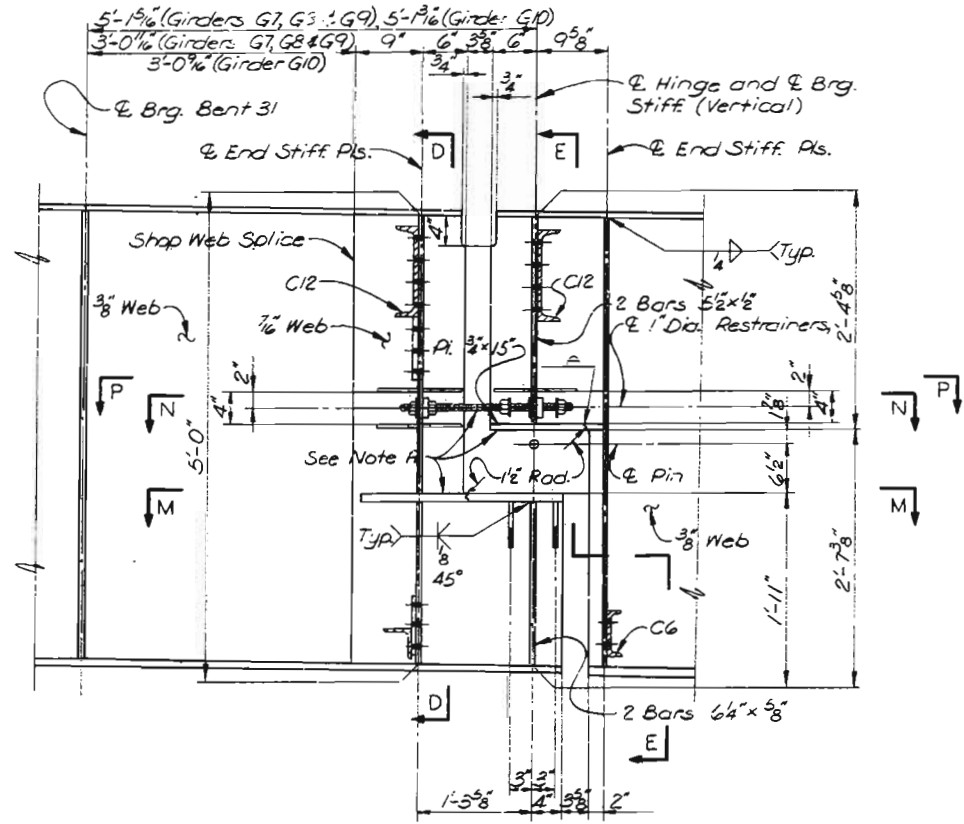
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SWENRUP & PARCEL AND ASSOCIATES, Inc.
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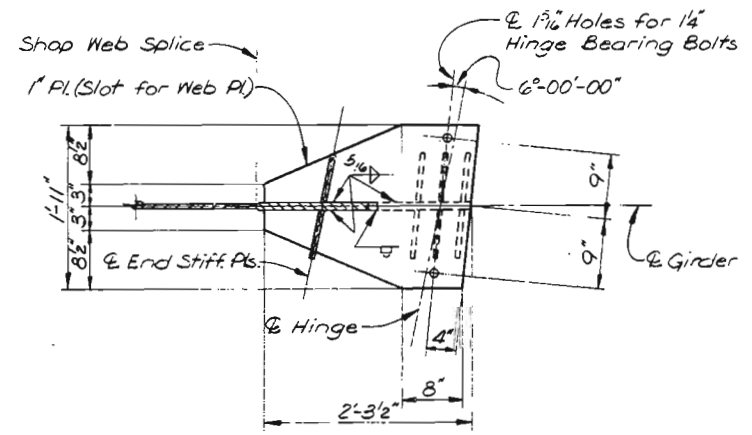
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DRAWN BY: D. Ammons, Oct. 1977
CHECKED BY: T. Sanders, Dec. 1977
5261
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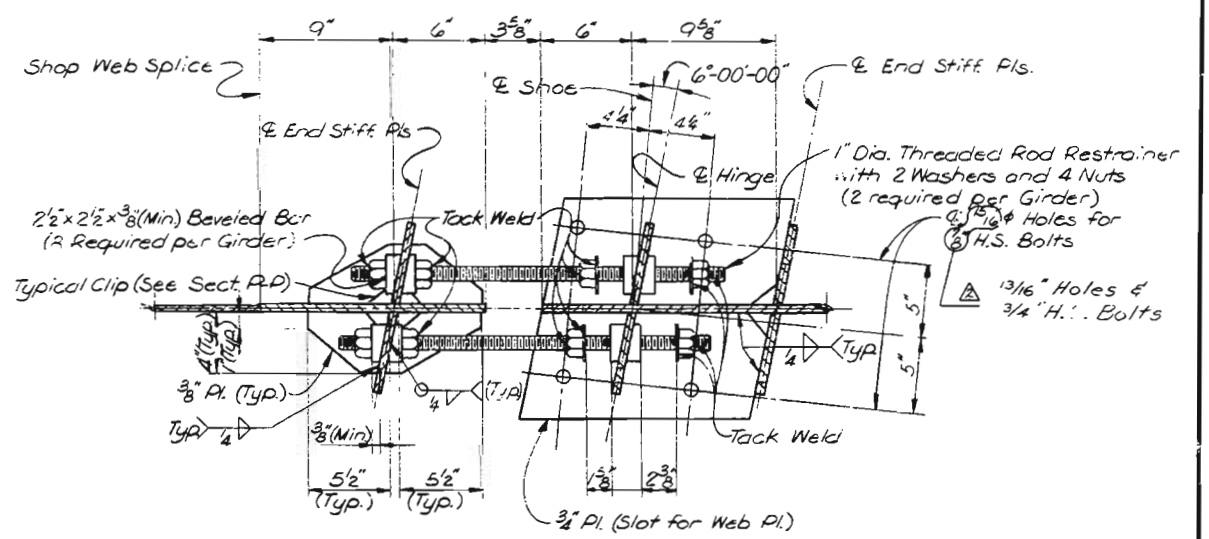
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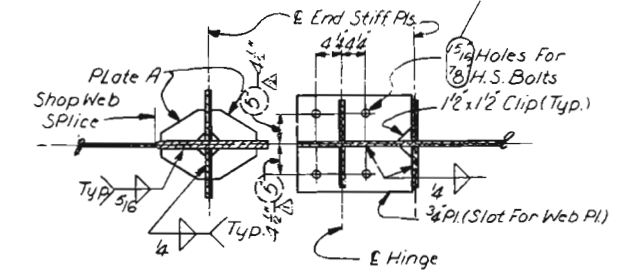
ELEVATION-HINGE NEAR BENT 31
(Girders G7 thru G10 only)



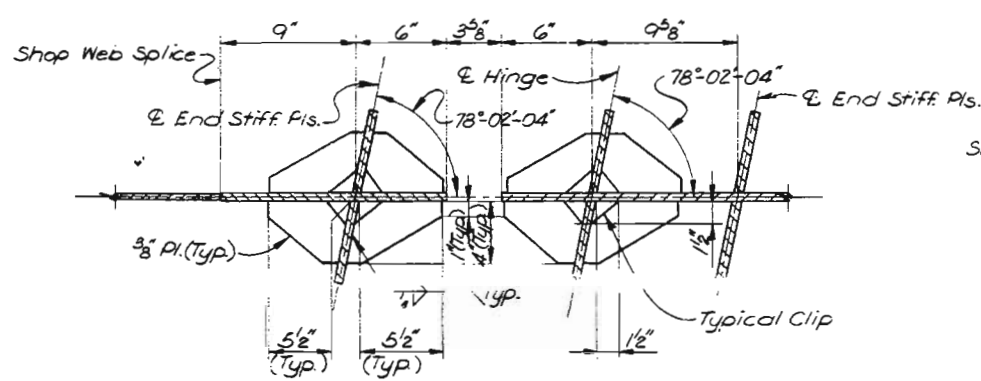
PART SECTION M-M



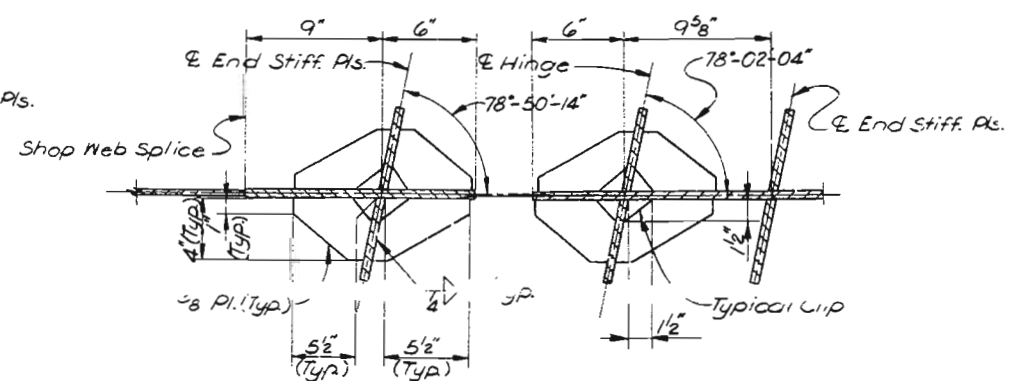
PART SECTION N-N



SECTION Q-Q

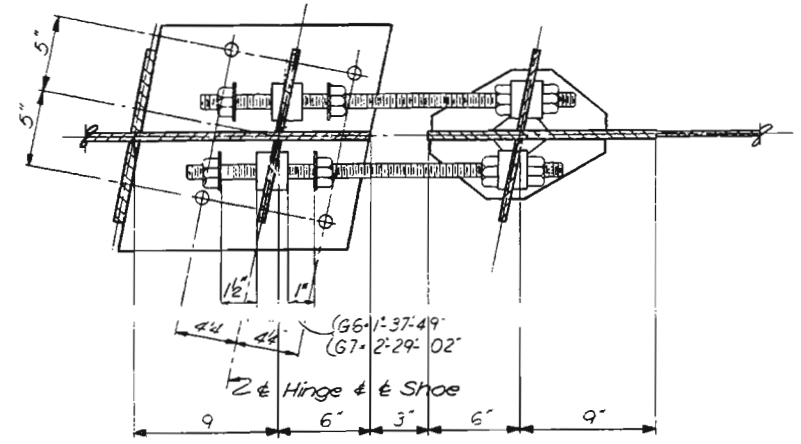


PART SECTION P-P
(BENT 31-GDRS. G7, G8 & G9)
(BENT 38-GDRS. G6 & G7 SIMILAR)



PART SECTION P-P
(BENT 31-GDR G10)

NOTES
For Sections D-D & E-E and Note A, see Sheet 65.
Restrainers to be on all Girders.
For Structural Steel Notes, see Sheet 33.
All stiffeners and connection plates shown shall be vertical.



SECTION R-R
Note: Dimensions and details not shown are same as shown for Part Section N-N

Revised 11-7-79
Changes in dimension of 1/4\"/>

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HINGE NEAR BENT 31

SHEET 68 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

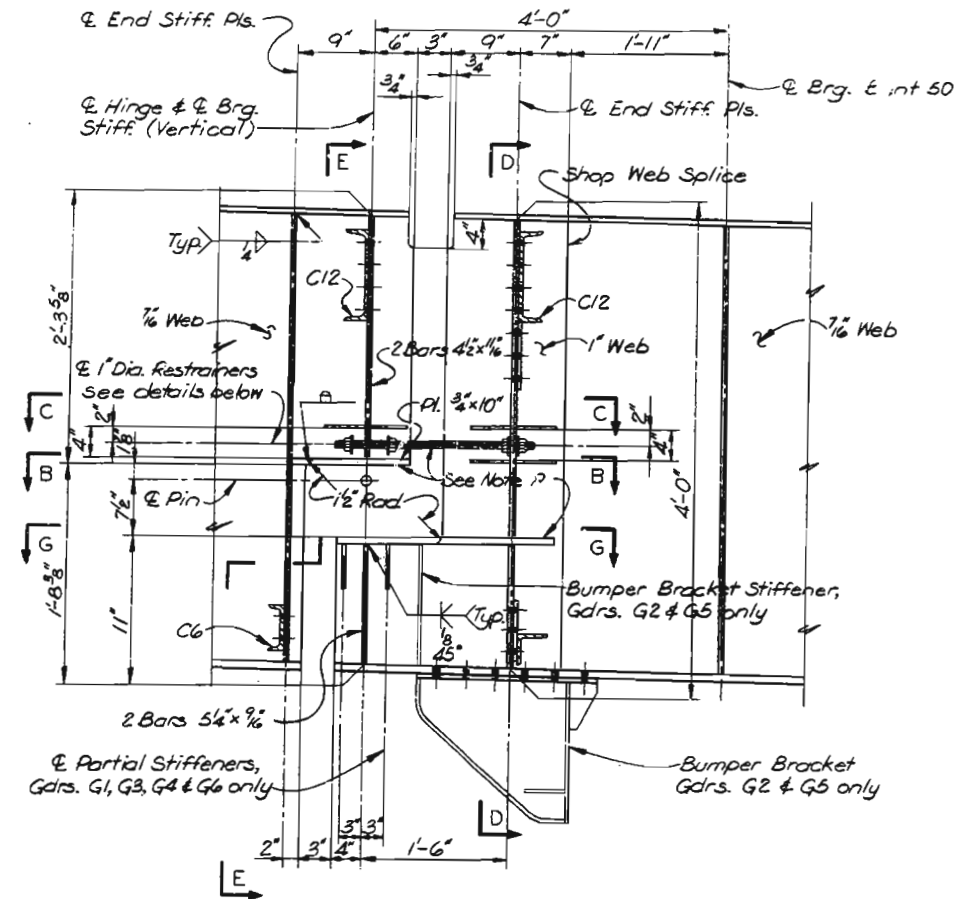
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CHECKED BY: T. Sanders, Dec. 1977
5261
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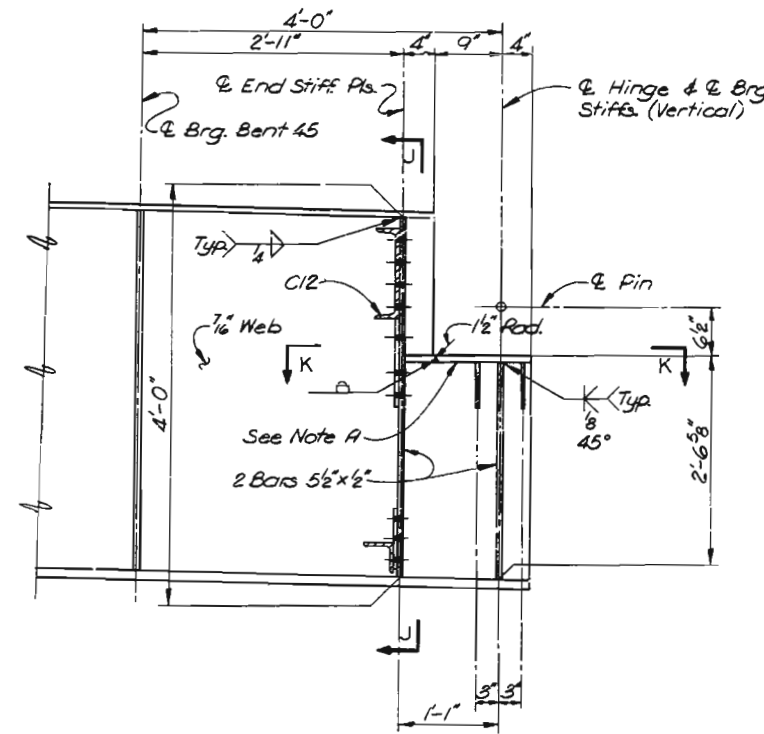
SVENDRUP & PARCEL AND ASSOCIATES, Inc.
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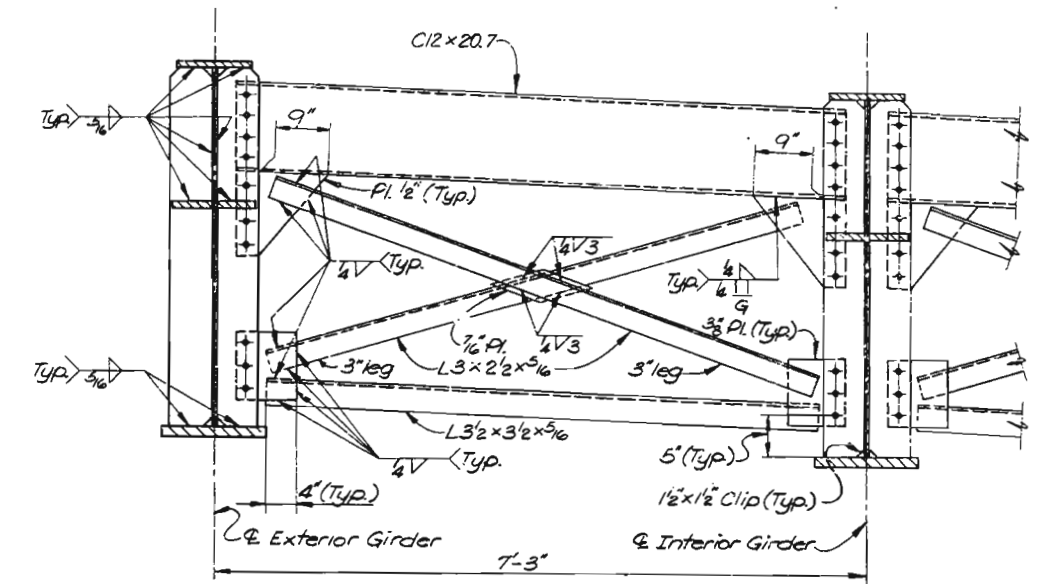
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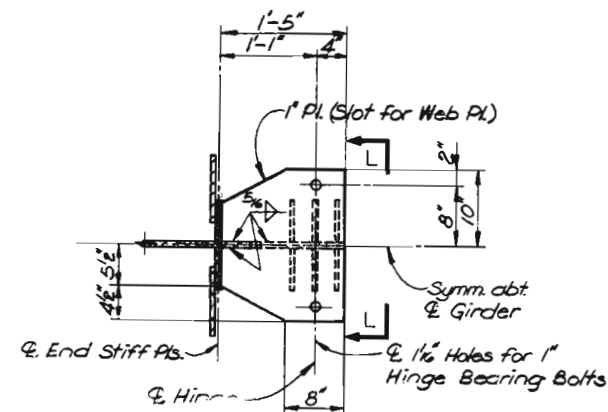
ELEVATION-HINGE NEAR BENT 50



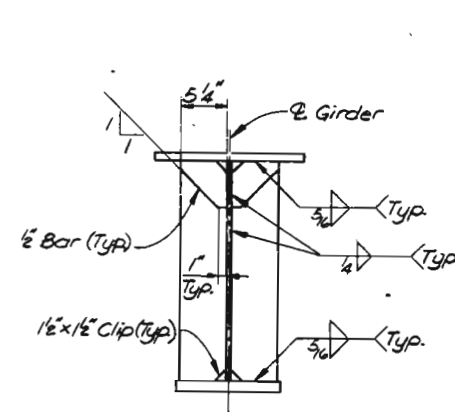
ELEVATION-HINGE NEAR BENT 45



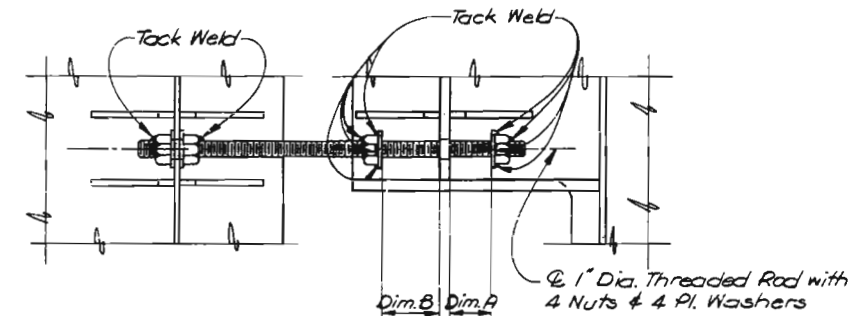
SECTION J-J



SECTION K-K



VIEW L-L



RESTRAINER DETAILS

Bent	Dim. A	Dim. B	Bent	Dim. A	Dim. B
4	2'-8"	1'-8"	36	2'-8"	1'-8"
8	2'-8"	1'-8"	38	1'-6"	1'-0"
12	3'-4"	2'-4"	42	3'-4"	2'-4"
16	3'-4"	2'-4"	46	3'-4"	2'-4"
20	3'-4"	2'-4"	50	1'-6"	1'-0"
24	3'-4"	2'-4"	53	2'-8"	1'-8"
28	2'-8"	1'-8"			
31	3'-4"	2'-4"			

Note: Plan dimensions are based on installation at 60° F.

Dimensions shown for Bent 31 are for Girders G1 thru G6 only, Bent 38 for Girders G1 thru G5 only.

NOTES

- For Sections B-B, C-C, D-D, E-E, G-G and Note A, see Sheet 65.
- Restrainers to be on all Girders, except omit at Hinge near Bent 45.
- For Structural Steel Notes, see Sheet 33.
- All stiffeners and connection plates shown shall be vertical.
- For details of Bumper Brackets, location and details of Bumper Bracket Stiffeners, see Sheet 60.

CITY OF ST. LOUIS

HINGES NEAR BENTS 45 AND 50

SHEET 69 OF 93

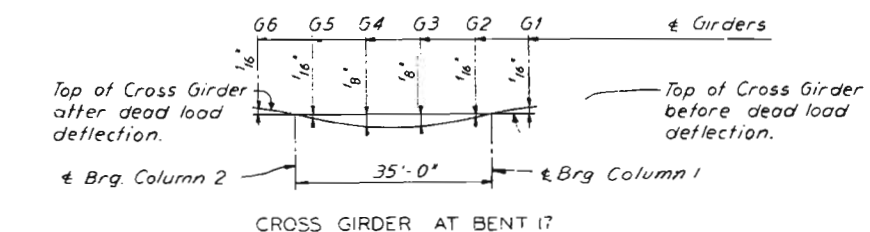
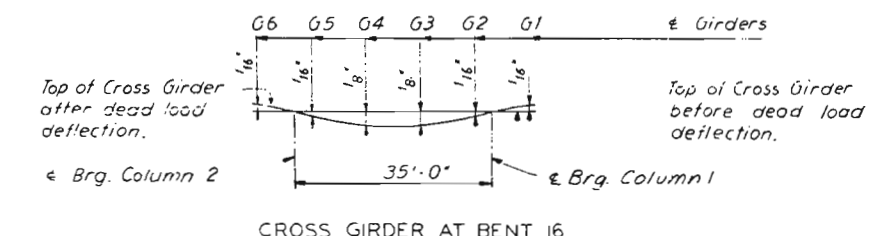
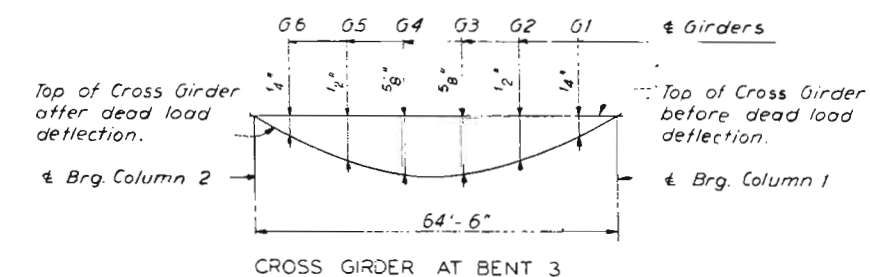
A-3594

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CHECKED BY: T. Sanders, Dec. 1977
5261
725363

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	122	



CROSS GIRDER NOTES

For Structural Steel Notes, see Sheet 33.
All dimensions are measured horizontally along the \perp of Cross Girders.
Intermediate stiffeners shall be equally spaced between Girders and \perp Bearing Stiffeners or Columns except as noted.
Location of flange splices for bottom flange same as top flange.
For Cross Girder details, see Sheet 81 & 82.
** Indicates Flange Plate subject to notch toughness requirements.
① Indicates stiffener is located in a tension zone. See Sheet 82 for welding details.
Elevations are given at top of top flange.
Bearing Stiffeners and closure plates shall be vertical.
Cross Girders are not to be cambered.
Deflection due to weight of steel only is approximately 21% of the full dead load deflections shown.
E9, F7 etc., indicate Types of Bearings which shall be bolted to top and bottom flanges, see Bearing Detail Sheets.
All web plates shall be subject to notch toughness requirements.

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 3, 16 AND 17

SHEET 70 OF 93

A-3594

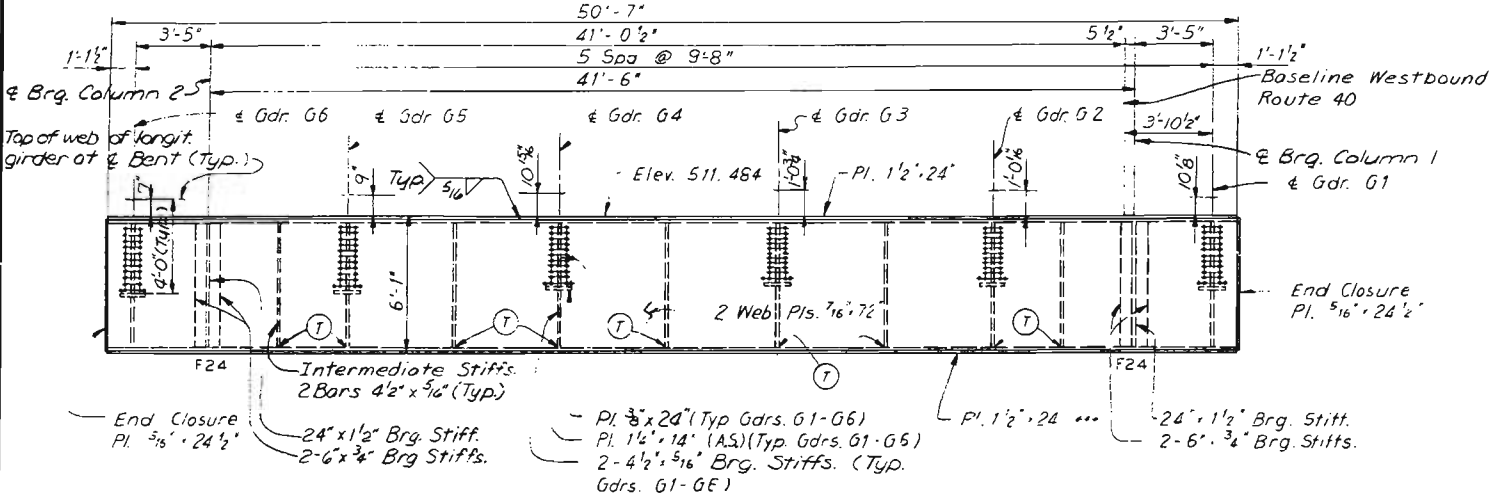
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① Revised 12-17-81

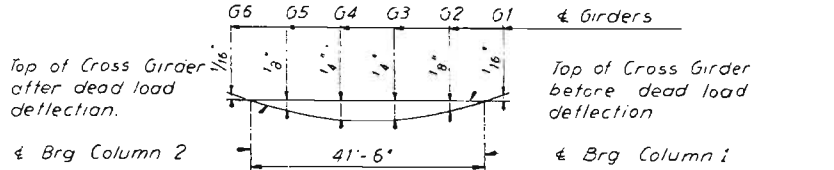
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775265	TRACED BY:
	CHECKED BY: R.V. Butterfield, Sept. 1977

MISSOURI STATE HIGHWAY DEPARTMENT

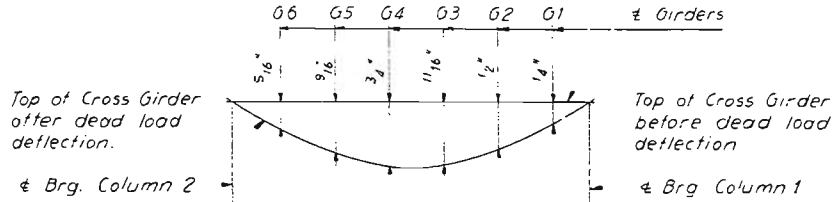
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5	MO.		19		



CROSS GIRDER AT BENT 9

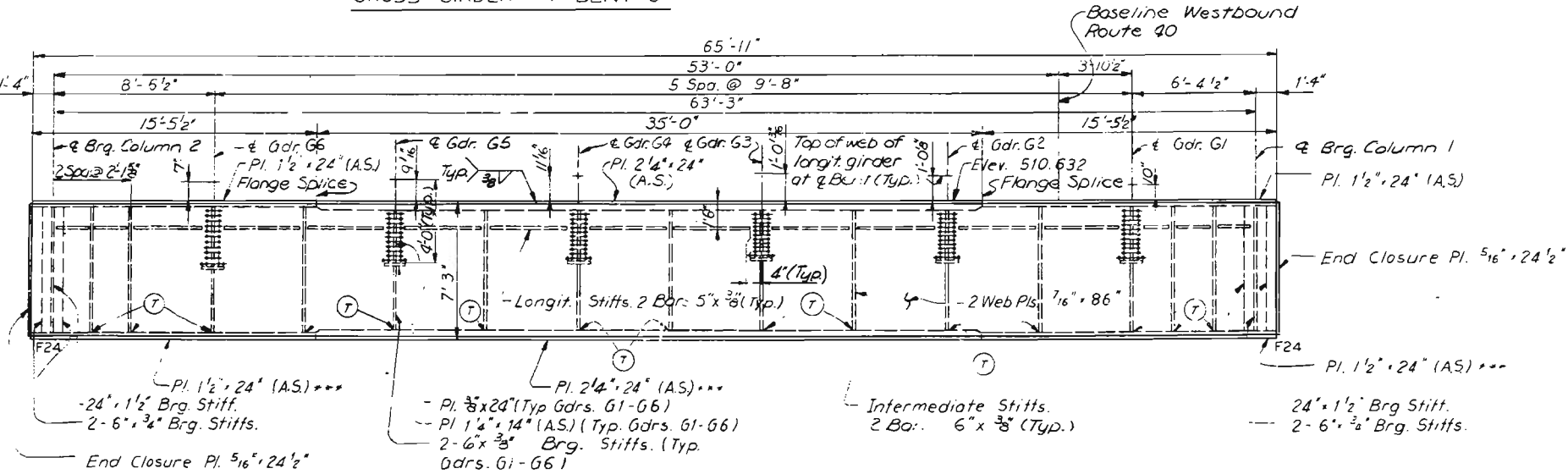


CROSS GIRDER AT BENT 9



CROSS GIRDER AT BENT 10

DEAD LOAD DEFLECTION DIAGRAM



CROSS GIRDER AT BENT 10

NOTES

For Cross Girder Notes, see Sheet 70.
For details at longitudinal girders, see Sheet 62.

267

DRAWN BY: H. Maag, July 1977
TRACED BY:
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5261
775268

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CITY OF ST. LOUIS

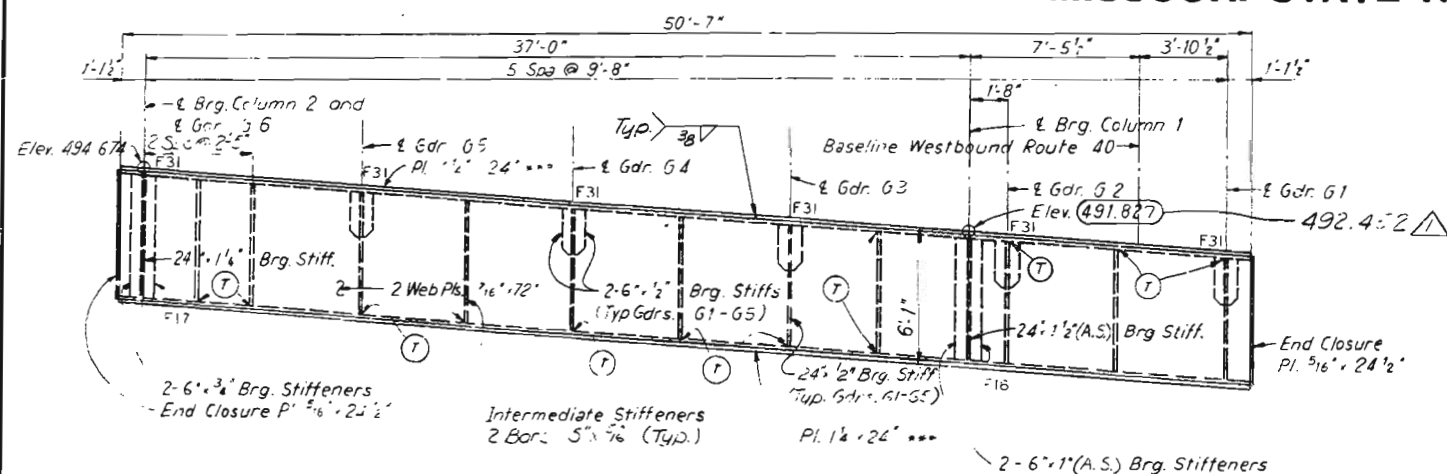
CROSS GIRDERS
AT BENTS 9 AND 10

SHEET 71 OF 93

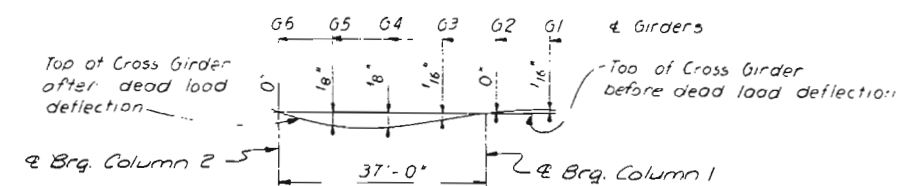
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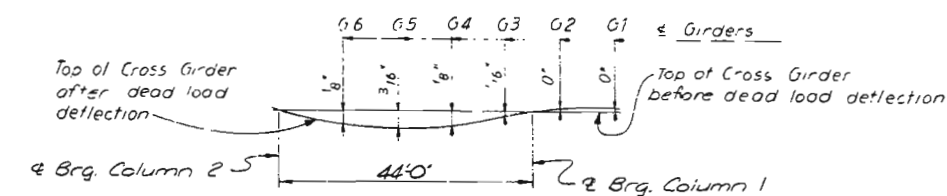
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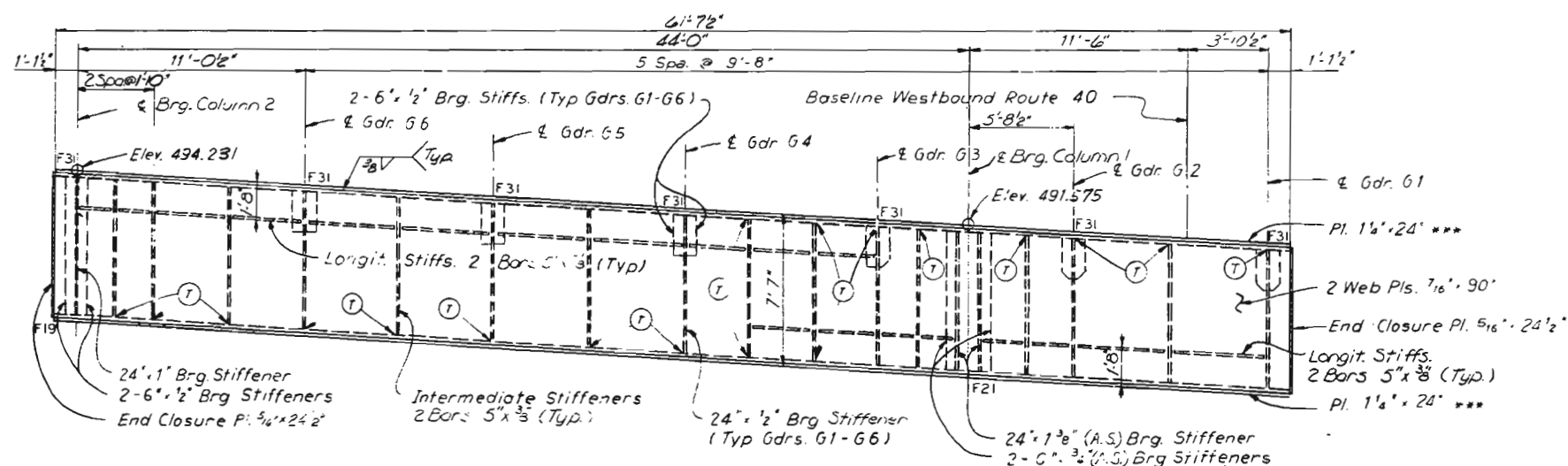
CROSS GIRDER AT BENT 18



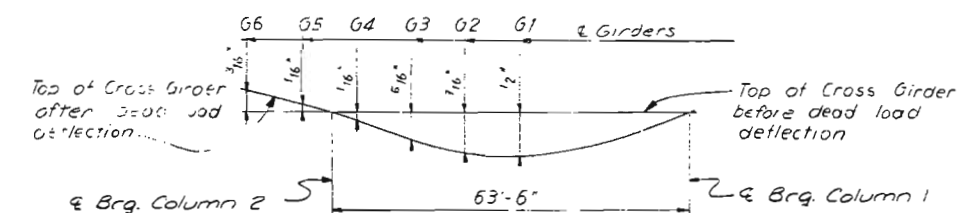
CROSS GIRDER AT BENT 18



CROSS GIRDER AT BENT 19



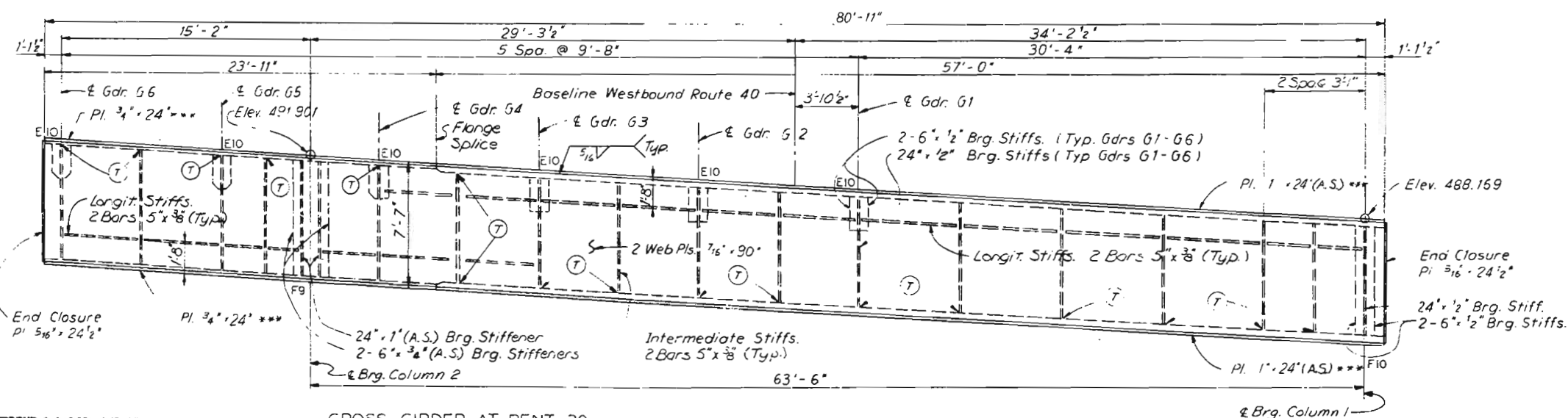
CROSS GIRDER AT BENT 19



CROSS GIRDER AT BENT 20
DEAD LOAD DEFLECTION DIAGRAMS

NOTES

For Cir.: Girder Notes, see Sheet 70.



CROSS GIRDER AT BENT 20

Revised 3-16-79

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 18, 19 AND 20

SHEET 72 OF 93

A-3594

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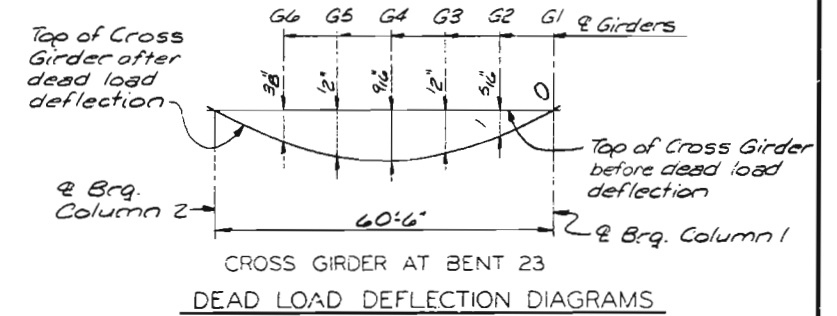
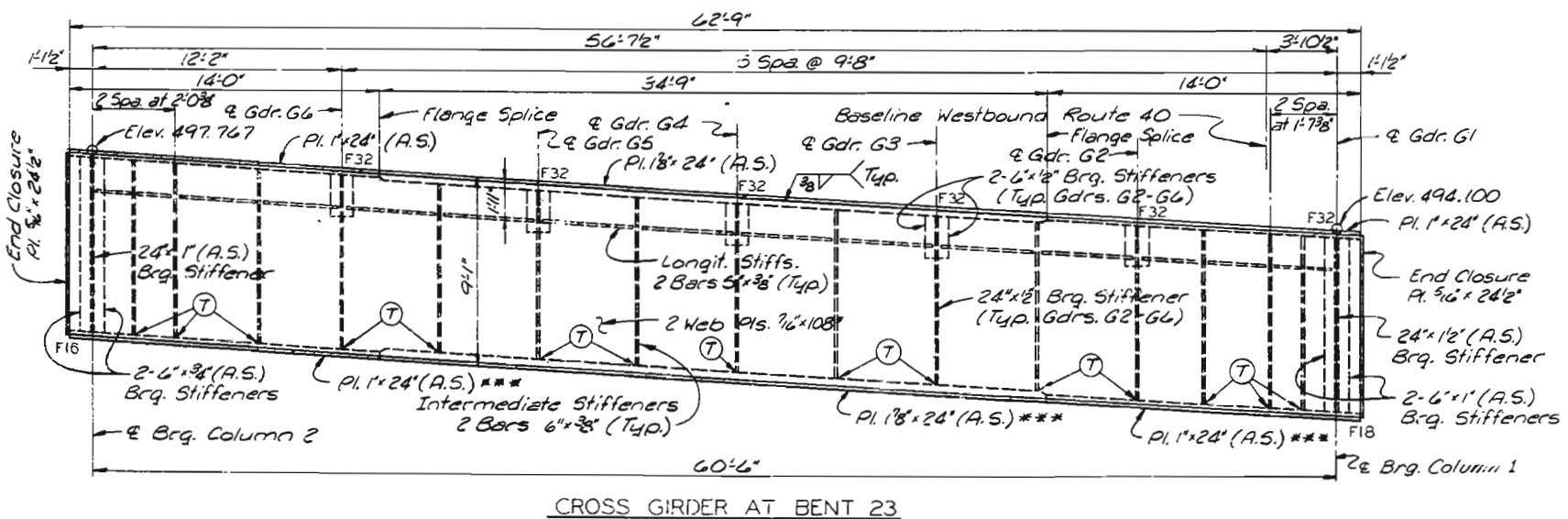
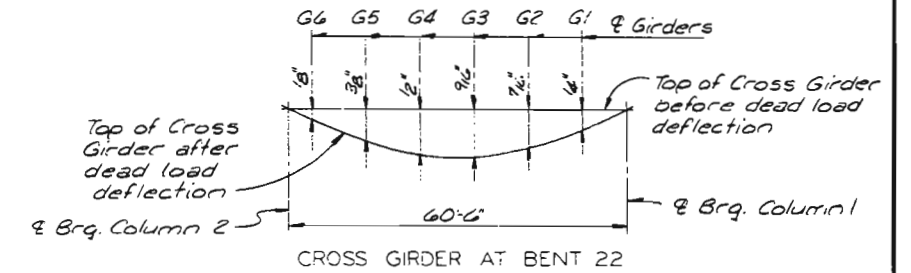
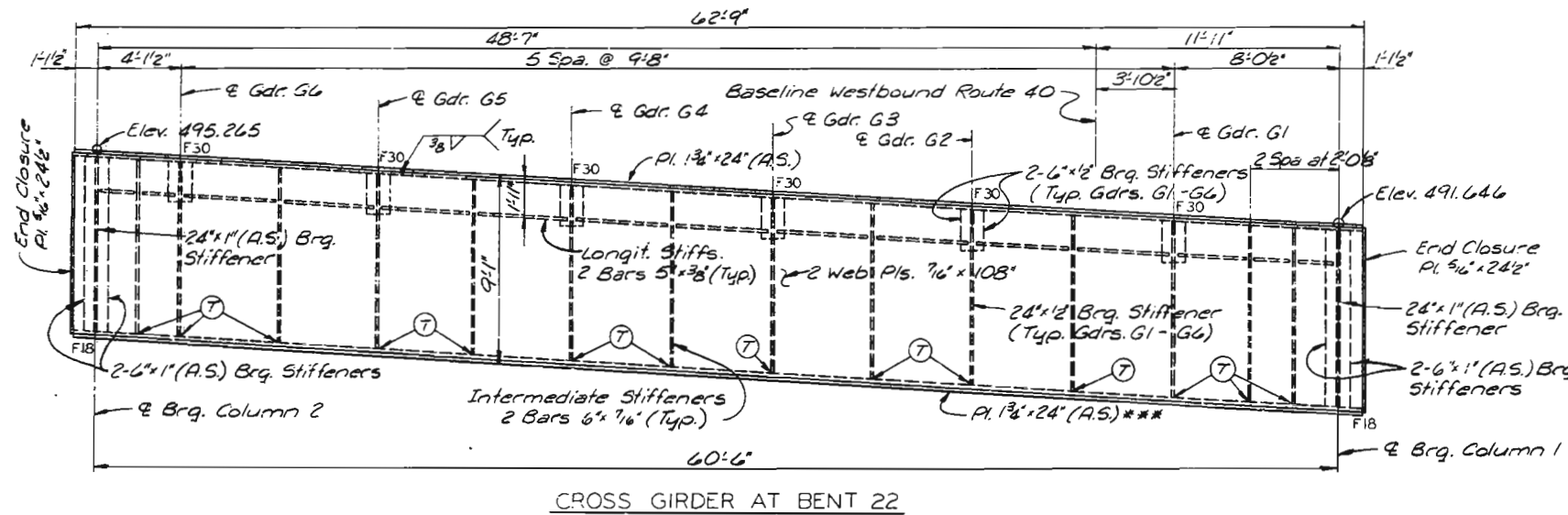
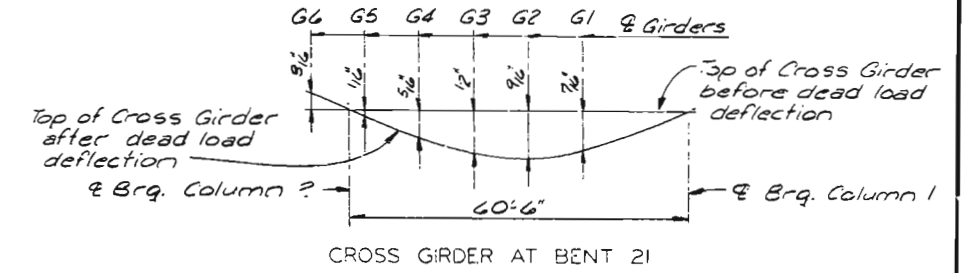
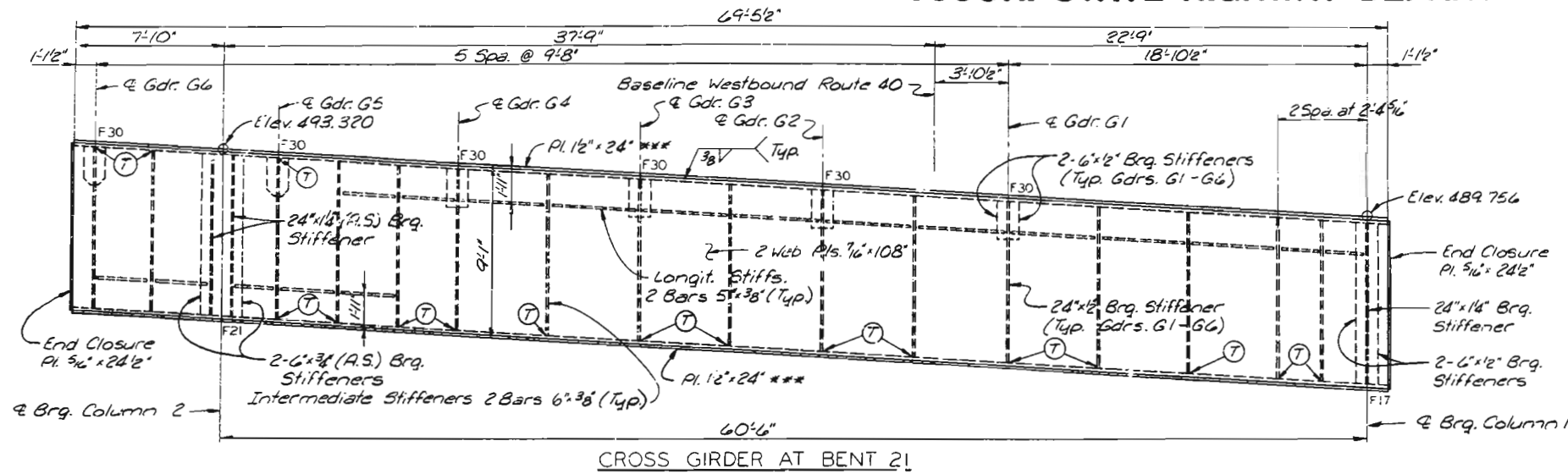
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268

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	1	1



NOTES
For Cross Girder Notes, see Sheet 70.

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 21, 22 AND 23

SHEET 73 OF 93

A-3594

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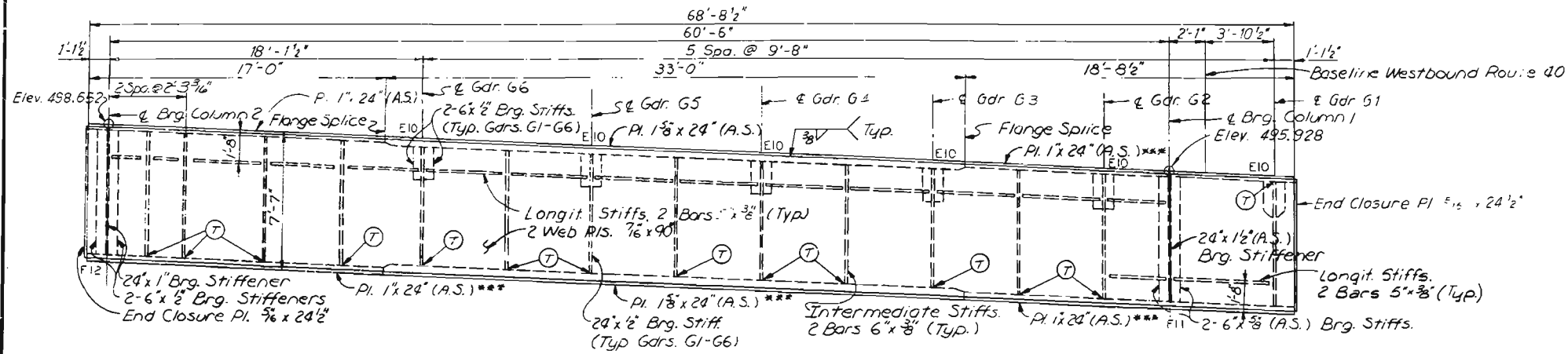
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ST. LOUIS, MISSOURI

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775250

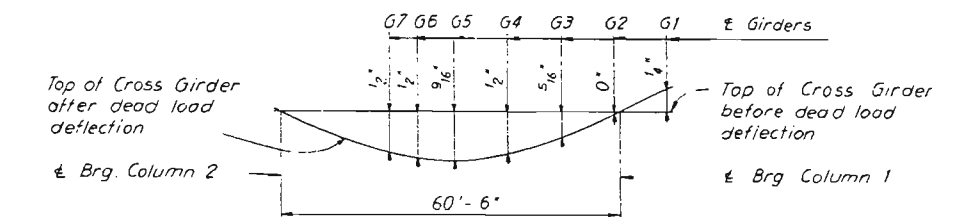
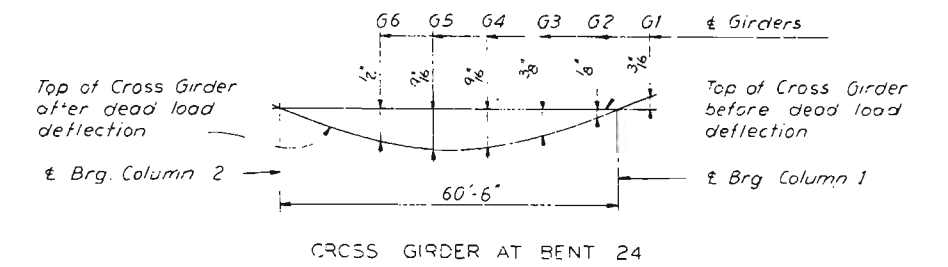
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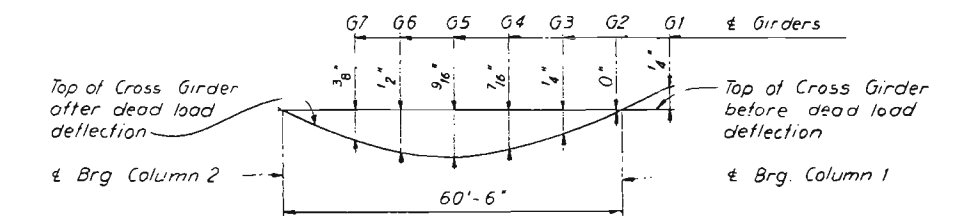
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3	MO.		19	13	7



CROSS GIRDER AT BENT 24

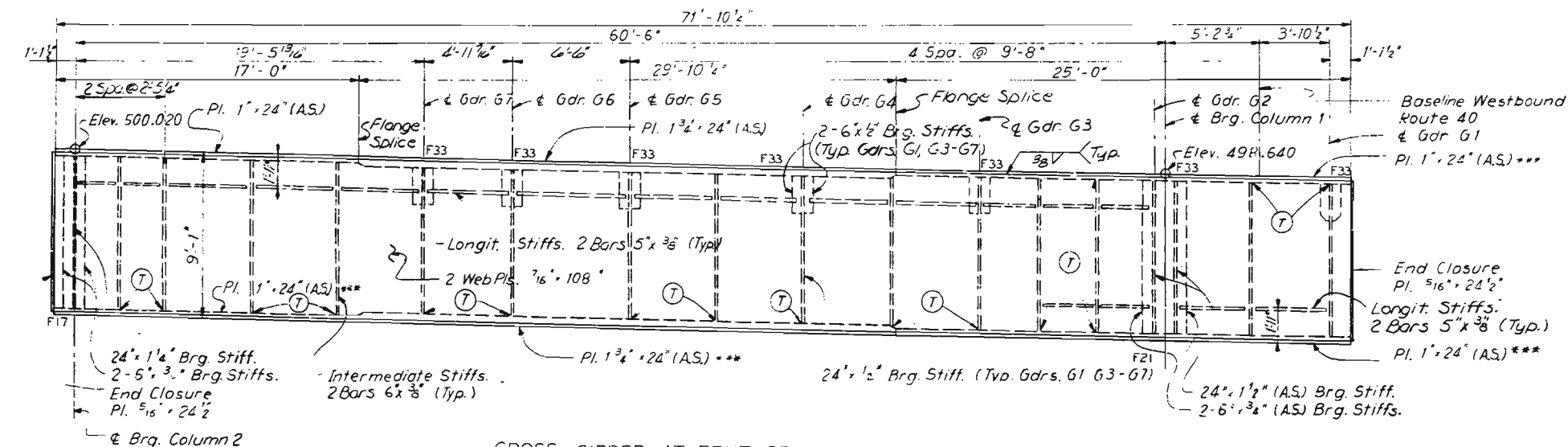


CROSS GIRDER AT BENT 25

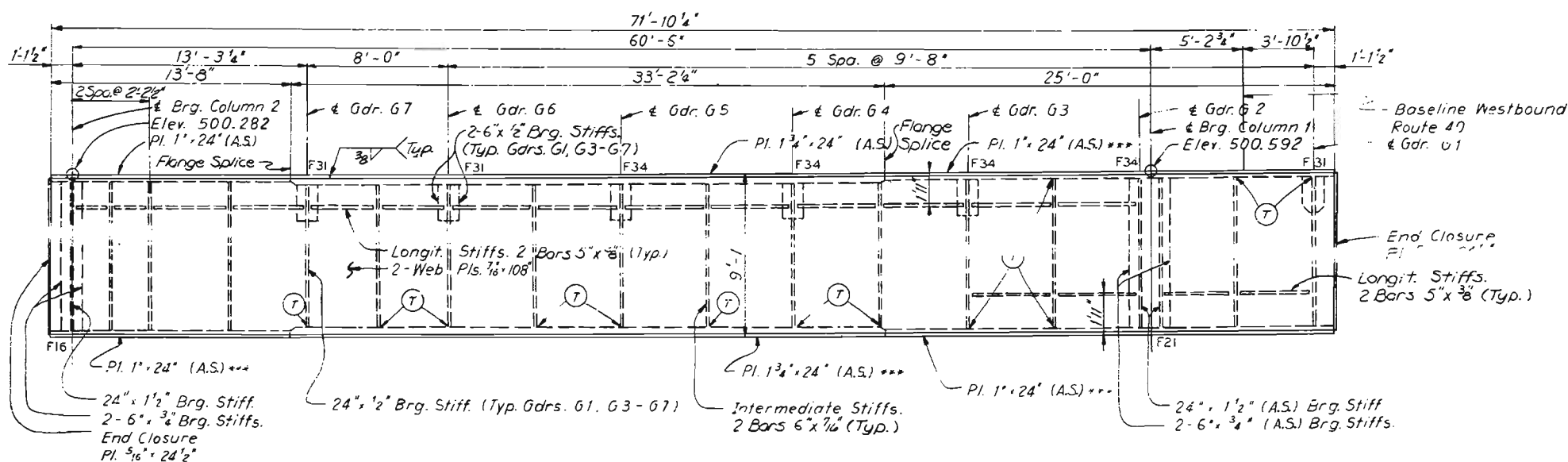


CROSS GIRDER AT BENT 26

DEAD LOAD DEFLECTION DIAGRAMS



CROSS GIRDER AT BENT 25



CROSS GIRDER AT BENT 26

NOTES

For Cross Girder Notes, see Sheet 70.

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 24, 25 AND 26

SHEET 74 OF 93

A-3594

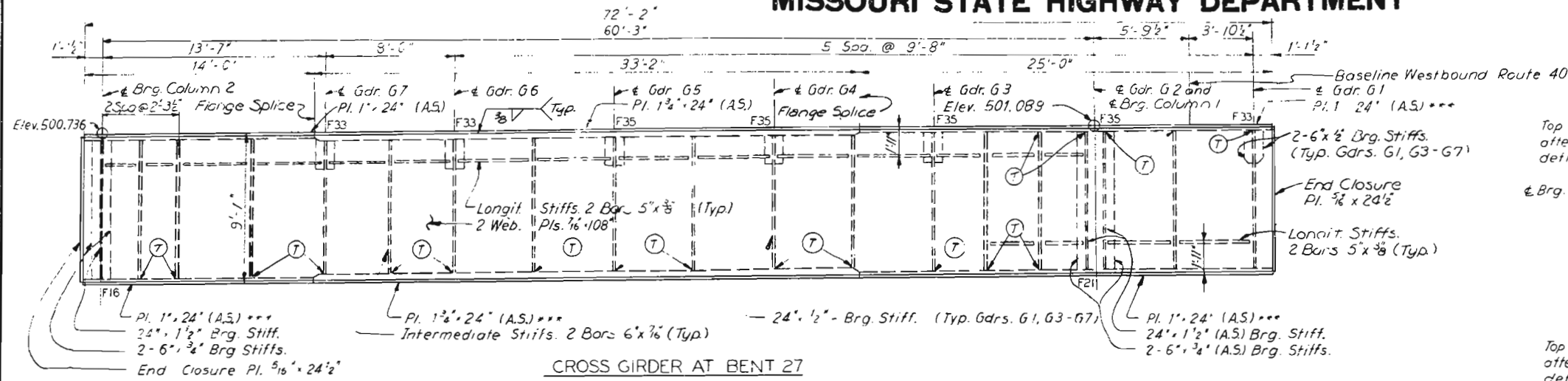
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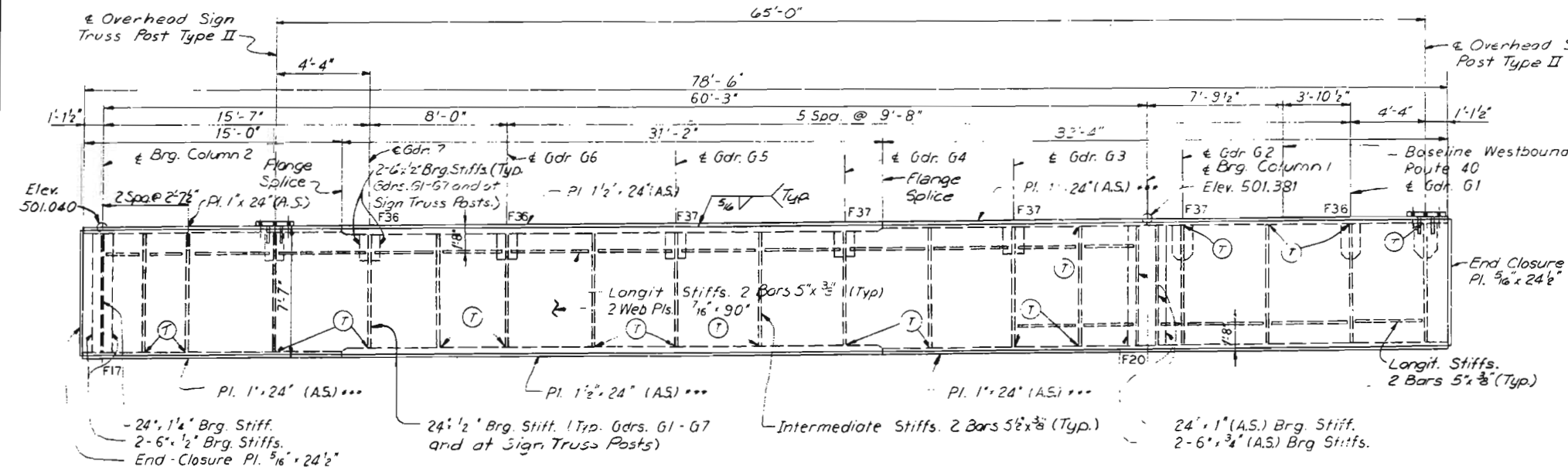
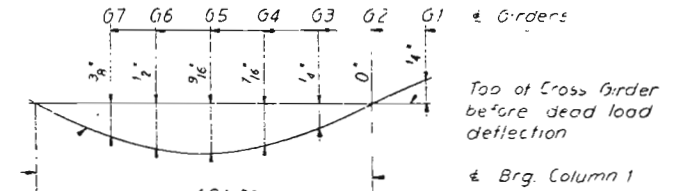
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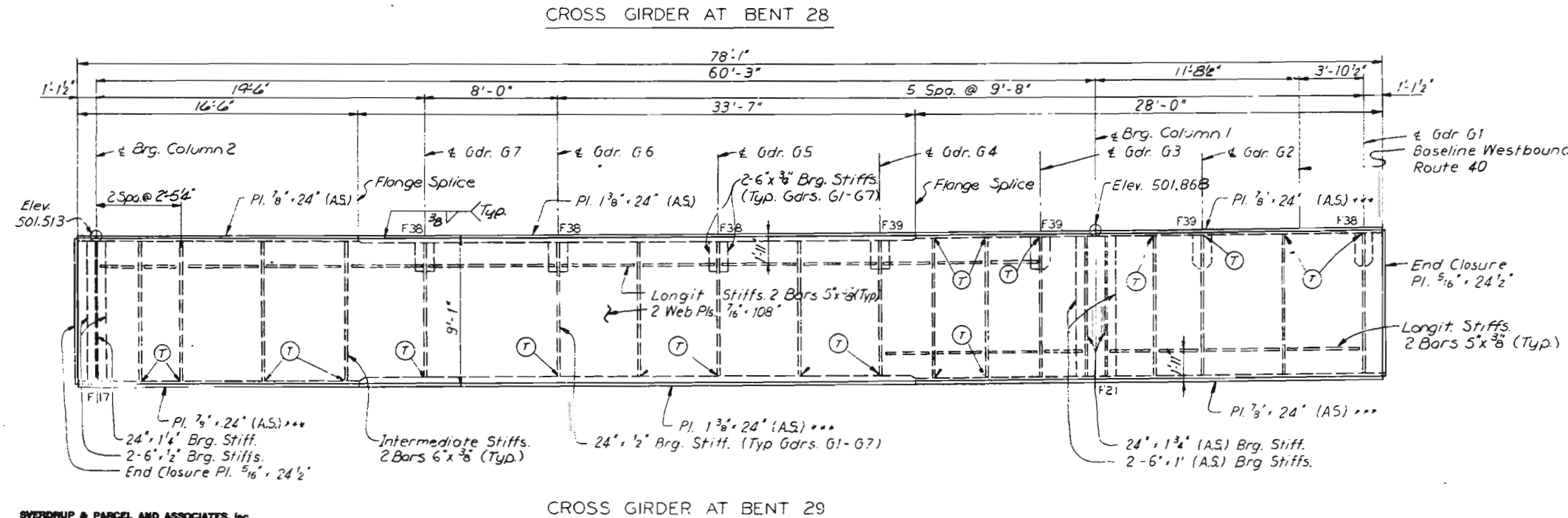
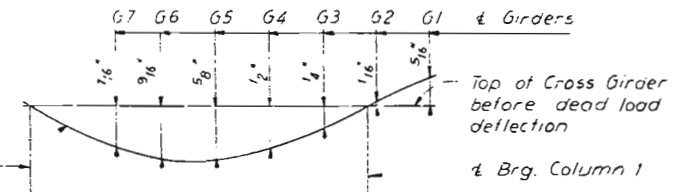
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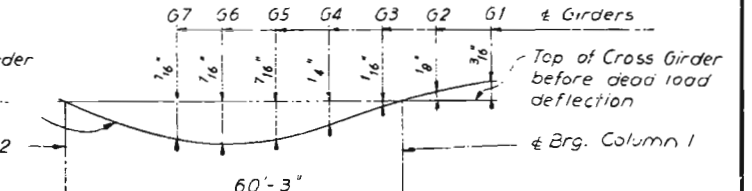
Top of Cross Girder after dead load deflection



Top of Cross Girder after dead load deflection



Top of Cross Girder after dead load deflection



DEAD LOAD DEFLECTION DIAGRAMS

NOTES

For Cross Girder Notes, see Sheet 70.
For details of Overhead Sign Truss, bases on Cross Girder at Bent 28, see Sheet 82.

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 27, 28 AND 29

SHEET 75 OF 93

A-3594

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CHECKED BY: R. V. Butler, Sept. 1977
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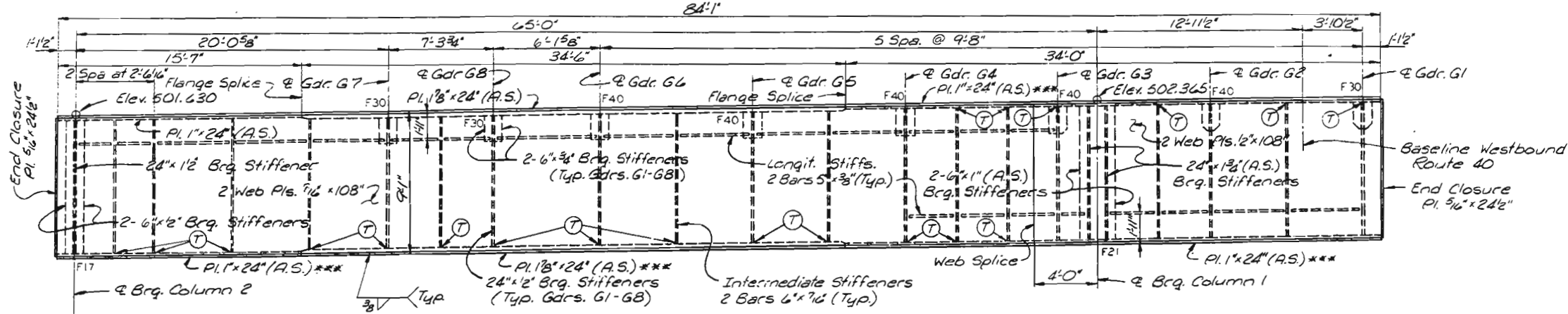
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MISSOURI STATE HIGHWAY DEPARTMENT

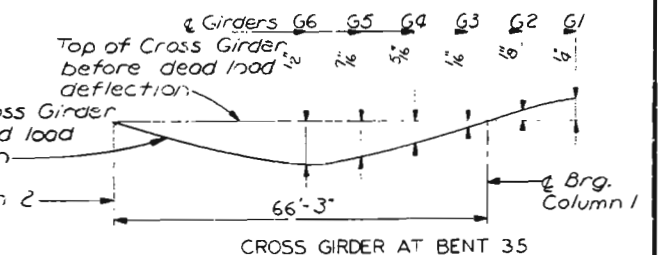
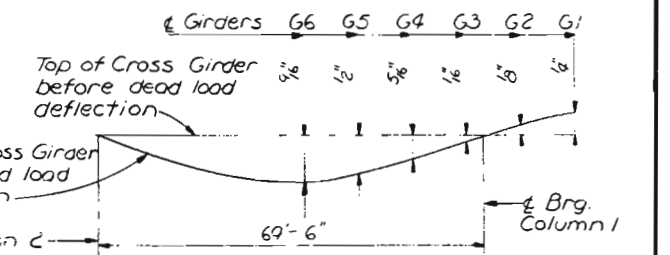
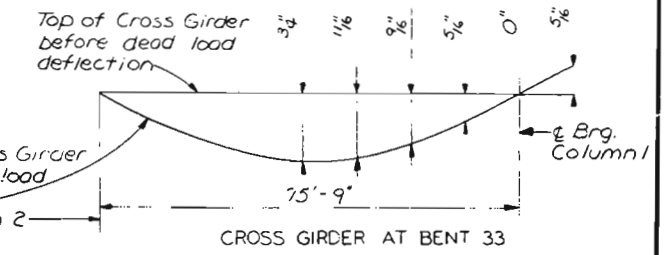
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	13-1	

NOTES

For Cross Girder Notes, see Sheet 70.
For Dead Load Deflection Diagrams, see Sheet 81.



FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	142	



NOTES

CITY OF ST. LOUIS

SHEET 77 OF 93

A-3594

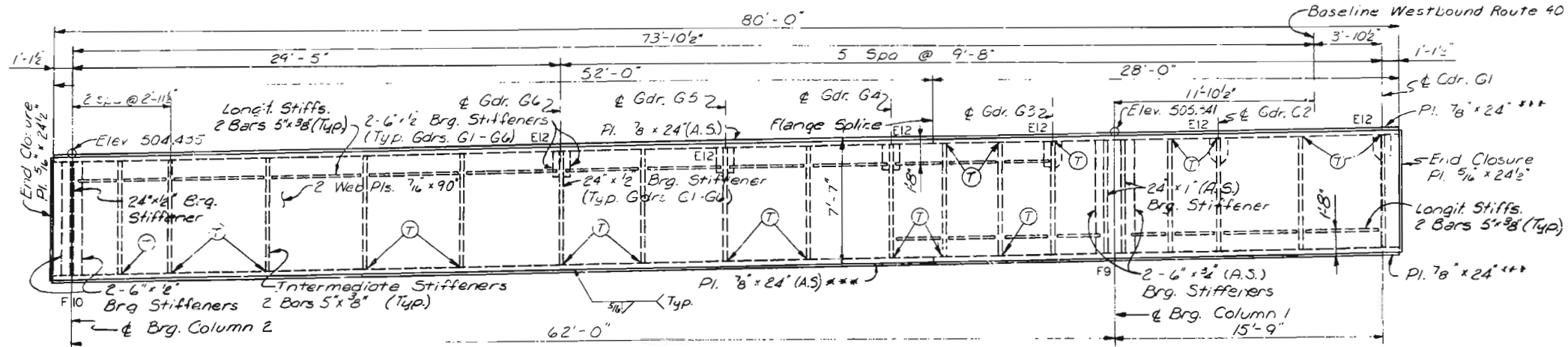
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

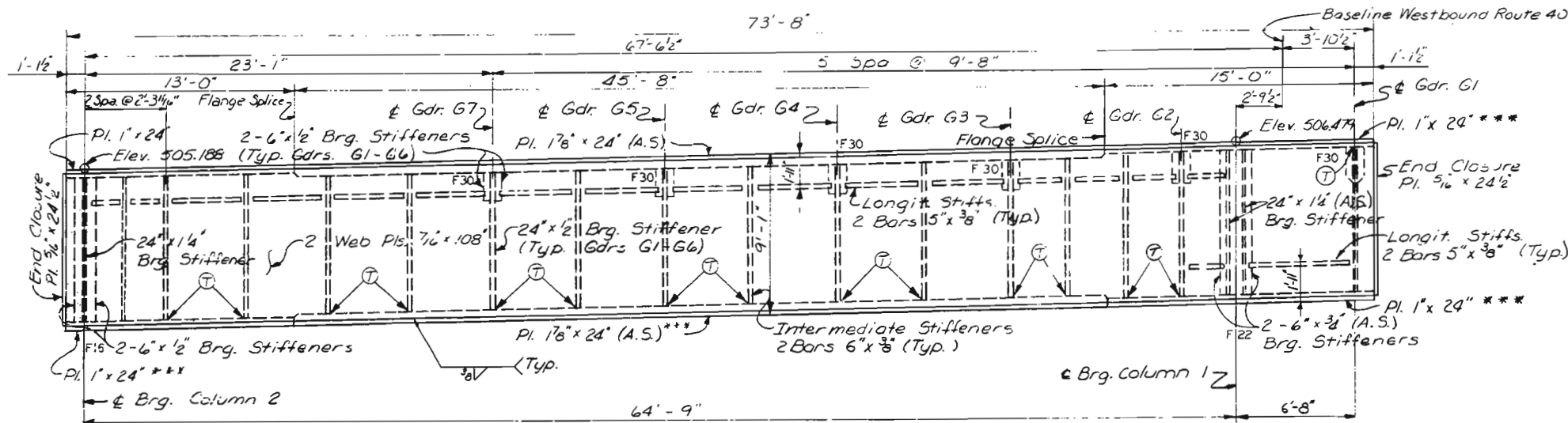
775269	5261	DRAWN BY: E. Gregory, July 1977
		TRACED BY:
		CHECKED BY: R.W. Bulterfield, Sept. 1977

MISSOURI STATE HIGHWAY DEPARTMENT

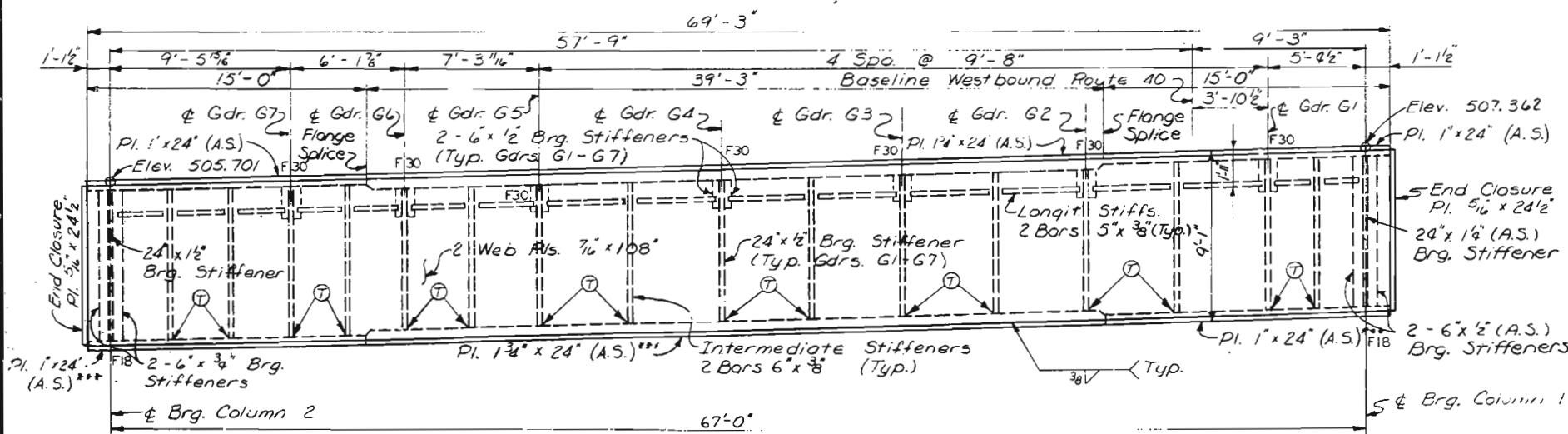
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	121	



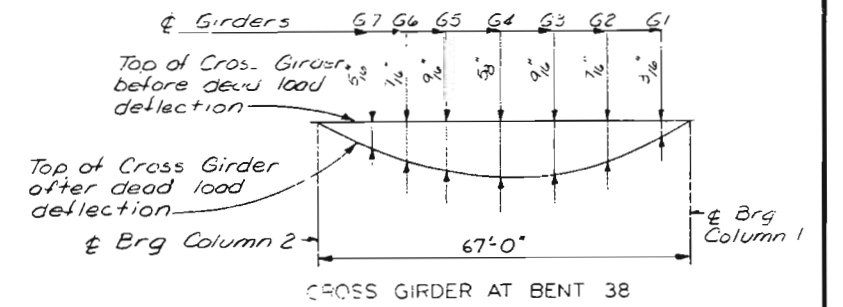
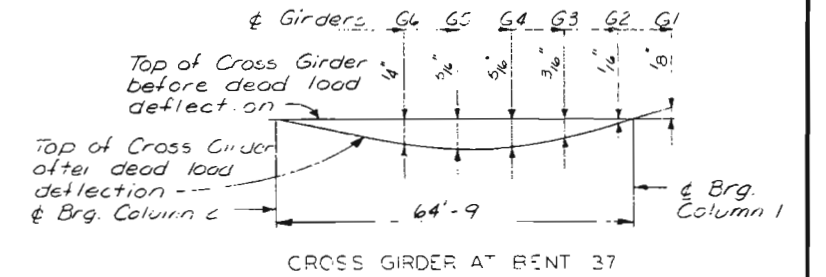
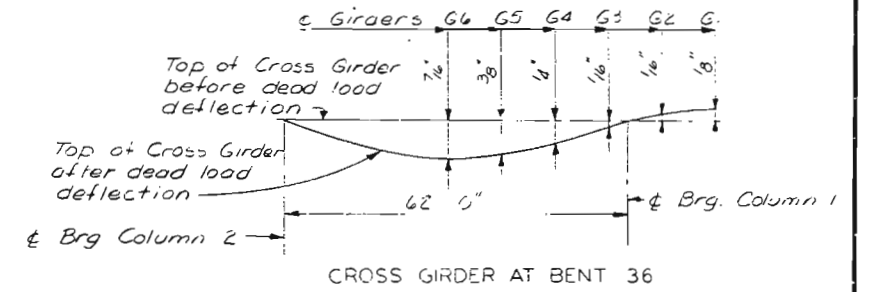
CROSS GIRDER AT BENT 36



CROSS GIRDER AT BENT 37



CROSS GIRDER AT BENT 38



DEAD LOAD DEFLECTION DIAGRAMS

NOTES

For Cross Girder Notes, see Sheet 70.

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 36, 37 AND 38

SHEET 78 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

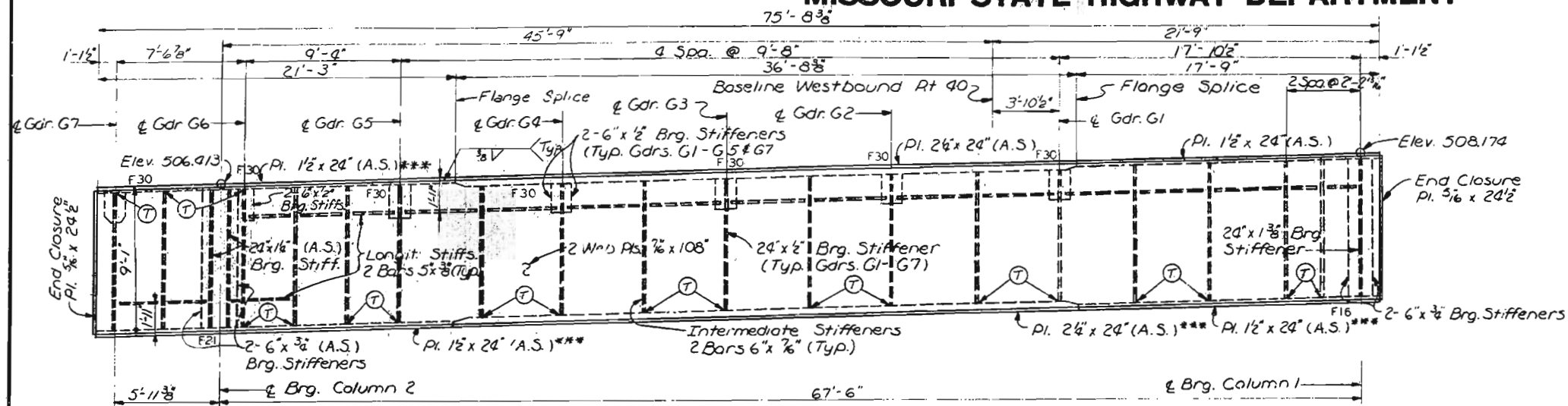
SVENDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: M.O. Ething, July 1971
CHECKED BY: R.L. Butterfield, Sept. 1971
5261
775295

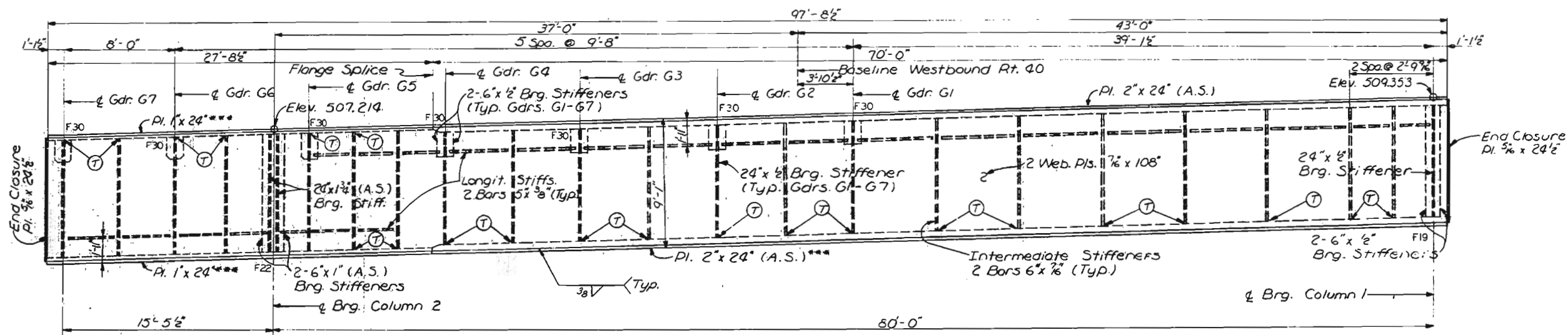
274

MISSOURI STATE HIGHWAY DEPARTMENT

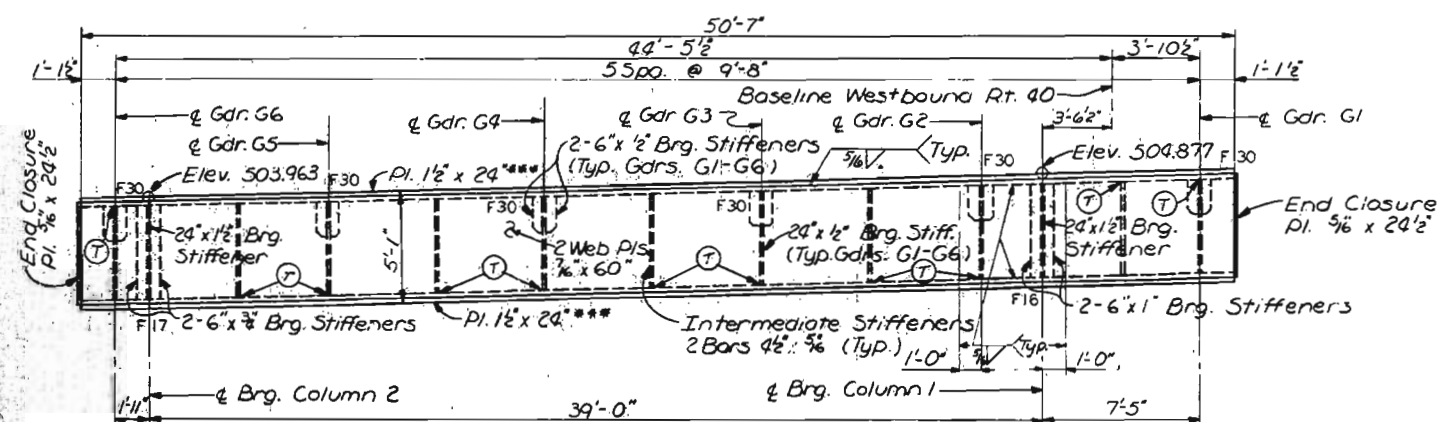
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		19	142	



CROSS GIRDER AT BENT 39



CROSS GIRDER AT BENT 40



CROSS GIRDER AT BENT 48

NOTES
 For Cross Girder Notes, see Sheet 70.
 For Dead Load Deflections, see Sheet 81.

CITY OF ST. LOUIS

CROSS GIRDERS
 AT BENTS 39, 40 AND 48

SHEET 79 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

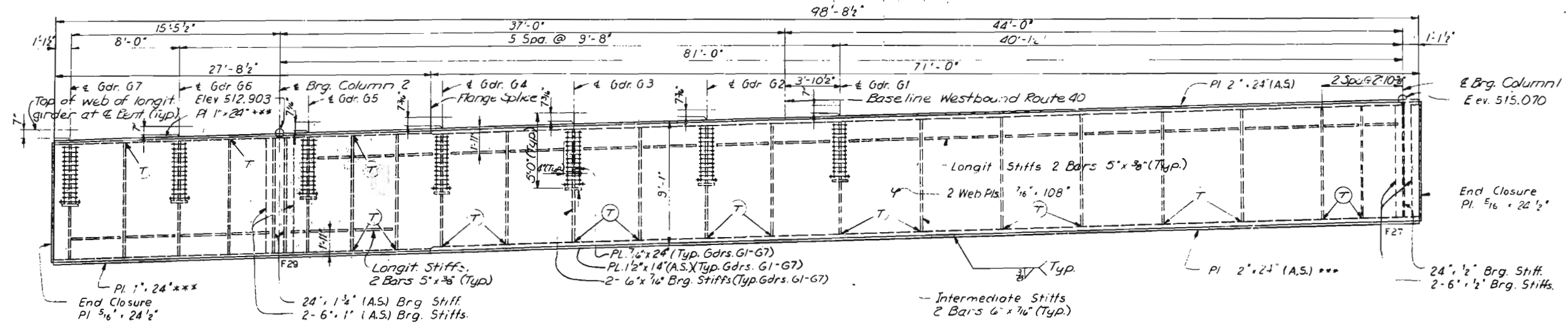
275

DRAWN BY: E. GORDON, JULY 1977
 CHECKED BY: J. W. GORDON, SEPT. 1977
 5261
 775215

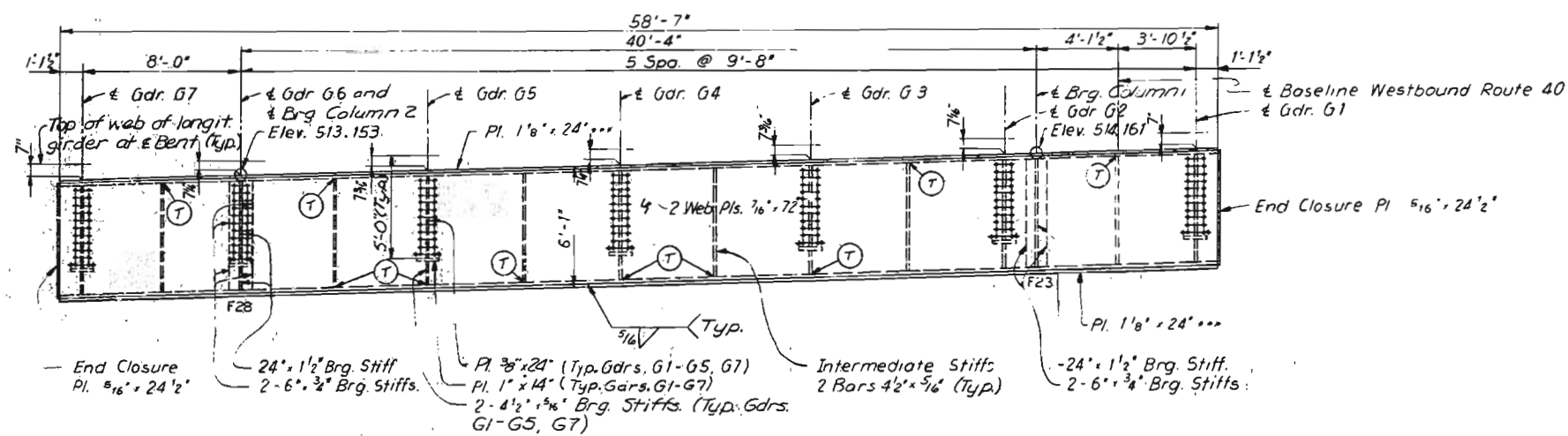
OVERBRIDGE & PARCEL AND ASSOCIATES, INC.
 ENGINEERS - ARCHITECTS
 ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

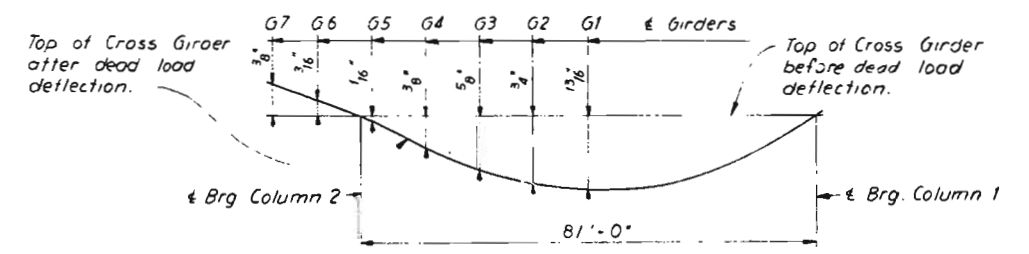
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	143	



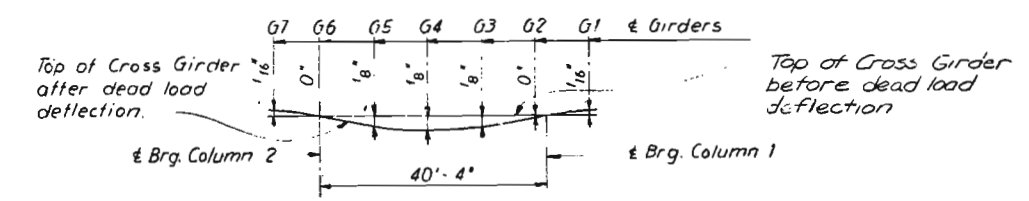
CROSS GIRDER AT BENT 41



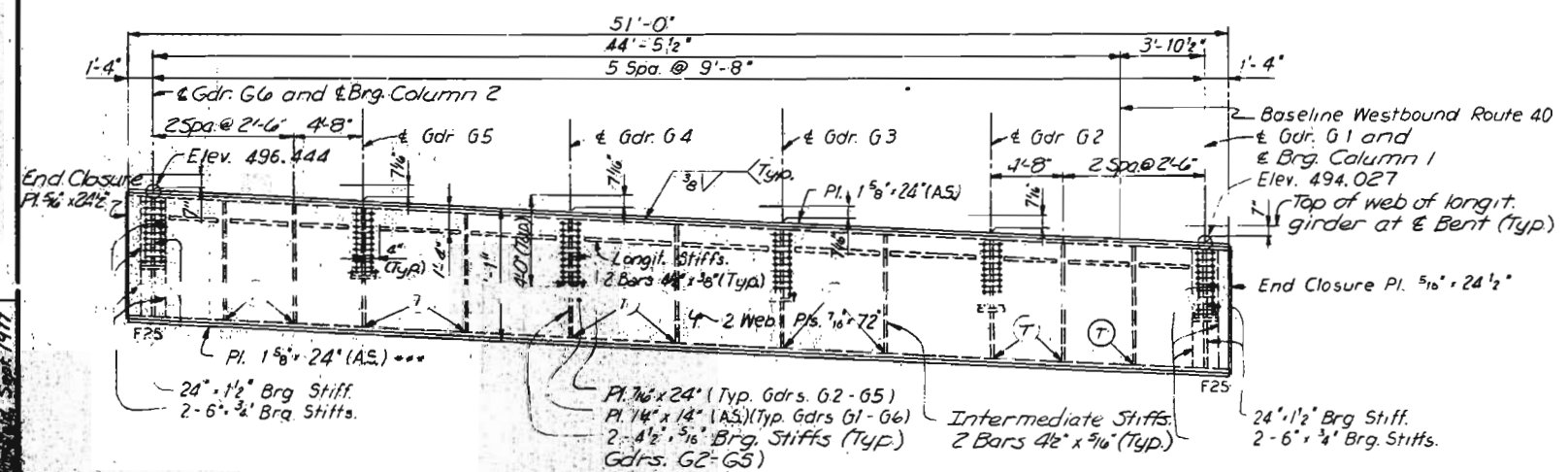
CROSS GIRDER AT BENT 42



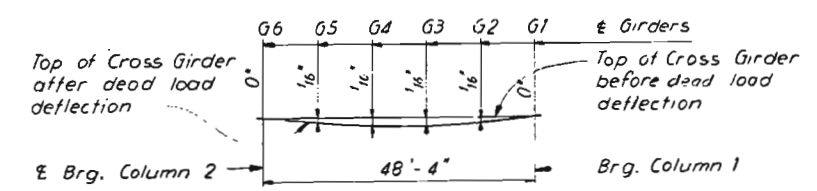
CROSS GIRDER AT BENT 41



CROSS GIRDER AT BENT 42



CROSS GIRDER AT BENT 55



CROSS GIRDER AT BENT 55

DEAD LOAD DEFLECTION DIAGRAMS

NOTES
For Cross Girder Notes, see Sheet 70.
For details of longitudinal girders, see Sheet 62.

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 41, 42 AND 55

SHEET 80 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

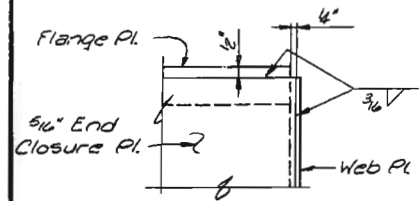
276

DRAWN BY: H. M. M. July 1977
CHECKED BY: M. M. M. Sept 1977
5261
775271

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

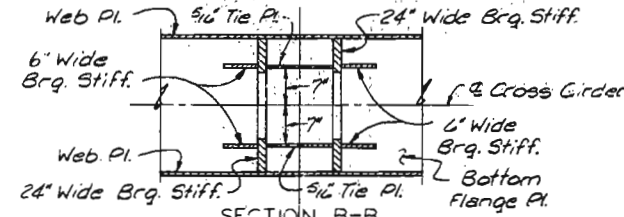
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		16	144	

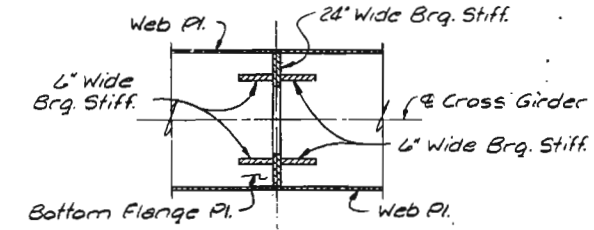


END CLOSURE PLATE WELDING

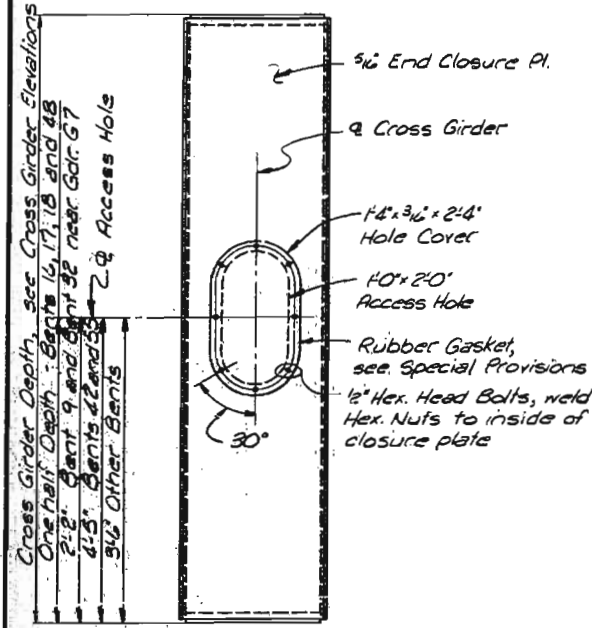
Note A: Close Joint except at longitudinal girders, grind to bear.



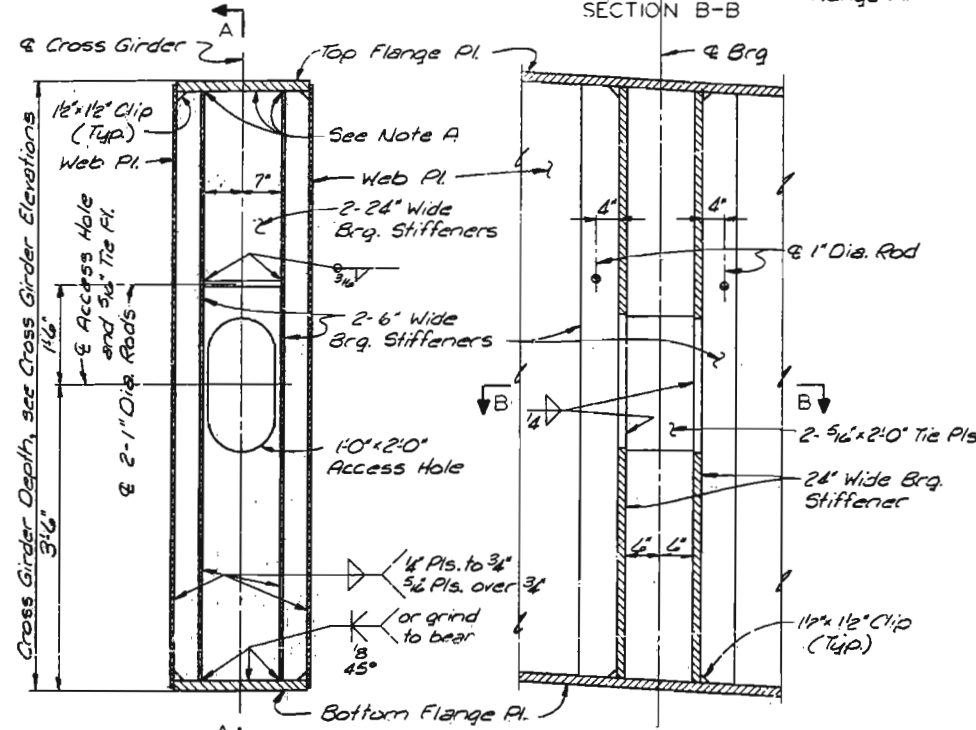
SECTION B-B



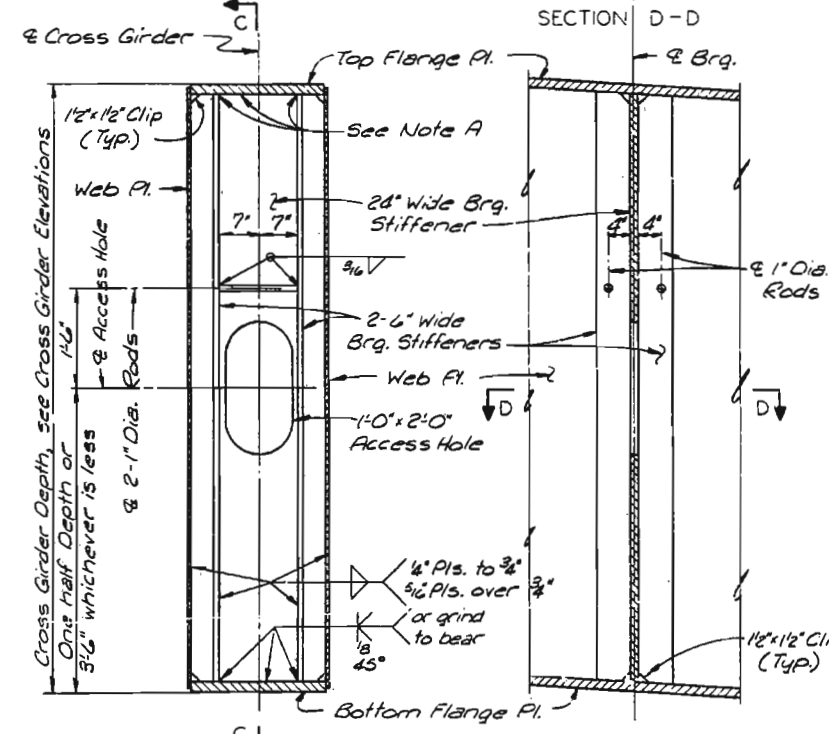
SECTION D-D



END CLOSURE



SECTION A-A

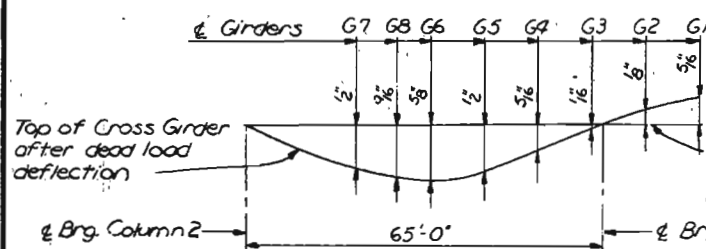


SECTION C-C

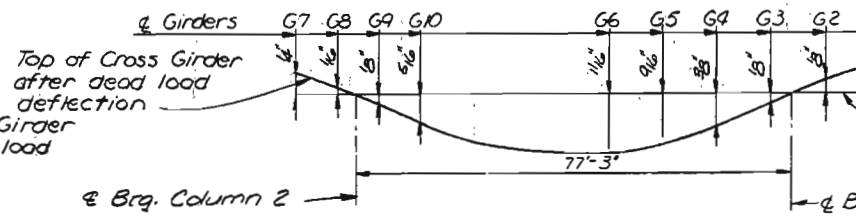
NOTES
For Cross Girder Notes, see Sheet 70.
For stiffeners, connection plates and angles at bearing, see Bearing Detail Sheets.

DOUBLE 24" BEARING STIFFENERS AT COLUMNS

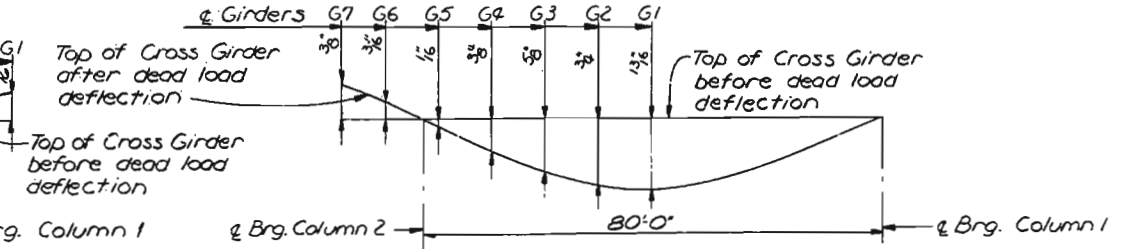
SINGLE 24" BEARING STIFFENER AT COLUMNS



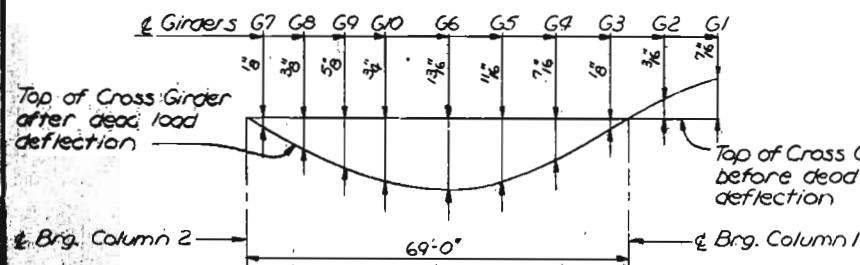
CROSS GIRDER AT BENT 30



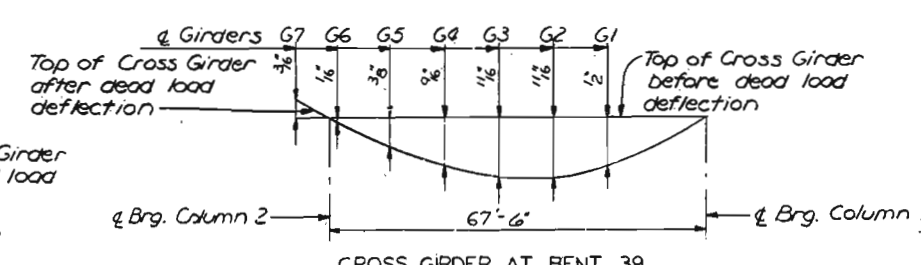
CROSS GIRDER AT BENT 32



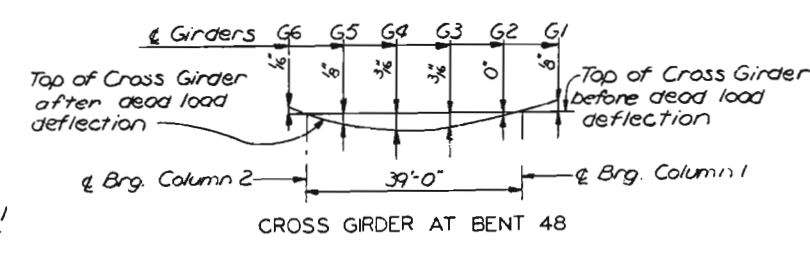
CROSS GIRDER AT BENT 40



CROSS GIRDER AT BENT 31



CROSS GIRDER AT BENT 39



CROSS GIRDER AT BENT 48

DEAD LOAD DEFLECTION DIAGRAM

CITY OF ST. LOUIS

CROSS GIRDER DETAILS

SHEET 81 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SWENDELL & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURI

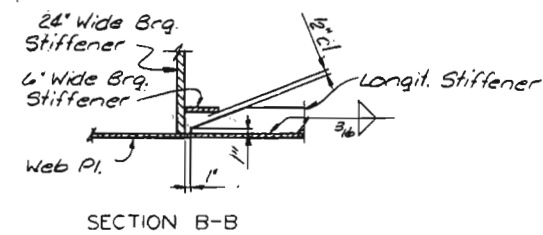
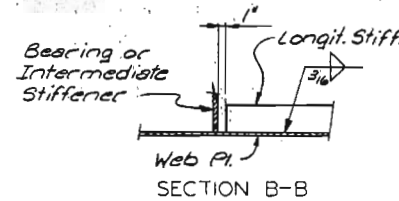
DRAWN BY: O.J. Schaefer, Sept. 1977
CHECKED BY: J. Schaefer, Sept. 1977
5261
7537

277

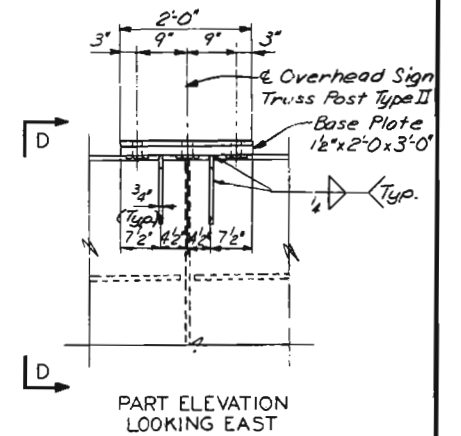
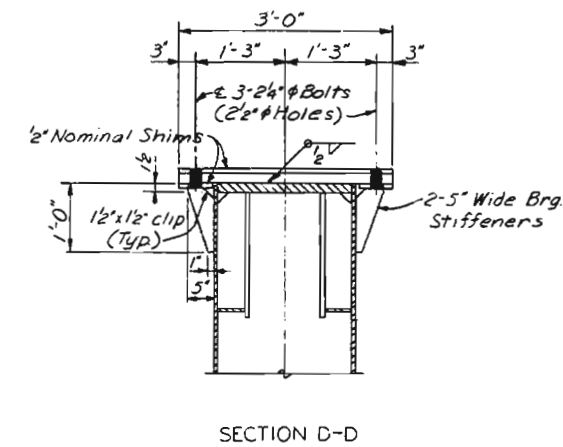
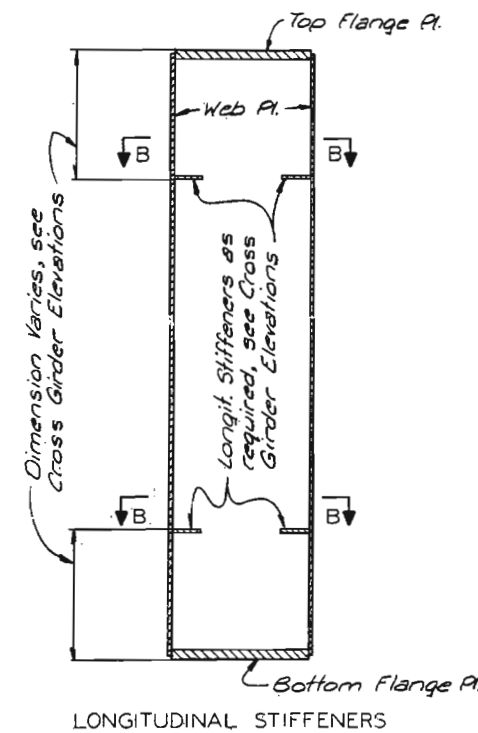
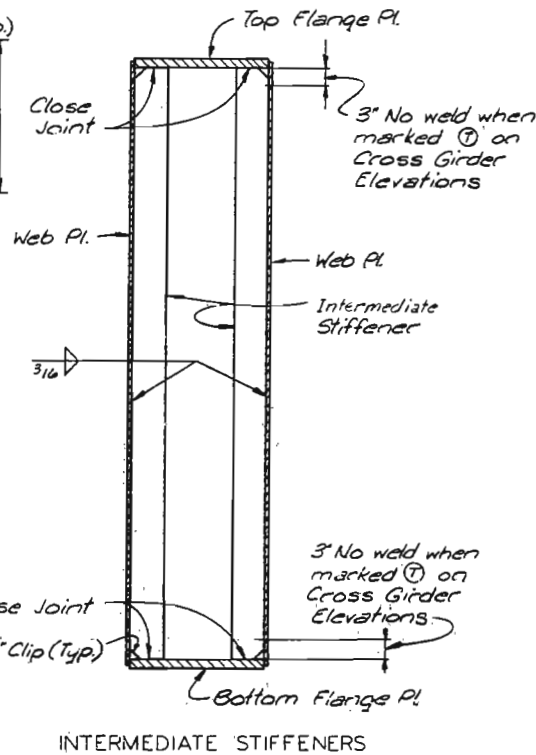
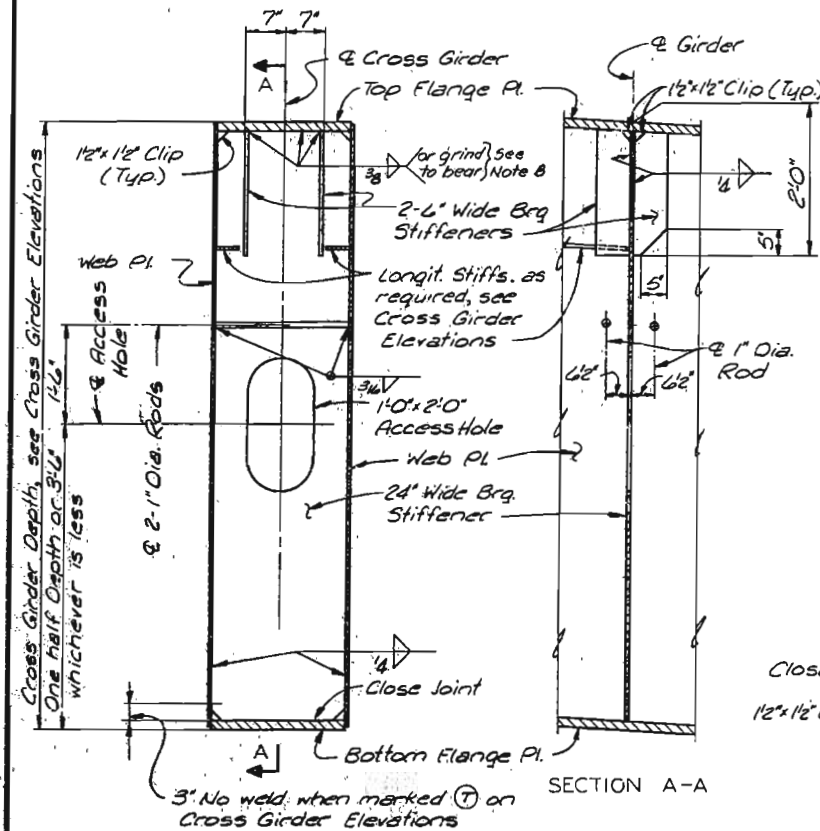
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	145	

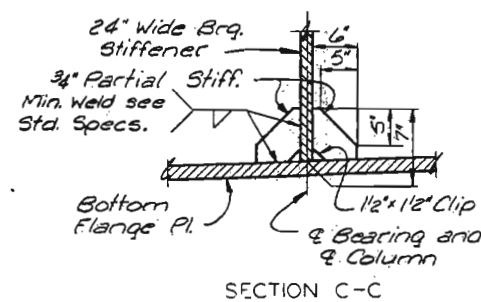
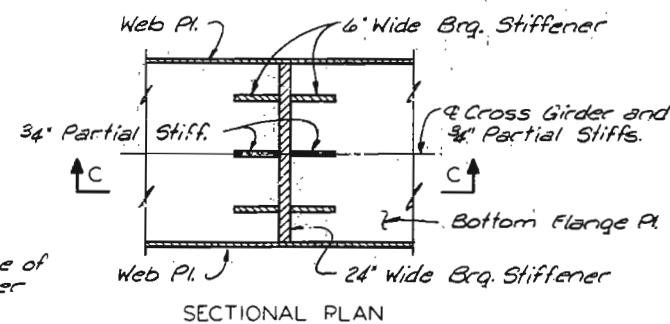
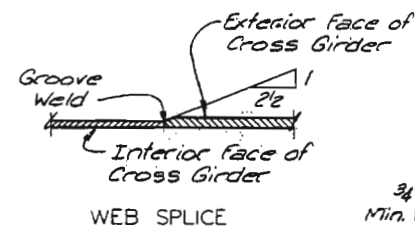
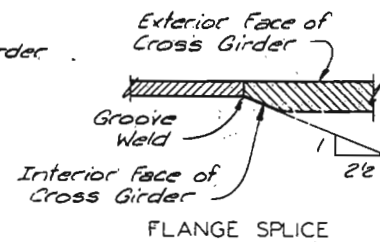
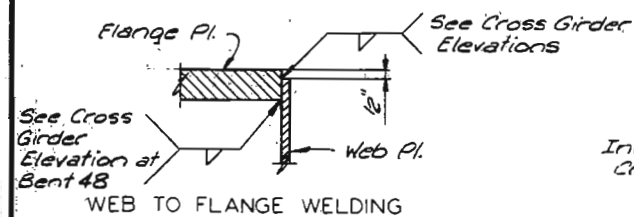
Note B: No welds when marked ⑦ on Cross Girder Elevations.



NOTES
Work this sheet with Sheet 81.



BEARING STIFFENERS AND BASE PLATE
AT SIGN TRUSS POST TYPE II
CROSS GIRDER AT BENT 28



DETAIL OF PARTIAL STIFFENERS AT
BENT 41 - COLUMN 1
BENTS 9, 10, 42 AND 55 - COLUMNS 1 AND 2

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

CROSS GIRDER DETAILS

SHEET 82 OF 93

A-3594

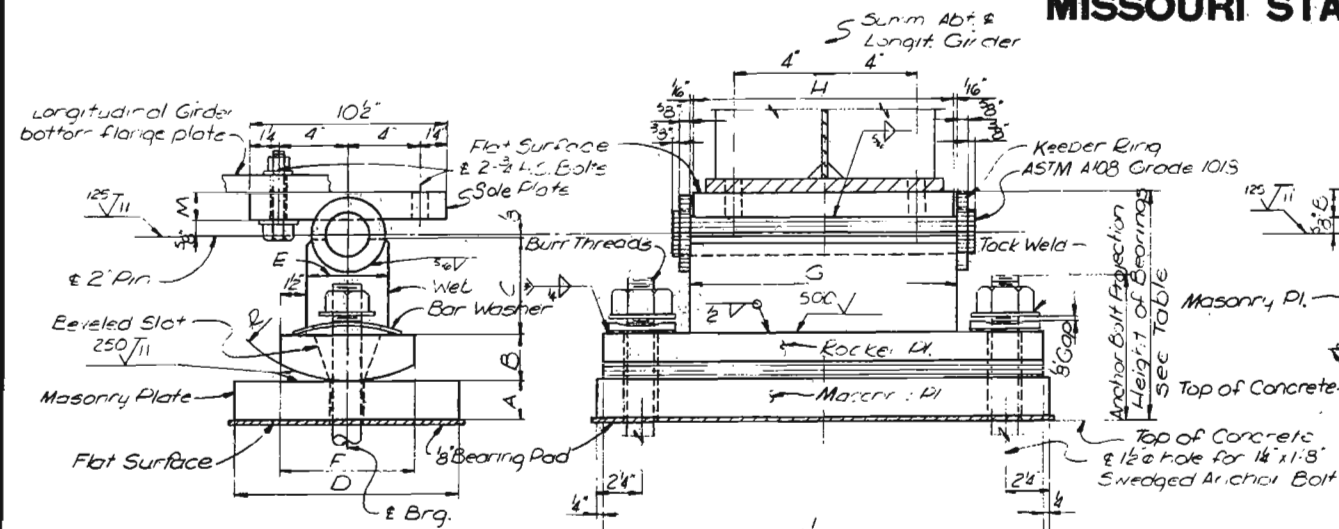
SWENDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: D.J. Schramm, Sept. 1977
CHECKED BY: M. J. Schramm, Jan. 1977
5261
77336

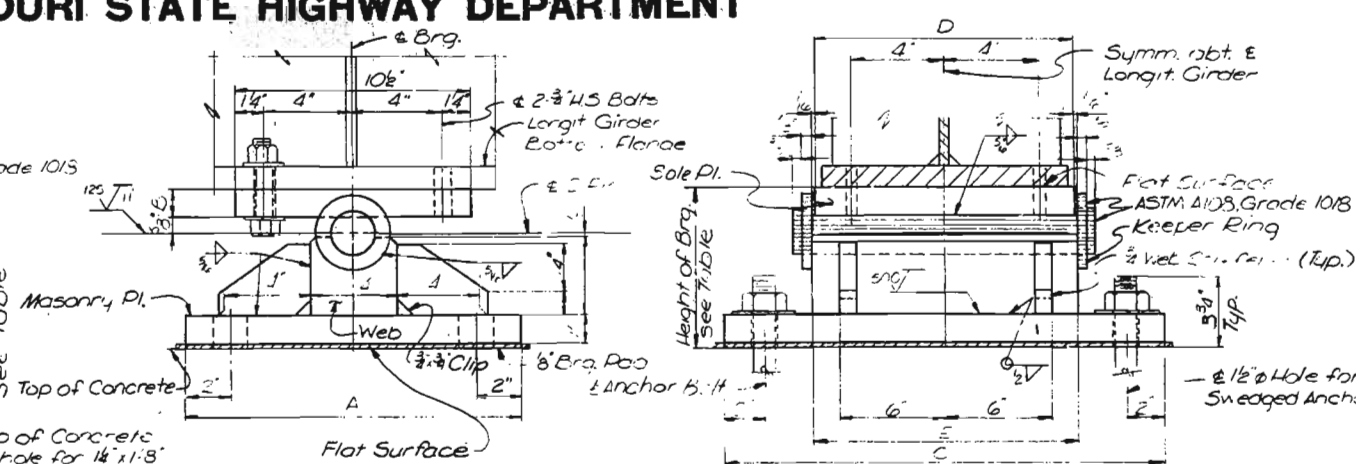
278

MISSOURI STATE HIGHWAY DEPARTMENT

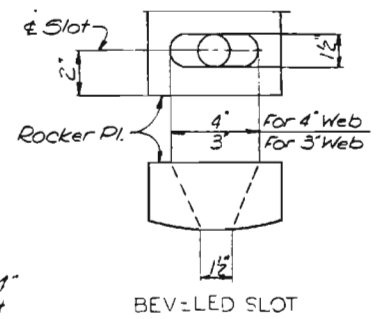
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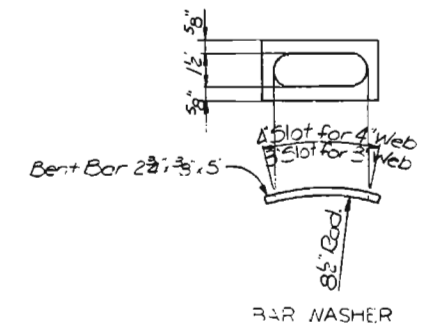
EXPANSION BEARINGS-TYPE E1 THRU E8



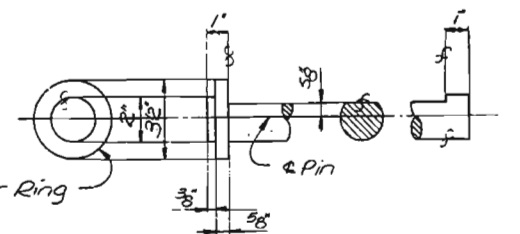
FIXED BEARINGS-TYPE F1 THRU F6



BEVELED SLOT



BENT BAR WASHER



PIN AND KEEPER RING DETAIL

EXPANSION BEARINGS-VARIABLE DIMENSIONS															HIS-OR -LOL PROJ- ECTION	HEIGHT OF BEARING	NO. OF BEAR- INGS 1'-0" 0'-0"	ESTIMATED WEIGHT OF BEARINGS	
LOCATION			A	B	C	D	E	F	G	H	J	K	M	R				LBS. (EACH)	LBS. (TOTAL)
ABUTMENT OR BENT	BRG. TYPE	GIRDER																	
1	E1	G1-G6	1 1/2"	2"	4 3/8"	10"	3"	6"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	6 3/4"	6 3/4"	104	306	1,836
48, 114, 12	E2	G1-G6	2 1/2"	2 1/2"	7 3/8"	1 1/2"	4"	7"	1 1/2"	1 1/2"	2'-1"	2'-1 1/2"	1 1/2"	9 1/2"	8"	24	606	11,544	
46	E3	G1-G6	2 1/2"	2"	7 3/8"	1 1/2"	4"	7"	1 1/2"	1 1/2"	2'-1"	2'-1 1/2"	1 1/2"	9 1/2"	7 1/2"	1'-2"	5	551	3,324
47	E4	G1-G6	2 1/2"	2 1/2"	6 3/8"	1 1/2"	4"	7"	1 1/2"	1 1/2"	2'-1"	2'-1 1/2"	1 1/2"	9"	7 1/2"	1'-1 1/2"	5	569	3,414
50	E5	G1	2 1/2"	2"	6 3/8"	1 1/2"	4"	7"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	9"	7 1/2"	1'-1 1/2"	1	493	493
50	E6	G2, G4, G6	2 1/2"	2"	6 3/8"	1 1/2"	4"	7"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	9"	7 1/2"	1'-1 1/2"	5	476	1,428
50	E7	G3, G5	2 1/2"	2"	6 3/8"	1 1/2"	4"	7"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	9"	7 1/2"	1'-2"	2	496	996
53	E6	G1-G6	2 1/2"	2"	6 3/8"	1 1/2"	4"	7"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	9"	7 1/2"	1'-1 1/2"	6	476	2,856
54	E2	G1-G6	2 1/2"	2 1/2"	7 3/8"	1 1/2"	4"	7"	1 1/2"	1 1/2"	2'-1"	2'-1 1/2"	1 1/2"	9 1/2"	8"	1'-2 1/2"	5	606	3,636
57	E1	G1-G6	1 1/2"	2"	4 3/8"	10"	3"	6"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	6 3/4"	6 3/4"	104	6	306	1,836
Bent 1 Comp A3740	E8	G7-G10	1 1/2"	1 1/2"	4 3/8"	9"	3"	6"	1 1/2"	1 1/2"	1'-0"	1'-0 1/2"	1 1/2"	1 1/2"	6 1/4"	10	259	1,036	

Total Weight = 35,399 lbs

FIXED BEARINGS-VARIABLE DIMENSIONS									HEIGHT OF BEARING	HEIGHT OF BEARING REQ'D.	HEIGHT OF BEARINGS	
LOCATION			A	B	C	D	E	LBS. (FAC.)			LBS. (TOTAL)	
BENT	BRG. TYPE	GIRDER										
2	F1	G1, G2, G4-G6	1'-3"	1'-4"	2'-1"	1'-4 3/8"	1'-2"	7'-5 1/2"	5	333	1515	
	F2	G3	1'-3"	1'-5"	2'-1"	1'-4 3/8"	1'-2"	9	1	334	334	
5, 6 & 7	F3	G1-G6	1'-3"	1'-4"	1'-11"	1'-2 3/8"	1'-2"	7'-5"	18	295	5145	
13, 14 & 15	F4	G1-G6	1'-3"	1'-4"	2'-5"	1'-8 3/8"	1'-2"	7'-5"	13	335	6150	
43	F5	G1-G7	1'-4"	1'-4"	1'-11"	1'-2 3/8"	1'-3"	7'-5 1/2"	7	275	2060	
44 **	F5	G1-G8	1'-4"	1'-4"	1'-11"	1'-2 3/8"	1'-3"	7'-5 1/2"	3	275	2360	
45 **	F5	G1-G10	1'-4"	1'-4"	1'-11"	1'-2 3/8"	1'-3"	7'-5"	10	275	2950	
49, 51 & 52	F6	G1-G6	1'-2"	1'-4"	1'-9"	1'-3 3/8"	1'-1"	7'-5"	19	241	4415	
56	F5	G1-G6	1'-4"	1'-4"	1'-11"	1'-2 3/8"	1'-3"	7'-5 1/2"	6	295	1770	

**Note: For sole plate orientation for bearings of G7, G8 at Bent 44, and G7 thru G10 at Bent 45, see Sheet 90.

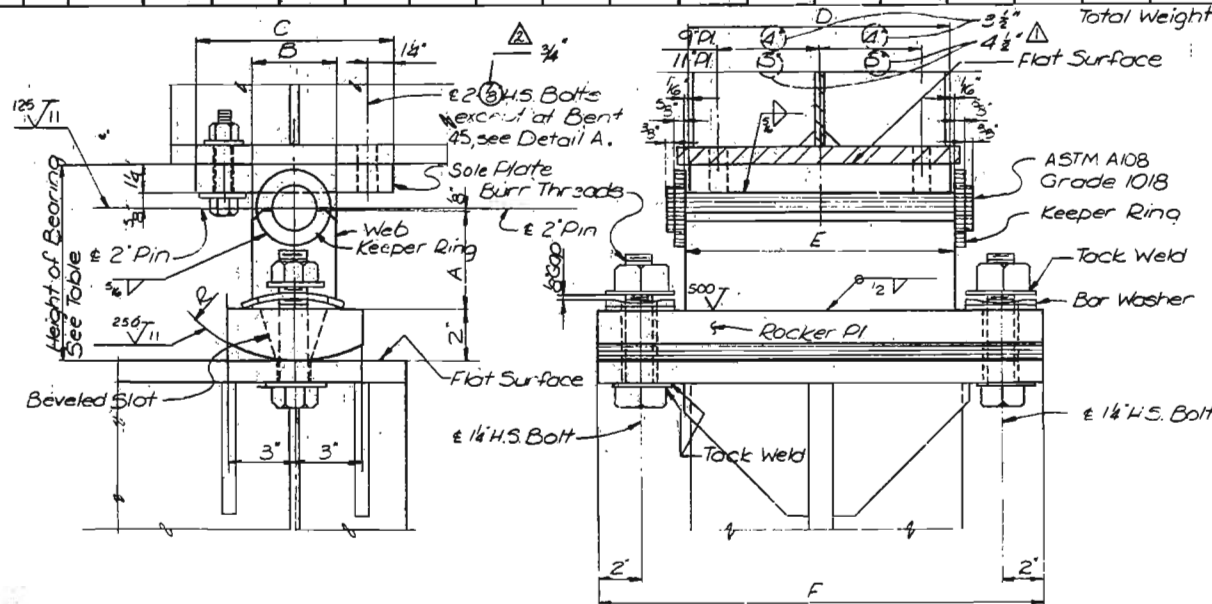
Total Weight = 27,393 lbs.

HINGE BEARINGS-VARIABLE DIMENSIONS											HEIGHT OF BEARING	ESTIMATED WEIGHT OF BEARINGS	
LOCATION			A	B	C	D	E	F	R	CS (FAC.)		CS (TOTAL)	
HINGE NEAR BENT	BRG. TYPE	GIRDER											
1, 2, 3, 4, 5	E19	G1-G6	1 1/2"	1 1/2"	9"	1 1/2"	1 1/2"	1 1/2"	6"	8 3/8"	18	184	3,314
12, 24, 27, 36	E14	G1-G6	5 3/8"	4"	11"	1 1/2"	1 1/2"	1 1/2"	7 1/2"	9 3/8"	24	214	5136
28, 38	E14	G1-G7	5 3/8"	4"	11"	1 1/2"	1 1/2"	1 1/2"	7 1/2"	9 3/8"	14	214	2996
31	E15	G1-G6	4 3/8"	4"	11"	1 1/2"	1 1/2"	1 1/2"	5 1/2"	10 7/8"	12	240	2160
41	E16	G7-G10	4 3/8"	4"	11"	1 1/2"	1 1/2"	1 1/2"	6 1/2"	8 3/8"	7	196	793
51, 53, 55	E16	G1-G7	5 3/8"	4"	11"	1 1/2"	1 1/2"	1 1/2"	6 1/2"	8 3/8"	7	196	1372
42	E17	G1-G6	5 3/8"	4"	9"	1 1/2"	1 1/2"	1 1/2"	7 1/2"	9 3/8"	12	173	632
47	E18	G7-G10	4 3/8"	3"	3"	1 1/2"	1 1/2"	1 1/2"	6 1/2"	8 3/8"	4	158	632

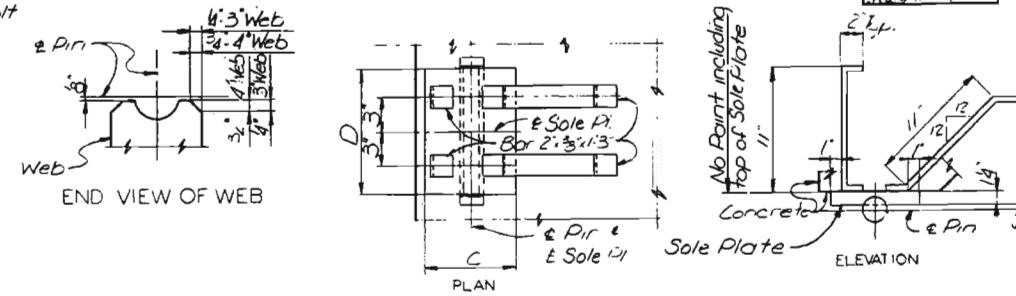
* Sole Plate to be cast-in-place with Ramp Slab, see Detail A.

Total: 19,164

* Sole Plate to be cast in place with Ramp Slab, see Detail A.



HINGE BEARINGS-TYPE E14 THRU E19



DETAIL A

NOTES
For Bearing Notes, see Sheet 87.
Machined surfaces shall be finished as shown in accordance with Standard Specification 712.3.323. Bottom of Expansion Shoe, Rocker Plate and Fixed Shoe Base Plate shall be finished after welding.
All swaged anchor bolts shall be threaded 3/2" with heavy hex nut and washer. Swedge 1" O.

Revised 11-7-79
Changed Dimensions 1-15-79

CITY OF ST. LOUIS

LONGITUDINAL GIRDER BEARINGS
AT ABUTMENTS, CONCRETE
BENTS AND HINGES

SHEET 83 OF 93

A3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

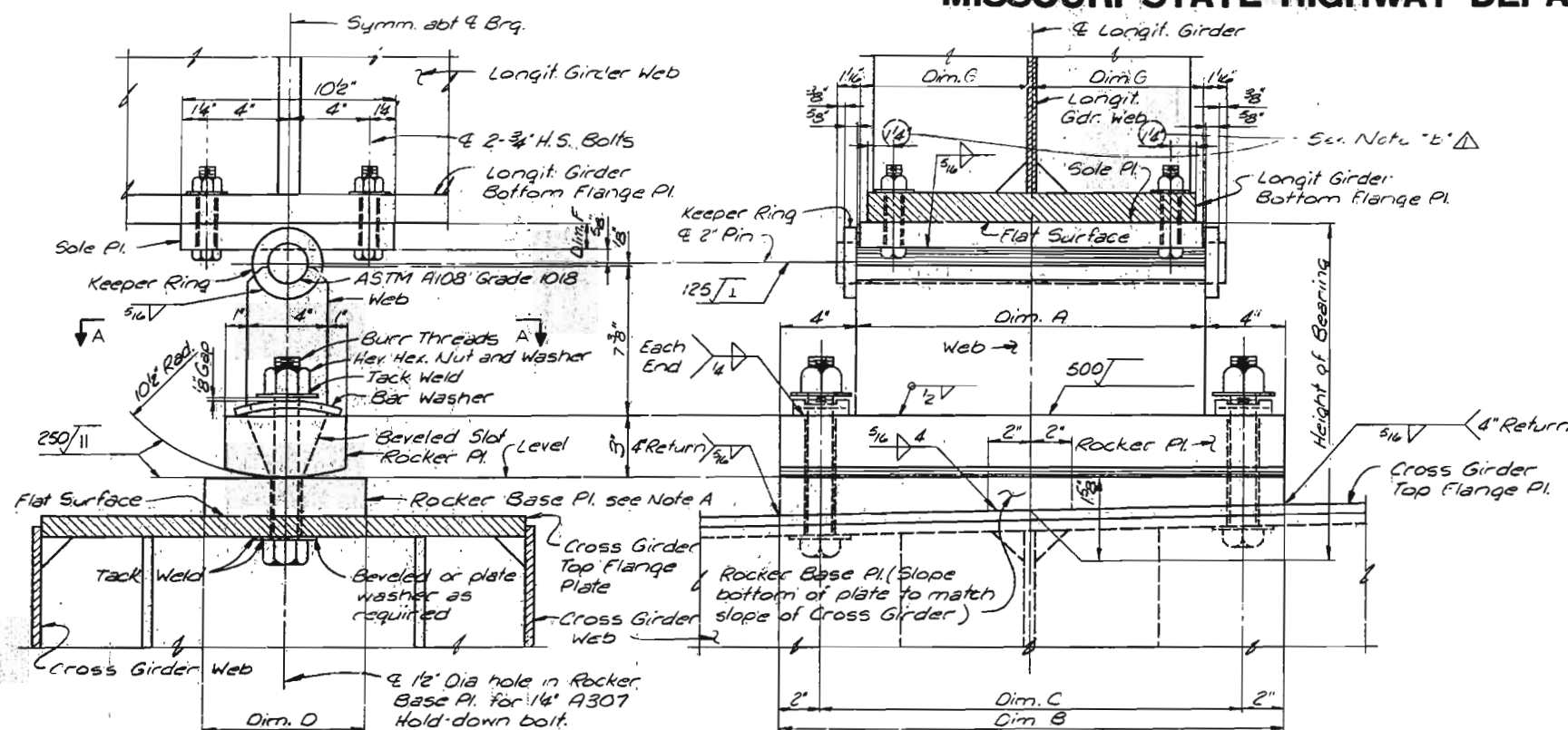
279

DRAWN BY: J. O'SHEA, June 1977
CHECKED BY: T. J. DILLON, Sept. 1977
5261
775235

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

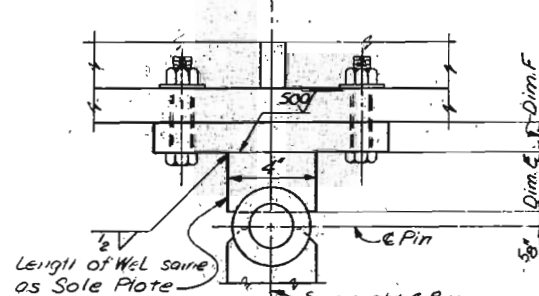
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	1	

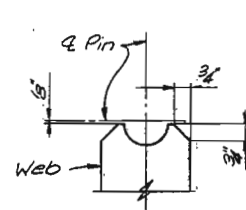


Note A: For earthquake restraint detail at Girders G2 and G5 at Bent 3, see details below.

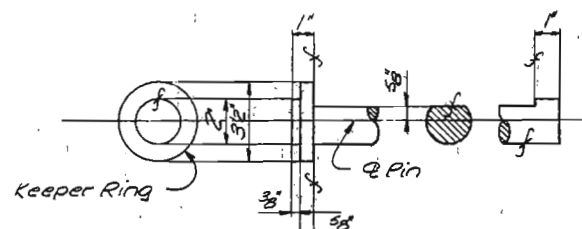
⚠ Note B: Use 1/2" (typical) except: 2" at E-30 & 2" at G7 thru G10 at Et. 31



Note: Details not shown same as bearing details shown above.



END VIEW OF WEB



PIN AND KEEPER RING DETAIL

TABLE OF VARIABLES											
Bent	Big Type	Gar	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Dim. G	Rocker Base Pl. Slope (ft. per ft.)	Est. Weight (Lbs.)
3	E9	G1	1.5"	2.1"	1.9"	E"	—	1.4"	8 1/8"	+ .0107*	424
	E13	G2	1.5"	2.1"	1.9"	1.5"	2 1/2"	1.4"	8 1/8"	+ .0077*	590
	E9	G3	1.5"	2.1"	1.9"	E"	4"	1.4"	8 1/8"	+ .0086*	501
	E9	G4	1.5"	2.1"	1.9"	8"	2 1/2"	1.4"	8 1/8"	+ .0074*	478
	E13	G5	1.5"	2.1"	1.9"	1.5"	3"	2 1/2"	8 1/8"	+ .0063*	610
	E9	G6	1.5"	2.1"	1.9"	E"	—	1.4"	8 1/8"	+ .0053*	424
16	E10	G1	1.3"	1.11"	1.7"	E"	—	1.4"	7 1/8"	- .0391	383
		G2	1.3"	1.11"	1.7"	8"	—	1.4"	7 1/8"	- .0387	390
		G3	1.3"	1.11"	1.7"	E"	—	1.4"	7 1/8"	- .0393	397
		G4	1.3"	1.11"	1.7"	8"	—	1.4"	7 1/8"	- .0405	397
		G5	1.3"	1.11"	1.7"	8"	—	1.4"	7 1/8"	- .0411	390
		G6	1.3"	1.11"	1.7"	E"	—	1.4"	7 1/8"	- .0407	383
20	E10	G1	1.3"	1.11"	1.7"	8"	—	1.4"	7 1/8"	- .0586	383
		G2	1.3"	1.11"	1.7"	8"	—	1.4"	7 1/8"	- .0597	390
		G3	1.3"	1.11"	1.7"	E"	—	1.4"	7 1/8"	- .0605	390
		G4	1.3"	1.11"	1.7"	E"	—	1.4"	7 1/8"	- .0607	383
		G5	1.3"	1.11"	1.7"	8"	—	1.4"	7 1/8"	- .0600	383
		G6	1.3"	1.11"	1.7"	8"	—	1.4"	7 1/8"	- .0598	383
24	E10	G1	1.3"	1.11"	1.7"	8"	—	1.4"	7 1/8"	- .0430	383
		G2	1.3"	1.11"	1.7"	E"	—	1.4"	7 1/8"	- .0430	393
		G3	1.3"	1.11"	1.7"	8"	—	1.4"	7 1/8"	- .0434	404
		G4	1.3"	1.11"	1.7"	8"	—	1.4"	7 1/8"	- .0443	400
		G5	1.3"	1.11"	1.7"	E"	—	1.4"	7 1/8"	- .0453	397
		G6	1.3"	1.11"	1.7"	8"	—	1.4"	7 1/8"	- .0462	390
31	E10	G1	1.3"	1.11"	1.7"	8"	—	1.4"	7 1/8"	+ .0211	383
		G2	1.3"	1.11"	1.7"	8"	1 1/2"	1.4"	7 1/8"	+ .0213	455
		G3	1.3"	1.11"	1.7"	8"	7 1/2"	1.4"	7 1/8"	+ .0219	506
		G4	1.3"	1.11"	1.7"	8"	8"	1.4"	7 1/8"	+ .0216	519
		G5	1.3"	1.11"	1.7"	E"	8 3/8"	1.4"	7 1/8"	+ .0207	529
		G6	1.3"	1.11"	1.7"	E"	9 3/8"	1.4"	7 1/8"	+ .0195	538
		G7	1.3"	1.11"	1.7"	E"	—	1.4"	7 1/8"	+ .0180	383
		G10	1.3"	1.11"	1.7"	E"	6 3/8"	1.4"	7 1/8"	+ .0171	489
32	E11	G1	1.3"	1.11"	1.7"	8"	4 1/4"	1.4"	7 1/8"	+ .0163	455
		G2	1.3"	1.11"	1.7"	8"	2 3/8"	1.4"	7 1/8"	+ .0159	421
		G3	1.3"	1.11"	1.7"	8"	2 3/8"	1.4"	7 1/8"	- .0002	552
		G4	1.3"	1.11"	1.7"	8"	4 3/8"	1.4"	9 1/8"	- .0001	592
		G5	1.3"	1.11"	1.7"	8"	5 3/8"	1.4"	9 1/8"	+ .0005	604
		G6	1.3"	1.11"	1.7"	8"	5 1/2"	1.4"	9 1/8"	+ .0009	566
36	E12	G1	1.3"	1.11"	1.7"	8"	—	3"	9 1/8"	+ .0007	589
		G2	1.3"	1.11"	1.7"	8"	—	1.4"	9 1/8"	+ .0001	487
		G1	1.1"	1.9"	1.5"	8"	—	1 3/8"	6 1/8"	+ .0152	342
		G2	1.1"	1.9"	1.5"	E"	—	1.4"	6 1/8"	+ .0154	341
		G3	1.1"	1.9"	1.5"	8"	—	1.4"	6 1/8"	+ .0162	341
		G4	1.1"	1.9"	1.5"	8"	—	1 3/8"	6 1/8"	+ .0161	342
		G5	1.1"	1.9"	1.5"	8"	—	1 1/2"	6 1/8"	+ .0154	342
		G6	1.1"	1.9"	1.5"	8"	—	1 1/2"	6 1/8"	+ .0144	341

** Note: For sole plate orientation for bearing of G7 thru G10 at Bent 31, see Sheet 90

NOTES

Machined surfaces shall be finished as shown in accordance with Standard Specification 712.3.3.23. Bottom of Expansion Shoe Rocker Plate and Fixed Shoe Base Plate shall be finished after welding.

All material except bolts and pins shall be ASTM A36. Bolts connecting sole plates to girder flanges shall be ASTM A325, Type 1 or 2. Bolts through rocker base plate and rocker plate to cross girder top flange may be ASTM A325 or ASTM A307.

f Indicates machined finished surface of 125 microinch or better in accordance with ANSI B46.1-62, Surface Roughness, Waviness and Lay, Part I.

All material except bolts shall be paid for as fabricated Structural Steel Bearings.

Machined finished surfaces of bearing shall be coated in accordance with Standard Specification 712.2.7.

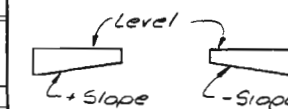
▲ Omit dimension, & added Note "E". 1-15-72

CITY OF ST. LOUIS

LONGITUDINAL GIRDER BEARINGS AT
CROSS GIRDERS-TYPES E9 THRU E13

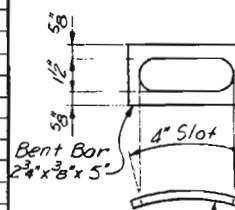
SHEET 84 OF 93

A-3594

SLOPE ORIENTATION FOR
ROCKER BASE PLATES

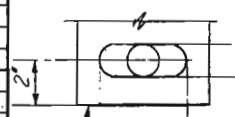
Note: All elevations of shoes are looking up station with G1 on the right and G2 thru G10 to left of G1.

* See details this sheet
for Rocker Base Pl.
orientation.

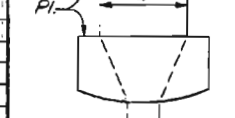


2nd.

BAR WASHER



Rocker	4"
--------	----



12

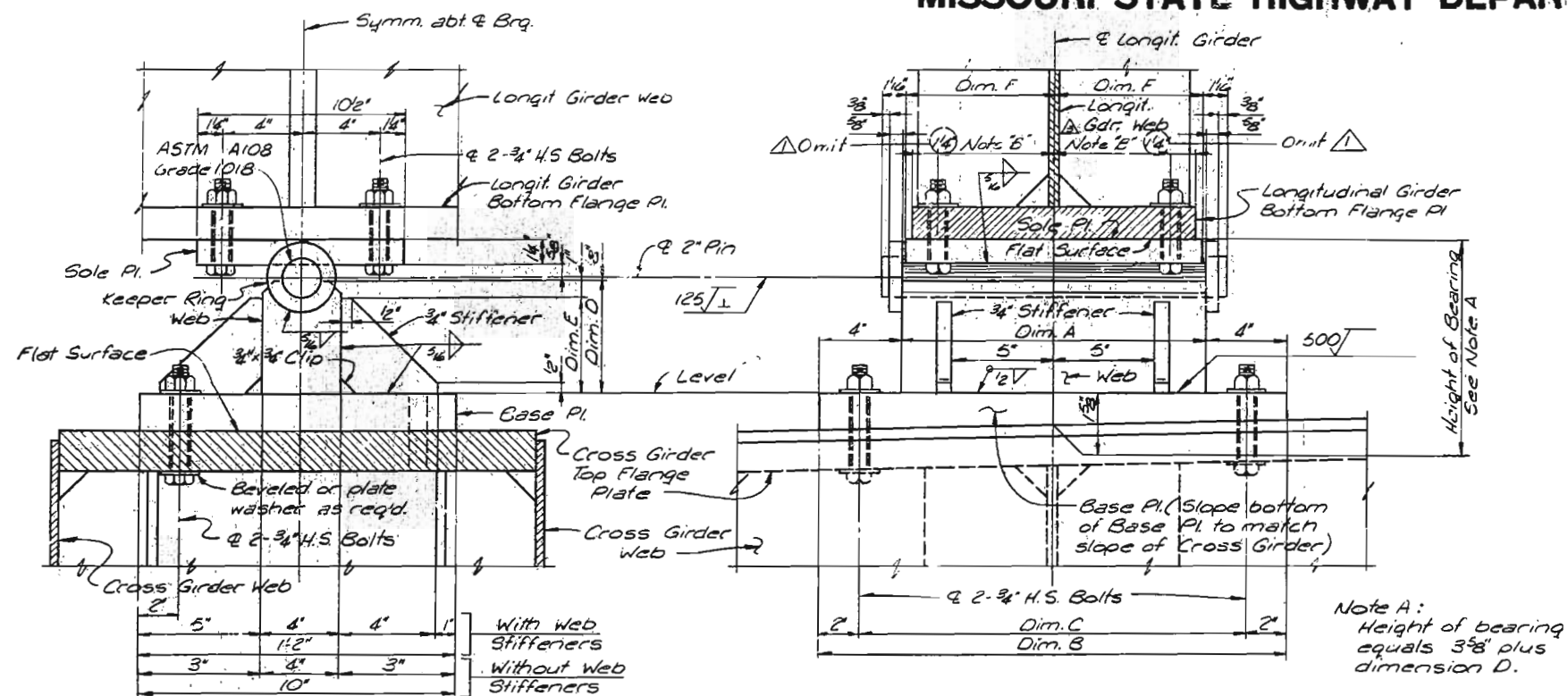
5261	DRAWN BY: D.J. Spencer, Aug. 1977
775/R	TRACED BY:
	CHECKED BY: F.H. McMan, Aug. 1977

SECTION
SWEENEY & 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
1	MO.	19	19	148	



Note: Omit 3/4\"/>

TABLE OF VARIABLES

Bent	Brig	Type	Col.	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Base Pl. Slope (ft. per ft.)	Est. Weight (Lbs.)
17	F30		G1	1.3"	1.11"	1.7"	3.8"	—	7 1/2"	-.0592	235
			G2	1.3"	1.11"	1.7"	4"	—	7 1/2"	-.0589	237
			G3	1.3"	1.11"	1.7"	4 1/2"	—	7 1/2"	-.0595	238
			G4	1.3"	1.11"	1.7"	4 1/2"	—	7 1/2"	-.0605	238
			G5	1.3"	1.11"	1.7"	4"	—	7 1/2"	-.0611	237
18	F31		G1	1.3 1/2"	1.1 1/2"	1.7 1/2"	3 3/8"	—	7 1/2"	-.0600	241
			G2	1.3 1/2"	1.1 1/2"	1.7 1/2"	3 3/8"	—	7 1/2"	-.0596	241
			G3	1.3 1/2"	1.1 1/2"	1.7 1/2"	4"	—	7 1/2"	-.0592	243
			G4	1.3 1/2"	1.1 1/2"	1.7 1/2"	4 1/2"	—	7 1/2"	-.0599	245
			G5	1.3 1/2"	1.1 1/2"	1.7 1/2"	4"	—	7 1/2"	-.0608	243
19	F31		G1	1.3 1/2"	1.1 1/2"	1.7 1/2"	3 3/8"	—	7 1/2"	-.0604	242
			G2	1.3 1/2"	1.1 1/2"	1.7 1/2"	3 3/8"	—	7 1/2"	-.0602	241
			G3	1.3 1/2"	1.1 1/2"	1.7 1/2"	3 3/8"	—	7 1/2"	-.0595	241
			G4	1.3 1/2"	1.1 1/2"	1.7 1/2"	3 3/8"	—	7 1/2"	-.0596	242
			G5	1.3 1/2"	1.1 1/2"	1.7 1/2"	3 3/8"	—	7 1/2"	-.0604	242
21	F30		G1	1.3"	1.11"	1.7"	3 3/8"	—	7 1/2"	-.0576	235
			G2	1.3"	1.11"	1.7"	4 1/8"	—	7 1/2"	-.0587	239
			G3	1.3"	1.11"	1.7"	4 1/2"	—	7 1/2"	-.0598	240
			G4	1.3"	1.11"	1.7"	4 1/8"	—	7 1/2"	-.0608	239
			G5	1.3"	1.11"	1.7"	4"	—	7 1/2"	-.0612	237
22	F30		G1	1.3"	1.11"	1.7"	3 3/8"	—	7 1/2"	-.0612	235
			G2	1.3"	1.11"	1.7"	4 1/8"	—	7 1/2"	-.0612	235
			G3	1.3"	1.11"	1.7"	4 1/2"	—	7 1/2"	-.0583	239
			G4	1.3"	1.11"	1.7"	4 1/2"	—	7 1/2"	-.0594	241
			G5	1.3"	1.11"	1.7"	4 1/8"	—	7 1/2"	-.0606	241
23	F32		G1	1.4"	2.0"	1.8"	3 3/8"	—	7 1/2"	-.0616	252
			G2	1.4"	2.0"	1.8"	4 1/8"	—	7 1/2"	-.0584	252
			G3	1.4"	2.0"	1.8"	4 1/2"	—	7 1/2"	-.0593	255
			G4	1.4"	2.0"	1.8"	4 1/2"	—	7 1/2"	-.0605	255
			G5	1.4"	2.0"	1.8"	4 1/8"	—	7 1/2"	-.0616	252

TABLE OF VARIABLES

Bent	Brig	Type	Col.	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Base Pl. Slope (ft. per ft.)	Est. Weight (Lbs.)
30	F30		G1	1.3"	1.11"	1.7"	3 3/8"	—	7 1/2"	+.0127	235
			G2	1.3"	1.11"	1.7"	7 1/2"	—	7 1/2"	+.0129	346
			G3	1.3"	1.11"	1.7"	9 1/2"	—	7 1/2"	+.0135	384
			G4	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0134	379
			G5	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0126	374
33	F30		G1	1.3"	1.11"	1.7"	3 3/8"	—	7 1/2"	+.0115	235
			G2	1.3"	1.11"	1.7"	7 1/2"	—	7 1/2"	+.0100	235
			G3	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0107	269
			G4	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0026	270
			G5	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0027	342
34	F30		G1	1.3"	1.11"	1.7"	3 3/8"	—	7 1/2"	+.0025	235
			G2	1.3"	1.11"	1.7"	7 1/2"	—	7 1/2"	+.0017	348
			G3	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0008	265
			G4	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0002	235
			G5	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0012	327
35	F30		G1	1.3"	1.11"	1.7"	3 3/8"	—	7 1/2"	+.0014	364
			G2	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0019	377
			G3	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0018	347
			G4	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0011	265
			G5	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0001	235
37	F30		G1	1.3"	1.11"	1.7"	3 3/8"	—	7 1/2"	+.0011	328
			G2	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0012	365
			G3	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0018	378
			G4	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0017	347
			G5	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0010	265
39	F30		G1	1.3"	1.11"	1.7"	3 3/8"	—	7 1/2"	+.0000	235
			G2	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0023	235
			G3	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0214	237
			G4	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0210	238
			G5	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0203	238
40	F30		G1	1.3"	1.11"	1.7"	3 3/8"	—	7 1/2"	+.0196	237
			G2	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0190	236
			G3	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0273	235
			G4	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0266	239
			G5	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0258	241
48	F30		G1	1.3"	1.11"	1.7"	3 3/8"	—	7 1/2"	+.0247	241
			G2	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0237	240
			G3	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0230	238
			G4	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0255	235
			G5	1.3"	1.11"	1.7"	8 1/2"	—	7 1/2"	+.0279	235

**Note: For sole plate orientation for bearings of G6 & G7 at Bents 25, 38 & 39 and G7 & G8 at Bent 30, see Sheet 90.

NOTES

Work this sheet with Sheet 84.

△ Omit dimension and add Note "E". 1-15-70

CITY OF ST. LOUIS

LONGITUDINAL GIRDER BEARINGS AT
CROSS GIRDER - TYPES F30 THRU F40

SHEET 85 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

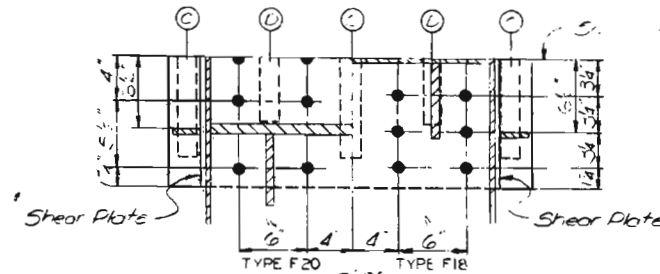
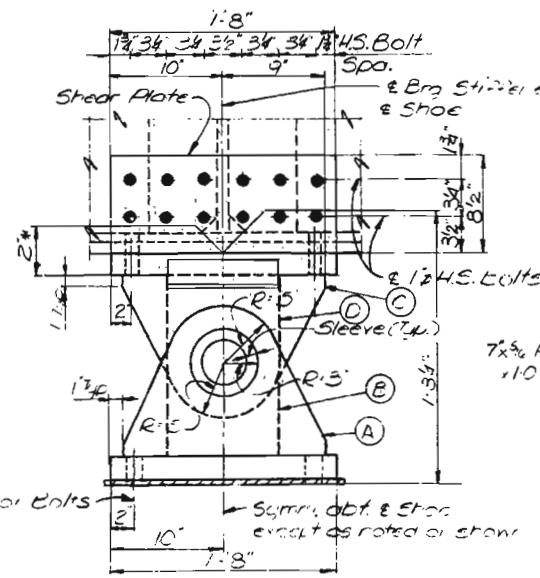
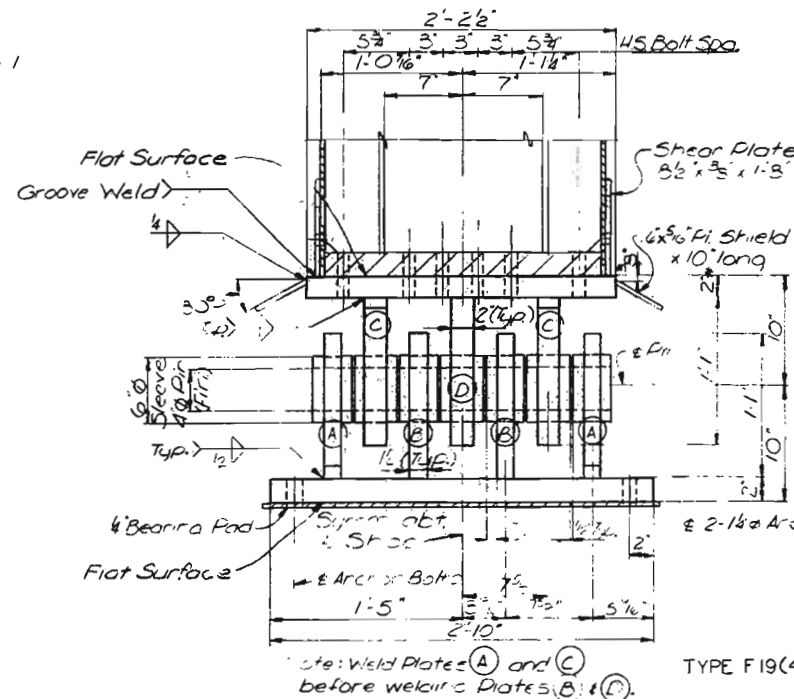
DRAWN BY: D.L. SUTHERLAND, Aug. 1977
 CHECKED BY: J.E. SUTHERLAND, Aug. 1977
 5261
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OVERKUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

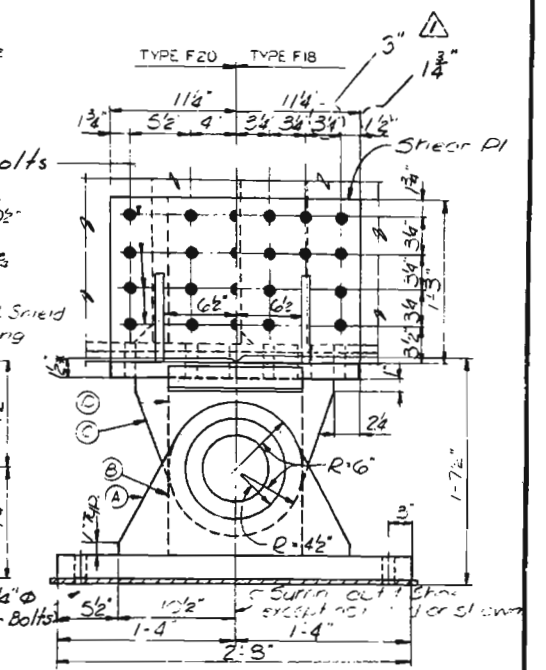
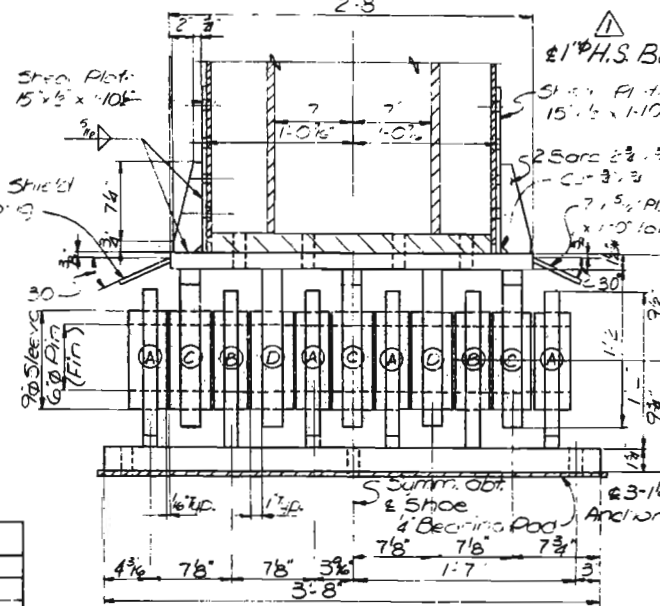
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	149	

CROSS GIRDER AT RTH NO.	BEARING AT COLUMN 2	BEARING AT COLUMN 1
17	Type F16	Type F16
18	Type F17	Type F18
19	Type F19	Type F21
21	Type F21	Type F17
22	Type F18	Type F18
23	Type F16	Type F18
25	Type F17	Type F21
26	Type F16	Type F21
27	Type F16	Type F21
28	Type F17	Type F20
29	Type F17	Type F21
30	Type F17	Type F21
31	Type F17	Type F22
32	Type F19	Type F22
33	Type F19	Type F22
34	Type F16	Type F22
35	Type F18	Type F18
36	Type F21	Type F16
40	Type F22	Type F19
48	Type F17	Type F16



* Bevel top of top plate for cross slope of girder. Dimensions shown is at Bearing and Shoe. See Table.



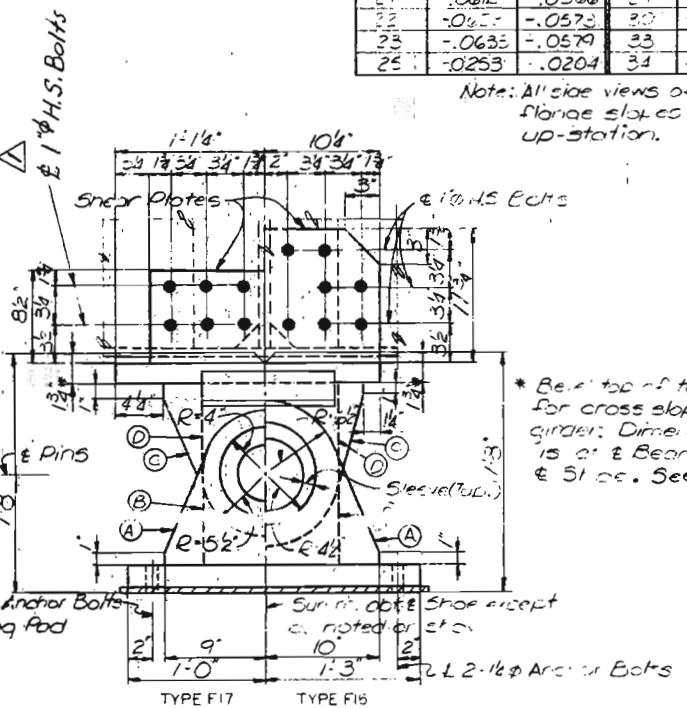
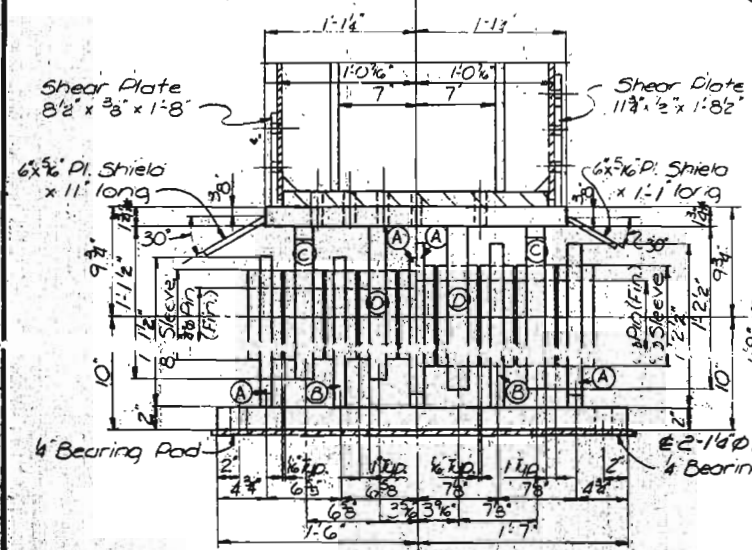
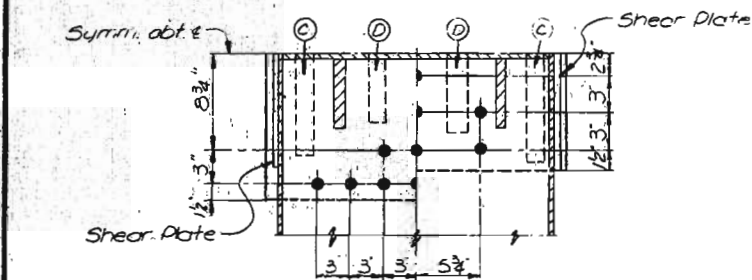
CROSS GIRDER FLANGE SLOPES AT SHOES (Ft. - 1)					
GIRDER	COL. 2	COL. 1	GIRDER	COL. 2	COL. 1
17	-.0610	-.0577	26	+.0030	+.0073
18	-.061	-.0595	27	+.0035	+.008
19	-.0616	-.0593	28	+.0029	+.008
21	-.0612	-.0596	29	+.0038	+.0074
22	-.061	-.057	30	+.0087	+.013
23	-.0635	-.0579	33	-.0025	+.0027
25	-.0253	-.0204	34	-.0019	+.0017

Note: All side views of shoes and cross girder flange slopes shown in Table are looking up-station.

Note: Welding not shown, same size as shown for Type F19 and all finishes on plates and pins same as shown for Type F19. Weld Plates (A) and (C) before welding Plates (B) and (D).

TYPES F18 & F20
1-Type F20 Req'd.
6-Type F18 Req'd.

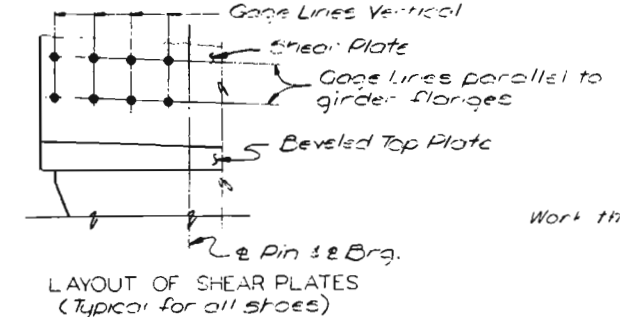
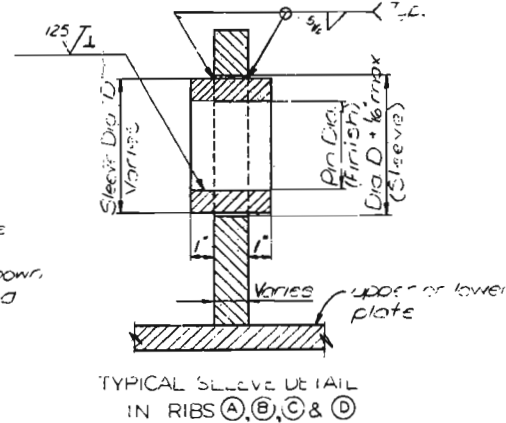
Plate Thickness	TYPE F18 & F20
(A) and (C)	1 1/4"
(B) and (D)	1 1/2"



TYPES F16 & F17

Note: Welding same size as shown for Type F19 on all finishes on plates and pins are same as shown for Type F19. Weld Plates (A) and (C) before welding Plates (B) and (D).

Plate Thickness	TYPE F16 & F17
(A) and (C)	1 1/4"
(B) and (D)	1 1/2"



Work this sheet with Sheet 87.

CITY OF ST. LOUIS

CROSS GIRDER BEARINGS
TYPES F16 THRU F22

SHEET 86 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Aug. 30, 1979

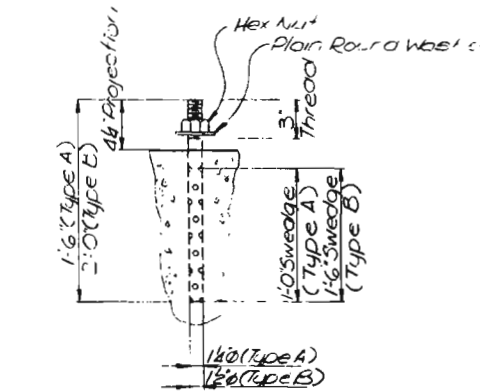
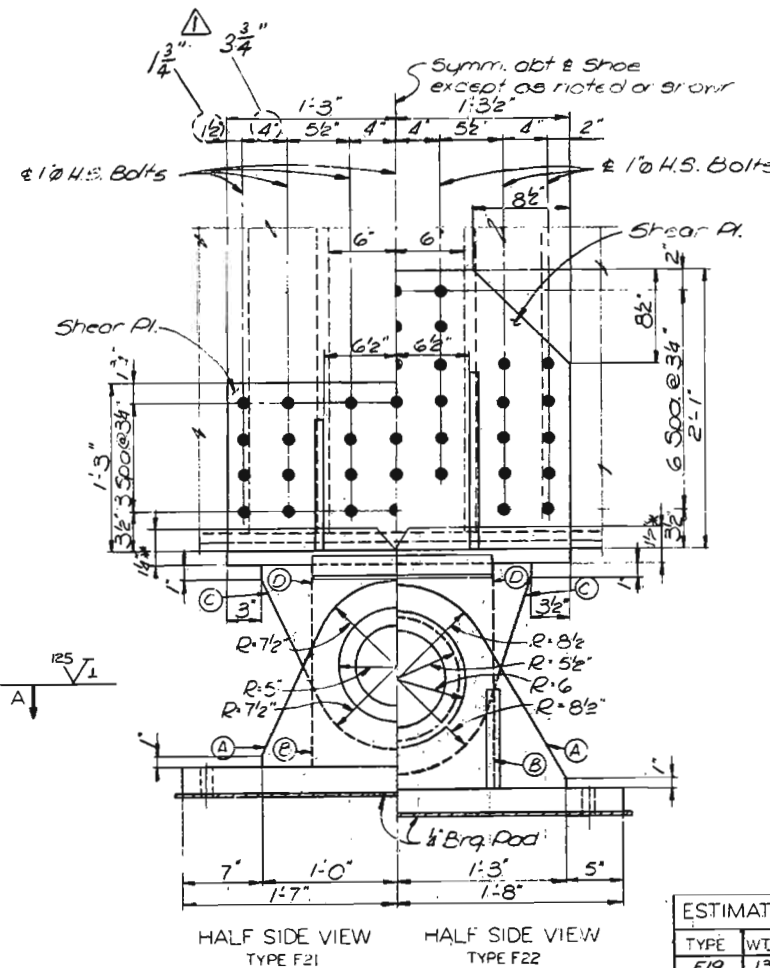
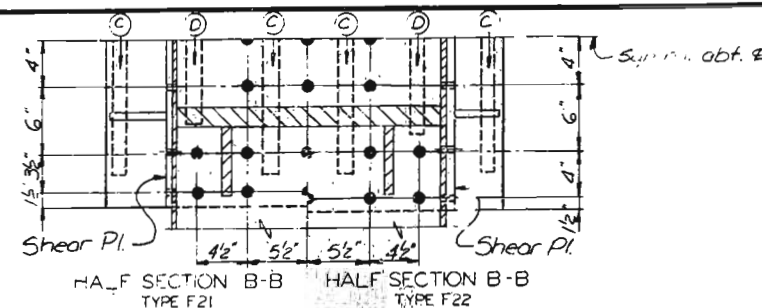
SVENDRUP & PARTNERS AND ASSOCIATES, Inc.
ENGINEERS-ARCHITECTS
ST. LOUIS, MISSOURI

5261
775320

282

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	150	



SHOE	NO. SHOES	NO. BOLTS PER SHOE	TYPE
Type F19	4	4	A
Type F17	8	4	A
Type F16	8	4	A
Type F18	6	6	A
Type F20	1	6	A
Type F21	8	6	B
Type F22	5	6	B

TYPE	WT./3RD	NO. 3RD	TOTAL WEIGHT (LBS)
F19	1339	4	5,356
F17	1644	8	13,152
F16	2053	8	16,424
F18	2364	6	14,184
F20	2764	1	2,764
F21	3776	8	30,208
F22	4169	5	20,845
Total Weight =			102,533 LBS.

Note: Welding not shown, same size as shown for Type F19 and all finished on plates and pins same as shown for Type F19.
Weld Plate (A) and (C) before welding Plates (B) and (D).
* Bevel top of top plate for cross slope of girder. Dimension shown is at Bearing and Shoe. See Table on Sheet 86.

Rib Plate Thickness	Type F21	Type F22
Ribs	1 1/2"	1"
(A) and (B)	1 1/2"	1"
(C) and (D)	1 1/2"	1 1/4"

TYPES F21 & F22
8-Type F21 Req'd
5-Type F22 Req'd

BEARING NOTES

MATERIALS:

All steel plates shall conform to ASTM A36 unless otherwise noted.
Pins shall conform to forged Carbon Steel, ASTM A228, Class D, except as otherwise noted.
Recessed Pin Nuts for each pin on cross girders fixed bearings shall be hexagonal, recessed, and may be malleable iron, pressed steel or cast steel.
Anchor Bolts set in concrete, threaded rods and coupling nuts shall be ASTM A36. Hex and jamb nuts shall conform to ASTM A563, Grade 0.
Bearing pads shall be lead plates or preformed fabric pads. See Special Provisions.

CONNECTORS:

All connectors shall be 3/8" high-strength bolts (H.S.) unless otherwise noted.

FINISHED SURFACES:

All surfaces noted 'Flat Surface' shall be finished to 1000 microinch or better after welding in accordance with ANSI B46.1-62, Surface Roughness, Waviness and Lay, Part 1. Machine Surface shall be in accordance with Standard Specification 712.3.3.23.
All surfaces of all bearings, except Pot Bearings, not in contact with steel or concrete shall receive prime and final coats of paint in the shop.
Final boring or finish for pin holes in ribs of bearings shall be done after welding.

Pin and pin holes and other milled surfaces shall be coated in accordance with Standard Specification 712.2.7.

SHOP ASSEMBLIES:

All bearings shall be shop assembled. Shop drawings are not required for bearing pads.

PAYMENT AND WEIGHTS:

The cost of bearing pads shall be included in price bid for other items of work. Bearing pads shall project all around beyond the steel bearing plates.
Pot Bearings shall be paid for as cost per each bearing by Types F23 thru F29. Price bid shall include all materials except high strength bolts connecting bearings to cross girders, anchor bolts, and bearing pads.

All other bearings shall be paid for in unit price bid for Fabricated Structural Steel Bearings. Weights do not include anchor bolts or high strength bolts.

NOTES

Work this sheet with Sheet 86.

CITY OF ST. LOUIS

CROSS GIRDER BEARINGS
TYPES F16 THRU F22

SHEET 87 OF 93

A3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Aug. 30, 1979

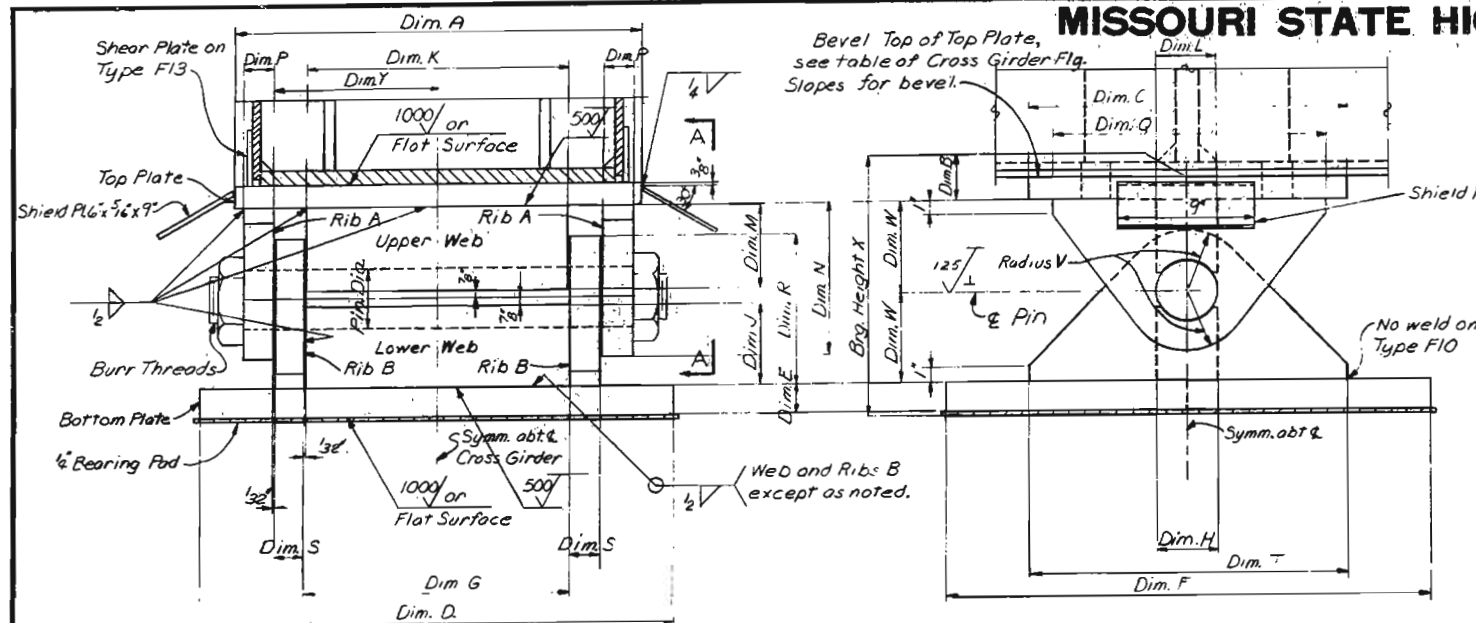
OVERBURY & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: J. D. Miller, Sept. 1977
CHECKED BY: J. D. Miller, Sept. 1977
52261
775321

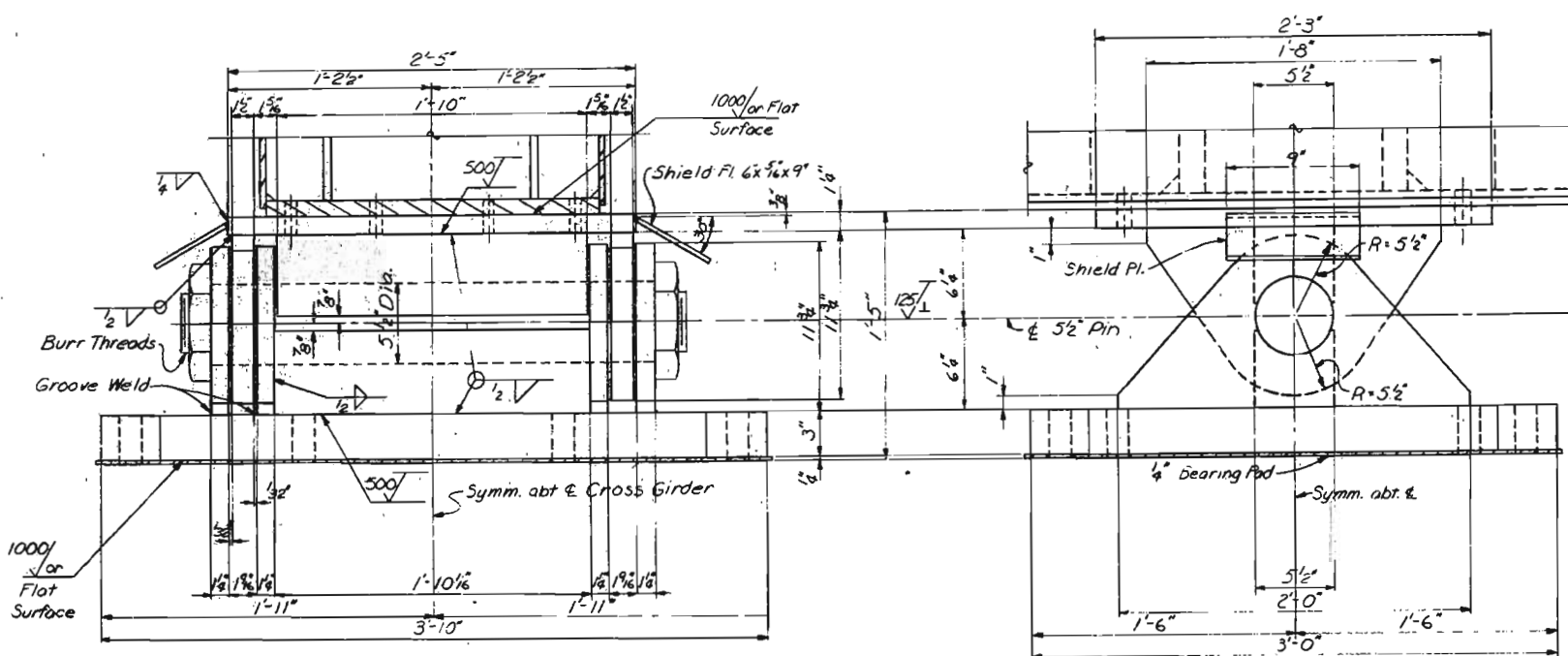
283

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	MO.		19	151	



BEARING TYPES F7 THRU F14

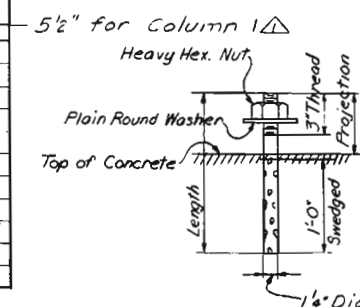


BEARING TYPE F15
(BENT 32 - COLUMN 1)
1 Reqd. Est. Weight = 2382 lbs.

TABLE OF VARIABLE DIMENSIONS																
Location	Brg.	Top Plate	Bot. Plate	Lower Web	Upper Web	Ribs A	Ribs B	Pin	Rad	W	Bearing		No. of Brg.	Est. Weight	Total Est.	
Bent Col.	Type	AxBxC	DxExF	GxHxJ	KxLxM	NxPxQ	RxSxT	Dia	V		Ht. X	Y	Req'd.	Each (Lbs)	W-ight (Lbs)	
3	142	F7	27x12x18	32x22x32	18x4x56	18x4x56	10x2x18	10x2x21	4"	4"	6"	1-3 3/4"	11 1/2"	2	1211	2422
16	142	F8	21x12x18	27x14x27	13x32x56	13x3x56	9x2x18	9x2x21	3 1/2"	3 1/2"	6"	1-3 3/4"	5 1/4"	2	804	1608
20	2	F9	24x12x21	32x3x36	12x4x56	12x6x56	12x2x21	12x2x21	6"	6"	6"	1-6"	8 1/4"	1	1730	1730
20	1	F10	24x12x18	24x12x18	12x3x56	12x3x56	9x2x18	9x2x21	3 1/2"	3 1/2"	6"	1-3"	7 1/4"	1	627	627
24	1	F11	22x14x18	31x22x31	14x4x56	14x4x56	10x1x18	10x1x21	4"	4"	6"	1-4"	8 1/4"	1	1176	1176
24	2	F12	21x14x18	24x14x21	12x3x56	12x3x56	9x1x18	9x1x21	3"	3"	6"	1-2 3/4"	7 1/4"	1	585	585
31	1	F13	31x14x20	40x22x36	22x6x56	22x6x56	12x2x21	12x2x21	6"	6"	6"	1-5 3/4"	11 1/4"	1	2160	2160
31	2	F14	24x14x18	28x22x30	16x4x56	12x4x56	12x2x21	12x2x21	4"	4"	6"	1-3 3/4"	7 1/4"	1	1004	1004
36	1	F9	24x14x21	32x3x36	12x4x56	12x6x56	12x2x21	12x2x21	6"	6"	6"	1-6"	8 1/4"	1	1730	1730
36	2	F10	24x14x18	24x12x18	12x3x56	12x3x56	9x2x18	9x2x21	3 1/2"	3 1/2"	6"	1-3"	7 1/4"	1	627	627

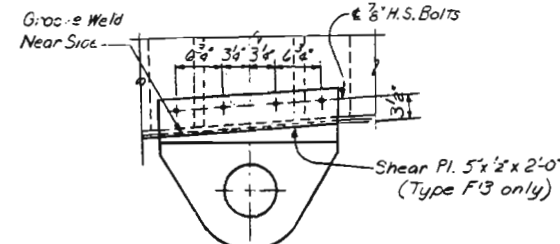
△ Add 1 1/4" fill plate beneath bearing for Column 1 of Bent No. 3.

SWEDGED ANCHOR BOLTS				
Bent	Col.	No. Req'd	Projection	Length
3	142	12	4 1/2"	1'-5"
16	142	12	4 1/2"	1'-5"
20	2	4	5 1/2"	1'-6"
20	1	4	4"	1'-4"
24	1	6	5"	1'-5"
24	2	4	4"	1'-4"
31	142	16	5"	1'-5"
32	1	8	5 1/2"	1'-6"
36	1	4	5 1/2"	1'-6"
36	2	4	4"	1'-4"



CROSS GIRDER FLANGE SLOPES AT BEARINGS (FT./FT.)		
Bent	Col. 2	Col. 1
3	*.0051	*.0109
16	-.0466	-.0333
20	-.0604	-.0569
24	-.0470	-.0430
31	*.0159	*.0217
32		Level
36	*.0129	*.0159

Note A: Side view of shoes and cross girder flange slopes as shown in table are looking up-station. Column 1 is right column when looking up-station.



VIEW A-A
Note: Pin, nut and shield not shown.

NOTES

For bearing notes see Sheet 87.
For plan views of top and bottom plates showing holes and clips see Sheet 89.

CITY OF ST. LOUIS

CROSS GIRDER BEARINGS
TYPES F7 THRU F15

SHEET 88 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

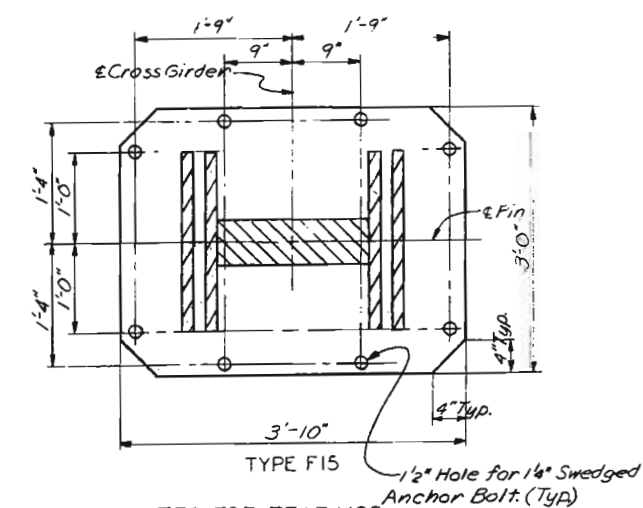
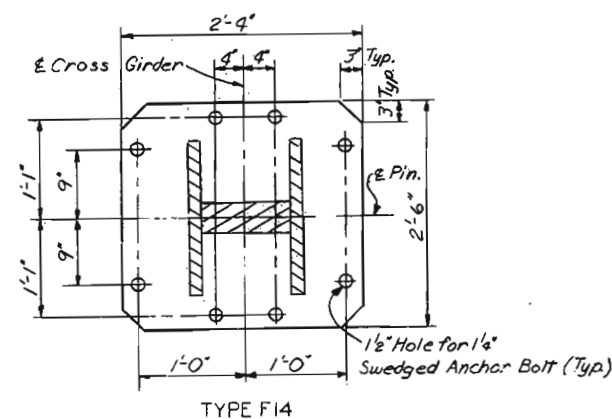
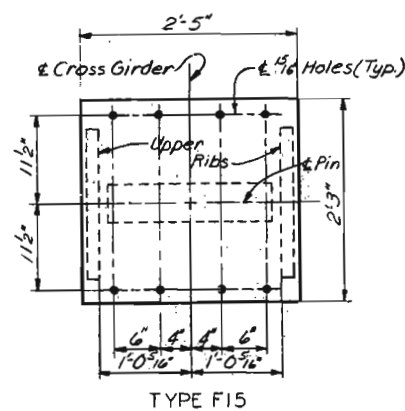
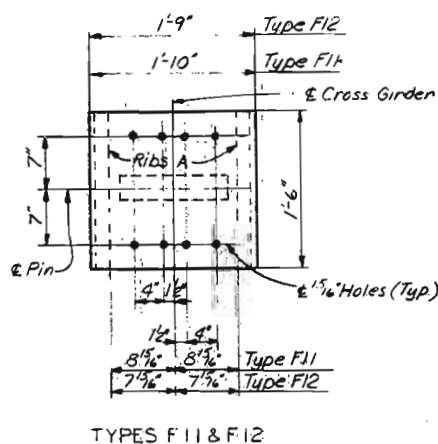
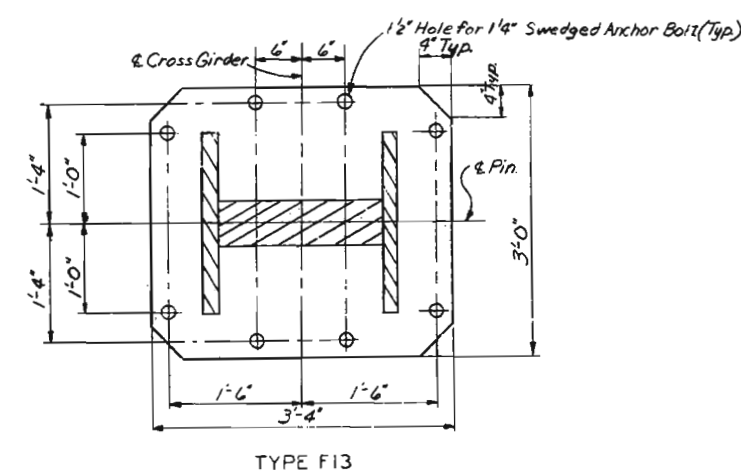
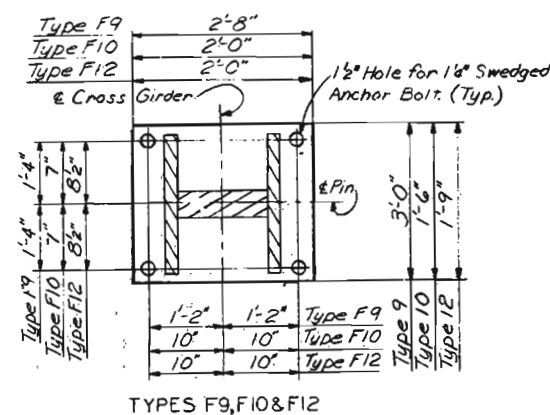
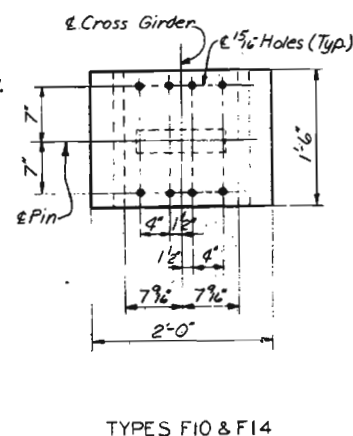
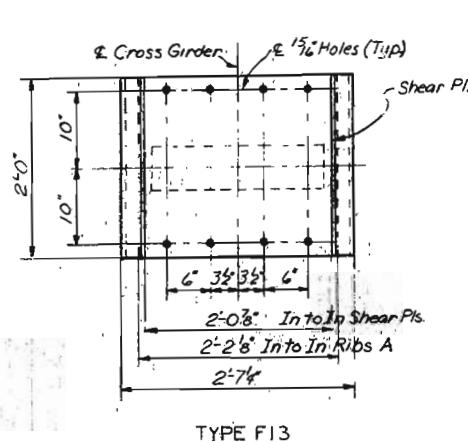
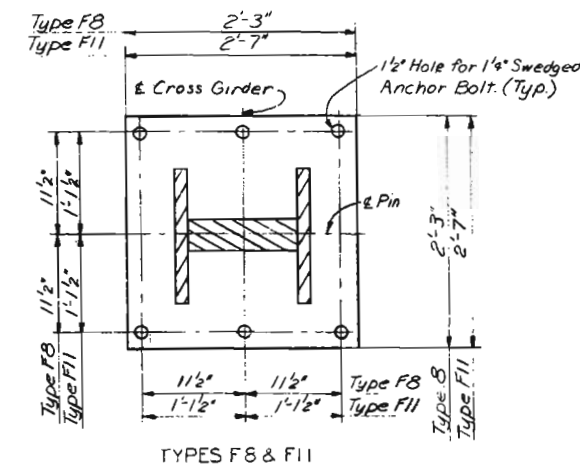
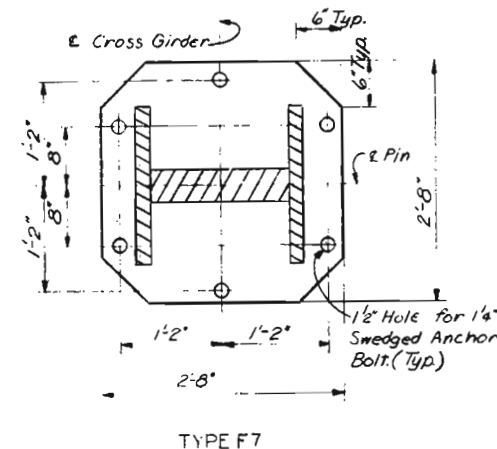
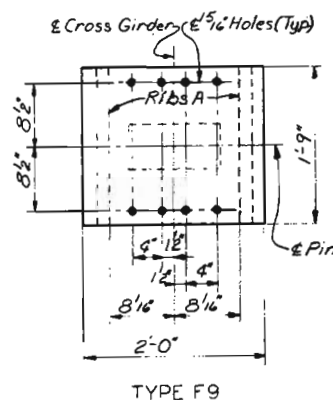
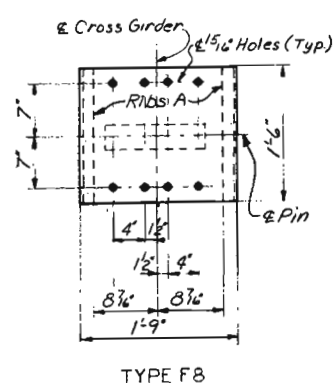
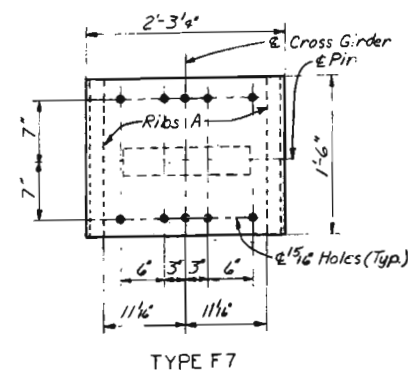
Revised 12-17-81

284
DRAWN BY: M. Vurge, Sept. 1977
CHECKED BY: R. E. M. Dec. 1977
5261
775328

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	152	



TOP PLATES FOR BEARINGS

BOTTOM PLATES FOR BEARINGS

NOTES

Work this sheet with Sheet 88.

CITY OF ST. LOUIS

CROSS GIRDER BEARINGS
TYPES F7 THRU F15

SHEET 89 OF 93

A-3594

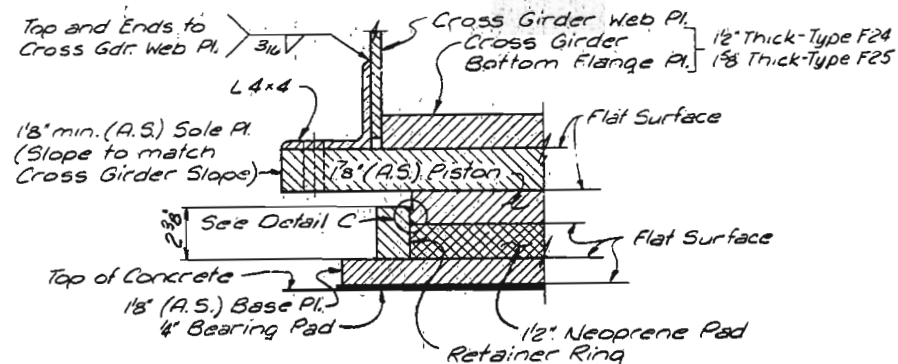
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: M. J. Judd, Sept. 1977
 CHECKED BY: J. H. Burt, Dec. 1977
 5261
 775329

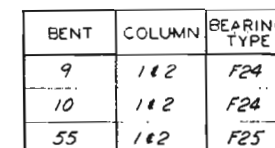
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
 ENGINEERS - ARCHITECTS
 ST. LOUIS, MISSOURI

285

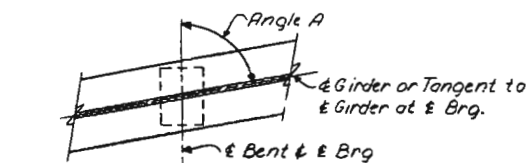
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21	MO.		19	153	



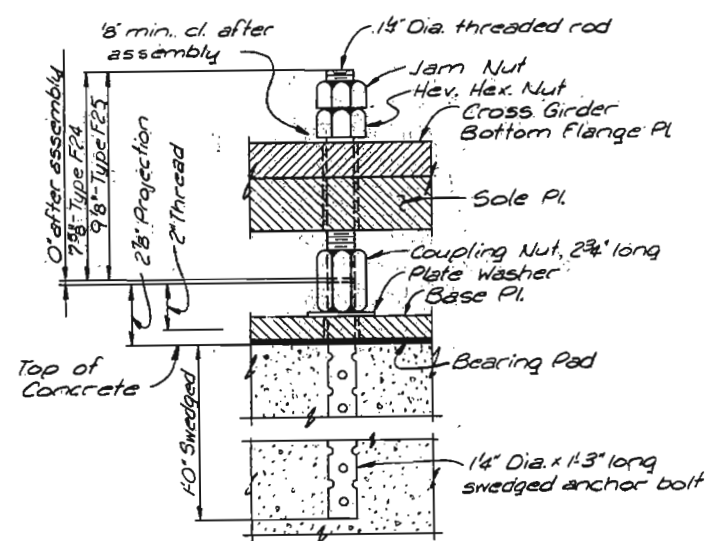
SECTION B-B
Note: Bearing Stiffener on girder
not shown.



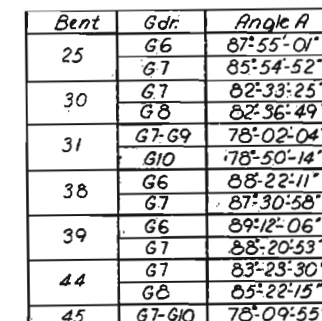
DETAIL C



BEARING ORIENTATION
(FLARING GIRDERS)



ANCHORAGE DETAIL



PLAN-BASE PLATE

CITY OF ST. LOUIS

CROSS GIRDER POT BEARINGS
TYPES F24&F25

SHEET 90 OF 93

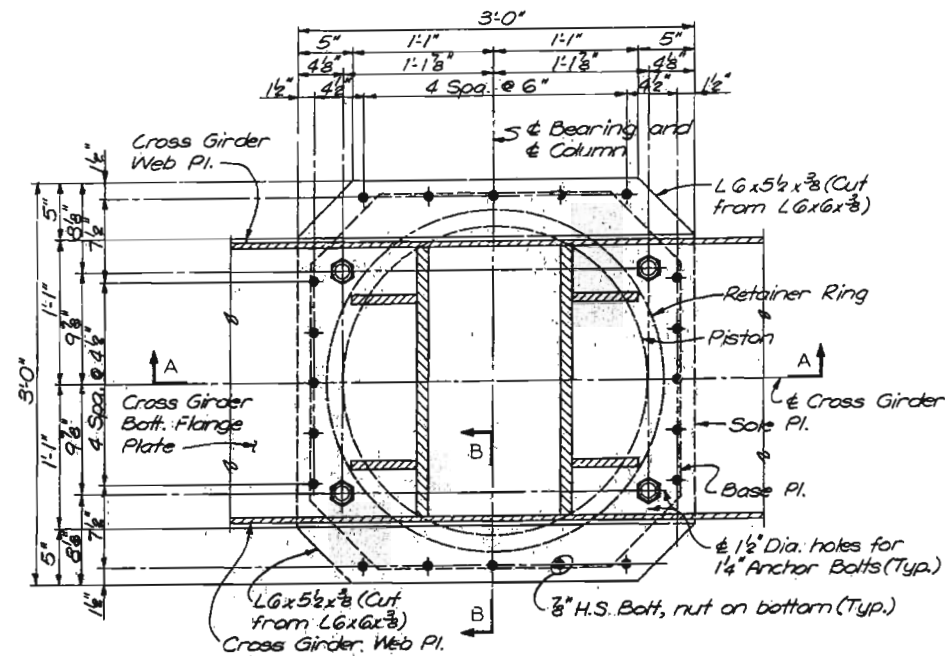
A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

5261	DRAWN BY: D. J. Schirmer, Aug. 1977
77520	TRACED BY:
	CHECKED BY: T. L. Davis, Aug. 1977

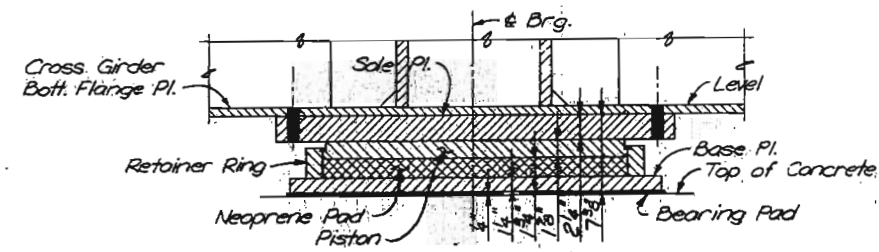
MISSOURI STATE HIGHWAY DEPARTMENT

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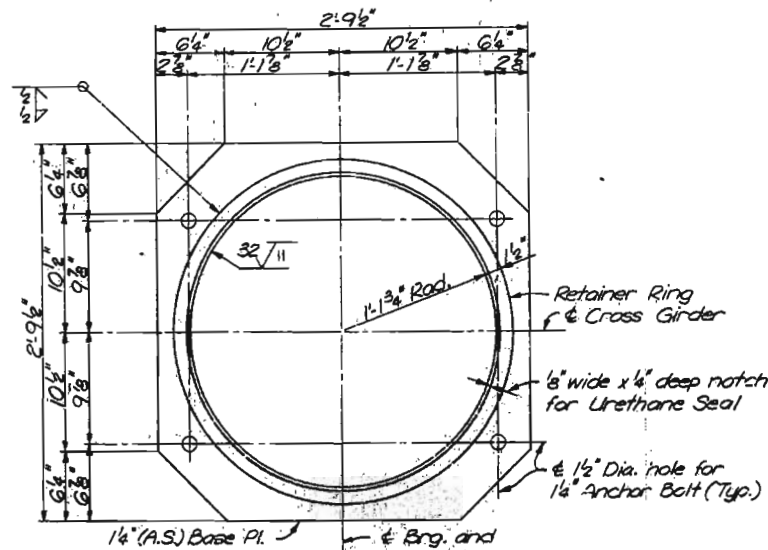


SECTIONAL PLAN-BEARING TYPE F26

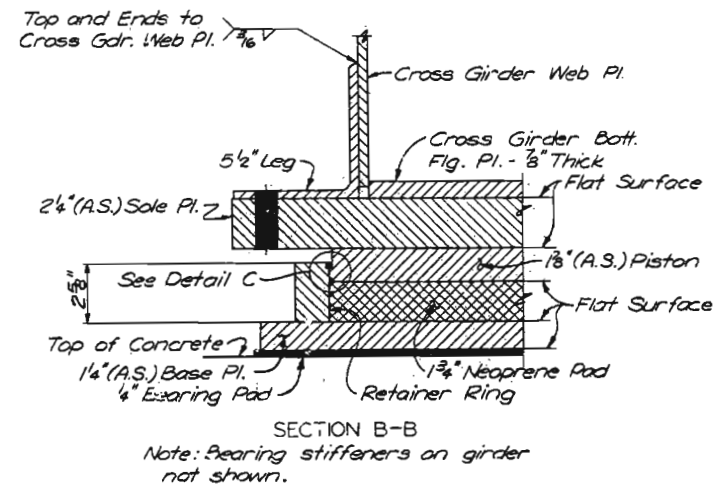
(BENT 32-COLUMN 2)
1 Req'd.



SECTION A-A

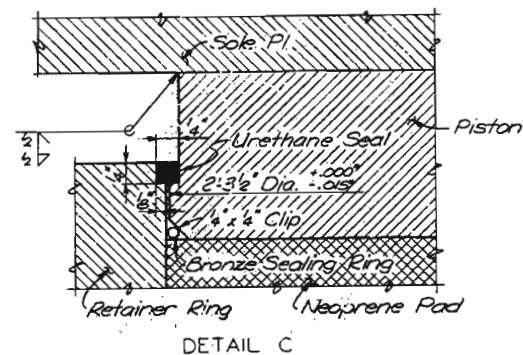


PLAN-BASE PLATE

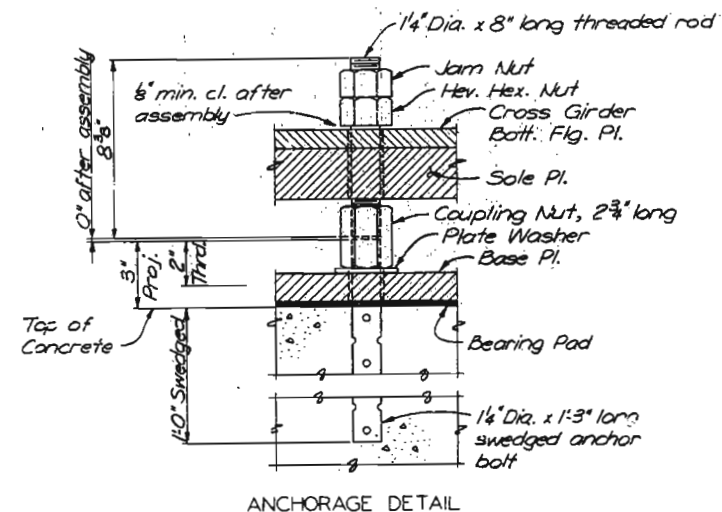


SECTION B-B

Note: Bearing stiffeners on girder not shown.



DETAIL C



ANCHORAGE DETAIL

NOTES
For Notes, see Sheet 90.

CITY OF ST. LOUIS

CROSS GIRDER-POT BEARING
TYPE F26

SHEET 91 OF 93

A-3594

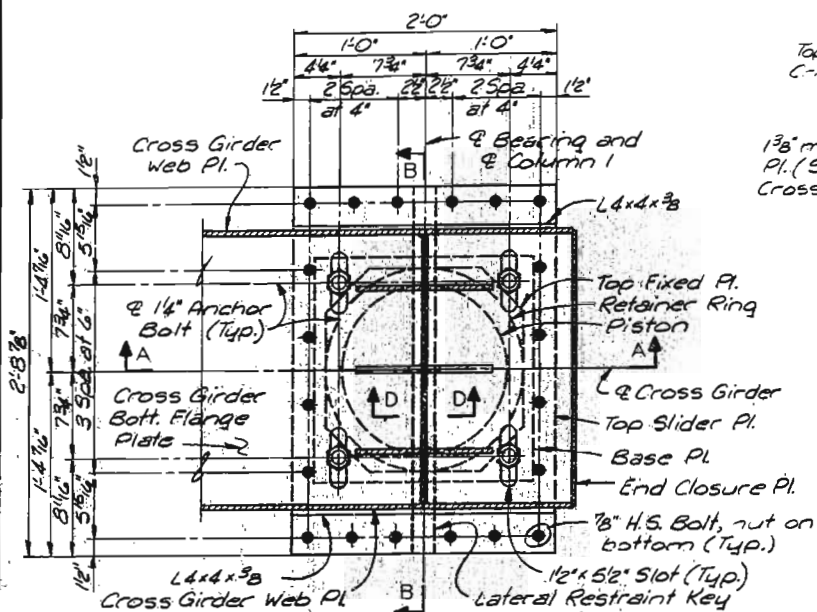
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SWENDELL & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

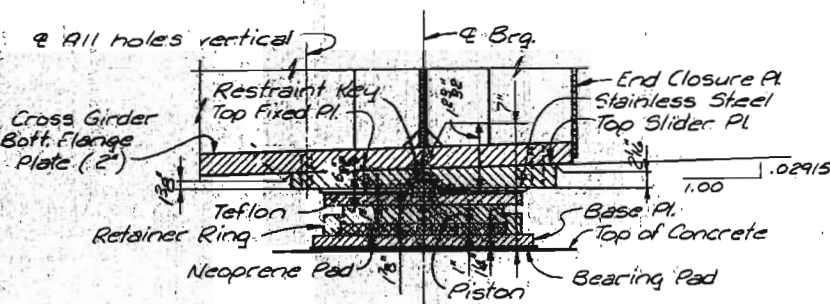
287
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CHECKED BY: J. S. S. 11/77
5261
7/5/34

MISSOURI STATE HIGHWAY DEPARTMENT

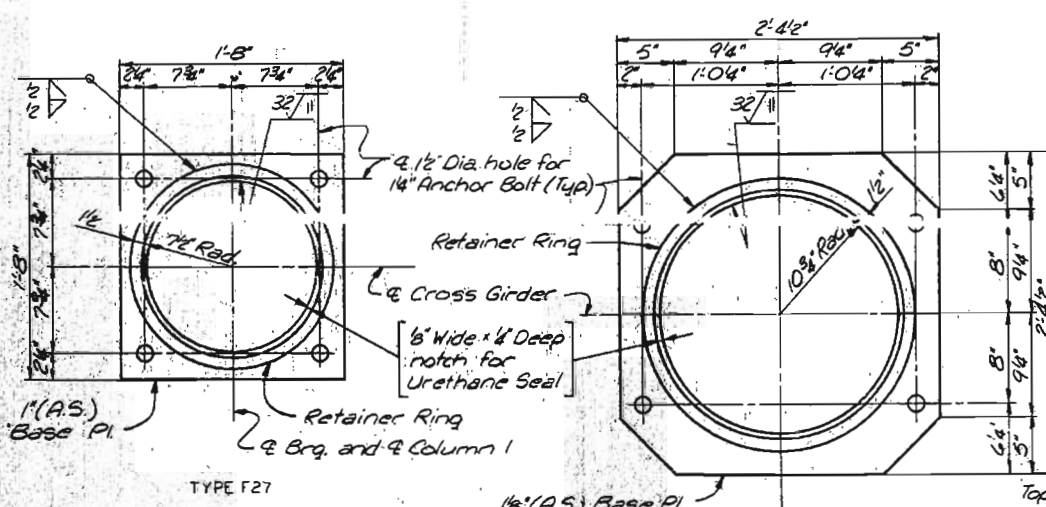
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5	MO.		18	155	



SECTIONAL PLAN-TYPE F27 BEARING
(1 Required)

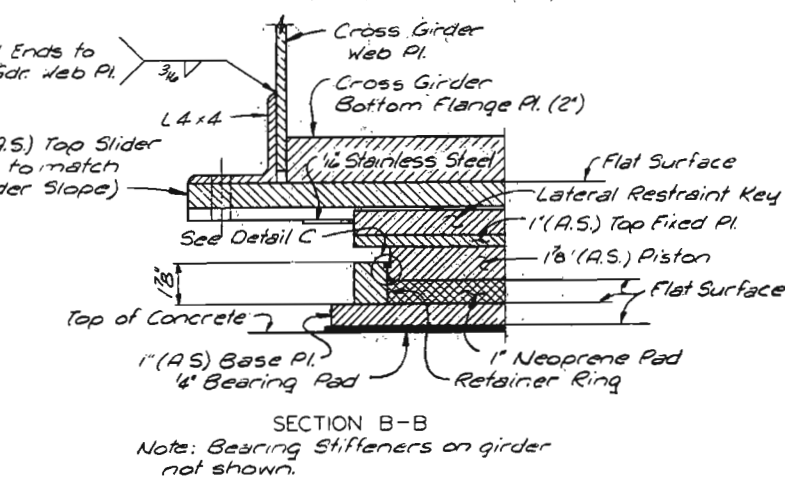


SECTION A-A



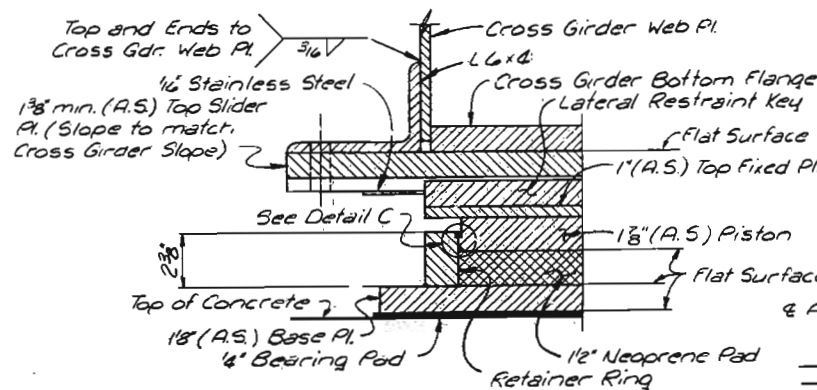
PLAN-BASE PLATES

TYPE F23 & F28



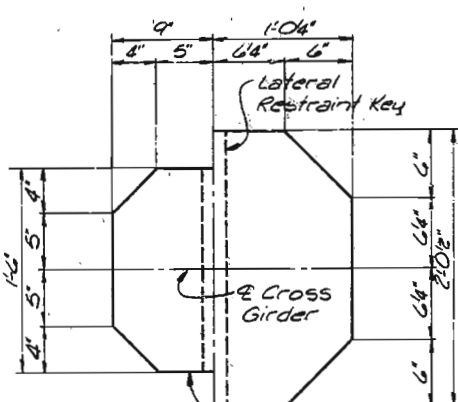
SECTION B-B

Note: Bearing stiffeners on girder not shown.

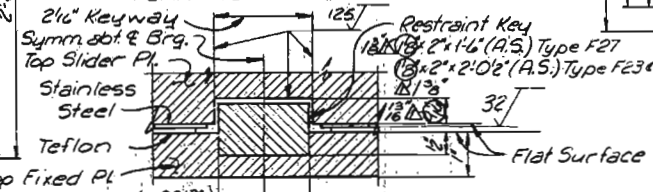


SECTION E-E

Note: Bearing stiffeners on girder not shown.

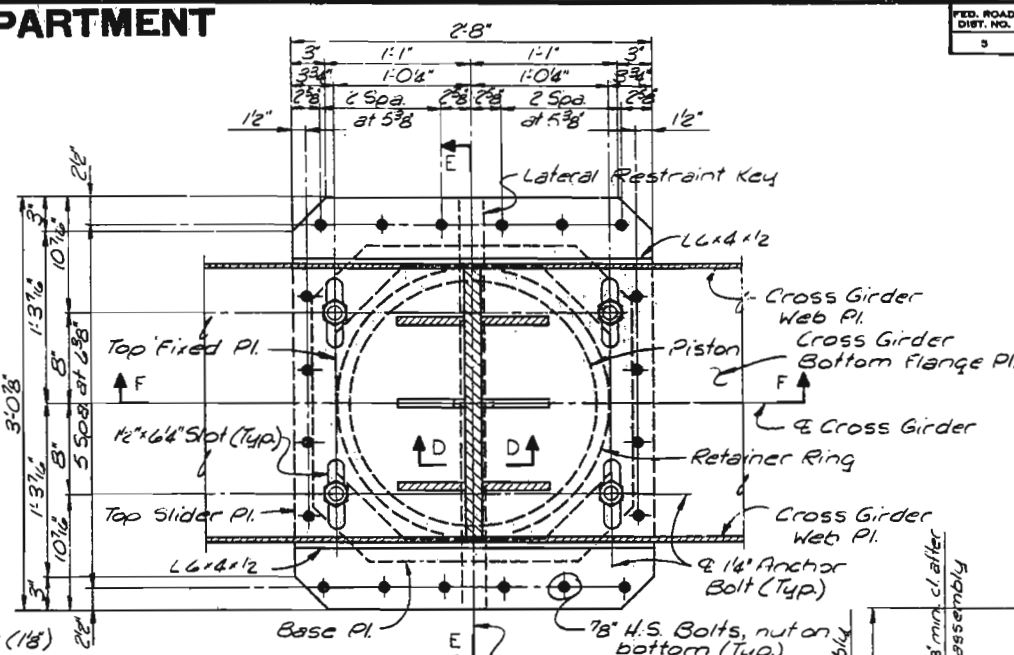


PLAN-TOP FIXED PLATES

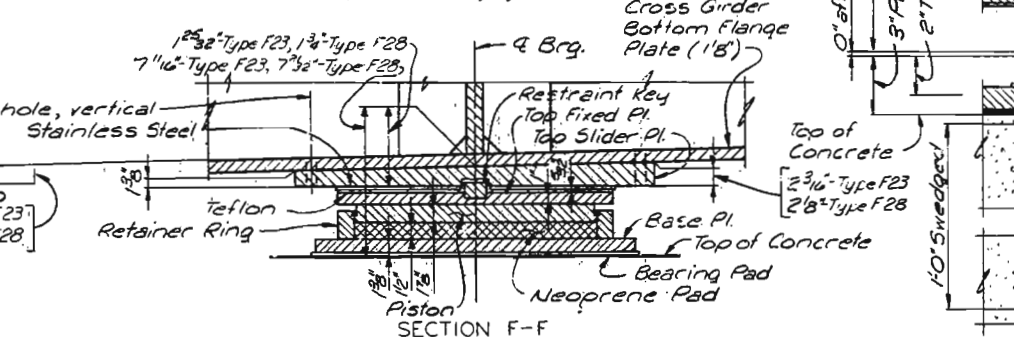


SECTION D-D

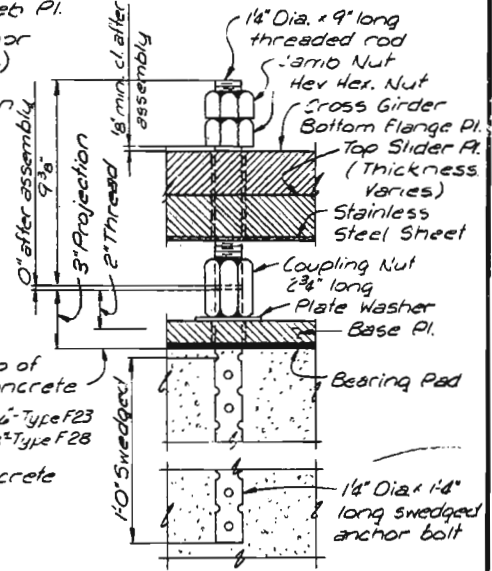
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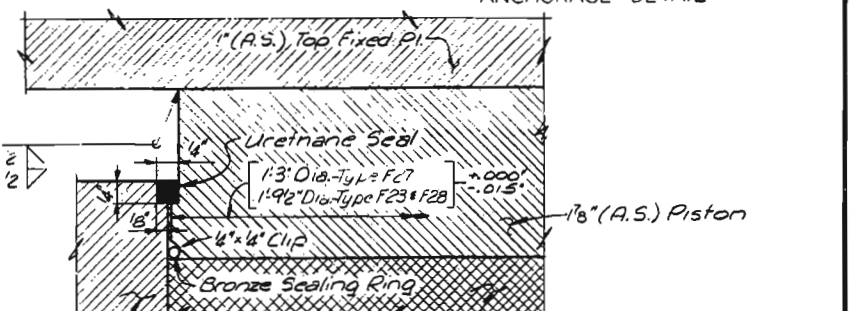
SECTIONAL PLAN-TYPE F23 AND F28 BEARINGS
(1 Each Req'd)



SECTION F-F



ANCHORAGE DETAIL



DETAIL C

NOTES
For Notes, see Sheet 90.

CITY OF ST. LOUIS

CROSS GIRDER POT BEARINGS
TYPES F23, F27 & F28

SHEET 92 OF 93

A-3594

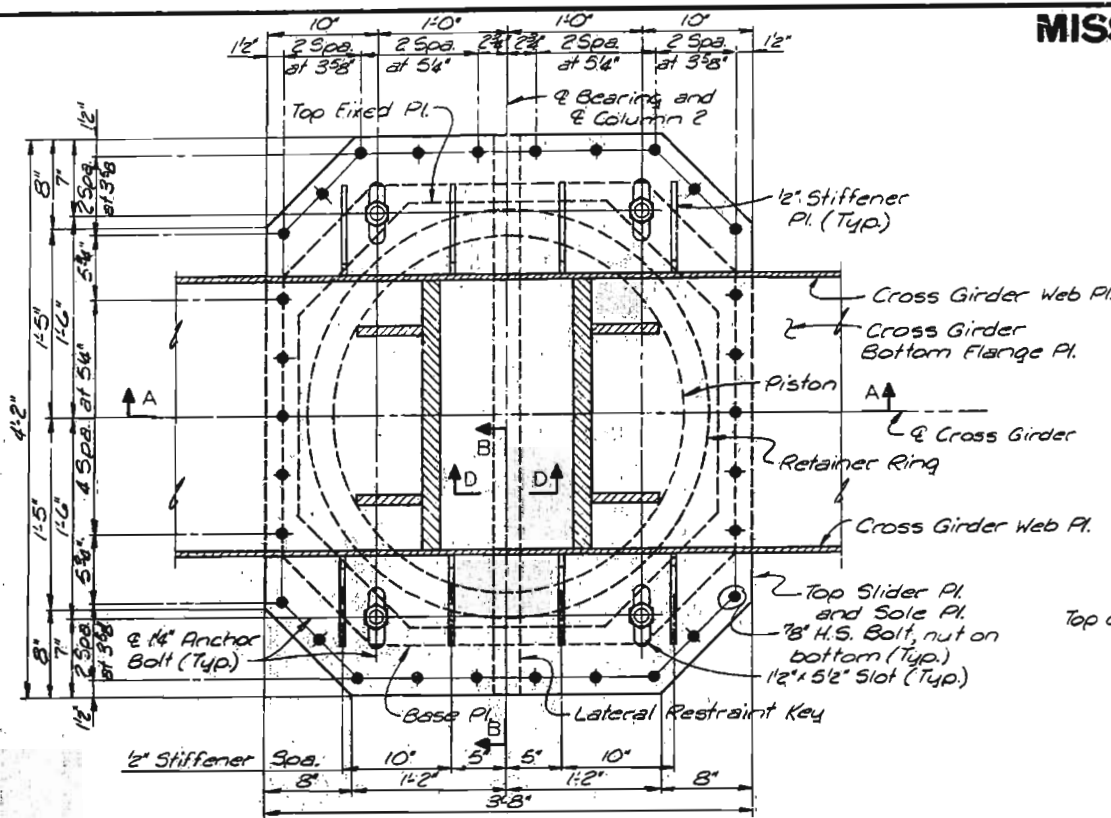
SWENSON & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: D.L. SWENSON, JULY 1977
CHECKED BY: J.W. PARCEL, AUG 1977
3261
775277

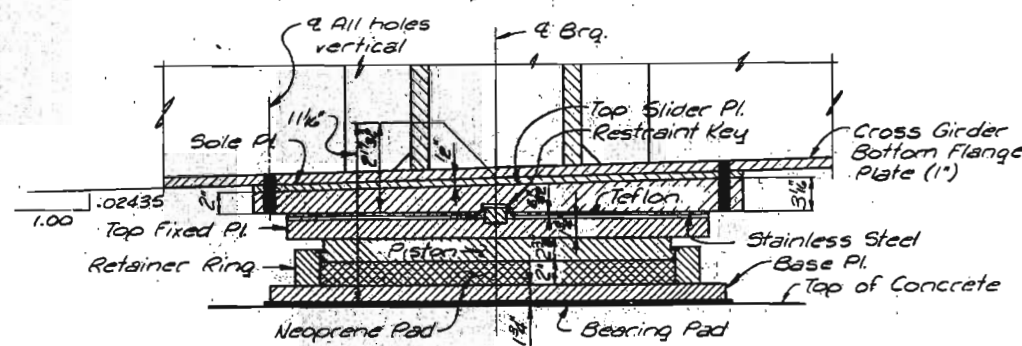
282

MISSOURI STATE HIGHWAY DEPARTMENT

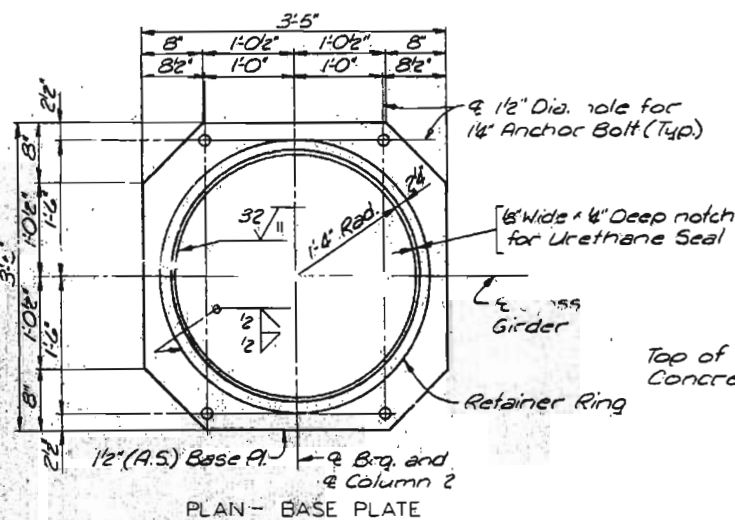
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	156	



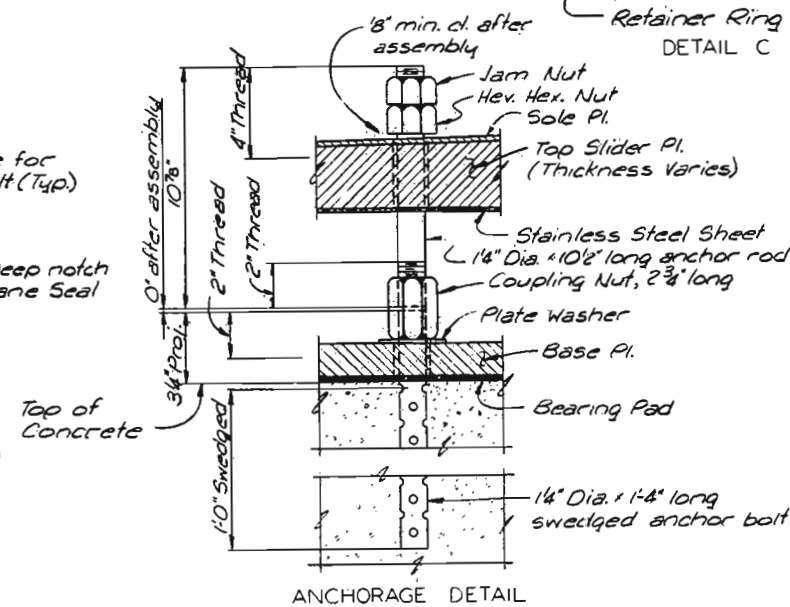
SECTIONAL PLAN - BEARING AT BENT 41 COLUMN 2 - TYPE F29
(1 Required)



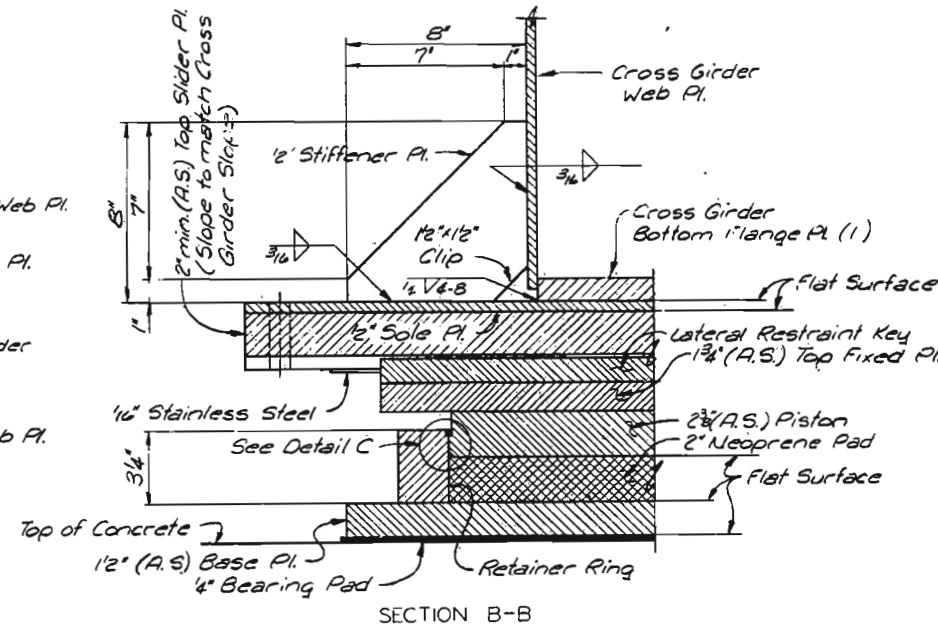
SECTION A-A



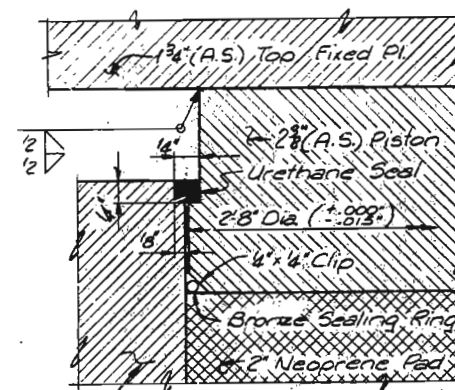
PLAN - BASE PLATE



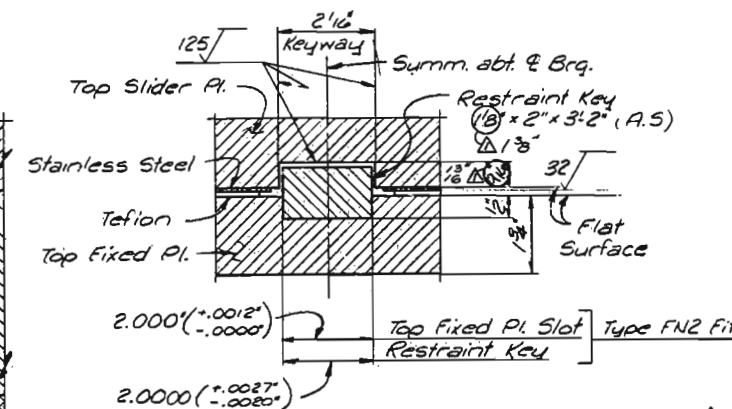
ANCHORAGE DETAIL



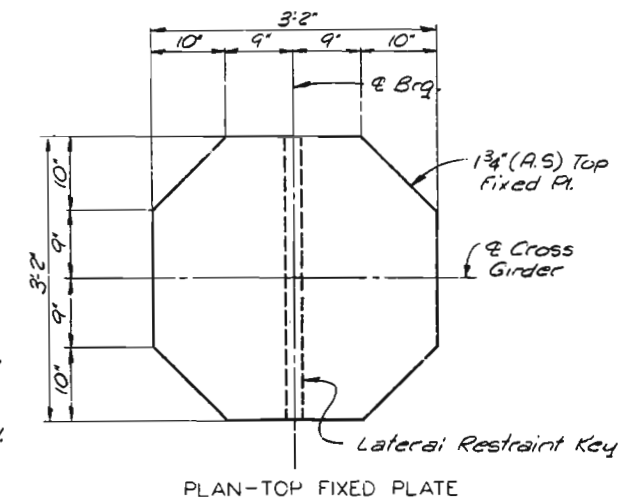
SECTION B-B



DETAIL C



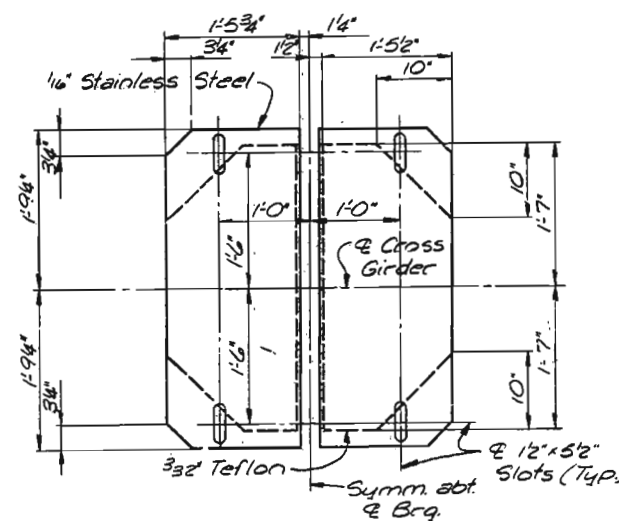
SECTION D-D



PLAN - TOP FIXED PLATE

Note: Place Industrial Teflon Coating on Exposed faces of Restraint Key and Keyway on Bearings F23, F27 + F28 on Sheet #92 and Bearing F29 on Sheet #93.

NOTES
For Notes, see Sheets 40.



PLAN - STAINLESS STEEL AND TEFLON

Note: Slots are to be placed in stainless steel only.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS. Revised 6-21-79

CROSS GIRDER POT BEARING
TYPE F29

CITY OF ST. LOUIS

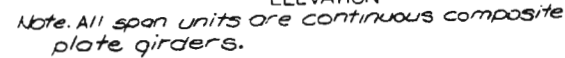
SHEET 93 OF 93

A-3594

DRAWN BY: D. J. SEXTON, JULY 1971
CHECKED BY: E. J. DILLON, AUG. 1971
5261
175276

SWENDELL & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

PROFILE GRADE



LEGEND FOR EXISTING UTILITIES

- FIP Sewer, sanitary or storm
- FIP Fire and Police
- G Gas
- W Water
- P Underground Power
- T Underground Telephone
- Inlet
- Manhole

- Indicates the approximate location of a boring.

Locations of columns at Bents 9 and 10 provide for 10'-0" minimum horizontal clearance from face of column to centerline of adjacent track

For Alignment, see Sheets
8 & 9.

FINAL PLANS

Sheet 2 of 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

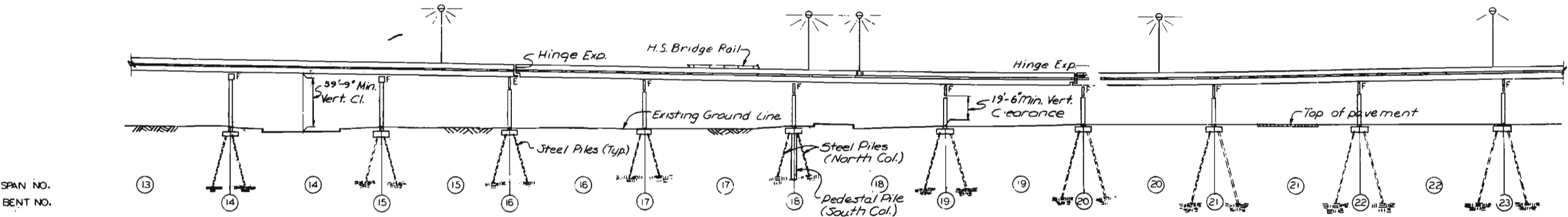
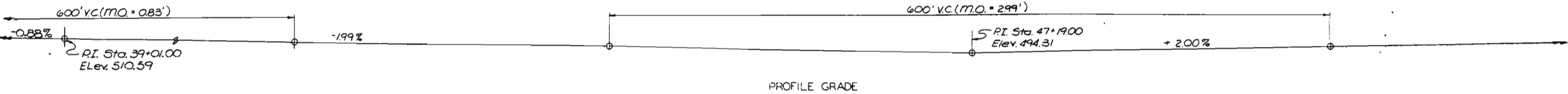
SHENKOFF & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

SEARCHED BY	J.E. O'Leary, Dec., 976
TRACED BY:	
SHIPPED BY:	P. J. New York, Aug. 1977

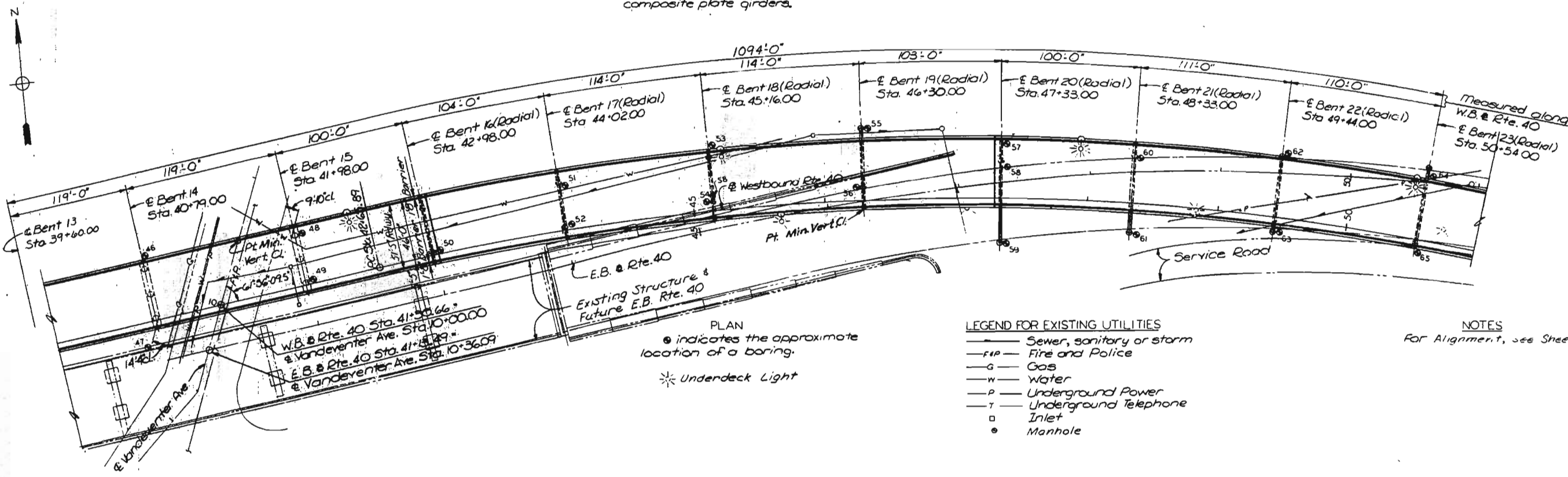
MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS

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



ELEVATION
Note: All span units are continuous composite plate girders.



PLAN
● indicates the approximate location of a boring.
✱ Underdeck Light

- LEGEND FOR EXISTING UTILITIES
- Sewer, sanitary or storm
 - FIP — Fire and Police
 - G — Gas
 - W — Water
 - P — Underground Power
 - T — Underground Telephone
 - Inlet
 - Manhole

NOTES
For Alignment, see Sheets 8 & 9.

291

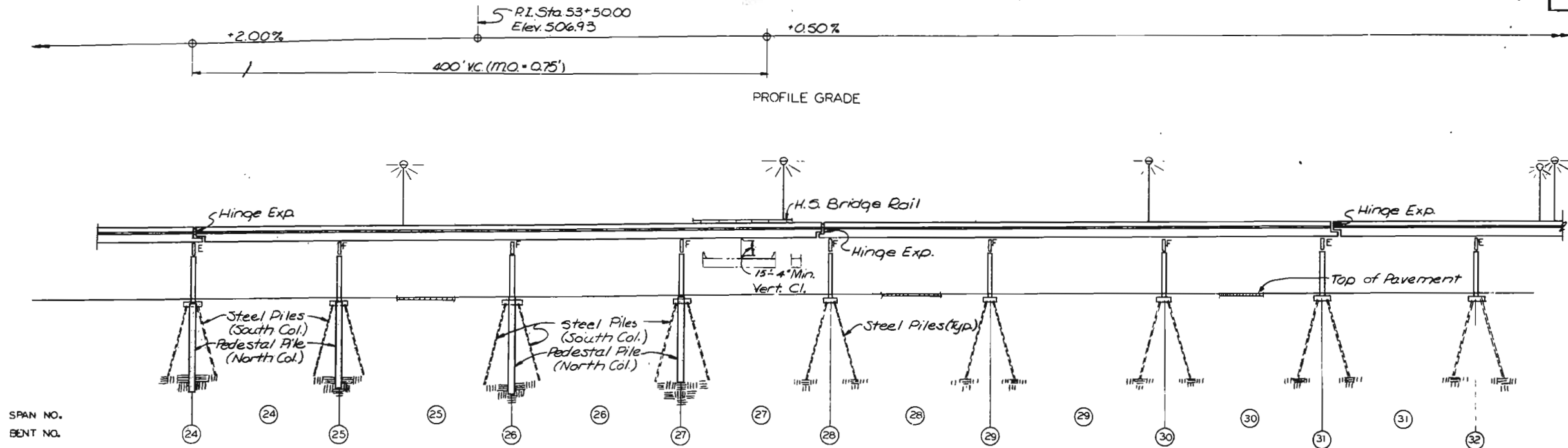
DRAWN BY: J.E. O'SHEA, Dec. 1976
CHECKED BY: R. J. [illegible], Sept. 1977
5261
75304

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

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

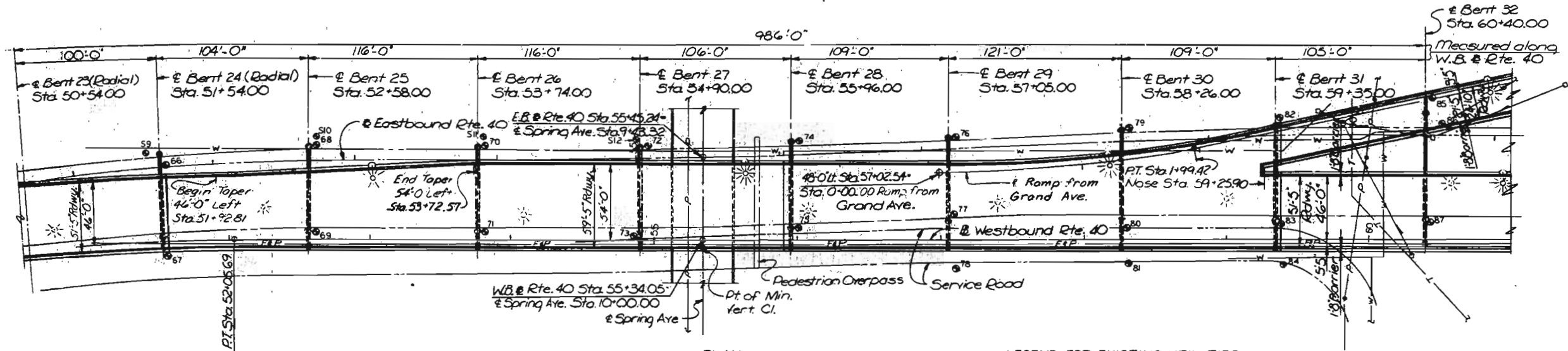
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18		



ELEVATION
Note: All span units are continuous composite plate girders.

SPAN NO.
BENT NO.



PLAN
• indicates the approximate location of a boring.

* Underdeck Light

LEGEND FOR EXISTING UTILITIES
 — Sewer, sanitary or storm
 — Fire and Police
 — Gas
 — Water
 — Underground Power
 — Underground Telephone
 □ Inlet
 ○ Manhole

NOTES
For Alignment, see Sheets 8 & 9.

CITY OF ST. LOUIS

FINAL PLANS

GENERAL PLAN AND ELEVATION

SHEET 44 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

292

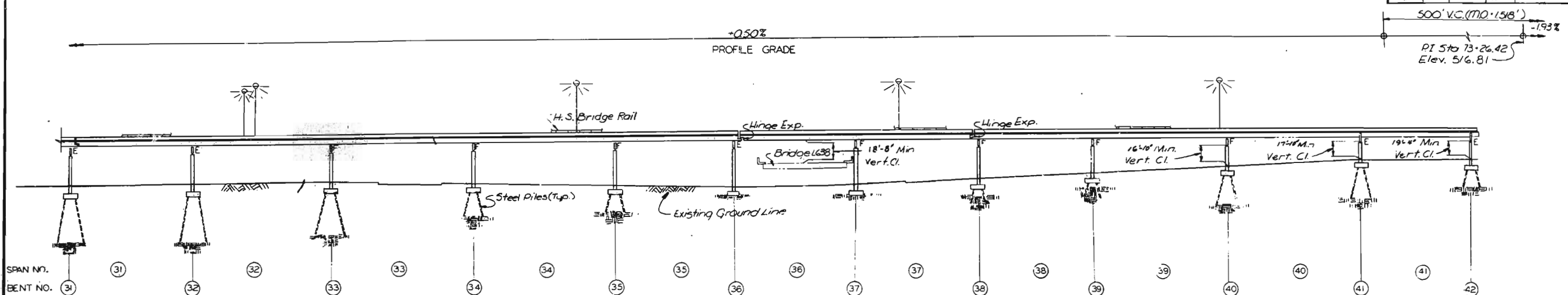
DRAWN BY: J. C. HARTMAN, Dec. 1976
 CHECKED BY: J. C. HARTMAN, Jan. 1977
 5261
 16562

ENGINEER & ARCHITECT ASSOCIATES, INC.
 ENGINEERS - ARCHITECTS
 ST. LOUIS, MISSOURI

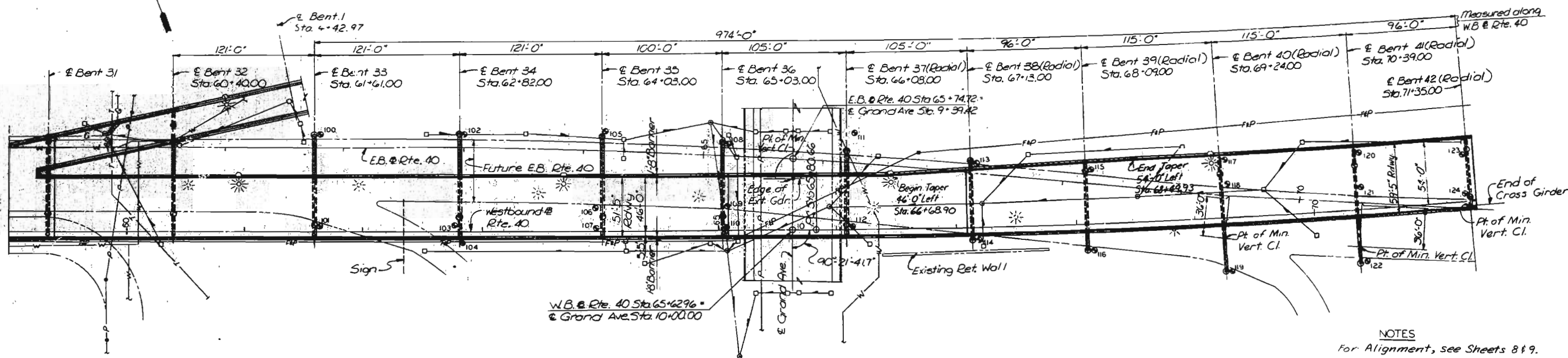
MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.	18			



ELEVATION
Note: All span units are continuous composite plate girders.



PLAN
● Indicates the approximate location of a boring.
⊗ Underdeck Light

LEGEND FOR EXISTING UTILITIES
— Sewer, storm or sanitary
— F&P Fire and Police
— G Gas
— W Water
— P Overhead Power
— T Underground Telephone
□ Inlet
● Manhole

NOTES
For Alignment, see Sheets 8 & 9.

CITY OF ST. LOUIS

FINAL PLANS

GENERAL PLAN AND ELEVATION

SHEET 5A OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

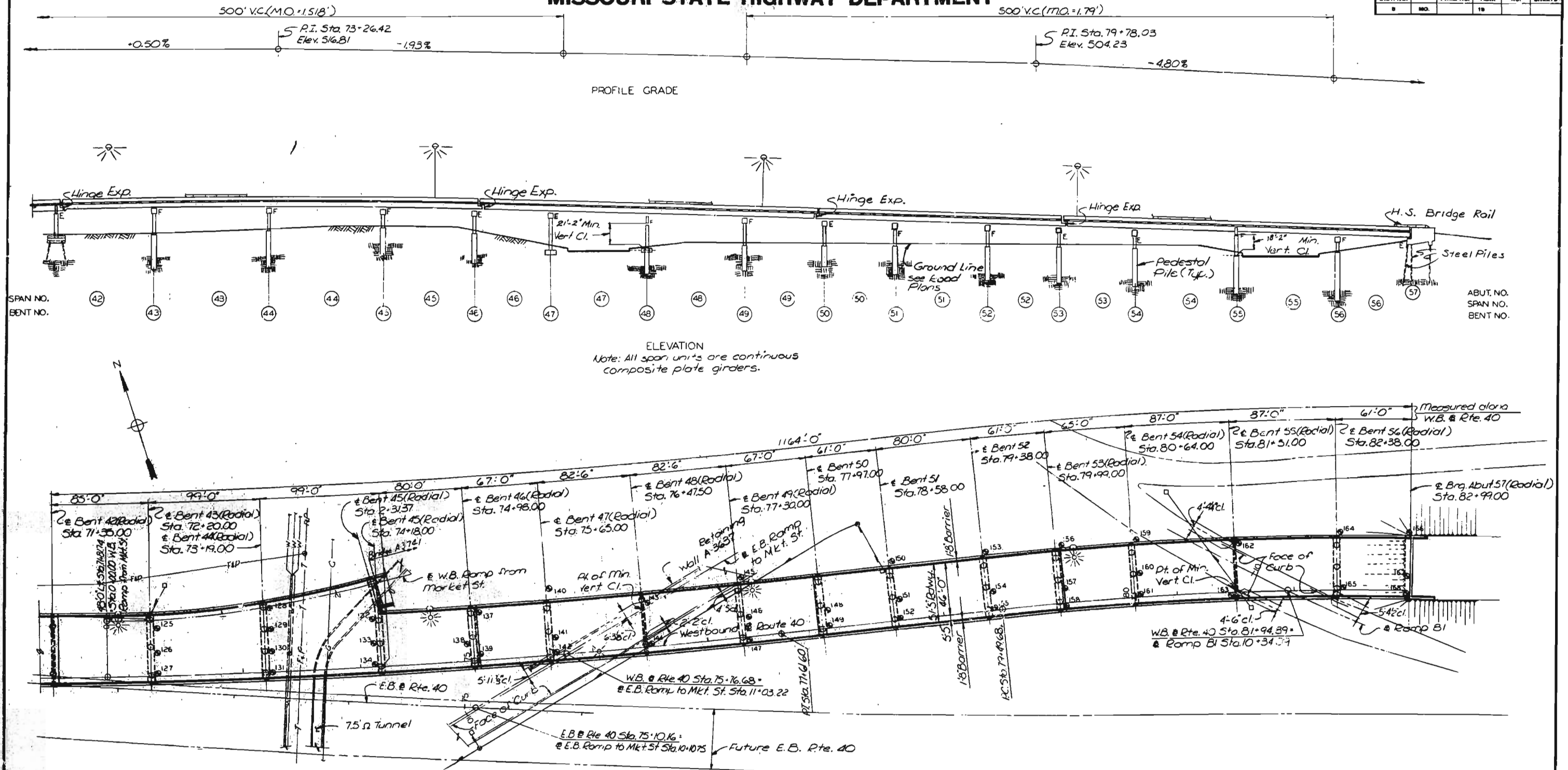
293

DRAWN BY: J. O. GILBERTSON, Dec. 1976
CHECKED BY: R. L. GILBERTSON, Jan. 1977
526
765285

SHENK & PARCELL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

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



ELEVATION
Note: All span units are continuous composite plate girders.

NOTES

For Alignment, see Sheets 6 & 9.

PLAN
● Indicates the approximate location of a boring
⊙ Underdeck Light

LEGEND FOR EXISTING UTILITIES

- Sewer, storm or sanitary
- FAP — Fire and Police
- G — Gas
- W — Water
- P — Overhead Power
- T — Underground Telephone
- Inlet
- Manhole

CITY OF ST. LOUIS

FINAL PLANS

GENERAL PLAN AND ELEVATION

SHEET 6 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: J. J. O'NEILL, Dec. 1976
 CHECKED BY: J. J. O'NEILL, Aug. 1977
 16-5296

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

MISSOURI STATE HIGHWAY DEPARTMENT

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

GENERAL NOTES

1

CONSTRUCTION SPECIFICATIONS:

Missouri State Highway Commission Specifications for Highway Construction (1981 Edition) and Special Provisions.

DESIGN SPECIFICATIONS:

Division 1 of the AASHTO "Standard Specifications for Highway Bridges" (1973 Edition including 1974, 1975 and 1976 interim specifications.

DESIGN LOADING:

Live Load - HS20-44 and modified 24,000 lbs. tandem axle.
Dead Load - Weight of Structure including reinforced concrete at 150 lbs. per cu. ft. with provision for a future wearing surface of 30 lbs. per sq. ft. of roadway.

DESIGN UNIT STRESSES:

Structural Carbon Steel (ASTM A36) - fs 20,000 lbs. per sq. in.
Structural Low Alloy Steel - A-572 Grade 50, up to 2" thick.
A-588, over 2" thick.
fs 27,000 lbs. per sq. in.
fy 50,000 lbs. per sq. in.

STRUCTURAL STEEL NOTES:

See Sheet 33.

PAINTING:

Field coat, none, except touch up after erection with System C. See Special Provision.

PROFILE GRADE:

Profile grade is located at the Base Line of Westbound Rt. 40 at top of roadway slab.

ANCHOR BOLTS:

Anchor bolts for all bearings on concrete substructures were drilled in place

SECTION 4

FINAL QUANTITIES

ITEM	UNIT	TOTAL
* State Furnished Structural Steel (Erection Only)	Lb.	9,825,810
* Pot Bearings (Erection Only)	EACH	11
High Strength Bolts (3/8" Dia.)	LUMP SUM	1
CONTINGENT ITEM		
Structural Steel Revisions	F.A.	\$23,301.95

THE ABOVE QUANTITIES ARE INCLUDED IN THE SUMMARY OF QUANTITIES FOR A-3594 ON FIRST SHEET OF BRIDGE PLANS.

* State Furnished Structural Steel includes 7,313,420 lbs. Fabricated Structural Carbon Steel, 2,055,390 lbs. Fabricated Structural Low Alloy Steel, 256,800 lbs. Fabricated Structural Steel Bearings and 11 Pot Bearings.

CITY OF ST. LOUIS

FINAL PLANS

GENERAL NOTES AND
ESTIMATED QUANTITIES

SHEET 71 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

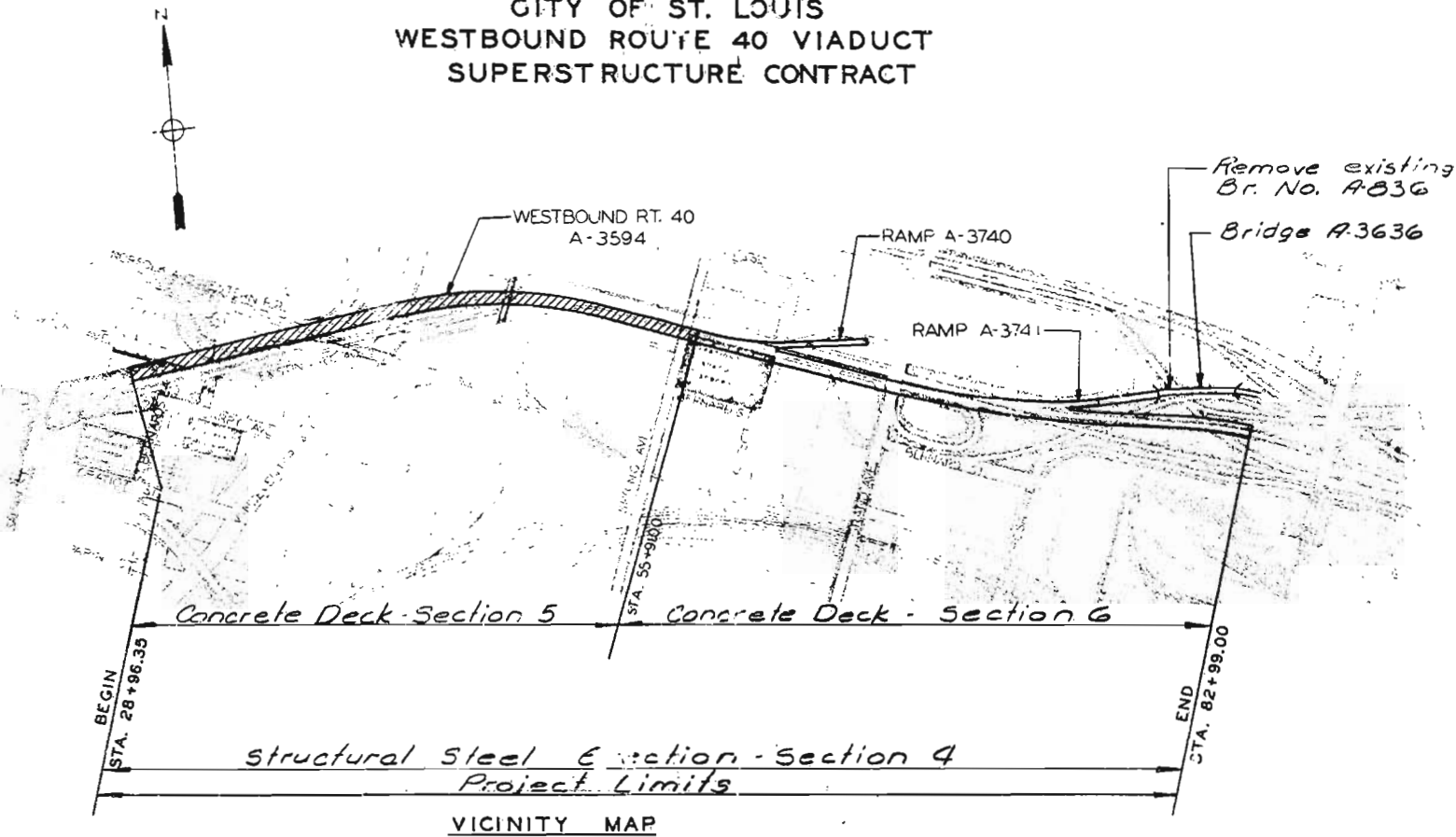
SHENKLE & PERCE, AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

295
DRAWN BY: M. J. JENSEN Jan. 1978
CHECKED BY: M. J. JENSEN
DESIGNED BY: M. J. JENSEN

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

CITY OF ST. LOUIS
WESTBOUND ROUTE 40 VIADUCT
SUPERSTRUCTURE CONTRACT

FED. ROAD DIST. NO.	SHEET	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	101	19	64		



SUMMARY OF ESTIMATED QUANTITIES FOR BRIDGE A-3594				
ITEM	SECTION 4 STEEL ERECTION	SECTION 5 CONC. DECK BTS. 1-28	SECTION 6 CONC. DECK BTS 28-57	TOTAL QUANTITIES
Pretensioned Compression Exp. Jt. Seal (2.5 in.) Lin. Ft.		51		51
Pretensioned Compression Exp. Jt. Seal (4.0 in.) Lin. Ft.			51	51
Elastomeric Exp. Jt. Seal (2.0 in.) Lin. Ft.			76	76
Elastomeric Exp. Jt. Seal (2.5 in.) Lin. Ft.			54	54
Elastomeric Exp. Jt. Seal (4.0 in.) Lin. Ft.		162	128	290
Class B-2 Conc. (Alternate A) Cu. Yd.		3722.8	4090.9	7813.7
Class B-2 Conc. (Alternate B) Cu. Yd.		3491.6	3837.9	7329.5
Elastomeric Exp. Jt. Seal (6.5 in.) Lin. Ft.		206	162	368
Post Bearings (Erection only) Each	11			11
Reinforcing Steel (Bridges) Lb.		490,860	542,290	1,033,150
Reinforcing Steel (Epoxy Coated) Lb.		802,700	879,550	1,682,250
Conduit System on Structure Lump Sum				1
Concrete Wearing Surface Sq. Yd.		15,637	17,196	32,833
Fab. Str. Carbon Steel (Misc.) Lb.		23,890	25,990	49,880
Drainage System (Type A Drains) Each		11	10	21
Drainage System (Type B Drains) Each		13	19	32
State furnished Str. Steel (Erection only) Lb.	9,625,610			9,625,610
Class B1 Conc. (Barrier Curbs) Alt. A Cu. Yd.		681.7	737.2	1,418.9
Class B1 Conc. (Barrier Curbs) Alt. B Cu. Yd.		695.6	751.2	1,446.8
High Strength Bolts (1/2" Dia.) Lump Sum	1			1
High Str. Bridge Rail (Core Tube) Lin. Ft.		5427	5864	11,291

- * Weight of Fabricated Structural Carbon Steel (Misc.) consists of Shear Connectors.
- ** See Special Provisions for additional High Strength Bolts.
- *** See Special Provisions for alternate use of Concrete Wearing Surface.
- Alternate A is Latex Modified Conc., Alternate B is Low Slump Conc.

SUBMITTED BY:

WILBURN O. WALDEN
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11763

BRIDGE: WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK AND WESTERN RAILROAD

STATE ROAD-ROUTE 40
JOB NO. 6 UO40 267
PROJECT NO. STA. 28+96.35



DATE: 10-2-81

CITY OF ST. LOUIS

VICINITY MAP

SHEET No. 1

STD. 611.60
STD. 706.35
A-3594

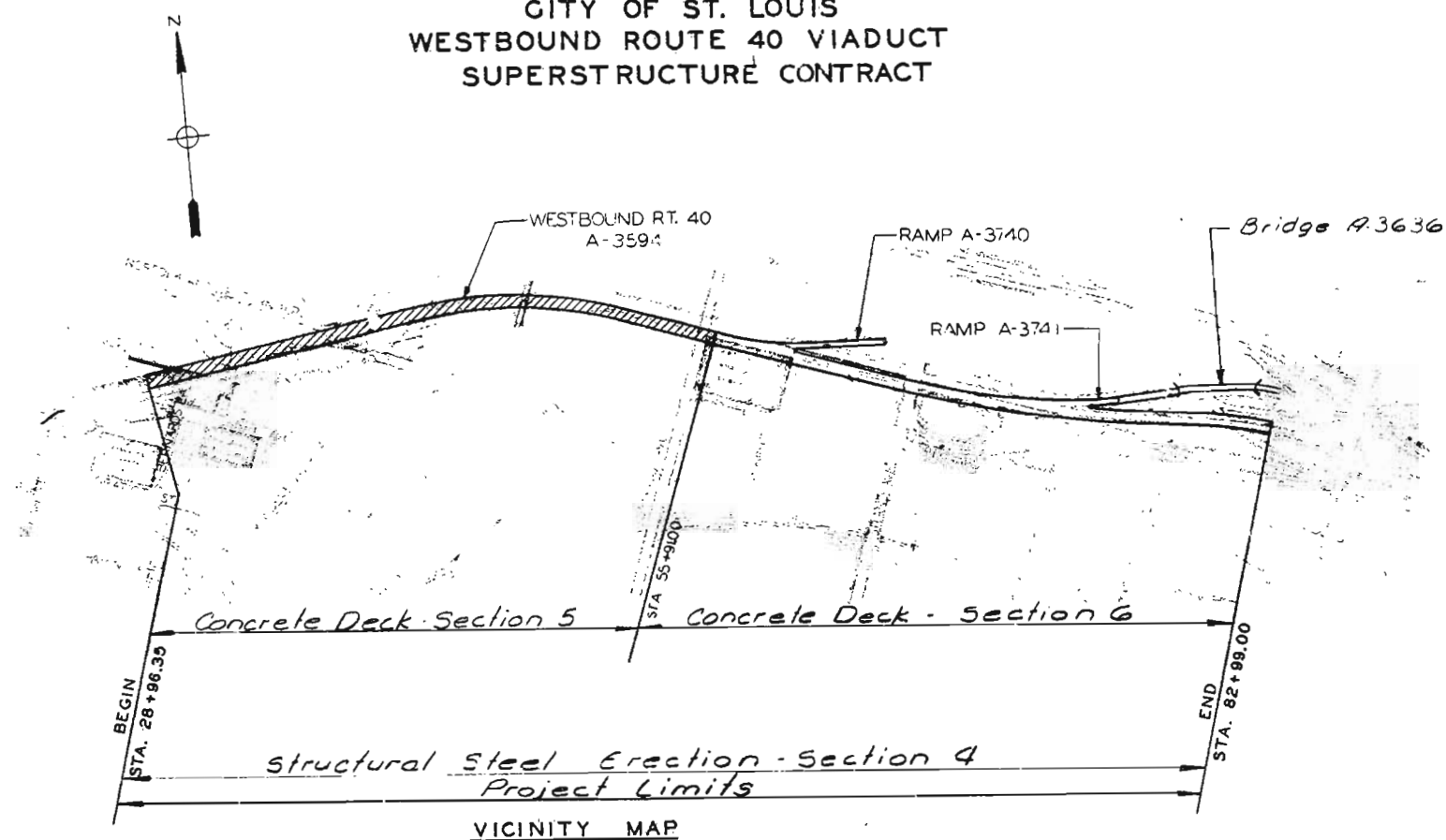
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

482

DESIGNED BY: J. O. WALDEN, Dec. 1976
DRAWN BY: J. O. WALDEN
CHECKED BY: J. O. WALDEN
5261
76.5.93

ENGINEER & ARCHITECT ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

CITY OF ST. LOUIS
WESTBOUND ROUTE 40 VIADUCT
SUPERSTRUCTURE CONTRACT



FINAL QUANTITIES FOR BRIDGE A-3594		SECTION 4 STEEL ERECTION	SECTION 5 CONC. DECK BTS 1- 28	SECTION 6 CONC. DECK BTS 28-57	TOTAL QUANTITIES
ITEM					
Preformed Compression Exp. Jt. Seal (25 in.) Lin.Ft.			51'		51' ✓
Preformed Compression Exp. Jt. Seal (40 in.) Lin.Ft.				51'	51' ✓
Elastomeric Exp. Jt. Seal (2.0 in.) Lin.Ft.				76'	76' ✓
Elastomeric Exp. Jt. Seal (2.5 in.) Lin.Ft.				54'	54' ✓
Elastomeric Exp. Jt. Seal (4.0 in.) Lin.Ft.			162'	128'	290' ✓
Class B-2 Conc. (Alternate A) Cu.Yd.			0'	0'	0' ✓
Class B-2 Conc. (Alternate B) Cu.Yd.			3491.6'	3837.9'	7329.5' ✓
Elastomeric Exp. Jt. Seal (6.5 in.) Lin.Ft.			206'	162'	368' ✓
Post Bearings (Erection only) Each		11"			11' ✓
Reinforcing Steel (Bridges) Lb.			490,860	542,290	1,033,150 ✓
Reinforcing Steel (Epoxy Coated) Lb.			802,700	879,550	1,682,250 ✓
Conduit System on Structure Lump Sum			✓	✓	1' ✓
Concrete Wearing Surface Sq. Yd.			15,637'	17,196'	32,833' ✓
* Fab. Str. Carbon Steel (Misc.) Lb.			23,890'	25,990'	49,880' ✓
Drainage System (Bin. Steel pipe) Lin.Ft.			1,166'	1,253'	2,419' ✓
Drainage System (Type A Drains) Each			11'	10'	21' ✓
Drainage System (Type B Drains) Each			13'	19'	32' ✓
State furnished Str. Steel (Erection only) Lb.		9,625,600			9,625,600 ✓
Class B1 Conc. (Barrier Curbs) Alt. A Cu.Yd.			0'	0'	0' ✓
Class B1 Conc. (Barrier Curbs) Alt. B Cu.Yd.			695.6'	751.2'	1,446.8' ✓
** High Strength Bolt (1/2" Dia.) Lump Sum		1'			1' ✓
** Bridge Reel (one tube) Lin. Ft.			5427'	5864'	11,291' ✓
CONTINGENT ITEMS					
Structural Steel Revisions	F.	\$23,301.93			\$23,301.93 ✓
12 in. x 8 in. Reducer	L.S.			\$309.00'	\$309.00' ✓

BRIDGE: WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK AND WESTERN RAILROAD

STATE ROAD-ROUTE 40
JOB NC 6 UO40 260
PROJECT NO F-BRF-40-5(47) STA. 28+96.35

FINAL PLANS

SUBMITTED BY

CITY OF ST. LOUIS

DATE: 10-2-81

VICINITY MAP

summary sheet - sec. 4, 5, 6

SHEET NO. 1A

STD.611.60
STD.706.35
A-3594

* Weight of Fabricated Structural Carbon Steel (Misc) consists of steel connectors.
 ** Additional High Strength Bolts - Supplied by Gr. Contractor.
 NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

William C. Hadden
 REGISTERED PROFESSIONAL ENGINEER
 MISSOURI NO. E-11783

NEED TO RESCALE THE DRAWING. FOLLOW DIMENSIONS

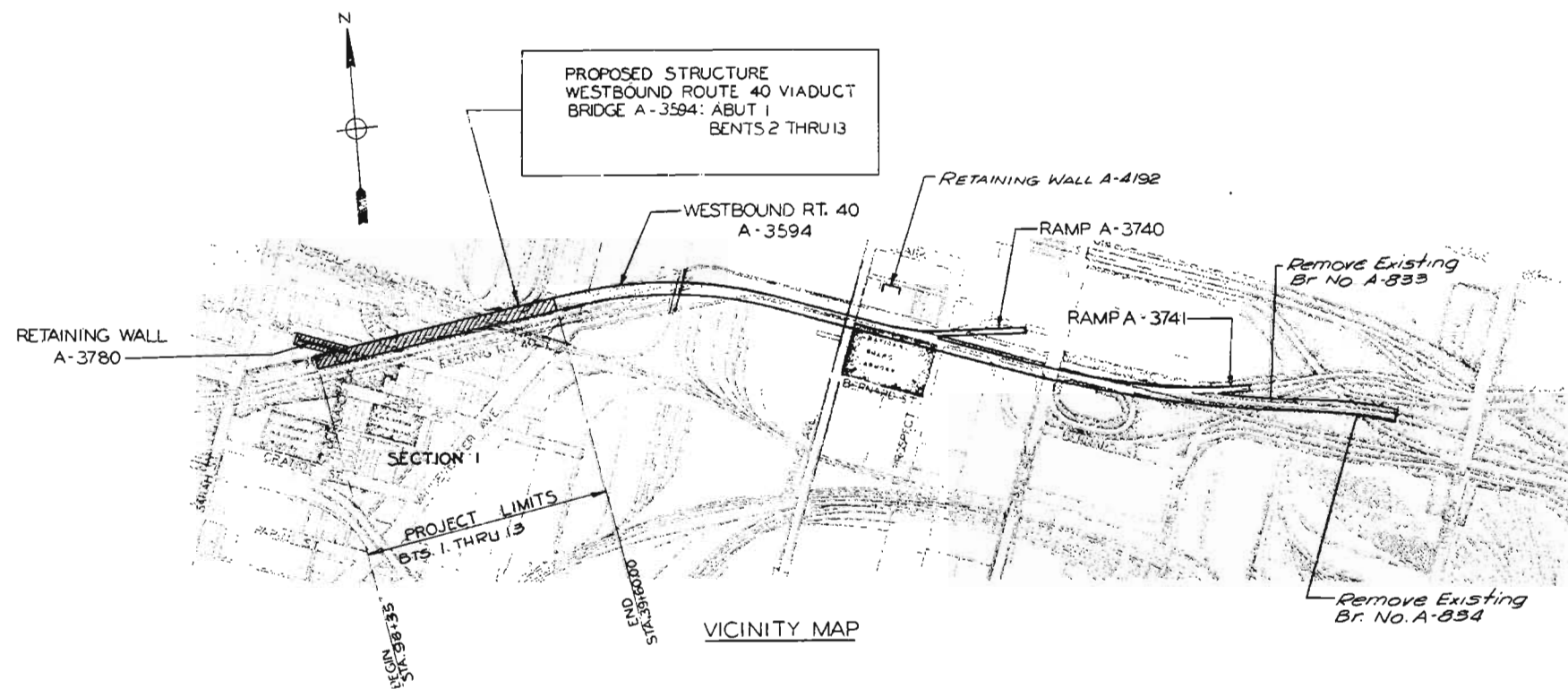
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11783

STANLEY & PEARL AND ASSOCIATES, Inc.
STRUCTURAL - ARCHITECTS
15 LAKE STREET

3261	BRADY BR-10-October, Dec. 1976
76-5293	TRACED IN
	CHESBORN INT'L GLASS, APR 11 1978

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	DIST. NO.	TOTAL SHEETS
6	MO.		78	15	



INDEX OF DRAWINGS

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 2. GENERAL PLAN AND ELEVATION
 3. GENERAL NOTES AND ESTIMATED QUANTITIES
 4. ALIGNMENT, HORIZONTAL CURVE DATA AND BENCH MARKS
 5. ALIGNMENT
 6. VERTICAL CURVE ELEVATIONS
 7. LOG OF BORINGS
 8. LOG OF BORINGS
 9. SUPPLEMENTAL LOG OF BORINGS
 10. SUBSTRUCTURE LAYOUT
 11. PILE DATA
 12. ABUTMENT 1
 13. ABUTMENT 1
 14. BENT 2
 15. BENTS 3, 9 AND 10
 16. BENT 4
 17. BENTS 5, 6 AND 7
 18. BENT 8
 19. BENTS 11 AND 12
 20. BENT 13
 21. BAR LIST
 22. BAR LIST

BRIDGE: WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK AND WESTERN RAILROAD

STATE ROAD - ROUTE 40
JOB NO. 6 UO40 266
PROJECT NO. F-BRF-BRFG-40-5(24) STA. 28+96.35
FILL FACE ABUTMENT 1

CITY OF ST. LOUIS

DATE: 10-3-80

VICINITY MAP AND
INDEX OF DRAWINGS

STD 611.60
STD 706.35
A-3594

SUBMITTED BY:

William J. Walden
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11783

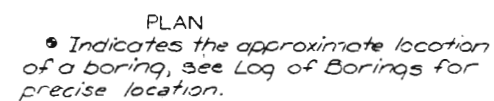
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

391

DESIGNED BY: J. L. WILSON, JR., P.E.
CHECKED BY: J. L. WILSON, JR., P.E.
DATE: 10-3-80

ENGINEER & ARCHITECT, INC.
ST. LOUIS, MISSOURI

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
5	MO.		19	16	



CLEARANCES - N & W RAILROAD
Locations of columns at Bents 9 and 10 provide for 10'-0" minimum horizontal clearance from face of column to centerline of adjacent track.
Construction clearances of 8'-6" horizontal from centerline of tracks and 22'-0" vertical from top of rail shall be provided.

SEE FINAL PLANS

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 2 OF 2

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

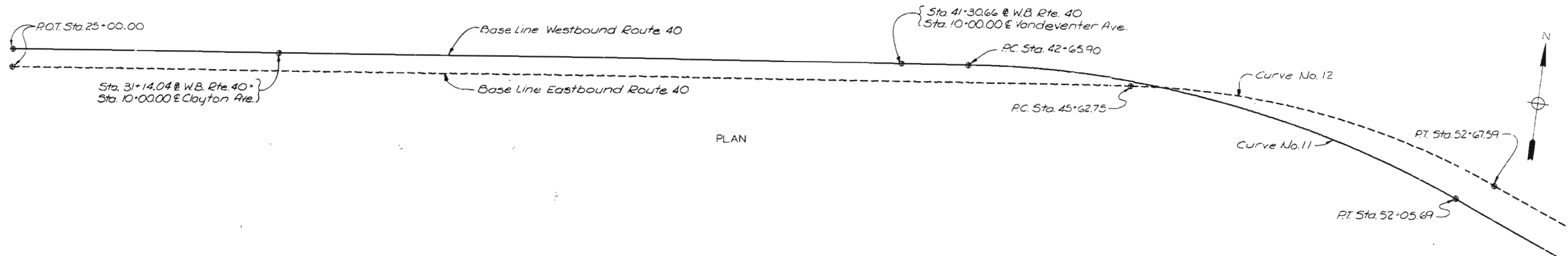
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

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

SECRET PLANS

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	18	



PLAN

HORIZONTAL CURVE DATA

Curve No. 11	Curve No. 12	Curve No. 13	Curve No. 14	Curve No. 15	Curve No. 16	Curve No. 17	Curve No. 18	Curve No. 19	Curve No. 20	Curve No. 21	Curve No. 22	Curve No. 23	Curve No. 24	Curve No. 25	Curve No. 27
PI Sta. 47+45.51	Sta. 49+22.46	Sta. 55+88.46	Sta. 58+95.22	Sta. 1+00.08	Sta. 1+60.97	Sta. 65+24.53	Sta. 70+64.33	Sta. 71+72.71	Sta. 0+34.99	Sta. 2+78.30	Sta. 75+23.49	Sta. 1+52.50	Sta. 79+38.90	Sta. 82+84.69	Sta. 82+59.18
Δ 28°11'37.9" Rt.	28°11'37.8" Rt.	3°04'03.3" Lt.	3°04'03.3" Rt.	11°57'55.4" Lt.	63°31'30.1" Rt.	6°14'13.4" Rt.	7°13'56.1" Lt.	10°14'05.3" Lt.	26°04'22.0" Rt.	13°30'29.9" Rt.	1°22'15.7" Lt.	18°08'50.1" Lt.	2°27'00.3" Lt.	2°27'00.3" Rt.	12°19'54.3" Rt.
D 3°00'00"	4°00'00"	1°00'00"	1°00'00"	6°00'00"	22°02'12.6"	1°00'00"	1°36'27"	0°52'00"	37°54'41.7"	63°39'43.1"	0°29'54.8"	6°00'00"	0°42'30.8"	0°42'30.8"	2°00'00"
T 474.61'	359.71'	153.42'	153.42'	100.08'	160.97'	312.16'	225.25'	592.05'	34.99'	209.52'	137.51'	152.50'	172.92'	172.92'	309.49'
L 939.80'	704.84'	306.76'	306.76'	199.42'	288.27'	623.71'	449.91'	1180.94'	68.77'	209.71'	275.00'	302.45'	343.79'	343.79'	616.59'
E 1909.86'	1432.39'	5729.58'	5729.58'	954.93'	260.00'	5729.58'	3564.30'	6611.05'	151.13'	90.00'	11492.00'	954.93'	8086.36'	8086.36'	2864.79'

BENCH MARKS U.S.G.S. DATUM

NUMBER	DESCRIPTION	ELEV.
B.M. #4	on stone curb in front of General Equip. Co. bldg. No. 3952 Clayton Ave.	477.89
B.M. #5	on NE corner of 2x2 conc. base of stop light at Vandeventer & left side of ramp from Mkt St.	459.32
B.M. #6	on iron of fire plug N. side of W.B.L. under pedestrian overpass at Spring Ave.	466.94
B.M. #7	on concrete median under center of Grand Ave. bridge.	465.56
B.M. #8	on wheel guard NE corner of E. end of bridge over E.B. Mkt St. ramp.	495.83
B.M. #16	on SE corner of N.W. endpost of E.B. bridge over E.B. Mkt St. ramp.	497.70
B.M. #E	top of S.W. corner of light standard at the S.W. corner of Grand Ave. bridge.	489.63

CITY OF ST. LOUIS

ALIGNMENT, HORIZONTAL CURVE DATA,
AND BENCH MARKS

SHEET 4 OF 20

A-3504

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

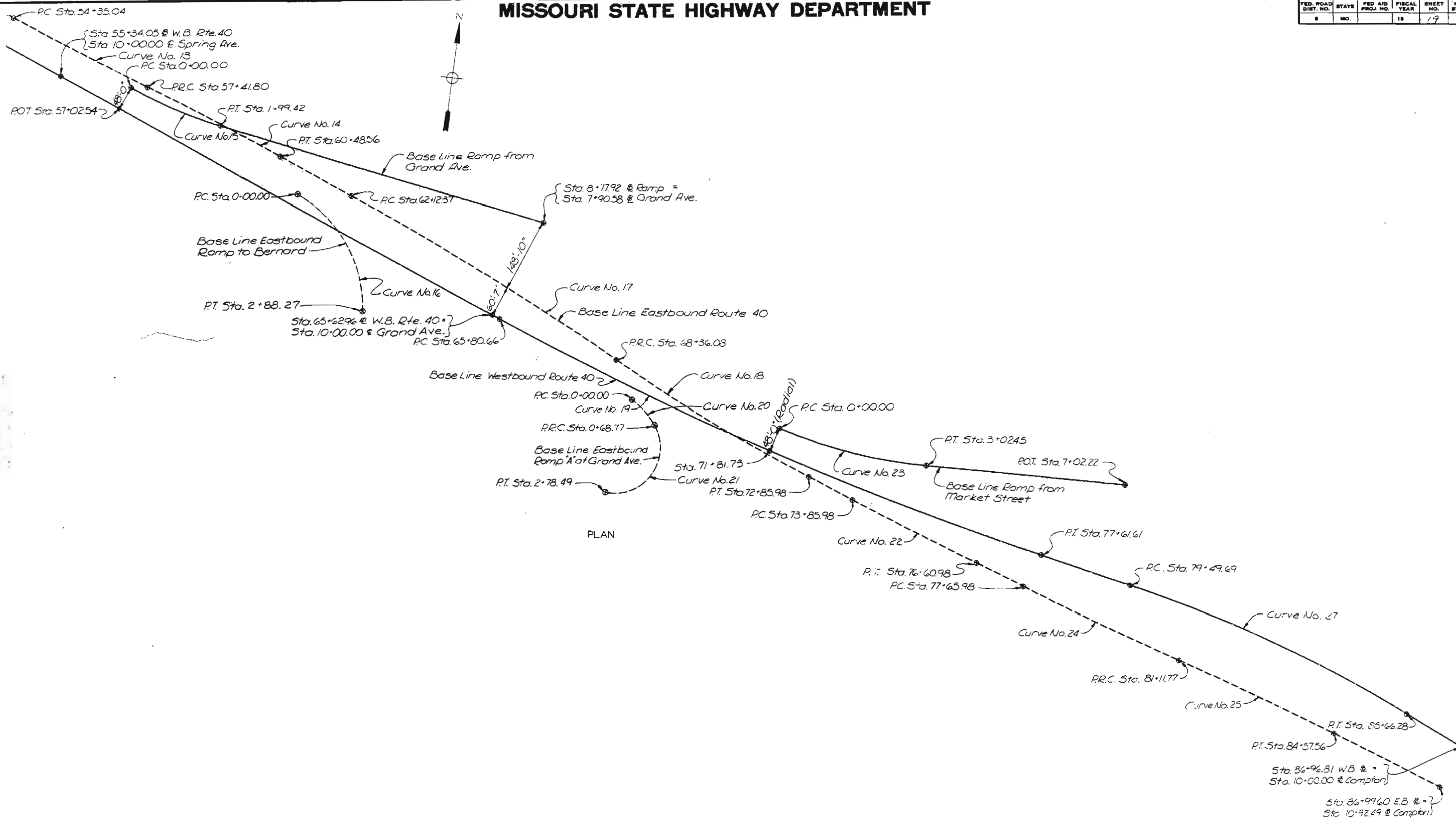
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: J. Charnick, Dec. 1974
CHECKED BY: T. Sanders, May 1977
5261
765294

394

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		18	19	



CITY OF ST LOUIS

ALIGNMENT

SHEET 5 OF 22

A-3594

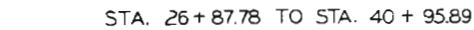
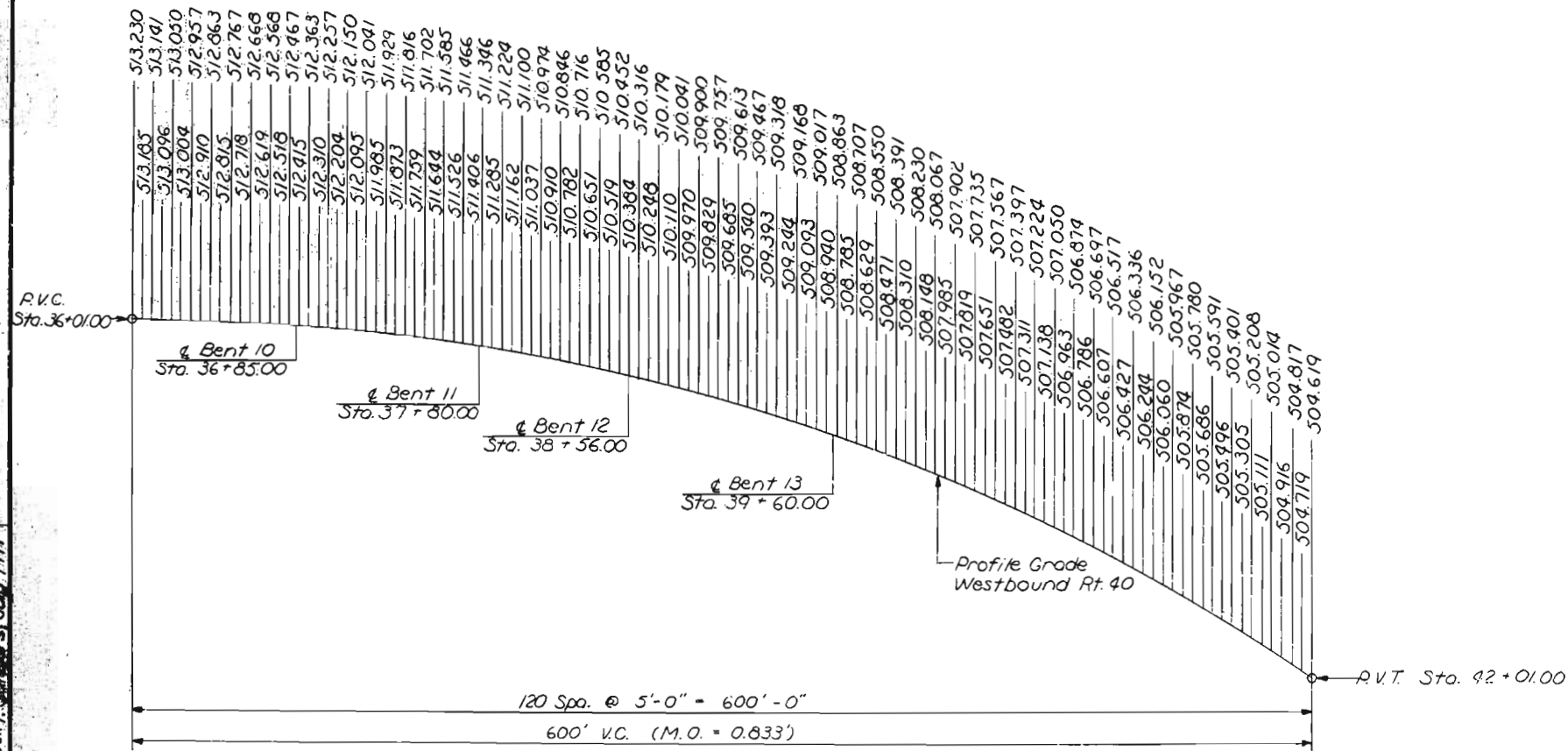
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

DRAWN BY: J. O. [illegible] Dec. 1976
CHECKED BY: T. [illegible] May 1977
5261
765295

395

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	20	



A-3594

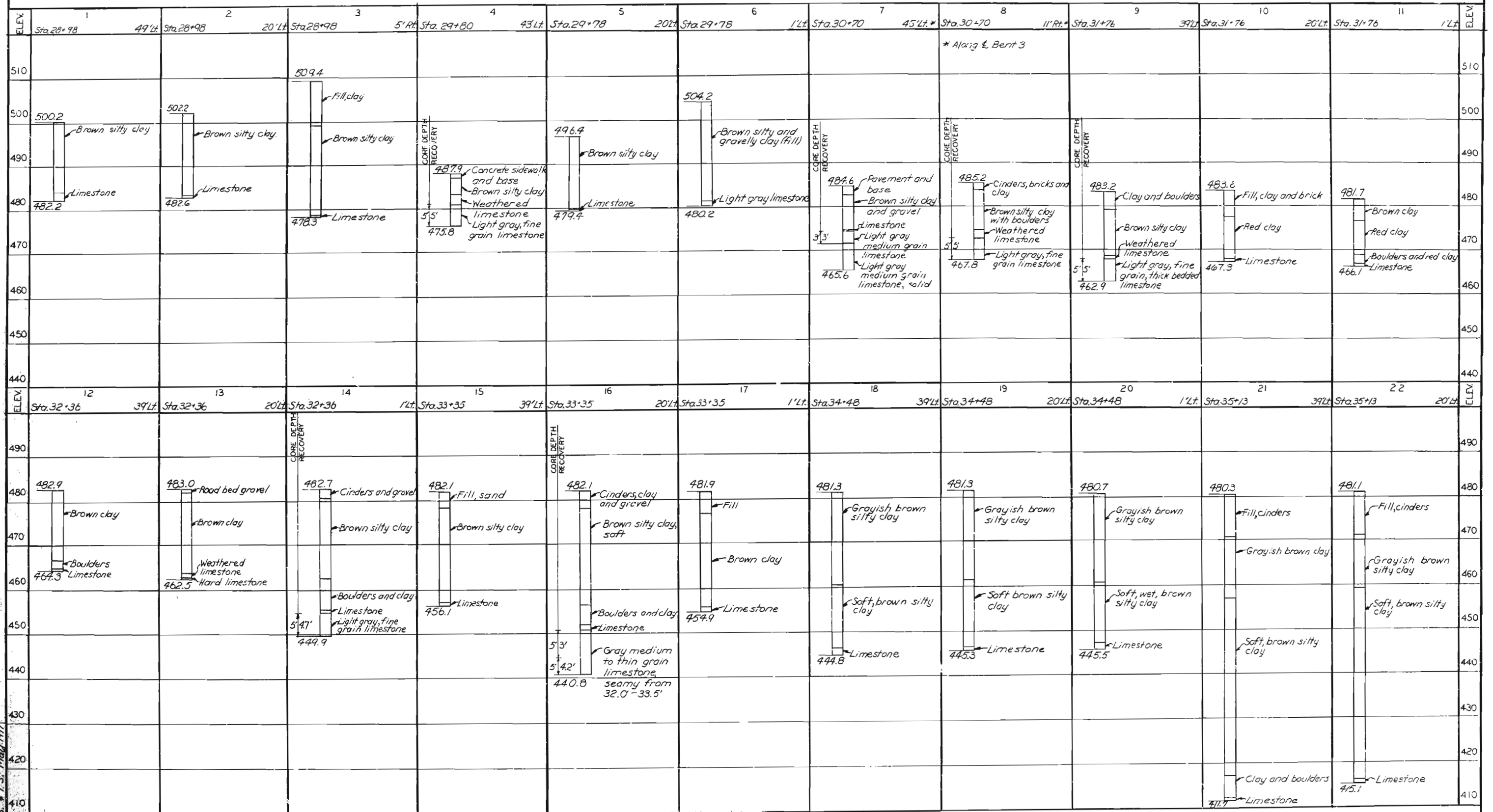
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

5261	DRAWN BY: E. Gregory, July 1977
775257	TRACED BY:
	CHECKED BY: T. Sanders, July 1977

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	27	



NOTES

For Boring Notes, see sheet B.

CITY OF ST. LOUIS

LOG OF BORINGS

SHEET 7 OF 22

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

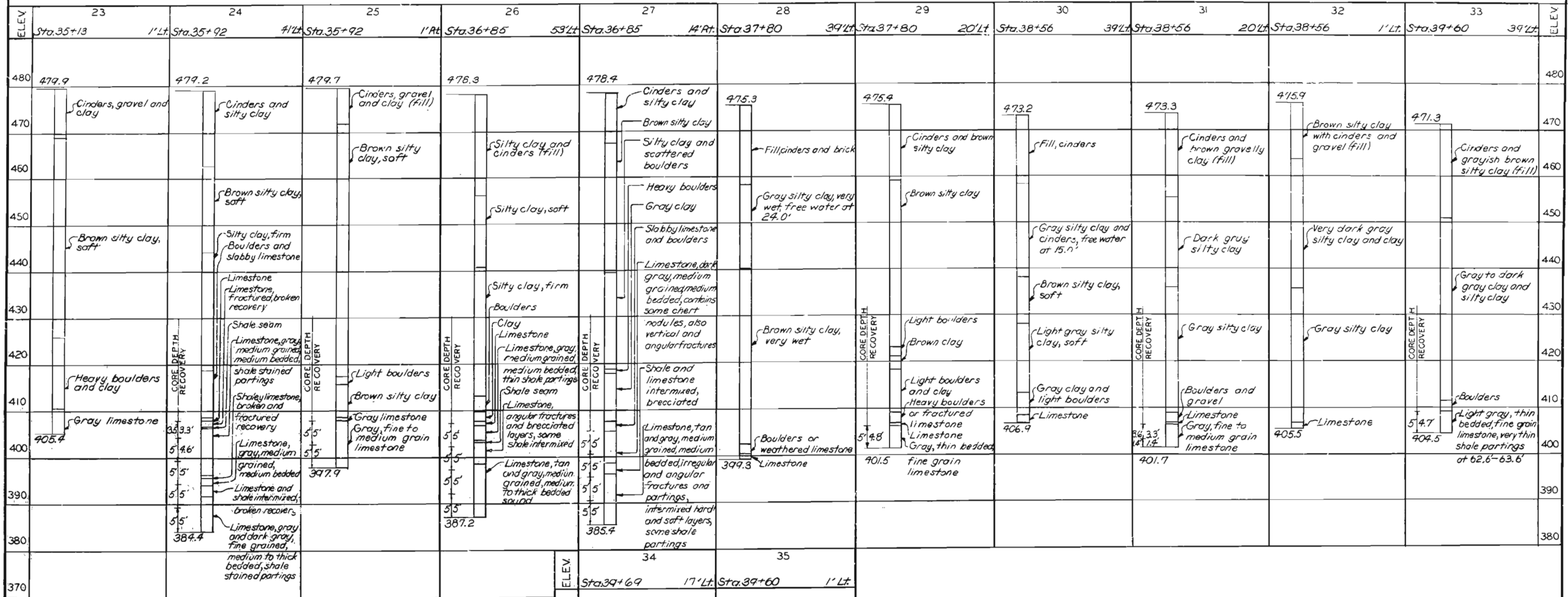
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: L. Strader Jan 77
CHECKED BY: D.J.S. 4 T.S. May 1977
5261
7739

397

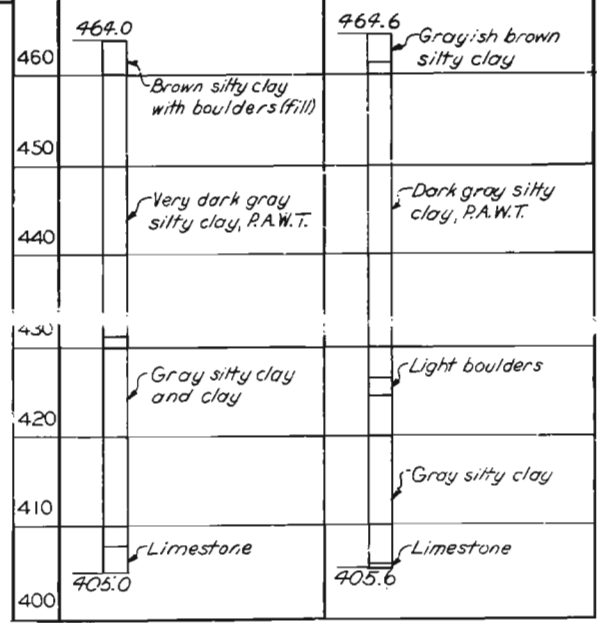
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	22	



BORING NOTES

Boring data are furnished for information only and may or may not represent the actual conditions which will be found when work is executed.
Borings were made in December, 1975 and April 1977.
P.A.W.T. indicates "pushed auger without turning."
Stations and offsets are measured along Westbound Base Line Route 40.



CITY OF ST. LOUIS

LOG OF BORINGS

SHEET 8 OF 22

A-358

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

DRAWN BY: L. Strader Jan. 77
CHECKED BY: D.J.S. & T.S. May 1977
5267
77510

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	25	

S1		S2		S3		S4		S5		S6		S7	
ELEV.	Sta. 29+78.10 3 1/2" Lt.	Sta. 32+52.75 20'-3 1/2" Lt.	Sta. 34+40 20'-3 1/2" Lt.	Sta. 35+13 20'-3 1/2" Lt.	Sta. 35+27 20'-3 1/2" Lt.	Sta. 37+20 40'-3 1/2" Lt.	Sta. 39+60 3 1/2" Lt.	ELEV.					
500	504.2 4/5/7 Brown silty clay, firm, with some gravel							500					
490	7/13/13 6/10/10 Brown silty clay, firm and dry. Contains some gravel cinders, brick fragments, glass and concrete fragments. Hard from 10.0' to 18.0'.							490					
480	5/7/6 Brown silty clay. Weathered limestone. Gray thin bedded limestone, dense, fractured. Gray, dense, thin to medium bedded limestone with shale seams. Gray, dense, medium to thick bedded limestone.	482.9 3/5/5 2/5/6 2/3/4 2/2/10 5' 4.7' 5' 4.6' Brownish gray silty clay, stiff with scattered gravel. Gravel and brown clay with scattered boulders. Gray limestone, hard, medium bedded, fine grained. Gray limestone, thin bedded with weathered zones, less due to soft rock. 0.3' mud seam @ 27.6' and 28.9'. Gray limestone, medium bedded limestone, fractured, broken recovery.	451.2 1/3/4 3/4/5 2/4/5 3/3/5 3/3/3 3/4/5 42/17/41 5' 4.9' 4.6' 4.6' 4.6' 4.6' 48' 4.7' 5' 5' 420.1 Light to medium gray, hard, fine grained limestone thin bedded with some thin clay partings 1/8" to 1/4" thick (0.4' weathered zone at 46.7 to 47.1') some soft black shale partings between 47.1 and 61.6'.	480.5 4/2/4 3/5/3 5/5/8 4/4/6 4/4/5 3/3/4 5/7/11 3/3/4 7/7/10 6/7/14 7/7/7 60 in 4' 5' 5' 5' 5' 5' 3' 398.6 Fine to medium grained with a few scattered minor zones of shale partings. Gray limestone, thin to medium bedded, medium to coarse grained with scattered thin weathered and shale filled seams, a few thin brecciated zones.	480.5 Cinder and gravel fill with a few scattered thin clay layers from 10.0' (cinders contain free water at 5.0'). Light gray silt and silty clay layers, stiff to very stiff with iron concretions. Brown silty clay with gray mottling, stiff to very stiff with black organic and limonite staining, root voids. Light brown silty clay, stiff with limonite concretions, roots and root voids. Gray mottled brown silty clay to clay, stiff to very stiff with limonite and black organic nodules (glacial till). Gray clay, stiff to very stiff with minor limonite staining and calcite nodules. Brownish gray silty clay, hard with small organic nodules scattered thin sand lenses. Gray clay, medium to stiff with large amounts of pebbles and erratics (unleached glacial till) (cobble layer 53.0-53.8). Grayish brown silt to silty clay, stiff to very stiff with scattered organic matter (scattered sand seams from 68.0'). Weathered and fractured limestone, cut with rock bit. Gray limestone, medium to thick bedded, hard, dense.	476.1 2/1/4 2/1/3 3/2/3 4/4/5 2/4/8 4/5/6 4/4/6 4/6/13 3/5/8 2/3/4 5/10/13 5/11/27 5' 4.8' 5' 4.8' 5' 4.7' 5' 5' 392.5 396.7 Cinders, gravel and soil (fill). Gray silt, soft. Gray and tan silty clay, mottled, stiff. Gray and tan clay, stiff, contains some granular material. Silty clay mottled, stiff to very stiff. Boulder at 43.4'. Gray silty clay, very stiff with scattered gravel and boulders. Gray silty clay with heavy gravel and boulders. Gray sandy silt to silty clay with thin sand lenses. Gray silt to silty clay with sand and wood debris. Weathered limestone. Fine grained, thin to medium bedded, fracture with thin mud and shale seams. Gray limestone, fine grained, medium to thick bedded. NOTE: 20' of 4" diameter casing left in hole. limestone, fine grained, thin to medium bedded. Dark gray shale on parting planes.	480 470 460 450 440 430 420 410 400 390 380 370						

NOTES
For Boring Notes, See Sheet 3.

CITY OF ST. LOUIS

SUPPLEMENTAL LOG OF BORING

SHEET 9 OF 22

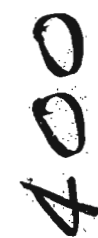
A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

399
DRAWN BY: LAURA STRAIN, July 17, 1977
CHECKED BY: J. WARDEN, July 1977

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	24	



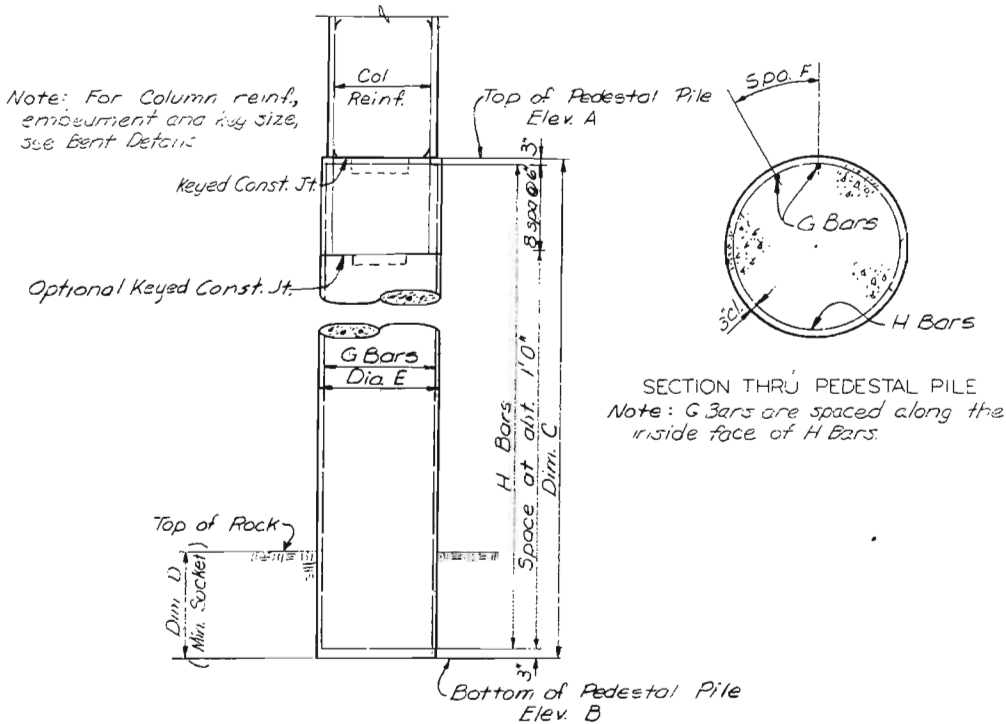
SYVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

A-3534

CITY OF ST. LOUIS

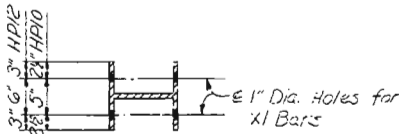
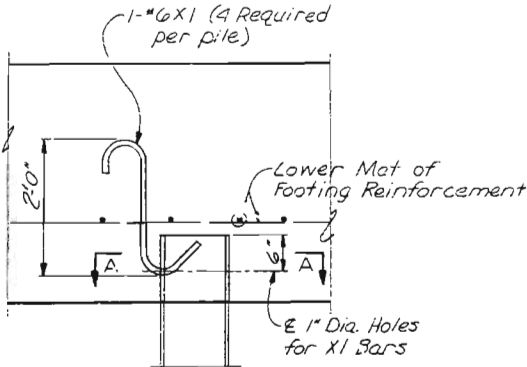
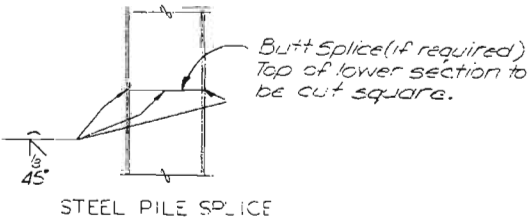
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	25	



LOCATION	STEEL PILE DATA						PILE SIZE	MAX. DES. BEARING TONS	HAMMER ENERGY REQ'D. FT. LBS.
	NO. REQ'D.	APPROX. LENGTH							
Abut. 1	13	29'					HP10x42	51	12600
BENT NO.	COLUMN 1		COLUMN 2		COLUMN 3		PILE SIZE	MAX. DES. BEARING TONS	HAMMER ENERGY REQ'D. FT. LBS.
	NO. REQ'D.	APPROX. LENGTH	NO. REQ'D.	APPROX. LENGTH	NO. REQ'D.	APPROX. LENGTH			
2	8	18'	8	13'	-	-	HP12x53	56	14600
5	8	22'	8	13'	8	12'	HP10x42	48	11400
6	8	20'	8	20'	8	20'	HP10x42	48	11400
7	8	30'	8	30'	8	30'	HP10x42	47	11200
8	8	66'	8	60'	8	64'	HP10x42	39	9600
9	8	65'	-	-	-	-	HP12x53	62	15200
11	8	64'	8	64'	8	69'	HP10x42	39	9600
12	8	62'	8	62'	8	62'	HP10x42	39	9600
13	8	53'	8	53'	8	53'	HP12x53	72	17000

Note: Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All piles shall be driven to practical refusal.
Bearing piles shall conform to ASTM A36.



PEDESTAL PILE DATA									
MAX. DESIGN BEARING - 35 TONS PER SQ. FT.									
BENT	COLUMN	ELEV. A	ELEV. B	DIM. C	DIM. D	DIA. E	SPA. F	G BARS	H BARS
3	1 & 2	483.00	468.00	15'-0"	6'-0"	4'-0"	4 1/2"	30 - #11M1	20 - #4M6
4	1	481.00	460.50	20'-6"	5'-6"	3'-6"	4 3/8"	28 - #10M2	25 - #4M7
	2 & 3	481.00	462.50	18'-6"	5'-6"	3'-6"	4 3/8"	28 - #10M3	23 - #4M7
9	2	479.00	398.00	81'-0"	8'-0"	5'-6"	4 3/8"	2 sets of 46 - #11M4	86 - #4M8
10	1 & 2	478.00	399.00	74'-0"	8'-0"	5'-6"	4 3/8"	2 sets of 46 - #11M5	84 - #4M8

REINFORCING BAR HOLD-DOWN FOR STEEL BEARING PILE

Note: All X1 Bars shall be securely tied to the lower mat of footing reinforcement.
Typical for all steel piles except at Abut. 1.

CITY OF ST. LOUIS

PILE DATA

SHEET 11 OF 22

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

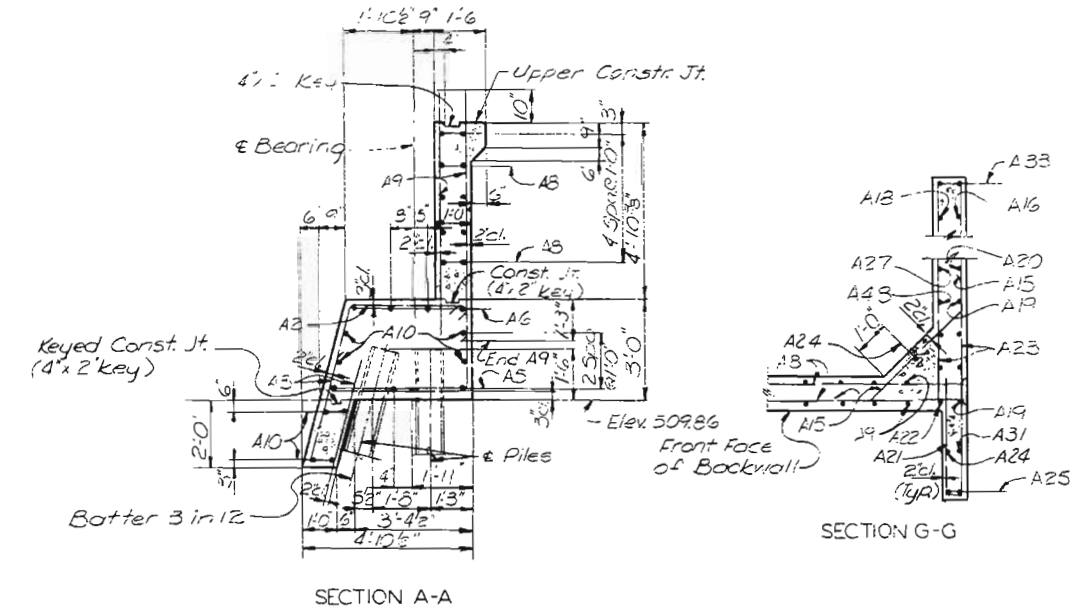
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

401
DRAWN BY: J. Ostermann, June 1977
CHECKED BY: W. A. Miller, July 1977
3261
775259

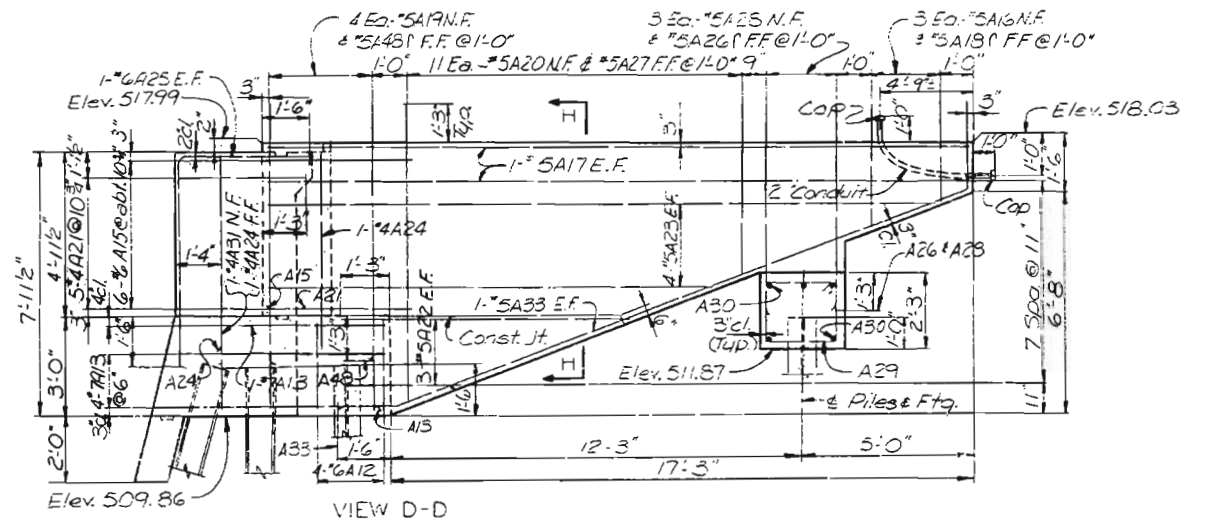
204

DRAWN BY: JEO	DATE: 1977
TRACED BY:	
CHECKED BY: C. Bishop	DATE: May 1977

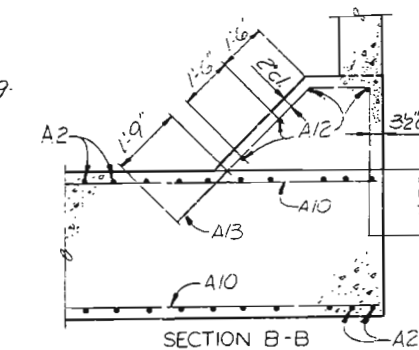
526
17522



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



Work this sheet with Sheet 13.
Cost of furnishing and placing 2" Conduit in wing walls and anchors for Restrainers and Bumpers to be included in unit price bid for Class B Concrete.



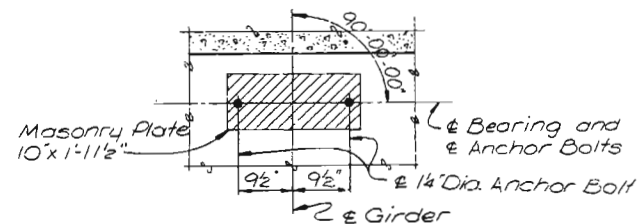
ABUTMENT 1

SHEET 12 OF 22

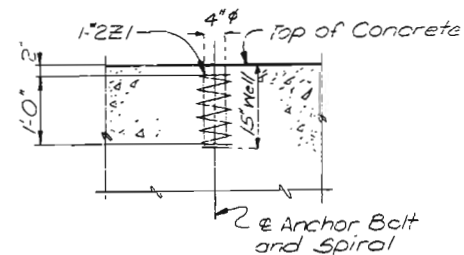
A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

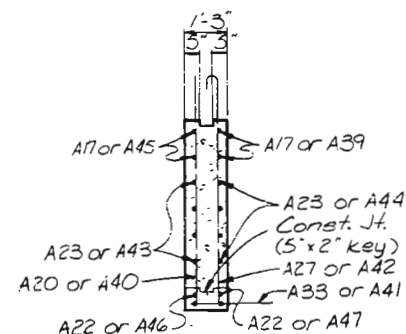
FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
5	MO.		19	27	



ANCHOR BOLT PLAN
Note: Anchor Bolts to be enclosed
with spiral bars, see Detail.
Masonry plates and anchor bolts
are stored for erection under a future
contract.

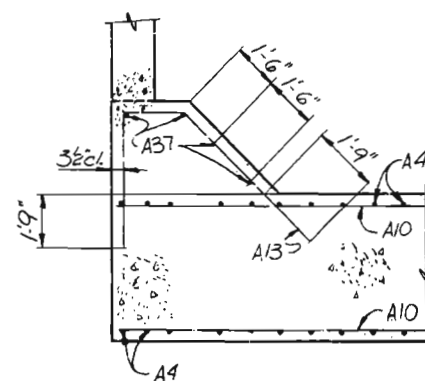


ANCHOR BOLT SPIRALS
Note: Anchor bolts shall be installed
in holes drilled into concrete, by
others in a future contract



SECTION H-H

SECTION F-F



SECTION C-C

NOTES
Work this sheet with Sheet 12.

CITY OF ST. LOUIS

ABUTMENT 1

SHEET 13 OF 22

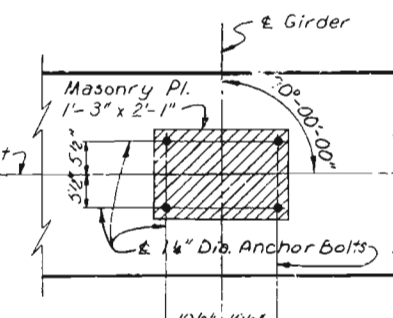
A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

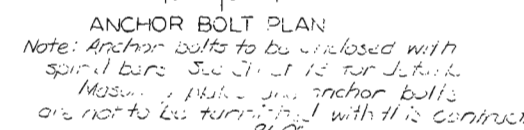
SYVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

5261	DRAWN BY: J.E. Ostermann, Jan. 77
7752146	TRACED BY:
	CHECKED BY: L. Wagner, May 1977

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	28	

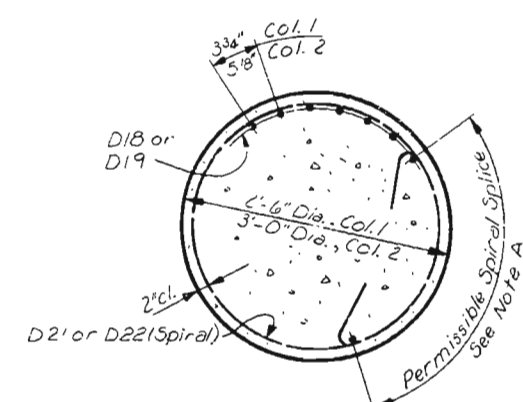


PLAN



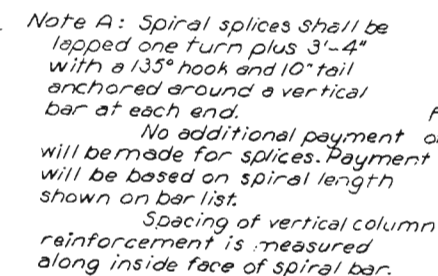
ANCHOR BOLT PLAN

Note: Anchor bolts to be enclosed with spiral bars. See detail 18 for details.
Mascon plates and anchor bolts are not to be furnished with this contract.

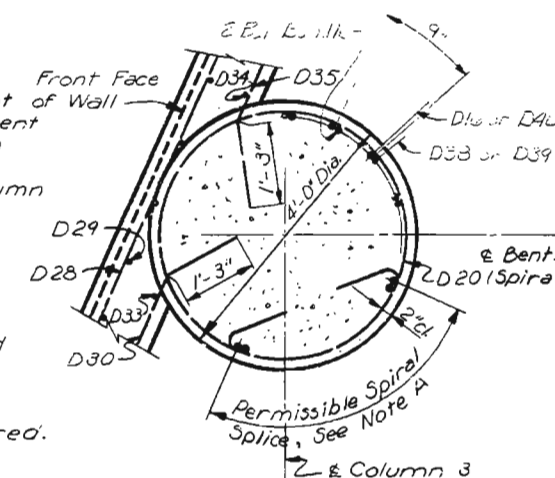


SECTION THRU BENT CAP

SECTION C - C



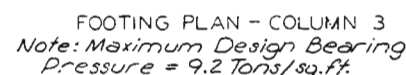
Note: Pile Spacing is measured
at bottom of footing.
Batter piles 4 in 12 in
direction shown.
16-HPI2x53 Piles required.



SECTION A-A

NOTES

Stirrups in beam may be shifted as required to clear anchor bolts a minimum of 12".
For: Pile Splice and Pile Data, see Sheet 11.
F.F. indicates Far Face.
N.F. indicates Near Face.
For Substructure Layout, See Sheet 10.



Note 3: 3/4" Preformed Exp. Joint Material
Std. Spec. 1057.2.4 Full Thickness of Wall

CITY OF ST. LOUIS

REF ID: A66022

SHEET 14 OF 22

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS

Note: Spirals to have 11/2 turns with a 135° hook and 10" tail around a vertical bar top and bottom.

Note: 2" Clearance shall be maintained between hooks on vert. col. reinforcement.

SECTION B - B

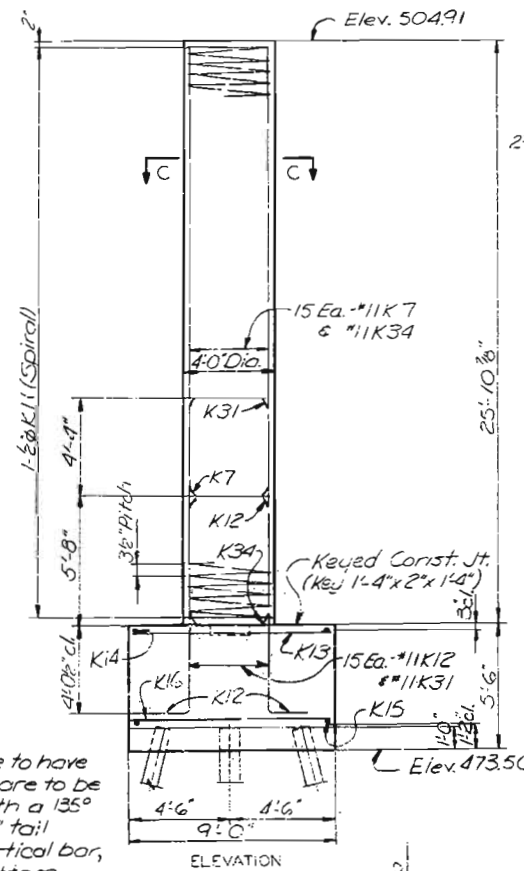
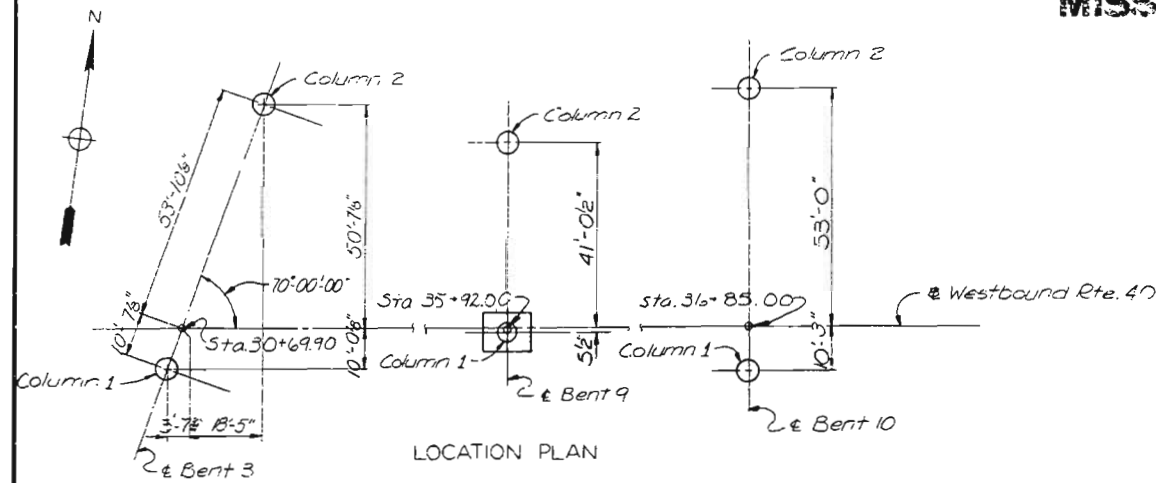
SYVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

5261	DRAWN BY: D.R. Brock	Feb. 1977
77578	TRACED BY:	
	CHECKED BY: C. Glaser	July 1977

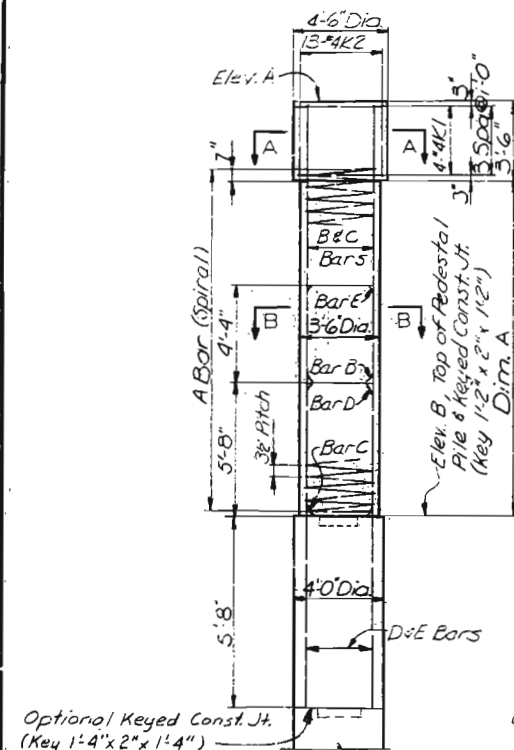
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	29	

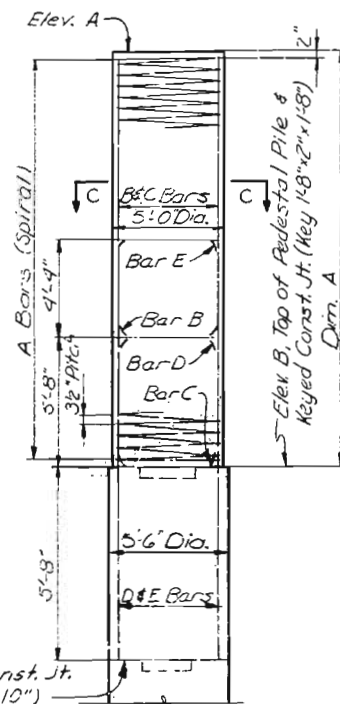
Note: Masonry piers and anchor bolts are not to be furnished with this contract.



Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spirals are to be on top of footing or pedestal pile.

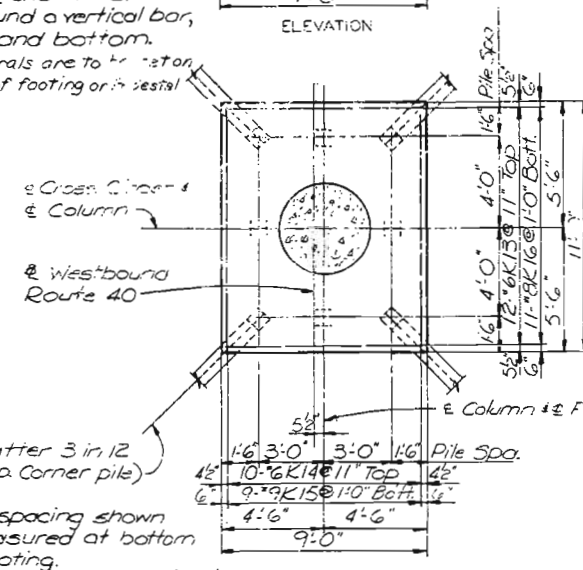


Optional Keyed Const. Jt. (Key 1'-4" x 2" x 1'-4")



BENT 9-COLUMN 2
BENT 10-COLUMNS 1 & 2

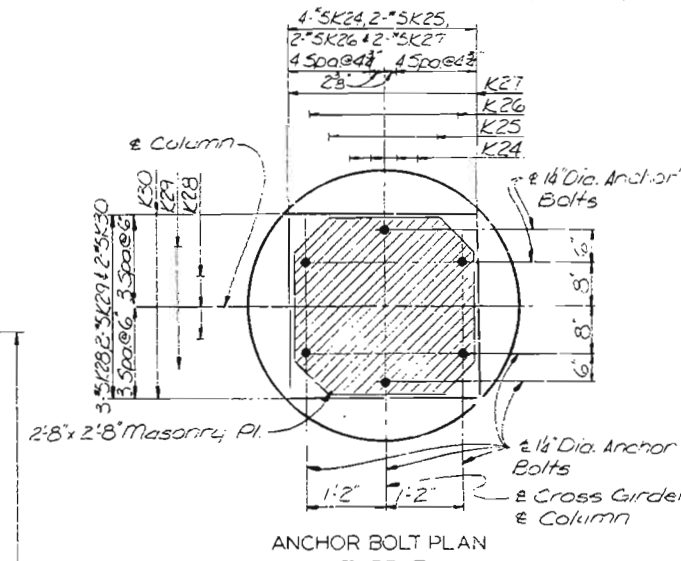
	Bent 3	Bent 9	Bent 10
Column 1	Column 2	Column 2	Columns 1 and 2
Elev. A	501.22	500.80	504.91
Elev. B	483.00	483.00	479.00
Dim. A	14'-8 3/8"	14'-3 3/8"	25'-10 3/8"
A Bars	1-1/2" x K5 Spiral	1-1/2" x K6 Spiral	1-1/2" x K8 Spiral
B Bars	11-#11K3	11-#11K4	19-#11K7
C Bars	11-#11K36	11-#11K37	19-#11K34
D Bars	11-#11K32	11-#11K32	19-#11K35
E Bars	11-#11K33	11-#11K33	19-#11K32



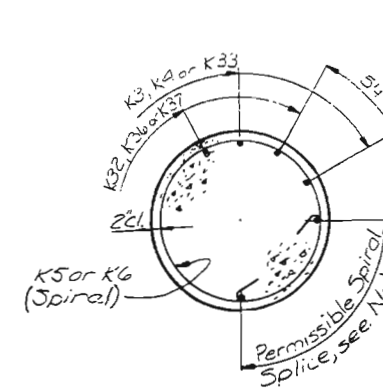
Note: Pile spacing shown is measured at bottom of footing. 8-HP12x53 piles required.

BENT 9 - COLUMN 1

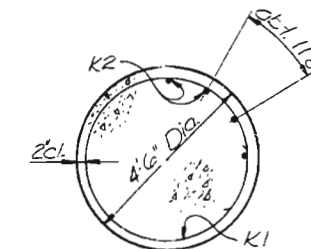
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.



Note: Anchor Bolts to be enclosed with spiral bars, see Sheet 13 for details.

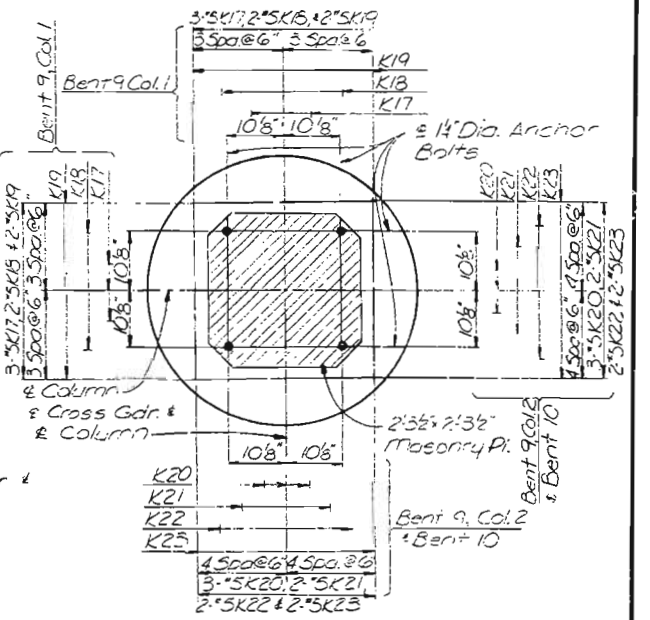


SECTION B-B

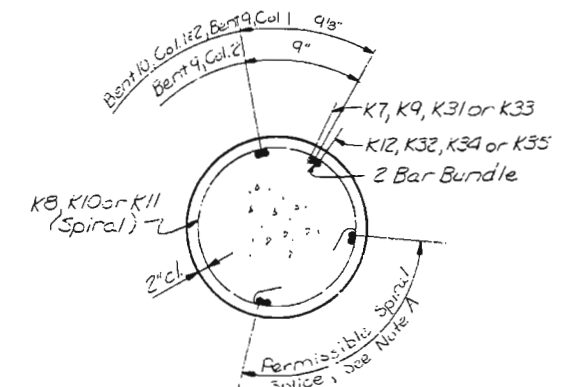


SECTION A-A

Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end. No additional payment will be made for splices. Payment will be based on spiral length shown on bar list. Spacing of vertical column reinforcement is measured along inside face of spiral bar.



Note: Anchor Bolts to be enclosed with spiral bars, see Sheet 13 for details.



SECTION C-C

NOTES
For Pile Splice and Pile Data, see Sheet 11.
For Substructure Layout, see Sheet 10.

CITY OF ST. LOUIS

BENTS 3, 9 & 10

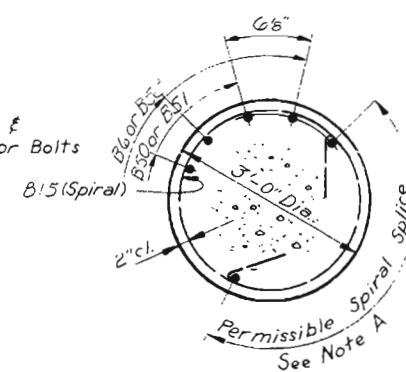
SHEET 15 OF 22

A-3594

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

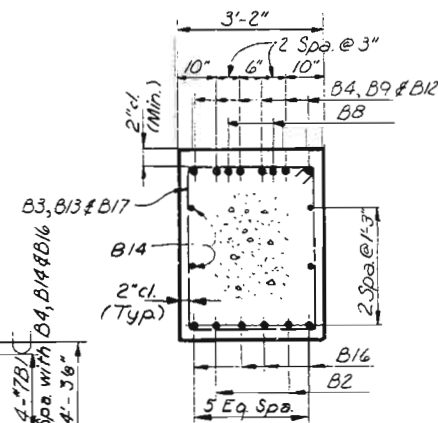
DRAWN BY: J. Ostermann June 1977
CHECKED BY: J. Ostermann July 1977
5261
775222

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
5	MO.		19	30	



ANCHOR BOLT PLAN
Note: Anchor Bolts to be enclosed with spiral bars. See Sheet 13 for detail.
Masonry plates and anchor bolts are not to be furnished with this contract.

PLAN



SECTION THRU BENT CAP

TYPICAL SECTION
THRU BUMPER ANGLE

Note: Cost of furnishing painting and placing bumper angles to be included in unit price bid for Class B Concrete.

Painting shall be in accordance with system C primer Sec 712.12 of Standard Specifications or a single package zinc primer may be used.

Stirrups in beams may be shifted as required to clear anchor bolts a minimum of 2".

For details of pedestal piles, See Sheet 11.
For Substructure Layout, see Sheet 10.

Note: 2" clearance shall be maintained between hooks on vert. col. reinforcement.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar top and bottom.

Spirals are to be set on top of the Pedestal Piles.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

BENT 4

SHEET 16 OF 22

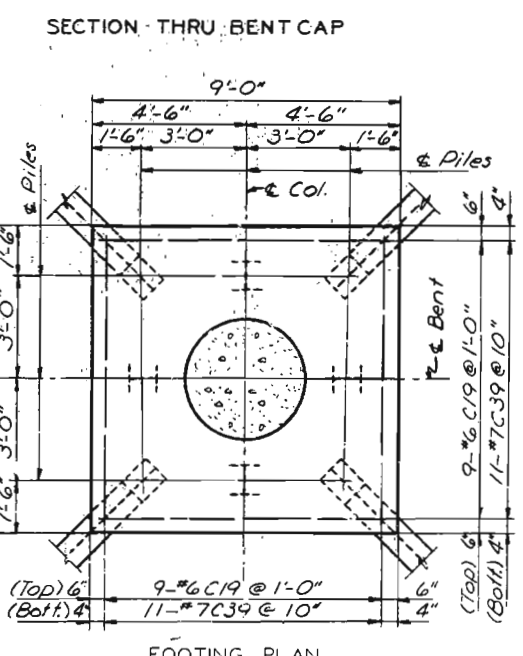
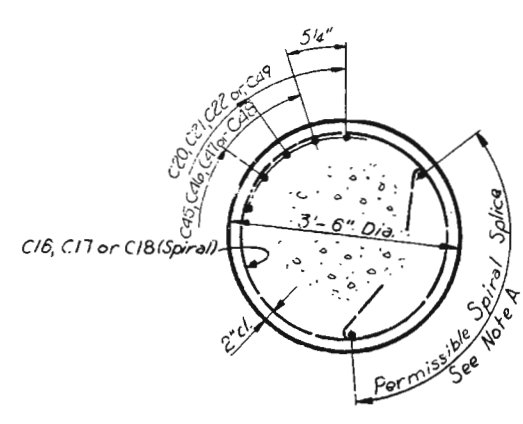
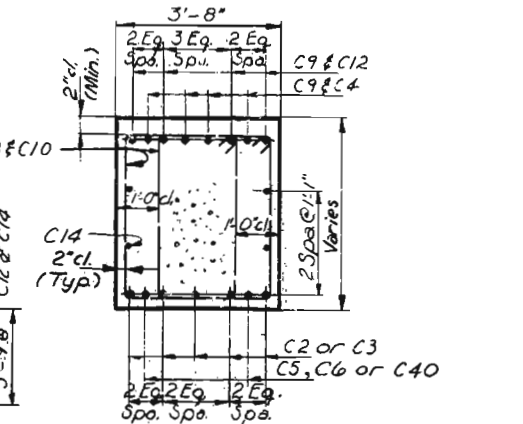
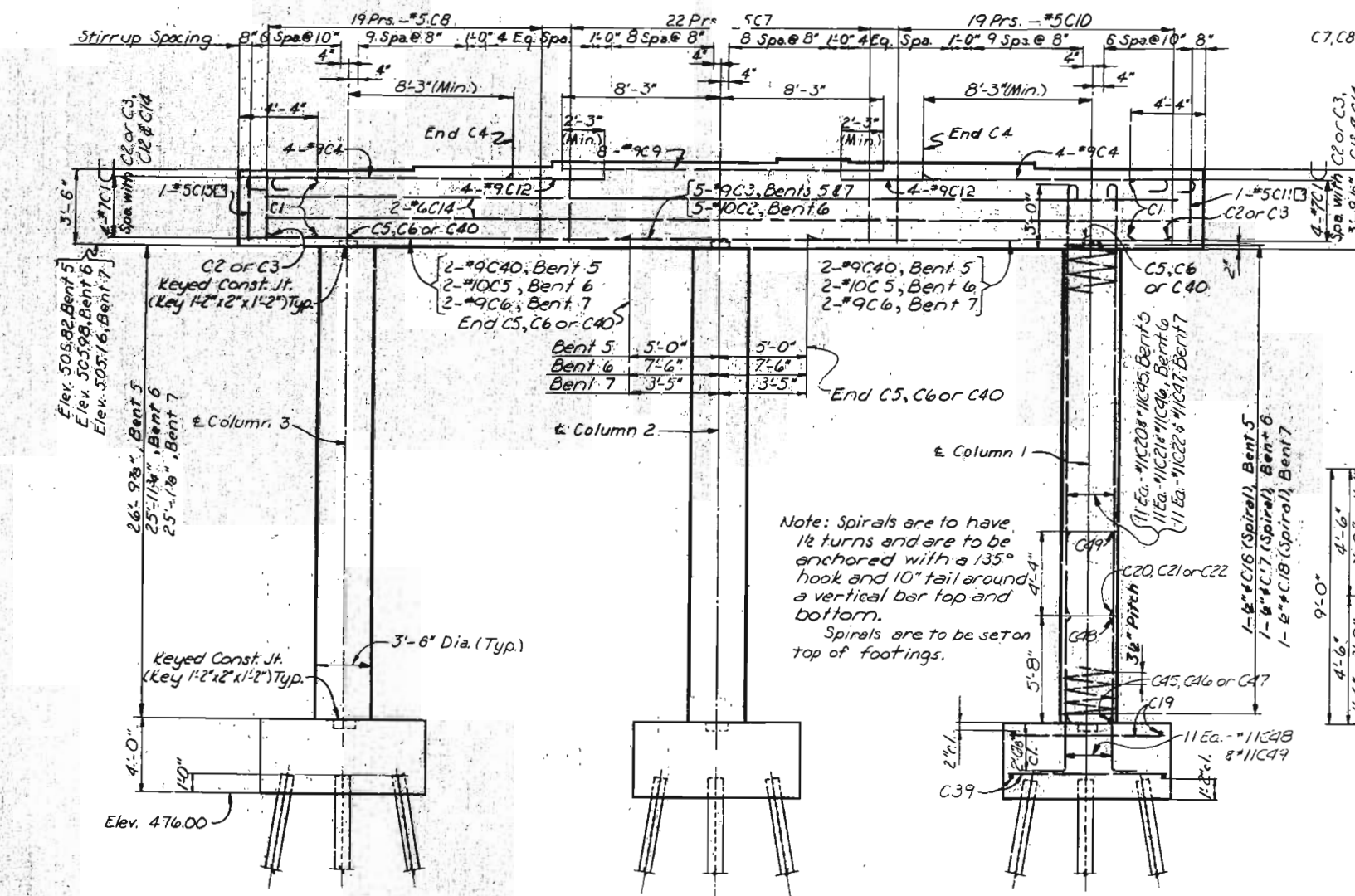
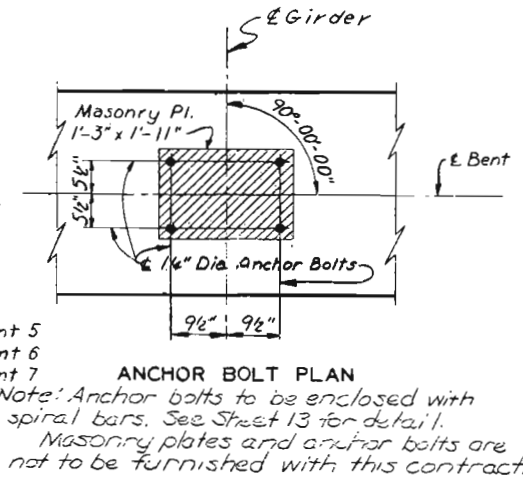
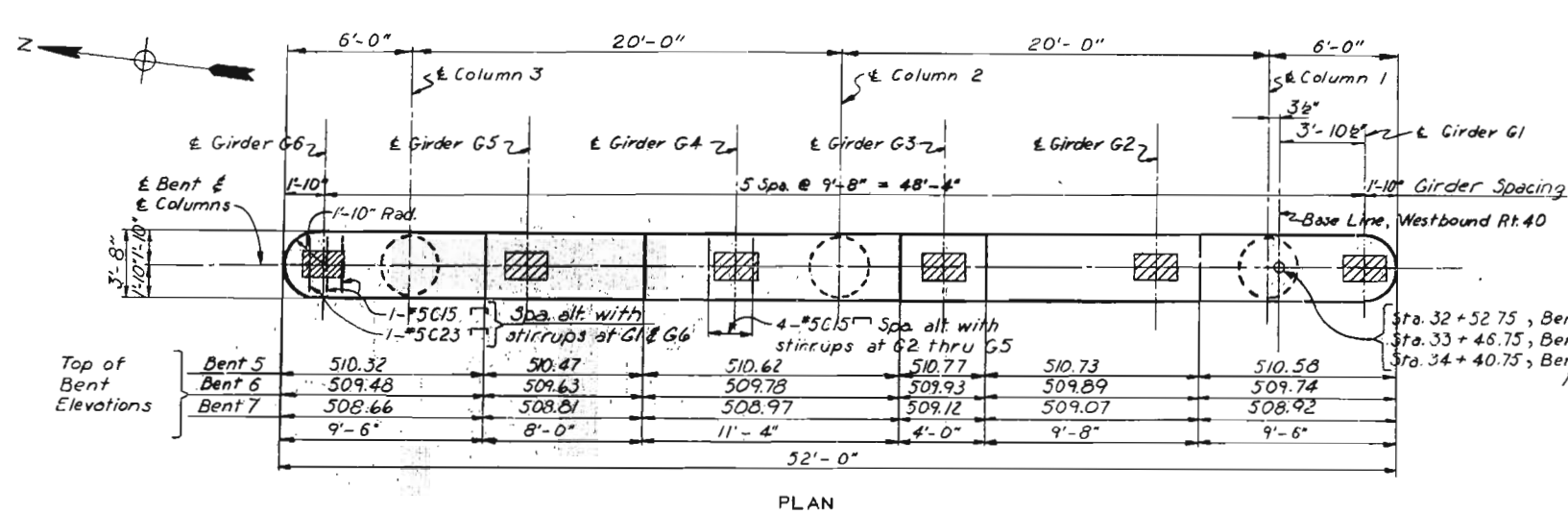
A-3594

5261	DRAWN BY: D. R. Brock	January 1977
77539	TRACED BY:	
	CHECKED BY: C. Glaser	July 1977

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	31	



NOTES

Stirrups in beams may be shifted as required to clear anchor bolts a minimum of 1/2".
For Pile Splice and Pile Data, see Sheet 11.
For Substructure Layout, see Sheet 10.

Note: Pile spacing is measured at bottom of footing.
Batter piles 2 in 12 in direction shown.
24 - HP10x42 Piles required each for Bents 5, 6 & 7.

CITY OF ST. LOUIS

BENTS 5, 6 AND 7

SHEET 17 OF 22

A-5594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

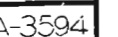
407

DRAWN BY: D.R. Bost
CHECKED BY: L. Garner, July 1971
5261
77386

OVERDRUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

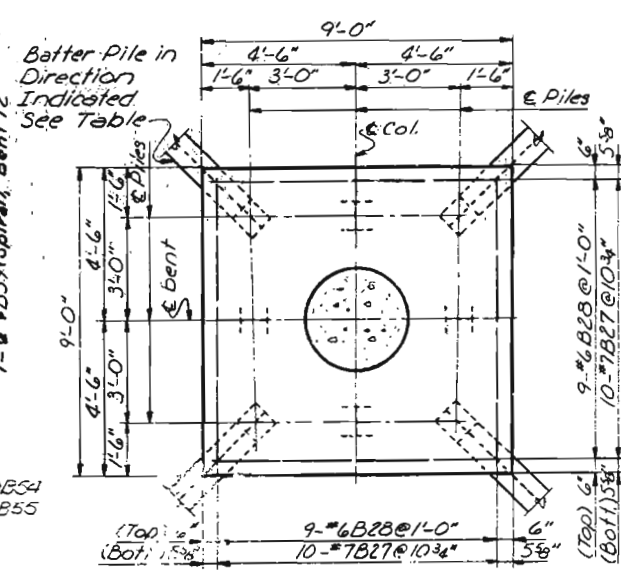
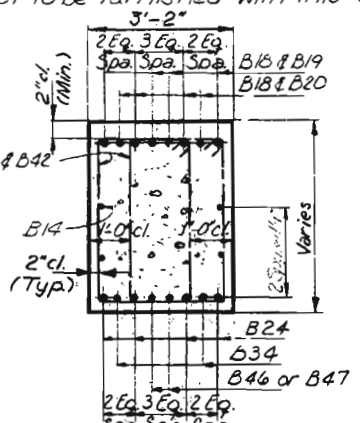
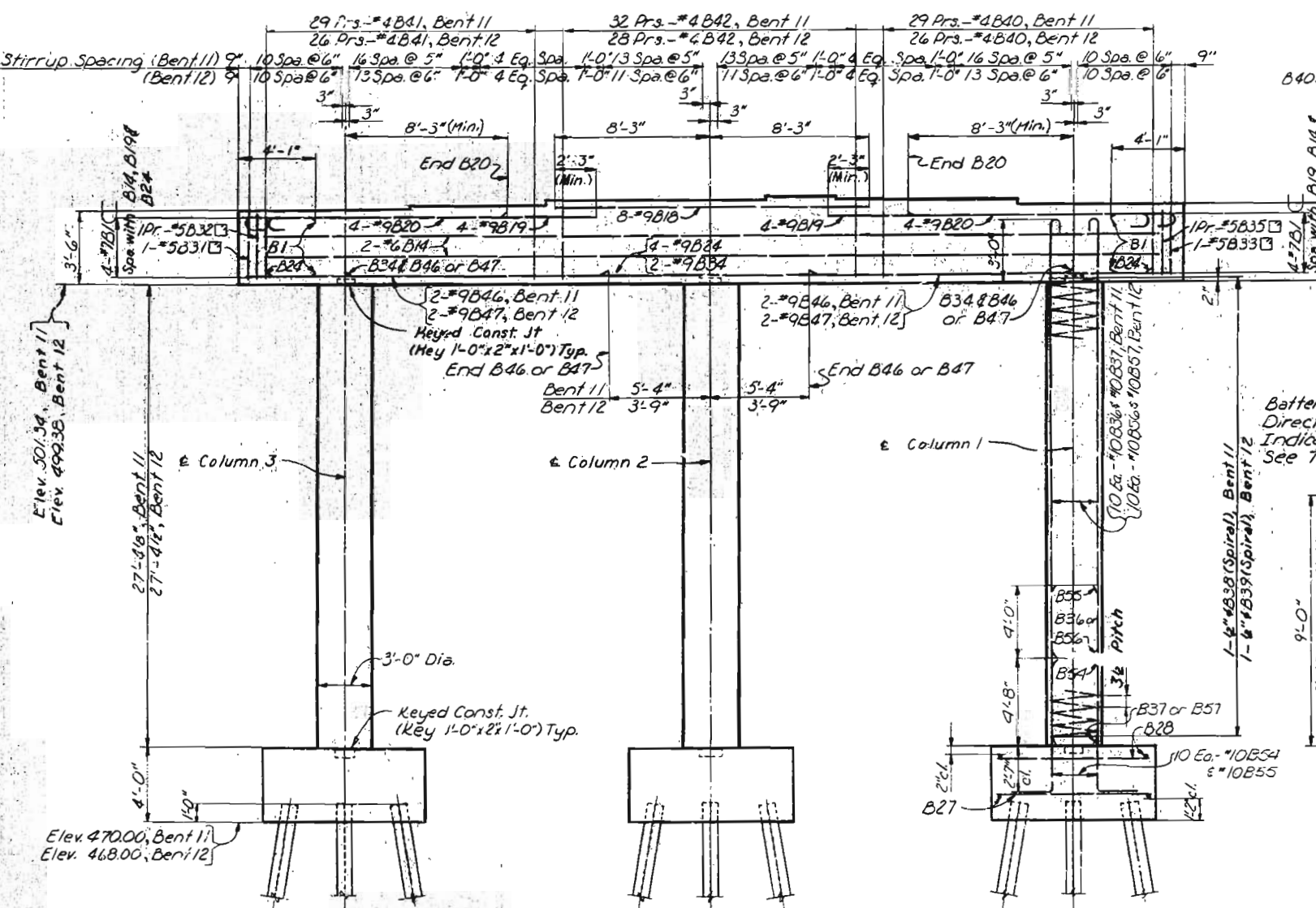
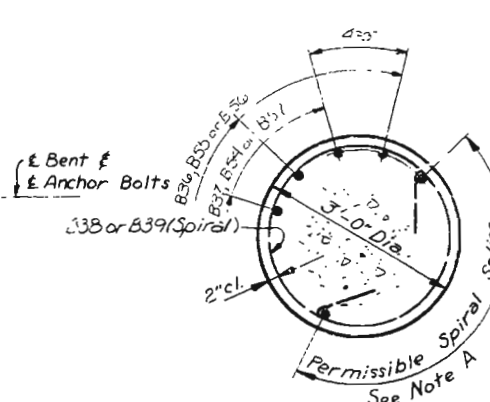
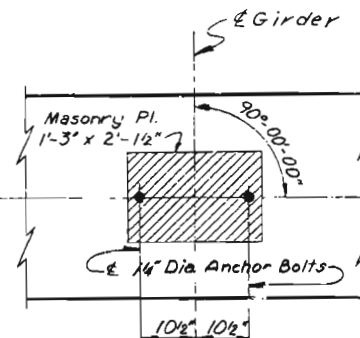
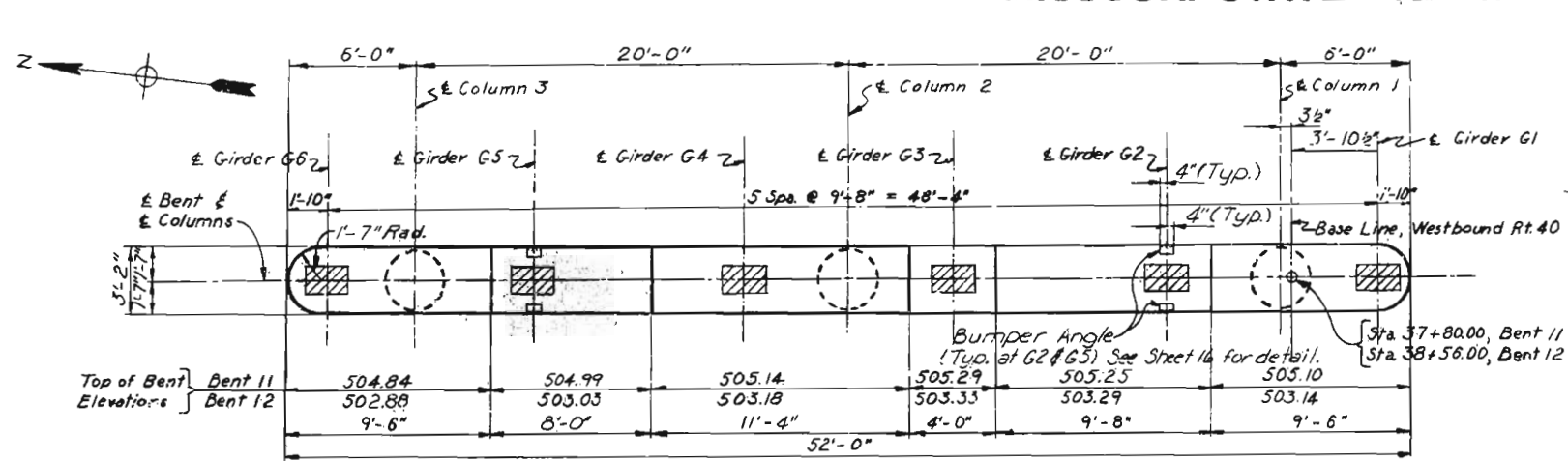
403

5261	DRAWN BY: <u>D.R. Brack</u>	<u>June, 1977</u>
775242	TRACED BY:	
	CHECKED BY: <u>L. Glaser,</u>	<u>July 1977</u>



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		18	33	



NOTES

Stirrups in beams may be shifted as required to clear anchor bolts a minimum of 2".

For File Splice, See Sheet 11.

For Splice Structure, See Sheet 1.

CITY OF ST. LOUIS

BENTS 11 AND 12

SHEET 19 OF 22

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Note: Dimensions and elevations for Col. 1 & 2 and ftgs. are the same as shown for Col. 3 and ftg. Reinforcing for Cols. 2 & 3 and ftgs. is the same as shown for Col. 1 and ftg.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar top and bottom. Spirals are to be set on top of footings.

Pile Batter	Col. 1	Col. 2
3 in 12	1 1/2 in 12	

407

DESIGNED BY: D.T. Beck, January 1977

CHECKED BY: L. Glover, July 1977

5261

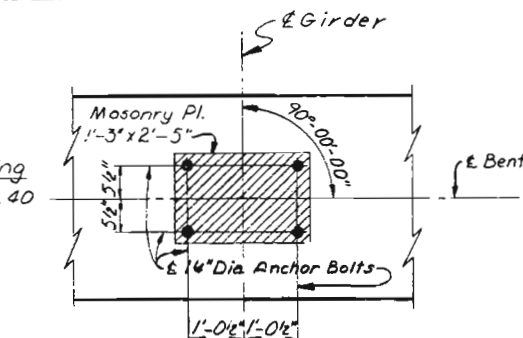
77584

OVERDRUP & PARCEL AND ASSOCIATES, Inc.

ENGINEERS - ARCHITECTS

ST. LOUIS, MISSOURI

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	34	

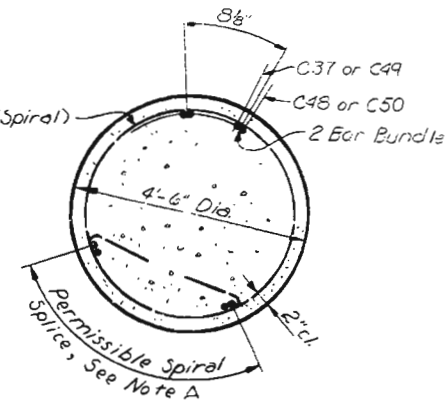


Note: Anchor bolts to be enclosed with spiral bars. See Sheet 13 for detail.
Masonry plates and anchor bolts are not to be furnished with this contract.

Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.

No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.

Spacing of vertical column reinforcement is measured along inside face of spiral bar.



Note: 2" clearance shall be maintained between hooks on vert. col. reinforcement.



Note: Pile spacing is measured at
bottom of footing.
Batter piles $1\frac{1}{2}$ in 12 in
direction shown.
24-HP12x53 Piles required.

Stirrups in beams may be shifted as required to clear anchor bolts a minimum of 2".

For Pile Section & Pile Data, see Sheet 11.
For Substructure Layout, see Sheet 12.

CITY OF ST. LOUIS

BENT 13

SHEET 20 OF 22

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Note: Dimensions and elevations for Cols. 1 & 2 and ftgs. are the same as shown for Col. 3 and ftg. Reinforcing for Cols. 2 & 3 and ftgs. is the same as shown for Col. 1 and ftg.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar top and bottom.

Spirals are to be set on top of footings.

ELEVATION

10/4

5261	CRAWN BY: D.R. BROCK	MARCH 1977
77588	TRACED BY:	
	CHECKED BY: L. GROSS	JULY 1977

OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MD.		19	35	

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

OVERDUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

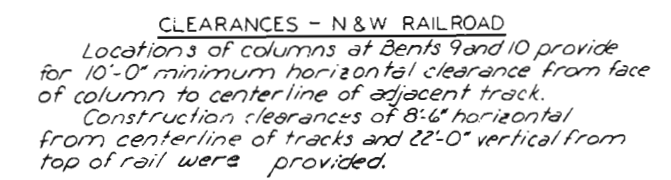
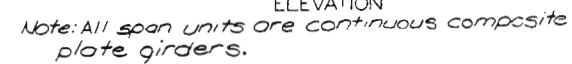
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		12	36	

MARK	NO.	REQ'D	NO.	LENGTH	TYPE	LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
				FT-IN			FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN	FT-IN
BENTS 4,8,11,&12																																
B 1	32	7	9	5	10	CAP	2-6	4-3 1/2	2-6								1-5 1/2	C 9	24	5	16-6	ST	DO									
B 2	2	9	20	8	ST	DO												C 10	11	5	12-8	ST	DO		7 1/2	2-6	3-5	2-6		7 1/2	3-5	
B 3	23	5	13	10	TI	DO	7 1/2	2-10	3-8	2-10			7 1/2	3-7				C 11	3	5	12-4	TI	DO		7 1/2	2-6 1/2	3-5	2-6 1/2	7 1/2	3-5		
B 4	6	9	20	7	1	DO	1-5	19-8					---					C 12	24	9	21-1	1	DO		1-5	19-10			---			
B 5	8	5	8	1	2	DO	10	2-10					10					C 13	5	5	11-11	TI	DO		7 1/2	2-6 1/2	3-2	2-6 1/2	7 1/2	3-2		
B 6	24	11	24	11	1	COLUMN	1-7	23-0					---					C 14	12	6	24-6	ST	DO									
B 7	1	5	12	9	TI	CAP	7 1/2	2-3 1/2	7-8	2-3 1/2	7 1/2	3-8						C 15	60	5	8-9	2	DO		10	3-8		10				
B 8	2	9	13	8	1	DO	1-3	1-1					---					C 16	3	8	9-0	0	SP	COLUMN								
B 9	6	9	17	6	ST	DO												C 17	5	8	11-8	3	SP	DO								
B 10	2	5	8	2	2	DO	10	2-9					10					C 18	3	8	8-11	11	SP	DO								
B 11	1	5	13	3	TI	DO	7 1/2	2-3 1/2	1-11	2-3 1/2	7 1/2	3-11						C 19	162	6	8-6	ST	FOOTING									
B 12	6	9	20	7	1	DO	1-5	19-8					---					C 20	13	11	25-9	1	COLUMN		1-7	24-2		---				
B 13	10	5	16	5	TI	DO	7 1/2	2-10	3-11 1/2	2-10			7 1/2	3-11 1/2				C 21	13	11	24-11	1	DO		1-7	23-8		---				
B 14	16	6	88	10	ST	DO												C 22	13	11	24-1	1	DO		1-7	22-6		---				
B 15	3	4	75	10	2	SP	DO											C 23	6	5	8-5	2	CAP		10	3-8		10				
B 16	4	9	88	10	ST	CAP												C 24	56	6	8-6	ST	FOOTING									
B 17	22	5	18	8	TI	DO	7 1/2	2-10	3-11	2-10			7 1/2	3-11				C 25	72	7	8-6	ST	DO									
B 18	22	9	18	8	ST	DO												C 26	8	9	15-10	1	CAP		1-3	18-7		---				
B 19	24	9	21	1	1	DO	1-3	19-10					---					C 27	8	9	20-7	1	DO		1-3	19-8		---				
B 20	28	9	15	8	1	DO	1-5	18-1					---					C 28	8	9	17-6	ST	DO									
B 21	4	9	15	8	ST	DO												C 29	1	5	18-8	7	TI	DO		7 1/2	2-10	3-11	2-10	7 1/2	3-11	
B 22	1	5	17	3	TI	DO	7 1/2	2-9 1/2	3-5	2-9 1/2	7 1/2	3-5						C 30	1	5	13-10	TI	DO		7 1/2	2-10	3-8	2-10	7 1/2	3-8		
B 23	1	5	11	2	TI	DO	7 1/2	2-0	3-2	2-0			7 1/2	3-2				C 31	6	9	18-3	ST	DO									
B 24	12	9	88	10	ST	DO												C 32	16	5	15-2	TI	DO		7 1/2	3-3	3-11	3-3	7 1/2	3-11		
B 25	1	5	12	9	TI	DO	7 1/2	2-9 1/2	3-2	2-9 1/2	7 1/2	3-2						C 33	16	5	18-8	7	TI	DO	7 1/2	3-3	3-8	3-3	7 1/2	3-8		
B 26	1	5	11	8	TI	DO	7 1/2	2-0	3-5	2-0	7 1/2	3-5						C 34	8	5	15-3	TI	DO		7 1/2	3-3	3-11 1/2	3-3	7 1/2	3-11 1/2		
B 27	18	7	8	6	ST	FTG												C 35	3	9	8-0	8	ST	DO								
B 28	162	6	8	6	ST	DO												C 36	8	9	67-8	ST	DO									
B 29	18	18	24	9	1	DO	1-5	23-8					---					C 37	57	11	18-9	1	DO		1-7	32-9		---				
B 30	3	4	717	10	SP	DO												C 38	3	8	21-0	9	SP	DO								
B 31	2	5	11	8	TI	CAP	7 1/2	2-3 1/2	3-2	2-3 1/2	7 1/2	3-2						C 39	198	7	8-6	ST	FOOTING									
B 32	4	5	10	10	TI	DO	7 1/2	1-10	3-2	1-10	7 1/2	3-2						C 40	8	9	15-0	ST	CAP									
B 33	2	5	12	3	TI	CAP	7 1/2	2-3 1/2	3-5	2-3 1/2	7 1/2	3-5						C 41	8	7	11-8	10	DO		2-6	8-7 1/2	2-6					
B 34	4	9	88	10	ST	CAP												C 42	8	6	67-8	ST	DO									
B 35	4	5	11	8	TI	CAP	7 1/2	1-10	3-5	1-10	7 1/2	3-5						C 43	18	5	5-9	2	DO		10	8-8		10				
B 36	30	18	27	1	1	DO	1-5	25-8					---					C 44	8	5	5-1	2	DO		10	3-8		10				
B 37	30	18	31	9	1	DO	1-5	18-4					---					C 45	13	11	31-5	1	DO		1-7	24-10		---				
B 38	3	4	88	10	SP	DO												C 46	13	11	30-7	1	DO		1-7	24-8		---				
B 39	3	4	845	8	SP	DO												C 47	13	11	29-9	1	DO		1-7	28-2		---				
B 40	110	5	11	8	TI	CAP	7 1/2	2-0	3-5	2-0			7 1/2	3-5				C 48	156	11	9-11	2	DO		2-0	8-1		---				
B 41	110	5	11	2	TI	DO	7 1/2	2-0	3-2	2-0			7 1/2	3-2				C 49	156	11	18-5	2	DO		2-0	12-7		---				
B 42	120	5	11	9	TI	DO	7 1/2	2-0	3-5 1/2	2-0			7 1/2	3-5 1/2				C 50	57	11	88-0	1	DO		1-7	18-5		---				
B 43	23	5	13	6	TI	DO	7 1/2	2-10	3-5	2-10			7 1/2	3-5				Z 1	96	2	19-9	SP	CAP									
B 44	23	5	12	10	TI	DO	7 1/2	2-10	3-2	2-10			7 1/2	3-2				X 1	388	6	3-5	SP	FOOTING									
B 45	29	5	13	5	TI	DO	7 1/2	2-10	3-5 1/2	2-10			7 1/2	3-5 1/2																		
B 46	4	9	18	8	ST	DO																										
B 47	4	9	18	8	ST	DO																										
B 48	2	5	3	11	2	DO	10	2-0 1/2					10																			
B 49						NOT USED																										
B 50	24	11	30	7	1	DO	1-7	20-0																								
B 51	24	11	11	8	ST	DO																										
B 52	24	11	15	8	ST	DO																										
B 53	30	10	20	5	1	DO	1-5	20-0																								
B 54	30	10	8	10	2	DO	1-10	7-8																								
B 55	30	10	12	10	2	DO	1-10	11-8																								
B 56	30	10	27	2	1	DO	1-5	25-9																								
B 57	30	10	31	10	1	DO	1-5	30-5																								
Z 1	88	2	19	9	SP	DO																										
X 1	288	6	3	5	SP	FOOTING																										

BENTS 5,6,7,13																															
C 1	34	7	10	1	10	CAP	2-6	5-0 1/2	2-6																						
C 2	5	10	68	8	ST	DO																									
C 3	10	5	68	8	ST	DO																									
C 4	24	0	15	0	1	DO	1-3	18-1																							
C 5	4	10	12	0	ST	DO																									
C 6	4	0	16	7	ST	DO																									
C 7	132	5	12	9	TI	DO	7-1/2	2-6	3-5 1/2	2-6	7-1/2	3-5 1/2																			
C 8	110	5	12	9	TI	DO	7-1/2	2-6	3-2	2-6	7-1/2	3-2																			

DESIGNED BY: E. WILLIAMS, Aug. 1977.
 CHECKED BY: D.R. BROCK, Aug. 1977.
 5162

FINAL PLANS



NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

3/4

5261	DRAWN BY: J.E. Ostermann, Dec. 1976
765256	TRACED BY:
	CHECKED BY: P.W. Clark, Aug. 1977

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18		

FINAL PLANS

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

Missouri State Highway Commission Specifications for Highway Construction (1977 Edition) and Special Provisions.

DESIGN SPECIFICATIONS:

Division 1 of the AASHTO "Standard Specifications for Highway Bridges" (1973 Edition including 1974, 1975, and 1976 interim specifications - Zone II Earthquake).

DESIGN LOADING:

(Load Factor Design Method - Bridge Substructure only, except footings and pedestal piles)
Live Load - HS20-44 and modified 24,000 lbs. tandem axle
Dead Load - Weight of Structure includes reinforced concrete at 150 lbs. per cu. ft. with provision for a future wearing surface of 30 lbs. per sq. ft. of roadway.

DESIGN UNIT STRESS:

Concrete in Flexure:
Class B Concrete - $f'_c = 3000$ lbs. per sq. in.
 $f_c = 1200$ lbs. per sq. in.
 $n = 10$

Reinforcing Steel:

$f_s = 24,000$ lbs. per sq. in.
 $f_y = 60,000$ lbs. per sq. in.

Steel Piles (ASTM A36):

Design bearing = 9 kips per sq. in. (end bearing)

Pedestal Piles:

Design bearing = 35 Tons per sq. ft. (end bearing)

Spread Footings on Rock:

Design bearing = 12 Tons per sq. ft.

CONCRETE:

Concrete for Abutment, Bents, and Pedestal piles
Class B.

REINFORCEMENT:

Reinforcing Steel was deformed billet steel, Grade 60. All dimensions to reinforcing bars on detail drawings are to centerline of bar except where the clear distance is noted from the face of concrete.

Lap Splices and embedment of reinforcement as shown on the detail drawings are in accordance with AASHTO, Interim 1974 Specifications.

Spiral bars in columns were cold drawn bars conforming to ASTM A82.

PROFILE GRADE:

Profile grade is located at the Base Line of Westbound Route 4D and at top of roadway slab.

CONSTRUCTION JOINTS:

Construction joints will be permitted only at the locations shown on the detail drawings or as approved by the Engineer.

BEVELED EDGES:

All exposed edges of concrete were beveled 3/4" unless otherwise shown or noted.

EXISTING UNDERGROUND FACILITIES:

Underground Facilities, Structures and Utilities have been plotted from available surveys and records; and, therefore, their locations must be considered approximate only. It is possible there may be others, the existence of which is presently not known or shown. It is the Contractor's responsibility to determine their existence and exact location and to avoid damage thereto. See Standard Specifications.

SECTION I

FINAL QUANTITIES

ITEM	UNIT	TOTAL
Class I Excavation	Cu. Yd.	893 ✓
* Pedestal Piles 3'- 6" Dia.	Lin. Ft.	58.7 ✓
* Pedestal Piles 4'- 0" Dia.	Lin. Ft.	30.0 ✓
* Pedestal Piles 5'- 6" Dia.	Lin. Ft.	237.7 ✓
Structural Steel Piles HP 10 x 42	Lin. Ft.	6904 ✓
Structural Steel Piles HP 12 x 53	Lin. Ft.	2035 ✓
Class B Concrete	Cu. Yd.	939.2 ✓
Reinforcing Steel	Lb.	323,530 ✓
CONTINGENT ITEMS		
FURNISH & WELD PILE TIPS - 503.03	F. A.	\$23,877.42 ✓
DRILLING TEST HOLES (FOUNDATION) - 503.04	LIN. FT.	8 ✓
DRILLING TEST HOLES (PED. PILE) - 503.05	LIN. FT.	32 ✓
PEDESTAL PILES 3'-6" DIA. + 25% - 503.06	LIN. FT.	0.6 ✓
PEDESTAL PILES 4'-0" DIA + 25% - 503.07	LIN. FT.	2.8 ✓

CITY OF ST. LOUIS

FINAL PLANS

GENERAL NOTES AND
FINAL QUANTITIES

SHEET 38 OF 22

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

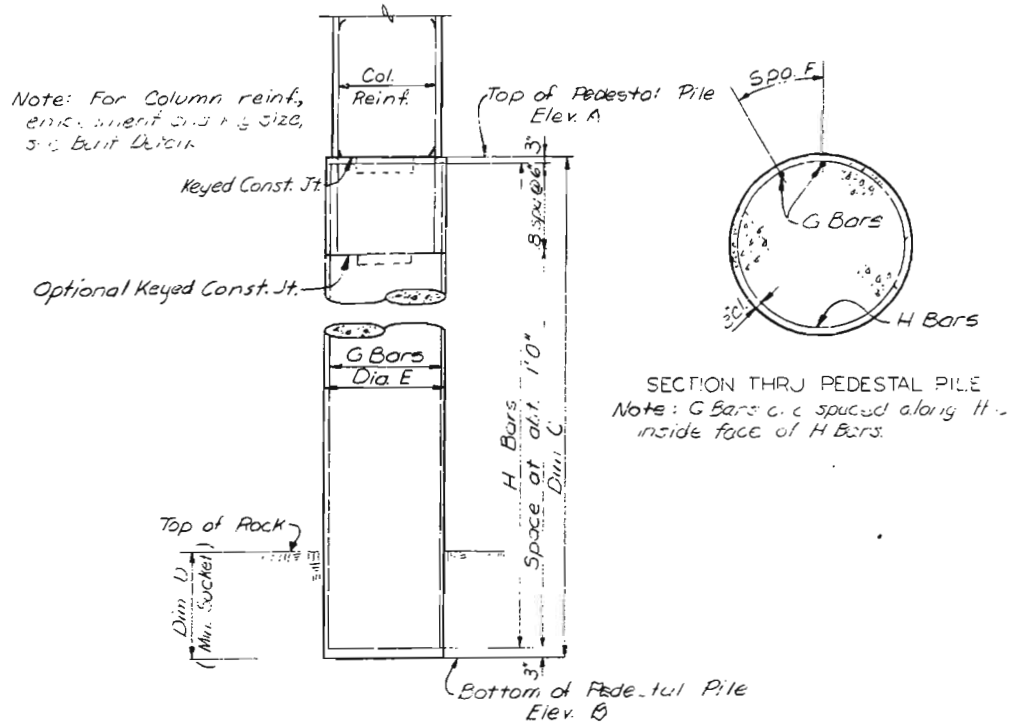
DRAWN BY: L.A. Stricker Aug. 1977
CHECKED BY: L.G. Stricker Aug. 1977
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MISSOURI STATE HIGHWAY DEPARTMENT

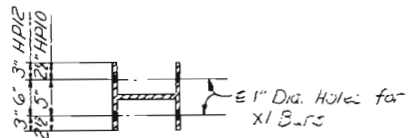
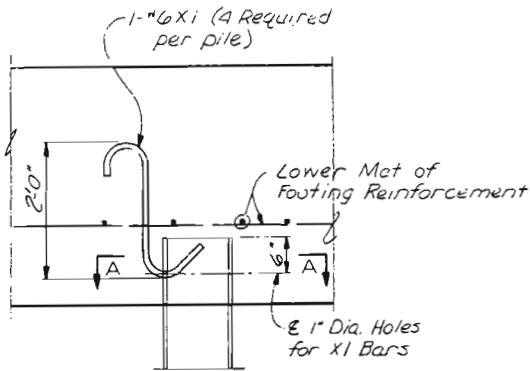
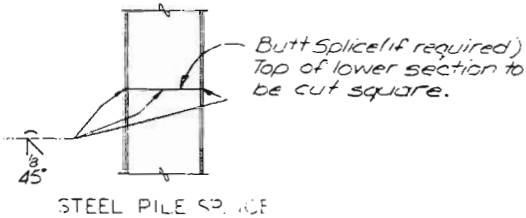
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5	MO.		19		

FINAL PLANS



FINAL STEEL PILE DATA									
LOCATION	NO. REQ'D.	FINAL LENGTH					PILE SIZE	MAX. DES. BEARING TONS	HAMMER ENERGY REQ'D. FT. LBS.
Abut. 1	13	28' to 31'					HP10x42	51	12600
BENT NO.	COLUMN 1		COLUMN 2		COLUMN 3		PILE SIZE	MAX. DES. BEARING TONS	HAMMER ENERGY REQ'D. FT. LBS.
	NO. REQ'D.	FINAL LENGTH	NO. REQ'D.	FINAL LENGTH	NO. REQ'D.	FINAL LENGTH			
2	8	17 to 22'	8	11 to 16'	—	—	HP12x53	56	14600
5	8	18 to 38	8	14 to 27'	8	13 to 34'	HP10x42	48	11400
6	8	29 to 30'	8	22 to 45'	8	21 to 31'	HP10x42	48	11400
7	8	34 to 39'	8	32 to 57'	8	31 to 31'	HP10x42	47	11200
8	8	54 to 77'	8	60 to 65'	8	58 to 63'	HP10x42	39	9600
9	8	65 to 69'	—	—	—	—	HP12x53	62	15200
11	8	62 to 65'	8	62 to 63'	8	63 to 55'	HP10x42	39	9600
12	8	49 to 64'	8	61 to 62'	8	62 to 64'	HP10x42	39	9600
13	8	52 to 54'	8	53'	8	45 to 52'	HP12x53	72	17000

Note: Minimum energy requirement of hammer based on plan length and design bearing value of piles.
All piles were driven to practical refusal.
Bearing piles did conform to ASTM A262



SECTION A-A

SECTIONAL ELEVATION

REINFORCING BAR HOLD-DOWN FOR STEEL BEARING PILE

Note: All XI Bars were securely tied to the lower mat of footing reinforcement.
Typical for all steel piles except at Abut. 1.

FINAL PEDESTAL PILE DATA

MAX DESIGN BEARING - 35 TONS PER SQ. FT.

BENT	COLUMN	ELEV. A	ELEV. B	DIM. C	DIM. D	DIA. E	SPA. F	G BARS	H BARS	ADDITIONAL RE-STEEL
3	1 & 2	483.00	444.60	12.2'	6'-0"	4'-0"	4'2"	30-#11M1	23-#4M6	30-#11 @ 22' LONG
4	1	481.00	460.80	120.2'	5'-6"	3'-6"	4'6"	28-#10M2	25-#4M7	
	2 & 3	481.00	444.60	21.1'	5'-6"	3'-6"	4'6"	28-#10M3	26-#4M7	28-#10 @ 5'14" LONG
9	2	479.00	399.10	79.9'	8'-0"	5'-6"	4'6"	2 sets of 46-#11M4	86-#4M8	
10	1	478.00	399.20	78.8'	8'-0"	5'-6"	4'6"	2 sets of 46-#11M5	84-#4M8	
10	2	478.00	399.00	79.0'	8'-0"	5'-6"	4'6"	2 sets of 46-#11M5	84-#4M8	

FINAL Pay length for 4'-0" Dia. Pile				FINAL PAY 4'-0" DIA PED. PILE	
Bent	Column	Pay length	Dia.	Note: Plan length for "longest Pile" @ 4'-0" Dia. is 15.0'	
3	1	17.4'	4'-0"		
3	2	15.4'	4'-0"		
Total L = 32.8'			4'-0"	Final Pay = 30 @ bid price + 2.8 @ bid price + 25%	
FINAL Pay length for 3'-6" Dia. Pile				FINAL PAY 3'-6" DIA PED. PILE	
Bent	Column	Pay length	Dia.	Note: Plan length for "longest Pile" @ 3'-6" Dia. is 20.5'	
4	1	20.2'	3'-6"		
4	2	18.0'	3'-6"		
4	3	21.1'	3'-6"		
Total L = 59.3'			3'-6"	Final Pay = 58.7 @ bid price + 0.6 @ bid price + 25%	
FINAL Pay length for 5'-6" Dia. Pile				FINAL PAY 5'-6" DIA PED. PILE	
Bent	Column	Pay length	Dia.	Note: Plan length for "longest Pile" @ 5'-6" Dia. is 81.0'	
9	2	79.9'	5'-6"		
10	1	78.8'	5'-6"		
10	2	79.0'	5'-6"		
Total L = 237.7'			5'-6"	Final Pay = 237.7 @ bid price	

CITY OF ST. LOUIS

FINAL PLANS

PILE DATA

SHEET 11 OF 22

A-3594

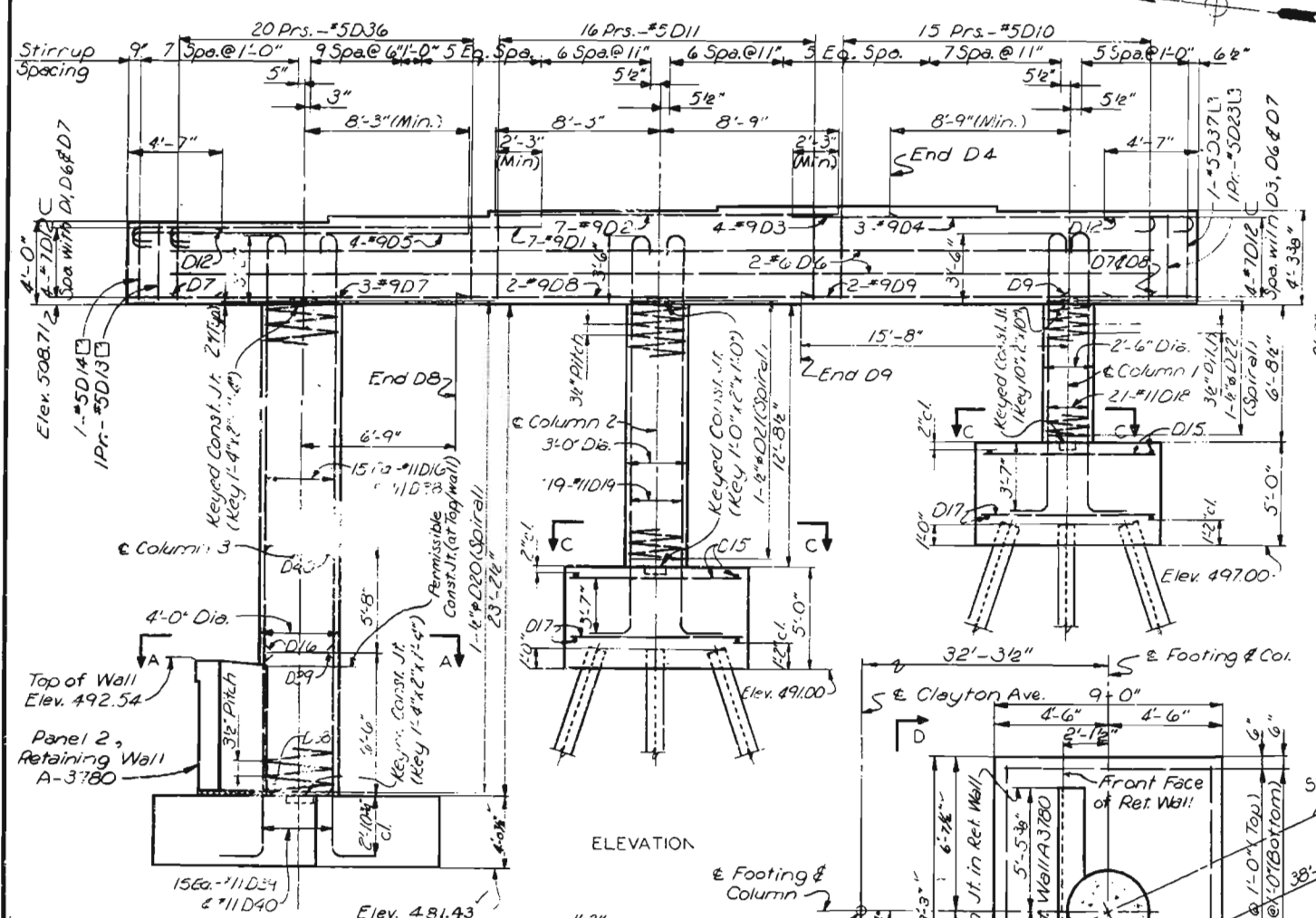
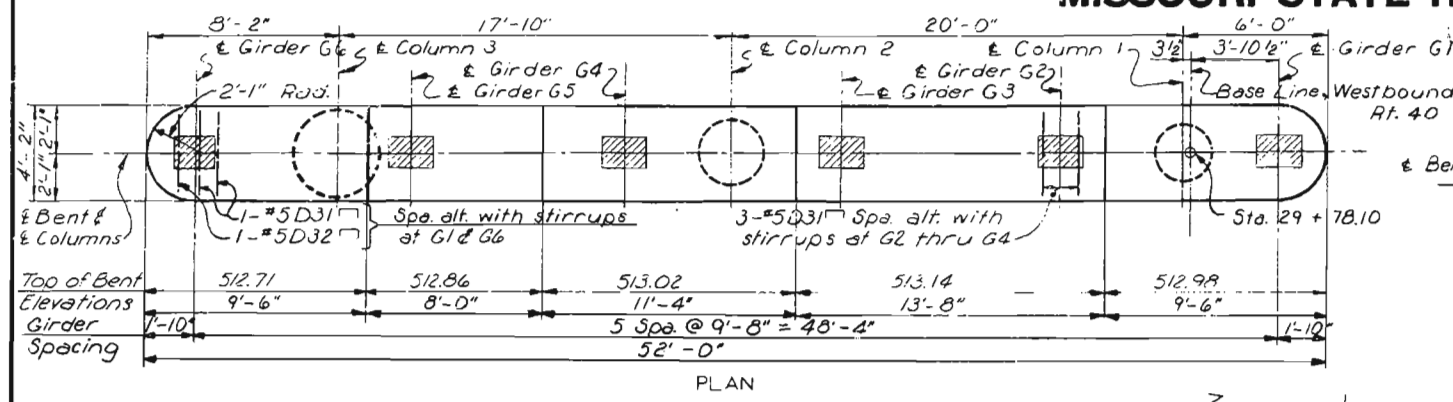
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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CHECKED BY: W. A. Wolder, July 1977
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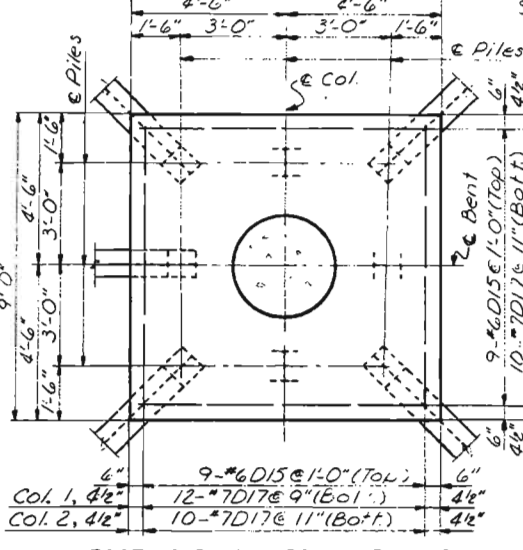
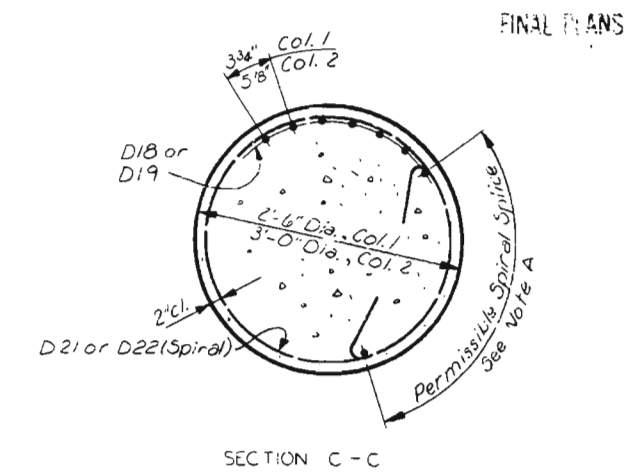
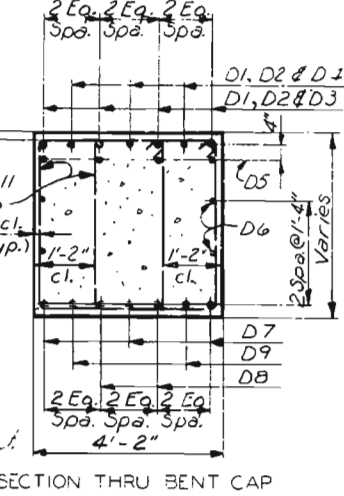
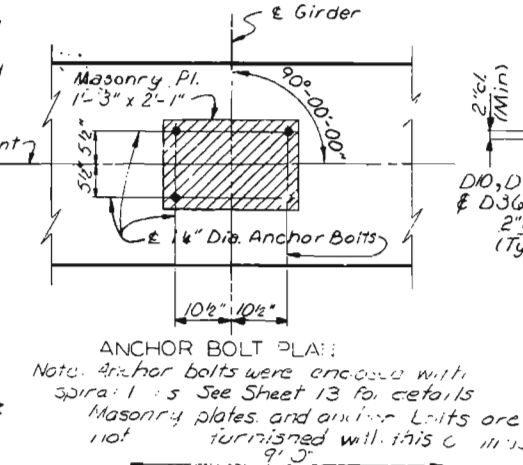
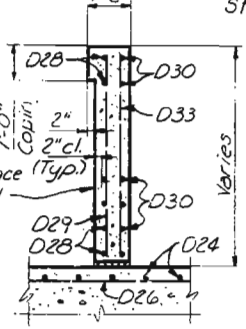
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18		



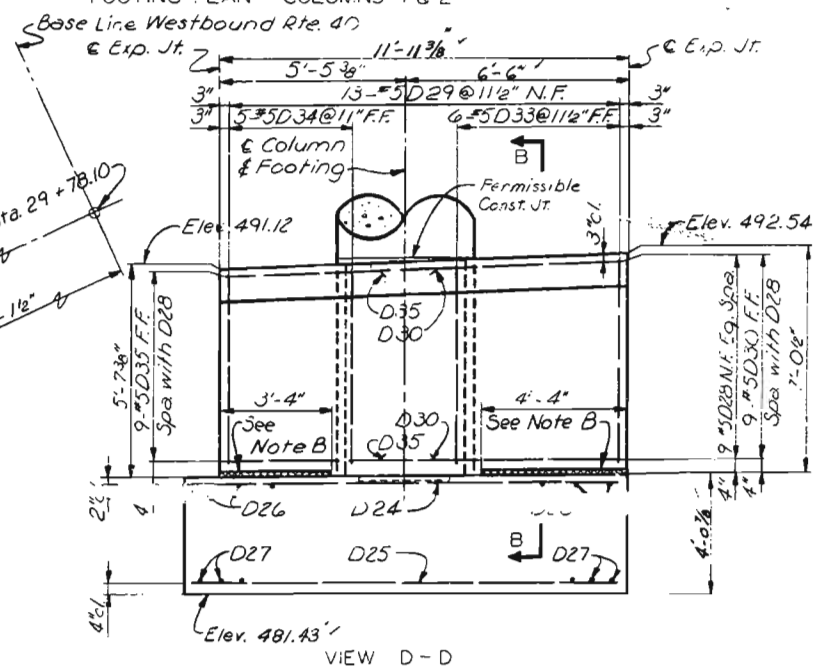
Note: Spirals have 1 1/2 turns and are anchored with a 12" hook and 10" tail around a vertical bar at top and bottom. Spirals are set on top of footings.

Note: 2" Clearance was maintained between hooks on vert. col. reinforcement.



Note A: Spiral splices were lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end. No additional payment of wall was made for splices. Payment was based on spiral length shown on bar list. Spacing of vertical column reinforcement is measured along inside face of spiral bar.

Note: Pile Spacing is measured at bottom of footing. Batter piles 4 in 12 in direction shown. 16-HP12x53 Piles required.



NOTES

Spirals in beam were shifted 1/2" required to clear anchor bolts a minimum of 1/2".

F.F. indicates Far Face.

N.F. indicates Near Face.

F.S. substructure layout, See Sheet 10.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

FINAL PLANS

BENT 2

SHEET 14 OF 22

A-3594

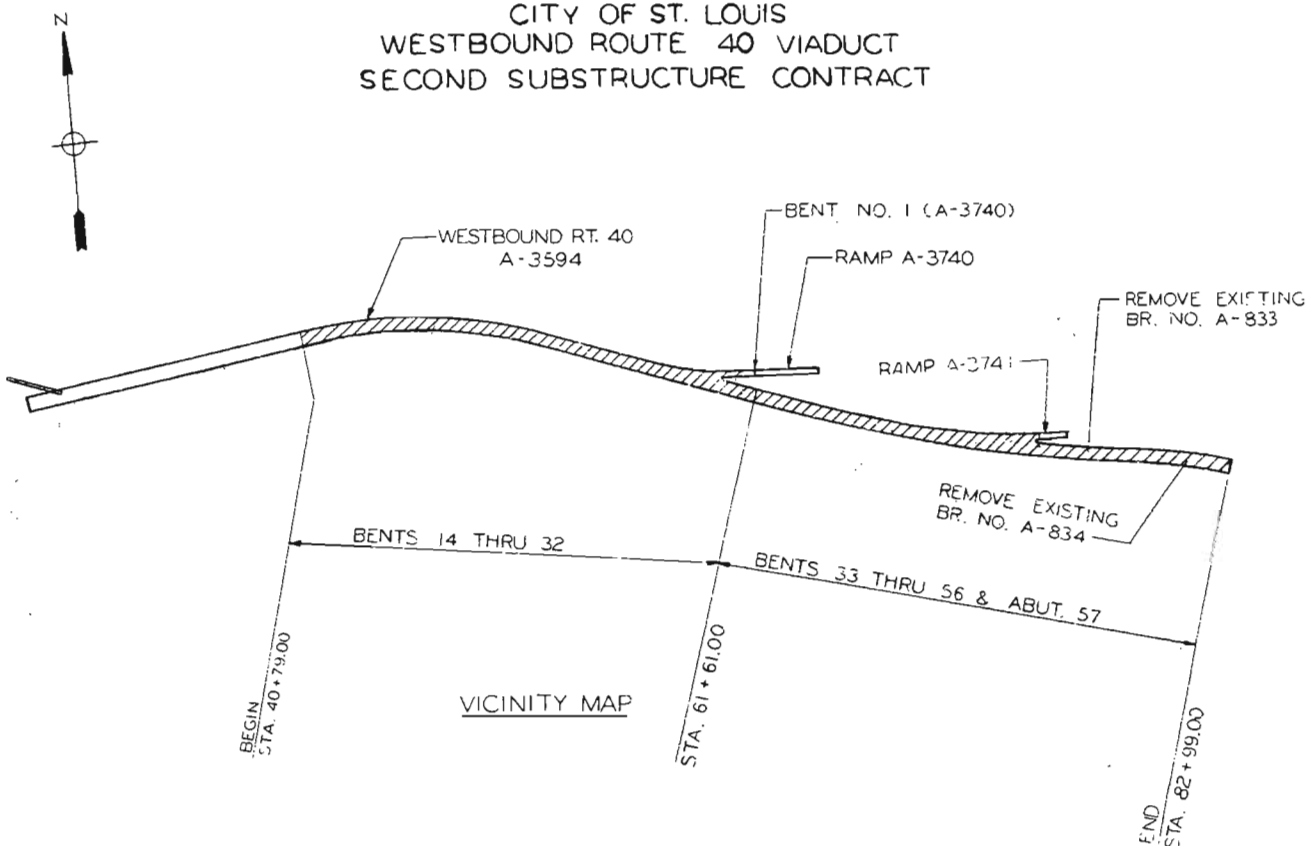
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CHECKED BY: C. Blazer July 1974
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SVENDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

PROJ. NO.	STATE	FED. AID	FISCAL	SHEET	TOTAL
10	MO.		10	55	

CITY OF ST. LOUIS
WESTBOUND ROUTE 40 VIADUCT
SECOND SUBSTRUCTURE CONTRACT



SUMMARY OF ESTIMATED QUANTITIES					
ITEM	UNIT	BR. A-3594		A-3740	TOTAL
		BTS. 14-32	BTS. 33-57	BT. NO. 1	
* Removal of Bridges	Lump Sum		1		1
Class I Excavation	Cu. Yd.	1630	1500	5	3135
36 in. Pedestal Pile	Lin. Ft.		139		139
42 in. Pedestal Pile	Lin. Ft.		489		489
48 in. Pedestal Pile	Lin. Ft.	65	404	76	545
60 in. Pedestal Pile	Lin. Ft.		139		139
66 in. Pedestal Pile	Lin. Ft.	201	30		231
84 in. Pedestal Pile	Lin. Ft.	50			50
Structural Steel Pile (10 in.)	Lin. Ft.	5648	1745		7443
Structural Steel Pile (12 in.)	Lin. Ft.	2770	1517		4287
Loading Tests	Each	2	2		4
Class B Concrete	Cu. Yd.	1483.9	1369.9	32.7	2886.5
Reinforcing Steel	Lbs.	559,080	603,111	24,830	1,187,020

* Remove Bridges No A-833 & A-834

8590

9907

BRIDGE : WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK AND WESTERN RAILROAD

STATE ROAD ROUTE 40
JOB NO. 6 UO-4026 I
PROJECT NO. F-5-40-1 (45) STA. 40+79.00
BENT 14

CITY OF ST. LOUIS

DATE: _____
VICINITY MAP

SUBMITTED BY:

William A. Walden

REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11783



Revised 4-16-61

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Sheet 1 of 1

STD. 611.60
STD. 706.35
A-3740
A-3594

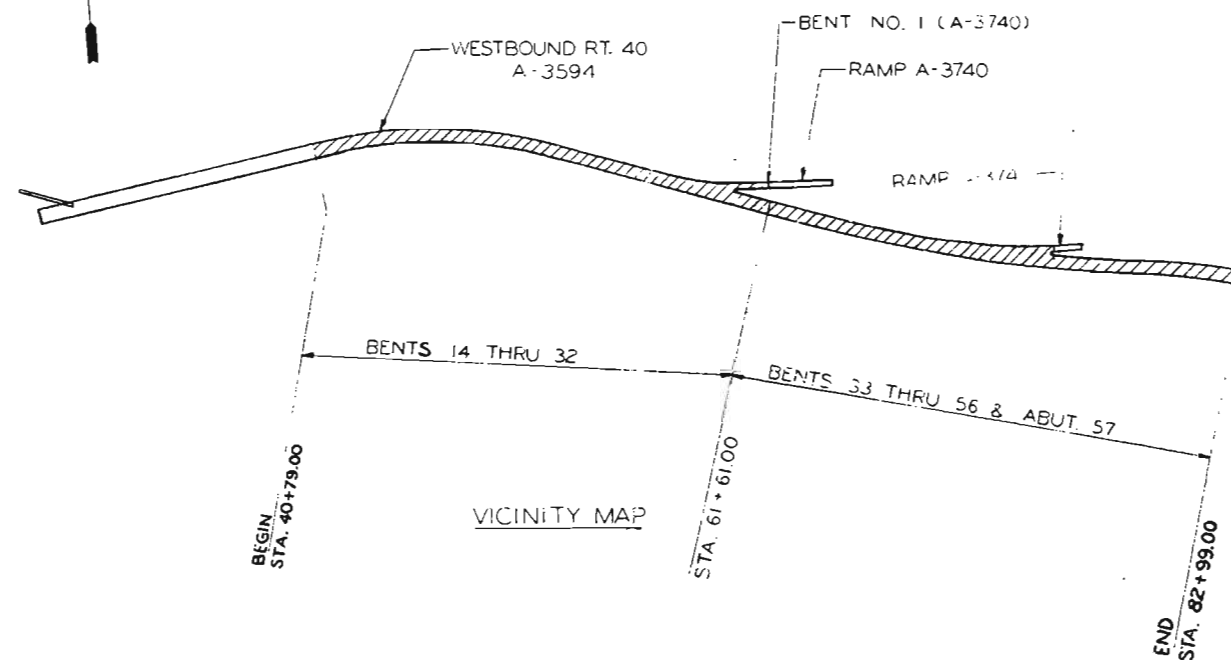
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DESIGNED BY: C. Glaser, Nov. 1977
CHECKED BY: C. Glaser, Nov. 1977
5261
765293

SHENKUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

CITY OF ST. LOUIS
WESTBOUND ROUTE 40 VIADUCT
SECOND SUBSTRUCTURE CONTRACT



SUMMARY OF FINAL QUANTITIES					
ITEM	UNIT	BR. A-3594 BTS. 14-32	BR. A-3594 BTS. 33-57	A-3740 BT. NO. 1	TOTAL QUANTITIES
* Removal of Bridges	Lump Sum	-	1	-	1
Class I Excavation	Cu. Yd.	1605.0	1459.0	3.5	3067.5
36 in. Pedestal Pile	Lin. Ft.	-	148.8	-	148.8
42 in. Pedestal Pile	Lin. Ft.	-	543.8	-	543.8
48 in. Pedestal Pile	Lin. Ft.	63.5	414.5	75.5	553.5
60 in. Pedestal Pile	Lin. Ft.	-	165.0	-	165.0
66 in. Pedestal Pile	Lin. Ft.	197.1	35.0	-	232.1
84 in. Pedestal Pile	Lin. Ft.	50.0	-	-	50.0
Structural Steel Pile (10 in.)	Lin. Ft.	5380	1949	-	7329
Structural Steel Pile (12 in.)	Lin. Ft.	8290	1255	-	9545
Loading Tests	Each	2	2	-	4
Class B Concrete	Cu. Yd.	1484.9	1373.5	32.7	2891.1
Reinforcing Steel	Lbs.	564,010	635,620	24,830	1,224,460
CONTINGENT ITEMS					
503.01 Rev. Col. #1 Bt. #26	Force Acc.	7075.01	-	-	7075.01
503.02 Test Holes Ped. Piles	Lin. Ft.	8	160	8	176
503.03 Ped. Piles 36" +25%	Lin. Ft.	-	9.7	-	9.7
503.04 Ped. Piles 42" +25%	Lin. Ft.	-	4.3	-	4.3
503.05 Ped. Piles 60" +25%	Lin. Ft.	-	4.5	-	4.5
503.06 Ped. Piles 84" +25%	Lin. Ft.	3.1	-	-	3.1
503.07 Rev. Col. 2 Bt. #39	Force Acc.	-	543.52	-	543.52
503.08 Test Holes Found.	Lin. Ft.	-	108	-	108
503.09 Class I Excavation +25%	Cu. Yd.	21.5	22.0	-	43.5
503.10 Steel Pile Tips	Force Acc.	207.92	-	-	207.92

SUBMITTED BY:

Willbourn D. Walcott
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11783



BRIDGE WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREET AND
NORFOLK AND WESTERN RAILROAD
LATE ROAD ROUTE 40
JOB NO. 40-5 (45) STA. 40+79.00
PROJECT F-40-5 (45) & BENT 14

CITY OF ST. LOUIS

DATE:

VICINITY MAP

STD. 611.60
STD. 705.35
A-3740
A-3594

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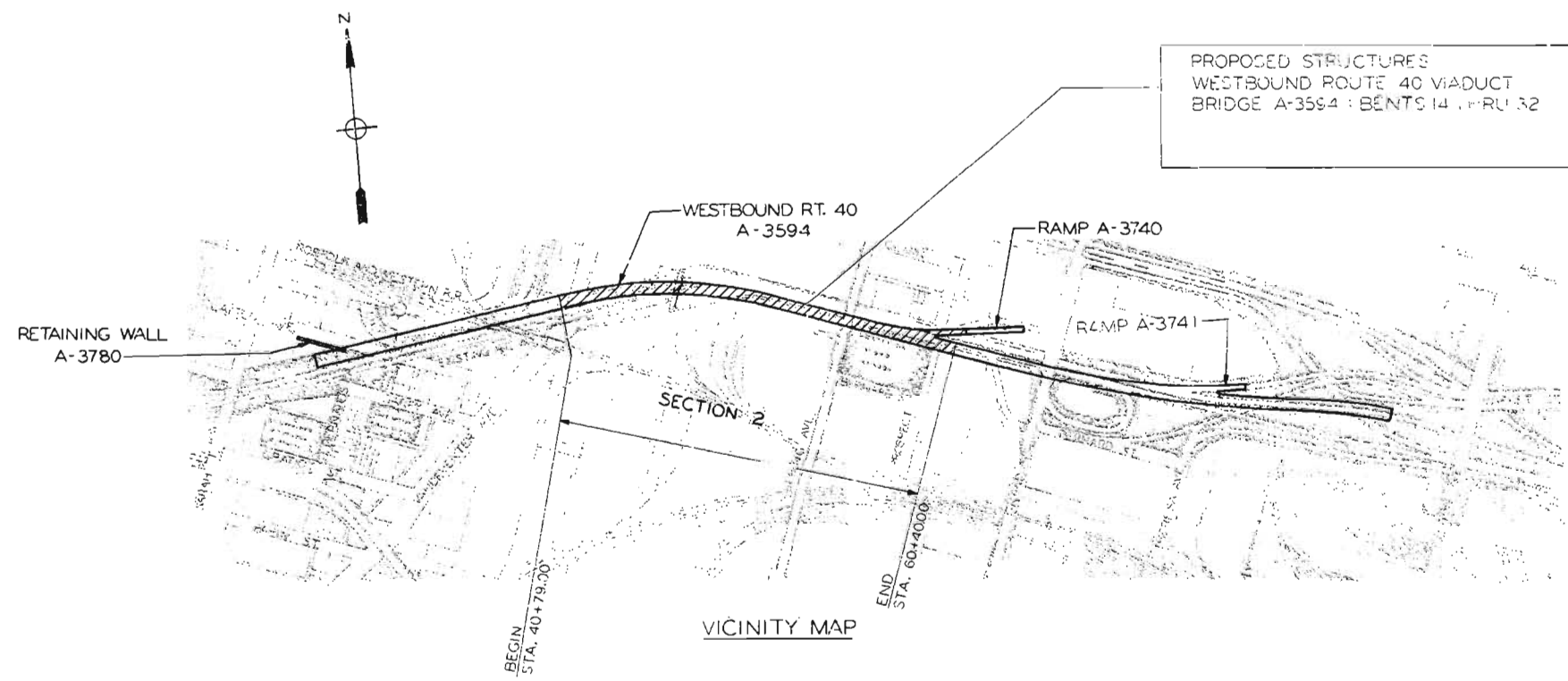
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CHECKED BY: C. G. GLOSTER, No. 1177
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SHERRARD & PRICE, AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		18	60	



- BRIDGE A-3594
1. VICINITY MAP AND INDEX OF DRAWINGS
 2. GENERAL PLAN AND ELEVATION
 3. GENERAL PLAN AND ELEVATION
 4. GENERAL NOTES AND ESTIMATED QUANTITIES
 5. ALIGNMENT, HORIZONTAL CURVE DATA AND BENCH MARKS
 6. ALIGNMENT
 7. VERTICAL CURVE ELEVATIONS
 8. ROADWAY CROSS SLOPES
 9. LOG OF BORINGS
 10. LOG OF BORINGS
 11. LOG OF BORINGS
 12. SUBSTRUCTURE LAYOUT
 13. SUBSTRUCTURE LAYOUT
 14. PILE DATA
 15. BENT 14
 16. BENT 15
 17. BENTS 16 THROUGH 32
 18. BENTS 16 THROUGH 32
 19. BENTS 16 THROUGH 32
 20. BAR LIST
 21. BAR LIST
 22. BAR LIST
 23. BAR LIST

BRIDGE: WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK AND WESTERN RAILROAD
STATE ROAD ROUTE 40
JOB NO. 6 UO4026 I
PROJECT NO. F-PS-45-5(43) STA. 40+79.00
@ BENT 14

CITY OF ST. LOUIS

SUBMITTED BY:

William D. Walcott

REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11753



DATE:

VICINITY MAP AND
INDEX OF DRAWINGS

SHEET 23

A-35

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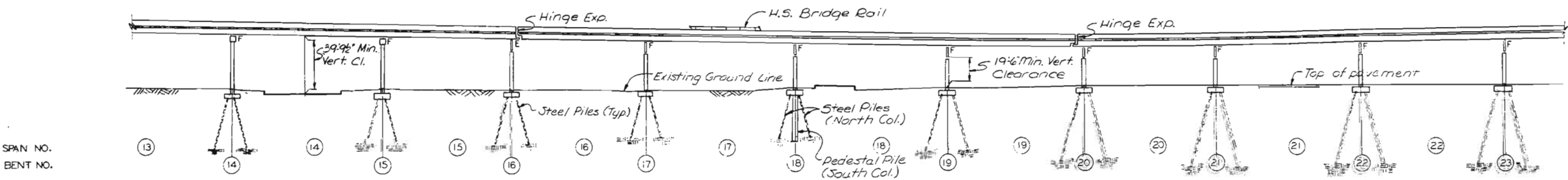
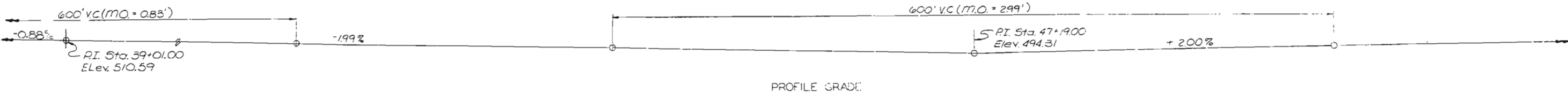
STEFANOW & PENCE AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DESIGNED BY: C. J. PENCE
CHECKED BY: C. J. PENCE
DATE: Nov. 1977
5261
765293

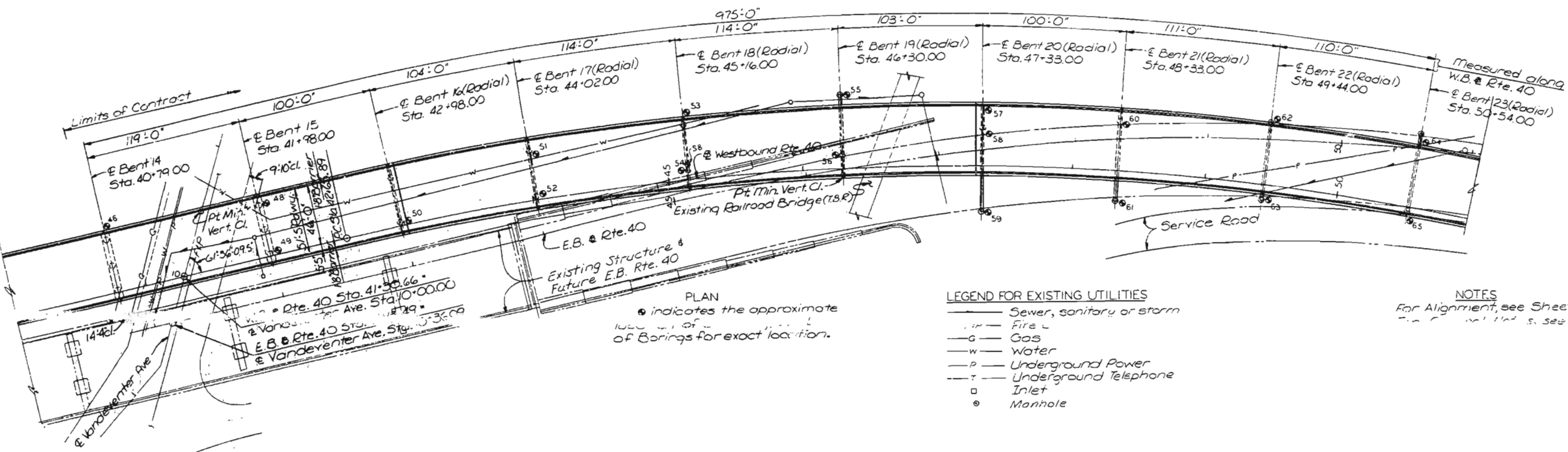
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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	61	



ELEVATION
Note: All span units are continuous composite plate girders.



PLAN
● indicates the approximate location of Borings for exact location.

- LEGEND FOR EXISTING UTILITIES
- Sewer, sanitary or storm
 - Fire
 - Gas
 - Water
 - Underground Power
 - Underground Telephone
 - Inlet
 - Manhole

NOTES
For Alignment, see Sheets 5 & 6.
For General Notes, see Sheet 4.

420

DRAWN BY: J.E. CROFT, DATE: 11/76
CHECKED BY: J.E. CROFT, DATE: 11/76
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OVERHURP & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURI

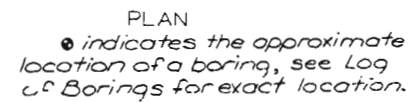
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GENERAL PLAN AND ELEVATION

SHEET 2 OF 23

A-3594

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		19	62	



LEGEND FOR EXISTING UTILITIES

—	Sewer, Sanitary or storm
—F—P—	Fire and Police
—G—	Gas
—W—	Water
—P—	Underground Power
—T—	Underground Telephone
□	Inlet
⊙	Manhole

NOTES

For Alignment, see Sheets 5 & 6.
For General Notes, see Sheet 4.

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 3 OF 23

A-3594

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5261	DRAWN BY: L. O. Harmons, Dec. 1976
25292	TRACED BY:
	CHECKED BY: R. B. Butterfield, 1977

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ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	63	

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

Missouri State Highway Commission Specifications for Highway Construction (1977 Edition) and Special Provisions.

DESIGN SPECIFICATIONS:

Division I of the AASHTO "Standard Specifications for Highway Bridges" (1973 Edition including 1974, 1975 and 1976 Interim Specifications - Zone II Earthquake).

DESIGN LOADING:

(Load Factor Design Method - Bridge Substructure only, except footings).
Live Load - HS20-44 and modified 24,000 lbs. tandem axle.
Dead Load - Weight of Structure includes reinforced concrete at 150 lbs. per cu. ft. with provision for a future wearing surface of 30 lbs. per sq. ft. of roadway.

DESIGN UNIT STRESS:

Concrete in Flexure:
Class B Concrete - $f'_c = 3000$ lbs. per sq. in.
 $f_c = 1200$ lbs. per sq. in.
 $n = 10$
Reinforcing Steel:
 $f_s = 24,000$ lbs. per sq. in.
 $f_y = 60,000$ lbs. per sq. in.
Steel Piles (ASTM A36):
Design bearing = 12 kips per sq. in. (end bearing)
Pedestal Piles:
Design bearing = 35 tons per sq. ft. (end bearing)

PILE LOAD TEST:

Pile load test shall be performed at Column 1 of Bent 24 and Column 2 of Bent 17. The load tests shall be performed in accordance with the Standard Specifications.

CONCRETE:

Concrete for Bents and Pedestal piles shall be Class B.

REINFORCEMENT:

Reinforcing Steel shall be deformed billet steel, Grade 60. All dimensions to reinforcing bars on detail drawings are to centerline of bar except where the clear distance is noted from the face of concrete.

Lap Splices and embedment of reinforcement as shown on the detail drawings are in accordance with AASHTO, Interim 1974 Specifications.

Spiral bars in columns shall be cold drawn bars conforming to ASTM A82.

PROFILE GRADE:

Profile grade is located at the Base Line of Westbound Route 40 and at top of roadway slab.

CONSTRUCTION JOINTS:

Construction joints will be permitted only at the locations shown on the detail drawings or as approved by the Engineer.

BEVELED EDGES:

All exposed edges of concrete shall be beveled $\frac{1}{4}"$ unless otherwise shown or noted.

EXISTING UNDERGROUND FACILITIES:

Underground Facilities, Structures and Utilities have been plotted from available surveys and records; and therefore, their locations must be considered approximate only. It is possible there may be others, the existence of which is presently not known or shown. It is the Contractor's responsibility to determine their existence and exact location and to avoid damage thereto. See Standard Specifications.

SECTION 2

ESTIMATE OF QUANTITIES

ITEM	UNIT	TOTAL
Class 1 Excavation	Cu. Yd.	1630
*Pedestal Piles 4'-0" Dia.	Lin. Ft.	65
*Pedestal Piles 5'-6" Dia.	Lin. Ft.	201
*Pedestal Piles 7'-0" Dia.	Lin. Ft.	50
Structural Steel Piles HPI6 x 42	Lin. Ft.	5648
Structural Steel Piles HPI2 x 53	Lin. Ft.	(8770)
Pile Load Test (HPI2 x 53)	Each	2
Class B Concrete	Cu. Yd.	1483.9
Reinforcing Steel	Lb.	559,080

* Cost of Concrete in pedestal piles to be included in unit price bid per lin. ft. of pedestal piles.

THE ABOVE QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES ON THE FIRST SHEET OF BRIDGE PLANS

8590 Δ

CITY OF ST. LOUIS

GENERAL NOTES AND ESTIMATED QUANTITIES

SHEET 4 OF 23

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS. Δ Revised 4-16-81

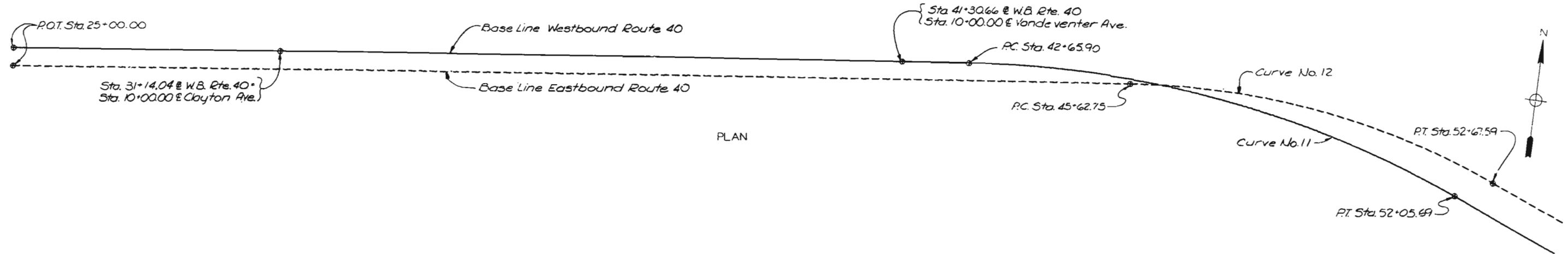
OVERSEER & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: M. Junga Nov 1977
CHECKED BY: W.D. Hays Nov 1977
3261
775385

422

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	64	



PLAN

HORIZONTAL CURVE DATA															
Curve No.	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
P.I.	Sta. 47+45.51	Sta. 49+22.46	Sta. 55+88.46	Sta. 58+95.22	Sta. 1+00.08	Sta. 1+60.97	Sta. 65+24.53	Sta. 70+61.33	Sta. 71+72.71	Sta. 0+34.99	Sta. 2+78.30	Sta. 75+23.49	Sta. 1+52.50	Sta. 79+38.90	Sta. 82+84.69
Δ	28°11'37.9" R	28°11'37.8" R	3°04'03.3" L	3°04'03.3" R	11°57'55.4" L	63°31'30.1" R	6°14'13.4" R	7°13'56.1" L	10°14'05.5" L	26°04'22.0" R	133°30'29.9" R	1°22'15.7" L	18°08'50.1" L	2°27'00.5" L	2°27'00.5" R
D	3°00'00"	4°00'00"	1°00'00"	1°00'00"	6°00'00"	22°02'12.6"	1°00'00"	1°36'27"	0°52'00"	37°54'41.7"	63°39'43.1"	0°29'54.8"	6°00'00"	0°42'30.8"	0°42'30.8"
T	479.61'	359.71'	153.42'	153.42'	100.08'	160.97'	312.16'	225.25'	592.05'	34.99'	209.52'	137.51'	152.50'	172.92'	172.92'
L	439.80'	704.84'	306.76'	306.76'	199.42'	288.27'	623.71'	449.91'	1180.94'	68.77'	209.71'	275.00'	302.45'	345.79'	345.79'
R	1909.86'	1432.39'	5729.58'	5729.58'	954.93'	260.00'	5729.58'	3564.30'	6611.05'	151.13'	90.00'	11492.00'	954.93'	8086.36'	8086.36'

BENCH MARKS U.S.G.S. DATUM		
NUMBER	DESCRIPTION	ELEV.
B.M. #4	"a" on stone curb in front of General Equip. Co. Bldg. No. 3952 Clayton Ave.	477.89
B.M. #5	"a" on NE corner of 2x2 conc. base of stop light at Vandeventer & left side of ramp from Mkt St.	459.32
B.M. #6	"O" in open of fire plug N. side of W.B.L. under pedestrian overpass at Spring Ave.	466.94
B.M. #7	"a" on concrete median under center of Grand Ave. bridge	465.56
B.M. #8	"a" on wheel guard NE corner of E. end of E.B. bridge over E.B. Mkt St. ramp	495.83
B.M. #16	"a" on S.E. corner of N.W. end post of E.B. bridge over E.B. Mkt St. ramp	497.70
B.M. #E	Top of S.W. corner of light standard at the S.W. corner of Grand Ave. bridge	489.63

CITY OF ST. LOUIS SEE FINAL PLANS

ALIGNMENT, HORIZONTAL CURVE DATA,
AND BENCH MARKS

SHEET 5 OF 23

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

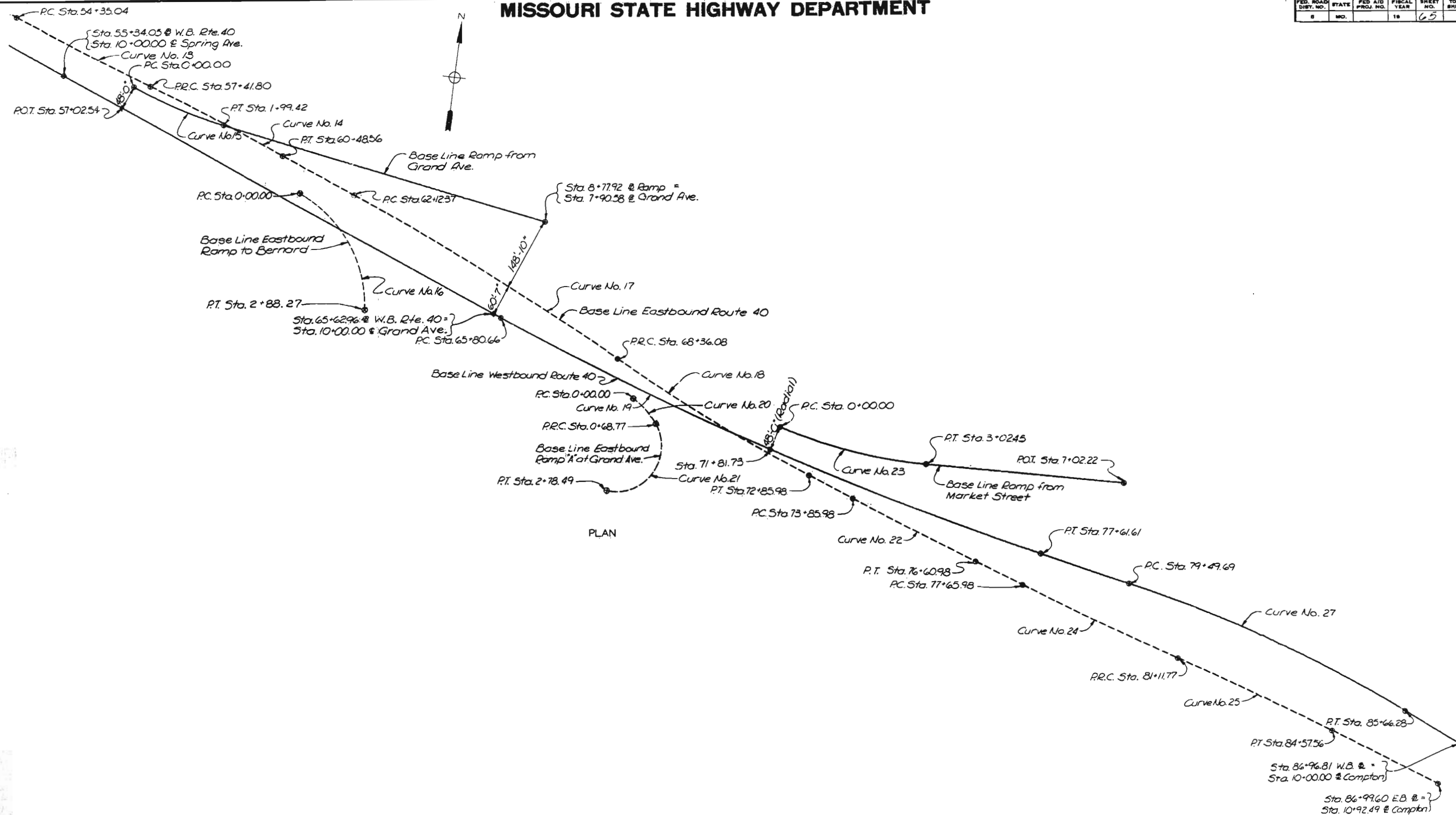
SYNDERUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: J. C. Ostermann, Dec. 1916
CHECKED BY: J. S. Sanders, May 1917
5261
735294

423

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
0	MO.		19	65	



PLAN

CITY OF ST LOUIS

ALIGNMENT

SHEET 6 OF 23

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

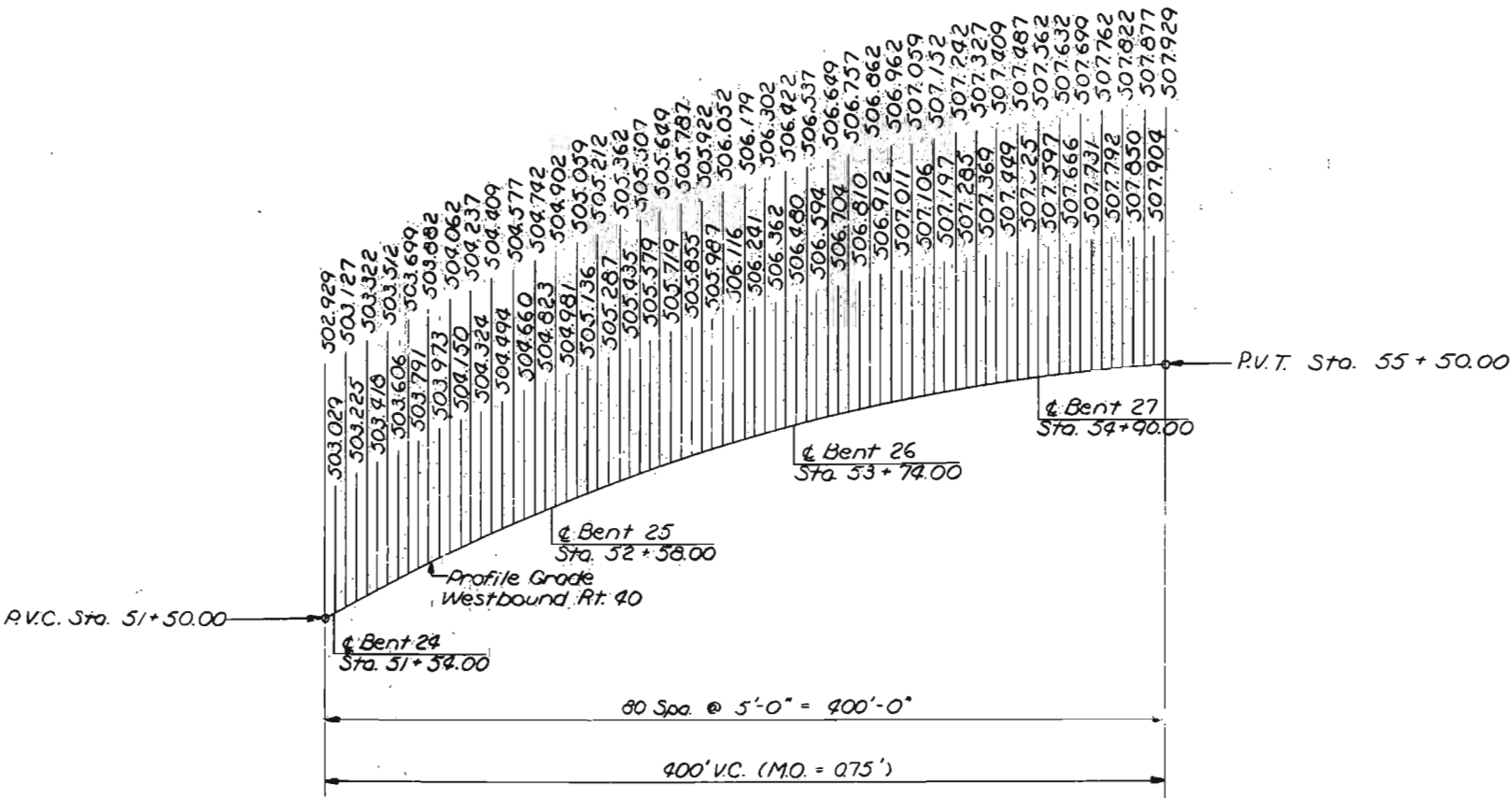
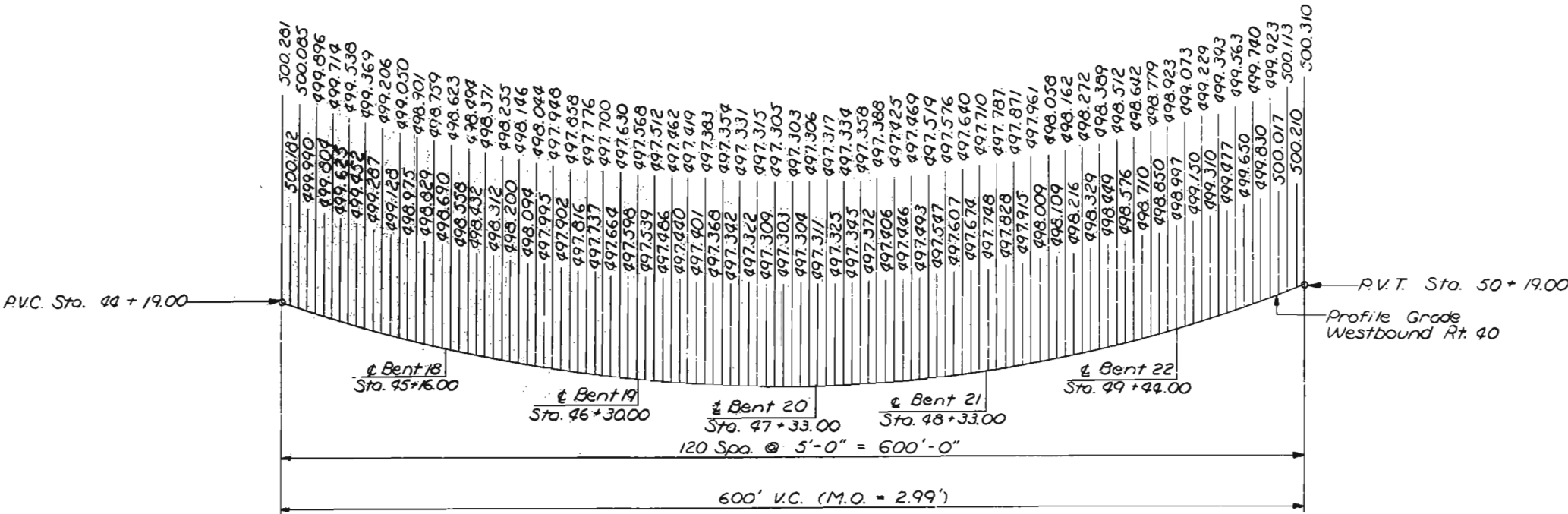
SVENDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

Drawn by: J. Orsmond, Dec. 1976
Checked by: J. Orsmond, May 1977
5261
765295

424

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	66	



CITY OF ST. LOUIS

VERTICAL CURVE ELEVATIONS

SHEET 7 of 23

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

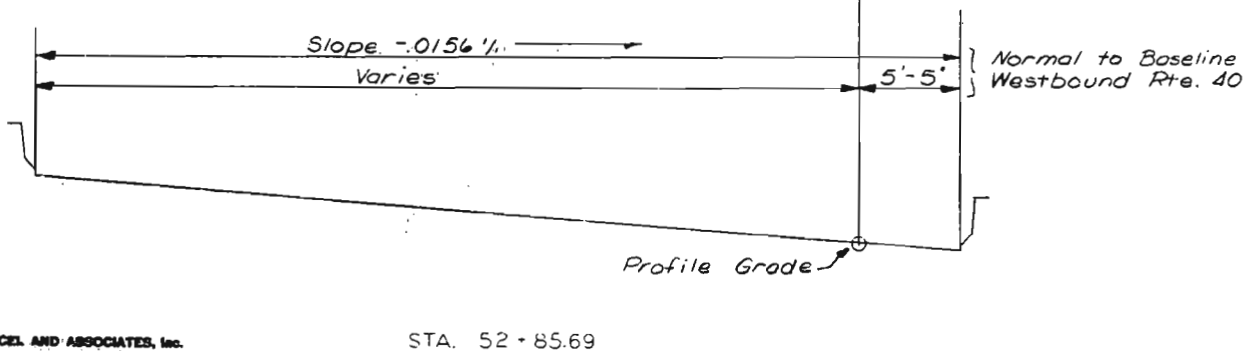
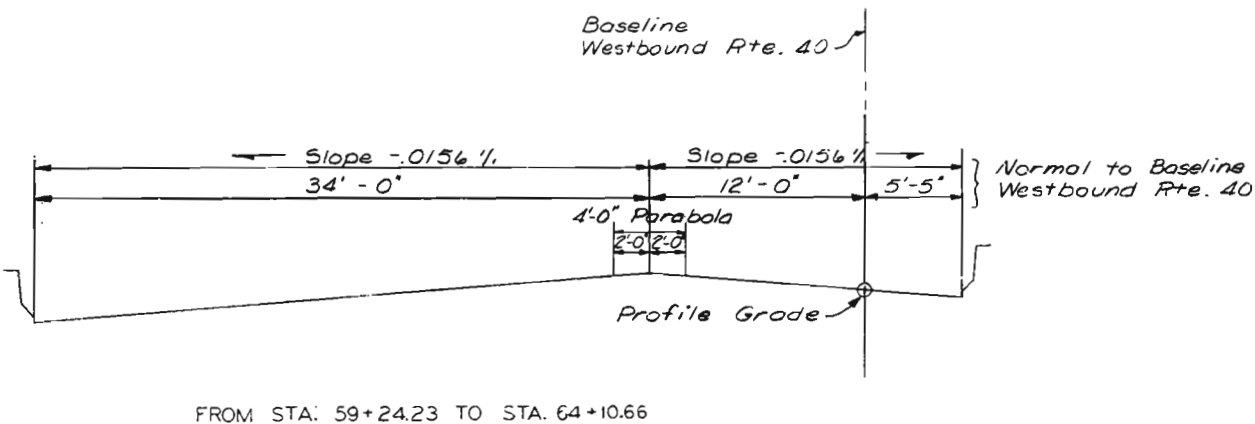
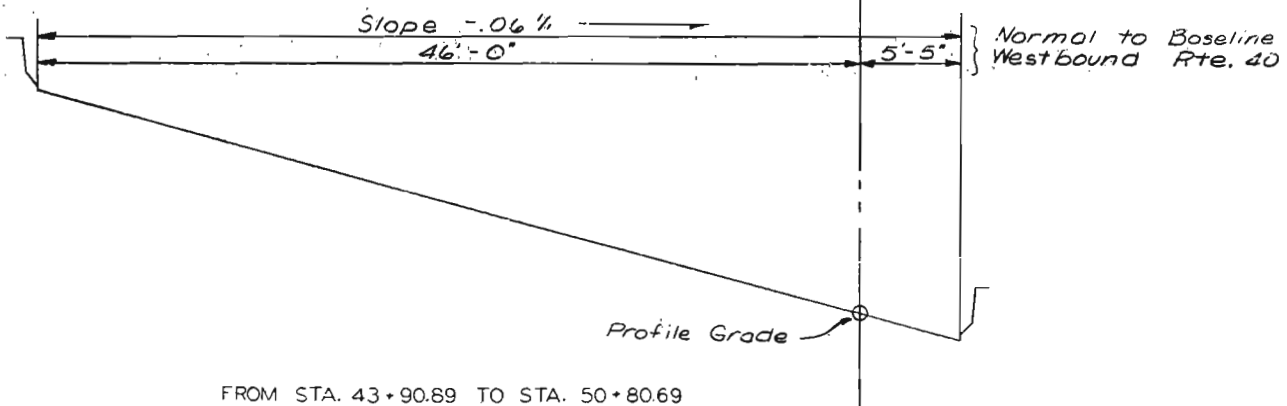
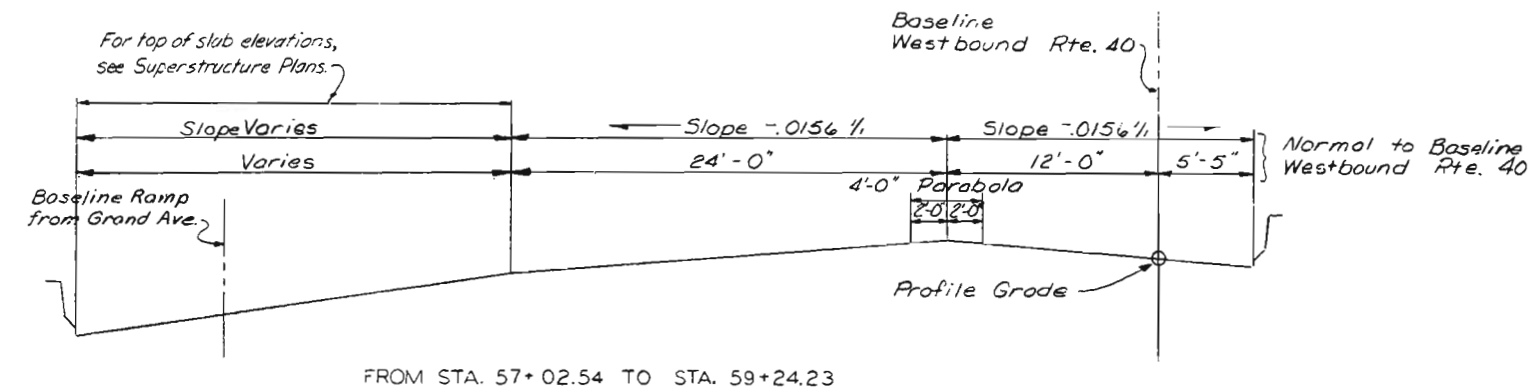
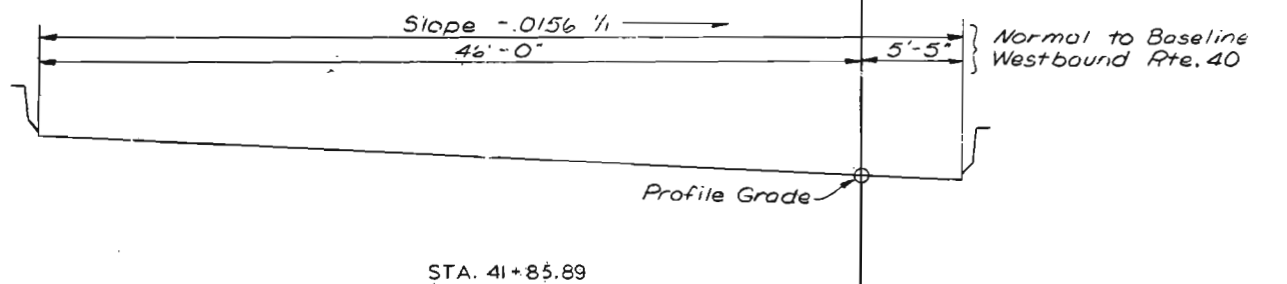
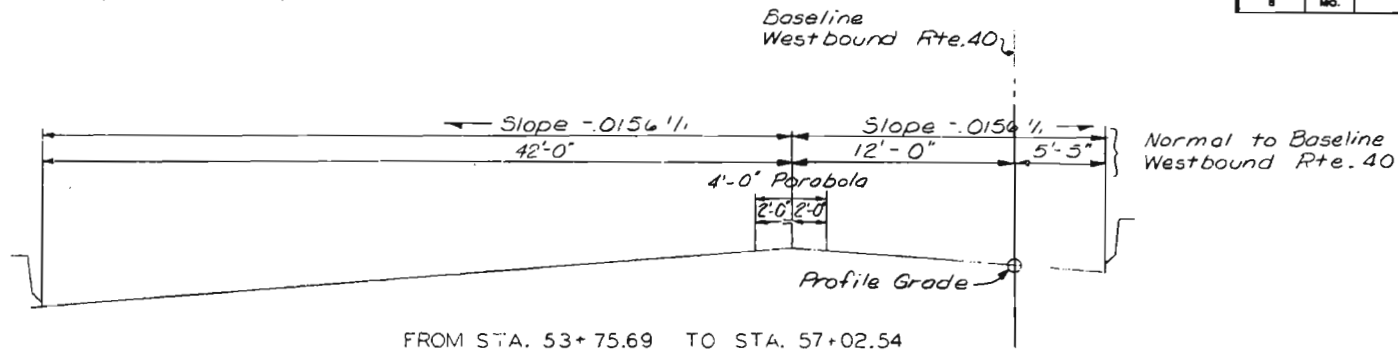
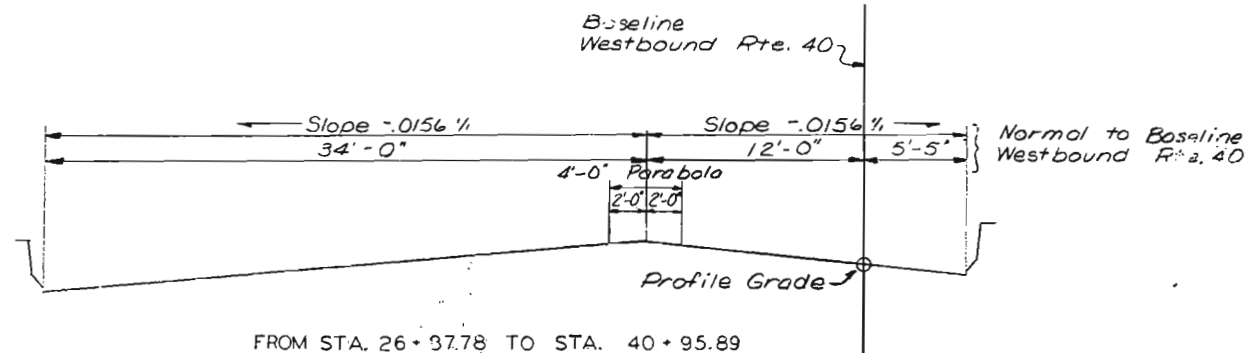
SWENDUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: E. G. GORDON, JUN. 1977
CHECKED BY: T. J. GORDON, JUN. 1977
5261
775260

425

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		67	67	



CITY OF ST. LOUIS

ROADWAY CROSS SLOPES

SHEET 8 OF 23

A-3594

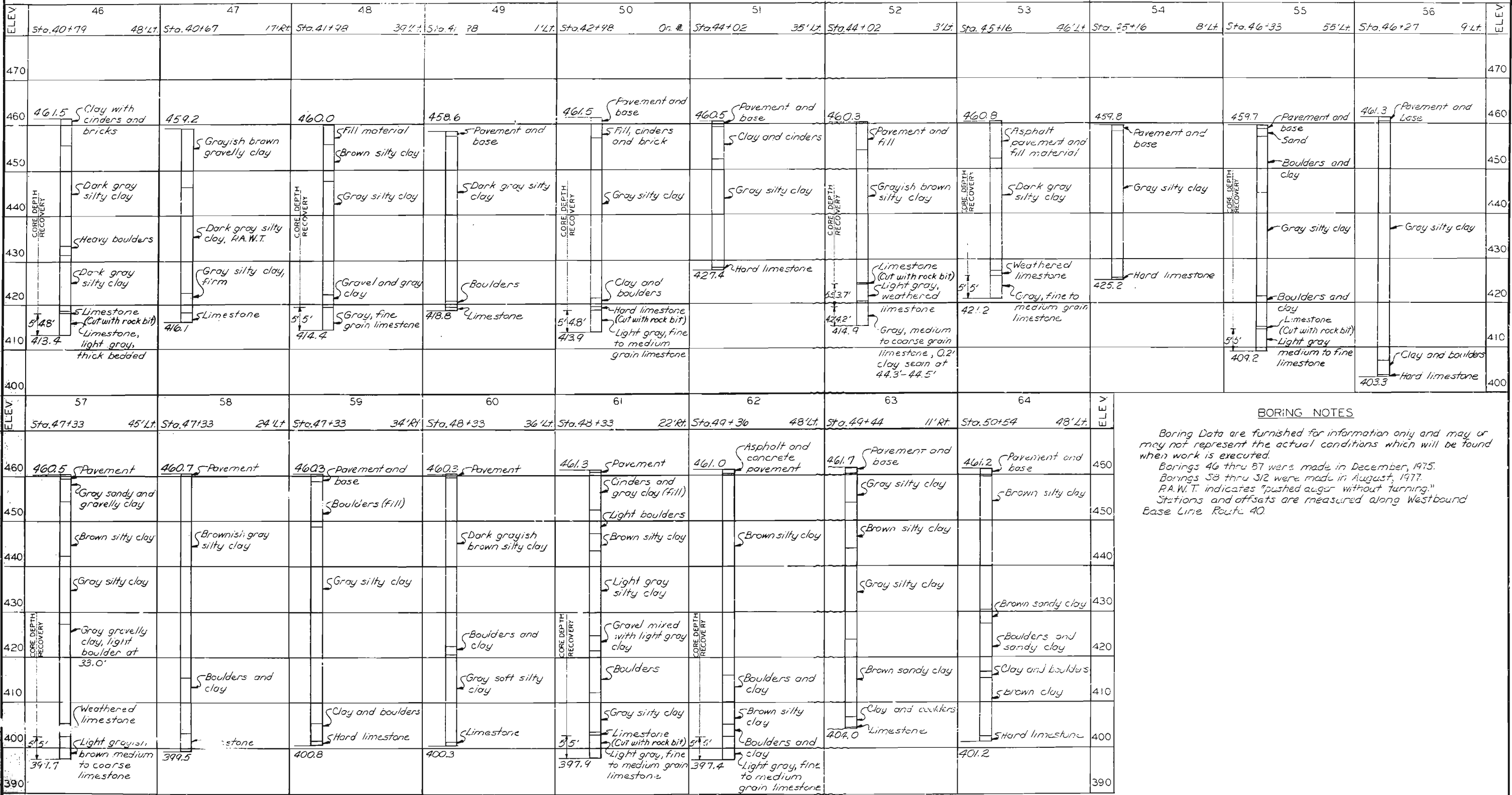
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

OVERHUP & PARCEL AND ASSOCIATES, Inc.
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426
DRAWN BY: M.O. Erling July 1977
CHECKED BY: M. Osterfeld Aug. 1977
5261
775243

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	19	68		



BORING NOTES

Boring Data are furnished for information only and may or may not represent the actual conditions which will be found when work is executed.
Borings 46 thru 57 were made in December, 1975.
Borings 58 thru 64 were made in August, 1977.
P.A.W.T. indicates "pushed auger without turning."
Stations and offsets are measured along Westbound Base Line Route 40.

CITY OF ST. LOUIS

LOG OF BORINGS

SHEET 9 OF 23

4-2

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

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DRAWN BY: Laura Strader, Jan 77
TRACED BY: LHM & DDB, Oct. 1977
5261
7/5/43

427

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	62	

ELEV	65	66	67	68	69	70	71	72	73	74	75	ELEV
	Sta. 50+54 7' Rt.	Sta. 51+54 53' Lt.	Sta. 51+54 3' Rt.	Sta. 52+58 65' Lt.	Sta. 52+58 7' Lt.	Sta. 53+74 65' Lt.	Sta. 53+74 7' Lt.	Sta. 54+90 65' Lt.	Sta. 54+90 7' Lt.	Sta. 55+96 67' Lt.	Sta. 55+96 9' Lt.	
460	460.7 Pavement and base	461.7 Asphalt and concrete pavement	461.6 Pavement and base	461.6 Asphalt and concrete pavement and base	461.8 Pavement and base	462.1 Asphalt and concrete pavement and base	462.6 Pavement and base	462.7 Asphalt and concrete pavement	463.0 Pavement and base	463.4 Asphalt and concrete pavement	463.5 Pavement and base	460
450	Brown silty clay	Fill (finders and bricks)		Brown silty clay		Brown silty clay	Brown silty clay	Brown silty clay	Brown silty clay	Gray silty clay	Gray silty clay	450
440		Brown silty clay	Brown silty clay		Brown silty clay					Light brown silty clay	Brown silty clay	440
430		Clay and gravel		Light grayish brown silty clay with light gravel	Gray silty clay	Light grayish brown clay, stiff	Gray silty clay	Light gray clay, stiff	Boulder			430
420	Boulders and clayey sand	Brown silty clay	Clay and boulders	Boulders and clay Limestone (Cut with rock bit)	Clay and boulders		Boulder	Gray silty clay mixed with light gravel	Gray silty clay	Very soft silty clay with an occasional boulder	Clay and boulders	420
410	Brown sandy clay	Brown silty clay	Gray silty clay	Clay and boulders		Clay	Clay and boulders	Boulders and clay	Clay and boulders	Gray, fine to medium grain, thin bedded limestone	Light gray silty clay	410
400	Boulders Limestone	Weathered limestone (Cut with rock bit)	Limestone	Light gray, fine to medium grain limestone with some chert layers, poor recovery due to rock grinding	Hard limestone	Limestone (Cut with rock bit)		Limestone (Cut with rock bit)	Clay and boulders	Clay and boulders	Sandy clay and boulders	400
390	402.0	22.9' Fine to medium grain, light gray limestone, medium bedded	401.4	5' 3.9' 5' 2.2' 5' 5' 4' 4.4' 5' 4.8' 377.5		399.5' 383.1	399.4 Hard limestone	5' 5' 5' 5' 5' 5' 387.4	401.7	398.0 Limestone		390
380		10' 10' 381.9		Light gray, medium grain limestone				Light gray, fine to medium grain, medium bedded limestone, occasional chert layers				380
370				Gray, coarse grain, thick bedded limestone								370

NOTES
For Boring Notes, see Sheet 9.

428

DRAWN BY: L. Strader Jan '77
CHECKED BY: LHG: JDB, Oct. 1977
5261
77542

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

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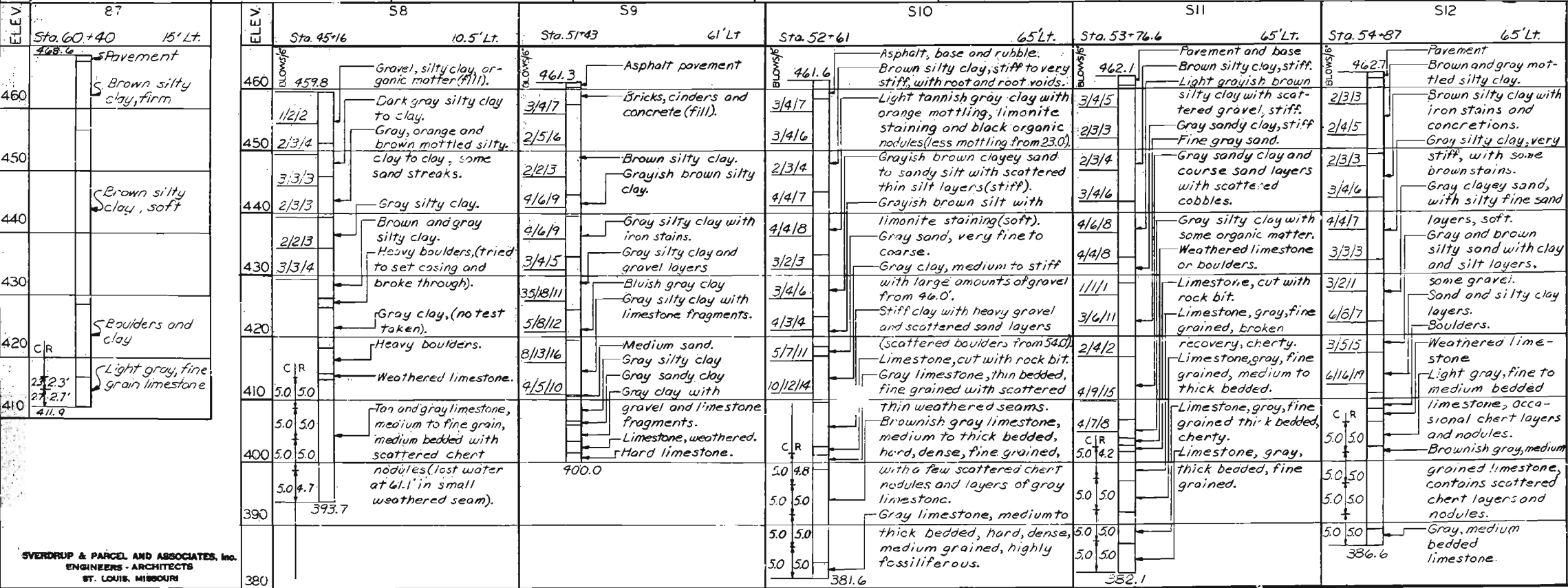
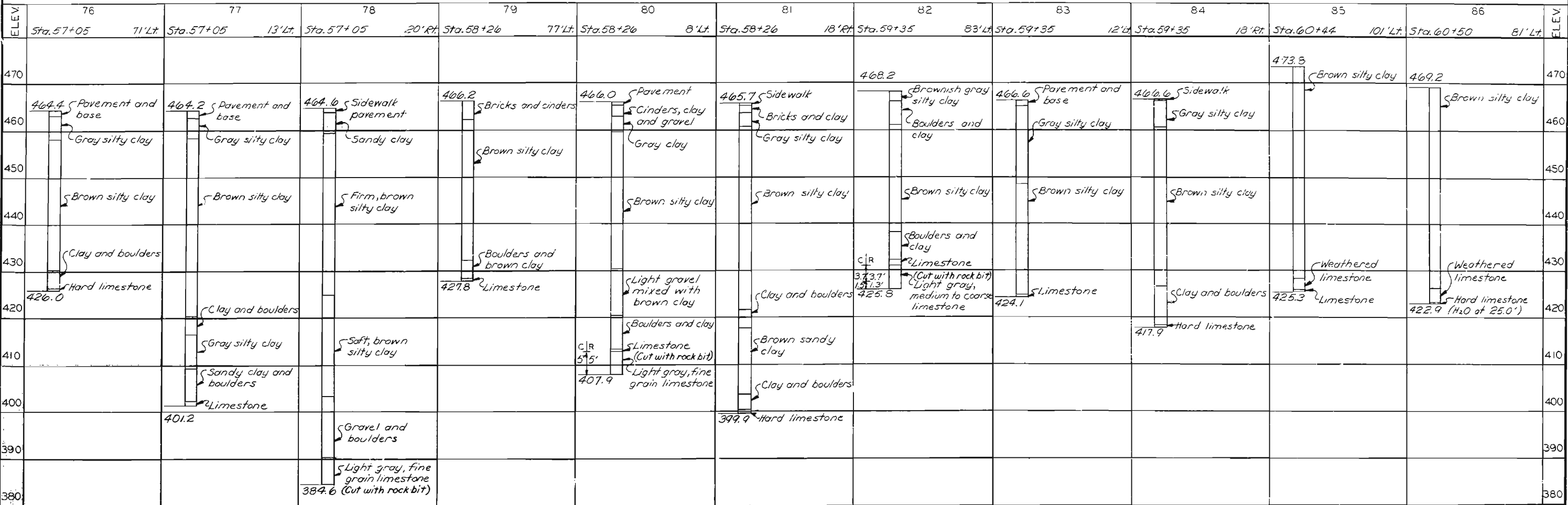
CITY OF ST. LOUIS
LOG OF BORINGS

SHEET 10 OF 23

A-30-1

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	70	



NOTES
For Boring Notes, see Sheet 9.
C indicates Core Depth.
R indicates Recovery.

CITY OF ST. LOUIS

LOG OF BORINGS

SHEET 11 OF 23

A-2 11

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

DRAWN BY: L. Strader, Jan 77
CHECKED BY: LHB, Oct 1977
5267
77547

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	71	



CITY OF ST. LOUIS

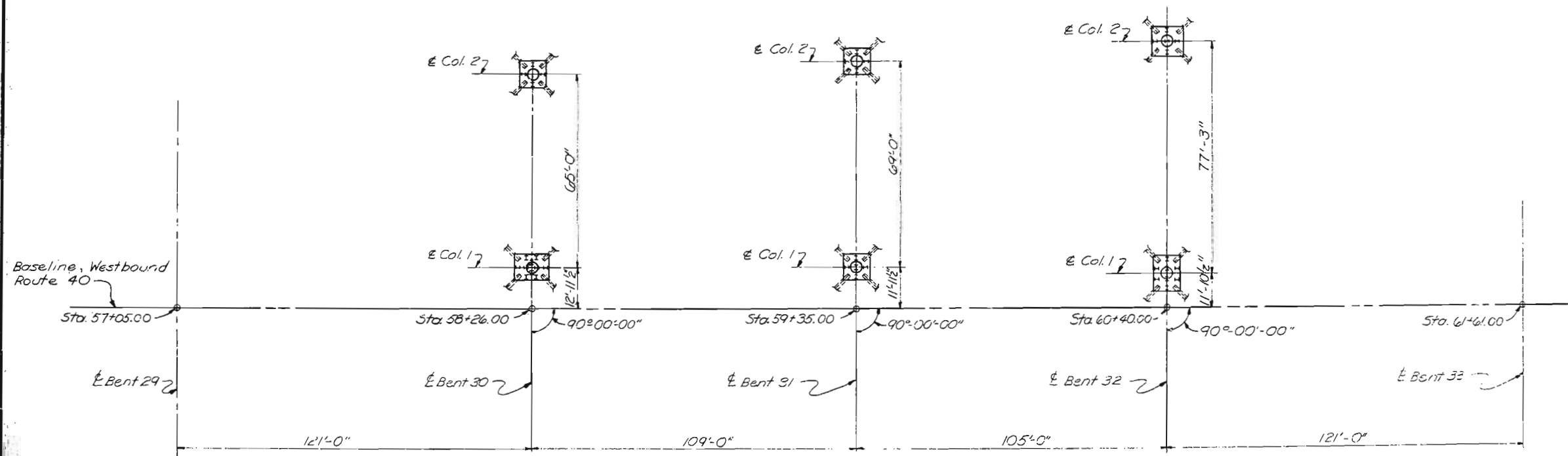
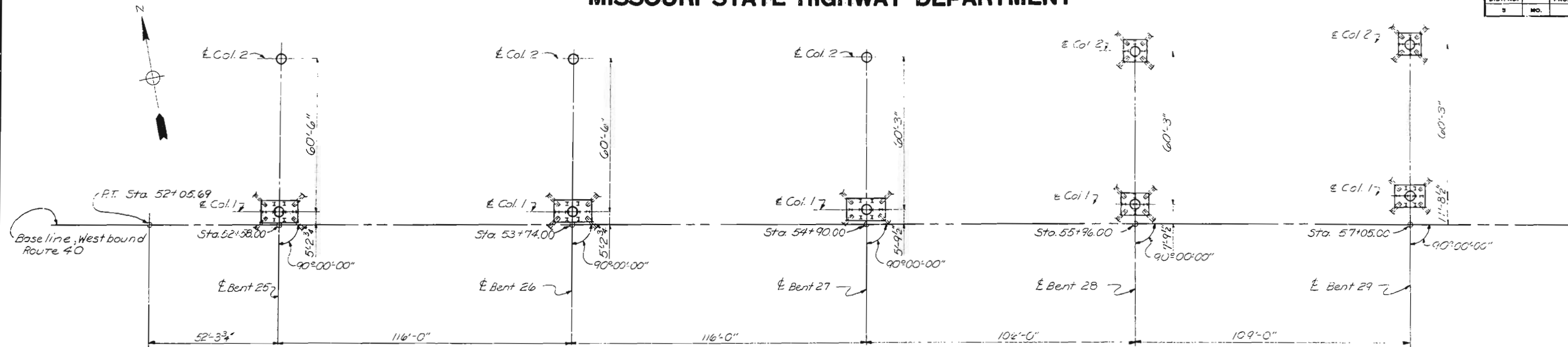
SHEET 12 OF 23

A-3594

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.		18	72	



CITY OF ST. LOUIS

SUBSTRUCTURE LAYOUT

SHEET 13 OF 23

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

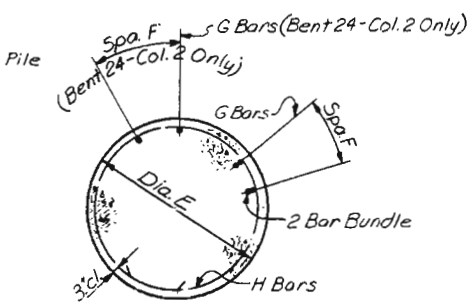
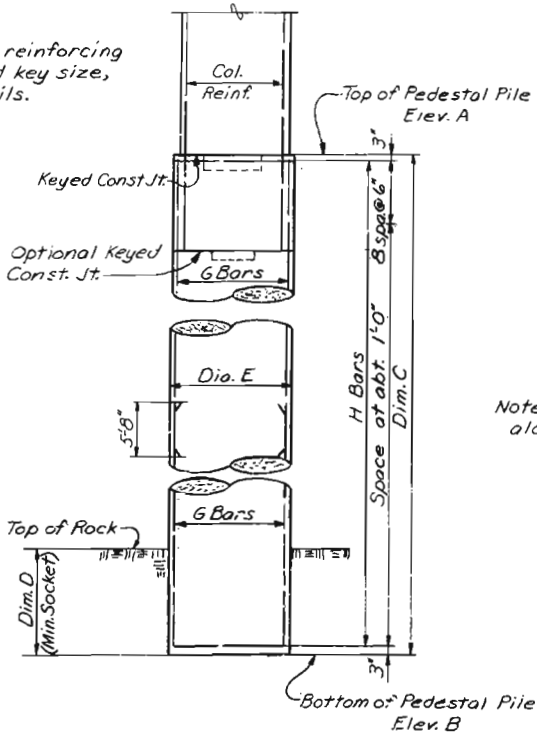
DRAWN BY: L. Strader Aug. 77
CHECKED BY: T. Sanchez, Oct. 1977

431

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	73	

Note: For Column reinforcing embedment and key size, see Bent Details.



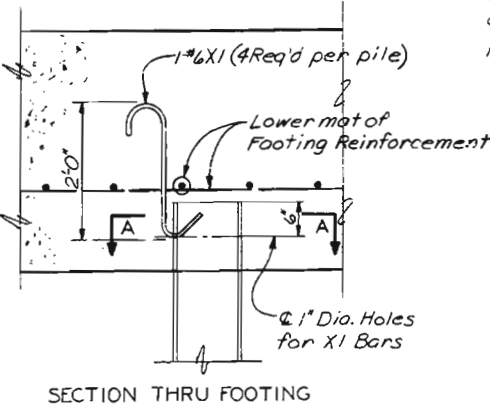
SECTION THRU PEDESTAL PILE
Note: Spacing of G Bars is measured along the inside face of H Bars.

STEEL PILE DATA										
BENT NO.	COLUMN 1					COLUMN 2				
	NO. REQ'D.	APPROX. LENGTH	PILE SIZE	MAX. DES. BEARING TONS	HAMMER ENERGY REQ'D. FT. LBS.	NO. REQ'D.	APPROX. LENGTH	PILE SIZE	MAX. DES. BEARING TONS	HAMMER ENERGY REQ'D. FT. LBS.
16	8	36'	HP10x42	71	16700	8	36'	HP10x42	71	16700
17	8	32'	HP12x53	87	20400	8	28'	HP12x53	87	20400
18						8	29'	HP10x42	62	14600
19	12	51'	HP12x53	81	19900	8	40'	HP10x42	40	9400
20	8	53'	HP10x42	24	7000	10	53'	HP12x53	85	20900
21	8	49'	HP10x42	50	11800	10	54'	HP12x53	83	20400
22	8	48'	HP10x42	71	17400	8	53'	HP12x53	77	18500
23	9	51'	HP12x53	91	20700	8	54'	HP10x42	70	17200
24	9	49'	HP12x53	89	22000					
25	12	52'	HP12x53	81	19900					
26	12	57'	HP12x53	50	19600					
27	12	57'	HP12x53	83	20400					
28	9	58'	HP12x53	94	21200	8	41'	HP10x42	62	14600
29	12	59'	HP12x53	88	21100	8	40'	HP10x42	53	12400
30	14	45'	HP12x53	85	20900	8	32'	HP10x42	65	15200
31	9	36'	HP12x53	85	20400	8	29'	HP10x42	60	14100
32	12	44'	HP12x53	87	21400	10	40'	HP12x53	86	21100

	COL. 1		COL. 2		COL. 3		PILE SIZE	MAX. DES. BEARING TONS	HAMMER ENERGY REQ'D. FT. LBS.
	NO. REQ'D.	APPROX. LENGTH	NO. REQ'D.	APPROX. LENGTH	NO. REQ'D.	APPROX. LENGTH			
14	8	38'	8	38'	8	38'	HP10x42	72	16900
15	8	35'	8	35'	8	35'	HP10x42	72	16900

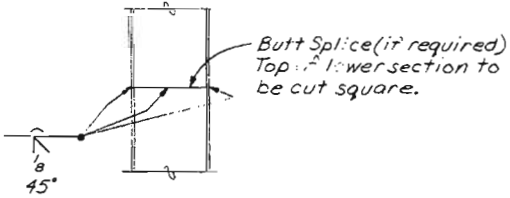
Note: Minimum energy requirements of hammer based on plan length and design bearing value of piles.
All piles shall be driven to practical refusal.
Bearing piles shall conform to A.S.T.M. A36.

When pile spacing is less than 3'-0" center to center the maximum variation of the head of the pile from position shown on the plans shall not be more than 2 inches.

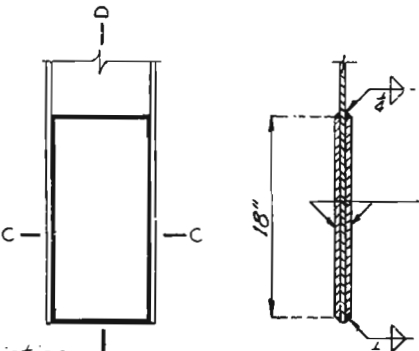


SECTION THRU FOOTING

PILE HOLD-DOWN DETAIL
Note: All X1 Bars shall be securely tied to the footing reinforcement.
Typical for all steel piles.



STEEL PILE SPLICE



SECTION D-D

Note: Payment for furnishing plates and welding in position will be included in unit price bid for driving piles in place.
Manufactured Pile Tips approved by the engineer may be used if attached to the pile by full penetration weld along each flange and spot welded along the web.

PILE TIP REINFORCEMENT

Size Pile	Size Plate
HP10x42	7/16" x 3/8" x 18"
HP12x53	9/16" x 7/8" x 18"

* 12 7/8" x 3/8" x 18" for HP10x42
7/16" x 7/8" for HP12x53

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

PILE DATA

SHEET 14 OF 23

A-3594

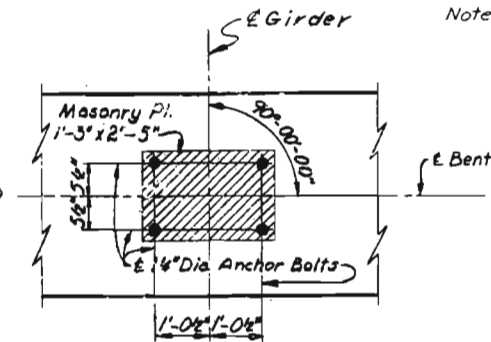
432

DRAWN BY: M. Jung
CHECKED BY: T. S. Jones, Nov. 1977
5261
773371

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

33

5261	ORIGIN BY: D.R. Brock, Sep. 19.
775326	TRACED BY:
	DISCLOSED BY: J. D. [unclear], Oct. 1997



Note: Anchor Bolts to be enclosed with spiral bars. See Sheet 18 for detail.

Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.

No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.

Spacing of vertical column reinforcement is measured along inside face of spiral bar.



Structural drawing of a rectangular slab with dimensions and reinforcement details. The overall width is 4'-8" and the overall height is 11'-0". The slab is divided into a central rectangular area and four corner regions. The central area has a width of 1'-3" and a height of 1'-3". The corner regions are defined by dimensions of 2'-0" and 2'-0". The reinforcement details include top and bottom bars (2Eg, 3Eg, 3Ba, 2Eg) and cross-sections (R11, R3, R4, R5, R6, R7, R8). The drawing also shows a section line (1'-3" x 1'-3") and a section cut (2'-0" x 1'-3").

[illegible]

Note: Pile spacing is measured at
bottom of footing.
Batter piles 2 in 12 in
direction shown.
24 - HP10x42 Piles required.



Note: Spirals are to have 1 1/2 turns, and are to be anchored with a 135° hook and 10" tail around a vertical bar top and bottom. Spirals are to be set on top of footings.

NOTES

Stirrups in beams shall be shifted as required to clear anchor bolts a minimum of 1/2".

For Pile Splice and Pile Data, see Sheet 14.
For Substructure Layout, see Sheet 12.

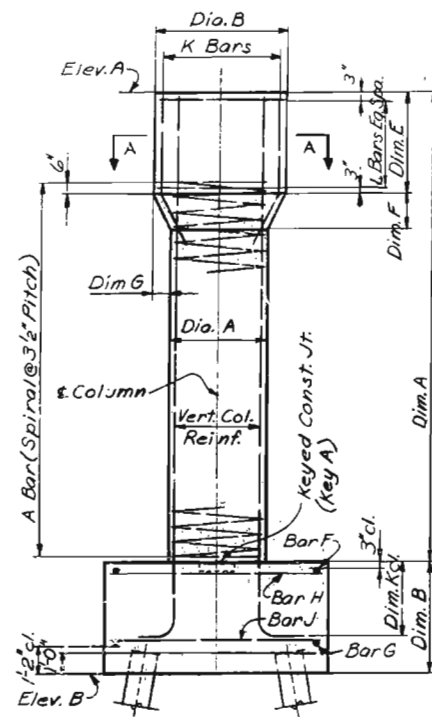
BENT 14

SHEET 15 OF 23

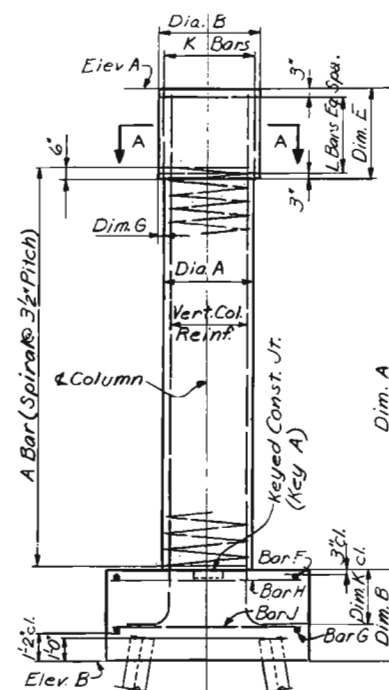
A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

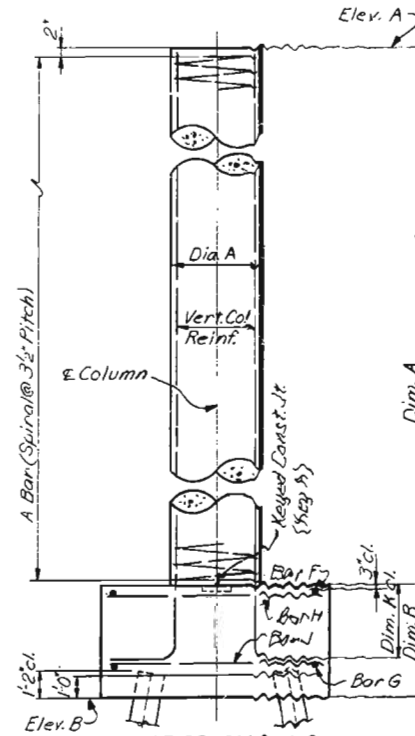
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	76	



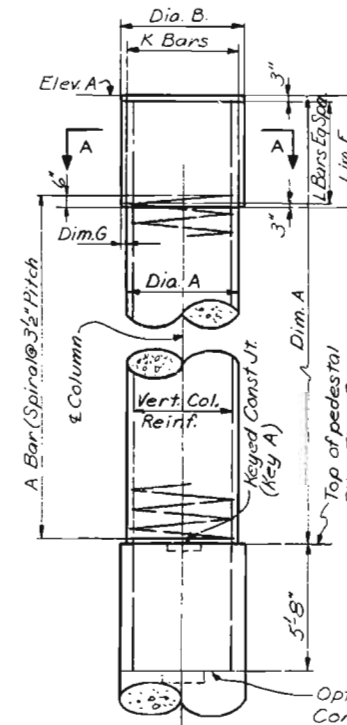
BENTS 19, 21 & 22 - COLS. 1 & 2
BENTS 20, 23, 25, 26 & 27 - COL. 1
BENTS 28, 29 & 30 - COL. 2



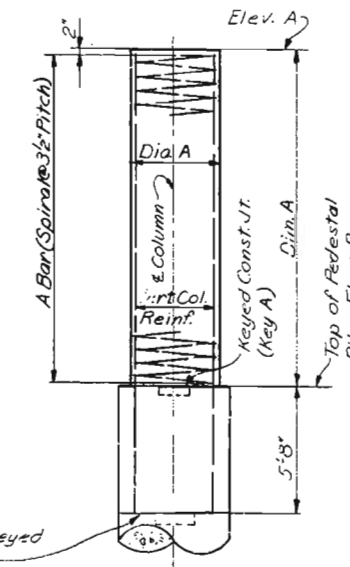
BENTS 16, 17 & 31 - COLS. 1 & 2
BENTS 29 & 30 - COL. 1
BENTS 18 & 23 - COL. 2



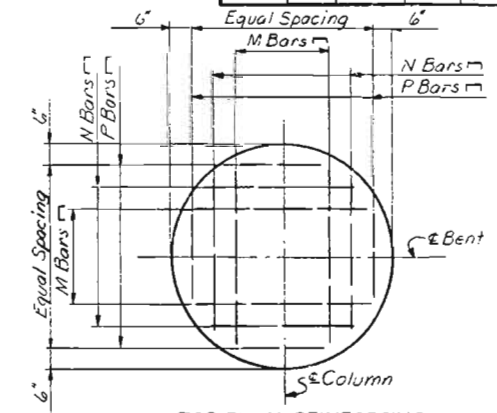
BENT 32 - COL. 1 & 2
BENTS 24 & 28 - COL. 1
BENT 20 - COL. 2



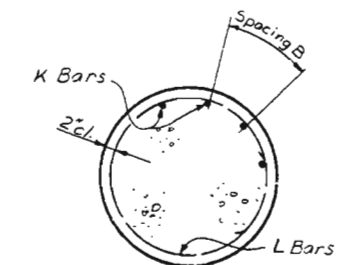
BENTS 26 & 27 - COL. 2



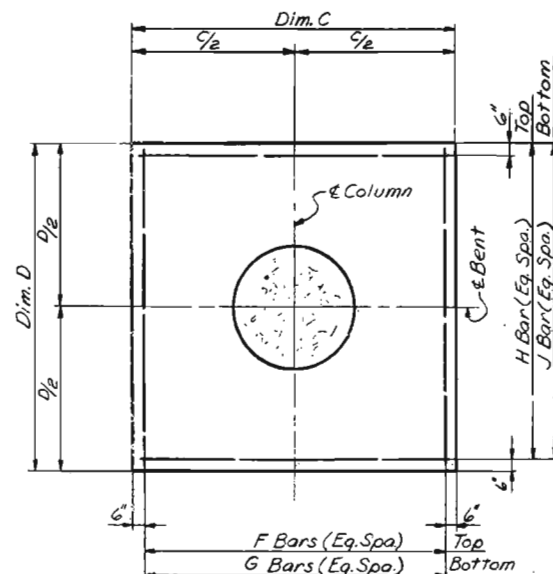
BENT 18 - COL. 1
BENTS 24 & 25 - COL. 2



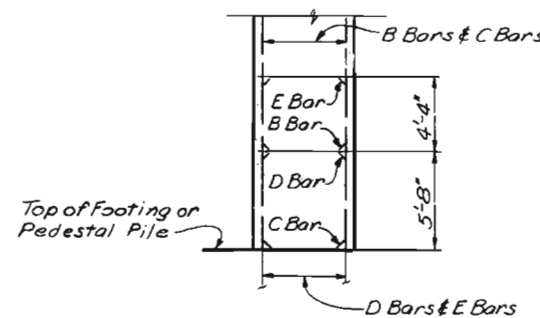
TOP PLAN REINFORCING
Note: Anchor Bolts not shown.
Shift reinf. as required
to clear anchor bolts.



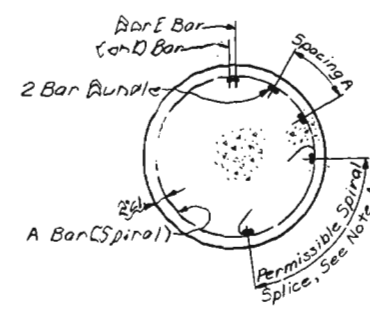
SECTION A-A



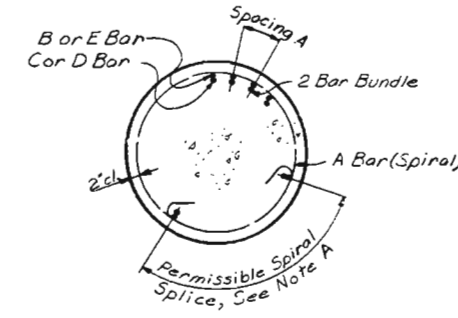
FOOTING PLAN
Note: Piles not shown. See Sheet 19.



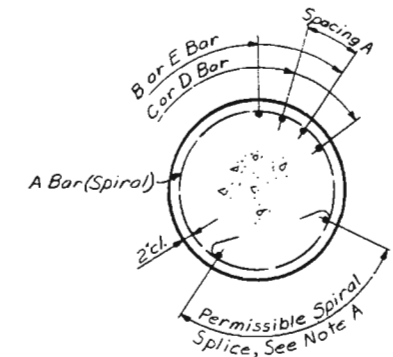
VERTICAL COLUMN REINFORCING



SECTION THRU COLUMN
BENTS 16, 17, 21, 22, 23 & 29 - COLS. 1 & 2
BENTS 19, 24 & 30 - COL. 1
BENTS 18, 20, 25, 26, 27 & 31 - COL. 2



SECTION THRU COLUMN
BENTS 18, 25, 26, 27 & 31 - COL. 1
BENTS 28 & 32 - COLS. 1 & 2
BENT 30 - COL. 2

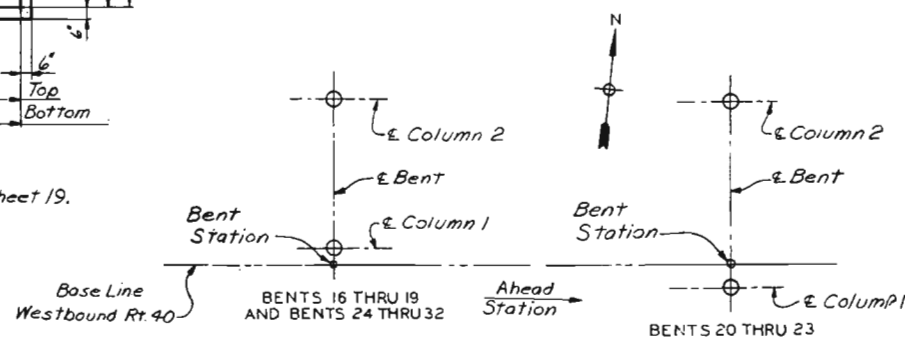


SECTION THRU COLUMN
BENT 20 - COL. 1
BENTS 19 & 24 - COL. 2

NOTES

Note A: Spiral splice shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.
No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.

Spirals are to have 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom.
Spacing of vertical column reinforcement is measured along inside face of spiral bar or tie bar.
Work this sheet with Sheets 18 & 19.
Spirals to be set on top of footing or Pedestal Piles.



COLUMN ORIENTATION PLAN

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

BENTS 16 THROUGH 32

SHEET 17 OF 23

A-3594

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

5261
775359

435

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		10	77	

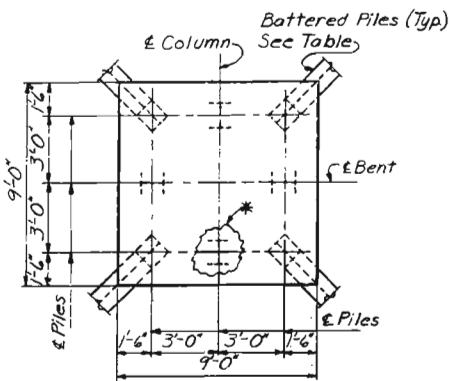
TABLE OF VARIABLES

	BENT 16 STA. 42+98.00		BENT 17 STA. 44+02.00		BENT 18 STA. 45+16.00		BENT 19 STA. 46+30.00		BENT 20 STA. 47+33.00		BENT 21 STA. 48+33.00		BENT 22 STA. 49+44.00		BENT 23 STA. 50+54.00		BENT 24 STA. 51+54.00		BENT 25 STA. 52+54.00		BENT 26 STA. 53+74.00		
	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	
Elev. A	489.27	490.67	486.35	488.45	484.74	486.92	482.18	484.96	479.34	482.82	479.01	482.42	480.94	484.56	483.39	487.02	487.01	489.84	487.74	489.27	489.70	489.53	Elev. A
Elev. B	455.00	455.00	454.50	454.50	459.00	455.00	453.00	454.00	452.50	454.00	451.50	453.50	451.00	453.50	451.50	454.50	452.00	460.00	453.50	460.50	455.00	461.00	Elev. B
Dim. A	30'-3"	31'-8"	27'-4"	29'-5"	25'-9"	27'-11"	24'-2"	26'-11"	22'-10"	23'-9"	23'-6"	23'-11"	25'-5"	26'-0"	26'-10"	27'-6"	30'-0"	29'-10"	28'-8"	28'-9"	29'-2"	28'-6"	Dim. A
Dim. B	4'-0"	4'-0"	4'-6"	4'-6"	---	4'-0"	5'-0"	4'-0"	4'-0"	5'-0"	4'-0"	5'-0"	4'-6"	5'-0"	4'-6"	5'-0"	5'-0"	5'-0"	5'-6"	---	5'-6"	---	Dim. B
Dim. C	9'-0"	9'-0"	9'-0"	9'-0"	---	9'-0"	9'-0"	9'-0"	9'-0"	11'-0"	9'-0"	11'-0"	9'-0"	10'-0"	9'-0"	9'-0"	9'-6"	---	9'-0"	---	9'-0"	---	Dim. C
Dim. D	9'-0"	9'-0"	9'-0"	9'-0"	---	9'-0"	12'-0"	9'-0"	9'-0"	9'-0"	9'-0"	13'-0"	9'-0"	13'-0"	11'-0"	13'-0"	12'-0"	9'-0"	---	15'-0"	---	15'-0"	Dim. D
Dim. E	4'-0"	4'-0"	5'-0"	5'-0"	---	4'-6"	5'-0"	3'-6"	2'-6"	---	4'-0"	5'-0"	4'-6"	5'-0"	5'-0"	5'-0"	---	---	5'-6"	---	5'-6"	5'-0"	Dim. E
Dim. F	---	---	---	---	---	---	1'-6"	1'-0"	1'-0"	---	1'-0"	1'-6"	1'-6"	1'-0"	1'-0"	---	---	---	1'-0"	---	1'-0"	---	Dim. F
Dim. G	3"	3"	3"	3"	---	3"	9"	6"	6"	---	6"	9"	9"	6"	6"	3"	---	---	6"	---	6"	3"	Dim. G
Dim. H	11'-2"	11'-2"	1'-5"	1'-5"	1'-7"	1'-4"	1'-11"	1'-3"	1'-2"	10"	1'-4"	1'-11"	1'-7"	1'-7"	1'-7"	1'-5"	1'-11"	10"	1'-11"	1'-4"	1'-11"	1'-5"	Dim. H
Dim. J	11'-2"	11'-2"	1'-1"	1'-1"	1'-1"	10"	1'-4"	8"	1'-4"	7"	10"	1'-4"	1'-1"	1'-1"	1'-1"	1'-1"	8'-2"	10"	1'-4"	10"	1'-4"	1'-1"	Dim. J
Dim. K	2'-6"	2'-6"	3'-0"	3'-0"	---	2'-6"	3'-6"	2'-6"	3'-6"	3'-6"	2'-6"	3'-6"	3'-0"	3'-6"	3'-6"	3'-6"	3'-6"	---	4'-0"	---	4'-0"	---	Dim. K
Dim. A	4'-0"	4'-0"	5'-0"	5'-0"	6'-0"	4'-6"	5'-0"	3'-6"	2'-6"	5'-0"	4'-0"	5'-0"	4'-6"	5'-0"	5'-0"	5'-0"	3'-6"	---	5'-6"	---	5'-6"	5'-0"	Dim. A
Dim. B	4'-6"	4'-6"	5'-6"	5'-6"	---	5'-0"	6'-6"	4'-6"	3'-6"	---	5'-0"	6'-6"	6'-0"	6'-0"	6'-0"	5'-6"	---	---	6'-6"	---	6'-6"	5'-6"	Dim. B
Key A	1'-4" x 2'-11"	1'-4" x 2'-11"	1'-8" x 2'-11"	1'-8" x 2'-11"	2'-0" x 2'-2"	1'-6" x 2'-11"	1'-8" x 2'-11"	1'-2" x 2'-11"	10'-2" x 10'	1'-8" x 2'-11"	1'-4" x 2'-11"	1'-8" x 2'-11"	1'-6" x 2'-11"	1'-8" x 2'-11"	1'-8" x 2'-11"	1'-8" x 2'-11"	1'-8" x 2'-11"	1'-8" x 2'-11"	1'-10" x 2'-11"	1'-8" x 2'-11"	1'-10" x 2'-11"	1'-8" x 2'-11"	Key A
A Bars	1'-2" P1	1'-2" P2	1'-2" P7	1'-2" P8	1'-2" P32	1'-2" P33	1'-2" P52	1'-2" P53	1'-2" P76	1'-2" P77	1'-2" P98	1'-2" P99	1'-2" P124	1'-2" P125	1'-2" P149	1'-2" P150	1'-2" P173	1'-2" P174	1'-2" P192	1'-2" P193	1'-2" P214	1'-2" P214	A Bars
B Bars	15'-11" P3	15'-11" P7	23'-11" P9	23'-11" P23	33'-11" P34	18'-11" P41	23'-11" P54	11'-11" P58	7'-10" P78	23'-11" P82	15'-11" P100	23'-11" P111	19'-11" P126	23'-11" P139	23'-11" P151	23'-11" P155	23'-11" P175	11'-11" P175	28'-11" P206	22'-11" P206	23'-11" P215	22'-11" P228	B Bars
C Bars	15'-11" P4	15'-11" P8	23'-11" P20	23'-11" P24	33'-11" P35	18'-11" P42	23'-11" P55	11'-11" P59	7'-10" P79	23'-11" P83	15'-11" P101	23'-11" P112	19'-11" P127	23'-11" P140	23'-11" P152	23'-11" P156	23'-11" P176	11'-11" P191	28'-11" P194	22'-11" P207	28'-11" P216	22'-11" P229	C Bars
D Bars	15'-11" P5	15'-11" P9	23'-11" P21	23'-11" P25	33'-11" P36	18'-11" P43	23'-11" P56	11'-11" P60	7'-10" P80	23'-11" P84	15'-11" P102	23'-11" P113	19'-11" P128	23'-11" P142	23'-11" P153	23'-11" P157	23'-11" P177	11'-11" P195	28'-11" P195	22'-11" P208	28'-11" P217	22'-11" P230	D Bars
E Bars	15'-11" P6	15'-11" P10	23'-11" P22	23'-11" P26	33'-11" P37	18'-11" P44	23'-11" P57	11'-11" P61	7'-10" P81	23'-11" P85	15'-11" P103	23'-11" P114	19'-11" P129	23'-11" P143	23'-11" P154	23'-11" P158	23'-11" P178	11'-11" P196	28'-11" P196	22'-11" P209	28'-11" P218	22'-11" P231	E Bars
F Bars	9'-6" P9	9'-6" P13	9'-6" P25	9'-6" P25	---	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	9'-6" P25	F Bars
G Bars	10'-7" P10	10'-7" P14	10'-7" P26	10'-7" P26	---	10'-7" P26	13'-9" P64	9'-6" P65	9'-6" P65	9'-6" P65	10'-7" P88	15'-9" P105	15'-9" P117	10'-7" P132	11'-8" P146	11'-10" P159	9'-6" P161	11'-7" P181	12'-11" P200	---	12'-11" P222	---	G Bars
H Bars	9'-6" P9	9'-6" P13	9'-6" P25	9'-6" P25	---	9'-6" P25	12'-6" P63	9'-6" P63	9'-6" P63	9'-6" P63	9'-6" P63	9'-6" P63	13'-6" P116	13'-6" P116	11'-8" P145	13'-6" P158	12'-6" P158	9'-6" P180	15'-6" P198	---	15'-6" P220	---	H Bars
J Bars	11'-8" P11	11'-8" P15	10'-7" P26	10'-7" P26	---	11'-7" P46	13'-7" P65	10'-7" P65	9'-6" P66	11'-9" P89	10'-7" P105	12'-9" P118	11'-7" P133	9'-8" P147	14'-7" P160	13'-7" P160	11'-7" P182	---	15'-8" P199	---	15'-8" P221	---	J Bars
K Bars	13'-4" P12	13'-4" P16	16'-4" P27	16'-4" P27	---	15'-4" P47	20'-4" P66	13'-4" P68	10'-4" P90	---	15'-4" P106	20'-4" P119	18'-4" P134	18'-4" P148	18'-4" P163	16'-4" P168	---	---	20'-4" P201	---	20'-4" P232	16'-4" P232	K Bars
L Bars	5'-4" P13	5'-4" P17	6'-4" P28	6'-4" P28	---	5'-4" P48	6'-4" P67	4'-4" P69	3'-4" P91	---	5'-4" P107	6'-4" P120	5'-4" P135	6'-4" P135	6'-4" P164	6'-4" P169	---	---	6'-4" P202	---	6'-4" P224	6'-4" P233	L Bars
M Bars	4'-5" P14	4'-5" P18	6'-5" P29	6'-5" P29	7'-5" P38	5'-5" P49	8'-5" P70	4'-5" P73	2'-5" P92	5'-5" P95	5'-5" P108	8'-5" P121	7'-5" P136	7'-5" P136	7'-5" P165	6'-5" P170	5'-5" P183	2'-5" P188	8'-5" P203	5'-5" P210	8'-5" P225	6'-5" P234	M Bars
N Bars	1'-5" P15	1'-5" P19	1'-5" P30	1'-5" P30	1'-5" P39	1'-5" P50	1'-5" P71	1'-5" P74	1'-5" P93	1'-5" P96	1'-5" P109	1'-5" P122	1'-5" P137	1'-5" P137	1'-5" P166	1'-5" P171	1'-5" P184	1'-5" P189	1'-5" P204	1'-5" P211	1'-5" P226	1'-5" P235	N Bars
P Bars	1'-5" P16	1'-5" P20	1'-5" P31	1'-5" P31	1'-5" P40	1'-5" P51	1'-5" P72	1'-5" P75	1'-5" P94	1'-5" P97	1'-5" P110	1'-5" P123	1'-5" P138	1'-5" P138	1'-5" P167	1'-5" P172	1'-5" P185	1'-5" P190	1'-5" P205	1'-5" P212	1'-5" P227	1'-5" P236	P Bars
Spacing A	9'	9'	7'-2"	7'-2"	6'-8"	8'-2"	7'-2"	5'-4"	5'-8"	7'-2"	9'	7'-2"	8'-8"	7'-2"	7'-2"	7'-2"	5'-4"	6'-8"	7'-8"	6'-8"	7'-8"	6'-8"	Spacing A
Spacing B	11'-6"	11'-6"	11'-0"	11'-0"	---	11'-2"	11'-2"	11'-6"	11'-6"	---	11'-6"	11'-2"	11'-6"	11'-6"	11'-6"	11'-6"	---	---	11'-2"	---	11'-2"	11'-0"	Spacing B

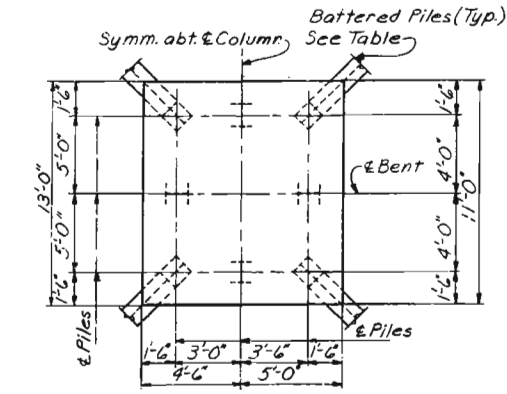
	BENT 27 STA. 54+90.00		BENT 28 STA. 55+96.00		BENT 29 STA. 57+05.00		BENT 30 STA. 58+26.00		BENT 31 STA. 59+35.00		BENT 32 STA. 60+40.00		
	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	
Elev. A	490.19	489.99	492.17	491.79	490								

MISSOURI STATE HIGHWAY DEPARTMENT

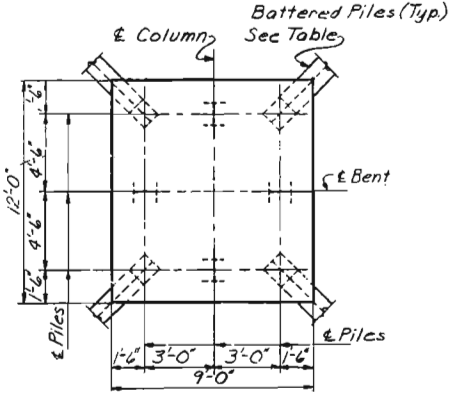
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	78	



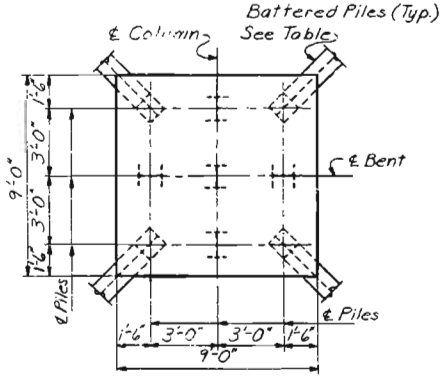
FOOTING PLAN
BENTS 20&21-COL. 1
BENTS 16&17-COLS. 1&2
BENTS 18, 19, 28, 29, 30&31-COL. 2
*Indicates Load Test at Bent 17-Col. 2 only



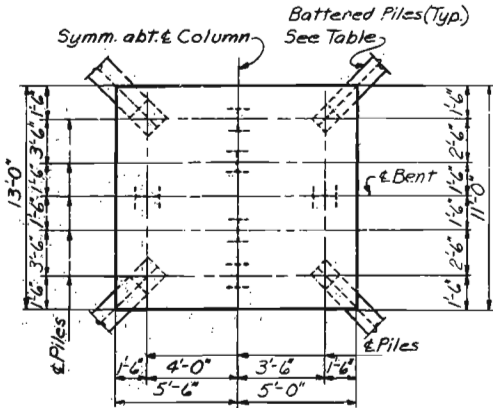
HALF FOOTING PLAN BENT 22-COL. 1
HALF FOOTING PLAN BENT 22-COL. 2



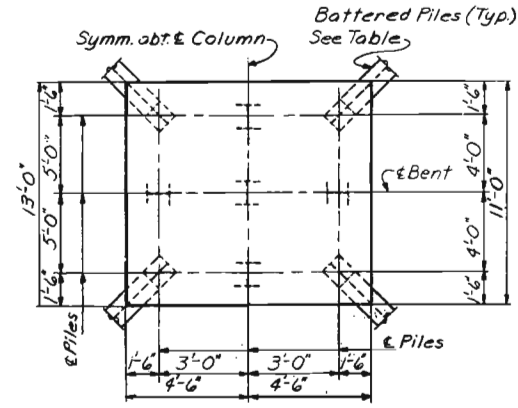
FOOTING PLAN
BENT 23-COL. 2



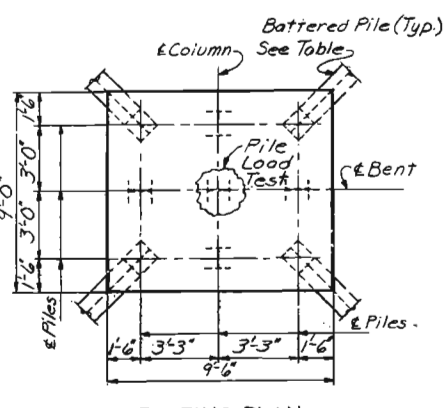
FOOTING PLAN
BENT 31-COL. 1



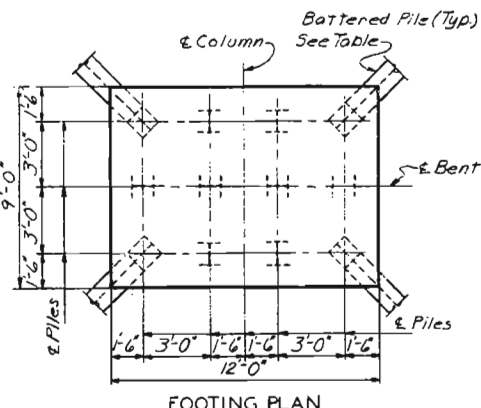
HALF FOOTING PLAN BENT 21-COL. 2
HALF FOOTING PLAN BENT 32-COL. 2



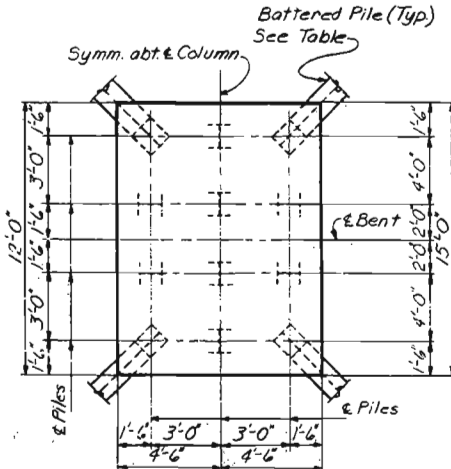
HALF FOOTING PLAN BENT 23-COL. 1
HALF FOOTING PLAN BENT 28-COL. 1



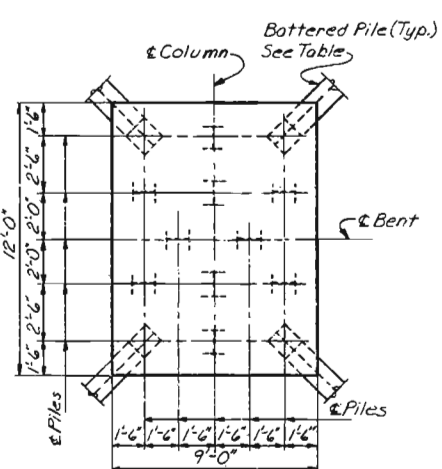
FOOTING PLAN
BENT 24-COL. 1



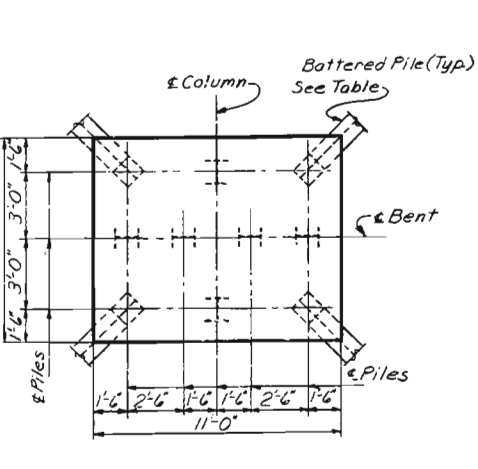
FOOTING PLAN
BENT 32-COL. 1



HALF FOOTING PLAN BENTS 19&29-COL. 1
HALF FOOTING PLAN BENTS 25, 26&27-COL. 1



FOOTING PLAN
BENT 30-COL. 1



FOOTING PLAN
BENT 20-COL. 2

BENT	COLUMN	PILES-NO. REQ'D. AND SIZE	PILE BATTER
16	1	8-HP10x42	2:12
	2	8-HP10x42	2:12
17	1	8-HP12x53	2:12
	2	8-HP12x53	2:12
18	2	8-HP10x42	2:12
19	1	12-HP12x53	3:12
	2	8-HP10x42	2:12
20	1	8-HP10x42	3:12
	2	10-HP12x53	3:12
21	1	8-HP10x42	2:12
	2	10-HP12x53	3:12
22	1	8-HP10x42	3:12
	2	8-HP12x53	2 1/2:12
23	1	9-HP12x53	3:12
	2	8-HP10x42	3:12
24	1	9-HP12x53	3:12
25	1	12-HP12x53	3:12
26	1	12-HP12x53	3:12
27	1	12-HP12x53	3:12
28	1	9-HP12x53	3:12
	2	8-HP10x42	2:12
29	1	12-HP12x53	3:12
	2	8-HP10x42	2:12
30	1	14-HP12x53	3:12
	2	8-HP10x42	2:12
31	1	9-HP12x53	2 1/2:12
	2	8-HP10x42	2:12
32	1	12-HP12x53	3:12
	2	10-HP12x53	3:12

NOTES
Reinforcing steel not shown. See Footing Plan on Sheet 17.
Pile spacing measured at Bottom of Footing.
For Substructure Layout, See Sheets 12 and 13.
For Pile Splice, Pile Data, and Pile Hold Down Detail, See Sheet 14.
Work this Sheet with Sheets 17 & 18.

CITY OF ST. LOUIS

BENTS 16 THROUGH 32

SHEET 19 OF 23

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

437

DRAWN BY: M. J. JUDGE
CHECKED BY: T. SANDERS, Nov. 1977
5261
775361

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

MISSOURI STATE HIGHWAY DEPARTMENT

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

MARK	NO. REQ'D	SIZE	LENGTH	TYPE	LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT	FU	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ	GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT	GU	GV	GW	GX	GY	GZ	HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ	HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT	HU	HV	HW	HX	HY	HZ	IA	IB	IC	ID	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	JA	JB	JC	JD	JE	JF	JG	JH	JI	IJ	JK	KL	KM	KN	KO	KP	KQ	KR	KS	KT	KU	KV	KW	KX	KY	KZ	LA	LB	LC	LD	LE	LF	LG	LH	LI	LJ	LK	LL	LM	LN	LO	LP	LQ	LR	LS	LT	LU	LV	LW	LX	LY	LZ	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MU	MV	MW	MX	MY	MZ	NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ	NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT	NU	NV	NW	NX	NY	NZ	OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ	OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT	OU	OV	OW	OX	OY	OZ	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT	PU	PV	PW	PX	PY	PZ	QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ	QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT	QU	QV	QW	QX	QY	QZ	RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ	RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT	RU	RV	RW	RX	RY	RZ	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SU	SV	SW	SX	SY	SZ	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK	TL	TM	TN	TO	TP	TQ	TR	TS	TT	TU	TV	TW	TX	TY	TZ	UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ	UK	UL	UM	UN	UO	UP	UQ	UR	US	UT	UU	UV	UW	UX	UY	UZ	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT	VU	VV	VW	VX	VY	VZ	WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ	WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT	WU	WV	WW	WX	WY	WZ	XA	XB	XC	XD	XE	XF	YG	YH	YI	YJ	YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT	YU	YV	YW	YX	YY	YZ	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	ZL	ZM	ZN	ZO	ZP	ZQ	ZR	ZS	ZT	ZU	ZV	ZW	ZX	ZY	ZZ	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT	FU	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ	GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT	GU	GV	GW	GX	GY	GZ	HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ	HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT	HU	HV	HW	HX	HY	HZ	IA	IB	IC	ID	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	JA	JB	JC	JD	JE	JF	JG	JH	JI	IJ	JK	KL	KM	KN	KO	KP	KQ	KR	KS	KT	KU	KV	KW	KX	KY	KZ	LA	LB	LC	LD	LE	LF	LG	LH	LI	LJ	LK	LL	LM	LN	LO	LP	LQ	LR	LS	LT	LU	LV	LW	LX	LY	LZ	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MU	MV	MW	MX	MY	MZ	NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ	NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT	NU	NV	NW	NX	NY	NZ	OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ	OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT	OU	OV	OW	OX	OY	OZ	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT	PU	PV	PW	PX	PY	PZ	QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ	QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT	QU	QV	QW	QX	QY	QZ	RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ	RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT	RU	RV	RW	RX	RY	RZ	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SU	SV	SW	SX	SY	SZ	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK	TL	TM	TN	TO	TP	TQ	TR	TS	TT	TU	TV	TW	TX	TY	TZ	UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ	UK	UL	UM	UN	UO	UP	UQ	UR	US	UT	UU	UV	UW	UX	UY	UZ	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT	VU	VV	VW	VX	VY	VZ	WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ	WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT	WU	WV	WW	WX	WY	WZ	XA	XB	XC	XD	XE	XF	YG	YH	YI	YJ	YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT	YU	YV	YW	YX	YY	YZ	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	ZL	ZM	ZN	ZO	ZP	ZQ	ZR	ZS	ZT	ZU	ZV	ZW	ZX	ZY	ZZ	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT	FU	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ	GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT	GU	GV	GW	GX	GY	GZ	HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ	HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT	HU	HV	HW	HX	HY	HZ	IA	IB	IC	ID	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	JA	JB	JC	JD	JE	JF	JG	JH	JI	IJ	JK	KL	KM	KN	KO	KP	KQ	KR	KS	KT	KU	KV	KW	KX	KY	KZ	LA	LB	LC	LD	LE	LF	LG	LH	LI	LJ	LK	LL	LM	LN	LO	LP	LQ	LR	LS	LT	LU	LV	LW	LX	LY	LZ	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MU	MV	MW	MX	MY	MZ	NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ	NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT	NU	NV	NW	NX	NY	NZ	OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ	OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT	OU	OV	OW	OX	OY	OZ	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT	PU	PV	PW	PX	PY	PZ	QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ	QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT	QU	QV	QW	QX	QY	QZ	RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ	RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT	RU	RV	RW	RX	RY	RZ	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SU	SV	SW	SX	SY	SZ	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK	TL	TM	TN	TO	TP	TQ	TR	TS	TT	TU	TV	TW	TX	TY	TZ	UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ	UK	UL	UM	UN	UO	UP	UQ	UR	US	UT	UU	UV	UW	UX	UY	UZ	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT	VU	VV	VW	VX	VY	VZ	WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ	WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT	WU	WV	WW	WX	WY	WZ	XA	XB	XC	XD	XE	XF	YG	YH	YI	YJ	YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT	YU	YV	YW	YX	YY	YZ	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	ZL	ZM	ZN	ZO	ZP	ZQ	ZR	ZS	ZT	ZU	ZV	ZW	ZX	ZY	ZZ	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV
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FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	80	

AMT

5261	DRAWN BY: M. Jung
775388	TRACED BY:
	CHECKED BY: H. O. H. H. H.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SHEET 21 OF 23

A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		19	87	

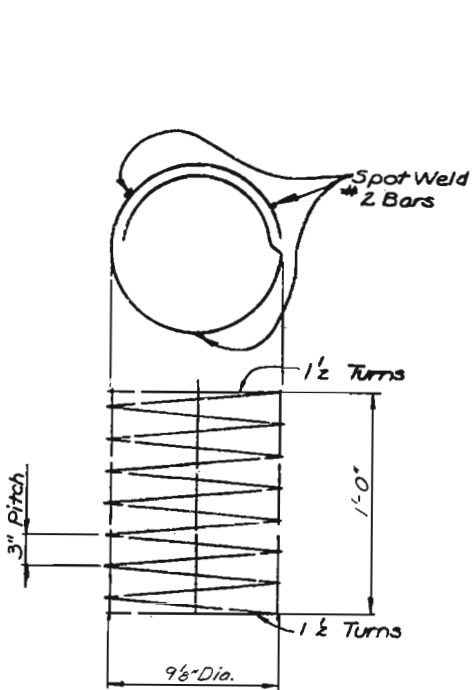
MARK	NO. REQ'D	SIZE	LENGTH FT - IN	TYPE	LOCATION	A FT - IN	B FT - IN	C FT - IN	D FT - IN	E FT - IN	F FT - IN	G FT - IN	H FT - IN	I FT - IN	J FT - IN	K FT - IN
BENT 27																
P237	1	6	18'-0"	SP	COLUMN											
P238	1	6	24'-0"	SP	DO											
P239	28	11	23'-0"	ST	DO											
P240	28	11	29'-0"	ST	DO											
P241	28	11	11'-0"	2	FOOTING	2=0	9=10									
P242	28	11	15'-10"	2	DO	2=0	18=2									
P243	9	6	18'-0"	ST	DO											
P244	15	6	8'-0"	ST	DO											
P245	12	11	14'-0"	ST	DO											
P246	15	6	8'-0"	ST	DO											
P247	6	6	20'-0"	TX	CAP			1=0	4=2							
P248	16	5	6'-0"	2	DO	10	5=0			10						
P249	6	5	5'-0"	2	DO	10	4=1			10						
P250	6	5	4'-0"	2	DO	10	2=7			10						
P251	28	11	22'-0"	ST	COLUMN											
P252	28	11	28'-0"	ST	DO											
P253	28	11	11'-0"	4	PRE.PILE											
P254	28	11	15'-0"	ST	DO											
P255	16	6	8'-0"	ST	CAP											
P256	6	6	17'-0"	TX	DO			1=0	5=2							
P257	12	5	3'-0"	2	DO	10	4=4			10						
P258	6	5	5'-0"	2	DO	10	3=7			10						
P259	6	5	3'-10"	2	DO	10	2=5			10						
P260	20	4	7'-0"	15	DO		2=2	5=3					1=0 1/2	1=11		
X 1	28	4	3'-0"	SP	FOOTING											
Z 1	10	2	19'-0"	SP	CAP											
BENT 28																
P261	1	6	18'-0"	SP	COLUMN											
P262	1	6	24'-0"	SP	DO											
P263	32	11	24'-10"	ST	DO											
P264	32	11	30'-0"	ST	DO											
P265	32	11	11'-0"	2	FOOTING	2=0	9=10									
P266	32	11	15'-10"	2	DO	2=0	18=2									
P267	9	6	18'-0"	ST	DO											
P268	16	6	18'-0"	ST	DO											
P269	11	6	8'-0"	ST	DO											
P270	16	5	6'-0"	1	CAP	10	6=0 1/2			10						
P271	6	5	5'-0"	2	DO	10	3=11			10						
P272	6	5	3'-11"	2	DO	10	2=6			10						
P273	19	11	20'-5"	ST	COLUMN											
P274	19	11	30'-1"	ST	DO											
P275	19	11	18'-0"	2	FOOTING	2=0	8=4									
P276	19	11	18'-0"	2	DO	2=0	12=8									
P277	9	7	8'-0"	ST	DO											
P278	10	6	6'-0"	ST	DO											
P279	15	6	5'-11"	19	CAP		2=2	3=9				1=0 1/2	1=11			
P280	9	6	15'-0"	TX	DO			1=0	4=8							
P281	10	5	5'-0"	2	DO	10	4=1			10						
P282	6	5	4'-10"	2	DO	10	3=5			10						
P283	6	5	3'-0"	2	DO	10	2=1			10						
X 1	28	4	3'-0"	SP	FOOTING											
Z 1	10	2	19'-0"	SP	CAP											
BENT 29 (CONTINUED)																
P291	39	6	8'-0"	ST	DO											
P292	10	9	11'-0"	ST	DO											
P293	22	6	8'-0"	ST	DO											
P294	9	7	8'-0"	ST	DO											
P295	20	6	5'-0"	ST	CAP											
P296	7	4	20'-0"	TX	DO				1=0	4=2						
P297	16	5	6'-0"	2	DO	10	5=0									
P298	6	5	5'-0"	2	DO	10	4=1									
P299	6	5	4'-0"	2	DO	10	2=7									
P300	15	6	6'-0"	19	DO		2=9		3=3					1=2 3/4	2=5 1/2	
P301	6	4	15'-0"	TX	DO				1=0	4=8						
P302	10	5	5'-0"	2	DO	10	4=1									
P303	6	5	4'-10"	2	DO	10	3=5									
P304	6	5	3'-0"	2	DO	10	2=1									
P305	15	11	22'-11"	ST	COLUMN											
P306	15	11	28'-0"	ST	DO											
P307	15	11	10'-0"	2	FOOTING	2=0	8=4									
P308	15	11	14'-0"	2	DO	2=0	12=8									
X 1	28	4	3'-0"	SP	DO											
Z 1	10	2	19'-0"	SP	CAP											
BENT 30																
P309	1	6	18'-0"	SP	COLUMN											
P310	1	6	24'-0"	SP	DO											
P311	32	11	23'-0"	ST	DO											
P312	32	11	29'-0"	ST	DO											
P313	32	11	11'-0"	2	FOOTING	2=0	9=10									
P314	32	11	15'-10"	2	DO	2=0	18=2									
P315	16	11	23'-0"	ST	COLUMN											
P316	16	11	28'-0"	ST	DO											
P317	16	11	10'-0"	2	FOOTING	2=0	8=4									
P318	16	11	14'-0"	2	DO	2=0	12=8									
P319	9	6	11'-0"	ST	DO											
P320	30	6	8'-0"	ST	DO											
P321	9	10	11'-0"	ST	DO											
P322	22	6	8'-0"	ST	DO											
P323	10	7	8'-0"	ST	DO											
P324	20	6	5'-0"	ST	CAP											
P325	7	6	20'-0"	TX	DO				1=0	4=2						
P326	16	5	6'-0"	2	DO	10	5=0									
P327	6	5	5'-0"	2	DO	10	4=1									
P328	6	5	4'-0"	2	DO	10	2=7									
P329	15	6	5'-11"	19	DO		2=2	3=9						1=0 1/2	1=11	
P330	5	4	15'-0"	TX	DO				1=0	4=8						
P331	10	5	5'-0"	2	DO	10	4=1									
P332	6	5	4'-10"	2	DO	10	3=5									
P333	6	5	3'-0"	2	DO	10	2=1									
X 1	28	4	3'-0"	SP	FOOTING											
Z 1	10	2	19'-0"	SP	CAP											

MISSOURI STATE HIGHWAY DEPARTMENT

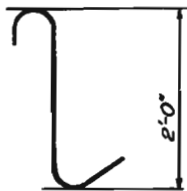
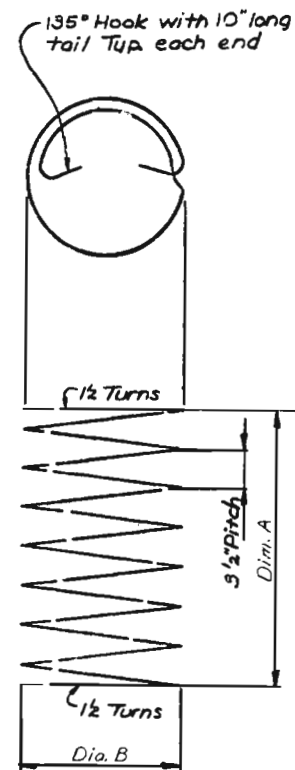
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	82	

MARK	NO. REQ'D	SIZE NO.	LENGTH FT.-IN	TYPE	LOCATION	A	B	C	D	E	F	G	H	I
						FT.-IN	FT.-IN	FT.-IN	FT.-IN	FT.-IN	FT.-IN	FT.-IN	FT.-IN	
BENT 31														
P336	1	17x10	8P	COLUMN										
P337	1	17x10	8P	DO										
P338	27	11	25x4	ST	DO									
P339	27	11	31x4	ST	DO									
P340	27	11	11x4	2	FOOTING	2=0	9=4							
P341	27	11	15x4	2	DO	2=0	13=8							
P342	18	11	23x3	ST	COLUMN									
P343	18	11	28x11	ST	DO									
P344	18	11	10x4	2	FOOTING	2=0	8=4							
P345	18	11	14x4	2	DO	2=0	12=8							
P346	16	6	8x4	ST	DO									
P347	16	6	8x4	ST	DO									
P348	16	6	8x4	ST	CAP									
P349	4	4	17x3	TX	DO			1=0	5=2					
P350	12	5	5x4	2	DO	10	4=4				10			
P351	4	5	5x4	2	DO	10	3=7				10			
P352	4	5	3x10	2	DO	10	2=5				10			
P353	13	4	3x8	ST	DO									
P354	5	8	18x1	TX	DO			1=0	4=2					
P355	8	5	5x2	2	DO	10	3=9				10			
P356	8	5	4x8	2	DO	10	3=3				10			
P357	8	5	3x7	2	DO	10	2=2				10			
X 1	68	6	3x5	8P	FOOTING									
Z 1	16	2	19x9	8P	CAP									

BENT 32														
P358	1	666-7	8P	COLUMN										
P359	1	666-7	8P	DO										
P360	28	11	23x7	ST	DO									
P361	28	11	29x7	ST	DO									
P362	61	11	15x4	2	FOOTING	2=0	9=10							
P363	61	11	15x10	2	DO	2=0	14=2							
P364	33	11	25x4	ST	COLUMN									
P365	33	11	30x4	ST	DO									
P366	12	6	8x4	ST	FOOTING									
P367	6	6	11x4	ST	DO									
P368	12	6	8x4	ST	DO									
P369	6	10	11x4	ST	DO									
P370	10	6	10x4	ST	DO									
P371	11	6	9x4	ST	DO									
P372	11	6	9x4	ST	DO									
P373	12	5	5x4	2	CAP	10	4=4				10			
P374	8	5	5x4	2	DO	10	3=7				10			
P375	4	5	3x10	2	DO	10	2=5				10			
P376	10	5	4x1	2	DO	10	4=8 1/2				10			
P377	6	5	5x4	2	DO	10	3=11				10			
P378	4	5	3x11	2	DO	10	2=6				10			
X 1	68	6	3x5	8P	FOOTING									
Z 1	12	2	19x9	8P	CAP									



Z1



X1

Bar Mark	Dim. A	Dim. B
P1	26'-9 1/4"	3'-8"
P2	28'-2"	3'-8"
P7	22'-10 1/4"	4'-8"
P18	24'-11 1/2"	4'-8"
P32	24'-11 1/2"	5'-8"
P33	23'-11"	4'-2"
P52	19'-8 1/2"	4'-8"
P53	23'-11 1/2"	3'-2"
P76	20'-10 1/2"	2'-2"
P77	23'-7 1/2"	4'-8"
P98	20'-0 1/2"	3'-8"
P99	19'-5"	4'-8"
P124	21'-5 1/4"	4'-2"
P125	21'-6 3/4"	4'-8"
P149	22'-4 3/8"	4'-8"
P150	23'-0 1/4"	4'-8"
P173	29'-10 1/8"	4'-8"
P174	29'-8 1/8"	3'-2"
P192	23'-8 1/2"	5'-2"
P193	28'-7 1/4"	4'-8"
P213	24'-2 3/8"	5'-2"
P214	24'-0 3/8"	4'-8"
P237	24'-2 1/4"	5'-2"
P238	23'-11 1/8"	4'-8"
P260	38'-6"	5'-8"
P261	26'-9 1/2"	3'-8"
P284	23'-5 3/8"	5'-8"
P285	25'-9 1/8"	3'-2"
P309	23'-11 1/2"	5'-8"
P310	25'-4 1/2"	3'-8"
P334	26'-8 1/4"	4'-8"
P335	25'-7"	3'-2"
P357	28'-3"	5'-2"
P358	30'-8 3/8"	5'-8"
R15	37'-1 1/2"	4'-2"
R24	36'-1"	4'-2"
R25	36'-5 3/8"	4'-2"
R26	36'-9 1/2"	4'-2"

CITY OF ST. LOUIS

BAR LIST

SHEET 23 OF 23

A-3504

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

OVERDRUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: M. J. J. - Nov 1977
CHECKED BY: M. J. J. - Nov 1977
5261
775390

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		16	25	

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

Missouri State Highway Commission Specifications for Highway Construction (1977 Edition) and Special Provisions.

DESIGN SPECIFICATIONS:

Division I of the AASHTO "Standard Specifications for Highway Bridges" (1973 Edition including 1974, 1975 and 1976 Interim specifications - Zone II Earthquake).

DESIGN LOADING:

(Load Factor Design Method - Bridge Substructure only, except footings).
Live Load - HS20-44 and modified 24,000 lbs. tandem axle.
Dead Load - Weight of Structure includes reinforced concrete at 150 lbs. per cu. ft. with provision for a future wearing surface of 30 lbs. per sq. ft. of roadway.

DESIGN UNIT STRESS:

Concrete in Flexure;
Class B Concrete - $f'_c = 3000$ lbs. per sq. in.
 $f_c = 1200$ lbs. per sq. in.
 $n = 10$
Reinforcing Steel;
 $f_s = 24,000$ lbs. per sq. in.
 $f_y = 60,000$ lbs. per sq. in.
Steel Piles (ASTM A36);
Design bearing = 12 kips per sq. in. (end bearing)
Pedestal Piles;
Design bearing = 35 Tons per sq. ft. (end bearing)

PILE LOAD TEST:

Pile load tests were performed at Column 1 of Bents 24 and Column 2 of Bent 17. The load tests were performed in accordance with the Standard Specifications.

CONCRETE:

Concrete for Bents and Pedestal piles is Class B.

REINFORCEMENT:

Reinforcing Steel is deformed billet steel, Grade 60. All dimensions to reinforcing bars on detail drawings are to centerline of bar except where the clear distance is noted from the face of concrete.
Lap Splices and embedment of reinforcement as shown on the detail drawings are in accordance with AASHTO, Interim 1974 Specifications.
Spiral bars in column are cold drawn bars conforming to ASTM A82.

PROFILE GRADE:

Profile grade is located at the Base Line of Westbound Route 40 and at top of roadway slab.

CONSTRUCTION JOINTS:

Construction joints were permitted only at the locations shown on the detail drawings or as approved by the Engineer.

BEVELED EDGES:

All exposed edges of concrete are beveled $\frac{3}{4}$ " unless otherwise shown or noted.

EXISTING UNDERGROUND FACILITIES:

Underground Facilities, Structures and Utilities have been plotted from available surveys and records; and, therefore, their locations must be considered approximate only. It is possible there may be others, the existence of which was presently not known or shown. It was the Contractor's responsibility to determine their existence and exact location and to avoid damage thereto. See Standard Specifications.

SECTION 2

FINAL QUANTITIES

ITEM	UNIT	TOTAL
Class I Excavation	Cu. Yd.	1605.0
*Pedestal Piles 4'-0" Dia.	Lin. Ft.	63.5
*Pedestal Piles 5'-6" Dia.	Lin. Ft.	197.1
*Pedestal Piles 7'-0" Dia.	Lin. Ft.	50.0
Structural Steel Piles HP10 x 42	Lin. Ft.	5300
Structural Steel Piles HP12 x 53	Lin. Ft.	8290
Pile Load Test (HP12 x 53)	Each.	2
Class B Concrete	Cu. Yd.	1484.9
Reinforcing Steel	Lb.	564,010
CONTINGENT ITEMS		
Revise Col. #1 Bent #26	F.A.	7075.01
Pedestal Piles 7'-0" Dia. +25%	Lin. Ft.	3.1**
Test Holes Ped. Pile	Lin. Ft.	8
Class I Excavation +25%	Cu. Yd.	215
Steel Pile Tips	F.A.	207.92

* Cost of Concrete in pedestal piles is included in unit price bid per lin. ft. of pedestal piles.

THE ABOVE QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES ON THE FIRST SHEET OF BRIDGE PLANS

CITY OF ST. LOUIS

GENERAL NOTES AND ESTIMATED QUANTITIES

BRIDGE PLANS
SHEET 4 OF 23

A-3594

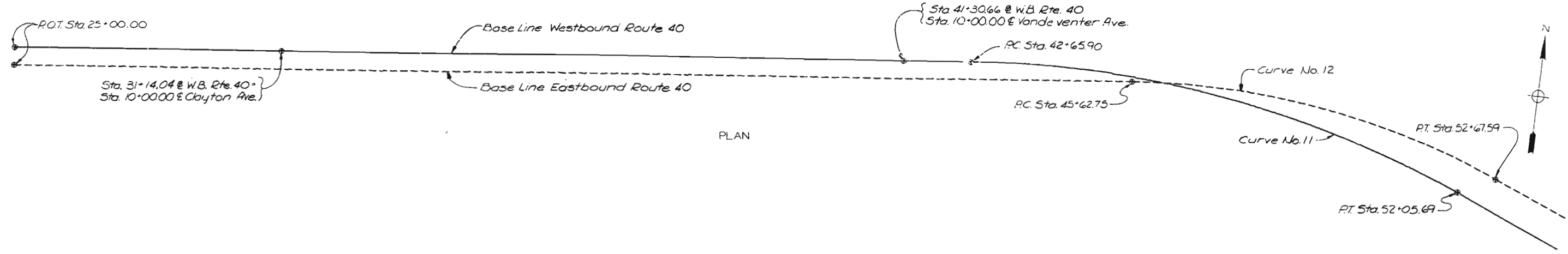
OVERVIEW & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: M. Jungo Nov. 1977
CHECKED BY: W.O. Walden Nov. 1977
5261
775385

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	26	



HORIZONTAL CURVE DATA																
Curve No.	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	27
P.T.	Sta. 47+45.51	Sta. 49+22.46	Sta. 55+88.46	Sta. 58+95.22	Sta. 1+00.08	Sta. 1+60.97	Sta. 65+24.53	Sta. 70+61.33	Sta. 71+72.71	Sta. 0+34.99	Sta. 2+78.30	Sta. 75+23.49	Sta. 1+52.50	Sta. 79+38.90	Sta. 82+84.69	Sta. 82+59.13
Δ	28°11'37.9"Rt.	28°11'37.8"Rt.	3°04'03.3"Lt.	3°04'03.3"Rt.	11°57'55.4"Lt.	63°31'30.1"Rt.	6°14'13.4"Rt.	7°13'56.1"Lt.	10°14'05.5"Lt.	26°04'22.0"Rt.	133°30'29.9"Rt.	1°22'15.7"Lt.	18°08'50.1"Lt.	2°27'00.3"Lt.	2°27'00.3"Rt.	12°19'54.3"Rt.
D	3°00'00"	4°00'00"	1°00'00"	1°00'00"	6°00'00"	22°02'12.6"	1°00'00"	1°36'27"	0°52'00"	37°54'41.7"	63°39'43.1"	0°29'54.8"	6°00'00"	0°42'30.8"	0°42'30.8"	2°00'00"
T	479.61'	359.71'	153.42'	153.42'	100.08'	160.97'	312.16'	225.25'	592.05'	34.99'	209.52'	137.51'	152.50'	172.92'	172.92'	309.49'
L	939.80'	704.84'	306.76'	306.76'	199.42'	288.27'	623.71'	449.91'	1180.94'	68.77'	209.71'	275.00'	302.45'	345.79'	345.79'	616.59'
R	1909.86'	1432.39'	5729.58'	5729.58'	954.93'	260.00'	5729.58'	3564.30'	6611.05'	151.13'	90.00'	11492.00'	954.93'	8086.36'	8086.36'	2864.79'

BENCH MARKS U.S.G.S. DATUM		
NUMBER	DESCRIPTION	ELEV.
B.M. #4	"a" on stone curb in front of General Equip. Co. bldg. No. 3952 Clayton Ave.	477.94
B.M. #5	"b" on N.E. corner of 2x2 conc. base of stop light at Vandeventer & left side of ramp from Mkt. St.	459.32
B.M. #1	"a" on top conc. Ret. Wall N. Side of W.B. 40 Sta. 1250±	481.17
B.M. #181	"a" on curb S.W. corner W.B. Mkt. St. Br. over E.B. Forest Park Blvd.	484.26
B.M. #479	R.R. spike in P.R. corner of alley and Prospect St.	476.90
B.M. #381	"a" on S. side Sign Ped. in median E.B. 40 Sta. 30+90±	495.73
B.M. #5	Top of S.W. corner of light standard at the S.W. corner of Grand Ave. bridge.	489.63

443

DRAWN BY: J. Ostermayer Dec. 1976
CHECKED BY: T. Sanders, May 1977

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

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

ALIGNMENT, HORIZONTAL CURVE DATA,
AND BENCH MARKS

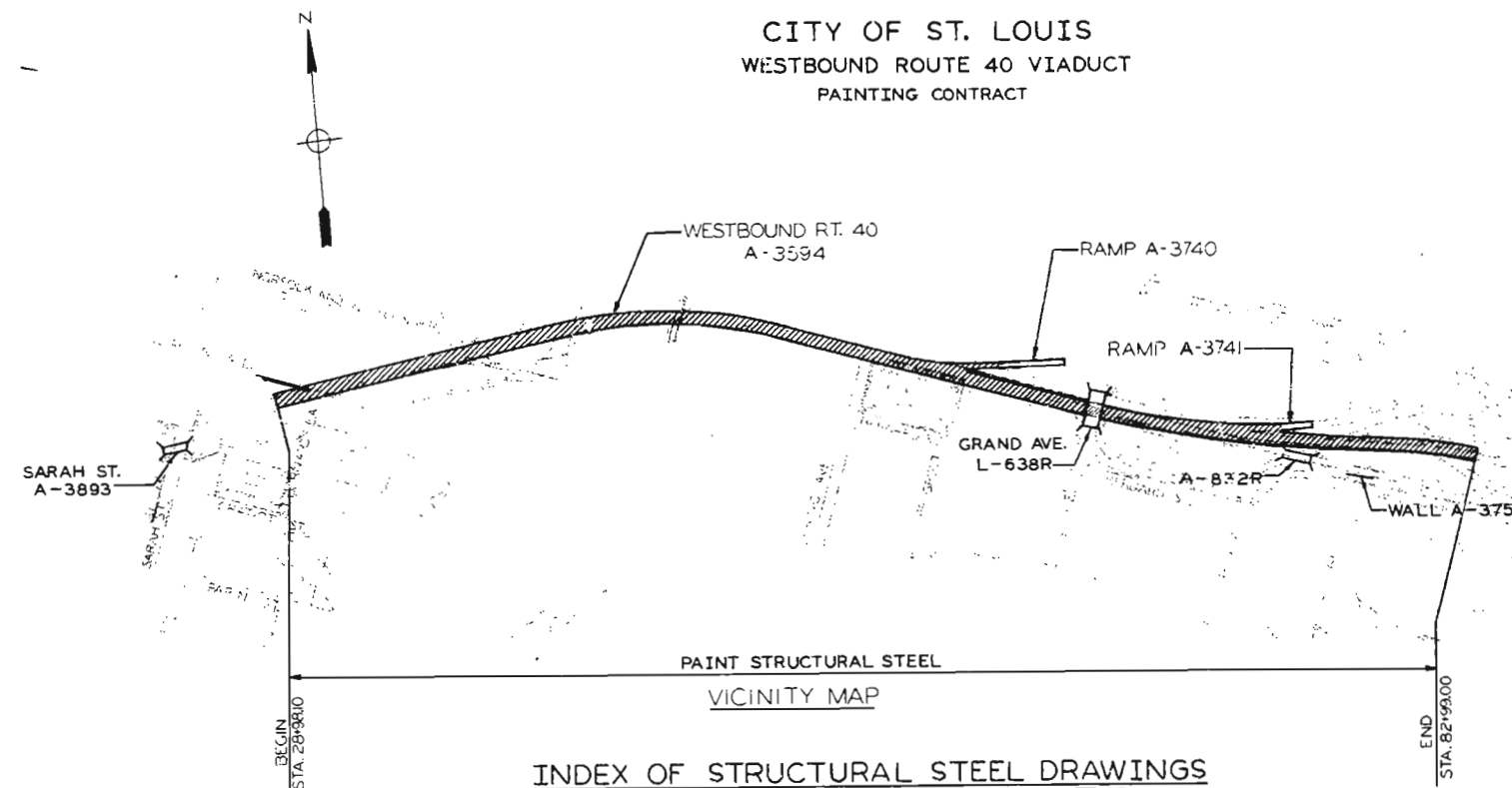
SHEET 5 OF 6

A-3594

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

DESIGN NO.	DATE	DESIGN NO.	DATE	DESIGN NO.	DATE
1	1974	2	1974	3	1974
CITY BLOCKS	2199, 2206, 2215				

CITY OF ST. LOUIS WESTBOUND ROUTE 40 VIADUCT PAINTING CONTRACT



INDEX OF STRUCTURAL STEEL DRAWINGS

- VICINITY MAP AND INDEX OF DRAWINGS
- GENERAL PLAN AND ELEVATION
- GENERAL PLAN AND ELEVATION
- GENERAL PLAN AND ELEVATION
- GENERAL PLAN AND ELEVATION
- GENERAL PLAN AND ELEVATION
- GENERAL NOTES AND ESTIMATED QUANTITIES

- FRAMING PLAN - SPANS 1 2 AND 3
- FRAMING PLAN - SPANS 4 AND 5
- FRAMING PLAN - SPANS 6 AND 7
- FRAMING PLAN - SPANS 8 AND 9
- FRAMING PLAN - SPANS 10 AND 11
- FRAMING PLAN - SPANS 12 AND 13
- FRAMING PLAN - SPANS 14 AND 15
- FRAMING PLAN - SPANS 16 AND 17
- FRAMING PLAN - SPANS 18 AND 19
- FRAMING PLAN - SPANS 20 AND 21
- FRAMING PLAN - SPANS 22 AND 23
- FRAMING PLAN - SPANS 24 AND 25
- FRAMING PLAN - SPANS 26 AND 27
- FRAMING PLAN - SPAN 28
- FRAMING PLAN - SPANS 29 AND 30
- FRAMING PLAN - SPANS 31, 32 AND 33
- FRAMING PLAN - SPANS 33, 34 AND 35
- FRAMING PLAN - SPANS 31 AND 32
- FRAMING PLAN - SPANS 36 AND 37

- FRAMING PLAN - SPANS 38 AND 39
- FRAMING PLAN - SPANS 40 AND 41
- FRAMING PLAN - SPANS 42, 43 AND 44
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- FRAMING DETAILS - SPANS 42 THRU 45
- FRAMING PLAN - SPANS 46 THRU 49
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- FRAMING PLAN - SPANS 53 THRU 56
- GIRDER DETAILS
- BUMPER BRACKETS
- GIRDER SPLICES
- GIRDER SPLICES AT CROSS GIRDERS
- CROSS FRAMES
- CROSS BEAMS
- HINGES NEAR BENTS 4, 8 AND 53
- HINGES NEAR BENTS 12, 16, 20, 24 AND 28
- HINGES NEAR BENTS 31, 36, 38, 42 AND 46
- HINGE NEAR BENT 31
- HINGES NEAR BENTS 45 AND 50

- CROSS GIRDERS AT BENTS 3, 16 AND 17
- CROSS GIRDERS AT BENTS 9 AND 10
- CROSS GIRDERS AT BENTS 18, 19 AND 20
- CROSS GIRDERS AT BENTS 21, 22 AND 23
- CROSS GIRDERS AT BENTS 24, 25 AND 26
- CROSS GIRDERS AT BENTS 27, 28 AND 29
- CROSS GIRDERS AT BENTS 30, 31 AND 32
- CROSS GIRDERS AT BENTS 33, 34 AND 35
- CROSS GIRDERS AT BENTS 36, 37 AND 38
- CROSS GIRDERS AT BENTS 39, 40 AND 48
- CROSS GIRDERS AT BENTS 41, 42 AND 55
- CROSS GIRDER DETAILS
- CROSS GIRDER DETAILS
- LONGITUDINAL GIRDER BEARINGS AT ABUTMENTS, CONCRETE BENTS AND HINGES
- LONGITUDINAL GIRDER BEARINGS AT CROSS GIRDERS - TYPES E9 THRU E13
- LONGITUDINAL GIRDER BEARINGS AT CROSS GIRDERS - TYPES F30 THRU F40

- CROSS GIRDER BEARINGS - TYPES F16 THRU F22
- CROSS GIRDER BEARINGS - TYPES F16 THRU F22
- CROSS GIRDER BEARINGS - TYPES F7 THRU F15
- CROSS GIRDER BEARINGS - TYPES F7 THRU F15
- CROSS GIRDER POT BEARINGS - TYPES F24 AND F25
- CROSS GIRDER POT BEARING - TYPE F26
- CROSS GIRDER POT BEARINGS - TYPES F23, F27 AND F28
- CROSS GIRDER POT BEARING - TYPE F29

BRIDGE: WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK AND WESTERN RAILROAD

STATE ROAD - ROUTE 40
JOB NO. 6 UO40 26 F
PROJECT NO. BRF-40-5(32) STA 28+96.35
FILL FACE ABUTMENT 1

CITY OF ST. LOUIS

DATE: 8/19/32

VICINITY MAP AND
INDEX OF DRAWINGS

SHEET 1 OF 6

A-3594



SUBMITTED BY:

Wilburn O. Walden
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11783

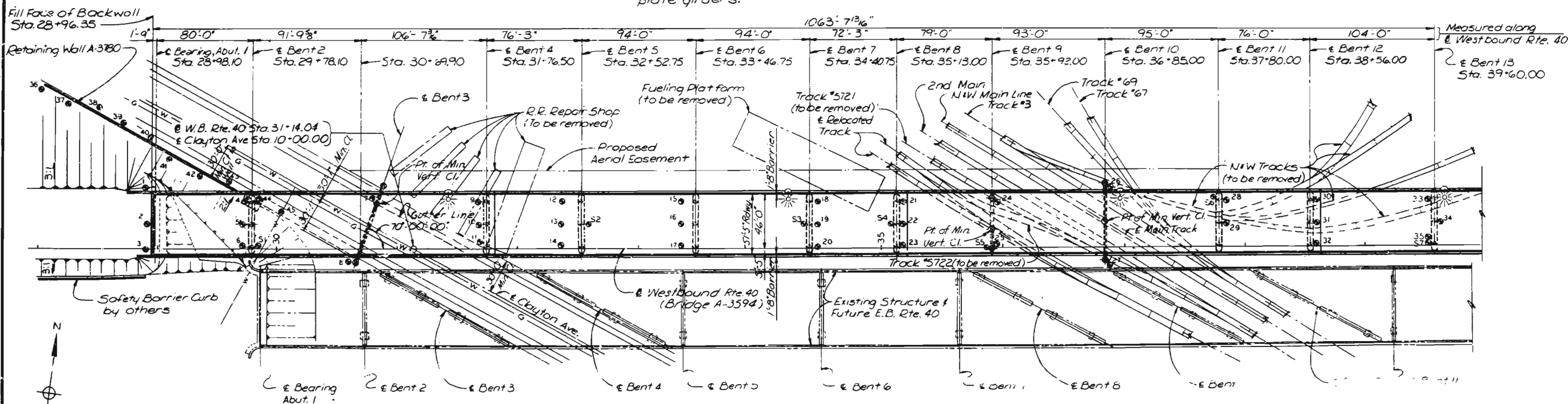
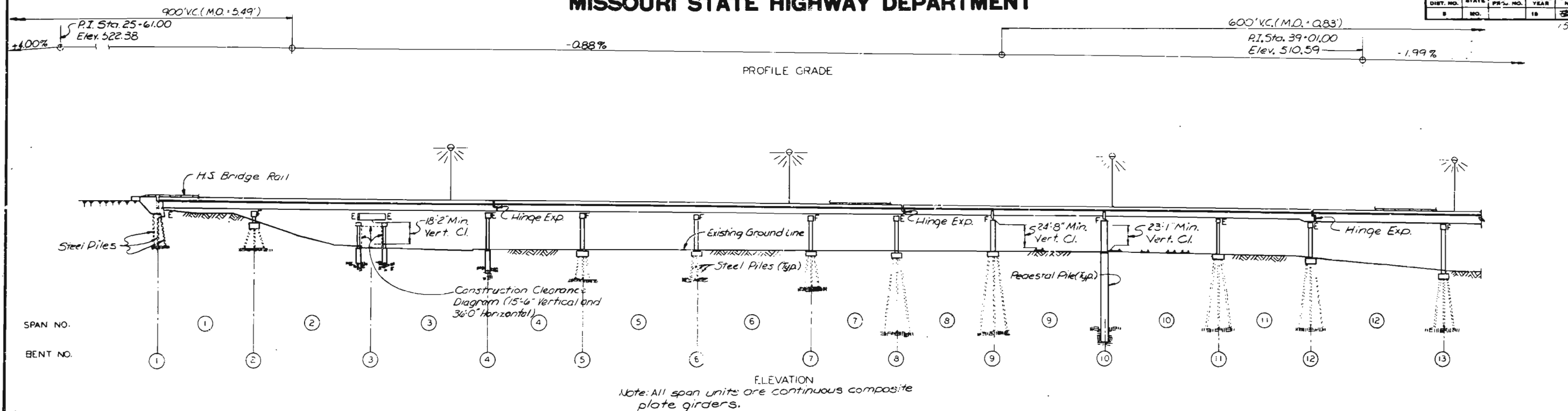
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGNED BY: L. G. GLOVER, Dec. 1974
CHECKED BY: L. G. GLOVER, Feb. 1978
DRAWN BY: L. G. GLOVER, Dec. 1974
TRACED BY: L. G. GLOVER, Dec. 1974
5261
765293

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AND STATE NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.	18	1955	155	



LEGEND FOR EXISTING UTILITIES

- Sewer, sanitary or storm
- F&P — Fire and Police
- G — Gas
- W — Water
- P — Underground Power
- T — Underground Telephone
- Inlet
- Manhole

PLAN

• Indicates the approximate location of a boring.

CLEARANCES - N & W. RAILROAD

Locations of columns at Bents 9 and 10 provide for 10'-0" minimum horizontal clearance from face of column to centerline of adjacent track.

Construction clearances of 8'-6" horizontal from centerline of tracks and 22'-0" vertical from top of rail shall be provided.

NOTES

For Alignment, see Sheets B & 9.

CITY OF ST. LOUIS

Jib # 6-4040-26F

Proj. # 9AF-49-5(32)

GENERAL PLAN AND ELEVATION

SHEET 2 OF 6

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

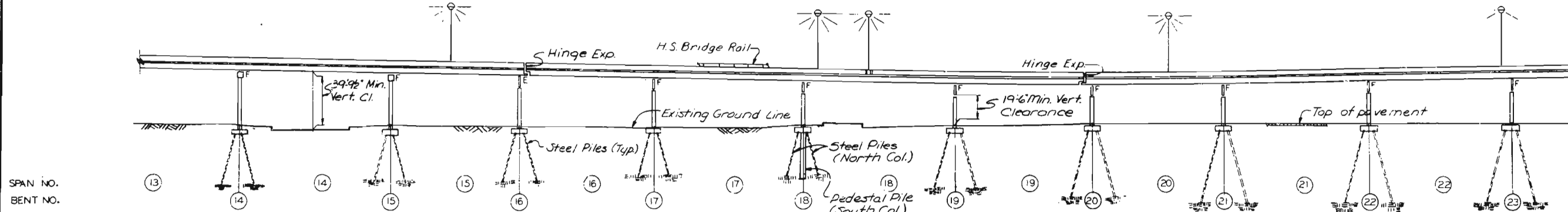
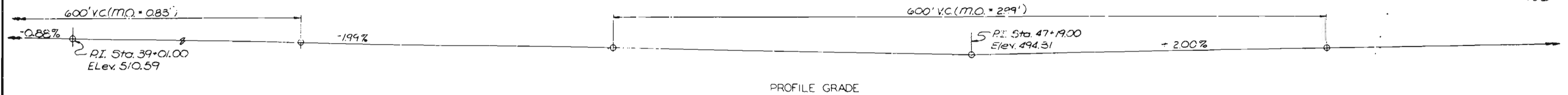
SHERRIFF & PIRCH, AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DESIGNED BY: J. E. O'NEILL, Dec. 1976
CHECKED BY: J. E. O'NEILL, Dec. 1976
APPROVED BY: J. E. O'NEILL, Dec. 1976

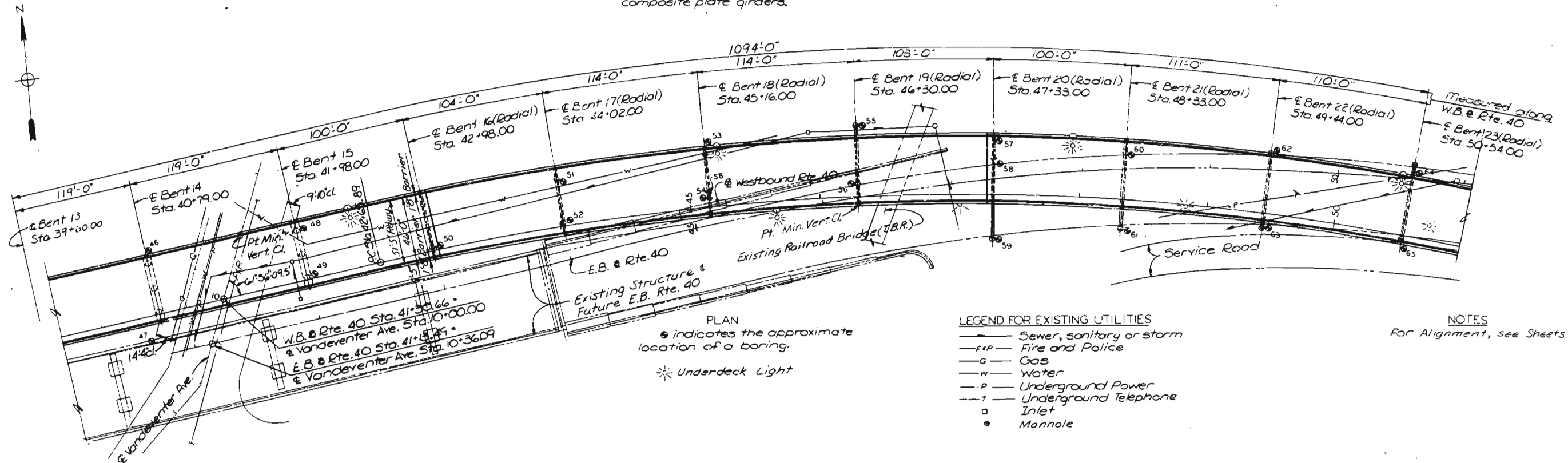
40

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	156	



ELEVATION
Note: All span units are continuous composite plate girders.



PLAN
● indicates the approximate location of a boring.
★ Underdeck Light

LEGEND FOR EXISTING UTILITIES
 — Sewer, sanitary or storm
 — F&P — Fire and Police
 — G — Gas
 — W — Water
 — P — Underground Power
 — T — Underground Telephone
 □ Inlet
 ● Manhole

NOTES
For Alignment, see Sheets 8 & 9.

CITY OF ST. LOUIS

G-4040-26F
BKF. 40-5(32)

GENERAL PLAN AND ELEVATION

SHEET 3 OF 6

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

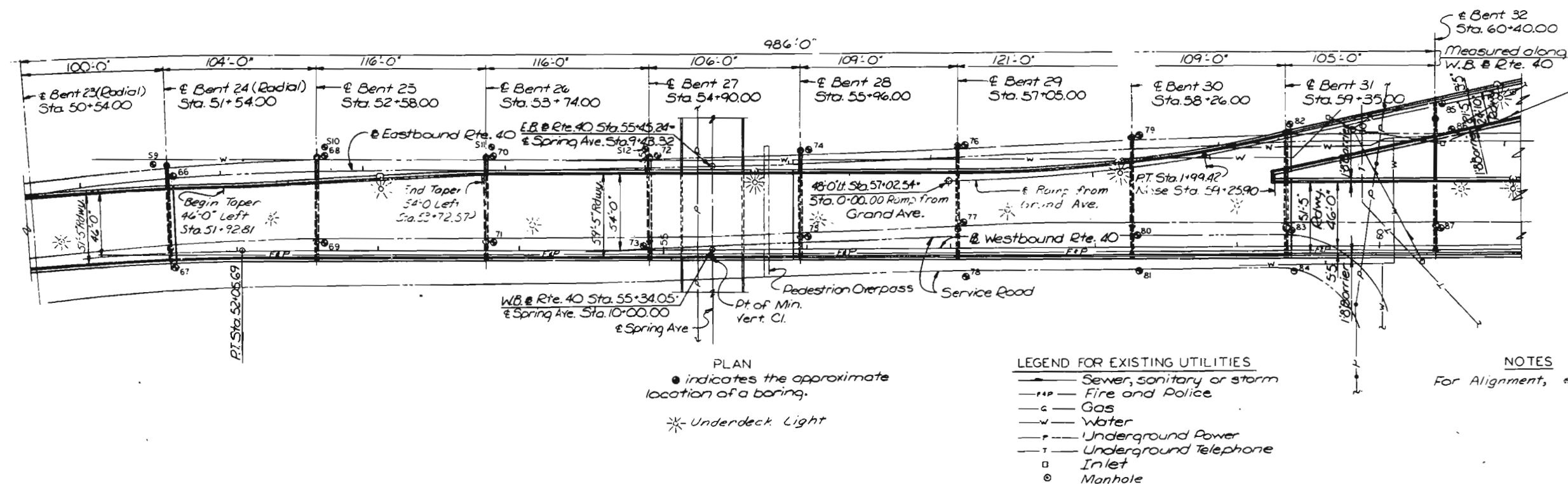
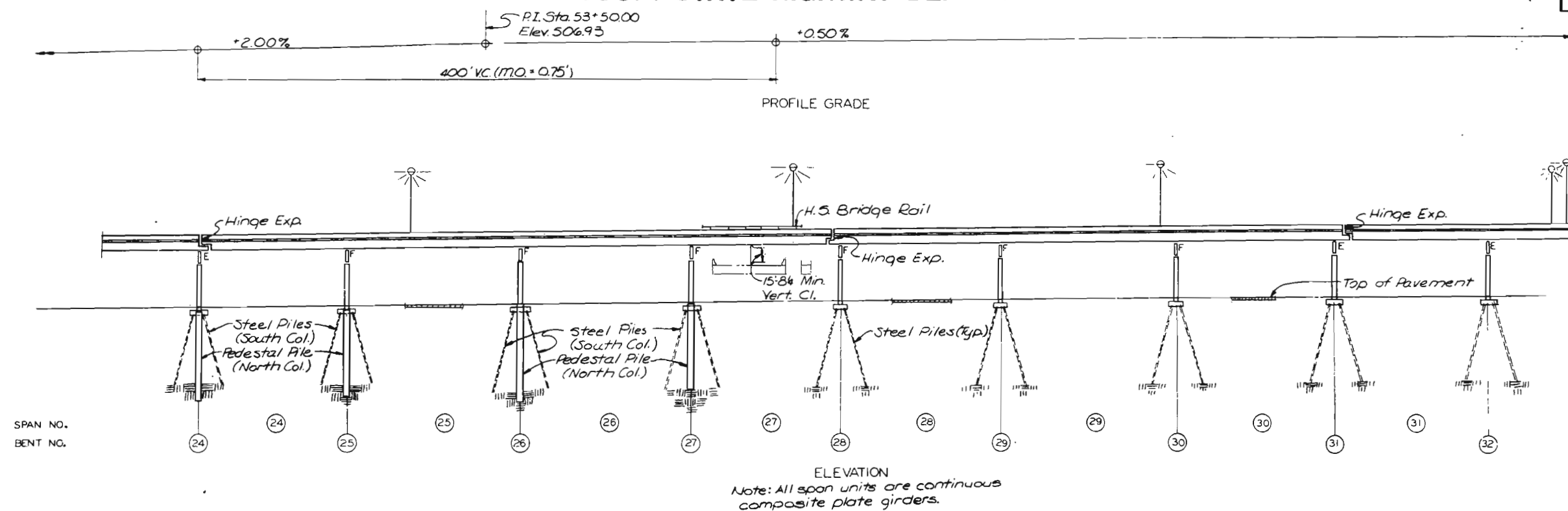
OVERSEAS & PANCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

5261
765304

41

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	157	



NOTES
For Alignment, see Sheets 8 & 9.

CITY OF ST. LOUIS

6-4040-26F
BPF-4045(52)

GENERAL PLAN AND ELEVATION

SHEET 4 OF 6

A-3594

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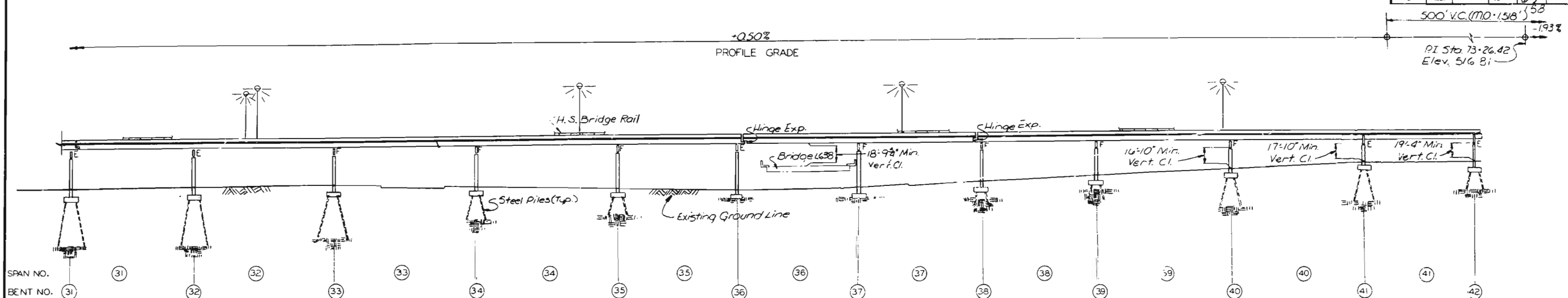
SWEDEN & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

5261
5292

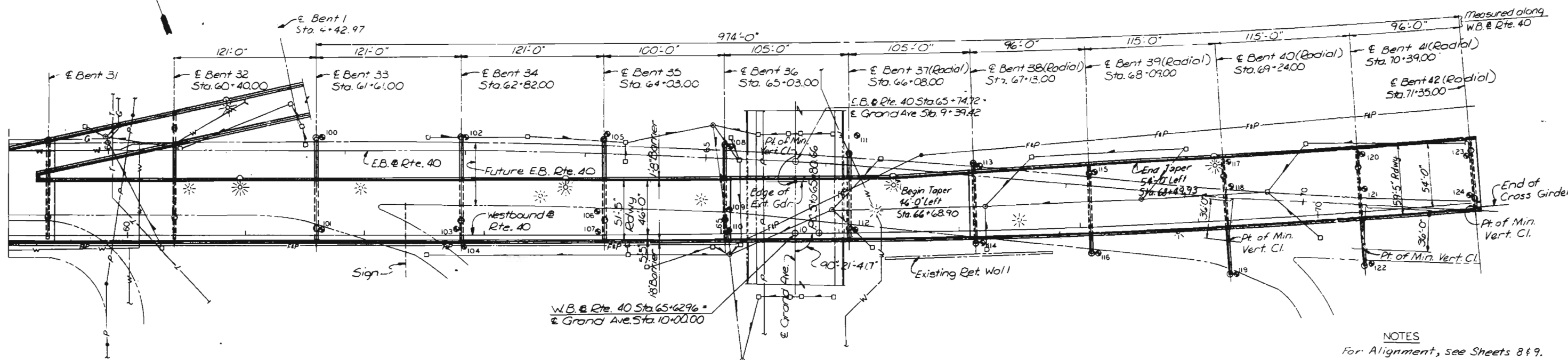
42

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	58	58



ELEVATION
 Note: All span units are continuous composite plate girders.



PLAN
 • Indicates the approximate location of a boring.
 ☼ Underdeck Light

LEGEND FOR EXISTING UTILITIES
 — Sewer, storm or sanitary
 — F.P. Fire and Police
 — G Gas
 — W Water
 — P Overhead Power
 — T Underground Telephone
 □ Inlet
 • Manhole

NOTES
 For Alignment, see Sheets 8 & 9.

CITY OF ST. LOUIS

6-4047-26.F
 BR-41-5 (5)

GENERAL PLAN AND ELEVATION

SHEET 5 OF 6

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

45

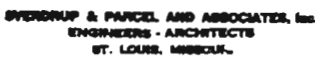
DRAWN BY: J. O. Starnhorn, Dec. 1976
 CHECKED BY: R. W. Butterfield, Aug. 1977
 765285

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

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
8	MO.		18	26	



5264	DRAWN BY: J. Ostermann, Dec 1976
765296	TRACED C/I
	CHECKED BY: R.W. Butterfield, Aug. 1977



- Sewer, storm or sanitary
- F & P — Fire and Police
- G — Gas
- W — Water
- P — Overhead Power
- T — Underground Telephone
- Inlet
- Manhole

CITY OF ST. LOUIS

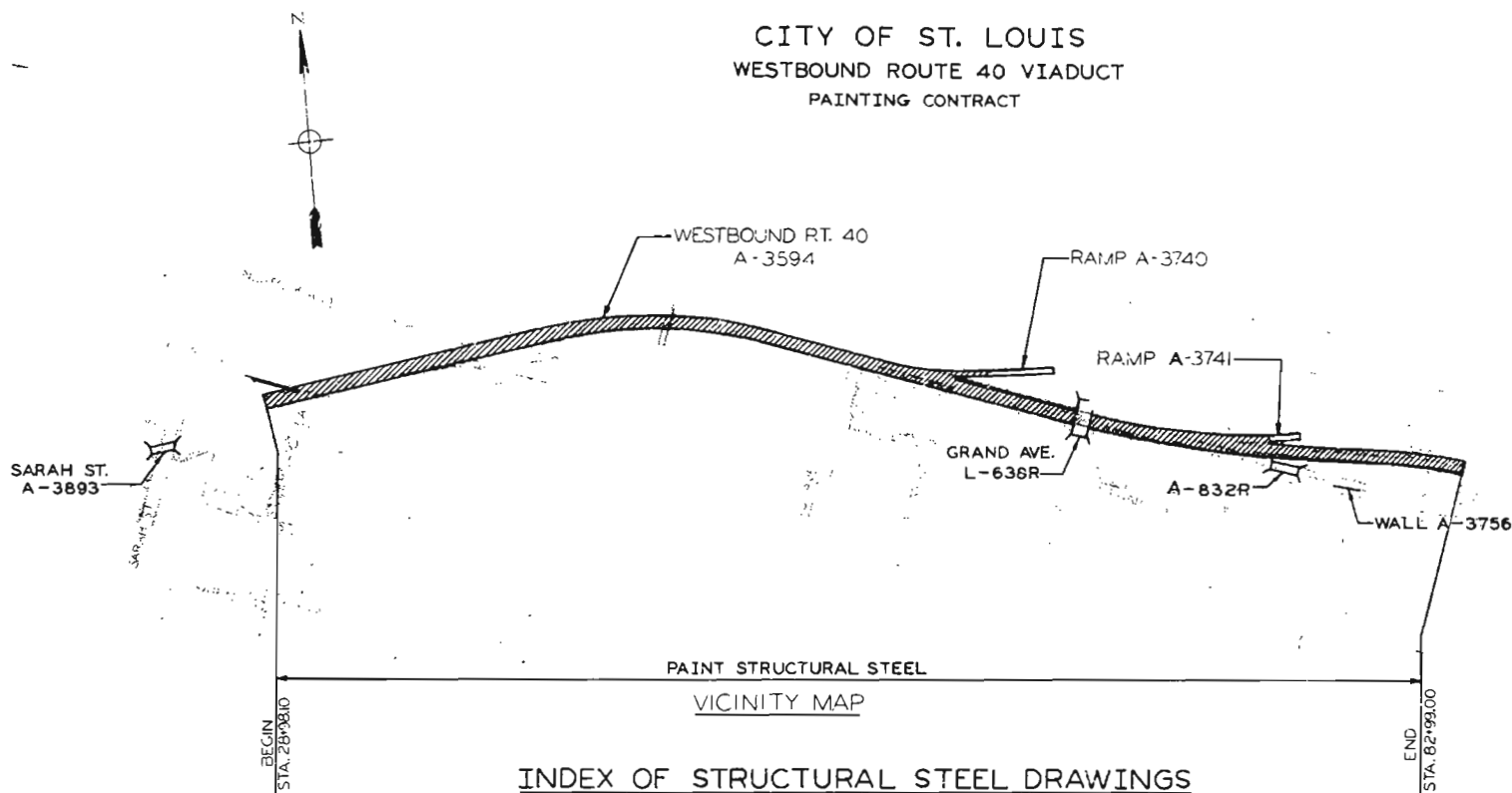
6-4040-26F
BRF-40-5(52)

SHEET 6 OF 6

A-3594

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MISSOURI	1978	10	10
CITY BLOCKS 2199, 2206, 2215			



INDEX OF STRUCTURAL STEEL DRAWINGS

- | | | | |
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| 2. GENERAL PLAN AND ELEVATION | 52. FRAMING PLAN - SPANS 40 AND 41 | 71. CROSS GIRDERS AT BENTS 9 AND 10 | 87. CROSS GIRDER BEARINGS - TYPES F16 THRU F22 |
| 3. GENERAL PLAN AND ELEVATION | 53. FRAMING PLAN - SPANS 42, 43 AND 44 | 72. CROSS GIRDERS AT BENTS 18, 19 AND 20 | 88. CROSS GIRDER BEARINGS - TYPES F7 THRU F15 |
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| 5. GENERAL PLAN AND ELEVATION | 55. FRAMING DETAILS - SPANS 42 THRU 45 | 74. CROSS GIRDERS AT BENTS 24, 25 AND 26 | 90. CROSS GIRDER POT BEARINGS - TYPES F24 AND F25 |
| 6. GENERAL PLAN AND ELEVATION | 56. FRAMING PLAN - SPANS 46 THRU 49 | 75. CROSS GIRDERS AT BENTS 27, 28 AND 29 | 91. CROSS GIRDER POT BEARING - TYPE F26 |
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| | 66. HINGES NEAR BENTS 12, 16, 20, 24 AND 28 | 84. LONGITUDINAL GIRDER BEARINGS AT CROSS GIRDERS - | |
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BRIDGE: WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK AND WESTERN RAILROAD

STATE ROAD - ROUTE 40
JOB NO. 6 UO40 26F
PROJECT NO. 82F-40-3(52)

STA. 28+96.35
FILL FACE ABUTMENT 1

CITY OF ST. LOUIS

DATE: 8/13/82

VICINITY MAP AND
INDEX OF DRAWINGS

SHEET 1 OF 6

A-3594



SUBMITTED BY:

Wilburn O. Walden
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11783

DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

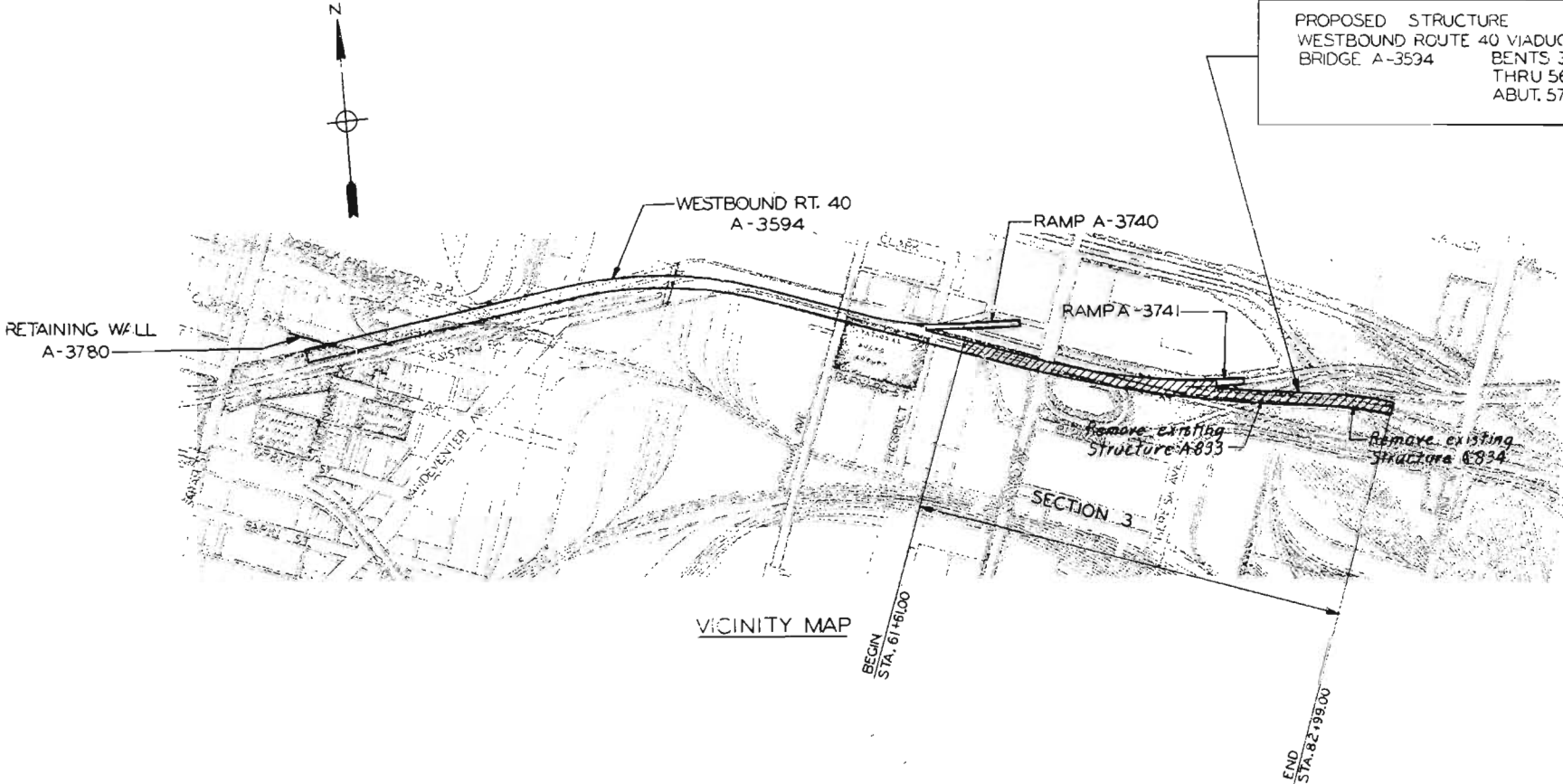
SPRINGMAN & PACHEL AND ASSOCIATES, INC.
CONSULTING ARCHITECTS
ST. LOUIS, MISSOURI

DESIGNED BY: L. GLOVER, Feb. 1978
CHECKED BY: L. GLOVER, Feb. 1978
DRAWN BY: L. GLOVER, Dec. 1976
SCALE: 1/4" = 1'-0"

5261
76-5293

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		83	83	



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1. VICINITY MAP AND INDEX OF DRAWINGS
 2. GENERAL PLAN AND ELEVATION
 3. GENERAL PLAN AND ELEVATION
 4. GENERAL NOTES AND ESTIMATED QUANTITIES
 5. ALIGNMENT, HORIZONTAL CURVE DATA AND BENCH MARKS
 6. ALIGNMENT
 7. VERTICAL CURVE ELEVATIONS
 8. ROADWAY CROSS SLOPES
 9. LOG OF BORINGS
 10. LOG OF BORINGS
 11. LOG OF BORINGS
 12. SUBSTRUCTURE LAYOUT
 13. SUBSTRUCTURE LAYOUT
 14. PILE DATA
 15. BENTS 33 THRU 42, 48 AND 55
 16. BENTS 33 THRU 42, 48 AND 55
 17. BENTS 33 THRU 42, 48 AND 55
 18. BENT 43
 19. BENT 44
 20. BENT 45
 21. BENT 46
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 25. BENT 51
 26. BENT 52
 27. BENT 53
 28. BENT 54
 29. BENT 56
 30. ABUTMENT 57
 31. ABUTMENT 57
 32. BAR LIST
 33. BAR LIST
 34. BAR LIST
 35. BAR LIST
 36. BAR LIST

BRIDGE: WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK AND WESTERN RAILROAD

STATE ROAD ROUTE 40
JOB NO. 6 UO40.261
PROJECT NO. F-73-40-5 (113) STA. 61+61.00
BENT 33

CITY OF ST. LOUIS

SUBMITTED BY:

Wilburn S. Walden
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11783



DATE:

VICINITY MAP AND
INDEX OF DRAWINGS

SHEET 1 OF 3

A-3594

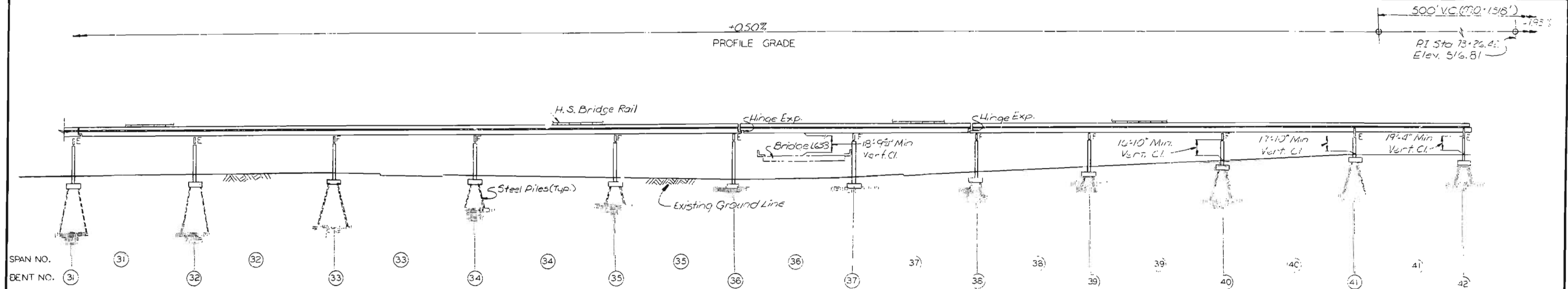
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444
DRAWN BY: J. C. H. 10/10/83
CHECKED BY: J. C. H. 10/10/83
765293

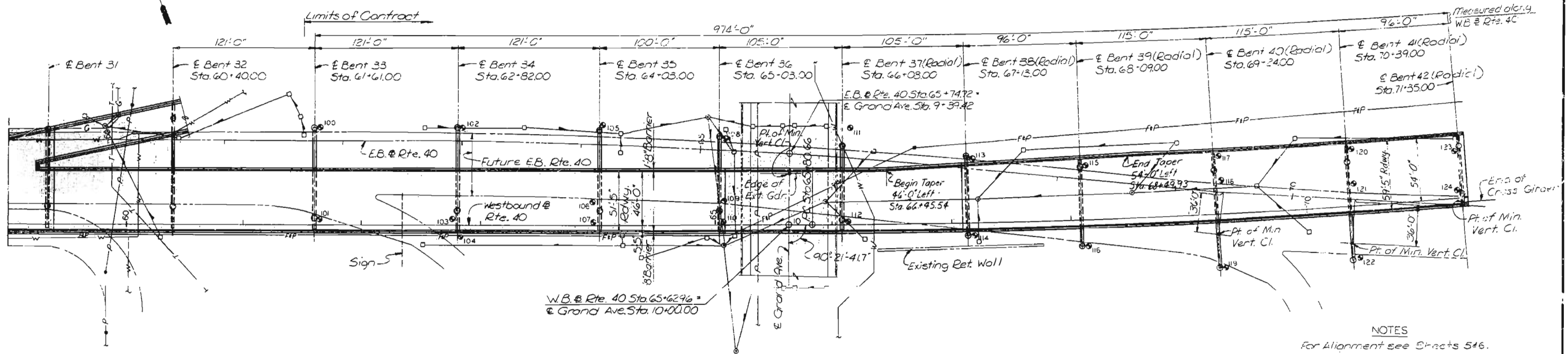
WILSON & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		18	34	



ELEVATION
Note: All span units are continuous composite plate girders.



PLAN
• Indicates the approximate location of a boring, see Log of Borings for exact location.

- LEGEND FOR EXISTING UTILITIES
- Sewer, storm or sanitary
 - FP— Fire and Police
 - G— Gas
 - W— Water
 - P— Overhead Power
 - T— Underground telephone
 - Inlet
 - Manhole

NOTES
For Alignment see Sheets 546.

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 2 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

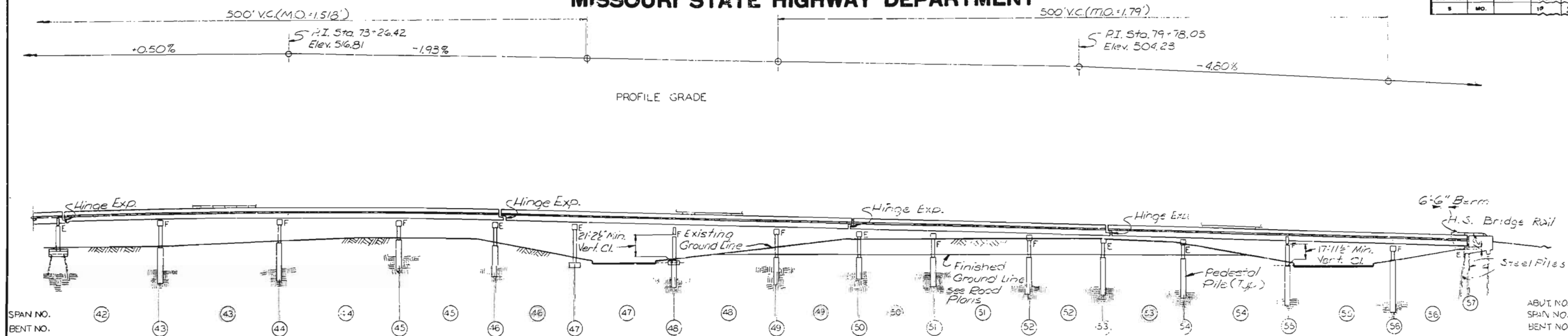
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: C. J. ...
CHECKED BY: R. J. Butterfield, Aug 1977

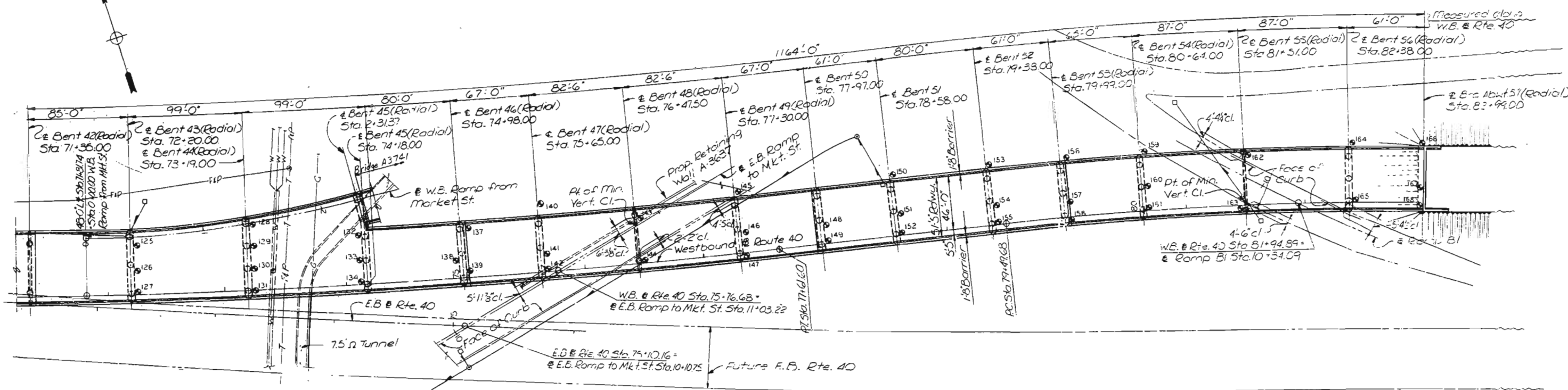
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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	25	



ELEVATION
Note: All span units are continuous composite plate girders.



PLAN
● Indicates the approximate location of a boring, see Log of Borings for exact location.

LEGEND FOR EXISTING UTILITIES
 — Sewer, storm or sanitary
 — F.P. — Fire and Police
 — G — Gas
 — W — Water
 — P — Overhead Power
 — T — Underground Telephone
 ○ Inlet
 ● Manhole

NOTES
For notes, see Sheet 2.

CITY OF ST. LOUIS

GENERAL PL AND ELEVATION

SHEET 3 OF 3

A-3094

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

DRAWN BY: J. Ostermann, Dec. 1976
 CHECKED BY: R. Butler-Field, Aug. 1977
 5264
 765296

446

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	86	

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

Missouri State Highway Commission Specifications for Highway Construction (1977 Edition) and Special Provisions.

DESIGN SPECIFICATIONS:

Division I of the AASHTO "Standard Specifications for Highway Bridges" (1973 Edition Including 1974, 1975 and 1976 interim specifications - Zone II Earthquake)

DESIGN LOADING:

(Load Factor Design Method - Bridge Substructure only, except footings and pedestal piles)
Live Load - HS20-44 and modified 24,000 lbs. tandem axle
Dead Load - Weight of Structure includes reinforced concrete at 150 lbs. per cu. ft. with provision for a future wearing surface of 30 lbs. per sq. ft. of roadway.

DESIGN UNIT STRESS:

Concrete in Flexure;
Class B Concrete - $f'c = 3000$ lbs. per sq. in.
 $fc = 1200$ lbs. per sq. in.
 $n = 10$
Reinforcing Steel:
 $fs = 24,000$ lbs. per sq. in.
 $fy = 60,000$ lbs. per sq. in.
Steel Piles (ASTM A36):
Design bearing = 12 kips per sq. in. (end bearing)
Pedestal Piles:
Design bearing = 35 Tons per sq. ft. (end bearing)
Spread Footings on Rock:
Design bearing = 12 Tons per sq. ft.

PILE LOAD TEST

Piles for load tests shall be driven at Bents 33 and 41 and shall consist of one vertical pile in the footing as indicated on plans. Piles used for load tests shall also be used as permanent piles in place. The Load Test shall be performed in accordance with the Standard Specifications.

CONCRETE:

Concrete for Abutment, Bents, and Pedestal piles shall be Class B.

REINFORCEMENT:

Reinforcing Steel shall be deformed billet steel, Grade 60. All dimensions to reinforcing bars on detail drawings are to centerline of bar except where the clear distance is noted from the face of concrete.

Lap Splices and embedment of reinforcement as shown on the detail drawings are in accordance with AASHTO, Interim 1974 Specifications.

Spiral bars in columns shall be cold drawn bars conforming to ASTM A82.

PROFILE GRADE:

Profile grade is located at the Base Line of Westbound Route 40 and at top of roadway slab.

CONSTRUCTION JOINTS:

Construction joints will be permitted only at the locations shown on the detail drawings or as approved by the Engineer.

BEVELED EDGES:

All exposed edges of concrete shall be beveled $\frac{1}{4}$ " unless otherwise shown or noted.

EXISTING UNDERGROUND FACILITIES:

Underground Facilities, Structures and Utilities have been plotted from available surveys and records; and, therefore, their locations must be considered approximate only. It is possible there may be others; the existence of which is presently not known or shown. It is the Contractor's responsibility to determine their existence and exact location and to avoid damage thereto. See Standard Specifications.

SECTION 3

ESTIMATE OF QUANTITIES

ITEM	UNIT	TOTAL
Class I Excavation	Cu. Yd.	1500
* Pedestal Piles 3'-0" Dia.	Lin. Ft.	139
* Pedestal Piles 3'-6" Dia.	Lin. Ft.	489
* Pedestal Piles 4'-0" Dia.	Lin. Ft.	404
* Pedestal Piles 5'-0" Dia.	Lin. Ft.	139
* Pedestal Piles 5'-6" Dia.	Lin. Ft.	30
Class B Concrete	Cu. Yd.	1369.9
Reinforcing Steel	Lb.	603,110
Structural Steel Piles HP 10 x 42	Lin. Ft.	1795
Structural Steel Piles HP 12 x 53	Lin. Ft.	1317
Removal of Bridges (A-833 & A-834)	Lump Sum	1
Pile Load Test (HP 12 x 53)	Each	2

* Cost of Concrete in pedestal piles to be included in unit price bid per lin. ft. of pedestal piles.

THE ABOVE QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES ON THE FIRST SHEET OF BRIDGE PLANS

CITY OF ST. LOUIS

SEE FINAL PLANS

GENERAL NOTES AND
ESTIMATED QUANTITIES

SHEET 4 OF 36

A-3594

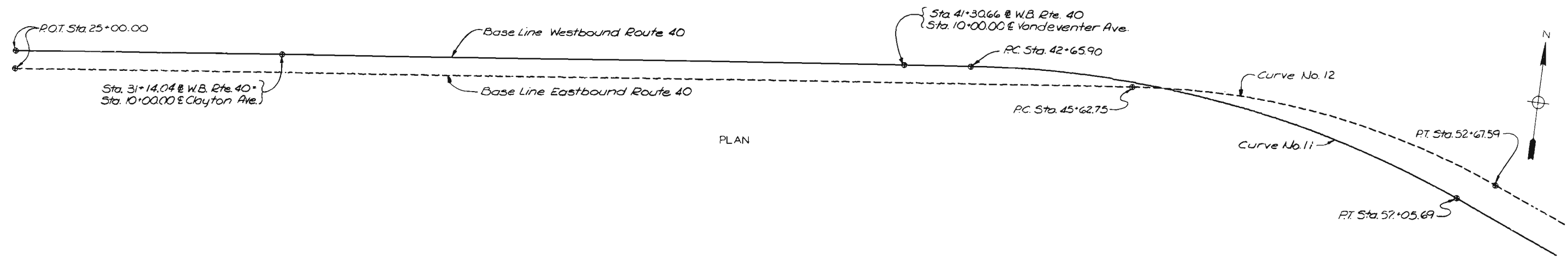
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

DRAWN BY: AL. UNGER Oct. 1977
CHECKED BY: W.D. WARDEN Oct. 1977
5261
775395

MISSOURI STATE HIGHWAY DEPARTMENT

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



HORIZONTAL CURVE DATA																
Curve No.	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	27
PT	Sta. 47+45.51	Sta. 49+22.46	Sta. 55+88.46	Sta. 58+95.22	Sta. 1+00.08	Sta. 1+60.97	Sta. 65+24.53	Sta. 70+61.33	Sta. 71+72.71	Sta. 0+34.99	Sta. 2+78.30	Sta. 75+23.49	Sta. 1+52.50	Sta. 79+38.90	Sta. 82+84.69	Sta. 82+59.18
Δ	28°11'31.9" R	28°11'31.8" R	5°04'03.3" L	3°04'03.3" R	11°57'55.4" L	63°31'30.1" R	6°14'13.4" R	7°15'56.1" L	10°14'05.5" L	26°04'22.0" R	133°30'29.9" R	1°22'15.7" L	18°08'30.1" L	2°27'00.3" L	2°27'00.3" R	12°19'54.3" R
D	3°00'00"	4°00'00"	1°00'00"	1°00'00"	6°00'00"	22°02'12.6"	1°00'00"	1°36'27"	0°52'00"	37°54'41.7"	63°39'43.1"	0°29'54.8"	6°00'00"	0°42'30.8"	0°42'30.8"	2°00'00"
T	479.61'	359.71'	153.42'	153.42'	100.08'	160.97'	312.16'	225.25'	592.05'	34.99'	209.52'	137.51'	152.50'	172.92'	172.92'	309.49'
L	934.80'	704.84'	306.76'	306.76'	199.42'	288.27'	623.71'	449.91'	1180.94'	68.77'	209.71'	275.00'	302.45'	345.76'	345.79'	616.59'
E	1909.86'	1432.39'	5729.58'	5729.58'	954.93'	260.00'	5729.58'	3564.30'	6611.05'	151.13'	90.00'	11492.00'	954.93'	8086.36'	8086.36'	2864.79'

BENCH MARKS U.S.G.S. DATUM		
NUMBER	DESCRIPTION	ELEV.
B.M. #4	on stone curb in front of General Equip. Co. bldg. No. 3952 Clayton Ave.	477.89
B.M. #5	on NE corner of 2'x2' conc. base of stop light at Vandeventer & left side of ramp from Mkt. St.	459.32
B.M. #6	in open of fire plug N. side of W.B.L. under pedestrian overpass at Spring Ave.	466.94
B.M. #7	on concrete median under center of Grand Ave. bridge.	465.56
B.M. #8	on wheel guard NE corner of E. end of E.B. bridge over E.B. Mkt. St. ramp	495.83
B.M. #16	on SE corner of N.W. endpost of E.B. bridge over E.B. Mkt. St. ramp	497.70
B.M. #	Top of S.W. corner of light standard at the S.W. corner of Grand Ave. bridge.	489.63

448

DRAWN BY: J. Osterman, Dec. 87
CHECKED BY: T. Sanders, May 1977
5261
765294

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

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SEE FINAL PLANS

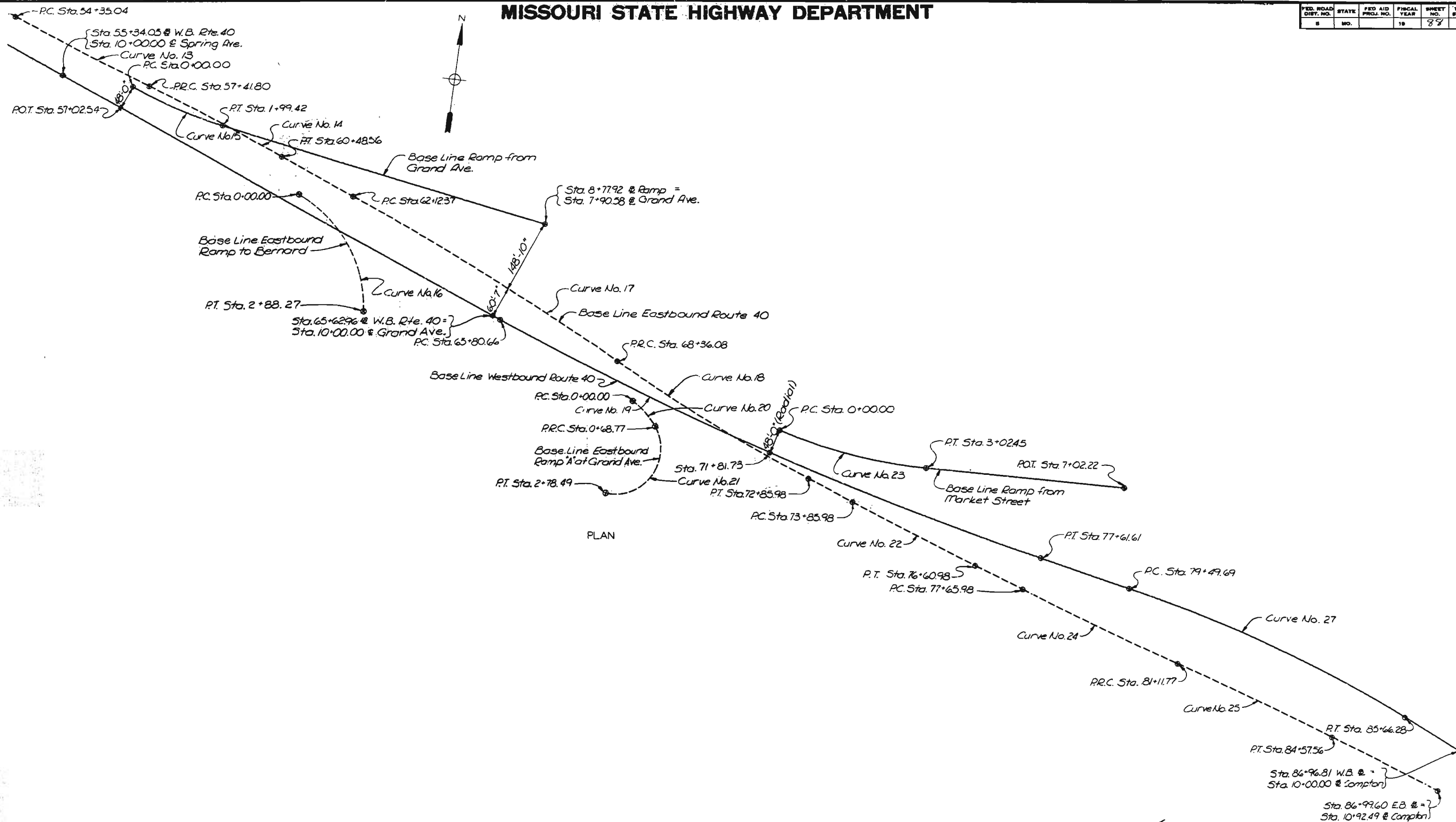
CITY OF ST. LOUIS
ALIGNMENT, HORIZONTAL CURVE DATA,
AND BENCH MARKS

SHEET 5 OF 36

A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	88	



CITY OF ST LOUIS

ALIGNMENT

SHEET 8 OF 36

A-3594

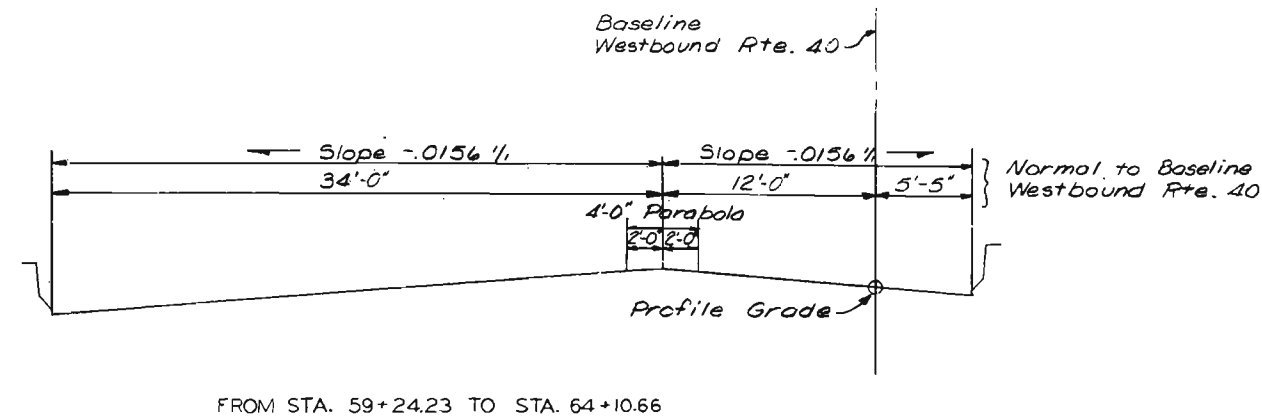
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

Drawn by: [Signature]
Traced by: [Signature]
Checked by: [Signature]
Date: May 1977
5261
765295

449

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
L	MO.		18	89	



SHEET 7 OF 36

A-3594

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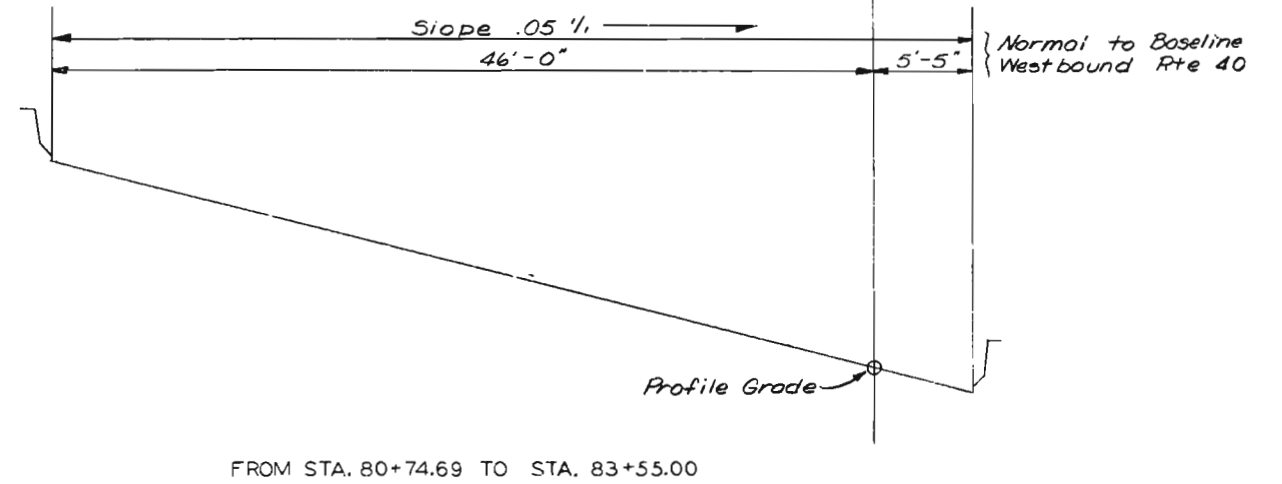
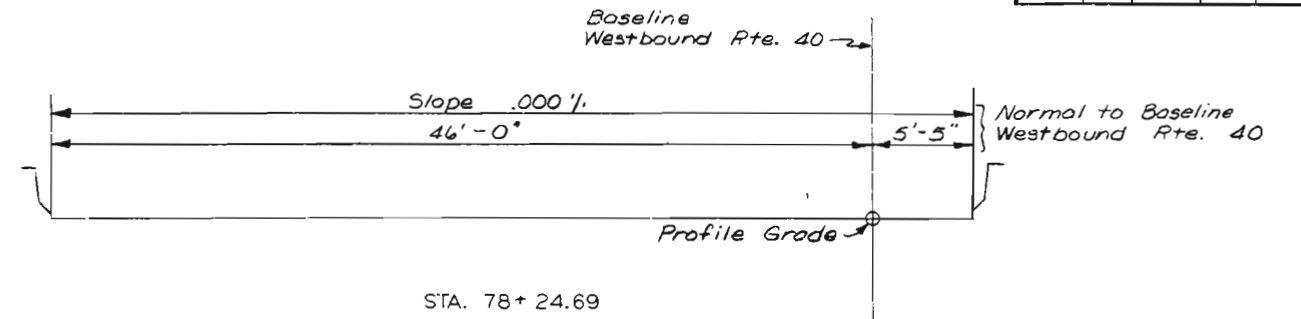
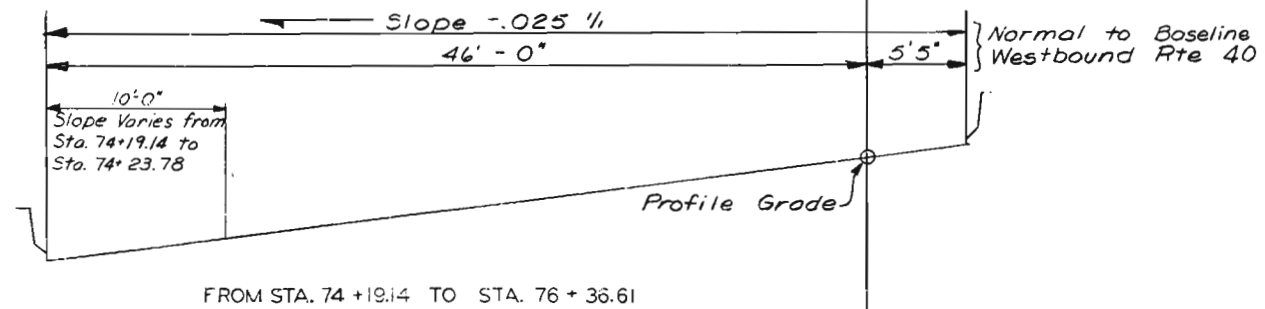
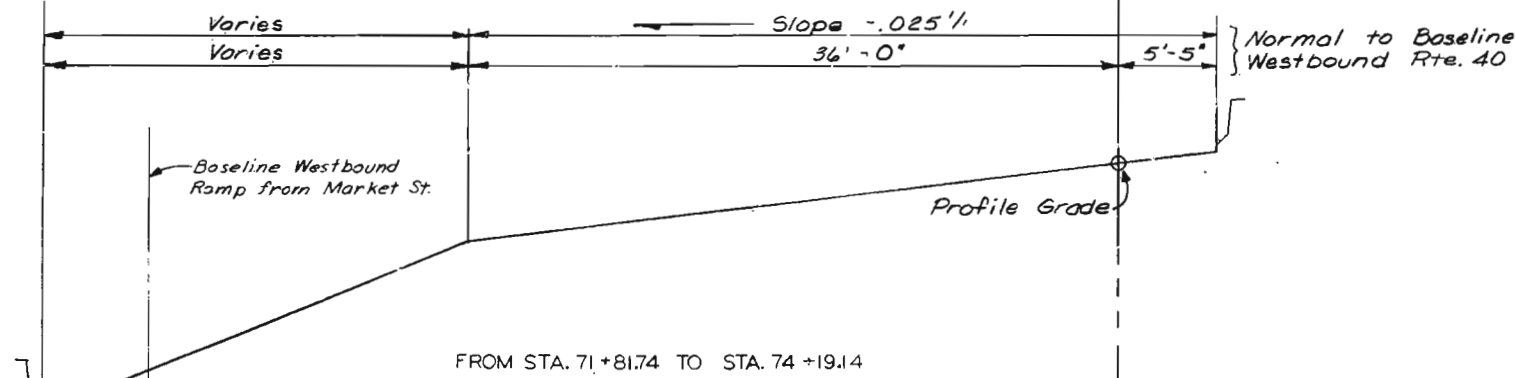
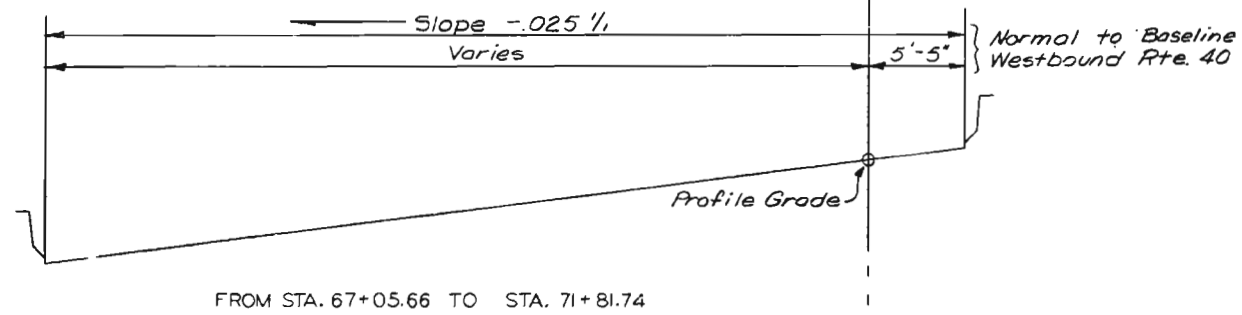
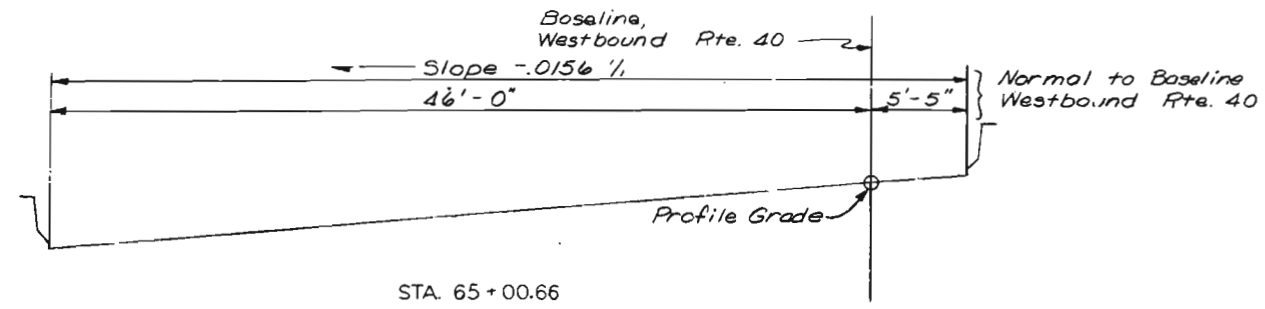
054

5261	DRAWN BY: E. Gregory, July 1977
775263	TRACED BY:
	CHECKED BY: T. Sanders, Aug. 1977

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	90	



CITY OF ST. LOUIS

ROADWAY CROSS SLOPES

SHEET 8 OF 35

A-3594

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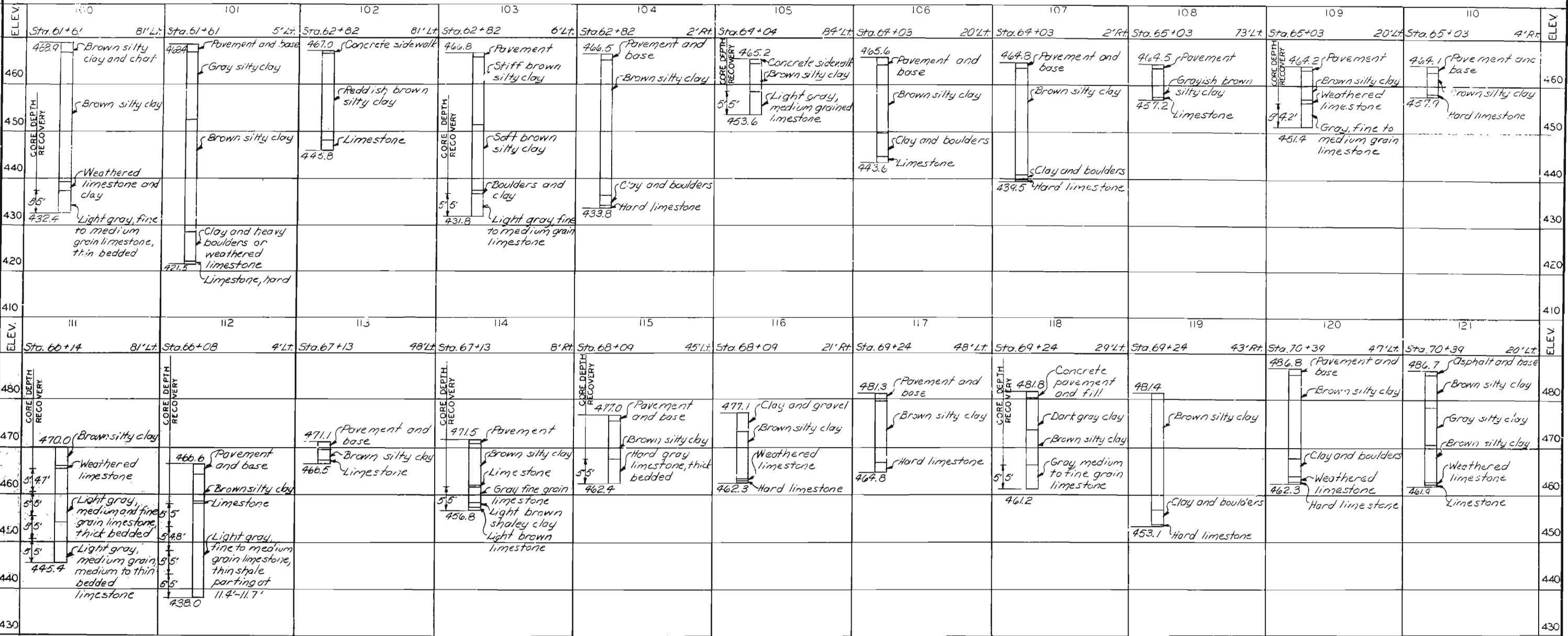
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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: M.G. EMMING JUL 1971
CHECKED BY: R. B. BENTLEY Aug. 1971
5261
775292

451

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	91	



BORING NOTES

Boring data are furnished for information only and may or may not represent the actual conditions which will be found when work is executed.
Borings were made in December 1975.
Stations and offsets are measured along Baseline Westbound Route 40.

452

DRAWN BY: L. Strader Jan. 77
CHECKED BY: J. Sanders, Aug. 1977
5261
77535

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

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

LOG OF BORINGS

SHEET 9 OF 30

A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	92	

ELEV.	122	123	124	125	126	127	128	129	130	131	132	ELEV.
	Sta. 70+39 44' Lt.	Sta. 71+35 40' Lt.	Sta. 71+35 4' Lt.	Sta. 72+20 41' Lt.	Sta. 72+20 20' Lt.	Sta. 72+20 1' Lt.	Sta. 73+19 54' Lt.	Sta. 73+19 37' Lt.	Sta. 73+19 19' Lt.	Sta. 73+19 4' Lt.	Sta. 74+18 41' Lt.	
490		489.9 Concrete pavement		492.9 Pavement and base	492.8 Asphalt shoulder and base		495.2 Brownish gray silty clay	495.2 Pavement and base	495.1 Brown silty clay	492.8 Brown silty clay	496.8 Concrete pavement	490
480	485.5 Bricks, cinders and clay	Dark brownish gray silty clay	488.1 Brown silty clay	Brown silty clay	Brownish gray silty clay	Brown silty clay	Boulders or weathered limestone	Brown silty clay		Boulders and clay	Reddish brown silty clay	480
470	Brown silty clay	Boulders and clay	Light gray, fine to medium grain limestone, thin bedded, clay seam at 21.3'-21.7'	472.3 Clay and boulders	Weathered limestone	Limestone	Light gray, fine grain limestone	Weathered limestone or boulders	Boulders and slabby limestone	Weathered limestone	Boulders or weathered limestone	470
460	Boulders and clay	5' 4.6' to medium grain limestone, thin bedded, clay seam at 21.3'-21.7'	466.8 Limestone		Light gray, medium grain limestone	469.2	Light gray, fine grain limestone	474.4 Hard limestone	466.3 Limestone	Light gray, fine to medium grain limestone, 0.1' shale seam at 26.6' and 26.8'	Gray, medium to fine grain limestone	460
450	452.9 Weathered limestone				460.2 Light gray, medium grain limestone							450
ELEV.	133	134	135	136	137	138	139	140	141	142	143	ELEV.
	Sta. 74+18 20' Lt.	Sta. 74+18 1' Lt.	Sta. 75+31.4 4' Lt.	Sta. 75+31.4 16' Rt.	Sta. 74+98 41' Lt.	Sta. 74+95 15' Lt.	Sta. 74+98 1' Lt.	Sta. 75+65 56' Lt.	Sta. 75+65 15' Lt.	Sta. 75+65 1' Lt.	Sta. 76+48 35' Lt.	
490	496.8 Asphalt pavement and base	494.6 Brown silty clay	494.8 Pavement and base	496.7 Silty clay and gravel	497.8 Concrete pavement	497.3 Brown silty clay		490.8 Brown silty clay and boulders	490.4 Reddish brown silty clay			490
480	Brownish gray silty clay		Yellowish brown silty clay	Brown silty clay	Brownish gray silty clay	Brown silty clay		Brown silty clay	Weathered limestone	482.5 Concrete slab		480
470	Boulders and slabby limestone	Brown clay and boulders	Boulders and clay	Slabby limestone	Boulders and brown clay	Boulders and clay	Brown silty clay	Boulders	475.1 Limestone	477.1 Concrete shoulder	477.4 Concrete yellowish brown silty clay	470
460	475.0 Limestone	Limestone	Limestone	474.2 Limestone	Light gray limestone	Limestone	Limestone	467.8 Limestone	469.3 Light gray, fine to medium grain limestone		472.7 Limestone	460
ELEV.	144	145	146	147	148	149	150	151	152	153	154	ELEV.
	Sta. 76+48 3' Lt.	Sta. 77+30 51' Lt.	Sta. 77+31 16' Lt.	Sta. 77+30 5' Rt.	Sta. 78+02 15' Lt.	Sta. 77+97 1' Lt.	Sta. 78+38 51' Lt.	Sta. 78+58 17' Lt.	Sta. 78+58 1' Lt.	Sta. 79+38 48' Lt.	Sta. 79+38 16' Lt.	
490				492.8 Brown silty clay	497.5 Brownish gray gravelly clay (fill)	496.0 Brown silty clay with cinders and boulders	496.8 Brown silty clay	496.7 Asphalt pavement and base	496.1 Brown silty clay and some boulders (fill)	496.8 Brown silty clay	495.5 Asphalt pavement and base	490
480	478.3 Brown silty clay	478.3 Concrete pavement and base	484.7 Concrete slab	Yellowish brown silty clay	Yellowish brown silty clay	Brown silty clay		Grayish brown silty clay	Light brown clay		Brownish gray silty clay with bricks (fill)	480
470	Boulders and clay	Boulders and clay	Boulders	Broken rock or boulders	Boulders and clay	Boulders and clay	Boulders and slabby limestone	Limestone ledge or boulder	Heavy boulders	Boulders and slabby limestone	Boulders	470
460	Limestone	Limestone	466.4 Limestone	468.8 Limestone	465.5 Limestone	461.26' Light gray, fine to medium grain, thick bedded limestone, solid	459.6 Limestone	460.0 Limestone	Slightly weathered limestone	454.6 Limestone	453.9 Limestone	460
450	453.8' Light gray, fine grain limestone	455.4 Light gray, fine grain limestone							451.6 Light gray, fine to medium grain limestone			450
440	450.2											440

BORING NOTES

Boring data are furnished for information only and may or may not represent the actual conditions which will be found when work is executed.
 Borings were made in December 1975.
 Stations and offsets are measured along Baseline Westbound Route 40 except Borings 135 and 136 which are measured along Baseline Westbound Ramp from Market St.

CITY OF ST. LOUIS

LOG OF BORINGS

SHEET 10 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

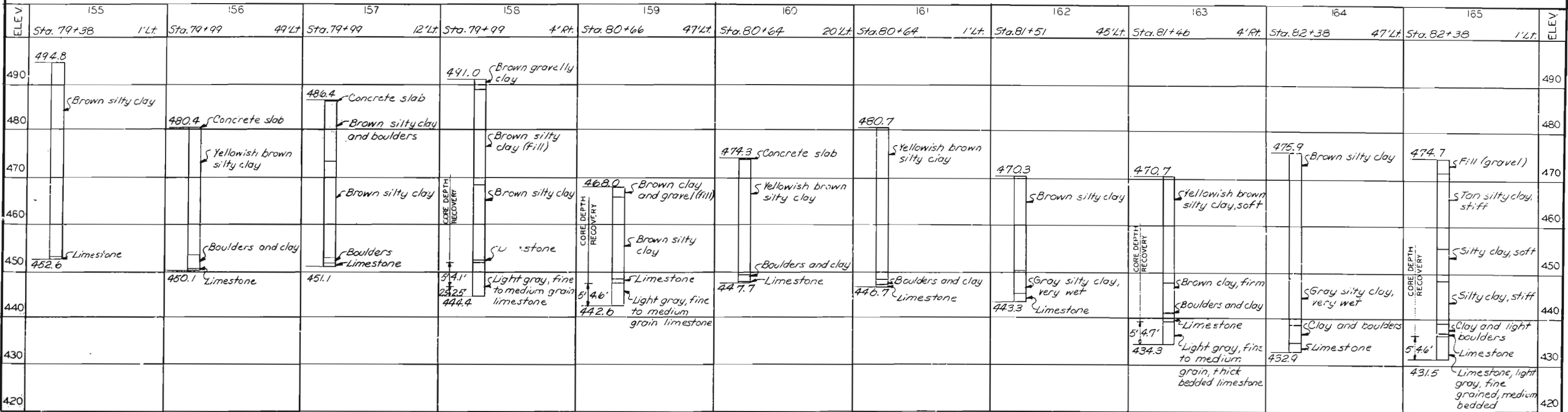
VERDUP & PARCEL AND ASSOCIATES, Inc.
 ENGINEERS - ARCHITECTS
 ST. LOUIS, MISSOURI

DRAWN BY: L. Strader Jan. 77
 CHECKED BY: T. Sanders Aug. 1977
 5261
 77536

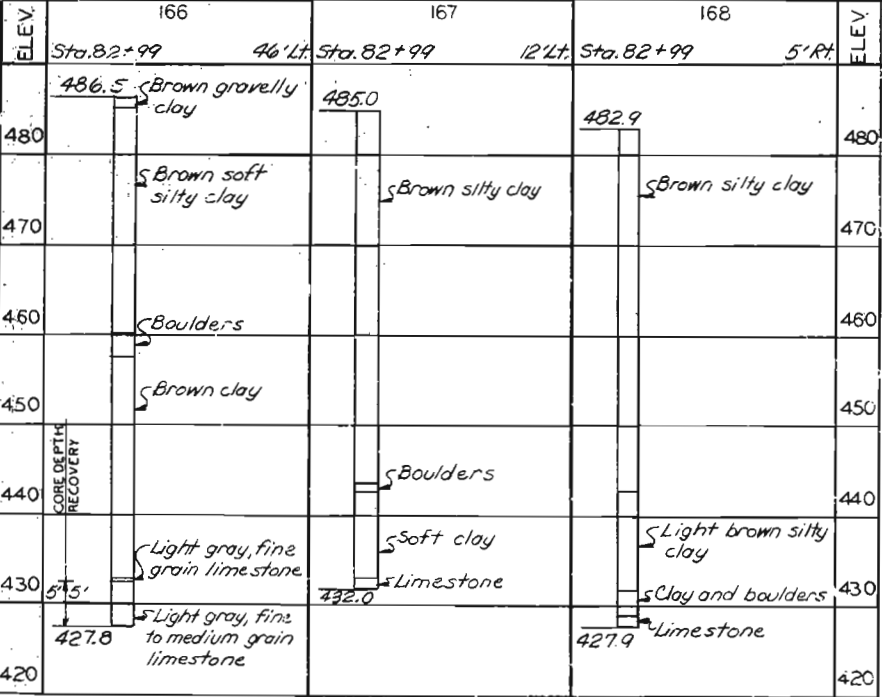
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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	10	93		



BORING NOTES
See Sheet 9



CITY OF ST. LOUIS

LOG OF BORINGS

SHEET 11 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

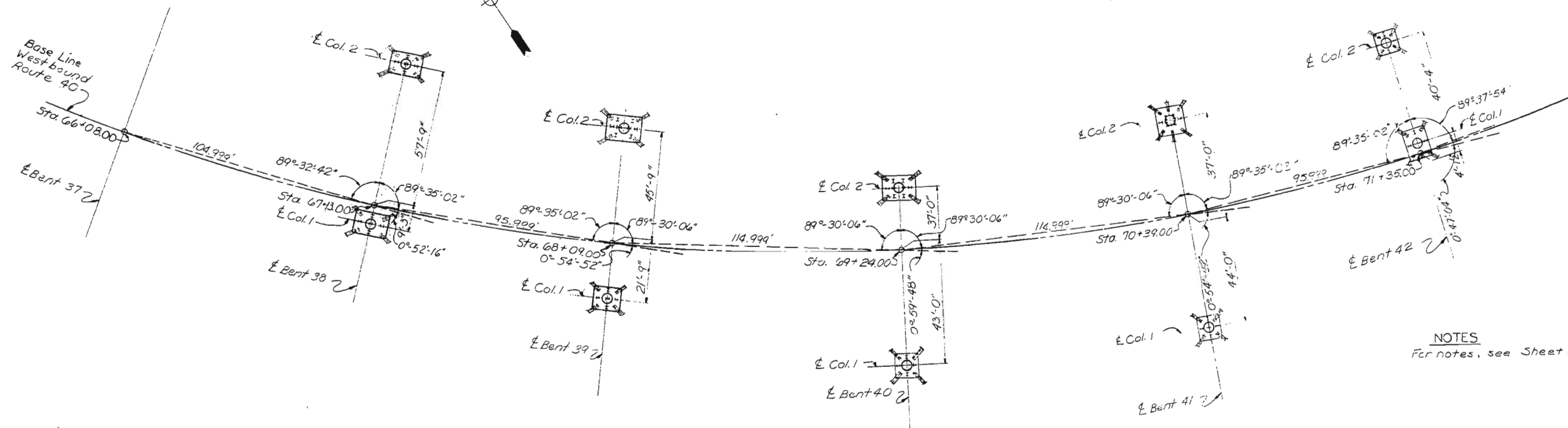
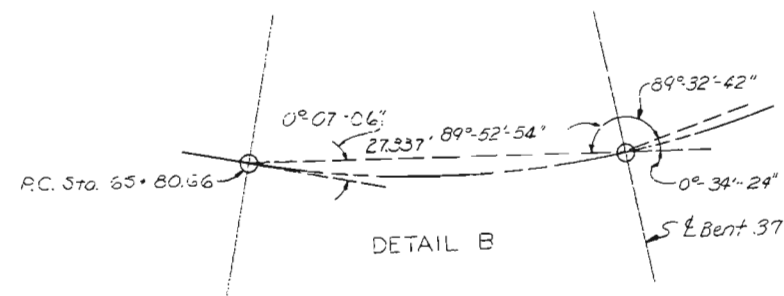
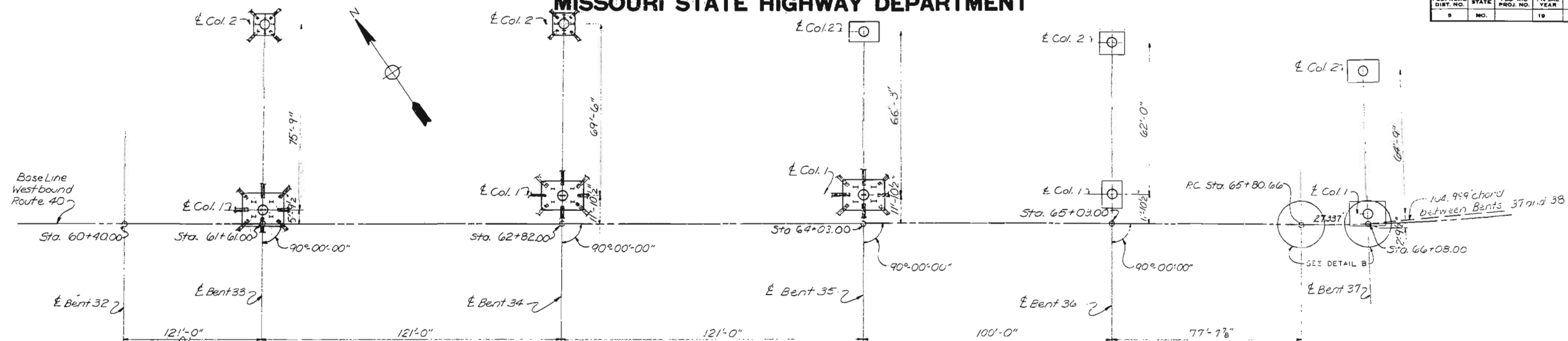
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: L. Strader
CHECKED BY: T. Sanders, Aug. 1977
5261
77540

454

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	74	



NOTES
For notes, see Sheet 13.

CITY OF ST. LOUIS

SUBSTRUCTURE LAYOUT

SHEET 12 OF 30

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

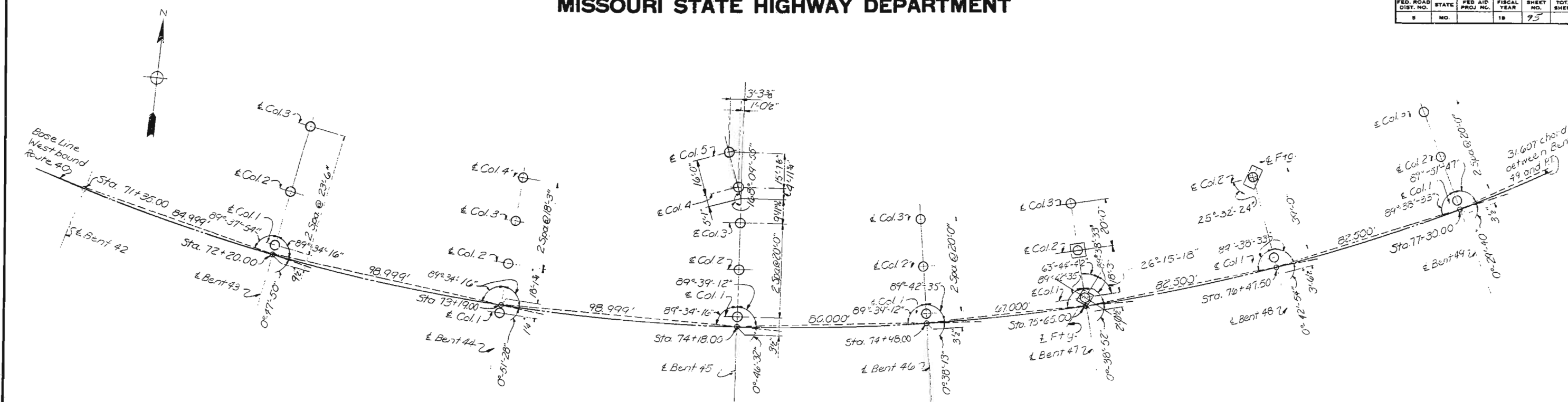
OVERDUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: L. Strader, Aug. 1977
CHECKED BY: R.V. Butterfield, Aug. 1977
5261
77514

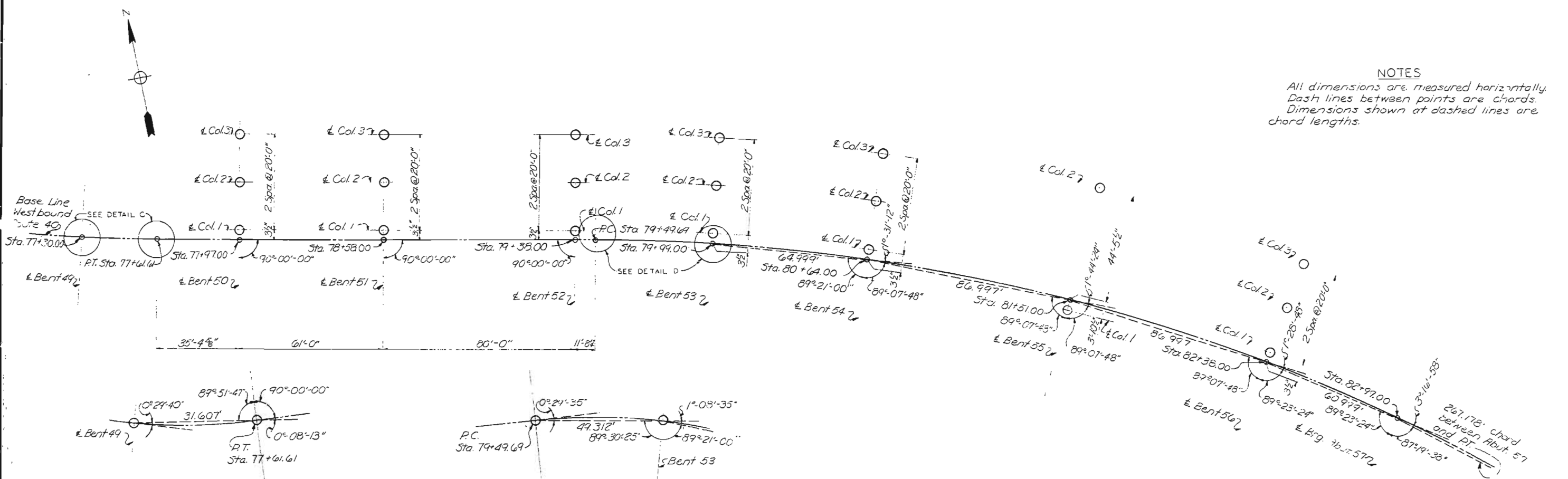
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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO		18	95	



NOTES
All dimensions are measured horizontally.
Dash lines between points are chords.
Dimensions shown at dashed lines are chord lengths.



DETAIL C

DETAIL D

CITY OF ST. LOUIS

SUBSTRUCTURE LAYOUT

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

456

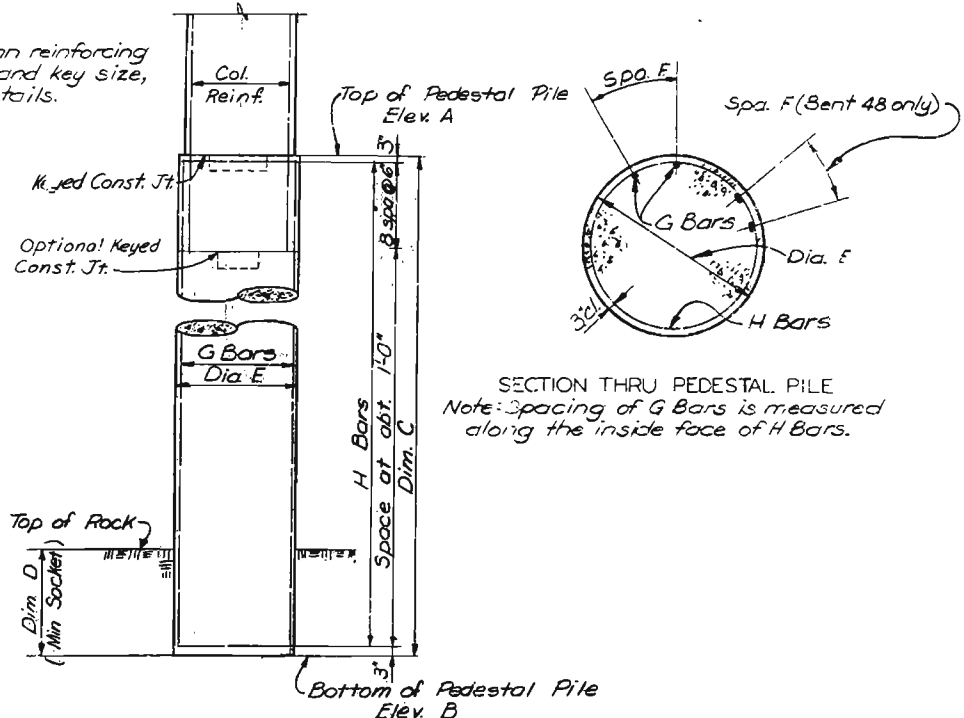
DRAWN BY: L. Strader, Aug. 1971
CHECKED BY: R. Butlerfield, Aug. 1971
5261
77576

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

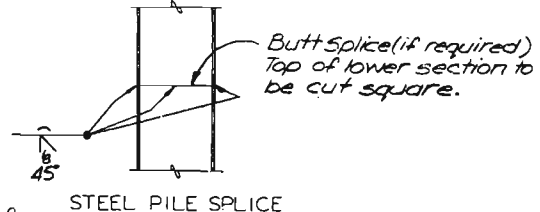
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	96	

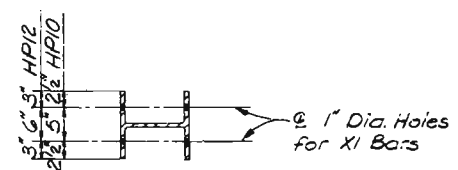
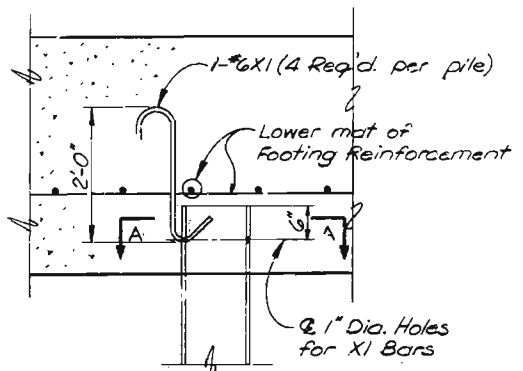
Note: For Column reinforcing embedment and key size, see Bent Details.



STEEL PILE DATA										
BENT NO.	COLUMN 1					COLUMN 2				
	NO. REQ'D.	APPROX. LENGTH	PILE SIZE	MAX. DES. BEARING TONS	HAMMER ENERGY REQ'D. FT. LBS.	NO. REQ'D.	APPROX. LENGTH	PILE SIZE	MAX. DES. BEARING TONS	HAMMER ENERGY REQ'D. FT. LBS.
33	13	35'	HP12x53	87	21,400	8	22'	HP10x42	36	8,400
34	13	20'	HP12x53	87	21,400	8	12'	HP10x42	36	8,400
35	13	14'	HP12x53	87	21,400					
38	9	*10'	HP10x42	65	16,000	9	*10'	HP10x42	61	15,000
39	9	*10'	HP10x42	50	12,300	12	*10'	HP12x53	83	20,400
40	8	23'	HP10x42	33	7,800	12	*10'	HP12x53	88	21,600
41	8	23'	HP10x42	25	7,000	12	15'	HP12x53	82	20,200
42	8	16'	HP10x42	56	13,200	8	15'	HP10x42	43	10,600
LOCATION	NO. REQ'D.	APPROX. LENGTH	PILE SIZE	MAX. DES. BEARING TONS	HAMMER ENERGY REQ'D. FT. LBS.					
Abut. 57	13	49'	HP10x42	45	11,100					



Note: Minimum energy requirements of hammer based on plan length and design bearing value of piles.
All piles shall be driven to practical refusal.
Bearing piles shall conform to A.S.T.M. A36.
* Denotes prebored holes are required for steel piles, see Standard Specification 702.4.3.
Cost of preboring shall be included in the price bid for steel pile.

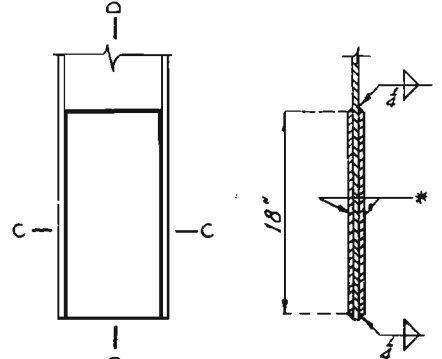


SECTION A-A

SECTION THRU FOOTING

PILE HOLD-DOWN DETAIL

Note: All XI Bars shall be securely tied to the lower mat of Footing Reinforcement.
Typical for all steel piles except at Abut. 57



SECTION D-D

Note: Payment for furnishing plates and welding in position will be included in unit price bid for driving piles in place.
Manufactured Pile tips approved by the engineer may be used if attached to pile by full penetration weld along each flange and spot welded along the web.

SECTION C-C

PILE TIP REINFORCEMENT

Size Pile	Size Plate
HP10x42	7/8" x 8" x 18"
HP12x53	9/8" x 8" x 18"

* R 7/8" x 8" x 18" for HP10x42
* R 9/8" x 8" x 18" for HP12x53

PEDESTAL PILE DATA									
MAX. DESIGN BEARING - 35 TONS PER SQ. FT.									
BENT	COLUMN	ELEV. A	ELEV. B	DIM. C	DIM. D	DIA. E	SPA. F	G BARS	H BARS
43	1	438.5	458.0	30'-6"	6'-0"	4'-0"	4'-8"	29-*11M1	35-*4M31
	2	471.5	458.0	33'-6"	6'-0"	4'-0"	4'-8"	29-*11M2	38-*4M31
44	1	491.5	459.0	32'-6"	6'-0"	3'-6"	5'-4"	22-*11M3	37-*4M32
	2	493.5	462.0	31'-6"	6'-0"	3'-6"	5'-4"	22-*11M4	36-*4M32
45	1	493.5	468.0	25'-6"	6'-0"	3'-6"	5'-4"	22-*11M5	30-*4M32
	2	493.0	462.0	31'-0"	5'-0"	3'-0"	4'-8"	20-*10M6	36-*4M33
46	1	495.5	468.0	27'-6"	5'-0"	3'-0"	4'-8"	20-*10M7	32-*4M33
	2	495.0	468.0	27'-0"	5'-0"	3'-0"	4'-8"	20-*10M8	32-*4M33
47	1	493.5	468.0	25'-6"	5'-0"	3'-0"	4'-8"	20-*10M9	30-*4M33
	2	488.5	462.0	26'-6"	6'-0"	3'-6"	5'-4"	22-*11M10	31-*4M32
48	1	496.5	466.0	30'-6"	6'-0"	3'-6"	5'-4"	22-*11M11	36-*4M32
	2	489.0	472.0	17'-0"	6'-0"	3'-6"	5'-4"	22-*11M13	22-*4M
49	1	476.5	447.0	29'-6"	11'-0"	5'-6"	6'-8"	28 Bundles of 2-*11M14	34-*4M34
	2	478.5	458.0	27'-6"	10'-0"	5'-0"	3'-8"	44-*11M15	25-*4M35
50	1	478.5	456.0	22'-6"	10'-0"	5'-0"	3'-8"	44-*11M16	27-*4M35
	2	478.5	451.0	27'-6"	10'-0"	5'-0"	3'-8"	44-*11M17	32-*4M35
51	1	479.0	455.0	25'-0"	6'-0"	3'-6"	5'-4"	22-*11M18	30-*4M32
	2	479.0	459.0	20'-0"	6'-0"	3'-6"	5'-4"	22-*11M19	25-*4M32
52	1	479.0	451.0	28'-0"	6'-0"	4'-0"	4'-8"	28-*11M20	33-*4M31
	2	479.0	454.0	25'-0"	6'-0"	4'-0"	4'-8"	28-*11M21	30-*4M31
53	1	479.0	456.0	23'-0"	6'-0"	4'-0"	4'-8"	28-*11M22	28-*4M31
	2	479.0	447.0	32'-0"	6'-0"	4'-0"	4'-8"	28-*11M23	37-*4M31
54	1	479.0	445.0	34'-0"	6'-0"	3'-6"	5'-4"	22-*11M24	39-*4M32
	2	479.0	440.0	39'-0"	6'-0"	3'-6"	5'-4"	22-*11M25	44-*4M32
55	1	472.5	442.0	30'-6"	6'-0"	3'-6"	5'-4"	22-*11M26	35-*4M32
	2	468.0	442.0	26'-0"	6'-0"	3'-6"	5'-4"	22-*11M27	31-*4M32
56	1	469.0	433.0	36'-0"	8'-0"	5'-0"	3'-8"	44-*11M28	41-*4M35
	2	469.0	437.0	32'-0"	8'-0"	5'-0"	3'-8"	44-*11M29	37-*4M35
57	1	473.0	429.0	44'-0"	6'-0"	4'-0"	4'-8"	28-*11M30	49-*4M31
	2	473.5	429.0	44'-6"	6'-0"	4'-0"	4'-8"	28-*11M31	49-*4M31
58	1	474.5	429.0	45'-6"	6'-0"	4'-0"	4'-8"	28-*11M32	50-*4M31
	2	474.5	429.0	45'-6"	6'-0"	4'-0"	4'-8"	28-*11M33	50-*4M31

457

DESIGNED BY: D. J. BARNES, P.E. 1977
CHECKED BY: D. J. BARNES, P.E. 1977
773325

W. J. BARNES & ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

PILE DATA

SHEET - OF 36

A-3594

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	97	



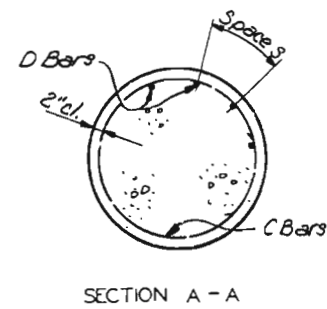
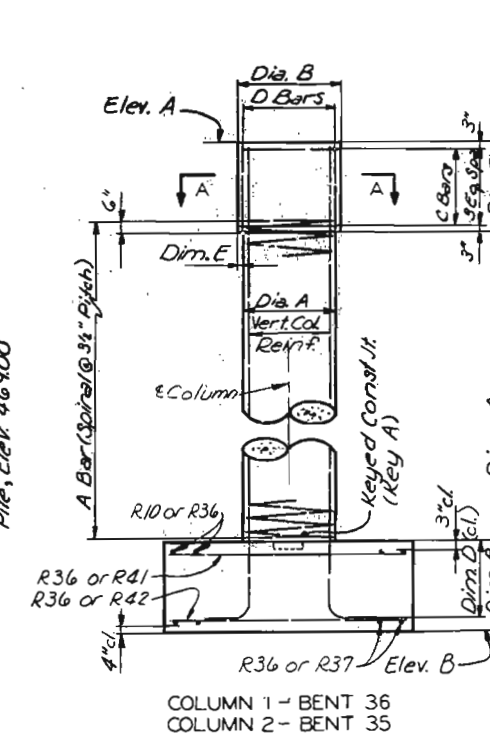
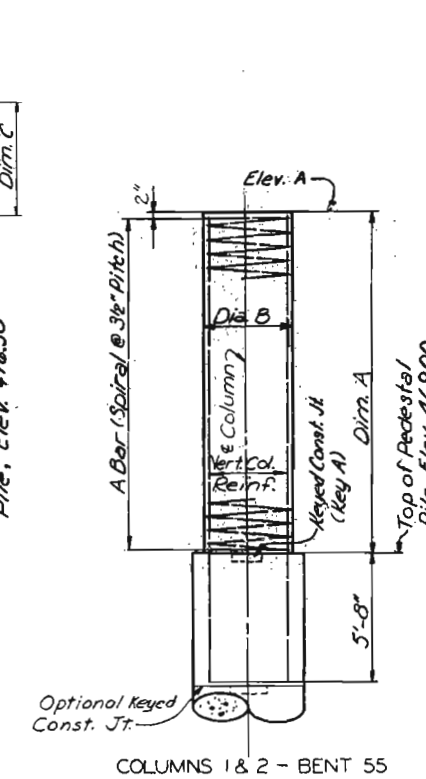
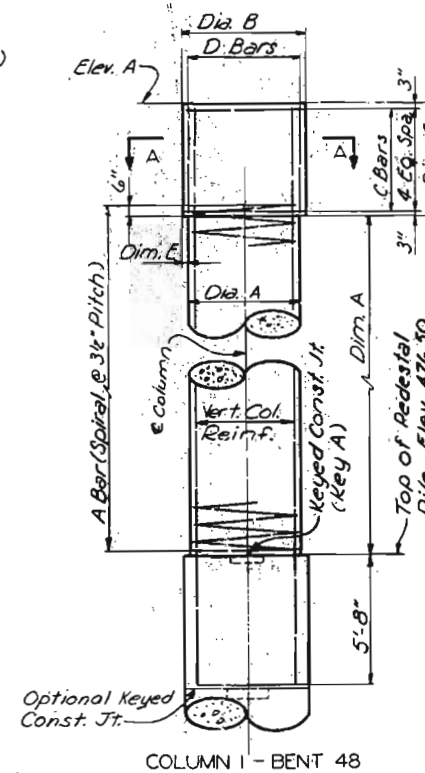
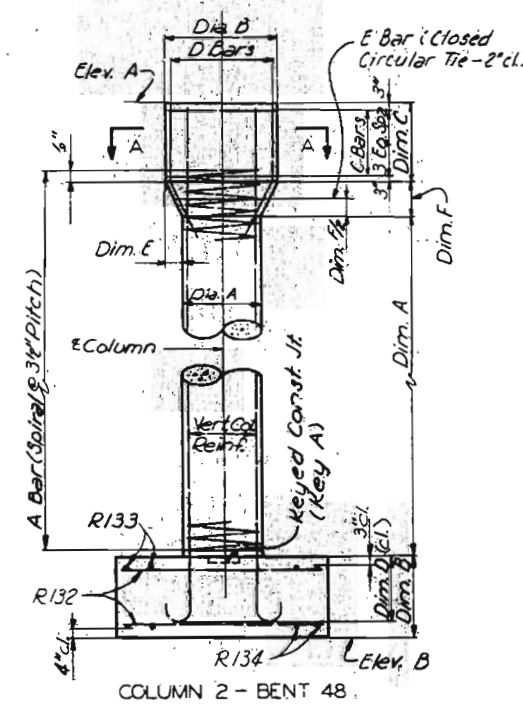
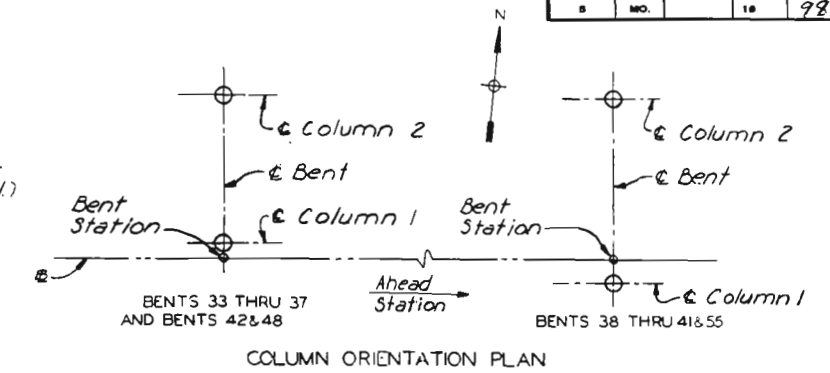
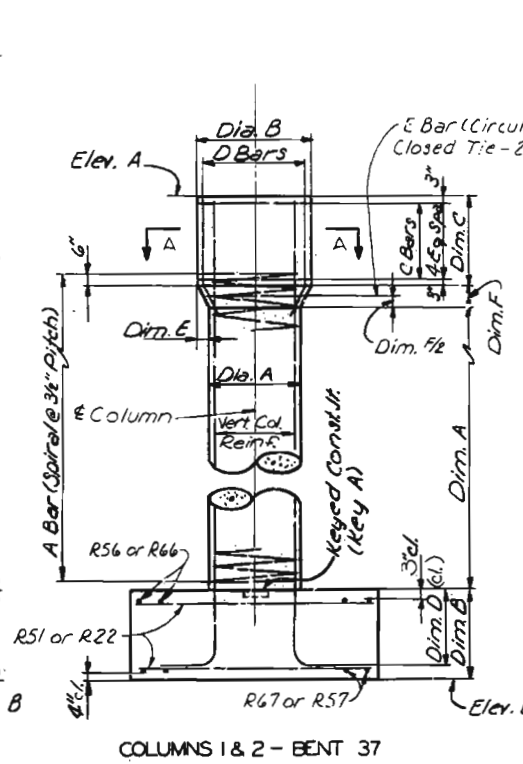
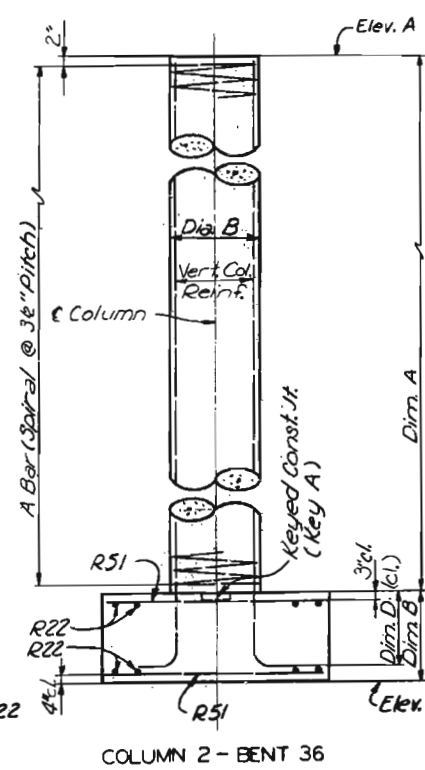
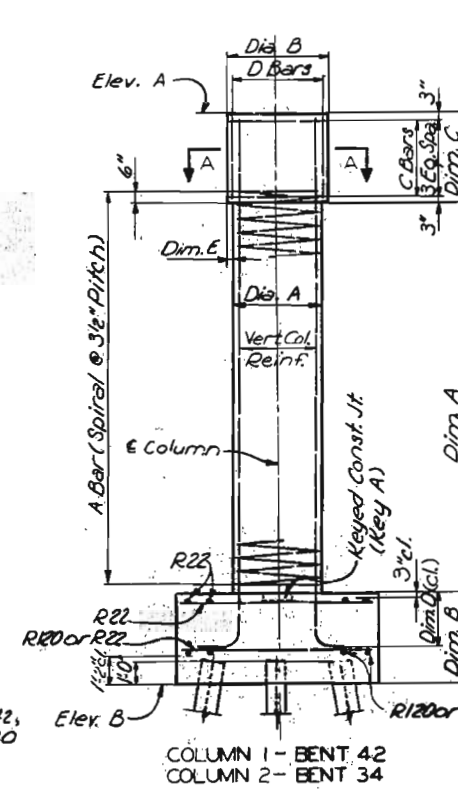
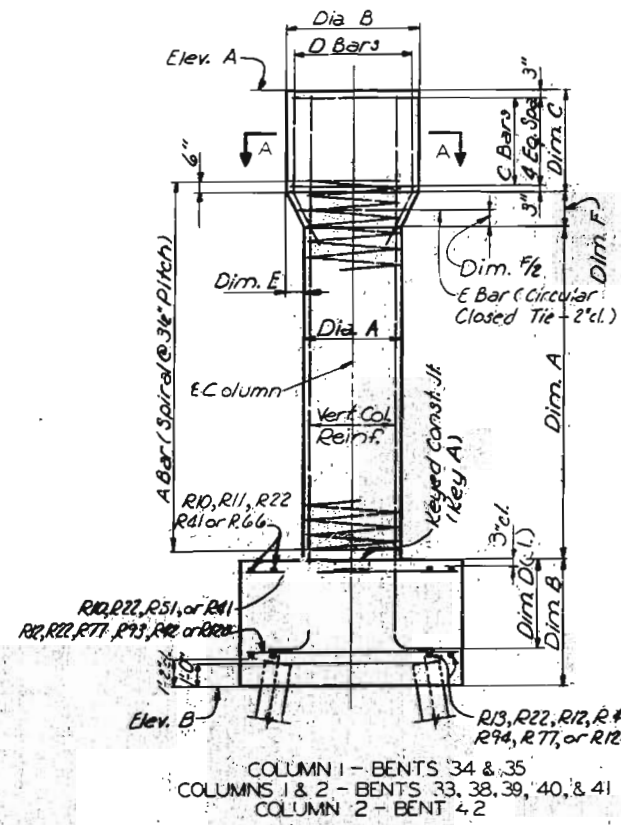
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5261
775324
DRAWN BY: D.R. Brock, Aug. 1977
TRACED BY:
CHECKED BY: Schrempf-Walton, Sept. 77

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	98	



NOTES

Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom.

Spacing of vertical column reinforcement is measured along inside face of spiral bar or tie bar.

Work this sheet with Sheets 15 and 17.

Spirals to be set on top of footings or Pedestal Piles.

CITY OF ST. LOUIS

BENTS 33 THRU 42, 48 AND 55

SHEET 16 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

DRAWN BY: D.R. Brock, Aug. 1977
CHECKED BY: Schenck, Sept. 77
5261
773326

459

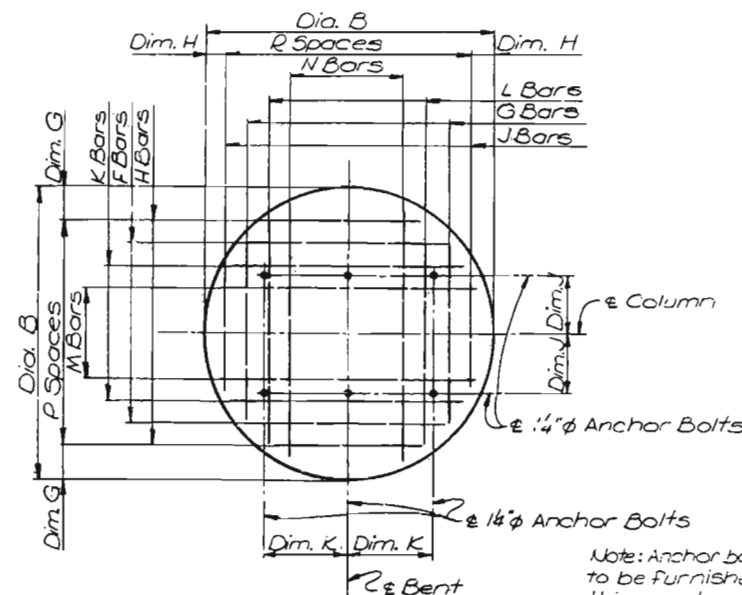
MISSOURI STATE HIGHWAY DEPARTMENT

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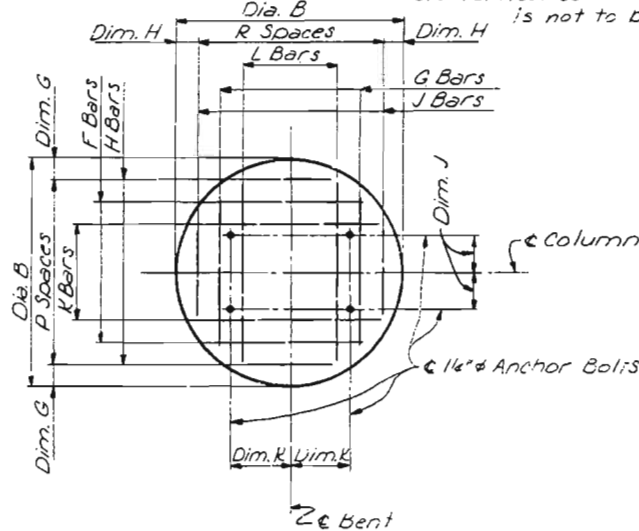
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	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	
Elev. A	493.01	493.32	493.60	493.89	494.20	494.49	494.76	495.00	495.42	495.44	496.65	494.99	497.42	495.52	498.58	496.15	505.40	502.90	507.44	506.43	498.15	497.21	497.39	497.81	Elev. A
Elev. B	456.00	460.00	456.00	459.00	458.00	458.00	456.00	456.00	457.50	458.50	462.00	463.50	463.50	469.00	475.00	474.50	480.00	478.00	483.00	484.50	478.00	477.00	477.00	477.00	Elev. B
Dim. A	24'-0"	24'-3"	24'-7"	24'-10"	24'-2"	28'-11"	31'-9"	35'-7"	26'-11"	26'-5"	23'-7"	20'-11"	19'-5"	16'-6"	15'-1"	10'-1"	17'-10"	13'-4"	16'-11"	12'-11"	16'-7"	16'-8"	13'-4"	20'-9"	Dim. A
Dim. B	6'-0"	4'-0"	6'-0"	4'-0"	6'-0"	3'-6"	4'-0"	4'-0"	4'-0"	4'-0"	5'-0"	4'-6"	4'-0"	4'-6"	4'-0"	4'-6"	4'-0"	6'-0"	4'-0"	4'-6"	3'-6"	3'-6"	3'-6"	3'-6"	Dim. B
Dim. C	6'-0"	4'-0"	6'-0"	4'-0"	6'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	5'-0"	4'-6"	4'-0"	4'-6"	4'-0"	4'-6"	4'-0"	6'-0"	4'-0"	4'-6"	3'-6"	3'-6"	3'-6"	3'-6"	Dim. C
Dim. D	4'-4"	2'-7"	4'-4"	2'-7"	4'-4"	2'-11"	3'-4"	3'-5"	3'-3"	3'-4"	3'-6"	2'-11"	2'-6"	2'-10"	2'-6"	2'-10"	2'-7"	4'-6"	2'-6"	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"	Dim. D
Dim. E	6'	6'	6'	3'	6'	3'	3'	3'	9'	9'	6'	9'	9'	1'-0"	9'	1'-3"	6'	9'	3'	6'	3'	3'	3'	3'	Dim. E
Dim. F	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	Dim. F
Dim. G	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	Dim. G
Dim. H	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	Dim. H
Dim. J	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	Dim. J
Dim. K	2'-0"	1'-4"	2'-0"	1'-3"	2'-0"	1'-3"	1'-2"	1'-2"	2'-0"	1'-5"	1'-7"	1'-7"	1'-5"	1'-11"	1'-3"	2'-0"	7'-8"	1'-6"	8'	9'	1'-5"	1'-4"	1'-4"	1'-4"	Dim. K
Dim. L	6'-0"	4'-0"	6'-0"	4'-0"	6'-0"	4'-0"	4'-0"	4'-0"	5'-6"	4'-0"	5'-0"	4'-6"	4'-0"	4'-6"	3'-0"	4'-6"	3'-6"	4'-0"	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"	Dim. L
Dim. M	7'-0"	5'-0"	7'-0"	4'-0"	7'-0"	5'-0"	3'-6"	3'-6"	7'-0"	5'-6"	6'-0"	4'-0"	5'-6"	6'-0"	7'-0"	3'-6"	5'-6"	4'-0"	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"	Dim. M
Key A	20'x2'x2'	14'x2'x1'	20'x2'x2'	14'x2'x1'	20'x2'x2'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	14'x2'x1'	Key A
A Bars	1-2R1	1-2R14	1-2R23	1-2R25	1-2R32	1-2R34	1-2R38	1-2R43	1-2R52	1-2R58	1-2R68	1-2R78	1-2R82	1-2R84	1-2R95	1-2R99	1-2R103	1-2R108	1-2R110	1-2R121	1-2R125	1-2R126	1-2R135	1-2R137	A Bars
C Bars	5-4R3	5-4R16	5-4R3	4-4R27	5-4R3	4-4R27	4-4R16	---	5-4R3	5-4R60	5-4R70	5-4R70	5-4R60	5-4R86	5-4R27	5-4R3	5-4R105	5-4R60	4-4R112	5-4R112	5-4R60	4-4R116	---	---	C Bars
D Bars	22-4R4	15-4R17	22-4R4	13-4R28	22-4R4	13-4R28	15-4R40	---	22-4R54	16-4R61	18-4R71	18-4R80	16-4R61	20-4R87	13-4R77	22-4R101	10-4R106	16-4R61	12-4R113	12-4R123	16-4R127	15-4R130	---	---	D Bars
E Bars	1-4R5	1-4R18	1-4R5	---	1-4R5	---	---	---	1-4R55	1-4R62	1-4R72	1-4R81	1-4R62	1-4R88	1-4R98	1-4R102	1-4R107	1-4R62	1-4R114	1-4R114	1-4R124	1-4R131	---	---	E Bars
F Bars	1-5R6	1-5R19	1-5R6	1-5R29	1-5R6	1-5R29	1-5R19	1-5R45	1-5R6	1-5R63	1-5R73	1-5R73	1-5R63	1-5R84	1-5R29	1-5R6	1-5R45	1-5R63	1-5R117	1-5R117	1-5R63	1-5R119	1-5R117	1-5R117	F Bars
G Bars	1-5R6	1-5R19	1-5R6	1-5R29	1-5R6	1-5R29	1-5R19	1-5R48	1-5R6	1-5R63	1-5R73	1-5R73	1-5R63	1-5R84	1-5R29	1-5R6	1-5R45	1-5R63	1-5R117	1-5R117	1-5R63	1-5R119	1-5R117	1-5R117	G Bars
H Bars	1-5R7	1-5R20	1-5R7	1-5R30	1-5R7	1-5R30	1-5R20	1-5R49	1-5R7	1-5R64	1-5R74	1-5R74	1-5R64	1-5R84	1-5R20	1-5R7	1-5R46	1-5R64	1-5R118	1-5R118	1-5R64	1-5R120	1-5R118	1-5R118	H Bars
J Bars	1-5R7	1-5R20	1-5R7	1-5R30	1-5R7	1-5R30	1-5R20	1-5R49	1-5R7	1-5R64	1-5R74	1-5R74	1-5R64	1-5R84	1-5R20	1-5R7	1-5R46	1-5R64	1-5R118	1-5R118	1-5R64	1-5R120	1-5R118	1-5R118	J Bars
K Bars	1-5R8	5-5R21	1-5R8	3-5R31	1-5R8	3-5R31	5-5R21	2-5R47	1-5R8	6-5R65	1-5R75	1-5R75	6-5R65	1-5R91	3-5R31	1-5R8	2-5R47	6-5R65	2-5R116	2-5R116	6-5R65	5-5R21	3-5R119	3-5R119	K Bars
L Bars	1-5R8	5-5R21	1-5R8	3-5R31	1-5R8	3-5R31	5-5R21	1-5R50	1-5R8	6-5R65	1-5R75	1-5R75	6-5R65	1-5R91	3-5R31	1-5R8	2-5R47	6-5R65	3-5R119	3-5R119	6-5R65	5-5R21	3-5R119	3-5R119	L Bars
M Bars	6-5R9	---	6-5R9	---	6-5R9	---	---	---	6-5R9	---	4-5R76	4-5R76	---	5-5R92	---	6-5R9	---	---	---	---	---	---	---	---	M Bars
N Bars	6-5R9	---	6-5R9	---	6-5R9	---	---	---	6-5R9	---	4-5R76	4-5R76	---	5-5R92	---	6-5R9	---	---	---	---	---	---	---	---	N Bars
P Spaces	11@6"	8@6"	11@6"	6@6"	11@6"	6@6"	8@6"	5@6"	11@6"	9@6"	9@6"	9@6"	9@6"	10@6"	6@6"	11@6"	5@6"	9@6"	5@6"	9@6"	8@6"	6@6"	6@6"	6@6"	P Spaces
R Spaces	11@6"	8@6"	11@6"	6@6"	11@6"	6@6"	8@6"	4@6"	11@6"	9@6"	9@6"	9@6"	9@6"	10@6"	6@6"	11@6"	5@6"	9@6"	5@6"	9@6"	8@6"	6@6"	6@6"	6@6"	R Spaces
S Spaces	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	11@6"	S Spaces
T Spaces	8"	9"	8"	8"	8"	8"	8"	8"	8"	8"	8"	8"	8"	8"	8"	8"	8"	8"	8"	8"	8"	8"	8"	8"	T Spaces
U Bars	26-11R2	15-11R15	26-11R24	15-11R26	26-11R33	15-11R35	18-11R39	11-11R44	28-11R53	17-11R59	23-11R69	22-11R79	13-11R83	22-11R85	10-11R96	---	12-11R104	15-11R109	22-11R111	15-11R122	22-11R126	22-11R129	15-11R136	15-11R138	U Bars
V Bars	26-11R143	15-11R152	26-11R143	15-11R155	26-11R150	15-11R156	18-11R159	11-11R162	28-11R172	17-11R165	23-11R166	22-11R167	13-11R175	22-11R178	10-11R181	---	12-11R185	15-11R188	22-11R191	15-11R194	22-11R199	22-11R200	15-11R202	15-11R204	V Bars
W Bars	26-11R144	15-11R153	26-11R144	15-11R154	26-11R145	15-11R157	18-11R160	11-11R163	28-11R173	17-11R166	23-11R167	22-11R168	13-11R176	22-11R179	10-11R180	---	12-11R187	15-11R190	22-11R193	15-11R196	22-11R199	22-11R202	15-11R199	15-11R199	W Bars
X Bars	26-11R145	15-11R154	26-11R145	15-11R155	26-11R146	15-11R158	18-11R161	11-11R164	28-11R174	17-11R167	23-11R168	22-11R169	13-11R177	22-11R180	10-11R177	---	12-11R187	15-11R190	22-11R193	15-11R196	22-11R199	22-11R202	15-11R199	15-11R199	X Bars
Y Bars	26-11R146	15-11R154	26-11R146	15-11R155	26-11R147	15-11R158	18-11R161	11-11R164	28-11R174	17-11R167	23-11R168	22-11R169	13-11R177	22-11R180	10-11R177	---	12-11R187	15-11R190	22-11R193	15-11R196	22-11R199	22-11R202	15-11R199	15-11R199	Y Bars
Z Bars	26-11R147	15-11R154	26-11R147	15-11R155	26-11R148	15-11R158	18-11R161	11-11R164	28-11R174	17-11R167	23-11R168	22-11R169	13-11R177	22-11R180	10-11R177	---	12-11R187	15-11R190	22-11R193	15-11R196	22-11R199	22-11R202	15-11R199	15-11R199	Z Bars

*Note: Vertical Column Reinforcement Col. 2, Bent 40, is not to be spliced.

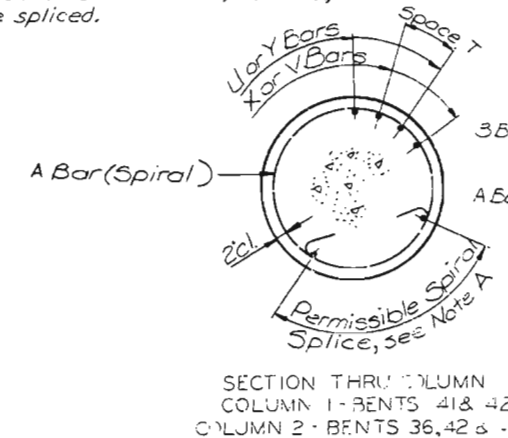


ANCHOR BOLT PLAN AT
COLUMN 1 - BENTS 33, 34, 35 & 37
COLUMNS 1 & 2 - BENT 38
COLUMN 2 - BENTS 39 & 40
Note: Anchor Bolts to be enclosed with a spiral bar, see Sheet 31 for details.
F Bars thru N Bars are to be shaped thus m.



ANCHOR BOLT PLAN AT
COLUMN 1 - BENTS 39 & 40
COLUMNS 1 & 2 - BENTS 36, 41, 42, 48, & 55
COLUMN 2 - BENTS 33, 34, 35, & 37

Note: Anchor Bolts to be enclosed with a spiral bar, see Sheet 31 for details.
F Bars thru L Bars to be shaped thus n.



SECTION THRU COLUMN
COLUMN 1 - BENTS 41 & 42
COLUMN 2 - BENTS 36, 42 & 48

Note A: Spiral splice shall be lapped one turn plus 3'-0" with a 135° hook and 10' tail anchored around a vertical bar at each end.
No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.

NOTES
Work this sheet with Sheets 15 and 16.

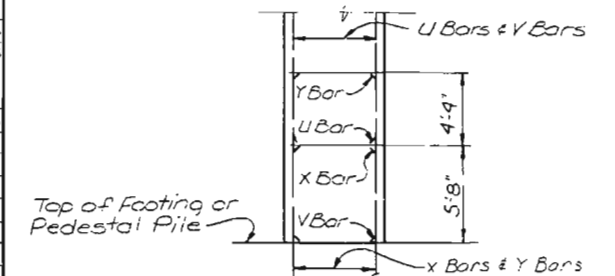
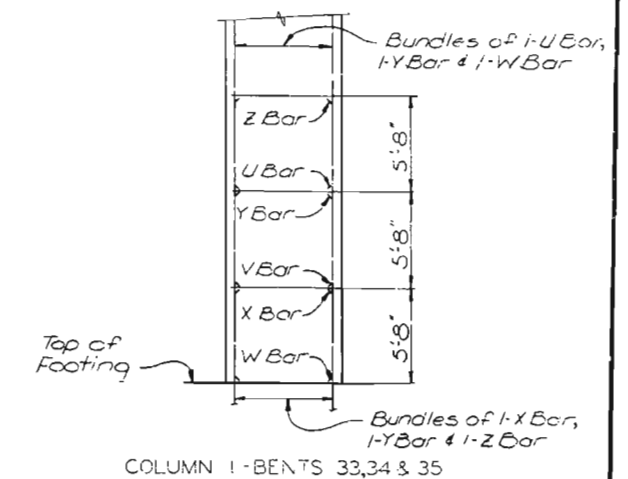
CITY OF ST. LOUIS

BENTS 33 THRU 42, 43 AND 55

SHEET 17 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.



COLUMN 1 BENT 40
COLUMN 2 BENTS 33, 34 & 35
COLUMNS 1 & 2 BENTS 36 THRU 39, 41, 42, 48 & 55
VERTICAL COLUMN REINFORCING

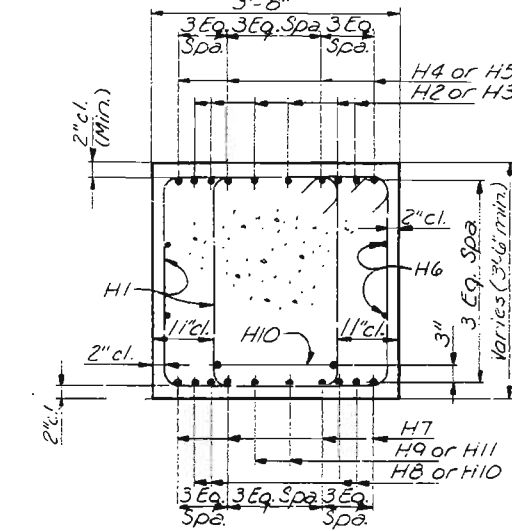
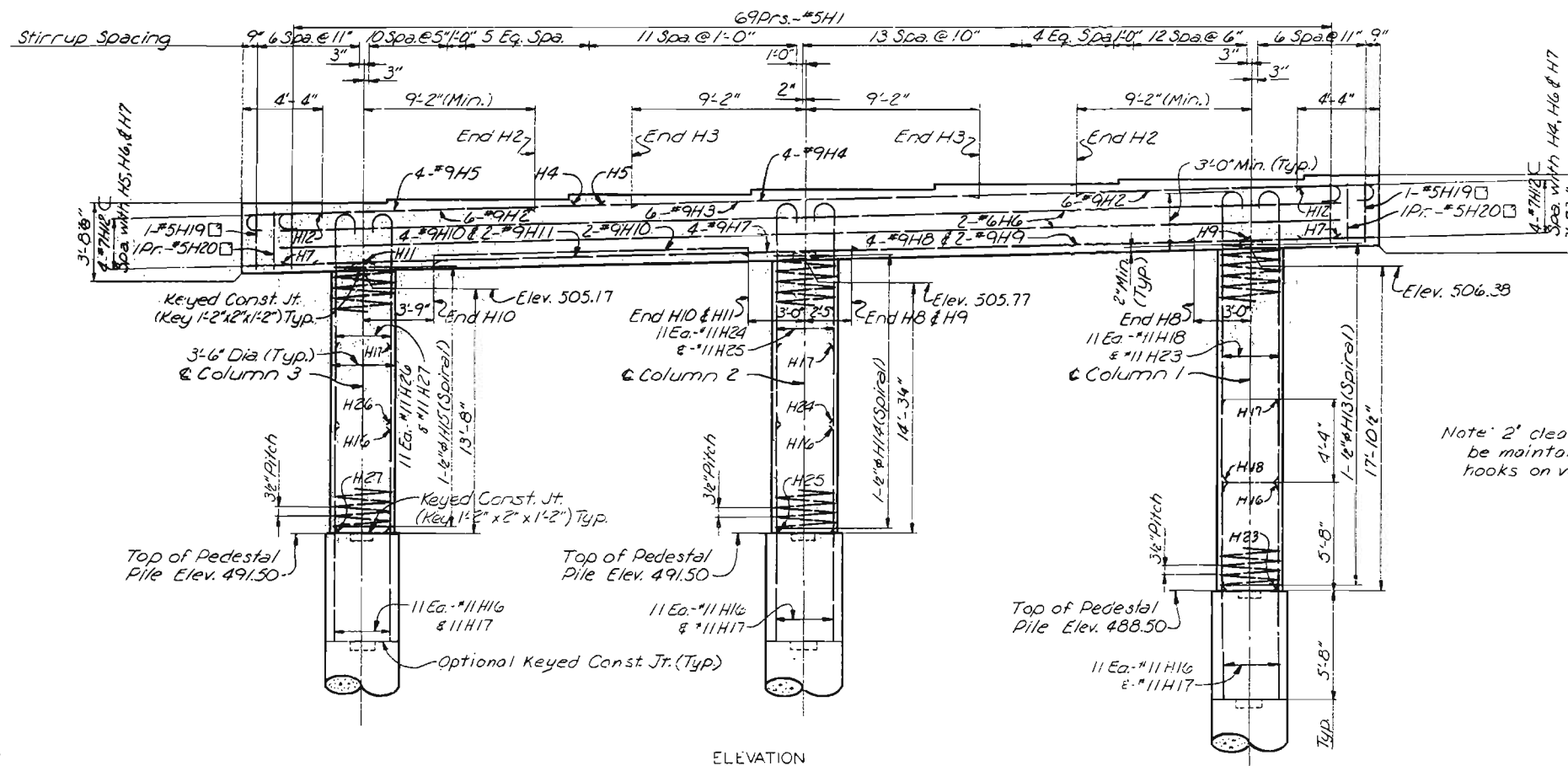
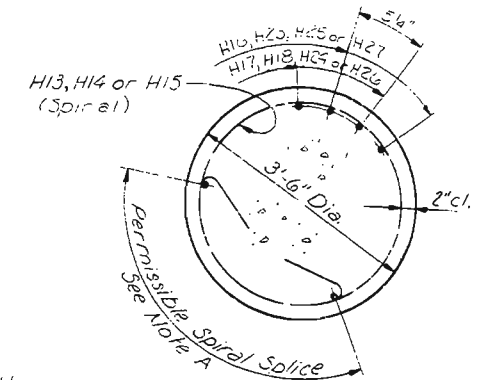
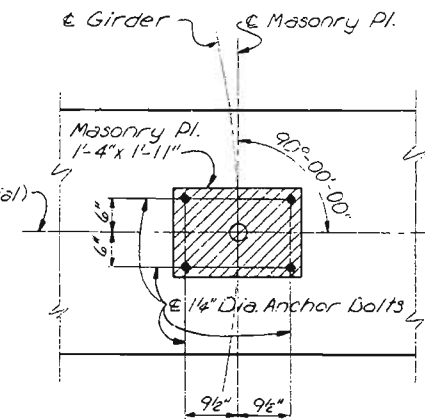
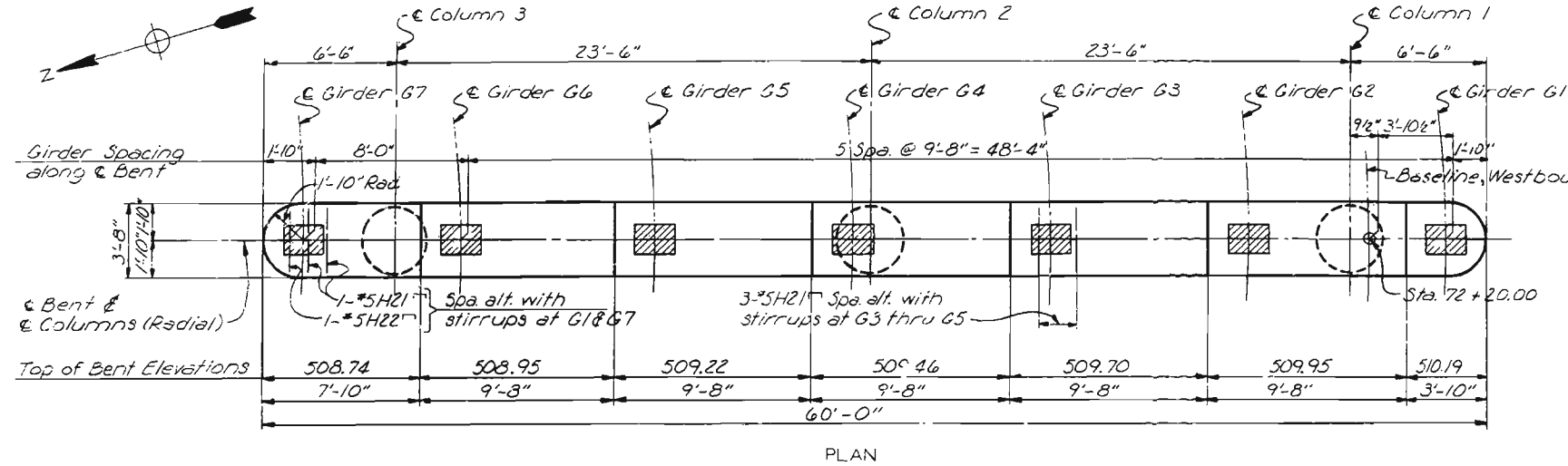
460

DRAWN BY: D.R. Brock, Aug. 1977
CHECKED BY: Schenck/Walton, Sept. 77
5261
77325

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	100	



NOTES

Stirrups in beam shall be shifted as required to clear anchor bolts a minimum of 1/2". For details of pedestal piles, see Sheet 14. For Substructure Layout, see Sheet 13.

Note: Spirals are to have 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spirals to be set on top of Pedestal piles.

CITY OF ST. LOUIS

BENT 43

SHEET 16 OF 30

A-3594

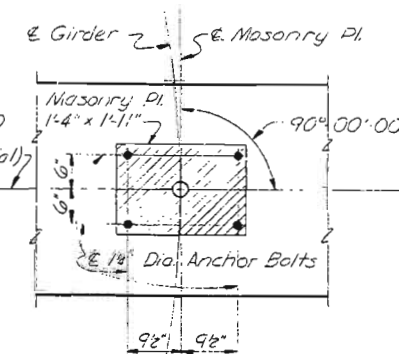
OVERDRUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

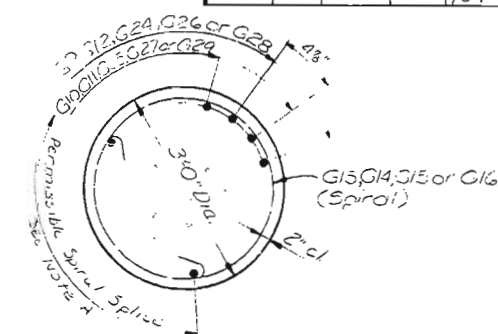
461
DRAWN BY: D.R. Brock, July 1977
CHECKED BY: D.J. Schamp, Aug 1977
3261
773299

264

5261	DRAWN BY: C.A. Strader July 1977
775273	TRACED BY:
	CHECKED BY: D. Schremp Aug 1977

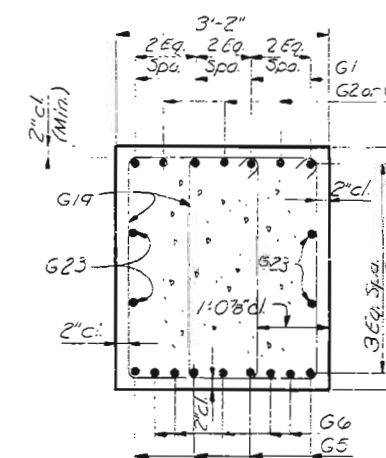


ANCHOR BOLT PLAN
Note: Anchor Bolts to be
enclosed with spiral
bars See Sheet 31 for details.
Masonry plates and anchor
bolts are stored for erection
under a future contract.



SECTION: THRU COLUMN:

Note A: Spiral splices shall be lapped one turn, plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end. No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.



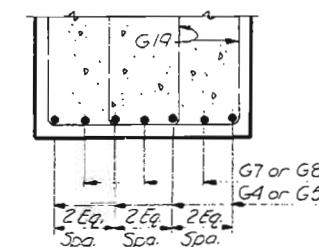
SECTION A-A

Note: 2" clearance shall be maintained between rocks on vert. col. reinf.

ELEVATION

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom.

Spirals to be set on top of Pedestal Piles.



PART SECTION B-B

Note Dimension and details not shown same as Section A-A

NOTES

Stirrups in beam shall be shifted as required to clear anchor bolts a minimum of 2".
For details of pedestal piles, see Sheet 14.
For Substructure layout, see Sheet 13.

CITY OF ST. LOUIS

BENT 44

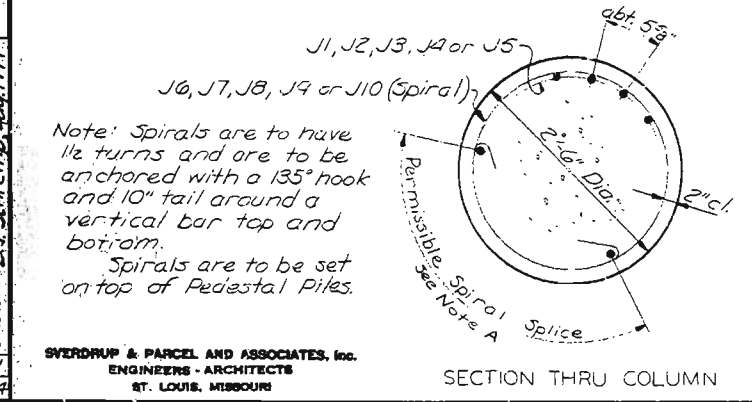
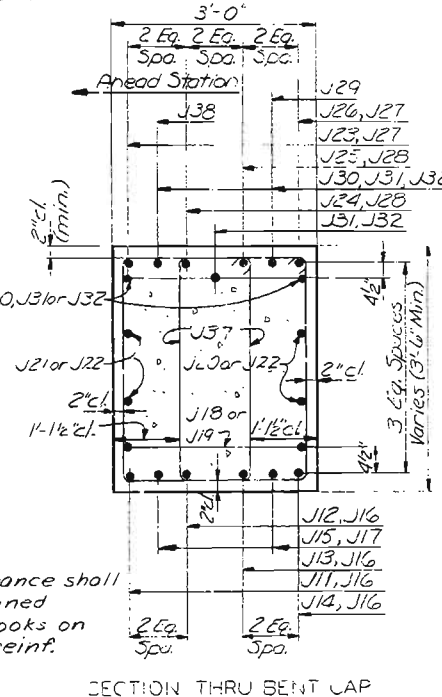
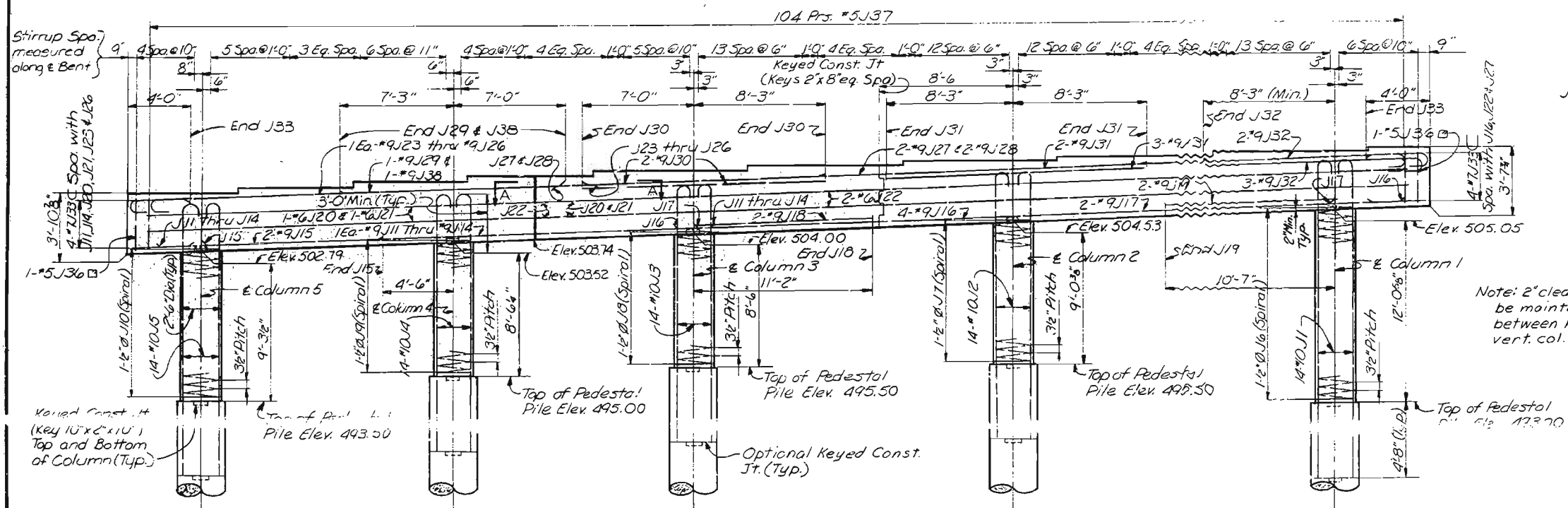
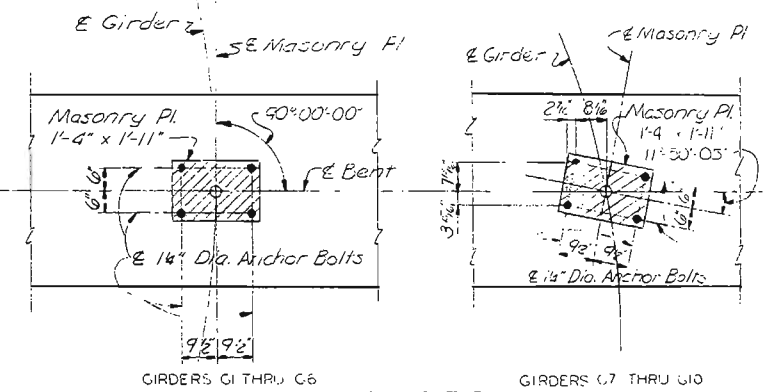
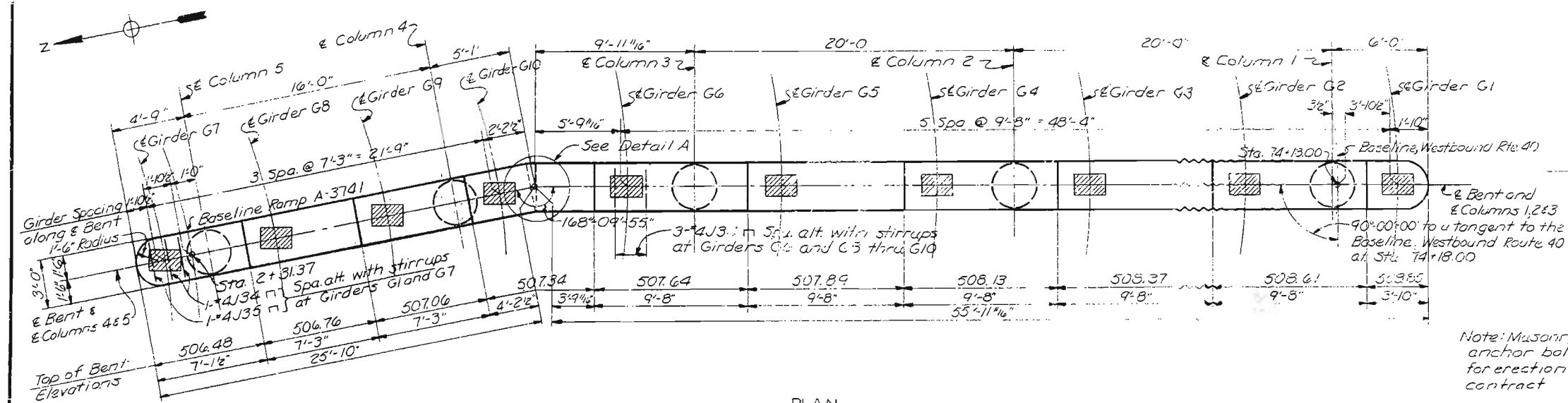
SHEET 19 OF 56

A-3594

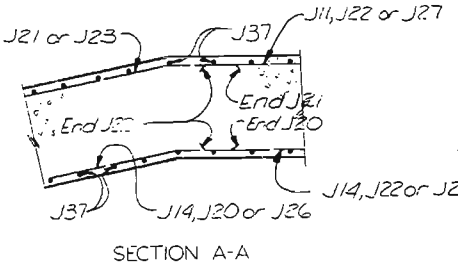
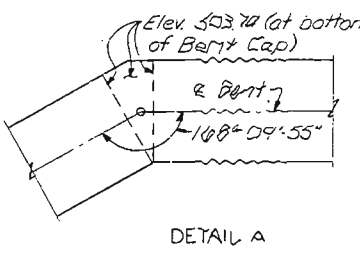
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	102	



Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end. No additional payment will be made for splices. Payment will be based on spiral length shown on bar list. Spacing of vertical column reinforcement is measured along inside face of spiral bar.



NOTES

Spirals in beam shall be shifted as required to clear anchor bolts a minimum of 2". For details of pedestal piles, see Sheet 14. For Substructure Layout, see Sheet 13.

CITY OF ST. LOUIS

BENT 45

SHEET 20 OF 36

A-35-24

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

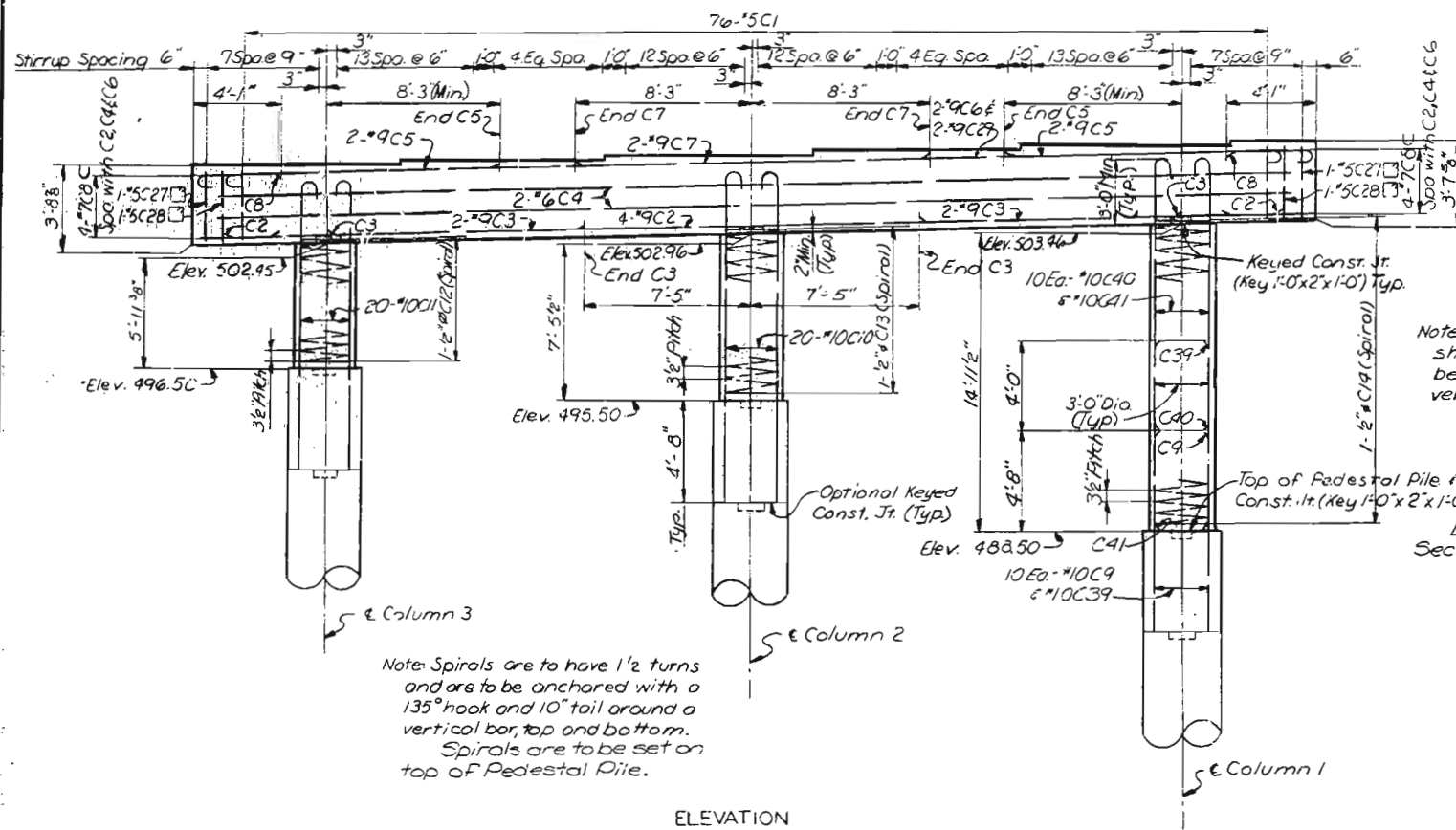
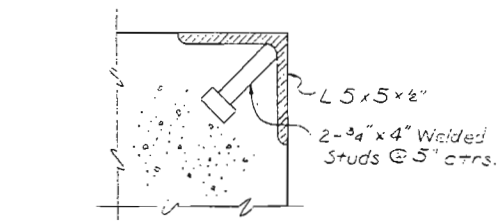
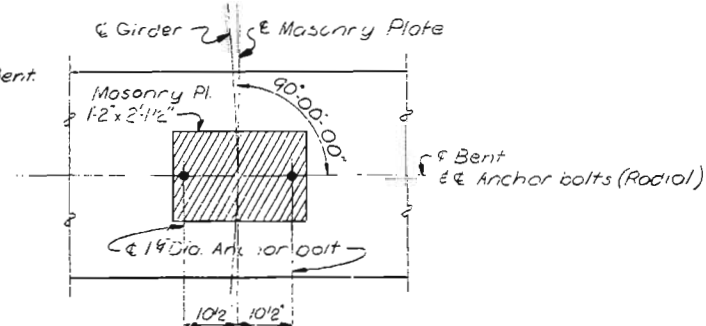
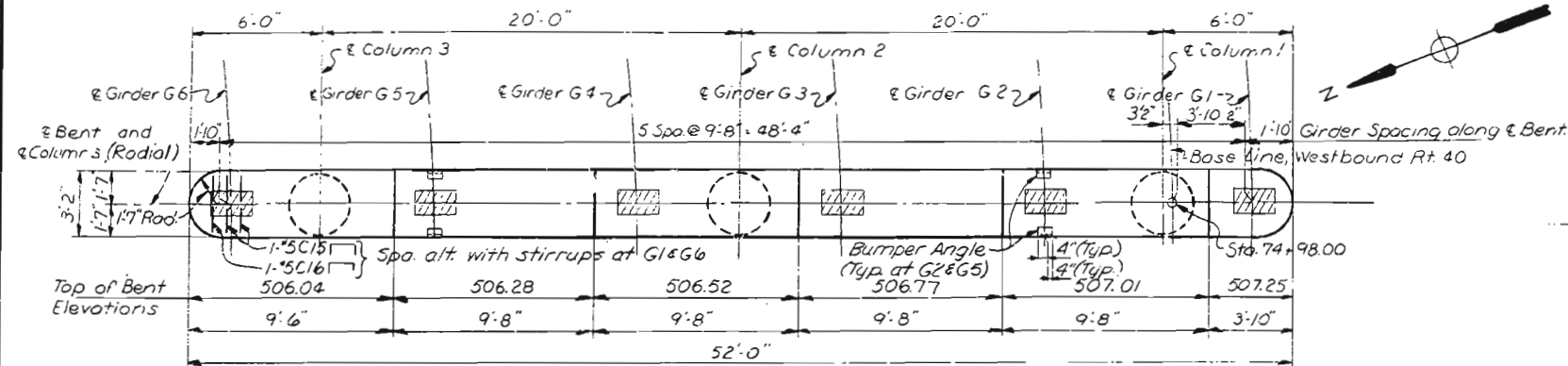
OVERDUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

463

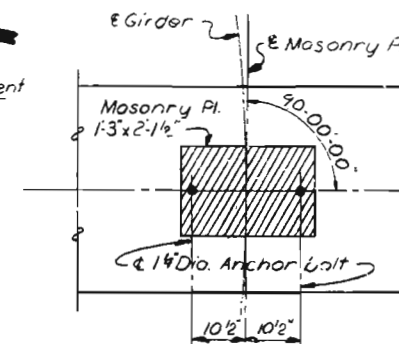
Drawn by: L.A. Strader, Aug. 1977
Traced by: D.J. Strader, Aug. 1977
Checked by: D.J. Strader, Aug. 1977

MISSOURI STATE HIGHWAY DEPARTMENT

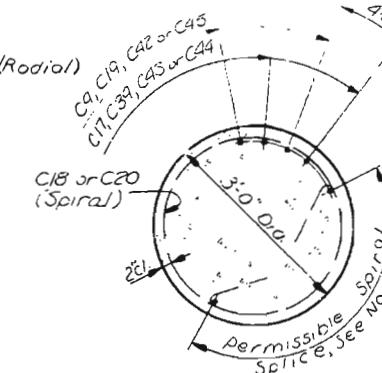
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	103	



FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		19	102	



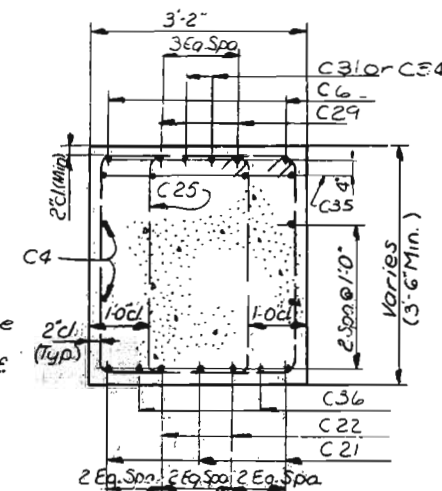
Note: Anchor Bolts to be enclosed with spiral bars. See Sheet 31 for detail.
Masonry plates and anchor bolts are stored for erection under a future contract.



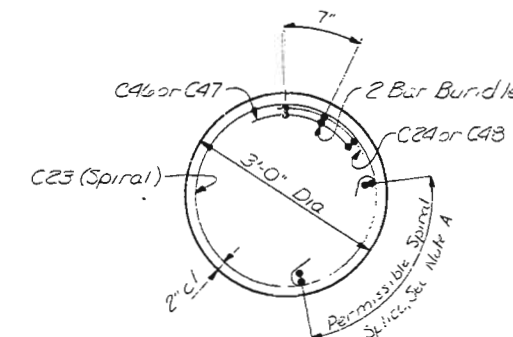
Note A Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.

No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.

Spacing of vertical column reinforcement is measured along inside face of spiral bar.

[illegible]

Note: Maximum Design Bearing Pressure = 3 Tons / Sq. Ft.



NOTES

Stirrups in beams shall be shifted
as required to clear anchor bolts,
minimum of "2".
For details of pedestal pike, see Sheet 14.
For Substructure (see) see Sheet 13.

Note: Spirals are to have 12 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom.

Spirals to be set on top of Pedestal Piles or Footings.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

BENT 47

SHEET 22 OF 36

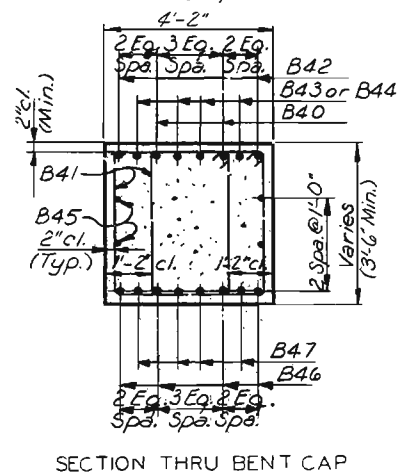
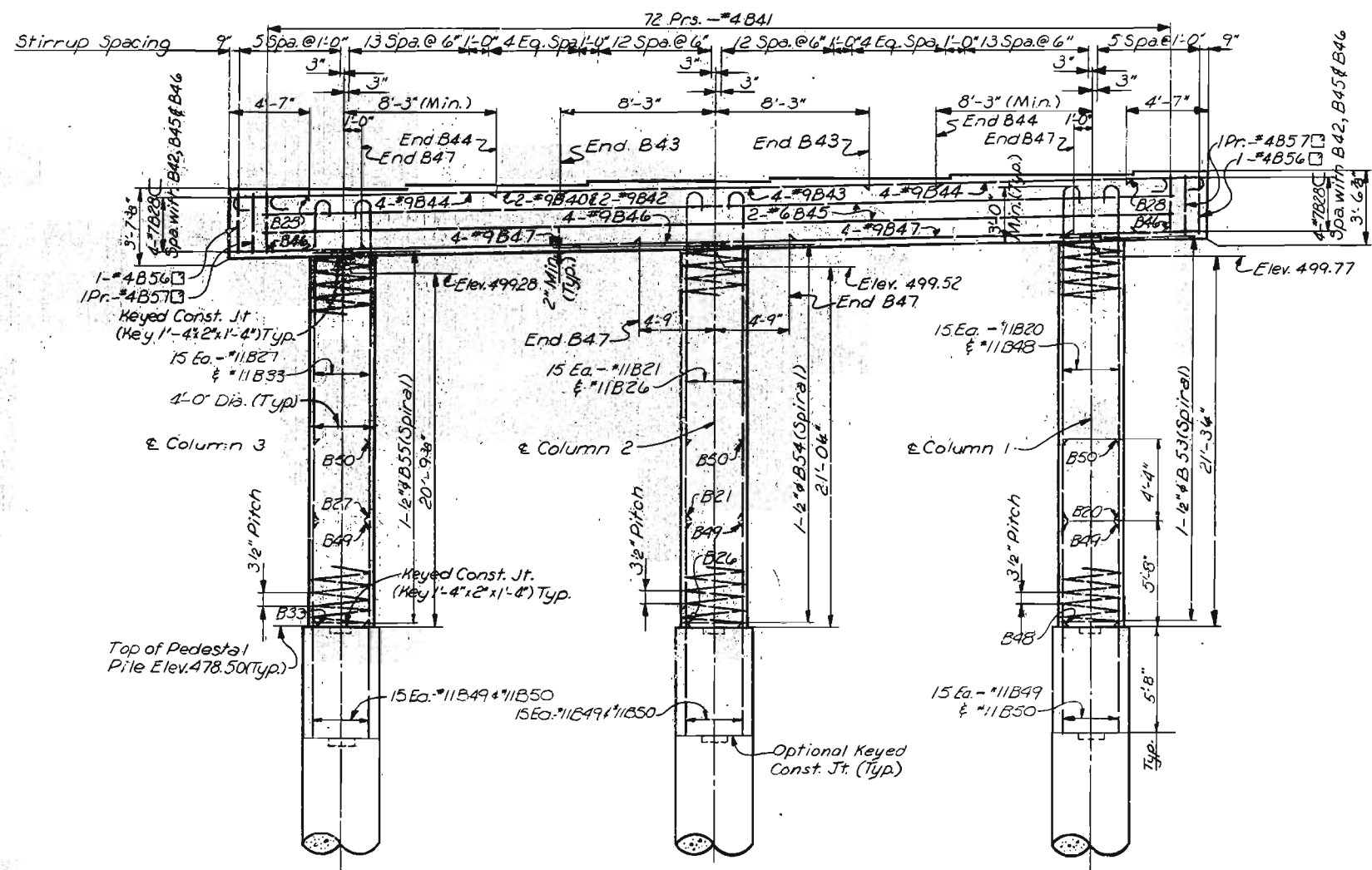
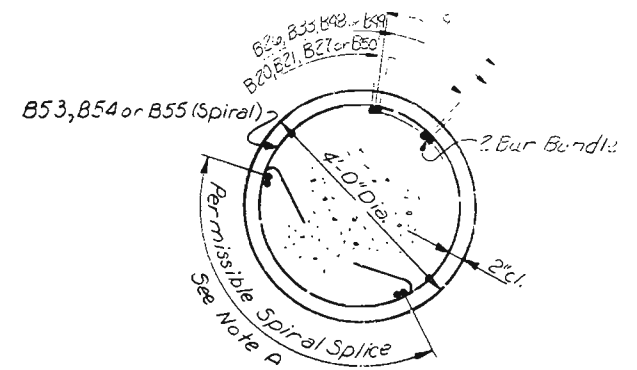
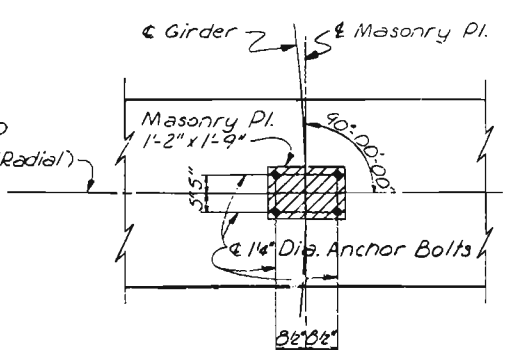
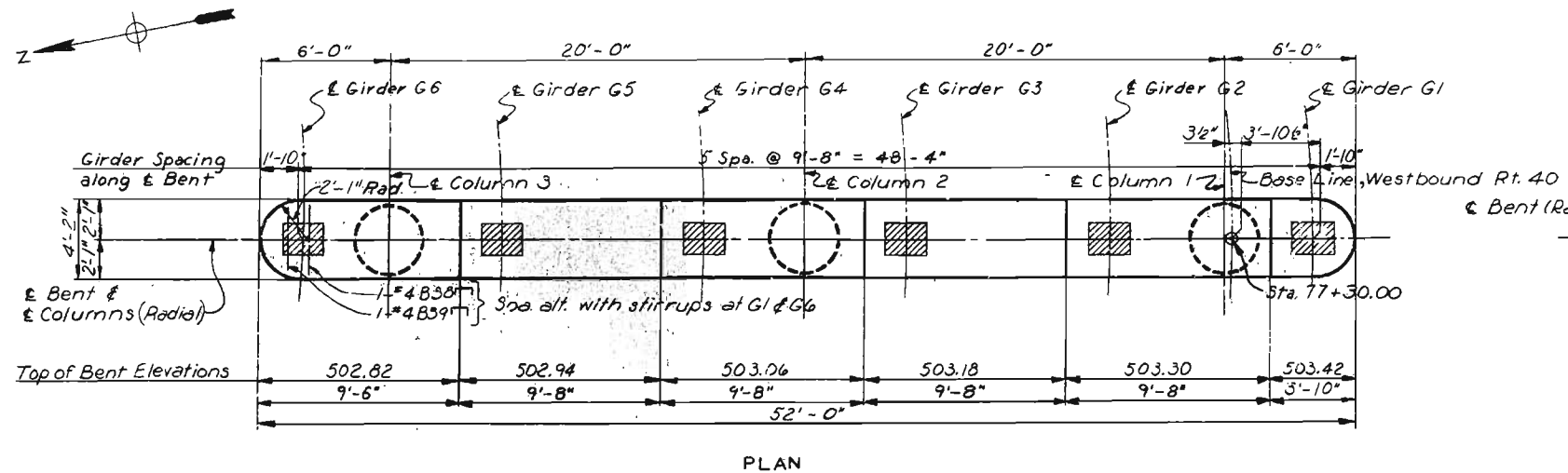
A-3594

5261
775:12
DRAWN BY: J.D. Avery, March 1977
TRACED BY:
CHECKED BY: L. Gibson, Aug. 1977

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	105	



NOTES

Stirrups in beams shall be shifted as required to clear anchor bolts a minimum of 1/2".

For details of pedestal piles, See Sheet 14.

For Substructure Layout, See Sheet 13.

Note: Spirals are to have 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spirals are to be set on top of Pedestal Piles.

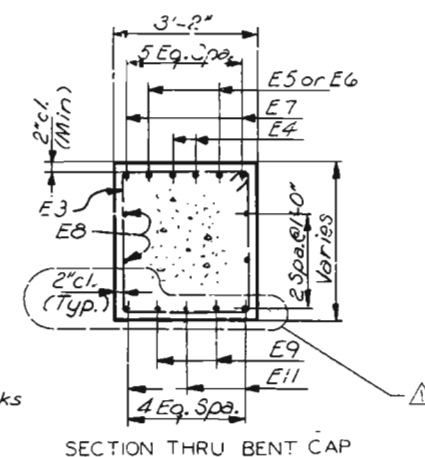
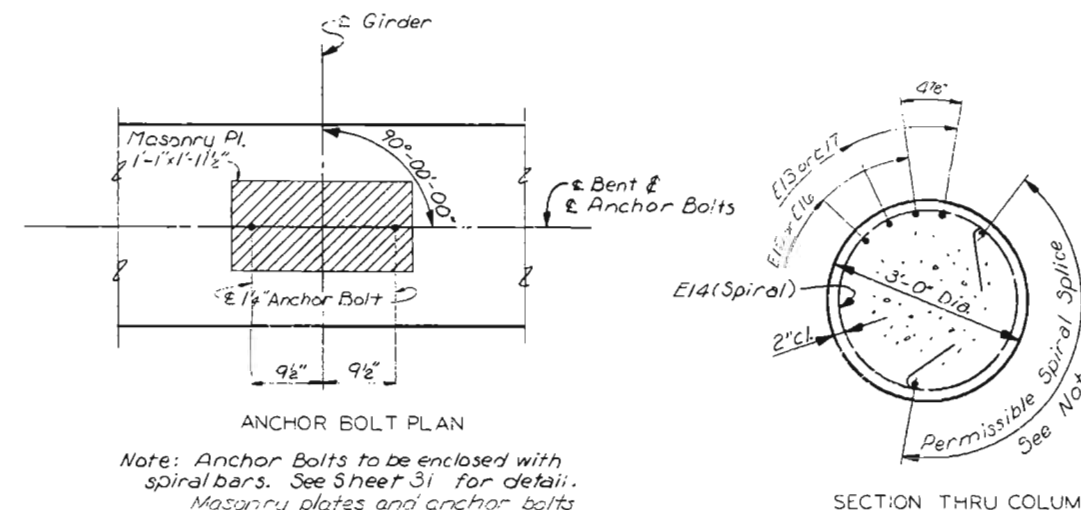
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

466

DRAWN BY: D.R. Brackley, Apr. 1977
CHECKED BY: L. Glaser, Aug. 1977
5261
775/136

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURI

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
3	MO.		19	106	



Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.

No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.

Spacing of vertical column reinforcement is measured along inside face of spiral bar.

Stirrups in beam shall be shifted as required to clear anchor bolts a minimum of 2".
For details of pedestal piles, see Sheet 14.
For Substructure Layout, See Sheet 13.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom.

NOT: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

△ Revised 5-1-81

PENT 50

SHEET 24 OF 34

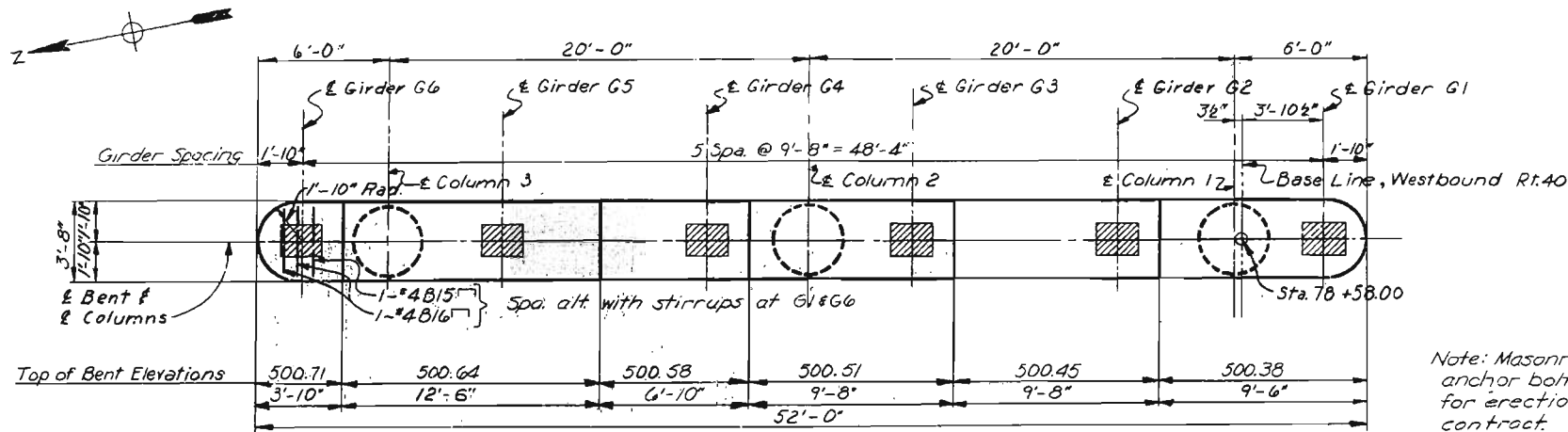
A-3594

5261	DRAWN BY: D. R. Brock April, 1977
775146	TRACED BY:
	CHECKED BY: L. Glaser, Aug. 1977

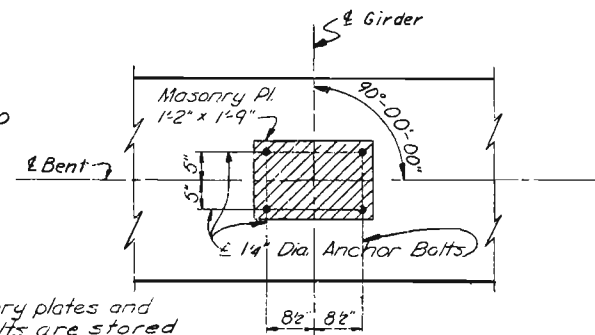
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

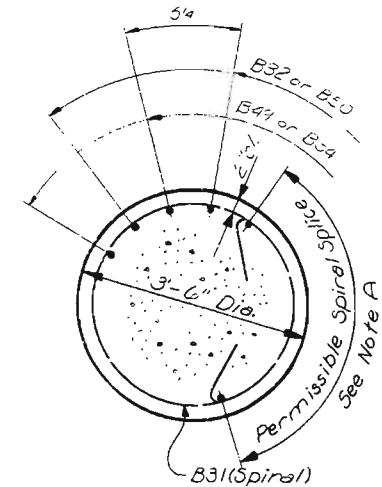
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	107	



Note: Masonry plates and anchor bolts are stored for erection under a future contract.

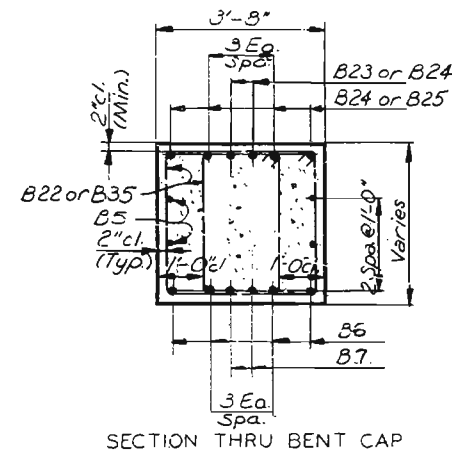
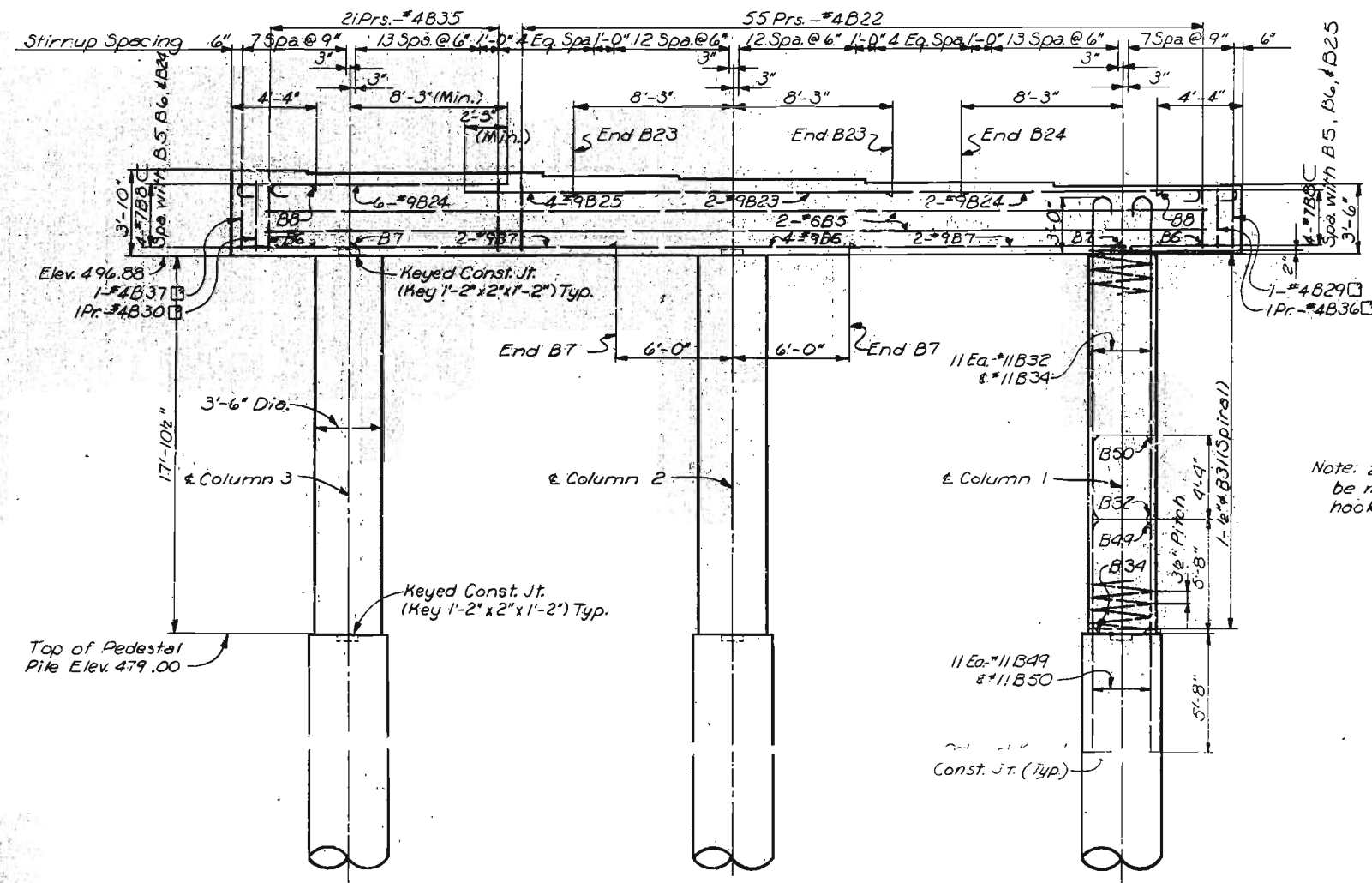


Note: Anchor Bolts to be enclosed with spiral bars. See Sheet 31 for detail.



SECTION THRU COLUMN

Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.
No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.
Spacing of vertical column reinforcement is measured along inside face of spiral bar.



Note: 2" clearance shall be maintained between hooks on vert. col. reinf.

NOTES

Stirrups in beam shall be shifted as required to clear anchor bolts a minimum of 1/2".
For details of pedestal piles, see Sheet 14.
For Substructure Layout, see Sheet 13.

Note: Dimensions and elevations for Cols. 1 & 2 are the same as shown for Col. 3.
Reinforcing for Cols. 2 & 3 is the same as shown for Col. 1.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom.
Spirals to be set on top of Pedestal Piles.

CITY OF ST. LOUIS

BENT 51

SHEET 25 OF 36

A-3594

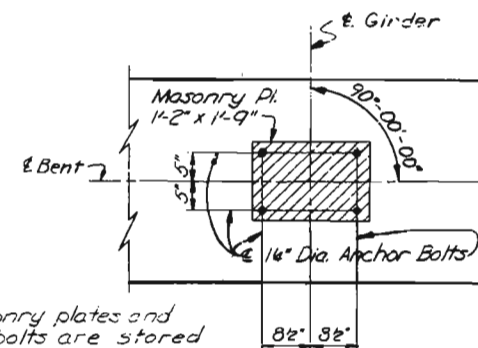
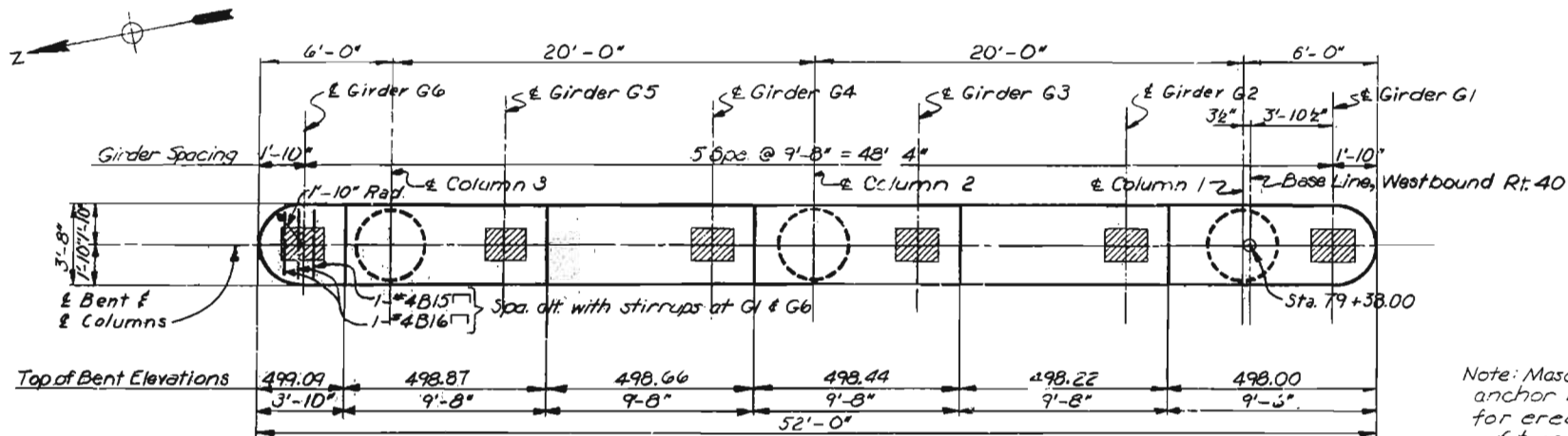
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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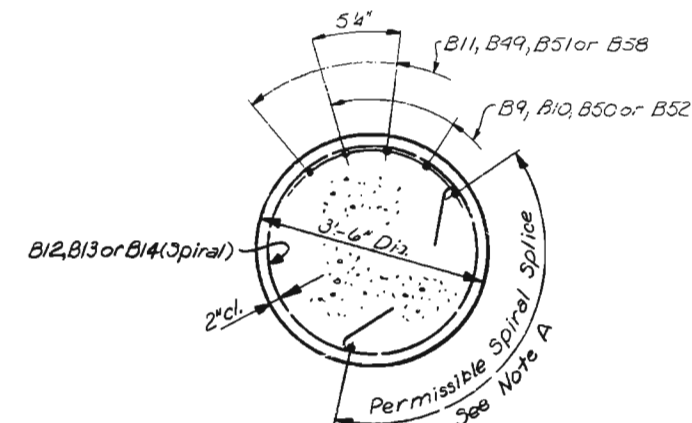
468
DRAWN BY: D.R. BACH - RAVID
CHECKED BY: L. GLOVER - AUG 1977
5261
775/32

MISSOURI STATE HIGHWAY DEPARTMENT

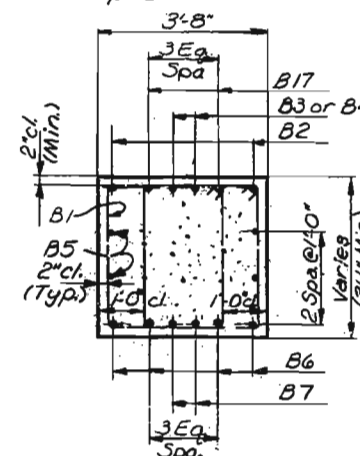
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	108	



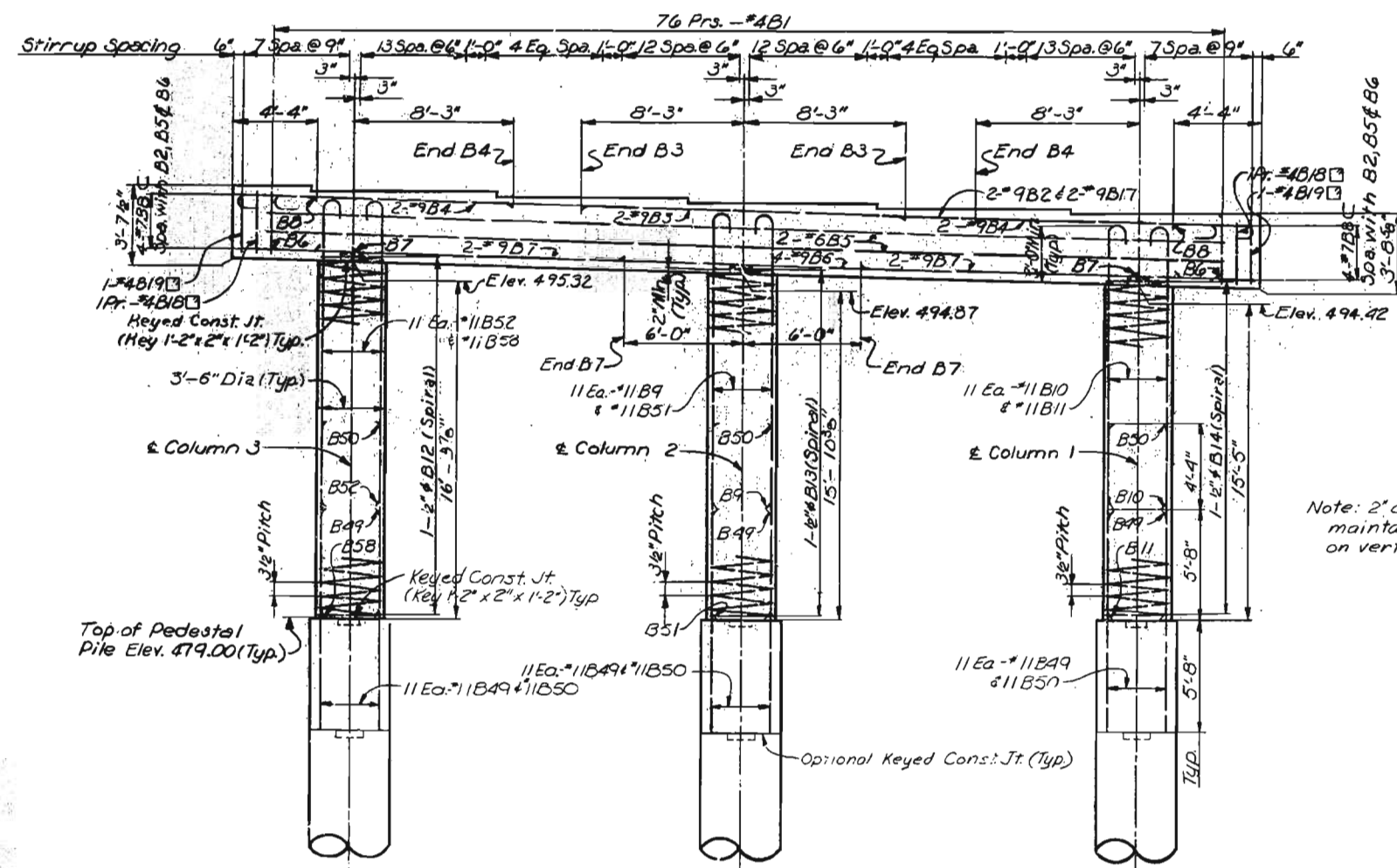
Note: Masonry plates and anchor bolts are stored for erection under a future contract.
Note: Anchor Bolts to be enclosed with spiral bars. See Sheet 51 for details.



Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.
No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.
Spacing of vertical column reinforcement is measured along inside face of spiral bar.



Note: 2" clearance shall be maintained between hooks on vert. col. reinf.



Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom.
Spirals are to be set on top of Pedestal Piles.

NOTES

Stirrups in beams shall be shifted as required to clear anchor bolts a minimum of 1/2".
For details of pedestal piles, see Sheet 14.
For Substructure Layout See Sheet 13.

CITY OF ST. LOUIS

BENT 52

SHEET 26 OF 36

A-3594

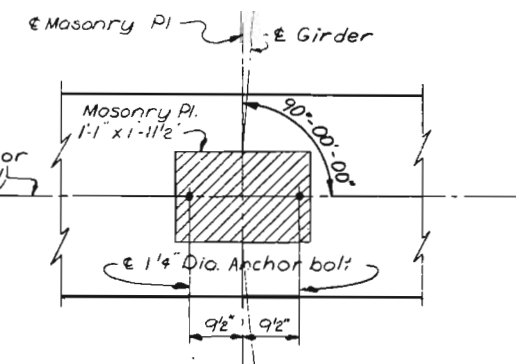
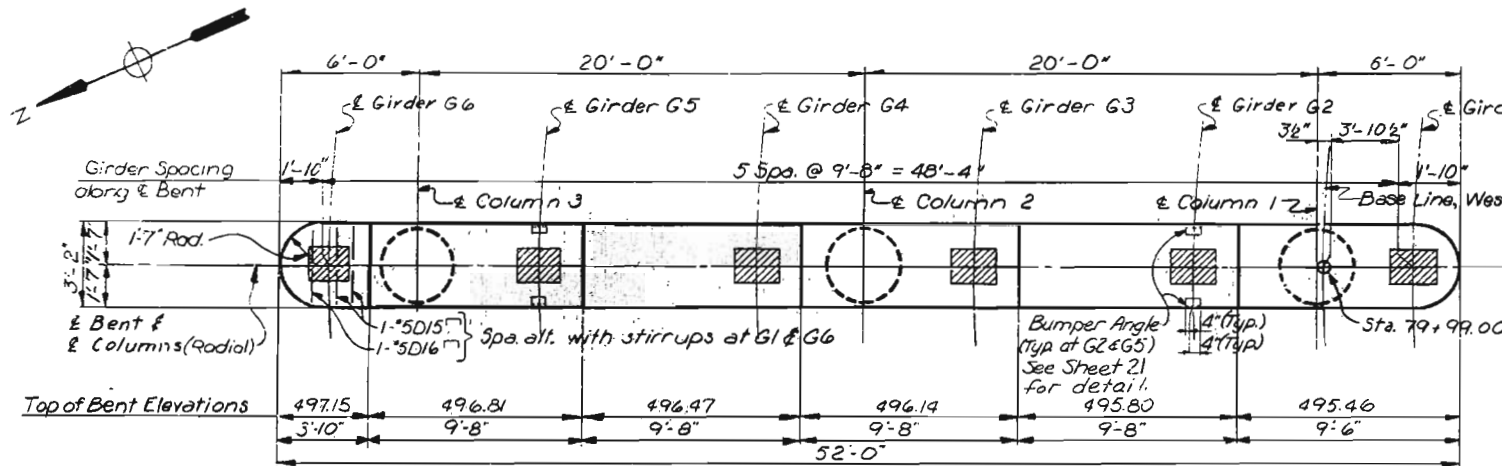
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

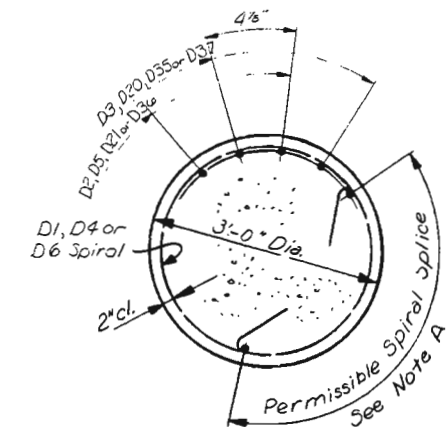
467
DRAWN BY: D.R. Bunch, F.A.S.T.
CHECKED BY: L. C. C. C. C.
DATE: 10/17/77

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	109	



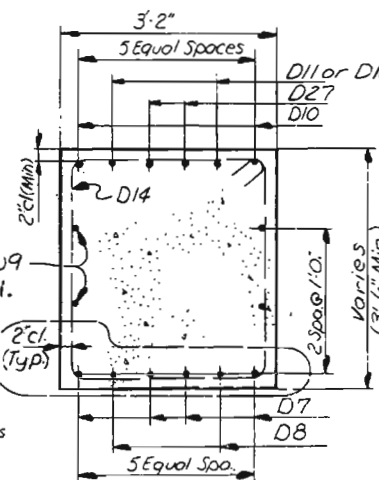
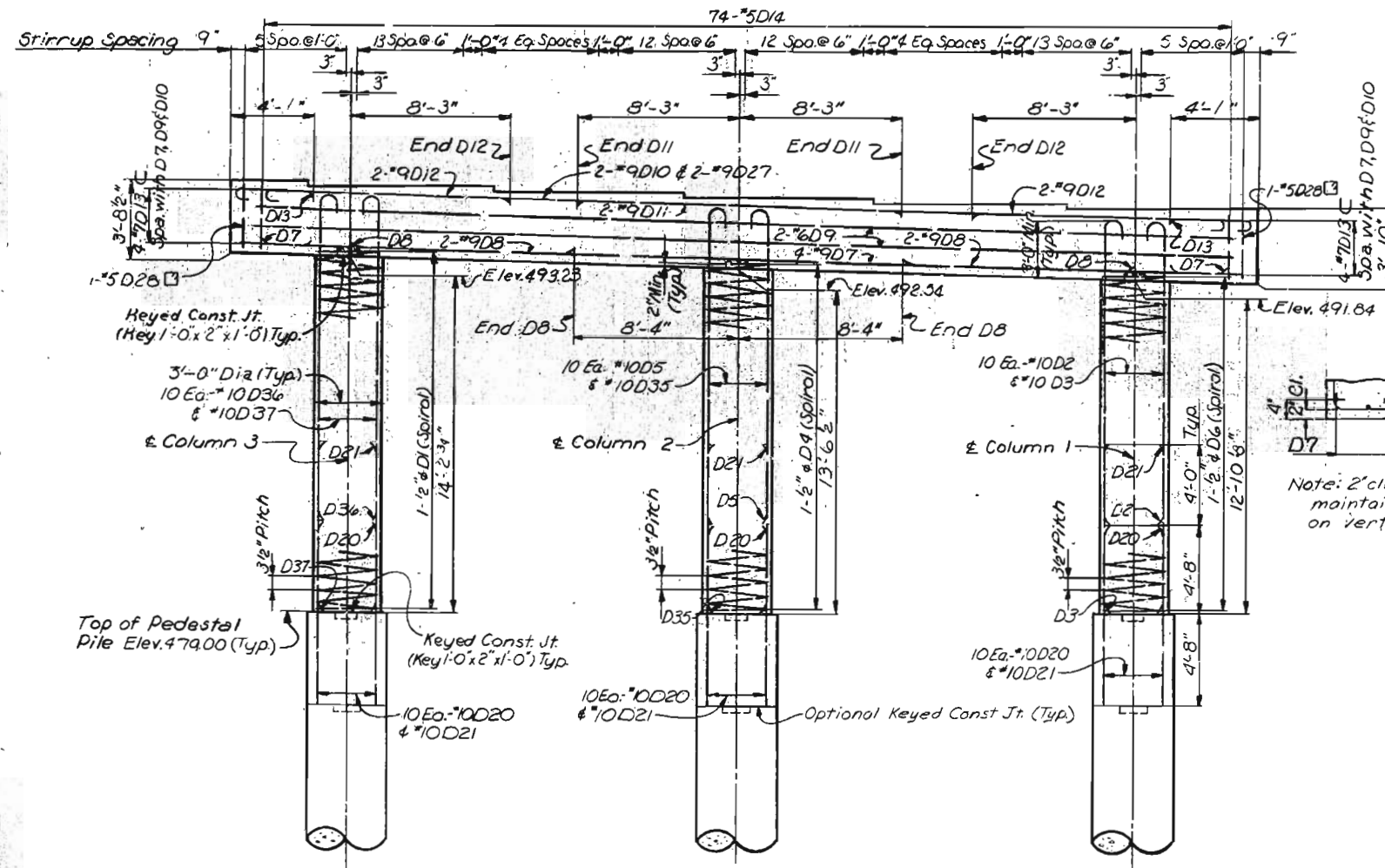
Note: Anchor Bolts to be enclosed with spiral bars. See Sheet 31 for details. Masonry plates and anchor are stored for erection under a future contract.



Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.

No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.

Spacing of vertical reinforcement is measured along inside face of spiral bar.



Note: 2" clearances shall be maintained between hooks on vert. col. reinf.

NOTES

Stirrups in beams shall be shifted as required to clear anchor bolts a minimum of 1/2". For details of pedestal piles, see Sheet 14. For Substructure Layout, see Sheet 13.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spirals to be set on top of Pedestal Piles.

CITY OF ST. LOUIS

BENT 53

SHEET 27 OF 35

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

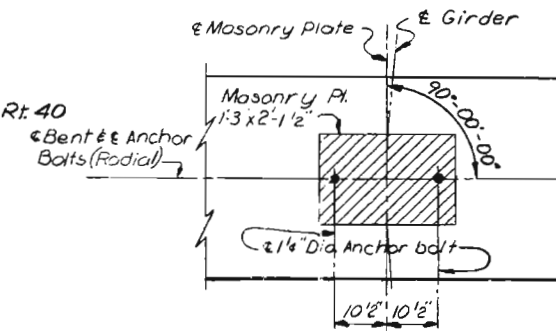
Revised 5-1-81

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

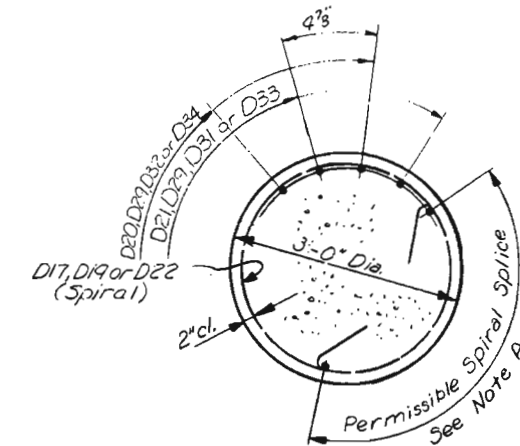
DRAWN BY: J.D. AVERY, April 1977
CHECKED BY: L. G. GOSSET, Aug. 1977
5251
77.5/30

470

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	110	



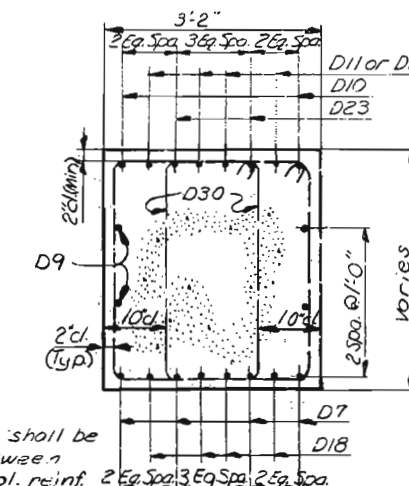
ANCHOR BOLT PLAN
Note: Anchor Bolts to be enclosed with spiral bars. See Sheet 21 for details.
Masonry plates and anchor bolts are stored for erection under a future contract.



Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.

No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.

Spacing of vertical column reinforcement is measured along inside face of spiral bar.



Note: 2" clearance shall be maintained between hooks on vert. col. reinf.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom.
Spirals to be set on top of Pedestal Piles.

Stirrups in beams shall be shifted as required to clear anchor bolts a minimum of 2".
For details of pedestal piles, see Sheet 14.
For Substructure Layout, see Sheet 13.

BENT 54

SHEET 28 OF 36

A-3594

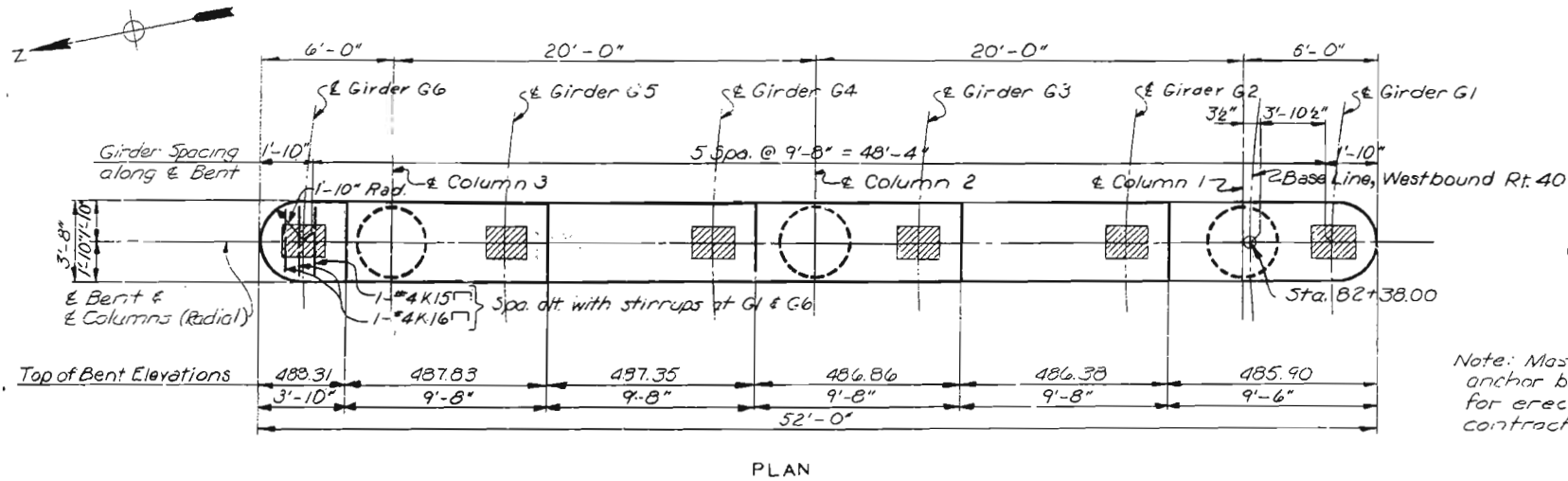
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS

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

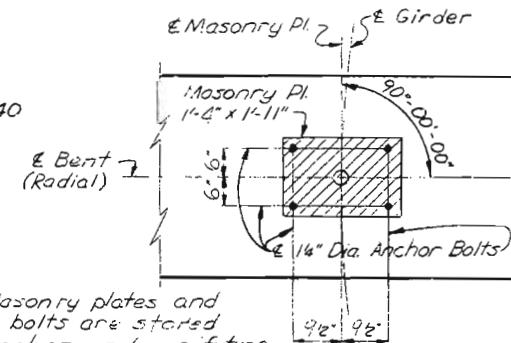
5261	DRAWN BY: J.D. Avery, April 1977
77S131	TRACED BY:
	CHECKED BY: L. Glover, Aug. 1977

MISSOURI STATE HIGHWAY DEPARTMENT

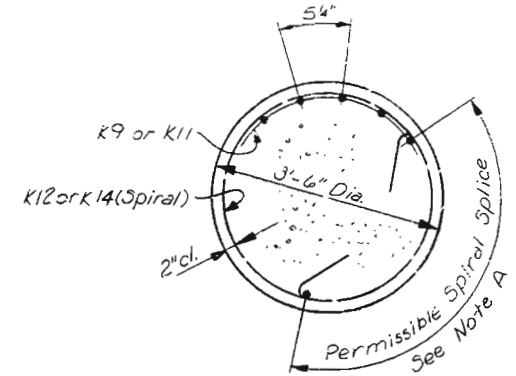
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5	MO.		10	111	



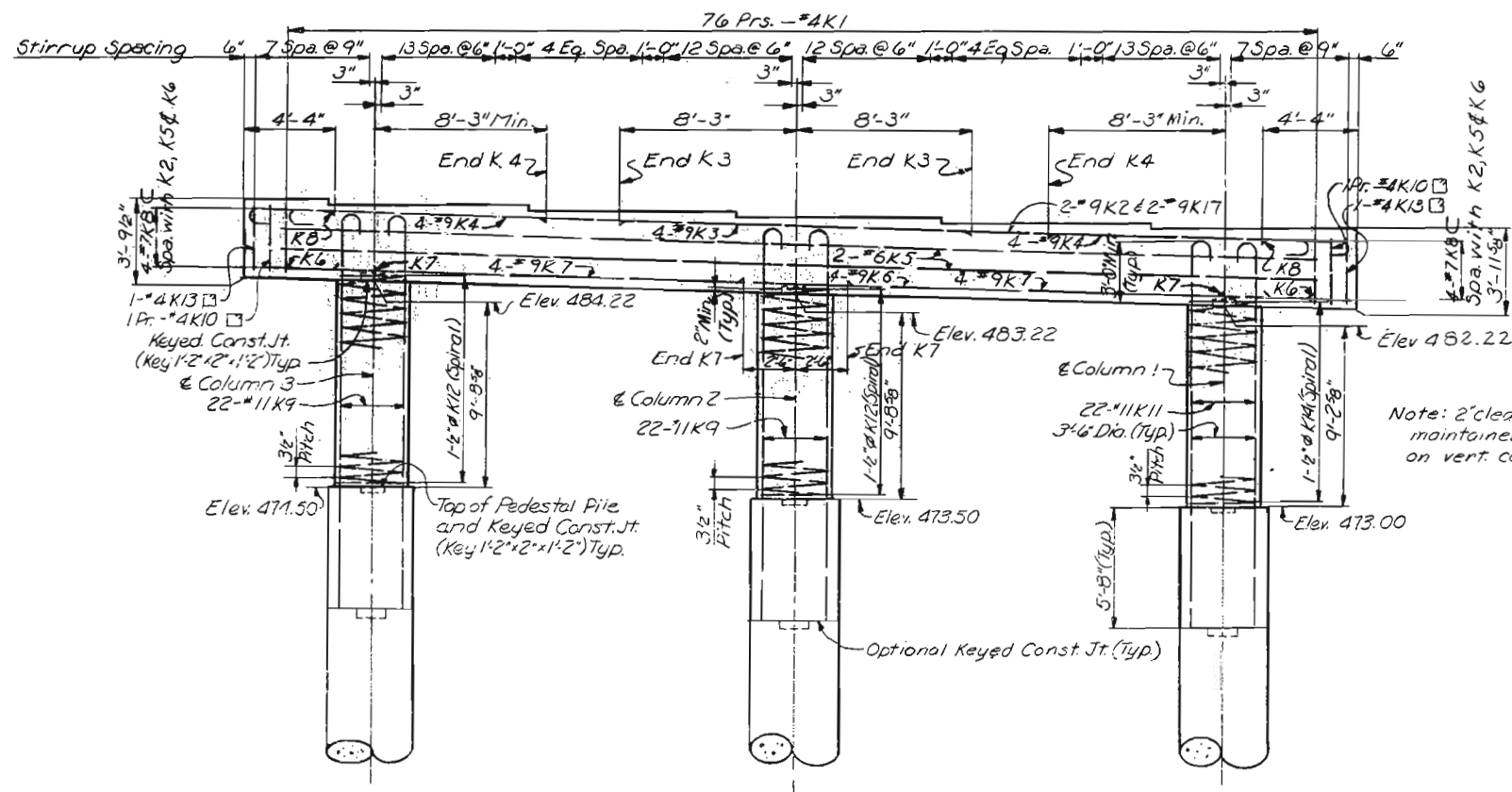
Note: Masonry plates and anchor bolts are started for erection under a future contract



Note: Anchor Bolts to be enclosed with spiral bars. See Sheet 31 for details.



Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.
No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.
Spacing of vertical column reinforcement is measured along inside face of spiral bar.



Note: 2" clearance shall be maintained between hooks on vert. col. reinf.

NOTES

Stirrups in beam shall be shifted as required to clear anchor bolts a minimum of 1/2".
For details of pedestal piles, see Sheet 14.
For Substructure Layout, see Sheet 13.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom.
Spirals to be set on top of Pedestal Piles.

CITY OF ST. LOUIS

BENT 50

SHEET 29 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

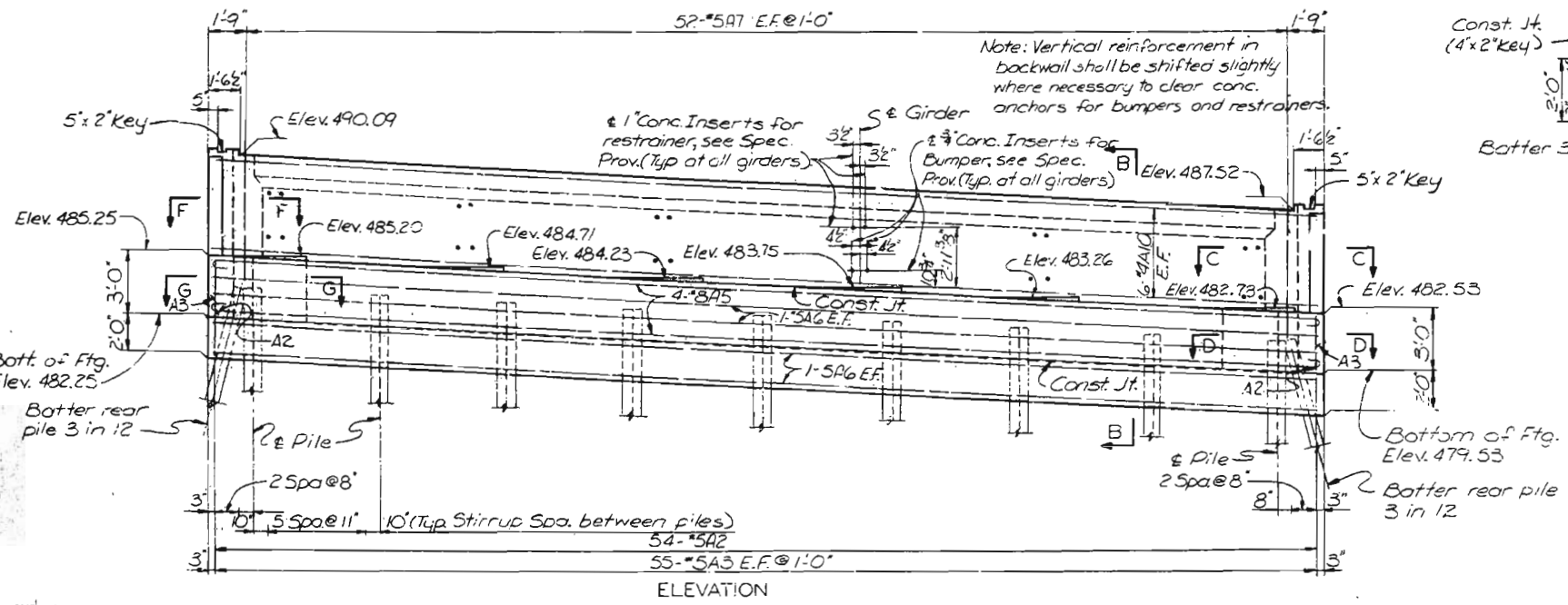
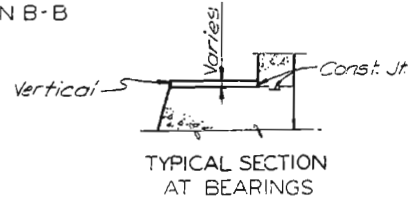
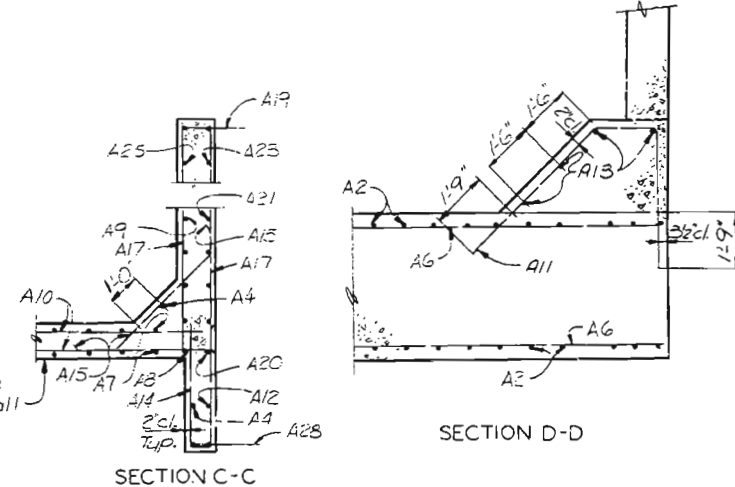
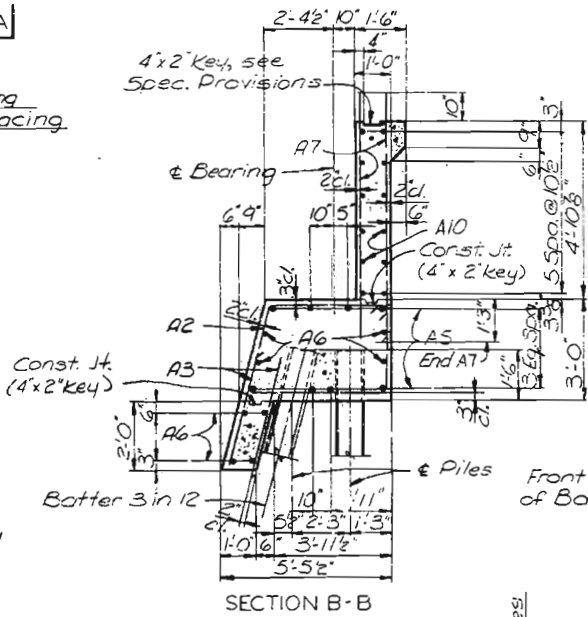
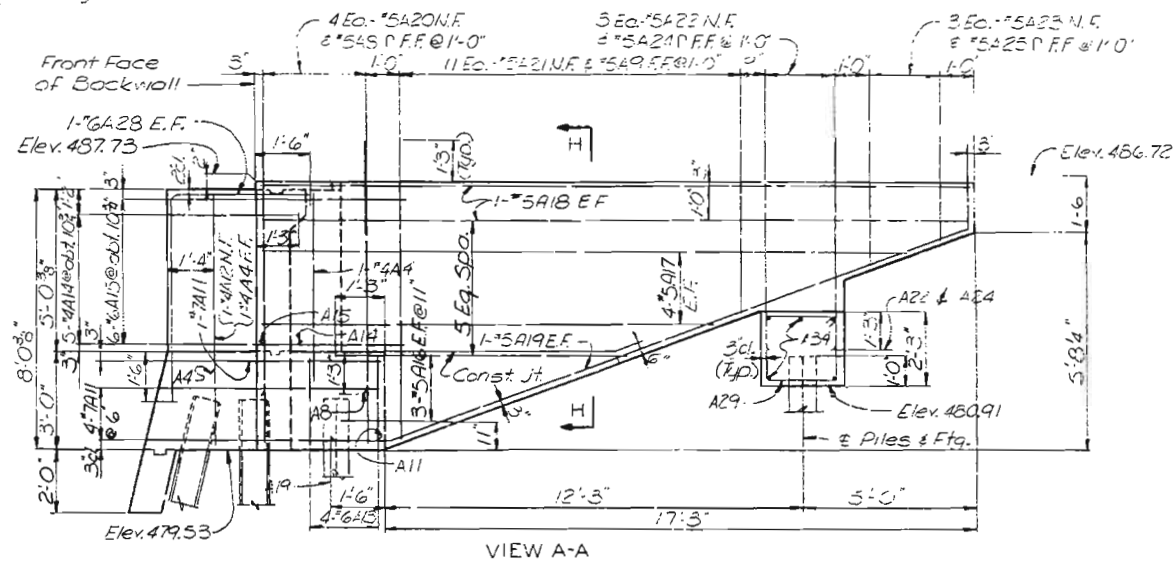
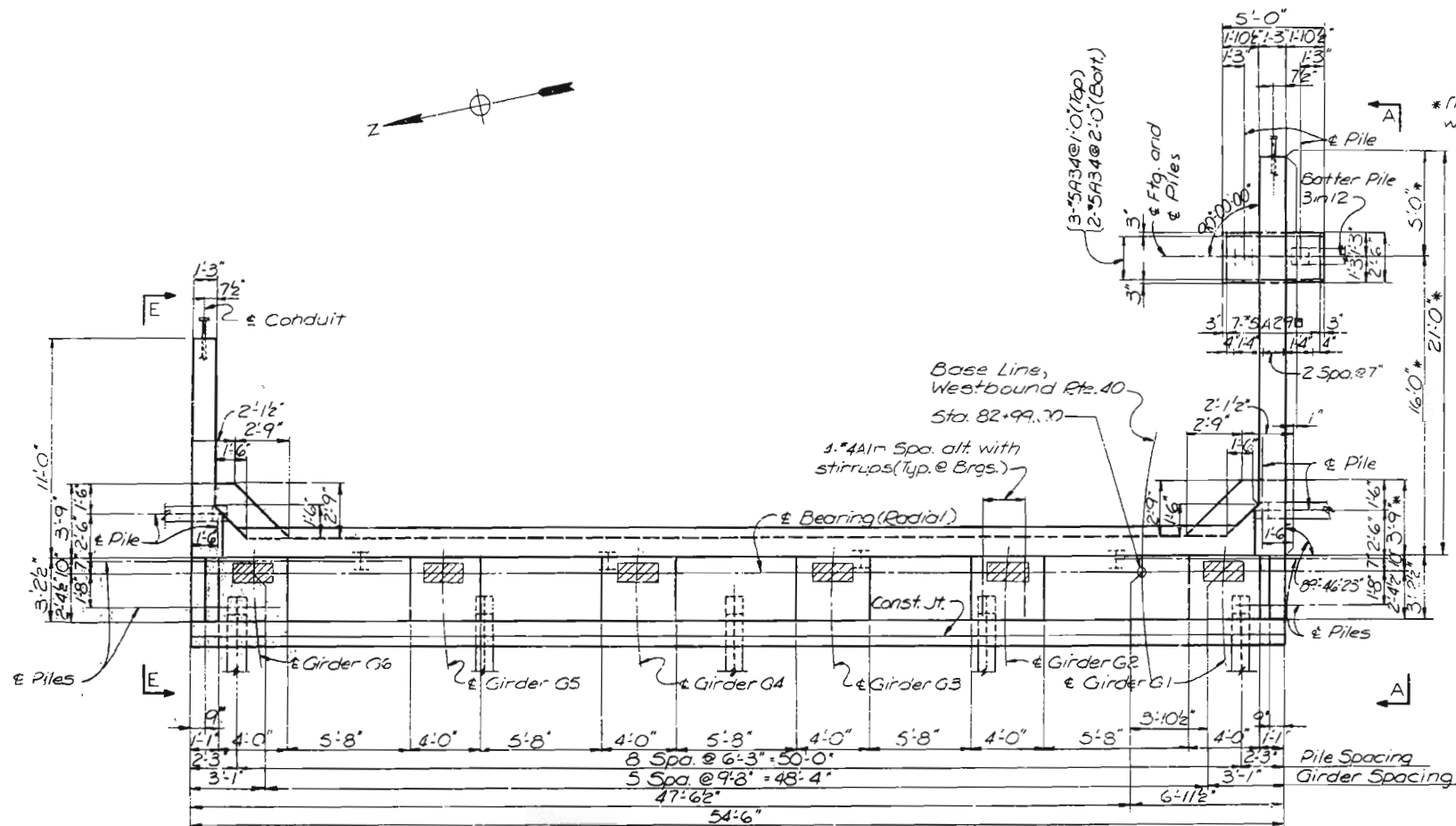
SVENDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: D.R. Brock, Feb. 1977
CHECKED BY: L. Glaser, Aug. 1977
5261
775301

472

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	112	



NOTES

Work this sheet with Sheet 31.
Cost of furnishing and placing 2" Conduit in wing wall and anchors for Restrainers and Bumpers to be included in unit price bid for Class B Concrete.

CITY OF ST. LOUIS

ABUTMENT 57

SHEET 30 OF 38

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SVENDRUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

473

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		19	113	



NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

5261	DRAWN BY: J. Ostermann June 1977
775205	TRACED BY:
	CHECKED BY: L. Glaser June 1977

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		19	116	

CITY OF ST. LOUIS

SHEET 32 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

5261	DRAWN BY: M. Junge	Dec. 1977
775337	TRACED BY:	
	CHECKED BY: R.F. Beck,	Dec. 1977

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

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		10	115	

CITY OF ST. LOUIS

SHEET 33 OF 36

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

5261	DRAWN BY: M. Junge, Dec 1977
775407	TRACED BY:
	CHECKED BY: R.F. Back, Dec 1977

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

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	SD.		18	116	

△ Revised 5-1-81

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		19	117	

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

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

Figures in circles indicate standard 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 in the appropriate dimension column indicates that a hook or portion of a standard bar type is to be omitted.

Bars marked "SP" in the type column require special bending, see detail

The "Length" column gives the actual length of bars, with deductions for bends, rounded to the nearest inch.

A-3534

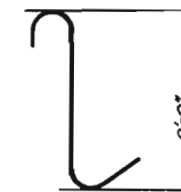
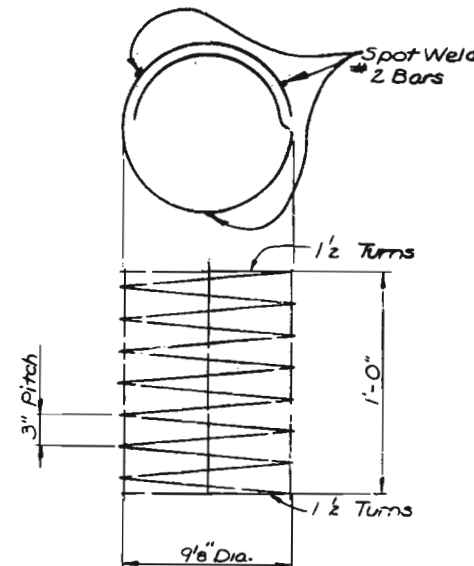
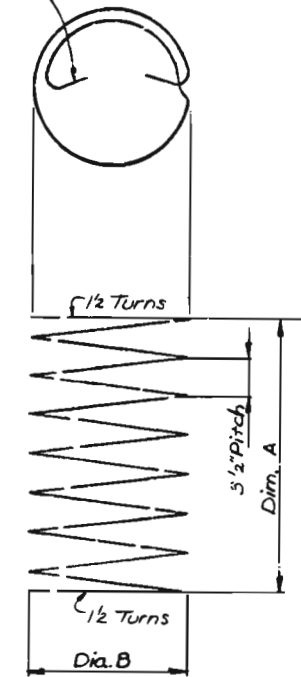
^ Revised 5-1-81

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

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	MO.		19	118	

(135° Hook with 10" long tail Twp each end

Bar Mark	Dim. A.	Dim. B
B12	16'-5 ³ / ₈ "	3'-2"
B13	16'-0 ³ / ₈ "	3'-2"
B14	15'-7"	3'-2"
B31	18'-0 ² / ₈ "	3'-2"
B53	21'-5 ⁴ / ₈ "	3'-8"
B54	21'-2 ⁴ / ₈ "	3'-8"
B55	20'-11 ³ / ₈ "	3'-8"
C12	6'-1 ⁵ / ₈ "	2'-8"
C13	7'-7 ² / ₈ "	2'-8"
C14	15'-1 ² / ₈ "	2'-8"
C18	12'-6 ³ / ₈ "	2'-8"
C20	24'-0 ³ / ₈ "	2'-8"
C23	29'-5 ³ / ₈ "	2'-8"
D1	14'-4 ³ / ₈ "	2'-8"
D4	13'-8 ² / ₈ "	2'-8"
D6	13'-0 ⁶ / ₈ "	2'-8"
D17	23'-4 ⁶ / ₈ "	2'-8"
D19	17'-10 ³ / ₈ "	2'-8"
D22	10'-5 ⁶ / ₈ "	2'-8"
E14	18'-11 ⁶ / ₈ "	2'-8"
G3	11'-1 ³ / ₈ "	2'-8"
G14	11'-7 ³ / ₈ "	2'-8"
G15	12'-1 ³ / ₈ "	2'-8"
G16	14'-7 ³ / ₈ "	2'-8"
H13	18'-0 ⁶ / ₈ "	3'-2"
H14	14'-5 ⁴ / ₈ "	3'-2"
H15	13'-10"	3'-2"
J6	12'-2 ⁶ / ₈ "	2'-2"
J7	9'-2 ⁶ / ₈ "	2'-2"
J8	8'-8"	2'-2"
J9	8'-8 ⁴ / ₈ "	2'-2"
J10	9'-5 ² / ₈ "	2'-2"
K12	9'-10 ⁶ / ₈ "	3'-2"
K14	9'-4 ⁵ / ₈ "	3'-2"
R1	25'-6 ⁶ / ₈ "	5'-8"
R14	25'-9 ⁸ / ₈ "	3'-8"
R23	26'-1 ⁶ / ₈ "	5'-8"
R25	27'-4 ³ / ₈ "	3'-8"
R32	27'-8 ³ / ₈ "	5'-8"
R34	29'-5 ³ / ₈ "	3'-8"
R38	32'-3 ⁶ / ₈ "	4'-2"
R43	35'-5 ⁴ / ₈ "	3'-2"
R52	28'-11"	5'-2"
R58	28'-5 ⁴ / ₈ "	3'-8"
R68	25'-1 ³ / ₈ "	4'-8"
R78	22'-11 ³ / ₈ "	4'-2"
R82	21'-5 ⁶ / ₈ "	3'-8"
R84	19'-0 ⁴ / ₈ "	4'-2"
R95	17'-1"	2'-8"
R99	13'-1 ³ / ₈ "	4'-2"
R103	19'-5 ⁴ / ₈ "	2'-2"
R108	15'-5 ⁶ / ₈ "	3'-8"
R110	17'-5 ³ / ₈ "	3'-2"
R121	14'-5 ² / ₈ "	2'-8"
R125	17'-1 ² / ₈ "	4'-8"
R128	18'-8 ² / ₈ "	3'-2"
R135	18'-3 ⁶ / ₈ "	3'-8"
R137	20'-8 ⁶ / ₈ "	3'-8"

21

BAR LIST

SHEET 35 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

24

5261	DRAWN BY: M. J. JUDGE	OCT. 1977
775339	TRACED BY:	
	CHECKED BY: W. D. WARDEN	OCT. 1977

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

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

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

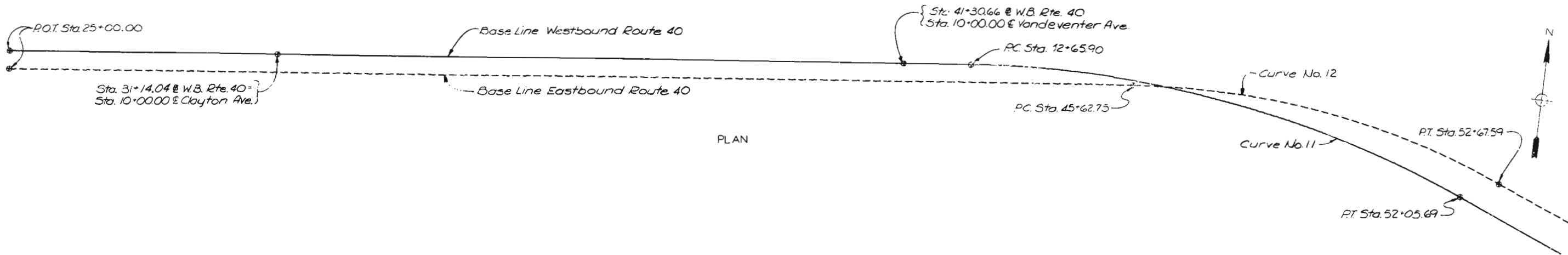
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5261	DRAWN BY: <i>M. Junge</i>	<i>Oct. 1977</i>
	TRACED BY:	
	CHECKED BY: <i>W.O. Wziden</i>	<i>Oct. 1977</i>

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

MISSOURI STATE HIGHWAY DEPARTMENT

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



PLAN

HORIZONTAL CURVE DATA

	Curve No. 11	Curve No. 12	Curve No. 13	Curve No. 14	Curve No. 15	Curve No. 16	Curve No. 17	Curve No. 18	Curve No. 19	Curve No. 20	Curve No. 21	Curve No. 22	Curve No. 23	Curve No. 24	Curve No. 25	Curve No. 27
P.I.	Sta. 47+45.51	Sta. 49+22.46	Sta. 55+88.46	Sta. 58+95.22	Sta. 1+00.08	Sta. 1+60.97	Sta. 65+24.53	Sta. 70+61.33	Sta. 71+72.71	Sta. 0+34.99	Sta. 2+78.30	Sta. 75+23.49	Sta. 1+52.50	Sta. 79+38.90	Sta. 82+84.69	Sta. 82+59.18
Δ	28°11'37.9" R	28°11'37.8" R	3°04'03.3" L	3°04'03.3" R	11°57'55.4" L	63°31'30.1" R	6°14'13.4" R	7°13'56.1" L	10°4'05.3" L	26°04'22.0" R	133°30'29.9" R	1°22'15.7" L	18°08'50.1" L	2°27'00.3" L	2°27'00.3" R	12°19'54.3" R
D	3°00'00"	4°00'00"	1°00'00"	1°00'00"	6°00'00"	22°02'12.6"	1°00'00"	1°36'27"	0°52'00"	37°54'41.7"	63°39'43.1"	0°29'54.8"	6°00'00"	0°42'30.8"	0°42'30.8"	2°00'00"
T	479.61'	359.71'	153.42'	153.42'	100.08'	160.97'	312.16'	225.25'	592.03'	34.99'	209.52'	137.51'	152.50'	172.92'	172.92'	309.49'
L	939.80'	704.84'	306.76'	306.76'	199.42'	288.27'	623.71'	449.91'	1180.94'	68.77'	209.71'	273.00'	302.45'	345.79'	345.79'	616.59'
R	1909.86'	1432.39'	5729.58'	5729.58'	954.93'	260.00'	5729.58'	3564.30'	6611.05'	151.13'	90.00'	11492.00'	954.93'	8086.36'	8086.36'	2864.79'

BENCH MARKS U.S.G.S. DATUM

NUMBER	DESCRIPTION	ELEV.
B.M. #4	on stone curb in front of General Equip. Co. bldg. No. 3952 Clayton Ave.	477.94
B.M. #5	on NE corner of 2x2 conc. base of stop light at Vandeventer & left side of ramp from Mkt. St.	459.32
B.M. #1	on top conc. Ret. Wall N. Side of W.B. 40 Sta. 1250±	481.17
B.M. #181	on curb SW corner W.B. Mkt. St. Br. over E.B. Forest Park Blvd.	484.26
B.M. #479	R.R. spike in RR corner of alley and Prospect St.	476.90
B.M. #981	on S. side Sign Ped. in median E.B. 40 Sta. 30+90±	495.73
B.M. #E	Top of SW corner of light standard at the S.W. corner of Grand Ave. bridge.	489.63

CITY OF ST. LOUIS

ALIGNMENT, HORIZONTAL CURVE DATA,
AND BENCH MARKS

SHEET 51 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

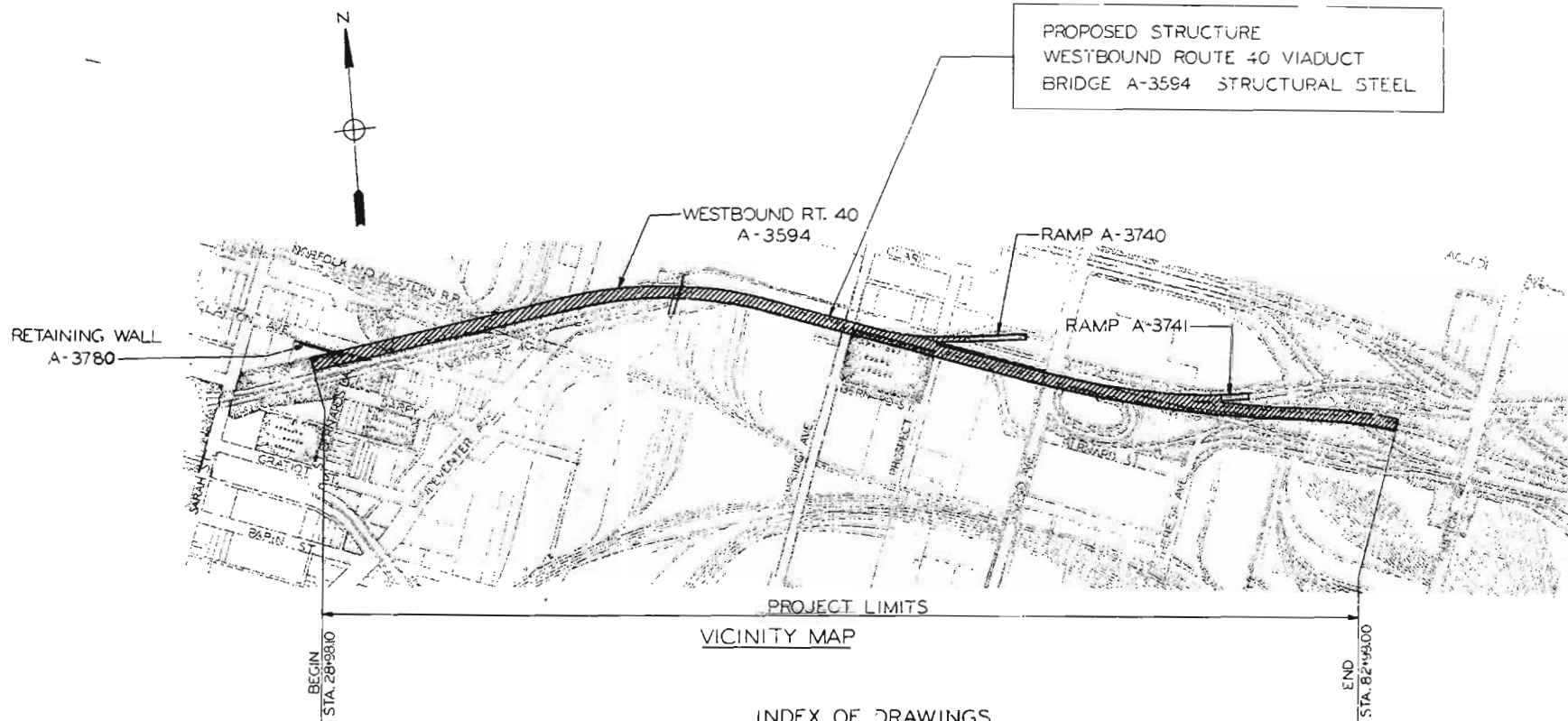
SYVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: J. Osig... 12 Dec. 1976
TRACED BY:
CHECKED BY: T. Sander... May 1977
5261
765294

481

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID FUND. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	MO.		19	1	



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2. GENERAL PLAN AND ELEVATION	27. ANCHOR BOLT PLAN - ABUTMENT 1 AND BENTS 2 THRU 19	52. FRAMING PLAN - SPANS 40 AND 41	71. CROSS GIRDERS AT BENTS 9 AND 10	87. CROSS GIRDER BEARINGS - TYPES F16 THRU F22
3. GENERAL PLAN AND ELEVATION	28. ANCHOR BOLT PLAN - BENTS 20 THRU 39	53. FRAMING PLAN - SPANS 42, 43 AND 44	72. CROSS GIRDERS AT BENTS 18, 19 AND 20	88. CROSS GIRDER BEARINGS - TYPES F7 THRU F15
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12. VERTICAL CURVE ELEVATIONS	37. FRAMING PLAN - SPANS 12 AND 13	62. GIRDER SPLICES AT CROSS GIRDERS	81. CROSS GIRDER DETAILS	
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25. DEAD LOAD DEFLECTION AND CAMBER - SPANS 46 THRU 49	50. FRAMING PLAN - SPANS 36 AND 37			

BRIDGE: WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK AND WESTERN RAILROAD

STATE ROAD - ROUTE 40
JOB NO. 6 UO40 268
PROJECT NO.

STA. 28+95.35
FILL FACE ABUTMENT 1

CITY OF ST. LOUIS

SUBMITTED BY:

DATE:

Whitburn O. Walden
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11783

VICINITY MAP AND
INDEX OF DRAWINGS

SHEET 1 OF 93

A-3594

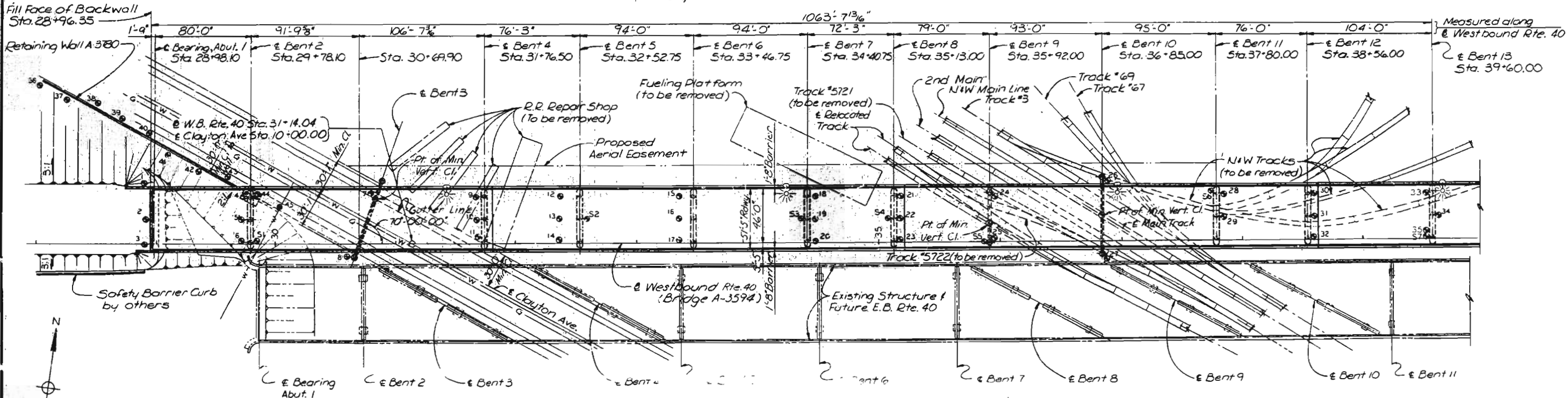
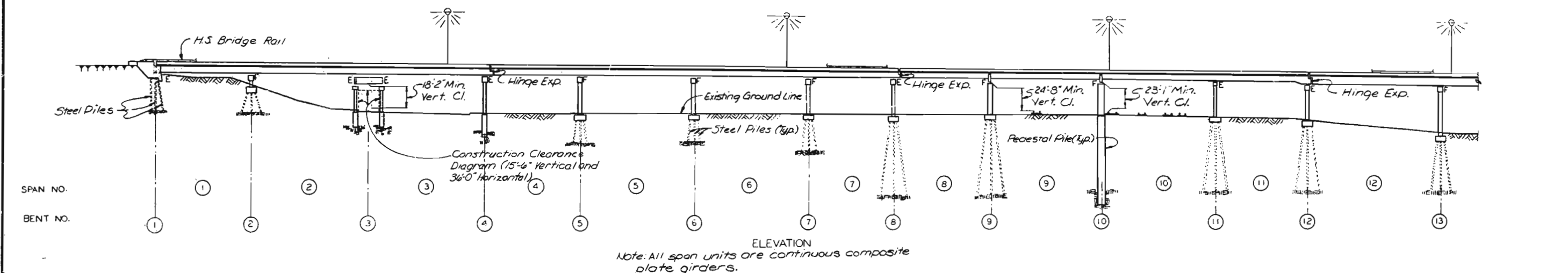
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

5261
16-293

CHAMBERLAIN & FENNER, AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		18	2	



- LEGEND FOR EXISTING UTILITIES**
- Sewer, sanitary or storm
 - F&P — Fire and Police
 - G — Gas
 - W — Water
 - P — Underground Power
 - T — Underground Telephone
 - Inlet
 - Manhole

PLAN
 • Indicates the approximate location of a boring.

CLEARANCES - N & W RAILROAD
 Locations of columns at Bents 9 and 10 provide for 10'-0" minimum horizontal clearance from face of column to centerline of adjacent track.
 Construction clearances of 8'-6" horizontal from centerline of tracks and 22'-0" vertical from top of rail shall be provided.

NOTES
 For Alignment, see Sheets 8 & 9.

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 2 OF 93

A-3594

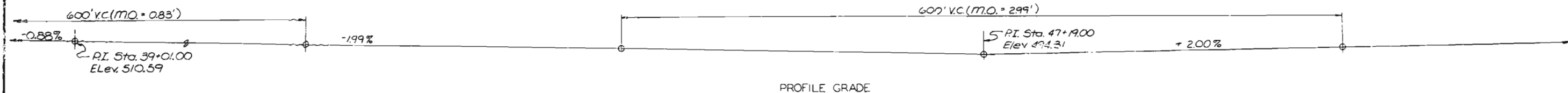
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

297

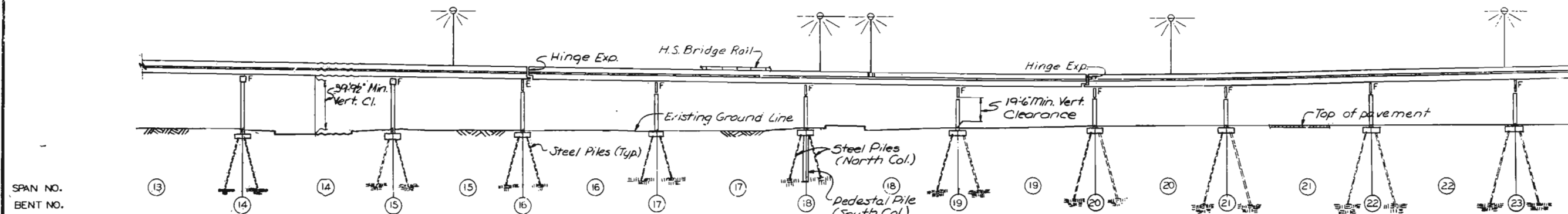
OVERSEER & PARCEL AND ASSOCIATES, Inc.
 ENGINEERS - ARCHITECTS
 ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

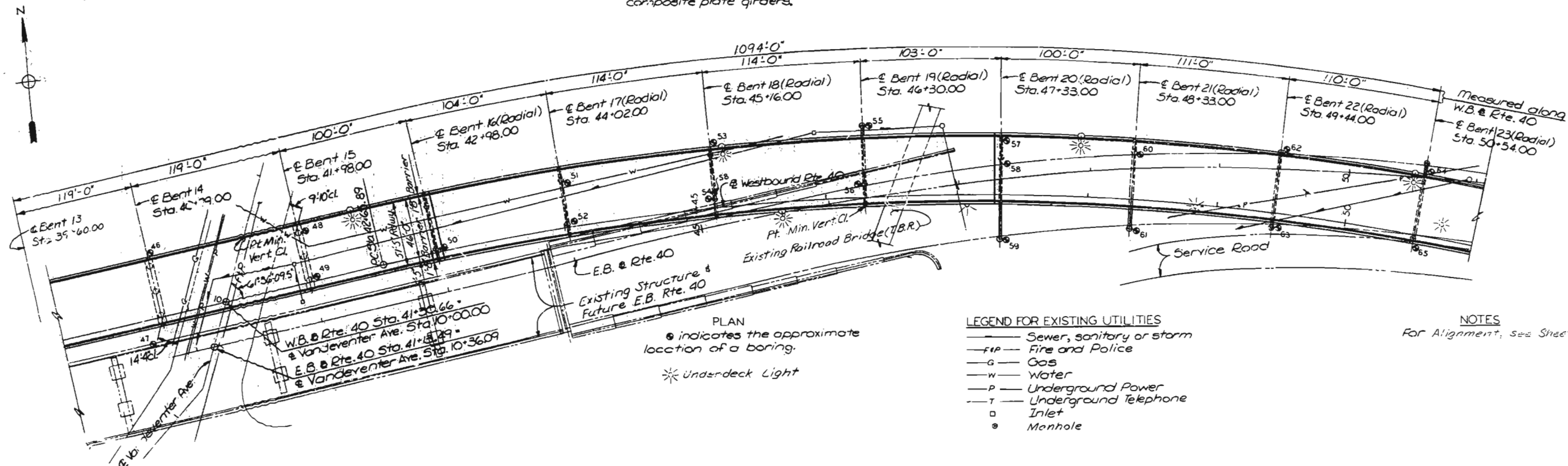
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	3	



PROFILE GRADE



ELEVATION
Note: All span units are continuous composite plate girders.



NOTES
For Alignment, see Sheets 8 & 9.

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 3 OF 93

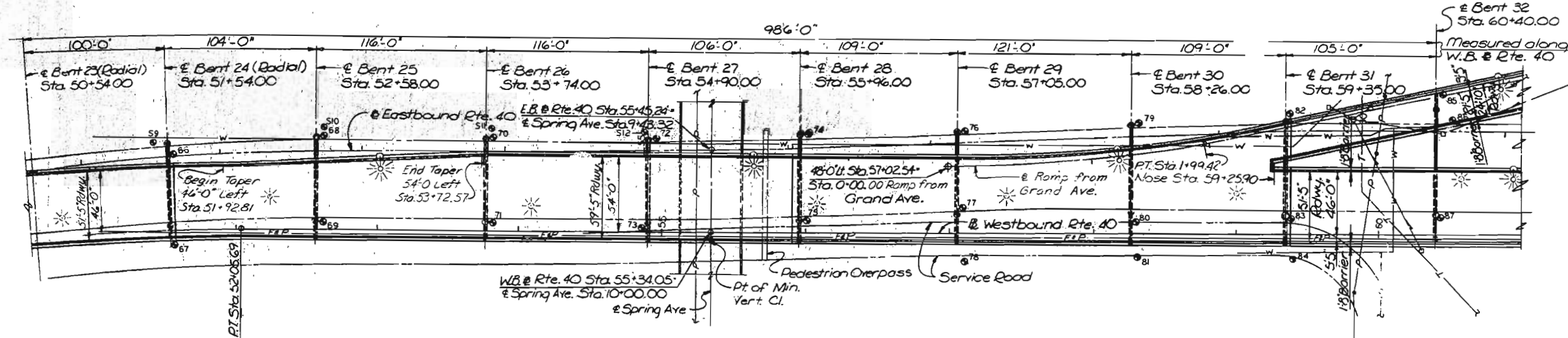
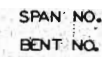
A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

248
DRAWN BY: J.E. O'NEILL, Dec. 1976
CHECKED BY: R.R. BARNETT, Jan. 1977
5267
765304

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	4	



* Underdeck Light

—	Sewer, sanitary or storm
—FAP—	Fire and Police
—G—	Gas
—W—	Water
—P—	Underground Power
—T—	Underground Telephone
□	Inlet
⊙	Manhole

CITY OF ST. LOUIS

SHEET 4 OF 93

A-3594

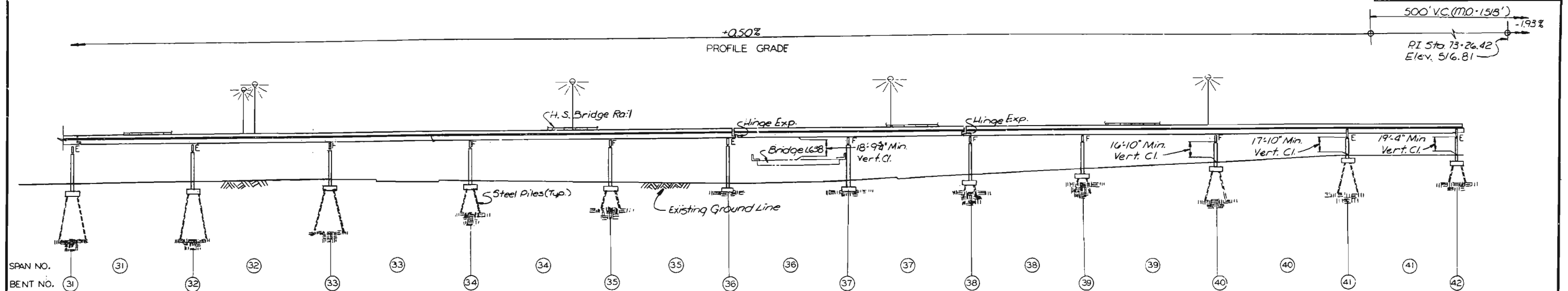
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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K-5292	TRACED BY
	CHECKED BY: R. E. Gutterbach, Sept. 1977

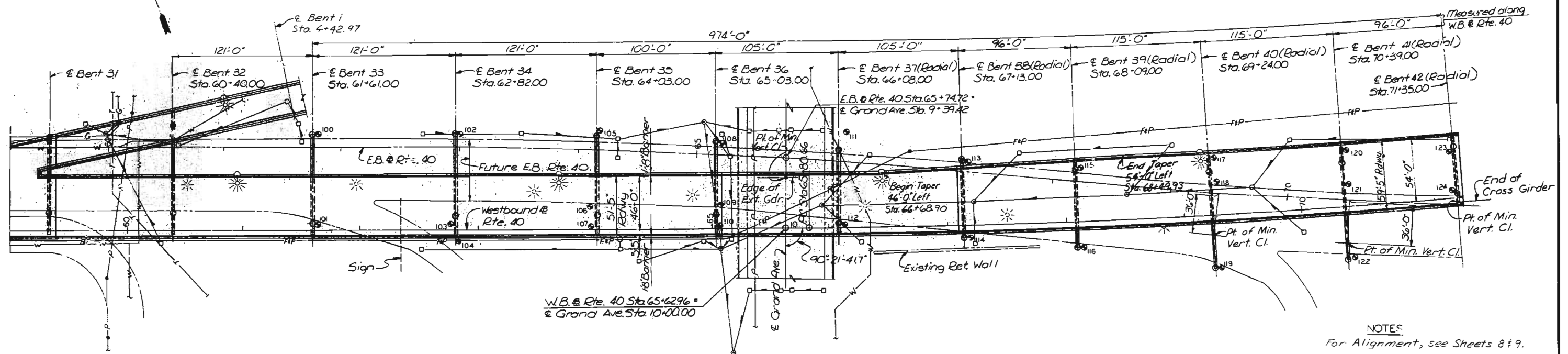
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

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



ELEVATION
Note: All span units are continuous composite plate girders.



PLAN
● Indicates the approximate location of a boring.
⊗ Underdeck Light

LEGEND FOR EXISTING UTILITIES
— Sewer, storm or sanitary
— F&P Fire and Police
— G Gas
— W Water
— P Overhead Power
— T Underground Telephone
□ Inlet
● Manhole

NOTES
For Alignment, see Sheets 8 & 9.

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 5 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

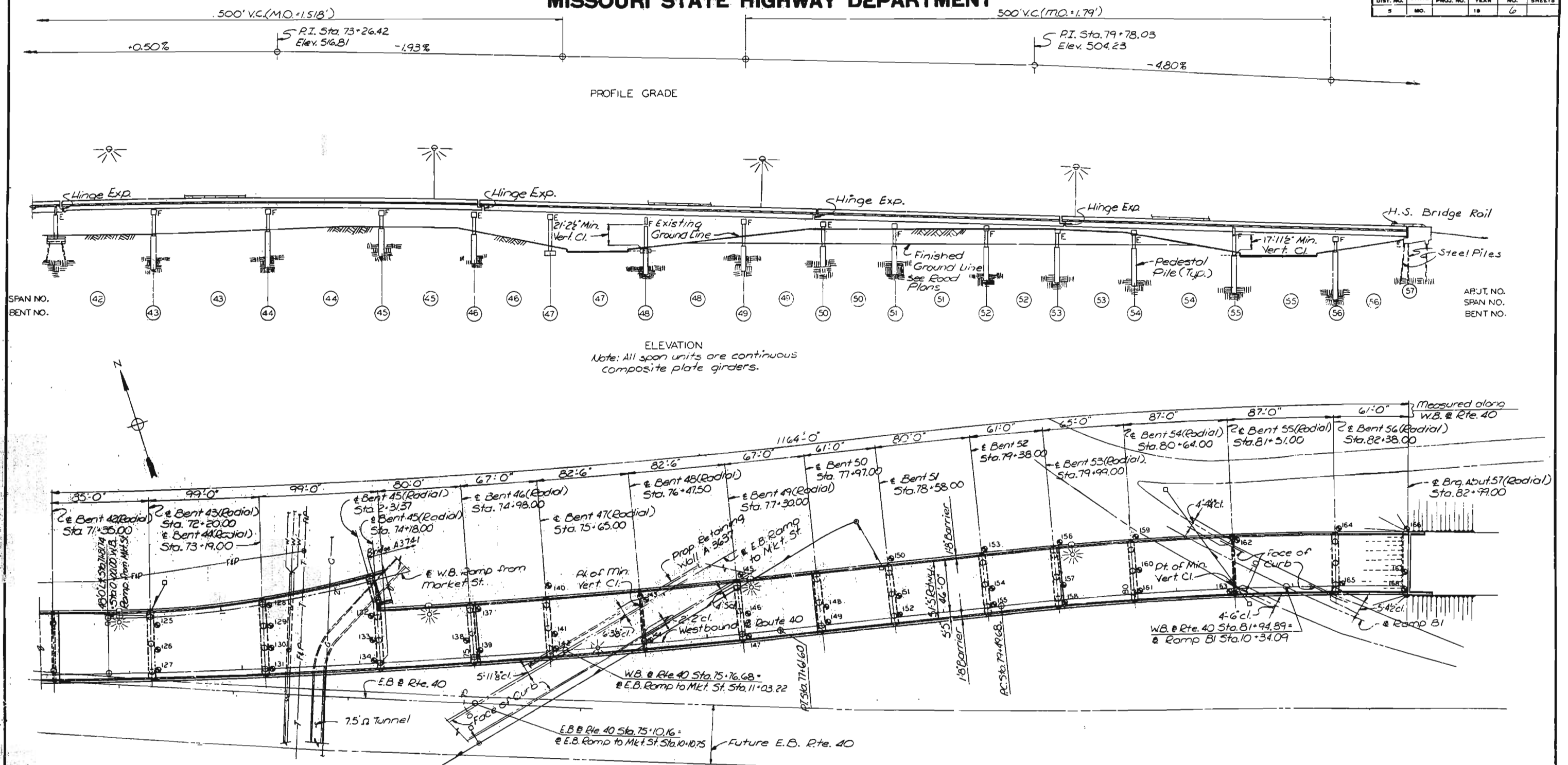
DRAWN BY: J. O. O'Brien, Dec. 1974

CHECKED BY: R. L. O'Brien, Jan. 1977

765285

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	6	



ELEVATION
Note: All span units are continuous composite plate girders.

PLAN
● Indicates the approximate location of a boring
★ Underdeck Light

LEGEND FOR EXISTING UTILITIES
— Sewer, storm or sanitary
— F&P — Fire and Police
— G — Gas
— W — Water
— P — Overhead Power
— T — Underground Telephone
□ Inlet
● Manhole

NOTES
For Alignment, see Sheets 8 & 9.

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 6 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

DRAWN BY: J. O'NEILL, Dec. 1976
CHECKED BY: P. O'NEILL, Aug. 1977
526
765276

301

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	15	

FINAL PLANS

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:
Missouri State Highway Commission Specifications for Highway Construction (1977 Edition) and Special Provisions

DESIGN SPECIFICATIONS:
Division 1 of the AASHTO "Standard Specifications for Highway Bridges" (1973 Edition including 1974, 1975 and 1976 interim specifications.

DESIGN LOADING:
Live Load - HS20-44 and modified 24,000 lbs. tandem axle.
Dead Load - Weight of Structure included reinforced concrete at 150 lbs. per cu. ft. with provision for a future wearing surface of 30 lbs. per sq. ft. of roadway.

DESIGN UNIT STRESSES:
Structural Carbon Steel (ASTM A36) - fs 20,000 lbs. per sq. in.
Structural Low Alloy Steel- A-572 Grade 50, up to 2" thick.
A-588, over 2" thick.
fs 27,000 lbs. per sq. in.
fy 50,000 lbs. per sq. in.

STRUCTURAL STEEL NOTES:
See Sheet 33.

PAINTING:
Shop coat was System C; field coat.

PROFILE GRADE:
Profile grade is located at the Base Line of Westbound Rt. 40 at top of roadway slab.

FINAL QUANTITIES		
ITEM	UNIT	TOTAL
Fabricated Structural Carbon Steel	Lb.	6,300,000 7,319,420
Fabricated Structural Low Alloy Steel	Lb.	8,000,000 2,053,950
Fabricated Structural Steel Bearings	Lb.	256,800
Pot Bearings	Each	11
CONTINGENT ITEMS		
STRUCTURAL STEEL REVISIONS (1)	EACH	400
STRUCTURAL STEEL REVISIONS (2)	LUMP SUM	1
RE-STAND 42 GIRDERS	LUMP SUM	1

* Revised Aug. 13, 1981

CITY OF ST. LOUIS

GENERAL NOTES AND
FINAL QUANTITIES

FINAL PLANS
SHEET 7A OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

DRAWN BY: M. Junge Jan. 1978
CHECKED BY: W.D. Welden May 1978
5261
7836

302

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	7	

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

Missouri State Highway Commission Specifications for Highway Construction (1977 Edition) and Special Provisions

DESIGN SPECIFICATIONS:

Division I of the AASHTO "Standard Specifications for Highway Bridges" (1973 Edition including 1974, 1975 and 1976 interim specifications.

DESIGN LOADING:

Live Load - HS20-44 and modified 24,000 lbs. tandem axle.
Dead Load - Weight of Structure included reinforced concrete at 150 lbs. per cu. ft. with provision for a future wearing surface of 30 lbs. per sq. ft. of roadway.

DESIGN UNIT STRESSES:

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A-588, over 2" thick.
fs 27,000 lbs. per sq. in.
fy 50,000 lbs. per sq. in.

STRUCTURAL STEEL NOTES:

See Sheet 33.

PAINTING:

Shop coat shall be System C; field coat.

PROFILE GRADE:

Profile grade is located at the Base Line of Westbound Rt. 40 at top of roadway slab.

ESTIMATE OF QUANTITIES

ITEM	UNIT	TOTAL
Fabricated Structural Carbon Steel	Lb.	7,116,310
Fabricated Structural Low Alloy Steel	Lb.	2,073,140
Fabricated Structural Steel Bearings	Lb.	255,860
Pot Bearings	Each	11

303
DRAWN BY: M. J. J. 1/18/78
CHECKED BY: H. O. 1/18/78
5261
7856

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

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS
SEE TOTAL PAGES

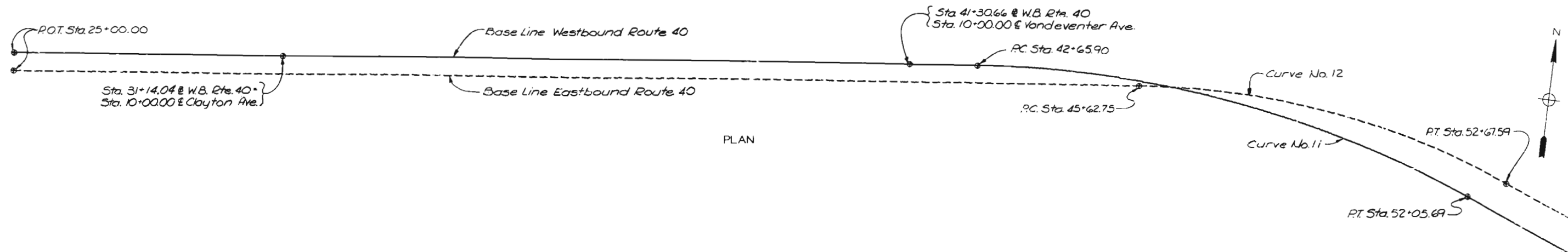
GENERAL NOTES AND
ESTIMATED QUANTITIES

SHEET 7 OF 93

A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	5	



PLAN

HORIZONTAL CURVE DATA

Curve No.	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	27
P.T.	Sta. 47+45.51	Sta. 49+22.46	Sta. 55+88.46	Sta. 58+95.22	Sta. 1+00.08	Sta. 1+60.97	Sta. 65+24.53	Sta. 70+64.33	Sta. 71+72.71	Sta. 0+34.99	Sta. 2+78.30	Sta. 75+23.49	Sta. 1+52.50	Sta. 79+38.90	Sta. 82+84.69	Sta. 82+59.18
Δ	28°11'37.9" Rt.	28°11'37.8" Rt.	5°04'03.3" Lt.	3°04'03.3" Rt.	11°57'55.8" Lt.	63°31'30.1" Rt.	6°14'13.4" Rt.	7°13'56.1" Lt.	10°14'05.5" Lt.	26°04'22.0" Rt.	133°30'29.9" Rt.	1°22'15.7" Lt.	18°08'50.1" Lt.	2°27'00.3" Lt.	2°27'00.3" Rt.	12°19'54.3" Rt.
D	3°00'00"	4°00'00"	1°00'00"	1°00'00"	6°00'00"	22°02'12.6"	1°00'00"	1°36'27"	0°52'00"	37°54'41.7"	63°39'43.1"	0°29'34.8"	6°00'00"	0°42'30.8"	0°42'30.8"	2°00'00"
T	479.61'	359.71'	153.42'	153.42'	100.08'	160.97'	312.16'	225.25'	592.05'	34.99'	209.52'	137.51'	152.50'	172.92'	172.92'	309.49'
L	939.80'	704.84'	306.76'	306.76'	199.42'	288.27'	623.71'	449.91'	1180.94'	68.77'	209.71'	275.00'	302.45'	345.79'	345.79'	616.59'
R	1909.86'	1432.39'	5729.58'	5729.58'	954.93'	260.00'	5729.58'	3564.30'	6611.05'	151.13'	90.00'	11492.00'	954.93'	8086.36'	8086.36'	2864.79'

BENCH MARKS - U.S.G.S. DATUM		
NUMBER	DESCRIPTION	ELEV.
B.M. #4	on stone curb in front of General Equipt. Co. bldg. No. 3952 Clayton Ave.	477.89
B.M. #5	on NE corner of 2 1/2" conc. base of stop light at Vandeventer & left side of ramp from Mkt. St.	459.32
B.M. #6	on open of fire plug N. side of W.B.L. under pedestrian overpass at Spring Ave.	466.94
B.M. #7	on concrete median under center of Grand Ave. bridge	465.56
B.M. #8	on wheel guard NE corner of E. end of E.B. bridge over E.B. Mkt. St. ramp	495.83
B.M. #9	on S.E. corner of N.W. endpost of E.B. bridge over E.B. Mkt. St. ramp	477.70
B.M. #10	top of S.W. corner of light standard at the corner of Grand Ave. bridge	489.63

CITY OF ST. LOUIS

ALIGNMENT, HORIZONTAL CURVE DATA,
AND BENCH MARKS

SHEET 5 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

OVERSHUP & PARCEL AND ASSOCIATES, Inc.
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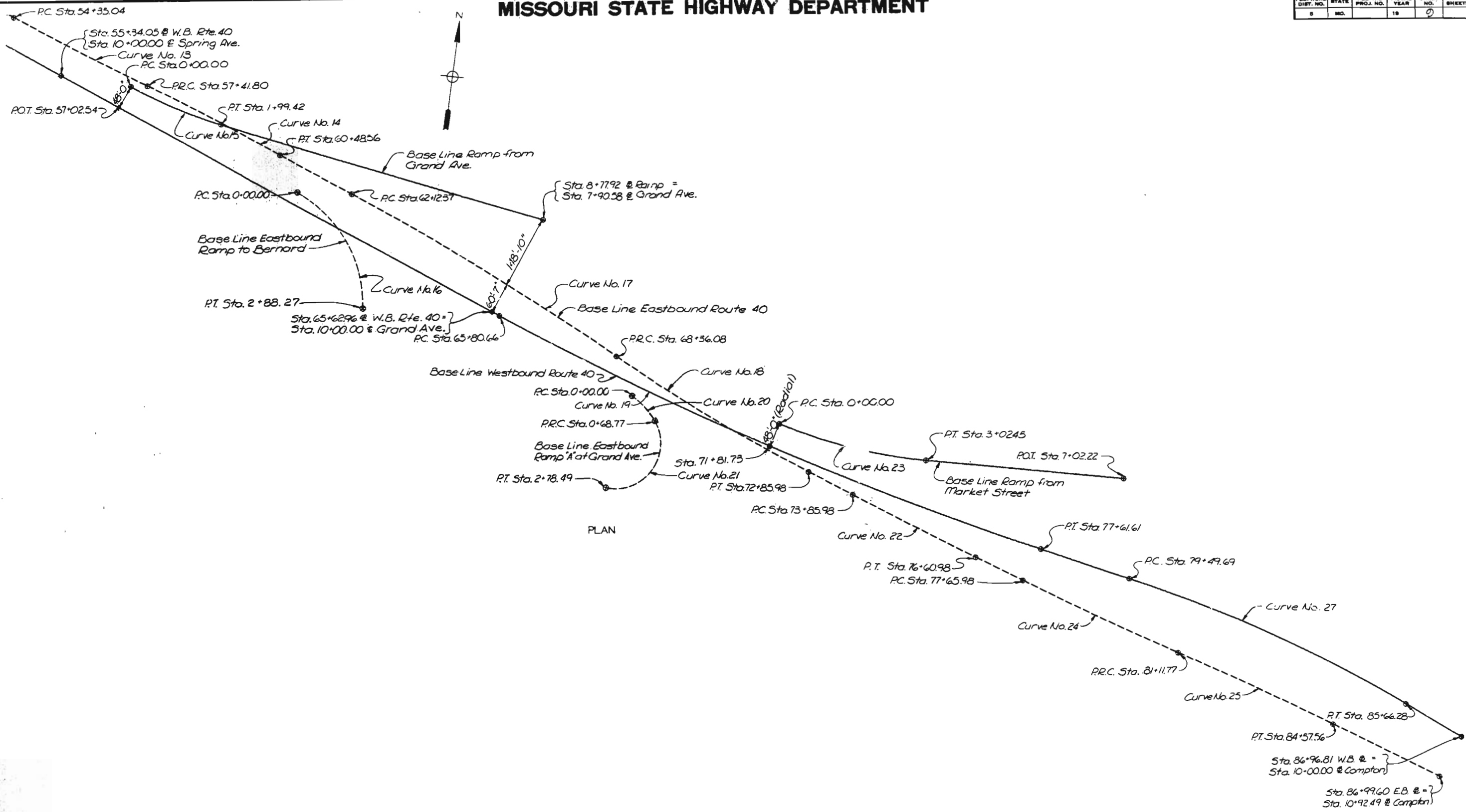
DRAWN BY: J. Overman, Dec. 1912
TRACED BY: [illegible]
CHECKED BY: J. Overman, May 1917

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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	9	9



CITY OF ST LOUIS

ALIGNMENT

SHEET 9 OF 93

A-3594

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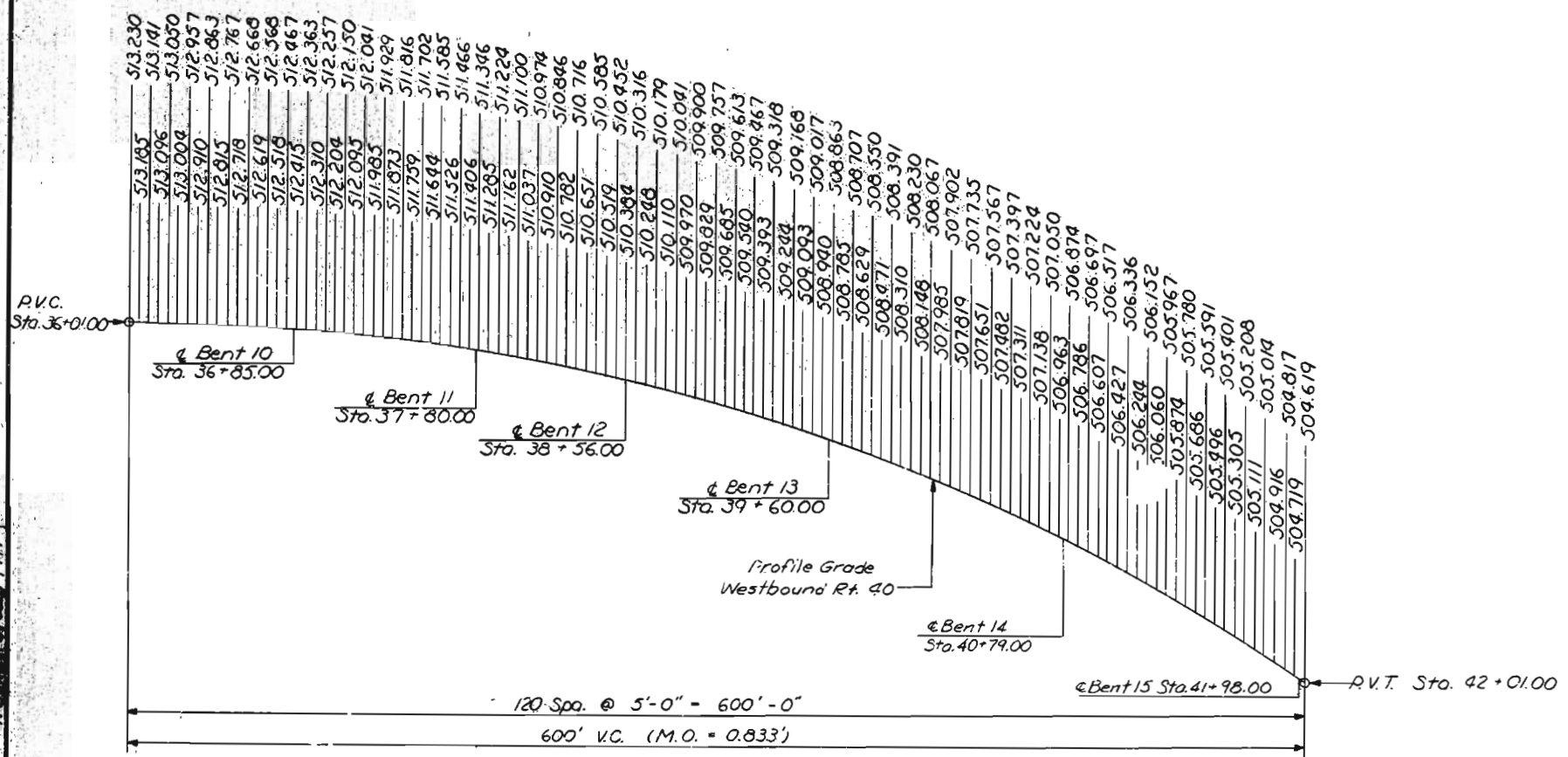
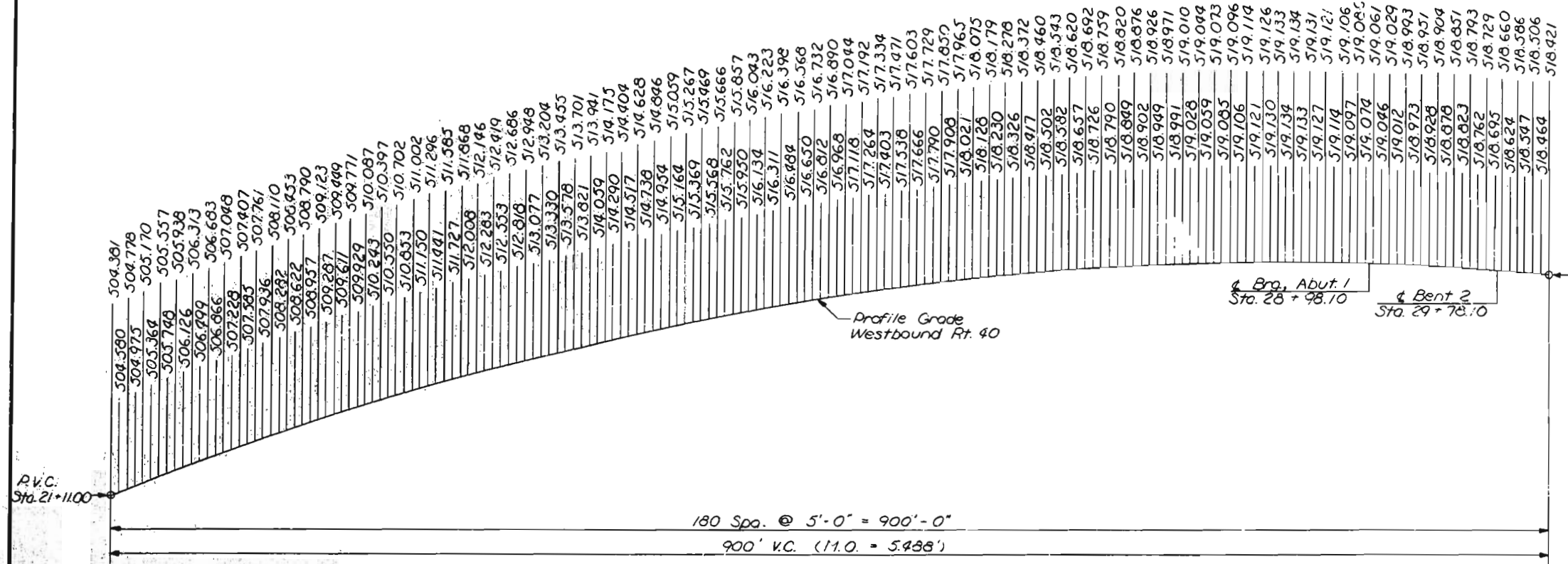
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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: [illegible]
CHECKED BY: [illegible]
DATE: [illegible]
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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2	MO.		18	10	



CITY OF ST. LOUIS

VERTICAL CURVE ELEVATIONS

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SHEET 10 OF 93

A-3594

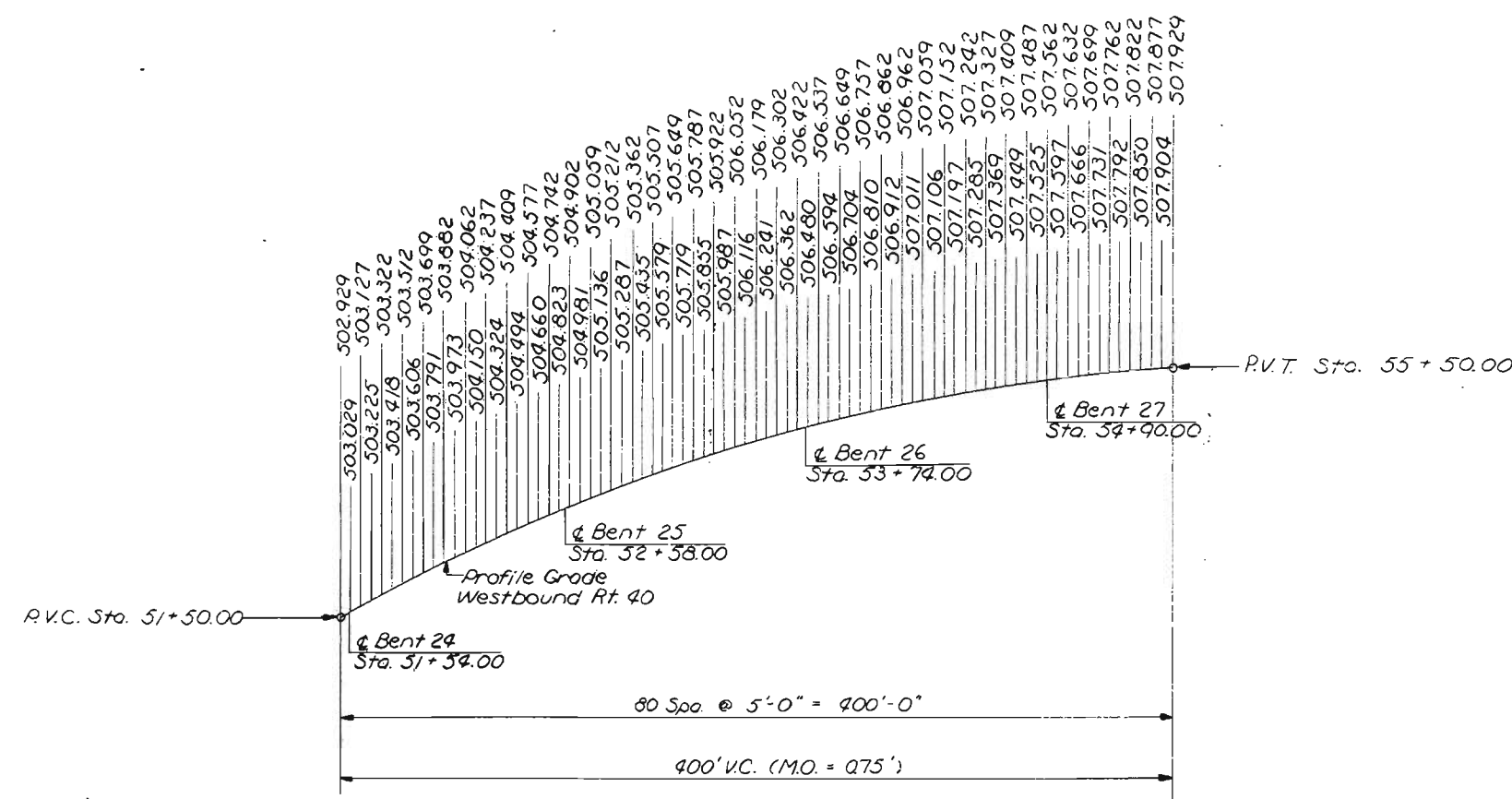
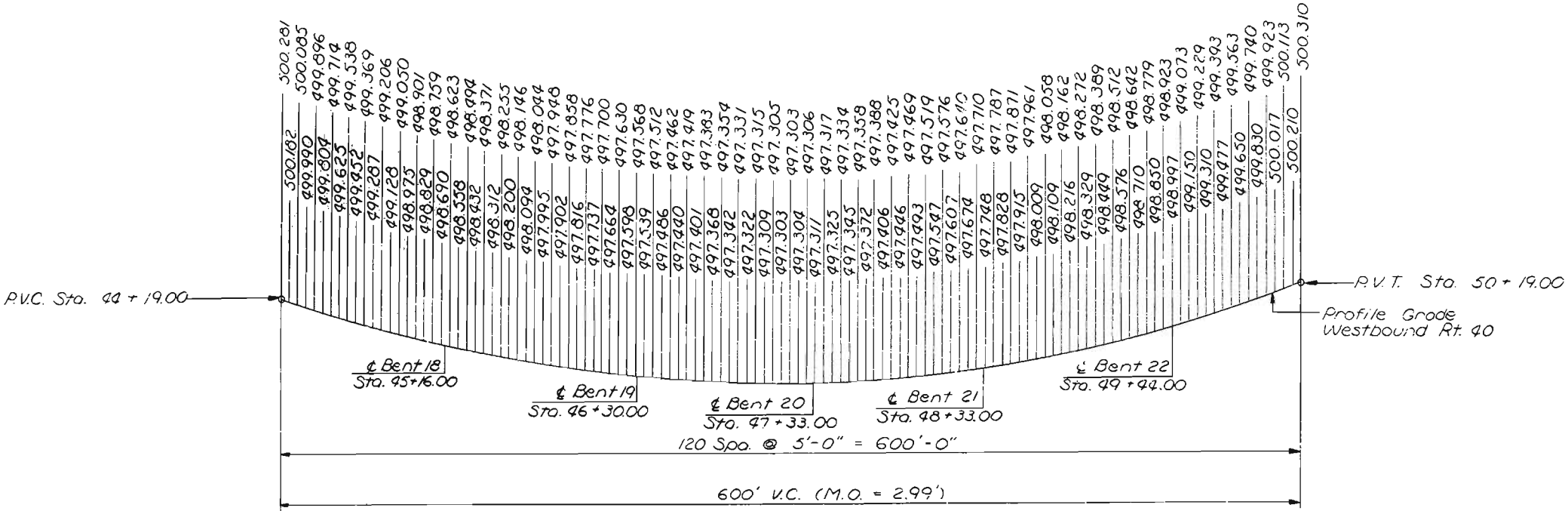
306

DRAWN BY: E. GORDON, JUNIOR 1977
 CHECKED BY: T. S. S. 1977
 3261
 775257

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	11	



CITY OF ST. LOUIS

VERTICAL CURVE ELEVATIONS

SHEET 11 OF 23

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

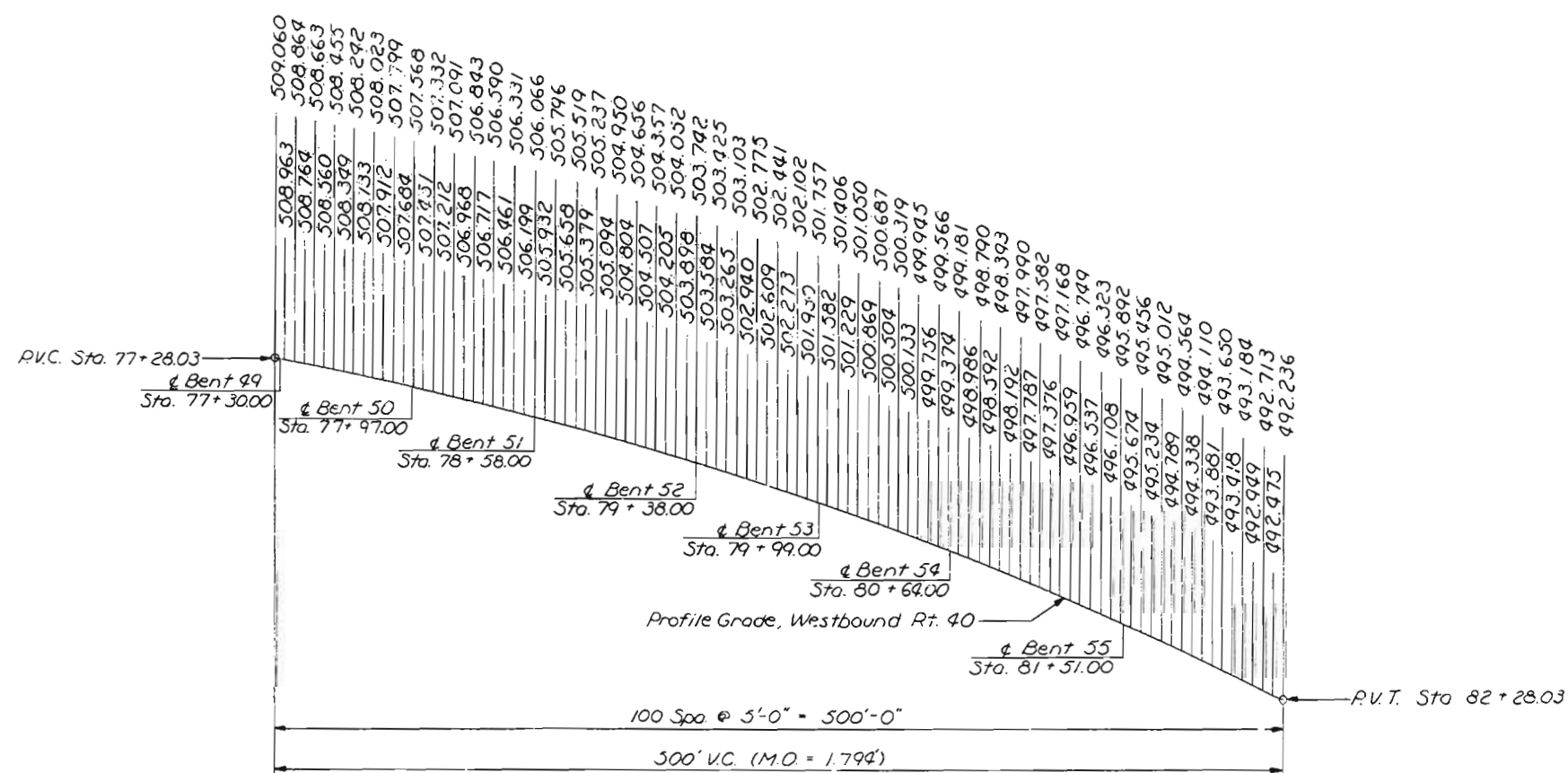
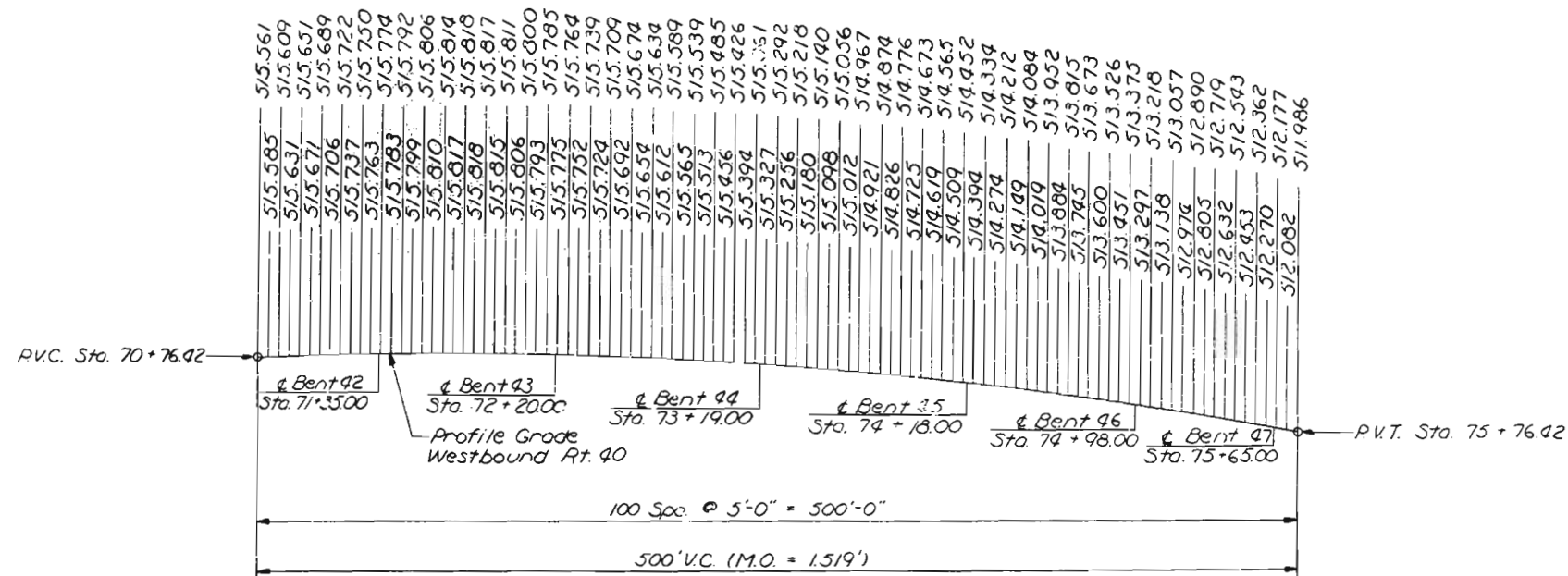
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
177 L. LOUIS, MISSOURI

DRAWN BY: E. GREGORY, JULY 1977
CHECKED BY: T. SANDERS, AUG. 1977
3261
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307

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	12	



CITY OF ST. LOUIS

VERTICAL CURVE ELEVATIONS

SHEET 12 OF 93

A-3594

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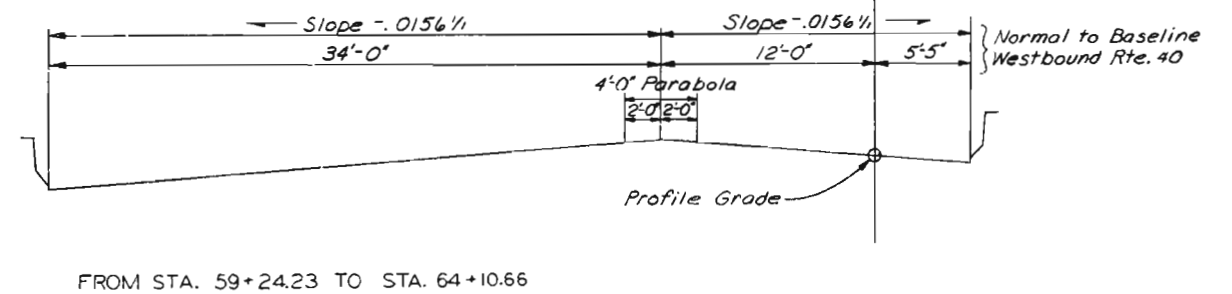
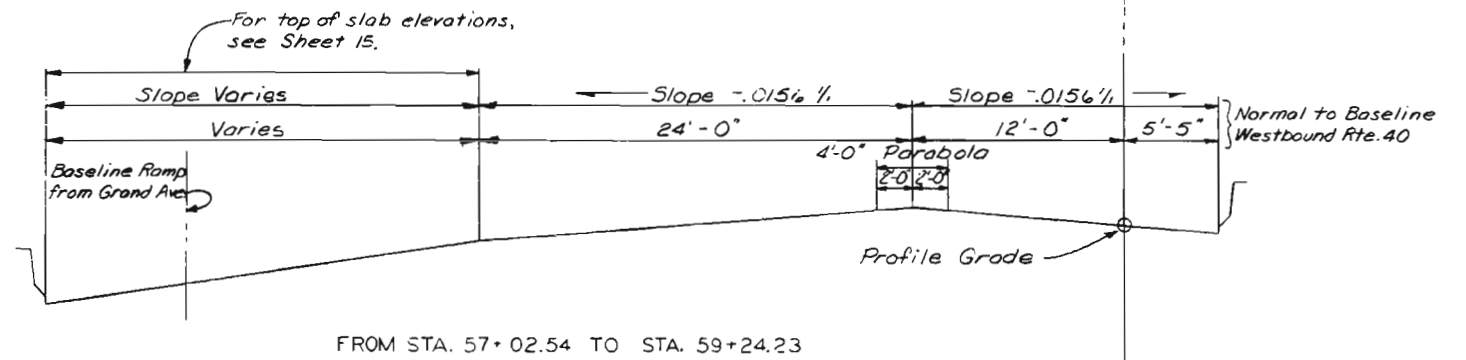
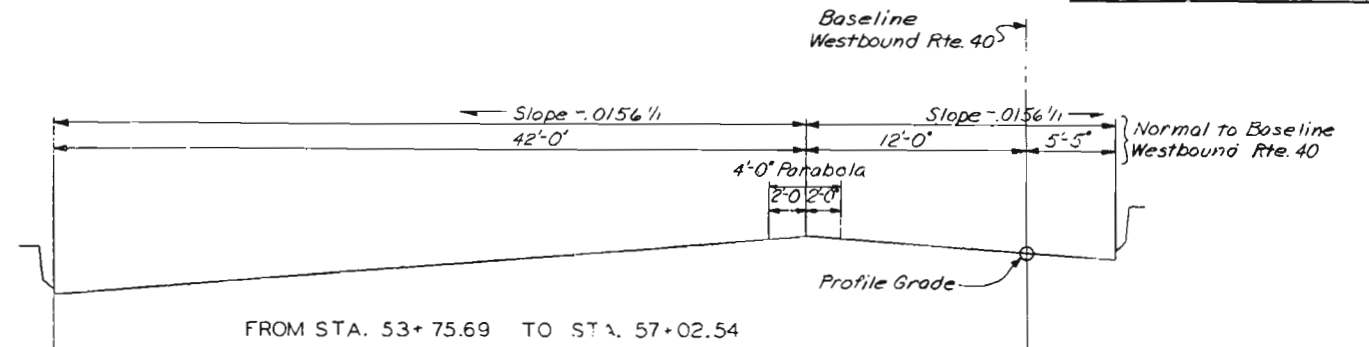
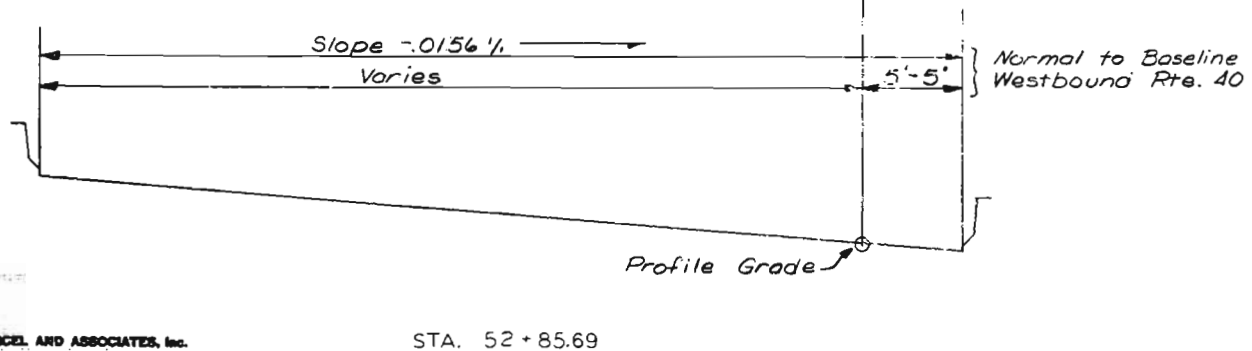
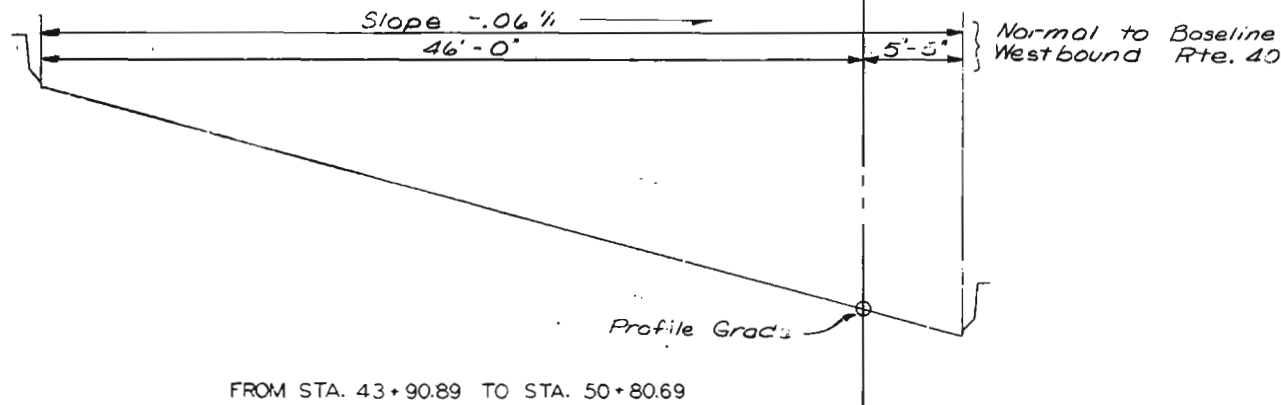
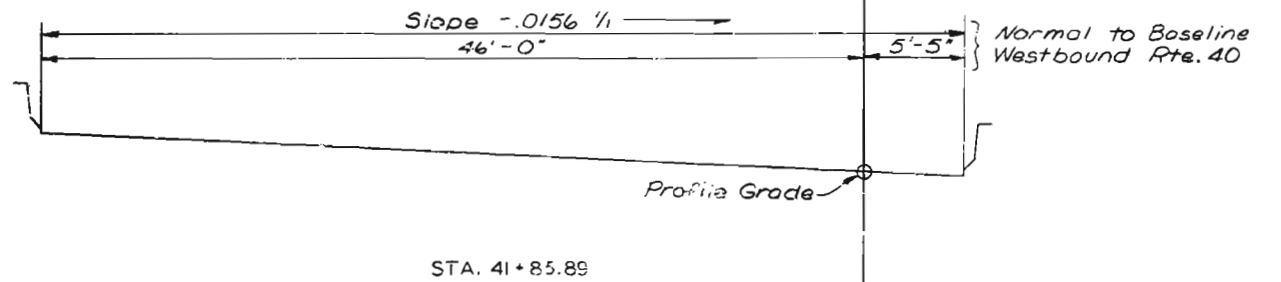
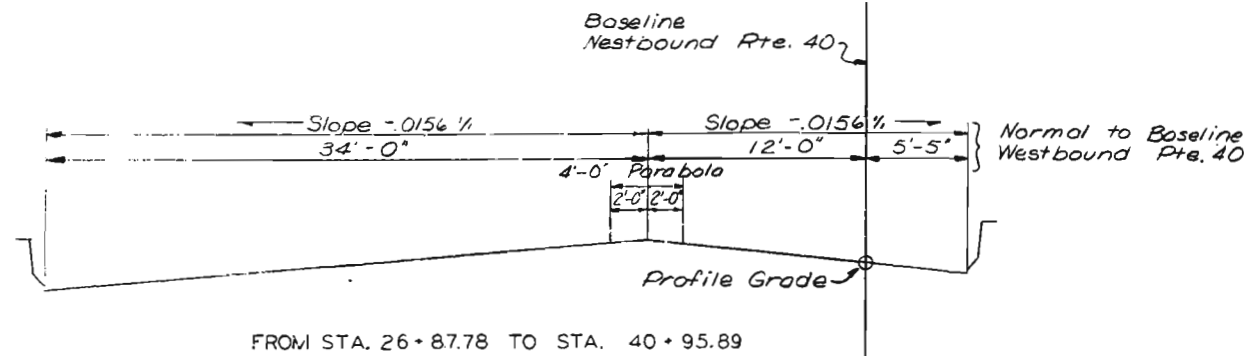
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DRAWN BY: E. Gregory, July 1977
CHECKED BY: T. Sanders, Aug. 1977
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308

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	13	



CITY OF ST. LOUIS

ROADWAY CROSS SLOPES

SHEET 13 OF 93

A-3594

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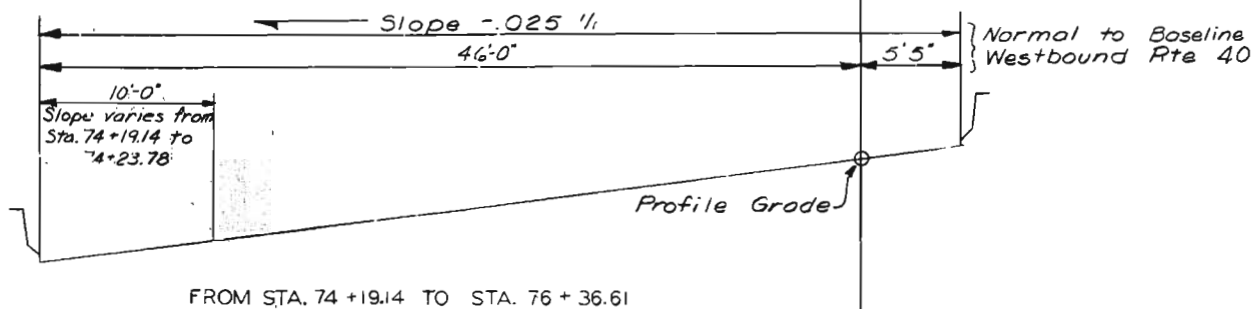
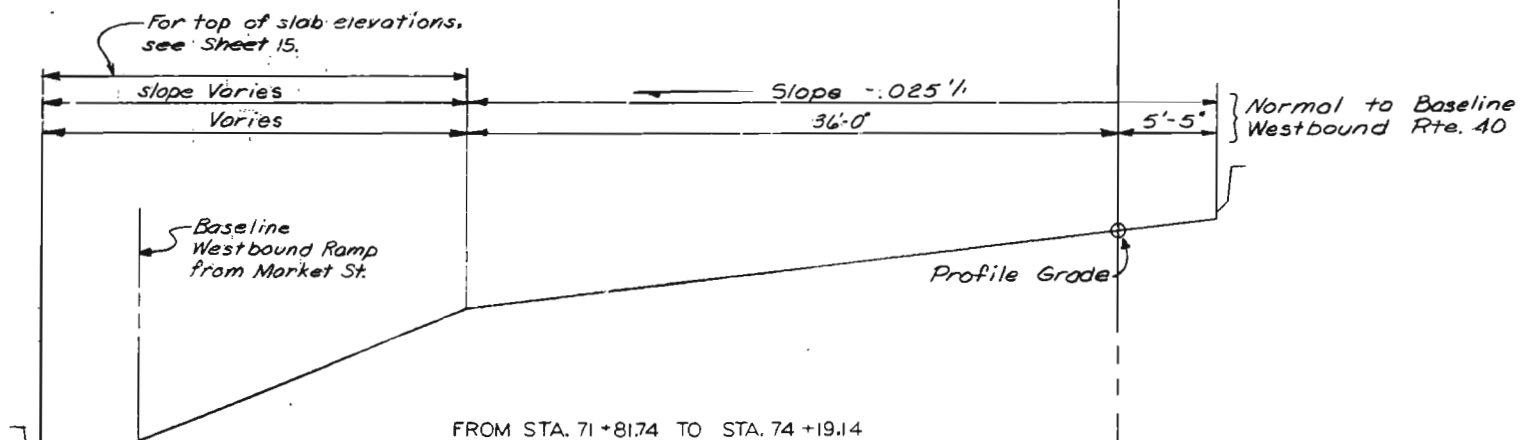
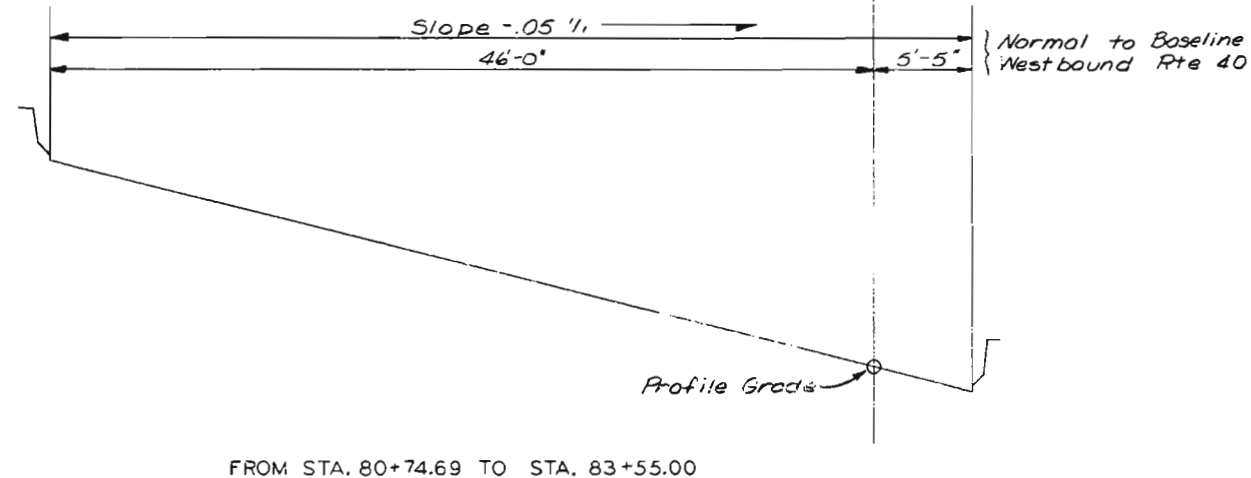
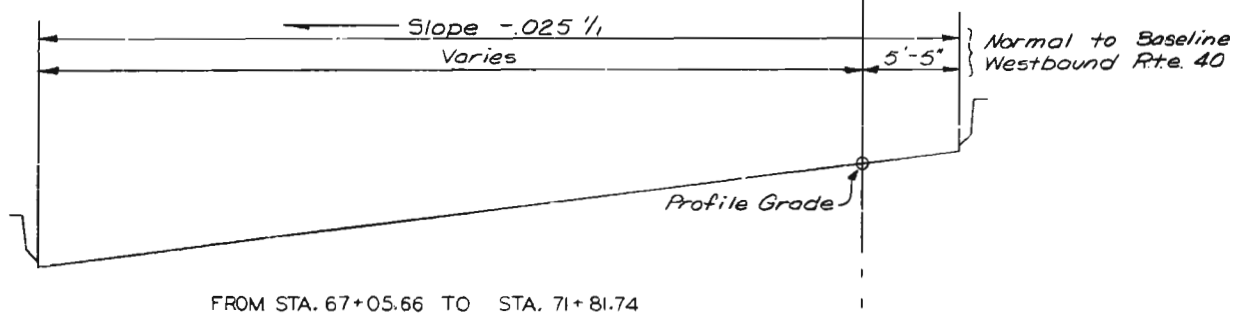
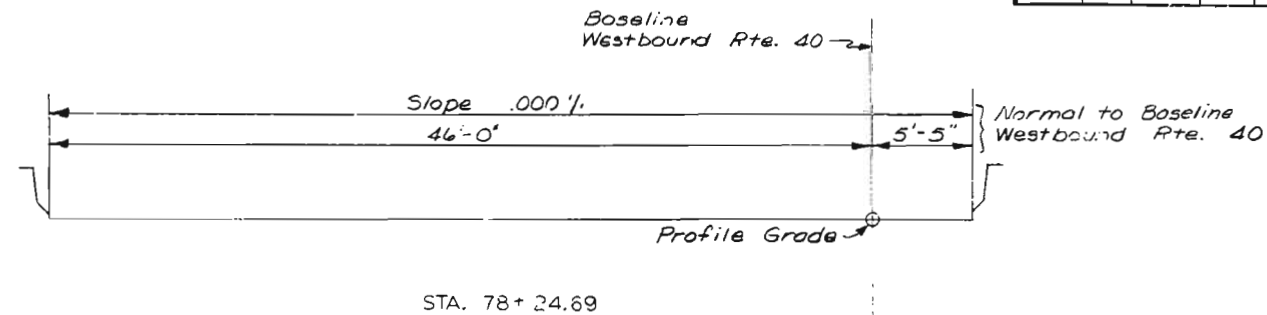
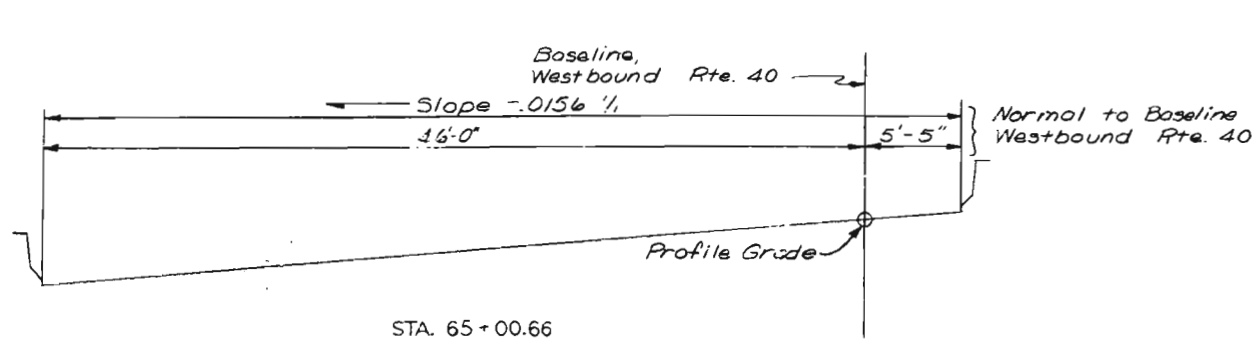
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309

DRAWN BY: M.O. Ething July 1977
CHECKED BY: J. J. Smith Aug 1977
5261
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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		19	14	



CITY OF ST. LOUIS

ROADWAY CROSS SLOPES

SHEET 14 OF 33

A-3594

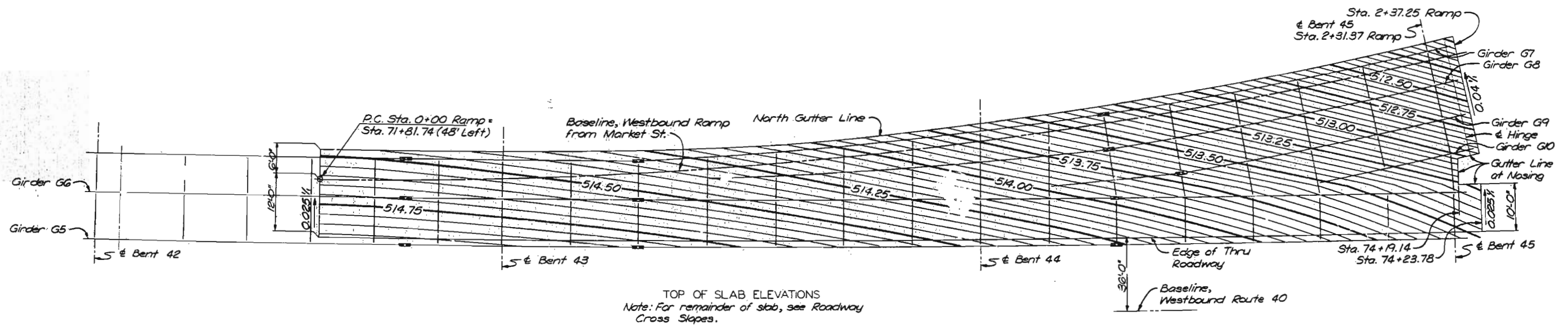
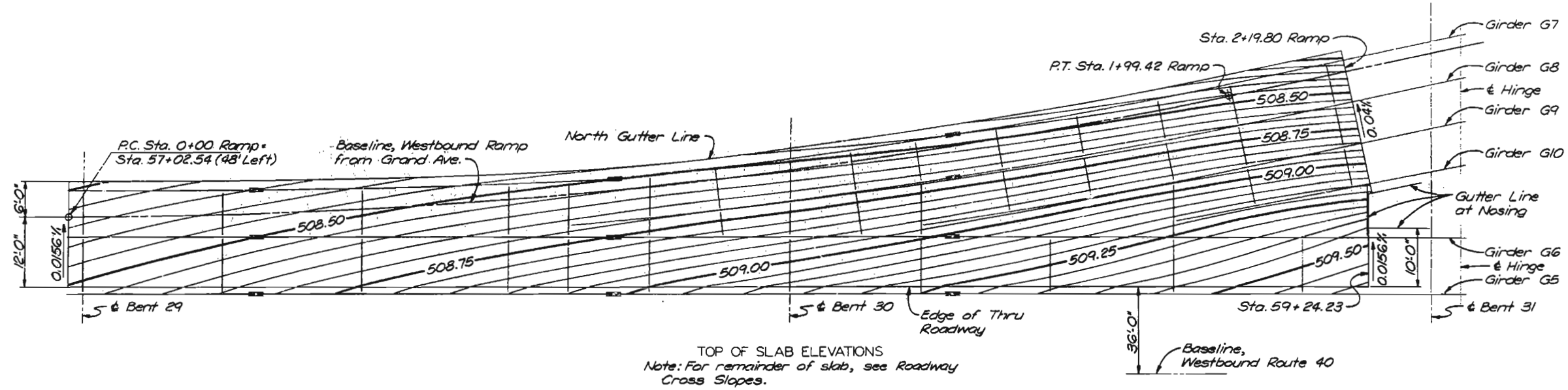
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OVERDRUP & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURI

310
DRAWN BY: M.D. Ething
CHECKED BY: J. J. Ething
DATE: July 1977
5261
775292

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2	MO.		18	15	



CITY OF ST. LOUIS

TOP OF SLAB
ELEVATIONS AT RAMPS

SHEET 15 OF 93

A-3594

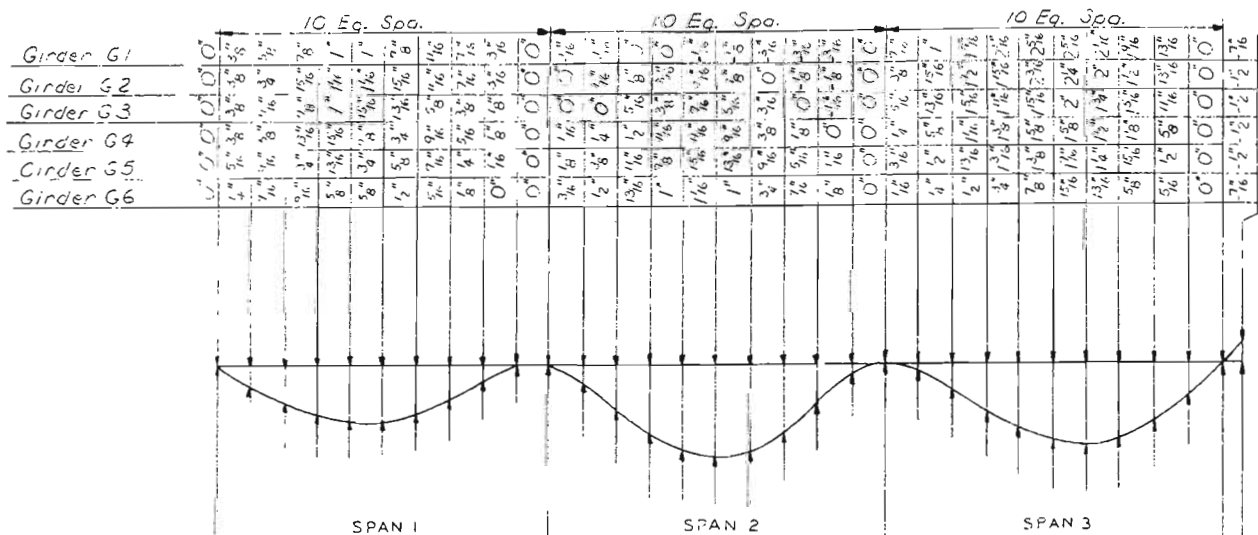
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OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

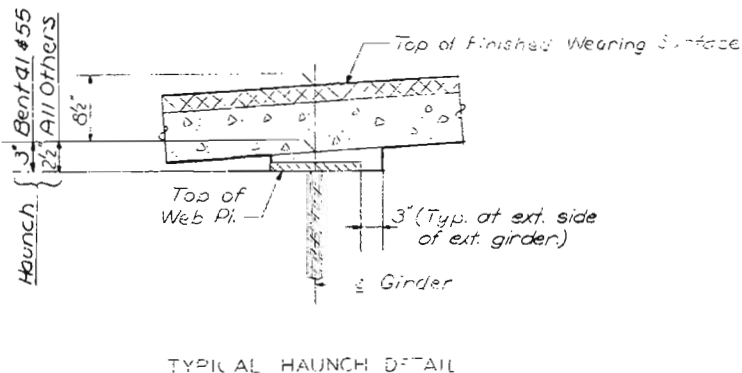
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DRAWN BY: T. Sander, Dec. 1977
CHECKED BY: K. Sander, Dec. 1977

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	10	

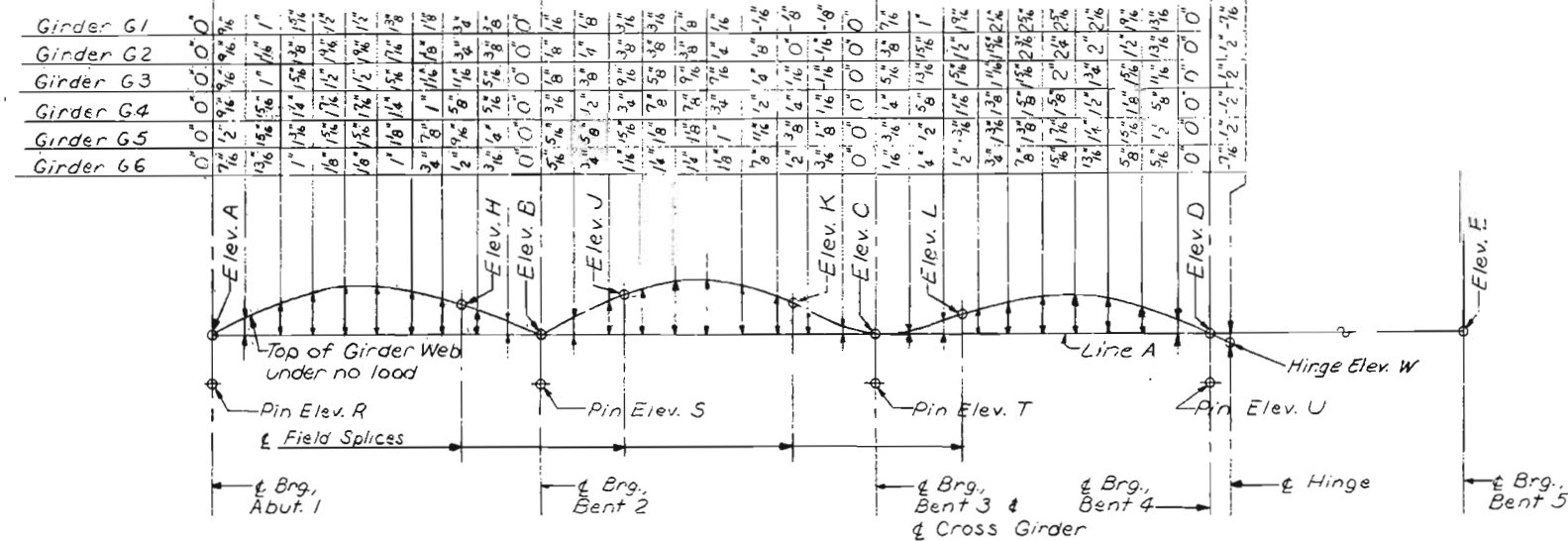


DEAD LOAD DEFLECTION DIAGRAM
Note: Negative values indicate upward deflections.



DEAD LOAD DEFLECTION AND CAMBER NOTES

Spacing of dead load deflection and camber ordinates is measured along a girder.
Camber shown includes allowance for vertical curves, super-elevation transition and full dead load deflection, excluding future wearing surface. The percentage of dead load deflection due to weight of structural steel only is as shown in table below.
Haunch dimension shown in Typical Haunch Detail is for cambered portions of girders. This dimension may vary if the girder camber after erection differs from the plan camber by more than the percentage of dead load deflection due to the weight of structural steel only.
For non-cambered portions of girders at Bents 9, 10, 41, 42 and 55 the haunch shall be varied, using the haunch shown in Typical Haunch Detail as a minimum to arrive at top of slab elevations conforming to profile grade and cross slopes.
The concrete quantity computed for the haunches is included in the estimated quantities for Class B1 Concrete. No payment will be made for additional variations in haunching.



CAMBER DIAGRAM
(Girders as fabricated and erected)
Note: Elevations shown do not include D.L. deflection of Longitudinal Girders.
Elevations shown do include D.L. deflection of Cross Girder at Bent 3.
Line A is a straight line between & Brg. Stiffeners at top of web plate.

STEEL ONLY DEAD LOAD DEFLECTION PERCENTAGE

Span	Girder	%	Span	Girder	%	Span	Girder	%	Span	Girder	%
1	G1 & G6	15	18	G2-G5	15	30	G8	16	41	G7	17
1	G2-G5	13	19	G1 & G6	17	30	G9 & G10	17	42	G1	15
2	G1 & G6	15	19	G2-G5	16	31	G1 & G6	16	42	G2-G5	13
2	G2-G5	13	20	G1 & G6	17	31	G2-G5	14	42	G6	14
3	G1	21	20	G2-G5	15	31	G7	17	42	G7	16
3	G2	18	21	G1 & G6	17	31	G8 & G9	15	43	G1 & G6	15
3	G3 & G6	17	21	G2-G5	15	31	G10	16	43	G2-G5	13
3	G4	16	22	G1 & G6	17	32	G1 & G6	16	43	G7	17
3	G5	15	22	G2-G5	15	32	G2-G5	14	43	G8	18
4	G1 & G6	14	23	G1 & G6	17	32	G7	17	44	G1	15
4	G2-G5	13	23	G2-G5	15	32	G8 & G9	15	44	G2-G5	13
5	G1 & G6	15	24	G1	17	32	G10	16	44	G6 & G7	17
5	G2-G5	13	24	G2-G4	15	33	G1 & G6	16	44	G8	20
6	G1 & G6	15	24	G5	18	33	G2-G5	14	44	G9 & G10	19
6	G2-G5	13	24	G6	23	34	G1 & G6	16	45	G1 & G6	15
7	G1 & G6	14	24	G7	21	34	G2-G5	14	45	G2-G5	13
7	G2-G5	13	25	G1	16	35	G1 & G6	16	46	G1 & G6	13
8	G1 & G6	15	25	G2-G4	14	35	G2-G5	14	46	G2-G5	12
8	G2-G5	13	25	G5	15	36	G1 & G7	16	47	G1 & G6	14
9	G1 & G6	15	25	G6	17	36	G2-G5	14	47	G2-G5	12
9	G2-G5	13	25	G7	18	37	G1 & G5	16	48	G1 & G6	14
10	G1 & G6	15	26	G1	16	37	G2-G4	14	48	G2-G5	12
10	G2-G5	13	26	G2-G5	14	37	G6	17	49	G1 & G6	13
11	G1 & G6	15	26	G6	15	37	G7	19	49	G2-G5	12
11	G2-G5	13	26	G7	17	38	G1 & G6	16	50	G1 & G6	13
12	G1 & G6	16	27	G1	17	38	G2-G5	14	50	G2-G5	12
12	G2-G5	14	27	G2-G5	15	38	G7	17	51	G1 & G6	14
13	G1 & G6	16	27	G6	16	39	G1	16	51	G2-G5	12
13	G2-G5	14	27	G7	18	39	G2-G5	14	52	G1 & G6	13
14	G1 & G6	16	28	G1	17	39	G6	15	52	G2-G5	12
14	G2-G5	14	28	G2-G6	15	39	G7	17	53	G1 & G6	14
15	G1 & G6	16	28	G7	18	40	G1	16	53	G2-G5	12
15	G2-G5	14	29	G1 & G7	17	40	G2-G5	14	54	G1 & G6	15
16	G1 & G6	17	29	G2-G6	14	40	G6	15	54	G2-G5	13
16	G2-G5	16	29	G8	20	40	G7	17	55	G1 & G6	15
17	G1 & G6	17	30	G1	17	41	G1	16	55	G2-G5	13
17	G2-G5	15	30	G2-G6	15	41	G2-G5	14	56	G1 & G6	14
18	G1 & G6	17	30	G7	18	41	G6	15	56	G2-G5	12

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 1 THRU 3

SHEET 6 OF 93

A-35-24

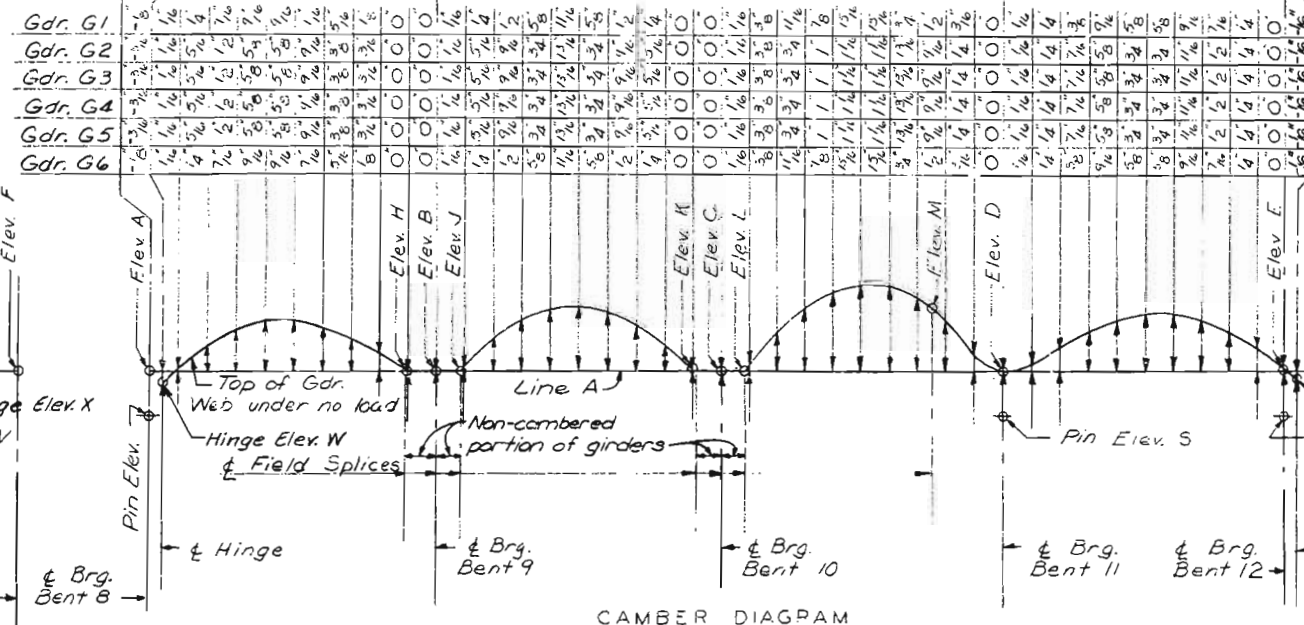
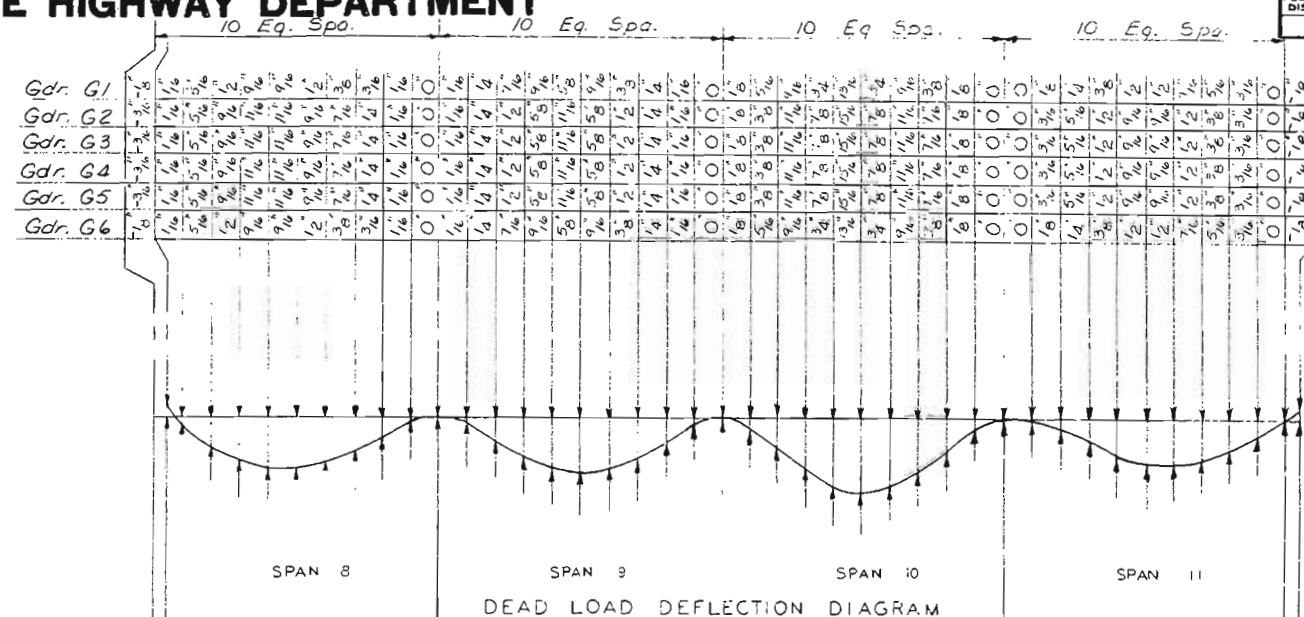
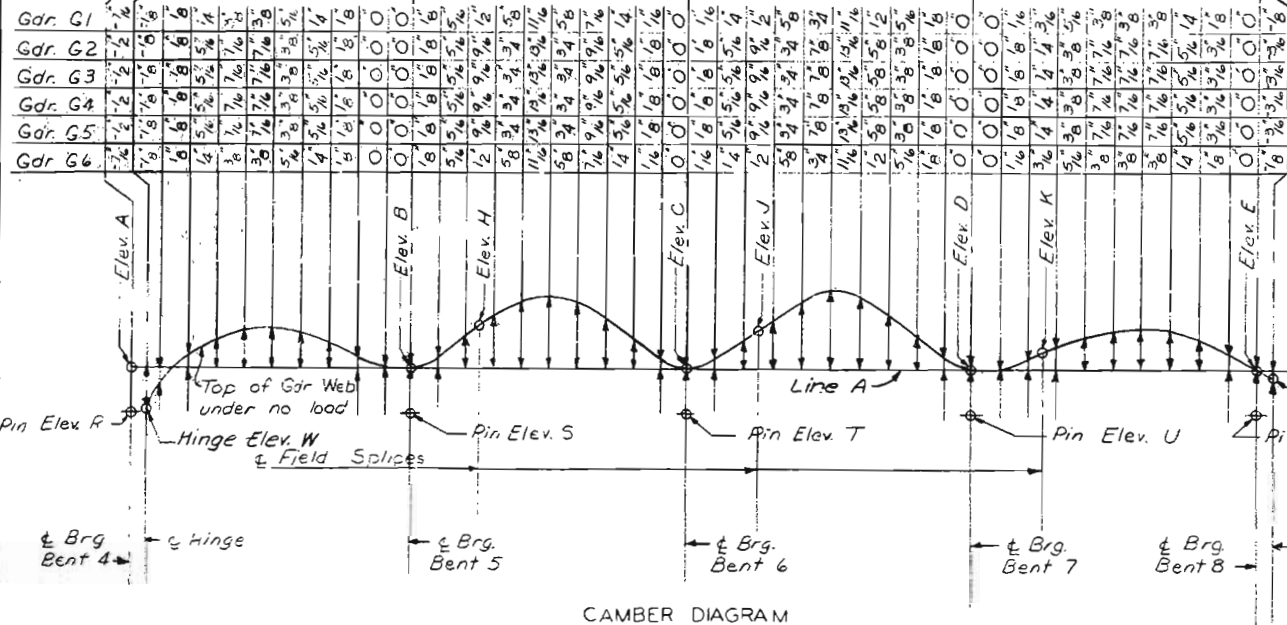
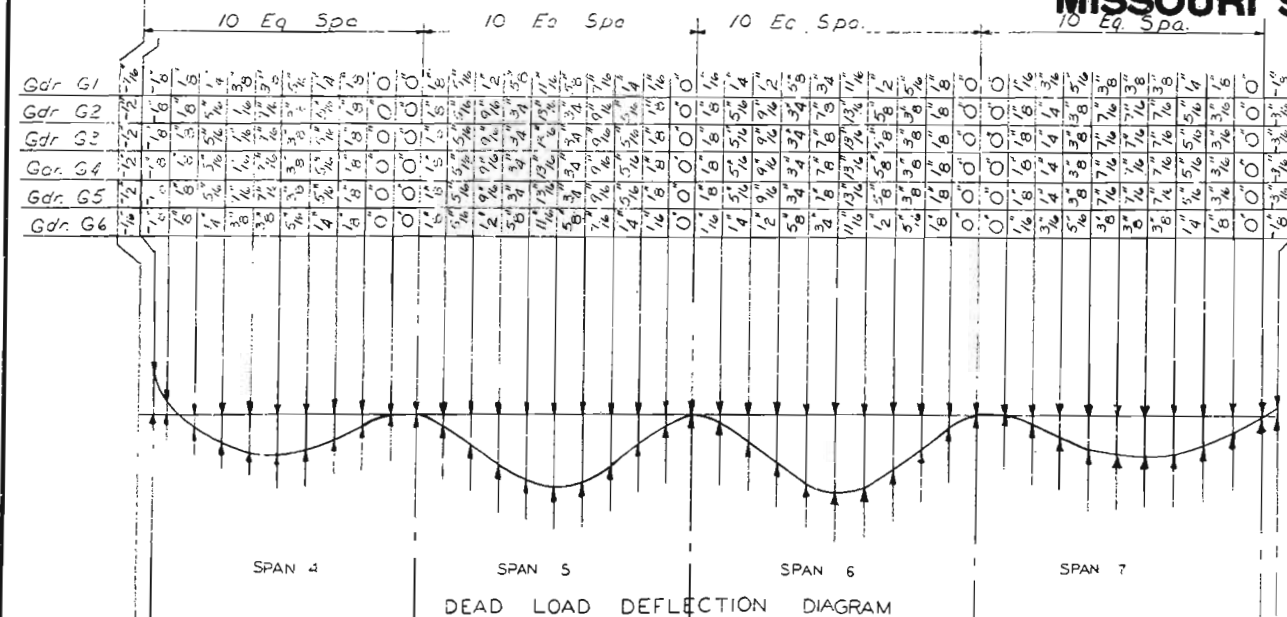
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DRAWN BY: E. Gregory, June 1977
CHECKED BY: J. Sanders, Sept. 1977
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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

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



TOP OF GIRDER WEB ELEVATIONS													PIN ELEVATIONS					HINGE	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. H	ELEV. J	ELEV. K	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V	ELEV. W	ELEV. X	ELEV. Y	ELEV. Z	ELEV. A
G1	513.997	515.317	514.489	513.662	513.027	512.332	515.143	514.311	513.516	511.748	511.056	510.219	509.402	508.777	515.916	512.981	513.127	513.127	513.127
G2	516.136	515.467	514.640	513.813	513.178	512.482	515.300	514.468	513.668	511.899	511.207	510.369	509.553	508.927	516.061	513.127	513.127	513.127	513.127
G3	516.181	515.510	514.683	513.856	513.220	512.525	515.342	514.511	513.711	511.942	511.248	510.412	509.596	508.970	516.104	513.170	513.170	513.170	513.170
G4	514.030	513.359	514.532	513.705	513.070	512.375	515.192	514.360	513.560	511.791	511.099	510.261	509.445	508.820	515.953	513.019	513.019	513.019	513.019
G5	515.879	515.209	514.382	513.555	512.919	512.224	515.041	514.209	513.409	511.640	510.948	510.111	509.294	508.669	515.803	512.868	512.868	512.868	512.868
G6	515.729	515.058	514.231	513.404	512.768	512.073	514.884	514.053	513.257	511.489	510.797	509.960	509.143	508.518	515.657	512.722	512.722	512.722	512.722

TOP OF GIRDER WEB ELEVATIONS													PIN ELEVATIONS					HINGE	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. R	ELEV. S	ELEV. T	ELEV. W	ELEV. X	ELEV. Y	ELEV. Z	ELEV. A
G1	513.027	512.332	511.448	510.381	509.467	507.901	512.407	512.267	511.534	511.372	510.651	508.777	506.131	504.168	512.981	509.548	509.548	509.548	509.548
G2	513.178	512.482	511.599	510.532	509.558	508.052	512.559	512.419	511.685	511.524	510.805	508.927	506.282	504.318	513.127	509.499	509.499	509.499	509.499
G3	513.220	512.525	511.642	510.575	509.601	508.095	512.602	512.461	511.728	511.567	510.851	508.970	506.325	504.361	513.170	509.541	509.541	509.541	509.541
G4	513.070	512.375	511.491	510.424	509.450	507.944	512.451	512.311	511.577	511.417	510.700	508.820	506.174	504.210	513.019	509.391	509.391	509.391	509.391
G5	512.919	512.224	511.340	510.273	509.299	507.793	512.300	512.160	511.426	511.266	510.549	508.669	506.023	504.060	512.868	509.240	509.240	509.240	509.240
G6	512.768	512.073	511.189	510.122	509.148	507.643	512.148	512.008	511.275	511.113	510.395	508.518	505.872	503.909	512.722	509.099	509.099	509.099	509.099

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.
Girders shown on Camber Diagrams as fabricated and erected.
Elevations shown on Camber Diagrams do not include D.L. Deflection of Longitudinal Girders.
Elevations shown on Camber Diagrams do include D.L. Deflection of Cross Girders at Bents 9 and 10.
For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 16.
Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 4 THRU 11

SHEET 17 OF 93

A-3544

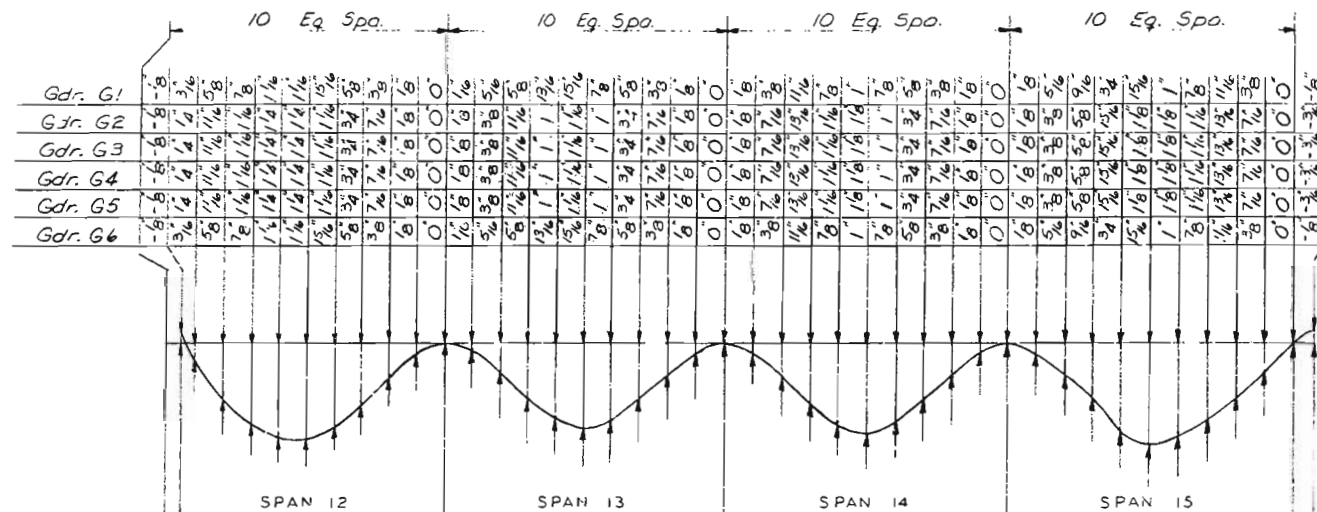
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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

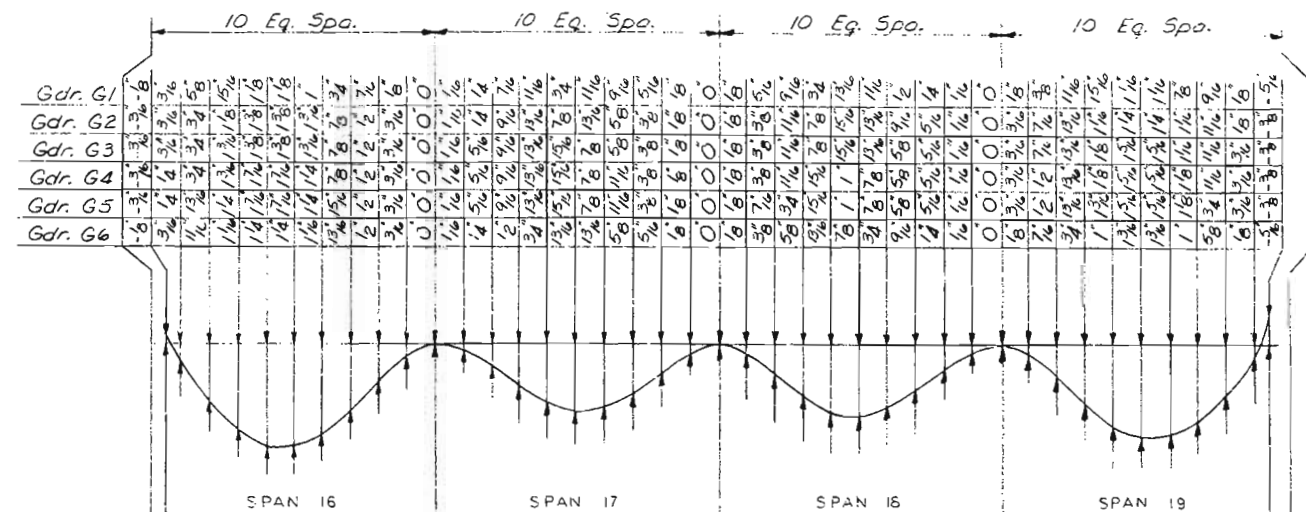
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CHECKED BY: T. Sanders, Sept. 1977
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MISSOURI STATE HIGHWAY DEPARTMENT

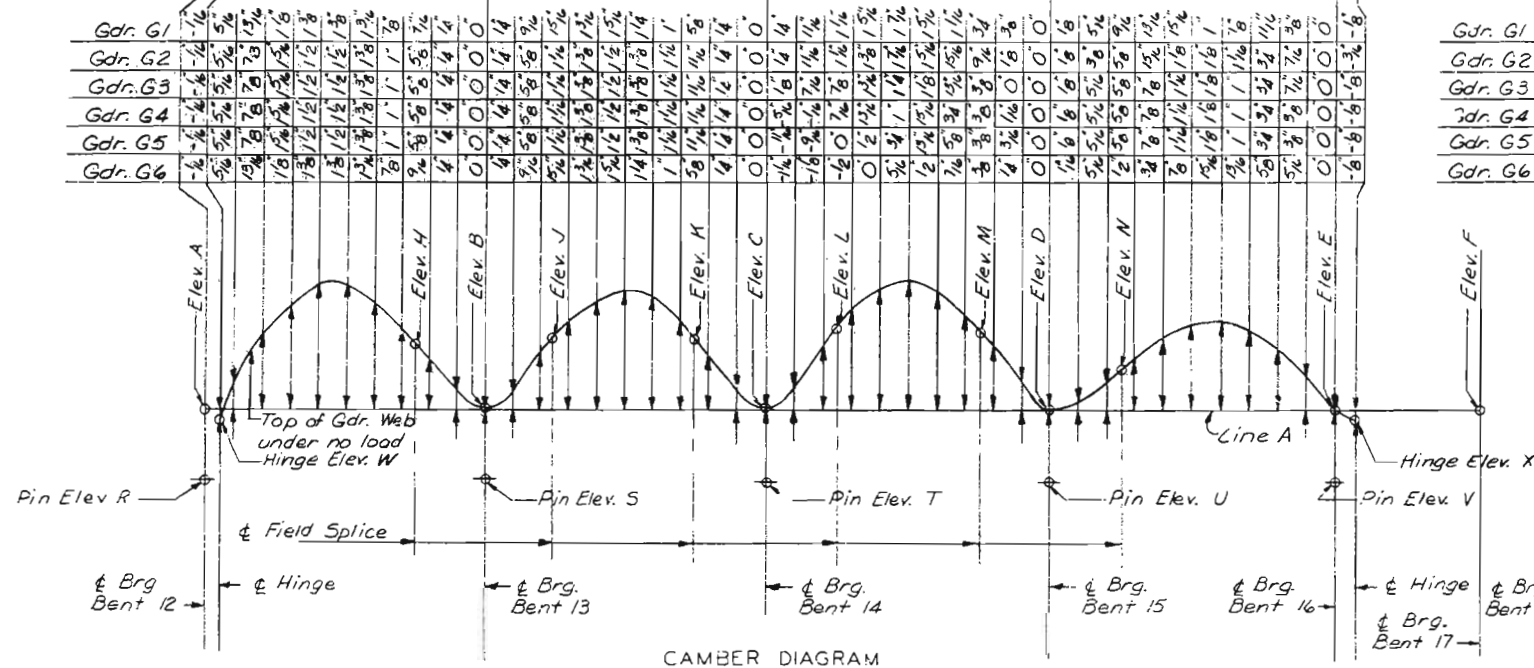
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	18	



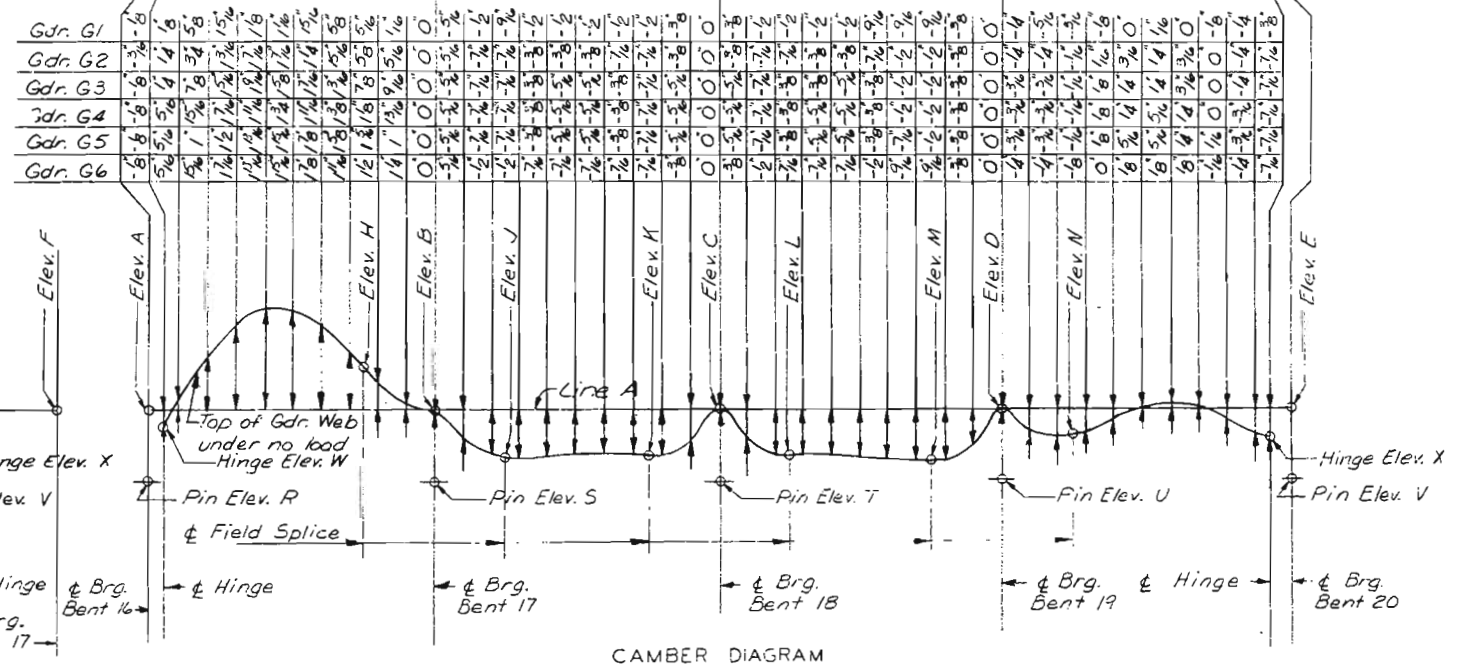
DEAD LOAD DEFLECTION DIAGRAM



DEAD LOAD DEFLECTION DIAGRAM



CAMBER DIAGRAM



CAMBER DIAGRAM

TOP OF GIRDER WEB ELEVATIONS																	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. O	ELEV. P	ELEV. Q
G1	509.407	507.901	505.933	503.692	501.618	499.470	508.323	507.469	506.496	505.441	504.333	504.208	504.168	502.630	500.672	498.421	496.378
G2	509.538	508.052	506.083	503.868	502.003	500.050	508.479	507.626	506.654	505.599	504.491	503.444	504.318	502.781	500.823	498.577	496.754
G3	509.601	508.095	506.126	504.044	502.389	500.630	508.522	507.669	506.697	505.657	504.620	503.672	504.361	502.824	500.866	498.773	497.128
G4	509.450	507.944	505.975	504.220	502.774	501.210	508.371	507.519	506.546	505.550	504.711	503.927	504.210	502.673	500.715	498.949	497.514
G5	509.299	507.793	505.825	504.396	503.160	501.790	508.220	507.368	506.396	505.445	504.802	503.129	504.060	502.522	500.564	498.125	497.910
G6	509.148	507.643	505.674	504.572	503.545	502.370	509.064	508.231	507.237	506.330	504.886	504.353	503.909	502.372	500.413	498.302	498.089

TOP OF GIRDER WEB ELEVATIONS																	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. O	ELEV. P	ELEV. Q
G1	501.618	499.470	497.514	496.412	496.161	500.024	498.937	497.959	497.195	496.639	496.331	496.378	494.178	492.243	491.121	490.921	501.524
G2	502.003	500.050	498.094	496.992	496.741	500.583	499.522	498.547	497.783	497.224	496.911	496.754	494.758	492.823	491.701	491.491	501.913
G3	502.389	500.630	498.674	497.572	497.321	501.135	500.103	499.128	498.363	497.805	497.498	497.128	495.338	493.403	492.281	492.071	502.313
G4	502.774	501.210	499.254	498.152	497.901	501.686	500.684	499.710	498.945	498.386	498.080	497.514	495.918	493.983	492.861	492.661	502.707
G5	503.160	501.790	499.834	498.732	498.481	502.245	501.245	500.288	499.524	498.967	498.660	497.910	496.498	494.563	493.441	493.241	503.101
G6	503.545	502.370	500.414	499.312	499.061	502.783	501.840	500.864	500.099	499.542	499.231	498.306	497.078	495.143	494.021	493.821	503.493

PIN ELEVATIONS																	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. O	ELEV. P	ELEV. Q
G1	509.407	507.901	505.933	503.692	501.618	499.470	508.323	507.469	506.496	505.441	504.333	504.208	504.168	502.630	500.672	498.421	496.378
G2	509.538	508.052	506.083	503.868	502.003	500.050	508.479	507.626	506.654	505.599	504.491	503.444	504.318	502.781	500.823	498.577	496.754
G3	509.601	508.095	506.126	504.044	502.389	500.630	508.522	507.669	506.697	505.657	504.620	503.672	504.361	502.824	500.866	498.773	497.128
G4	509.450	507.944	505.975	504.220	502.774	501.210	508.371	507.519	506.546	505.550	504.711	503.927	504.210	502.673	500.715	498.949	497.514
G5	509.299	507.793	505.825	504.396	503.160	501.790	508.220	507.368	506.396	505.445	504.802	503.129	504.060	502.522	500.564	498.125	497.910
G6	509.148	507.643	505.674	504.572	503.545	502.370	509.064	508.231	507.237	506.330	504.886	504.353	503.909	502.372	500.413	498.302	498.089

HINGE																	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. O	ELEV. P	ELEV. Q
G1	509.407	507.901	505.933	503.692	501.618	499.470	508.323	507.469	506.496	505.441	504.333	504.208	504.168	502.630	500.672	498.421	496.378
G2	509.538	508.052	506.083	503.868	502.003	500.050	508.479	507.626	506.654	505.599	504.491	503.444	504.318	502.781	500.823	498.577	496.754
G3	509.601	508.095	506.126	504.044	502.389	500.630	508.522	507.669	506.697	505.657	504.620	503.672	504.361	502.824	500.866	498.773	497.128
G4	509.450	507.944	505.975	504.220	502.774	501.210	508.371	507.519	506.546	505.550	504.711	503.927	504.210	502.673	500.715	498.949	497.514
G5	509.299	507.793	505.825	504.396	503.160	501.790	508.220	507.368	506.396	505.445	504.802	503.129	504.060	502.522	500.564	498.125	497.910
G6	509.148	507.643	505.674	504.572	503.545	502.370	509.064	508.231	507.237	506.330	504.886	504.353	503.909	502.372	500.413	498.302	498.089

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

NOTES

- Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.
- Girders shown on Camber Diagrams as fabricated and erected.
- Elevations shown on Camber Diagrams do not include D.L. Deflection of Longitudinal Girders.
- Elevations shown on Camber Diagrams do include D.L. Deflection of Cross Girders at Bents 16-20.
- For Dead Load Deflection and Camber Notes and Typical Haunch Detail, See Sheet 16.
- Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 12 THRU 19

SHEET 18 OF 93

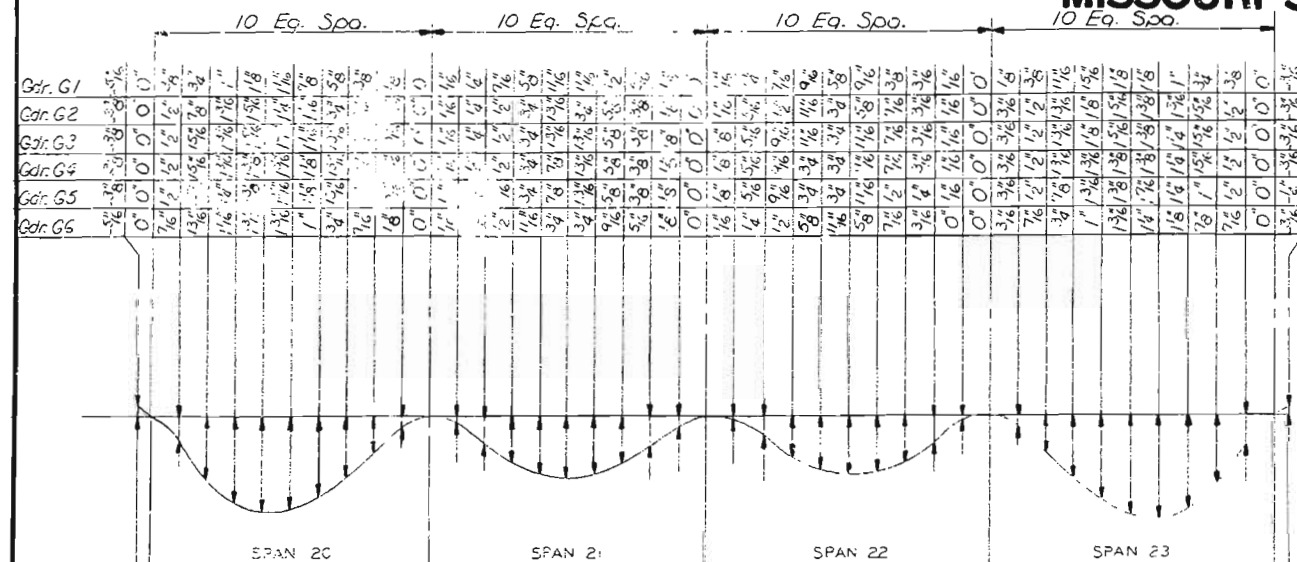
A-3594

DRAWN BY: M.O. Eling, Aug. 1917
 CHECKED BY: T. Sanders, Sept. 1917
 5261
 775294

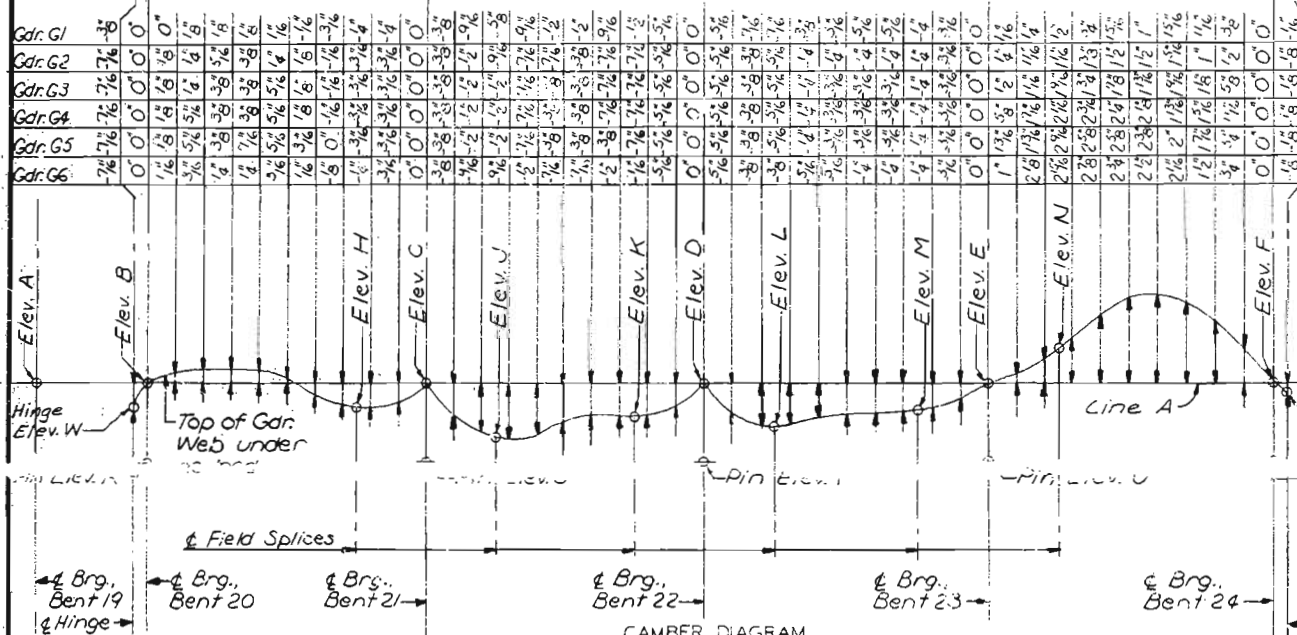
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

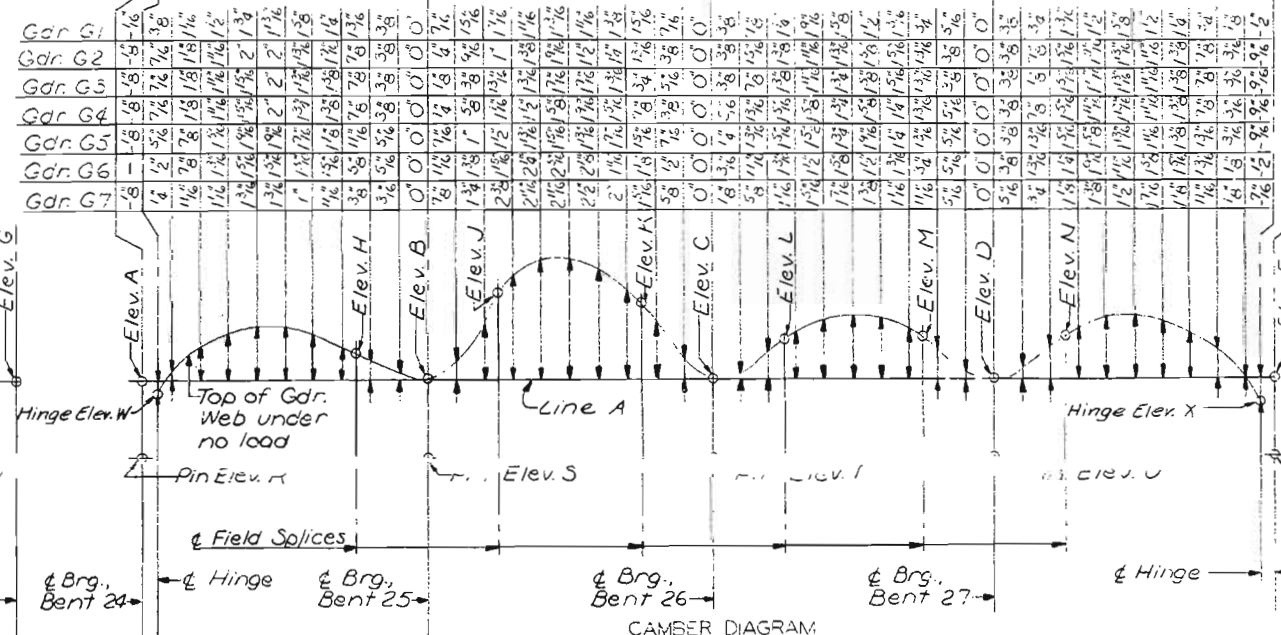
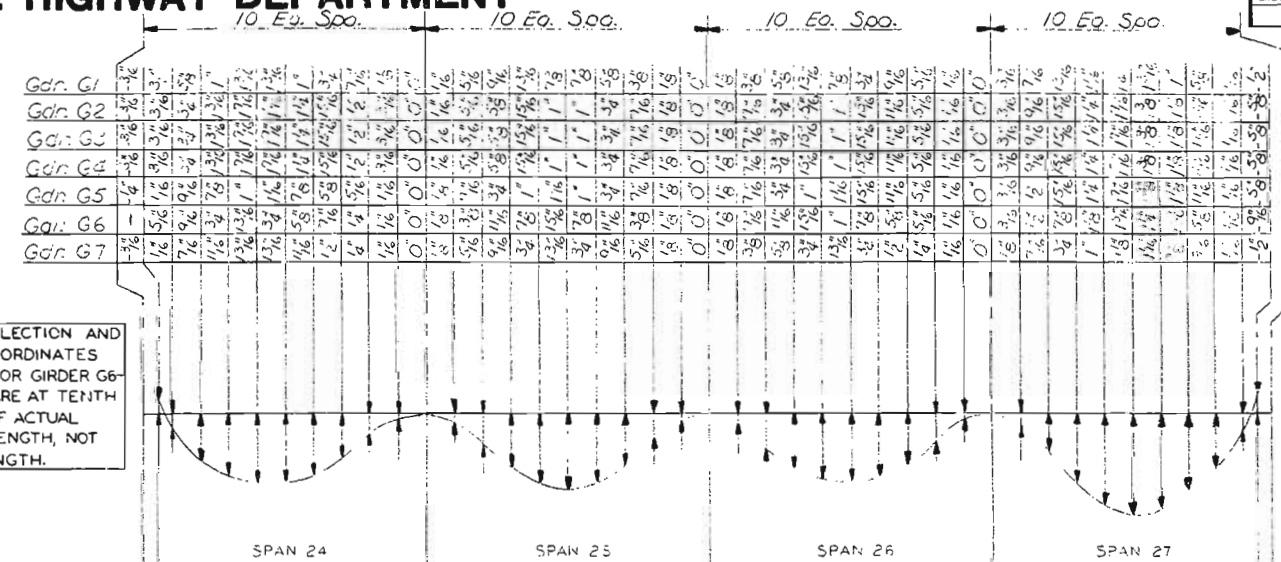
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	10	



NOTE: DEFLECTION AND CAMBER ORDINATES SHOWN FOR GIRDER G6-SPAN 24 ARE AT TENTH POINTS OF ACTUAL GIRDER LENGTH, NOT SPAN LENGTH.



Note: Line A is a straight line between & Brg. Stiffeners at top of web plate.



Note: Line A is a straight line between & Brg. Stiffeners at top of web plate.

TOP OF GIRDER WEB ELEVATIONS																
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. R	ELEV. S	ELEV. T
G1	496.412	496.161	496.591	497.848	499.860	501.921	503.870	496.467	496.855	497.490	498.316	499.334	500.403	490.921	491.299	492.577
G2	496.992	496.741	497.171	498.428	500.440	502.348	504.079	497.050	497.441	498.075	498.900	499.918	500.994	491.491	491.879	493.157
G3	497.572	497.321	497.751	499.008	501.020	502.774	504.288	497.632	498.021	498.658	499.481	500.498	501.575	492.071	492.459	493.737
G4	498.152	497.901	498.331	499.588	501.600	503.201	504.496	498.212	498.601	499.238	500.062	501.079	502.156	492.461	493.039	494.317
G5	498.732	498.481	498.911	500.168	502.180	503.627	504.705	498.794	499.181	499.819	500.642	501.659	502.737	493.241	493.619	494.897
G6	499.312	499.061	499.491	500.748	502.760	504.054	504.953*	499.369	499.759	500.394	501.218	502.235	513.310	493.821	494.199	495.477

TOP OF GIRDER WEB ELEVATIONS																
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V
G1	501.921	503.870	505.491	506.584	507.182	503.480	504.375	505.179	505.849	506.391	506.798	496.682	498.922	500.554	501.636	501.942
G2	502.348	504.079	505.642	506.735	507.333	503.752	504.529	505.334	506.009	506.548	506.957	497.092	499.131	500.704	501.787	502.093
G3	502.774	504.288	505.687	506.778	507.376	504.013	504.679	505.414	506.051	506.591	507.000	497.509	499.340	500.749	501.830	502.136
G4	503.201	504.496	505.542	506.627	507.225	504.274	504.825	505.366	505.901	506.440	506.849	497.930	499.549	500.604	501.679	501.985
G5	503.627	504.705	505.397	506.477	507.074	504.514	504.975	505.317	505.745	506.287	506.693	498.367	499.757	500.459	501.529	501.834
G6	503.883**	504.846	505.257	506.326	506.923	504.655	505.084	505.262	505.593	506.132	506.541	499.897	500.314	501.378	501.684	501.985
G7	504.054	504.953	505.131	506.201	506.798	504.769	505.170	505.218	505.460	506.002	506.406	498.804	500.005	500.190	501.253	501.559

PIN ELEVATIONS																
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V
G1	501.921	503.870	505.491	506.584	507.182	503.480	504.375	505.179	505.849	506.391	506.798	496.682	498.922	500.554	501.636	501.942
G2	502.348	504.079	505.642	506.735	507.333	503.752	504.529	505.334	506.009	506.548	506.957	497.092	499.131	500.704	501.787	502.093
G3	502.774	504.288	505.687	506.778	507.376	504.013	504.679	505.414	506.051	506.591	507.000	497.509	499.340	500.749	501.830	502.136
G4	503.201	504.496	505.542	506.627	507.225	504.274	504.825	505.366	505.901	506.440	506.849	497.930	499.549	500.604	501.679	501.985
G5	503.627	504.705	505.397	506.477	507.074	504.514	504.975	505.317	505.745	506.287	506.693	498.367	499.757	500.459	501.529	501.834
G6	503.883**	504.846	505.257	506.326	506.923	504.655	505.084	505.262	505.593	506.132	506.541	499.897	500.314	501.378	501.684	501.985
G7	504.054	504.953	505.131	506.201	506.798	504.769	505.170	505.218	505.460	506.002	506.406	498.804	500.005	500.190	501.253	501.559

HINGES																
Girder	ELEV. W	ELEV. X	ELEV. Y	ELEV. Z	ELEV. AA	ELEV. AB	ELEV. AC	ELEV. AD	ELEV. AE	ELEV. AF	ELEV. AG	ELEV. AH	ELEV. AI	ELEV. AJ	ELEV. AK	ELEV. AL
G1	496.126	501.999	496.701	502.417	497.829	502.829	497.281	502.829	496.861	503.247	498.665	498.421	503.665	499.021	504.083	504.083
G2	496.126	501.999	496.701	502.417	497.829	502.829	497.281	502.829	496.861	503.247	498.665	498.421	503.665	499.021	504.083	504.083
G3	496.126	501.999	496.701	502.417	497.829	502.829	497.281	502.829	496.861	503.247	498.665	498.421	503.665	499.021	504.083	504.083
G4	496.126	501.999	496.701	502.417	497.829	502.829	497.281	502.829	496.861	503.247	498.665	498.421	503.665	499.021	504.083	504.083
G5	496.126	501.999	496.701	502.417	497.829	502.829	497.281	502.829	496.861	503.247	498.665	498.421	503.665	499.021	504.083	504.083
G6	496.126	501.999	496.701	502.417	497.829	502.829	497.281	502.829	496.861	503.247	498.665	498.421	503.665	499.021	504.083	504.083
G7	496.126	501.999	496.701	502.417	497.829	502.829	497.281	502.829	496.861	503.247	498.665	498.421	503.665	499.021	504.083	504.083

NOTES

- Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.
- Girders shown on Camber Diagrams as fabricated and erected.
- Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.
- Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girders at Bents 19-28.
- * Elevation shown is for Girder G7 at Bent 25.
- ** Elevation A - Girder G6 is at actual end of Girder, not at Bent 24.
- For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 16.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 20 THRU 27

SHEET 19 OF 25

A-3594

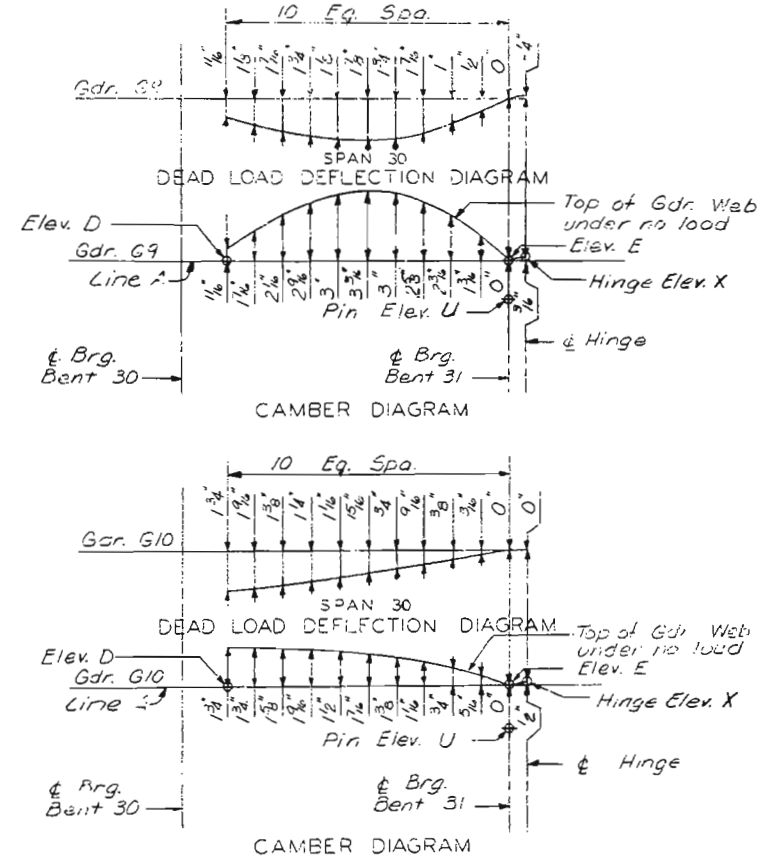
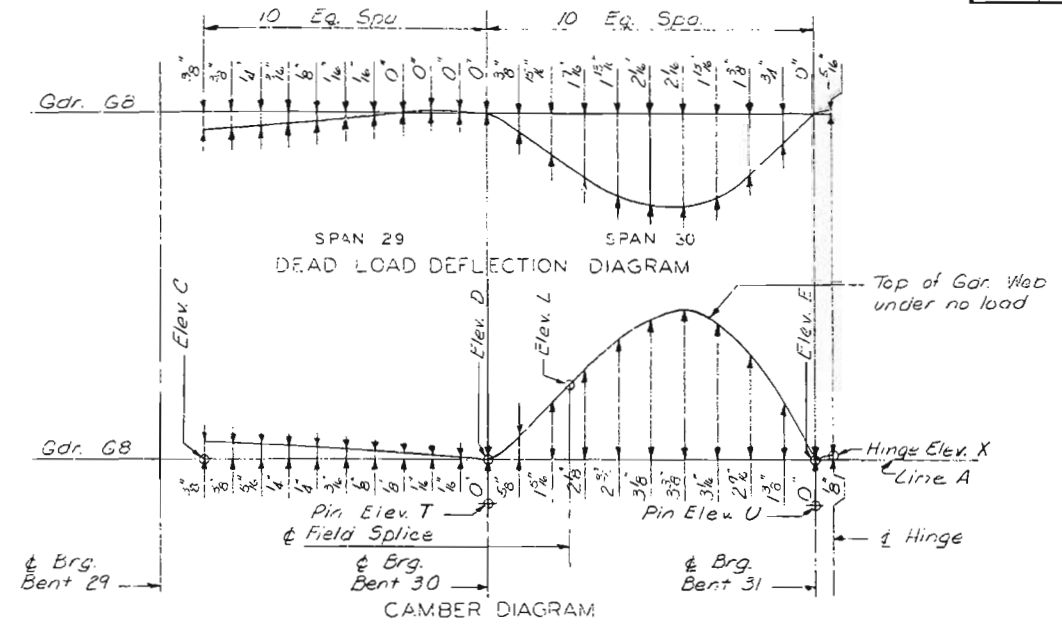
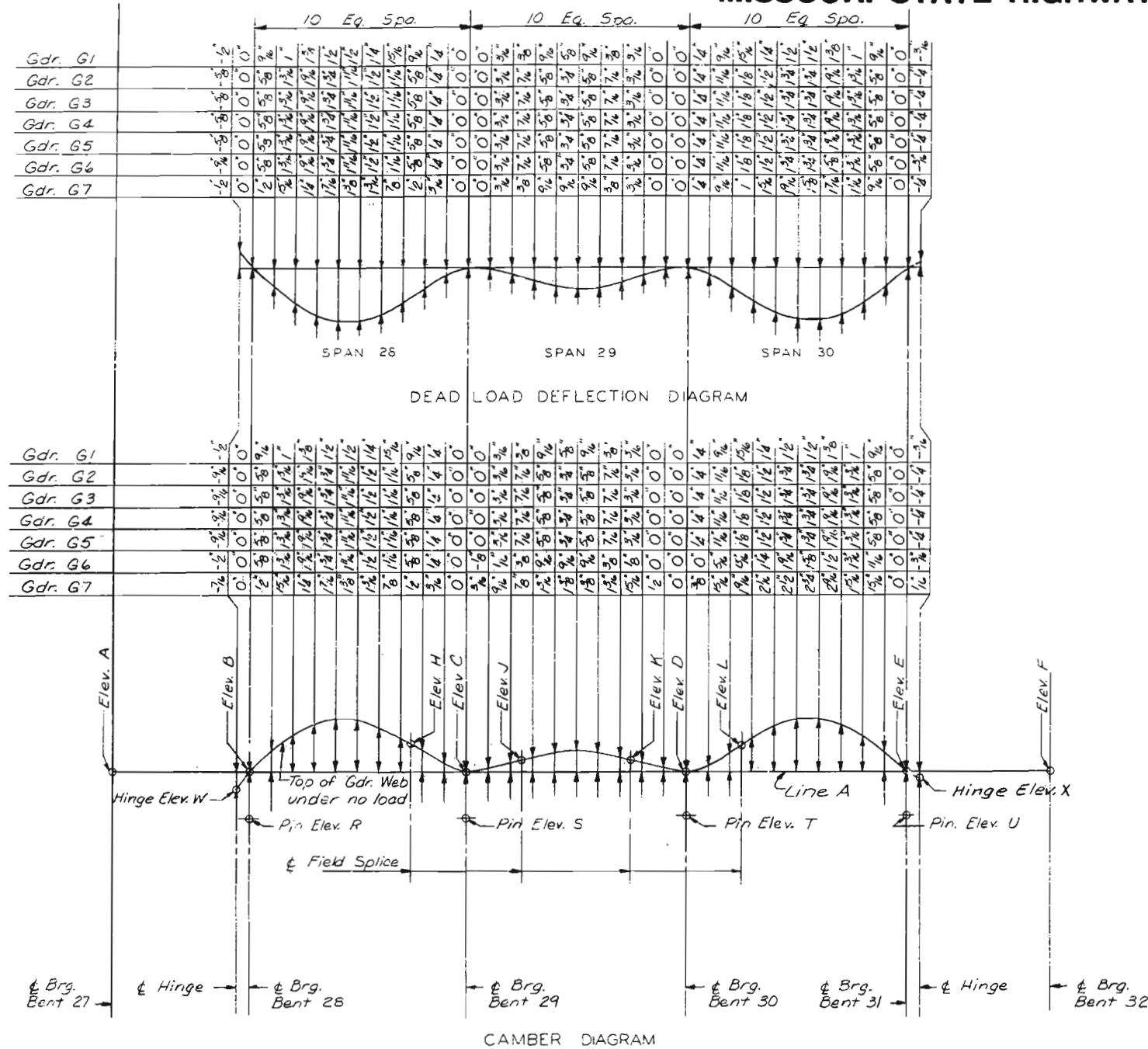
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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775231

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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	20	



Girder	TOP OF GIRDER WEB ELEVATIONS										PIN ELEVATIONS				HINGE	
	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. W	ELEV. X
G1	506.584	507.182	507.727	508.332	508.877	509.402	507.652	507.901	508.209	508.532	501.942	502.444	503.051	503.637	507.115	508.886
G2	506.735	507.333	507.878	508.483	509.028	509.553	507.812	508.054	508.358	508.694	502.093	502.594	503.201	503.834	507.261	509.032
G3	506.778	507.376	507.921	508.524	509.071	509.596	507.855	508.097	508.401	508.737	502.136	502.639	503.244	503.827	507.304	509.075
G4	506.627	507.225	507.770	508.375	508.920	509.445	507.704	507.946	508.250	508.586	501.985	502.485	503.093	503.613	507.153	508.924
G5	506.477	507.074	507.619	508.224	508.769	509.294	507.555	507.795	508.100	508.435	501.834	502.335	502.943	503.510	507.002	508.773
G6	506.326	506.923	507.468	508.073	508.618	509.143	507.404	507.644	507.959	508.295	501.684	502.187	502.795	503.333	506.856	508.628
G7	506.201	506.798	507.343	507.948	508.493	509.018	507.279	507.519	507.834	508.170	501.559	502.062	502.670	503.208	506.737	508.509
G8	---	---	507.753	507.778	507.559	505.837	---	---	---	---	---	---	502.523	502.157	---	507.569
G9	---	---	---	508.003	507.849	506.049	---	---	---	---	---	---	---	502.276	---	507.820
G10	---	---	---	508.258	508.141	506.264	---	---	---	---	---	---	---	502.406	---	508.135

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.

Girders shown on Camber Diagrams as fabricated and erected.

Elevations shown on Camber Diagrams do not include D.L. Deflection of Longitudinal Girders.

Elevations shown on Camber Diagrams do include D.L. Deflection of Cross Girders at Bents 27-32.

For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 10.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 28 THRU 30

SHEET 20 OF 93

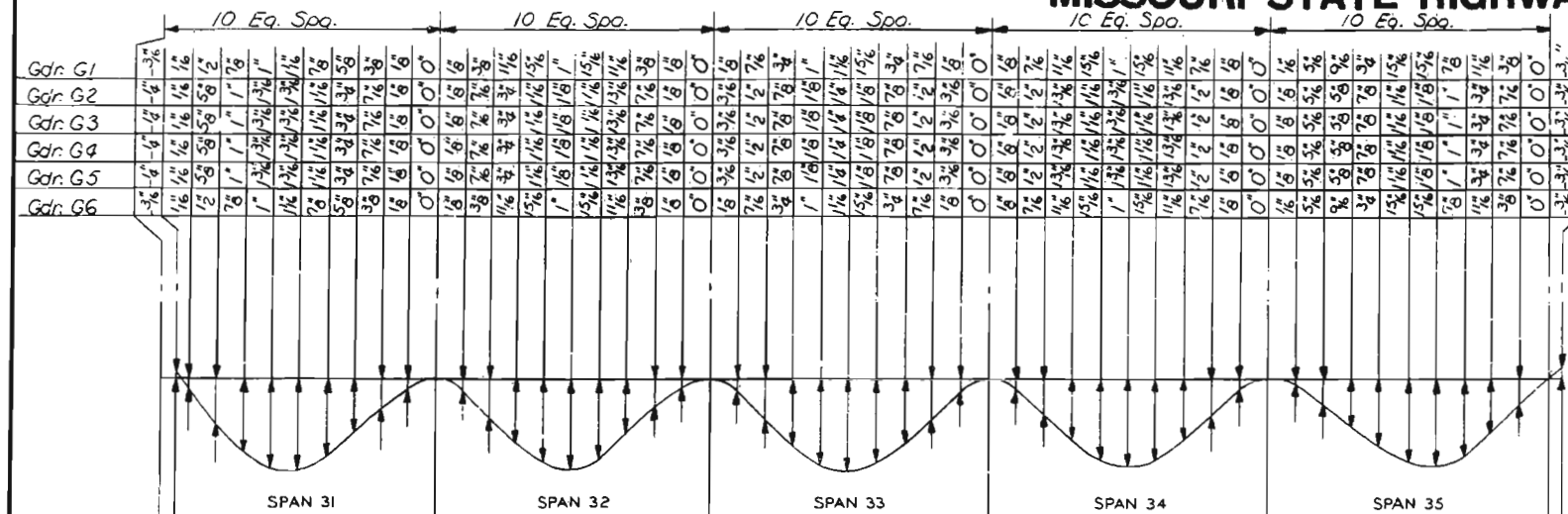
A-3594

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

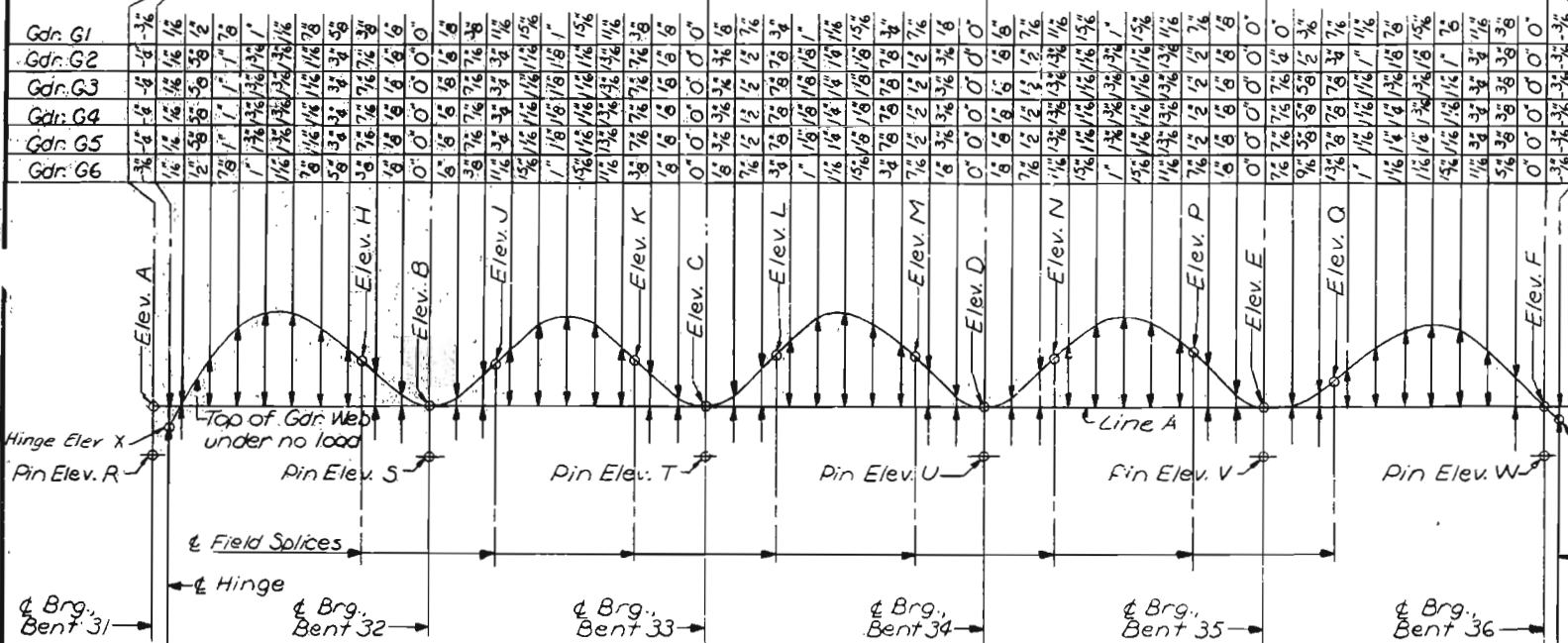
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CHECKED BY: T. Sanders Sept. 1971
5261
775254

MISSOURI STATE HIGHWAY DEPARTMENT

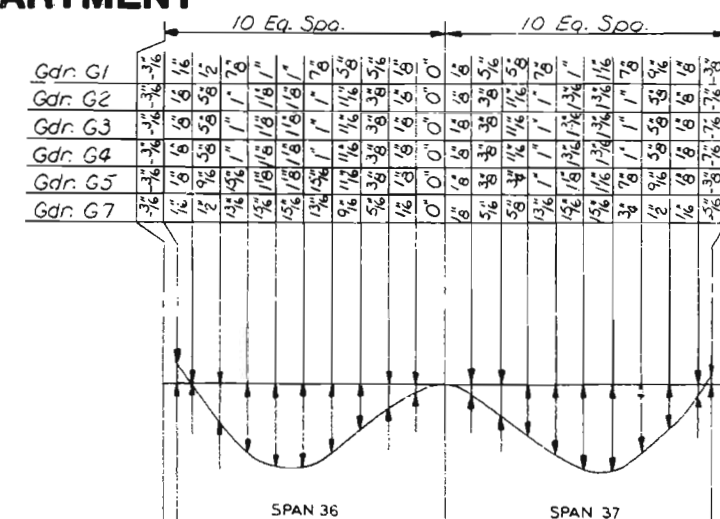
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8	MO.		18	21	



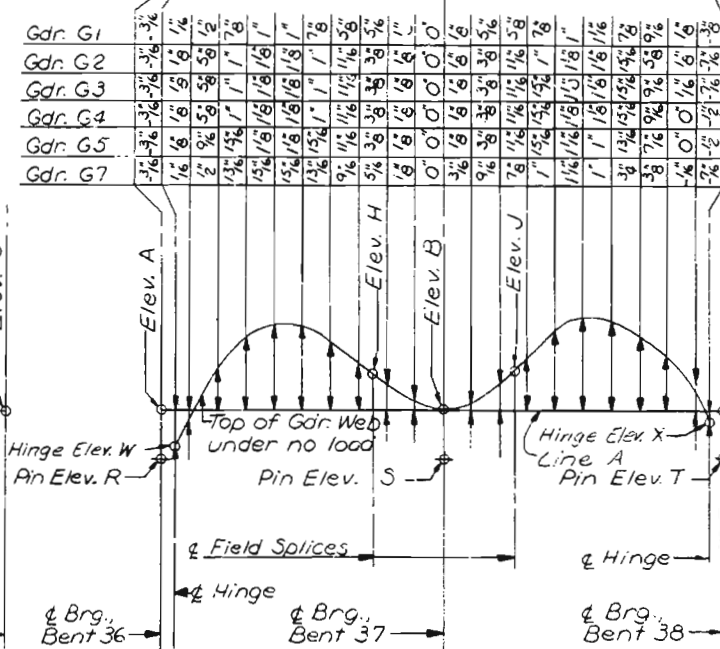
DEAD LOAD DEFLECTION DIAGRAM



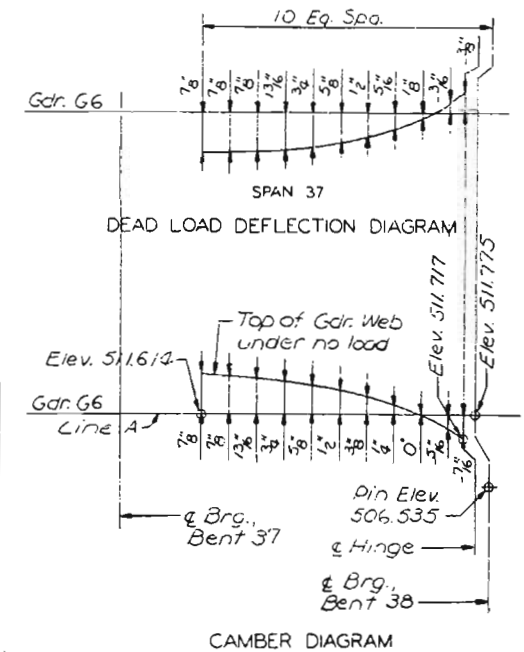
CAMBER DIAGRAM



DEAD LOAD DEFLECTION DIAGRAM



CAMBER DIAGRAM



DEAD LOAD DEFLECTION DIAGRAM

CAMBER DIAGRAM

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.

Girders shown on Camber Diagrams as fabricated and erected.

Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.

Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girders at Bents 31-38.

For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 16.

Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 31 THRU 37

SHEET 21 OF 33

A-3534

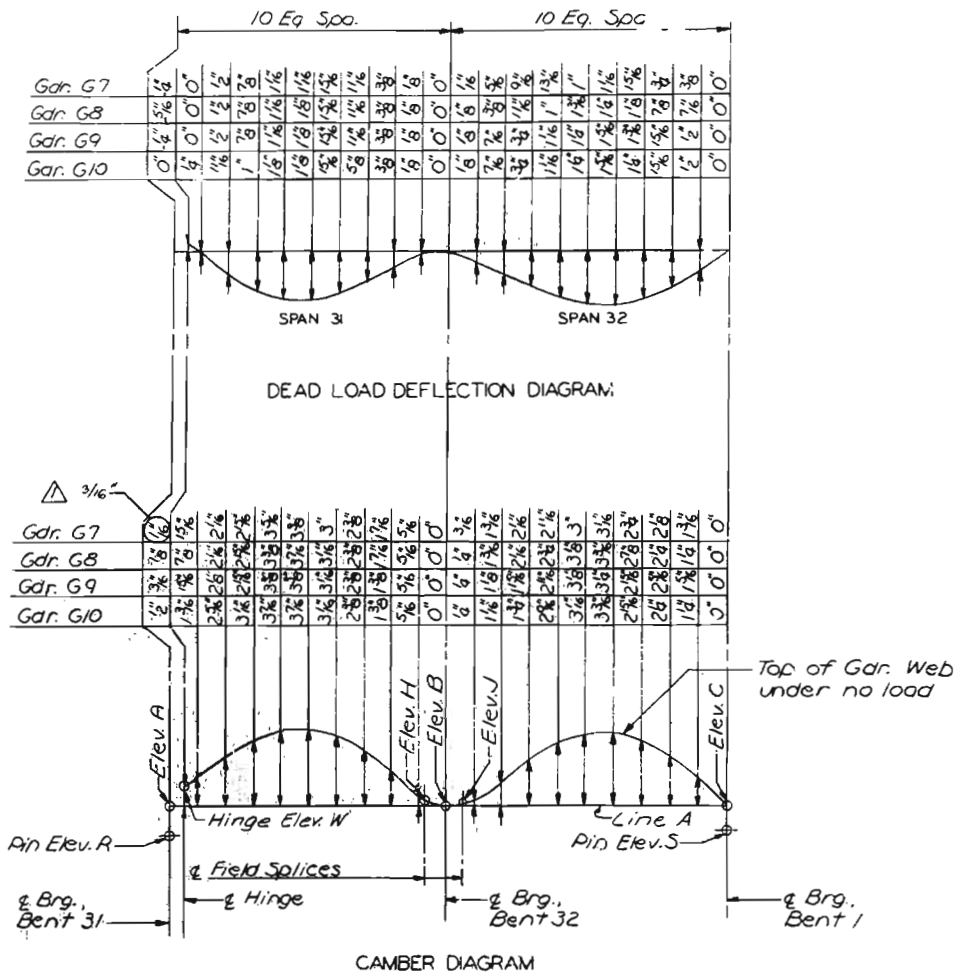
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Spans 31-35	TOP OF GIRDER WEB ELEVATIONS																PIN ELEVATIONS								HINGES	
	Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. P	ELEV. Q	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V	ELEV. W	ELEV. X	ELEV. Y		
	G1	508.877	509.402	510.007	510.612	511.217	511.838	512.382	509.316	509.597	509.902	510.206	510.509	510.808	511.112	511.400	503.637	503.891	504.736	505.341	505.946	506.594	508.886	511.848		
	G2	509.028	509.553	510.158	510.763	511.368	511.686	512.183	509.473	509.753	510.059	510.364	510.667	510.965	511.271	511.499	503.434	503.897	504.887	505.492	506.097	506.447	509.032	511.694		
	G3	509.071	509.596	510.201	510.806	511.411	511.985	509.516	509.796	510.102	510.407	510.710	511.008	511.314	511.504	503.227	503.893	504.930	505.535	506.140	506.295	509.075	511.540			
	G4	508.920	509.445	510.050	510.655	511.260	511.383	511.787	509.365	509.645	509.951	510.256	510.559	510.857	511.163	511.353	503.013	503.882	504.779	505.384	505.989	506.135	508.924	511.386		
	G5	508.769	509.294	509.899	510.504	511.109	511.231	511.588	509.213	509.494	509.801	510.106	510.408	510.707	511.012	511.203	502.810	503.877	504.628	505.233	505.838	505.984	508.773	511.232		
	G6	508.618	509.143	509.748	510.353	510.958	511.079	511.390	509.057	509.338	509.643	509.947	510.250	510.549	510.854	511.046	502.619	503.872	504.477	505.082	505.687	505.834	508.628	511.078		
Spans 36-37	TOP OF GIRDER WEB ELEVATIONS																PIN ELEVATIONS								HINGES	
	Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. H	ELEV. J	ELEV. R	ELEV. S	ELEV. T	ELEV. W	ELEV. X															
	G1	511.838	512.382	512.924	512.282	512.565	506.594	507.090	507.685	511.848	512.868															
	G2	511.686	512.183	512.682	512.102	512.361	506.447	506.892	507.443	511.694	512.621															
	G3	511.534	511.985	512.441	511.916	512.151	506.295	506.693	507.201	511.540	512.379															
	G4	511.383	511.787	512.199	511.730	511.940	506.138	506.495	506.960	511.386	512.132															
	G5	511.231	511.588	511.957	511.543	511.730	505.986	506.297	506.718	511.232	511.891															
	G7	511.079	511.390	511.621	511.350	511.512	505.839	506.098	506.381	511.078	511.565															

OVERDRUP & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURIDRAWN BY: E. Gregory, July 1977
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78236

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	22	



TOP OF GIRDER WEB ELEVATIONS						PIN ELEVATIONS		HINGE
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. H	ELEV. J	ELEV. R	ELEV. S	ELEV. W
G7	507.272	505.627	502.935	505.819	505.436	502.054	497.185	507.291
G8	507.559	505.837	502.580	506.034	505.641	502.341	497.330	507.529
G9	507.849	506.099	502.725	506.252	505.848	502.630	497.475	507.820
G10	508.141	506.264	502.870	506.471	506.058	502.922	497.620	508.135

NOTES

Negative values shown on Dead Load Deflection Diagram indicate upward deflections.
Girders shown on Camber Diagram as fabricated and erected.
Elevations shown on Camber Diagram do not include D.L. deflection of Longitudinal Girders.
Elevations shown on Camber Diagram do include D.L. deflection of Cross Girders at Bents 31 & 32.
For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 16.
Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 31 AND 32

A-3594

Revised 11-7-79

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SHEET 22 OF 93

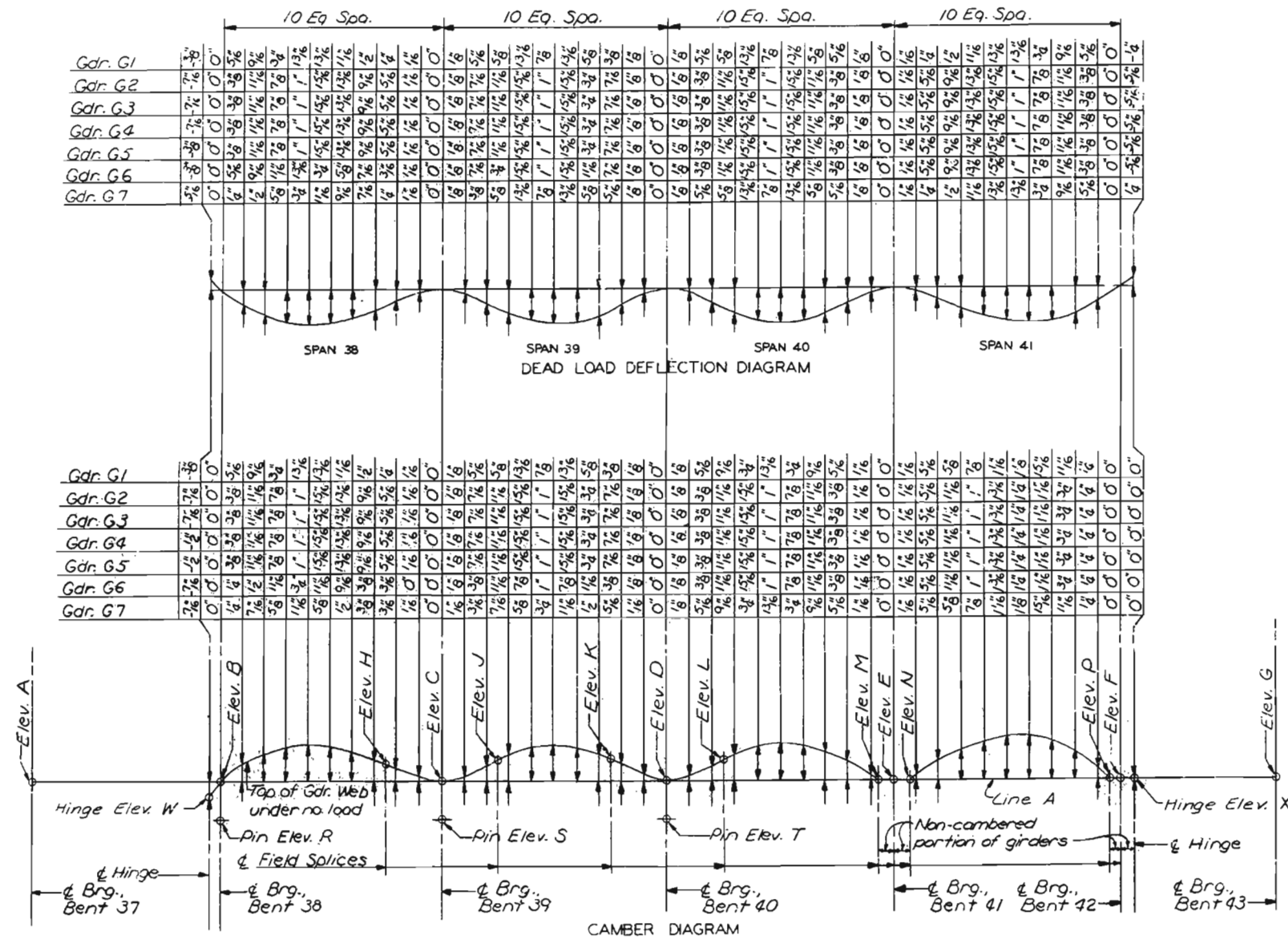
SVENDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: E. GREGORY, Aug. 1977
CHECKED BY: T. SANDERS, Sept. 1977
5261
173289

318

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	23	



Girder	TOP OF GIRDER WEB ELEVATIONS													PIN ELEVATIONS			HINGES		
	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. R	ELEV. S	ELEV. T	ELEV. W	ELEV. X	
G1	512.382	512.924	513.404	513.979	514.512	514.951	514.958	513.314	513.588	513.876	514.163	514.519	514.598	514.951	507.685	508.133	508.708	512.868	514.961
G2	512.183	512.682	513.162	513.737	514.271	514.709	514.717	513.079	513.354	513.642	513.927	514.277	514.359	514.713	507.443	507.892	508.467	512.621	514.719
G3	511.985	512.441	512.921	513.496	514.029	514.467	514.475	512.838	513.112	513.400	513.686	514.036	514.117	514.472	507.201	507.650	508.225	512.379	514.478
G4	511.187	512.199	512.679	513.254	513.787	514.226	514.233	512.596	512.871	513.158	513.444	513.794	513.875	514.230	506.960	507.408	507.983	512.132	514.236
G5	511.588	511.957	512.437	513.012	513.546	513.984	513.992	512.354	512.629	512.917	513.202	513.552	513.634	513.988	506.718	507.167	507.742	511.891	513.994
G6	511.614	511.775	512.204	512.771	513.304	513.742	513.718	512.130	512.387	512.675	512.961	513.311	513.392	513.746	506.535	506.933	507.500	511.717	513.753
G7	511.390	511.621	512.015	512.571	513.104	513.542	513.508	511.942	512.179	512.468	512.755	513.110	513.190	513.542	506.381	506.744	507.300	511.565	513.553

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.

Girders shown on Camber Diagrams as fabricated and erected.

Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.

Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girders at Bents 37-42.

* Elevations at beginning of Girder G6 in Span 37.

For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 16.

Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 38 THRU 41

SHEET 23 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

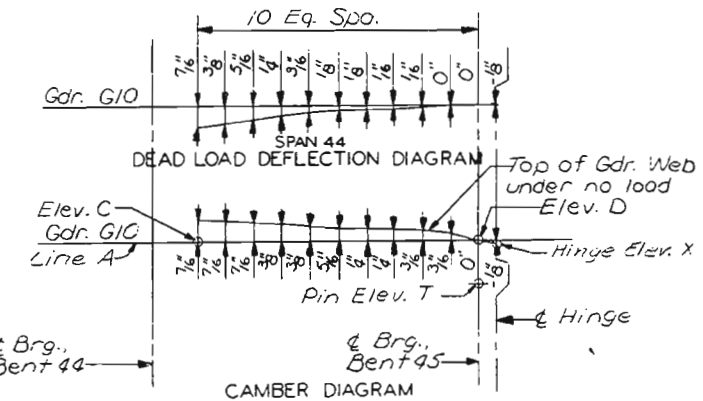
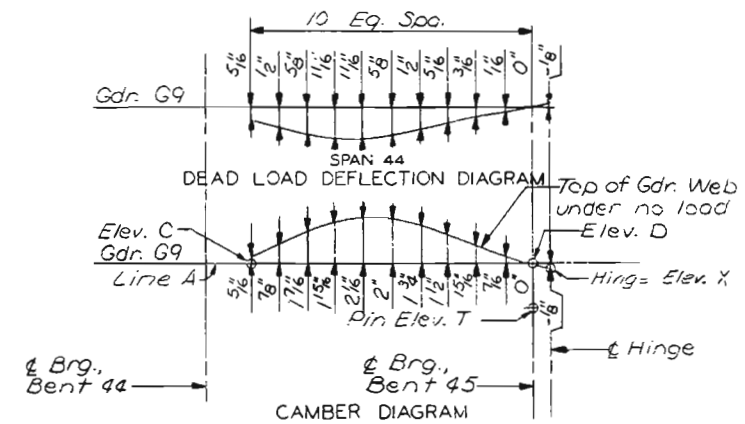
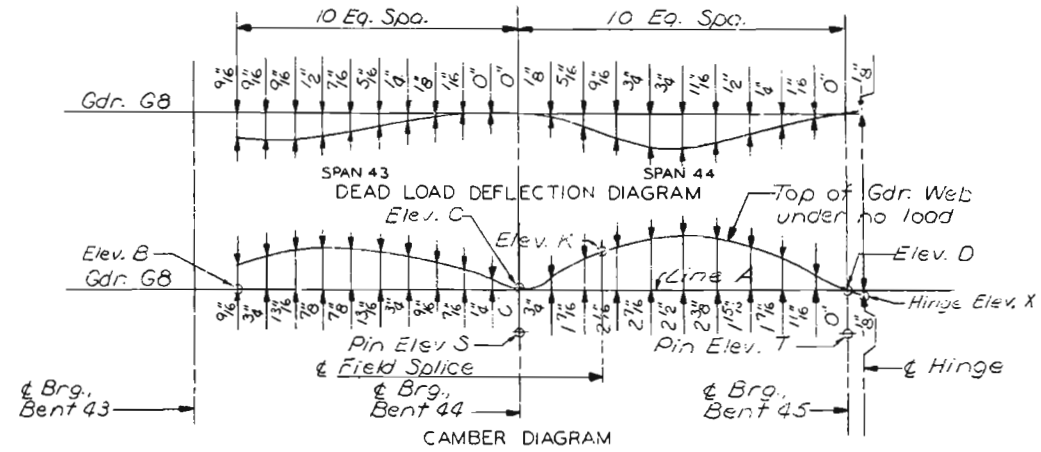
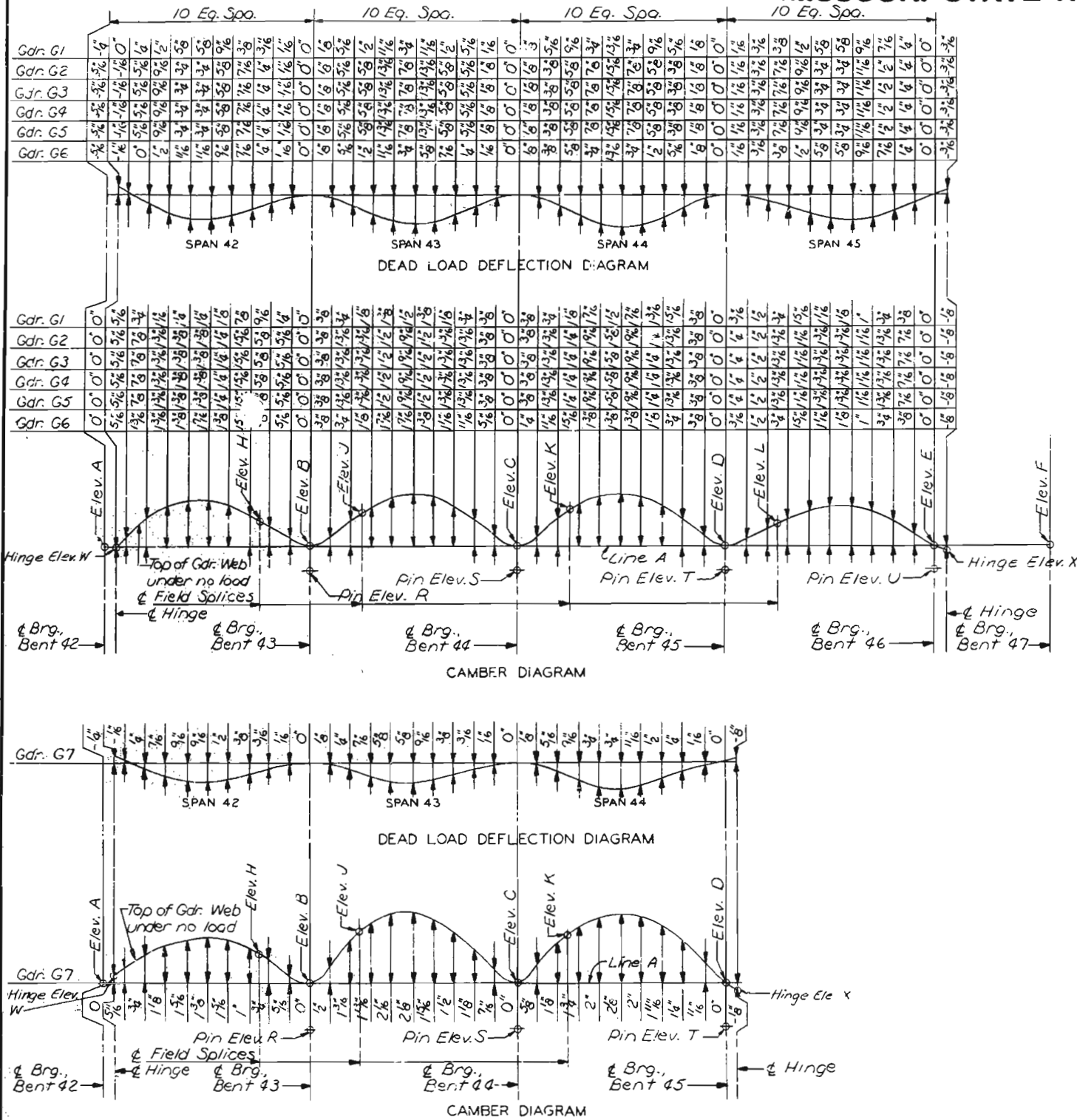
OVERDRUP & PARCE, AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: E. Grady, July 1977
CHECKED BY: T. Sanders, Sept. 1977
5261
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319

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	24	



NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.

Girders shown on Camber Diagrams as fabricated and erected.

Elevations shown on Camber Diagrams do not include D.L. deflection of longitudinal girders.

Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girder at Bent 42.

For Dead Load Deflection and Camber Notes and Typical Haunched Detail, see Sheet 16.

Line A is a straight line between & Brg. Stiffeners at top of web plate.

TOP OF GIRDER WEB ELEVATIONS										PIN ELEVATIONS				HINGES		
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. W	ELEV. X
G1	514.951	514.958	514.524	513.614	512.530	511.383	515.016	514.924	514.356	513.394	510.666	510.243	509.333	508.260	514.961	512.458
G2	514.709	514.717	514.283	513.372	512.289	511.142	514.780	514.688	514.121	513.155	510.425	510.001	509.091	508.018	514.719	512.216
G3	514.467	514.475	514.041	513.131	512.047	510.900	514.539	514.446	513.879	512.914	510.183	509.760	508.849	507.776	514.478	511.974
G4	514.226	514.233	513.799	512.889	511.805	510.658	514.297	514.205	513.638	512.672	509.942	509.518	508.608	507.535	514.236	511.732
G5	513.984	513.992	513.558	512.647	511.564	510.417	514.055	513.963	513.396	512.430	509.700	509.276	508.366	507.293	513.994	511.491
G6	513.742	513.750	513.316	512.405	511.322	510.175	513.794	513.702	513.135	512.169	509.426	508.952	508.042	507.051	513.753	511.249
G7	513.502	513.510	513.076	512.165	511.082	509.935	513.554	513.462	512.895	511.929	509.186	508.712	507.802	506.811	513.513	511.009
G8	513.260	513.268	512.834	511.923	510.840	509.693	513.312	513.220	512.653	511.687	508.944	508.470	507.560	506.569	513.273	510.769
G9	513.018	513.026	512.592	511.681	510.598	509.451	513.070	512.978	512.411	511.445	508.702	508.228	507.318	506.327	513.037	510.533
G10	512.776	512.784	512.350	511.439	510.356	509.209	512.828	512.736	512.169	511.203	508.466	507.992	507.082	506.091	512.797	510.293

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 42 THRU 45

SHEET 24 OF 93

A-359/1

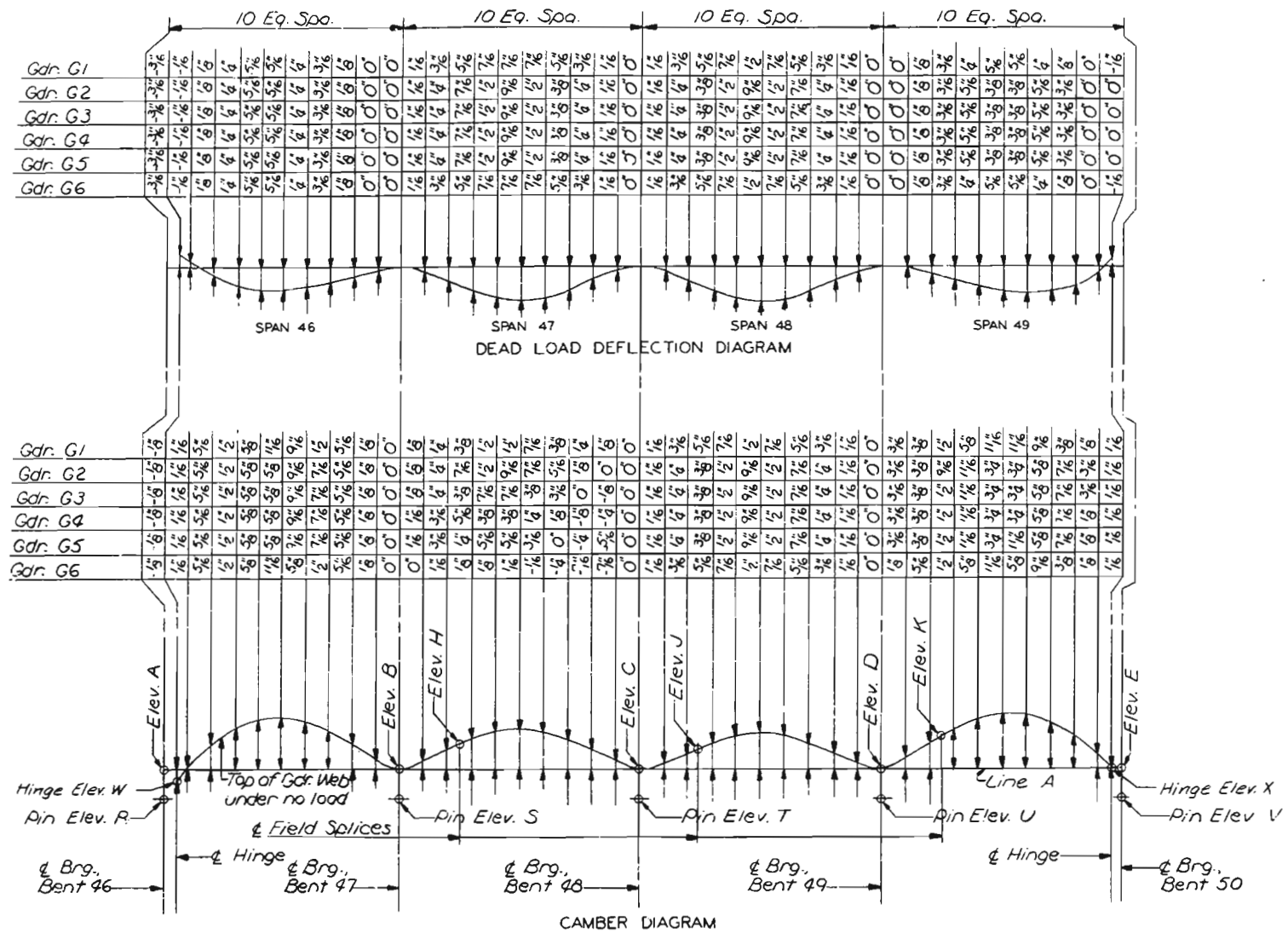
320

DRAWN BY: E. GREGORY, JULY 1977
CHECKED BY: T. SANDERS, SEPT. 1977
5261
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ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	25	



NOTES

Negative values shown on Dead Load Deflection Diagram indicate upward deflections.
Girders shown on Camber Diagram as fabricated and erected.
Elevations shown on Camber Diagram do not include D.L. deflection of Longitudinal Girders.
Elevations shown on Camber Diagram do include D.L. deflection of Cross Girder at Bent 48.
For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 16.
Line A is a straight line between & Brg. Stiffeners at top of web plate.

TOP OF GIRDER WEB ELEVATIONS										PIN ELEVATIONS				HINGES	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. H	ELEV. J	ELEV. K	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V	ELEV. W	ELEV. X
G1	512.530	511.383	509.789	508.154	506.690	511.002	509.393	507.839	508.260	507.133	505.528	503.904	502.450	512.458	506.790
G2	512.289	511.142	509.561	508.032	506.634	510.767	509.196	507.740	508.048	506.892	505.307	503.782	502.415	512.216	506.749
G3	512.047	510.900	509.333	507.911	506.619	510.525	508.995	507.639	507.776	506.650	505.073	503.661	502.379	511.974	506.708
G4	511.805	510.658	509.106	507.789	506.583	510.283	508.794	507.537	507.535	506.408	504.845	503.539	502.344	511.732	506.668
G5	511.564	510.417	508.878	507.667	506.548	510.042	508.594	507.435	507.293	506.167	504.618	503.417	502.308	511.491	506.627
G6	511.322	510.175	508.650	507.546	506.512	509.794	508.390	507.334	507.051	505.925	504.390	503.296	502.272	511.249	506.586

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 46 THRU 49

SHEET 25 OF 93

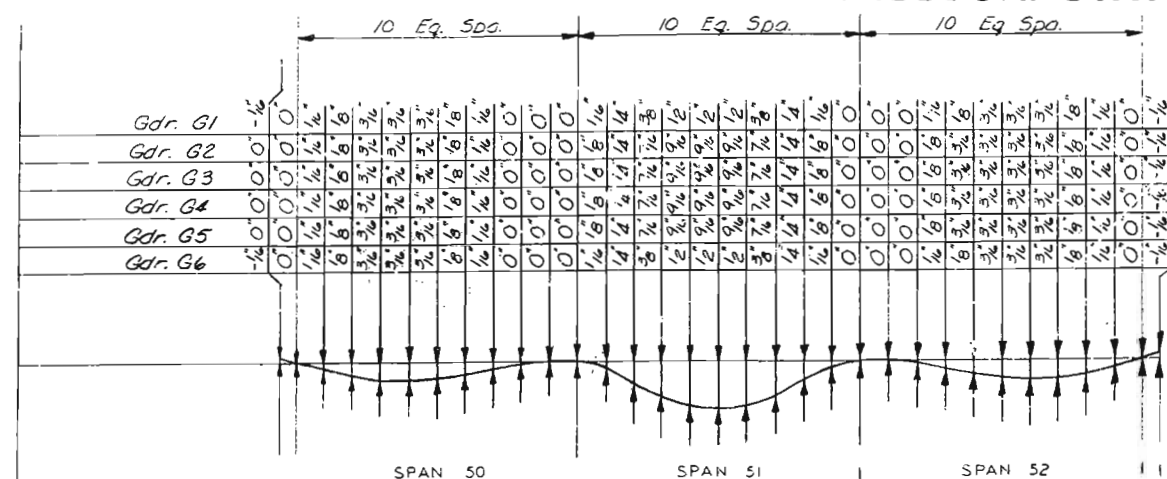
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SVERDRUP & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURI

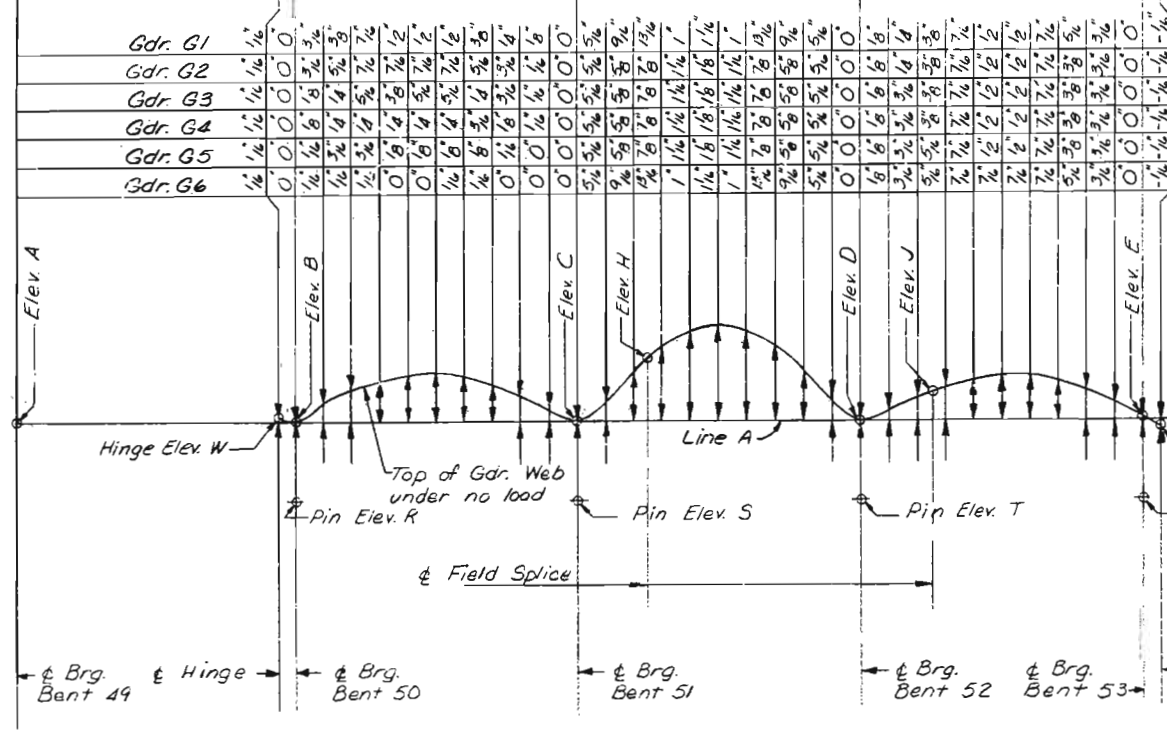
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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		19	26	



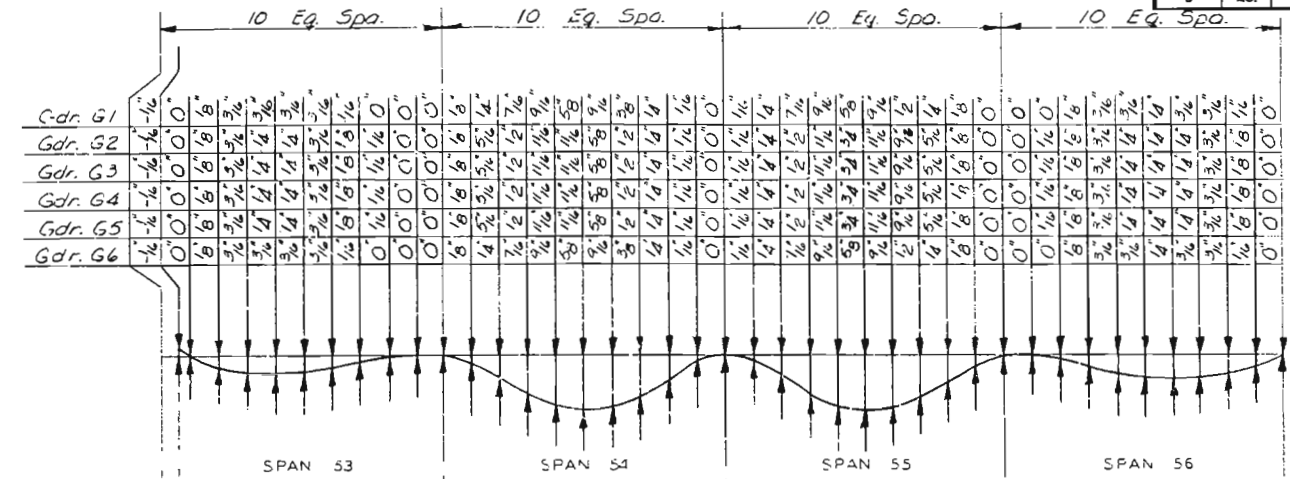
DEAD LOAD DEFLECTION DIAGRAM



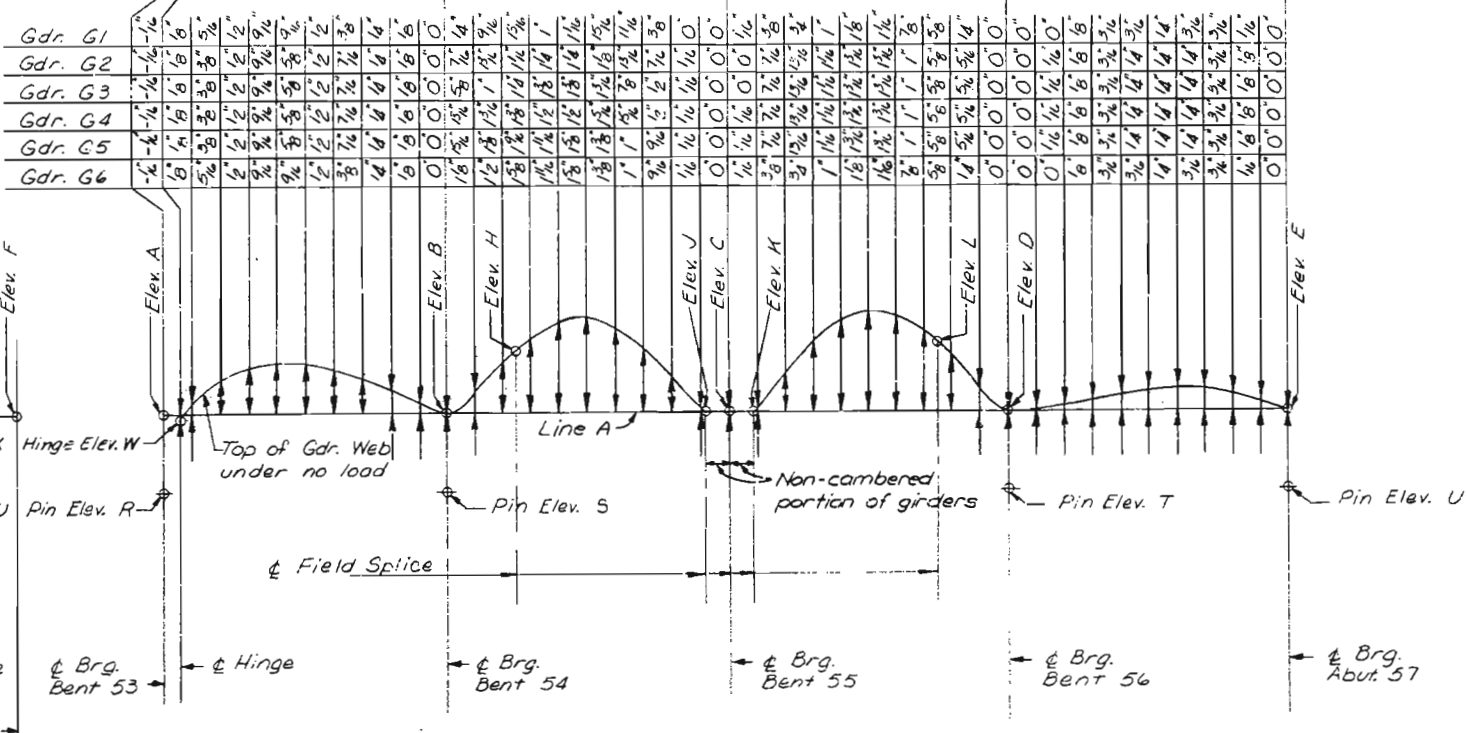
CAMBER DIAGRAM

Span	Girder	TOP OF GIRDER WEB ELEVATIONS										PIN ELEVATIONS				HINGE	
		ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. H	ELEV. J	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. W	ELEV. X		
50-52	G1	508.154	506.690	505.124	502.738	500.671	498.234	504.589	502.096	502.450	500.864	498.478	496.432	506.790	500.523		
	G2	508.032	506.654	505.189	502.957	501.008	498.697	504.697	502.355	502.415	500.968	498.696	496.769	506.749	500.868		
	G3	507.911	506.619	505.253	503.176	501.345	499.160	504.800	502.613	502.379	500.993	498.916	497.106	506.708	501.213		
	G4	507.789	506.583	505.318	503.395	501.682	499.672	504.903	502.871	502.344	501.057	499.135	497.443	506.663	501.559		
	G5	507.667	506.548	505.382	503.614	502.019	500.085	505.006	503.128	502.308	501.122	499.354	497.780	506.627	501.904		
	G6	507.546	506.512	505.446	503.839	502.356	500.548	505.104	503.384	502.272	501.186	499.573	498.117	506.586	502.249		
53-56	Girder	TOP OF GIRDER WEB ELEVATIONS										PIN ELEVATIONS				HINGE	
		ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. W	
	G1	500.671	498.234	494.610	490.647	497.719	497.404	495.005	494.306	491.715	496.432	493.964	493.376	493.479	500.523		
	G2	501.008	498.697	495.093	491.130	488.202	497.893	495.489	494.793	492.206	496.769	494.426	486.859	483.963	500.868		
	G3	501.345	499.160	495.576	491.614	488.686	498.376	495.971	495.277	492.690	497.106	494.889	487.343	484.446	501.213		
	G4	501.682	499.622	496.060	492.097	489.169	498.860	496.453	495.762	493.173	497.443	495.352	487.826	484.929	501.559		
	G5	502.019	500.085	496.543	492.580	489.652	499.343	496.935	496.246	493.656	497.780	495.814	488.309	485.413	501.904		
	G6	502.356	500.548	497.026	493.064	490.136	499.821	497.416	496.729	494.134	498.117	496.277	488.793	485.896	502.249		

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.



DEAD LOAD DEFLECTION DIAGRAM



CAMBER DIAGRAM

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.
Girders shown on Camber Diagrams as fabricated and erected.
Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.
Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girder at Bent 55.
For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 10.
Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 50 THRU 56

SHEET 26 OF 93

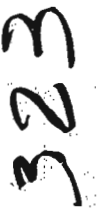
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322

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CHECKED BY: T. Sanders, Sept. 1977
5261
775255

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ST. LOUIS, MISSOURI

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	27	



All transverse dimensions between bearings are measured along centerline of bent or centerline of bearing of abutment.
 E1, F1, etc. indicate Bearing Type Designations; see Bearing Detail Sheets.
 NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

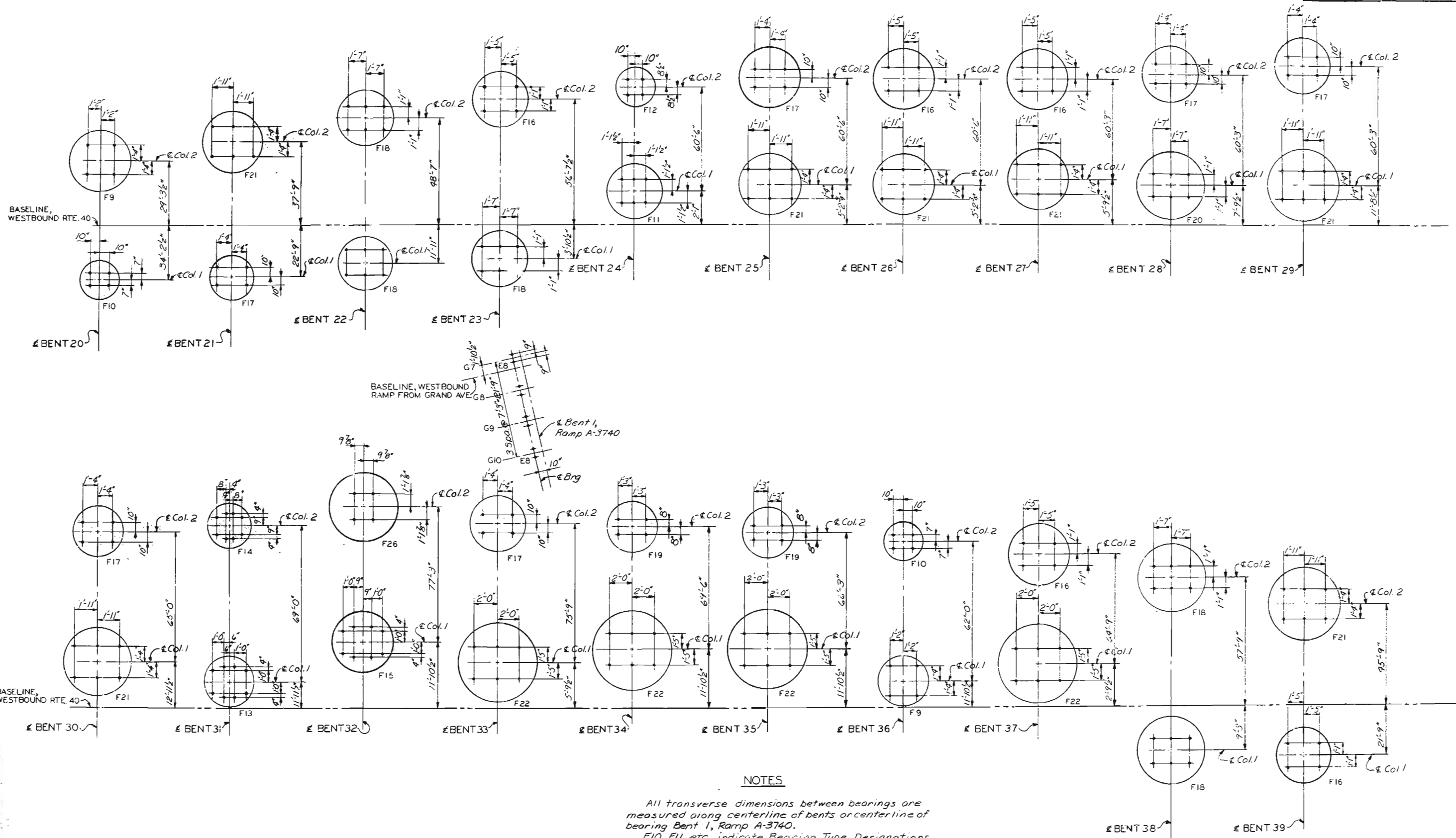
ANCHOR BOLT PLAN
ABUTMENT 1 AND BENTS 2 THRU 19

SHEET 27 OF 93

A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	28	



NOTES

All transverse dimensions between bearings are measured along centerline of bents or centerline of bearing Bent 1, Ramp A-3740.
F10, F11, etc, indicate Bearing Type Designations; see Bearing Detail Sheets.

CITY OF ST. LOUIS

ANCHOR BOLT PLAN
BENTS 20 THRU 39

SHEET 28 OF 93

A-3594

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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

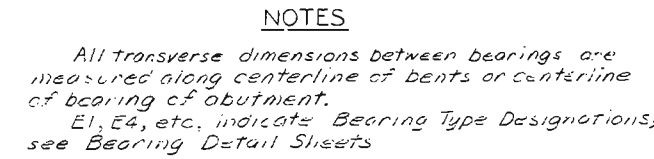
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

324

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CHECKED BY: T. Sanders, Dec. 1977
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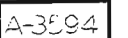
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DRAWN BY: M. JUDGE Oct. 1977
TRACED BY:
CHECKED BY: T. J. JUDGE, Dec. 1977



A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	30	

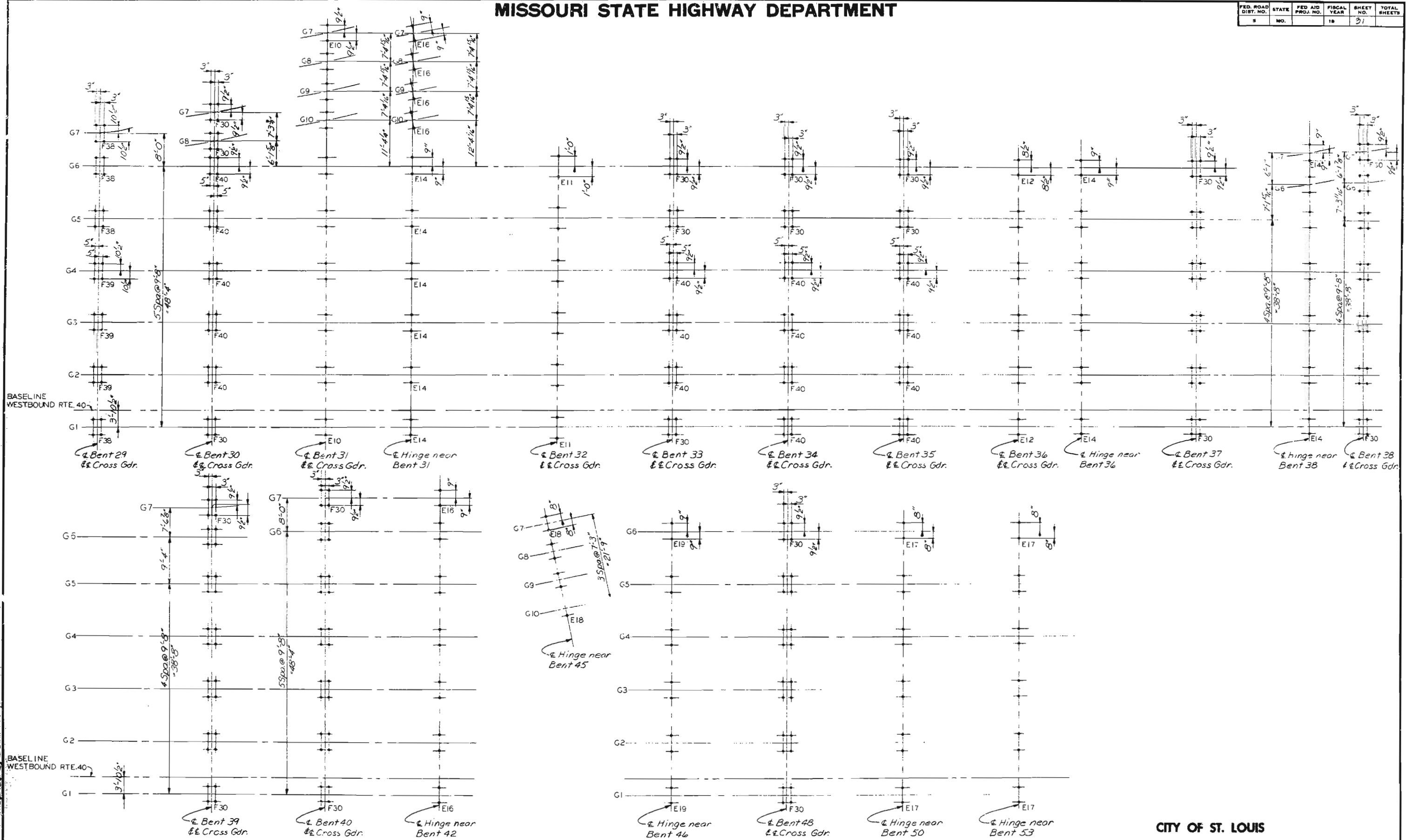


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ST. LOUIS, MISSOURI

775403	5261	DRAWN BY: M. Jungs	Nov. 1977
		TRACED BY:	
		CHECKED BY: T. Sanders,	Dec. 1977

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	31	



NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

ANCHOR BOLT PLAN
CROSS GIRDERS AND HINGES

SHEET 31 OF 93

A-359.4

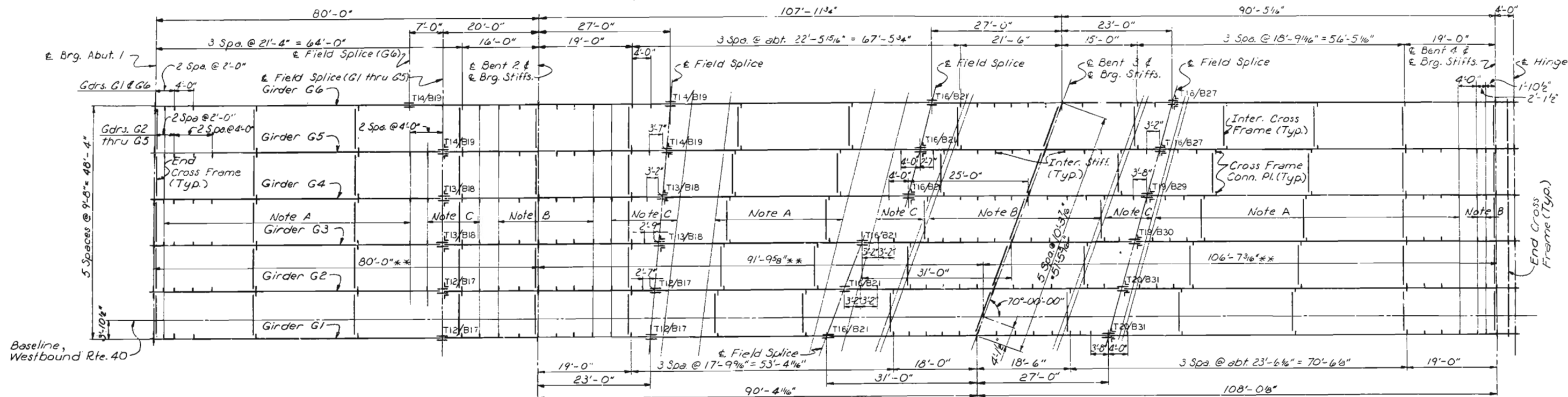
327

DRAWN BY: M. J. JONES Nov. 1977
CHECKED BY: T. SANDERSON Dec. 1977
3261
775402

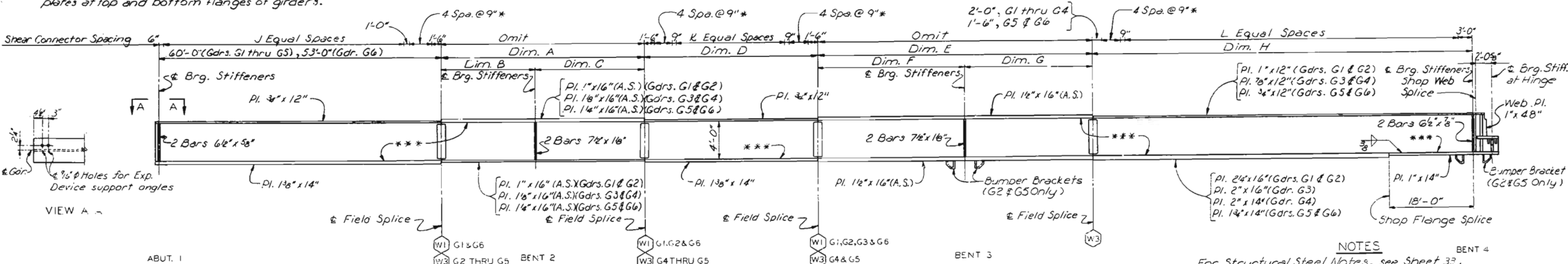
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	32	



Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.
Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.



Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Dim. G	Dim. H	J Eq. Spa.	K Eq. Spa.	L Eq. Spa.
G1	43'-0"	20'-0"	23'-0"	36'-4 1/4"	58'-0"	31'-0"	27'-0"	81'-0 1/8"	54	36	64
G2	43'-9 3/8"	20'-0"	23'-9 3/8"	39'-1 1/4"	57'-2 3/8"	31'-0"	26'-2 3/8"	78'-3 3/8"	54	36	61
G3	44'-7 1/8"	20'-0"	24'-7 1/8"	41'-9 1/8"	56'-4 1/8"	31'-0"	25'-4 1/8"	75'-6 7/8"	54	36	60
G4	45'-4 1/8"	20'-0"	25'-4 1/8"	50'-6 1/8"	49'-7 1/8"	25'-0"	24'-7 1/8"	72'-10 5/8"	54	42	58
G5	46'-2 3/8"	20'-0"	26'-2 3/8"	52'-3 1/8"	49'-9 3/8"	26'-0"	23'-9 3/8"	70'-1 5/8"	54	42	55
G6	54'-0"	27'-0"	27'-0"	53'-11 3/4"	50'-0"	27'-0"	23'-0"	67'-5 1/8"	47	45	53

NOTES

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown.
For Bumper Bracket Details, see Sheet 60.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 65.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 1, 2 AND 3

SHEET 32 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

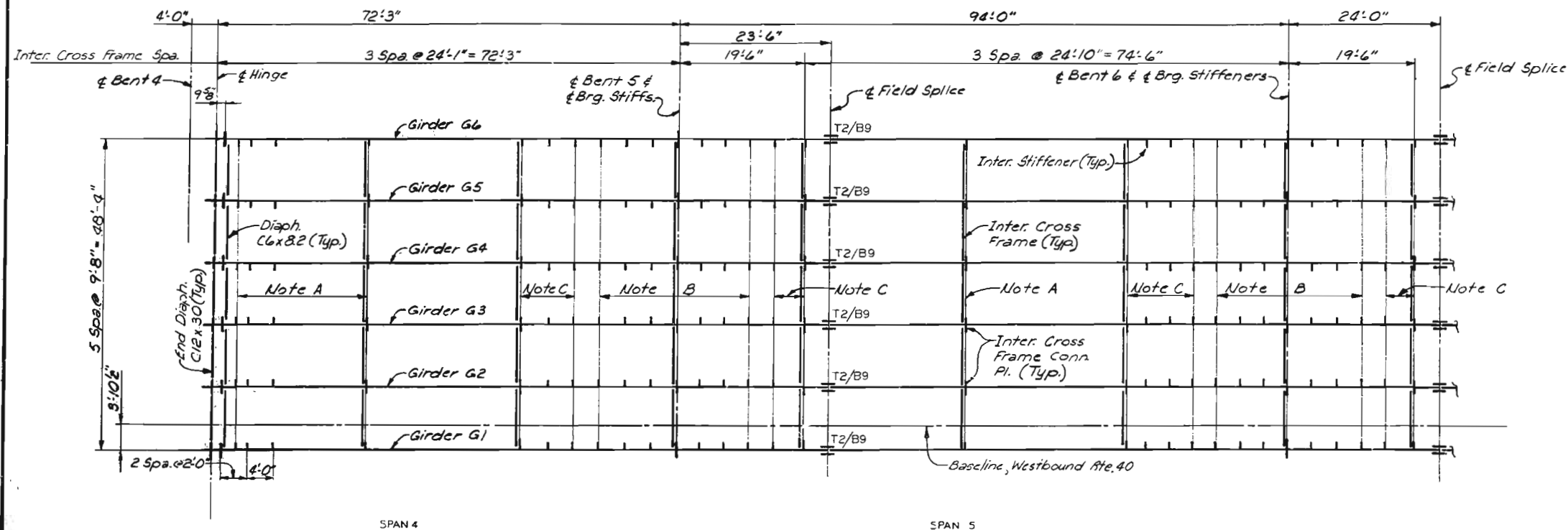
328

DRAWN BY: D.B. Brock, May, 1977
CHECKED BY: T. S. Smith, Jr., Sept. 1977
5261
775181

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	99	



Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.
Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.

SHEAR CONNECTORS ARE NOT TO BE FURNISHED WITH THIS CONTRACT

STRUCTURAL STEEL NOTES

GENERAL NOTES: See Sheet 7.

MATERIAL: All structural steel shall conform to A.S.T.M. A-36, except as otherwise noted.

LOW-ALLOY STEEL: Low-alloy steel is indicated thus (A.S.).

NOTCH TOUGHNESS: Notch toughness requirements for welded plate girder flanges noted on plans thus (***). All web plates shall be subject to notch toughness requirements.

FABRICATION: By approval of the Engineer, the Contractor may omit any shop flange splice, if desired, by extending the heavier flange plate and providing approved modifications of details at field flange splices and elsewhere as required. All cost of any required design, plan revisions and rechecking of shop drawings shall be borne by the Contractor. Payweights in any case will be based on material shown on design plans.

BOLTED CONNECTIONS: All connections shall be made with $\frac{3}{4}$ " dia. High Strength bolts conforming to A.S.T.M. A-325 with $\frac{1}{8}$ " dia. holes, except as otherwise noted.

WELDING: All welding shall be in accordance with the Missouri Standard Specifications 1977 Edition, & Special Provisions, except as otherwise shown.

SHEAR CONNECTORS: Shear connectors are to be furnished by others.

CAMBER: Welded plate girders shall be cambered as shown on detail plans.

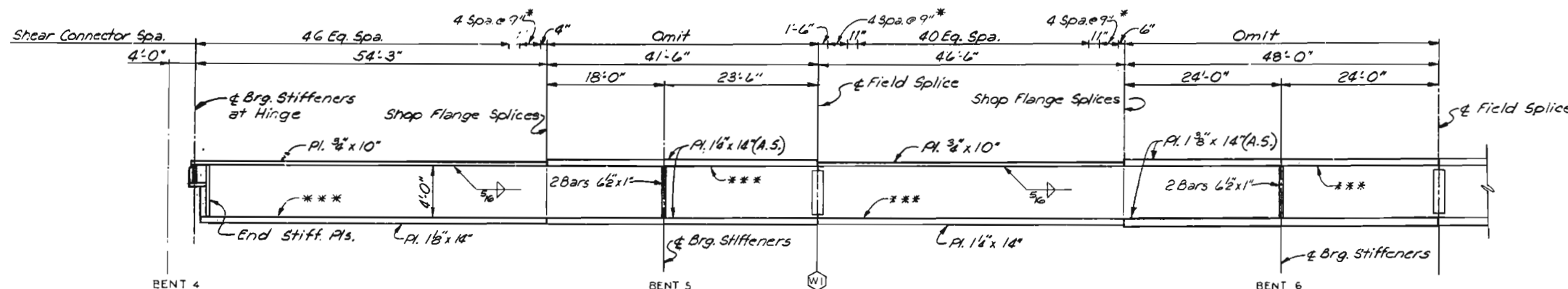
LAYOUT: All bearing stiffeners, cross frame and cross beam connection plates and splices shall be vertical.

T1/B1 - T1 Indicates type of Top Flange Splice.
B1 Indicates type of Bottom Flange Splice.

NOTES

Longitudinal dimensions are measured horizontally.
Intermediate stiffeners for longit. girders shall be spaced equally between adjacent cross members except as otherwise shown at end panels.

Work this Sheet with Sheet 34.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 65.



Note: Web plates are 7/16"x48".
○ — Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.
Field splice flange plates and intermediate stiffeners not shown.
Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) Indicates 4 rows of shear connectors across girder flange.
All web plates shall be subject to notch toughness requirements.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 4 AND 5

SHEET 33 OF 93

A-3594

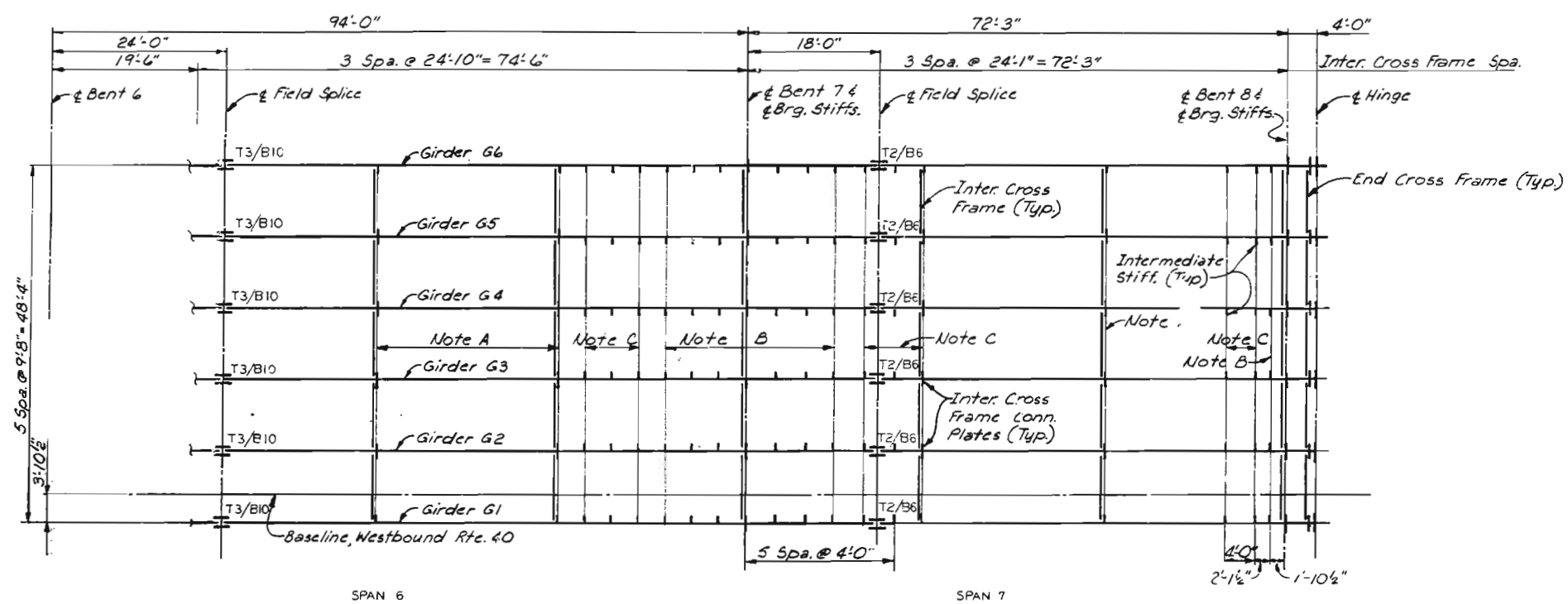
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: R.A. Mckurks, May 77
CHECKED BY: J. Sanders, Sept. 1977
5261
775/79

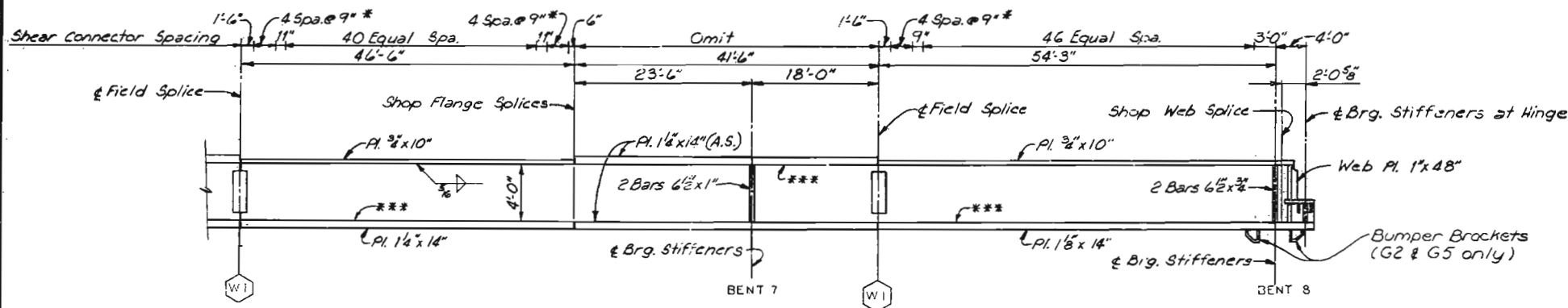
327

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	54	



FRAMING PLAN
Note: Intermediate stiffeners are Bars 4"x8".
Intermediate cross frame connection plates are Bars 4 1/2"x8".



ELEVATION-GIRDERS G1 THRU G6
Note: Web Plates are 7/16"x48" except at hinge.
Field splice flange plates and intermediate stiffeners not shown.
○ Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.
Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
* Indicates 4 rows of shear connectors across girder flange.
All web plates shall be subject to notch toughness requirements.

Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.
Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.

NOTES

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally.
Intermediate stiffeners for longit. girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.
For Girder Details, see Sheet 59.
Work this sheet with Sheet 33.
For Hinge Details see Sheet 65.
For Girder Splice Details, see Sheet 61.
For Bumper Bracket Details, see Sheet 60.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 6 AND 7

SHEET 34 OF 93

A-3594

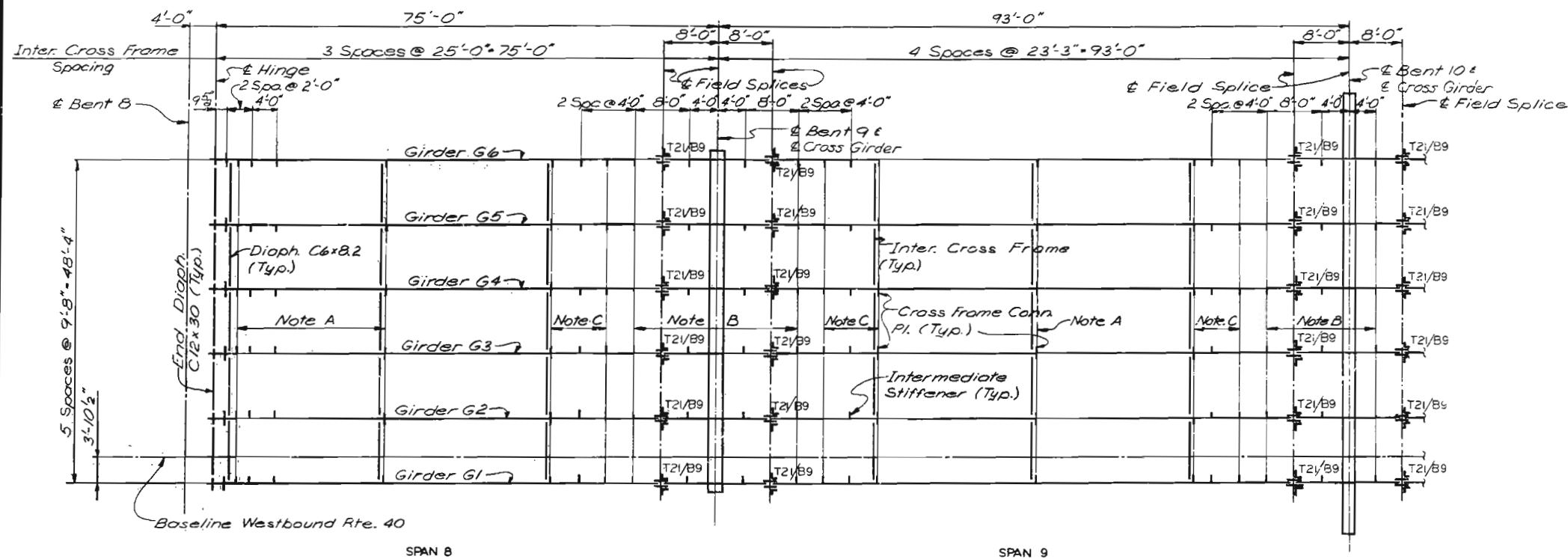
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: R.A. MURKIN, May '77
CHECKED BY: T. SANDERS, Sept. 1977
5261
775/83

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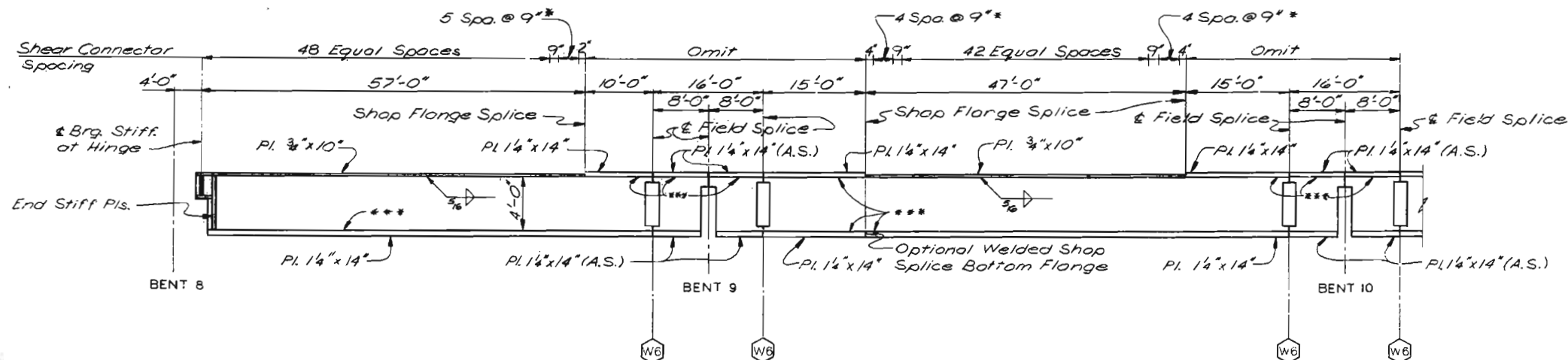
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	35	



FRAMING PLAN

Note: Intermediate stiffeners are Bars 4"x $\frac{3}{8}$ ".
Intermediate cross frame connection plates are Bars 4 $\frac{1}{2}$ "x $\frac{3}{8}$ ".



ELEVATION - GIRDERS G1 THRU G6

Note: Field splice flange plates and intermediate stiffeners not shown.

- Denotes type of field web splice.
- Shear Connectors shall be in 3 rows across girder flange except where noted by asterisk.
- (*) indicates 4 rows of shear connectors across girder flange.
- *** Indicates Flange Plates subject to notch toughness requirements.
- Web plates are $\frac{1}{4}$ "x48".
- All web plates shall be subject to notch toughness requirements.

NOTES

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally.
For Girder Details, see Sheet 59.
Work this Sheet with Sheet 36.
For Hinge Details, see Sheet 65.
For Girder Splice Details, see Sheets 61 and 62.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 8 AND 9

SHEET 35 OF 93

A-35.94

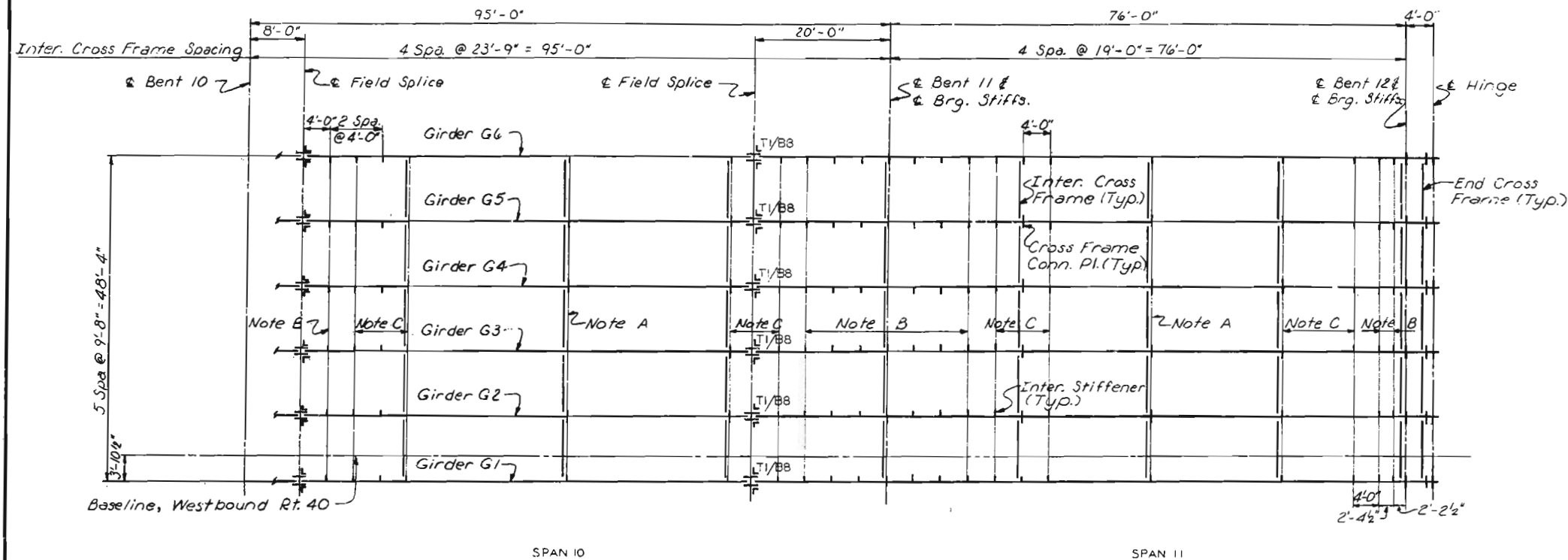
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ST. LOUIS, MISSOURI

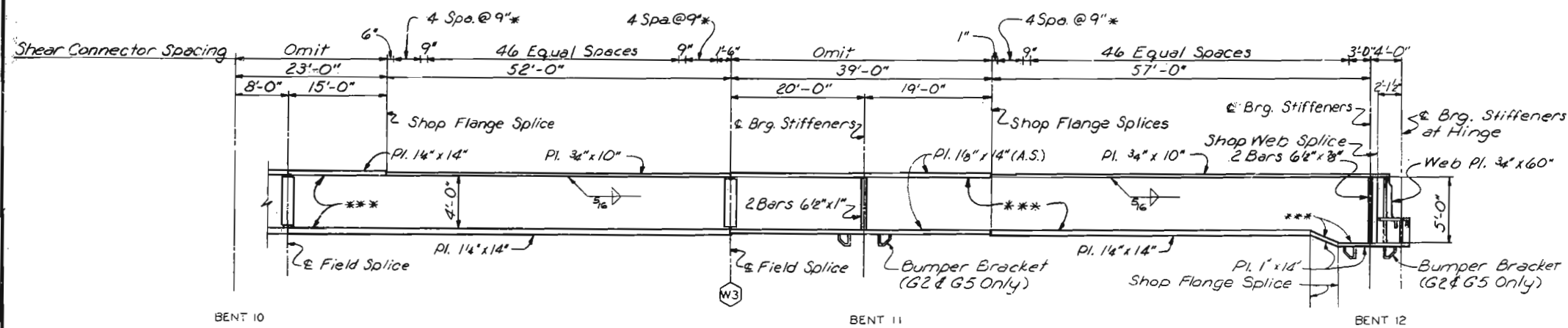
DRAWN BY: G.M. Anderson, May 1972
CHECKED BY: T. Sanders, Sept. 1977
5261
775/02

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	26	



- Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.
- Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
- Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.



- Note: Field splice flange plates and intermediate stiffeners not shown.
- Denotes type of field web splice.
- *** Indicates Flange Plates subject to notch toughness requirements.
- Web plates are 7/16" x 48" except at hinge.
- Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
- (*) Indicates 4 rows of shear connectors across flange.
- All web plates shall be subject to notch toughness requirements.

NOTES

- For Structural Steel Notes, see Sheet 33.
- Longitudinal dimensions are measured horizontally.
- Intermediate stiffeners for longit. girders shall be spaced equally between adjacent cross members except as otherwise shown.
- For Bumper Bracket Details, see Sheet 60.
- Work this Sheet with Sheet 35.
- For Girder Details, see Sheet 59.
- For Girder Splice Details, see Sheet 61.
- For Hinge Details, see Sheet 66.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 10 AND 11

SHEET 36 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

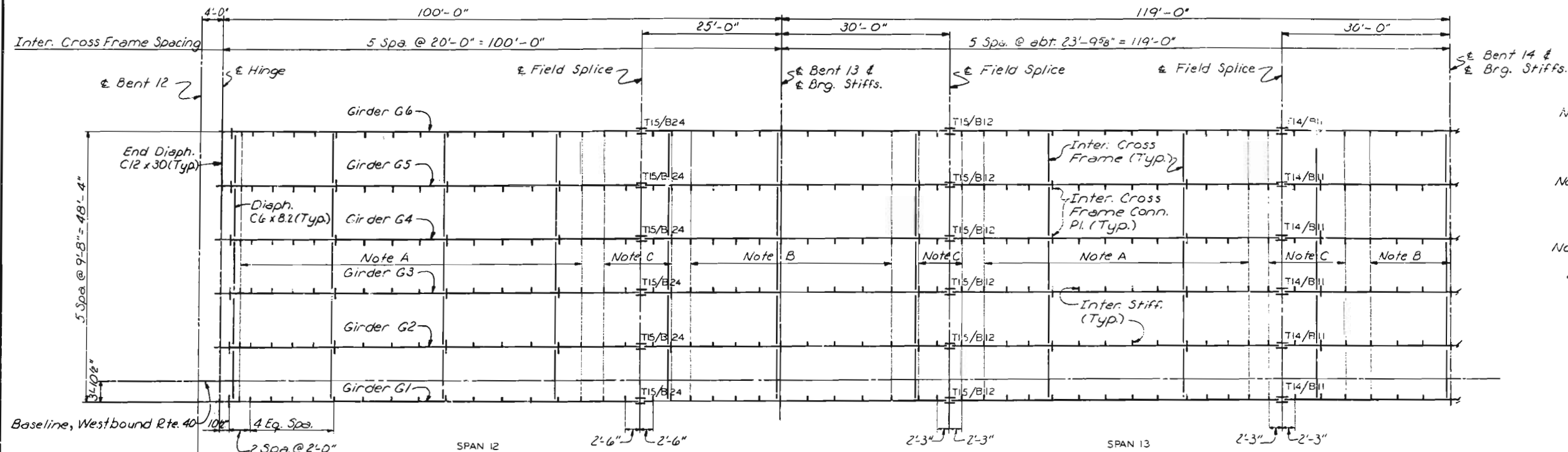
VERDRUP & PAFCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: D.R. BROWN, May 1977
CHECKED BY: T. SANDERS, Sept. 1977
5261
775/60

332

MISSOURI STATE HIGHWAY DEPARTMENT

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

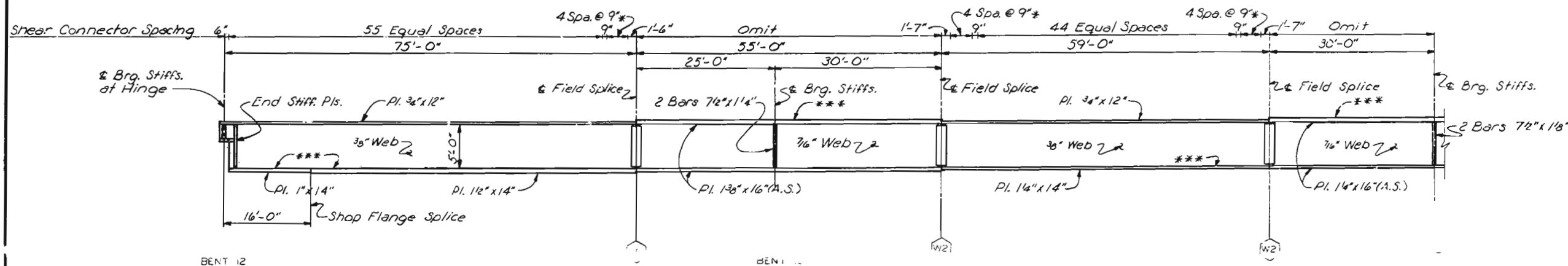


FRAMING PLAN
Note: Intermediate stiffeners are Bars 4"x13".
Intermediate cross frame connection plates are Bars 4 1/2"x18".

Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.

Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.

Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.



ELEVATION - GIRDERS G1 THRU G6
Note: Field splice flange plates and intermediate stiffeners not shown.
O - Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.
Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) indicates 4 rows of shear connectors across girder flange.
All web plates shall be subject to notch toughness requirements.

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally.
Intermediate stiffeners for longit. girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panel.
For Girder Details, see Sheet 59.
For Hinge Details, see Sheet 64.
Work this Sheet with Sheet 38.
For Girder Splice Details, see Sheet 61.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 12 AND 13

SHEET 37 OF 93

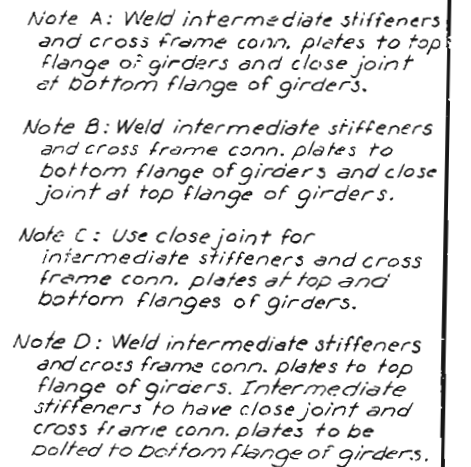
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ST. LOUIS, MISSOURI

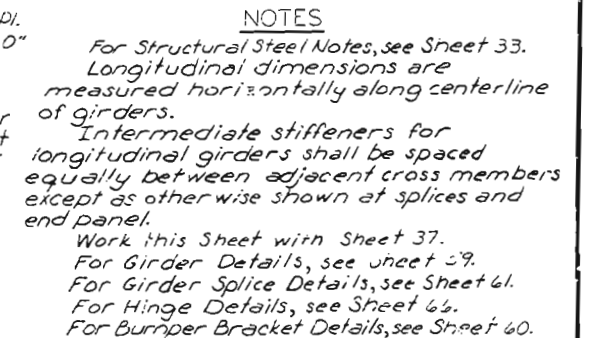
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: D.P. Brock, June 1977
CHECKED BY: T. Sanders, Sept 1977
5261
775234

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		10	22	



** Measured along Baseline
Westbound Rte. 40



Note: Angle is measured from tangent to girder at C Hinge, to C Hinge.

○ — Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.
Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) indicates 4 rows of shear connectors across girder flange.

All web plates shall be subject to notch toughness requirements.

FRAMING PLAN
SPANS 14 AND 15

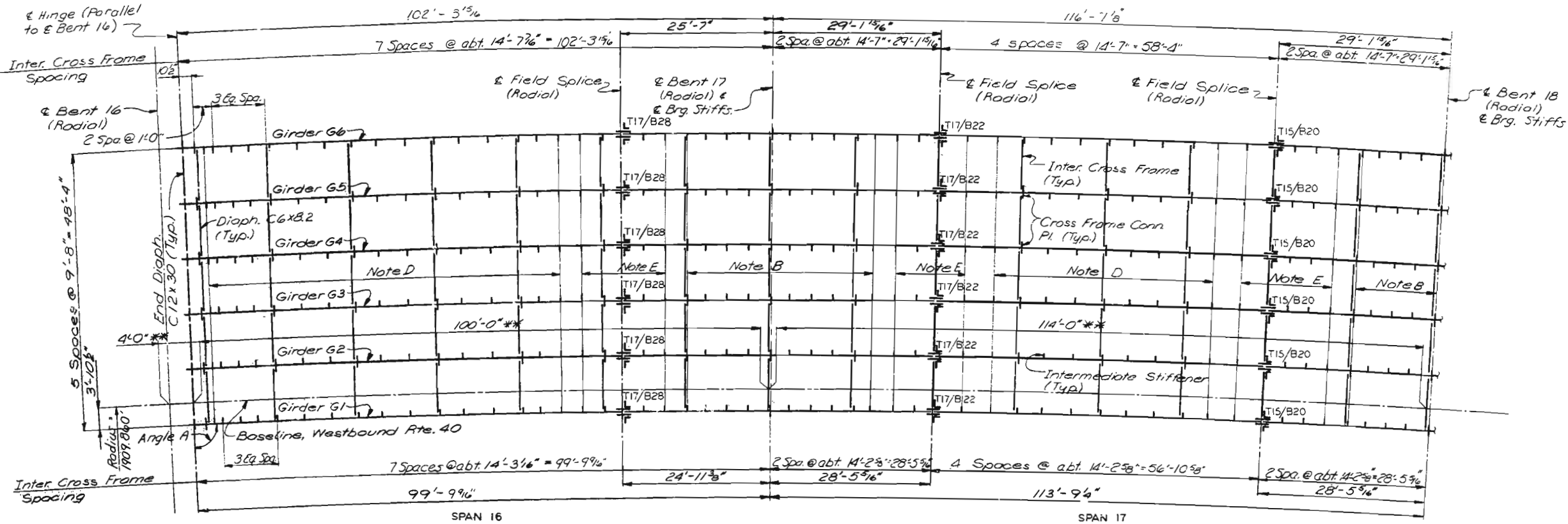
SHEET 38 OF 93

A-3594

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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.		18	29	



Note D: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders. Intermediate stiffeners to have close joint and cross frame conn. plates to be bolted to bottom flange of girders.

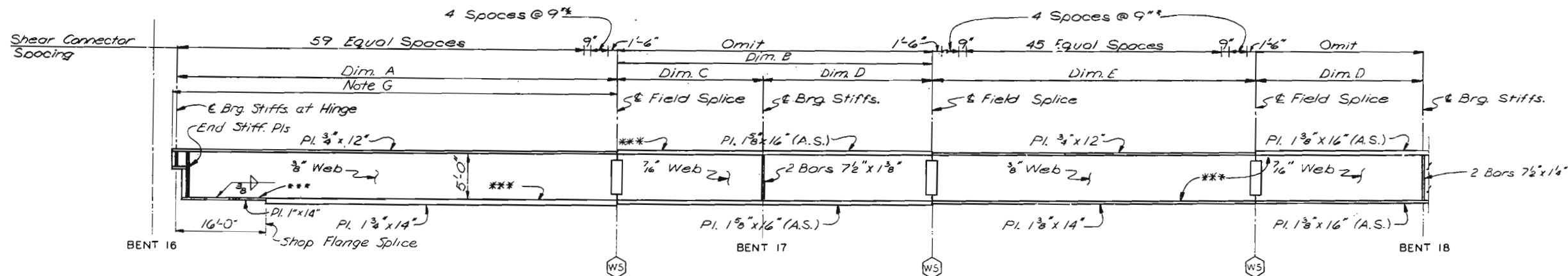
Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.

Note E: For intermediate stiffeners use close joint at top and bottom flanges of girders. Cross frame connection plates to be close joint at top and bolted to bottom flanges of girders.

** Measured along Baseline Westbound Route 40.

Note G: Heat curving of girders G1 thru G6 will not be allowed while in the horizontal position.

Note: Intermediate stiffeners are Bars 4"x3/8". Intermediate cross frame connection plates are Bars 4 1/2"x3/8".



NOTES

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally along centerline of girders.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown on splice and end panel.
Work this Sheet with Sheet 40.
For Girder Details, see Sheet 59.
For Splice Details, see Sheet 61.
For Hinge Details, see Sheet 66.

Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Angle A
G1	74'-10 1/2"	53'-4 1/2"	24'-11 3/8"	28'-5 3/8"	54'-10 3/8"	89°-52'-47"
G2	75'-2 1/8"	53'-8"	25'-0 3/8"	28'-7 1/8"	57'-2 1/8"	89°-52'-47"
G3	75'-7 1/4"	53'-11 3/8"	25'-2 3/8"	28'-9 3/8"	57'-5 3/8"	89°-52'-32"
G4	75'-11 3/8"	54'-2 3/8"	25'-3 3/8"	28'-10 3/8"	57'-9 3/8"	89°-52'-54"
G5	76'-4 1/8"	54'-5 3/8"	25'-5 3/8"	29'-0 3/8"	58'-0 3/8"	89°-52'-56"
G6	76'-8 3/8"	54'-8 3/8"	25'-7"	29'-1 3/8"	58'-4 3/8"	89°-52'-38"

Note: Angle is measured from: tangent to girder at & Hinge, to & Hinge.

Notes: Field splice flange plates and intermediate stiffeners not shown.
○ — Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.

Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) Indicates 4 rows of shear connectors across girder flange.

All web plates shall be subject to notch toughness requirements.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 16 AND 17

SHEET 39 OF 93

A-3594

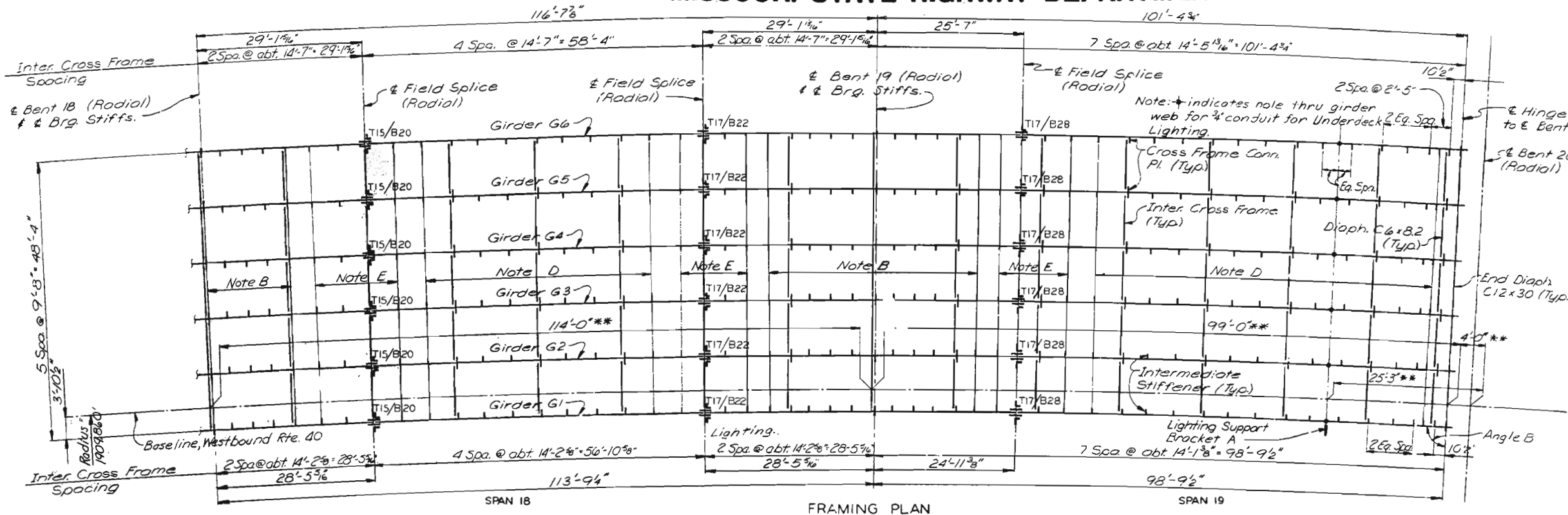
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

335
DRAWN BY: G.H. Andrusko, May 1972
CHECKED BY: T. Sanders, Sept. 1977
5261
775189

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	40	



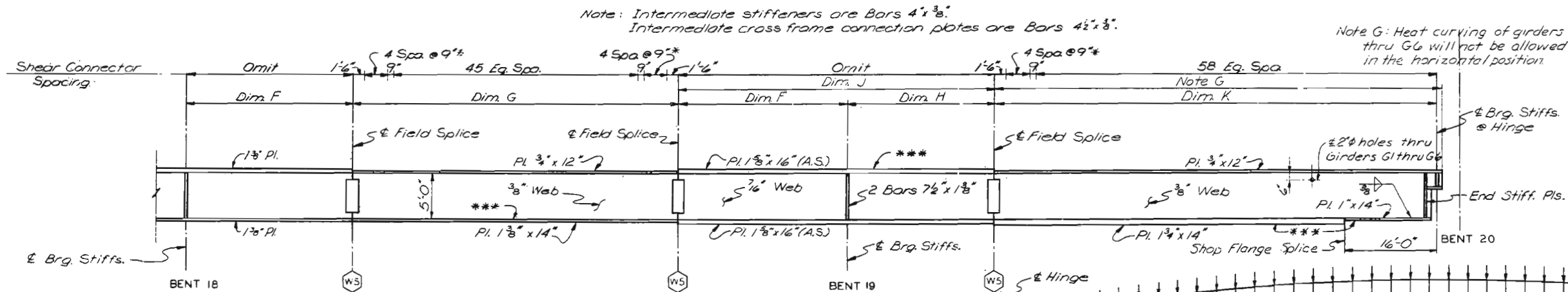
FRAMING PLAN

- Note D: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders. Intermediate stiffeners to have close joint and cross frame conn. plates to be bolted to bottom flange of girders.
- Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
- Note E: For intermediate stiffeners use close joint at top and bottom flanges of girders. Cross frame connection plates to be close joint at top and bolted to bottom flanges of girders.

** Measured along Baseline Westbound Route 40

NOTES

- For Structural Steel Notes see Sheet 33.
- Longitudinal dimensions are measured horizontally along centerline of girders.
- Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.
- Work this Sheet with Sheet 39.
- For Girder Details, see Sheet 59.
- For Girder Splice Details, see Sheet 61.
- For Hinge Details, see Sheet 64.
- For Lighting Support Bracket Details, see Sheet 63.

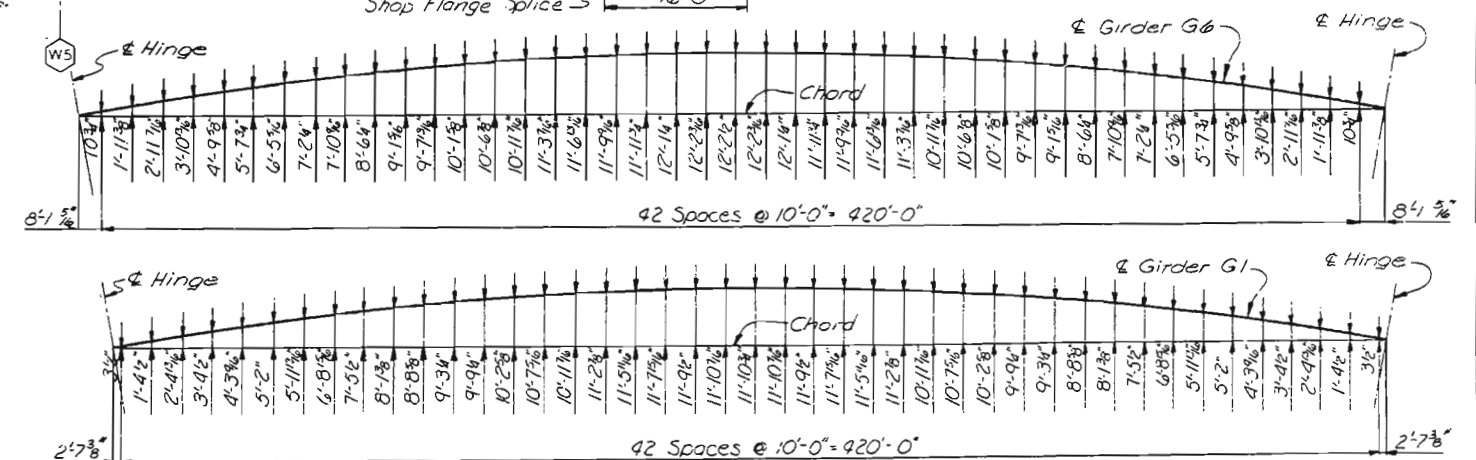


ELEVATION GIRDERS G1 THRU G6

- Notes: Field splice flange plates and intermediate stiffeners not shown.
- Denotes type of field web splice.
- *** Indicates Flange Plates subject to notch toughness requirements.
- Shear Connectors shall be in 3 rows across girder flange except where indicated by asterisk.
- (*) Indicates 4 rows of shear connectors across girder flange.
- All web plates shall be subject to notch toughness requirements.

Girder	Dim. F	Dim. G	Dim. H	Dim. J	Dim. K	Angle B
G1	28'-5 1/8"	56'-10 3/8"	24'-11 3/8"	53'-4 1/8"	73'-10 3/8"	89°-52'-47"
G2	28'-7 1/8"	57'-2"	25'-0 1/8"	53'-8"	74'-2 3/8"	89°-52'-49"
G3	28'-8 3/8"	57'-5 1/8"	25'-2 1/8"	53'-11 1/8"	74'-7 1/8"	89°-52'-52"
G4	28'-10 1/8"	57'-9"	25'-3 1/8"	54'-2 1/8"	75'-0 3/8"	89°-52'-54"
G5	29'-0 1/8"	58'-0 1/8"	25'-5 1/8"	54'-5 1/8"	75'-5 1/8"	89°-52'-56"
G6	29'-1 1/8"	58'-4"	25'-7"	54'-8 1/8"	75'-9 3/8"	89°-52'-58"

Note: Angle is measured from tangent to girder at & Hinge, to & Hinge.



CURVED GIRDER OFFSETS

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 18 AND 19

SHEET 40 OF 93

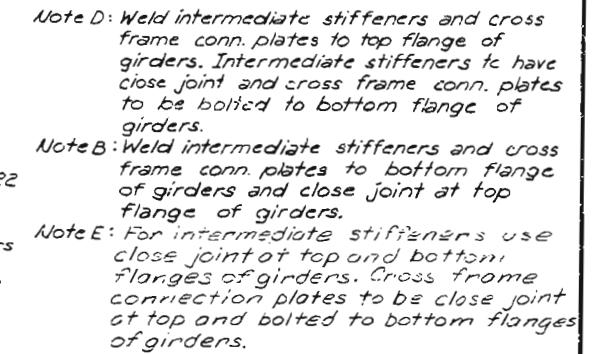
A-3594

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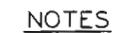
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

336
DRAWN BY: G.M. Andrusko, May 1977
CHECKED BY: J. Sanchez, Sept. 1977
5261
775194

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		18	41	



**Measured along Baseline Westbound Rte. 40.



For Structural Steel Notes, see Sheet 33.

Longitudinal dimensions are measured horizontally along centerline of girders.

Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.

Work this sheet with Sheet 42.

For Girder Details, see Sheet 59.

For Girder Splice Details, see Sheet 61.

For Hinge Details, see Sheet 66.

For Bumper Bracket Details, see Sheet 60.

For Lighting Support Bracket Details, see Sheet 63.

Notes: Field splice flange plates and intermediate stiffeners not shown.

◻ ← Denotes type of field web splice.

*** Indicates Flange Plates subject to notch toughness requirements.

(*) Indicates 4 rows of shear connectors across girder flange.

All web plates shall be subject to notch toughness requirements.

Note: Angle is measured from tangent of girder at $\frac{L}{4}$ Hinge, to $\frac{L}{4}$ Hinge.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 20 AND 21

SHEET 41 OF 93

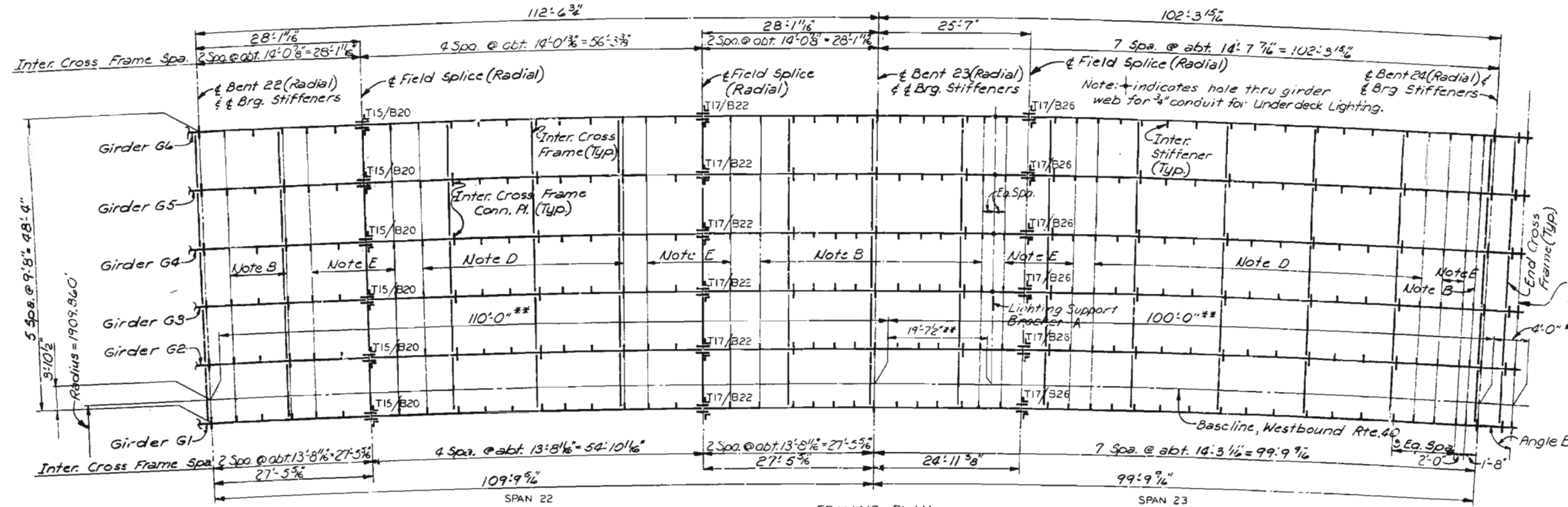
A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

5261
779/92
DRAWN BY: R.A. Wokurka, May '77
TRACED BY:
CHECKED BY: T. Sankar, Sept. 1977

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	47	



Note D: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders. Intermediate stiffeners to have close joint and cross frame conn. plates to be bolted to bottom flange of girders.

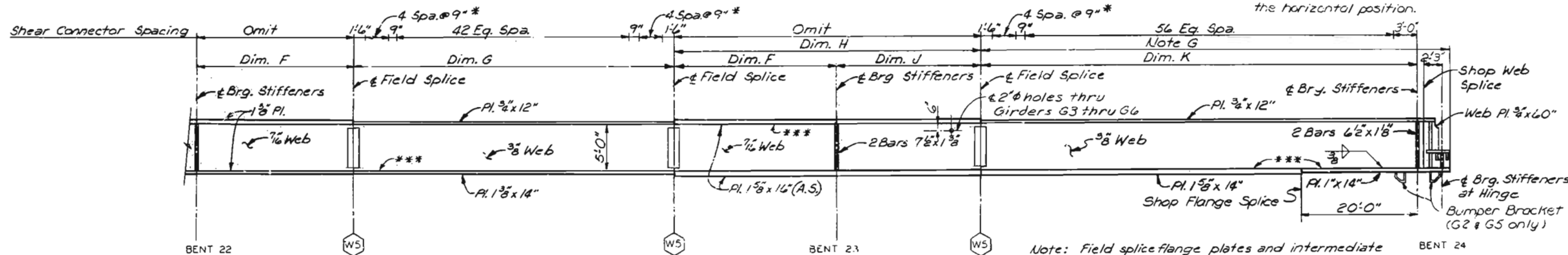
Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.

Note E: For intermediate stiffeners use close joint at top and bottom flanges of girders. Cross frame connection plates to be close joint at top and bolted to bottom flanges of girders.

Girder	Dim F	Dim G	Dim H	Dim J	Dim K
G1	27'-5 3/4"	54'-4 1/4"	52'-4 1/4"	24'-11 3/8"	74'-10 3/4"
G2	27'-7"	55'-2"	52'-7 1/4"	25'-0 1/4"	75'-2 1/4"
G3	27'-8 1/4"	55'-5 3/4"	52'-11 1/8"	25'-2 1/4"	75'-7 1/4"
G4	27'-10 3/4"	55'-8 3/4"	53'-2 3/4"	25'-3 3/4"	75'-11 1/8"
G5	28'-0"	56'-0 1/4"	53'-5 1/4"	25'-5 1/4"	76'-4 1/4"
G6	28'-1 1/4"	56'-3 3/4"	53'-8 1/4"	25'-7"	76'-8 1/4"

Note: Angle is measured from tangent of girder at & Hinge, to & Hinge.

Girder	Angle B
G1	90°-07'-13"
G2	90°-07'-11"
G3	90°-07'-09"
G4	90°-07'-06"
G5	90°-07'-04"
G6	90°-07'-02"



NOTES

For Structural Steel Notes, see Sheet 33.

Longitudinal dimensions are measured horizontally along centerline of girders.

Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.

Work this Sheet with Sheet 41.

For Girder Details, see Sheet 59.

For Girder Splice Details, see Sheet 61.

For Hinge Details, see Sheet 66.

For Bumper Bracket Details, see Sheet 60.

For Lighting Support Bracket Details, see Sheet 63.

Note: Field splice flange plates and intermediate stiffeners not shown.

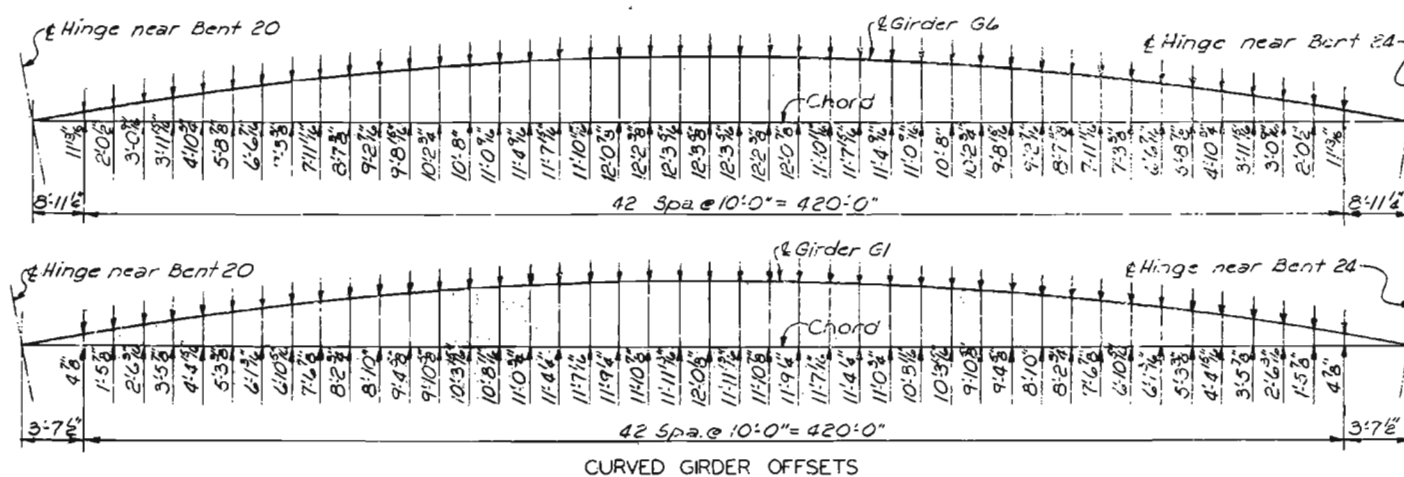
Denotes type of field web splice.

*** Indicates Flange Plates subject to notch toughness requirements.

Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.

(*) Indicates 4 rows of shear connectors across girder flange.

All web plates shall be subject to notch toughness requirements.



CITY OF ST. LOUIS

FRAMING PLAN
SPANS 22 AND 23

SHEET 42 OF 93

A-3594

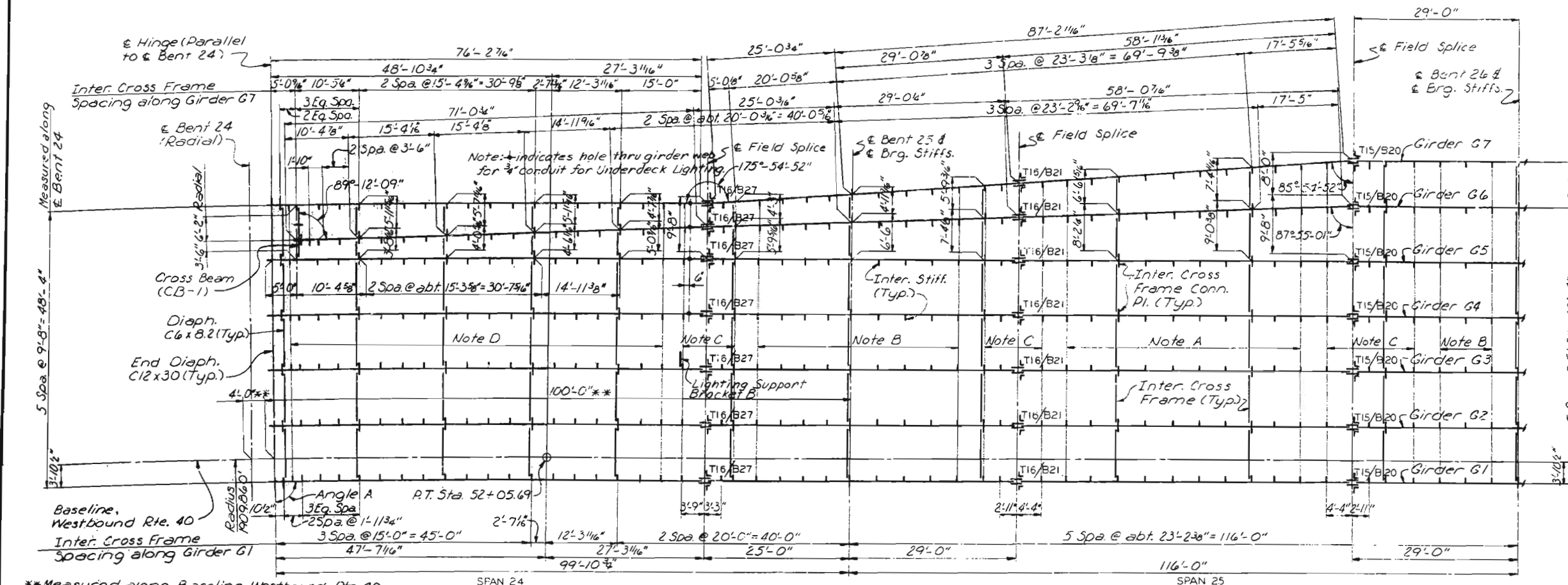
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

338
DRAWN BY: R.A. HOKURKA, May 77
CHECKED BY: J. SANCHEZ, Sept. 1977
775198

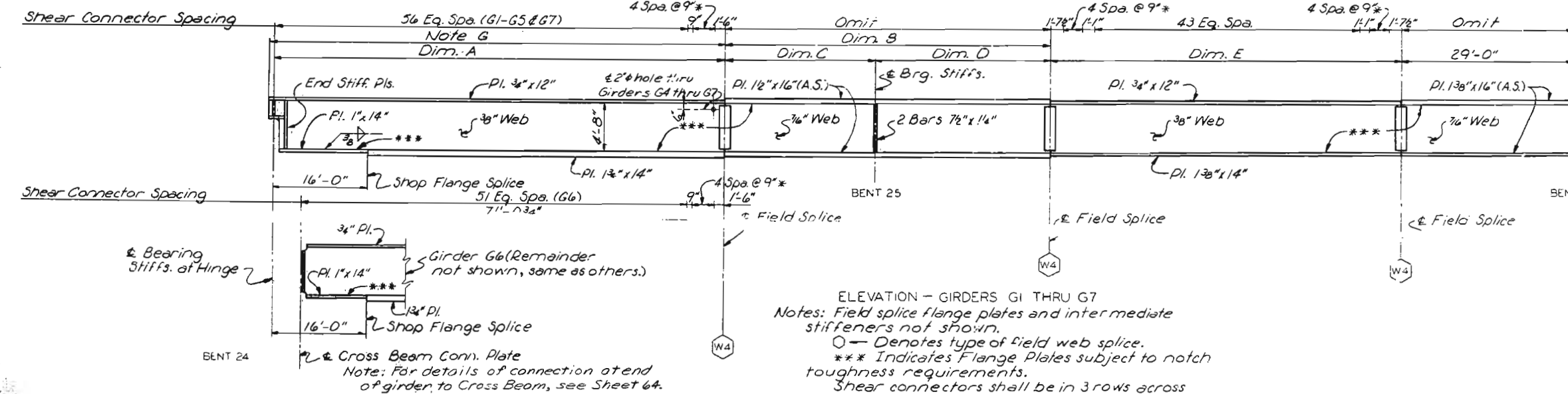
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	43	



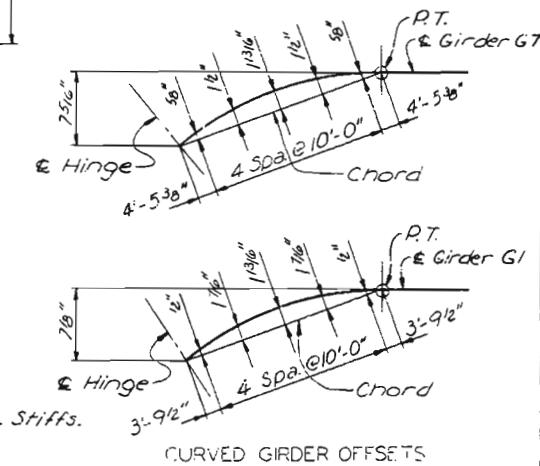
Note G: Heat curving of Girders G1 thru G5 and G7 will not be allowed while in the horizontal position.

Note: Intermediate stiffeners are Bars 4"x3/8". Intermediate cross frame connection plates are Bars 4 1/2"x3/8".



Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Angle A
G1	74'-10 3/4"	54'-0"	25'-0"	29'-0"	58'-0"	89°-52'-47"
G2	75'-1 7/8"	54'-0"	25'-0"	29'-0"	58'-0"	89°-52'-49"
G3	75'-5"	54'-0"	25'-0"	29'-0"	58'-0"	89°-52'-52"
G4	75'-8 3/4"	54'-0"	25'-0"	29'-0"	58'-0"	89°-52'-54"
G5	75'-11 3/8"	54'-0"	25'-0"	29'-0"	58'-0"	89°-52'-56"
G6	76'-2 7/8"	54'-0"	25'-0"	29'-0"	58'-0"	89°-52'-58"
G7	76'-2 7/8"	54'-0"	25'-0"	29'-0"	58'-0"	89°-52'-58"

Note: Angle is measured from tangent to girder at Hinge, to Hinge.



NOTES

For Structural Steel Notes, see Sheet 33.

Longitudinal dimensions are measured horizontally along centerline of girders.

Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panel.

Work this Sheet with Sheet 44.

For Girder Details, see Sheet 59.

For Girder Splice Details, see Sheet 61.

For Hinge Details, see Sheet 66.

For Cross Beam Detail, see Sheet 64.

For Lighting Support Bracket Detail, see Sheet 63.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 24 AND 25

SHEET 43 OF 93

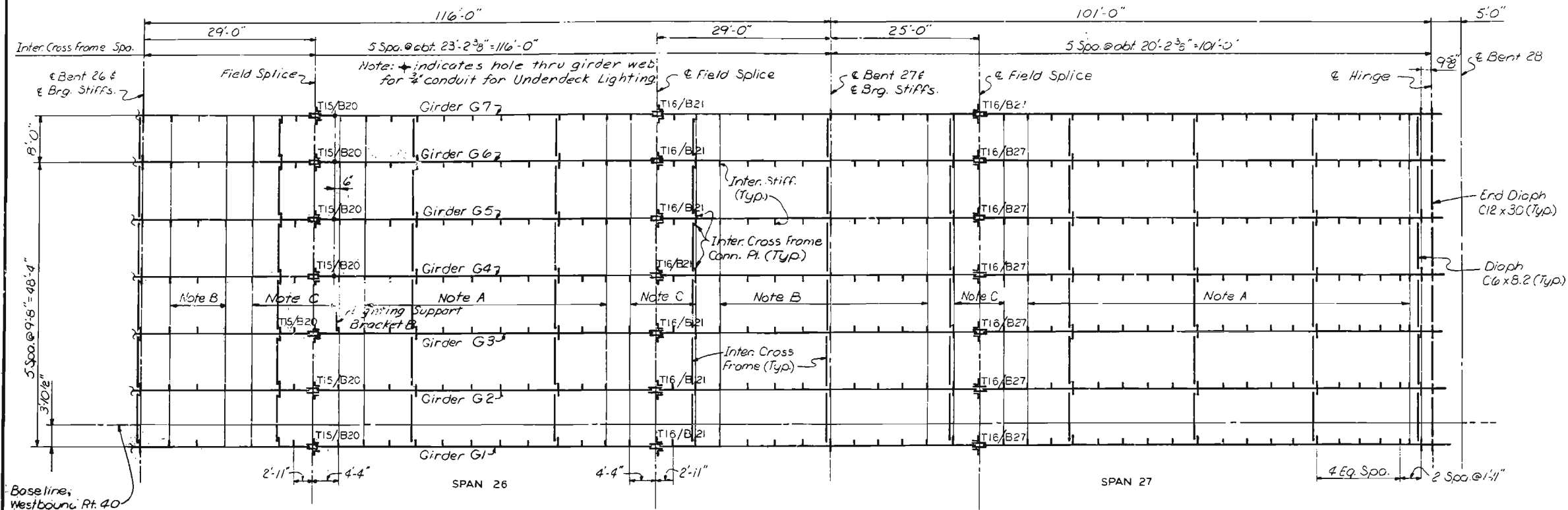
A-3594

OVERDRUP & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURI

DRAWN BY: D.P. Brock, May 1977
CHECKED BY: T. Sanders, Sept. 1977
5261
775236

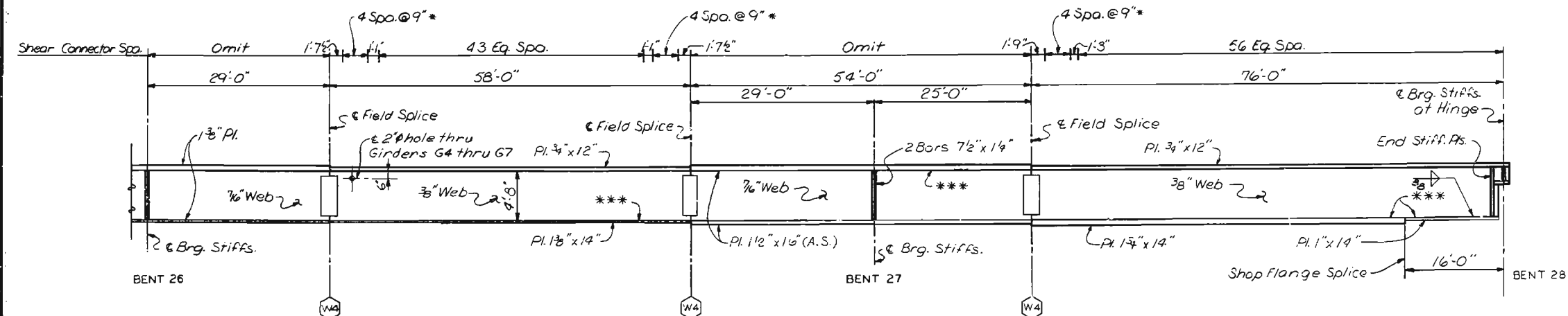
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		13	44	



FRAMING PLAN

Note: Intermediate stiffeners are Bars 4"x8".
Intermediate cross frame connection plates are Bars 4 1/2"x 3/4\".



ELEVATION-GIRDERS G1 THRU G6

Note: Field splice flange plates and intermediate stiffeners not shown.
Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.
Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) Indicates 4 rows of shear connectors across girder flange.
All web plates shall be subject to notch toughness requirements.

NOTES

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panel.
Work this Sheet with Sheet 43.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 66.
For Lighting Support Bracket Details, see Sheet 63.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 26 AND 27

SHEET 44 OF 93

A-3594

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ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

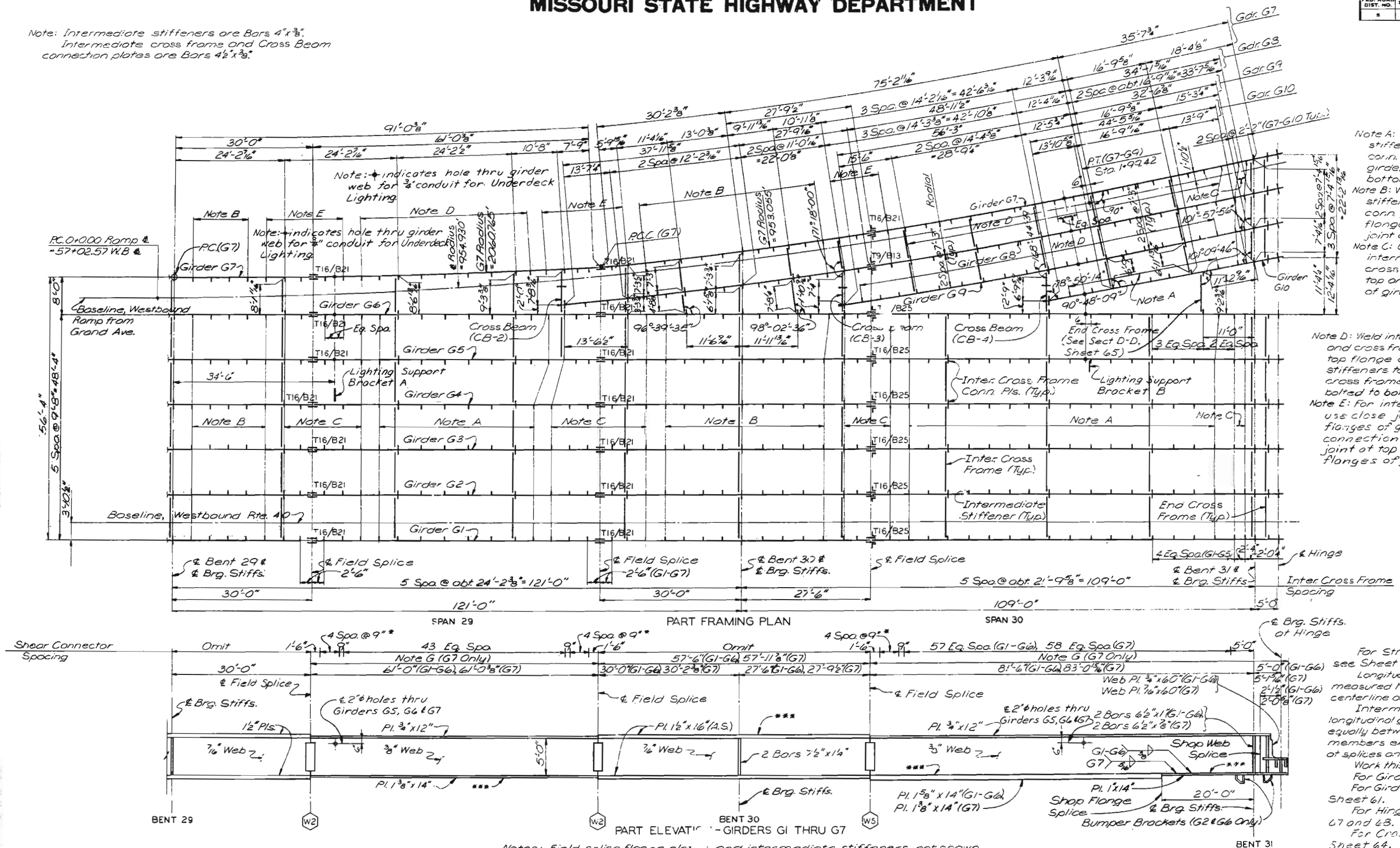
DRAWN BY: J.O. Avery, May 1977
CHECKED BY: J. Benish, Sept. 1977
5261
775195

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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.		18	46	

Note: Intermediate stiffeners are Bars 4"x $\frac{3}{8}$ ".
Intermediate cross frames and Cross Beam connection plates are Bars 4 $\frac{1}{2}$ "x $\frac{3}{8}$ ".



Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.
Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.
Note D: Weld intermediate stiffeners and cross frame conn. plates to top flange of girder. Intermediate stiffeners to have close joint and cross frame conn. plates to be bolted to bottom flange of girders.
Note E: For intermediate stiffeners use close joint at top and bottom flanges of girders. Cross frame connection plates to be close joint at top and bolted to bottom flanges of girders.

NOTES

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally along centerline of girder.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panel.
Work this Sheet with Sheet 45.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheets 67 and 68.
For Cross Beam Details, see Sheet 64.
For Bumper Bracket Details, see Sheet 60.
For Lighting Support Bracket Details see Sheet 63.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 29 AND 30

SHEET 46 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

342

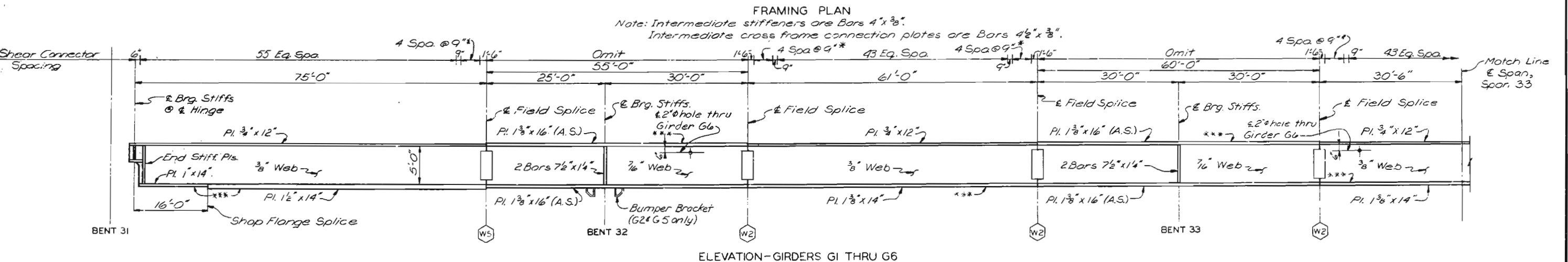
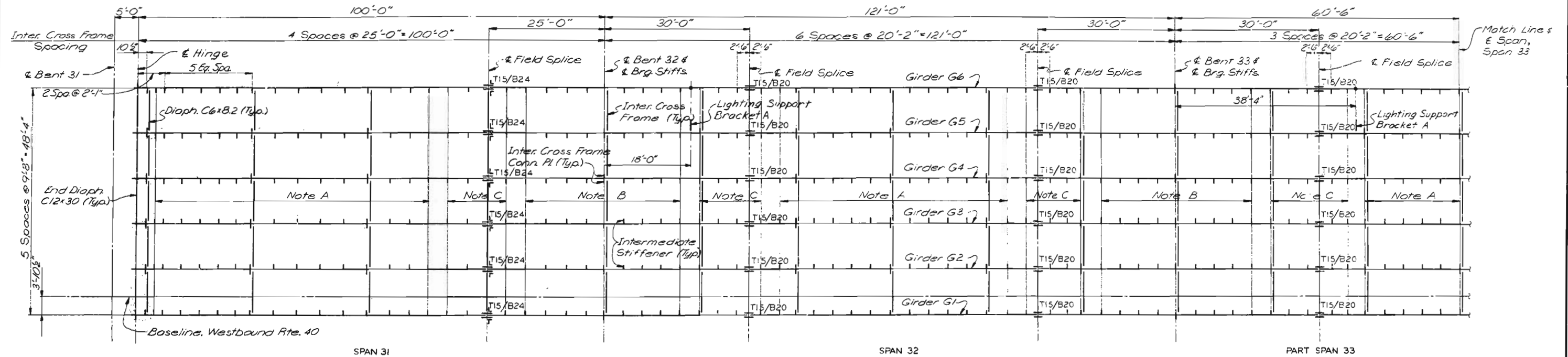
5261
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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	47	

Note: + indicates hole thru girder web for 3/4" conduit for Underdeck Lighting.



NOTES

For Structural Steel Notes, see Sheet 33.
 Longitudinal dimensions are measured horizontally.
 Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panel.
 Work this Sheet with Sheet 48.
 For Girder Details, see Sheet 59.
 For Girder Splice Details, see Sheet 61.
 For Hinge Details, see Sheet 67.
 For Bumper Bracket Details, see Sheet 60.
 For Framing Plan of Girders G6 thru G10 in Spans 31 and 32, see Sheet 49.
 For Lighting Support Bracket Details, see Sheet 63.

CITY OF ST. LOUIS

FRAMING PLAN
 SPANS 31, 32 AND 33

SHEET 47 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
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 ST. LOUIS, MISSOURI

DRAWN BY: G.M. ANDRUSHA, MAY 1977
 CHECKED BY: T. SANDERS, SEPT. 1977
 5267
 775200

343

FED. ROAD DIST. NO.	STATE	FED AID PROJ NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	CO.		15	48	



ELEVATION-GIRDERS GI THRU G6



For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panel.
Work this Sheet with Sheet 47.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 67.
For Bumper Bracket Details, see Sheet 60.
For Lighting Support Bracket Details, see Sheet 63.

All web plates shall be subject to notch toughness requirements.

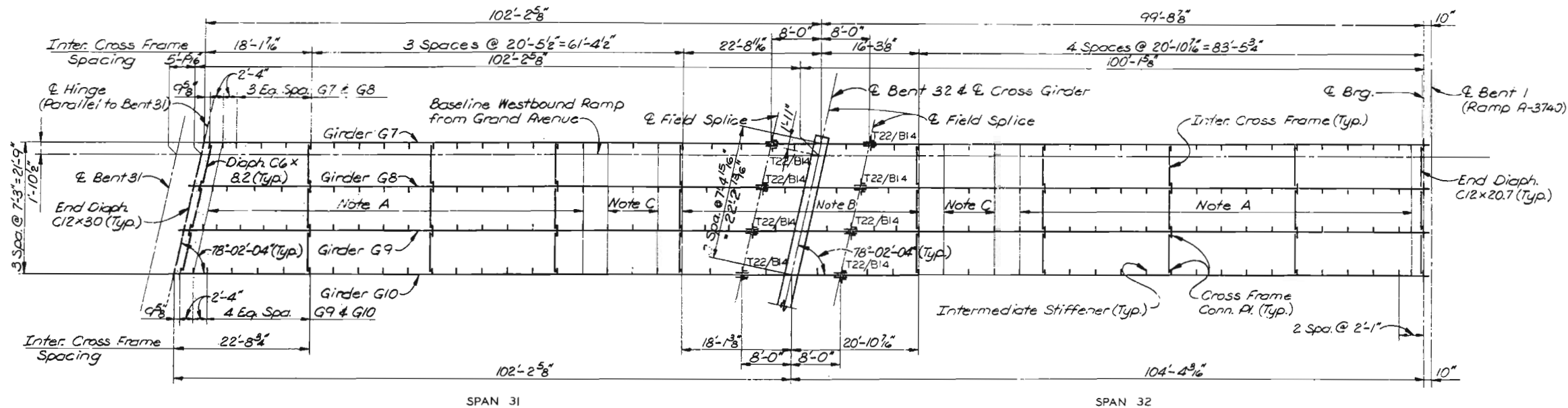
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NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

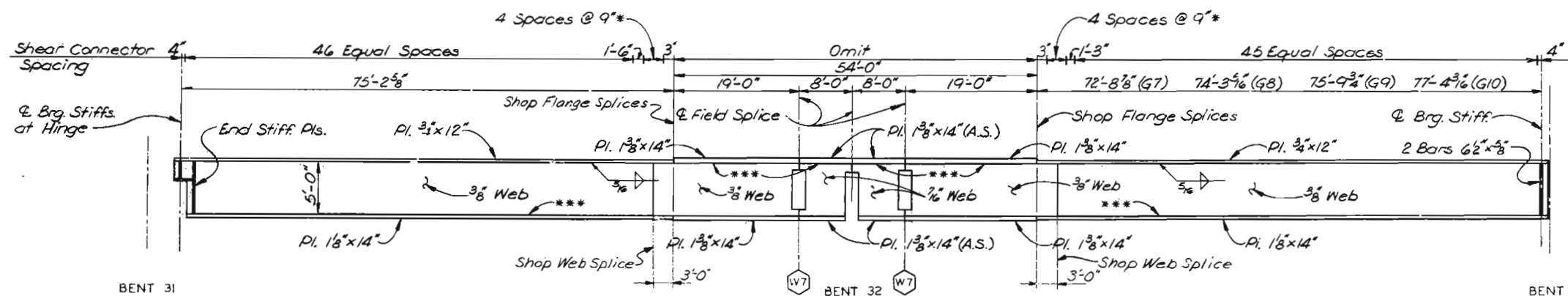
5261	DRAWN BY: G. M. Aitchison, June 1977
77S208	TRACED BY:
	CHECKED BY: T. Sanders, Sept 1977

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	49	



- Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.
- Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
- Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.



- Notes: Field splice flange plates and intermediate stiffeners not shown.
○ Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.
All web plates shall be subject to the same requirements.
Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) Indicates 4 rows of shear connectors across girder flange.

NOTES

- For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panels.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheets 61 and 62.
For Hinge Details, see Sheet 68.
For Framing Plan of Girders G1 thru G6, see Sheet 47.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 31 AND 32

SHEET 49 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

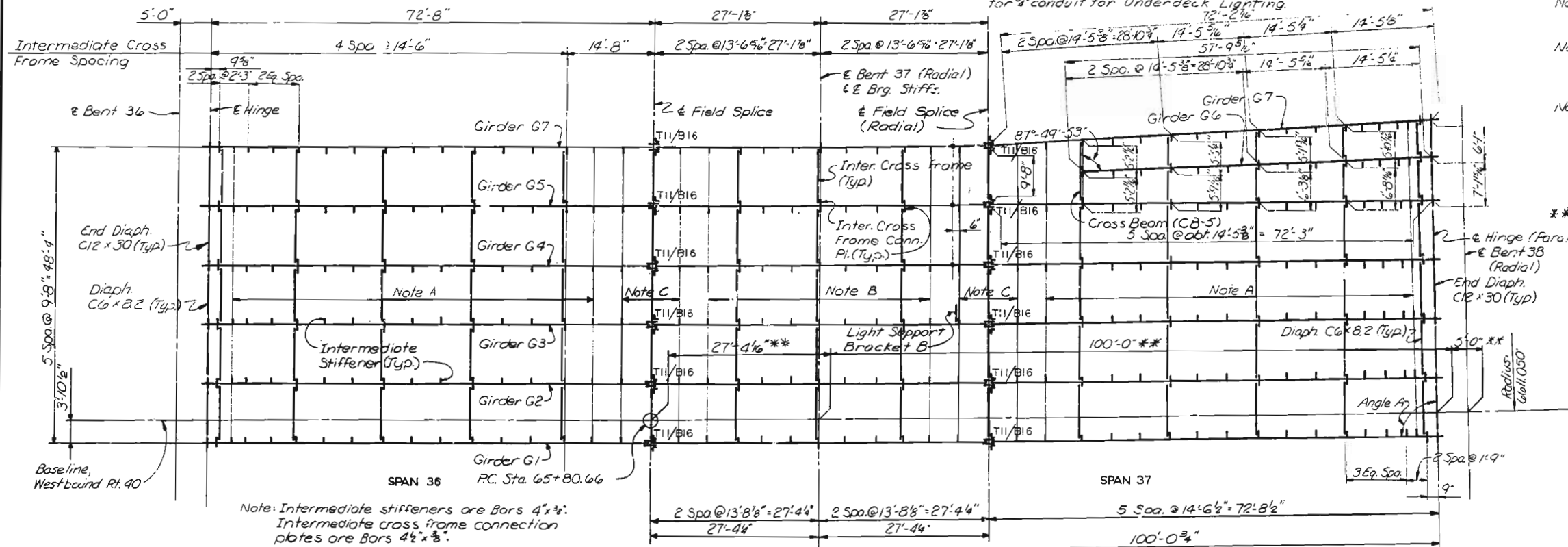
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: D. Ammons, Aug. 1977
CHECKED BY: T. Sanders, Sept. 1977
5261
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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	50	

Note: * indicates hole thru girder web for 3" conduit for Underdeck Lighting.



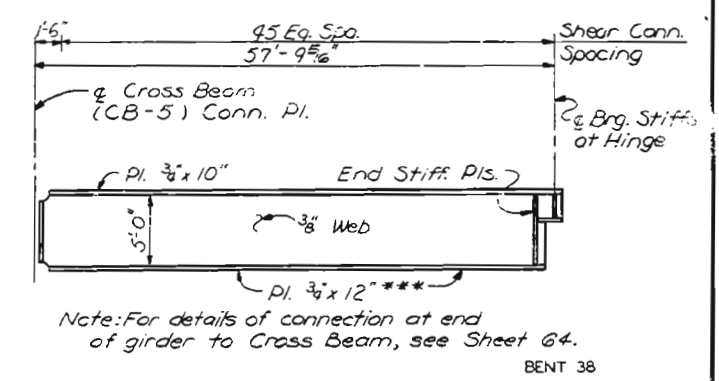
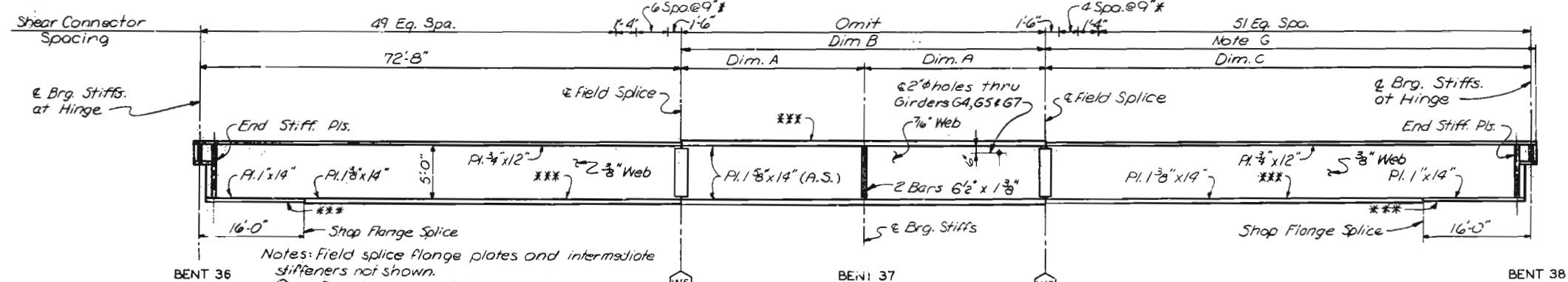
Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.

Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.

Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.

Girder	Dim. A	Dim. B	Dim. C	Angle A
G1	27'-4 1/2"	54'-8 1/2"	72'-8 1/2"	89°57'24"
G2	27'-3 1/2"	54'-7 1/2"	72'-7 1/2"	89°57'24"
G3	27'-3 1/2"	54'-6 1/2"	72'-5 1/2"	89°57'24"
G4	27'-2 1/2"	54'-5 1/2"	72'-4 1/2"	89°57'23"
G5	27'-2 1/2"	54'-4 1/2"	72'-3 1/2"	89°57'23"
G6				
G7	27'-1 1/2"	54'-3 1/2"	72'-2 1/2"	89°57'49"

Note: Angle is measured from tangent to girder at & Hinge, to & Hinge.



NOTES

For Structural Steel Notes see Sheet 33.

Longitudinal dimensions are measured horizontally along centerline of girders.

Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at end panels.

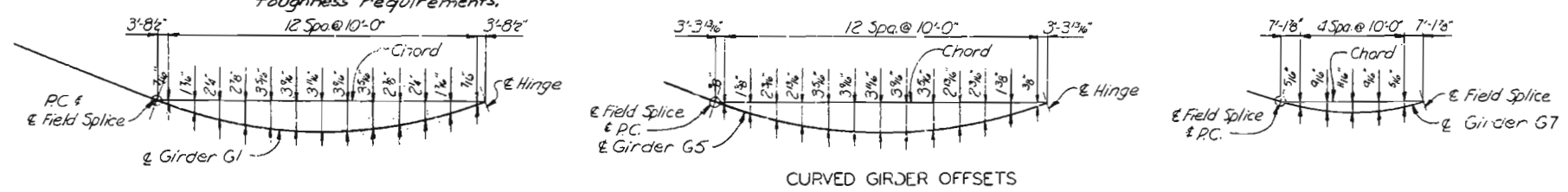
For Cross Beam Details, see Sheet 64.

For Girder Details, see Sheet 59.

For Girder Splice Details, see Sheet 61.

For Hinge Details, see Sheet 67.

For Lighting Support Bracket Details, see Sheet 63.



CITY OF ST. LOUIS

FRAMING PLAN
SPANS 36 AND 37

SHEET 50 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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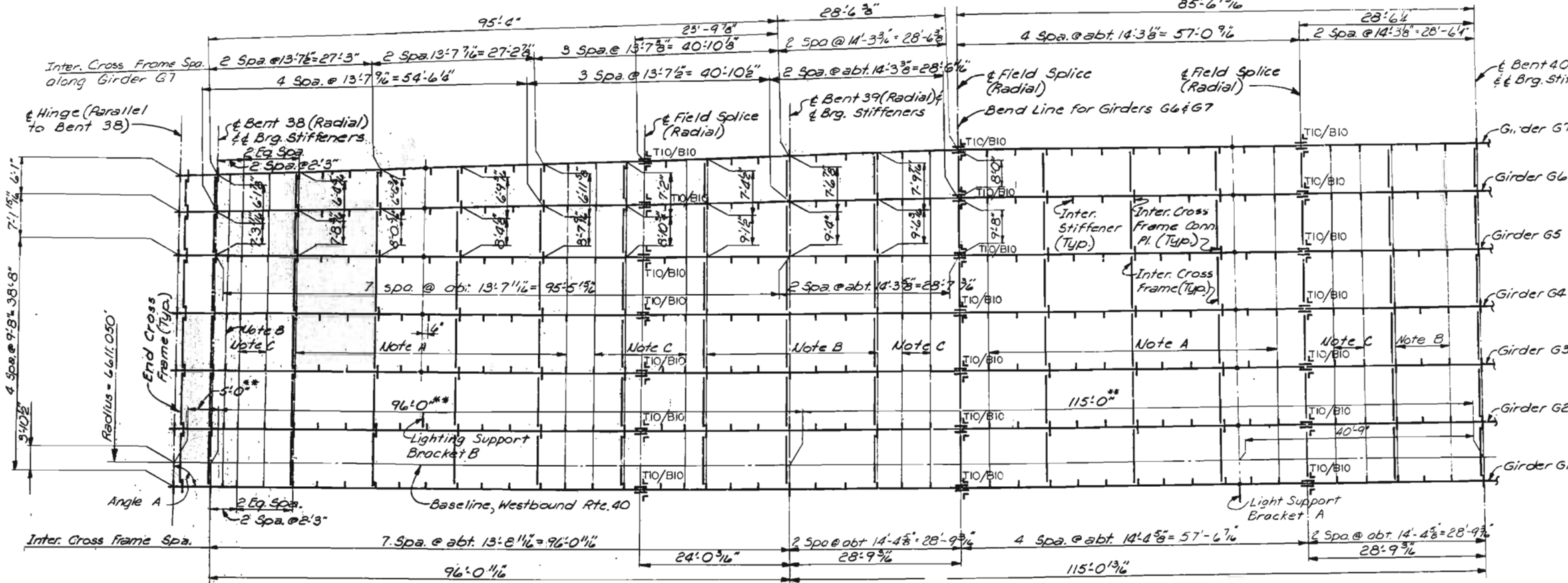
DRAWN BY: J.D. WERNER, June 1977
CHECKED BY: J.D. WERNER, Sept. 1977
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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	51	

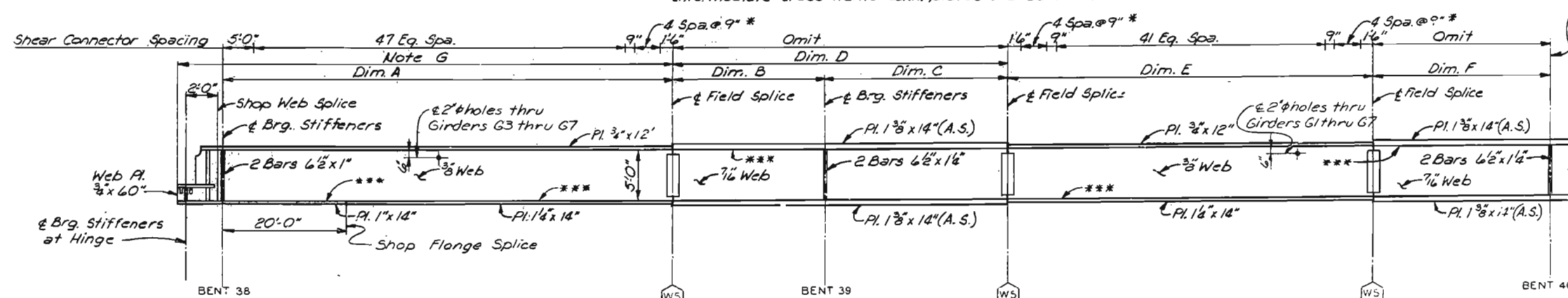
Note: + indicates hole thru girder web for 3" conduit for Underdeck Lighting
85'-6 1/4"



Note G: Heat curving of Girders G1 thru G5 will not be allowed while in the horizontal position.

FRAMING PLAN
Note: Intermediate stiffeners are Bars 4"x3".
Intermediate cross frame conn. plates are Bars 4 1/2"x3/8".

**Measured along Baseline Westbound Rte. 40.



ELEVATION - GIRDERS G1 THRU G7
Notes: Field splice flange plates and intermediate stiffeners not shown.

○ denotes type of field web splice.
***Indicates flange plates subject to notch toughness requirements.
Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) Indicates 4 rows of shear connectors across girder flange.
All web plates shall be subject to notch toughness requirements.

Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Angle A
G1	72'-0 1/2"	24'-0 1/4"	28'-9 1/2"	52'-9 3/8"	57'-6 1/4"	28'-9 1/2"	90°-02'-34"
G2	71'-11 1/4"	23'-11 1/4"	28'-8 1/4"	52'-8 1/4"	57'-5 1/4"	28'-8 1/4"	90°-02'-34"
G3	71'-10"	23'-11 1/4"	28'-8 1/4"	52'-7 7/8"	57'-4 1/4"	28'-8 1/4"	90°-02'-37"
G4	71'-8 3/4"	23'-10 3/4"	28'-7 1/4"	52'-6 1/4"	57'-3 3/8"	28'-7 1/4"	90°-02'-37"
G5	71'-7 1/4"	23'-10 3/4"	28'-7 1/4"	52'-5 1/4"	57'-2 3/8"	28'-7 1/4"	90°-02'-37"
G6	71'-6 3/4"	23'-10 3/4"	28'-6 1/4"	52'-4 1/4"	57'-1 3/8"	28'-6 1/4"	88°-22'-11"
G7	71'-6 3/4"	23'-9 3/4"	28'-6 1/4"	52'-4 1/4"	57'-0 1/4"	28'-6 1/4"	87°-30'-58"

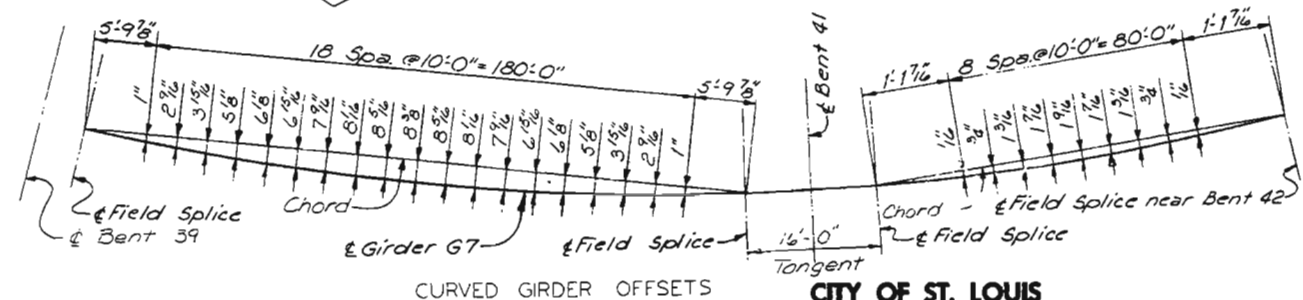
Note: Angle is measured from tangent to girder at & Hinge, to & Hinge.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.
Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.
Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.

NOTES

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally along centerline of girders.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.
Work this sheet with Sheet 52.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 67.
For Lighting Support Bracket Details, see Sheet 63.



CURVED GIRDER OFFSETS

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 38 AND 39

SHEET 51 OF 93

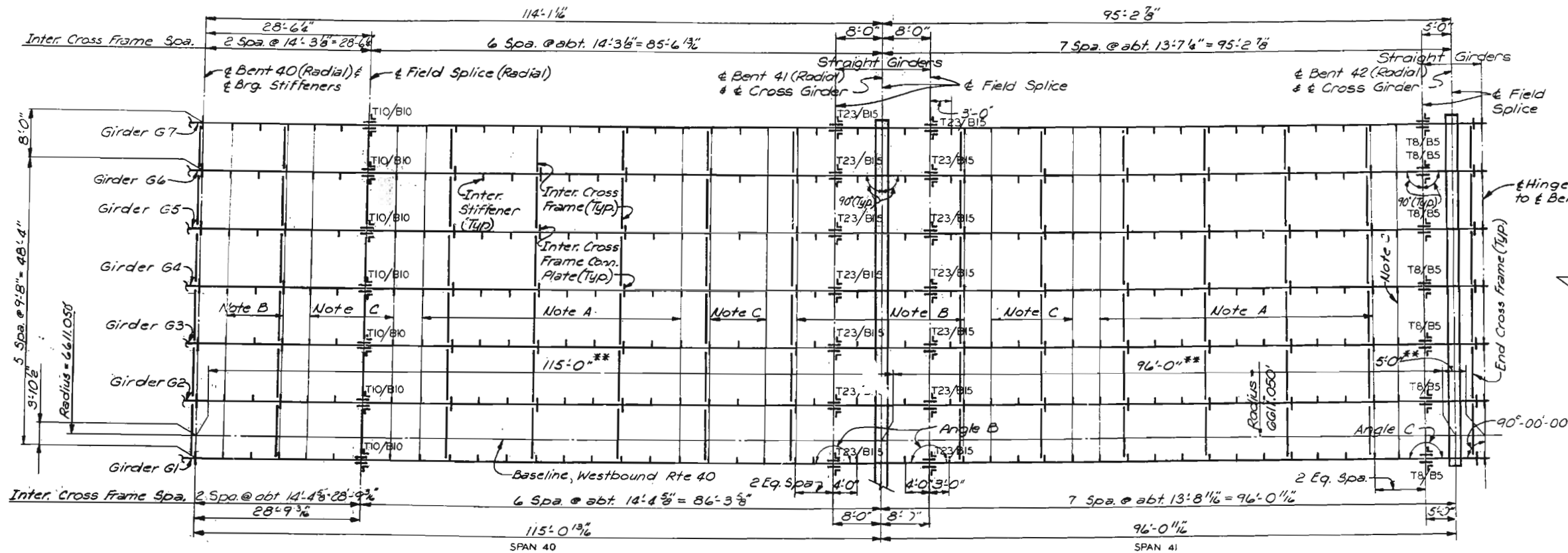
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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

347
DRAWN BY: R.A. Morken, June 1977
CHECKED BY: T. S. Smith, Sept. 1977
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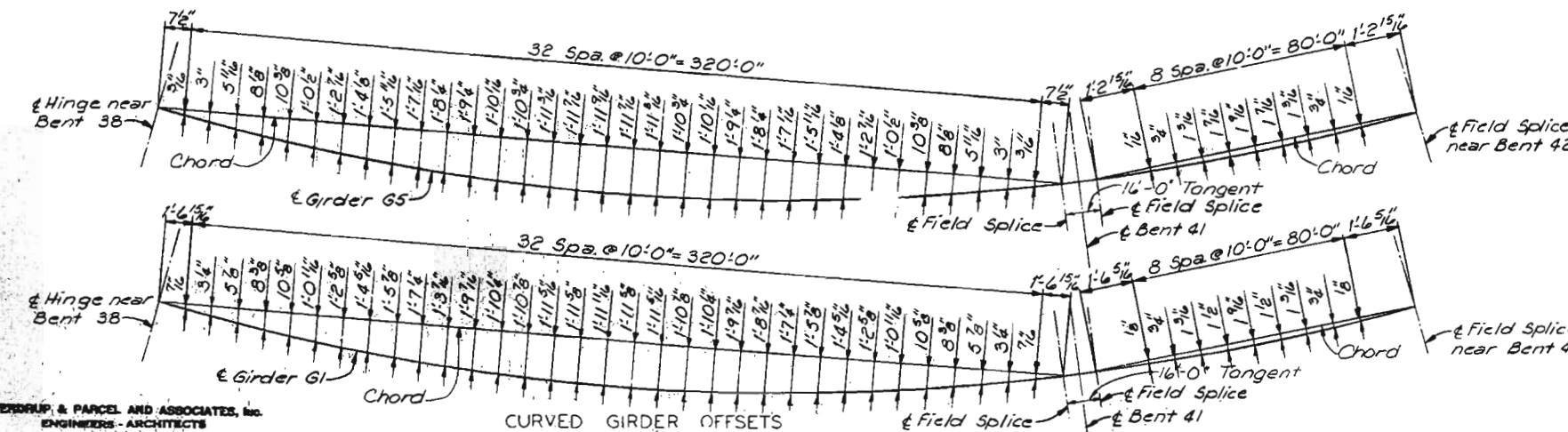
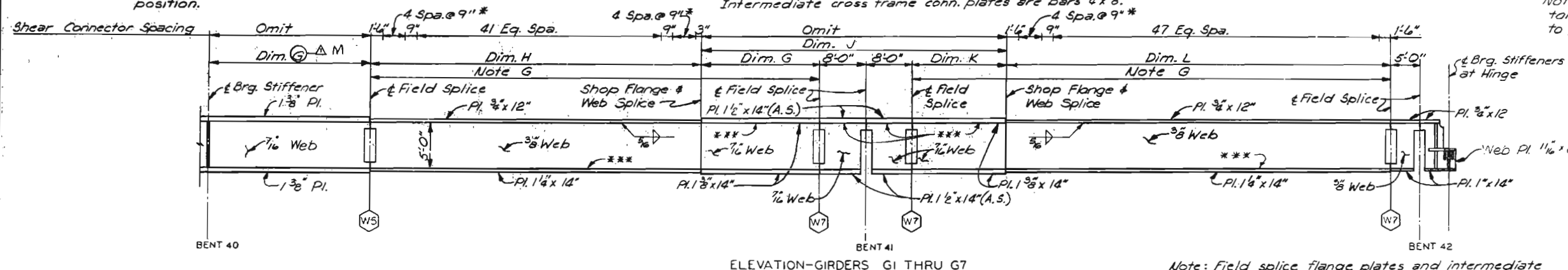
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	52	



Girder	Dim. G	Dim. M
G1	20'-9 1/2"	28'-9 1/2"
G2	20'-8 1/2"	28'-8 1/2"
G3	20'-8 1/2"	28'-8 1/2"
G4	20'-8 1/2"	28'-7 1/2"
G5	20'-7 1/2"	28'-7 1/2"
G6	20'-7 1/2"	28'-6 1/2"
G7	20'-7 1/2"	28'-6 1/2"

Girder	Dim. G	Dim. H	Dim. J	Dim. K	Dim. L
G1	20'-9 1/2"	57'-6 1/2"	52'-9 1/2"	16'-0 1/2"	67'-0 1/2"
G2	20'-8 1/2"	57'-5 1/2"	52'-8 1/2"	15'-11 1/2"	66'-11 1/2"
G3	20'-8 1/2"	57'-4 1/2"	52'-7 1/2"	15'-11 1/2"	66'-10 1/2"
G4	20'-7 1/2"	57'-3 1/2"	52'-6 1/2"	15'-10 1/2"	66'-8 1/2"
G5	20'-7 1/2"	57'-2 1/2"	52'-5 1/2"	15'-10 1/2"	66'-7 1/2"
G6	20'-6 1/2"	57'-1 1/2"	52'-4 1/2"	15'-10 1/2"	66'-6 1/2"
G7	20'-6 1/2"	57'-0 1/2"	52'-3 1/2"	15'-9 1/2"	66'-5 1/2"



NOTES

For Structural Steel Notes, see Sheet 33.

Longitudinal dimensions are measured along centerline of girders.

Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at Splices and end panel.

Work this Sheet with Sheet 51.

For Girder Details, see Sheet 59.

For Girder Splice Details, see Sheets 61 and 62.

For Hinge Details, see Sheet 67.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 40 AND 41

SHEET 52 OF 93

A-3594

Revised 7-18-79

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

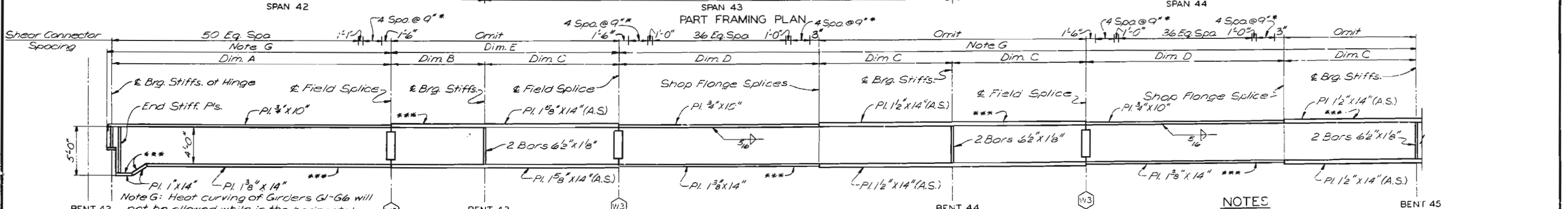
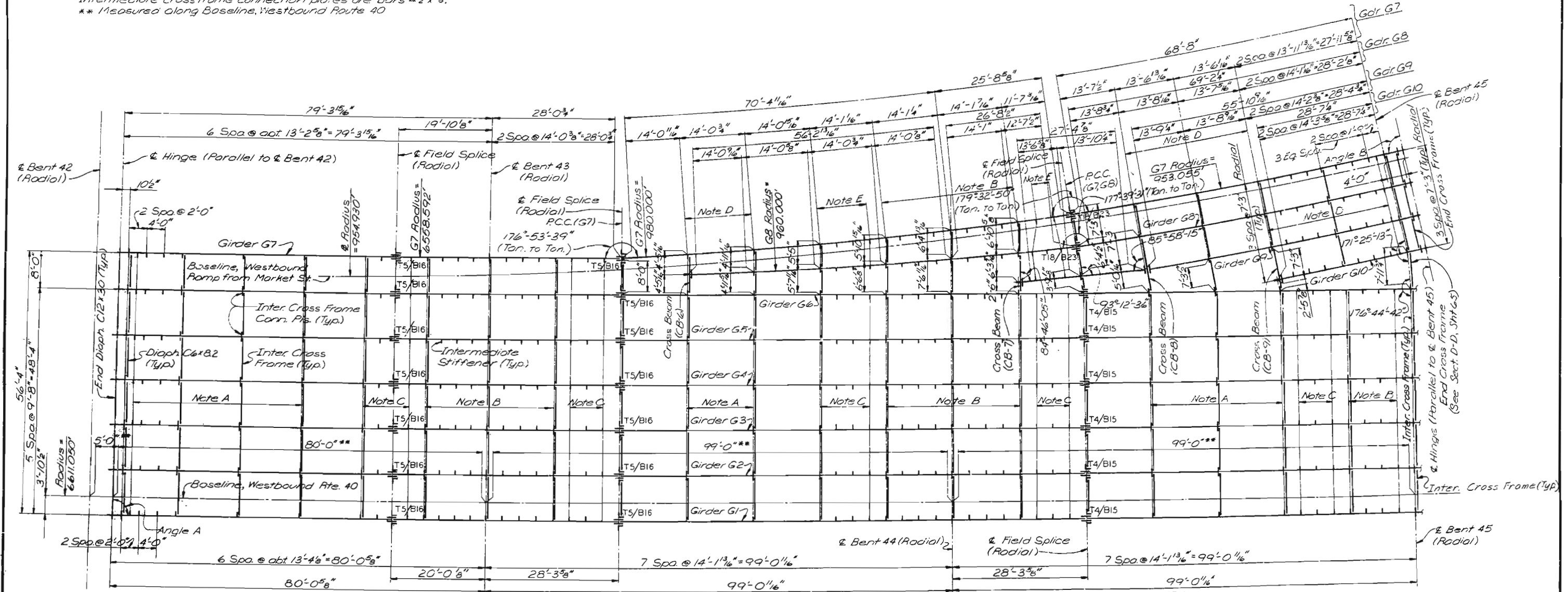
OVERDRUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

348

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	35	

Note: Intermediate stiffeners are Bars 4"x8".
Intermediate cross frame connection plates are Bars 4 1/2"x3/8".
** Measured along Baseline, Westbound Route 40



Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Angle A
G1	60'-0"	20'-0"	28'-3"	42'-5"	48'-3"	89°-57'-24"
G2	59'-10"	19'-11"	28'-3"	42'-4"	48'-2"	89°-57'-24"
G3	59'-10"	19'-11"	28'-2"	42'-4"	48'-2"	89°-57'-24"
G4	59'-9"	19'-11"	28'-2"	42'-3"	48'-1"	89°-57'-23"
G5	59'-7"	19'-10"	28'-1"	42'-2"	48'-0"	89°-57'-23"
G6	59'-6"	19'-10"	28'-1"	42'-1"	47'-11"	89°-57'-23"

Gdr.	Angle A	Angle B
G7	89°-57'-23"	90°-14'-25"
G8	—	90°-14'-19"
G9	—	90°-14'-12"
G10	—	90°-14'-06"

Notes: Web plates are 7/16"x48".
Field splice flange plates and intermediate stiffeners not shown.
○ — Denotes type of field web splice.
*** Indicates Flange Plates subject to notch toughness requirements.
Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
(*) indicates 4 rows of shear connectors across girder flange.
All web plates are subject to notch toughness requirements.
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontal along centerline of girders.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panels.
Work this Sheet with Sheets 54 & 55.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheet 67.
For Cross Beam Details, see Sheet 64.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 42, 43 AND 44

SHEET 53 OF 93

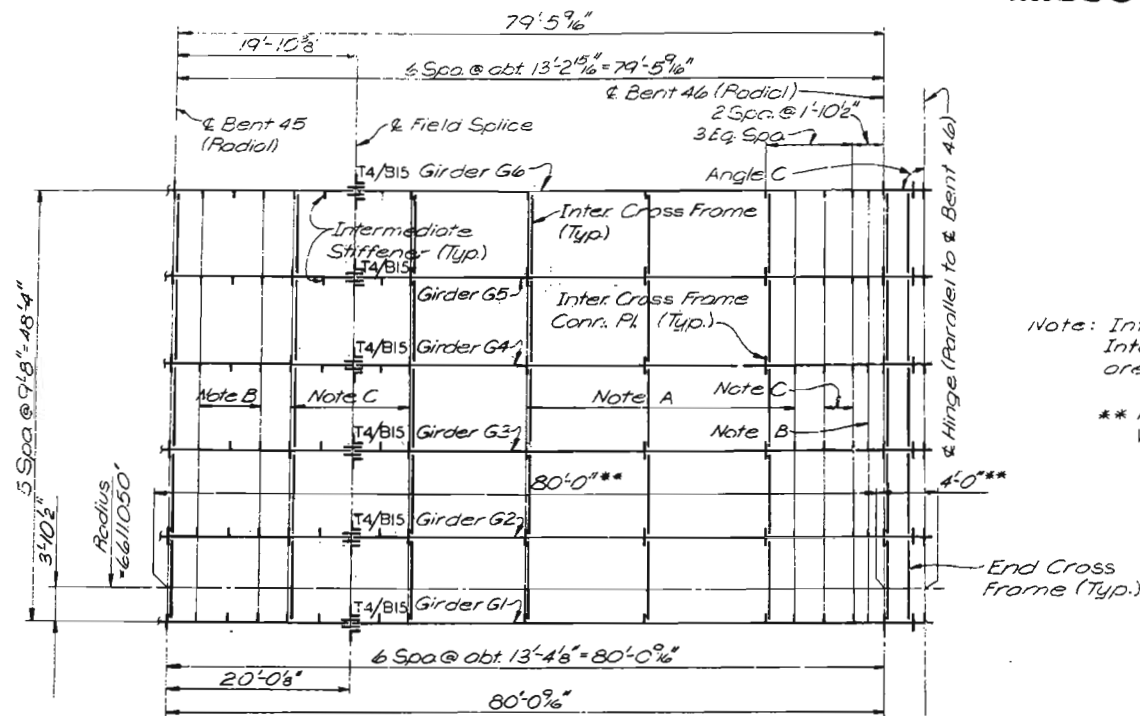
A-3594

DRAWN BY: G.M. ANDRUSKO, JULY 1977
CHECKED BY: T. STUBBS, Sept. 1977
5261
775261

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		14	54	



Note: Intermediate stiffeners are Bars 4"x8".
Intermediate cross frame connection plates are Bars 4"x8".

** Measured along Baseline,
Westbound Route 40.

Note A: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders and close joint at bottom flange of girders.

Note B: Weld intermediate stiffeners and cross frame conn. plates to bottom flange of girders and close joint at top flange of girders.

Note C: Use close joint for intermediate stiffeners and cross frame conn. plates at top and bottom flanges of girders.

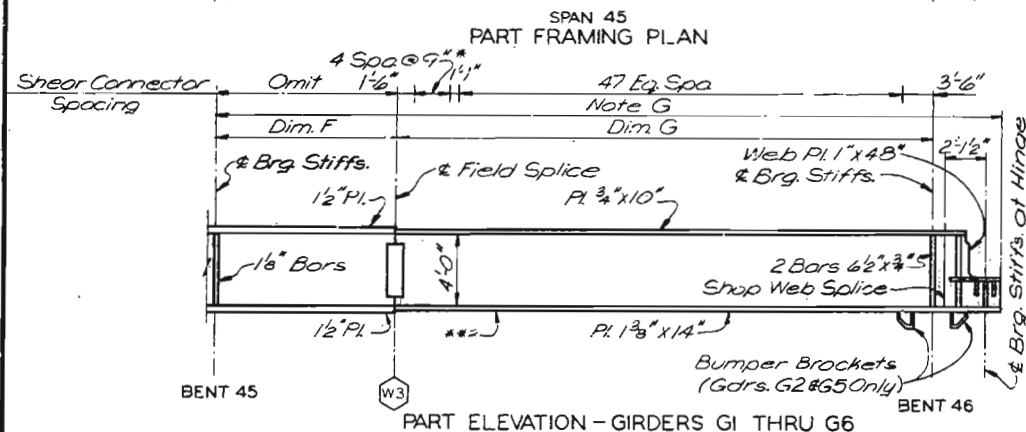
Note D: Weld intermediate stiffeners and cross frame conn. plates to top flange of girders. Intermediate stiffeners to have close joint and cross frame conn. plates to be bolted to bottom flange of girders.

Note E: For intermediate stiffeners use close joint at top and bottom flanges of girders. Cross frame connection plates to be close joint at top and bolted to bottom flanges of girders.

NOTES

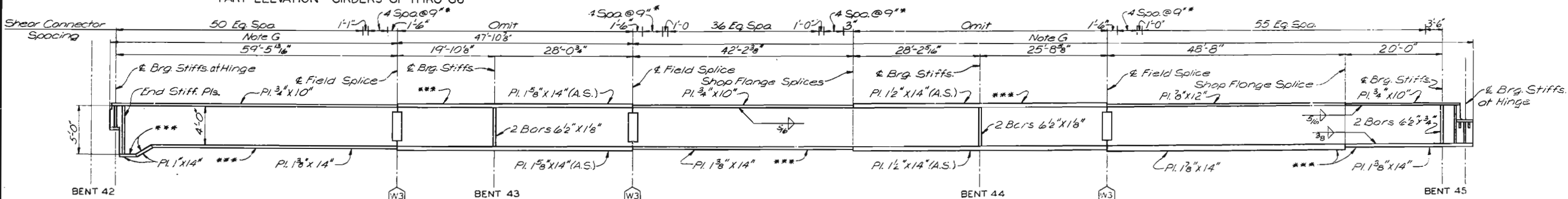
For Structural Steel Notes, see Sheet 33.
Longitudinal dimensions are measured horizontally along centerline of girders.
Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splice and end panel.

Work this Sheet with Sheets 53 & 55.
For Girder Details, see Sheet 59.
For Girder Splice Details, see Sheet 61.
For Hinge Details, see Sheets 67 and 69.
For Bumper Bracket Details, see Sheet 60.



Note: Angle is measured from tangent to girder at & Hinge, to & Hinge.

Girder	Dim. F	Dim. G	Angle C
G1	20'0 8/16"	60'0 1/16"	90°02'05"
G2	19'11 1/8"	59'11 1/8"	90°02'05"
G3	19'11 1/8"	59'10 9/16"	90°02'05"
G4	19'11 1/8"	59'9 5/8"	90°02'05"
G5	19'10 3/4"	59'8 1/2"	90°02'06"
G6	19'10 3/8"	59'7 1/2"	90°02'06"



Note G: Heat curving of Girders G1-G7 will not be allowed while in the horizontal position.

Notes: Field splice flange plates and intermediate stiffeners not shown.

○ — Denotes type of field web splice.

*** Indicates Flange Plates subject to notch toughness requirements.

Shear connectors shall be in 3 rows across girder flange except where noted by asterisk. (*) indicates 4 rows of shear connectors across girder flange.

Web plates are 7/16"x48", except hinges at Bent 41.

All web plates shall be subject to notch toughness requirements.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

FRAMING PLAN
SPAN 45

SHEET 54 OF 53

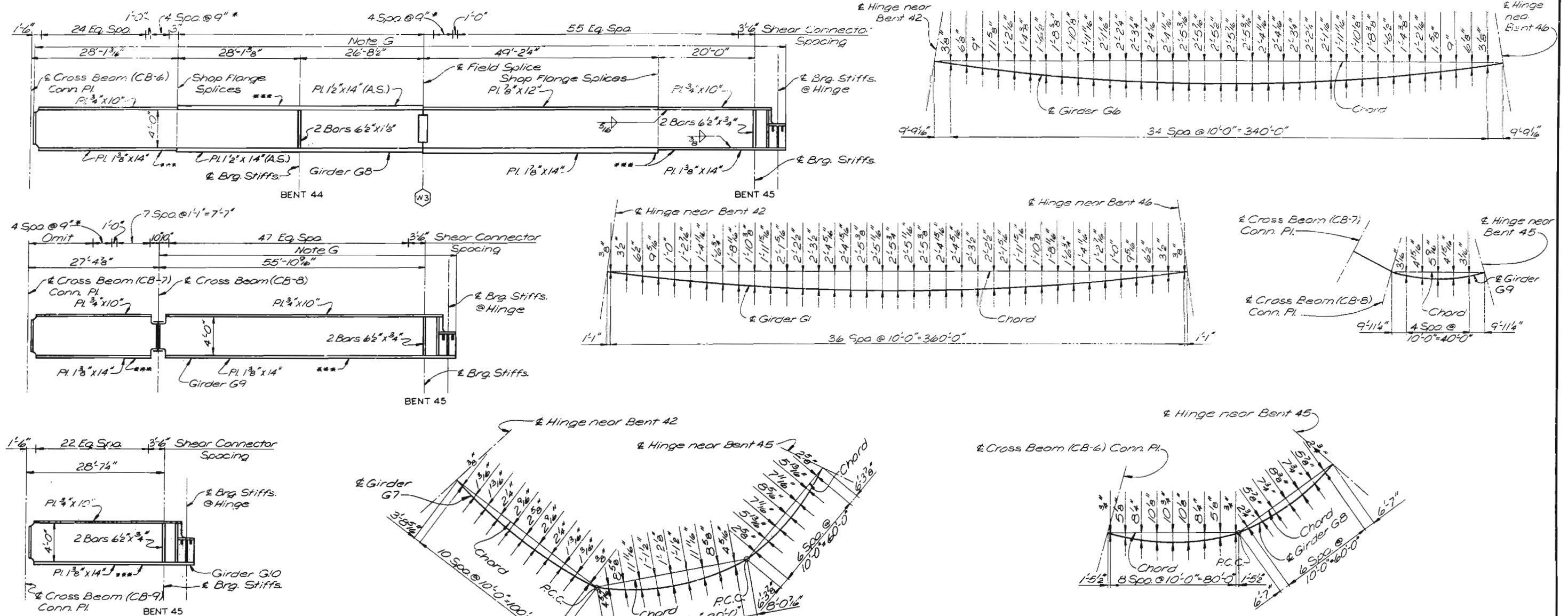
A-3594

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

DRAWN BY: G.M. ANDRUSAK, JULY 1977
CHECKED BY: J. SANDERS, SEPT. 1977
5221
775270

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	35	



ELEVATION - GIRDERS G8 THRU G10

Notes: Field splice flange plates and intermediate stiffeners not shown.
 ○ Denotes type of field web splice.
 *** Indicates Flange Plates subject to notch
 Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
 (*) indicates 4 rows of shear connectors across girder flange.
 Web plates are 3/8" x 48"
 All web plates shall be subject to notch toughness requirements.

CURVED GIRDER OFFSETS

NOTES
 Work this sheet with Sheet 53 and 54.

CITY OF ST. LOUIS

FRAMING DETAILS
 SPANS 42 THRU 45

SHEET 55 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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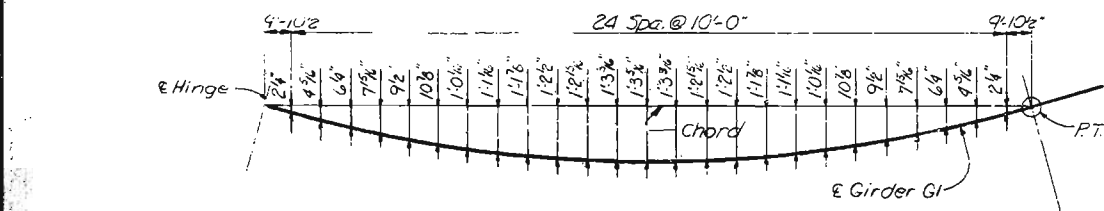
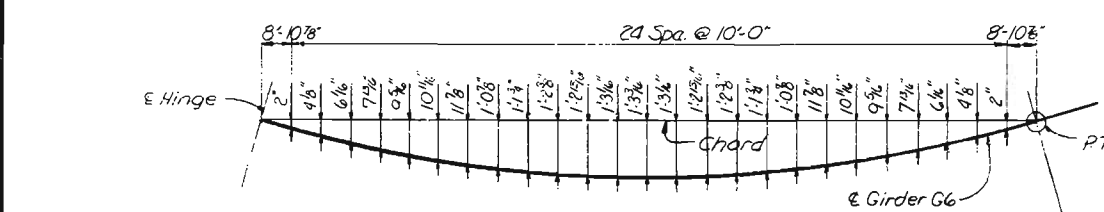
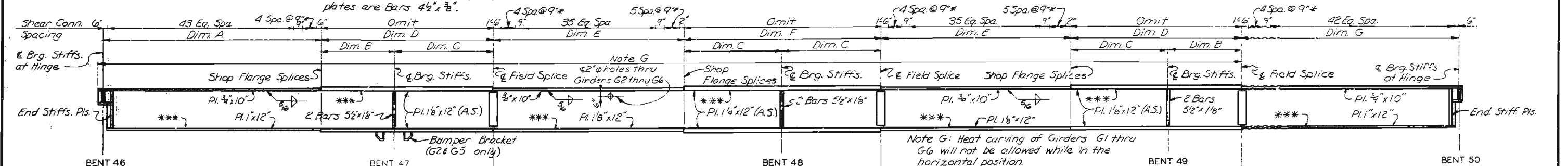
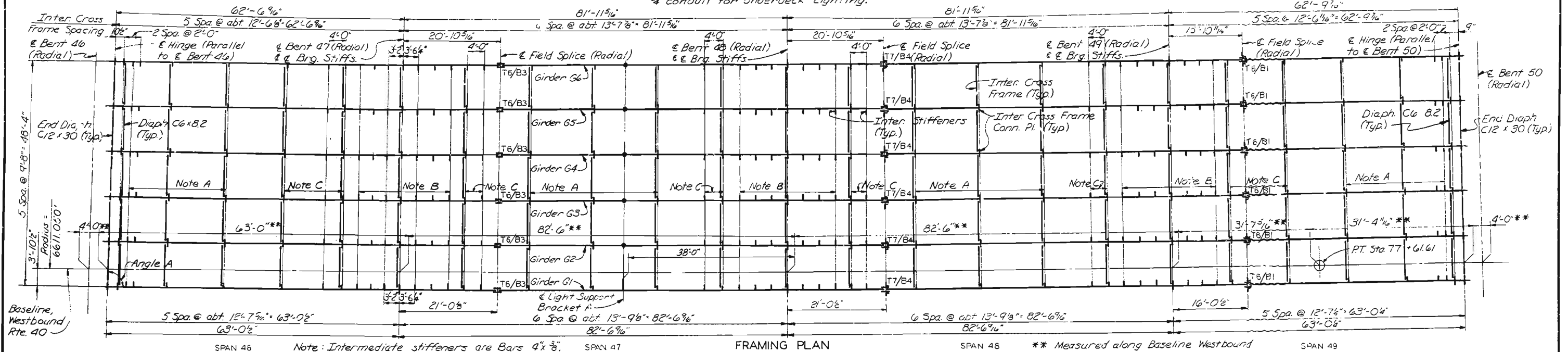
DRAWN BY: G. M. Anichusko, Sept. 1977
 TRACED BY:
 CHECKED BY: T. Sanders, Sept. 1977
 5261
 775313

351

MISSOURI STATE HIGHWAY DEPARTMENT

Note: * indicates hole thru girder web for
2" conduit for Underdeck Lighting.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	56	



Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Dim. G	Angle A
G1	47'-0 3/8"	16'-0 3/8"	21'-0 3/8"	37'-0 3/8"	40'-0 3/8"	42'-0 3/8"	47'-0 3/8"	89° 57' 55"
G2	46'-11 1/8"	15'-11 1/8"	20'-11 1/8"	36'-11 1/8"	40'-5 1/8"	41'-11 1/8"	46'-11 1/8"	89° 57' 55"
G3	46'-10 7/8"	15'-11 1/8"	20'-11 1/8"	36'-11 1/8"	40'-4 1/8"	41'-10 7/8"	46'-11 1/8"	89° 57' 55"
G4	46'-9 1/4"	15'-11 1/8"	20'-11 1/8"	36'-10 3/4"	40'-4 1/8"	41'-10 7/8"	46'-11 1/8"	89° 57' 55"
G5	46'-8 3/4"	15'-11 1/8"	20'-10 3/4"	36'-9 1/4"	40'-3 1/4"	41'-9 3/4"	46'-11 1/8"	89° 57' 55"
G6	46'-7 3/8"	15'-10 3/4"	20'-10 3/4"	36'-9 1/4"	40'-2 1/4"	41'-8 3/8"	46'-10 3/4"	89° 57' 55"

Note: Angle is measured from tangent to girder at
Hinge, to Hinge.

NOTES

For Structural Steel Notes, see Sheet 33.

Longitudinal dimensions are measured horizontally along centerline of girders.

Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown.

For Bumper Bracket Details, see Sheet 60.

For Girder Details, see Sheet 59.

For Girder Splice Details, see Sheet 61.

For Hinge Details, see Sheet 67 and 69.

For Lighting Support Bracket Details, see Sheet 63.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 46 THRU 49

SHEET 56 OF 93

A-3594

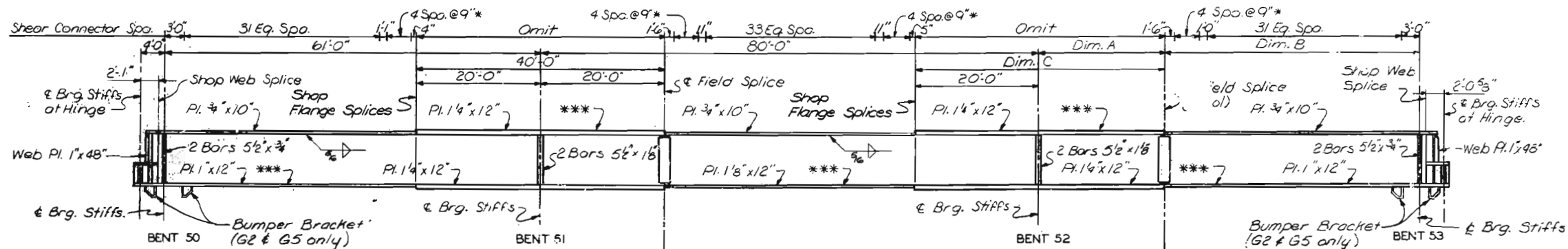
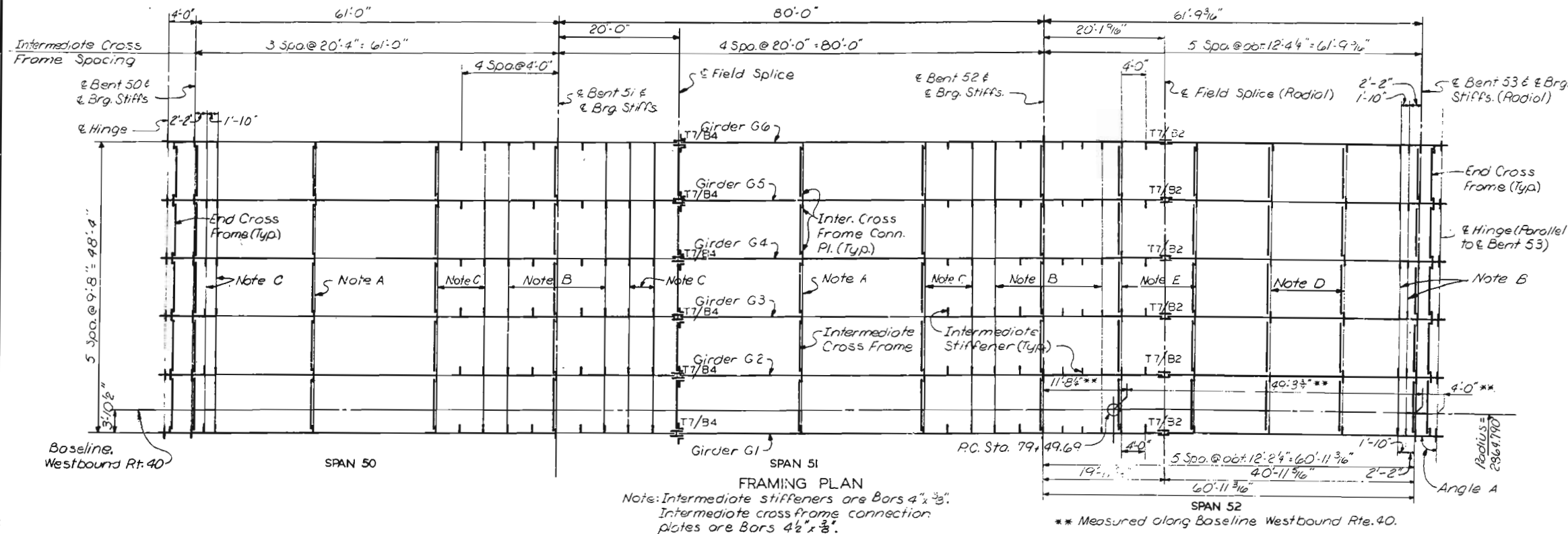
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: J. D. AVERU, June 1977
CHECKED BY: T. SANDERS, Sept. 1977

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ST. LOUIS, MISSOURI

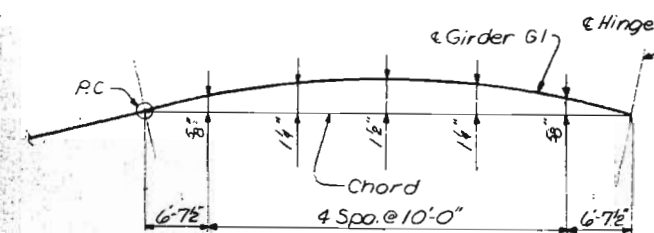
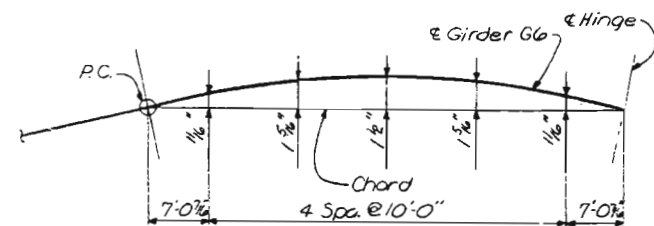
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	57	



NOTES

For Structural Steel Notes, see Sheet 33. Longitudinal dimensions are measured horizontally along centerline of girders. Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panels. For Hinge Details, See Sheets 65 and 69. For Girder Details, See Sheet 59. For Girder Splice Details, See Sheet 61.



Girder	Dim. A	Dim. B	Dim. C	Angle A
G1	19'-11 1/8"	40'-11 1/8"	39'-11 1/8"	90°04'-48"
G2	20'-0 3/8"	41'-1"	40'-0 3/8"	90°04'-47"
G3	20'-0 3/8"	41'-2 3/8"	40'-0 3/8"	90°04'-47"
G4	20'-0 3/8"	41'-4 3/8"	40'-0 3/8"	90°04'-46"
G5	20'-1 1/8"	41'-6"	40'-1 1/8"	90°04'-45"
G6	20'-1 1/8"	41'-7 3/8"	40'-1 1/8"	90°04'-44"

Note: Angle is measured from tangent to girder at Hinge, to Hinge.

CITY OF ST. LOUIS

FRAMING PLAN
SPANS 50, 51 AND 52

SHEET 57 OF 93

A-3594

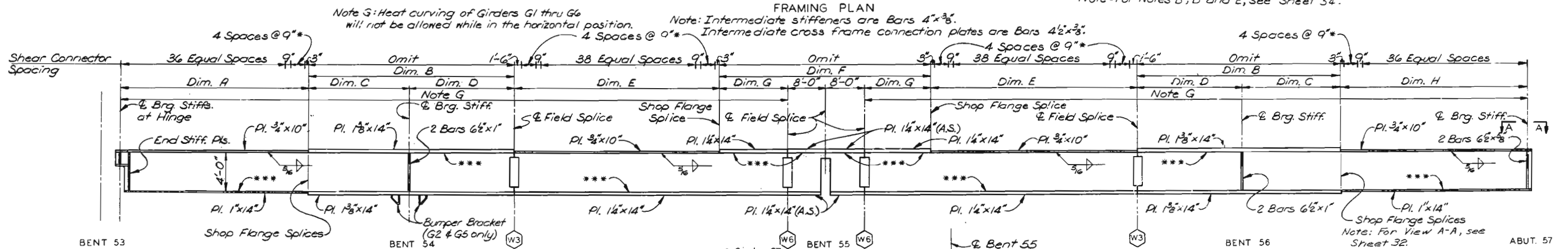
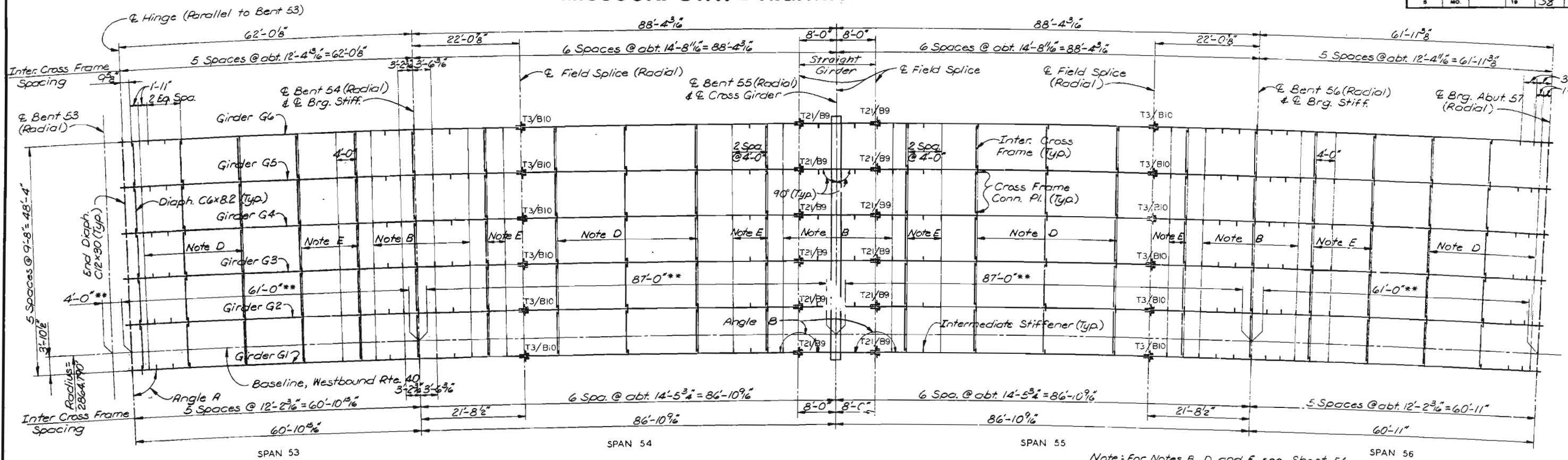
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353
DRAWN BY: J. D. Avery, June 1977
CHECKED BY: J. S. Sander, Sept. 1977
5261
775203

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	58	



ELEVATION-GIRDERS G1 THRU G6

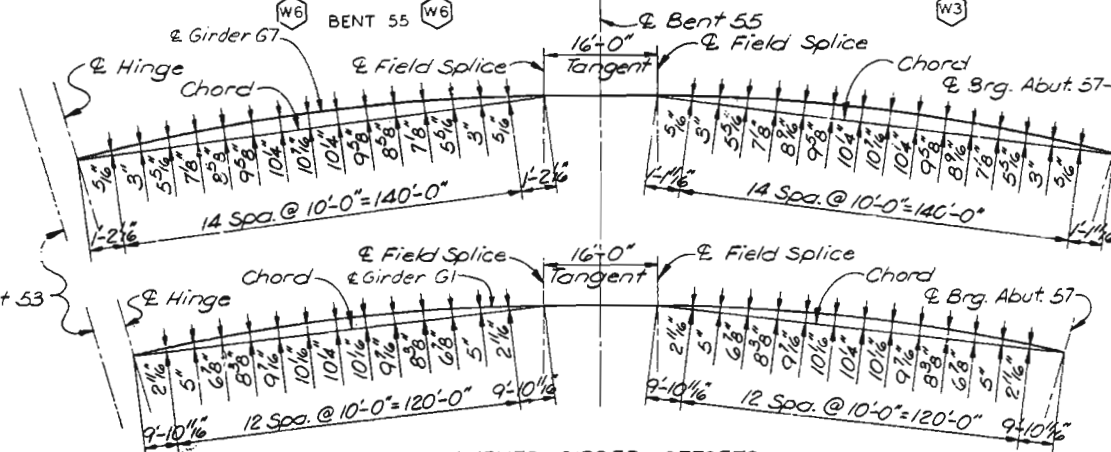
Notes: Field splice flange plates and intermediate stiffeners not shown.
 ○ Denotes type of field web splice.
 *** Indicates Flange Plates subject to notch toughness requirements.

Shear connectors shall be in 3 rows across girder flange except where noted by asterisk.
 (*) Indicates 4 rows of shear connectors across girder flange.
 Web plates are 1/2 x 48.
 All web plates shall be subject to notch toughness requirements.

Note: Angle A is measured from tangent to girder at & Hinge, to & Hinge.
 Angle B is measured from tangent to girder at & Field Splice, to & girder.

Girder	Angle A	Angle B
G1	89°55'12"	179°50'25"
G2	89°55'13"	179°50'25"
G3	89°55'14"	179°50'27"
G4	89°55'15"	179°50'29"
G5	89°55'16"	179°50'31"
G6	89°55'16"	179°50'33"

Girder	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Dim. G	Dim. H
G1	40'-2 1/2"	42'-5 1/2"	20'-8 1/2"	21'-8 1/2"	43'-4 1/2"	43'-7 1/2"	13'-6 1/2"	40'-2 1/2"
G2	40'-4 1/2"	42'-6 1/2"	20'-9 1/2"	21'-9 1/2"	43'-6 1/2"	43'-8 1/2"	13'-10 1/2"	40'-4 1/2"
G3	40'-5 1/2"	42'-8 1/2"	20'-10 1/2"	21'-10 1/2"	43'-8 1/2"	43'-9 1/2"	13'-10 1/2"	40'-5 1/2"
G4	40'-7 1/2"	42'-10 1/2"	20'-11 1/2"	21'-11 1/2"	43'-10 1/2"	43'-10 1/2"	13'-11 1/2"	40'-7 1/2"
G5	40'-9 1/2"	43'-0 1/2"	21'-0 1/2"	22'-0 1/2"	44'-0 1/2"	44'-0 1/2"	14'-0 1/2"	40'-8 1/2"
G6	40'-11 1/2"	43'-1 1/2"	21'-0 1/2"	22'-0 1/2"	44'-2 1/2"	44'-1 1/2"	14'-0 1/2"	40'-10 1/2"



CURVED GIRDER OFFSETS

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

NOTES
 For Structural Steel Notes, see Sheet 33.
 Longitudinal dimensions are measured horizontally along centerline of girders.
 Intermediate stiffeners for longitudinal girders shall be spaced equally between adjacent cross members except as otherwise shown at splices and end panels.
 For Girder Details, see Sheet 59.
 For Girder Splice Details, see Sheets 61 and 62.
 For Hinge Details, see Sheet 65.
 For Bumper Bracket Details, see Sheet 60.

CITY OF ST. LOUIS

FRAMING PLAN
 SPANS 53 THRU 56

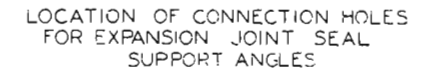
SHEET 58 OF 93

A-3594

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 ST. LOUIS, MISSOURI

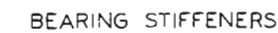
DRAWN BY: D. AMMONS, JULY 1977
 CHECKED BY: T. SANDERS, SEPT. 1977
 5261
 173267

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	NO.		10	59	



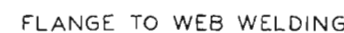
NOTES

For Structural Steel Notes, see Sheet 33.
W indicates fillet weld in accordance with specifications.



GIRDERS ON CURVE
(1°-00'-00" curve or more)
Note: Inter. Stiffeners to be connected
same as girders on tangent.

SECTION C-C



Note A: Contractor shall verify location of concrete inserts before holes are drilled in Brq. Stiffs.

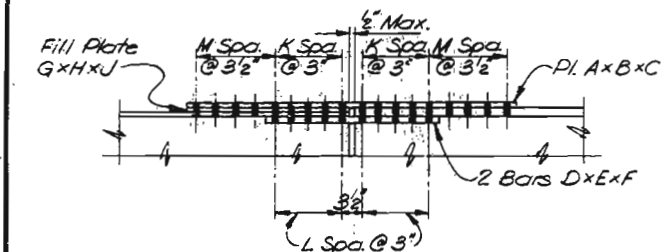
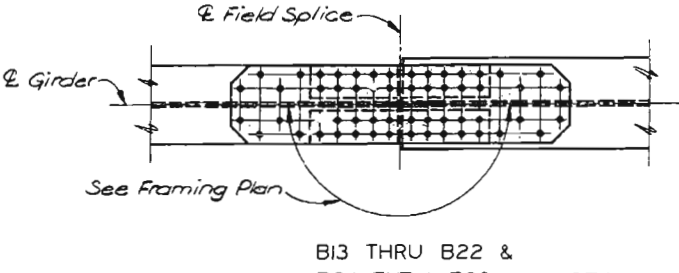
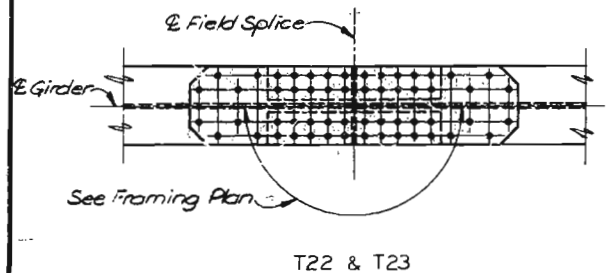
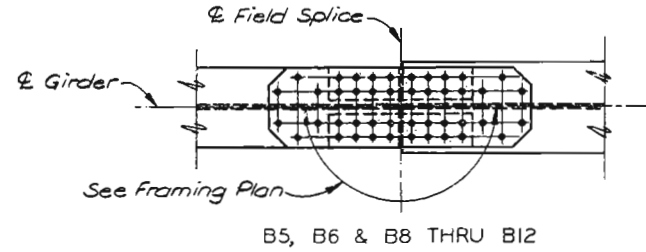
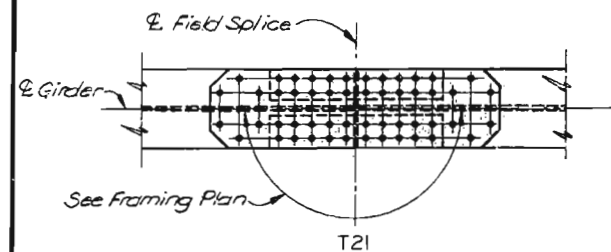
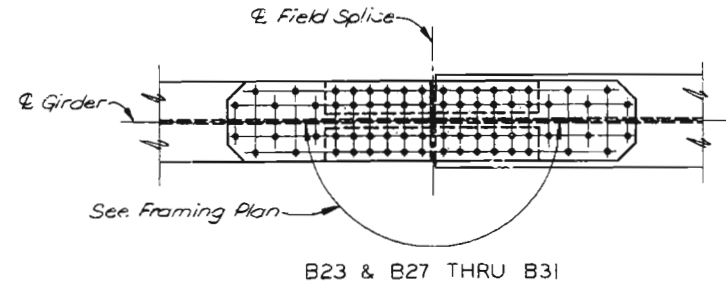
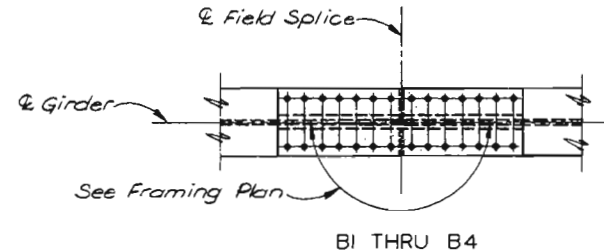
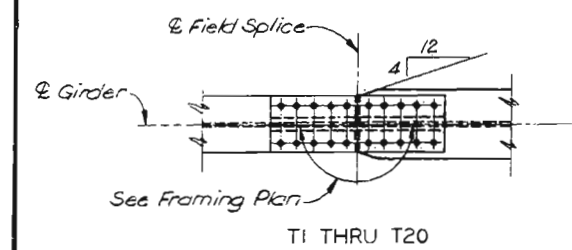


SHEET 59 OF 93

A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	61	

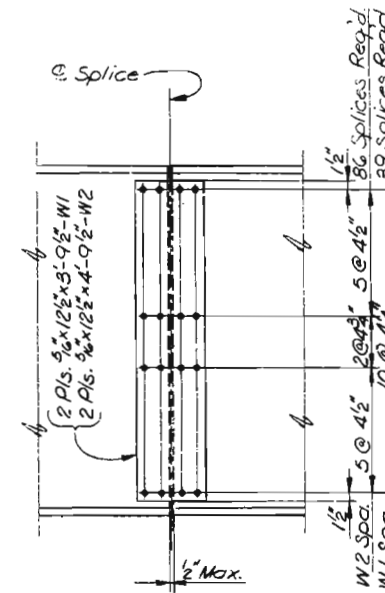


TOP FLANGE SPLICES

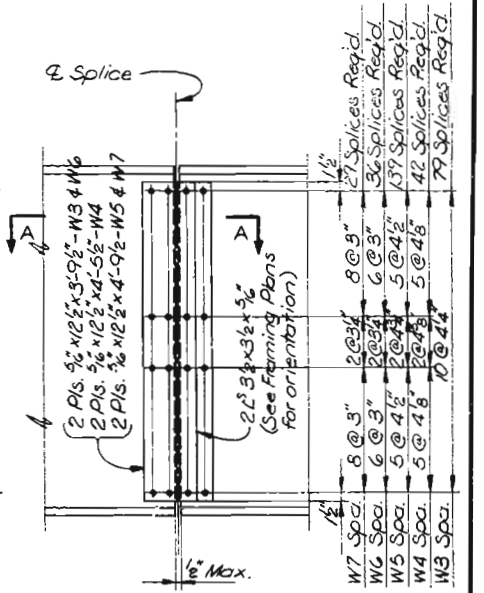
BOTTOM FLANGE SPLICES

TOP FLANGE SPLICE VARIABLES													
Type	Flanges Spliced	A	B	C	D	E	F	G	H	J	K	L	M
T2	1/2 x 14"												12
T3	1/2 x 14"												18
T4	1/2 x 14"												13
T5	1/2 x 14"												14
T6	1/2 x 14"												12
T7	3/4 x 10"	10"	2'-0"	4"		2'-0"		10"	1'-0"	3"	3"		18
T8	3/4 x 12"	12"	2'-6"	5"		2'-6"				4"	4"		7
T9	1/2 x 14"												1
T10	1/2 x 14"												28
T11	1/2 x 14"												12
T12	1/2 x 16"												4
T13	1/2 x 16"												4
T14	1/2 x 16"												16
T15	1/2 x 16"												110
T16	1/2 x 16"												64
T17	3/4 x 12"	12"	2'-6"			2'-6"				1'-3"	4"		43
T18	3/4 x 12"	12"	3'-6"			3'-6"				1'-9"	6"		1
T19	3/4 x 12"	12"	3'-6"			3'-6"				1'-3"	6"		2
T20	1/2 x 12"	12"	3'-6"	5"		3'-6"				1'-9"	6"		2
T21	1/2 x 14"	14"	4'-3"	6"		4'-3"					4"	3"	36
T22	1/2 x 14"	14"	4'-10"	6"		4'-10"					4"	4"	8
T23	1/2 x 14"	14"	4'-10"	6"		4'-10"					4"	4"	14

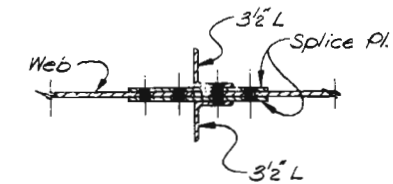
BOTTOM FLANGE SPLICE VARIABLES													
Type	Flanges Spliced	A	B	C	D	E	F	G	H	J	K	L	M
B1	1/2 x 12" to 1/2 x 12"	12"	12"	3'-6"	5"	3'-6"	1/2"	12"	1'-9"	6"	6"		6
B2	1/2 x 12" to 1/2 x 12"	12"	12"	3'-6"	5"	3'-6"	1/2"	12"	1'-9"	6"	6"		6
B3	1/2 x 12" to 1/2 x 12"	12"	12"	4'-0"	5"	4'-0"	1/2"	12"	2'-0"	7"	7"		12
B4	1/2 x 12" to 1/2 x 12"	12"	12"	4'-0"	5"	4'-0"	1/2"	12"	2'-0"	7"	7"		12
B5	1/2 x 14" to 1/2 x 14"	14"	14"	3'-3"	6"	3'-3"	1/2"	14"	1'-7"	2"	2"	3"	7
B6	1/2 x 14" to 1/2 x 14"	14"	14"	3'-9"	6"	3'-9"	1/2"	14"	1'-10"	3"	3"	3"	6
B7	Not Used												
B8	1/2 x 14" to 1/2 x 14"	14"	14"	4'-3"	6"	4'-3"	1/2"	14"	2'-1"	4"	4"	3"	6
B9	1/2 x 14" to 1/2 x 14"	14"	14"	4'-3"	6"	4'-3"	1/2"	14"	2'-1"	4"	4"	3"	6
B10	1/2 x 14" to 1/2 x 14"	14"	14"	4'-3"	6"	4'-3"	1/2"	14"	2'-1"	4"	4"	3"	46
B11	1/2 x 14" to 1/2 x 14"	14"	14"	4'-3"	6"	4'-3"	1/2"	14"	2'-1"	4"	4"	3"	12
B12	1/2 x 14" to 1/2 x 14"	14"	14"	4'-3"	6"	4'-3"	1/2"	14"	2'-1"	4"	4"	3"	12
B13	1/2 x 14" to 1/2 x 14"	14"	14"	4'-10"	6"	4'-10"	1"	14"	2'-5"			4"	1
B14	1/2 x 14" to 1/2 x 14"	14"	14"	4'-10"	6"	4'-10"	1"	14"	2'-5"			4"	8
B15	1/2 x 14" to 1/2 x 14"	14"	14"	4'-10"	6"	4'-10"	1"	14"	2'-5"			4"	26
B16	1/2 x 14" to 1/2 x 14"	14"	14"	4'-10"	6"	4'-10"	1"	14"	2'-5"			4"	26
B17	1/2 x 14" to 1/2 x 14"	14"	14"	4'-10"	6"	4'-10"	1"	14"	2'-5"			4"	4
B18	1/2 x 14" to 1/2 x 14"	14"	14"	4'-10"	6"	4'-10"	1"	14"	2'-5"			4"	4
B19	1/2 x 14" to 1/2 x 14"	14"	14"	4'-10"	6"	4'-10"	1"	14"	2'-5"			4"	4
B20	1/2 x 14" to 1/2 x 14"	14"	14"	4'-10"	6"	4'-10"	1"	14"	2'-5"			4"	80
B21	1/2 x 14" to 1/2 x 14"	14"	14"	4'-10"	6"	4'-10"	1"	14"	2'-5"			4"	35
B22	1/2 x 14" to 1/2 x 14"	14"	14"	4'-10"	6"	4'-10"	1"	14"	2'-5"			4"	24
B23	1/2 x 14" to 1/2 x 14"	14"	14"	5'-11"	6"	5'-11"	1"	14"	3'-0"	5"	5"	5"	2
B24	1/2 x 14" to 1/2 x 14"	14"	14"	5'-11"	6"	5'-11"	1"	14"	3'-0"	5"	5"	5"	13
B25	1/2 x 14" to 1/2 x 14"	14"	14"	5'-4"	6"	5'-4"	1"	14"	3'-0"	5"	5"	4"	13
B26	1/2 x 14" to 1/2 x 14"	14"	14"	5'-4"	6"	5'-4"	1"	14"	3'-0"	5"	5"	4"	12
B27	1/2 x 14" to 1/2 x 14"	14"	14"	5'-11"	6"	5'-11"	1"	14"	3'-0"	5"	5"	5"	16
B28	1/2 x 14" to 1/2 x 14"	14"	14"	5'-11"	6"	5'-11"	1"	14"	3'-0"	5"	5"	5"	12
B29	1/2 x 14" to 1/2 x 14"	14"	14"	6'-5"	6"	6'-5"	1"	14"	3'-2"	6"	6"	6"	1
B30	1/2 x 14" to 1/2 x 14"	14"	14"	6'-11"	7"	6'-11"	1"	14"	3'-5"	7"	7"	7"	1
B31	1/2 x 14" to 1/2 x 14"	14"	14"	6'-11"	7"	6'-11"	1"	14"	3'-5"	7"	7"	5"	2



W1 & W2



W3 THRU W7



SECTION A-A

WEB SPLICE DETAILS

NOTES

For Structural Steel Notes, see Sheet 33.
All connectors this sheet to be 8" High
Strength Bolts.
11 splice P-1
T8, T21, T22 and T23 subject to notch
toughness requirements.

CITY OF ST. LOUIS

GIRDER SPLICES

SHEET 61 OF 93

A-3594

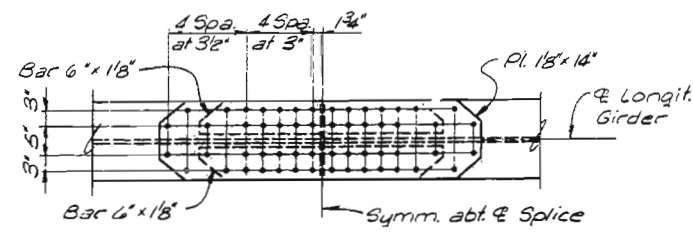
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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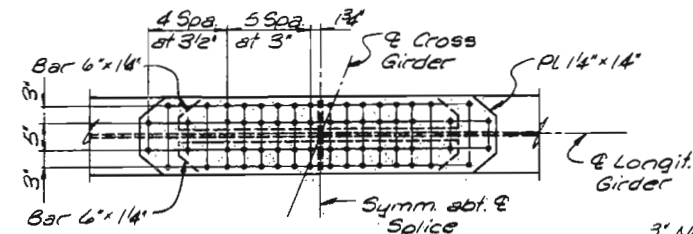
35.7
DRAWN BY: D. AMMONS, Sept. 1977
CHECKED BY: T. S. 10-77, Oct. 1977
5261
75328

MISSOURI STATE HIGHWAY DEPARTMENT

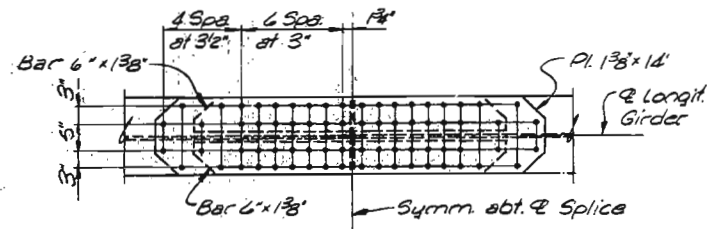
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	MO.		18	62	



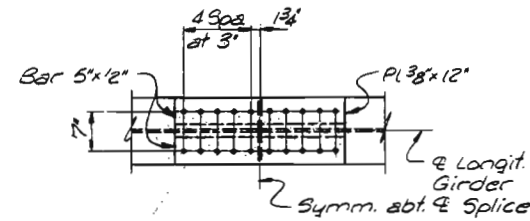
AT BENTS 9, 10 & 55
(Gdrs. G1-G6)



AT BENT 32
(Gdrs. G7-G10)

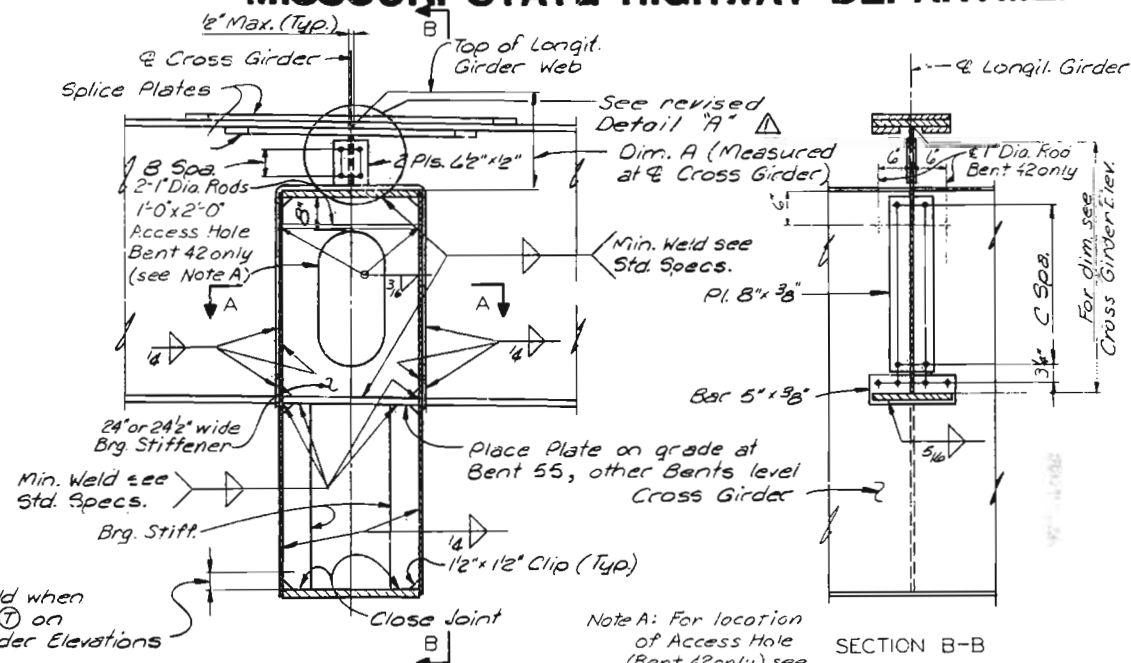


AT BENT 41
(Gdrs. G1-G7)



AT BENT 42
(Gdrs. G1-G7)

TOP FLANGE SPLICES

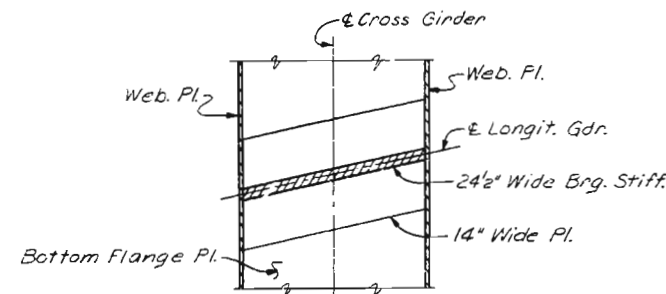


LONGIT. GDR. CONNECTIONS
AT CROSS GIRDERS

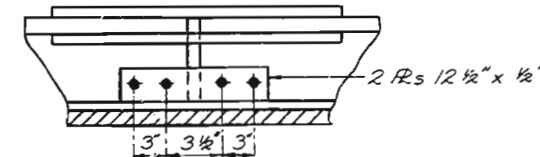
Note A: For location
of Access Hole
(Bent 42 only) see
Details At Gdr. G6
- Bent 42

TABLE OF VARIABLES									
Bent	Gdr.	Dim. A	B Spa.	C Spa.	Bent	Gdr.	Dim. A	B Spa.	C Spa.
9	G1	10' 8"	1	9	41	G1	7'	1	11
	G2	10' 10"	2	9		G2	7 3/4'	1	11
	G3	10' 3/4'	2	9		G3	7 3/4'	1	11
	G4	10' 13/16"	2	9		G4	7 3/4'	1	11
	G5	9'	1	9		G5	7 1/4'	1	11
10	G6	7'	1	9	42	G6	7'	1	11
	G1	10'	1	9		G7	7'	1	11
	G2	10' 8"	2	9		G1	7'	1	9
	G3	10' 3/4'	2	9		G2	7 1/4'	1	9
	G4	11' 1/4"	2	9		G3	7 3/4'	1	9
32	G5	9 1/2'	1	9		G4	7 1/4'	1	9
	G6	7'	1	9		G5	7 3/4'	1	9
	G7	7'	1	9		G6	7 1/4'	1	9
	G8	9 1/2'	1	9		G7	7'	1	9
	G9	10' 3/8"	2	9	55	G1	7'	1	9
	G10	12' 3 3/4"	2	9		G2	7 1/4'	1	9
						G3	7 1/4'	1	9
						G4	7 1/4'	1	9
						G5	7 1/4'	1	9
						G6	7'	1	9

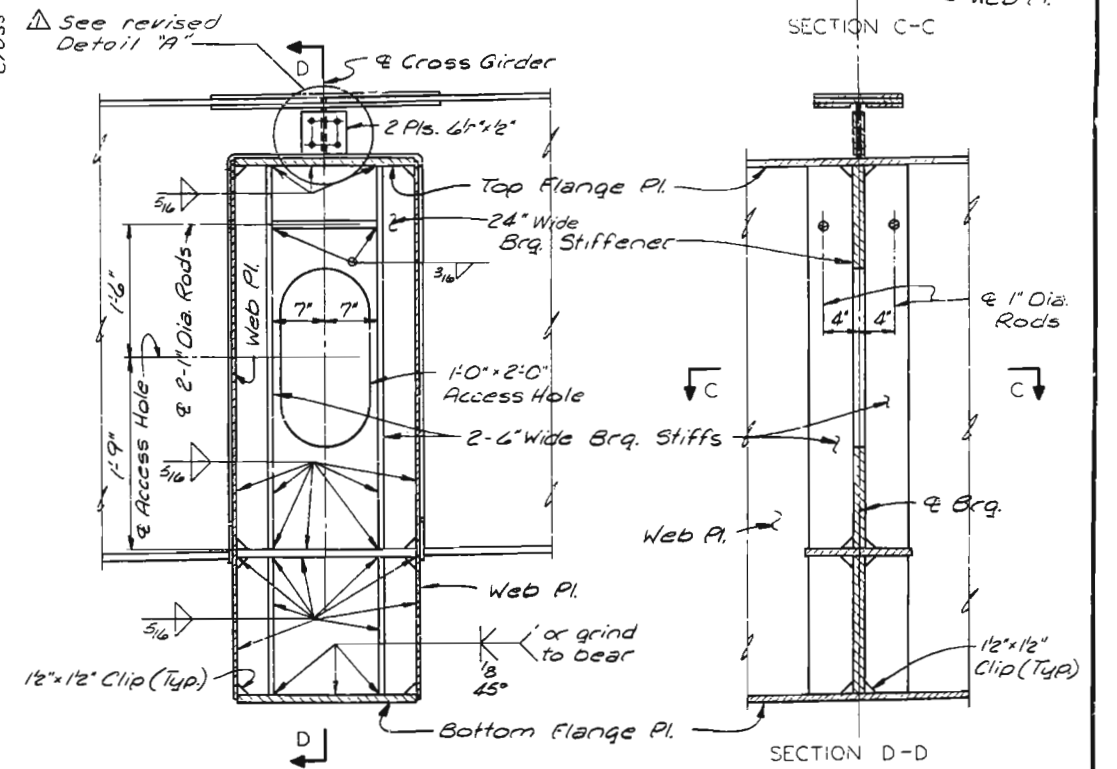
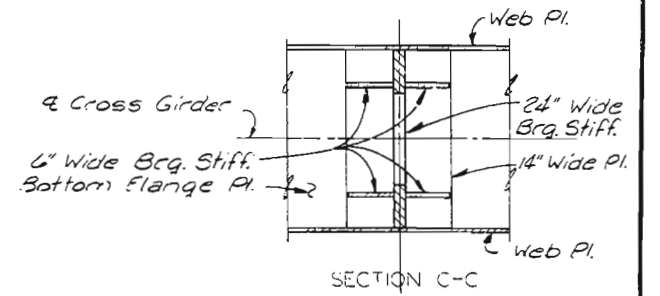
Note: All flange splice plates subject to notch toughness requirements.



SECTION A-A (Bent 32)



Revised Detail "A" for Gdr. 6 Bt. 9,
Gdr. 6 Bt. 10, Gdr. 7 Bt. 32, & All Gdrs. @
Bts. 41, 42 & 55.



DETAILS AT

GDR. G6 - BENT 42
GDRS. G1 AND G6 - BENT 55

NOTES

For Structural Steel Notes, see Sheet 33.
All connectors this sheet to be 8" High
Strength Bolts.

CITY OF ST. LOUIS

G'RDER SPLICES AT CROSS GIRDERS

SHEET 62 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

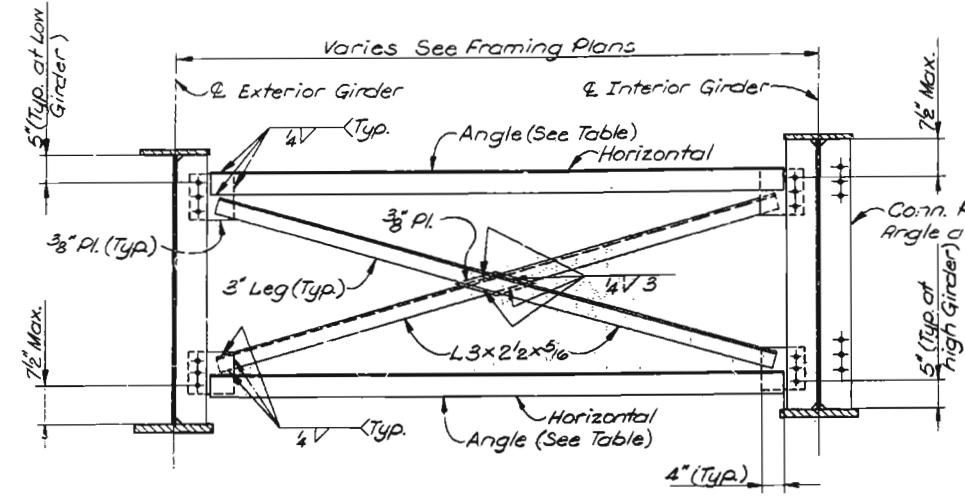
Revised Date Oct. 10, 1979

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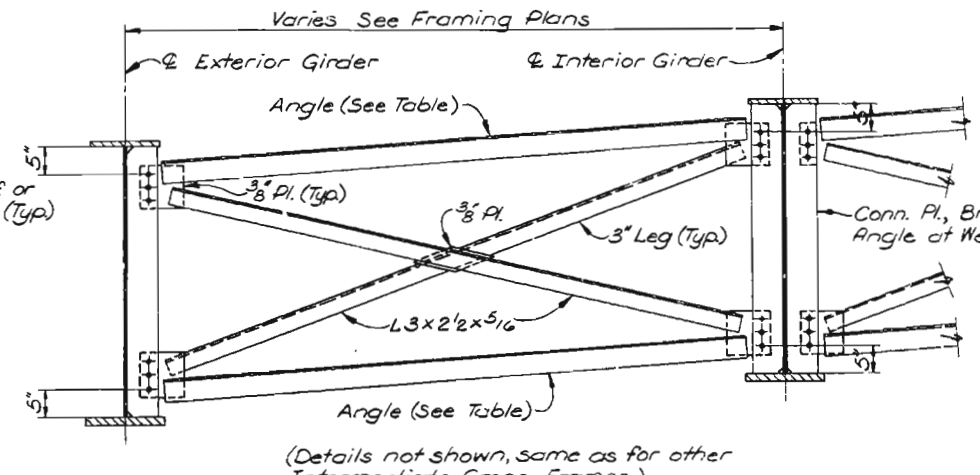
3:58
DRAWN BY: O.J. Schremp, Sept. 1977
CHECKED BY: R.L. Butterfield, Nov. 1977
5861
7753/B

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	63	



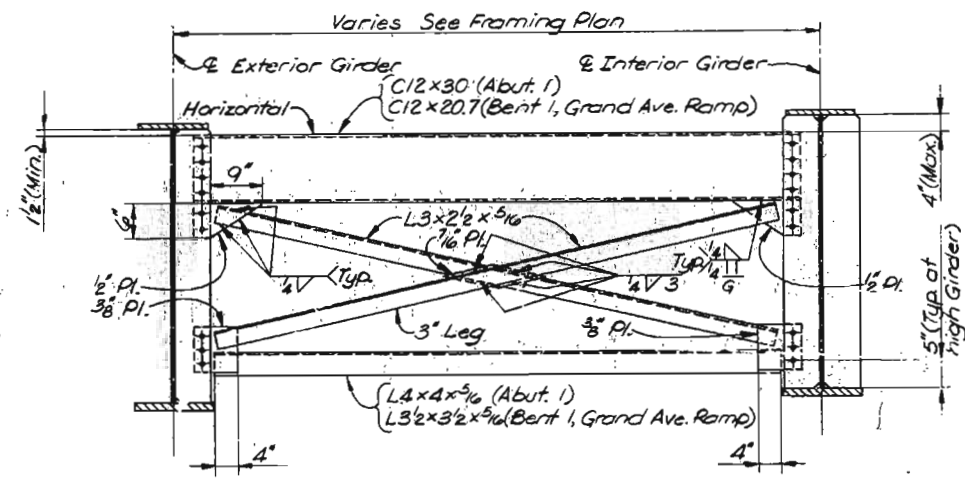
INTERMEDIATE CROSS FRAME
Note: Difference in elevation of adjacent webs less than 2 1/2".



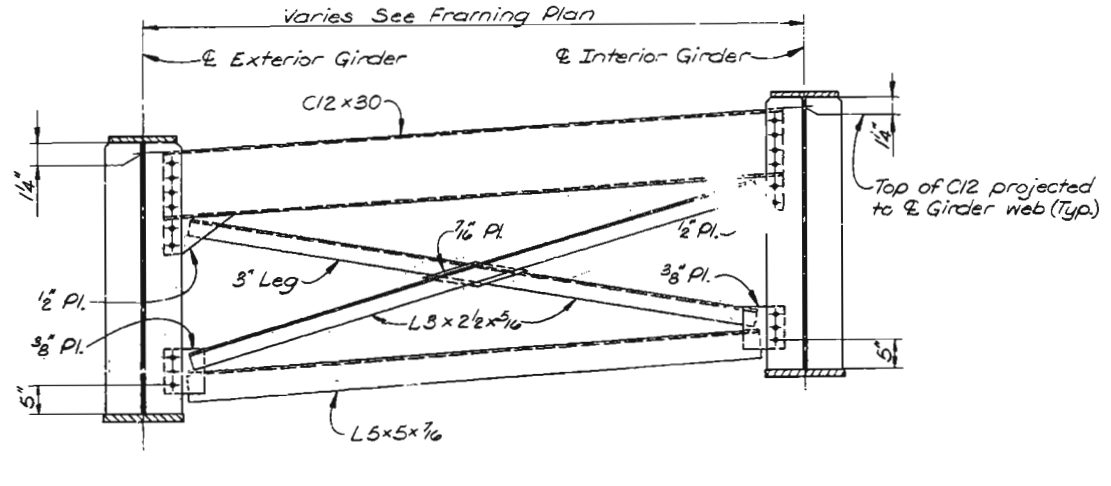
INTERMEDIATE CROSS FRAME
Note: Difference in elevation of adjacent webs 2 1/2" or more.

Girder Spacing	Angle Size	Type Girder
Up to 7'-3"	L3 1/2 x 3 x 5/16	Straight
	L3 1/2 x 3 x 5/16	Curved
Over 7'-3" to 8'-0"	L3 1/2 x 3 x 5/16	Straight
	L4 x 3 1/2 x 5/16	Curved
Over 8'-0"	L4 x 4 x 5/16	Straight
	L5 x 5 x 1/2	Curved

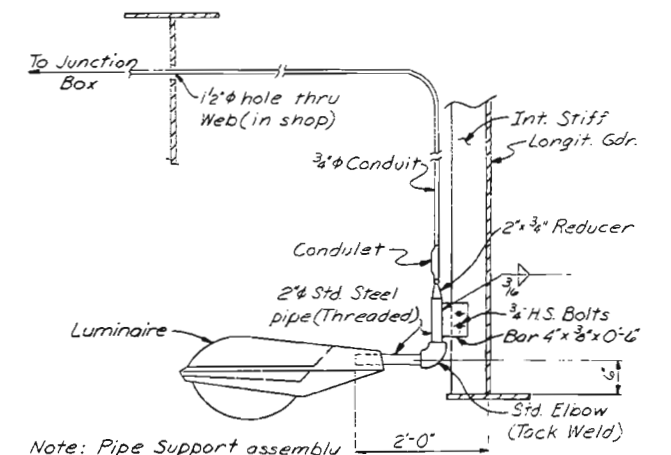
* Curved girders include girders that are horizontally curved 1°-00'-00" or more.



END CROSS FRAME AT ABUT. I & BENT I

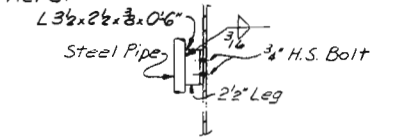


(Details not shown, same as for other End Cross Frames.)
END CROSS FRAME AT ABUT. 57



Note: Pipe Support assembly to be galvanized after welding.

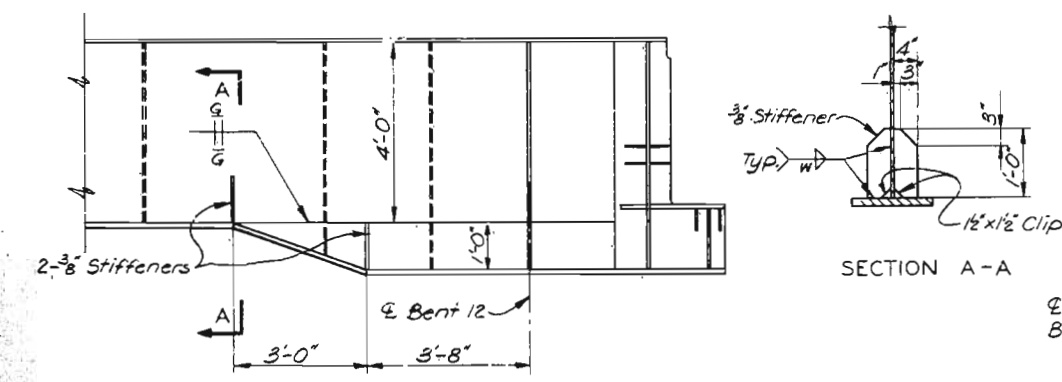
TYPE B UNDERDECK LIGHTING SUPPORT BRACKET
Note: Assembly includes bracket, reducer, steel pipe and elbow. Luminaire, conduit, conduit and junction box by others.



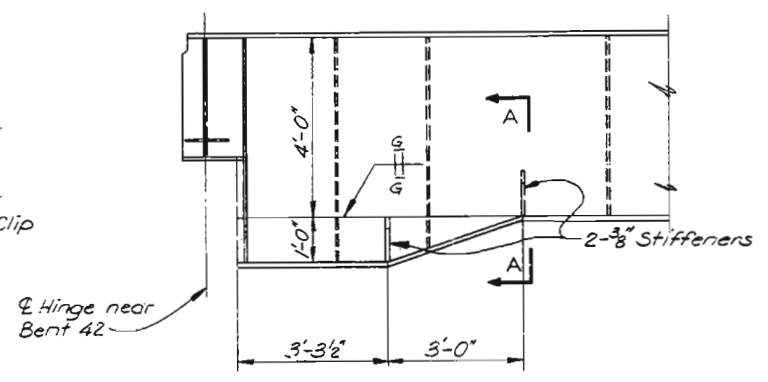
TYPE A UNDERDECK LIGHTING SUPPORT BRACKET
(Remainder of bracket details, same as Type B)

NOTES

For Structural Steel Notes, see Sheet 33.
Work this sheet with Framing Plans.
W indicated fillet weld in accordance with Specification.
Cost of furnishing, fabrication, and installation of Underdeck Lighting Support Bracket shall be included in unit price bid for "Fabricated Structural Carbon Steel".



GIRDER DEPTH TRANSITION NEAR BENT 12



GIRDER DEPTH TRANSITION NEAR BENT 42

CITY OF ST. LOUIS

CROSS FRAMES

SHEET 63 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

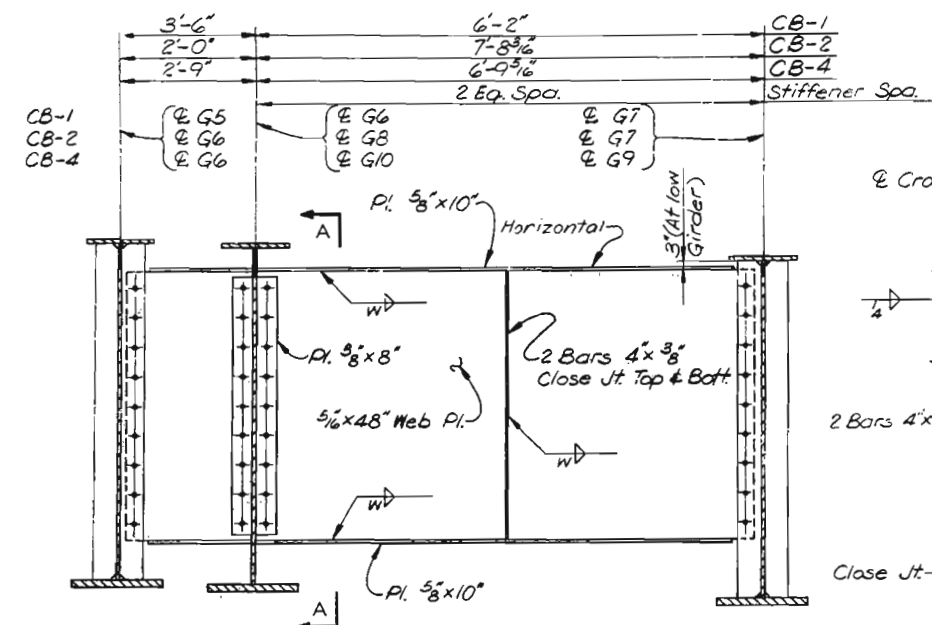
359

DRAWN BY: D. Ammons, June 1977
CHECKED BY: T. Sanders, Dec. 1977
5261
775240

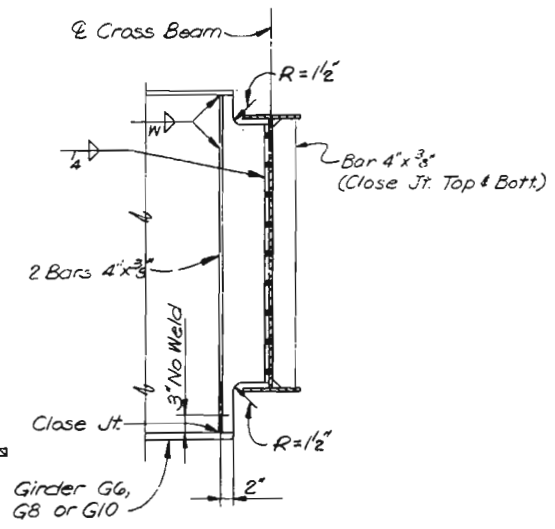
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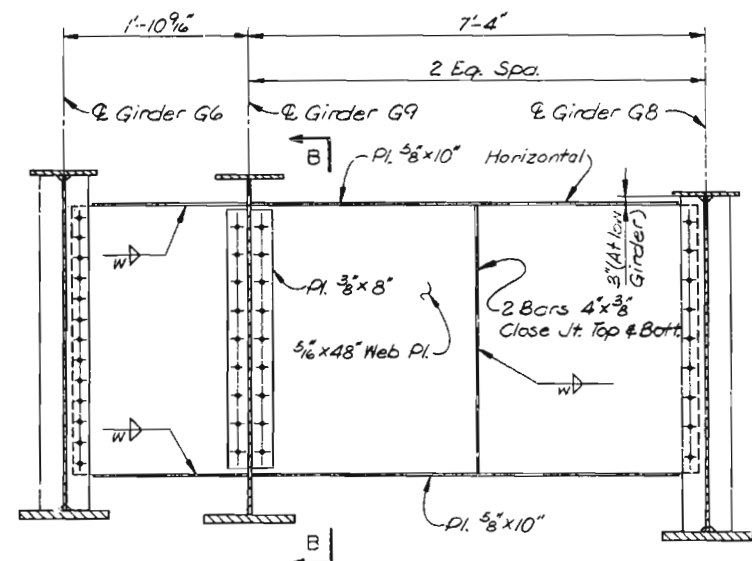
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5	MO.		19	19	



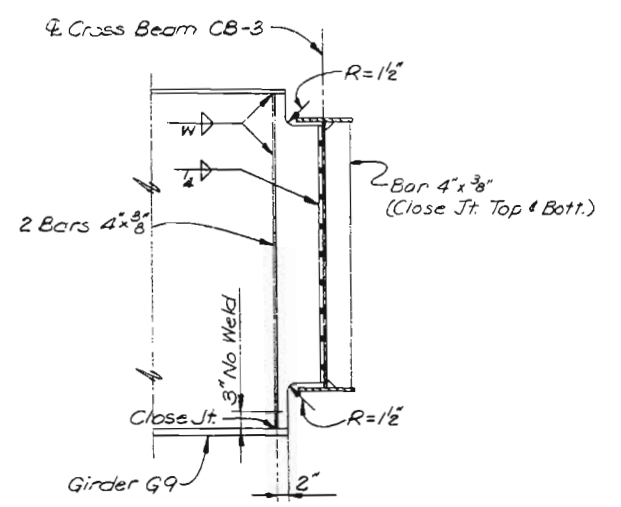
CROSS BEAM CB-1, CB-2 & CB-4
(CB-4 shown, CB-1 & CB-2 similar)



SECTION A-A



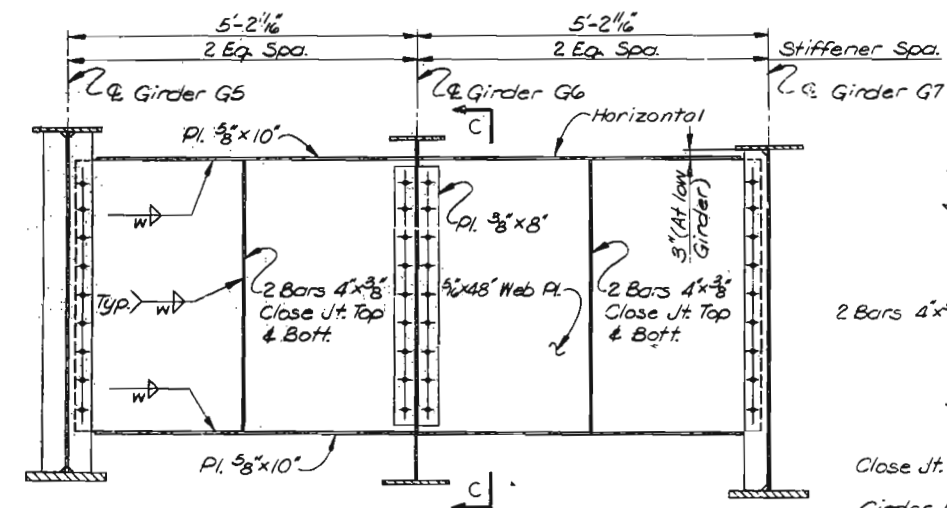
CROSS BEAM CB-3



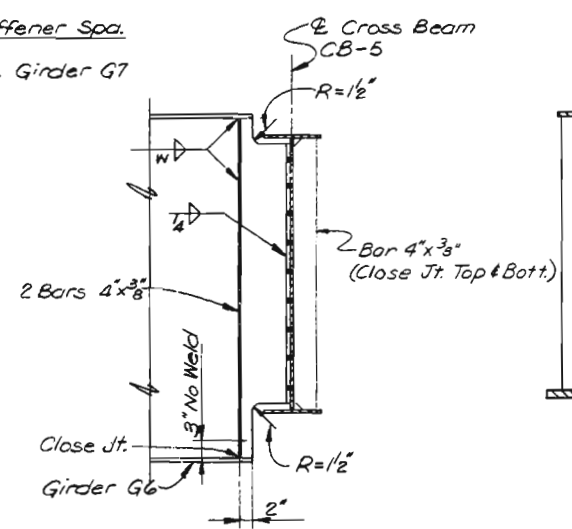
SECTION B-B

NOTES

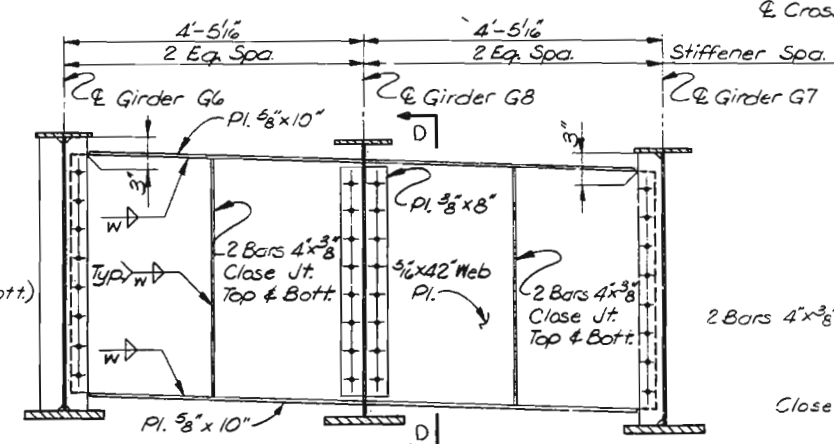
For Structural Steel Notes, see Sheet 33.
All dimensions shown measured along & Cross Beam connection plates.
See Framing Plan for angular relation of Cross Beam to Girders.
All Cross Beam bottom flange plates and Cross Beam web plates shall be subject to notch toughness requirements.
W indicates fillet weld in accordance with specifications.
All connections this sheet to be 7/8" High Strength Bolts.
Bar 4" x 3/8" (Close Jt. Top & Bott.)



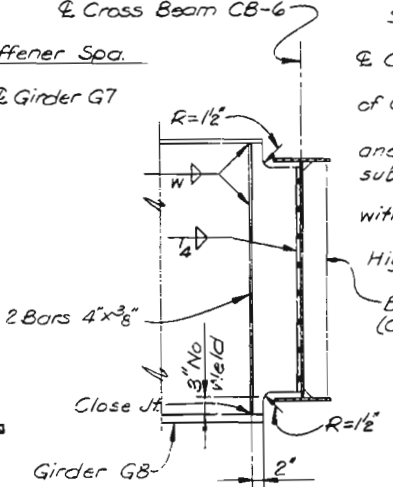
CROSS BEAM CB-5



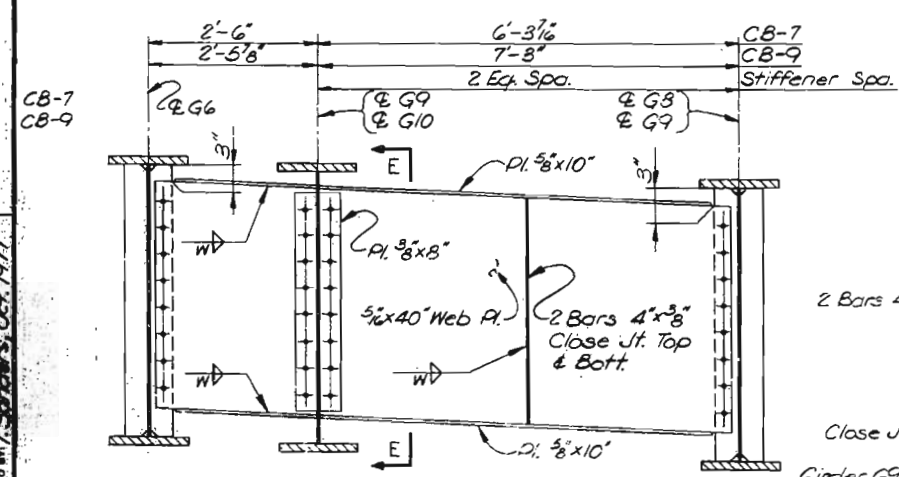
SECTION C-C



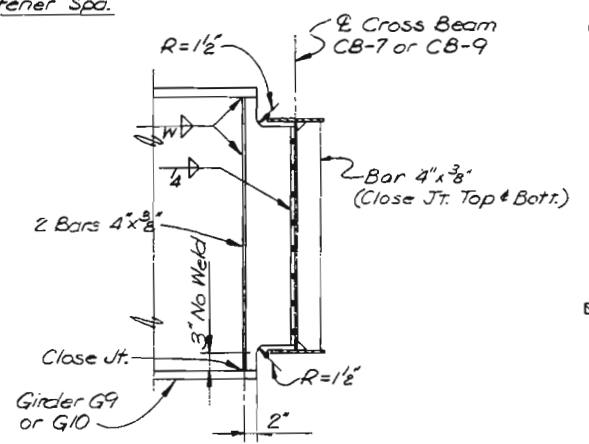
CROSS BEAM CB-6



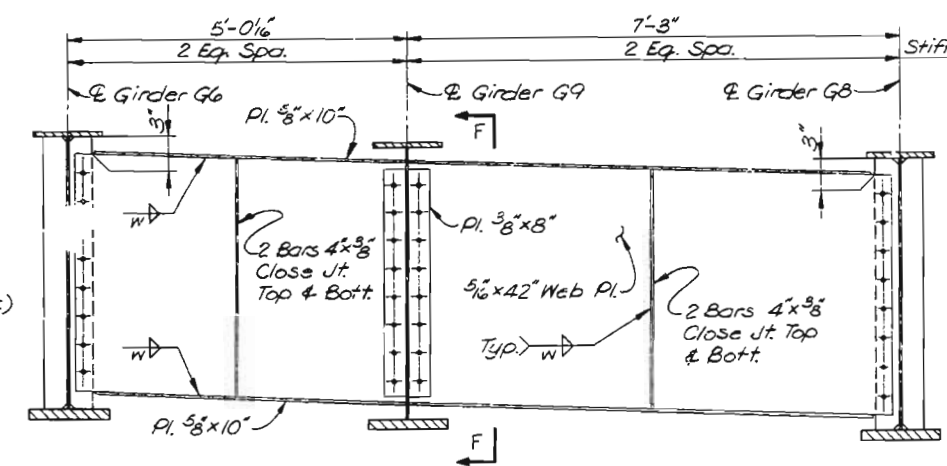
SECTION D-D



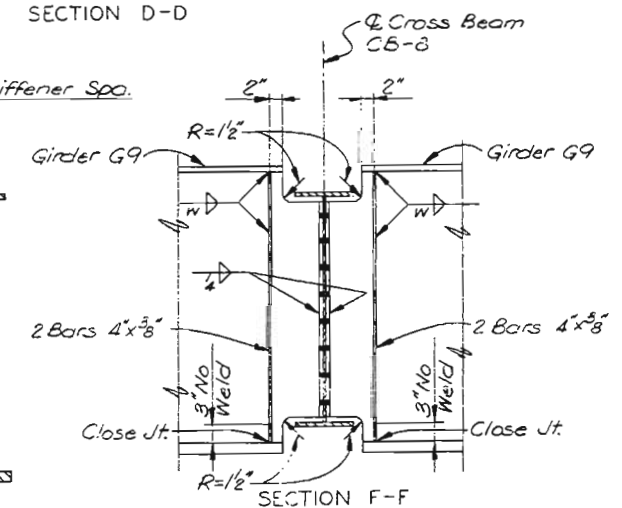
CROSS BEAM CB-7 & CB-9



SECTION E-E



CROSS BEAM CB-8



SECTION F-F

CITY OF ST. LOUIS

CROSS BEAMS

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SHEET 64 OF 93

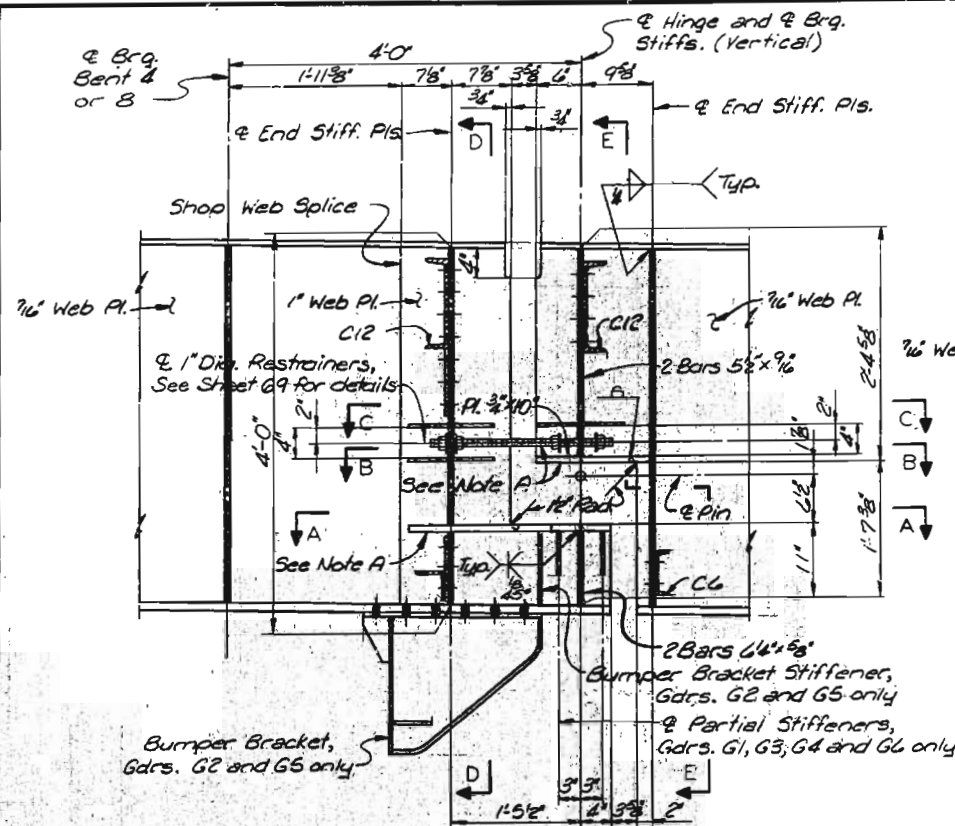
A-3594

DRAWN BY: D. Ammons, July 1977
CHECKED BY: T. Sanders, Oct. 1977
5261
7/8251

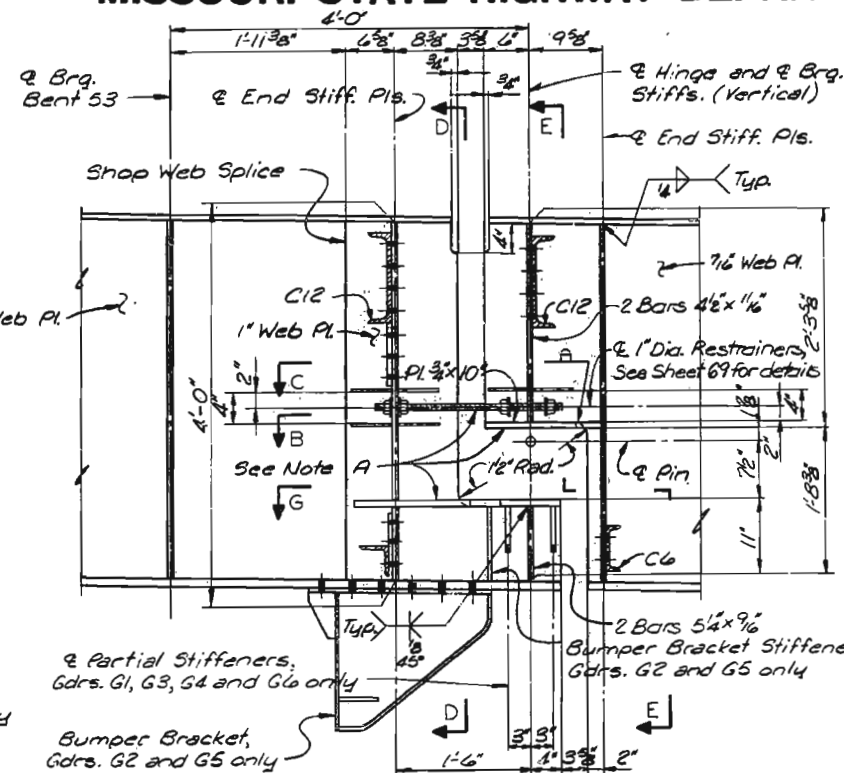
SYDERUP & PARCEL AND ASSOCIATES, Inc.
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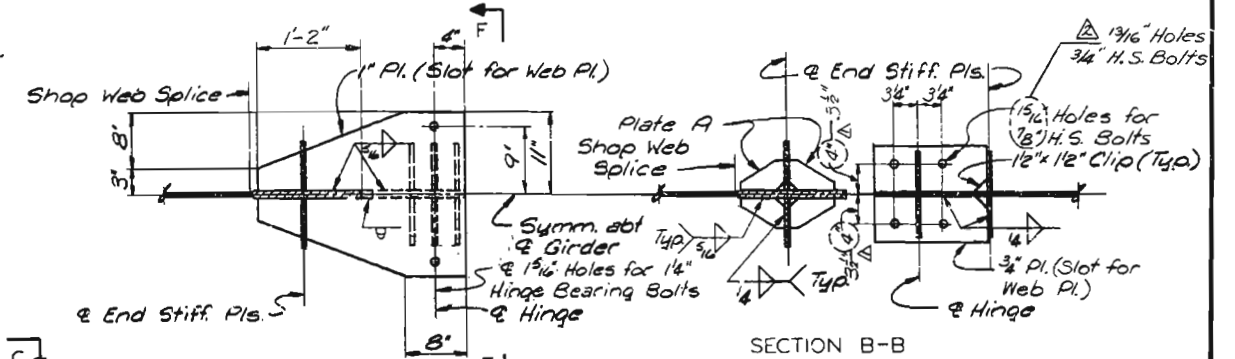
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5	MO.		18	65	



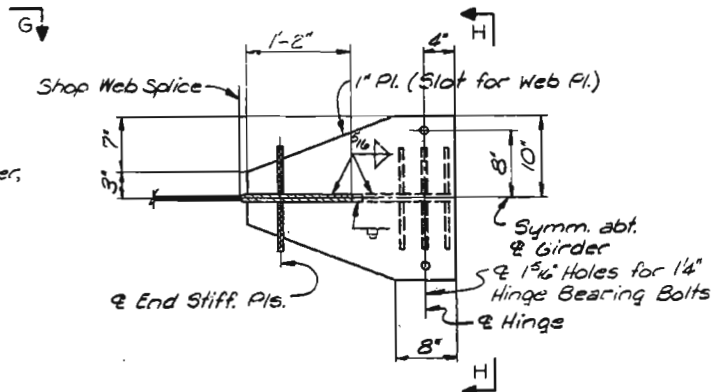
ELEVATION-HINGE NEAR BENTS 4 AND 8
Note: Restrainers to be on all Girders G1 thru G6



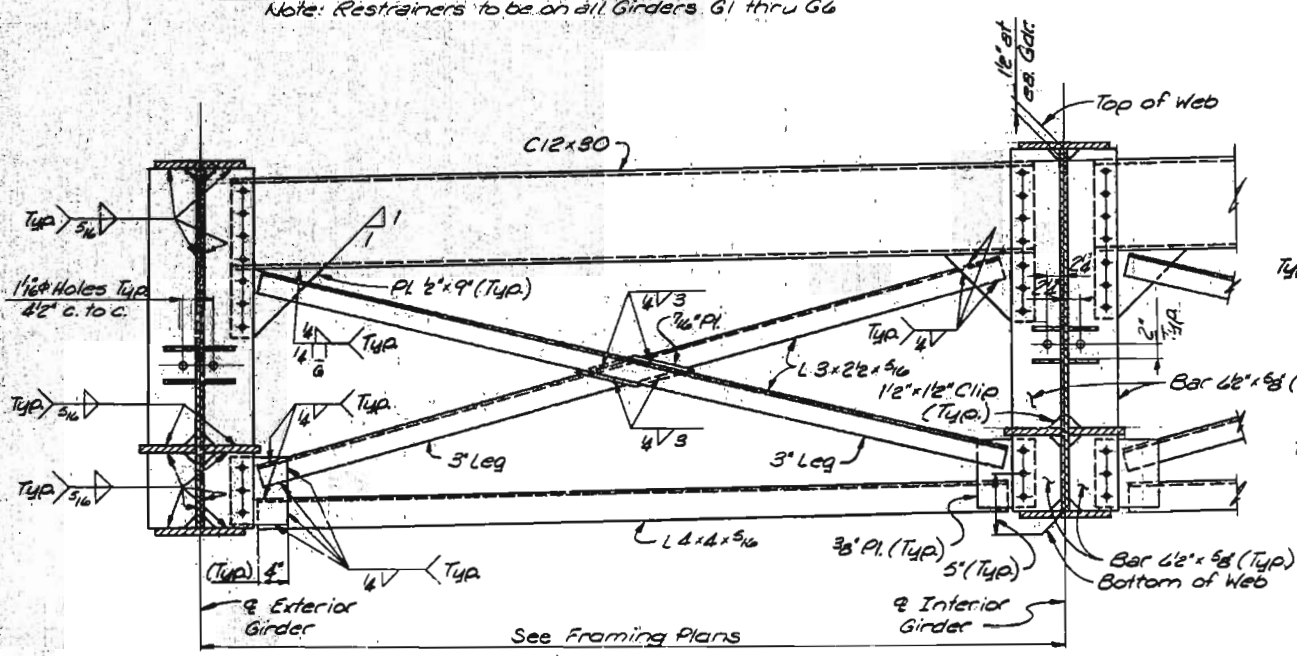
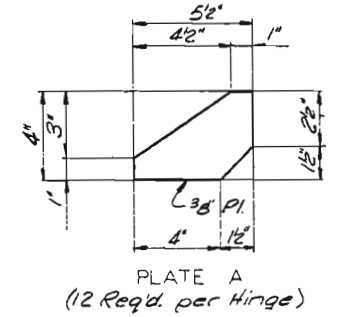
ELEVATION-HINGE NEAR BENT 53
Note: Restrainers to be on all Girders G1 thru G6



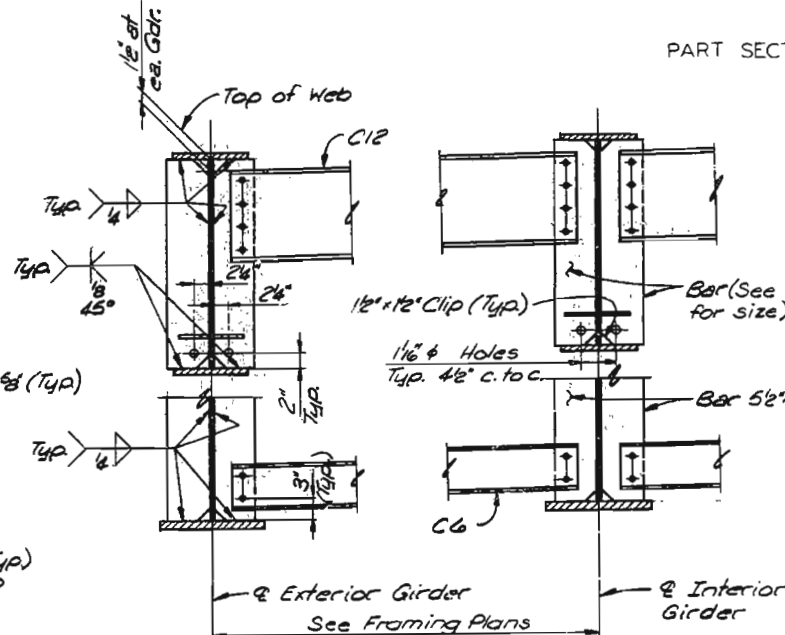
PART SECTION A-A



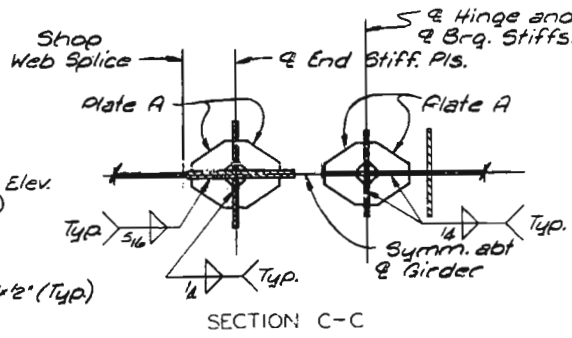
PART SECTION G-G



SECTION D-D



SECTION E-E



SECTION C-C

NOTES
For Structural Steel Notes, see Sheet 33.
All stiffeners and connection plates shown shall be vertical.
For details of Bumper Brackets, location and details of Bumper Bracket Stiffeners, see Sht 60.

Δ Changed Dimension of hole spacing 1-15-79
Δ Revised 11-7-79

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HINGES NEAR BENTS 4, 6 AND 53

SHEET 65 OF 93

A-3594

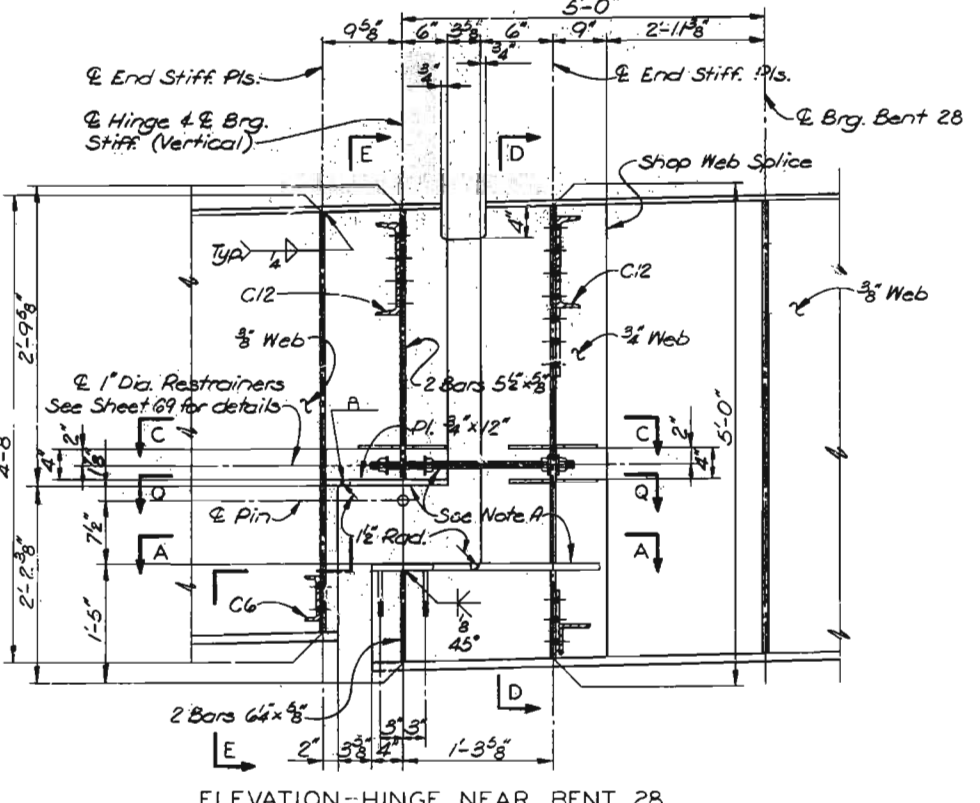
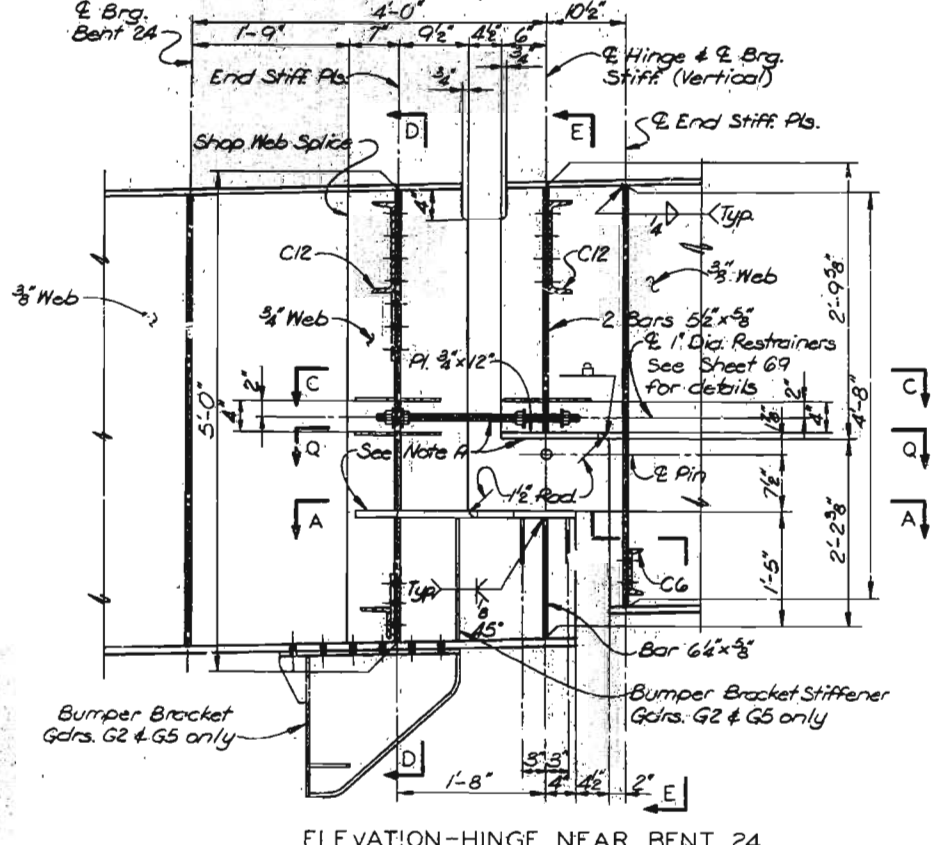
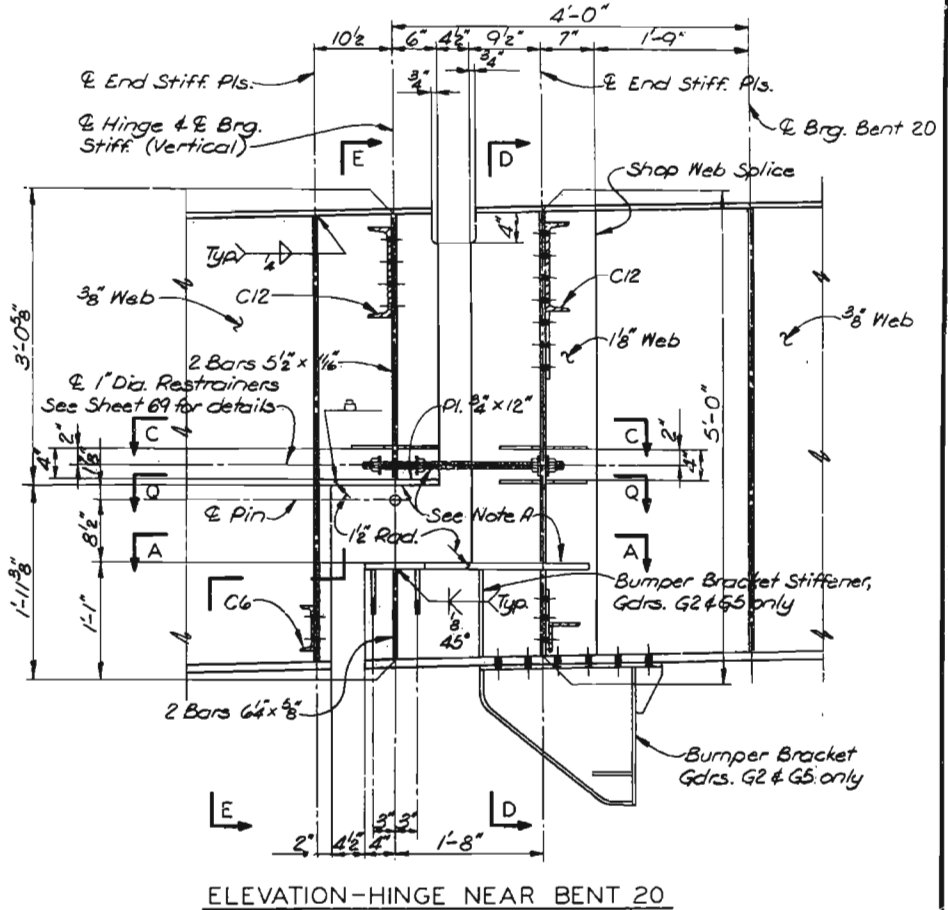
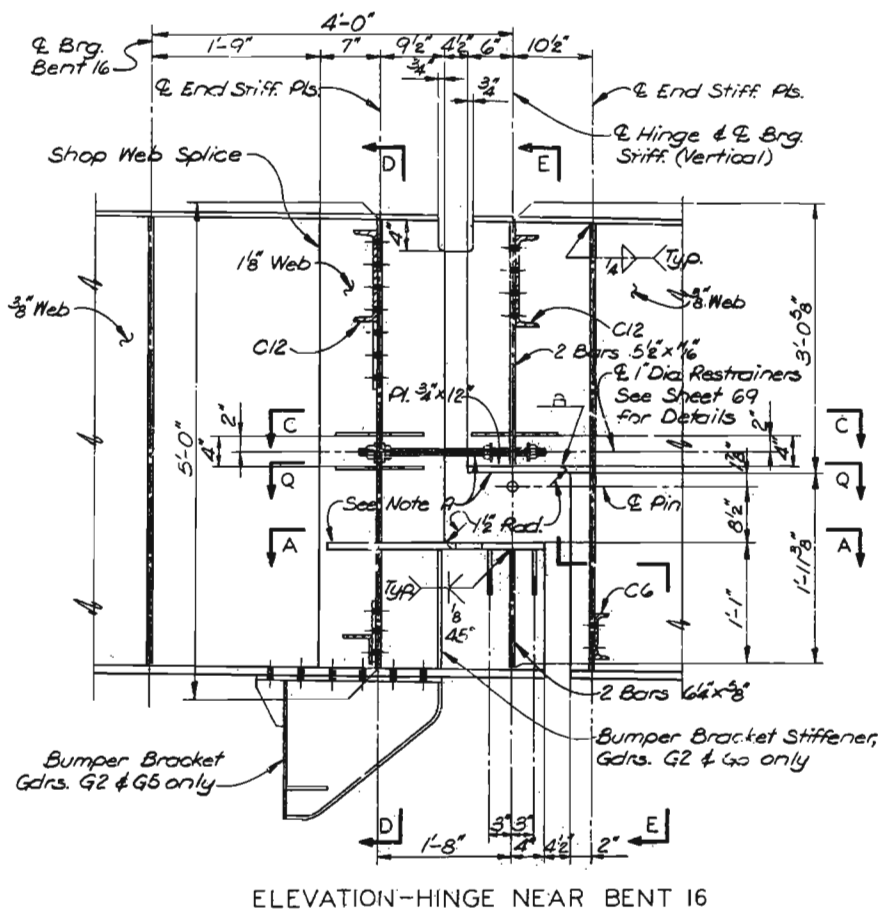
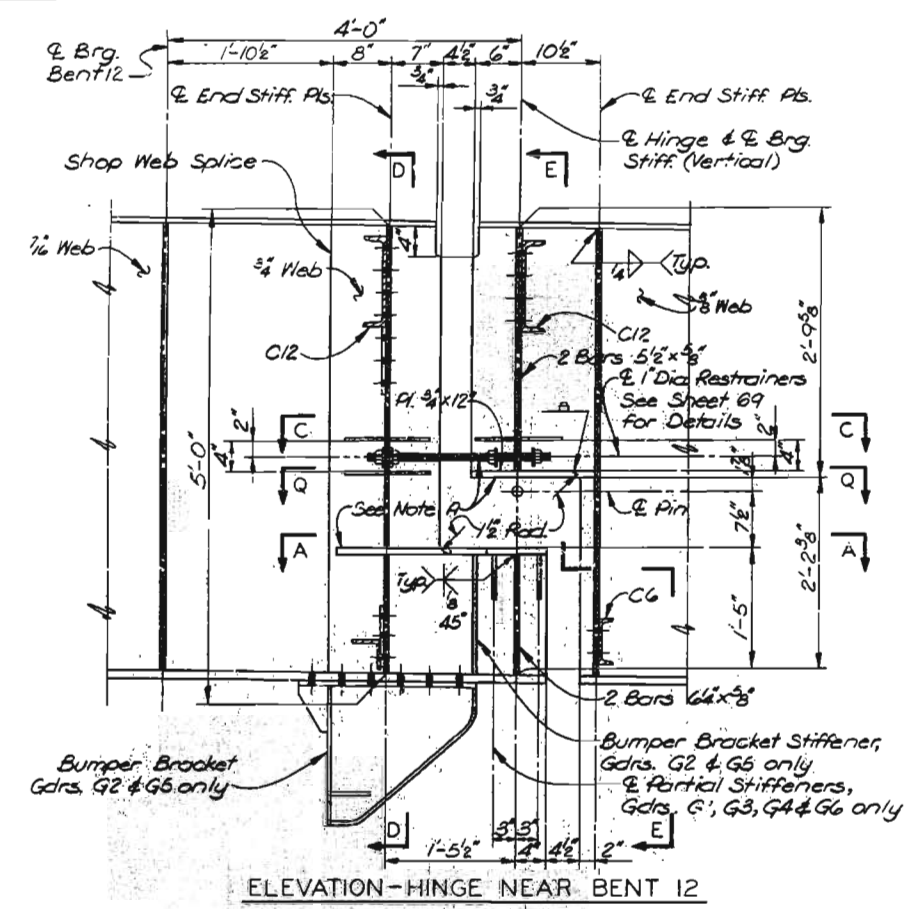
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

361
DRAWN BY: J. J. Scheraga, Sept. 1977
CHECKED BY: E. L. Miller, Sept. 1977
5261
715329

VIEW F-F AND VIEW H-H
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	26	



NOTES
For Sections A-A, C-C, D-D & E-E and Note A, see Sheet 65.
For Section Q-Q, see Sheet 68.
Restrainers to be on all Girders.
For Structural Steel Notes, see Sheet 33.
All stiffeners and connection plates shown shall be vertical.
For details of Bumper Brackets, location and details of Bumper Bracket Stiffeners, see Sheet 60.

CITY OF ST. LOUIS

HINGES NEAR BENTS 12, 16, 20, 24 AND 28

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SHEET 66 OF 93

A-3594

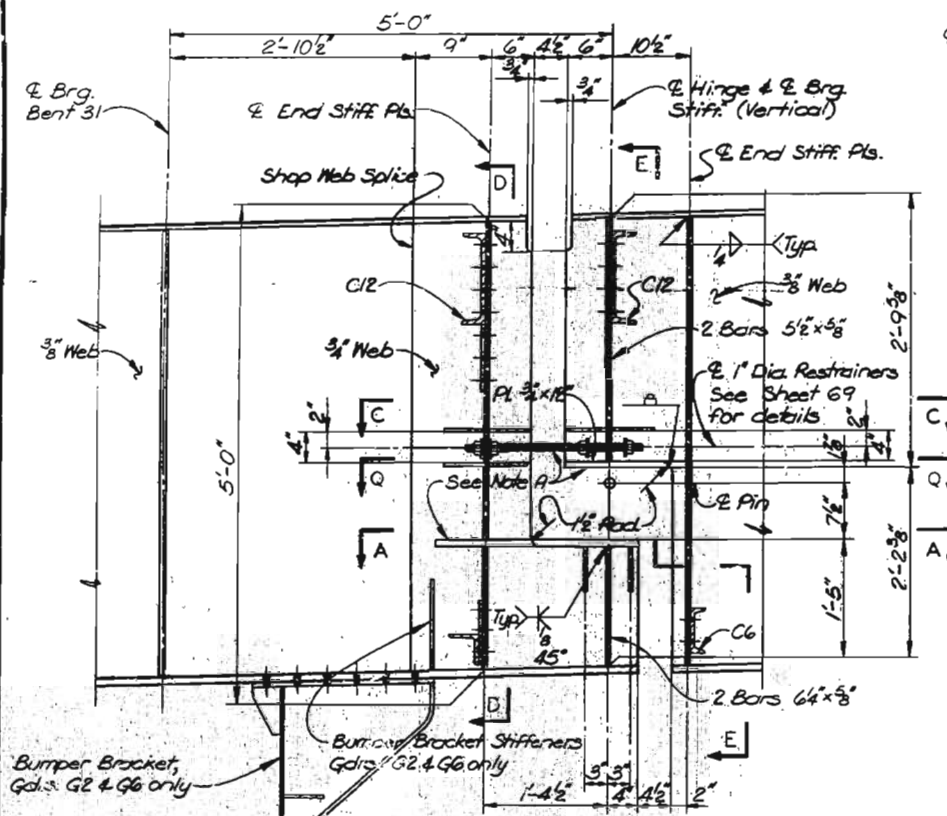
362

DRAWN BY: D. Ammons, Oct. 1917
CHECKED BY: J. C. Smith, Dec. 1917
5261
73258

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

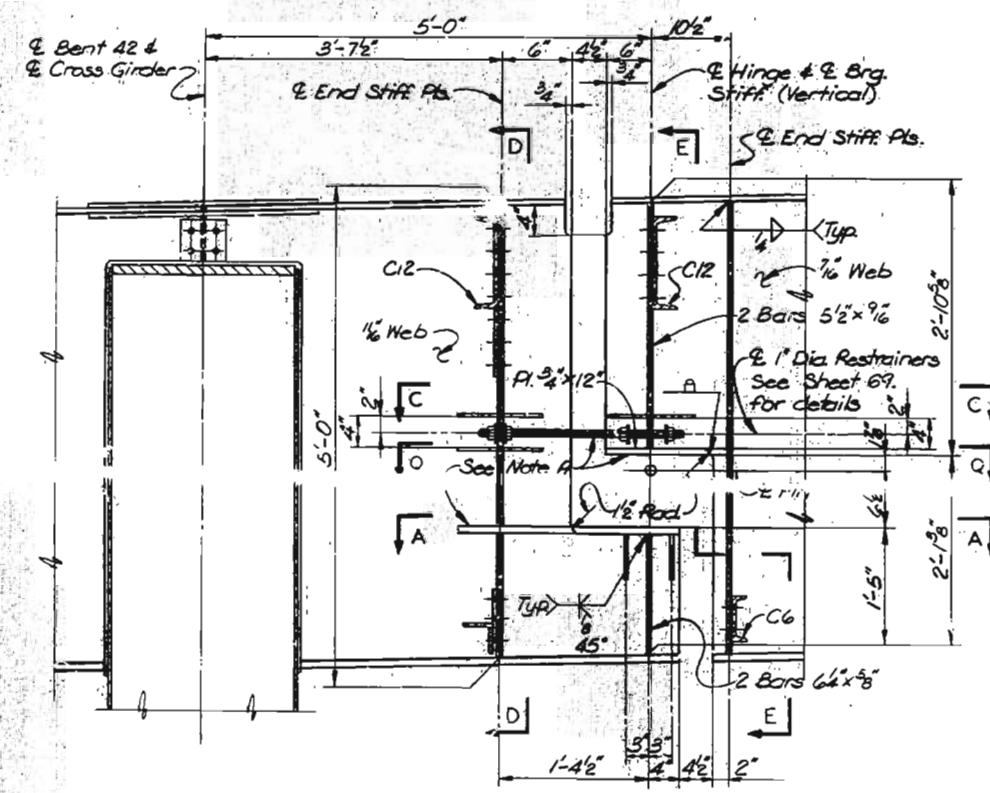
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	67	

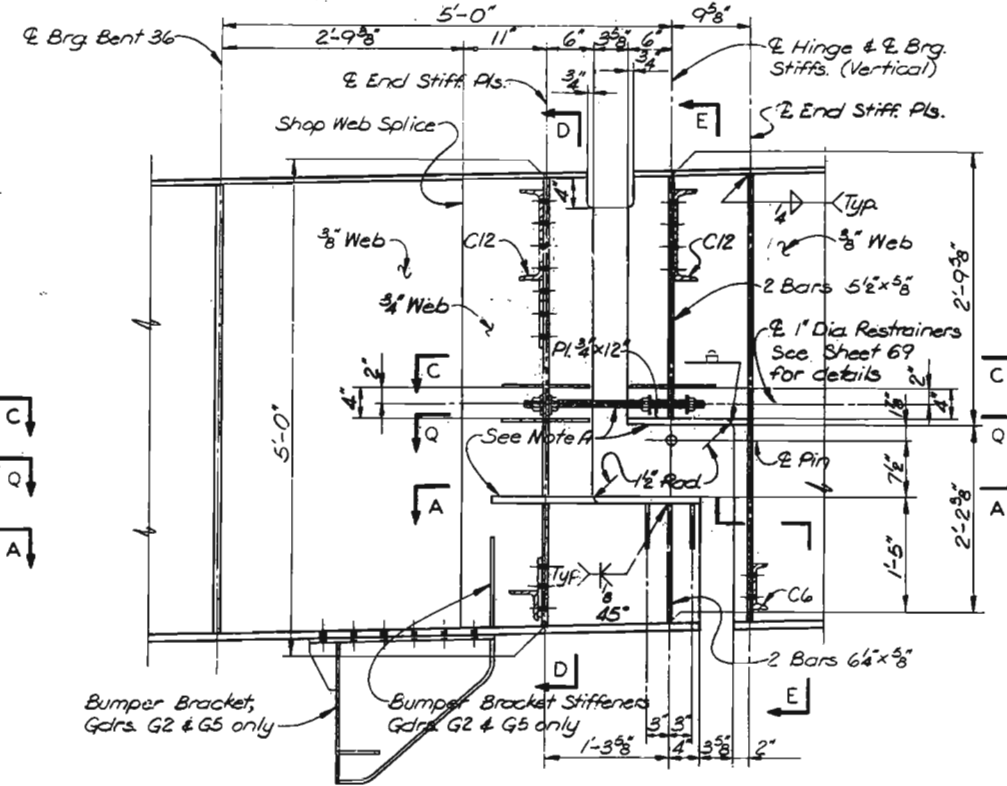


ELEVATION-HINGE NEAR BENT 31

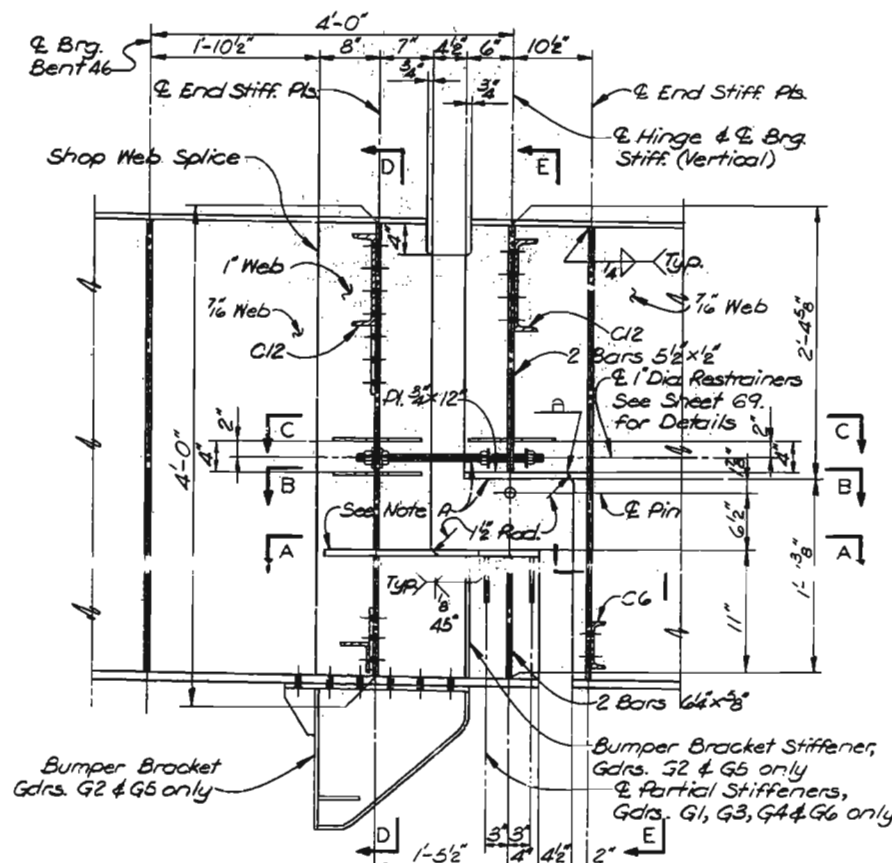
Note: Elevation shown for Girders G1 thru G6, for Girders G7 thru G10 see Sheet 68.



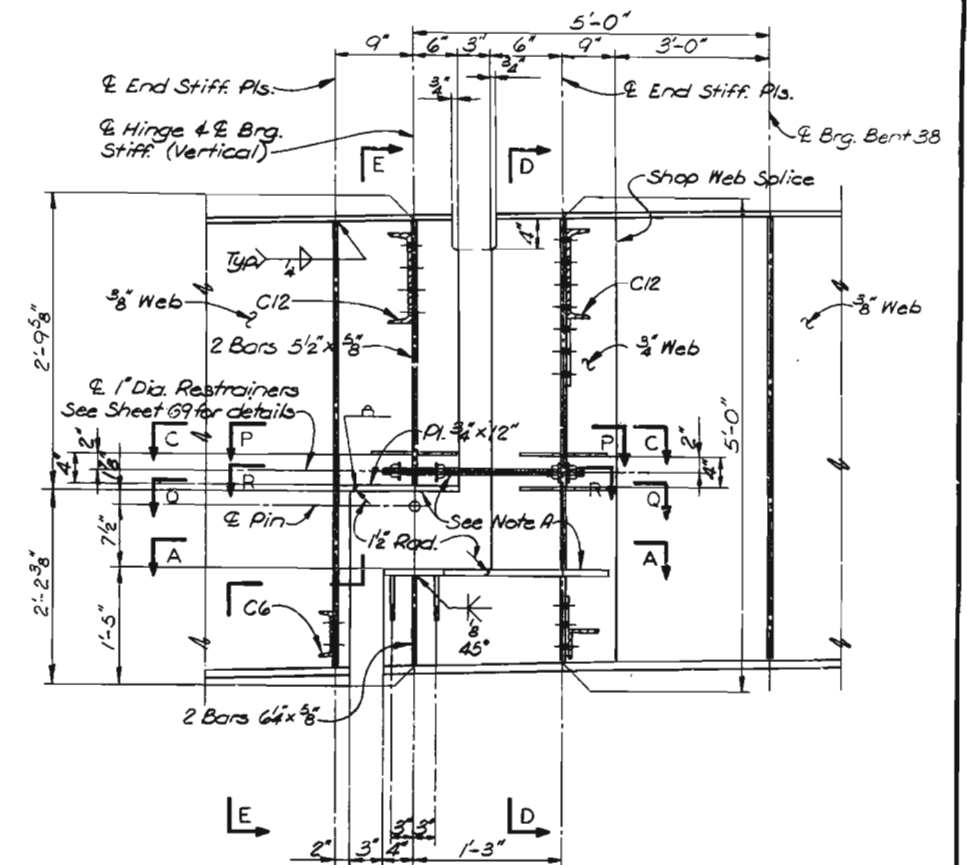
ELEVATION-HINGE NEAR BENT 42



ELEVATION-HINGE NEAR BENT 36



ELEVATION-HINGE NEAR BENT 46



ELEVATION-HINGE NEAR BENT 38

Note: Sections C-C & Q-Q apply to Girders G1 thru G5, Sections P-P & R-R apply to Girders G6 & G7.

NOTES

- For Sections A-A, B-B, C-C, D-D & E-E and Note A, see Sheet 65.
- For Sections P-P, Q-Q & R-R, see Sheet 68.
- Restrainers to be on all Girders.
- For Structural Steel Notes, see Sheet 33.
- All stiffeners and connection plates shown shall be vertical.
- For details of Bumper Brackets, location and details of Bumper Bracket Stiffeners, see Sheet 60.

CITY OF ST. LOUIS

HINGES NEAR BENTS 31, 36, 38, 42 AND 46

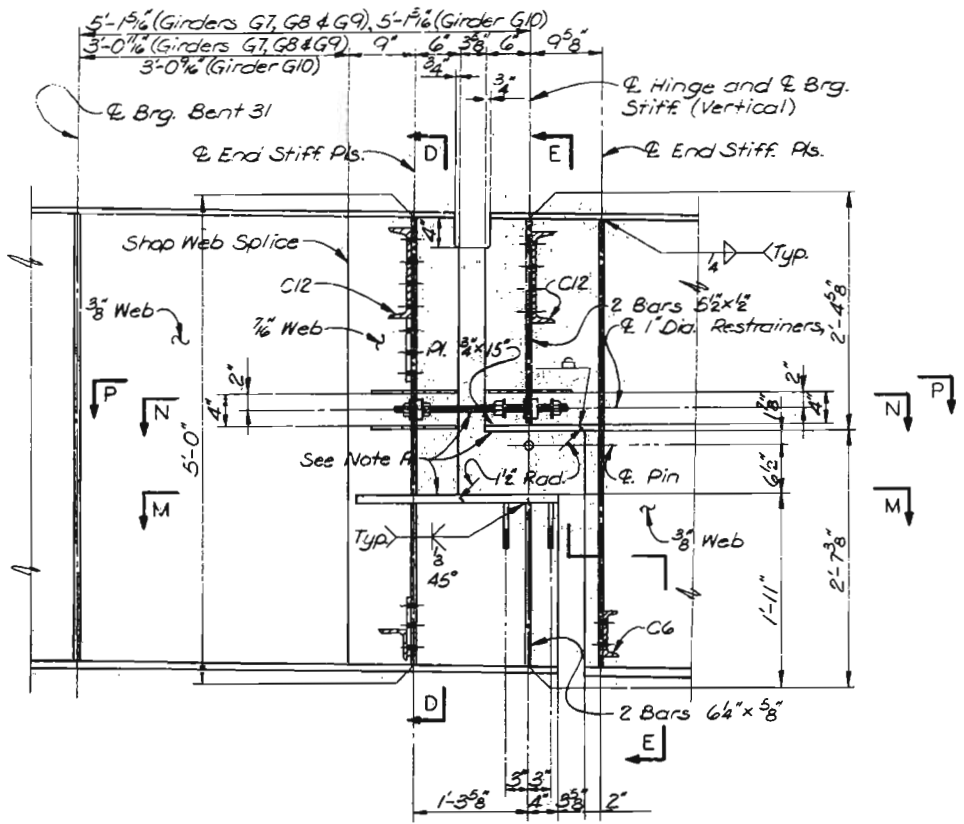
SHEET 67 OF 93

A-3594

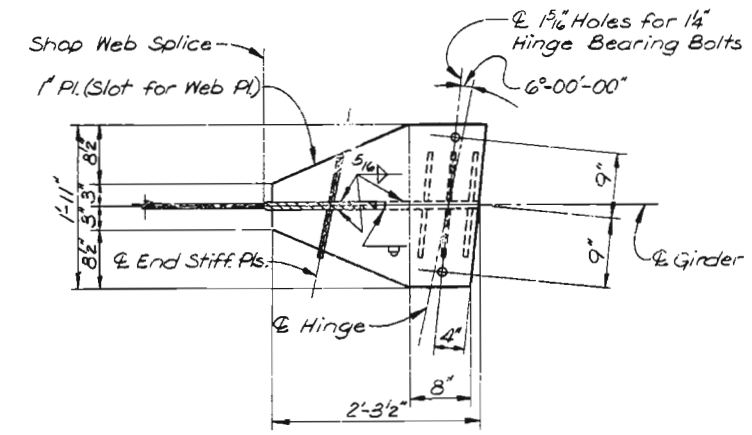
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSOURI STATE HIGHWAY DEPARTMENT

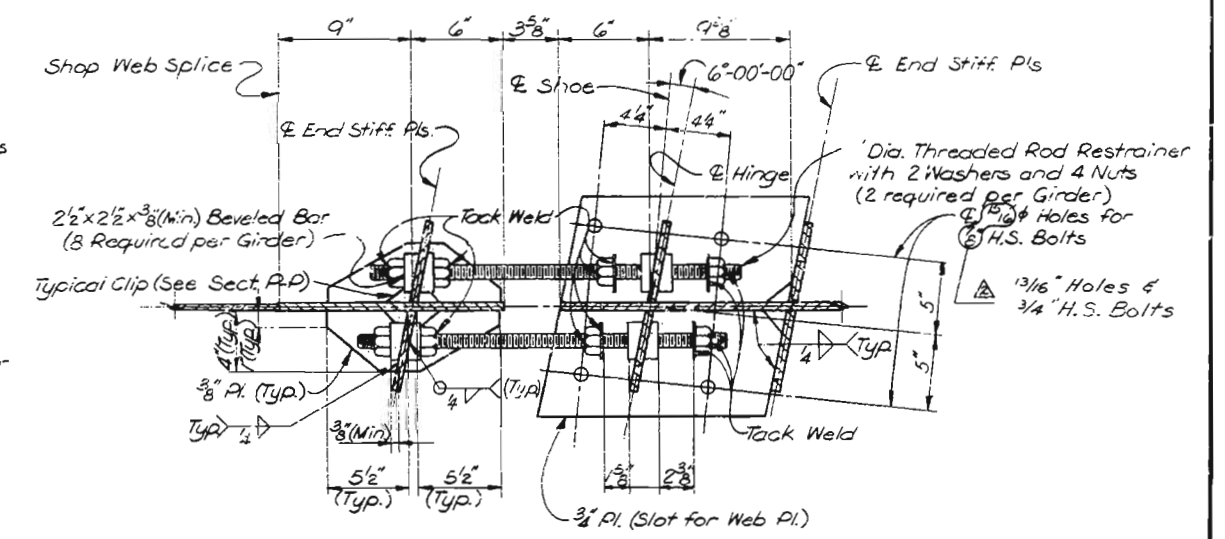
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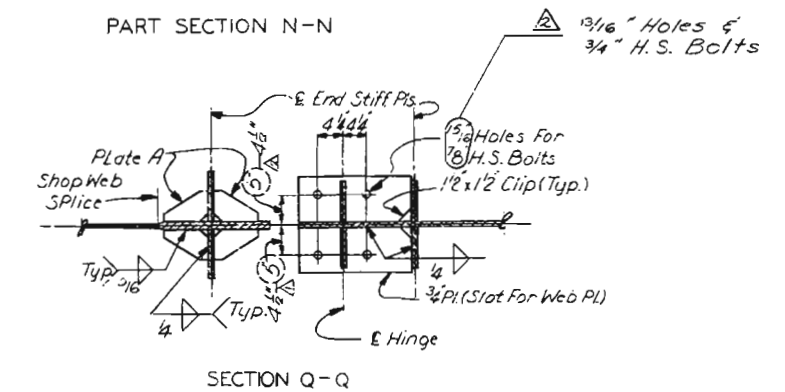
ELEVATION-HINGE NEAR BENT 31
(Girders G7 thru G10 only)



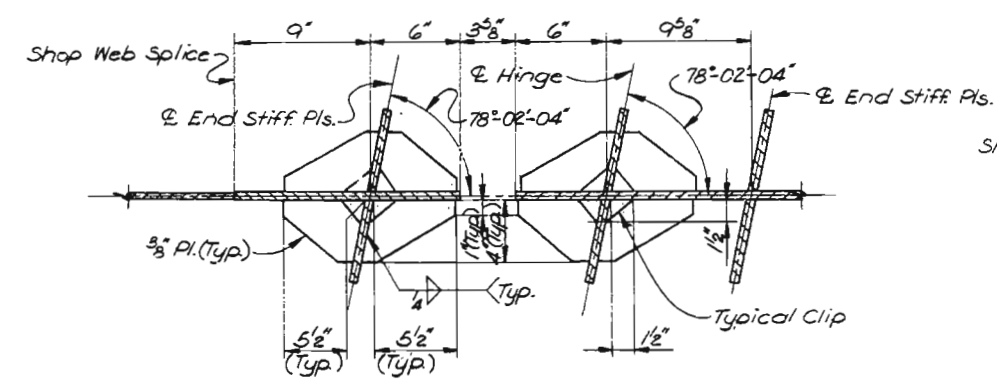
PART SECTION M-M



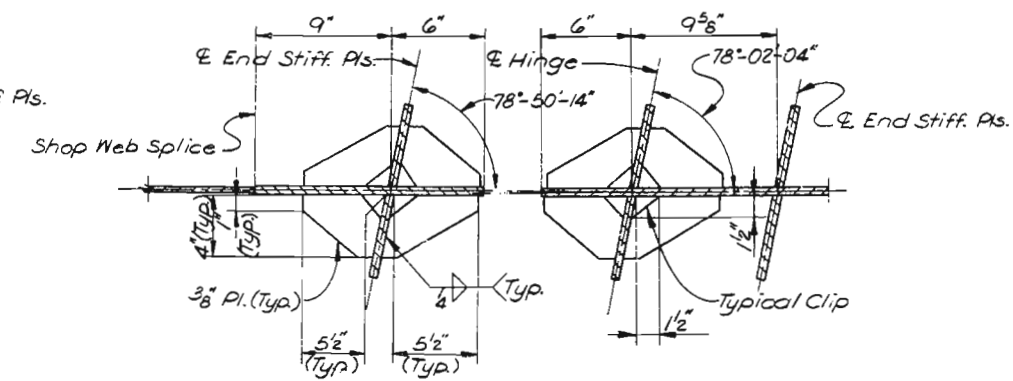
PART SECTION N-N



SECTION Q-Q



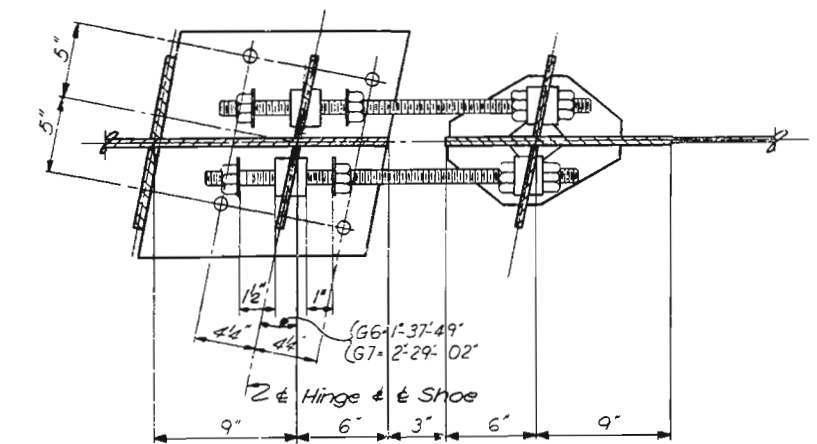
PART SECTION P-P
(BENT 31-GDRS. G7, G8, & G9)
(BENT 38-GDRS. G6 & G7 SIMILAR)



PART SECTION P-P
(BENT 31-GDR G10)

NOTES

- For Sections D-D, E-E and Note A, see Sheet 65.
- Restrainers to be on all Girders.
- For Structural Steel Notes, see Sheet 33.
- All stiffeners and connection plates shown shall be vertical.



SECTION R-R

Note: Dimensions and details not shown are same as shown for Part Section N-N

- Revised 11-7-79
- Changed dimension of hole spacing 1'-15"

CITY OF ST. LOUIS

HINGE NEAR BENT 31

SHEET 68 OF 93

A-3594

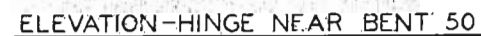
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

364

DRAWN BY: D. Ammons, Nov 1977
CHECKED BY: J. S. Smith, Dec. 1977
5261
775372

SYVERDRUP & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURI

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	69	



Note: Plan dimensions are based on installation at 60° F.
Dimensions shown for Bent 31 are for Girders G1 thru G6 only, Bent 38 for Girders G1 thru G5 only.

NOTES

For Sections B-B, C-C, D-D, E-E, G-G and Note A, see Sheet 65.

Restrainers to be on all Girders, except omit at Hinge near Bent 45.

For Structural Steel Notes, see Sheet 93.

All stiffeners and connection plates shown shall be vertical.

For details of BUMPER BRACKETS, location and details of BUMPER BRACKET STIFFENERS, see Sheet 60.

CITY OF ST. LOUIS

HINGES. NEAR BENTS 45 AND 50

SHEET 69 OF 93

A-3594

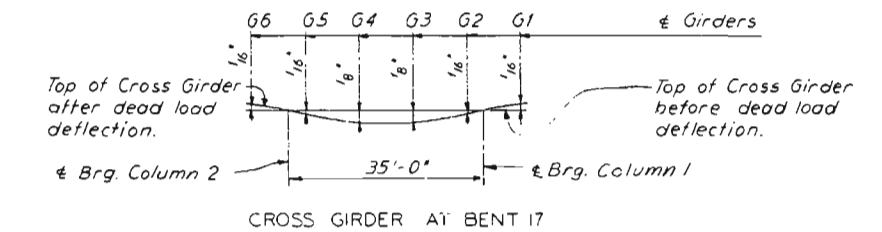
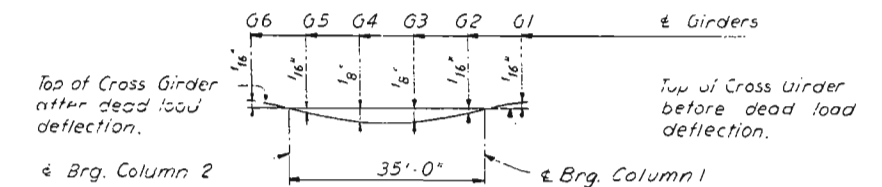
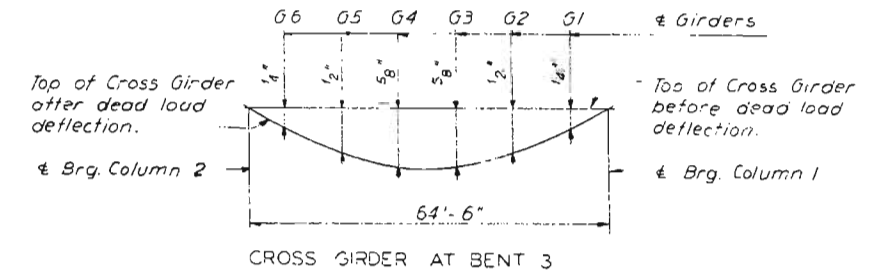
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

563

5261	DRAWN BY: D. Armons, Nov. 1977
775363	TRACED BY: T. Sanders, Dec. 1977

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ST. LOUIS, MISSOURI

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	70	



DEAD LOAD DEFLECTION DIAGRAM

For Structural Steel Notes, see Sheet 33.
All dimensions are measured horizontally along the C of Cross Girder.
Intermediate stiffeners shall be equally spaced between Girders and C Bearing Stiffeners at Columns except as noted.
Location of flange splices for bottom flange same as top flange.
For Cross Girder details, see Sheet 81 & 82.
*** Indicates Flange Plate subject to notch toughness requirements.
① Indicates stiffener is located in a tension zone. See Sheet 82 for welding details.
Elevations are given at top of top flange.
Bearing Stiffeners and closure plates shall be vertical.
Cross Girders are not to be cambered.
Deflection due to weight of steel only is approximately 21% of the full dead load deflections shown.
E9, F7 etc., indicate Types of Bearings which shall be bolted to top and bottom flanges, see Bearing Detail Sheets.
All web plates shall be subject to notch toughness requirements.



NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 3, 16 AND 17

SECRET 70 OF 93

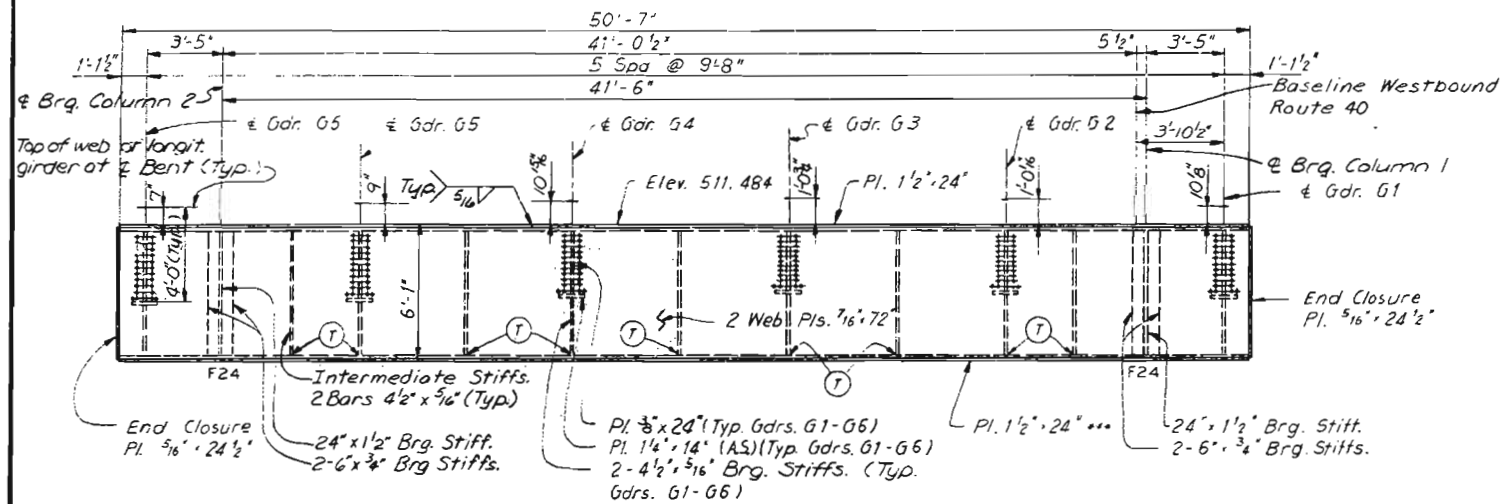
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5261	DRAWN BY: H. Moog	July 1977
775265	TRACED BY:	
	CHECKED BY: R.V. Eutherford,	Sept. 1977

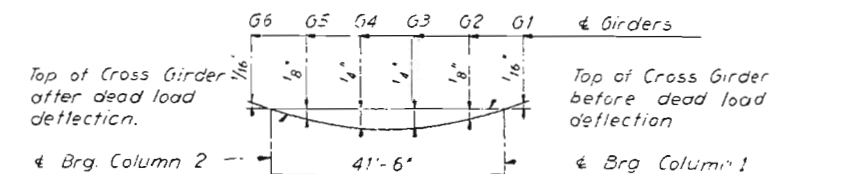
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

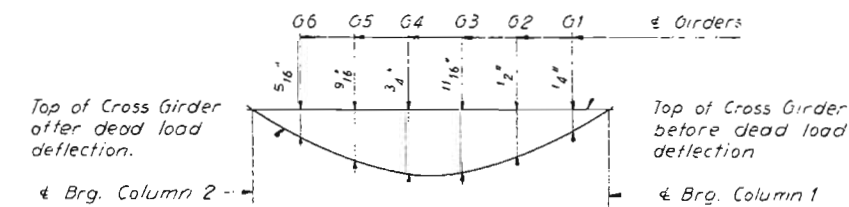
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5	MO.		19	71	



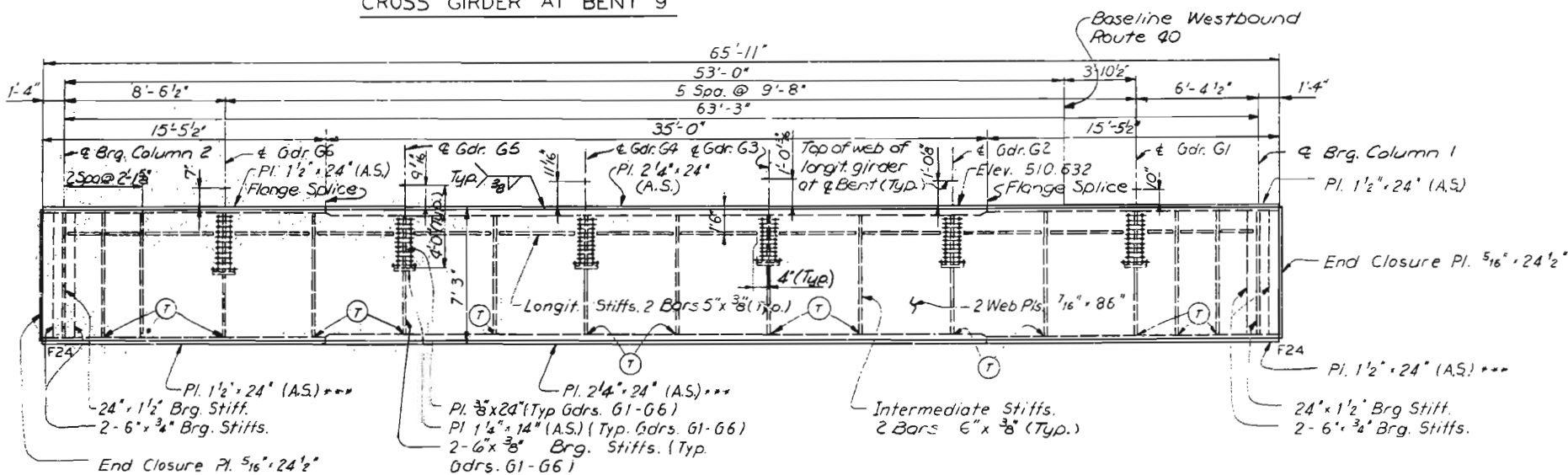
CROSS GIRDER AT BENT 9



CROSS GIRDER AT BENT 9



CROSS GIRDER AT BENT 10
DEAD LOAD DEFLECTION DIAGRAM



CROSS GIRDER AT BENT 10

NOTES
For Cross Girder Notes, see Sheet 70.
For details at longitudinal girders, see Sheet 62.

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 9 AND 10

SHEET 71 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

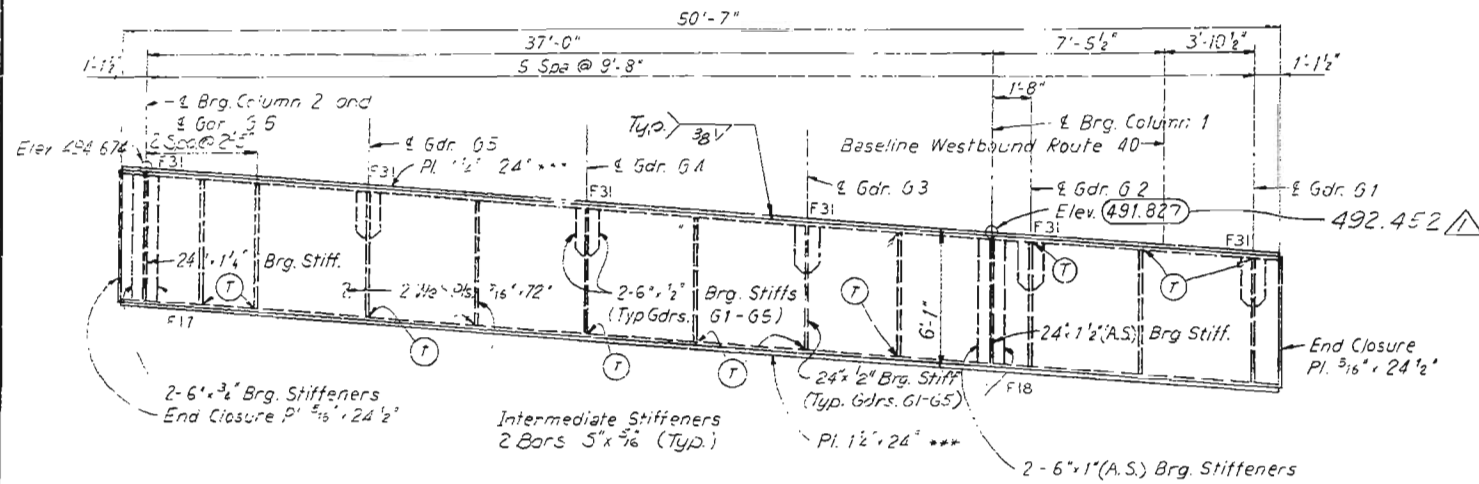
SVENDRUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: H. Moad, July 1977
CHECKED BY: R. Butterfield, Sept. 1977
5267
775268

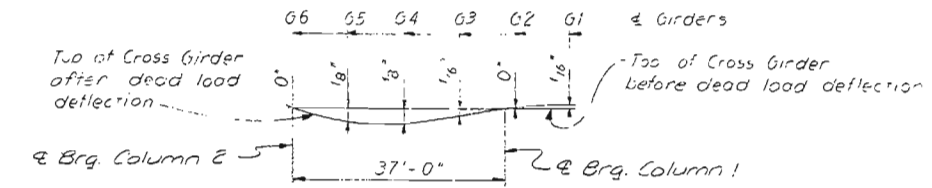
367

MISSOURI STATE HIGHWAY DEPARTMENT

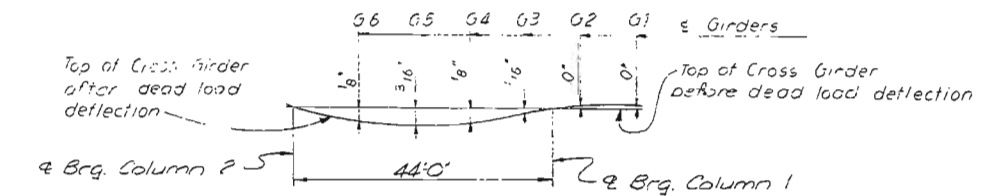
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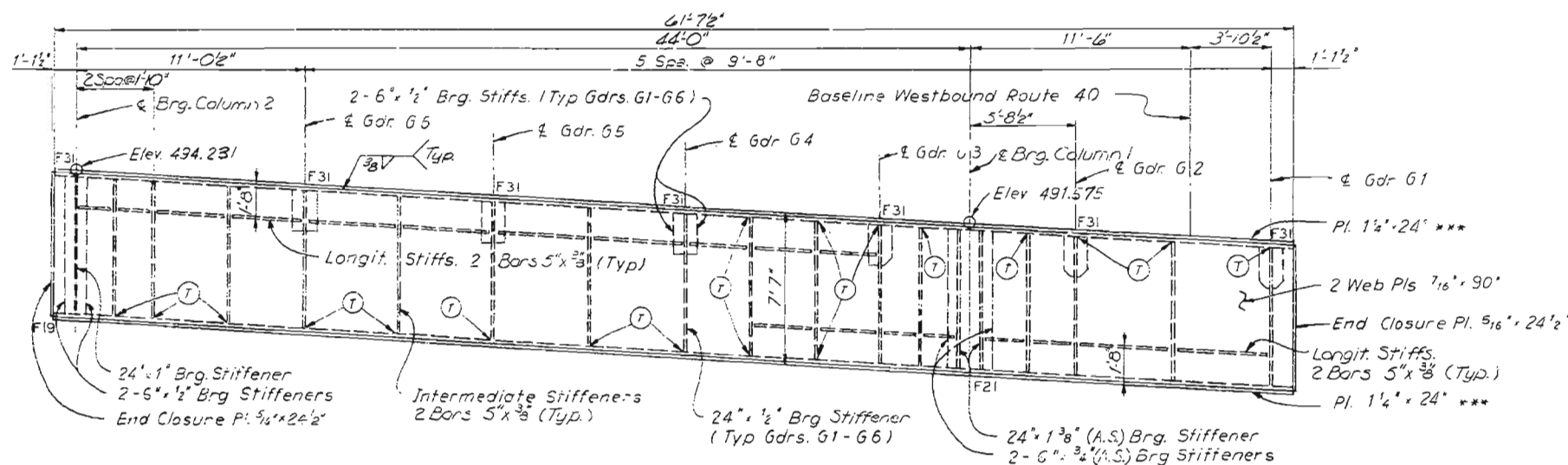
CROSS GIRDER AT BENT 18



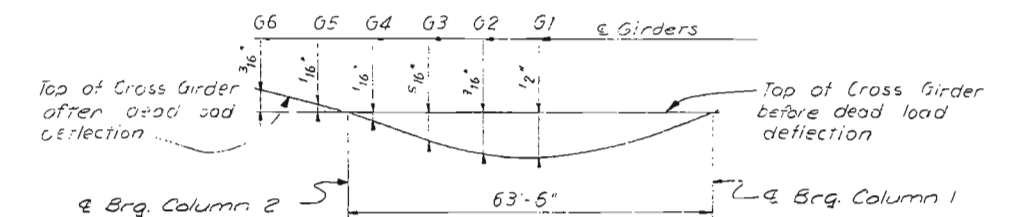
CROSS GIRDER AT BENT 18



CROSS GIRDER AT BENT 19



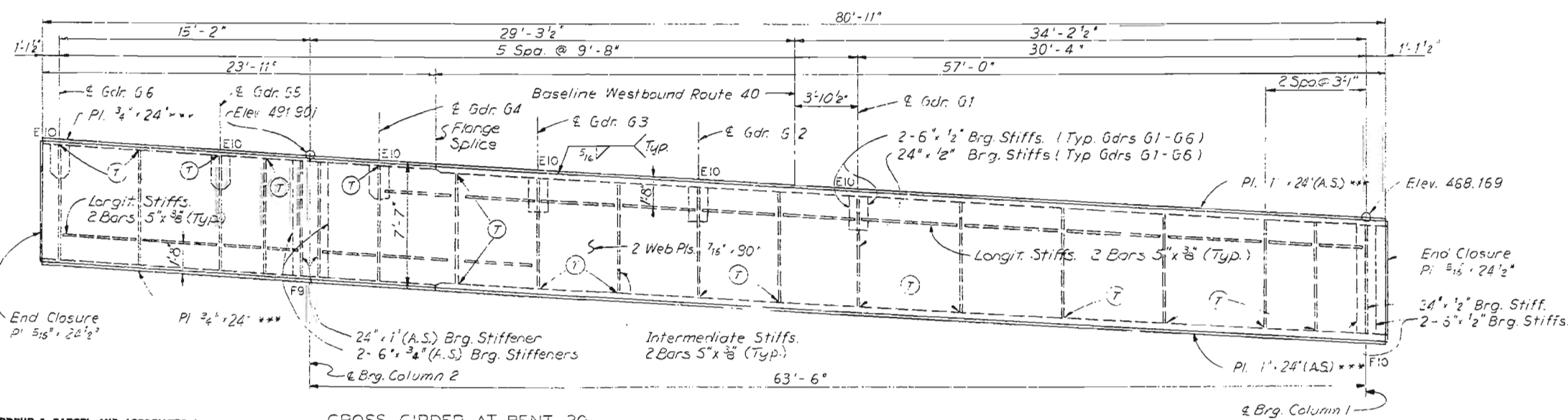
CROSS GIRDER AT BENT 19



CROSS GIRDER AT BENT 20
DEAD LOAD DEFLECTION DIAGRAMS

NOTES

For Cross Girder Notes, see Sheet 70.



CROSS GIRDER AT BENT 20

Revised 3-16-79

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 18, 19 AND 20

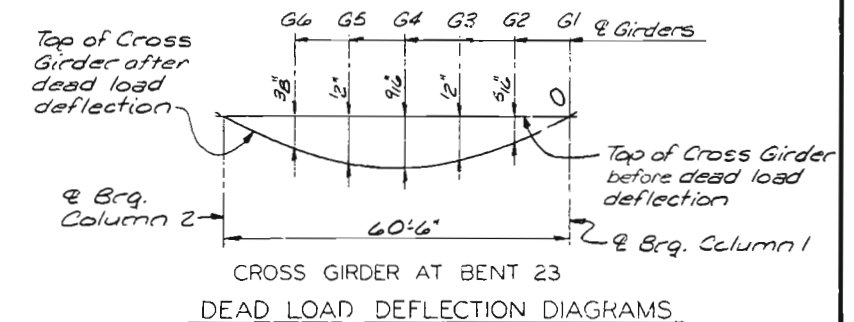
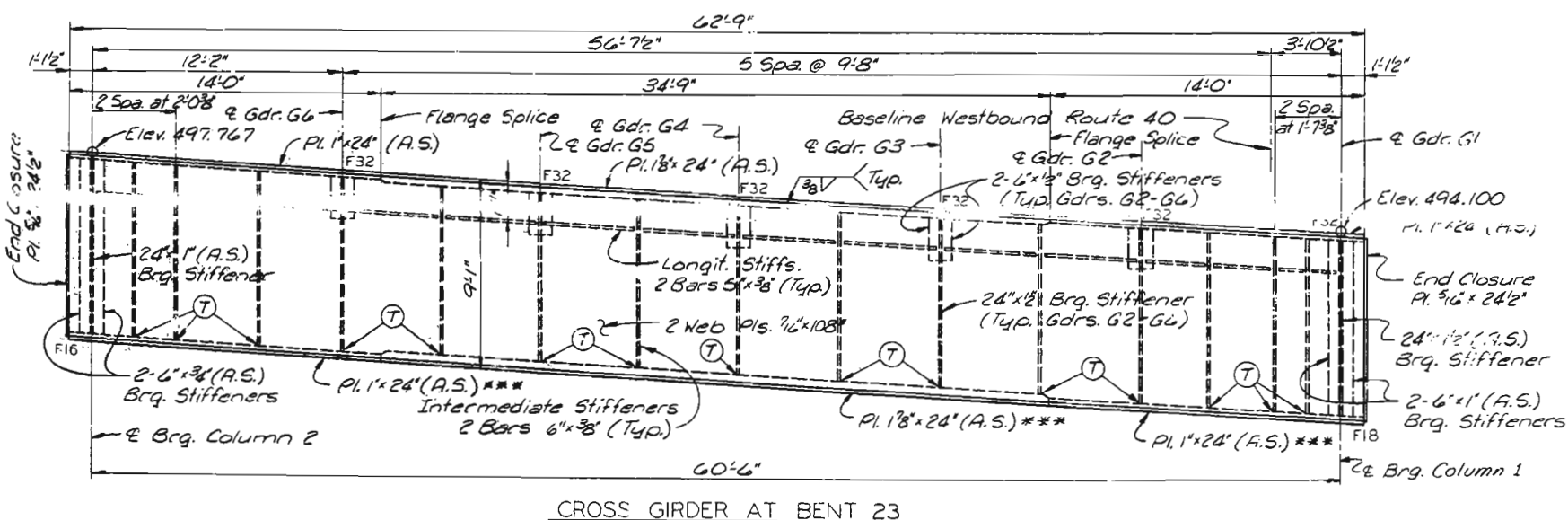
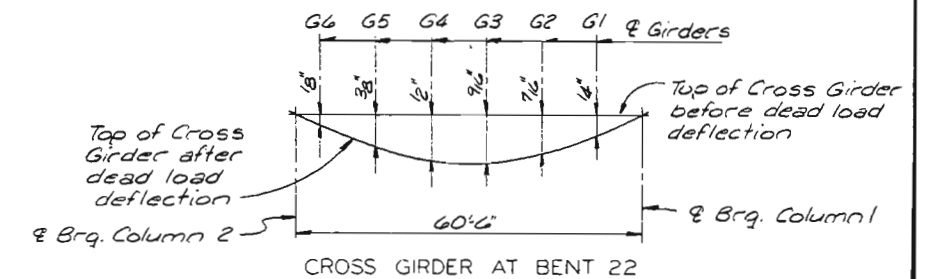
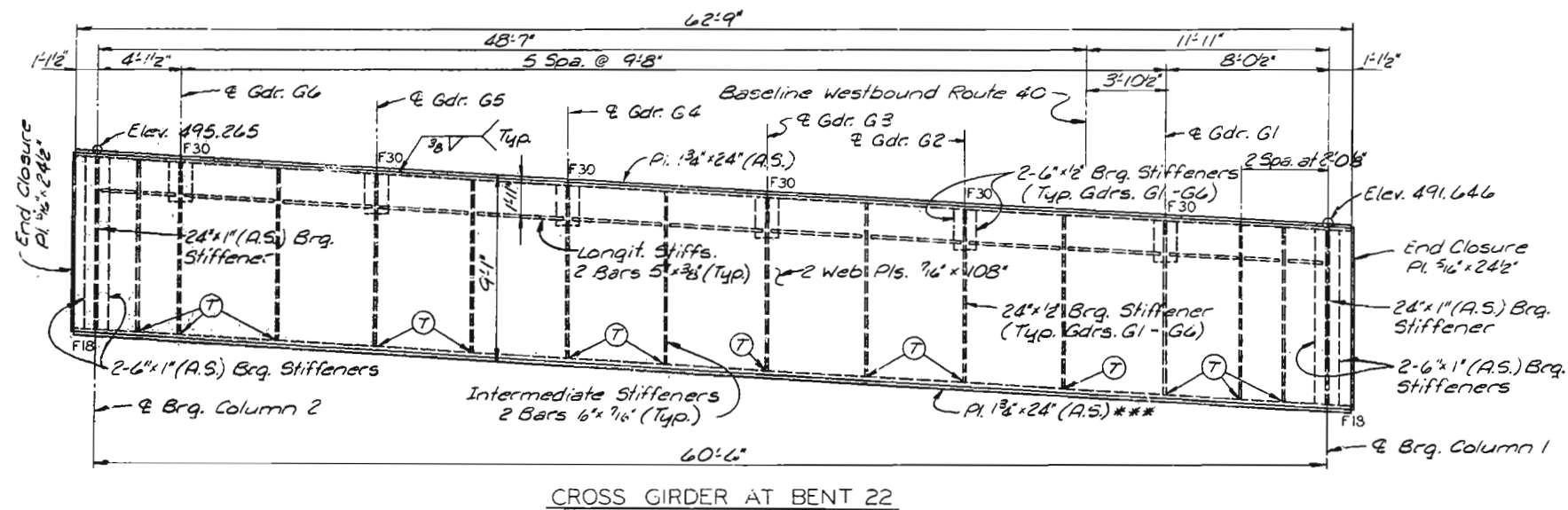
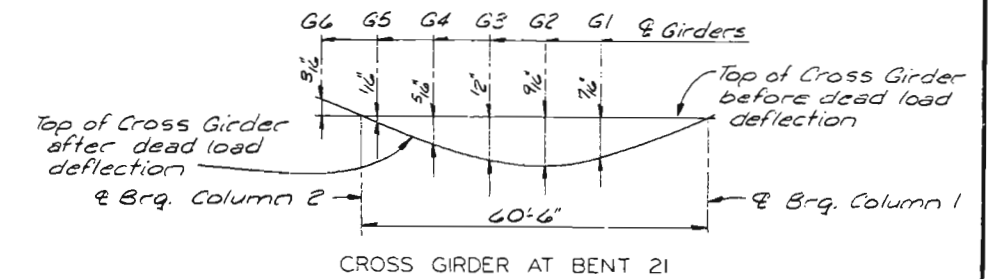
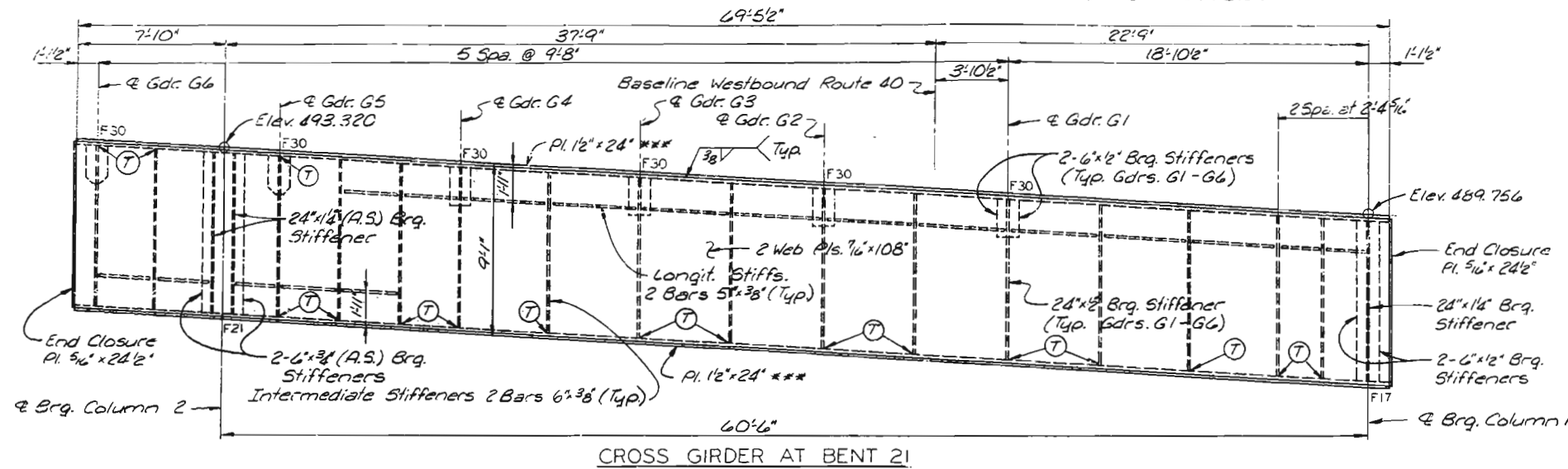
SHEET 72 OF 93

A-5594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSOURI STATE HIGHWAY DEPARTMENT

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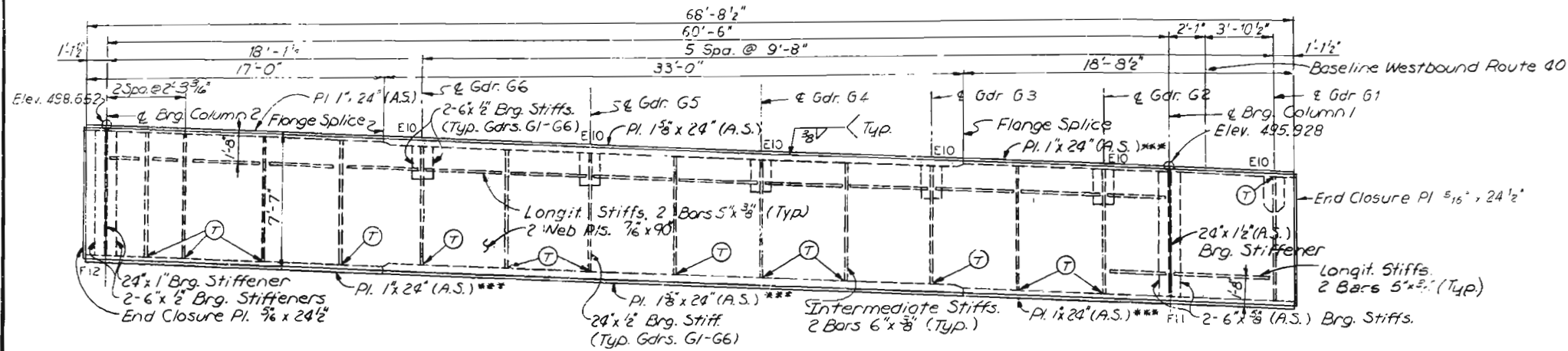


NOTES
For Cross Girder Notes, see Sheet 70.

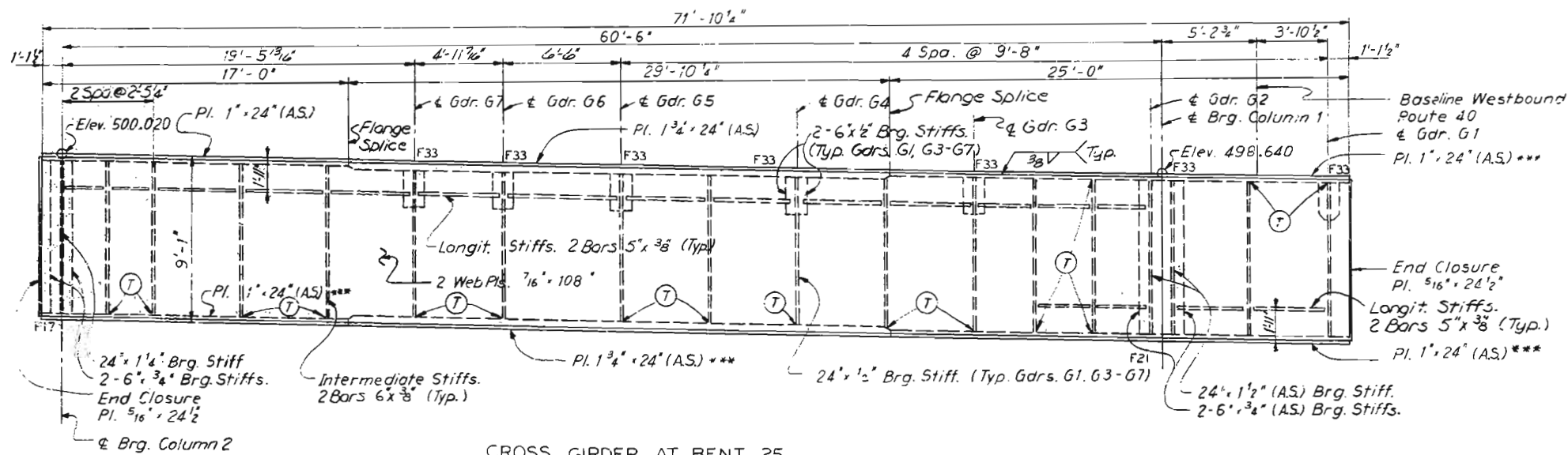
CITY OF ST. LOUIS

MISSOURI STATE HIGHWAY DEPARTMENT

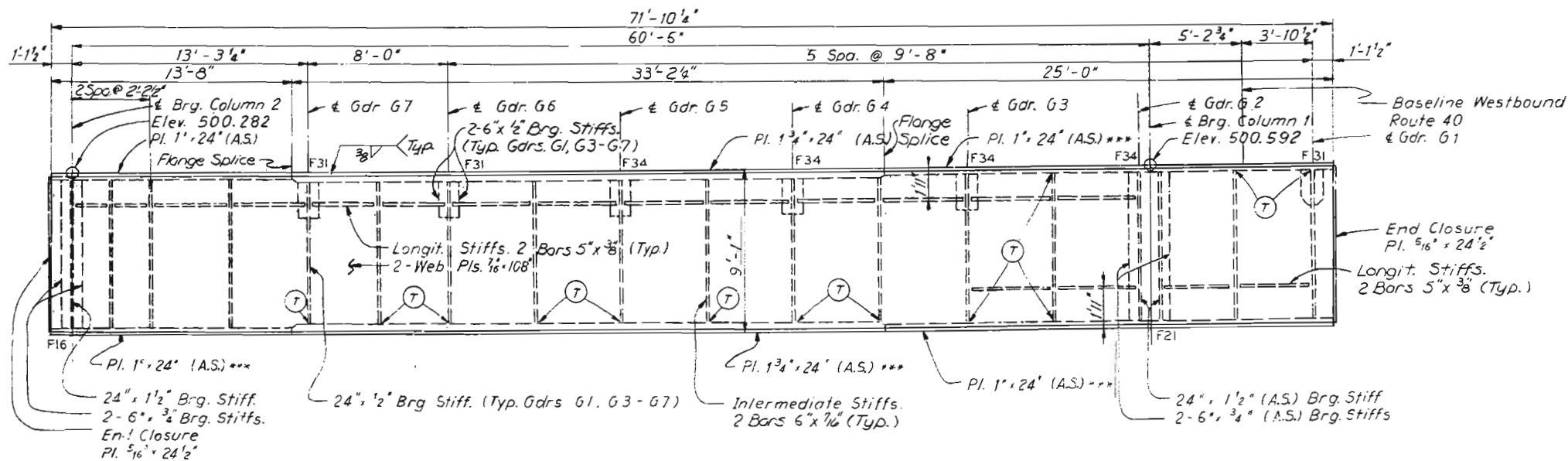
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5	MO.		19	74	



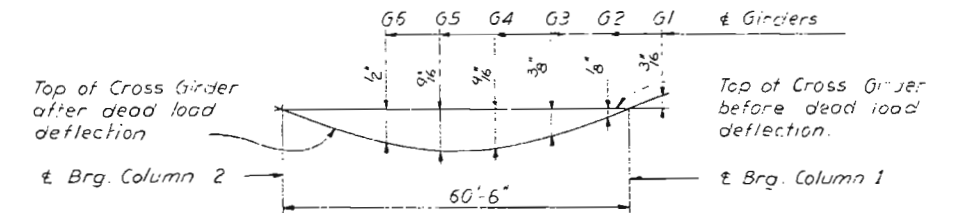
CROSS GIRDER AT BENT 24



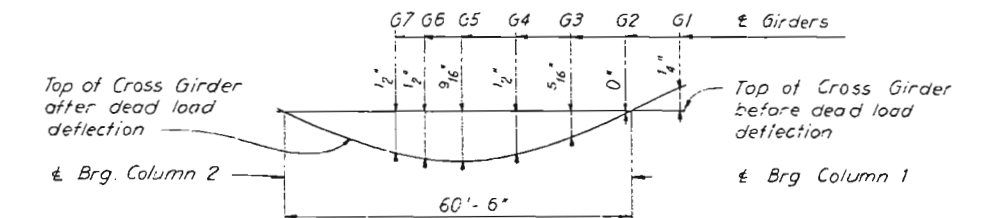
CROSS GIRDER AT BENT 25



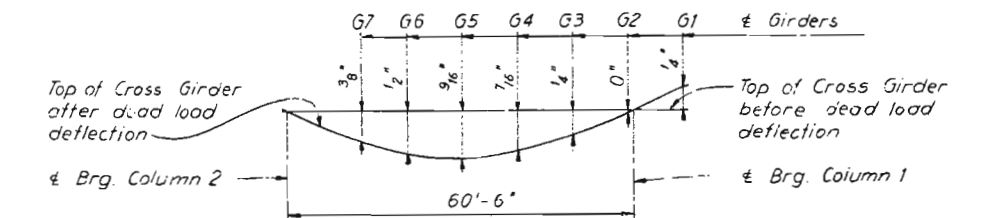
CROSS GIRDER AT BENT 26



CROSS GIRDER AT BENT 24



CROSS GIRDER AT BENT 25



CROSS GIRDER AT BENT 26

DEAD LOAD DEFLECTION DIAGRAM

NOTES

For Cross Girder Notes, see Sheet 70.

CITY OF ST. LOUIS

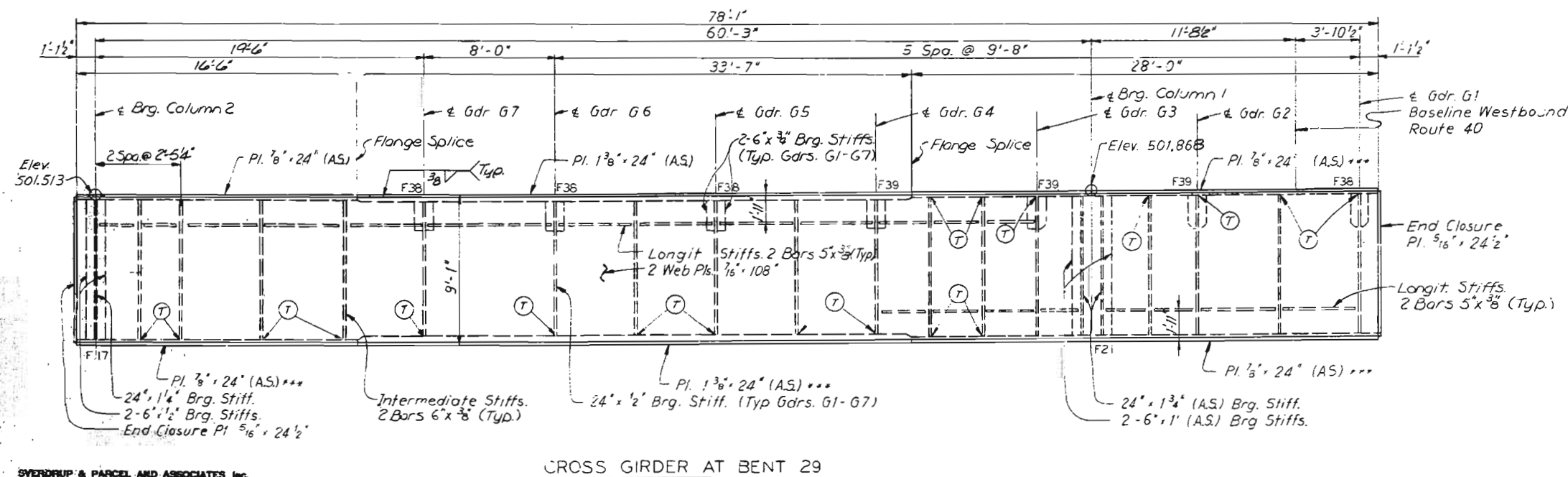
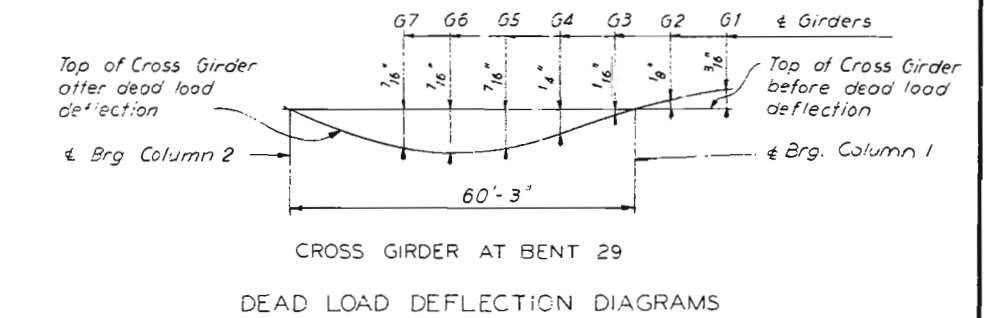
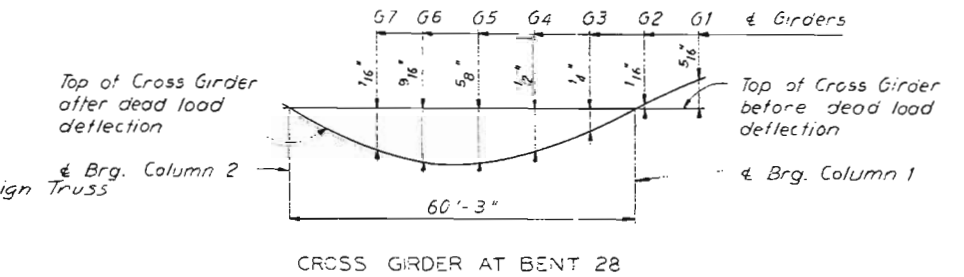
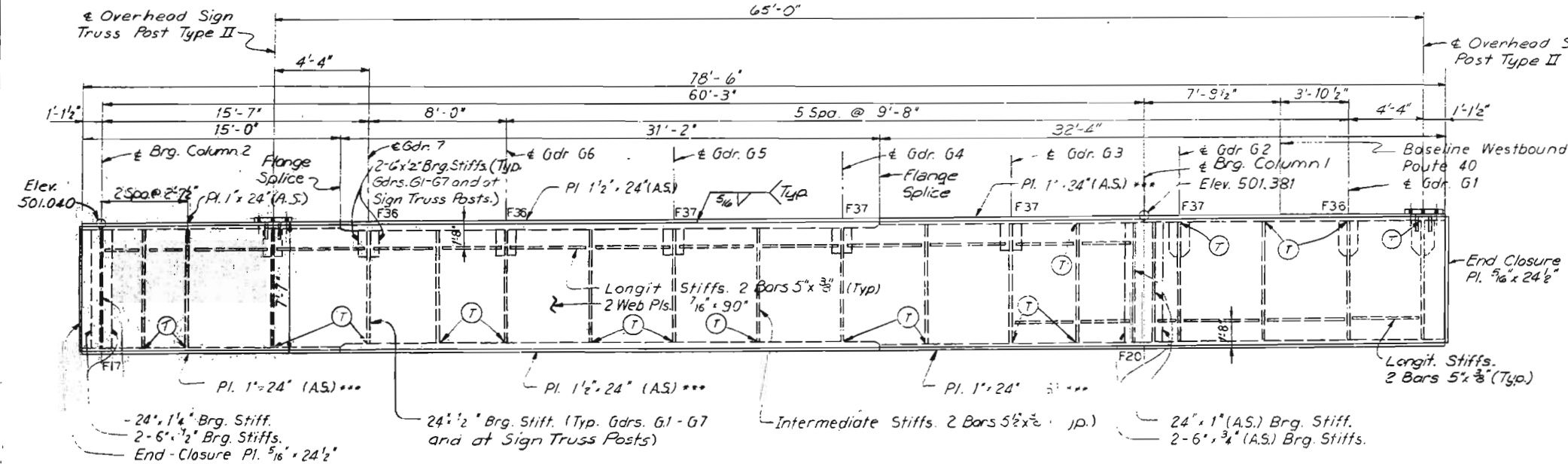
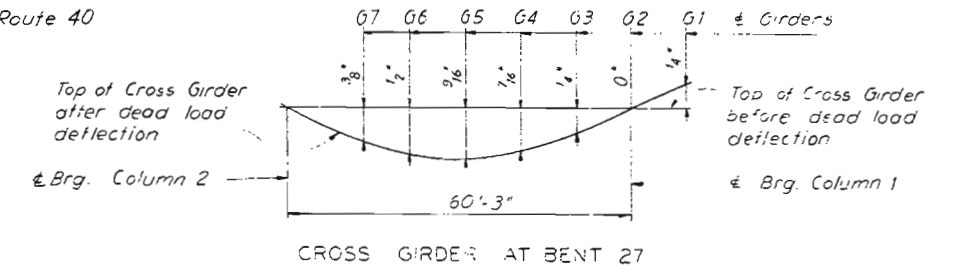
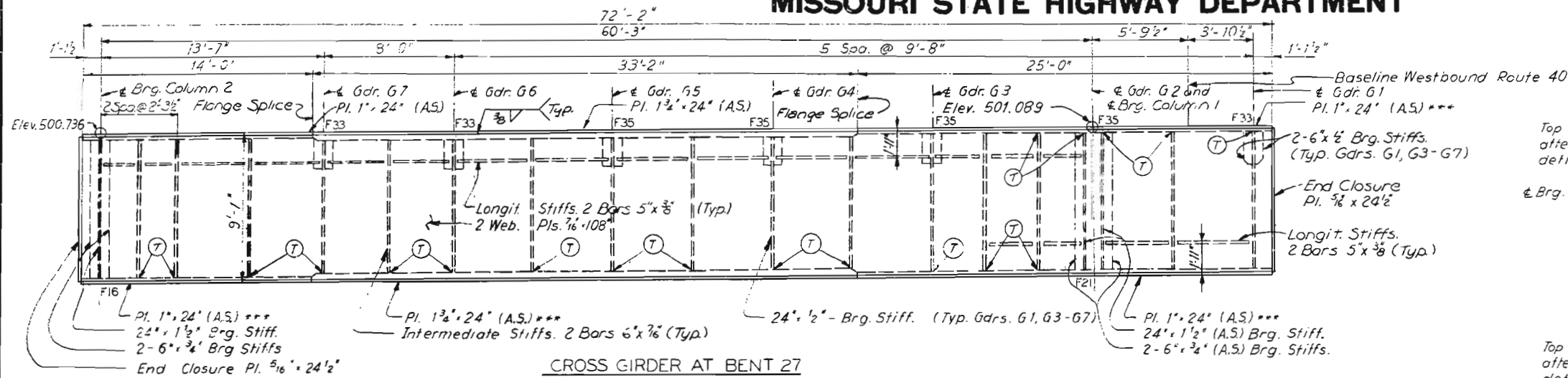
CROSS GIRDERS
AT BENTS 24, 25 AND 26

SHEET 74 OF 93

A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	75	



NOTES

For Cross Girder Notes, see Sheet 70.

For details at Overhead Sign bases on Cross Girder at Bent 28, see Sheet 82.

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 27, 28 AND 29

SHEET 75 OF 93

A-3594

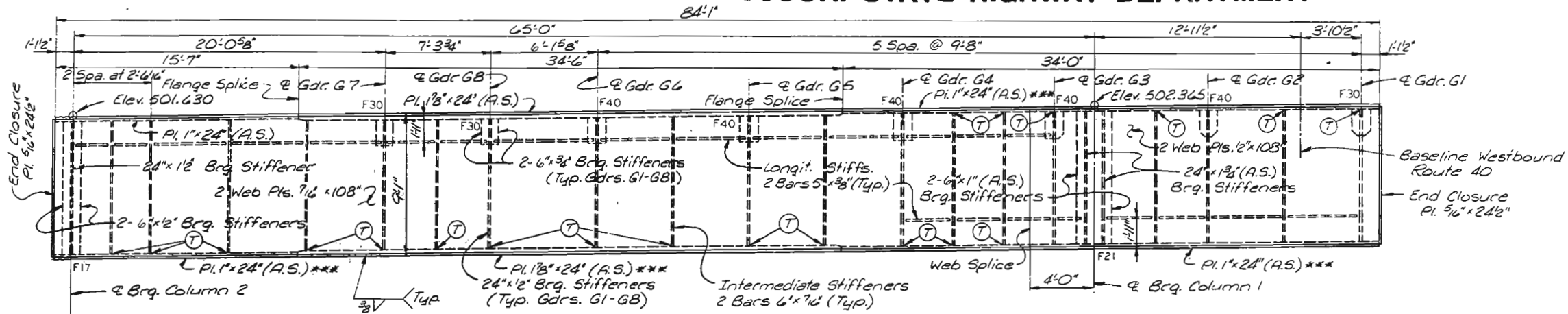
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MISSOURI STATE HIGHWAY DEPARTMENT

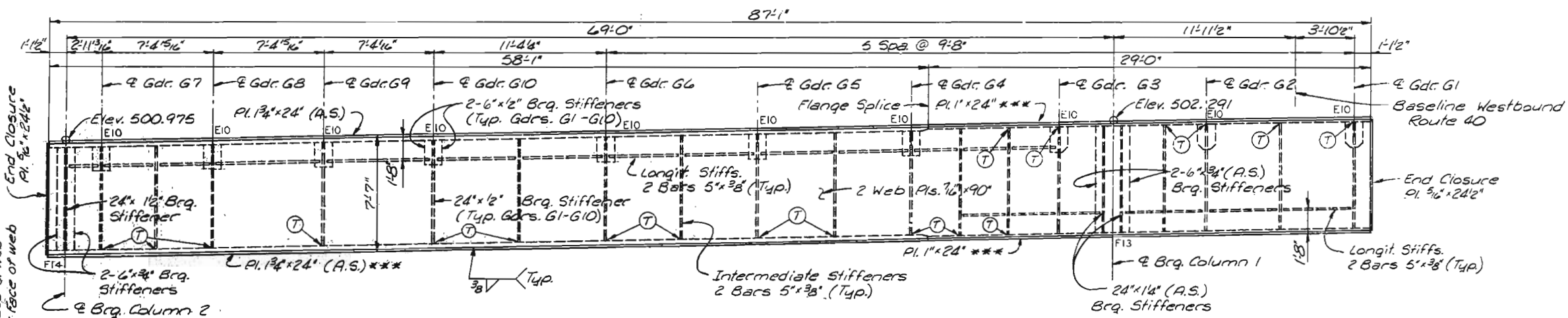
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5	MO.		19	76	

NOTES

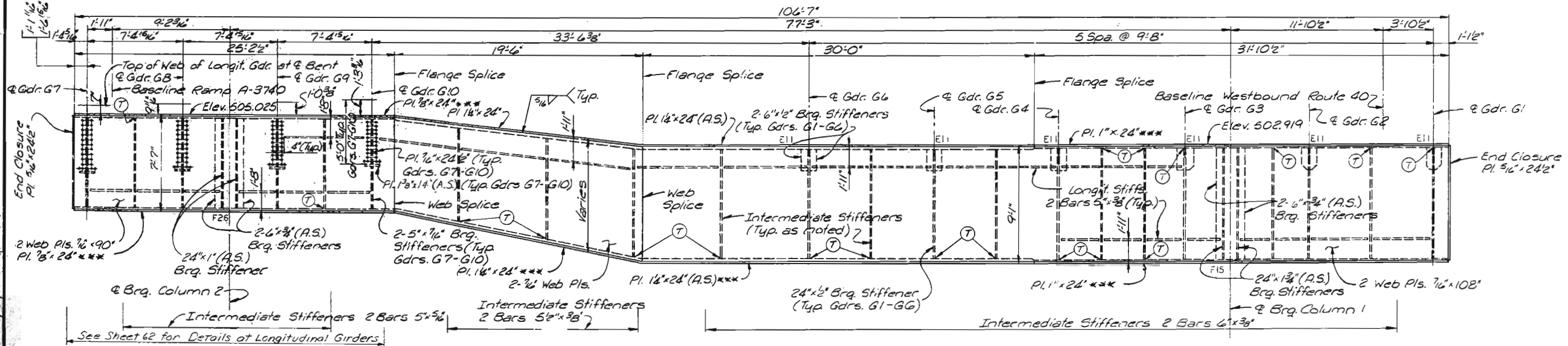
For Cross Girder Notes, see Sheet 70.
For Dead Load Deflection Diagrams, see Sheet 81.



CROSS GIRDER AT BENT 30



CROSS GIRDER AT BENT 31



CROSS GIRDER AT BENT 32

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 30, 31 AND 32

SHEET 76 OF 93

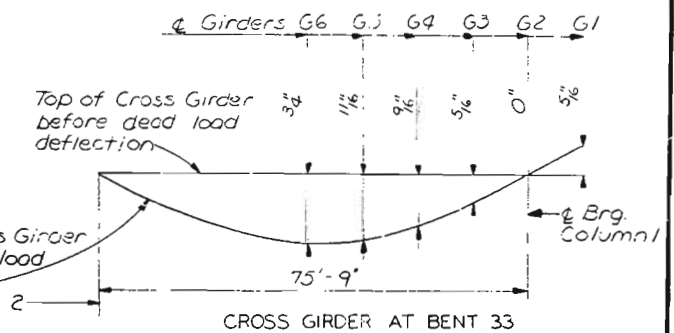
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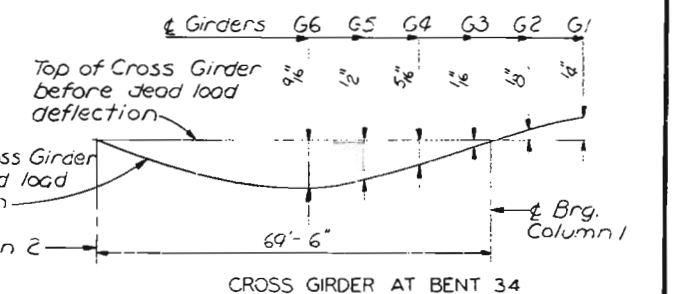
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

TRACED BY: R.V. B. 10/17/77
CHECKED BY: R.V. B. 10/17/77
5272

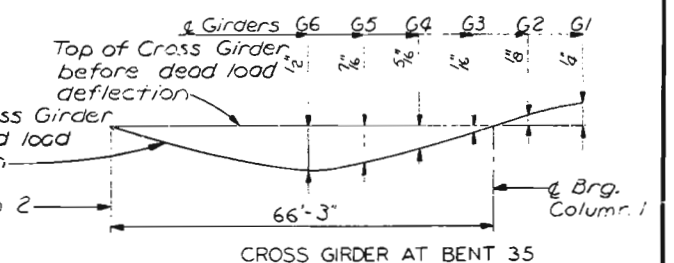
FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	77	



CROSS GIRDER AT BENT 33



CROSS GIRDER AT BENT 34



CROSS GIRDER AT BENT 35

DEAD LOAD DEFLECTION DIAGRAMS

NOTES

For Cross Girder Notes, see Sheet 70.

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 33,34 AND 35

SHEET 77 OF 93

A-3594

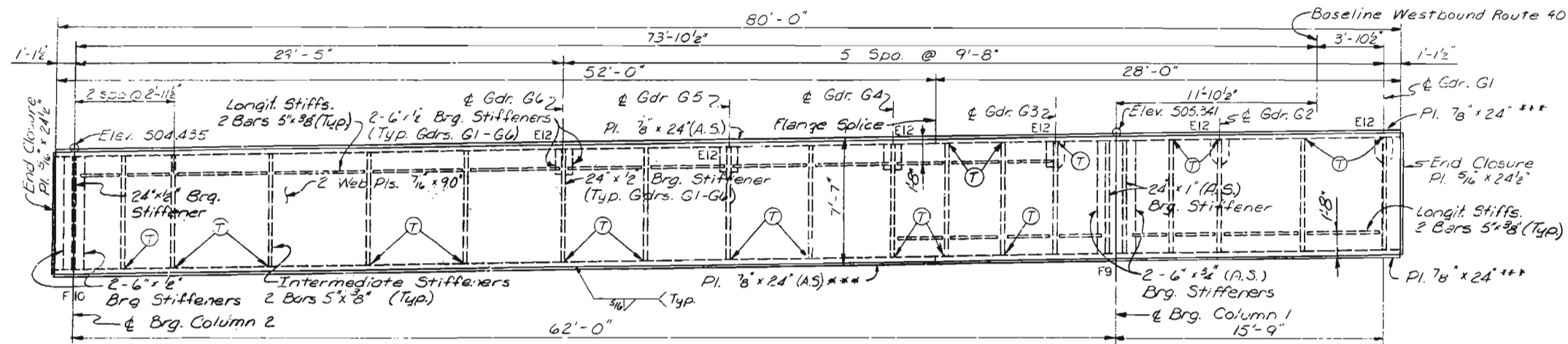
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

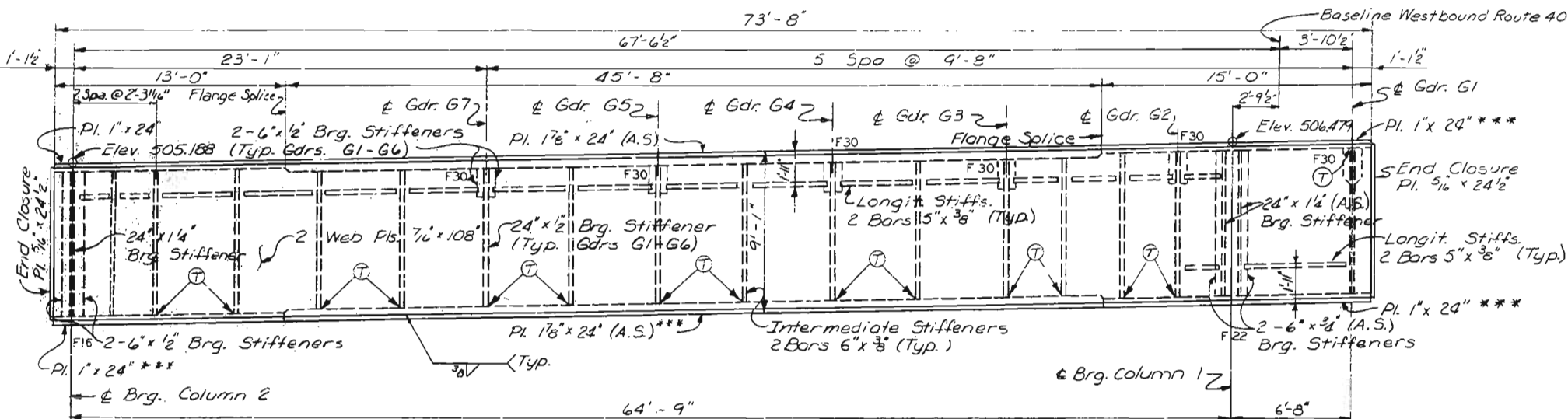
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MISSOURI STATE HIGHWAY DEPARTMENT

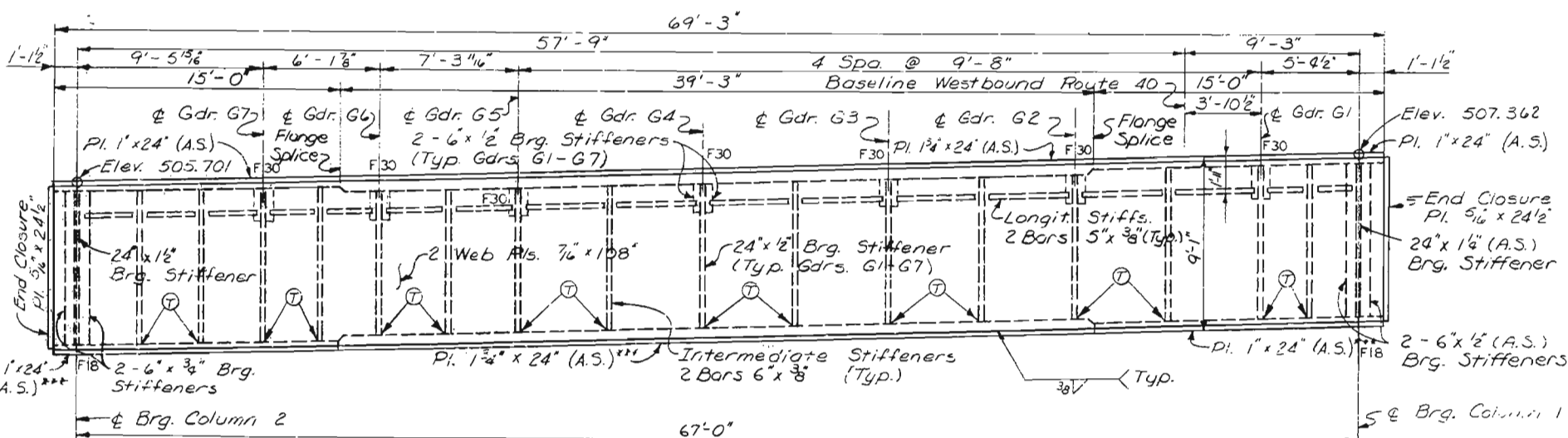
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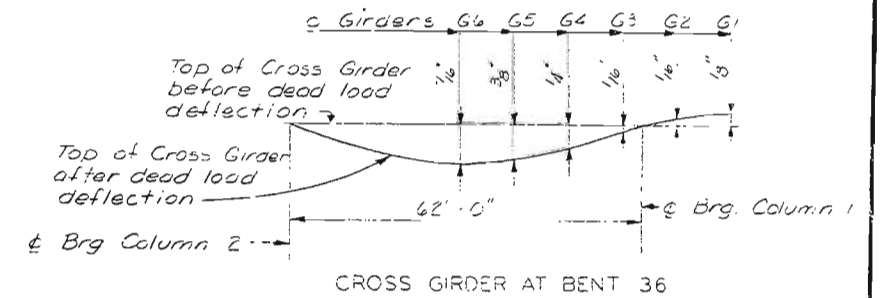
CROSS GIRDER AT BENT 36



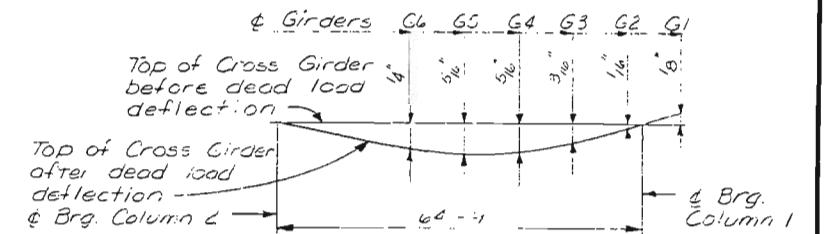
CROSS GIRDER AT BENT 37



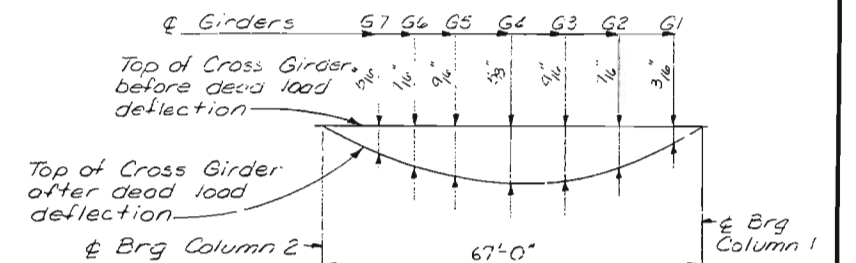
CROSS GIRDER AT BENT 38



CROSS GIRDER AT BENT 36



CROSS GIRDER AT BENT 37



CROSS GIRDER AT BENT 38

DEAD LOAD DEFLECTION DIAGRAM

NOTES

For Cross Girder Notes, see Sheet 70.

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 36, 37 AND 38

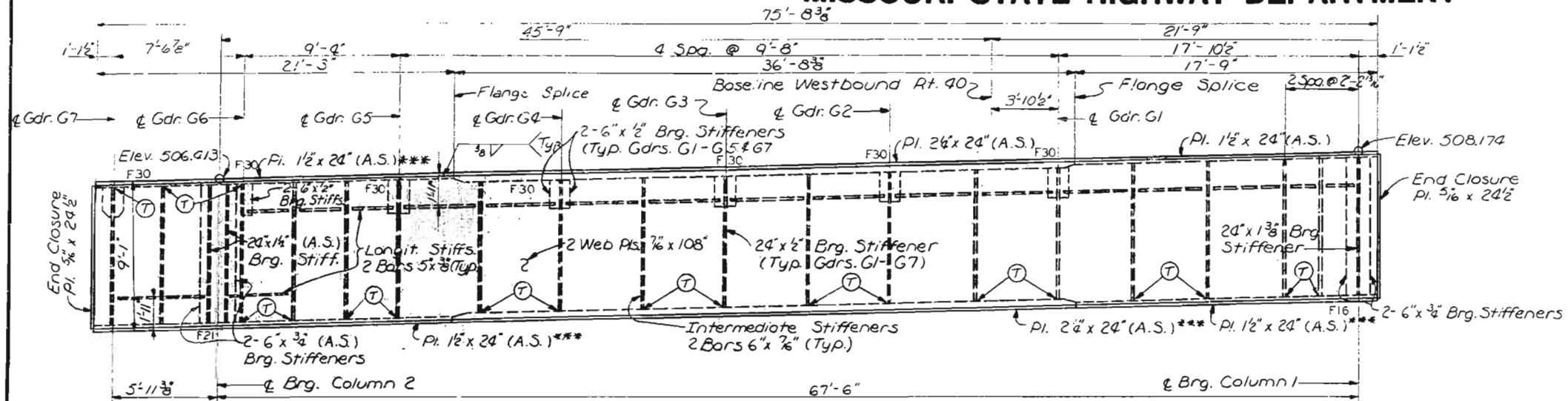
SHEET 78 OF 93

A-3594

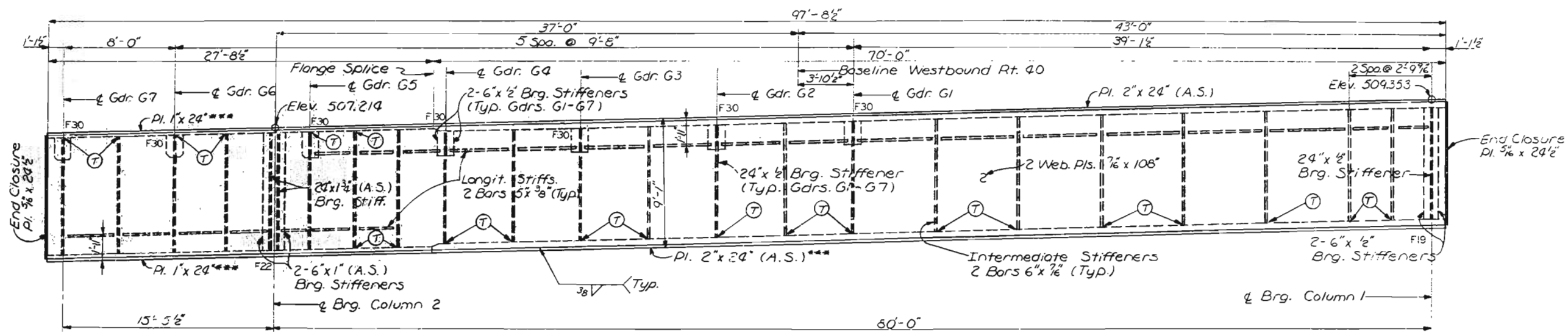
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSOURI STATE HIGHWAY DEPARTMENT

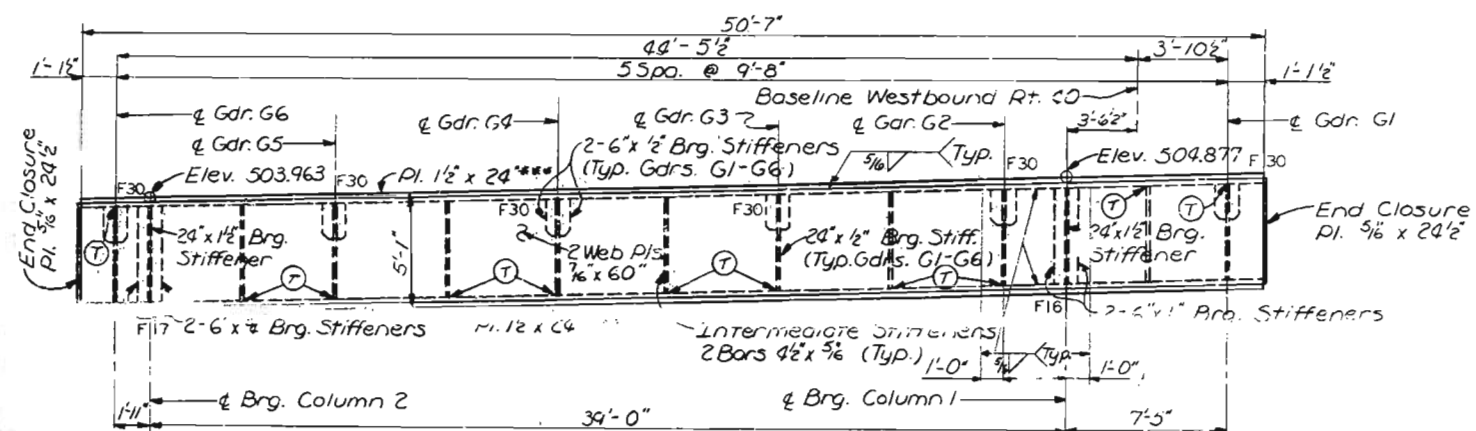
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	79	



CROSS GIRDER AT BENT 39



CROSS GIRDER AT BENT 40



CROSS GIRDER AT BENT 48

NOTES

For Cross Girder Notes, see Sheet 70.
For Dead Load Deflections, see Sheet 81.

CITY OF ST. LOUIS

CROSS GIRDERS
AT BENTS 39, 40 AND 48

SHEET 79 OF 93

A-3594

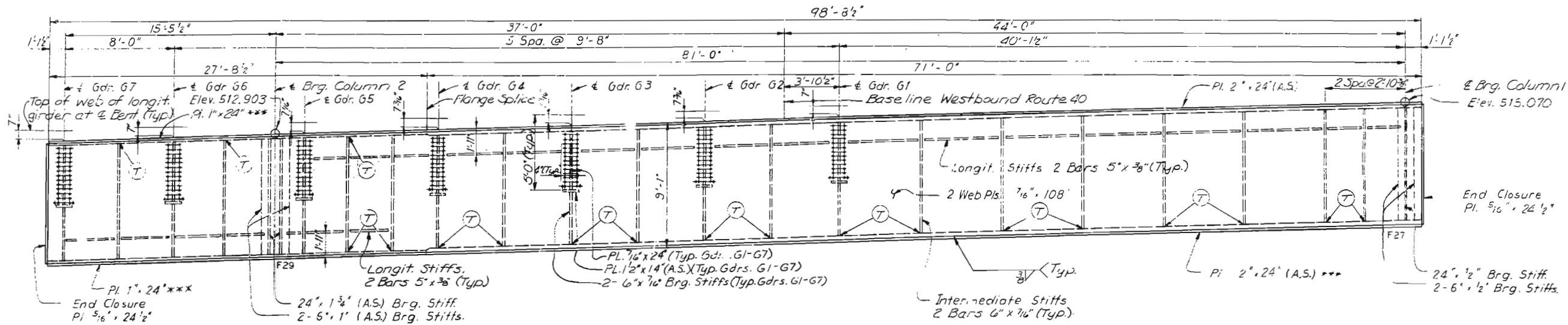
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SVENDRUP & PARCEL AND ASSOCIATES, Inc.
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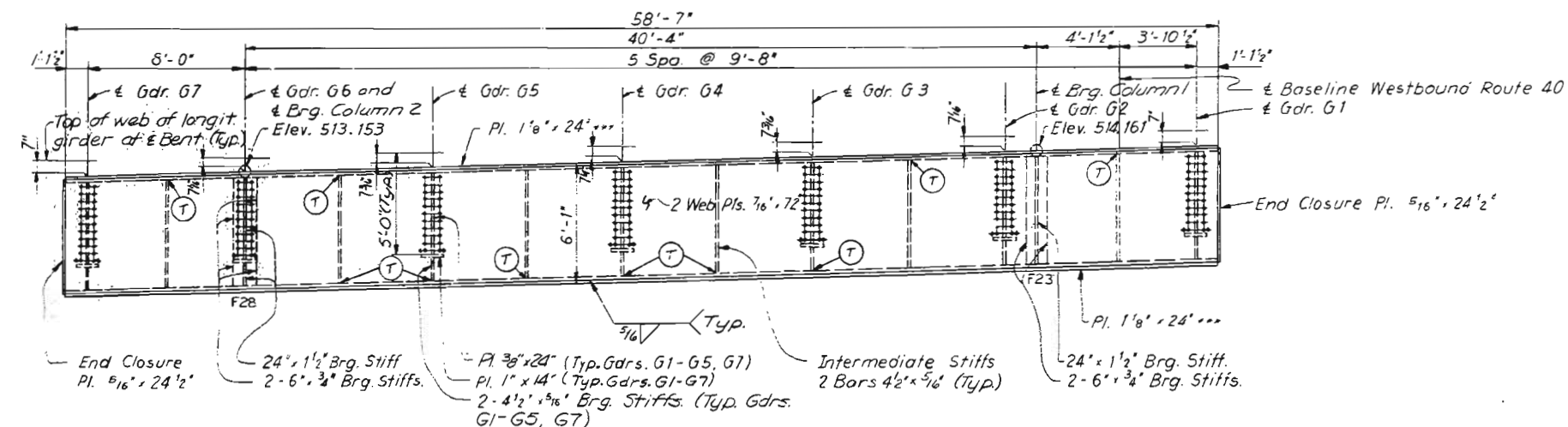
TRACED BY: R. R. RUTHERFORD, Sept. 1977
CHECKED BY: R. R. RUTHERFORD, Sept. 1977
275

MISSOURI STATE HIGHWAY DEPARTMENT

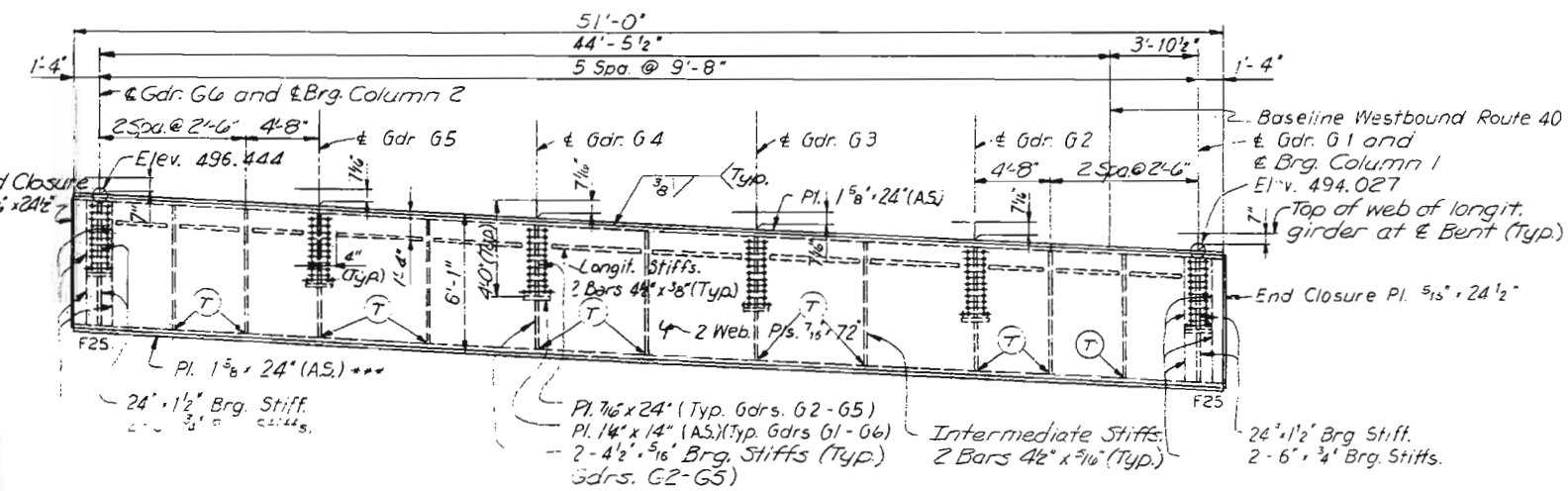
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	80	



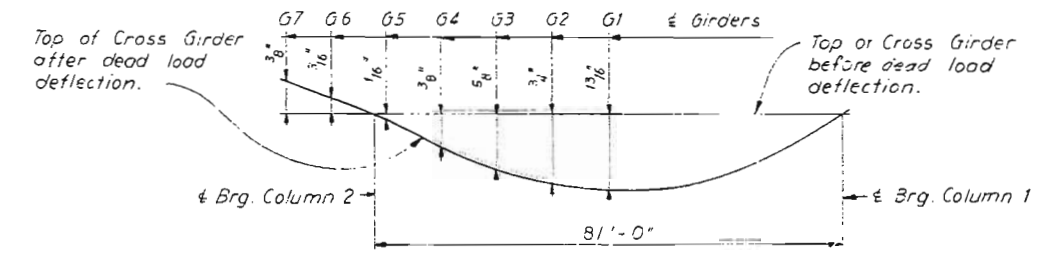
CROSS GIRDER AT BENT 41



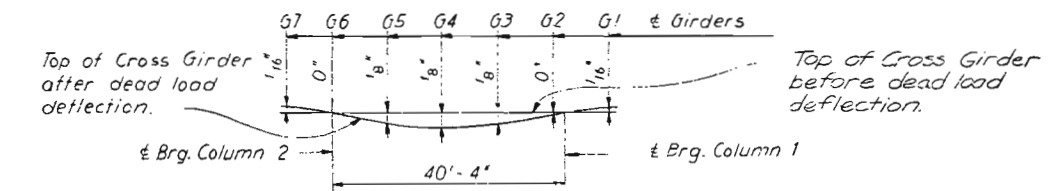
CROSS GIRDER AT BENT 42



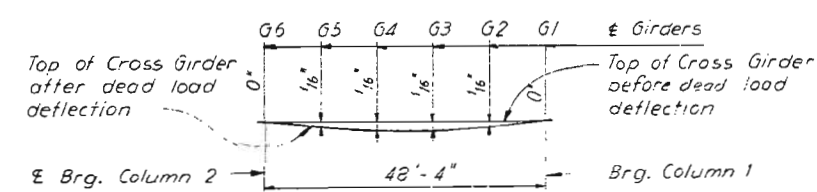
CROSS GIRDER AT BENT 55



CROSS GIRDER AT BENT 41



CROSS GIRDER AT BENT 42



CROSS GIRDER AT BENT 55

DEAD LOAD DEFLECTION DIAGRAM

NOTES
 For Cross Girder Notes, see Sheet 70.
 For details of longitudinal girders, see Sheet 62.

CITY OF ST. LOUIS

CROSS GIRDERS
 AT BENTS 41, 42 AND 55

SHEET 80 OF 93

A-3594

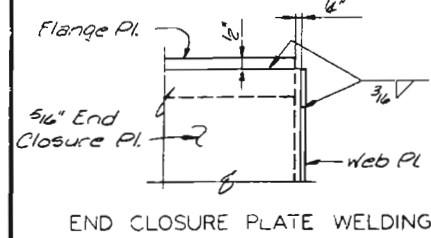
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CHECKED BY: R.V. BATHFIELD, JR. 1977

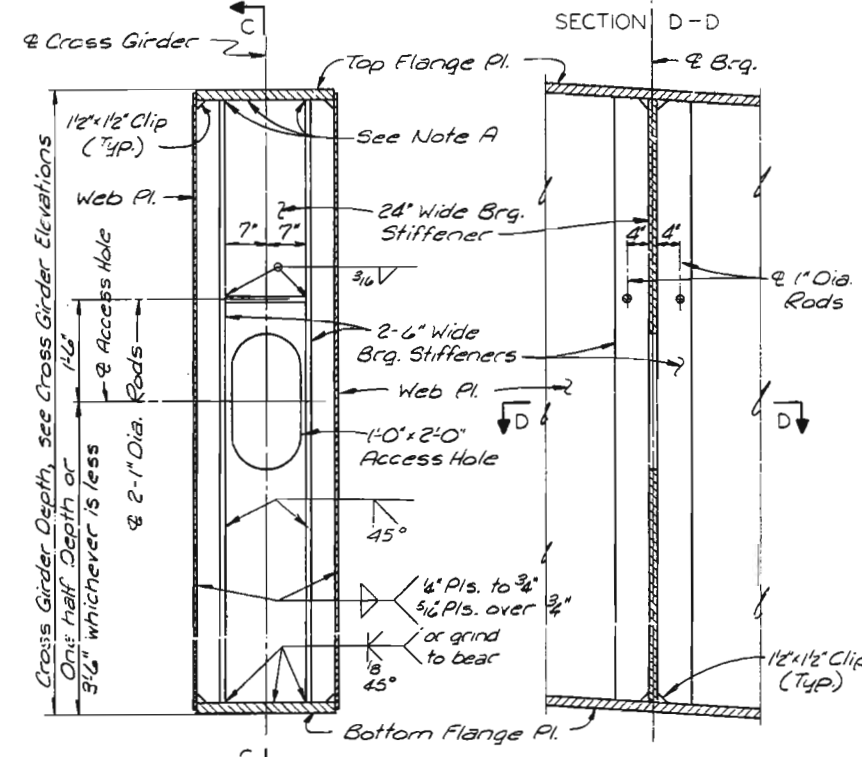
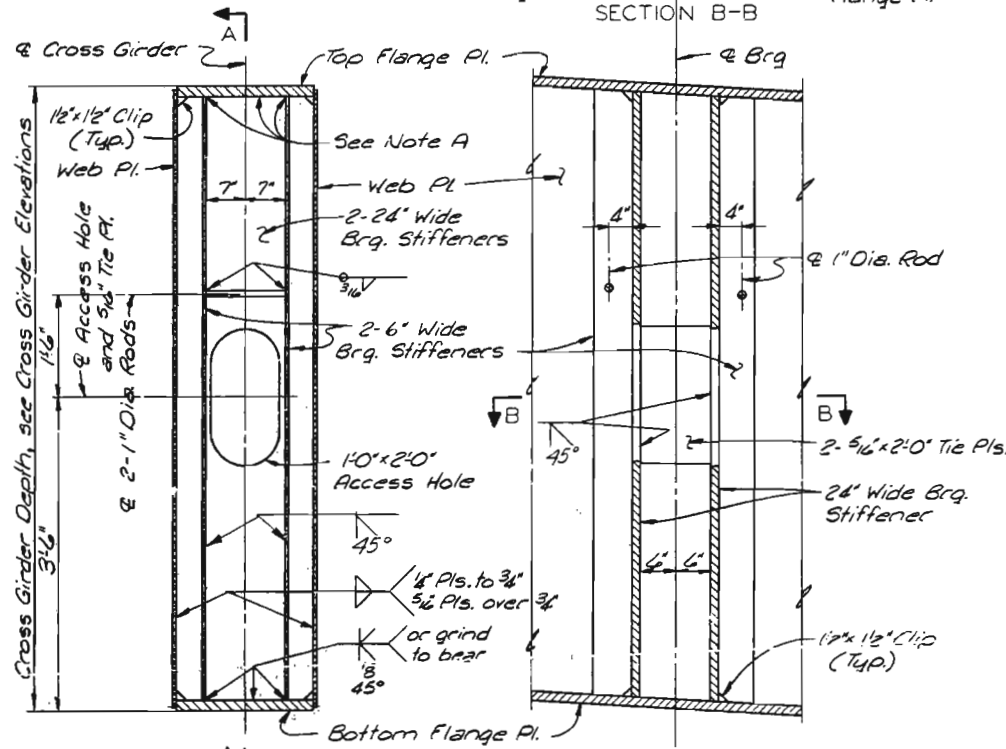
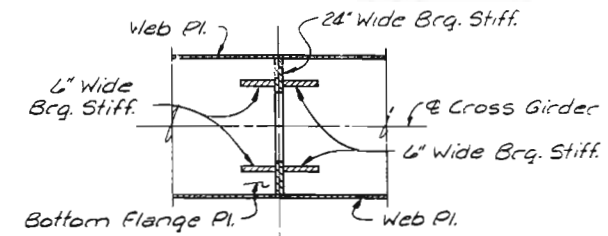
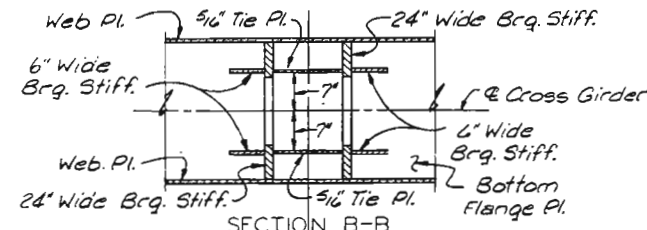
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
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 ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

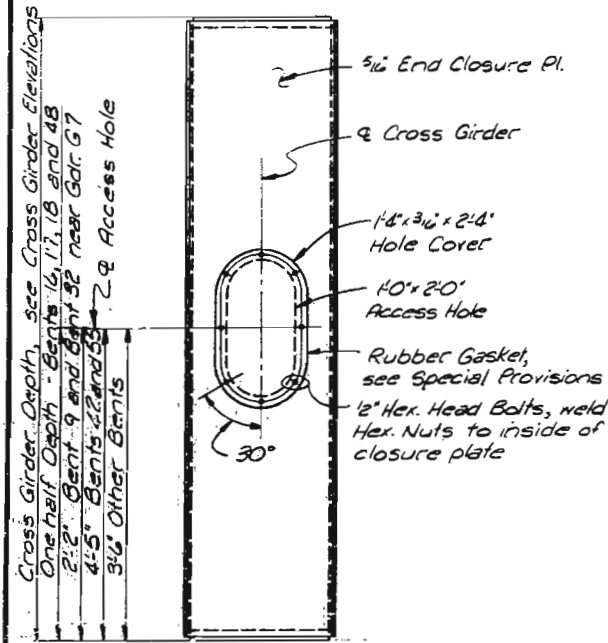
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	81	



Note A: Close Joint except at longitudinal girders, grind to bear.



NOTES
For Cross Girder Notes, see Sheet 70.
For stiffeners, connection plates and angles at bearing, see Bearing Detail Sheets.



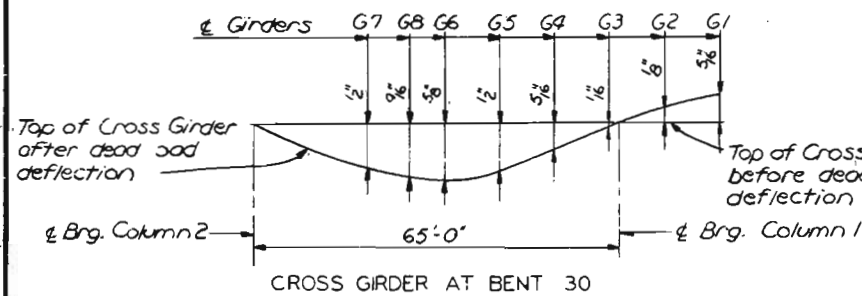
END CLOSURE

DOUBLE 24" BEARING STIFFENERS AT COLUMNS

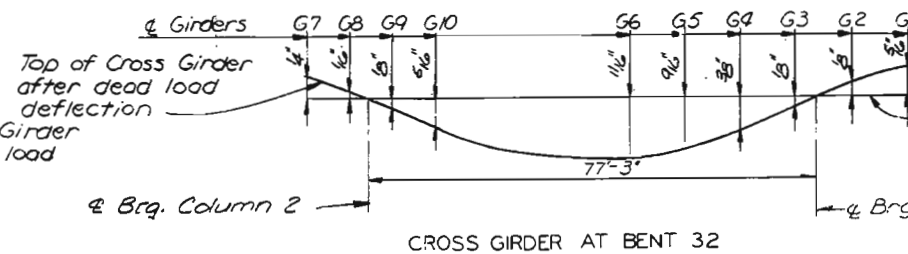
SECTION A-A

SINGLE 24" BEARING STIFFENER AT COLUMNS

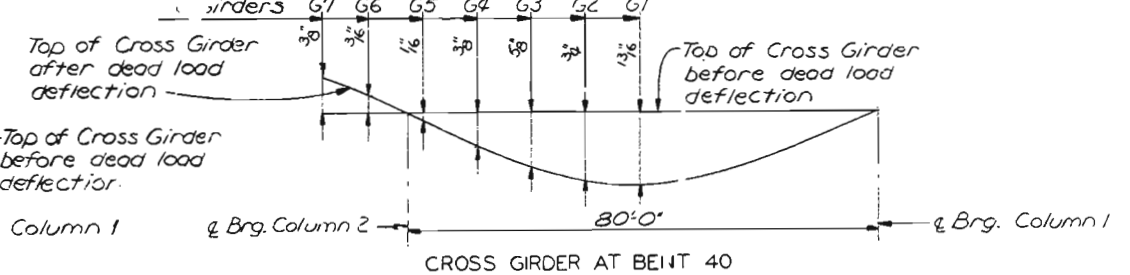
SECTION C-C



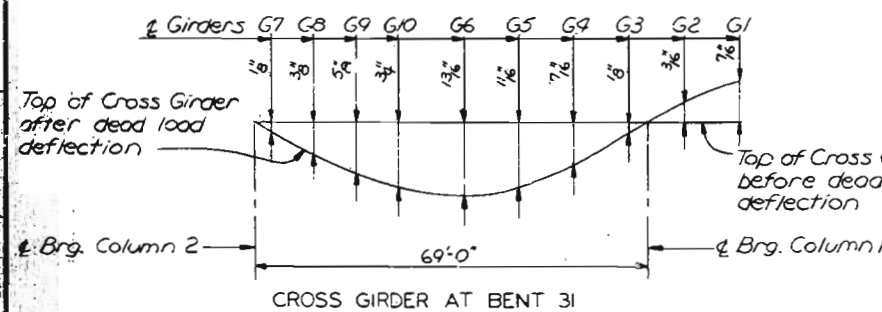
CROSS GIRDER AT BENT 30



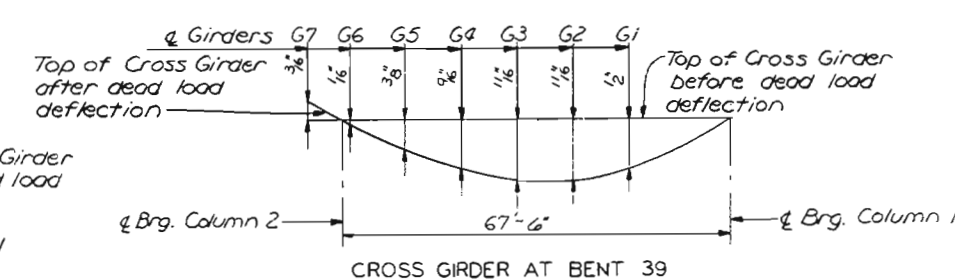
CROSS GIRDER AT BENT 32



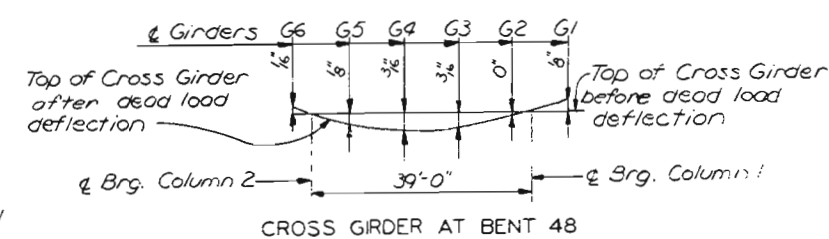
CROSS GIRDER AT BENT 40



CROSS GIRDER AT BENT 31



CROSS GIRDER AT BENT 39



CROSS GIRDER AT BENT 48

DEAD LOAD DEFLECTION DIAGRAM

CITY OF ST. LOUIS

CROSS GIRDER DETAILS

SHEET 81 OF 93

A-359-4

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

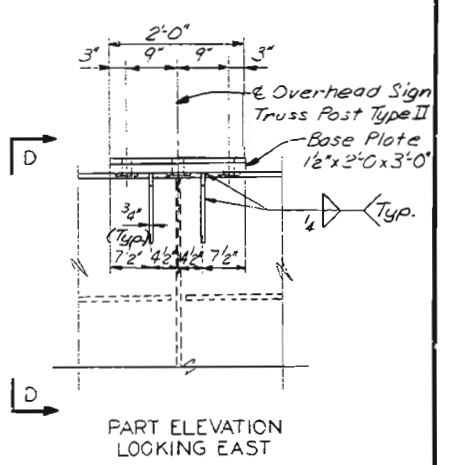
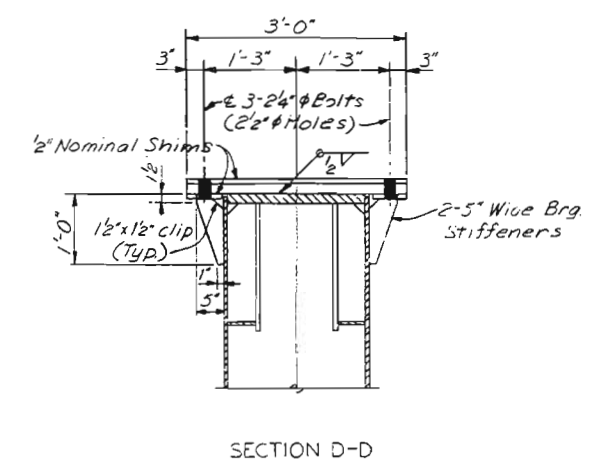
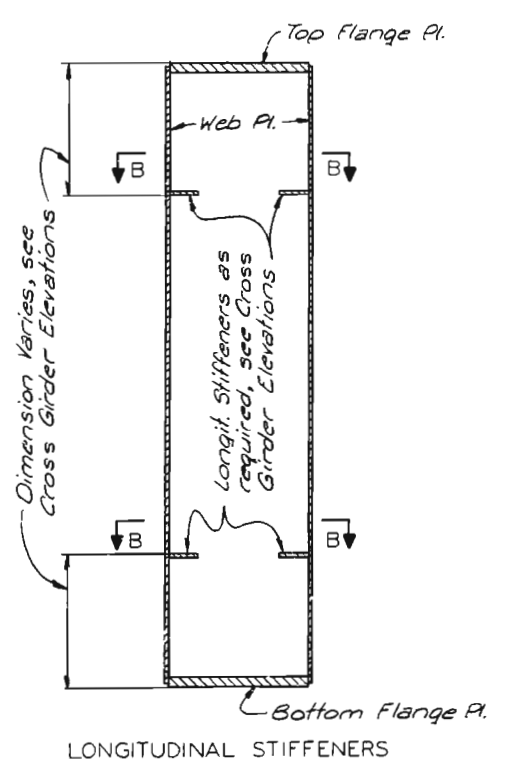
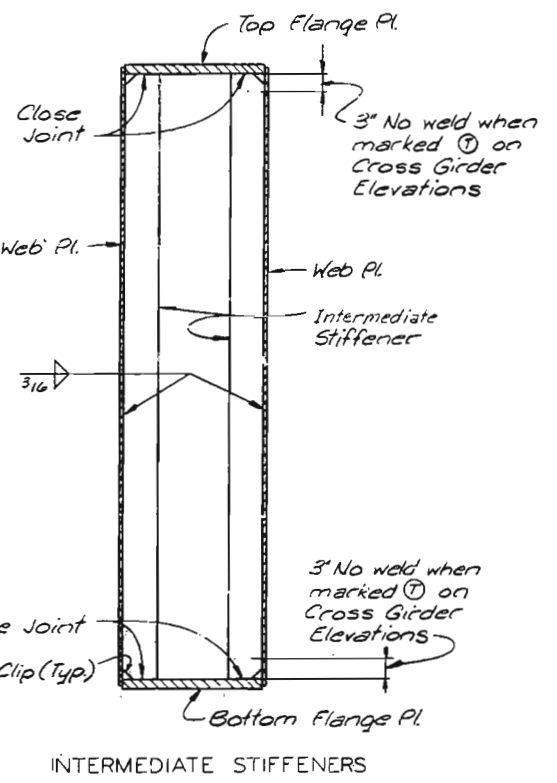
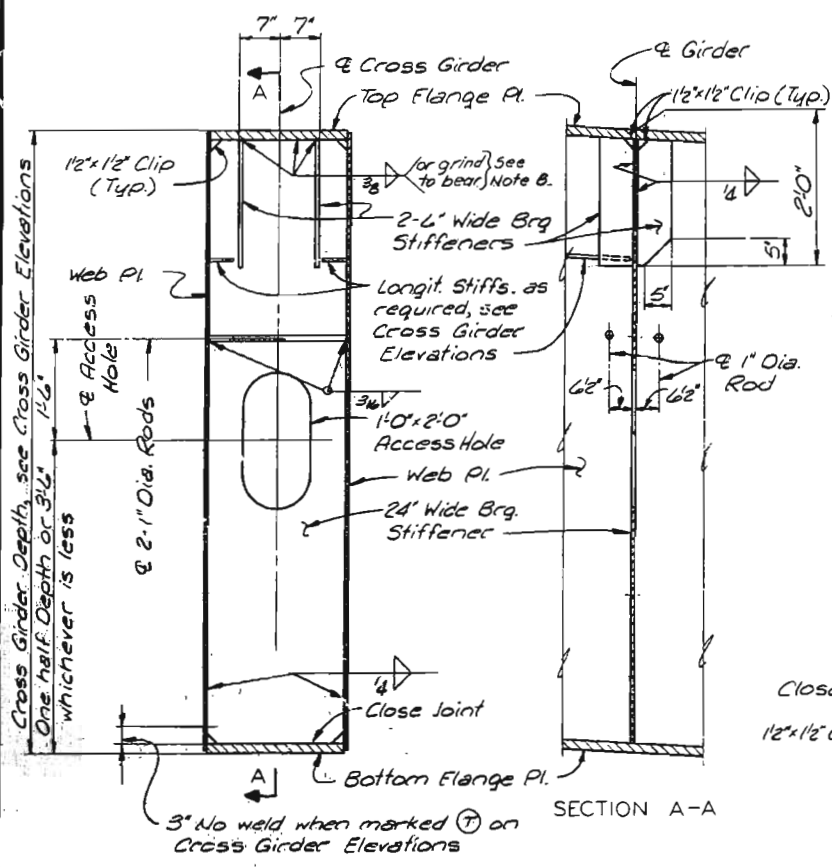
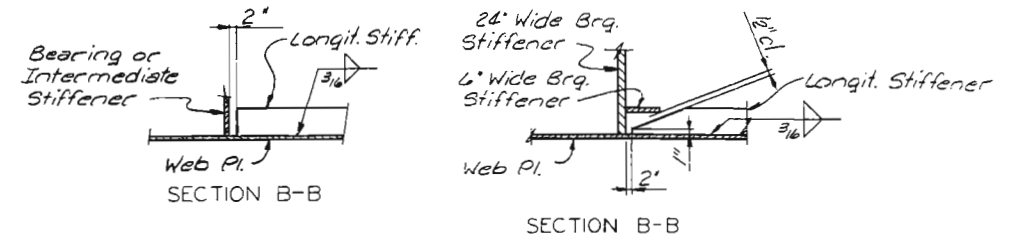
OVERHURP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

TRACED BY: 137
CHECKED BY: R.K. Balthasar, Nov. 1977

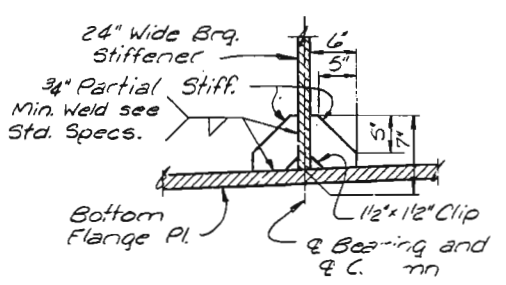
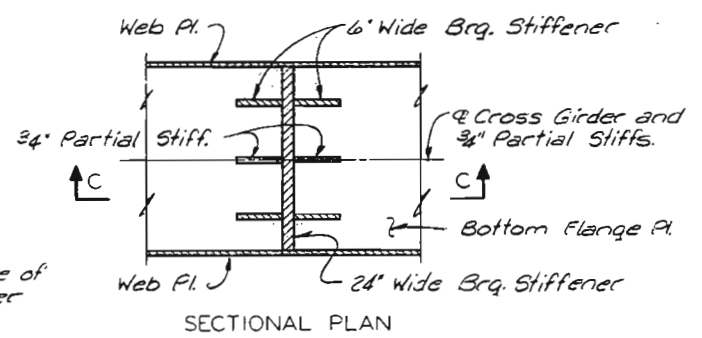
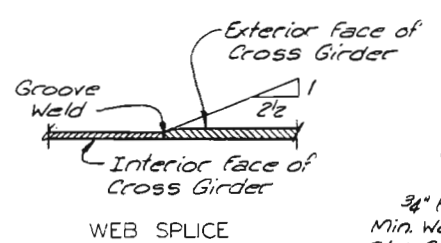
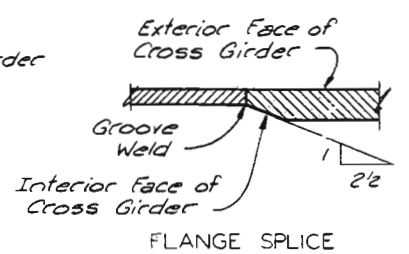
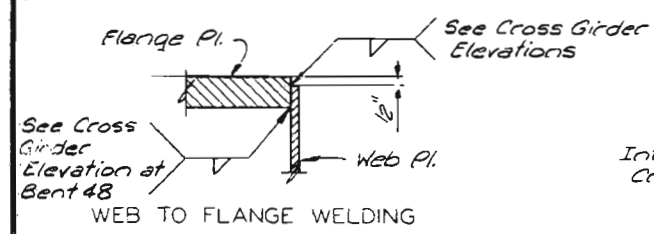
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	82	

NOTES
Work this sheet with Sheet 81.



BEARING STIFFENERS AND BASE PLATE
AT SIGN TRUSS POST TYPE II
CROSS GIRDER AT BENT 28



DETAIL OF PARTIAL STIFFENERS AT
BENT 41-COLUMN 1
BENTS 9,10,42 AND 55-COLUMNS 1 AND 2

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

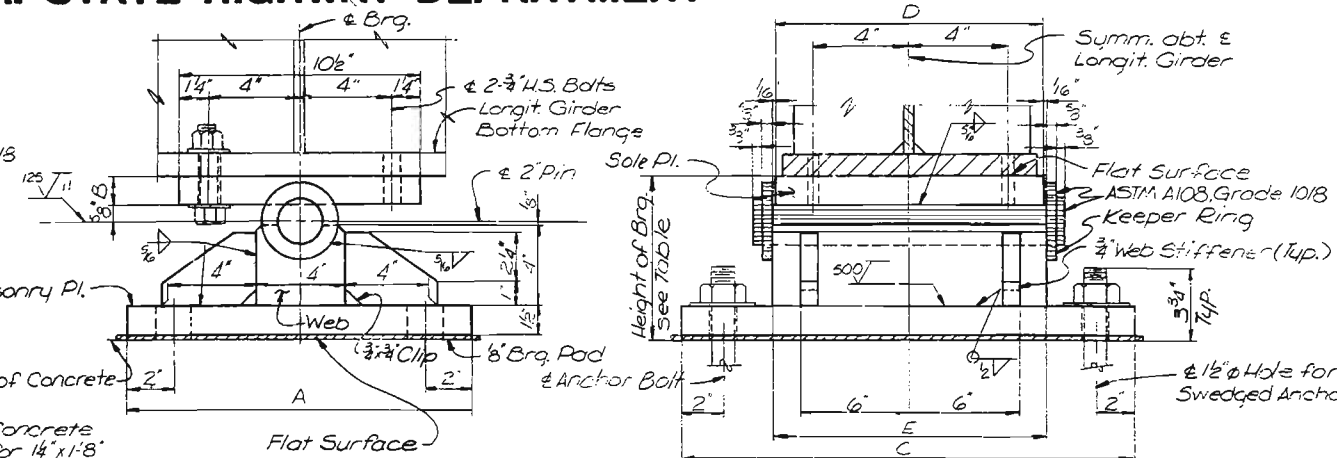
CITY OF ST. LOUIS

CROSS GIRDER DETAILS

SHEET 82 OF 93

A-3894

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	83	



3/8"

1 1/2"

3/8"

Bent Bar 2 3/8" x 3 3/8" x 5"

Slot for 4" Web

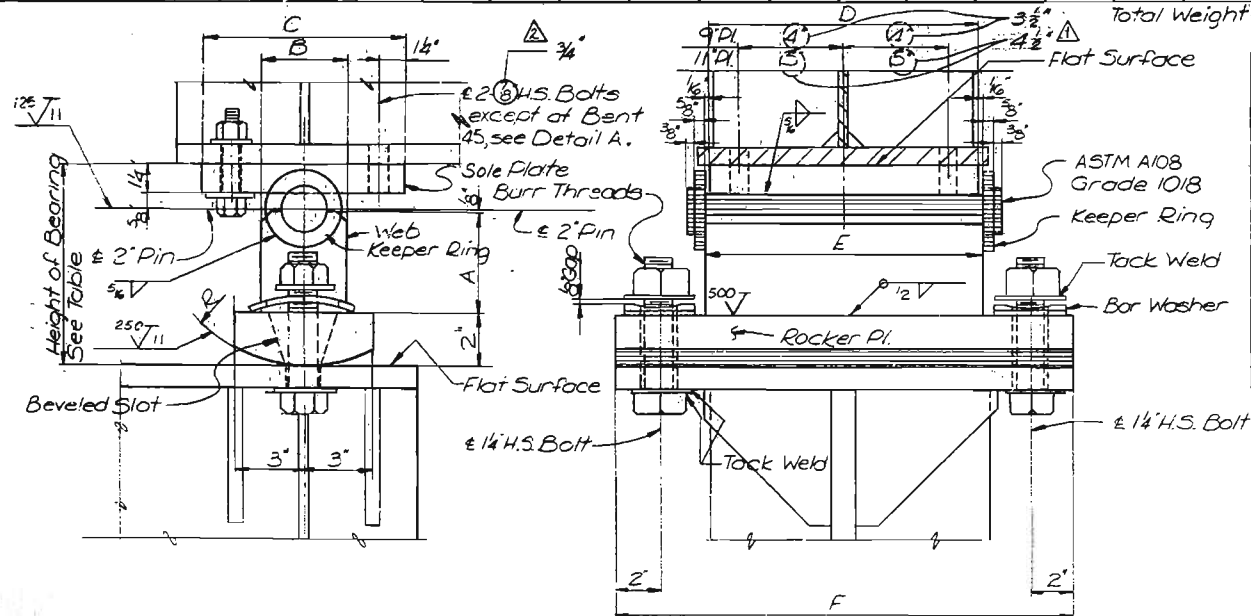
Slot for 3" Web

3 1/2"

BAR WASHER

FIXED BEARINGS-VARIABLE DIMENSIONS							HEIGHT OF BEARING	NO. OF BEARINGS REQ'D.	ESTIMATED WEIGHT OF BEARINGS		
LOCATION			A	B	C	D			E	LBS. (EACH)	LBS. (TOTAL)
BENT	BRG. TYPE	GIRDER									
2	F1	G1,G2,G4-G6	1'-3"	14"	2'-1"	1'-4 1/2"	1'-5"	7'-8"	5	315	1575
	F2	G3	1'-3"	1 1/2"	2'-1"	1'-4 1/2"	1'-5"	8"	1	334	334
5,6,8,7	F3	G1-G6	1'-3"	14"	1'-11"	1'-2 3/8"	1'-3"	7'-5 1/2"	18	286	5,148
13,14,15	F4	G1-G6	1'-3"	14"	2'-5"	1'-8 3/8"	1'-9"	7'-5 1/2"	18	375	6,750
43	F5	G1-G7	1'-4"	14"	1'-11"	1'-2 3/8"	1'-3"	7'-8"	7	295	2,065
44 **	F5	G1-G8	1'-4"	14"	1'-11"	1'-2 3/8"	1'-3"	7'-8"	8	295	2,360
45 **	F5	G1-G10	1'-4"	14"	1'-11"	1'-2 3/8"	1'-3"	7'-8"	10	295	2,950
49,51,452	F6	G1-G6	1'-2"	14"	1'-9"	1'-0 1/2"	1'-1"	7'-5"	18	247	4,446
56	F5	G1-G6	1'-4"	14"	1'-11"	1'-2 3/8"	1'-3"	7'-8"	6	295	1,770

Total Weight = 27,398 lbs.



HINGE BEARINGS - VARIABLE DIMENSIONS										HEIGHT OF BRACKET	NO. OF BEARINGS REQ'D.	ESTIMATED WEIGHT OF BEARINGS		
LOCATION :			A	B	C	D	E	F	R			LBS (EACH)	TOTAL	
HINGE NEAR BENT	BRG. TYPE	GIRDER												
4, 8 & 46	E19	G1-G6	4'3"	4"	9"	1'1 1/2"	1'2"	1'10"	6'2"	8'3"	18	186	3,34	
12, 24, 31 & 36	E14	G1-G6	5'3"	4"	11"	1'1 1/2"	1'2"	1'10"	7'2"	9'3"	24	214	5136	
28 & 38	E14	G1-G7	5'3"	4"	11"	1'1 1/2"	1'2"	1'10"	7'2"	9'3"	14	214	2996	
16 & 20	E15	G1-G6	6'2"	4"	11"	1'1 1/2"	1'2"	1'10"	8'2"	10'3"	12	230	2,76	
31	E16	G7-G10										4	196	78
42	E16	G1-G7	4'3"	4"	11"	1'1 1/2"	1'2"	1'10"	6'2"	8'3"	7	196	1,372	
50 & 53	E17	G1-G6	5'3"	4"	9"	11'8"	1'0"	1'8"	7'2"	9'3"	12	178	2,13	
*45	E18	G7-G10	4'3"	3"	8"	11'8"	1'0"	1'8"	6'2"	8'3"	4	158	632	

* Sole Plate to be cast-in-place with Ramp Slab, see Detail A.

Total weight: 19,164

Technical drawings of a beam-to-column connection, showing three views: End View of Web, Plan, and Elevation.

End View of Web: Shows the cross-section of the beam web. Dimensions include: 4'-3" Web, 3'-4" Web, 4" Web, 3'-4" Web, 4" Web, 3'-4" Web, 4" Web, 3'-4" Web, 4" Web, 3'-4" Web. The total width is 4'-3". The depth is 4". The label "END VIEW OF WEB" is present.

Plan: Shows the top view of the connection. Dimensions include: 4'-3" (width), 3'-4" (depth), 4" (width), 3'-4" (depth), 4" (width), 3'-4" (depth), 4" (width), 3'-4" (depth), 4" (width), 3'-4" (depth). The label "PLAN" is present.

Elevation: Shows the side view of the connection. Dimensions include: 4'-3" (width), 3'-4" (depth), 4" (width), 3'-4" (depth), 4" (width), 3'-4" (depth), 4" (width), 3'-4" (depth), 4" (width), 3'-4" (depth). The label "ELEVATION" is present.

Labels and notes include: "2" Pir.", "2" Sole Pl.", "Bor 2'-3/8" x 1/3", "No Paint including top of Sole Plate", "Concrete", "Sole Plate", "2" x 4", "11", "12", "13", "14", "15", "16", "17", "18", "19", "20", "21", "22", "23", "24", "25", "26", "27", "28", "29", "30", "31", "32", "33", "34", "35", "36", "37", "38", "39", "40", "41", "42", "43", "44", "45", "46", "47", "48", "49", "50", "51", "52", "53", "54", "55", "56", "57", "58", "59", "60", "61", "62", "63", "64", "65", "66", "67", "68", "69", "70", "71", "72", "73", "74", "75", "76", "77", "78", "79", "80", "81", "82", "83", "84", "85", "86", "87", "88", "89", "90", "91", "92", "93", "94", "95", "96", "97", "98", "99", "100".

Technical drawing of a shaft-hub assembly. The shaft has a diameter of $\phi 38$ and a length of 58 . A pin of diameter $\phi 12$ is inserted through the shaft. The hub has an outer diameter of 100 and a length of 58 . A keeper ring is shown on the left side of the hub, with a diameter of $\phi 8$ and a thickness of 10 . The pin is labeled "2 Pin". The shaft is labeled "38". The hub is labeled "100". The pin is labeled "12". The keeper ring is labeled "Keeper Ring".

NOTES

For Bearing Notes, see Sheet 87.

Machined surfaces shall be finished as shown in accordance with Standard Specification 712.3.323. Bottom of Expansion Shoe Rocker Plate and Fixed Shoe Base Plate shall be finished after welding.

All swaged anchor bolts shall be threaded 3/2" with heavy hex nut and washer. Swedge 1"Ø.

CITY OF ST. LOUIS

SHEET 83 OF 93

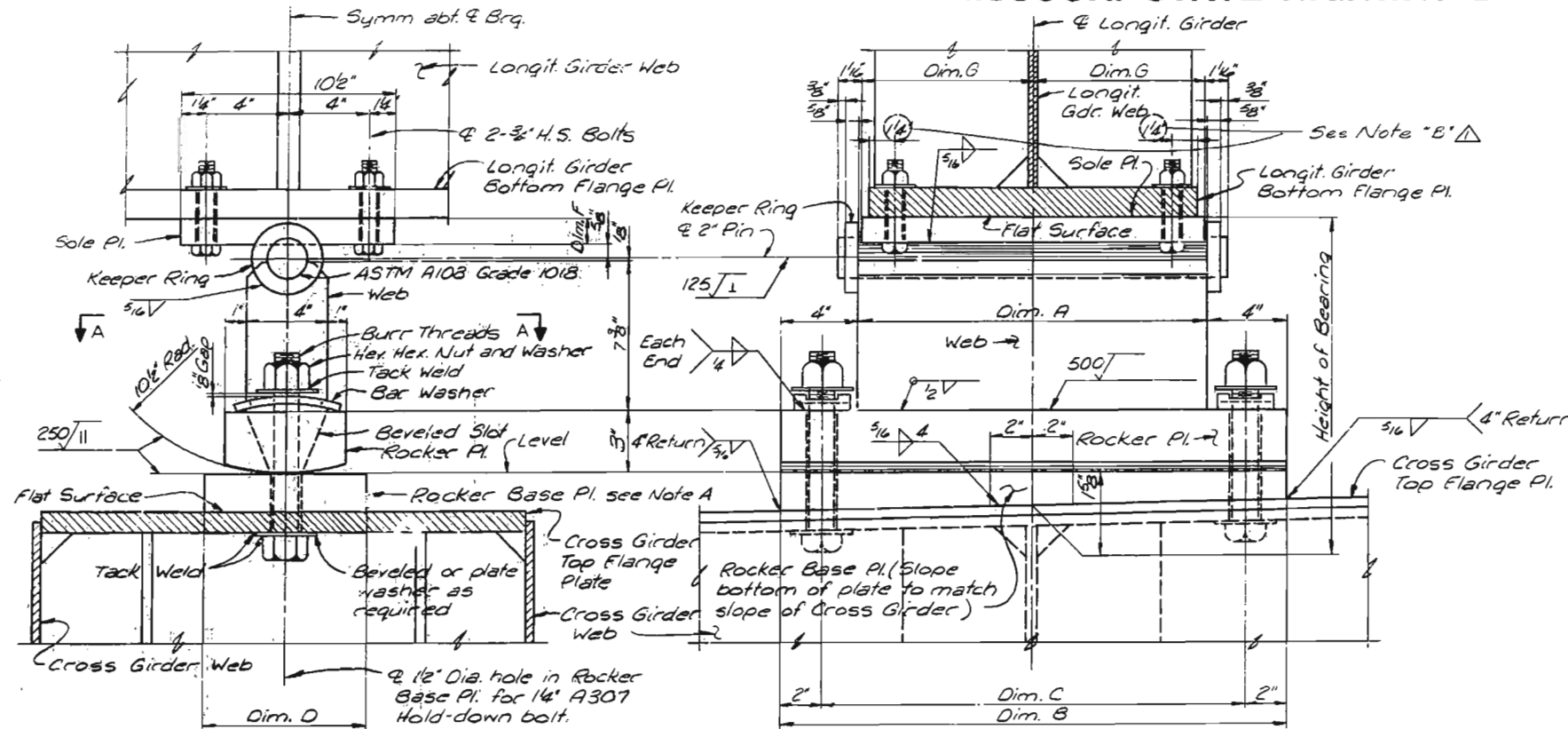
A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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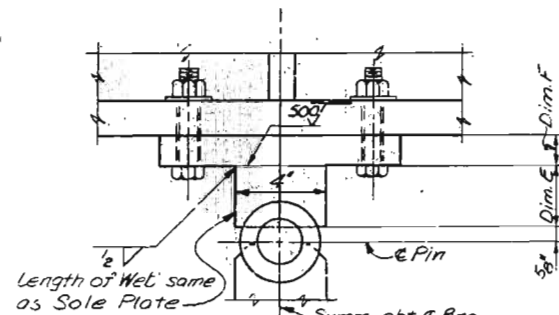
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	84	

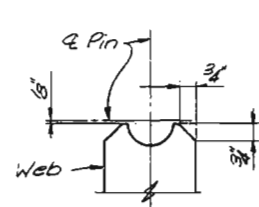


Note A: For earthquake restraint detail at Girders G2 and G5 at Bent 3, see details below.

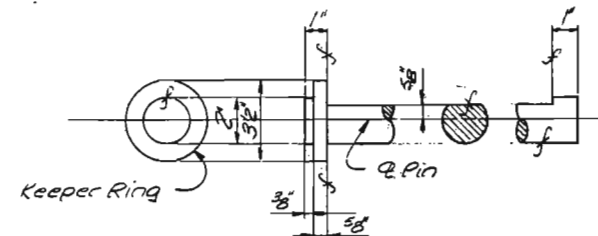
Note B: Use 1 1/2" (typical) except 2" at Bt. 36 & 2" at G7 thru G10 at Bt. 31.



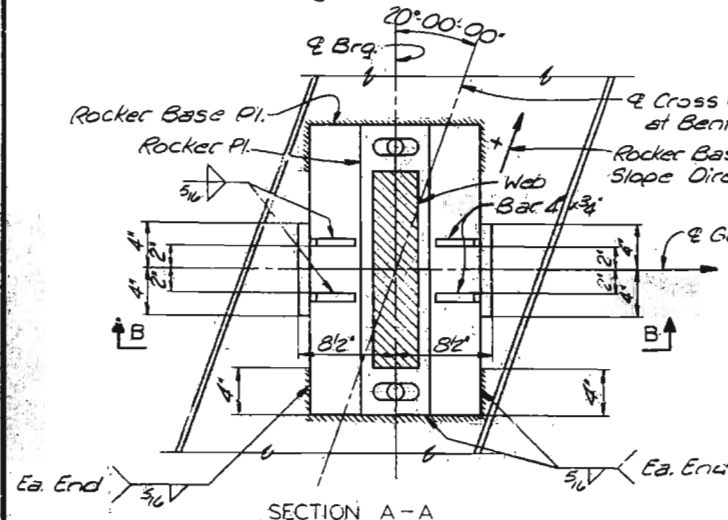
Note: Details not shown same as bearing details shown above.



END VIEW OF WEB

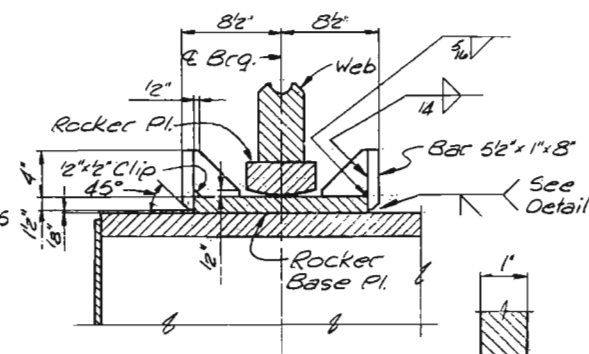


PIN AND KEEPER RING DETAIL

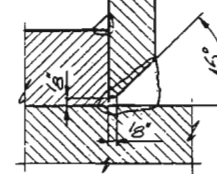


SECTION A-A

BEARING TYPE E13



SECTION B-B



SECTION A-A
BEARING TYPE E9

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

TABLE OF VARIABLES											
Bent	Brg. Type	Gdr.	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Dim. G	Rocker Base Pl. Slope (ft. per ft.)	Est. Weight (Lbs.)
3	E9	G1	1.5'	2.1"	1.9"	8"	—	14"	8 1/2"	+0.0107*	424
	E13	G2	1.5'	2.1"	1.9"	1.3"	2 1/2"	1 1/4"	8 1/2"	+0.0097*	590
	E9	G3	1.5'	2.1"	1.9"	8"	4"	1 1/4"	8 1/2"	+0.0086*	501
	E9	G4	1.5'	2.1"	1.9"	8"	2 1/2"	1 1/4"	8 1/2"	+0.0074*	478
	E13	G5	1.5'	2.1"	1.9"	1.3"	—	2 1/2"	8 1/2"	+0.0063*	610
	E9	G6	1.5'	2.1"	1.9"	8"	—	14"	8 1/2"	+0.0053*	424
16	E10	G1	1.3'	1.11"	1.7"	8"	—	14"	7 1/2"	-0.0391	383
	E10	G2	1.3'	1.11"	1.7"	8"	—	13 1/2"	7 1/2"	-0.0317	390
	E10	G3	1.3'	1.11"	1.7"	8"	—	12"	7 1/2"	-0.0343	397
	E10	G4	1.3'	1.11"	1.7"	8"	—	12"	7 1/2"	-0.0405	397
	E10	G5	1.3'	1.11"	1.7"	8"	—	13 1/2"	7 1/2"	-0.0411	390
	E10	G6	1.3'	1.11"	1.7"	8"	—	14"	7 1/2"	-0.0407	383
20	E10	G1	1.3'	1.11"	1.7"	8"	—	14"	7 1/2"	-0.0584	383
	E10	G2	1.3'	1.11"	1.7"	8"	—	13 1/2"	7 1/2"	-0.0597	390
	E10	G3	1.3'	1.11"	1.7"	8"	—	13"	7 1/2"	-0.0605	390
	E10	G4	1.3'	1.11"	1.7"	8"	—	14"	7 1/2"	-0.0607	383
	E10	G5	1.3'	1.11"	1.7"	8"	—	14"	7 1/2"	-0.0600	383
	E10	G6	1.3'	1.11"	1.7"	8"	—	14"	7 1/2"	-0.0598	383
24	E10	G1	1.3'	1.11"	1.7"	8"	—	14"	7 1/2"	-0.0430	383
	E10	G2	1.3'	1.11"	1.7"	8"	—	13 1/2"	7 1/2"	-0.0430	393
	E10	G3	1.3'	1.11"	1.7"	8"	—	13 1/2"	7 1/2"	-0.0434	404
	E10	G4	1.3'	1.11"	1.7"	8"	—	13"	7 1/2"	-0.0443	400
	E10	G5	1.3'	1.11"	1.7"	8"	—	12"	7 1/2"	-0.0453	397
	E10	G6	1.3'	1.11"	1.7"	8"	—	13"	7 1/2"	-0.0442	390
31	E10	G1	1.3'	1.11"	1.7"	8"	—	14"	7 1/2"	+0.0211	383
	E10	G2	1.3'	1.11"	1.7"	8"	4 1/2"	14"	7 1/2"	+0.0213	455
	E10	G3	1.3'	1.11"	1.7"	8"	7 1/2"	14"	7 1/2"	+0.0219	506
	E10	G4	1.3'	1.11"	1.7"	8"	8"	14"	7 1/2"	+0.0216	519
	E10	G5	1.3'	1.11"	1.7"	8"	8 1/2"	14"	7 1/2"	+0.0207	529
	E10	G6	1.3'	1.11"	1.7"	8"	9 1/2"	14"	7 1/2"	+0.0195	538
32	E10	G1	1.3'	1.11"	1.7"	8"	—	14"	7 1/2"	+0.0180	383
	E10	G2	1.3'	1.11"	1.7"	8"	6 3/4"	14"	7 1/2"	+0.0171	489
	E10	G3	1.3'	1.11"	1.7"	8"	4 1/2"	14"	7 1/2"	+0.0163	455
	E10	G4	1.3'	1.11"	1.7"	8"	2 1/2"	14"	7 1/2"	+0.0159	421
	E11	G1	1.8'	2.4"	2.0"	8"	2 1/2"	14"	9 15/16"	-0.0002	552
	E11	G2	1.8'	2.4"	2.0"	8"	4 1/2"	14"	9 15/16"	-0.0001	592
36	E11	G3	1.8'	2.4"	2.0"	8"	5 1/2"	14"	9 15/16"	+0.0005	604
	E11	G4	1.8'	2.4"	2.0"	8"	3 1/2"	14"	9 15/16"	+0.0009	566
	E11	G5	1.8'	2.4"	2.0"	8"	—	3"	9 3/8"	+0.0007	589
	E11	G6	1.8'	2.4"	2.0"	8"	—	14"	9 3/8"	+0.0001	487
	E12	G1	1.1"	1.9"	1.5"	8"	—	13 1/2"	6 1/2"	+0.0152	342
	E12	G2	1.1"	1.9"	1.5"	8"	—	14"	6 1/2"	+0.0154	341
36	E12	G3	1.1"	1.9"	1.5"	8"	—	14"	6 1/2"	+0.0162	341
	E12	G4	1.1"	1.9"	1.5"	8"	—	13 1/2"	6 1/2"	+0.0161	342
	E12	G5	1.1"	1.9"	1.5"	8"	—	13 1/2"	6 1/2"	+0.0154	342
	E12	G6	1.1"	1.9"	1.5"	8"	—	14"	6 1/2"	+0.0144	341
	E12	G1	1.1"	1.9"	1.5"	8"	—	13 1/2"	6 1/2"	+0.0152	342
	E12	G2	1.1"	1.9"	1.5"	8"	—	14"	6 1/2"	+0.0154	341

** Note: For sole plate orientation for bearing of G7 thru G10 at Bent 31, see Sheet 90.

NOTES

Machined surfaces shall be finished as shown in accordance with Standard Specification 712.3.3.23. Bottom of Expansion Shoe Rocker Plate and Fixed Shoe Base Plate shall be finished after welding.

All material except bolts and pins shall be ASTM A36. Bolts connecting sole plates to girder flanges shall be ASTM A325, Type 1 or 2. Bolts through rocker base plate and rocker plate to cross girder top flange may be ASTM A325 or ASTM A307.

f Indicates machined finished surface of 125 microinch or better in accordance with ANSI B46.1-62, Surface Roughness, Waviness and Lay, Part I.

All material except bolts shall be paid for as fabricated Structural Steel Bearings.

Machined finished surfaces of bearing shall be coated in accordance with Standard Specification 712.2.7.

Δ Omit dimension & added Note "B". 1-15-70

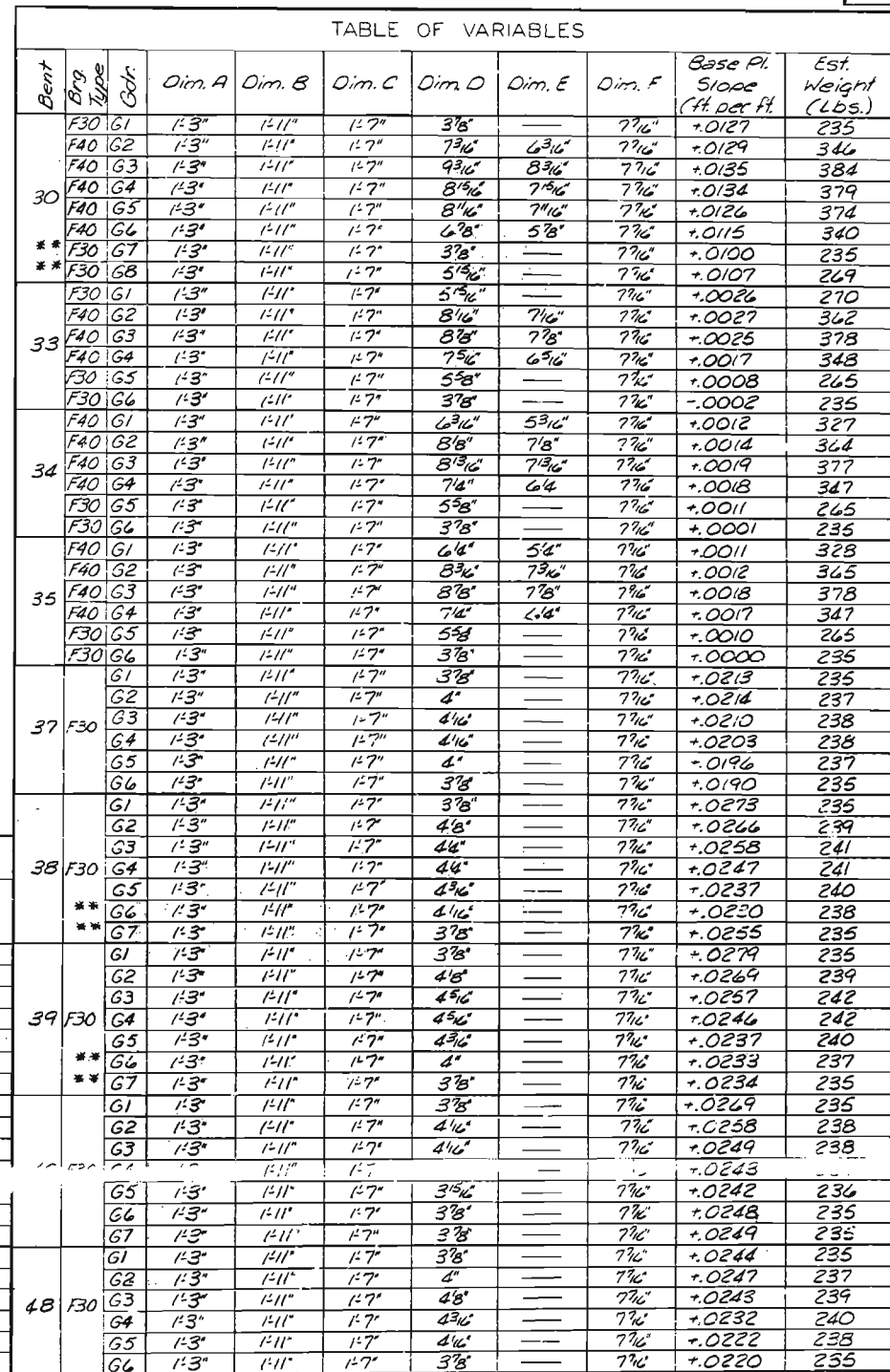
CITY OF ST. LOUIS

LONGITUDINAL GIRDER BEARINGS AT
CROSS GIRDERS-TYPES E9 THRU E13

SHEET 84 OF 93

A3594

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	85	



**SLOPE ORIENTATION FOR
BASE PLATES**

*Note: All elevations of
shoes are looking up
station with G1 on the
right and G2 thru G10
to left of G1.*

Note A:
Height of bearing
equals 358" plus
dimension D.

VARIABLES										
Bent	Brig. Type	Col.	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Base Pl. Slope (ft. per ft.)	Est. Weight (LBS.)
25	F33	G1	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	3' 3"	—	8' 3/4"	-.0206	254
		G2	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	4"	—	8' 3/4"	-.0204	257
		G3	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	4' 3"	—	8' 3/4"	-.0207	259
		G4	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	4' 3/4"	—	8' 3/4"	-.0216	260
		G5	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	4' 8"	—	8' 3/4"	-.0227	259
		G6	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	4' 8"	—	8' 3/4"	-.0235	257
		G7	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	3' 7 3/8"	—	8' 3/4"	-.0240	254
26	F34	G1	1'-3 1/2"	1'-11 1/2"	1'-7 1/2"	3' 1/8"	—	7' 11/16"	+.0076	241
		G2	1'-3 1/2"	1'-11 1/2"	1'-7 1/2"	4' 1/2"	5' 9/16"	7' 11/16"	+.0078	343
		G3	1'-3 1/2"	1'-11 1/2"	1'-7 1/2"	8"	7"	7' 11/16"	+.0075	371
		G4	1'-3 1/2"	1'-11 1/2"	1'-7 1/2"	7' 1/8"	1' 1/8"	7' 11/16"	+.0071	354
		G5	1'-3 1/2"	1'-11 1/2"	1'-7 1/2"	4' 1/2"	5' 1/2"	7' 11/16"	+.0056	333
		G6	1'-3 1/2"	1'-11 1/2"	1'-7 1/2"	4' 1/2"	—	7' 11/16"	+.0045	260
		G7	1'-3 1/2"	1'-11 1/2"	1'-7 1/2"	3' 3/8"	—	7' 11/16"	+.0038	241
27	F35	G1	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	3' 1/8"	—	8' 3/4"	+.0021	254
		G2	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	4' 3/8"	5' 3/8"	8' 3/4"	+.0082	362
		G3	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	8' 1/4"	7' 1/4"	8' 3/4"	+.0030	392
		G4	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	7' 3/4"	7' 1/2"	8' 3/4"	+.0072	374
		G5	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	4' 3/8"	5' 3/8"	8' 3/4"	+.0061	352
		G6	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	4' 1/2"	—	8' 3/4"	+.0049	274
		G7	1'-4 1/2"	2'-0 1/2"	1'-8 1/2"	3' 3/8"	—	8' 3/4"	+.0041	254
28	F36	G1	1'-1 1/2"	1'-9 1/2"	1'-5 1/2"	3' 1/8"	—	6' 1/4"	+.0079	215
		G2	1'-1 1/2"	1'-9 1/2"	1'-5 1/2"	4' 3/8"	5' 3/8"	6' 1/4"	+.0081	308
		G3	1'-1 1/2"	1'-9 1/2"	1'-5 1/2"	8' 1/4"	7' 1/4"	6' 1/4"	+.0082	333
		G4	1'-1 1/2"	1'-9 1/2"	1'-5 1/2"	7' 3/4"	6' 3/4"	6' 1/4"	+.0074	318
		G5	1'-1 1/2"	1'-9 1/2"	1'-5 1/2"	4' 3/8"	5' 3/8"	6' 1/4"	+.0062	300
		G6	1'-1 1/2"	1'-9 1/2"	1'-5 1/2"	4' 1/2"	—	6' 1/4"	+.0049	232
		G7	1'-1 1/2"	1'-9 1/2"	1'-5 1/2"	3' 1/8"	—	6' 1/4"	+.0039	215
29	F38	G1	1'-5"	2'-1"	1'-9"	3' 7/8"	—	8' 1/4"	+.0068	261
		G2	1'-5"	2'-1"	1'-9"	4' 2"	5' 2"	8' 1/4"	+.0070	368
		G3	1'-5"	2'-1"	1'-9"	7' 3/4"	6' 3/4"	8' 1/4"	+.0076	396
		G4	1'-5"	2'-1"	1'-9"	6' 1/4"	5' 1/4"	8' 1/4"	+.0075	378
		G5	1'-5"	2'-1"	1'-9"	5' 1/4"	—	8' 1/4"	+.0068	300
		G6	1'-5"	2'-1"	1'-9"	4' 3/8"	—	8' 1/4"	+.0058	280
		G7	1'-5"	2'-1"	1'-9"	3' 3/8"	—	8' 1/4"	+.0049	261

Bent	Brig. Type	Ctr.	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Base Pl. Slope (ft. per ft.)	Est. Weight (Lbs.)
30	F30	G1	1'3"	1'11"	1'7"	3'8"	—	7'16"	+0.127	235
	F40	G2	1'3"	1'11"	1'7"	7'16"	6'316"	7'16"	+0.129	346
	F40	G3	1'3"	1'11"	1'7"	9'316"	8'316"	7'16"	+0.135	384
	F40	G4	1'3"	1'11"	1'7"	8'16"	7'16"	7'16"	+0.134	379
	F40	G5	1'3"	1'11"	1'7"	8'16"	7'16"	7'16"	+0.126	374
	F40	G6	1'3"	1'11"	1'7"	6'8"	5'8"	7'16"	+0.115	340
	F30	G7	1'3"	1'11"	1'7"	3'8"	—	7'16"	+0.100	235
33	F30	G8	1'3"	1'11"	1'7"	5'316"	—	7'16"	+0.107	269
	F30	G1	1'3"	1'11"	1'7"	5'316"	—	7'16"	+0.026	270
	F40	G2	1'3"	1'11"	1'7"	8'16"	7'16"	7'16"	+0.027	362
	F40	G3	1'3"	1'11"	1'7"	8'16"	7'16"	7'16"	+0.025	378
	F40	G4	1'3"	1'11"	1'7"	7'56"	6'516"	7'16"	+0.017	348
	F30	G5	1'3"	1'11"	1'7"	5'58"	—	7'16"	+0.008	245
	F30	G6	1'3"	1'11"	1'7"	3'8"	—	7'16"	-0.002	235
34	F40	G1	1'3"	1'11"	1'7"	6'316"	5'316"	7'16"	+0.012	327
	F40	G2	1'3"	1'11"	1'7"	8'16"	7'8"	7'16"	+0.014	364
	F40	G3	1'3"	1'11"	1'7"	8'316"	7'316"	7'16"	+0.019	377
	F40	G4	1'3"	1'11"	1'7"	7'4"	6'4"	7'16"	+0.018	347
	F30	G5	1'3"	1'11"	1'7"	5'58"	—	7'16"	+0.011	245
	F30	G6	1'3"	1'11"	1'7"	3'8"	—	7'16"	+0.001	235
	35	F40	G1	1'3"	1'11"	1'7"	6'4"	5'4"	7'16"	+0.011	328
F40		G2	1'3"	1'11"	1'7"	8'16"	7'16"	7'16"	+0.012	365
F40		G3	1'3"	1'11"	1'7"	8'16"	7'16"	7'16"	+0.018	378
F40		G4	1'3"	1'11"	1'7"	7'4"	6'4"	7'16"	+0.017	347
F30		G5	1'3"	1'11"	1'7"	5'58"	—	7'16"	+0.010	245
F30		G6	1'3"	1'11"	1'7"	3'8"	—	7'16"	+0.000	235
37		F30	G1	1'3"	1'11"	1'7"	3'8"	—	7'16"	+0.013	235
	G2	1'3"	1'11"	1'7"	4"	—	7'16"	+0.014	237	
	G3	1'3"	1'11"	1'7"	4'16"	—	7'16"	+0.010	238	
	G4	1'3"	1'11"	1'7"	4'16"	—	7'16"	+0.0203	238	
	G5	1'3"	1'11"	1'7"	4"	—	7'16"	+0.0196	237	
	G6	1'3"	1'11"	1'7"	3'8"	—	7'16"	+0.0190	235	
	38	F30	G1	1'3"	1'11"	1'7"	3'8"	—	7'16"	+0.0273	235
G2		1'3"	1'11"	1'7"	4'8"	—	7'16"	+0.0266	239	
G3		1'3"	1'11"	1'7"	4'4"	—	7'16"	+0.0258	241	
G4		1'3"	1'11"	1'7"	4'4"	—	7'16"	+0.0247	241	
G5		1'3"	1'11"	1'7"	4'316"	—	7'16"	+0.0237	240	
G6		1'3"	1'11"	1'7"	4'16"	—	7'16"	+0.0230	238	
G7		1'3"	1'11"	1'7"	3'8"	—	7'16"	+0.0255	235	
39	F30	G1	1'3"	1'11"	1'7"	3'8"	—	7'16"	+0.0279	235
	G2	1'3"	1'11"	1'7"	4'8"	—	7'16"	+		

NOTES
Work this sheet with Sheet 84.

① Omit dimension; and added Note "B". 1-15-79

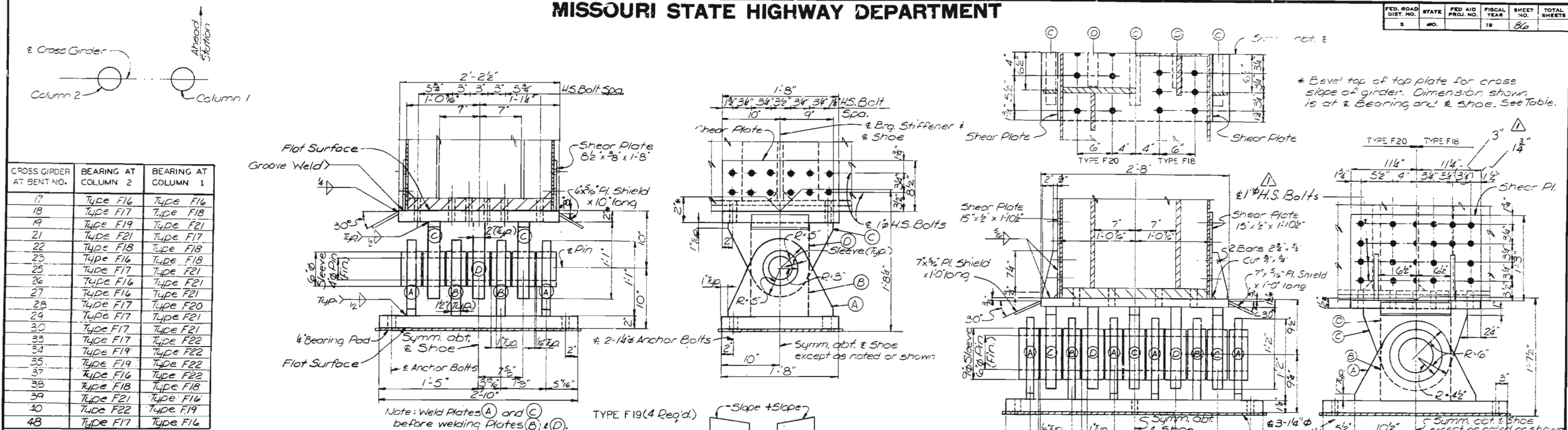
LONGITUDINAL GIRDER BEARINGS AT
CROSS GIRDERS - TYPES F30 THRU F40

A-3594

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	86	



CROSS GIRDER AT SENT NO.	BEARING AT COLUMN 2	BEARING AT COLUMN 1
17	Type F16	Type F16
18	Type F17	Type F18
19	Type F19	Type F21
21	Type F21	Type F17
22	Type F18	Type F18
23	Type F16	Type F18
25	Type F17	Type F21
26	Type F16	Type F21
27	Type F16	Type F21
28	Type F17	Type F20
29	Type F17	Type F21
30	Type F17	Type F21
33	Type F17	Type F22
34	Type F19	Type F22
35	Type F19	Type F22
37	Type F16	Type F22
38	Type F18	Type F18
39	Type F21	Type F16
40	Type F22	Type F19
48	Type F17	Type F16

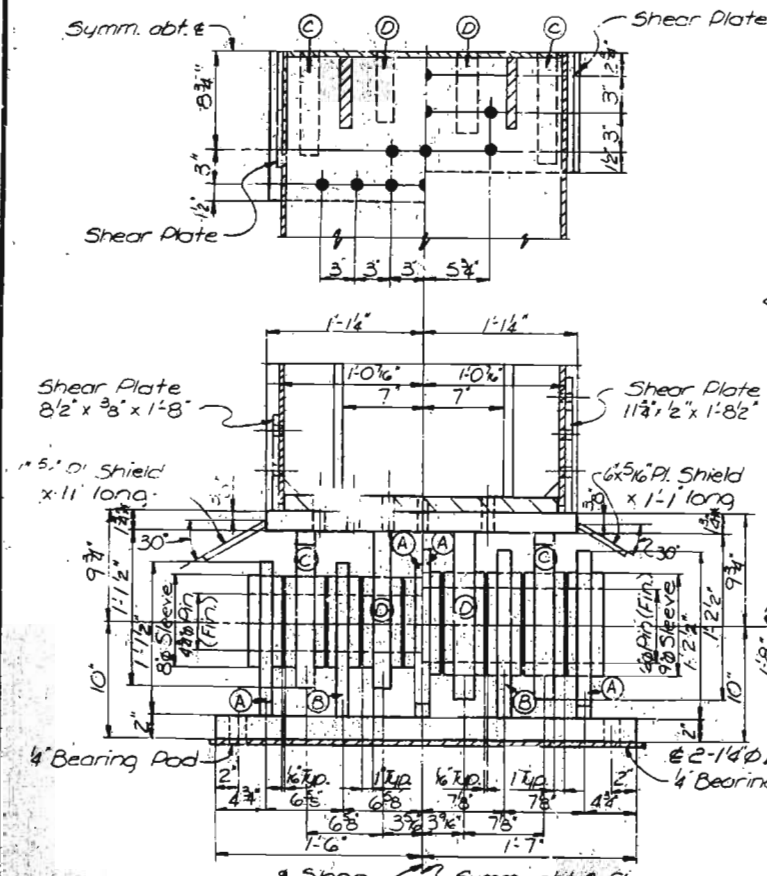
CROSS GIRDER FLANGE SLOPES AT SHOES (Ft./Ft.)								
GIRDER	COL. 2	COL. 1	GIRDER	COL. 2	COL. 1	GIRDER	COL. 2	COL. 1
17	-.0610	-.0590	26	+.0030	+.0078	35	-.0018	+.0016
18	-.0613	-.0595	27	+.0033	+.0082	37	+.0199	+.0213
19	-.0616	-.0598	28	+.0029	+.0082	38	+.0221	+.0275
21	-.0612	-.0566	29	+.0038	+.0074	39	+.0233	+.0289
22	-.0623	-.0573	30	+.0087	+.0133	40	+.0244	+.0291
23	-.0633	-.0579	33	-.0025	+.0027	48	+.0219	+.0246
25	-.0253	-.0204	34	-.0019	+.0017			

Note: All side views of shoes and cross girder flange slopes shown in Table are looking up-station.

Rib Plate Thicknesses	
Ribs	Type F18 & F20
(A) and (B)	1 1/4"
(C) and (D)	1 3/4"

TYPES F18 & F20
1-Type F20 Req'd.
6-Type F18 Req'd.

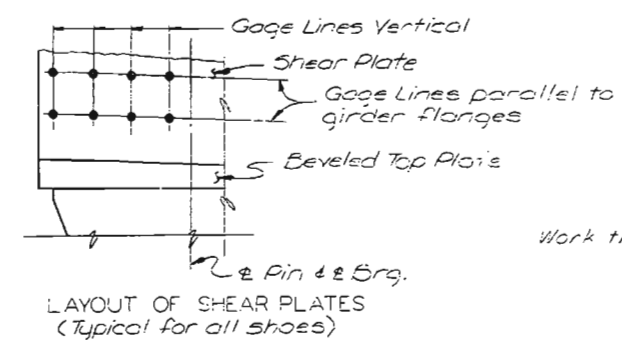
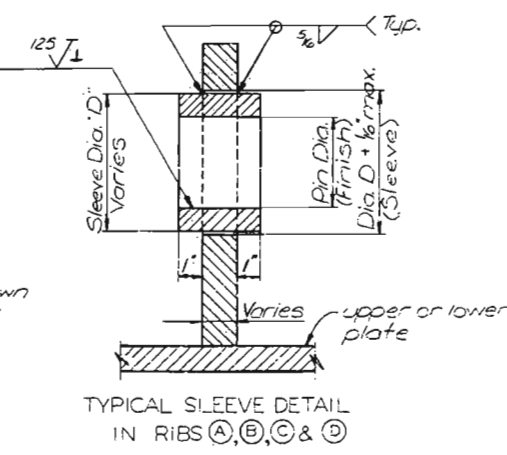
Note: Welding not shown same size as shown for Type F19 and all finishes on plates and pins some as shown for Type F19.
Weld Plates (A) and (C) before welding Plates (B) and (D).



TYPES F16 & F17

Note: Welding same size as shown for Type F19 on all finishes on plates and pins are same as shown for Type F19.
Weld Plates (A) and (C) before welding Plates (B) and (D).

Rib Plate Thickness	
Ribs	Type F17 Type F16
(A) and (B)	1" 1 1/4"
(C) and (D)	1 1/2" 1 3/4"



NOTES
Work this sheet with Sheet B7.

CITY OF ST. LOUIS

**CROSS GIRDER BEARINGS
TYPES F16 THRU F22**

SHEET 86 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

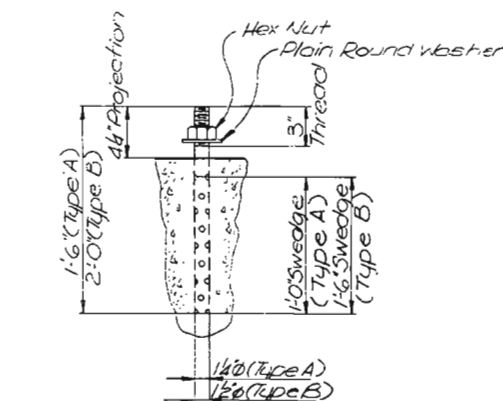
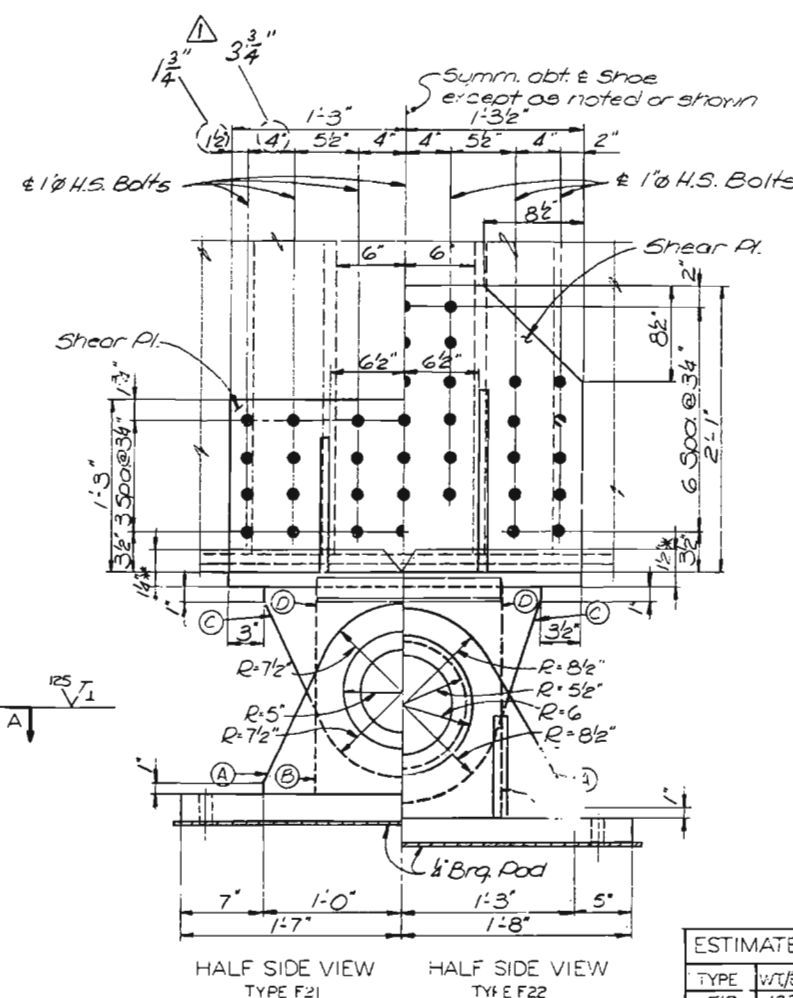
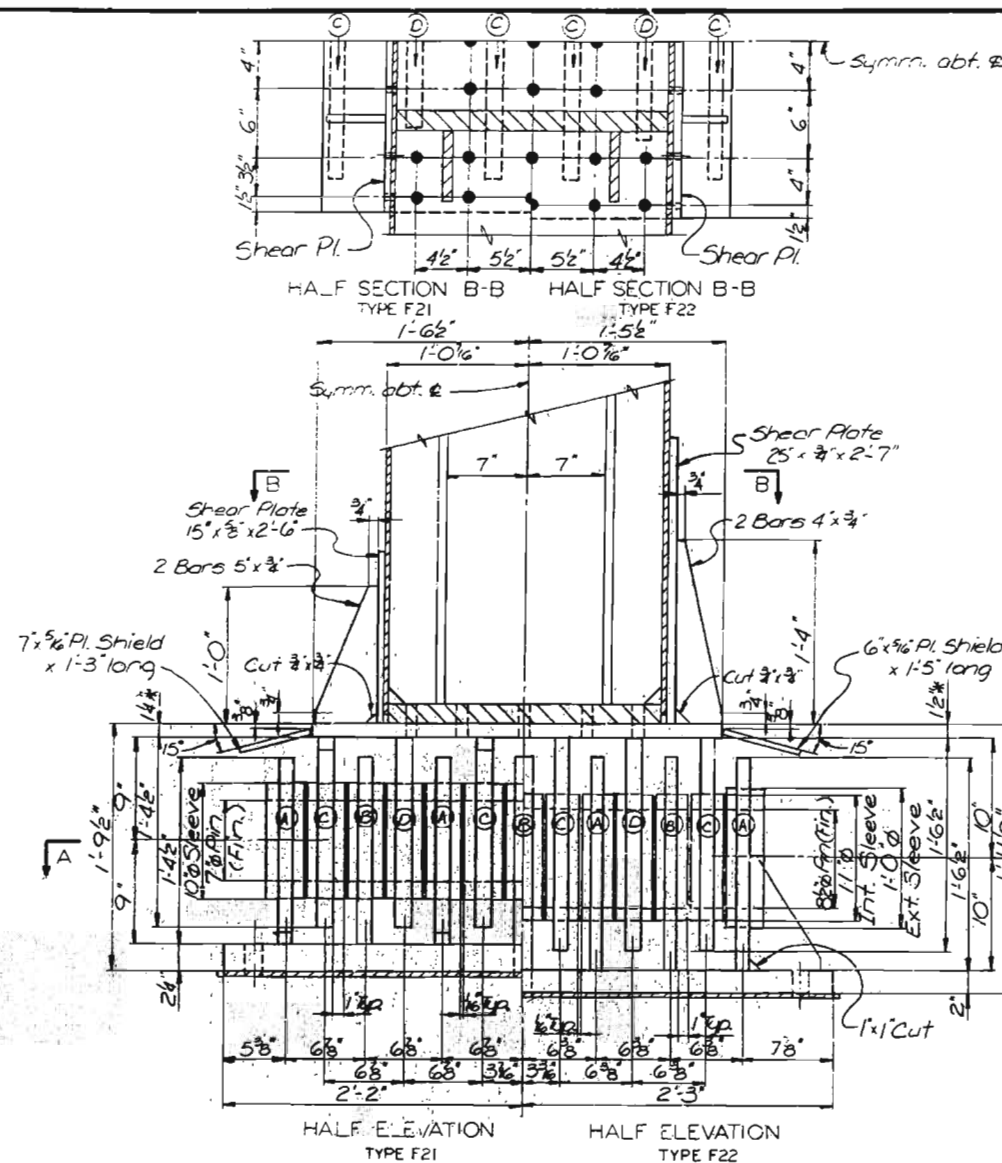
Aug. 30, 1979

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

TRACED BY: 261
CHECKED BY: 320
DATE: 10/1/1977

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	87	



SHOE	NO. SHOES	NO. BOLTS PER SHOE	TYPE
Type F19	4	4	A
Type F17	8	4	A
Type F16	8	4	A
Type F18	8	6	A
Type F20	1	6	A
Type F21	8	6	B
Type F22	5	6	B

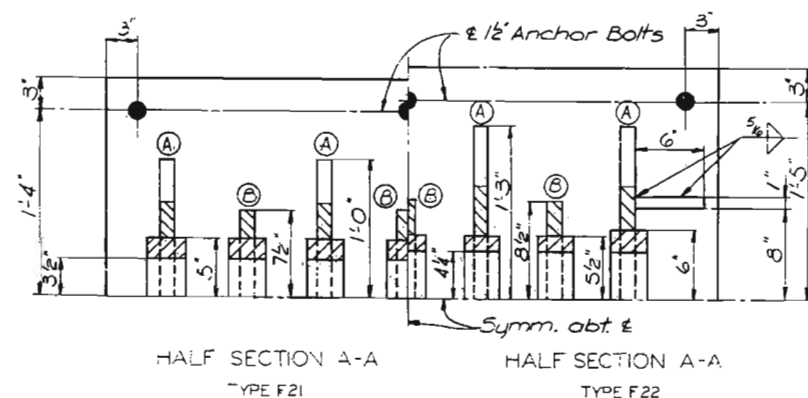
TYPE	WT/BRG	NO. BRGS	TOTAL WEIGHT (LBS)
F19	1339	4	5,356
F17	1644	8	13,152
F16	2053	8	16,424
F18	2364	6	14,184
F20	2364	1	2,364
F21	3716	8	30,208
F22	4169	5	20,845
Total Weight = 102,533 Lbs.			

Note: Welding not shown same size as shown for Type F19 and all finishes on plates and pins same as shown for Type F19.

Weld Plate (A) and (C) before welding Plates (B) and (D).

* Bevel top of top plate for cross slope of girder. Dimension shown is at Bearing and Shoe. See Table on Sheet 86.

Rib Plate Thickness	Type F21	Type F22
(A) and (C)	14"	1"
(B) and (D)	12"	14"



TYPES F21 & F22

3-Type F21 Req'd

5-Type F22 Req'd

BEARING NOTES

MATERIALS:

All steel plates shall conform to ASTM A36 unless otherwise noted.

Pins shall conform to forged Carbon Steel, ASTM A688, Class D, except as otherwise noted.

Recessed Pin Nuts for each pin on cross girder fixed bearings shall be hexagonal, recessed, and may be malleable iron, pressed steel or cast steel.

Anchor Bolts set in concrete, threaded rods and coupling nuts shall be ASTM A36. Hex and jamb nuts shall conform to ASTM A562, Grade 0.

Bearing pads shall be lead plates or preformed fabric pads. See Special Provisions.

CONNECTORS:

All connectors shall be 3/8" high-strength bolts (H.S.) unless otherwise noted.

FINISHED SURFACES:

All surfaces noted "Flat Surface" shall be finished to 1000 microinch or better after welding in accordance with ANSI B46.1-62, Surface Roughness, Waviness and Lay, Part I. Machine Surface shall be in accordance with Standard Specification 712.3.3.23.

All surfaces of all bearings, except Pot Bearings, not in contact with steel or concrete shall receive prime and final coats of paint in the shop.

Final boring or finish for pin holes in ribs of bearings shall be done after welding.

Pin and pin holes and other milled surfaces shall be coated in accordance with Standard Specification 712.2.7.

SHOP ASSEMBLIES:

All bearings shall be shop assembled. Shop drawings are not required for bearing pads.

PAVEMENT AND WEIGHTS:

The cost of bearing pads shall be included in price bid for other items of work. Bearing pads shall project 1/4" all around beyond the steel bearing plates.

Pot Bearings shall be paid for as cost per each bearing by Types F23 thru F29. Price bid shall include all materials except high strength bolts connecting bearings to cross girders, anchor bolts, and bearing pads.

All other bearings shall be paid for in unit price bid for Fabricated Structural Steel Bearings. Weights do not include anchor bolts or high strength bolts.

NOTES

Work this sheet with Sheet 86.

CITY OF ST. LOUIS

CROSS GIRDER BEARINGS
TYPES F16 THRU F22

SHEET 87 OF 93

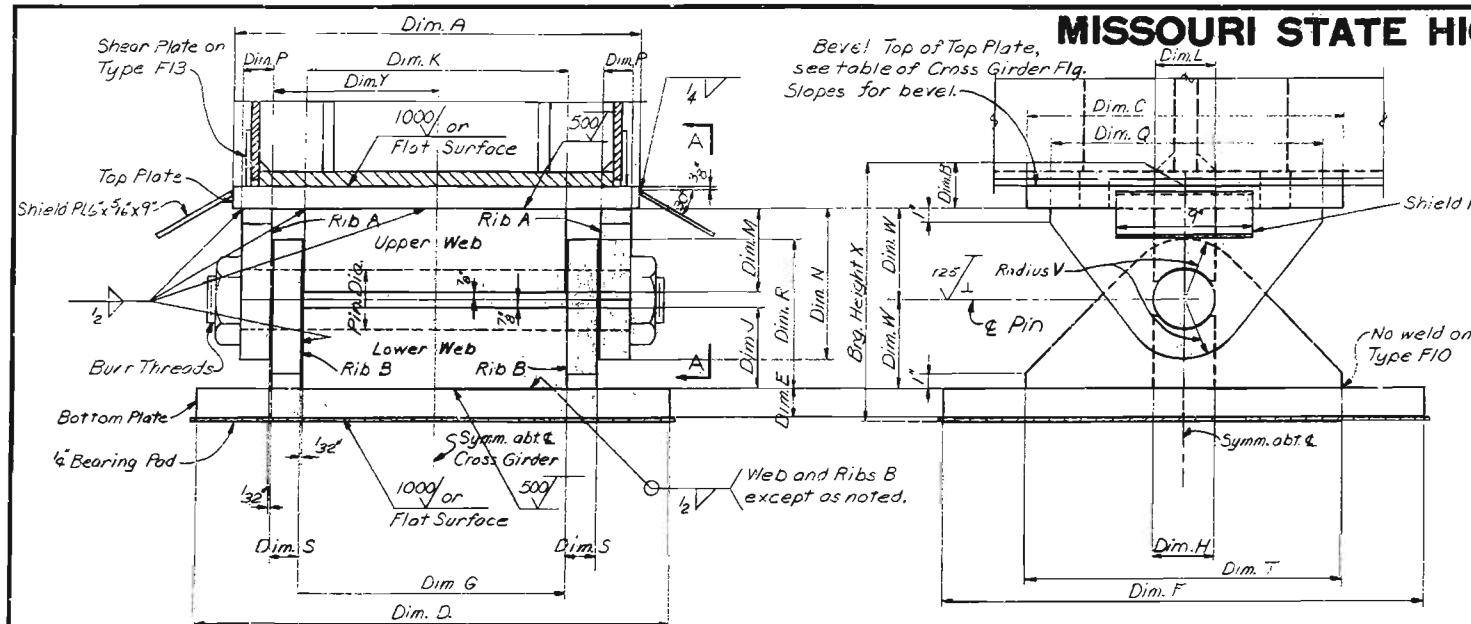
A3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Aug. 30, 1979

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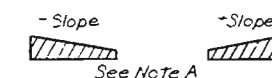
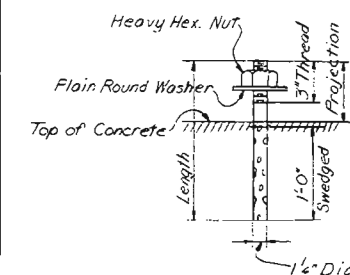
MISSOURI STATE HIGHWAY DEPARTMENT



BEARING TYPES F7 THRU F14

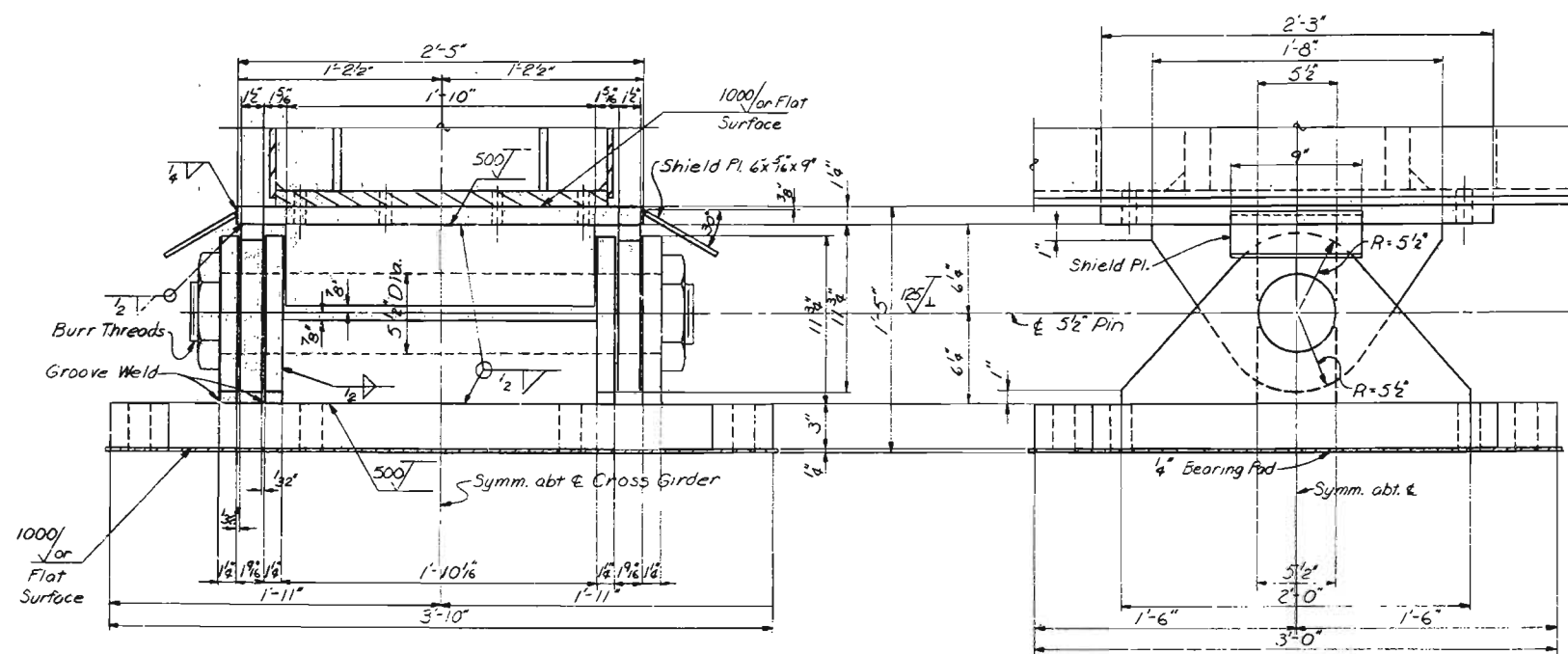
Location	Brg.	Top Plate	Bot. Plate	Lower Web	Upper Web	Ribs A	Ribs B	Pin	Rod	Bearing	Y	No. of Brg.	Est. Weight	Total Est.		
Bent Col	Y/P	A x B x C	D x E x F	G x H x J	K x L x M	N x P x Q	R x S x T	Dia	V	W	Ht. X	Req'd.	Each (Lbs)	Weight (Lbs)		
5	142	F7	27 1/2 x 1 1/2 x 13"	32 x 2 x 32"	18 1/2 x 4 x 5 1/8"	18 x 4 x 5 1/8"	10 1/2 x 18"	10 1/2 x 21"	4"	4"	6"	1'-3 3/4"	11 1/2	2	1211	2422
16	142	F8	21 x 1 1/2 x 18"	21 x 1 1/2 x 27"	15 1/2 x 3 x 5 1/8"	13 1/2 x 3 x 5 1/8"	9 1/2 x 1 1/2 x 8"	9 1/2 x 1 1/2 x 8"	3 1/2"	3 1/2"	6"	1'-3 1/2"	8 1/2	2	804	1608
20	2	F9	24 x 1 1/2 x 21"	32 x 3 x 36"	12 1/2 x 6 x 5 1/8"	12 x 6 x 5 1/8"	12 1/2 x 21"	12 1/2 x 21"	4"	4"	6 3/8"	1'-6"	8 1/2	1	1730	1730
20	1	F10	24 x 1 1/2 x 18"	24 x 2 x 32"	12 x 3 x 5 1/8"	12 x 3 x 5 1/8"	9 1/2 x 1 1/2 x 8"	9 1/2 x 1 1/2 x 8"	3 1/2"	3 1/2"	6"	1'-3"	7 1/2	1	627	627
24	1	F11	22 x 1 1/2 x 18"	31 x 2 1/2 x 31"	14 1/2 x 4 x 5 1/8"	14 1/2 x 4 x 5 1/8"	10 x 1 1/2 x 18"	10 x 1 1/2 x 18"	4"	4"	6"	1'-4"	8 1/2	1	1176	1176
24	2	F12	21 x 1 1/2 x 18"	24 x 1 1/2 x 32"	12 1/2 x 3 x 5 1/8"	12 x 3 x 5 1/8"	9 x 1 1/2 x 18"	9 x 1 1/2 x 18"	3"	3"	6"	1'-2 3/4"	7 1/2	1	585	585
31	1	F13	31 1/2 x 1 1/2 x 24"	40 x 2 1/2 x 36"	22 1/2 x 6 x 5 1/8"	22 x 6 x 5 1/8"	12 1/2 x 2 1/2 x 24"	12 x 2 1/2 x 24"	6"	6"	6 3/8"	1'-5 3/4"	11 1/2	1	2160	2160
31	2	F14	24 x 1 1/2 x 18"	28 x 2 1/2 x 30"	12 1/2 x 4 x 5 1/8"	12 1/2 x 4 x 5 1/8"	10 x 1 1/2 x 18"	10 x 1 1/2 x 18"	4"	4"	6"	1'-3 3/4"	7 1/2	1	1004	1004
36	1	F19	24 x 1 1/2 x 21"	32 x 3 x 36"	12 1/2 x 6 x 5 1/8"	12 x 6 x 5 1/8"	12 1/2 x 21"	12 1/2 x 21"	4"	4"	6 3/8"	1'-6"	8 1/2	1	1730	1730
36	2	F10	24 x 1 1/2 x 18"	24 x 1 1/2 x 32"	12 1/2 x 3 x 5 1/8"	12 x 3 x 5 1/8"	9 1/2 x 1 1/2 x 8"	9 1/2 x 1 1/2 x 8"	3 1/2"	3 1/2"	6"	1'-3"	7 1/2	1	627	627

Bent	Col.	No. Reqd.	Projection	Length
3	1#2	12	4½"	1'-5"
16	1#2	12	4½"	1'-5"
20	2	4	5½"	1'-6"
20	1	4	4"	1'-4"
24	1	6	5"	1'-5"
24	2	4	4"	1'-4"
31	1#2	16	5"	1'-5"
32	1	8	5½"	1'-6"
36	1	4	5½"	1'-6"
36	2	4	4"	1'-4"

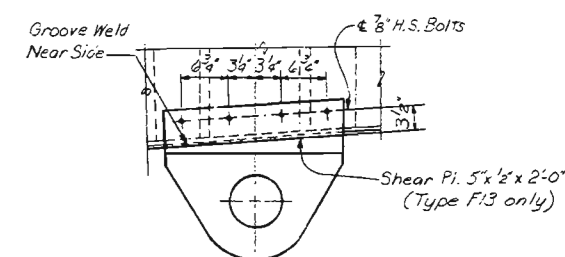


CROSS GIRDER FLANGE SLOPES AT BEARING (F.T./F.T.)		
Beam	Col. 2	Col. 1
3	*.0051	*.0109
16	-.0466	-.0333
20	-.0604	-.0569
24	-.0470	-.0430
31	*.0159	*.0217
32	_____	Level
36	*.0129	*.015

Note A: Side view of shoes and cross girder flange slopes as shown in table are looking up-station.
Column 1 is right column when looking up-station.



BEARING TYPE F15
(BENT 32 - COLUMN 1)
1 Req'd Est. Weight = 2382 lbs.



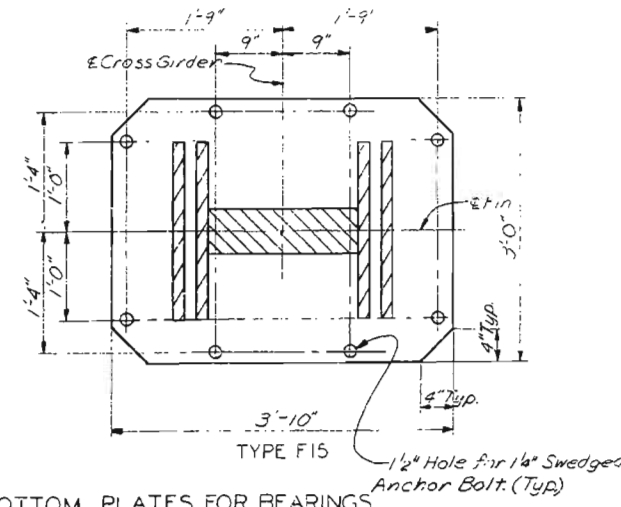
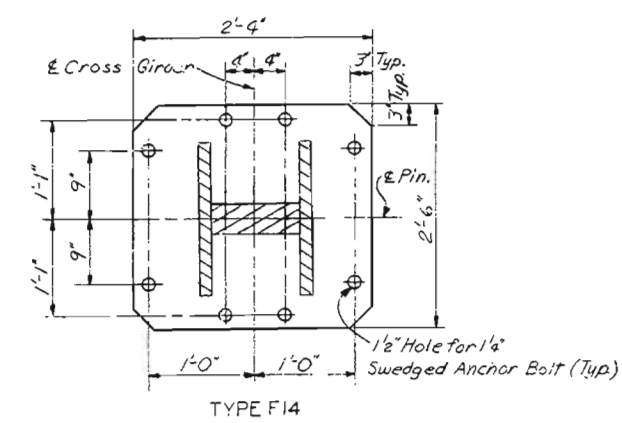
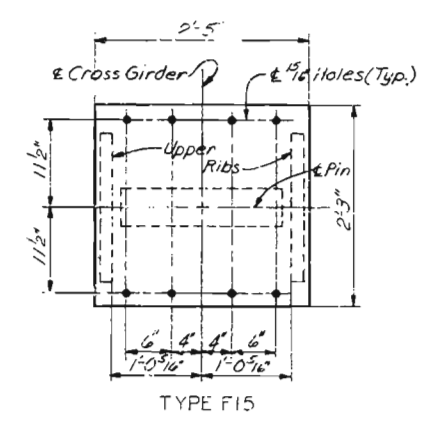
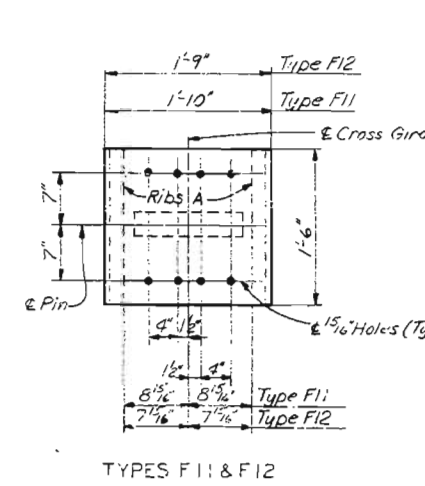
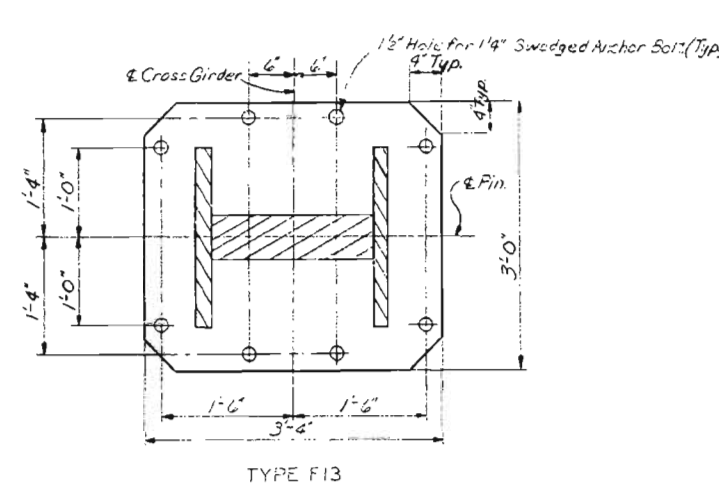
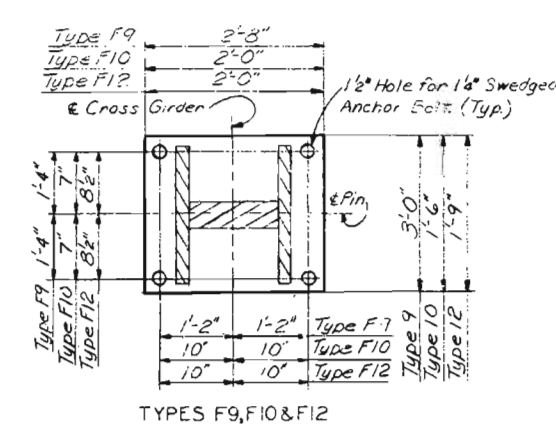
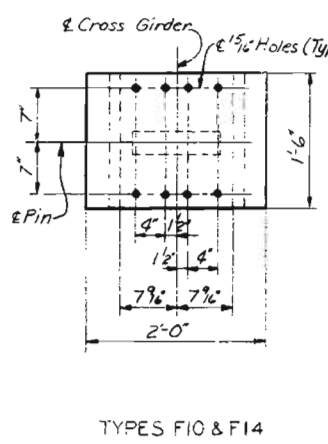
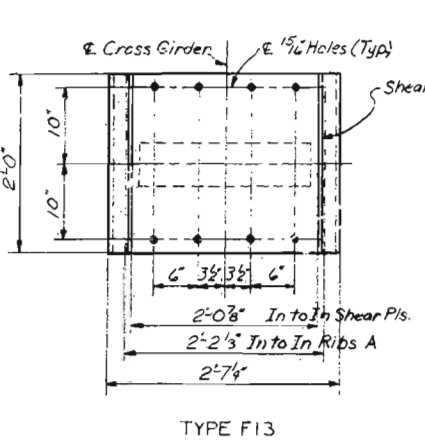
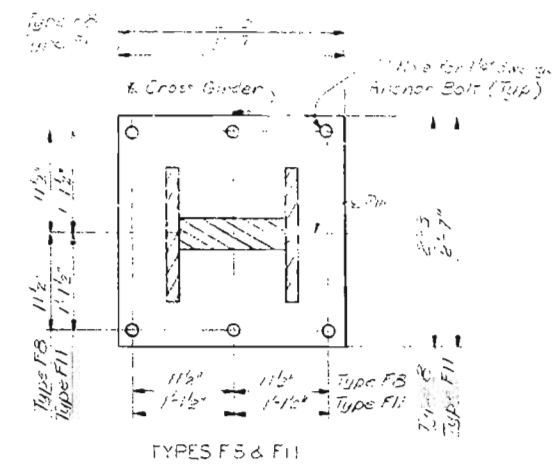
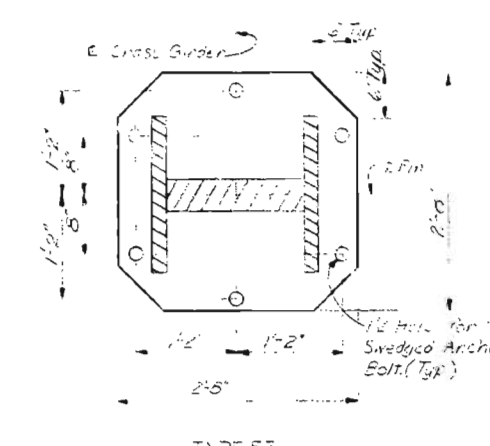
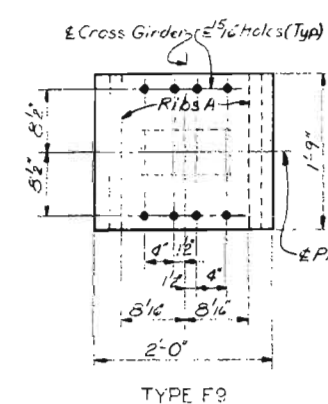
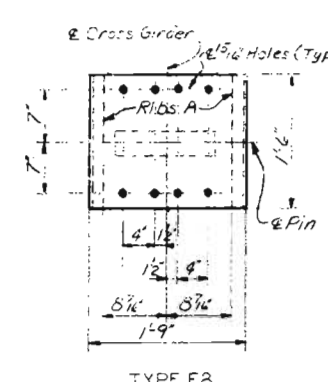
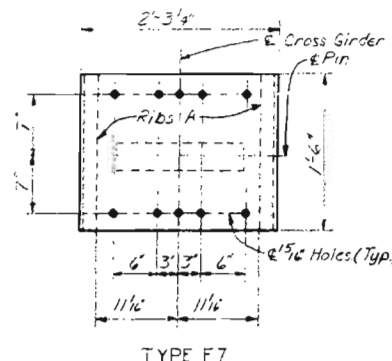
VIEW A-A
Note: Pin, nut and shield not shown.

NOTES

For bearing notes see
Sheet 87.
For plan views of top
and bottom plates showing
holes and clips see Sheet 89.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO		19	27	



TOP PLATES FOR BEARINGS

BOTTOM PLATES FOR BEARINGS

NOTES

Work this sheet with Sheet 88.

CITY OF ST. LOUIS

CROSS GIRDER BEARINGS
TYPES F7 THRU F15

SHEET 89 OF 93

A-3594

386

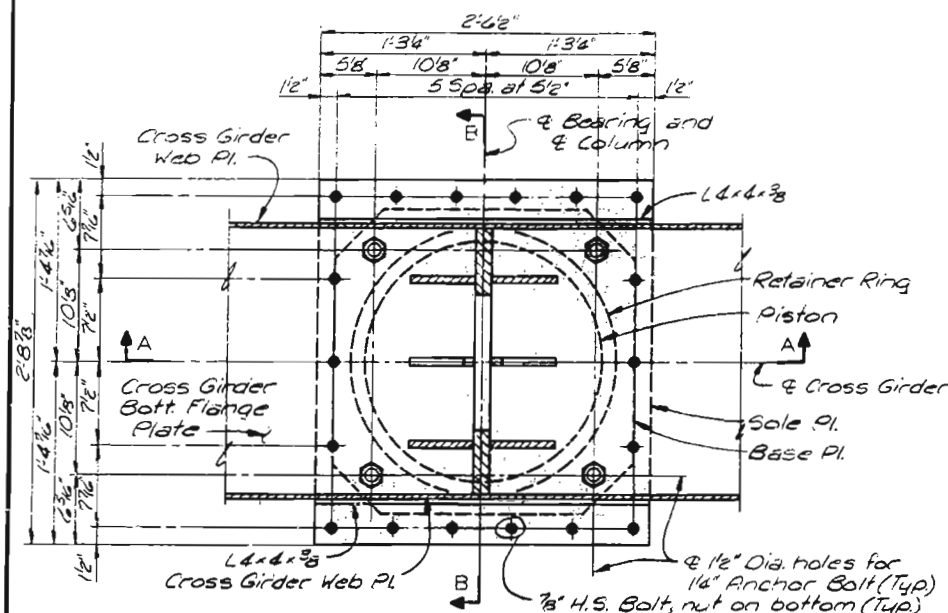
DRAWN BY: M. Junge, Sept. 1977
CHECKED BY: R. Beck, Dec. 1977
5261
775329

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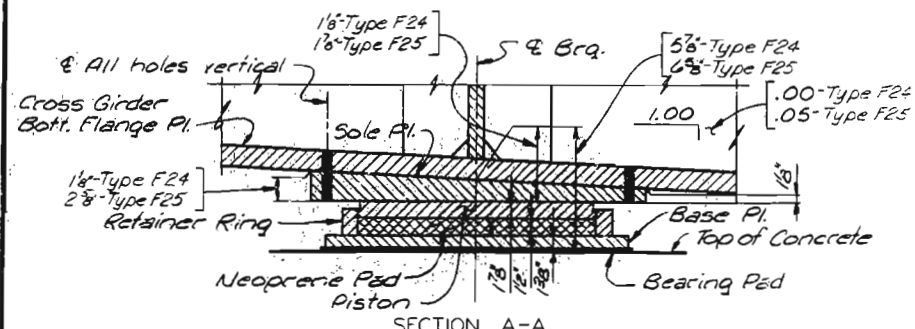
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSOURI STATE HIGHWAY DEPARTMENT

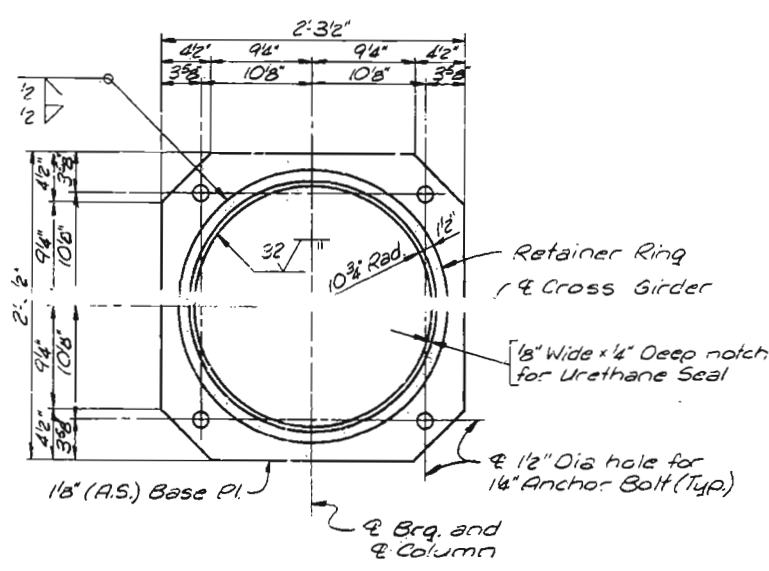
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2	MO.		19	73	



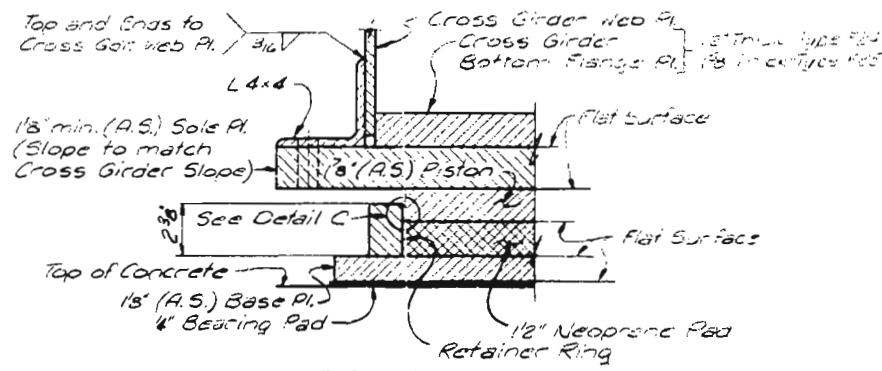
SECTIONAL PLAN - TYPE F24 AND F25 BEARINGS
(4-Type F24 Req'd)
(2-Type F25 Req'd)



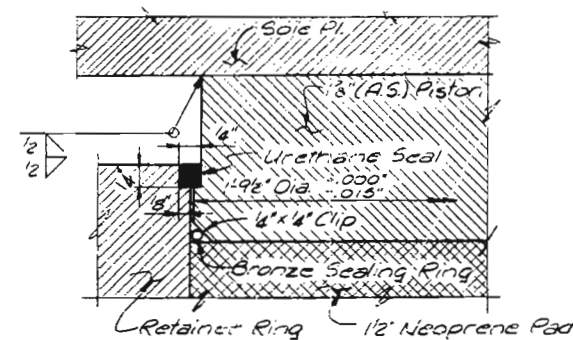
SECTION A-A



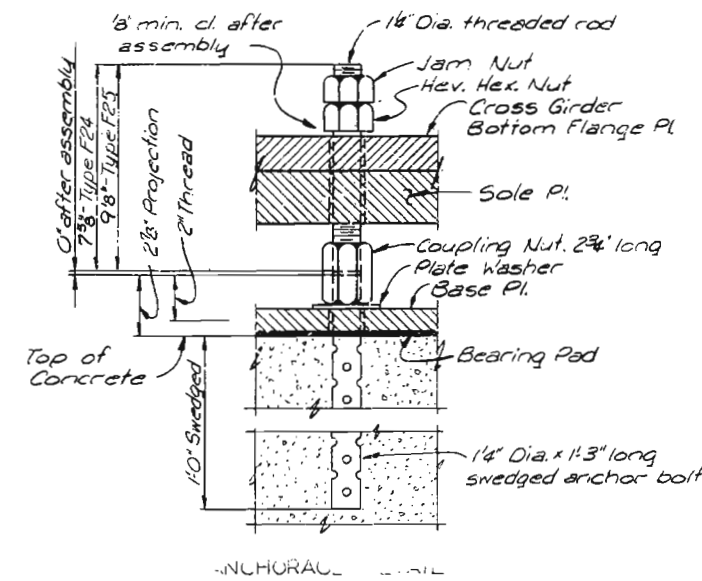
PLAN - BASE PLATE



SECTION B-B
Note: Bearing Stiffener on girder not shown.



DETAIL C

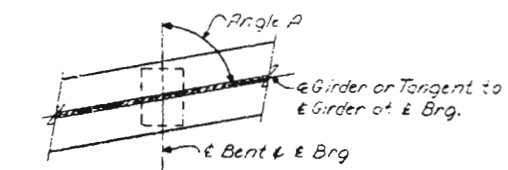


ANCHORAGE

BENT	DOWN	BEARING TYPE
25	G6	F24
30	G7	F24
31	G8	F25

NOTES

For Bearing Notes, see Sheet 137.
Material marked (A.S.) shall be in accordance with ASTM A588. Material marked Stainless Steel shall be in accordance with ASTM A240, Type 304. For neoprene pads, urethane seal and bronze bearing ring material, see Special Provisions.
For bonding of stainless steel and felt to steel, see Special Provisions.
Inside face of retainer ring shall be finished to inside radius shown after welding. Restrained keyway shall be cut and finished, after welding of top fixed plate to piston. Piston diameter shall be finished after welding of top fixed plate to piston. Piston and stainless steel sheet shall be bonded to respective plates after welding and finishing is complete.
All exposed surfaces except stainless steel shall be metalized prior to shipment. Contact surfaces shall not be metalized. For metalizing, assembly and shipping, see Special Provisions.



BEARING ORIENTATION (FLARING GIRDER)

Bent	3dr	Angle A
25	G6	87°55'01"
	G7	85°54'52"
30	G7	82°33'25"
	G8	82°36'49"
31	G7-G9	78°02'04"
	G10	78°50'14"
38	G6	88°22'11"
	G7	87°30'58"
39	G6	89°12'06"
	G7	88°20'53"
44	G7	83°23'30"
	G8	85°22'15"
45	G7-G10	78°09'55"

CITY OF ST. LOUIS

CROSS GIRDER POT BEARINGS
TYPES F24 & F25

SHEET 90 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

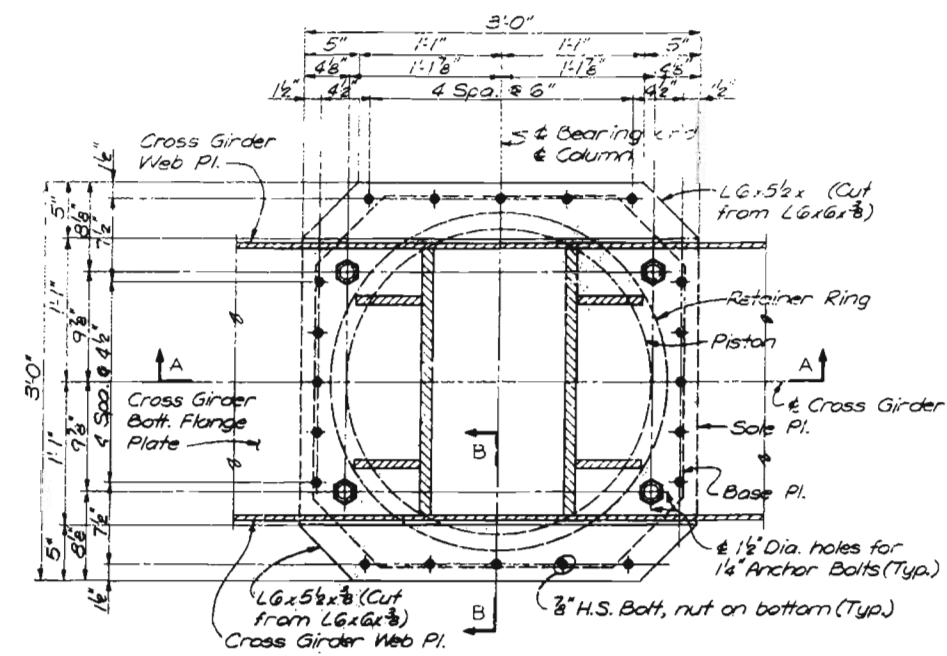
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURI

DRAWN BY: J. Schremp, Aug. 1977
CHECKED BY: T. V. Dillon, Aug. 1977
5261
775280

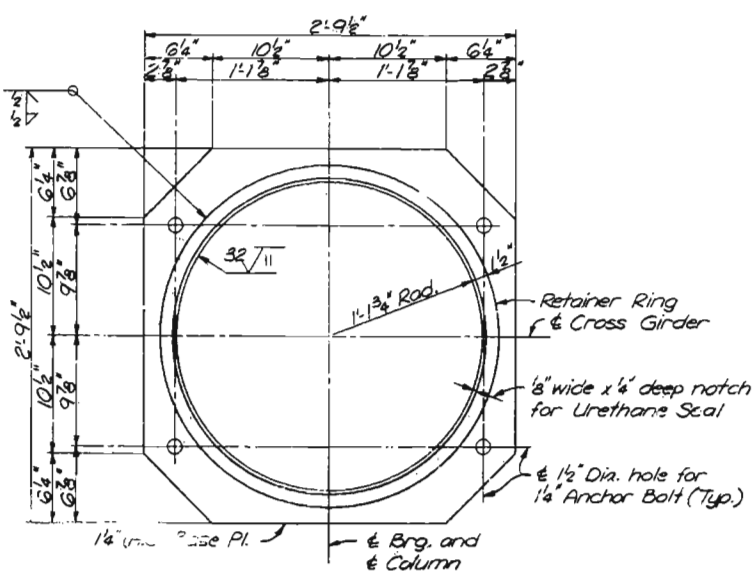
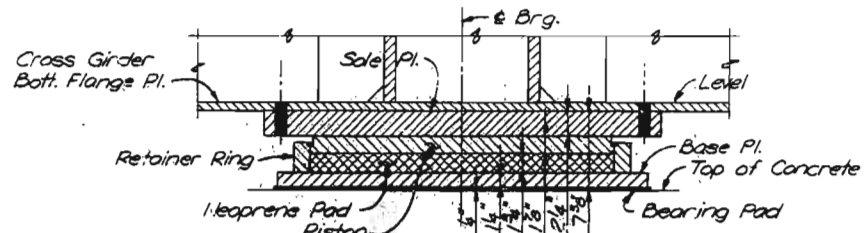
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MISSOURI STATE HIGHWAY DEPARTMENT

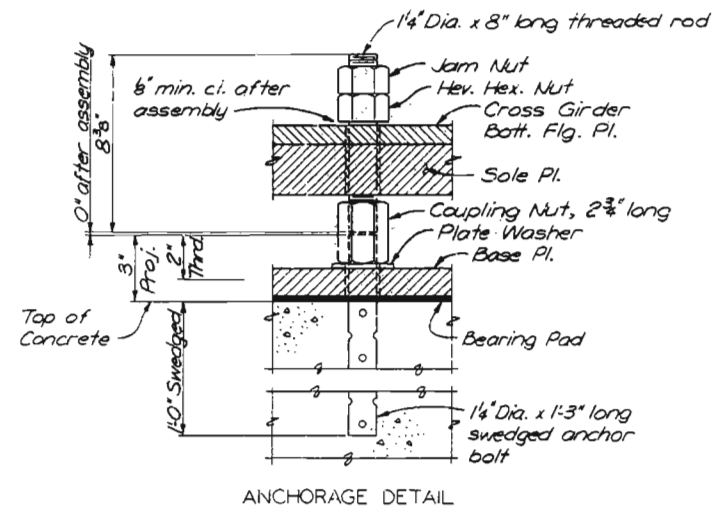
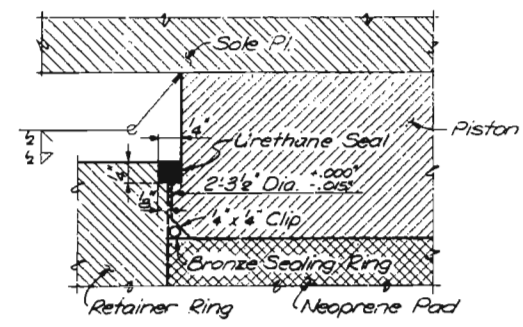
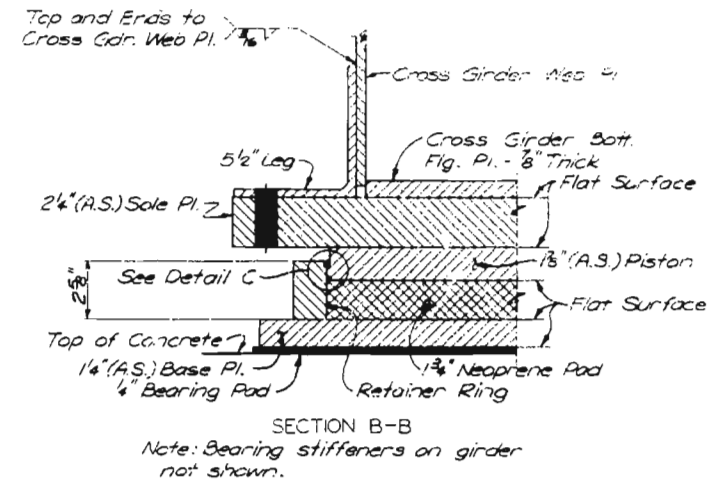
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		19	91	



SECTIONAL PLAN-BEARING TYPE F26
(BENT 32-COLUMN 2)
1 Reg'd.



PLAN-BASE PLATE



NOTES
For Notes, see Sheet 90.

CITY OF ST. LOUIS

CROSS GIRDER-POT BEARING
TYPE F26

SHEET 91 OF 93

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

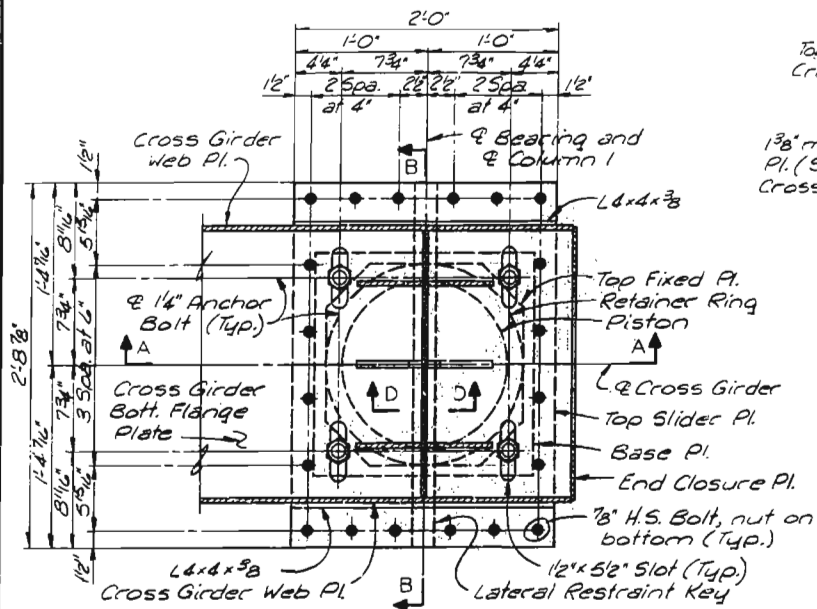
388

DRAWN BY: T. S. S. No. 1977
CHECKED BY: R. P. B. R. 1977
5261
775324

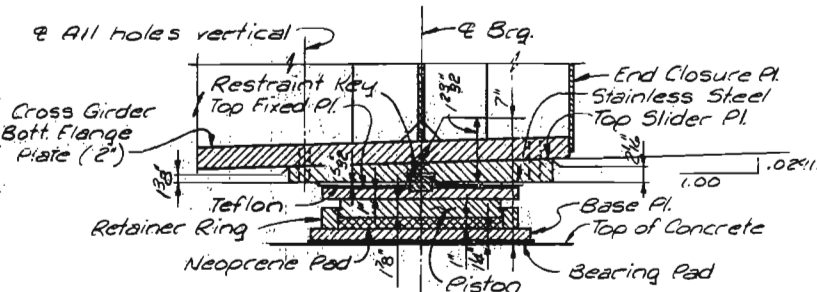
SYDERUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

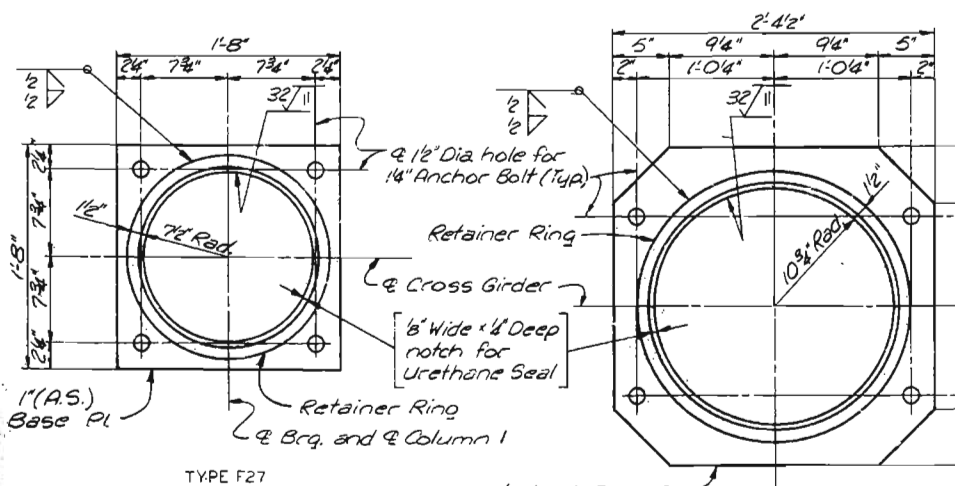
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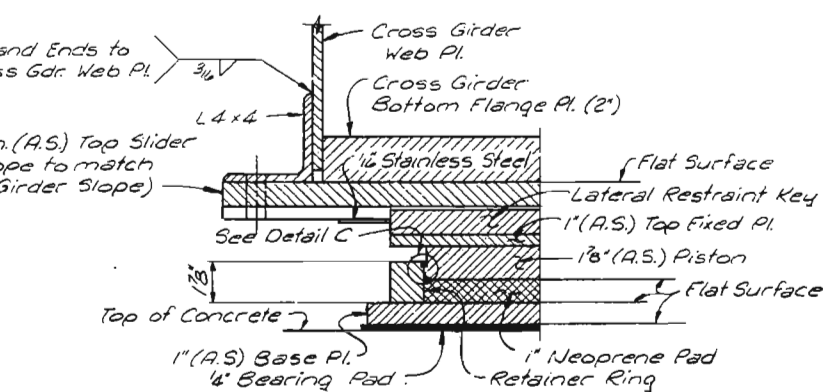
SECTIONAL PLAN-TYPE F27 BEARING
(1 Required)



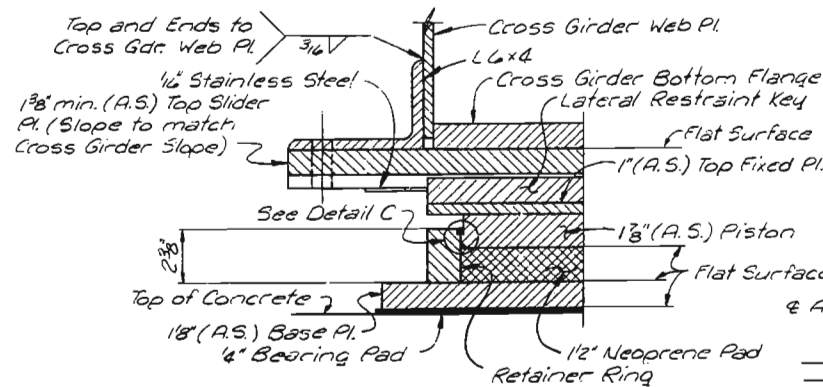
SECTION A-A



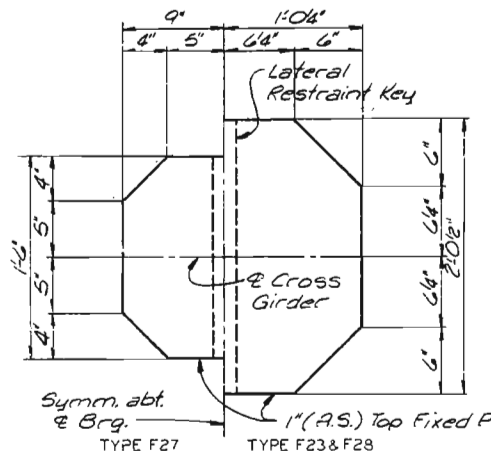
PLAN - BASE PLATES



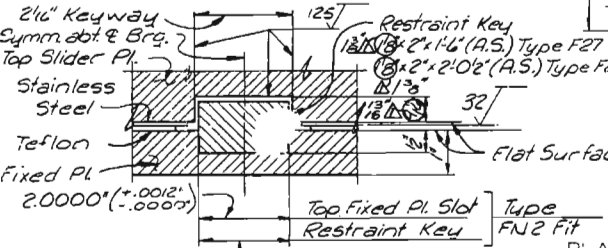
SECTION B-B
Note: Bearing stiffeners on girder not shown.



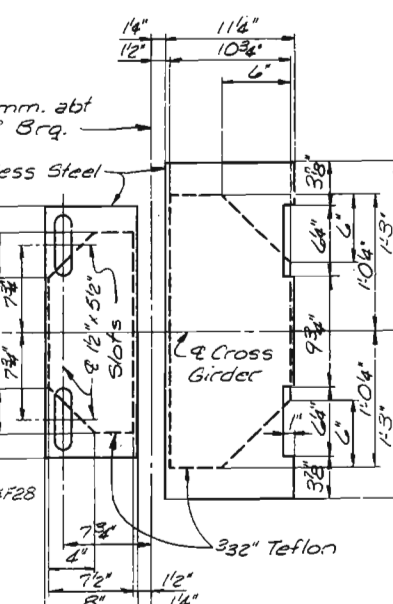
SECTION E-E
Note: Bearing stiffeners on girder not shown.



PLAN - TOP FIXED PLATES



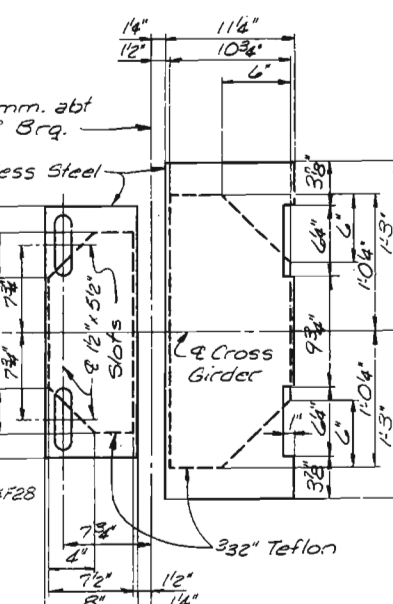
SECTION D-D



PLAN - STAINLESS STEEL AND TEFLON

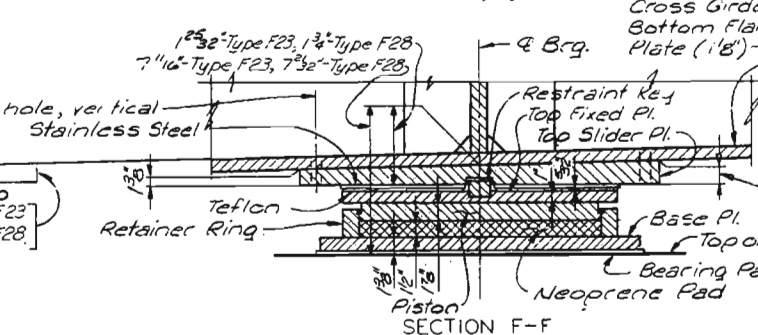
NOTE: Slots are to be placed in stainless steel only.

Revised 6-21-79

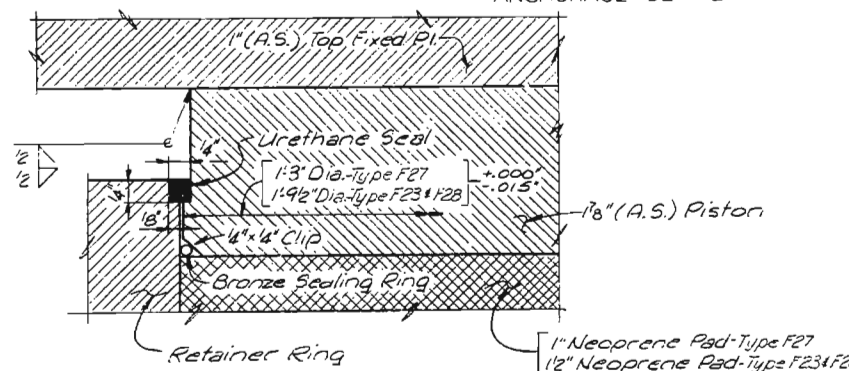


BENT	COLUMN	BEARING TYPE
41	1	F27
42	1	F23
42	2	F28

SECTIONAL PLAN-TYPE F23 AND F28 BEARINGS
(1 Each Req'd)



SECTION F-F



DETAIL C

NOTES
For Notes, see Sheet 90.

CITY OF ST. LOUIS

CROSS GIRDER POT BEARINGS
TYPES F23, F27 & F28

SHEET 92 OF 93

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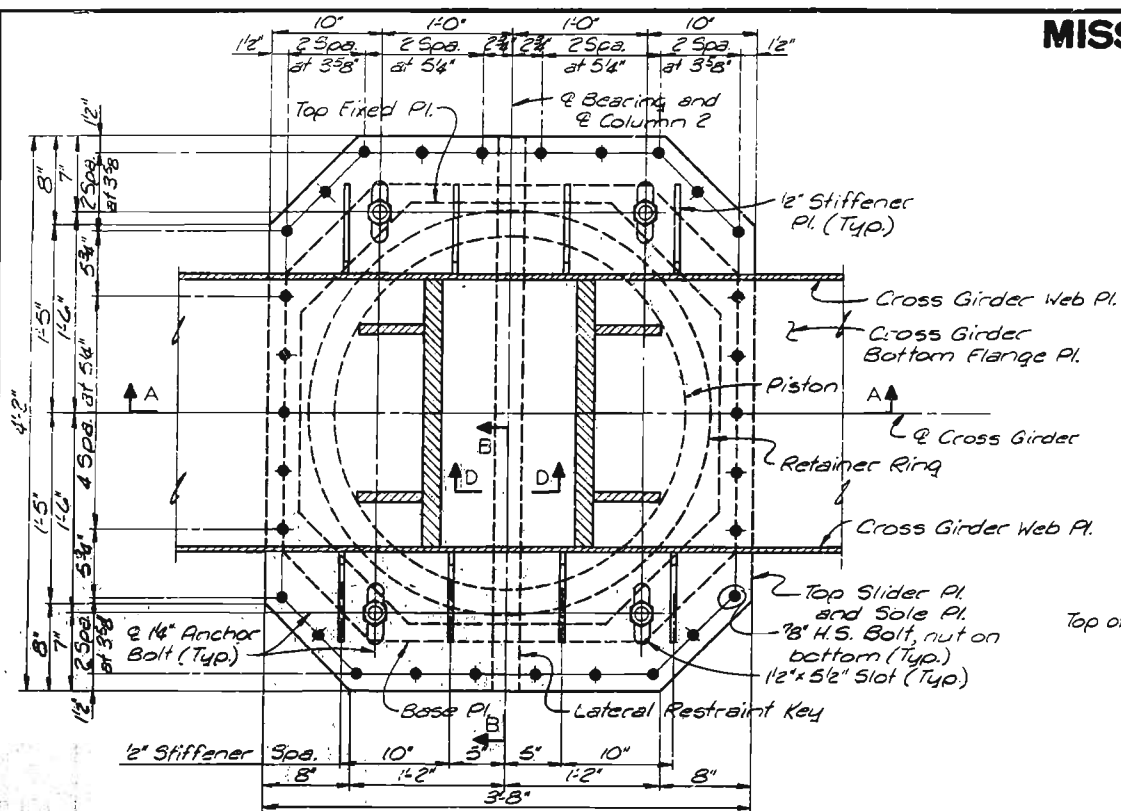
DRAWN BY: O.J. Schremp, July 1977
CHECKED BY: L.V. Dillon, Aug. 1977
5261
775277

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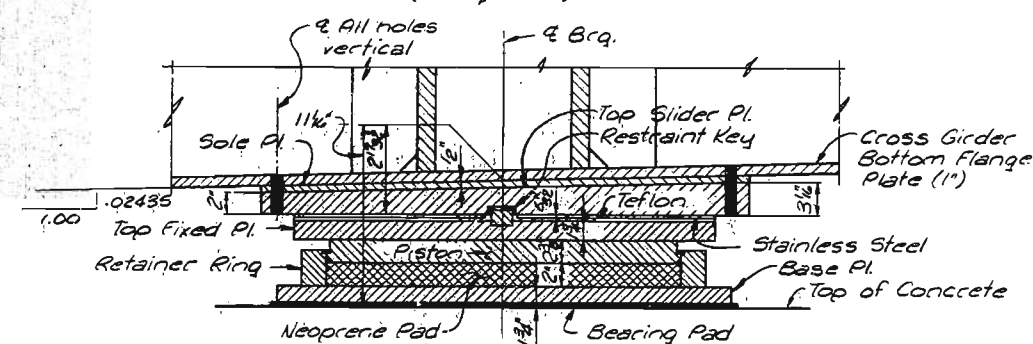
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSOURI STATE HIGHWAY DEPARTMENT

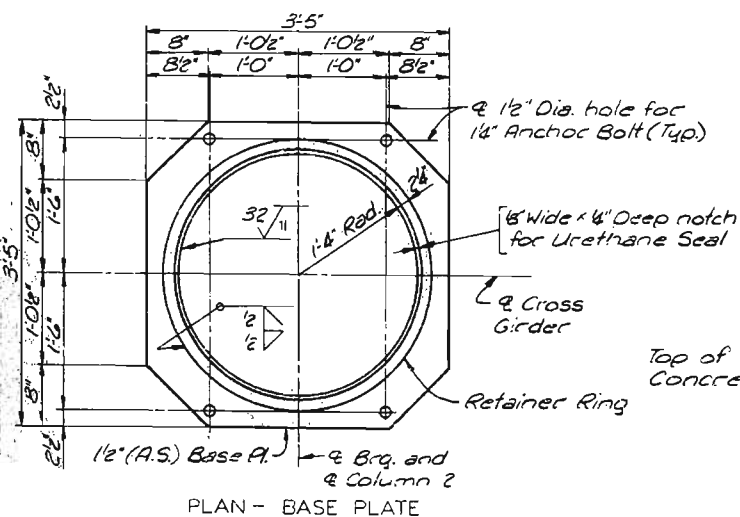
TRA. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	73	



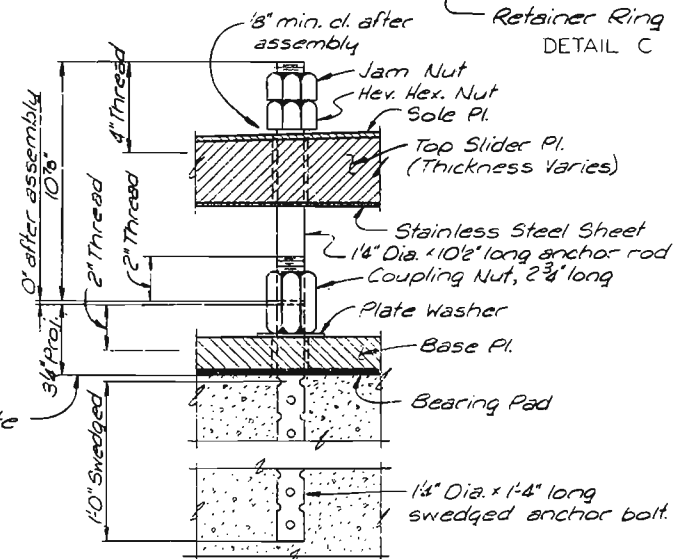
SECTIONAL PLAN - BEARING AT BENT 41 COLUMN 2 - TYPE F29
(1 Required)



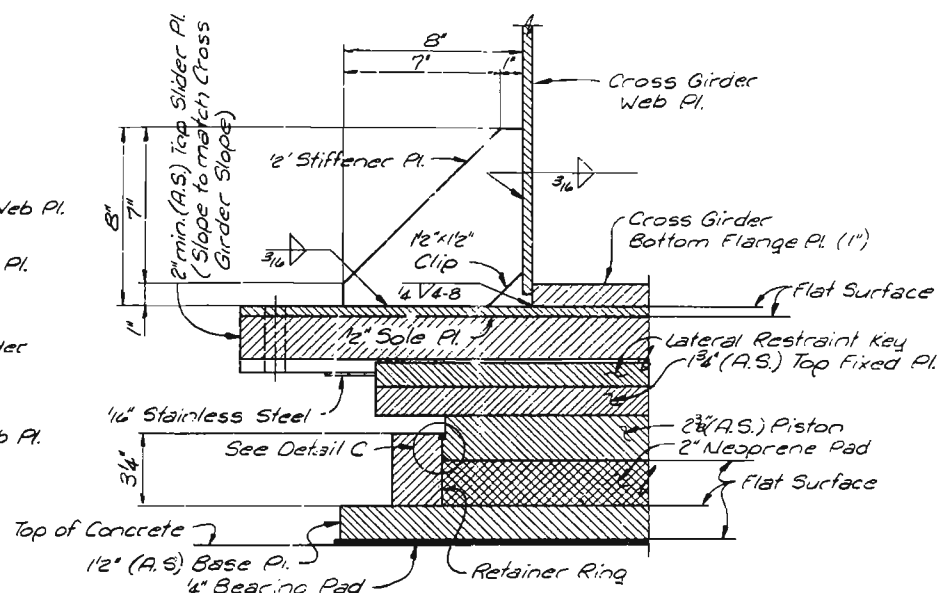
SECTION A-A



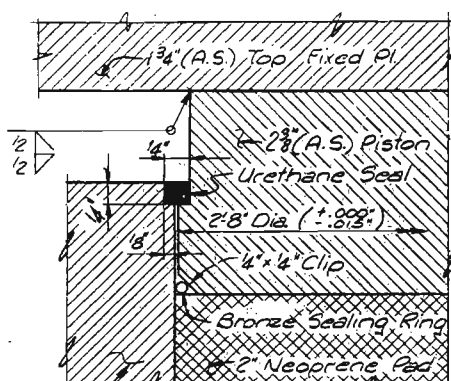
PLAN - BASE PLATE



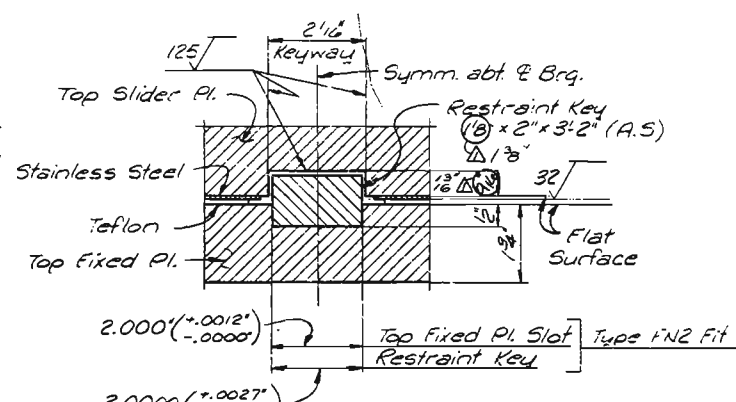
ANCHORAGE DETAIL



SECTION B-B

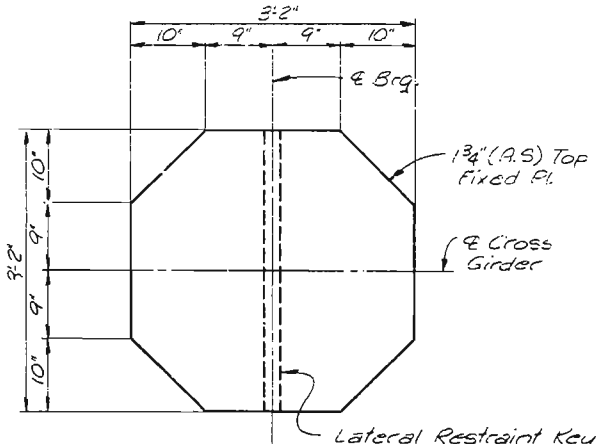


DETAIL C

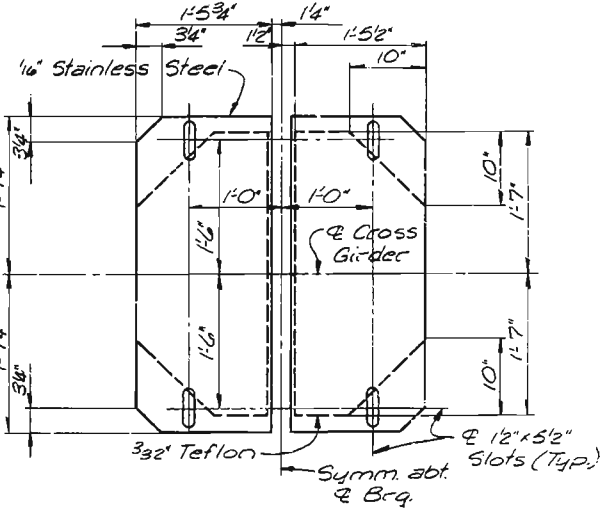


SECTION D-D

Note: Place Industrial Teflon Coating on Exposed Faces of Restraint Key and Keyway on Bearings F23, F27 & F28 on Sheet #92 and Bearing F29 on Sheet #93.



PLAN - TOP FIXED PLATE



PLAN - STAINLESS STEEL AND TEFLON

Note: Slots are to be placed in stainless steel only.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS. Revised 6-21-79

NOTES
For Notes, see Sheets 90.

CITY OF ST. LOUIS

CROSS GIRDER POT BEARING
TYPE F29

SHEET 63 OF 73

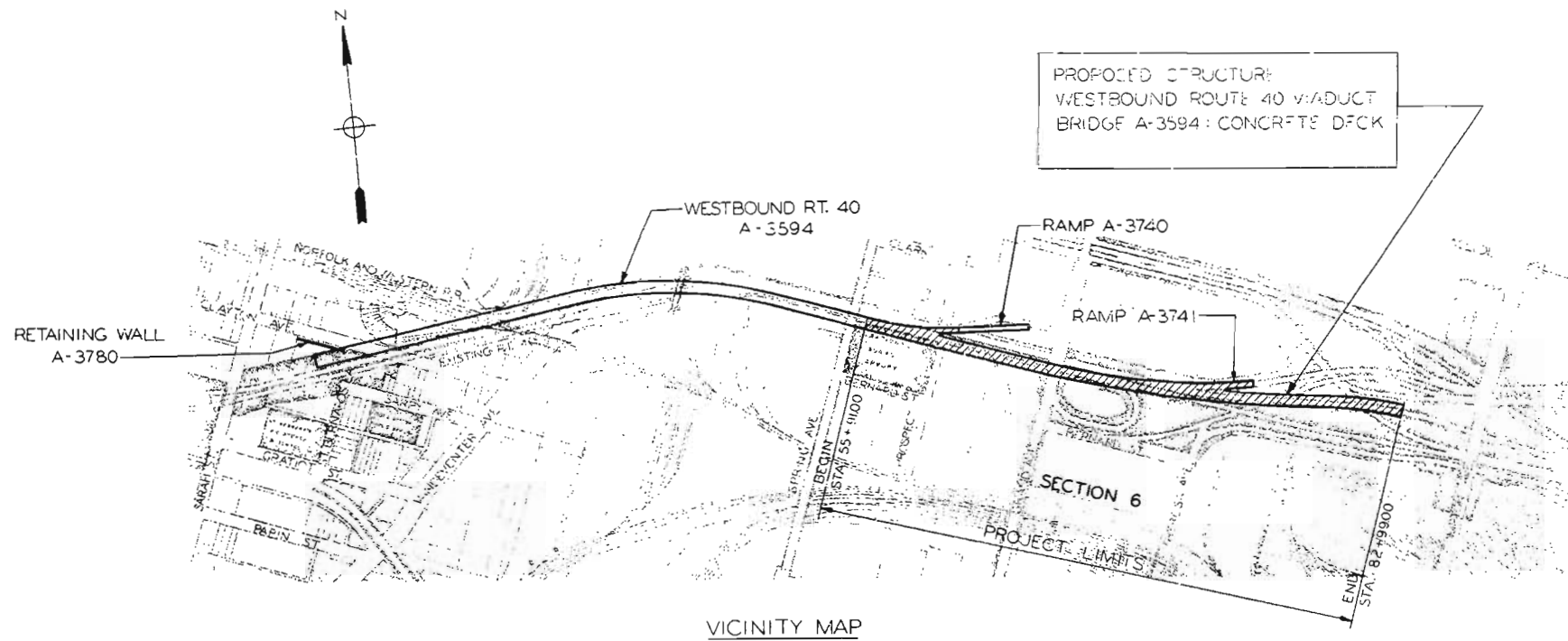
A-3594

390
DRAWN BY: J. Schreiner, July 1977
CHECKED BY: T.V. Dillon, Aug. 1977
5261
775276

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ST. LOUIS, MISSOURI

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		19	294	



VICINITY MAP

BRIDGE A-3594

- | | |
|--|---|
| 1. VICINITY MAP AND INDEX OF DRAWINGS | 25. SLAB - SPANS 28 THRU 30 |
| 2. GENERAL PLAN AND ELEVATION | 26. SLAB - SPANS 31 THRU 35 |
| 3. GENERAL PLAN AND ELEVATION | 27. SLAB - SPANS 36 THRU 41 |
| 4. GENERAL PLAN AND ELEVATION | 28. SLAB - SPANS 42 THRU 45 |
| 5. GENERAL NOTES AND ESTIMATED QUANTITIES | 29. SLAB - SPANS 46 THRU 52 |
| 6. ALIGNMENT, HORIZONTAL CURVE DATA AND BENCH MARKS | 30. SLAB - SPANS 53 THRU 56 |
| 7. ALIGNMENT | 31. SLAB - SECTIONS AND DETAILS |
| 8. VERTICAL CURVE ELEVATIONS | 32. SLAB - SECTIONS AND DETAILS |
| 9. ROADWAY CROSS SLOPES | 33. BARRIERS - SPANS 28 THRU 30 AND SPANS 31 & 32 (MARKET ST. RAMP) |
| 10. ROADWAY CROSS SLOPES | 34. BARRIERS - SPANS 31 THRU 37 |
| 11. TOP OF SLAB ELEVATIONS AT RAMPS | 35. BARRIERS - SPANS 38 THRU 41 |
| 12. DEAD LOAD DEFLECTION AND CAMBER - SPANS 28 THRU 30 | 36. BARRIERS - SPANS 42 THRU 45 |
| 13. DEAD LOAD DEFLECTION AND CAMBER - SPANS 31 THRU 37 | 37. BARRIERS - SPANS 46 THRU 52 |
| 14. DEAD LOAD DEFLECTION AND CAMBER - SPANS 31 AND 32 | 38. BARRIERS - SPANS 53 THRU 56 |
| 15. DEAD LOAD DEFLECTION AND CAMBER - SPANS 38 THRU 41 | 39. BARRIER DETAILS |
| 16. DEAD LOAD DEFLECTION AND CAMBER - SPANS 42 THRU 45 | 40. BRIDGE RAIL |
| 17. DEAD LOAD DEFLECTION AND CAMBER - SPANS 46 THRU 49 | 41. DRAINAGE SYSTEM |
| 18. DEAD LOAD DEFLECTION AND CAMBER - SPANS 50 THRU 56 | 42. DRAINAGE SYSTEM |
| 19. ELASTOMERIC EXPANSION JOINT SEALS | 43. DRAINAGE SYSTEM |
| 20. COMPRESSION JOINT SEALS | 44. DRAINAGE SYSTEM |
| 21. SLAB PLACING SEQUENCE | 45. DRAINAGE SYSTEM - DETAILS |
| 22. SLAB PLACING SEQUENCE | 46. BAR LIST |
| 23. EDGE OF SLAB ORDINATES | 47. BAR LIST |
| 24. EDGE OF SLAB ORDINATES | 48. BAR LIST |

BRIDGE: WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK AND WESTERN RAILROAD

STATE ROAD-ROUTE 40
JOB NO. S-100-26C
PROJECT NO.

TA. 55+9100
E. RINGE NEAR SENT 26

SUBMITTED BY:

William D. Waller
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11783



DATE:

CITY OF ST. LOUIS

VICINITY MAP AND
INDEX OF DRAWINGS

SHEET 1 OF 48

STD. 706.35

A-3594

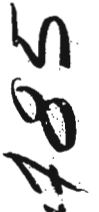
OVERBRIDGE & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

5241
765295

484

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
5	MO.		19	145	



5261	DRAWN BY: J. O'Herron, Dec., 1976
75292	TRACED BY:
	CHECKED BY: R.V. Butterfield, Sept. 1977

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ST. LOUIS, MISSOURI

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

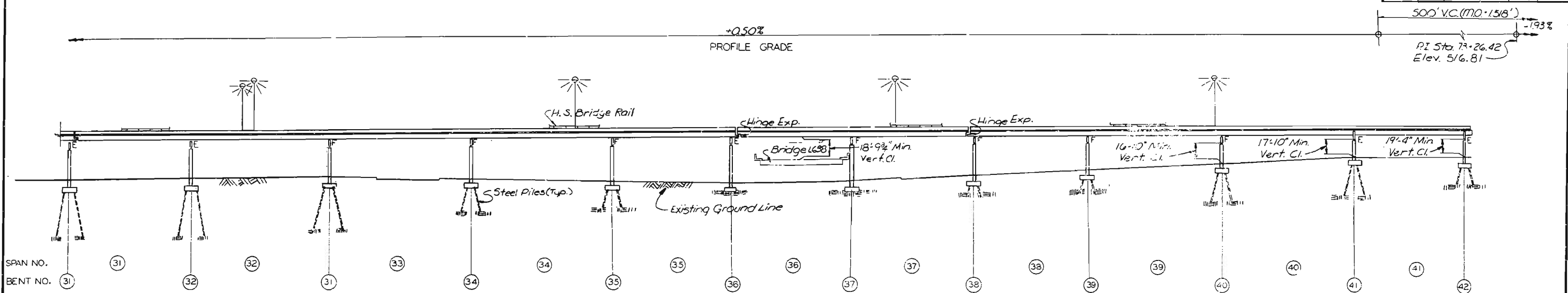
SHEET 2 OF 48

A-3594

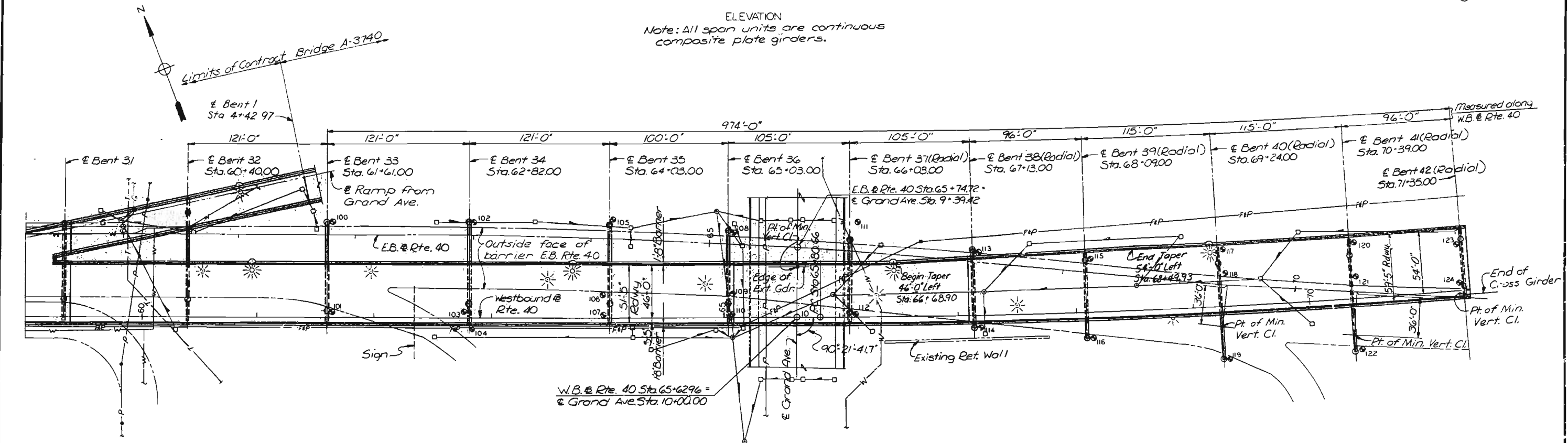
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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		1976	174	



ELEVATION
Note: All span units are continuous composite plate girders.



PLAN
● Indicates the approximate location of a boring.
⊙ Underdeck Light

- LEGEND FOR EXISTING UTILITIES
- Sewer, storm or sanitary
 - F&P Fire and Police
 - G Gas
 - W Water
 - P Overhead Power
 - T Underground Telephone
 - Inlet
 - Manhole

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 3 OF 40

A-3594

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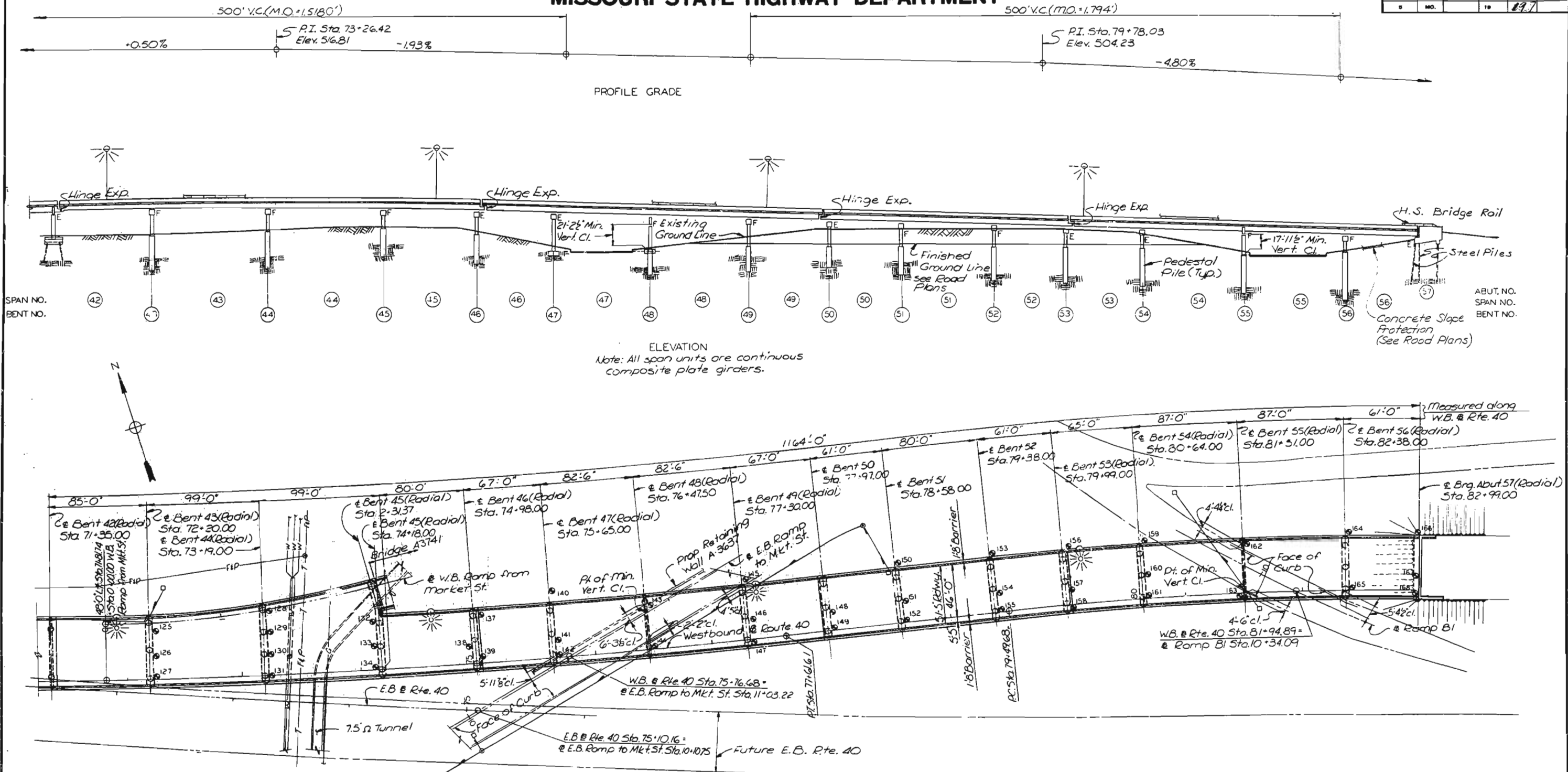
OVERHUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

5261
765285
DRAWN BY: J. C. McManis, Dec. 1976
CHECKED BY: R. L. Buergerfeld, Aug. 1977

486

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	47	



487

DRAWN BY: [Signature]
CHECKED BY: [Signature]
DATE: 12/19/77

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ST. LOUIS, MISSOURI

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GENERAL PLAN AND ELEVATION

CITY OF ST. LOUIS

SHEET 4 OF 25 A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

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

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

Missouri State Highway Commission Specifications for Highway Construction (1981 Edition) and Special Provisions.

DESIGN SPECIFICATIONS:

Division I of the AASHTO "Standard Specifications for Highway Bridges" (1973 Edition including 1974, 1975 and 1976 Interim specifications.

DESIGN LOADING:

(Load Factor Design Method - Bridge Slabs.)
Live Load - HS20-44 and modified 24,000 lbs. tandem axle.
Dead Load - Weight of Structure includes reinforced concrete at 150 lbs. per cu. ft. with provision for a future wearing surface of 30 lbs. per sq. ft. of roadway

DESIGN UNIT STRESS:

Concrete in Flexure:
Class B-2 Concrete - $f'_c = 4000$ lbs. per sq. in.
CLASS B-1 CONCRETE - $f'_c = 4000$ LBS. PER SQ. IN.

Reinforcing Steel:
 $f_s = 24,000$ lbs. per sq. in.
 $f_y = 60,000$ lbs per sq. in.

CONCRETE:

Concrete for slabs SHALL BE CLASS B2
CONCRETE FOR BARRIERS SHALL BE CLASS B1

REINFORCEMENT:

All reinforcing steel shall be deformed billet steel, Grade 60.

The top mat of reinforcing steel is to be epoxy coated.

All dimensions to reinforcing bars on detail drawings are to centerline of bar except where the clear distance is noted from the face of concrete.

Lap Splices and embedment of reinforcement as shown on the detail drawings are in accordance with AASHTO, Interim 1974 Specifications.

PROFILE GRADE:

Profile grade is located at the Baseline of Westbound Roadway and at top of roadway slab.

CONSTRUCTION JOINTS:

Construction joints will be permitted only at the locations shown on the detail drawings or as approved by the Engineer.

BEVELED EDGES:

All exposed edges of concrete shall be beveled $\frac{1}{4}"$ unless otherwise shown or noted.

ROADWAY SLAB:

The $8\frac{1}{2}"$ roadway slab as detailed includes either a $1\frac{1}{2}"$ min. latex concrete or a $2"$ min. low slump concrete wearing surface. Stay-in-place metal forms as indicated on the details, shall be used in construction of the slab, see Special Provisions.

SHEAR CONNECTORS:

Shear connectors shall be field welded to existing girder flanges in accordance with the details. For number of rows and longitudinal spacing see Steel Framing Plans of Structural Steel Contract.

SECTION 6

ESTIMATE OF QUANTITIES

ITEM	UNIT	TOTAL
Class B-2 Concrete (Alternate A Wearing Surface)	Cu. Yd.	4,090.9
Class B-2 Concrete (Alternate B Wearing Surface)	Cu. Yd.	3,837.9
Reinforcing Steel (Grade 60)	Lbs.	542,290
Reinforcing Steel (Grade 60), Epoxy Coated	Lbs.	879,550
Bridge Rail (Aluminum - Tube Type)	Lin. Ft.	5.864
CLASS B-1 CONCRETE (BARRIER CURB) ALTERNATE A	CU. YD.	737.2
CLASS B-1 CONCRETE (BARRIER CURB) ALTERNATE B	CU. YD.	751.2
Concrete Wearing Surface (***)	Sq. Yd.	17.198
CONDUIT SYSTEM ON STRUCTURE	LUMP SUM	1
Preformed Compression Joint Seal (4")	Lin. Ft.	51
Elastomeric Expansion Joint Seal (Movement Rating 2")	Lin. Ft.	78
Elastomeric Expansion Joint Seal (Movement Rating 2 $\frac{1}{2}$ ")	Lin. Ft.	54
Elastomeric Expansion Joint Seal (Movement Rating 4")	Lin. Ft.	128
Elastomeric Expansion Joint Seal (Movement Rating 6 $\frac{1}{2}$ ")	Lin. Ft.	162
* Fabricated Structural Carbon Steel (Misc.)	Lbs.	25,990
Drainage System (8" Steel Pipe)	Lin. Ft.	1245
Drainage System (Type A Drains)	Each	10
Drainage System (Type B Drains)	Each	19

* Weight of fabricated structural carbon steel consists of shear connectors as detailed.
*** See Special Provisions for alternate use of Concrete Wearing Surface.
Alternate A is Latex Modified Concrete, Alternate B is Low Slump Concrete.

THE ABOVE QUANTITIES ARE INCLUDED IN THE SUMMARY OF QUANTITIES FOR A-3594 ON FIRST SHEET OF BRIDGE PLANS.

CITY OF ST. LOUIS

GENERAL NOTES AND
ESTIMATED QUANTITIES

SEE FINAL PLANS
SHEET 5 OF 48

A-3594

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

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

488
DRAWN BY: L. Mitchell, 11 April 1981
CHECKED BY: W. Wolden, 11 April 1981
5267
78568

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	111	



	Curve No.11	Curve No.12	Curve No.13	Curve No.14	Curve No.15	Curve No.16	Curve No.17	Curve No.18	Curve No.19	Curve No.20	Curve No.21	Curve No.22	Curve No.23	Curve No.24	Curve No.25	Curve No.27
P.I.	Sta. 47+45.51	Sta. 49+22.46	Sta. 55+88.46	Sta. 58+95.22	Sta. 1+00.08	Sta. 1+60.97	Sta. 65+24.53	Sta. 70+61.33	Sta. 71+72.71	Sta. 0+34.99	Sta. 2+78.50	Sta. 78+23.49	Sta. 1+52.50	Sta. 79+38.90	Sta. 82+84.69	Sta. 82+59.18
Δ	28°11'37.9"R	28°11'37.8"R	5°04'03.3"L	5°04'03.3"R	11°57'55.4"L	63°31'30.1"R	6°14'13.4"R	7°13'56.1"L	10°14'05.5"L	26°04'22.0R	133°30'29.9"R	1°22'15.7"L	18°08'50.1"L	2°27'00.3"L	2°27'00.3"R	12°19'54.3"R
D	3°00'00"	4°00'00"	1°00'00"	1°00'00"	1°00'00"	6°00'00"	1°00'00"	1°36'27"	0°52'00"	37°54'41"	63°39'43.1"	0°29'54.8"	6°00'00"	0°42'30.8"	0°42'30.8"	2°00'00"
T	479.61'	359.71'	153.42'	153.42'	100.08'	160.97'	312.16'	225.25'	592.05'	34.99'	209.52'	137.51'	152.50'	172.92'	172.92'	309.49'
L	939.80'	704.84'	306.76'	306.76'	199.42'	283.27'	623.71'	449.91'	1180.94'	68.71'	209.71'	275.00'	302.45'	345.79'	345.79'	616.59'
R	1909.86'	1432.39'	5729.58'	5729.58'	954.93'	260.00'	5729.58'	3564.30'	6611.05'	151.13'	90.00'	11492.00'	954.93'	8086.36'	8086.36'	2864.79'

BENCH MARKS U.S.G.S. DATUM		
NUMBER	DESCRIPTION	ELEV.
B.M. *4	"a" on stone curb in front of General Equip't. Co. bldg. No. 3952 Clayton Ave.	477.89
B.M. *5	"a" on N.E. corner of 2'x2' conc. base of stop light at Vandewater & left side of ramp from Mkt. St.	459.32
B.M. *6	"O" in open of fire plug N. side of W.B.L. under pedestrian overpass at Spring Ave.	466.94
B.M. *7	"a" on concrete median under center of Grand Ave. bridge	465.56
B.M. *8	"a" on wheel guard N.E. corner of E. end of E.B. bridge over E.B. Mkt. St. ramp	495.83
B.M. *16	"b" on S.E. corner of N.W. end post of E.B. bridge over E.B. Mkt. St. ramp	497.70
B.M. *E	Top of S.W. corner of light standard at the S.W. corner of Grand Ave. bridge.	489.63

SHEET 6 OF 48

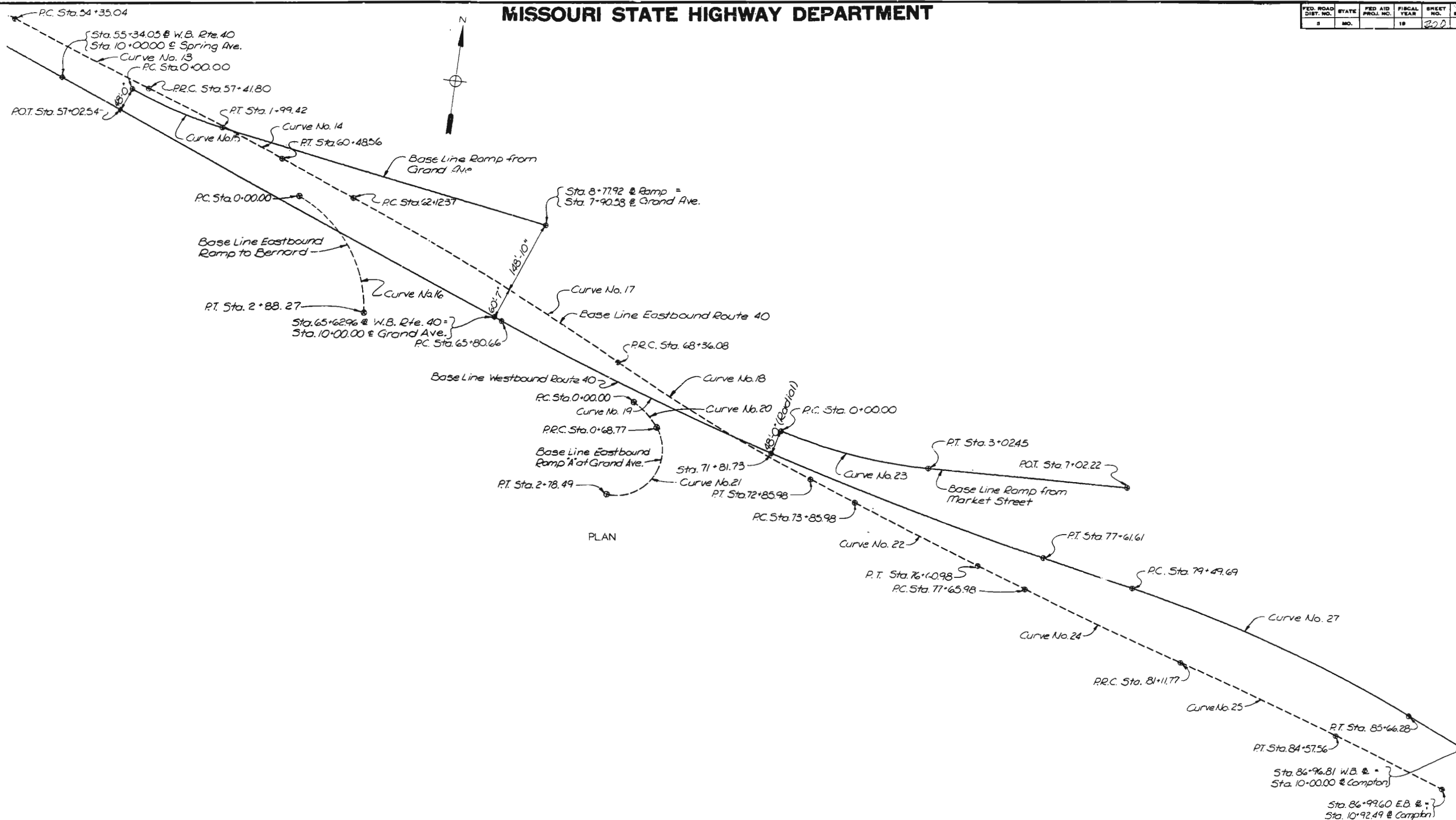
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765294	TRACED BY:
	CHECKED BY: T. Sanders, May 1977

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ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		18	320	



PLAN

CITY OF ST LOUIS

ALIGNMENT

SHEET 7 OF 48

A-3594

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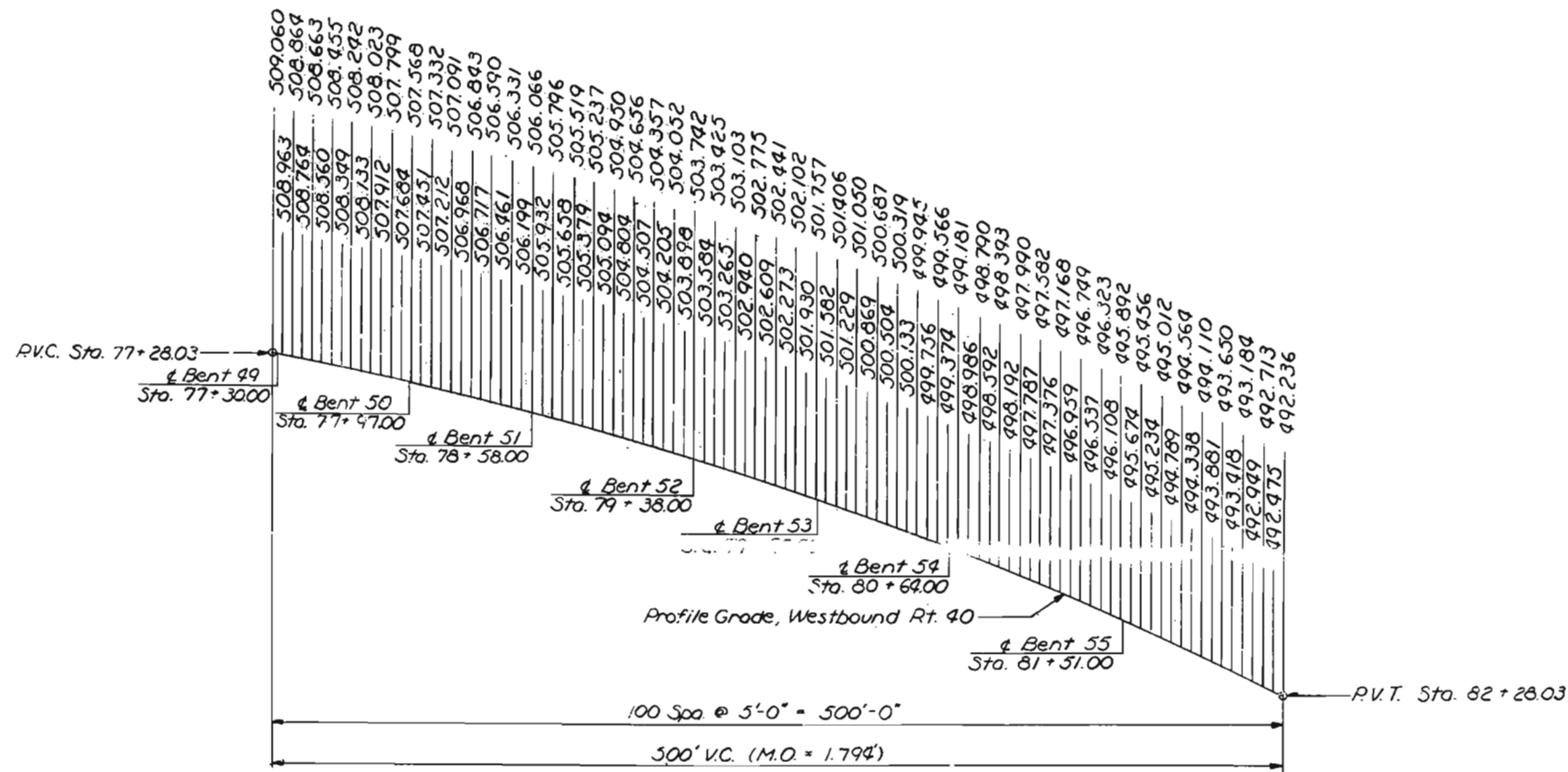
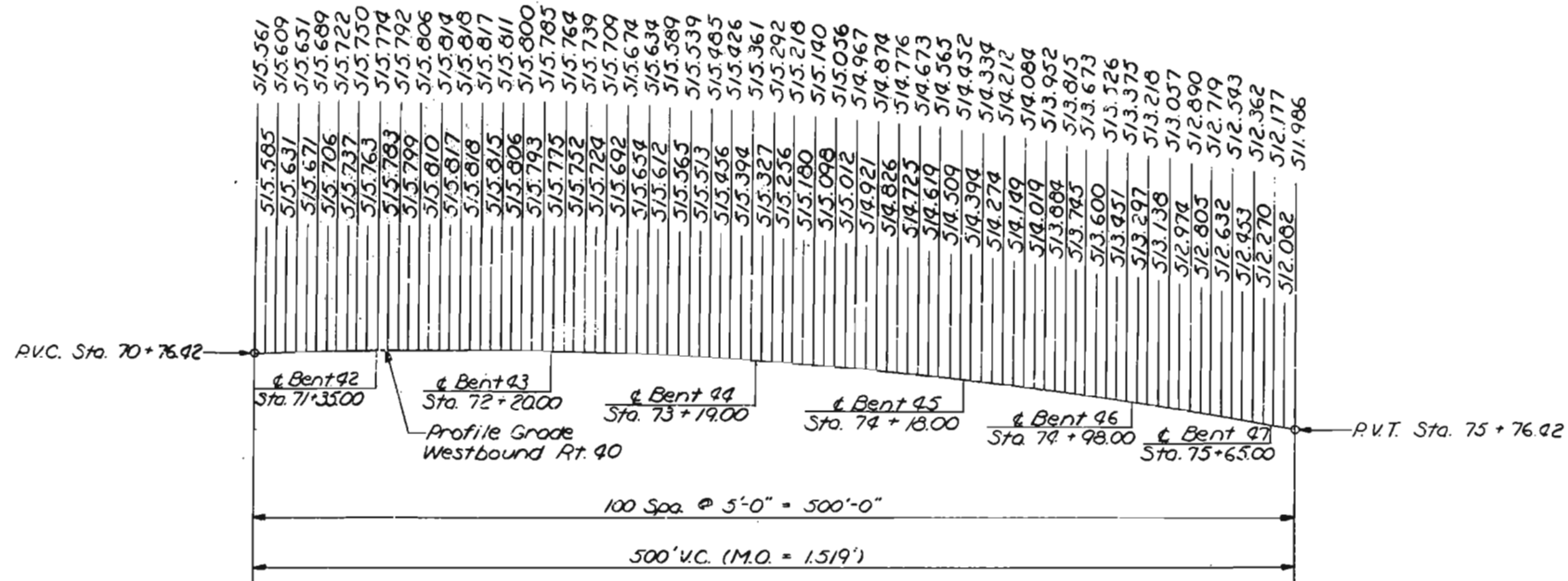
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DRAWN BY: J. Ostermann, Dec. 1976
CHECKED BY: T. Sanders, May 1977
5261
765295

490

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	251	



CITY OF ST. LOUIS

VERTICAL CURVE ELEVATIONS

SHEET 8 OF 45

A-3594

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ST. LOUIS, MISSOURI

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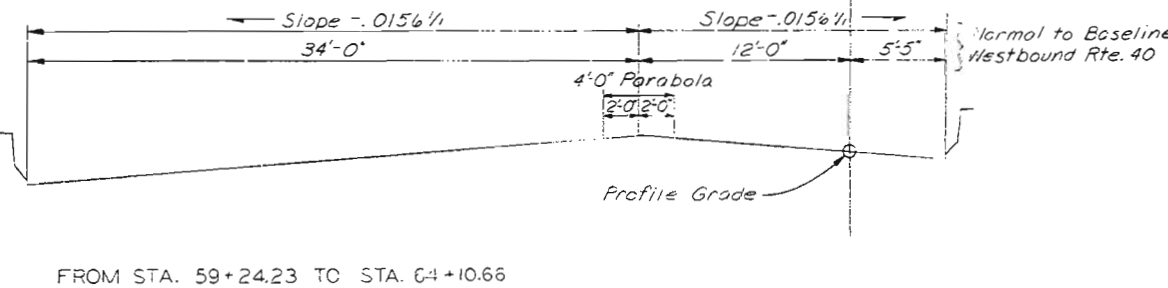
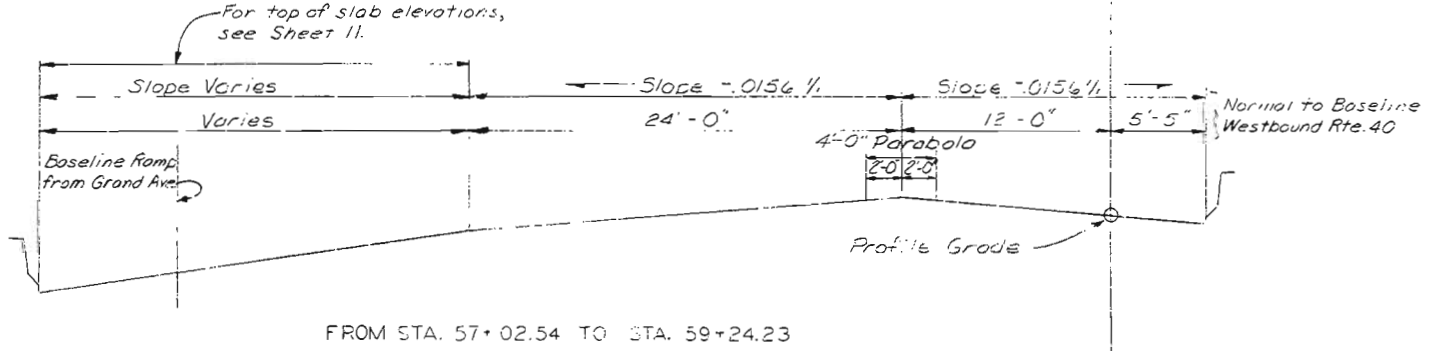
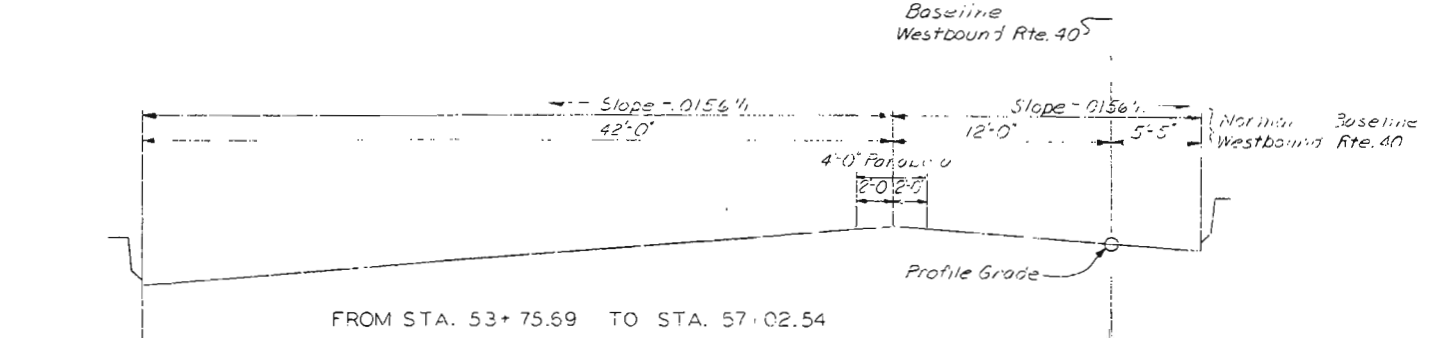
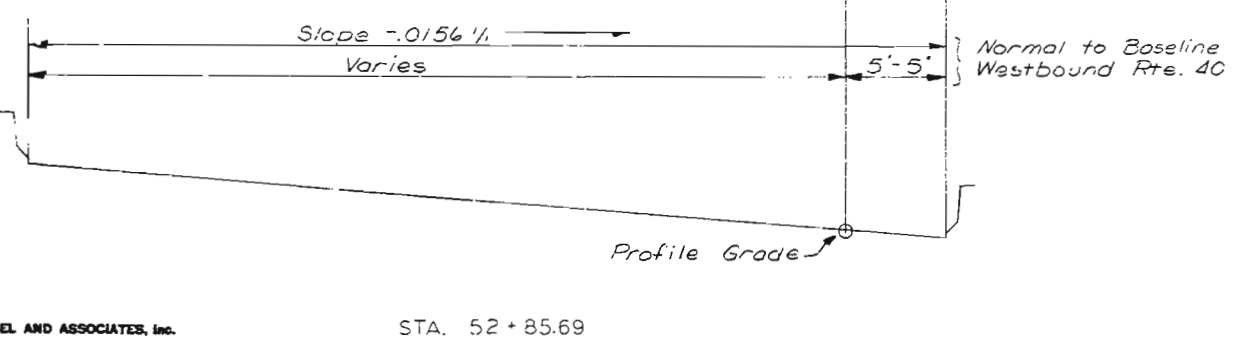
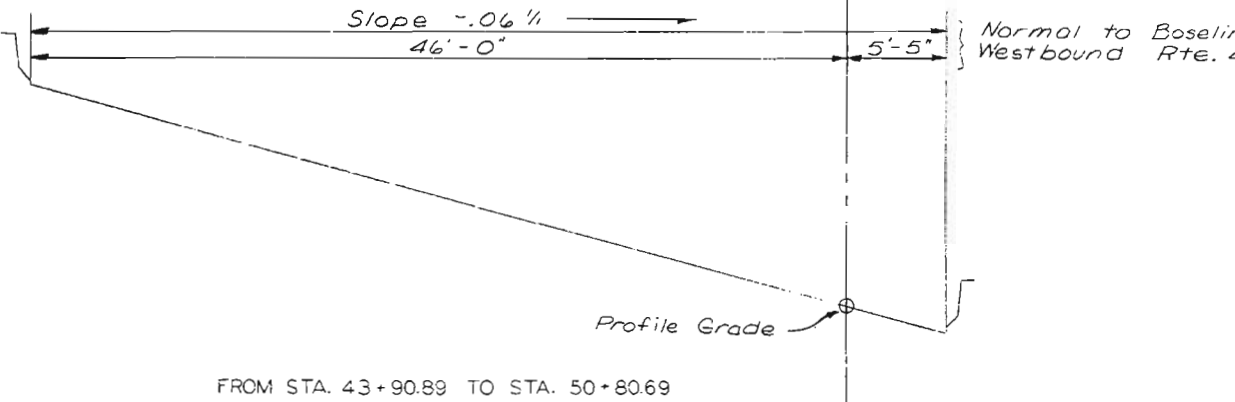
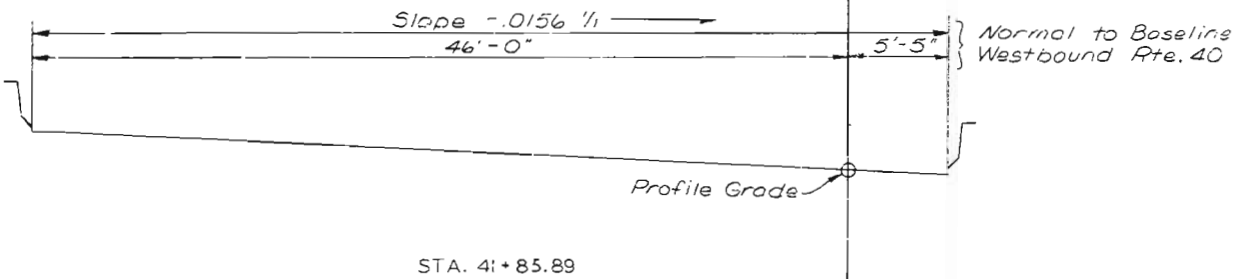
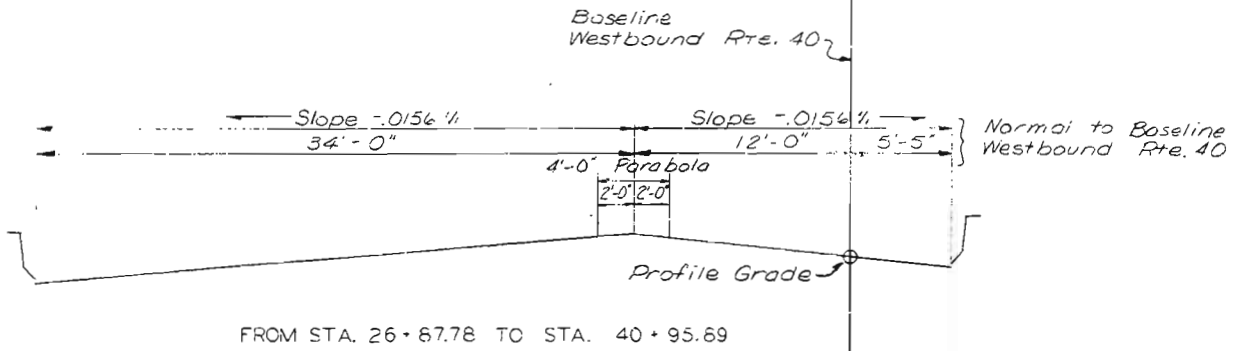
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DRAWN BY: E. Gregory, July 1977
CHECKED BY: T. Sanders, Aug. 1977

MISSOURI STATE HIGHWAY DEPARTMENT

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3	MO.		19	202	



CITY OF ST. LOUIS

ROADWAY CROSS SLOPES

SHEET 9 OF 42

A-300-

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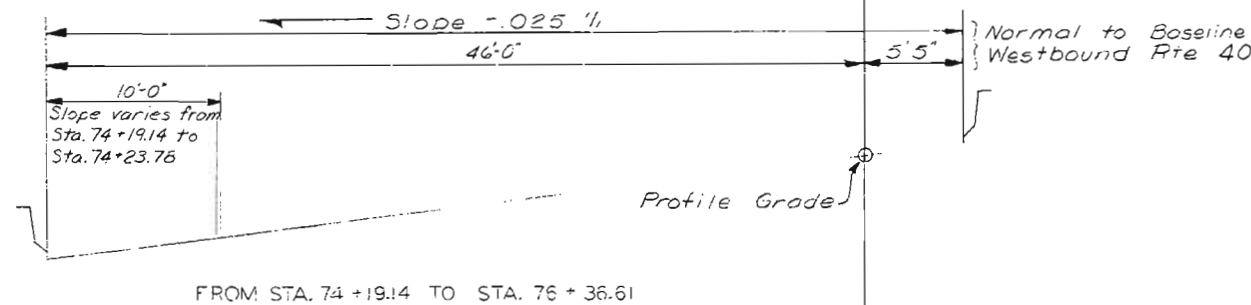
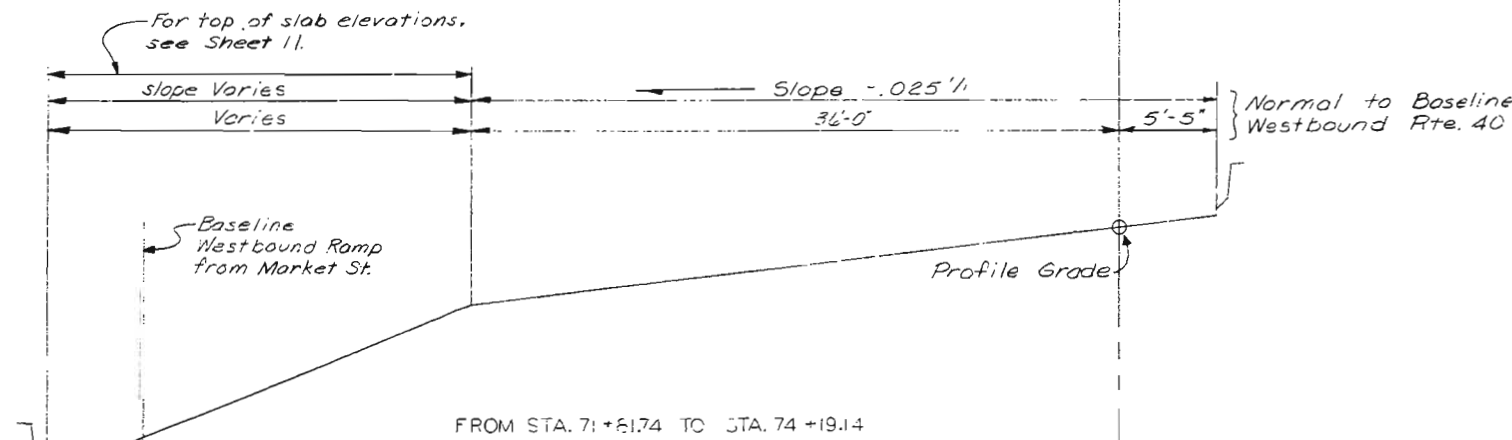
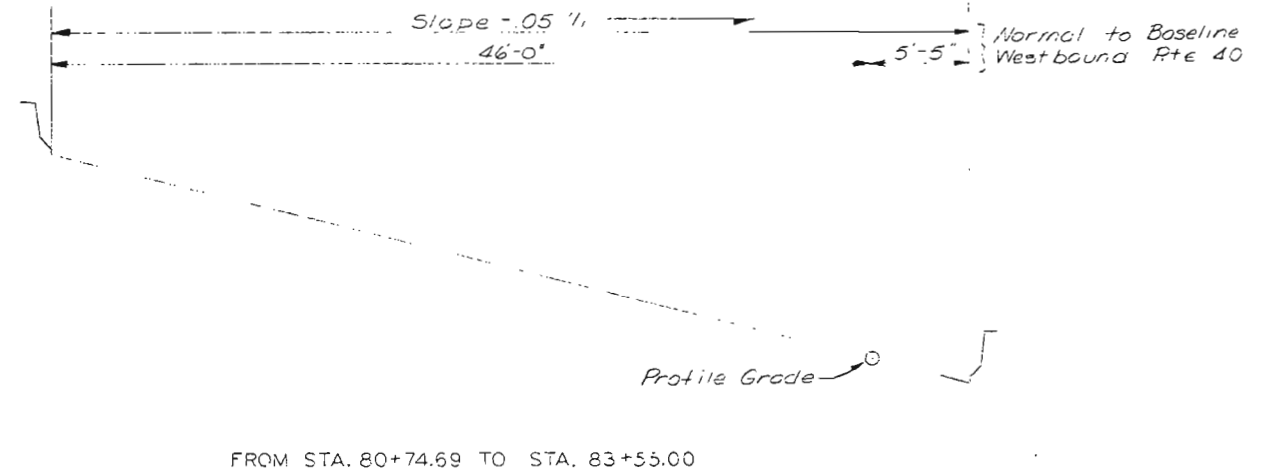
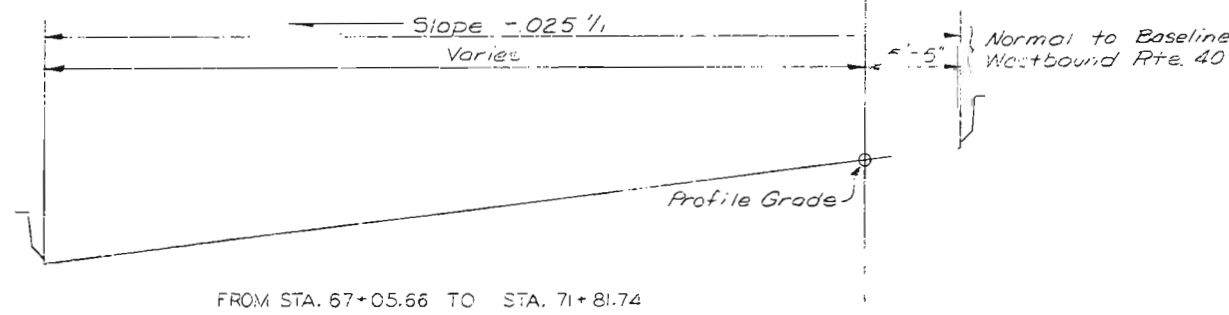
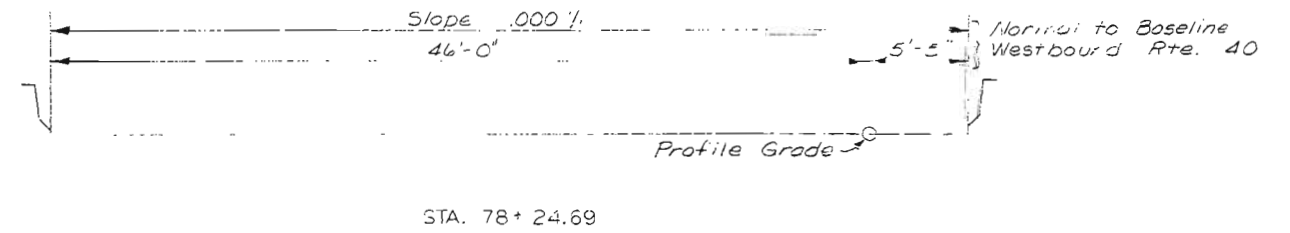
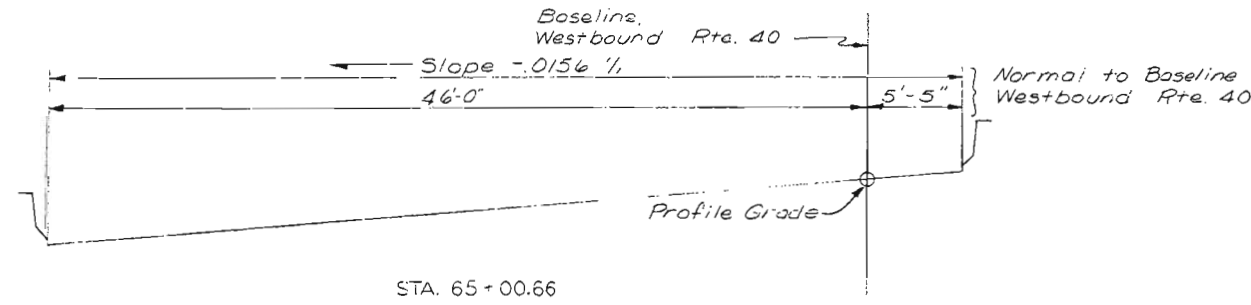
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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: M.O. Felling, July, 1977
CHECKED BY: R.L. Butlerfield, Aug. 1977
5267
775293

492

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	203	



CITY OF ST. LOUIS

ROADWAY CROSS SLOPES

SHEET 3 OF 4

11-19-77

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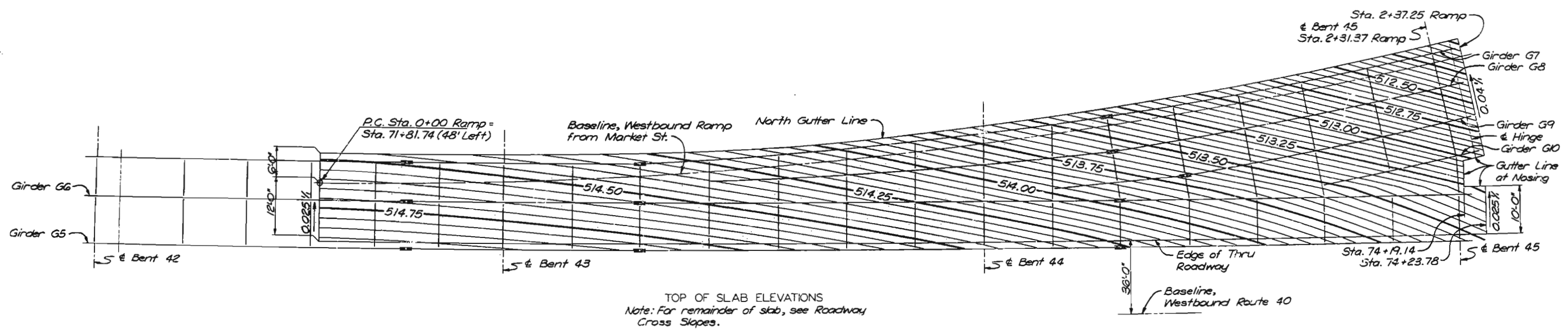
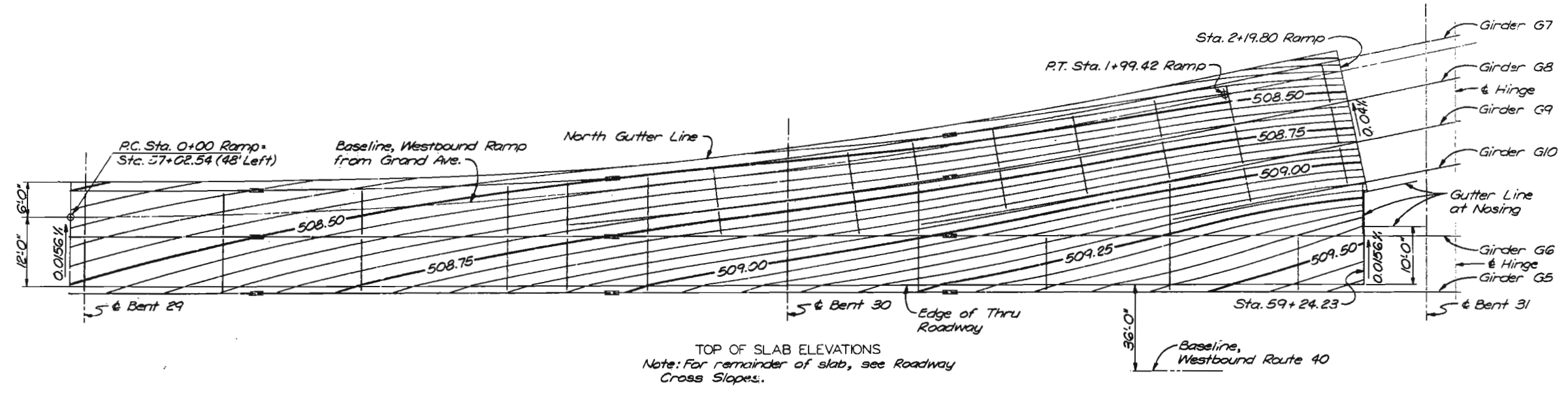
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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: M.O. Ething July 1977
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5261
775292

493

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	254	



494

DRAWN BY T. Sanders, Dec. 1977
CHECKED BY R. V. Gutterfield, Dec. 1977
5261
773360

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CITY OF ST. LOUIS

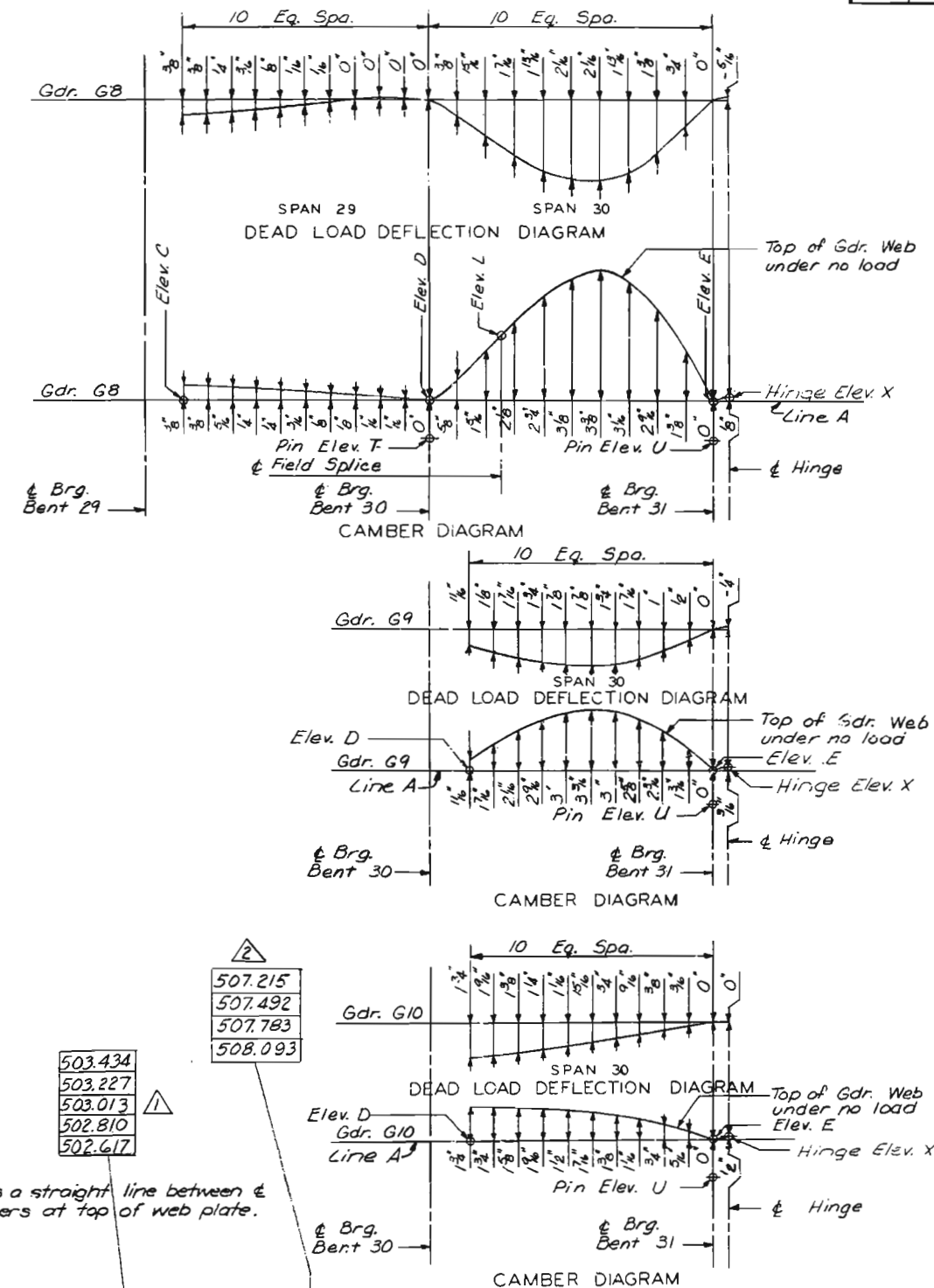
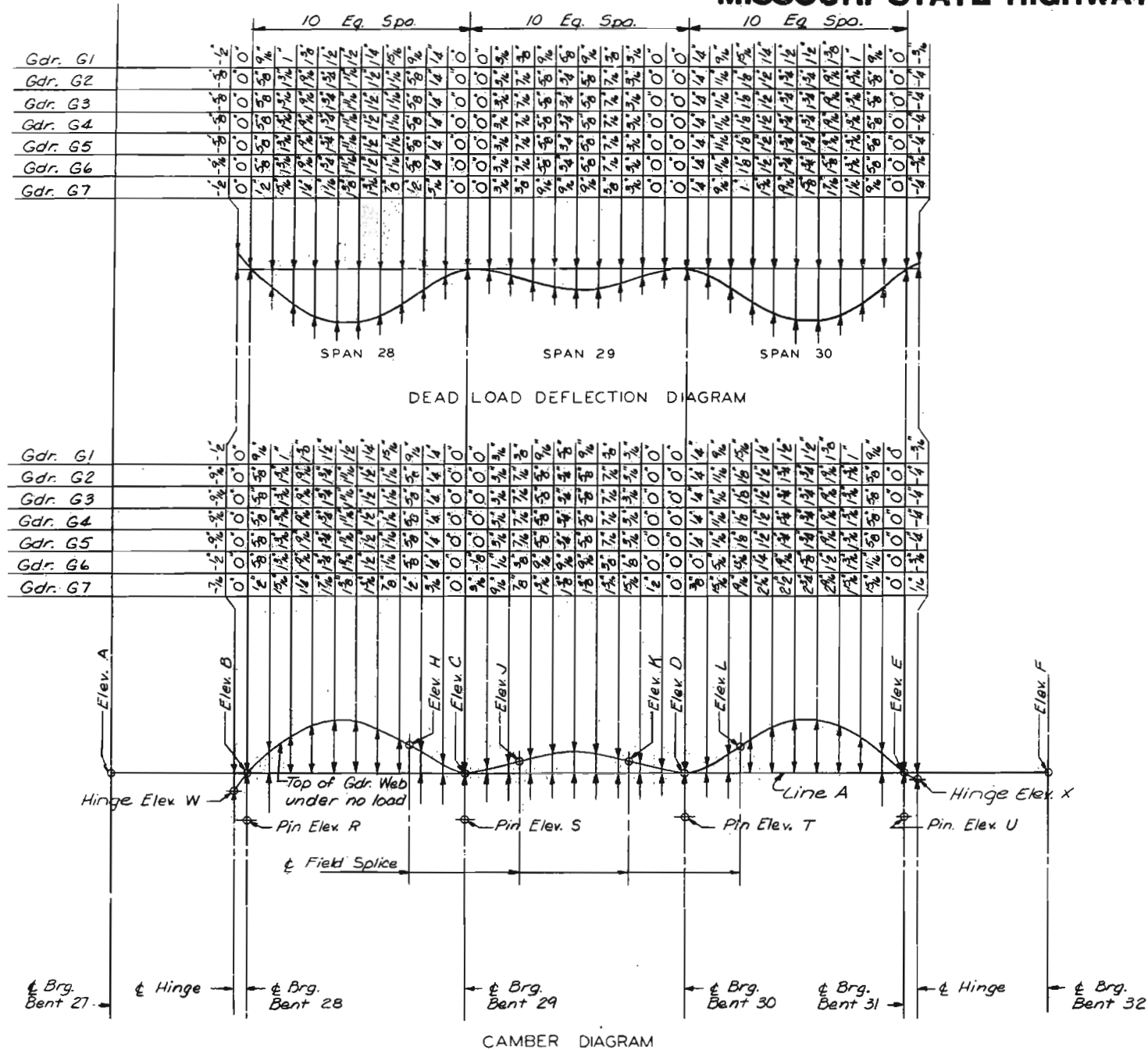
TOP OF SLAB ELEVATIONS AT RAMPS

SHEET 11 OF 48

A-3594

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	205	



Note: Line A is a straight line between ± Brg. Stiffeners at top of web plate.

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.

Girders shown on Camber Diagrams as fabricated and erected.

Elevations shown on Camber Diagrams do not include D.L. Deflection of Longitudinal Girders.

Elevations shown on Camber Diagrams do include D.L. Deflection of Cross Girders at Bents 27-32.

For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 14.

DEAD LOAD DEFLECTION AND CAMBER
SPANS 28 THRU 30

SHEET 12 OF 15

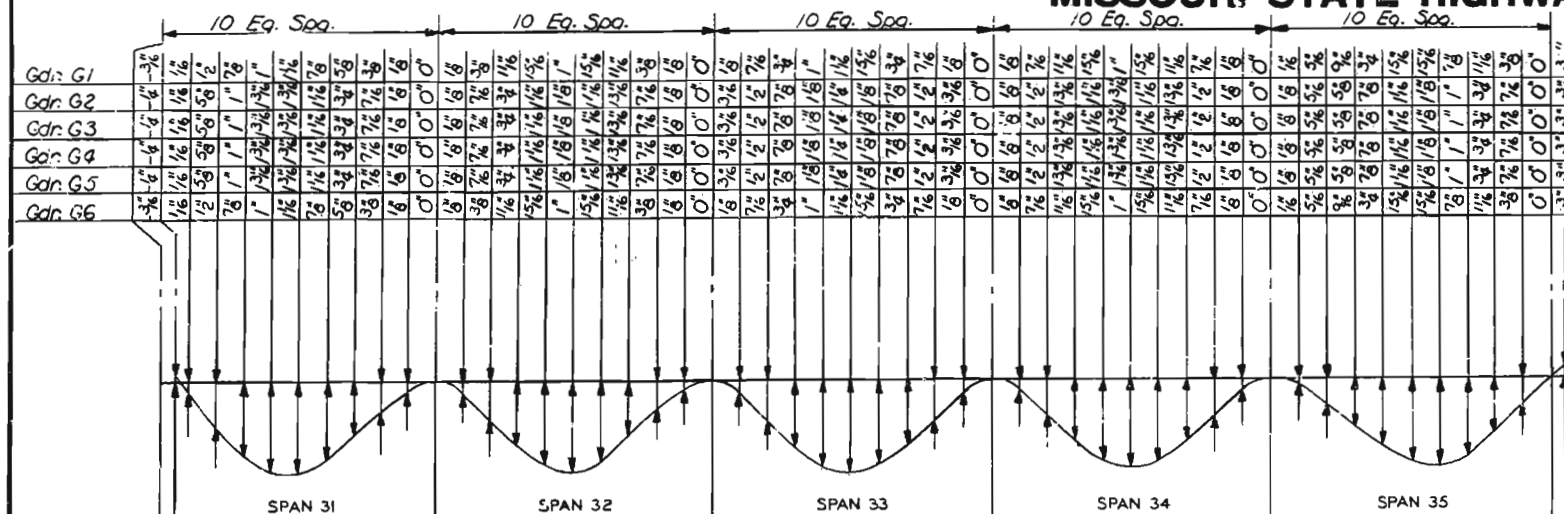
A-3594

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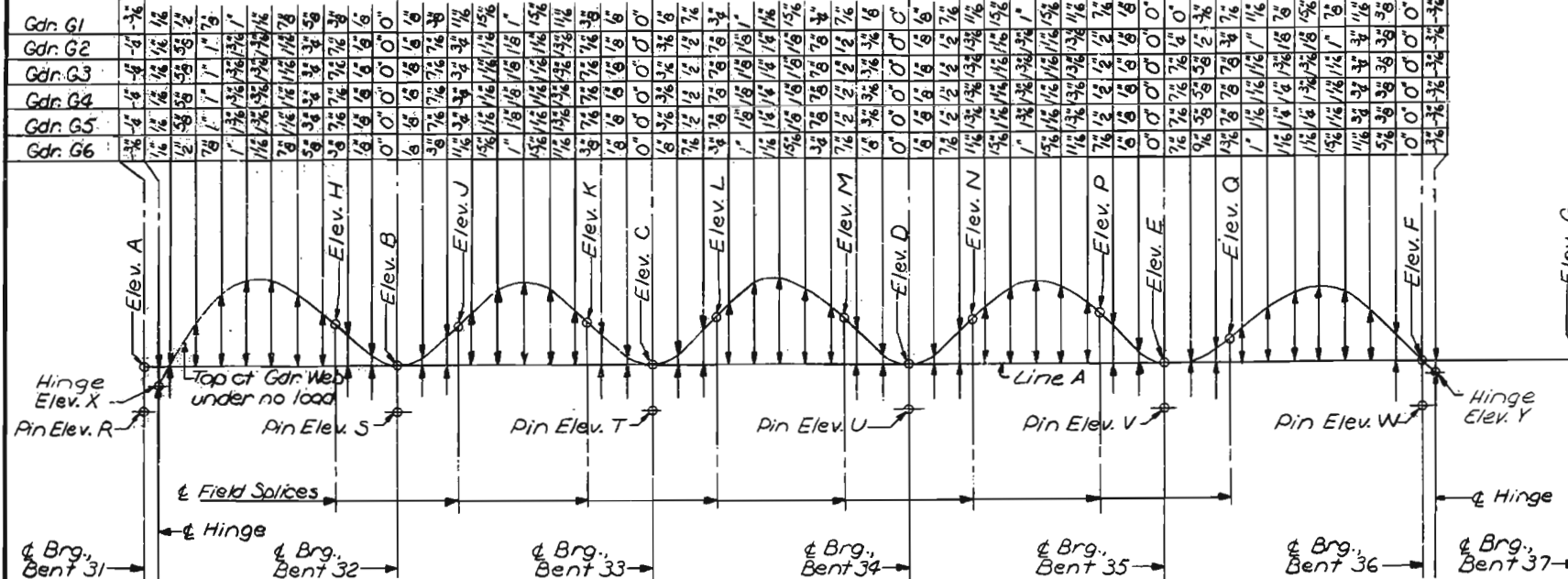
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MISSOURI STATE HIGHWAY DEPARTMENT

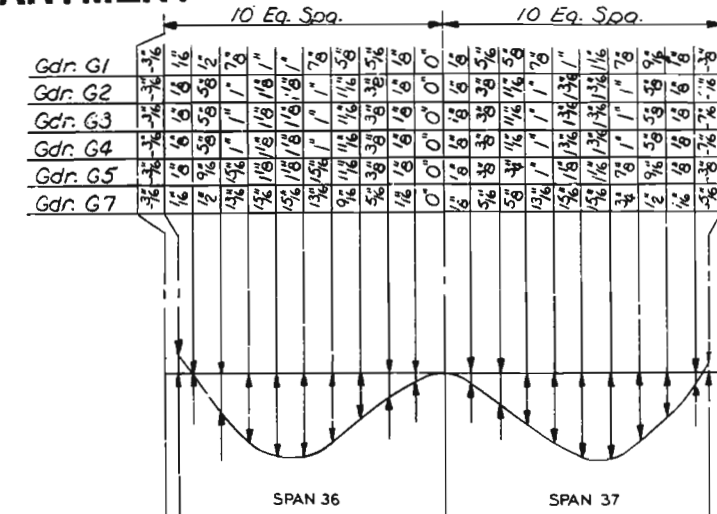
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5	MO.		18	226	



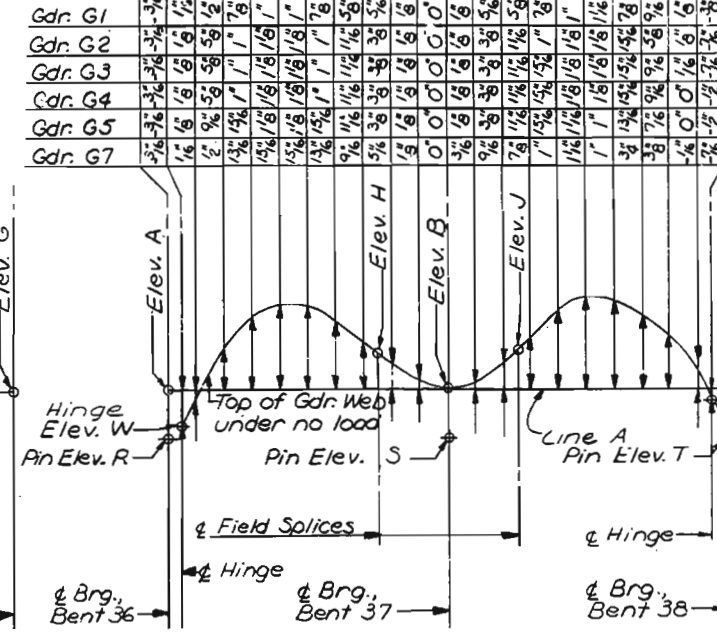
DEAD LOAD DEFLECTION DIAGRAM



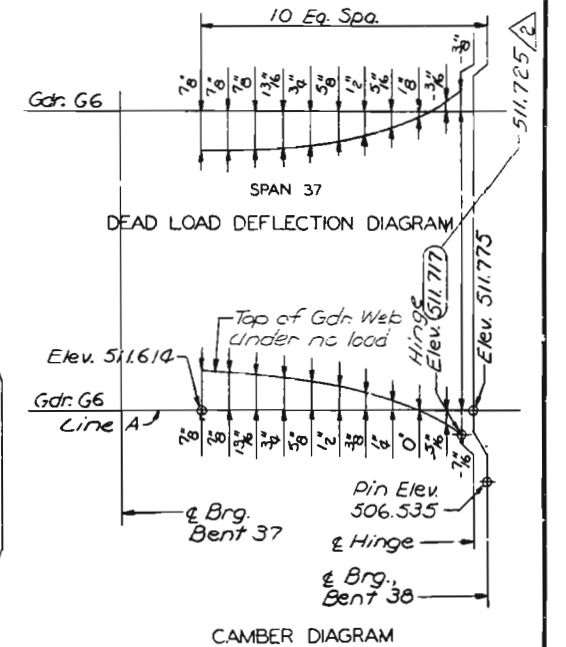
CAMBER DIAGRAM



DEAD LOAD DEFLECTION DIAGRAM



CAMBER DIAGRAM



NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.
Girders shown on Camber Diagrams as fabricated and erected.
Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.
Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girders at Bents 31-38.
For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 14.
Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 31 THRU 37

SHEET 13 OF 45

A-3594

TOP OF GIRDER WEB ELEVATIONS																PIN ELEVATIONS				HINGES			
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. P	ELEV. Q	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V	ELEV. W	ELEV. X	ELEV. Y
G1	508.877	509.402	510.007	510.612	511.217	511.838	512.382	509.316	509.597	509.902	510.206	510.509	510.808	511.112	511.400	503.637	504.131	504.736	505.341	505.946	506.599	508.886	511.848
G2	509.028	509.553	510.158	510.763	511.368	511.686	512.183	509.473	509.753	510.059	510.364	510.667	510.965	511.271	511.499	503.788	504.282	504.887	505.492	506.097	506.447	509.032	511.694
G3	509.071	509.596	510.201	510.806	511.411	511.534	511.985	509.516	509.796	510.102	510.407	510.710	511.008	511.314	511.504	503.831	504.325	504.930	505.535	506.140	506.295	509.075	511.540
G4	508.920	509.445	510.050	510.655	511.260	511.383	511.787	509.365	509.645	509.951	510.256	510.559	510.857	511.163	511.353	503.680	504.174	504.779	505.384	505.989	506.143	508.924	511.386
G5	508.769	509.294	509.899	510.504	511.109	511.231	511.588	509.215	509.494	509.801	510.106	510.408	510.707	511.012	511.203	503.529	504.023	504.628	505.233	505.838	505.991	508.773	511.232
G6	508.618	509.143	509.748	510.353	510.958	511.079	511.390	509.057	509.338	509.643	509.947	510.250	510.549	510.854	511.046	503.379	503.872	504.477	505.082	505.687	505.839	508.628	511.078

510.549

503.434
503.227
503.013
502.810
502.619

503.891
503.897
503.893
503.882
503.877

506.138
505.986

Revised 12-23-81

Revised 12-17-81

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SWENDEP & PARCELO, AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

506.594

506.138
505.936

496
DRAWN BY: E. GREGORY, July 1977
CHECKED BY: T. SANDERS, Sept. 1977
5261
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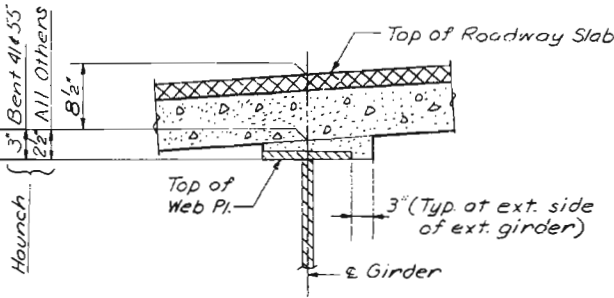
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	257	

DEAD LOAD DEFLECTION AND CAMBER NOTES

Spacing of dead load deflection and camber ordinates is measured along a girder.
Camber shown includes allowance for vertical curves, superelevation transition and full dead load deflection, excluding future wearing surface. The percentage of dead load deflection due to weight of structural steel only is as shown in table.
Haunch dimensions shown in Typical Haunch Detail is for cambered portions of girders. This dimension may vary if the girder camber after erection differs from the plan camber by more than the percentage of dead load deflection due to the weight of structural steel only.
For non-cambered portions of girders at Bents 41, 42 and 55 the haunch shall be varied, using the haunch shown in Typical Haunch Details as a minimum to arrive at top of slab elevations conforming to profile grade and cross slopes.
The concrete quantity computed for the haunches is included in the estimated quantities for class B2 Concrete. No payment will be made for additional variations in haunching.

STEEL ONLY DEAD LOAD DEFLECTION PERCENTAGE					
Span	Girder	%	Span	Girder	%
28	G1	17	40	G7	17
28	G2-G6	15	41	G1	16
28	G7	18	41	G2-G5	14
29	G1&G7	17	41	G6	15
29	G2-G6	14	41	G7	17
29	G8	20	42	G1	15
30	G1	17	42	G2-G5	13
30	G2-G6	15	42	G6	14
30	G7	18	42	G7	16
30	G8	16	43	G1&G6	15
30	G9&G10	17	43	G2-G5	13
31	G1&G6	16	43	G7	17
31	G2-G5	14	43	G8	18
31	G7	17	44	G1	15
31	G8&G9	15	44	G2-G5	13
31	G10	16	44	G6&G7	17
32	G1&G6	16	44	G8	20
32	G2-G5	14	44	G9&G10	19
32	G7	17	45	G1&G6	15
32	G8&G9	15	45	G2-G5	13
32	G10	16	46	G1&G6	13
33	G1&G6	16	46	G2-G5	12
33	G2-G5	14	47	G1&G6	14
34	G1&G6	16	47	G2-G5	12
34	G2-G5	14	48	G1&G6	14
35	G1&G6	16	48	G2-G5	12
35	G2-G5	14	49	G1&G6	13
36	G1&G7	16	49	G2-G5	12
36	G2-G5	14	50	G1&G6	13
37	G1&G5	16	50	G2-G5	12
37	G2-G4	14	51	G1&G6	14
37	G6	17	51	G2-G5	12
37	G7	19	52	G1&G6	13
38	G1&G6	16	52	G2-G5	12
38	G2-G5	14	53	G1&G6	14
38	G7	17	53	G2-G5	12
39	G1	16	54	G1&G6	15
39	G2-G5	14	54	G2-G5	13
39	G6	15	55	G1&G6	15
39	G7	17	55	G2-G5	13
40	G1	16	56	G1&G6	14
40	G2-G5	14	56	G2-G5	12
40	G6	15			



TYPICAL HAUNCH DETAIL

NOTES

Negative values shown on Dead Load Deflection Diagram indicate upward deflections.
Girders shown on Camber Diagram as fabricated and erected.
Elevations shown on Camber Diagram do not include D.L. deflection of Longitudinal Girders.
Elevations shown on Camber Diagram do include D.L. deflection of Cross Girders at Bents 31 & 32.
Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

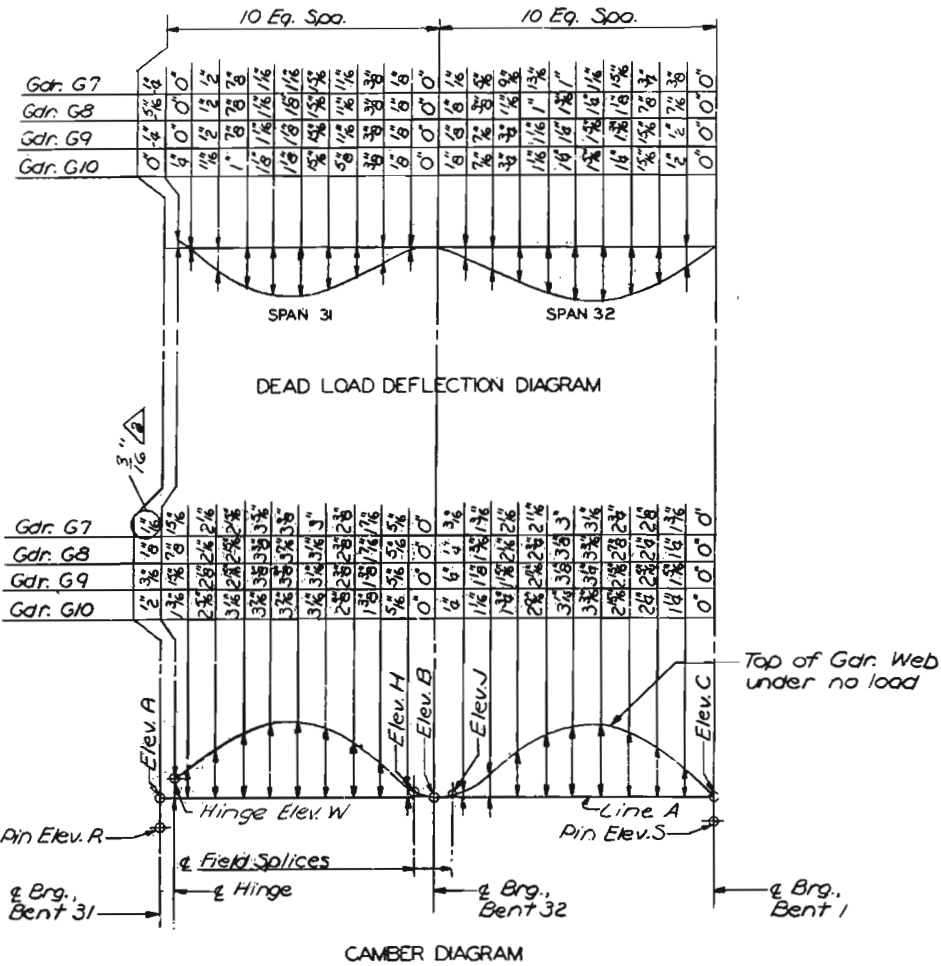
DEAD LOAD DEFLECTION AND CAMBER SPANS 31 AND 32

SHEET 14 OF 43

A-3594

Revised 12-17-81
Revised 12-17-81

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.



TOP OF GIRDER WEB ELEVATIONS								PIN ELEVATION		HINGE	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. H	ELEV. J	ELEV. R	ELEV. S	ELEV. W			
G7	507.272	506.627	502.935	505.819	505.436	502.054	497.185	507.241			
G8	507.559	505.837	502.580	506.034	505.641	502.347	497.330	507.529			
G9	507.849	506.089	502.725	506.252	505.848	502.630	497.475	507.820			
G10	508.141	506.264	502.870	506.471	506.058	502.922	497.620	508.135			

502.033
502.276
502.406

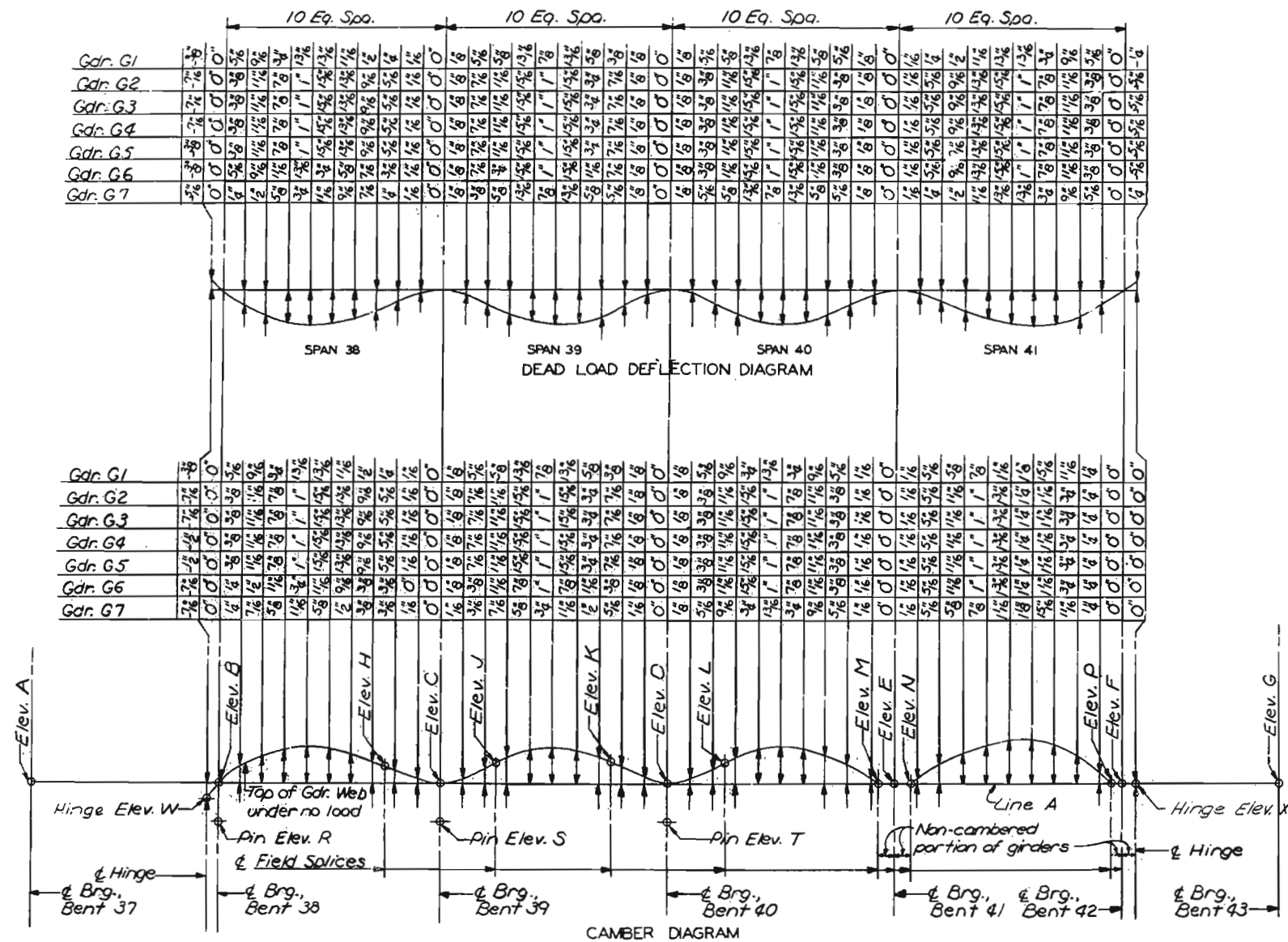
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507.492
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508.093

497
DRAWN BY: E. Gregory, Aug. 1977
CHECKED BY: J. Sanders, Sept. 1977
5261
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OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	208	



TOP OF GIRDER WEB ELEVATIONS															± PIN ELEVATIONS			± HINGES	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. P	ELEV. R	ELEV. S	ELEV. T	ELEV. W	ELEV. X
G1	512.382	512.924	513.404	513.979	514.512	514.951	514.958	513.314	513.388	513.876	514.163	514.519	514.598	514.951	507.683	508.133	508.708	512.868	514.961
G2	512.183	512.679	513.162	513.737	514.271	514.709	514.717	513.079	513.354	513.642	513.927	514.277	514.359	514.713	507.443	507.892	508.467	512.621	514.719
G3	511.985	512.441	512.921	513.406	513.829	514.267	514.475	512.838	513.112	513.400	513.686	514.036	514.177	514.472	507.201	507.650	508.225	512.379	514.478
G4	511.787	512.199	512.679	513.254	513.787	514.226	514.233	512.596	512.871	513.158	513.444	513.794	513.875	514.230	506.960	507.408	507.983	512.132	514.236
G5	511.588	511.957	512.437	513.012	513.546	513.984	513.992	512.354	512.629	512.917	513.202	513.552	513.634	513.988	506.718	507.167	507.742	511.891	513.994
G6	511.614	511.775	512.204	512.771	513.304	513.742	513.718	512.130	512.387	512.675	512.961	513.311	513.392	513.746	506.535	506.933	507.500	511.717	513.753
G7	511.390	511.621	512.015	512.571	513.104	513.542	513.508	511.942	512.179	512.468	512.755	513.110	513.190	513.542	506.381	506.744	507.300	511.565	513.553

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.

Girders shown on Camber Diagrams as fabricated and erected.

Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.

Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girders at Bents 37-42.

* Elevations at beginning of Girder G6 in Span 37.

For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 14.

Line A is a straight line between ± Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPAN 38 THRU 41

SHEET 15 OF 22

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

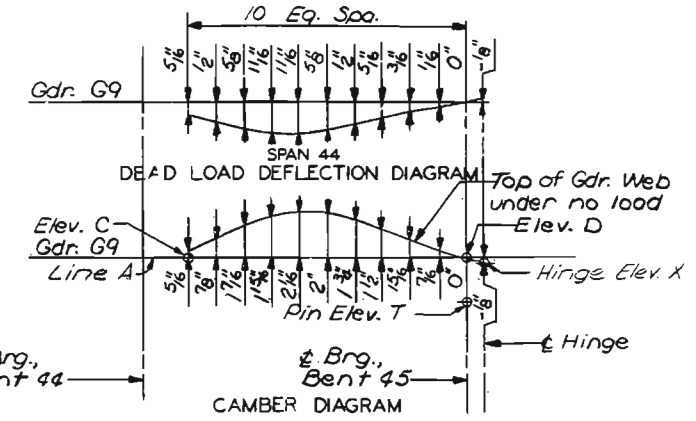
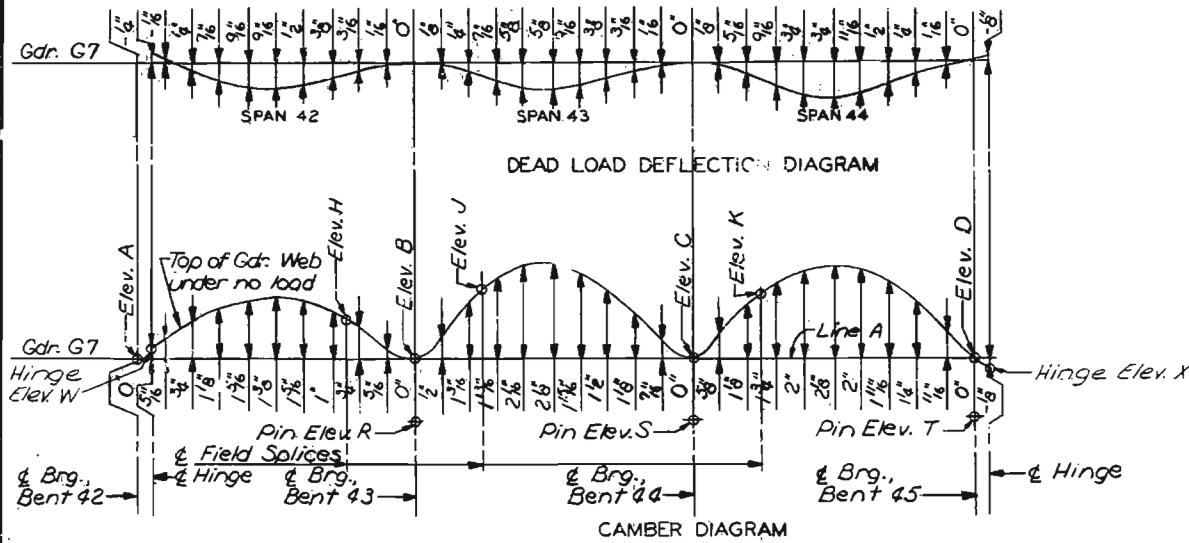
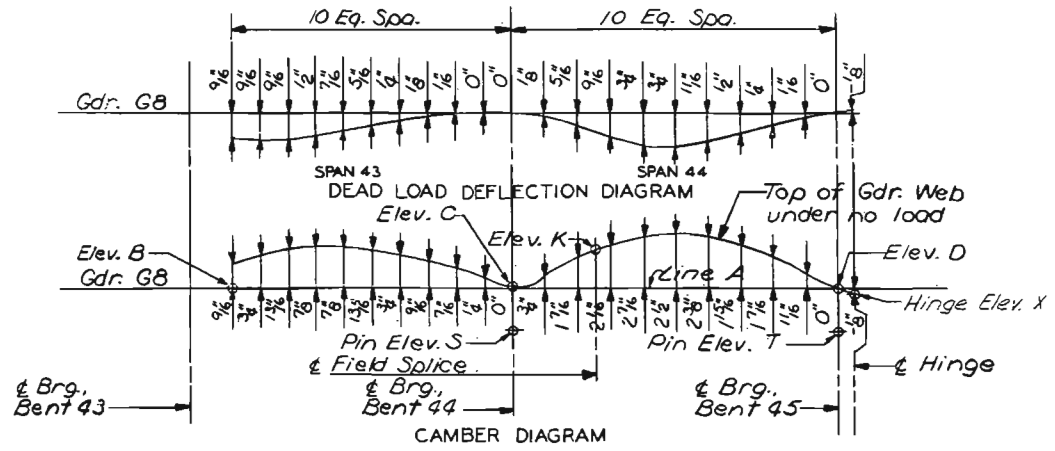
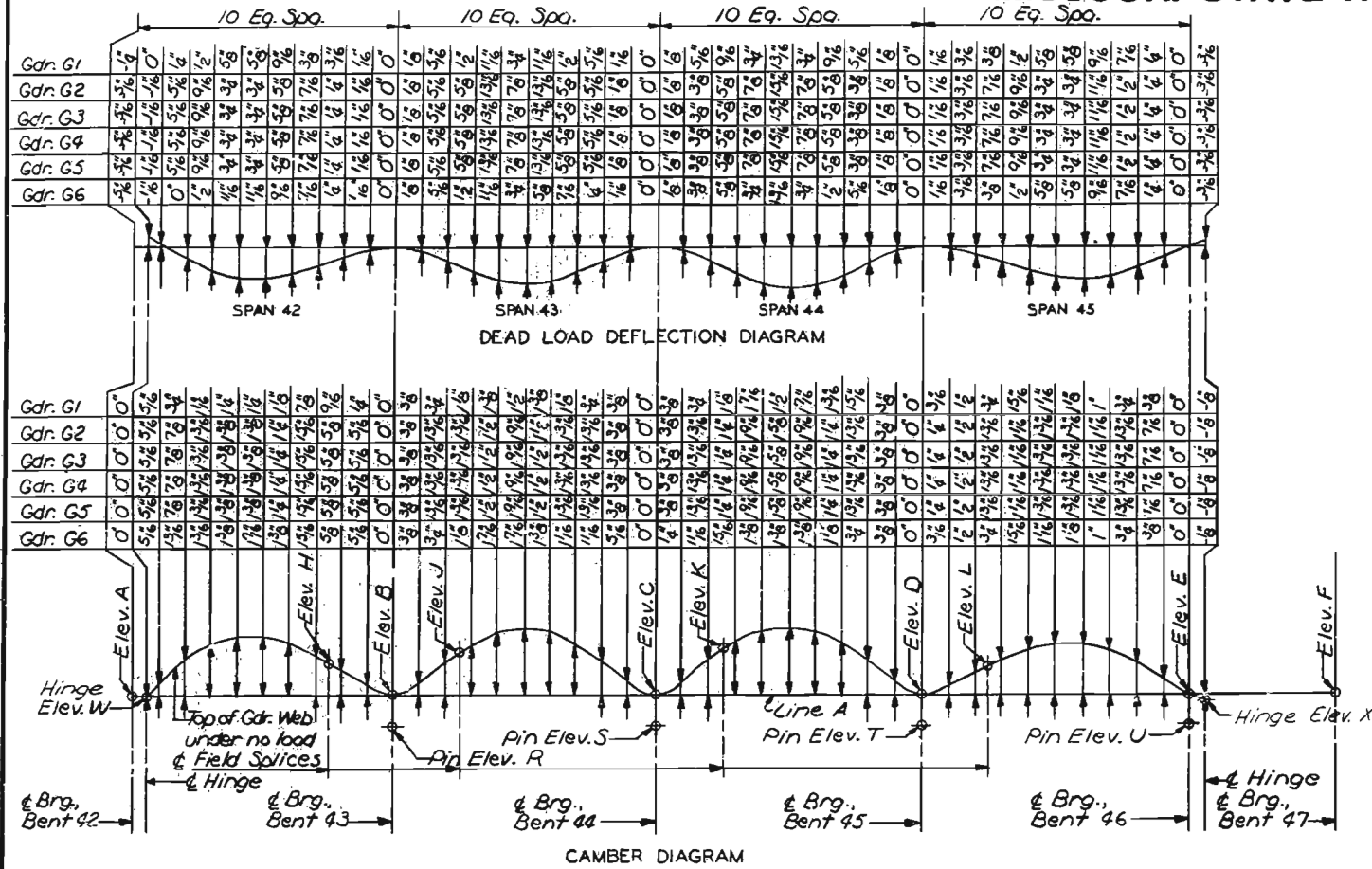
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DESIGNED BY: E. G. GORDON, JULY 1977
CHECKED BY: T. SANDERS, SEPT. 1977
5261
773299

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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	209		



NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.

Girders shown on Camber Diagrams as fabricated and erected.

Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.

Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girder at Bent 42.

For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 14.

Line A is a straight line between & Brg. Stiffeners at top of web plate.

TOP OF GIRDER WEB ELEVATIONS															
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. H	ELEV. J	ELEV. K	ELEV. L	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. W
G1	514.951	514.958	514.524	513.614	512.530	511.383	515.016	514.924	514.356	513.394	510.666	510.243	509.333	508.260	514.961
G2	514.709	514.717	514.283	513.372	512.289	511.142	514.780	514.688	514.121	513.155	510.425	510.001	509.097	508.018	514.719
G3	514.467	514.475	514.041	513.131	512.047	510.900	514.539	514.446	513.879	512.914	510.183	509.760	508.849	507.776	514.478
G4	514.226	514.233	513.799	512.889	511.805	510.658	514.297	514.205	513.638	512.672	509.942	509.518	508.608	507.535	514.236
G5	513.984	513.992	513.558	512.647	511.564	510.417	514.055	513.963	513.396	512.430	509.700	509.276	508.366	507.293	513.994
G6	513.742	513.750	513.316	512.405	511.322	510.175	513.794	513.702	513.135	512.169	509.426	509.002	508.092	507.019	513.753
G7	513.502	513.510	513.076	512.165	511.082	509.935	513.554	513.462	512.895	511.929	509.186	508.762	507.852	506.779	513.513
G8	513.260	513.268	512.834	511.923	510.840	509.693	513.312	513.220	512.653	511.687	508.944	508.520	507.610	506.537	513.273
G9	513.018	513.026	512.592	511.681	510.598	509.451	513.070	512.978	512.411	511.445	508.702	508.278	507.368	506.295	513.033
G10	512.776	512.784	512.350	511.439	510.356	509.209	512.828	512.736	512.169	511.203	508.466	508.042	507.132	506.059	512.793

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Revised 12-28-81

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 42 THRU 45

SHEET 11 OF 11

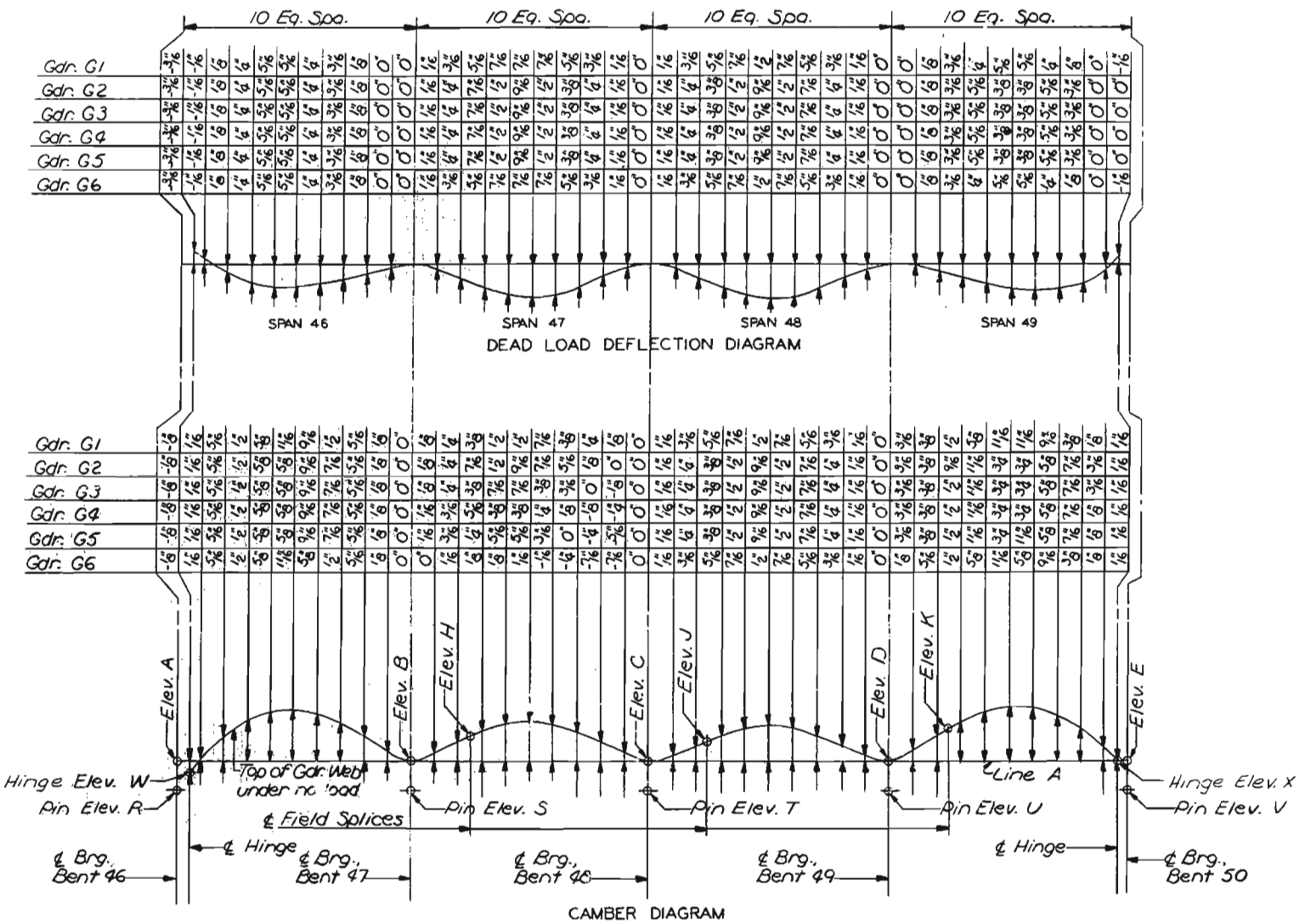
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DRAWN BY: E. Gregory, July 1977
CHECKED BY: T. Sanders, Sept. 1977
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SVENDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	210	



NOTES

Negative values shown on Dead Load Deflection Diagram indicate upward deflections.
Girders shown on Camber Diagram as fabricated and erected.
Elevations shown on Camber Diagram do not include D.L. deflection of Longitudinal Girders.
Elevations shown on Camber Diagram do include D.L. deflection of Cross Girder at Bent 48.
For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 14.
Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 46 THRU 49

SHEET 1 OF 42

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

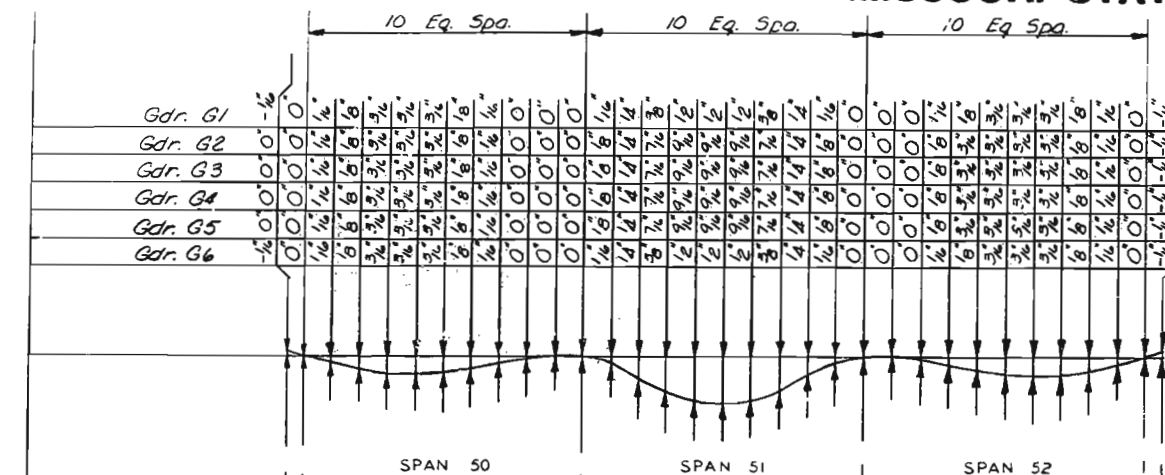
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: E. Gregory, July 1977
CHECKED BY: T. Sanders, Sept. 1977
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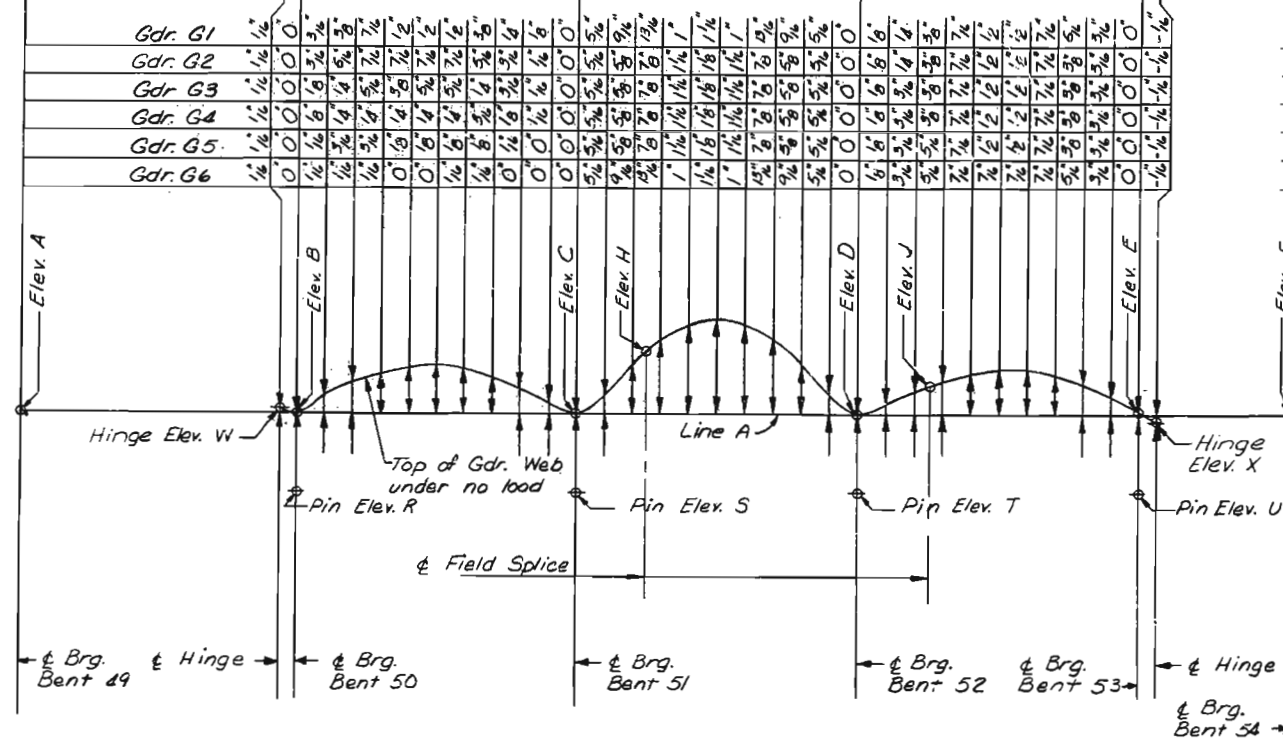
TOP OF GIRDER WEB ELEVATIONS									P PIN ELEVATIONS					P HINGES	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. H	ELEV. J	ELEV. K	ELEV. R	ELEV. S	ELEV. T	ELEV. U	ELEV. V	ELEV. W	ELEV. X
G1	512.530	511.383	509.299	508.154	506.690	511.002	509.393	507.839	508.260	507.133	505.528	503.904	502.450	512.458	506.790
G2	512.289	511.142	509.361	508.032	506.650	510.767	509.196	507.740	508.000	506.892	505.301	503.782	502.413	512.216	506.749
G3	512.047	510.900	509.333	507.911	506.619	510.525	508.993	507.639	507.7	506.650	505.073	503.661	502.379	511.974	506.708
G4	511.805	510.658	509.106	507.789	506.583	510.283	508.794	507.537	507.5	506.408	504.845	503.539	502.344	511.732	506.668
G5	511.564	510.417	508.878	507.667	506.543	510.042	508.594	507.436	507.293	506.167	504.618	503.417	502.308	511.491	506.627
G6	511.322	510.175	508.650	507.546	506.512	509.794	508.390	507.334	507.051	505.925	504.390	503.296	502.272	511.249	506.586

MISSOURI STATE HIGHWAY DEPARTMENT

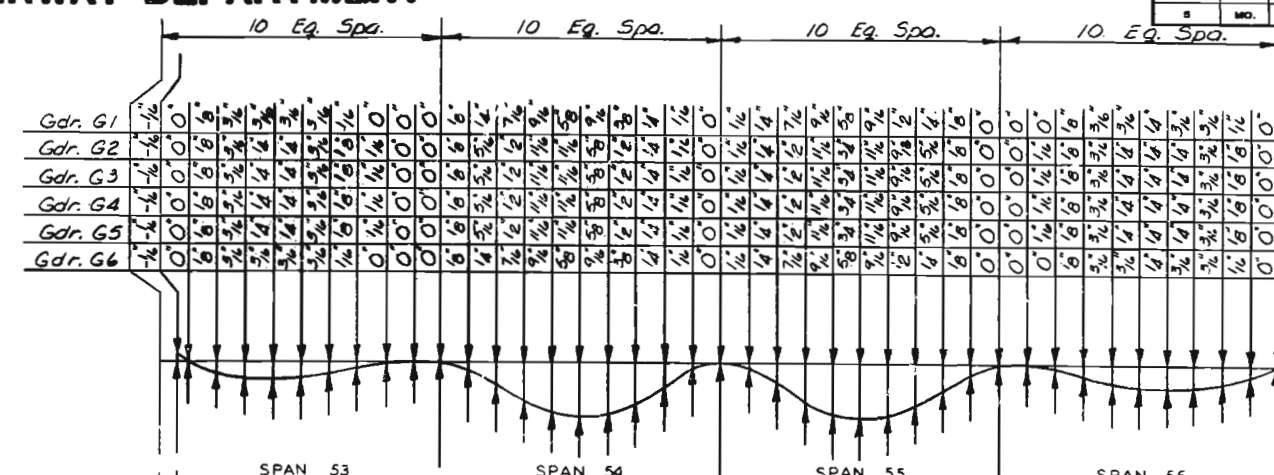
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5	MO.		15	211	



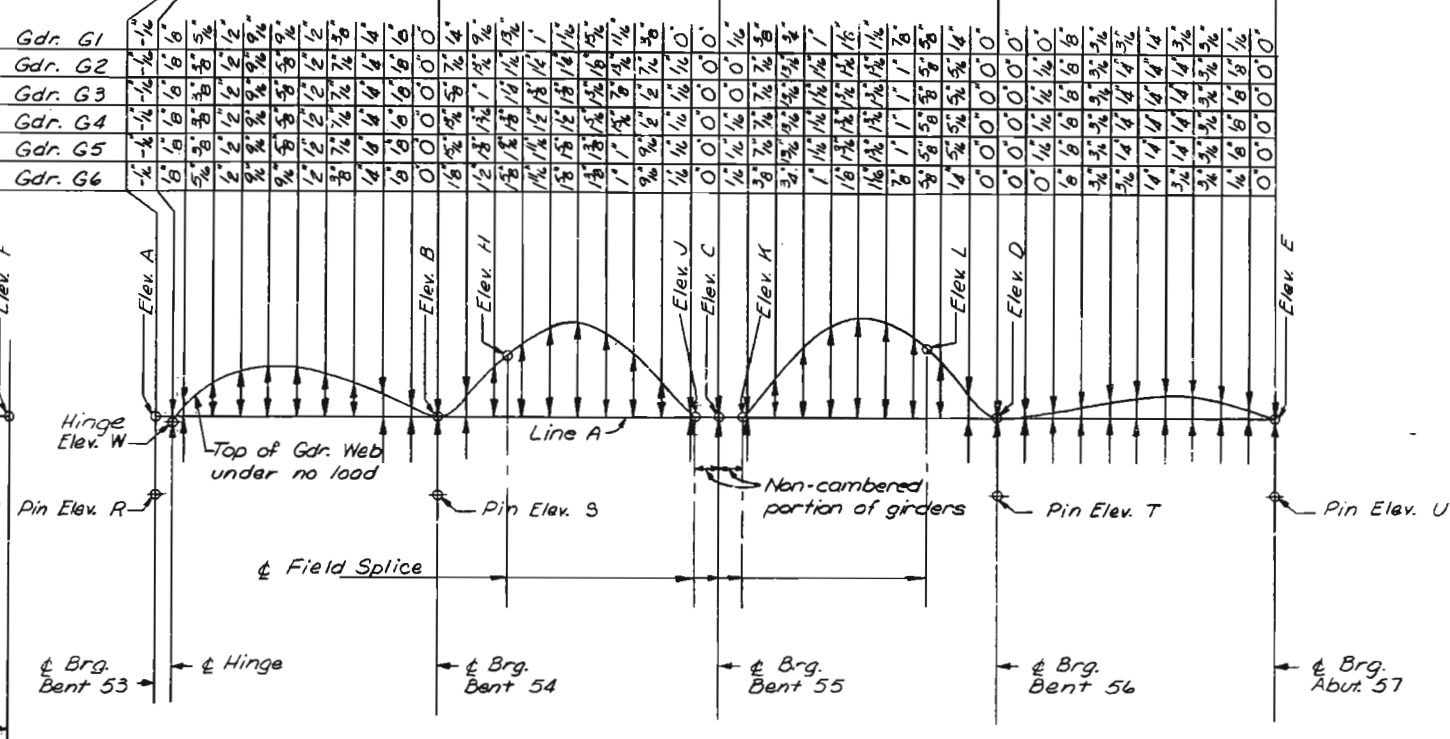
DEAD LOAD DEFLECTION DIAGRAM



CAMBER DIAGRAM



DEAD LOAD DEFLECTION DIAGRAM



CAMBER DIAGRAM

TOP OF GIRDER WEB ELEVATIONS													ELEV. PIN ELEVATIONS			ELEV. HINGE	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. O	ELEV. P	ELEV. Q
G1	508.154	506.690	505.124	502.738	500.671	498.234	504.589	502.096	502.450	500.864	498.478	496.432	506.790	500.523			
G2	508.032	506.434	505.189	502.957	501.008	498.497	504.697	502.355	502.415	500.928	498.696	496.769	506.749	500.868			
G3	507.911	506.619	505.253	503.176	501.345	499.160	504.800	502.613	502.379	500.993	498.916	497.104	506.708	501.213			
G4	507.789	506.583	505.318	503.395	501.682	499.622	504.903	502.871	502.344	501.057	499.135	497.443	506.668	501.559			
G5	507.667	506.548	505.382	503.614	502.019	500.085	505.006	503.128	502.308	501.122	499.354	497.780	506.627	501.904			
G6	507.546	506.512	505.444	503.833	502.356	500.548	505.104	503.384	502.272	501.186	499.573	498.117	506.586	502.249			

TOP OF GIRDER WEB ELEVATIONS													ELEV. PIN ELEVATIONS			ELEV. HINGE	
Girder	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H	ELEV. I	ELEV. J	ELEV. K	ELEV. L	ELEV. M	ELEV. N	ELEV. O	ELEV. P	ELEV. Q
G1	500.671	498.234	494.610	490.647	487.719	497.404	495.005	494.306	491.718	496.432	493.964	486.376	483.479	500.523			
G2	501.008	498.497	495.093	491.130	488.202	497.893	495.489	494.793	492.206	496.769	494.426	486.859	483.963	500.868			
G3	501.345	499.160	495.576	491.614	488.686	498.376	495.971	495.277	492.690	497.106	494.889	487.343	484.440	501.213			
G4	501.682	499.622	496.060	492.097	489.169	498.860	496.453	495.762	493.173	497.443	495.352	487.826	484.929	501.559			
G5	502.019	500.085	496.543	492.580	489.652	499.343	496.935	496.246	493.656	497.780	495.814	488.309	485.413	501.904			
G6	502.356	500.548	497.026	493.064	490.136	499.821	497.416	496.729	494.134	498.117	496.277	488.793	485.896	502.249			

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

NOTES

Negative values shown on Dead Load Deflection Diagrams indicate upward deflections.
Girders shown on Camber Diagrams as fabricated and erected.
Elevations shown on Camber Diagrams do not include D.L. deflection of Longitudinal Girders.
Elevations shown on Camber Diagrams do include D.L. deflection of Cross Girder at Bent 55.
For Dead Load Deflection and Camber Notes and Typical Haunch Detail, see Sheet 14.
Line A is a straight line between & Brg. Stiffeners at top of web plate.

CITY OF ST. LOUIS

DEAD LOAD DEFLECTION AND CAMBER
SPANS 50 THRU 56

SHEET 10 OF 45

A-3594

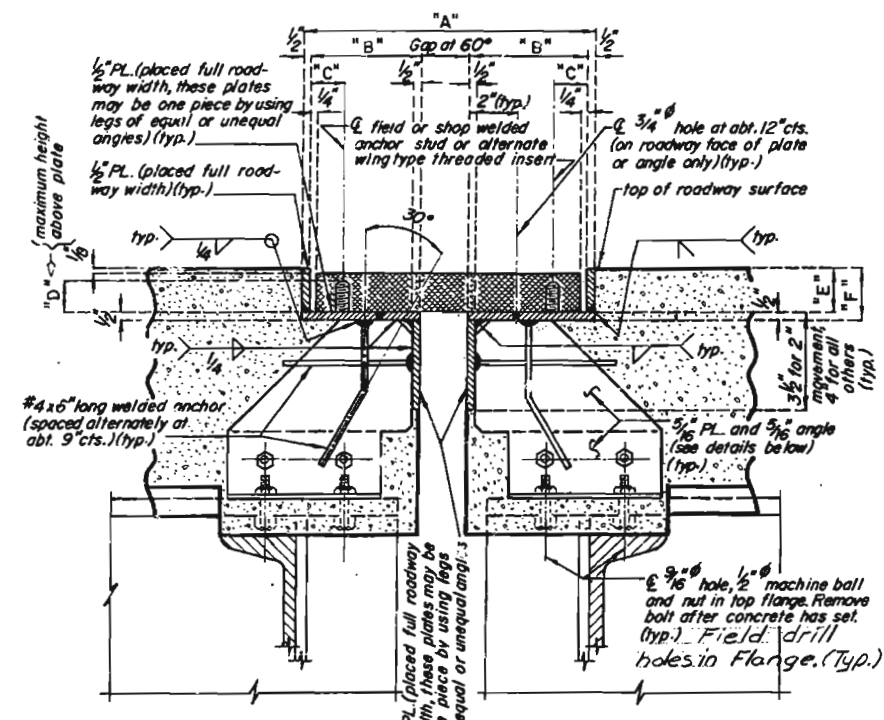
DRAWN BY: M.O. Ething June 1971
CHECKED BY: T. Sandberg Sept. 1977
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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

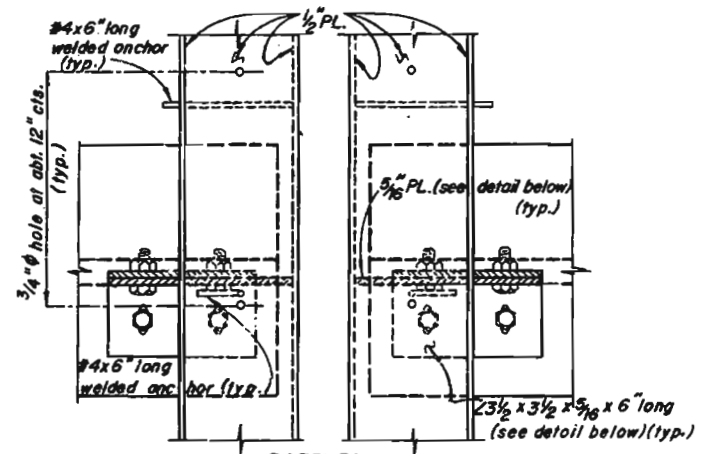
502

SPS - INT. BT.
FEB. 1978
REVISED
AUG. 1980

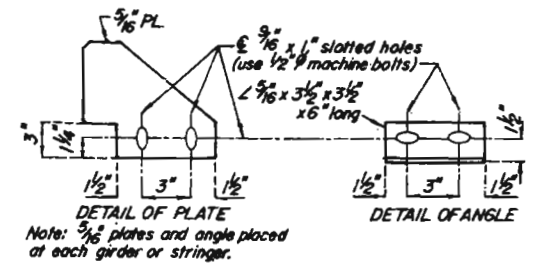
DETAILED JUNE 1981
CHECKED JUNE 1981



PART SECTION THRU ARMORED JOINT
(All locations except Bent 45)



PART PLAN
(All locations except Bent 45)

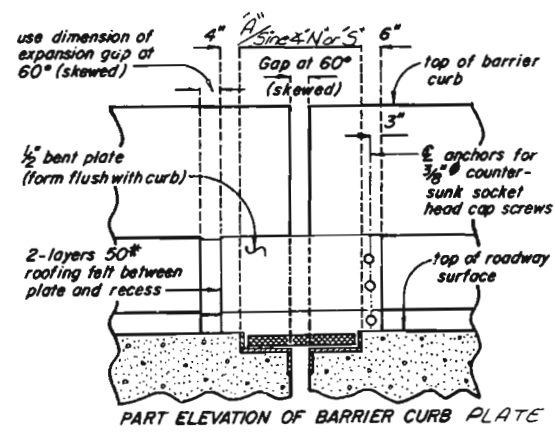


DETAIL OF PLATE
Note: 3/8 inch plates and angle placed at each girder or stringer.

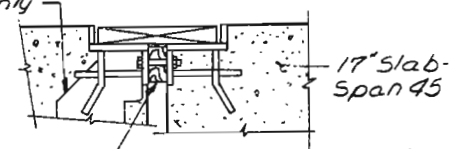
DETAIL OF ANGLE

TABLE OF DIMENSIONS										
LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A" AT 60°	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE	"G"
Bents 1**45 & 50	Gen-Strip CCL 2"	2 1/4"	11 1/8"	4"	1 3/4"	1 1/8"	1 3/4"	2 1/4"	5/8"	65
	On-Flex 25	1 1/2"	11"	4 1/4"	1 5/8"	1 1/4"	1 3/4"	2 1/4"	1/2"	65
Bent 38	Gen-Strip CCL 3"	2 1/4"	11 1/8"	4"	1 3/4"	1 1/8"	1 3/4"	2 1/4"	5/8"	65
	On-Flex 45	2"	11 1/2"	4 1/4"	1 5/8"	1 1/2"	2 3/4"	3 3/8"	1/2"	65
Bent 31(North) 28**36 & 53	Transflex 400A	3 3/8"	24 3/8"	9 3/16"	2 1/16"	1 1/2"	2 3/8"	2 7/8"	3/4"	85
Bents 31(South) 42 & 46	Transflex 650	4 1/2"	29 3/4"	12 1/8"	2 1/4"	2"	3 1/4"	3 3/4"	7/8"	100

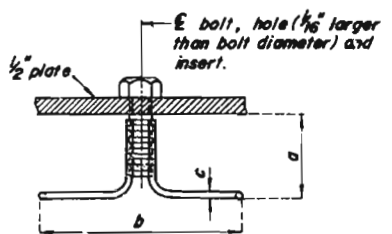
NOTE: All dimensions are at right angles.



Support material
Span 44 side only

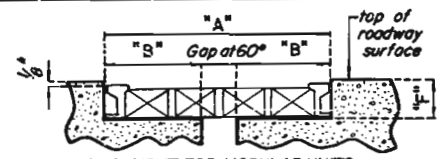


PART SECTION AT BENT-45
Note: Details not shown are same as Part Section above.

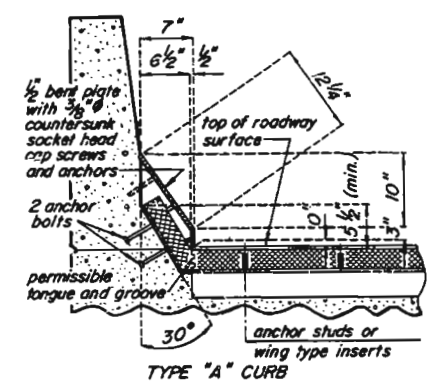


Bolt Diameter	Safe Load Tension (lbs.) (min.)	Approx. Ult. Cap. Tension (lbs.) (min.)	Dimensions		
			a (min.)	b	c
1/2"	800	8,000	1-5/8"	5"	.218"
5/8"	1,300	9,200	1-5/8"	5"	.218"
3/4"	1,800	13,200	2-1/4"	6"	.262"
7/8"	2,000	16,200	2-1/2"	6-1/2"	.306"
1"	2,000	16,200	2-1/2"	6-1/2"	.306"

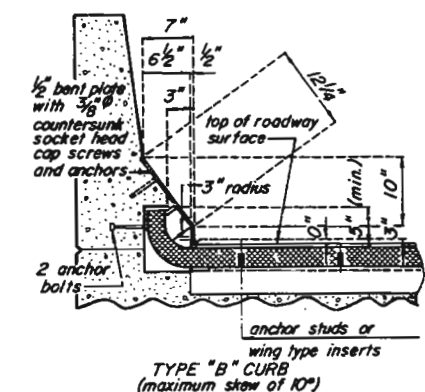
DETAILS OF ELASTOMERIC EXPANSION JOINT SEAL
(Machine bolts need only be used to secure the Wing Type Threaded Inserts to the steel plate until the concrete has attained 3,000 p.s.i.)



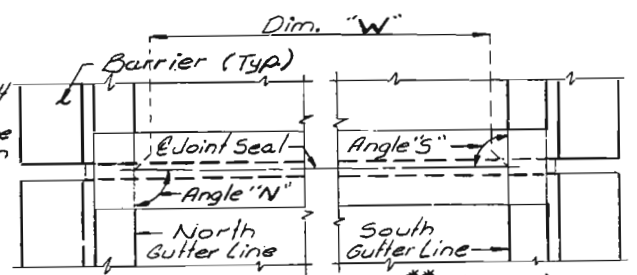
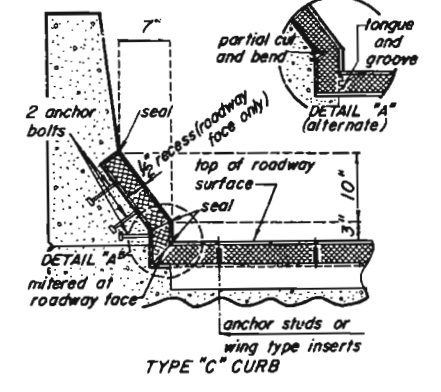
BLOCKOUT FOR MODULAR UNITS
(When modular units are specified as an alternate, steel curb plate treatments are required)



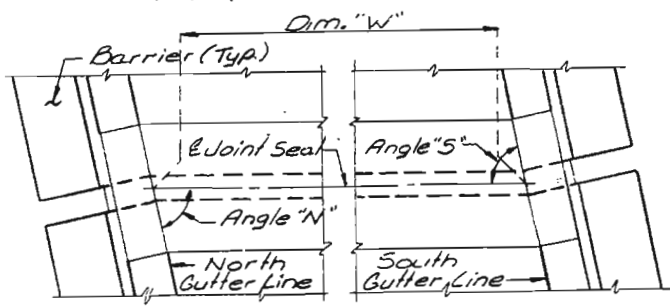
Note: Do not use 6 1/2 inch movement for Type 'A' or 'B' Curb.



ALTERNATE CURB TREATMENTS



PART PLAN NEAR BENTS 28**31 (SOUTH)
1**36, 38, 42, 45, 46, 50 AND 53



PART PLAN NEAR BENT 31 (NORTH)

VARIABLE DIMENSIONS					
Location	Δ	"W"	Angle "N"	Angle "S"	Longit. Gr.
Bent 28**	1/4"	59'-5"	90°00'00"	90°00'00"	
Bent 31(North)	3/16"	25'-4 1/2"	88°02'04"	88°02'04"	0.46%
Bent 31(South)	7/16"	51'-5"	90°00'00"	90°00'00"	0.50%
Bent 1**	3/16"	24'-10"	90°00'00"	90°00'00"	
Bent 36	1/4"	51'-5"	90°00'00"	90°00'00"	0.50%
Bent 38	3/16"	53'-7 1/2"	88°02'51"	90°00'00"	0.50%
Bent 42	3/8"	59'-5"	90°00'00"	90°00'00"	0.19%
Bent 45	1/8"	24'-10"	90°00'00"	90°00'00"	2.04%
Bent 46	5/16"	51'-5"	90°00'00"	90°00'00"	-1.57%
Bent 50	1/8"	51'-5"	90°00'00"	90°00'00"	2.31%
Bent 53	3/16"	51'-5"	90°00'00"	90°00'00"	3.50%

Note: Δ indicates increase or decrease for each 10° fall or rise in temperature that is to be applied to Exp. Gap and Dim. "A" shown in Table of Dimensions. Dim. "W" is measured horizontally

GENERAL NOTES:

THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE NUTS ON THE ANCHOR STUDS SHALL BE TIGHTENED TO THE FOOT POUNDS "G" SPECIFIED IN THE TABLE OF DIMENSIONS. RETIGHTEN TO "G" FOOT POUNDS A MINIMUM OF 30 MINUTES AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDUCED BASE TYPE.

MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL. NO. 4 BARS FOR ANCHORS SHALL BE STRUCTURAL GRADE STEEL. APPROVED STUD WELDED ANCHORS OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 4 BARS SHOWN.

SEE SPECIAL PROVISIONS FOR PAINTING.

ANCHOR BOLTS IN THE BARRIER CURB SHALL BE CAST-IN-PLACE, GROUTED OR CONE-EXPANSION TYPE. HOLES IN THE BARRIER CURB FOR ANCHORS SHALL NOT BE DRILLED UNTIL THE CONCRETE IS AT LEAST 7 DAYS OLD.

PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE.

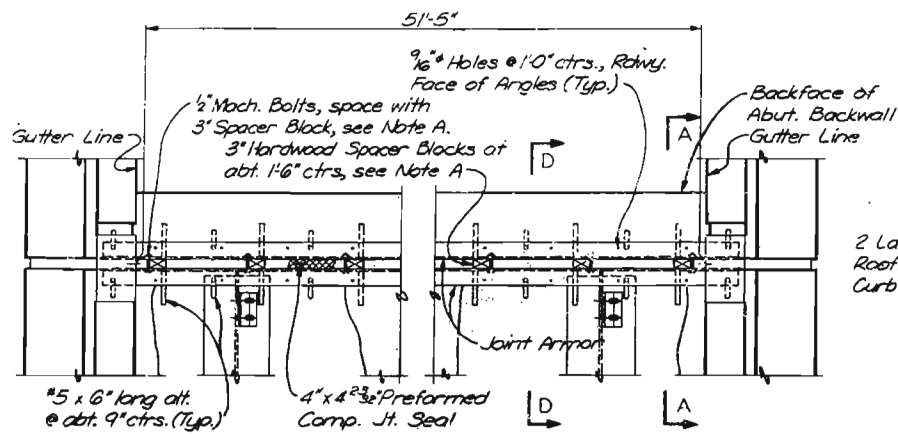
CONTACT SURFACE OF STEEL TO ALUMINUM SHALL BE INSULATED WITH THE MATERIAL SPECIFIED ON THE SHOP DRAWINGS.

FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR LINEAR FOOT.

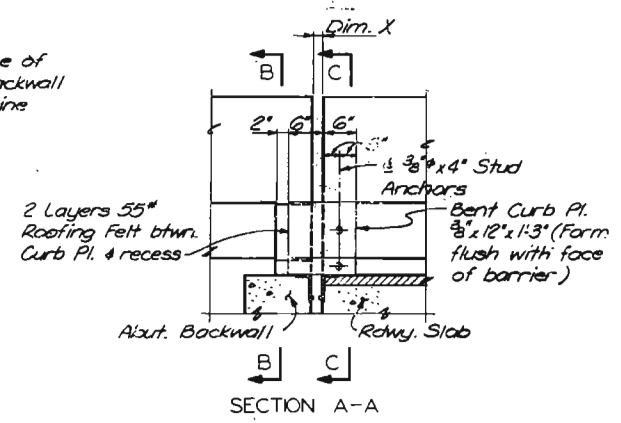
FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR OTHER ITEMS, except as noted below. ** Expansion Joint material and installation for Bent No. 1 (W.D. Ramp) from Grand Ave. shall be paid for under Ramp No. A-3740. Expansion Joint material and installation for expansion device at Bent No. 28 shall be paid for under the concrete Deck Section No. 5.

MISSOURI STATE HIGHWAY DEPARTMENT

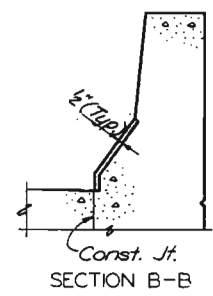
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5	MO.		18	213	



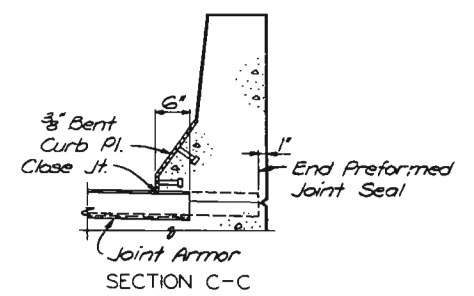
PART PLAN EXPANSION JOINT AT ABUTMENT 57



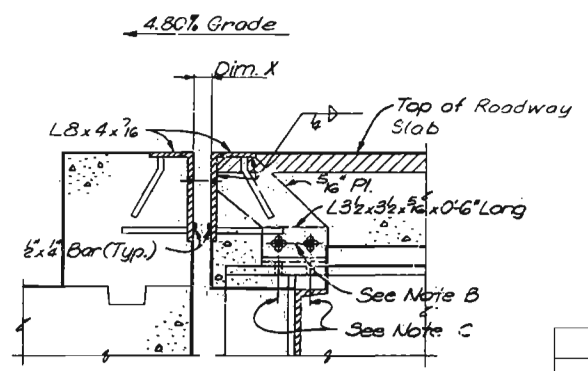
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D
(Typ. at each girder)

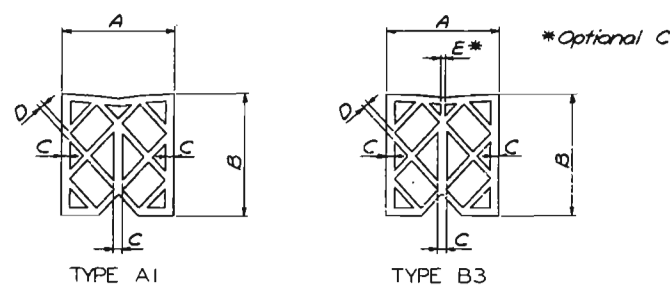


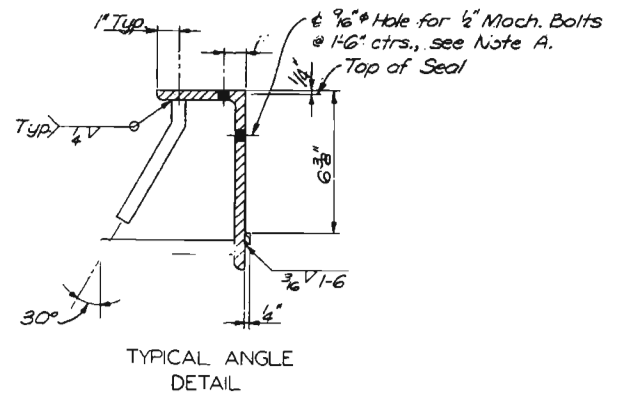
TABLE OF PREFORMED JOINT SEAL TOLERANCES					
Type (Nominal Seal Size)	A Width	B Height	C Shell	D Webs	E (B3 only) Small Webs
A1 or B3 (4" x 4 3/8")	4.000" +.312" -.000"	4.718" +.250" -.250"	A1 B3 0.250" 0.235" +.046" +.046" -.031" -.031"	0.187" +.046" -.015"	0.111" +.046" -.031"

DIMENSION X (INSTALLATION DIMENSIONS)									
Seal Width	-10°F	0°F	+20°F	+40°F	+60°F	+80°F	+100°F	+110°F	+120°F
4"	3 1/2"	3 3/8"	3 1/4"	2 3/4"	2 5/8"	2 3/8"	2 1/4"	2"	1 3/4"

Note A: Cut 1/2 inch machine bolts flush with angle and remove wood blocks after concrete in latter placement has taken initial set.

Note B: F. 3/8 inch by 1 inch vertical slots in 1/2 inch plates for 1/2 inch machine bolts.

Note C: Verify dimensions before field drilling 3/16 inch holes in top flange for L3 1/2 by 3 1/2 having 3/16 inch by 1 inch slotted holes.



TYPICAL ANGLE
DETAIL

NOTES

Splicing of fabricated steel sections comprising the expansion device is permissible. The expansion device shall be bent to conform to the grade and cross slope of the roadway.

No. 5 bars for expansion device shall be structural grade.

Approved stud welded anchors or deformed bar anchors (A.S.T.M. A496) may be used in lieu of #5 bars shown.

Preformed joint seal shall be installed before concrete is placed for barriers at the joint.

3/8 inch curb plate shall be installed with barrier.

Plan dimensions are base on installation at 60°F. Expansion joint width shall be adjusted during installation for compliance with table.

See Special Provisions for requirements of Compression Joint Seal.

Spliced joints in seals may be mitered and shall be factory made by a vulcanizing process which integrally joins the ends of seal sections being spliced.

Payment for furnishing and installing the expansion joint seal shall be made under unit price bid per lineal foot of Preformed Compression Joint Seal.

Payment for furnishing and installing all structural steel for the expansion joint shall be paid for in the prices bid for other items of work.

CITY OF ST. LOUIS

COMPRESSION JOINT SEALS

SHEET 20 OF 48

A-35

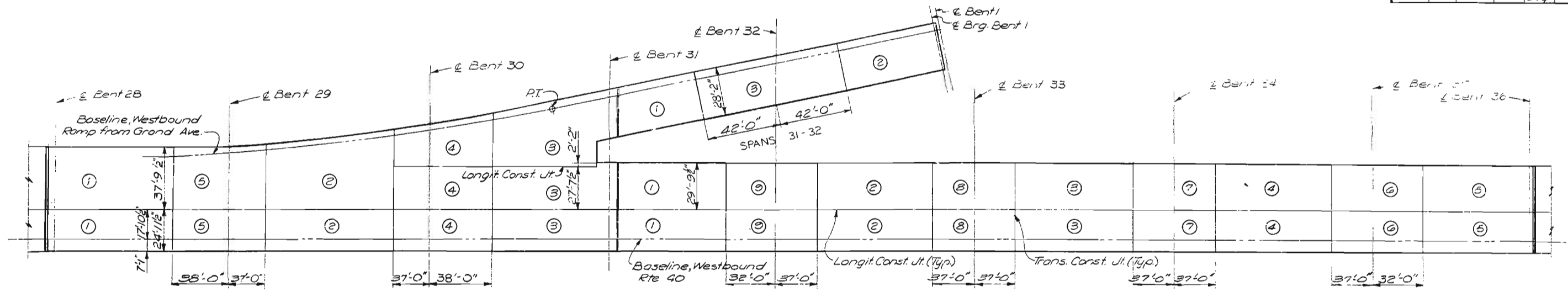
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

503
DRAWN BY: T. Sanders, Feb. 1978
CHECKED BY: R.F. Beck, Apr. 1978
5261
28522

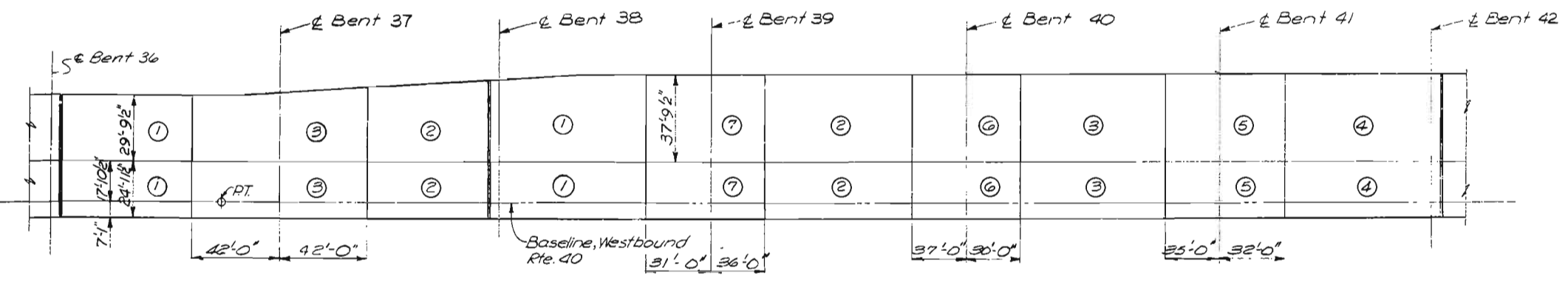
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	214	



SPANS 28 - 30

SPANS 31 - 35



SPANS 36 - 37

SPANS 38 - 41

	Sequence of Pours							Min. Rate of Pour cu. yds. / Hour	
	Direction							With Retarder	Without Retarder
Basic Sequence	1	2	3	4	5	6	7	25	25
	Either Direction								
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec. 703.3.12.4 of Mo. Std. Specs.									
Alternate "A" Pours	1	7+2	G+3	5+4	25				
	End to 7	1 to G	2 to 5	3 to End					
Alternate "B" Pours	1+7+2	G+3	5+4						
	End to G	2 to 5	3 to End						
Alternate "C" Pours	1+7+2	G+3+5+4							
	End to G	2 to End							
Alternate "D" Pours	1+7+2+G+3+5+4								
	End to End								

SPAN 38 - 41
42 - 45
46 - 49
50 - 53

	Sequence of Pours			Min. Btg. of Pour Cu. Yds. / Hour	
	Direction			With Retarder	Without Retarder
Basic Sequence	1	2	3	25	25
Alternate Sequence	Either Direction			25	25
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with sec 703.3.12.4. of Mo. Std. Specs.					
Alternate "A" Pours	1	3+2		25	Span
	End to 3	1 to End			
Alternate "B" Pours	1+3+2			25	Span
	End to End				

	Sequence of Pours					Min. Rate of Pour Cu. Yds / Hour				
	Direction					With Retarder	Without Retarder			
Basic Sequence	1	2	3	4	5	25	25			
	Either Direction									
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec. 703.3.12.4 of Mo. Std. Specs.										
Alternate "A" Pours	1	5+2		4+3		Span (28-30)	29	Span (28-30)	28	
	End to 5	1 to 4		2 to End						
Alternate "B" Pours	1+5+2			4+3			Span (30-32)	25	Span (30-32)	25
	End to 4			2 to End						
Alternate "C" Pours	1+5+2+4+3					Span (30-32)	25	Span (30-32)	25	
	End to End									

	Sequence of Pours								Min. Btg. of Pour cu. Yds. / Hour	
	Direction								With Retarder	Without Retarder
	1	2	3	4	5	6	7	8			9
Basic Sequence	Either Direction								25	25
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with sec. 703.3.12.4 of Mo. Std. Specs.										
Alternate "A" Pours	1	9+2	8+3	7+4	6+5					
	E. Dir.		1 to 8	2 to 7	3 to 6						4 to End
Alternate "B" Pours	1 to 9+2		8+3		7+4+6+5					
	End to 8		2 to 7		3 to End					
Alternate "C" Pours	1+9+2+8+3			7+4+6+5						
	End to 7			3 to End						
Alternate "D" Pours	1+9+2+8+3+7+4+6+5								25	37
	End to End									

SPAN 31-32 (RAMP)
36-37

SPAN 28-30
50-52

SPAN 31-35

CITY OF ST. LOUIS

SLAB PLACING SEQUENCE

SHEET 2 OF 4

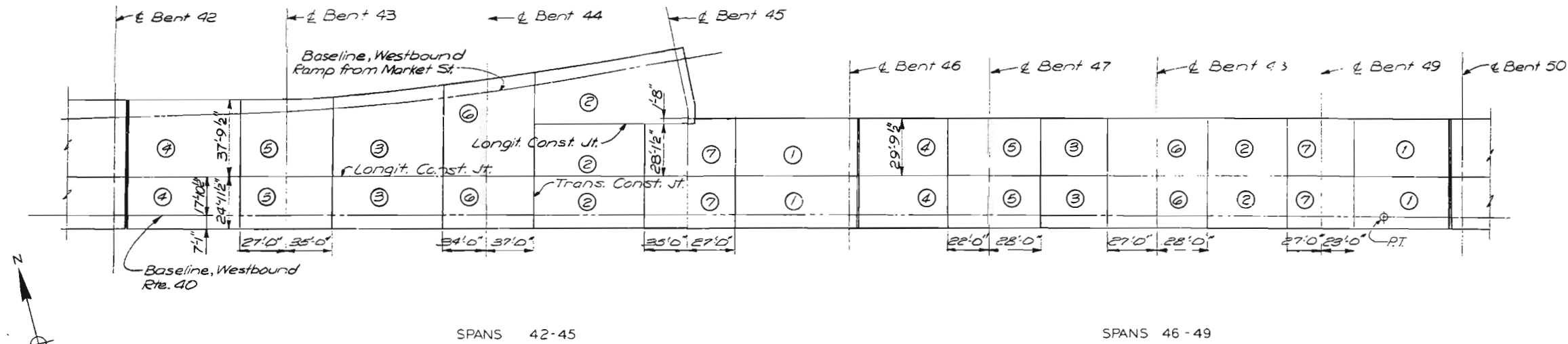
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: T. Leebolt, Oct. 1977
CHECKED BY: T. Sandberg, Feb. 1978
3261
775346

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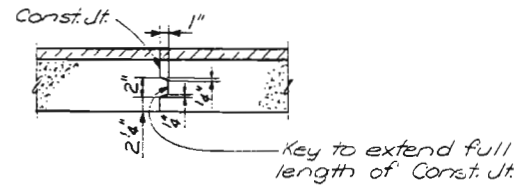
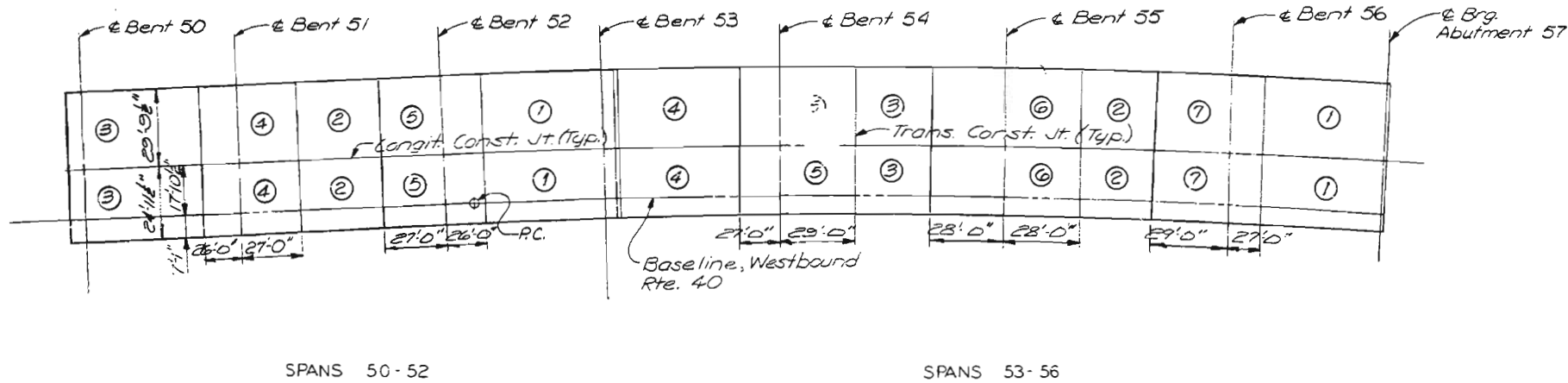
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	215	



SLAB PLACING NOTES

Transverse construction joints are radial or normal to Baseline, Westbound Route 40. Longitudinal dimensions are measured along Baseline, Westbound Route 40. The circled numbers indicate the placing sequence for each continuous unit between expansion joints. The sequence assumes an east to west direction of placing across each continuous unit. Suspended span of all units shall be placed before cantilever of adjacent unit. The placing sequence shown indicates that placement ① on each side of the longitudinal construction joint must be placed before placement ② etc.; however the Contractor may place all the concrete placements on one side of the longitudinal construction joint before the adjacent side is placed. The Contractor shall adhere to the number of placements indicated for each continuous unit unless he demonstrates to the Engineer that he can, under and satisfactorily finish a longer alternate placement. If the contractor elects to use a retarder he shall furnish an approved retarder to retard the set of the concrete to 2.5 hours and shall pour and satisfactorily finish the slab pours at the rate given by plans.

Finishing machine loads will not be permitted on concrete less than 48 hours old.



SECTION THRU TRAPEZ. AND LONGIT. CONST. JOINTS

CITY OF ST. LOUIS

SLAB PLACING SEQUENCE

SHEET 215 OF 215

A-310-1

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

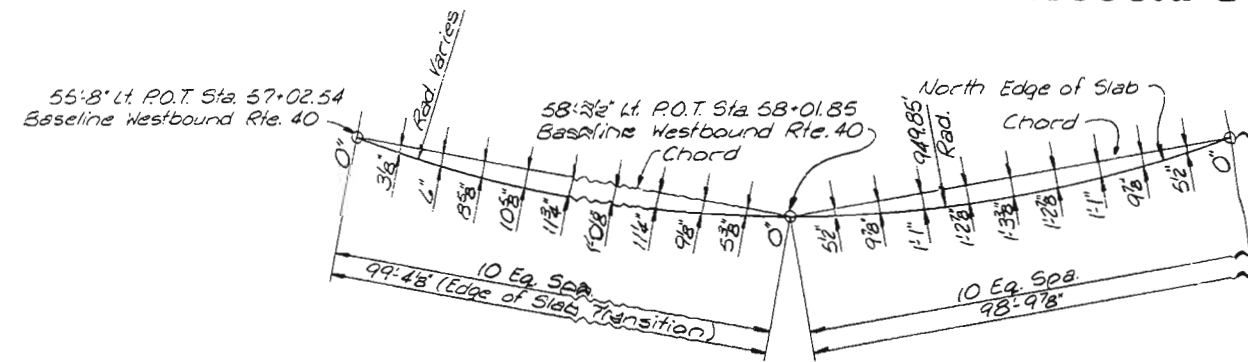
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ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: T. J. Lebolt, Oct. 77
CHECKED BY: T. J. Sanders, Feb. 1978
5261
775347

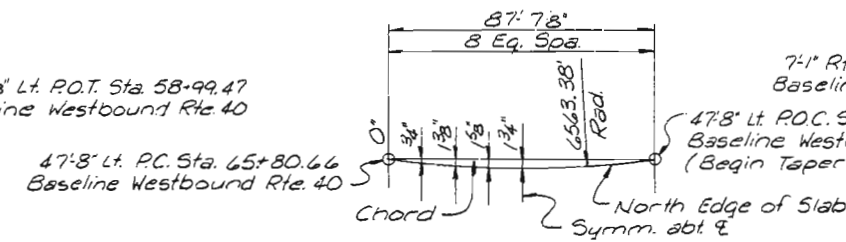
505

MISSOURI STATE HIGHWAY DEPARTMENT

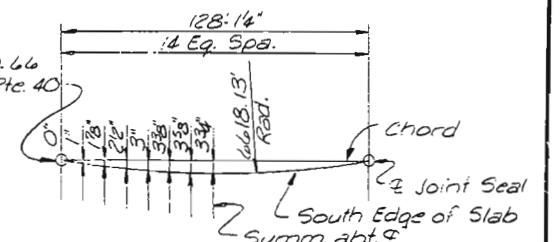
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5	MO.		19	216	



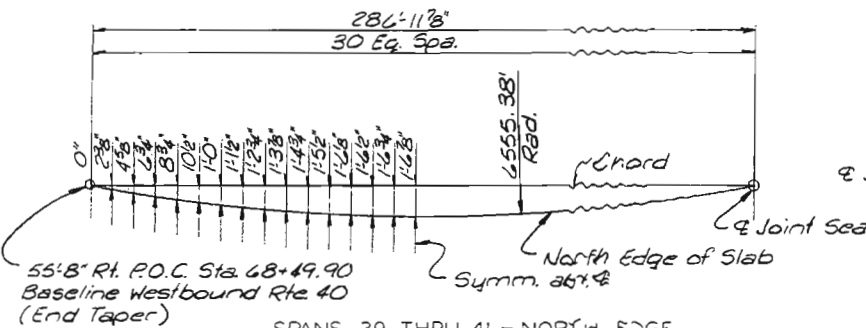
SPANS 29 THRU 31 - NORTH EDGE



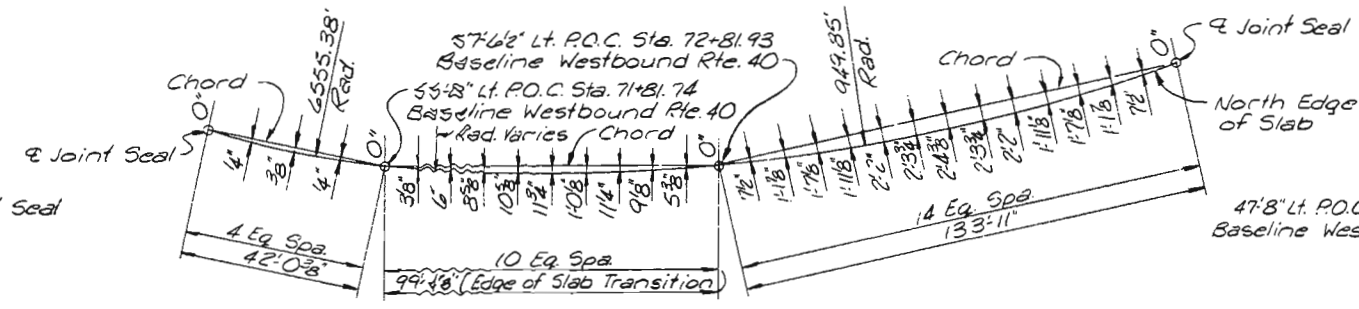
SPANS 36 AND 37 - NORTH EDGE



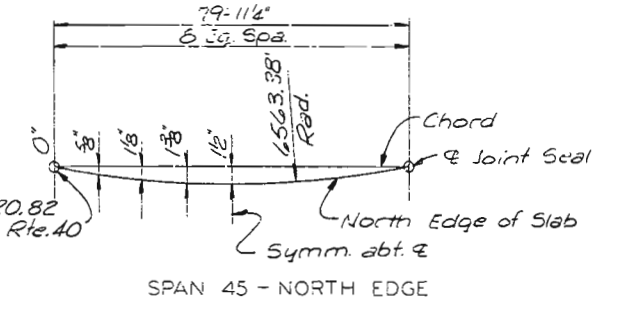
SPANS 36 AND 37 - SOUTH EDGE



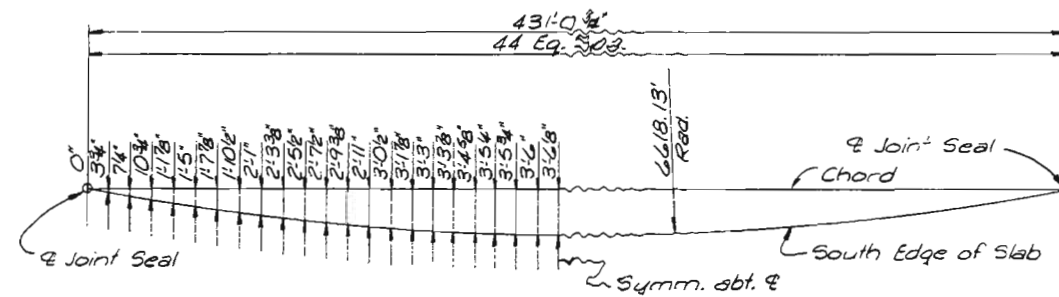
SPANS 39 THRU 41 - NORTH EDGE



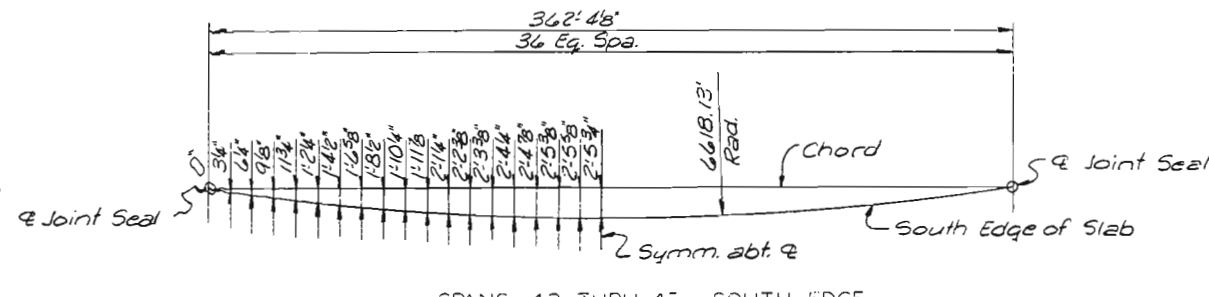
SPANS 42 THRU 44 - NORTH EDGE



SPAN 45 - NORTH EDGE



SPANS 38 THRU 41 - SOUTH EDGE



SPANS 42 THRU 45 - SOUTH EDGE

CITY OF ST. LOUIS

EDGE OF SLAB ORDINATES

SHEET 23 OF 25

A-35

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ST. LOUIS, MISSOURI

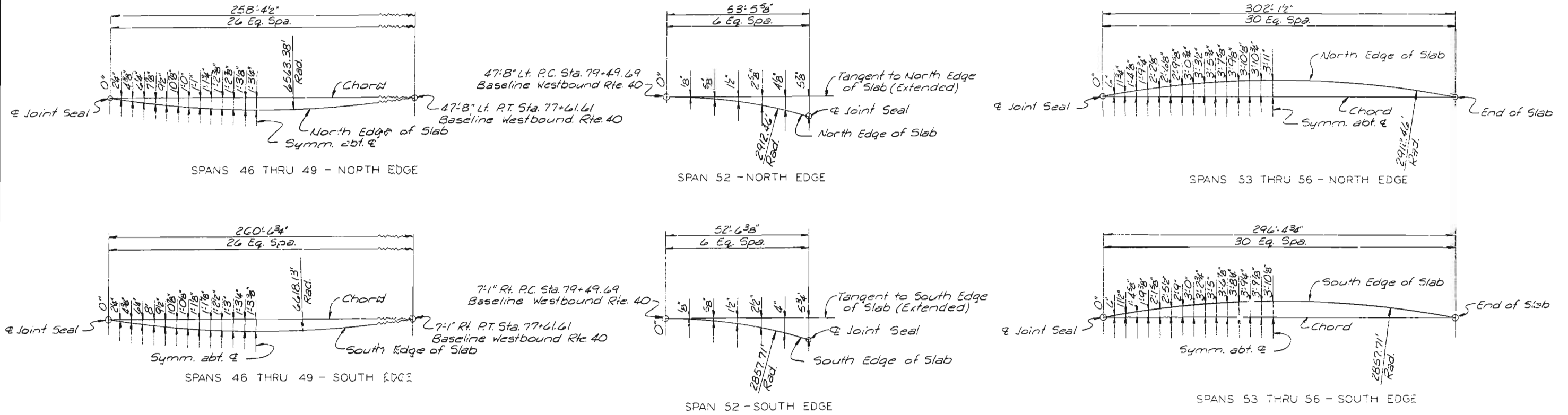
DRAWN BY: O.J. Schriener, Dec. 1978
CHECKED BY: R.F. Beck, Mar. 1979
5261
78542

506

507

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	217	



DRAWN BY: D. J. Schreiner, Mar. 1978
CHECKED BY: R. F. Beck, Mar. 1978
5261
78543

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CITY OF ST. LOUIS

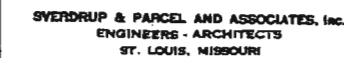
EDGE OF SLAB ORIGIN: T.L.

SHEET 24 OF 48

A-334

66

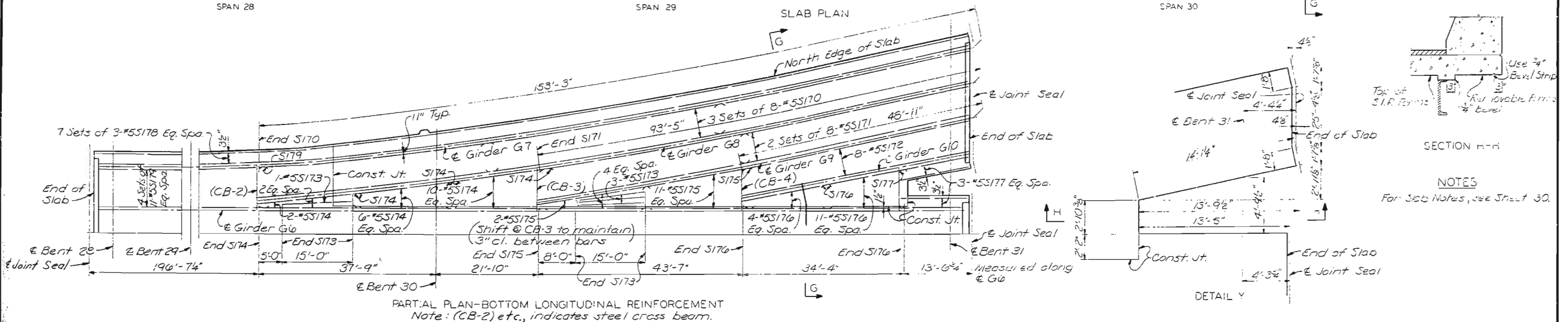
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775395	TRACED BY:
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CITY OF ST. LOUIS

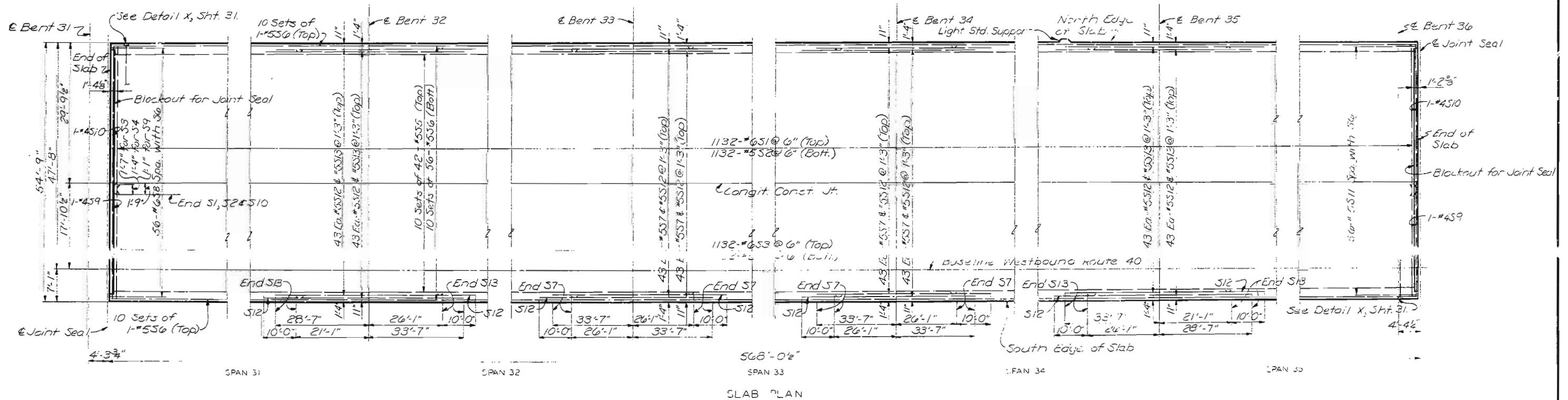
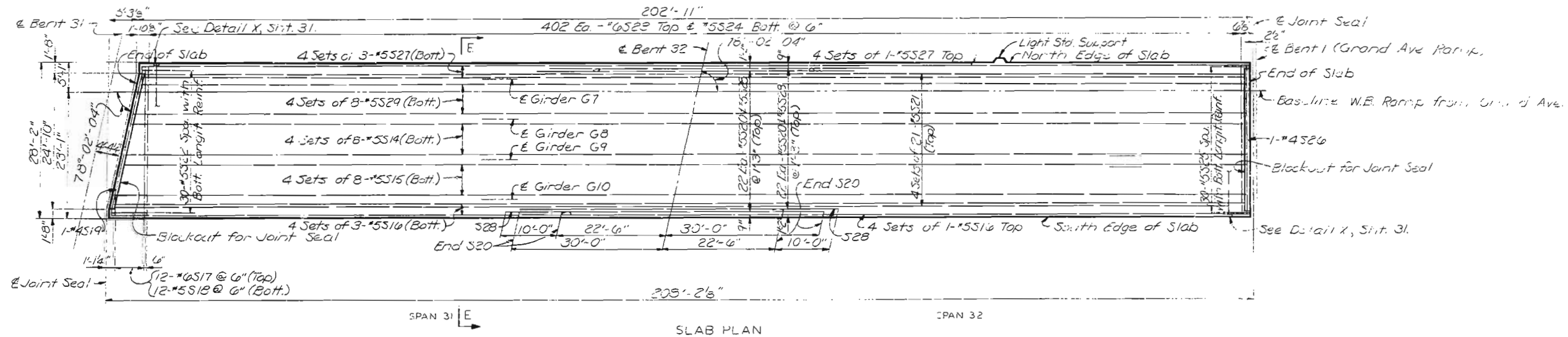
SHEET 25 OF 36

A-35C



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	219	



NOTES
For Slab Notes, see Sheet 30.

CITY OF ST. LOUIS

SLAB-SPAN 31 THRU 35

SHEET 26 OF 42

A-21

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

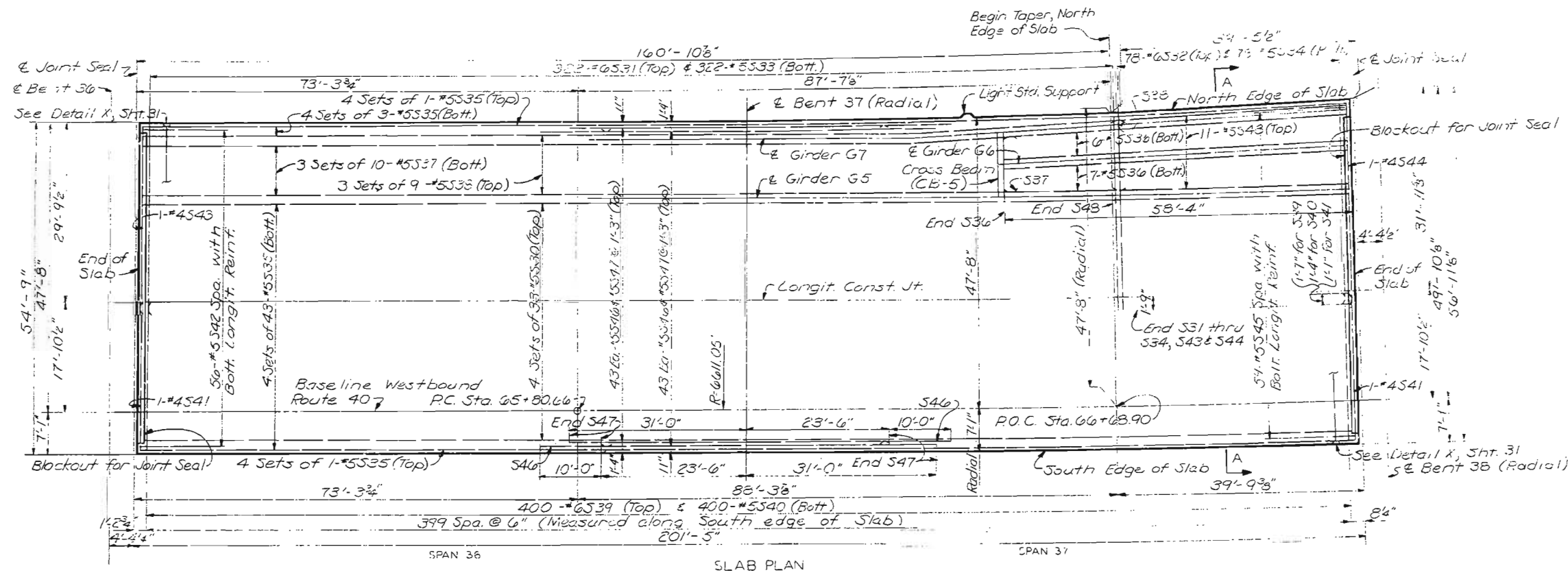
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: L. Mitchell, Oct. 1977
CHECKED BY: R.F. Beck, Mar. 1988
5261
775364

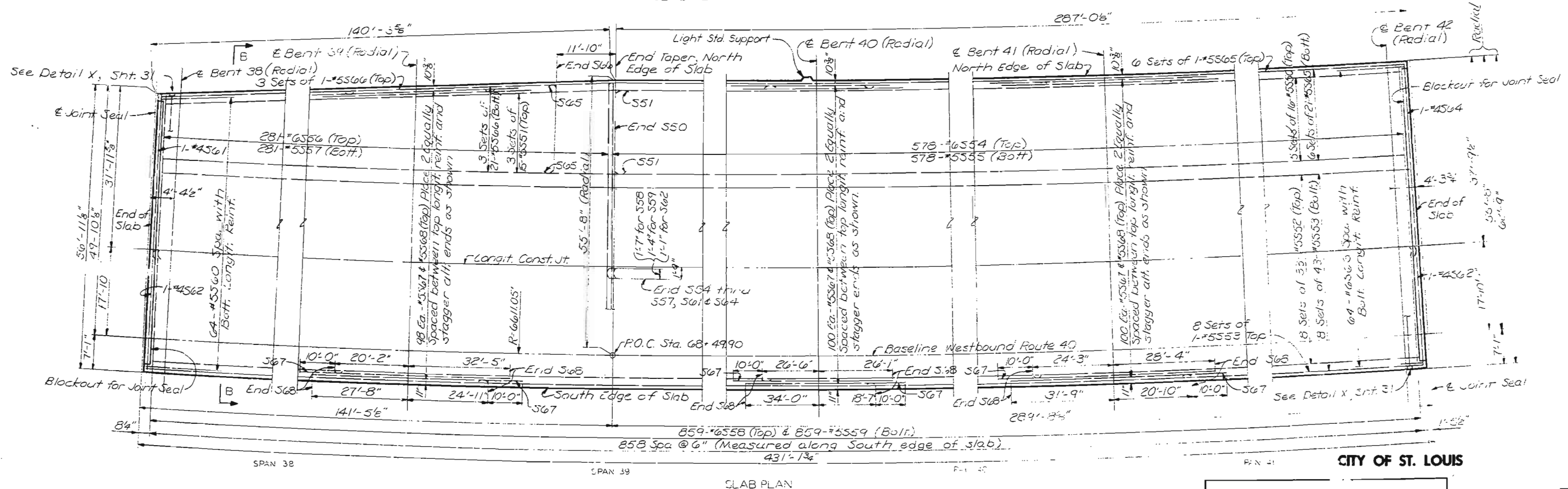
509

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	220	



NOTES
For Slab Notes, see Sheet 30



CITY OF ST. LOUIS

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

510

DRAWN BY: L. Mitchell, November 77
CHECKED BY: R. Beck, March 1978
5261
175368

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

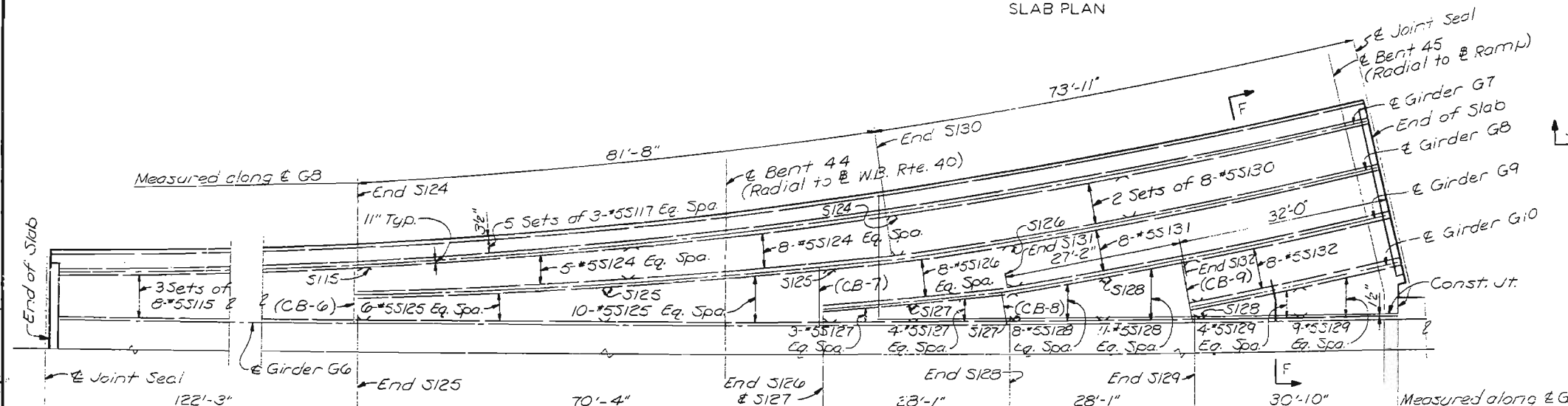
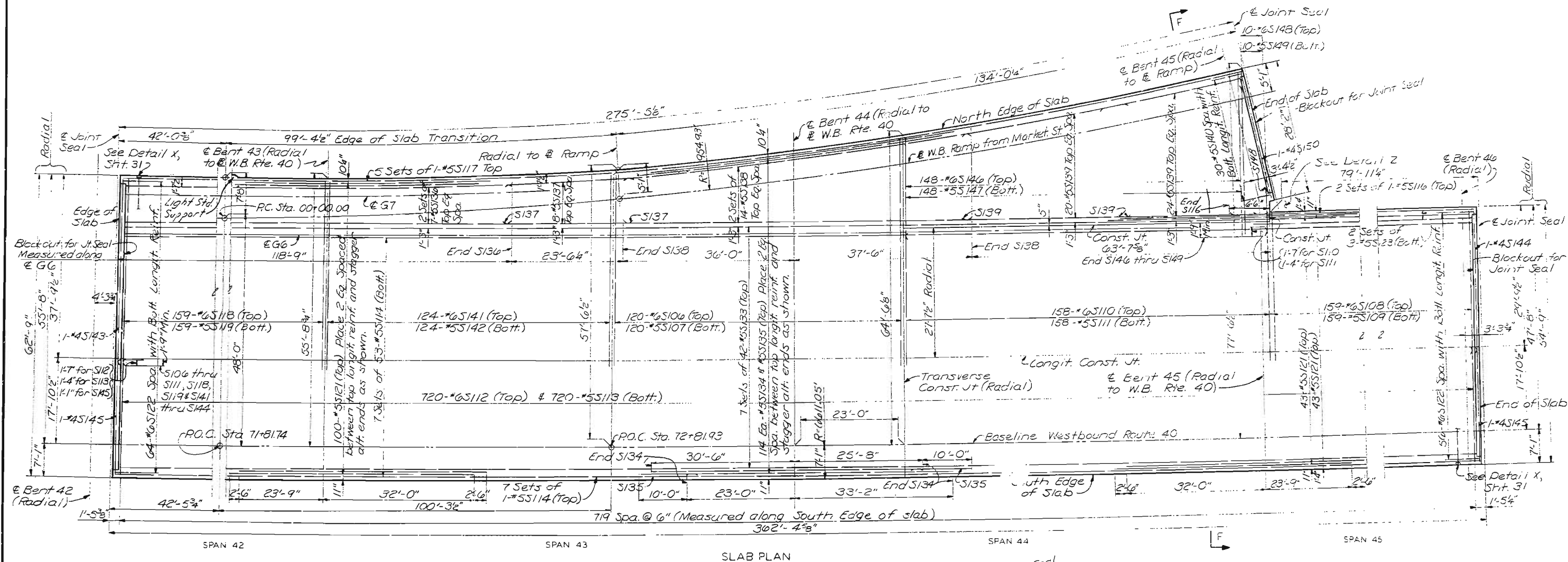
SLAB PLAN

SHEET 27 OF 48

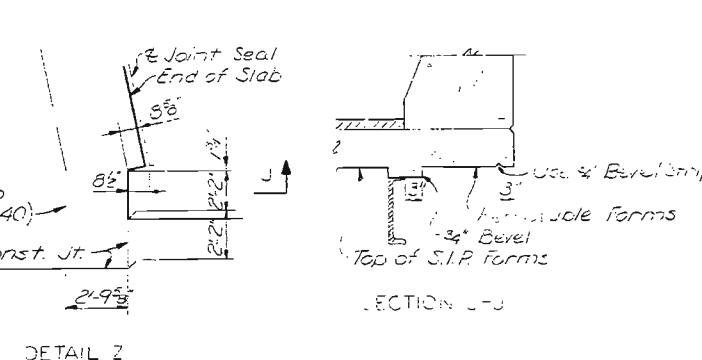
A-3591

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	221	



PARTIAL PLAN-BOTTOM LONGITUDINAL REINFORCEMENT
Note: (CB-6) etc., indicates steel cross beam.



DETAIL Z

SECTION C-C

NOTES
For Slab Notes, see Sheet 30.

CITY OF ST. LOUIS

SLAB - SPANS 42 TO 45

SHEET 22 OF 48

A-3584

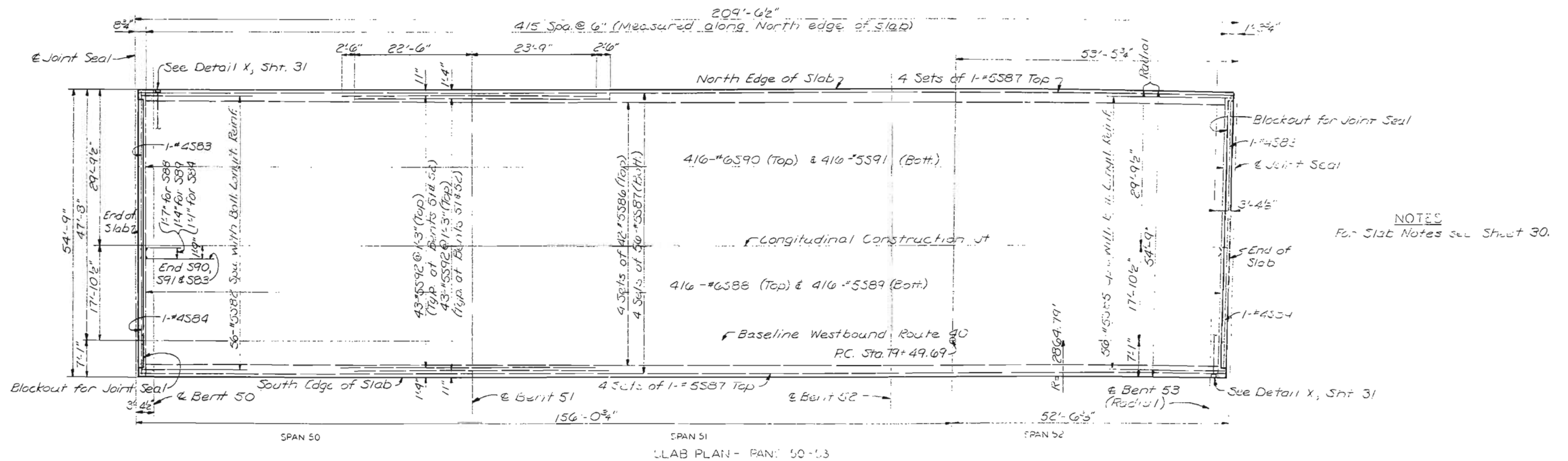
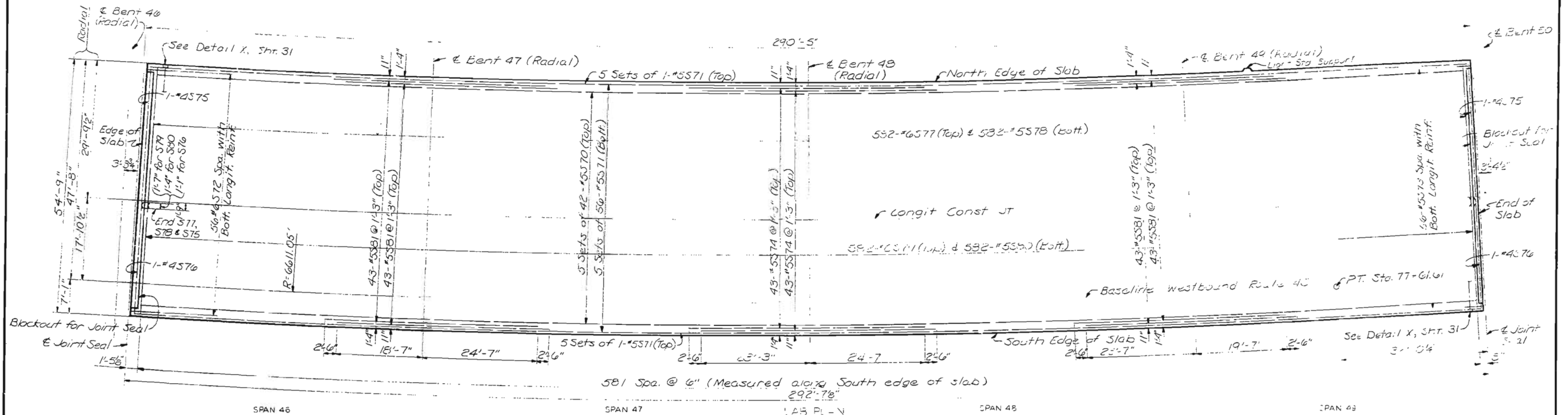
SVENDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: L. Mitchell, Feb 1978
CHECKED BY: R. Beck, Mar 1978
5261
175394

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	222	



NOTES
For Slab Notes see Sheet 30.

CITY OF ST. LOUIS

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SLAB PLAN - RTH 40

SHEET 29 OF 48

A-554

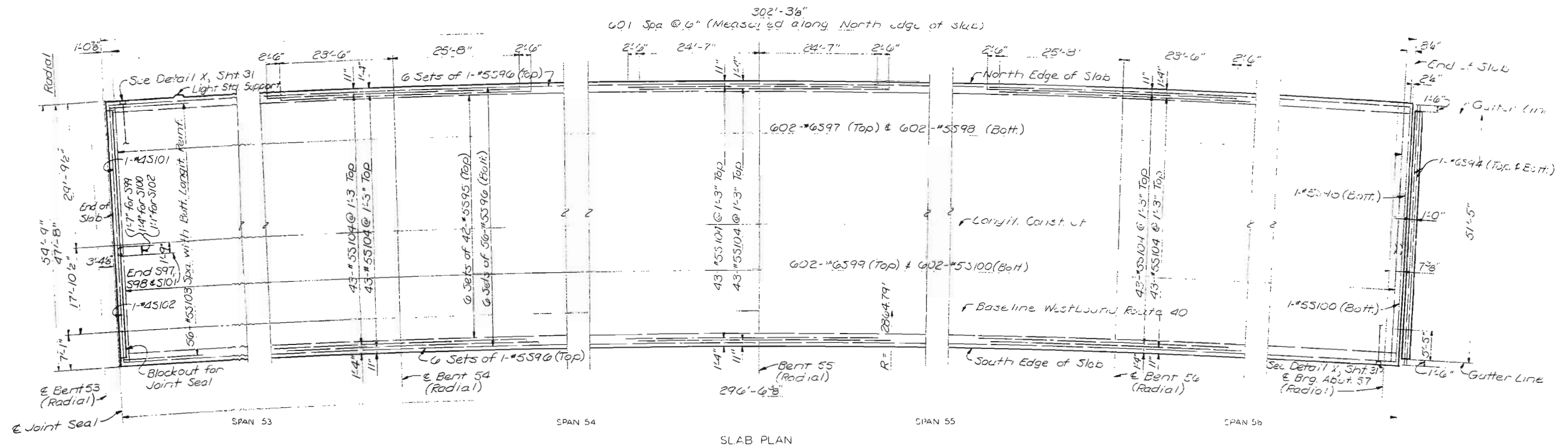
SYVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: L. MITCHELL, Nov. 1977
CHECKED BY: R. F. Beck, Nov. 1978
5261
775384

512

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2	MO.		18	223	



SLAB NOTES

All longitudinal dimensions shown are measured horizontally along edge of slab unless otherwise noted or shown.

Transverse reinforcement shall be placed radial and/or perpendicular to baseline Westbound Route 40 except as otherwise shown.

In all spans, except Spans 31 and 32 of the Grand Ave. Ramp, the top layer of longitudinal and transverse reinforcement and hooked bars at end of slab shall be epoxy coated except for the first longitudinal bar adjacent to the edge of slab.

Longitudinal reinforcement shall be lapped a minimum of 1'-4" except additional longitudinal reinforcement over bents shall be lapped 2'-2" when spliced.

Reinforcement may be cut or shifted slightly to clear roadway drains.

For location of roadway drains and additional reinforcement around drains see Sheets 41 thru 45.

For location of conduits and supports for lighting standards see Sheets 33 thru 39.

For location of transverse construction joints and concrete placing sequence see Sheet 21 & 22.

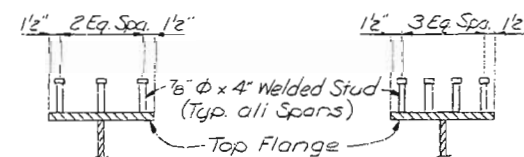
For sections thru slab see Sheets 31 & 32.

For edge of slab ordinates see Sheets 23 & 24.

For roadway cross slopes see Sheets 9 & 10.

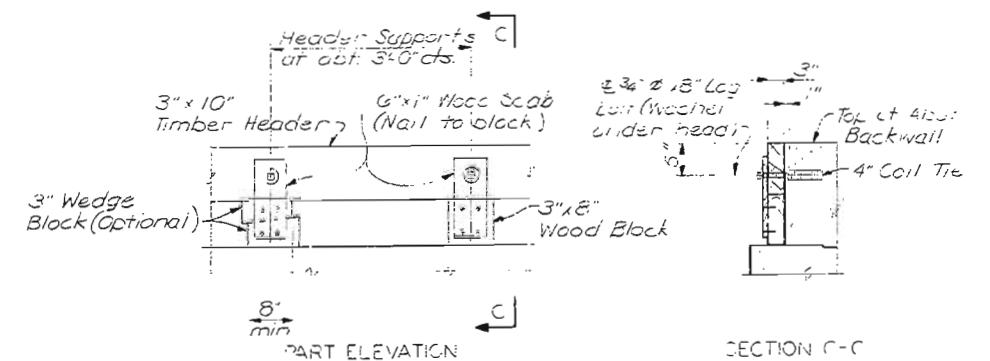
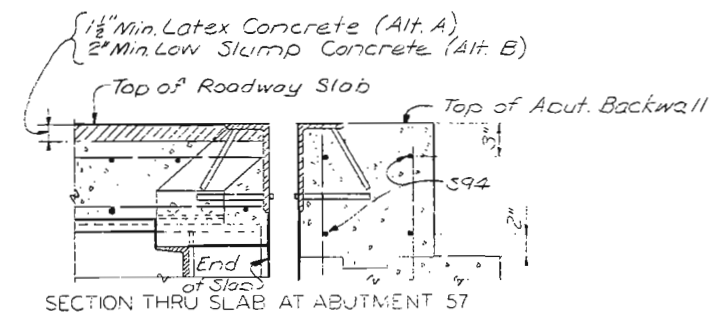
For profile grade elevations on vertical curves see Sheet 8.

For top of slab elevations in Spans 28 thru 30 and Spans 42 thru 44, see Sheet 11.
For barrier reinforcement see Sheets 33 thru 39.
For Stay-in-Place metal form details, see Sheet 31.
For haunch heights see Sheets 12 thru 18.



SHEAR CONNECTOR

Note: Shear connectors are estimated to weigh 25,990 lbs. Furnishing and installation will be paid for as Fabricated Structural Carbon Steel (AISC).



TIMBER HEADER DETAIL
Note: Cost of timber header complete in place to be included in price bid for concrete

CITY OF ST. LOUIS

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ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SHEET 30 OF 42

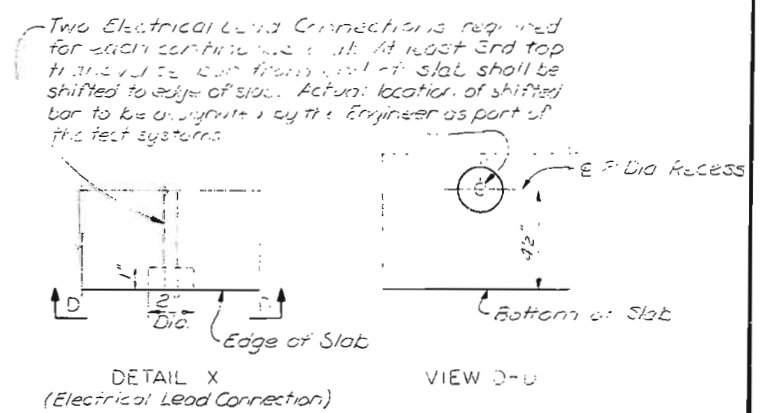
A-100

513

DRAWN BY: L. Mitchell, Nov. 1977
CHECKED BY: R.E. Beck, Mar. 1978
5261
775391

5/4

5261	DRAWN BY: L. MITCHELL, Nov. 1977
775373	TRACED BY:
	CHECKED BY: R.F. Beck, Mar. 1978



Top of Roadway Slab - Longit. Const. of

Transverse Angle

Removable Form

S.P. Form

Support Angle

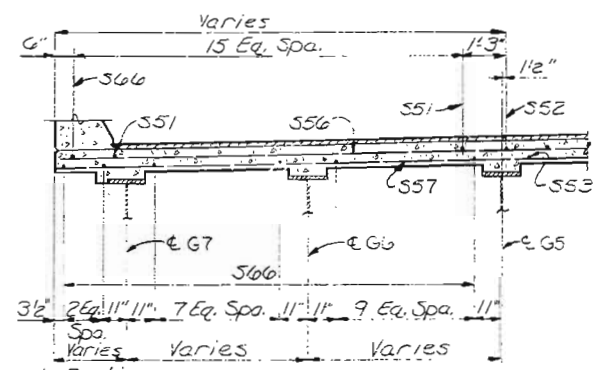
Hold-Down Clip

EXTERIOR GIRDER

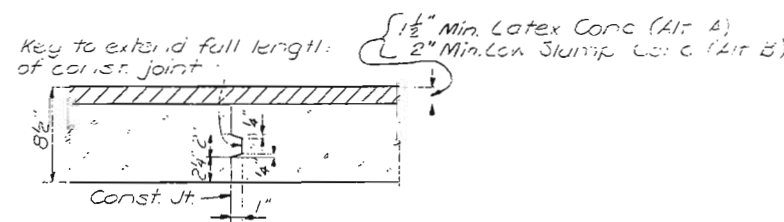
INTERIOR GIRDER

[illegible]

Note: Details not shown in part Sections A-A and B-B are same as shown for Section thru 54'-9" wide slab.



PART SECTION B-B



SECTION THRU
CONSTRUCTION JOINT

NOTE:
For Sign Notes see Sign + 30.

SLAB-SECTION AND DETAIL

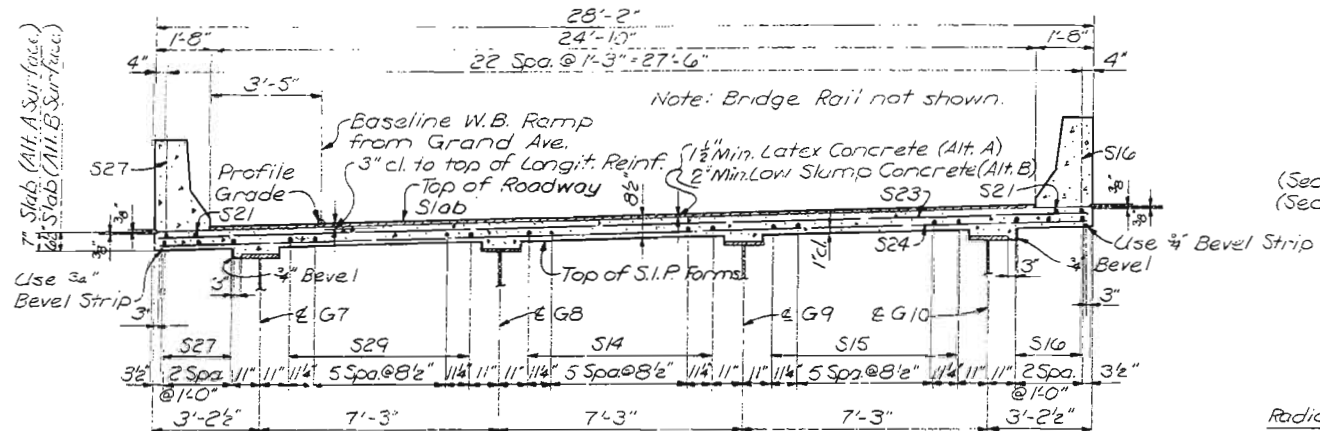
SHEET 51 OF 52

A-254

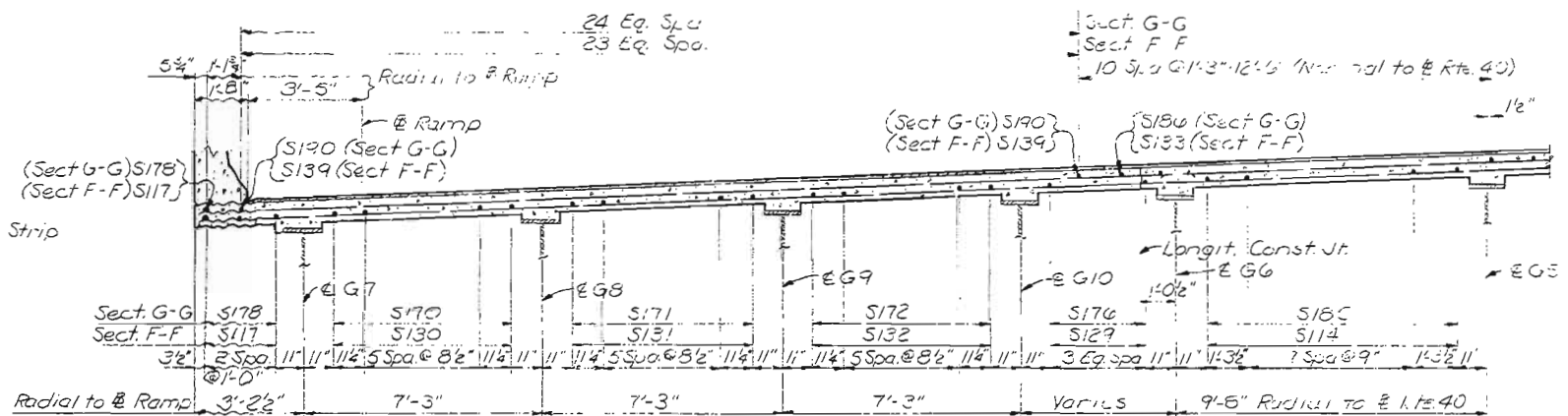
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

MISSOURI STATE HIGHWAY DEPARTMENT

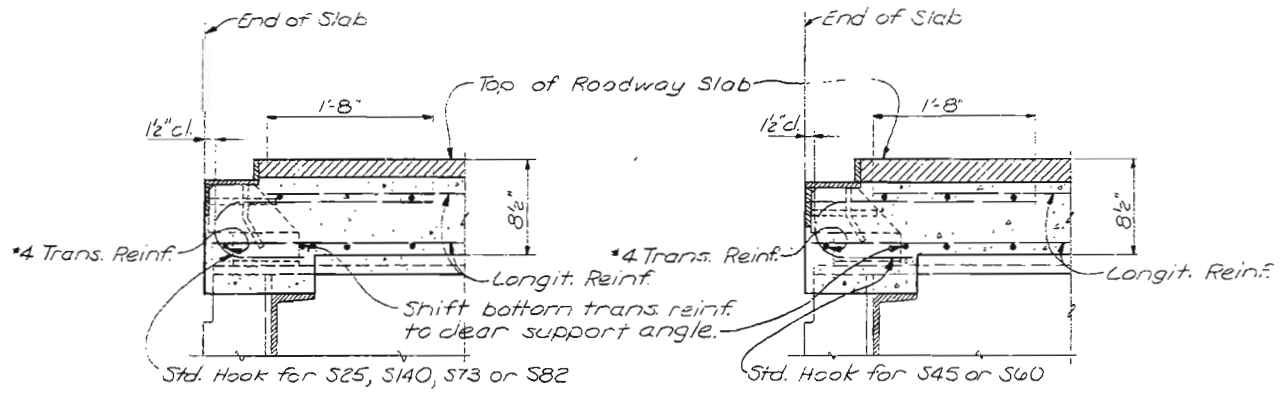
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	225	



SECTION E-E

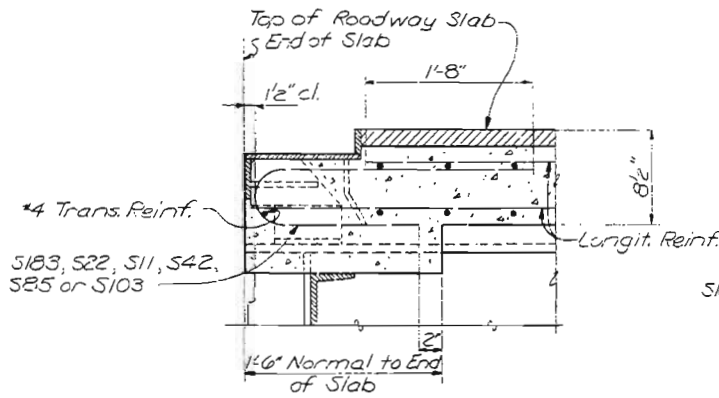


PART SECTION F-F & G-G
Note: Details not shown are same as shown for Section thru 54'-4" wide slab except for bar marks

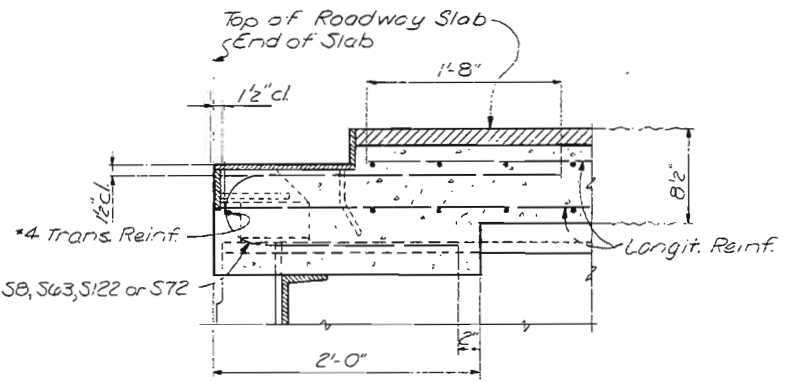


SECTION THRU END OF SLAB AT HINGE NEAR BENT 50 (RTE. 40)
BENT 1 (GRAND AVE. RAMP)
BENT 45 (MARKET ST. RAMP)

SECTION THRU END OF SLAB AT HINGE NEAR BENT 38 (RTE. 40)



SECTION THRU END OF SLAB AT HINGE NEAR BENTS 28, 36 & 53 (RTE. 40)
BENT 31 (GRAND AVE. RAMP)



SECTION THRU END OF SLAB AT HINGE NEAR BENTS 31, 42 & 46 (RTE. 40)

CITY OF ST. LOUIS

SLAB-SECTION AND DETAILS

SHEET 31 OF 48

A-350-4

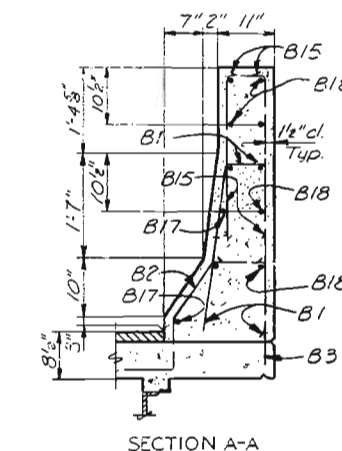
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

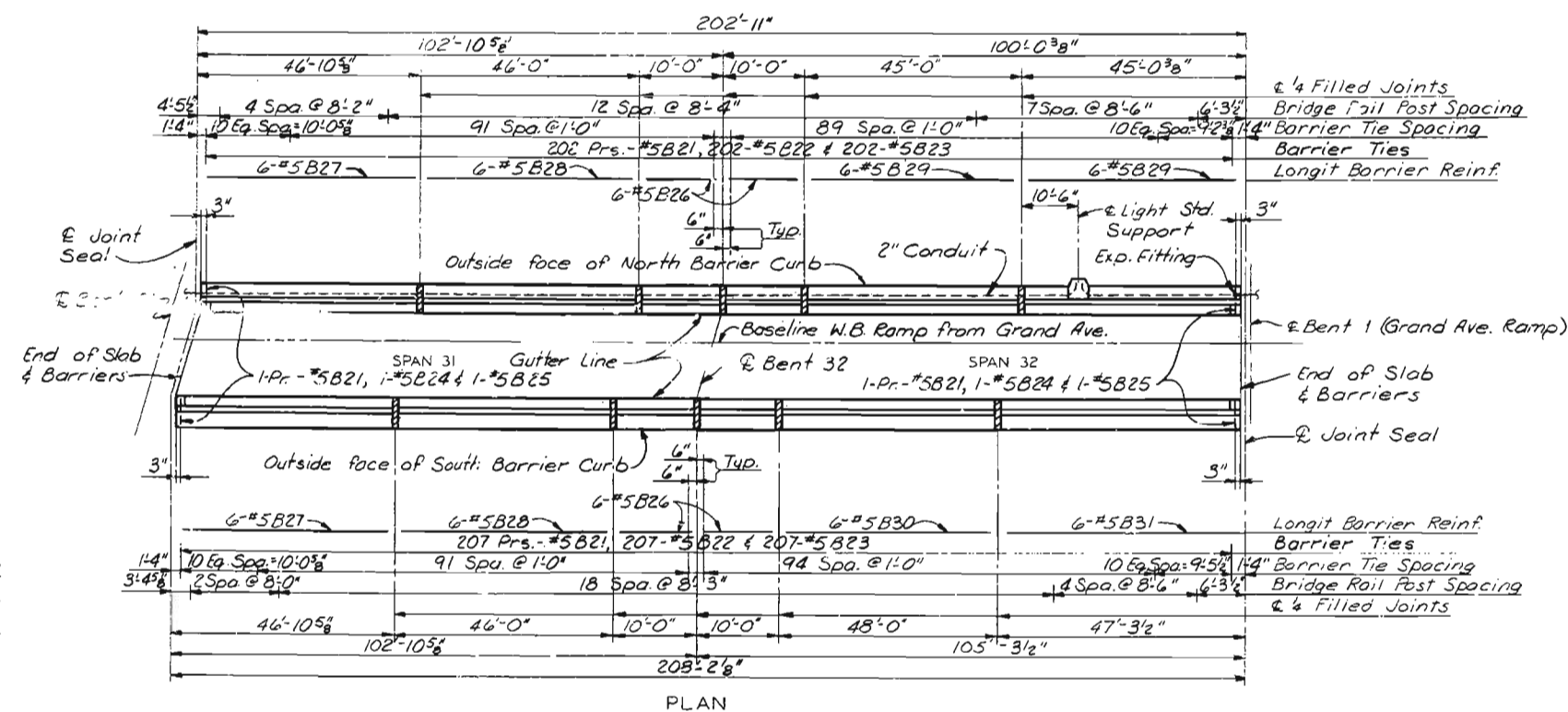
DRAWN BY: L. Mitchell Feb. 1978
CHECKED BY: R.F. Beck, Mar. 1978
5261
775398

515

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
5	MC.		19	226	



NOTES
For barrier curb and conduit system
notes and details see Sheet 39.



CITY OF ST. LOUIS

22 APR 87 1800 RU 30 AND
 27 APR 87 0300Z MARKET 30 APR

SHEET 33 OF 42

A-350 :

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS

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

5261	DRAWN BY: M. Junge, Jan. 1978
7857	TRACED BY:
	CHECKED BY: R.F. Back, Mar. 1978

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	227	



NOTES

For barrier curb and conduit system, notes and details, see Sheet 39.



NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

BARKER - PH. 57-RC 37

SHEET 5 OF 5

A-300-1

5261	DRAWN BY: M. Junge, Jan. 1978
7858	TRACED BY:
	CHECKED BY: R.F. Beck, Mar. 1978

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		19	228	



For barrier curb and conduit system notes and details, see Sheet 39.

A-35A

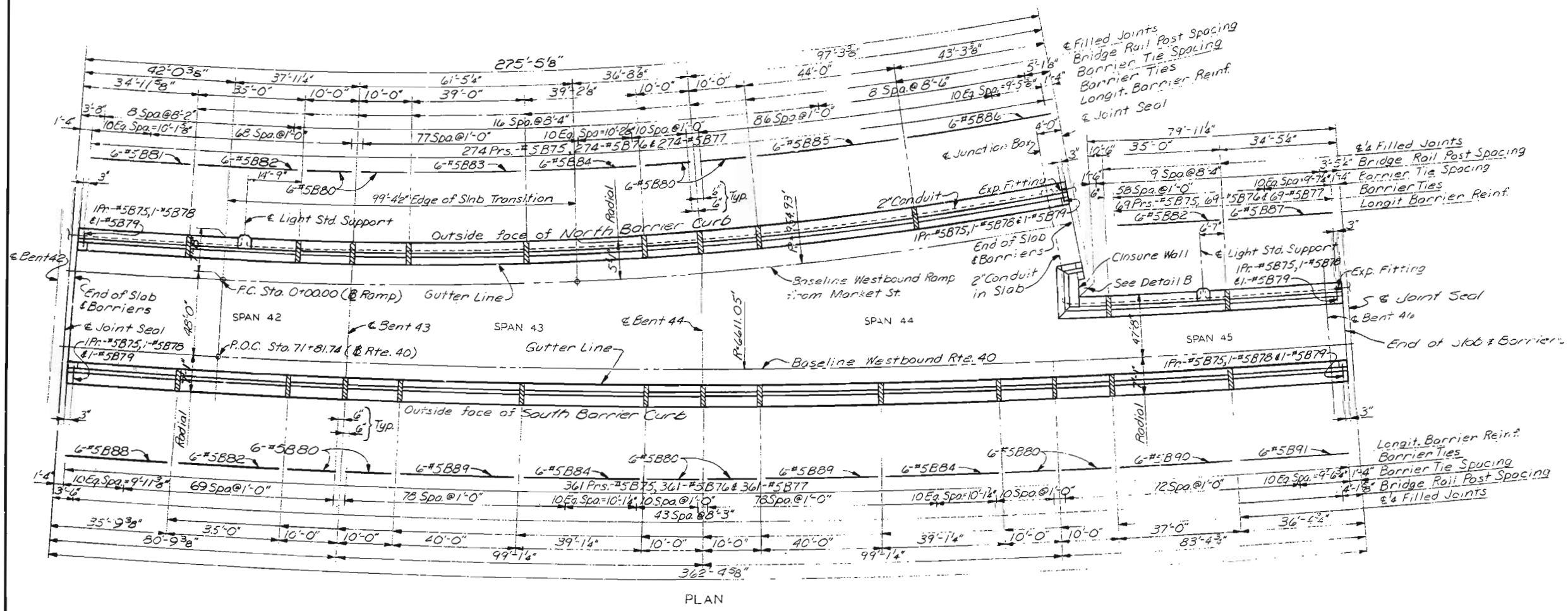
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

5261	DRAWN BY: <i>M. Junge</i>	<i>Jan. 1978</i>
7859	TRACED BY:	
	CHECKED BY: <i>R.F. Beck</i>	<i>Mar 1978</i>

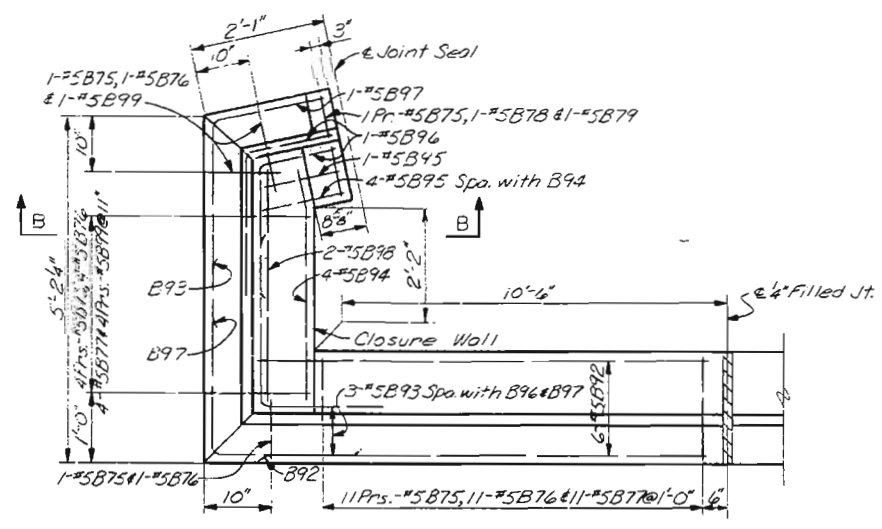
SYVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

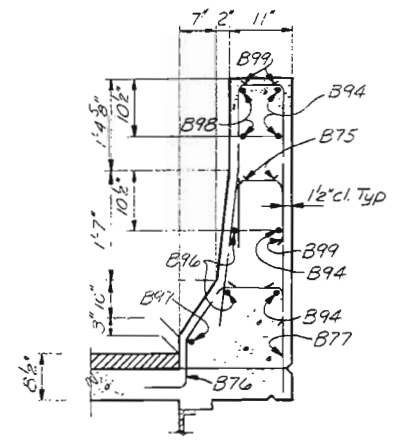
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	229	



PLAN



DETAIL B



SECTION B-B

NOTES
For barrier curb and conduit system, notes and details, see Sheet 39.

CITY OF ST. LOUIS

BARRIER - PLAN 1 - Rte. 40

SHEET 38 OF 42

A-355-1

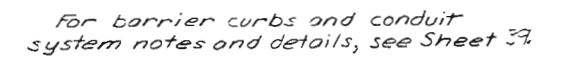
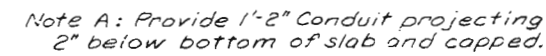
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

DRAWN BY: M. Jung, Jan. 1978
CHECKED BY: R.F. Beck, Mar. 1978
5261
78514

519

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	230	



A-353

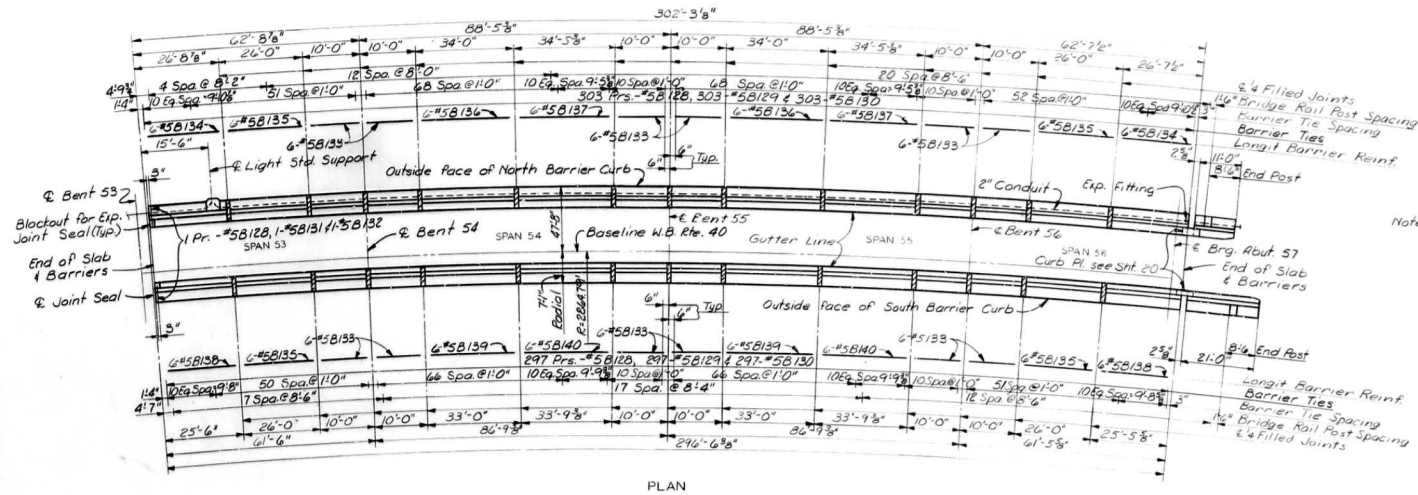
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

5261	DRAWN BY: M. Jungs, Jan. 1978
78515	TRACED BY:
	CHECKED BY: R.F. Beck, Mar. 1978

SYVERDRUP & PARCEL AND ASSOCIATES, Inc.
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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	23	7



PLAN

Note: For Reinf. in End Post see Sheet 29.

NOTES

For barrier curb and conduit system notes and details, see Sheet 29.

CITY OF ST. LOUIS

BARRIER CURB AND CONDUIT SYSTEM

SHEET 28 OF 40

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

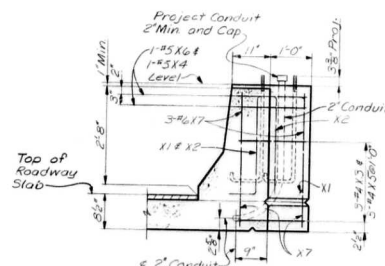
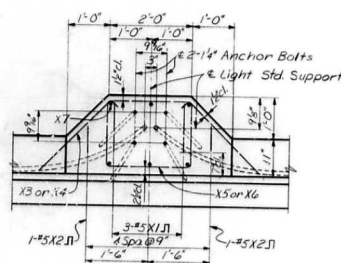
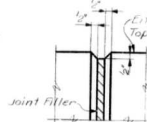
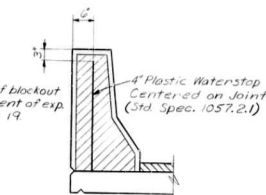
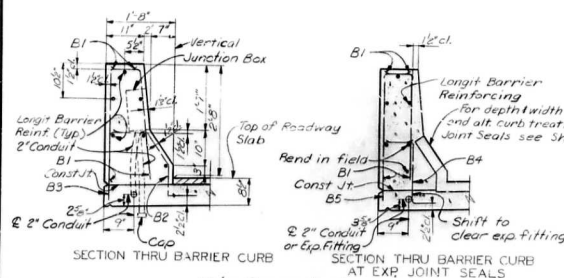
DESIGNED BY: M. J. JAMES, Feb. 1978
CHECKED BY: R. E. BACK, Mar. 1978
SCALE: 1/8" = 1'-0"

521

522

5261	DRAWN BY: M. Junge	Feb. 1978
78525	TRACED BY:	
	CHECKED BY: R.F. Beck	Mar. 1978

Note: EF indicates Each Face.
FF indicates Far Face.
NF indicates Near Face.



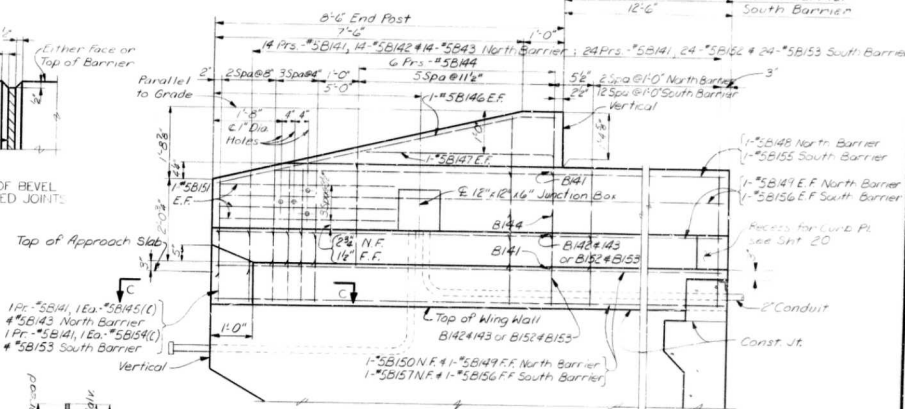
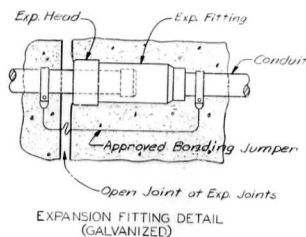
CONDUIT SYSTEM NOTES

All conduit to be rigid galvanized steel.
Light standards, wiring and fixtures
to be furnished and installed by
others.

All junction boxes shall be flush mounted and equal to O.Z. Gedney Co. type "YL" and/or Spring City Elec. Mfg. Co. type "IR." Wall thickness to be sufficient to provide 5 full threads for watertight conduit joint.

Expansion fittings to be used at preformed compression jt. seals and 2", 2½" and 4" Joint Seals shall be equal to O.Z./Gedney Co. type "AX" and/or Spring City Elect. Mfg. Co. type "AF"

Expansion fitting to be used at 6'2"
Joint Seals shall be equal to O.Z. (Gedney)
Co type "AXB" or Ex and/or Spring City
Elect. Mfg Co type "EF"



BARRIER CURB NOTES

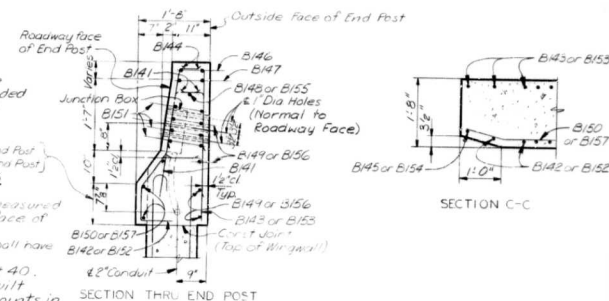
Longitudinal dimensions are measured horizontally along the outside face of barrier curb.

All exposed edges of concrete shall have a $\frac{1}{2}$ " radius or $\frac{3}{8}$ " bevel.

For detail of bridge rail see Sheet 40

Top of barrier curbs to be built parallel to grade with filled joints in barrier curbs normal to grade.

Reinforcement shall be cut to clear drains and shifted or cut to clear junction boxes.



CITY OF ST. LOUIS

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ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS

SHEET 31 OF 41

 $\Delta = 2^\circ$

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2	MO.		19	233	

GENERAL BRIDGE RAIL NOTES:

All bridge rail posts shall be set normal to grade. Aluminum tube bridge rail shall be bent to conform to vertical and horizontal alignment of curb barrier.

Aluminum washer shims between top of curb barrier and post base may be used for adjusting bridge rail alignment. Maximum thickness of shims to be 6". Where more tilting of post is required for proper alignment, concrete bearing areas shall be ground down.

All parts of bridge rail, except anchor bolts, nuts, washers and screws are to be of aluminum material.

All fillets 1/4" except as noted.

All drafts 3° except as noted.

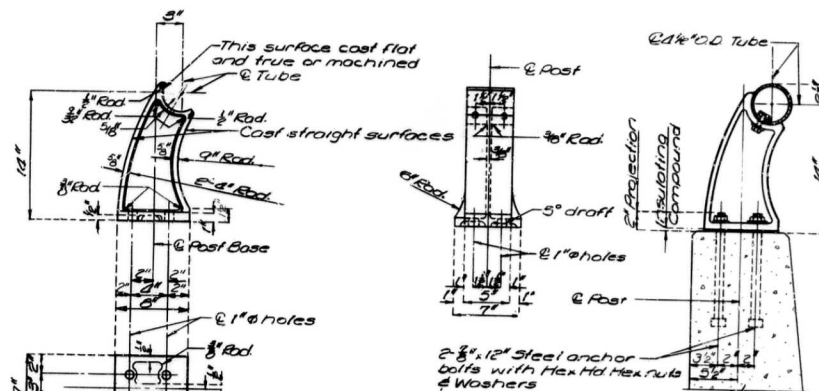
All rail splices shall be located near a 1/4 point between rail posts.

All outside corners of aluminum posts to have 6" radius except as noted.

A thin coating of material shall be applied to the stainless steel cap screws and the stainless steel fillister head machine screws to prevent locking to aluminum posts or tube. The coating material shall be equal to Wyman Oil Company's "Viscotene" or Stahl Specialty Company's "PBC 516" or National Chemsearch Corporation's "Thread Ete."



CAST END CAP
(Drive Fit Type)



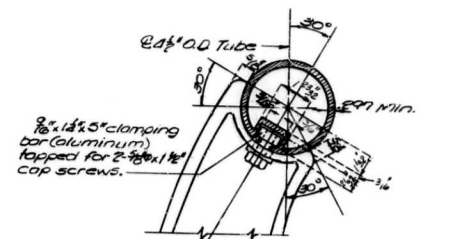
SECTION THRU BRIDGE RAIL

BRIDGE RAIL POST

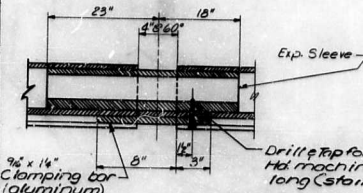


RAIL SPICE OR EXPANSION DETAIL

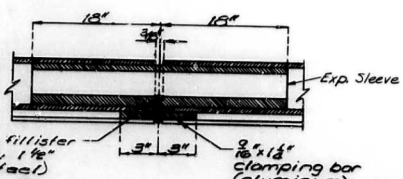
ONE TUBE ALUMINUM RAIL



RAIL ATTACHMENT TO POST

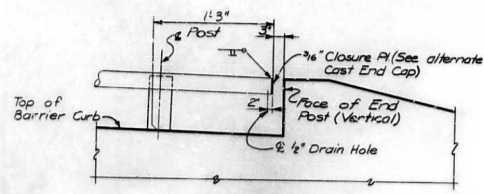


SECTION A-A
(AT EXPANSION SLEEVE)

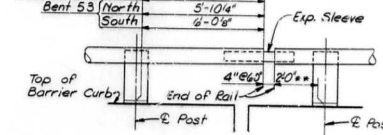


SECTION A-A
(AT RAIL SPICE)

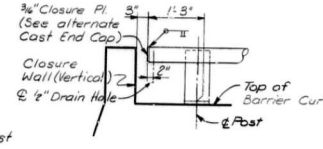
Bent 20	North	5'-11 3/4" *
	South	5'-6 1/4" *
Bent 31(North)	North	5'-10"
	South	5'-7 1/2"
Bent 31(South)	North	6'-2"
	South	6'-0 1/2"
Bent 1 (W.B. Ramp)	North & South	6'-0"
Bent 36	North & South	6'-0"
Bent 38	North	5'-10 3/4"
	South	5'-10 1/4"
Bent 42	North & South	5'-10"
Bent 45	North	5'-8 3/4"
Bent 46	North	6'-1 1/4"
	South	5'-10 1/4"
Bent 50	North & South	6'-0"
Bent 53	North	5'-10 1/4"
	South	6'-0 1/2"



RAIL DETAILS AT ABUTMENT 57



RAIL DETAILS AT EXPANSION JOINTS



RAIL DETAILS AT CLOSURE WALL
IN SPANS 30 AND 44

* Indicates this length of rail including expansion sleeve will be furnished with adjoining structure.

** Indicates this length of rail at Bent 1 (W.B. Ramp) North & South side and Bent 45 North side only will be furnished with adjoining structure.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

BRIDGE RAIL

SHEET 40 OF 48

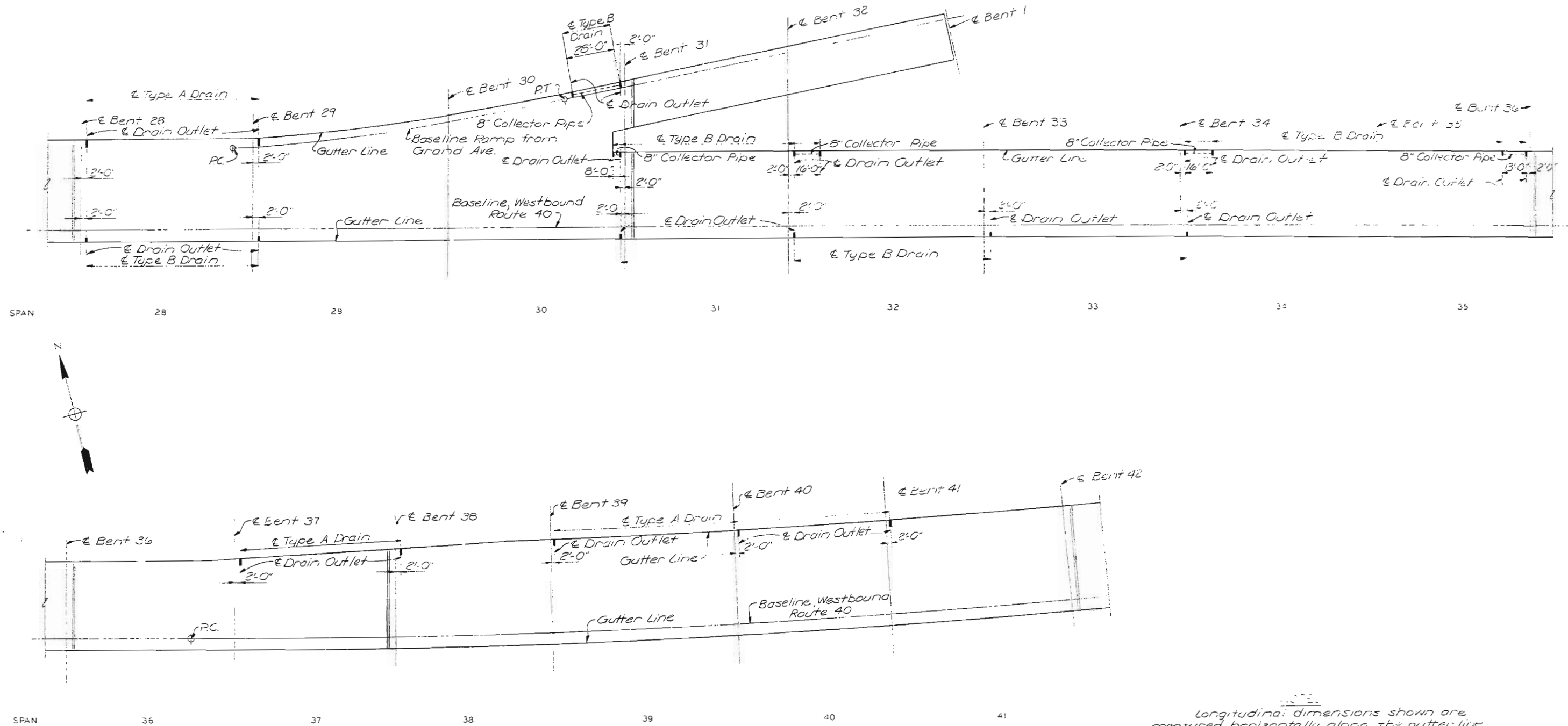
OVERDUP & PARCEL, AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DESIGNED BY: D. E. HANCOCK, INC. 12
CHECKED BY: P. E. H. & J. W. 1118
3267
78547

523

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	234	



Longitudinal dimensions shown are measured horizontally along the gutter line. For Drainage Notes, Roadway Drain Details, Pipe Hangers and Supports, see Sheet 45. Work this sheet with Sheets 42 thru 44.

CITY OF ST. LOUIS

DRAINAGE SYSTEM

SHEET 21 OF 45

A-359

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

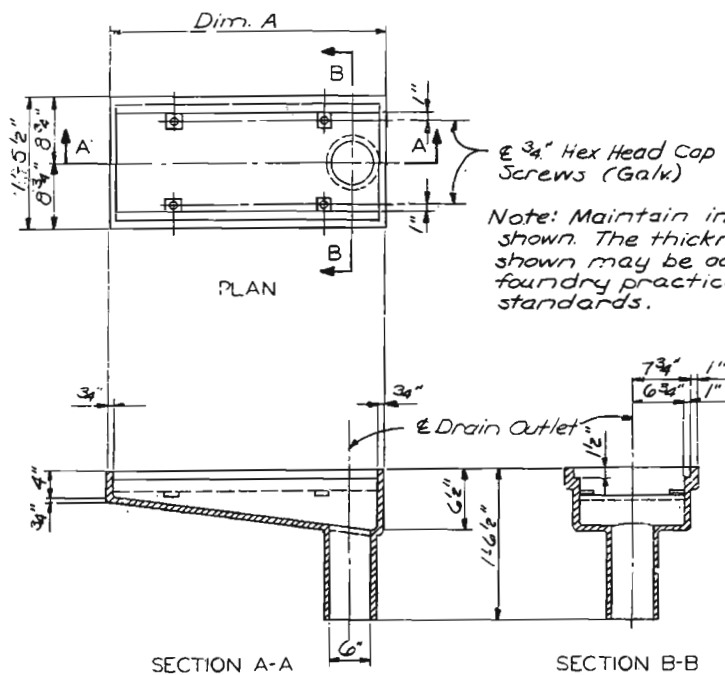
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: C. Mitchell, Dec. 1977
CHECKED BY: R.F. Beck, Mar. 1978
5261
775409

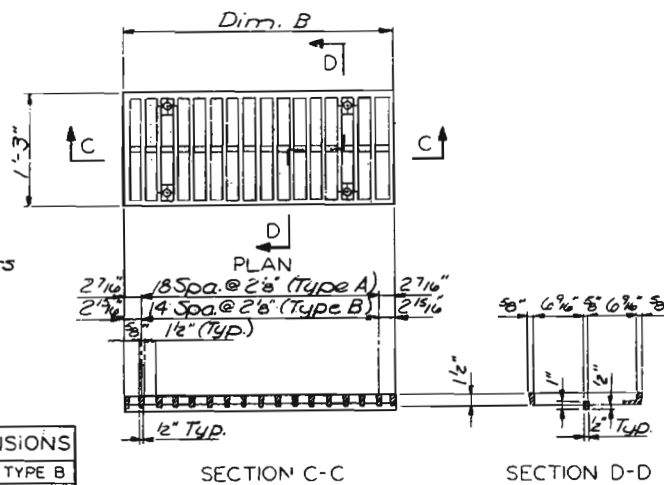
524

MISSOURI STATE HIGHWAY DEPARTMENT

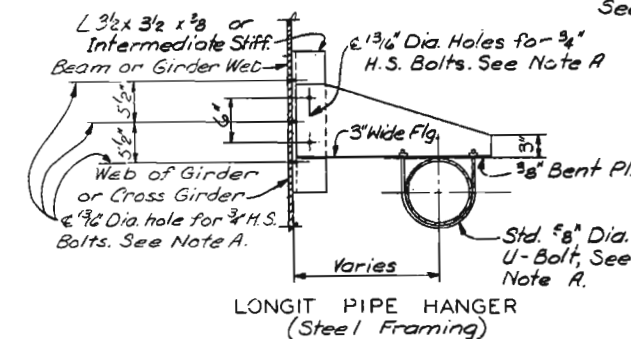
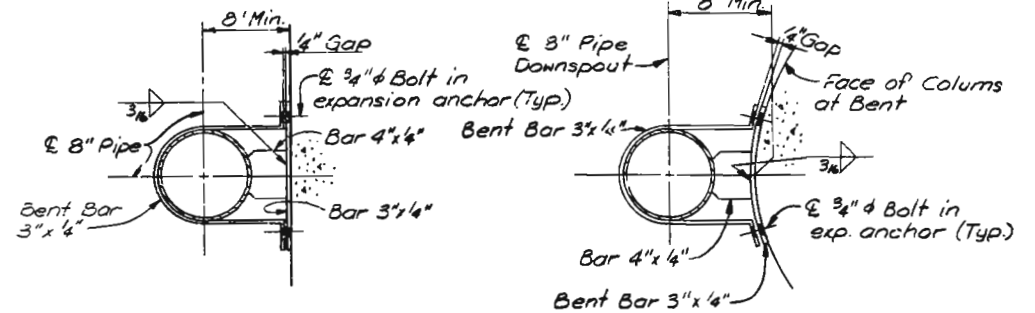
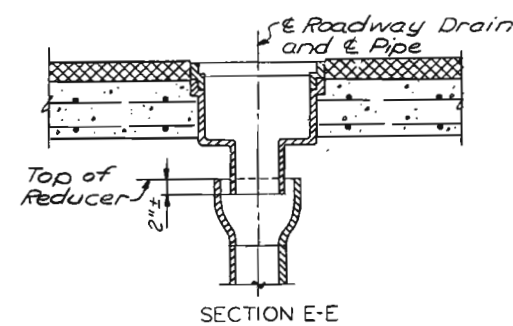
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	238	



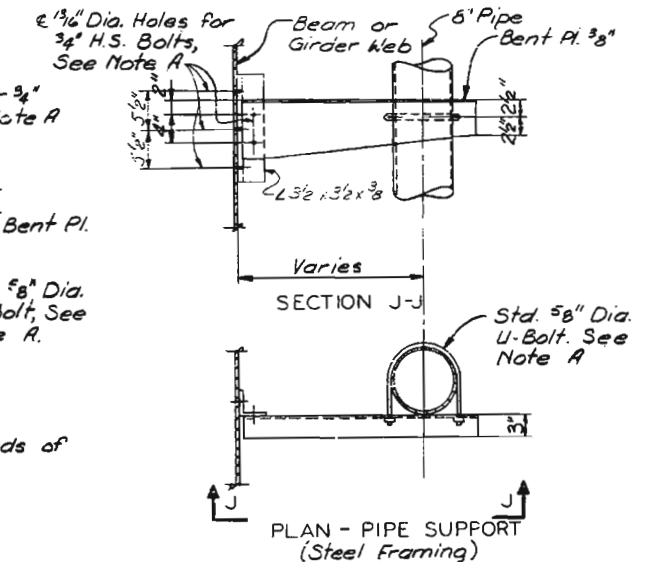
VARIABLE DIMENSIONS		
DIMENSION	TYPE A	TYPE B
A	3'-9 3/8"	3'-1 3/8"
B	3'-7 1/8"	2'-11 3/8"
C	3'-4 3/8"	2'-9 3/8"



ROADWAY DRAIN GRATE
(10 Required, Type A)
(19 Required, Type B)



Note A: Drilling of 1 3/16" holes shall be done in the field. Burr threads of U-Bolt after installing pipe.



DRAINAGE NOTES

Work this sheet with Sheets 41 thru 44.

All pipe shall be 8" A.S.T.M. A-501 carbon steel pipe (Galvanized).

Collector pipes shall have the max. slope possible with a min. slope of 1/8".

All pipe fittings are to be Cast Iron conforming to A.S.T.M. A126, Class A.

Pipe shall be spliced by full penetration groove weld or threaded steel couplings.

All pipe support material is to be A.S.T.M. A36.

All bolts and fasteners shall be galvanized.

All grates and roadway drain castings shall be Ductile Iron conforming to A.S.T.M. A536, Grade 60-40-18.

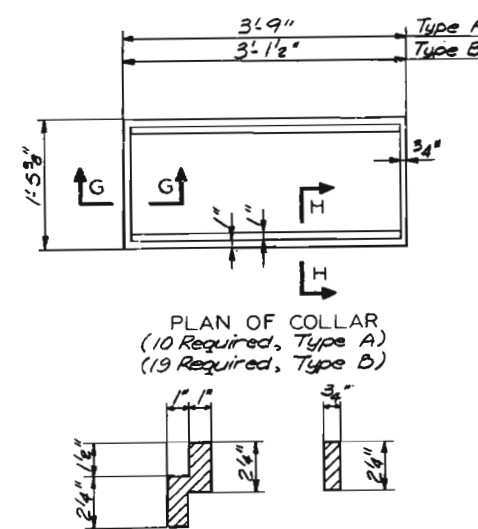
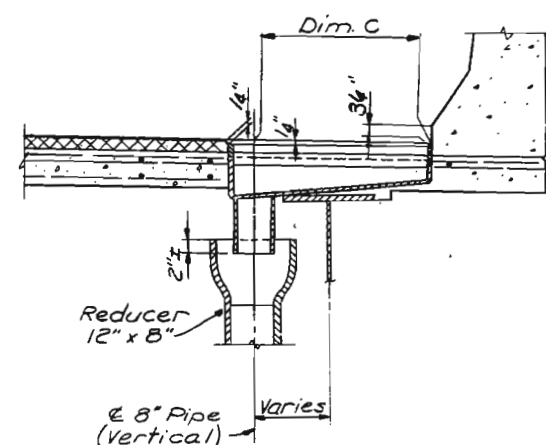
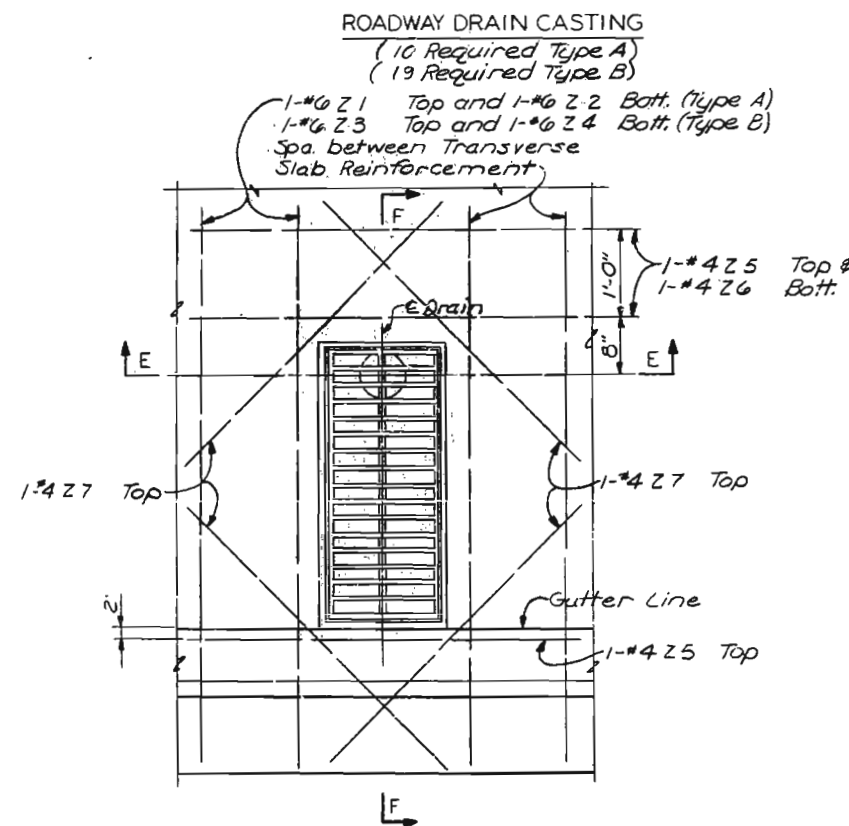
Grates shall be hot-dip galvanized.

Cost of furnishing, fabricating, erecting and galvanizing, drainage system complete as detailed shall be all inclusive in unit price bid for Drainage System.

Piping shall be fabricated from field checked dimensions after installation of drains.

Pipe supports and longit. pipe hangers shall be spaced at 15 feet max. Min. distance from field drilled holes to girder flange shall be 1'-0".

See Special Provisions for drainage system.



CITY OF ST. LOUIS

DRAINAGE SYSTEM-DETAILS

SHEET 45 OF 48

A-359-1

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

528

Dec. 1971
Traced by: L. Mitchell
Checked by: T. Sanders
5261
775406

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO. STATE FED. AID PROJ. NO. FISCAL YEAR SHEET NO. TOTAL SHEETS
 19 239

SLAB SPANS 28 THRU 30												SLAB SPANS 31 THRU 35												SLAB SPANS 38 THRU 41 (CONT.)													
8153	691	5	24	8	ST	SLAB						8	1	1132	6	31	5	ST	SLAB					8	67	298	5	52	7	ST	DO						
8154	691	5	24	5	ST	DO						8	2	1132	5	31	5	ST	DO					8	68	298	5	12	2	ST	DO						
8155	220	6	39	5	ST	DO						8	3	1134	6	24	8	ST	DO					8	69						NOT USED						
8156	220	5	39	5	ST	DO						8	4	1132	5	24	5	ST	DO					2	1	16	6	7	10	ST	DRAIN						
8157	203	6	VARIES	ST	DO	1 SERIES OF 203	BARB (39=5	TO	42=0)		8	5	420	5	57	9	ST	DO					2	2	16	6	7	10	ST	DO						
8158	203	5	VARIES	ST	DO	1 SERIES OF 203	BARB (39=5	TO	42=0)		8	6	580	5	58	0	ST	DO					2	3						NOT USED						
8159	24	6	31	5	ST	DO						8	7	172	5	59	8	ST	DO					2	4						NOT USED						
8160	24	5	31	5	ST	DO						8	8	56	6	6	8	SP	DO					2	5	12	4	4	4	ST	DRAIN						
8161	244	6	29	3	ST	DO						8	9	2	4	24	2	ST	DO					2	6	8	4	4	4	ST	DO						
8162	244	5	29	0	ST	DO						8	10	2	4	31	5	ST	DO					2	7	16	4	2	10	ST	DO						
8163	24	6	28	4	ST	DO						8	11	56	5	3	11	SP	DO																		
8164	24	5	28	4	ST	DO						8	12	346	5	12	2	ST	DO																		
8165	122	6	VARIES	ST	DO	1 SERIES OF 122	BARB (14=7	TO	23=2	)		8	13	172	5	54	8	ST	DO					SLAB SPANS 42 THRU 45												
8166	122	5	VARIES	ST	DO	1 SERIES OF 122	BARB (14=7	TO	23=2	)		2	1					NOT USED					8106	120	6	VARIES	ST	SLAB	1 SERIES OF 120	BARB (41=4	TO	48=8)				
8167	122	5	VARIES	ST	DO	1 SERIES OF 122	BARB (23=3	TO	39=5	)		2	2					NOT USED					8107	120	5	VARIES	ST	DO	1 SERIES OF 120	BARB (41=4	TO	48=8)				
8168	122	6	VARIES	ST	DO	1 SERIES OF 122	BARB (23=3	TO	39=5	)		2	3	36	6	6	9	ST	DRAIN					8108	159	6	31	5	ST	DO						
8169	2	4	24	2	ST	DO						2	4	36	6	6	9	ST	DO					8109	159	5	31	5	ST	DO							
8170	24	5	51	11	ST	DO						2	5	27	4	4	4	ST	DO					8110	158	6	29	5	ST	DO							
8171	16	5	47	4	ST	DO						2	6	18	4	4	4	ST	DO					8111	158	5	29	2	ST	DO							
8172	8	5	48	9	ST	DO						2	7	36	4	2	10	ST	DO					8112	720	6	24	8	ST	DO							
8173	4	5	15	0	ST	DO																	8113	720	5	24	5	ST	DO								
8174	18	5	22	0	ST	DO																	8114	378	5	52	10	ST	DO								
8175	13	5	24	0	ST	DO						SLAB SPANS 36 AND 37												8115	24	5	42	0	ST	DO							
8176	15	5	17	10	ST	DO						8	30	132	5	50	10	ST	SLAB					8116	2	5	43	10	ST	DO							
8177	6	5	14	9	ST	DO						8	31	322	6	31	5	ST	DO					8117	20	5	56	6	ST	DO							
8178	24	5	51	1	ST	DO						8	32	78	6	VARIES	ST	DO	1 SERIES OF 78	BARB (31=6	TO	33=7	)	8118	159	6	39	5	ST	DO						
8179	44	5	50		ST	DO						8	33	322	5	31	5	ST	DO	1 SERIES OF 78	BARB (31=6	TO	33=7)	8119	159	5	39	5	ST	DO						
8180	1	4	31	5	ST	DO						8	34	78	5	VARIES	ST	DO	1 SERIES OF 78	BARB (31=6	TO	33=7	)	8120							NOT USED					
8181	1	4	39	5	ST	DO						8	35	192	5	51	2	ST	DO					8121	186	5	58	3	ST	DO							
8182	1	4	28	4	ST	DO						8	36	13	5	58	2	ST	DO					8122	120	6	4	8	SP	DO							
8183	94	5	3	11	SP	DO						8	37	30	5	48	11	ST	DO					8123	6	5	41	3	ST	DO							
8184	56	6	6	8	SP	DO						8	38	27	5	53	11	ST	DO					8124	13	5	42	3	ST	DO							
8185	324	5	49	0	ST	DO						8	39	400	6	24	8	ST	DO					8125	16	5	36	6	ST	DO							
8186	252	5	58	8	ST	DO						8	40	400	5	24	5	ST	DO					8126	8	5	29	6	ST	DO							
8187	21	5	51	9	ST	DO						8	41	2	4	24	2	ST	DO					8127	7	5	15	5	ST	DO							
8188	4	5	45	1	ST	DO						8	42	56	5	5	11	SP	DO					8128	19	5	15	5	ST	DO							
8189	36	5	38	11	ST	DO						8	43	1	4	31	5	ST	DO					8129	13	5	16	0	ST	DO							
8190	46	5	32	1	ST	DO						8	44	1	4	33	7	ST	DO					8130	16	5	37	9	ST	DO							
8191	23	5	13	8	ST	DO						8	45	59	5	2	9	1	DO	7	2=2 1/2			8131	8	5	59	0	ST	DO							
8192	212	5	57	9	ST	DO						8	46	86	5	12	2	ST	DO					8132	8	5	31	10	ST	DO							
8193	212	5	12	2	ST	DO						8	47	86	5	58	6	ST	DO					8133	294	5	52	7	ST	DO		</					

MISSOURI STATE HIGHWAY DEPARTMENT

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		19	241	

MARK	NO.	REQ'D	NO.	LENGTH	TYPE	LOCATION	A	B	C	D	E	H	K
PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN
BARRIERS, SPANS 42 THRU 45													
8 75	1453	5	2-10	20	BARRIER			2-6	---				
8 76	721	5	3-0	30	DO				---				
8 77	719	5	2-1	20	DO			1-6	---				
8 78	6	5	2-10	20	DO			1-5 1/2	1-0				
8 79	6	5	2-0	20	DO			1-6	---				
8 80	60	5	9-9	97	DO								
8 81	6	5	30-6	97	DO								
8 82	18	5	30-9	97	DO								
8 83	6	5	30-9	97	DO								
8 84	18	5	30-10	97	DO								
8 85	6	5	43-9	97	DO								
8 86	6	5	42-10	97	DO								
8 87	6	5	30-0	97	DO								
8 88	6	5	35-0	97	DO								
8 89	12	5	30-9	97	DO								
8 90	6	5	30-9	97	DO								
8 91	6	5	30-0	97	DO								
8 92	6	5	11-0	97	DO								
8 93	3	5	9-1	20	DO			2-1	3-2	---			
8 94	4	5	3-7	19	DO			9	2-10	---			
8 95	5	5	1-3	97	DO						1 3/4	8 3/4	
8 96	2	5	4-0	19	DO			1-3	2-9	---			
8 97	1	5	6-10	19	DO			1-8	3-2	---			
8 98	2	5	3-7	97	DO								
8 99	10	5	0-6	97	DO								
X 1	6	5	6-6	94	LIGHT SUP	10		2-5	1-2 1/2	2-5	---		
X 2	4	5	5-10	94	DO	10		2-5	7	2-5	---		
X 3	4	5	6-5	14	DO	---		2-3 1/2	1-10 3/4	2-3 1/2	---	1-6 7/8	1-8
X 4	4	5	6-5	14	DO	---		2-3 1/2	1-10 3/4	2-3 1/2	---	1-6 7/8	1-8
X 5	4	5	5-11	93	DO	---		5 3/4	1-7	2-0	1-7	5 3/4	
X 6	4	5	6-1	93	DO	---		7 1/4	1-7	2-0	1-7	7 1/4	
X 7	12	6	3-1	97	DO								

BARRIERS, SPANS 46 THRU 49													
8101	1172	5	2-10	20	BARRIER			2-6	---				
8102	902	5	3-0	30	DO				---				
8103	902	5	2-1	20	DO			1-6	---				
8104	4	5	2-10	20	DO			1-5 1/2	1-0				
8105	4	5	2-0	20	DO			1-6	---				
8106	72	5	9-9	97	DO								
8107	6	5	25-9	97	DO								
8108	24	5	26-9	97	DO								
8109	36	5	30-8	97	DO								
8110	6	5	26-0	97	DO								
8111	12	5	26-3	97	DO								
8112	12	5	31-4	97	DO								
X 1	5	5	6-6	94	LIGHT SUP	10		2-5	1-2 1/2	2-5	---		
X 2	2	5	5-10	94	DO	10		2-5	7	2-5	---		
X 3	3	5	6-5	14	DO	---		2-3 1/2	1-10 3/4	2-3 1/2	---	1-6 7/8	1-8
X 4	2	5	6-5	14	DO	---		2-3 1/2	1-10 3/4	2-3 1/2	---	1-6 7/8	1-8
X 5	3	5	5-11	93	DO	---		5 3/4	1-7	2-0	1-7	5 3/4	
X 6	2	5	6-1	93	DO	---		7 1/4	1-7	2-0	1-7	7 1/4	
X 7	6	6	3-1	97	DO								

BARRIERS, SPANS 50 THRU 52													
8113	842	5	2-10	20	BARRIER			2-6	---				
8114	417	5	3-0	30	DO				---				
8115	417	5	2-1	20	DO			1-6	---				
8116	4	5	2-10	20	DO			1-5 1/2	1-0				
8117	4	5	2-0	20	DO			1-6	---				
8118	4	5	2-0	20	DO								
8119	4	5	2-0	20	DO								
8120	48	5	9-9	97	DO								
8121	12	5	26-11	97	DO								
8122	14	5	26-9	97	DO								
8123	24	5	29-9	97	DO								
8124	4	5	27-9	97	DO								
8125	12	5	26-9	97	DO								

BARRIERS, SPANS 53 THRU 56

MARK	NO.	REQ'D	NO.	LENGTH	TYPE	LOCATION	A	B	C	D	E	H	K
PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN	PT- IN
8126	1204	5	2-10	20	BARRIER			2-6	---				
8127	600	5	3-0	30	DO				---				
8128	600	5	2-1	20	DO			1-6	---				
8129	2	5	2-10	20	DO			1-5 1/2	1-0				
8130	2	5	2-0	20	DO			1-6	---				
8131	72	5	9-9	97	DO								
8132	12	5	26-4	97	DO								
8133	24	5	25-9	97	DO								
8134	12	5	33-9	97	DO								
8135	12	5	30-2	97	DO								
8136	12	5	25-1	97	DO								
8137	12	5	32-9	97	DO								
8138	12	5	33-6	97	DO								
8139	80	5	2-10	20	END POST			2-6	---				
8140	14	5	3-0	30	DO				---				
8141	15	5	2-1	20	DO			1-5 1/2	---				
8142	24	5	3-0	20	DO			2-8	---				
8143	1	5	2-11	97	DO								
8144	4	5	8-4	19	DO			10	7-0	---			
8145	4	5	8-4	97	DO						2 1/4	9 3/4	
8146	1	5	9-3	97	DO								
8147	6	5	10-9	97	DO								
8148	2	5	10-8	19	DO			10	9-10 1/2	---			
8149	12	5	4-3	27	DO						3	9 1/2	
8150	24	5	0-3	97	DO								
8151	28	5	2-3	20	DO			9	1-7 1/2	---			
8152	1	5	3-1	97	DO								
8153	1	5	19-3	97	DO								
8154	6	5	20-9	97	DO								
8155	2	5	20-8	19	DO			10	19-10 1/2	---			
X 1	3	5	6-6	94	LIGHT SUP	10		2-5	1-2 1/2	2-5	---		
X 2	2	5	5-10	94	DO	10		2-5	7	2-5	---		
X 3	3	5	6-5	14	DO	---		2-3 1/2	1-10 3/4	2-3 1/2	---	1-6 7/8	1-8
X 4	2	5	6-5	14	DO	---		2-3 1/2	1-10 3/4	2-3 1/2	---	1-6 7/8	1-8
X 5	3	5	5-11	93	DO	---		5 3/4	1-7	2-0	1-7	5 3/4	
X 6	2	5	6-1	93	DO	---		7 1/4	1-7	2-0	1-7	7 1/4	
X 7	6	6	3-1	97	DO								

BILL OF EPOXY COATED REINFORCING IN SLAB **

NUMBER	SIZE & MARK	WEIGHT (LBS.)	NUMBER	SIZE & MARK	WEIGHT (LBS.)	NUMBER	SIZE & MARK	WEIGHT (LBS.)	NUMBER	SIZE & MARK	WEIGHT (LBS.)
SPANS 26 THRU 30			SPAN 31 THRU 35 (CONT.)			SPANS 36 THRU 41 (CONT.)			SPANS 42 THRU 45		
691	#6 S153	25601	* 346	#5 S12	4391	298	#5 S68	3782	210	#5 S70	12973
220	#6 S155	13025	172	#5 S13	9807	16	#6 S21	188	56	#6 S72	393
203	#6 S157	12412	36	#6 S23	365	12	#4 S25	35	56	#5 S73	156
24	#6 S159	1133	27	#4 S25	78	16	#4 S27	30	86	#5 S74	4515
244	#6 S161	10720	36	#4 S27	68	SPANS 42 THRU 45			582	#6 S77	27463
24	#6 S163	1021	SPANS 36 AND 37			120	#6 S106	8081	582	#6 S79	21563
122	#6 S165	3459	132	#5 S30	6999	159	#6 S108	7503	172	#5 S81	8192
122	#6 S168	5375	322	#6 S31	15194	158	#6 S110	6981	12	#6 S21	141
94	#5 S183	384	78	#6 S32	3812	720	#6 S112	26676	9	#4 S25	26
56	#6 S184	393	27	#5 S38	1518	159	#6 S118	9413	12	#4 S27	23
252	#5 S186	15420	400	#6 S39	14820	186	#5 S121	11300	SPANS 50 THRU 52		
21	#5 S187	1133	56	#5 S42	229	120	#6 S122	841	56	#5 S82	156
8	#5 S188	376	59	#5 S45	169	294	#5 S133	16124	56	#5 S85	229
30	#5 S189	1218	86	#5 S46	1091	114	#5 S134	6678	168	#5 S86	9287
46	#5 S190	1539	86	#5 S47	4889	114	#5 S135	1447	416	#6 S88	15413
23	#5 S191	328	11	#5 S48	448	14	#5 S136	868	416	#6 S90	19630
212	#5 S192	12769	4	#6 S21	47	8	#5 S137	218	172	#5 S92	8746
212	#5 S193	2690	3	#4 S25	9	28	#5 S138	1093	4	#6 S23	41
8	#6 S21	96	4	#4 S27	8	41	#5 S139	1522	3	#4 S25	9
28	#6 S23	284	SPANS 38 THRU 41			30	#5 S140	84	4	#4 S27	8
27	#4 S25	78	80	#5 S50	4874	124	#6 S141	7528	SPANS 53 THRU 55		
36	#4 S27	68	45	#5 S51	2249	148	#6 S146	6011	252	#5 S95	13470
SPANS 31 THRU 35			264	#5 S52	15098	10	#6 S148	273	602	#6 S97	28407
1132	#6 S1	53417	578	#6 S54	34220	8	#6 S23	81	602	#6 S99	22304
* 1134	#6 S3	42014	281	#6 S56	15388	6	#4 S25	17	56	#5 S103	229
420	#5 S5	25298	859	#6 S58	31825	8	#4 S27	15	258	#5 S104	13903
172	#5 S7	10704	64	#5 S60	184						
56	#6 S8	393	64	#6 S63	449						
56	#5 S11	229	298	#5 S67	16344						

532

MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		72		

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

Missouri State Highway Commission Specifications for Highway Construction (1981 Edition) and Special Provisions.

DESIGN SPECIFICATIONS:

Division 1 of the AASHTO "Standard Specifications for Highway Bridges" (1973 Edition including 1974, 1975 and 1976 Interim specifications.

DESIGN LOADING:

(Load Factor Design Method - Bridge Slabs.)
Live Load - HS20-44 and modified 24,000 lbs. tandem axle
Dead Load - Weight of Structure includes reinforced concrete at 150 lbs. per cu. ft. with provision for a future wearing surface of 30 lbs. per sq. ft. of roadway.

DESIGN UNIT STRESS:

Concrete in Flexure:
Class B-2 Concrete - f'c = 4000 lbs. per sq. in.
CLASS B-1 CONCRETE - f'c = 4000 LBS. PER SQ. IN.

Reinforcing Steel:

fs = 24,000 lbs. per sq. in.
fy = 60,000 lbs. per sq. in.

CONCRETE:

Concrete for slabs is CLASS B2
CONCRETE FOR BARRIERS is CLASS B1

REINFORCEMENT:

All reinforcing steel are deformed billet steel, Grade 60

The top mat of reinforcing steel is epoxy coated.

All dimensions to reinforcing bars on detail drawings are to centerline of bar except where the clear distance is noted from the face of concrete.

Lap Splices and embedment of reinforcement as shown on the detail drawings are in accordance with AASHTO, Interim 1974 Specifications.

PROFILE GRADE:

Profile grade is located at the Baseline of Westbound Roadway and at top of roadway slab

CONSTRUCTION JOINTS:

Construction joints were permitted only at the locations shown on the detail drawings or as approved by the Engineer.

BEVELED EDGES:

All exposed edges of concrete are beveled 1/4" unless otherwise shown or noted.

ROADWAY SLAB:

The 8 1/4" roadway slab as detailed includes a 2" min. low slump concrete wearing surface. Stay-in-place metal forms as indicated on the details. were used in construction of the slab, see Special Provisions

SHEAR CONNECTORS:

Shear connectors were field welded to existing girder flanges in accordance with the details. For number of rows and longitudinal spacing see Steel Framing Plans of Structural Steel Contract.

SECTION 6

FINAL QUANTITIES

ITEM	UNIT	TOTAL
Class B-2 Concrete (Alternate A Wearing Surface)	Cu. Yd.	0
Class B-2 Concrete (Alternate B Wearing Surface)	Cu. Yd.	3,837.9
Reinforcing Steel (Grade 60)	Lbs.	542,290
Reinforcing Steel (Grade 60), Epoxy Coated	Lbs.	879,550
Bridge Rail (Aluminum - Tube Type)	Lin. Ft.	5,864
CLASS B-1 CONCRETE (BARRIER CURB) ALTERNATE A	CU. YD.	0
CLASS B-1 CONCRETE (BARRIER CURB) ALTERNATE B	CU. YD.	751.2
Concrete Wearing Surface (***)	Sq. Yd.	17,196
CONDUIT SYSTEM ON STRUCTURE	LUMP SUM	1
Preformed Compression Joint Seal (4")	Lin. Ft.	51
Elastomeric Expansion Joint Seal (Movement Rating 2")	Lin. Ft.	76
Elastomeric Expansion Joint Seal (Movement Rating 2 1/2")	Lin. Ft.	54
Elastomeric Expansion Joint Seal (Movement Rating 4")	Lin. Ft.	128
Elastomeric Expansion Joint Seal (Movement Rating 6 1/2")	Lin. Ft.	162
* Fabricated Structural Carbon Steel (Misc.)	Lbs.	25,990
Drainage System (8" Steel Pipe)	Lin. Ft.	1253
Drainage System (Type A Drains)	Each	10
Drainage System (Type B Drains)	Each	19
CONTINGENT ITEM		
12 in. x 8 in Reducer	Lump Sum	1

* Weight of fabricated structural carbon steel consists of shear connectors as detailed.

THE ABOVE QUANTITIES ARE INCLUDED IN THE SUMMARY OF QUANTITIES FOR A-3594 ON FIRST SHEET OF BRIDGE PLANS.

CITY OF ST. LOUIS

FINAL PLANS

GENERAL NOTES AND
ESTIMATED QUANTITIES

SHEET 54 OF 48

A-3594

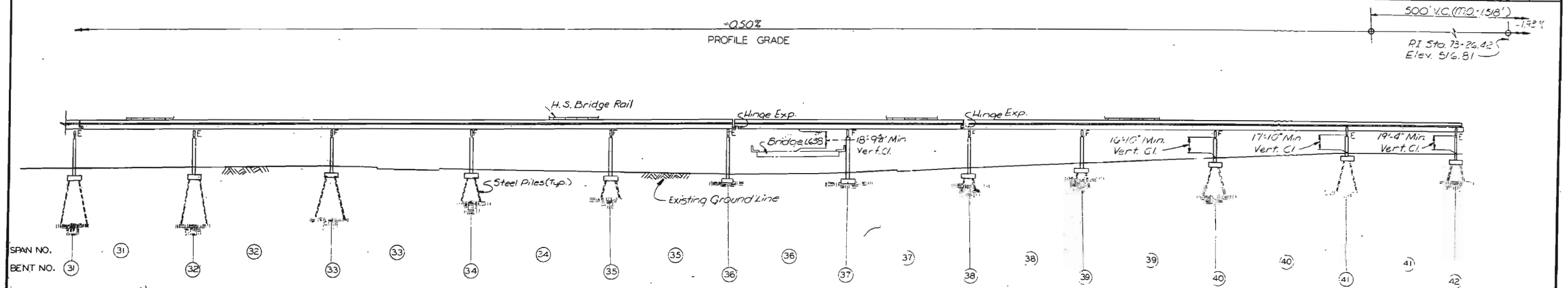
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DRAWN BY: L. Mitchell, April '78
TRACED BY:
CHECKED BY: W. Walden, April '78
5261
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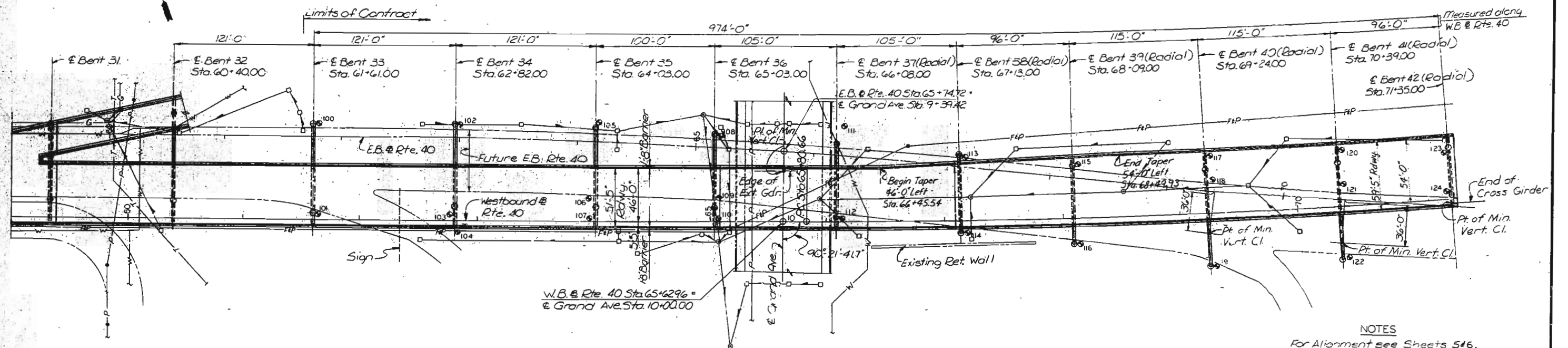
SYNDERUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	84	



ELEVATION
Note: All span units are continuous composite plate girders.



PLAN
• Indicates the approximate location of a boring, see Log of Borings for exact location.

LEGEND FOR EXISTING UTILITIES
 — Sewer, storm or sanitary
 — F.P. Fire and Police
 — G Gas
 — W Water
 — P Overhead Power
 — T Underground Telephone
 □ Inlet
 ● Manhole

NOTES
For Alignment see Sheets 546.

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 2 OF 35

A-3594

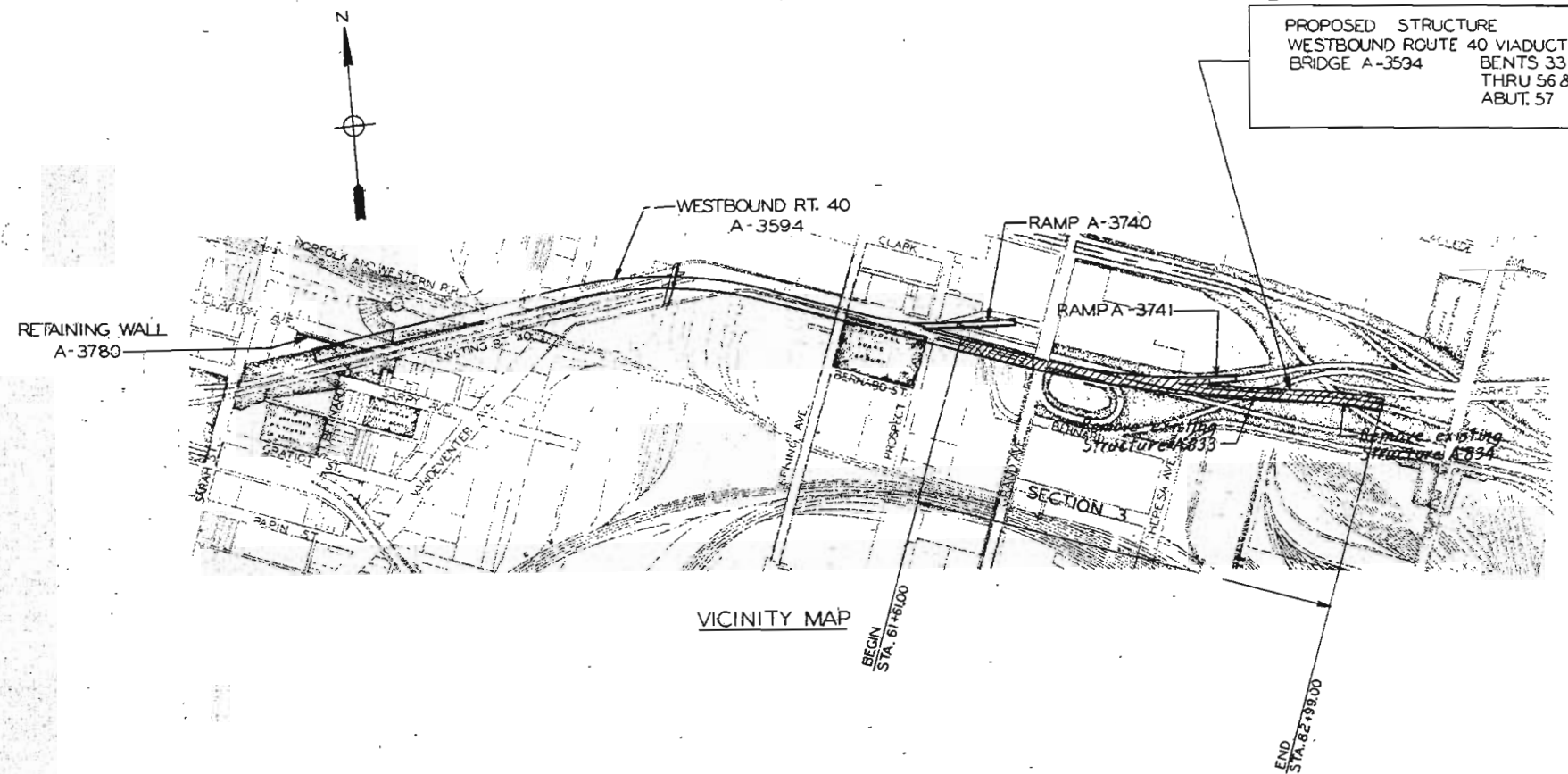
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ST. LOUIS, MISSOURI

445

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

DESIGN NO.	DATE	REVISED	BY	DATE	TOTAL SHEETS
8	NOV. 1983			19	83



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BRIDGE A-3594

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3. GENERAL PLAN AND ELEVATION
4. GENERAL NOTES AND ESTIMATED QUANTITIES
5. ALIGNMENT, HORIZONTAL CURVE DATA AND BENCH MARKS
6. ALIGNMENT
7. VERTICAL CURVE ELEVATIONS
8. ROADWAY CROSS SLOPES
9. LOG OF BORINGS
10. LOG OF BORINGS
11. LOG OF BORINGS
12. SUBSTRUCTURE LAYOUT
13. SUBSTRUCTURE LAYOUT
14. PILE DATA
15. BENTS 33 THRU 42, 48 AND 55
16. BENTS 33 THRU 42, 48 AND 55
17. BENTS 33 THRU 42, 48 AND 55
18. BENT 43
19. BENT 44
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25. BENT 51
26. BENT 52
27. BENT 53
28. BENT 54
29. BENT 56
30. ABUTMENT 57
31. ABUTMENT 57
32. BAR LIST
33. BAR LIST
34. BAR LIST
35. BAR LIST
36. BAR LIST

BRIDGE: WESTBOUND ROUTE 40 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK AND WESTERN RAILROAD

STATE ROAD ROUTE 40
JOB NO. 6 UO4026Z
PROJECT NO. F-FG-10-5 (15) STA. 61+800
BENT 33

CITY OF ST. LOUIS

SUBMITTED BY:

William O. Walden
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-11783



DATE:

VICINITY MAP AND
INDEX OF DRAWINGS

5/27/84 CP 3A

A-3594

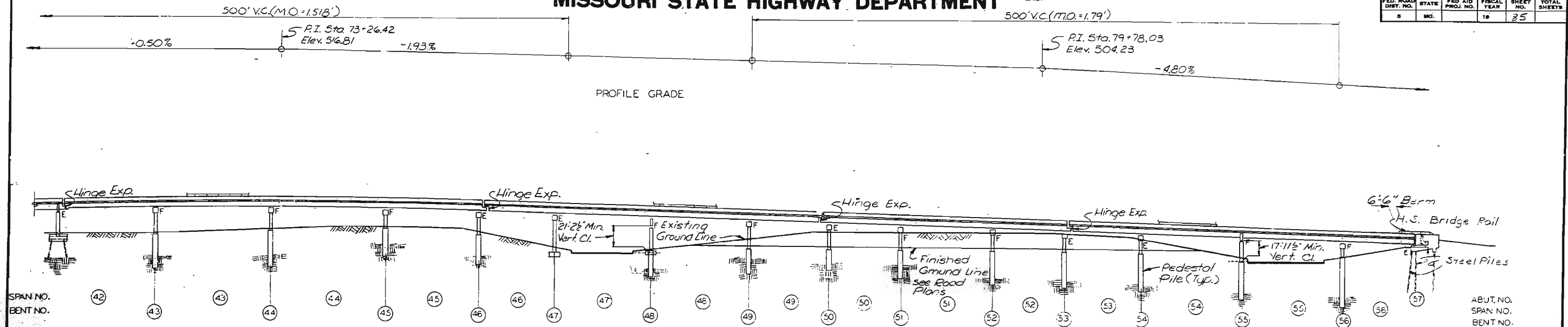
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765295

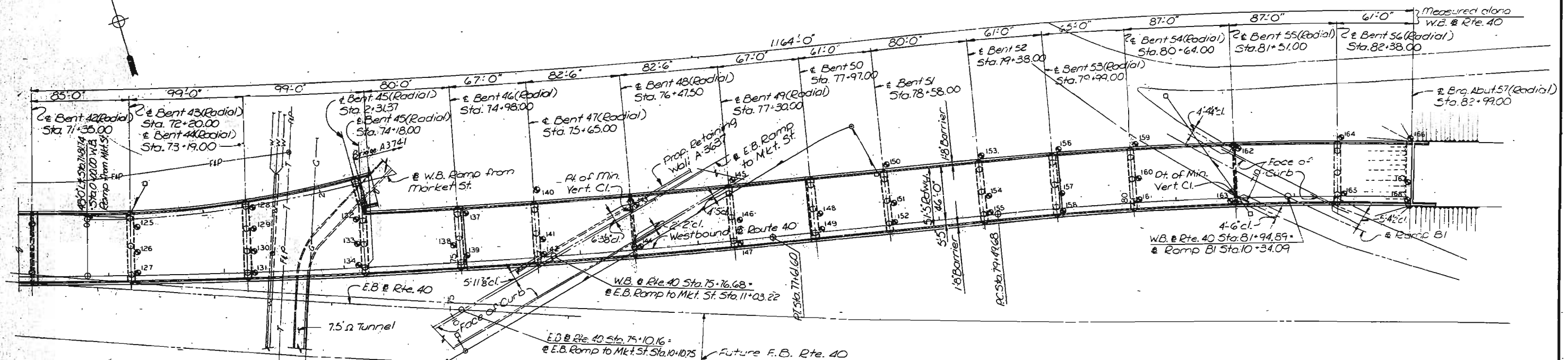
ENGINEER & ARCHITECT, INC.
ENGINEERING, ARCHITECTURE
& INTERIOR DESIGN
1001 N. 10TH ST.
ST. LOUIS, MISSOURI 63103

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	35	



ELEVATION
Note: All span units are continuous composite plate girders.



PLAN
● Indicates the approximate location of a boring, see Log of Borings for exact location.

LEGEND FOR EXISTING UTILITIES
— Sewer, storm or sanitary
— F&P Fire and Police
— G Gas
— W Water
— P Overhead Power
— T Underground Telephone
□ Inlet
● Manhole

NOTES
For notes, see Sheet 2.

CITY OF ST. LOUIS

GENERAL PLAN AND ELEVATION

SHEET 3 OF 35

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

ENGINEERS & ARCHITECTS, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

446

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		18	86	

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

Missouri State Highway Commission Specifications for Highway Construction (1977 Edition) and Special Provisions.

DESIGN SPECIFICATIONS:

Division 1 of the AASHTO "Standard Specifications for Highway Bridges" (1973 Edition including 1974, 1975 and 1976 Interim Specifications - Zone II Earthquake).

DESIGN LOADING:

(Load Factor Design Method - Bridge Substructure only, except footings and pedestal piles)

Live Load - HS20-44 and modified 24,000 lbs. tandem axle

Dead Load - Weight of Structure includes reinforced concrete at 150 lbs. per cu. ft. with provision for a future wearing surface of 30 lbs. per sq. ft. of roadway.

DESIGN UNIT STRESS:

Concrete in Flexure:

Class B Concrete - $f'_c = 3000$ lbs. per sq. in.
 $f_c = 1200$ lbs. per sq. in.
 $n = 10$

Reinforcing Steel:

$f_s = 24,000$ lbs. per sq. in.
 $f_y = 60,000$ lbs. per sq. in.

Steel Piles (ASTM A36):

Design bearing = 12 kips per sq. in. (end bearing)

Pedestal Piles:

Design bearing = 35 tons per sq. ft. (end bearing)

Spread Footings on Rock:

Design bearing = 12 tons per sq. ft.

PILE LOAD TEST

Piles for load tests shall be driven at Bents 33 and 41 and shall consist of one vertical pile in the footing as indicated on plans. Piles used for load tests shall also be used as permanent piles in place. The Load Test shall be performed in accordance with the Standard Specifications.

CONCRETE:

Concrete for Abutment, Bents, and Pedestal piles shall be Class B.

REINFORCEMENT:

Reinforcing Steel shall be deformed billet steel, Grade 60. All dimensions to reinforcing bars on detail drawings are to centerline of bar except where the clear distance is noted from the face of concrete.

Lap Splices and embedment of reinforcement as shown on the detail drawings are in accordance with AASHTO, Interim 1974 Specifications.

Spiral bars in columns shall be cold drawn bars conforming to ASTM A82.

PROFILE GRADE:

Profile grade is located at the Base Line of Westbound Route 40 and at top of roadway slab.

CONSTRUCTION JOINTS:

Construction joints will be permitted only at the locations shown on the detail drawings or as approved by the Engineer.

BEVELED EDGES:

All exposed edges of concrete shall be beveled $\frac{1}{4}$ " unless otherwise shown or noted.

EXISTING UNDERGROUND FACILITIES:

Underground Facilities, Structures and Utilities have been plotted from available surveys and records; and, therefore, their locations must be considered approximate only. It is possible there may be others, the existence of which is presently not known or shown. It is the Contractor's responsibility to determine their existence and exact location and to avoid damage thereto. See Standard Specifications.

SECTION 3

ESTIMATE OF QUANTITIES

ITEM	UNIT	TOTAL
Class 1 Excavation	Cu. Yd.	1500
* Pedestal Piles 3'-0" Dia.	Lin. Ft.	139
* Pedestal Piles 3'-6" Dia.	Lin. Ft.	489
* Pedestal Piles 4'-0" Dia.	Lin. Ft.	404
* Pedestal Piles 5'-0" Dia.	Lin. Ft.	139
* Pedestal Piles 5'-6" Dia.	Lin. Ft.	30
Class B Concrete	Cu. Yd.	1369.9
Reinforcing Steel	Lb.	803,110
Structural Steel Piles HP 10 x 42	Lin. Ft.	1795
Structural Steel Piles HP 12 x 53	Lin. Ft.	1317
Removal of Bridges (A-833 & A-834)	Lump Sum	1
Pile Load Test (HP 12 x 53)	Each	2

* Cost of Concrete in pedestal piles to be included in unit price bid per lin. ft. of pedestal piles.

THE ABOVE QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES ON THE FIRST SHEET OF BRIDGE PLANS

CITY OF ST. LOUIS

SEE FINAL PLANS

GENERAL NOTES AND ESTIMATED QUANTITIES

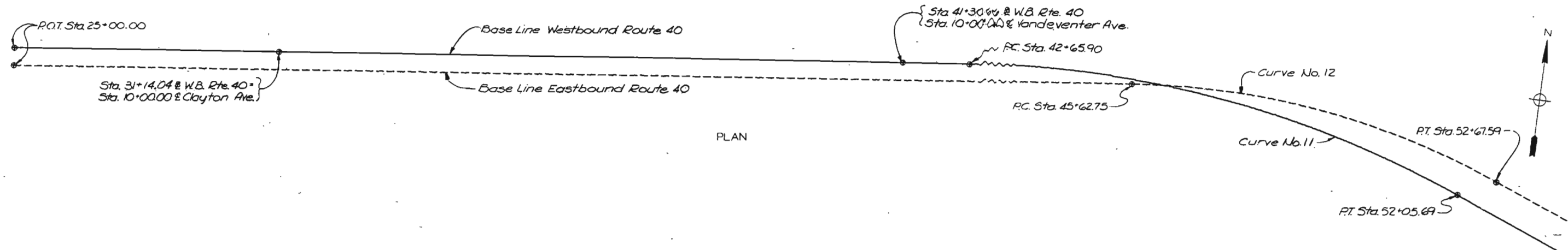
SHEET 4 OF 36

A-3594

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	37	



PLAN

HORIZONTAL CURVE DATA

Curve No. 11	Curve No. 12	Curve No. 13	Curve No. 14	Curve No. 15	Curve No. 16	Curve No. 17	Curve No. 18	Curve No. 19	Curve No. 20	Curve No. 21	Curve No. 22	Curve No. 23	Curve No. 24	Curve No. 25	Curve No. 27
P.T. Sta. 47+45.51	Sta. 47+22.46	Sta. 55+88.46	Sta. 58+95.22	Sta. 1+00.08	Sta. 1+60.97	Sta. 65+24.53	Sta. 70+61.33	Sta. 71+72.71	Sta. 0+34.99	Sta. 2+78.30	Sta. 75+23.49	Sta. 1+52.50	Sta. 79+38.90	Sta. 82+84.69	Sta. 82+59.13
Δ 28°11'31.9" Rt.	28°11'31.8" Rt.	3°04'03.3" Lt.	3°04'03.3" Rt.	11°57'55.4" Lt.	63°31'30.1" Rt.	6°14'13.4" Rt.	7°13'54.1" Lt.	10°14'05.5" Lt.	26°04'22.0" Rt.	13°30'29.9" Rt.	1°22'15.7" Lt.	18°08'50.7" Lt.	8°21'00.3" Lt.	2°27'00.5" Rt.	12°19'54.5" Rt.
D 3°00'00"	4°00'00"	1°00'00"	1°00'00"	6°00'00"	22°02'12.6"	1°00'00"	1°36'27"	0°52'00"	37°54'41.7"	63°39'45.1"	0°29'54.8"	6°00'00"	12°42'30.8"	0°42'30.8"	2°00'00"
T 474.61'	359.71'	153.42'	153.42'	100.08'	160.97'	312.16'	225.25'	592.05'	34.99'	209.52'	137.51'	152.50'	172.92'	172.92'	309.49'
L 939.80'	104.84'	306.76'	306.76'	199.42'	288.27'	623.71'	449.91'	1180.94'	68.77'	20'	275.00'	302.45'	345.79'	345.79'	616.59'
R 1909.86'	1432.39'	5729.58'	5729.58'	954.93'	260.00'	5729.58'	3564.30'	6611.05'	151.13'	90.00'	11492.00'	954.93'	3086.36'	8086.36'	2864.79'

BENCH MARKS U.S.G.S. DATUM

NUMBER	DESCRIPTION	ELEV.
B.M. #4	iron stone curb in front of General Equipt. Co. bldg. No. 3952 Clayton Ave.	477.89
B.M. #5	iron on NE corner of 2x2 concrete base of stop light at Vandeventer & left side of ramp from Mkt. St.	459.32
B.M. #6	iron in open of fire plug N. side of W.B.L. under pedestrian overpass at Spring Ave.	466.94
B.M. #7	iron on concrete median under center of Grand Ave. bridge.	465.56
B.M. #8	iron on wheel guard NE corner of E. end of E.B. bridge over E.B. Mkt. St. ramp	495.83
B.M. #16	iron on SE corner of N.W. endpost of E.B. bridge over E.B. Mkt. St. ramp	497.70
B.M. #17	top of S.W. corner of light standard at the S.W. corner of Grand Ave. bridge.	489.63

CITY OF ST. LOUIS

SCHEMATIC PLANS

ALIGNMENT, HORIZONTAL CURVE DATA,
AND BENCH MARKS

SHEET 5 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

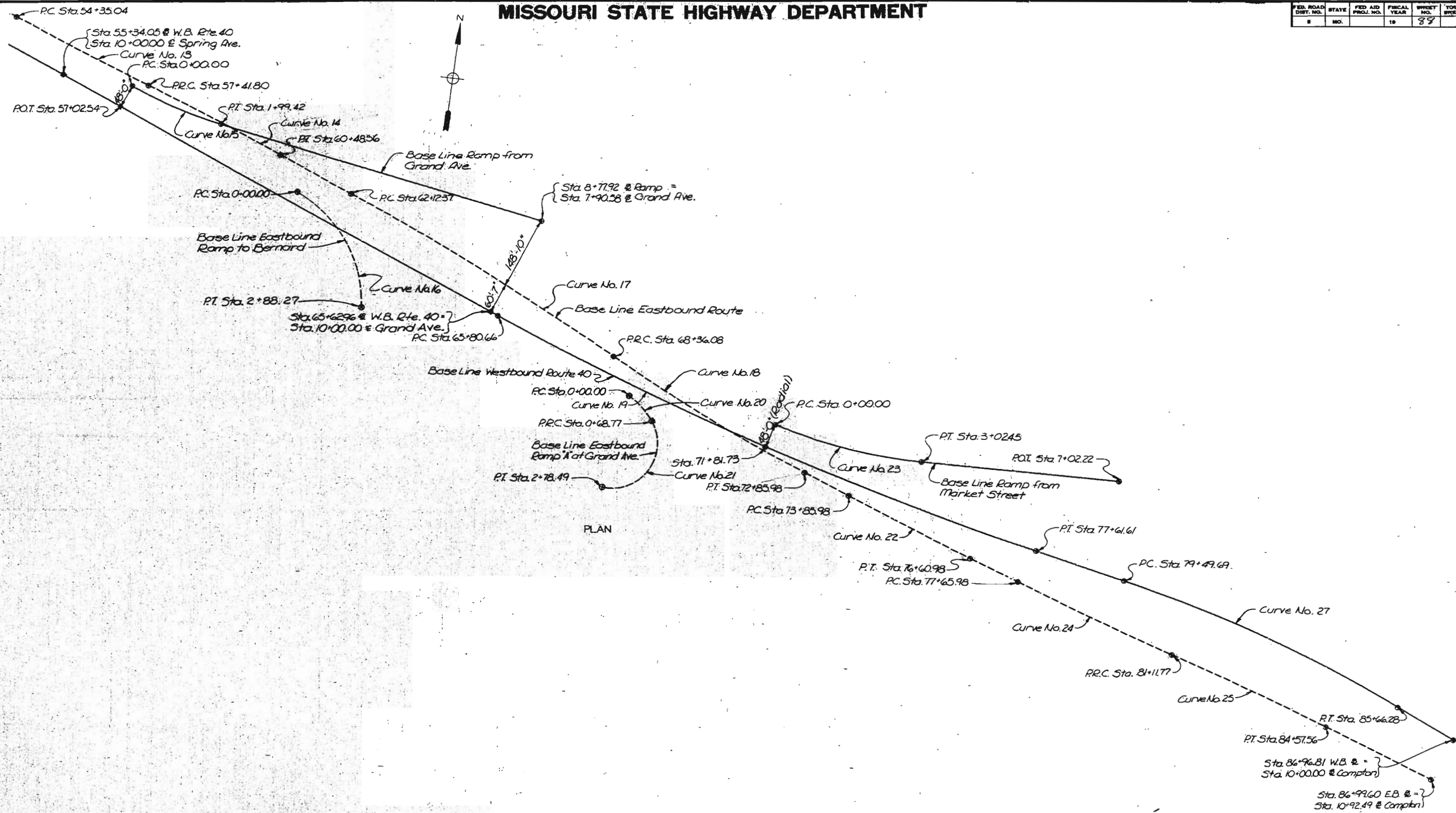
OVERHUR & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: [Signature]
CHECKED BY: [Signature]
DATE: 12/1/77

448

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		19	89	



CITY OF ST LOUIS

ALIGNMENT

SHEET 6 OF 36

A-3594

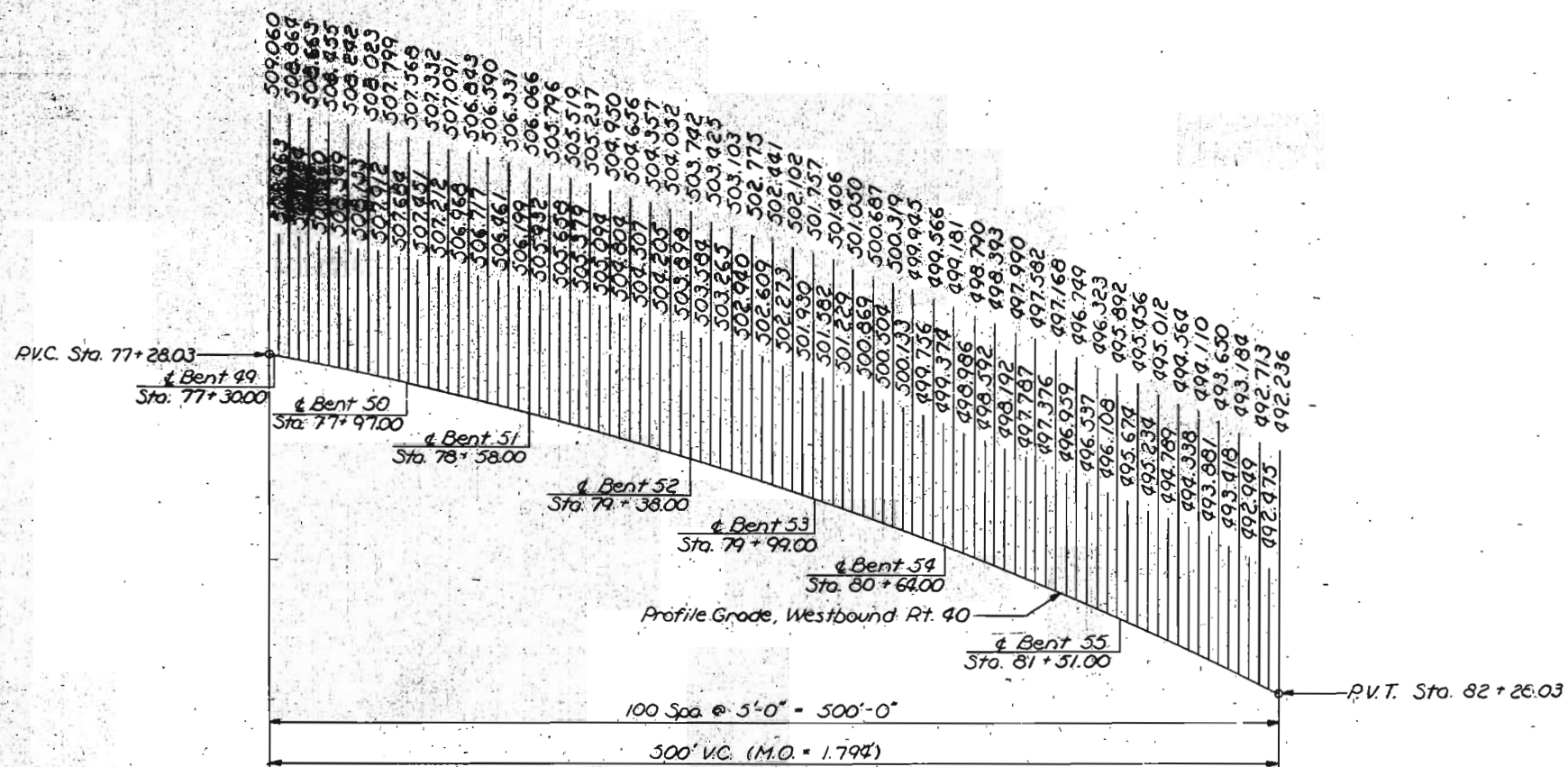
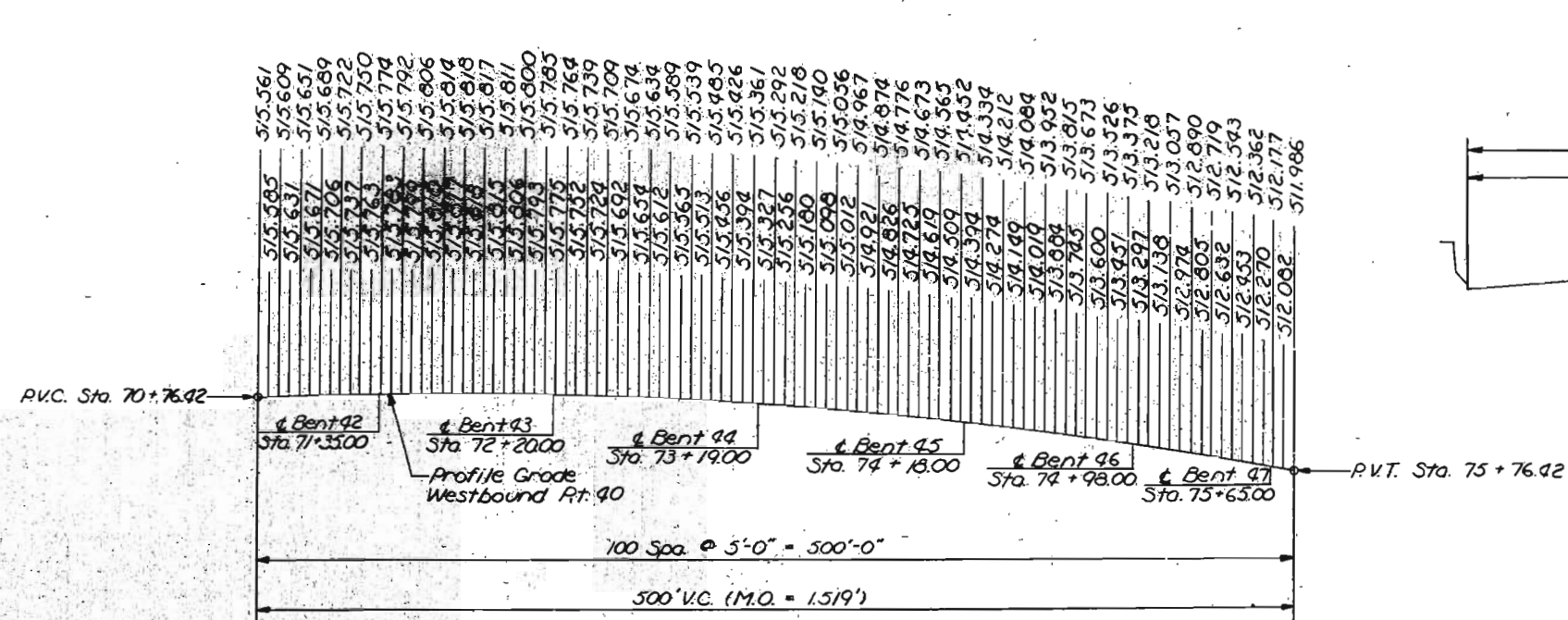
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ENGINEER & ARCHITECT, INC.
ENGINEERING - ARCHITECTS
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449

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	89	



CITY OF ST. LOUIS

VERTICAL CURVE ELEVATIONS

SHEET 7 OF 36

A-3594

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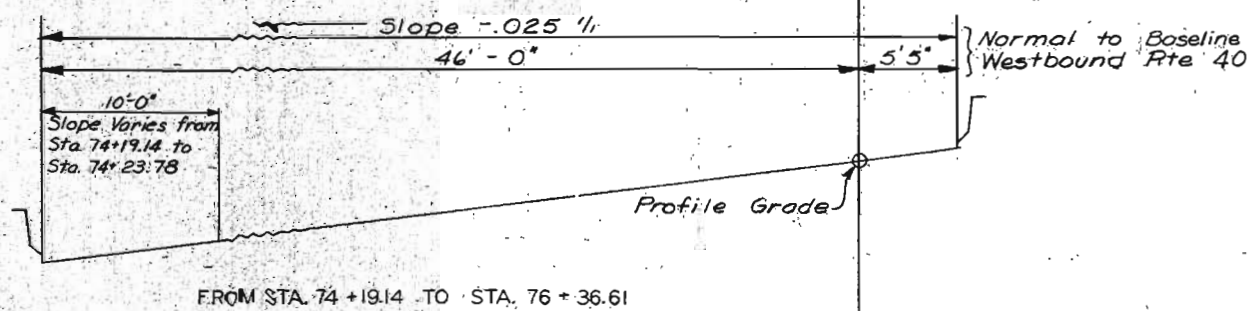
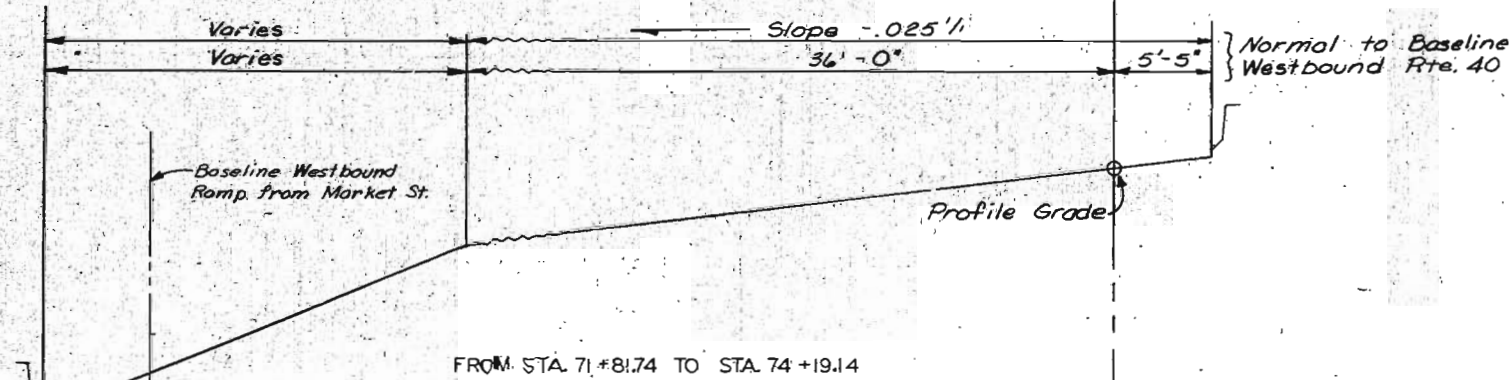
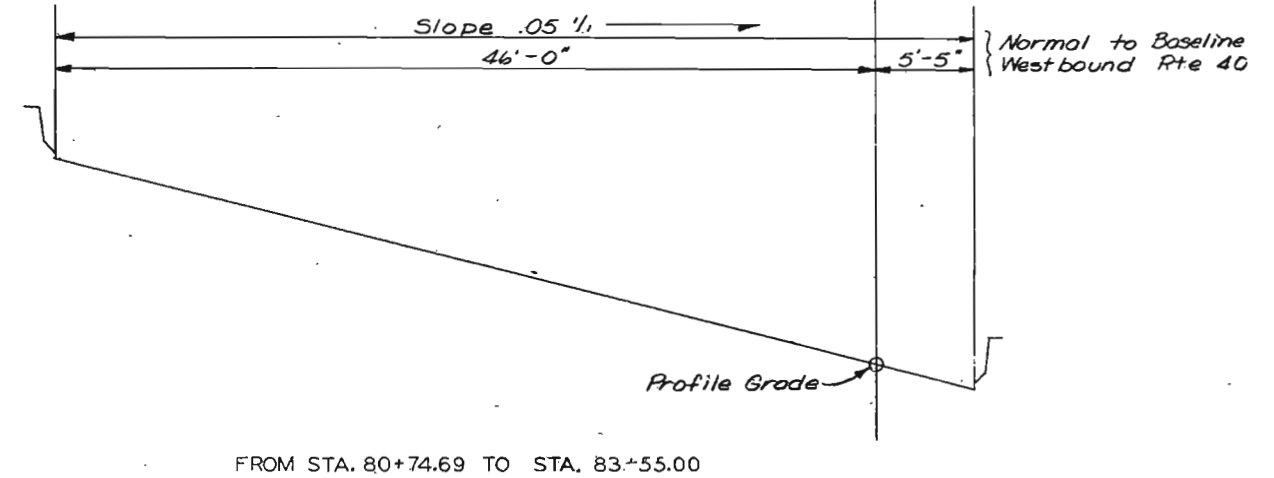
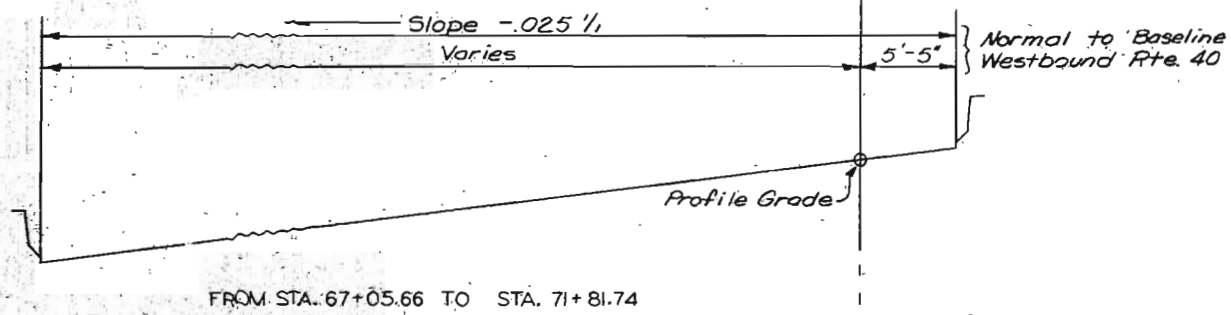
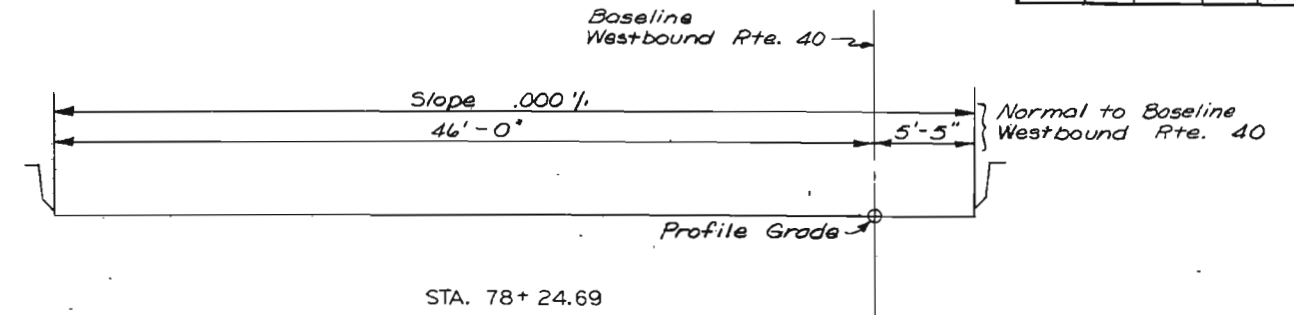
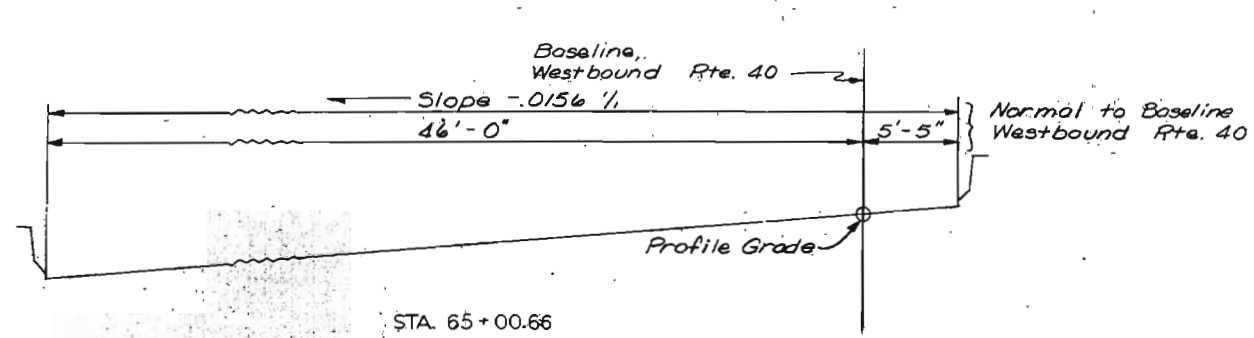
SWENBERG & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

450

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715263

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	90	



CITY OF ST. LOUIS

ROADWAY CROSS SLOPES

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

SHEET 8 OF 36

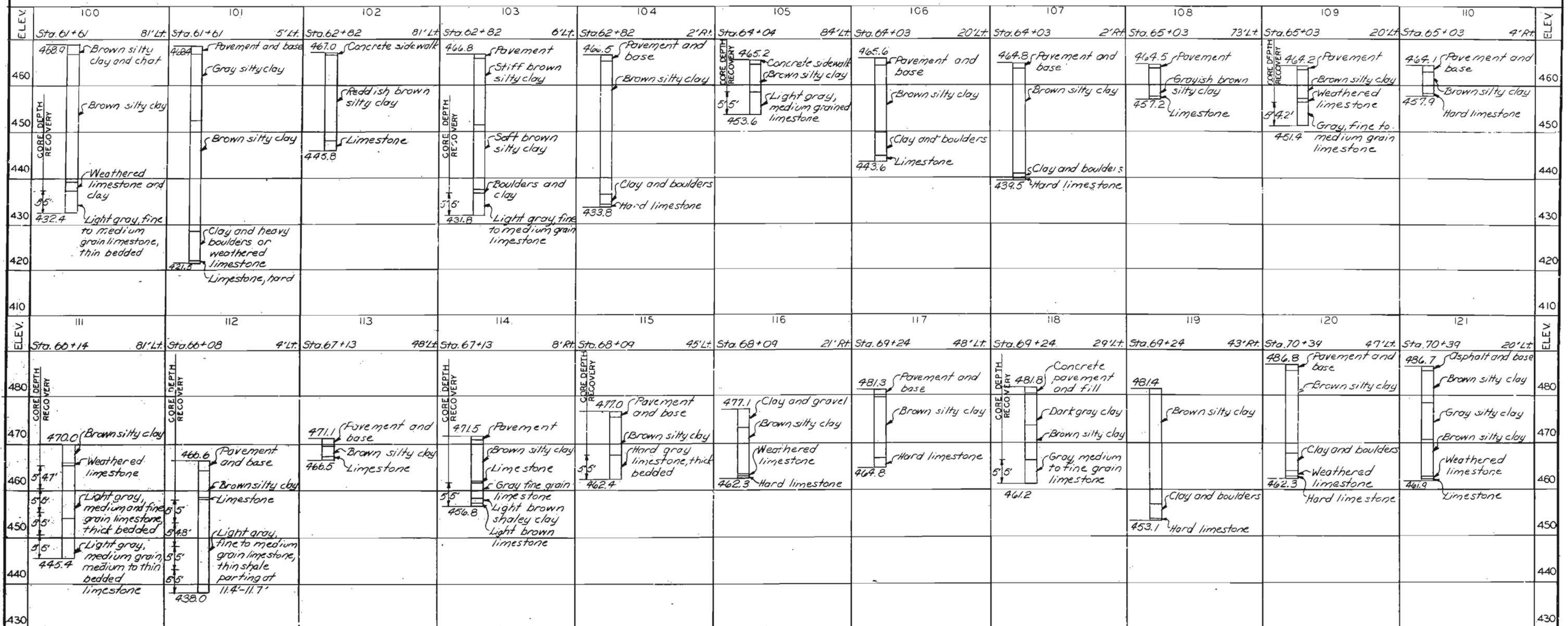
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ENGINEERS - ARCHITECTS
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451

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	91	



BORING NOTES

Boring data are furnished for information only and may or may not represent the actual conditions which will be found when work is executed.
 Borings were made in December 1975.
 Stations and offsets are measured along Baseline Westbound Route 40.

CITY OF ST. LOUIS

LOG OF BORINGS

SHEET 9 OF 30

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

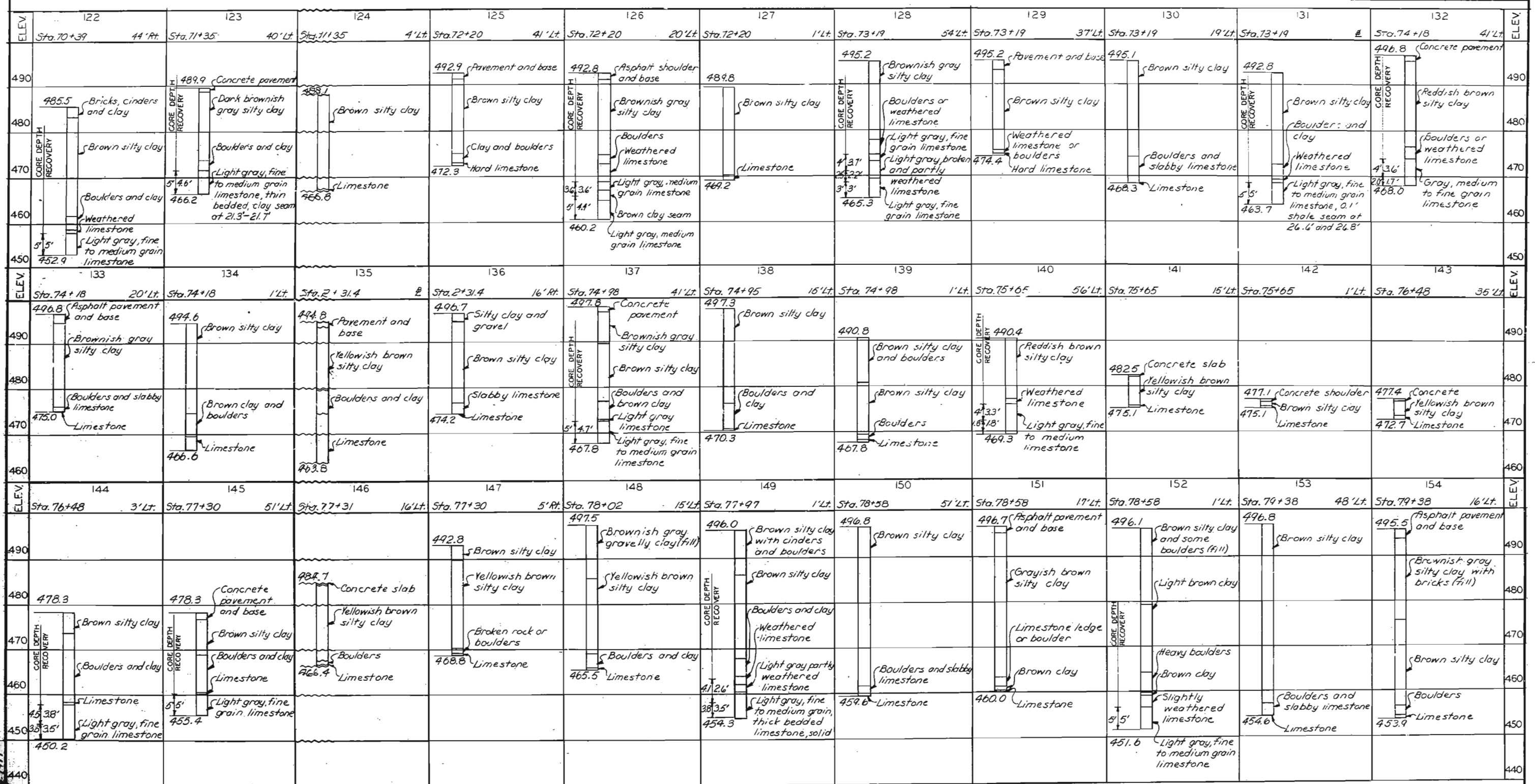
OVERBURN & PARCEL AND ASSOCIATES, Inc.
 ENGINEERS - ARCHITECTS
 ST. LOUIS, MISSOURI

DRAWN BY: L. Stader Jan. 77
 CHECKED BY: 6/2/77
 5261
 77535

452

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	92	



BORING NOTES

Boring data are furnished for information only and may or may not represent the actual conditions which will be found when work is executed.
 Borings were made in December 1975.
 Stations and offsets are measured along Baseline Westbound Route 40 except Borings 135 and 136 which are measured along Baseline Westbound Ramp from Market St.

CITY OF ST. LOUIS

LOG OF BORINGS

SHEET 10 OF 36

A-3594

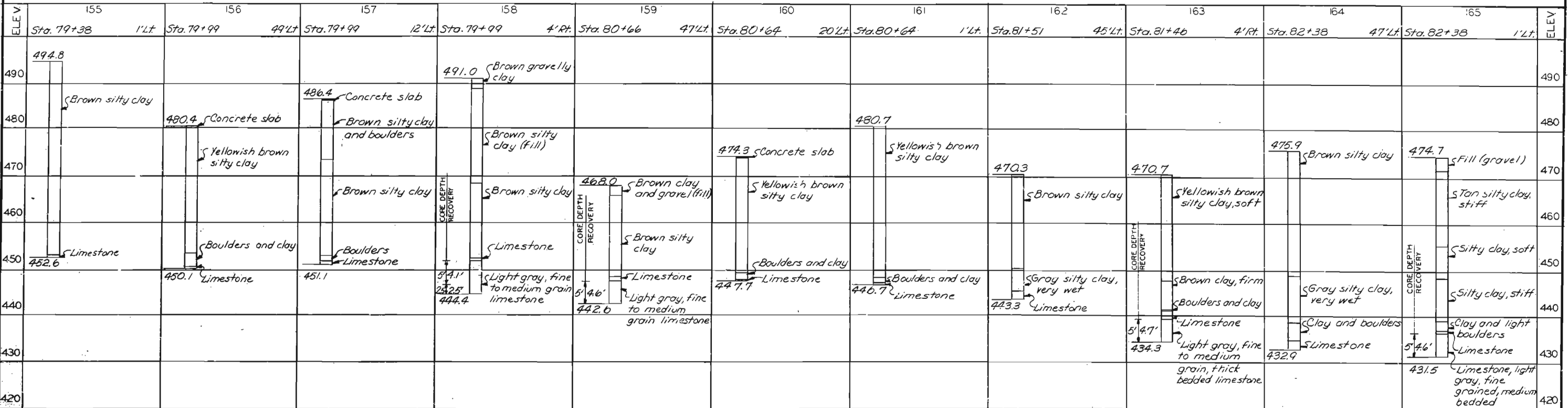
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 77336
 1977
 JAN-77

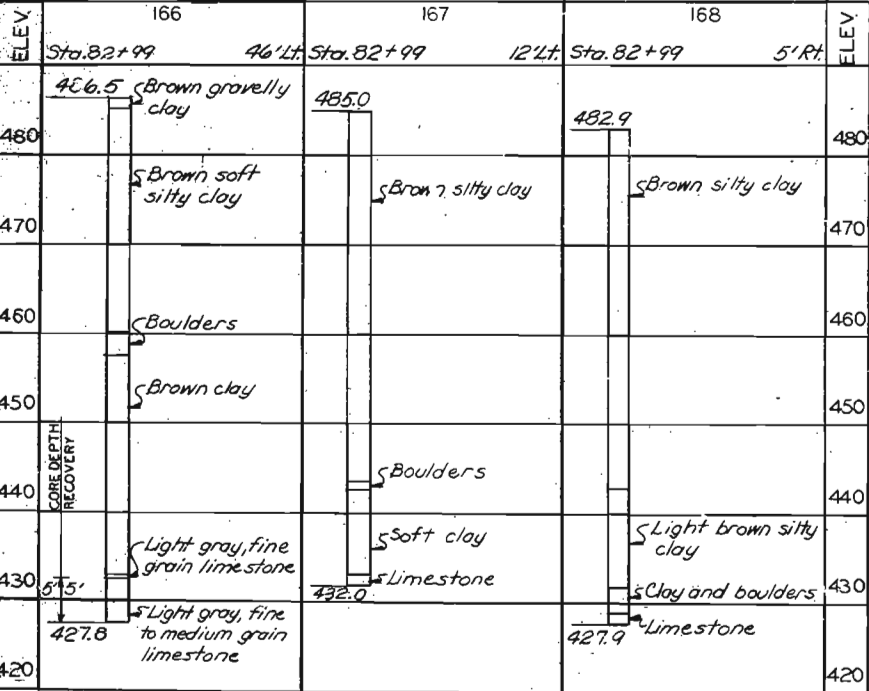
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	93	



BORING NOTES

See Sheet 9



CITY OF ST. LOUIS

LOG OF BORINGS

SHEET 11 OF 38

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

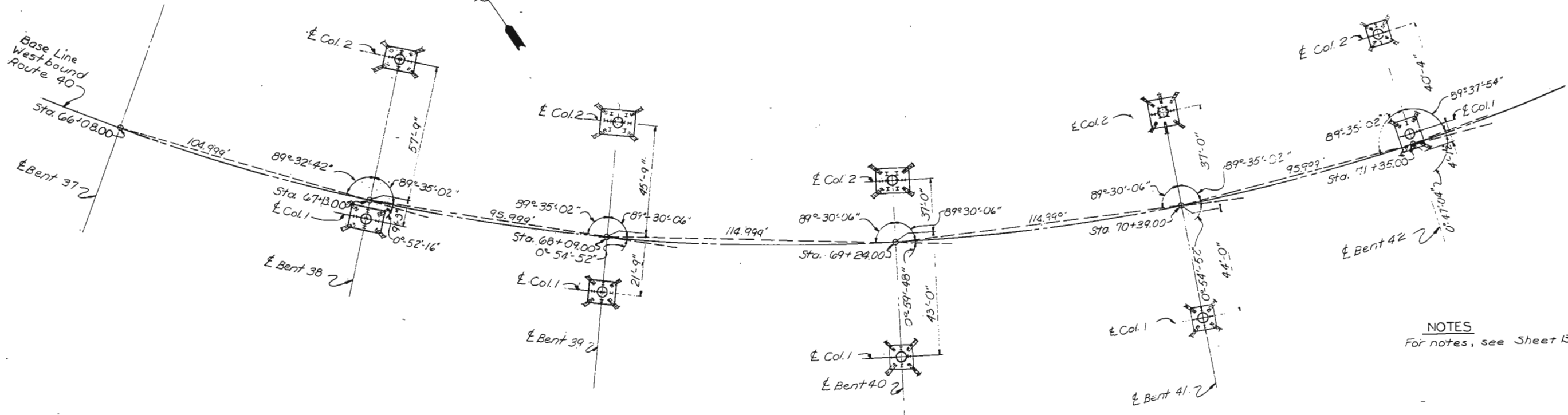
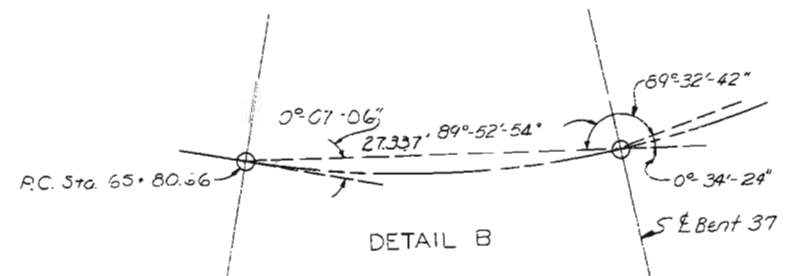
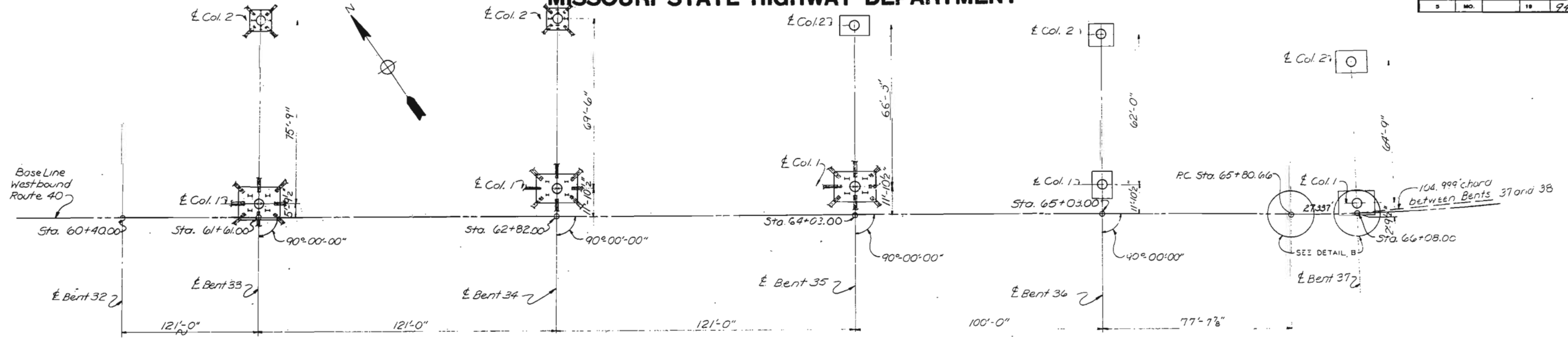
OVERHURP & PARCEL AND ASSOCIATES, Inc.
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5261
77540

455

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	24	



NOTES
For notes, see Sheet 13.

CITY OF ST. LOUIS

SUBSTRUCTURE LAYOUT

SHEET 12 OF 36

A-3594

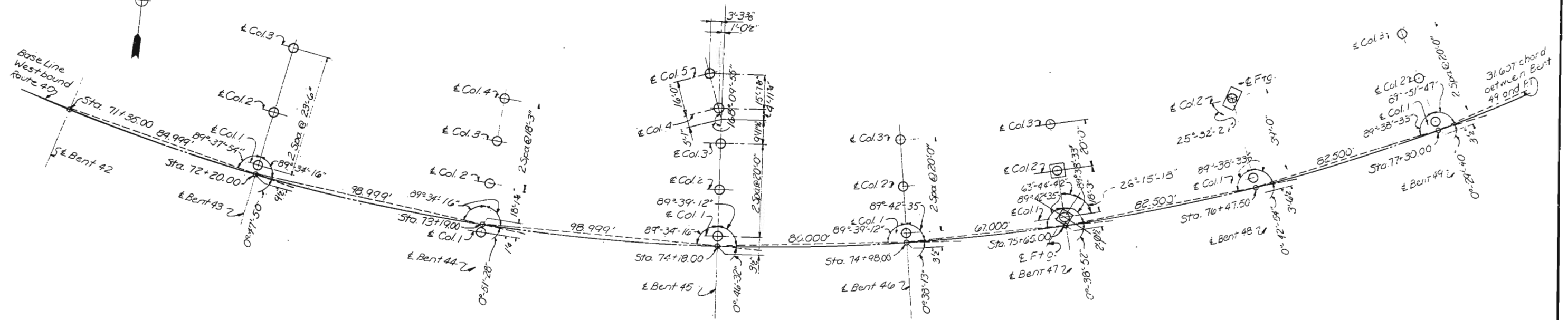
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DRAWN BY: L. Stoddard, Aug. 1977
CHECKED BY: R. Stoddard, Aug. 1977
5261
77574

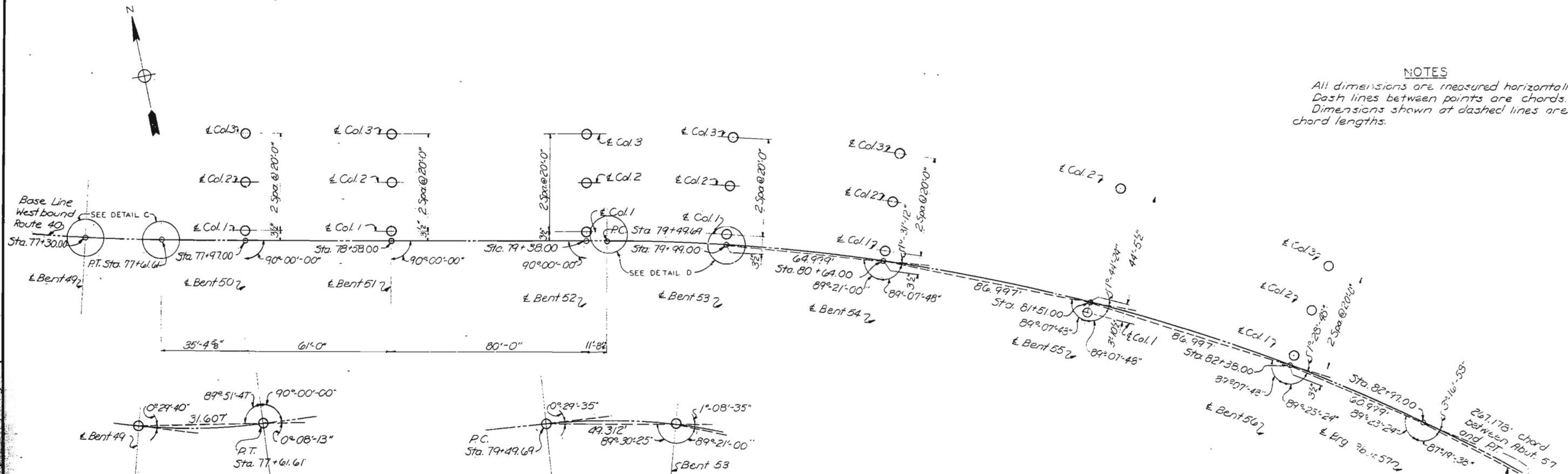
OVERHUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	95	



NOTES
 All dimensions are measured horizontally.
 Dash lines between points are chords.
 Dimensions shown at dashed lines are chord lengths.



DETAIL C

DETAIL D

CITY OF ST. LOUIS

SUBSTRUCTURE LAYOUT

SHEET 13 OF 16

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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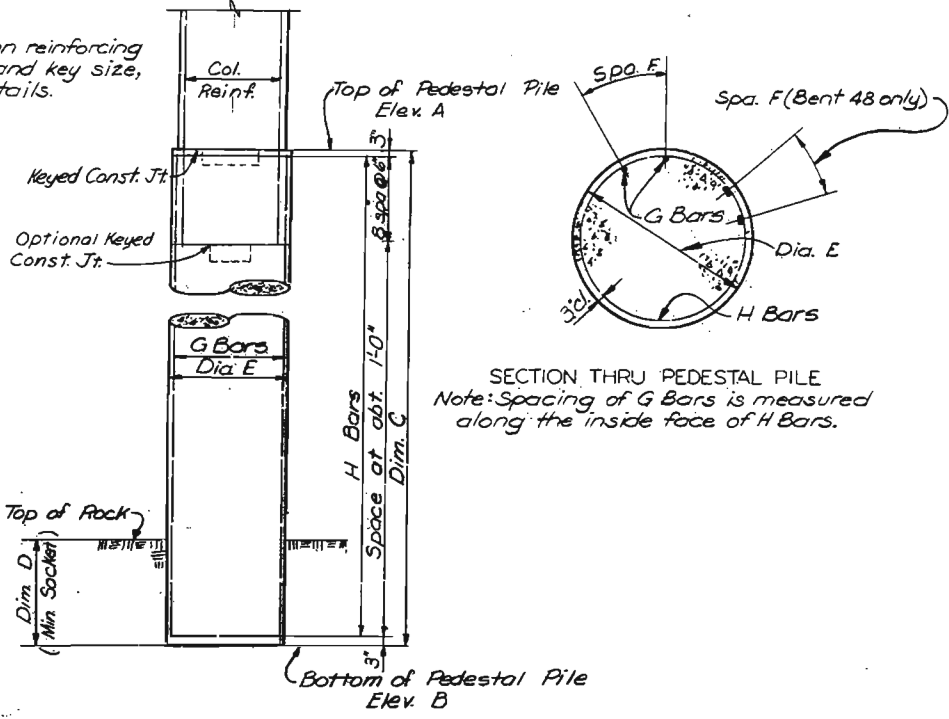
DRAWN BY: L. S. WOODRICK Aug. 1977
 CHECKED BY: R. J. WOODRICK Aug. 1977
 5261
 77578

456

MISSOURI STATE HIGHWAY DEPARTMENT

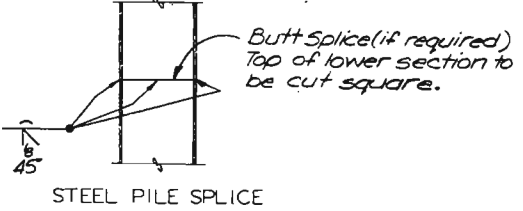
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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Note: For Column reinforcing embedment and key size, see Bent Details.

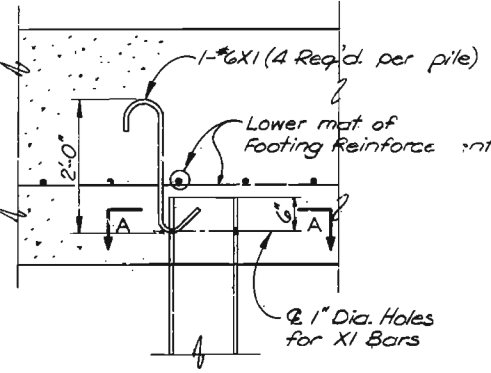


SECTION THRU PEDESTAL PILE
Note: Spacing of G Bars is measured along the inside face of H Bars.

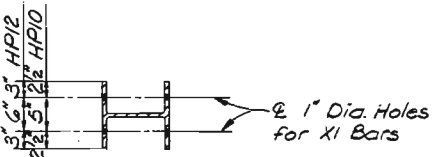
STEEL PILE DATA										
BENT NO.	COLUMN 1					COLUMN 2				
	NO. REQ'D.	APPROX. LENGTH	PILE SIZE	MAX. DES. BEARING TONS	HAMMER ENERGY REQ'D. FT. LBS.	NO. REQ'D.	APPROX. LENGTH	PILE SIZE	MAX. DES. BEARING TONS	HAMMER ENERGY REQ'D. FT. LBS.
33	13	35'	HP12x53	87	21,400	8	22'	HP10x42	36	8,400
34	13	20'	HP12x53	87	21,400	8	12'	HP10x42	36	8,400
35	13	14'	HP12x53	87	21,400					
38	9	*10'	HP10x42	65	16,000	9	*40'	HP10x42	61	15,000
39	9	*10'	HP10x42	50	12,300	12	*10'	HP12x53	83	20,400
40	8	23'	HP10x42	33	7,800	12	*10'	HP12x53	88	21,600
41	8	23'	HP10x42	25	7,000	12	15'	HP12x53	82	20,200
42	8	16'	HP10x42	56	13,200	8	15'	HP10x42	43	10,600
LOCATION	NO. REQ'D.	APPROX. LENGTH	PILE SIZE	MAX. DES. BEARING TONS	HAMMER ENERGY REQ'D. FT. LBS.					
Abut. 57	13	49'	HP10x42	45	11,100					



Note: Minimum energy requirements of hammer based on plan length and design bearing value of piles.
All piles shall be driven to practical refusal.
Bearing piles shall conform to A.S.T.M. A36.
* Denotes prebored holes are required for steel piles, see Standard Specification 702.4.3.
Cost of preboring shall be included in the price bid for steel pile.



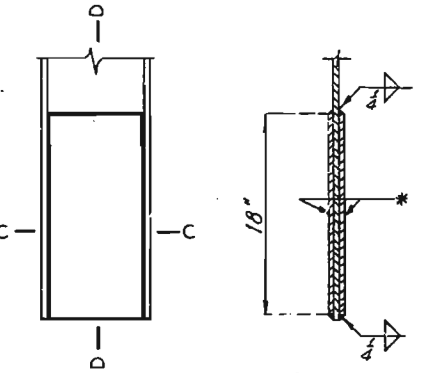
SECTION THRU FOOTING



SECTION A-A

PILE HOLD-DOWN DETAIL

Note: All XI Bars shall be securely tied to the lower mat of Footing Reinforcement.
Typical for all steel piles except at Abut. 57



SECTION D-D

SECTION C-C

PILE TIP REINFORCEMENT

Size Pile	Size Plate
HP10x42	7/8" x 3/8" x 18"
HP12x53	9/8" x 7/8" x 18"

* R 7/8" x 3/8" x 18" for HP10x42
* R 9/8" x 7/8" x 18" for HP12x53

PEDESTAL PILE DATA									
MAX DESIGN BEARING - 35 TONS PER SQ. FT.									
BENT	COLUMN	ELEV. A	ELEV. B	DIM. C	DIM. D	DIA. E	SPA. F	G BARS	H BARS
43	1	488.5	458.0	30'-6"	6'-0"	4'-0"	4'-8"	29-*11M1	35-*4M31
	2+3	491.5	458.0	33'-6"	6'-0"	4'-0"	4'-8"	29-*11M2	38-*4M31
44	1	491.5	459.0	32'-6"	6'-0"	3'-6"	5'-4"	22-*11M3	37-*4M32
	2+3	493.5	462.0	31'-6"	6'-0"	3'-6"	5'-4"	22-*11M4	36-*4M32
45	1	493.5	468.0	25'-6"	6'-0"	3'-6"	5'-4"	22-*11M5	30-*4M32
	2+3	493.0	462.0	31'-0"	5'-0"	3'-0"	4'-8"	20-*10M6	36-*4M33
46	1	493.5	468.0	27'-6"	5'-0"	3'-0"	4'-8"	20-*10M7	32-*4M33
	2	495.0	468.0	27'-0"	5'-0"	3'-0"	4'-8"	20-*10M8	32-*4M33
47	1	493.5	468.0	25'-6"	5'-0"	3'-0"	4'-8"	20-*10M9	30-*4M33
	2+3	495.5	468.0	26'-6"	6'-0"	3'-6"	5'-4"	22-*11M10	31-*4M32
48	1	495.5	464.0	31'-6"	6'-0"	3'-6"	5'-4"	22-*11M11	36-*4M32
	2	496.5	466.0	30'-6"	6'-0"	3'-6"	5'-4"	22-*11M12	35-*4M32
49	1	482.0	472.0	17'-0"	6'-0"	3'-6"	5'-4"	22-*11M13	22-*4M32
	2	478.5	458.0	29'-6"	11'-0"	5'-6"	6'-8"	28 Bundles of 2-*11M14	34-*4M34
50	1	478.5	458.0	20'-6"	10'-0"	5'-0"	3'-8"	44-*11M15	25-*4M35
	2	478.5	456.0	22'-6"	10'-0"	5'-0"	3'-8"	44-*11M16	27-*4M35
51	1	478.5	451.0	27'-6"	10'-0"	5'-0"	3'-8"	44-*11M17	32-*4M35
	2+3	479.0	454.0	25'-0"	6'-0"	3'-6"	5'-4"	22-*11M18	30-*4M32
52	1	479.0	459.0	20'-0"	6'-0"	3'-6"	5'-4"	22-*11M19	25-*4M32
	2	479.0	451.0	28'-0"	6'-0"	4'-0"	4'-8"	28-*11M20	33-*4M31
53	1	479.0	451.0	25'-0"	6'-0"	4'-0"	4'-8"	28-*11M21	30-*4M31
	2	479.0	456.0	23'-0"	6'-0"	4'-0"	4'-8"	28-*11M22	28-*4M31
54	1,2+3	479.0	447.0	32'-0"	6'-0"	4'-0"	4'-8"	28-*11M23	37-*4M31
	2	479.0	445.0	34'-0"	6'-0"	3'-6"	5'-4"	22-*11M24	39-*4M32
55	1	479.0	440.0	39'-0"	6'-0"	3'-6"	5'-4"	22-*11M25	44-*4M32
	2	472.5	442.0	30'-6"	6'-0"	3'-6"	5'-4"	22-*11M26	35-*4M32
56	1	468.0	433.0	26'-0"	6'-0"	3'-6"	5'-4"	22-*11M27	31-*4M32
	2	469.0	437.0	32'-0"	8'-0"	5'-0"	3'-8"	44-*11M28	49-*4M31
57	1	473.0	429.0	44'-0"	6'-0"	4'-0"	4'-8"	28-*11M29	44-*4M31
	2	473.5	429.0	44'-6"	6'-0"	4'-0"	4'-8"	28-*11M30	50-*4M31
58	1	474.5	429.0	45'-6"	6'-0"	4'-0"	4'-8"		
	2	474.5	429.0	45'-6"	6'-0"	4'-0"	4'-8"		

CITY OF ST. LOUIS

PILE DATA

SHEET 4 OF 36

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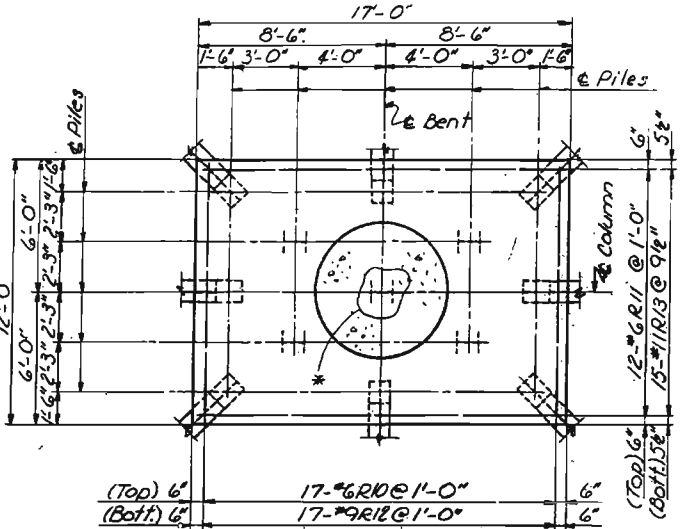
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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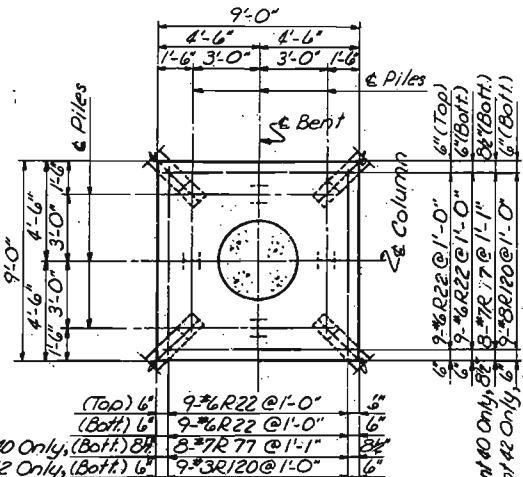
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	97	



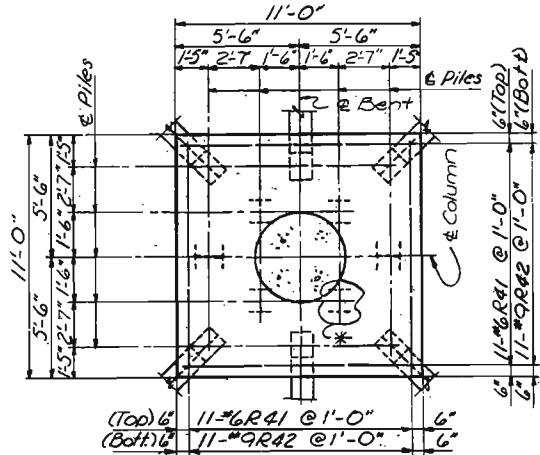
FOOTING PLAN AT
COLUMN 1 - BENTS 33, 34, & 35

Note: 13-HP12x53 piles required for each footing.
Batter piles 3 in 12 in the direction shown.
* Indicates pile to be load tested at Bent 33 only.



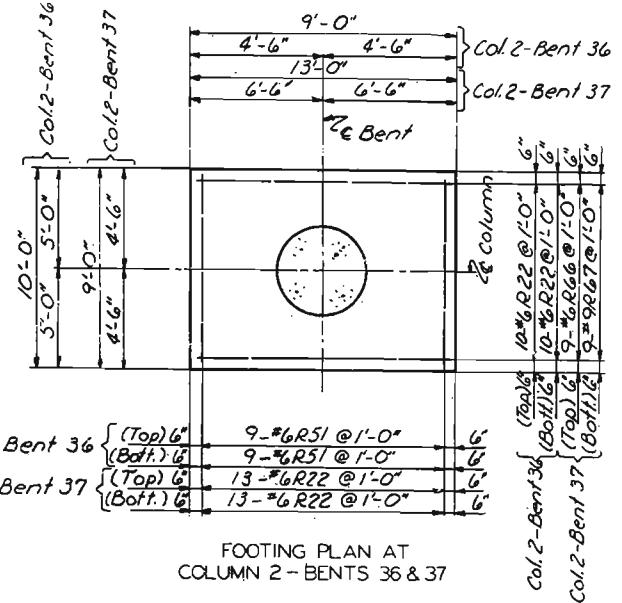
FOOTING PLAN AT
COLUMN 1 - BENTS 40 & 41
COLUMNS 1 & 2 - BENT 42
COLUMN 2 - BENTS 33 & 34

Note: 8-HP10x42 piles required for each footing.
Batter piles 2 in 12 in the direction shown for Bents 33, 34, 40, and Col. 1 - Bent 42 and 3 in 12 in the direction shown for Bent 41 and Col. 2 - Bent 42.

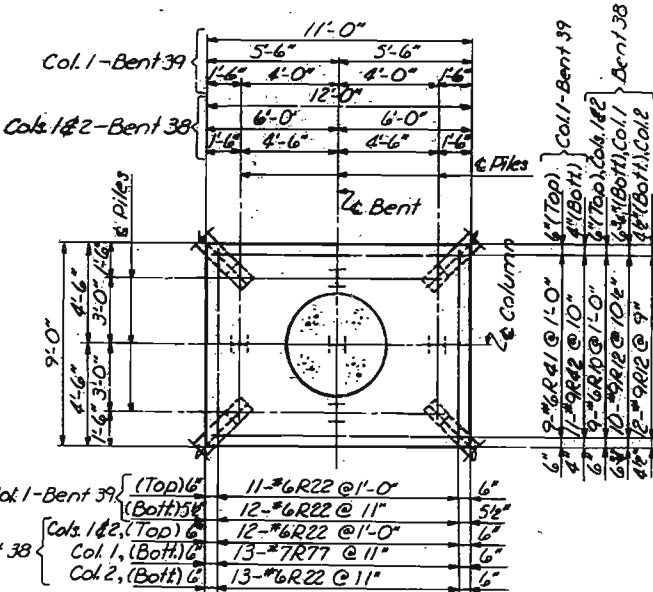


FOOTING PLAN AT
COLUMN 2 - BENT 41

Note: 12-HP 12x53 piles required.
Batter piles 3 in 12 in direction shown.
* Indicates pile to be load tested.

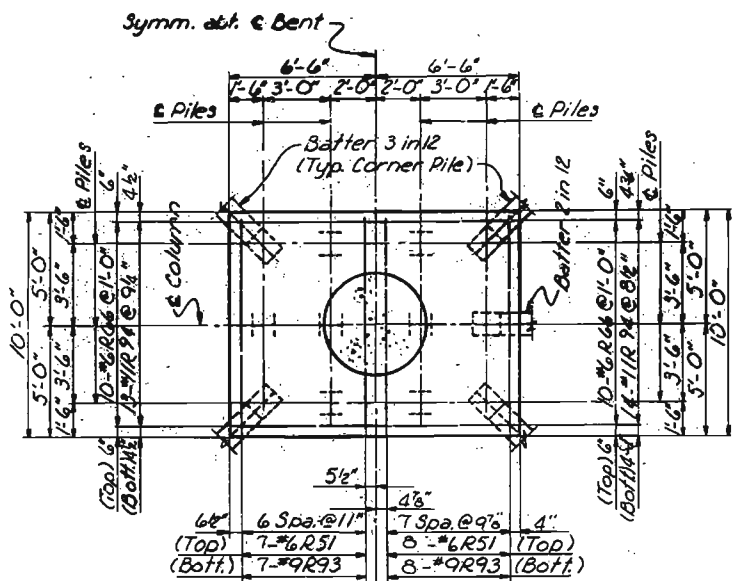


FOOTING PLAN AT
COLUMN 2 - BENTS 36 & 37



FOOTING PLAN AT
COLUMN 1 - BENT 39
COLUMNS 1 & 2 - BENT 38

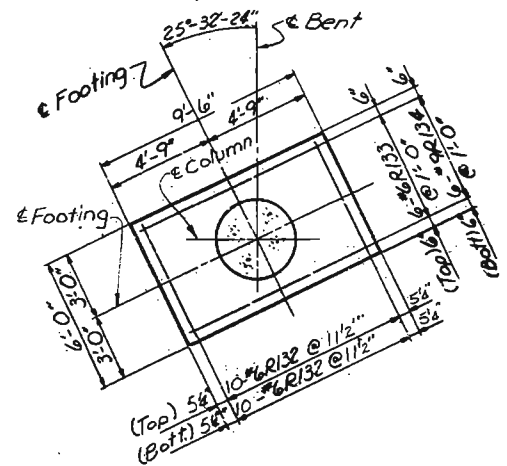
Note: 9-HP10x42 piles required for each footing.
Batter piles 3 in 12 in the direction shown.



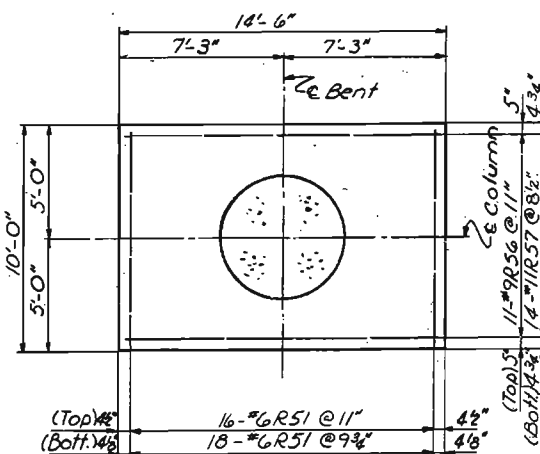
FOOTING PLAN AT
COLUMN 2 - BENTS 39 & 40

Note: 12-HP12x53 piles required for each footing.

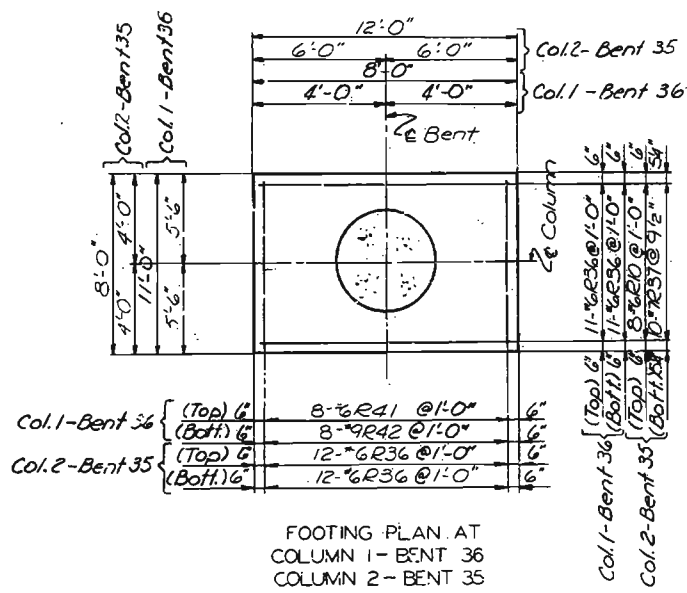
MAXIMUM DESIGN BEARING PRESSURE FOR SPREAD FOOTINGS		
BENT	COLUMN	MAX. DES. BRG. PRESSURE
35	2	4 Tons/Sq. Ft.
36	1	12 Tons/Sq. Ft.
	2	5 Tons/Sq. Ft.
37	1	9 Tons/Sq. Ft.
	2	5 Tons/Sq. Ft.
48	2	8 Tons/Sq. Ft.



FOOTING PLAN AT
COLUMN 2 - BENT 48



FOOTING PLAN AT
COLUMN 1 - BENT 36



FOOTING PLAN AT
COLUMN 1 - BENT 36
COLUMN 2 - BENT 35

NOTES
Pile spacing is measured at the Bottom of Footing.
For Substructure Layout, See Sheets 12 and 13.
For Pile Splice, Pile Data, and Pile Hold Down Detail, see Sheet 14.
Work this Sheet with Sheet 16.

CITY OF ST. LOUIS

BENTS 33 THRU 42, 48 AND 55

SHEET 15 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

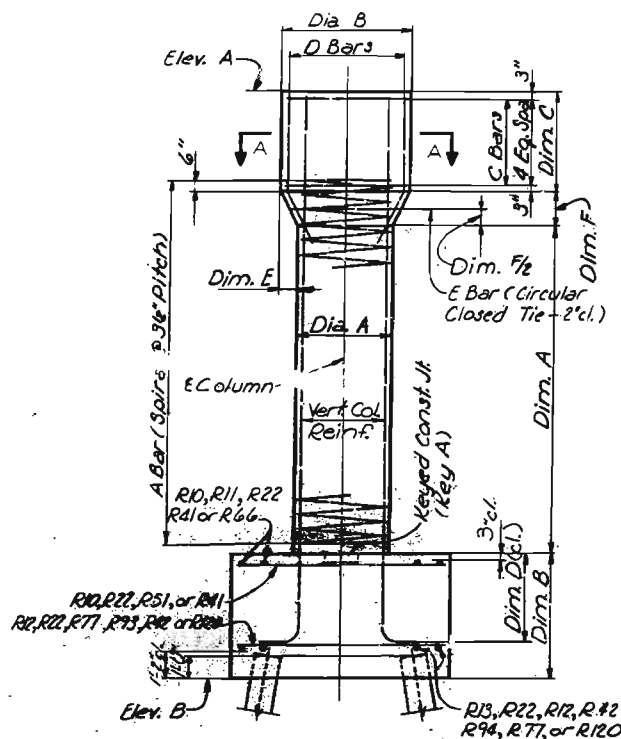
458

DRAWN BY: D. AUG. 1977
CHECKED BY: J. J. J. J. J.
5261
775324

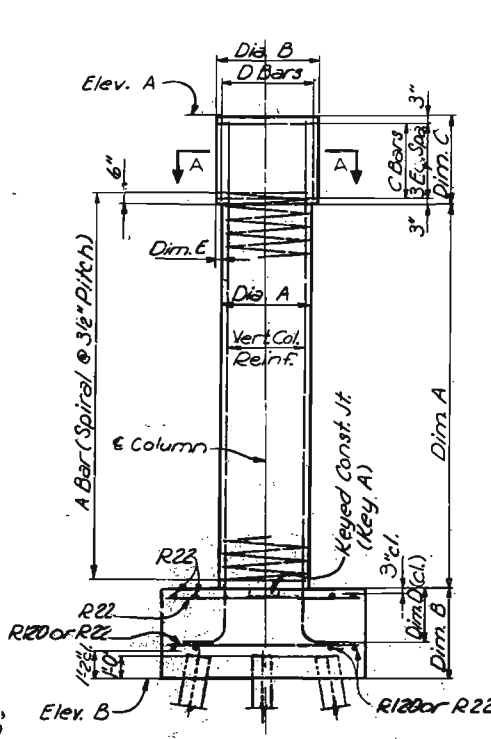
SPRENGER & PARCEL AND ASSOCIATES, Inc.
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MISSOURI STATE HIGHWAY DEPARTMENT

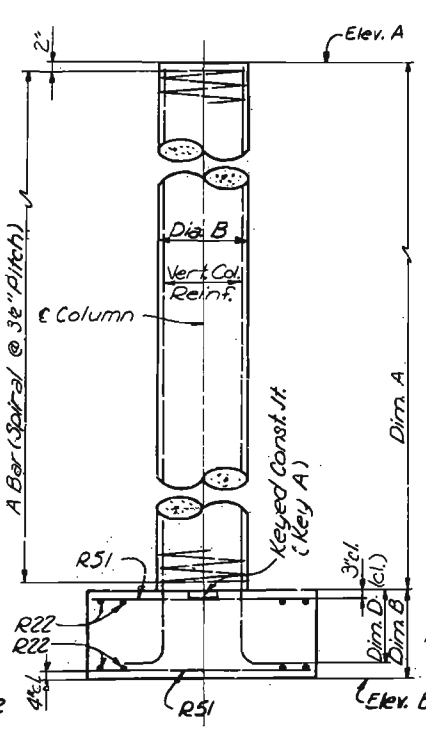
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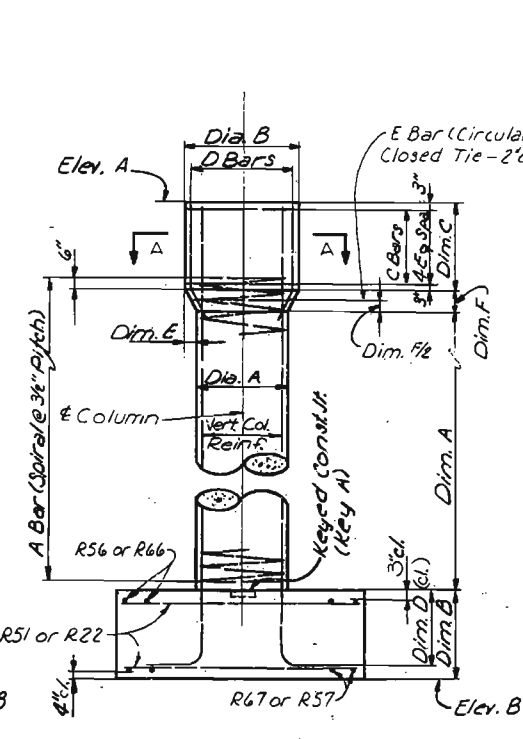
COLUMN 1 - BENTS 34 & 35
COLUMNS 1 & 2 - BENTS 33, 38, 39, 40, & 41
COLUMN 2 - BENT 42



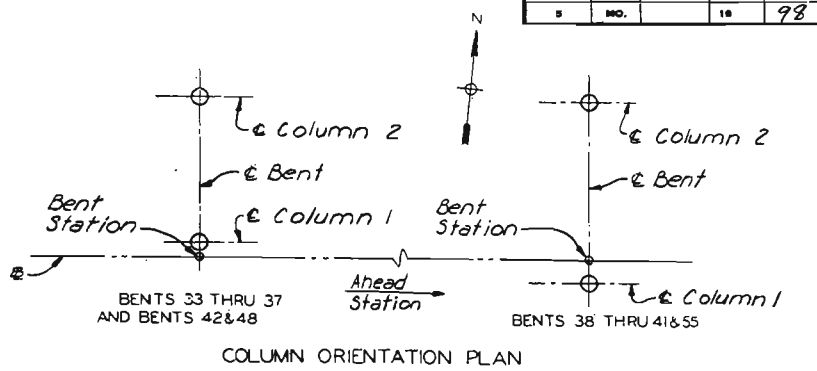
COLUMN 1 - BENT 42
COLUMN 2 - BENT 34



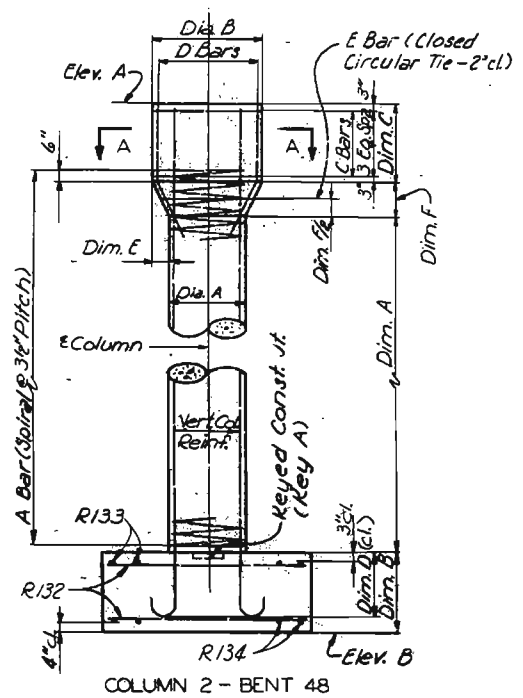
COLUMN 2 - BENT 36



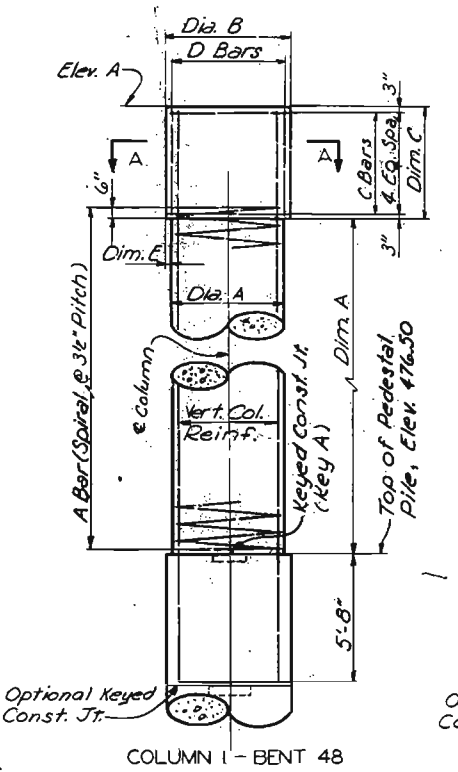
COLUMNS 1 & 2 - BENT 37



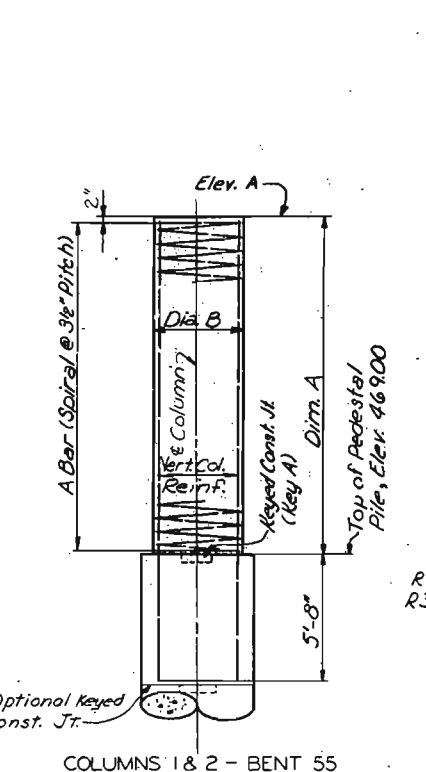
COLUMN ORIENTATION PLAN



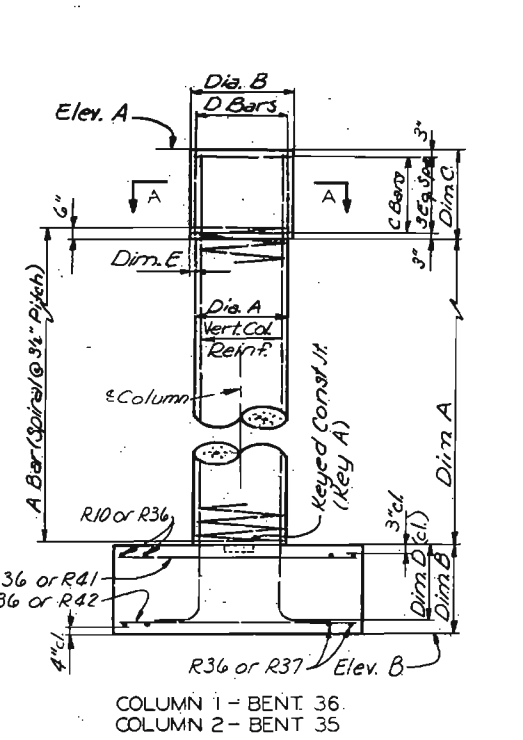
COLUMN 2 - BENT 48



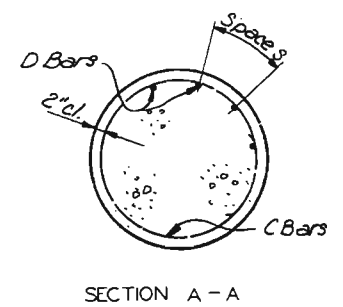
COLUMN 1 - BENT 48



COLUMNS 1 & 2 - BENT 55



COLUMN 1 - BENT 36
COLUMN 2 - BENT 35



SECTION A - A

NOTES

Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spacing of vertical column reinforcement is measured along inside face of spiral bar or tie bar. Work this sheet with Sheets 15 and 17. Spirals to be set on top of footings or Pedestal Piles.

CITY OF ST. LOUIS

BENTS 33 THRU 42, 48 AND 55

SHEET 16 OF 35

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

459

DESIGNED BY: D.R. [Signature]
CHECKED BY: [Signature]
DATE: 7/7/77
773326

SHEDDEN & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURI

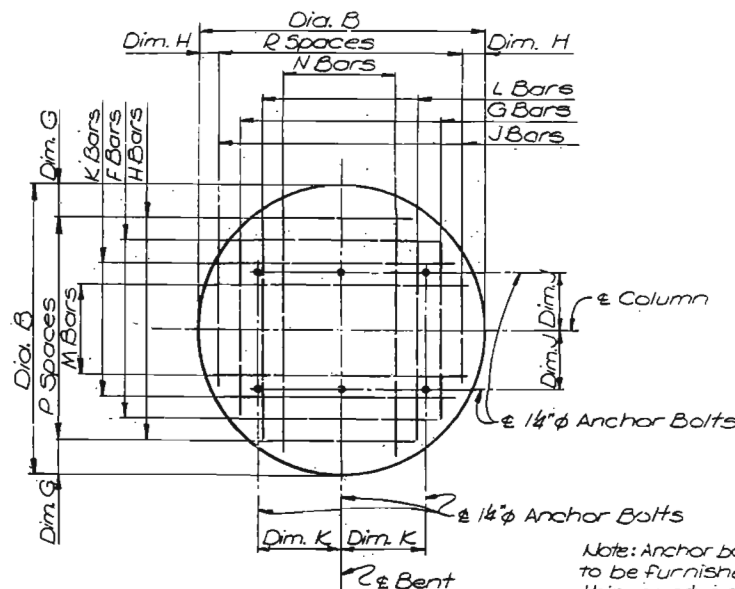
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	99	

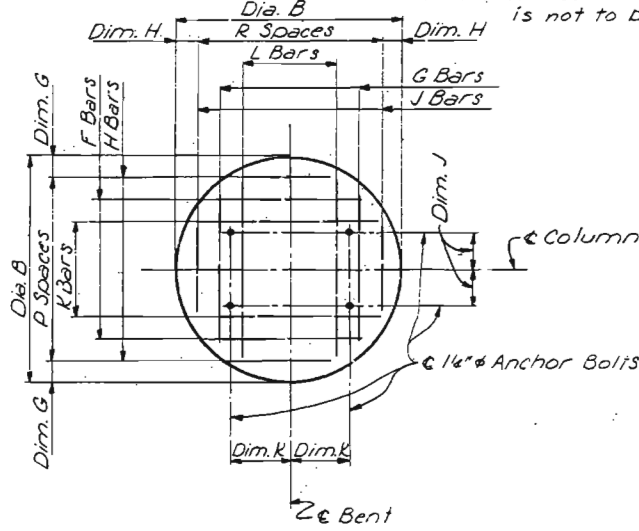
TABLE OF VARIABLES

	BENT 33 STA. 61+6.20		BENT 34 STA. 62+82.00		BENT 35 STA. 64+03.00		BENT 36 STA. 65+03.00		BENT 37 STA. 66+08.00		BENT 38 STA. 67+13.00		BENT 39 STA. 68+09.00		BENT 40 STA. 69+24.00		BENT 41 STA. 70+39.00		BENT 42 STA. 71+35.00		BENT 48 STA. 76+47.50		BENT 55 STA. 81+50.00		
	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	COL. 1	COL. 2	
Elev. A	493.01	493.32	493.60	493.89	494.20	494.49	494.76	495.00	495.22	495.44	495.65	495.89	496.15	496.40	496.65	496.90	497.14	497.38	497.63	497.87	498.13	498.39	498.61	498.81	Elev. B
Elev. B	456.00	460.00	456.00	459.00	456.00	458.00	456.00	456.00	457.50	458.50	462.00	463.50	468.50	469.00	474.50	480.00	478.00	483.00	484.50	478.00	478.00	478.00	478.00	478.00	Elev. C
Dim. A	24'-0"	24'-3"	24'-7"	26'-10"	26'-2"	28'-11"	31'-9"	35'-7"	26'-11"	26'-5"	23'-7"	20'-11"	19'-5"	16'-6"	15'-1"	10'-1"	17'-10"	13'-4"	16'-11"	12'-11"	16'-7"	16'-9"	13'-4"	20'-9"	Dim. B
Dim. B	6'-0"	4'-0"	6'-0"	4'-0"	6'-0"	3'-6"	4'-0"	4'-0"	4'-0"	4'-0"	5'-0"	4'-6"	4'-0"	4'-6"	4'-0"	4'-6"	4'-0"	6'-0"	3'-0"	3'-6"	5'-0"	3'-6"	3'-0"	3'-0"	Dim. C
Dim. C	6'-0"	4'-0"	6'-0"	4'-0"	6'-0"	4'-0"	4'-0"	4'-0"	5'-0"	4'-6"	4'-0"	4'-6"	4'-0"	4'-6"	4'-0"	4'-6"	4'-0"	6'-0"	3'-0"	3'-6"	5'-0"	3'-6"	3'-0"	3'-0"	Dim. D
Dim. D	4'-4"	2'-7"	4'-4"	2'-7"	4'-4"	2'-11"	3'-4"	3'-5"	3'-3"	3'-4"	3'-6"	2'-11"	2'-6"	2'-10"	2'-6"	2'-10"	2'-8"	4'-6"	2'-6"	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"	Dim. E
Dim. E	6"	6"	6"	3"	6"	3"	3"	3"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	Dim. F
Dim. F	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	Dim. G
Dim. G	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	Dim. H
Dim. H	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	9"	Dim. I
Dim. J	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	Dim. J
Dim. K	2'-0"	1'-4"	2'-0"	1'-3"	2'-0"	1'-3"	1'-2"	1'-2"	2'-0"	1'-5"	1'-7"	1'-7"	1'-5"	1'-11"	1'-3"	2'-0"	7"	1'-6"	8"	8"	1'-5"	1'-4"	1'-4"	1'-4"	Dim. K
Dia. A	6'-0"	4'-0"	6'-0"	4'-0"	6'-0"	4'-0"	4'-0"	4'-0"	5'-0"	4'-6"	4'-0"	4'-6"	4'-0"	4'-6"	4'-0"	4'-6"	4'-0"	6'-0"	3'-0"	3'-6"	5'-0"	3'-6"	3'-0"	3'-0"	Dia. E
Dia. B	7'-0"	5'-0"	7'-0"	4'-6"	7'-0"	4'-6"	5'-0"	3'-6"	7'-0"	5'-6"	6'-0"	6'-0"	5'-6"	6'-6"	4'-6"	7'-0"	3'-6"	5'-6"	4'-0"	4'-0"	5'-6"	3'-6"	4'-0"	4'-0"	Dia. E
Key A	20'x20'	14'x20'	20'x20'	14'x20'	20'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	14'x20'	Key A
A Bars	1-2R1	1-2R14	1-2R23	1-2R25	1-2R32	1-2R34	1-2R38	1-2R43	1-2R52	1-2R58	1-2R68	1-2R78	1-2R82	1-2R84	1-2R95	1-2R99	1-2R103	1-2R108	1-2R110	1-2R121	1-2R125	1-2R128	1-2R135	1-2R137	A Bars
C Bars	5-4R3	5-4R16	5-4R3	4-4R27	5-4R3	4-4R27	4-4R16	—	5-4R3	5-4R60	5-4R70	5-4R70	5-4R60	5-4R86	5-4R27	5-4R3	5-4R105	5-4R60	4-4R112	5-4R112	5-4R60	4-4R16	—	—	C Bars
D Bars	22-4R4	15-4R17	22-4R4	13-4R28	22-4R4	12-4R28	15-4R40	—	22-4R54	16-4R61	18-4R71	18-4R80	16-4R61	20-4R87	13-4R97	22-4R101	10-4R106	16-4R61	12-4R113	12-4R123	16-4R127	15-4R130	—	—	D Bars
E Bars	1-4R5	1-4R18	1-4R5	—	1-4R5	—	—	—	1-4R55	1-4R62	1-4R72	1-4R81	1-4R62	1-4R88	1-4R98	1-4R102	1-4R107	1-4R62	1-4R114	1-4R114	1-4R114	1-4R131	—	—	E Bars
F Bars	1-5R6	1-5R19	1-5R6	1-5R29	1-5R6	1-5R29	1-5R19	1-5R45	1-5R6	1-5R63	1-5R73	1-5R73	1-5R63	1-5R89	1-5R29	1-5R6	1-5R45	1-5R63	1-5R114	1-5R114	1-5R63	1-5R19	1-5R117	1-5R117	F Bars
G Bars	1-5R6	1-5R19	1-5R6	1-5R29	1-5R6	1-5R29	1-5R19	1-5R48	1-5R6	1-5R63	1-5R73	1-5R73	1-5R63	1-5R89	1-5R29	1-5R6	1-5R45	1-5R63	1-5R117	1-5R117	1-5R63	1-5R19	1-5R117	1-5R117	G Bars
H Bars	1-5R7	1-5R20	1-5R7	1-5R30	1-5R7	1-5R30	1-5R20	1-5R46	1-5R7	1-5R64	1-5R74	1-5R74	1-5R64	1-5R90	1-5R30	1-5R7	1-5R46	1-5R64	1-5R113	1-5R113	1-5R64	1-5R20	1-5R118	1-5R118	H Bars
J Bars	1-5R7	1-5R20	1-5R7	1-5R30	1-5R7	1-5R30	1-5R20	1-5R49	1-5R7	1-5R64	1-5R74	1-5R74	1-5R64	1-5R140	1-5R30	1-5R7	1-5R46	1-5R64	1-5R118	1-5R118	1-5R64	1-5R20	1-5R118	1-5R118	J Bars
K Bars	1-5R8	5-5R21	1-5R8	3-5R31	1-5R8	3-5R31	5-5R21	2-5R47	1-5R8	6-5R65	1-5R75	1-5R75	6-5R65	1-5R91	3-5R31	1-5R8	2-5R47	6-5R65	3-5R119	3-5R119	6-5R65	5-5R21	3-5R119	3-5R119	K Bars
L Bars	1-5R8	5-5R21	1-5R8	3-5R31	1-5R8	3-5R31	5-5R21	1-5R50	1-5R8	6-5R65	1-5R75	1-5R75	6-5R65	1-5R141	3-5R31	1-5R8	2-5R47	6-5R65	3-5R119	3-5R119	6-5R65	5-5R21	3-5R119	3-5R119	L Bars
M Bars	6-5R9	—	6-5R9	—	6-5R9	—	—	—	6-5R9	—	4-5R76	4-5R76	—	5-5R92	—	6-5R9	—	—	—	—	—	—	—	—	M Bars
N Bars	6-5R9	—	6-5R9	—	6-5R9	—	—	—	6-5R9	—	4-5R76	4-5R76	—	5-5R92	—	6-5R9	—	—	—	—	—	—	—	—	N Bars
P Spaces	11@6"	8@6"	11@6"	6@6"	11@6"	6@6"	8@6"	5@6"	11@6"	9@6"	9@6"	9@6"	9@6"	7@6"	6@6"	11@6"	5@6"	9@6"	5@6"	9@6"	8@6"	6@6"	6@6"	6@6"	P Spaces
R Spaces	11@6"	8@6"	11@6"	6@6"	11@6"	6@6"	8@6"	4@6"	11@6"	9@6"	9@6"	9@6"	9@6"	7@6"	6@6"	11@6"	5@6"	9@6"	5@6"	9@6"	8@6"	6@6"	6@6"	6@6"	R Spaces
S Spaces	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	11@4"	S Spaces
T Spaces	8"	9"	8"	9"	8"	9"	8"	5@4"	8"	6@8"	8"	7"	9"	9"	7"	9"	9"	9"	9"	9"	9"	9"	9"	9"	T Spaces
U Bars	26-11R2	15-11R15	26-11R24	15-11R26	26-11R33	15-11R35	18-11R39	11-11R44	28-11R53	17-11R59	23-11R69	22-11R79	15-11R83	22-11R85	10-11R96	—	12-11R104	15-11R109	22-11R111	18-11R122	22-11R126	22-11R129	15-11R136	15-11R138	U Bars
V Bars	26-11R143	15-11R152	26-11R148	15-11R155	26-11R150	15-11R156	18-11R159	11-11R162	28-11R172	17-11R165	23-11R164	22-11R169	15-11R175	22-11R178	10-11R181	—	12-11R185	15-11R188	22-11R191	18-11R194	22-11R197	22-11R200	15-11R202	15-11R204	V Bars
W Bars	26-11R144	—	26-11R149	—	26-11R151	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W Bars
X Bars	26-11R145	15-11R153	26-11R145	15-11R153	26-11R145	15-11R153	18-11R160	11-11R163	28-11R173	17-11R160	23-11R167	22-11R170	15-11R176	22-11R179	10-11R176	—	12-11R183	15-11R189	22-11R193	18-11R195	22-11R198	22-11R201	15-11R193	15-11R198	X Bars
Y Bars	26-11R146	15-11R154	26-11R146	15-11R154	26-11R146	15-11R154	18-11R161	11-11R164	28-11R174	17-11R161	23-11R168	22-11R171	15-11R177	22-11R180	10-11R177	—	12-11R187	15-11R190	22-11R193	18-11R196	22-11R199	22-11R202	15-11R199	15-11R199	Y Bars
Z Bars	26-11R147	—	26-11R147	—	26-11R147	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Z Bars

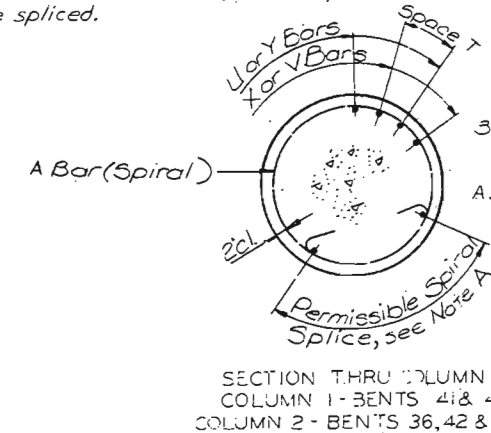
*Note: Vertical Column Reinforcement Col. 2, Bent 40, is not to be spliced.



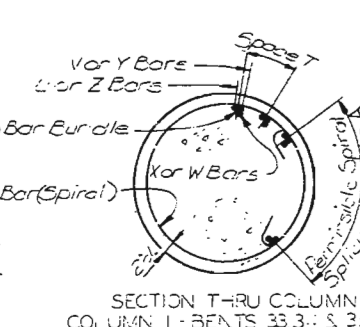
ANCHOR BOLT PLAN AT
COLUMN 1 - BENTS 33, 34, 35 & 37
COLUMNS 1 & 2 - BENT 38
COLUMN 2 - BENTS 39 & 40
Note: Anchor Bolts to be enclosed with a spiral bar, see Sheet 31 for details.
F Bars thru L Bars are to be shaped thus.



ANCHOR BOLT PLAN AT
COLUMN 1 - BENTS 39 & 40
COLUMNS 1 & 2 - BENTS 36, 41, 42, 48, & 55
COLUMN 2 - BENTS 33, 34, 35, & 37
Note: Anchor Bolts to be enclosed with a spiral bar, see Sheet 31 for details.
F Bars thru L Bars to be shaped thus.



SECTION THRU COLUMN
COLUMN 1 - BENTS 41 & 42
COLUMN 2 - BENTS 36, 42 & 48



SECTION THRU COLUMN
COLUMN 1 - BENTS 36, 39, 40, 48 & 55
COLUMN 2 - BENTS 33, 34, 35, 37, 40, 41 & 55

Note A: Spiral splice shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.
No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.

NOTES
Work this sheet with Sheets 15 and 16.

CITY OF ST. LOUIS

BENTS 33 THRU 42, 48 AND 55

SHEET 17 OF 36

A-3594

460

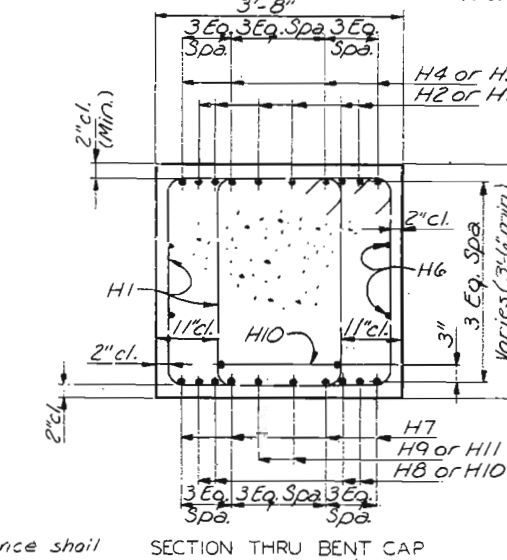
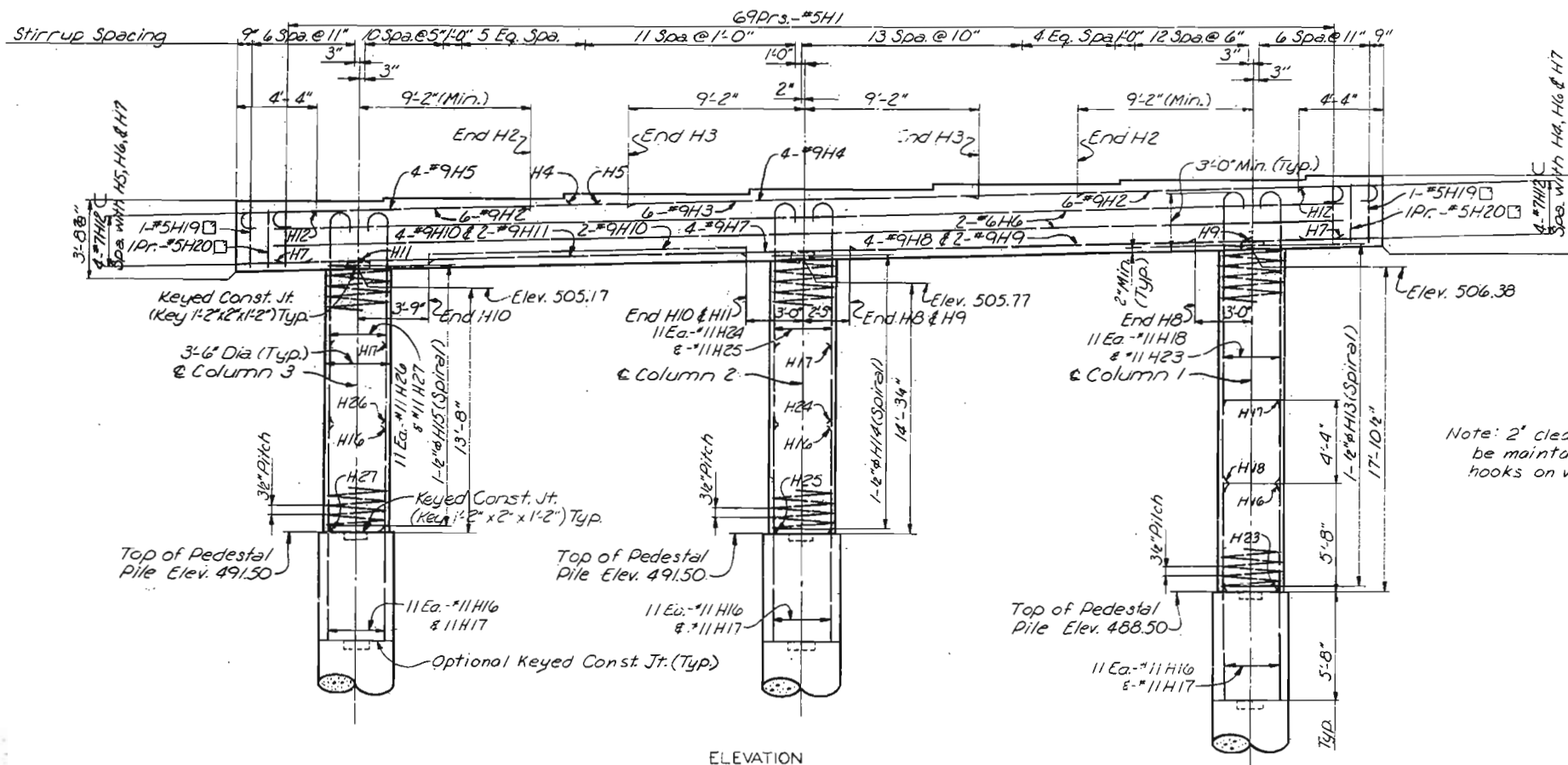
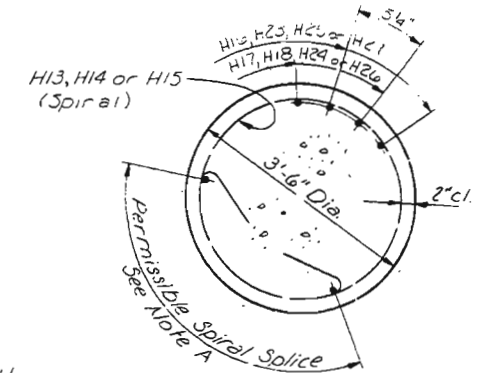
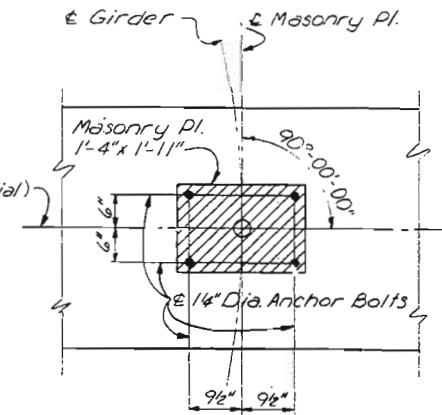
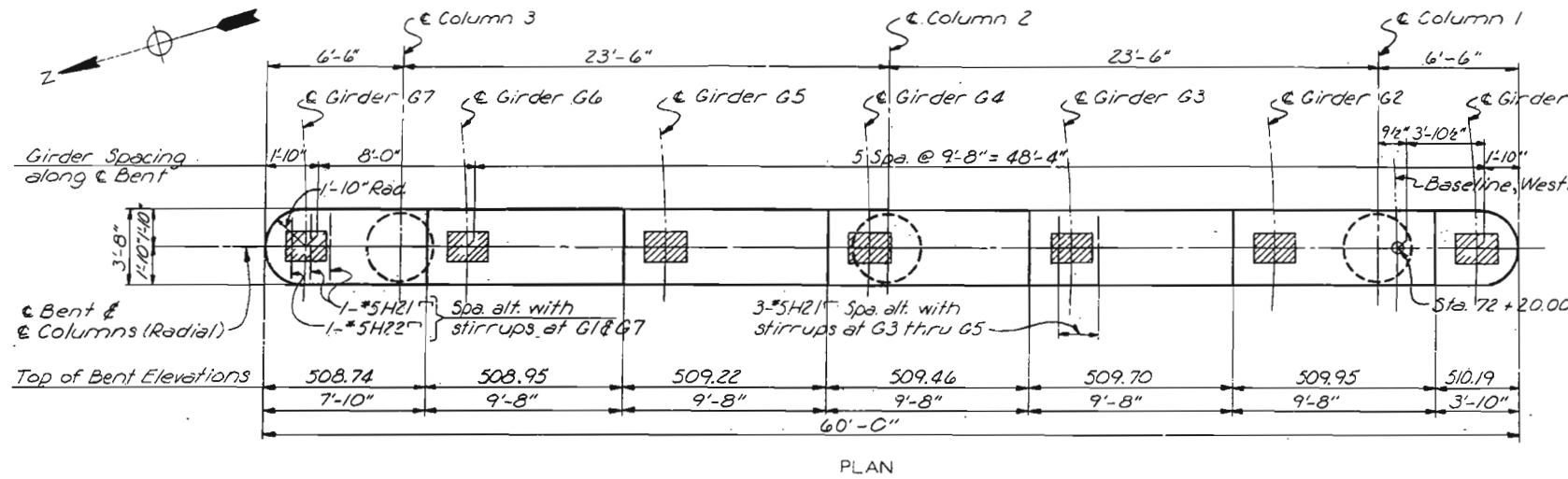
DRAWN BY: D.R. Bland, Aug. 1977
CHECKED BY: Schenck-Walton, Sept. 77
5261
775325

SYNDERUP & 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.		18	100	



NOTES

Stirrups in beam shall be shifted as required to clear anchor bolts a minimum of 2".
For details of pedestal piles, see Sheet 14.
For Substructure Layout, see Sheet 13.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spirals to be set on top of Pedestal piles.

CITY OF ST. LOUIS

BENT 43

SHEET 18 OF 30

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

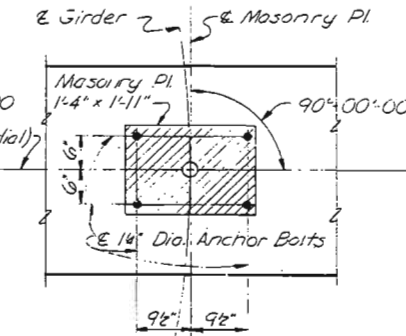
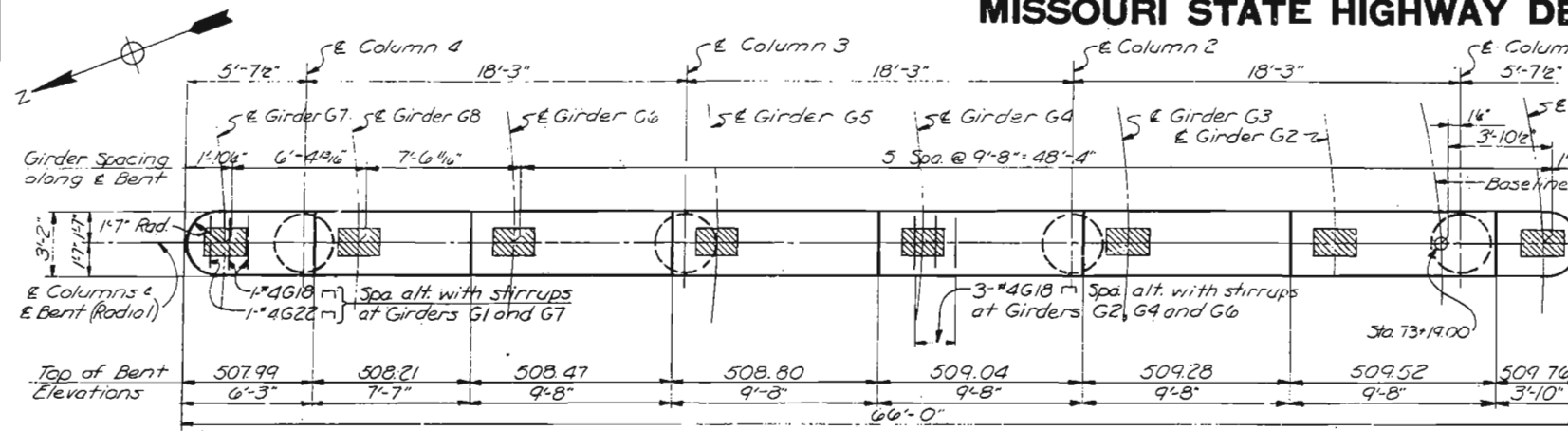
SYVERDRUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: D.R. Brock, July 1977
CHECKED BY: D. Simpson, Aug 1977
5261
713299

461

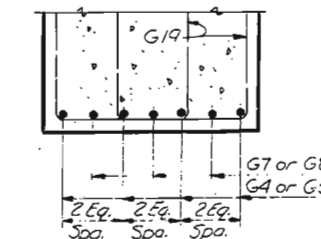
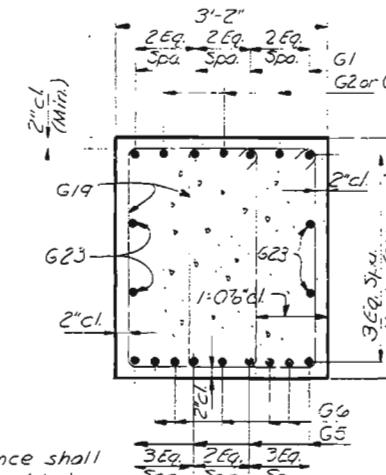
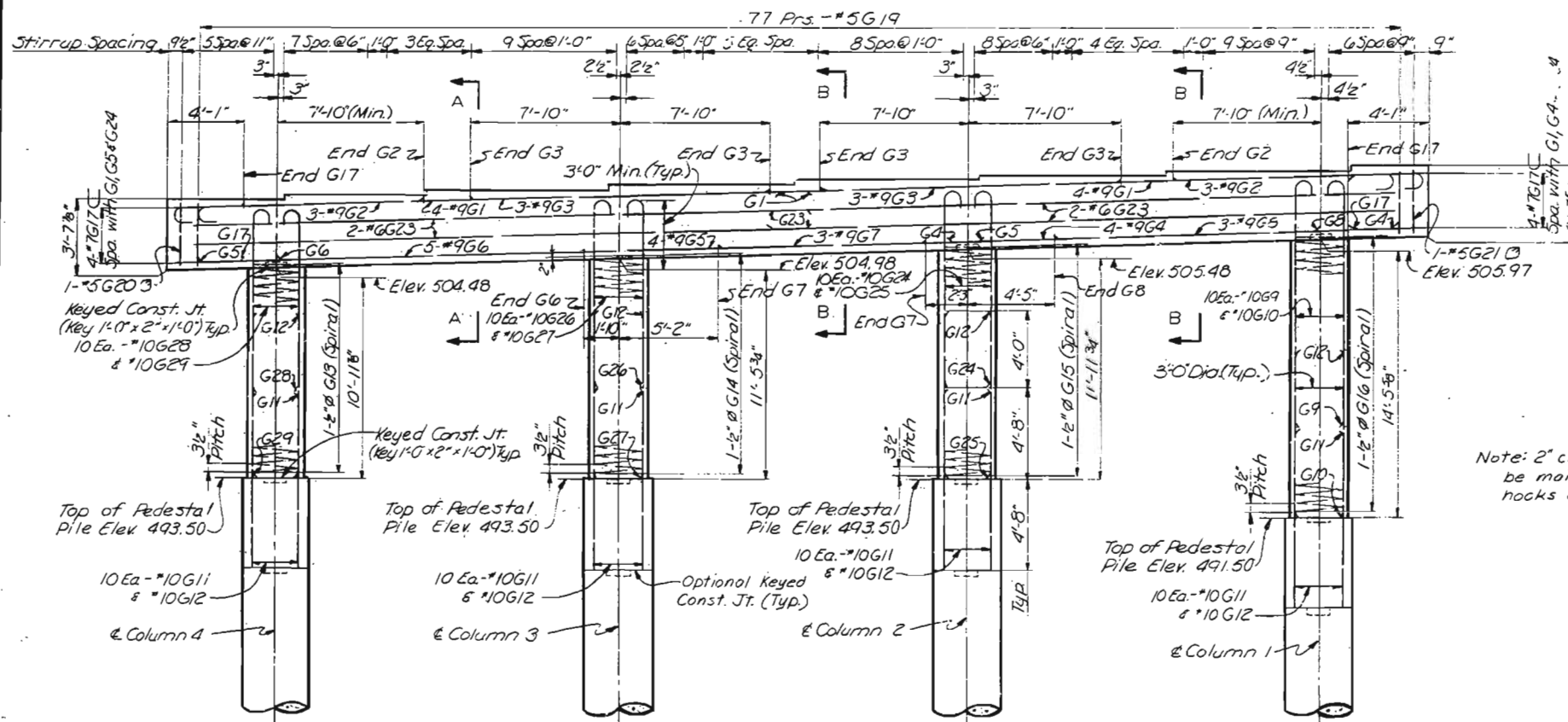
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	101	



SECTION THRU COLUMN

Note A: Spiral splices shall be lapped one turn, plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end. No additional payment will be made for splices. Payment will be based on spiral length shown on bar list. Spacing of vertical column reinforcement is measured along inside face of spiral bar.



NOTES

Stirrups in beam shall be shifted as required to clear anchor bolts a minimum of 1". For details of pedestal piles, see Sheet 14. For Substructure Layout, see Sheet 13.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spirals to be set on top of Pedestal Piles.

CITY OF ST. LOUIS

BENT 44

SHEET 10 OF 36

A-3594

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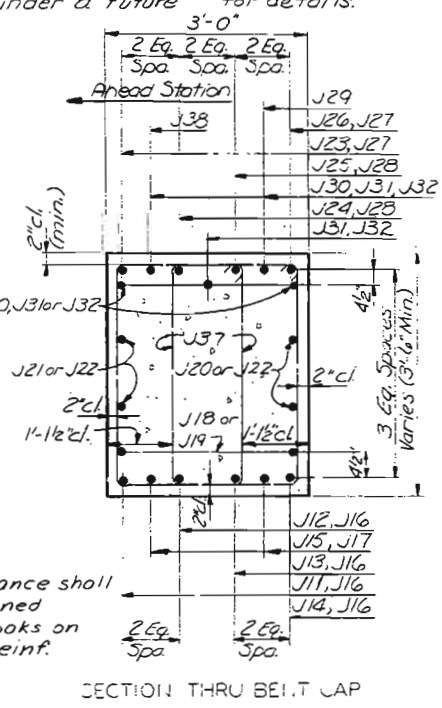
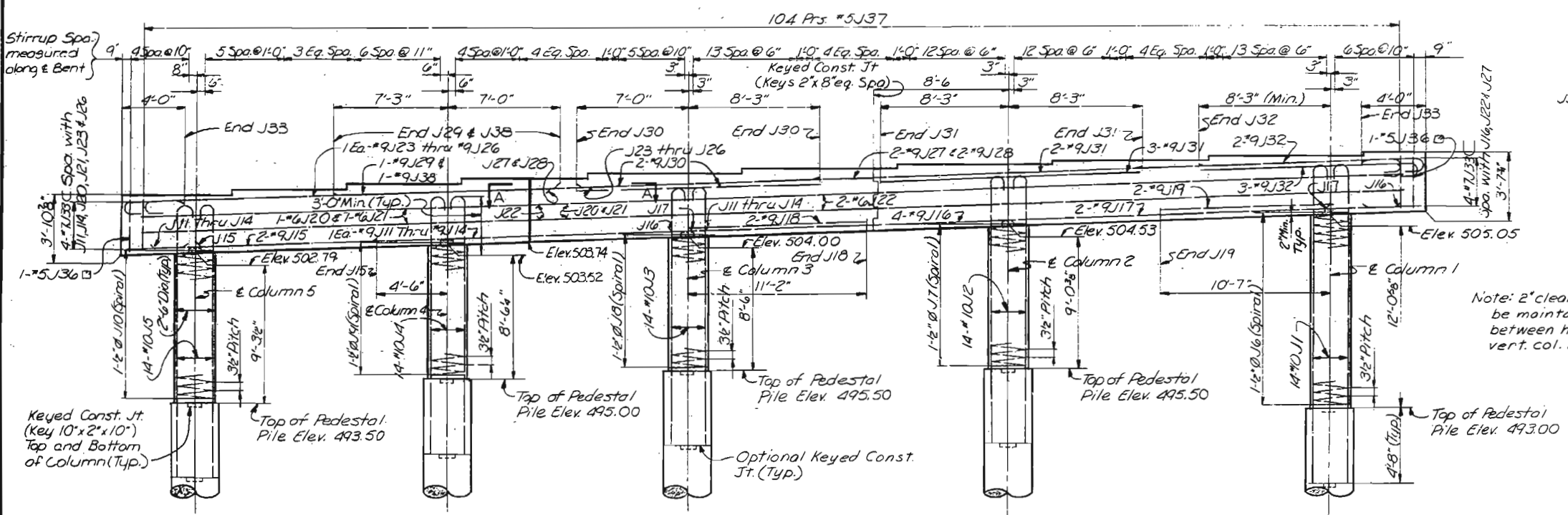
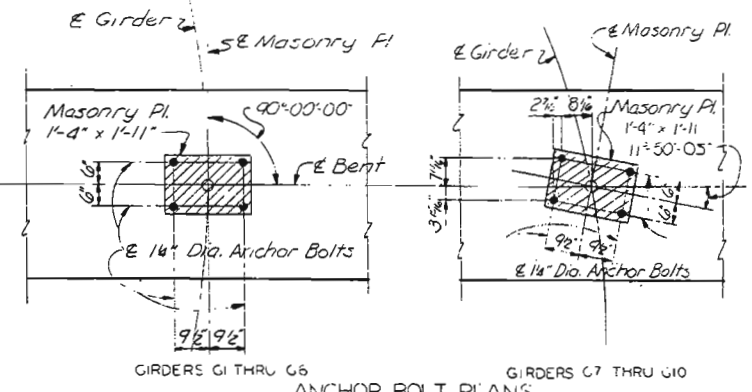
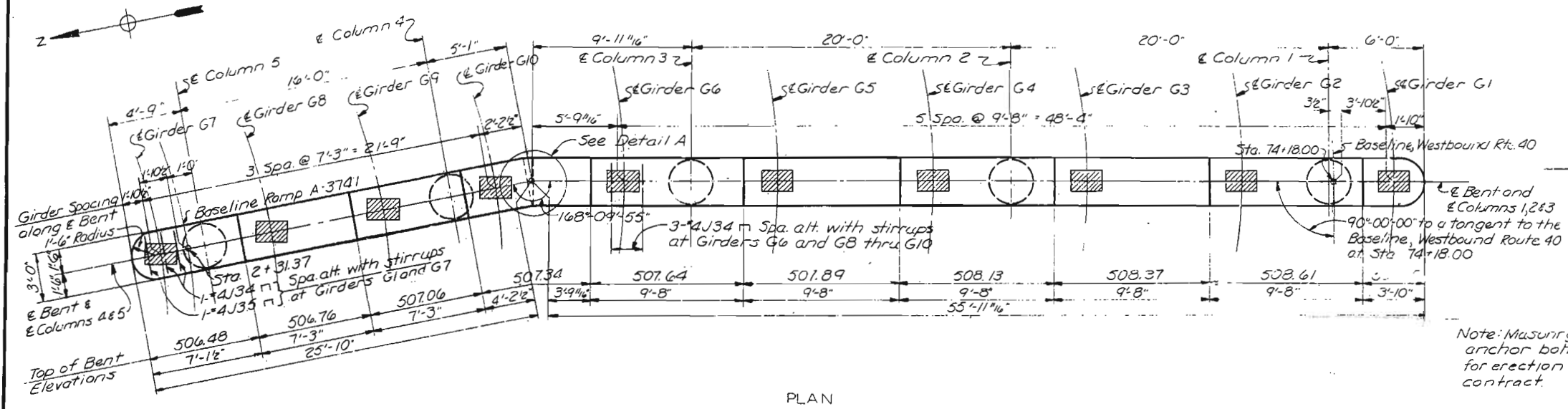
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

462

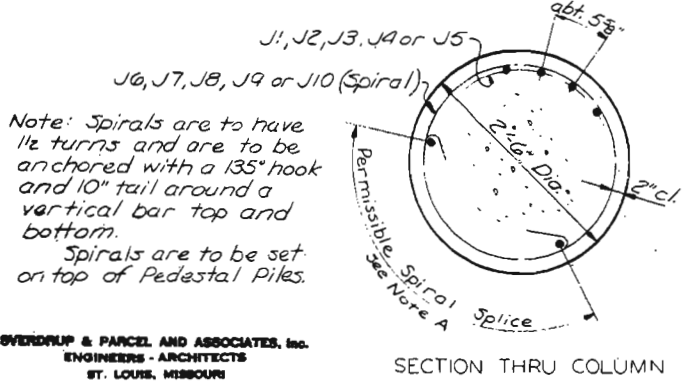
DRAWN BY: L.A. Strader, July 77
CHECKED BY: A. Schreiner, Aug. 1977
5261
775275

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	102	



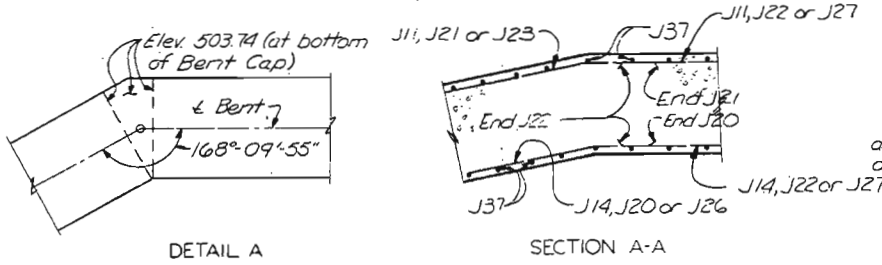
463



Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.

No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.

Spacing of vertical column reinforcement is measured along inside face of spiral bar.



NOTES

Stirrups in beam shall be shifted as required to clear anchor bolts a minimum of 2".

For details of pedestal piles, see Sheet 14.

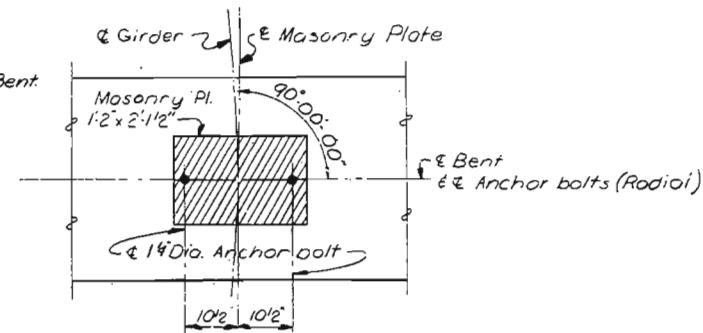
For Substructure Layout, see Sheet 13.

DRAWN BY: C.A. STRICKER, A.S.C.E. 1/77
CHECKED BY: D.E. STRICKER, A.S.C.E. 1/77
3261
775254

OVERDRUP & PARCEL AND ASSOCIATES, Inc.
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ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
5	MO.		19	103	



TYPICAL SECTION
THRU BUMPER ANGLE

Note: Cost of furnishing, painting and
placing bumper angles
to be included in unit prices
bid for class B Concrete
Painting shall be in accordance
with System C primer of
Standard Specifications or a
single package zinc primer may
be used.

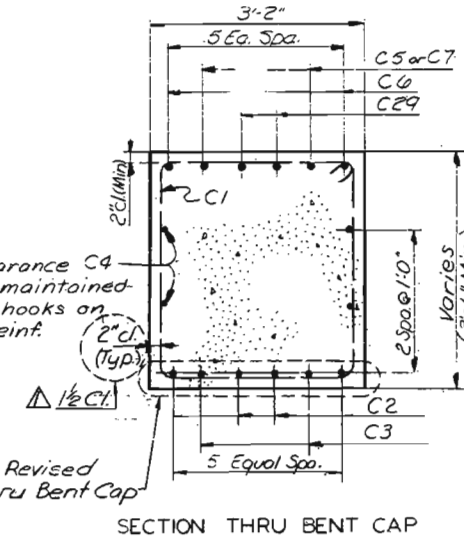


Diagram of a spiral staircase showing dimensions and labels:

- Width: 48"
- Diameter: 3'-0" Dia.
- Spiral Diameter: 2" dia.
- Labels: C10 or C40, C40 or C41, C14 (Spiral)
- Note: Permissible Spiral Splice Size No.

NOTES

Stirrups in beams shall be shifted as required to clear anchor bolts a minimum of "e"

For details of Pedestal Piles see Sheet 14.
For Substructure Layout, see Sheet 13.

CITY OF ST. LOUIS

SHEET 21 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

△ Revised 5-1-81

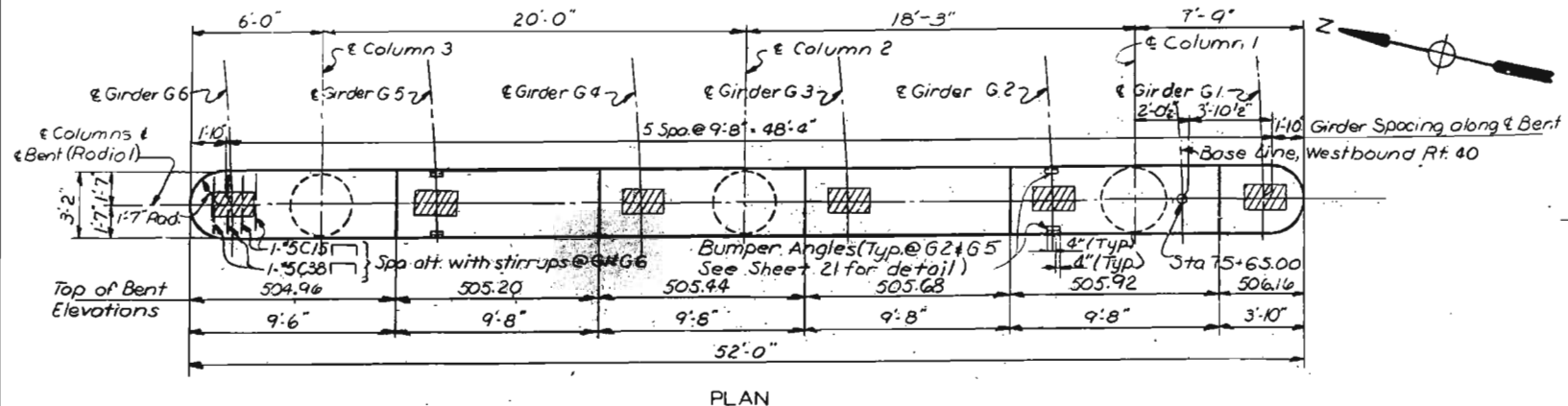
707

5261	DRAWN BY: J.D. AVERLY March 1977
775107	TRACED BY:
	CHECKED BY: B. BROWN Aug. 1997

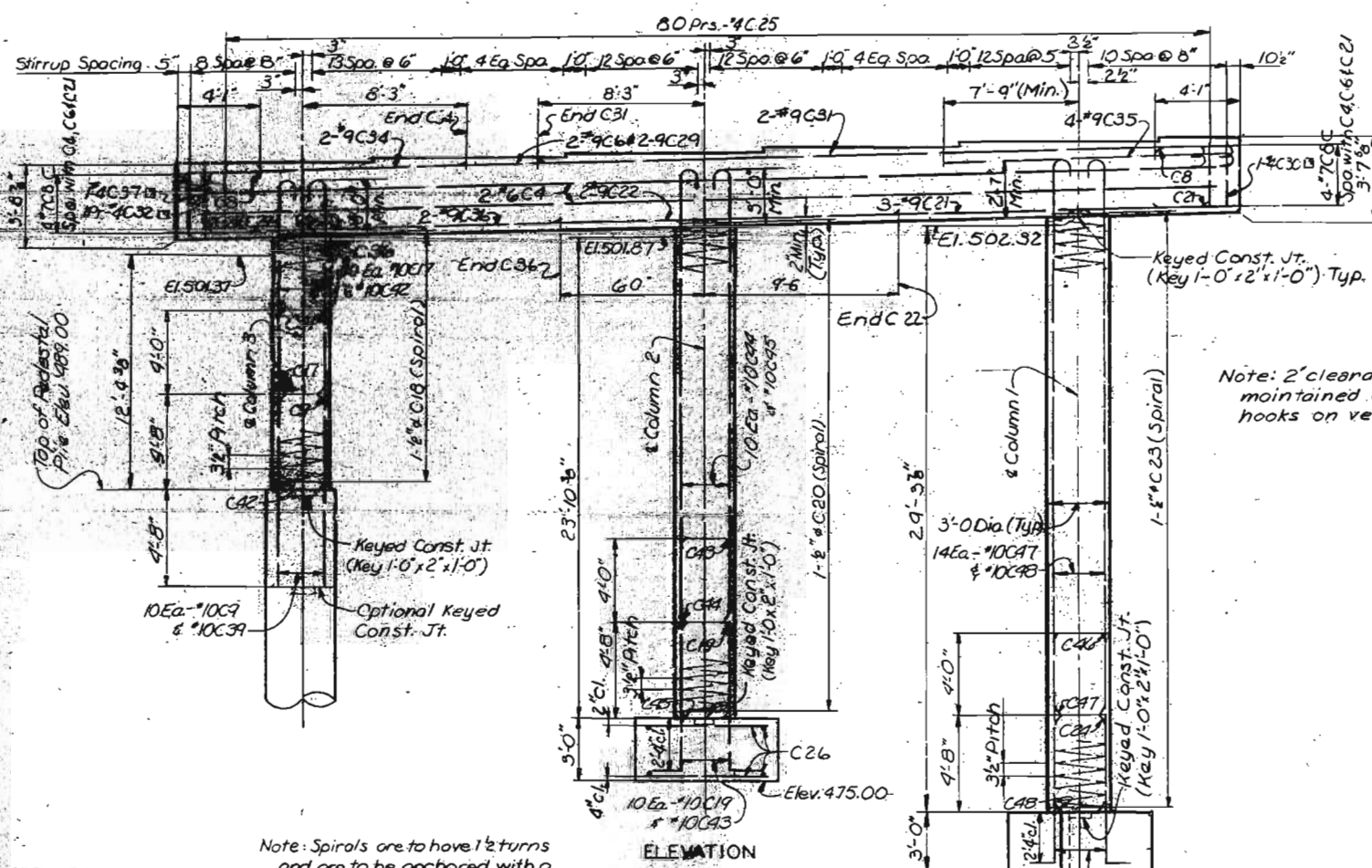
SVERDRUP & PARCEL AND ASSOCIATES, Inc.
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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	104	

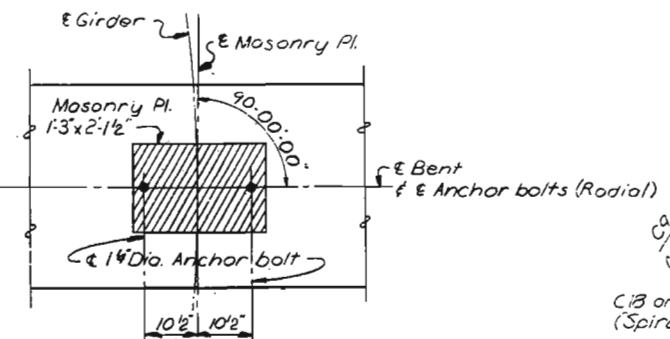


PLAN

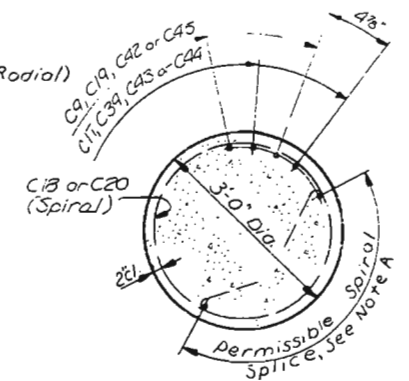


ELEVATION

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spirals to be set on top of Pedestal Piles or Footings.

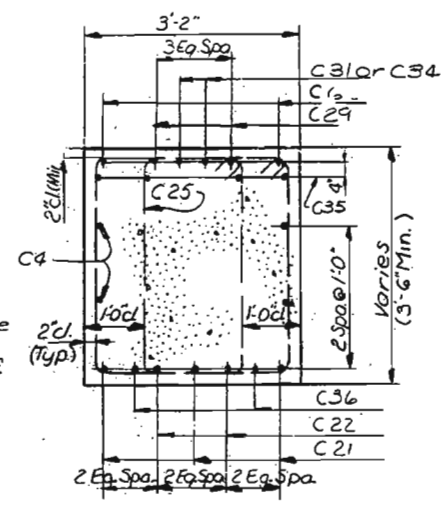


ANCHOR BOLT PLAN
Note: Anchor Bolts to be enclosed with spiral bars. See Sheet 31 for detail. Masonry plates and anchor bolts are stored for erection under a future contract.

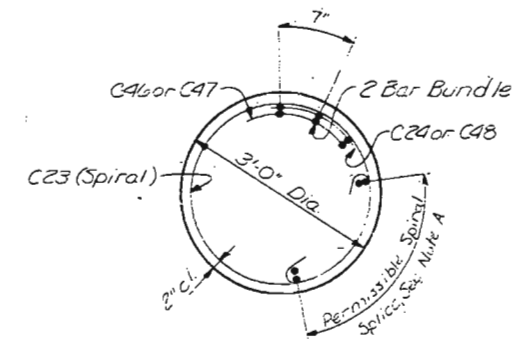


SECTION THRU COLUMNS 2 & 3

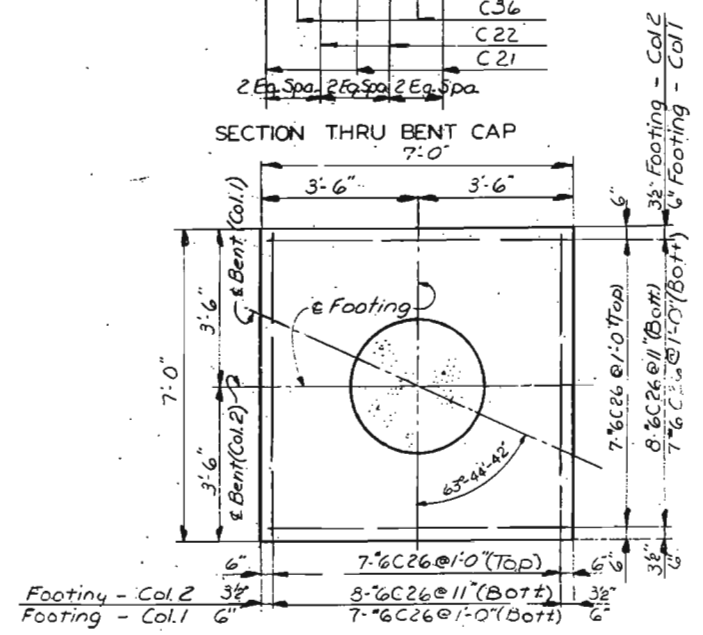
Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end. No additional payment will be made for splices. Payment will be based on spiral length shown on bar list. Spacing of vertical column reinforcement is measured along inside face of spiral bar.



SECTION THRU BENT CAP



SECTION THRU COLUMN 1



FOOTING PLAN - COLUMNS 1 & 2

Note: Maximum Design Bearing Pressure = 8 Tons / Sq. Ft.

NOTES

Spirals in beams shall be shifted as required to clear anchor bolts a minimum of 1". For details of pedestal piles, see Sheet 14. For Substructure Layout, see Sheet 13.

CITY OF ST. LOUIS

BENT 47

SHEET 22 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

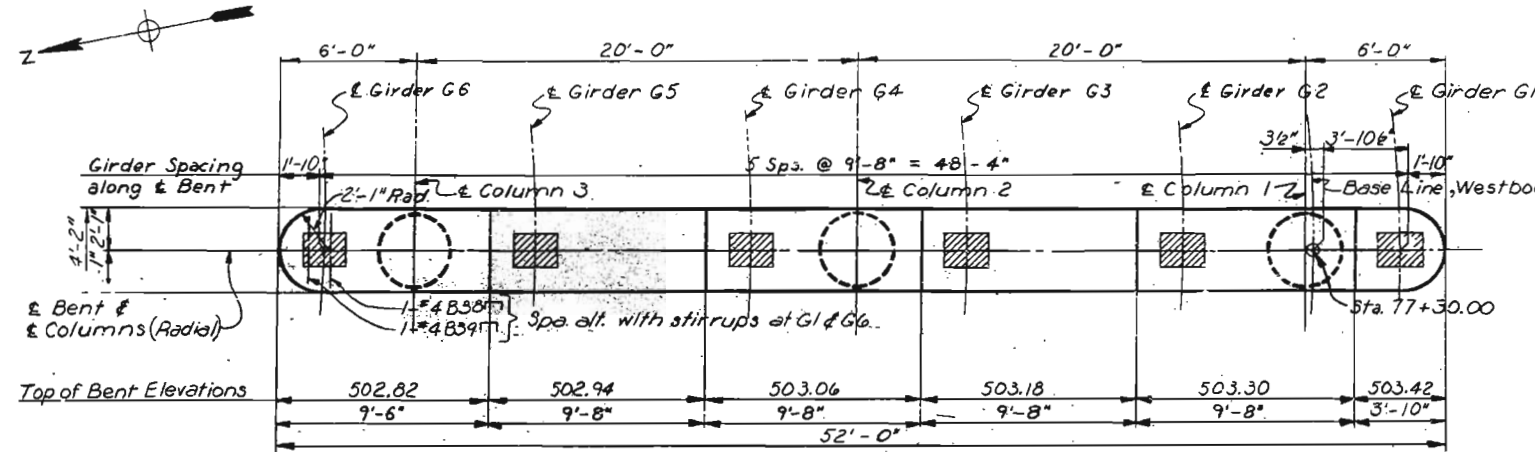
465

SHOWN BY J.D. AUSTIN, March 1977
TRACED BY
CHECKED BY

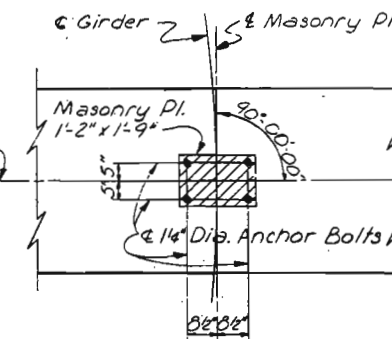
RENDERUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	105	

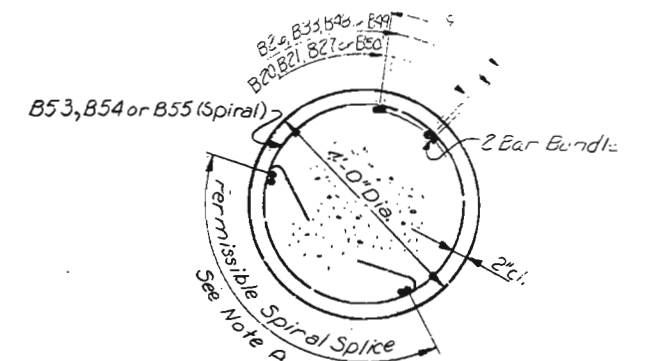


PLAN



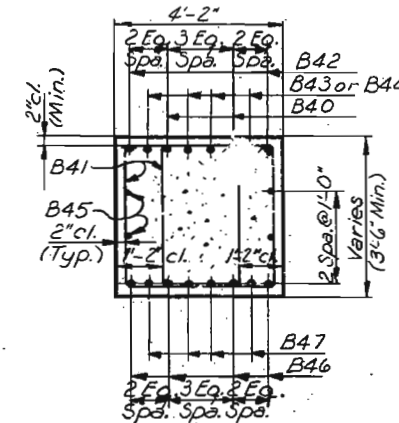
ANCHOR BOLT PLAN

Notes: Anchor bolts to be enclosed with spiral bars. See Sheet 31 for details. Masonry plates and anchor bolts are stored for erection under a future contract.

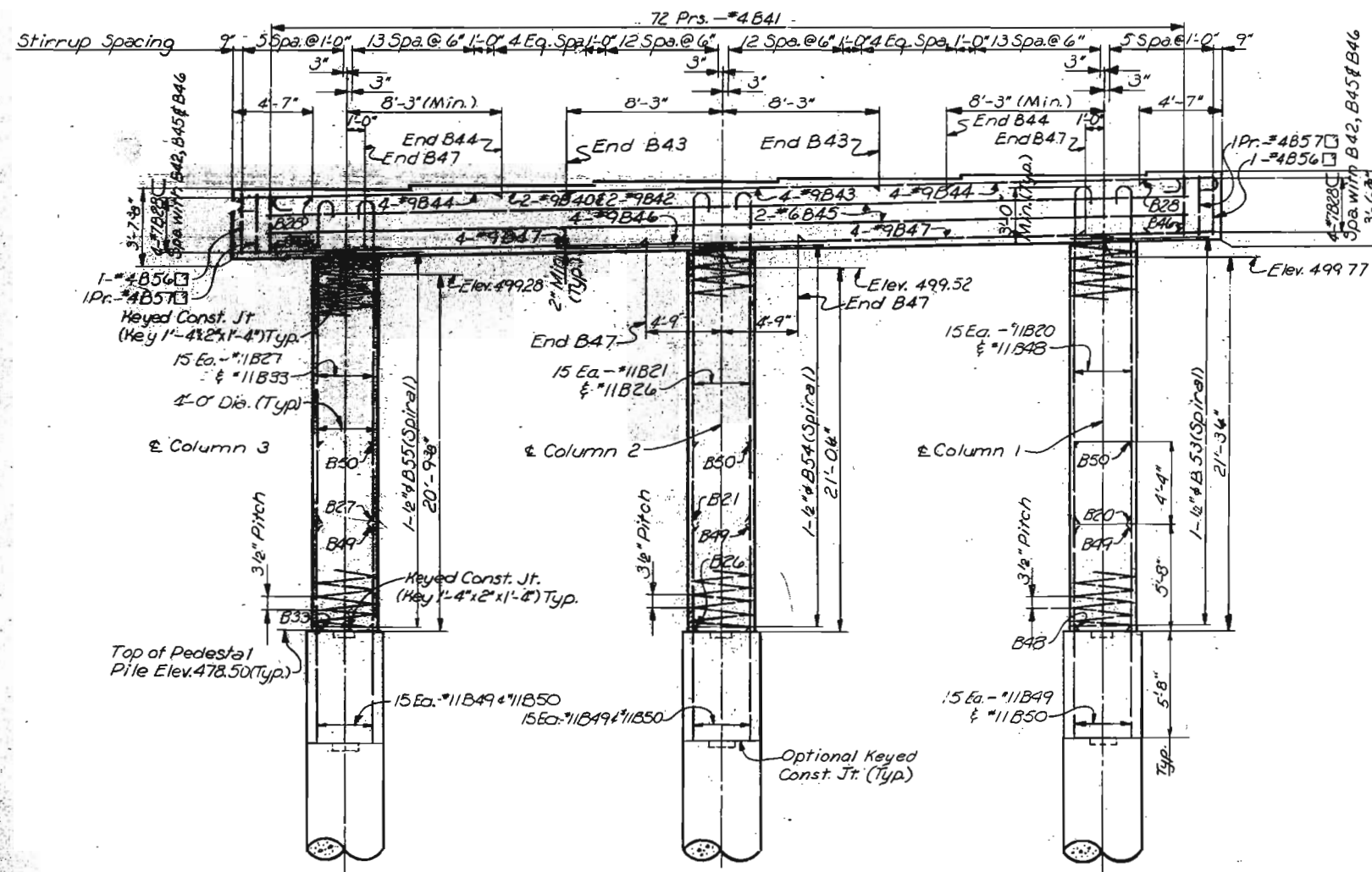


SECTION THRU COLUMN

Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end. No additional payment will be made for splices. Payment will be based on spiral length shown on bar list. Spacing of vertical column reinforcement is measured along inside face of spiral bar.



SECTION THRU BENT CAP



ELEVATION

Note: Spirals are to have 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spirals are to be set on top of Pedestal Piles.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

NOTES

Stirrups in beams shall be shifted as required to clear anchor bolts a minimum of 1/2". For details of pedestal piers, See Sheet 14. For Substructure Layout, See Sheet 13.

CITY OF ST. LOUIS

BENT 49

SHEET 23 OF 36

A-3594

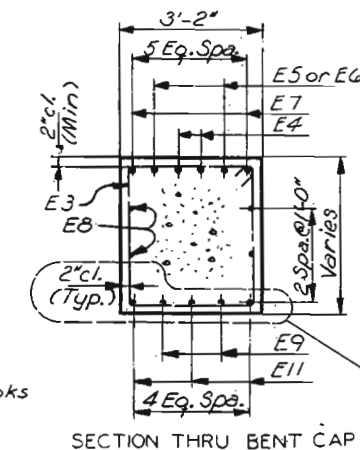
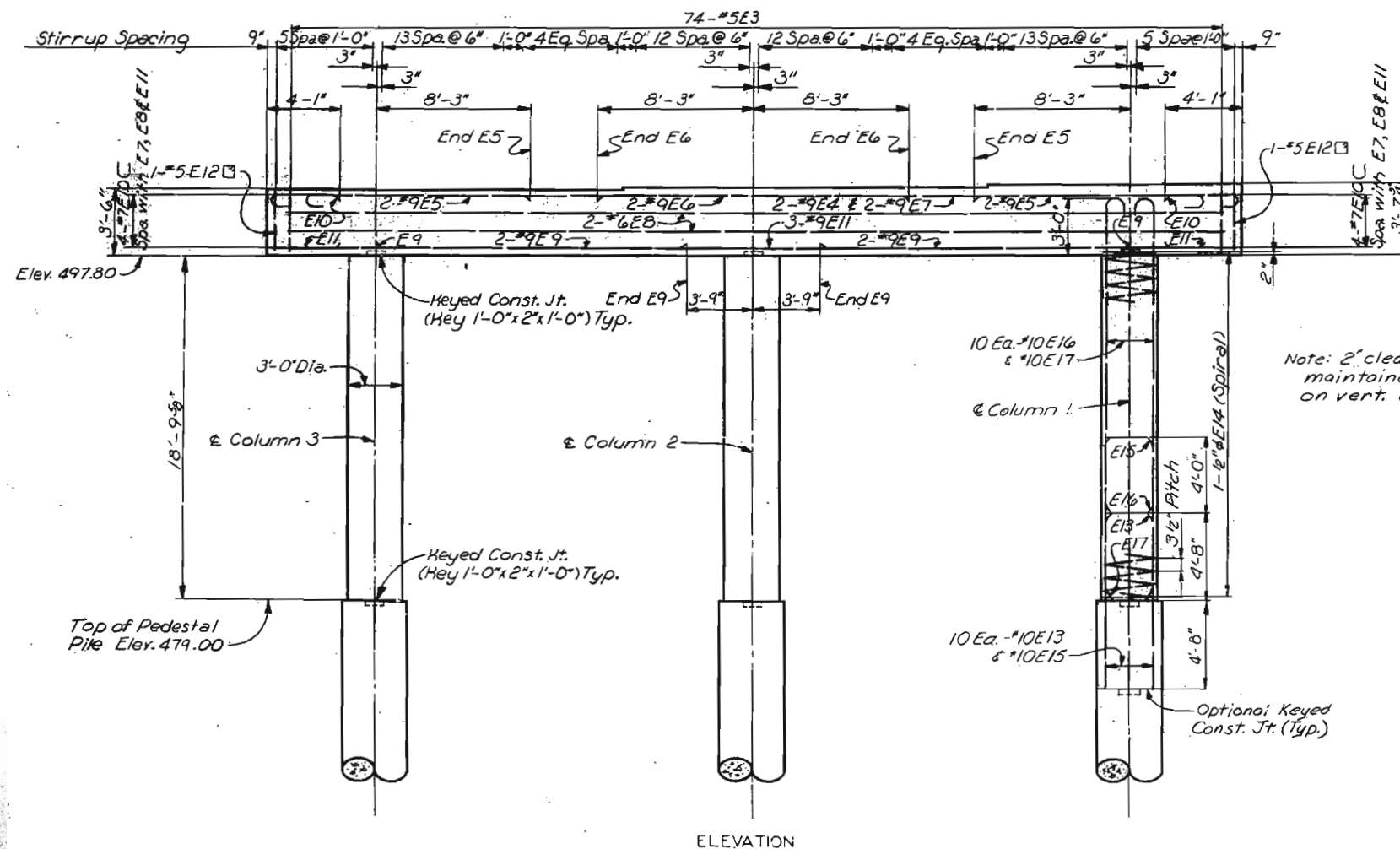
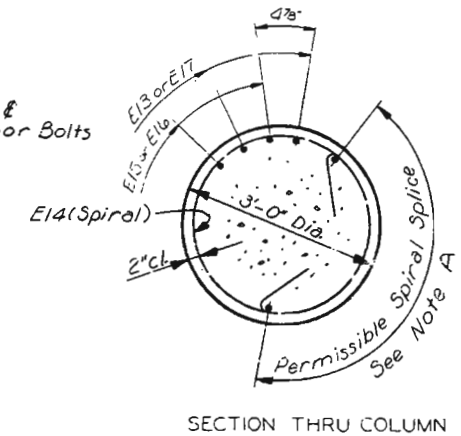
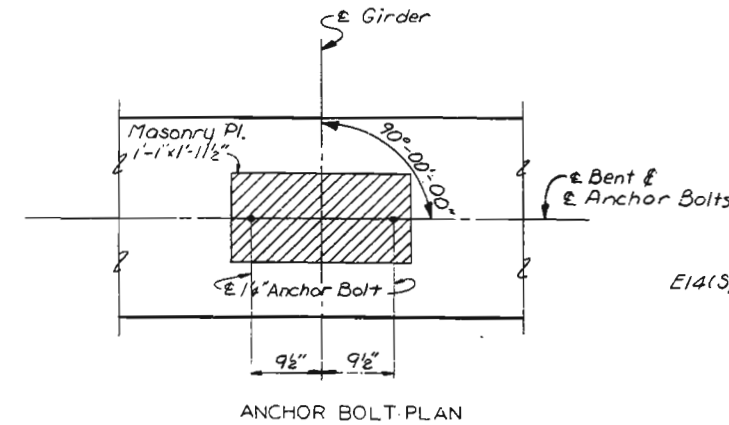
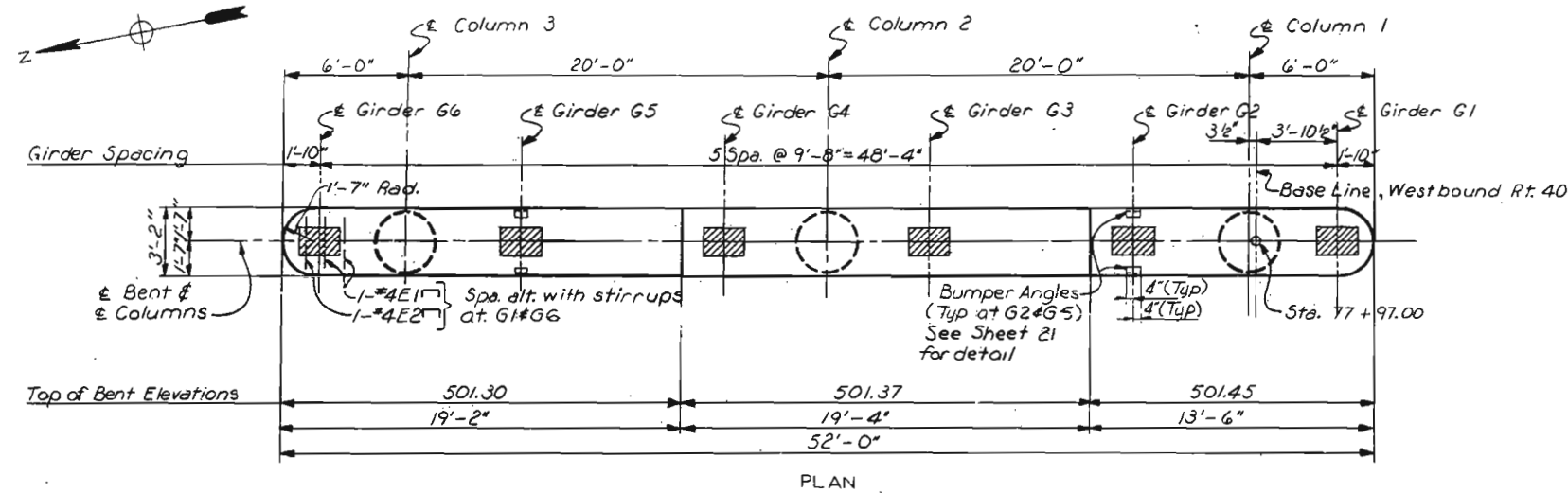
466

5261
775136

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	106	



Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end. No additional payment will be made for splices. Payment will be based on spiral length shown on bar list. Spacing of vertical column reinforcement is measured along inside face of spiral bar.

NOTES

Stirrups in beam shall be shifted as required to clear anchor bolts a minimum of 1". For details of pedestal piles, see Sheet 14. For Substructure Layout, See Sheet 13.

Note: Dimensions and elevations for Cols. 1 & 2 are the same as shown for Col. 3. Reinforcing for Cols. 2 & 3 is the same as shown for Col. 1.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spirals are to be set on top of Pedestal Piles.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Revised 5-1-81

BENT 50

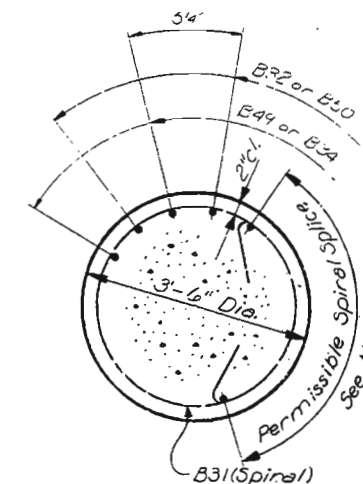
SHEET 24 OF 36

A-3594

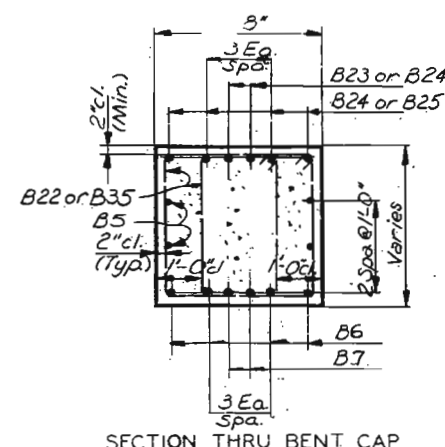
OVERDRUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

467
DRAWN BY D.R. BACH, 10/1/77
CHECKED BY L. J. BACH, 10/1/77
5261
775146

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	107	



SECTION THRU COLUMN



Spa.
SECTION THRU BENT CAP

Spacing of vertical column reinforcement is measured along inside face of spiral bar.

NOTES

Stirrups in beam shall be shifted as required to clear anchor bolts a minimum of 1".
For details of pedestal piles, see Sheet 14.
For Substructure Layout, see Sheet 13.

Note: Dimensions and elevations for Cols. 1 & 2 are the same as shown for Col. 3.
Reinforcing for Cols. 2 & 3 is the same as shown for Col. 1.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spirals to be set on top of Pedestal Piles.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

BENT SI

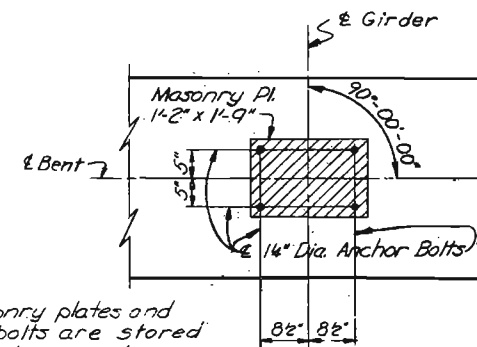
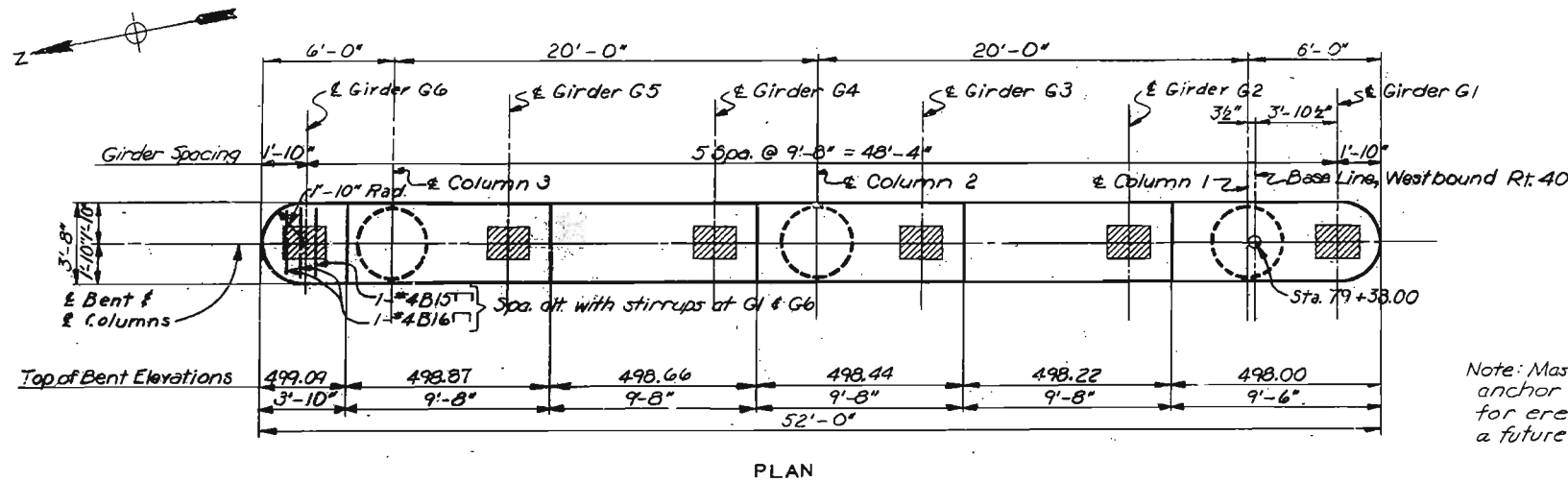
SHEET 25 OF 36

A-3594

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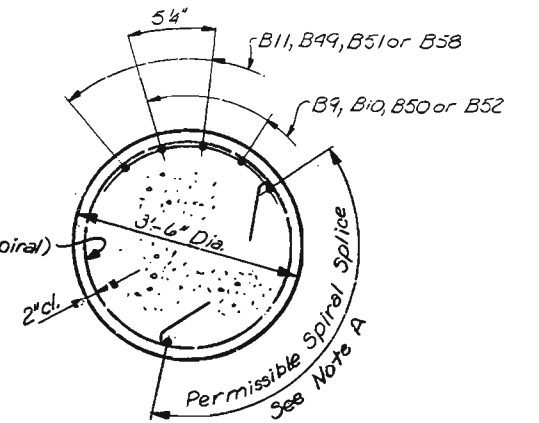
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	103	



Note: Masonry plates and anchor bolts are stored for erection under a future contract.

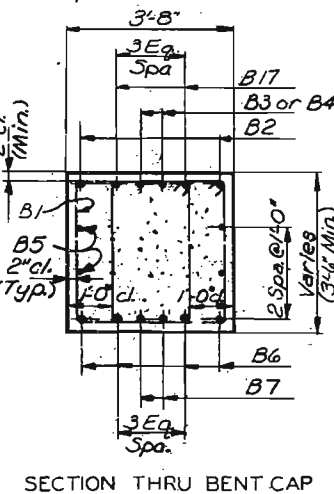
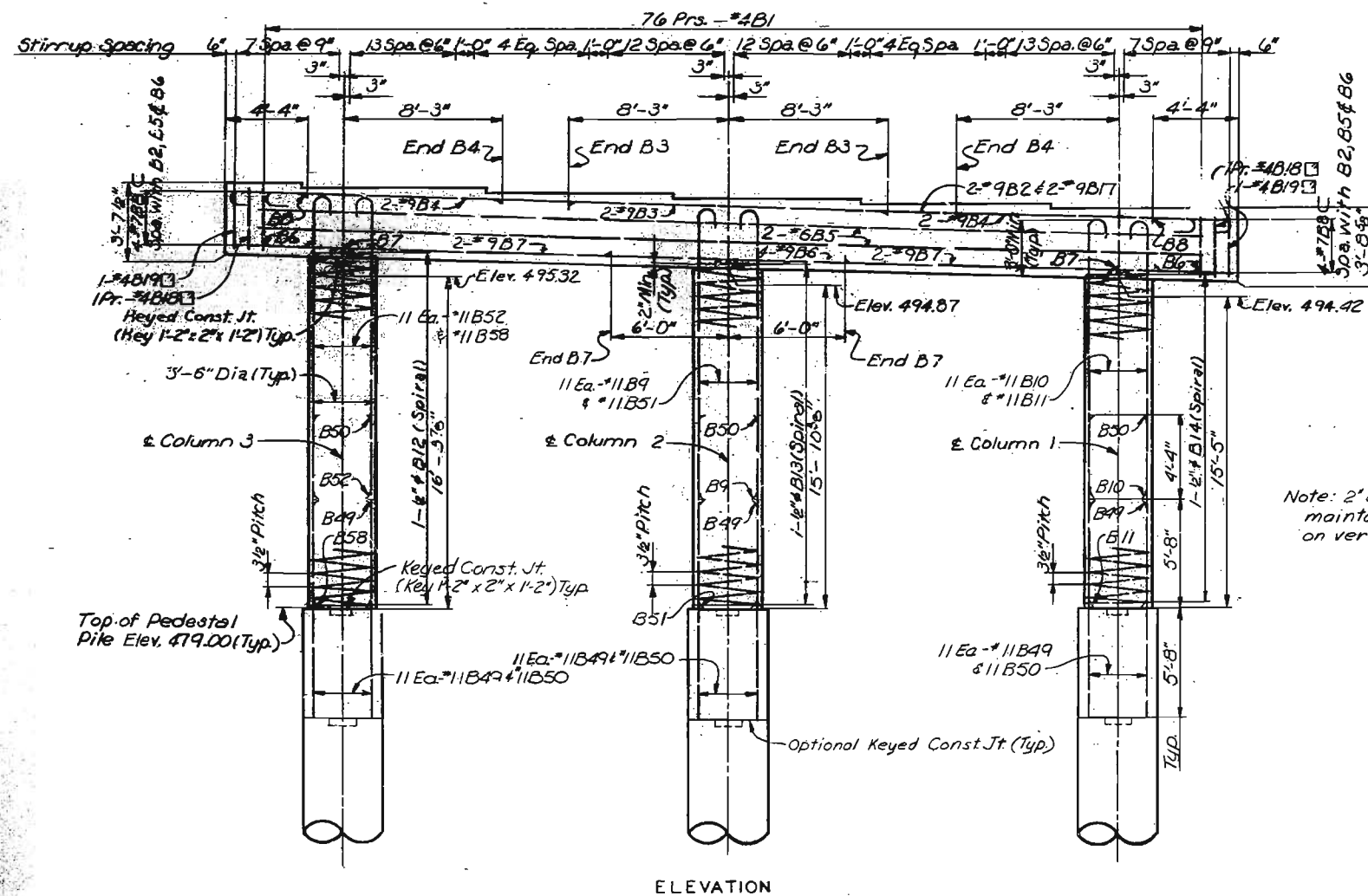
Note: Anchor Bolts to be enclosed with spiral bars. See Sheet 3i for details.



Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.

No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.

Spacing of vertical column reinforcement is measured along inside face of spiral bar.



Note: 2" clearance shall be maintained between hooks on vert. col. reinf.

NOTES

Stirrups in beams shall be shifted as required to clear anchor bolts a minimum of 1/2".

For details of pedestal piles, see Sheet 14.

For Substructure Layout see Sheet 13.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom.

Spirals are to be set on top of Pedestal Piles.

CITY OF ST. LOUIS

BENT 52

SHEET 26 OF 36

A-3594

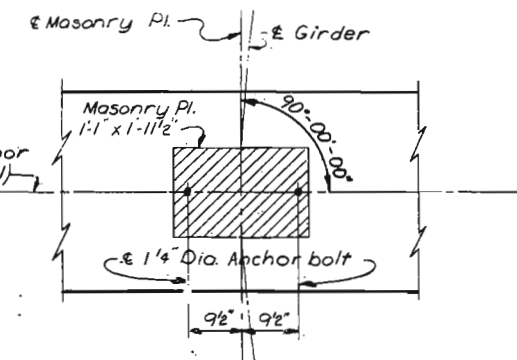
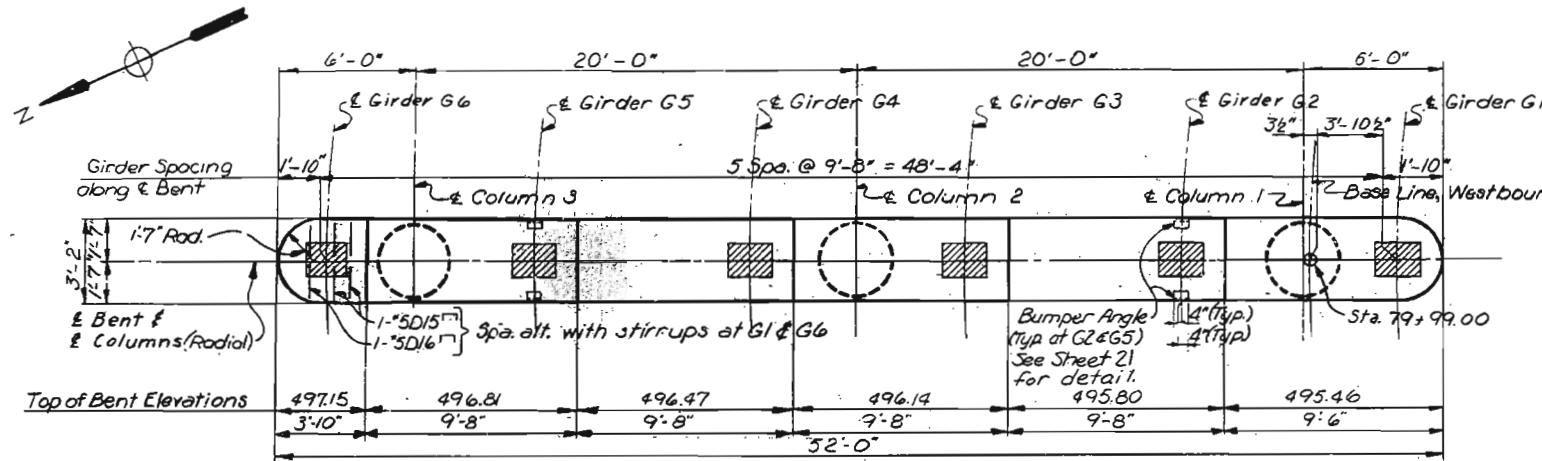
SHAWNEE & PENCE, AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

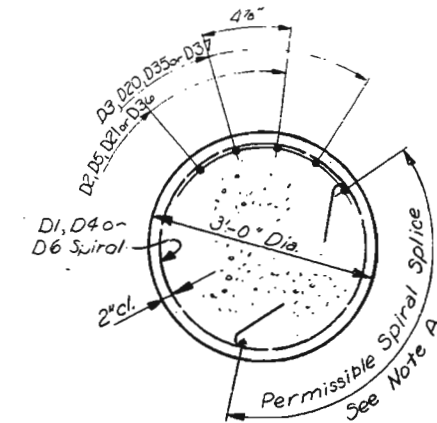
469

MISSOURI STATE HIGHWAY DEPARTMENT

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5	MO.		19	109	



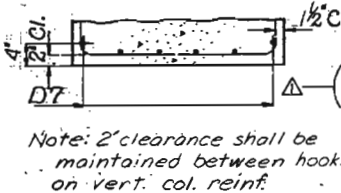
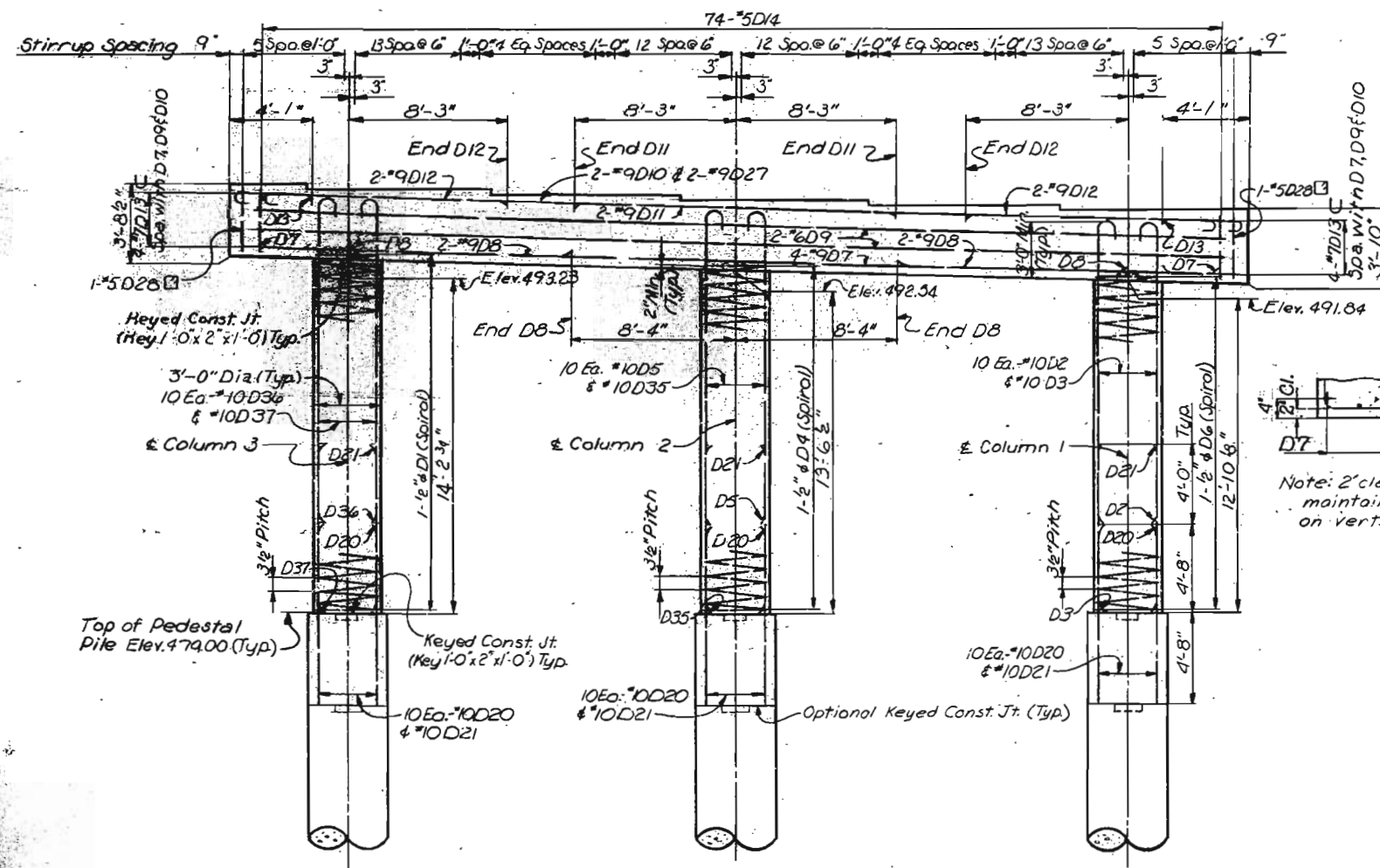
Note: Anchor Bolts to be enclosed with spiral bars. See Sheet 31 for details. Masonry plates and anchor are stored for erection under a future contract.



Note A: Spiral splices shall be lapped one turn plus 3'-4" with a 135° hook and 10" tail anchored around a vertical bar at each end.

No additional payment will be made for splices. Payment will be based on spiral length shown on bar list.

Spacing of vertical reinforcement is measured along inside face of spiral bar.



Note: 2" clearance shall be maintained between hooks on vert. col. reinf.

NOTES

Stirrups in beams shall be shifted as required to clear anchor bolts a minimum of 1/2".
For details of pedestal piles, see Sheet 14.
For Substructure Layout, see Sheet 13.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spirals to be set on top of Pedestal Piles.

CITY OF ST. LOUIS

BENT 53

SHEET 27 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

Revised 5-1-81

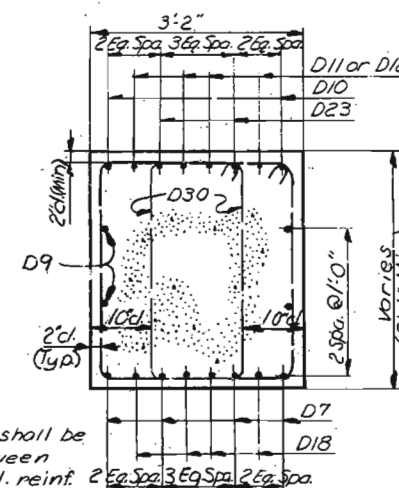
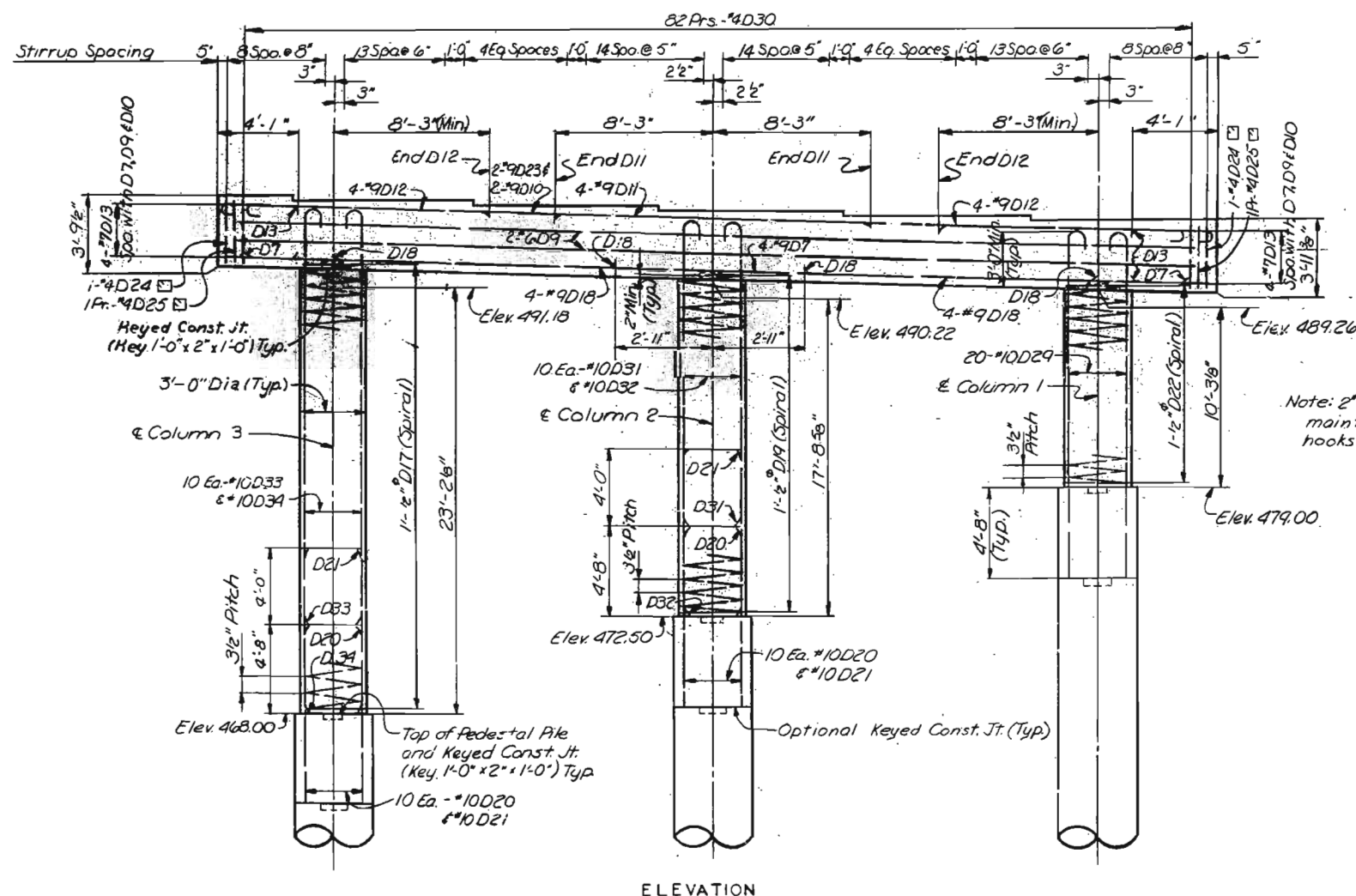
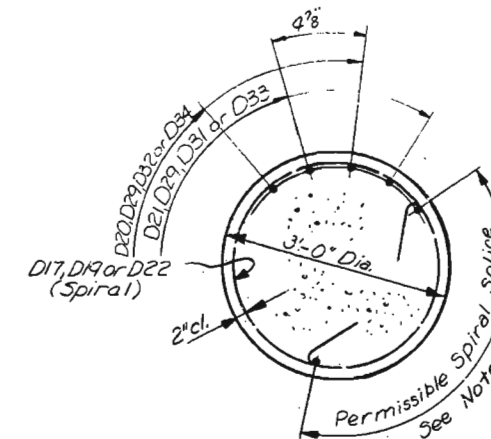
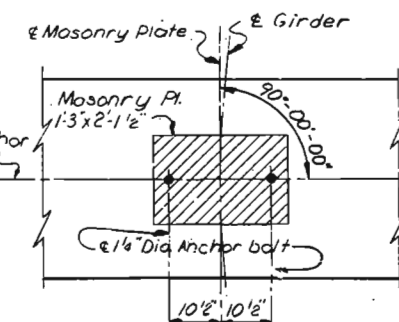
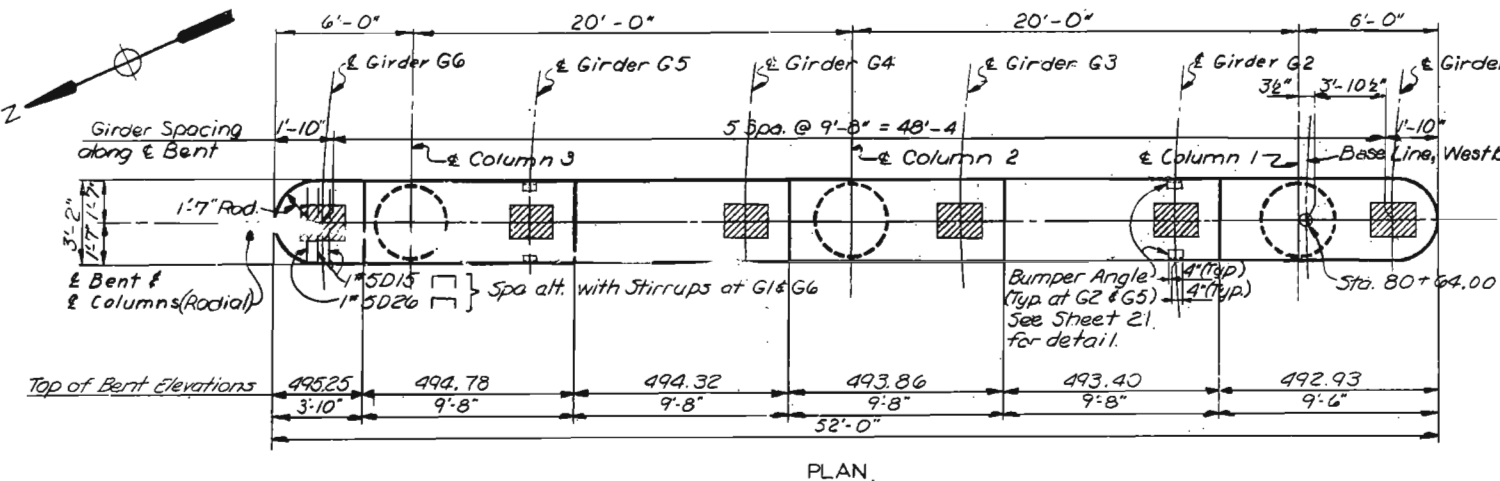
470

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OVERSEER & PARTNER, INC. ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	110	



NOTES

Stirrups in beams shall be shifted as required to clear anchor bolts a minimum of 1/2".
For details of pedestal piles, see Sheet 14.
For Substructure Layout, see Sheet 13.

Note: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spirals to be set on top of Pedestal Piles.

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

BENT 54

SHEET 28 OF 36

A-3594

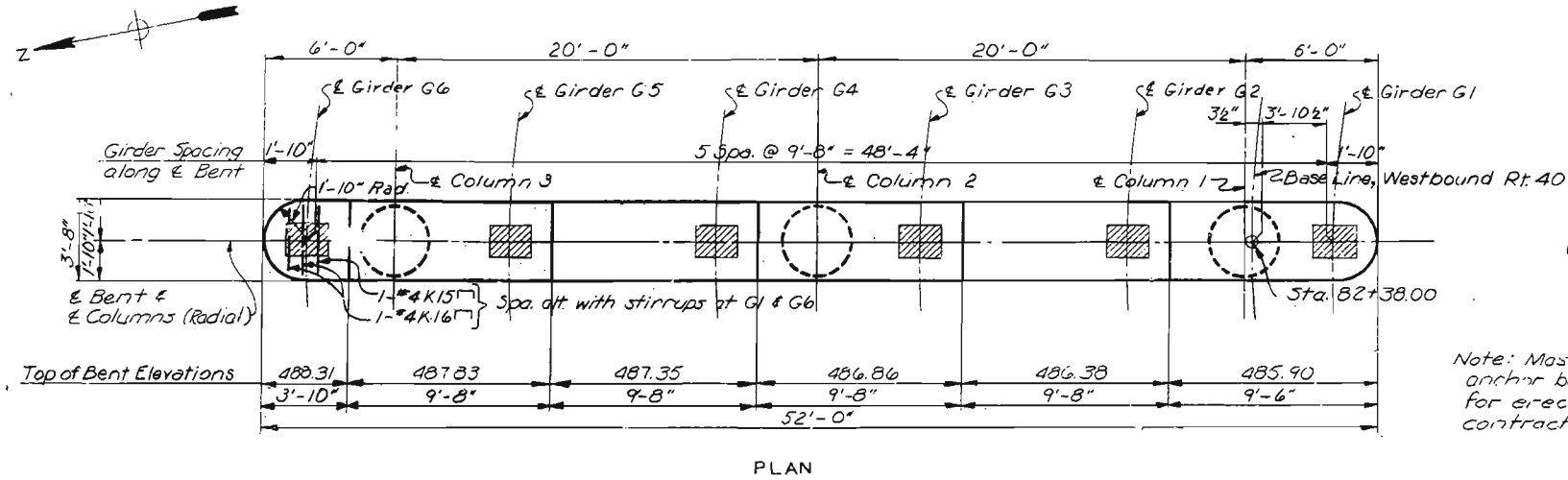
OVERHUP & PARCEL AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

DRAWN BY: LEO W. HARTMAN JR.
CHECKED BY: J. W. HARTMAN
5261
77331

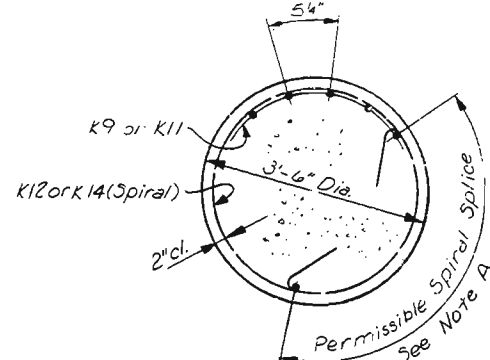
471

MISSOURI STATE HIGHWAY DEPARTMENT

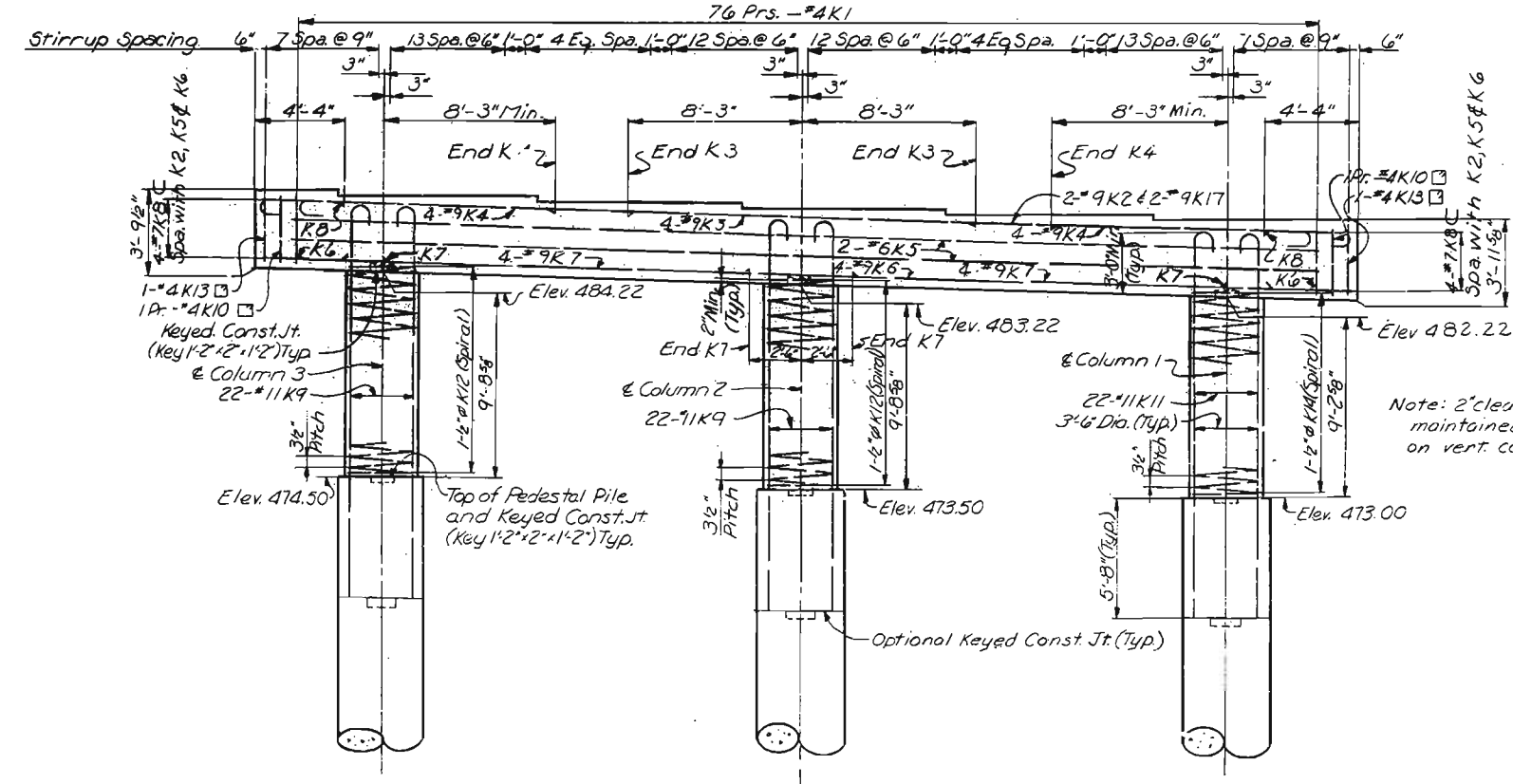
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	111	



ANCHOR BOLT PLAN
Note: Anchor Bolts to be enclosed with spiral bars. See Sheet 31 for details.



SECTION THRU BENT CAP
Note: 2' clearance shall be maintained between hooks on vert. col. reinf.



NOTE: Spirals are to have 1 1/2 turns and are to be anchored with a 135° hook and 10" tail around a vertical bar, top and bottom. Spirals to be set on top of Pedestal Piles.

NOTES
Stirrups in beam shall be shifted as required to clear anchor bolts a minimum of 1/2".
For details of pedestal piles, see Sheet 14.
For Substructure Layout, see Sheet 13.

472

DRAWN BY: D.R. Brock, Feb. 1977
CHECKED BY: L. C. Cline, Aug. 1977
5261
775301

SWERDUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

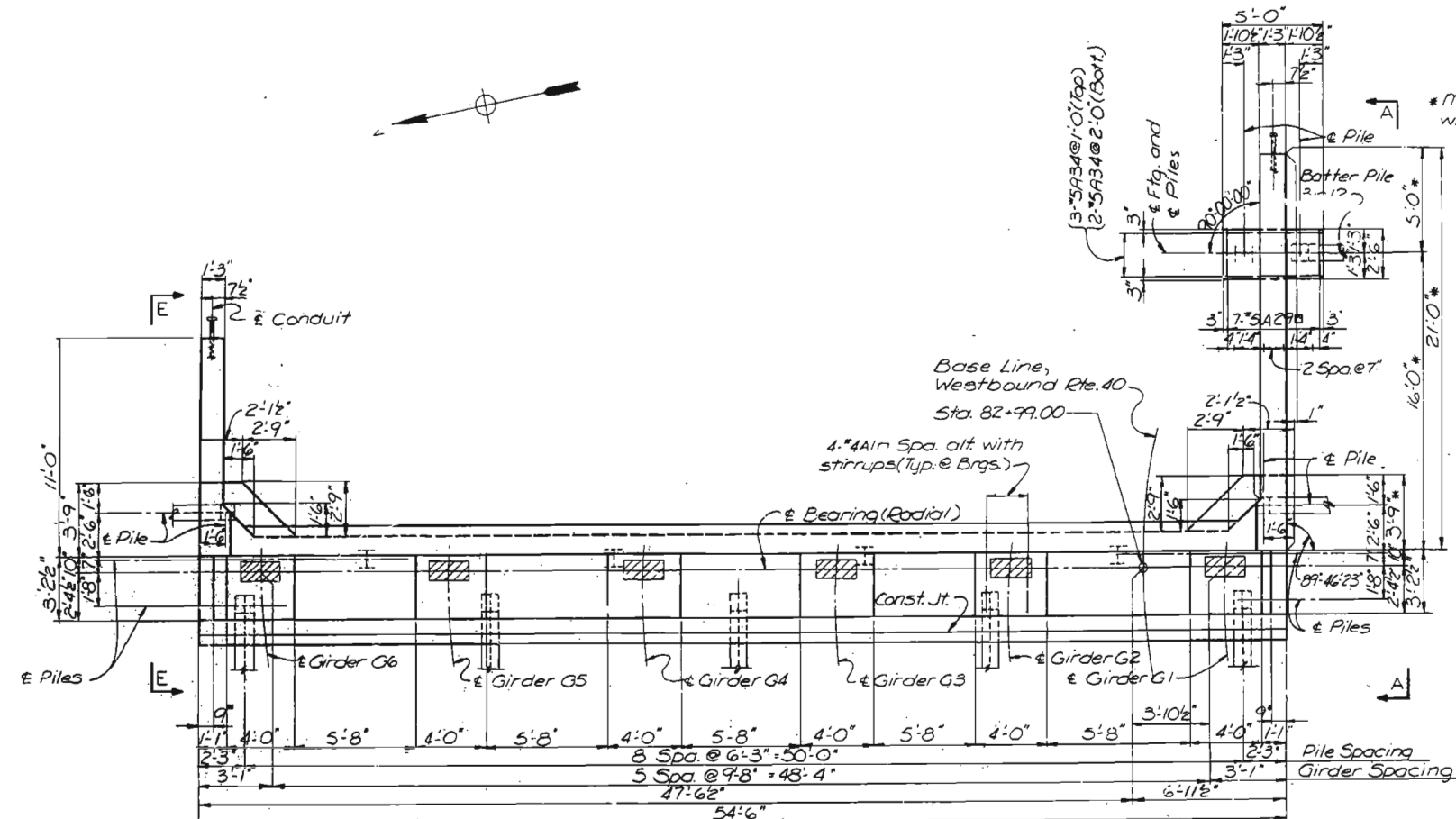
BENT 5C

SHEET 29 OF 36

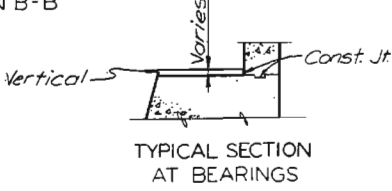
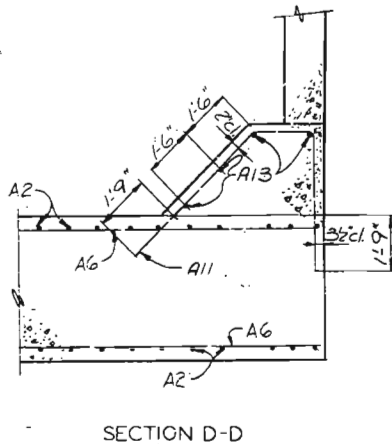
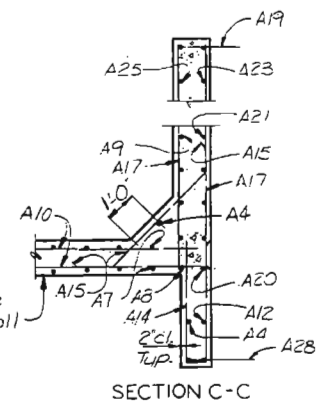
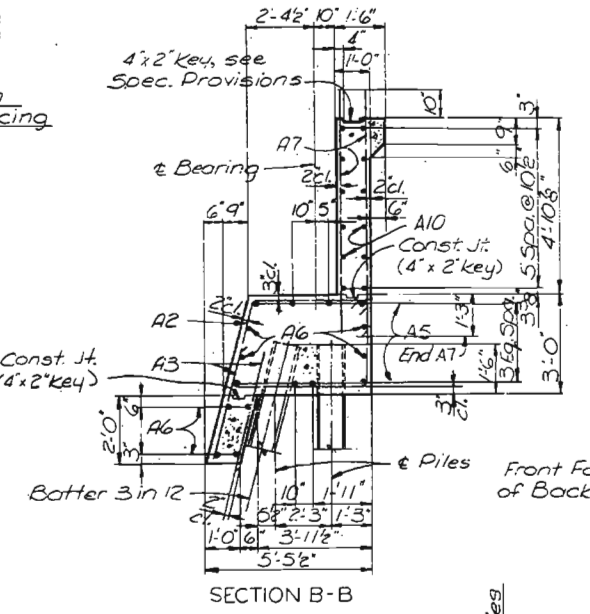
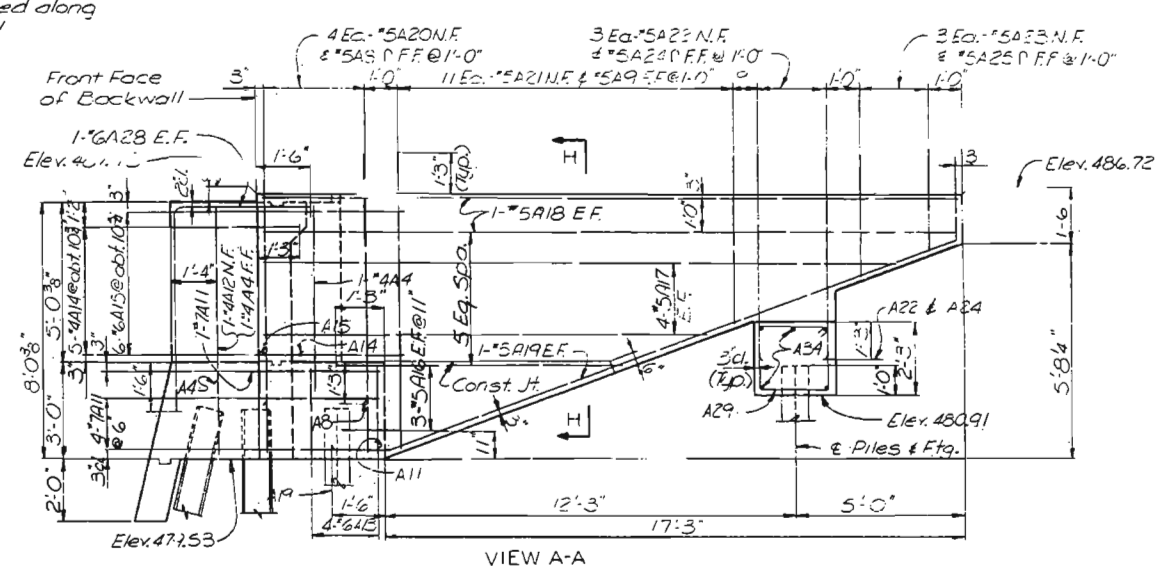
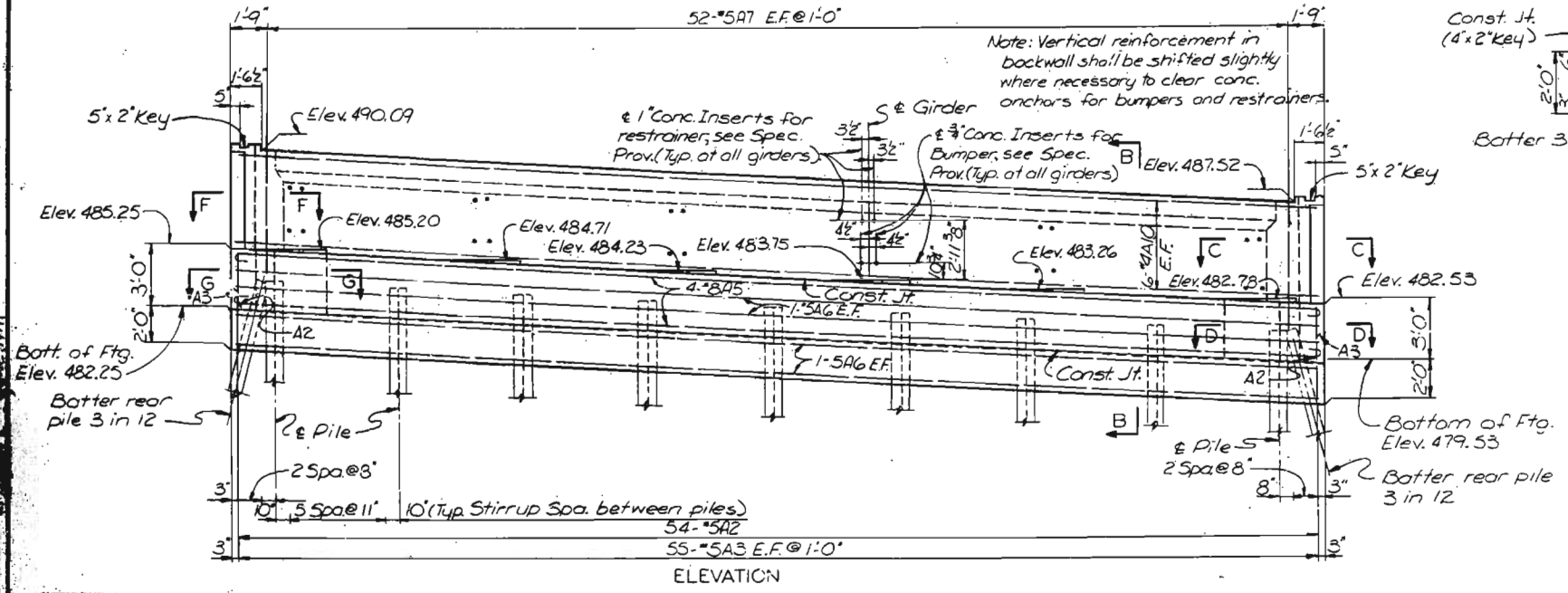
A-359-1

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	112	



PLAN
Note: 13-HP10x42 piles required.
Pile spacing is measured at bottom of footing.
For Pile Splice, Pile Data See Sheet 14.
E.F. indicates each face
N.F. indicates near face
F.F. indicates far face



NOTES
Work this sheet with Sheet 31.
Cost of furnishing and placing 2" Conduit in wing wall and anchors for Restrainers and Bumpers to be included in unit price bid for Class B Concrete.

CITY OF ST. LOUIS

ABUTMENT 57

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

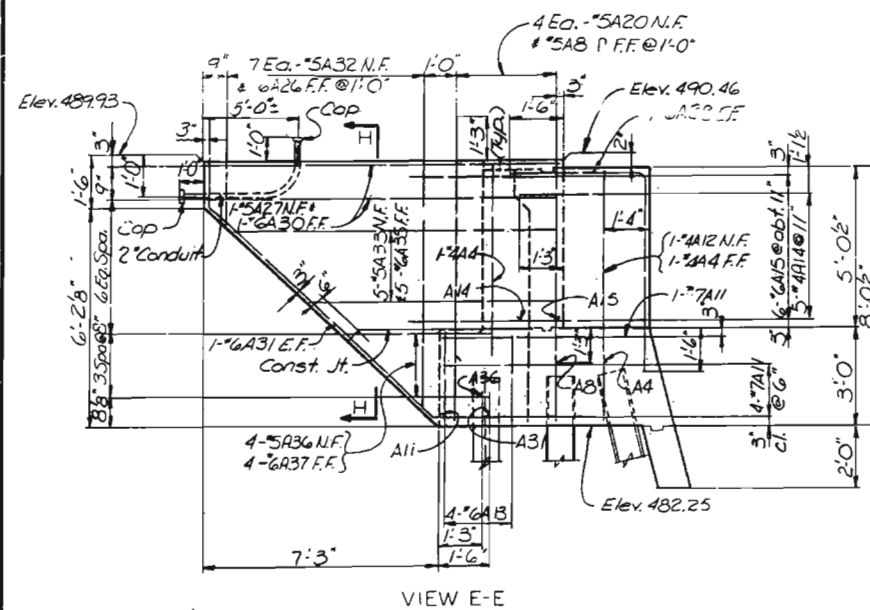
526
77553

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

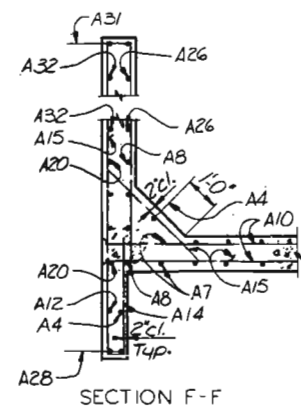
SHEET 30 OF 36

A-3594

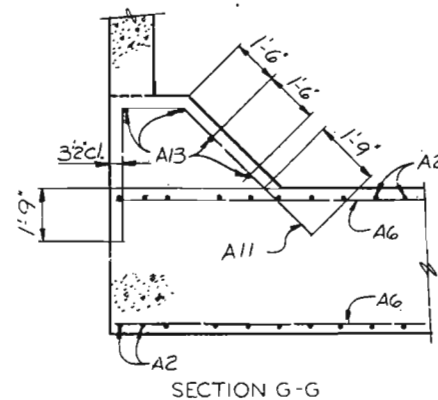
FED. ROAD DIST. NO.	STATE	FED AID PROJ NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
8	MO.		19	113	



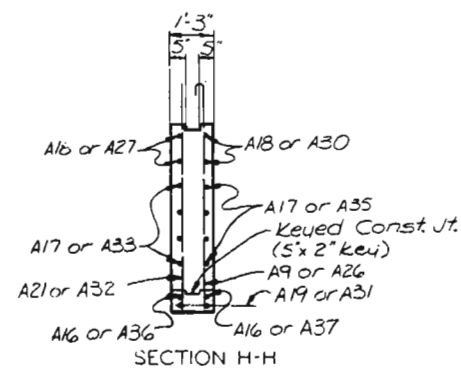
VIEW E-E



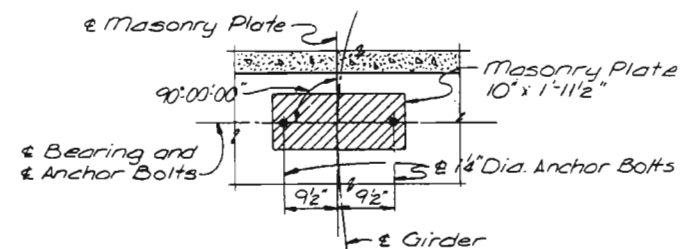
SECTION F-F



SECTION G-G

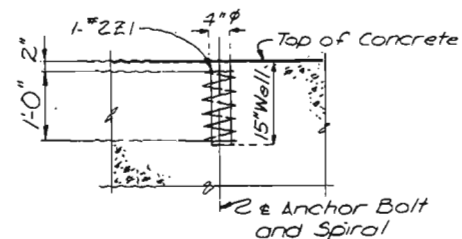


SECTION H-H



ANCHOR BOLT PLAN

Note: Anchor Bolts to be enclosed with spiral bars, see Detail.
Masonry plates and anchor bolts are stored for erection under a future contract.



ANCHOR BOLT SPIRALS

Note: Anchor Bolts shall be set in holes drilled into concrete substructure by others.

NOTES

Work this sheet with Sheet 30.

CITY OF ST. LOUIS

ABUTMENT 57

SHEET 31 OF 35

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

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

526el	DRAWN BY: <i>Losstmann June 1977</i>
715205	TRACED BY:
	CHECKED BY: <i>L. Glaser June 1977</i>

424

MISSOURI STATE HIGHWAY DEPARTMENT

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

BENT 33														BENT 35														BENT 37																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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475

DRAWN BY: M. J. Jones Dec. 1977
CHECKED BY: J. J. Jones
5261
775397

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

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

CITY OF ST. LOUIS

BAR LIST

SHEET 32 OF 36

A-3594

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		19	115	

CITY OF ST. LOUIS

SHEET 33 OF 36

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

1974

5261	DRAWN BY: M. [illegible]	Dec 1977
775407	TRACES BY:	
	COMPOSED BY:	Dec 1977

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		10	116	

BENT 43														BENT 45														BENTS 46 AND 47 (CONTINUED)																									
MARK	NO.	REQ'D	TYPE	LOCATION	A	B	C	D	E	F	G	H	I	MARK	NO.	REQ'D	TYPE	LOCATION	A	B	C	D	E	F	G	H	I	MARK	NO.	REQ'D	TYPE	LOCATION	A	B	C	D	E	F	G	H	I												
M 1	138	5	12-8	TI	CAP	7 1/4	2-7	3-2	2-7	7 1/4	3-2			J 1	14	10	21-2	1	COLUMN	1-5	19-9								C 26	44	6	6-6	ST	FOOTING																			
M 2	12	9	14-9	1	DO	1-3	15-6							J 2	14	10	18-2	1	DO	1-5	14-9								C 27	2	5	10-9	TI	CAP	7 1/4	1-9 1/2	3-2	1-9 1/2	7 1/4	3-2													
M 3	6	9	18-8	ST	DO									J 3	14	10	17-7	1	DO	1-5	14-2								C 28	2	5	12-7	TI	DO	7 1/4	2-8 1/2	3-2	2-8 1/2	7 1/4	3-2													
M 4	4	9	43-5	1	DO	1-3	32-2							J 4	14	10	17-8	1	DO	1-5	16-3								C 29	2	9	53-9	1	DO	1-3	51-3																	
M 5	4	9	21-1	1	DO	1-3								J 5	14	10	18-5	1	DO	1-5	17-0								C 30	1	4	11-10	TI	DO	5 3/4	2-5	3-2	2-5	5 3/4	3-2													
M 6	4	6	56-8	ST	DO									J 6	1	4	301-8	SP	DO										C 31	2	9	35-3	1	DO	1-3	34-0																	
M 7	4	9	56-8	ST	DO									J 7	1	4	232-2	SP	DO										C 32	2	4	10-10	TI	DO	5 3/4	1-11	3-2	1-11	5 3/4	3-2													
M 8	4	9	18-1	ST	DO									J 8	1	4	220-0	SP	DO										C 33						NOT USED																		
M 9	2	9	21-1	ST	DO									J 9	1	4	220-6	SP	DO										C 34	2	9	15-3	1	CAP	1-3	14-0																	
M 10	6	9	16-9	ST	DO									J 10	1	4	235-1	SP	DO										C 35	4	9	16-5	1	DO	1-3	15-2																	
M 11	2	9	20-6	ST	DO									J 11	1	9	30-10	19	CAP		12-5	24-5 1/2							C 36	2	9	14-0	ST	DO																			
M 12	8	7	10-1	10	DO	2-6	5-9 7/8	2-6						J 12	1	9	36-8	19	DO		12-4	24-4 1/2							C 37	1	4	10-1	TI	DO	5 3/4	1-6 1/2	3-2	1-6 1/2	5 3/4	3-2													
M 13	1	4	639-1	SP	COLUMN									J 13	1	9	36-8	19	DO		12-4	24-4							C 38	4	5	3-6	2	DO	10	2-5																	
M 14	1	4	517-6	SP	DO									J 14	1	9	36-5	19	DO		12-2 1/2	24-3							C 39	20	10	13-4	ST	DO																			
M 15	1	4	497-6	SP	DO									J 15	2	9	11-6	ST	DO										C 40	10	10	14-9	1	DO	1-5	13-4																	
M 16	33	11	11-4	ST	COLUMN									J 16	4	9	48-6	ST	DO										C 41	10	10	19-5	1	DO	1-5	18-0																	
M 17	33	11	15-8	ST	DO									J 17	2	9	40-0	ST	DO										C 42	10	10	16-9	1	DO	1-5	15-0																	
M 18	11	11	10-10	1	DO	1-7	15-3							J 18	2	9	11-2	ST	DO										C 43	10	10	12-0	2	DO	1-10	11-2																	
M 19	2	5	12-2	TI	CAP	7 1/4	2-6	3-2	2-6	7 1/4	3-2			J 19	2	9	10-7	ST	DO										C 44	10	10	23-7	1	DO	1-5	22-2																	
M 20	6	5	12-4	TI	DO	7 1/4	2-7	3-2	2-7	7 1/4	3-2			J 20	2	6	20-6	19	DO		2-4	24-2 1/2							C 45	10	10	28-3	1	DO	1-5	26-10																	
M 21	13	5	4-9	2	DO	10	3-4							J 21	2	6	27-0	19	DO		2-7	24-5 1/2							C 46	14	10	12-9	2	DO	1-10	11-3																	
M 22	2	5	4-5	2	DO	10	3-0							J 22	4	6	54-4	ST	DO										C 47	14	10	28-8	1	DO	1-5	27-3																	
M 23	11	11	22-6	1	DO	1-7	20-11							J 23	1	9	28-4	19	DO		3-11	24-5 1/2							C 48	14	10	33-4	1	DO	1-5	31-11																	
M 24	11	11	13-2	1	DO	1-7	11-7							J 24	1	9	24-4	19	DO		3-9 1/2	25-7																															
M 25	11	11	18-10	1	DO	1-7	17-3							J 25	1	9	29-4	19	DO		3-9 1/2	25-7																															
M 26	11	11	12-7	1	DO	1-7	11-0							J 26	1	9	27-11	19	DO		3-8	24-3																															
M 27	11	11	10-3	1	DO	1-7	16-8							J 27	2	9	54-5	1	DO		1-3	53-2																															
Z 1	20	2	19-9	SP	DO									J 28	2	9	55-8	1	DO		1-3	54-5																															
														J 29	1	9	14-1	19	DO		1-10	12-3																															
														J 30	4	9	15-3	ST	DO																																		
														J 31	5	9	16-6	ST	DO																																		
														J 32	5	9	15-3	1	DO		1-3	14-0																															
</																																																					

477

5261
775338
DESIGNED BY: M. J. JUNG
CHECKED BY: M. J. JUNG
DATE: Oct. 1977
CITY OF ST. LOUIS

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

NOTE: DO NOT SCALE THE DRAWING. FOLLOW DIMENSIONS.

Revised 5-1-81

CITY OF ST. LOUIS

BAR LIST

SHEET 34 OF 35

A-3594

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	117	

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

Bars marked "SP" in the type column require special bending; see detail.

The "Length" column gives the actual length of bars, with deductions for bends, rounded to the nearest inch.

A-3594

△ Revised 5-1-81

5261	DRAWN BY: M. Jung	Oct 1977
775340	TRACED BY:	
	CHECKED BY:	Oct 1977

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

MISSOURI STATE HIGHWAY DEPARTMENT

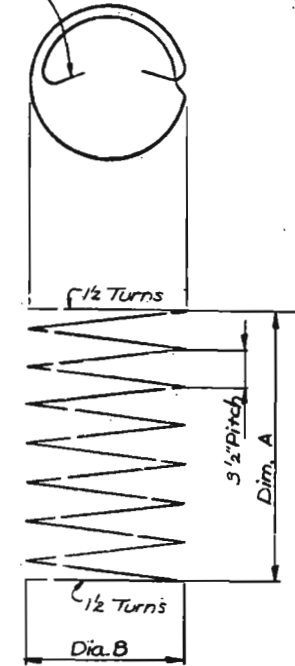
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	118	

MARK	NO.	REQ'D	LENGTH	TYPE	LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
			PT - IN			PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN
ABUTMENT 57																															
A 1	24	4	4-4	2	BEAM SEAT	8	5-3																								
A 2	54		18-3	SP	DO																										
A 3	110	5	3-5	ST	DO																										
A 4	4	4	5-11	ST	HING WALL																										
A 5	8	8	56-0	1	BEAM SEAT	11	56-2																								
A 6	8	5	56-2	ST	DO																										
A 7	104	5	7-0	ST	DO																										
A 8	8	5	8-4	1	HING WALL	7																									
A 9	11	5	VARIES	SP	DO	1	SERIES	OF 1	BARS	5-0																					
A 10	12	8	56-2	ST	BACKWALL																										
A 11	10	7	11-5	16	BEAM SEAT	---	4-4			1-9 1/8	5-4 5/8																				
A 12	2	4	7-8	ST	HING WALL																										
A 13	8	6	2-8	ST	BEAM SEAT																										
A 14	10	4	8-9	17	HING WALL					4-3 1/2	5																				
A 15	12	6	4-5	14	DO	---	---			4-5	---																				
A 16	6	5	VARIES	ST	DO	2	SERIES	OF 3	BARS	3-6																					
A 17	8	5	VARIES	ST	DO	2	SERIES	OF 4	BARS	13-8																					
A 18	4	5	20-8	ST	DO																										
A 19	2	5	21-11	SP	DO																										
A 20	8	5	9-0	ST	DO																										
A 21	11	5	VARIES	ST	DO	1	SERIES	OF 11	BARS	5-1																					
A 22	3	5	6-5	ST	DO																										
A 23	3	5	VARIES	ST	DO	1	SERIES	OF 3	BARS	3-0																					
A 24	3	5	7-0	1	DO	---	6-5																								
A 25	3	5	VARIES	SP	DO	1	SERIES	OF 3	BARS	3-6																					
A 26	7	6	VARIES	SP	DO	1	SERIES	OF 7	BARS	3-11																					
A 27	2	5	10-8	ST	DO																										
A 28	4	6	10-9	21	DO	---	4-6 1/2			6-4 1/2																					
A 29	7	5	8-8	13	WALL FTG	7 1/4	2-0			1-9																					
A 30	2	6	10-8	ST	HING WALL																										
A 31	2	6	13-4	SP	DO																										
A 32	7	5	VARIES	ST	DO	1	SERIES	OF 7	BARS	3-3																					
A 33	5	5	VARIES	ST	DO	1	SERIES	OF 5	BARS	7-2																					
A 34	5	5	4-8	ST	WALL FTG																										
A 35	5	6	VARIES	ST	HING WALL	1	SERIES	OF 5	BARS	7-2																					
A 36	8	5	VARIES	ST	DO	1	SERIES	OF 4	BARS	1-10																					
A 37	4	6	VARIES	ST	DO	1	SERIES	OF 4	BARS	2-1																					
2 1	12	2	19-9	SP	BEAM SEAT																										

MARK	NO.	REQ'D	LENGTH	TYPE	LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
			PT - IN			PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN	PT - IN
PEDESTAL PILES																															
M 1	29	11	30-2	ST	PEDESTAL PILES																										
M 2	58	11	31-2	ST	DO																										
M 3	22	11	32-2	ST	DO																										
M 4	68	11	31-2	ST	DO																										
M 5	22	11	25-2	ST	DO																										
M 6	28	10	30-8	ST	DO																										
M 7	60	10	27-2	ST	DO																										
M 8	28	10	26-8	ST	DO																										
M 9	28	10	25-2	ST	DO																										
M 10	22	11	28-2	ST	DO																										
M 11	22	11	31-2	ST	DO																										
M 12	44	11	30-2	ST	DO																										
M 13	22	11	16-8	ST	DO																										
M 14	58	11	29-2	ST	DO																										
M 15	68	11	26-2	ST	DO																										
M 16	68	11	22-2	ST	DO																										
M 17	68	11	27-2	ST	DO																										
M 18	22	11	28-8	ST	DO																										
M 19	44	11	19-8	ST	DO																										
M 20	28	11	27-8	ST	DO																										
M 21	28	11	28-8	ST	DO																										
M 22	28	11	22-8	ST	DO																										
M 23	128	11	31-8	ST	DO																										
M 24	66	11	33-8	ST	DO																										
M 25	22	11	38-8	ST	DO																										
M 26	22	11	25-8	ST	DO																										
M 27	68	11	35-8	ST	DO																										
M 28	28	11	63-8	ST	DO																										
M 29	28	11	88-2	ST	DO																										
M 30	28	11	65-2	ST	DO																										
M 31	66	8	12-0	ST	DO																										
M 32	578	8	10-5	ST	DO																										
M 33	162	8	8-10	ST	DO																										
M 34	38	8	16-0	ST	DO																										
M 35	162	8	15-2	ST	DO																										

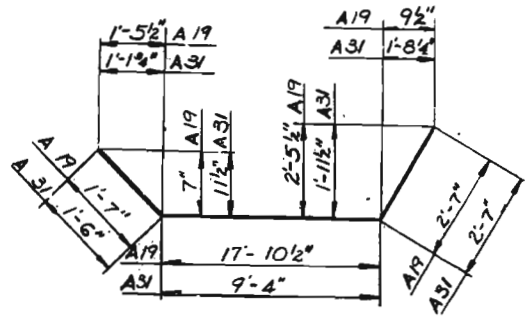
PEDESTAL PILES

135° Hook with 10" long tail. Turn each end

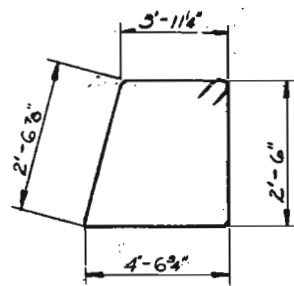


Bar Mark	Dim. A.	Dim. B
B12	16'-5 1/2"	3'-2"
B13	16'-0 3/4"	3'-2"
B14	15'-7"	3'-2"
B31	18'-0 1/2"	3'-2"
B53	21'-5 1/4"	3'-8"
B54	21'-2 1/4"	3'-8"
B55	20'-11 1/8"	3'-8"
C12	6'-1 1/2"	2'-8"
C13	7'-7 1/2"	2'-8"
C14	15'-1 1/2"	2'-8"
C18	12'-6 3/8"	2'-8"
C20	24'-0 3/8"	2'-8"
C23	29'-5 1/8"	2'-8"
D1	14'-4 3/8"	2'-8"
D4	13'-8 1/2"	2'-8"
D6	13'-0 1/8"	2'-8"
D17	23'-4 1/8"	2'-8"
D19	17'-10 3/8"	2'-8"
D22	10'-5 1/8"	2'-8"
E14	18'-11 1/8"	2'-8"
G13	11'-1 1/8"	2'-8"
G14	11'-7 1/8"	2'-8"
G15	12'-1 3/4"	2'-8"
G16	14'-7 1/8"	2'-8"
H13	18'-0 1/2"	3'-2"
H14	14'-5 1/4"	3'-2"
H15	13'-10"	3'-2"
J6	12'-2 3/8"	2'-2"
J7	2'-2 3/8"	2'-2"
J8	3'-8"	2'-2"
J9	8'-8 1/4"	2'-2"
J10	9'-5 1/2"	2'-2"
K12	9'-10 3/8"	3'-2"
K14	9'-4 3/8"	3'-2"
R1	25'-6 1/8"	5'-8"
R14	25'-9 3/8"	3'-8"
R23	26'-1 1/8"	5'-8"
R25	27'-4 1/8"	3'-8"
R32	27'-8 3/8"	5'-8"
R34	29'-5 1/8"	3'-8"
R38	32'-3 3/8"	4'-2"
R43	35'-5 1/4"	3'-2"
R52	28'-11"	5'-2"
R58	28'-5 1/4"	3'-8"
R68	25'-1 1/8"	4'-8"
R78	22'-11 1/8"	4'-2"
R82	21'-5 1/8"	3'-8"
R84	19'-0 1/4"	4'-2"
R95	17'-1"	2'-8"
R99	13'-1 1/8"	4'-2"
R103	19'-5 1/8"	2'-2"
R108	15'-5 1/8"	3'-8"
R110	17'-5 1/8"	3'-2"
R121	14'-5 1/2"	2'-8"
R125	17'-1 1/2"	4'-8"
R128	18'-8 1/2"	3'-2"
R135	18'-3 3/8"	3'-8"
R137	20'-8 1/8"	3'-8"

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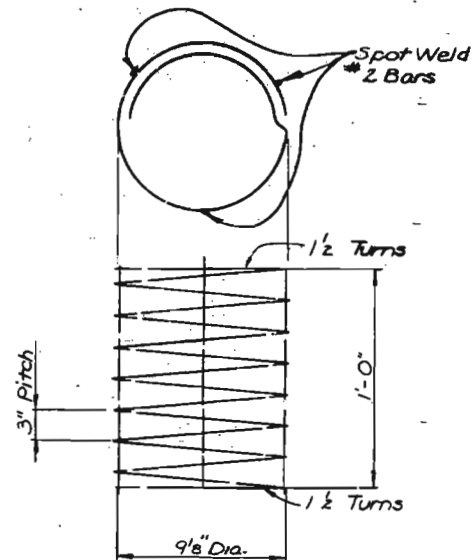
A19 & A31



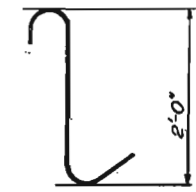
A2

A9 Varies 5'-1" to 8'-10"
A25 Varies 2'-11 1/2" to 3'-9 1/2"
A26 Varies 3'-3" to 8'-7"

A9, A25 & A26



21



X1

CITY OF ST. LOUIS

BAR LIST

SHEET 36 OF 35

A-3594

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

OVERSEAS & PARTIAL, AND ASSOCIATES, Inc.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

5261
775339

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

SECTION 3		
FINAL QUANTITIES		
ITEM	UNIT	TOTAL
Class I Excavation	Cu. Yd.	1459.0
" Pedestal Piles 3'-0" Dia.	Lin. Ft.	148.8
" Pedestal Piles 3'-6" Dia.	Lin. Ft.	543.8
" Pedestal Piles 4'-0" Dia.	Lin. Ft.	414.5
" Pedestal Piles 5'-0" Dia.	Lin. Ft.	165.0
" Pedestal Piles 5'-6" Dia.	Lin. Ft.	35.0
Class B Concrete	Cu. Yd.	1373.5
Reinforcing Steel	Lb.	635,620
Structural Steel Piles HP 10 x 42	Lin. Ft.	1949
Structural Steel Piles HP 12 x 53	Lin. Ft.	1255
Removal of Eriqs (A-833 & A834)	Lump Sum	1
Pile Load Test (HP 12 x 53)	Each	2
* Cost of Concrete in pedestal piles is included in unit price bid per lin. ft. of pedestal piles.		
THE ABOVE QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES ON THE FIRST SHEET OF BRIDGE PLANS. ALSO CONT. ITEMS BELOW		
CONTINGENT ITEMS		
Test Holes Ped. Pile	Lin. Ft.	160
Ped. Piles 36" + 25%	Lin. Ft.	97
Ped. Piles 42' + 25%	Lin. Ft.	4.3
Ped. Piles 60' + 25%	Lin. Ft.	4.5
Rev. Col. 2 Bl. #39	F.A.	543.52
Test Holes Foundations	Lin. Ft.	108
Class I Excavation + 25%	Cu. Yd.	22.0

Test Holes Ped.Pile	Lin.Ft.	160
Ped.Piles 36" +25%	Lin.Ft.	97
Ped.Piles 42" +25%	Lin.Ft.	43
Ped.Piles 60" +25%	Lin.Ft.	45
Rev. Col.2 Bt.#39	F.A.	543.52
Test Holes Foundations	Lin.Ft.	108
Class 1 Excavation +25%	Cu.Yd	22.0

A-3594

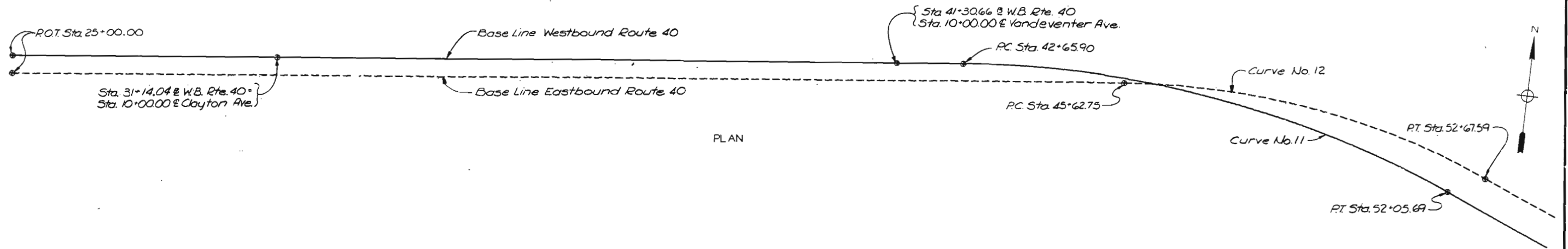
NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

5261	DRAWN BY: M. Junge	Oct. 1977
775395	TRACED BY:	
	CHECKED BY: W. G. Holden	Oct. 1977

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	49	



PLAN

HORIZONTAL CURVE DATA

	Curve No. 11	Curve No. 12	Curve No. 13	Curve No. 14	Curve No. 15	Curve No. 16	Curve No. 17	Curve No. 18	Curve No. 19	Curve No. 20	Curve No. 21	Curve No. 22	Curve No. 23	Curve No. 24	Curve No. 25	Curve No. 27
PT	Sta. 47+45.51	Sta. 49+22.46	Sta. 55+88.46	Sta. 58+95.22	Sta. 1+00.08	Sta. 1+60.97	Sta. 65+24.53	Sta. 70+64.33	Sta. 71+72.71	Sta. 0+34.99	Sta. 2+78.30	Sta. 75+23.49	Sta. 1+52.50	Sta. 79+38.90	Sta. 82+84.69	Sta. 82+59.18
Δ	28°11'37.9" Rt.	28°11'37.8" Rt.	3°04'03.3" Lt.	3°04'03.3" Rt.	11°57'55.4" Lt.	63°31'30.1" Rt.	6°14'13.4" Rt.	7°13'56.1" Lt.	10°14'05.5" Lt.	26°04'22.0" Rt.	13°30'29.9" Rt.	1°22'15.7" Lt.	16°08'50.1" Lt.	2°27'00.3" Lt.	2°27'00.3" Rt.	16°14'54.3" Rt.
D	3°00'00"	4°00'00"	1°00'00"	1°00'00"	6°00'00"	22°02'12.6"	1°00'00"	1°36'27"	0°52'00"	37°54'41.7"	63°39'43.1"	0°29'54.8"	6°00'00"	0°42'30.8"	0°42'30.8"	2°00'00"
T	479.61'	359.71'	153.42'	153.42'	100.09'	160.97'	312.16'	225.25'	592.05'	34.99'	209.52'	137.51'	152.50'	172.92'	172.92'	309.49'
L	939.80'	704.84'	306.76'	306.76'	199.42'	288.27'	623.71'	449.91'	1180.94'	68.77'	209.71'	275.00'	302.45'	345.79'	345.79'	616.59'
R	1909.86'	1432.39'	5729.58'	5729.58'	954.93'	260.00'	5729.58'	3564.30'	6611.05'	151.13'	90.00'	11492.00'	954.93'	8086.36'	8086.36'	2864.79'

BENCH MARKS U.S.G.S. DATUM

NUMBER	DESCRIPTION	ELEV.
B.M. #4	"a" on stone curb in front of General Equip't. Co. bldg. No. 3952 Clayton Ave.	477.94
B.M. #5	"b" on N.E. corner of 2x2 conc. base of stop light at Vandeventer left side of ramp from Mkt St.	459.32
B.M. #1	"d" on top conc. Ret. Wall N. Side of W.B. 40 Sta. 1250±	481.17
B.M. #181	"a" on curb S.W. corner W.D. Mkt. St. Br. over E.B. Forest Park Blvd.	484.26
B.M. #479	R.R. spike in R.R. corner of alley and Prospect St.	476.90
B.M. #381	"a" on S. side Sign Ped. in median E.B. 40 Sta. 30+90±	495.73
B.M. "E"	Top of S.W. corner of light standard at the S.W. corner of Grand Ave. bridge.	489.63

CITY OF ST. LOUIS

FINAL PLANS

ALIGNMENT, HORIZONTAL CURVE DATA,
AND BENCH MARKS

SHEET 54 OF 36

A-3594

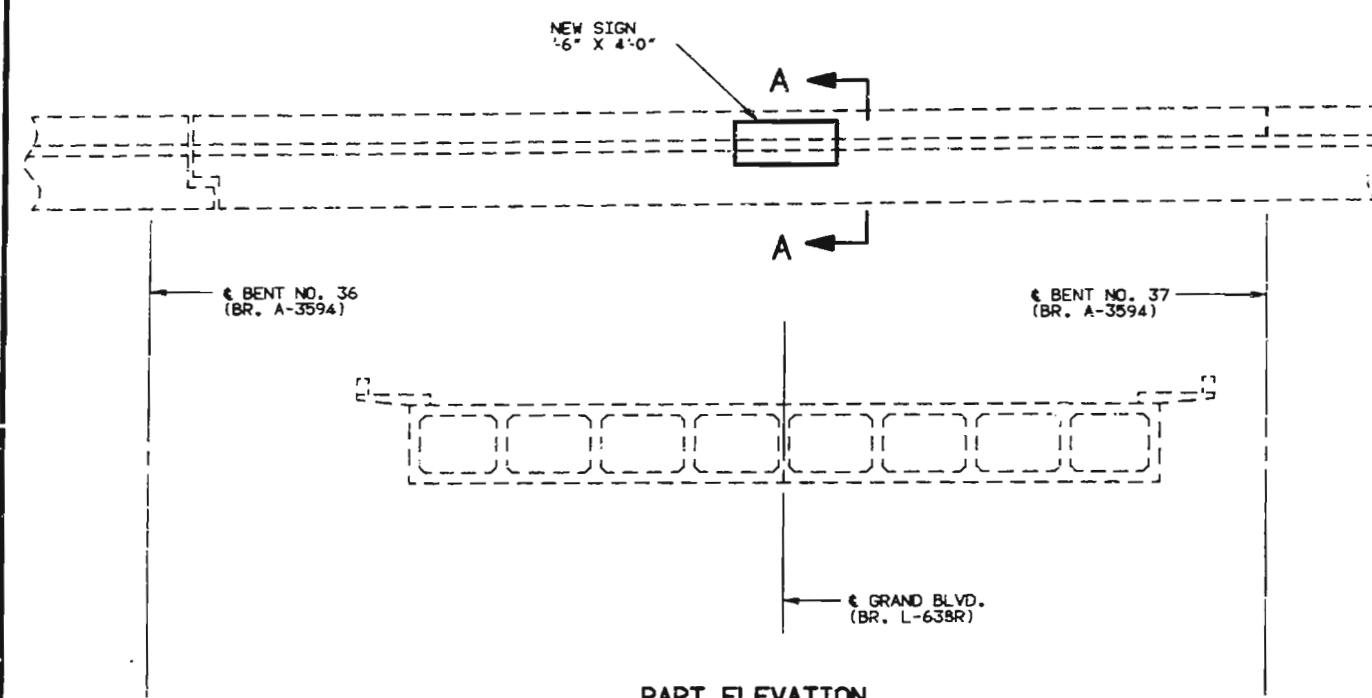
OVERDRUP & PARCEL AND ASSOCIATES, INC.
ENGINEERS - ARCHITECTS
ST. LOUIS, MISSOURI

NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

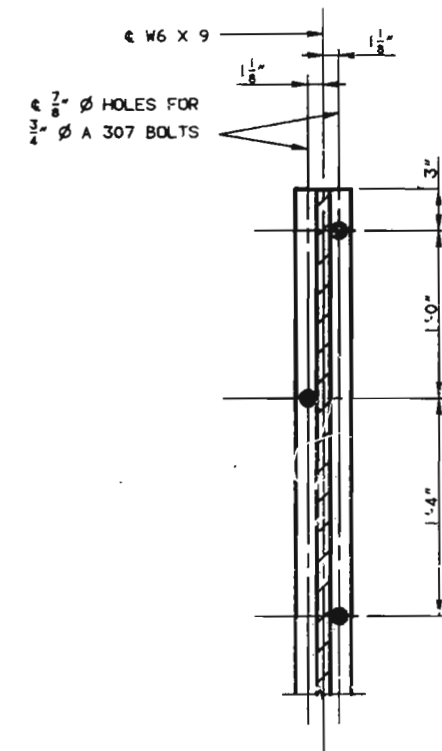
DRAWN BY: J. O'NEILL, Dec. 1974
CHECKED BY: J. O'NEILL, May 1977
5261
765294

481

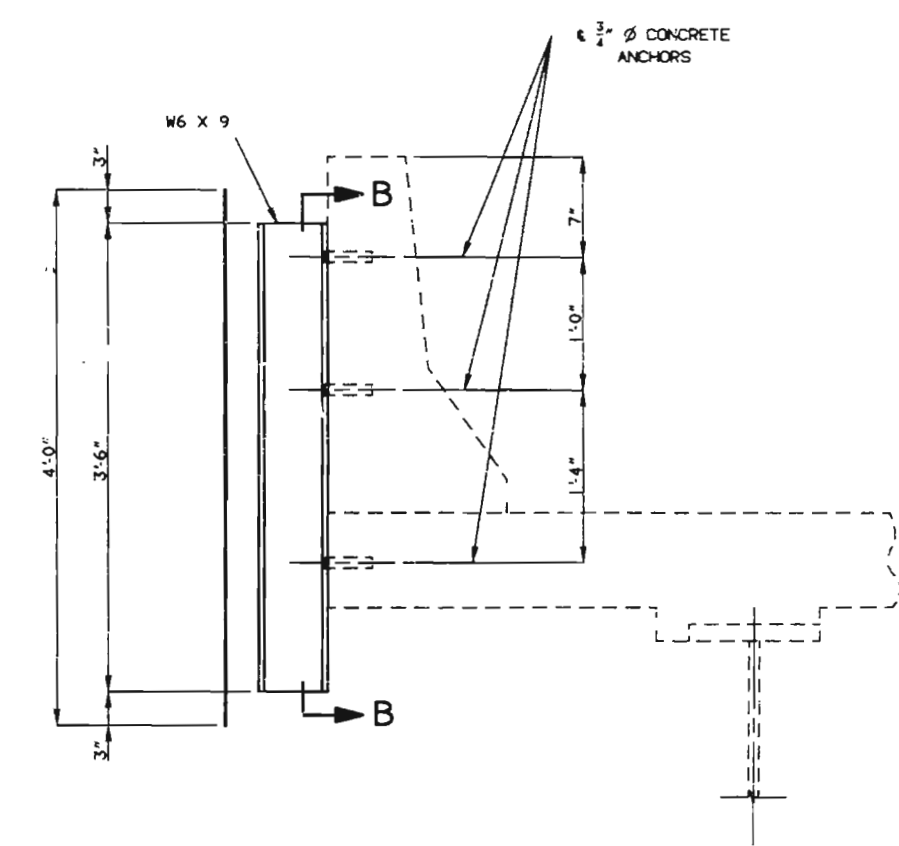
STATE	PROJ. NO.	SHEET NO.
MO.		83



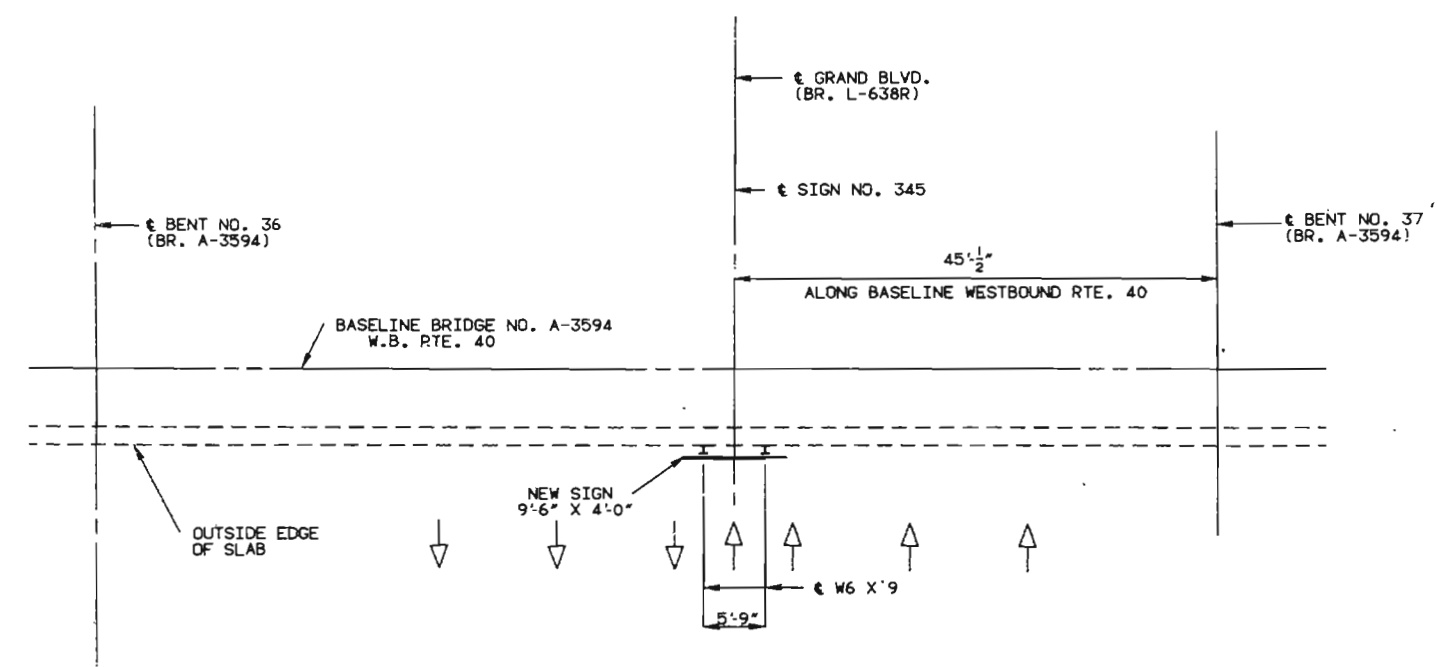
PART ELEVATION



SECTION B-B



SECTION A-A



PART PLAN

GENERAL NOTES:
 ALL BOLTS, AND WASHERS SHALL BE GALVANIZED.
 OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.
 CENTER AND LEVEL SIGN ON BRACKET.
 ALL STRUCTURAL STEEL SHALL BE A.S.T.M. A36, GALVANIZED.
 THE COST OF FURNISHING AND ERECTING THE SIGN SUPPORTS, INCLUDING THE CONCRETE ANCHORS COMPLETE-IN-PLACE, SHALL BE PAID FOR AS FABRICATED SIGN SUPPORT BRACKET, LUMP SUM.
 CONCRETE ANCHORS SHALL BE THE NON-DRILLING EXPANSION TYPE. THEY SHALL HAVE A CERTIFIED CONCRETE PULLOUT STRENGTH (ULTIMATE LOAD) OF AT LEAST 12,100 POUNDS IN 4000 PSI CONCRETE. THE HOLE SHALL BE PRE-DRILLED WITH A CONVENTIONAL CARBIDE MASONRY BIT.
 THE EXISTING SIGN SUPPORTS SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER.

SIGN SUPPORTS
SIGN NO. 345
 STA. 10+07± GRAND AVE.

DETAILED OCT. 1991
 CHECKED OCT. 1991

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 1 OF 1

CITY OF ST. LOUIS **A-3594R**

457

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		B1
SEC./SUR. 17	TWP. 45N RGE. 7E	

GENERAL NOTES:

DESIGN UNIT STRESSES:

Class B1 Concrete $f'c = 4,000$ psi
Reinforcing Steel (Grade 60) $f_y = 60,000$ psi
Structural Carbon Steel (ASTM A709 Grade 36) $f_y = 36,000$ psi
Structural Steel (ASTM A709 Grade 50) $f_y = 50,000$ psi

OLD WORK:

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

MAINTAIN TRAFFIC:

See Roadway Plans For Traffic Control.
See Sheet 9 & 10 For Stage Construction.

VERIFY DIMENSIONS:

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

PLAN DIMENSIONS:

Plan dimensions are based on installation at 60° F. The expansion gap and other dimensions shall be adjusted during installation for compliance with any temperature change.

STEEL CONNECTION:

High strength bolts, nuts & washers will be sampled for quality assurance as specified in standard specification 106 and Field Section (FS-712) From Materials Manual.

BARs BONDED IN OLD CONCRETE:

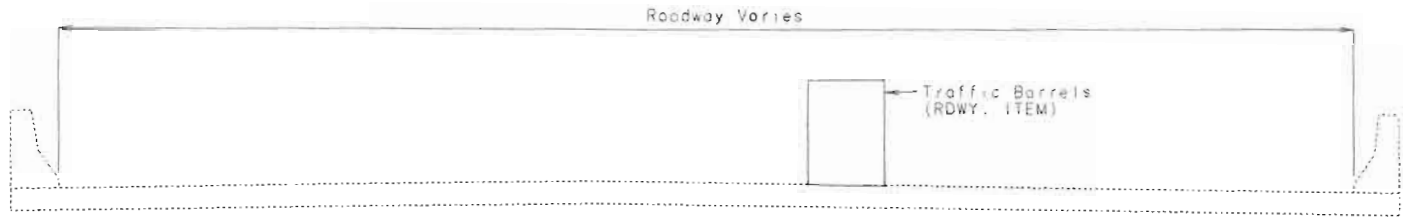
Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible.

NOTES FOR RESIN ANCHOR SYSTEM

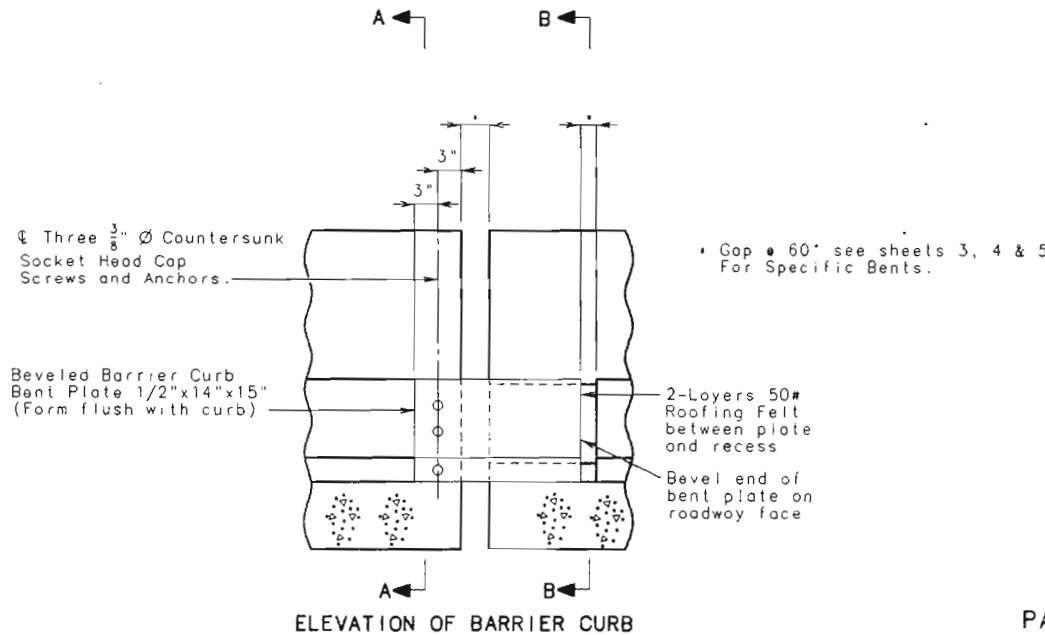
The contractor shall use one of the Resin Anchor Systems listed in the Job Special Provision. These Resin Anchor Systems shall be installed according to the manufacturer's specification, except as modified by the Job Special Provision.

Cost of finishing and installing the resin anchor systems complete-in-place shall be included in the Contract Unit Price for Modification of Existing Expansion Jt.

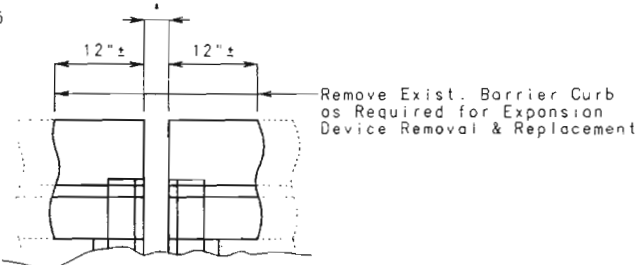
The 3/8" \varnothing Resin Anchor Systems shall have a minimum ultimate pullout strength of 4,680 lbs. in concrete with $f'c = 4,000$ p.s.i. See Special Provisions. Use ASTM A307 Threaded rod for Resin Anchor Systems.



SECTION THRU SLAB

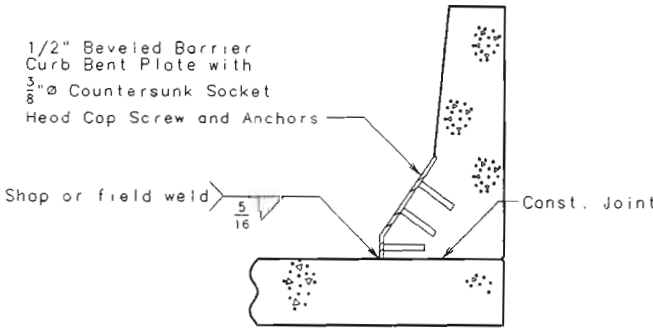


ELEVATION OF BARRIER CURB

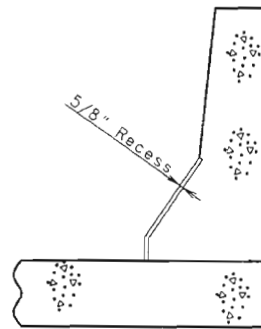


PART PLAN OF BARRIER CURB

NOTE: North side shown, South side similar.

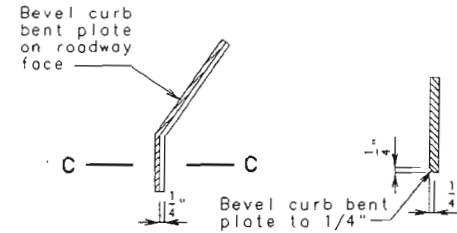


PART SECTION A-A



PART SECTION B-B

DETAILS OF CURB PLATES AT BENTS NO. 4, 8, 38, 46, 50 AND 53



PART ELEVATION AT END OF BEVELED CURB BENT PLATE

SECTION C-C

Note: Cost of B1 concrete required to replace removed concrete in barrier curb shall be included in cost bid for Modification of Existing Expansion Joint.

REPAIRS TO
BRIDGE: WESTBOUND ROUTE 1-64 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK SOUTHERN RAILWAY

STATE ROAD FROM GRAND BLVD. TO MISSISSIPPI RIVER
IN THE CITY OF ST. LOUIS

PROJECT NO. STA. 28+96.35 (MATCH EXISTING)
JOB NO. J611250 RTE. 1-64 WEST BOUND



CITY OF ST. LOUIS

DETAILED FEB. 1997
CHECKED MAR. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

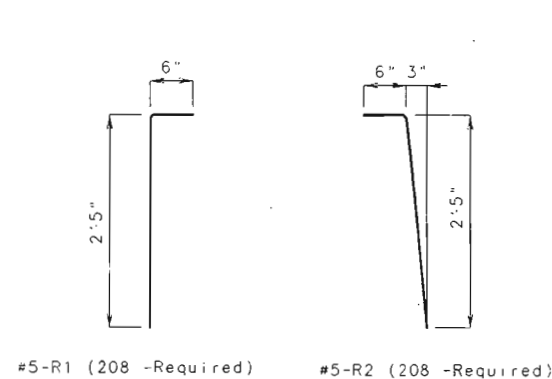
Note: For details of Expansion Device Movement Gauge, see sheet no. 8.

SHEET NO. 1 OF 21

DATE

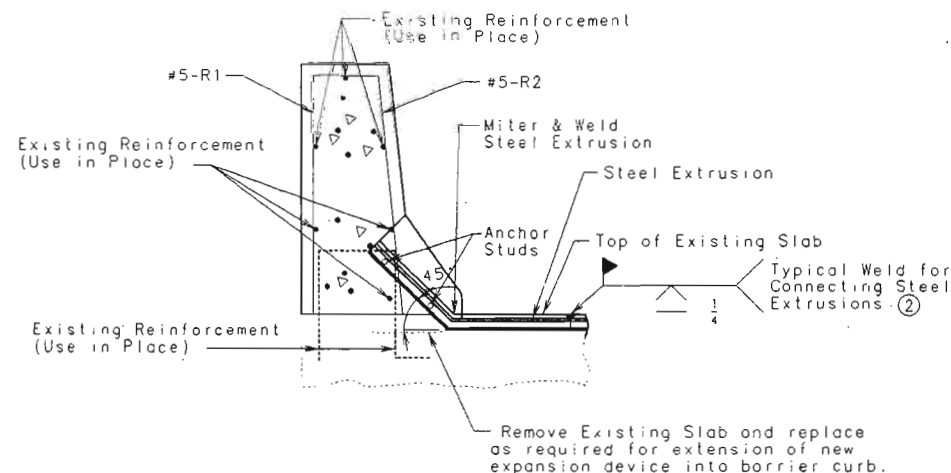
STD.
STD. 706.35
A35942

STATE	PROJ. NO.	SHEET NO.
MO.		32
SEC./SUR.	TWP.	RGE.

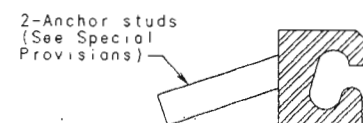


Note: Bends shall be in accordance with CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures Stirrup and Tie Dimensions.
 All Dimensions are out to out.
 New #5-R1 & #5-R2 Bars shall be Epoxy Coated.
 Furnishing and installing #5-R1 & #5-R2 Bars shall be included in the contract unit price bid for Modification of Existing Expansion Joint.

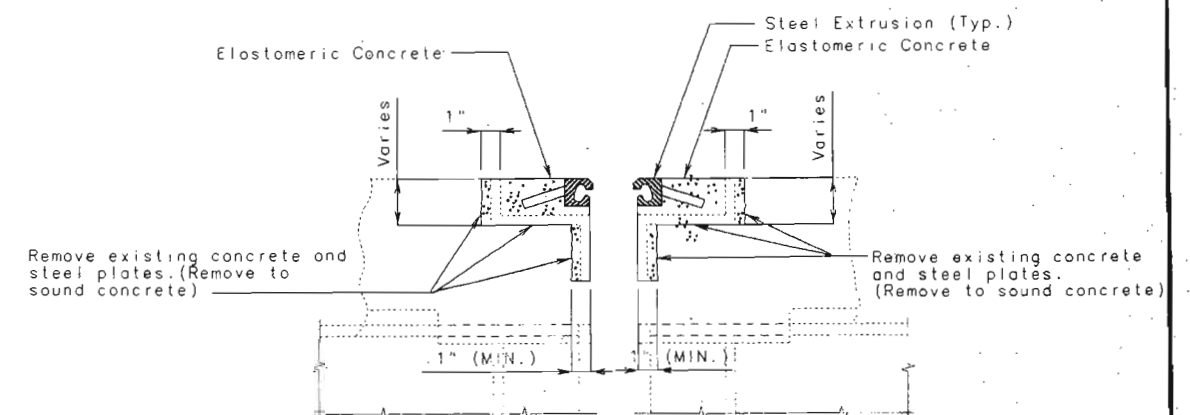
BENDING DIAGRAM



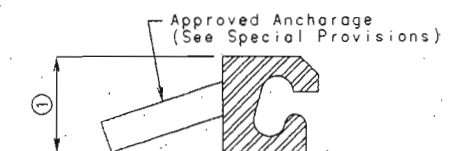
SECTION THRU CURB AT BENTS 4, 8, 46 & 53.
 (Barrier Curb Plate not shown for clarity.)
 ② Extrusion shall be welded top and back



DETAIL OF STEEL EXTRUSION IN CURBS

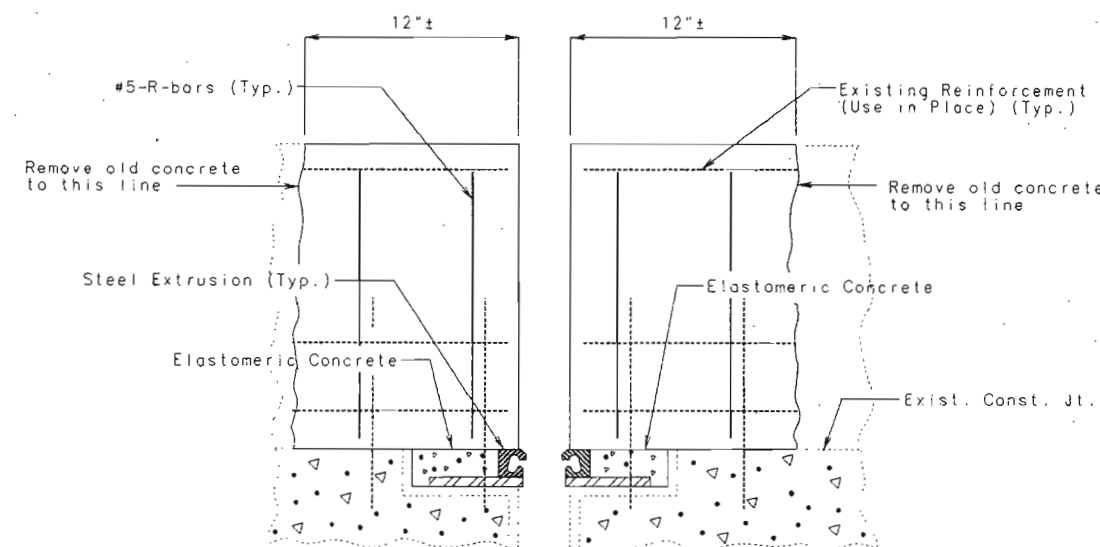


PART SECTION THRU MODIFICATION AT EXISTING EXPANSION DEVICES NEAR EDGE OF SLAB WHEN LOOSE PLATES ARE ENCOUNTERED



DETAIL OF STEEL EXTRUSION WHERE LOOSE PLATES ARE ENCOUNTERED

- ① 1 1/2" For Exp. Jt. at Bents 4, 8 & 53.
 2" For Exp. Jt. at Bents 46.



PART ELEVATION OF CURB AND EXPANSION DEVICE AT BENTS NO. 4, 8, 46 & 53.

Note: For details of Expansion Device Movement Gouge, see sheet no. 8.



DETAILED FEB. 1997
 CHECKED MAR. 1997

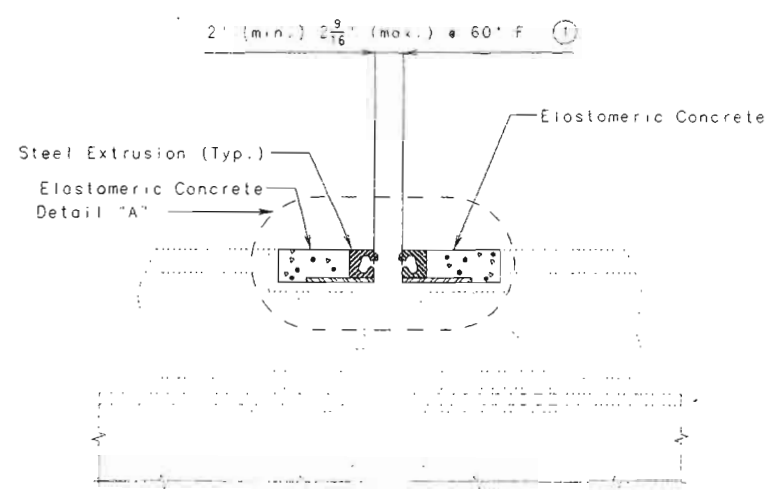
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 2 OF 21

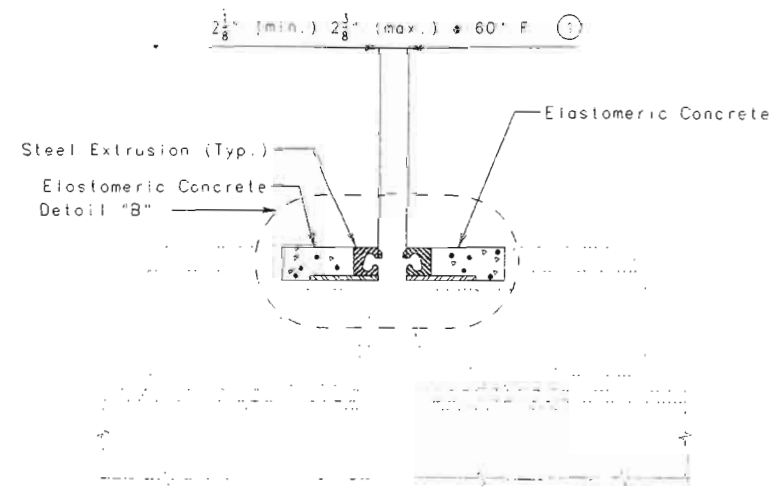
CITY OF ST. LOUIS

A35942

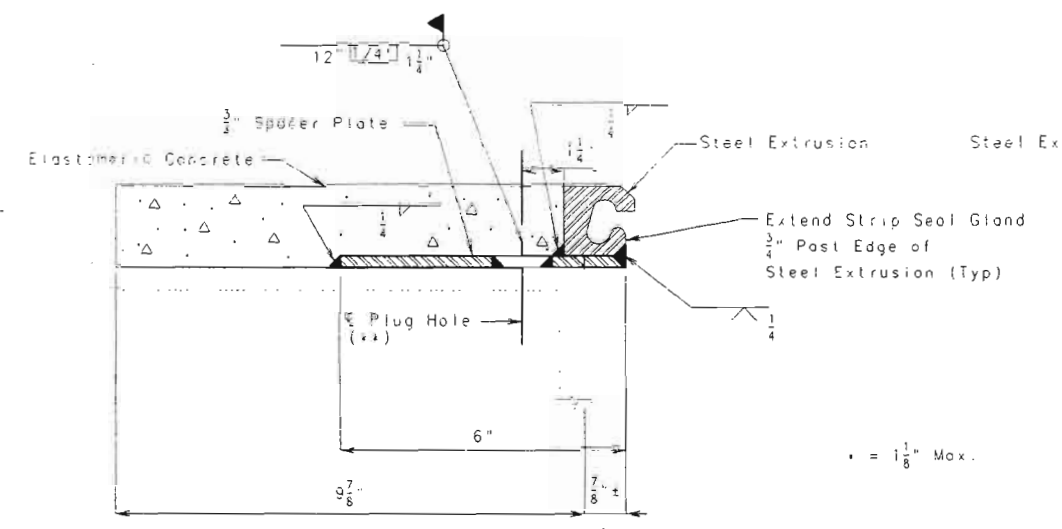
Note: Dimensions ① shall be increased $\frac{1}{4}$ " for each 10' fall in temperature and decreased $\frac{1}{4}$ " for each 10' rise in temperature at installation.



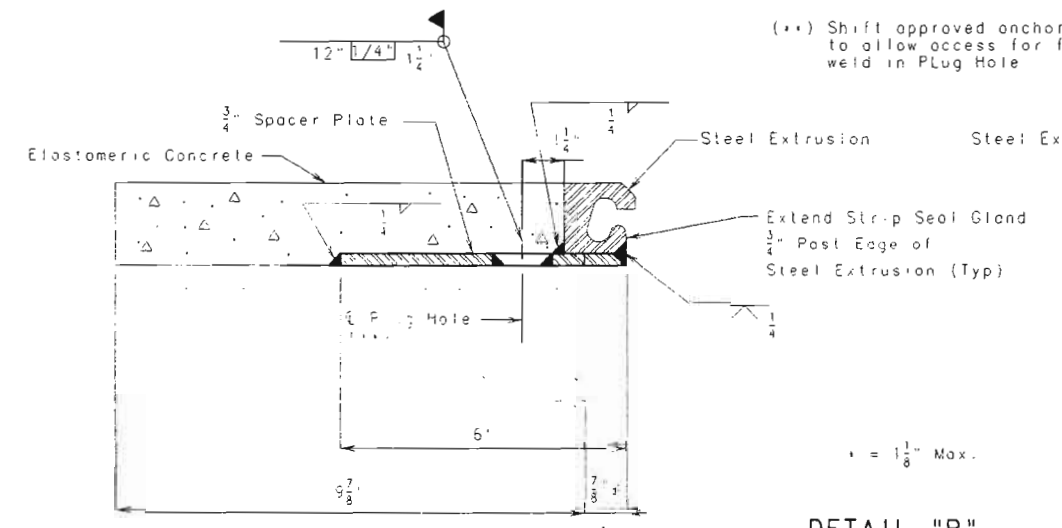
PART SECTION THRU MODIFICATION
AT EXISTING EXPANSION DEVICE
BENT NO. 4.



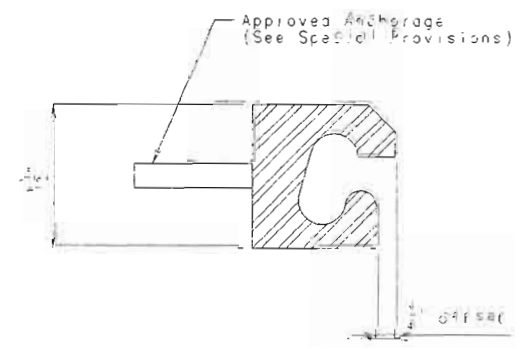
PART SECTION THRU MODIFICATION
AT EXISTING EXPANSION DEVICE
BENT NO. 8.



DETAIL "A"



DETAIL "B"



DETAIL OF STEEL EXTRUSION



STRIP SEAL GLAND
MOVEMENT RATING 4"

NOTES FOR STRIP SEAL:
The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the Special Provisions.
All welds shall conform to Section 712 of the Standard Specifications.
All steel shall be ASTM A709 Grade 36, except steel extrusions shall be ASTM A709 Grade 50W or Grade 35.
Gap for new expansion device cannot be greater than existing gap.
2" Min. gap required for proper installation on.

DETAILED FEB. 1997
CHECKED MAR. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 3 OF 21

CITY OF ST. LOUIS

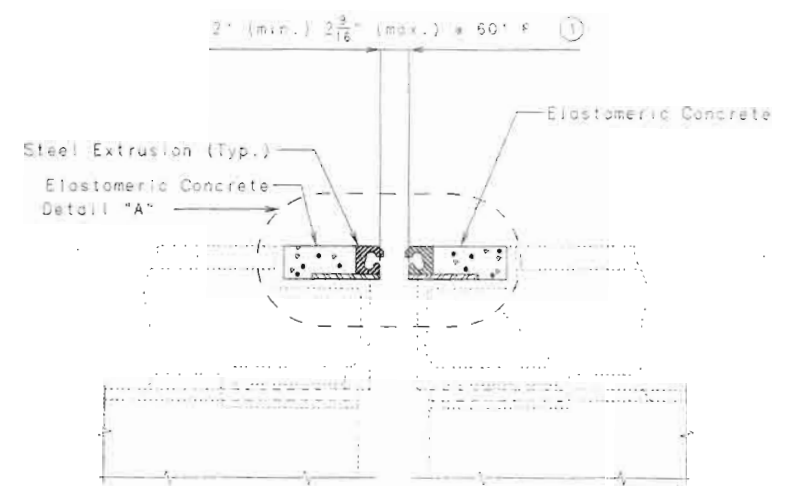
A35942

Revised Feb. 3, 1999

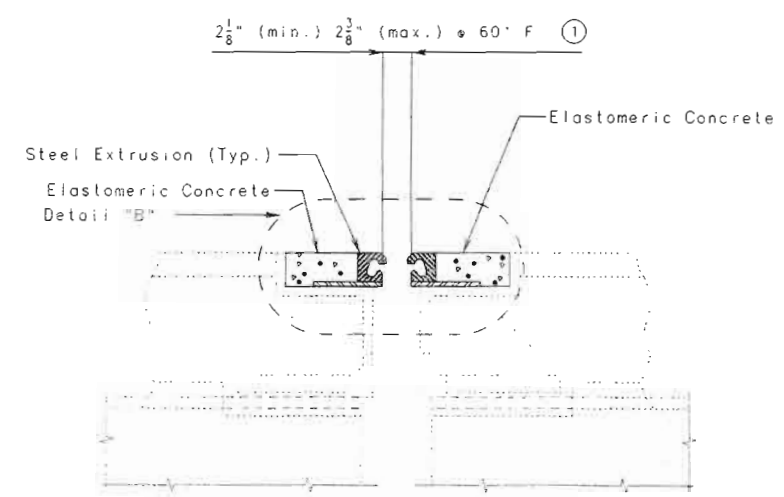


DATE 1/2/10

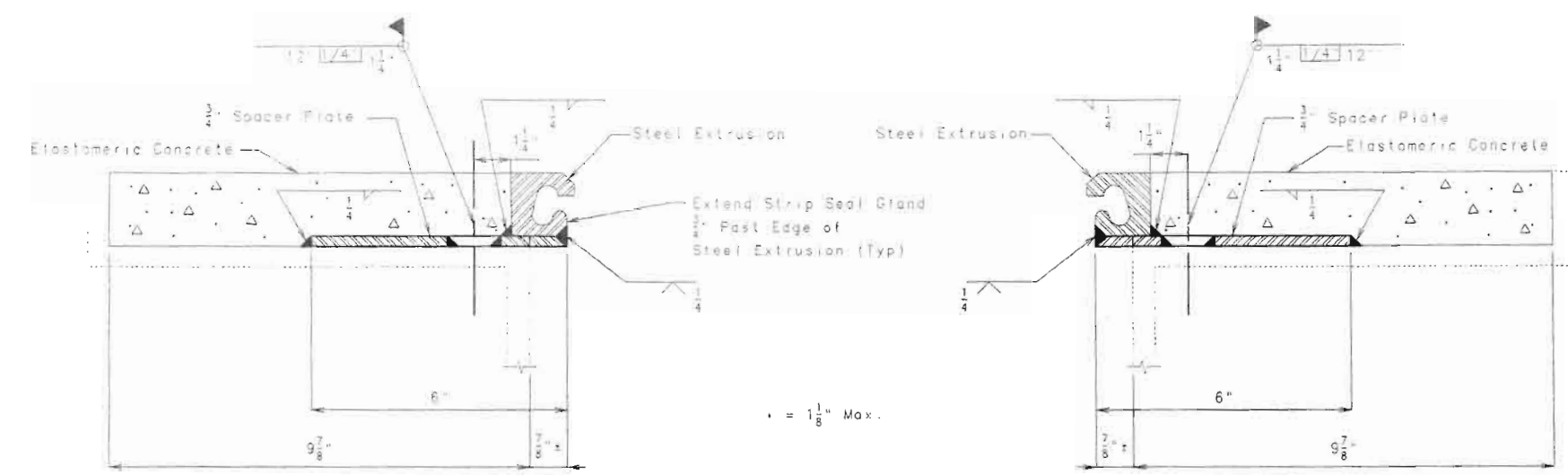
Note: Dimensions ① shall be increased $\frac{1}{8}$ " for each 10° fall in temperature and decreased $\frac{1}{8}$ " for each 10° rise in temperature at installation.



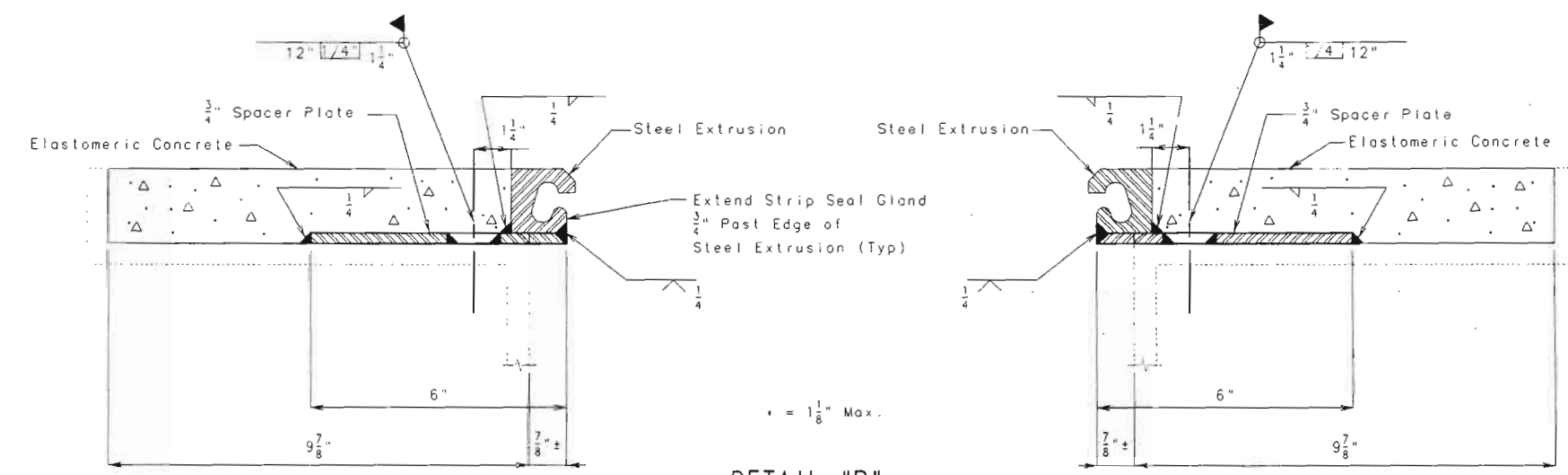
PART SECTION THRU MODIFICATION
AT EXISTING EXPANSION DEVICE
BENT NO. 4.



PART SECTION THRU MODIFICATION
AT EXISTING EXPANSION DEVICE
BENT NO. 8.



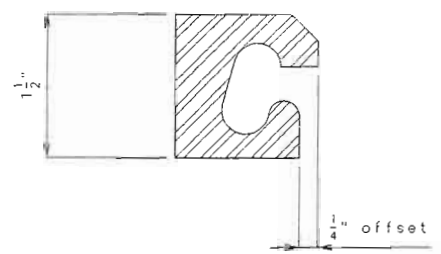
DETAIL "A"



DETAIL "B"



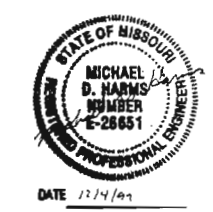
STRIP SEAL GLAND
MOVEMENT RATING 4"



DETAIL OF STEEL EXTRUSION

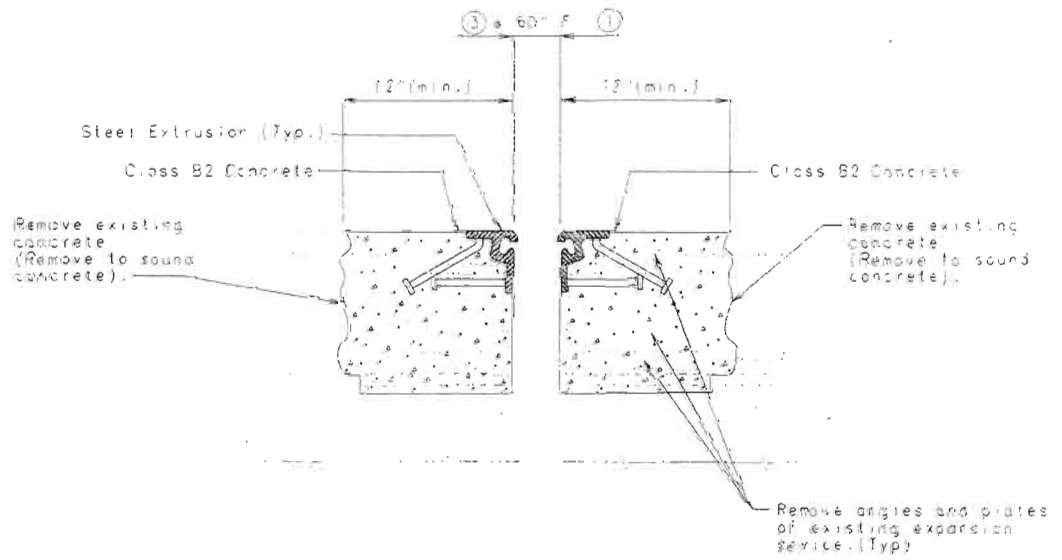
NOTES FOR STRIP SEAL:
The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the Special Provisions.
All welds shall conform to Section 712 of the Standard Specifications.
All steel shall be ASTM A709 Grade 36, except steel extrusions shall be ASTM A709 Grade 50W or Grade 36.

Gap for new expansion device cannot be greater than existing gap.
2" Min. gap required for proper installation.



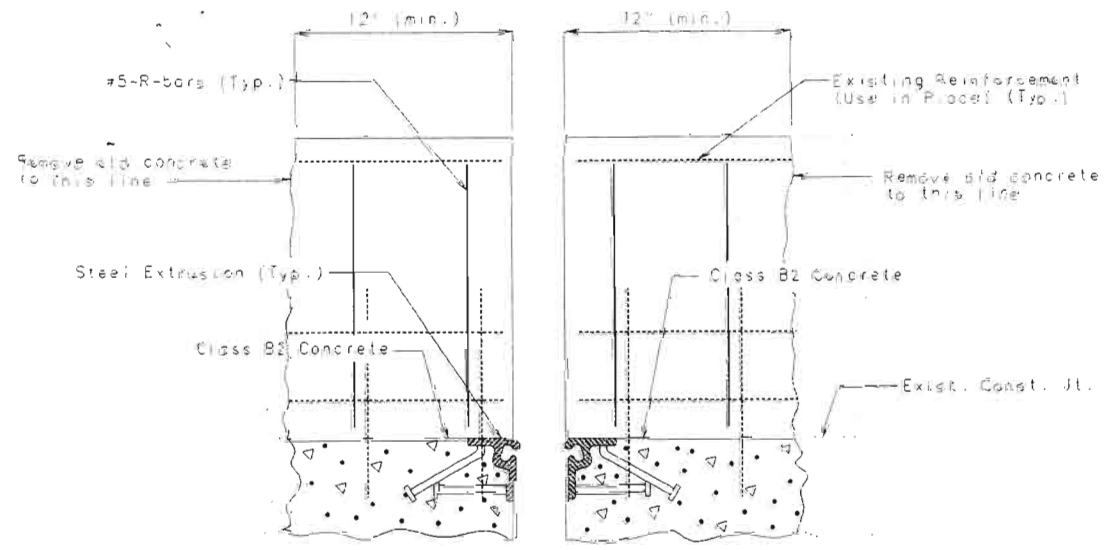
Revised Feb. 3, 1999

Note: Dimensions ① shall be increased $\frac{1}{4}$ " for each 10' fall in temperature and decreased $\frac{1}{4}$ " for each 10' rise in temperature of installation.

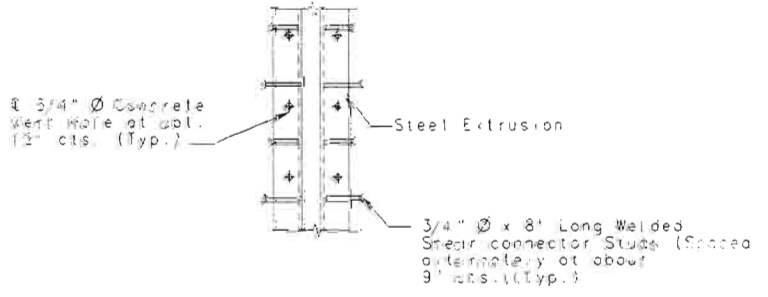


PART SECTION THRU MODIFICATION AT EXISTING EXPANSION DEVICE BENTS NO. 38 & 50.

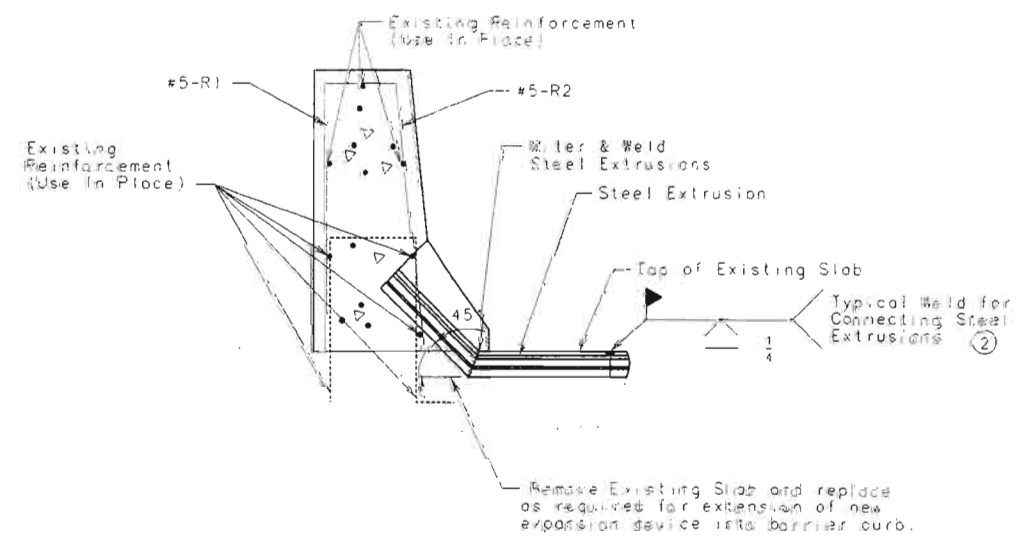
BENT 38	BENT 50
2' (min.)	2' (min.)
2 1/2" (max.)	2 1/2" (max.)



PART ELEVATION OF CURB AND EXPANSION DEVICE AT BENTS NO. 38 AND 50.



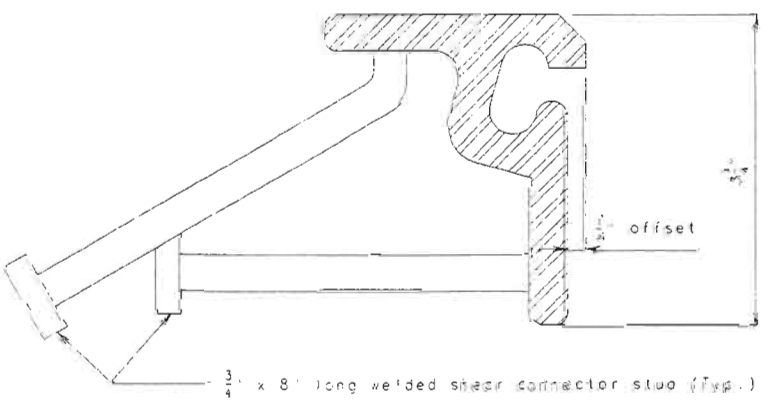
PART PLAN OF STEEL EXTRUSION



SECTION THRU CURB AT BENTS NO. 38 & 50.

(Barrier Curb Plate not shown for clarity.)

② Extrusion shall be welded top and back



DETAIL OF STEEL EXTRUSION



STRIP SEAL GLAND MOVEMENT RATING 4"

NOTE: The Strip Seal Gland shall extend past the edge of the slab by 3/4".

NOTES FOR STRIP SEAL:
The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the Special Provisions.

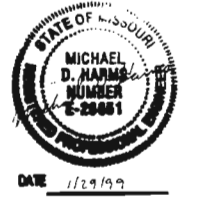
All welds shall conform to Section 712 of the Standard Specifications.

All steel shall be ASTM A708 Grade 36, except steel extrusions shall be ASTM A709 Grade 50W or Grade 50.

2' min. gap required for proper installation.

Concrete shall be forced under and around the strip seal extrusions and studs by troweling or other approved methods. Proper consolidation of concrete shall be achieved by localized vibration or other approved methods.

Reinforce Slab to bear on Existing Grapes.



Revised Feb. 3, 1999

DETAILED FEB. 1997
CHECKED FEB. 1997

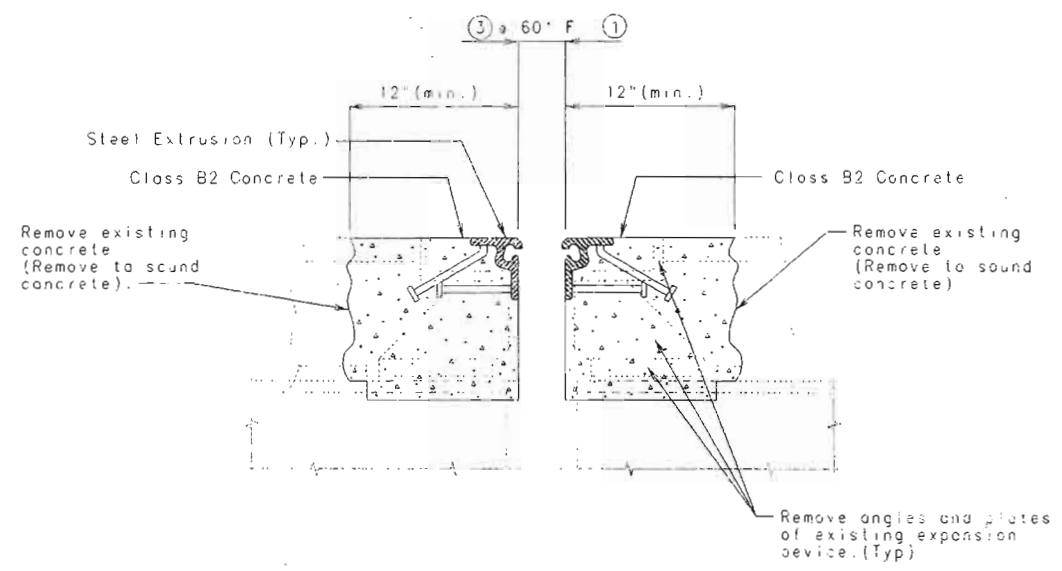
NOTE: THIS DRAWING IS NOT TO SCALE - FOLLOW DIMENSIONS.

SHEET NO. 4 OF 21

CITY OF ST. LOUIS

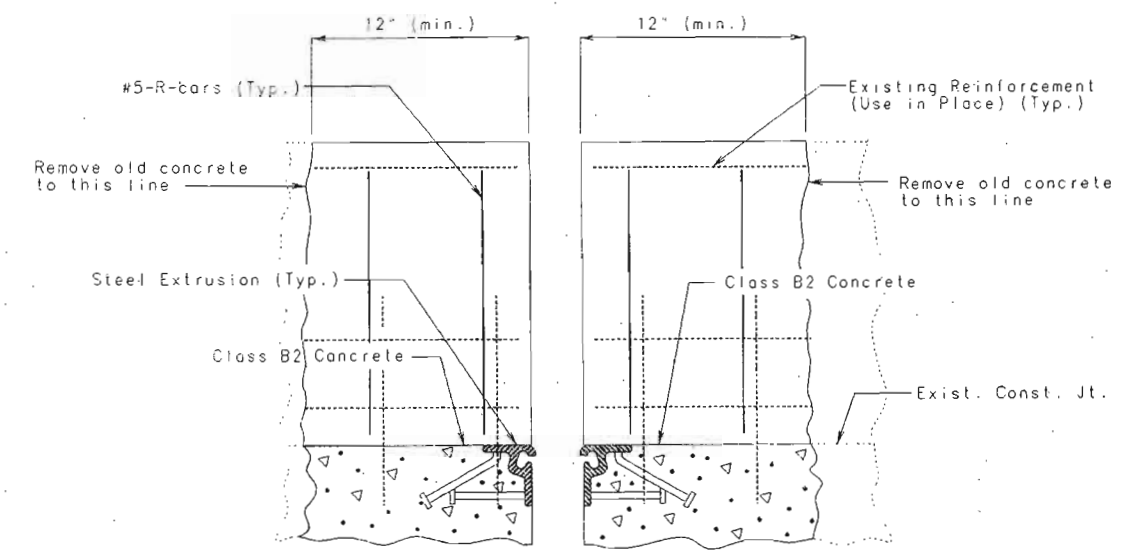
A35942

Note: Dimensions ① shall be increased $\frac{1}{4}$ " for each 10° fall in temperature and decreased $\frac{1}{4}$ " for each 10° rise in temperature at installation.



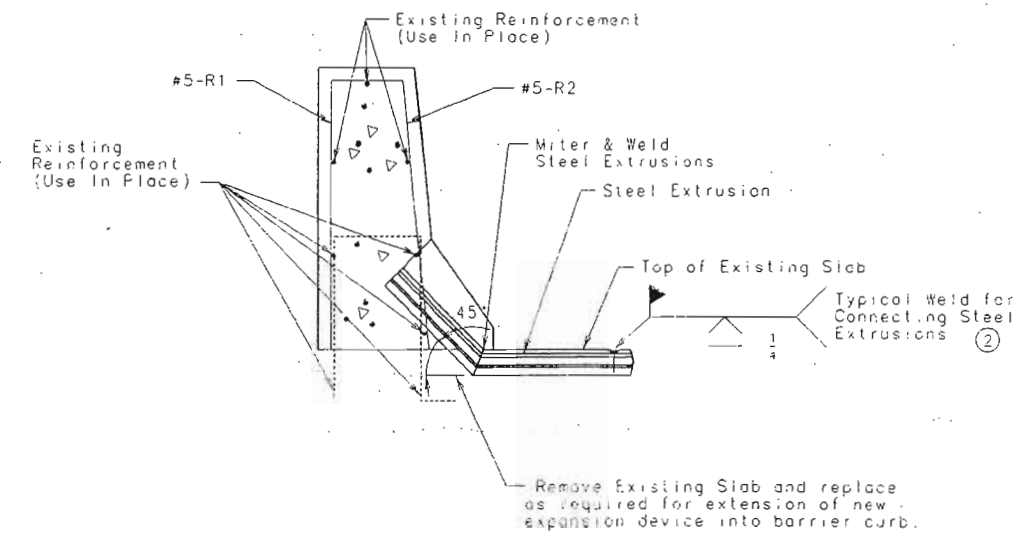
PART SECTION THRU MODIFICATION
AT EXISTING EXPANSION DEVICE
BENTS NO. 38 & 50.

③	
BENT 38	BENT 50
2" (min.)	2" (min.)
2 1/2" (max.)	2 15/16" (max.)

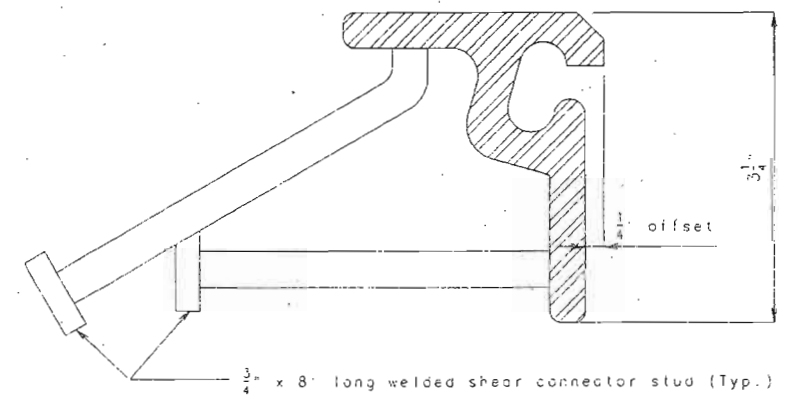


PART ELEVATION OF CURB
AND EXPANSION DEVICE
AT BENTS NO. 38 AND 50.

Note: For details of Expansion Device Movement Gauge, see sheet no. 8.



SECTION THRU CURB AT BENTS NO. 38 & 50.
(Barrier Curb Plate not shown for clarity.)
② Extrusion shall be welded top and back



DETAIL OF STEEL EXTRUSION



STRIP SEAL GLAND
MOVEMENT RATING 4"

NOTE: The Strip Seal Gland shall extend past the edge of the slab by 3/4".

NOTES FOR STRIP SEAL:
The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the Special Provisions.
All welds shall conform to Section 712 of the Standard Specifications.
All steel shall be ASTM A709 Grade 36, except steel extrusions shall be ASTM A709 Grade 50W or Grade 36.
2" min. gap required for proper installation.
Concrete shall be forced under and around the strip seal extrusions and studs by troweling or other approved methods. Proper consolidation of concrete shall be achieved by localized internal vibration or other approved methods.
Haunch Slab to bear on Existing Channel.



STATE	PROJ. NO.	SHEET NO.
MO.		B5

(**) Shift approved anchorage to allow access for field weld in Plug Hole

$\frac{7}{8}$ " Spacer Plate

Elastomeric Concrete

Steel Extrusion

Extend Strip Seal Gland $\frac{1}{4}$ " Past Edge of Steel Extrusion (Typ)

Plug Hole
(**)

$9\frac{11}{16}$

6

$\epsilon = 1\frac{1}{8}" \text{ Max.}$

Approved Anchorage
See Special Provisions

offset

NOTES FOR STRAP SEAL:
The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the Special Provisions.

All steel shall be ASTM A709 Grade 36, except steel extrusions shall be ASTM A709 Grade 50W or Grade 36.

Gcc for new expansion design shall be greater than existing gcc.

2" Min. gap required for proper installation.

Revised Feb. 3, 1999



DATE 1/29

DETAILED FEB. 1997
CHECKED FEB. 1997

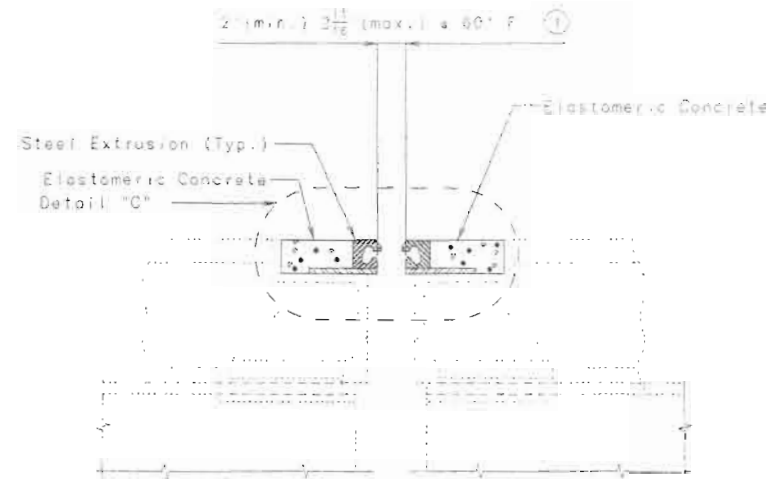
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 5 OF 21

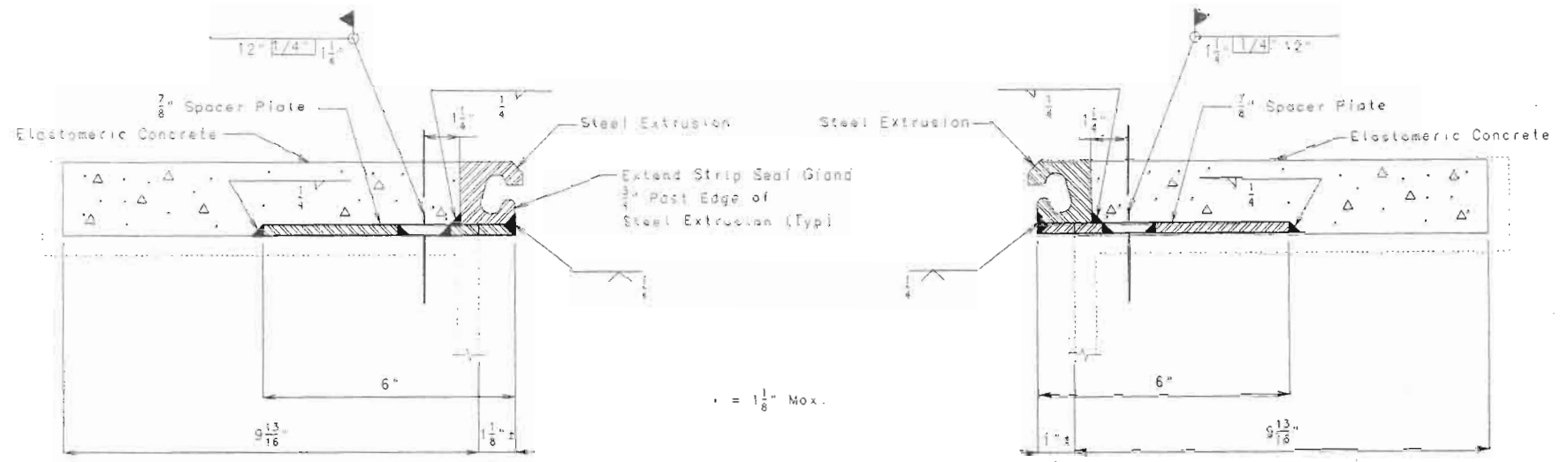
CITY OF ST. LOUIS

A35942

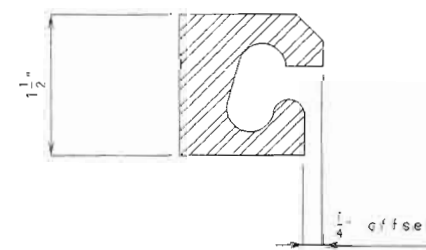
Note: Dimensions ① shall be increased $\frac{1}{8}$ " for each 10° rise in temperature and decreased $\frac{1}{8}$ " for each 10° rise in temperature at installation.



PART SECTION THRU MODIFICATION
AT EXISTING EXPANSION DEVICE
BENT NO. 53.



DETAIL "C"



DETAIL OF STEEL EXTRUSION



STRIP SEAL GLAND
MOVEMENT RATING 4"

NOTES FOR STRIP SEAL:

The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the Special Provisions.

All welds shall conform to Section 712 of the Standard Specifications.

All steel shall be ASTM A709 Grade 36, except steel extrusions shall be ASTM A709 Grade 50W or Grade 36.

Gap for new expansion device cannot be greater than existing gap.

2" Min. gap required for proper installation.



DATE 12/4/97

DETAILED FEB. 1997
CHECKED FEB. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

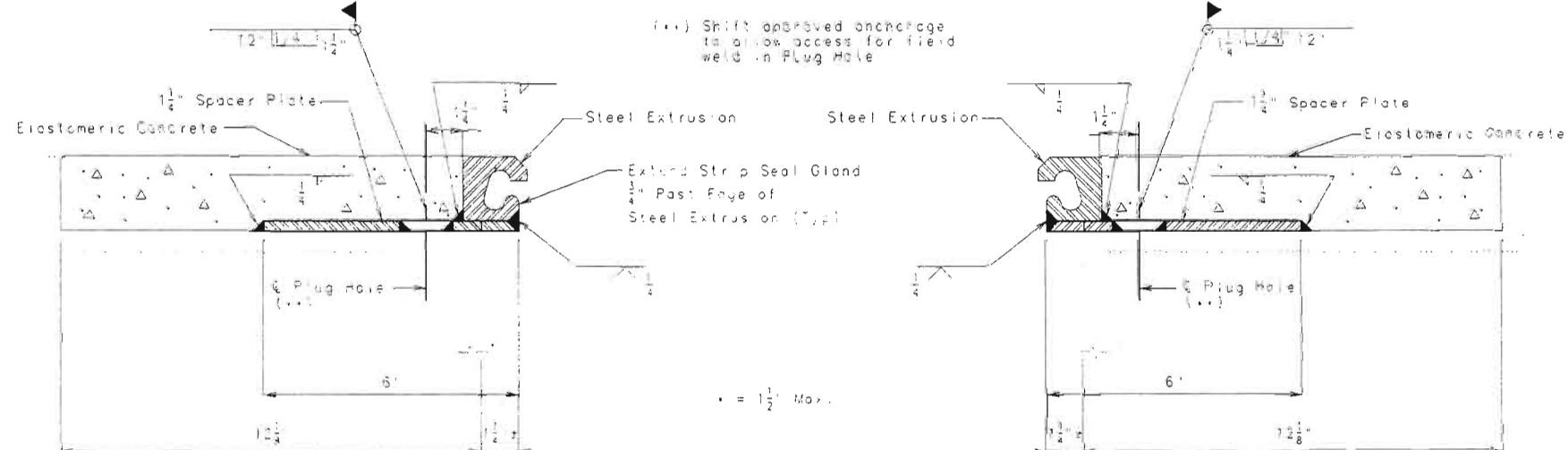
SHEET NO. 5 OF 21

CITY OF ST. LOUIS

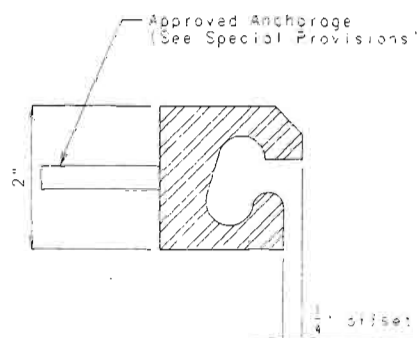
A35942

STATE	PROJ. NO.	SHEET NO.
MO.		206

Revised Feb. 3, 1999



DETAIL "C"



DETAIL OF STEEL EXTRUSION



STRIP SEAL GLAND
MOVEMENT RATING 4"

NOTES FOR STRIP SEAL:
The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the Special Provisions.

All welds shall conform to Section 712 of the Standard Specifications.

For steel shall be ASTM A709 Grade 36, except steel extrusions shall be ASTM A709 Grade 50W or Grade 36.

Gap for new expansion device cannot be greater than existing gap.
2" Min. gap required for proper installation.

Revised Feb. 3, 1999



DATE 1/29/99

DETAILED FEB. 1997
CHECKED FEB. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 6 OF 21

CITY OF ST. LOUIS

A35942

GENERAL NOTES:

Finger plates shall be cut with a machine guided gas torch from one plate. The plate from which fingers are cut may be reused before fingers are cut. The surface of cut shall be perpendicular to the surface of the plate. The cut shall not exceed 1/8" in width. The centerline of cut shall not deviate more than 1/16" from the position of centerline of cut shown.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased for each 10°F fall in temperature and decreased for each 10°F rise in temperature of installation.

Structural steel for the expansion device and curb plate shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from weathering.

Payment for furnishing, coating or galvanizing and installing structural steel for the expansion device will be made at the contract unit price for Expansion Device (Finger Plate) per lin. ft.

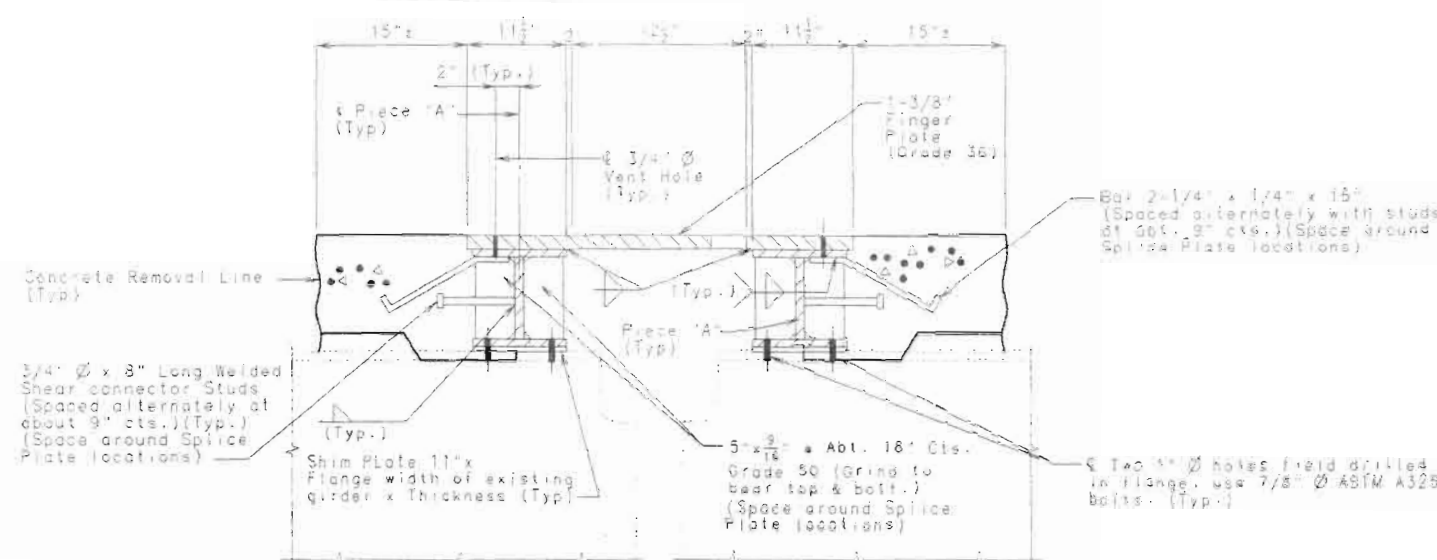
1-3/8" Finger Plate and Piece "A" shall be bent to conform to crown of roadway.

Material for the 1-3/8" finger plate shall be ASTM A709 Grade 36 structural steel. Anchors for the expansion device shall be approved steel welded anchors (Grip thru plate).

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible.

All weld, flange, and splice plates shall be subject to notch toughness requirements.

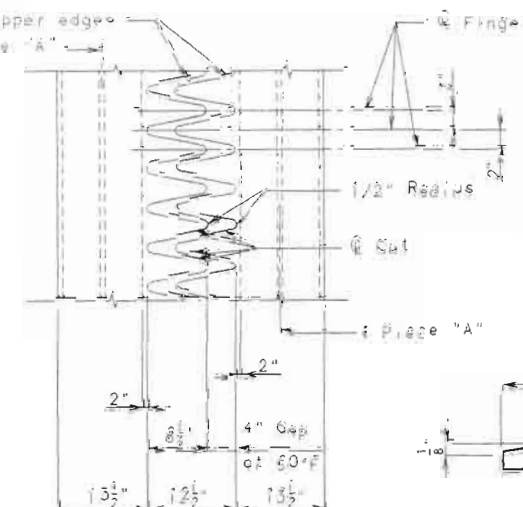
Bent No.	Exp. Device Lengths
12	51'-7"
16	51'-7"
20	51'-7"
24	51'-7"
28	51'-7"
31S	51'-7"
36	51'-7"
42	59'-7"



PART SECTION THRU EXPANSION DEVICE

Note: Concrete shall be forced under and around finger plate supporting hardware, studs, angles and bars. Proper consolidation of the concrete shall be achieved by localized internal vibration.

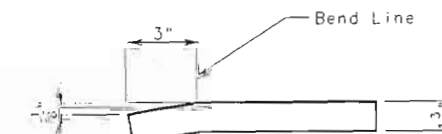
Drainage assembly not shown for clarity, see sheets 12-21.



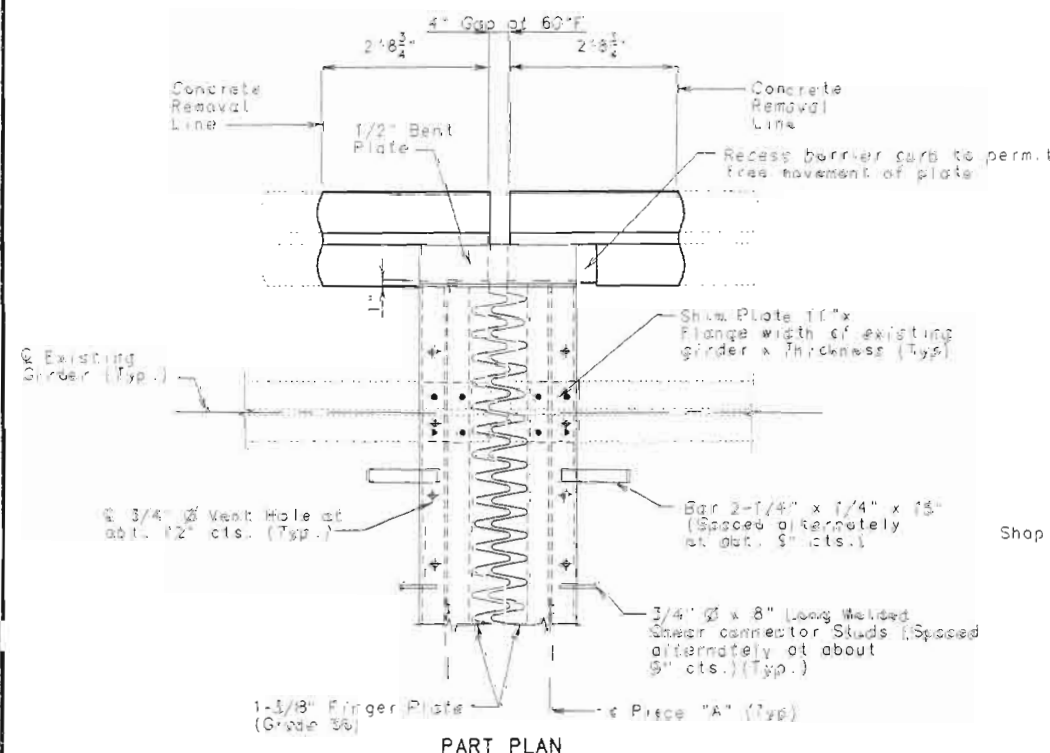
TYPICAL PLAN OF PLATE



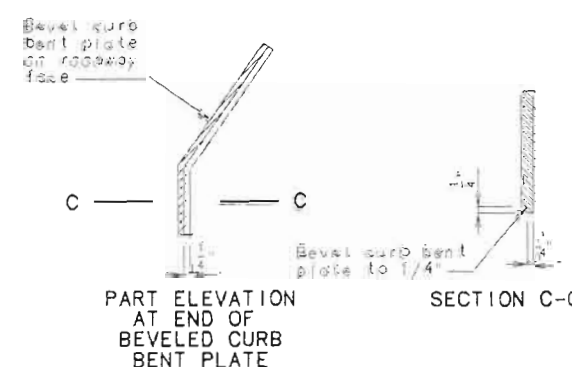
FINGER DETAIL



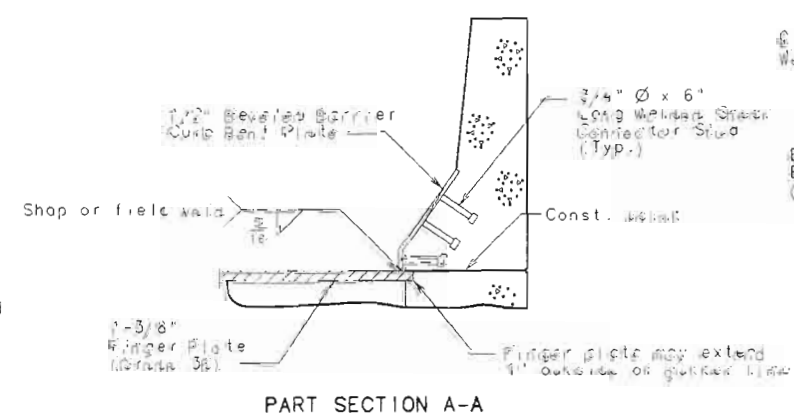
OPTIONAL FINGER DETAIL



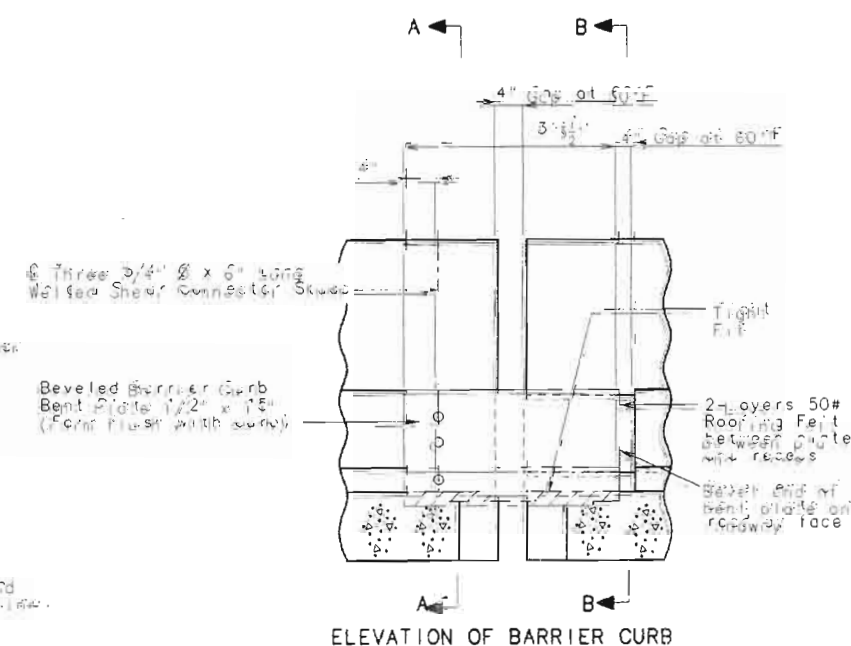
PART PLAN



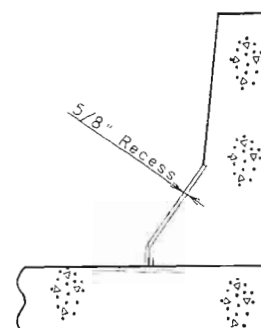
PART ELEVATION AT END OF BEVELED CURB BENT PLATE



PART SECTION A-A



ELEVATION OF BARRIER CURB



PART SECTION B-B



DETAILS OF FINGER PLATE EXPANSION DEVICE AT INT. BENT NO. 12, 16, 20, 24, 28, 31(South), 36 & 42.

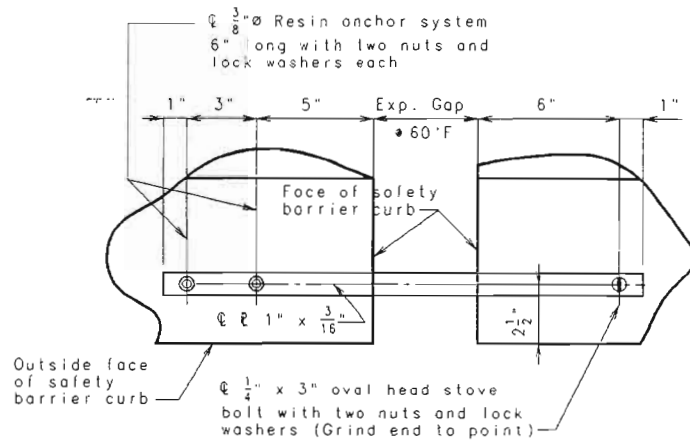
DESIGNED: FEB. 1997
CHECKED: FEB. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

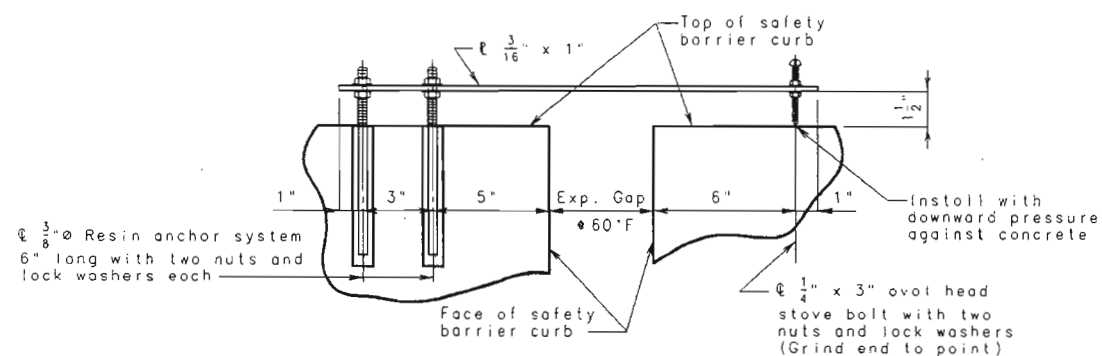
SHEET NO. 7 OF 21.

CITY OF ST. LOUIS

A35942

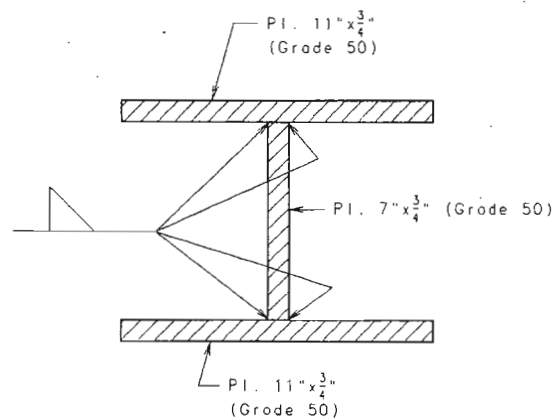


PART PLAN OF BARRIER CURB
SHOWING MOVEMENT GAUGE

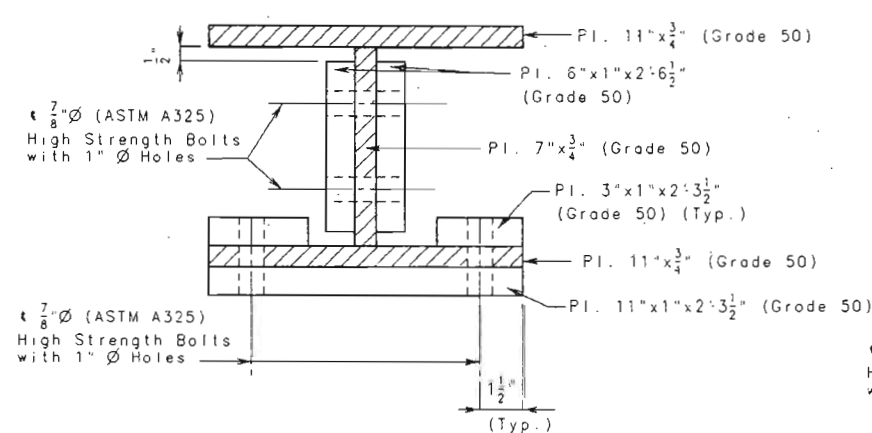


PART ELEVATION OF BARRIER CURB
SHOWING MOVEMENT GAUGE

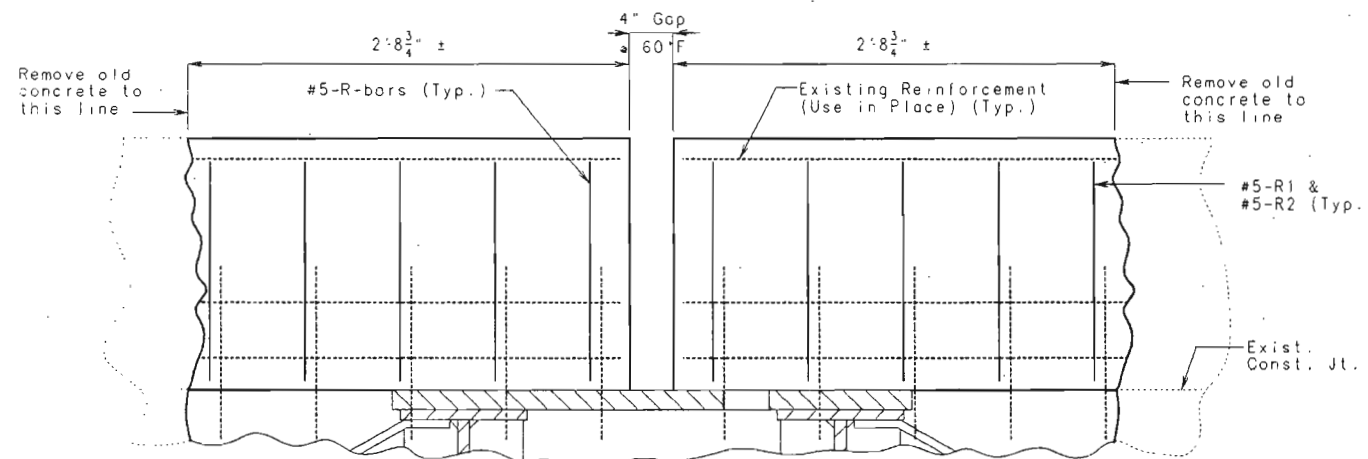
Notes: A movement gauge shall be provided on one side of bridge at all safety barrier curb expansion joints.
All steel shall be galvanized.
Cost of movement gauge complete in place shall be included in contract unit price for modification of Existing Expansion Joint.



PIECE "A"



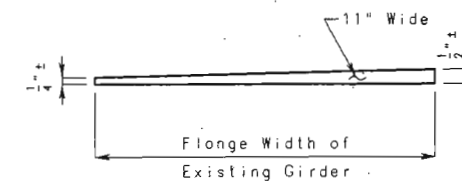
SECTION THRU BOLTED
FIELD SPLICE



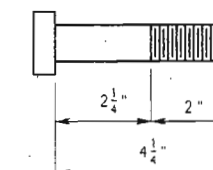
PART ELEVATION OF CURB AND
EXPANSION DEVICE AT BENTS
NO. 12, 16, 20, 24, 28,
31 (South), 36 & 42.

Note: See sheet no. 2 for bending diagram of #5-R1 & #5-R2

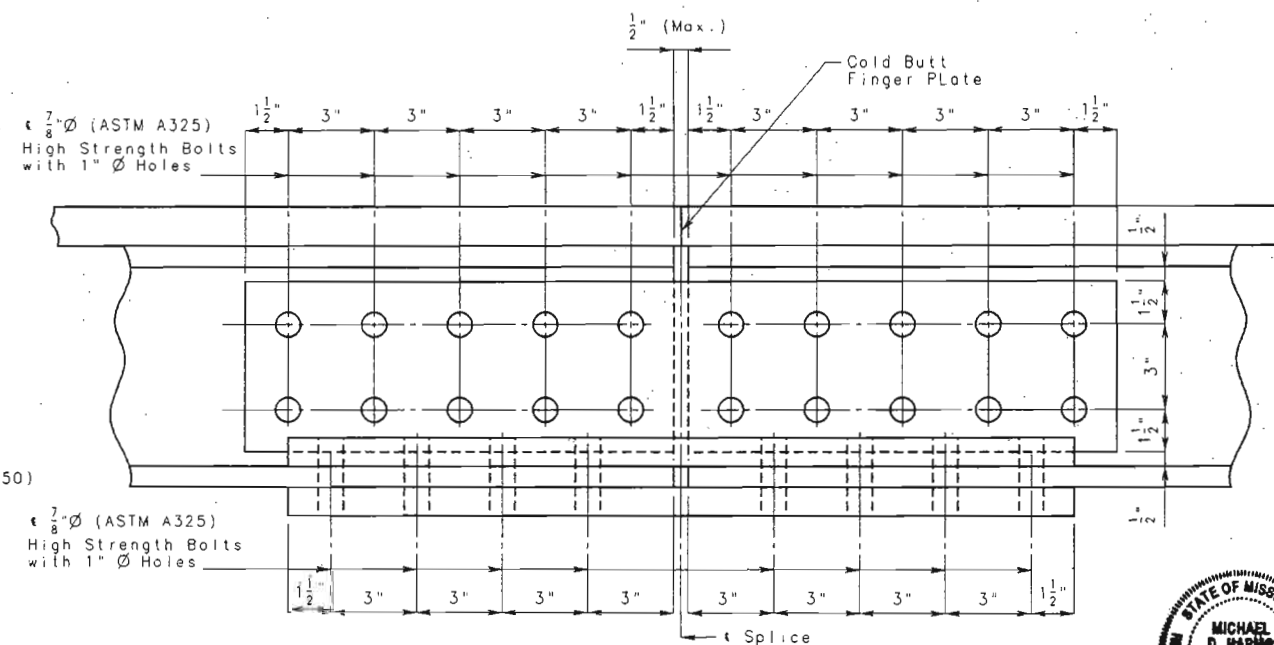
NOTE:
Actual thickness of shim plate to be determined by field measurements.



SHIM PLATE



BOLT DETAIL



ELEVATION OF BOLTED FIELD SPLICE

DETAILS OF FINGER PLATE EXPANSION DEVICE AT INT. BENT NO. 12, 16, 20, 24, 28, 31(South), 36 & 42.

DETAILED FEB. 1997
CHECKED FEB. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

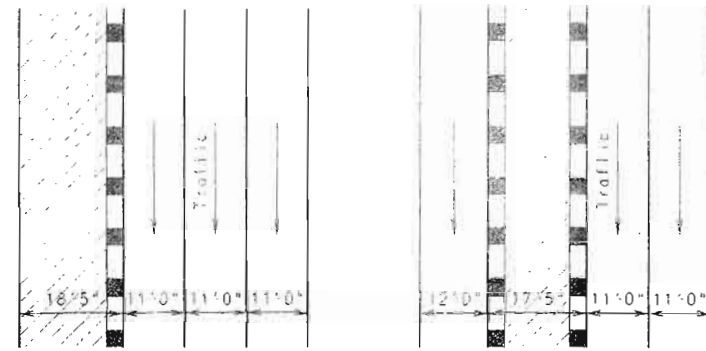
SHEET NO. 8 OF 21.

CITY OF ST. LOUIS



DATE 1/24/97

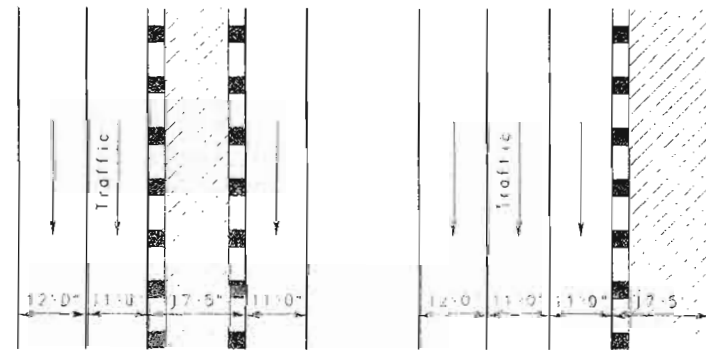
A35942



STAGE 1

STAGE 2

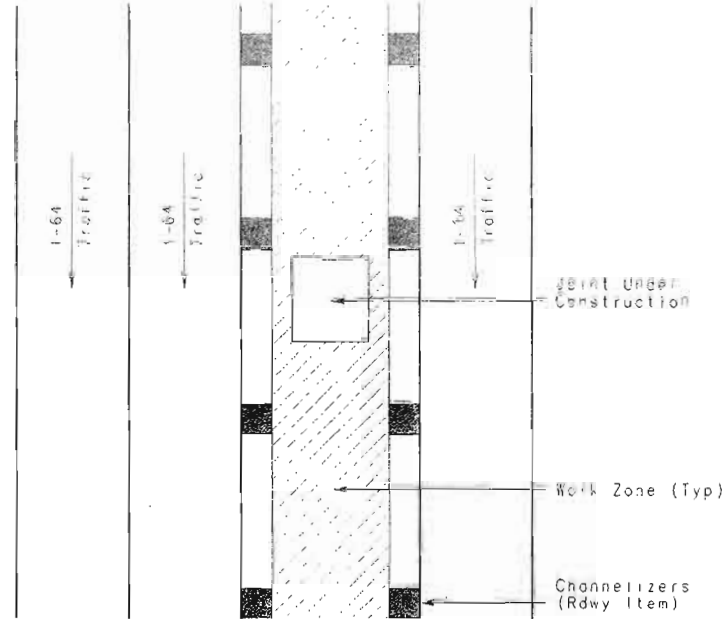
STATIONING ↑



STAGE 3

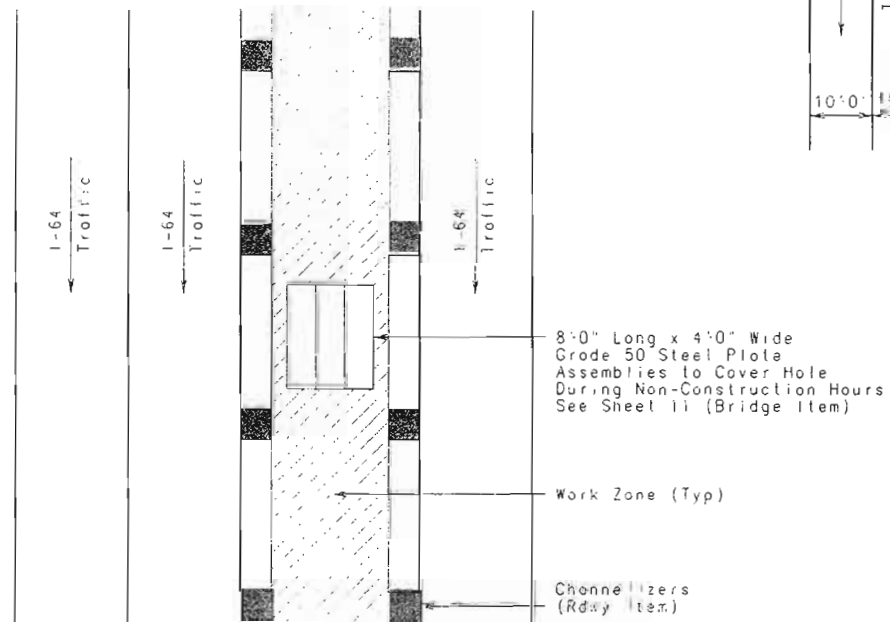
STAGE 4

51'5" ROADWAY



DURING CONSTRUCTION HOURS

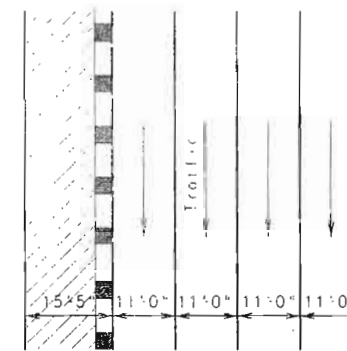
(51'5" Roadway shown, 59'5" Roadway Similar)



NON-CONSTRUCTION HOURS

(51'5" Roadway shown, 59'5" Roadway Similar)

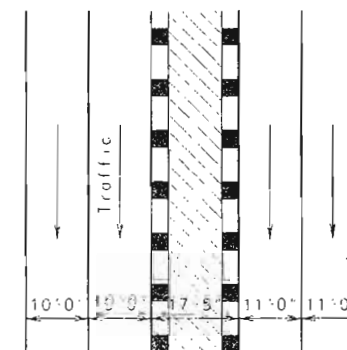
STAGE CONSTRUCTION PLAN (SEE ROADWAY PLANS FOR TRAFFIC CONTROL)



STAGE 1A

STAGE 1B

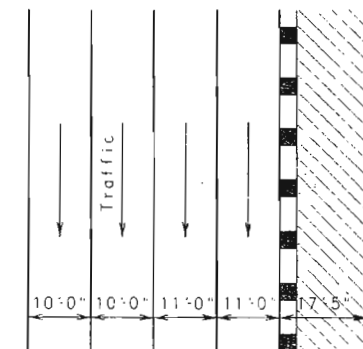
STATIONING ↑



STAGE 2

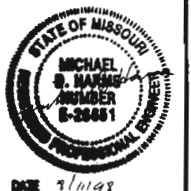
STAGE 3

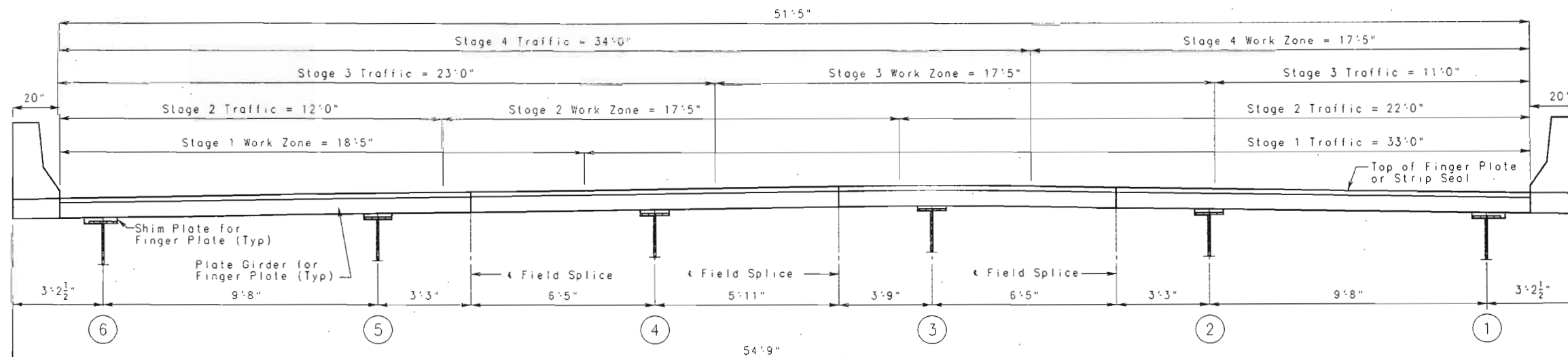
STATIONING ↑



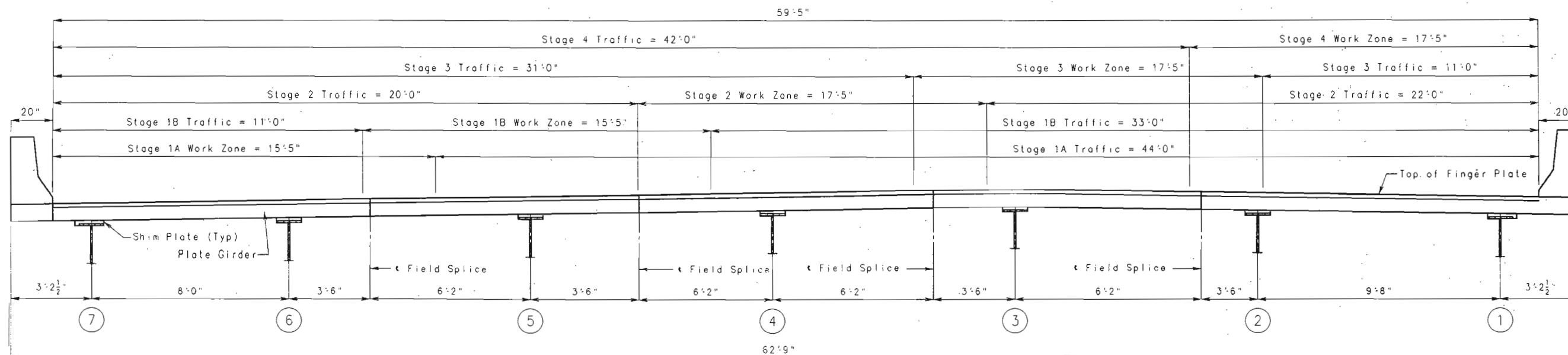
STAGE 4

59'5" ROADWAY



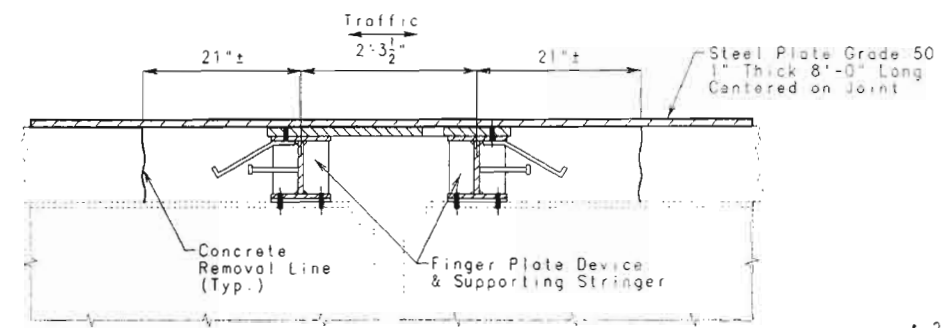


STAGE CONSTRUCTION DETAILS AT INT. BENT NO. 4, 8, 12, 16, 20, 24, 28, 31(South), 36, 38, 46, 50 & 53.

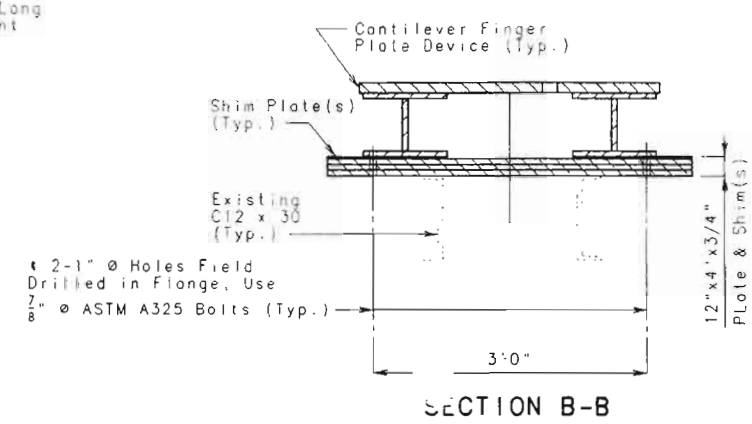


STAGE CONSTRUCTION DETAILS OF FINGER PLATE EXPANSION DEVICE AT INT. BENT NO. 28 & 42.

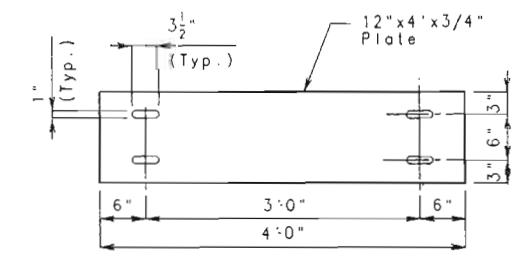




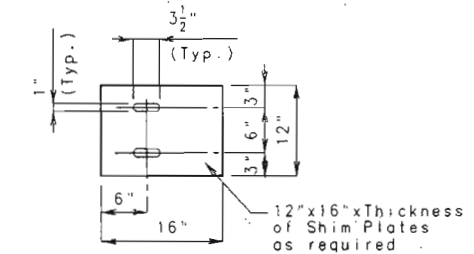
DETAIL SHOWING EXISTING DEVICE REMOVED, FINGER PLATE DEVICE INSTALLED, NEW CONCRETE NOT POURED OR NOT TO STRENGTH



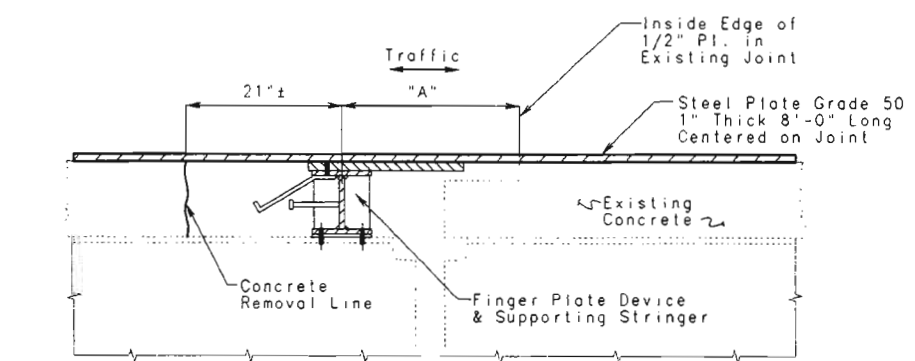
SECTION B-B



DETAIL OF PLATES
(Grade 36 or Grade 50)

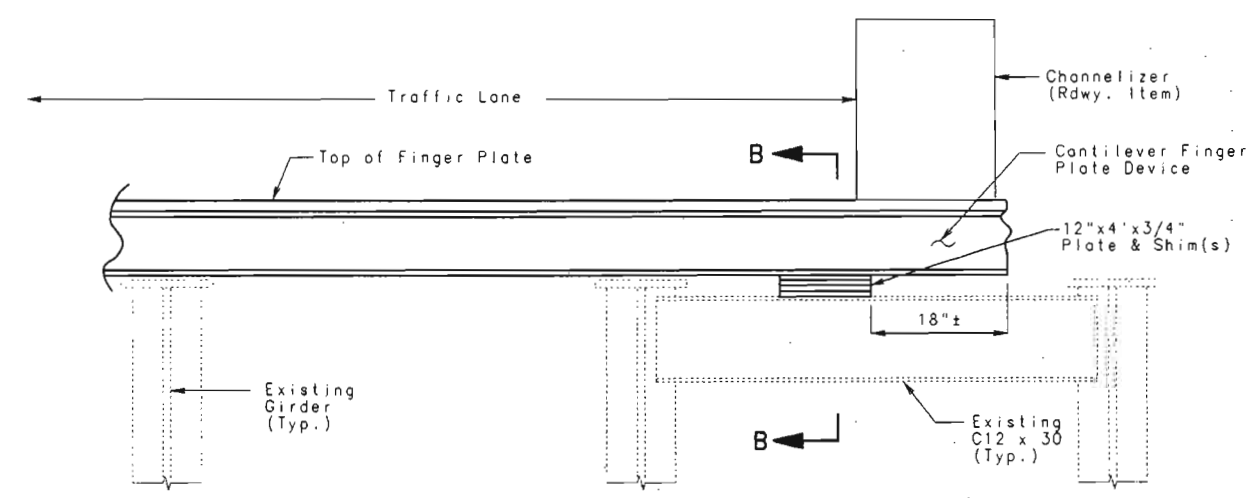


DETAIL OF SHIMS



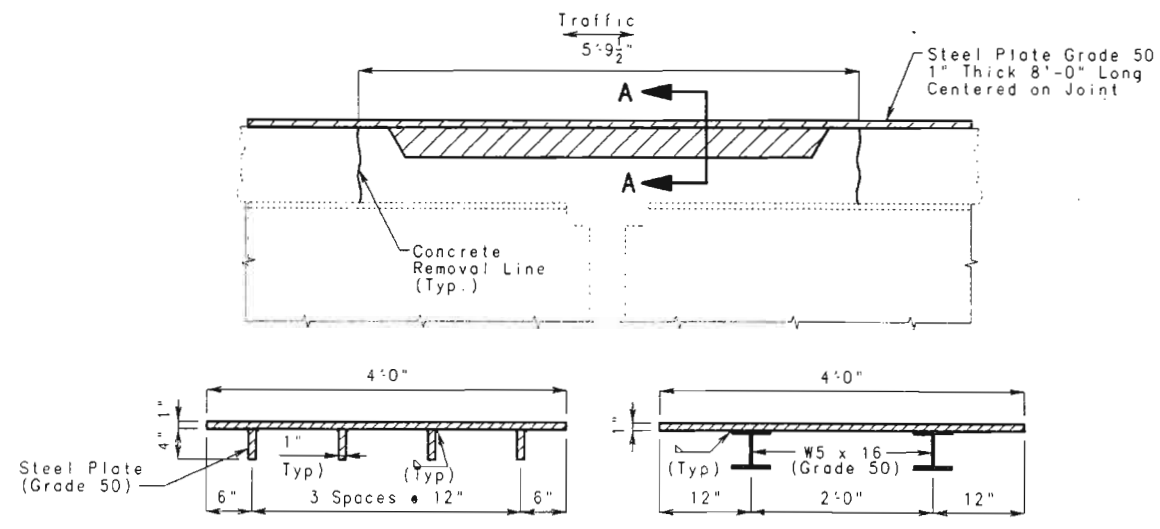
Bents	"A"
28 & 36	2'-1 9/16"
12, 16, 20, 24, 31 & 42	2'-4 1/8"

DETAIL SHOWING HALF OF EXISTING DEVICE REMOVED, HALF OF FINGER PLATE DEVICE INSTALLED, NEW CONCRETE NOT POURED OR NOT TO STRENGTH



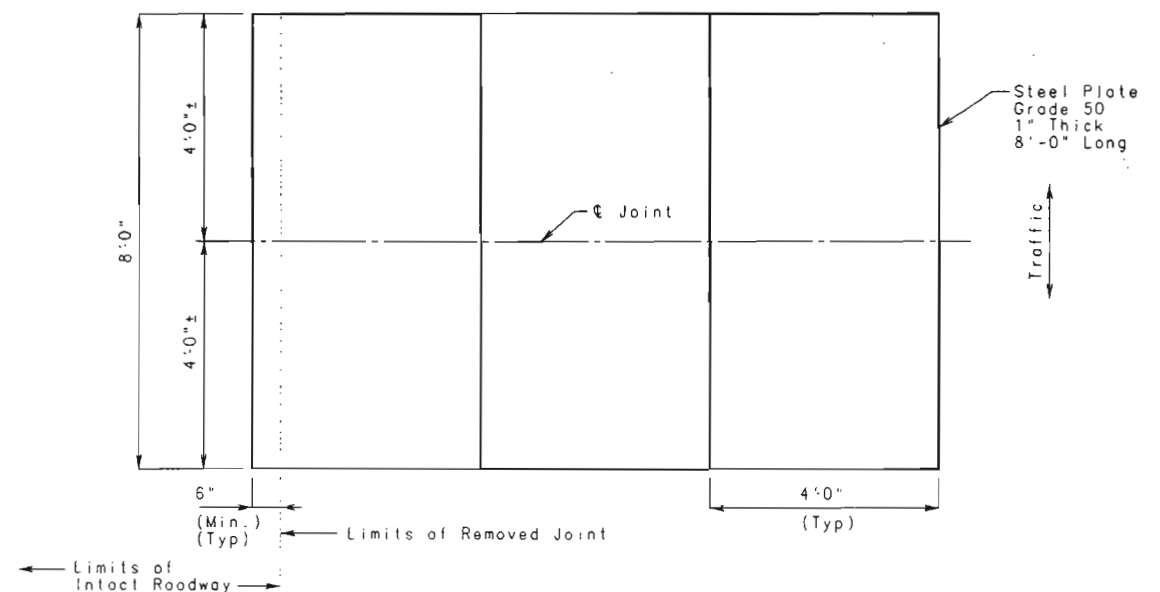
Note: Plates and shims to be placed as shown. Plates and shims shall be adjusted to allow installation of bolted field splice.

TEMPORARY BRACING OF FINGER PLATE DEVICE DURING STAGES 3 & 4



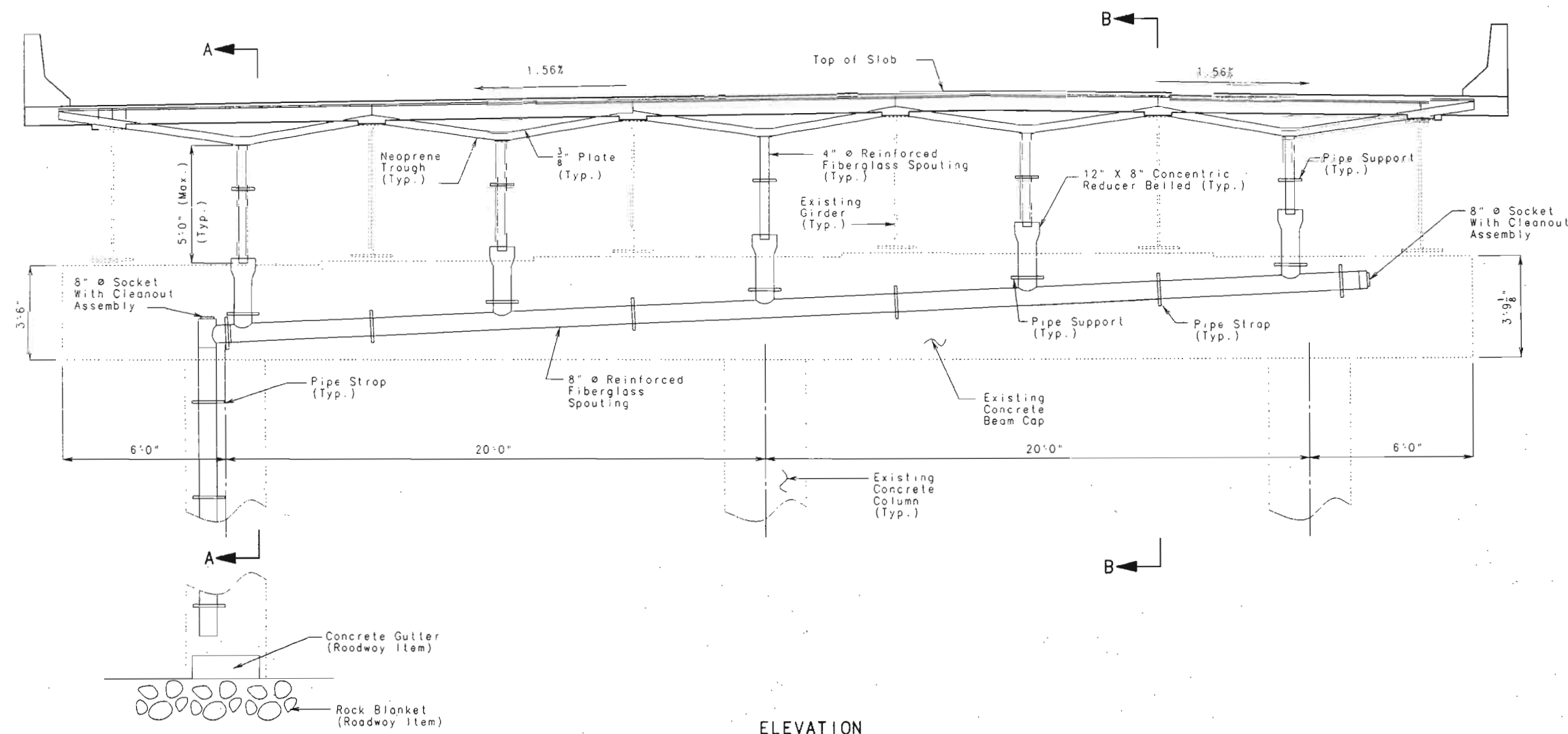
SECTION A-A SHOWING STIFFENED PLATE ALTERNATIVES

DETAIL SHOWING EXISTING DEVICE REMOVED, FINGER PLATE DEVICE NOT YET INSTALLED



PLAN VIEW OF TEMPORARY PLATES OVER JOINTS

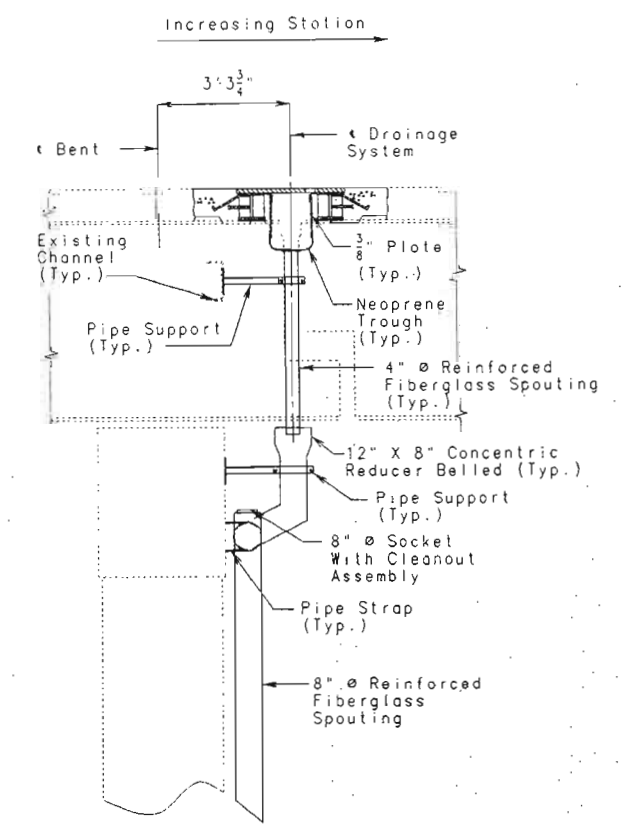




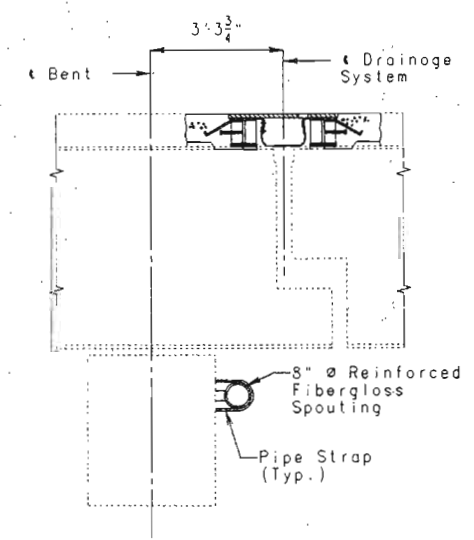
ELEVATION
(Looking Downstation)

Note: Drainage shown as solid lines for clarity.

Note: For Details not shown see sheet no. 20 & 21.



SECTION A-A



SECTION B-B

STATE OF MISSOURI
MICHAEL D. HARMON
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-26651
DATE 12/4/97

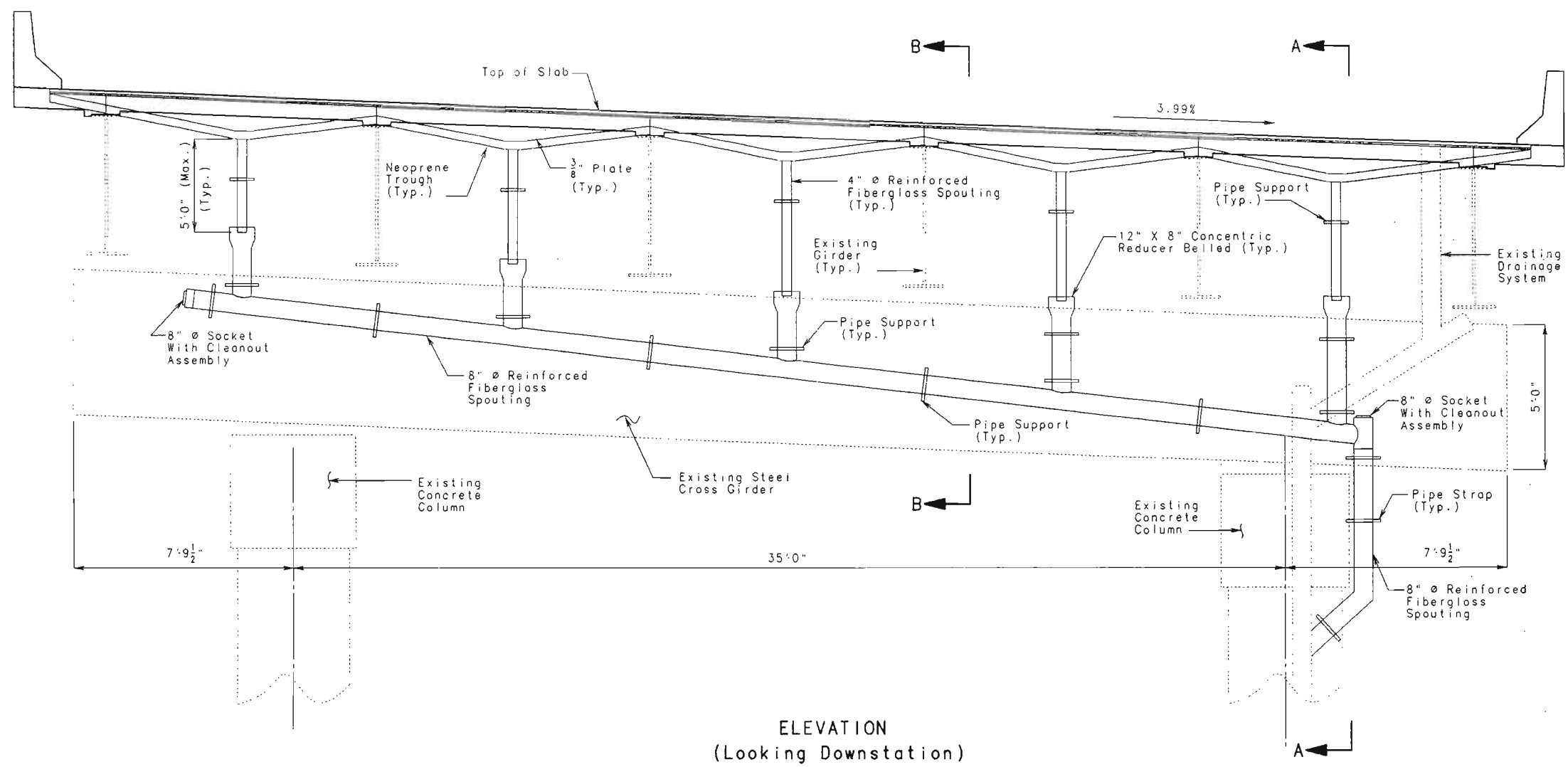
DRAINAGE SYSTEM AT BENT 12

DESIGNED NOV. 1997
CHECKED NOV. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 12 OF 21.

CITY OF ST. LOUIS A35942

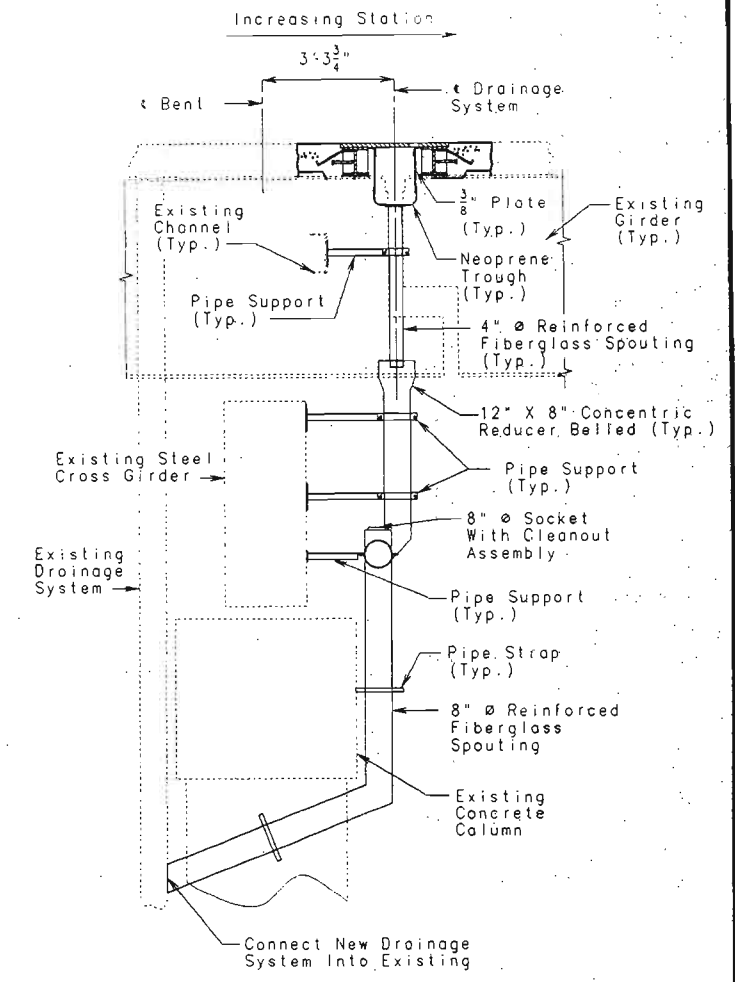


ELEVATION
(Looking Downstation)

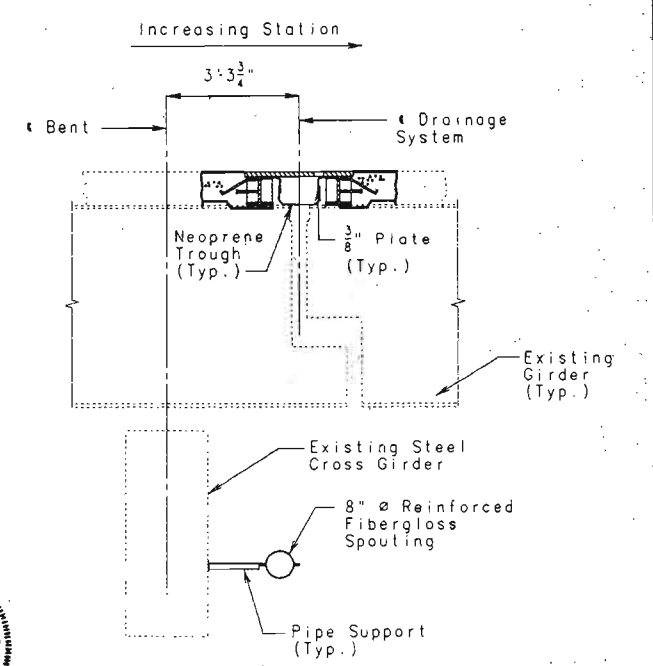
Note: Drainage shown as solid lines for clarity.

Note: For Details not shown see sheet no. 20 & 21.

DRAINAGE SYSTEM AT BENT 16



SECTION A-A



SECTION B-B

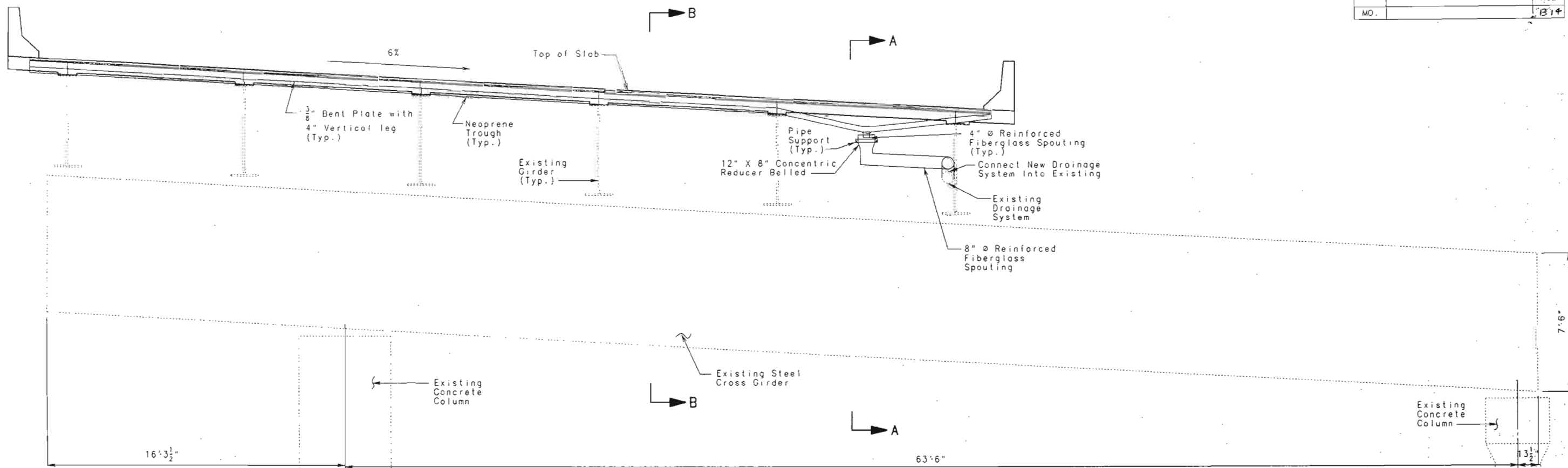


DATE 11/4/97

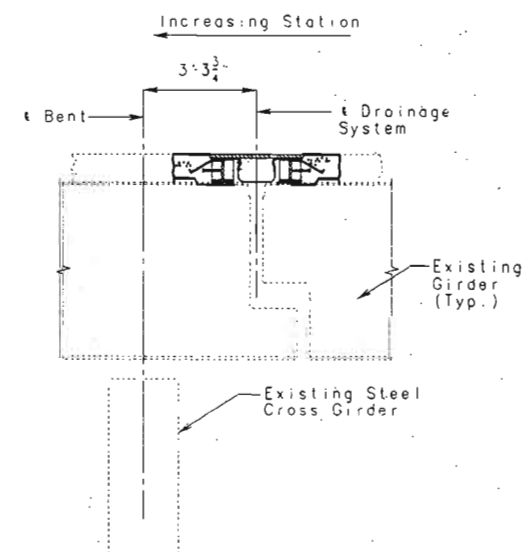
DETAILED NOV. 1997
CHECKED NOV. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 13 OF 21

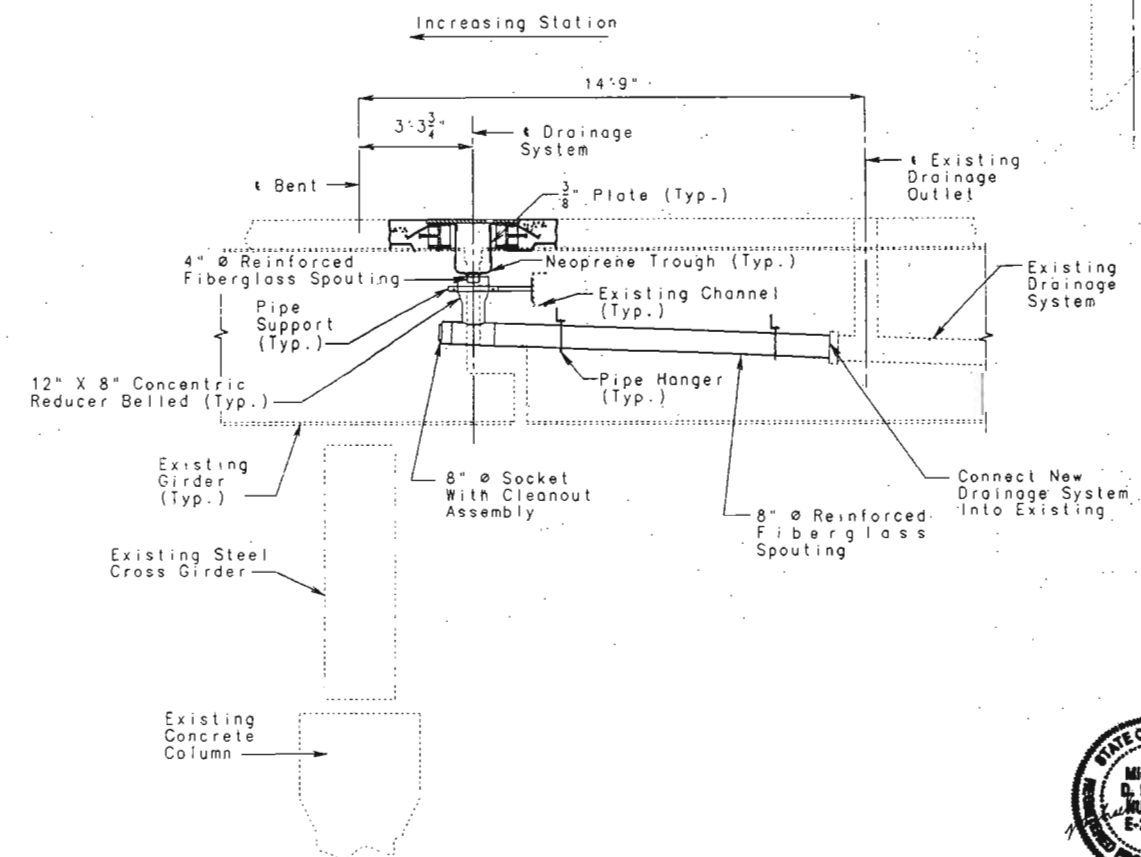


ELEVATION
(Looking Downstation)



SECTION B-B

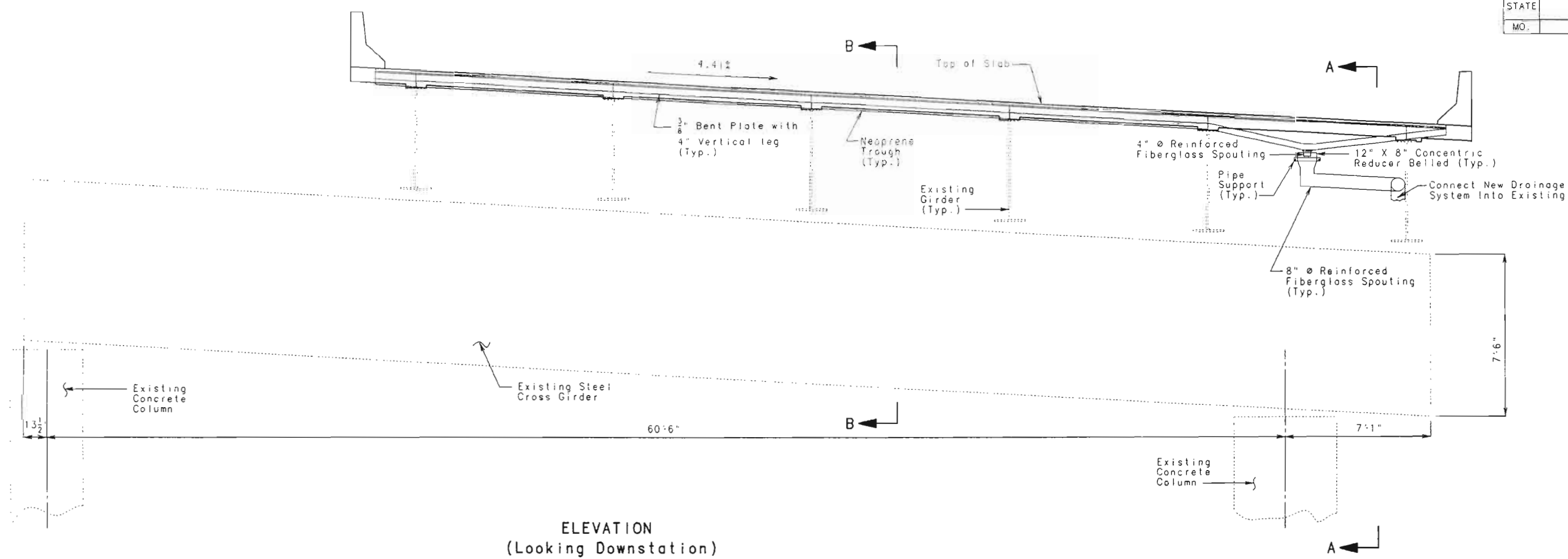
Note: For Details not shown see sheet no. 20 & 21.



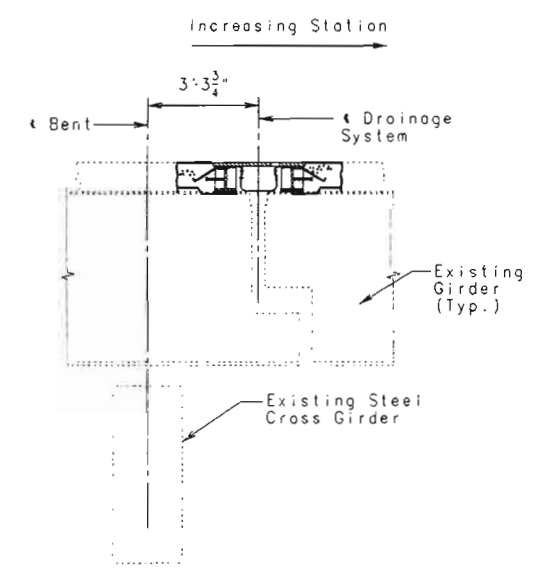
SECTION A-A

DRAINAGE SYSTEM AT BENT 20

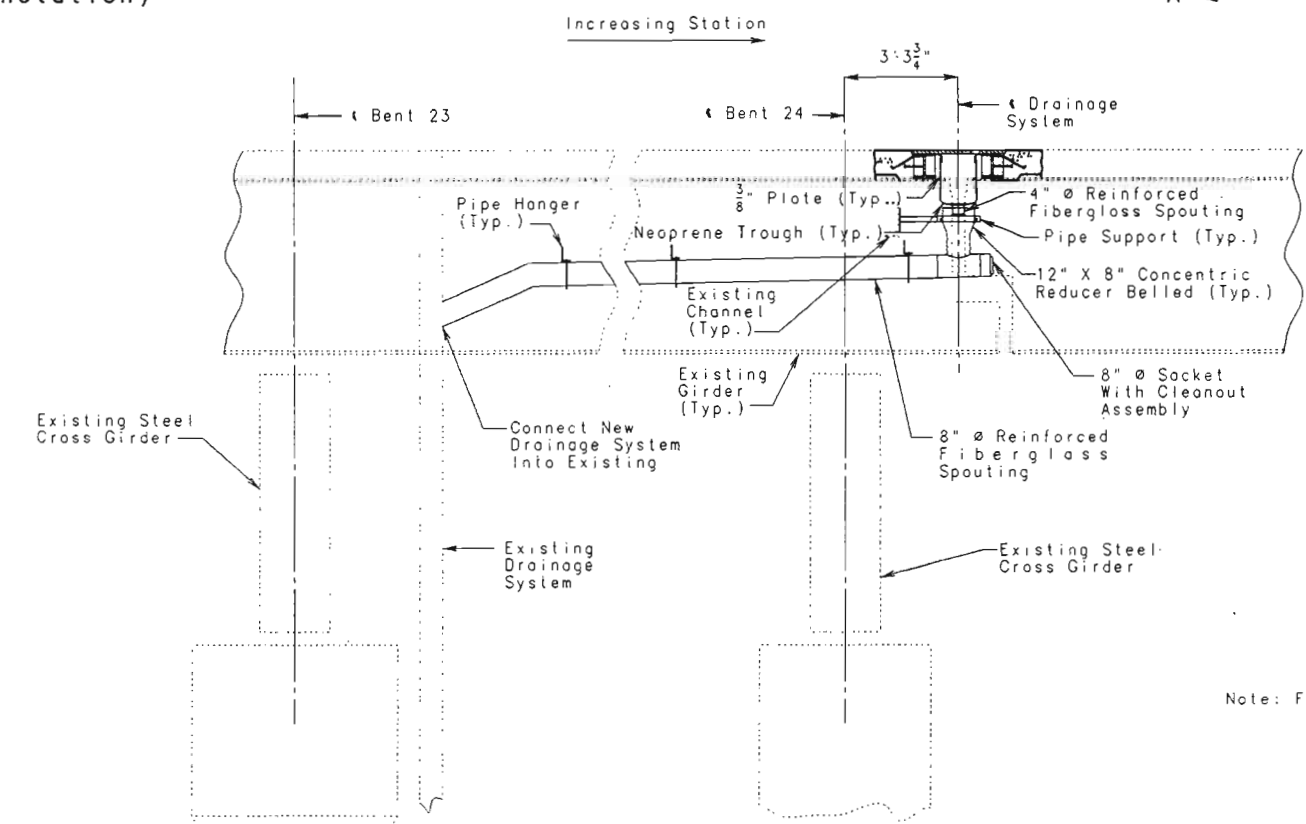




ELEVATION
(Looking Downstation)



SECTION B-B



SECTION A-A

DRAINAGE SYSTEM AT BENT 24

Note: For Details not shown see sheet no. 20 & 21.

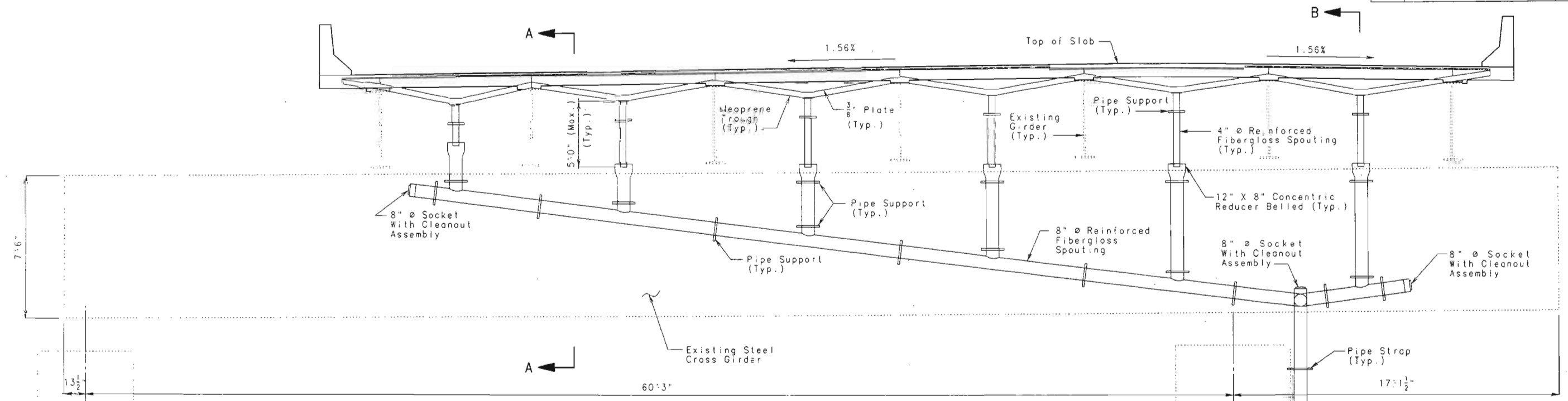


DETAILED NOV. 1997
CHECKED NOV. 1997

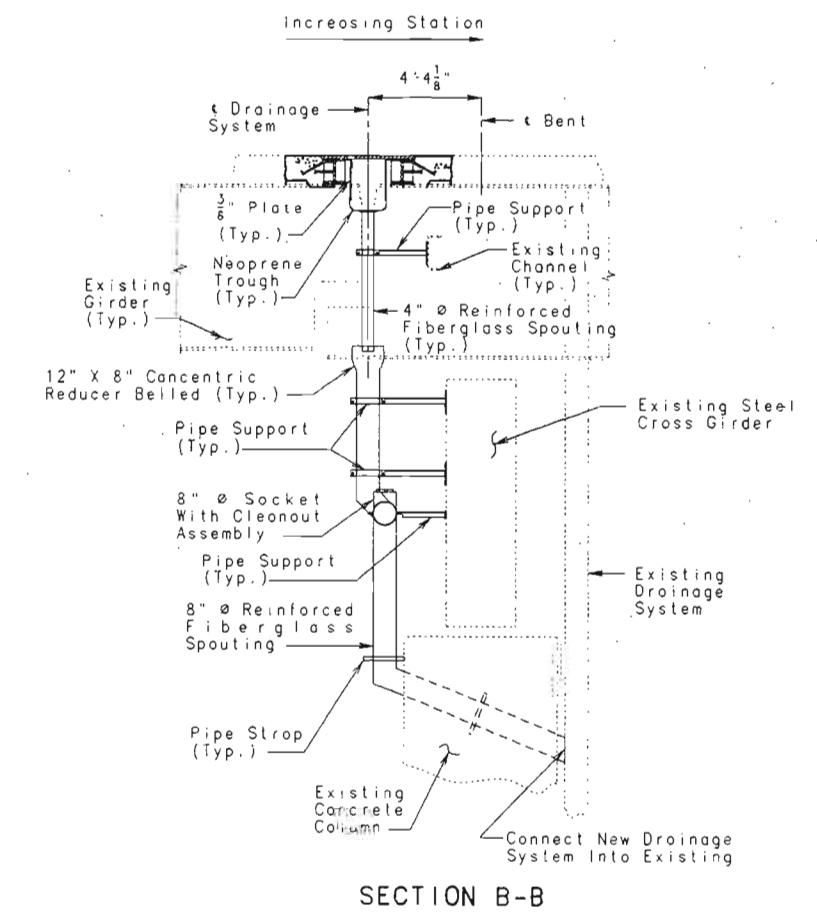
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 15 OF 21.

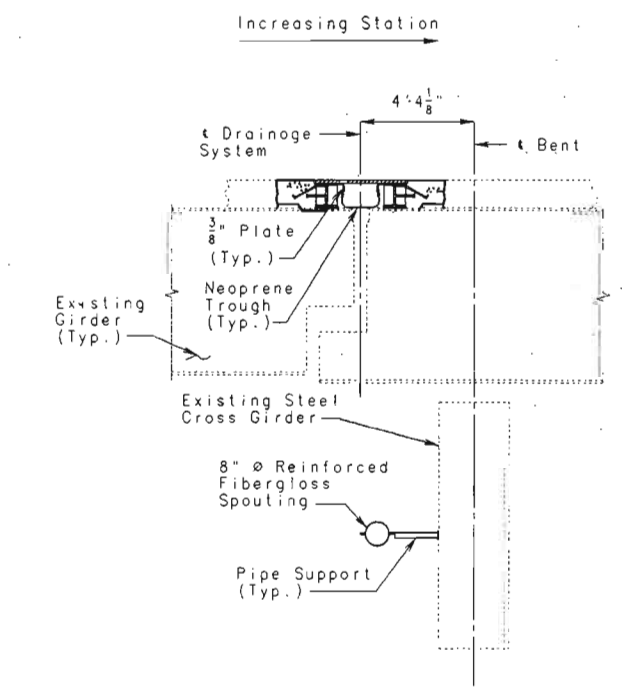
CITY OF ST. LOUIS A35942



ELEVATION
(Looking Downstation)



SECTION B-B



SECTION A-A

Note: For Details not shown see sheet no. 20 & 21.



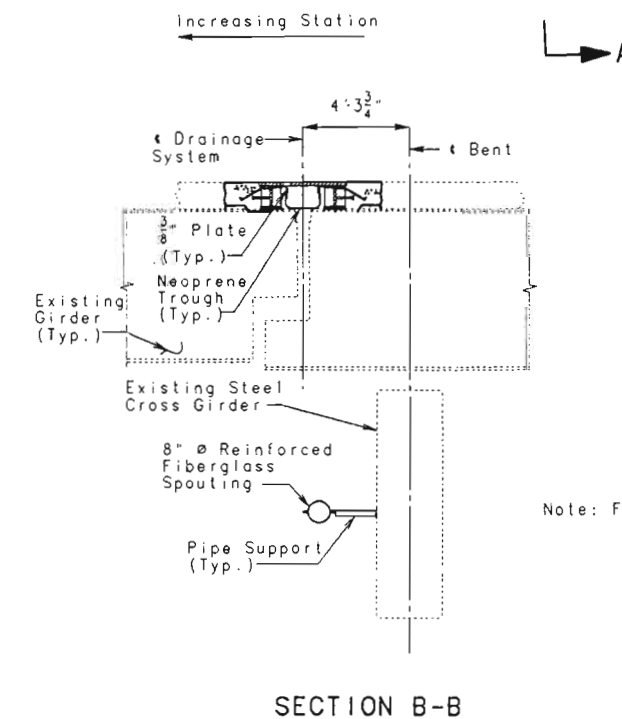
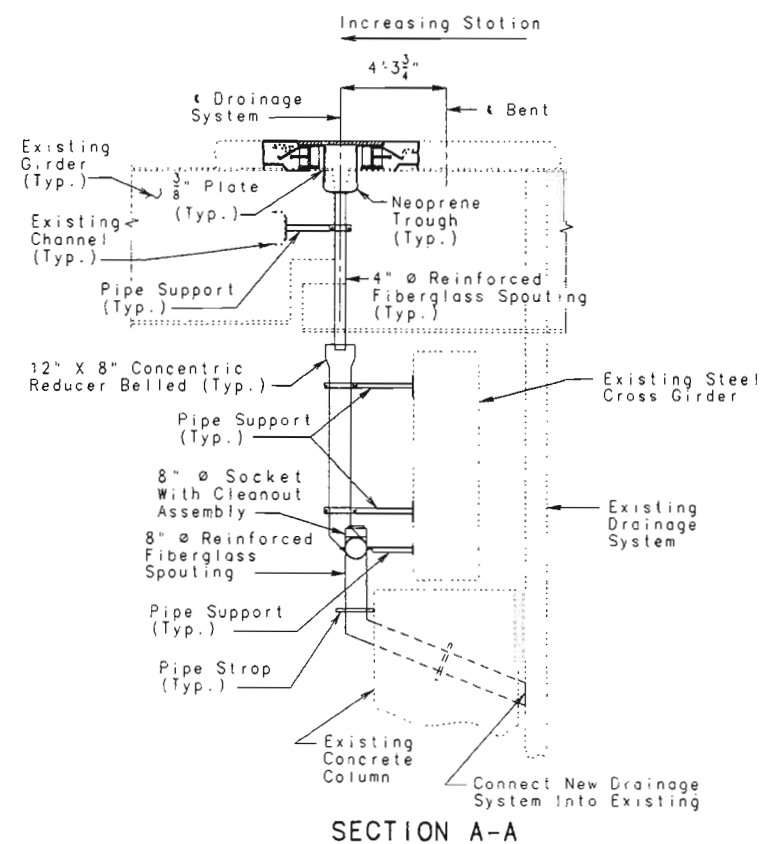
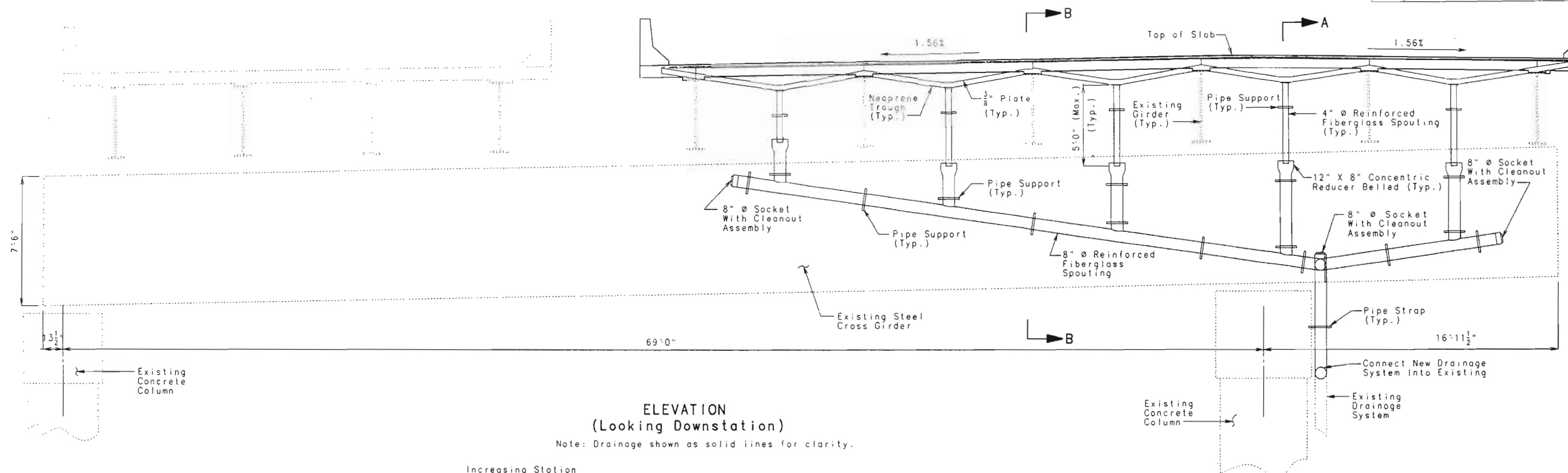
DESIGNED NOV. 1997
CHECKED NOV. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

DRAINAGE SYSTEM AT BENT 28

SHEET NO. 16 OF 21.

CITY OF ST. LOUIS A35942



Note: For Details not shown see sheet no. 20 & 21

DRAINAGE SYSTEM AT BENT 31 (SOUTH)

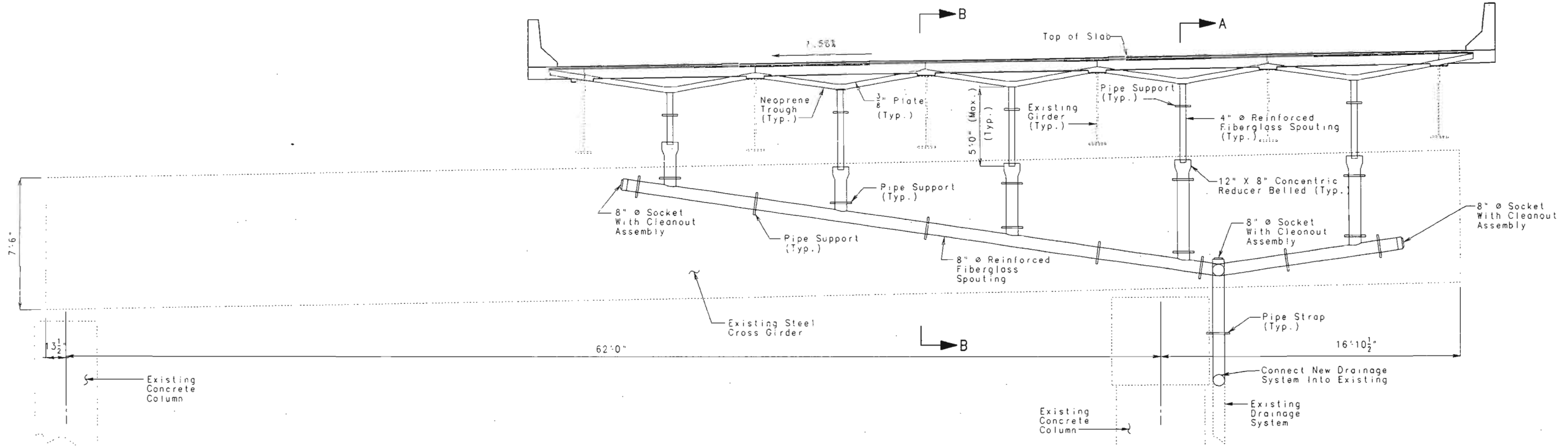


DETAILED NOV. 1997
CHECKED NOV. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

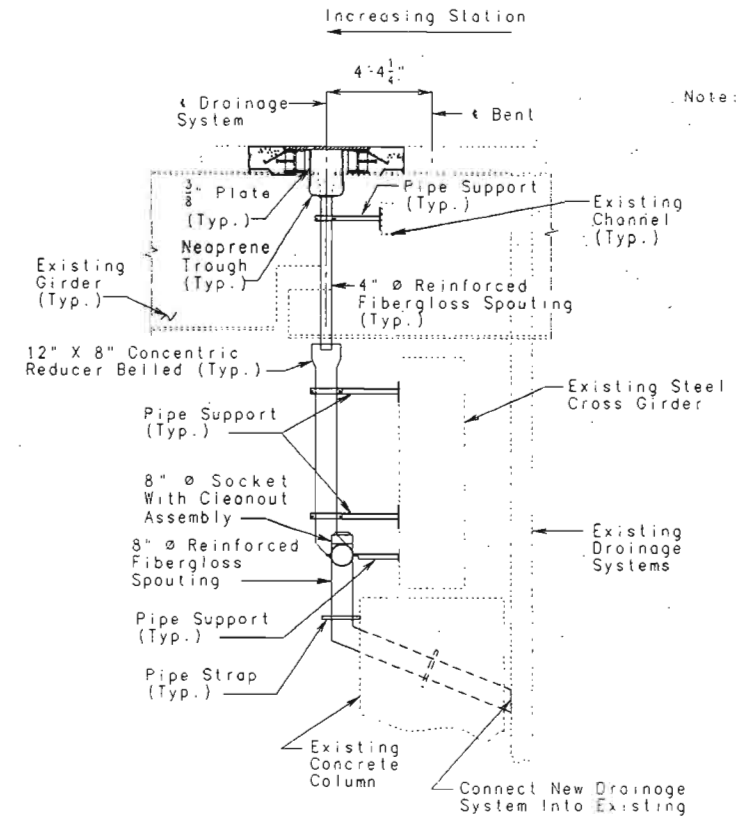
SHEET NO. 17 OF 21

CITY OF ST. LOUIS A35942

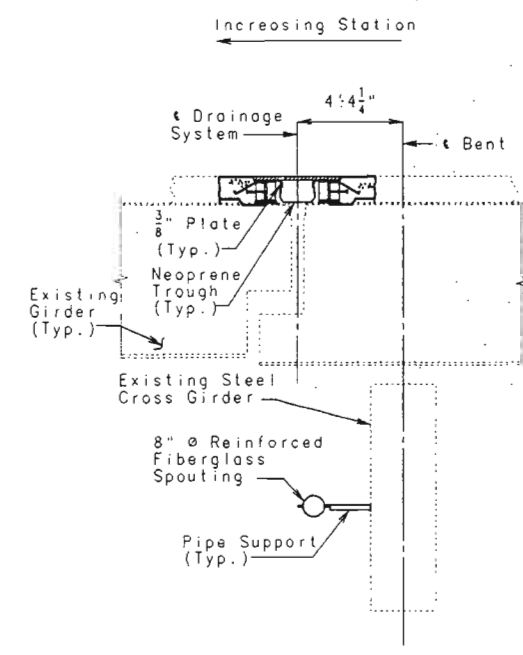


**ELEVATION
(Looking Downstation)**

Note: Drainage shown as solid lines for clarity.



SECTION A-A



SECTION B-B

Note: For Details not shown see sheet no. 20 & 21.

DRAINAGE SYSTEM AT BENT 36



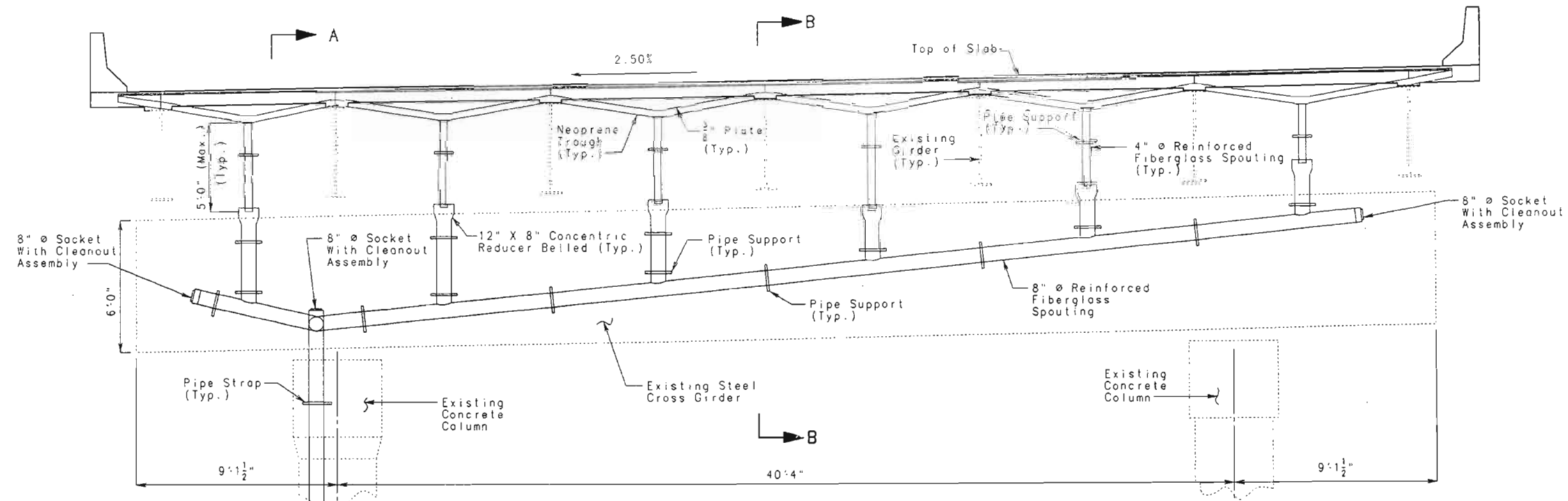
DATE 12/14/97

DETAILED NOV. 1997
CHECKED NOV. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

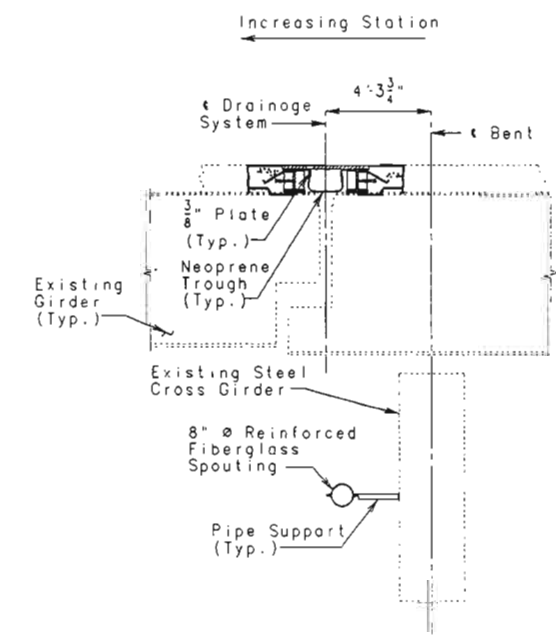
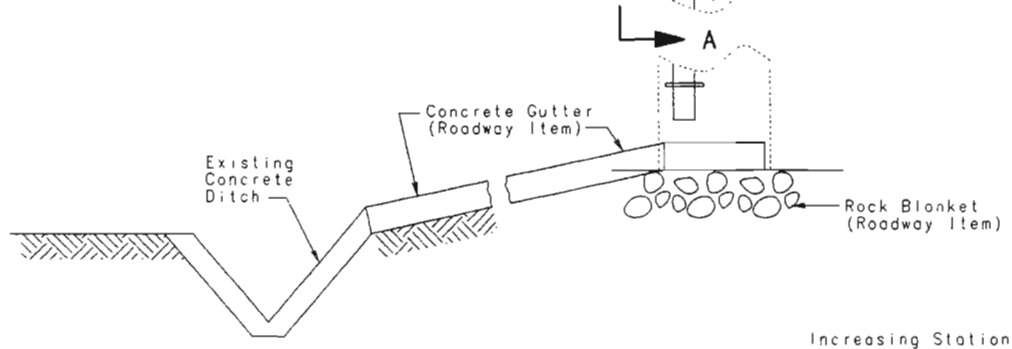
SHEET NO. 18 OF 21.

CITY OF ST. LOUIS **A35942**

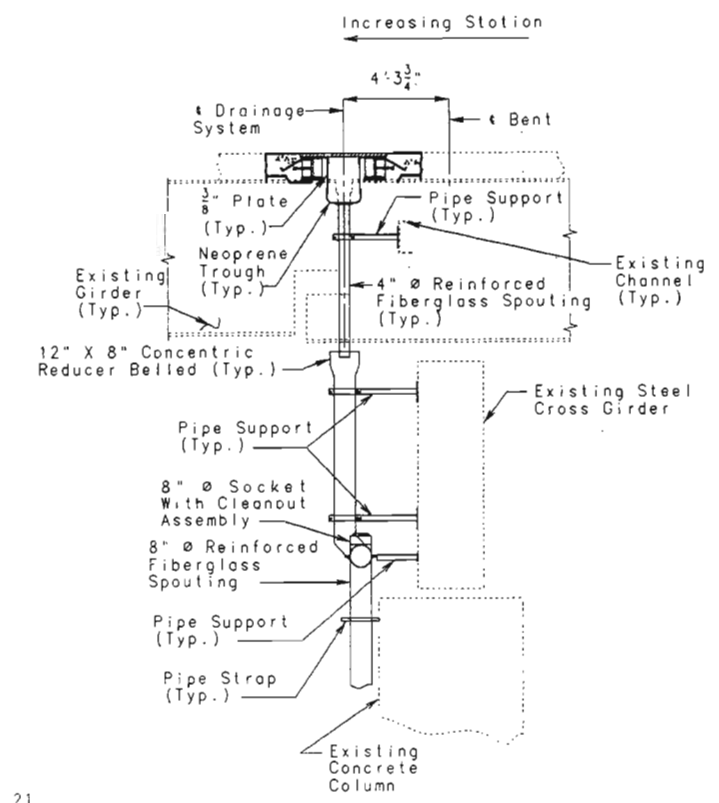


**ELEVATION
(Looking Downstation)**

Note: Drainage shown as solid lines for clarity.



SECTION B-B



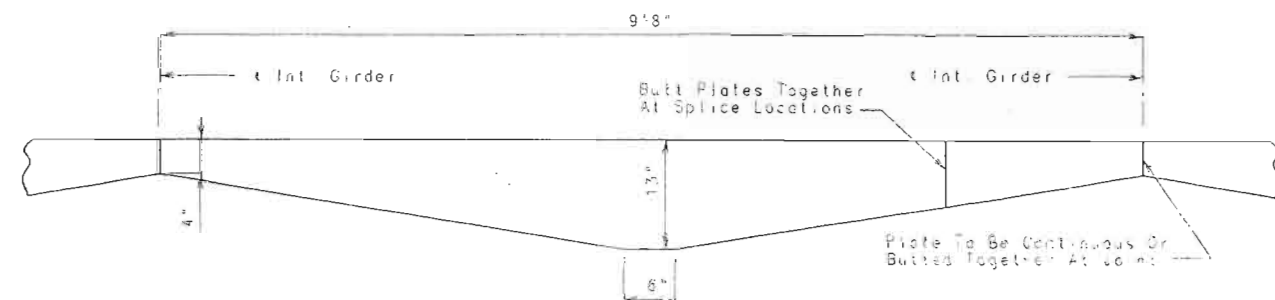
SECTION A-A

Note: For Details not shown see sheet no. 20 & 21.

DRAINAGE SYSTEM AT BENT 42

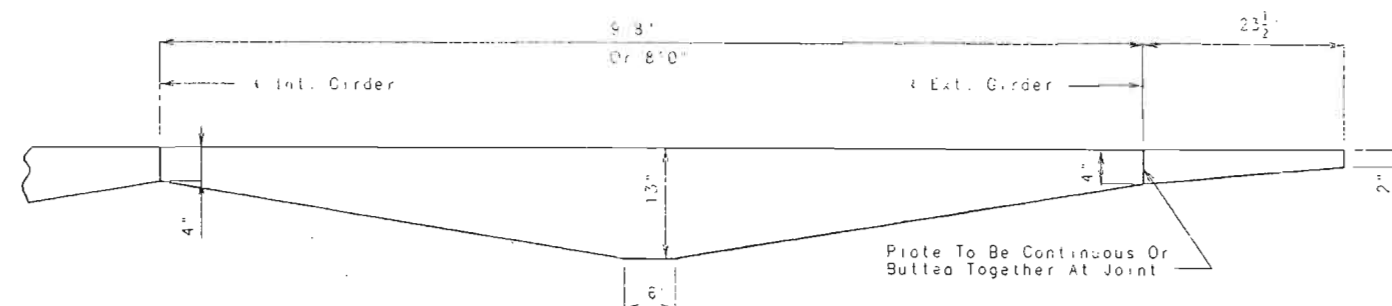


DATE 12/14/97

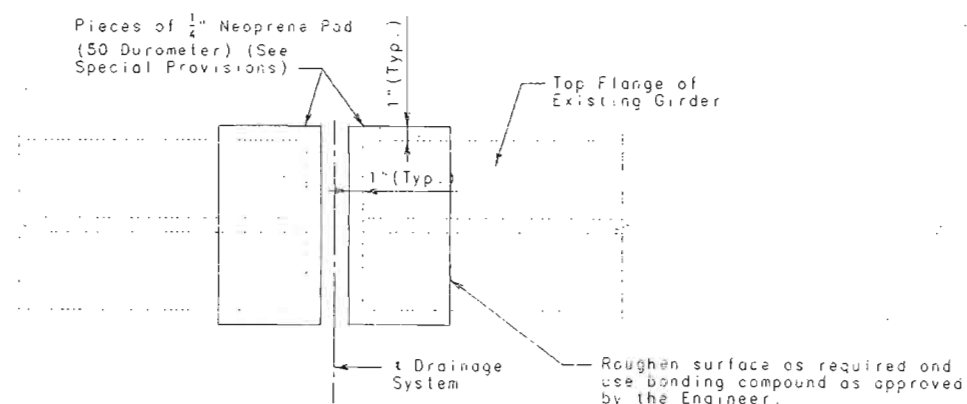


**3/8" PLATE (VARYING VERTICAL LEG)
(BETWEEN INT. GIRDERS)**

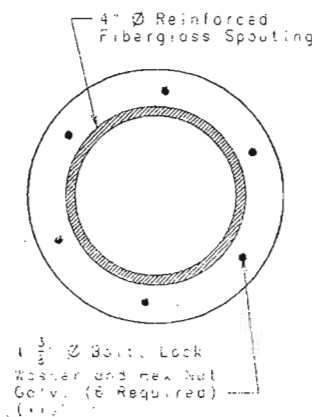
Note: Except at bents 20 & 24.



**3/8" PLATE (VARYING VERTICAL LEG)
(AT EXT. GIRDER BAY)**

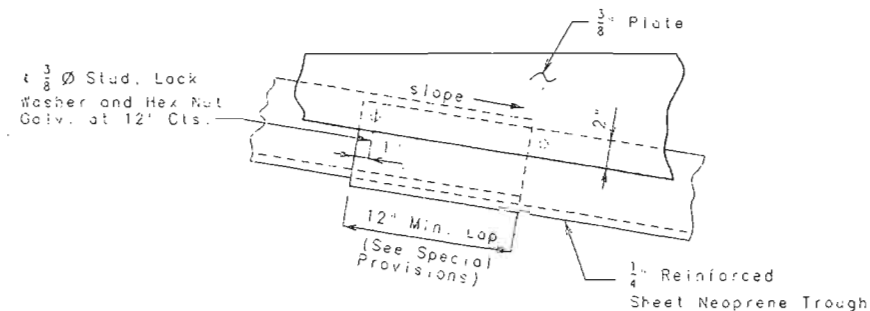


**DETAIL OF NEOPRENE ON
TOP FLANGE OF GIRDER**

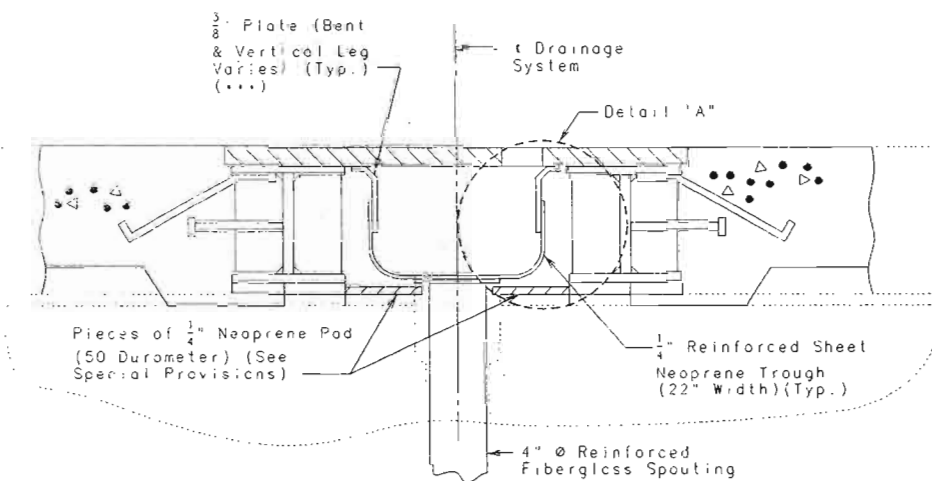


SECTION C-C

Cost of 3/8" Ø bolts, Lock washer & Hex nuts shall be included in the contract unit price for Drainage System.

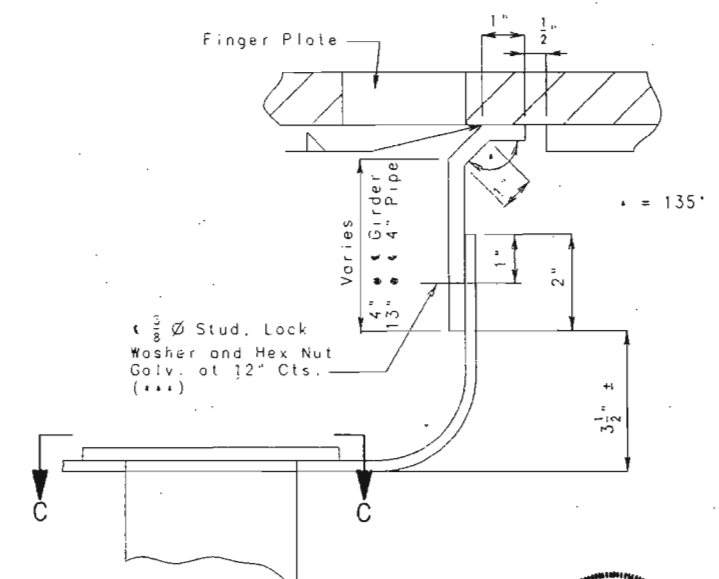


**DETAIL OF NEOPRENE
TROUGH LAP**



TYPICAL SECTION THRU DRAINAGE SYSTEM

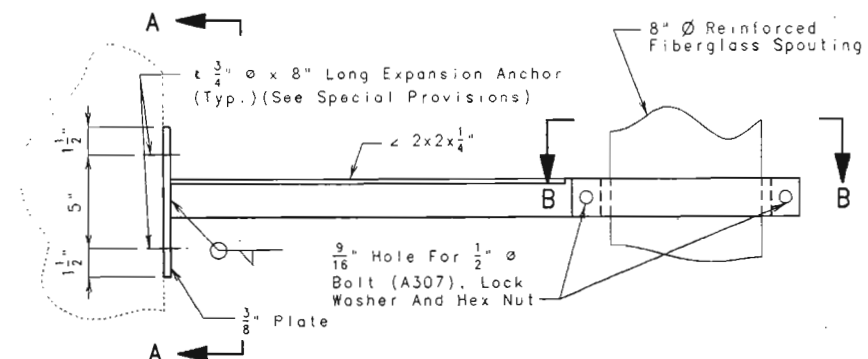
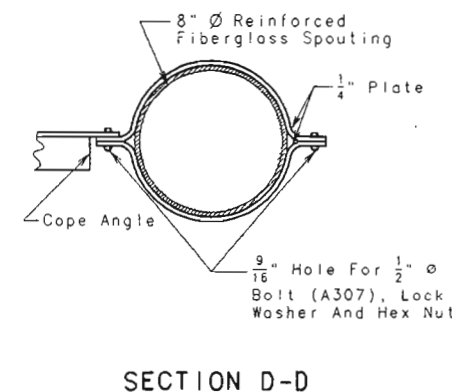
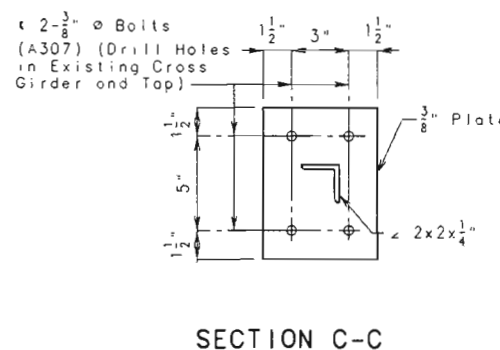
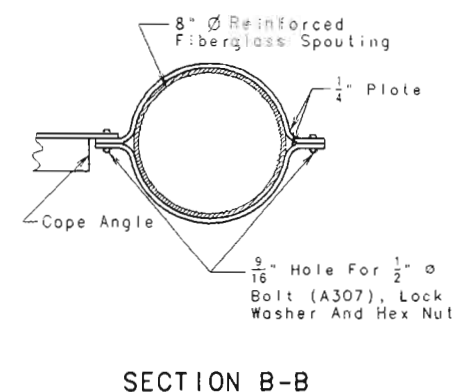
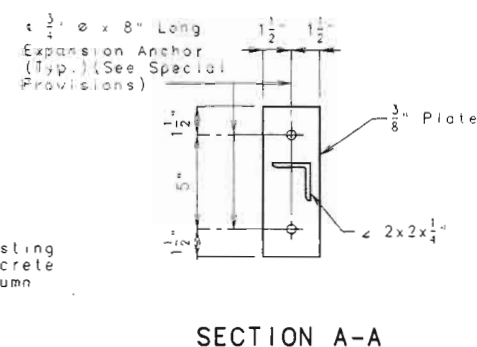
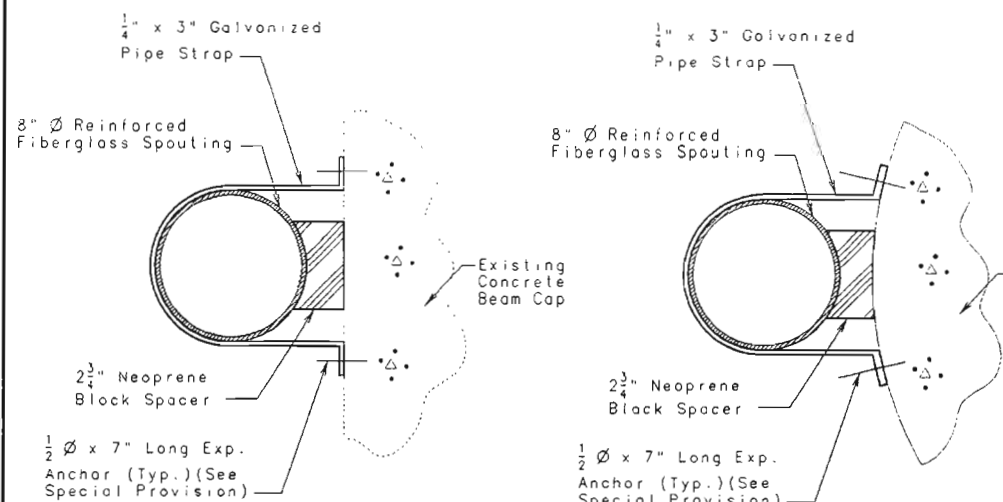
Cost of Bent Plates and 3/8" Ø studs, Lock washer & Hex nuts shall be included in the contract unit price for Expansion Device (Finger Plate)



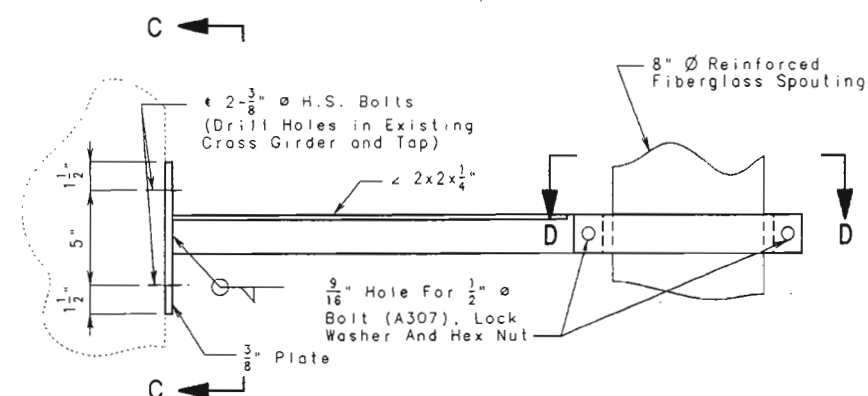
DETAIL "A"



Note: Neoprene for trough shall meet the requirements of ASTM D3253 TYPE III or ASTM D2000 with a call out of 2BC 615 A14 B14 C12 F17. The contractor shall furnish manufacturer's certifications for these neoprene components. Cost of Neoprene Trough shall be included in the contract unit price for Expansion Device (Finger Plate) (See Special Provision).

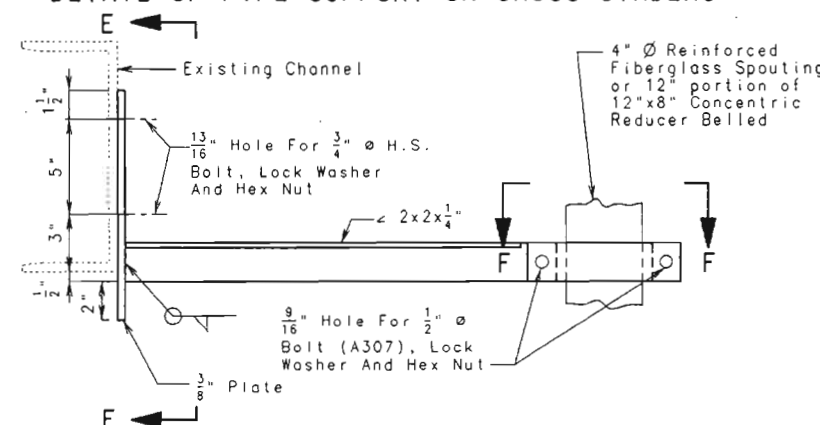


DETAIL OF PIPE SUPPORT ON CONCRETE BEAM CAP



Note: Min. distance from holes to top or bottom edge of Cross Girders shall be 6". Min. Intermediate Stiffeners & Bearing Stiffener of Existing Cross Girder with 3/8" Ø H.S. bolts.

DETAIL OF PIPE SUPPORT ON CROSS GIRDERS



DETAIL OF PIPE SUPPORT ON CHANNELS

Notes:
Material for Drainage System Support shall be ASTM A709 Grade 36 Structural Steel & Shall be coated with a minimum of two coats of inorganic zinc primer (5Mils minimum) or galvanized in accordance with ASTM A123.

All bolts, U-Bolts, Pipe Straps, Hardened Washers and Nuts shall be galvanized in accordance with ASTM A153.

Reinforced Fiberglass Spouting shall be Fibercast Centricast Pipe or approved equal. See Special Provisions.

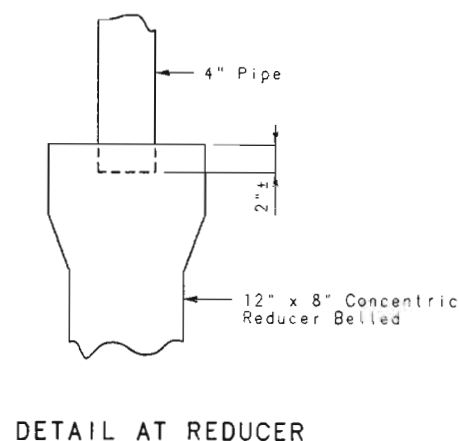
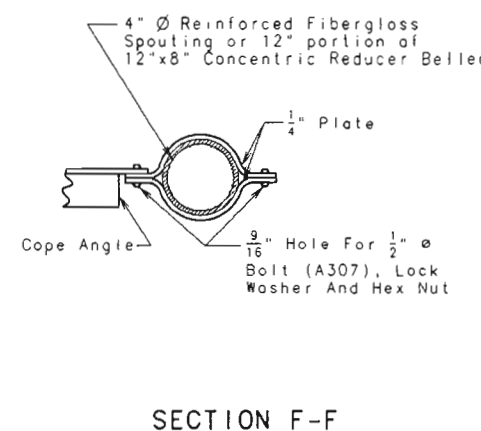
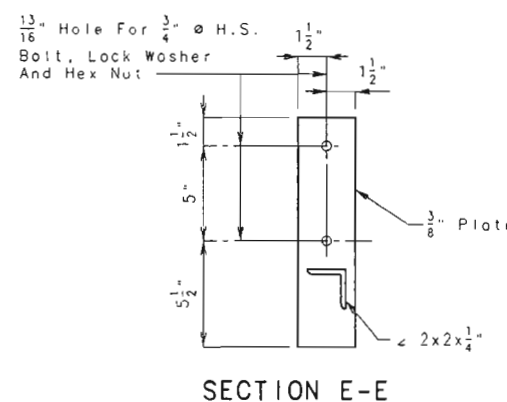
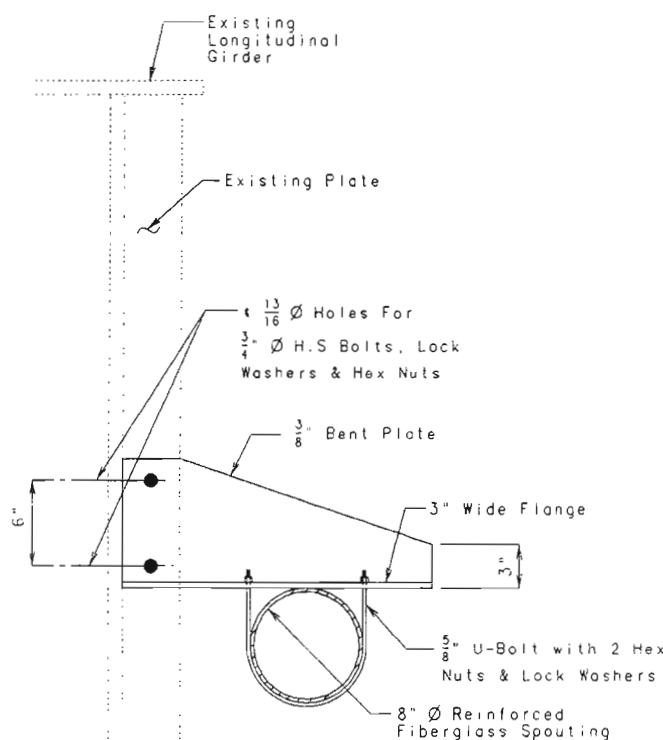
8" Pipe shall have the max slope possible.

Pipe Straps, Hangers and Supports shall be spaced at 5'-0" (Max.).

Burr threads of U-Bolts after installing pipe.

DETAIL OF PIPE STRAP ON CONCRETE BEAM CAP

DETAIL OF PIPE STRAP ON CONCRETE COLUMN



Note: Cost of Drainage material & Drainage supports shall be included in the contract unit price for Drainage Systems.

DETAIL OF PIPE HANGER ON LONGITUDINAL GIRDER



DATE 12/4/97

DETAILED NOV. 1997
CHECKED NOV. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 21 OF 21

CITY OF ST. LOUIS A35942

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE		SHEET	
MO.	361250	NO.	21
SEC./SUR.	17 TWP. 45N RGE. 7E		

GENERAL NOTES:

DESIGN UNIT STRESSES:

Class B1 Concrete $f'_{c} = 4,000$ psi
Reinforcing Steel (Grade 60) $f_y = 60,000$ psi
Structural Carbon Steel (ASTM A709 Grade 36) $f_y = 36,000$ psi
Structural Steel (ASTM A709 Grade 50) $f_y = 50,000$ psi

OLD WORK:

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

MAINTAIN TRAFFIC:

See Roadway Plans For Traffic Control
See Sheet 9 & 10 For Stage Construction

VERIFY DIMENSIONS:

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

PLAN DIMENSIONS:

Plan dimensions are based on installation at 60° F. The expansion gap and other dimensions shall be adjusted during installation for compliance with any temperature change.

STEEL CONNECTION:

High strength bolts, nuts & washers will be sampled for quality assurance as specified in standard specification 106 and Field Section (FS-712) from Materials Manual

BAR BONDING IN OLD CONCRETE:

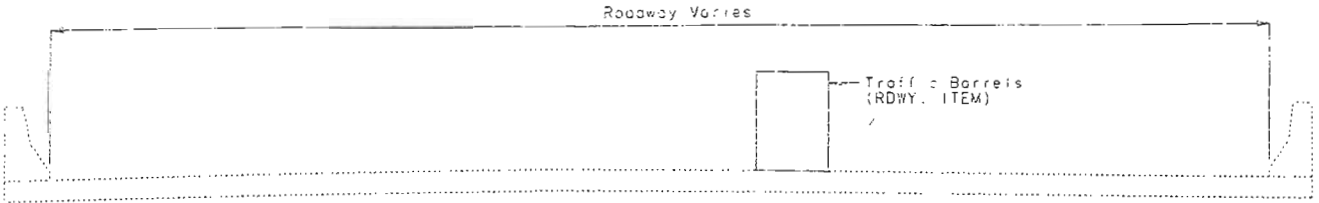
Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible

NOTES FOR RESIN ANCHOR SYSTEM

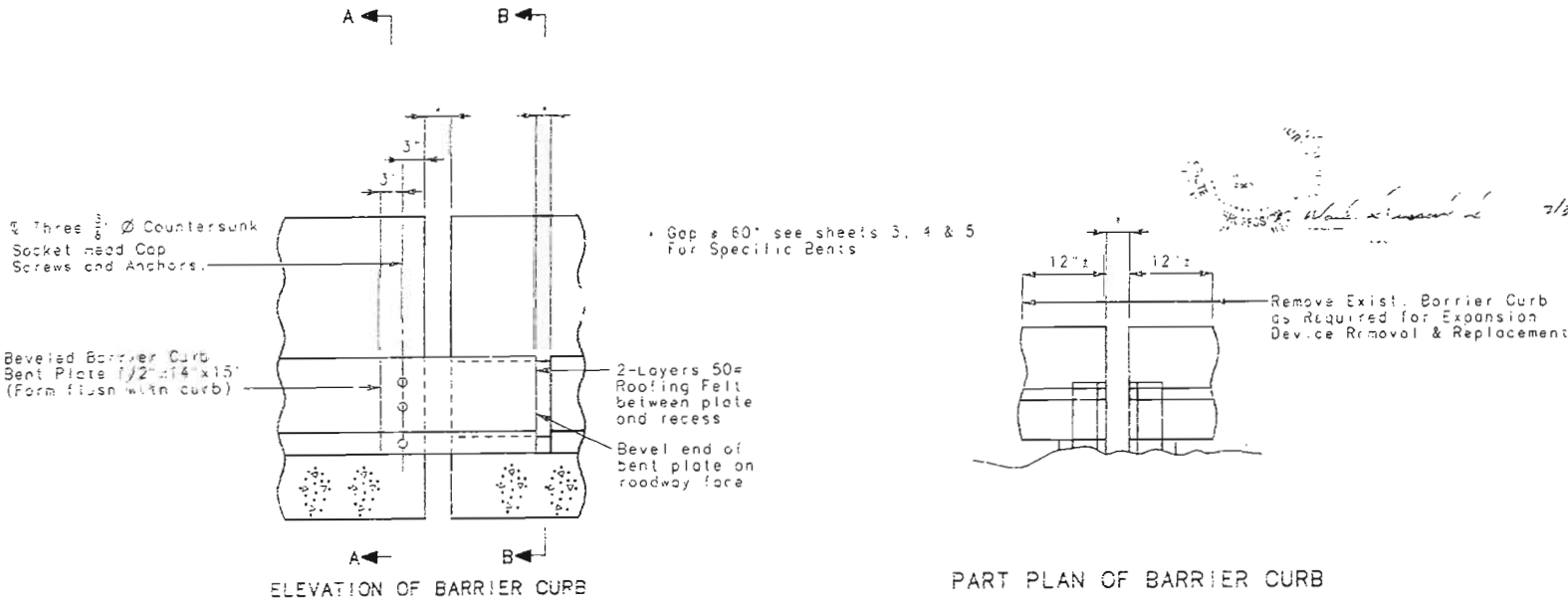
The contractor shall use one of the Resin Anchor Systems listed in the Job Special Provision. These Resin Anchor Systems shall be installed according to the manufacturer's specification, except as modified by the Job Special Provision.

Cost of furnishing and installing the resin anchor systems complete-in-place shall be included in the Contract Unit Price for Modification of Existing Expansion Jt.

The 3/8" ϕ Resin Anchor Systems shall have a minimum ultimate pullout strength of 4,680 lbs. in concrete with $f'_{c} = 4,000$ p.s.i. See Special Provisions Use ASTM A307 Threaded rod for Resin Anchor Systems.



SECTION THRU SLAB



PART PLAN OF BARRIER CURB

NOTE: North side shown. South side sym. to



PART SECTION A-A

PART SECTION B-B

DETAILS OF CURB PLATES AT BENTS NO. 4, 8, 38, 46, 50 AND 53



PART ELEVATION AT END OF BEVELED CURB BENT PLATE

SECTION C-C



REPAIRS TO
BRIDGE: WESTBOUND ROUTE I-64 VIADUCT
OVER VARIOUS CITY STREETS AND
NORFOLK SOUTHERN RAILWAY

STATE ROAD FROM GRAND BLVD. TO MISSISSIPPI RIVER

IN THE CITY OF ST. LOUIS

PROJECT NO. 21-1-1-100, STA. 28+96.35 (MATCH EXISTING)

JOB NO. J611250

RTE. I-64 WEST BOUND

CITY OF ST. LOUIS

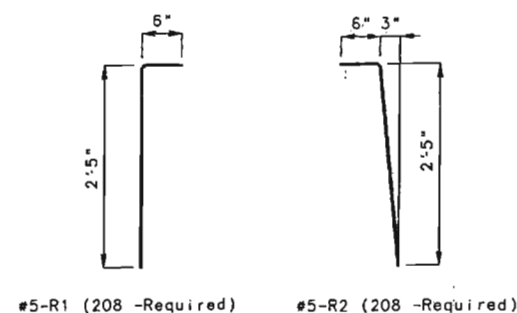
STD.
STD. 706.35
A35942

NOTE: THIS DRAWING IS NOT TO SCALE. ALL DIMENSIONS

SHEET NO. 1 OF 2

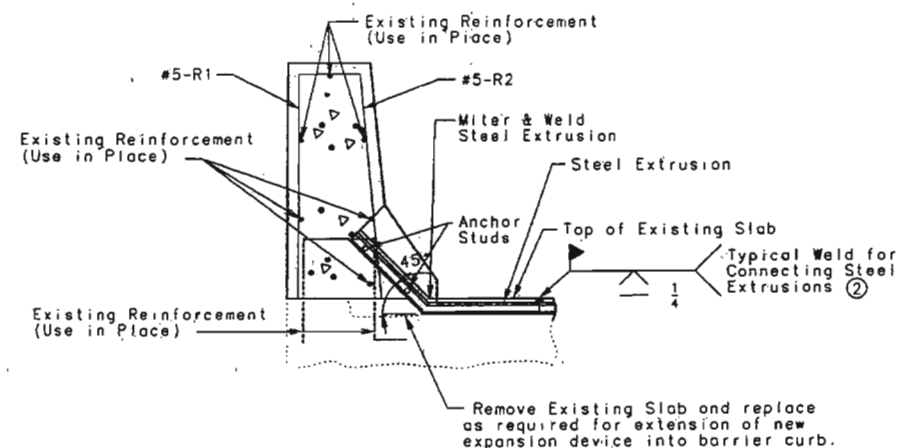
STATE	F.A.F.-10-5(87)	SHEET NO.
MO.	980219-46	82
SEC./SUR.	TWP.	RGE.

FINAL PLANS



Note: Bends shall be in accordance with CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures Stirrup and Tie Dimensions.
 All Dimensions are out to out.
 New #5-R1 & #5-R2 Bars shall be Epoxy Coated.
 Furnishing and installing #5-R1 & #5-R2 Bars shall be included in the contract unit price bid for Modification of Existing Expansion Joint.

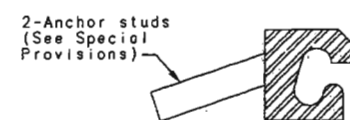
BENDING DIAGRAM



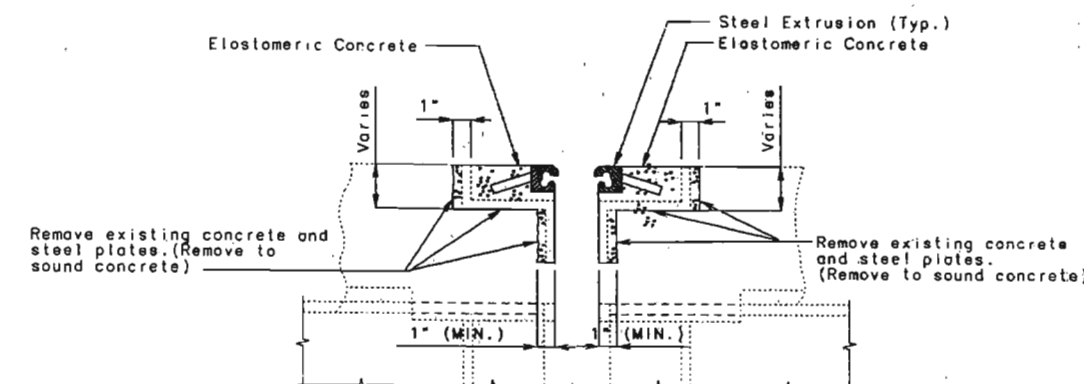
SECTION THRU CURB AT BENTS 4, 8, 46 & 53.

(Barrier Curb Plate not shown for clarity.)

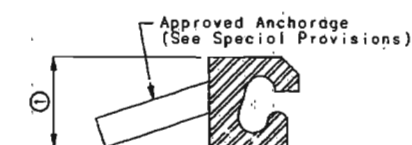
② Extrusion shall be welded top and back



DETAIL OF STEEL EXTRUSION IN CURBS

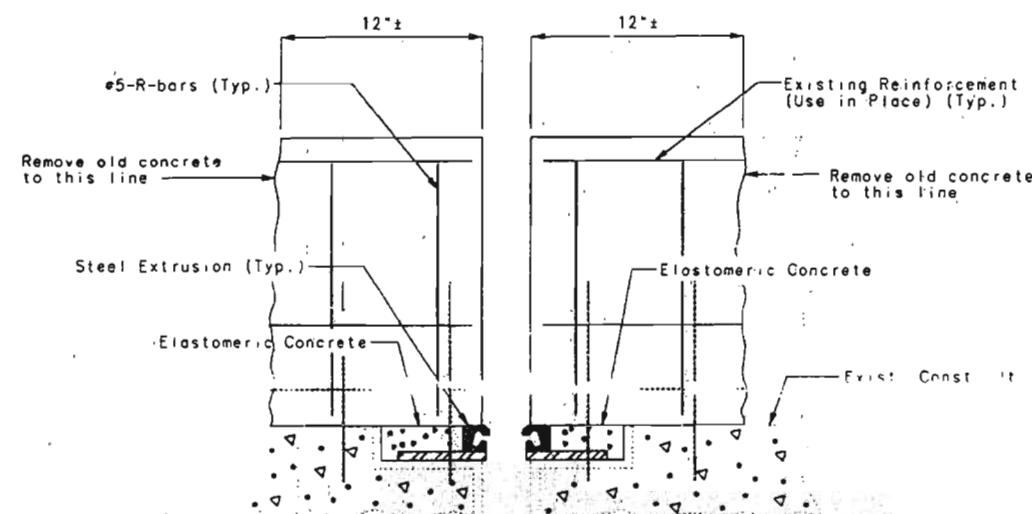


PART SECTION THRU MODIFICATION AT EXISTING EXPANSION DEVICES NEAR EDGE OF SLAB WHEN LOOSE PLATES ARE ENCOUNTERED



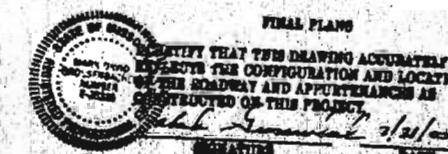
DETAIL OF STEEL EXTRUSION WHERE LOOSE PLATES ARE ENCOUNTERED

① 1 1/2" For Exp. Jt. at Bents 4, 8 & 53.
 2" For Exp. Jt. at Bents 46.



PART ELEVATION OF CURB AND EXPANSION DEVICE AT BENTS NO. 4, 8, 46 & 53.

Note: For details of Expansion Device Movement Gauge, see sheet no. 8.



DETAILED FEB. 1997
 CHECKED MAR. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

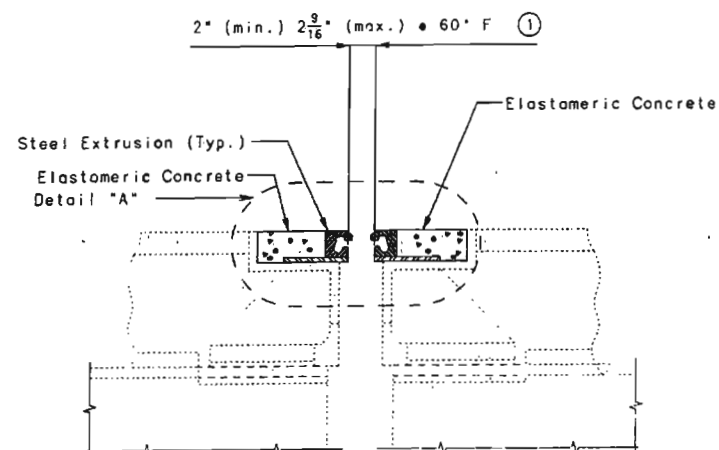
SHEET NO. 2 OF 21

CITY OF ST. LOUIS

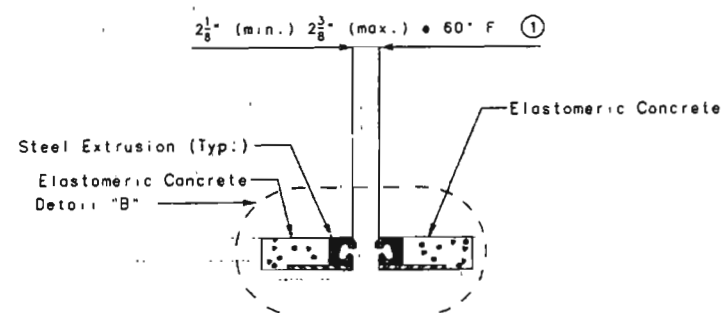
A35942

FINAL PLANS

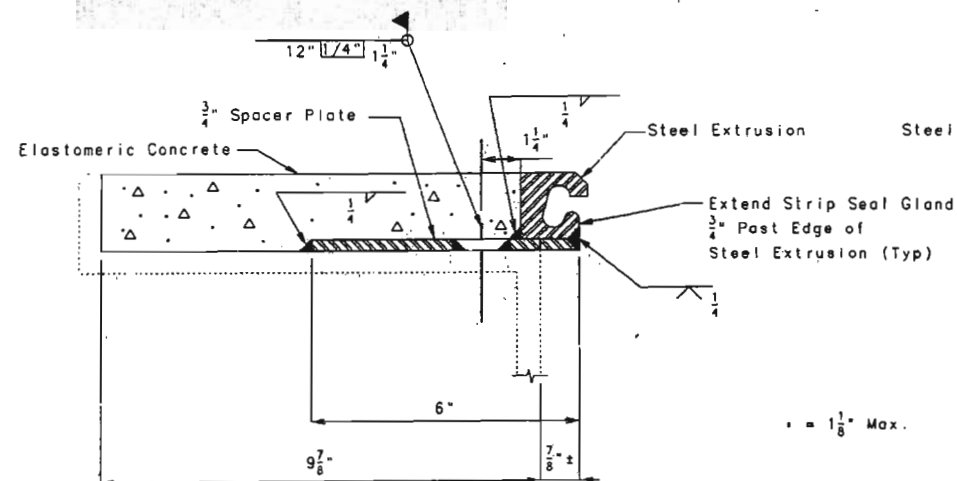
Note: Dimensions ① shall be increased $\frac{1}{4}$ " for each 10° fall in temperature and decreased $\frac{1}{4}$ " for each 10° rise in temperature at installation



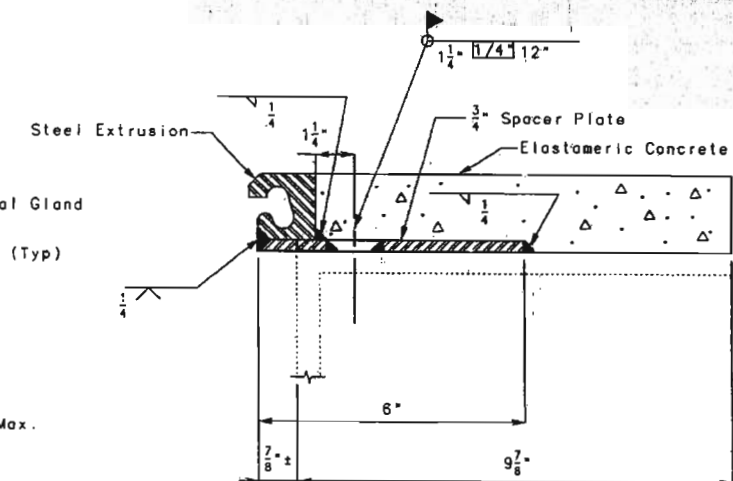
PART SECTION THRU MODIFICATION
AT EXISTING EXPANSION DEVICE
BENT NO. 4.



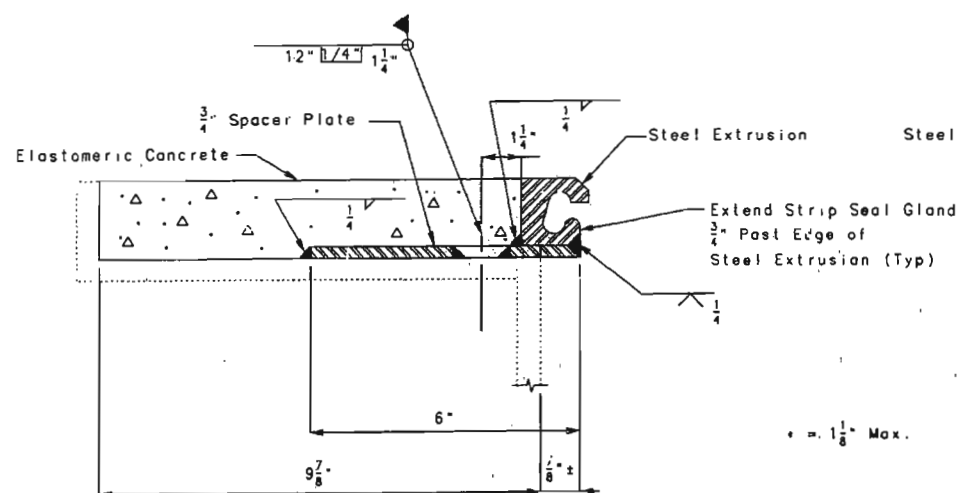
PART SECTION THRU MODIFICATION
AT EXISTING EXPANSION DEVICE
BENT NO. 8.



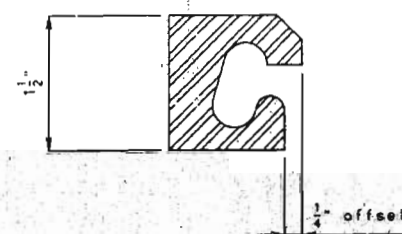
DETAIL "A"



DETAIL "B"



DETAIL "B"



DETAIL OF STEEL EXTRUSION

STRIP SEAL GEOMETRY
MOVEMENT RATIO

FINAL PLANS
I CERTIFY THAT THIS DRAWING ACCURATELY
REPRESENTS THE CONFIGURATION AND LOCATION
OF THE ROADWAY AND APPURTENANCES AS
CONSTRUCTED ON THIS PROJECT.

DATE 7/24/00

NOTES FOR STRIP SEAL:
The expansion device shall be fabricated and installed in accordance with the
recommendations of the manufacturer, and as set forth in the Special Provisions.
All welds shall conform to Section 712 of the Standard Specifications.
All steel shall be ASTM A709 Grade 36, except steel extrusions shall
be ASTM A709 Grade 50W or Grade 36.
Gap for new expansion device cannot be greater than existing gap.
2" Min. gap required for proper installation.



DETAILED FEB. 1997
CHECKED MAR. 1997

NOTE: THIS DRAWING IS NOT TO SCALE; FOLLOW DIMENSIONS.

SHEET NO. 3 OF 21

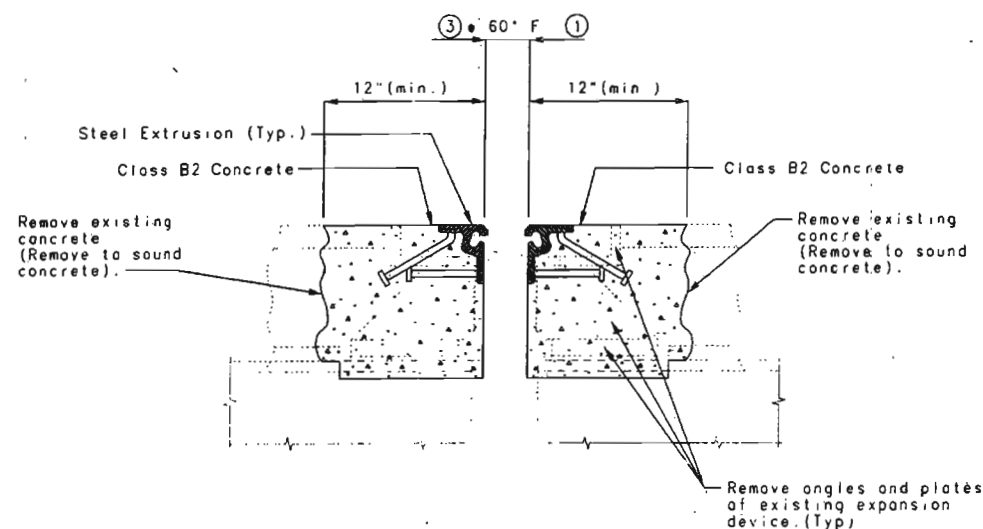
CITY OF ST. LOUIS

A35942

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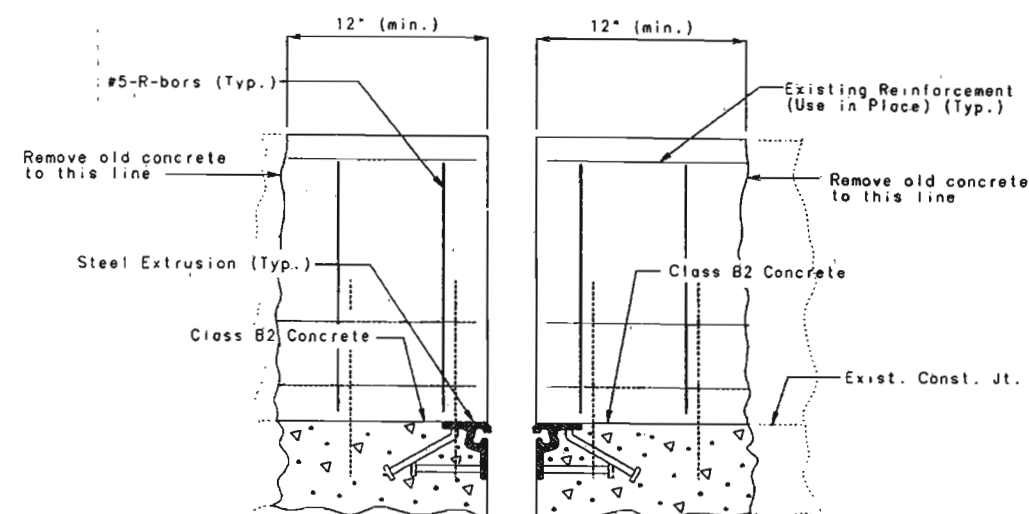
FINAL PLANS

Note: Dimensions ① shall be increased $\frac{1}{4}$ " for each 10° fall in temperature and decreased $\frac{1}{4}$ " for each 10° rise in temperature at installation

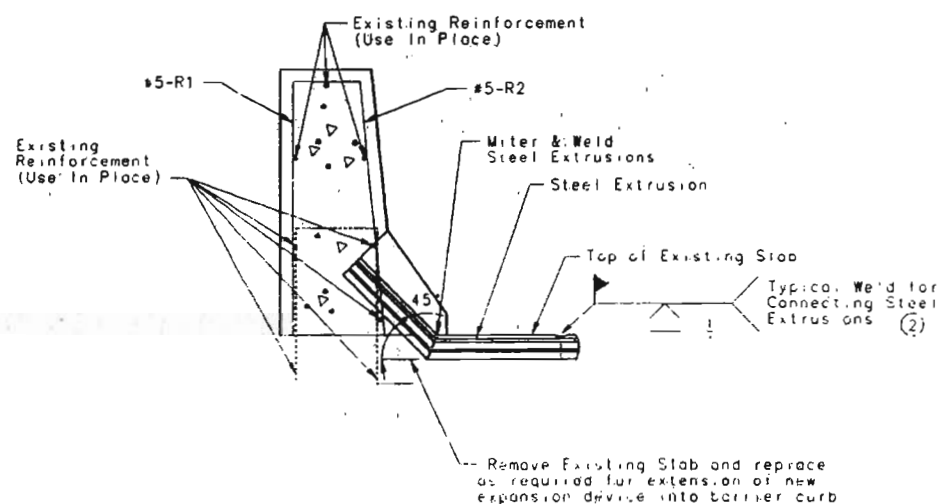


PART SECTION THRU MODIFICATION
 AT EXISTING EXPANSION DEVICE
 BENTS NO. 38 & 50.

③	
BENT 38	BENT 50
2" (min.)	2" (min.)
2 1/2" (max.)	2 5/8" (max.)



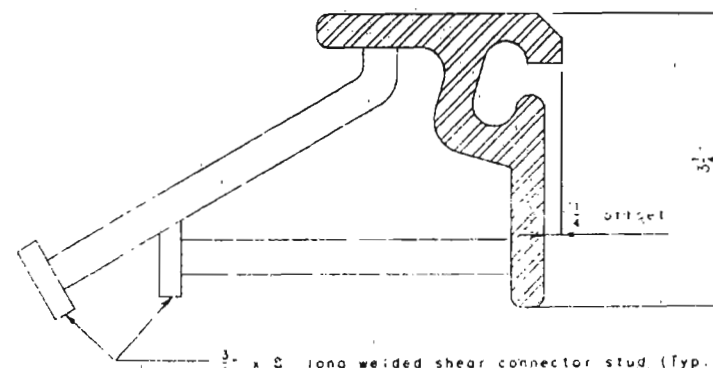
PART ELEVATION OF CURB
 AND EXPANSION DEVICE
 AT BENTS NO. 38 AND 50.



SECTION THRU CURB AT BENTS NO. 38 & 50.

(Barrier Curb Plate not shown for clarity.)

② Extrusion shall be welded top and back.



DETAIL OF STEEL EXTRUSION

Note: For details of Expansion Device Movement Gauge, see sheet no. 8.

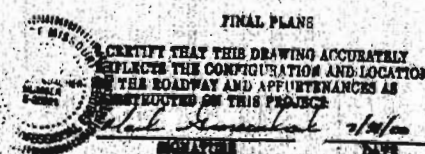


NOTE: The Strip Seal Gland shall extend past the edge of the slab by 3/4\"/>

NOTES FOR STRIP SEAL:
 The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the Special Provisions.
 All welds shall conform to Section 712 of the Standard Specifications.
 All steel shall be ASTM A709 Grade 36, except steel extrusions shall be ASTM A709 Grade 50W or Grade 36.
 2" min. gap required for proper installation.
 Concrete shall be forced under and around the strip seal extrusions and studs by troweling or other approved methods. Proper consolidation of concrete shall be achieved by localized internal vibration or other approved methods.
 Haunch Slab to bear on Existing Channel.

DETAILED FEB. 1997
 CHECKED FEB. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.



SHEET NO. 4 OF 21

CITY OF ST. LOUIS

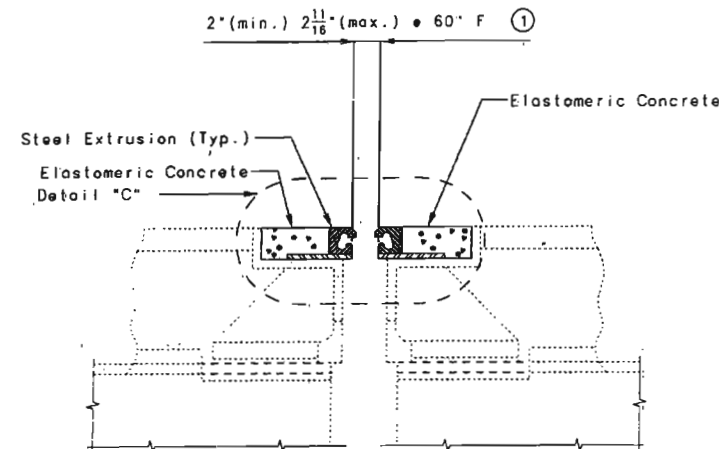
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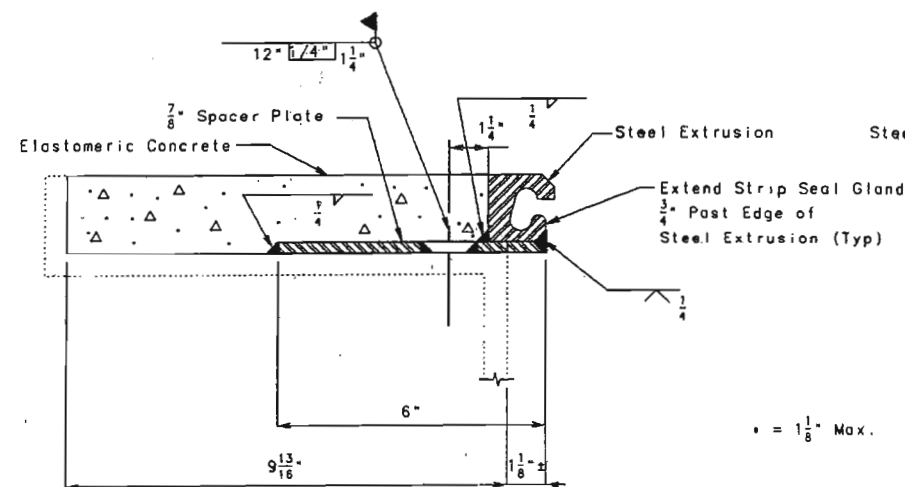
Note: Dimensions ① shall be increased $\frac{1}{4}$ " for each 10° fall in temperature and decreased $\frac{1}{4}$ " or each 10° rise in temperature at installation.

STATE	F.A.F.-10-5(87)	SHEET
MO.	990219-46	NO.
	161250	85

FINAL PLANS

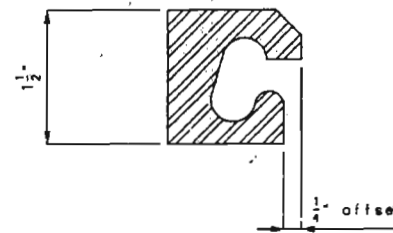
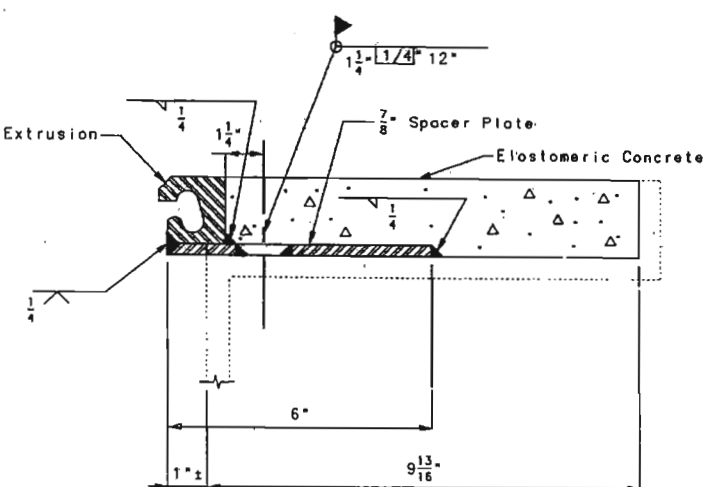


PART SECTION THRU MODIFICATION
AT EXISTING EXPANSION DEVICE
BENT NO. 53.



• = $\frac{1}{8}$ " Max.

DETAIL "C"



DETAIL OF STEEL EXTRUSION



STRIP SEAL GLAND
MOVEMENT RATING

FINAL PLANS

CERTIFY THAT THIS DRAWING ACCURATELY
REPRESENTS THE CONFIGURATION AND LOCATION
OF THE ROADWAY AND APPURTENANCES AS
CONSTRUCTED ON THIS PROJECT.

NOTES FOR STRIP SEAL:
The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the Special Provisions.
All welds shall conform to Section 712 of the Standard Specifications.
All steel shall be ASTM A709 Grade 36, except steel extrusions shall be ASTM A709 Grade 50W or Grade 36.
Gap for new expansion device cannot be greater than existing gap.
2" Min. gap required for proper installation.



DETAILED FEB. 1997
CHECKED FEB. 1997

NOTE: THIS DRAWING IS NOT TO SCALE, FOLLOW DIMENSIONS.

SHEET NO. 5 OF 21

CITY OF ST. LOUIS

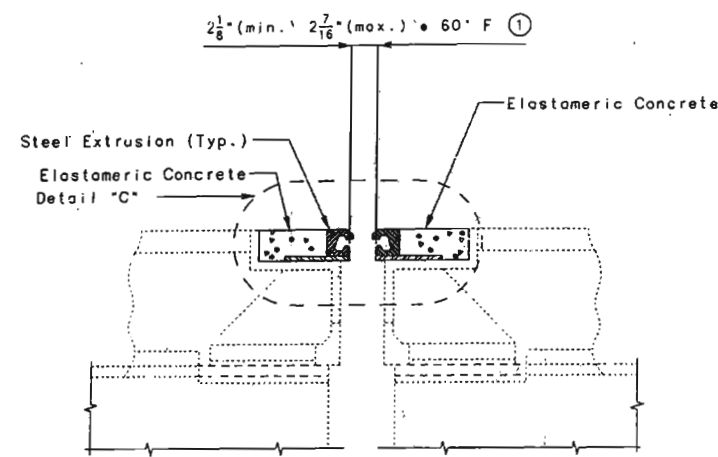
A35942

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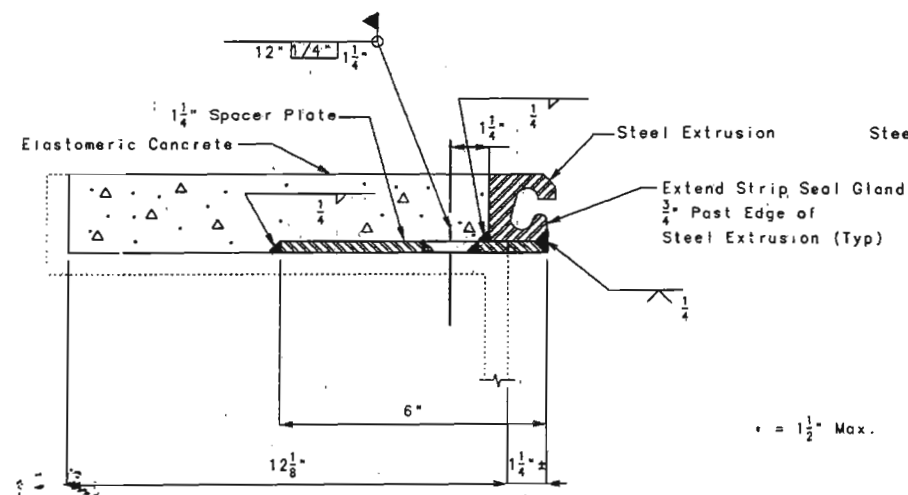
Note: Dimensions ① shall be increased $\frac{1}{4}$ " for each 10° fall in temperature and decreased $\frac{1}{4}$ " for each 10° rise in temperature at installation.

STATE	F.A.F.-40-5187)	SHEET
NO.	990219-46	NO.
MO.	06/12/50	84

FINAL PLANS

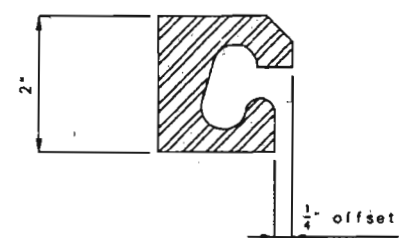
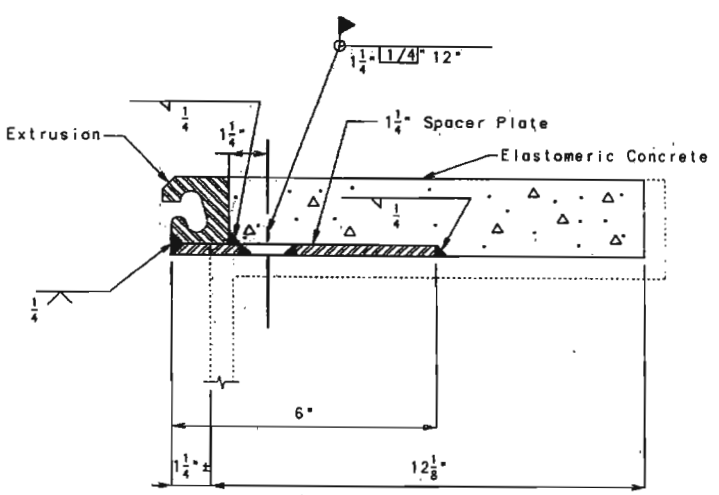


PART SECTION THRU MODIFICATION
AT EXISTING EXPANSION DEVICE
BENT NO. 46.



± = 1 1/2" Max.

DETAIL "C"



DETAIL OF STEEL EXTRUSION



STRIP SEAL GLAND
MOVEMENT RATIO

FINAL PLANS
I CERTIFY THAT THIS DRAWING ACCURATELY
REPRESENTS THE CONFIGURATION AND LOCATION
OF THE ROADWAY AND APPURTENANCES AS
CONSTRUCTED ON THIS PROJECT
DATE 7/2/00
SIGNATURE [Signature]

NOTES FOR STRIP SEAL:
The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the Special Provisions.
All welds shall conform to Section 712 of the Standard Specifications.
All steel shall be ASTM A709 Grade 36, except steel extrusions shall be ASTM A709 Grade 50W or Grade 36.
Gap for new expansion device cannot be greater than existing gap.
2" Min. gap required for proper installation.



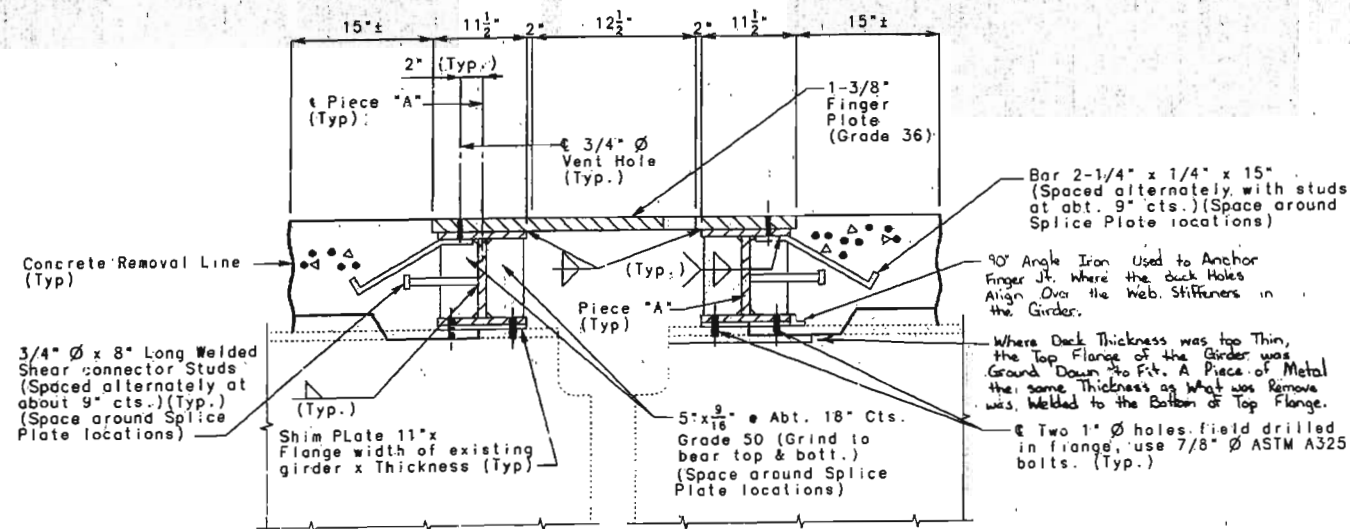
DETAILED FEB. 1997
CHECKED FEB. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 6 OF 21

CITY OF ST. LOUIS

A359-12



PART SECTION THRU EXPANSION DEVICE

Note: Concrete shall be forced under and around finger plate supporting hardware, studs, angles and bars. Proper consolidation of the concrete shall be achieved by localized internal vibration.

Drainage assembly not shown for clarity, see sheets 12-21.

Bent No.	Exp. Device Lengths
12	51'-7"
16	51'-7"
20	51'-7"
24	51'-7"
28	59'-7"
31S	51'-7"
36	51'-7"
42	59'-7"

FINAL PLANS GENERAL NOTES:

STATE	F.A.F.-40-5(87)	SHEET NO.
MO.	990219-46	67
	J611250	

Finger plates shall be cut with a machine guided gas torch from one plate. The plate from which fingers are cut may be spliced before fingers are cut. The surface of cut shall be perpendicular to the surface of the plate. The cut shall not exceed 1/8 inch in width. The centerline of cut shall not deviate more than 1/16 inch from the position of centerline of cut shown.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased for each 10°F fall in temperature and decreased for each 10°F rise in temperature at installation.

Structural steel for the expansion device and curb plate shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

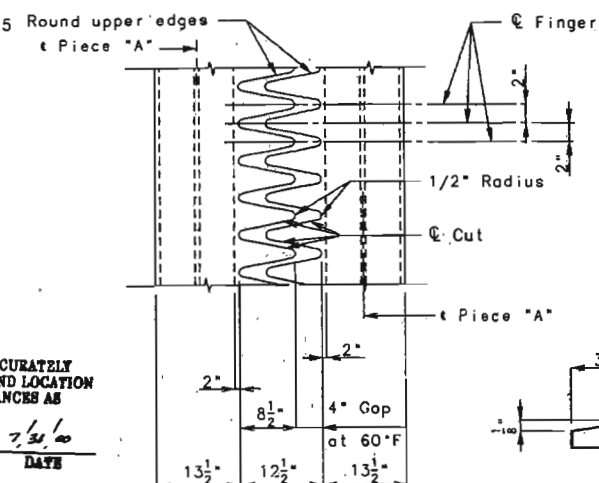
Payment for furnishing, coating or galvanizing and installing structural steel for the expansion device will be made at the contract unit price for Expansion Device (Finger Plate) per lin. ft.

1-3/8 inch Finger Plate and Piece "A" shall be bent to conform to crown of roadway.

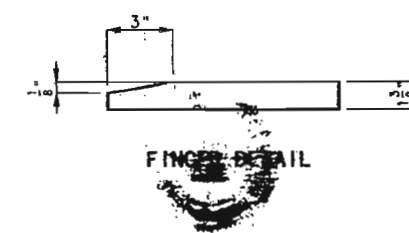
Material for the 1 3/8 inch finger plate shall be ASTM A709 Grade 36 structural steel. Anchors for the expansion device shall be approved stud welded anchors (C1010 thru C1020).

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible.

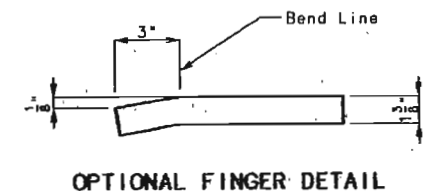
All web, flange, and splice plates shall be subject to notch toughness requirements.



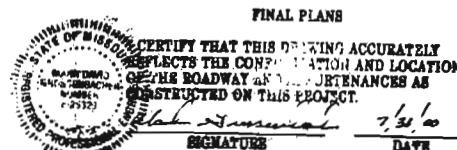
TYPICAL PLAN OF PLATE



FINGER DETAIL



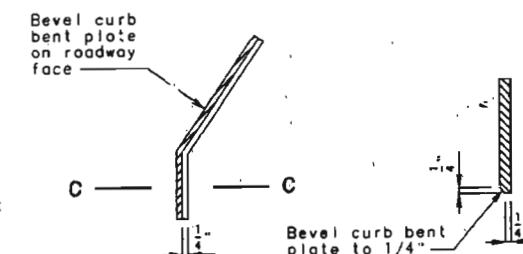
OPTIONAL FINGER DETAIL



FINAL PLANS

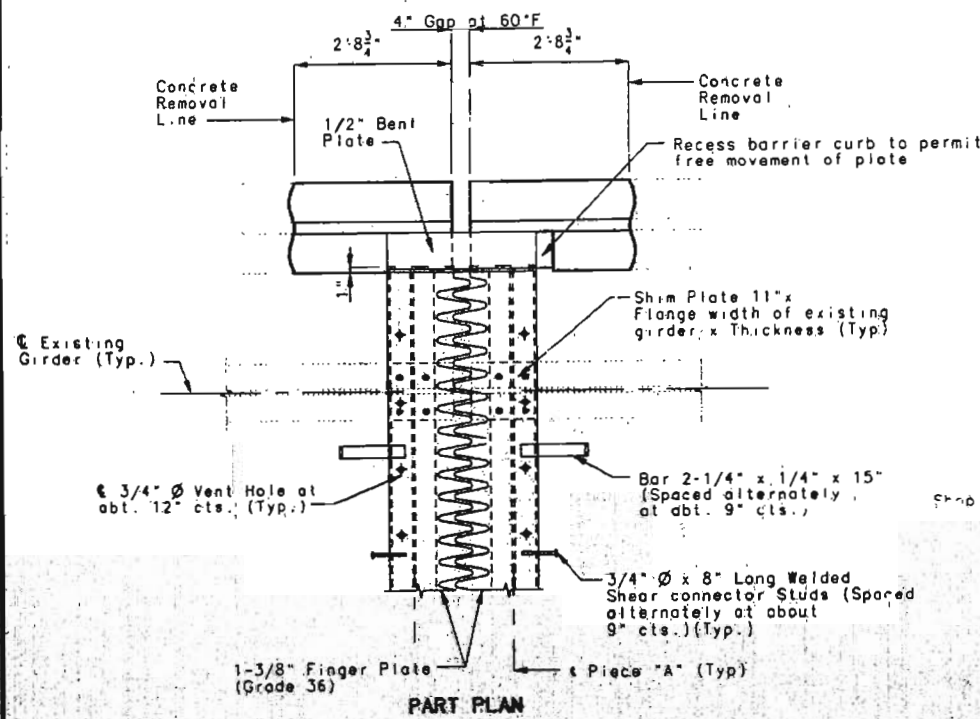
CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL UTILITY STRUCTURES AS CONSTRUCTED ON THIS PROJECT.

SIGNATURE DATE

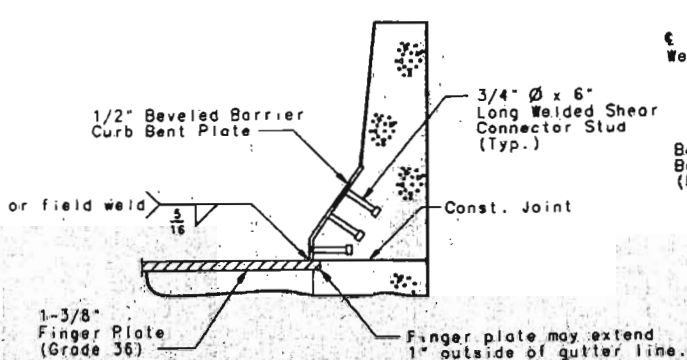


PART ELEVATION AT END OF BEVELED CURB BENT PLATE

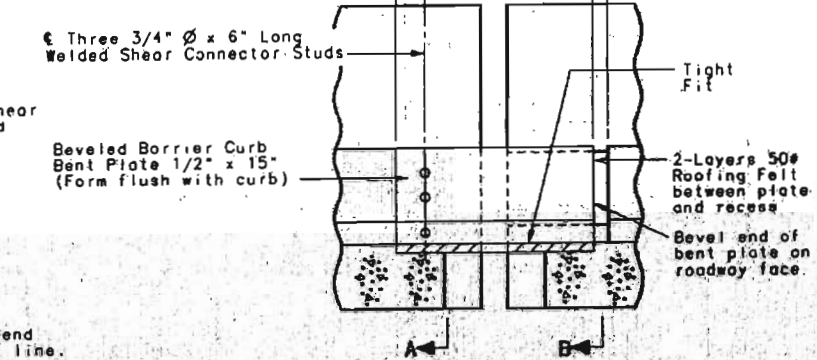
SECTION C-C



PART PLAN



PART SECTION A-A



ELEVATION OF BARRIER CURB



PART SECTION B-B

DETAILS OF FINGER PLATE EXPANSION DEVICE AT INT. BENT NO. 12, 16, 20, 24, 28, 31(South), 36 & 42.

DETAILED FEB. 1997
CHECKED FEB. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

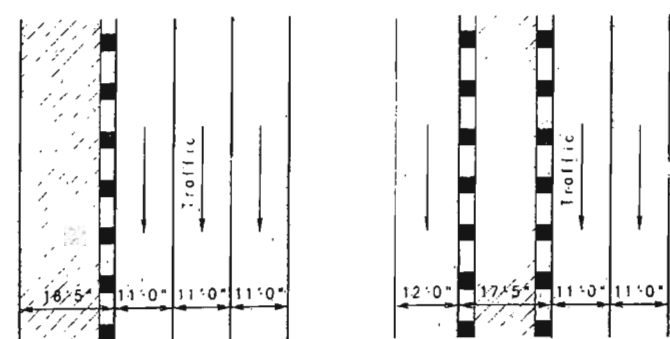
SHEET NO. 7 OF 21.

CITY OF ST. LOUIS

A35942

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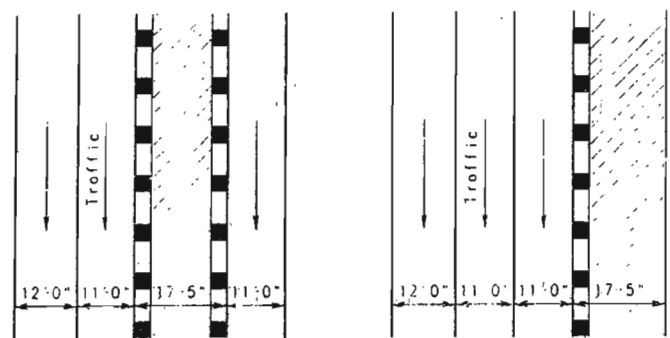
FINAL PLANS



STAGE 1

STAGE 2

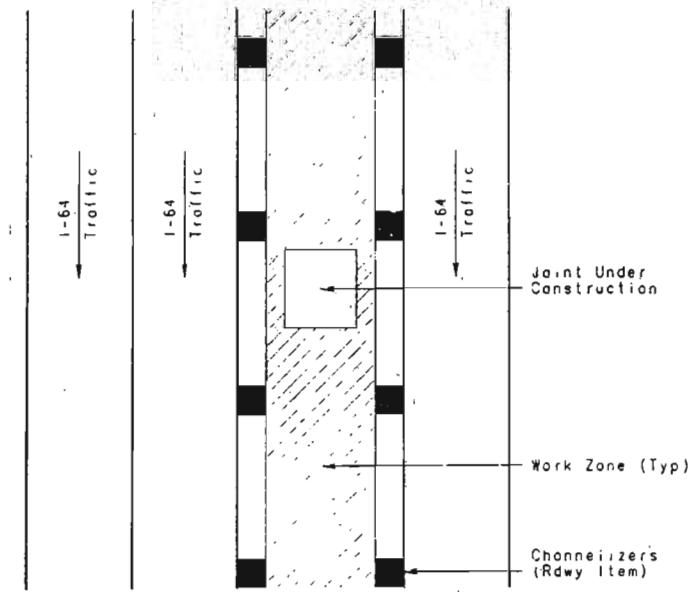
STATIONING ↑



STAGE 3

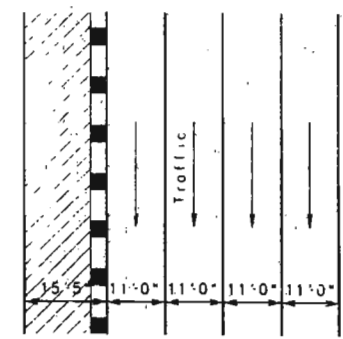
STAGE 4

51'-5" ROADWAY



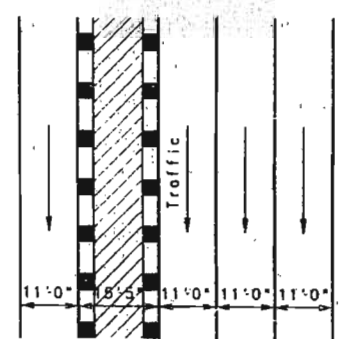
DURING CONSTRUCTION HOURS

(51'-5" Roadway shown, 59'-5" Roadway Similar)

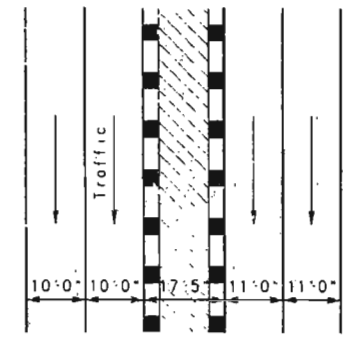


STAGE 1A

STATIONING ↑

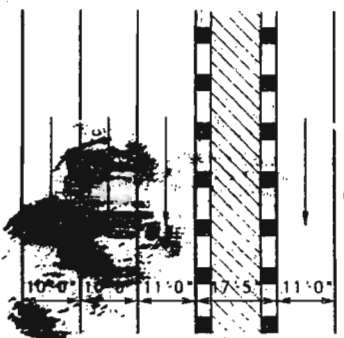


STAGE 1B

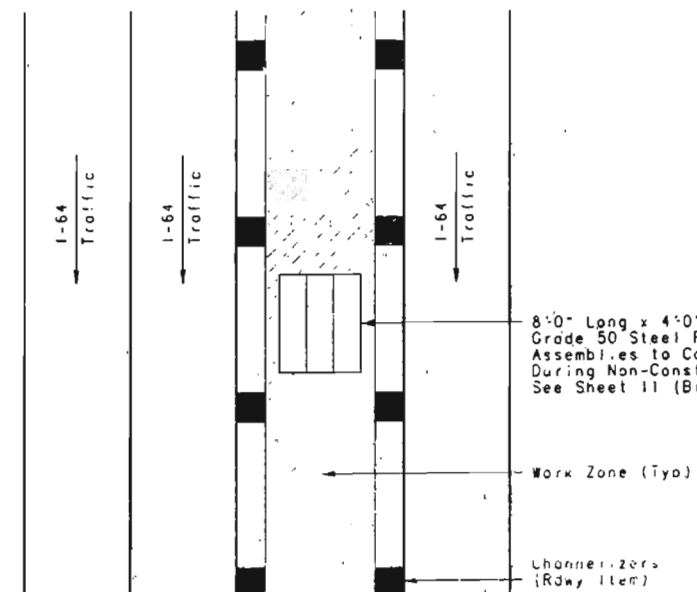


STAGE 2

STATIONING ↑

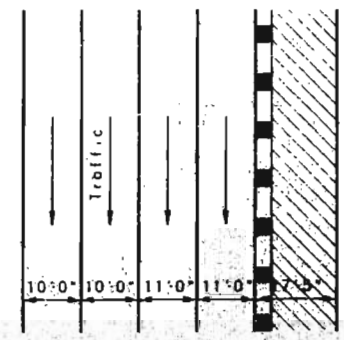


STAGE 3



NON-CONSTRUCTION HOURS

(51'-5" Roadway shown, 59'-5" Roadway Similar)



STAGE 4

59'-5" ROADWAY

STAGE CONSTRUCTION PLAN
(SEE ROADWAY PLANS FOR TRAFFIC CONTROL)

FINAL PLANS
I CERTIFY THAT THIS DRAWING ACCURATELY
REPRESENTS THE CONFIGURATION AND LOCATION
OF THE ROADWAY AND APPURTENANCES AS
CONSTRUCTED ON THIS PROJECT.
DATE 3/21/99
SIGNATURE [Signature]

DATE: MAR. 1997
CHECKED: MAR. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

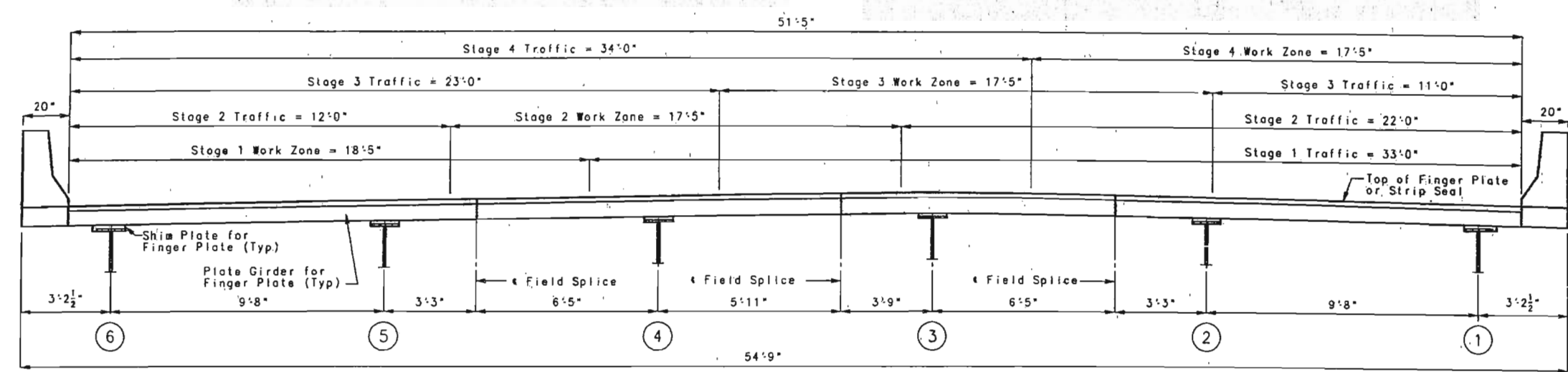
SHEET NO. 9 OF 21

CITY OF ST. LOUIS

A35942

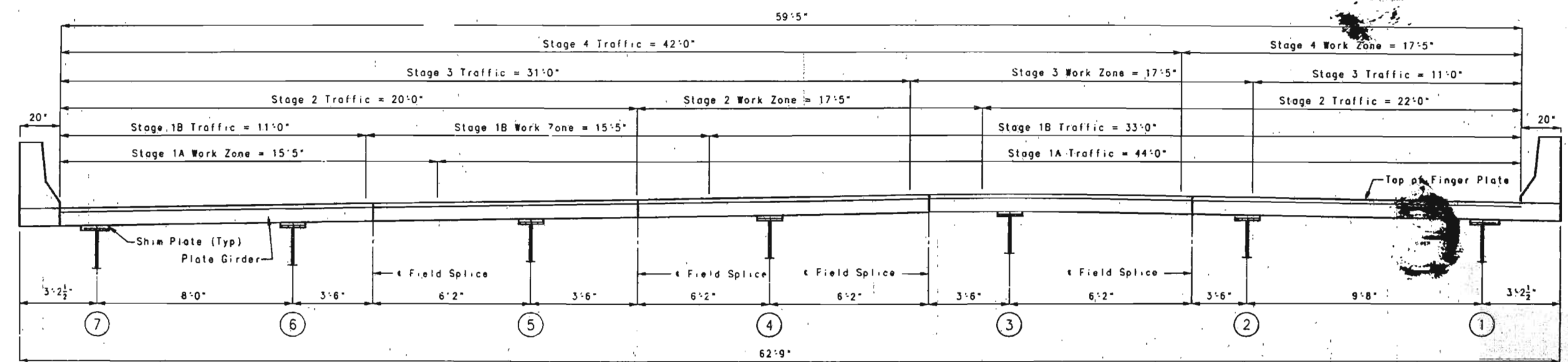
760

FINAL PLANS



STAGE CONSTRUCTION DETAILS AT INT. BENT NO. 4, 8, 12, 16, 20, 24, 28, 31(South), 36, 38, 46, 50 & 53.

FINAL PLANS
 I CERTIFY THAT THIS DRAWING ACCURATELY
 REFLECTS THE CONFIGURATION AND LOCATION
 OF THE ROADWAY AND APPURTENANCES AS
 CONSTRUCTED ON THIS PROJECT.
 Signature: *[Signature]* DATE: 7/31/00



STAGE CONSTRUCTION DETAILS OF FINGER PLATE EXPANSION DEVICE AT INT. BENT NO. 28 & 42.

DETAILED MAR. 1997
 CHECKED MAR. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 10 OF 21.

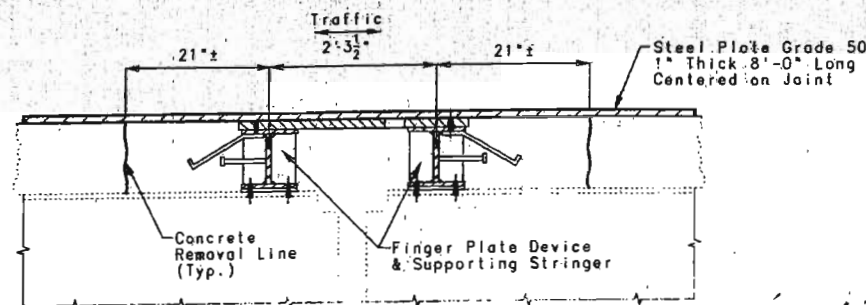
CITY OF ST. LOUIS



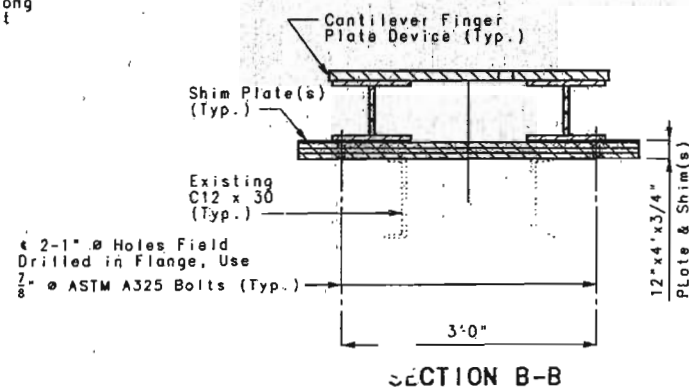
A35942

77

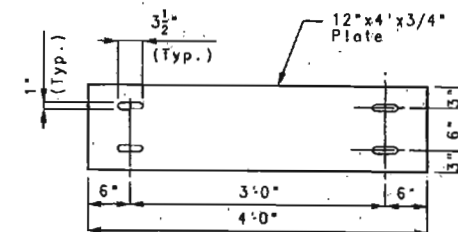
78



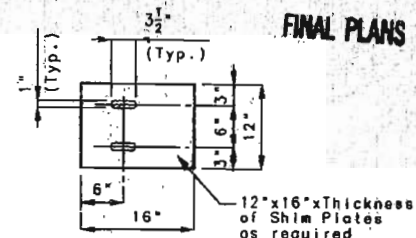
DETAIL SHOWING EXISTING DEVICE REMOVED, FINGER PLATE DEVICE INSTALLED, NEW CONCRETE NOT POURED OR NOT TO STRENGTH



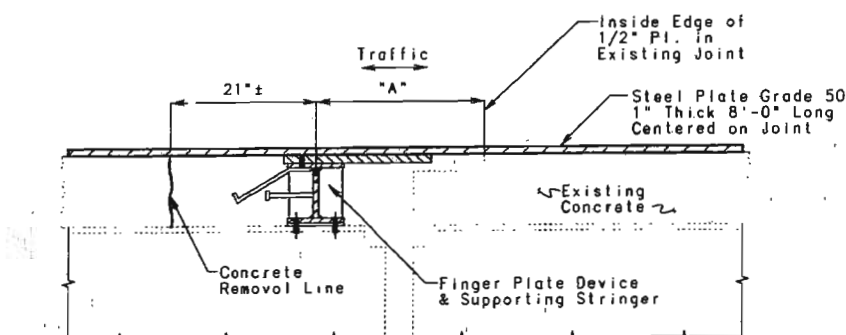
SECTION B-B



DETAIL OF PLATES
(Grade 36 or Grade 50)

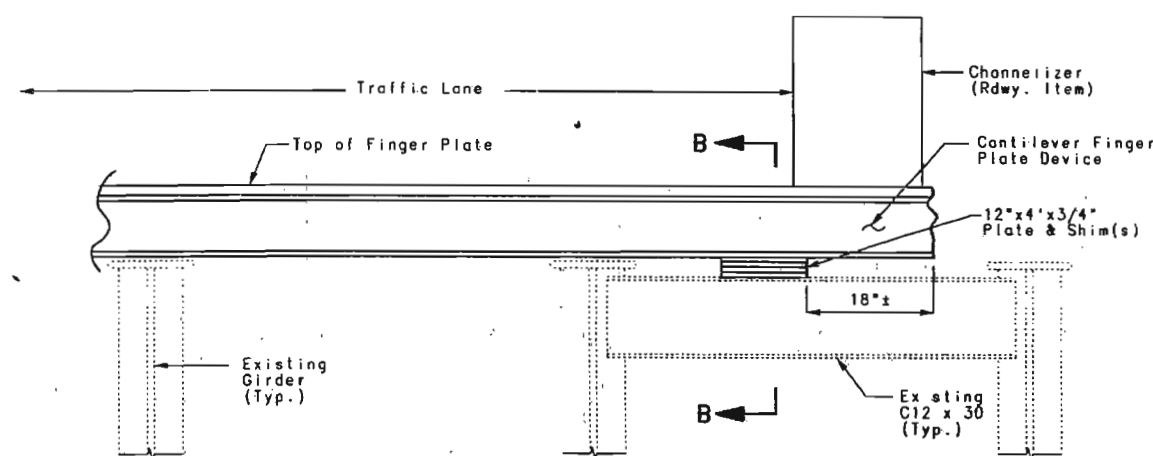


DETAIL OF SHIMS



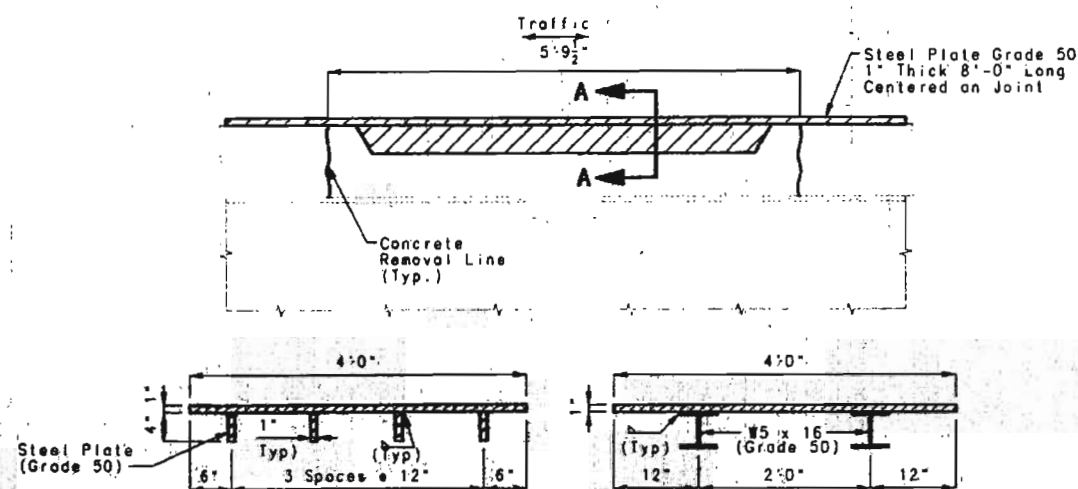
DETAIL SHOWING HALF OF EXISTING DEVICE REMOVED, HALF OF FINGER PLATE DEVICE INSTALLED, NEW CONCRETE NOT POURED OR NOT TO STRENGTH

Bents	"A"
28 & 36	2'-1 9/16"
12, 16, 20, 24, 31 & 42	2'-4 1/8"



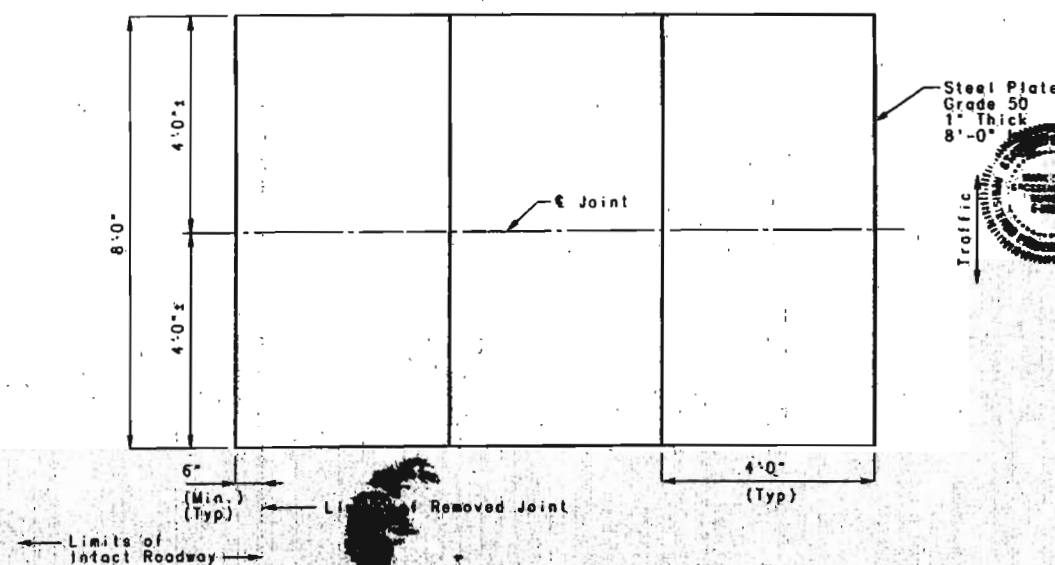
Note: Plates and shims to be placed as shown. Plates and shims shall be adjusted to allow installation of bolted field splice.

TEMPORARY BRACING OF FINGER PLATE DEVICE DURING STAGES 3 & 4



SECTION A-A SHOWING STIFFENED PLATE ALTERNATIVES

DETAIL SHOWING EXISTING DEVICE REMOVED, FINGER PLATE DEVICE NOT YET INSTALLED



PLAN VIEW OF TEMPORARY PLATES OVER JOINTS

STATE F.A.F.-40-5(87) 990219-46
NO. 161250
SHEET NO. 8 of 11
DATE 7/30/00
SIGNATURE [Signature]
VERIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.

DETAILED FEB. 1997
CHECKED FEB. 1997

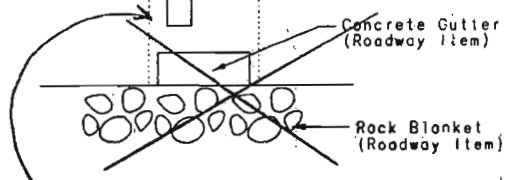
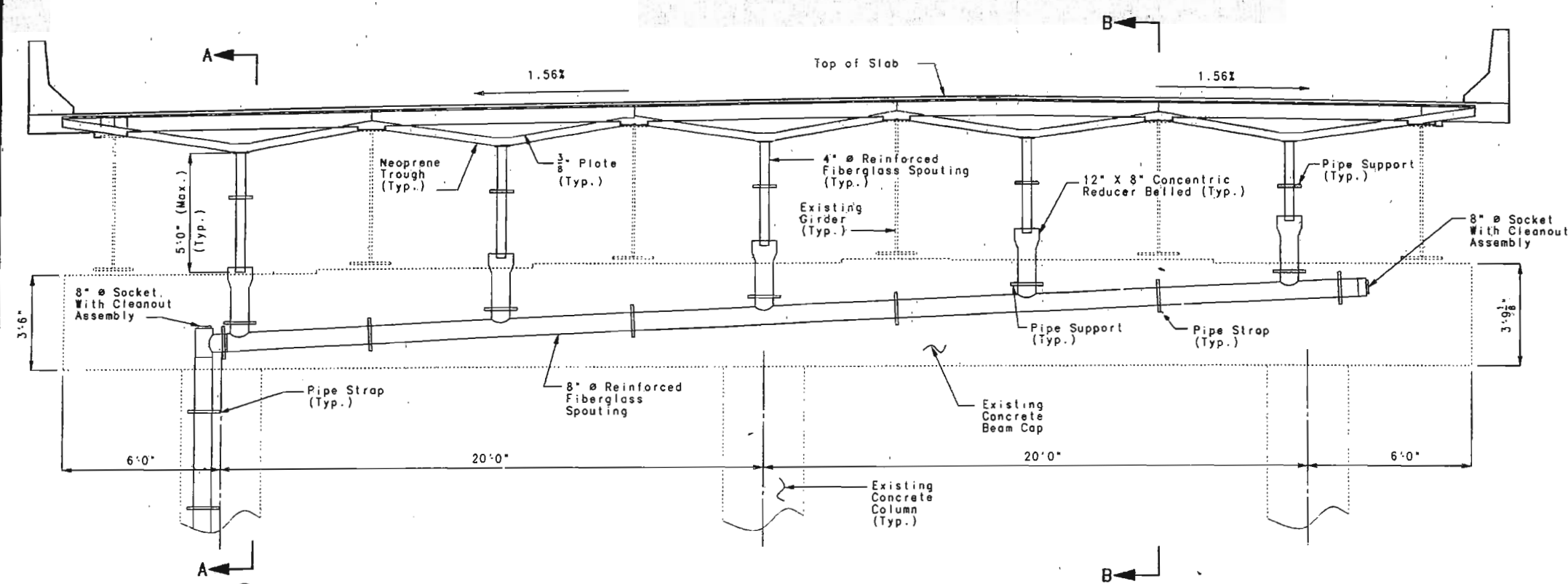
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 11 OF 21.

CITY OF ST. LOUIS

A35942

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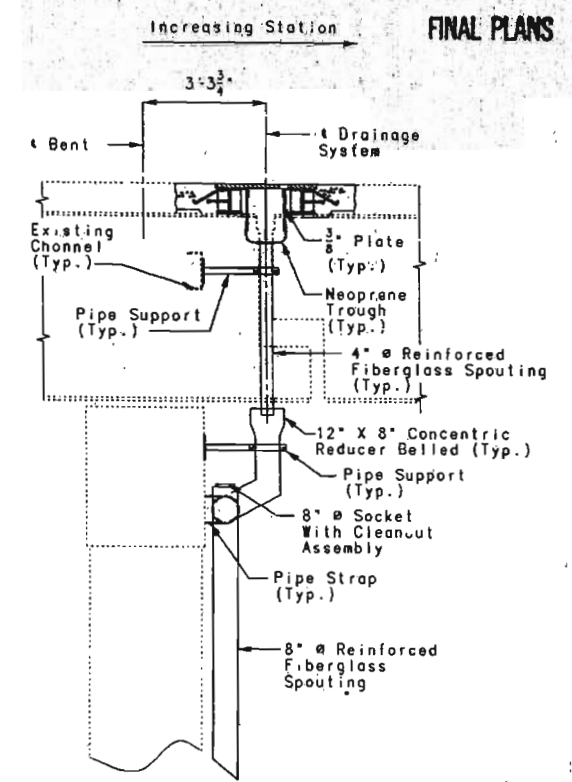


In lieu of using Rock Blanket, we installed drain pipe into a manhole close to bent 12. We paid for this work + extra pipe with Contingent Item 5213

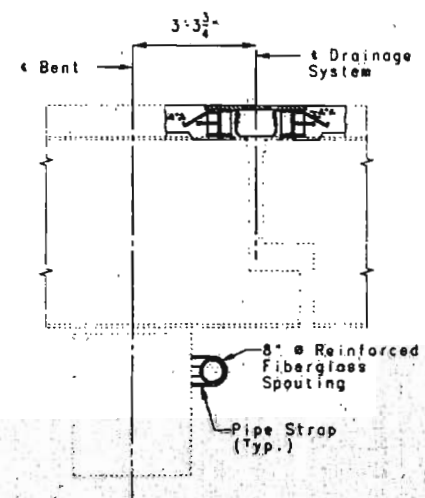
Note: For Details not shown see sheet no. 20 & 21.

ELEVATION
(Looking Downstation)

Note: Drainage shown as solid lines for clarity.



SECTION A-A



SECTION B-B

DRAINAGE SYSTEM AT BENT 12

FINAL PLANS
I CERTIFY THAT THIS DRAWING ACCURATELY
REPRESENTS THE CONSTRUCTION AND LOCATION
OF THE ROADWAY AND STRUCTURES AS
INTENDED BY THE PROJECT.
DATE 7/21/97
SIGNATURE [Signature]

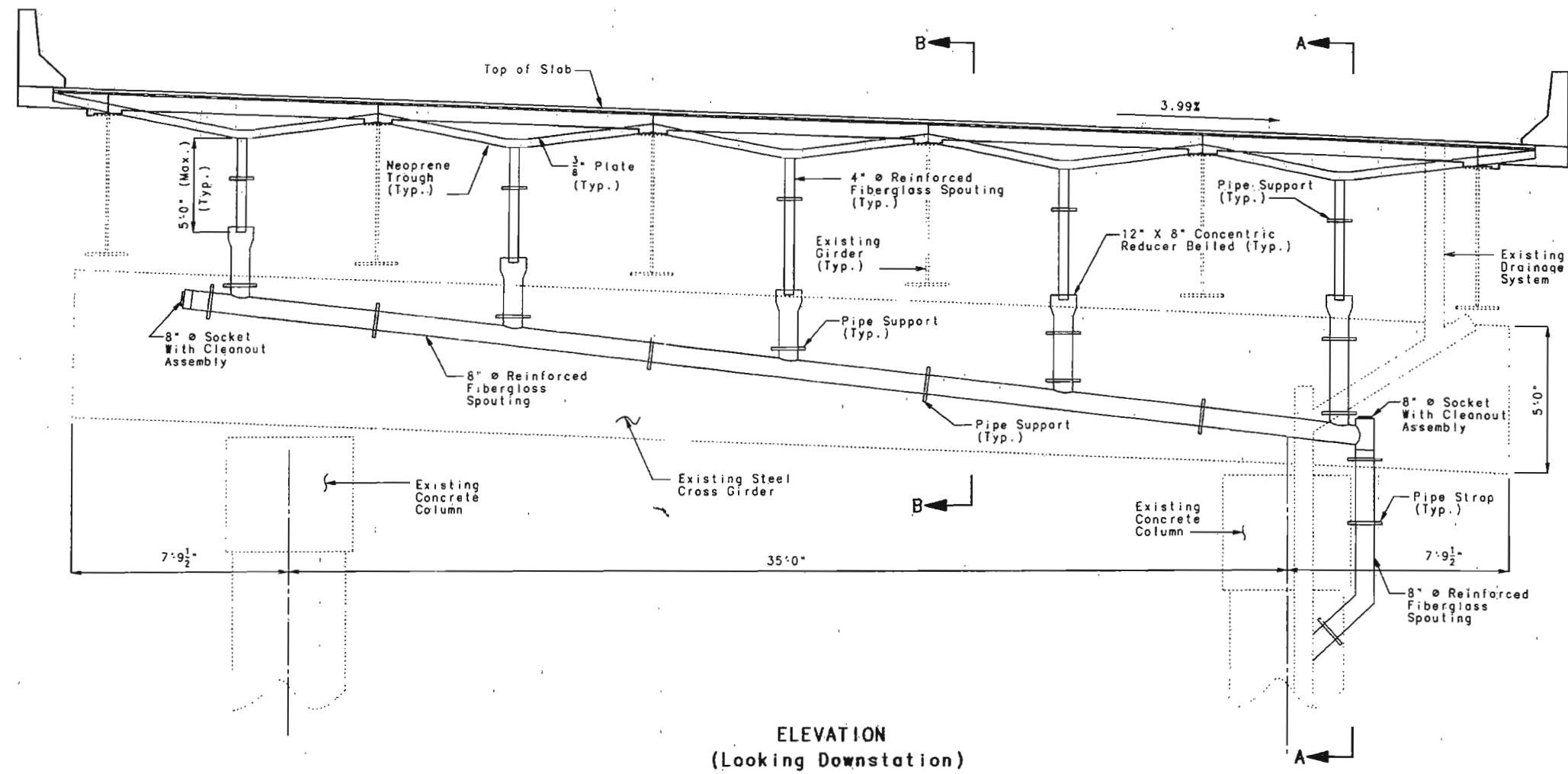
DETAILED NOV. 1997
CHECKED NOV. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 12 OF 21.

CITY OF ST. LOUIS A35942

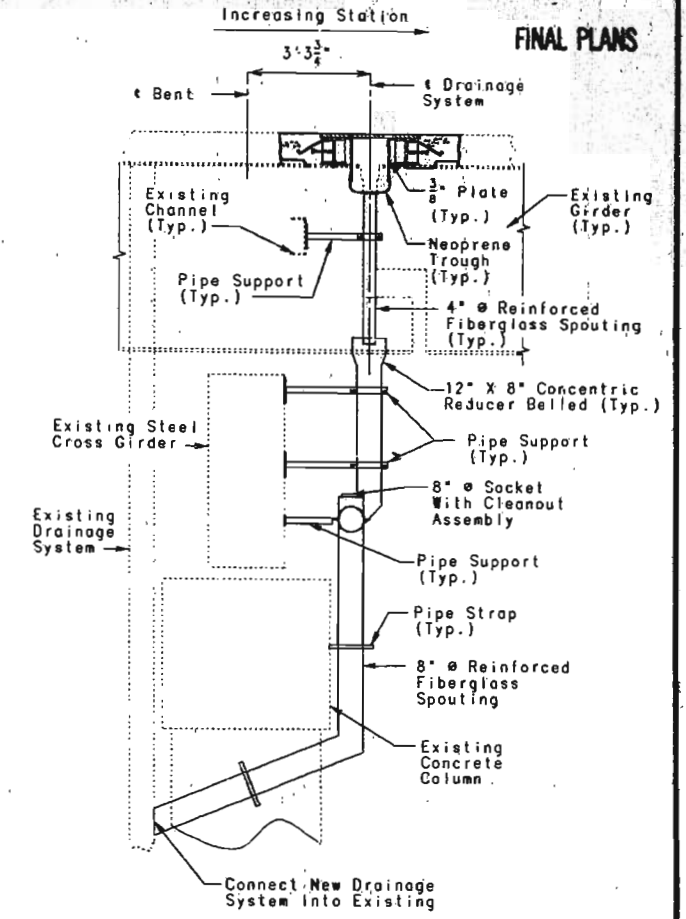
80



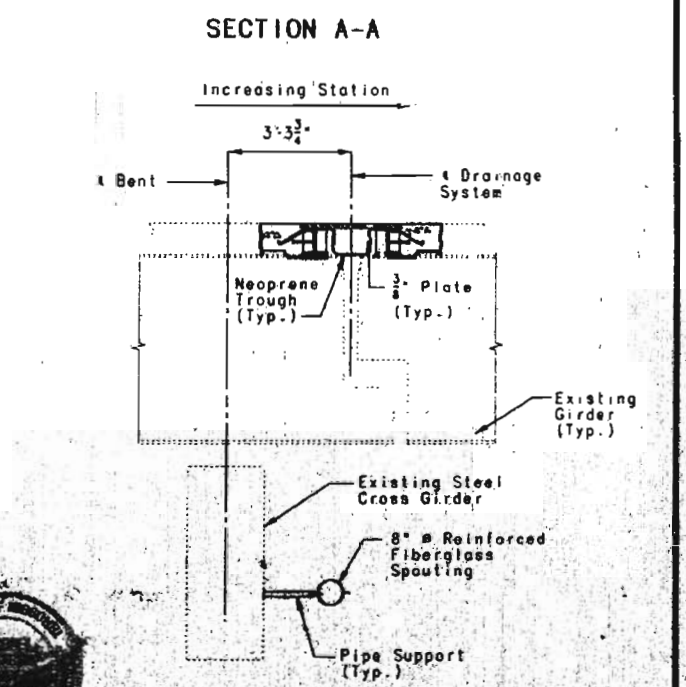
ELEVATION
(Looking Downstation)

Note: Drainage shown as solid lines for clarity.

Note: For Details not shown see sheet no. 20 & 21.



FINAL PLANS



SECTION A-A

SECTION B-B

DRAINAGE SYSTEM AT BENT 16.

FINAL PLANS
I HEREBY CERTIFY THAT THIS DRAWING ACCURATELY
REPRESENTS THE CONFIGURATION AND LOCATION
OF THE ROADWAY AND APPURTENANCES AS
CONSTRUCTED ON THIS PROJECT.
DATE 11/16/97



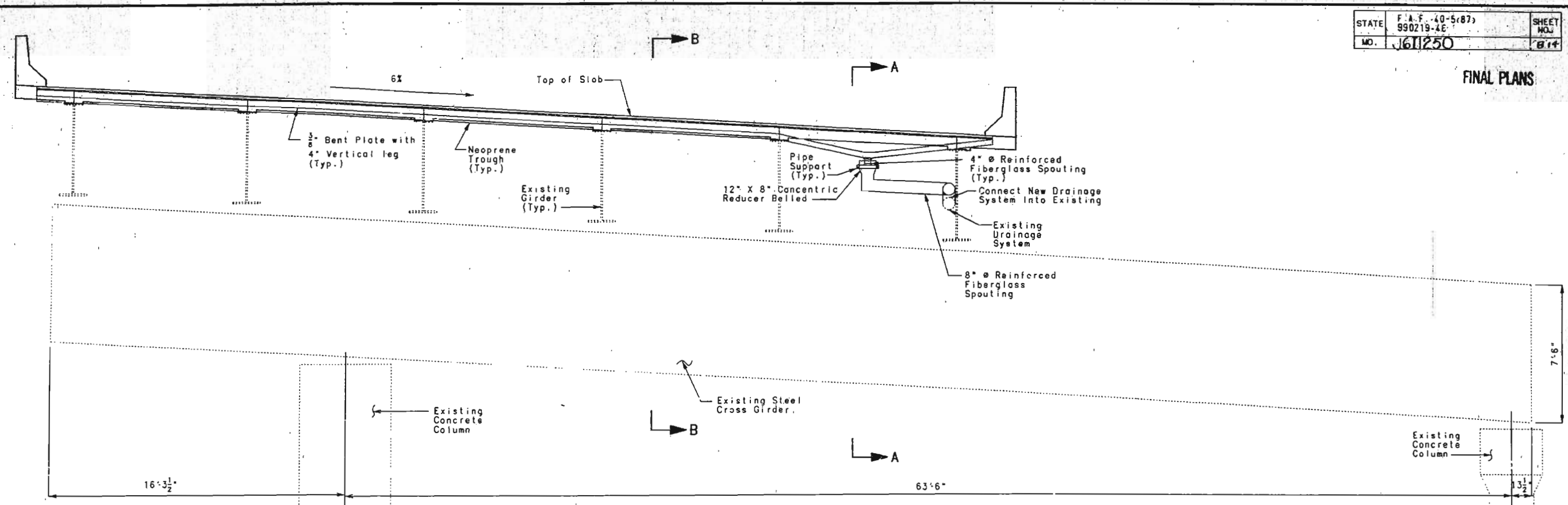
DETAILED NOV. 1997
CHECKED NOV. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

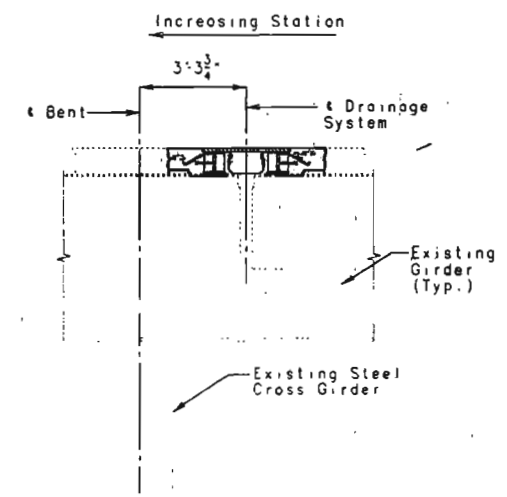
SHEET NO. 13 OF 21

CITY OF ST. LOUIS **A35942**

FINAL PLANS

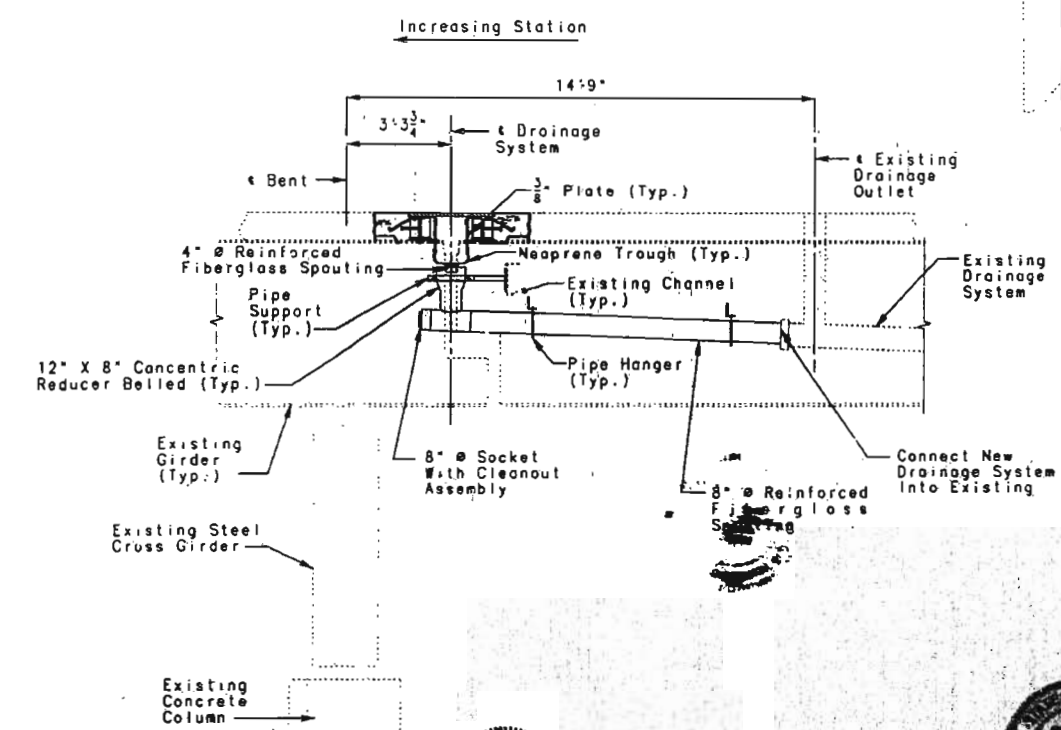


ELEVATION
(Looking Downstation)



SECTION B-B

Note: For Details not shown see sheet no. 20 & 21



SECTION A-A

DRAINAGE SYSTEM AT BENT 20



FINAL PLANS

CERTIFY THAT THIS DRAWING ACCURATELY
PLANTS THE CONFIGURATION AND LOCATION
OF THE ROADWAY AND APPURTENANCES AS
CONSTRUCTED ON THIS PROJECT.

Signature 2/24/98
DATE



CITY OF ST. LOUIS A35942

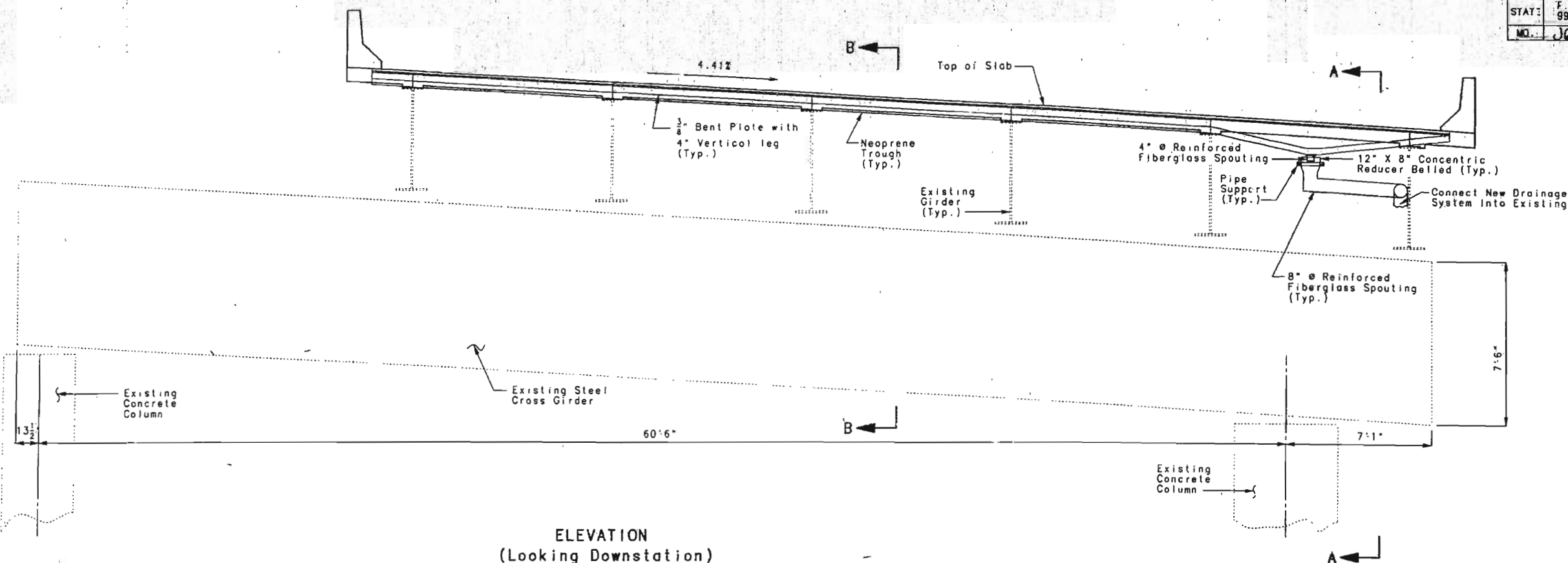
DETAILED NOV. 1997
CHECKED NOV. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

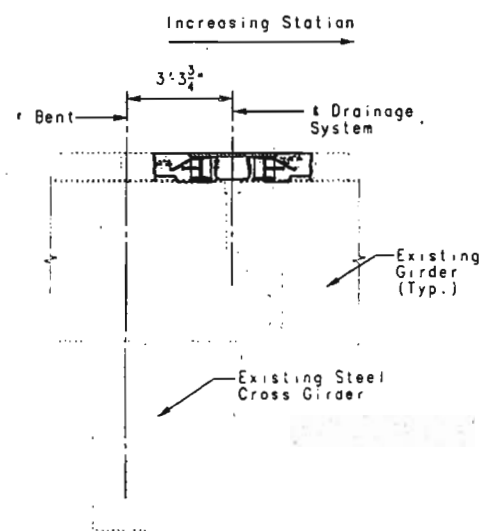
SHEET NO. 14 OF 21

18

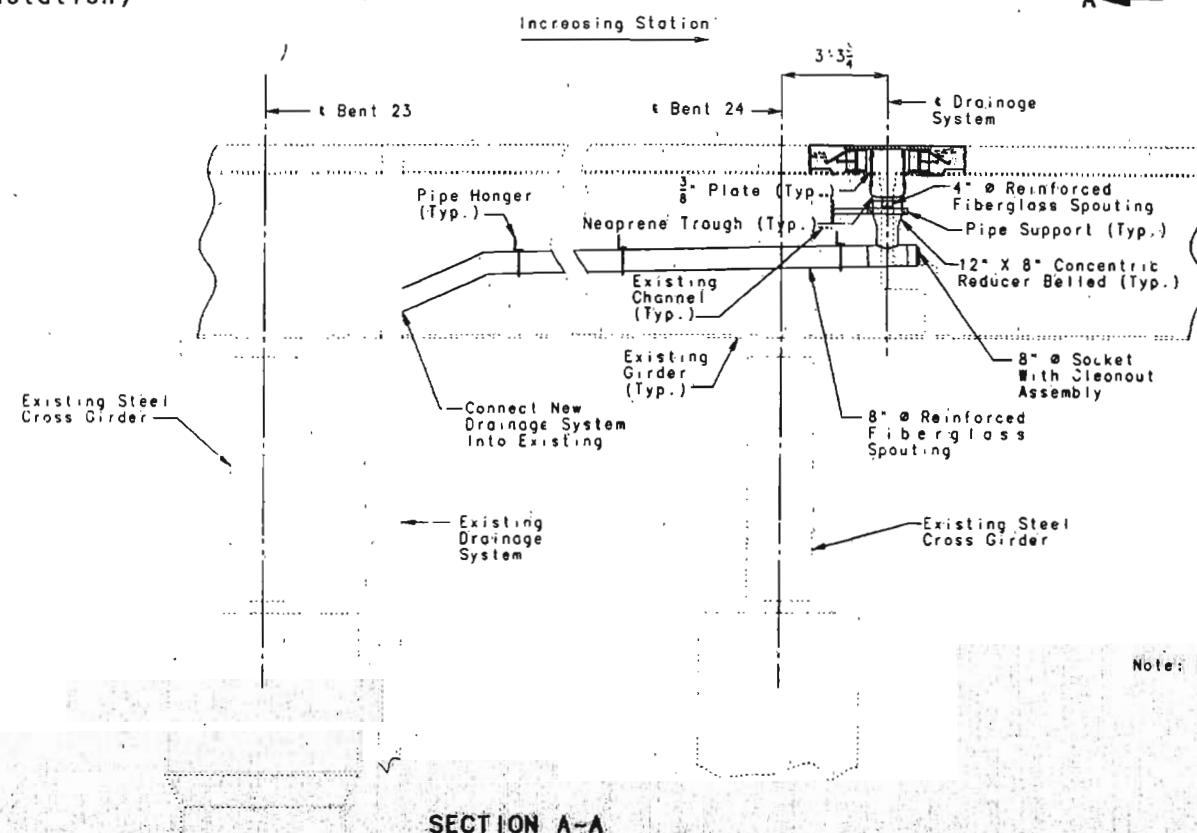
FINAL PLANS



ELEVATION
(Looking Downstation)



SECTION B-B



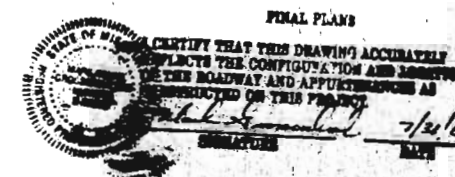
SECTION A-A

DRAINAGE SYSTEM AT BENT 24

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 15 OF 21.

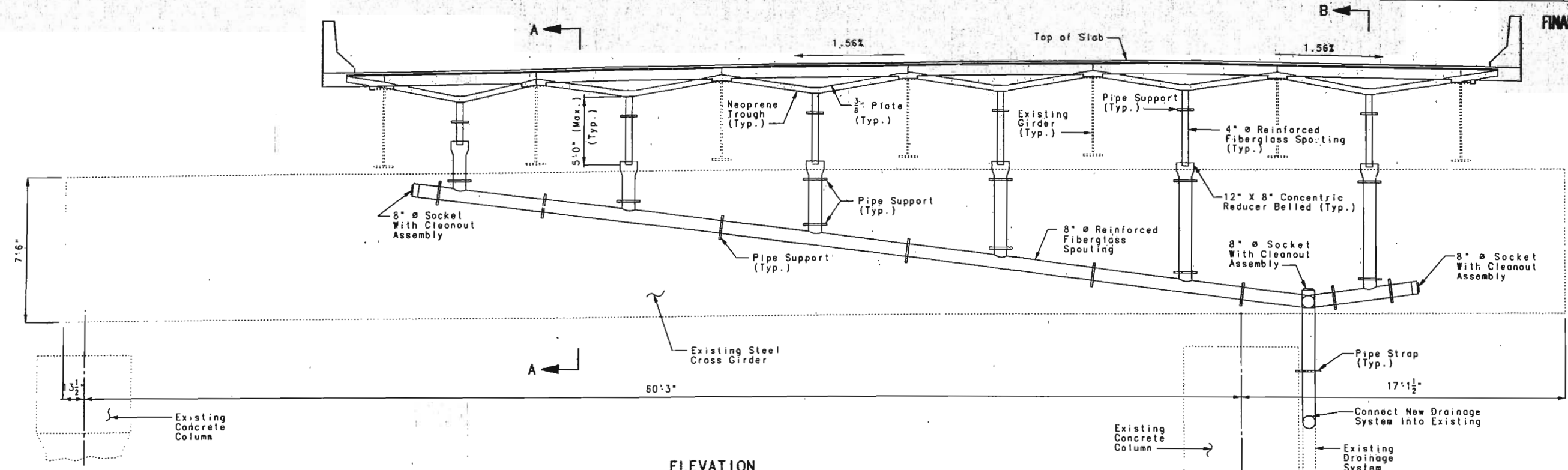
Note: For Details not shown see sheet no. 20 & 21.



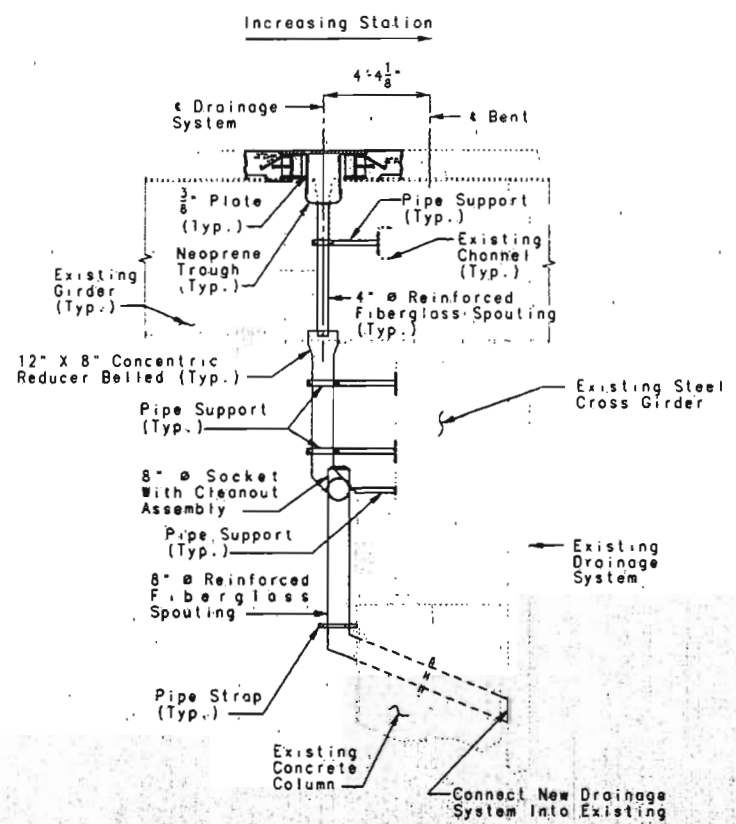
CITY OF ST. LOUIS A35942

DETAILED NOV. 1997
CHECKED NOV. 1997

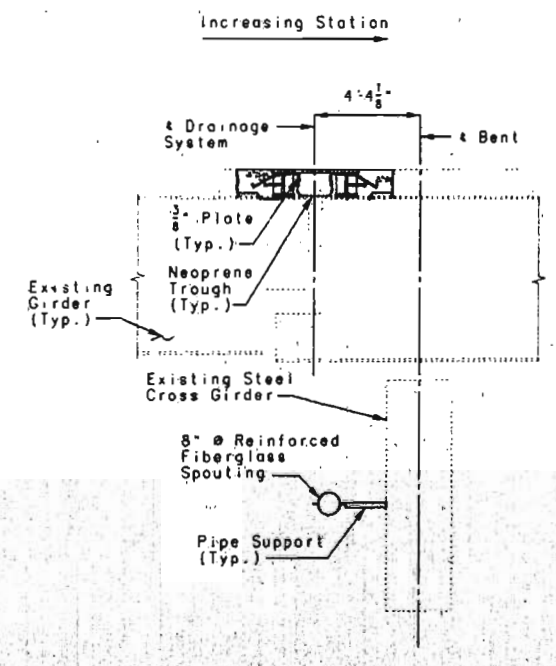
FINAL PLANS



ELEVATION
(Looking Downstation)



SECTION B-B



SECTION A-A

DRAINAGE SYSTEM AT BENT 28

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

FINAL PLANS
I CERTIFY THAT THIS DRAWING ACCURATELY
REPRESENTS THE CONFIGURATION AND LOCATION
OF THE ROADWAY AND APPURTENANCES AS
CONSTRUCTED ON THIS PROJECT.
[Signature]
DATE

Note: For Details not shown see sheet no. 20 & 21.

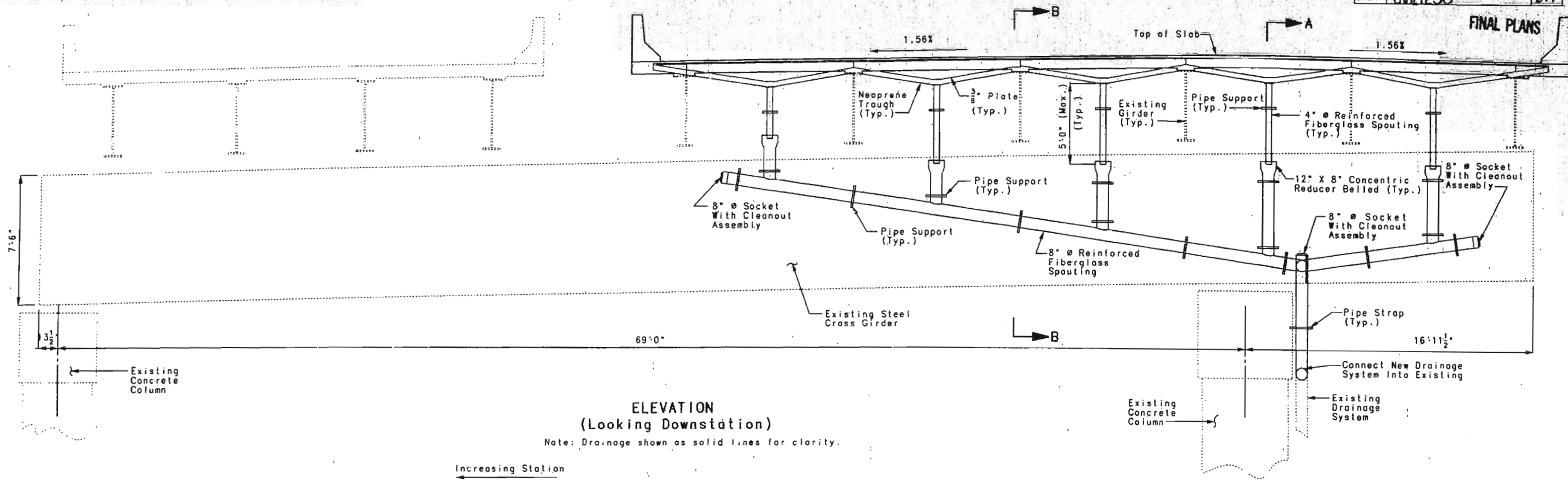


CITY OF ST. LOUIS

DETAILED NOV. 1997
CHECKED NOV. 1997

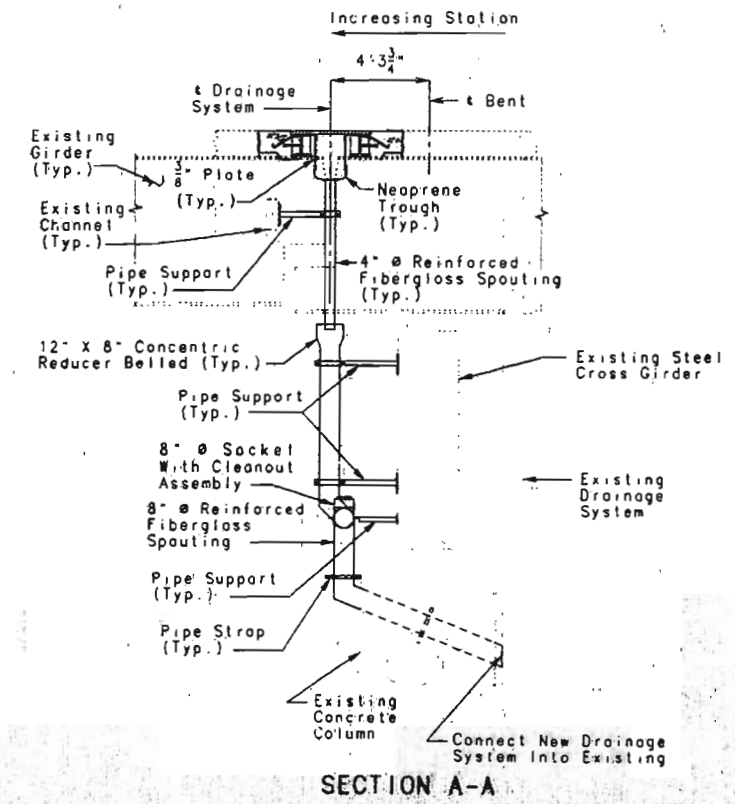
SHEET NO. 16 OF 21

83

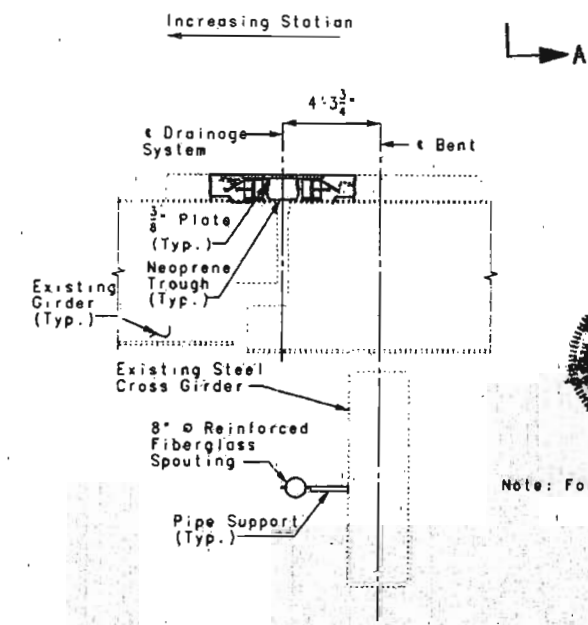


ELEVATION
 (Looking Downstation)

Note: Drainage shown as solid lines for clarity.



SECTION A-A



SECTION B-B

DRAINAGE SYSTEM AT BENT 31 (SOUTH)

FINAL PLANS
 I CERTIFY THAT THIS DRAWING ACCURATELY
 REPRESENTS THE CONFIGURATION AND LOCATION
 OF THE ROADWAY AND APPURTENANCES AS
 CONSTRUCTED ON THE PROJECT
 DATE: 11/20/00
 SIGNATURE: [Signature]

Note: For Details not shown see sheet no. 20 & 21



DETAILED NOV. 1997
 CHECKED NOV. 1997

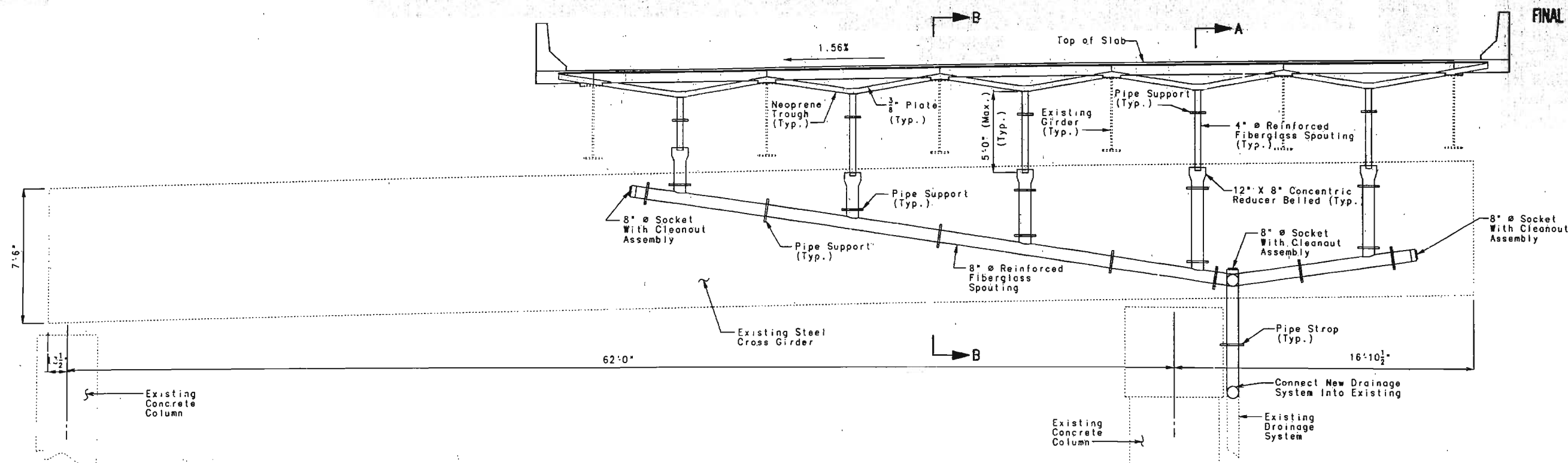
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 17 OF 21

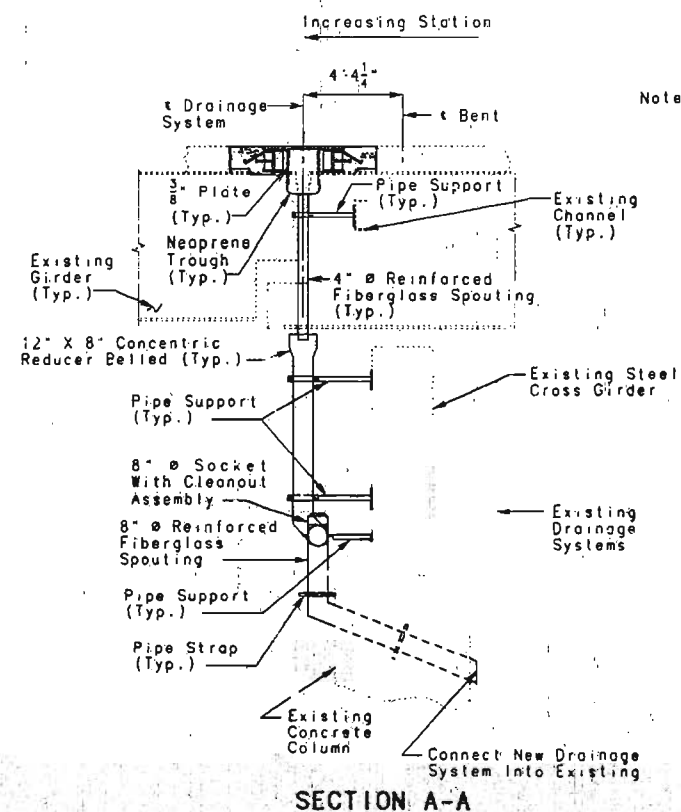
CITY OF ST. LOUIS A30942

68

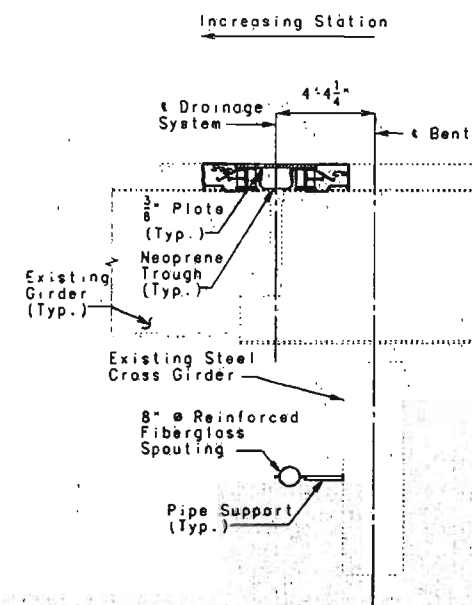
FINAL PLANS



ELEVATION
 (Looking Downstation)
 Note: Drainage shown as solid lines for clarity.



SECTION A-A



SECTION B-B

Note: For Details not shown see sheet no. 20 & 21.

DRAINAGE SYSTEM AT BENT 36

FINAL PLANS
 I CERTIFY THAT THIS DRAWING ACCURATELY
 REPRESENTS THE CONFIGURATION AND LOCATION
 OF THE ROADWAY AND APPURTENANCES AS
 CONTRACTED ON THIS PROJECT.
 Signature: [Signature]
 DATE: 2/2/99



DETAILED NOV. 1997
 CHECKED NOV. 1997

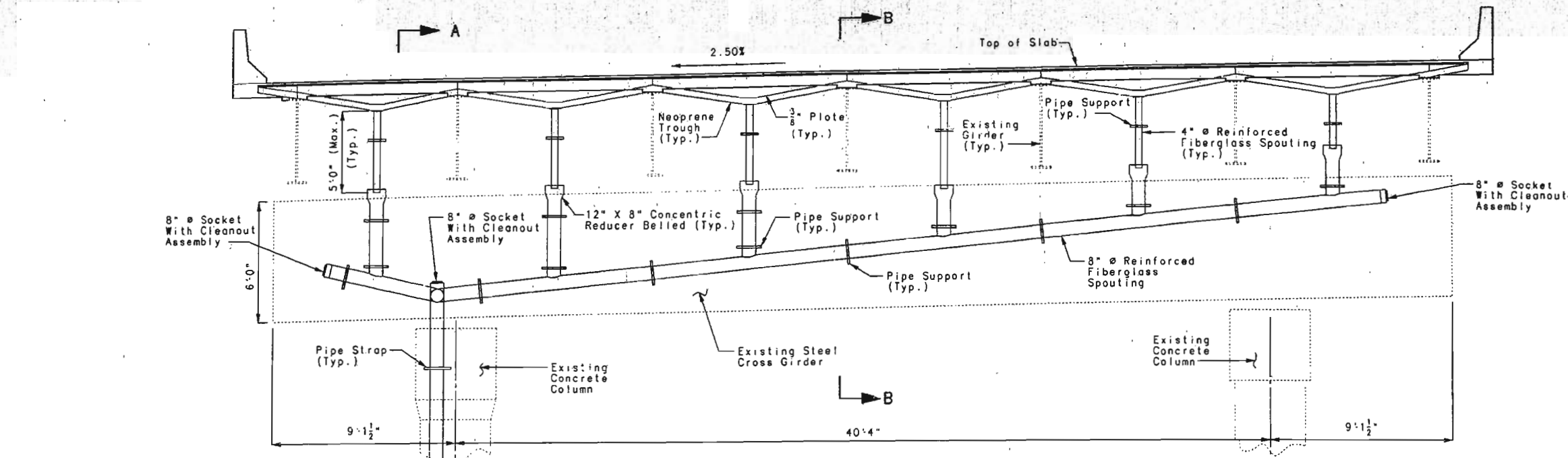
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 18 OF 21

CITY OF ST. LOUIS A35942

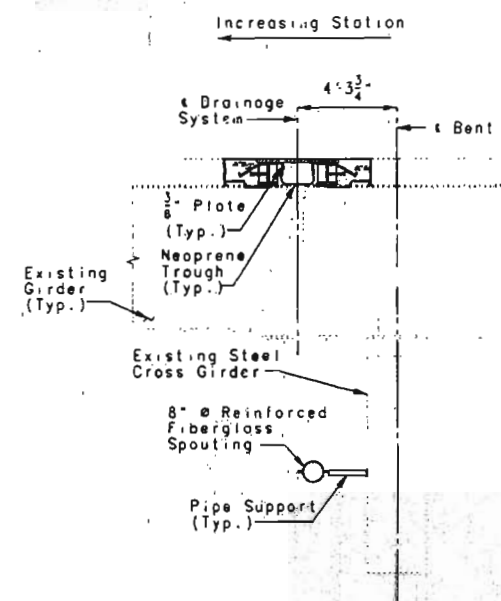
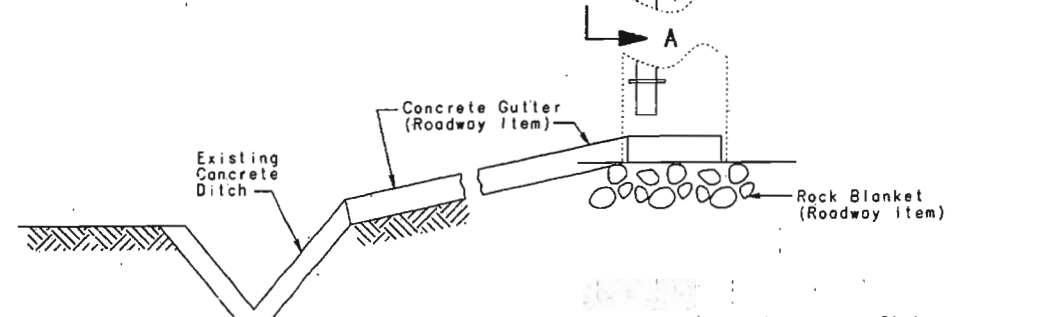
85

FINAL PLANS

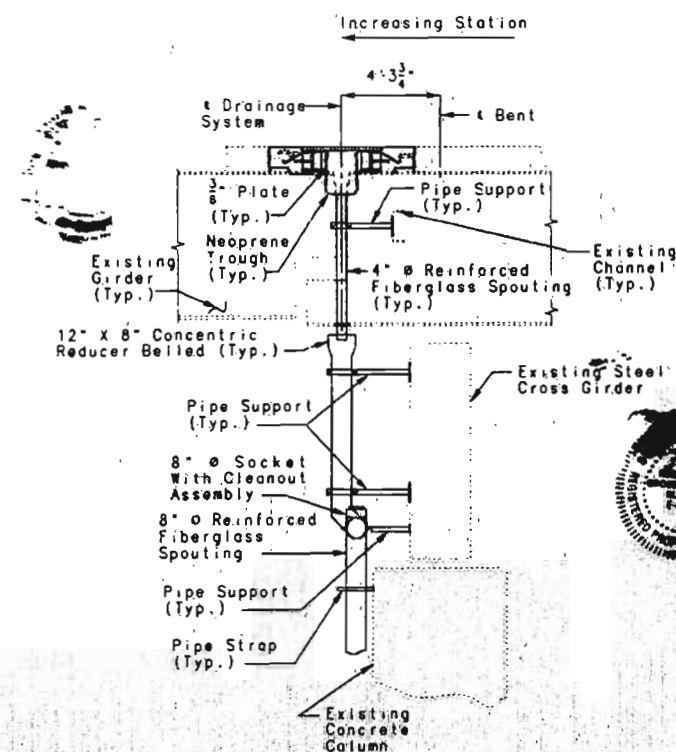


ELEVATION
(Looking Downstation)

Note: Drainage shown as solid lines for clarity.



SECTION B-B



SECTION A-A

Note: For Details not shown see sheet no. 20 & 21.

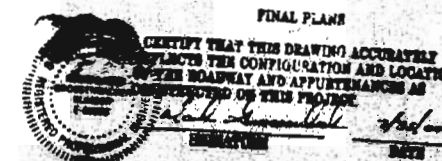
DRAINAGE SYSTEM AT BENT 42

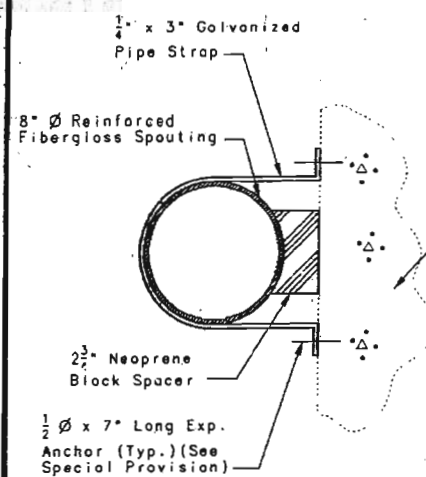
DETAILED NOV. 1997
CHECKED NOV. 1997

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

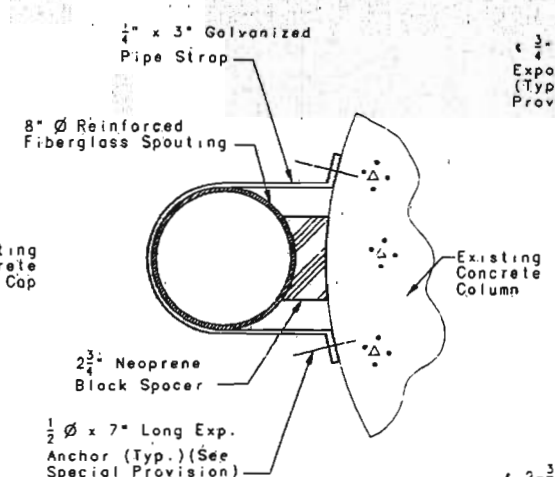
SHEET NO. 19 OF 21

CITY OF ST. LOUIS [A35912]

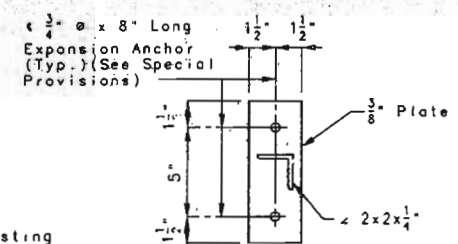




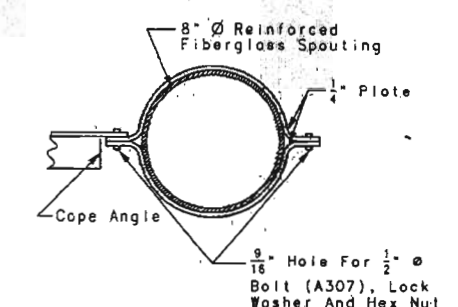
DETAIL OF PIPE STRAP ON CONCRETE BEAM CAP



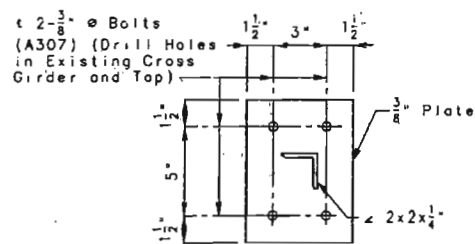
DETAIL OF PIPE STRAP ON CONCRETE COLUMN



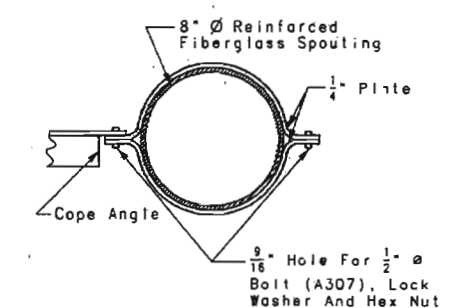
SECTION A-A



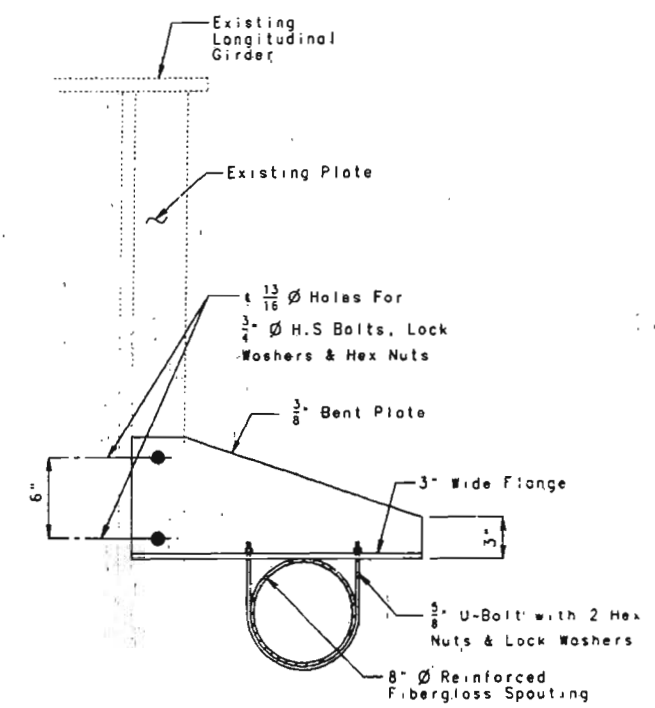
SECTION B-B



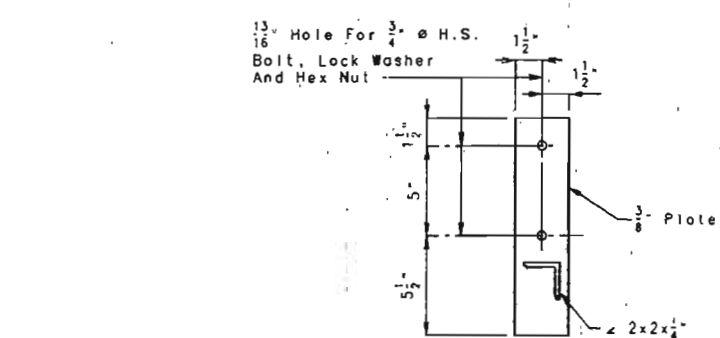
SECTION C-C



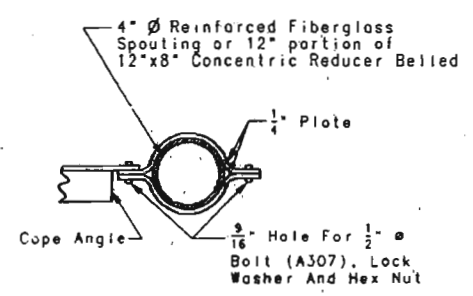
SECTION D-D



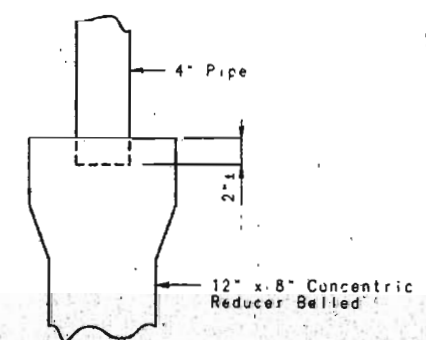
DETAIL OF PIPE HANGER ON LONGITUDINAL GIRDER



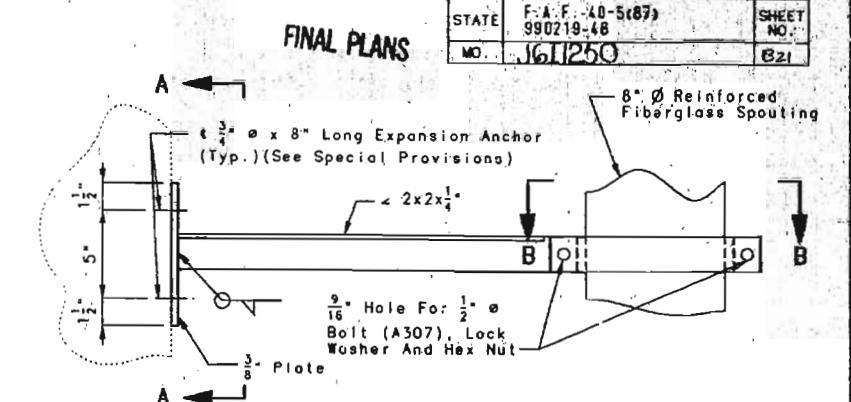
SECTION E-E



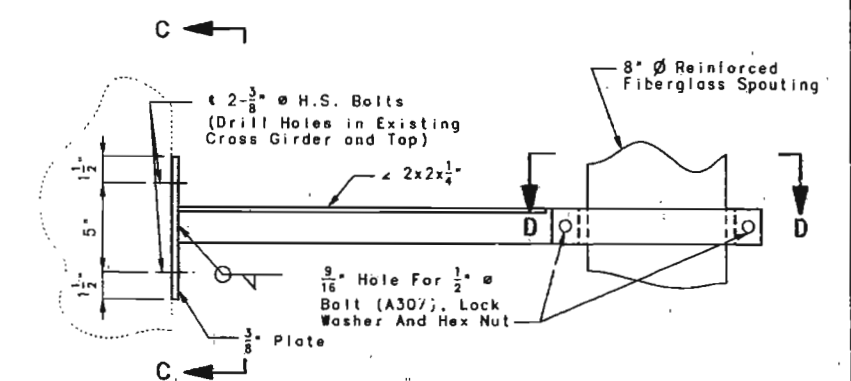
SECTION F-F



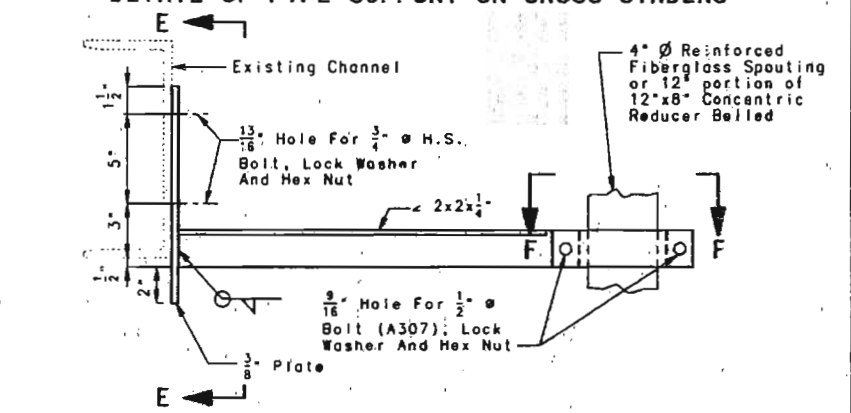
DETAIL AT REDUCER



DETAIL OF PIPE SUPPORT ON CONCRETE BEAM CAP



DETAIL OF PIPE SUPPORT ON CROSS GIRDERS



DETAIL OF PIPE SUPPORT ON CHANNELS

Notes:

Material for Drainage System Support shall be ASTM A709 Grade 36 Structural Steel & shall be coated with a minimum of two coats of inorganic zinc primer (5Mils minimum) for galvanized in accordance with ASTM A123.

All bolts, U-Bolts, Pipe Straps, Hardened Washers and Nuts shall be galvanized in accordance with ASTM A153.

Reinforced Fiberglass Spouting shall be Fibercast Centricast Pipe or approved equal. See Special Provisions.

8" Pipe shall have the max slope possible.

Pipe Straps, Hangers and Supports shall be spaced at 5'-0" (Max.).

Burr threads of U-Bolts after installing pipe.

Note: Cost of Drainage material & Drainage supports shall be included in the contract unit price for Drainage Systems.



FINAL PLANS

CERTIFY THAT THIS DRAWING ACCURATELY REFLECTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND APPURTENANCES AS CONSTRUCTED ON THIS PROJECT.

Signature: *Michael J. Brown*

Date: 12/19/97

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

DETAILED NOV. 1997
CHECKED NOV. 1997

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