

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
D2 Bridge Painting 2010-	Illinois	Various	18	3
CONTRACT NO. 64F89				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PROPOSED
HIGHWAY PLANS**

VARIOUS ROUTES
SECTION D2 BRIDGE PAINTING 2010-1

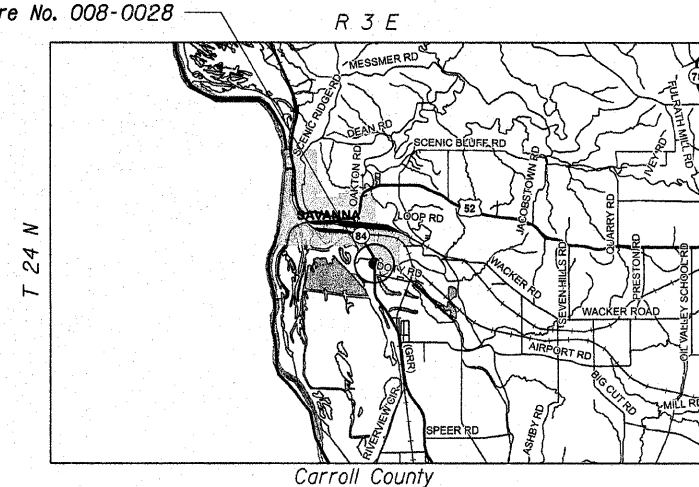
BRIDGE PAINTING
VARIOUS COUNTIES

FOR INDEX OF SHEETS, SEE SHEET NO. 3

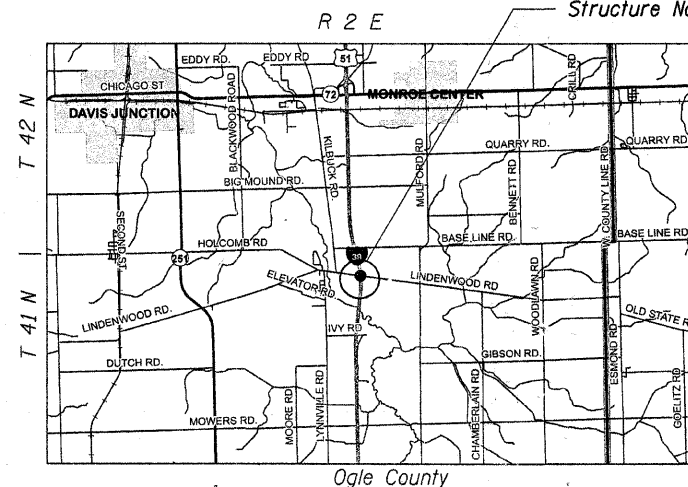
D-92-028-10



Structure No. 008-0028

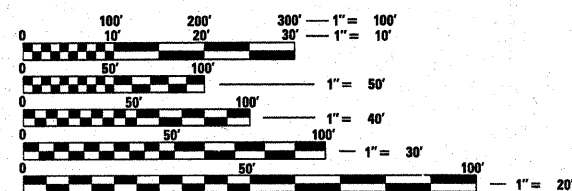
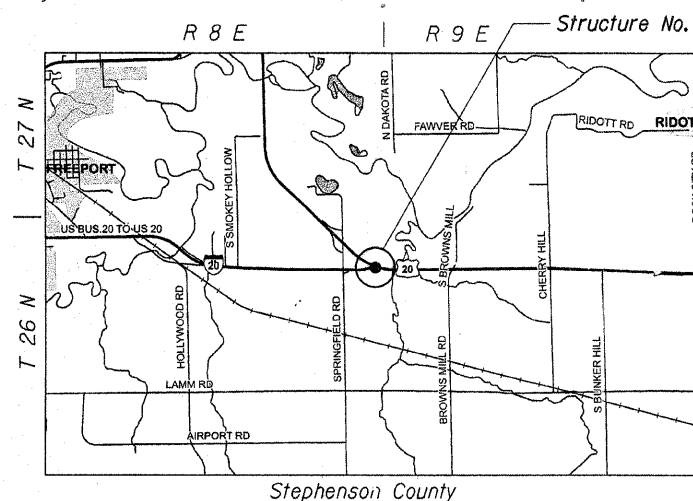


C-92-041-10



Structure No. 071-0051

Structure No. 089-0060



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

BRIDGE ENGINEER: Mahmoud Etemadi 815/284-5393
DISTRICT PAINT TECHNICIAN: Dan Link 815/284-5416

CONTRACT NO. 64F89

GROSS LENGTH = 738.4 FT. = 0.139 MILE

NET LENGTH = 738.4 FT. = 0.139 MILE

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED Jan 20 2010
George F. Ryan
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

March 9 2010
Scott E. Stitt, P.E.
ACTING ENGINEER OF DESIGN AND ENVIRONMENT

March 9 2010
Christine M. Roeder
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

**PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS**

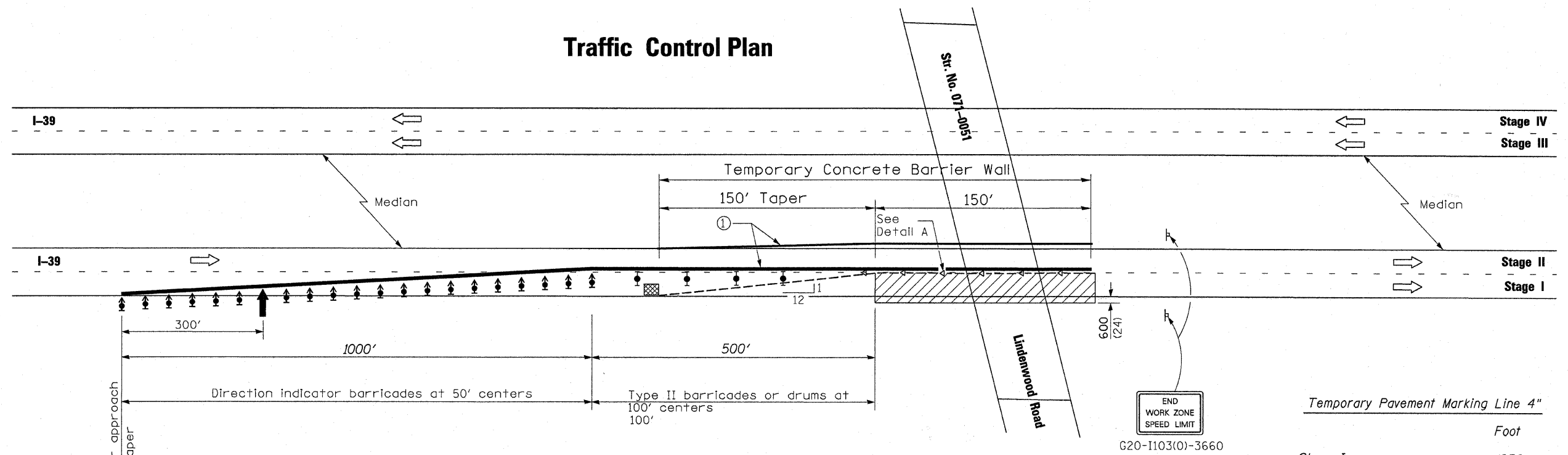
SUMMARY OF QUANTITIES

VARIOUS COUNTIES
100% STATE
SFTY-2A

PAYCODE	DESCRIPTION	UNITS	QUANTITY	QUANTITY	QUANTITY	TOTAL
			SN 008-0028 CARROLL CO.	SN 071-0051 OGLE CO.	089-0060 STEPHENSON CO.	QUANTITY
50600600	CLEANING AND PAINTING STEEL BRIDGE NO. 1	L SUM		1		1
50600700	CLEANING AND PAINTING STEEL BRIDGE NO. 2	L SUM			1	1
50600800	CLEANING AND PAINTING STEEL BRIDGE NO. 3	L SUM			1	1
50606401	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO.1	L SUM		1		1
50606402	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO.2	L SUM			1	1
50606403	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO.3	L SUM			1	1
67100100	MOBILIZATION	L SUM		0.3	0.4	0.3
70100207	TRAFFIC CONTROL AND PROTECTION STANDARD 701402	EACH			4	4
70100450	TRAFFIC CONTROL AND PROTECTION STANDARD 701201	L SUM		1		1
70100700	TRAFFIC CONTROL AND PROTECTION STANDARD 701406	L SUM			1	1
70100825	TRAFFIC CONTROL AND PROTECTION STANDARD 701456	L SUM			1	1
70300220	TEMPORARY PAVEMENT MARKING LINE 4"	FOOT			7800	7800
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SQ FT			2600	2600
70400100	TEMPORARY CONCRETE BARRIER	FOOT			300	300
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT			2100	2100
X5067501	BRIDGE CLEANING AND PAINTING WARRANTY NUMBER 1	L SUM			1	1
Z0030250	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3	EACH			1	1
Z0030350	IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE), TEST LEVEL 3	EACH			7	7

FILE NAME =	USER NAME = lnrkdj	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	Summary of Quantities	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
D:\BR\Brdge Painting\Contracts\PAINTING\64F89\PLANeng.dgn	DRAWN -	REVISED -	D2 Bridge Painting 2010-1			Various	18	2		
PLOT SCALE = 50.00000 ' / IN.	CHECKED -	REVISED -	CONTRACT NO. 64F89							
PLOT DATE = Wed Jan 20 08:28:53 2010	DATE -	REVISED -	SCALE: _____			SHEET NO. ____ OF ____ SHEETS	STA. _____ TO STA. _____	ILLINOIS FED. AID PROJECT		

Traffic Control Plan



see Standard 701400 for approach
Start of lane closure taper

Temporary Concrete Barrier

Stage I	300 Feet
Total	300 Feet

Relocate Temporary Concrete Barrier

Stage I removal	300
Stage II setup	300
Stage II removal	300
Stage III setup	300
Stage III removal	300
Stage IV setup	300
Stage IV removal	300
Total	2100 Feet

Impact Attenuators, Temporary

Stage I	1 Each
	1 Each

Impact Attenuators, Relocate

Stage I removal	1
Stage II setup	1
Stage II removal	1
Stage III setup	1
Stage III removal	1
Stage IV setup	1
Stage IV removal	1
	7 Each

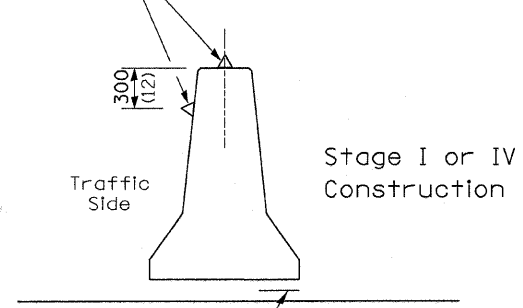
Temporary Pavement Marking Line 4"

	Foot
Stage I	1950
Stage II	1950
Stage III	1950
Stage IV	1950
Total	7800 Foot

Workzone Pavement Marking Removal

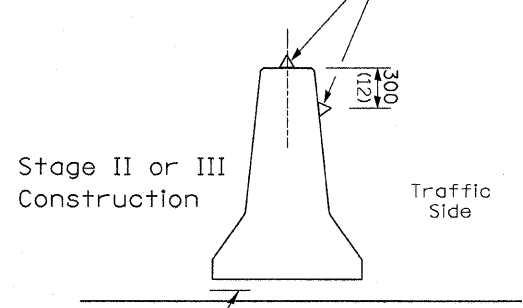
	Sq Ft
Stage I	650
Stage II	650
Stage III	650
Stage IV	650
Total	2600 Sq Ft

Type C monodirectional reflectors on tangent portion of barrier at 15 m (50') cts.



Stage I or IV Construction

Type C monodirectional reflectors on tangent portion of barrier at 15 m (50') cts.



Stage II or III Construction

DETAIL A
(BARRIER WALL REFLECTORS)

SYMBOLS

- ↑ Arrow board
- ▨ Work area
- ⊥ Sign
- ↑ Direction indicator barricade with steady burn monodirectional light
- ⊥ Type II barricade or drum with steady burn monodirectional light
- - - - Temporary concrete barrier
- ◁ Type C Monodirectional reflector
- ▣ Impact attenuator

① Temporary pavement marking shall be placed throughout the taper and along-side the work area. The edge line shall be white for right lane closure and yellow for left lane closures.

All dimensions are in millimeters (Inches) unless otherwise shown.

Traffic Control Plan
Lindenwood Road over I-88
Various Routes Section D2 Bridge Painting 2010-1
Various Counties
Structure No. 071-0051

* Various Routes
** D2 Bridge Painting 2010-1

FILE NAME =	USER NAME = linkdj	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	Traffic Control Plan Structure No. 071-0051	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
D:\BRN\Bridg Painting\Contracts\PAINTING\64F89\PLANeng.dgn	DRAWN -	REVISED -	*			**	Various	18	4	
PLOT SCALE = 50.0000' / IN.	CHECKED -	REVISED -	CONTRACT NO. 64F89							
PLOT DATE = Wed Jan 20 08:28:29 2010	DATE -	REVISED -	FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT							

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DATE	BY	NO.	REV.	SHEET NO.
1/18	10620	Carroll	46	18
PROJECT NO. 008-0028				19 SHEETS

BM #27 Route 24, Bridge over Plum River, chiseled "D" on East Parapet of North Concrete Abut. Elev. 597.74. Existing Structure @ Sta. 55+09. Built as SB100 Rte. Sec. 106-B in 1930. Existing Bridge No. 008-0018. Old bridge to be Removed by Contractor after new structure and Approaches are completed. No Salvage. Existing Bridge is 140'-0" x 23'-4" Steel Truss with RC. slab and R.C. Closed Abutments.

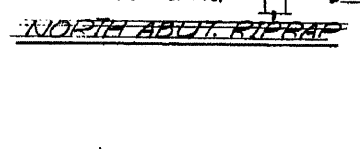
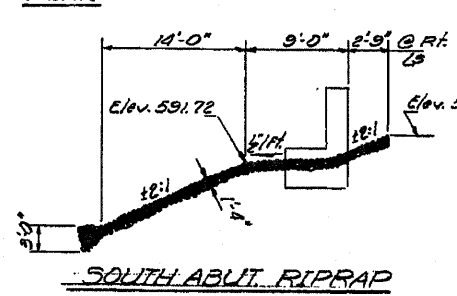
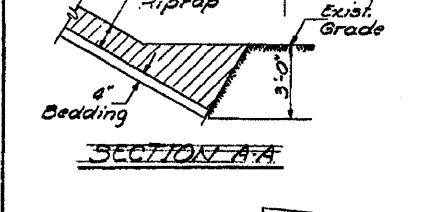
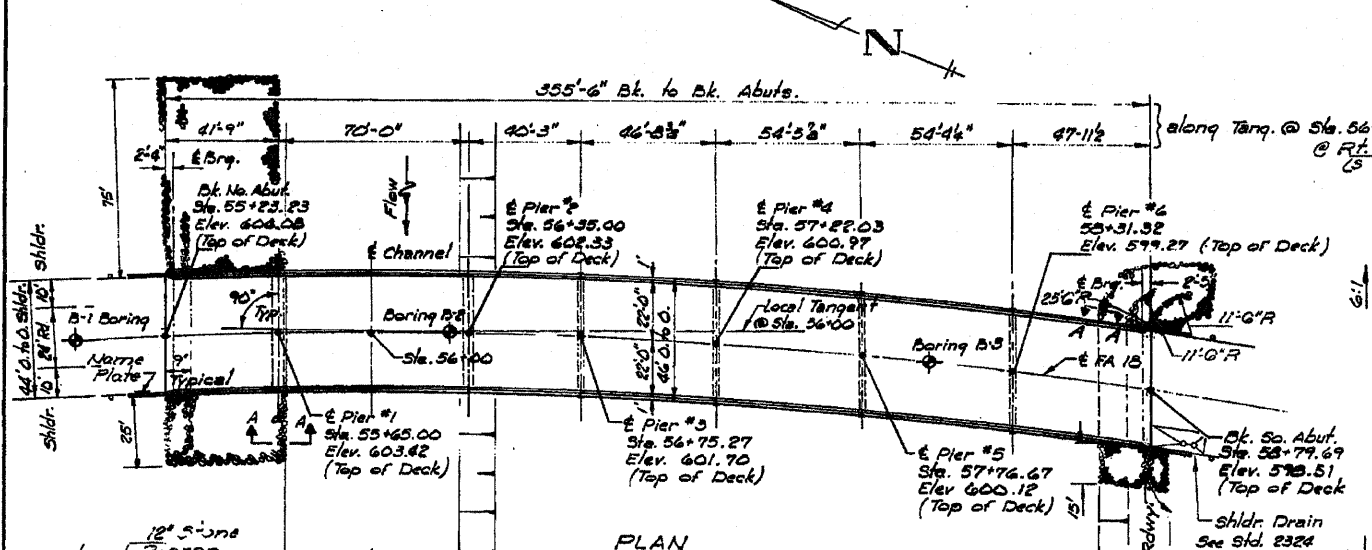
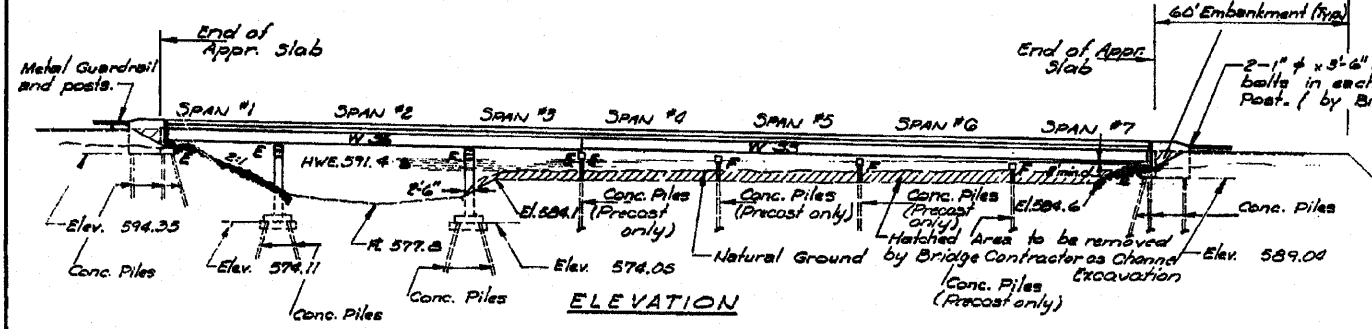
This portion of embankment backfill by Bridge Contractor after abutment is in place (Typ.)

GENERAL NOTES

The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of Class X Concrete, except the aggregates shall conform to the requirements of Handrail Concrete.
Bearing seat surface shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch. Adjustments shall be made either by grinding the surface or by shimming the bearing. Type 6 inch adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates, or shims.
The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone II. These components are all the splice plate material and the wide flange beams.
The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.
Seal Coat designed for a maximum High Water elevation of 588.0.

See Proposal for Boring Data.
Fasteners shall be high strength bolts. Bolts 3/4" open holes unless otherwise shown.
Calculated weight of Structural Steel = 367,200 Lbs.
The basic lead silica chromate paint system shall be used for shop & field painting of Structural Steel.
Field welding of construction accessories will not be permitted to the bottom flange of beams or girders nor to the top flange for a distance equal to one fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.
Anchor bolts shall be set before bolting diaphragms over supports.

Layout of riprap may be varied in the field to suit ground conditions as directed by the Engineer.
The contractor shall drive 3 concrete test piles in permanent locations (see sheets #18, #14 & #16) as directed by the Engineer before ordering the remainder of piles.
Reinforcement Bars (including epoxy coated bars) shall conform to the requirements of AASHTO M-31 or M-53 Grade 60 deformed bars.



HORIZ CURVE DATA

R1. Sta.	= 56+44.78
Δ	= 31°-36'
D	= 2°-54'
R	= 1975.78'
T	= 559.07'
L	= 1089.66'
E	= 77.88'
SE	= .065 1/2
PC. Sta.	= 51+05.65
PT. Sta.	= 61+25.31

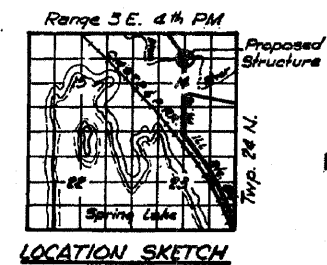
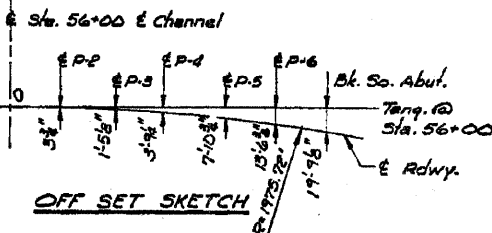
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPP.	SUB.	TOTAL
Structure Excavation	Cu. Yds.		165	165
Channel Excavation	Cu. Yds.		612.9	612.9
Protective Coat	Sq. Yds.	1987		1987
Class X Concrete	Cu. Yds.	498.1	332.6	830.7
Seal Coat Concrete	Cu. Yds.		77.9	77.9
Cofferdam Excavation	Cu. Yds.		249	249
Cofferdam (Pier #1)	Ea.		1	1
Cofferdam (Pier #2)	Ea.		1	1
Structural Steel	L. S.			L.S.
Stud Shear Connectors	Ea.	1134		1134
Reinforcement Bars	Lbs.	49,150	23,750	72,900
Reinf. Bars Epoxy Coated	Lbs.		75,420	75,420
Concrete Piles	Lin. Ft.		5647	5647
Test Piles (Concrete)	Ea.		3	3
Name Plates	Ea.		1	1
Stone Riprap	Sq. Yds.		1119	1119
Neoprene Expansion Jt(s)	Lin. Ft.	135		135
Removal Exist. Structure	Each			1

DESIGN STRESSES
 f_c = 1400 psi
 * f_y = 60,000 psi (Reinf.)
 f_s = 20,000 psi (Struct.)

LOADING HS 20-44

Allow 25"/ft for future W. S.
 Design Specifications: 1973
 AASHTO 1974, 1975, 1976 Interim Specification.
 * * Epoxy Coated Reinf. Bars shall be used in the top layer of the slab.



STATION 56+00.0
 BUILT 19 BY
 STATE OF ILLINOIS
 F.A. RT. 18 SEC. 106 BR
 F.A. PROJECT BR-F-18(80)
 LOADING HS 20
 STR. NO. *

NAME PLATE
 See Std. 2113
 *Structure Number to be supplied by District.
 GENERAL PLAN & ELEVATION
 F.A. Rte. 18 Over PLUM RIVER
 F.A. Rte. 18 SECTION 106 BR
 CARROLL COUNTY
 STATION 56+00.0

DESIGNED R. F. ROPKEY
 EXAMINED [Signature]
FOR INFORMATION ONLY

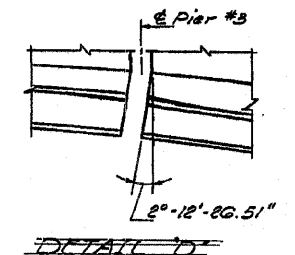
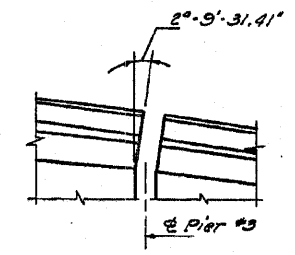
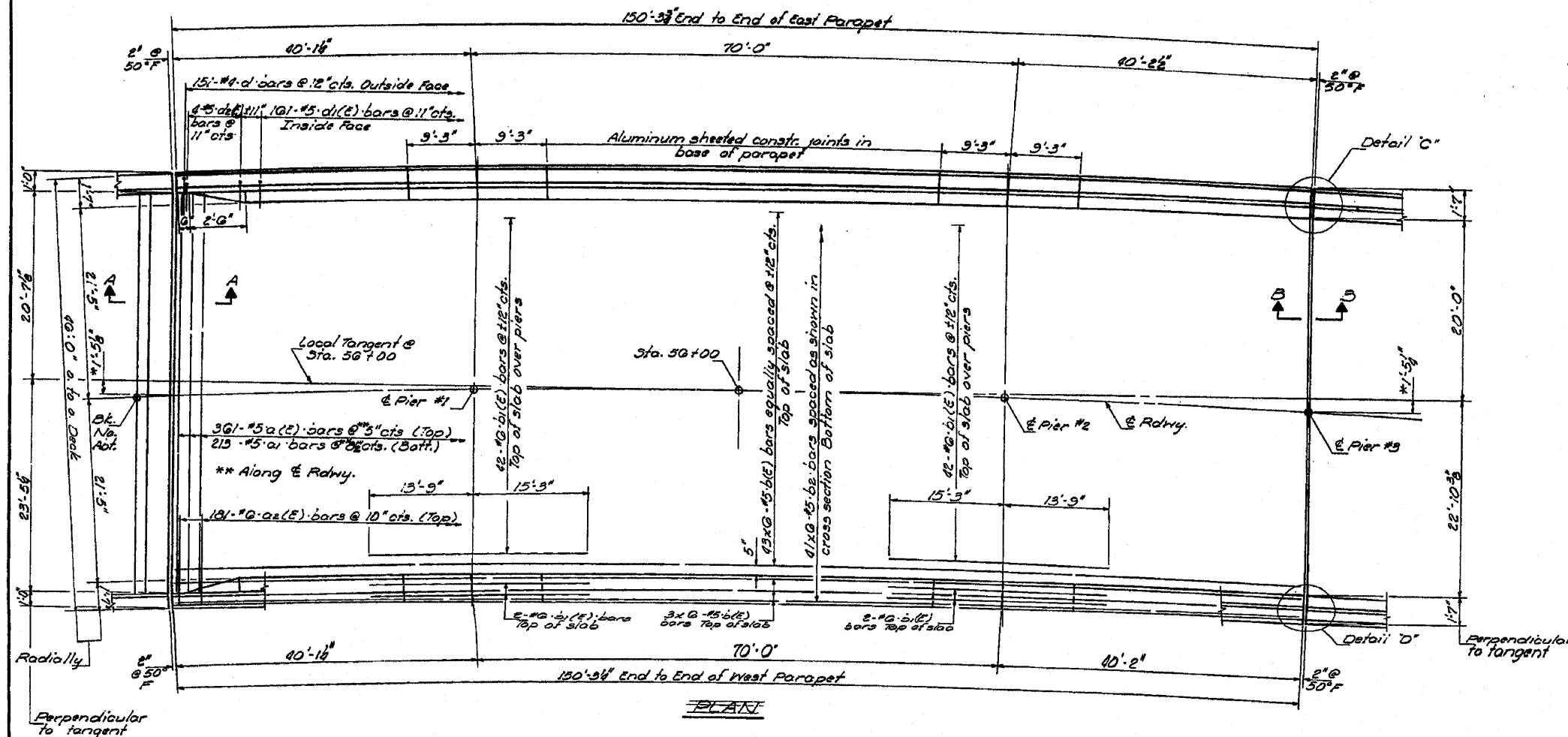
FILE NAME =	USER NAME = 1rnkdj	DESIGNED -	REVISED -	STATE OF ILLINOIS	General Plan & Elevation	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
D:\BRV\bridge Painting\Contract\PAINTING\64F89\PLANeng.dgn		DRAWN -	REVISED -	DEPARTMENT OF TRANSPORTATION	Structure No. 008-0028	02	D2 Bridge Painting 2010-	Various	18	5
PLOT SCALE = 50.0000" / IN.		CHECKED -	REVISED -							
PLOT DATE = Wed Jan 20 08:26:19 2010		DATE -	REVISED -			SCALE:	SHEET NO. OF SHEETS	STA. TO STA.		CONTRACT NO. 64F89
										ILLINOIS FED. AID PROJECT

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MINI-BAR CAPS
#5 bars @ 1'-9"

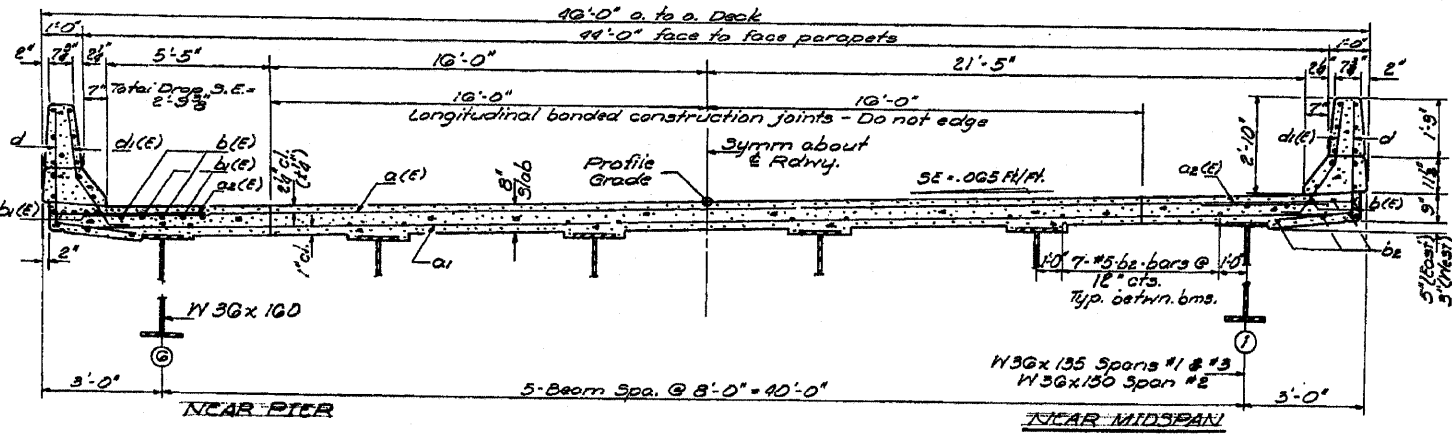
DATE	BY	QUANTITY	TOTAL SHEETS	SHEET NO.
1/18	106BA	Carroll	46	22
SHEET NO. 5			19 SHEETS	

DECK POURING SEQUENCE:
Pour Spans #4 thru #7 first in sequence from So. Abut. to Pier #3 (Spans #7, #6, #5 & #4). Then pour Spans #1 thru #3 in sequence from either end (Spans #1, #2 & #3 or Spans #3, #2 & #1).



NOTES:
See sheet #7 for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated. See Special Provisions.
Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
See sheet #7 for Section A-A & Section B-B.

DESIGNED R. F. RUSKE+	EXAMINED <i>Nov 17 10th</i>
CHECKED John A. Mewis	PASSED <i>Carl E. Thompson</i>
DRAWN J. SCHNELLE+	APPROVED



FOR INFORMATION ONLY

SUPERSTRUCTURE
SPANS #1 THRU #3
TA. RT. 18 SEC. 106BR
CARROLL COUNTY
STA. 36+00.00

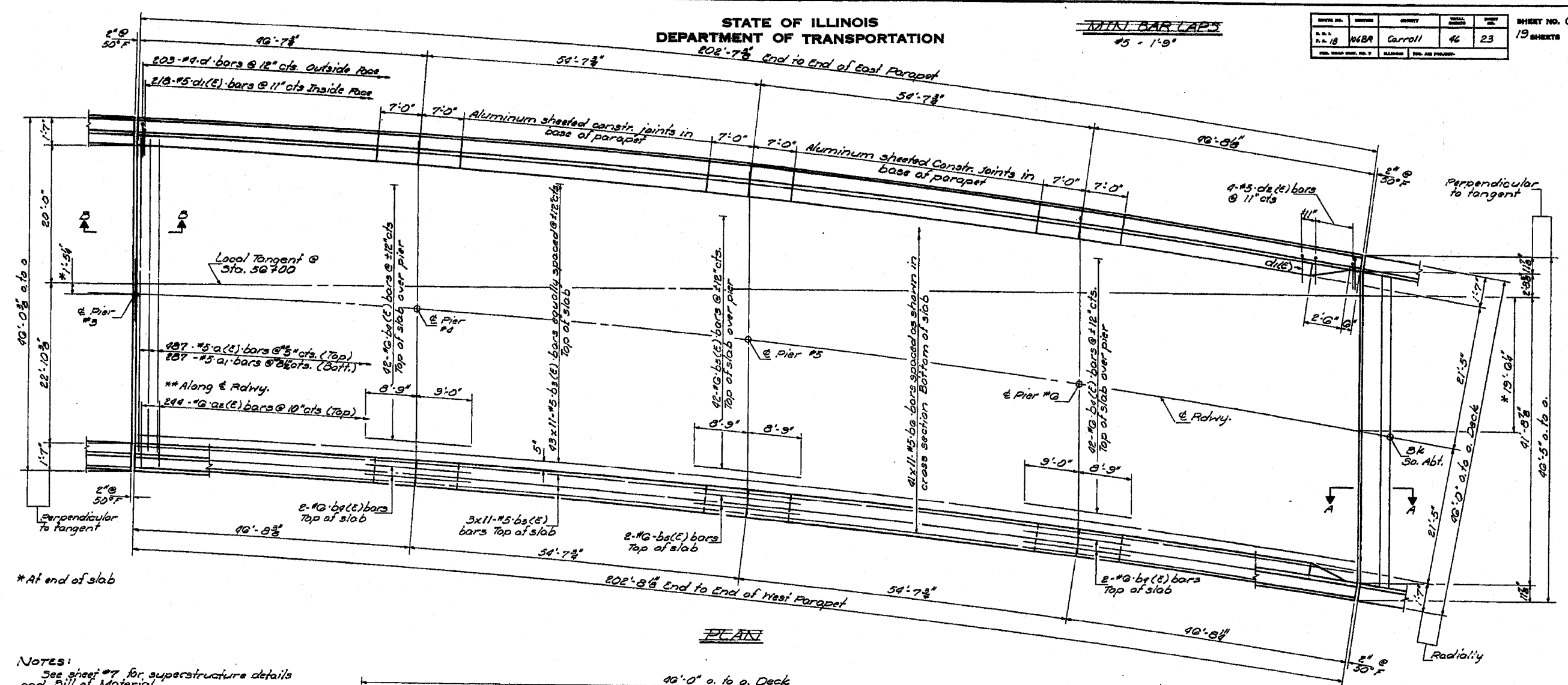
Revised 7-29-77

FILE NAME = G:\BR\Bridg Painting\Contract\PAINTING\64F89\PLANeng.dgn	USER NAME = linkdj	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	Superstructure Spans 1 thru 3 Structure No. 008-0028	F.A. RTE. =	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT SCALE = 50,0000' / IN.	CHECKED -	REVISED -	REVISED -			D2 Bridge Painting 2010-	Various	18	6	
PLOT DATE = Wed Jan 28 08:28:09 2010	DATE -	REVISED -	REVISED -			CONTRACT NO. 64F89	ILLINOIS FED. AID PROJECT			
						SCALE: _____	SHEET NO. _____ OF _____ SHEETS	STA. _____ TO STA. _____		

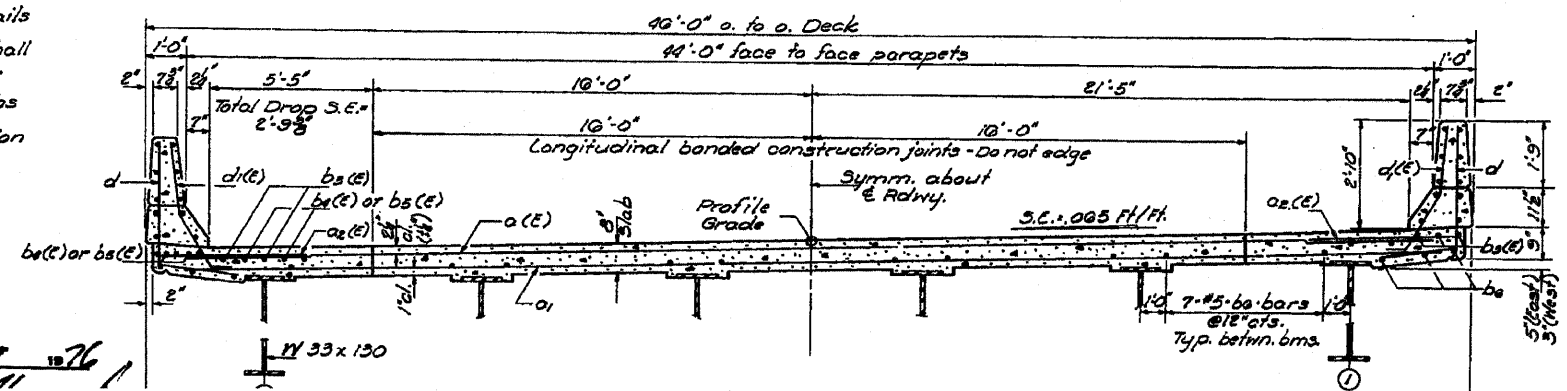
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MINI BAR LAPS
#5 - 1'-9"

DATE	ISSUED	BY	NO.	REVISION
1/18	1/18	Carroll	46	23
SHEET NO. 6				
19 SHEETS				



NOTES:
See sheet #7 for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated. See Special Provisions.
Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
See sheet #7 for Section A-A & Section B-B.



FOR INFORMATION ONLY

Beam Spa. @ 8'-0" = 40'-0"

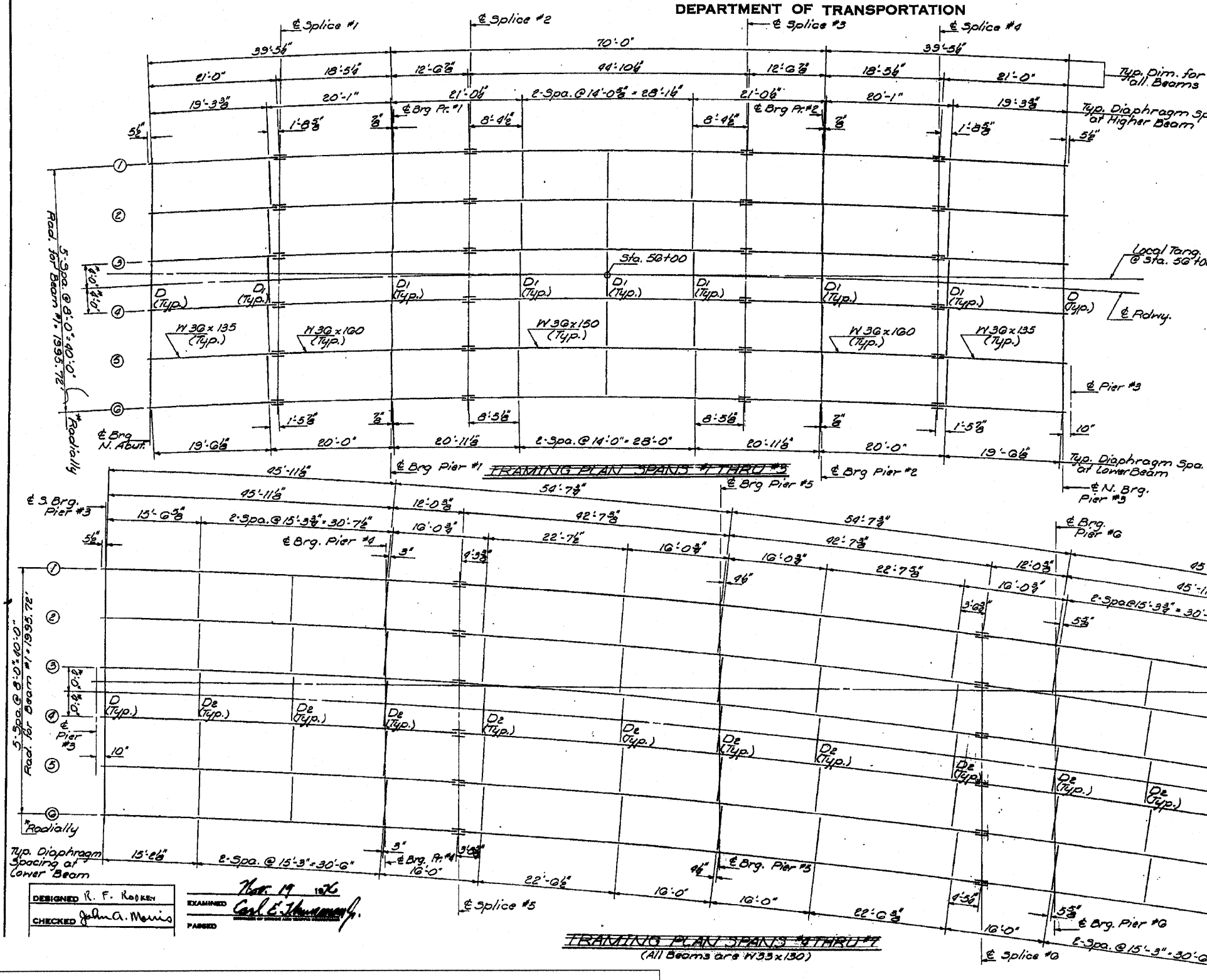
CROSS SECTION
(Looking North)

SUBSTRUCTURE
SPANS 4 THRU 7
LA 8110 SEC 1060R
CARROLL COUNTY

FILE NAME =	USER NAME = linkdj	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	Superstructure Spans 4 thru 7 Structure No. 008-0028	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
D:\BRN\Bridge\Painting\Contract\PAINTING\64F89\PLANeng.dgn	DRAWN -	REVISED -	D2 Bridge Painting 2010-1			Various	18	7		
PLOT SCALE = 50.0000' / IN.	CHECKED -	REVISED -	CONTRACT NO. 64F89							
PLOT DATE = Wed Jan 20 08:28:00 2010	DATE -	REVISED -	ILLINOIS FED. AID PROJECT							

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STATE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10028	Carroll	46	26	19



NOTE:
Place all D1 & D2 diaphragms on radial lines.

TOP OF BEAM ELEVATIONS
(For Fabrication only)

Span	1	2	3	4	5	6
Br. N. Abut.	604.53	604.01	603.50	602.98	602.47	601.95
Splice #1	604.21	603.68	603.17	602.65	602.14	601.62
Br. Pier #1	603.94	603.42	602.91	602.39	601.87	601.35
Splice #2	603.75	603.22	602.71	602.19	601.67	601.15
Splice #3	603.04	602.52	602.00	601.48	600.96	600.43
Splice #4	603.03	602.51	602.01	601.49	600.97	600.44
Br. Pier #2	602.80	602.28	601.76	601.24	600.72	600.20
Splice #5	602.51	602.00	601.48	600.96	600.44	599.92
Splice #6	602.55	602.03	601.51	600.99	600.47	599.94
N. Brg. Pier #3	602.23	601.70	601.18	600.66	600.14	599.61
S. Brg. Pier #3	602.23	601.70	601.18	600.66	600.14	599.61
Br. Pier #4	601.52	600.99	600.46	599.93	599.41	598.88
Splice #7	601.33	600.80	600.27	599.74	599.22	598.69
Br. Pier #5	600.67	600.14	599.61	599.08	598.55	598.02
Splice #8	600.02	599.48	598.94	598.41	597.88	597.35
Br. Pier #6	599.89	599.36	598.82	598.28	597.75	597.21
Br. S. Abut.	599.12	598.58	598.04	597.50	596.97	596.43

*All Beams are W30 for spans #1 thru #3.

DESIGNED R. F. ROSEKEY
CHECKED John A. Morris
EXAMINED Mark A. [Signature]
PASSED Carl E. [Signature]

FOR INFORMATION ONLY

STRUCTURAL STEEL
PART 10 - SEC. 100 BR
CARROLL COUNTY
STA. 56+00.0

SPANS #1 THRU #7

SPANS #1 THRU #3

	1 Sp. #1 or 0 Sp. #3	Pier #1 or Pier #2	5 Sp. #2
I_s (in ⁴)	7820	9760	9030
I_c (in ⁴)			23,794
S_s (in ³)	440	592	504
S_c (in ³)			730
I_e (in ⁴)	1,315	1,324	1,000
M_e (K)	65	150	258
$I_s e$ (Ksi)	1.8	10.0	0.1
S_e (K)			-3.15
$M_s e$ (K)			103
M_e (K)	253	252	510
M_{TMAX} (K)	70	70	151
M_{TOTAL} (K)	329	322	744
$I_s (E I)$ (Ksi)	9.0	7.1	12.2
I_s TOTAL (Ksi)	10.8	17.1	18.3

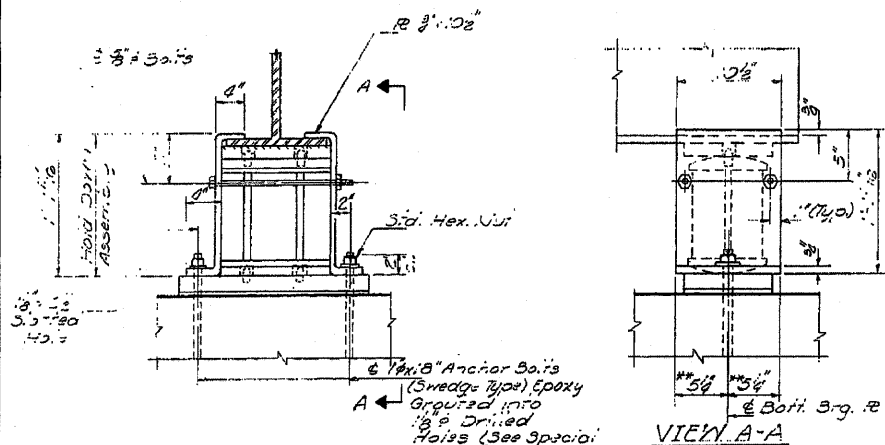
	1 Sp. #4 or 0 Sp. #7	Pier #4 or Pier #6	5 Sp. #5 or 5 Sp. #6	Pier #5
I (in ⁴)	6710	6710	6710	6710
S_s (in ³)	456	456	456	456
I_e (in ⁴)	13.5	13.5	13.5	13.5
M_e (K)	198	358	101	322
M_e (K)	323	258	318	208
M_{TMAX} (K)	94	73	89	74
M_{TOTAL} (K)	615	669	508	604
I_s (Ksi)	18.2	19.8	6.8	19.6

	5 Sp. Pier #3 or 5 Sp. #7	Pier #4 or Pier #6	Pier #5
R_e (K)	22.9	73.8	71.3
R_c (K)	39.9	49.4	49.3
R_{TMAX} (K)	11.0	14.1	13.5
R_{TOTAL} (K)	74.1	137.3	134.5

	N. Abt or N. Brq. Pier #3	Pier #1 or Pier #2
R_e (K)	14.5	85.7
R_c (K)	37.5	49.7
R_{TMAX} (K)	11.3	13.8
R_{TOTAL} (K)	63.3	147.2

* Moments & stresses shown do not include secondary effects due to horizontal curvature of beams which is estimated to be 3%.

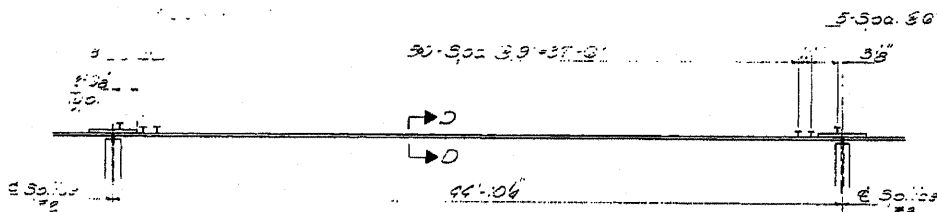
I_s and S_s are the moment of inertia and section modulus of the span section, and I_c and S_c are the moment of inertia and section modulus of the composite section used in computing I_s . M_e is the maximum impact shear range in span used to determine shear connector spacing.



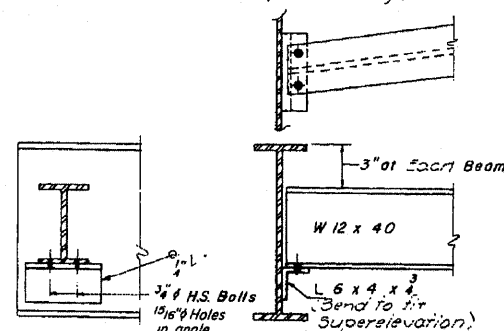
HOLD-DOWN DETAILS SPANS #1 THRU #3

Spans shall be held down at the bearing on the concrete end of spans #1 thru #3 from which the deck is cast in place. Epoxy grouting is to be used to hold down the beams. See special provisions.

**Location Dim. may be adjusted to account for any rotation of the rocker due to temp.

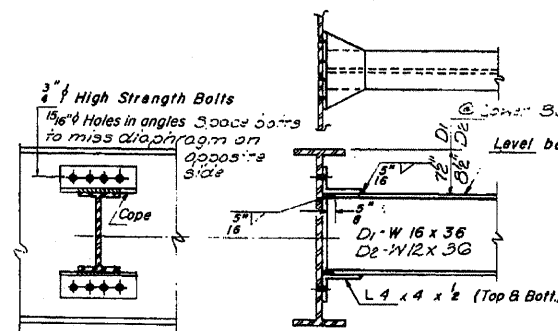


ELEVATION (Showing Shear Stud Conn. spacing for Span #2 only.)



DIAPHRAGM D

D.O. Required



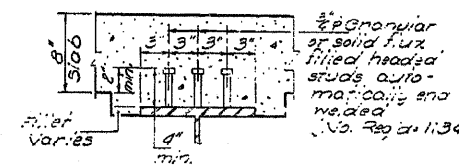
DIAPHRAGM D1 & D2

Note: Hardened washers shall be required over 1/2" holes in angles.

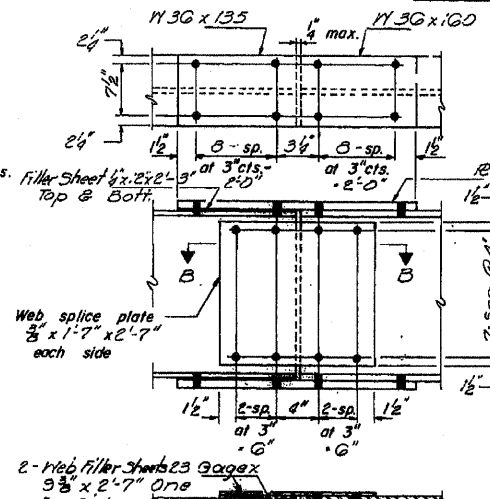
D1 - 35 Required
D2 - 55 Required

DESIGNED J. F. COLEMAN
CHECKED John A. Mow
DRAWN J. SCHWELLER

EXAMINED Carl E. Thompson
PASSED
APPROVED

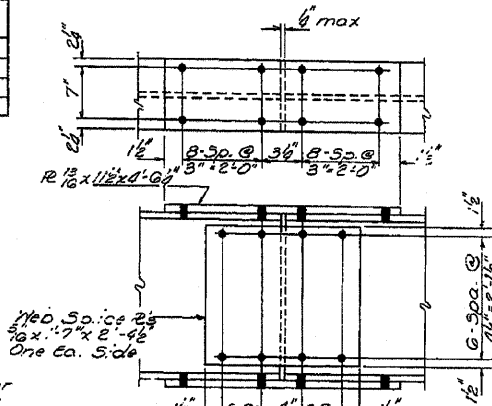


SECTION D-D

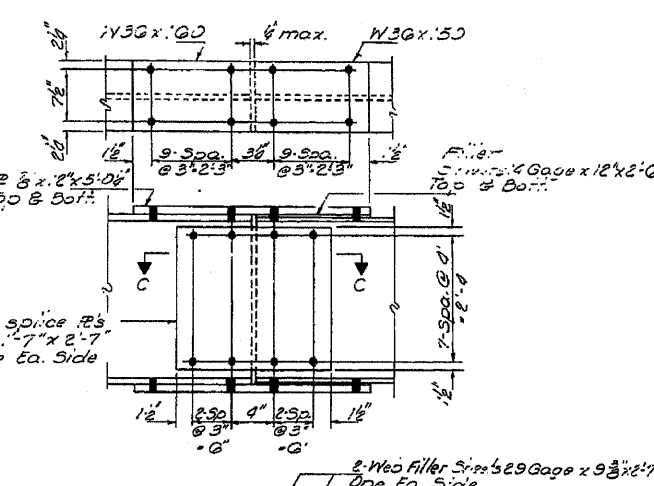


SECTION B-B

SPLICES #1 & #4 (Use 3/4" H.S. Bolts)



SPLICES #5 & #6 (Use 3/4" H.S. Bolts)



SECTION C-C

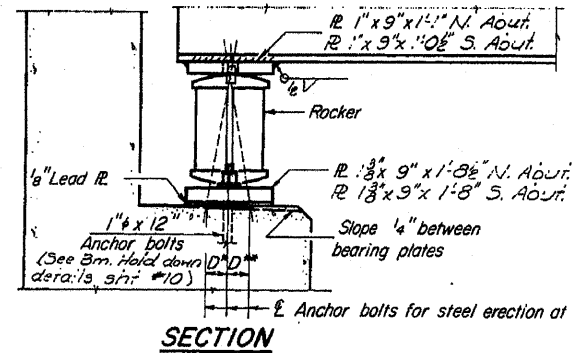
SPLICES #2 & #3 (Use 3/4" H.S. Bolts)

STRUCTURAL STEEL
F.A.R.T. 18 SEC. 106 BR
CARROLL COUNTY
STA. 54+77.0

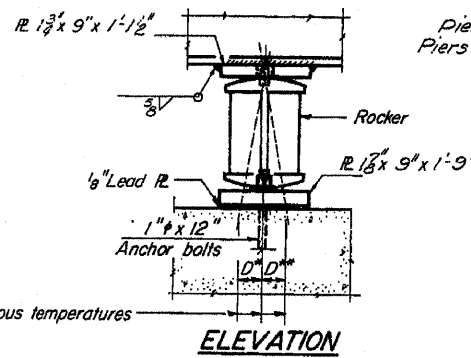
FOR INFORMATION ONLY

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

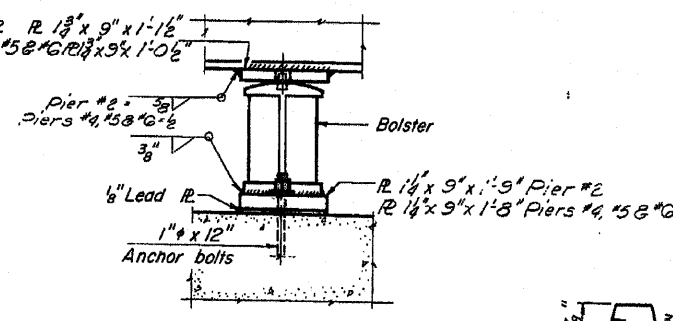
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
18	106BR	Carroll	46	28
SHEET NO. 11 19 SHEETS				



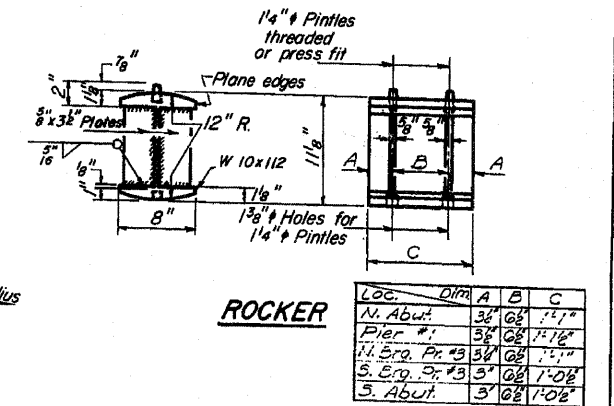
SECTION



ELEVATION

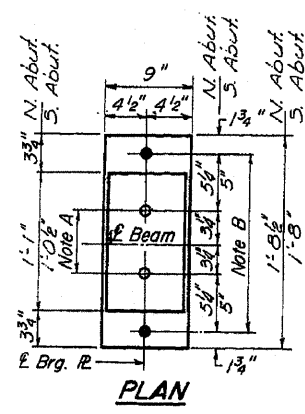


ELEVATION

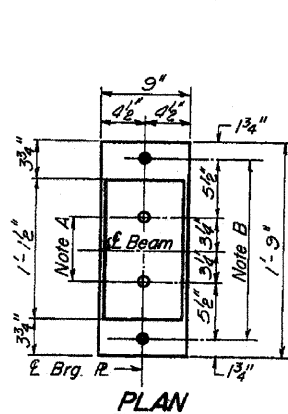


ROCKER

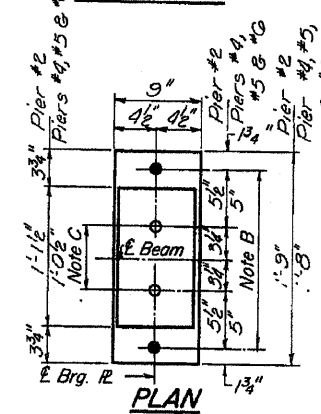
BOLSTER



PLAN AT ABUTMENT



PLAN AT PIER #1



PLAN AT PIERS #2, #4, #5 & #6

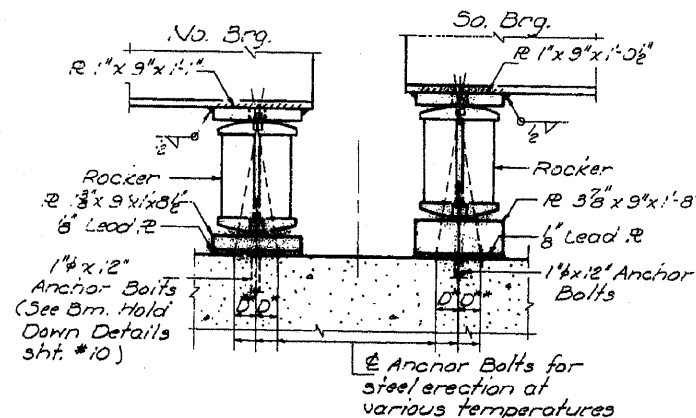
NOTE A
1 3/8" Holes - 1" deep in top R.
for pintles. Thread or press fit
pintles into bottom R.

NOTE B
1 1/2" Holes for 1" anchor bolts.
1 1/2 x 2 1/2 x 2 1/2 R. Washers
under nut.

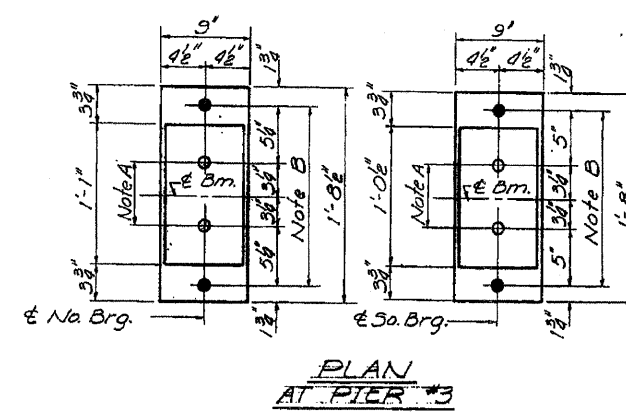
NOTE C
1 3/8" Holes 1" deep in top R.
only for 1 1/4" pintles.

NOTES ON SETTING OF ANCHOR BOLTS AT EXP. BRGS.

- a) D* (Side of brg. away from fixed brg.)
D* = 1/8" per each 100' of expansion for every 15° fall below the normal temp. of 50°F.
D** (Side of brg. toward fixed brg.)
D** = 1/8" per each 100' of expansion for every 15° rise above the normal temp. of 50°F.
- b) After beams have been erected and dimensions D* or D** determined, holes shall be drilled and anchor bolts shall be grouted in place. All fixed anchor bolts may be built into the masonry.



ELEVATION AT PIER #3



PLAN AT PIER #3

FOR INFORMATION ONLY

BEARING DETAILS
I.A. RT. 18 SEC. 106BR
CARROLL COUNTY
STA. 58+00.0

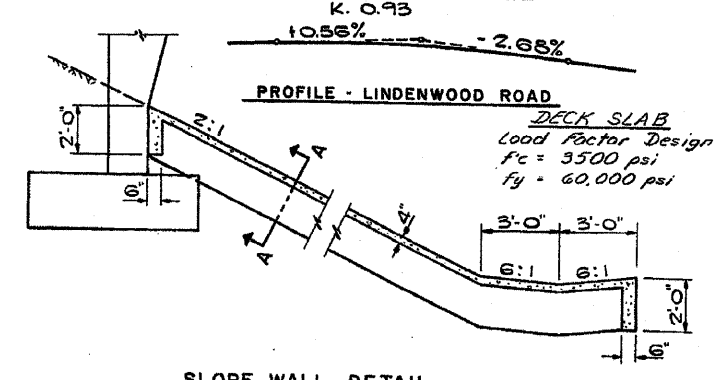
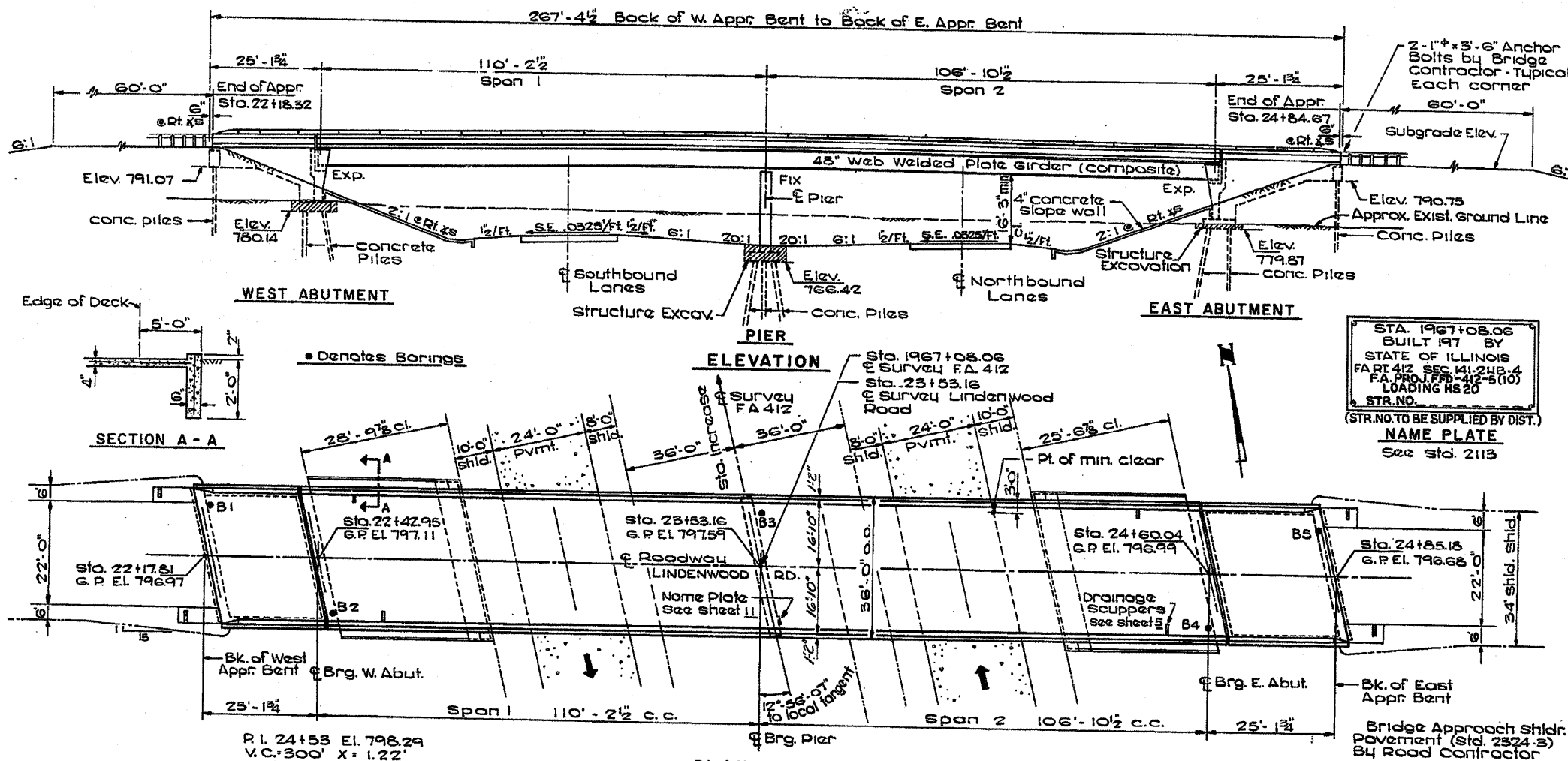
FILE NAME =	USER NAME = linkd	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	Bearings Structure No. 008-0028	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
G:\BR\Bridg Painting\Contract\PAINTING\64F89\PLANeng.dgn		DRAWN -	REVISED -			D2	Bridge Painting 2010-1	Various	18	10
PLDT SCALE = 50.0000 / IN.		CHECKED -	REVISED -							CONTRACT NO. 64F89
PLDT DATE = Wed Jan 28 08:27:30 2010		DATE -	REVISED -							ILLINOIS FED. AID PROJECT

BENCH MARK: P k washer in root of 36" tree, North of Lindenwood Road 56' Lt. Sta. 20+83 Elev. 785.15

071-0081

Deck slab reinforcement bars shall conform to AASHTO M31 or M53 Grade 60.

Federal Aid Route No.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA-412	141-2HB-4	OGLE	288	166
REP. ROAD DIST NO 7	ILLINOIS	PROJECT		



DESIGN LOADING
 HS 20-44 Allowance for 25 p.s.f. future wearing surface

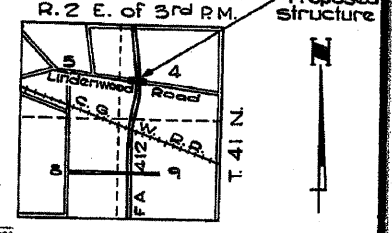
DESIGN STRESSES
 fc = 1400 psi Except as follows
 fc = 1000 psi Conc. in contact with earth
 fs = 20,000 psi AASHTO M163 Struct. Steel
 fs = 20,000 psi Reinforcement
 v = 75 psi allowable shear in footings
 v = 90 psi allowable shear in pier cap

BILL OF MATERIAL BRIDGE

Item	Unit	Sub.	Super.	Total
Structure Excavation	Cu.Yds.	172		172
Bituminous Conc. Surf. course, Mixture D, cl. I	Tons		79	79
Protective coat	Sq.Yds.		199	199
Class X Concrete	Cu.Yds.	234.2	335.8	570.0
Structural Steel	L.Sum		.17	.17
Aluminum Railing	Lin.Ft.		528	528
Concrete Piles	Lin. Ft.	1693		1693
Test Piles - Concrete	Ea.	3		3
Reinforcement Bars	Lbs.	28,550	78,900	107,450
Waterproofing Membrane System	Sq.Yds.		960	960
Preformed Joint Sealer 4"	Lin. Ft.		74	74
Name Plates	Ea.	1		1
Slope Wall 4"	Sq.Yds.	369		369
Stud Shear Connectors	Ea.		2280	2280
Sand Backfill	Cu.Yds.	233		233
Drainage Scupper	Ea.		4	4

GENERAL NOTES:
 All reinforcement bars shall be lapped 24 dia. unless otherwise shown.
 Fasteners shall be high strength bolts. Bolts 7/8"; open holes 1 1/8". Unless otherwise noted.
 * Calculated weight of structural steel = 289,140 lbs.
 The basic lead silica chromate paint system shall be used for shop and field painting of structural steel.
 Field welding of construction accessories will not be permitted to the bottom flange of the girders nor to the top flange, for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.
 Anchor bolts shall be set before bolting diaphragms over supports.
 Slope wall shall be reinforced with welded wire fabric 6" x 6" mesh, weighing 56 lbs. per 100 sq. ft.
 The Contractor shall drive one concrete test pile in a permanent location at the pier and each abutment as directed by the Engineer before ordering the remainder of piles.
 The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abuts.
 The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of class X concrete, except the aggregates shall conform to the requirements of Handrail Concrete.
 Protective coat shall not be applied to surfaces to which Waterproofing Membrane System is applied.
 Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two 6" adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.
 The main load carrying member components subject to the Supplemental Requirements for Notch Toughness are the Flanges, as designated on the girder Elevation, along with the webs and splice plates of the steel girders.
 For boring data see Special Provisions.
 Proposed structure R. 2 E. of 3rd P.M.

APPROVED
 FOR STRUCTURAL ADEQUACY ONLY

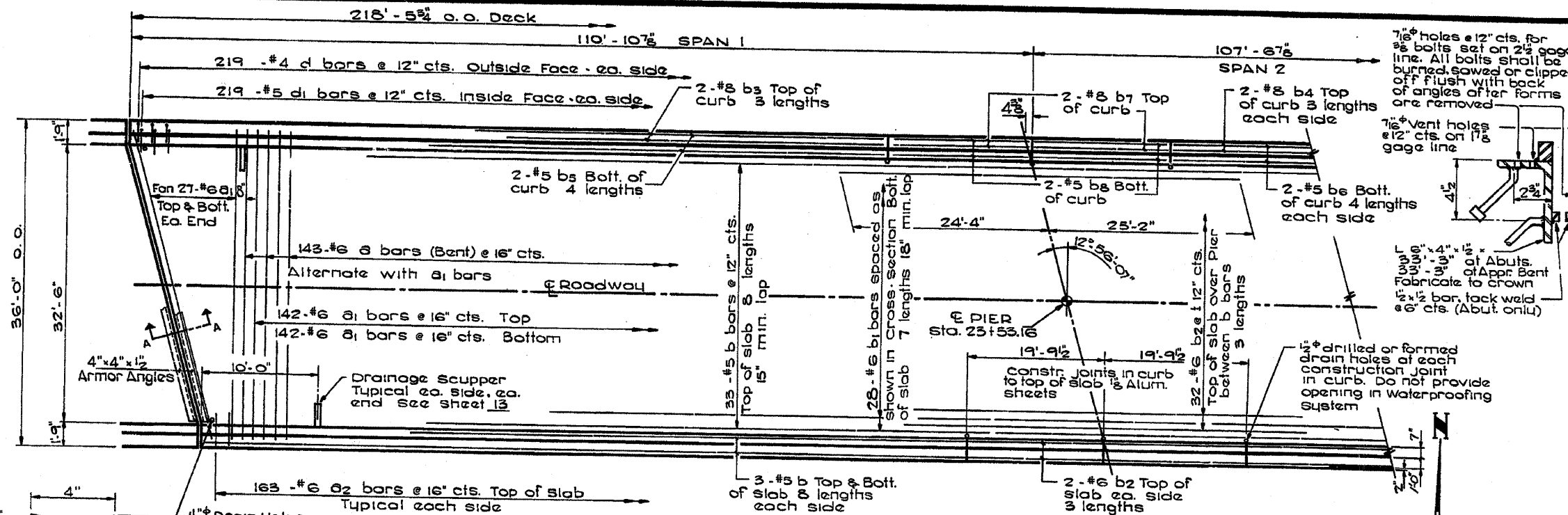


GENERAL PLAN & ELEVATION
 FA RTE. 412 SECTION 141-2HB-4
 LINDENWOOD ROAD (C.H. 20)
 OVER FA RTE. 412
 OGLE COUNTY
 STATION 1967 + 08.06

DESIGN BY
 R. THOMPSON
 DATE JULY 1975
 DRAWN BY
 R. RHODES
 DATE AUG. 1975
 CHECKED BY
 D. E. HUPPMAN
 DATE OCT. 1975
 APPROVED BY
 DATE

PREPARED BY
MISSMAN, STANLEY & ASSOCIATES
 CONSULTING ENGINEERS
 ROCK ISLAND, ILLINOIS

FOR INFORMATION ONLY

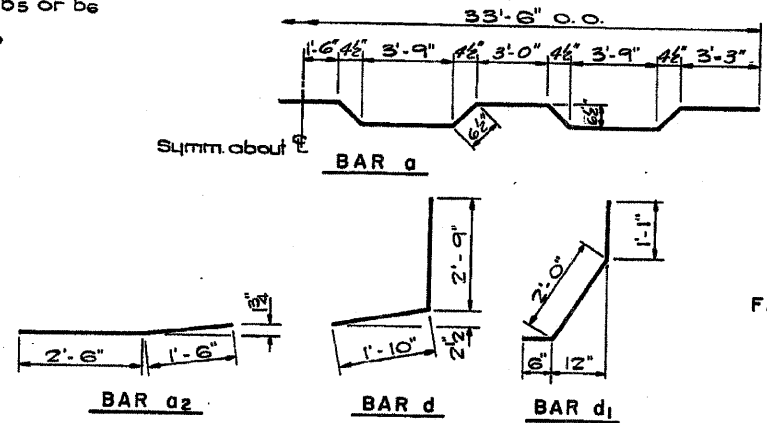
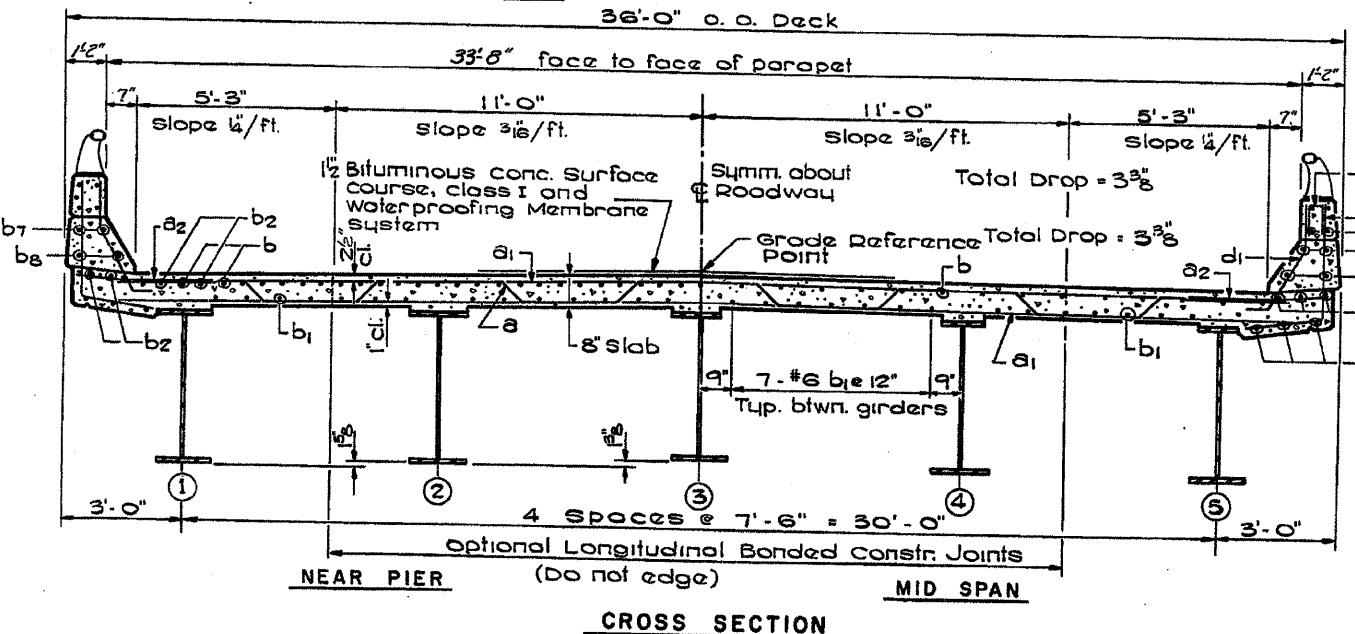
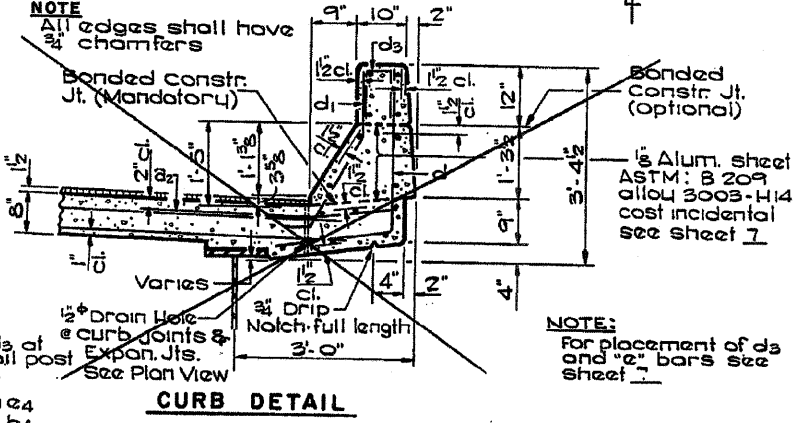
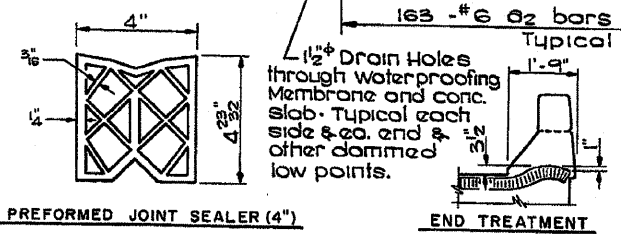


BILL OF MATERIAL

BAR NO.	SIZE	LENGTH	SHAPE
a	143 #6	34'-10"	U
a1	392 #6	32'-6"	U
a2	326 #6	4'-0"	U
b	360 #5	28'-6"	U
b1	196 #6	32'-7"	U
b2	96 #6	17'-6"	U
b3	12 #8	31'-8"	U
b4	12 #8	30'-6"	U
b5	16 #5	23'-9"	U
b6	16 #5	22'-10"	U
b7	8 #8	19'-6"	U
b8	8 #5	19'-6"	U
d	438 #4	4'-7"	J
d1	438 #5	3'-7"	J

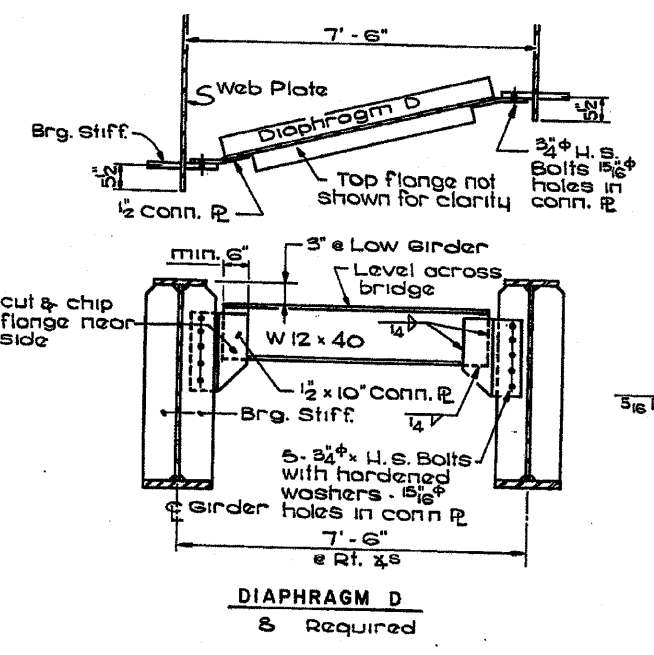
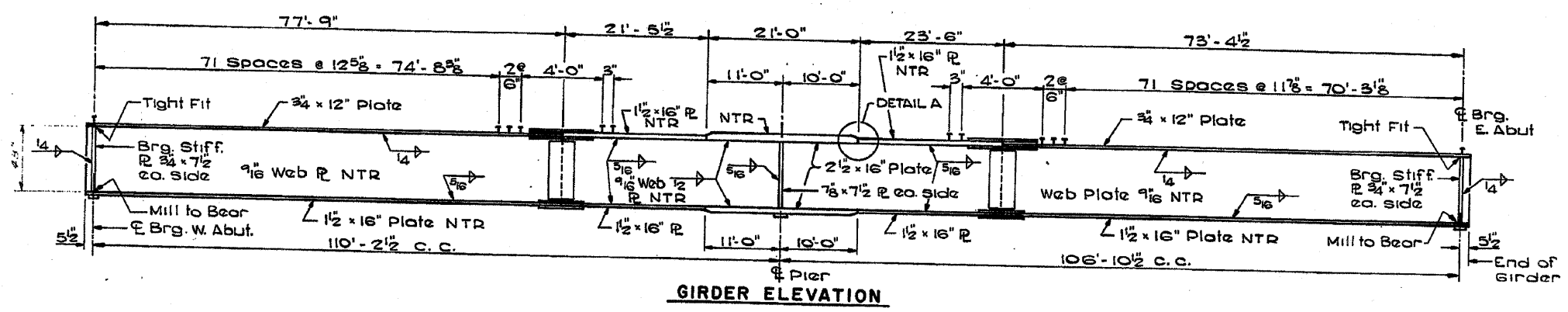
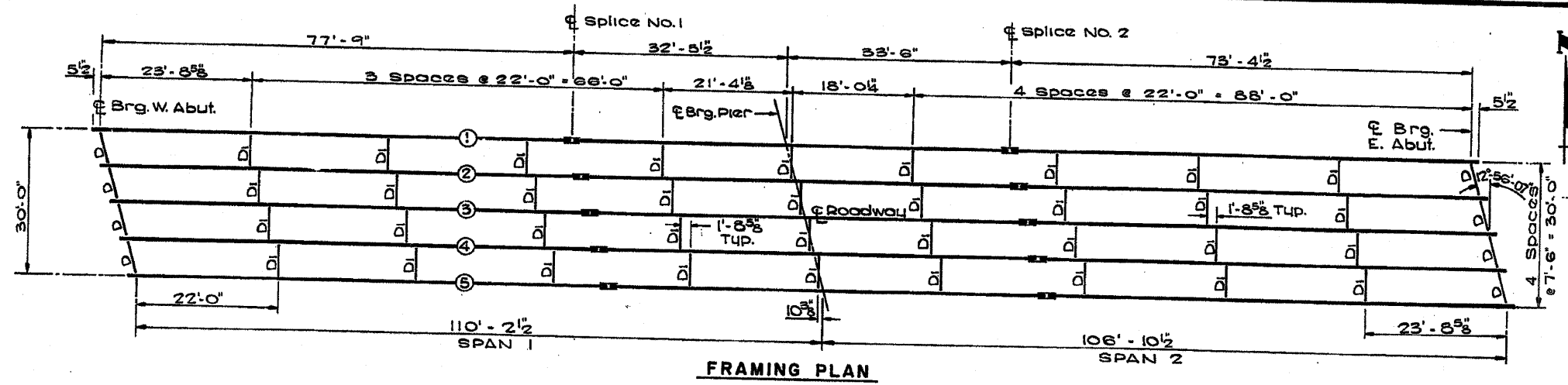
Class X Concrete cu. Yds. 234.4
 Reinforcement Bars Lbs. 58300

*Parapet reinforcement and class X concrete are billed on sheet 7

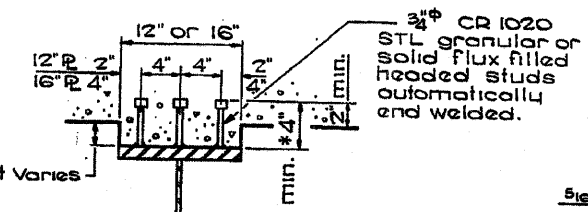
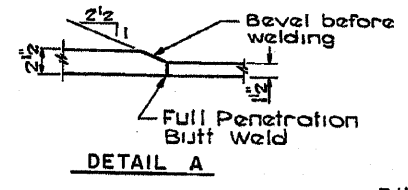


SUPERSTRUCTURE DETAILS
 FA RTE. 412 SECTION 141-2HB-4
 LINDENWOOD ROAD (C.H. 20)
 OVER FA RTE. 412
 OGLE COUNTY
 STATION 1967+08.06

FOR INFORMATION ONLY



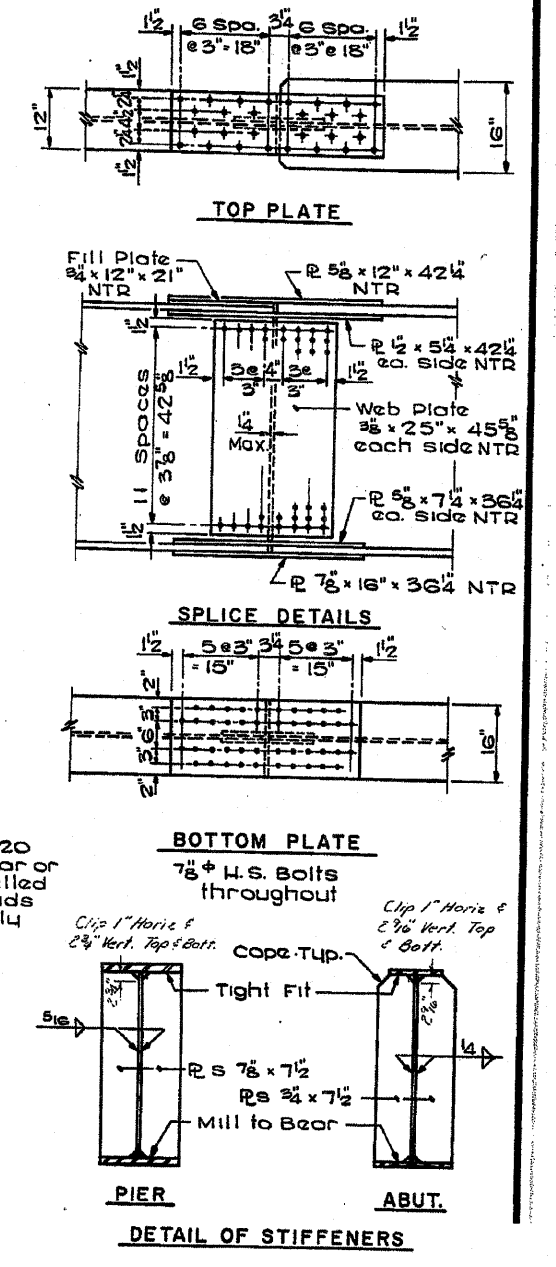
NTR indicates Notch Toughness Requirement



SHEAR CONNECTORS
456 Studs per girder
* Height of studs to be determined by field measurement to provide a minimum of 2" embedment above bottom face of slab.

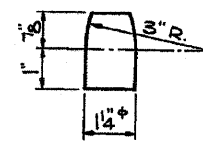
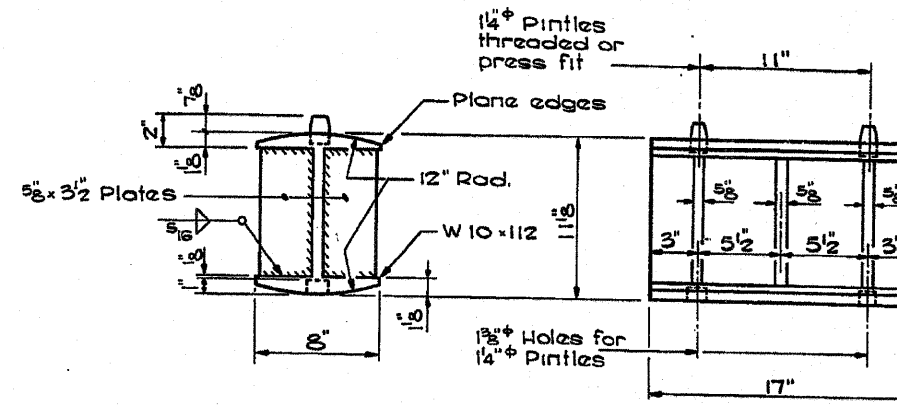
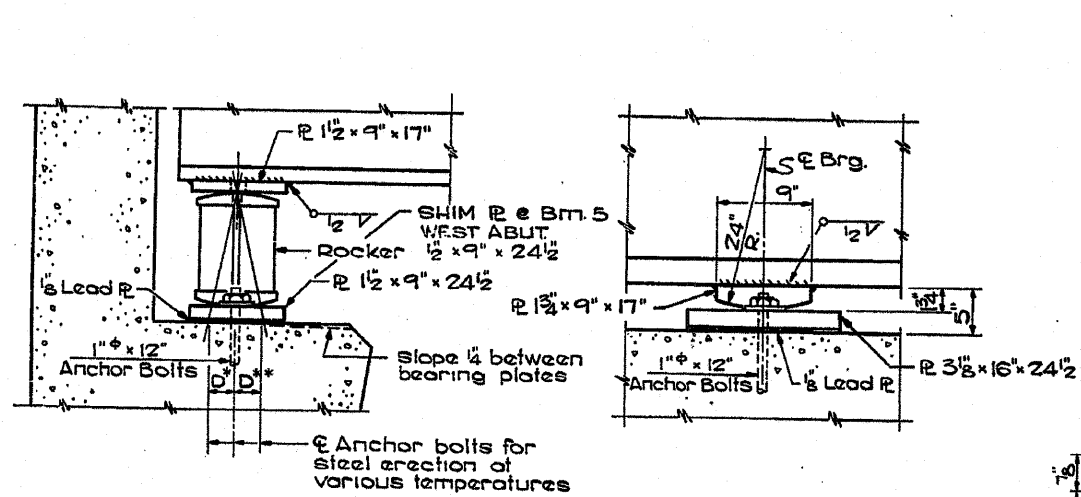
TOP OF WEB ELEVATIONS (For Fabricators Use Only)

Location	Bm. 1	Bm. 2	Bm. 3	Bm. 4	Bm. 5
Br. W. Abut.	795.922	796.070	796.197	796.090	795.961
Splice 1	796.307	796.451	796.575	796.165	796.332
Pier	796.315	796.453	796.571	796.454	796.316
Splice 2	796.323	796.455	796.566	796.443	796.299
Br. E. Abut.	795.864	795.984	796.080	795.944	795.786



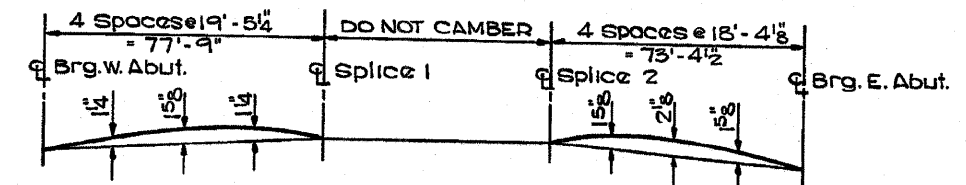
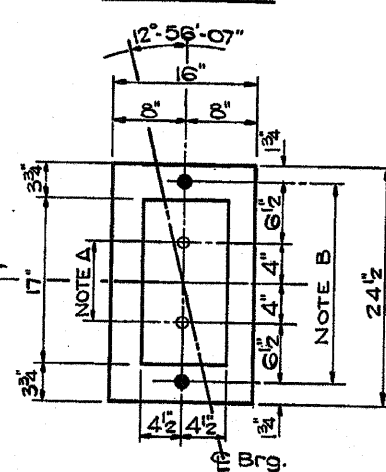
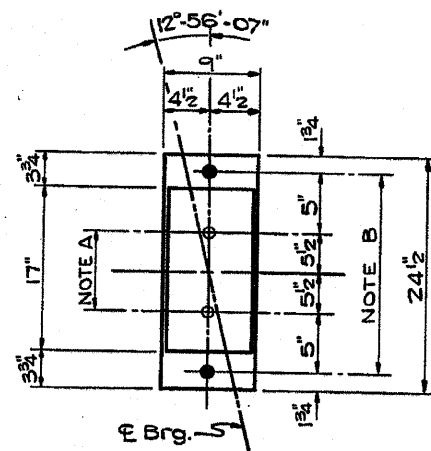
GIRDER DETAILS
FA RTE 412 SECTION 141-2HB-4
LINDENWOOD ROAD (C.H. 20)
OVER FA RTE. 412
OGLE COUNTY
STATION 1967+08.06

FOR INFORMATION ONLY



ELEVATION

ELEVATION



NOTE A
 1 3/8" Holes - 1" deep in top flange for 1/4" Pintles. Thread or press fit Pintles in bottom flange.

NOTE B
 1 1/2" Holes for 1" Anchor Bolts - 2 1/2" x 2 1/2" x 5/16" R washers under nut.

NOTES FOR SETTING OF ANCHOR BOLTS AT EXPANSION BEARINGS

- D^* (Side of brg. away from fixed brg.)
 $D^* = \frac{1}{8}$ per each 100' of expansion for every 15° fall below the normal temp. of 50° F.
 D^{**} (Side of brg. toward fixed brg.)
 $D^{**} = \frac{1}{8}$ per each 100' of expansion for every 15° rise above the normal temp. of 50° F.
- After beams have been erected and dimensions D^* & D^{**} determined, holes shall be drilled and anchor bolts shall be grouted in place. All fixed anchor bolts may be built into the masonry.

	0.4 Sp. 1	Pier
I_s (in. 4)	228.92	5618.9
I_c (in. 4)	6866.3	
S_s (in. 3)	1188.6	2120.3
S_c (in. 3)	1735.2	
M (K/1)	1.036	1.036
$M \phi$ (K)	784.0	-1849.6
$f_s \phi$ (ksi)	7.92	10.47
$s \phi$ (K/1)	0.493	.493
$M_s \phi$ (K)	457.8	-651.8
$M \phi$ (K)	965.2	-804.1
M_{imp} (K)	208.5	-173.7
Total (K)	1631.5	-1629.6
$f_s \phi + s \phi$ (ksi)	11.28	9.22
f_s Total (ksi)	19.20	19.69
VR (K)	56.5	

	Abut.	Pier
$R \phi$ (K)	61.7	212.0
$R \phi$ (K)	44.0	75.5
Imp. (K)	9.5	16.3
R Total (K)	115.2	303.8

I_s and S_s are the moment of inertia and section modulus of the steel section. I_c and S_c are the moment of inertia and section modulus of the composite section used in computing f_s . VR is the maximum $\frac{1}{2}$ + Impact range in span.

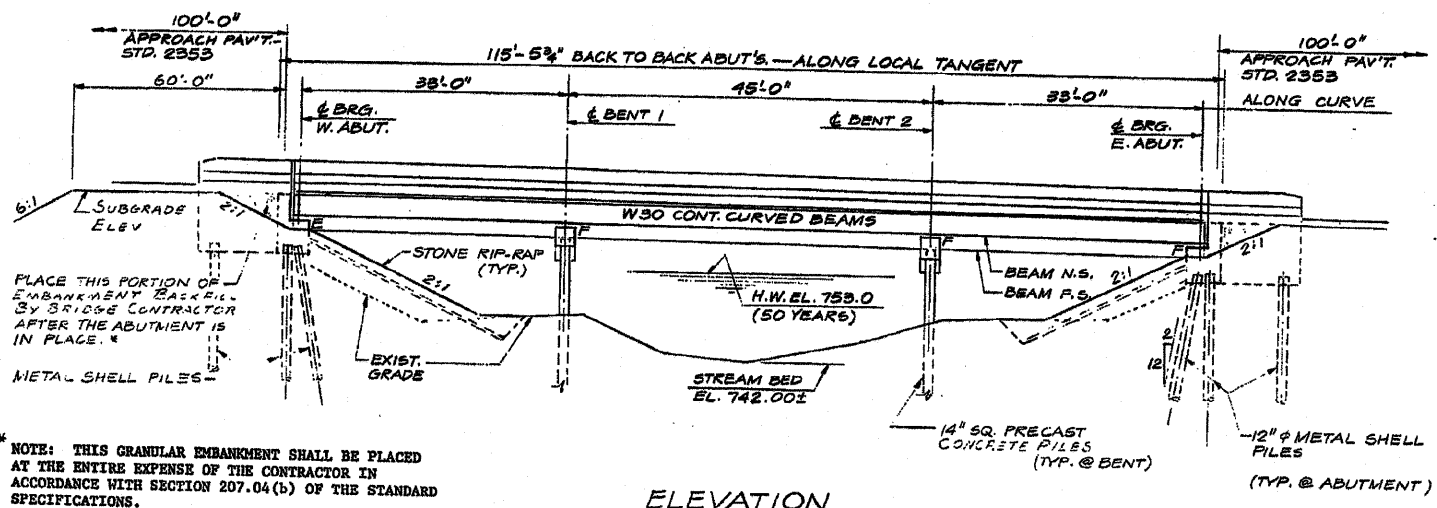
FOR INFORMATION ONLY

BEARING DETAILS
 FA RTE. 412 SECTION 141-2HB-4
 LINDENWOOD ROAD (C.H. 20)
 OVER FA RTE. 412
 OGLE COUNTY
 STATION 1967+08.06

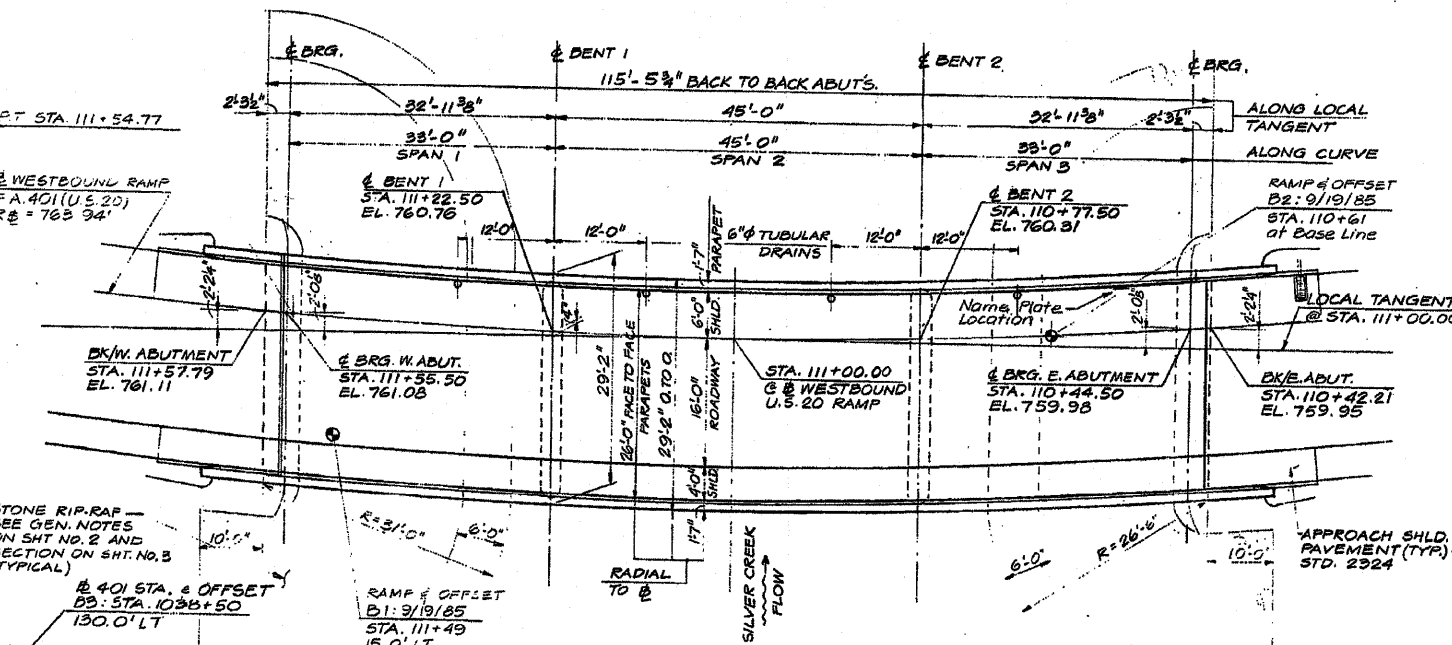
BRIDGE SHEET 9 OF 14

089-0060

STRUCTURE NO. 089-0060
 D.M. #1 ELEV. 749.71 - TOP OF FIN IN MAINLINE MEDIAN
 @ P.T. STA 104 +50.95
 PROPOSED BY-PASS RTE. 20



* NOTE: THIS GRANULAR EMBANKMENT SHALL BE PLACED AT THE ENTIRE EXPENSE OF THE CONTRACTOR IN ACCORDANCE WITH SECTION 207.04(b) OF THE STANDARD SPECIFICATIONS.



CURVE DATA
 WESTBOUND U.S. 20 RAMP
 P.I. STA. 109 +65.92
 $\Delta = 28^{\circ}-57'-39.60''$
 $D = 7^{\circ}-30'-0.13''$
 $R = 763.94'$
 $T = 197.29'$
 $L = 386.14'$
 $E = 25.06'$
 $SE = 0.08'/FT$ AND TRANS.
 FROM STA. 110+90.77
 TO STA. 112+82.77

STATION 111 + 00.0
 BUILT 198 BY
 STATE OF ILLINOIS
 F.A. ROUTE 401 SECTION 177-4B-3
 F.A. PROJECT F-401-2(21)
 LOADING HS 20
 STRUCTURE NO. 089-0060

NAME PLATE

WATERWAY INFORMATION

DRAINAGE AREA = 12.8 SQ. MI. LOW GRADE EL. 759.26 @ STA. 109+00

FLOOD	FREQ. YR.	Q. C.F.S.	OPENING SQ. FT.	NAT. EXIST.	PROP.	NAT. H.W.A.	EXIST.	PROP.	HEAD-FT. EXIST.	HEAD-FT. PROP.	HEADWATER EL.
DESIGN	50	3111	-	671	671	753.0	-	0.39	-	-	753.39
BASE	100	3581	-	672	672	753.0	-	0.51	-	-	753.51
OVERTOPPING											
MAX. CALC.	500	4687	-	673	673	753.0	-	0.88	-	-	754.88

* NOTE: ABNORMAL STAGE WITH PECATONICA 10 YEARS DISCHARGE

DESIGN DATA

DESIGN SPECIFICATIONS
 A.A.S.H.T.O. 1983 STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES AND 1984 INTERIM CONSTRUCTION SPECIFICATIONS

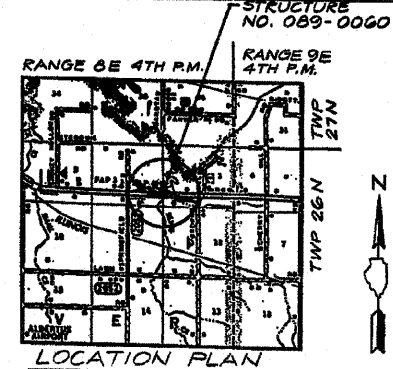
LOADING CRITERIA
 LIVE LOAD: HS 20-44
 DEAD LOAD: CALCULATED WEIGHT OF STRUCTURE PLUS 25 P.S.F. FOR FUTURE WEARING SURFACE.

DESIGN STRESSES
 $f'_c = 3,500$ P.S.I.
 $f_y = 60,000$ (REINF. BARS)
 STRUCTURAL STEEL AASHTO M183
 $f_y = 36,000$ P.S.I.

NON-COMPOSITE 3-SPAN

SHEET NO. 1 OF 14 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
401	177-4B-3	STEPHENSON	119	44



APPROVED FOR STRUCTURAL ADMIN. ONLY
James J. Rayburn
 REGISTERED STRUCTURAL ENGINEER

ZEVEL BERMAN
 REGISTERED STRUCTURAL ENGINEER
 STATE OF ILLINOIS NO. 2092
 DATE _____

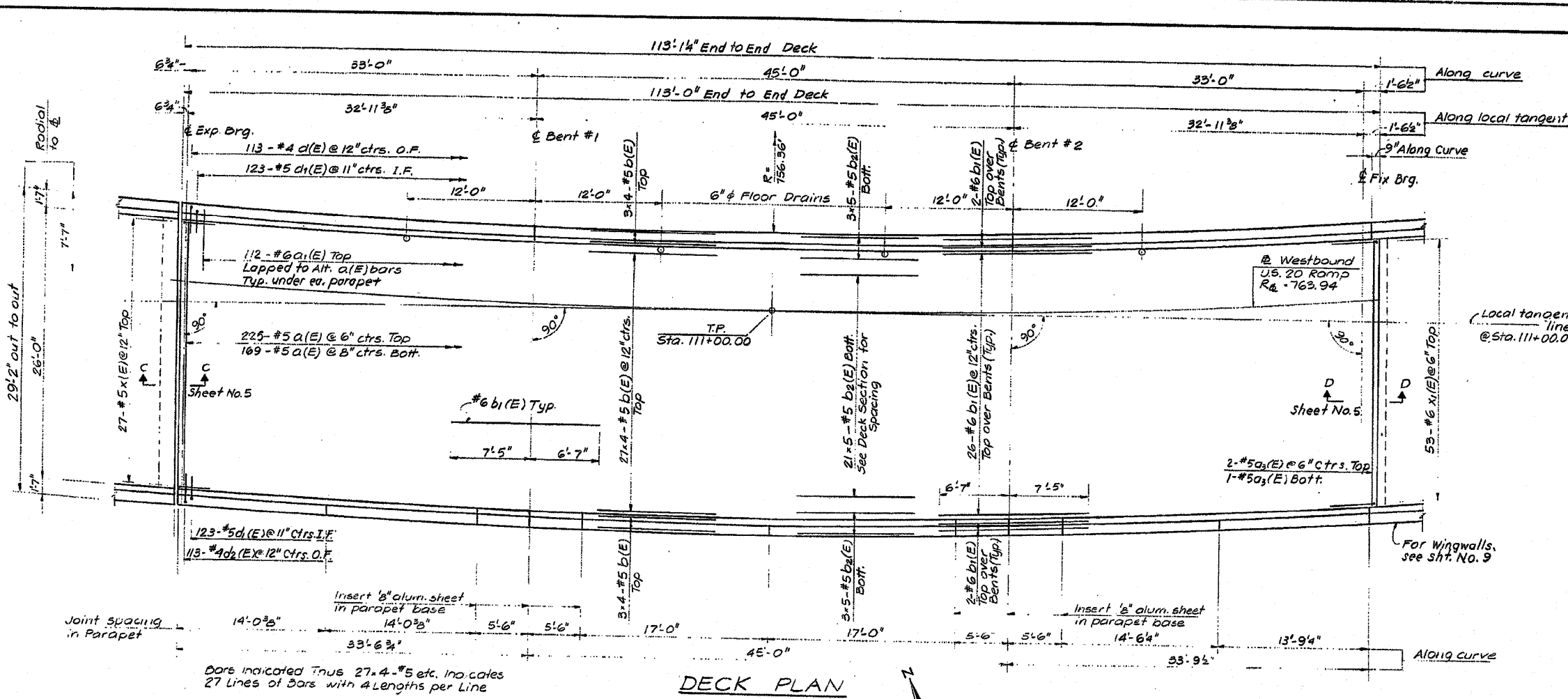
ILLINOIS DEPARTMENT OF TRANSPORTATION
 DISTRICT 2
 GENERAL PLAN AND ELEVATION
 WESTBOUND RAMP
 STEPHENSON COUNTY, SECTION 177-4B-3
 F.A. 401 OVER SILVER CREEK
 STA. 111+00.00

REVISIONS

NAME	DATE

FOR INFORMATION ONLY

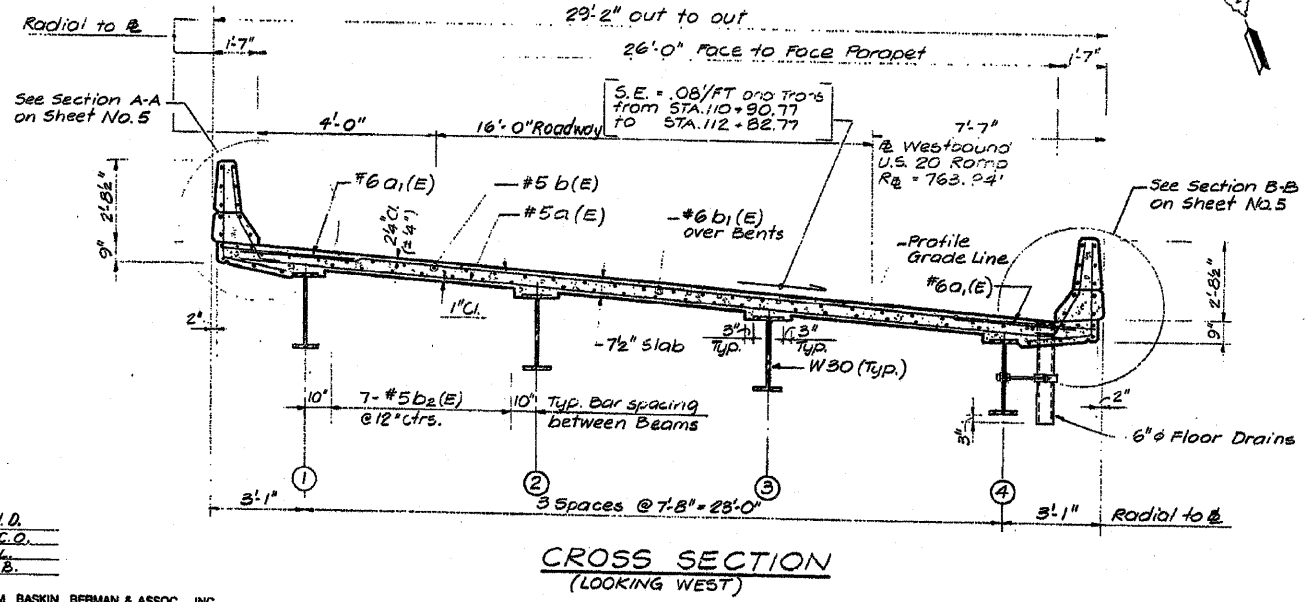
SHEET NO. 4		TOTAL SHEETS 14	
SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
401 I77-4B-3	STEPHENSON	119	47
STA.	TO STA.		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT	



BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
a (E)	394	#5	27'-4"	—
a ₁ (E)	224	#6	4'-0"	—
a ₂ (E)	3	#5	25'-10"	—
b (E)	132	#5	29'-10"	—
b ₁ (E)	60	#6	14'-0"	—
b ₂ (E)	135	#5	24'-4"	—
b ₃ (E)	4	#5	27'-8"	—
b ₄ (E)	8	#5	17'-11"	—
b ₅ (E)	4	#5	27'-11"	—
b ₆ (E)	16	#5	5'-2"	—
b ₇ (E)	4	#8	27'-8"	—
b ₈ (E)	8	#8	18'-7"	—
b ₉ (E)	4	#8	27'-11"	—
b ₁₀ (E)	16	#8	5'-2"	—
c (E)	113	#4	3'-3"	L
c ₁ (E)	246	#5	3'-11"	L
c ₂ (E)	113	#4	5'-3"	L
e (E)	24	#4	13'-8"	—
e ₁ (E)	48	#4	5'-2"	—
e ₂ (E)	24	#4	16'-8"	—
e ₃ (E)	12	#4	14'-2"	—
e ₄ (E)	12	#4	13'-5"	—
x (E)	27	#5	4'-1"	—
x ₁ (E)	53	#6	5'-8"	—

ITEM	UNIT	QUANT.
Class X Concrete	Cu. Yd.	103.2
Reinf. Bars (Epoxy Coated)	Lbs.	26 370
Preformed Joint Seal, 4"	Lin. Ft.	30
Floor Drains	Each	4



FOR INFORMATION ONLY

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 2
RAMP DECK PLAN & SECTION
WESTBOUND RAMP
STEPHENSON COUNTY, SECTION I77-4B-3
F. A. 401 OVER SILVER CREEK
STA. 111+00.00

DESIGNED BY: J.D.
DRAWN BY: A.C.O.
CHECKED BY: D.L.
DATE: 2.8.

NELSON OSTROM BASKIN BERMAN & ASSOC., INC.
CONSULTING ENGINEERS
PARK RIDGE, ILLINOIS

FILE NAME = G:\BRV\Bridg\Painting\Contract\PAINTING\64F89\PLANeng.dgn	USER NAME = linkdj	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	Deck Plan & Section Structure No. 089-0060	F.A. RTE. =	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT SCALE = 5/8" = 1' / IN.	CHECKED -	REVISED -	D2 Bridge Painting 2010-			Various	18	16		
PLOT DATE = Wed Jan 20 08:26:17 2010	DATE -	REVISED -	CONTRACT NO. 64F89							
						ILLINOIS FED. AID PROJECT				

BEAM	RADIUS
(1)	782.440'
(2)	774.773'
(3)	767.107'
(4)	759.440'

NOTE:
 All beams shall be fabricated to their respective radii given in the table

		INTERIOR BEAM MOMENT TABLE			
		4 SPAN 1 OR .6 SPAN 3	BENT 1 or 2	.5 SPAN 2	
PRIMARY LOADING	I_s	(in. ⁴)	4470	4470	4470
	S_s	(in. ³)	299	299	299
	Z	(in. ³)	346	346	346
	ϕ	(K/I)	.86	.86	.86
	$M\phi$	(K)	58.1	-135.5	82.1
	$S\phi$	(K/I)	.38	.38	.38
	$M_s\phi$	(K)	25.6	-59.9	36.2
	$M\phi$	(K)	187.7	-166.9	220.8
	M_{imp}	(K)	56.3	-50.0	64.9
	$\phi_s(M\phi+I)$	(K)	406.7	361.5	476.2
	M_a	(K)	637.5	724.0	772.9
	M_u	(K)	1040	1040	1040
	$f_s\phi$	(K.S.I.)	2.33	5.44	3.30
	$f_s s\phi$	(K.S.I.)	1.03	2.40	1.45
	$f_s \phi_s(L+I)$	(K.S.I.)	16.32	14.51	19.11
$f_s(overload)$	(K.S.I.)	19.63	22.35	23.86	
$f_s(total)$	(K.S.I.)	25.59	29.06	31.02	
TORQUE LOADING	$M\phi+s\phi$	(K)	3.2	2.5	7.4
	$M\phi$	(K)	9.8	9.8	17.4
	M_{imp}	(K)	2.9	2.9	5.1
	$\phi_s(M\phi+I)$	(K)	21.2	21.2	37.5
	M_a	(K)	31.7	31.2	58.4
	$f_w\phi+s\phi$	(K.S.I.)	0.13	0.11	0.30
	$f_w \phi_s(L+I)$	(K.S.I.)	0.85	0.85	1.50
	$f_w(overload)$	(K.S.I.)	0.92	0.96	1.80
	$f_w(total)$	(K.S.I.)	1.22	1.25	2.34
	$f_s+f_w(overload)$	(K.S.I.)	20.66	23.60	25.66
$f_s+f_w(total)$	(K.S.I.)	26.87	30.31	33.36	

I_s and S_s are the moment of inertia and section modulus of the steel section used in computing f_s and/or f_w (total and overload)

Z is the plastic section modulus used to determine the Fully Plastic Moments

M_a (Applied Moment) = $1.3 [M_D + M_D + 5 (M_L + I)]$

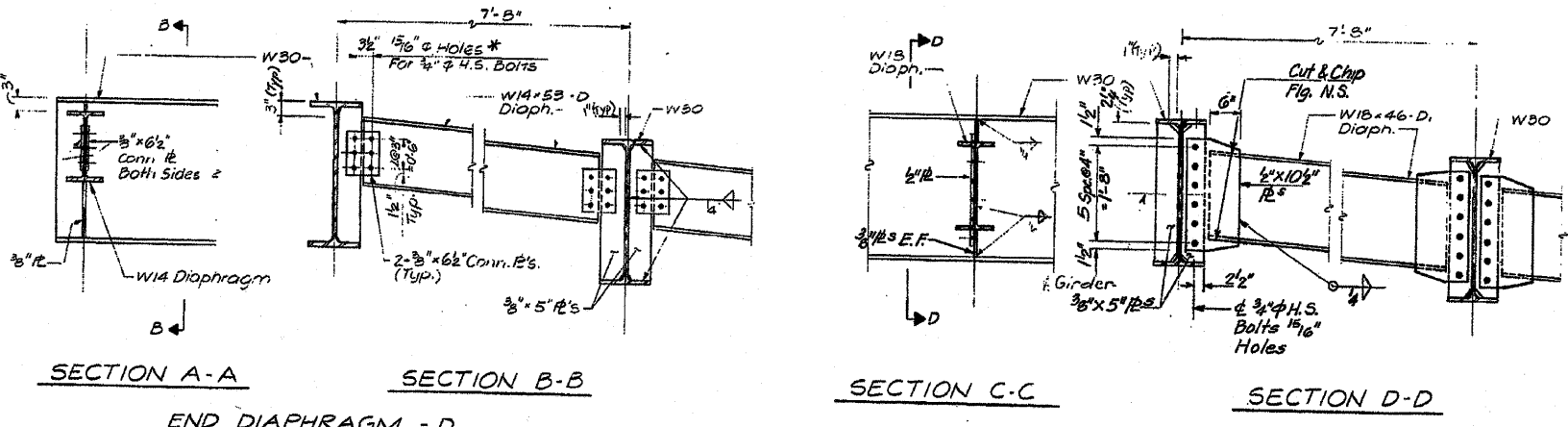
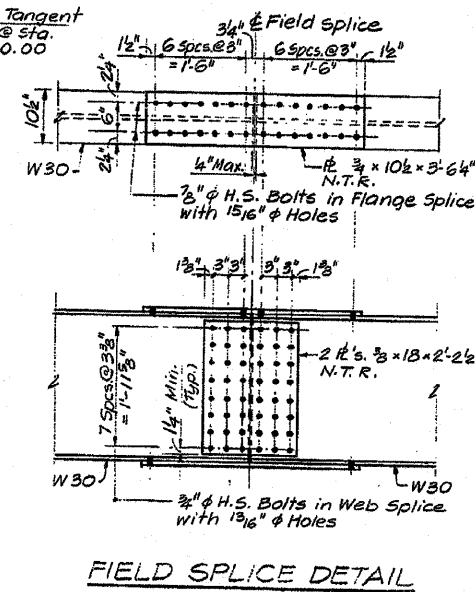
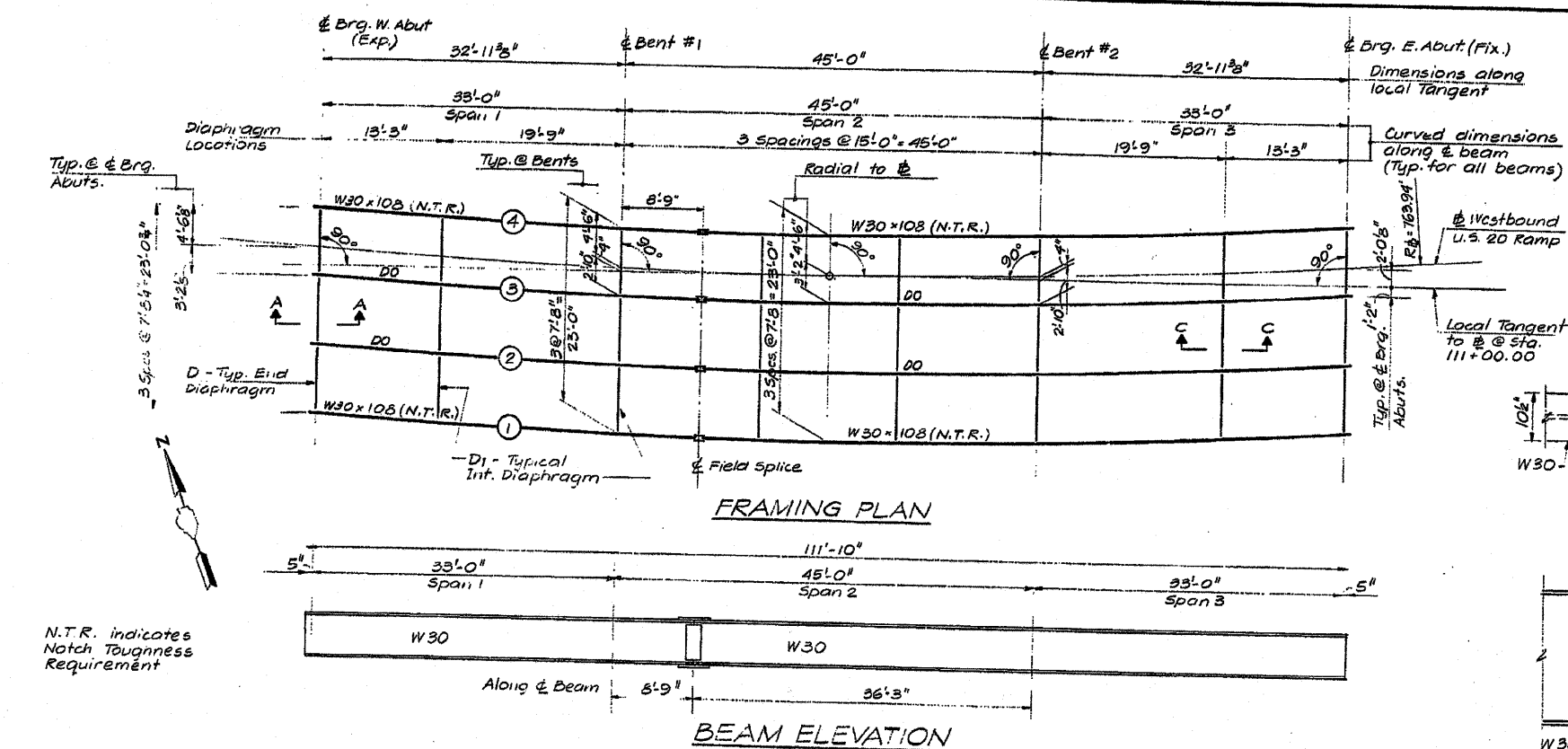
M_u is the Full Plastic Moment Capacity for Compact, Braced section.

f_s and/or f_w (Overload) is the sum of the stresses due to $M_D + M_D + 5 (M_L + I)$

f_s and/or f_w (Total) is the sum of the stresses due to $1.3 [M_D + M_D + 5 (M_L + I)]$

f_w is the warping normal stress

	ABUTMENT	BENT
$R\phi$	14.4	54.0
$R\phi$	33.9	45.3
Imp.	10.2	13.6
R Total	58.5	112.9



WESTBOUND RAMP					
TOP OF BEAM ELEVATIONS (FOR FABRICATION ONLY)					
LOCATION	BRGS WESTABUT	BRGS BENT #1	SPLICE	BRGS BENT #2	BRGS EASTABUT
4	760.18	759.71	759.59	759.25	758.94
3	760.58	760.22	760.13	759.83	759.56
2	760.99	760.73	760.67	760.41	760.18
1	761.39	761.25	761.21	760.99	760.80

* NOTE: Two hardened washers shall be required over all 15/16" holes.

FOR INFORMATION ONLY

DESIGNED BY J.D.
 CHECKED BY Z.B.
 DRAWN BY D.L.
 CHECKED BY B.C.O.

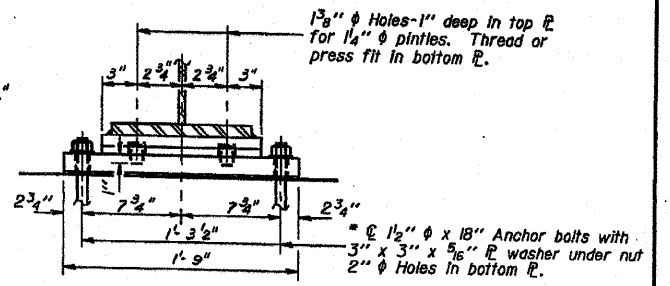
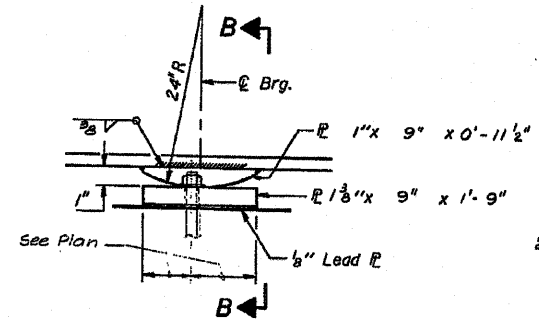
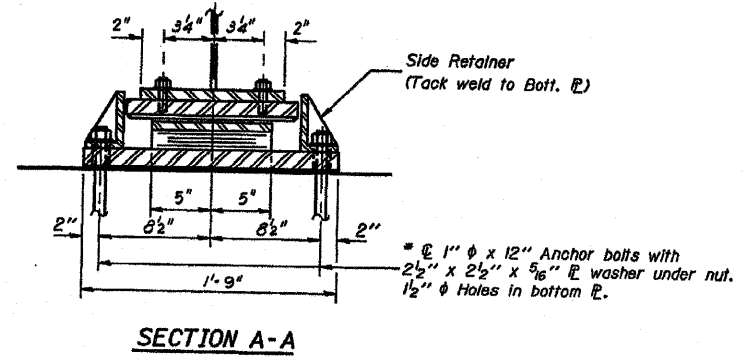
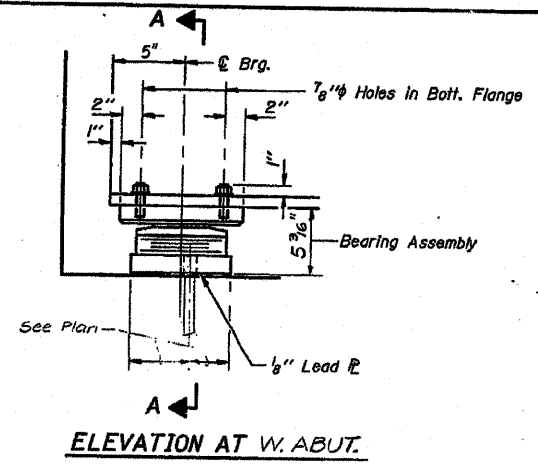
NELSON OSTROM BASKIN BERMAN & ASSOC., INC.
 CONSULTING ENGINEERS
 PARK RIDGE, ILLINOIS

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 DISTRICT 2
 FRAMING PLAN & DETAILS
 STEPHENSON COUNTY, SECTION 177-4B-3
 F.A. 401 RAMP OVER SILVER CREEK
 STA. 111+00.00

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

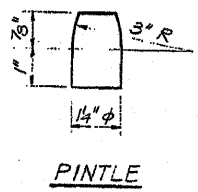
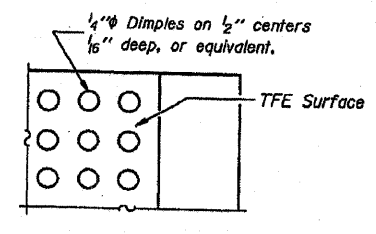
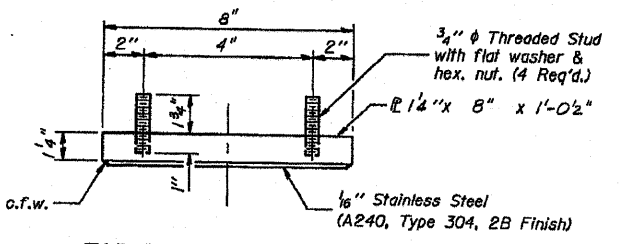
SHEET NO. 8	F.A. DIST. 401	SECTION 177-4B-3	COUNTY STEPHENSON	TOTAL SHEETS 119	SHEET NO. 51
14 SHEETS	STA. 111+00.00	TO STA.	ILLINOIS	FED. AID PROJECT	



TYPE II TFE ELASTOMERIC EXP. BRG.

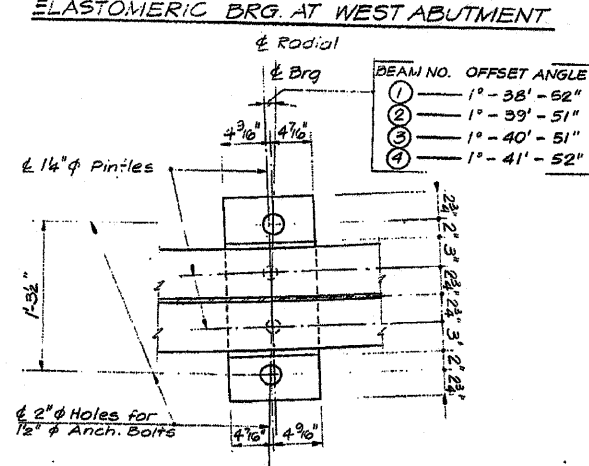
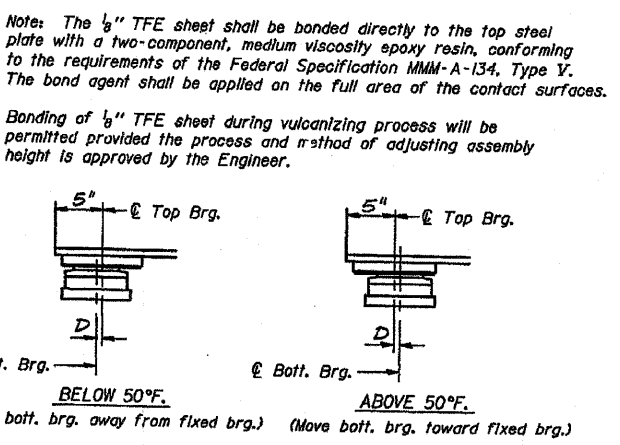
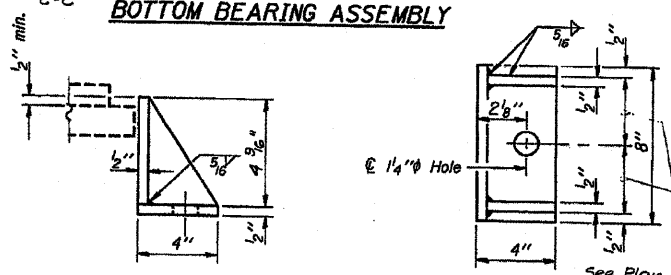
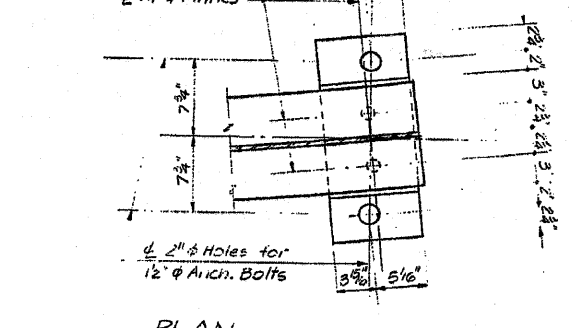
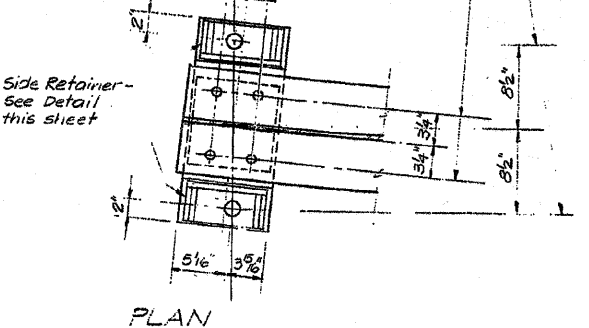
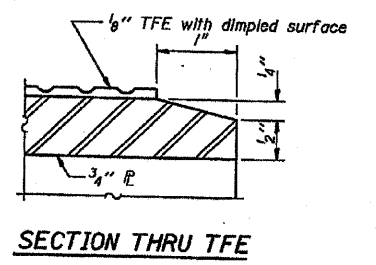
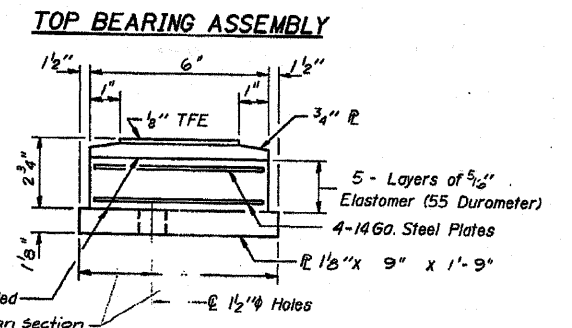
* Notes: Anchor bolts of fixed bearings may be built into the masonry. See sheet #9 for Anchor Bolt Installation.

FIXED BEARING



BEAM NO.	OFFSET	ANGLE
1	4'-08'-49"	
2	4'-06'-14"	
3	4'-08'-42"	
4	4'-11'-13"	

BEAM NO.	OFFSET	ANGLE
1	4'-08'-49"	
2	4'-06'-14"	
3	4'-08'-42"	
4	4'-11'-13"	



BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type II	Each	4

DESIGNED J.D.	EXAMINED
CHECKED B.C.O.	PASSED

REVISIONS

NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 2
BEARING DETAILS
STEPHENSON COUNTY, SECTION 177-4B-3
F.A. 401 RAMP OVER SILVER CREEK
STA. 111+00.00
SCALE: VERT. _____
HORIZ. _____
DATE _____

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